



Operation/Reference Guide

Modero S Series®

Programming Guide



AMX Limited Warranty and Disclaimer

This Limited Warranty and Disclaimer extends only to products purchased directly from AMX or an AMX Authorized Partner which include AMX Dealers, Distributors, VIP's or other AMX authorized entity.

AMX warrants its products to be free of defects in material and workmanship under normal use for three (3) years from the date of purchase, with the following exceptions:

- Electroluminescent and LCD Control Panels are warranted for three (3) years, except for the display and touch overlay components are warranted for a period of one (1) year.
- Disk drive mechanisms, pan/tilt heads, power supplies, and MX Series products are warranted for a period of one (1) year.
- AMX lighting products are guaranteed to switch on and off any load that is properly connected to our lighting products, as long as the AMX lighting products are under warranty. AMX also guarantees the control of dimmable loads that are properly connected to our lighting products. The dimming performance or quality there of is not guaranteed, impart due to the random combinations of dimmers, lamps and ballasts or transformers.
- AMX software is warranted for a period of ninety (90) days.
- Batteries and incandescent lamps are not covered under the warranty.
- AMX AutoPatch Epica, Modula, Modula Series4, Modula CatPro Series and 8Y-3000 product models will be free of defects in materials and manufacture at the time of sale and will remain in good working order for a period of three (3) years following the date of the original sales invoice from AMX. The three-year warranty period will be extended to the life of the product (Limited Lifetime Warranty) if the warranty card is filled out by the dealer and/or end user and returned to AMX so that AMX receives it within thirty (30) days of the installation of equipment but no later than six (6) months from original AMX sales invoice date. The life of the product extends until five (5) years after AMX ceases manufacturing the product model. The Limited Lifetime Warranty applies to products in their original installation only. If a product is moved to a different installation, the Limited Lifetime Warranty will no longer apply, and the product warranty will instead be the three (3) year Limited Warranty.

All products returned to AMX require a Return Material Authorization (RMA) number. The RMA number is obtained from the AMX RMA Department. The RMA number must be clearly marked on the outside of each box. The RMA is valid for a 30-day period. After the 30-day period the RMA will be cancelled. Any shipments received not consistent with the RMA, or after the RMA is cancelled, will be refused. AMX is not responsible for products returned without a valid RMA number.

AMX is not liable for any damages caused by its products or for the failure of its products to perform. This includes any lost profits, lost savings, incidental damages, or consequential damages. AMX is not liable for any claim made by a third party or by an AMX Authorized Partner for a third party.

This Limited Warranty does not apply to (a) any AMX product that has been modified, altered or repaired by an unauthorized agent or improperly transported, stored, installed, used, or maintained; (b) damage caused by acts of nature, including flood, erosion, or earthquake; (c) damage caused by a sustained low or high voltage situation or by a low or high voltage disturbance, including brownouts, sags, spikes, or power outages; or (d) damage caused by war, vandalism, theft, depletion, or obsolescence.

This limitation of liability applies whether damages are sought, or a claim is made, under this warranty or as a tort claim (including negligence and strict product liability), a contract claim, or any other claim. This limitation of liability cannot be waived or amended by any person. This limitation of liability will be effective even if AMX or an authorized representative of AMX has been advised of the possibility of any such damages. This limitation of liability, however, will not apply to claims for personal injury.

Some states do not allow a limitation of how long an implied warranty last. Some states do not allow the limitation or exclusion of incidental or consequential damages for consumer products. In such states, the limitation or exclusion of the Limited Warranty may not apply. This Limited Warranty gives the owner specific legal rights. The owner may also have other rights that vary from state to state. The owner is advised to consult applicable state laws for full determination of rights.

EXCEPT AS EXPRESSLY SET FORTH IN THIS WARRANTY, AMX MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. AMX EXPRESSLY DISCLAIMS ALL WARRANTIES NOT STATED IN THIS LIMITED WARRANTY. ANY IMPLIED WARRANTIES THAT MAY BE IMPOSED BY LAW ARE LIMITED TO THE TERMS OF THIS LIMITED WARRANTY. EXCEPT AS OTHERWISE LIMITED BY APPLICABLE LAW, AMX RESERVES THE RIGHT TO MODIFY OR DISCONTINUE DESIGNS, SPECIFICATIONS, WARRANTIES, PRICES, AND POLICIES WITHOUT NOTICE.

Table of Contents

Modero S Series ® Programming	1
Overview	1
Settings Pages	3
Overview	3
Accessing the Settings Page	3
Using the Settings Pages	4
Saving Changed Settings	4
Settings.....	5
Status.....	6
File Information	7
Display	8
Calibration.....	9
Sounds	10
Creating a Custom Sound Set	11
Audio Devices	11
Date & Time	12
Connection & Networks.....	13
Master Connection	14
Scanning for Masters.....	15
Changing the Master Connection Mode.....	15
Changing the Master IP/URL	15
Changing the Master Port Number	16
Changing the Master Username and Password	16
Network Connection	17
Setting Static IP Information	18
Entering a New Hostname	18
Bluetooth	19
Bluetooth Device Search	19
Searching For New Bluetooth Devices	20
Smart Card	22
Breakout Box.....	23
Configuration.....	24
Panel Configuration.....	25
Changing the Device Number	26
Changing the Device Name.....	26
Power Management	27
G4 WebControl	28
Function Show Example	29

Synchronizing Device Names.....	29
Admin Configuration	30
Admin Passwords	31
Security	32
Install Firmware	33
Resetting to Factory-Installed Firmware.....	33
Installing Previous Firmware.....	35
Installing New Firmware From An External USB Stick.....	35
SIP	37
Changing the SIP Proxy Address.....	38
Changing the SIP Port Number	38
Changing the SIP STUN Address.....	38
Advanced Config.....	39
Cache Settings	40
Diagnostics.....	41
Logs.....	41
Network Statistics	42
ICSP Statistics.....	42
Connection Utility.....	43
Streaming Video.....	43
Entering a Streaming Video URL.....	44
Programming	45
Overview	45
Page Commands	45
@APG	45
@CPG	45
@DPG	45
@PDR	46
@PHE.....	46
@PHP.....	46
@PHT.....	46
@PPA.....	47
@PPF	47
@PPG	47
@PPK.....	47
@PPM.....	48
@PPN	48
@PPT	48
@PPX.....	48
@PSE	49
@PSP	49
@PST	49
PAGE.....	49
PPOF.....	50
PPOG	50

PPON	50
Programming Numbers.....	51
RGB Triplets and Names For Basic 88 Colors	51
Font Styles And ID Numbers	53
Border Styles And Programming Numbers	53
“^” Button Commands	56
^ANI.....	56
^APF	56
^BAT	56
^BAU.....	57
^BCB.....	57
^BCF	57
^BCT	58
^BDO	58
^BFB	58
^BIM	59
^BLN.....	59
^BMC.....	60
^BMF	61
^BMI	63
^BML.....	63
^BMP	63
^BNC	63
^BNN	63
^BNT.....	64
^BOP.....	64
^BOR.....	64
^BOS.....	64
^BPP	65
^BRD.....	65
^BSF.....	65
^BSM	65
^BSO.....	65
^BSP	66
^BVL.....	66
^BVN.....	66
^BVP.....	66
^BVT.....	66
^BWW.....	67
^CPF	67
^DPF.....	67
^DVS.....	67
^ENA	67
^GDI.....	68
^GIV.....	68
^GLH.....	68
^FON	68
^GLL.....	69
^GRD	69
^GRU	69
^GSC.....	69
^GSN	69

^ICO.....	70
^IRM	70
^JSB.....	70
^JSI	71
^JST	71
^MBT	71
^MDC.....	71
^PIC	72
^STF.....	72
^SHO	72
^SKT	72
^TEC	72
^TEF.....	73
^TOP	73
^TXT	73
^UNI.....	73
Text Effects Names.....	74
Button Query Commands	75
?BCB	76
?BCF.....	76
?BCT.....	77
?BMP.....	77
?BOP	78
?BRD	78
?BWW	79
?FON.....	79
?ICO	80
?JSB	80
?JSI.....	81
?JST.....	81
?TEC.....	82
?TEF	82
?TXT.....	83
Panel Runtime Operations	84
ABEEP	84
ADBEEP.....	84
@AKB	84
AKEYB.....	84
AKEYP.....	84
AKEYR.....	84
@AKP	85
@AKR	85
BEEP.....	85
BRIT	85
@BRT	85
DBEEP	85
@EKP.....	86
PKEYP	86
@PKP.....	86
SETUP	86
SHUTDOWN.....	86
SLEEP	86

@SOU	87
@TKP	87
TPAGEON	87
TPAGEOFF	87
@VKB	87
WAKE	87
Panel Setup Commands	88
@PWD	88
^PWD	88
Input Commands.....	88
^KPS	88
^KVS	88
Embedded codes.....	89
Dynamic Image Commands.....	90
^BBR	90
^RAF	90
^RFR	91
^RFRP	91
^RMF	92
^RSR	92
^RAF, ^RMF - Embedded Codes	93
Escape Sequences	94
\$DV	94
\$SY	94
\$IP	94
\$HN	94
\$MC	94
\$ID	94
\$PX	94
\$PY	94
\$ST	94
\$AC	94
\$AP	94
\$CC	94
\$CP	94
\$LC	94
\$LP	94
\$BX	94
\$BY	94
\$BN	94
Intercom Commands.....	95
^MODEL?	95
^ICS-	95
^ICE'	95
^ICM-LISTEN	96
^ICM-MICLEVEL	96
^ICM-MUTEMIC	96
^ICM-SPEAKERLEVEL	96
^ICM-TALK	96
^IIC	96
^IOC	96

SIP Commands	97
^PHN-AUTOANSWER	97
^PHN-CALL	97
^PHN-DECLINE	97
^PHN-INCOMING	97
^PHN-LINESTATE.....	97
^PHN-ANSWER.....	98
^PHN-AUTOANSWER	98
^PHN-MSGWAITING.....	98
^PHN-PRIVACY	98
^PHN-REDIAL	98
^PHN-TRANSFERRED	98
?PHN-AUTOANSWER.....	99
^PHN-CALL	99
^PHN-DTMF.....	99
^PHN-HANGUP.....	99
^PHN-HOLD.....	99
?PHN-LINESTATE	99
^PHN-PRIVACY	99
?PHN-PRIVACY.....	99
^PHN-REDIAL	99
^PHN-SETUP-DOMAIN	100
^PHN-SETUP-ENABLE.....	100
^PHN-SETUP-PASSWORD.....	100
^PHN-SETUP-PORT	100
^PHN-SETUP-PROXYADDR.....	100
^PHN-SETUP-STUNADDR	100
^PHN-SETUP-USERNAME	100
^PHN-TRANSFER	100
Audio Commands	101
^ADS.....	101
?ADS	101
^ICM	101
?MUT.....	101
^MUT	101
Panel-to-Panel Video Communication	102
?VOL	102
^VOL.....	102
?CAM	102
^VCE.....	102
^VCS	102
Streaming Video, MXA-MP, and MXA-MPL Commands	102
Subpages Commands	103
^SCE	103
^SDR.....	104
^SHD.....	104
^SSH	104
^STG	104
LED Commands	105
^WLD	105
Custom Events	106

Bluetooth Headsets	106
AMX Bluetooth Handset Custom Event	106
Dynamic Images	106
Resource Load Notification custom event	106
Popups	107
^PUN	107
?PUL	107
?PUS	107
Smart Cards	108
Smart Card Insert/Remove	108
Smart Card Reader Insert/Remove	108
Streaming Video	108
Streaming video custom event	108
Streaming Video	108
Custom Events for Streaming Video	108
Appendix A: Text Formatting	109
Text Formatting Codes for Bargraphs/Joysticks	109
Text Area Input Masking	110
Input mask character types	110
Input Mask Ranges	111
Input mask next field characters	111
Input mask operations	111
Input mask literals	111
Input mask output examples	112
URL Resources	112
Special Escape Sequences	112
Appendix B: Video Streaming Troubleshooting	115
Optimizing Motion JPEG Video Presentation and Speed	115
Transcoding Guidelines	116

Modero S Series® Programming

Overview

The Modero S Series® line of touch panels is a cousin to the popular Modero X Series, with features optimized for specific needs. For those customers who just want a control touch panel without all of the additional features offered in the Modero X Series, the Modero S Series panels offer AMX engineering quality and industrial design, a more rugged touch interface, secure locking features, and streaming Voice Over Internet Protocol (VoIP) and video.

The Modero S Series SmoothTouch™ display offers the best blend of resistive & capacitive technologies, including single-touch gestures. A glass overlay improves display quality while extending the touch panel's lifespan and eliminates pillowing of the touch screen surface. The resultant SmoothTouch display works with fingers, gloves, or pointing devices, and resists dirt, water, and light. It also has the benefit of working in environments with high electrical noise.

This document focuses on programming information for the Modero S Series touch panels. For more information on designing touch panel pages intended to optimize the Modero S Series experience, please refer to the *TPDesign4 Operation Reference Guide* and the *User Interface Design Guide*, both available at www.amx.com.

Settings Pages

Overview

Modero S Series touch panels do not have separate *Setup* and *Protected Setup* pages. All touch panel settings and functionality are now controlled through one *Settings* page. The *Connection & Networks* and *Configuration* sections are accessible with the correct password.

Accessing the Settings Page

To access the *Settings* page, press and hold the **Sleep** button on the touch panel for 3 seconds. For more information on the location of the **Sleep** button, please refer to the *Operation Reference Guide* for the panel model, available at www.amx.com.



FIG. 1 Location of the Sleep button on the MST-431

Alternately, some installation circumstances may require disabling *Settings* page access through the **Sleep** button. In this case, you may access *Settings* pages during a bootup of the panel. As the panel boots up, watch for a series of indicator dots to appear on the splash screen (FIG. 2). To access the *Settings* page, press the bottom right corner of the touchscreen within the first three seconds of these dots appearing on the screen.



FIG. 2 Indicator dots on the Modero S Series splash screen



NOTE

For more information on disabling *Settings* page access through the **Sleep** button, please refer to the *Admin Configuration* section on page 30.

Using the Settings Pages

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



NOTE

The Settings pages use the subpage feature. Not all menu 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 subpage viewer appears, and allows you to gauge current position and length of the page.

Many of the entries on *Settings* pages are read-only, or may be modified if information on the same or another *Settings* page is changed. The current information on a page appears in blue under the main category title; press the arrow to the right in order to open the category's *Settings* page (FIG. 3). If the arrow is grey, then the *Settings* page associated with that category is currently disabled (FIG. 4). This may be altered with changes in connectivity (connecting a USB stick to the touch panel, for instance) or changes to other *Settings* pages.

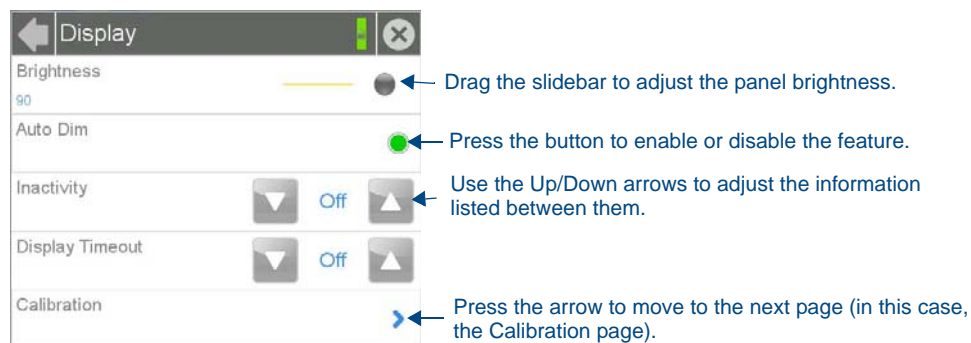


FIG. 3 Settings page with multiple modifiable sections

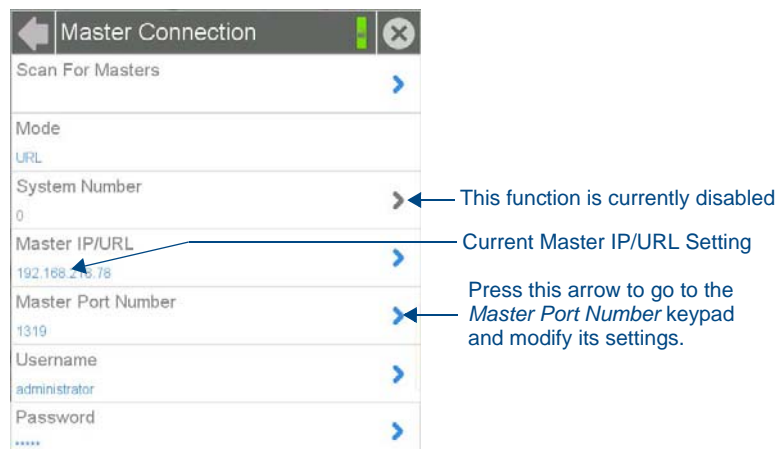


FIG. 4 Settings page with enabled and disabled arrows

Saving Changed Settings

Changes to the *Settings* pages are made to the device's Flash memory, and may not be saved immediately to the panel in the case of sudden power loss. To ensure that your changes are retained, always make sure to shut down the device from the main *Settings* page (page 5). In situations of sudden power loss, the panel may boot up at its next use with only previously saved settings, requiring resetting all of those settings to their new values.



WARNING

Modero S Series touch panels should always be shut down or rebooted by the Settings pages. Turning off a touch panel by removing power may cause damage to the touch panel's flash memory.

Settings

The *Settings* page (FIG. 5) controls access to all other settings pages within Modero S Series touch panels.



FIG. 5 Settings page

Settings Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Status:	Select this to go to the <i>Status</i> page (page 6).
Display:	Select this to go to the <i>Display</i> page (page 8)
Sounds:	Select this to go to the <i>Sounds</i> page (page 10).
Date & Time:	Select this to go to the <i>Date & Time</i> page (page 12).
Connection & Networks	Select this to go to the <i>Connection & Networks</i> page (page 13). If the lock icon is closed, you will need the correct password to access this section.
Configuration:	Select this to go to the <i>Configuration</i> page (page 24). If the lock icon is closed, you will need the correct password to access this section.

The *Connection & Networks* and *Configuration* pages are password-protected. To open either of these pages:

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

Status

The Status page (FIG. 6) displays basic touch panel information, such as currently available memory and the screen resolution dimensions.



FIG. 6 Status page

Status Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Device Number:	Displays the panel's device number.
Connection:	Displays the panel's connection type.
Panel IP:	Displays the panel's IP address.
Master IP:	Displays the IP address for the panel's Master.
Version:	Displays the current version of the panel firmware.
Panel Type:	Displays the panel model.
Serial:	Displays the specific serial number value assigned to the panel.
Memory:	Displays the amount of memory available on the panel.
File System:	Displays the amount of MicroSD card memory available on the panel.
Resolution:	Displays the screen height and width in pixels.
Start Time:	Displays the time when the panel was last started or restarted.
File Information:	Select this to go to the <i>File Information</i> page (page 7).

File Information

The *File Information* page (FIG. 7) displays information on the TPDesign4 project file currently loaded on the panel.



FIG. 7 File Information page

File Information Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Configuration:	This section contains information on the panel's configuration.
Power Up Page:	Displays the page assigned to display after the panel is powered-up.
Inactivity Page:	Displays the page assigned to display when the panel is in Sleep Mode.
High Port:	Displays the high port (port count) value for the panel.
High Access:	Displays the high access (access count) value for the panel.
High Channel:	Displays the high channel (channel count) value for the panel.
High Level:	Displays the high level (level count) value being used by the panel.
Blink Rate:	Displays the feedback blink rate, in 5-second increments.
Startup String:	Displays the start-up string.
Wake Up String:	Displays the wake up string used after an activation from a timeout.
Sleep String:	Displays the sleep string used during a panel's Sleep mode.
Shutdown String:	Displays the shutdown string used during a panel's Shutdown mode.
File:	This section contains information on the particular TPDesign4 file used by the panel.
Filename:	Displays the name of the TPDesign4 file currently being used for the panel.
Job Name:	Displays the job name.
Created:	The creation date of the project.
Revised:	Displays the last revision date for the project.
Saved:	Displays the last save date on the project.
Dealer ID:	Displays the dealer ID number (<i>unique to every dealer and entered in TPDesign</i>).
Designer ID:	Displays the designer information.
Sales Order:	Displays the sales order information.
Purchase Order:	Displays the purchase order information.
File Revision:	Displays the revision number of the TPDesign4 file, if applicable.
Build Number:	Displays the build number information of the TPDesign software used to create the project file.
File Comments:	Displays any comments associated to the job (from the TPDesign project file).

Display

The *Display* page (FIG. 8) controls the basic functions of the touch panel display, including the panel brightness.

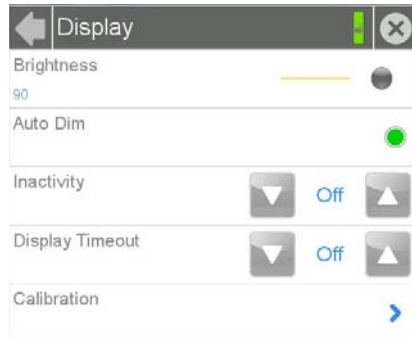


FIG. 8 Display page

Display Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Brightness:	Sets the display brightness and contrast levels of the panel. <ul style="list-style-type: none"> Move the sidebar to the left or right to adjust the brightness level.
Auto Dim:	Press this button to enable automatic dimming of the panel display if the <i>Display Timeout</i> setting is enabled.
Inactivity:	Indicates the length of time that the panel can remain idle before automatically flipping to a pre-selected page. <ul style="list-style-type: none"> Press the Up/Down buttons to increase/decrease the Inactivity Page Flip Timeout setting. Range = 1, 2, 5, 10, 15, 30 minutes, 1, 2, 3, 4 hours. Set the timeout value to Off to disable Inactivity Page mode. <p>Note: The touch panel page used for the Inactivity page flip is named within a small <i>Inactivity Page</i> field below the buttons. The default reading is "MAIN".</p>
Display Timeout:	Indicates the length of time that the panel can remain idle before the display automatically powers down. <ul style="list-style-type: none"> Press the Up/Down buttons to increase/decrease the Display Timeout setting. Range = 1, 2, 5, 10, 15, 30 minutes, 1, 2, 3, 4 hours. Set the timeout value to Off to disable Display Timeout mode.
Calibration:	Select this to open the <i>Calibration</i> page (page 9).

Calibration

In certain circumstances, it may be necessary to calibrate the touch panel's touch screen, in order to guarantee accurate button selection. The *Calibration* page (FIG. 9) offers two options: the opportunity to calibrate the touch panel, and the opportunity to ensure that a previous calibration is still accurate.



FIG. 9 Calibration page

To calibrate the touch panel:

1. From the *Settings* page, select *Display*.
2. From the *Display* page, select *Calibration*.
3. To calibrate the touch panel, select *Calibrate* to open the *Calibration* page (FIG. 10).



FIG. 10 Panel calibration

4. Follow the instructions, touching the crosshairs in order across the screen.
5. The page will read "Calibration Successful. Touch to continue." Touch anywhere on the screen to return to the *Calibration* page.



NOTE

If the screen is not touched at that point, the device will automatically return to the Calibration page within 10 seconds.

In certain circumstances, you may wish to test the calibration of a panel without actually recalibrating it. The *Calibration Test* page (FIG. 11) may be used to verify the accuracy of that calibration.

To calibrate the touch panel:

1. From the *Settings* page, select *Display*.
2. From the *Display* page, select *Calibration*.
3. To test the calibration of the touch panel, select *Calibration Test* to open the *Calibration Test* page (FIG. 11).

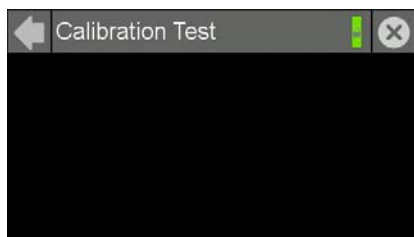


FIG. 11 Calibration Test page

4. Touch the screen and note the positioning of the crosshairs based on where you touch.
5. If the crosshairs do not match the places where you touch, then go back to calibrate the panel.

Sounds

The *Sounds* page (FIG. 12) allows adjustment of volume levels and panel sounds settings.

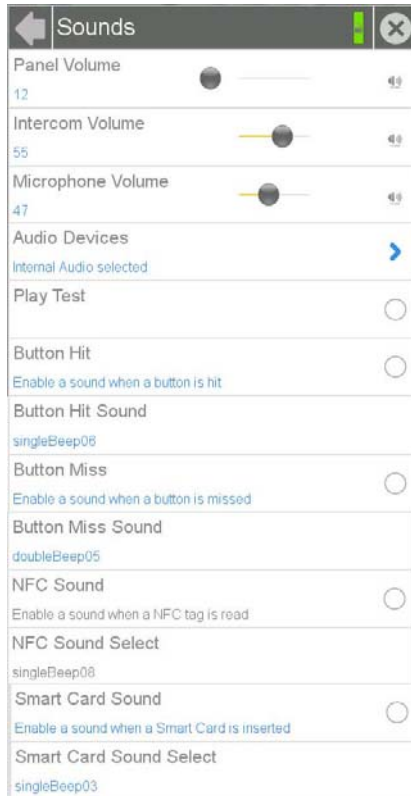


FIG. 12 Sounds page

Sounds Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Panel Volume:	<ul style="list-style-type: none"> Move the sidebar to the left or right to adjust the panel volume. Press the Mute icon to mute the panel.
Intercom Volume:	<ul style="list-style-type: none"> Move the sidebar to the left or right to adjust the intercom volume. Press the Mute icon to mute the intercom.
Microphone Volume:	<ul style="list-style-type: none"> Move the sidebar to the left or right to adjust the microphone input volume. Press the Mute icon to mute the microphone input.
Audio Devices:	Click this to open the <i>Audio Devices</i> page (page 11).
Play Test:	Press this button to test the audio output by playing a preselected sound.
Button Hit:	Press this button to enable the panel to play a default sound whenever a button on a page is selected.
Button Hit Sound:	Displays the information on the sound file associated with the Button Hit function. Press repeatedly to scroll through the 10 included sounds.
Button Miss:	Press this button to enable the panel to play a default sound when you touch a non-active button or any area outside of the active button.
Button Miss Sound:	Displays the information on the sound file associated with the Button Miss function. Press repeatedly to scroll through the 10 included sounds.
NFC Sound:	This button is disabled.
NFC Sound Select:	This button is disabled.

Sounds Page (Cont.)	
Smart Card Sound:	Press this button to enable the panel to play a default sound when the panel detects a CAC card. (For more information on CAC card functionality, please refer to the <i>Smart Card</i> section on page 22.)
Smart Card Sound Select:	Displays the information on the sound file associated with the Smart Card Sound function. Press repeatedly to scroll through the 10 included sounds.

Creating a Custom Sound Set

Instead of using the 10 sounds included as default selections on each setting, the Button Hit Sound, Button Miss Sound, NFC Sound and Smart Card Sound may also have a 'custom' sound set by the user. To do this, create a resource in TPDesign 4 for each custom sound, named "customSingle.wav," "customDouble.wav," "customNfc.wav," and "customSmartCard.wav," respectively.

Audio Devices

The *Audio Devices* page (FIG. 13) allows control of audio input and output both from the touch panel's internal microphone (in a Modero S Series touch panel with microphone functionality) and speaker, or from external USB or Bluetooth devices.



FIG. 13 Audio Devices page

Audio Devices Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Internal Audio:	Click this button to allow audio input from the touch panel's microphone, if available.
USB Audio:	Click this button to allow audio input and output from and to devices connected to the touch panel. If no devices are connected via USB, this button will be greyed out.
Bluetooth Audio:	Click this button to allow audio input and output from and to devices connected to the touch panel via Bluetooth. If no devices are connected via Bluetooth, or if the touch panel does not offer Bluetooth support, this button will be greyed out. (For more information on Bluetooth connectivity, please refer to the <i>Bluetooth</i> section on page 19.)

Date & Time

The *Date & Time* page (FIG. 14) allows setting and adjusting of time and date information on the Modero S Series touch panel. If the time and/or date on the Master is modified, all connected devices will be updated to reflect the new information.

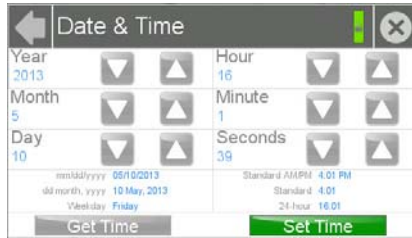


FIG. 14 Date & Time page

Date & Time Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Year:	Use the Up/Down arrows to set the current year.
Month:	Use the Up/Down arrows to set the current month.
Day:	Use the Up/Down arrows to set the current day.
Hour:	Use the Up/Down arrows to set the current hour.
Minute:	Use the Up/Down arrows to set the current minute.
Seconds:	Use the Up/Down arrows to set the current second.
Current Date:	Displays the currently set date on the touch panel.
Current Time:	Displays the currently set time on the touch panel.
Get Time:	The Get Time button retrieves time/date information from the Master.
Set Time:	The Set Time button retains and saves any time/date modifications made on the panel.

The current date and time may be retrieved from the NetLinx Master, or it may be updated manually. To retrieve the date and time from the Master:

1. From the *Date & Time* page, press the **Get Time** button.
2. The new time and date will be added.
3. Press the **Back** button to save the changes.

Connection & Networks

The *Connections & Networks* page (FIG. 15) is the center for several networking functions, including connecting the touch panel to a Master, connecting it to a network, allowing Bluetooth functionality, and controlling video functionality.

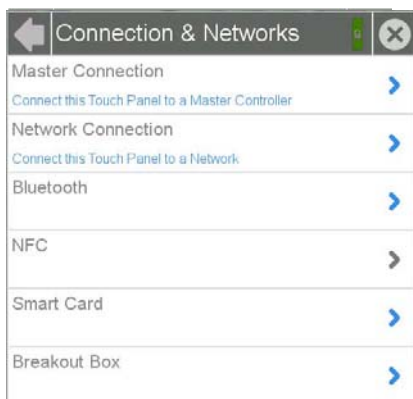


FIG. 15 Connection & Networks page

Connection & Networks Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Master Connection:	Opens the <i>Master Connection</i> page (page 14).
Network Connection:	Opens the <i>Network Connection</i> page (page 17)
Bluetooth:	Opens the <i>Bluetooth</i> page (page 19).
NFC:	This button is disabled.
Smart Card:	Opens the <i>Smart Card</i> page (page 22).
Breakout Box:	Opens the <i>Breakout Box</i> page (page 23).

Master Connection

The Master Connection page (FIG. 16) controls the method of connection to a NetLinx Master.

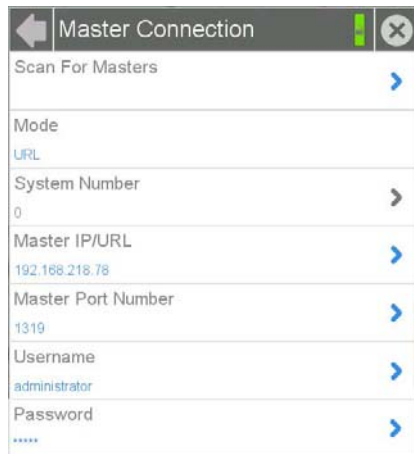


FIG. 16 Master Connection page

Master Connection Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Scan For Masters	Click this button to open the <i>Master Scan</i> page (page 15).
Mode:	<p>Cycles between the connection modes: <i>URL</i>, <i>Listen</i>, and <i>Auto</i>.</p> <ul style="list-style-type: none"> • URL - In this mode, 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 - In this mode, add the panel address into the URL List in NetLinx Studio and set the connection mode to Listen. This mode allows the Modero touch panel to "listen" for the Master's communication signals. The System Number and Master IP/URL fields are read-only. • Auto - In this mode, 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:	<p>Allows entry of a system number. Default value is 0 (zero).</p> <p>NOTE: Available in Auto Mode Only - disabled when URL or Listen is selected.</p>
Master IP/URL:	<p>Sets the Master IP or URL of the NetLinx Master.</p> <p>NOTE: Available in URL Only - disabled when Listen or Auto is selected.</p>
Master Port Number:	<p>Allows entry of the port number used with the NetLinx Master.</p> <p>Default = 1319.</p>
Username:	<p>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.</p>
Password:	<p>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.</p>

Scanning for Masters

To quickly and easily identify all of the available Masters on the network, use the Scanning for Masters page. 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 Master connection and makes an automatic connection.



FIG. 17 Master Scan page

To scan for available Masters:

1. From the *Master Connection* page, press the **Scanning For Masters** button.
2. In the *Master Scan* page, select the Master for the Modero S Series panel. The Master Connection page will automatically display the information on the selected Master.

Changing the Master Connection Mode

To change the Master Connection mode between *URL*, *Listen*, and *Auto*:

1. From the *Master Connection* page, press the *Mode* field to change the mode.
2. Keep pressing to bring up the desired mode.
3. When finished, press **Back** to return to the *Settings* page.

Changing the Master IP/URL

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

1. From the *Master Connection* page, press the *Master IP/URL* field to open the *Master IP Address* keyboard (FIG. 18).



FIG. 18 Master IP Address keyboard

2. Enter the IP address or the URL in the keyboard field and press **OK**.
3. The new IP address/URL is now displayed in the *Master IP/URL* field.
4. When finished, press **Back** to return to the *Settings* page.

Changing the Master Port Number

To change the Master Port Number from its default:

1. From the *Master Connection* page, press the *Master Port Number* field to open the *Master Port Number* keypad (FIG. 19).



FIG. 19 Master Port Number keypad

2. Enter the new Master Port Number and press **OK**.
3. The new Master Port Number is now displayed in the *Master Port Number* field.

Changing the Master Username and Password

To change the current username used by the touch panel to access the Master:

1. From the *Master Connection* page, press the *Username* field to open the *Master User* keyboard (FIG. 20).



FIG. 20 Master User keyboard

2. Enter the new username in the keyboard field and press **OK**.
3. When finished, press **Back** to return to the *Settings* page.

To change the password:

1. From the *Master Connection* page, press the *Password* field to open the *Master Password* keyboard (FIG. 21).



FIG. 21 Master Password keyboard

2. Enter the new password in the keyboard field and press **OK**.
3. When finished, press **Back** to return to the *Settings* page.

Network Connection

The *Network Connection* page (FIG. 22) controls the configuration of settings for Ethernet communication with the touch panel.

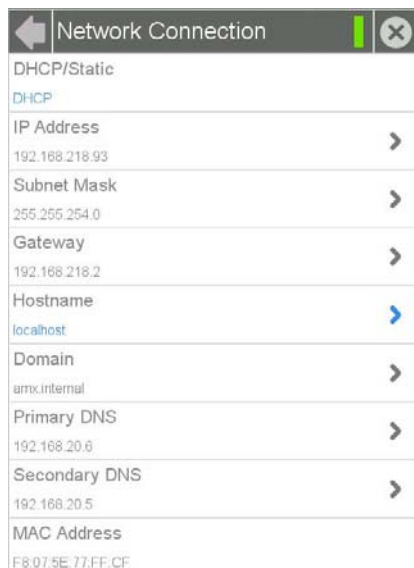


FIG. 22 Network Connection page

Network Connection Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
DHCP/Static:	Sets the panel to either DHCP or Static communication modes. <ul style="list-style-type: none"> • <i>DHCP</i> is an IP Address assigned to the panel by a DHCP server. If DHCP is selected, the other <i>Network Connection</i> fields are disabled (see below). • <i>Static IP</i> is a permanent IP Address assigned to the panel. If Static IP is selected, the other <i>Network Connection</i> fields are enabled.
IP Address:	Displays the IP address for this panel. If DHCP is enabled, this field will be greyed out.
Subnet Mask:	Displays the subnetwork for this panel. If DHCP is enabled, this field will be greyed out.
Gateway:	Displays the gateway address for this panel. If DHCP is enabled, this field will be greyed out.
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 greyed out.
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 greyed out.
Secondary DNS:	Displays the secondary DNS address for this panel. If DHCP is enabled, this field will be greyed out.
MAC Address:	This unique address identifies the Ethernet connection in the panel (read-only).

Setting Static IP Information

When using *DHCP* settings for a panel, the DHCP server will automatically populate almost all of the *Network Connections* page fields, with the exception of *Hostname*. When setting the panel for *Static*, however, this information must be entered manually. To enter the network connection information:

1. In *DHCP/Static*, press the field until the entry reads “Static”. This enables all of the editable *Network Connections* page fields.
2. Select the *IP Address* field to open the *Wired IP Address* keypad (FIG. 23).

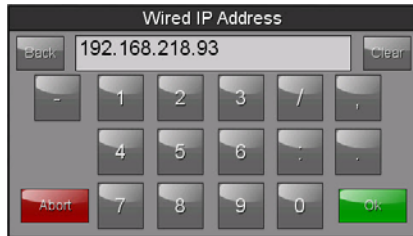


FIG. 23 Wired IP Address keypad

3. Enter the server’s IP address and click **OK**.
4. Repeat this procedure with the other fields on the *Network Connections* page.
5. When finished, the new connection information will be visible in the *Network Connections* page.

Entering a New Hostname

In order to facilitate DNS lookup of the panel, you should choose a new hostname for the panel.



NOTE

If the “Synchronize Device Names” option in the Panel Configuration page (page 29) is enabled, the hostname is greyed out in the Network Connection page and automatically set to the Device Name.

To add a new hostname, or to change an existing one:

1. From the *Connection & Networks* page, select *Network Connection* to open the *Network Connection* page.
2. From the *Network Connection* page, select *Hostname* to open the *Host Name* keyboard (FIG. 24).



FIG. 24 Host Name keyboard

3. Enter the new hostname and press **OK**.
4. The new hostname will now appear in the *Hostname* field.

Bluetooth

The *Bluetooth* page (FIG. 25) controls whether a touch panel allows access to previously selected Bluetooth devices, as well as allowing new devices' access.



FIG. 25 Bluetooth page

Bluetooth Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Bluetooth:	Click this button to enable or disable Bluetooth device access to the touch panel.
Set up new device...:	Select to open the <i>Bluetooth Device Search</i> page (FIG. 26).
Device Name:	Displays the name of the Bluetooth paired device.
Device Address:	Displays the device of the Bluetooth paired device.
Connected:	Displays if the device is currently connected to the touch panel.
Disconnect:	After choosing a Bluetooth paired device, select this button to disconnect the paired device but keep it in the list.
Remove:	After choosing a Bluetooth paired device, select this button to remove the device from the list.
Up/Down:	Use the Up/Down arrows to select the Bluetooth device currently connected to the touch panel.

Bluetooth Device Search

The *Bluetooth Device Search* page (FIG. 26) allows you to search for new Bluetooth devices, or ones already paired to the panel, and allow them to connect to the panel.



FIG. 26 Bluetooth Device Search page

Bluetooth Device Search Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Device Name:	This is the device name of the Bluetooth device currently on the network.
Device Address:	This is the device address of the Bluetooth device currently on the network.
Cancel:	Press this button to cancel adding new devices to the page.

Bluetooth Device Search Page (Cont.)	
Connect:	Press this button to connect a newly detected device to the network.
Up/Down:	Press the Up and Down buttons to select a particular Bluetooth device before connecting it.

Searching For New Bluetooth Devices

Modero S Series touch panels have the capability of detecting active Bluetooth devices connected to their network through a MXA-BT Bluetooth USB Adaptor (FG5968-19). Once paired with the panel, a Bluetooth device may go out of range of the MXA-BT and lose a connection, but automatically reconnect once it returns within range.



The Bluetooth device must be put into Pairing Mode before enabling the panel to search for Bluetooth connections.

To search for new Bluetooth devices in the vicinity:

1. Install the MXA-BT Bluetooth USB Adaptor in a USB port on the touch panel. With wall-installed touch panels, this may require temporarily removing the panel from its back box in order to reach a USB port.
2. From the *Bluetooth* page, select *Set Up New Device...* to open the *Bluetooth Device Search* page.
3. The panel automatically starts searching for unpaired and paired Bluetooth devices within its range (FIG. 27). When it finds devices within its range, these will be displayed in the *Device Name* and *Device Address* fields. The panel will continue to search for Bluetooth devices within its range for 30 seconds.



FIG. 27 Searching for Bluetooth devices

4. When the panel is finished scanning for Bluetooth devices, those devices still need to be paired with the touch panel if they have not done so before. In the search list, select the device to be paired and click **Connect** (FIG. 28).



FIG. 28 Selecting a Bluetooth device

5. In the *Enter Pincode* keypad (FIG. 29), enter the device's pincode. The default pincode is **0000**.



FIG. 29 Enter Pincode keypad



You must enter the pincode within 30 seconds.

6. If a pincode needs to be entered from the device, a *System Message* popup window appears, requesting that this be done (FIG. 30).

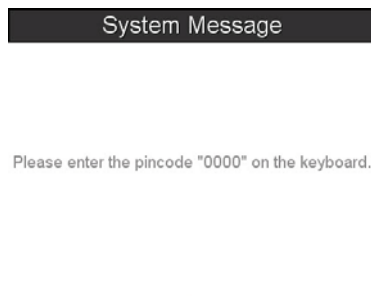


FIG. 30 System Message: Please enter the pincode

7. Once the pincode has been entered, a new *System Message* popup window appears, noting that pairing is in progress (FIG. 31).



FIG. 31 System Message: Pairing in progress...

8. When the pairing is finished, the new device appears on the main *Bluetooth* page (FIG. 32).



FIG. 32 Detected Bluetooth devices on the Bluetooth page

Smart Card

The *Smart Card* page (FIG. 33) controls the touch panel’s ability to receive and process information from Common Access Card (CAC) smart card readers.



Use of this feature requires the use of an AMX-approved CAC reader, as shown below.

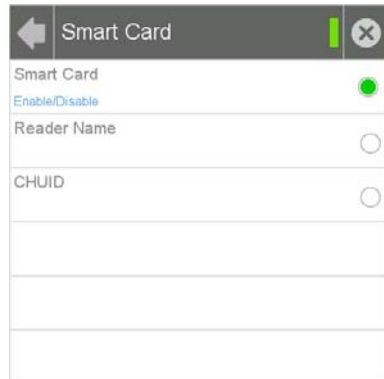


FIG. 33 Smart Card page

Smart Card Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the “X” button to shut the <i>Settings</i> page and return to the main display.
Smart Card:	Click this button to enable or disable the touch panel’s ability to use smart card readers
Reader Name:	Click this button to enable or disable displaying the smart card reader’s name and model.
CHUID:	Click this button to enable or disable displaying the card’s Card Holder Unique Identifier (CHUID) number.

At this time, three CAC readers are approved for use with the Modero S Series touch panels. Each has different methods of displaying the detection of valid smart cards, but all connect to the touch panel via the touch panel’s USB port. These three models are:

- SCM Microsystems SCR3310 USB Card Reader
- SCM SCR331 USB Common Access CAC Smart Card Reader
- SCM SCR3500 Smart Card Reader

To enable a touch panel to use a CAC reader:

1. From the *Smart Card* page, press the *Smart Card* button. This enables the panel to receive CAC card information.
2. Following the manufacturer’s instructions, connect the CAC reader to the touch panel via the touch panel’s USB port.
3. If desired, the touch panel may emit a sound to inform the user that a valid smart card has been detected by the reader. From the *Sounds* page (page 10), enable the panel to emit sounds when detecting a smart card, and choose one of the ten preloaded sounds.



For more information on smart card programming, please refer to the Smart Cards section on page 108.

When using a CAC reader, please note that different readers have different display standards. For instance, with devices that have an LED, some light up to show that the device is connected to the touch panel, while others will only light up upon insertion of a valid smart card. The one certain way to ensure that a CAC reader is working correctly is to look for the CHUID number in the *CHUID* field of the Smart Card page. If a user inserts a card into a CAC reader and the CHUID number is not displayed, either the card is an invalid or damaged smart card, or the CAC reader is not connected to the touch panel or otherwise damaged.

Breakout Box

To use the MXA-MP Multi Preview or MXA-MPL Multi Preview Live devices for video stream display, the Modero S Series touch panel to which it is connected needs to be configured to receive its signals. If a Breakout Box is not connected to the panel's network, all fields but the Breakout Box button will be empty.



NOTE

For more information on operation and configuration of an MXA-MP or MXA-MPL, please refer to the MXA-MP/MPL Operation Reference Guide, available at www.amx.com.



FIG. 34 Breakout Box page

Breakout Box Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Breakout Box:	Click this button to enable the touch panel to receive information from the device.
Version:	Displays the current firmware version on the Breakout Box.
Serial Number:	Displays the serial number of the Breakout Box.
MAC Address:	Displays the MAC address of the Breakout Box.
Input Information:	Displays the video format and resolution coming from the video input port.
Stream Information:	This feature is currently disabled.

To configure the touch panel:

1. From the Breakout Box page, press the **Breakout Box** button to enable the panel to receive information from the device.
2. If the device is connected, the remaining information on the *Breakout Box* page will self-populate as the touch panel receives that information from the device.



NOTE

*If the device is not connected to the touch panel at this time, any attempts at enabling the device will fail, and the Breakout Box page will be blank other than the **Breakout Box** button. If an MXA-MP or MPL is not connected to the touch panel, the Breakout Box button **MUST** be disabled to prevent network conflicts.*

Configuration

The *Configuration* page (FIG. 35) allows confirmation of and changes to panel configuration information.



FIG. 35 Configuration page

Configuration Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Panel:	Select this to open the <i>Panel Configuration</i> page (page 25).
Admin:	Select this to open the <i>Admin Configuration</i> page (page 30).
SIP:	Select this to open the <i>SIP</i> page (page 37).
Advanced:	Select this to open the <i>Advanced Config</i> page (page 39).
Reboot:	Press and hold this button for two seconds to reboot the touch panel.
Shutdown:	Press and hold this button for two seconds to shut down the touch panel.

Panel Configuration

The *Panel Configuration* page (FIG. 36) allows configuration and updating of the touch panel's device name and device number, access to power management and G4 Web control features, and configuration of the panel's motion and light sensors.

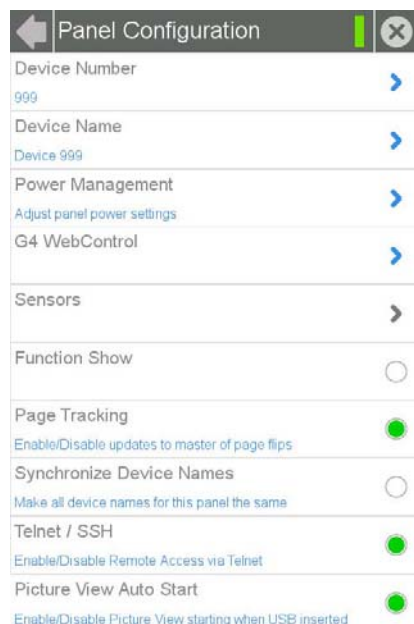


FIG. 36 Panel Configuration page

Panel Configuration Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Device Number:	Select this to open a keypad used to view or change the device number of the panel.
Device Name:	Select this to open a keyboard used to view or change the device name used for the panel.
Power Management:	Select this to open the <i>Power Management</i> page (page 27).
G4 WebControl:	Select this to open the <i>G4 Web Control</i> page (page 28).
Sensors:	This selection is greyed out.
Function Show:	When the <i>Function Show</i> feature is displayed, the Channel Port and Code will appear in yellow, the Address Port and Code in blue, and the Level Port and Channel Code in purple (FIG. 41).
Page Tracking:	Click this button to enable or disable the panel sending page flip tracking to the Master.
Synchronize Device Names:	Click this button to synchronize the Device Name, Hostname, and G4 Web Control Names (page 29). If this is enabled, only the Device Name can be modified, but this will be populated to the other names as well.
Telnet/SSH:	Click this button to enable or disable remote access to the panel via Telnet.
Picture View Auto Start:	Click this button to allow Picture View to start automatically once the panel detects a suitable USB stick.

Changing the Device Number

To change the touch panel's Device Number within the network:

1. From the *Panel Configuration* page, select the *Device Number* field. This opens the *Device Number* keypad (FIG. 37).



FIG. 37 Device Number keypad

2. Enter the new device number and press **OK**.
3. The *Device Number* field in the *Panel Configuration* page will now display the new device number.

Changing the Device Name

To change the name associated with the touch panel:

1. From the *Panel Configuration* page, select the *Device Name* field to open the *Device Name* keyboard (FIG. 38).



FIG. 38 Device Name keyboard

2. Enter the new device name and press **OK**.

Power Management

The options on the *Power Management* page (FIG. 39) allow setting of display timeout and panel shutdown preferences.



FIG. 39 Power Management page

Power Management Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Display Timeout:	This value determines the number of seconds, minutes, or hours that need to pass before the panel automatically goes into Sleep Mode. Once asleep, the device may be awakened by touching the Sleep button on the top of the panel or the screen itself. Use the Up/Down arrows to change the settings; a value of Off disables this feature. Range = 10, 15, 20, 25, 30 seconds; 5, 15, 30 minutes; 1, 2 hours Default = Off
Panel Shutdown:	This value determines the number of seconds, minutes, or hours that need to pass before the panel automatically shuts down. Use the Up/Down arrows to change the settings; a value of Off disables this feature. Once the touch panel is shut down, the Sleep button must be pressed to wake up the panel. Range = 3, 5, 10, 15, 30 minutes; 1, 2, 3, 4 hours Default = Off

G4 WebControl

An on-board VNC (Virtual Network Computing) server allows any remote PC running a VNC client to connect to the panel. Once connected, the client can view and control the panel remotely. The options on the *G4 WebControl* page (FIG. 40) allow you to enable or disable G4 WebControl functionality.



FIG. 40 G4 WebControl page

G4 WebControl Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
G4 WebControl:	The G4 Web Control button toggles between the two G4 activation settings: <ul style="list-style-type: none"> • Off - deactivates G4 Web Control on the panel. • On - activates G4 Web Control on the panel.
Timeout:	Sets the length of time (in minutes) that the panel can remain idle, detecting no cursor movements, before the G4 Web Control session is terminated. <ul style="list-style-type: none"> • Minimum value = Off (panel never times out) • Maximum value = 4 h (panel times out after 4 hours)
Name:	Use this field to enter a unique alpha-numeric string to be used as the panel's display name. If the Synchronize Device Names option (page 29) is enabled, this field will be greyed out.
Password:	Use this field to enter the G4 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. Default = 5900.
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 = 1.
Current Connections:	Displays the number of users currently connected to this panel via VNC.



NOTE

The Modero S Series touch panels accelerate graphics rendering through hardware, not software. When accessing the panel via VNC, a separate software graphics engine is used, which may slow down graphics and panel responsiveness. In addition to slowing down graphics and panel responsiveness, any video and animated transitions will not be visible over VNC.

Function Show Example



NOTE

When the Function Show feature is displayed, the Channel Port and Code will appear in yellow, the Address Port and Code in blue, and the Level Port and Code in purple.

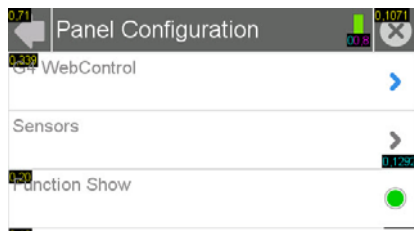


FIG. 41 Function Show

Synchronizing Device Names

For ease of connectivity, it may be desirable or necessary to make sure that all of the names registered with the panel are the same. Enabling the **Synchronize Device Names** button synchronizes these names, tracking any changes to the current Device Name setting. If this button is disabled, Hostname and G4 Web Control names may be changed individually.



NOTE

The Synchronize Device Names button is disabled by default.

To synchronize all device names used by a panel:

1. From the *Panel Configuration* page, select the **Synchronize Device Names** button.
2. A System Message popup window appears, giving the option to synchronize multiple names to the Device Name (FIG. 42). When a five-second timer ends, the **Yes** button will be enabled.

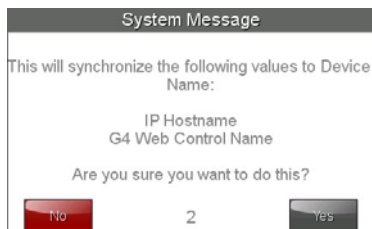


FIG. 42 System Message: This will synchronize the following values to Device Name

3. Click **Yes** when enabled. This will automatically synchronize all names to the current Device Name.

Admin Configuration

The *Admin Configuration* page (FIG. 43) allows control of access to the *Settings* pages, passwords, security settings, and the ability to install firmware or touch panel pages from various sources.

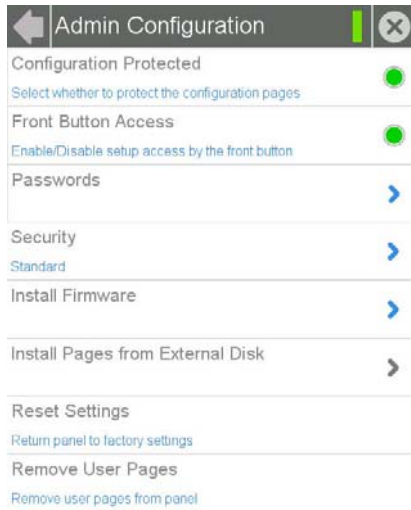


FIG. 43 Admin Configuration page

Admin Configuration Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Configuration Protected:	Press this button to protect the <i>Settings</i> pages from access without a password.
Front Button Access:	Press this button to enable or disable the ability to access the <i>Settings</i> pages from the Sleep button (FIG. 1). NOTE: If <i>Sleep button access is disabled</i> , the <i>Settings</i> page can be through the <i>splash</i> page, as shown in the <i>Accessing the Settings Page</i> section on page 3. The <i>Settings</i> page may also be accessed via <i>Telnet</i> , <i>send command</i> , or a <i>preconfigured setup button on touch panel pages</i> .
Passwords:	Select this to access the <i>Passwords</i> page (page 31).
Security:	Select this to open the <i>Security</i> page (page 32).
Install Firmware:	Select this to access the <i>Install Firmware</i> page (page 33).
Install Pages from External Disk:	Select this to install touch panel pages from an external disk, such as a USB stick. If an external disk is not connected to the touch panel, this field will be greyed out.
Reset Settings:	Select this to reset all settings and return them to the panel's factory defaults.
Remove User Pages:	Select this to remove all currently loaded user pages from the panel.

Admin Passwords

The options on the *Admin Passwords* page allow assignment of passwords required for users to access the secured *Settings* pages.



FIG. 44 Admin Passwords page

Passwords Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Password 1-4	Accesses the alphanumeric password. Select PASSWORD 1, 2, 3, or 4 to open a keyboard to enter alphanumeric values associated with the selected password.
Password 5 (protected):	Accesses the alphanumeric values associated to particular password sets. Select PASSWORD 5 (protected) to open a keyboard to enter alphanumeric values associated with the selected password. Note: <i>Clearing Password #5 removes the need to enter a password before accessing secured Settings pages.</i>

To change a previously established password:

1. In the *Passwords* page, select the appropriate entry for the particular password to be changed. This opens a password keyboard (FIG. 45).



Password 5 is protected, and can only be changed by the Administrator.



FIG. 45 Password 1 keyboard

2. In the *Password* keyboard, enter the new alphanumeric password.
3. Press **OK** when complete.

Security

The *Security* page (FIG. 46) allows you to select between the three security options available on the panel: *Standard*, *Secure*, and *DoD*.



FIG. 46 Security page

Security Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Standard:	Click this button to set security to <i>Standard</i> (see below).
Secure:	Click this button to set security to <i>Secure</i> (see below).
DoD:	Click this button to set security to <i>DoD</i> (see below).
Cancel:	Click this button to return to the <i>Admin Configuration</i> page without saving any changes made to this page.
Apply:	Click this button to save any changes made to this page and return to the <i>Admin Configuration</i> page.

Each of the settings on this page has different features for touch panel security:

Security Profile Features	
Standard:	<ul style="list-style-type: none"> • Factory default, shipped in this configuration. • Default Password is <i>1988</i>. • Remote login uses Telnet.
Secure:	<ul style="list-style-type: none"> • Default Protected Setup Password is <i>Amx1234!</i>. • Minimum password requirement is 8 characters with at least one numeric character. • Remote login uses SSH. • Remote login user name is <i>amx</i>. • Login failure attempt pauses 4 seconds before another login attempt is allowed. • After 3 consecutive unsuccessful SSH login attempts, login lockout is enabled for 15 minutes. • Login and logout audit logging is enabled.
DoD:	<ul style="list-style-type: none"> • Default Protected Setup Password is <i>Amx1234!</i>. • Minimum password requirement is 8 characters with at least one numeric character, one uppercase character, one lower case character, and one special character, with no duplicate adjacent characters. • Remote login uses SSH. • Remote login user name is <i>amx</i>. • Login failure attempt pauses 4 seconds before another login attempt is allowed. • After 3 consecutive unsuccessful SSH login attempts, login lockout is enabled for 15 minutes. • Login and logout audit logging is enabled. • DoD login banner is enabled.

A transition from one security mode to another will reset the Protected/Web Control/remote login password to the default value for the current security mode (please refer to the default passwords above). A transition to Secure or DoD

mode will disable G4 Web Control. Although the security password features are immediate, a reboot must occur for all the new security mode features to take full effect.



NOTE

Changing the security setting will also change the G4 Web Control password. This must be reset from the G4 WebControl on page 28 before you can access the panel via VNC.

Install Firmware

The *Install Firmware* page (FIG. 47) allows the touch panel to be reloaded with its original factory-loaded firmware, installed with a previous version of the current firmware, or to install new firmware from an external storage disk, such as a USB stick.



FIG. 47 Install Firmware page

Install Firmware Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the “X” button to shut the <i>Settings</i> page and return to the main display.
Factory:	Select this to revert the panel back to its original factory-loaded firmware.
Previous:	Select this to re-install the last previously loaded firmware version.
New:	Select this to install new firmware from an external disk, such as from a USB stick. NOTE: if the panel does not detect an external disk containing firmware, this will be greyed out.

Resetting to Factory-Installed Firmware

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

1. From the *Install Firmware* page, select the *Factory* field.
2. A System Message window appears, asking “Are you sure you want to install the following firmware?”, with the version “Factory Firmware” listed below (FIG. 48).



FIG. 48 Install Factory Firmware system message

3. Within five seconds, the **Yes** button will be enabled. At that time, select **Yes** to install the factory firmware and **No** to return to the *Install Firmware* page.
4. If you choose **Yes**, the touch panel will reboot and restart with the factory default firmware.

To reset the touch panel to its original factory firmware from the panel bootup:

1. Immediately after the touch panel boots up, the device's splash page appears on the screen (FIG. 49). Press the three indicator dots within the first three seconds, before they start moving, to reset the firmware.



FIG. 49 Modero S Series splash page

2. The new confirmation page informs you that a panel reset to its original factory firmware may result in a loss of data (FIG. 50). Click *Yes* to confirm that you wish to continue the resetting process and click *No* to return to the splash page.



FIG. 50 Factory Reset confirmation page

3. The touch panel will now reset to its original factory firmware and restart.



NOTE

Resetting the touch panel to its original factory firmware will remove all previous changes to the Settings pages.

Installing Previous Firmware

In certain circumstances, it may be necessary to revert to a previously installed version of the touch panel firmware. To reset the touch panel to its previously installed firmware via the *Settings* pages:

1. From the *Install Firmware* page, select the *Previous* field.
2. A System Message window appears, asking “Are you sure you want to install the following firmware?”, with the previous firmware version listed below (FIG. 51).



FIG. 51 Install Previous Firmware system message

3. Within five seconds, the **Yes** button will be enabled. At that time, select **Yes** to install the previous firmware version and **No** to return to the *Install Firmware* page.
4. If you choose **Yes**, the touch panel will reboot and restart with the previously installed firmware.

Installing New Firmware From An External USB Stick

To install new firmware to the touch panel from an external disk via the *Settings* pages:

1. Download the latest Modero S Series touch panel firmware from www.amx.com and save it to a USB stick.



NOTE

The firmware must be saved in a folder in the USB stick directory, corresponding with the touch panel model, in order to be recognized by the touch panel. For instance, firmware for an MST-431 must be saved in a folder named “mst-431” to be recognized by the panel. The folder name is not case sensitive.

2. Insert the USB stick into an available USB port. This may require disassembling wall-mounted touch panels to access the USB ports if a USB extension was not already installed.



NOTE

In the case of the MSD-431-L, connecting a USB stick to the device will require the use of a USB OTG adaptor.

3. From the *Install Firmware* page, select the *New* field.
4. A System Message window appears, asking “Are you sure you wish to install the following firmware?”. The option to choose **Yes** will be enabled after five seconds. Press **Yes** to load the firmware listed, and **No** to return to the *Firmware Installation* popup window.
5. The device will now upload the new firmware after prompting you to remove the USB stick. It will then automatically reboot.

To install new firmware to the touch panel from an external USB stick from the panel bootup:

1. Before starting, download the firmware .kit file to a USB stick and connect the USB stick to the touch panel’s USB A port.



NOTE

For more information on updating firmware for your touch panel, particularly concerning the format and the directory placement of the firmware upgrade, please refer to the Upgrading Firmware section of the touch panel’s Operation Reference Guide. The Operation Reference Guides for the Modero S Series touch panels are available at www.amx.com.

2. Reboot the touch panel. When the touch panel restarts, the device will detect the firmware upgrade and display a screen requesting that you touch the screen to initiate an update (FIG. 52). If you do not touch the screen within three seconds, the firmware update will not be initiated and the panel will boot up normally (FIG. 53).



FIG. 52 Update initiation screen

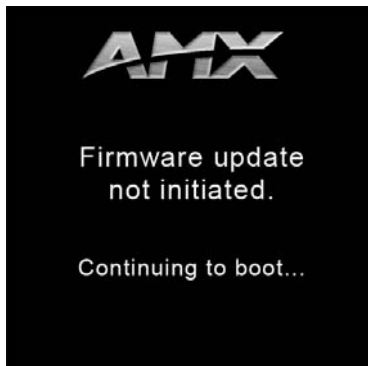


FIG. 53 Firmware Not Initiated screen

3. After pressing the screen to initiate the update, a new screen appears, informing you that the upgrade is in progress (FIG. 54).



FIG. 54 Upgrade In Progress screen

4. Once the upgrade is complete, the touch panel will automatically reboot with the new firmware.
5. You may remove the USB stick from the USB A port once the dots in the splash page (FIG. 49) start moving. If you do not remove the USB stick, the update initiation screen will appear again. At this point, do not touch the screen, and the reboot will continue.

SIP

The options on the *SIP* page (FIG. 55) enable you to establish network settings for using your touch panel as an IP phone. With a CSG SIP Communications Gateway (**FG2182-01, -02, -03**), you can use your touch panel to make and receive local, long distance, and international phone calls, and have access to phone features like call waiting, caller ID, call forwarding, call queuing, and voice mail. Setting up your touch panel as a telephone requires that you set it up as one in the CSG SIP Communications Gateway. Refer to the *CSG SIP Communications Gateway Operation/Reference Guide* for information on setting up your touch panel to work as a telephone.

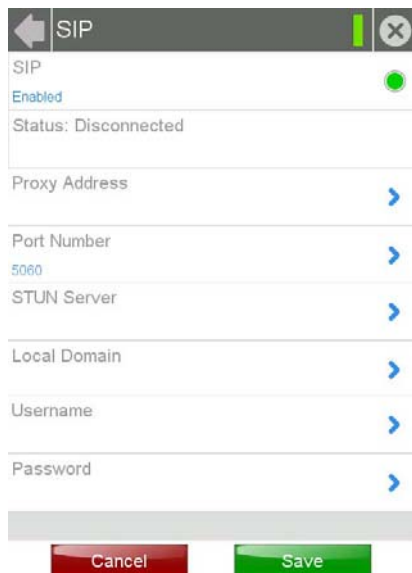


FIG. 55 SIP page

You may need to load a Duet module to enable the touch panel to receive SIP calls. The Duet module translates between the standard interface and the device protocol. It parses the buffer for responses from the device, sends strings to control the device, and receives commands from the UI module or telnet sessions. Refer to the documentation supplied with the Duet Module for more details.



NOTE

A sample UI module is provided in the module package. It is not intended to cover every possible application, but can be expanded as needed by a dealer to meet the requirements of a particular installation.

SIP Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
SIP:	This option enables the SIP Stack on startup. If you disable this option, the panel will not attempt to read the rest of the configuration and will not register with a proxy server. However, point-to-point SIP will still be enabled allowing for existing intercom functionality.
Status:	This option displays whether you are connected to the proxy server.
Proxy Address:	This option enables you to enter the IP address or DNS name of the proxy server used as the SIP gateway.
Port Number:	The option displays the port you use to connect to the proxy server. The standard SIP port is 5060, but some providers use different ports.
STUN Server:	This option enables you to enter the IP address or DNS name of the Simple Traversal of UDP through NATs (STUN) server. This field is optional.
Local Domain:	This is the realm used for authentication. This field is optional.
Username:	This option enables you to enter the user name used for authentication to the proxy server. Normally, the user name is the same as the phone number assigned to the extension you are using. This field is optional.

SIP Page (Cont.)	
Password:	This option enables you to enter the password for the user at the proxy server. This field is optional.
Cancel:	Press the Cancel button to return to the <i>Configuration</i> page without saving any changes made on the <i>SIP</i> page.
Save:	Touch the Save button to save the changes and return to the <i>Configuration</i> page.

Changing the SIP Proxy Address

To change the SIP proxy address:

1. From the *SIP* page, select the *Port Number* field to open the *SIP Proxy Address* keyboard (FIG. 56).



FIG. 56 SIP Proxy Address keyboard

2. Enter the new proxy address and click **OK**.
3. Click **Save** to save your changes to the *SIP* page and return to the *Configuration* page.

Changing the SIP Port Number

To change the port number used by the proxy server:

1. From the *SIP* page, select the *Port Number* field to open the *SIP Port Number* keypad (FIG. 57).

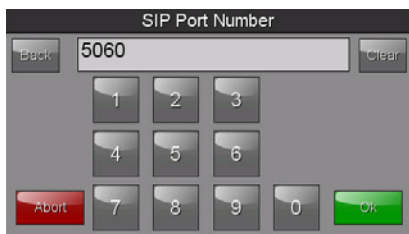


FIG. 57 SIP Port Number keypad

2. Enter the new port number and click **OK**.
3. The *SIP* page will now display the new SIP port number in the *Port Number* field.
4. Click **Save** to save your changes to the *SIP* page and return to the *Configuration* page.

Changing the SIP STUN Address

To change the STUN address:

1. From the *SIP* page, select the *STUN Server* field to open the *SIP STUN Address* keyboard (FIG. 58).



FIG. 58 SIP STUN Address Keyboard

2. Enter the STUN server address and click **OK**.
3. Click **Save** to save your changes to the *SIP* page and return to the *Configuration* page.

Advanced Config

The *Advanced Config* page (FIG. 59) displays options for more advanced configuration options, such as running diagnostics or modifying the options for streaming video.

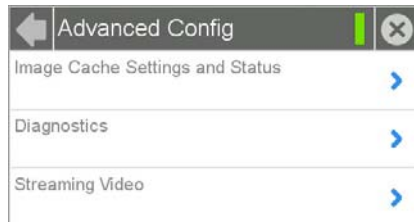


FIG. 59 Advanced Config page

Advanced Config Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Image Cache Settings and Status:	Select this to open the <i>Cache Settings</i> page (page 40)
Diagnostics:	Select this to open the <i>Diagnostics</i> page (page 41).
Streaming Video:	Select this to open the Streaming Video page (page 43).

Cache Settings

The options on the *Cache Settings* page (FIG. 60) allow setting and clearing of the flash memory cache, as well as viewing the status of the current cache settings. The G4 graphics engine caches images to decrease load time of previously viewed images. RAM caching is always enabled, and both static and dynamic images are stored in the RAM cache as they are viewed. The size of RAM cache is automatically configured to take into account available memory versus memory that may be needed by the panel later. As the RAM cache approaches its maximum size, the oldest items in the cache may be discarded to make room for newer items. If Flash caching is enabled, dynamic images that would have been discarded will actually be moved to Flash, since retrieving images on Flash is typically faster than across a network, although it is slower than using a RAM cache. Note that since static images are already stored on Flash, they are never moved to the Flash cache, so Flash caching applies only to dynamic images. Images in Flash cache are moved back to RAM cache the next time they are viewed. As the Flash cache approaches its maximum size, the least recently used items may be discarded to make room for new items.

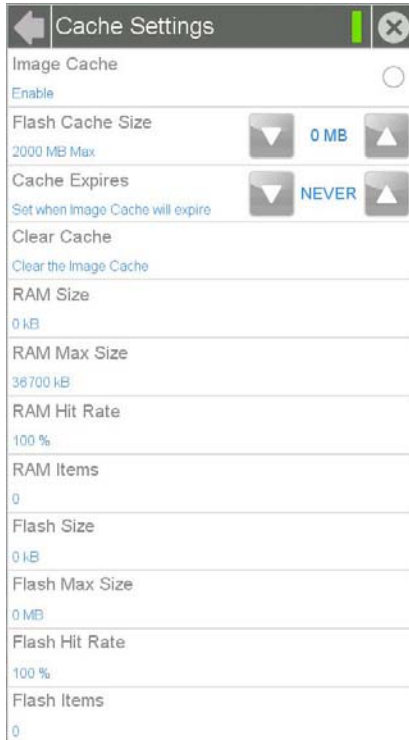


FIG. 60 Cache Settings page

Cache Settings Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Image Cache:	Click this button to enable or disable the image Flash cache.
Flash Cache Size:	Use the Up/Down buttons to increase or decrease the total size of the flash memory cache. The maximum size is displayed in this field.
Cache Expires:	Use the Up/Down buttons to control the amount of time elapsed before the panel automatically deletes its cache, with increments of 2 hours, 8 hours, 1 day, 2 days, 5 days, and "NEVER".
Clear Cache:	Clears all files previously stored in the flash and RAM memory caches.
RAM Size:	Displays the current size of RAM-cached items.
RAM Max Size:	Displays the maximum RAM size for this panel before the least recently used items are discarded.
RAM Hit Rate:	The percentage of recent image requests satisfied by accessing the RAM cache.
RAM Items:	The total number of cached images in the RAM cache.

Cache Settings Page (Cont.)	
Flash Size:	The size of the current Flash cache contents.
Flash Max Size:	The maximum size allocated to the Flash cache.
Flash Hit Rate:	The percentage of dynamic image requests not satisfied by accessing the RAM cache, but satisfied by accessing the Flash cache.
Flash Items:	The total number of cached images in the Flash cache.

Diagnostics

The *Diagnostics* page (FIG. 61) allows access to panel logs, network statistics, ICSP statistics, and the panel connection utility.

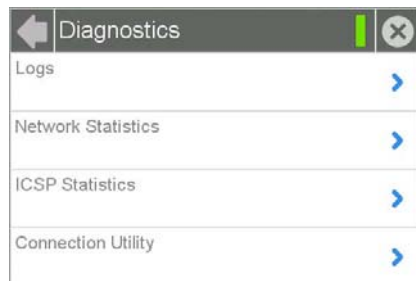


FIG. 61 Diagnostics page

Diagnostics Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Logs:	Click this button to open the <i>Logs</i> page (page 41).
Network Statistics:	Click this button to open the <i>Network Statistics</i> page (page 42).
ICSP Statistics:	Click this button to open the <i>ICSP Statistics</i> page (page 42).
Connection Utility:	Click this button to open the <i>Connection Utility</i> page (page 43).

Logs

The *Logs* page (FIG. 62) chronicles all previous connections between the device and the network.



FIG. 62 Logs page

Logs Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Clear:	Clears all connection logs.
Refresh:	Refreshes displayed log information.
Page:	Displays the current log page number. Use the Up/Down arrows to select log pages.

Network Statistics

The *Network Statistics* page (FIG. 63) displays received and transmitted IP packets. Touch the **Refresh** button to return the counters to their placement before the latest update.



FIG. 63 Network Statistics page

Network Statistics Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Refresh:	Refreshes all data on this page.

ICSP Statistics

The *ICSP Statistics* page (FIG. 64) collects the number of ICSP messages received by the touch panel.



FIG. 64 ICSP Statistics page

ICSP Statistics Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
ICSP:	
Received:	Lists the number of ICSP messages received since the last time the page was cleared or refreshed, or within the last 15 minutes.
Processed:	Lists the number of ICSP messages processed since the last time the page was cleared or refreshed, or within the last 15 minutes.
Dropped:	Lists the number of ICSP messages dropped since the last time the page was cleared or refreshed, or within the last 15 minutes.
Blinks:	
Received:	Lists the number of blink messages received since the last time the page was cleared or refreshed, or within the last 15 minutes.
Missed:	Lists the number of blink messages missed since the last time the page was cleared or refreshed, or within the last 15 minutes.
Clear:	Clears all fields.
Refresh:	Refreshes all data.

Connection Utility

The *Connection Status* page (FIG. 65) displays the current connection information, including the latest Master and panel IP address information.



FIG. 65 Connection Utility page

Connection Utility Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Status:	Click this button to enable the Connection Utility page.
Master IP:	The IP address for the network's Master.
Panel IP:	The IP address used by the device.
Messages Sent:	Lists the number of queries sent to the Master.
Responses Received:	Lists the number of responses received from the Master.
Responses Missed:	Lists the number of responses missed by the Master.

Streaming Video

The *Streaming Video* page (FIG. 66) is used to preview video sources, such as those coming through an MXA-MP or MXA-MPL. For more information on these devices, please refer to the *MXA-MP/MPL Operation Reference Guide*, available at www.amx.com.

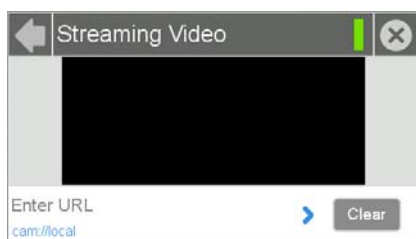


FIG. 66 Streaming Video page

Streaming Video Page	
Back:	Click the left-facing arrow to return to the previous page.
Connection Status:	A green bar signifies that the panel has an active connection to the Master.
Close:	Click the "X" button to shut the <i>Settings</i> page and return to the main display.
Enter URL:	Select this to enter the URL for the video stream to be displayed. The default is the touch 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 video stream:

1. From the *Streaming Video* page, select *Enter URL* to open the *Set URL* keyboard (FIG. 67).



FIG. 67 Set URL keyboard

2. Enter the URL for the camera and click **OK**.
3. The camera feed will now appear in the *Streaming Video* page window.

Programming

Overview

You can program Modero S 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).



WARNING

Verify you are using the latest NetLinx Master and Modero S Series firmware, as well as the latest version of NetLinx Studio and TPDesign.



NOTE

Future firmware updates may not support certain commands, and these commands are identified as such within each section. If you are having conflicts within a network or device, or within NetLinx Studio, check the command to verify that this command is no longer supported within the currently used firmware version.

Page Commands

These Page Commands are used in NetLinx Programming Language and are case insensitive.

Page Commands	
<p>@APG</p> <p>Add a specific popup page to a specified popup group.</p>	<p>Add the popup page to a group if it does not already exist. If the new popup is added to a group which has a popup displayed on the current page along with the new pop-up, the displayed popup will be hidden and the new popup will be displayed.</p> <p>Syntax:</p> <pre>"@APG-<popup page name>;<popup group name>"</pre> <p>Variable:</p> <p>popup page name = 1 - 50 ASCII characters. Name of the popup page. popup group name = 1 - 50 ASCII characters. Name of the popup group.</p> <p>Example:</p> <pre>SEND_COMMAND Panel, "@APG-Popup1;Group1"</pre> <p>Adds the popup page 'Popup1' to the popup group 'Group1'.</p> <p>NOTE: Future firmware versions may not support this command.</p>
<p>@CPG</p> <p>Clear all popup pages from specified popup group.</p>	<p>Syntax:</p> <pre>"@CPG-<popup group name>"</pre> <p>Variable:</p> <p>popup group name = 1 - 50 ASCII characters. Name of the popup group.</p> <p>Example:</p> <pre>SEND_COMMAND Panel, "@CPG-Group1"</pre> <p>Clears all popup pages from the popup group 'Group1'.</p> <p>NOTE: Future firmware versions may not support this command.</p>
<p>@DPG</p> <p>Delete a specific popup page from specified popup group if it exists.</p>	<p>Syntax:</p> <pre>"@DPG-<popup page name>;<popup group name>"</pre> <p>Variable:</p> <p>popup page name = 1 - 50 ASCII characters. Name of the popup page. popup group name = 1 - 50 ASCII characters. Name of the popup group.</p> <p>Example:</p> <pre>SEND_COMMAND Panel, "@DPG-Popup1;Group1"</pre> <p>Deletes the popup page 'Popup1' from the popup group 'Group1'.</p> <p>NOTE: Future firmware versions may not support this command.</p>

Page Commands (Cont.)	
<p>@PDR Set the popup location reset flag.</p>	<p>If the flag is set, the popup will return to its default location on show instead of its last drag location.</p> <p>Syntax: <code>" '@PDR-<popup page name>;<reset flag>' "</code></p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On. reset flag = 1 = Enable reset flag 0 = Disable reset flag</p> <p>Example: <code>SEND_COMMAND Panel, "'@PDR-Popup1;1'"</code> Popup1 will return to its default location when turned On. NOTE: Future firmware versions may not support this command.</p>
<p>@PHE Set the hide effect for the specified popup page to the named hide effect.</p>	<p>Syntax: <code>" '@PHE-<popup page name>;<hide effect name>' "</code></p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On. hide effect name = Refers to the popup effect names being used.</p> <p>Example: <code>SEND_COMMAND Panel, "'@PHE-Popup1;Slide to Left'"</code> Sets the Popup1 hide effect name to 'Slide to Left'. NOTE: Future firmware versions may not support this command.</p>
<p>@PHP Set the hide effect position.</p>	<p>Only 1 coordinate is ever needed for an effect; however, the command will specify both. This command sets the location at which the effect will end at.</p> <p>Syntax: <code>" '@PHP-<popup page name>;<x coordinate>,<y coordinate>' "</code></p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On.</p> <p>Example: <code>SEND_COMMAND Panel, "'@PHP-Popup1;75,0'"</code> Sets the Popup1 hide effect x-coordinate value to 75 and the y-coordinate value to 0. NOTE: Future firmware versions may not support this command.</p>
<p>@PHT Set the hide effect time for the specified popup page.</p>	<p>Syntax: <code>" '@PHT-<popup page name>;<hide effect time>' "</code></p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On. hide effect time = Given in 1/10ths of a second.</p> <p>Example: <code>SEND_COMMAND Panel, "'@PHT-Popup1;50'"</code> Sets the Popup1 hide effect time to 5 seconds. NOTE: Future firmware versions may not support this command.</p>

Page Commands (Cont.)	
<p>@PPA Close all popups on a specified page.</p>	<p><i>If the page name is empty, the current page is used. Same as the 'Clear Page' command in TPDesign4.</i></p> <p>Syntax: " '@PPA-<page name>' "</p> <p>Variable: page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On.</p> <p>Example: SEND_COMMAND Panel, "'@PPA-Page1' "</p> <p>Close all pop-ups on Page1. NOTE: Future firmware versions may not support this command.</p>
<p>@PPF Deactivate a specific popup page on either a specified page or the current page.</p>	<p><i>If the page name is empty, the current page is used (see example 2). 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 TPDesign4.</i></p> <p>Syntax: " '@PPF-<popup page name>;<page name>' "</p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the popup page. page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On.</p> <p>Example: SEND_COMMAND Panel, "'@PPF-Popup1;Main' "</p> <p>Example 2: SEND_COMMAND Panel, "'@PPF-Popup1' "</p> <p>Deactivates the popup page 'Popup1' on the current page. NOTE: Future firmware versions may not support this command.</p>
<p>@PPG Toggle a specific popup page on either a specified page or the current page.</p>	<p><i>If the page name is empty, the current page is used (see example 2). 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 TPDesign4.</i></p> <p>Syntax: " '@PPG-<popup page name>;<page name>' "</p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the popup page. page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On.</p> <p>Example: SEND_COMMAND Panel, "'@PPG-Popup1;Main' "</p> <p>Toggles the popup page 'Popup1' on the 'Main' page from one state to another (On/Off). Example 2: SEND_COMMAND Panel, "'@PPG-Popup1' "</p> <p>Toggles the popup page 'Popup1' on the current page from one state to another (On/Off). NOTE: Future firmware versions may not support this command.</p>
<p>@PPK Kill a specific popup page from all pages.</p>	<p>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 4.</p> <p>Syntax: " '@PPK-<popup page name>' "</p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the popup page.</p> <p>Example: SEND_COMMAND Panel, "'@PPK-Popup1' "</p> <p>Kills the popup page 'Popup1' on all pages. NOTE: Future firmware versions may not support this command.</p>

Page Commands (Cont.)	
<p>@PPM Set the modality of a specific popup page to Modal or NonModal.</p>	<p>A Modal popup page, when active, only allows you to use the buttons and features on that popup page. All other buttons on the panel page are inactivated.</p> <p>Syntax: " '@PPM-<popup page name>;<mode>' "</p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the popup page. mode = NONMODAL converts a previously Modal popup page to a NonModal. MODAL converts a previously NonModal popup page to Modal. modal = 1 and non-modal = 0</p> <p>Example: SEND_COMMAND Panel, "'@PPM-Popup1;Modal' "</p> <p>Sets the popup page 'Popup1' to Modal. SEND_COMMAND Panel, "'@PPM-Popup1;1' "</p> <p>Sets the popup page 'Popup1' to Modal. NOTE: Future firmware versions may not support this command.</p>
<p>@PPN Activate a specific popup page to launch on either a specified page or the current page.</p>	<p>If the page name is empty, the current page is used (see example 2). 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 TPDesign4.</p> <p>Syntax: " '@PPN-<popup page name>;<page name>' "</p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the popup page. page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On.</p> <p>Example: SEND_COMMAND Panel, "'@PPN-Popup1;Main' "</p> <p>Activates 'Popup1' on the 'Main' page.</p> <p>Example 2: SEND_COMMAND Panel, "'@PPN-Popup1' "</p> <p>Activates the popup page 'Popup1' on the current page. NOTE: Future firmware versions may not support this command.</p>
<p>@PPT Set a specific popup page to timeout within a specified time.</p>	<p>If timeout is empty, popup page will clear the timeout.</p> <p>Syntax: " '@PPT-<popup page name>;<timeout>' "</p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the popup page. timeout = Timeout duration in 1/10ths of a second.</p> <p>Example: SEND_COMMAND Panel, "'@PPT-Popup1;30' "</p> <p>Sets the popup page 'Popup1' to timeout within 3 seconds. NOTE: Future firmware versions may not support this command.</p>
<p>@PPX Close all popups on all pages.</p>	<p>This command works in the same way as the 'Clear All' command in TPDesign 4.</p> <p>Syntax: " '@PPX' "</p> <p>Example: SEND_COMMAND Panel, "'@PPX' "</p> <p>Close all popups on all pages. NOTE: Future firmware versions may not support this command.</p>

Page Commands (Cont.)	
<p>@PSE</p> <p>Set the show effect for the specified popup page to the named show effect.</p>	<p>Syntax:</p> <pre>"@PSE-<popup page name>;<show effect name>"</pre> <p>Variable:</p> <p>popup page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On.</p> <p>show effect name = Refers to the popup effect name being used.</p> <p>Example:</p> <pre>SEND_COMMAND Panel,"@PSE-Popup1;Slide from Left"</pre> <p>Sets the Popup1 show effect name to 'Slide from Left'.</p> <p>NOTE: Future firmware versions may not support this command.</p>
<p>@PSP</p> <p>Set the show effect position.</p>	<p>Only 1 coordinate is ever needed for an effect; however, the command will specify both. This command sets the location at which the effect will begin.</p> <p>Syntax:</p> <pre>"@PSP-<popup page name>;<x coordinate>,<y coordinate>"</pre> <p>Variable:</p> <p>popup page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On.</p> <p>Example:</p> <pre>SEND_COMMAND Panel,"@PSP-Popup1;100,0"</pre> <p>Sets the Popup1 show effect x-coordinate value to 100 and the y-coordinate value to 0.</p> <p>NOTE: Future firmware versions may not support this command.</p>
<p>@PST</p> <p>Set the show effect time for the specified popup page.</p>	<p>Syntax:</p> <pre>"@PST-<popup page name>;<show effect time>"</pre> <p>Variable:</p> <p>popup page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On.</p> <p>show effect time = Given in 1/10ths of a second.</p> <p>Example:</p> <pre>SEND_COMMAND Panel,"@PST-Popup1;50"</pre> <p>Sets the Popup1 show effect time to 5 seconds.</p> <p>NOTE: Future firmware versions may not support this command.</p>
<p>PAGE</p> <p>Flip to a specified page.</p>	<p>Flips to a page with a specified page name. If the page is currently active, it will not redraw the page.</p> <p>Syntax:</p> <pre>"PAGE-<page name>"</pre> <p>Variable:</p> <p>page name = 1 - 50 ASCII characters. Name of the page is displayed On. If left blank, the page flips back to the previous page.</p> <p>Example:</p> <pre>SEND_COMMAND Panel,"PAGE-Page1"</pre> <p>Flips to page1.</p> <pre>SEND_COMMAND Panel,"PAGE-"</pre> <p>Flips to the previous page.</p> <p>NOTE: Future firmware versions may not support this command.</p>

Page Commands (Cont.)	
<p>PPOF Deactivate a specific popup page on either a specified page or the current page.</p>	<p><i>If the page name is empty, the current page is used (see example 2).</i> 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 TPDesign4.</p> <p>Syntax: " 'PPOF-<popup page name>;<page name>' "</p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the popup page. page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On.</p> <p>Example: SEND_COMMAND Panel, " 'PPOF-Popup1;Main' "</p> <p>Deactivates the popup page 'Popup1' on the Main page.</p> <p>Example 2: SEND_COMMAND Panel, " 'PPOF-Popup1' "</p> <p>Deactivates the popup page 'Popup1' on the current page.</p> <p>NOTE: Future firmware versions may not support this command.</p>
<p>PPOG Toggle a specific popup page on either a specified page or the current page.</p>	<p><i>If the page name is empty, the current page is used (see example 2).</i> 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 TPDesign4.</p> <p>Syntax: " 'PPOG-<popup page name>;<page name>' "</p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the popup page. page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On.</p> <p>Example: SEND_COMMAND Panel, " 'PPOG-Popup1;Main' "</p> <p>Toggles the popup page 'Popup1' on the Main page from one state to another (On/Off).</p> <p>Example 2: SEND_COMMAND Panel, " 'PPOG-Popup1' "</p> <p>Toggles the popup page 'Popup1' on the current page from one state to another (On/Off).</p> <p>NOTE: Future firmware versions may not support this command.</p>
<p>PPON Activate a specific popup page to launch on either a specified page or the current page.</p>	<p><i>If the page name is empty, the current page is used (see example 2).</i> 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 TPDesign4.</p> <p>Syntax: " 'PPON-<popup page name>;<page name>' "</p> <p>Variable: popup page name = 1 - 50 ASCII characters. Name of the popup page. page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On.</p> <p>Example: SEND_COMMAND Panel, " 'PPON-Popup1; Main' "</p> <p>Activates the popup page 'Popup1' on the Main page.</p> <p>Example 2: SEND_COMMAND Panel, " 'PPON-Popup1' "</p> <p>Activates the popup page 'Popup1' on the current page.</p> <p>NOTE: Future firmware versions may not support this command.</p>

Programming Numbers

The following information provides the programming numbers for colors, fonts, and borders.

Colors can be used to set the colors on buttons, sliders, and pages. The lowest color number represents the lightest color-specific display; the highest number represents the darkest display. For example, 0 represents light red, and 5 is dark red.

RGB Triplets and Names For Basic 88 Colors

RGB Values for all 88 Basic Colors				
Index No.	Name	Red	Green	Blue
00	Very Light Red	255	0	0
01	Light Red	223	0	0
02	Red	191	0	0
03	Medium Red	159	0	0
04	Dark Red	127	0	0
05	Very Dark Red	95	0	0
06	Very Light Orange	255	128	0
07	Light Orange	223	112	0
08	Orange	191	96	0
09	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

RGB Values for all 88 Basic Colors (Cont.)				
Index No.	Name	Red	Green	Blue
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

RGB Values for all 88 Basic Colors (Cont.)				
Index No.	Name	Red	Green	Blue
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

Font Styles And ID Numbers

Font styles can be used to program the text fonts on buttons, sliders, and pages. The following chart shows the default font type and their respective ID numbers generated by TPDesign4.

Default Font Styles and ID Numbers						
Font ID #	Font type	Size		Font ID #	Font type	Size
1	Courier New	9		19	Arial	9
2	Courier New	12		20	Arial	10
3	Courier New	18		21	Arial	12
4	Courier New	26		22	Arial	14
5	Courier New	32		23	Arial	16
6	Courier New	18		24	Arial	18
7	Courier New	26		25	Arial	20
8	Courier New	34		26	Arial	24
9	AMX Bold	14		27	Arial	36
10	AMX Bold	20		28	Arial Bold	10
11	AMX Bold	36		29	Arial Bold	8

32 - Variable Fonts start at 32.



NOTE

Fonts must be imported into a TPDesign4 project file. The font ID numbers are assigned by TPDesign4. These values are also listed in the **Generate Programmer's Report**.

Border Styles And Programming Numbers

Border styles can be used to program borders on buttons, sliders, and popup pages.

Border Styles and Programming Numbers			
No.	Border styles	No.	Border styles
0-1	No border	10-11	Picture frame
2	Single line	12	Double line
3	Double line	20	Bevel-S
4	Quad line	21	Bevel-M
5-6	Circle 15	22-23	Circle 15
7	Single line	24-27	Neon inactive-S
8	Double line	40-41	Diamond 55
9	Quad line		

The TPDesign4 Touch Panel Design program has pre-set border styles that are user-selectable.

The following number values cannot be used for programming purposes when changing border styles. TPDesign border styles may ONLY be changed by using the name.

TPDesign Border Styles by Name			
No.	Border styles	No.	Border styles
1	None	27	Cursor Bottom
2	AMX Elite -L	28	Cursor Bottom with Hole
3	AMX Elite -M	29	Cursor Top
4	AMX Elite -S	30	Cursor Top with Hole
5	Bevel -L	31	Cursor Left
6	Bevel -M	32	Cursor Left with Hole
7	Bevel -S	33	Cursor Right
8	Circle 15	34	Cursor Right with Hole
9	Circle 25	35	Custom Frame
10	Circle 35	36	Diamond 15
11	Circle 45	37	Diamond 25
12	Circle 55	38	Diamond 35
13	Circle 65	39	Diamond 45
14	Circle 75	40	Diamond 55
15	Circle 85	41	Diamond 65
16	Circle 95	42	Diamond 75
17	Circle 105	43	Diamond 85
18	Circle 115	44	Diamond 95
19	Circle 125	45	Diamond 105
20	Circle 135	46	Diamond 115
21	Circle 145	47	Diamond 125
22	Circle 155	48	Diamond 135
23	Circle 165	49	Diamond 145
24	Circle 175	50	Diamond 155
25	Circle 185	51	Diamond 165
26	Circle 195	52	Diamond 175
53	Diamond 185	97	Menu Bottom Rounded 185
54	Diamond 195	98	Menu Bottom Rounded 195
55	Double Bevel -L	99	Menu Top Rounded 15
56	Double Bevel -M	100	Menu Top Rounded 25
57	Double Bevel -S	101	Menu Top Rounded 35
58	Double Line	102	Menu Top Rounded 45
59	Fuzzy	103	Menu Top Rounded 55
60	Glow-L	104	Menu Top Rounded 65
61	Glow-S	105	Menu Top Rounded 75
62	Help Down	106	Menu Top Rounded 85
63	Neon Active -L	107	Menu Top Rounded 95
64	Neon Active -S	108	Menu Top Rounded 105
65	Neon Inactive -L	109	Menu Top Rounded 115
66	Neon Inactive -S	110	Menu Top Rounded 125
67	Oval H 60x30	111	Menu Top Rounded 135
68	Oval H 100x50	112	Menu Top Rounded 145
69	Oval H 150x75	113	Menu Top Rounded 155
70	Oval H 200x100	114	Menu Top Rounded 165

TPDesign Border Styles by Name (Cont.)			
No.	Border styles	No.	Border styles
71	Oval V 30x60	115	Menu Top Rounded 175
72	Oval V 50x100	116	Menu Top Rounded 185
73	Oval V 75x150	117	Menu Top Rounded 195
74	Oval V 100x200	118	Menu Right Rounded 15
75	Picture Frame	119	Menu Right Rounded 25
76	Quad Line	120	Menu Right Rounded 35
77	Single Line	121	Menu Right Rounded 45
78	Windows Style Popup	122	Menu Right Rounded 55
79	Windows Style Popup (Status Bar)	123	Menu Right Rounded 65
80	Menu Bottom Rounded 15	124	Menu Right Rounded 75
81	Menu Bottom Rounded 25	125	Menu Right Rounded 85
82	Menu Bottom Rounded 35	126	Menu Right Rounded 95
83	Menu Bottom Rounded 45	127	Menu Right Rounded 105
84	Menu Bottom Rounded 55	128	Menu Right Rounded 115
85	Menu Bottom Rounded 65	129	Menu Right Rounded 125
86	Menu Bottom Rounded 75	130	Menu Right Rounded 135
87	Menu Bottom Rounded 85	131	Menu Right Rounded 145
88	Menu Bottom Rounded 95	132	Menu Right Rounded 155
89	Menu Bottom Rounded 105	133	Menu Right Rounded 165
90	Menu Bottom Rounded 115	134	Menu Right Rounded 175
91	Menu Bottom Rounded 125	135	Menu Right Rounded 185
92	Menu Bottom Rounded 135	136	Menu Right Rounded 195
93	Menu Bottom Rounded 145	137	Menu Left Rounded 15
94	Menu Bottom Rounded 155	138	Menu Left Rounded 25
95	Menu Bottom Rounded 165	139	Menu Left Rounded 35
96	Menu Bottom Rounded 175	140	Menu Left Rounded 45
141	Menu Left Rounded 55	149	Menu Left Rounded 135
142	Menu Left Rounded 65	150	Menu Left Rounded 145
143	Menu Left Rounded 75	151	Menu Left Rounded 155
144	Menu Left Rounded 85	152	Menu Left Rounded 165
145	Menu Left Rounded 95	153	Menu Left Rounded 175
146	Menu Left Rounded 105	154	Menu Left Rounded 185
147	Menu Left Rounded 115	155	Menu Left Rounded 195
148	Menu Left Rounded 125		

“^” Button Commands

These Button Commands are used in NetLinx Studio and are case insensitive.

All commands that begin with “^” have the capability of assigning a variable text address range and button state range. **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).

- **Variable text ranges** allow you to target 1 or more variable text channels in a single command.
- **Button State ranges** allow you to target 1 or more states of a variable text button with a single command.
- “:” Character is used for the 'through' notation, also the “&” character is used for the 'And' notation.

“^” Button Commands	
<p>^ANI Run a button animation (in 1/10 second).</p>	<p>Syntax: "'^ANI-<vt addr range>,<start state>,<end state>,<time>' "</p> <p>Variable: variable text address range = 1 - 4000. start state = Beginning of button state (0= current state). end state = End of button state. time = In 1/10 second intervals.</p> <p>Example: SEND_COMMAND Panel, "'^ANI-500,1,25,100' "</p> <p>Runs a button animation at text range 500 from state 1 to state 25 for 10 second.</p>
<p>^APF Add page flip action to a button if it does not already exist.</p>	<p>Syntax: "'^APF-<vt addr range>,<page flip action>,<page name>' "</p> <p>Variable: variable text address range = 1 - 4000. page flip action = 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 = 1 - 50 ASCII characters.</p> <p>Example: SEND COMMAND Panel, "'^APF-400,Stan,Main Page' "</p> <p>Assigns a button to a standard page flip with page name 'Main Page'.</p>
<p>^BAT Append non-unicode text.</p>	<p>Syntax: "'^BAT-<vt addr range>,<button states range>,<new text>' "</p> <p>Variable: 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). new text = 1 - 50 ASCII characters.</p> <p>Example: SEND_COMMAND Panel, "'^BAT-520,1,Enter City' "</p> <p>Appends the text 'Enter City' to the button's OFF state.</p>

"^" Button Commands (Cont.)	
^BAU Append unicode text.	<p>Same format as ^UNI.</p> <p>Syntax: <code>''^BAU-<vt addr range>,<button states range>,<unicode text>''</code></p> <p>Variable: 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 = 1 - 50 ASCII characters. Unicode characters must be entered in Hex format.</p> <p>Example: <code>SEND_COMMAND Panel, ''^BAU-520,1,00770062''</code> Appends Unicode text '00770062' to the button's OFF state.</p>
^BCB Set the border color to the specified color.	<p><i>Only if the specified border color is not the same as the current color.</i></p> <p>Note: Color can be assigned by color name (without spaces), number or R,G,B value (RRGGBB or RRGGBBAA).</p> <p>Syntax: <code>''^BCB-<vt addr range>,<button states range>,<color value>''</code></p> <p>Variable: 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). color value = Refer to the RGB Values for all 88 Basic Colors table on page 51 for more information.</p> <p>Example: <code>SEND_COMMAND Panel, ''^BCB-500.504&510,1,12''</code> Sets the Off state border color to 12 (Yellow). Colors can be set by Color Numbers, Color name, R,G,B,alpha colors (RRGGBBAA) and R, G & B colors values (RRGGBB).</p>
^BCF Set the fill color to the specified color.	<p><i>Only if the specified fill color is not the same as the current color.</i></p> <p>Note: Color can be assigned by color name (without spaces), number or R,G,B value (RRGGBB or RRGGBBAA).</p> <p>Syntax: <code>''^BCF-<vt addr range>,<button states range>,<color value>''</code></p> <p>Variable: 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). color value = Refer to the RGB Values for all 88 Basic Colors table on page 51 for more information.</p> <p>Example: <code>SEND_COMMAND Panel, ''^BCF-500.504&510.515,1,12''</code> <code>SEND_COMMAND Panel, ''^BCF-500.504&510.515,1,Yellow''</code> <code>SEND_COMMAND Panel, ''^BCF-500.504&510.515,1,#F4EC0A63''</code> <code>SEND_COMMAND Panel, ''^BCF-500.504&510.515,1,#F4EC0A''</code> Sets the Off state fill color by color number. Colors can be set by Color Numbers, Color name, R,G,B,alpha colors (RRGGBBAA) and R, G & B colors values (RRGGBB).</p>

"^" Button Commands (Cont.)	
<p>^BCT Set the text color to the specified color.</p>	<p><i>Only if the specified text color is not the same as the current color.</i></p> <p>Note: Color can be assigned by color name (without spaces), number or R,G,B value (RRGGBB or RRGGBBAA).</p> <p>Syntax: <pre>''^BCT-<vt addr range>,<button states range>,<color value>''</pre> </p> <p>Variable: 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). color value = Refer to the RGB Values for all 88 Basic Colors table on page 51 for more information.</p> <p>Example: <pre>SEND_COMMAND Panel, ''^BCT-500.504&510,1,12''</pre> Sets the Off state border color to 12 (Yellow). Colors can be set by Color Numbers, Color name, R,G,B,alpha colors (RRGGBBAA) and R, G & B colors values (RRGGBB).</p>
<p>^BDO Set the button draw order.</p>	<p>Determines what order each layer of the button is drawn.</p> <p>Syntax: <pre>''^BDO-<vt addr range>,<button states range>,<1-5><1-5><1-5><1-5><1-5>''</pre> </p> <p>Variable: 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). layer assignments = Fill Layer = 1 Image Layer = 2 Icon Layer = 3 Text Layer = 4 Border Layer = 5</p> <p>Note: The layer assignments are from bottom to top. The default draw order is 12345.</p> <p>Example: <pre>SEND_COMMAND Panel, ''^BDO-530,1&2,51432''</pre> Sets the button's variable text 530 ON/OFF state draw order (from bottom to top) to Border, Fill, Text, Icon, and Image.</p> <p>Example 2: <pre>SEND_COMMAND Panel, ''^BDO-1,0,12345''</pre> Sets all states of a button back to its default drawing order.</p>
<p>^BFB Set the feedback type of the button.</p>	<p><i>ONLY works on General-type buttons.</i></p> <p>Syntax: <pre>''^BFB-<vt addr range>,<feedback type>''</pre> </p> <p>Variable: variable text address range = 1 - 4000. feedback type = (None, Channel, Invert, On (Always on), Momentary, and Blink).</p> <p>Example: <pre>SEND_COMMAND Panel, ''^BFB-500,Momentary''</pre> Sets the Feedback type of the button to 'Momentary'.</p>

"^" Button Commands (Cont.)	
<p>^BIM</p> <p>Set the input mask for the specified address.</p>	<p>Syntax:</p> <pre>''^BIM-<vt addr range>,<input mask>'</pre> <p>Variable:</p> <p>variable text address range = 1 - 4000.</p> <p>input mask = Refer to the Text Area Input Masking table on page 110 for character types.</p> <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BIM-500,AAAAAAAAA''</pre> <p>Sets the input mask to ten 'A' characters, that are required, to either a letter or digit (entry is required).</p>
<p>^BLN</p> <p>Set the number of lines removed equally from the top and bottom of a composite video signal.</p>	<p>The maximum number of lines to remove is 240. A value of 0 will display the incoming video signal unaffected. This command is used to scale non 4x3 video images into non 4x3 video buttons.</p> <p>Syntax:</p> <pre>''^BLN-<vt addr range>,<button states range>,<number of lines>'</pre> <p>Variable:</p> <p>variable text address range = 1 - 4000.</p> <p>button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state).</p> <p>number of lines = 0 - 240.</p> <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BLN-500,55''</pre> <p>Equally removes 55 lines from the top and 55 lines from the bottom of the video button.</p>

"^" Button Commands (Cont.)	
<p>^BMC Button copy command. Copy attributes of the source button to all the destination buttons.</p>	<p>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.</p> <p>Syntax: <pre>''^BMC-<vt addr range>,<button states range>,<source port>,<source address>,<source state>,<codes>' "</pre> </p> <p>Variable: 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).</p> <ul style="list-style-type: none"> • source port = 1 - 100. • source address = 1 - 4000. • source state = 1 - 256. <p>codes: BM - Picture/Bitmap BR - Border CB - Border Color CF - Fill Color CT - Text Color EC - Text effect color EF - Text effect FT - Font IC - Icon JB - Bitmap alignment JI - Icon alignment JT - Text alignment LN - Lines of video removed OP - Opacity SO - Button Sound TX - Text VI - Video slot ID WW - Word wrap on/off</p> <p>Example: <pre>SEND_COMMAND Panel, ''^BMC-425,1,1,500,1,BR' "</pre> or <pre>SEND_COMMAND Panel, ''^BMC-425,1,1,500,1,%BR' "</pre> 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.</p> <p>Example 2: <pre>SEND_COMMAND Panel, ''^BMC-150,1,1,315,1,%BR%FT%TX%BM%IC%CF%CT' "</pre> Copies the OFF state border, font, Text, bitmap, icon, fill color and text color of the button with a variable text address of 315 onto the OFF state border, font, Text, bitmap, icon, fill color and text color of the button with a variable text address of 150.</p> <p>NOTE: Future firmware versions may not support this command.</p>

"^" Button Commands (Cont.)										
^BMF Set any/all button parameters by sending embedded codes and data.	<p>Syntax:</p> <pre>" '^BMF-<vt addr range>,<button states range>,<data>' "</pre> <p>NOTE: Many subcommands do not use button state information. Refer to the subcommand for details.</p> <p>Variables:</p> <p>variable text address char array = 1 - 4000.</p> <p>button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state).</p> <p>level range = 1 - 600 (level value is 1 - 65535).</p> <p>Data:</p> <p>'%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.</p> <p>'%B',<border 0-27,40,41> = Set the border style number (No support for states.)</p> <p>'%CB<on border color>' = Set Border Color.</p> <p>'%CF<on fill color>' = Set Fill Color.</p> <p>'%CT<on text color>' = Set Text Color.</p> <p>'%DO<1-5><1-5><1-5><1-5><1-5>' = Set the draw order. Listed from bottom to top.</p> <p>'%EC<text effect color>' = Set the text effect color.</p> <p>'%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.</p> <p>'%EN<1 or 0>' = Enable/disable a button.</p> <p>'%F' = Set the font. See the Default Font Styles and ID Numbers table on page 53.</p> <p>'%GC<bargraph slider color>' = Set the bargraph slider color/Joystick cursor color.</p> <p>'%GD<bargraph ramp down>' = Set the bargraph ramp down time in 1/10 second.</p> <p>'%GG<bargraph drag increment>' = Set the bargraph drag increment. Refer to the ^GDI command on page 68 for more information.</p> <p>'%GH<bargraph hi>' = Set the bargraph upper limit.</p> <p>'%GI<bargraph invert>' = Set the bargraph invert/noninvert or joystick coordinate (0,1,2,3).</p> <p>'%GL<bargraph low>' = Set the bargraph lower limit.</p> <p>'%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.</p> <p>'%GU<bargraph ramp up>' = Set the bargraph ramp up time in intervals of 1/10 second.</p> <p>'%I',<icon 01-9900, 0-clear>' = Set the icon using values of 01 - 9900 (icon numbers are assigned in the TPDesign4 Resource Manager tab - Slots section).</p> <p>'%I<icon 01-9900, 0-clear>' = Set the icon using values of 01 - 9900 (icon numbers are assigned in the TPDesign4 Resource Manager tab - Slots section).</p> <p>'%J',<set text alignment 1-9> = As shown the following telephone keypad alignment chart:</p> <div style="text-align: center; margin: 10px 0;"> <p>0</p> <table border="1" style="border-collapse: collapse; text-align: center; width: 60px;"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> </table> <p>Zero can be used for an absolute position</p> </div> <p>'%JB<alignment of bitmap/picture 0-9>' = As shown the above telephone keypad alignment chart BUT the 0 (zero) is absolute and followed by ',<left>,<top>'</p> <p>'%JI<alignment of icon 0-9>' = As shown the above telephone keypad alignment chart, BUT the 0 (zero) is absolute and followed by ',<left>,<top>'</p> <p>'%JT<alignment of text 0-9>' = As shown the above telephone keypad alignment chart, BUT the 0 (zero) is absolute and followed by ',<left>,<top>'</p> <p><i>For some of these commands and values, refer to the RGB Values for all 88 Basic Colors table on page 51.</i></p>	1	2	3	4	5	6	7	8	9
1	2	3								
4	5	6								
7	8	9								

" ^ " Button Commands (Cont.)	
^BMF (Cont.)	<p>'%LN<0-240>' = Set the lines of video being removed. ^BLN section on page 59 for more information.</p> <p>'%MI<mask image>' = Set the mask image. Refer to the ^BMI command on page 63 for more information.</p> <p>NOTE: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.</p> <p>'%MK<input mask>' = Set the input mask of a text area.</p> <p>NOTE: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.</p> <p>'%ML<max length>' = Set the maximum length of a text area.</p> <p>'%OP<0-255>' = Set the button opacity to either Invisible (value=0) or Opaque (value=255).</p> <p>'%OP#<00-FF>' = Set the button opacity to either Invisible (value=00) or Opaque (value=FF).</p> <p>'%OT<feedback type>' = Set the Feedback (Output) Type to one of the following: None, Channel, Invert, ON (Always ON), Momentary, or Blink.</p> <p>NOTE: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.</p> <p>'%P<bitmap>' = Set the picture/bitmap filename (empty is clear).</p> <p>NOTE: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.</p> <p>'%R = Sets button location and also resizes the button. For more information, please refer to the ^BSP section on page 66.</p> <p>'%SF<1 or 0>' = Set the focus for text area button. (No support for states.)</p> <p>'%SM' = Submit a text for text area button. (No support for states.)</p> <p>'%SO<sound>' = Set the button sound.</p> <p>NOTE: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.</p> <p>'%SW<1 or 0>' = Show/hide a button. (No support for states.)</p> <p>'%T<text >' = Set the text using ASCII characters (empty is clear).</p> <p>NOTE: This parameter should be always used in its own BMF command, and should not be combined with other BMF subcommands.</p> <p>'%UN<Unicode text>' = Set the Unicode text. See the ^UNI section on page 73 for the text format.</p> <p>'%VI<video ON/OFF>' = Set the Video either ON (value=1) or OFF (value=0).</p> <p>'%VL<0-1>' = Log-On/Log-Off the computer control connection</p> <p>'%VN<network name>' = Set network connection name.</p> <p>'%VP<password>' = Set the network connection password.</p> <p>'%WW<1 or 0>' = Word wrap ON/OFF.</p> <p>Example:</p> <pre>SEND_COMMAND Panel, " '^BMF-500,1,%B10%CFRed%CB Blue %CTBlack%Ptest.png' "</pre> <p>Sets the button OFF state as well as the Border, Fill Color, Border Color, Text Color, and Bitmap.</p> <p>NOTE: Future firmware versions may not support this command.</p>

"^" Button Commands (Cont.)	
^BMI Set the button mask image.	Mask image is used to crop a borderless button to a non-square shape. This is typically used with a bitmap. Syntax: <pre>''^BMI-<vt addr range>,<button states range>,<mask image>''</pre> Variable: 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). mask image = Graphic file used. Example: <pre>SEND_COMMAND Panel, ''^BMI-530,1&2,newMac.png''</pre> Sets the button with variable text 530 ON/OFF state mask image to 'newmac.png'.
^BML Set the maximum length of the text area button.	If this value is set to zero (0), the text area has no max length. The maximum length available is 2000. This is only for a Text area input button and not for a Text area input masking button. Syntax: <pre>''^BML-<vt addr range>,<max length>''</pre> Variable: variable text address range = 1 - 4000. max length = 2000 (0=no max length). Example: <pre>SEND_COMMAND Panel, ''^BML-500,20''</pre> Sets the maximum length of the text area input button to 20 characters.
^BMP Assign a picture to those buttons with a defined address range.	Syntax: <pre>''^BMP-<vt addr range>,<button states range>,<name of bitmap/picture>''</pre> Variable: 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 = 1 - 50 ASCII characters. Example: <pre>SEND_COMMAND Panel, ''^BMP-500.504&510.515,1,bitmap.png''</pre> Sets the OFF state picture for the buttons with variable text ranges of 500-504 & 510-515.
^BNC Clear current TakeNote annotations.	Syntax: <pre>''^BNC-<vt addr range>,<command value>''</pre> Variable: variable text address range = 1 - 4000. command value = (0= clear, 1= clear all). Example: <pre>SEND_COMMAND Panel, ''^BNC-973,0''</pre> Clears the annotation of the TakeNote button with variable text 973.
^BNN Set the TakeNote network name for the specified Addresses.	Syntax: <pre>''^BNN-<vt addr range>,<network name>''</pre> Variable: variable text address range = 1 - 4000. network name = Use a valid IP Address. Example: <pre>SEND_COMMAND Panel, ''^BNN-973,192.168.169.99''</pre> Sets the TakeNote button network name to 192.168.169.99.

"^" Button Commands (Cont.)	
<p>^BNT Set the TakeNote network port for the specified Addresses.</p>	<p>Syntax: <code>''^BNT-<vt addr range>,<network port>''</code></p> <p>Variable: variable text address range = 1 - 4000. network port = 1 - 65535.</p> <p>Example: <code>SEND_COMMAND Panel, ''^BNT-973,5000''</code> Sets the TakeNote button network port to 5000.</p>
<p>^BOP Set the button opacity.</p>	<p>The button opacity can be specified as a decimal between 0 - 255, where zero (0) is invisible and 255 is opaque, or as a HEX code, as used in the color commands by preceding the HEX code with the # sign. In this case, #00 becomes invisible and #FF becomes opaque. If the opacity is set to zero (0), this does not make the button inactive, only invisible.</p> <p>Syntax: <code>''^BOP-<vt addr range>,<button states range>,<button opacity>''</code></p> <p>Variable: 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). button opacity = 0 (invisible) - 255 (opaque).</p> <p>Example: <code>SEND_COMMAND Panel, ''^BOP-500.504&510.515,1,200''</code></p> <p>Example 2: <code>SEND_COMMAND Panel, ''^BOP-500.504&510.515,1,#C8''</code></p> <p>Both examples set the opacity of the buttons with the variable text range of 500-504 and 510-515 to 200.</p>
<p>^BOR Set a border to a specific border style associated with a border value for those buttons with a defined address range.</p>	<p>Sets the border by name (AMX Elite) to those buttons with the variable text range of 500-504 & 510-515.</p> <p>The border style is available through the TPDesign4 border-style drop-down list. Refer to theTPDesign Border Styles by Name table on page 54 for more information.</p> <p>Syntax: <code>''^BOR-<vt addr range>,<border style name or border value>''</code></p> <p>Variable: variable text address range = 1 - 4000. border style name = Refer to the Border Styles and Programming Numbers table on page 53. border value = 0 - 41.</p> <p>Examples: <code>SEND_COMMAND Panel, ''^BOR-500.504&510.515,10''</code> Sets the border by number (#10) to those buttons with the variable text range of 500-504 & 510-515. <code>SEND_COMMAND Panel, ''^BOR-500.504&510,AMX Elite -M''</code></p>
<p>^BOS Set the button to display either a Video or Non-Video window.</p>	<p>Syntax: <code>''^BOS-<vt addr range>,<button states range>,<video state>''</code></p> <p>Variable: 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). video state = Video Off = 0 and Video On = 1.</p> <p>Example: <code>SEND_COMMAND Panel, ''^BOS-500,1,1''</code> Sets the button to display video.</p>

"^" Button Commands (Cont.)	
^BPP Set or clear the protected page flip flag of a button.	Sets the button to protected page flip flag 1 (sets it to password 1). Syntax: <pre>''^BPP-<vt addr range>,<protected page flip flag value>''</pre> Variable: variable text address range = 1 - 4000. protected page flip flag value range = 0 - 4 (0 clears the flag). Example: <pre>SEND_COMMAND Panel, ''^BPP-500,1''</pre>
^BRD Set the border of a button state/ states.	Only if the specified border is not the same as the current border. The border names are available through the TPDesign4 border-name drop-down list. Refer to the TPDesign Border Styles by Name table on page 54. Syntax: <pre>''^BRD-<vt addr range>,<button states range>,<border name>''</pre> Variable: 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). border name = Refer to the Border Styles and Programming Numbers table on page 53. Example: <pre>SEND_COMMAND Panel, ''^BRD-500.504&510.515,1&2,Quad Line''</pre> Sets the border by name (Quad Line) to those buttons with the variable text range of 500-504 & 510-515.
^BSF 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: <pre>''^BSF-<vt addr range>,<selection value>''</pre> Variable: variable text address range = 1 - 4000. selection value = Unselect = 0 and select = 1. Example: <pre>SEND_COMMAND Panel, ''^BSF-500,1''</pre> Sets the focus to the text area of the button.
^BSM Submit text for text area buttons.	This command causes the text areas to send their text as strings to the NetLinX Master. Syntax: <pre>''^BSM-<vt addr range>''</pre> Variable: variable text address range = 1 - 4000. Example: <pre>SEND_COMMAND Panel, ''^BSM-500''</pre> Submits the text of the text area button.
^BSO 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: <pre>''^BSO-<vt addr range>,<button states range>,<sound name>''</pre> Variable: 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). sound name = (blank - sound cleared, not matched - button sound not changed). Example: <pre>SEND_COMMAND Panel, ''^BSO-500,1&2,music.wav''</pre> Assigns the sound 'music.wav' to the button Off/On states.

"^" Button Commands (Cont.)	
<p>^BSP Set the button size and its position on the page.</p>	<p>Set the button size and its position on the page.</p> <p>Syntax: <code>''^BSP-<vt addr range>,<left>,<top>,<right>,<bottom>''</code></p> <p>Variable: variable text address range = 1 - 4000. 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</p> <p>Example: <code>SEND_COMMAND panel, ''^BSP-530,20,100,50,130''</code></p> <p>Makes the button with variable text address 530 appear at (20,100) and be 30px by 30px</p>
<p>^BVL Log-On/Log-Off the computer control connection.</p>	<p>Syntax: <code>''^BVL-<vt addr range>,<connection>''</code></p> <p>Variable: variable text address range = 1 - 4000. connection = 0 (Log-Off connection) and 1 (Log-On connection).</p> <p>Example: <code>SEND_COMMAND Panel, ''^BVL-500,0''</code></p> <p>Logs-off the computer control connection of the button.</p>
<p>^BVN Set the computer control remote host for the specified address.</p>	<p>Syntax: <code>''^BVN-<vt addr range>,<remote host>''</code></p> <p>Variables: variable text address range = 1 - 4000. remote host = 1 - 50 ASCII characters.</p> <p>Example: <code>SEND_COMMAND Panel, ''^BVN-500,191.191.191.191''</code></p> <p>Sets the remote host to '191.191.191.191' for the specific computer control button.</p>
<p>^BVP Set the network password for the specified address.</p>	<p>Syntax: <code>''^BVP-<vt addr range>,<network password>''</code></p> <p>Variable: variable text address range = 1 - 4000. network password = 1 - 50 ASCII characters.</p> <p>Example: <code>SEND_COMMAND Panel, ''^BVP-500,PCLOCK''</code></p> <p>Sets the password to PCLOCK for the specific PC control button.</p>
<p>^BVT Set the computer control network port for the specified address.</p>	<p>Syntax: <code>''^BVT-<vt addr range>,<network port>''</code></p> <p>Variable: variable text address range = 1 - 4000. network port = 1 - 65535.</p> <p>Example: <code>SEND_COMMAND Panel, ''^BVT-500,5000''</code></p> <p>Sets the network port to 5000.</p>

"^" Button Commands (Cont.)	
^BWW Set the button word wrap feature to those buttons with a defined address range.	By default, word-wrap is Off. Syntax: ``^BWW-<vt addr range>,<button states range>,<word wrap>`` Variable: 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). 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.
^CPF Clear all page flips from a button.	Syntax: ``^CPF-<vt addr range>`` Variable: variable text address range = 1 - 4000. Example: SEND_COMMAND Panel, ``^CPF-500`` Clears all page flips from the button.
^DPF Delete page flips from button if it already exists.	Syntax: ``^DPF-<vt addr range>,<actions>,<page name>`` Variable: variable text address range = 1 - 4000. 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 = 1 - 50 ASCII characters. Example: SEND COMMAND Panel, ``^DPF-409,Prev`` Deletes the assignment of a button from flipping to a previous page.
^DVS Delete Video Snapshot.	Syntax: ^DVS-<addr range>,<state range> Delete Video Snapshot. Deletes any stored video snapshot associated with the button(s) with the given address(es) and state(s). When sent, the affected button(s) will display a black screen in the video button until the button becomes active and video starts again.
^ENA Enable or disable buttons with a set variable text range.	Syntax: ``^ENA-<vt addr range>,<command value>`` Variable: variable text address range = 1 - 4000. command value = (0= disable, 1= enable) Example: SEND_COMMAND Panel, ``^ENA-500.504&510.515,0`` Disables button pushes on buttons with variable text range 500-504 & 510-515.

"^" Button Commands (Cont.)	
<p>^FON</p> <p>Set a font to a specific Font ID value for those buttons with a defined address range.</p>	<p>Font ID numbers are generated by the TPDesign4 programmers report.</p> <p>Syntax: <code>''^FON-<vt addr range>,<button states range>,''</code></p> <p>Variable: 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). font value = range = 1 - XXX. Refer to the <i>Default Font Styles and ID Numbers</i> section on page 53.</p> <p>Example: <code>SEND_COMMAND Panel, ''^FON-500.504&510.515,1&2,4''</code></p> <p>Sets the font size to font ID #4 for the On and Off states of buttons with the variable text range of 500-504 & 510-515.</p>



NOTE

The Font ID is generated by TPDesign and is located in TPD4 through the Main menu. **Panel > Generate Programmer's Report >Text Only Format >Readme.txt.**

"^" Button Commands (Cont.)					
<p>^GDI</p> <p>Change the bargraph drag increment.</p>	<p>Syntax: <code>''^GDI-<vt addr range>,<bargraph drag increment>''</code></p> <p>Variable: variable text address range = 1 - 4000. bargraph drag increment = The default drag increment is 256.</p> <p>Example: <code>SEND_COMMAND Panel, ''^GDI-7,128''</code></p> <p>Sets the bargraph with variable text 7 to a drag increment of 128.</p>				
<p>^GIV</p> <p>Invert the joystick axis to move the origin to another corner.</p>	<p>Parameters 1,2, and 3 will cause a bargraph or slider to be inverted regardless of orientation. Their effect will be as described for joysticks.</p> <p>Syntax: <code>''^GIV-<vt addr range>,<joystick axis to invert>''</code></p> <p>Variable: variable text address range = 1 - 4000. joystick axis to invert = 0 - 3.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 2px;">0</td> <td style="padding: 2px;">1</td> </tr> <tr> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> </tr> </table> <p style="margin-left: 150px;"> 0 = Normal 1 = Invert horizontal axis 2 = Invert vertical axis 3 = Invert both axis locations </p> <p>For a bargraph 1 = Invert, 0 = Non Invert</p> <p>Example: <code>SEND_COMMAND Panel, ''^GIV-500,3''</code></p> <p>Inverts the joystick axis origin to the bottom right corner.</p>	0	1	2	3
0	1				
2	3				
<p>^GLH</p> <p>Change the bargraph upper limit.</p>	<p>Syntax: <code>''^GLH-<vt addr range>,<bargraph hi>''</code></p> <p>Variable: variable text address range = 1 - 4000. bargraph limit range = 1 - 65535 (<i>bargraph upper limit range</i>).</p> <p>Example: <code>SEND_COMMAND Panel, ''^GLH-500,1000''</code></p> <p>Changes the bargraph upper limit to 1000.</p>				

"^" Button Commands (Cont.)																															
<p>^GLL Change the bargraph lower limit.</p>	<p>Syntax: <code>''^GLL-<vt addr range>,<bargraph low>''</code></p> <p>Variable: variable text address range = 1 - 4000. bargraph limit range = 1 - 65535 (<i>bargraph lower limit range</i>).</p> <p>Example: <code>SEND_COMMAND Panel, ''^GLL-500,150''</code></p> <p>Changes the bargraph lower limit to 150.</p>																														
<p>^GRD Change the bargraph ramp-down time in 1/10th of a second.</p>	<p>Syntax: <code>''^GRD-<vt addr range>,<bargraph ramp down time>''</code></p> <p>Variable: variable text address range = 1 - 4000. bargraph ramp down time = In 1/10th of a second intervals.</p> <p>Example: <code>SEND_COMMAND Panel, ''^GRD-500,200''</code></p> <p>Changes the bargraph ramp down time to 20 seconds.</p>																														
<p>^GRU Change the bargraph ramp-up time in 1/10th of a second.</p>	<p>Syntax: <code>''^GRU-<vt addr range>,<bargraph ramp up time>''</code></p> <p>Variable: variable text address range = 1 - 4000. bargraph ramp up time = In 1/10th of a second intervals.</p> <p>Example: <code>SEND_COMMAND Panel, ''^GRU-500,100''</code></p> <p>Changes the bargraph ramp up time to 10 seconds.</p>																														
<p>^GSC Change the bargraph slider color or joystick cursor color.</p>	<p>A user can also assign the color by Name and R,G,B value (RRGGBB or RRGGBBAA).</p> <p>Syntax: <code>''^GSC-<vt addr range>,<color value>''</code></p> <p>Variable: variable text address range = 1 - 4000. color value = Refer to the RGB Values for all 88 Basic Colors table on page 51.</p> <p>Example: <code>SEND_COMMAND Panel, ''^GSC-500,12''</code></p> <p>Changes the bargraph or joystick slider color to Yellow.</p>																														
<p>^GSN Change the bargraph slider name or joystick cursor name.</p>	<p>Slider names and cursor names can be found in the TPDesign4 slider name and cursor drop-down list.</p> <p>Syntax: <code>''^GSN-<vt addr range>,<bargraph slider name>''</code></p> <p>Variable: variable text address range = 1 - 4000. bargraph slider name = See table below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">Bargraph Slider Names:</th> </tr> </thead> <tbody> <tr> <td>None</td> <td>Ball</td> <td>Circle -L</td> </tr> <tr> <td>Circle -M</td> <td>Circle -S</td> <td>Precision</td> </tr> <tr> <td>Rectangle -L</td> <td>Rectangle -M</td> <td>Rectangle -S</td> </tr> <tr> <td>Windows</td> <td>Windows Active</td> <td></td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">Joystick Cursor Names:</th> </tr> </thead> <tbody> <tr> <td>None</td> <td>Arrow</td> <td>Ball</td> </tr> <tr> <td>Circle</td> <td>Crosshairs</td> <td>Gunsight</td> </tr> <tr> <td>Hand</td> <td>Metal</td> <td>Spiral</td> </tr> <tr> <td>Target</td> <td>View Finder</td> <td></td> </tr> </tbody> </table> <p>Example: <code>SEND_COMMAND Panel, ''^GSN-500,Ball''</code></p> <p>Changes the bargraph slider name or the Joystick cursor name to 'Ball'.</p>	Bargraph Slider Names:			None	Ball	Circle -L	Circle -M	Circle -S	Precision	Rectangle -L	Rectangle -M	Rectangle -S	Windows	Windows Active		Joystick Cursor Names:			None	Arrow	Ball	Circle	Crosshairs	Gunsight	Hand	Metal	Spiral	Target	View Finder	
Bargraph Slider Names:																															
None	Ball	Circle -L																													
Circle -M	Circle -S	Precision																													
Rectangle -L	Rectangle -M	Rectangle -S																													
Windows	Windows Active																														
Joystick Cursor Names:																															
None	Arrow	Ball																													
Circle	Crosshairs	Gunsight																													
Hand	Metal	Spiral																													
Target	View Finder																														

"^" Button Commands (Cont.)										
<p>^ICO Set the icon to a button.</p>	<p>Syntax: <code>''^ICO-<vt addr range>,<button states range>,<icon index>''</code></p> <p>Variable: 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). icon index range = 0 - 9900 (a value of 0 is clear).</p> <p>Example: <code>SEND_COMMAND Panel, ''^ICO-500.504&510.515,1&2,1''</code> Sets the icon for On and Off states for buttons with variable text ranges of 500-504 & 510-515.</p>									
<p>^IRM Set the IR channel.</p>	<p>Pulse the given IR channel for onTime in tenths of seconds. Delay offTime in tenths of a second before the next IR pulse is allowed. ^IRM allows the command itself to specify the port number. ^IRM is needed because commands programmed on the panel itself can only be sent to a single port number. (currently this is defined as 1 only).</p> <p>Note: <i>The port number of the IR will be the port number assigned in TPDesign.</i></p> <p>Syntax: <code>''^IRM-<port>,<channel>,<onTime>,<offTime>''</code></p> <p>Variable: port = User-defined port on the device (panel). channel = 1 - 255 (channel to pulse). onTime = 1/10th of a second. offTime = 1/10th of a second.</p> <p>Example: <code>SEND_COMMAND Panel, ''^IRM-10,5, 20, 10''</code> Sets the port 10 IR channel 5 on time to 1 second and off time to 2 seconds.</p>									
<p>^JSB Set bitmap/picture alignment using a numeric keypad layout for those buttons with a defined address range.</p>	<p>The alignment of 0 is followed by '<left>,<top>'. The left and top coordinates are relative to the upper left corner of the button.</p> <p>Syntax: <code>''^JSB-<vt addr range>,<button states range>,<new text alignment>''</code></p> <p>Variable: 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). new text alignment = Value of 1- 9 corresponds to the following locations:</p> <div style="display: flex; align-items: center; margin: 10px 0;"> <div style="margin-right: 10px;">0</div> <table border="1" style="border-collapse: collapse; text-align: center; width: 40px;"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> </table> <div style="margin-left: 10px;">Zero can be used for an absolute position</div> </div> <p>Example: <code>SEND_COMMAND Panel, ''^JSB-500.504&510.515,1&2,1''</code> Sets the off/on state picture alignment to upper left corner for those buttons with variable text ranges of 500-504 & 510-515.</p>	1	2	3	4	5	6	7	8	9
1	2	3								
4	5	6								
7	8	9								

"^" Button Commands (Cont.)														
<p>^JSI Set icon alignment using a numeric keypad layout for those buttons with a defined address range.</p>	<p>The alignment of 0 is followed by ',<left>,<top>'. The left and top coordinates are relative to the upper left corner of the button.</p> <p>Syntax: <code>''^JSI-<vt addr range>,<button states range>,<new icon alignment>''</code></p> <p>Variable: 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). new icon alignment = Value of 1 - 9 corresponds to the following locations:</p> <table style="margin-left: 40px;"> <tr> <td style="text-align: center;">0</td> <td style="border: 1px solid black; padding: 2px;">1</td> <td style="border: 1px solid black; padding: 2px;">2</td> <td style="border: 1px solid black; padding: 2px;">3</td> <td rowspan="3" style="padding-left: 10px; vertical-align: middle;">Zero can be used for an absolute position</td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">4</td> <td style="border: 1px solid black; padding: 2px;">5</td> <td style="border: 1px solid black; padding: 2px;">6</td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">7</td> <td style="border: 1px solid black; padding: 2px;">8</td> <td style="border: 1px solid black; padding: 2px;">9</td> </tr> </table> <p>Example: <code>SEND_COMMAND Panel, ''^JSI-500.504&510.515,1&2,1''</code> Sets the Off/On state icon alignment to upper left corner for those buttons with variable text range of 500-504 & 510-515.</p>	0	1	2	3	Zero can be used for an absolute position		4	5	6		7	8	9
0	1	2	3	Zero can be used for an absolute position										
	4	5	6											
	7	8	9											
<p>^JST Set text alignment using a numeric keypad layout for those buttons with a defined address range.</p>	<p>The alignment of 0 is followed by ',<left>,<top>'. The left and top coordinates are relative to the upper left corner of the button.</p> <p>Syntax: <code>''^JST-<vt addr range>,<button states range>,<new text alignment>''</code></p> <p>Variable: 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). new text alignment = Value of 1 - 9 corresponds to the following locations:</p> <table style="margin-left: 40px;"> <tr> <td style="text-align: center;">0</td> <td style="border: 1px solid black; padding: 2px;">1</td> <td style="border: 1px solid black; padding: 2px;">2</td> <td style="border: 1px solid black; padding: 2px;">3</td> <td rowspan="3" style="padding-left: 10px; vertical-align: middle;">Zero can be used for an absolute position</td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">4</td> <td style="border: 1px solid black; padding: 2px;">5</td> <td style="border: 1px solid black; padding: 2px;">6</td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">7</td> <td style="border: 1px solid black; padding: 2px;">8</td> <td style="border: 1px solid black; padding: 2px;">9</td> </tr> </table> <p>Example: <code>SEND_COMMAND Panel, ''^JST-500.504&510.515,1&2,1''</code> Sets the text alignment to the upper left corner for those buttons with variable text ranges of 500-504 & 510-515.</p>	0	1	2	3	Zero can be used for an absolute position		4	5	6		7	8	9
0	1	2	3	Zero can be used for an absolute position										
	4	5	6											
	7	8	9											
<p>^MBT Set the Mouse Button mode On for the virtual PC.</p>	<p>Syntax: <code>''^MBT-<pass data>''</code></p> <p>Variable: pass data: 0 = None 1 = Left 2 = Right 3 = Middle</p> <p>Example: <code>SEND_COMMAND Panel, ''^MBT-1''</code> Sets the mouse button mode to 'Left Mouse Click'.</p>													
<p>^MDC Turn On the 'Mouse double-click' feature for the virtual PC.</p>	<p>Syntax: <code>''^MDC''</code></p> <p>Example: <code>SEND_COMMAND Panel, ''^MDC''</code> Sets the mouse double-click for use with the virtual PC.</p>													

"^" Button Commands (Cont.)	
^PIC Start/stop Picture View.	<p>^PIC-<0,1,2,3,4></p> <p>0: Stop Running Picture View 1: Start Picture View in Preview Mode 2: Enable Picture View Startup on USB insert 3: Disable Picture View Startup on USB insert 4: Start Picture View in Normal Mode</p>
^STF Scale to fit.	<p>Syntax: ^STF-<addr range>,<state range>,<0:disable 1:enable></p> <p>Specify that a dynamic image on the button(s) with the given address(es) and state(s) should be scaled to fit (if 1 specified) or not scaled to fit (if 0 specified)</p> <p>Note: this option can also be used in the ^BMF command as embedded code: %SC[0/1]</p>
^SHO Show or hide a button with a set variable text range.	<p>Syntax: ^^SHO-<vt addr range>,<command value>' "</p> <p>Variable: variable text address range = 1 - 4000. command value = (0= hide, 1= show).</p> <p>Example: SEND_COMMAND Panel, ^^SHO-500.504&510.515,0' "</p> <p>Hides buttons with variable text address range 500-504 & 510-515.</p>
^SKT Receive touch information on specified socket.	<p>Syntax: ^^SKT-<socket>' "</p> <p>Variable: socket = <0=disable socket, greater than 1023=enable socket on specified port></p> <p>Only socket values equal to or greater than 1024 are valid. The panel will open up a TCP listening socket on the port specified. User or 3rd party program can connect to the panel using this port/socket number and receive touch/release/move strings.</p> <p>By default, the panel disables touch notifications on startup.</p> <p>Example: SEND_COMMAND Panel, ^SKT-7425' (enables touch notifications on socket 7425) SEND_COMMAND Panel, ^SKT-0' (disables touch notification)"</p>
^TEC Set the text effect color for the specified addresses/states to the specified color.	<p>The Text Effect is specified by name and can be found in TPDesign. You can also assign the color by name or RGB value (RRGGBB or RRGGBBAA).</p> <p>Syntax: ^^TEC-<vt addr range>,<button states range>,<color value>' "</p> <p>Variable: 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). color value = Refer to the RGB Values for all 88 Basic Colors table on page 51.</p> <p>Example: SEND_COMMAND Panel, ^^TEC-500.504&510.515,1&2,12' "</p> <p>Sets the text effect color to Very Light Yellow on buttons with variable text 500-504 and 510-515.</p>

"^" Button Commands (Cont.)	
^TEF Set the text effect.	The Text Effect is specified by name and can be found in TPDesign. Syntax: <pre>''^TEF-<vt addr range>,<button states range>,<text effect name>''</pre> Variable: 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). text effect name = Refer to the Text Effects table on page 74 for a listing of text effect names. Example: <pre>SEND_COMMAND Panel, ''^TEF-500.504&510.515,1&2,Soft Drop Shadow 3''</pre> Sets the text effect to Soft Drop Shadow 3 for the button with variable text range 500-504 and 510-515.
^TOP Enables/disables touch output to Master	If enabled, Press/Move/Release events are sent to the Master as string events. Syntax: <pre>Variable, ''^TOP-<state>''</pre> <state> is 0(disable), 1(presses/releases), 2(moves), 3(press/move/release). Note: Move should be used with caution. This setting can generate a significant amount of traffic to the master depending on user interaction. Example command: ""^TOP-1" Example Response: "String Event: Text: Press,320,480" Example Response: "String Event: Text: Release,320,480"
^TXT Assign a Non-Unicode text string to those buttons with a defined address range.	Assigns a Non-Unicode text string to those buttons with a defined address range.. Syntax: <pre>''^TXT-<vt addr range>,<button states range>,<new text>''</pre> Variable: 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). new text = 1 - 50 ASCII characters. Example: <pre>SEND_COMMAND Panel, ''^TXT-500.504&510.515,1&2,Test Only''</pre> Sets the On and Off state text for buttons with the variable text ranges of 500-504 & 510-515.
^UNI Set Unicode text.	For the ^UNI command (%UN and ^BMF command), the Unicode text is sent as ASCII-HEX nibbles. Syntax: <pre>''^UNI-<vt addr range>,<button states range>,<unicode text>''</pre> Variable: 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 HEX value. Example: <pre>SEND_COMMAND Panel, ''^UNI-500,1,0041''</pre> Sets the button's unicode character to 'A'. Note: To send the variable text 'A' in unicode to all states of the variable text button 1, (for which the character code is 0041 Hex), send the following command: <pre>SEND_COMMAND TP, ''^UNI-1,0,0041''</pre> Note: Unicode is always represented in a HEX value. TPDesign generates (through the Text Enter Box dialog) unicode HEX values. Refer to the TPDesign4 Instruction Manual for more information.

Text Effects Names

The following is a listing of text effects names associated with the **^TEF** command on page 73.

Text Effects		
• Glow -S	• Medium Drop Shadow 1	• Hard Drop Shadow 1
• Glow -M	• Medium Drop Shadow 2	• Hard Drop Shadow 2
• Glow -L	• Medium Drop Shadow 3	• Hard Drop Shadow 3
• Glow -X	• Medium Drop Shadow 4	• Hard Drop Shadow 4
• Outline -S	• Medium Drop Shadow 5	• Hard Drop Shadow 5
• Outline -M	• Medium Drop Shadow 6	• Hard Drop Shadow 6
• Outline -L	• Medium Drop Shadow 7	• Hard Drop Shadow 7
• Outline -X	• Medium Drop Shadow 8	• Hard Drop Shadow 8
• Soft Drop Shadow 1	• Medium Drop Shadow 1 with outline	• Hard Drop Shadow 1 with outline
• Soft Drop Shadow 2	• Medium Drop Shadow 2 with outline	• Hard Drop Shadow 2 with outline
• Soft Drop Shadow 3	• Medium Drop Shadow 3 with outline	• Hard Drop Shadow 3 with outline
• Soft Drop Shadow 4	• Medium Drop Shadow 4 with outline	• Hard Drop Shadow 4 with outline
• Soft Drop Shadow 5	• Medium Drop Shadow 5 with outline	• Hard Drop Shadow 5 with outline
• Soft Drop Shadow 6	• Medium Drop Shadow 6 with outline	• Hard Drop Shadow 6 with outline
• Soft Drop Shadow 7	• Medium Drop Shadow 7 with outline	• Hard Drop Shadow 7 with outline
• Soft Drop Shadow 8	• Medium Drop Shadow 8 with outline	• Hard Drop Shadow 8 with outline
• Soft Drop Shadow 1 with outline		
• Soft Drop Shadow 2 with outline		
• Soft Drop Shadow 3 with outline		
• Soft Drop Shadow 4 with outline		
• Soft Drop Shadow 5 with outline		
• Soft Drop Shadow 6 with outline		
• Soft Drop Shadow 7 with outline		
• Soft Drop Shadow 8 with outline		

Button Query Commands

Button Query commands reply back with a custom event. There will be one custom event for each button/state combination. Each query is assigned a unique custom event type. **The following example is for debug purposes only:**

```
NetLinx Example: CUSTOM_EVENT[device, Address, Custom event type]
DEFINE_EVENT
    CUSTOM_EVENT[TP,529,1001]    // Text
    CUSTOM_EVENT[TP,529,1002]    // Bitmap
    CUSTOM_EVENT[TP,529,1003]    // Icon
    CUSTOM_EVENT[TP,529,1004]    // Text Justification
    CUSTOM_EVENT[TP,529,1005]    // Bitmap Justification
    CUSTOM_EVENT[TP,529,1006]    // Icon Justification
    CUSTOM_EVENT[TP,529,1007]    // Font
    CUSTOM_EVENT[TP,529,1008]    // Text Effect Name
    CUSTOM_EVENT[TP,529,1009]    // Text Effect Color
    CUSTOM_EVENT[TP,529,1010]    // Word Wrap
    CUSTOM_EVENT[TP,529,1011]    // ON state Border Color
    CUSTOM_EVENT[TP,529,1012]    // ON state Fill Color
    CUSTOM_EVENT[TP,529,1013]    // ON state Text Color
    CUSTOM_EVENT[TP,529,1014]    // Border Name
    CUSTOM_EVENT[TP,529,1015]    // Opacity

{
    Send_String 0, "ButtonGet Id=', ITOA(CUSTOM.ID), ' Type=', ITOA(CUSTOM.TYPE)"
    Send_String 0, "Flag   =', ITOA(CUSTOM.FLAG)"
    Send_String 0, "VALUE1 =', ITOA(CUSTOM.VALUE1)"
    Send_String 0, "VALUE2 =', ITOA(CUSTOM.VALUE2)"
    Send_String 0, "VALUE3 =', ITOA(CUSTOM.VALUE3)"
    Send_String 0, "TEXT   =', CUSTOM.TEXT"
    Send_String 0, "TEXT LENGTH =', ITOA(LENGTH_STRING(CUSTOM.TEXT))"
}
}
```

All custom events have the following 7 fields:

Custom Event Fields	
Field	Description
Uint Flag	0 means text is a standard string, 1 means Unicode encoded string
slong value1	button state number
slong value2	actual length of string (this is not encoded size)
slong value3	index of first character (usually 1 or same as optional index)
string text	the text from the button
text length (string encode)	button text length

These fields are populated differently for each query command. The text length (String Encode) field is not used in any command.

Button Query Commands	
<p>?BCB Get the current border color.</p>	<p>Syntax: <code>''?BCB-<vt addr range>,<button states range>''</code></p> <p>Variable: 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). custom event type 1011: Flag - zero Value1 - Button state number Value2 - Actual length of string (should be 9) Value3 - Zero Text - Hex encoded color value (ex: #000000FF) Text length - Color name length (should be 9)</p> <p>Example: <code>SEND COMMAND Panel, ''?BCB-529,1''</code> Gets the button 'OFF state' border color. information. The result sent to the Master would be: <pre> ButtonGet Id = 529 Type = 1011 Flag = 0 VALUE1 = 1 VALUE2 = 9 VALUE3 = 0 TEXT = #222222FF TEXT LENGTH = 9 </pre></p>
<p>?BCF Get the current fill color.</p>	<p>Syntax: <code>''?BCF-<vt addr range>,<button states range>''</code></p> <p>Variable: 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). custom event type 1012: Flag - Zero Value1 - Button state number Value2 - Actual length of string (should be 9) Value3 - Zero Text - Hex encoded color value (ex: #000000FF) Text length - Color name length (should be 9)</p> <p>Example: <code>SEND COMMAND Panel, ''?BCF-529,1''</code> Gets the button 'OFF state' fill color information. The result sent to the Master would be: <pre> ButtonGet Id = 529 Type = 1012 Flag = 0 VALUE1 = 1 VALUE2 = 9 VALUE3 = 0 TEXT = #FF8000FF TEXT LENGTH = 9 </pre></p>

Button Query Commands (Cont.)	
<p>?BCT Get the current text color.</p>	<p>Syntax: " '?BCT-<vt addr range>,<button states range>' "</p> <p>Variable: 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). custom event type 1013: Flag - Zero Value1 - Button state number Value2 - Actual length of string (should be 9) Value3 - Zero Text - Hex encoded color value (ex: #000000FF) Text length - Color name length (should be 9)</p> <p>Example: SEND COMMAND Panel, "'?BCT-529,1' " Gets the button 'OFF state' text color information. The result sent to Master would be:</p> <pre>ButtonGet Id = 529 Type = 1013 Flag = 0 VALUE1 = 1 VALUE2 = 9 VALUE3 = 0 TEXT = #FFFFFFF TEXT LENGTH = 9</pre>
<p>?BMP Get the current bitmap name.</p>	<p>Syntax: " '?BMP-<vt addr range>,<button states range>' "</p> <p>Variable: 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). custom event type 1002: Flag - Zero Value1 - Button state number Value2 - Actual length of string Value3 - Zero Text - String that represents the bitmap name Text length - Bitmap name text length (should be 9)</p> <p>Example: SEND COMMAND Panel, "'?BMP-529,1' " Gets the button 'OFF state' bitmap information. The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1002 Flag = 0 VALUE1 = 1 VALUE2 = 9 VALUE3 = 0 TEXT = Buggs.png TEXT LENGTH = 9</pre>

Button Query Commands (Cont.)	
<p>?BOP Get the overall button opacity.</p>	<p>Syntax: " '?BOP-<vt addr range>,<button states range>' "</p> <p>Variable: 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). custom event type 1015: Flag - Zero Value1 - Button state number Value2 - Opacity Value3 - Zero Text - Blank Text length - Zero</p> <p>Example: SEND COMMAND Panel, "'?BOP-529,1' "</p> <p>Gets the button 'OFF state' opacity information. The result sent to the Master would be:</p> <pre> ButtonGet Id = 529 Type = 1015 Flag = 0 VALUE1 = 1 VALUE2 = 200 VALUE3 = 0 TEXT = TEXT LENGTH = 0 </pre>
<p>?BRD Get the current border name.</p>	<p>Syntax: " '?BRD-<vt addr range>,<button states range>' "</p> <p>Variable: 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). custom event type 1014: Flag - Zero Value1 - Button state number Value2 - Actual length of string Value3 - Zero Text - String that represents border name Text length - Border name length</p> <p>Example: SEND COMMAND Panel, "'?BRD-529,1' "</p> <p>Gets the button 'OFF state' border information. The result sent to the Master would be:</p> <pre> ButtonGet Id = 529 Type = 1014 Flag = 0 VALUE1 = 1 VALUE2 = 22 VALUE3 = 0 TEXT = Double Bevel Raised -L TEXT LENGTH = 22 </pre>

Button Query Commands (Cont.)	
<p>?BWW</p> <p>Get the current word wrap flag status.</p>	<p>Syntax:</p> <pre>''?BWW-<vt addr range>,<button states range>''</pre> <p>Variable:</p> <p>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). custom event type 1010:</p> <p>Flag - Zero Value1 - Button state number Value2 - 0 = no word wrap, 1 = word wrap Value3 - Zero Text - Blank Text length - Zero</p> <p>Example:</p> <pre>SEND COMMAND Panel, ''?BWW-529,1''</pre> <p>Gets the button 'OFF state' word wrap flag status information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1010 Flag = 0 VALUE1 = 1 VALUE2 = 1 VALUE3 = 0 TEXT = TEXT LENGTH = 0</pre>
<p>?FON</p> <p>Get the current font index.</p>	<p>Syntax:</p> <pre>''?FON-<vt addr range>,<button states range>''</pre> <p>Variable:</p> <p>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). custom event type 1007:</p> <p>Flag - Zero Value1 - Button state number Value2 - Font index Value3 - Zero Text - Blank Text length - Zero</p> <p>Example:</p> <pre>SEND COMMAND Panel, ''?FON-529,1''</pre> <p>Gets the button 'OFF state' font type index information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1007 Flag = 0 VALUE1 = 1 VALUE2 = 72 VALUE3 = 0 TEXT = TEXT LENGTH = 0</pre>

Button Query Commands (Cont.)	
<p>?ICO Get the current icon index.</p>	<p>Syntax: " '?ICO-<vt addr range>,<button states range>' "</p> <p>Variable: 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). custom event type 1003: Flag - Zero Value1 - Button state number Value2 - Icon Index Value3 - Zero Text - Blank Text length - Zero</p> <p>Example: SEND COMMAND Panel, "'?ICO-529,1&2' "</p> <p>Gets the button 'OFF state' icon index information. The result sent to the Master would be:</p> <pre> ButtonGet Id = 529 Type = 1003 Flag = 0 VALUE1 = 2 VALUE2 = 12 VALUE3 = 0 TEXT = TEXT LENGTH = 0 </pre>
<p>?JSB Get the current bitmap justification.</p>	<p>Syntax: " '?JSB-<vt addr range>,<button states range>' "</p> <p>Variable: 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). custom event type 1005: Flag - Zero Value1 - Button state number Value2 - 1 - 9 justify Value3 - Zero Text - Blank Text length - Zero</p> <p>Example: SEND COMMAND Panel, "'?JSB-529,1' "</p> <p>Gets the button 'OFF state' bitmap justification information. The result sent to the Master would be:</p> <pre> ButtonGet Id = 529 Type = 1005 Flag = 0 VALUE1 = 1 VALUE2 = 5 VALUE3 = 0 TEXT = TEXT LENGTH = 0 </pre>

Button Query Commands (Cont.)	
<p>?JSI Get the current icon justification.</p>	<p>Syntax: "'?JSI-<vt addr range>,<button states range>'"</p> <p>Variable: 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). custom event type 1006: Flag - Zero Value1 - Button state number Value2 - 1 - 9 justify Value3 - Zero Text - Blank Text length - Zero</p> <p>Example: SEND COMMAND Panel, "'?JSI-529,1'"</p> <p>Gets the button 'OFF state' icon justification information. The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1006 Flag = 0 VALUE1 = 1 VALUE2 = 6 VALUE3 = 0 TEXT = TEXT LENGTH = 0</pre>
<p>?JST Get the current text justification.</p>	<p>Syntax: "'?JST-<vt addr range>,<button states range>'"</p> <p>Variable: 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). custom event type 1004: Flag - Zero Value1 - Button state number Value2 - 1 - 9 justify Value3 - Zero Text - Blank Text length - Zero</p> <p>Example: SEND COMMAND Panel, "'?JST-529,1'"</p> <p>Gets the button 'OFF state' text justification information. The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1004 Flag = 0 VALUE1 = 1 VALUE2 = 1 VALUE3 = 0 TEXT = TEXT LENGTH = 0</pre>

Button Query Commands (Cont.)	
<p>?TEC Get the current text effect color.</p>	<p>Syntax: " '?TEC-<vt addr range>,<button states range>' "</p> <p>Variable: 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). custom event type 1009: Flag - Zero Value1 - Button state number Value2 - Actual length of string (should be 9) Value3 - Zero Text - Hex encoded color value (ex: #000000FF) Text length - Color name length (should be 9)</p> <p>Example: SEND COMMAND Panel, "'?TEC-529,1' "</p> <p>Gets the button 'OFF state' text effect color information. The result sent to the Master would be:</p> <pre> ButtonGet Id = 529 Type = 1009 Flag = 0 VALUE1 = 1 VALUE2 = 9 VALUE3 = 0 TEXT = #5088F2AE TEXT LENGTH = 9 </pre>
<p>?TEF Get the current text effect name.</p>	<p>Syntax: " '?TEF-<vt addr range>,<button states range>' "</p> <p>Variable: 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). custom event type 1008: Flag - Zero Value1 - Button state number Value2 - Actual length of string Value3 - Zero Text - String that represents the text effect name Text length - Text effect name length</p> <p>Example: SEND COMMAND Panel, "'?TEF-529,1' "</p> <p>Gets the button 'OFF state' text effect name information. The result sent to the Master would be:</p> <pre> ButtonGet Id = 529 Type = 1008 Flag = 0 VALUE1 = 1 VALUE2 = 18 VALUE3 = 0 TEXT = Hard Drop Shadow 3 TEXT LENGTH = 18 </pre>

Button Query Commands (Cont.)	
<p>?TXT Get the current text information.</p>	<p>Syntax: <code>''?TXT-<vt addr range>,<button states range>,<optional index>''</code></p> <p>Variable: 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 = This is used if a string was too long to get back in one command. The reply will start at this index.</p> <p>custom event type 1001: Flag - Zero Value1 - Button state number Value2 - Actual length of string Value3 - Index Text - Text from the button Text length - Button text length</p> <p>Example: <code>SEND COMMAND Panel, ''?TXT-529,1''</code> Gets the button 'OFF state' text information. The result sent to the Master would be:</p> <pre> ButtonGet Id = 529 Type = 1001 Flag = 0 VALUE1 = 1 VALUE2 = 14 VALUE3 = 1 TEXT = This is a test TEXT LENGTH = 14 </pre>

Panel Runtime Operations

Serial Commands are used in Terminal Emulator mode. These commands are case insensitive.

Panel Runtime Operation Commands	
ABEEP Output a single beep even if BEEP is Off.	Syntax: <pre>" 'ABEEP' "</pre> Example: <pre>SEND COMMAND Panel, " 'ABEEP' "</pre> Outputs a single beep even if BEEP is Off. NOTE: Future firmware versions may not support this command.
ADBEEP Output a double beep even if BEEP is Off.	Syntax: <pre>" 'ADBEEP' "</pre> Example: <pre>SEND COMMAND Panel, " 'ADBEEP' "</pre> Outputs a double beep even if Beep is Off. NOTE: Future firmware versions may not support this command.
@AKB Pop up the keyboard icon and initialize the text string to that specified.	Keyboard string is set to null on power up and is stored until power is lost. The Prompt Text is optional. Syntax: <pre>" '@AKB-<initial text>;<prompt text>' "</pre> Variables: initial font = 1 - 50 ASCII characters. prompt font = 1 - 50 ASCII characters. Example: <pre>SEND COMMAND Panel, " '@AKB-Texas;Enter State' "</pre> Pops up the Keyboard and initializes the text string 'Texas' with prompt text 'Enter State'.
AKEYB Pop up the keyboard icon and initialize the text string to that specified.	Keyboard string is set to null on power up and is stored until power is lost. Syntax: <pre>" 'AKEYB-<initial text>' "</pre> Variables: initial text = 1 - 50 ASCII characters. Example: <pre>SEND COMMAND Panel, " 'AKEYB-This is a Test' "</pre> Pops up the Keyboard and initializes the text string 'This is a Test'. NOTE: Future firmware versions may not support this command.
AKEYP Pop up the keypad icon and initialize the text string to that specified.	The keypad string is set to null on power up and is stored until power is lost. Syntax: <pre>" 'AKEYP-<number string>' "</pre> Variables: number string = 0 - 9999. Example: <pre>SEND COMMAND Panel, " 'AKEYP-12345' "</pre> Pops up the Keypad and initializes the text string '12345'. NOTE: Future firmware versions may not support this command.
AKEYR Remove the Keyboard/Keypad displayed using listed commands.	Remove keyboard or keypad that was displayed using 'AKEYB', 'AKEYP', 'PKEYP', '@AKB, @AKP, @PKP, @EKP, or @TKP commands. Syntax: <pre>" 'AKEYR' "</pre> Example: <pre>SEND COMMAND Panel, " 'AKEYR' "</pre> Removes the Keyboard/Keypad. NOTE: Future firmware versions may not support this command.

Panel Runtime Operation Commands (Cont.)	
<p>@AKP Pop up the keypad icon and initialize the text string to that specified.</p>	<p>Keypad string is set to null on power up and is stored until power is lost. The Prompt Text is optional. Syntax: <pre>"@AKP-<initial text>;<prompt text>"</pre> Variables: <pre>initial text = 1 - 50 ASCII characters. prompt text = 1 - 50 ASCII characters.</pre> Example: <pre>SEND COMMAND Panel,"@AKP-12345678;ENTER PASSWORD"</pre> Pops up the Keypad and initializes the text string '12345678' with prompt text 'ENTER PASSWORD'.</p>
<p>@AKR Remove the Keyboard/Keypad.</p>	<p>Remove keyboard or keypad that was displayed using 'AKEYB', 'AKEYP', 'PKEYP', '@AKB', '@AKP', '@PKP', '@EKP', or '@TKP' commands. Syntax: <pre>"@AKR"</pre> Example: <pre>SEND COMMAND Panel,"@AKR"</pre> Removes the Keyboard/Keypad.</p>
<p>BEEP Output a beep.</p>	<p>Syntax: <pre>"BEEP"</pre> Example: <pre>SEND COMMAND Panel,"BEEP"</pre> Outputs a beep. NOTE: Future firmware versions may not support this command.</p>
<p>BRIT Set the panel brightness.</p>	<p>Syntax: <pre>"BRIT-<brightness level>"</pre> Variable: <pre>brightness level = 0 - 100.</pre> Example: <pre>SEND COMMAND Panel,"BRIT-50"</pre> Sets the brightness level to 50. NOTE: Future firmware versions may not support this command.</p>
<p>@BRT Set the panel brightness.</p>	<p>Syntax: <pre>"@BRT-<brightness level>"</pre> Variable: <pre>brightness level = 0 - 100.</pre> Example: <pre>SEND COMMAND Panel,"@BRT-70"</pre> Sets the brightness level to 70.</p>
<p>DBEEP Output a double beep.</p>	<p>Syntax: <pre>"DBEEP"</pre> Example: <pre>SEND COMMAND Panel,"DBEEP"</pre> Outputs a double beep. NOTE: Future firmware versions may not support this command.</p>

Panel Runtime Operation Commands (Cont.)	
@EKP Extend the Keypad.	<p>Pops up the keypad icon and initializes the text string to that specified. The Prompt Text is optional.</p> <p>Syntax: <code>"@EKP-<initial text>;<prompt text>"</code></p> <p>Variables: initial text = 1 - 50 ASCII characters. prompt text = 1 - 50 ASCII characters.</p> <p>Example: <code>SEND COMMAND Panel,"@EKP-33333333;Enter Password"</code></p> <p>Pops up the Keypad and initializes the text string '33333333' with prompt text 'Enter Password'.</p>
PKEYP Present a private keypad.	<p>Pops up the keypad icon and initializes the text string to that specified. Keypad displays a '*' instead of the numbers typed. The Prompt Text is optional.</p> <p>Syntax: <code>"PKEYP-<initial text>"</code></p> <p>Variables: initial text = 1 - 50 ASCII characters.</p> <p>Example: <code>SEND COMMAND Panel,"PKEYP-123456789"</code></p> <p>Pops up the Keypad and initializes the text string '123456789' in '*'.</p> <p>NOTE: Future firmware versions may not support this command.</p>
@PKP Present a private keypad.	<p>Pops up the keypad icon and initializes the text string to that specified. Keypad displays a '*' instead of the numbers typed. The Prompt Text is optional.</p> <p>Syntax: <code>"@PKP-<initial text>;<prompt text>"</code></p> <p>Variables: initial text = 1 - 50 ASCII characters. prompt text = 1 - 50 ASCII characters.</p> <p>Example: <code>SEND COMMAND Panel,"@PKP-1234567;ENTER PASSWORD"</code></p> <p>Pops up the Keypad and initializes the text string 'ENTER PASSWORD' in '*'.</p>
SETUP Send panel to SETUP page.	<p>Syntax: <code>"SETUP"</code></p> <p>Example: <code>SEND COMMAND Panel,"SETUP"</code></p> <p>Sends the panel to the Setup Page.</p> <p>NOTE: Future firmware versions may not support this command.</p>
SHUTDOWN Shut down the batteries providing power to the panel.	<p>Syntax: <code>"SHUTDOWN"</code></p> <p>Example: <code>SEND COMMAND Panel,"SHUTDOWN"</code></p> <p>Shuts-down the batteries feeding power to the panel. This function saves the battery from discharging.</p> <p>NOTE: Future firmware versions may not support this command.</p>
SLEEP Force the panel into screen saver mode.	<p>Syntax: <code>"SLEEP"</code></p> <p>Example: <code>SEND COMMAND Panel,"SLEEP"</code></p> <p>Forces the panel into screen saver mode.</p> <p>NOTE: Future firmware versions may not support this command.</p>

Panel Runtime Operation Commands (Cont.)	
<p>@SOU Play a sound file.</p>	<p>Syntax: " '@SOU-<sound name>' "</p> <p>Variables: sound name = Name of the sound file. Supported sound file formats are: WAV & MP3.</p> <p>Example: SEND COMMAND Panel, "'@SOU-Music.wav' "</p> <p>Plays the 'Music.wav' file.</p>
<p>@TKP Present a telephone keypad.</p>	<p>Pops up the keypad icon and initializes the text string to that specified. The Prompt Text is optional.</p> <p>Syntax: " '@TKP-<initial text>;<prompt text>' "</p> <p>Variables: initial text = 1 - 50 ASCII characters. prompt text = 1 - 50 ASCII characters.</p> <p>Example: SEND COMMAND Panel, "'@TKP-999.222.1211;Enter Phone Number' "</p> <p>Pops-up the Keypad and initializes the text string '999.222.1211' with prompt text 'Enter Phone Number'.</p>
<p>TPAGEON Turn On page tracking.</p>	<p>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.</p> <p>Syntax: " 'TPAGEON' "</p> <p>Example: SEND COMMAND Panel, "'TPAGEON' "</p> <p>Turns On page tracking. NOTE: Future firmware versions may not support this command.</p>
<p>TPAGEOFF Turn Off page tracking.</p>	<p>Syntax: " 'TPAGEOFF' "</p> <p>Example: SEND COMMAND Panel, "'TPAGEOFF' "</p> <p>Turns Off page tracking. NOTE: Future firmware versions may not support this command.</p>
<p>@VKB Popup the virtual keyboard.</p>	<p>Syntax: " '@VKB' "</p> <p>Example: SEND COMMAND Panel, "'@VKB' "</p> <p>Pops-up the virtual keyboard.</p>
<p>WAKE Force the panel out of screen saver mode.</p>	<p>Syntax: " 'WAKE' "</p> <p>Example: SEND COMMAND Panel, "'WAKE' "</p> <p>Forces the panel out of the screen saver mode. NOTE: Future firmware versions may not support this command.</p>

Panel Setup Commands

These commands are case insensitive.

Panel Setup Commands	
<p>@PWD Set the page flip password.</p>	<p>@PWD sets the level 1 password only. Syntax: " '@PWD-<page flip password>' " Variables: page flip password = 1 - 50 ASCII characters. Example: SEND COMMAND Panel, "'@PWD-Main' " Sets the page flip password to 'Main'.</p>
<p>^PWD Set the page flip password.</p>	<p>Password level is required and must be 1 - 4. Syntax: " '^PWD-<password level>,<page flip password>' " Variables: password level = 1 - 4. page flip password = 1 - 50 ASCII characters. Example: SEND COMMAND Panel, "'^PWD-1,Main' " Sets the page flip password on Password Level 1 to 'Main'.</p>

Input Commands

These Send Commands are case insensitive.

Input Commands	
<p>^KPS Set the keyboard passthru.</p>	<p>Syntax: " '^KPS-<pass data>' " Variable: pass data: <blank/empty> = Disables the keyboard. 0 = Pass data to G4 application (default). This can be used with VPC or text areas. 1 - 4 = Not used. 5 = Sends out data to the Master. Example: SEND COMMAND Panel, "'^KPS-5' " Sets the keyboard passthru to the Master. Option 5 sends keystrokes directly to the Master via the Send Output String mechanism. This process sends a virtual keystroke command (^VKS) to the Master. Example 2: SEND COMMAND Panel, "'^KPS-0' " Disables the keyboard passthru to the Master. • Accepts keystrokes from attached USB keyboard or Virtual keyboard.</p>
<p>^VKS Send one or more virtual key strokes to the G4 application.</p>	<p>Key presses and key releases are not distinguished except in the case of CTRL, ALT, and SHIFT. Refer to the Embedded Codes table on page 89 that define special characters which can be included with the string but may not be represented by the ASCII character set. Syntax: " '^VKS-<string>' " Variable: string = Only 1 string per command/only one stroke per command. Example: SEND COMMAND Panel, "'^VKS-'8" " Sends out the keystroke 'backspace' to the G4 application.</p>

Embedded codes

The following is a list of G4 compatible embedded codes:

Embedded Codes		
Decimal numbers	Hexidecimal values	Virtual keystroke
8	(\$08)	Backspace
13	(\$0D)	Enter
27	(\$1B)	ESC
128	(\$80)	CTRL key down
129	(\$81)	ALT key down
130	(\$82)	Shift key down
131	(\$83)	F1
132	(\$84)	F2
133	(\$85)	F3
134	(\$86)	F4
135	(\$87)	F5
136	(\$88)	F6
137	(\$89)	F7
138	(\$8A)	F8
139	(\$8B)	F9
140	(\$8C)	F10
141	(\$8D)	F11
142	(\$8E)	F12
143	(\$8F)	Num Lock
144	(\$90)	Caps Lock
145	(\$91)	Insert
146	(\$92)	Delete
147	(\$93)	Home
148	(\$94)	End
149	(\$95)	Page Up
150	(\$96)	Page Down
151	(\$97)	Scroll Lock
152	(\$98)	Pause
153	(\$99)	Break
154	(\$9A)	Print Screen
155	(\$9B)	SYSRQ
156	(\$9C)	Tab
157	(\$9D)	Windows
158	(\$9E)	Menu
159	(\$9F)	Up Arrow
160	(\$A0)	Down Arrow
161	(\$A1)	Left Arrow
162	(\$A2)	Right Arrow
192	(\$C0)	CTRL key up
193	(\$C1)	ALT key up
194	(\$C2)	Shift key up

Dynamic Image Commands

The following table describes Dynamic Image Commands.

Dynamic Image Commands	
<p>^BBR Set the bitmap of a button to use a particular resource.</p>	<p>Syntax: <code>''^BBR-<vt addr range>,<button states range>,<resource name>' "</code></p> <p>Variable: 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). resource name = 1 - 50 ASCII characters.</p> <p>Example: <code>SEND_COMMAND Panel, ''^BBR-700,1,Sports_Image' "</code> Sets the resource name of the button to 'Sports_Image'.</p>
<p>^RAF Add new resources.</p>	<p>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 - <i>Embedded Codes</i> table below.</p> <p>Syntax: <code>''^RAF-<resource name>,<data>' "</code></p> <p>Variables:</p> <ul style="list-style-type: none"> • resource name = 1 - 50 ASCII characters. • data = Refers to the embedded codes, see the ^RAF, ^RMF - <i>Embedded Codes</i> section on page 93. <p>Example: <code>SEND_COMMAND Panel, ''^RAF-New Image,%P0%HAMX.COM%ALab/Test%%5Ffile%Ftest.jpg' "</code></p> <p>Adds a new resource.</p> <ul style="list-style-type: none"> • The resource name is 'New Image' • %P (protocol) is an HTTP • %H (host name) is AMX.COM • %A (file path) is Lab/Test_file • %F (file name) is test.jpg. <p>Note that the %%5F in the file path is actually encoded as %5F.</p>

Dynamic Image Commands (Cont.)	
<p>^RFR Force a refresh for a given resource, if the resource is visible onscreen.</p>	<p>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.</p> <p>Syntax: <code>''^RFR-<resource name>,<notification option>''</code></p> <p>This command has an optional notification option at the end of the command with the following possible values:</p> <ul style="list-style-type: none"> • <i>on</i> - notifications are sent whenever the named dynamic image resource is loaded/refreshed. • <i>off</i> - notifications are not sent (default). • <i>once</i> - notifications are sent one time whenever the named dynamic image resource is loaded/refreshed. Notifications are not sent on subsequent loads/refreshes. <p>Examples: <code>SEND_COMMAND Panel, '^RFR-Sports_Image,on'</code> Force a refresh on 'Sport_Image' when the resource is visible onscreen and enable completion notifications. <code>SEND_COMMAND Panel, '^RFR-Sports_Image,off'</code> Force a refresh on 'Sport_Image' when the resource is visible onscreen and disable completion notifications. <code>SEND_COMMAND Panel, '^RFR-Sports_Image,once'</code> Force a refresh on 'Sport_Image' when the resource is visible onscreen and enable a one-time completion notification.</p>
<p>^RFRP Force a refresh of the given resource, prefetching the resource.</p>	<p>Force a refresh of the given resource. The command will "prefetch" the resource even if it is not currently visible.</p> <p>Syntax: <code>''^RFRP-<resource name>, <notification option>''</code></p> <p>This command has new optional notification option at the end of the command with the following possible values:</p> <ol style="list-style-type: none"> 1. <i>on</i> - notifications are sent whenever the named dynamic image resource is loaded/refreshed. 2. <i>off</i> - notifications are not sent (default). 3. <i>once</i> - notifications are sent one time whenever the named dynamic image resource is loaded/refreshed. Notifications are not sent on subsequent loads/refreshes. <p>Examples: <code>SEND_COMMAND Panel, '^RFRP-Sports_Image,on'</code> Force a refresh on 'Sport_Image' immediately and enable completion notifications. <code>SEND_COMMAND Panel, '^RFRP-Sports_Image,off'</code> Force a refresh on 'Sport_Image' immediately and disable completion notifications. <code>SEND_COMMAND Panel, '^RFRP-Sports_Image,once'</code> Force a refresh on 'Sport_Image' immediately and enable a one-time completion notification.</p>

Dynamic Image Commands (Cont.)	
<p>^RMF Modifies any and all resource parameters by sending embedded codes and data</p>	<p>Modifies any and all resource parameters by sending embedded codes and data.</p> <p>Since the embedded codes are preceded by a '%' character, any '%' character contained in the URL must be escaped with a second '%' character (see example).</p> <p>The file name field (indicated by a %F embedded code) may contain special escape sequences as shown in the <i>^RAF, ^RMF - Embedded Codes</i> section on page 93.</p> <p>Syntax: <pre>''^RMF-<resource name>,<data>'"</pre> </p> <p>Variables:</p> <ul style="list-style-type: none"> • resource name = 1 - 50 ASCII characters • data = Refers to the embedded codes, see the <i>^RAF, ^RMF - Embedded Codes</i> section on page 93. <p>Example: <pre>SEND_COMMAND Panel, ''^RMF-Sports_Image,%ALab%%5FTest/ Images%Ftest.jpg'"</pre> </p> <p>Changes the resource 'Sports_Image' file name to 'test.jpg' and the path to 'Lab_Test/Images'.</p> <p>Note that the %%5F in the file path is actually encoded as %5F.</p>
<p>^RSR Change the refresh rate for a given resource.</p>	<p>Syntax: <pre>''^RSR-<resource name>,<refresh rate>'"</pre> </p> <p>Variable:</p> <p>resource name = 1 - 50 ASCII characters. refresh rate = Measured in seconds.</p> <p>Example: <pre>SEND_COMMAND Panel, ''^RSR-Sports_Image,5'"</pre> </p> <p>Sets the refresh rate to 5 seconds for the given resource ('Sports_Image').</p>

^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 following table:

^RAF, ^RMF - Embedded Codes		
Parameter	Embedded Code	Description
protocol	'%P <0-1>'	Set protocol: either HTTP (0) or FTP (1)
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.
newest	'%N <0-1>'	Set the newest file. A value of 1 means that only the most recent file matching the pattern is downloaded. Note: The 'newest file' option only applies to FTP Dynamic Images, and only those that have pattern matching as part of their filename. Neither 'newest file' nor pattern matching apply to HTTP Dynamic Images. When set, the panel will first pull a list of files matching the given pattern from the specified FTP server and path. The timestamps of the items in the list will be compared, with the newest one being displayed on the panel. This is useful for source devices that place a uniquely named still image in a folder at constant intervals, allowing the panel always to display the most recent one.
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.

^RAF, ^RMF - Embedded Codes (Cont.)		
Notification setting	'%C<on,off,once>'	<p>Indicates whether a notification is required when a Dynamic Image is loaded/refreshed.</p> <p>The string following the %C can be:</p> <ol style="list-style-type: none"> 1. <i>on</i> - notifications are sent whenever the named dynamic image resource is loaded/refreshed. 2. <i>off</i> - notifications are not sent (default). 3. <i>once</i> - notifications are sent one time whenever the named dynamic image resource is loaded/refreshed. Notifications are not sent on subsequent loads/refreshes. <p>If the %C code is not sent as part of a ^RAF command, the notifications are set to off.</p> <p>If the %C code is not sent as part of a ^RMF command, the notifications are not changed from the current setting.</p>

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 table below:

Escape Sequences	
Sequence	Panel Information
\$DV	Device Number
\$SY	System Number
\$IP	IP Address
\$HN	Host Name
\$MC	Mac Address
\$ID	Neuron ID (<i>Only supported on panels that use ICSNet; ignored on all other panels</i>)
\$PX	X resolution of current panel mode/file
\$PY	Y resolution of current panel mode/file
\$ST	Current state
\$AC	Address code
\$AP	Address port
\$CC	Channel code
\$CP	Channel port
\$LC	Level code
\$LP	Level port
\$BX	X Resolution of Current button
\$BY	Y Resolution of Current button
\$BN	Name of Button

For instance, **http://www.amx.com/img.asp?device=\$DV**
 would become
 http://www.amx.com/img.asp?device=10001.

Intercom Commands

The following is a list of Intercom Commands:

Intercom Commands	
<p>^MODEL? Sets model name.</p>	<p>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 will not respond to this command.</p> <p>Syntax: SEND_COMMAND <DEV>, "'^MODEL?'"</p> <p>Variables: None.</p> <p>Example: SEND_COMMAND TP1, "'^MODEL?'"</p> <p>Panel response string if intercom enabled: ^MODEL-MVP-8400i</p>
<p>^ICS- Starts a call to the specified IP address and ports.</p>	<p>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. Please note, however, that no data packets will actually flow until the intercom modify command is sent to the panel.</p> <p>Syntax: "'^ICS-<IP>,<TX UDP port>,<RX UDP port>,<initial mode>'"</p> <p>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.</p> <p>Examples: 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"</p> <p>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"</p> <p>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"</p> <p>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.</p>
<p>^ICE' Terminates an intercom call/connection.</p>	<p>This terminates an intercom call/connection.</p> <p>Syntax: "'^ICE'"</p> <p>Example: SEND_COMMAND TP1, "'^ICE'" SEND_COMMAND TP2, "'^ICE'"</p> <p>Terminates an intercom call between two panels.</p>

Intercom Commands (Cont.)	
^ICM-LISTEN Intercom modify command.	Intercom modify command. Syntax: "'^ICM-LISTEN'" Example: SEND_COMMAND TP1, "'^ICM-TALK'"
^ICM-MICLEVEL Intercom modify command.	Set the microphone level during an intercom call. Syntax: "^ICM-MICLEVEL" Variables: Level = 0-100 Example: SEND_COMMAND TP1, "^ICM-MICLEVEL,40" Sets the microphone level to 40.
^ICM-MUTEMIC Intercom modify command.	Set 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"
^ICM-SPEAKERLEVEL Intercom modify command.	Used to set the speaker level during an intercom call. Syntax: SEND_COMMAND <DEV>, "^ICM-SPEAKERLEVEL,<value>" Variables: Level = 0-100. Example: SEND_COMMAND TP1, "^ICM-SPEAKERLEVEL,55"
^ICM-TALK Intercom modify command.	Intercom modify command. Syntax: "'^ICM-TALK'" Example: SEND_COMMAND TP1, "'^ICM-TALK'"
^IIC Intercom incoming call.	Intercom incoming call Notifies the panel (specifically the AMX BT Handset accessory) that an intercom call is coming in. This is to enable the accessory to ring.
^IOC Intercom outgoing call.	Intercom outgoing call Notifies the panel that an intercom call is outgoing. This is to enable any headset accessories for the appropriate operation.

SIP Commands

The following table lists and describes SIP commands that are generated from the touch panel.

SIP Commands	
^PHN-AUTOANSWER Provides the state of the auto-answer feature.	Syntax: <pre>''^PHN-AUTOANSWER, <state>''</pre> Variable: state = 0 or 1 (off or on) Example: <pre>SEND_COMMAND Panel, ''^PHN-AUTOANSWER, 1''</pre>
^PHN-CALL Provides call progress notification for a call.	Syntax: <pre>''^PHN-CALL, <status>, <connection id>''</pre> Variable: status = CONNECTED, DISCONNECTED, TRYING, RINGING, or HOLD. connection id = The identifying number of the connection. Example: <pre>SEND_COMMAND Panel ''^PHN-CALL, CONNECTED, 1''</pre> Notifies that the call is connected.
^PHN-DECLINE Declines the incoming call on <CallID> as indicated from the previous message.	Decline (send to voice mail if configured) the incoming call on <CallID> as indicated from the previous PHN-INCOMING message. CallID should be 0 or 1. Syntax: <pre>''^PHN-DECLINE, <CallID>''</pre> Variable: CallID = The identifying number of the connection. Example: <pre>SEND_COMMAND Panel, ''^PHN-DECLINE, 0''</pre>
^PHN-INCOMING Provides incoming call notification and the connection ID.	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: <pre>''^PHN-INCOMING, <caller number>, <caller name>, <connection id>, <timestamp>, ''</pre> Variable: 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: <pre>SEND_COMMAND Panel, ''^PHN-INCOMING, 2125551000, AMX, 07/22/08 12:00:00, 1''</pre>
^PHN-LINESTATE Indicates the current state of each of the available connections used to manage calls.	Syntax: <pre>''^PHN-LINESTATE, <connection id>, <state>, <connection id>, <state>, ...''</pre> Variable: connection id = The identifying number of the connection. state = IDLE, HOLD, or CONNECTED extn = The local extension of this panel (see Example) Example: <pre>SEND_COMMAND Panel, ''^PHN-LINESTATE, 1, IDLE, 2, CONNECTED, SIP, <extn>''</pre>

SIP Commands (Cont.)	
<p>^PHN-MSGWAITING</p> <p>Indicates the number of messages waiting the user's voice mail box.</p>	<p>Syntax: "'^PHN-MSGWAITING, <messages>, <new message count>, <old message count>, <new urgent message count>, <old urgent message count>'"</p> <p>Variable: 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.</p> <p>Example: SEND_COMMAND Panel, "'^PHN-MSGWAITING, 1, 1, 2, 1, 0'"</p>
<p>^PHN-PRIVACY</p> <p>Indicates the state of the privacy feature.</p>	<p>Syntax: "'^PHN-PRIVACY, <state>'"</p> <p>Variable: 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.</p> <p>Example: SEND_COMMAND Panel, "'^PHN-PRIVACY, 0'"</p>
<p>^PHN-REDIAL</p> <p>Indicates the panel is redialing the number.</p>	<p>Syntax: "'^PHN-REDIAL, <number>'"</p> <p>Variable: number = The phone number to dial.</p> <p>Example: SEND_COMMAND Panel, "'^PHN-REDIAL, 2125551000'"</p>
<p>^PHN-TRANSFERRED</p> <p>Indicates a call has been transferred.</p>	<p>Syntax: "'^PHN-TRANSFERRED'"</p> <p>Example: SEND_COMMAND Panel, "'^PHN-TRANSFERRED'"</p>

The following table lists and describes SIP commands that are sent to the touch panel to manage calls.

SIP Commands	
<p>^PHN-ANSWER</p> <p>Answers the call.</p>	<p>Syntax: "'^PHN-ANSWER, <connection id>'"</p> <p>Variable: connection id = The identifying number of the connection</p> <p>Example: SEND_COMMAND Panel, "'^PHN-ANSWER, 1'"</p>
<p>^PHN-AUTOANSWER</p> <p>Enables or disables the auto-answer feature of the phone.</p>	<p>Enables (1) or disables (0) the auto-answer feature on the phone.</p> <p>Syntax: "'^PHN-AUTOANSWER, <state>'"</p> <p>Variable: state = 0 (Disable) or 1 (Enable)</p> <p>Example: SEND_COMMAND Panel, "'^PHN-AUTOANSWER, 1'"</p> <p>Enables the auto-answer feature.</p>

SIP Commands (Cont.)	
?PHN-AUTOANSWER 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' "
^PHN-CALL Calls the provided number.	Syntax: " '^PHN-CALL, <number>' " Variable: number = The provided phone number Example: SEND_COMMAND Panel, "'^PHN-CALL, 2125551000' "
^PHN-DTMF Sends DTMF codes.	Syntax: " '^PHN-DTMF, <DTMF code>' " Variable: DTMF code = 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, POUND, or ASTERISK. Example: SEND_COMMAND Panel, "'^PHN-DTMF, 123456789ASTERISK' "
^PHN-HANGUP 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' "
^PHN-HOLD 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' "
?PHN-LINESTATE 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' "
^PHN-PRIVACY Enables or disables the privacy feature on the phone.	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.
?PHN-PRIVACY 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' "
^PHN-REDIAL Redials the last number.	Syntax: " '^PHN-REDIAL' " Example: SEND_COMMAND Panel, "'^PHN-REDIAL' "

SIP Commands (Cont.)	
^PHN-TRANSFER Transfers the call to the provided number.	Syntax: <pre>''^PHN-TRANSFER, <connection id>, <number>' "</pre> Variable: connection id = The identifying number of the connection number = The number to which you want to transfer the call. Example: <pre>SEND_COMMAND Panel, ''^PHN-TRANSFER, 1, 2125551000' "</pre>

The following table lists and describes SIP setup commands. Using any of these commands causes the current user to go offline.

SIP Setup Commands	
^PHN-SETUP-DOMAIN Sets the realm for authentication.	Syntax: <pre>''^PHN-SETUP-DOMAIN, <domain>' "</pre> Variable: domain = The realm used for authentication Example: <pre>SEND_COMMAND Panel, ''^PHN-SETUP-DOMAIN, asterisk' "</pre>
^PHN-SETUP-ENABLE Registers a new user	Once the configuration has been updated, the ENABLE command should be run to re-register the new user. Syntax: <pre>''^PHN-SETUP-ENABLE' "</pre>
^PHN-SETUP-PASSWORD Sets the user password for the proxy server.	Syntax: <pre>''^PHN-SETUP-PASSWORD, <password>' "</pre> Variable: password = The password for the user name Example: <pre>SEND_COMMAND Panel, ''^PHN-SETUP-PASSWORD, 6003' "</pre>
^PHN-SETUP-PORT Sets the port number for the proxy server.	Syntax: <pre>''^PHN-SETUP-PORT, <port>' "</pre> Variable: port = The port for the proxy server Example: <pre>SEND_COMMAND Panel, ''^PHN-SETUP-PORT, 5060' "</pre>
^PHN-SETUP-PROXYADDR Sets the IP address for the proxy server.	Syntax: <pre>''^PHN-SETUP-PROXYADDR, <IP>' "</pre> Variable: IP = The IP address for the proxy server Example: <pre>SEND_COMMAND Panel, ''^PHN-SETUP-PROXYADDR, 192.168.223.111' "</pre>
^PHN-SETUP-STUNADDR Sets the IP address for the STUN server.	Syntax: <pre>''^PHN-SETUP-STUNADDR, <IP>' "</pre> Variable: IP = The IP address for the STUN server Example: <pre>SEND_COMMAND Panel, ''^PHN-SETUP-STUNADDR, 192.168.223.111' "</pre>
^PHN-SETUP-USERNAME Sets the user name for authentication with the proxy server.	Syntax: <pre>''^PHN-SETUP-USERNAME, <username>' "</pre> Variable: username = The user name (usually the phone extension) Example: <pre>SEND_COMMAND Panel, ''^PHN-SETUP-USERNAME, 6003' "</pre>

Audio Commands

The following is a list of commands that control audio resources:

Audio Commands	
^ADS Defines the audio device used.	Selects the audio device to use. Syntax: "'^ADS-<device>'" Variables: 1 = Built-in Speaker 2 = USB Headset 3 = Bluetooth Headset
?ADS Queries the currently selected audio device.	Syntax: "'?ADS'" Queries the currently selected audio device (returned in custom event). Custom event type 1325 Address 0 Flag - zero Value1 - Device type (1=Built-in speaker, 2=USB Headset, 3=Bluetooth Headset) Value2 - zero Value3 - blank Text - blank
^ICM Sets the microphone level during an intercom call.	Intercom modify command. Used to set the microphone level during an intercom call (0 to 100). Syntax: "'^ICM-MICLEVEL,<level>,[device]'" Set 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. "'^ICM-SPEAKERLEVEL, <level>,[device]'" Intercom modify command. Used to set the speaker level during an intercom call (0 to 100).
?MUT Queries the panel mute status.	Queries the panel mute status (returned in custom event). Syntax: "'?MUT-[device]'" Variables: 0 = Active device (default if none specified) 1 = Built-in Speaker 2 = USB Headset 3 = Bluetooth Headset Custom Event Type 1305 Address 0 Value1 - 0 (unmuted)/1 (muted)
^MUT Sets the panel mute 0 or 1.	Sets the panel mute 0 or 1. Syntax: "'^MUT-<status>,[device]'" Variables: Status: 0 = unmuted, 1 = muted Device: 0 = Active device (mutes device if none specified) 1 = Built-in Speaker 2 = USB Headset 3 = Bluetooth Headset

Audio Commands (Cont.)	
<p>?VOL Queries the panel volume.</p>	<p>Queries the panel volume (returned in custom event). Syntax: " ?VOL-[device] "</p> <p>Variables: 0 = Active device (default if none specified) 1 = Built-in Speaker 2 = USB Headset 3 = Bluetooth Headset Custom Event Type 1306 Address 0 Value1 - master volume value</p>
<p>^VOL Sets the panel volume 0 to 100.</p>	<p>Sets the panel volume 0 to 100. Syntax: " ^VOL-<level>,[device] "</p> <p>Variables: 0 = Active device (default if none specified) 1 = Built-in Speaker 2 = USB Headset 3 = Bluetooth Headset</p>

Panel-to-Panel Video Communication

All camera-enabled Modero S Series panels are AMX Videocom-enabled. Videocom is a new feature that is only supported on Modero S Series panels, where the output from the camera can be remotely viewed from any other Modero S Series panel. The camera output from one panel can be sent to one or many Modero S Series panels. Videocom is not compatible with SIP video phones.



Only camera-enabled Modero S Series touch panels may use this feature.

The following is a list of commands that control panel-to-panel video communication:

Panel-to-Panel Video Communication Commands	
<p>?CAM Queries the panel for camera support and status.</p>	<p>Queries the panel for camera support and status. Returns a string: CAM-<notsupported(0),supported(1)>,<disabled(0),enabled(1)></p>
<p>^VCE Ends Videocom communication.</p>	<p>Videocom (Panel to Panel Video Chat) End Stop sending H.264/RTP data.</p>
<p>^VCS Starts Videocom communication.</p>	<p>Videocom (Panel to Panel Video Chat) Start Start sending H.264/RTP data to dstIp:port. " ^VCS-<dstIp>,<port> "</p>

Streaming Video, MXA-MP, and MXA-MPL Commands

The Modero S Series touch panels support NetLinX commands that control streaming video output, as well as coordinate video output to a Modero S Series touch panel from an MXA-MP Multi Preview or MXA-MPL Multi Preview Live video breakout box. For more information on these commands, please refer to the *Modero X Series Programming Guide*, available at www.amx.com.

Subpages Commands

The following are commands that control subpages:

Subpages Commands	
^SCE Configures subpage custom events	<p>Syntax:</p> <pre>''^SCE-<vt addr range>,<optional anchor event num>,<optional onscreen event num>,<optional offscreen event num>,<optional reorder event num>' ''</pre> <p>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 vt 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.</p> <p>The events are:</p> <p><i>Anchor</i> - a new subpage has docked in the anchor position</p> <p><i>Onscreen</i> - 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.</p> <p><i>Offscreen</i> - a docking operation has been completed and the subpages in the list are now offscreen.</p> <p><i>Reorder</i> - 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.</p> <p>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.</p> <p>The format of the custom event transmitted to the master is as follows:</p> <p>CUSTOM.TYPE = EVENTID = the non-zero event number in the ^SCE command</p> <p>CUSTOM.ID = ADDRESS = the address of the viewer button which generated the event</p> <p>CUSTOM.FLAG = 0</p> <p>CUSTOM.VALUE1 = which one of possible multiple events this is (1 based)</p> <p>CUSTOM.VALUE2 = total number of events needed to send the entire string</p> <p>CUSTOM.VALUE3 = the total size of the original string in bytes</p> <p>CUSTOM.TEXT = pipe character separated list of subpage names</p> <p>As an example, 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:</p> <pre>^SCE-200,32001,0,0,0 CUSTOM.TYPE = EVENTID = 32001 CUSTOM.ID = ADDRESS = 200 CUSTOM.FLAG = 0 CUSTOM.VALUE1 = 1 CUSTOM.VALUE2 = 1 CUSTOM.VALUE3 = 16 CUSTOM.TEXT = TV_Favorite_SyFy</pre> <p>If defined, the events are sent in this order when a docking operation completes on a given viewer button: anchor, onscreen, offscreen</p> <p>If reorder is defined and occurs, it is sent first: reorder, anchor, onscreen, offscreen</p>

Subpages Commands (Cont.)	
^SDR Enabling subpage dynamic reordering	Syntax: <pre>''^SDR-<vt addr range>,<enable state>,<optional hold time>''</pre> <p>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.</p> <p>Variables:</p> <p><i>enable state</i> - 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).</p> <p><i>hold time</i> - 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.</p>
^SHD Hides subpage	Syntax: <pre>''^SHD-<vt addr range>,<name>,<optional time>''</pre> <p>This command will hide 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. Parameter definitions are the same as for the subpage show command.</p>
^SSH Subpage show command	Syntax: <pre>''^SSH-<vt addr range>,<name>,<optional position>,<optional time>''</pre> <p>Subpage show command</p> <p>This command will perform one of three different operations based on the following conditions:</p> <ol style="list-style-type: none"> 1. If the named subpage is hidden in the set associated with the viewer button it will be shown in the anchor position. 2. If the named subpage is not present in the set it will be added to the set and shown in the anchor position. 3. 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. <p>Variables:</p> <p><i>vt addr range</i> – Specifies the address(es) of the subpage viewer button to be modified.</p> <p><i>name</i> – Specifies the name of the subpage to be shown or added.</p> <p><i>position</i> – 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.</p> <p><i>time</i> – 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.</p>
^STG Subpage toggle command	Syntax: <pre>''^STG-<vt addr range>,<name>,<optional position>,<optional time>''</pre> <p>Subpage toggle command</p> <p>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. Parameter definitions are the same as for the subpage show command.</p>



NOTE

The number of subpages that can be created is based on subpage size and limited only to the system's available memory.



NOTE

Using the same subpage set for multiple viewer buttons is not recommended. If you have multiple subpage viewer buttons in a project that need to display the same subpage list, using a unique set name for each is highly recommended. You can then use the same address for each viewer button so that any subpage commands (like ^SSH) will apply to each set.



NOTE

For more information on subpages and their use, please refer to the TPDesign 4 online Help and the TPDesign 4 Operation Reference Guide, available at www.amx.com.

LED Commands

In Modero S touch panels with LED displays, the following are commands that control the LED behavior and output:

LED Commands	
^WLD Controls the LED behavior	Syntax: <code>^WLD-<LED Num>,<Action>[,<Value>]</code> <LED Num> indicates the channel code or ID number. Variables: 0-RED 2-GREEN <Action> indicates the expected behavior of the LED. Variables: 0-LED OFF Turns LED Off 1-LED ON Turns LED On 4-Change Intensity <Value> Only for changing intensity 0-255 where 0 is off and 255 is fully on NOTE: On boot, the intensity will default to 127. NOTE: There is only one "shared" intensity for both red and green. The LED Number, while required, is ignored. Setting the intensity for one sets it for either. NOTE: Setting a particular LED color is mutually exclusive. Both GREEN and RED cannot be on at the same time.

Custom Events

Bluetooth Headsets

The following are custom events for Bluetooth headset functionality:

Custom Events for Bluetooth Handsets	
AMX Bluetooth Handset Custom Event Sent to indicate pushes on the AMX Bluetooth Handset (MXA-HST).	Sent to indicate pushes on the AMX Bluetooth Handset (MXA-HST). Custom event type - 790 ID - 0 Flag - Accept(1), Reject/Hangup(2), Redial(4) Value1 - 0 Value2 - 0 Value3 - 0 Text - blank

Dynamic Images

Custom Events for Dynamic Images	
Resource Load Notification custom event Received when a resource for which notification is enabled is loaded.	<pre> CUSTOM.TYPE = EVENTID = 1400 CUSTOM.ID = 0 CUSTOM.FLAG = 0 CUSTOM.VALUE1 = 0 CUSTOM.VALUE2 = 0 CUSTOM.VALUE3 = 0 CUSTOM.TEXT = String containing the resource name Example: BUTTON_EVENT[Panel,1] { PUSH: { SEND_COMMAND Panel, '^RFRP-Sports_Image,once'; // refresh the resource name 'Sports_Image' } } CUSTOM_EVENT[Panel,0,1400] { SEND_STRING 0, "**** Dynamic Image loaded. Resource='CUSTOM.TEXT' ****" // resulting string for Sports_Image would be '**** Dynamic Image loaded. Resource=Sports_Image ****' } </pre>

Popups

Custom Events for Popups	
^PUN Notifies when a popup custom event has been sent to the Master.	When a popup is attached, detached, or moved on a page, a custom event is sent to the master from port 1 of the device to indicate the popup's location. On a move, the custom event is sent when the move is complete but not when the moves starts or is in progress. Notifications happen via a custom event (1323) sent to the master. The same event type (132) is used for ?PUL responses. Syntax: '^PUN-<enable>' Variable: enable: 0 = disable, 1 = user pages only, and 2 = all pages (user + system) Custom Event fields: ID = 0 Type = 1323 Flag = operation (0=location query, 10=attach, 20=drag, 30=detach) Value1 = x coordinate of popup Value2 = y coordinate of popup Value3 = 0 Text = popup name Text = popup name
?PUL Queries the location of a popup on the current page.	Notifications happen via a custom event (1323) sent to the master from port 1 of the device. The same event type (1323) is used for ^PUN notifications. If the popup name is invalid, no custom event is sent to the master. Syntax: '?PUL-<popup name>' Variable: Popup name: The name of the popup whose location is being queried. Custom Event fields: ID = 0 Type = 1323 Flag = operation (0=location query) Value1 = x coordinate of popup (always 0 is not attached to current page) Value2 = y coordinate of popup (always 0 is not attached to current page) Value3 = 1 if popup is attached to current page, 0 of not attached to current page Text = popup name
?PUS Queries the size of a popup on the current page.	Notifications happen via a custom event (1324) sent to the master from port 1 of the device. If the popup name is invalid, no custom event is sent to the master. Syntax: '?PUS-<popup name>' Variable: Popup name: The name of the popup whose size is trying to be queried. Custom Event fields: ID = 0 Type = 1324 Flag = 0 Value1 = width of popup Value2 = height of popup Value3 = 1 if popup is attached to current page, 0 of not attached to current page Text = popup name

Smart Cards

Custom Events for Smart Cards	
<p>Smart Card Insert/Remove</p> <p>Indicates when a smart card was inserted or removed.</p>	<p>This event indicates when a smart card was removed or inserted. Custom.Text can be a large string, so it will be sent in 1024 chunks. Value1 and Value2 indicate chunk count and total number of chunks.</p> <pre>"Custom.Type = 710 "Custom.ID = 0 "Custom.Flag = o0: Remove Card Event o1: Insert Card Event "Custom.Value1 = Chunk counter of Custom.Text "Custom.Value2 = Total number of chunks for Custom.Text "Custom.Value3 = String length of Custom.Text "Custom.Text = String representing the CHUID of the card (only used for 'insert' event)</pre>
<p>Smart Card Reader Insert/Remove</p> <p>Indicates when a smart card reader was inserted or removed.</p>	<p>This event indicates when a smart card reader was removed or inserted. Custom.Text can be a large string, so it will be sent in 1024 chunks. Value1 and Value2 indicate chunk count and total number of chunks.</p> <pre>"Custom.Type = 711 "Custom.ID = 0 "Custom.Flag = o0: Remove Reader Event o1: Insert Reader Event "Custom.Value1 = Chunk counter of Custom.Text "Custom.Value2 = Total number of chunks for Custom.Text "Custom.Value3 = String length of Custom.Text "Custom.Text = String representing the readers name (only used for 'insert' event)</pre>

Streaming Video

Custom Events for Streaming Video	
<p>Streaming video custom event</p> <p>Indicates streaming video status changes</p>	<p>Sent to indicate streaming video status changes.</p> <p>Custom event type - 768</p> <p>ID - 0</p> <p>Flag - StreamStart(1), StreamStop(2), StreamWarning(4), StreamError(8)</p> <p>Value1 - Count</p> <p>Value2 - Address Port</p> <p>Value3 - Address Code</p> <p>Text - URL of stream</p>

Streaming Video

Custom Events for Streaming Video

Streaming video custom event

Sent to indicate streaming video status changes.

Custom event type - 768

ID - 0

Flag - StreamStart(1), StreamStop(2), StreamWarning(4), StreamError(8)

Value1 - Count

Value2 - Address Port

Value3 - Address Code

Text - URL of stream

Appendix A: Text Formatting

Text Formatting Codes for Bargraphs/Joysticks

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	$(\text{Current Value} - \text{Range Low Value} / \text{Range High Value} - \text{Range Low Value}) \times 100$
\$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.
- ^BMF subcommand %MK - sets the input mask of a text area

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 next field characters

These characters allow you to specify a list of characters that cause the keyboard to move the focus to the next field when pressed, instead of inserting the text into the text area.

Input Mask Next Field Char	
Character	Meaning
{	Start Next Field List
}	End Next Field List

An example from the above table:

{.} or {:} or {.:} Proceed to the next text area input box after a user hits any of these keys.

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
^	Sets the overflow flag for this field

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
\$ID	Neuron ID
\$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 B: Video Streaming Troubleshooting

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 4 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 define special preview resources in the Resource Manager, preferably at a lower resolution, and *without* the “Dynamo” checkbox checked. If only one resource can be accelerated, and if preview buttons are not defined, a different resource could be accessed each time the page is viewed.
- Make sure that the full images have the “Dynamo” checkbox checked, with a Refresh rate of 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 S Series Panels	
Baseline mode:	ISO 10918-1
Encoding:	ISO-10918-5 (JFIF)
Maximum Frame Rate:	Up to 30fps
Latency:	From 1-3 seconds, depending on multiple factors including button size, resolution and network performance.

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 streaming 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.



*Third-party encoders and digital television devices have not been tested with Modero S Series 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 S touch panel be installed behind a smart ethernet switch to filter multicast packets reaching the panel and consuming panel resources. The MXA-UENET video accelerator cable (FG5968-74/75/76) may also improve performance in cases of network congestion.
MPEG2	N/A	N/A	N/A	N/A	N/A

Video Performance (Cont.)					
Device	Typical A/V Sync (offset/hr)	Typical A/V Sync Restart Rate	Expected Latency - Typical	Expected Latency - Max	Notes:
Vision2					
H.264	<100ms	~ every 1-2hrs	1.5s	3s or more, depending on network	<p>The MXA-UENET video accelerator cable (FG5968-74/75/76) is strongly recommended for this application.</p> <p>Network congestion can cause video glitches. AMX recommends the Modero S touch panel be installed behind a smart ethernet switch to filter unintended multicast packets reaching the panel and consuming panel resources.</p> <p>Recommend maintaining aspect ratio of source and following usage guidelines regarding window/button placement.</p> <ul style="list-style-type: none"> • 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 <p>May require transcoding to H.264 baseline profile and reducing resolution/ frame rate/bit rate per recommendations above.</p> <p>Recommend transcoding source material to MPEG2 if Audio/Video sync issues still occur after following above guidelines.</p>
MPEG2	<100ms	~ every 1-2hrs	1.5s	3s or more, depending on network	<p>The MXA-UENET video accelerator cable (FG5968-74/75/76) is recommended for this application, especially HD streams.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>MPEG-2 video streaming Settings:</p> <ul style="list-style-type: none"> • 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:
MAX-CSE					
H.264	N/A	N/A	N/A	N/A	N/A
MPEG2	<100ms	~ every 1-2hrs	1.5s	3s or more, depending on network	<p>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.</p> <p>Recommend maintaining aspect ratio of source and following usage guidelines regarding window/button placement</p> <p>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.</p> <p>MPEG-2 video streaming Settings:</p> <ul style="list-style-type: none"> • High quality preset profile (6Mbps/ MPEG2 CBR D1 Resolution) • MP2/MP3 audio < 192Kbps @ 48KHz • 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	<p>NOTE: Third-party encoders and digital television devices have not been tested with Modero S Series touch panels, and are not supported by AMX.</p> <p>The MXA-UENET video accelerator cable (FG5968-74/75/76) is recommended for this application, especially HD streams.</p> <p>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.</p> <p>We recommend maintaining aspect ratio of source and following usage guidelines regarding window/button placement.</p>
MPEG2	N/A	N/A	N/A	N/A	<p>NOTE: Third-party encoders and digital television devices have not been tested with Modero S Series touch panels, and are not supported by AMX.</p> <p>The MXA-UENET video accelerator cable (FG5968-74/75/76) is recommended for this application, especially HD streams.</p> <p>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.</p> <p>We recommend maintaining aspect ratio of source and following usage guidelines regarding window/button placement.</p>



**Increase Your Revenue
through education + knowledge**

In the ever-changing AV industry, continual education is key to success. AMX University is dedicated to ensuring that you have the opportunity to gather the information and experience you need to deliver strong AMX solutions. Plus, AMX courses also help you earn CEDIA, NSCA, InfoComm, and AMX continuing education units (CEUs).

Visit AMX University online for 24/7/365 access to:

- *Schedules and registration for any AMX University course*
- *Travel and hotel information*
- *Your individual certification requirements and progress*