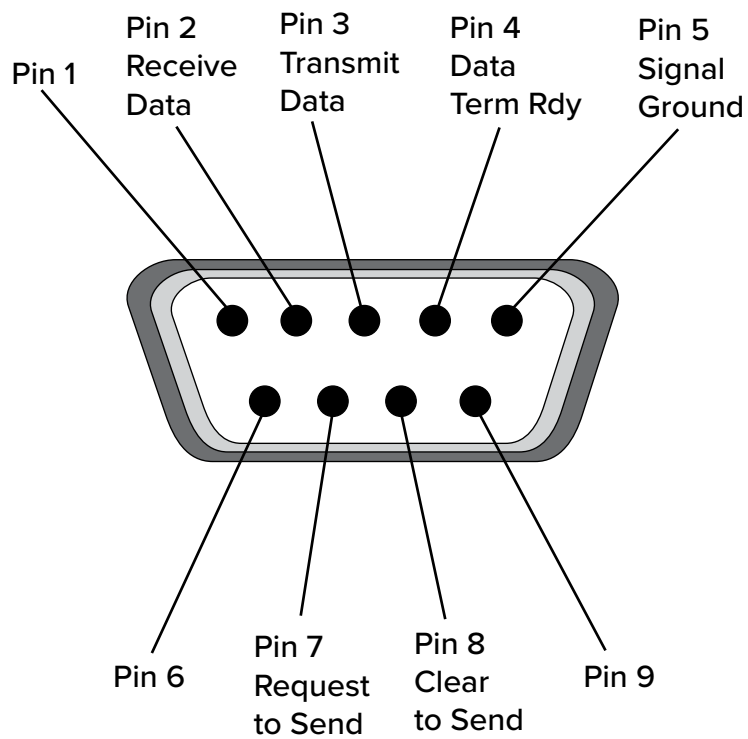


# Programmer's Guide

RS-232 Port

FOR POINTMAKER AND PRESENTATION PRODUCTS



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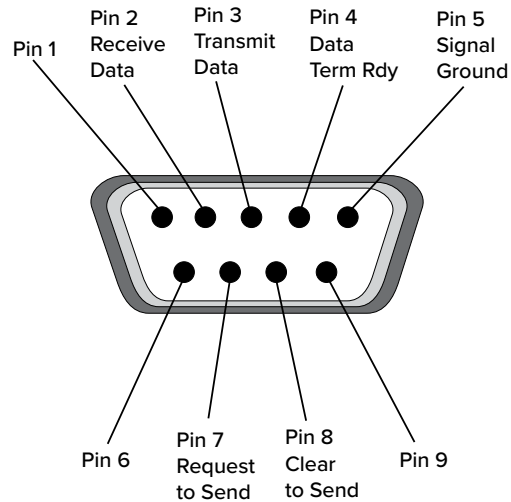
|  |    |
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## Overview

Any Pointmaker brand products or Williams AV Presentation systems can be sent commands via the programmable remote control system over the RS-232 port.

**Note: The RS-232 commands listed here are a complete list for all products, but not all features are available in every product.**

### RS-232 (COMM Port) Pinout



**RS-232 COMM Port Pinout**

### Understanding Commands

All commands begin with an ASCII escape (<ESC>) code (generated using the ESC key on your keyboard), followed by the forward parenthesis " ( ". The initiating code then appears as follows:

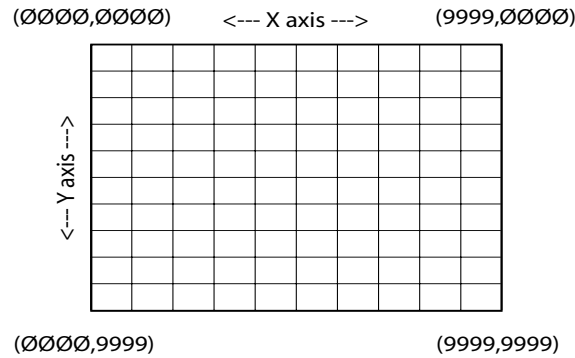
<ESC>(

All other characters which follow this command require a combination of alphanumeric codes.

**NOTE:** Hardware handshaking is required with the RS-232 port. You will need to use a null modem cable. Some places in the manual refer to entering a carriage return. This is usually accomplished by hitting the Enter key on your keyboard. Ø is used to designate zero.

## X-Y Coordinate Grid

Numerous commands refer to a screen grid with coordinates based on an internal grid that is 10000 x 10000 units. The grid can be absolute, covering the entire screen area, or relative to a current position. The absolute grid coordinate of 0000,0000 is at the upper-left of the screen. The grid coordinate of 9999,9999 then, is in the lower-right. Relative grid coordinates can include negative numbers to indicate positions above or left of a current position. In the illustration below, XXXX = a numeric value for the horizontal axis. YYYY = a numeric value for the vertical axis.



Screen Grid

## Commands

### (A) Autodetect Video Input

The "A" command tells the system whether to automatically detect what video input to switch to.

| COMMAND  | ACTION              |
|----------|---------------------|
| <ESC>(A1 | Enables Autodetect  |
| <ESC>(A0 | Disables Autodetect |

NOTE: The Autodetect command is overridden by the Video Input Type (M) command.

### (AI) Audio Input

The "AI" command allows you to assign which input the audio is coming from.

| COMMAND   | ACTION                                 |
|-----------|--|
| <ESC>(AIV | This command selects HDMI audio input. |
| <ESC>(AIA | This command selects USB audio input.  |

### (AO) Audio Output

The "AO" command allows you to enable or disable audio output independently for analog (Audio) output and each of the digital (HDMI) audio outputs.

| COMMAND    | ACTION                             |
|------------|------------------------------------|
| <ESC>(AO20 | Audio output for HDMI is disabled. |

| COMMAND    | ACTION   |
|------------|--|
| <ESC>(AO21 | Audio output for HDMI is enabled.                    |
| <ESC>(AO2T | Audio output for HDMI is toggled between on and off. |

### (AOV) Audio Volume

The "AOV" command controls audio volume.

nnn refers to a 3 digit decimal number ranging from 0 to 100. It represents a percentage of the volume.

| COMMAND       | ACTION                 |
|---------------|------------------------|
| <ESC>(AOVMnnn | Sets master volume     |
| <ESC>(AOV2nnn | Sets HDMI audio output |
| <ESC>(AOVUnnn | Sets USB audio output  |

### (B) Background

The "B" command tells the system which background to use.

| COMMAND   | ACTION   |
|-----------|--|
| <ESC>(BV  | Video Background                                       |
| <ESC>(BC  | Chalkboard Background                                  |
| <ESC>(BT  | Video/Chalkboard Toggle                                |
| <ESC>(BL1 | Display Text Background (on text and date/time labels) |
| <ESC>(BLØ | No Text Background (on text and date/time labels)      |
| <ESC>(BLT | Toggle Text Background (on text and date/time labels)  |

### (CA) Calibrations

The "CA" command assigns a calibration to a selected COMM port.

| COMMAND      | ACTION  |
|--------------|---|
| <ESC>(CA0pnn | Port "p" has calibration "nn" assigned to it. p is a numeric value of 0-9 designating COMM ports 1-10<br>nn is a numeric value 1-10 designating calibrations 1-10 |

#### Examples:

| COMMAND      | ACTION                 |
|--------------|------------------------|
| <ESC>(CA0004 | Utilize Cal #4, Port 1 |
| <ESC>(CA0505 | Utilize Cal #5, Port 6 |

| COMMAND      | ACTION                 |
|--------------|------------------------|
| <ESC>(CA0806 | Utilize Cal #6, Port 9 |

### (CD) Calibration Types

The "CD" command activates a calibration procedure.

| COMMAND   | ACTION                             |
|-----------|------------------------------------|
| <ESC>(CDP | Activate USB PVI-PC20 calibration. |
| <ESC>(CDT | Activate Touchscreen calibration.  |
| <ESC>(CDW | Activate Whiteboard calibration.   |

### (CE) Color Enable

The "CE" command determines what colors are available from the color palette. Refer to the "CS" commands for how to change the color of a marker using this enabled palette.

| COMMAND     | ACTION                   |
|-------------|--------------------------|
| <ESC>(CEB1  | Enable Black             |
| <ESC>(CEBØ  | Disable Black            |
| <ESC>(CEC1  | Enable Cyan              |
| <ESC>(CECØ  | Disable Cyan             |
| <ESC>(CEG1  | Enable Green             |
| <ESC>(CEGØ  | Disable Green            |
| <ESC>(CEHG1 | Enable Green Highlight   |
| <ESC>(CEHGØ | Disable Green Highlight  |
| <ESC>(CEHP1 | Enable Pink Highlight    |
| <ESC>(CEHPØ | Disable Pink Highlight   |
| <ESC>(CEHY1 | Enable Yellow Highlight  |
| <ESC>(CEHYØ | Disable Yellow Highlight |
| <ESC>(CEP1  | Enable Pink              |
| <ESC>(CEPØ  | Disable Pink             |
| <ESC>(CER1  | Enable Red               |
| <ESC>(CERØ  | Disable Red              |
| <ESC>(CEW1  | Enable White             |
| <ESC>(CEWØ  | Disable White            |
| <ESC>(CEY1  | Enable Yellow            |

| COMMAND    | ACTION         |
|------------|----------------|
| <ESC>(CEYØ | Disable Yellow |

**(CL) Clear**

The "CL" command clears the markers from the video overlay.

| COMMAND  | ACTION             |
|----------|--------------------|
| <ESC>(CL | Clears All Markers |

**(CM) Marker Move**

The "CM" command moves an active marker (pointer, frame, label or text or date/time label) using the XY coordinate grid. The coordinates are: XXXX = a numeric value for the horizontal axis point and YYYY = a numeric value for the vertical axis point.

| COMMAND          | ACTION   |
|------------------|--|
| <ESC>(CMXXXXYYYY | Move an active marker to coordinates XXXX and YYYY<br><b>Example:</b> <ESC>(CMØØ25ØØ37 |

**(CPF) Freeze**

The "CPF" command freezes the current video image being displayed..

| COMMAND    | ACTION                               |
|------------|--------------------------------------|
| <ESC>(CPFØ | Turns the freeze off (video is live) |
| <ESC>(CPF1 | Activates the freeze                 |



| COMMAND    | ACTION                                       |
|------------|--|
| <ESC>(CPFT | Toggles the command from whatever is current |

### (CPI) Read Specific Image From USB

The "CPI" command reads an image from the USB flash drive. This command uses the current Directory and Prefix assigned for capturing images. The nnnnn part of the command also automatically sets the index number.

| COMMAND        | ACTION   |
|----------------|--|
| <ESC>(CPInnnnn | Read the requested image from the USB location<br>nnnnn is the index number of the image |

### (CPN) Read Specific Image From TFTP

The "CPN" command reads an image from the TFTP server. This command uses the current Directory and Prefix assigned for capturing images. The nnnnn part of the command also automatically sets the index number.

| COMMAND        | ACTION  |
|----------------|---|
| <ESC>(CPNnnnnn | Read the requested image from the TFTP location<br>nnnnn is the index number of the image |

### (CPP) Print Current Image

The "CPP" command prints the current image.

| COMMAND   | ACTION                  |
|-----------|-------------------------|
| <ESC>(CPP | Print the current image |

### (CPRD) Read Current Image from USB

The "CPRD" command reads the current image from the USB flash drive based on the current file Capture settings.

| COMMAND    | ACTION                                       |
|------------|--|
| <ESC>(CPRD | Read the current image from the USB location |

### (CPRS) Read Current Image from SMB

The "CPRS" command reads the current image from the SMB location based on the current file Capture settings.

| COMMAND    | ACTION                                       |
|------------|--|
| <ESC>(CPRS | Read the current image from the SMB location |

### (CPRT) Read Current Image from TFTP

The "CPRT" command reads the current image from the TFTP location based on the current file Capture settings.

| COMMAND    | ACTION  |
|------------|---|
| <ESC>(CPRT | Read the current image from the TFTP location |

**(CPSD) Store Current Image to USB**

The "CPSD" command stores the current image to the USB flash drive based on the current file Capture settings.

| COMMAND    | ACTION                                      |
|------------|---|
| <ESC>(CPSD | Store the current image to the USB location |

**(CPSS) Store Current Image to SMB**

The "CPSS" command stores the current image to the current SMB destination.

| COMMAND    | ACTION                                      |
|------------|---|
| <ESC>(CPSS | Store the current image to the SMB location |

**(CPST) Store Current Image to TFTP**

The "CPST" command stores the current image to the current TFTP destination.

| COMMAND    | ACTION                                       |
|------------|--|
| <ESC>(CPST | Store the current image to the TFTP location |

**(CPW) Read Specific Image From SMB**

The "CPW" command reads an image from the SMB server. This command uses the current Computer and Share names assigned for capturing images. The nnnnn part of the command is the index number of the image you want to read.

| COMMAND        | ACTION   |
|----------------|--|
| <ESC>(CPWnnnnn | Read the requested image from the SMB location<br>nnnnn is the index number of the image |

**(CS) Color Selection**

The "CS" command handles color attributes of an active marker. These commands will force an "enable" of the color selected without having to enable that color using the "CE" commands or going to the Menu System.

| COMMAND    | ACTION   |
|------------|--|
| <ESC>(CSB  | Select Black   |
| <ESC>(CSC  | Select Cyan  |
| <ESC>(CSD1 | Display Color Change - display a sample block of the new color. May be desired if a pointer is not being displayed. May not be desired if you wish to change colors during a live broadcast. |
| <ESC>(CSDØ | Do not display color change  |
| <ESC>(CSDT | Toggle color change display  |
| <ESC>(CSE  | Select Previous Color  |
| <ESC>(CSG  | Select Green   |
| <ESC>(CSHG | Select Green Highlight Color   |

| COMMAND    | ACTION                                 |
|------------|--|
| <ESC>(CSHP | Select Pink Highlight Color            |
| <ESC>(CSHY | Select Yellow Highlight Color          |
| <ESC>(CSMH | Select Highlight Color Mode            |
| <ESC>(CSMM | Select Multiplex Color Mode            |
| <ESC>(CSMT | Toggle between color modes             |
| <ESC>(CSN  | Select Next - get next available color |
| <ESC>(CSP  | Select Pink                            |
| <ESC>(CSR  | Select Red                             |
| <ESC>(CSW  | Select White                           |
| <ESC>(CSY  | Select Yellow                          |

### (DCT/DCA) Device Type COMM

The "DCT" and "DCA" commands help you control the recognition of device types connected to COMM ports. Normally, at startup, the autodetect for each COMM port causes the system to run through a list of procedures until it can determine the device type connected to each one. The DCT command allows you to limit the initialization process for a designated port to only look for a specified device. The DCA command allows you to activate initialization of a COMM port immediately, without having to restart the system.

| COMMAND      | ACTION  |
|--------------|---|
| <ESC>(DCTptt | Port "p" has device type "tt" assigned to it<br>p is a numeric value of 0-9 designating ports 1-10<br>tt is a numeric value designating the device type corresponding to the table below<br>Example: <ESC>(DCT223 |
| <ESC>(DCAp   | Port "p" is to be initialized immediately<br>p is a numeric value of 0-9 designating ports 1-10   |

NOTE: In the table below, "tt" is the two digit number assigned to the device type.

| TT | DEVICE TYPE | DESCRIPTION                           |
|----|-------------|---------------------------------------|
| 00 | Mouse       | Microsoft mouse                       |
| 01 | Mouse 3     | Microsoft plus (Logitech 3 button)    |
| 02 | Mouse B     | Microsoft Ballmouse                   |
| 03 | Mouse MS    | Mouse Systems mouse                   |
| 04 | Mouse A     | Air Mouse                             |
| 05 | Digitizer A | ACECAD Acecat II digitizer            |
| 06 | Mouse A2    | Air Mouse Generation II               |
| 07 | Autodetect  | No mouse detected                     |
| 08 | Touch Scr I | Elographics Intellitouch Touch Screen |
| 09 | Touch Scr A | Elographics Accutouch Touch Screen    |

| <b>TT</b> | <b>DEVICE TYPE</b> | <b>DESCRIPTION</b>                          |
|-----------|--------------------|---|
| 10        | Touch Scr M        | Microtouch Touch Screen                     |
| 11        | Touch Scr K        | Keytec Touch Screen TS-232-B                |
| 12        | Touch Scr S        | Symbios Touch Screen SYM93C2000             |
| 13        | Touch Scr C        | CalComp 1000 DrawingSlate III               |
| 14        | Touch Scr D3       | Dynapro SC3 Touch Wall                      |
| 15        | Touch Scr W        | Wacom IV protocol (for PL-300 LCD Tablet)   |
| 16        | Touch Scr B        | Smart Technologies Smart Board              |
| 17        | Touch Scr H        | Hampshire TSHARC-12 Touch Screen Controller |
| 18        | Mouse F W          | Interlink Electronics Freedom Writer        |
| 19        | Touch Scr P        | Smart Technologies Smart Board w/ PNP       |
| 20        | Touch Scr D4       | Dynapro SC4 Touch Controller                |
| 21        | Skip               |   |
| 23        |                    | Wacom Intuos 2 4 x 5                        |
| 24        |                    | Genius Basypen 3 x 4                        |
| 25        |                    | Magictouch Touch Screen                     |
| 26        |                    | Fujitsu Touch Screen                        |
| 27        |                    | Egalax                                      |
| 28        |                    | Irtouch                                     |
| 29        |                    | Gunze                                       |
| 30        |                    | Control port                                |
| 31        |                    | Multiport port                              |
| 32        |                    | PVI to PVI link                             |

| TT | DEVICE TYPE | DESCRIPTION |
|----|-------------|-------------|
| 33 |             | Codec port  |

**(DL) Draw Line**

The "DL" command draws a line using the XY coordinate grid. The first coordinate series XXXXYYYY is the beginning point of the drawn line, and the second series XXXXYYYY represents the end point of the drawn line.

| COMMAND                  | ACTION      |
|--------------------------|-------------|
| <ESC>(DLXXXXYYYYXXXXYYYY | Draw a Line |

**(DP) Drop Marker**

The "DP" command drops an active marker (pointer, frame, label or cursor) using the XY coordinate grid. The coordinates are: XXXX = a numeric value for the horizontal axis point and YYYY = a numeric value for the vertical axis point.

| COMMAND          | ACTION  |
|------------------|---|
| <ESC>(DPXXXXYYYY | Drop an active marker at coordinates XXXX and YYYY<br>Example: <ESC>(DP00250037 |

**(DUI/DUP) Device Type USB**

The "DUI" and "DUP" commands help you assign a device type to whatever you connect to a USB port. Normally, when you plug something into the USB port, the system reads the vendor and product ID from the devices. Then it scans its list of device types for that vendor and product ID. If it finds it in the list, it initializes the port for that device type.

The DUI command allows you to link a vendor and product ID to one of the device type codes listed below, so it will be recognized by the system. The DUP command allows you to assign a USB port to one of the device types listed. This can be less reliable if someone makes a change in the USB chain causing the port number to change.

| COMMAND            | ACTION  |
|--------------------|---|
| <ESC>(DUIvwwpppptt | Vendor number "vww" and Product ID "pppp" has device type "tt" assigned to it. vww and pppp are four digit numeric values. tt is a numeric value designating the device type corresponding to the table below<br>Example: <ESC>(DUI2237002317 |
| <ESC>(DUPpptt      | Port "pp" is a numeric value of 0-14 designating ports 1-15. tt is a numeric value designating the device type corresponding to the table below<br>Example: <ESC>(DUP0528   |

**NOTE:** In the table below, "tt" is the two digit number assigned to the device type.

| TT | DEVICE TYPE  | DESCRIPTION                          |
|----|--------------|--------------------------------------|
| 00 | Detected     | None detected                        |
| 01 | Mouse        | Boot mouse                           |
| 02 | Superpen     | UCLogic Superpen digitizing tablet   |
| 03 | Graphire 6x8 | Wacom Graphire 6x8 digitizing tablet |

| <b>TT</b> | <b>DEVICE TYPE</b> | <b>DESCRIPTION</b>                              |
|-----------|--------------------|---|
| 04        | Graphire 4x5       | Wacom Graphire 4x5 digitizing tablet            |
| 05        | Intuos 6x8         | Wacom Intuos 6x8 digitizing tablet              |
| 06        | Intuos 4x5         | Wacom Intuos 4x5 digitizing tablet              |
| 07        | Hyperpen 6x8       | Aiptek Hyperpen 6x8 digitizing tablet           |
| 08        | Elotouch           | Elotouch touch controller (smartset protocol)   |
| 09        | TSHARC             | Hampshire TSHARC touch controller               |
| 10        | Dynapro SC4        | Dynapro SC4 touch controller                    |
| 11        | 3M EXII            | 3M EXII touch controller                        |
| 12        | Magic Touch        | Keytec Magic Touch controller                   |
| 13        | Wacom PL           | Wacom PL protocol touch panels                  |
| 14        | Symposium          | Smart Technologies symposium switches           |
| 15        | Keyboard           | Basic keyboard                                  |
| 16        | Hub                | USB Hub   |
| 17        | Printer            | Basic printer                                   |
| 18        | Smart Board1       | Smart Technologies 1st USB cable                |
| 19        | Fujitsu            | Fujitsu touch controller                        |
| 20        | Smart Board2       | Smart Technologies 2nd USB cable                |
| 21        | Cintiq 21UX        | Wacom Cintiq 21UX – also Intuos 3               |
| 22        | Smart Bd SC9       | Smart Technologies SC9 USB controller           |
| 23        | EELY elTouch       | EELY elTouch touch controller                   |
| 24        | 3M SCxxx           | 3M Microtouch SCxxx Series touch controller     |
| 25        | Intuos3 4x5        | Wacom Intuos 3 4x5 digitizing tablet            |
| 26        | Intuos3 6x8        | Wacom Intuos 3 6x8 digitizing tablet            |
| 27        | Intuos3 9x12       | Wacom Intuos 3 9x12 digitizing tablet           |
| 28        | Intuos312x12       | Wacom Intuos 3 12x12 digitizing tablet          |
| 29        | Intuos312x19       | Wacom Intuos 3 12x19 digitizing tablet          |
| 30        | Intuos3 6x11       | Wacom Intuos 3 6x11 digitizing tablet           |
| 31        | SCSI MSD           | SCSI Mass Storage Device                        |
| 32        | Egalax             | Egalax touch controller                         |
| 33        | NextWindow         | NextWindow touch controller                     |
| 34        | NextWin Ctrl       | NextWindow touch controller – control interface |
| 35        | Bamboo 4x6         | Wacom Bamboo 4x6 digitizing tablet              |
| 36        | BambooFun4x6       | Wacom Bamboo Fun 4x6 digitizing tablet          |
| 37        | BambooFun5x9       | Wacom Bamboo Fun 5x9 digitizing tablet          |
| 38        | Gyrati Mouse       | Gyrati Mouse                                    |

| TT | DEVICE TYPE  | DESCRIPTION                                 |
|----|--------------|---|
| 39 | Gyration Kbd | Gyration Keyboard                           |
| 40 | SB Carrera   | Smart Board Carrera                         |
| 41 | Promethean   | Promethean                                  |
| 42 | Quanta       | Quanta Computer Optical Touch controller    |
| 43 | Wacom DTU    | Wacom DTU (e.g. DTU-2231) Graphire protocol |
| 44 | Quanta 2     | Quanta 2 Computer                           |
| 45 | Panasonic    | Panasonic Electronic Pen                    |

NOTE: This is not a complete list. Devices are added periodically. Contact Williams AV for the most up-to-date list.

### (E) Echo

The "E" command tells the system to echo the input over the RS-232 link, in full, in part or not at all.

| COMMAND  | ACTION                              |
|----------|-------------------------------------|
| <ESC>(EA | Echo all input                      |
| <ESC>(EC | Echo all except commands            |
| <ESC>(EN | Disable echo                        |
| <ESC>(EO | Echo "OK" on command "OK <cr> <lf>" |

### (EM) Erase Method

The "EM" command activates your choice of erase methods.

| COMMAND   | ACTION                    |
|-----------|---------------------------|
| <ESC>(EM0 | Erase Method: "UNDO"      |
| <ESC>(EM1 | Erase using Small eraser  |
| <ESC>(EM2 | Erase using Medium eraser |
| <ESC>(EM3 | Erase using Large eraser  |

### (ESP, ESA) Video Streaming (Presenter)

The "ESP" and "ESA" commands give you control over the video streaming features of the Presenter. The ESP setting is not applied until the ESA command is sent.

| COMMAND    | ACTION  |
|------------|---|
| <ESC>(ESP0 | Video streaming off                             |
| <ESC>(ESP1 | Video streaming on                              |
| <ESC>(ESPT | Video streaming toggle between the two settings |

| COMMAND   | ACTION                       |
|-----------|------------------------------|
| <ESC>(ESA | Apply the last "ESP" setting |

### (FS) Frame Size

The "FS" command defines an active frame.

| COMMAND          | ACTION   |
|------------------|--|
| <ESC>(FSXXXXYYYY | Designating the size of an active frame.<br>XXXX = a numeric value for the horizontal dimension. YYYY = a numeric value for the vertical dimension. Units range from 0001 to 9999. |

### (FT) Frame Type

The "FT" command tells the system which type of frame to display on-screen.

| COMMAND    | ACTION              |
|------------|---------------------|
| <ESC>(FTB0 | Box Frame           |
| <ESC>(FTB1 | Filled Box Frame    |
| <ESC>(FTC0 | Circle Frame        |
| <ESC>(FTC1 | Filled Circle Frame |
| <ESC>(FTN  | Next Frame          |

### (HI) HDCP Input setting for each HDMI input port

The "HI" command designates which HDMI input ports will allow HDCP sources to be passed to the video outputs. See also the VIH command.

| COMMAND    | ACTION                        |
|------------|-------------------------------|
| <ESC>(HI50 | HDCP input is off.            |
| <ESC>(HI51 | HDCP input is on.             |
| <ESC>(HI5T | Toggle between the two modes. |

### (I) Marker Intensity or Brightness

The "I" command sets the intensity or brightness level for markers. Positive or negative values may be coded.

| COMMAND     | ACTION   |
|-------------|--|
| <ESC>(ISXXX | Set the brightness level (absolute). XXX is numeric value between 0 and 999.   |
| <ESC>(ICXXX | Increases brightness level (relative). XXX is numeric value between 0 and 999. |



| COMMAND      | ACTION   |
|--------------|--|
| <ESC>(IC-XXX | Decreases brightness level (relative). XXX is numeric value between 0 and 999. |

### (IFD) Set Image File Directory

The "IFD" command sets the directory for the image file to be saved.

| COMMAND         | ACTION   |
|-----------------|--|
| <ESC>(IFDccc... | Set the file directory. ccc... is no more than 16 characters, terminated with a carriage return. |

### (IFI) Set Image File Index

The "IFI" command sets the image file index, designating where the numbering of saved images will start.

| COMMAND        | ACTION   |
|----------------|--|
| <ESC>(IFInnnnn | Set the image file index. nnnnn is a five digit number. The combination of image file prefix and index must be equal to or less than 8 characters. |

### (IFP) Set Image File Prefix

The "IFP" command sets the image file prefix to be used for saved images.

| COMMAND         | ACTION   |
|-----------------|--|
| <ESC>(IFPccc... | Set the image file prefix. ccc... is less than or equal to 3 characters, terminated with a carriage return. The combination of image file prefix and index must be equal to or less than 8 characters. |

### (IM) Identify Mode for Multiple Users

The "IM" command designates the mode to use when multiple digitizing tablets or touch screens are installed. When Priority User mode is selected, you will also need to send the command designating which controller (COMM #) is the priority user.

| COMMAND   | ACTION                      |
|-----------|-----------------------------|
| <ESC>(IMO | Assigns Open Mode.          |
| <ESC>(IMS | Assigns Selective Mode.     |
| <ESC>(IMP | Assigns Priority User Mode. |

| COMMAND     | ACTION  |
|-------------|---|
| <ESC>(IMCXX | Sets COMM port for Priority User.<br>XX = the COMM port (01-10) The port selected should be connected to a digitizing tablet or touch screen. |

### (L) Line Style

The "L" command determines the line style to use when drawing a freehand line, straight line or frame.

| COMMAND   | ACTION  |
|-----------|---|
| <ESC>(LF  | Fine or thin line.                              |
| <ESC>(LSF | Fine or thin line with drop shadow.             |
| <ESC>(LM  | Medium line.                                    |
| <ESC>(LSM | Medium line with drop shadow.                   |
| <ESC>(LB  | Bold line.                                      |
| <ESC>(LSB | Bold line with drop shadow.                     |
| <ESC>(LW  | Line style changes to wide.                     |
| <ESC>(LSW | Line style changes to wide with a shadow.       |
| <ESC>(LP  | Line style switches to the previous line style. |
| <ESC>(LN  | Line style switches to the next line style.     |

### (K) Keyboard Input

The "K" command allows for common keyboard actions.

| COMMAND   | ACTION                                     |
|-----------|--|
| <ESC>(Knn | where nn is a two-digit hexadecimal number |

Some commonly used examples:

| COMMAND   | ACTION      |
|-----------|-------------|
| <ESC>(KC8 | up arrow    |
| <ESC>(KCB | left arrow  |
| <ESC>(KCD | right arrow |
| <ESC>(KD0 | down arrow  |
| <ESC>(K0D | Enter       |

### (M) Video Input Type

The "M" commands tell the system which type of video input is being used or switched to, so that the proper signal is output from the system. All "M" commands override "A" (autodetect) commands.

RS-232 commands remain the same for each device and model, so models with identical features continue to function with no code change. With this unit, each Video Input port on the back panel is labeled with a unique number to simplify port locating and troubleshooting for the system integrator. Notes are included to clarify the correspondence to the new labels.

NOTE: Composite and Y/C are available but only at half their normal resolution.

| COMMAND   | ACTION                                       |
|-----------|--|
| <ESC>(MH1 | 1st HDMI port (labeled port 5 on rear panel) |

### (ME) Verify Dialog Response

The "ME" command allows you to respond to the Verify dialog.

| COMMAND   | ACTION            |
|-----------|-------------------|
| <ESC>(ME0 | Responds "OK"     |
| <ESC>(ME1 | Responds "Retry"  |
| <ESC>(ME2 | Responds "Cancel" |

### (PA) Pass-through

The "PA" command enables the video image to pass-through the system without displaying the marker overlay.

| COMMAND   | ACTION                                       |
|-----------|--|
| <ESC>(PA1 | Enable pass-through. (overlay is hidden)     |
| <ESC>(PA0 | Disable pass-through. (overlay is displayed) |
| <ESC>(PAT | Toggle pass-through.                         |

### (PT) Pointer Type

The "PT" command controls the display of pointer types contained in the system.

| COMMAND    | ACTION                    |
|------------|---------------------------|
| <ESC>(PTC  | Displays Circle           |
| <ESC>(PTDL | Display Down Left Arrow   |
| <ESC>(PTD0 | Display Down Arrow        |
| <ESC>(PTDR | Display Down Right Arrow  |
| <ESC>(PTL  | Display Left Arrow        |
| <ESC>(PTN  | Hide Pointer              |
| <ESC>(PTP  | Display Cross Hairs       |
| <ESC>(PTR  | Display Right Arrow       |
| <ESC>(PTSC | Display Small Circle      |
| <ESC>(PTSP | Display Small Cross Hairs |
| <ESC>(PTT1 | Enable pointer toggle.    |
| <ESC>(PTT2 | Turn pointer off.         |
| <ESC>(PTT3 | Turn pointer on.          |
| <ESC>(PTT4 | Toggle pointer on/off.    |

| COMMAND    | ACTION  |
|------------|---|
| <ESC>(PTT5 | Display next pointer<br>selects next pointer in the sequence. |
| <ESC>(PTTØ | Disable pointer toggle.                                       |
| <ESC>(PTUL | Display Up Left Arrow   |
| <ESC>(PTUØ | Display Up Arrow  |
| <ESC>(PTUR | Display Up Right Arrow  |

**(PX) Proximity On/Off**

The "PX" command controls the pen proximity feature of digitizing tablets. When proximity is on, active pointers disappear when the pen is lifted from the drawing area. When proximity is off, active pointers remain on-screen when the pen is lifted.

| COMMAND   | ACTION              |
|-----------|---------------------|
| <ESC>(PX1 | Turn proximity on.  |
| <ESC>(PXØ | Turn proximity off. |
| <ESC>(PXT | Toggle proximity.   |

**(R) Restart**

The "R" command restarts the device. Options include saving current settings and markers in memory (a soft boot), or clearing memory of all settings and markers (a hard boot).

| COMMAND  | ACTION   |
|----------|--|
| <ESC>(RS | Restart saving current settings and markers in memory. |
| <ESC>(RH | Restart clearing current settings and markers.         |

**(S) Date/Time Marker**

The "S" command controls options concerning the date/time marker. It displays as an active marker.

| COMMAND           | ACTION                                       |
|-------------------|--|
| <ESC>(STØ         | Displays date/time marker in time only mode. |
| <ESC>(SDØ         | Displays date/time marker in date only mode. |
| <ESC>(SDT         | Displays date/time marker in time only mode. |
| <ESC>(SDSMMDDYYYY | Set the date.<br>M=month, D=Day, Y=year      |
| <ESC>(STAHMM      | Set time as a.m.<br>H=hour, M=minute         |
| <ESC>(STPHMM      | Set time as p.m.<br>H=hour, M=minute         |

**(SCO) Scaler Output Format**

The "SCO" command is used to set the scaler output to the desired format.

| COMMAND        | ACTION  |
|----------------|---|
| <ESC>{SCO $nn$ | Setting “ $nn$ ” is the numeric value taken from the table below to designate the format to be output by the scaler<br>Example: <ESC>{SCO09 |

| RESOLUTION             | SCALE |
|------------------------|-------|
| 640 x 480 @ 60 Hz      | 00    |
| 640 x 480 @ 72 Hz      | 01    |
| 640 x 480 @ 75 Hz      | 02    |
| 640 x 480 @ 85 Hz      | 03    |
| 800 x 600 @ 56 Hz      | 04    |
| 800 x 600 @ 60 Hz      | 05    |
| 800 x 600 @ 72 Hz      | 06    |
| 800 x 600 @ 75 Hz      | 07    |
| 800 x 600 @ 85 Hz      | 08    |
| 1024 x 768 @ 60 Hz     | 09    |
| 1024 x 768 @ 70 Hz     | 10    |
| 1024 x 768 @ 72 Hz     | 11    |
| 1024 x 768 @ 75 Hz     | 12    |
| 1024 x 768 @ 85 Hz     | 13    |
| 1280 x 1024 @ 60 Hz    | 14    |
| 1280 x 1024 @ 72 Hz    | 15    |
| 1280 x 1024 @ 75 Hz    | 16    |
| 1280 x 720P @ 60 Hz    | 17    |
| 1920 x 1080P @ 60 Hz   | 18    |
| 1280 x 800 @ 60 Hz     | 19    |
| 1440 x 900 @ 60 Hz     | 20    |
| 1680 x 1050 @ 60 Hz    | 21    |
| 1400 x 1050 @ 50 Hz    | 22    |
| 1400 x 1050 @ 60 Hz    | 23    |
| 1280 x 720 @ 59.94 Hz  | 24    |
| 1920 x 1080 @ 59.94 Hz | 25    |
| 1280 x 720 @ 50 Hz     | 26    |
| 1920 x 1080 @ 50 Hz    | 27    |
| 3840 x 2160 @ 30 Hz    | 28    |
| 3840 x 2160 @ 60 Hz    | 29    |

**(SUM) Menu System**

The "SUM" command displays the Main Menu.

| COMMAND   | ACTION                    |
|-----------|---------------------------|
| <ESC>(SUM | Activate the menu system. |

**(T) Text Label**

The "T" command controls active text labels. Labels can be composed of single characters or text blocks. This command also allows you to set font and size.

| COMMAND        | ACTION  |
|----------------|---|
| <ESC>(Ttc      | Displays any single character. "c" is any displayable character.  |
| <ESC>(TBccc... | Displays a block of characters. "ccc..." is however many displayable characters you choose to display - limited by screen display area. |

Font selection commands can be assigned to the active text label after it is visible on the screen.

| COMMAND   | ACTION                        |
|-----------|-------------------------------|
| <ESC>(TF0 | Change font to TI Roman.      |
| <ESC>(TF1 | Change font to Helvetica.     |
| <ESC>(TF2 | Change font to TI Dom Casual. |
| <ESC>(TF3 | Change font to Fargo.         |
| <ESC>(TF4 | Change font to Symbol.        |
| <ESC>(TF5 | Change font to Map.           |
| <ESC>(TN  | Change to the next font.      |
| <ESC>(TP  | Change to the previous font.  |

Font size commands can be assigned to the active text label after it is visible on the screen:

| COMMAND   | ACTION   |
|-----------|--|
| <ESC>(TS0 | Small - works with: TI Roman, Helvetica, TI Dom Casual, Fargo, Symbol, Map |
| <ESC>(TS1 | Medium - works with: TI Roman, Helvetica, TI Dom Casual, Fargo             |
| <ESC>(TS2 | Large - works with: TI Roman, Helvetica, TI Dom Casual, Fargo              |

| COMMAND   | ACTION   |
|-----------|--|
| <ESC>(TS3 | Extra Large - works with: TI Roman, Helvetica, TI Dom Casual |

### (TA) Template Change

The "TA" command designates which template layout is activated for use with the digitizing tablet.

| COMMAND   | ACTION                |
|-----------|-----------------------|
| <ESC>(TAØ | Presenter template.   |
| <ESC>(TA1 | Broadcaster template. |
| <ESC>(TA2 | PC template.          |

### (TC) Touch Screen Corner Control

The "TC" commands enables or disables the corner function areas on a touch screen (see Touch Screen Command Areas).

| COMMAND   | ACTION                        |
|-----------|-------------------------------|
| <ESC>(TCØ | Disable corner function areas |
| <ESC>(TC1 | Enable corner function areas  |
| <ESC>(TC2 | Toggle corner function areas  |

### (TCA) Touch Screen Function Areas

The "TCA" commands assigns commands to the seven touch screen function areas (see Touch Screen Command Areas).

| COMMAND          | ACTION   |
|------------------|--|
| <ESC>(TCA $nnxx$ | Setting "nn" is the numeric value taken from the table below which designates the position each touch screen area<br>Setting "xx" is the numeric value taken from the second table below which designates the function assigned to the areal<br>Example: <ESC>(TCA0309<br><i>(middle-right, get image)</i> |

| NN | TOUCH SCREEN AREA |
|----|-------------------|
| 00 | top-left          |
| 01 | top-center        |
| 02 | top-right         |
| 03 | middle-right      |
| 04 | bottom-right      |
| 05 | bottom-center     |
| 06 | bottom-left       |

| NN | TOUCH SCREEN AREA |
|----|-------------------|
| 07 | middle-left       |

|        | LEFT | CENTER | RIGHT |
|--------|------|--------|-------|
| TOP    | 00   | 01     | 02    |
| MIDDLE | 07   |        | 03    |
| BOTTOM | 06   | 05     | 04    |

Touch screen areas location diagram

| XX | FUNCTION                   |
|----|----------------------------|
| 00 | none                       |
| 01 | clear                      |
| 02 | undo                       |
| 03 | next color                 |
| 04 | freeze / unfreeze          |
| 05 | print                      |
| 06 | color mode                 |
| 07 | save image                 |
| 08 | send image                 |
| 09 | get image                  |
| 10 | select (for PC connection) |
| 11 | main menu                  |
| 12 | next video                 |
| 13 | previous video             |
| 14 | video input selection      |
| 15 | audio volume               |
| 16 | clear                      |
| 17 | undo                       |

### (TCL) Touch Screen Area Label Color

The "TCL" commands enables or disables touch screen labels. and, if displayed, in which color.

| COMMAND   | ACTION                                |
|-----------|---------------------------------------|
| <ESC>TCLØ | Touch area labels are off.            |
| <ESC>TCLB | Touch area labels are shown in blue.  |
| <ESC>TCLW | Touch area labels are shown in white. |



| COMMAND    | ACTION                                 |
|------------|--|
| <ESC>(TCLY | Touch area labels are shown in yellow. |

### (TR) Touch Screen Right Click Emulation

The "TR" commands enables or disables the right click emulation.

| COMMAND   | ACTION                                    |
|-----------|---|
| <ESC>(TRØ | Disable touchscreen right click emulation |
| <ESC>(TR1 | Enable touchscreen right click emulation  |
| <ESC>(TRT | Toggle touchscreen right click emulation  |

### (U) Undo/Erase

The "U" command erases the last created anchored marker. Each time this command is given, an anchored marker will be erased from the overlay, beginning with the most recently anchored marker.

| COMMAND | ACTION                         |
|---------|--------------------------------|
| <ESC>(U | Undo the last anchored marker. |

### (V) Select an Overlay

The "V" command tells which overlay to display.

| COMMAND  | ACTION  |
|----------|---|
| <ESC>(V# | Display overlay number specified.<br>replace # with overlay number desired. |
| <ESC>(VN | Display next overlay.   |
| <ESC>(VP | Display previous overlay.   |

NOTE: To hide the overlay, see the Pass-through (PA) command.

### (VCD) Display Change of Video Input

The "VCD" command tells whether to display a change of video input on the monitor.

| COMMAND    | ACTION                                     |
|------------|--|
| <ESC>(VCDØ | Do not display a change in the video input |
| <ESC>(VCD1 | Display a change in the video input        |
| <ESC>(VCDT | Toggle between the two modes               |

### (VI) Video Input

The "VI" command chooses a video input.

| COMMAND   | ACTION           |
|-----------|------------------|
| <ESC>(VIN | Next video input |

| COMMAND   | ACTION               |
|-----------|----------------------|
| <ESC>{VIP | Previous video input |

### (VIH) Enable or Disable HDCP Input

The "VIH" is a master switch for handling HDCP Input. If it is turned off, no HDCP content can pass through the device. If it is turned on, HDCP sources are handled according to your current "HI" settings.

This setting may not be available on all devices.

| COMMAND    | ACTION                       |
|------------|------------------------------|
| <ESC>{VIH0 | HDCP input is off            |
| <ESC>{VIH1 | HDCP input is on             |
| <ESC>{VIHT | Toggle between the two modes |

### (VSW) Initiate Wait Before Video Switching

The "VSW" command tells the system to blacken the video output for two seconds or until a video switch has completed. With a black video output, the user does not see any video artifacts when the switcher makes the video switch. This means the switcher has two seconds in which to make this switch before the video will display again. The user should have a wait of 200ms to 500ms between sending the video switch wait command and sending the switch command to the switcher. This wait is necessary to ensure that the device has seen the command and blacked out the video before the switcher has started the video switch.

| COMMAND   | ACTION                                       |
|-----------|--|
| <ESC>{VSW | Initiates Video Switch Wait for two seconds. |

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