CONFIGURATION & PROGRAMMING MANUAL

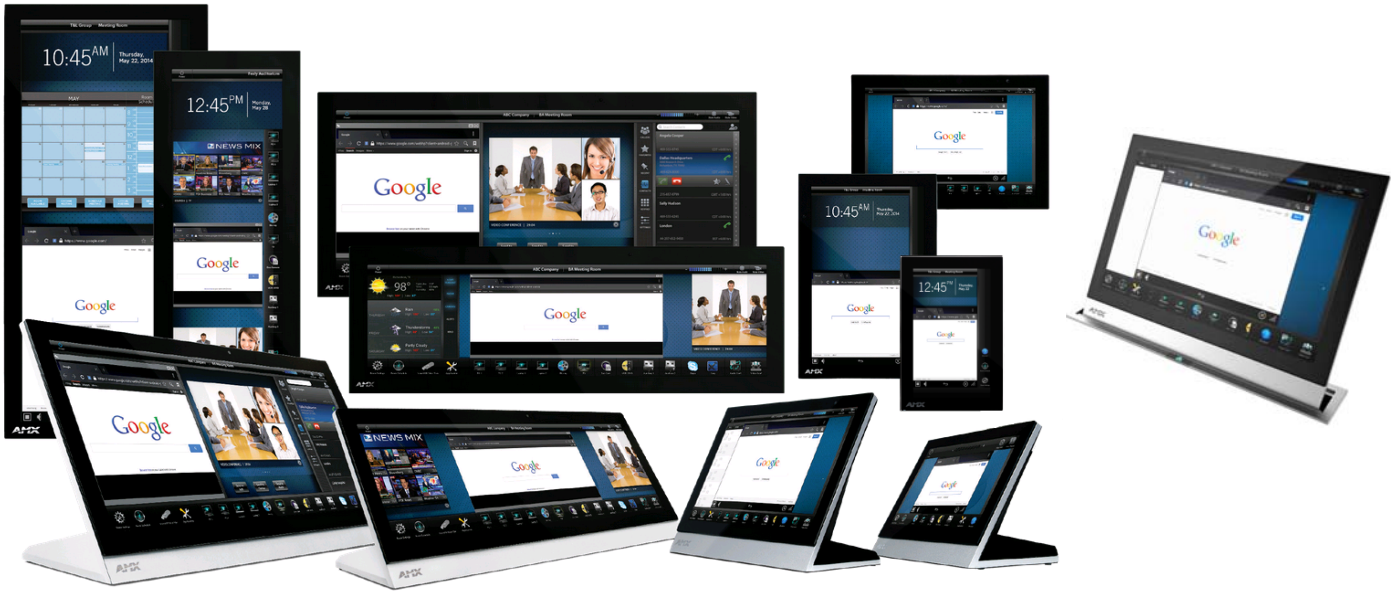
MODERO X® SERIES G5 TOUCH PANELS

MODERO X® SERIES G5 RETRACTABLE TOUCH PANEL:

MXR-1001

MODERO X® SERIES G5 TOUCH PANELS:

MXT/D-2001-PAN
MXT/D-1901-PAN
MXT/D-1001
MXT/D-701



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IMPORTANT SAFETY INSTRUCTIONS

1. READ these instructions.
2. KEEP these instructions.
3. HEED all warnings.
4. FOLLOW all instructions.
5. DO NOT use this apparatus near water.
6. CLEAN ONLY with dry cloth.
7. DO NOT block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. DO NOT install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. DO NOT defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. PROTECT the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. ONLY USE attachments/accessories specified by the manufacturer.

12. USE ONLY with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. UNPLUG this apparatus during lightning storms or when unused for long periods of time.
14. REFER all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. DO NOT expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
16. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
17. Where the mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.
18. DO NOT overload wall outlets or extension cords beyond their rated capacity as this can cause electric shock or fire.

The exclamation point, within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.

ESD Warning: The icon to the left indicates text regarding potential danger associated with the discharge of static electricity from an outside source (such as human hands) into an integrated circuit, often resulting in damage to the circuit.

WARNING: To reduce the risk of fire or electrical shock, do not expose this apparatus to rain or moisture.
WARNING: No naked flame sources - such as candles - should be placed on the product.
WARNING: Equipment shall be connected to a MAINS socket outlet with a protective earthing connection.
WARNING: To reduce the risk of electric shock, grounding of the center pin of this plug must be maintained.

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Modero X Series G5 Configuration & Programming

Overview

The Modero X® Series G5 line of touch panels is the next generation in touch panel design, control and functionality. Each Modero X Series G5 touch panel shares basic programming functionality with the other G5 products, whether a tabletop, portrait, or landscape panel. In order to assist programmers and developers with designing the perfect project, each Modero X Series G5 touch panel shares the following features:

- A common arrangement of *Settings* pages that allow easy configuration of new panels into a new or existing network (see the *Settings Menu* section on page 20).
- Mutual NetLinx programming commands for the panel gestures supported by the Modero X Series G5 product line
- Mutual NetLinx programming commands for other touch panel functions (see the *Programming - Send Commands* section on page 87).
- Ability to support applications (apps), such as a web browser or Skype, to enhance the functionality of the control surface

For more information on designing touch panel pages that optimize the Modero X Series G5 experience, please refer to the *TPDesign5 Instruction Manual* and the *G5 Considerations Guide*, both available at **www.amx.com**.

The Modero X Series G5 touch panels covered in this document are listed below:

Modero X Series G5 Touch Panels		
MXT-2001-PAN	FG5968-35	20.3" Modero X Series G5 Panoramic Tabletop Touch Panel
MXD-2001-PAN-P/L	FG5968-36/37	20.3" Modero X Series G5 Panoramic Wall Mount Touch Panel - Portrait/Landscape
MXT-1901-PAN	FG5968-41	19.4" Modero X Series G5 Panoramic Tabletop Touch Panel
MXD-1901-PAN-P/L	FG5968-42/43	19.4" Modero X Series G5 Wall Touch Panel - Portrait/Landscape
MXT-1001	FG5968-47	10.1" Modero X Series G5 Tabletop Touch Panel
MXD-1001-P/L	FG5968-48/49	10.1" Modero X Series G5 Wall Panel - Portrait/Landscape
MXT-701	FG5968-53	7" Modero X Series G5 Tabletop Touch Panel
MXD-701-P/L	FG5968-54/55	7" Modero X Series G5 Wall Touch Panel - Portrait/Landscape
Also covered in this document is the MXR-1001 10.1" Modero X Series G5 Retractable Touch Panel. The MXR-1001 / 10.1" Modero X Series G5 Retractable Touch Panel can be mounted within the table such that it is flush with the table when not in use. The motorized mount raises and retracts the panel with the press of a button or via NetLinx control:		
MXR-1001-BL/SL	FG5968-56/57	10.1" Modero X Series G5 Retractable Touch Panel - Black/Silver

NOTE: *The MXR-1001 Modero X Series G5 Retractable Touch Panels have several features that are specific to raising and lowering the panel. Refer to the MXR-1001 Retractable Touch Panels* section on page 16 *for details.*

Transitioning from G4 to G5

The G5 platform is a new operating system for Modero X Series touch panels. Existing TPDesign4 files are not compatible with G5 touch panels. TPDesign5 is required to design touch panel files for G5 systems, and is available for download at **www.amx.com**.

NOTE: *For information on Configuring and Programming X Series G4 touch panels, refer to the Modero G4 Configuration and Programming Guide (available at www.amx.com).*

TPDesign5 is similar in look and feel to TPDesign4 and can be installed concurrently with TPDesign4 to enable the developer to design for both G4 and G5 systems at the same time. TPDesign5 also contains a utility called *G4Utility*, that converts existing TPD4 files to TPD5-formatted files.

While G4Utility converts the bulk of a TPD4 file to a format usable in TPD5. Some tweaking of the converted TPD5 file may still be necessary afterwards.

NOTE: *For more information on transitioning from the G4 platform to G5, please refer to the AMX G5 Considerations white paper, available at www.amx.com.*

Using the "Pipe" (|) Character

Previously, in G4, the pipe character (|) was used to create a new line.

G5 uses carriage return / line feed ($0d,$0a) instead.

The examples below illustrate indicating a new line (between the words "Hello" and "World") in G4 and in G5 programming:

- **G4** : `"'^TXT-200,0,Hello|World'"`
- **G5** : `"'^TXT-200,0,Hello',$0d,$0a,'World'"`

Touch Panel Aspect Ratio

While the touch panel screen physical dimensions fall between 16:9 and 16:10, any incoming video stream can be scaled to 16:9 if needed. This may lead to some letter boxing around the video in some cases.

Active Video Windows - Limitations

The term "Active Video Windows" refers to any "window" on the touch panel (which could be a Page, Popup, Sub-Page or Button) that is displaying active video content.

- Maximum supported number of active video windows displayed simultaneously on the panel: **2**

  While this limitation is not enforced (i.e the TPDesign5 application will allow you include any number of video windows in the panel design), attempting to display more than two active video windows at one time may have a negative impact on the panel's overall performance.
- Maximum supported resolution for video windows: **720dpi**
- Maximum supported frame rate for video windows: **30fps**

Additional Documentation

- For instructions on using NetLinx Studio, refer to NetLinx Studio online help, or the *NetLinx Studio v4 Instruction Manual*.
- For instructions on using TPDesign5, refer to TPDesign5 online help, or the *TPDesign5 Instruction Manual*.
- For installation instructions for Modero X Series panels, refer to the *Modero X® Series G5 Touch Panels Installation and Hardware Reference Guide*.
- For MXR-1001 installation instructions, refer to the *MXR-1001 Modero X® Series G5 Retractable Touch Panel Installation and Hardware Reference Guide*.

MXR-1001 Retractable Touch Panels

Overview

The MXR-1001 10.1" Modero X® Series G5 Retractable Touch Panel is a 10.1" Modero X G5 Touch Panel that can be mounted within the table such that it is flush with the table when not in use. A motorized mount raises and retracts the panel with the press of a button or via NetLinx control.

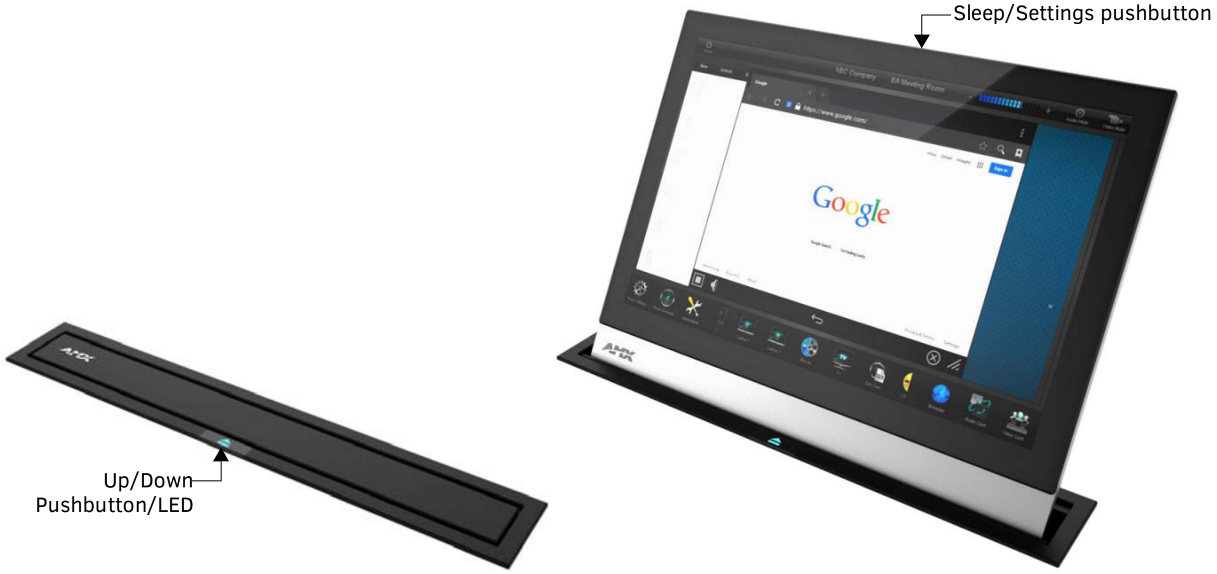


FIG. 1 MXR-1001 (Lowered and Raised)

MXR-1001 Motor Controller

The MXR-1001features the same hardware components and provides all of the functionality of the standard MXD-1001 10.1" Modero X G5 Touch Panel. The primary distinguishing feature of the MXR-1001 is the ability to raise and retract the touch panel. Therefore, there are electrical and firmware features specific to the MXR-1001 that provide control of the motorized mount. The MXR-1001 *Motor Controller* reports the physical state of the motor and panel to the NetLinx Master.

Powering On/Off the MXR-1001 Touch Panel

MXR-1001 touch panels may be powered on by touching the *Sleep/Settings* pushbutton (just like other G5 touch panels). The *Sleep/Settings* pushbutton is located in the in the center of the top panel of the touch panel (FIG. 2):

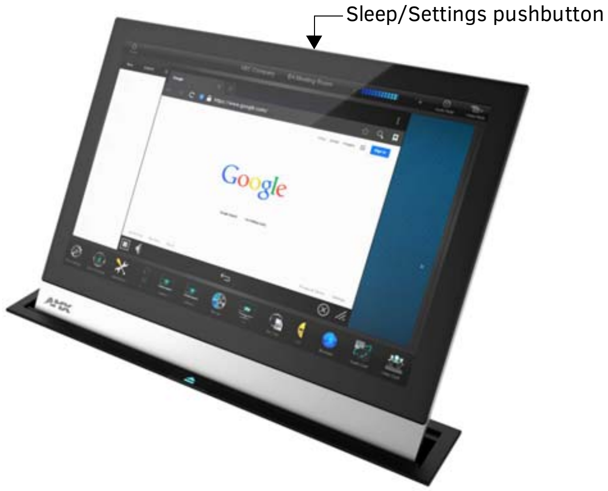
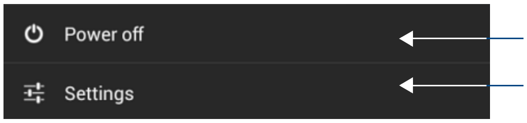


FIG. 2 MXR-1001-BL Sleep/Settings Pushbutton

The MXR-1001 also supports power-up via PoE signaling, but note that PoE is not a power supply option for the MXR-1001.

To power off the panel, press and hold the button to invoke the on-screen menu, and select **Power Off** (FIG. 3):



Press to power off the panel

Press to access the Settings menu

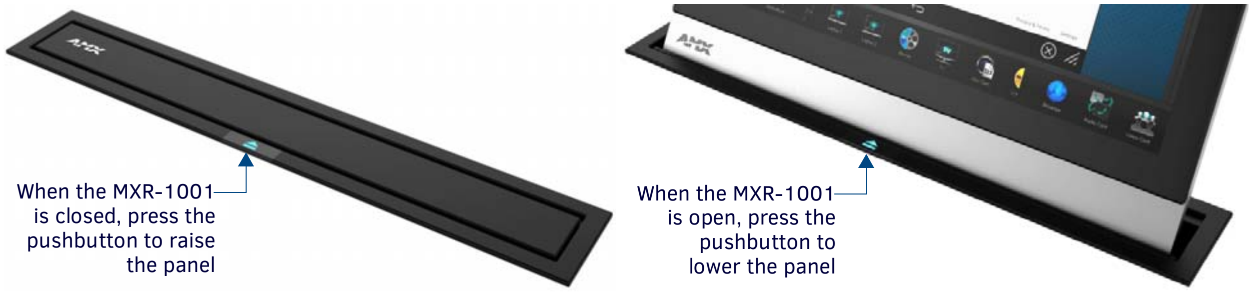
FIG. 3 On-screen menu Power Off/Settings options

- If the device has gone into its Sleep mode, touching the touchscreen or pressing the Sleep button will reactivate it.
- Press and hold the Sleep button to access the Settings menu.

NOTE: *Powering off the touch panel does not remove power to the motor. To completely remove power from the motor and touch panel, unplug the power cable (located on the Motor Mount).*

Raising and Lowering the MXR-1001 Touch Panel

Press the external pushbutton (with LED) to raise and lower the touch panel on the MXR-1001.



When the MXR-1001 is closed, press the pushbutton to raise the panel

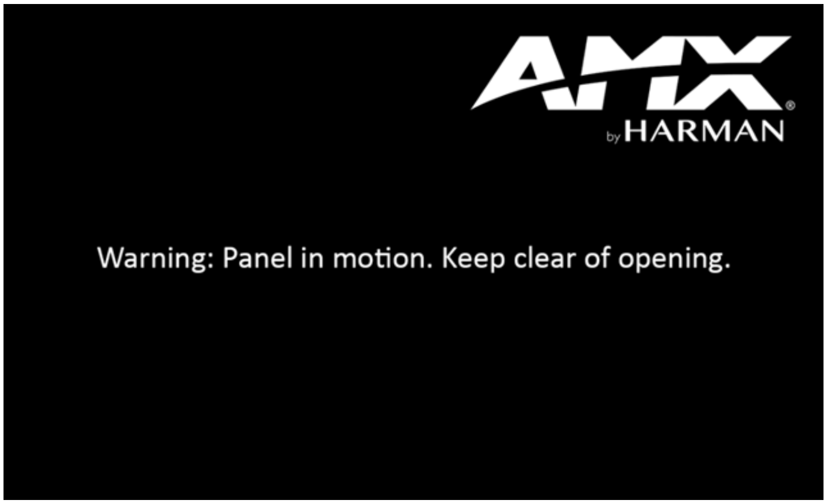
When the MXR-1001 is open, press the pushbutton to lower the panel

FIG. 4 Up/Down pushbutton

- If the panel is locked, the pushbutton is disabled until authentication credentials are provided (see *Locking and Unlocking the MXR-1001* on page 18).
- The brightness of the pushbutton LED can be adjusted via the ^MCC Send Command (LEDBRIGHTNESS subcommand). The panel can be raised and lowered via the (MOTOR subcommand). Refer to the *Modero X® Series G5 Touch Panels Configuration & Programming Manual* for details

Warning Screen

When the touch panel is in motion (raising or lowering), a warning screen is displayed on the panel (FIG. 5):



Warning: Panel in motion. Keep clear of opening.

FIG. 5 MXR-1001 Warning: Panel In motion. Keep clear of opening.

NOTE: *If the Up/Down pushbutton is pressed while the panel is in motion, the panel will reverse direction.*

- Some touch panel components are automatically disabled when the panel is in the Lowered position - see the *Modero X® Series G5 Touch Panels Configuration & Programming Manual* for details.
- Application windows that are open when the panel is in motion are automatically closed. Popup windows will stay opened after the panel is completely raised and the warning message (FIG. 5) is closed.
- The pushbutton can be used to raise/lower the panel even if the MXR-1001 is not connected to a Master (for example during installation), as long as the MXR-1001 is powered.

Audio Alert

The Audio Alert feature allows the MXR-1001 to play a sound when the panel is raised, and/or a separate sound when the panel is lowered. The **Panel Lower Sound** and **Panel Raise Sound** settings can be configured under the "Sound" Settings menu (see page 28). Note that by default, the *Panel Raise* sound is set to "None".

Locking and Unlocking the MXR-1001

The touch panel on the MXR-1001 can be locked and unlocked via the ^MCC Send Command (LOCK subcommand - see page 161). By default, the panel is unlocked. When the panel is locked, the Pushbutton (see FIG. 1) is disabled.

- When the MXR-1001 is unlocked, press the pushbutton to raise or lower the panel.
- When the MXR-1001 is locked, the pushbutton is disabled until authentication credentials are verified. When locked, button presses are sent to the Master for potential action via NetLinx code. If the panel drops offline while locked, the panel can only be raised or lowered via the *Motor* SSH command. Note that if High Security Mode is enabled, SSH functionality will not be available. See the *SYSTEM - Security* section on page 60 for details on security mode settings.

MXR-1001 Send Commands

There are two new G5 Send Commands that specific to the MXR-1001 (see *MXR-1001 Send Commands* on page 161):

- **"'^MCC-<MOTOR|LOCK|AUTHENTICATION|LED>’"** - *Motor Controller Control/Configure*. This command uses multiple sub-commands to configure Motor, Lock, Authentication and LED settings. See page 161 for details.
- **"'?POS-<id>'"** - *Panel Position Query*. Requests the current position of the panel. A new custom event (custom event type **1602)** reports the status of the Motor Controller, including its state and whether or not the lock feature is on. This event is sent either in reply to the “?POS” query, or unsolicited to report a status change. It is also sent when the panel first comes online to report initial status. See page 162 for details.

Motor Controller State Reporting

The Motor Controller reports the following potential states of the motor/panel:

Motor Controller State Reports	
State	**Criteria**
ERROR	An error has occurred and the panel’s position may be indeterminate.
RAISED	Panel is fully up in its raised position
LOWERED	Panel is fully retracted in its lowered position
RAISING	Panel is ascending from the table.
LOWERING	Panel is lowering back into the table.
STALLED-RAISING	Panel has stalled while raising, and is somewhere between its lowest and highest position.
STALLED-LOWERING	Panel has stalled while lowering, and is somewhere between its lowest and highest position.
STALLED-UNKNOWN	Panel has stalled, and it is unknown whether it was in the process of raising or lowering (it is somewhere between its lowest and highest position).
RAISE-PENDING	A request to raise the panel has been received via a press on the external pushbutton, but the panel is locked (authentication is required prior to acting on the request).
LOWER-PENDING	A request to lower the panel has been received via a press on the external pushbutton, but the panel is locked (and authentication is required prior to acting on the request).

MXR-1001 Motor Controller State Table

Depending on the current State (as reported by the Motor Controller), certain panel components are either enabled (ON) or disabled (OFF), as described in the following table:

Panel Component Behavior For Each Panel State

		Panel Components								
		No action taken on state change (let NetLinx code determine handling)								
		Backlight	**Touch**	**HID Input (mouse, keyboard)**	**VNC**	**Mic**	**Proximity/ Light**	**Speaker**	**Bluetooth**	**SIP**
Motor State	**ERROR**	ON	ON	ON	ON	ON	ON	ON	ON	ON
	RAISED	ON	ON	ON	ON	ON	ON	ON	ON	ON
	LOWERED	OFF*	ON	ON	ON	OFF	ON	ON	ON	ON
	RAISING	On (Warning message appears)	ON	ON	ON	OFF	ON	ON	ON	ON
	LOWERING	On (Warning message appears)	ON	ON	ON	OFF	ON	ON	ON	ON
	STALLED - RAISING	ON	ON	ON	ON	OFF	ON	ON	ON	ON
	STALLED - LOWERING	ON	ON	ON	ON	OFF	ON	ON	ON	ON
	STALLED - UNKNOWN	ON	ON	ON	ON	OFF	ON	ON	ON	ON
	RAISE PENDING	OFF*	ON	ON	ON	OFF	ON	ON	ON	ON
	LOWER PENDING	ON	ON	ON	ON	ON	ON	ON	ON	ON

* except when VNC active

MXR-1001 Motor Controller LED Behavior

The Up/Down pushbutton on the MXR-1001 features a blue LED that provides feedback on the Motor Controller (FIG. 1). The table below describes the feedback for various scenarios.

Motor Controller LED Behavior

Condition or Fault	**LED Pattern**	**When Cleared**
Panel in Motion (either raising or lowering), regardless of how it was initiated	Slow blink	When motion stops
Authorization failure (either timeout or denial)	Fast blink - 3 seconds	After 3 seconds
Any fault reported by the motor controller	Fast blink	Until fault clears
Communication failure between panel and Motor Controller	Fast blink	When communication is restored
Button press	Momentary feedback	Upon button release

NOTE: *If the LED On brightness is set to 0, no feedback will be visible. LED On/Off brightness settings are configured via the ^MCC Send Command (see page 161 for details).*

Configuration and Programming

MXR-1001 touch panels are equipped with a Settings menu that provides the ability to configure various features on the panels. To access the Settings menu, press and hold the Sleep button, and select Settings. This opens the main Settings menu.

The MXR-1001 Settings menu is similar to the Settings menu on other X Series G5 touch panels. The main differences are:

- The addition of the "Panel Raise Sound Select" and "Panel Lower Sound Select" options in the Sound page (see *DEVICE - Sound* on page 28).
- Removal of NFC functionality and related options in the Settings menu.
- Removal of Camera functionality and related options in the Settings menu.

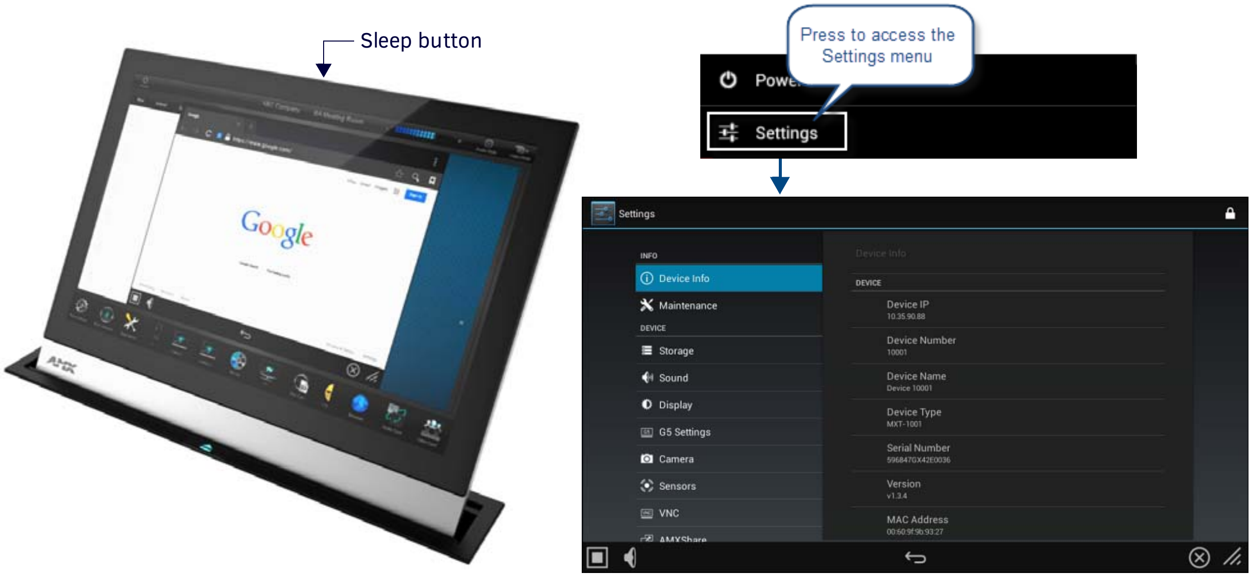
Settings Menu

Overview

G5 panels present all configuration information via the on-board *Settings* menu. The *DEVICE*, *CONNECTIONS*, *ACCOUNTS*, and *SYSTEM* sections are password-protected. The default password is **1988**.

Accessing the Settings Menu

To access the *Settings* menu, press and hold the **Sleep/Settings** button on the panel for 3 seconds.



Device IP
10.35.90.88

Device Number
10001

Device Name
Device 10001

Device Type
MXT-1001

Serial Number
596847GX42E0036

Version
v1.3.4

MAC Address
00:60:9f:9b:93:27

FIG. 6 Accessing the Setting menu

If the Sleep/Settings Button Has Been Disabled

Access to the Settings menu via the Sleep/Settings button can be disabled via the **Front Button Access** option in the *Security* page (see the *SYSTEM - Security* section on page 60 for details). Note that the **Front Button Access** option is disabled automatically if the panel is in High Security Mode. When the Sleep/Settings button is disabled, there are other ways to access the Settings Menu:

Press and Hold the Sleep/Settings Button During Bootup

When the panel is booting up (for example, after a reboot or power cycle), wait for the Modero X Series logo to be displayed on the panel, then press and hold the Sleep/Settings button to open the Settings menu.

Note that if the panel was in High Security mode when it was rebooted, then it remains in High Security mode when it boots back up. In High Security Mode, access to the Settings menu is limited to non-protected pages only. In this case, the current High Complexity password is **requiconnector bayred** to access protected setup pages.

See the *SYSTEM - Security* section on page 60 for details on using High Security mode and Password Complexity.

Via the "G5:setup" SSH Command (Standard Security mode only)

Use the "G5:setup" SSH command to launch the Settings menu.

Syntax:

```
G5:setup [options]
```

Options

```
--help
```

Display this help message

Refer to the *SSH Commands* section on page 170 for details on all SSH commands.

NOTE: *If High Security Mode is enabled, SSH functionality will not be available. See the SYSTEM - Security* section on page 60 *for details on security mode settings.*

Using AMX System Recovery

During a normal firmware upgrade, if a G5 panel is unable to boot all the way, *AMX System Recovery* can be used to try to reset system data or re-install firmware. To initiate system recovery:

1. Power up the panel while holding the **Sleep/Settings** button.
2. Release the button 3 seconds after seeing the AMX boot logo, and wait a few seconds for recovery mode to begin.
3. A text screen titled "AMX System Recovery" is displayed, presenting the following options:
    - Reboot Device
    - Factory Data Reset
    - Revert to Factory Firmware
    - Install Firmware from USB
4. Navigate the menu options by pressing the **Sleep/Settings** button.

    To select an item, press and hold the Sleep/Settings button for 2 or more seconds. Alternatively, if the panel has a USB keyboard plugged in at bootup, use the *Up/Down* arrows and *Enter* keys to navigate the menus.
    - Select **Reboot Device** to reboot the panel.
    - Select **Factory Data Reset** and then select **Yes** on the confirmation window to erase all of the user data (settings, application data, user pages) on the panel.
    - Select **Revert to Factory Firmware** and then select **Yes** on the confirmation window for the system to extract the factory firmware (this can take a minute) and then automatically initiate a firmware upgrade as usual.
    - Select **Install Firmware from USB** for a new menu to come up, where the user can navigate the files on the USB drive. Selecting the "../" entry will take the user back to the previous directory. Entries with a trailing "/" on the name are directories, and selecting a directory will bring up a new menu with the contents of that directory shown. All other entries will be ".kit" files. Selecting a KIT file and selecting **Yes** on the confirmation screen will extract the firmware (this can take a minute) and then automatically initiate a firmware upgrade as usual.

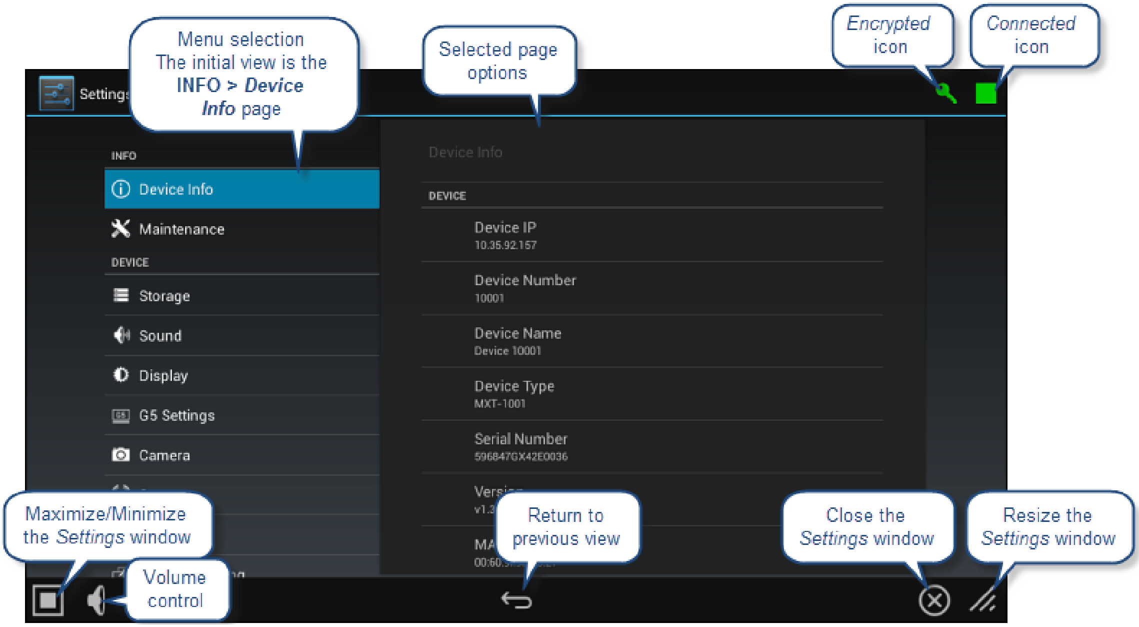
Using the Settings Menu

When opened, the *Settings* menu appears in the center of the panel display. Please note that many of the pages in the menu may be longer than they initially appear. To reach additional functions on a given page, the page itself may be scrolled up and down to reveal those functions.

NOTE: *The* Settings *menu uses scrolling lists. Not all items on a* Settings *page are visible on screen at one time, and scrolling up and down to see them may be necessary. In the case of long Settings pages, a scroll bar appears momentarily when a new menu appears, and allows you to gauge current position and length of the menu.*

Many of the entries in the *Settings* menu are read-only. Information on the *Device Info* page (the initial view) will update when modified on subsequent pages.

The current information on a page appears in white under the main category title; press the text to open the category's page (FIG. 7). If the text is grey, then the option associated with that category is currently disabled. This may be altered with changes in connectivity (connecting a USB stick to the panel, for instance) or changes to other pages within the menu.



Device IP
10.35.92.157

Device Number
10001

Device Name
Device 10001

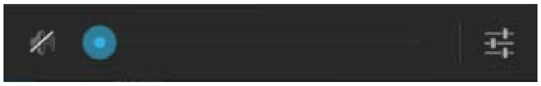
Device Type
MXT-1001

Serial Number
596847GX42E0036

FIG. 7 Settings Menu - Default View (INFO > Device Info)

Settings Pages - G5 Menu Bar Options

The following functions are available in the G5 Menu Bar displayed at the bottom of all pages in the *Settings* window:

Settings Pages - G5 Menu Bar Options	
Encryption: 🔑 🔑	The Encryption (Key) icon in the upper-right corner of the Settings application window indicates whether the panel is currently using an Encrypted ICSP connection to communicate with the NetLinx Master: • Red = no encryption • Green = Encrypted ICSP Connection detected
Connection: 🟥 🟩	The Connection icon in the upper-right corner of the Settings application window indicates the current connection status of the panel: • Red = no connection • Green = connected to the Master
Maximize/Minimize: ▣ ⊟	Select this to maximize or minimize the size of the Settings menu window on the display.
Volume: 🔈	Press to open the *Volume* window and adjust the output volume on the panel: 
Return to Previous Menu: ↩	Press the arrow to return to the previous menu.
Close Settings App: ⊗	Press the “X” button to shut the *Settings* menu and return to the main display.
Adjust Window Size: ⫽	Hold and drag the corner to adjust the size of the Settings menu window.

Settings Pages - Application Specific Options

Several of the applications available on G5 panels have application-specific options that are not controlled by the panel. For example, the *Image View* page (FIG. 8) indicates several options outside the G5 Menu Bar. These options represent fully functional features of the application, but since they are not G5-specific features (and therefore not controlled by the panel), they are not described in this document.

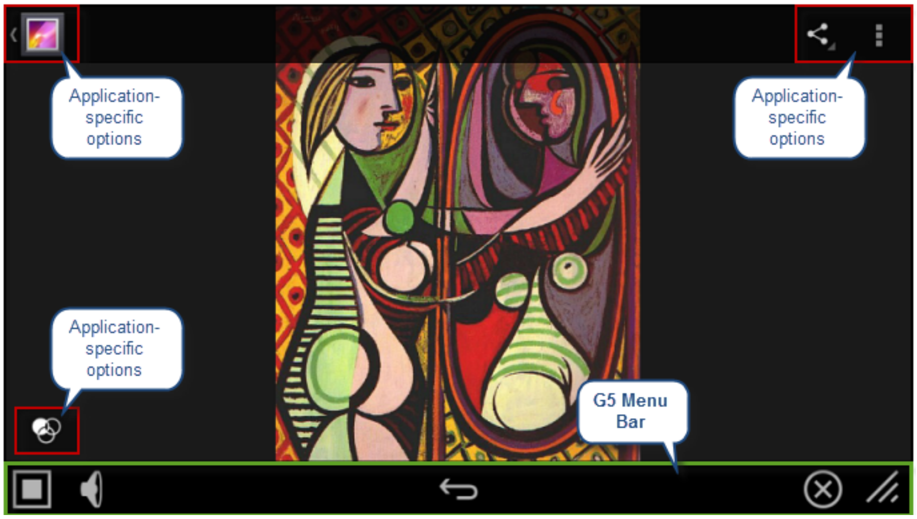

Application-specific options
Application-specific options
Application-specific options
G5 Menu Bar

FIG. 8 G5 Settings Page Controls vs Application-Specific Features

Settings Menu - Page Categories

The main *Settings* menu (FIG. 7) provides access to all of the Settings pages for G5 panels. Settings pages are separated into five categories: *INFO*, *DEVICE*, *CONNECTIONS*, *ACCOUNTS*, and *SYSTEM.* The menu options available via the Settings window are summarized below:

Settings Menu options		
Page Name	Description	Page #
INFO (initial view)		
Device Info	Displays basic panel information, such as available memory and screen resolution dimensions.	page 24
Maintenance	Provides control of basic panel functions, including rebooting or shutting down the panel.	page 25
DEVICE		
Storage	Provides access to data stored on the panel, as well as files accessible via connected USB storage devices.	page 26
Sound	Allows adjustment of volume levels and panel sounds settings. *Note: For MXR-1001 retractable panels, these include Panel Raise and Panel Lower sounds.*	page 28
Display	Provides controls for basic functions of the panel display, including brightness.	page 31
G5 Settings	Provides controls for page flip tracking and configuring Sleep mode.	page 33
Camera	Provides control of the panel's built-in camera.	page 35
Sensors	Allows activation and optimization of the panel's motion and light sensors.	page 36
VNC	Enables/disables and configures VNC server functionality on the panel.	page 37
Content Sharing	Allows G5 touch panels to share content on Enzo meeting room presentation systems.	page 38
SIP	Allows configuration of SIP communication settings for the panel.	page 41
CONNECTIONS		
Ethernet	Allows configuration of Ethernet communication settings with the panel.	page 43
NetLinx	Controls the method of connecting to a NetLinx Master.	page 47
Browser	Sets the default view mode for URLs opened in a Browser window.	page 50
Multi Preview	Configures the panel to receive signals from MXA-MP or MXA-MPL devices for video stream display.	page 51
Bluetooth	Provides the ability to pair one or more Bluetooth devices to the panel. Bluetooth functionality is only available if an (optional) MXA-BT Bluetooth USB Adapter (FG5968-19) is connected to the panel.	page 52
NFC	Controls the panel's Near Field Communications™ access, and displays the last NFC tag read by the panel. *Note: This option is not available on MXR-1001 retractable panels.*	page 53
Smart Card	Enables Smart Card functionality on the panel, and provides access to the PIV Authentication Certificate and CHUID associated with the Smart Card reader.	page 54
ACCOUNTS		
Add Account	Provides the ability to configure outside accounts (such as Email and Dropbox) so that they can be used on the panel.	page 54
SYSTEM		
Date & Time	Allows setting and adjusting of time and date information on the panel.	page 55
Language & Input	Controls the language used by the Settings menu, as well as the keyboard input used for Settings menu field entries.	page 57
Security	Controls panel security, including setting the security profile to either Standard or High Security, password settings, enabling/disabling device functionality on the panel, enabling/disabling system services, and front button access.	page 60
Reset and Update	Allows resetting and updating of panel settings and firmware, including installation of new firmware from an external drive.	page 66
Diagnostics	Displays the current processor temperature, provides access to panel logs, and toggles SSH functionality.	page 77

All of the pages and menus in the *Device*, *Connections*, *Accounts*, and *System* categories are password-protected.

Opening Settings pages

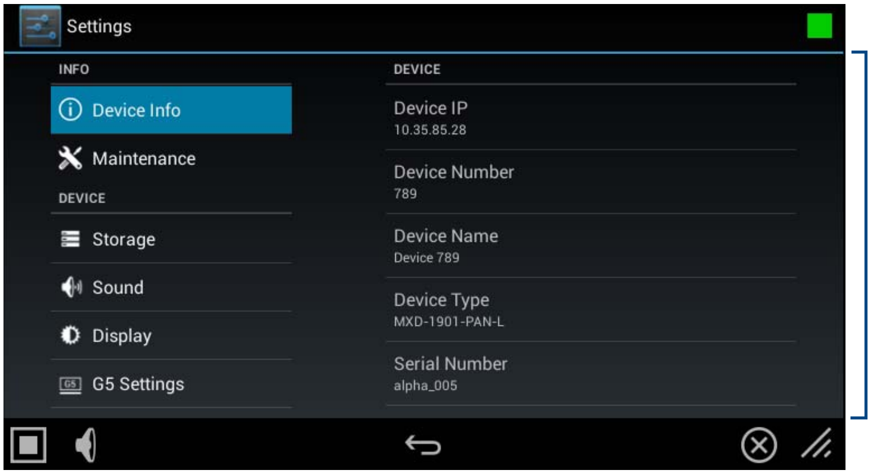
1. Select the appropriate page from the *Settings* menu.
2. In the *Password* keypad, enter the password and select **OK**. The default password is **1988**.

Closing the Settings menu

To close the *Settings* menu and return to the panel's user pages, select the **Close Settings App** icon at the bottom of the *Settings* window.

INFO - Device Info

The INFO - *Device Info* page (FIG. 9) displays basic panel information, such as available memory and screen resolution dimensions (read-only).



Device IP
10.35.85.28

Device Number
789

Device Name
Device 789

Device Type
MXD-1901-PAN-L

Serial Number
alpha_005

Scroll down to see all menu items

FIG. 9 INFO - Device Info page

Device Info page options	
DEVICE	
Device IP	Displays the panel's IP address.
Device Number	Displays the panel's device number.
Device Name	Displays the panel's device name.
Device Type	Displays the panel model.
Serial Number	Displays the specific serial number value assigned to the panel.
Version	Displays the current version of the panel's firmware.
MAC Address	Displays the panel's MAC address.
Bluetooth Address	Displays the panel's Bluetooth address.
Resolution	Displays the panel's screen height and width in pixels.
NETLINX MASTER	
Master IP	Displays the IP address for the panel's Master.
Master Port	Displays the port used by the panel's Master.
Master System Number	Displays the Master's system number.
Connection	Displays the panel's connection status.
MEMORY AND FILES	
Memory	Displays the amount of memory available on the panel.
File System	Displays the amount of MicroSD card memory available on the panel.
File Information	Displays information on the current main panel page.
MISC	
Up Time	Displays the time elapsed since the panel was last started.
Legal Information	Select this entry to open the *Legal Information* window, which displays information on intellectual property notices and information on copyright concerns.

INFO - Maintenance

The *INFO - Maintenance* page (FIG. 10) provides control of basic panel functions, including rebooting or shutting down the panel.

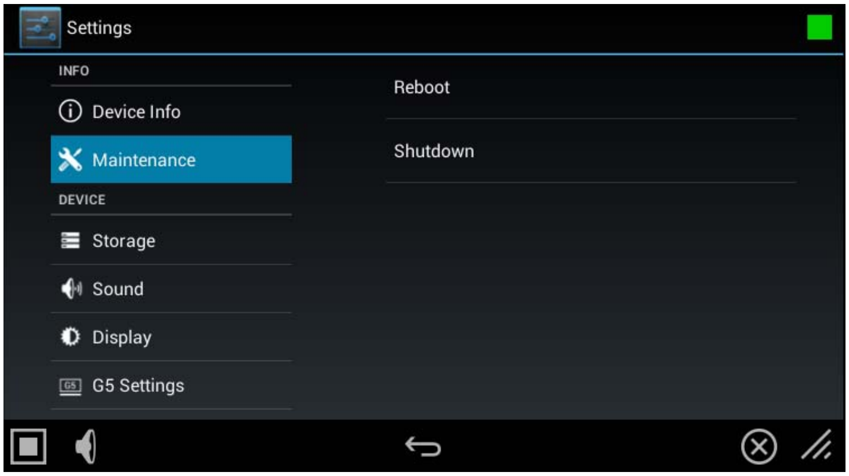
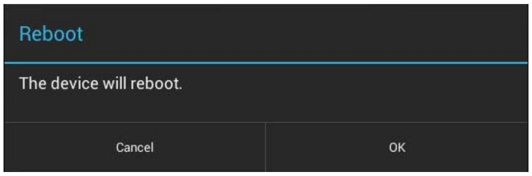


FIG. 10 Maintenance page

INFO - Maintenance page options	
Reboot:	Select this entry to open the *Reboot* window.
Shutdown:	Select this entry to open the *Shutdown* window.

Rebooting the Panel

1. In the *Maintenance* page, select **Reboot**. This opens the *Reboot* window (FIG. 11).


Reboot

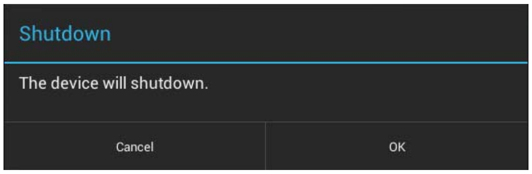
The device will reboot.

FIG. 11 Reboot window

2. Press **OK** to reboot.

Shutting Down the Panel

1. In the *Maintenance* page. select **Shutdown**. This opens the *Shutdown* window (FIG. 12):


Shutdown

The device will shutdown.

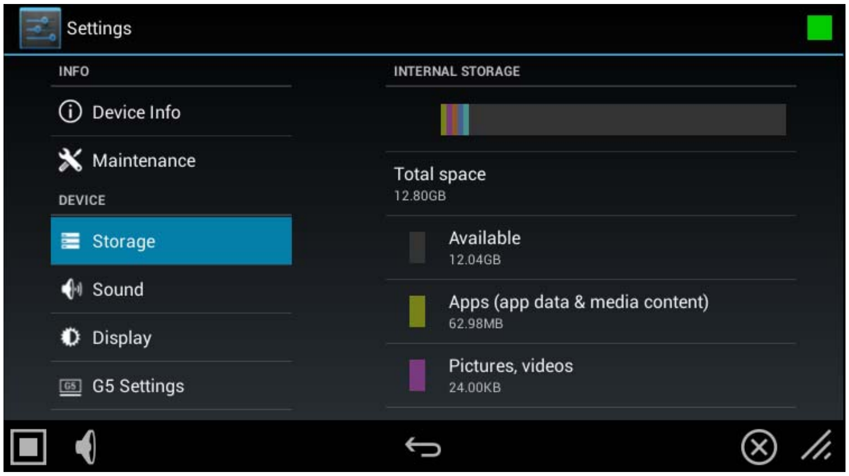
FIG. 12 Shutdown window

2. Press **OK** to shut down the panel.

DEVICE - Storage

NOTE: *The DEVICE pages are all password-protected. The default password is 1988.*

The *Storage* page (FIG. 13) provides access to data stored on the panel including applications, pictures, audio files, and other files. This page also displays files accessible via connected USB storage devices, such as from hard drives or thumb drives.



Total space
12.80GB

Available
12.04GB

Apps (app data & media content)
62.98MB

Pictures, videos
24.00KB

Scroll down to see all menu items

FIG. 13 Storage page

Storage page options	
INTERNAL STORAGE	
Internal Storage	This graph displays how much internal storage is being used compared to what is available, and which file categories are using that storage. Note that this graph is color-coded to indicate how much storage is being used by each storage type (described below).
Total Space	The total amount of storage space on the panel.
Available	The total amount of storage that may be used for apps and other files on the panel.
Apps (app data & media content)	The total amount of storage currently being used for apps and related files on the panel. Note that Apps are installed via TPDesign5, and cannot be added or removed via the panel.
Pictures, Videos	The total amount of storage currently being used for picture and video files on the panel.
Audio (music, ringtones, podcasts, etc.)	The total amount of storage currently being used for audio files (such as music, ring tones, and podcasts) on the panel. Select this entry to open the *Choose Music Track* window. See the *Internal Storage: Audio* section on page 27 for details.
Downloads	The total amount of storage currently being used for downloaded files (such as text files or spreadsheets) on the panel. Select this entry to open the *Downloads* window. See the *Internal Storage: Downloads* section on page 27 for details.
Cached Data	The total amount of storage currently being used for cached data on the panel. Select this entry to clear the cache. See the *Internal Storage: Cached Data* section on page 27 for details.
USB STORAGE	
Mount USB Storage	This option only appears if no USB data storage is connected to the panel.
USB Storage Graph	This graph displays the total used storage in a connected USB storage device versus the total amount available. This graph only appears if a USB storage device is connected to the panel.
Total Space	The total amount of used storage on the connected USB storage device.
Available	The total amount of available storage on the connected USB storage device.
Unmount Shared Storage	Select this option to allow safe removal of any USB data storage device connected to the panel.

Internal Storage: Audio

To access all audio files stored on the panel or stored in an individual Dropbox account, select *Audio* on the *Storage* page to open the *Audio Access Options* window (FIG. 14).

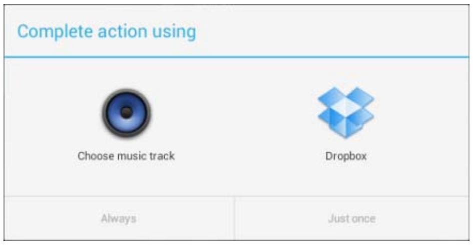


FIG. 14 Audio Access Options

Choose the location of the file: Select *Choose Music Track* if the file is accessible via internal storage or USB; select *Dropbox* if the file is accessible via a Dropbox account.

NOTE: *Before attempting to access a file on a Dropbox account, you must first open the Dropbox application on the panel and log in.*

After selecting the option, either select **Always** to access files in this way every time the *Audio* option is selected, or select **Just once** to give both options every time.

Internal Storage: Downloads

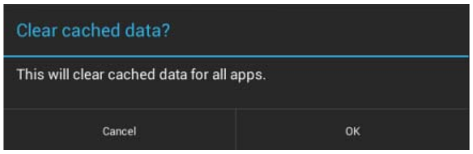
From the *Storage* page, select *Downloads* to display all files downloaded to the panel. This opens the *Downloads* window. Select a downloaded file in the window to open it.

To close the *Downloads* window, touch the display screen anywhere outside of the window.

Internal Storage: Cached Data

Under *Internal Storage*, the *Cached Data* option indicates the amount of data currently in the panel's memory cache for all applications.

To clear the cache, press *Cached Data*. The panel will prompt you to verify this action before clearing the cache (FIG. 15):



Clear cached data?

This will clear cached data for all apps.

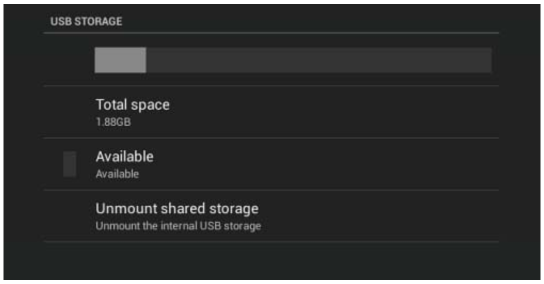
FIG. 15 Clear Cached Data prompt

Select **Cancel** to return to the *Storage* page, or select **OK** to clear the cached data for all applications on the panel.

USB Storage

In addition to its internal storage capabilities, G5 panels also have the ability to access files in USB-enabled external storage options, such as thumb drives and external hard drives. The status of USB storage is indicated in the *USB STORAGE* section of the *Storage* page.

- If no USB storage option is connected to the panel, this section will read "*Insert USB storage for mounting*".
- If a USB storage option is connected to the panel, the USB Storage section will display the panel's total used space and total available space, as well as give the option to unmount the storage device (FIG. 16).



USB STORAGE

Total space
1.88GB

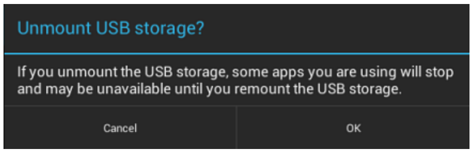
Available
Available

Unmount shared storage
Unmount the internal USB storage

FIG. 16 USB Storage

Unmounting a USB Storage Device

1. On the *Storage* page, select the *Unmount Shared Storage* option .
2. This opens the *Unmount USB storage?* window (FIG. 16):



Unmount USB storage?

If you unmount the USB storage, some apps you are using will stop and may be unavailable until you remount the USB storage.

FIG. 17 Unmount USB Storage prompt

3. Select **OK** to unmount the storage device (or **Cancel** to return to the *Storage* page).

If the storage device has been unmounted from the panel but is still physically connected, the only option in the USB Storage section will be *Mount USB storage*. Press this option to remount the storage device to the panel.

DEVICE - Sound

The *Sound* page (FIG. 18) allows adjustment of volume levels and panel sounds settings.

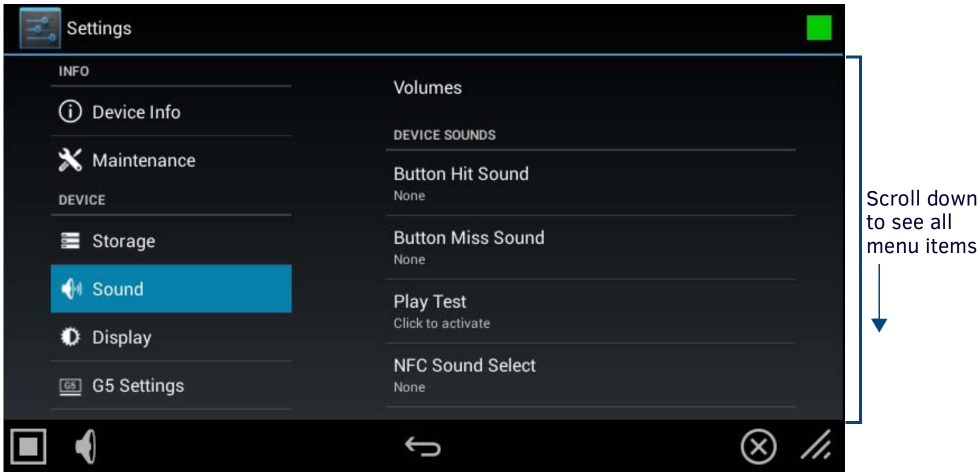


FIG. 18 DEVICE - Sound page

Sound page options	
Volumes	Press to open the *Volumes* window, which provides options to adjust volume for Music, video, games and other media as well as Notifications and Alarms. See the *Adjusting Volumes* section on page 29 for details.
DEVICE SOUNDS	
Button Hit Sound	Displays the information on the sound file associated with the Button Hit Sound function. See the *Selecting Device Sounds* section on page 30 for details.
Button Miss Sound	Displays the information on the sound file associated with the Button Miss Sound function. See the *Selecting Device Sounds* section on page 30 for details.
Play Test	Select this entry to test the audio output by playing a preselected sound.
NFC Sound Select	Displays the information on the sound file associated with the NFC Sound function. See the *Selecting Device Sounds* section on page 30 for details. Also see the *CONNECTIONS - NFC* section on page 53. **Note**: This option is not available on MXR-1001 retractable panels.
Smart Card Sound Select	Select to choose a sound to associated with the smart card action from the menu provided (default = *none*). See *Selecting a Default Notification Sound* section on page 31.
Panel Raise Sound Select (MXR-1001 only)	Displays the information on the sound file associated with the Panel Raise function. The available sounds include all Button Hit and Button Miss sounds. Note: By default, the Raise sound is set to "None" (the sound is disabled). See the *Selecting a Panel Raise and Lower Sound (MXR-1001 only)* section on page 29 for details.
Panel Lower Sound Select (MXR-1001 only)	Displays the information on the sound file associated with the Panel Lower function. The available sounds include all Button Hit, Button Miss and NFC Notifications Sounds. Note: By default, the Lower sound is set to "None" (the sound is disabled). See the *Selecting a Panel Raise and Lower Sound (MXR-1001 only)* section on page 29 for details.
SYSTEM SOUNDS	
Touch Sounds	Select this entry to enable a notification sound every time the panel display is touched.
Default Notification Sound:	Select this entry to choose a default notification sound from the menu provided. See *Selecting a Default Notification Sound* section on page 31.
Audio:	Displays the current audio options. The current and only option is "Internal Audio".

Selecting a Panel Raise and Lower Sound (MXR-1001 only)

The MXR-1001 10.1" Modero X Series G5 Retractable Touch Panel provides two additional Sound options that allow you to specify the sound played to indicate that the panel is raised and lowered.

1. In the Sound page:
    - Select **Panel Raise Sound Select** to select a sound to coincide with the retractable panel being raised via the *Panel Raise Sound Select* window (FIG. 19):
    - Select **Panel Lower Sound Select** to select a sound to coincide with the retractable panel being lowered via the *Panel Lower Sound Select* window (FIG. 19):

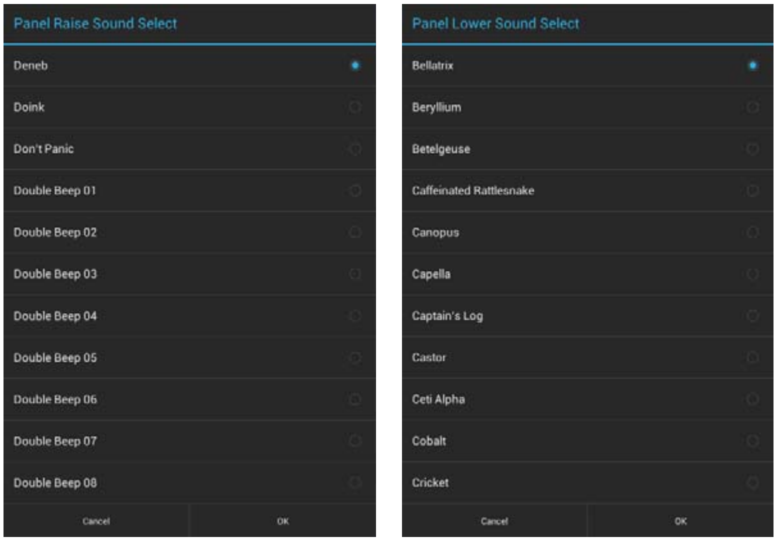


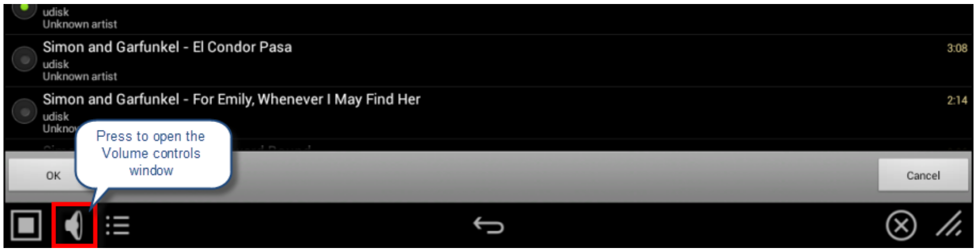
FIG. 19 Panel Raise Sound Select and Panel Lower Sound Select windows

2. Choose a sound from the presented list: selecting a new sound will play it once. The sound will only be audible if the *Media* slide bar in *Volumes* is not muted.
3. Once you select the preferred sound, press **OK** to save it. The sound's name will now appear under the category in the *Sound* page.
4. If you wish to return to the *Sound* page without making any changes, press *Cancel*.

NOTE: *The sound will play regardless of the state that the panel was in prior to transitioning to the Lowering or Raising states. For example, if the panel is in a Stalled state and the user attempts to lower the panel, the "Panel Lower Sound" will play. If the Master does not authorize the requested operation, the panel will not transition and so the alert sound will not be played.*

Adjusting Volumes

1. In the *Sound* page, select the *Volume* icon (FIG. 20) to open the *Music Volumes* control window (FIG. 21 on page 30):


udisk
Unknown artist
Simon and Garfunkel - El Condor Pasa
3:08
udisk
Unknown artist
Simon and Garfunkel - For Emily, Whenever I May Find Her
2:14
udisk
OK
Cancel

Press to open the Volume controls window

FIG. 20 DEVICE - Sound page - Volume Control icon

2. This opens the *Music Volume* control. Use this slider to adjust the volume for music tracks. To mute music playback, move the slider all the way to the left. In this case, the volume icon on the *Music Volume* control will indicate *Muted*.
3. Press the icon on the right side of the Music Volume control to open the *System Volumes* control. Use these volume controls to adjust all of the available volume controls on the panel (FIG. 21):

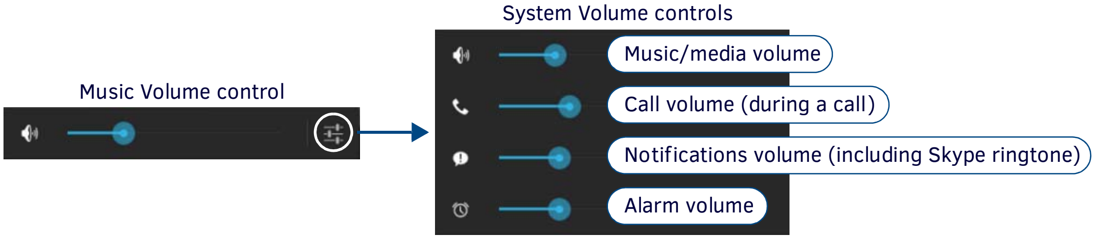

System Volume controls
Music Volume control
Music/media volume
Call volume (during a call)
Notifications volume (including Skype ringtone)
Alarm volume

FIG. 21 Music Volume control and System Volumes control

- To adjust the panel's media volume, slide the *Music/media* slide bar pointer to your preferred level. To mute the panel, move the slidebar pointer all the way to the left. The speaker icon on the left of the slidebar will indicate that the panel is muted.
- To adjust the volume of notifications, slide the *Notifications* slide bar pointer to your preferred level. If the *Music/media* slide bar is set to mute, the *Notifications* slide bar will also be muted.
- To adjust the volume of alarms, slide the *Alarms* slide bar pointer to your preferred level. The *Alarms* volume will NOT be muted if the other slide bars are set to mute.

Selecting Device Sounds

Use the options under DEVICE SOUNDS in the *Sound* Settings page to select a particular sound to coincide with a button being pressed in a panel page (FIG. 22):

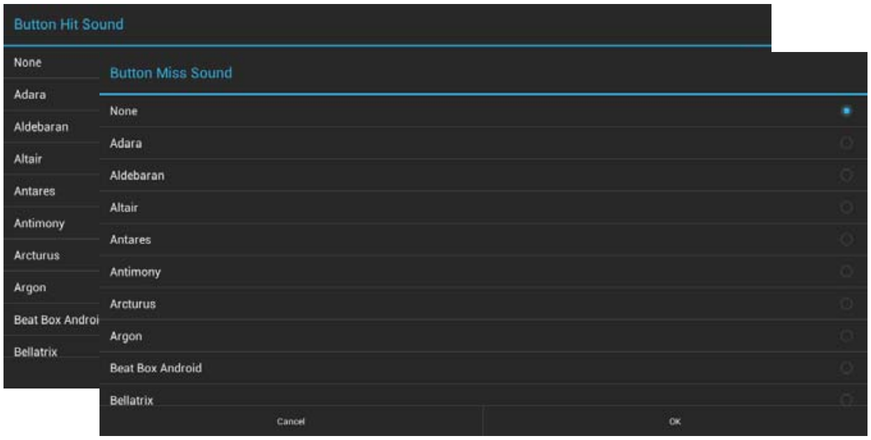


FIG. 22 Device Sounds - Button Hit Sound / Button Miss Sound Selection

1. In the *Sound* page,
   - Select **Button Hit Sound** to select a sound to coincide with a button being *pressed* via the *Button Hit Sound* window.
   - Select **Button Miss Sound** to select a sound to coincide with a button being *missed* via the *Button Miss Sound* window.
   - Press **Play Test** to play a sample sound file to test the volume setting.
   - Select **NFC Sound Select** to select a sound to coincide with an NFC device being detected by the panel via the *NFC Sound Select* window.

     NOTE: *NFC functionality is not available on MXR-1001 retractable panels.*

   - Select **Smart Card Sound Select** to select a sound to coincide with a Smart Card being detected by the panel via the *Smart Card Sound Select* window.

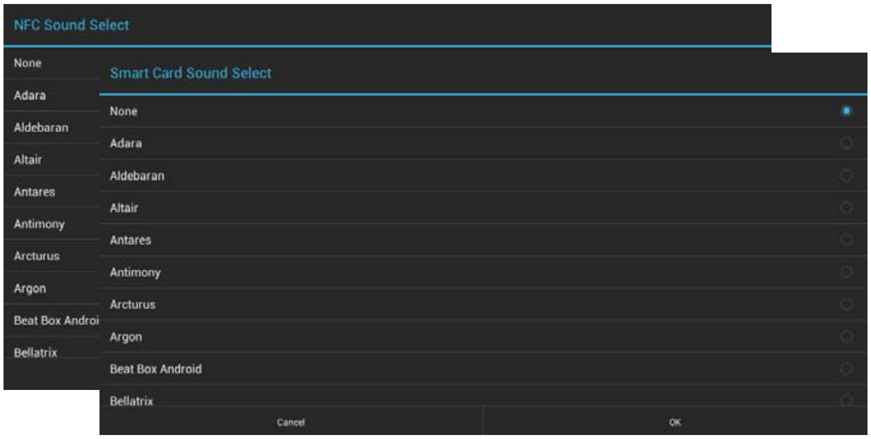


FIG. 23 Device Sounds - NFC Sound Select / Smart Card Sound Select

- Select **Panel Raise/Lower Sound Select** to select sounds to coincide with raising or lowering the retractable touch panel (MXR-1001 only).

2. Choose a sound from the presented list: selecting a new sound will play it once. The sound will only be audible if the *Media* slide bar in *Volumes* is not muted.
3. Once you select the preferred sound, press **OK** to save it. The sound's name will now appear under the category in the *Sound* page.
4. To the *Sound* page without making any changes, press *Cancel*.

Selecting a Default Notification Sound

To select a particular sound to be the default notification sound for all panel functions:

1. In the *Sound* page, under SYSTEM SOUNDS, enable the *Touch Sounds* option.
2. Select *Default notification sound*. This opens the *Default notification sound* window.
3. Choose a sound from the presented list: selecting a new sound will play it once. The sound will only be audible if the *Notifications* slide bar in *Volumes* is not muted.
4. Once you select the preferred sound, press **OK** to save it. If you wish to return to the *Sound* page without making any changes, press *Cancel*.

DEVICE - Display

The *Display* page (FIG. 24) controls the basic functions of the panel display, including the panel brightness.

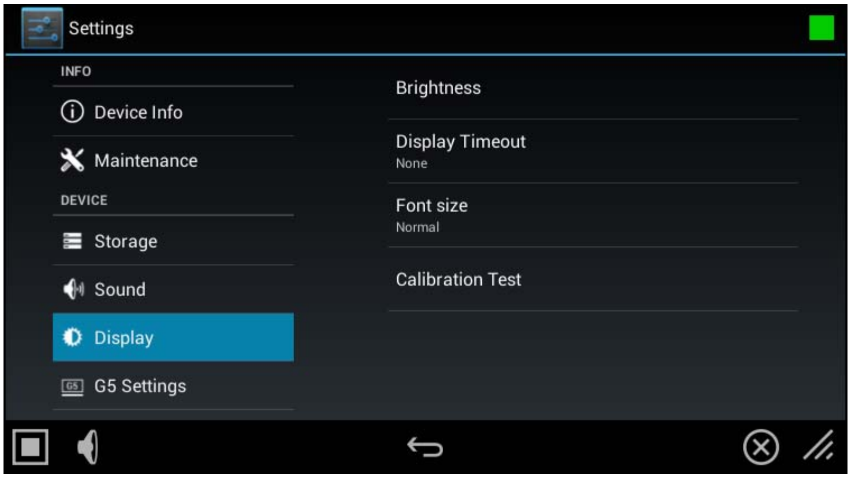


FIG. 24 DEVICE - Display page

Display page options	
Brightness:	Sets the display brightness and contrast levels of the panel. See *Adjusting Panel Brightness* on page 31 for details.
Display Timeout:	Indicates the length of time that the panel can remain idle before the display automatically powers down. Select the Display Timeout setting. Range = 15, 30 seconds, 1, 5, 10, 30 minutes, 1, 2 hours. Set the timeout value to *None* to disable Display Timeout mode. See the *Adjusting Display Timeout* on page 32 for details.
Font Size:	Sets the size of the font used in the Settings menu. See *Selecting the Font Size* on page 32 for details.
Calibration Test:	Select this to open the *Calibration Test* page. See *Calibration Test* on page 32 for details.

Adjusting Panel Brightness

In the *Display* page, select **Brightness** to open the *Brightness* window (FIG. 25).

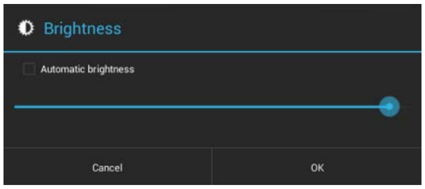


FIG. 25 Brightness window

Use the slidebar for manual adjustment of the panel's display brightness. Select **Automatic brightness** to make automatic adjustments to brightness based on ambient light in the vicinity. Press **OK** to save changes and close this window (or select **Cancel** to return to the *Display* page without saving any changes).

Adjusting Display Timeout

In the *Display* page, select **Display Timeout** to open the *Display Timeout* window (FIG. 26).

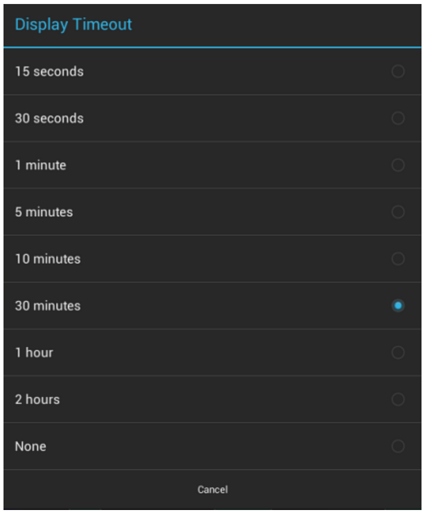


FIG. 26 Display Timeout menu

Select the time period that will pass before the panel enters sleep mode, or select *None* to keep the panel from shutting down its display. The default settings is *30 Minutes*.

Press **OK** to save changes and close this window (or select **Cancel** to return to the *Display* page without saving any changes).

Selecting the Font Size

In the *Display* page, select **Font size** to open the *Font Size* window (FIG. 27).

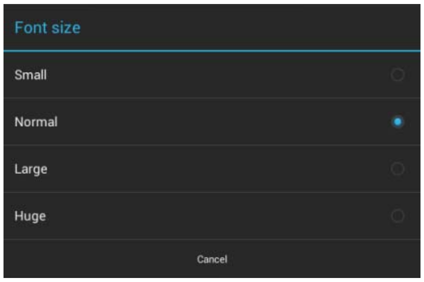


FIG. 27 Font Size menu

Select the desired size for the font used in the Settings menu via this window. The default setting is *Normal*.

Changing this setting requires re-entry of the password in order to confirm your changes. If you wish to return to the *Display* page without saving any changes, select *Cancel* at the bottom of the window.

Calibration Test

Select **Calibration Test** to open the *Calibration Test* page (FIG. 28):

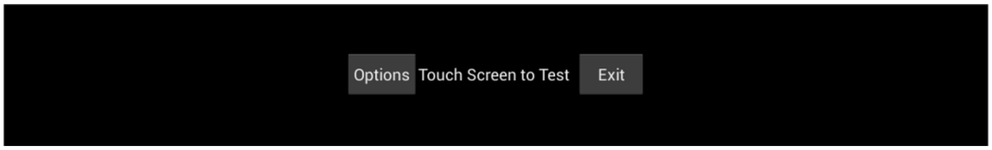


FIG. 28 Calibration Test menu

G5 panels are self-calibrated on startup. The *Calibration Test* page may be used to verify the accuracy of that calibration.

NOTE: *In order to ensure a correct calibration upon starting, the panel display should not be touched while the panel is booting.*

To run a calibration test on the touch panel:

1. In the *Settings* menu, select *Display*.
2. In the *Display* page, select *Calibration Test*.
3. Touch the screen to test the calibration.
4. For options when testing the calibration of the touch panel, select **Options** to open the *Calibration Test Options* window (FIG. 29).
    - Press **Fade** to cause the cursor to fade away after touching, or press it again to retain all touches on the display screen.
    - Press **Clear** to clear the memory of previous touches. When finished, select *Exit* to return to the *Calibration Test* page.

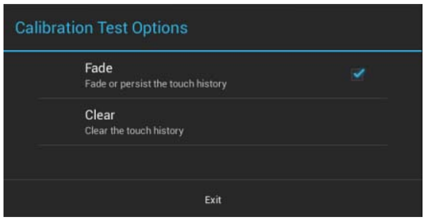
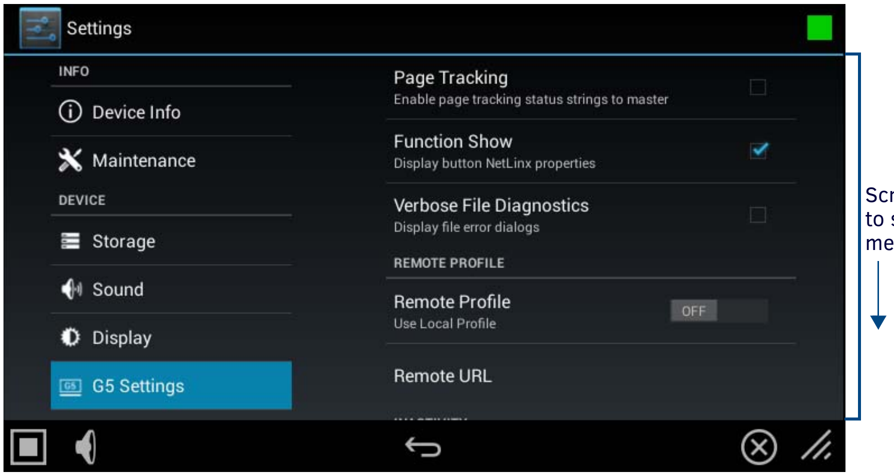


FIG. 29 Calibration Test Options window

5. When finished with the calibration test, select **Exit** to return to the *Display* page.

DEVICE - G5 Settings

The *G5 Settings* page (FIG. 30) controls both the panel's transmission of page flip tracking to the Master and the panel's active duration before going into *Sleep* mode.



Scroll down to see all menu items

FIG. 30 G5 Settings page

G5 Settings page options	
Page Tracking	Press to enable or disable the panel sending page flip tracking to the Master. Default = *disabled.*
Function Show	Press to display the address, channel, and level information associated with each button on the panel. Default = *disabled.*
Verbose File Diagnostics	Press to display file error dialogs any time the panel encounters a problematic file. Default = *disabled.*
REMOTE PROFILE	
Remote Profile	Press **On** to enable Remote Profiles. Note that turning Remote Profiles On enables the *Remote URL* option (see note below).
Remote URL	Enter the URL of the desired remote profile: press this field to access an on-screen keyboard. Refer to *Setting a Remote Profile* section on page 33 for details.
INACTIVITY	
Inactivity:	Select this to open the *Inactivity* window and control the maximum time the panel will remain inactive before going into Sleep mode. Refer to *Setting an Inactivity Time Period and Page Flip* section on page 34 for details.
Inactivity Page:	Lists the TPDesign5 page displayed when the panel goes to sleep. Refer to *Setting an Inactivity Time Period and Page Flip* section on page 34 for details.
PASSWORD PROTECTION	
Password 1-4	These options provide the option of assigning passwords to the secured Settings pages. Refer to *Setting Password Protection* section on page 34 for details.
HTTPS CLIENT	
Validate HTTPS Server Certificate	Press to enable or disable the validation of HTTPS server certificate while negotiating the connection. Default = *disabled.*
Verify HTTPS Server Hostname	Press to enable or disable the verification of the HTTPS Server hostname. Note that this option is available only if the Validate HTTPS Server Certificate option is selected. Default = *disabled.*

Setting a Remote Profile

NOTE: *Enabling a Remote Profile will cause the panel to ignore and TP5 file that has been transferred to the panel. It will only open the TP5 file set in the Remote URL.*

1. In the *G5 Settings* page, press **Remote Profile** to toggle the option *ON*.

2. Press **Remote URL** to enter the URL of the remote profile to use via the on-screen keyboard (FIG. 31):

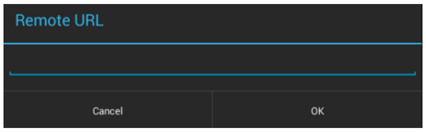


FIG. 31 Remote URL window

3. Press **OK** to save changes and close this window.

Setting an Inactivity Time Period and Page Flip

1. In the *G5 Settings* page, press **Inactivity** to open the *Inactivity* window (FIG. 32):

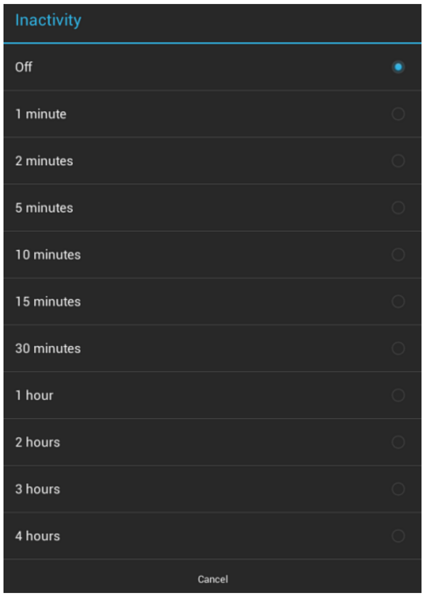


FIG. 32 Inactivity window

2. Select the amount time that will be allowed to pass before the panel enters into sleep mode. Select **Off** to disable the inactivity timer. The default setting is *1 hour.*

Setting Password Protection

The options under PASSWORD PROTECTION provide the ability to assign alphanumeric values to particular password sets (FIG. 33):

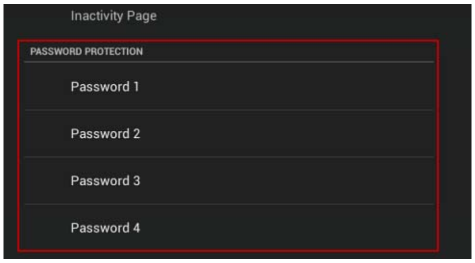


FIG. 33 G5 Settings page - PASSWORD PROTECTION options (Password 1-4)

1. In the *G5 Settings* page, under *PASSWORD PROTECTION*, press **Password 1** to open the *Password 1* window to enter a new alphanumeric password via the on-screen keyboard (FIG. 34):

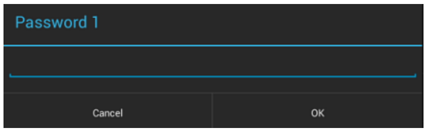


FIG. 34 Password 1 window

2. Press **OK** to save changes (or press *Cancel* to close this window without saving changes).
3. Press **Password 2**, **Password 3** and **Password 4** to set Passwords 2-4 (press **OK** to save each).

DEVICE - Camera

The *Camera* page (FIG. 35) controls the output from the panel's built-in camera.

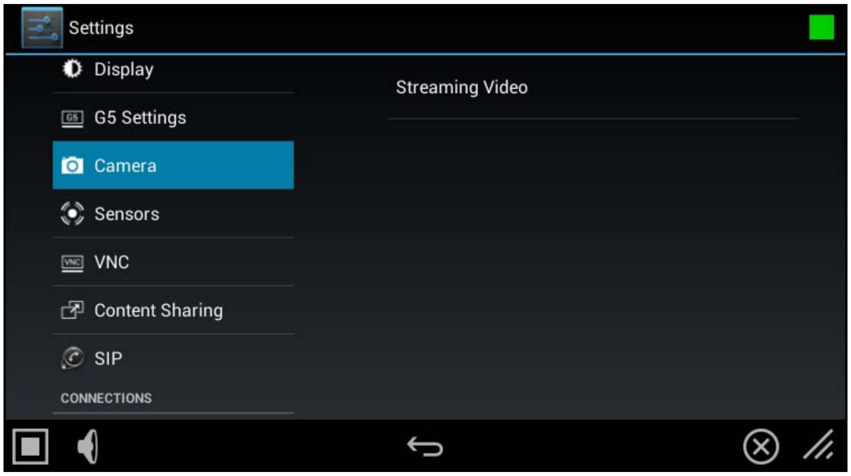


FIG. 35 Camera page

Camera page options	
Streaming Video	Opens the Streaming Video window.

NOTE: *When the camera is enabled, an LED next to the camera lights (on the front panel) to indicate that it is on.*

Streaming Video

The *Streaming Video* window (FIG. 36) is used to preview video sources, as well as preview input from the panel's camera.

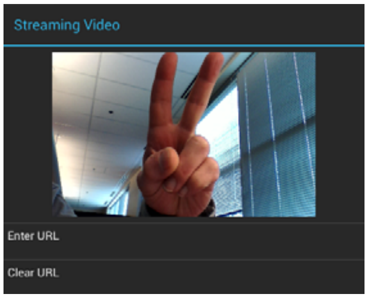


FIG. 36 Streaming Video window

The *Streaming Video* page may also be used to preview other video sources, (i.e. MXA-MP or MXA-MPL)

Streaming Video Page options	
Enter URL:	Select this to enter the URL for the video stream to be displayed. The default is the panel's camera, if applicable.
Clear URL:	Select this to clear the current streaming video URL being displayed.

Entering a Streaming Video URL

To enter a URL for a remote video stream source:

1. From the *Streaming Video* page, select *Enter URL* to open the *Enter URL* window (FIG. 37).

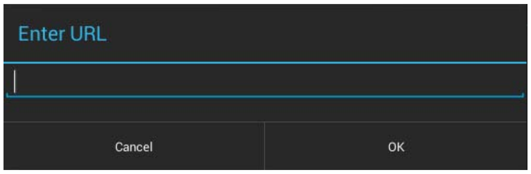


FIG. 37 Enter URL window

2. Enter the URL for the video feed and press **OK**.
3. If the feed format is supported and visible, the video feed will now appear in the *Streaming Video* page window.

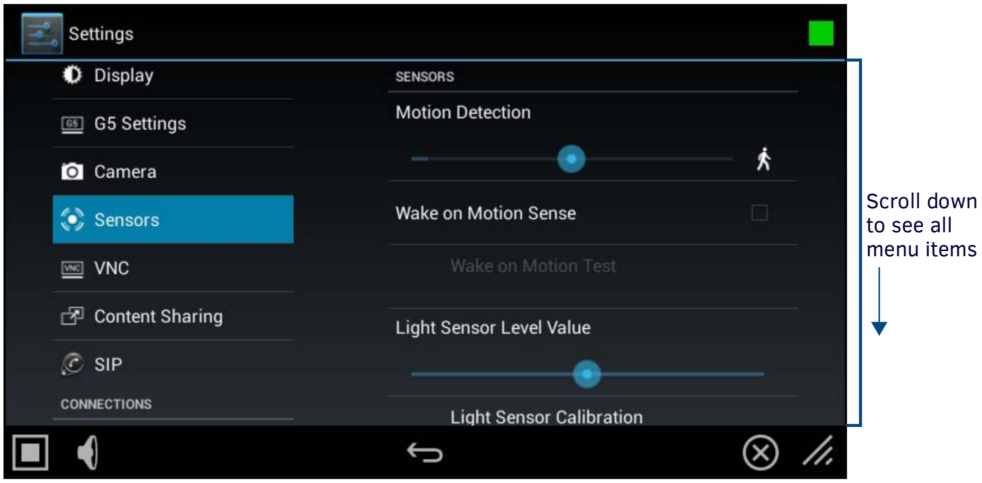
Clearing the Current Streaming Video URL

Press **Clear URL** in the Streaming Video window to clear the current URL for a remote streaming video source.

To close the Streaming Video window, touch anywhere outside of the window.

DEVICE - Sensors

The *Sensors* page (FIG. 38) allows activation and optimization of the panel’s motion and light sensors.



Scroll down to see all menu items

FIG. 38 Sensors page

Sensors page options	
Motion Detection	• The blue bar within the slide bar shows the current motion sensor reading. • The slide bar sets the motion sensor threshold.The threshold controls when a motion sensor channel is on. • The “walk” icon shows bars on either side when the threshold is crossed (FIG. 38).
Wake on Motion Sense:	Press this checkbox to wake up the panel if any motion detected crosses the threshold set by the Motion Detection slide bar.
Wake on Motion Test:	This selection only be enabled if *Wake Panel On Motion Sense* is enabled. Pressing the test button will initiate a test mode where the display will go to sleep and wait for motion to turn it on. It can be used to test your current Motion Detection threshold value.
Light Sensor Level Value	• The blue bar within the slide bar displays the current light sensor reading. • The slide bar indicates the light sensor threshold. • The threshold controls when a Light Sensor Channel Code press will be generated.
Light Sensor Calibration:	Press to perform a calibration on the light sensor. See the *Calibrating the Light Sensor* section on page 36 for details.
Light Sensor Level Port:	Displays the current level port being used by the light sensor (read-only). Default = 1.
Light Sensor Level Number:	Displays the current level being used by the light sensor (read-only). Default = 0.
Light Sensor Channel Port:	Displays the current channel port being used by the light sensor (read-only). Default = 1.
Light Sensor Channel Number:	Displays the current channel being used by the light sensor (read-only). Default = 0.
Motion Sensor Channel Port:	Displays the current channel port being used by the motion sensor (read-only). Default = 1.
Motion Sensor Channel Number:	Displays the current channel being used by the motion sensor (read-only). Default = 0.
Sensor Version:	Displays the current sensor version (read-only).

NOTE: *Light and motion sensor ports, levels, and channels are configured in TPDesign 5. For more information on configuring light and motion sensors, please refer to the* TPDesign 5 Operation/Reference Guide, *available at www.amx.com.*

Calibrating the Light Sensor

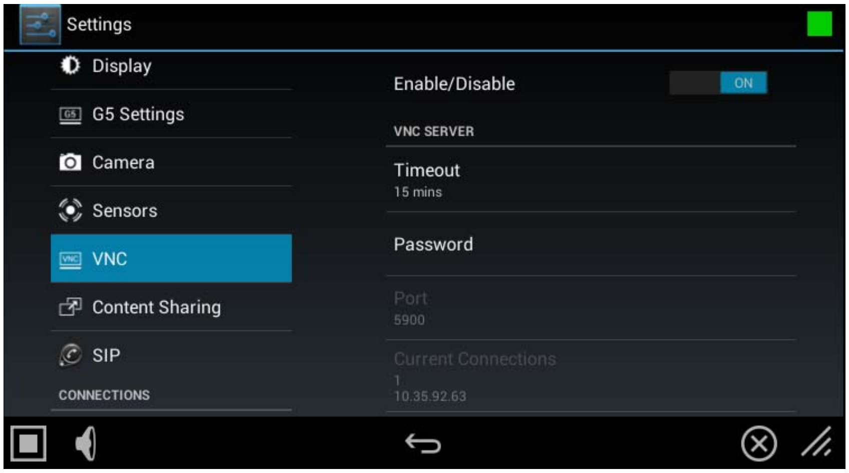
When the panel is installed for the first time, the light sensor should be calibrated to the room’s maximum ambient light condition. This calibration setting will be saved until the panel’s system settings are reset.

To calibrate the light sensor from the *Settings* pages:

1. From the *Sensor Settings* page, press **Light Sensor Calibration**.
2. Allow the panel 10 seconds to calibrate the room's ambient light level. The indicator next to the button will show a rotating circle while calibration is in progress.

DEVICE - VNC

An on-board VNC (Virtual Network Computing) server allows the panel to connect to any remote PC running a VNC client. Once connected, the client can view and control the panel remotely. The options on the *VNC* page (FIG. 39) allow you to enable or disable VNC server functionality on the panel.



Enable/Disable ON

Timeout
15 mins

Port
5900

Current Connections
1
10.35.92.63

FIG. 39 VNC page

VNC page options	
Enable/Disable:	The **Enable/Disable** button toggles between the two VNC settings: • **Disable**- deactivates the VNC server on the panel. • **Enable** - activates the VNC server on the panel (default setting).
Timeout:	Sets the length of time (in minutes) that the panel can remain idle, detecting no cursor movements, before the VNC session is terminated. (default = *15 minutes*).
Password:	Enter the VNC Authentication session password required for VNC access to the panel.
Port:	Use this field to enter the number of the port used by the VNC Web Server. Note that this field is enabled only while VNC is disabled (default = *5900*).
Current Connections:	Displays the number of users currently connected to this panel via VNC (read-only).
Maximum Connections:	Displays the maximum number of users that can be simultaneously connected to this panel via VNC. Press this field to increase the number allowed to connect to this panel. (default = *2*).

NOTE: *The VNC server takes snapshots of the display buffer and sends them via VNC at a low frame rate.*

Enabling VNC

In the *VNC* page, press **Enable/Disable** to toggle VNC to *ON* (the default setting is OFF).

Configuring VNC Access

In the *VNC* page, use the options under VNC SERVER to configure various aspects of VNC access on the panel:

- Press **Timeout** to specify a timeout period for VNC connections, in the *Timeout* window. Press **OK** to save changes.
- Press **Password** to assign the password to be required to establish a VNC connection, in the *Password* window. By default, no VNC password is set. Press **OK** to save changes.
- Press **Port** to specify the port to be used by the VNC Web Server, in the *Port* window. This option is not available if VNC is currently enabled. Press **OK** to save changes.
- Press **Maximum Connections** to set the maximum number of users that can be simultaneously connected to this panel via VNC. Press **OK** to save changes.

DEVICE - Content Sharing

The *Content Sharing* application allows G5 touch panels to share (display) content on Enzo meeting room presentation systems. With Content Sharing enabled, G5 touch panel users can connect to an Enzo unit to share content from USB, Dropbox, or other downloads.

NOTE: *Content Sharing considers the G5 touch panel to be the "Sender" of content, and Enzo units are considered to be "Receivers" of the shared content.*

The options on the *Content Sharing* page (FIG. 40) allow you to enable Content Sharing functionality on the panel, as well as configure one or more Enzo units as receivers of shared content.

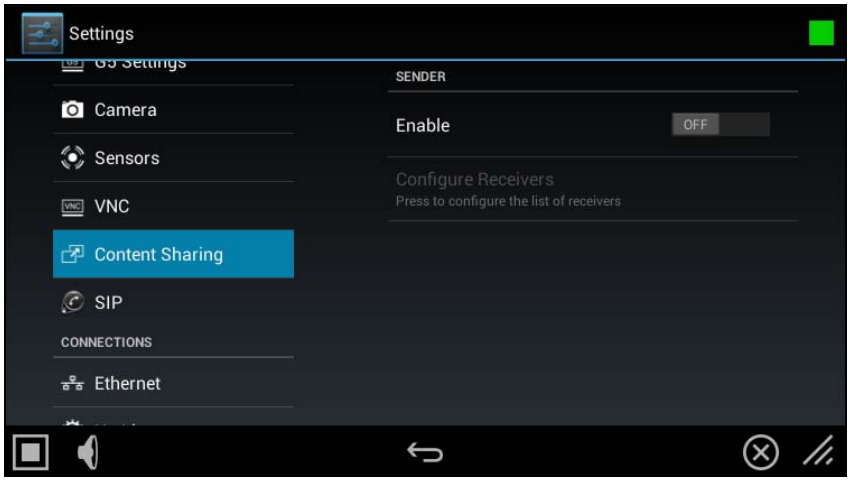


FIG. 40 Content Sharing page

Enabling Content Sharing on the Panel

In the *Content Sharing* page, press **Enable/Disable** to toggle Content Sharing to *ON* (the default setting is OFF).

Note that when Enable is set to *ON*, the *Configure Receivers* option is activated.

Configuring the Receivers List

In the *Content Sharing* page, press **Configure Receivers** to invoke the *Configure Receivers Options* window (FIG. 41):

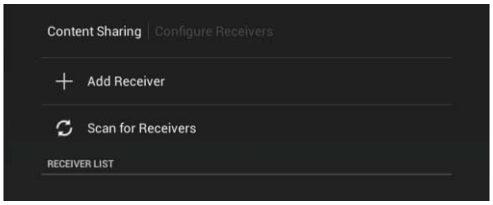


FIG. 41 Content Sharing page - Configure Receivers Options window

This window presents two options for adding Enzo receivers to the Receiver List for the panel:

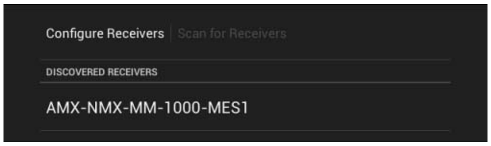
- **Add Receiver**: Use this option to add an Enzo receiver by manually entering the target Enzo's device Name, IP/Hostname, Port and Username/Password (if the target Enzo has security enabled). See page 39 for details.
- **Scan For Receivers:** Use this option to scan the local network for Enzo receivers. Use this option when you know that there is at least one Enzo present on the network. You don't have to know the target Enzo's IP information, but if security is enabled on the Enzo, you will need to enter the Username and Password required to connect.

Scanning the Network for Enzo Units

Use the *Scan for Receivers* option to automatically detect Enzo units that are on the same subnet as the panel.

NOTE: *In order to use the Scan for Receivers option, the target Enzo unit(s) must have Auto Discovery enabled (which is the default setting). Refer to the Enzo Instruction Manual for details on configuring Enzo units for use with Content Sharing.*

1. In the Content Sharing page - *Configure Receivers Options* window (see FIG. 41 on page 38), press **Scan for Receivers**. This initiates a scan of the local network for Enzo units.
2. As Enzo units are discovered, they are added to the *DISCOVERED RECEIVERS* list (FIG. 42):

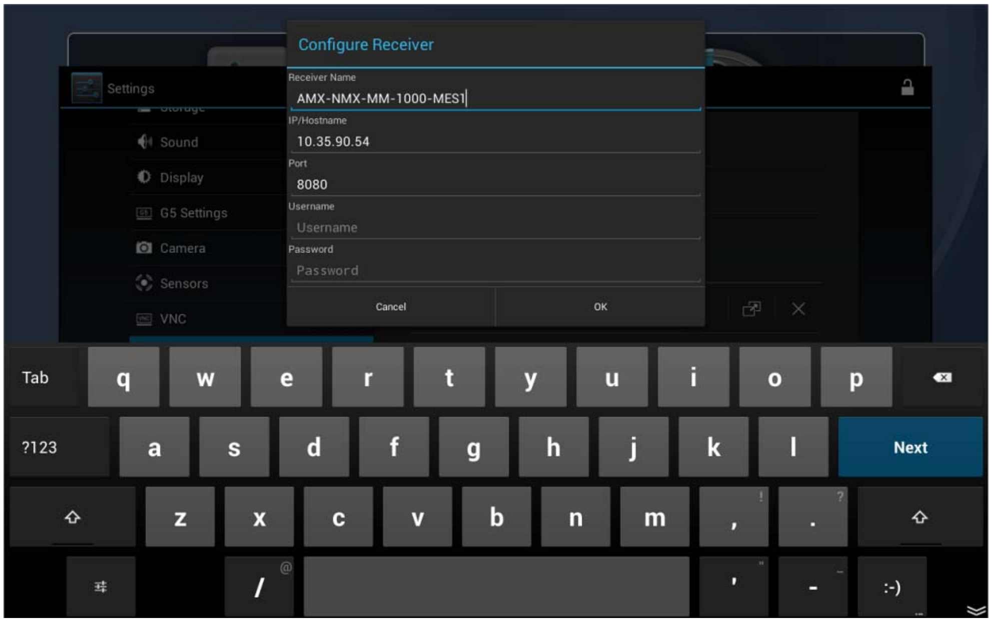


AMX-NMX-MM-1000-MES1

FIG. 42 Configure Receiver window - DISCOVERED RECEIVERS list indicating one Enzo receiver

NOTE: *As Enzo units are discovered. they are listed in order in which they are discovered. Each Enzo unit is represented in this list by it's current device name (as set on the Enzo unit). If the device name has not been edited, then the default device name is used, as shown in FIG. 42. The default device name is based on the unit's serial number.*

3. Press to select an Enzo unit to use as the receiver for Content Sharing functions on this panel. This invokes the *Configure Receiver* window, populated with the information for the selected Enzo unit, as well as the on-screen keyboard (FIG. 43):



Configure Receiver

Receiver Name: AMX-NMX-MM-1000-MES1

IP/Hostname: 10.35.90.54

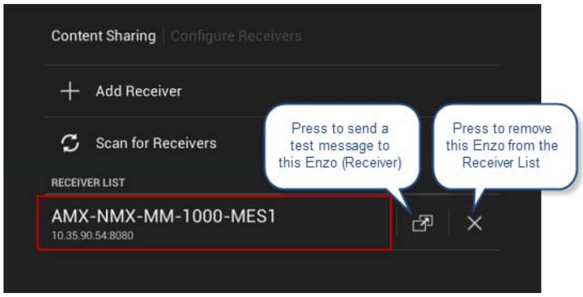
Port: 8080

Username: Username

Password: Password

FIG. 43 Configure Receiver window - indicating connection information for the selected Enzo Receiver

4. Review the connection information presented n this window, and edit if necessary. Also, enter the *Username* and *Password* required to connect to the selected Enzo receiver (if applicable).
5. Press **OK** to save changes and close the *Configure Receiver* window and on-screen keyboard.
6. Press the back button in the G5 Menu Bar to return to the main Content Sharing page. The Enzo receiver should now appear in the *RECEIVER LIST* (FIG. 44):



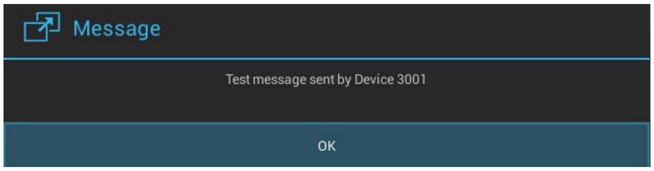
AMX-NMX-MM-1000-MES1
10.35.90.54:8080

Press to send a test message to this Enzo (Receiver)

Press to remove this Enzo from the Receiver List

FIG. 44 RECEIVER LIST - Send Message icon

7. To test the connection, press the *Share Content* icon in the RECEIVER LIST to send a test message to the Enzo unit. If the Enzo is communicating properly with the panel, it will indicate the test message on it's connected display (FIG. 45):



Message

Test message sent by Device 3001

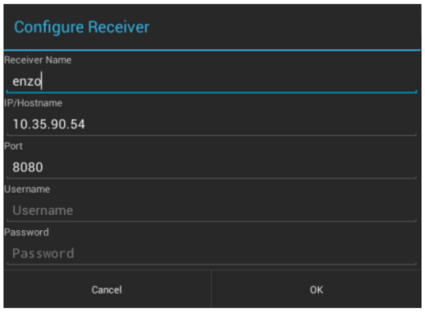
FIG. 45 Enzo - Successful Test Message

Manually Adding an Enzo to the Receivers List

Use this method if the Enzo unit is on a different subnet than the G5 panel. This method requires that you know the IP Address of the Enzo unit.

1. In the Content Sharing page - *Configure Receivers Options* window (FIG. 41), press **Add Receiver**. This invokes the *Configure Receiver* window and on-screen keyboard.
2. Use the on-screen keyboard to enter all required information for the target Enzo receiver. The information entered must match the connection information on the target Enzo unit (as it appears on the Enzo's Settings > About page):

- **Receiver Name** (required)
- **IP/Hostname** (required)
- **Port** (required)
- **Username/Password** (if required by the Enzo unit)



Configure Receiver

Receiver Name: enzo

IP/Hostname: 10.35.90.54

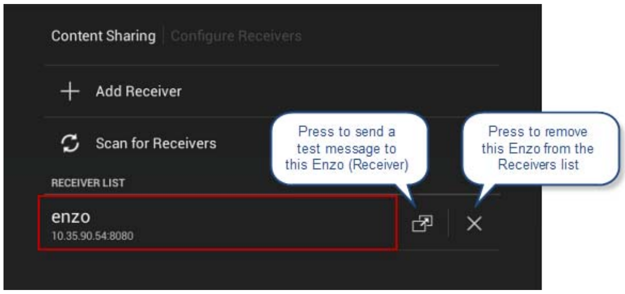
Port: 8080

Username: Username

Password: Password

FIG. 46 Configure Receiver window with sample entries for an Enzo receiver

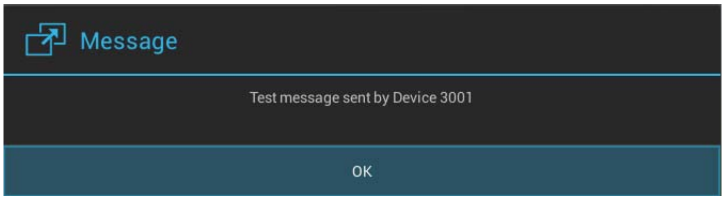
3. Press **OK** to save changes and close the *Configure Receiver* window and on-screen keyboard. The Enzo receiver should now appear in the *RECEIVER LIST* (FIG. 44):



Content Sharing
Configure Receivers
Add Receiver
Scan for Receivers
RECEIVER LIST
enzo
10.35.90.54:8080
Press to send a test message to this Enzo (Receiver)
Press to remove this Enzo from the Receivers list

FIG. 47 RECEIVER LIST - Send Message icon

4. The Enzo receiver should now appear in the *RECEIVER LIST*.
5. To test the connection, press the *Send Message* icon in the RECEIVER LIST to send a test message to the Enzo unit. If the Enzo is communicating with the panel, it will indicate the test message on it's connected display (FIG. 48):



Message

Test message sent by Device 3001

FIG. 48 Enzo - Successful Test Message

Using Content Sharing

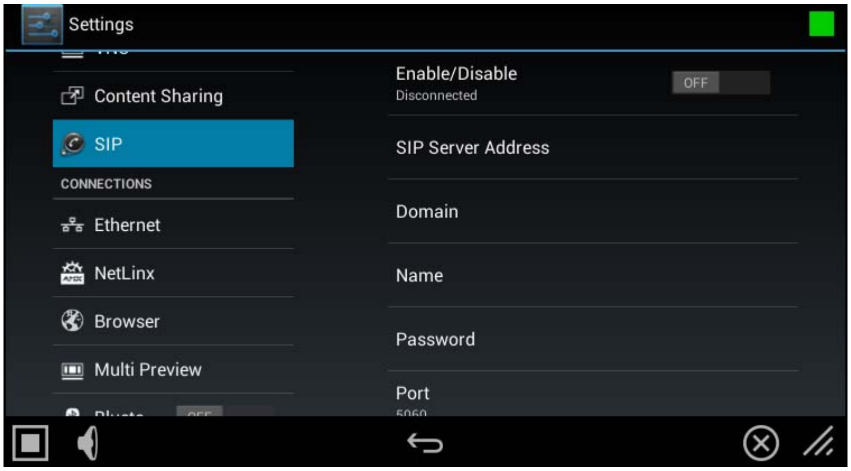
Refer to the *Using Content Sharing* section on page 78 for instructions on using Content Sharing to share file with one or more Enzo units.

DEVICE - SIP

G5 panels are available to participate in G4 intercom operations. This includes point to point, and point to multi-point sessions using the standard ^ICS , ^ICM, and ^ICE commands (page 142).

- Videocom is not available at this time. Skype should be used for video communications.
- No configuration is necessary for intercom operation. All configuration is done via Send Commands.

The *SIP* page (FIG. 49) controls the configuration of settings for SIP communication with the panel.



Enable/Disable: OFF
Disconnected

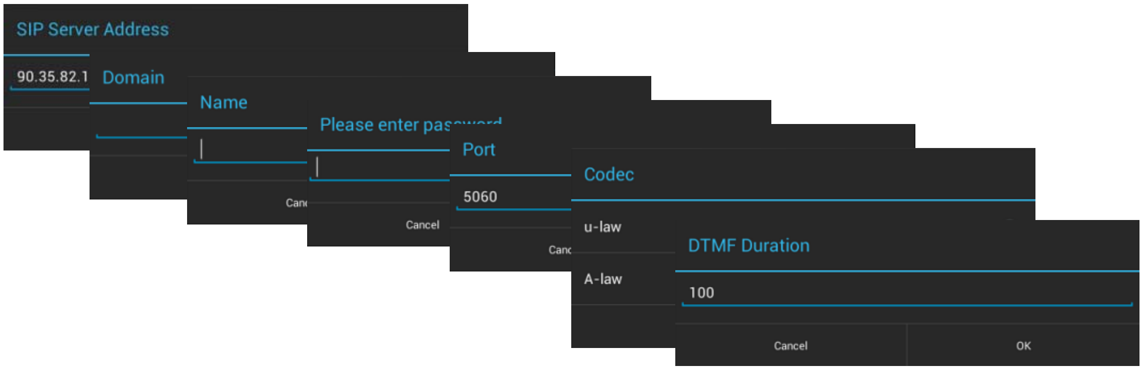
Port
5060

FIG. 49 SIP page

SIP page options	
Enable/Disable	Controls connection to the SIP server: When enabled, the panel will attempt to connect to the provide IP address. SIP will automatically be disabled if the panel is unable to connect to the gateway.
SIP Server Address	Enter the IP address of the SIP gateway in this text field.
Domain	Enter the domain name of the SIP Server.
Name	Enter the Username/extension for this panel.
Password	Enter the User defined password for this user/extension.
Port	Enter the IP port to communicate over (default = *5060*).
Codec	Specify the codec to use for SIP communication: *u-law* or *A-law* (default = *u-law*).
DTMF Duration	Specify the duration of DTMF

Configuring the Panel for use with a SIP Server

Use the options on the SIP page to configure the panel to communicate with a SIP server (FIG. 50):



SIP Server Address: 90.35.82.1

Port: 5060

DTMF Duration: 100

FIG. 50 SIP page - SIP configuration options

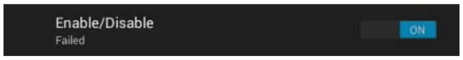
NOTE: *The SIP configuration options described below are only enabled for editing if SIP is disabled (via the Enable/Disable option at the top of the SIP page).*

1. In the *SIP Options* page (FIG. 49), press **SIP Server Address** to enter the IP address of the SIP Server in the *SIP Server Address* window. Press **OK** to save changes and close the *SIP Server Address* window.
2. Press **Domain** to enter the domain name of the SIP Server in the *Domain* window. Press **OK** to save changes and close this window.
3. Press **Name** to enter the name of the SIP Server in the *Name* window. Press **OK** to save changes and close this window.

4. Press **Password** to enter the password required to connect to the SIP Server in the *Password* window. Press **OK** to save changes and close this window.
    - The default port number for SIP communications is **5060**. If it is necessary to change the SIP port number assignment, press **Port** to open the *Port* window. Enter the desired port number and press **OK** to save changes and close this window.
    - G5 panels support both *u-law* and *A-law* codecs. The default codec used by the panel for SIP communications is *u-law*. If it is necessary to switch codecs, press **Codec** and select **A-law** in the *Codec* window. Press **OK** to save changes and close this window.
    - The default DTMF duration setting (the length of time in milliseconds to play each digit) is **100**. If it is necessary to adjust this value, press **DTMF Duration** and enter the desired duration (in msecs) in the *DTMF Duration* window. Press **OK** to save changes and close this window.

Enabling SIP Functionality on the Panel

One the panel has been configured to communicate with the SIP Server, SIP functionality must be enabled on the panel. Press **Enable Disable** to toggle SIP functionality to *enabled*. The *Enable/Disable* switch indicates **ON** when enabled (FIG. 51):



Enable/Disable
Failed
ON

FIG. 51 SIP page - SIP Enabled

Custom Ringtones & Ringback Tones

G5 supports custom ringtones and ringback tones:

Customizing the Ringtone

The default incoming call ringtone can be overridden by including a wave file named "**ringtone.wav**" in the TP5 project file.

If a "*ringtone.wav*" file is found in the TP5 file, it is used instead of the default ringtone. If no such file exists, then the default ringtone is used.

Customizing the Ringtone For Particular Caller Numbers

A custom ringtone can be configured for calls from a specific extension by including a wave file named "**ringer_xxxx.wav**" file in the TP5 project file. For example, a file named "*ringer_6001.wav*" would be used as a custom ringtone for incoming calls from extension *6001*.

This will override the custom *ringtone.wav* for any extension that has a custom ringer_xxxx.wav sound defined.

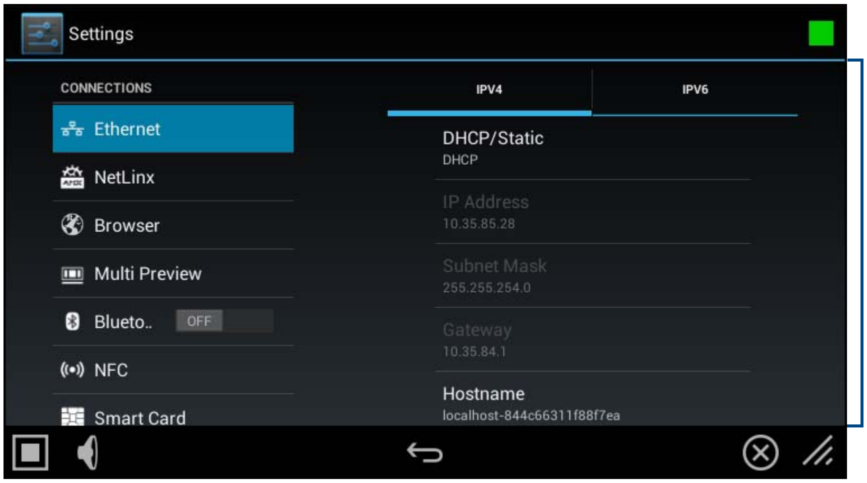
Customize Ringback Tone

Te default ringback tone (for an outgoing call) can be overridden by placing a "*ringback.wav*" file in the TP5 project file.

NOTE: *Ringtones set in the contacts app are not used by G5 at this time.*

CONNECTIONS - Ethernet

The *Ethernet* page (FIG. 52) controls the configuration of settings for Ethernet communication with the panel.



DHCP/Static
DHCP

IP Address
10.35.85.28

Subnet Mask
255.255.254.0

Gateway
10.35.84.1

Hostname
localhost-844c66311f88f7ea

Scroll down to see all menu items

FIG. 52 Ethernet page

Ethernet page - IPV4 tab options	
DHCP/Static:	Sets the panel to either DHCP or Static communication modes. • *DHCP* is an IP Address assigned to the panel by a DHCP server. If DHCP is selected, the other *Network Connection* fields are disabled (see below). • *Static IP* is a permanent IP Address assigned to the panel. If Static IP is selected, the other *Network Connection* fields are enabled.
IP Address:	Displays the IP address for this panel. If DHCP is enabled, this field will be disabled.
Subnet Mask:	Displays the subnetwork for this panel. If DHCP is enabled, this field will be disabled
Gateway:	Displays the gateway address for this panel. If DHCP is enabled, this field will be disabled.
Hostname:	Displays the hostname for this panel.
Domain:	Displays a name to the panel for DNS look-up. If DHCP is enabled, this field will be disabled.
Primary DNS:	Displays the address of the primary DNS server used by this panel for host name lookups. If DHCP is enabled, this field will be disabled.
Secondary DNS:	Displays the secondary DNS address for this panel. If DHCP is enabled, this field will be disabled.
MAC Address:	This unique address identifies the Ethernet connection in the panel (read-only).
802.1x Security	Displays the current state (disabled or enabled) of 8021.x security (default = *disabled*). Press to set enable and configure 802.1x security on the panel via the *802.x1 Security* dialog (see page 46).

Ethernet page - IPV6 tab options	
IPv6 Support	When enabled, the panel will attempt to connect via IPv6 (default = *OFF*). To enable IPv6 support on this panel, press to toggle this setting to ON. Note that when IPv6 Support is On, the following fields are enabled for editing:
Static IPv6 Address	Specifies the static IPv6 address for this panel.
Static IPv6 Subnet Prefix Length	Specifies the Static IPv6 Subnet Prefix Length for this panel.
Static IPv6 Gateway	Specifies the Static IPv6 Gateway address for this panel.
Link Local IP Address:	Displays the Link Local IP address for this panel, if one exists (read-only).
Neighbor Discovery IP Address:	Displays the Neighbor Discovery IP address for this panel (read-only).
Discovered IPv6 Gateway:	Displays the Discovered IPv6 gateway for this panel (read-only).
Hostname:	Displays the hostname for this panel.
Domain:	Displays a name to the panel for DNS look-up.
Primary DNS:	Displays the address of the primary DNS server used by this panel for host name lookups.

Ethernet page - IPV6 tab options (Cont.)	
Secondary DNS:	Displays the secondary DNS address for this panel.
MAC Address:	This unique address identifies the Ethernet connection in the panel (read-only).
802.1x Security	Displays the current state (disabled or enabled) of 802.1x security (default = *disabled*). Press to set enable and configure 802.1x security on the panel via the *802.x1 Security* dialog (see page 46).

Setting Static IP Information (IPv4)

When using *DHCP* settings for a panel, the DHCP server will automatically populate almost all of the *Ethernet* page fields, with the exception of *Hostname*. When setting the panel for *Static*, however, all IP address information must be entered manually:

1. Press *DHCP/Static* to access the *DHCP/Static* options window (FIG. 53):

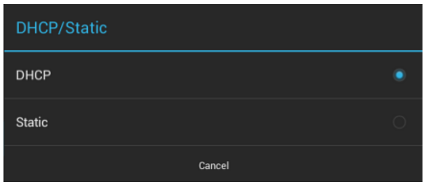
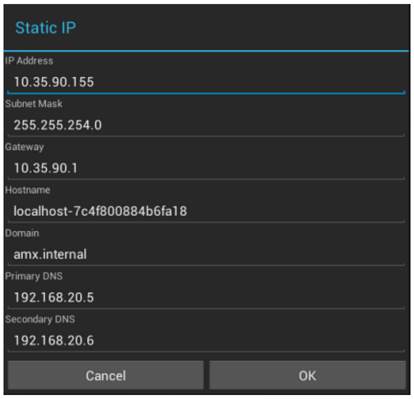


FIG. 53 DHCP/Static window

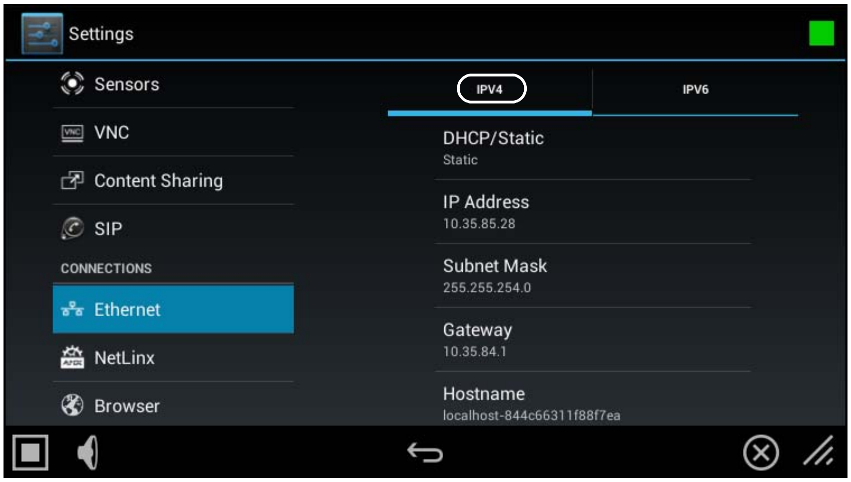
2. Press **Static** to open the *Static IP (IPv4)* window (FIG. 54).



IP Address: 10.35.90.155
Subnet Mask: 255.255.254.0
Gateway: 10.35.90.1
Hostname: localhost-7c4f800884b6fa18
Domain: amx.internal
Primary DNS: 192.168.20.5
Secondary DNS: 192.168.20.6

FIG. 54 Static IP (IPv4) window

3. Press any field in this window to open the *on-screen* keypad or keyboard.
4. Enter IP address information for each field presented, via the *Static IP* window.
5. When complete, press **OK** to save changes and return to the *Ethernet* page - *IPV4* tab (FIG. 55):



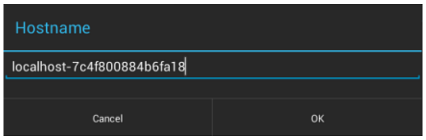
DHCP/Static: Static
IP Address: 10.35.85.28
Subnet Mask: 255.255.254.0
Gateway: 10.35.84.1
Hostname: localhost-844c66311f88f7ea

FIG. 55 Ethernet page (IPV4 tab) - indicating Static IP connection information

Entering a New Hostname (IPv4/DHCP only)

In order to facilitate DNS lookup of the panel, you should set a new hostname for the panel. To add a new hostname, or to change an existing one:

1. From the *Ethernet* page (IPv4 tab), select *Hostname* to open the *Hostname* window (FIG. 56).



Hostname: localhost-7c4f800884b6fa18

FIG. 56 Hostname window

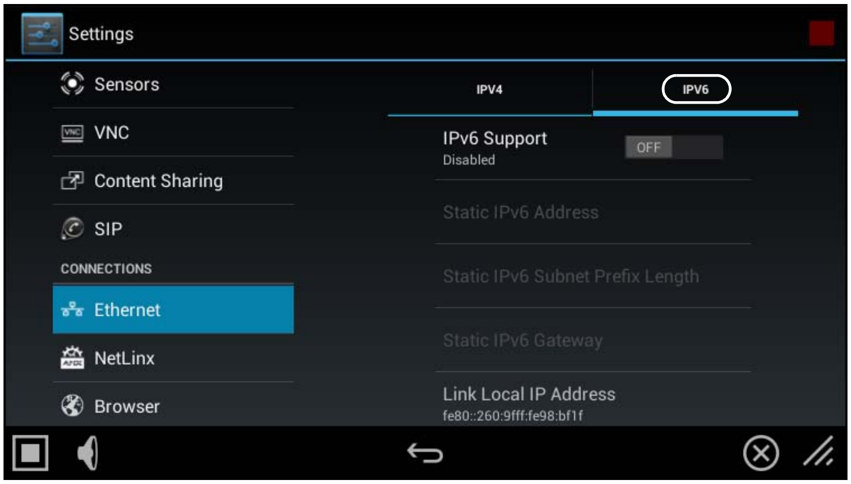
2. Enter the new hostname and press **OK**.

The new hostname will now appear in the *Hostname* field.

Setting IPv6 Information

When using IPv6 network addressing for a panel, IPv6 support must be enabled on the panel, and all IP address information must be entered manually:

1. In the Ethernet page, open the *IPV6* tab (FIG. 57): :

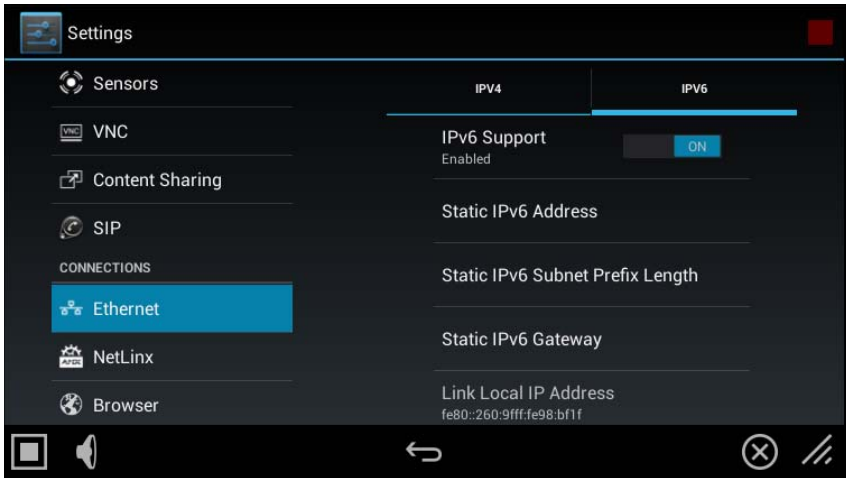


IPv6 Support: Disabled

Link Local IP Address: fe80::260:9fff:fe98:bf1f

FIG. 57 Ethernet page - IPV6 tab

2. Toggle the **IPv6 Support** option *ON*. Note that this enables the other fields for editing (FIG. 58): :

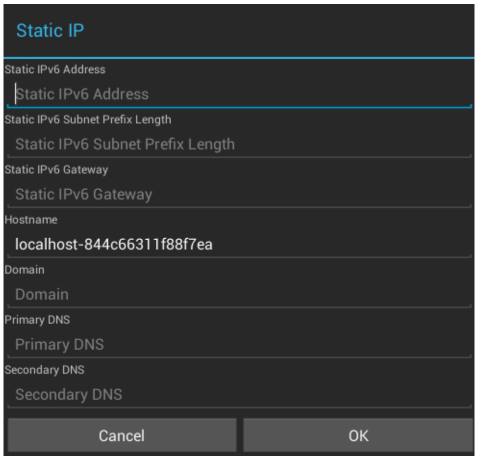


IPv6 Support: Enabled

Link Local IP Address: fe80::260:9fff:fe98:bf1f

FIG. 58 Ethernet page - IPV6 tab (IPv6 support enabled)

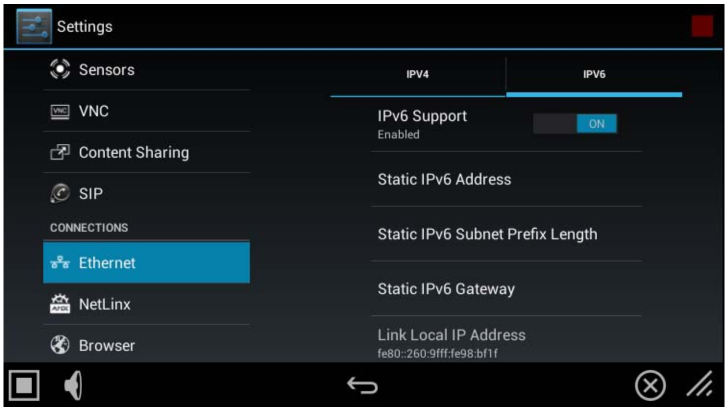
3. Press the *Static IPv6 Address* field to set the static IP address for this panel, via the *Static IP* window (FIG. 59):



Static IPv6 Address: Static IPv6 Address
Static IPv6 Subnet Prefix Length: Static IPv6 Subnet Prefix Length
Static IPv6 Gateway: Static IPv6 Gateway
Hostname: localhost-844c66311f88f7ea
Domain: Domain
Primary DNS: Primary DNS
Secondary DNS: Secondary DNS

FIG. 59 Static IP (IPv6) window

4. Press **Static IPv6 Address** to enter this information via the *on-screen* keypad or keyboard. Press **OK** to save changes and return to the Ethernet page (IPV6 tab).
5. Repeat for the *Static IPv6 Subnet Prefix Length, Static IPv6 Gateway, Hostname, Domain, Primary and Secondary DNS* fields.
6. When complete, press **OK** to save changes and return to the *Ethernet* page - *IPV6* tab (FIG. 60):



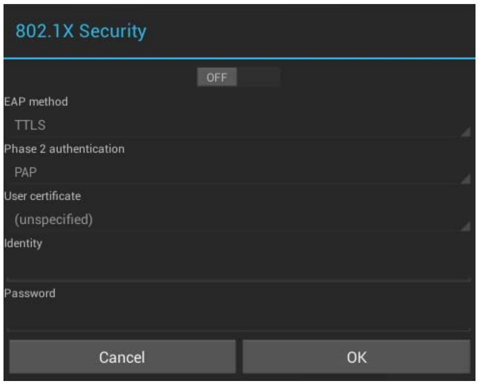
IPv6 Support: Enabled, ON
Link Local IP Address: fe80::260:9fff:fe98:bf1f

FIG. 60 Ethernet page (IPV6 tab)

Working With 802.1x Security

Use the *802.1x Security* option in the Ethernet page (both tabs) to enable and configure 802.1x security settings on this panel:

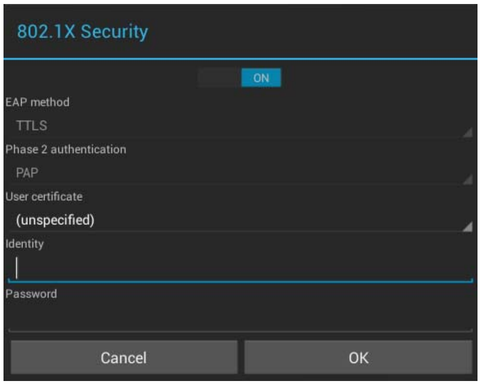
1. From the *Ethernet* page (either tab), select *802.1x Security* to open the *802.1x Security* window (FIG. 61).



OFF
EAP method: TTLS
Phase 2 authentication: PAP
User certificate: (unspecified)
Identity
Password

FIG. 61 802.1x Security window (OFF)

2. Toggle this feature **ON** to enable the editable fields in this window (FIG. 62):
3. Press **User certificate** to select a user certificate to use for 802.1x access.
4. Press **User certificate** to select a user certificate to use for 802.1x access
5. Press the **Identity** and **Password** fields to enter the appropriate Identity and Password for 802.1x access via the on-screen keyboard.
6. Press **OK** to save changes and return to the Ethernet page.


802.1X Security

ON

EAP method: TTLS

Phase 2 authentication: PAP

User certificate: (unspecified)

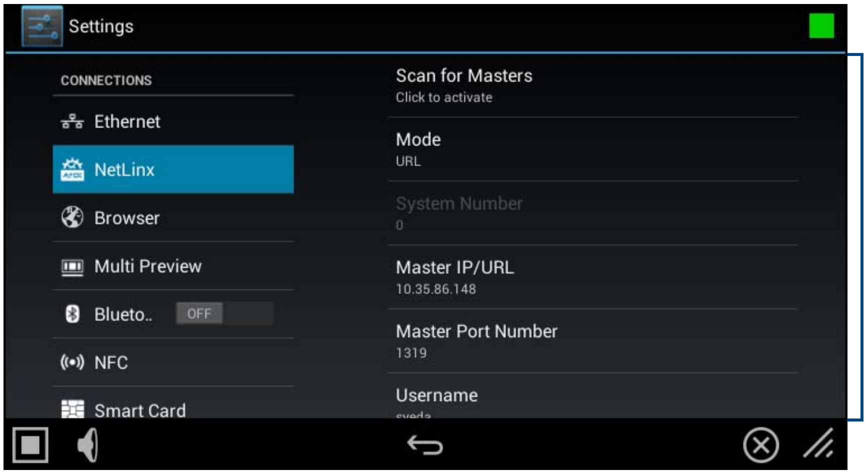
Identity

Password

FIG. 62 802.1x Security window (ON)

CONNECTIONS - NetLinx

The *NetLinx* page (FIG. 63) controls the method of connecting to a NetLinx Master.



Scan for Masters
Click to activate

Mode
URL

System Number
0

Master IP/URL
10.35.86.148

Master Port Number
1319

Username

Scroll down to see all menu items

FIG. 63 NetLinx page

NetLinx page options	
Scan for Masters	Press to scan for NetLinx masters on the network, via the *Master Connection* window. See *Scanning for Masters* on page 48 for details.
Mode	Cycles between the connection modes: *URL*, *Listen*, and *Auto*. • **URL** - Enter the IP/URL, Master Port Number, and username/password (if used) on the Master. The System Number field is read-only - the panel obtains this information from the Master. • **Listen** - Add the panel address into the URL List in NetLinx Studio and set the connection mode to Listen. This mode allows the panel to "listen" for the Master's communication signals. The System Number and Master IP/URL fields are read-only. • **Auto** - Enter the System Number and a username/password (if applicable). Use this mode when both the panel and the NetLinx Master are on the same Subnet. The Master IP/URL field is read-only.
System Number	Allows entry of a system number. Default value is 0 (zero). Note: Available in Auto Mode Only - disabled when URL or Listen is selected.
Master IP/URL	Sets the Master IP or URL of the NetLinx Master. *Note: Available in URL Only - disabled when Listen or Auto is selected*.
Master/Port Number	Allows entry of the port number used with the NetLinx Master. Default = 1319.
Username	If the target Master has been previously secured, enter the alpha-numeric string (into each field) assigned to a preconfigured user profile on the Master. This profile should have the predefined level of access/configuration rights.
Password	If the target Master has been previously secured, enter the alpha-numeric string (into each field) assigned to a preconfigured user profile on the Master. This profile should have the predefined level of access/configuration rights.
Device Number	Displays the panel's device number and allows entry of a new one.
Device Name	Displays the panel's device name and allows entry of a new one.

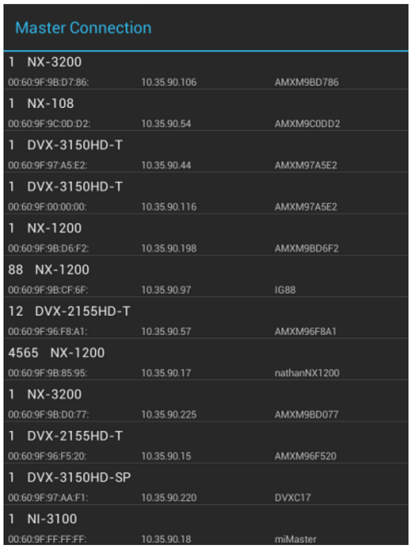
NetLinx page options (Cont.)	
Secure Master Connection	Press to enable and configure a connection a secured NetLinx Master, via options in the *NetLinx* window (see page 49). *Note: The secure connection is a TLS connection to a NetLinx Master on port 1320.*
Hostname Verification	Press to enable hostname verification of the NetLinx Master via the Master's device certificate (see page 50). *Note: This option is only available if the Secure Master Connection option is enabled.*
Connection Status	Displays the panel's connection status to the Master.

Scanning for Masters

Use the *Scan For Masters* feature to quickly and easily identify all of the available NetLinx Masters on the network.

The site survey on this page passively listens to network traffic and presents all the compatible Masters for easy selection. Selecting the desired Master automatically updates the NetLinx Master section and establishes a connection.

1. In the *NetLinx* page, press **Scan For Masters** to begin listening for NetLinx masters and open the *Master Connection* window (FIG. 64):



Master Connection

1 NX-3200
00:60:9F:9B:D7:86: 10.35.90.106 AMXM9BD786

1 NX-108
00:60:9F:9C:0D:D2: 10.35.90.54 AMXM9C0DD2

1 DVX-3150HD-T
00:60:9F:97:A5:E2: 10.35.90.44 AMXM97A5E2

1 DVX-3150HD-T
00:60:9F:00:00:00: 10.35.90.116 AMXM97A5E2

1 NX-1200
00:60:9F:9B:D6:F2: 10.35.90.198 AMXM9BD6F2

88 NX-1200
00:60:9F:9B:CF:6F: 10.35.90.97 IG88

12 DVX-2155HD-T
00:60:9F:96:F8:A1: 10.35.90.57 AMXM96F8A1

4565 NX-1200
00:60:9F:9B:85:95: 10.35.90.17 nathanNX1200

1 NX-3200
00:60:9F:9B:D0:77: 10.35.90.225 AMXM9BD077

1 DVX-2155HD-T
00:60:9F:96:F5:20: 10.35.90.15 AMXM96F520

1 DVX-3150HD-SP
00:60:9F:97:AA:F1: 10.35.90.220 DVXC17

1 NI-3100
00:60:9F:FF:FF:FF: 10.35.90.18 miMaster

Scroll down
to see all
menu items

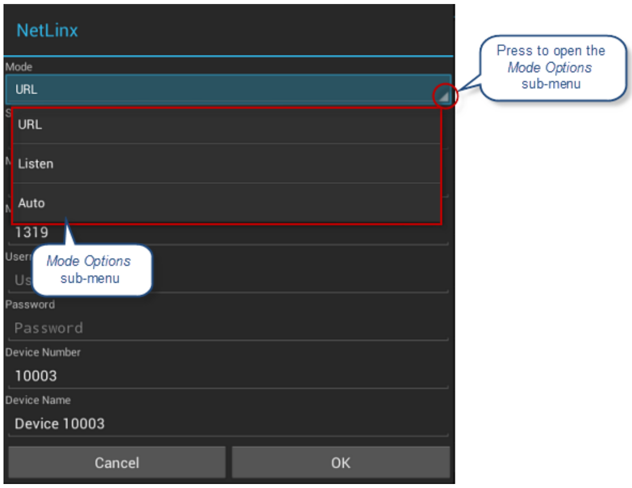
FIG. 64 Master Connection window

2. Select the NetLinx Master for this panel.
3. The *NetLinx* page will automatically display the connection information on the selected Master.

Changing the Master Connection Mode

To select the Master Connection mode (*URL*, *Listen*, or *Auto*):

1. In the *NetLinx* page, press **Mode** to open NetLinx Options window (FIG. 65):



NetLinx

Mode
URL

1319

Password
Password

Device Number
10003

Device Name
Device 10003

Press to open the *Mode Options* sub-menu

Mode Options sub-menu

FIG. 65 NetLinx Options window - Mode menu

2. Select the desired option from the **Mode** menu - *URL* (default setting), *Listen* or *Auto*.
3. When finished, press **OK** to return to the *NetLinx* page.

Changing the Master IP/URL

To change the IP address or URL for the chosen Master:

1. In the *NetLinx* page, press **Master IP/URL** to open the *NetLinx Options* window and on-screen keyboard.
2. Enter the IP address or the URL.
3. Press the double-down arrow key at the bottom right of the on-screen keyboard to close the keyboard.
4. The new IP address/URL is now displayed in the *Master IP/URL* field.
5. Press **OK** to save the changes and return to the *NetLinx* page.

Changing the Master Port Number

To change the Master Port Number from its default:

1. In the *NetLinx* page, press **Master Port Number** to open the *NetLinx Options* window and on-screen keyboard.
2. Enter the new Master Port Number.
3. Press the double-down arrow key at the bottom right of the on-screen keyboard to close the keyboard.
4. The new Port Number is now displayed in the *Master Port Number* field.
5. Press **OK** to save the changes and return to the *NetLinx* page.

Changing the Master Username

1. In the *NetLinx* page, press the *Username* field to open the *NetLinx Options* window and on-screen keyboard.
2. Enter the new username.
3. Press the double-down arrow key at the bottom right of the on-screen keyboard to close the keyboard.
4. The new Username is now displayed in the *Username* field.
5. Press **OK** to save the changes and return to the *NetLinx* page.

Changing the Master Password

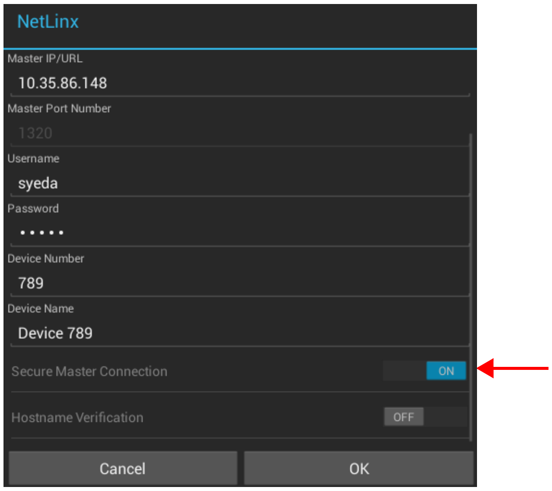
1. In the *NetLinx* page, press **Password** to open the *NetLinx Options* window and on-screen keyboard.
2. Enter the new password.
3. Press the double-down arrow key at the bottom right of the on-screen keyboard to close the keyboard.
4. The new Password is now displayed in the *Password* field.
5. Press **OK** to close the *NetLinx* window and return to the *NetLinx* page.

Changing the Device Number and Device Name

1. In the *NetLinx* page, press the *Device Number* field to open the *NetLinx Options* window and on-screen keypad.
2. Enter a new Device Number.
3. Press **Next**, to select *Device Name* in the NetLinx page and open the n-screen keyboard.
4. Enter a new Device Name.
5. Press **Done** to close the keypad and keyboard.
6. The new Device Number and Device Name are now displayed in the *Device Number* and *Device Name* fields.
7. Press **OK** to save changes and close the NetLinx window and return to the *NetLinx* page.

Enabling a Secure Master Connection

1. In the *NetLinx* page, press the *Secure Master Connection* field to open the *NetLinx Options* window.
2. Scroll to the bottom of the options list and toggle the *Secure Master Connection* option **ON** (FIG. 66):

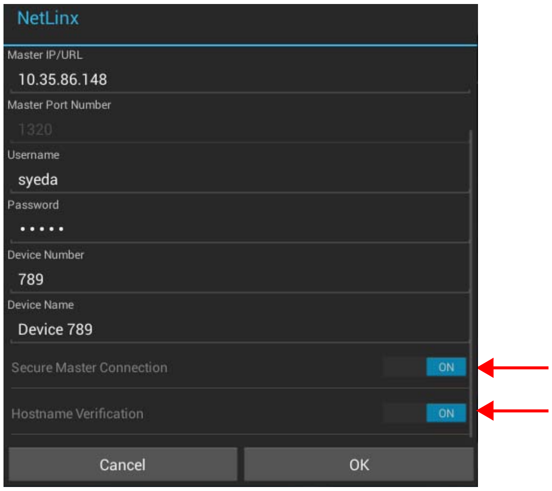


Master IP/URL: 10.35.86.148
Master Port Number: 1320
Username: syeda
Password: •••••
Device Number: 789
Device Name: Device 789
Secure Master Connection: ON
Hostname Verification: OFF

FIG. 66 NetLinx Options window - Secure Master Connections and Hostname Verification options enabled

Enabling Hostname Verification

1. In the *NetLinx* page, press the *Hostname Verification* field to open the *NetLinx Options* window.
2. Scroll to the bottom of the options list and toggle the *Hostname Verification* option **ON** (FIG. 67):



Master IP/URL: 10.35.86.148
Master Port Number: 1320
Username: syeda
Password: •••••
Device Number: 789
Device Name: Device 789
Secure Master Connection: ON
Hostname Verification: ON

FIG. 67 NetLinx Options window - Secure Master Connections and Hostname Verification options enabled

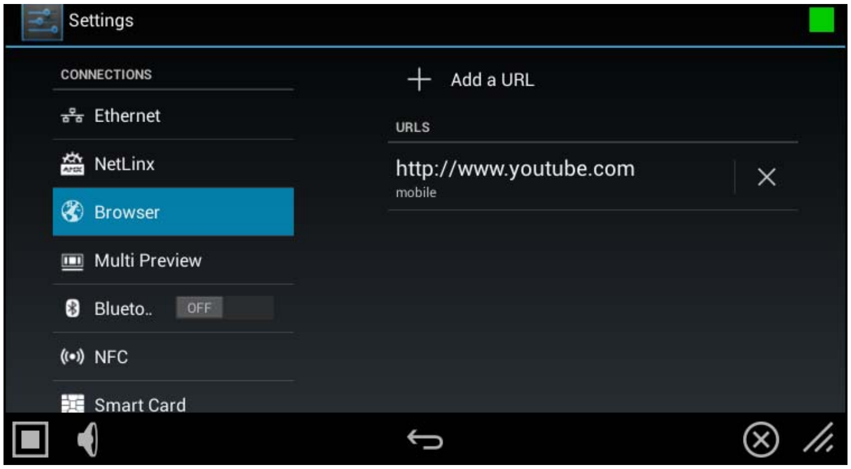
Note that this option is available only if the *Secure Master Connection* option is ON.

CONNECTIONS - Browser

Use TPDesign5 to add "application windows" to the panel. There are many different types of application windows that can be added to the panel file. One of them is "Browser", which opens a web browser window on the panel.

NOTE: *Refer to the TPDesign5 online help for details on adding Application Windows to your touch panel project.*

The options in the *Browser* page of the Settings menu (FIG. 68) allow you to specify the *default view mode* for specific URLs, when they are opened in a "Browser" application window. The view mode options are "desktop" and "mobile", and the default mode is "mobile".



http://www.youtube.com
mobile

FIG. 68 Browser page

Browser page options	
Add a URL	Select to add a URL to the URL list. This selection opens the *Enter URL* window (FIG. 69). Enter the URL and de-select the *Use desktop version* option to request 'mobile' content for the URL. By default, this option is selected.
URLs	This list provides the ability to request either 'desktop' or 'mobile' content for each URL in the list This selection is made when a URL is added to the list (see below).

Adding a URL to the URLs List

1. From the *Browser* page, press *Add a URL* (see FIG. 68 on page 50) to open the *Enter URL* window (FIG. 69):
2. Enter the URL in the text field.
3. By default, the *Use desktop content* option is selected; de-select this option to request 'mobile' content for the URL.
4. Press **OK** to close the *Enter URL* window and return to the *Browser* page. The new URL is indicated in the URLs list.

Once a URL has been added to the URLs list, the view mode setting (*desktop* or *mobile*) for that website can be specified:

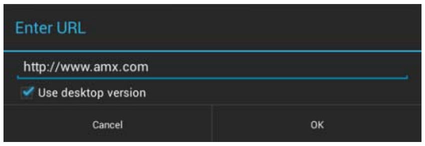


FIG. 69 Enter URL window

Switching Between Desktop and Mobile Content

To toggle the 'desktop' or 'mobile' setting for any URL in the list, simply press a URL in the list (see FIG. 68 on page 50). The current content setting is indicated beneath each URL in the list (FIG. 70):

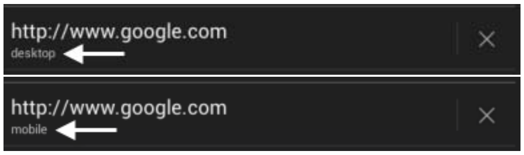


FIG. 70 URL list - ***desktop/ mobile*** content

Deleting a URL from the URL's List

Press the **X** icon to delete any URL from the list. Note that if a website that is *not* represented in the URLs list is opened on the panel, it will always open in the *Mobile* (default) view mode.

NOTE: *Refer to the TPDesign5 online help for details on adding Application Windows (including Browser windows) to your touch panel project.*

CONNECTIONS - Multi Preview

To use the MXA-MP Multi Preview or MXA-MPL Multi Preview Live devices for video stream display, the panel to which it is connected must be configured to receive its signals. If a Multi Preview device is not connected to the panel's network, all fields but the **Enable** button will be empty.

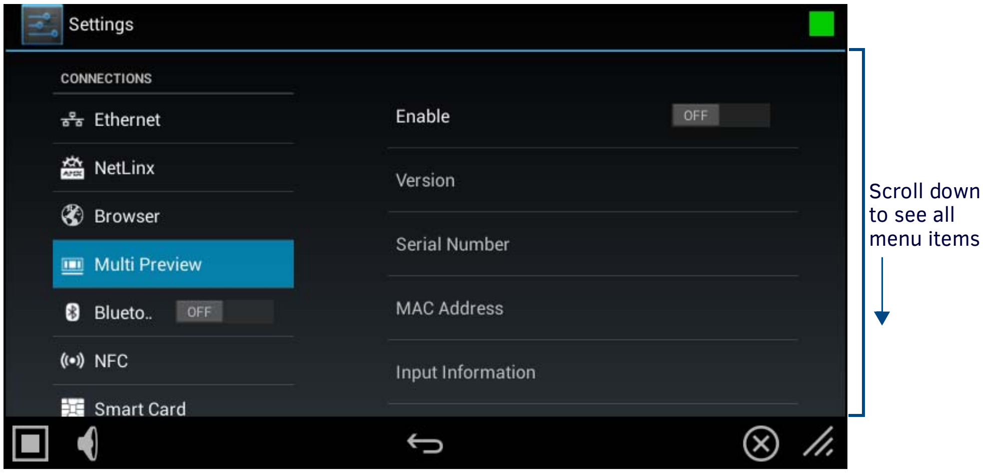


FIG. 71 Multi Preview page

Multi Preview page options	
Enable:	Press to enable the panel to receive information from the Multi Preview device.
Version:	Displays the current firmware version on the Multi Preview device.
Serial Number:	Displays the serial number of the Multi Preview.
MAC Address:	Displays the MAC address of the Multi Preview
Input Information:	Displays the video format and resolution coming from the video input port.
Stream Information:	This feature is currently disabled.

NOTE: *For more information on operation and configuration of an MXA-MP or MXA-MPL, refer to the MXA-MP/MPL Instruction Manual, available at www.amx.com.*

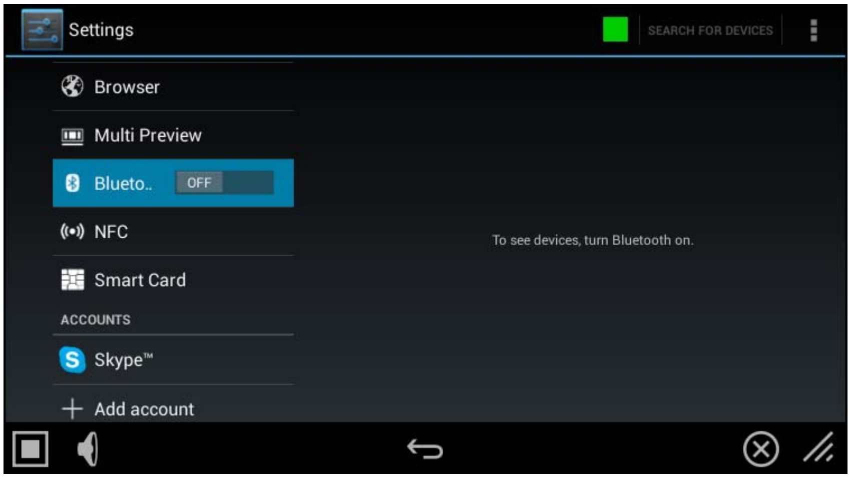
Configuring the Panel To Accept Multi Preview Signals

1. In the *Multi Preview* page, press the **Enable** button to enable the panel to receive information from the Multi Preview device.
2. If a Multi Preview device is connected, the remaining information on the *Multi Preview* page will self-populate as the panel receives that information from the Multi Preview device.

NOTE: *If the Multi Preview device is not connected to the panel, any attempts at enabling the device will fail, and the* Multi Preview *page will be blank other than the Enable button. If an MXA-MP or MPL is not connected to the panel, the Enable button MUST be disabled to prevent network conflicts.*

CONNECTIONS - Bluetooth

The *Bluetooth* page provides the ability to pair one or more Bluetooth devices to the panel (FIG. 72):



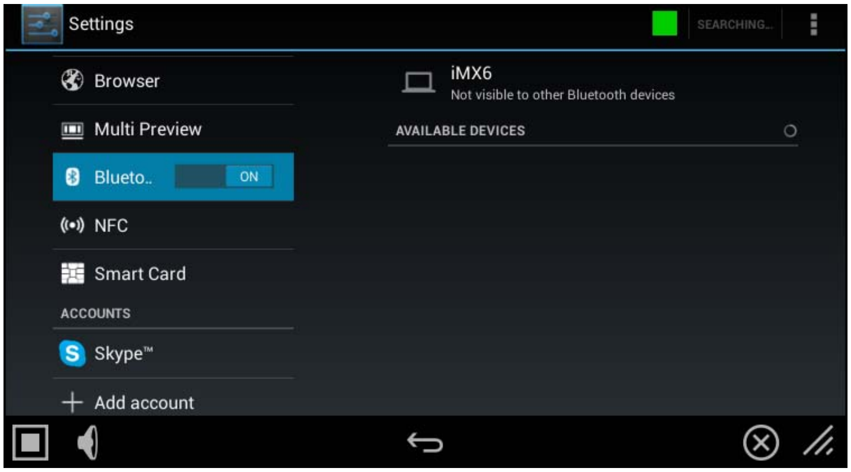
To see devices, turn Bluetooth on.

FIG. 72 Bluetooth page

NOTE: *Bluetooth functionality is only available if an (optional) MXA-BT Bluetooth USB Adapter (FG5968-19) is connected to the panel.*

To listen for Bluetooth devices:

1. Press the **Bluetooth** menu item to toggle the function ON (FIG. 73):



iMX6
Not visible to other Bluetooth devices

FIG. 73 Bluetooth page - Bluetooth Enabled

All Bluetooth devices detected are listed in the Bluetooth window.

2. Press a device in the list to pair it with the panel.

CONNECTIONS - NFC

The *NFC* page controls the panel's Near Field Communications™ (NFC) access, as well as displaying the last NFC tag read by the panel (FIG. 74).

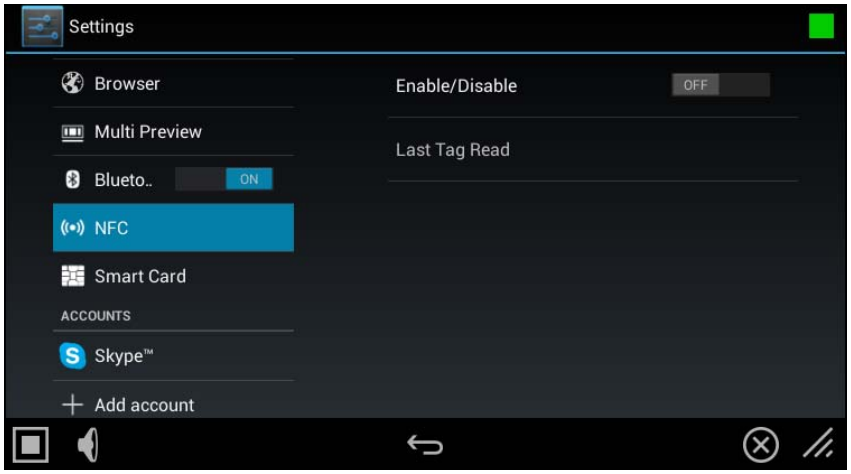


FIG. 74 NFC page

NFC page options	
Enable/Disable:	Press to enable or disable NFC functionality.
Last Tag Read:	Displays the last-read NFC tag ID.

NOTE: *For more information on the NFC capabilities of your panel, please refer to the product documentation for the panel in question. All product documentation is available at www.amx.com.*

NFC Commands

Custom Events for NFC	
NFC Read tag custom event	Reported to the master when the panel reads an NFC Tag. Custom event type - 700 ID - 1 Flag - 0 Value1 - Tag Type Value2 - Data Type Value3 - Length of data in the Text field Text - NFC Data (of type specified by Value2) Where Tag Type is: 1 = ISO 15693 2 = ISO 14443A 3 = ISO 14443B 4 = FeliCa (currently not supported) Data Type is: 0 = custom.text field contains the NFC UID (as a text string) 1 = custom.text contains NFC data (currently not supported)

Streaming video custom event	Indicates streaming video status changes. Start and stop stream based events are sent to the master in the form of custom events.
	The eventID 768 is sent to port 1 on the master.
	The fields are:
	CUSTOM.TYPE = EVENTID = 768
	CUSTOM.ID = ADDRESS = 0
	CUSTOM.FLAG = Start(1), Stop(2), Error(8)
	CUSTOM.VALUE1 = Number of starts (or stops or errors)
	CUSTOM.VALUE2 = Address of button/stream
	CUSTOM.VALUE3 = Port of button/stream
	CUSTOM.TEXT = stream URL

CONNECTIONS - Smart Card

The *Smart Card* page enables Smart Card functionality on the panel, and provides access to the PIV Authentication Certificate and CHUID associated with the Smart Card reader (FIG. 75).

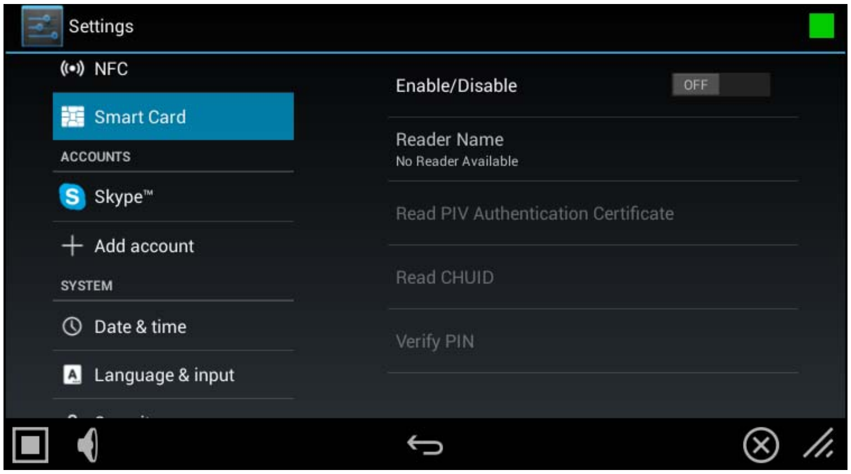


FIG. 75 Smart Card page

Smart Card page options	
Enable/Disable:	Press to toggle the smart card service on this panel (default = OFF).
Reader Name	This read-only field displays the name of the attached smart card reader, if a reader is attached and enabled.
Read PIV Authenticate Certificate	Press to read and display the PIV Authentication Certificate of the smart card.
Read CHUID	Press to read and display the CHUID from the smart card.
Verify PIN	Press to require the entry of a valid PIN for the smart card.

ACCOUNTS - Add an Account

G5 panels allow access to outside accounts, such as corporate and personal Email, Skype and Dropbox. These must be configured through the *Add an Account* section (FIG. 76) before they can be used with the panel.

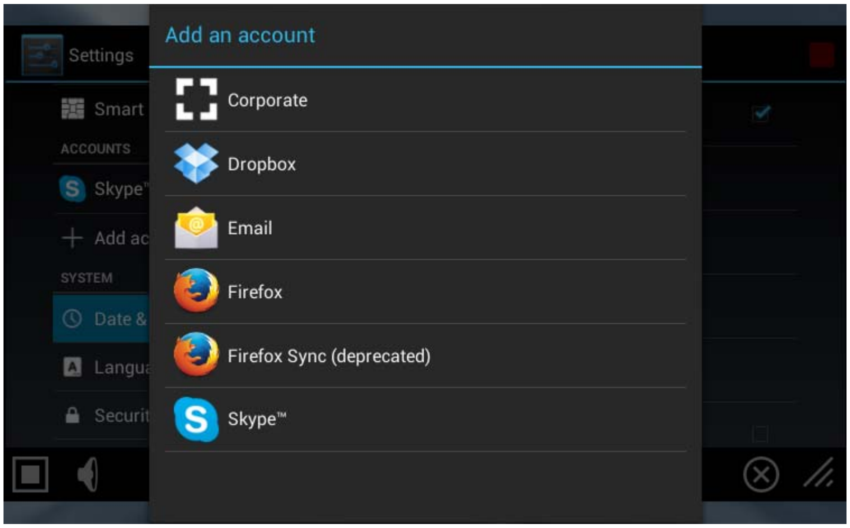


FIG. 76 Add an account page

Adding an Account

1. In the *Settings* menu, select *Add an Account*.
2. In the *Add an Account* window, select the type of account you wish to add to the panel (see FIG. 76).
3. Follow the instructions in each window for each account (FIG. 77).

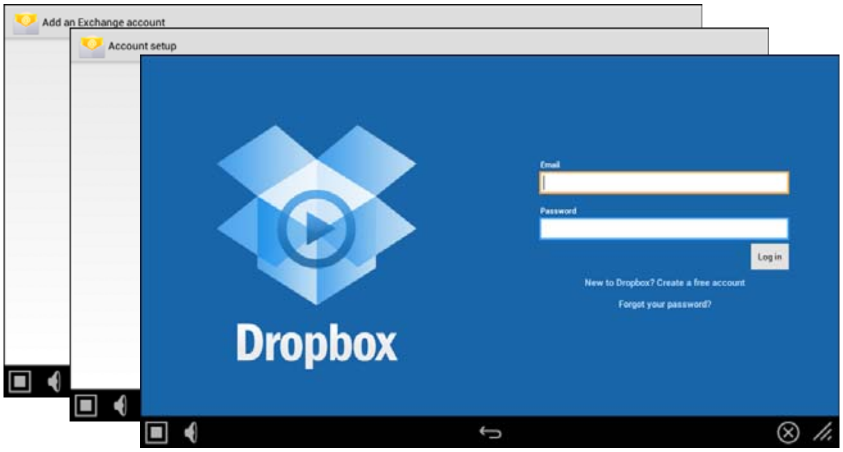
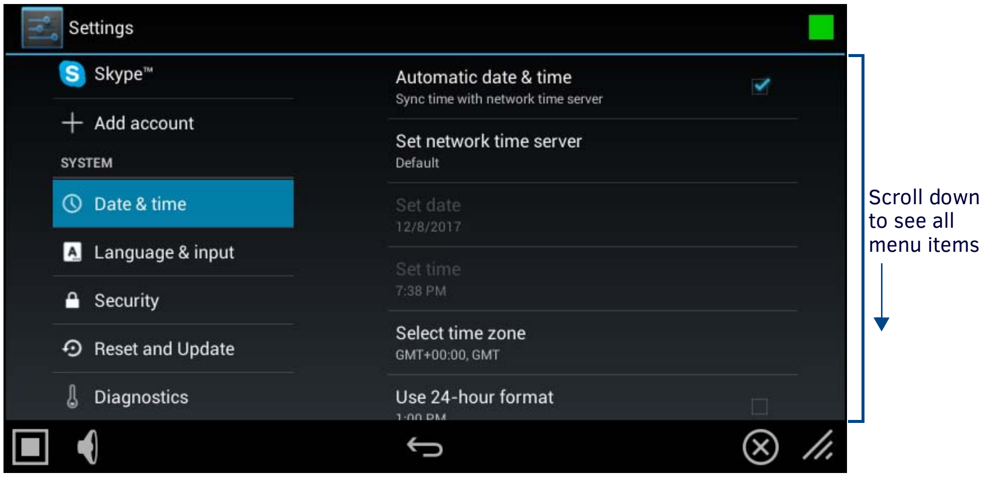


FIG. 77 Example account windows

NOTE: *Entering an incorrect password on the panel for an Email account could result in locking that User's account.*

SYSTEM - Date & Time

The *Date & Time* page (FIG. 78) allows setting and adjusting the time and date information on the panel.



Automatic date & time ☑
Sync time with network time server

Set network time server
Default

Set date
12/8/2017

Set time
7:38 PM

Select time zone
GMT+00:00, GMT

Use 24-hour format ☐
1:00 PM

Scroll down to see all menu items

FIG. 78 Date & Time page

Date & Time page options	
Automatic Date & Time:	When checked, the panel retrieves time/date information from a network time server (NTP). Default = *Enabled*.
Set network time server:	Press this option to specify the IP address/name of a custom NTP if desired.
Set Date:	Use the *Set Date* window (FIG. 79) to set the current day, month, and year.
Set Time:	Use the *Set Time* window (FIG. 79) to select the current time.
Select Time Zone:	Use the *Select Time Zone* window (FIG. 82) to select the current time zone.
Use 24-Hour Format:	When checked, this option always displays the time in 24-hour format.
Choose Date Format:	Use the *Choose Date* Format window (FIG. 83) to select the desired date format.

The current date and time may be retrieved from NTP or it may be updated manually.

Retrieving the Date and Time From NTP

1. In the *Date & Time* page, press **Automatic Date & Time**. Note that this option is selected by default.
2. Make sure that the checkbox is selected.
3. The date and time will be updated automatically by NTP.

Manually Setting the Date and Time

1. If *Automatic Date & Time* is enabled, de-select the field to disable it.
2. Press **Set Date** to open the *Set Date* window (FIG. 79).

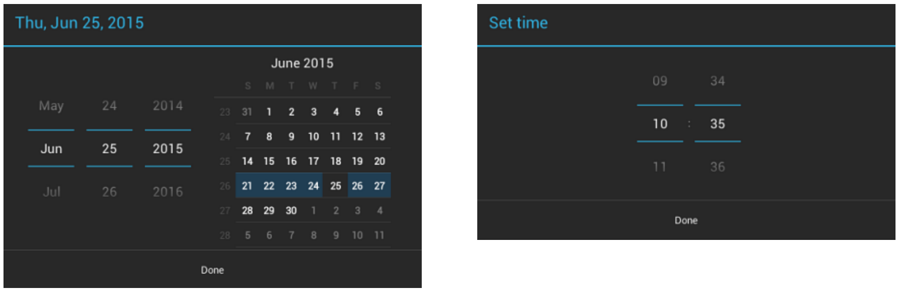


FIG. 79 Set Date and Set Time windows

3. Select the date, either by pressing and dragging on the fields on the left or by pressing the date in the calendar.
4. Press **Set Time** to open the *Set Time* window
5. Select the time by pressing and dragging on the fields in the center.
6. Press **Done** to save changes and close this window.

Specifying a Network Time Server

If *Automatic Date & Time* is enabled, the network time server used can be specified via the *Set network time server* option:

1. Press **Set network time server** to open the *Set network time server* window (FIG. 80):

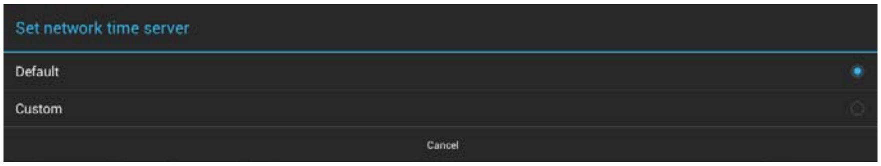


FIG. 80 Set network time server window

2. Press **Custom** to open the *NTP Server* window (FIG. 81):

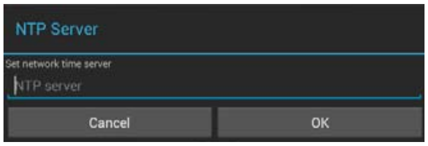


FIG. 81 NTP Server window

3. Enter the IP address/name of the time server to use.
4. Press **OK** to save changes and close this window.

Manually Setting the Time Zone

1. Press **Select Time Zone** to open the *Select Time Zone* window (FIG. 82).

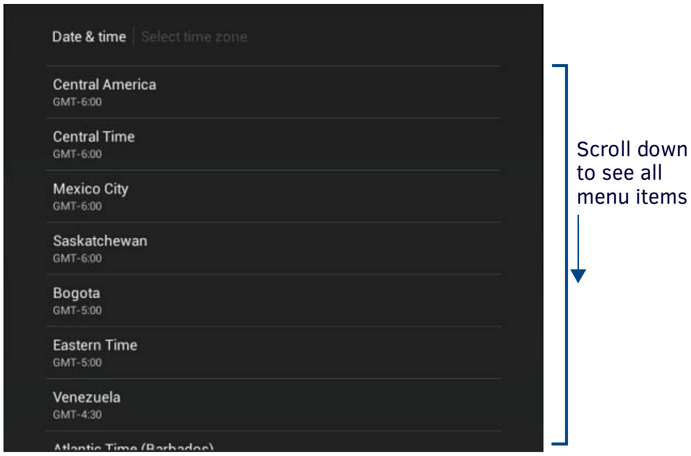
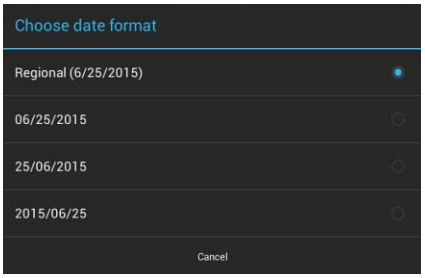


FIG. 82 Select Time Zone window

2. Select the time zone desired. The window will automatically close and return to the *Date & Time* page.

Specifying a Date Format

1. Press **Choose Date Format** to open the *Choose date format* window (FIG. 83).



Choose date format

Regional (6/25/2015) ●

06/25/2015 ○

25/06/2015 ○

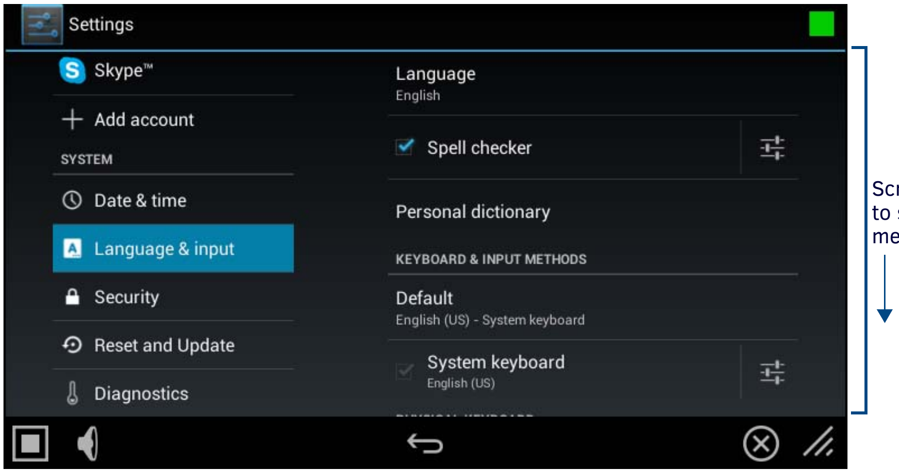
2015/06/25 ○

FIG. 83 Choose Date Format window

2. Select the desired date format. The window will automatically close and return to the *Date & Time* page.

SYSTEM - Language & Input

The *Language & Input* page (FIG. 84) controls the language used by the *Settings* menu, as well as the keyboard input used for *Settings* menu field entries.



Language
English

☑ Spell checker

Personal dictionary

KEYBOARD & INPUT METHODS

Default
English (US) - System keyboard

☑ System keyboard
English (US)

Scroll down to see all menu items

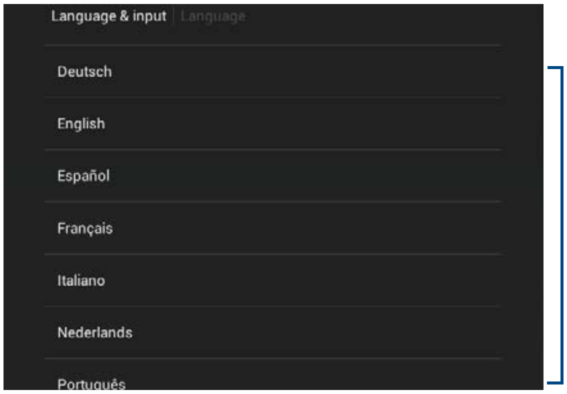
FIG. 84 Language & Input page

Language & Input page options	
Language:	Select a language for the *Settings* menu. See *Selecting the Panel's Language* on page 57 for details.
Spell Checker:	Enable this option to include an automatic spell checker in all *Settings* menu fields.
Personal Dictionary:	Lists all words saved in the panel's personal dictionary file. See *Personal Dictionary* on page 58 for details.
KEYBOARD & INPUT METHODS	
Default:	Specify the default system keyboard. Refer to *Changing Input Methods* on page 58 for details.
System Keyboard:	Choose the keyboard matching the selected panel language, or another language-format keyboard. Refer to *Changing Input Methods* on page 58 for details.
PHYSICAL KEYBOARD	
Generic:	Selects the format for a physical keyboard connected to the panel.
Auto-Replace:	Select this for automatic correction of commonly mistyped words.
Auto-Capitalization:	Select this for automatic capitalization of the first word in a sentence.
Auto-Punctuate:	Select this for automatic addition of a period when the space key is pressed twice.
MOUSE/TRACKPAD	
Pointer Speed:	Provides the ability to adjust the speed of the cursor on the panel. Refer to *Changing the Pointer Speed* on page 60 for details.

Selecting the Panel's Language

The default language for G5 panels is *English*, but this may be changed at any time through the *Language & Input* page:

1. In the *Language & Input* page, press **Language** to open the *Language* window (FIG. 85).



Scroll down to see all menu items

FIG. 85 Language Selection window

2. Choose a language from the list shown. To return to the default language without making any changes, select *Language & input* at the top of the window to close the window.

Personal Dictionary

Modero X Series G5 panels have automatic spell-checking capabilities, but additional regularly used words may be added to the panel's personal dictionary. To add new words or phrases to the personal dictionary:

1. In the *Language & Input* page, press **Personal dictionary** to open the *Personal Dictionary* window (FIG. 86).

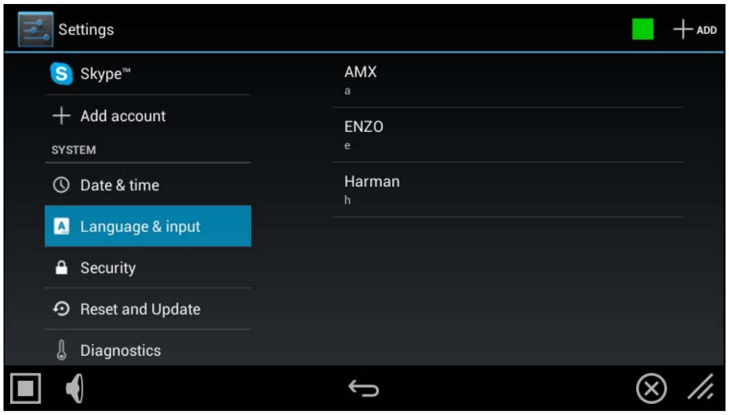


FIG. 86 Personal Dictionary window

2. Press the *Add* button in the upper right hand corner of the page to open the *Personal dictionary entry* window.
3. Press in the field beneath *PHRASE* to open the *Personal Dictionary* keyboard, and enter the word or phrase.
    - To add a shortcut for long or complex words, enter it in the *Shortcut* field.
    - If the word you add is in a language other than English, select the arrow in the lower right corner of the window to open the *Language* menu. This gives you the option of adding the word to the English dictionary, a dictionary for a language other than English, or for use across all languages. The *Language* page will automatically close after the language is selected.
    - To delete a word or phrase, select it in the *Personal dictionary* window and then press **Delete** in the upper right hand corner of the *Settings* menu.

Changing Input Methods

While a standard English keyboard is the default input language, you may also change the input method, such as choosing a Dvorak keyboard. To change the keyboard layout:

1. In the *Language & Input* page, under *KEYBOARD & INPUT METHODS*, press **Default** to open the *Choose Input Method* window (FIG. 87):

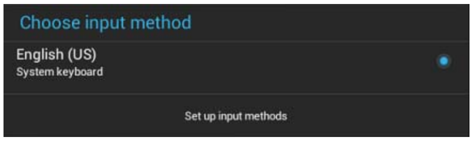
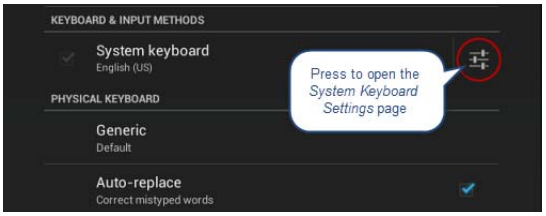


FIG. 87 Choose Input Method window

2. Press **Set up input methods** to open the *Keyboard Options* window (FIG. 88).



KEYBOARD & INPUT METHODS

☑ System keyboard
English (US)

PHYSICAL KEYBOARD

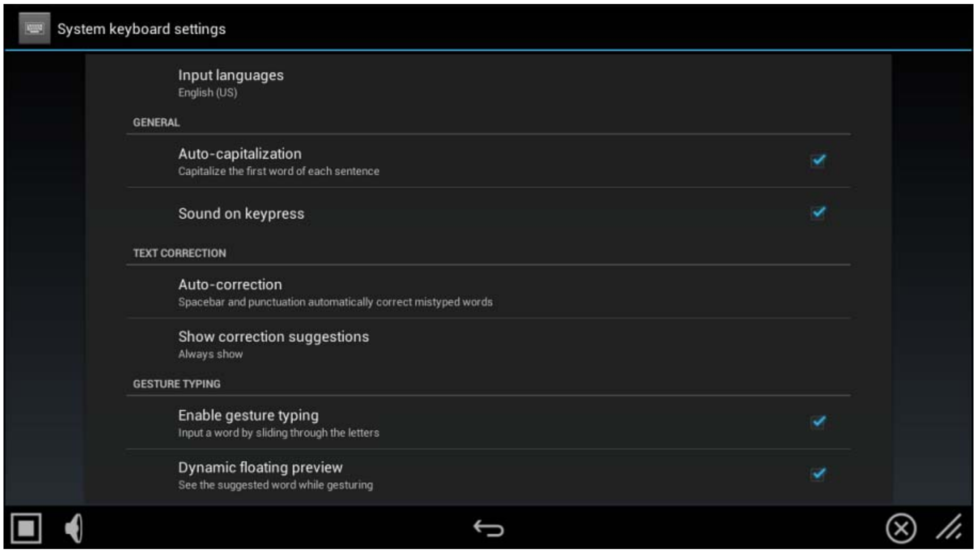
Generic
Default

Auto-replace ☑
Correct mistyped words

Press to open the *System Keyboard Settings* page

FIG. 88 Keyboard Options window

3. Press the **Settings icon** next to *System keyboard* to access the *System Keyboard Settings* page (FIG. 89):



System keyboard settings

Input languages
English (US)

GENERAL

Auto-capitalization ☑
Capitalize the first word of each sentence

Sound on keypress ☑

TEXT CORRECTION

Auto-correction
Spacebar and punctuation automatically correct mistyped words

Show correction suggestions
Always show

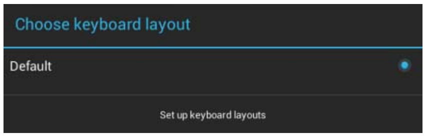
GESTURE TYPING

Enable gesture typing ☑
Input a word by sliding through the letters

Dynamic floating preview ☑
See the suggested word while gesturing

FIG. 89 System Keyboard Settings page

4. Edit these settings as desired, and press the return icon to close this page and return to the *Keyboard Options* window.
5. Under PHYSICAL KEYBOARD, press **Generic** to open the *Choose Keyboard Layout* window (FIG. 90):



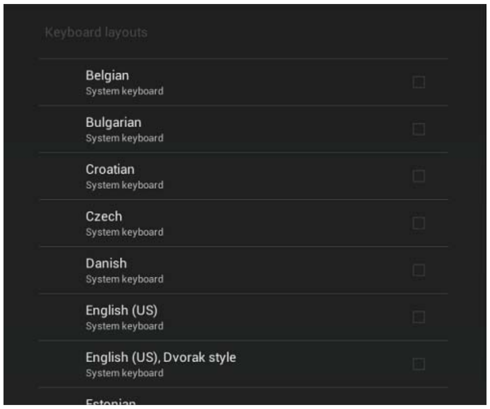
Choose keyboard layout

Default ●

Set up keyboard layouts

FIG. 90 Choose Keyboard Layout window

6. Press **Set up keyboard layouts** to open the *Keyboard Layout* window (FIG. 91):



Keyboard layouts

Belgian ☐
System keyboard

Bulgarian ☐
System keyboard

Croatian ☐
System keyboard

Czech ☐
System keyboard

Danish ☐
System keyboard

English (US) ☐
System keyboard

English (US), Dvorak style ☐
System keyboard

FIG. 91 Keyboard Layout window

7. Select the keyboard layouts that should be available for selection.
8. Press the return icon to close the *Keyboard Layouts* window and open the *Choose Keyboard Layout* window (FIG. 92):

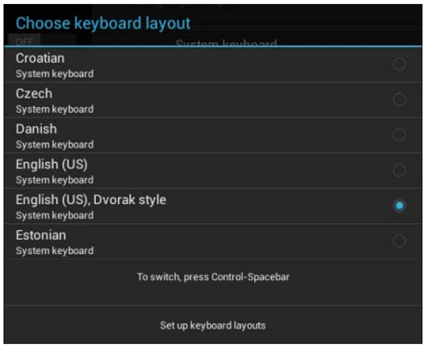


FIG. 92 Keyboard Layout window

9. Select the desired layout.

Changing the Pointer Speed

1. Under MOUSE/TRACKPAD, press **Pointer Speed** to open the Pointer Speed window (FIG. 93):

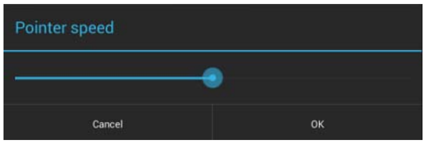


FIG. 93 Pointer Speed window

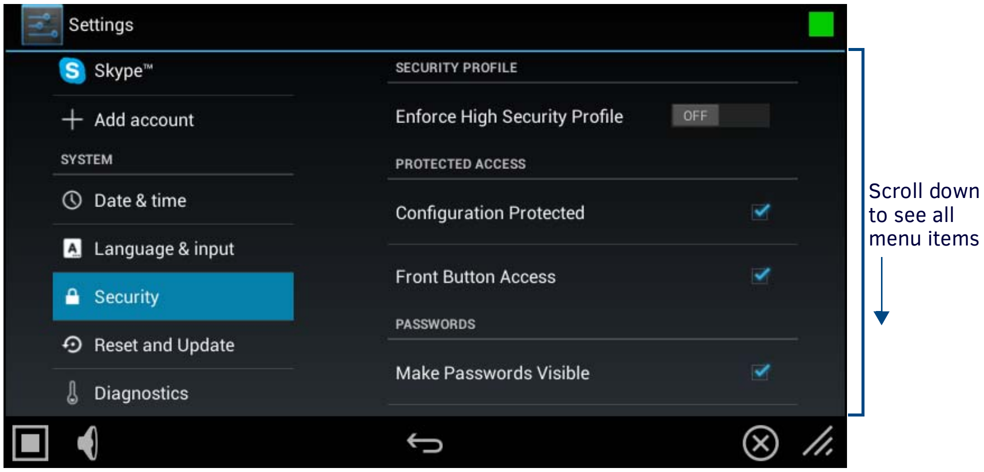
2. Use the slide bar to choose the preferred speed.
3. Press **OK** to save changes and close this window.

SYSTEM - Security

G5 Panels support two security modes: *Standard* and *High Security*:

- **Standard** is wide open and lets the administrator decide what is enabled/disabled.
- **High Security** is targeted at max security installations. In High Security mode, everything that could be a remote threat is disabled and cannot be turned on.

The *Security* page (FIG. 94) controls panel security, such as front button access, security mode and password settings.



Enforce High Security Profile OFF

Configuration Protected ☑

Front Button Access ☑

Make Passwords Visible ☑

FIG. 94 Security page

Security page options	
SECURITY PROFILE	
Enforce High Security Profile:	Click to enable the high security profile on this panel. The panel will alert you if the current password does not meet the requirements for the currently selected *Password Complexity* setting (see *Password Complexity* below). Note: If this option is switched from High Security back to standard security mode, all of the security values are set to default EXCEPT the password. The password remains unchanged from the complex password.

Security page options (Cont.)	
PROTECTED ACCESS	
Configuration Protected:	Select this checkbox to protect the pages within the *Settings* menu from access without a password. By default, this option is selected. • If the setting is selected, then a password will be required to access the *Settings* pages except *Device Info* and *Maintenance*. • If this option is not selected, then there is no password protection on the panel, and all *Settings* pages are accessible to users.
Front Button Access:	Select this checkbox to enable or disable the ability to access the pages within the *Settings* menu from the **Sleep/Settings** button (FIG. 6). *Note: If Sleep/Settings button access is disabled, the Settings menu can be accessed through the splash page, as shown in the Accessing the Settings Menu* section on page 20. *The Settings menu may also be accessed via send command or a preconfigured setup button on panel pages.*
PASSWORDS	
Make Passwords Visible:	Select this option to allow you to see the number of characters in a password, and to see, briefly, the character just typed in clear text for verification. If this option is not selected, then characters are not displayed in the password text input field.
Password Complexity:	Select this option to set the level of Password Complexity to either STANDARD or HIGH (via the *Password Complexity* dialog: • STANDARD - There are no complexity rules for a STANDARD complexity password. In this case, the password can be any length, including empty, and there are no minimum requirements for characters in the password. • HIGH - *HIGH complexity* passwords must contain at least 15 characters such that: The password must contain at least one *uppercase* alphabetic character. The password must contain at least one *lowercase* alphabetic character. The password must contain at least one *numeric* character. The password must contain at least one *special* character. The password must not contain more than three consecutive repeating characters. *Note: If the current password does not meet the high complexity password requirements, when this option is selected the panel will prompt you to change the current password to one that does meet the high complexity requirements.*
Set Password:	Select this option to open the *Enter Password* window (FIG. 101).
DEVICE ADMINISTRATION The Device Administration options are only available if the panel is in standard security mode. When the *Enforce High Security Profile* option is selected, *Microphone*, *Bluetooth*, *Camera* and *NFC* functionality is forced *OFF*, forced *disabled*, and the these functions cannot be toggled on until the panel is returned to standard security mode.	
Enable Microphone	If this switch is on, then the internal microphone is enabled. If the switch is off, then the internal microphone is disabled. If the panel is in Standard Security mode, the *Enable Microphone* option can be enabled/disabled. In High Security mode, the microphone is automatically disabled.
Enable Bluetooth	If this switch is on, then the Bluetooth subsystem is enabled. If the switch is off, the Bluetooth subsystem is disabled: this switch mimics the *Bluetooth* switch under *Connections* in the Settings menu. If the panel is in Standard Security mode, the *Enable Bluetooth* option can be enabled/disabled. In High Security mode, Bluetooth functionality is automatically disabled.
Enable Camera	If this switch is on, the internal camera is enabled. If the switch is off, the internal camera is disabled. If the panel is in Standard Security mode, the *Enable Camera* option can be enabled/disabled. In High Security mode, the camera is automatically disabled. *Note: Some applications may or may not function correctly if the application accesses the camera when the camera is disabled.*
Enable NFC	If this switch is on, the NFC subsystem is enabled. If the switch is off, the NFC subsystem is disabled: this switch mimics the *Enable/Disable* switch on the *CONNECTIONS - NFC* page (see page 53). If the panel is in Standard Security mode, the *Enable NFC* option can be enabled/disabled. In High Security mode, NFC functionality is automatically disabled.
USB Security	This field displays the current level of USB security applied to this panel (default = *Enable All*). Press to change this setting via the *USB Security Options* window. See *Changing USB Security Settings* on page 64.

Security page options (Cont.)	
SYSTEM SERVICES The System Services options are only available if the panel is in standard security mode. When the *Enforce High Security Profile* option is selected, *VNC*, *SIP*, *Content Sharing* and *Update Manager Web Services* functionality is forced *OFF*, forced *disabled*, and the these functions cannot be toggled on until the panel is returned to standard security mode. Note: SSH is unchanged in High Security Mode. It is the only system service that can remain enabled in High Security Mode.	
VNC Server	If this switch is on, the VNC Server is enabled. If the switch is off, the VNC Server is disabled: this switch mimics the *Enable/Disable* switch on the DEVICE - VNC page (see page 37). If the panel is in Standard Security mode, the *VNC Server* option can be enabled/disabled. In High Security mode, VNC functionality is automatically disabled.
SIP Connections	If this switch is on, the SIP client subsystem is enabled. If the switch is off, the SIP client subsystem is disabled: this switch mimics the *Enable/Disable* switch on the DEVICE - SIP page (see page 41). If the panel is in Standard Security mode, the *SIP Connections* option can be enabled/disabled. In High Security mode, SIP functionality is automatically disabled.
SSH Connections	If this switch is on, the SSH Server is enabled. If the switch is off, the SSH Server is disabled: this switch mimics the *SSH* switch on the SYSTEM - Diagnostics page (see page 77). The *SSH Connections* option can be enabled/disabled in both Standard and High Security modes (not automatically disabled when the panel is placed in High Security mode)
Content Sharing Sender	If this switch is on, the Content Sharing Sender subsystem is enabled. If the switch is off, the Content Sharing Sender is disabled: this switch mimics the *Enable* switch on the DEVICE - Content Sharing page (see page 38). If the panel is in Standard Security mode, the *Content Sharing Sender* option can be enabled/disabled. In High Security mode, Content Sharing is automatically disabled.
Update Manager Web Services	If this switch is on, the Update Manager will attempt to connect to the Update Manager Server (hosted on amx.com). If the switch is off, then the Update Manager will not attempt to connect to the Update Manager Server: this switch mimics the *Web Services* switch on the Reset and Update page (see page 66). If the panel is in Standard Security mode, the *Update Manager Web Services* option can be enabled/disabled. In High Security mode, Update Manager Web Services functionality is automatically disabled.
Audit Logging	If this switch is on, audit logging to the NetLinx Master syslog client is performed over ICSP (default = OFF).
APPLICATIONS	
Allow only SECURE applications to be installed	If the panel is in Standard Security mode, select this option to allow only "secure" applications to be installed on this panel. In High Security mode, this option is automatically selected. Note: Applications are considered to be non-secure if they permit access to the web or to a file system. When this option is selected (or when the panel is High Security mode), non-secure applications will automatically be disabled and/or uninstalled: • All non-secure *user installed* applications are *uninstalled* • All non-secure *pre-installed* applications are *disabled*
CREDENTIAL STORAGE	
Trusted Credentials	Press to display a listing of the trusted certificates currently saved on this panel (see page 65).
Install from storage	Press to install certificates from an attached USB drive (see page 65).
Clear credentials	Press to remove all certificates that have been installed on th is panel (see page 66).
DEFAULT SECURITY SYSTEMS	
Restore Default System Security Settings	This option restores the default system security settings: When this option is selected, all Security settings are returned to the default (Standard) security values and the password is changed to the default "**1988**".

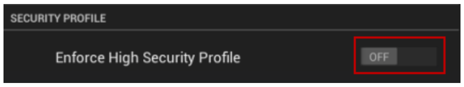
Placing the Panel in High Security Mode

G5 Panels support two security profiles: *Standard* and *High Security*:

- **Standard** Security mode is the default mode - it requires a password to access the *Settings* pages, except *Device Info* and *Maintenance*. The default password is "**1988**".
- **High Security** mode is enabled via the *Enforce High Security Mode* option at the top of the *Security* Settings page - it also requires a password to access the *Settings* pages. However, there are specific complexity requirements that must be met for the password.

To place the panel in High Security Mode:

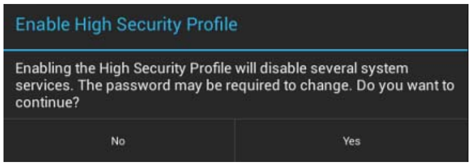
1. On the *SYSTEM* > *Security Settings* page, toggle the **Enforce High Security Profile** option to **ON** (FIG. 95): .


SECURITY PROFILE

Enforce High Security Profile OFF

FIG. 95 SECURITY PROFILE - Enforce High Security Profile option

2. The panel will alert you to the fact that enabling the High Security profile will disable several system services, and that the password may need to be changed. Press **Yes** to proceed (FIG. 96): .



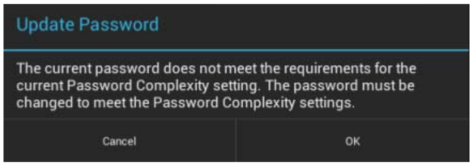
Enable High Security Profile

Enabling the High Security Profile will disable several system services. The password may be required to change. Do you want to continue?

FIG. 96 Enable High Security Profile dialog

NOTE: *In High Security mode, all System Services except SSH are automatically disabled, and cannot be enabled unless the security mode is changed back to Standard. Refer to the Storage page options* section on page 26 *(SYSTEM SERVICES section) for details.*

3. The panel will prompt you to create a new password that meets the minimum complexity requirements for High Security mode (FIG. 97): .

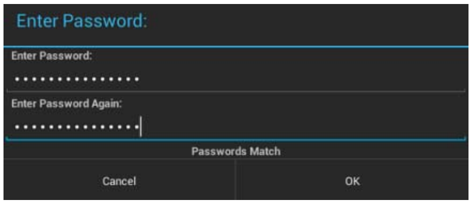


Update Password

The current password does not meet the requirements for the current Password Complexity setting. The password must be changed to meet the Password Complexity settings.

FIG. 97 Update Password dialog

4. Press **OK** to invoke the *Enter Password* window (FIG. 98): .



Enter Password:

FIG. 98 Enter Password window

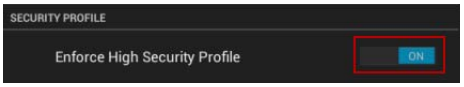
5. Press the **Enter Password** field to invoke the on-screen keyboard, and enter a new password that meets the minimum complexity requirements for High Security mode:
   - The password must contain at least one uppercase alphabetic character.
   - The password must contain at least one lowercase alphabetic character.
   - The password must contain at least one numeric character.
   - The password must contain at least one special character.
   - The password must not contain more than three consecutive repeating characters.
6. Press the **Enter Password Again** field to invoke the on-screen keyboard, and re-enter the new password. Press OK to save the new password and close this window.

At this point, the panel has been put into High Security Mode. Note that the DEVICE ADMINISTRATION and SYSTEM SERVICES options (expect for *SSH Connections*) are disabled. These options are only available in Standard Security Mode.

Switching From High Security Mode to Standard Security Mode

To return a panel that is in High Security Mode to Standard Security mode:

1. Press the **Enforce High Security Mode** option to toggle it from ON to **OFF** (FIG. 99):

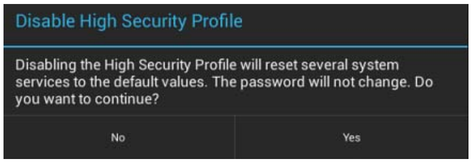


SECURITY PROFILE

Enforce High Security Profile ON

FIG. 99 SECURITY PROFILE setting

2. The panel will alert you to the fact that disabling the High Security profile will reset several system services to their default values, and that the password will not be changed. Press **Yes** to proceed (FIG. 100): .



Disable High Security Profile

Disabling the High Security Profile will reset several system services to the default values. The password will not change. Do you want to continue?

FIG. 100 Disable High Security Profile dialog

The panel is now in *Standard* Security Mode.

NOTE: *Switching from High Security mode to Standard Security mode does not automatically change the Password Complexity setting, or reset the current password. Therefore, when the panel is switched from High to Standard Security, the High Complexity password is still required, until a new password is set. To set a new password with Standard complexity, select STANDARD in the Password Complexity field. Then, you can use the Set Password option to set a new password without complex password requirements.*

Changing the Password

1. In the *Security* page, select *Set Password*. This opens the *Enter Password* window (FIG. 101).

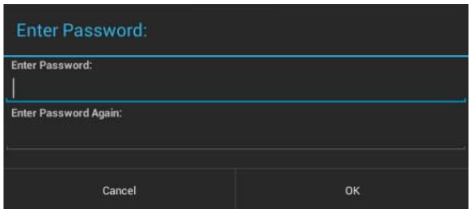


FIG. 101 Enter Password window

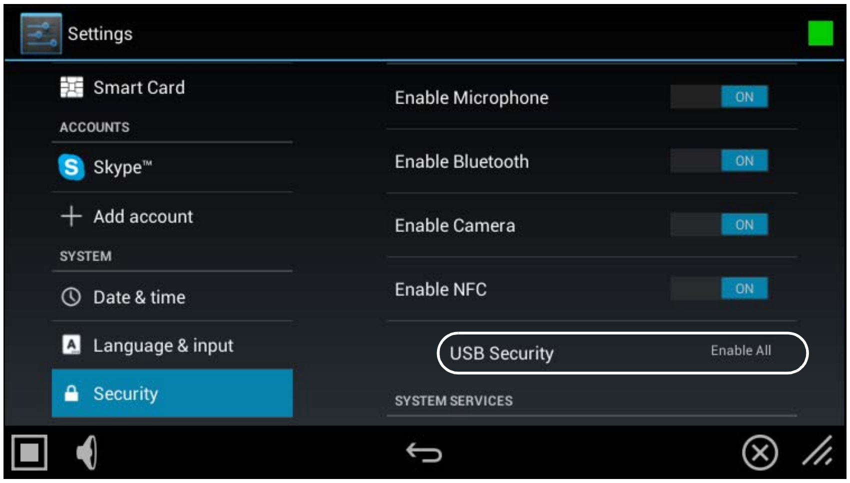
2. Enter the new alphanumeric password.
3. Press **OK** when complete.

Note that the *Password Complexity* setting determines the requirements for the new password:

- If set to STANDARD, there are no particular requirements for the new password.
- If set to High, the complexity requirements for the new password are:
    - The password must contain at least one uppercase alphabetic character.
    - The password must contain at least one lowercase alphabetic character.
    - The password must contain at least one numeric character.
    - The password must contain at least one special character.
    - The password must not contain more than three consecutive repeating characters.

Changing USB Security Settings

By default, the panel has all USB security options enabled (as indicated by the *Enable All* entry in the Security page (FIG. 102):



Enable Microphone ON

Enable Bluetooth ON

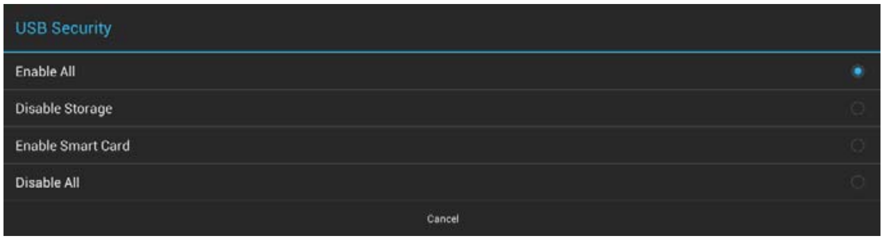
Enable Camera ON

Enable NFC ON

USB Security Enable All

FIG. 102 Security Page - USB Security setting indicating Enable All (the default setting)

1. To disable USB security options on this panel, press **USB Security** to access the *USB Security Options* window (FIG. 103):



Enable All ●

Disable Storage ○

Enable Smart Card ○

Disable All ○

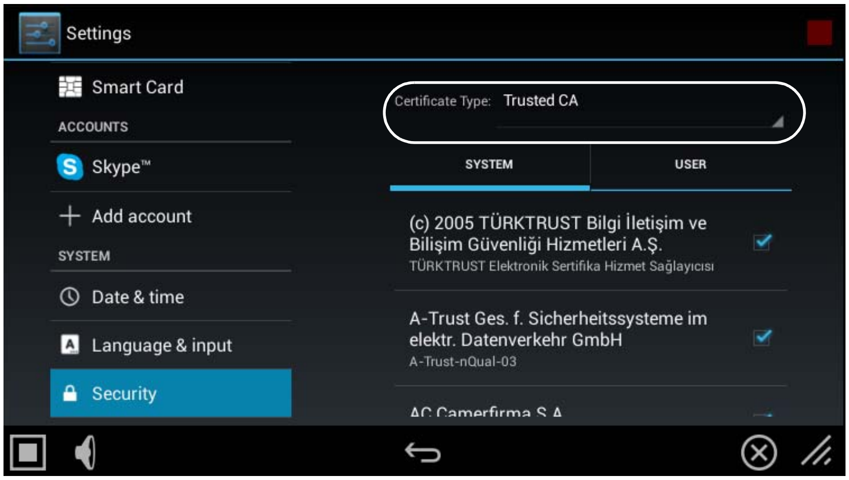
FIG. 103 USB Security Options window

2. Select the desired security feature to enable (*Enable All*, *Disable Storage*, *Enable Smart Card*, or *Disable All*).
3. This selection automatically closes the *USB Security Options* window and applies the selected option.

NOTE: *Click Cancel to close this dialog without making a selection.*

Displaying Trusted Credential Certificates

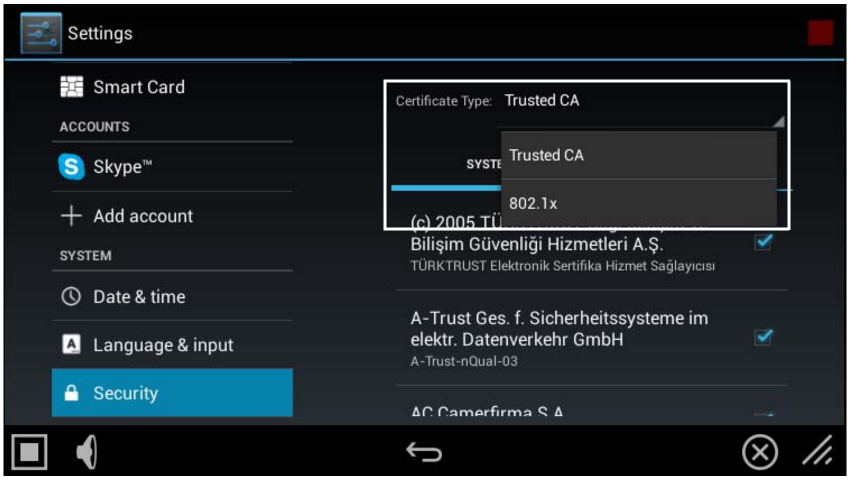
1. In the *Security* page, press the **Trusted Credentials** option.
2. The credentials detected on this panel are listed, organized by Certificate Type (FIG. 104):


Settings
Smart Card
ACCOUNTS
Skype™
Add account
SYSTEM
Date & time
Language & input
Security
SYSTEM
USER
(c) 2005 TÜRKTRUST Bilgi İletişim ve Bilişim Güvenliği Hizmetleri A.Ş.
TÜRKTRUST Elektronik Sertifika Hizmet Sağlayıcısı
A-Trust Ges. f. Sicherheitssysteme im elektr. Datenverkehr GmbH
A-Trust-nQual-03
AC Camerfirma S.A.

Certificate Type: Trusted CA

FIG. 104 Security page - Example Trusted Credentials list

3. Supported Certificate Types include Trusted CA and 802.x1. Note that each list has two tabs: *System* and *User*. To select which type of certificate to display, select either *Trusted CA* or *802.x1* from the **Certificate Type** drop-down menu (FIG. 105):



Certificate Type: Trusted CA

FIG. 105 Security page - Certificate Type menu

NOTE: The default setting is *Trusted CA*.

4. Press the return button to return to the main *Security* page.

Installing Credential From Storage

1. In the *Security* page, press the **Install From Storage** option.
2. Select the type of certificate that will be installed: *Trusted CA* or *802.x1* (FIG. 106):

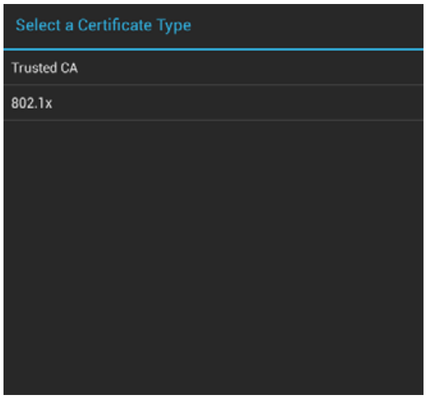
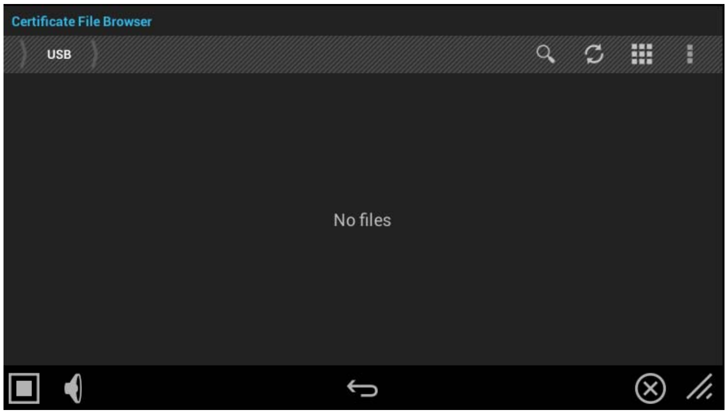


FIG. 106 Select a Certificate Type window

3. In the *Certificate File Browser* window, select the certificate file on the attached USB drive that will be installed (FIG. 107):



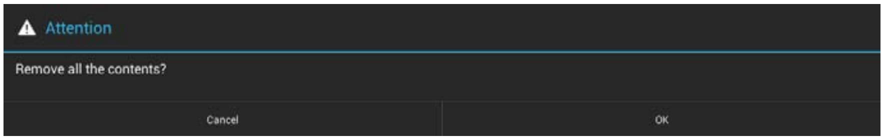
No files

FIG. 107 Select a Certificate Type window (indicating no certificate files found)

4. The selected certificate is installed on the panel.

Clearing Credentials

1. In the *Security* page, press the **Clear Credentials** option. This options clears all credentials installed on this panel.
2. In the confirmation window, press **OK** to proceed (FIG. 108):

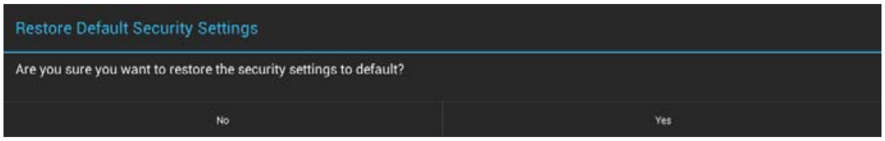


Remove all the contents?

FIG. 108 Confirm - Remove all the credentials

Restoring the Default System Security Settings

1. In the *Security* page, press the **Restore Default System Security Settings** option.
2. In the confirmation window, press **Yes** to proceed (FIG. 109):



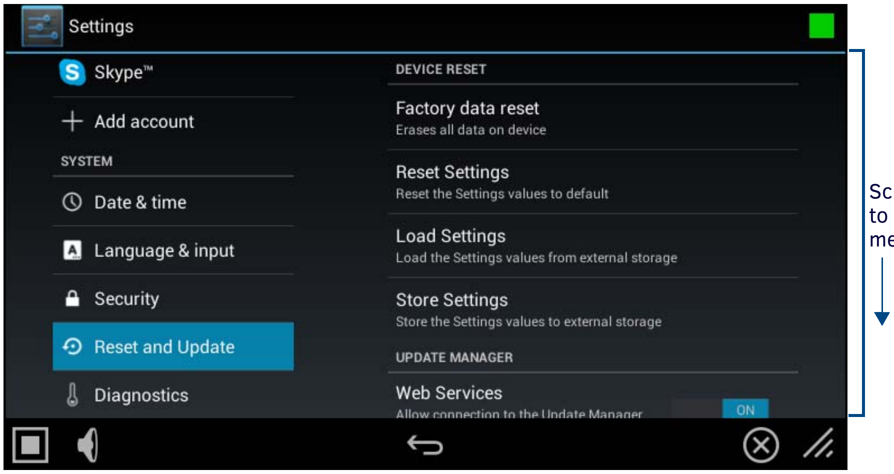
Are you sure you want to restore the security settings to default?

FIG. 109 Confirm - Restoring the Default Security Settings

3. All Security settings are returned to the default (Standard) security values and the password is changed to the default "**1988**".

SYSTEM - Reset and Update

The *Reset and Update* page (FIG. 110) allows resetting and updating of panel settings and firmware, including installation of new firmware from an external drive.



Scroll down to see all menu items

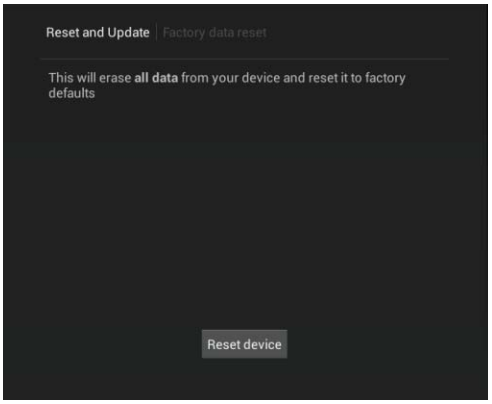
FIG. 110 Reset and Update page

Reset and Update page options	
DEVICE RESET	
Factory Data Reset	Erases *all data* on the panel and resets the panel back to it's factory default settings. See *Factory Data Reset* on page 67 for details.
Reset Settings	Select to revert the panel back to its default settings, but does not erase all data from the panel.
Load Settings	Select to load a saved settings configuration file (".acfg).
Store Settings	Select to save the current settings configuration file at the root of the connected USB drive.
UPDATE MANAGER	
Web Services	Use this switch to toggle Update Manager Web Services on the panel: If this switch is on, the Update Manager will attempt to connect to the Update Manager Server (hosted on amx.com). If the switch is off, then the Update Manager will not attempt to connect to the Update Manager Server. Note: If the panel is in Standard Security mode, the Update Manager Web Services option can be enabled/ disabled. In High Security mode, Update Manager Web Services functionality is automatically disabled. See the *SYSTEM - Security* section on page 60 for details.
Firmware Manager	Select to open the *Firmware Manager* page. Use the options on this page to update the firmware on the panel. See the *Firmware Manager* section on page 69 for details. Note: G5 Firmware can also be updated via the NetLinx Studio software application. See *Appendix A: Upgrading Firmware via NetLinx Studio* on page 179 for details.
App Manager	Select to open the *App Manager* page. Use the options on this page to update the applications on the panel. See the *App Manager* section on page 72 for details.
Scheduled Updates	Select this option to access the Scheduled Update options. These options allow you to control if and when automatic scheduled application updates will be made to the panel. See the *Scheduled Updates* section on page 74 for details.
PANEL PAGES	
Install Pages From External Disk	Select this to open the *TPDesign5 File Browser* window (FIG. 138).
Remove User Pages	Select this to remove all previously loaded user pages from the panel.

Factory Data Reset

To reset the panel to its factory defaults and remove all data stored in the panel (including user pages):

1. Under *DEVICE RESET*, press **Factory Data Reset** to open the *Factory Data Reset* window (FIG. 111).



This will erase **all data** from your device and reset it to factory defaults

FIG. 111 Factory Data Reset window

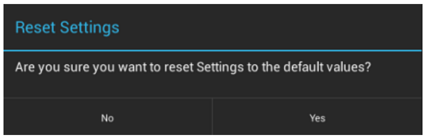
To return to the *Reset and Update* page without making any changes, press *Reset and Update*.

2. To erase all data from the panel, press **Reset Device**.

Reset Settings

To reset the Settings values to their default values:

1. Under *DEVICE RESET*, press **Reset Settings.**
2. The panel will prompt you to verify this action (FIG. 112):.



Are you sure you want to reset Settings to the default values?

FIG. 112 Reset Settings prompt window

3. Press **Yes** to proceed. To return to the Reset and Update page without saving any changes, press *No*.

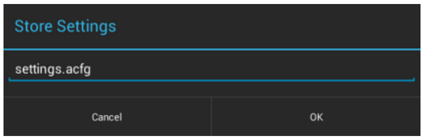
Storing and Loading Settings Configuration Files

G5 panels have many settings. - the **Store Settings** and **Load Settings** options on the *Reset and Update* page provide the ability to store and load these settings to and from a Settings Configuration File (*.acfg). Use cases include:

- Backing up final system settings
- Create settings configuration files ahead of time to help with large deployments of panels.

Storing the Current Settings

1. In the *Reset and Update* page, press **Store Settings** to open the *Store Settings* window (FIG. 113):



settings.acfg

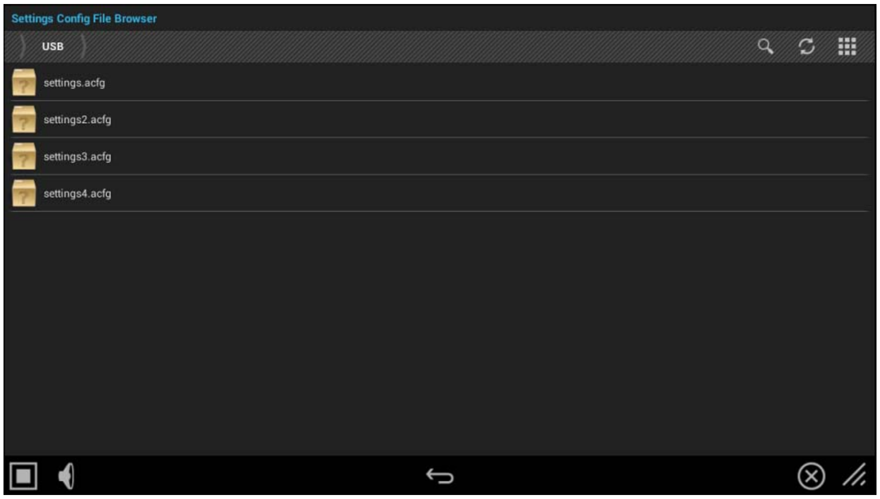
FIG. 113 Store Settings window

2. Enter a unique file name for this settings configuration file (default = "*settings.acfg*").
   The UI will check for a valid config filename as it's being entered. Invalid entries will not be saved.
3. Press **OK** to save the file at the root of the USB drive.
   If the filename exists, the system will prompt you to verify overwriting the file.

Loading Settings

Configurations can be loaded from a file on the file system or from a URL:

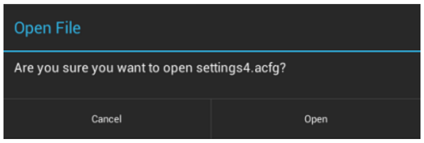
1. In the *Reset and Update* page, press **Load Settings** to open the *Setting Config File Browser* window (FIG. 114):



settings.acfg
settings2.acfg
settings3.acfg
settings4.acfg

FIG. 114 Setting Config File Browser window

2. This window lists all settings configuration (*.acfg) files present on the USB Storage media.
3. Select the desired settings configuration file.
4. The panel will prompt you to verify this action (FIG. 115):



Are you sure you want to open settings4.acfg?

FIG. 115 Open File window

Firmware Manager

Select **Firmware Manager** under UPDATE MANAGER in the *Reset and Update* page to access the Firmware Manager page (FIG. 116):

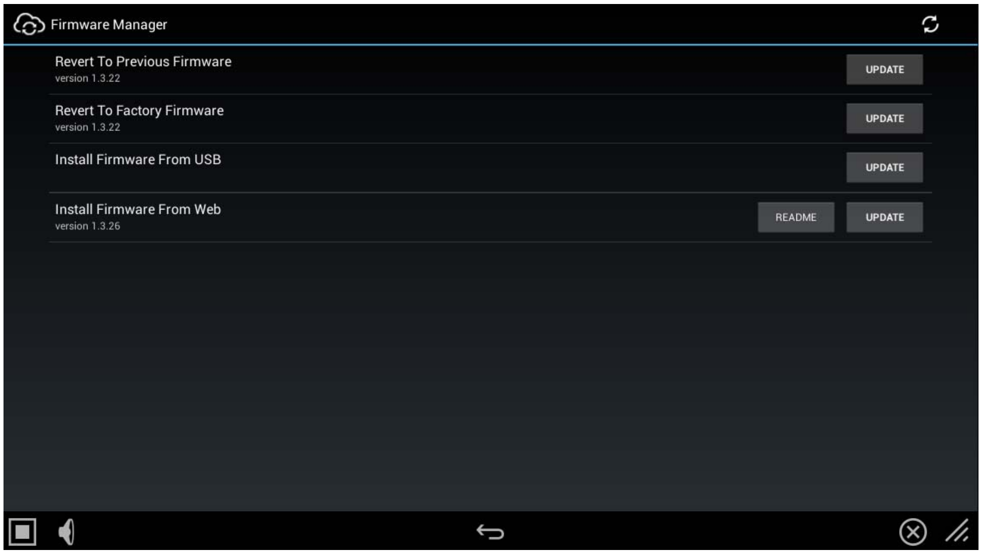
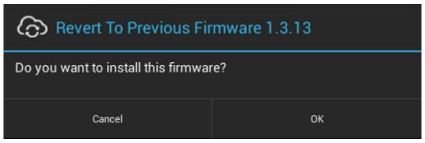

Firmware Manager
Revert To Previous Firmware
version 1.3.22
UPDATE
Revert To Factory Firmware
version 1.3.22
UPDATE
Install Firmware From USB
UPDATE
Install Firmware From Web
version 1.3.26
README
UPDATE

FIG. 116 Firmware Manager window

Reverting to Previous Firmware

To reset the panel to its previously installed firmware:

1. From the *Firmware Manager* window (FIG. 116), select *Revert to Previous Firmware*. If no previous version is available, this field is disabled
2. A System Message window is displayed that indicates the previous firmware version that will be installed, and prompting you to verify this action (FIG. 117):


Revert To Previous Firmware 1.3.13

Do you want to install this firmware?

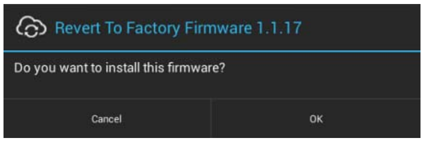
FIG. 117 System Prompt - Revert To Previous Firmware?

3. Select **OK** to install the previous firmware version and **Cancel** to return to the *Firmware Manager.*
4. If you choose **OK**, the panel will reboot and restart with the previously installed firmware.

Reverting to Factory-Installed Firmware

In certain circumstances, it may be necessary to uninstall the current firmware on a panel and return it to the original factory default firmware. To reset the panel to its original factory firmware:

1. From the *Firmware Manager* window (FIG. 116 on page 69), select *Revert to Factory Firmware* .
2. A System Message window is displayed that indicates the factory firmware version that will be installed, and prompting you to verify this action (FIG. 118):


Revert To Factory Firmware 1.1.17

Do you want to install this firmware?

FIG. 118 System Prompt - Revert To Factory Firmware?

3. Select **OK** to install the previous firmware version and **Cancel** to return to the *Firmware Manager.*
4. If you choose **OK**, the panel will reboot and restart with the factory installed firmware.

   NOTE: *Resetting the panel to its original factory firmware will remove all updates made to the Settings menu since that version.*

Installing New Firmware From An External USB Stick

To install new firmware to the panel from a USB stick:

NOTE: *G5 Firmware can also be updated via the NetLinx Studio software application. See Appendix A: Upgrading Firmware via NetLinx Studio* on page 179 *for details.*

1. Download the latest G5 panel firmware from **www.amx.com** and save it to a USB stick or other external drive with USB capability.

NOTE: *The firmware can be saved at the root directory, or be saved in a folder in the USB stick directory.The folder name is not case sensitive.*

2. Insert the USB stick into an available USB port. This may require disassembling wall-mounted panels to access the USB ports if a USB extension was not already installed.
3. From the *Firmware Manager* window (FIG. 116 on page 69), select *Install Firmware from USB* to open the *KIT File Browser* window (FIG. 119).

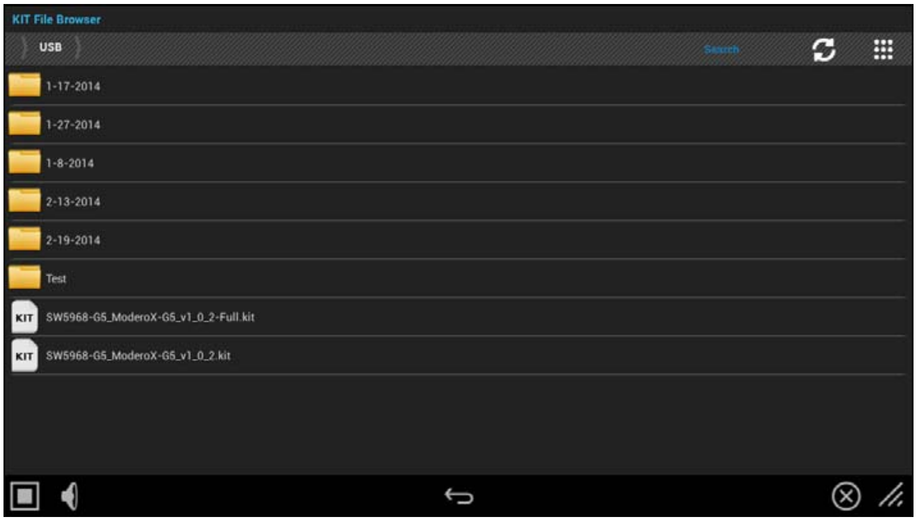


FIG. 119 KIT File Browser window

4. Select the KIT file to be installed.
5. The panel will upload the new firmware (FIG. 120) and then reboot.

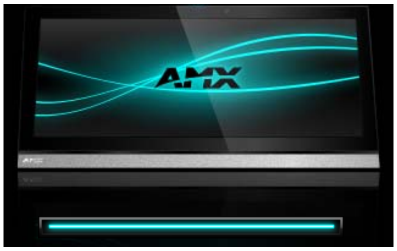


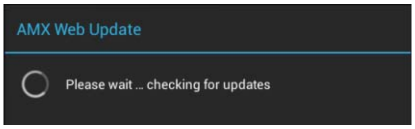
FIG. 120 Update Progress display

Install Firmware From Web

If any firmware updates are available for the panel, the *Install Firmware From Web* option is presented on the Firmware Manager page (see FIG. 116 on page 69). Note that if High Security mode is set on the panel, web updates are not permitted. See the *SYSTEM - Security* section on page 60 for details on security modes.

To install new firmware to the panel from the web:

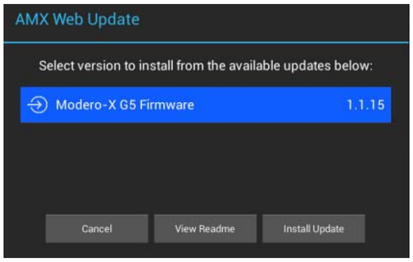
1. From the *Firmware Manager* window (FIG. 116 on page 69), select *Install Firmware from Web.*
2. The panel will attempt to connect to AMX and look for any potential/available firmware updates for the platform (FIG. 121):



Please wait ... checking for updates

FIG. 121 AMX Web Update - Checking for updates

3. The web update utility will display the available update versions (FIG. 122):

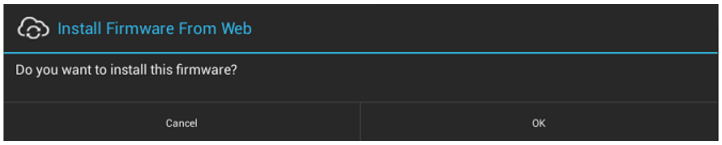


Select version to install from the available updates below:

FIG. 122 AMX Web Update - Available updates

- Press **View Readme** to review the firmware update Readme file prior to installation.
- Press **Cancel** to close this window without updating the panel firmware.

4. Select the firmware version that will be used to update the panel and press **Install Update** to initiate the firmware update. The panel will prompt you to verify this action - Press **OK** to proceed with the update (FIG. 123):



Do you want to install this firmware?

FIG. 123 System Prompt - Install Firmware From Web

5. The progress of the download is indicated on the *Firmware Manager* page (FIG. 124).

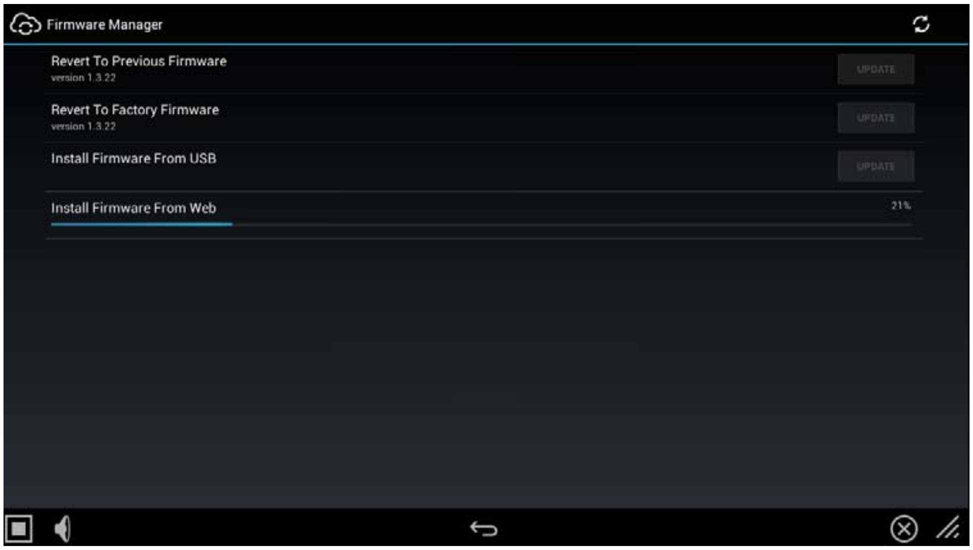
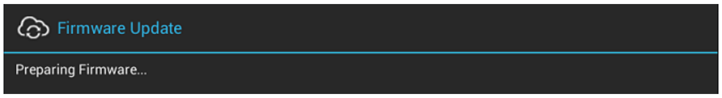

Firmware Manager
Revert To Previous Firmware
version 1.3.22
UPDATE
Revert To Factory Firmware
version 1.3.22
UPDATE
Install Firmware From USB
UPDATE
Install Firmware From Web
21%

FIG. 124 Firmware Manager page - Install Firmware Fro m Web (in progress)

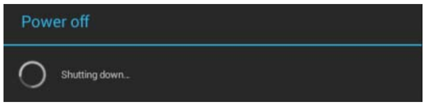
6. The firmware update will begin the install process (FIG. 125):



Preparing Firmware...

FIG. 125 Firmware Update - Preparing Firmware

7. After copying the firmware package to the staging location, the panel will reboot and complete the firmware installation process (FIG. 126):



Shutting down...

FIG. 126 Firmware Update - reboot and complete firmware update

App Manager

Select *App Manager* under UPDATE MANAGER in the *Reset and Update* page to access the App Manager page. Note that this page has two tabs: AVAILABLE (initial view) and INSTALLED.

App Manager Page - AVAILABLE tab

The options in the **AVAILABLE** tab (FIG. 127) are described below:

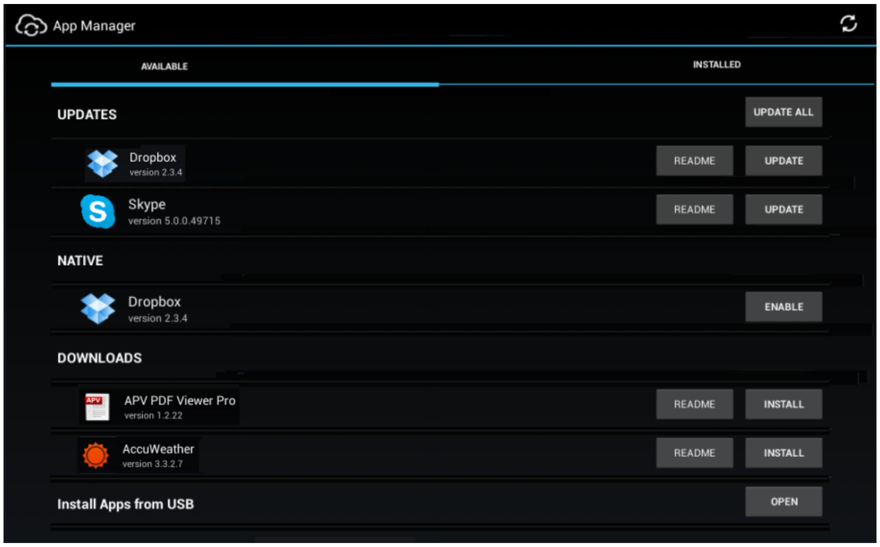
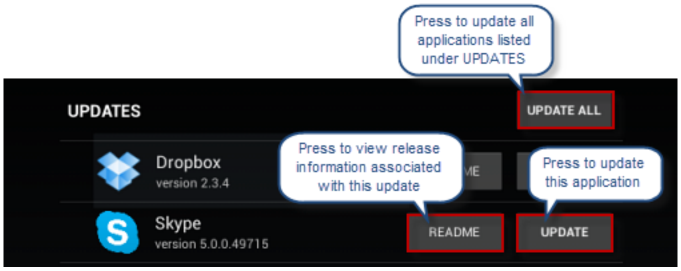


FIG. 127 App Manager window (AVAILABLE tab)

App Manager page - AVAILABLE tab options	
Update All button	Press to install all application updates listed in the UPDATES section. See *Installing All Available Updates* (below) for details.
UPDATES	This section lists any updates found for applications that are currently installed on the panel. See the *Updating Individual Applications* section on page 72 (below) for details.
NATIVE	This section lists any native applications (pre-installed/system applications) that are currently *disabled*. See the *Enabling Native (Disabled) Applications* section on page 72 for details.
DOWNLOADS	This section lists any new applications that can be installed on the panel.
Install Apps from USB	This will launch the UI to install applications files from an external USB drive. See the *Installing Applications From an External USB Drive* section on page 73 for details.

Installing All Available Updates

Press **UPDATE ALL** (at the top of the UPDATES section) to update all installed applications (FIG. 128):



Press to update all applications listed under UPDATES

Press to view release information associated with this update

Press to update this application

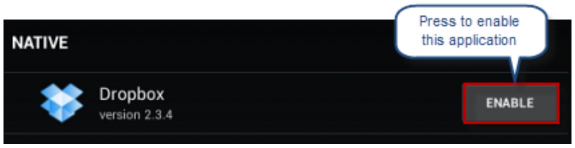
FIG. 128 App Manager window (AVAILABLE tab) - UPDATES options

Updating Individual Applications

Press **UPDATE** (in the UPDATES section) to update individual applications. Press **README** to view any release notes that are available for the update (FIG. 128).

Enabling Native (Disabled) Applications

Press **ENABLE** (in the NATIVE section) to enable any native applications (pre-installed/system applications) that are currently *disabled* (FIG. 129):

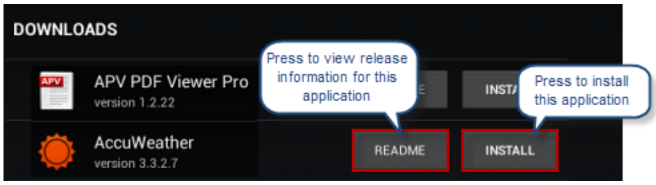


Press to enable this application

FIG. 129 App Manager window (AVAILABLE tab) - UPDATES options

Installing Downloaded Applications

Press **INSTALL** (in the DOWNLOADS section) to install downloaded applications. Press **README** to view any release notes that are available for the application (FIG. 130):



Press to view release information for this application

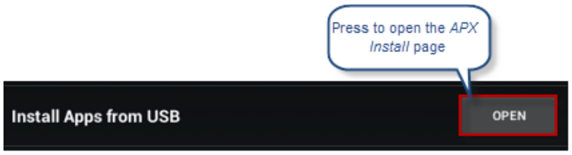
Press to install this application

FIG. 130 App Manager window (AVAILABLE tab) - DOWNLOADS options

Installing Applications From an External USB Drive

This feature provides a method of applying application updates distributed by AMX at sites that cannot access the Internet, or that have Update Manager web services disabled. To use this feature, load the application (APX files) on an external USB drive and plug the USB drive into the G5 panel.

1. Press **OPEN** in the *Install Apps from USB section* of the App Manager page (FIG. 131) to open the *APX Install* page (FIG. 131):



Press to open the *APX Install* page

FIG. 131 App Manager window (AVAILABLE tab) - Install Apps from USB (OPEN) option

The options on the *APX Install* page allow you to install applications from an external USB Drive (FIG. 132):

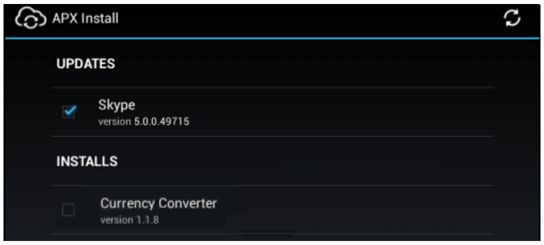


FIG. 132 App Manager window (AVAILABLE tab) - Install Apps from USB (OPEN) option

When the *APX Install* page opens, the root directory of the connected USB drive will be scanned for APX files. Once the scan is complete, the UI will be populated with APX files that are valid for the device.

This page is divided into two sections: UPDATES and INSTALLS

- **UPDATES** Shows any valid APX files for this device that are updates to currently installed applications.
- **INSTALLS** Shows any valid APX files for this device that are new installs.

2. Press the box on the left hand side to select the apps to install.
3. Once all apps have been selected for installation/update, press **Install**.

Once the *Install* button is pressed, only the selected items will be visible in the *APX Install* page. The right hand side of each line item will show the progress of the install (FIG. 133):

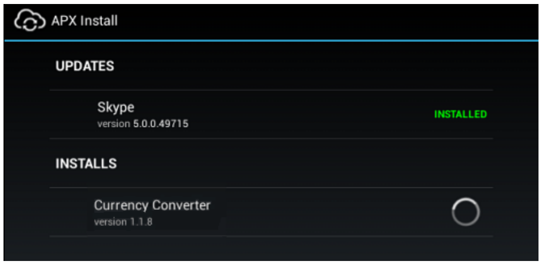
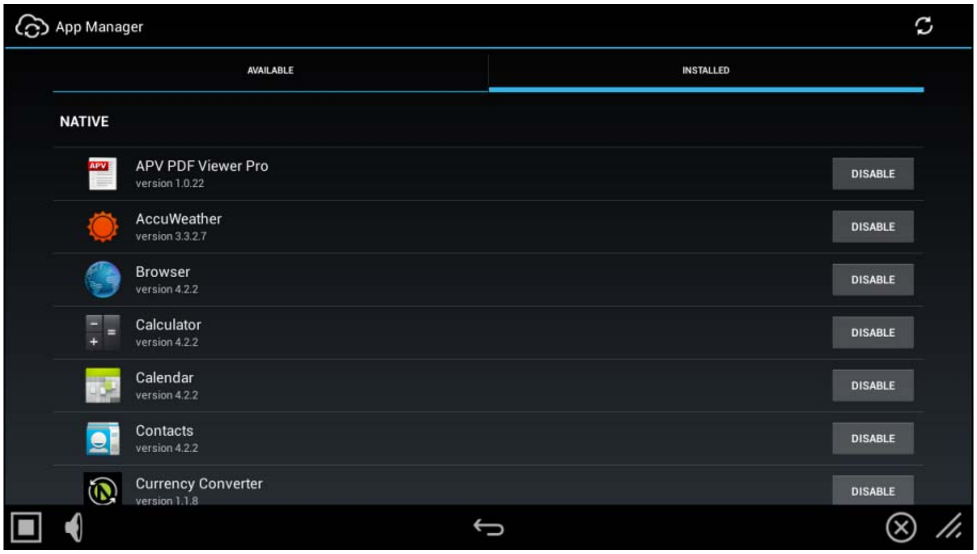


FIG. 133 APX Install Page - indicating one app installed and one installation in process

App Manager Page - INSTALLED tab

The options in the INSTALLED tab of the App Manager page (FIG. 134) are described below:



APV PDF Viewer Pro
version 1.0.22

AccuWeather
version 3.3.2.7

Browser
version 4.2.2

Calculator
version 4.2.2

Calendar
version 4.2.2

Contacts
version 4.2.2

Currency Converter
version 1.1.8

FIG. 134 App Manager window (INSTALLED tab)

App Manager page - INSTALLED tab options	
NATIVE	This section lists any native applications (pre-installed/system applications) that are currently *enabled*.
DOWNLOADS	This section lists any applications that were downloaded and installed to the panel. Press **Uninstall** to remove these applications from the panel. See *Uninstalling Downloaded Applications* section on page 74 for details.

Disabling Native Applications

Press **Disable** to disable any of these applications.

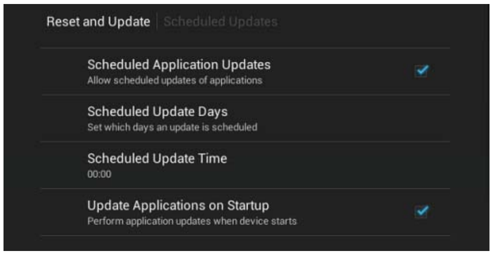
Note that once a native application has been disabled, it is moved to the AVAILABLE tab - NATIVE section.

Uninstalling Downloaded Applications

Press UNINSTALL next to any application listed in the DOWNLOADS section of the App Manager page (INSTALLED) tab to uninstall downloaded applications.

Scheduled Updates

Select *Scheduled Updates* under UPDATE MANAGER in the Reset and Update page to access the *Scheduled Updates* options shown in FIG. 135



Scheduled Application Updates ☑
Allow scheduled updates of applications

Scheduled Update Days
Set which days an update is scheduled

Scheduled Update Time
00:00

Update Applications on Startup ☑
Perform application updates when device starts

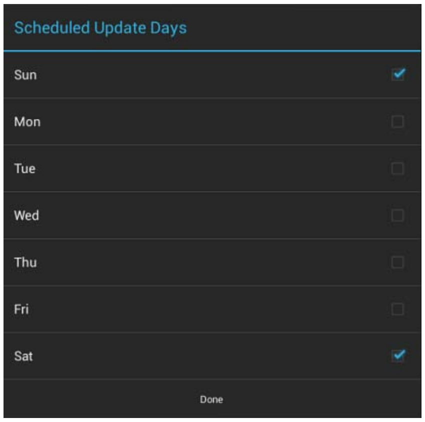
FIG. 135 Reset and Update page - Scheduled Updates options

Scheduled Application Updates

When this option is selected, the Update Manager will only check for application updates when an Scheduled Update is performed. By default, this option is disabled.

Scheduled Update Days

Press this option to select the day(s) on which the Update Manager will check for Scheduled Updates, via the *Scheduled Update Days* window (FIG. 136):



Scheduled Update Days

☑ Sun
☐ Mon
☐ Tue
☐ Wed
☐ Thu
☐ Fri
☑ Sat

FIG. 136 Scheduled Update Days window

The Update Manager will perform a Scheduled Update at the time set by the *Scheduled Update Time* setting (see below).

Touch outside the dialog to cancel the dialog and revert to the previous values.

Scheduled Update Time

Press this option to select the time (hour and minute) on which the Update Manager will check for Scheduled Updates, via the *Scheduled Update Days* window (FIG. 136):

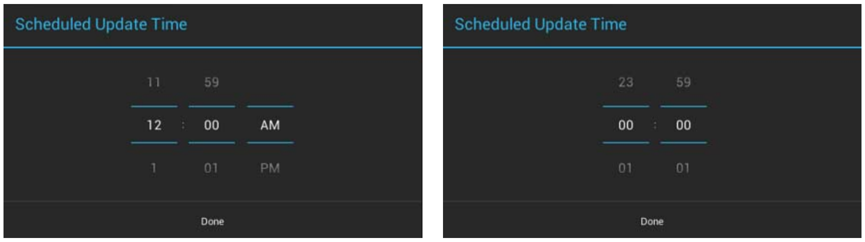


FIG. 137 Scheduled Update Time window (Standard and 24-Hour Time formats)

The Time format displayed on the panel is set via the Use 24-Hour Format option on the Date & Time page (see page 49).

Update Applications on Startup

When this option is selected, the Update Manager will check for updates when the panel starts. By default, this option is disabled.

Installing Panel Pages From an External Disk

TPDesign5 page files (*.tp5) may be loaded onto a panel, both via TPDesign5 and through files saved to a USB-enabled external drive. To load TPD5 pages via USB:

1. Download the panel pages and save them to a USB stick or other external drive with USB capability.
2. Insert the USB stick into an available USB port on the panel.
3. In the *Reset & Update* window, press **Install Pages from External Disk** (under PANEL PAGES) to open the *TP5 File Browser* window. All TP5 files found on the USB drive are listed (FIG. 138):.

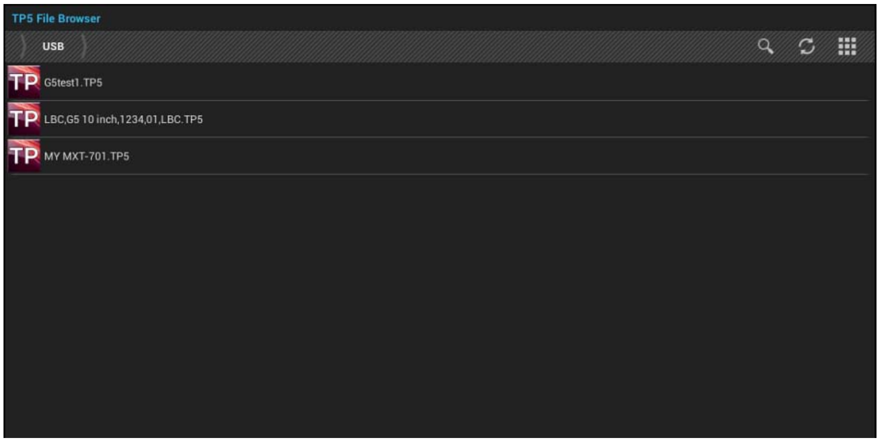
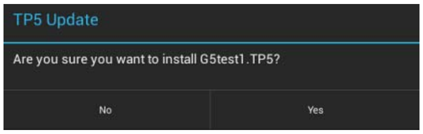


FIG. 138 TPDesign5 File Browser window

4. Press the TP5 file to load on the panel.
5. The panel will prompt you to verify this action (FIG. 139):



Are you sure you want to install G5test1.TP5?

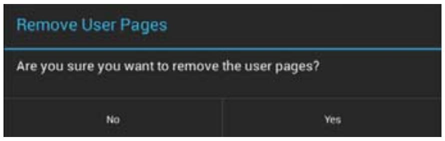
FIG. 139 TP5 Update prompt

6. Press **Yes** to load the selected TP5 project on the panel.

Removing User Pages From the Panel

To remove user pages from the panel:

1. In the *Reset and Update* page, press **Remove User Pages** to open the *Remove User Pages* window (FIG. 140).

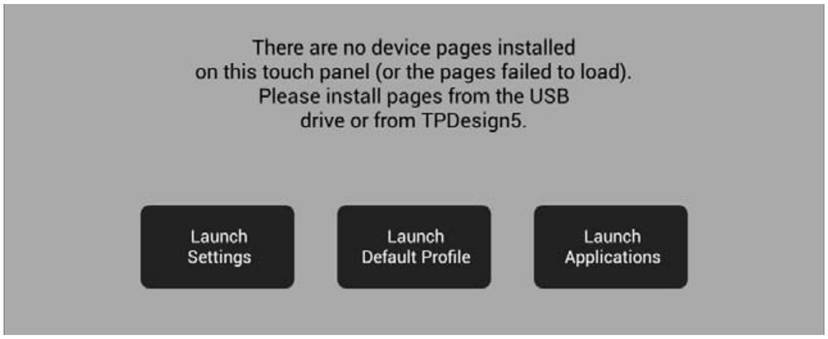


Are you sure you want to remove the user pages?

FIG. 140 Remove User Pages prompt

2. Press **Yes** to remove the user pages from the panel.

At this point, the panel will indicate that there are no device pages installed (FIG. 141):



There are no device pages installed
on this touch panel (or the pages failed to load).
Please install pages from the USB
drive or from TPDesign5.

FIG. 141 No Device Pages Installed window

Press one of the options presented on this page to proceed:

- **Launch Settings**: Press to invoke the Setting menu. Use this option to navigate to the SYSTEM > Reset & Update window to use the *Install Pages from External Disk* option to load pages via a TP5 file (see *Installing Panel Pages From an External Disk* on page 75).
- **Launch Default Profile**: Press to launch the default panel profile.
- **Launch Applications**: Press to invoke the *Available Apps* window, which provides shortcuts to all Apps loaded on the panel (FIG. 142):.

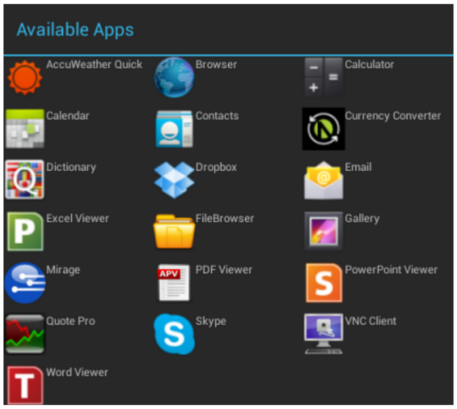


FIG. 142 Available Apps window,

SYSTEM - Diagnostics

The *Diagnostics* page (FIG. 143) displays the current processor temperature, provides access to panel logs, and toggles SSH functionality.

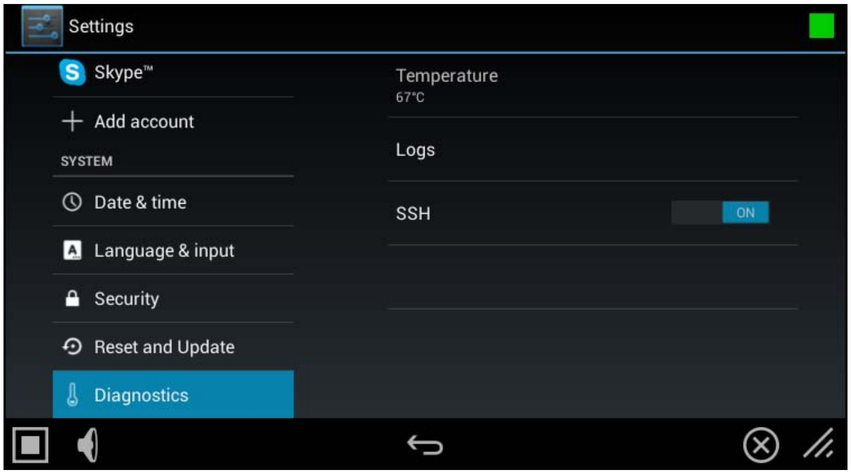


FIG. 143 Diagnostics page

Diagnostics page options	
Temperature	Displays the current temperature of the panel in Celsius.
Logs	Select this option to display the panel logs.
SSH	Select this option to enable or disable the SSH server on this panel. Refer to the *SSH Commands* section on page 170 for a listing of supported SSH commands.

The *Logs* window chronicles all previous connections between the panel and the network. To access the *Logs* window, select *Logs* in the *Diagnostics* page.

Using Content Sharing

Overview

This section describes using the *Content Sharing* application on a G5 panel to initiate content sharing to an Enzo.

These instructions assume that the G5 panel and the Enzo unit(s) in the system have already been configured to use Content Sharing. Refer to the *DEVICE - Content Sharing* section on page 38 for instructions on enabling Content Sharing on the G5 panel, and configuring one or more Enzo units as receivers for shared content.

Content Sharing Icon

Look for the **Content Sharing** icon in the G5 Menu Bar at the bottom of application windows. Anytime you see the Content Sharing icon, it indicates that the associated file can be shared with Enzo, via Content Sharing. An example is shown in FIG. 144:

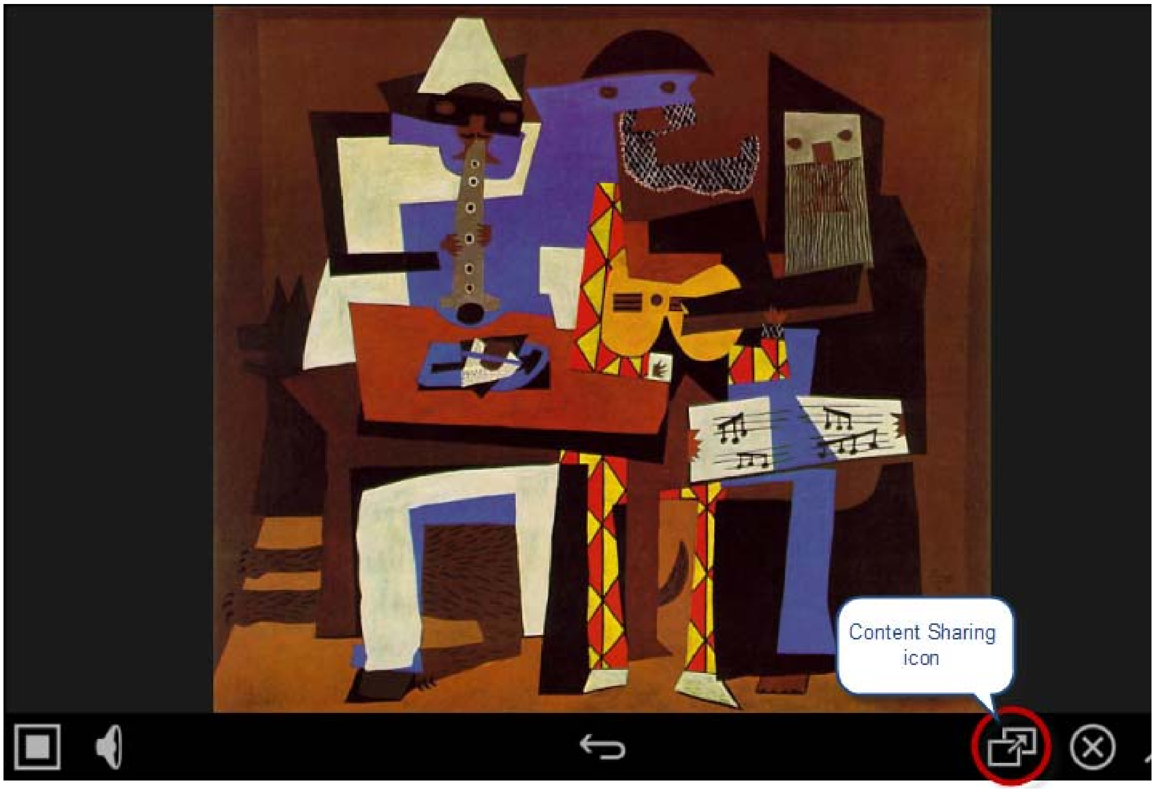


FIG. 144 Content Sharing icon (Gallery application with image file selected)

Notes on Content Sharing

- To share content, an individual file (as opposed to a directory) must be selected for sharing. Although the Content Sharing icon is displayed in some cases when a file is not selected, the Content Sharing feature only applies to selected files.
- Content Sharing is supported for the following applications:
  - PDF Viewer
  - Browser
  - File Browser
  - Gallery
  - PlanMaker Mobile
  - Presentations Mobile
  - TextMaker Mobile
- Content Sharing is supported for the following file types:

Content Sharing - Supported File Types:	".doc", ".docx", ".docm", ".dotm", ".dot", ".xlt", ".xls", ".xlsx", ".ppt", ".pptx", ".pps", ".pdf", ".txt", ".rtf", ".sxw", ".tmd", ".odt", ".mp3", ".mp4", ".mov", ".avi", ".3gp", ".flac", ".ogg", ".wav", ".jpg", ".gif", ".png", ".bmp", ".webp", ".ts", ".mkv", ".webm"

- Some application provide their own "sharing" functions, which are not necessarly the same as the Content Sharing feature used to share with Enzo units. For example, at the top of the Image View page, there is an application-specific "Share" icon. When pressed, this icon presents a menu to select another application to use for sharing the file (FIG. 145). Note that *Content Sharing* is not available via this menu.

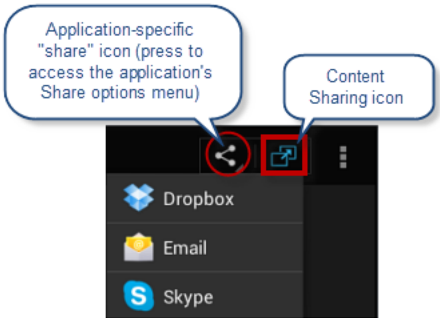

Application-specific "share" icon (press to access the application's Share options menu)
Content Sharing icon
Dropbox
Email
Skype

FIG. 145 Application "Share" icon, and Content Sharing icon (as displayed in an Image View page)

- Some applications may also present the Content Sharing icon in multiple places. Anywhere that the Content Sharing icon is presented, it can be pressed to invoke Content Sharing with an Enzo. The example in FIG. 145 shows that the Content Sharing icon is displayed at the top of the window next to the application's "Share" icon. Content Sharing can be invoked either via this icon or the Content Sharing icon presented in the G5 Menu Bar at the bottom of the window.
- In cases where the application presents a "Share" function as an application-specific feature, "Content Sharing" is often included as an option (FIG. 146). In this case, select *Content Sharing* to share with Enzo.

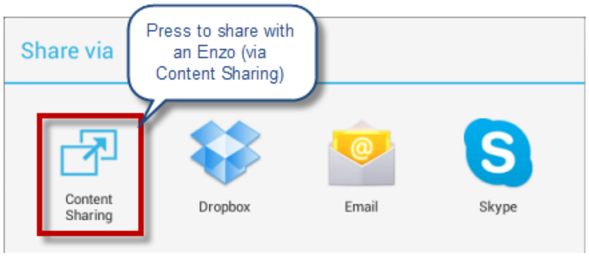


FIG. 146 Application "Share" icon, and Content Sharing icon (as displayed in an Image View page)

Sharing Content From a Modero X G5 Touch Panel

The following instructions outline the basic workflow of sharing content from the G5 panel to the Enzo. To follow these instructions, you'll need a USB drive with at least one file saved on it.

In this example, we will select a file to share in the *File Browser* application on a G5 panel:

1) Select a File and press the Content Sharing Icon

1. Plug a USB stick loaded with the file(s) that will be shared into an available USB port on the G5 panel.
2. On the G5 panel, open the *File Browser* application to view the files that are the USB stick.
    - Note that in the File Browser application, Content Sharing icons are presented for each file. An example view of the File Browser application is shown in FIG. 147:

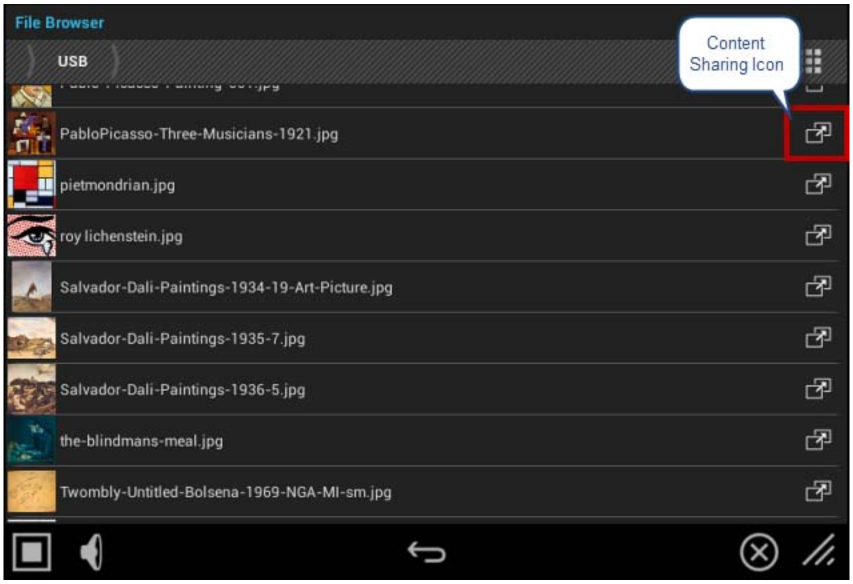

File Browser
USB
Content Sharing Icon
PabloPicasso-Three-Musicians-1921.jpg
pietmondrian.jpg
roy lichenstein.jpg
Salvador-Dali-Paintings-1934-19-Art-Picture.jpg
Salvador-Dali-Paintings-1935-7.jpg
Salvador-Dali-Paintings-1936-5.jpg
the-blindmans-meal.jpg
Twombly-Untitled-Bolsena-1969-NGA-MI-sm.jpg

FIG. 147 File Browser - Content Sharing Icons

- Other applications display the Content Sharing icon in the G5 Menu Bar at the bottom of the window, as shown in FIG. 148:

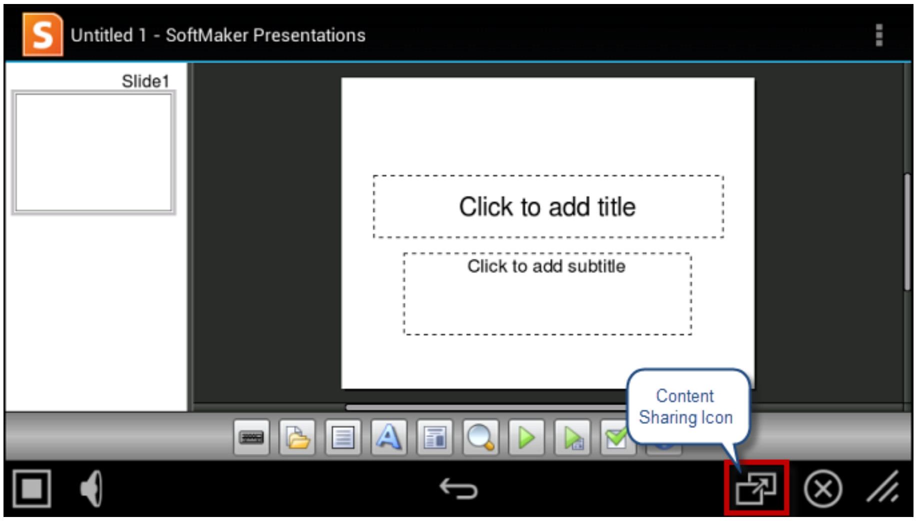


FIG. 148 Presentation Application - Content Sharing icon

3. Press the **Content Sharing icon** to share the file.

2) Select the Enzo To Send Shared Content To (if prompted)

If more than one Enzo exists in the panel's Receivers list, the panel will prompt you to specify which of the Enzo units in the system to send the shared content to when the Content Sharing icon is pressed.

- If there is only one Enzo present in the panel's Receiver List, then this prompt is not displayed.
- Refer to the *Configuring the Receivers List* section on page 38 for details on adding Enzo units to the panel's Receivers List.

1. If there are multiple Enzo units configured to use Content Sharing with the G5 panel, then a list of Enzo units is displayed to select from, in the *Receiver Selection* window (FIG. 149).

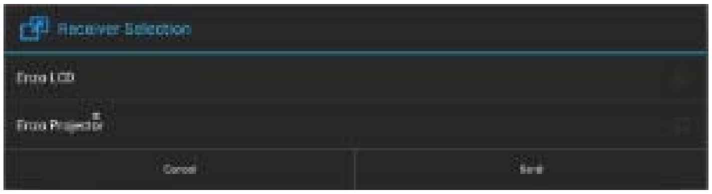
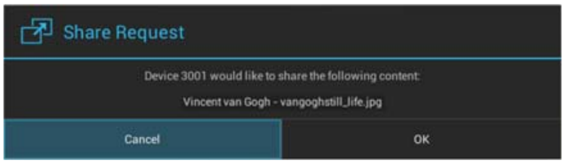


FIG. 149 G5 panel - Receiver Selection

2. Select the Enzo to send the shared content to. In this case, once an Enzo (Receiver) is selected, communication is established between the G5 panel and the selected Enzo unit, and the file is transferred to the Enzo.

3) On the Enzo, Confirm the Share Request (if prompted)

Depending on how the Enzo unit has been configured, the *Share Request* confirmation dialog may be presented (FIG. 150). If this dialog is displayed, press **OK** to allow the share request:



Device 3001 would like to share the following content:
Vincent van Gogh - vangoghstill_life.jpg

FIG. 150 Enzo - Share Request confirmation dialog

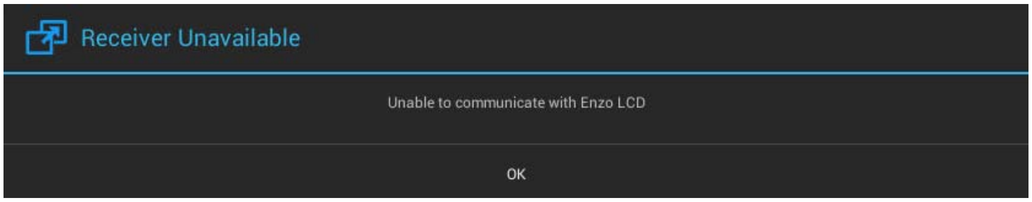
Note that the device name ("*Device 3001*" in FIG. 150) will be replaced with the device name assigned to the G5 panel that is sending the shared file.

- When the user presses **OK**, the shared content is displayed.
- If the Enzo is not configured to display this dialog, then the content is shared immediately.

Error Messages

For the most part AMX Share operates silently in the background. However, there are some scenarios where error conditions are reported back to the user.

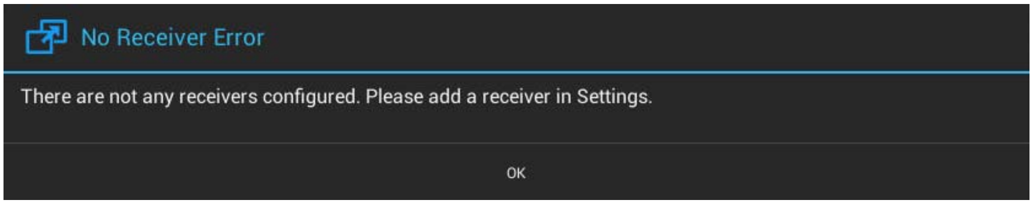
If the G5 panel is unable to communicate with an Enzo for some reason (wrong credentials, wrong port number, wrong hostname/ip, Receiver is disabled, etc), the following error will be presented (FIG. 151):



Unable to communicate with Enzo LCD

FIG. 151 Error - Receiver unavailable

If the G5 panel does not have any (Enzo) Receivers configured, the following error will be presented (FIG. 152):



There are not any receivers configured. Please add a receiver in Settings.

FIG. 152 Error - No Receiver Error

Gestures

Overview

You can program Modero X Series touch panels, using the commands in this section, to perform a wide variety of operations using Send Commands and variable text commands.

A device must first be defined in the NetLinx programming language with values for the Device: Port: System (in all programming examples - *Panel* is used in place of these values and represents all Modero panels).

NOTE: *Verify you are using the latest NetLinx Master and Modero firmware, as well as the latest version of NetLinx Studio and TPD5.*

NOTE: *For more information on gestures and on designing touch panel pages, please refer to the TPDesign 5 online help, available at www.amx.com.*

Touch Gesture Recognition

Gesturing refers to the act of moving a finger or stylus across the overlay and having the panel recognize and process this motion as a gesture. In G5, gesture events are assigned as individual buttons or pages. In addition, a gesture velocity is calculated and transmitted to the master along with the gesture type itself in a custom event message.

NOTE: *Nothing will be processed if the button associated with this gesture has no gesture event operations programmed, is disabled, or has no values programmed for address, channel, level, string output or command output. The custom event, however, is always transmitted.*

The following gesture types are supported:

1. Swipe up
2. Swipe down
3. Swipe right
4. Swipe left
5. Double-tap
6. 2 Finger Swipe Up
7. 2 Finger Swipe Down
8. 2 Finger Swipe Right
9. 2 Finger Swipe Left

Gesture Velocity

A gesture “velocity” is calculated to represent the speed of the gesture. This is done by measuring the time from when the user first presses the screen until the user releases. The following simplified velocities are supported and transferred to the master in the custom event message:

1. Fast
2. Normal
3. Slow

A precise velocity is sent in the custom event message which represents the velocity in terms of pixels per second for slides and circles. For a double tap, this value is the total time in milliseconds from the first press to the second release.

Gesture Prioritization

The following table describes the process used to determine what the user meant whenever a gesture operation is defined globally versus for the current page.

Gesture Prioritization	
The user presses outside of a button or slider and moves before releasing.	The firmware will always try to recognize a gesture as long as the user moves at least 20 pixels before the release occurs.
The user presses inside of a slider and moves before releasing.	This will always be processed as a slider operation and no attempt will be made to recognize a gesture.
The user moves a movable popup page.	This will always be processed as a popup page move and not a gesture.
The user presses on a button and then moves.	In this case, the press will not be sent for the first 0.15 second. If the user has moved at least 60 pixels by this time, then a button press/release will not be processed, but this will be processed as a gesture. At 0.15 second, the button press is processed and once the user releases, the release is processed and no gesture recognition is attempted. To be clear, it is not necessary for the user to move off of a button to be considered a gesture, but to move at least 60 pixels in that first 0.15 of a second.
The user double taps on a button or slider.	This will not be recognized as a gesture. This would be considered two quick press/release operations on the button or slider.
The user double taps outside of a button or slider.	This will be registered as a gesture.

Gesture VNC/Mouse Support

Gestures are recognized when the user is using a finger or stylus on the panel's screen overlay, a mouse on a VNC connection, or a mouse connected to the local USB port on the panel.

Gesture Custom Event

Whenever a gesture is recognized and processed a custom event is also sent to the master. The following values describe this event:

```
CUSTOM_EVENT ADDRESS is 1
CUSTOM_EVENT EVENTID is 600
Custom.Value1 is the gesture number
Custom.Value2 is the simplified gesture velocity
Custom.Value3 is the precise gesture velocity
```

Gesture numbers and velocity values

Gesture Numbers and Velocity Values		
Gesture numbers		**Simplified gesture velocity values**
1- Swipe up **2**- Swipe down **3** - Swipe right **4** - Swipe left **5** - Circle (not implemented) **6** - CCW Circle (not implemented)	**7** - Double-Tap **8** - Two-Finger Swipe up **9** - Two-Finger Swipe down **10** - Two-Finger Swipe right **11** - Two-Finger Swipe left	**1** - Fast **2** - Normal **3** - Slow

Precise gesture velocity

For double taps, this is the time in milliseconds from the first press to the second release.

Enabling or Disabling the Gesture Custom Event

The **^GCE** Send Command sets whether or not the panel sends a custom event to the master whenever a gesture is detected (see page 92).

- The value sent is not retained - gesture custom events will be enabled each time the panel restarts.
- The default is to always NOT send the events.

MXA-MP and MXA-MPL Programming

Overview

The MXA-MP Modero X Series Multi Preview and MXA-MPL Multi Preview Live are touch panel accessories that display still images or an HD digital video stream on Modero X Series touch panels. The MXA-MP accepts analog or digital video inputs and converts them into up to 10 regularly refreshed JPEG preview images. The MXA-MPL accepts analog or digital video inputs over HDMI and converts them to a video stream. Both devices make it easy for users to identify quickly what is currently being displayed by up to 10 source devices.

NOTE: *Verify you are using the latest NetLinx Master and Modero firmware, as well as the latest version of NetLinx Studio and TPD5.*

NOTE: *For more information on the MXA-MP and MXA-MPL, such as firmware upgrades, please refer to the* MXA-MP/MPL Instruction Manual*, available at www.amx.com.*

Configuring the Touch Panel

After physically connecting the device to the local network, and connecting the Modero X Series touch panel to the device, enable the device through the touch panel's *Multi Preview* page (FIG. 153). For more information on the *Multi Preview* menu, please refer to the *CONNECTIONS - Multi Preview* section on page 51.

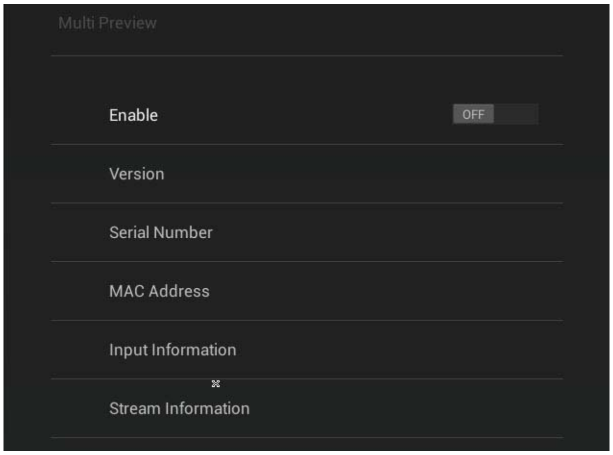


FIG. 153 Multi Preview menu

Stand-Alone Images and Video Feeds

Adding a Preview Image to a Touch Panel Page

As an example of how to add a simple JPEG preview image to a touch panel page in TPDesign 5:

1. From the main TPDesign 5 menu, select **Panel / Resource Manager** and select the **Dynamic Images** tab.
2. Select a JPEG image in the project. In this example, call it *MXA_MP*.
3. In the *Select Resource* window (FIG. 154), add a new resource. In the example.
    - *Protocol:* HTTP
    - *Host:* mxamp
    - *Path:* snapit
    - *File:* slot1.jpg

    In this example, make sure to use at least a 2-second Refresh Rate.
4. When finished, click **OK t**o close the *Select Resource* window.

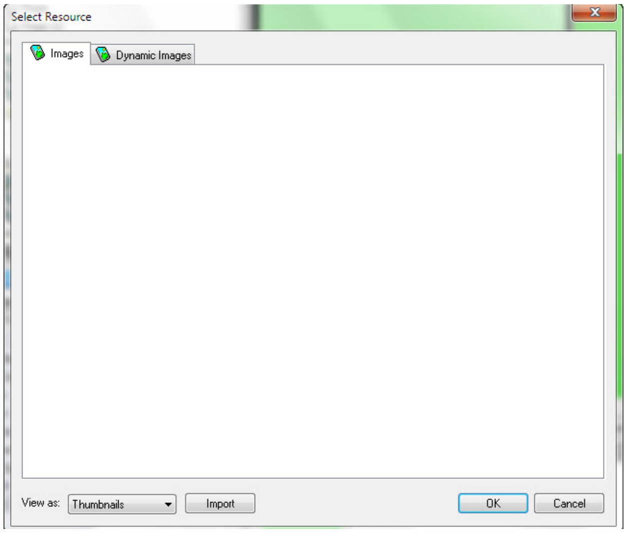


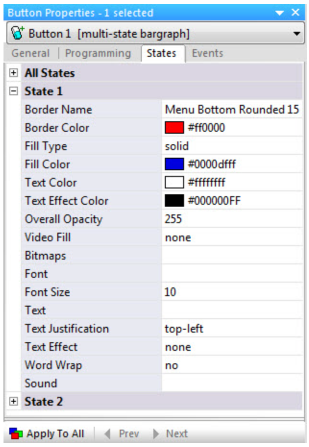
FIG. 154 Edit Dynamic Image window

5. After adding the Dynamic Image, assign the image as a Bitmap to a button on a touch panel page.

Adding a Live Motion Stream To A Touch Panel Page via an MXA-MPL

To add a live motion stream to a touch panel page via an MXA-MPL:

1. In the touch panel page, draw a button to be the video window.
2. In *Button States*, select *MXA-MPL* as the video fill (FIG. 155).


Button Properties - 1 selected
Button 1 [multi-state bargraph]
General
Programming
States
Events
Apply To All
Prev
Next

⊞ **All States**

⊟ **State 1**

Border Name	Menu Bottom Rounded 15
Border Color	🟥 #ff0000
Fill Type	solid
Fill Color	🟦 #0000dfff
Text Color	☐ #ffffffff
Text Effect Color	■ #000000FF
Overall Opacity	255
Video Fill	none
Bitmaps	
Font	
Font Size	10
Text	
Text Justification	top-left
Text Effect	none
Word Wrap	no
Sound	

⊞ **State 2**

FIG. 155 Button Properties

Supported Resolution/Signal Type Commands

When using the MXA-MPL for displaying live motion streams, make sure to use the supported resolutions with the video input type:

Supported Resolution/Signal Type Commands	

HDMI:	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=hdmi,640x480p@30'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=hdmi,800x600p@30'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=hdmi,1024x768p@30'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=hdmi,1280x720p@30'"`

DVI:	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=dvi,640x480p@30'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=dvi,800x600p@30'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=dvi,1024x768p@30'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=dvi,1280x720p@30'"`

RGB/Graphics:	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=vga,640x480p@30'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=svga,800x600p@30'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=xga,1024x768p@30'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=wxga,1280x768p@30'"`

Component:	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=component,720x480i@30'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=component,720x480p@30'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=component,720x576i@30'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=component,720x576p@25'"`

Supported Resolution/Signal Type Commands	

SVIDEO:	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=svideo,ntsc'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=svideo,pal-bghid'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=svideo,pal-m'"`

Composite:	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=composite,ntsc'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=composite,pal-bghid'"`
	`SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=composite,pal-m'"`

NOTE: *When using the MXA-MPL for displaying live motion streams, make sure to use the supported resolutions with the video input type. While the MXA-MPL is capable of supporting up to 60 Hz, the Modero X G5 panels that use MXA-MPL only support 25-30 Hz.*

Code-Driven Buttons and Video Feeds

Example code is available from AMX to assist with developing individual solutions for producing dynamic buttons and/or video feeds. From either the MXA-MP or MXA-MPL product pages on **www.amx.com**, select the AMX Device Modules link on the right side of the page. This example code is open source and may be modified to function with any source capable of providing the specified resolution and signal type.

Programming - Send Commands

Overview

You can program Modero X Series G5 touch panels, using the commands in this section, to perform a wide variety of operations using Send Commands and variable text commands.

NOTE: *For Send Commands specific to the MXR-1001 Retractable Panel, refer the MXR-1001 Send Commands* section on page 161.

A device must first be defined in the NetLinx programming language with values for the Device: Port: System (in all programming examples - *Panel* is used in place of these values and represents all Modero panels).

- Verify you are using the latest NetLinx Master and Modero X Series G5 firmware, as well as the latest version of NetLinx Studio and TPDesign5.
- The Send Commands described in this document are case-*insensitive*.

Using the "Pipe" (|) Character

Previously, in G4, the pipe character (|) was used to create a new line.

G5 uses carriage return / line feed ($0d,$0a) instead.

The examples below illustrate indicating a new line (between the words "Hello" and "World") in G4 and in G5 programming:

- **G4**: `"'^TXT-200,0,Hello|World'"`
- **G5:** `"'^TXT-200,0,Hello',$0d,$0a,'World'"`

Panel Commands

Panel Commands	

^ABP
ABEEP
	Single Beep Command - Output a single beep. The 'ABEEP' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^ABP'"`
	or
	`"'ABEEP'"`
	• **Variables**: None
	• **Example**:
	`SEND COMMAND Panel,"'^ABP'"`

^ADB
ADBEEP
	Double Beep Command - Output a double beep. The 'ADBEEP' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^ADB'"`
	or
	`"'ADBEEP'"`
	• **Variables**: None
	• **Example**:
	`SEND COMMAND Panel,"'^ADB'"`

^AKB
@AKB
AKEYB
	Show System Keyboard Command - Brings up system keyboard. When user presses the "Done" button, a string is returned to the master with the user-entered value. The keyboard can be removed either by the Back button or the "^AKR" command. The '@AKB' and 'AKEYB' commands are implemented for G4 compatibility.
	• **Syntax**:
	`"'^AKB-[optional initial text];[optional prompt text];[optional hint text];[optional return prefix];[optional return port]'"`
	or
	`"'@AKB-[optional initial text];[optional prompt text];[optional hint text];[optional return prefix];[optional return port]'"`
	or
	`"'AKEYB-[optional initial text];[optional prompt text];[optional hint text];[optional return prefix];[optional return port]'"`
	• **Variables**:
	Initial text: Pre-populated text to appear on keyboard (i.e. default)
	Prompt text: Descriptive header to appear above keyboard text entry box
	Hint Text: Hint text to appear behind the keyboard text entry box
	Return prefix: Prefix to the send string returned to the master. If not specified, the entered text will be preceded by "AKB-".
	Return port: The port number to return the response on if different than the port to which the command is sent.
	• **Example**:
	`SEND_COMMAND Panel,"'^AKB-username;Enter user name;Enter the name of the user for this panel'"`
	Present a keyboard with a prompt of 'Enter user name', the initial text of '*username*', and hint text of '*Enter the name of the user for this panel*'.

Panel Commands (Cont.)	

^AKP
@AKP
AKEYP
	Show System Keypad Command - Brings up system keypad. When user presses the "Done" button, a string is returned to the master with the user-entered value. The keypad can be removed either by the Back button or the "^AKR" command. The '@AKP' and 'AKEYP' commands are implemented for G4 compatibility.
	• **Syntax**:
	`"'^AKP-[optional initial text];[optional prompt text];[optional hint text];[optional return prefix];[optional return port]'"`
	or
	`"'@AKP-[optional initial text];[optional prompt text];[optional hint text];[optional return prefix];[optional return port]'"`
	or
	`"'AKEYP-[optional initial text];[optional prompt text];[optional hint text];[optional return prefix];[optional return port]'"`
	• **Variables**:
	Initial text: Pre-populated text to appear on keypad (i.e. default)
	Prompt text: Descriptive header to appear above keypad text entry box
	Hint Text: Hint text to appear behind the keypad text entry box
	Return prefix: Prefix to the send string returned to the master. If not specified, the entered text will be preceded by "AKP-".
	Return port: The port number to return the response on if different than the port to which the command is sent.
	• **Example**:
	`SEND_COMMAND Panel,"'^APK-John Doe;Enter Username:;Enter the name for the user;AKP-username-;1'"`
	Opens a keyboard with the initial text as *John Doe*, the keyboard prompt as *Enter Username:*, the Hint text as *Enter the name for the user*, the return prefix as *AKP-username-*, and the return port as *port 1*.

^AKR
@AKR
AKEYR
	Remove Keyboard/Keypad Command - This command removes any keyboard or keypad that is currently displayed. If it is a non-virtual keyboard or keypad, it is essentially an Abort, because any user-entered text is lost. The '@AKR' and 'AKEYR' commands are implemented for G4 compatibility.
	• **Syntax**:
	`"'^AKR'"`
	or
	`"'@AKR'"`
	or
	`"'AKEYR'"`
	• **Variables**: None
	• **Example**:
	`SEND COMMAND Panel,"'^AKR'"`
	Remove the displayed keyboard/keypad.

^APC	Automatic close application command - Setup alarm times to close all open applications.
	• **Syntax**:
	`"'^APC-<enable>,[optional alarm time],[optional alarm time]'"`
	• **Variables**:
	enable: 1 to enable alarms, 0 to disable alarms. Default is 1.
	Alarm time: Time of day to trigger alarm in HH:mm format. Format is 24 hour values. Up to six alarm times can be set each day. Valid HH formats are 00-23. Valid mm format is 00-59. Invalid formats and parameters will be disregarded. The default is one time set at 00:00 (midnight).
	• **Examples**:
	`SEND_COMMAND Panel, "'^APC-1,00:00, 08:00, 18:00'"`
	Enable the application close alarms at midnight (00:00), 8:00 AM (08:00), and 6:00 PM (18:00).
	`SEND_COMMAND Panel, "'^APC-0'"`
	Disable application close alarms.
	`SEND_COMMAND Panel, "'^APC-1'"`
	Enable alarms to close applications at previous alarm times.

?APC	Query application close alarms - Query the values of the close applications alarms. The response is a NetLinx DATA/Command event to the master from the port the command was sent to in the format used in the ^APC command.
	• **Syntax**:
	`"'?APC'"`
	• **Variables**: None.
	• **Example**:
	`SEND_COMMAND Panel, "'?APC'"`
	Response is a DATA/Command event to master from the port the ?APC command was sent on in the format of:
	`^APC-<enable>,[optional alarm time],[optional alarm time]`
	If alarms are enabled and times set to midnight and noon, the response would be:
	`^APC-1,00:00,12:00`

Panel Commands (Cont.)	
^APP - Launch application chooser	Launch application chooser command - Launch a dialog showing all available apps. - **Syntax**: `"'^APP'"` - **Variables**: None

^APP - Launch application window	Launch application window command - Launch an application window at the specified location with the specified application
	- **Syntax**:
	`"'^APP-left,top,<width>,<height>,[optional window type],<AppName>[,<param list>]'"`
	- **Variables**:
	left - The left position of the application window.
	top - The top position of the application window.
	width - The optional width of the application window. If not specified, the default width of 320 is used.
	height - The optional height of the application window. If not specified, the default height of 240 is used.
	window type - The optional window type. If not specified, the default window type of floating, resizable, movable is used.
	Window type Description
	0 Floating, resizable, movable
	1 Floating, fixed size, movable
	2 Floating, fixed size, non-movable
	3 Docked left
	4 Docked right
	5 Docked top
	6 Docked bottom
	app name The name of the application to launch.
	param list The optional comma-separated list of parameter triplets as follows:
	`<param_1_name>,<param_1_type>,<param_1_value>,...,<param_N_name>,<param_N_type>,<param_N_value>`
	where:
	name: parameter name (e.g."URI")
	type: parameter type (e.g. "String") - not case sensitive
	value: parameter value (e.g. http://www.amx.com)
	Note: The name, type and value are separated by a single comma. If there are additional parameters, a single comma should separate the previous parameter's value and the next parameter's name. Since comma is used to delimit the parameter fields, any comma appearing in the value of the element must be escaped with a backslash ('\'). If a backslash itself appears in any element, it too must be escaped with another backslash. To access a file on an attached USB drive, the URI must be: file:///udisk/path_to_file. (Note there are three (3) forward slashes after the file: and you must specify udisk to point to the USB disk.)
	- **Example**:
	`SEND_COMMAND Panel,"'^APP-0,0,Browser'"`
	Launch browser in upper left corner

^APP - Close a specific application	Close a specific application command - Close the application specified.
	- **Syntax**:
	`"'^APP-<app name>'"`
	- **Variables**:
	app name - The name of the application to close.
	- **Example**:
	`SEND_COMMAND Panel,"'^APP-Browser'"`
	Close the browser

Panel Commands (Cont.)	

^APP - Application action	Application action command - Performs a specified action on an application specified by *app name*.
	• **Syntax**:
	`"'^APP-<action>,<app name>[,<param list>]'"`
	• **Variables**:
	action: The action to perform on the application. The available actions are:
	show: show an app, launch if not visible centered on the screen in a floating, moveable, resizable window.
	close: close a running app
	close_all: close all running apps
	app name: The name of the application to act upon.
	param list: The optional comma-separated list of parameter triplets as follows:
	`<param_1_name>,<param_1_type>,<param_1_value>,...,<param_N_name>,<param_N_type>,<param_N_value>`
	where:
	name: parameter name (e.g."URI")
	type: parameter type (e.g. "String") - not case sensitive
	value: parameter value (e.g. http://www.amx.com)
	Note: The name, type and value are separated by a single comma. If there are additional parameters, a single comma should separate the previous parameter's value and the next parameter's name. Since comma is used to delimit the parameter fields, any comma appearing in the value of the element must be escaped with a backslash ('\'). If a backslash itself appears in any element, it too must be escaped with another backslash. To access a file on an attached USB drive, the URI must be: file:///udisk/path_to_file. (Note there are three (3) forward slashes after the file: and you must specify udisk to point to the USB disk.)
	• **Example**:
	`SEND_COMMAND Panel,"'^APP-show,Browser'"`
	Show the browser centered on the screen in a floating, movable, resizable window.
	`SEND_COMMAND Panel,"'^APP-close,Browser'"`

?APP	Query available application command - Query all the available apps installed. • **Syntax**: `"'?APP'"` • **Variables**: None App names are sent through a custom event:

```
Custom Event Property      Value
             Port          port command was received on
             ID            1
             Type          4170
             Flag          0
             Value 1       App Number (0 - max number apps in no particular order)
             Value 2       Number of available apps
             Value 3       n/a
             Text          App Name (suitable for launching via ^APP,0,0,AppName)
```

^BRT
@BRT
BRIT
	Panel Brightness Command - Set the panel brightness. The '@BRT' and 'BRIT' commands are implemented for G4 compatibility.
	• **Syntax**:
	`"'^BRT-<brightness level>'"`
	or
	`"'@BRT-<brightness level>'"`
	or
	`"'BRIT-<brightness level>'"`
	• **Variable**:
	brightness level = 0 - 100.
	• **Example**:
	`SEND COMMAND Panel,"'^BRT-70'"`
	Sets the brightness level to 70

Panel Commands (Cont.)

?BRT

Query Brightness Command - Query panel brightness.

- **Syntax**:

```
"'?BRT'"
```

- **Variables**: None
- **Example**:

```
SEND_COMMAND Panel,"'?BRT'"
```

Gets the current brightness value.

The response returned is a custom event with the following properties:

```
Custom Event Property     Value
          Port            port command was received on
          ID              0
          Type            1303
          Flag            0
          Value 1         Brightness value 0-100
          Value 2         0
          Value 3         0
          Text            String that represents the brightness value
```

- **Example response**:

```
Custom Event Property     Value
          Port            port command was received on
          ID              0
          Type            1303
          Flag            0
          Value 1         70
          Value 2         0
          Value 3         0
          Text            70
```

^CPR

Cache Purge Command - Purge the image cache.

- **Syntax**:

```
"'^CPR'"
```

- **Variables**: None.
- **Example**:

```
SEND COMMAND Panel,"'^CPR'"
```

Purge the image cache.

^DMM

Panel Streaming Audio Mute Command. Set the audio mute for a specified streaming URL.

- **Syntax**:

```
"'^DMM-<audio mute>,<video mute>,<url>'"
```

- **Variables**:

audio mute - mute/unmute the audio for <url> (0 = unmute, 1 = mute)

video mute - mute/unmute the video for <url> (0 = unmute, 1 = mute) (*not implemented at this time*)

url - a valid ^SDM url that is already in the playing state.

- **Examples**:

```
SEND_COMMAND Panel, "'^DMM-1,0,udp://224.1.1.1:1234'"
```

Mute audio, unmute video for UDP stream server 224.1.1.1 port 1234.

```
SEND_COMMAND Panel, "'^DMM-0,0,udp://224.1.1.1:1234'"
```

Unmute audio, unmute video for UDP stream server 224.1.1.1 port 1234.

^EKP
@EKP

System Extended Keypad - Brings up system extended keypad. Currently, the 'system extended keypad' and the 'system telephone keypad' are the same, and have all the keys that the G4 extended keypad had except the ":" key. When the user presses the "Done" button, a string is returned to the master with the user-entered value. The keypad can be removed either by the Back button or the "^AKR" command (*page 88*).

Note: The '@EKP' command is implemented for G4 compatibility.

- **Syntax**:

```
"'^EKP-[optional initial text];[optional prompt text];[optional hint text];
[optional return prefix];[optional return port]'"
```

or

```
"'@EKP-[optional initial text];[optional prompt text];[optional hint text];
[optional return prefix];[optional return port]'"
```

- **Variables**:

Initial text: Pre-populated text to appear on keypad (i.e. default)

Prompt text: Descriptive header to appear above keypad text entry box

Hint Text: Hint text to appear behind the keypad text entry box

Return prefix: Prefix to the send string returned to the master. If not specified, the entered text will be preceded by "EKP-".

Return port: The port number to return the response on if different than the port to which the command is sent.

Panel Commands (Cont.)

^ENC

Set Text Encoding Method - Sets the text encoding method which is used for commands and strings sent from panel to master (the default is UTF-8).

- **Syntax**:

  `"'^ENC-<Encoding>'"`
- **Variable**:

  Encoding: 0: UTF-8 (default), 1: Latin-1 (ISO 8859-1)
- **Example**:

  `SEND_COMMAND Panel,"'^ENC-1'"`

  Sets the encoding method used for all strings to the Master to Latin-1.

Note: NetLinx Studio does not support UTF-8 at this time; therefore UTF-8-encoded characters cannot be copied from TPD5 and pasted in Studio. To use NetLinx Studio to send UTF-8 encoded text, byte values must be enumerated in the command. For example, the following command sends a UTF-8 string to the panel, consisting of ASCII, extended ASCII and Unicode (Chinese) characters:

```
"'^UTF-3,0,Hello',$C3,$A2,$C3,$A3,$E5,$9C,$B0,$E7,$9B,$A4,$E3,$83,$87"
```

Also note that in backwards compatibility mode (i.e. when the ^TXT command is sent or when the ^ENC-1 command has been sent), ISO-8859-1 is used for character encoding/decoding, since that is what G4 panels used. ISO-8859-1 is different from the Windows-1252 character set in that characters in the range 128-159 (decimal) are non-printable control characters.

So in response to a ?TXT query, any characters in that range (assuming the ^ENC-1 was previously sent) will be returned as AMX Hex quad-encoded values with Custom Event Flag=1, whereas the remainder of the extended ASCII range (160-255) will be returned as Latin-1-encoded characters with Custom Event Flag=0 (see the ISO-8859-1 Character Encoding/ Decoding table on page 168*).*

?ENC

Get Text Encoding Method - Gets the current text encoding method which is used for commands and strings sent from panel to master (the default is UTF-8).

- **Syntax**:

  `"'?ENC'"`
- **Variables**: None
- **Example**:

  `SEND_COMMAND Panel,"'?ENC'"`

  Get the panel's text encoding status. The response returned is a custom event with the following syntax:

```
Custom Event Property       Value
                Port        port command was received on
                ID          0
                Type        1331
                Flag        0
                Value 1     encoding (0 = UTF-8, 1 = ISO-8859-1)
                Value 2     0
                Value 3     0
                Text        String that represents the encoding name
```

- **Example response for encoding status**:

```
Custom Event Property       Value
                Port        port command was received on
                ID          0
                Type        1331
                Flag        0
                Value 1     0
                Value 2     0
                Value 3     0
                Text        UTF-8
```

^GCE

Set Gesture Custom Event - Sets whether or not the panel sends a custom event to the master whenever a gesture is detected.

- **Syntax**:

  `"'^GCE-<state>'"`
- **Variables**:

  state: ON or OFF / 1 or 0 / on or off.

  Note: This setting is not retained and the default is to always NOT send the events. To enable sending the event, the value after the dash can be "on", "ON", or "1". Anything else will disable sending custom events.
- **Examples**:

  `SEND_COMMAND Panel, "'^GCE-on'"`

  Enables gesture custom event reporting to the master.

  `SEND_COMMAND Panel, "'^GCE-0'"`

  Disables gesture custom event reporting to the master.

Panel Commands (Cont.)

LEVON

Level on command (generated by NetLinx master) - Enable device to send level changes to the master. By default, devices will not report level changes unless a LEVON command is received. The LEVON command is automatically sent by the master to the device if:

There is a LEVEL event for the DPS of the device.

There is a CREATE_LEVEL defined in the NetLinx program for the DPS of the device.

- **Syntax**:

```
"'LEVON'"
```

- **Variables**: None

LEVOF

Level off command (generated by NetLinx master) - Disable the device from sending level changes to the master. By default, devices will not report level changes unless a LEVON command is received. The LEVON command is automatically sent by the master to the device if:

There is a LEVEL event for the DPS of the device.

There is a CREATE_LEVEL defined in the NetLinx program for the DPS of the device.

- **Syntax**:

```
"'LEVOF'"
```

- **Variables**: None

?MAC

Query Panel MAC Address - Query the MAC Address of the panel.

- **Syntax**:

```
"'?MAC'"
```

- **Variables**: None
- **Example**:

```
SEND_COMMAND Panel,"'?MAC'"
```

Get the panel's MAC Address. The response returned is a custom event with the following syntax:

```
Custom Event Property       Value
                Port        port command was received on
                ID          0
                Type        1315
                Flag        0
                Value 1     0
                Value 2     0
                Value 3     0
                Text        String that represents the MAC Address
```

- **Example response**:

```
Custom Event Property       Value
                Port        port command was received on
                ID          0
                Type        1315
                Flag        0
                Value 1     0
                Value 2     0
                Value 3     0
                Text        00:60:9f:90:00:01
```

^MSG

Message Dialog Command - A generic message dialog that has displayed content defined from the ^MSG command.

- **Syntax**:

```
'^MSG-dialog_id[:dialog_theme],dialog_type[-input_option][:dialog_image_name], timeout,
custom_event_type, custom_event_id, title_text, message_text, positive_button_text,
negative_button_text, neutral_button_text, cancel_text, timeout_text'
```

- **Variables**:

  dialog_id: Unique id to reference the dialog. Used to track IDs to displayed dialogs.

  dialog_theme: Optional theme of the dialog is set by appending the theme to the dialog_id number with ':' and the theme. Valid themes are light and dark (default) dialog_type. The type of dialog to display:

    std - standard dialog. By default, no image is displayed in the title area.
    warn - warning dialog. The built-in warning image is used in the title area.
    error - error dialog. The built-in error image is used in the title area.
    quest - question dialog. The built-in question image is used in the title area.
    list - list of items to choose. By default, no image is displayed in the title area. List items are put in the message_text field and are separated by colons (':').
    input - input entry. By default, no image is displayed in the title area.
    Optional input_options follow a dash ('-') and are:
      no option present - alphanumeric input
      num - numeric input (no alphabetic input)
      phone- phone pad presented
      uri - URI keyboard presented
      email - Email keyboard presented
      name - Keyboard presented and capital words are used.
      date - Date pad presented
      time - Time pad presented
      datetime - Date/Time pad presented

Panel Commands (Cont.)

^MSG
(Cont.)

pass - password entry. By default, no image is displayed in the title area. Optional input_options follow a dash ('-') and are:

- *no option present* - alphanumeric input
- *num* - numeric input (no alphabetic input)

dialog_image_name: It is optional to override any type with a custom image or dynamic image from the TP5 file to be displayed in the title area. The image used is set by appending a ':' and image file/resource name to the **dialog_type-input_option** (e.g. std:number.png or warn:mywarningimage.jpg).

timeout: Timeout is in milliseconds. If timeout is 0, message does not timeout and is considered modal.

custom_event_type: The custom event type value to use for result custom events.

custom_event_id: The custom event ID value to use for result custom events.

title_text: Text that is displayed in the dialog title. If this field is empty, no title is displayed on the dialog.

message_text: In most cases, the contents of this field is displayed in the message of the dialog. There are a few exceptions based on dialog_type:

list - In a list dialog type, the message_text contains the list items. List items are separated by a colon (':').
input - In a input dialog type, the message_text contains the initial value of the text entry field of the dialog.
pass In a pass dialog type, the message_text contains the initial value of the text entry field of the dialog.

positive_button_text: Text to display on the positive button (e.g. Yes, OK, Enter, etc.) In most cases, if the positive button is selected, this text is sent to master in the custom.text field. Note: If this field is empty, the positive button is not displayed in the MessageDialog.

Note: Text fields can be put into quotations (“ ”) so that commas can be used in text. Like the CSV parser, if a " is needed in the text, the " can be escaped by a prepended another " (e.g. "").

Note: The use of text params in command instead of preset definitions for button text is so that the language of text can be set in code. Unicode quads for text are supported by using the command '^MSGU-' command. Legacy ISO-8859-1 (like ^TXT) text is supported by using the '^MSGT-' command.

- **Response Data:**

The response to the MessageDialog is sent to the master via a Custom Event. Some of the custom event values are set in the ^MSG command, and others are generated as a result of the dialog action.

Result Custom Events data:

custom.type: The value set in the custom_event_type field

custom.id: The value set in the custom_event_id field.

custom.flag: value has the result. In most cases, it indicates which button was selected, or cancel, or timeout:

```
-1 = timeout
0 = cancel
1 = positive button
2 = negative button
3 = neutral button
```

In a list dialog type, when an item is selected, the custom.flag field will be set to 1 (positive button).

custom.value1 The dialog_id value set in the command

custom.value2 In a list dialog type, this field has the index of the selected list item. If the first item was selected then value2==1, second item selected then value2==2, etc. If the dialog_type is not a list, then value2 is unused and is set to 0.

custom.value3: Unused. Set to 0.

custom.text: The text of the resulting button selected, or cancel_text if dialog was canceled, or timeout_text if timed out. In list mode, the selected list item text value is sent in this field. In input or pass, the entered value is sent in this field.

Note: Custom events are returned on the port the command was sent to from the master.

- **Examples**:

```
SEND_COMMAND Panel,’^MSG-1,std,60000,32001,1,Please Wait,”System is busy”,OK’;
```

Display dialog ID 1 as a standard dialog.
The timeout is 60s.
The custom_event_type to use is 32001.
The custom_event_id to use is 1.
The title_text is 'Please Wait'.
The message_text is 'System is busy'.
The positive_button_text is 'OK'

```
SEND_COMMAND Panel,'^MSG-1,list:question-flat-48x48.png,30000,32001,10, Select item,"item 1:
item 2:item 3:item 4:item 5",,"Cancel"'
```

Display dialog ID 1 as a list dialog. The image 'question-flat-48x48.png' is used as the image in the title area.
The timeout is 30s.
The custom_event_type to use is 32001.
The custom_event_id to use is 10.
The title_text is 'Select Item'.
The message_text is list of 5 items (item 1, item 2, item 3, item 4, item5).
The positive_button_text is empty.
The negative_button_text is empty.
The neutral_button_text is 'Cancel'.

Panel Commands (Cont.)

^MSG (Cont.)

```
SEND_COMMAND Panel,"'^MSGT-1:light,error,30000,32001,32002,"Error Title","Lorem ipsum dolor sit
amet, consectetur adipiscing elit,sed do eiusmod tempor incididunt ut labore et dolore magna
aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea
commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore
eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui
officia deserunt mollit anim id est laborum. ""the end"","Positive","Negative",
"Neutral","Cancel","Timeout"'"
```

`^MSGT -` The dialog text is encoded in the ISO-8859-1 (Latin-1) format (like what is expected by ^TXT command).

Display dialog ID 1 with a light theme as an error dialog. The default error image is used as the image in the title area.

The timeout is 30s.
The custom_event_type to use is 32001.
The custom_event_id to use is 32001.
The title_text is 'Error Title'.
The message_text is a variation of 'Lorem ipsum...'.
The positive_button_text is 'Positive'.
The negative_button_text is 'Negative'.
The neutral_button_text is 'Neutral'.
The cancel_text is 'Cancel'.
The timeout_text is 'Timeout'.

^MUT

Panel Volume Mute - Mute or unmute a panel volume.

- **Syntax**:

```
"'^MUT-<mute value>'"
```

- **Variables**:

mute value: 0 for not muted, 1 for muted.

- **Examples**:

```
SEND_COMMAND Panel,"'^MUT-1'"
```

Mute the master volume.

```
SEND_COMMAND Panel,"'^MUT-0'"
```

Unmute the master volume.

?MUT

Query Panel Mute Status - Query the mute status of the panel.

- **Syntax**:

```
"'?MUT'"
```

- **Variables**: None
- **Example**:

```
SEND_COMMAND Panel,"'?MUT'"
```

Get the panel's mute status. The response returned is a custom event with the following syntax:

```
Custom Event Property       Value
                Port        port command was received on
                ID          0
                Type        1305
                Flag        0
                Value 1     mute status (0 unmuted or 1 for muted)
                Value 2     0
                Value 3     0
                Text        String that represents the mute status (0 or 1)
```

- **Example response for muted status**:

```
Custom Event Property       Value
                Port        port command was received on
                ID          0
                Type        1305
                Flag        0
                Value 1     1
                Value 2     0
                Value 3     0
                Text        1
```

^NOT

Popup Note Command - A generic popup note message that can be used to display information for a short duration on the display.

- **Syntax**:

```
'^NOT-note_text, duration, location, text_size'
```

- **Variables**:

note_text - The text to displayed in the popup note.

duration - The time in milliseconds to display the popup note

location - Where to display the popup note. Options are 'c' for CENTERED on display, 't' for TOP CENTER on display, and 'b' for BOTTOM CENTER on display. Any other value will be displayed as CENTER.

text_size - The size value to display the popup note text. Default is 18.

Note: The note text field can be put into quotations (“ ”) so that commas can be used in text. Like the CSV parser, if a " is needed in the text, the " can be escaped by a perpending another " (e.g. ""). Note text is assumed to be UTF-8 encoded.

Panel Commands (Cont.)	

^PKB
@PKB
PKEYB
	Show System Private Keyboard Command - Brings up system private keyboard (the same as the system keyboard, with typed text hidden with the '*' character). When user presses the "Done" button, a string is returned to the master with the user-entered value. The keyboard can be removed either by the Back button or the "^AKR" command (*page 88*). The '@PKB' and 'PKEYB' commands are implemented for G4 compatibility.
	• **Syntax**:
	`"'^PKB-<initial text>;<prompt text>;<hint text>;<return prefix>;<return port>'"`
	or
	`"'@PKB-<initial text>;<prompt text>;<hint text>;<return prefix>;<return port>'"`
	or
	`"'PKEYB-<initial text>;<prompt text>;<hint text>;<return prefix>;<return port>'"`
	• **Variables**:
	Initial text - Pre-populated text to appear on keyboard (i.e. default). Note that for the private keyboard, this text will be hidden.
	Prompt text - Descriptive header to appear above keyboard text entry box
	Hint Text - Hint text to appear behind the keyboard text entry box
	Return prefix - Prefix to the send string returned to the master. If not specified, the entered text will be preceded by "PKB-".
	Return port - The port number to return the response on if different than the port to which the command is sent.

^PKP
@PKP
PKEYP
	Show System Private Keypad Command - Brings up system private keypad (the same as the system keypad, with typed text hidden with the '*' character). When user presses the "Done" button, a string is returned to the master with the user-entered value. The keypad can be removed either by the Back button or the "^AKR" command (*page 88)*. The '@PKP' and 'PKEYP' commands are implemented for G4 compatibility.
	• **Syntax**:
	`"'PKEYP-[optional initial text];[optional prompt text];[optional hint text];[optionalreturn prefix];[optional return port]'"`
	• **Variables**:
	Initial text: Pre-populated text to appear on keypad (1 - 50 ASCII characters). Note that for the private keypad, this text will be hidden.
	Prompt text: Descriptive header to appear above keypad text entry box
	Hint Text: Hint text to appear behind the keypad text entry box
	Return prefix: Prefix to the send string returned to the master. If not specified, the entered text will be preceded by "PKP-".
	Return port: The port number to return the response on if different than the port to which the command is sent.
	• **Example**:
	`SEND COMMAND Panel,"'PKEYP-123456789'"`
	Pops up the Keypad and initializes the text string '123456789' in '*'.

^RPP	Reset protected password command - This command is used to reset the protected setup password to the factory default value.
	• **Syntax**:
	`"'^RPP'"`
	• **Variables**: None
	• **Example**:
	`SEND_COMMAND Panel,"'^RPP'"`
	Reset the panel protected password to the factory default.

^RSS	Reset System Settings Command - Reset Settings to factory default.
	• **Syntax**:
	`"'^RSS'"`
	• **Variables**: None
	• **Example**:
	`SEND_COMMAND Panel, "'^RSS'"`
	Reset the panel to factory default settings.

RXON	Send string on command (generated by NetLinx master) - Enable device to send STRING changes to the master. By default, devices will not report STRING changes unless a RXON command is received. The RXON command is automatically sent by the master to the device if: There is a DATA/STRING event for the DPS of the device. There is a CREATE_BUFFER defined in the NetLinx program for the DPS of the device. • **Syntax**: `"'RXON'"` • **Variables**: None

Panel Commands (Cont.)	
RXOF	Send string off command (generated by NetLinx master) - Disable the device from sending STRING changes to the master. By default, devices will not report STRING changes unless a RXON command is received. The RXON command is automatically sent by the master to the device if: There is a DATA/STRING event for the DPS of the device. There is a CREATE_BUFFER defined in the NetLinx program for the DPS of the device. • **Syntax**: `"'RXOF'"` • **Variables**: None

SHAR	Content Sharing command - Send a content URI to be shared. Allows the user to specify a URI to share.
	• **Syntax**:
	`"'SHAR-<mode>,<uri>'"`
	• **Variables**:
	mode: The mode to use with the URI for sharing
	uri: The URI to share
	• **Example**:
	`SEND_COMMAND Panel,"'SHAR-view,udp://255.255.22.25'"`
	Share the streaming video URI of udp://255.255.25.25 for the Content Sharing receiver to view.

SHUTDOWN	Power Off the Panel Command - Receipt of this command will cause the panel to power off. • **Syntax**: `"'SHUTDOWN'"` • **Variables**: None
^SCO	Session clear out command - Clears session data for some applications (*Browser*, *Firefox*, *Gallery*, *Skype*, *Dropbox*, *VNC server*, *PlanMaker*, *TextMaker*, and *Presentations).* • Syntax: `'^SCO'` • **Variables**: none

^SLP
SLEEP
	Panel Sleep Command - Place the panel in sleep state. Sleep state turns the display off. The 'SLEEP' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^SLP'"`
	or
	`"'SLEEP'"`
	• **Variables**: None
	• **Example**:
	`SEND COMMAND Panel,"'^SLP'"`
	Sends the panel to the sleep (display off)

^SOU
@SOU
	Play Sound Command - Plays a specified sound file. The '@SOU' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^SOU-<sound name>'"`
	• **Variables**:
	sound name: Name of the sound file. Supported sound file formats are: WAV & MP3.
	• Example:
	`SEND COMMAND Panel,"'^SOU-Music.wav'"`
	Plays the '*Music.wav*' file.

^SSL
@SSL
	Set the Sleep String Command - Set the content of the string that is sent to the master when the panel goes to sleep (display off). The '@SSL' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^SSL-<sleep string>'"`
	or
	`"'@SSL-<sleep string>'"`
	• **Variables**:
	Sleep string: The string sent to the master when the panel goes to sleep.
	• **Example**:
	`SEND COMMAND Panel,"'^SSL-Sleeping…'"`
	Sets the sleep string to '*Sleeping…*'.

Panel Commands (Cont.)	

^STP
SETUP
	Settings application command - Open the Settings Applications. The 'SETUP' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^STP'"`
	or
	`"'SETUP'"`
	• **Variables**: None
	• **Example**:
	`SEND COMMAND Panel,"'^STP'"`
	Opens the Settings application.

^SWK
@SWK
	Set the Wake String Command - Set the content of the string that is sent to the master when the panel wakes up from sleep (display on). The '@SWK' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^SWK-<wake string>'"`
	or
	`"'@SWK-<wake string>'"`
	• **Variables**:
	Wake string: The string sent to the master when the panel wakes up from sleep.
	• **Example**:
	`SEND COMMAND Panel,"'^SWK-Wakeing Up…'"`
	Sets the sleep string to '*Wakeing Up...*'.

^TKP
@TKP
	Brings up system telephone keypad - Currently, these keypads are the same, and have all the keys that the G4 extended keypad had except the ":" key. When user presses the "Done" button, a string is returned to the master with the user-entered value. The keypad can be removed either by the Back button or the "^AKR" command (*page 88*). The '@TKP' command is implemented for G4 compatibility.
	• **Syntax**:
	`"^TKP-[optional initial text];[optional prompt text];[optional hint text];`
	`[optional return prefix];[optional return port]'"`
	• **Variables**:
	Initial text: Pre-populated text to appear on keypad (i.e. default)
	Prompt text: Descriptive header to appear above keypad text entry box
	Hint Text: Hint text to appear behind the keypad text entry box
	Return prefix: Prefix to the send string returned to the master. If not specified, the entered text will be preceded by "TKP-".
	Return port: The port number to return the response on if different than the port to which the command is sent.
	Note: See also - ^EKP (system telephone keypad) on page 91.

^TPF
TPAGEOF
	Turn Off Page Tracking Command. The 'TPAGEOF' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^TPF'"`
	or
	`"'TPAGEOF'"`
	• **Variables**: None
	• **Example**:
	`SEND COMMAND Panel,"'^TPF'"`

^TPN
TPAGEON
	Turn On Page Tracking Command - This command turns on page tracking, whereby when the page or popups change, a string is sent to the Master. This string may be captured with a CREATE_BUFFER command for one panel and sent directly to another panel. The 'TPAGEON' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^TPN'"`
	or
	`"'TPAGEON'"`
	• **Variables**: None
	• **Example**:
	`SEND COMMAND Panel,"'^TPN'"`

Panel Commands (Cont.)	

^UPD
UPDATE
	Panel Update Command - This command starts the Update Manager to perform a silent update of platform applications or firmware. The 'UPDATE' command is implemented for G4 compatibility.
	Note: Allow 10-15 minutes for update to complete before sending another ^UPD command.
	• **Syntax**:
	`"'^UPD-<update type>'"`
	or
	`"'UPDATE-<update type>'"`
	• **Variables**:
	update type: Determines which form of update is performed. Valid values are APP and FW.
	• **Examples**:
	`SEND_COMMAND Panel,"'^UPD-FW'"`
	Update the panels Firmware silently in the background.
	`SEND_COMMAND Panel,"'^UPD-APP'"`
	Update the panels applications silently in the background.

^VKB **@VKB**	Show Virtual Keyboard Command - Brings up system virtual keyboard, which is the keyboard without a designated text entry area. A Text Input button must be in focus; if not, the keyboard will not appear. The type of keyboard is determined by the Text Area currently in focus. When user presses the "Done" button, a string is returned to the master with the user-entered value. The keyboard can be removed either by the Back button or the "^AKR" command (*page 88*). The '@VKB' command is implemented for G4 compatibility. • **Syntax**: `"'^VKB'"` • **Variables**: None
^VKP **@VKP**	Show Virtual Keypad Command - Brings up system virtual keypad, which is the keypad without a designated text entry area. A Text Input button must be in focus; if not, the keypad will not appear. The type of keypad is determined by the Text Area currently in focus. When user presses the "Done" button, a string is returned to the master with the user-entered value. The keypad can be removed either by the Back button or the "^AKR" command (*page 88*). The '@VKP' command is implemented for G4 compatibility. • **Syntax**: `"'^VKP'"` • **Variables**: None
^VKS	Virtual Key Stroke Command - Sends a Virtual Key Stroke to the Modero X G5 touch panel. *Note: this command does not function in the same way as with G4 touch panels.* **Syntax**: `"'^VKS-<keycode>'"` **Variable**: *keycode*: Android key code decimal value. Note that these are not the same as in G4. *Note: For the key code values, please refer to the Virtual Keystroke Commands table on page 169.*

^VOL	Set Volume Command - Set the [specified] volume.
	• **Syntax**:
	`"'^VOL,<level>,[optional type]'"`
	Variables:
	Level: the volume level from 0-100. The level will be scaled according to the platforms abilities.
	Type (option): Change the volume of the given type
	0 = Master volume (change all volumes simultaneously). Used by default if no type is specified. This is not a real volume, but instead is a virtual value that changes all other volume type concurrently.
	10 = Alarm Volume
	11 = Call Volume
	12 = Media Volume
	13 = Notification Volume
	44 = Display the volume dialog (level is ignored)
	Note: the platform dialog sliders will NOT update if they are displayed when the command is received. They are accurate, however, if displayed after receiving the command.
	• **Examples**:
	`SEND_COMMAND Panel,"'^VOL,50'"`
	Sets the master volume to 50.
	`SEND_COMMAND Panel,"'^VOL,50,0'"`
	Sets the master volume to 50.

Panel Commands (Cont.)

?VOL

Query Volume Command - Query the volume.

- **Syntax**:

```
"'?VOL,[optional type]'"
```

- **Variables**:

Type (option) Get the volume of the given type

0 = Master volume. Used by default if no type is specified. Since Master volume is not a real volume, the value returned will actually be the Media Volume Value.
10 = Alarm Volume
11 = Call Volume
12 = Media Volume
13 = Notification Volume

The response returned is a custom event with the following syntax:

```
Custom Event Property       Value
                 Port       port command was received on
                 ID         0
                 Type       1306
                 Flag       0
                 Value 1    volume level
                 Value 2    volume type
                 Value 3    0
                 Text       String containing 'type=level'
```

- **Examples**:

```
SEND_COMMAND Panel,"'?VOL'"
```

Query the Master volume. Response would be similar to:

```
Custom Event Property       Value
                 Port       port command was received on
                 ID         0
                 Type       1306
                 Flag       0
                 Value 1    80
                 Value 2    0
                 Value 3    0
                 Text       Master=80
```

```
SEND_COMMAND Panel,"'?VOL,10'"
```

Query the Alarm volume. Response would be similar to:

```
Custom Event Property       Value
                 Port       port command was received on
                 ID         0
                 Type       1306
                 Flag       0
                 Value 1    20
                 Value 2    10
                 Value 3    0
                 Text       Media=72
```

^WCN

Web Control Name (Panel to Master) - Report the Web Control (VNC) name to the master.

This is originated in the panel and sent to the master if VNC is enabled.

WEBU

Update Firmware from URL - This command tells the panel to retrieve a firmware kit file from the included URL and update to the firmware included in that kit file.

- **Syntax**:

```
"'WEBU-<url>'"
```

- **Variable**:

url: URL to the kit file. Support protocols are HTTP only at this time.

- **Example**:

```
SEND_COMMAND PANEL,"'WEBU,http://file.server/MODEROX-G5-firmware.kit'"
```

Download and install the MODEROX-G5-firmware.kit file from the HTTP server file.server.

^WKE
WAKE

Panel Wakeup Command - Place the panel in wake state. Wake state turns the display on. The 'WAKE' command is implemented for G4 compatibility.

- **Syntax**:

```
"'^WKE'"
```

- **Variables**: None
- **Example**:

```
SEND COMMAND Panel,"'^WKE'"
```

Wakes the panel from sleep (turn display on)

Page Commands

Page Commands are case-insensitive.

Page Commands

^AFP

Flip to specified page using the named animation.

- **Syntax**:

```
"'^AFP-<page name>,<animation>,<origin>,<duration>'"
```

- **Variables**:

Page Name: If the page name is blank, flip the to the previous page

Animation: If blank/invalid, the default animation is *Fade*.

Animation Name	Command Syntax* (see note below)	Origin(s)	Default Origin
Center Door Fade	cntrdrfade, centerdoorfade, or center door fade	top(2), bottom(3), left(4), right(5)	right(5)
Door Fade	doorfade, door fade, or door	top(2), bottom(3), left(4), right(5)	right(5)
Fade	fade	center(1)	center(1)
Slide	slide	top(2), bottom(3), left(4), right(5)	right(5)
Slide Bounce	sldbounce, slidebounce, or slide bounce	top(2), bottom(3), left(4), right(5)	right(5)
Spin In	spinin or spin in	center(1)	center(1)
Spin Out	spinout or spin out	center(1)	center(1)
Zoom In	zoomin or zoom in	center(1)	center(1)
Zoom Out	zoomout or zoom out	center(1)	center(1)

Note: Multiple aliases for the transition name command syntax are allowed to maintain backwards compatibility with G4.

Duration: Transition time in 10ths of a second. Range is 3-30 with 15 (1.5 seconds) as the default

- **Examples**:

```
SEND_COMMAND Panel,"'^AFP-NextPage,slide,4,5'"
```

Flip to *NextPage* sliding from the left for half a second.

```
SEND_COMMAND Panel,"'^AFP-,centerdoorfade,2,10'"
```

Flip to *NextPage* center door fade from the top for a second.

^PCL

Collapse Collapsible Popup Command - Moves the named closeable popup to the collapsed position.

- **Syntax**:

```
"'^PCL-<popup name>;[optional target page]'"
```

- **Variables**:

Popup name: the name of the popup to collapse

Target page: name of the page hosting the popup to affect the change upon. If target page is not specified, the command is applied to the current page.

- **Examples** :

```
SEND_COMMAND Panel,"'^PCL-Contacts'"
```

Collapse the Contacts popup on the current page.

```
SEND_COMMAND Panel,"'^PCL-Contacts;Teleconference Control'"
```

Collapse the *Contacts* popup on the Teleconference Control page.

^PCT

Collapsible Popup Custom Toggle Command - This is an advanced "toggle" command for collapsible popups, working with a comma-separated list of commands. This list is parsed and a command table is created. Based on the current state of the collapsible popup, the correct command is executed.

Note: The previously parsed list is saved and is only parsed again if the command string differs for this popup.

- **Syntax**:

```
"'^PCT-<popup>,<custom toggle commands>;[optional target page]'"
```

- **Variables**:

Popup: popup name

Custom toggle commands: a comma separated list of commands. This list is parsed and a command table is created. The state letters are as follows:

o - open
c - collapsed
d - dynamic, followed by an integer indicating the offset.
* - wildcard, always last in the list
Before and after states are separated by -> characters.

Target page: name of the page hosting the popup to affect the change upon. If target page is not specified, the command is applied to the current page.

- **Example**:

```
SEND_COMMAND Panel,"'^PCT-RightSlider,c->o,o->d100,*->c'"
```

The popup named *RightSlider* opens if collapsed, move to d100 if open, and collapse otherwise.

Page Commands (Cont.)	

^PDO	Collapsed Popup Dynamic Offset Command - Moves the collapsible popup to a specific offset position relative to the collapsed direction configured for the popup. This allows other positions besides open and collapsed.
	• **Syntax**:
	`"'^PDO-<popup name>,<offset>;[optional target page]'"`
	• **Variables**:
	Popup name: name of the popup to affect
	offset: number of pixels to offset (hide). <offset> is constrained as follows: 0 <= offset <= collapsed offset
	Target page: name of the page hosting the popup to affect the change upon. If target page is not specified, the command is applied to the current page.
	• **Examples**:
	`"'^PDO-RightSlider,66'"`
	Move popup named *RightSlider* to an offset position of 66 on the current page.
	`"'^PDO-RightSlider,66;Media Controls'"`
	Move popup named *RightSlider* to an offset position of 66 on the Media Controls page.

^PGE
PAGE
	Page Flip Command - Flips to a page with a specified page name. If the page is currently active, it will not redraw the page. The 'PAGE' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^PGE-<page name>'"`
	or
	`"'PAGE-<page name>'"`
	• **Variable**:
	page name: Name of the page to be displayed. If left blank, the page flips back to the previous page.
	• **Examples**:
	`SEND_COMMAND Panel,"'^PGE-Page1'"`
	Flips to page1.
	`SEND_COMMAND Panel,"'^PGE-'"`
	Flips to the previous page.

^POP	Open Collapsible Popup Command - Moves the named collapsible popup to the open position.
	• **Syntax**:
	`"'^POP-<popup>;[optional target page]'"`
	• **Variables**:
	Popup: the name of the popup to collapse
	Target page: name of the page hosting the popup to affect the change upon. If target page is not specified, the command is applied to the current page.
	• Examples :
	`SEND_COMMAND Panel, "'^POP-Contacts'"`
	Open the *Contacts* popup on the current page.
	`SEND_COMMAND Panel, "'^POP-Contacts;Teleconference Control'"`
	Open the *Contacts* popup on the Teleconference Control page.

^PPA
@PPA
	Close All Popups Command - Close all popups on a specified page. The '@PPA' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^PPA-<page name>'"`
	or
	`"'@PPA-<page name>'"`
	• **Variable**:
	page name: Name of the page to close all popups on. If no name is specified, then the current page will have all popups closed.
	• **Example**:
	`SEND_COMMAND Panel,"'^PPA-Page1'"`
	Close all pop-ups on Page1.

Page Commands (Cont.)	

^PPF
@PPF
PPOF
	Popup Page Off Command - Detach a popup from a page. If the page name is empty, the current page is used. If the popup page is part of a group, the whole group is deactivated. This command works in the same way as the 'Hide Popup' command in TPDesign 5. The '@PPF' and 'PPOF' commands are implemented for G4 compatibility.
	• **Syntax**:
	`"'^PPF-<popup page name>;[optional page name]'"`
	or
	`"'@PPF-<popup page name>;[optional page name]'"`
	or
	`"'PPOF-<popup page name>;[optional page name]'"`
	• **Variables**:
	popup page name: Name of the popup page.
	page name : Name of the page the popup is displayed On. If not specified the popup is detached from the current page.
	• **Examples**:
	`SEND_COMMAND Panel,"'^PPF-Popup1;Main'"`
	Detach the popup 'Popup1' from page 'Main'.
	`SEND_COMMAND Panel,"'^PPF-Popup1'"`
	Detach the popup page 'Popup1' from the current page.

^PPG
@PPG
PPOG
	Toggle a Popup Page - Toggle a specific popup page. If the page name is empty, the current page is used. Toggling refers to the activating/deactivating (On/Off) of a popup page. This command works in the same way as the 'Toggle Popup' command in TPDesign. The '@PPG' and 'PPOG' commands are implemented for G4 compatibility.
	• **Syntax**:
	`"'^PPG-<popup page name>;[optional page name]'"`
	or
	`"'@PPG-<popup page name>;[optional page name]'"`
	or
	`"'PPOG-<popup page name>;[optional page name]'"`
	• **Variables**:
	popup page name: Name of the popup page.
	page name: Name of the page the popup is toggled on. If not specified the popup is toggled on the current page.
	• **Examples**:
	`SEND_COMMAND Panel,"'^PPG-Popup1;Main'"`
	Toggles the popup page 'Popup1' on the 'Main' page from one state to another (On/Off).
	`SEND_COMMAND Panel,"'^PPG-Popup1'"`
	Toggles the popup page 'Popup1' on the current page from one state to another (On/Off).

^PPK
@PPK
	Kill Popup Page Command - Kill a specific popup page from all pages. *Kill* refers to the deactivating (Off) of a popup window from all pages. If the pop-up page is part of a group, the whole group is deactivated. This command works in the same way as the 'Clear Group' command in TPDesign. The '@PPK' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^PPK-<popup page name>'"`
	or
	`"'@PPK-<popup page name>'"`
	• **Variables**:
	popup page name: Name of the popup page.
	• **Example**:
	`SEND_COMMAND Panel,"'^PPK-Popup1'"`
	Kills the popup page '*Popup1*' on all pages.

^PPM
@PPM
	Popup modal command - Set whether a popup is modal or not modal. The '@PPM' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^PPM-<popup page name>;<modal 1|0>'"`
	or
	`"'@PPM-<popup page name>;<modal mode 1|0>'"`
	• **Variables**:
	popup page name: Name of the popup page.
	modal mode: 1 if modal, 0 if non-modal.
	• **Example**:
	`SEND_COMMAND Panel,"'^PPM-Popup1;1'"`
	Set the popup page named *Popup1* to modal mode.

Page Commands (Cont.)	

^PPN
@PPN
PPON
	Attach a popup on a page - Attach a specific popup page to launch on either a specified page or the current page. If the page name is empty, the current page is used. If the popup page is already on, do not re-draw it. This command works in the same way as the 'Show Popup' command in TPDesign5. The '@PPN' and 'PPON' commands are implemented for G4 compatibility.
	• **Syntax**:
	`"'^PPN-<popup page name>;[optional page name]'"`
	or
	`"'@PPN-<popup page name>;[optional page name]'"`
	or
	`"'PPON-<popup page name>;[optional page name]'"`
	• **Variables**:
	popup page name: Name of the popup page.
	page name: Name of the page the popup is displayed on. If the page name is not specified the current page is used.
	• **Examples**:
	`SEND_COMMAND Panel,"'^PPN-Popup1;Main'"`
	Activates 'Popup1' on the 'Main' page.
	`SEND_COMMAND Panel,"'^PPN-Popup1'"`
	Activates the popup page '*Popup1*' on the current page.

^PPT
@PPT
	Popup Timeout Command - Set the popup to close after timeout. The '@PPT' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^PPT-<popup page name>;<timeout>'"`
	or
	`"'@PPT-<popup page name>;<timeout>'"`
	• **Variables**:
	Popup page name: the name of the popup to apply the timeout to. Popup must be visible on screen in order to apply timeout
	Timeout : the time in tenths of seconds (10 = 1 second) or 0 to cancel timeout.
	Note: Successive calls to timeout will reset the timeout. A timeout of 0 cancels the timeout and the popup stays open.
	• **Example**:
	`SEND_COMMAND Panel,'^PPT-MyPopup;150'`
	Close *MyPopup* after 15 seconds.

^PPX
@PPX
	Close All Popup Pages Command - Close all popups on all pages. This command works in the same way as the 'Clear All' command in TPDesign5. The '@PPX' command is implemented for G4 compatibility.
	• **Syntax**:
	`"'^PPX'"`
	or
	`"'@PPX'"`
	• **Variables**: None
	• **Example**:
	`SEND_COMMAND Panel,"'^PPX'"`
	Close all popups on all pages.

^PTC	Toggle Collapsible Popup Collapsed Command - Toggles the named collapsible popup between the open and collapsed positions. More specifically, if the popup is not fully collapsed, it is collapsed.
	• **Syntax**:
	`"'^PTC-<popup>;[optional target page]'"`
	• **Variables**:
	Popup: the name of the popup to toggle
	Target page: name of the page hosting the popup to affect the change upon. If target page is not specified, the command is applied to the current page.
	• **Examples** :
	`SEND_COMMAND Panel,"'^PTC-Contacts'"`
	Toggle the *Contacts* popup collapsed on the current page.
	`SEND_COMMAND Panel,"'^PTC-Contacts;Teleconference Control'"`
	Toggle the *Contacts* popup collapsed on the Teleconference Control page.
	Note: Collapsible popup send commands do not automatically show the popup on the target page. The popup must be first shown with a standard show command. This applies even when the collapsible popup is a member of a popup group. For all of these commands, if the target page is blank, the current page is used. If the named popup is not collapsible, the commands are ignored.

<table>
<tr><th colspan="2">Page Commands (Cont.)</th></tr>
<tr><td><b>^PTO</b></td><td>Toggle Collapsed Popup Open Command - Toggles the named collapsible popup between the open and collapsed positions. More specifically, if the popup is not fully open, it is opened.
• <b>Syntax</b>:
<code>"'^PTO-<popup>;[optional target page]'"</code>
• <b>Variables</b>:
<i>Popup</i>: the name of the popup to toggle
<i>Target page</i>: name of the page hosting the popup to affect the change upon. If target page is not specified, the command is applied to the current page.
• <b>Examples</b>:
<code>SEND_COMMAND Panel,'^PTO-Contacts'</code>
Toggle the <i>Contacts</i> popup open on the current page.
<code>SEND_COMMAND Panel,'^PTO-Contacts;Teleconference Control'</code>
Toggle the <i>Contacts</i> popup open on the Teleconference Control page.
<i>Note: Collapsible popup send commands do not automatically show the popup on the target page. The popup must be first shown with a standard show command. This applies even when the collapsible popup is a member of a popup group. For all of these commands, if the target page is blank, the current page is used. If the named popup is not collapsible, the commands are ignored.</i></td></tr>
</table>

Button Commands

Button Commands

^ANI

Multistate Button Animation Command - Commands a multistate button to animate from a starting state to an ending state.

- **Syntax**:

```
^ANI-<addr range>,<start state>,<end state>,<time>
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  start state : Beginning of button state (0= current state).

  end state: End of button state.

  time : In 1/10 second intervals.

- **Example**:

```
SEND_COMMAND Panel,"'^ANI-1,1,10,50'"
```

  Command button with Address 1 to animate from state 1 to state 10 over 5 seconds.

^APF

Add page flip action - Add page flip action to a button. This command installs a page flip command to the Button Release event action.

- **Syntax**:

```
"'^APF-<addr range>,<page flip action>,<page name> [,<animation>,[origin],[duration]]'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  page flip action: (see the following):

  Stan[dardPage] - flip to standard page
  StanAni - flip to standard page with animation
  PrevAni - flip to previous page with animation
  Prev[iousPage] - flip to previous page
  Show[Popup] - Show popup page
  Hide[Popup] - Hide popup page
  Togg[lePopup] - toggle popup state
  ClearG[roup] - clear popup page group from all pages
  ClearP[age] - clear all popup pages from a page with the specified page name
  ClearA[ll] - Clear all popup pages from all pages

  Page Name: the name of the page to flip to, or name of popup to show/hide/toggle

  Animation: If animated flip, the animation to perform.

  Origin: If animated flip, the origin of the animation.

  Duration: Transition time in 10ths of a second. Range is 3-30 with 15 (1.5 seconds) as the default

Animation Name	**Command Syntax* (see note below)**	**Origin(s)**	**Default Origin**
Center Door Fade	cntrdrfade, centerdoorfade, or center door fade	top(2), bottom(3), left(4), right(5)	right(5)
Door Fade	doorfade, door fade, or door	top(2), bottom(3), left(4), right(5)	right(5)
Fade	fade	center(1)	center(1)
Slide	slide	top(2), bottom(3), left(4), right(5)	right(5)
Slide Bounce	sldbounce, slidebounce, or slide bounce	top(2), bottom(3), left(4), right(5)	right(5)
Spin In	spinin or spin in	center(1)	center(1)
Spin Out	spinout or spin out	center(1)	center(1)
Zoom In	zoomin or zoom in	center(1)	center(1)
Zoom Out	zoomout or zoom out	center(1)	center(1)

Note: Multiple aliases for the transition name command syntax are allowed to maintain backwards compatibility with G4.

- **Example**:

```
SEND COMMAND Panel,"'APF-400,StanAni,Main Page,ZoomIn,30'"
```

  Add animated page flip action to button 400 to flip to Main Page using zoom in for 3 seconds.

Button Commands (Cont.)	

^BAF	Append UTF-8 Text to State Command - append non-unicode text.
	• **Syntax**:
	`"'^BAF-<addr range>,<button states range>,<new text>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '**.**' between addresses includes the range, and **&** between addresses includes each address.
	button states range: 1 - 256 for multi-state buttons (0 = All states, for general buttons 1 = Off state and 2 = On state).
	new text: UTF-8 encoded characters.
	• **Example**:
	`SEND_COMMAND Panel,"'^BAF-520,1,ξεσκεπάζω τὴν ψυχοφθόρα βδελυγμία'"`
	Appends the UTF-8 text 'ξεσκεπάζω τ?ν ψυχοφθόρα βδελυγμία' to the button's OFF state.

^BAT	Append Text to State Command - Append non-unicode text.
	• **Syntax**:
	`"'^BAT-<addr range>,<button states range>,<new text>'"`
	Variables:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	button states range: 1 - 256 for multi-state buttons (0 = All states, for general buttons 1 = Off state and 2 = On state).
	new text: ISO-8859-1 encoded characters.
	• **Example**:
	`SEND_COMMAND Panel,"'^BAT-520,1,Enter City'"`
	Appends the text 'Enter City' to the button's OFF state.

^BAU	Append Unicode Text to State Command - Append unicode text. Same format as ^UNI.
	• **Syntax**:
	`"'^BAU-<addr range>,<button states range>,<unicode text>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state).
	unicode text: Unicode characters must be entered in Hex format.
	• **Example**:
	`SEND_COMMAND Panel,"'^BAU-520,1,00770062'"`
	Appends Unicode text "00770062" ('wb') to the button's OFF state.

^BCB	Set Border Color Command - Set the border color to the specified color. Only if the specified border color is not the same as the current color.
	• **Syntax**:
	`"'^BCB-<addr range>,<button states range>,<color value>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).
	color value: See color table for more information.
	Note: Colors can be set by Color Numbers, Color name, RGB alpha colors (RRGGBBAA) or RGB colors values (RRGGBB). RGBA and RGB color are given in HEX ASCII prepended by a '#'.
	• **Examples**:
	`SEND_COMMAND Panel,"'^BCB-500.504&510,1,12'"`
	Sets the Off state border color to 12 (Yellow).
	`SEND_COMMAND Panel,"'^BCB-520,2,#FF000080'"`
	Set the ON state border color to RED with opacity at 128 ($80 / 0x80).

Button Commands (Cont.)

?BCB

Get Border Color Command - Get the current border color.

- **Syntax**:

```
"'?BCB-<addr range>,<button states range>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

Value is returned in a custom event with the following properties:

```
Custom Event Property       Value
   Port                     port command was received on
   ID                       Address code of the button responding
   Type                     1011
   Flag                     0
   Value 1                  Button state number
   Value 2                  Actual length of string (should be 9)
   Value 3                  0
   Text                     Hex encoded color value (ex: #000000FF)
```

- **Example**:

```
SEND COMMAND Panel,"'?BCB-529,1'"
```

Gets the button 'OFF state' border color. information. The result sent to the Master would be:

```
Custom Event Property       Value
   Port                     port command was received on
   ID                       529
   Type                     1011
   Flag                     0
   Value 1                  1
   Value 2                  9
   Value 3                  0
   Text                     #222222FF
```

^BCF

Background Color Fill Command - Set the background color fill to specified color in state(s).

- **Syntax**:

```
"'^BCF-<addr range>,<button state range>,<color value>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

  color value: See the color table on page 165 for details.

Note: Colors can be set by Color Numbers, Color name, RGB alpha colors (RRGGBBAA) or RGB colors values (RRGGBB). RGBA and RGB color are given in HEX ASCII prepended by a '#'

- **Example**:

```
SEND_COMMAND Panel,"'^BCF-500.504&510.515,1,Blue'"
```

Sets the OFF state background color fill for the buttons with variable text ranges of 500-504 & 510-515 to Blue.

Button Commands (Cont.)

?BCF

Get Fill Color Command - Get the current fill color.

- **Syntax**:

```
"'?BCF-<addr range>,<button states range>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

Value is returned in a custom event with the following properties:

```
Custom Event Property       Value
   Port                       port command was received on
   ID                         Address code of the button responding
   Type                       1012
   Flag                       0
   Value 1                    Button state number
   Value 2                    Actual length of string (should be 9)
   Value 3                    0
   Text                       Hex encoded color value (ex: #000000FF)
```

- **Example**:

```
SEND COMMAND Panel,"'?BCF-529,1'"
```

  Gets the button 'OFF state' fill color information. The result sent to the Master would be:

```
Custom Event Property       Value
   Port                       port command was received on
   ID                         529
   Type                       1012
   Flag                       0
   Value 1                    1
   Value 2                    9
   Value 3                    0
   Text                       #FF8000FF
```

^BCT

Set Text Color Command - Set the text color to the specified color.

- **Syntax**:

```
"'^BCT-<addr range>,<button states range>,<color value>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

  color value: See the color table on page 165 for details.

  Note: Color can be assigned by color name (without spaces), number or R,G,B value (RRGGBB or RRGGBBAA).

- **Example**:

```
SEND_COMMAND Panel,"'^BCT-500.504&510,1,12'"
```

  Sets the Off state text color to 12 (Very Light Yellow).

?BCT

Get Text Color Command - Get the current text color.

- **Syntax**:

```
"'?BCT-<addr range>,<button states range>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

Value is returned in a custom event with the following properties:

```
Custom Event Property       Value
   Port                       port command was received on
   ID                         Address code of the button responding
   Type                       1013
   Flag                       0
   Value 1                    Button state number
   Value 2                    Actual length of string (should be 9)
   Value 3                    0
   Text                       Hex encoded color value (ex: #000000FF)
```

- **Example**:

```
SEND COMMAND Panel,"'?BCT-529,1'"
```

  Gets the button 'OFF state' text color information. The result sent to Master would be:

```
Custom Event Property       Value
   Port                       529
   ID                         Address code of the button responding
   Type                       1013
   Flag                       0
   Value 1                    1
   Value 2                    9
   Value 3                    0
   Text                       #FFFFEFF
```

Button Commands (Cont.)

^BDC

Button Drag and Drop Custom Event Command - This command configures Drag and Drop custom events. This command can be used to enable or disable the transmission of custom events to the master whenever certain operations occur. For example, the system programmer may want to be notified whenever a drag button enters an acceptable target.

The notification mechanism is a custom event. The ^BDC command takes the form of a comma separated list of custom event numbers. If the number is 0 or blank for a given event type then no custom event will be transmitted when that event occurs. If a number is specified, then it is used as the EVENT TYPE value for the custom event. The range of 32001 to 65535 has been reserved in the panel for user custom event numbers. A different value could be used but might collide with other AMX event numbers. Event configuration is not permanent and all event numbers revert to the default of 0 when the panel restarts.

Syntax:

```
"'^BDC-<drag start event number>,<enter valid drop target event number>,
<exit valid drop target event number>,<drop event number>,<drag cancel event number>,
<enter invalid drop target event number>,<exit invalid drop target event number>
```

Variables:

- *drag start event number:* Value of a drag start event
- *enter valid drop target event number:* Value of an enter valid drop target event.
- *exit valid drop target event number:* Value of an exit valid drop target event.
- *drop event number*: Value of a drop event
- *drag cancel event number*: Value of a drag cancel event
- *enter invalid drop target event number*: Value of an enter invalid drop target event.
- *exit invalid drop target event number:* Value of an exit invalid drop target event.

By default the ^BDC command is *enabled*, the default values are:

- *DragStartedEvent* = **1410**
- *ValidDropEnterEvent* = **1411**
- *ValidDropExitEvent* = **1412**
- *DropEvent* = **1413**
- *DragCancelEvent* = **1414**
- *InvalidDropEnterEvent* = **1415**;
- *InvalidDropExitEvent* = **1416**

  To *disable* the ^BDC command send: **^BDC-0,0,0,0,0,0,0**

The events are:

- *DragStarted* - a draggable button has initiated a drag
- *ValidDropEntered* - a draggable button has entered a valid target
- *ValidDropExited* - a draggable button has exited a valid target
- *Drop* - a draggable button has been dropped on a valid target
- *DragCancel* - a draggable button has been dropped outside of a valid target
- *InvalidDropEntered* - a draggable button has entered an invalid target
- *InvalidDropExited* - a draggable button has exited an invalid target

In response to any or all of the above events, the panel will create a custom event which is then sent to the master.

The format of **START** custom events transmitted to the master are as follows:

```
CUSTOM.TYPE   = the specified drag event custom event type (started)

CUSTOM.ID     = the address of the viewer button which generated the event
CUSTOM.FLAG   = 0
CUSTOM.VALUE1 = the button address of the draggable
CUSTOM.VALUE2 = 0
CUSTOM.VALUE3 = 0
CUSTOM.TEXT   =
   'dr{ch=<channelPort>,<channel>:ad=<addressPort>,<address>:gp=<groupName>:nm=<buttonName>}

    dt{vl=<dropTargetValid 1=valid,0=invalid>:ch=<channelPort>,<channel>:ad=<addressPort>,
    <address>:nm=<buttonName>}…

    dt{vl=<dropTargetValid 1=valid,0=invalid>:ch=<channelPort>,<channel>:ad=<addressPort>,
    <address>:nm=<buttonName>}'
```

The CUSTOM.TEXT provides data sets that represent the draggable's info (dr). The draggable's info included is the drag channel port, the drag channel code, the drag address port, the drag address code, the drag group name, and the drag button name. Drag target info is also presented, with a data set for each drag target visible at that time. The drag targets info (dt) includes the target validity to accept the drop, the drop target channel port, the drop target channel code, the drop target address port, the drop target address code, and the drop target button name.

- Buttons are identified as dr (draggable) or dt (drop target)
- Button properties are contained between open brace ({) and close brace (})
- Button properties are represented by key=value pairs (KVP).
- Keys are two letters followed by equal (=) by convention but the two letter keys are not a requirement.
- Property KVPs are separated by colon (:).
- *Each Button's data sets are on a separate line (i.e. the close brace is followed by a \n).*

Button Commands (Cont.)

^BDC (Cont.)

Key values

- *dr* = draggable
- *ch* = channel (port,channel)
- *ad* = address (port,address)
- *gp* = group name
- *nm* = button name
- *dt* = drop target
- *vl* = validity of drop target (valid=1, invalid=0)
- *ch* = channel (port,channel)
- *ad* = address (port,address)
- *nm* = button name

Example texts:

```
dr{ch=1,31:ad=1,31:gp=:nm=Drag1}
dt{vl=1:ch=1,101:ad=1,101:nm=Tgt1}
dt{vl=1:ch=3,103:ad=3,103:nm=Tgt3}
dt{vl=1:ch=3,103:ad=3,103:nm=Tgt3}
dt{vl=0:ch=1,11:ad=1,11:nm=Grp1 Tgt1}
dt{vl=0:ch=1,12:ad=1,12:nm=Grp1 Tgt2}
dt{vl=0:ch=2,11:ad=2,11:nm=Grp2 Tgt1}
dt{vl=0:ch=1,15:ad=1,15:nm=Grp1 Tgt5}
dt{vl=0:ch=1,16:ad=1,16:nm=Grp1 Tgt6}
dt{vl=0:ch=2,13:ad=2,13:nm=Grp2 Tgt3}
dt{vl=0:ch=1,15:ad=1,15:nm=Grp1 Tgt5}
dt{vl=0:ch=1,16:ad=1,16:nm=Grp1 Tgt6}
dt{vl=0:ch=2,13:ad=2,13:nm=Grp2 Tgt3}

dr{ch=2,4:ad=2,4:gp=Group1+2:nm=Drag2_4}
dt{vl=1:ch=1,11:ad=1,11:nm=Grp1 Tgt1}
dt{vl=1:ch=1,12:ad=1,12:nm=Grp1 Tgt2}
dt{vl=1:ch=2,11:ad=2,11:nm=Grp2 Tgt1}
dt{vl=1:ch=1,15:ad=1,15:nm=Grp1 Tgt5}
dt{vl=1:ch=1,16:ad=1,16:nm=Grp1 Tgt6}
dt{vl=1:ch=2,13:ad=2,13:nm=Grp2 Tgt3}
dt{vl=1:ch=1,15:ad=1,15:nm=Grp1 Tgt5}
dt{vl=1:ch=1,16:ad=1,16:nm=Grp1 Tgt6}
dt{vl=1:ch=2,13:ad=2,13:nm=Grp2 Tgt3}
dt{vl=0:ch=1,101:ad=1,101:nm=Tgt1}
dt{vl=0:ch=3,103:ad=3,103:nm=Tgt3}
dt{vl=0:ch=3,103:ad=3,103:nm=Tgt3}
```

A NetLinx .AXI file that can provide routines to parse the drag and drop info strings can be found on page 198

The format of **VALIDENTER/VALIDEXIT/CANCEL** custom events transmitted to the master are as follows:

```
CUSTOM.TYPE   = the specified drag event (validEntered/validExited/drop/cancel)
CUSTOM.ID     = the address of the drag/drop button which generated the event
CUSTOM.FLAG   = 0 // 0 specifies valid
CUSTOM.VALUE1 = the button address of the draggable
CUSTOM.VALUE2 = 0
CUSTOM.VALUE3 = 0
CUSTOM.TEXT   = ""
```

The format of **INVALIDENTER/INVALIDEXIT** custom events transmitted to the master are as follows:

```
CUSTOM.TYPE   = the specified drag event (invalidEntered/invalidExited)
CUSTOM.ID     = the address of the drag/drop button which generated the event
CUSTOM.FLAG   = 65535 (-1) // -1 specifies invalid target
CUSTOM.VALUE1 = the button address of the draggable
CUSTOM.VALUE2 = 0
CUSTOM.VALUE3 = 0
CUSTOM.TEXT   = ""
```

If the **VALIDENTER** and **INVALIDENTER** events are set to the same event number, the flag value indicates whether the targets are valid or not. 0 == valid, 65535 (-1) == invalid.

If the **VALIDEXIT** and **INVALIDEXIT** events are set to the same event number, the flag value indicates whether the targets are valid or not. 0 == valid, 65535 (-1) == invalid.

The format of the **DROP** custom event transmitted to the master is as follows:

```
CUSTOM.TYPE   = the specified drag event (started/entered/exited/drop/cancel) the address of the
                viewer button which generated the event
CUSTOM.ID     = the address of the viewer button which generated the event
CUSTOM.FLAG   = 0
CUSTOM.VALUE1 = the button address of the draggable
CUSTOM.VALUE2 = the button address of the dropTarget
CUSTOM.VALUE3 = 0
CUSTOM.TEXT   = group name to which the dropTarget belongs
```

Button Commands (Cont.)

^BDC (Cont.)

- **Example**:

```
SEND_COMMAND panel,"'^BDC-32001,32002,32003,32004,32005'"
```

After the users sends this command to the panel, if the user then drags a button addressed 9 and then proceeds to drop that draggable button on a dropTarget button addressed 10, the following event would be transmitted to the master.

```
CUSTOM.ID     = 10 (the dropTarget receives the drop event)
CUSTOM.TYPE   = 32004 (this our drop event)
CUSTOM.FLAG   = 0
CUSTOM.VALUE1 = 9 (the button we dragged over the target & dropped)
CUSTOM.VALUE2 = 10 (the dropTarget that the draggable was dropped on)
CUSTOM.VALUE3 = 0
CUSTOM.TEXT   = "" (a name we had given to the group the target was assigned,since the target was
                    not assigned to a group we'll receive an empty string)
```

?BDC

Query Button Drag and Drop Custom Event Command - Get the drag and drop custom event values.

- **Syntax**:

```
"'?BDC'"
```

- **Variables**: None

The response returned is a custom event with the following syntax:

```
CUSTOM.TYPE   = 0
CUSTOM.ID     = 1332
CUSTOM.FLAG   = 0
CUSTOM.VALUE1 = 0
CUSTOM.VALUE2 = 0
CUSTOM.VALUE3 = 0
CUSTOM.TEXT   = String containing a comma separated list of Button Drag & Drop Custom Event values
'[StartEventNum],[ValidEnterEventNum],[ValidExitEventNum],[DropEventNum],[CancelEventNum],
[InvalidEnterEventNum],[InvalidExitEventNum]'
```

- **Example**:

```
SEND_COMMAND Panel,"'?BDC'"
```

Query the Master Button Drag and Drop Custom Event values. Response would be similar to:

```
Custom.ID     = 0
Custom.Type   = 1332
Custom.Flag   = 0
Custom.Value1 = 0
Custom.Value2 = 0
Custom.Value3 = 0
Custom.Text   = '1410,1411,1412,1413,1414,1415,1416'
```

^BFB

Button set feedback command - Set the feedback type of the button.

ONLY works on General-type buttons.

- **Syntax**:

```
"'^BFB-<addr range>,<feedback type>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

feedback type: None, Channel, Invert, On (Always on), Momentary.

- **Example**:

```
SEND_COMMAND Panel,"'^BFB-500,Momentary'"
```

Sets the Feedback type of the button to 'Momentary'.

^BIM

Button set input mask command - Set the input mask for the specified address.

- **Syntax**:

```
"'^BIM-<addr range>,<input mask>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

input mask: Refer to *Appendix C: Text Formatting* on page 189 for character types.

- **Example**:

```
SEND_COMMAND Panel,"'^BIM-500,AAAAAAAAAA'"
```

Sets the input mask to ten 'A' characters, that are required, to either a letter or digit (entry is required).

Button Commands (Cont.)	
^BIT	Button Input Type Command - Modifies the keyboard type of the text input button(s) with given address(es). If this is sent to a button that is not a Text Input button, it has no effect. • Syntax: `"'^BIT-<address range>,<Input Type>,<return port>'"` • **Variables**: *Address Range*: range of addresses that this command applies to *Input Type*: Input Type to Change to, as specified here: *http://developer.android.com/reference/android/text/InputType.html* 1: Text 2: Number (standard keypad) 3: Telephone 4: Date/Time *Return port:* The port number to return the response on if different than the port to which the command is sent.

^BMC	Button copy command - Copy attributes of the source button to all the destination buttons. Note that the source is a single button state. Each state must be copied as a separate command. The <codes> section represents what attributes will be copied. All codes are 2 char pairs that can be separated by comma, space, percent or just ran together.
	• **Syntax**:
	`"'^BMC-<addr range>,<button states range>,<source port>,<source address>, <sourcestate>,<codes>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).
	source port: port number of button to copy from.
	source address: address number of button to copy from.
	source state: state number of button to copy from.
	codes:
	BM - Picture/Bitmap
	BR - Border
	CB - Border Color
	CF - Fill Color
	CT - Text Color
	EC - Text effect color
	EF - Text effect
	FT - Font
	JB - Bitmap alignment
	JT - Text alignment
	OP - Opacity
	SO - Button Sound
	TX - Text
	WW - Word wrap on/off
	• **Examples**:
	`SEND_COMMAND Panel,"'^BMC-425,1,1,500,1,BR'"`
	or
	`SEND_COMMAND Panel,"'^BMC-425,1,1,500,1,%BR'"`
	Copies the OFF state border of button with a variable text address of 500 onto the OFF state border of button with a variable text address of 425.
	`SEND_COMMAND Panel,"'^BMC-150,1,1,315,1,%BR%FT%TX%BM%CF%CT'"`
	Copies the OFF state border, font, Text, bitmap, fill color and text color of the button with a variable text address of 315 onto the OFF state border, font, Text, bitmap, fill color and text color of the button with a variable text address of 150.
	Note: Use this command if you are using the panel's default color palette. For custom color palettes, use ^BMF instead.

Button Commands (Cont.)

^BMF

Button Modify Command - Set any/all button parameters by sending embedded codes and data.

- Syntax:

```
"'^BMF-<addr range>,<button states range>,<data>'"
```

Note: Many subcommands do not use button state information. Refer to the subcommand for details.

- Variables:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

- *data*:

`'%B<border style>'`	Set the border style name. (No support for states.) *Note: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.*
`'%CB<on border color>'`	Set Border Color.
`'%CF<on fill color>'`	Set Fill Color.
`'%CT<on text color>'`	Set Text Color.
`'%EC<text effect color>'`	Set the text effect color.
`'%EF<text effect name>'`	Set the text effect. *Note: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.*
`'%EN<1 or 0>'`	Enable/disable a button.
`'%F'<primary_font_filename: primary_font_size>, <alternate_font_filename: alternate_font_size'`	Set the font filename and optional font size for the primary font and/or the alternate font.
`'%GC<bargraph slider color>'`	Set the bargraph slider color
`'%GD<bargraph ramp down>'`	Set the bargraph ramp down time in 1/10 second.
`'%GG<bargraph drag increment>'`	Set the bargraph drag increment. Refer to the ^GDI command (page 125) for more information.
`'%GH<bargraph hi>'`	Set the bargraph upper limit.
`'%GI<bargraph invert>'`	Set the bargraph invert/non-invert.
`'%GL<bargraph low>'`	Set the bargraph lower limit.
`'%GN<bargraph slider name>'`	Set the bargraph slider name/Joystick cursor name. *Note: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.*
`'%GR<repeat interval'`	Set bargraph repeat interval.
`'%GU<bargraph ramp up>'`	Set the bargraph ramp up time in intervals of 1/10 second.
`'%GV<bargraph value>'`	Set the bargraph value.
`'%J’,<set text alignment 0-10>'`	As shown in the Justification Values table (page 166), BUT the 0 (zero) is absolute and followed by ’,<left>,<top>’
`'%JB<alignment of bitmap 0-10>'`	As shown in the Justification Values table (page 166) BUT the 0 (zero) is absolute and followed by ’,<left>,<top>’
`'%JT<alignment of text 0-9>'`	As shown in the Justification Values table (page 166) BUT the 0 (zero) is absolute and followed by ’,<left>,<top>’
`'%MI<mask image>'`	Set the mask image. Refer to the ^BMI command for more information. *Note: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.*
`'%MK<input mask>'`	Set the input mask of a text area. See the text input mask area for more information. *Note: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.*
`'%ML<max length>'`	Set the maximum length of a text area.
`'%MI<mask image>'`	Set the mask image. Refer to the ^BMI command for more information. *Note: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.*
`'%OP<0-255>'`	Set the button opacity to either *Invisible* (value=0) or *Opaque* (value=255).
`'%OP#<00-FF>'`	Set the button opacity to either *Invisible* (value=00) or *Opaque* (value=FF).
`'%OT<feedback type>'`	Set the Feedback (Output) Type to one of the following: *None*, *Channel*,*Invert*, *ON* (Always ON), *Momentary*, or *Blink*. *Note: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.*
`'%P<bitmap,bitmap_index, justification>'`	Set the picture/bitmap filename (empty is clear). *Note: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.*

<table>
<tr><th colspan="3">Button Commands (Cont.)</th></tr>
<tr><td rowspan="14"><b>^BMF</b>
(Cont.)</td><td colspan="2"><b>Data</b> (Cont.):</td></tr>
<tr><td><code>'%R<l,t,r,b>'</code></td><td>Sets button location and also resizes the button. For more information, please refer to the ^BSP command (see page 122).</td></tr>
<tr><td><code>'%OP<0-255>'</code></td><td>Set the button opacity to either <i>Invisible</i> (value=0) or <i>Opaque</i> (value=255).</td></tr>
<tr><td><code>'%SC<1 or 0>'</code></td><td>Set the bitmap scale to fit.</td></tr>
<tr><td><code>'%SF<1 or 0>'</code></td><td>Set the focus for text area button. (No support for states.)</td></tr>
<tr><td><code>'%SM'</code></td><td>Submit a text for text area button. (No support for states.)</td></tr>
<tr><td><code>'%SP<spacing>'</code></td><td>Set subpage viewer subpage spacing. (No support for states.)</td></tr>
<tr><td><code>'%SO<sound>'</code></td><td>Set the button sound.
<i>Note: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.</i></td></tr>
<tr><td><code>’%SW<1 or 0>'</code></td><td>Show/hide a button. (No support for states.)</td></tr>
<tr><td><code>'%T<text >'</code></td><td>Set the text using ASCII characters (empty is clear).
<i>Note: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.</i></td></tr>
<tr><td><code>'%UN<Unicode text>'</code></td><td>Set the Unicode text. See <i>^UNI</i> on page 136 for the text format.</td></tr>
<tr><td><code>'%UT<UTF-8 text>'</code></td><td>Set the Unicode text. See <i>^UTF</i> on page 137 for the text format.</td></tr>
<tr><td><code>'%WW<1 or 0>'</code></td><td>Word wrap ON/OFF.</td></tr>
<tr><td colspan="2">For some of these commands and values, refer to the RGB Values for all 88 Basic Colors table.
• Example:
<code>SEND_COMMAND Panel,"'^BMF-500,1,%B10%CFRed%CB Blue %CTBlack%Ptest.png'"</code>
Sets the button OFF state as well as the Border, Fill Color, Border Color, Text Color, and Bitmap.
<i>Note: Use this command if you are using custom color palette for your panel. If you intend to use the default color palette, use ^BMC (page 113) instead.</i>
<i>Note: To accept unspecified parameters, use either ,, or ,-1. If left or top is unspecified, then the current values for the button will be used. If right or bottom is unspecified, the current width and height is used to maintain the button size. This effectively creates a button "move" command (also works with ^BSP - see page 122.</i></td></tr>
<tr><td><b>^BMI</b></td><td colspan="2">Set state mask image command - Assign a Chameleon mask image to those buttons with a defined address and state range.
• Syntax:
<code>"'^BMI-<addr range>,<button states range>,<name of mask image>'"</code>
• Variables:
address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).
name of mask image: The filename of the mask image in the TPD5 file to use.
Example:
<code>SEND_COMMAND Panel,"'^BMI-500.504&510.515,1,mask.png'"</code>
Sets the OFF state mask image for the buttons with address ranges of 500-504 & 510-515 to mask.png.</td></tr>
<tr><td><b>^BML</b></td><td colspan="2">Set text input max length command - Set the maximum length of the text area button. If this value is set to zero (0), the text area has no max length. This is only for a Text area input button and not for a Text area input masking button.
• <b>Syntax</b>
<code>"'^BML-<addr range>,<max length>'"</code>
• <b>Variables</b>:
address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
max length: The maximum length in characters of a text input area. (0=no max length)
• <b>Example</b>:
<code>SEND_COMMAND Panel,"'^BML-500,20'"</code>
Sets the maximum length of the text area input button to 20 characters.</td></tr>
</table>

Button Commands (Cont.)

^BMP

Set State Bitmap Command - Assign a picture to those buttons with a defined address range.

- **Syntax**:

```
"'^BMP-<addr range>,<button states range>,<name of bitmap/picture>,[bitmap index],
[optional justification]'"
```

- **Variables**:

variable text address range: 1 - 4000.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state).

name of bitmap/picture : ASCII characters.

Optional bitmap index: 0 - 5, the state bitmap index to assign the bitmap. If not present, will place the referenced bitmap in index 1. The indexes are defined as:

0 - Chameleon Image (if present)
1 - Bitmap 1
2 - Bitmap 2
3 - Bitmap 3
4 - Bitmap 4
5 - Bitmap 5

Optional justification: 0-10 where:

0 - Absolute position: If absolute justification is set, the next two parameters are the X and Y offset of the bitmap for the referenced index.
1 - top left
2 - top center
3 - top right
4 - middle left
5 - middle center
6 - middle right
7 - bottom left
8 - bottom center
9 - bottom right
10 - scale to fit
11 - scale-maintain-aspect-ratio

If no justification is specified, the current justification is used.

- **Example**:

```
SEND_COMMAND Panel,"'^BMP-500.504&510.515,1,bitmap.png'"
```

Sets the OFF state picture for the buttons with variable text ranges of 500-504 & 510-515.

?BMP

Query State Bitmap Command - Get the current bitmap name.

- **Syntax**:

```
"'?BMP-<addr range>,<button states range>,[index]'"
```

- **Variables**:

variable text address range: 1 - 4000.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state).

Optional index : 0 - 5, the state bitmap index to assign the bitmap. If not present, will place the referenced bitmap in index 1. The indexes are defined as:

0 - Chameleon Image (if present)
1 - Bitmap 1
2 - Bitmap 2
3 - Bitmap 3
4 - Bitmap 4
5 - Bitmap 5

The response returned is a custom event with the following properties:

```
Custom Event Property       Value
   Port                     port command was received on
   ID                       address code of button
   Type                     1002
   Flag                     0
   Value 1                  state number
   Value 2                  length of text
   Value 3                  bitmap index
   Text                     bitmap name
```

- **Example**:

```
SEND_COMMAND Panel,"'?BMP-529,1'"
```

Gets the button "OFF state" bitmap information (index 1 since index is unspecified). Example response:

```
Custom Event Property       Value
   Port                     port command was received on
   ID                       529
   Type                    1002
   Flag                       0
   Value 1                  1
   Value 2                  9
   Value 3                  1
   Text                     Buggs.png
```

Button Commands (Cont.)	

^BMX	Set State Bitmap Extended Command - Assign a set of pictures with justifications to those buttons with a defined address range.
	• **Syntax**:
	`"'^BMX-<addr range>,<button states range>,<name of bitmap/picture/resource,index,justification>;`
	`<name of bitmap/picture/resource,index,justification>;`
	`<name of bitmap/picture/resource,index, justification>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).
	name of bitmap: The filename of the bitmap in the TPD5 file to use.
	Optional bitmap index: 0 - 5, the state bitmap index to assign the bitmap. If not present, will place the referenced bitmap in index 1. The indexes are defined as:
	0 - Chameleon Image (if present)
	1 - Bitmap 1
	2 - Bitmap 2
	3 - Bitmap 3
	4 - Bitmap 4
	5 - Bitmap 5
	Optional justification = 0-11 where:
	0 - Absolute position. If absolute justification is set, the next two parameters are the X and Y offset of the bitmap for the referenced index.
	1 - top left
	2 - top center
	3 - top right
	4 - middle left
	5 - middle center
	6 - middle right
	7 - bottom left
	8 - bottom center
	9 - bottom right
	10 - scale to fit
	11 - scale-maintain-aspect-ratio
	If no justification is specified, the current justification is retained.
	• **Example**:
	`SEND_COMMAND Panel,"'^BMX-500.504&510.515,1,bitmap.png,1,5;bitmap2.png,2,0,100,50;bitmap3.png,3,1'"`
	Sets the OFF state pictures for the buttons with address ranges of 500-504 & 510-515 as follows: bitmap.png is assigned to index 1 and is middle center justified. bitmap2.png is assigned to index 2 and is absolute justified with an X offset of 100 and a Y offset of 50. bitmap3.png is assigned to index 3 and is top left justified.

Button Commands (Cont.)

?BMX

Query State Bitmap Extended Command - Get the current bitmap name and justification for one or all indexes.

- **Syntax**:

```
"'?BMX-<addr range>,<button states range>,[index]'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

bitmap index: 0 - 5, the state bitmap index to assign the bitmap. If not present, will place the referenced bitmap in index 1.The indexes are defined as:

0 - Chameleon Image (if present)
1 - Bitmap 1
2 - Bitmap 2
3 - Bitmap 3
4 - Bitmap 4
5 - Bitmap 5

The response returned is a series of custom events (one for each valid index) with the following syntax:

```
Custom Event Property       Value
   Port                      Button Address Code
   ID                        address code of button
   Type                      1018
   Flag                      0
   Value 1                   Button state number
   Value 2                   Length of Custom.Text
   Value 3                   Index of bitmap (0-5)
   Text                      String that describes the bitmap name/justification.
                             The text looks like: "bitmapname,justification"
                             If absolute justification is set, then the X and Y offset are
                             appended to the description. See page 166 for justification mapping.
```

- **Example**:

```
SEND_COMMAND Panel,"'?BMX-529,1'"
```

Gets the button 'OFF state' bitmap information (all index with a bitmap since index is unspecified).

Example response:

Custom Event 1:

```
Custom.ID     = 529
Custom.Type   = 1018
Custom.Flag   = 0
Custom.Value1 = 1
Custom.Value2 = 34
Custom.Value3 = 1
Custom.Text = button-background.png,scale-to-fit
```

Custom Event 2:

```
Custom.ID     = 529
Custom.Type   = 1018
Custom.Flag   = 0
Custom.Value1 = 1
Custom.Value2 = 26
Custom.Value3 = 2
Custom.Text = arrow.png absolute,200,100
```

Custom Event 3:

```
Custom.ID     = 529
Custom.Type   = 1018
Custom.Flag   = 0
Custom.Value1 = 1
Custom.Value2 = 22
Custom.Value3 = 3
Custom.Text = img_icon,middle-center
```

For this case, 3 bitmaps are defined and 3 custom event s are sent as a response.

Button Commands (Cont.)

^BOP

Button Opacity Command - Set the button opacity in the selected state(s)

- **Syntax**:

```
"'^BOP-<addr range>,<button state range>,<opacity>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

opacity: An integer value from 0-255 where 0 is fully transparent and 255 is fully opaque, or #XX where the value after the # is a HEX number between 0 and FF.

- **Examples**:

```
SEND_COMMAND Panel,"'^BOP-500.504&510.515,1,200'"
```

Sets the OFF state opacity for the buttons with address ranges of 500-504 & 510-515 to 200.

```
SEND_COMMAND Panel,"'^BOP-500.504&510.515,1,#C8'"
```

Sets the OFF state opacity for the buttons with address ranges of 500-504 & 510-515 to 200 (0xC8).

?BOP

Get button opacity command - Get the overall button opacity.

- **Syntax**:

```
"'?BOP-<addr range>,<button states range>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

The response returned is a series of custom events (one for each valid index) with the following syntax:

```
Custom Event Property     Value
   Port                     port command was received on
   ID                       address code of button
   Type                     1015
   Flag                     0
   Value 1                  state number
   Value 2                  opacity
   Value 3                  0
   Text
```

- **Examples**:

```
SEND COMMAND Panel,"'?BOP-529,1'"
```

Gets the button 'OFF state' opacity information. The result sent to the Master would be:

```
Custom Event Property     Value
   Port                     port command was received on
   ID                       529
   Type                     1015
   Flag                     0
   Value 1                  1
   Value 2                  200
   Value 3                  0
   Text
```

^BOS

Button State Video Fill Command - Sets the button state to display either a Video or Non-Video window.

- **Syntax**:

```
"'^BOS-<addr range>,<button states range>,<video state>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

video state: Video Off = 0, URL Video On = 1, MPL Video On = 101.

Example:

```
SEND_COMMAND Panel,"'^BOS-500,1,1'"
```

Sets the button to display video.

Button Commands (Cont.)

?BOS

Query Button State Video Fill Command - get the current button state video fill.

- **Syntax**:

```
"'?BOS-<addr range>,<button states range>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

The response returned is a custom event with the following syntax:

```
Custom Event Property      Value
   Port                      port command was received on
   ID                        address of the button
   Type                      1017
   Flag                      0
   Value 1                   state number
   Value 2                   video state
                                video state values:
                                0   = no video fill
                                100 = video fill
                                101 = MPL video fill
   Value 3                   0
   Text                      video URL (or empty if no video)
```

- **Example**:

```
SEND_COMMAND Panel,"'?BOS-560,1'"
```

Gets the button "OFF state" video fill. Example response:

```
Custom Event Property      Value
   Port                      port command was received on
   ID                        560
   Type                      1017
   Flag                      0
   Value 1                   1
   Value 2                   1
   Value 3                   0
   Text                      1
```

^BRD

Button state border command - Set the border of a button state/states.

- **Syntax**:

```
"'^BRD-<addr range>,<button states range>,<border name>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

border name: Refer to the Border Styles.

Example:

```
SEND_COMMAND Panel,"'^BRD-500.504&510.515,1&2,Double Line'"
```

Sets the border by name (Double Line) to those buttons with the variable text range of 500-504 & 510-515.

Button Commands (Cont.)

?BRD

Get border name command - Get the current border name.

- **Syntax**:

```
"'?BRD-<addr range>,<button states range>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

The response returned is a custom event with the following syntax:

```
Custom Event Property     Value
    Port                    port command was received on
    ID                      address of the button
    Type                    1014
    Flag                    0
    Value 1                 state number
    Value 2                 text length
    Value 3                 0
    Text                    border name
```

- **Example**:

```
SEND COMMAND Panel,"'?BRD-529,1'"
```

  Gets the button 'OFF state' border information. The result sent to the Master would be:

```
Custom Event Property     Value
   Port                     port command was received on
   ID                       529
   Type                     1014
   Flag                     0
   Value 1                  1
   Value 2                  22
   Value 3                  11
   Text                     Double Line
```

^BSF

Button Focus Command - Set the focus to the text area.

Note: Select one button at a time (single variable text address). Do not assign a variable text address range to set focus to multiple buttons. Only one variable text address can be in focus at a time.

- **Syntax**:

```
"'^BSF-<addr range>,<selection value>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  selection value: Unselect = 0 and select = 1.

- **Example**:

```
SEND_COMMAND Panel,"'^BSF-500,1'"
```

  Sets the focus to the text area of the button.

^BSM

Button Submit Text Command - This command causes the text areas to send their text as strings to the NetLinx Master.

- **Syntax**:

```
"'^BSM-<addr range>'"
```

- **Variable**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

- **Example**:

```
SEND_COMMAND Panel,"'^BSM-500'"
```

  Returns a String of format `"'<button name>-<text>'"`. The string is returned on the port a ^BIT command was received on, or if that has not occurred, is sent on the address port.

^BSO

Button state sound - Set the sound played when a button is pressed. If the sound name is blank, the sound is then cleared. If the sound name is not matched, the button sound is not changed.

- **Syntax**:

```
"'^BSO-<addr range>,<button states range>,<sound name>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

  sound name: Sound file name. If blank or file not found the sound is cleared.

- **Example**:

```
SEND_COMMAND Panel,"'^BSO-500,1&2,music.wav'"
```

  Assigns the sound '*music.wav*' to the button Off/On states.

Button Commands (Cont.)	

^BSP	Set Button Size and Position Command - Set the button size and its position on the page.
	• **Syntax**:
	`"'^BSP-<addr range>,<left>,<top>,<right>,<bottom>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	left: position of left edge of the button on the panel
	top: position of the top edge of the button on the panel
	right: position of right edge of the button on the panel
	bottom: position of the bottom edge of the button on the panel
	• **Example**:
	`SEND_COMMAND Panel,"'^BSP-530,20,100,50,130'"`
	Makes the button with variable text address 530 appear at (20,100) and be 30px by 30px
	As of firmware version 1.6.3, this command has been modified to support default parameters. To specify a default parameter you can either use -1 or leave it empty. This simplifies operations such as button moves where you don't want to calculate a right and bottom.
	The meaning of a given defaulted parameter is as follows:
	left: use the current left position
	top: use the current top position
	right: calculate a new right position which is the left position plus the width
	bottom: calculate a new bottom position which is the top position plus the height
	Note: To accept unspecified parameters, use either ,, or ,-1. If left or top is unspecified, then the current values for the button will be used. If right or bottom is unspecified, the current width and height is used to maintain the button size. This effectively creates a button "move" command (also works with %R in ^BMF - see page 114).
	• **Example** (*An easy button move):*
	`SEND_COMMAND Panel,"'^BSP-530,20,100'"`

^BWW	Button State Word Wrap Enable/Disable - Set the button word wrap feature to those buttons with a defined address range. By default, word-wrap is Off.
	• **Syntax**:
	`"'^BWW-<addr range>,<button states range>,<word wrap>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).
	word wrap: 0=Off and 1=On. Default is Off.
	• **Example**:
	`SEND_COMMAND Panel,"'^BWW-500,1,1'"`
	Sets the word wrap on for the button's Off state.

Button Commands (Cont.)

?BWW

Get Button State Word Wrap - Get the current word wrap flag status.

- **Syntax**:

```
"'?BWW-<addr range>,<button states range>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

Response is a custom event with the following properties:

```
Custom Event Property     Value
   Port                     port command was received on
   ID                       address of the button
   Type                     1010
   Flag                     0
   Value 1                  state number
   Value 2                  0 = no word wrap, 1 = word wrap
   Value 3                  0
   Text
```

- **Example**:

```
SEND COMMAND Panel,"'?BWW-529,1'"
```

Gets the button 'OFF state' word wrap information. The result sent to the Master would be:

```
Custom Event Property     Value
   Port                     port command was received on
   ID                       529
   Type                     1010
   Flag                     0
   Value 1                  1
   Value 2                  1
   Value 3                  0
   Text
```

^CPF

Clear Page Flip Command - Clear all page flips from a button. This only clears PageFlip actions from the Button Release event action.

- **Syntax**:

```
"'^CPF-<address range>'"
```

- **Variable**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

- **Example**:

```
SEND_COMMAND Panel,"'^CPF-500'"
```

Clear all page flip actions from button address 500 RELEASE event action list.

^DPF

Delete Page Flips Command - Delete page flips from a button release event if it already exists.

- **Syntax**:

```
"'^DFP-<addr range>,<actions>,<page name>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

actions:

Stan[dardPage] - Flip to standard page
Prev[iousPage] - Flip to previous page
Show[Popup] - Show Popup page
Hide[Popup] - Hide Popup page
Togg[lePopup] - Toggle popup state
ClearG[roup] - Clear popup page group from all pages
ClearP[age] - Clear all popup pages from a page with the specified page name
ClearA[ll] - Clear all popup pages from all pages

page name: name of page or popup to affect.

- **Example**:

```
SEND COMMAND Panel,"'^DPF-409,Prev'"
```

Deletes the assignment of a button from flipping to a previous page.

Button Commands (Cont.)	

^ENA	Button Enable Command - Enable or disable buttons with a set variable text range.
	• **Syntax**:
	`"'^ENA-<addr range>,<command value>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	command value: 0 = disable, 1 = enable
	• **Example**:
	`SEND_COMMAND Panel,"'^ENA-500.504&510.515,0'"`
	Disables buttons with variable text range 500-504 & 510-515.

^FON	Button state set font command - Set a font to a specific font filename and size for those buttons with a defined address range.
	• **Syntax**:
	`"'^FON-<addr range>,<button states range>,<font filename>[:font size],[alternate font filename][:alternate font size]'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).
	font filename: The filename of the font to display in the state. This is used as the primary font file for all button states
	font size (optional): The size of the font to use.
	alternate font filename: The filename of the alternate font to display in the state. This is used as the alternate font file for a Listview button
	font size (optional): The size of the alternate font to use in a Listview button.
	• **Examples**:
	`SEND_COMMAND Panel,"'^FON-500.504&510.515,1&2,arialb.ttf:48'"`
	Sets the font file to arial bold (arialb.ttf) for the On and Off states of buttons with the address range of 500-504 & 510-515. Set the font size to 48.
	`SEND_COMMAND Panel,"'^FON-505,1&2,arialb.ttf:48,arial.ttf:24'"`
	Sets the primary font file to arial bold (arialb.ttf) for the selected (2) and unselected (1) states of Listview buttons with the address range of 505. Set the primary font size to 48. Sets the alternate font file to arial (arial.ttf) and the alternate font size to 24.

Button Commands (Cont.)

?FON

Get button state font command - Get the current font filename and size.

- **Syntax**:

```
"'?FON-<addr range>,<button states range>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

  Response is a custom event with the following properties:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     address of the button
   Type                   1007
   Flag                   0
   Value 1                state number
   Value 2                font index
   Value 3                font size
   Text                   font filename
```

  If the button is a Listview, an additional custom event with the following properties are sent as well.

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     address of the button
   Type                   1019
   Flag                   0
   Value 1                state number
   Value 2                0
   Value 3                alternate font size
   Text                   alternate font filename
```

- **Example**:

```
SEND COMMAND Panel,"'?FON-529,1'"
```

  Gets the button 'OFF state' font information. The result sent to the Master would be:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     529
   Type                   1007
   Flag                   0
   Value 1                1
   Value 2                1
   Value 3                48
   Text                   arialb.ttf
```

^GDI

Bargraph drag increment command - Change the bargraph drag increment.

- **Syntax**:

```
"'^GDI-<addr range>,<bargraph drag increment>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  bargraph drag increment: The amount to change the level on a drag. The default drag increment is 256.

- **Example**:

```
SEND_COMMAND Panel,"'^GDI-7,128'"
```

  Sets the bargraph with address code 7 to a drag increment of 128.

^GIV

Bargraph invert command - Invert the bargraph to move in the opposite direction.

- **Syntax**:

```
"'^GIV-<addr range>,<invert=1, non-inverted=0>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  invert flag: For a bargraph 1 = Invert, 0 = Non Invert

- **Example**:

```
SEND_COMMAND Panel,"'^GIV-500,1'"
```

  Invert the bargraph.

Button Commands (Cont.)	

^GLH	Set Bargraph High Range Command - Sets the bargraph max range to <bargraph hi>. This does NOT affect the LEVEL value (if any) associated with this bargraph.
	- **Syntax**:
	`"'^GLH-<addr range>,<bargraph hi>'"`
	- **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	bargraph hi: The new high value. It must be larger than the current low value.
	- **Example**:
	`SEND_COMMAND Panel,"'^GLH-100,128'"`
	Set the max bargraph value to 128.

^GLL	Set Bargraph Low Range Command - Sets the bargraph min range to <bargraph low>. This does NOT affect the LEVEL value (if any) associated with this bargraph.
	- **Syntax**:
	`"'^GLL-<addr range>,<bargraph low>'"`
	- **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	bargraph low: The new low value. It must be smaller than the current high value.
	- **Example**:
	`SEND_COMMAND Panel,"'^GLL-100,64'"`
	Set the min bargraph value to 64.

^GRD	Bargraph set ramp down time command - Change the bargraph ramp-down time in 1/10th of a second increments.
	- **Syntax**:
	`"'^GRD-<addr range>,<bargraph ramp down time>'"`
	- **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	bargraph ramp down time: Time to ramp down the entire range in 1/10th of a second intervals.
	- **Example**:
	`SEND_COMMAND Panel,"'^GRD-500,200'"`
	Changes the bargraph ramp down time to 20 seconds.

^GRU	Bargraph set ran up time command - Change the bargraph ramp-up time in 1/10th of a second increments.
	- **Syntax**:
	`"'^GRU-<addr range>,<bargraph ramp up time>'"`
	- **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	bargraph ramp up time: Time to ramp down the entire range in 1/10th of a second intervals.
	- **Example**:
	`SEND_COMMAND Panel,"'^GRU-500,100'"`
	Changes the bargraph ramp up time to 10 seconds.

^GSC	Bargraph set slider color command - Change the bargraph slider color. A user can also assign the color by name or R,G,B value (RRGGBB or RRGGBBAA).
	- **Syntax**:
	`"'^GSC-<addr range>,<color value>'"`
	- **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	color value: See the color table on page 165 for more information.
	Note: Colors can be set by Color Numbers, Color name, RGB alpha colors (RRGGBBAA) or RGB colors values (RRGGBB). RGBA and RGB color are given in HEX ASCII prepended by a '#'
	- **Example**:
	`SEND_COMMAND Panel,"'^GSC-500,12'"`
	Changes the bargraph slider color to Very Light Yellow.

Button Commands (Cont.)	

^GSD	Bargraph slider display type command - Sets the display type for a slider. In G5, the default bargraph display type is to allow the center of the slider to move to the end of the bargraph and will be clipped visually. In G4 (legacy), the bargraph display type is to allow only the end of the slider to move to the end of the bargraph and the slider is not clipped visually. This command allows the bargraph slider display type to be changed from the G5 (default) type to the G4 type.
	• **Syntax**:
	`"'^GSD-<addr range>,<display type (g4 or g5)>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	display type: Set the slider display type. A value of g4 will set the display to the G4 type, anything else will set to the G5 (default) type.
	• **Examples**:
	`SEND_COMMAND Panel,"'^GSD-10,g4'"`
	Set the display type of the bargraph with address code 10 to the g4 (legacy) type.
	`SEND_COMMAND Panel,"'^GSD-10,g5'"`
	Set the display type of the bargraph with address code 10 to the g5 (default) type.

^GSN	Bargraph set slider name command - Change the bargraph slider name. Slider names can be found in the TPDesign5 slider name drop-down list.
	• **Syntax**:
	`"'^GSN-<addr range>,<bargraph slider name>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	bargraph slider name: Name of valid sliders. At this point, the valid names are none, Circle -L, Circle -M, Circle -S, Precision, Rectangle -L, Rectangle -M, and Rectangle -S.
	• **Example**:
	`SEND_COMMAND Panel,"'^GSN-500,Rectangle -S'"`
	Changes the bargraph slider name to 'Rectangle -S'.

^JSB	Set button state bitmap alignment command - Set bitmap/picture alignment using a numeric keypad layout for those buttons with a defined address range. The alignment of 0 is followed by ',<left>,<top>'. The left and top coordinates are relative to the upper left corner of the button.
	• **Syntax**:
	`"'^JSB-<addr range>,<button states range>,<new alignment>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).
	new alignment: Value of 0- 11 (see *Justification Values* on page 166).
	• **Example**:
	`SEND_COMMAND Panel,"'^JSB-500.504&510.515,1&2,1'"`
	Sets the off/on state bitmap alignment to upper left corner for those buttons with address ranges of 500-504 & 510-515.

Button Commands (Cont.)

?JSB

Get button state bitmap alignment value - Get the current bitmap alignment.

- **Syntax**:

```
"'?JSB-<addr range>,<button states range>'"
```

- **Variables**

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

index: The bitmap index to get the value of.

Response is a custom event with the following properties:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     address of the button
   Type                   1005
   Flag                   0
   Value 1                state number
   Value 2                alignment value 0-10
   Value 3                bitmap index
   Text                   alignment description
```

The alignments description will be one of the following: *absolute*, *top-left, top-center*, *top-right, middle-left*, *middle-center*, *middle-right*, *bottom-left*, *bottom-center, bottom-right*, *scale-to-fit, scale-maintain-aspect-ratio*.

If the alignment is *absolute*, the X and Y offsets will be specified in the text as well: *absolute*,*xoffset*,*yoffset*

- **Example**:

```
SEND COMMAND Panel,"'?JSB-529,1,2'"
```

Gets the button 'OFF state' bitmap justification information for bitmap at index 2. The result sent to the Master would be:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     address of the button
   Type                   1005
   Flag                   0
   Value 1                state number
   Value 2                5
   Value 3                2
   Text                   middle-center
```

^JST

Set button state text alignment command - Set text alignment for those buttons with a defined address range. The alignment of 0 is followed by ',<left>,<top>'. The left and top coordinates are relative to the upper left corner of the button.

- **Syntax**:

```
"'^JST-<addr range>,<button states range>,<new alignment>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

new alignment: Value of 0- 11 (see *Justification Values* on page 166).

- **Example**:

```
SEND_COMMAND Panel,"'^JST-500.504&510.515,1&2,5'"
```

Sets the off/on state text alignment to middle-center for those buttons with address ranges of 500-504 & 510-515.

Button Commands (Cont.)

?JST

Get the button state text alignment value.

- **Syntax**:

```
"'?JST-<addr range>,<button states range>'"
```

- **Variables**

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

  Response is a custom event with the following properties:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     address of the button
   Type                   1004
   Flag                   0
   Value 1                state number
   Value 2                alignment value 0-10
   Value 3                0
   Text                   alignment description
```

  The alignments description will be one of the following: *absolute*, *top-left*, *top-center*, *top-right*, *middle-left*, *middle-center*, *middle-right*, *bottom-left*, *bottom-center*, *bottom-right*, *scale-to-fit*.

  If the alignment is *absolute*, the X and Y offsets will be specified in the description as well: absolute,xoffset,yoffset

- **Example**:

```
SEND COMMAND Panel,"'?JST-529,1,2'"
```

  Gets the button 'OFF state' text justification information. The result sent to the Master would be:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     address of the button
   Type                   1004
   Flag                   0
   Value 1                state number
   Value 2                0
   Value 3                0
   Text                   absolute,10,10
```

^SAD

Subpage add command - Adds a subpage to a viewer button without changing the anchor subpage.

If the named subpage is not present in the set it will be added in the specified position. If no position parameter is supplied the subpage is added to the end of the set. The anchor subpage will not be changed.

If the named subpage is already present, it will be hidden from the set and re-added in the specified position. The anchor subpage will not be changed, unless the named subpage is currently the anchor. In that case, the next appropriate subpage will become the anchor and the named subpage will be added at the appropriate position.

If no subpages are in the set, this command is effectively a Subpage Show command (^SSH).

- **Syntax**:

```
"'^SAD-<addr range>,<name>,<optional position>,<optional time>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  name: Specifies the name of the subpage to be shown or added.

  position: Specifies where to add the named subpage in the set with 0 representing the beginning of the set. If this value is left out (or set to 65535) then the new subpage is placed at the end of the list.

  time: Can range from 0 to 30 and represents tenths of a second. This is the amount of time used to move the subpages around when subpages are added or removed from a button.

- **Example**:

```
SEND_COMMAND Panel,"'^SAD-400,media1'"
```

  Add the media1 subpage at the end of the set.

Button Commands (Cont.)

^SCE

Subpage custom event command - Configure subpage custom events. This command can be used to enable or disable the transmission of custom events to the master whenever certain operations occur. For example, the system programmer may want to be notified whenever a subpage enters the anchor position. The notification mechanism is a custom event. The ^SCE command takes the form of a addr range specifying one or more subpage viewer buttons followed by a comma separated list of custom event numbers. If the number is 0 or blank for a given event type then no custom event will be transmitted when that event occurs. If a number is specified, then it is used as the EVENTID value for the custom event. The range of 32001 to 65535 has been reserved in the panel for user custom event numbers. A different value could be used but might collide with other AMX event numbers. Event configuration is not permanent and all event numbers revert to the default of 0 when the panel restarts.

- **Syntax**:

```
"'^SCE-<addr range>,<optional anchor event num>,<optional onscreen event num>,
<optional offscreen event num>,<optional reorder event num>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  anchor event number: 0 for no event or a value from 32001 to 65535.

  onscreen event number: 0 for no event or a value from 32001 to 65535.

  offscreen event number: 0 for no event or a value from 32001 to 65535.

  reorder event number: 0 for no event or a value from 32001 to 65535.

The events are:

- *anchor* - a new subpage has docked in the anchor position.
- *onscreen* - a docking operation has been completed and the subpages in the list are now onscreen. This list will include the anchor along with any subpages that may be partially onscreen.
- *offscreen* - a docking operation has been completed and the subpages in the list are now offscreen.
- *reorder* - the user has reordered the subpages in the set and the list contains all subpages in the new order without regard to onscreen or offscreen state.

  In response to any or all of the above events, the panel will create a string which is a list of subpage names separated by a pipe (|) character. The string for the anchor event is a single subpage name. If this string is too long to be transmitted in a single custom event, then multiple custom events will be created and transmitted. If defined, the events are sent in this order when a docking operation completes on a given viewer button: anchor, onscreen, offscreen. If reorder is defined and occurs, it is sent first: reorder, anchor, onscreen, offscreen.

  The format of the custom event transmitted to the master is as follows:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     address of the button generating the event
   Type                   the non-zero event number in the ^SCE command
   Flag                   0
   Value 1                which one of possible multiple events this is (1 based)
   Value 2                total number of events needed to send the entire string
   Value 3                the total size of the original string in bytes
   Text                   pipe character separated list of subpage names
```

- **Example**:

```
SEND_COMMAND Panel, "'^SCE-200,32001,0,0,0'"
```

  If the subpage named *TV_Favorite_SyFy* enters the anchor position on a subpage viewer button with an address of 200, the following event would be transmitted to the master when the user had sent this command to the panel:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     200
   Type                   32001
   Flag                   0
   Value 1                1
   Value 2                1
   Value 3                16
   Text                   TV_Favorite_SyFy
```

Button Commands (Cont.)

?SCE

Query Subpage Custom Event Numbers Command - Query the assigned subpage custom event numbers for a subpage viewer button. A series of custom events for the subpage viewer button may be sent as a response.

- **Syntax**:

```
"'?SCE-<addr range>'"
```

- **Variable**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  The format of the custom event transmitted to the master is as follows:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     address of the button generating the event
   Type                   the non-zero event number in the ^SCE command
   Flag                   0
   Value 1                which one of possible multiple events this is (1 based)
   Value 2                total number of events needed to send the entire string
   Value 3                the total size of the original string in bytes
   Text                   pipe character separated list of subpage names
```

- **Example** (Assuming the previous command, '^SCE-200,32001,0,0,0', has been sent…):

```
SEND_COMMAND Panel, "'?SCE-200'"
```

  If the subpage named *TV_Favorite_SyFy* enters is in the anchor position on a subpage viewer button with an address of 200, the following event would be transmitted to the master when the user had sent this command to the panel:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     200
   Type                   32001
   Flag                   0
   Value 1                1
   Value 2                1
   Value 3                16
   Text                   TV_Favorite_SyFy
```

^SDL

Streaming digital video loop count - This command allows a button state that has video fill to a streaming URL to set a number of times to play a video. This applies to local file video streams primarily.

- **Syntax**:

```
"'^SDL-<Address range>,<State range>,<loop count>'"
```

- **Variables**:

  address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

  button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

  loop count: number of times to loop a completed video. 0 = loop indefinitely (default), >0 = number of times to loop.

- **Example**:

```
SEND_COMMAND Panel,"'^SDL-10,1&2,1'"
```

  Set the loop count to 1 for address 10 on and off states.

Button Commands (Cont.)	

^SDM	Button State Streaming Digital Media Command - Starts or stops a streaming session. Stream starts if a valid URL is specified and stops if server URL string is empty or invalid. To use this command, the current page should have one visible streaming button.
	• **Syntax**:
	`"'^SDM-<address range>,<button states range>,<URL>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).
	URL: <protocol://><host name or host ip><:video port><:optional audio port>
	URL for connected MXA-MPL = udp://169.254.11.12:5700
	Protocol could have the following values:
	udp = MPEG2 transport stream over UDP
	http = Motion JPEG (JFIF format over MIME Multipart) [Modero X Series Panels Only]
	rtpmpeg2 = MPEG2 elementary stream over RTP/RTCP [Modero X Series Panels do not support]
	rtpmpeg4 = MPEG4 elementary stream over RTP/RTCP [Modero X Series Panels do not support]
	If the optional audio port is not specified, video port + 2 is used for audio.
	Playing a video file stored on a USB drive attached to the panel
	Enter the path of the video file on the attached USB drive with **"file:///udisk/"** as the prefix:
	`"'^SDM-<Address range>,<State range>,file:///udisk/path_to_video_file_on_usb_drive'"`
	Note: There are three slashes after "file:", not two as in a standard URL. If there aren't three slashes, the video file won't be found to be played.
	For example, for a video file named "*test-video.mp4*" in a directory named "*videos*" on the USB drive, enter:
	"*file:///udisk/videos/test-video.mp4*"
	Playing a video file stored on the panel
	Enter the filename of the video file with "**amxdir:///**" as the prefix.
	`"'^SDM-<Address range>,<State range>,amxdir:///video_file'"`
	Note: There are three slashes after "amxdir:", not two as in a standard URL. If there aren't three slashes, the video file won't be found.
	For example, for a video file named "*test-video.mp4*", enter:
	"*amxdir:///test-video.mp4*"
	To change the video using the ^SDM command to a different video (that has been transfered to the panel), use the same URL scheme as the prefix (amxdir:///).
	Note that any files that are transfered to the amxdir:/// directory are not cleared by a panel file transfer or via "Remove User Pages". The only way to clear the file is to do a Factory Data Reset, or to upload an empty file with the same filename. To get around this, you can specify the file to be in "amxdir:///AMXPanel/images/filename" instead.
	To do this using NetLinx Studio File Transfer, set the "Master Directory" to \AMXPanel\images\ in the device mapping. This will put the file in the panel file images directory. A TP5 file transfer will not remove the file, but a "Remove User Pages" will.
	The Streaming Source value in the TP5 file will have to correspond to the same path.
	Refer to the Streaming a Video File Saved on the Panel via Custom URL Scheme section on page 194 *for an example workflow for playing a video file in the G5 panel's internal storage.*
	• **Examples**:
	`SEND_COMMAND Panel,"'^SDM-400,1,file:///udisk/Video-Clip.mp4'"`
	Set the OFF state to play the video file Video-Clip.mp4 located on an attached USB disk.
	`SEND_COMMAND 10001:2:0,"'^SDM-10,2,udp://234.4.0.4:5500'"`
	Sets ON state to play video on multicast address.
	`SEND_COMMAND 10001:2:0,"'^SDM-10,1,cam://local'"`
	Sets OFF state to play camera.
	`SEND_COMMAND 10001:2:0,"'^SDM-10,1,stop'"`
	Stop playing the current video.
	`SEND_COMMAND 10001:2:0,"'^SDM-10,1,'"`
	Stop playing the current video.
	`SEND_COMMAND 10001:1:0,"'^SDM-10,1,udp://169.254.11.12:5700'"`
	Start playing the current video.
	Note: When using the variable "udp," this must be in lower case.

Button Commands (Cont.)	
^SDR	Enabling subpage dynamic reordering command - This command can be used to enable or disable dynamic reordering for a given viewer button or set of viewer buttons. It can also be used to set the amount of time to wait before initiating the single finger reorder time. • **Syntax**: `"'^SDR-<addr range>,<enable state>,<optional hold time>'"` • **Variables**: *address range*: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address. *enable state*: This value can be either "on" or "ON" or "1" to enable dynamic reordering for the specified viewer button(s). Any other value will disable dynamic reordering for the specified viewer button(s). *hold time*: This value is in tenths of a second. The value will be rounded up to the next highest quarter of a second. This is the amount of time that the user must press and hold a subpage with a single finger to trigger a dynamic reordering operation.

^SHA	Subpage Hide All Command - Hide all subpages in a subpage viewer button.
	• **Syntax**:
	`"'^SHA-<addr range>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	• **Example**:
	`SEND_COMMAND Panel,"'^SHA-200'"`
	Remove all subpages from subpage viewer button with address 200.

^SHD	Subpage Hide Command - This command will hide the named subpage and relocate the surrounding subpages as necessary to close the gap. If the subpage to be hidden is currently offscreen then it is removed without any other motion on the subpage viewer button.
	• **Syntax**:
	`"'^SHD-<addr range>,<name>,<optional time>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	name: name of subpage to hide. If name is __all, then all subpages are hidden.
	time: Can range from 0 to 30 and represents tenths of a second. This is the amount of time used to move the subpages around when subpages are hidden from a button.
	• **Example**:
	`SEND_COMMAND Panel,"'^SHD-200,menu1,10'"`
	Remove the menu1 subpage from subpage viewer button with address 200 over one second.

^SHO	Button Show/Hide Command. Show or hide a button.
	• **Syntax**:
	`"'^SHO-<addr range>,<command value>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	command value: 0 = hide, 1 = show
	• **Example**:
	`SEND_COMMAND Panel,"'^SHO-500.504&510.515,0'"`
	Hides buttons with variable text address range 500-504 & 510-515.

^SPD	Subpage Padding Command - Set the padding between subpages on a subpage viewer button.
	• **Syntax**:
	`"'^SPD-<addr range>,<padding>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	padding: percentage from 0 to 100 of the first subpage in a set to set as a padding between subpages. For a horizontal subpage viewer button it is a percentage of the width and for a vertical subpage viewer button it is a percentage of the height.
	• **Example**:
	`SEND_COMMAND Panel, "'^SPD-400,10'"`
	Set the padding between subpages in the set to 10% of the dimension of the first subpage in the set.

Button Commands (Cont.)	

^SSH	Subpage Show Command - This command will perform one of three different operations based on the following conditions:
	a) If the named subpage is hidden in the set associated with the viewer button it will be shown in the anchor position.
	b) If the named subpage is not present in the set it will be added to the set and shown in the anchor position.
	c) If the named subpage is already present in the set and is not hidden, then the viewer button will move it to the anchor position. The anchor position is the location on the subpage viewer button specified by its weighting. This will either be left, center or right for horizontal subpage viewer buttons or top, center or bottom for vertical subpage viewer buttons. Surrounding subpages are relocated on the viewer button as needed to accommodate the described operations.
	• **Syntax**:
	`"'^SSH-<addr range>,<name>,<optional position>,<optional time>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	name: Specifies the name of the subpage to be shown or added.
	position: Specifies where to add (or show) the named subpage in the set with 0 representing the beginning of the set. If this value is left out (or set to 65535) then the weighting value for the viewer button is used to place the new subpage, i.e. left/top, center or right/bottom. When using the weighting locations, set insertion positions can vary based on the current onscreen locations of existing subpages.
	time: Can range from 0 to 30 and represents tenths of a second. This is the amount of time used to move the subpages around when subpages are added or removed from a button.
	• **Example**:
	`SEND_COMMAND Panel,"'^SSH-400,media1,0,10'"`
	Add or show the media1 subpage in the anchor position over one second.

^STG	Subpage Toggle Command - If the named subpage is hidden, then this command activates a subpage show command. If the named subpage is present, then a subpage hide command is activated.
	• **Syntax**:
	`"'^STG-<addr range>,<name>,[optional position],[optional time]'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	name: Specifies the name of the subpage to be shown or added.
	position: Specifies where to show the named subpage in the set with 0 representing the beginning of the set. If this value is left out (or set to 65535) then the weighting value for the viewer button is used to place the new subpage, i.e. left/top, center or right/bottom. When using the weighting locations, set insertion positions can vary based on the current onscreen locations of existing subpages. If the subpage is being hidden this parameter is ignored.
	time: Can range from 0 to 30 and represents tenths of a second. This is the amount of time used to move the subpages around when subpages are added or removed from a button.
	• **Example**:
	`SEND_COMMAND Panel,"'^STG-400,media1,0,10'"`
	Show or hide the media1 subpage over one second.

^TEC	Set text effect color command - Set the text effect color for the specified addresses/states to the specified color. The Text Effect is specified by name and can be found in TPD5. You can also assign the color by name or RGB value (RRGGBB or RRGGBBAA).
	• **Syntax**:
	`"'^TEC-<addr range>,<button states range>,<color value>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).
	color value: See color table for more information.
	Note: Colors can be set by Color Numbers, Color name, RGB alpha colors (RRGGBBAA) or RGB colors values (RRGGBB). RGBA and RGB color are given in HEX ASCII prepended by a '#'
	• **Example**:
	`SEND_COMMAND Panel,"'^TEC-500.504&510.515,1&2,12'"`
	Sets the text effect color to Very Light Yellow on buttons with variable text 500-504 and 510-515.

Button Commands (Cont.)

?TEC

Get text effect color command - Get the current text effect color.

- **Syntax**:

```
"'?TEC-<addr range>,<button states range>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

The format of the custom event transmitted to the master is as follows:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     address of the button generating the event
   Type                   1009
   Flag                   0
   Value 1                button state number
   Value 2                actual length of string
   Value 3                0
   Text                   Hex encoded color value (ex: #000000FF)
```

- **Example**:

```
SEND COMMAND Panel,"'?TEC-529,1'"
```

Gets the button 'OFF state' text effect color information. The result sent to the Master would be:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     address of the button generating the event
   Type                   1009
   Flag                   0
   Value 1                1
   Value 2                9
   Value 3                0
   Text                   #5088F2AE
```

^TEF

Set the current text effect command - Set the current text effect.

- **Syntax**:

```
"'^TEF-<addr range>,<button states range>,<text effect name/number>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

text effect name/number: See the Text Effect Name/Numbers table on page 137 for text effect names and numbers.

- **Example**:

```
SEND_COMMAND Panel,"'^TEF-500.504&510.515,1&2,Soft Drop Shadow 3'"
```

Sets the text effect to Soft Drop Shadow 3 for the button with variable text range 500-504 and 510-515.

?TEF

Get the current text effect command - Get the current text effect.

- **Syntax**:

```
"'?TEF-<addr range>,<button states range>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

The format of the custom event transmitted to the master is as follows:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     address of the button generating the event
   Type                   1008
   Flag                   0
   Value 1                button state number
   Value 2                actual length of string
   Value 3                text effect number
   Text                   text effect name
```

- **Example**:

```
SEND COMMAND Panel,"'?TEF-529,1'"
```

Gets the button 'OFF state' text effect name information. The result sent to the Master would be:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     529
   Type                   1008
   Flag                   0
   Value 1                1
   Value 2                18
   Value 3                27
   Text                   Hard Drop Shadow 3
```

Button Commands (Cont.)

^TXT

Set button state text command - Assign a Non-Unicode, non-UTF-8 text string to those buttons with a defined address range. Note that this command has been replaced by ^UTF, but is being kept for backwards compatibility. It supports ASCII characters, but extended ASCII (i.e. characters from 128-255) are interpreted according to the Latin-1 character set (ISO 8859-1). Unicode (i.e. characters > 255) are not supported.

- **Syntax**:

```
"'^TXT-<addr range>,<button states range>,<new text>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

new text: new text as ASCII characters.

- **Example**:

```
SEND_COMMAND Panel,"'^TXT-500.504&510.515,1&2,Test Only'"
```

Sets the On and Off state text for buttons with the variable text ranges of 500-504 & 510-515.

?TXT

Query button state text command - Get the text of a button state.

- **Syntax**:

```
"'?TXT-<addr range>,<button states range>[,<optional index>]'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

optional index: This is used if a string was too long to get back in one command. The reply will start at this index.

The response returned is a custom event with the following syntax:

```
Custom Event Property     Value
   Port                   port command was received on
   ID                     address of the button generating the event
   Type                   1001
   Flag                   0: Legacy Latin-1 (ISO-8859-1) encoded characters
                             (^ENC must have previously been sent to change default encoding method)
                          1: Legacy AMX Hex Quad encoded Unicode characters
                          2: UTF-8 encoded Characters (default encoding; ASCII-compatible)
   Value 1                button state number
   Value 2                actual length of string
   Value 3                optional index
   Text                   text from the button, encoded with the method specified by Flag
```

- **Example**:

```
SEND_COMMAND Panel,"'?TXT-529,1'"
```

Gets the button 'OFF state' text information. Example Response:

```
Custom Event Property     Value
   Port                    port command was received on
   ID                      529
   Type                    1001
   Flag                    2
   Value 1                 1
   Value 2                 14
   Value 3                 0
   Text                    This is a test
```

^UNI

Set button state legacy unicode text command - Set Unicode text in the legacy G4 format. For the ^UNI command, the Unicode text is sent as ASCII-HEX nibbles.

Note: In the legacy format, Unicode text is always represented in a HEX value. TPD generates (through the Text Enter Box dialog) Unicode HEX values. Refer to the TPDesign Instruction Manual for more information. This command has been replaced by ^UTF, but is being kept for backwards compatibility.

- **Syntax**:

```
"'^UNI-<addr range>,<button states range>,<unicode text>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).

unicode text: Unicode HEX value.

- **Examples**:

```
SEND_COMMAND Panel,"'^UNI-500,1,0041'"
```

Sets the button's unicode character to 'A'.

```
SEND_COMMAND TP,"'^UNI-1,0,0041'"
```

Send the variable text 'A' in unicode to all states of the variable text button 1, (for which the character code is 0041 Hex).

Button Commands (Cont.)	

^UTF	Set button state text using UTF-8 text command - Set State Text Command using UTF-8 (replaces the ^TXT and ^UNI commands). Assign a text string encoded with UTF-8 (which is ASCII-compatible) to those buttons with a defined address range.
	Note: This command replaces the legacy ^TXT command and the legacy ^UNI command, but text must be encoded with UTF-8. While UTF-8 is ASCII compatible, extended ASCII characters in the range 128-255 will be encoded differently based on UTF-8. This command also supports Unicode characters using UTF-8 (which is the encoding method used in >80% of web servers), making the old AMX Hex quad Unicode encoding obsolete (though the ^UNI command is still supported for backwards compatibility).
	• **Syntax**:
	`"'^UTF-<vt addr range>,<button states range>,<new text>'"`
	• **Variables**:
	variable text address range: 1 - 4000.
	Button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state).
	unicode text: Unicode UTF-8 text.
	• **Example**:
	`SEND_COMMAND Panel,"’^UTF-500.504&510.515,1&2, ASCII ExtendedASCIIÇüéâäàåç Unicode 動き始めました’"`
	Sets the On and Off state text for buttons with the variable text ranges of 500-504 & 510-515.

Text Effect Name/Numbers

Text Effect Name/Numbers			
Number	**Name**	**Number**	**Name**
0	None	30	Hard Drop Shadow 6
1	Outline -S	31	Hard Drop Shadow 7
2	Outline -M	32	Hard Drop Shadow 8
3	Outline -L	33	Soft Drop Shadow 1 with Outline
4	Outline -X	34	Soft Drop Shadow 2 with Outline
5	Glow -S	35	Soft Drop Shadow 3 with Outline
6	Glow -M	36	Soft Drop Shadow 4 with Outline
7	Glow -L	37	Soft Drop Shadow 5 with Outline
8	Glow -X	38	Soft Drop Shadow 6 with Outline
9	Soft Drop Shadow 1	39	Soft Drop Shadow 7 with Outline
10	Soft Drop Shadow 2	40	Soft Drop Shadow 8 with Outline
11	Soft Drop Shadow 3	41	Medium Drop Shadow 1 with Outline
12	Soft Drop Shadow 4	42	Medium Drop Shadow 2 with Outline
13	Soft Drop Shadow 5	43	Medium Drop Shadow 3 with Outline
14	Soft Drop Shadow 6	44	Medium Drop Shadow 4 with Outline
15	Soft Drop Shadow 7	45	Medium Drop Shadow 5 with Outline
16	Soft Drop Shadow 8	46	Medium Drop Shadow 6 with Outline
17	Med Drop Shadow 1	47	Medium Drop Shadow 7 with Outline
18	Med Drop Shadow 2	48	Medium Drop Shadow 8 with Outline
19	Med Drop Shadow 3	49	Hard Drop Shadow 1 with Outline
20	Med Drop Shadow 4	50	Hard Drop Shadow 2 with Outline
21	Med Drop Shadow 5	51	Hard Drop Shadow 3 with Outline
22	Med Drop Shadow 6	52	Hard Drop Shadow 4 with Outline
23	Med Drop Shadow 7	53	Hard Drop Shadow 5 with Outline
24	Med Drop Shadow 8	54	Hard Drop Shadow 6 with Outline
25	Hard Drop Shadow 1	55	Hard Drop Shadow 7 with Outline
26	Hard Drop Shadow 2	56	Hard Drop Shadow 8 with Outline
27	Hard Drop Shadow 3		
28	Hard Drop Shadow 4		
29	Hard Drop Shadow 5		

Dynamic Image Commands

Dynamic Image Commands	

^BBR	Button State Bitmap Resource Command - Assign a resource to those buttons with a defined address range.
	• **Syntax**:
	`"'^BBR-<vt addr range>,<button states range>,<resource name>,[optional bitmap index],[optional justification]'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	button states range: 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state).
	resource name: name of resource
	Optional bitmap index: 1 - 5, the state bitmap index to assign the resource. If not present, will place the referenced resource in index 1. The indexes are defined as:
	0 - Chameleon Image (if present)
	1 - Bitmap 1
	2 - Bitmap 2
	3 - Bitmap 3
	4 - Bitmap 4
	5 - Bitmap 5
	Optional justification: 0-11 (see *Justification Values* on page 166). If absolute justification (0) is set, the next two parameters are the X and Y offset of the bitmap for the referenced index. If no justification is specified, the current justification is used.
	• **Example**:
	`SEND_COMMAND Panel,"'^BBR-500.504&510.515,1,image_xray'"`
	Sets the OFF state picture for the buttons with variable text ranges of 500-504 & 510-515 to the resource named *image_xray*.

^RAF	Resource Add Command - Add new resources. Adds any and all resource parameters by sending embedded codes and data. Since the embedded codes are preceded by a '%' character, any '%' character contained in the URL must be escaped with a second '%' character (see example). The file name field (indicated by a **%F** embedded code) may contain special escape sequences as shown in the ^RAF, ^RMF - Embedded Codes table on page 141.
	Note: For server authentication to occur, the %U (username) and %S (password) Embedded Codes must be included, and they must match the credentials required by the server.
	• **Syntax**:
	`"'^RAF-<resource name>,<data>'"`
	• **Variables**:
	resource name: name of the resource to add.
	data: Refers to the embedded codes, see the ^RAF, ^RMF - Embedded Codes on page 141.
	Note: The %P, %U, %S, %H, %A, and %F values can be entered In a single string .
	Example:
	`SEND_COMMAND Panel,"'^RAF-New Image, %P0%HAMX.COM%ALab/Test%%5Ffile%Ftest.jpg'"`
	Adds a new resource.
	The resource name is 'New Image'
	%P (protocol) is 0 for an HTTP connection
	%H (host name) is AMX.COM
	%A (file path) is Lab/Test_file
	%F (file name) is test.jpg.
	Note: the %%5F in the file path is actually encoded as %5F.

Dynamic Image Commands (Cont.)	

^RFR	Refresh Resource Command - Force a refresh of the given resource. The command will refresh when the resource is visible onscreen. If it is not onscreen, it will be deferred until it is visible to do the refresh. An optional notification option can be set to receive a custom event from the panel when the resource refresh is complete. Optional width and height parameters can be specified to refresh the image at a specific resolution. If width and height parameters are not specified, the resource will be refreshed at the resolution(s) of any active buttons to which it is assigned. If there are no active buttons currently assigned that resource, it will be refreshed at its native resolution adjusted by any project scale factor.
	• **Syntax**:
	`"'^RFR-<resource name>,[notification option],[width],[height]'"`
	• **Variables**:
	Resource name: name of the resource to refresh
	Notification option: An optional notification option at the end of the command with the following possible values:
	On - notifications are sent whenever the named dynamic image resource is loaded/refreshed.
	Off - notifications are not sent (default).
	Once - notifications are sent one time whenever the named dynamic image resource is loaded/refreshed. Notifications are not sent on subsequent loads/refreshes.
	width: Specifies the width at which the resource should be refreshed (the image will be scaled as needed).
	height: Specifies the height at which the resource should be refreshed (the image will be scaled as needed).
	• **Examples**:
	`SEND_COMMAND Panel,"'^RFR-Sports_Image,on'"`
	Force a refresh on '*Sport_Image*' when the resource is visible onscreen and enable completion notifications.
	`SEND_COMMAND Panel,"'^RFR-Sports_Image,off'"`
	Force a refresh on '*Sport_Image*' when the resource is visible onscreen and disable completion notifications.
	`SEND_COMMAND Panel,"'^RFR-Sports_Image,once'"`
	Force a refresh on '*Sport_Image*' when the resource is visible onscreen and enable a onetime completion notification.
	`SEND_COMMAND Panel,"'^RFR-Sports_Image,once,800,600'"`
	Force a refresh on '*Sport_Image*' at the resolution 800x600 when the resource is visible onscreen and enable a onetime completion notification.

^RFRP	Resource Refresh Prefetch Command - Force a refresh of the given resource. The command will "prefetch" the resource even if it is not currently visible.
	• **Syntax**:
	`"'^RFRP-<resource name>,[notification option],[width],[height]'"`
	• **Variables**:
	Resource name: name of the resource to refresh
	Notification option: An optional notification option at the end of the command with the following possible values:
	On - notifications are sent whenever the named dynamic image resource is loaded/refreshed.
	Off - notifications are not sent (default).
	Once - notifications are sent one time whenever the named dynamic image resource is loaded/refreshed. Notifications are not sent on subsequent loads/refreshes.
	width: Specifies the width at which the resource should be refreshed (the image will be scaled as needed).
	height: Specifies the height at which the resource should be refreshed (the image will be scaled as needed).
	Examples:
	`SEND_COMMAND Panel,"'^RFRP-Sports_Image,on'"`
	Force a refresh on '*Sport_Image*' immediately and enable completion notifications.
	`SEND_COMMAND Panel,"'^RFRP-Sports_Image,off'"`
	Force a refresh on '*Sport_Image*' immediately and disable completion notifications.
	`SEND_COMMAND Panel,"'^RFRP-Sports_Image,once'"`
	Force a refresh on '*Sport_Image'* immediately and enable a one-time completion notification.
	`SEND_COMMAND Panel,"'^RFRP-Sports_Image,once,800,600'"`
	Force a refresh on '*Sport_Image*' immediately at the resolution 800x600 and enable a onetime completion notification.

Dynamic Image Commands (Cont.)	

^RMF	Resource Modify Command - Modifies any and all resource parameters by sending embedded codes and data. Since the embedded codes are preceded by a '%' character, any '%' character contained in the URL must be escaped with a second '%' character (see example). The file name field (indicated by a **%F** embedded code) may contain special escape sequences as shown in the ^RAF, ^RMF - Embedded Codes table on page 141.
	Note: For server authentication to occur, the %U (username) and %S (password) Embedded Codes must be included, and they must match the credentials required by the server.
	• **Syntax**:
	`"'^RMF-<resource name>,<data>'"`
	• **Variables**:
	resource name: name of the resource to modify
	data: Refers to the embedded codes, see the ^RAF, ^RMF - Embedded Codes on page 141.
	Note: The %P, %U, %S, %H, %A, and %F values can be entered In a single string.
	• **Example**:
	`SEND_COMMAND Panel,"'^RMF-Sports_Image, %ALab%%5FTest/Images%Ftest.jpg'"`
	Changes the resource '*Sports_Image*' file name to '*test.jpg*' and the path to 'Lab_Test/Images'.
	Note: the %%5F in the file path is actually encoded as %5F.

^RSR	Resource Rate Command - Change the refresh rate for a given resource.
	• **Syntax**:
	`"'^RSR-<resource name>,<refresh rate>'"`
	• **Variables**:
	resource name: name of the resource to set the refresh rate.
	refresh rate: Measured in seconds.
	• **Example**:
	`SEND_COMMAND Panel,"'^RSR-Sports_Image,5'"`
	Sets the refresh rate to 5 seconds for the given resource ('*Sports_Image*').

^RAF, ^RMF - Embedded Codes	The ^RAF and ^RMF commands add and modify any and all resource parameters by sending embedded codes and data:
	`"'^RAF-<resource name>,<data>'"`
	`"'^RMF-<resource name>,<data>'"`
	The <data> variable uses the embedded codes described in the ^RAF and ^RMF Embedded Codes table on page 141.

^RAF, ^RMF - Escape Sequences	The ^RAF and ^RMF commands support the replacement of any special escape sequences in the filename (specified by the **%F** embedded code) with the corresponding data obtained from the system as outlined in the^RAF and ^RMF Escape Sequences table on page 142

^RAF and ^RMF Embedded Codes / Escape Sequences

NOTE: *The %P, %U, %S, %H, %A, and %F values can be entered In a single string.*

^RAF and ^RMF Embedded Codes

Parameter	Embedded Code	Code Description
protocol	`%P<0|1|2>`	Set protocol: Either HTTP (0) or FTP (1), or HTTPS(2) Notes: • *FTP is not supported at this time.* • *HTTPS (%P2) is supported in G5 panel firmware v1.4.9 and higher.*
user	`%U <user>`	Set Username for authentication.
password	`%S <password>`	Set Password for authentication.
host	`%H <host>`	Set Host Name (fully qualified DNS or IP address).
path	`%A <path>`	Set directory path. The path must be a valid HTTP URL minus the protocol, host, and filename. The only exception to this is the inclusion of special escape sequences and in the case of the FTP protocol, regular expressions.
file	`%F <file>`	The file or program that will return the resource. The file must be a valid HTTP URL minus the protocol, host, and path. The only exception to this is the inclusion of special escape sequences and in the case of the FTP protocol, regular expressions.
refresh	`%R <refresh 1-65535>`	The number of seconds between refreshes in which the resource is downloaded again. Refreshing a resource causes the button displaying that resource to refresh also. The default value is 0, which means to only download the resource once for each time it comes into view (or if preserve is set, only once period). *Note: For Motion JPEGs, the Refresh interval should always be 0.*
preserve	`%V <0-1>`	Set the value of the preserve flag. A value of 0 (the default) means the resource should be reloaded each time it comes into view. A value of 1 means the resource should be preserved in cache after the first time it is loaded, and not reloaded each time it comes into view. This value is ignored if the Refresh interval is greater than 0.
dynamo	`%D`	Enable/disable Fast Dynamo. Panel will attempt to accelerate this resource in hardware. *Note: Fast Dynamo is not yet supported.*
notification	`%C<on,off,once>`	Indicates whether a notification is required when a Dynamic Image is loaded/refreshed. The string following the %C can be: *1. on* - notifications are sent whenever the named dynamic image resource is loaded/refreshed. *2. off* - notifications are not sent (default). *3. once* - notifications are sent one time whenever the named dynamic image resource is loaded/refreshed. Notifications are not sent on subsequent loads/refreshes. If the %C code is not sent as part of a ^RAF command, the notifications are set to off. If the %C code is not sent as part of a ^RMF command, the notifications are not changed from the current setting.

URL	`%L <URL>`	Set the complete URL as a single value. URL is in the format set in RFC 2396.
		Code Block
		http://username:password@host:port/directory/file?query#fragment
		Note: The %P, %U, %S, %H, %A, and %F values can be entered In a single string.
		Note: If the URL is the first part of the resource data, then the %L is assumed and need not be included. See example below.
		Example:
		The following send commands are equivalent. All examples set the resource Image1 to a URL of http://server/folder1/image.jpg with a username of username, password of password, notifications on, and refresh time of 30 seconds:
		`SEND_COMMAND Panel,'^RMF-Image1,%Lhttp://username:password@server/folder1/image.jpg%Con%R30'`
		`SEND_COMMAND Panel,'^RMF-Image1,%P0%Uusername%Spassword%Hserver%Afolder1%Fimage.jpg%Con%R30'`
		`SEND_COMMAND Panel,'^RMF-Image1,http://username:password@server/folder1/image.jpg%Con%R30'`
		`SEND_COMMAND Panel,'^RMF-Image1,http://server/folder1/image.jpg%Con%R30%Uusername%Spassword'`

^RAF and ^RMF Escape Sequences			
Sequence	**Panel Information**	**Sequence**	**Panel Information**
`$DV`	Device Number	`$AP`	Address port
`$SY`	System Number	`$CC`	Channel code
`$IP`	IP Address	`$CP`	Channel port
`$HN`	Host Name	`$LC`	Level code
`$MC`	Mac Address	`$LP`	Level port
`$PX`	X resolution of current panel mode/file	`$BX`	X Resolution of Current button
`$PY`	Y resolution of current panel mode/file	`$BY`	Y Resolution of Current button
`$ST`	Current state	`$BN`	Name of Button
`$AC`	Address code		

Intercom Commands

Intercom Commands	

^ICE	Intercom call end command - This terminates an intercom call/connection.
	• **Syntax**:
	`"'^ICE'"`
	• **Example**:
	`SEND_COMMAND TP1,"'^ICE'"`
	`SEND_COMMAND TP2,"'^ICE'"`
	Terminates an intercom call between two panels.

^ICM-LISTEN	Intercom call set to LISTEN mode command - Set the intercom call to LISTEN mode.
	• **Syntax**:
	`"'^ICM-LISTEN'"`
	• **Example**:
	`SEND_COMMAND TP1,"'^ICM-TALK'"`
	Set the intercom mode for this panel to LISTEN mode.

^ICM-MUTEMIC	Intercom call mute mic command - Sets the state of the microphone on a panel to muted (1) or unmuted (0). At the start of each call, the microphone starts out unmuted.
	• **Syntax**:
	`SEND_COMMAND <DEV>, "^ICM-MICLEVEL,<value>"`
	• **Example**:
	`SEND_COMMAND TP1, "^ICM-MUTEMIC,1"`
	Mute the microphone.

^ICM-SPEAKERLEVEL	Intercom call speaker call volume command - Sets the speaker level during an intercom call (0 to 100).
	• **Syntax**:
	`SEND_COMMAND <DEV>, "^ICM-SPEAKERLEVEL,<value>"`
	• **Variables**:
	Level: Speaker call level 0-100.
	• **Example**:
	`SEND_COMMAND TP1, "^ICM-SPEAKERLEVEL,55"`
	Set the speaker call volume to 55.

^ICM-TALK	Intercom call set to TALK mode command - Set the intercom call to TALK mode.
	• **Syntax**:
	`"'^ICM-TALK'"`
	• **Example**:
	`SEND_COMMAND TP1,"'^ICM-TALK'"`
	Set the intercom mode for this panel to TALK mode.

Intercom Commands (Cont.)	

^ICS	Intercom call start command - Starts a call to the specified IP address and ports, where initial mode is either 1 (talk) or 0 (listen) or 2 (both). If no mode is specified 0 (listen) is assumed.
	Note: No data packets will actually flow until the intercom modify command is sent to the panel.
	• **Syntax**:
	`"'^ICS-<IP>,<TX UDP port>,<RX UDP port>,<initial mode>'"`
	• **Variables**:
	IP: IP Address of panel to connect with on an Intercom call.
	TX UDP port: UDP port to transmit to.
	RX UDP port: UDP port to receive from.
	initial mode: 0 (listen) or 1 (talk) or 2 (handsfree). 0 is the default.
	• **Example of setting up a handsfree unicast call between two panels:**
	`SEND_COMMAND TP1, "^ICS-192.168.0.3,9000,9002,2"`
	`SEND_COMMAND TP2, "^ICS-192.168.0.4,9002,9000,2"`
	• **Example of setting up a multicast call where the first panel is paging two other panels:**
	`SEND_COMMAND TP1, "^ICS-239.252.1.1,9002,9000,1"`
	`SEND_COMMAND TP2, "^ICS-239.252.1.1,9002,9000,0"`
	`SEND_COMMAND TP3, "^ICS-239.252.1.1,9002,9000,0"`
	• **Example of setting up a baby monitor call where the first panel is listening to the microphone audio coming from the second panel:**
	`SEND_COMMAND TP1, "^ICS-192.168.0.3,9000,9002,0"`
	`SEND_COMMAND TP2, "^ICS-192.168.0.4,9002,9000,1"`
	Note: When integrating the intercom functionality between AMX devices and non-AMX devices, please note that the RX UDP port should be used by the non-AMX device to receive audio.

^MODEL?	Get model name for intercom command - Gets model name. If the panel supports intercom hardware it will respond with its model name as shown in the response below. Older hardware or newer hardware that has intercom support disabled with not respond to this command.
	• **Syntax**:
	`"'^MODEL?'"`
	• **Variables**: None.
	• **Example**:
	`SEND_COMMAND TP1,"'^MODEL?'"`
	Panel response string if intercom enabled: `^MODEL-MXT-1001i`

SIP Commands

Panel to Master

The following table lists and describes SIP commands that are generated from the touch panel.

SIP Commands - Panel to Master	

^PHN-AUTOANSWER	SIP auto answer status - Provides the state of the auto-answer feature.
	• **Syntax**:
	`"'^PHN-AUTOANSWER,<state>'"`
	• **Variable**:
	state: 0 or 1 (off or on)
	• **Example**:
	`^PHN-AUTOANSWER,1`
	The panel sent a command status to the master indicating the auto-answer is on.

^PHN-CALL	SIP call progress status - Provides call progress notification for a call.
	• **Syntax**:
	`"'^PHN-CALL,<status>,<connection id>'"`
	• **Variables**
	status: CONNECTED, DISCONNECTED, ERROR, HOLD, REJECTED, RINGING, or TRYING.
	connection id: The identifying number of the connection.
	• **Example**:
	`^PHN-CALL,CONNECTED,1`
	The panel sent a command status to the master indicating call 1 is CONNECTED.

^PHN-INCOMING	SIP incoming call status - Provides incoming call notification and the connection ID used for all future commands related to this call. The connection id will be 0 or 1.
	• **Syntax**:
	`"'^PHN-INCOMING,<caller number>,<caller name>,<connection id>, <timestamp>'"`
	• **Variables**:
	caller number: The phone number of the incoming call
	caller name: The name associated with the caller number
	connection id: The identifying number of the connection
	timestamp: The current time in MM/DD/YY HH:MM:SS format
	• **Example**:
	`^PHN-INCOMING,"1235556789",MAIN,1,01/01/2011 11:11:11`
	The panel sent a command status to the master indicating an incoming call from number 1235556789 named MAIN at Jan 1, 2011 at 11:11:11.

^PHN-LINESTATE	SIP call linestate status - Indicates the current state of each of the available connections used to manage calls.
	• **Syntax**:
	`"'^PHN-LINESTATE,<connection id>,<state>,<connection id>,<state>,..., SIP,<extn>'"`
	• **Variables**:
	connection id: The identifying number of the connection.
	state: IDLE, HOLD, or CONNECTED
	extn: The local extension of this panel (see Example)
	• **Example**:
	`^PHN-LINESTATE,1,IDLE,2,CONNECTED,SIP,1234`
	The panel sent a command status to the master indicating line 1 is idle and line 2 is connected and this is extension 1234.

^PHN-MSGWAITING	SIP call message waiting status - Indicates the number of messages waiting the user's voice mail box.
	• **Syntax**:
	`"'^PHN-MSGWAITING,<messages>,<new message count>,<old message count>,`
	`<new urgent message count>,<old urgent message count>'"`
	Variables:
	messages: 0 or 1 (1 indicates new messages)
	new message count: The number of new messages.
	old message count: The number of old messages.
	new urgent message count: The number of new messages marked urgent.
	old urgent message count: The number of old messages marked urgent.
	• **Example**:
	`^PHN-MSGWAITING,1,1,2,1,0`
	The panel sent a command status to the master indicating there are calls waiting (1 new, 2 old, 1 new urgent, 0 old urgent).

SIP Commands - Panel to Master	

^PHN-PRIVACY	SIP call privacy status - Indicates the state of the privacy feature.
	• **Syntax**:
	`"'^PHN-PRIVACY,<state>'"`
	• **Variables**:
	state: 0 (Disable) or 1 (Enable)
	new message count: The number of new messages.
	old message count: The number of old messages.
	new urgent message count: The number of new messages marked urgent.
	old urgent message count: The number of old messages marked urgent.
	• **Example**:
	`^PHN-PRIVACY,0`
	The panel sent a command status to the master indicating there the call privacy is disabled.

^PHN-REDIAL	SIP call redial status - Indicates the panel is redialing the number.
	• **Syntax**:
	`"'^PHN-REDIAL,<number>'"`
	• **Variable**:
	number : The phone number to dial.
	• **Example**:
	`^PHN-REDIAL,2125551000`
	The panel sent a command status to the master indicating the number 2125551000 is being redialed.

^PHN-TRANSFERRED	SIP call transferred status - Indicates a call has been transferred.
	• **Syntax**:
	`"'^PHN-TRANSFERRED,<connection id>'"`
	• **Variable**:
	connection id: The identifying number of the connection.
	• **Example**:
	`^PHN-TRANSFERRED,1`
	The panel sent a command status to the master indicating call 1 was transferred.

Master to Panel

The following table lists and describes SIP commands that are sent to the touch panel to manage calls.

SIP Commands - Master to Panel	

^PHN-ANSWER	SIP call answer command - Answers the call.
	• **Syntax**:
	`"'^PHN-ANSWER,<connection id>'"`
	• **Variable**:
	connection id: The identifying number of the connection
	• **Example**:
	`SEND_COMMAND Panel,"'^PHN-ANSWER,1'"`
	Answer call 1.

^PHN-AUTOANSWER	SIP set auto-answer state command - Enables (1) or disables (0) the auto-answer feature on the phone.
	• **Syntax**:
	`"'^PHN-AUTOANSWER,<state>'"`
	• **Variable**:
	state: 0 (Disable) or 1 (Enable)
	• **Example**:
	`SEND_COMMAND Panel,"'^PHN-AUTOANSWER,1'"`
	Enable the auto-answer feature.

?PHN-AUTOANSWER	Get SIP auto-answer state command - Queries the state of the auto-answer feature.
	The panel responds with the ^PHN-AUTOANSWER, <state> message.
	• **Syntax**:
	`"'?PHN-AUTOANSWER'"`
	• **Example**:
	`SEND_COMMAND Panel,"'?PHN-AUTOANSWER'"`
	Get the auto-answer status.

SIP Commands - Master to Panel (Cont.)	

^PHN-CALL	SIP call command - Calls the provided number.
	• **Syntax**:
	`"'^PHN-CALL,<number>'"`
	• **Variable**:
	number: The provided phone number
	• **Example**:
	`SEND_COMMAND Panel,"'^PHN-CALL,2125551000'"`
	Call the number 2125551000.

^PHN-DECLINE	Declines the incoming call on <Connection ID> as indicated from the previous message. Decline (send to voice mail if configured) the incoming call on <connection id> as indicated from the previous ^PHN-INCOMING message. Connection ID should be 0 or 1.
	• **Syntax**:
	`"'^PHN-DECLINE,<Connection ID>'"`
	• **Variable**:
	Connection ID: The identifying number of the connection.: The identifying number of the connection.
	• **Example**:
	`SEND_COMMAND Panel,"'^PHN-DECLINE,0'"`
	Decline the call with ID of 0.

^PHN-DTMF	SIP send DTMF tone command - Sends DTMF codes.
	• **Syntax**:
	`"'^PHN-DTMF,<DTMF code>,[<Connection ID>]'"`
	• **Variable**:
	DTMF code: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, POUND, or ASTERISK.
	Connection ID: Optional Connection ID.
	If >= 0, the DTMF is generated on the specified connection ID.
	If < 0 then DTMF is generated on first line in use.
	• **Examples**:
	`SEND_COMMAND Panel,"'^PHN-DTMF,5'"`
	Send the DTMF tone for 5.
	`SEND_COMMAND Panel,"'^PHN-DTMF,ASTERISK,1'"`
	Send the DTMF tone for * on connection 1.

^PHN-HANGUP	SIP hangup call command - Hangs up the call.
	• **Syntax**:
	`"'^PHN-HANGUP,<connection id>'"`
	• **Variable**:
	connection id: The identifying number of the connection
	• **Example**:
	`SEND_COMMAND Panel,"'^PHN-HANGUP,1'"`
	Hangup the call with ID of 1.

^PHN-HOLD	SIP put call on hold command - Places the call on hold.
	• **Syntax**:
	`"'^PHN-HOLD,<connection id>'"`
	• **Variable**:
	connection id: The identifying number of the connection
	• **Example**:
	`SEND_COMMAND Panel,"'^PHN-HOLD,1'"`
	Put the call with ID of 1 on hold.

?PHN-LINESTATE	Get SIP linestate command - Queries the state of each of the connections used by the SIP device.The panel responds with the ^PHN-LINESTATE message.
	• **Syntax**:
	`"'?PHN-LINESTATE'"`
	• **Example**:
	`SEND_COMMAND Panel,"'?PHN-LINESTATE'"`
	Get the current line states.

^PHN-PRIVACY	SIP set privacy state command - Enables or disables the privacy feature on the phone (do not disturb).
	• **Syntax**:
	`"'^PHN-PRIVACY,<state>'"`
	• **Variable**:
	state: 0 (Disable) or 1 (Enable)
	• **Example**:
	`SEND_COMMAND Panel,"'^PHN-PRIVACY,1'"`
	Enables the privacy feature.

SIP Commands - Master to Panel (Cont.)	

?PHN-PRIVACY	Get SIP privacy state command - Queries the state of the privacy feature. The panel responds with the ^PHN-PRIVACY, <state> message.
	- **Syntax**:
	`"'?PHN-PRIVACY'"`
	- **Example**:
	`SEND_COMMAND Panel,"'?PHN-PRIVACY'"`
	Get the current SIP privacy status.

^PHN-REDIAL	SIP call redial command - Redials the last number.
	- **Syntax**:
	`"'^PHN-REDIAL'"`
	- **Example**:
	`SEND_COMMAND Panel,"'^PHN-REDIAL'"`
	Redial the last number.

^PHN-TRANSFER	SIP call transfer message - Transfers the call to the provided number.
	- **Syntax**:
	`"'^PHN-TRANSFER,<connection id>,<number>'"`
	- **Variables**:
	connection id: The identifying number of the connection
	number: The number to which you want to transfer the call.
	- **Example**:
	`SEND_COMMAND Panel,"'^PHN-TRANSFER,1,2125551000'"`
	Transfer call with ID 1 to 2125551000.

^PHN-SETUP-CODEC	Set SIP codec command - Set the codec type for the SIP connection.
	- **Syntax**:
	`"'^PHN-SETUP-CODEC,<codec>'"`
	- **Variables**:
	codec: The codec to use. Valid values are *ulaw* (default) or *alaw*.
	- **Example**
	`SEND_COMMAND Panel,"'^PHN-SETUP-CODEC,ulaw'"`
	Set the SIP audio codec to ulaw.

^PHN-SETUP-DOMAIN	Set SIP domain name command - Set the domain name for the SIP server.
	- **Syntax**:
	`"'^PHN-SETUP-DOMAIN,<domain name>'"`
	- **Variables**:
	domain name: The domain name to use for the sip connection.
	- **Example**
	`SEND_COMMAND Panel,"'^PHN-SETUP-DOMAIN,sip.domain'"`
	Set the SIP domain to *sip.domain*.

^PHN-SETUP-DTMFDURATION	Set the duration of SIP DTMF tones command - Set the duration of DTMF tones generated by the panel for a SIP connection.
	- **Syntax**:
	`"'^PHN-SETUP-DTMFDURATION,<duration>'"`
	- **Variables**:
	duration: The duration in ms of DTMF tones generated by the panel for a SIP connection. Valid ranged are 100 (default) to 3000.
	- **Example**
	`SEND_COMMAND Panel,"'^PHN-SETUP-DTMFDURATION,500'"`
	Set the duration of DTMF tones generated for SIP to 500ms.

^PHN-SETUP-ENABLE	Enable SIP setup command - Registers a new user. Once the configuration has been updated, the ENABLE command should be run to re-register the new user. - **Syntax**: `"'^PHN-SETUP-ENABLE'"` - **Variables**: enable: 1 to enable SIP, and 0 to disable.

SIP Commands - Master to Panel (Cont.)	

^PHN-SETUP-PASSWORD	Setup SIP password command - Sets the user password so this extension can connect to the SIP server (SIP proxy server).
	• **Syntax**:
	`"'^PHN-SETUP-PASSWORD,<password>'"`
	• **Variable**:
	password: The password for the user name
	• **Example**:
	`SEND_COMMAND Panel,"'^PHN-SETUP-PASSWORD,6003'"`
	Setup the password for this extension to 6003.

^PHN-SETUP-PORT	Setup port for SIP Server connection command - Sets the port number for the SIP server (SIP proxy address).
	• **Syntax**:
	`"'^PHN-SETUP-PORT,<port>'"`
	• **Variable**:
	port: The port for the proxy server
	• **Example**:
	`SEND_COMMAND Panel,"'^PHN-SETUP-PORT,5060'"`
	Set this extension to connect to the SIP server (SIP proxy address) to port 5060.

^PHN-SETUP-PROXYADDR	Setup SIP server address command - Sets the IP address for the SIP server (SIP proxy address).
	• **Syntax**:
	`"'^PHN-SETUP-PROXYADDR,<IP>'"`
	• **Variable**:
	IP: The IP address for the proxy server
	• **Example**:
	`SEND_COMMAND Panel,"'^PHN-SETUP-PROXYADDR,192.168.223.111'"`
	Set the extension to try the SIP server (SIP proxy address) at the IP of 192.168.223.111.

^PHN-SETUP-USERNAME	Setup SIP username command - Sets the user name for authentication with the SIP server (SIP proxy address).
	• **Syntax**:
	`"'^PHN-SETUP-USERNAME,<username>'"`
	• **Variable**:
	username: The user name (usually the phone extension)
	• **Example**:
	`SEND_COMMAND Panel,"'^PHN-SETUP-USERNAME,6003'"`
	Set the extension to authenticate to the SIP server with the username of 6003.

Listview (Data Access) Commands

The *Data Access* commands described in the following table represent a set of Button (^) Send Commands that support the use of dynamic data for Listview buttons in NetLinx code. Note that the *address range* indicated in the syntax examples represents the address of the Listview button, and works the same as it does for all other (^) Button Send Commands.

Many Listview Send Commands take a boolean parameter. Any of the following values can be used:

Will resolve to true	Will resolve to false
true	false
TRUE	FALSE
on	off
ON	OFF
1	0
	(empty)

Terminology

The NetLinx Data Access Send Commands use the following terminology:

Netlinx Data Access Send Commands - Terminology	
Name	**Description**
DataFeed	A DataFeed is a descriptor with a unique name used to publish data records. A DataFeed can be created by a NetLinx program and then published to the NetLinx web server for external consumption by devices like the G5 touch panel for use with Listview buttons. DataFeeds can also be sourced from a server running the AMX XPort software.
DataRecord	A DataRecord represents a container of data fields and the index/ordinal position of the row in the recordset. A DataRecord may contain metadata and/or content fields.
DataField	A DataField represents the value that stores the actual data elements. All raw data in the NetLinx data access APIs are stored and managed as values and (one or more) attributes.

Listview Commands	

^LVC	Listview Cache Configure - This command configures the image cache used by the Listview.
	• **Syntax**:
	`"'^LVC-<configuration_option=configuration_value>'"`
	• **Variables**:
	a comma separated list of one or more configuration parameters followed by an equal sign and the configuration setting.
	• **Configuration Options**:
	clear: Clear the current memory and disk cache used for Listview image loading.
	mem_size: The size of the memory cache, either as a percentage of the available application memory or as total size. Percentages are specified as floating point. Percentage values are 2% (0.02) to 20% (0.20) and totals are 16 to 256 MB. The default is 10%.(0.10)
	disk_size: The size of the disk cache. Valid values are 16 to 500 MB The default is 200.
	• **Example**:
	`SEND_COMMAND Panel,"'^LVC-clear'"`
	Clear the Listview cache.

Listview Commands (Cont.)	

^LVD	Set Listview Data Source - This command sets the data source to drive the Listview entries. Note that this command only configures the data source it does not actually cause the data to be fetched. The ^LVR refresh command (page 154) must be issued to load the data.
	• **Syntax**:
	`"'^LVD-<addr range>,<URL to data source or Dynamic Data Resource name>, <configuration_option=configuration_value>'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	Data source URL/Dynamic Data Resource name (required): If the suffix of the URL is .csv or .CSV then the URL will be assumed to point to a csv file. Otherwise the type is assumed to be the XPort amxstandard.xml format. Supported URL schemes are *HTTP*, *HTTPS*, and *FILE*.
	Data Source URL Notes:
	HTTPS is supported in G5 panel firmware version v1.4.9 and higher.
	HTTPS is not supported by TPDesign5 dynamic image resources at this time.
	A file on the panel's local filesystem can be specified using the **file:///** option. *There must be three forward slashes after 'file:'*.
	An FTP URL scheme is not supported.
	Refer to *Notes on Using Image URLs With Listview Buttons* on page 155 for additional details.
	option list: a optional comma separated list of one or more configuration parameters followed by an equal sign and the configuration setting.
	• **Configuration Options**:
	user - The user name to use for authenticating to the web server when retrieving the feed data source file.
	If specified when URL is a Dynamic Data Resource, this value will override the username inside the Dynamic Data Resource.
	Note: For server authentication to occur, the Username (user) and Password (pass) must be included in the ^LVD command, and they must match the credentials required by the server.
	pass - The password to use for authenticating to the web server when retrieving the feed data source file.
	If specified when URL is a Dynamic Data Resource, this value will override the password inside the Dynamic Data Resource.
	Note: For server authentication to occur, the Username (user) and Password (pass) must be included in the ^LVD command, and they must match the credentials required by the server.
	csv - a boolean indicating whether or not to parse the data source as a CSV file.
	If not present, defaults to false.
	has_headers - a boolean indicating that the first line of the CSV file has column headers which will be used to name the content fields for each data record.
	If true it automatically implies that *csv* is also true.
	If this option is not present then the default for a CSV file is false.
	In the absence of headers, the content fields will be named using the following convention: *column1*, *column2*, *column3*... (CSV files only, since XML always has field names specified within the file).
	• **Example**:
	`SEND_COMMAND Panel,"'^LVD-42,http://192.168.220.231/public/lv42data.csv, has_headers=1'"`
	Configures the Listview button to use the CSV file at the URL as its data source. The first line of the CSV file should be parsed as field names and not as Listview entry record data.

Listview Commands (Cont.)

^LVE

Set ListView custom event number - This command sets the custom event number reported by Listview refresh operations.

- **Syntax**:

```
"'^LVE-<addr range>,<Listview custom event number>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

event number: The custom event number to report Listview events. At this time, only refresh events are reported. A value of 0 turns off custom event reporting, A value > 0 assigns the value to the Listview custom event number for that address. The default value is 1401 (custom events reported).

When enabled, the custom event format reported is:

```
Custom Event Property   Value
   Port                 port command was received on
   ID                   address of the button
   Type                 button event number set by ^LVE
   Flag                 StartRefresh = 1; FinishRefresh = 2; Error = 0xffff ($FFFF);
   Value 1              If flag is StartRefresh (1) or FinishRefresh (2):
                           InitRefresh = 0; (refresh by dynamic resource)
                           ManualRefresh = 1; (refresh by send command
                           TimedRefresh = 2; (refresh by timer)
                        If flag is Error:
                           Error = -1; (some form of error, see custom.text for description)
                           InvalidUrl = -2; (URL is null, should never happen)
                           LoginFailed = -3; (could not authenticate to web server).
   Value 2              data load id. Every data load is assigned a unique id that counts up
                         from 0. This is used to correlate StartRefresh/FinishRefresh/Error events
                         on particular addresses.
   Value 3              When Custom.flag == FinishRefresh, this is the number of records in list
                         Otherwise is 0.
   Text                 feed URL string, or error message if flag is Error
```

- **Example**:

```
SEND_COMMAND Panel,"'^LVE-42,1401'"
```

Configures the Listview widget to send Listview custom events on event 1401.

^LVF

Listview Filter - This command can be used to programmatically change the filter contents of the Listview widget. When the filter contents is changed, the filter will be applied to the current Listview data which can change the number of items displayed based on those that meet the filter sequence. The filter changes immediately, and the filter can be set or cleared with this command.

- **Syntax**:

```
"'^LVF-<addr range>,<filter character sequence>'"
```

- **Variables**:

address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.

filter character sequence: All characters including white space characters will be applied to the filter.

- **Example**:

```
SEND_COMMAND Panel,"'^LVF-42,amx'"
```

Sets the filter sequence to *amx*. Only items in the data set that contain the sequence *amx* will be displayed.

```
SEND_COMMAND Panel,"'^LVF-42,'"
```

Clears the filter sequence. All items in the data set can be viewed in the Listview.

^LVL

Listview Layout - This command sets the layout configuration to configure the visual representation of the Listview entries.

- **Syntax**:

```
"'^LVL-<vt addr range>,<layout_option=layout_value>'"
```

- **Variables**:

Variable text address range = 1 - 4000.

A comma separated list of one or more layout configuration parameters followed by an equal sign and the configuration setting.

- **Layout Options**:

columns - Number of columns parameter. An integer that represents the number of columns to display. The number must be at least 1 and a value that exceeds the minimum cell width will truncate to the maximum.

Note: Valid tags for the columns parameter are columns=, nc=, and numcol=.

comp - Component parameter. An integer that is a value which determines which graphical components are present in the cell. When the component values are bitwise or'd together, it creates the encoding for the cell components that are populated. If a configuration parameter is not in the current command, the last value for the configuration parameter is used.

Note: Valid tags for the comp parameter are c= and comp=.

Listview Commands (Cont.)

^LVL

(Cont.)

Component Value	Description
1	The image (i) is used in the cell.
2	The primary text field (t1) is used in the cell.
4	The secondary text field (t2) is used in the cell

Not all variations of component values are valid. To have the secondary text field present, the primary text field must be preset as well.

Component Combinations	Description
0	Invalid. No component displayed.
1	The image (i) is the only component displayed.
2	The primary text field (t1) is the only component displayed.
3	The image (i) and the primary text field (t1) are displayed.
4	Secondary text (t2) only. Invalid. Secondary text (t2) cannot be displayed without the primary text (t1).
5	Secondary text (t2) and image (i). Invalid. Secondary text (t2) cannot be displayed without the primary text (t1).
6	The primary text (t1) and secondary text (t2) are displayed.
7	The image (i), primary text (t1), and secondary text (t2) are displayed

cellheight - An integer or percentage that sets the height of a cell. The value can be an integer >= the minimum cell height (48), or a percentage of the list height (5% up to 95%). To specify a percentage, append a '%' to the end of the value.

Note: Valid tags for the cellheight param are ch= and cellheight=.

layout - An integer that sets the layout configuration of each cell.

Note: valid tags for the layout parameter are l= and layout=.

Layout Value	Description
1	Horizontal layout with image on the left and text(s) on the right. If multiple texts are selected then the texts are stacked vertically
2	Horizontal layout with image on the right and text(s) on the left. If multiple texts are selected then the texts are stacked vertically.
3	Horizontal layout with text1 on the left, image in the center, and text2 on the right. If multiple texts are selected then the texts are stacked vertically.
4	Vertical layout with the image on the top and text(s) below the image. If multiple texts are selected then text1 is below the image and text2 is below text1.
5	Vertical layout with the image on the bottom and text(s) above the image. If multiple texts are selected then text1 is on top, text2 is below text1, and the image is below text2.
6	Vertical layout with text1 on top, the image below text1, and text2 below the image.

p1 - layout percentage 1. Sets the boundaries between cell components in different layouts. An integer between 10 and 90 that sets the boundary between components as a percentage of the cell dimension. The percentage can be specified as a number between 5-95 with an optional percentage sign '%' at the end.

p2 - layout percentage 2. Sets the boundaries between cell components in different layouts.An integer between 10 and 90 that sets the boundary between components as a percentage of the cell dimension. The percentage can be specified as a number between 5-95 with an optional percentage sign '%' at the end.

filter - Enable or disable the search filter on the Listview. To enable set to 'true', 'on', or '1'. To disable set to 'false', 'off', or '0'.

Note: Valid tags for the filter parameter are f= and filter=.

filterheight - An integer or percentage that sets the height of the filter in the Listview. The value can be an integer >= the minimum filter height (24), or a percentage of the list height (5% to 25%). To specify a percentage, append a '%' to the end of the value.

Note: Valid tags for the filterheight param is fh= and filterheight=.

alphascroll - Enable or disable the alpha scroll on the Listview. To enable set to 'true', 'on', or '1'. To disable set to 'false', 'off', or '0'.

Note: Valid tags for the alphascroll parameter are as= and alphascroll=.

- **Examples**:

```
SEND_COMMAND Panel,"'^LVL-42, layout=1, comp=7, columns=1, cellheight=120, p1=40%, p2=66%'"
```

Sets the Listview configuration display an image and 2 text fields (comp=7), in a layout 1 configuration (layout=1 horizontal layout of the image on left and text1 and text2 to the right of the image). There is 1 column (columns=1) and the cell is 120 pixels high (h=120). The image width will be 40% of the cell width (p1=40%) with text1 and text2 having a width of 60% of the cell width. The height of text1 will be 66% of the cell height (p2=66%) with text2 height of 34% of the cell height.

```
SEND_COMMAND Panel,"'^LVL-42,l=4, c=3, ch=150, nc=4, p1=70'"
```

Sets the Listview configuration display an image and 1 text fields (c=4), in a layout 4 configuration (l=4 vertical layout of the image on top and text1 below the image). There are 4 columns (nc=4) and the cell is 150 pixels high (ch=150). The image height will be 70% of the cell height (p1=70) with text1 having a height of 30% of the cell height.

Listview Commands (Cont.)	

^LVL
(Cont.)
	`SEND_COMMAND Panel,"'^LVL-42,layout=3, comp=6, ch=100, numcol=1, p1=50'"`
	Sets the Listview configuration display 2 text fields (comp=6), in a layout 3 configuration (layout=2 horizontal layout of text1 on the left and text2 on the right). There is 1 column (numcol=1) and the cell is 100 pixels high (ch=100). The text1 width will be 50% of the cell width (p1=50) with text2 having a width of 50% of the cell width.
	`SEND_COMMAND Panel,"'^LVL-42,filter=1, fh=10%, as=false'"`
	Sets the Listview search filter enabled (filter=1), the search filter textview height to 10% of the Listview height (fh=10%), and disables the alphascroller on the Listview.

^LVM	Listview Map Fields - This command maps the fields from the data source to the display elements of a Listview entry. Each list entry corresponds to a record if the data came from the NetLinx data access API or XPort. If the data source is a csv file, then each list entry corresponds to a row in the file. A list entry can have up to two lines of text and a URL that points to an image. Each display element for a list entry has to be mapped to a field in the record. If no mapping is specified, then a default mapping is used which is simply to map the fields in order based on the screen layout of the list entry. So, if the list type was an image and two lines of text, the first content field in the record would be interpreted as the URL to the image, the next field would be the first line of text and the next field would be the second line of text. To override this default behavior, the ^LVM command should be used to specify the correct mapping.
	• **Syntax**:
	`"'^LVM-<addr range>,<display_element=field_expression|<display_element= field_expression>|...'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	display element list: A pipe character "|" separated list of mapping expressions. A pipe is used because typical field expressions may use more common characters such as the comma or semicolon.
	Display Elements:
	t1 - the first text element
	t2 - the second text element
	i1 - the first image
	future display types may support more text and image elements which will follow the same convention: t3... i2...
	• **Field Expressions**:
	An expression that can be used to map field values to display elements. Any time a field name is used, it follows the form **${field_name}**. Other text characters can be used to construct a more complex string using multiple fields.
	• **Examples**:
	`SEND_COMMAND Panel,"'^LVM-42,i1=${image}'"`
	Configures the Listview widget to map an image field to the image display element. In this example, the Listview type is assumed to be a single image only.
	`SEND_COMMAND Panel,"'^LVM-42,i1=${image}\|t1=${lname}, ${fname}\|t2=${number}'"`
	The Listview widget is the type that has an image and two lines of text. The top line will consolidate two different fields in the form of last name, first name. The second line of text will be the phone number.
	`SEND_COMMAND Panel,"'^LVM-42,t1=${column2}, ${column1}\|t2=${column3}|i1=${column4}'"`
	This is the same example as the one above it but the source of the data was a csv file that didn't have any headers. The csv columns were laid out as first name, last name, number, url to image.

^LVN	Listview Navigate - This command can be used to move the Listview widget. Navigation commands will be range checked. The command will attempt to position the specified list entry on the top line of the Listview widget. When navigating at the end of the list, however, the widget will position the last item in the list on the bottom line and will not leave blank lines at the bottom. The only exception to this case will be when the Listview has fewer entries than the number of displayable entries. If the optional select boolean is present, and the navigation command used support the select option, the item at the destination will be selected and a item selected custom event will be initiated. • **Syntax**: `"'^LVN-<addr range>,<navigation_command>[,<boolean_select_param>]'"` • **Variables**: *address range*: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address. *navigation command*. *optional select boolean* **Navigation Commands:** **t** or **T** - move to the top of the list (supports an optional select boolean). **b** or **B** - move to the bottom of the list (supports an optional select boolean). **d** or **D** - page down (DOES NOT support the optional select boolean. A select boolean will be ignored if present). **n** - move to a specific list entry number at position n. n is a zero based index. (supports an optional select boolean). (Note: If n is < 0 and select is true then the current selected item is deselected.) **u** or **U** - page up (DOES NOT support the optional select boolean. A select boolean will be ignored if present).

Listview Commands (Cont.)	

^LVN
(Cont.)
	• **Examples**:
	`SEND_COMMAND Panel,"'^LVN-42,B'"`
	Move to the bottom of the list.
	`SEND_COMMAND Panel,"'^LVN-42,d'"`
	Move the list down a page.
	`SEND_COMMAND Panel,"'^LVN-42,3,1'"`
	Move the list to position 3 in the list and select the item at position 3.

^LVR	Listview Refresh Data - This command has two different functions. If it is sent without any parameters, it causes the Listview widget to load data from its configured data source. If optional parameters are included with the command, then the automatic data refresh options are configured. The typical behavior for auto refresh is that the last modified time of the data source is tracked. At the refresh interval, the last modified time of the data source is compared against the stored value. If the data is newer, then it is reloaded and the Listview widget is refreshed with the updated data. If the data is unchanged, then it is not reloaded. The default for auto refresh is off.
	• **Syntax**:
	`"'^LVR-<addr range>[,<refresh_interval>,<force_reload>]'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	refresh_interval - the optional interval (in seconds) at which to check for newer data. 0 (the default) means auto refresh is off. Minimum is 5 seconds. If not specified, the current refresh interval is retained.
	force_reload - the optional parameter to force the Listview to ignore and data file timestamps and to force a clear on image caches for refreshed Listview images. Not specified or 0 will not force a reload, 1 will force a reload of data file and images associated with data file.
	Note: This can cause the images in a Listview to flicker upon the reload. This is the expected behavior due to the images being reloaded from the server.
	• **Examples**:
	`SEND_COMMAND Panel,"'^LVR-42'"`
	Commands the Listview widget to load the data from the data source and populate the Listview display widget.
	`SEND_COMMAND Panel,"'^LVR-42,15'"`
	Commands the Listview widget to check for an updated data source every 15 seconds.
	`SEND_COMMAND Panel,"'^LVR-42,600,1'"`
	Commands the Listview widget to check for an updated data source every hour, and to force a reload of the data and the images.

^LVS	Listview Sort Data - This command sets the columns that are used for sorting of lists, as well as the type of sorting that is done. The multiple columns are allowed in the sort procedure. The order of the columns in the command determine the order of the sorting. The first column is the primary sorting data, the second would be used for sorting with rows of data that are equal in the primary columns, and so on for however many columns are used for sorting. If no columns are listed in the command, then the current sorting columns are used if they have been previously defined. The type of sort is an optional part of the command and follows the sort columns.
	Initially, there are four different sort types available.
	None (**n**) - No sorting is performed.
	Ascending (**a**) - Ascending sort using localized character weighting.
	Descending (**d**) - Descending sort using localized character weighting.
	Override (*****) - Override sort syntax portion of command determines sorting.
	The override sort syntax allows for complex SQLite ORDER BY syntax for sorting. When override is selected, the sort columns that were set in the command or previously are ignored and the entire sorting statement must be in the override sort syntax. The words ORDER BY should not be in the syntax. They are inserted by the firmware.
	• **Syntax**:
	`"'^LVS-<addr range>,<primary sort column name, secondary sort column name,...,`
	`final sort column name>[;<sort type>[;<override sort syntax>]]'"`
	• **Variables**:
	address range: Address codes of buttons to affect. A '.' between addresses includes the range, and & between addresses includes each address.
	Sort columns - comma separated list of sort columns in the order of sort priority. Sort columns can be specified using the ${column name} syntax that is used in the ^LVM command. Columns can be Content Fields or Metadata Fields in the master Datafeed XML file generated by the master. Metadata fields are prepended with "meta" in front of the "label" attribute of the field.
	Sort Type - A character indicating the sorting algorithm to use.
	'a' - ascending
	'd' - descending
	'*' - override. Sort command syntax must follow in the next part of the command.
	'n' - none (default). Any character that is not a,d, or * will set sort to none.
	Override sort syntax - A SQLite ORDER BY statement to use as the sort.

Listview Commands (Cont.)	

^LVS
(Cont.)
	Examples:
	`SEND_COMMAND Panel,"'^LVS-42, ${artist name},${title};a '"`
	Commands the Listview widget to sort the data source by the artist name and then title in an ascending order. Equates to "artistname, title COLLATE LOCALIZED ASC" override syntax.
	`SEND_COMMAND Panel,"'^LVS-42, ${artist name},${title};d '"`
	Commands the Listview widget to sort the data source by the artist name and then title in an descending order. Equates to "artistname COLLATE LOCALIZED DESC, title COLLATE LOCALIZED DESC" override syntax.
	`SEND_COMMAND Panel,"'^LVS-42,;n'"`
	Commands the Listview widget to not sort the current data.
	`SEND_COMMAND Panel,"'^LVS-150,${user name},${text};*;meta${Record timestamp} ASC'"`
	Commands the panel to sort by the meta data field Record timestamp in ASCENDING order. The username and test fields are ignored.
	`SEND_COMMAND Panel,"'^LVS-150,;*;meta${Record timestamp} ASC'"`
	Commands the panel to sort by the meta data field "Record timestamp" in ASCENDING order. The username and test columns are ignored.
	`SEND_COMMAND Panel,"'^LVS-150,;*;LENGTH(${description}),${description} ASC'"`
	Command the panel to sort by the number of characters in the description field, and then by the contents of the description field in ASCENDING order

NOTE: *Refer to Appendix B: Using NetLinx to Define a Data Source (Listview Buttons)* on page 182 *for information on using NetLinx Code to define a data source for Listview buttons.*

Notes on Using Image URLs With Listview Buttons

Since a Listview button can retrieve images to display as part of the Listview, the column in the data table that sets the image URL will require the server's username and password be included as part of the image URL.

The following example represents the contents of a .CSV file that has image URLs as part of the data. The *URL Path* column has some URLs with using http and no authentication credentials, some using http and user/password credentials, and one using https and user/password credentials:

```
 File Type,     No,     URL Path
       GIF,      1,     http://www.w3schools.com/images/compatible_chrome.gif
       GIF,      2,     http://www.w3schools.com/images/compatible_ie.gif
       GIF,      3,     http://www.w3schools.com/images/compatible_firefox.gif
       PNG,      4,     http://user:password@master-ni3100/xsimple_green.png
       PNG,      5,     https://user:password@master-nx1200/__AMX__icon-mute-off.png
       PNG,      6,     http://user:password@master-nx1200/__AMX__icon-mute-on.png
```

NOTE: *HTTPS is supported in G5 panel firmware version v1.4.9 and higher.*

NOTE: *HTTPS is not supported by TPDesign5 dynamic image resources at this time.*

Streaming Video, MXA-MP, and MXA-MPL Commands

The following are NetLinx commands that control streaming video output, as well as coordinate video output to a Modero X Series G5 touch panel from an MXA-MP Multi Preview or MXA-MPL Multi Preview Live video breakout box. The command prefix for all MXA-MP/L commands is "^SLT-1" to match legacy Break Out Box video "slot" syntax. Slot 1 (the only supported slot) always refers to the MXA-MP/L.

Streaming Video, MXA-MP/MPL Commands	

^SDM	Button State Streaming Digital Media Command - Starts or stops a streaming session. Stream starts if a valid URL is specified and stops if server URL string is empty or invalid. To use this command, the current page should have one visible streaming button.
	• **Syntax**:
	`"'^SDM-<addressArray>,<stateArray>,<URL>'"`
	• **Variables**:
	URL: `<protocol://><host name or host ip><:video port><:optional audio port>`
	URL for connected MXA-MPL = `UDP://169.254.11.12:5700`
	Protocol could have the following values:
	udp = MPEG2 transport stream over UDP
	http = Motion JPEG (JFIF format over MIME Multipart) [Modero X Series Panels Only]
	rtpmpeg2 = MPEG2 elementary stream over RTP/RTCP [Modero X Series Panels do not support]
	rtpmpeg4 = MPEG4 elementary stream over RTP/RTCP [Modero X Series Panels do not support]
	If the optional audio port is not specified, video port + 2 is used for audio.
	URL for USB drive attached to the panel =
	`"'^SDM-<Address range>,<State range>,file:///udisk/path_to_video_file_on_usb_drive'"`
	The 'file:///udisk/' must be exactly as documented (there must be three '/' characters after the 'file:').
	Example:
	`SEND_COMMAND Panel,"'^SDM-400,1,file:///udisk/Video-Clip.mp4'"`
	• **Examples**:
	`SEND_COMMAND 10001:2:0,"'^SDM-10,2,udp://234.4.0.4:5500'"`
	Sets ON state to play video on multicast address.
	`SEND_COMMAND 10001:2:0,"'^SDM-10,1,cam://local'"`
	Sets OFF state to play camera.
	`SEND_COMMAND 10001:2:0,"'^SDM-10,1,stop'"`
	Stop playing the current video.
	`SEND_COMMAND 10001:2:0,"'^SDM-10,1,'"`
	Stop playing the current video.
	`SEND_COMMAND 10001:1:0,"'^SDM-10,1,udp://169.254.11.12:5700'"`
	Start playing the current video.
	Note: When using the variable "udp," this must be in lower case.

^SLT	Video Slot Command (aka MultiPreview Command) - Send a command to the MPL connected to the panel. • **Syntax**: `"'^SLT-<device>,<subcommand>'"` • **Variables**: *device*: 1 (Device is always 1 for the MXA-MP and MXA-MPL, the only device type currently supported by Modero X Series panels) *Subcommands*: *reboot*, *start*, *stop*, *videomode*, *audiovideoenable*, *videoinput*
^SLT reboot	Slot command to reboot the MXA-MP or MXA-MPL. If previous or factory is specified, the MXA-MP/L will revert its firmware to either the previously loaded version or the factory installed version, respectively. • **Syntax**: `^SLT-1,reboot=<current(default),previous,factory>` • **Variables**: *current*: Reboot to the current firmware version. If not specified, this is the version used. *previous*: Reboot to the previous firmware version. *factory*: Reboot to the firmware version installed by the factory.
^SLT start	MXA-MPL Start stream - Tells the Breakout Box to start streaming audio, video or both. • **Syntax**: `"'^SLT-1,start=<audio,video,both>'"` • **Variables**: *audio*: start the stream but only stream the audio content. *video*: start the stream but only stream the video content *both*: start the stream using both the audio and video content

Streaming Video, MXA-MP/MPL Commands (Cont.)

^SLT stop

MXA-MPL Stop stream - Tells the MXA-MPL to stop streaming.

- **Syntax**:

```
"'^SLT-1,stop'"
```

- **Variables**: None

^SLT videomode

Set the MPL output format and resolution.

- **Syntax**:

```
"'^SLT-1,videomode=<format>,<resolution>'"
```

- **Variables**:

  format: hdmi or dvi

  resolution: The resolution in the form of `<horizontal>x<vertical><i|p>@<rate>`

  Note: When using HDMI sources, use the DIGITAL source, but with DVI and other formats, use the ANALOG source. Set format, resolution and rate for MXA-MPL.

^SLT audiovideoenable

MXA-MPL Video enable command - Sets the option to enable video on subsequent streams from the MXA-MPL.

- **Syntax**:

```
"'^SLT-1,audiovideoenable=<video|audio|both(default)>'"
```

- **Variable**:

  format: video, audio, or both. The default is *both*.

  Note: This does not work immediately; it will take effect on the next Stream start. It can still be overridden in the "^SLT-1,start" command.

^SLT videoinput

Turn on/off the video input to the MXA-MP/MPL.

- **Syntax**:

```
"'^SLT-1,videoinput=<on|off>'"
```

- **Variable**:

  mode: on or off.

- **Examples**:

```
SEND_COMMAND Panel, "'^SLT-1,videoinput=on'"
```

  Turn on the video input to the MXA-MP/MPL.

```
SEND_COMMAND Panel, "'^SLT-1,videoinput=off'"
```

  Turn off the video input to the MXA-MP/MPL.

?SLT

Query Video Slot Command (aka Query MultiPreview) - Query the value of any status field reported by the MXA-MP/L, such as version, serial number, MAC address, inputInfo, streamInfo, and type.

- **Syntax**:

```
"'?SLT-1,querystatus=<statusField>,[optional id]'"
```

Response is a custom event as follows:

- **Variables**:

  statusField: the option to get status on. Supported options are: *version*,*serialNo*, *macAddress*, *inputInfo*, *streamInfo*, *type*, *temperature*

  id : optional ID value to be placed in response so that responses can be matched to queries. If no ID is present, ID is set to 0 in the response.

  The response returned is a custom event with the following properties:

```
Custom Event Property     Value
               Port       port command was received on
               ID         0
               Type       770
               Flag       0
               Value 1    ID specified in command or 0 if none specified
               Value 2    0
               Value 3    0
               Text       String that represents the status
```

- **Example**:

```
SEND_COMMAND Panel,"'? SLT-1,querystatus=type,101'"
```

  The following custom event values would be received from the panel if an MXA-MPL is connected:

```
Custom Event Property     Value
               Port       port command was received on
               ID         0
               Type       770
               Flag       0
               Value 1    101
               Value 2    0
               Value 3    0
               Text       MXA-MPL (If an MXA-MPL is connected.
                          For an MXA-MP, the text would be "MXA-MP")
```

Notes on Using the ^SDM and ^SLT Commands

Based on the user's pages, the touch panel receiving video from an MXA-MPL will initiate that video feed as necessary, based on the button receiving the video. However, if you are changing video resolution or mode, using the ^SDM or ^SLT commands may be necessary to start and stop the video. To do so:

1. Use the ^SDM command first, with an empty URL value to stop the video.
2. If this does not work, use ^SDM with the URL value of "169.254.11.12:5700".
3. If neither of these options work, then and only then use ^SLT to start and stop the video.

In early firmware versions, ^SLT-1,start and ^SLT-1,stop were used to start and stop video coming from the MXA-MP. These commands are still available but using them is not recommended, as the stream is started and stopped automatically when a button that contains MXA-MPL video fill is displayed, and stopped when it is no longer in view. Showing/hiding the button state containing MXA-MPL video (e.g. via page flip, popup hide, or button state change) is the recommended way to start and stop MXA-MPL video. However, if it becomes necessary to stop video while the button is displayed on screen (for example, if resolution needs to be changed), then the ^SDM command should be used to start and stop the video.

If a button containing MXA-MPL video must be left on screen, try the following options:

```
SEND_COMMAND 10001:1:0,"'^SDM-10,1,'"
```

(stops MXA-MPL video)

```
SEND_COMMAND 10001:1:0,"'^SLT-1,videomode=hdmi,640x480p@30'"
```

(changes MXA-MPL video resolution to 640x480 with a frame rate of 30fps)

```
SEND_COMMAND 10001:1:0,"'^SDM-10,1,udp://169.254.11.12:5700'"
```

(restarts MXA-MPL streaming)

VNC Commands

VNC is handled via an external application and is displayed in a window. To enable a VNC connection to a remote device, a VNC App window must be created in the TPD project.

A single window can support connections to multiple destinations, though not simultaneously. Once a window is open, the parameters such as host, username, and password can be changed via send commands.

The following send commands are available to control VNC sessions. The application window name (from TPDesign5) is used as the key to update VNC parameters. If an existing window is open, the session should be logged out first before changing any parameters to avoid undefined behavior. Once all the parameters have been changed, then login to connect with the new parameters.

VNC Send Commands

^BVG

VNC Client Window update parameter command - Update parameter list.

- **Syntax**:

```
"'^BVG-<app window name>,<param list>'"
```

- **Variables**:

  app window name: The name of the application window to act upon.

  param list: the key/value sets(s) for the VNC parametric. Key/value sets are comma separated.

Parameter Name	Description	Values	Default Value	Required	Type
colorModel	color depth of VNC window	C24bit, C256, C64, C8, C4, C2	C24bit	No	String
forceFull	Request for full-screen updates	true,false	false	No	Boolean
ipAddress	server name or IP address			Yes	String
password	Authentication password			No	String
port	server port number		5900	Yes	Integer
prefEncoding	Preferred server encoding	0 (Raw), 1 (Copy Rect Encoding), 2 (RRE Encoding), 4 (CoRRE Encoding), 5 (Hextile Encoding), 6 (Zlib Encoding), 7 (Tight Encoding), 16 (ZRLE Encoding)	7 (Tight Encoding)	No	String
scaling	Scaling options	0 (fit to screen), 1 (one-to-one), 2 (zoom)	0 (fit to screen)	No	Integer
useLocalCursor	Local mouse pointer (set to true if pointer is invisible)	true, false	false	No	Boolean
Restart App	Restart application is already running	true, false	true	Yes	Boolean

This command is a generic form of the remainder of the commands. Any parameter in the VNC App Parameter List from TPDesign can be updated with this command by including the Key/Value pair in the list.

Note: One limitation is that no commas may be used in any of the fields. Delimiters are not escaped at this time.

- **Example**:

```
SEND_COMMAND Panel,"'^BVG-VNCClient,ipAddress=192.168.200.25,port=5901, password=myNewPassword'"
```

  Change the application window name *VNCClient* to connect to server IP 192.168.200.25, port 5901 with a password of *myNewPassword*.

^BVL

VNC Client Window login command - Login/out of an existing session. For logon, if the window is not open, the window is opened and the session is connected using the current parameters. If the window is already open, then the session is updated to new/current parameters. Logoff will close the session and window.

- **Syntax**:

```
"'^BVL-<appWindowName>,<1=logon|0=logoff>'"
```

- **Variables**:

  app window name: The name of the application window to act upon.

  logon/logoff: 1 to logon to server, 0 to logoff

- **Example**:

```
SEND_COMMAND Panel,"'^BVL-VNCClient,0'"
```

  Command the application window name VNCClient to logout/disconnect from the VNC server.

VNC Send Commands (Cont.)	

^BVN	VNC Client Window Update server IP command - Update VNC server ip address/name for the application window.
	• **Syntax**:
	`"'^BVN-<appWindowName>,<vnc server ip address or name>'"`
	• **Variables**:
	app window name: The name of the application window to act upon.
	server name or ip : The server's DNS name or IP address.
	• **Examples**:
	`SEND_COMMAND Panel,"'^BVN-VNCClient,192.168.200.25'"`
	Command the application window name VNCClient to set the VNC server to 192.168.200.25.
	`SEND_COMMAND Panel,"'^BVN-VNCClient,vncserver'"`
	Command the application window name VNCClient to set the VNC server to the server with a DNS name of vncserver.

^BVT	VNC Client Window Update server port - Update VNC server port for the application window.
	• **Syntax**:
	`"'^BVT-<appWindowName>,<server port>'"`
	• **Variables**:
	app window name: The name of the application window to act upon.
	server port: The server's port.
	• **Example**:
	`SEND_COMMAND Panel,"'^BVT-VNCClient,5901'"`
	Command the application window name VNCClient to set the VNC server port to 5901.

MXR-1001 Send Commands

The following G5 Send Commands are supported only by MXR-1001 10.1" Modero X® Series G5 Retractable Touch Panels:

MXR-1001 Send Commands	

^MCC	Motor Controller Control/Configure - This command has multiple sub-commands whose format is determined based on the first parameter. Note that after a command is sent to the motor controller which causes a change in its state, the Panel will send status change custom events back to the master to update it with the new states.
	• **Syntax**:
	`"'^MCC-<MOTOR|LOCK|AUTHENTICATION|LED>'"`
	• **Subcommands**:
	"'^MCC-<MOTOR>,<RAISE|LOWER>'" - Motor Command.
	Parameters:
	RAISE: Used to request that the panel be raised to its highest position so that it can be put in service.
	LOWER: Used to request that the panel be lowered to its lowest position (i.e. fully retracted) and taken out of service.
	Example:
	`SEND_COMMAND Panel, "'^MCC-MOTOR,RAISE'"`
	This example command tells the Motor Controller to Raise the panel to its highest position. The panel will send back custom event 1602-RAISING, then custom event 1602-RAISED.
	"'^MCC-<LOCK>,<ON|OFF>'" - Lock Command.
	Parameters:
	ON: Request that the Motor Controller lock be enabled. When in the locked state, any physical button request is sent upstream to the master for handling, unless the panel is in a transition state (i.e. not fully raised or lowered).
	OFF: In the unlocked state, the physical button can still be used to raise/lower the panel.
	"'^MCC-<AUTHENTICATION>,<SUCCESS|FAILURE>'" - Authentication Result Command.
	Parameters:
	SUCCESS: Used to report to the Motor Controller that the authentication was successful.
	Note: When Netlinx code sends an Authentication Result command in response to a Raise or Lower Pending, the action will not take place until an MCC-MOTOR,RAISE (or LOWER) is sent.
	FAILURE: Used to report to the Motor Controller that the authentication has failed. This message is used to display a failure (fast blink) LED pattern to the user as described in the *MXR-1001 Motor Controller LED Behavior* section on page 19.
	"'^MCC-<LEDBRIGHTNESS>,<on brightness (0-32)>,<off brightness (0-32)>'" - LED Brightness Command.
	Parameters:
	on brightness: LED On brightness level; ranges from 0 (off) to 32 (max)
	off brightness: LED Off brightness level; ranges from 0 (off) to 32 (max)
	NOTE: Any value outside the range (0-32) will be ignored. A value left blank will also be ignored.
	Example:
	`SEND_COMMAND Panel, "'^MCC-LEDBRIGHTNESS,32,0'"   // Changes On Brightness to 32 and Off Brightness to 0`
	Example:
	`SEND_COMMAND Panel, "'^MCC-LEDBRIGHTNESS,,5'"     // On brightness is unchanged; change Off Brightness to 5`

MXR-1001 Send Commands (Cont.)

?POS

Panel Position Query - Requests the current position of the panel. The “id” parameter is optional and can be used to provide a unique identifier for the message that will be echoed back by the custom event.

Note: This Custom event is always sent with Port = 1.

Syntax:

```
"'?POS-<id>'"
```

The response returned is a custom event (Custom event type **1602**) with the following properties:

```
Custom Event Property     Value
          Port            1
          ID              ID (from query) echoed back, or 0 if undefined or unsolicited
          Type            1602
          Flag            Unsolicited (0|1)
          Value 1         State Value (see below)
          Value 2         Locked (0|1)
          Value 3         reserved for future use
          Text            State String (see below)
```

- The **ID** field reports the message ID. If the custom event is being sent unsolicited, it will always be 0. If the custom event is being sent in response to a query, the “id” field of the query will be echoed back. If no “id” was specified in the query, the “ID” will be reported as 0.

ID	Description
0	The Custom Event is being sent as an unsolicited message either to report initial state (after an Online) or to report a Motor Controller state change, OR no “id” was specified in the ?POS query, OR an “id” of 0 was specified in the ?POS query (not recommended).
>0	The Custom Event is being sent in response to a query, and this field contains the value that was passed as a parameter in the ?POS query.

- The **Flag** field reports whether the custom event is being sent as an unsolicited message, or is being sent in response to a query.

Flag	Description
0	This custom event is NOT unsolicited, meaning it is being sent in response to a query.
1	This custom event is being sent Unsolicited either to report initial status (after an online) or to report a status change in the Motor Controller.

- **Value1** (State Value) and **Text** (State String) Values:

Value1	Text	Description
0	ERROR	State is unknown, or there is an error in the Motor Controller An Error Description may be provided in the form ERROR<code>-<description>.
1	RAISED	Panel is stationary and is raised to its highest position
2	LOWERED	Panel is stationary and is lowered to its lowest position
3	RAISING	Panel is in the process of raising, but has not yet reached the highest position.
4	LOWERING	Panel is in the process of lowering to its lowest position.
5	STALLED-LOWERING	Panel has stalled while lowering and is somewhere between its lowest and highest position.
6	STALLED-RAISING	Panel has stalled while raising and is somewhere between its lowest and highest position.
7	STALLED-UNKNOWN	Panel has stalled, but it is unknown whether it was in the process of raising or lowering. It is somewhere between its lowest and highest position.
8	RAISE-PENDING	A panel raise has been requested via physical button, but the lock feature is enabled and authentication is required prior to acting on the request.
9	LOWER-PENDING	A panel lower has been requested via physical button, but the lock feature is enabled and authentication is required prior to acting on the request.

Note: If any fault is present, an Error Mask will be appended to the Text above after a comma. The format of the Error Mask is the same as in the ONERROR data event described on page 163.

<table>
<tr><th colspan="3">MXR-1001 Send Commands (Cont.)</th></tr>
<tr><td rowspan="6"><b>?POS</b>
(Cont.)</td><td colspan="2">• The <b>Value2</b> field reports whether the physical button on the Motor Controller is locked or not. If locked, it is expected that Netlinx code will handle requests to raise/lower the panel.</td></tr>
<tr><td><b>Value2</b></td><td><b>Description</b></td></tr>
<tr><td>0</td><td>The lock feature is currently Disabled, meaning no authentication or approval from Netlinx code is required, and requests to raise/lower the panel can be handled locally at the Motor Controller.</td></tr>
<tr><td>1</td><td>The lock feature is currently Enabled, meaning all Motor Controller button presses must be passed to the Master prior to being acted upon.</td></tr>
<tr><td colspan="2">• The <b>Value3</b> field is reserved for future use.</td></tr>
<tr><td colspan="2">Example (as reported in Netlinx Studio Notifications):
<code>Custom Event [14222:1:1]-ID=0 Type=1602 Flag=1 Value1=6 Value2=0 Value3=0</code>
<code>Text: STALLED-RAISING,Error=0x0008</code>
This custom event indicates that an unsolicited position change is being reported on device 14222 on System 1.
The new state being reported is state 6, STALLED-RAISING, and a "Stall Winding - B" (error code 3) fault is present.</td></tr>
</table>

Data Event - ONERROR

In addition to the Custom Event being sent whenever the Motor Controller's state changes, an ONERROR Data event will also be generated for a change in any error condition (this includes new faults reported, or clearing of previously reported faults).

Note that the State does not necessarily have to be ERROR in order to report an error condition. For example, when the panel is in the STALLED-RAISING or STALLED-LOWERING state, an error will typically be reported via ONERROR data event. Also, it is possible that multiple errors could be present simultaneously. For example, a thermal warning could be present, and a subsequent stall be caused by the user pressing the button.

The fields reported by the ONERROR Data event are as follows:

- **Data.Device.Port** = 1
- **Data.Number** = State Value (same as Value1 in the custom event above).
- **Data.Text** = `<State Value>,<State String>,Error=<Error Mask>`

  Where:
  - **State Value** is the same as the State Value in the Data.Number field.
  - **State String** is the same as the text in the position custom event (above).
  - **Error Mask** is a 16-bit mask in hexadecimal format, with one bit representing each possible error code.

  The following table enumerates the error code layout within the mask:

Error Code Layout	
Bit Position	**Error Code**
15	*reserved*
14	*reserved*
13	*reserved*
12	*reserved*
11	LIMIT_SWITCH_ERROR
10	COMM_ERROR
9	CHIP_ERROR
8	EEPROM_ERROR
7	THERMAL_SHUTDOWN
6	THERMAL_WARNING
5	OVER_CURRENT
4	STALL_TIMEOUT
3	STALL_WINDING_B
2	STALL_WINDING_A
1	USER_INTERVENTION
0	AUTH_TIMEOUT

When the Motor Controller reports an error, it will fast-blink the user-visible button LED until the fault clears. Note that some errors are *momentary* (i.e. are cleared immediately) while some persist until the condition that caused them clears (see the ONERROR Error Codes table below).

ONERROR Error Codes

When a relevant error status is reported in the Panel, the backlight, touch and microphone will be re-enabled so that the panel could still be used if it can be accessed (for example, via the manual release mechanism). Not all errors cause the touch/backlight/ microphone to be re-enabled (see the ONERROR Error Codes table below).

ONERROR Error Codes

Error Code (bit position in mask)	Error	Description	Recovery	Backlight/Touch Enabled
0	No Error			**YES**
1	Authorization Timeout	User initiated action via pushbutton, but the lock feature was enabled and the Master did not respond to the request.	Momentary error - no action required	**NO**
2	User Intervention	The panel motor was stopped prematurely by the user pressing the pushbutton.	Momentary error - no action required	**NO**
3	Stall Winding - A	The panel motor has stalled due to winding A.	Information only - no action required	**YES**
4	Stall Winding - B	The panel motor has stalled due to winding B.	Information only - no action required	**YES**
5	Stall Timeout	A stall has been detected based on the fact that the limit switch has not been triggered within the last12 seconds.	Press the pushbutton or use Netlinx code to send a command to Raise or Lower the panel.	**YES**
6	Over Current	An over-current condition has been detected in the motor.	TBD	**YES**
7	Thermal Warning	A high temperature condition has been detected in the motor (warning only).	Information only - no action required. However, this error indicates that the Motor Controller may be close to a Thermal Shutdown (see below).	**NO**
8	Thermal Shutdown	A temperature above the shutdown threshold has been detected in the motor. The motor cannot be engaged until the fault is cleared.	Power down the unit for XX minutes to allow the motor to cool. If the condition persists, contact technical support.	**YES**
9	EEPROM Error	The Motor Controller was not able to access the EEPROM.	Power cycle the unit. If the condition persists, contact technical support.	**NO**
10	Chip Error	There is a problem with the Motor Controller chip (L6470).	Power cycle the unit. If the condition persists, contact technical support.	**YES**
11	Communication Error	Communication between the panel and Motor Controller has been lost.	Information only - no action required. When this error occurs, the Motor Controller automatically disables the "Lock" setting (if previously enabled) so that the panel can be raised or lowered without communicating with the Master. The panel continuously attempts to restore communication with the Motor Controller, and will reset it after 3 failed attempts. If the condition persists, contact technical support.	**YES**
12	Limit Switch Error	The upper and lower limit switches are reporting conflicting status (i.e. reflecting that the panel is both raised and lowered simultaneously).	Momentary error - no action required. If the condition persists, contact technical support.	**YES**

NOTE: *In the rare event of an error in which panel position cannot be determined, or after a power outage while panel is in an intermediate state, the panel will be retracted.*

Programming Numbers

Color Table

Color Table

Index No.	Name	Red	Green	Blue
0	Very Light Red	255	0	0
1	Light Red	223	0	0
2	Red	191	0	0
3	Medium Red	159	0	0
4	Dark Red	127	0	0
5	Very Dark Red	95	0	0
6	Very Light Orange	255	128	0
7	Light Orange	223	112	0
8	Orange	191	96	0
9	Medium Orange	159	80	0
10	Dark Orange	127	64	0
11	Very Dark Orange	95	48	0
12	Very Light Yellow	255	255	0
13	Light Yellow	223	223	0
14	Yellow	191	191	0
15	Medium Yellow	159	159	0
16	Dark Yellow	127	127	0
17	Very Dark Yellow	95	95	0
18	Very Light Lime	128	255	0
19	Light Lime	112	223	0
20	Lime	96	191	0
21	Medium Lime	80	159	0
22	Dark Lime	64	127	0
23	Very Dark Lime	48	95	0
24	Very Light Green	0	255	0
25	Light Green	0	223	0
26	Green	0	191	0
27	Medium Green	0	159	0
28	Dark Green	0	127	0
29	Very Dark Green	0	95	0
30	Very Light Mint	0	255	128
31	Light Mint	0	223	112
32	Mint	0	191	96
33	Medium Mint	0	159	80
34	Dark Mint	0	127	64
35	Very Dark Mint	0	95	48
36	Very Light Cyan	0	255	255
37	Light Cyan	0	223	223
38	Cyan	0	191	191
39	Medium Cyan	0	159	159
40	Dark Cyan	0	127	127
41	Very Dark Cyan	0	95	95
42	Very Light Aqua	0	128	255
43	Light Aqua	0	112	223
44	Aqua	0	96	191
45	Medium Aqua	0	80	159
46	Dark Aqua	0	64	127
47	Very Dark Aqua	0	48	95
48	Very Light Blue	0	0	255
49	Light Blue	0	0	223
50	Blue	0	0	191
51	Medium Blue	0	0	159
52	Dark Blue	0	0	127
53	Very Dark Blue	0	0	95
54	Very Light Purple	128	0	255
55	Light Purple	112	0	223
56	Purple	96	0	191
57	Medium Purple	80	0	159
58	Dark Purple	64	0	127
59	Very Dark Purple	48	0	95
60	Very Light Magenta	255	0	255
61	Light Magenta	223	0	223
62	Magenta	191	0	191
63	Medium Magenta	159	0	159
64	Dark Magenta	127	0	127
65	Very Dark Magenta	95	0	95
66	Very Light Pink	255	0	128
67	Light Pink	223	0	112
68	Pink	191	0	96
69	Medium Pink	159	0	80
70	Dark Pink	127	0	64
71	Very Dark Pink	95	0	48
72	White	255	255	255
73	Grey1	238	238	238
74	Grey3	204	204	204
75	Grey5	170	170	170
76	Grey7	136	136	136
77	Grey9	102	102	102
78	Grey4	187	187	187
79	Grey6	153	153	153
80	Grey8	119	119	119
81	Grey10	85	85	85
82	Grey12	51	51	51
83	Grey13	34	34	34
84	Grey2	221	221	221
85	Grey11	68	68	68
86	Grey14	17	17	17
87	Black	0	0	0
255	TRANSPARENT	99	53	99

Justification Values

Button State Number Justification Value		
Justification	**Justification Value**	**Justification parameters**
Absolute	0	0,<x offset,y offset>
top-left	1	none
top-middle	2	none
top-right	3	none
center-left	4	none
center-middle	5	none
center-right	6	none
bottom-left	7	none
bottom-center	8	none
bottom-right	9	none
scaled-to-fit	10	none
scale-maintain-aspect-ratio	11	none

Border Styles

Border Styles							
#	**Border Style**	**#**	**Border Style**	**#**	**Border Style**	**#**	**Border Style**
1	None	41	Diamond 65	81	Menu Btm Rounded 25	121	Menu Rt Rounded 45
2	AMX Elite -L	42	Diamond 75	82	Menu Btm Rounded 35	122	Menu Rt Rounded 55
3	AMX Elite -M	43	Diamond 85	83	Menu Btm Rounded 45	123	Menu Rt Rounded 65
4	AMX Elite -S	44	Diamond 95	84	Menu Btm Rounded 55	124	Menu Rt Rounded 75
5	Bevel -L	45	Diamond 105	85	Menu Btm Rounded 65	125	Menu Rt Rounded 85
6	Bevel -M	46	Diamond 115	86	Menu Btm Rounded 75	126	Menu Rt Rounded 95
7	Bevel -S	47	Diamond 125	87	Menu Btm Rounded 85	127	Menu Rt Rounded 105
8	Circle 15	48	Diamond 135	88	Menu Btm Rounded 95	128	Menu Rt Rounded 115
9	Circle 25	49	Diamond 145	89	Menu Btm Rounded 105	129	Menu Rt Rounded 125
10	Circle 35	50	Diamond 155	90	Menu Btm Rounded 115	130	Menu Rt Rounded 135
11	Circle 45	51	Diamond 165	91	Menu Btm Rounded 125	131	Menu Rt Rounded 145
12	Circle 55	52	Diamond 175	92	Menu Btm Rounded 135	132	Menu Rt Rounded 155
13	Circle 65	53	Diamond 185	93	Menu Btm Rounded 145	133	Menu Rt Rounded 165
14	Circle 75	54	Diamond 195	94	Menu Btm Rounded 155	134	Menu Rt Rounded 175
15	Circle 85	55	Double Bezel -L	95	Menu Btm Rounded 165	135	Menu Rt Rounded 185
16	Circle 95	56	Double Bezel -M	96	Menu Btm Rounded 175	136	Menu Rt Rounded 195
17	Circle 105	57	Double Bezel -S	97	Menu Btm Rounded 185	137	Menu Lt Rounded 15
18	Circle 115	58	Double Line	98	Menu Btm Rounded 195	138	Menu Lt Rounded 25
19	Circle 125	59	Fuzzy	99	Menu Top Rounded 15	139	Menu Lt Rounded 35
20	Circle 135	60	Glow -L	100	Menu Top Rounded 25	140	Menu Lt Rounded 45
21	Circle 145	61	Glow -S	101	Menu Top Rounded 35	141	Menu Lt Rounded 55
22	Circle 155	62	Help Down	102	Menu Top Rounded 45	142	Menu Lt Rounded 65
23	Circle 165	63	Neon Active -L	103	Menu Top Rounded 55	143	Menu Lt Rounded 75
24	Circle 175	64	Neon Active -S	104	Menu Top Rounded 65	144	Menu Lt Rounded 85
25	Circle 185	65	Neon Inactive -L	105	Menu Top Rounded 75	145	Menu Lt Rounded 95
26	Circle 195	66	Neon Inactive -S	106	Menu Top Rounded 85	146	Menu Lt Rounded 105
27	Cursor Bottom	67	Oval H 60x30	107	Menu Top Rounded 95	147	Menu Lt Rounded 115
28	Cursor Bottom w/hole	68	Oval H 100x50	108	Menu Top Rounded 105	148	Menu Lt Rounded 125
29	Cursor Top	69	Oval H 150x75	109	Menu Top Rounded 115	149	Menu Lt Rounded 135
30	Cursor Top w/hole	70	Oval H 200x100	110	Menu Top Rounded 125	150	Menu Lt Rounded 145
31	Cursor Left	71	Oval V 30x60	111	Menu Top Rounded 135	151	Menu Lt Rounded 155
32	Cursor Left w/hole	72	Oval V 50x100	112	Menu Top Rounded 145	152	Menu Lt Rounded 165
33	Cursor Right	73	Oval V 75x150	113	Menu Top Rounded 155	153	Menu Lt Rounded 175
34	Cursor Right w/hole	74	Oval V 100x200	114	Menu Top Rounded 165	154	Menu Lt Rounded 185
35	Custom Frame	75	Picture Frame	115	Menu Top Rounded 175	155	Menu Lt Rounded 195
36	Diamond 15	76	Quad Line	116	Menu Top Rounded 185		
37	Diamond 25	77	Single Line	117	Menu Top Rounded 195		
38	Diamond 35	78	Windows Style Popup	118	Menu Rt Rounded 15		
39	Diamond 45	79	Windows Style Popup (status bar)	119	Menu Rt Rounded 25		
40	Diamond 55	80	Menu Btm Rounded 15	120	Menu Rt Rounded 35		

ISO-8859-1 Character Encoding/Decoding table

ISO-8859-1 Character Encoding/Decoding					
	Character value (decimal)	**Character value (hex)**	**^TXT and ^UTF interchangeable**	**?TXT Response Flag in Backwards Compatibility Mode (^ENC-1 was sent)**	**?TXT Response Flag in default (UTF-8) Mode**
ASCII	0-127	0x00-0x7F	Yes	0 (Latin-1)	2 (UTF-8)
Latin-1 (Windows-1252 remap range)	128-159	0x80-0x9F	No	1 (Hex-quad)	2 (UTF-8)
Latin-1	160-255	0xA0-0xFF	No	0 (Latin-1)	2 (UTF-8)
Unicode	>255	>0xFF	No	1 (Hex-quad)	2 (UTF-8)

Resource Escape Codes

Resource Escape Codes			
Sequence	**Panel Information**	**Sequence**	**Panel Information**
$DV	Device number	$AP	Address port
$SY	System number	$CC	Channel code
$IP	IP address	$CP	Channel port
$HN	Host name	$LC	Level code
$MC	MAC address	$LP	Level port
$PX	X resolution of current panel mode/file	$BX	X resolution of current button
$PY	Y resolution of current panel mode/file	$BY	Y resolution of current button
$ST	Current state	$BN	Name of button
$AC	Address code		

Virtual Keystroke Commands

Virtual Keystroke Commands

Keycode	Key	Keycode	Key	Keycode	Key
1	Soft-L	74	;	147	Numpad 3
2	Soft-R	75	Apostrophe	148	Numpad 4
3	Home	76	/	149	Numpad 5
4	Back	77	@	150	Numpad 6
5	Call	78	Num	151	Numpad 7
6	End Call	79	Headset Hook	152	Numpad 8
7	0	80	Focus	153	Numpad 9
8	1	81	+	154	Numpad /
9	2	82	Menu	155	Numpad *
10	3	83	Notification	156	Numpad -
11	4	84	Search	157	Numpad +
12	5	85	Media Play/Pause	158	Numpad .
13	6	86	Media Stop	159	Numpad ,
14	7	87	Media Next	160	Numpad Enter
15	8	88	Media Prev	161	Numpad =
16	9	89	Media Rew	162	Numpad (
17	*	90	Media FF	163	Numpad)
18	#	91	Mute	164	Volume Mute
19	DPad-U	92	Page Up	165	Info
20	DPad-D	93	Page Down	166	Chan Up
21	DPad-L	94	Pict Symbols	167	Chan Down
22	DPad-R	95	Switch Charset	168	Zoom In
23	DPad-Center	96	Button A	169	Zoom Out
24	Vol Up	97	Button B	170	TV
25	Vol Dn	98	Button C	171	Window
26	Power	99	Button X	172	Guide
27	Camera	100	Button Y	173	DVR
28	Clear	101	Button Z	174	Bookmark
29	A	102	Button L1	175	Bookmark
30	B	103	Button R1	176	Settings
31	C	104	Button L2	177	TV Power
32	D	105	Button R2	178	TV Input
33	E	106	Button Thumb L	179	STB Power
34	F	107	Button Thumb R	180	STB Input
35	G	108	Button Start	181	AVR Power
36	H	109	Button Select	182	AVR Input
37	I	110	Button Mode	183	Prog Red
38	J	111	Escape	184	Prog Green
39	K	112	Forward Delete	185	Prog Yellow
40	L	113	Ctrl-L	186	Prog Blue
41	M	114	Ctrl-R	187	App Switch
42	N	115	Caps Lock	188	Button 1
43	O	116	Scroll Lock	189	Button 2
44	P	117	Meta L	190	Button 3
45	Q	118	Meta R	191	Button 4
46	R	119	Function	192	Button 5
47	S	120	SysReq / Print Screen	193	Button 6
48	T	121	Break	194	Button 7
49	U	122	Move Home	195	Button 8
50	V	123	Move End	196	Button 9
51	W	124	Insert	197	Button 10
52	X	125	Forward	198	Button 11
53	Y	126	Media Play	199	Button 12
54	Z	127	Media Pause	200	Button 13
55	,	128	Media Close	201	Button 14
56	.	129	Media Eject	202	Button 15
57	Alt-L	130	Media Record	203	Button 16
58	Alt-R	131	F1	204	Language Switch
59	Shift-L	132	F2	205	Manner Mode
60	Shift-R	133	F3	206	3D Mode
61	TAB	134	F4	207	Contacts
62	Space	135	F5	208	Calendar
63	Sym	136	F6	209	Music
64	Explorer	137	F7	210	Calculator
65	Envelope	138	F8	211	Zenkaku Hankaku
66	Enter	139	F9	212	Eisu
67	Delete	140	F10	213	Mhenkan
68	Grave	141	F11	214	Henkan
69	-	142	F12	215	Katakana Hiragana
70	_	143	Num Lock	216	Yen
71	[	144	Numpad 0	217	Ro
72	]	145	Numpad 1	218	Kana
73	\	146	Numpad 1	219	Assist

SSH Commands

Overview

The panel has a SSH server that listens for connections on port **22**. The SSH server can be enabled and disabled in the Settings menu. To connect, the SSH client must provide a user and password. The user is "**amx**" and the password is the Configuration Password used in the Settings menu on the panel.

The SSH server provides a shell that allows for commands to be entered and also has an interactive menu for many commands.

SSH Commands	

help
?
	Displays this help or help about a command
	Syntax:
	`*:help [command]`
	Arguments:
	`command`
	The command for which help is needed.

back	Issue the 'BACK' keystroke to the system.
	Syntax:
	`*:back [options]`
	Options:
	`--help`
	Display this help message

clear	Clears the console buffer. **Syntax**: `*:clear`

date	Gets/sets the current system date. An interactive menu is available when using the set proxy (i.e. "set date").
	Syntax:
	`*:date [options] [date]`
	Arguments:
	`date`
	New date in format: YYYY-MM-DD
	Options:
	`--config, -c, --set`
	Set the system date.
	`--day, -d`
	Day of month (1-31, defaults to -1),
	`--help`
	Display this help message
	`--info, -?`
	Display the current date on screen.
	`--month, -m`
	Month (1-12, defaults to -1).
	--verbose, -v
	Display verbose date information.
	--year, -y
	Year (XXXX, defaults to -1).

SSH Commands (Cont.)	

debug	View/set debug level for 'msg' logging. An interactive menu is available when using the set proxy (i.e. "set debug").
	Syntax:
	`*:debug [options] [action]`
	Arguments:
	action: enable or disable mode action to perform
	'enable', 'on': enable debug mode.
	'disable','off': disable debug mode.
	Options:
	`--config, -c, --set`
	Set the debug level.
	`--disable, -d, --off, -F`
	Disable debug mode.
	`--enable, -e, --on, -N`
	Enable debug mode.
	`--help`
	Display this help message
	`--info, -?`
	Display the current debug level.

echo	Echoes or prints arguments to STDOUT.
	Syntax:
	`*:echo [options] [arguments]`
	Arguments:
	`arguments`
	Arguments to display separated by whitespaces.
	Options:
	`--help`
	Display this help message.
	`--newline, -n`
	Do not print the trailing newline character.

logout **exit** **quit**	Terminate the command shell session. **Syntax** `*:logout`

g5:cache	Cache command - dump or purge cache contents.
	Syntax
	`G5:cache [options]`
	Options:
	`--help`
	Display this help message.
	`-purge`
	Purge.
	`-verbose, -v, -vb`
	Verbose.

g5:config	Display configuration information for NetLinx and IP.
	Syntax:
	`g5:config [options]`
	Options:
	`--help`
	Display this help message.
	`--info, -i`
	Return configuration info.

g5:profile
g5:prof
	Dumps profile configuration (all profiles if none specified)
	Syntax:
	`G5:profile [options]`
	Options:
	`--help`
	Display this help message
	`-name`
	Profile name to dump
	`-verbose, -v, -vb`
	verbosity (currently 1 or 2)

SSH Commands (Cont.)	

g5:sensor	Sensor commands.
	Syntax:
	`G5:sensor [options] sensor`
	Arguments:
	`sensor`
	Target sensor <motion|light>
	Options:
	`--help`
	Display this help message.
	`-calibrate, -c`
	Calibrate light sensor.
	`-enable, -e`
	Enable.
	`-thresh, -t`
	Threshold.

g5:settings	Display the panel settings.
	Syntax:
	`G5:settings [options] [category]`
	Arguments:
	`category`
	Settings category to display (all, status, sound, master, config, sensors, ethernet)
	Options:
	`--help`
	Display this help message.
	`--info, -?`
	Display the current settings.

g5:setup	Launch the panel settings utility.
	Syntax:
	`G5:setup [options]`
	Options
	`--help`
	Display this help message

g5:touch	Touch panel overlay self test and diagnostics.
	Syntax:
	`G5:touch [options] [watchEnable]`
	Arguments
	`watchEnable`
	Optional 'on'/'off' to enable/disable persistent diagnostics watching.
	Options
	`--help`
	Display this help message
	`--watchTime, -w`
	Time interval for watching overlay diagnostics in seconds (default is 1).

g5:version
g5:ver
	Display the G5 version.
	Syntax:
	`G5:version [options]`
	Options:
	`--help`
	Displays this help message

g5:webu	Start a firmware update from a web server.
	Syntax:
	`G5:webu [options] url`
	Arguments:
	`url`
	URL to the firmware kit file, including the http://server/kit-filename.
	Options:
	`--help`
	Display this help message

SSH Commands (Cont.)	

g5:window-stats
g5:ws
	Get the application window statistics.
	Syntax:
	`G5:window-stats [options] [package]`
	Arguments:
	`package`
	A package to filter on.
	Options:
	`--help`
	Display this help message

get	Get information about a specific target provided as an argument. Acts on any command that has the --info option.
	Syntax
	`*:get arguments`
	Arguments
	`arguments`
	Command arguments to pass through.

history	Prints command history. **Syntax**: `*:history`

ip	Gets/sets the IP settings of the device. An interactive menu is available when using the set proxy (i.e. "set ip").
	Syntax:
	`*:ip [options]`
	Options:
	`--config, -c, --set`
	Configure the ip info interactively.
	`--dns1, -d1`
	The IP address of the primary DNS server.
	`--dns2, -d2`
	The IP address of the secondary DNS server.
	`--domain, -dn`
	The domain name for the network.
	`--gateway, -gw`
	The IP address of the gateway.
	`--help`
	Display this help message.
	`--hostname, -hn`
	The hostname for the device. (Alpha-numeric values and no spaces. Dashes are OK.)
	`--info, -?`
	Display the current IP settings.
	`--ipaddress, -ip`
	The static IP address for the device
	`--mode, -m`
	Set the connection mode. (DHCP, Static)
	`--reset, -r`
	Reset IP settings to factory default.
	`--subnetmask, -sm`
	The subnet mask address for the device

key	Issue a keystroke to the system.
	Syntax:
	`*:key [options] [keystroke]`
	Arguments:
	keystroke: The keystroke to issue. (Multiple keystrokes may be included.)
	Options:
	`--help`
	Display this help message
	`--info, -?`
	List available keystroke names

man	Displays this help or help about a command.
	Syntax:
	`*:man [command]`
	Arguments:
	`command`
	The command to get help for.

<table>
<tr><th colspan="2">SSH Commands (Cont.)</th></tr>
<tr><td><b>motor
(MXR-1001 only)</b></td><td>Displays Motor Controller Status.
<i>Caution: The motor SSH command and subcommands are intended for diagnostic purposes only and should only be used by expert users.</i>
<b>Syntax</b>:
G5:motor [options] [action] [regAddr] [regVal]
<b>Arguments</b>
action
Action type
[dumpEepromReg|dumpMainMotorChipReg|dumpDoorMotorChipReg|writeEepromReg|writeMainMotorChipReg|writeDoorMotorChipReg]
regAddr
hex register address (0x01 to 0x19 for motor chip; 0x00 to 0xff for EEPROM)
regVal
hex value to write to motor controller register
<b>Options</b>
--help
Display this help message
-calibrate, -vc, -visual
Start Visual Calibration
-diagnostic, -di, -diag, -sd
Send diagnostic to panel
-dooradjust, -d, -da, -cd
Calibrate the closure of the door when panel is lowered
-emulate, -e
Emulate a motor controller status change
-lock, -l
Set the Lock state (0=Unlocked;1=Locked)
-lower, -lo
Lower the panel
-override, -o
Override the Motor State
-paneladjust, -p, -c, -pa, -cp
Calibrate the panel position when raised
-raise, -r
Raise the panel
-verbose, -v, -vb
Print detailed statistics info</td></tr>
</table>

SSH Commands (Cont.)	

msg	Enable/disable diagnostics message logging. An interactive menu is available when using the set proxy (i.e. "set msg").
	Syntax:
	`*:msg [options] [instruction] [filters]`
	Arguments:
	`instruction`
	Diagnostics message command instruction.
	'once': display the diagnostics messages one time and exit
	'on': enable diagnostics messages
	'off': disable diagnostics messages
	'filter': sets optional log filters (provided by filters argument)
	'add': add optional log filters (provided by filters argument)
	'remove': removed optional log filters (provided by filters argument)
	'clear': clear optional log filters
	'delete': delete current log
	`filters`
	Optional log message filters (separated by spaces).
	Options:
	`--add-filter, -af`
	Add a filter to the current diagnostics log filters.
	`--clear-filter, -cf`
	Remove all filters from diagnostics logging.
	`--clear-history, -ch, -d`
	Delete the diagnostics log history.
	`--config, -c, --set`
	Enable/disable diagnostics message output.
	`--filter, -f`
	Optional log message filter.
	`--help`
	Display this help message
	`--info, -?`
	Display current diagnostic message output status.
	`--off, -F, --disable, --stop`
	Disable diagnostics message output.
	`--on, -N, --enable, --start`
	Enable diagnostics message output.
	`--remove-filter, -rf`
	Remove one or more filters form the current diagnostics log filter.
	`--show-filter, -sf`
	Display all existing filters applied to diagnostics logging.
	`--verbose, -v`
	Display verbose diagnostics message status information.

SSH Commands (Cont.)	

netlinx	Gets/sets the NetLinx ICSP connection settings. An interactive menu is available when using the set proxy (i.e. "set netlinx").
	Syntax:
	`*:netlinx [options]`
	Options:
	`--clear-credentials, -cc`
	Clear the username and password settings.
	`--config, -c, --set`
	Set NetLinx (ICSP) connection settings.
	`--device, -d`
	Set the device number.
	`--help`
	Display this help message.
	`--info, -?`
	Display the current NetLinx settings.
	`--mode, -m`
	Set the connection mode (AUTO, URL, LISTEN).
	`--password, -pw`
	Set the password for secure mode.
	`--reset, -r`
	Reset NetLinx settings to factory default.
	`--system, -s`
	Set the system number.
	`--url, -u`
	Set the URL of the master controller.
	`--username, -un`
	Set the username for secure mode.

ping	Test TCP/IP network connectivity with another IP address.
	Syntax:
	`*:ping [options] address`
	Arguments:
	`address`
	IP Address or URL.
	Options:
	`--help`
	Display this help message.
	`--retry-count, -c`
	Retry Count (number of packets).
	`--timeout, -w`

reboot	Reboot the device.
	Syntax:
	`*:reboot [options]`
	Options:
	`--help`
	Display this help message.
	`--silent, -s, -Y`
	Do not prompt for confirmation; proceed with reboot.

scope	Switch to an alternate command namespace scope. An interactive menu is available when using the set proxy (i.e. "set scope").
	Syntax:
	`*:scope [options] [namespace]`
	Arguments:
	`namespace`
	The targeted namespace scope to switch to.
	Options:
	`--config, -c`
	Prompt the user to configure a new scope.
	`--help`
	Display this help message
	`--info, -?`
	Display the current scope.
	`--reset, -r`
	Reset the current scope to the default scope.

SSH Commands (Cont.)	

set	Set the configuration for a specific command provided as an argument. Acts on any command that has the --config option.
	Syntax:
	`*:set command`
	Arguments:
	`command`
	Command to set values and command arguments.

support	Support utility command. Allows capturing of system runtime status.
	Syntax:
	`*:support [options] [instruction] [params]`
	Arguments:
	`instruction`
	Support command instruction.
	'bug-report': Print bug report. Includes dump-log, dump-system, and kernel-msg.
	'dump-log': Print current logs.
	'dump-system': Print system data for running services.
	'kernel-msg': Print kernel messages.
	`params`
	Optional instruction parameters. See details on exact commands in OS docs.
	Options:
	`--help`
	Display this help message

temp	Report the device temperature in Celsius.
	Syntax:
	`*:temp [options] [monitor]`
	Arguments:
	`monitor`
	Optional 'on'/'off' to enable/disable continuous temperature monitoring.
	Options:
	`--help`
	Display this help message
	`--info, -?`
	Display current system temperature.
	`--interval, -w, -i`
	Time interval for continuous temperature monitoring in seconds (default is 5).
	`--off, -F, --disable, --stop`
	Disable continuous temperature monitoring.
	`--on, -N, --enable, --start`
	Enable continuous temperature monitoring.

SSH Commands (Cont.)	

time	Gets/sets the current system time. An interactive menu is available when using the set proxy (i.e. "set time").
	Syntax:
	`*:time [options] [time] [ampm]`
	Arguments:
	`time`
	New time in format: 00:00:00
	`ampm`
	AM or PM (not needed if using 24 hour format).
	Options:
	`--am, -am`
	AM (used when setting time)
	`--config, -c, --set`
	Set the system time.
	`--help`
	Display this help message
	`--hour, -h`
	Hour (0-24, defaults to -1)
	`--info, -?`
	Display the current time on screen.
	`--millisecond, -ms`
	Millisecond (0-999,defaults to -1).
	`--minute, -m`
	Minute (0-59, defaults to -1)
	`--pm, -pm`
	PM (used when setting time)
	`--second, -s`
	Second (0-59, defaults to -1)
	`--verbose, -v`
	Display verbose time information.

Appendix A: Upgrading Firmware via NetLinx Studio

Overview

The latest firmware (*.kit) file for each panel is available to download from www.amx.com. To download firmware files, go to the catalog page for your panel type, and click the link under "Firmware Files" on the right side of the catalog page. The ZIP file that is downloaded via this link contains the firmware (*.kit) file that can be loaded on the panel, as well as release notes and any relevant programming instructions.

NetLinx Studio 4

The latest version (4.x) of the NetLinx Studio software program is available to download from www.amx.com:

1. Go to **Products > Integration Software > Development Tools** and click on NetLinx Studio to open the *NetLinx Studio* catalog page.
2. Click the *NetLinx Studio 4* link download the installation file (FIG. 156):

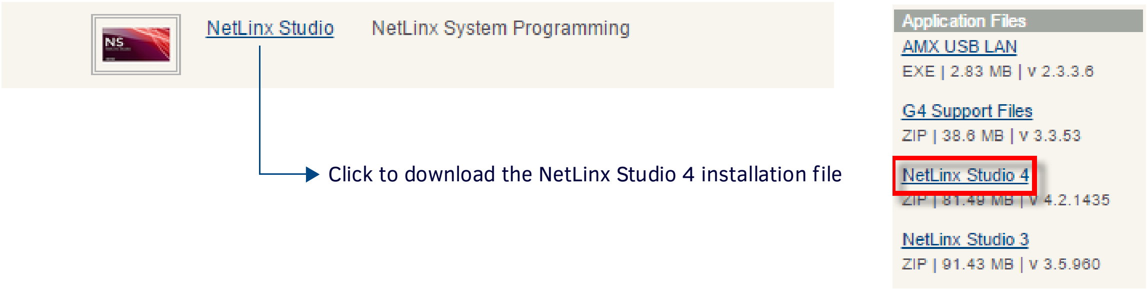

NS
NetLinx Studio
NetLinx System Programming
Click to download the NetLinx Studio 4 installation file
Application Files
AMX USB LAN
EXE | 2.83 MB | v 2.3.3.6
G4 Support Files
ZIP | 38.6 MB | v 3.3.53
NetLinx Studio 4
ZIP | 81.49 MB | v 4.2.1435
NetLinx Studio 3
ZIP | 91.43 MB | v 3.5.960

FIG. 156 NetLinx Studio v4 download links on www.amx.com

NOTE: *The following instructions assume that the G5 touch panel is connected and communicating with a NetLinx Master, and that communication with the master has been established in NetLinx Studio. Refer to NetLinx Studio online help and the NetLinx Studio 4 Instruction Manual for instructions on using NetLinx Studio.*

Upgrading Firmware via NetLinx Studio (v4 or Higher)

G5 touch panels use an Ethernet connection for programming, firmware updates, and touch panel file transfer via NetLinx Studio. If you have access to the panel's network, you may transfer files directly to the panel through NetLinx Studio.

NetLinx Studio features the ability to transfer G5 firmware files directly to a G5 touch panel via HTTP (via a stand-alone web server). This feature is provided to shorten the amount of time required for transferring a G5 *.kit file by removing the NetLinx Master from the transfer path.

*.kit files for G5 panels contain a token to signify to NetLinx Studio that a web server file transfer can take place, as indicated in the file information window of the *Send To NetLinx Device* dialog:

Look for "`**** HTTP File Transfer Capable ****`" at the end of the file (see FIG. 159 on page 180).

When NetLinx Studio detects that the file is a G5 *.kit file, it will automatically attempt to send the file via HTTP (using the stand-alone web server that is started by NetLinx Studio).

1. In NetLinx Studio, open the *Online Tree* tab of the Workspace bar.
2. Under *System*, select a G5 panel for the firmware update (FIG. 157):

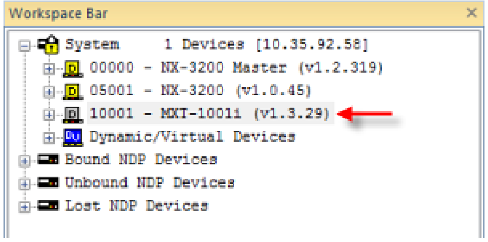

Workspace Bar
System 1 Devices [10.35.92.58]
00000 - NX-3200 Master (v1.2.319)
05001 - NX-3200 (v1.0.45)
10001 - MXT-1001i (v1.3.29)
Dynamic/Virtual Devices
Bound NDP Devices
Unbound NDP Devices
Lost NDP Devices

FIG. 157 NetLinx Studio Online Tree (MXT-1001 selected)

3. Right-Click on the G5 panel, and select **Firmware Transfer** from the context menu (FIG. 158):

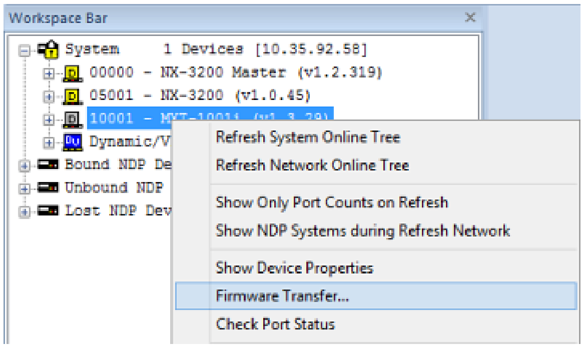
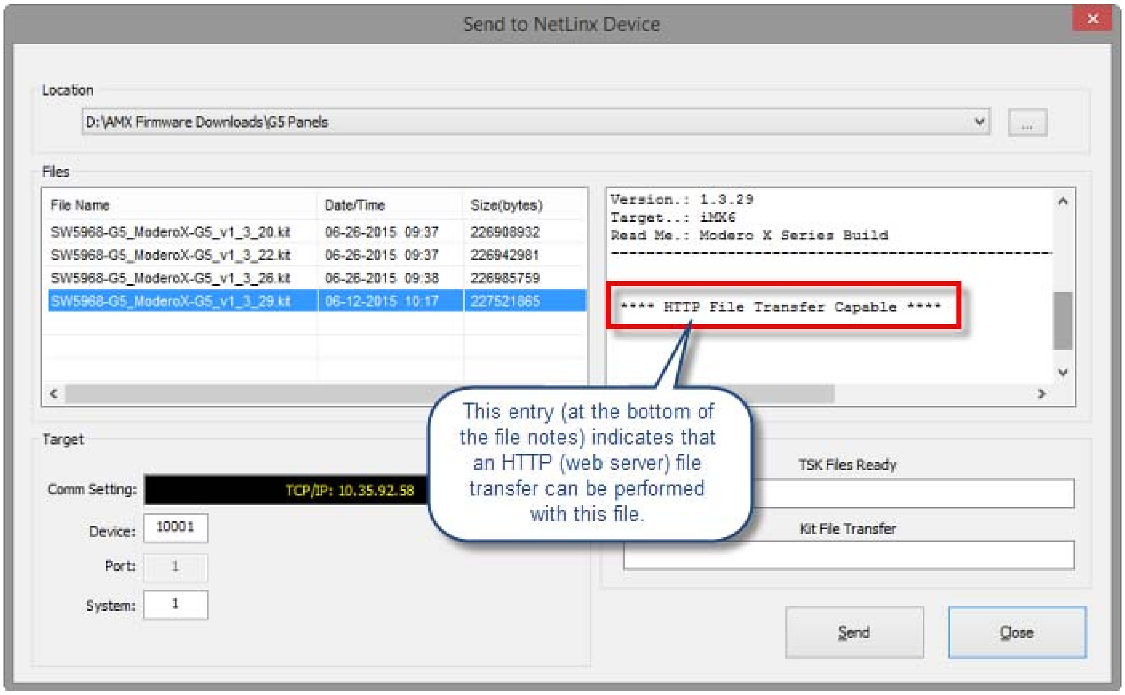

Workspace Bar
System 1 Devices [10.35.92.58]
00000 - NX-3200 Master (v1.2.319)
05001 - NX-3200 (v1.0.45)
10001 - MXT-10011 (v1.3.29)
Dynamic/V
Bound NDP De
Unbound NDP
Lost NDP Dev
Refresh System Online Tree
Refresh Network Online Tree
Show Only Port Counts on Refresh
Show NDP Systems during Refresh Network
Show Device Properties
Firmware Transfer...
Check Port Status

FIG. 158 NetLinx Studio Online context menu (Firmware Transfer selected)

This invokes the *Send To NetLinx Device* dialog.

4. Under *Location*. click the Browse **(...)** button to locate and select the directory containing the G5 firmware (*.kit) file that will be transferred, in the *Browse For Folder* dialog.
5. Click **OK** to close the *Browse For Folder* dialog and populate the *Files* window with a listing of *.kit files found in the selected folder.
6. In the *Files* window, click to select the G5 *.kit file to transfer (FIG. 159):



Location: D:\AMX Firmware Downloads\G5 Panels

File Name	Date/Time	Size(bytes)
SW5968-G5_ModeroX-G5_v1_3_20.kit	06-26-2015 09:37	226908932
SW5968-G5_ModeroX-G5_v1_3_22.kit	06-26-2015 09:37	226942981
SW5968-G5_ModeroX-G5_v1_3_26.kit	06-26-2015 09:38	226985759
SW5968-G5_ModeroX-G5_v1_3_29.kit	06-12-2015 10:17	227521865

```
Version.: 1.3.29
Target..: iMX6
Read Me.: Modero X Series Build
------------------------------------------------

**** HTTP File Transfer Capable ****
```

This entry (at the bottom of the file notes) indicates that an HTTP (web server) file transfer can be performed with this file.

Comm Setting: TCP/IP: 10.35.92.58

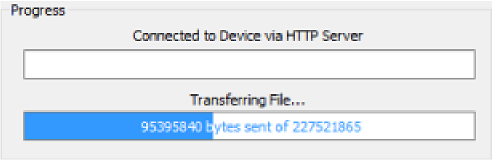
Device: 10001

Port: 1

System: 1

FIG. 159 NetLinx Studio - Send to NetLinx Device dialog

7. Click **Send** to initiate the firmware file transfer. The progress of the transfer is indicated in the progress bars (FIG. 160):



Connected to Device via HTTP Server

Transferring File...

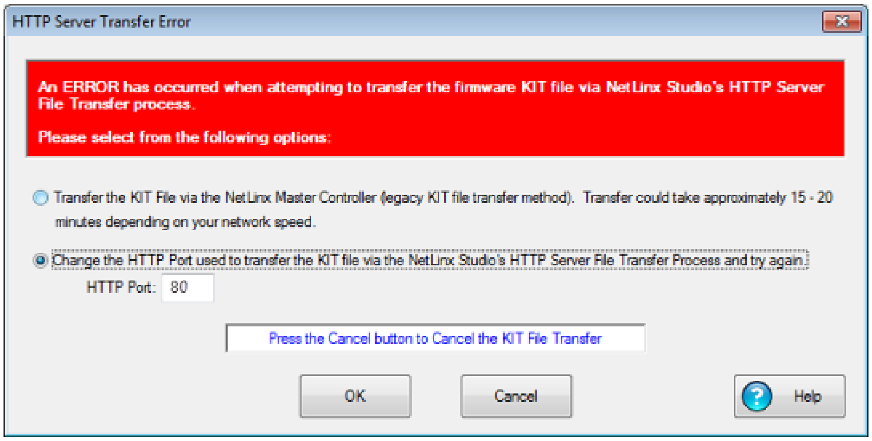
95395840 bytes sent of 227521865

FIG. 160 NetLinx Studio - Send to NetLinx Device dialog (Progress bars indicating an active firmware file transfer)

8. The Panel will display the Message "*Updating System Files*", then restart itself.
9. The *Installing System Update* page will be displayed on the panel until the firmware upgrade process is complete. At this point, the panel will reboot and open it's home page.

HTTP Server Transfer Error

If an error occurs during this type of transfer, then the *HTTP Server Transfer Error* dialog is invoked (FIG. 161):



HTTP Server Transfer Error

An ERROR has occurred when attempting to transfer the firmware KIT file via NetLinx Studio's HTTP Server File Transfer process.

Please select from the following options:

○ Transfer the KIT File via the NetLinx Master Controller (legacy KIT file transfer method). Transfer could take approximately 15 - 20 minutes depending on your network speed.

● Change the HTTP Port used to transfer the KIT file via the NetLinx Studio's HTTP Server File Transfer Process and try again.

HTTP Port: 80

Press the Cancel button to Cancel the KIT File Transfer

FIG. 161 NetLinx Studio v3.4 or higher - HTTP Server Error dialog

In this case, there are two options for proceeding with the firmware transfer:

- Select **Transfer the KIT File via the NetLinx Master Controller (legacy KIT file transfer method)...** to proceed using the standard (non-HTTP) method used for other NetLinx Devices (via the master controller) when **OK** is clicked. Note that depending on network speed and the size of the *.kit file, this method could take up to 20-30 minutes to complete. More specifically, timed tests indicate that it takes approximately 60 seconds per 9.5MB of a *.kit file to transfer.

  The following table indicates the approximate length of time to send a *.kit file via the legacy file transfer method:

File Size	Time Required to Complete Transfer (legacy file transfer method)
0-150MB	10 - 15 minutes
150-200MB	15 - 20 minutes
200-250MB	20 - 25 minutes
250-300MB	25 - 30 minutes
300-350MB	30 - 35 minutes
>350MB	> 35 minutes

- By default, **Change the HTTP Port used to transfer the KIT file...** is selected. Use this option to change the HTTP port assignment, in cases where the IP port (default = 80) is in conflict or blocked on the PC. This option will restart the web server with a different HTTP port assignment and restart the file transfer when **OK** is clicked.
- Select the appropriate option and click **OK** to restart the file transfer.
- Click **Cancel** to cancel the current file transfer.

Appendix B: Using NetLinx to Define a Data Source (Listview Buttons)

Example Listview Workflow - NetLinx Data Source

The following section describes an example workflow for implementing a Listview button that uses NetLinx code as the data source. The use case for this example is that of a contact list for a SIP phone system. In this case, the user finds and presses a contact on the screen to initiate the call.

The workflow in this example describes each step required to implement a data source for a Listview button via NetLinx Code:

1. Creating a Listview button on a G5 panel page and set button properties
2. Creating a data source in NetLinx code
3. Configuring and populating the Listview
4. Configuring a response to a user selection

1) Create the Listview Button and Set Button Properties

Create a Listview button in TPDesign5 and configure the display characteristics for the default and selected states.

Although not currently being rendered correctly in the screenshot below, this Listview has two lines of text and an image icon on the left for each Listview entry.

1. In TPDesign5 (v1.0.2 or greater), use the Button Draw Tool to draw a new button.
2. In the *General* tab of the Properties window, select **Listview** as the *Type* (FIG. 162):

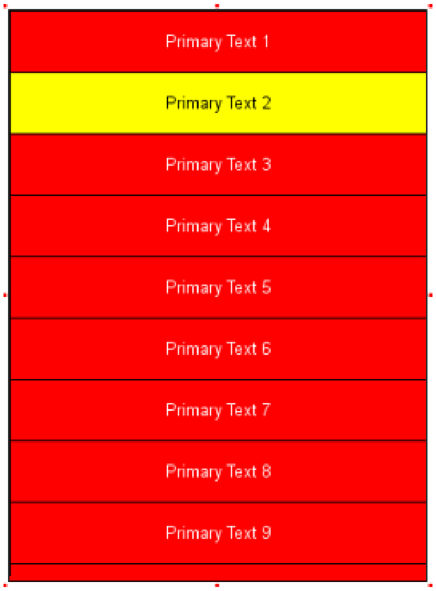
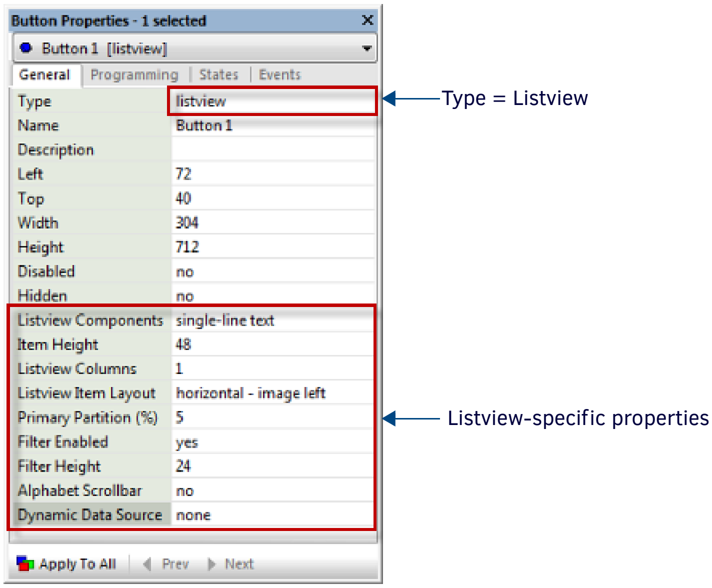


FIG. 162 TPDesign5 - Listview button

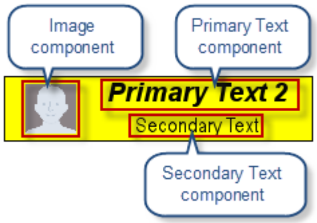
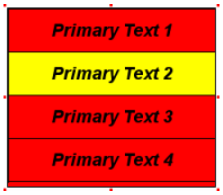
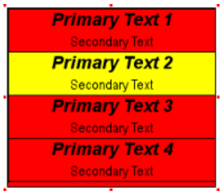
3. Use the TPD5 Properties window to set *General*, *Programming*, *States* and *Events* properties to configure the list items and the display characteristics for the *Default* and *Selected* states, as well as provide the Listview button with an Address code assignment. Note that Listview buttons use standard button properties, as well as several new properties that are specific to Listview buttons:
   a. In the *General* tab, set properties to specify basic display characteristics for the selected Listview button (FIG. 163).



Type	listview
Name	Button 1
Description	
Left	72
Top	40
Width	304
Height	712
Disabled	no
Hidden	no
Listview Components	single-line text
Item Height	48
Listview Columns	1
Listview Item Layout	horizontal - image left
Primary Partition (%)	5
Filter Enabled	yes
Filter Height	24
Alphabet Scrollbar	no
Dynamic Data Source	none

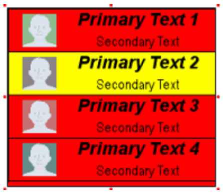
FIG. 163 TPDesign5 - General Properties for Listview buttons

General button properties that are specific to Listview buttons include:

Listview Buttons - General Properties	
List View Components	This property controls which components (*Primary Text, Secondary Text* and *Image*) will be displayed on the selected Listview button. With a Listview button selected in the Design View, click the browse (...) button on the Listview Components (General) property to open the *Edit Listview Components* dialog. Use this dialog to specify which components (Primary Text, Secondary Text and Image) will be displayed on the selected Listview button.  Image component Primary Text component Primary Text 2 Secondary Text Secondary Text component If only **Primary Text** is selected in the *Edit Listview Components* dialog (the default setting for new Listview buttons), each list item is represented with a single line of text using center-middle justification and the font face and size specified by the *Text Color*, *Font* and *Font Size* (State) properties (as well as *Text Effect* and *Text Effect Color* if desired).  Primary Text 1 Primary Text 2 Primary Text 3 Primary Text 4 • The *List View Components* (General) Property will indicate **single-line text**. If **Primary Text** and **Secondary Text** are selected, each list item is represented with a two lines of text.  Primary Text 1 Secondary Text Primary Text 2 Secondary Text Primary Text 3 Secondary Text Primary Text 4 Secondary Text • The two lines of text are stacked vertically, with each line centered horizontally. • The font face and size are specified by the Secondary Font and Secondary Font Size (State) properties. The text is rendered within a two-pixel margin of the button boundary. • Note that the *Secondary Text* option is only enabled if *Primary Text* is selected. • Secondary Text uses the same Text Color settings as the Primary Text. • The *List View Components* (General) Property will indicate **two-line text**.

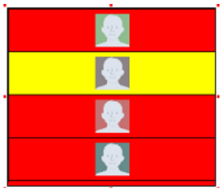
<table>
<tr><th colspan="2">Listview Buttons - General Properties (Cont.)</th></tr>
<tr><td><strong>List View Components</strong> (Cont.)</td><td>

If **Primary Text**, **Secondary Text** and **Image** are selected, each list item is represented with two lines of text and an image on the left side.



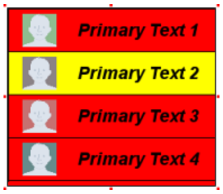
- The image is left-justified within a six-pixel margin of the top, bottom, and left item boundaries, and is scaled-to-fit within a square region.
- The two lines of text are stacked vertically and centered horizontally in the remaining item region. The top line (Primary Text) is rendered using the font face and size specified by the Font and Font Size (State) properties. The bottom line (Secondary Text) is rendered using the font face and size specified by the *Secondary Font* and *Secondary Font Size* (State) properties. The text is rendered within a two-pixel margin of the button boundary.
- The *List View Components* (General) Property will indicate **two-line text w/ Image**.

If only **Image** is selected in the *Edit Listview Components* dialog, each list item is represented with a single image centered horizontally within the item region, within a six-pixel margin of the item region.



- The *List View Components* (General) Property will indicate **image only**.

If **Primary Text** and **Image** are selected in the *Edit Listview Components* dialog, each list item is represented with a single line of text and an image on the left side.



- The image is left-justified within a six-pixel margin of the top, bottom, and left item boundaries, and is scaled-to-fit within a square region.
- The text is center-middle justified in the remaining portion of the item region within a two-pixel margin, using the font and font size specified by the *Font* and *Font Size* (States) properties.
- The *List View Components* (General) Property will indicate **single-line text w/ Image**.

</td></tr>
<tr><td><strong>Item Height</strong></td><td>This property controls the height for the list view items (in pixels).</td></tr>
<tr><td><strong>List View Columns</strong></td><td>This property controls the number of columns to display. By default, this value is set to 1. This property provides the ability to present a "grid view" on the Listview button, if desired.</td></tr>
<tr><td><strong>List View Item Layout</strong></td><td>

This property controls the layout of the components (*Primary Text, Secondary Text* and *Image*) specified to display on the list view items in the selected Listview button. Listview components are selected via the *List View Components* (General) property.

Click in this field to select from a drop-down of layout options for list items (horizontal - image left, horizontal - image right and vertical - image top).

</td></tr>
<tr><td><strong>Primary Partition (%)</strong></td><td>This property sets the position of the separation between the Image and the Primary/Secondary Text components.</td></tr>
<tr><td><strong>Secondary Partition (%)</strong></td><td>

If the *List View Item Layout* property is set to is set to horizontal - image left (the default setting), the Secondary Partition (%) sets the position of the separation between the Primary Text and the Image as a percentage of cell height (allowed range = 5%-95%).

- If the List View Item Layout property is set to is set to horizontal - image right, the Secondary Partition (%) sets the position of the separation between the Primary Text and the Image as a percentage of cell height (allowed range = 5%-95%):
- If the List View Item Layout property is set to vertical- image top, the Secondary Partition represents the area used by the Image. In this case, Secondary Partition (%) sets the position of the separation between the Image and the Primary Text as a percentage of cell height (allowed range = 5%-95%).

</td></tr>
</table>

Listview Buttons - General Properties (Cont.)	
Filter Enabled	Use this property to enable/disable the filter (Search) feature on the selected Listview button. By default, this property is set to no (disabled). To enable this feature, select yes from the drop-down menu. If enabled, a search window will be rendered at the top of the Listview button, with a height specified by the *Filter Height* property. The remaining area of the Listview button will be available for the display of list items:
Filter Height	Use this property to specify the height of the filter entry box for a Listview button (in pixels). • Note that this property is available only if *Filter Enabled* is set to *Yes*. • The minimum allowed value (and the default setting) is 24 pixels.
Alphabet Scrollbar	This property enables/disables the alphabet scrollbar feature for Listview buttons.
Dynamic Data Source	This property specifies the data source (CSV or XML) to use as the source for content that will be displayed on the selected Listview button.

b. In the *Programming* tab, assign a unique *Address Port* and *Address Code* to the selected Listview button:

Listview Buttons - Programming Properties	
Address Code	Select or enter the address code sent to the master on the specified Address Port. The options available to the Address Code property depend on the Address Port selection: • If 1 is selected as the Address Port, then the options for Address Code are None and Auto-Assign. Select None to leave the Address Code unspecified. Select Auto-Assign to automatically assign the next available Address Code to the selected TPD5 element. • If 0-Setup Port is selected as the Address Port, then the options for Address Code are Advanced Codes or Basic Codes. By default, the Basic Address Codes are displayed: Click on *Date Display* to select from a list of date display formats. Click on *Time Display* to select from a list of time display formats. Click *Advanced Codes* to view the Advanced Channel Code options: Click on None to leave the Address Code unspecified. Click on Panel Setup to select Connection Status. This option will display the panel's current connection status on the selected element.
Address Port	Select or enter the port to which the selected element's Address Code will be associated. The options are "1" (the default setting) and "0-setup port": • If 1 is selected as the Address Port, then the options for the Address Code property are None and Auto-Assign. • If 0-Setup Port is selected as the Address Port, then the options for Address Code are Advanced Codes or Basic Codes. By default, the Basic Address Codes are displayed.
Note that Listview buttons do not use Channel Port and Channel Code assignments. The combination of Address Port and Address Code must be unique. See Address Codes (Basic and Advanced) in the TPD5 online help for details.	

c. In the *States* tab, set (font) properties to specify font display characteristics for the Default and Selected states for the selected Listview button. States properties that are specific to Listview buttons include:

- Secondary Font
- Secondary Font Size

d. In the *Events* tab, set event properties for the selected Listview button. Listview button support three Events properties that are specific to Listview buttons. However, these Events support the same actions as existing events:

- Item Selected
- Scrollbar Begin
- Scrollbar End

NOTE: *Refer to the TPDesign5 online help for descriptions of all button properties.*

2) Create the Data Source

Follow the example NetLinx code (below) to create a data source in NetLinx and publish the data source to the NetLinx Master’s internal web server.

The "*Data_PublishFeed()*" function (see *NetLinx.axi*) will return a URL for the published data.

NetLinx Usage Example - ASCII

```
PROGRAM_NAME='Listview Example'

DEFINE_DEVICE
dvTP = 10001:1:0

DEFINE_CONSTANT
// Listview button address
INTEGER btnListview = 11

DEFINE_VARIABLE
CHAR publishedURL[DATA_MAX_VALUE_LENGTH]
CHAR recordsetID[DATA_MAX_ID_LENGTH]

DEFINE_FUNCTION CreateDataFeed()
{
    STACK_VAR DATA_FEED datafeed
    STACK_VAR DATA_RECORD record

// --------------------------------------------------
// CREATE A NEW DATA FEED
// --------------------------------------------------
    datafeed.name = 'phonelist'
    datafeed.description = 'Employees'
    datafeed.source = 'netlinx Listview Example code'
    DATA_CREATE_FEED(datafeed)

    // A recordset id is required for adding records to the feed
    recordsetID = 'phonelist'

// --------------------------------------------------
// DEFINE AND POPULATE THE DATA FIELDS
// This example will have 10 names in a phone list
// --------------------------------------------------
    // Records can have metadata fields and content fields. In this
    // example we won't use any metadata
    SET_LENGTH_ARRAY(record.metadata, 0)

    // We will have 3 content fields per record: photo, name and phone number
    SET_LENGTH_ARRAY(record.content, 3)


    // Initialize the field attributes that will be the same for every record
    // the first field in a record will be the image
    record.content[1].id = 'photo';
    record.content[1].type = DATA_TYPE_IMAGE;
    record.content[1].format = DATA_FORMAT_URL;

    // The label can be something different from the id but in our case we'll
    // keep them the same
    record.content[1].label = 'photo';

    // The second field in a record will be the name
    record.content[2].id = 'name';
    record.content[2].type = DATA_TYPE_STRING;
    record.content[2].format = '';
    record.content[2].label = 'name';

    // The third field will be the phone number
    record.content[3].id = 'number';
    record.content[3].type = DATA_TYPE_STRING;
    record.content[3].format = DATA_FORMAT_PHONE;
    record.content[3].label = 'number';

    // The next step is to put in the actual values for the 3 fields
    // Do this for the first record
    record.content[1].value = 'http://192.168.222.333/ftp/listview/hunter.jpg'
    record.content[2].value = 'Hunter Pence'
    record.content[3].value = '888-555-1111'

    // Add the record to the feed
    DATA_ADD_RECORD(datafeed.name, recordsetID, record)
```

```
// The same record can be reused for the rest of the list
// Just change the relevant values and add the record to the feed
record.content[1].value = 'http://192.168.222.333/ftp/listview/pablo.jpg'
record.content[2].value = 'Pablo Sandoval'
record.content[3].value = '888-555-2222'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/buster.jpg'
record.content[2].value = 'Buster Posey'
record.content[3].value = '888-555-3333'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/angel.jpg'
record.content[2].value = 'Angel Pagan'
record.content[3].value = '888-555-4444'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/jeremy.jpg'
record.content[2].value = 'Jeremy Affeldt'
record.content[3].value = '888-555-5555'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/madison.jpg'
record.content[2].value = 'Madison Bumgarner'
record.content[3].value = '888-555-6666'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/timh.jpg'
record.content[2].value = 'Tim Hudson'
record.content[3].value = '4888-555-7777
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/timl.jpg'
record.content[2].value = 'Tim Lincecum'
record.content[3].value = '888-555-8888'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/javier.jpg'
record.content[2].value = 'Javier Lopez'
record.content[3].value = '888-555-9999'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/jake.jpg'
record.content[2].value = 'Jake Peavy'
record.content[3].value = '888-555-1010'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/sergio.jpg'
record.content[2].value = 'Sergio Romo'
record.content[3].value = '888-555-1020'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/ryan.jpg'
record.content[2].value = 'Ryan Vogelsong'
record.content[3].value = '888-555-1030'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/brandon.jpg'
record.content[2].value = 'Brandon Belt'
record.content[3].value = '888-555-1040'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/andrew.jpg'
record.content[2].value = 'Andrew Susac'
record.content[3].value = '888-555-1050'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/gregor.jpg'
record.content[2].value = 'Gregor Blanco'
record.content[3].value = '888-555-1060'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)

record.content[1].value = 'http://192.168.222.333/ftp/listview/michael.jpg'
record.content[2].value = 'Michael Morse'
record.content[3].value = '888-555-1070'
DATA_ADD_RECORD(datafeed.name, recordsetID, record)
```

```
    // The final step is to publish the feed
    publishedURL = DATA_PUBLISH_FEED(datafeed.name)
    }

DEFINE_START
    CreateDataFeed()

DEFINE_EVENT
DATA_EVENT[dvTP]
{
    ONLINE:
    {
    // Set the URL for the data source for the listviewer in the panel
    SEND_COMMAND dvTP,"'^LVD-',ITOA(btnListview),',',publishedURL"
    // Map the fields in the listviewer to the columns
    SEND_COMMAND dvTP,"'^LVM-',ITOA(btnListview),',i1=${photo}|t1=${name}|t2=${number}'"
    // Sort by name
    SEND_COMMAND dvTP,"'^LVS-',ITOA(btnListview),',${name};a'"
    // Command the listview to load the data from the master
    SEND_COMMAND dvTP,"'^LVR-',ITOA(btnListview)"
    }
}

 // The custom event that is raised whenever a listview item is selected on the panel
CUSTOM_EVENT[dvTP,btnListview,LISTVIEW_ON_ROW_SELECT_EVENT]
{
    SLONG payloadId
    SLONG payloadType
    CHAR fields[2][16]
    CHAR name[DATA_MAX_VALUE_LENGTH]
    CHAR number[DATA_MAX_VALUE_LENGTH]
    DATA_RECORD record
    // Get the data access ID from the custom event
    payloadId = custom.value1
    // Get the data type from the custom event
    payloadType = custom.value2

    if (payloadId > 0 && payloadType == DATA_STRUCTURE_DATARECORD)
    {
    // Specify which fields we want to retrieve from the payload
    fields[1] = 'name'
    fields[2] = 'number'
    // Populate a record with the requested fields from the event
    if (DATA_GET_EVENT_RECORD(dvTP, payloadId, fields, record) > 0)
    {

        // All is well so far so retrieve the values that we are
        // interested in from the selection that the user made on
        // the panel.
        name = record.content[1].value
        number = record.content[2].value
        // Put the name and number that was selected on a popup and
        // show the popup
        SEND_COMMAND dvTP,"'^TXT-50,0,',name"
        SEND_COMMAND dvTP,"'^TXT-51,0,',number"
        SEND_COMMAND dvTP,"'^PPN-Calling'"
    }
    }
}
(***********************************************************)
(*            THE ACTUAL PROGRAM GOES BELOW                *)
(***********************************************************)
DEFINE_PROGRAM
(***********************************************************)
(*                     END OF PROGRAM                      *)
(*        DO NOT PUT ANY CODE BELOW THIS COMMENT           *)
(***********************************************************)
```

3) Configure the Response to a User Selection

Follow the CUSTOM_EVENT example at the end of the *NetLinx Usage Example - ASCII (*above) to retrieve the phone number that was selected by the user.

Appendix C: Text Formatting

Text Formatting Codes for Bargraphs

Text formatting codes for bargraphs provide a mechanism to allow a portion of a bargraphs text to be dynamically provided information about the current status of the level (multistate and traditional). These codes are entered into the text field along with any other text.

The following is a code list used for bargraphs:

Bargraph Text Code Inputs

Code	Bargraph	Multi-State Bargraph
$P	Display the current percentage of the bargraph (derived from the Adjusted Level Value as it falls between the Range Values)	Display the current percentage of the bargraph (derived from the Adjusted Level Value as it falls between the Range Values)
$V	Raw Level Value	Raw Level Value
$L	Range Low Value	Range Low Value
$H	Range High Value	Range High Value
$S	N/A	Current State
$A	Adjusted Level Value (Range Low Value subtracted from the Raw Level Value)	Adjusted Level Value (Range Low Value subtracted from the Raw Level Value)
$R	Low Range subtracted from the High Range	Low Range subtracted from the High Range
$$	Dollar sign	Dollar sign

By changing the text on a button (via a VT command), you can modify the codes on a button. When one of the Text Formatting Codes is encountered by the firmware, it is replaced with the correct value. These values are derived from the following operations:

Formatting Code Operations

Code	Operation
$P	(Current Value - Range Low Value / Range High Value - Range Low Value) x 100
$V	Current Level Value
$L	Range Low Value
$H	Range High Value
$S	Current State (if regular bargraph then resolves to nothing)
$A	Current Value - Range Low Value
$R	Range High Value - Range Low Value

Given a current raw level value of 532, a range low value of 500, and a high range value of 600, the following text formatting codes would yield the following strings as shown in the table below:

Example

Format	Display
$P%	32%
$A out of $R	32 out of 100
$A of 0 - $R	32 of 0 - 100
$V of $L - $H	532 of 500 - 600

Text Area Input Masking

Text Area Input Masking may be used to limit the allowed/correct characters that are entered into a text area. For example, in working with a zip code, a user could limit the entry to a max length of only 5 characters; with input masking, this limit could be changed to 5 mandatory numerical digits and 4 optional numerical digits. A possible use for this feature is to enter information into form fields. The purpose of this feature is to:

- Force the use of correct type of characters (i.e. numbers vs. characters)
- Limit the number of characters in a text area
- Suggest proper format with fixed characters
- Right to Left
- Required or Optional
- Change/Force a Case
- Create multiple logical fields
- Specify range of characters/number for each field

With this feature, it is not necessary to:

- Limit the user to a choice of selections
- Handle complex input tasks such as names, days of the week, or month by name
- Perform complex validation such as Subnet Mask validation

Input mask character types

These character types define what information is allowed to be entered in any specific instance. The following table lists what characters in an input mask will define what characters are allowed in any given position.

Character Types

Character	Masking Rule
0	Digit (0 to 9, entry required, plus [+] and minus [-] signs not allowed)
9	Digit or space (entry not required, plus and minus signs not allowed)
#	Digit or space (entry not required; plus and minus signs allowed)
L	Letter (A to Z, entry required)
?	Letter (A to Z, entry optional)
A	Letter or digit (entry required)
a	Letter or digit (entry optional)
&	Any character or a space (entry required)
C	Any character or a space (entry optional)

NOTE: *The number of the above characters used determines the length of the input masking box. Example: 0000 requires an entry, requires digits to be used, and allows only 4 characters to be entered/used.*

Refer to the following SEND_COMMANDs for more detailed information:

- `^BIM` - Sets the input mask for the specified addresses - see page 112.
- `^BMF` subcommand `%MK` - sets the input mask of a text area - see page 114.

Input Mask Ranges

These ranges allow a user to specify the minimum and maximum numeric value for a field. *Only one range is allowed per field. Using a range implies a numeric entry ONLY.*

Input Mask Ranges

Character	Meaning
[	Start range
]	End range
|	Range Separator

An example from the above table:

[0|255] This allows a user to enter a value from 0 to 255.

Input Mask Operations

Input Mask Operators change the behavior of the field in the following way:

Input Mask Operators	
Character	**Meaning**
<	Forces all characters to be converted to lowercase
>	Forces all characters to be converted to uppercase

Input Mask Literals

To define a literal character, enter any character, other than those shown in the above table *(including spaces, and symbols)*. A back-slash ('\') causes the character that follows it to be displayed as the literal character. For example, **\A** is displayed just as the letter **A**. To define one of the following characters as a literal character, precede that character with a back-slash. Text entry operation using Input Masks.

A keyboard entry using normal text entry is straightforward. However, once an input mask is applied, the behavior of the keyboard needs to change to accommodate the input mask's requirement. When working with masks, any literal characters in the mask will be "skipped" by any cursor movement, including cursor, backspace, and delete keys.

When operating with a mask, the mask should be displayed with placeholders. The "-" character should display where you should enter a character. The arrow keys will move between the "-" characters and allow you to replace them. The text entry code operates as if it is in the overwrite mode. If the cursor is positioned on a character already entered and you type in a new (and valid) character, the new character replaces the old character. There is no shifting of characters.

When working with ranges specified by the [] mask, the keyboard allows you to enter a number between the values listed in the ranges. If a user enters a value that is larger than the maximum, the maximum number of right-most characters is used to create a new, acceptable value.

- **Example 1**: If you type "125" into a field accepting 0-100, then the values displayed will be "1", "12", "25".
- **Example 2**: If the max for the field was 20, then the values displayed will be "1", "12", "5".

When data overflows from a numerical field, the overflow value is added to the previous field on the chain if the overflow character was specified. In the above example, if the overflow flag was set, the first example will place the "1" into the previous logical field and the second example will place "12" in the previous logical field. If the overflow field already contains a value, the new value will be inserted to the right of the current characters and the overflow field will be evaluated. Overflow continues to work until a field with no overflow value is set or no more fields remain (i.e. reached first field).

If a character is typed and that character appears in the Next Field list, the keyboard should move the focus to the next field. For example, when entering time, a **":"** is used as a next field character. If you enter "1:2", the 1 is entered in the current field (hours) and then the focus is moved to the next field and 2 is entered in that field.

When entering time in a 12-hour format, entry of AM and PM is required. Instead of adding AM/PM to the input mask specification, the AM/PM should be handled within the NetLinx code. This allows a programmer to show/hide and provide discrete feedback for AM and PM.

Input Mask Output Examples

The following are some common input masking examples:

Output Examples		
Common Name	**Input Mask**	**Input**
IP Address Quad	[0|255]{.}	Any value from 0 to 255
Hour	[1|12]{:}	Any value from 1 to 12
Minute/Second	[0|59]{:}	Any value from 0 to 59
Frames	[0|29]{:}	Any value from 0 to 29
Phone Numbers	(999) 000-0000	(555) 555-5555
Zip Code	00000-9999	75082-4567

URL Resources

A URL can be broken into several parts. For example, with the URL *http://www.amx.com/company-info-home.asp*, this URL indicates that the protocol in use is **http** (HyperText Transport Protocol) and that the information resides on a host machine named **www.amx.com**. The image on that host machine is given an assignment (*by the program*) name of **company-info-home.asp** *(Active Server Page)*.

The exact meaning of this name on the host machine is both protocol dependent and host dependent. The information normally resides in a file, but it could be generated dynamically. This component of the URL is called the file component, even though the information is not necessarily in a file.

A URL can optionally specify a port, which is the port number to which the TCP/IP connection is made on the remote host machine. If the port is not specified, the default port for the protocol is used instead. For example, the default port for http is *80*. An alternative port could be specified as: *http://www.amx.com:8080/company-info-home.asp*.

NOTE: *Any legal HTTP syntax can be used.*

Special Escape Sequences

The system has only a limited knowledge of URL formats, as it transparently passes the URL information onto the server for translation. A user can then pass any parameters to the server side programs such as CGI scripts or active server pages. However; the system will parse the URL looking for special escape codes. When it finds an escape code, it replaces that code with a particular piece of panel, button, or state information.

For example, "http://www.amx.com/img.asp?device=$DV" would become *http://www.amx.com/img.asp?device=10001*.

Other used escape sequences include:

Escape Sequences

Sequence	Panel Information
$DV	Device Number
$SY	System Number
$IP	IP Address
$HN	Host Name
$MC	Mac Address
$PX	X Resolution of current panel mode/file
$PY	Y Resolution of current panel mode/file
$BX	X Resolution of current button
$BY	Y Resolution of current button
$BN	Name of button
$ST	Current state
$AC	Address Code
$AP	Address Port
$CC	Channel Code
$CP	Channel Port
$LC	Level Code
$LP	Level Port

Appendix D: Bargraph Functions

Overview

For drag operations on Bargraph and Multi-State Bargraph buttons, each movement increments based on the drag increment field.

For centering, the bargraph/multistate bargraph will return to the middle - either the 50% mark for bargraphs, or the median state number, once the touch point is released.

Setup Codes

Bargraph Functions - Setup Codes

Type	Code	Description
Channel	2	Panel Setup:Brightness Up
Channel	3	Panel Setup: Brightness Down
Channel	6	Panel Setup: Master Volume Up
Channel	7	Panel Setup: Master Volume Down
Channel	8	Panel Setup: Master Volume Mute
Channel	158	Panel Setup: Mic Volume Mute
Channel	171	Panel Setup:Call Volume Up
Channel	172	Panel Setup: Call Volume Down
Channel	1403	Panel Setup:Notification Alarm Volume Mute
Channel	1404	Panel Setup:Notification Volume Up
Channel	1405	Panel Setup:Notification Volume Down
Channel	1407	Panel Setup:Alarm Volume Up
Channel	1408	Panel Setup:Alarm Volume Down
Address	33	Panel Setup:Brightness
Address	35	Panel Setup:Master Volume
Address	144	Time Display: AM|PM
Address	46	Panel Setup:Call Volume
Address	450	Panel Setup:Notification Volume
Address	451	Panel Setup:Alarm Volume
Level	1	Panel Setup:Brightness
Level	3	Panel Setup:Master Volume
Level	9	Panel Setup:Call Volume
Level	450	Panel Setup:Notification Volume
Level	451	Panel Setup:Alarm Volume

Appendix E: Video Streaming

Optimizing Motion JPEG Video Presentation and Speed

In some cases, multiple Motion JPEG streams may slow presentation of individual screen popups, or prevent all of the streams from showing at the same time. This may happen even though the Panel Preview in TPDesign 5 may show no issues. To minimize this and assure a smooth and non-sluggish stream, try these options:

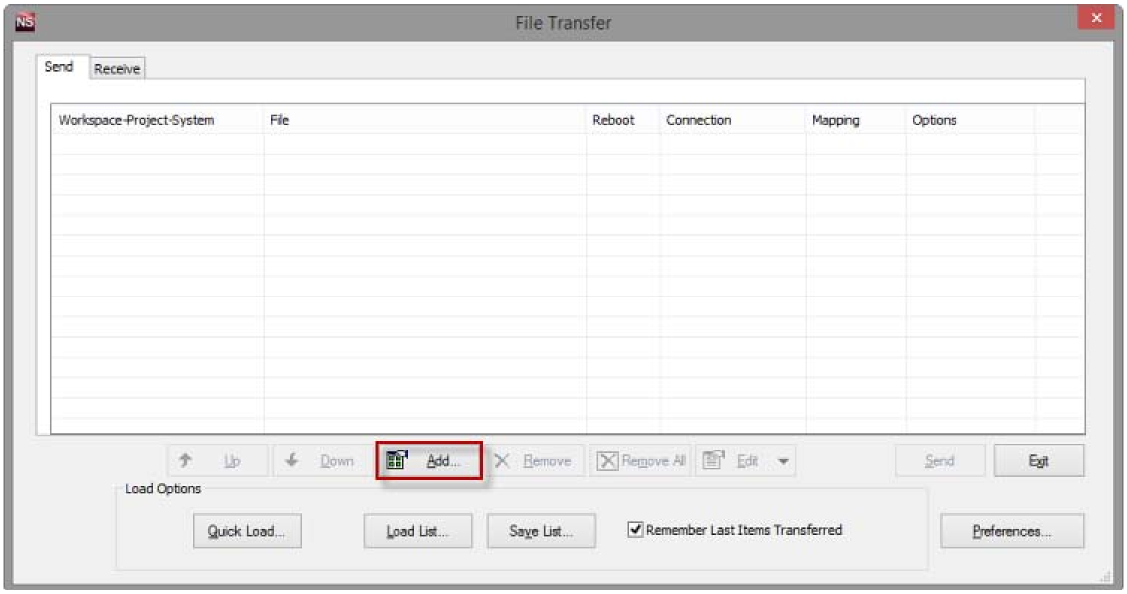
- Limit the number of simultaneous Motion JPEG streams to eight or fewer streams at a time.
- Remove any unnecessary buttons associated with the Motion JPEG streams.
- Make sure that the Refresh rate on a Motion JPEG is set to 0.
- Make sure to hide the preview popup before displaying the full image.
- If possible, uncheck the “Scale to Fit” option, as scaling is very resource-intensive.
- Dial down the frame rate of the server. The frame rate of a Motion JPEG is determined by the server.
- When you go from a page with multiple previews to a page with a single full screen video, it is best to do a page flip rather than popup attach, *or* hide the preview windows first. Otherwise, the preview windows will continue to decode (taxing the system), even though they may be completely or partially obstructed by the popup.
- Verify that the full-screen image is set for acceleration by checking the “Dynamo” box in Resource Manager.

Motion JPEG Support for Modero X Series G5 Panels	
Baseline mode:	ISO 10918-1
Encoding:	ISO-10918-5 (JFIF)
Maximum Resolution:	720p
Recommended resolution:	720x480-NTSC or 720x576-PAL (or less). If the video is defined in the Resource Manager as opposed to video fill, consideration must be made for the video being decoded by the Modero X Series panel, which cannot decode 720p.
Maximum Frame Rate:	Up to 30fps
Latency:	From 1-3 seconds, depending on multiple factors including button size, resolution and network performance.

Streaming a Video File Saved on the Panel via Custom URL Scheme

To use a custom URL scheme and File Transfer (in NetLinx Studio) to play a video stored in the G5 touch panel’s internal storage:

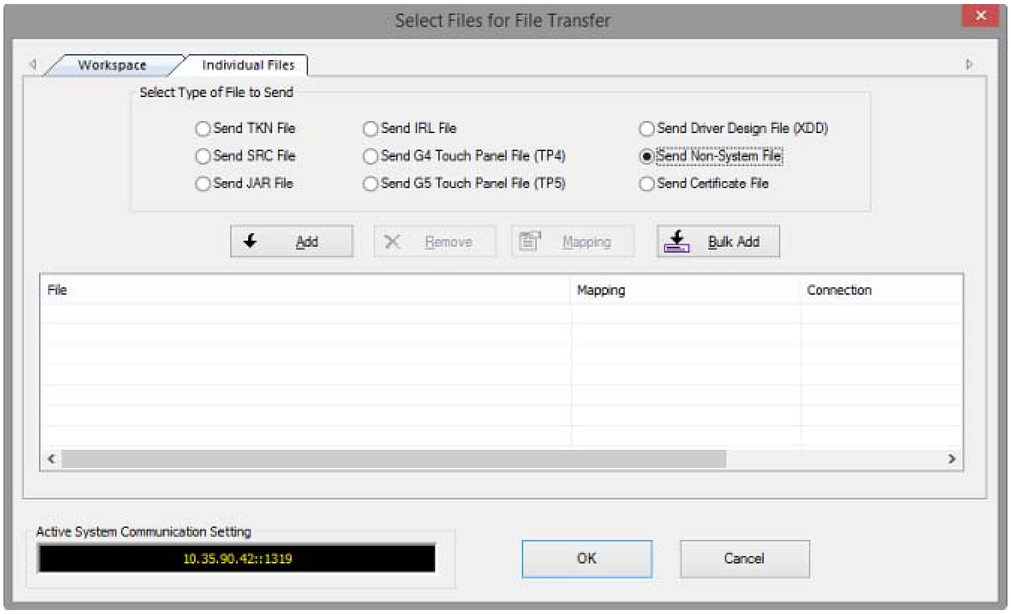
1. In NetLinx Studio 4, select **Tools -> File Transfer** to open the *File Transfer* dialog - *Send* tab (FIG. 164):



☑ Remember Last Items Transferred

FIG. 164 NetLinx Studio 4 - File Transfer dialog

2. Click **Add** to open the *Select Files for File Transfer* dialog, open the *Individual Files* tab and select **Send Non-System File** (FIG. 165):

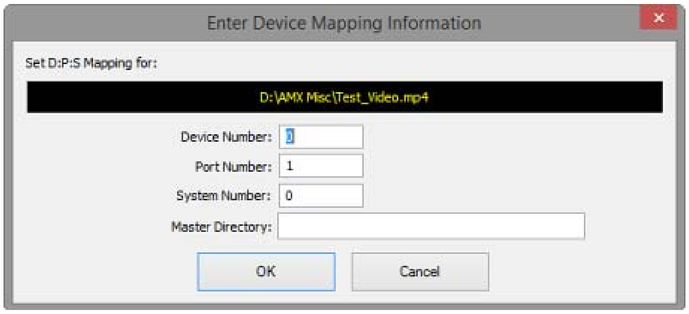


● Send Non-System File

Active System Communication Setting: 10.35.90.42::1319

FIG. 165 NetLinx Studio 4 - Select Files for File Transfer dialog (Individual Files tab)

3. Click **Add** to select the video file you want to use: Select the video file in the *Open* dialog and click **OK** to invoke the *Enter Device Mapping Information* dialog (FIG. 166):



Set D:P:S Mapping for: D:\AMX Misc\Test_Video.mp4

Device Number: 0

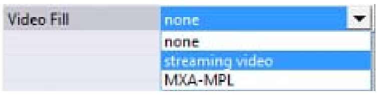
Port Number: 1

System Number: 0

Master Directory:

FIG. 166 NetLinx Studio 4 - Enter Device Mapping Information dialog

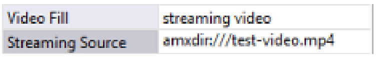
4. Enter device mapping information (D:P:S) for the target G5 panel Leave the *Master Directory* field blank.
5. Click **OK** to save changes and close the *Enter Device Mapping Information* dialog.
6. Click **OK** to close the *Select File For File Transfer* dialog.
7. Click **Send** in the *File Transfer* dialog to transfer the file (this may take time for large video files).
8. In TPDesign5, select the page/button state you want to play the video file.
9. In the desired state tab, set the *Video Fill* property to **streaming video** (FIG. 167). Note that this selection enables the *Streaming Source* property.



Video Fill: none

FIG. 167 TPDesign5 - Video Fill (State) property

10. For the Streaming Source property, enter the filename of the video file with **amxdir:///** as the prefix. For example, if the video filename is "test-video.mp4" then enter the Streaming Source as "*amxdir:///test-video.mp4*" (FIG. 168):



Video Fill	streaming video
Streaming Source	amxdir:///test-video.mp4

FIG. 168 TPDesign5 - Streaming Source (State) property

> **NOTE:** *There are three slashes after amxdir:, not two as in a standard URL. If there aren't three slashes the video file won't be found.*

11. Load the TP5 file on the panel and the desired state should continually play the video.

If you desire to change the video using the ^SDM command to another that you have transfered, use the same URL scheme as the prefix (**amxdir:///**).

Any file that is transfered to the amxdir:/// directory is not cleared by a panel file transfer or "Remove User Pages". The only way to transfer is to do a Factory Data Reset, or to upload an empty file with the same filename.

To get around this, you can specify a file to be **amxdir:///AMXPanel/images/filename** instead.

To do this using NetLinx Studio File Transfer, set the "Master Directory" to \AMXPanel\images\ in the device mapping. This will put the file in the panel file images directory. A TP5 file transfer will not remove the file, but a "Remove User Pages" will. The Streaming Source value in the TP5 file would have to correspond to the same path.

NOTE: *See page 132 for details on the ^SDM Button State Streaming Digital Media command.*

Transcoding Guidelines

For certain H.264 video and audio streaming , you may observe a drift between audio and video the longer the content is streamed. This drift can be more pronounced when streaming from a non- MXA-MPL source such as a Vision 2 steaming server. If the panel detects excessive drift, it will attempt to restart the stream decode. During the restart, the audio will be temporarily interrupted and the video will be frozen on the last frame until the restart is complete (typically a couple of seconds). To reduce the drift issue for Vision 2 H264 steaming, video transcoding tools (such as HandBrake or FFMPEG) are available to convert H.264 video into lower bitrates, reduced resolution and/or lower H.264 profiles. For example you can try the H.264, 2mbps bit rate, 480p resolution, Baseline profile. If this does not work, try transcoding the stream into MPEG2 video, which is less susceptible to A/V drift.

NOTE: *Third-party encoders and digital television devices have not been tested with Modero X Series G5 touch panels, and are not supported by AMX.*

The table below lists the typical synchronization and latency times for each supported video and audio stream:

Video Performance

Device	Typical A/V Sync (offset/ hr)	Typical A/V Sync Restart Rate	Expected Latency - Typical	Expected Latency - Max	Notes:
MXA-MPL					
H.264	<100ms	~ every 3hrs	750ms (Video) 1s (Audio + Video	2s or more, depending on network	Recommend maintaining aspect ratio of source and following usage guidelines regarding window/button placement. Network congestion can cause video glitches. AMX recommends the Multi-Preview Live and Modero X touch panel be installed behind a smart Ethernet switch to filter multicast packets reaching the panel and consuming panel resources.
MPEG2	N/A	N/A	N/A	N/A	N/A
H.264	<100ms	~ every 1-2hrs	1.5s	3s or more, depending on network	Network congestion can cause video glitches. AMX recommends the Modero X touch panel be installed behind a smart Ethernet switch to filter unintended multicast packets reaching the panel and consuming panel resources. Recommend maintaining aspect ratio of source and following usage guidelines regarding window/button placement. • AAC <= 192Kbps @ 48KHz • H.264 video 720p max (D1 for best results), < 30fps max and a 4Mbps bitrate • UDP Transport protocol only (RTP not supported) • Multicast and/or unicast addresses • SAP disabled May require transcoding to H.264 baseline profile and reducing resolution/ frame rate/bit rate per recommendations above. Recommend transcoding source material to MPEG2 if Audio/Video sync issues still occur after following above guidelines.
MPEG2	<100ms	~ every 1-2hrs	1.5s	3s or more, depending on network	Network congestion can cause video glitches. We recommend the panel be installed behind a smart Ethernet switch to filter unintended multicast packets reaching the panel and consuming panel resources. Recommend maintaining aspect ratio of source and following usage guidelines regarding window/button placement. Best results are obtained with standard definition (NTSC or PAL) sources. Minor audio/video irregularities may be noticed depending on network performance, video source content, and window size. Note: Video frame rate can be affected by network performance. MPEG-2 video streaming Settings: • MP2/MP3 audio <= 192Kbps @ 48KHz • MPEG2 video 720p max < 30fps max bitrate of 8Mbps • UDP Transport protocol only (RTP not supported) • Multicast and/or unicast addresses • SAP disabled

Video Performance (Cont.)					
Device	**Typical A/V Sync (offset/ hr)**	**Typical A/V Sync Restart Rate**	**Expected Latency - Typical**	**Expected Latency - Max**	**Notes:**
3rd Party Solutions					
H.264	N/A	N/A	N/A	N/A	Third-party encoders and digital television devices have not been tested with Modero X Series touch panels, and are not supported by AMX. Network congestion can cause video glitches. We recommend the panel be installed behind a smart Ethernet switch to filter unintended multicast packets reaching the panel and consuming panel resources. We recommend maintaining aspect ratio of source and following usage guidelines regarding window/button placement.
MPEG2	N/A	N/A	N/A	N/A	Third-party encoders and digital television devices have not been tested with Modero X Series touch panels, and are not supported by AMX. Network congestion can cause video glitches. We recommend the panel be installed behind a smart Ethernet switch to filter unintended multicast packets reaching the panel and consuming panel resources. We recommend maintaining aspect ratio of source and following usage guidelines regarding window/button placement.

NMX-ENC H.264 Encoder - Encoder Settings for G5 Panels

The Modero X Series® G5 line of touch panels can receive video streams from the NMX-ENC H.264 Encoder (FG3201-01), provided that the Encoding settings on the NMX-ENC are configured correctly. Encoding settings for the NMX-ENC are set via the on-board WebConsole interface.

NOTE: *Due to resource constraints, the number of playing video streams on a G5 panel is limited to two (720dpi, 30fps). If two or more video streams are requested to play, only the latest two streams with different url will be started.*

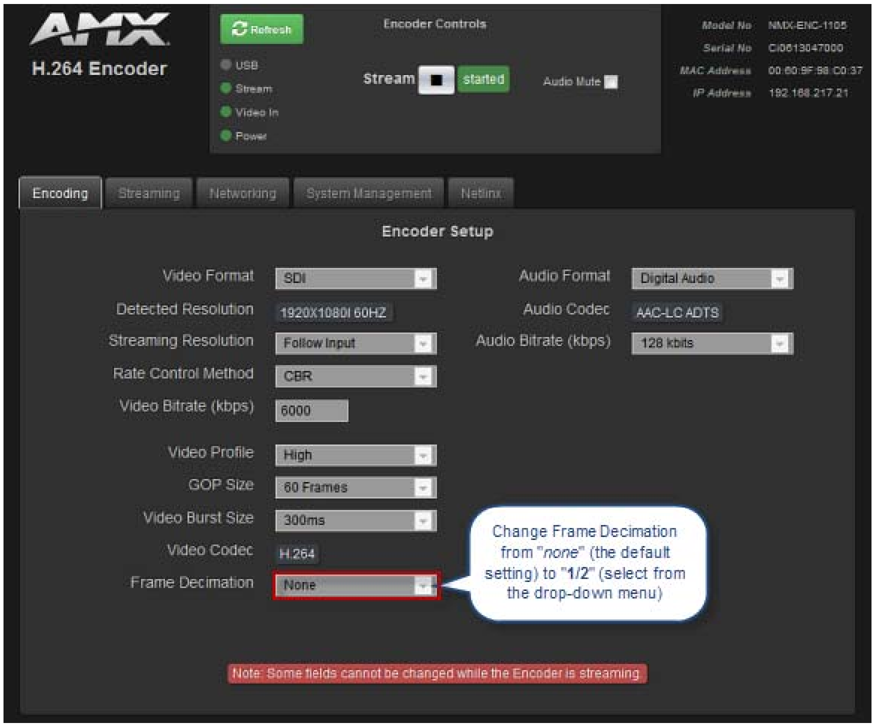
The WebConsole is accessed via a web browser on a PC that has network access to the encoder. You can access the WebConsole by entering the IP address of the encoder into a web browser. (see the *NMX-ENC H.264 Encoder Instruction Manual* for details).

The NMX-ENC H.264 Encoder should be configured such that:

- Maximum resolution for video windows: **720dpi**
- Maximum frame rate for video windows: **30fps**

To view / set Encoding options, open the NMX-ENC WebConsole to the *Encoding* tab.

Note that by default, *Frame Decimation* is set to "**None**" (FIG. 169).



Model No: NMX-ENC-1105
Serial No: CI0613047000
MAC Address: 00:60:9F:98:C0:37
IP Address: 192.168.217.21

Video Format: SDI
Detected Resolution: 1920X1080I 60HZ
Streaming Resolution: Follow Input
Rate Control Method: CBR
Video Bitrate (kbps): 6000
Video Profile: High
GOP Size: 60 Frames
Video Burst Size: 300ms
Video Codec: H.264
Frame Decimation: None
Audio Format: Digital Audio
Audio Codec: AAC-LC ADTS
Audio Bitrate (kbps): 128 kbits

Change Frame Decimation from "*none*" (the default setting) to "**1/2**" (select from the drop-down menu)

Note: Some fields cannot be changed while the Encoder is streaming.

FIG. 169 NMX-ENC WebConsole - Encoding tab

To use the NMX-ENC with X Series G5 touch panels, change the *Frame Decimation* setting from "*None*" (the default setting) to "**1/2**" (via the drop-down menu).

Appendix F: DragDrop.axi

Overview

NOTE: *G5 Panels and TPDesign5 support "drag-and-drop" functionality for General and Multi-State General buttons. This allows the end-user to initiate a drag on a button with a "long press", then drag and release (or "drop") the button onto a drop target. Refer to the TPDesign5 Instruction Manual and online help for information on adding drag-and-drop functionality to your TPDesign5 project.*

See page 110 for a description of the **^BDC** Send Command (Button Drag and Drop Custom Event Command).

The **NetLinx .AXI** file below provides routines to parse the drag and drop info strings:

```
PROGRAM_NAME='DragDrop'

(***********************************************************)
(*          DEVICE NUMBER DEFINITIONS GO BELOW             *)
(***********************************************************)
DEFINE_DEVICE

(***********************************************************)
(*               CONSTANT DEFINITIONS GO BELOW             *)
(***********************************************************)
DEFINE_CONSTANT

#IF_NOT_DEFINED __DRAG_DROP_MAX_TARGETS__
#DEFINE __DRAG_DROP_MAX_TARGETS__ '__DRAG_DROP_MAX_TARGETS=100'
INTEGER __DRAG_DROP_MAX_TARGETS = 100;
#END_IF

#IF_NOT_DEFINED __DRAG_DROP_NUM_PANELS__
#DEFINE __DRAG_DROP_NUM_PANELS__ '__DRAG_DROP_NUM_PANELS=1'
INTEGER __DRAG_DROP_NUM_PANELS = 1;
#END_IF
(***********************************************************)
(*              DATA TYPE DEFINITIONS GO BELOW             *)
(***********************************************************)
DEFINE_TYPE
STRUCTURE __DRAG_DROP_sDragObject
{
   INTEGER chanPort;
   INTEGER chan;
   INTEGER addrPort;
   INTEGER addr;
   char    groupName[100];
   char    buttonName[100];
}

STRUCTURE __DRAG_DROP_sDropTargetObject
{
    INTEGER valid;
    INTEGER chanPort;
    INTEGER chan;
    INTEGER addrPort;
    INTEGER addr;
    char    buttonName[100];
}

(***********************************************************)
(*               VARIABLE DEFINITIONS GO BELOW             *)
(***********************************************************)
DEFINE_VARIABLE

VOLATILE __DRAG_DROP_sDragObject __DRAG_DROP_current_drag[__DRAG_DROP_NUM_PANELS];
VOLATILE __DRAG_DROP_sDropTargetObject __DRAG_DROP_current_targets[__DRAG_DROP_NUM_PANELS]
                                                                  [__DRAG_DROP_MAX_TARGETS];
VOLATILE INTEGER __DRAG_DROP_target_count[__DRAG_DROP_NUM_PANELS];
VOLATILE INTEGER __DRAG_DROP_panel_devices[__DRAG_DROP_NUM_PANELS]

(***********************************************************)
(*        SUBROUTINE/FUNCTION DEFINITIONS GO BELOW         *)
(***********************************************************)
(* EXAMPLE: DEFINE_FUNCTION <RETURN_TYPE> <NAME> (<PARAMETERS>) *)
(* EXAMPLE: DEFINE_CALL '<NAME>' (<PARAMETERS>) *)
```

```
DEFINE_FUNCTION __DRAG_DROP_SET_PANELS(INTEGER panels[])
{
   if(LENGTH_ARRAY(panels) <= __DRAG_DROP_NUM_PANELS)
   {
      __DRAG_DROP_panel_devices = panels;
   }
   else
   {
      STACK_VAR INTEGER count;

      for(count = 1 ; count <= __DRAG_DROP_NUM_PANELS; count++)
      {
         __DRAG_DROP_panel_devices[count] = panels[count];
      }
      SET_LENGTH_ARRAY(__DRAG_DROP_panel_devices,count);
   }
}

DEFINE_FUNCTION __DRAG_DROP_CLEAR_DATA(INTEGER panel)
{
   STACK_VAR INTEGER count;
   __DRAG_DROP_current_drag[panel].chanPort   = 0;
   __DRAG_DROP_current_drag[panel].chan       = 0;
   __DRAG_DROP_current_drag[panel].addrPort   = 0;
   __DRAG_DROP_current_drag[panel].addr       = 0;
   __DRAG_DROP_current_drag[panel].buttonName = '';
   __DRAG_DROP_current_drag[panel].groupName  = '';

   count = LENGTH_ARRAY(__DRAG_DROP_current_targets[panel]);
   if(count > 0)
   {
      STACK_VAR INTEGER x;
      for(x = 1; x <= count; x++)
      {
         __DRAG_DROP_current_targets[panel][x].chanPort   = 0;
         __DRAG_DROP_current_targets[panel][x].chan       = 0;
         __DRAG_DROP_current_targets[panel][x].addrPort   = 0;
         __DRAG_DROP_current_targets[panel][x].addr       = 0;
         __DRAG_DROP_current_targets[panel][x].buttonName = '';
         __DRAG_DROP_current_targets[panel][x].valid      = 0;
      }
   }
   __DRAG_DROP_target_count[panel] = 0;
}

DEFINE_FUNCTION INTEGER __DRAG_DROP_PARSE_PORT_VALUE(
                        CHAR line[],
                        INTEGER start,
                        INTEGER port,
                        INTEGER value)
{
   STACK_VAR INTEGER x, run, state;
   STACK_VAR char ch;

   x = start;
   run = 1;
   state = 0;
   ch = 0;

   port = 0;
   value = 0;
   while(run)
   {
      ch = line[x];
      switch(state)
      {
         case 0:
         {
            if(ch >= '0' && ch <= '9')
         {
            port = port * 10 + (ch-'0');
         }
         else if(ch == ',')
         {
            state = 1;
         }
      }
      case 1:
      {
         if(ch >= '0' && ch <= '9')
         {
            value = value * 10 + (ch-'0')
         }

         else if(ch == ':')
         {
            run = 0;
         }
         else if(ch == '}')
         {
            run = 0;
         }
      }
   }
   x++;
   }
   return x;
}

DEFINE_FUNCTION INTEGER __DRAG_DROP_PARSE_NAME(CHAR line[],
                                               INTEGER start,
                                               CHAR value[])
{
   STACK_VAR INTEGER end;

   value = '';
   end = FIND_STRING(line,':',start);
   if(end <= 0)
   {
      end = FIND_STRING(line,'}',start);
   }
   if(end > start)
   {
      value = MID_STRING(line,start,end-start);
      return end+1;
   }
   return start+1;

}

DEFINE_FUNCTION INTEGER __DRAG_DROP_PARSE_VALUE(CHAR line[],
                                                INTEGER start,
                                                INTEGER value)
{
   STACK_VAR INTEGER x, run;
   STACK_VAR INTEGER ch;

   x = start;
   run = 1;
   ch = 0;
   value = 0;
   while(run)
   {
      ch = line[x]
      if(ch >= '0' && ch <= '9')
      {
         value = value * 10 + (ch-'0');
      }
      else if(ch == ':')
      {
         run = 0;
      }
      else if(ch == '}')
      {
         run = 0;
      }
      x++;
   }
   return x;
}
```

```
DEFINE_FUNCTION __DRAG_DROP_PARSE_DRAG_START(INTEGER panel, TCUSTOM s)
{
   STACK_VAR char line[200],text[2000];
   STACK_VAR INTEGER length,index;

   length = 0;
   __DRAG_DROP_CLEAR_DATA(panel);

   text = s.text;
   line = REMOVE_STRING(text,"10",1);
   length = LENGTH_STRING(line);
   while( length > 0)
   {
      if(FIND_STRING(line,'dr{',1) == 1)
      {
         index = 4;
         while (index < length)
         {
            SELECT
            {
               ACTIVE(FIND_STRING(line,'ch=',index) == index) :
               {
                  index = __DRAG_DROP_PARSE_PORT_VALUE(line,index+3,
                     __DRAG_DROP_current_drag[panel].chanPort,
                     __DRAG_DROP_current_drag[panel].chan);
               }
               ACTIVE(FIND_STRING(line,'ad=',index) == index) :
               {
                  index = __DRAG_DROP_PARSE_PORT_VALUE(line,index+3,
                     __DRAG_DROP_current_drag[panel].addrPort,
                     __DRAG_DROP_current_drag[panel].addr);
               }
               ACTIVE(FIND_STRING(line,'gp=',index) == index) :
               {
                  index = __DRAG_DROP_PARSE_NAME(line,index+3,
                     __DRAG_DROP_current_drag[panel].groupName);
               }
               ACTIVE(FIND_STRING(line,'nm=',index )== index) :
               {
                  index = __DRAG_DROP_PARSE_NAME(line,index+3,
                     __DRAG_DROP_current_drag[panel].buttonName);
               }
               ACTIVE(1) :
               {
                  index = length;
               }
            }
         }
      }
      else if(FIND_STRING(line,'dt{',1) == 1)
      {
         index = 4;
         __DRAG_DROP_target_count[panel]++;

         while (index < length)
         {
            SELECT
            {
               ACTIVE(FIND_STRING(line,'vl=',index) == index) :
               {
                  if(line[index+3] == '1')
                  {
                     __DRAG_DROP_current_targets[panel][__DRAG_DROP_target_count[panel]].valid = 1;
                  }
                  else
                  {
                     __DRAG_DROP_current_targets[panel][__DRAG_DROP_target_count[panel]].valid = 0;
                  }
                  index = index+5;
               }
               ACTIVE(FIND_STRING(line,'ch=',index) == index) :
               {
                  index = __DRAG_DROP_PARSE_PORT_VALUE(line,index+3,
                     __DRAG_DROP_current_targets[panel][__DRAG_DROP_target_count[panel]].chanPort,
                     __DRAG_DROP_current_targets[panel][__DRAG_DROP_target_count[panel]].chan);
               }
               ACTIVE(FIND_STRING(line,'ad=',index) == index) :
               {
                  index = __DRAG_DROP_PARSE_PORT_VALUE(line,index+3,
                     __DRAG_DROP_current_targets[panel][__DRAG_DROP_target_count[panel]].addrPort,
                     __DRAG_DROP_current_targets[panel][__DRAG_DROP_target_count[panel]].addr);
               }
               ACTIVE(FIND_STRING(line,'nm=',index) == index) :
               {
                  index = __DRAG_DROP_PARSE_NAME(line,index+3,
                     __DRAG_DROP_current_targets[panel][__DRAG_DROP_target_count[panel]].buttonName);
               }
               ACTIVE(1) :
               {
                  index = length;
               }
            }
         }
      }
      line = REMOVE_STRING(text,"10",1);
      length = LENGTH_STRING(line);
   }
   SET_LENGTH_ARRAY(__DRAG_DROP_current_targets[panel],__DRAG_DROP_target_count[panel]);

}

DEFINE_FUNCTION __DRAG_DROP_PRINT_DATA(INTEGER panel)
{
   STACK_VAR INTEGER x;

   SEND_STRING 0,"FORMAT('drag ch=%d',__DRAG_DROP_current_drag[panel].chanPort),
                  FORMAT(',%-5d',__DRAG_DROP_current_drag[panel].chan),
                  FORMAT('ad=%d',__DRAG_DROP_current_drag[panel].addrPort),
                  FORMAT(',%-5d',__DRAG_DROP_current_drag[panel].addr),
                  'gp=''',__DRAG_DROP_current_drag[panel].groupName,''' bn=''',
                          __DRAG_DROP_current_drag.buttonName,''''";
    for(x = 1; x <= __DRAG_DROP_target_count[panel]; x++)
    {
       SEND_STRING 0,"FORMAT('target ch=%d',__DRAG_DROP_current_targets[panel][x].chanPort),
                      FORMAT(',%-5d',__DRAG_DROP_current_targets[panel][x].chan),
                      FORMAT('ad=%d',__DRAG_DROP_current_targets[panel][x].addrPort),
                      FORMAT(',%-5d',__DRAG_DROP_current_targets[panel][x].addr),
                      'bn=''',__DRAG_DROP_current_targets[panel][x].buttonName,
                      FORMAT(''' valid=%d',__DRAG_DROP_current_targets[panel][x].valid)";
    }
}
```

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