Crestron **Touch The PC Driver** Software

Programmer's Guide

Intended for Version 3.08.34 and Later

CRESTRON®

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Touch the PC Driver

Introduction

The Crestron® Touch the PC Driver, V2 (Touch the PC V2)**,** licensed for use only in conjunction with the TPS-XVGA/-BV/L Computer Interface Cards, is designed to enable a Crestron Isys® TPS touchpanel to function as a computer touchscreen monitor, compatible with Microsoft Windows® 98/XP and Windows 2000/NT. Touch the PC V2, as described in this manual, should be used instead of any earlier versions, because it prevents possible confusion between left clicks and double clicks, and is more compatible with Windows XP.

When you use the touchpanel as a monitor for a computer connected to your Crestron control system (Cresnet® system), Touch the PC V2 lets you use your finger on the touchpanel to simulate typical computer mouse click and drag functions. In operation, use of Touch the PC V2 is similar to using a tablet device (such as a graphics tablet). For example, touching the cursor and dragging it across the screen actually creates a selection box and selects displayed items in the path, as though you had done a left-click-and-drag operation with a regular mouse. The way to move the cursor using Touch the PC V2 is to first select one of the Touch Action functions and then perform the action. For example, selecting Touch None only enables you to move the cursor around the screen—no left- or right-click functions available. Selecting Touch Left enables you to do a left click (and drag, if desired) where you touch the screen. Selecting Touch Right enables you to do a right click (and drag, if desired) where you touch the screen. The buttons associated with these functions are interlocked.

The touchpanel can connect to the personal computer (PC) running Touch the PC V2 via a direct serial line, or it can connect to the control system via Cresnet or via Ethernet, and the control system connects to the PC serially.

The Network/CIP Transmission Symbols are initialized automatically during control system reboot, eliminating the use of the “todest” and “toformat” commands on the touchpanel.

Driver Requirements

To program the touchpanel for use with Touch the PC V2, a PC that contains Crestron VisionTools® Pro-e (VT Pro-e) and SIMPL Windows is required. Refer to the following table for the requirements of the touchpanel, PC, and Cresnet system.

Driver Requirements

REQUIREMENT	SPECIFICATION
Touch the PC V2 (UPDD*)	Version 3.08.34 or later[1]
VisionTools Pro-e	Version 3.2.06 or later[1]
Crestron Isys® Touchpanel firmware	Version 2.006 or later[2, 3]
Crestron Database	Version 16.2 or later
PC Requirements:	
Available Hard Disc space	5 MB[4]
Operating System	Microsoft Windows® 98/XP/2000/NT

* Universal Pointer Device Driver

1 The latest versions can be obtained from the Downloads | Software Updates section of the Crestron website (www.crestron.com). Refer to NOTE below.

2 The TPS-RFGWX and touchpanels with later versions of firmware may include features not mentioned in this guide. Newer versions of this guide can be obtained from the Downloads | Product Manuals section of the Crestron website (www.crestron.com).

3 The firmware upgrade files can be obtained from the Downloads | Software Updates section of Crestron's website. Crestron recommends that the latest firmware be loaded into the touchpanel.

4 The PC requirements pertain only to the Touch the PC V2. Additional requirements for SIMPL Windows and/or VT Pro-e are not included. Refer to the documentation supplied with the software for further information.

NOTE: Crestron software and any files on the website are for Authorized Crestron dealers and Crestron Authorized Independent Programmers (CAIP) only. New users may be required to register to obtain access to certain areas of the site (including the FTP site).

Quickstart Procedure

This section contains brief descriptions of the steps required for utilizing the Touch the PC V2 program via serial, Cresnet, or Ethernet communication.

NOTE: In the following procedures, if the *Touch The PC V2* selection does not appear, update the Crestron Database to version 16.2 or later.

Touch the PC V2 Operation via Serial Communications

- Install Touch the PC V2 software (page 3)
- Change the touchpanel RS-232 settings to RS-232 port for Touch Output (page 5)
- Connect the PC COM port to the RS-232 port of the touchpanel using RJ-11 modular cable and adapter, Crestron part number 15556 (page 5)
- Install touchpanel firmware, version 2.006 or higher
- In VT Pro-e (page 14):
  - Set the RGB object to PAD 1 or PAD 2
  - Set the project properties according to the RGB selected PAD area
    Select: **Touch the PC, V2**
    Communication via: **Serial**
  - Save, compile, and load the project to the touchpanel

Touch the PC V2 Operation via Cresnet Communications

- Install Touch the PC V2 software (page 3)
- Connect COM port of PC to a COM port of control system with null modem cable (page 7)
- In SIMPL Windows (page 13):
  - Assign touchpanel serial output signals
  - Assign control system two-way serial driver signals
  - Save, compile, and load the project to the touchpanel
- In VT Pro-e (page 14):
  - Set the RGB object to PAD 1 or PAD 2
  - Set the project properties according to the RGB selected PAD area

    Select: **Touch the PC, V2**

    Communication via: **Cresnet**

    Serial Join: **1** (example)

Touch the PC V2 Operation via Ethernet Communications

- Install Touch the PC V2 software (page 3)
- Connect COM port of PC to COM port of control system with null modem cable (page 9)
- Establish Ethernet communications between touchpanel and control system and add a device ID to touchpanel IP table and control system (page 11)
- In SIMPL Windows (page 13):
  - Assign touchpanel serial output signals
  - Assign control system two-way serial driver signals
  - Save, compile, and load the project to the touchpanel
- In VT Pro-e (page 14):
  - Set the RGB object to PAD 1 or PAD 2
  - Set the project properties according to the RGB selected PAD area

    Select: **Touch the PC, V2**

    Communication via: **TCP/IP**

    Serial Join: **1** (example)

    Device ID: **3** (example)
  - Save, compile, and load the project to the touchpanel

Driver Software Installation

To install the Touch the PC V2 software, download the files from the Downloads | Software Updates | Touchpanels page of the Crestron website (www.crestron.com). Search for **Touch The PC Driver, V2.** This file will create a UPDD folder plus the PDF version of this programmer's guide and a Release Notes document.

NOTE: Crestron recommends that the baud rate for both the touchpanel and PC port be set at the default rate of **9600**, **N81**.

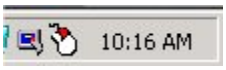
Open the UPDD Driver folder and run **setup.exe**. The name of the pointer device can be changed from the default "Device 1" to "Crestron Touchpanel." In the "Port"

window, a COM port other than the default COM1 can be selected, to specify the COM port from which the PC will receive the Touch the PC V2 commands.

Setup.exe will finish with a prompt to restart the computer. The computer **MUST** be restarted.

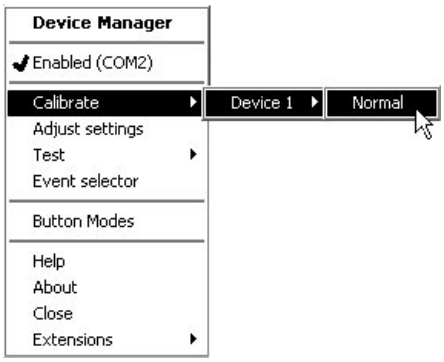
The Windows **Start** menu will now list UPDD as a program, and the system tray of the Windows status bar will include icons shown below.

Pointer Device Settings & Event Scheduler Icons



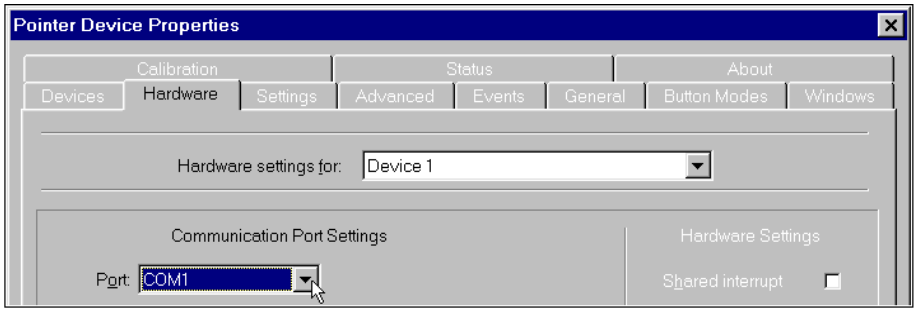
After the system has been configured and programmed as outlined in the rest of this guide, it can be calibrated (or tested). Right-click the Pointer Device Settings icon and as shown below, select **Calibrate** from the Device Manager menu. Select **Device 1 | Normal** and calibrate the screen by following the onscreen directions.

Select Calibrate



The COM port can be changed by selecting **Adjust settings** from the Device Manager menu. As shown in the following illustration, open the *Hardware* tab and choose a COM port from the drop-down list.

Hardware Tab



NOTE: For additional keyboard functionality programmed into the touchpanel, refer to "Appendix A – Additional Keyboard Functionality" on page 20.

Configuring the System

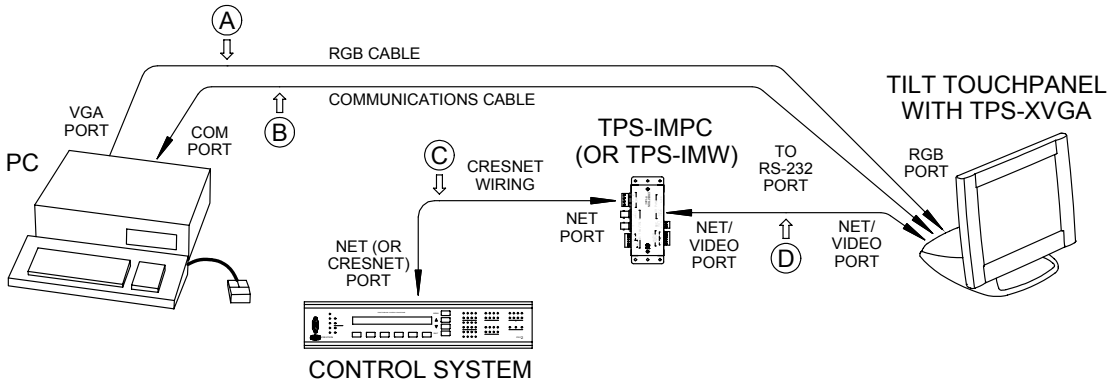
The touchpanel may be configured for serial, Cresnet, or Ethernet communication with the PC that contains the Touch the PC V2 software. TPS tilt touchpanels may contain a TPS-XVGA or TPS-XVGA-BV card. TPS lectern touchpanels (and TPS-TPI user interface) utilize a TPS-XVGAL card. To configure the PC, touchpanel, and specific TPS-XVGA card, refer to an appropriate section below and or on the next seven pages. In each configuration, for more information about cabling and wiring specifications, refer to "Appendix B – Cable and Wiring Specifications" on page 21.

PC to Touchpanel Serial Communication

For Touch the PC V2 operation using serial communication from the PC to the touchpanel, refer to the steps below.

1. At the touchpanel, enter the setup mode. From the Main menu screen, press **Setup**, then **RS-232**. Press **RS-232 Port for Touch Output**.
2. Refer to the appropriate (for TPS-XVGA, TPS-XVGA-BV, or TPS-XVGAL card) diagrams and tables which follow and make the cable connections.

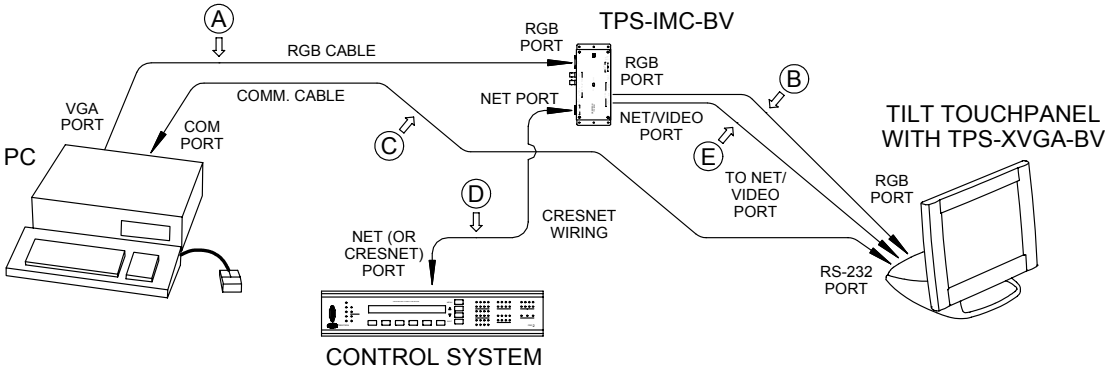
Serial Communication #1 - Tilt Touchpanel with TPS-XVGA



SERIAL COMMUNICATION #1 - TILT TOUCHPANEL WITH TPS-XVGA CARD							
REF	FROM		CABLING REQUIRED			TO	
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A [1]	PC	VGA	DB-15, male		DB-15, male	Touchpanel	RGB
B [2]	PC	COM	DB-9, female		RJ-11, 6-pin	Touchpanel	RS-232
C [3]	Control System	NET	4-wire Cresnet		4-wire Cresnet	TPS-IMPC	NET
D [4]	TPS-IMPC	NET/VIDEO	RJ-45, 10-pin		RJ-45, 10-pin	Touchpanel	NET/VIDEO

1 Standard stranded VGA monitor cable.
2 This connection can be made via a modular RJ-11 cable (supplied with touchpanel) and DB9F to RJ-11 adapter.
3 During serial communications, the control system and Cresnet wiring are required for touchpanel basic functionality and operating power.
4 A 15-foot NET/VIDEO cable is supplied with the TPS-IMPC.

Serial Communication #2 - Tilt Touchpanel with TPS-XVGA-BV



SERIAL COMMUNICATION #2 - TILT TOUCHPANEL WITH TPS-XVGA-BV CARD							
REF	FROM		CABLING REQUIRED			TO	
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A [1]	PC	VGA	DB-15, male		DB-15, male	TPS-IMC-BV	RGB
B [2]	TPS-IMC-BV	RGB	RJ-45, 10-pin		RJ-45, 10-pin	Touchpanel	RGB
C [3]	PC	COM	DB-9, female		RJ-11, 6-pin	Touchpanel	RS-232
D [4]	Control System	NET	4-wire Cresnet		4-wire Cresnet	TPS-IMC-BV	NET
E [2]	TPS-IMC-BV	NET/VIDEO	RJ-45, 10-pin		RJ-45, 10-pin	Touchpanel	NET/VIDEO

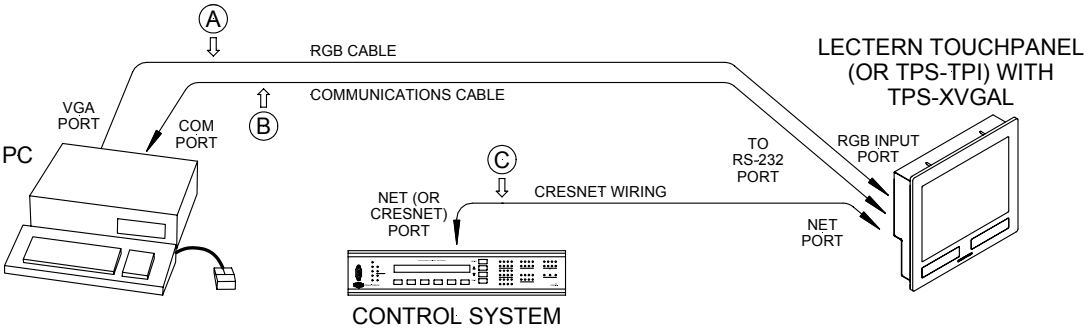
1 Standard stranded VGA monitor cable.

2 These connections (ref B & E) can be made with the 15-foot Triamese cable supplied with the TPS-IMC-BV.

3 This connection can be made via a modular RJ-11 cable (supplied with touchpanel) and DB9F to RJ-11 adapter.

4 During serial communications, the control system and Cresnet wiring are required for touchpanel basic functionality and operating power.

Serial Communication #3 - Lectern Touchpanel with TPS-XVGAL



SERIAL COMMUNICATION #3 - LECTERN TOUCHPANEL WITH TPS-XVGAL CARD							
REF	FROM		CABLING REQUIRED			TO	
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A [1]	PC	VGA	DB-15, male		BNC-5, male	Touchpanel	RGB
B [2]	PC	COM	DB-9, female		RJ-11, 6-pin	Touchpanel	RS-232
C [3]	Control System	NET	4-wire Cresnet		4-wire Cresnet	Touchpanel	NET

1 A standard stranded VGA monitor cable with DB15F to BNC-5 adapter is required. Both are commercially available.

2 This connection can be made via a modular RJ-11 cable (supplied with touchpanel) and DB9F to RJ-11 adapter.

3 During serial communications, the control system and Cresnet wiring are required for touchpanel basic functionality and operating power.

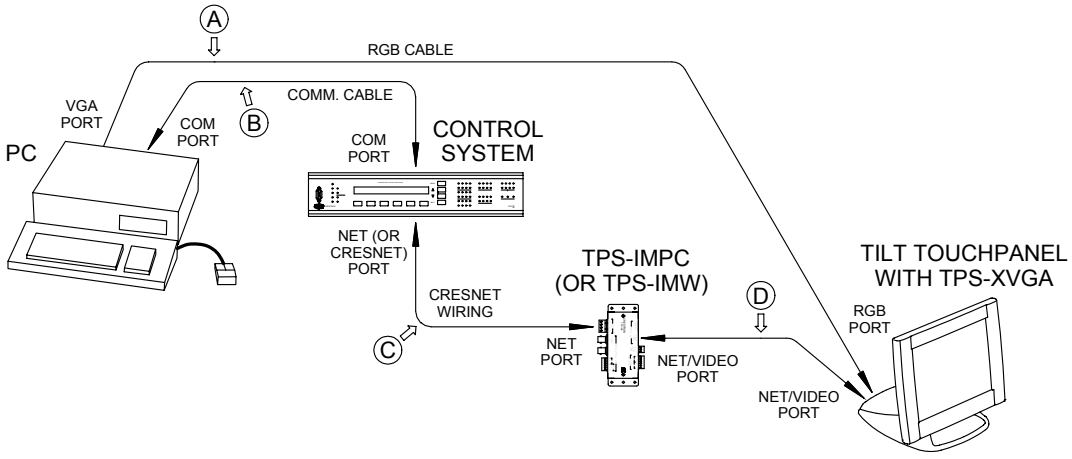
3. Proceed to "VT Pro-e Programming" that begins on page 14.

PC to Touchpanel Cresnet Communication

For Touch the PC V2 operation using Cresnet communication to the touchpanel, refer to the steps below.

1. Refer to the appropriate (for TPS-XVGA, TPS-XVGA-BV, or TPS-XVGAL card) diagrams and tables that follow and make the cable connections.

Cresnet Communication #1 - Tilt Touchpanel with TPS-XVGA



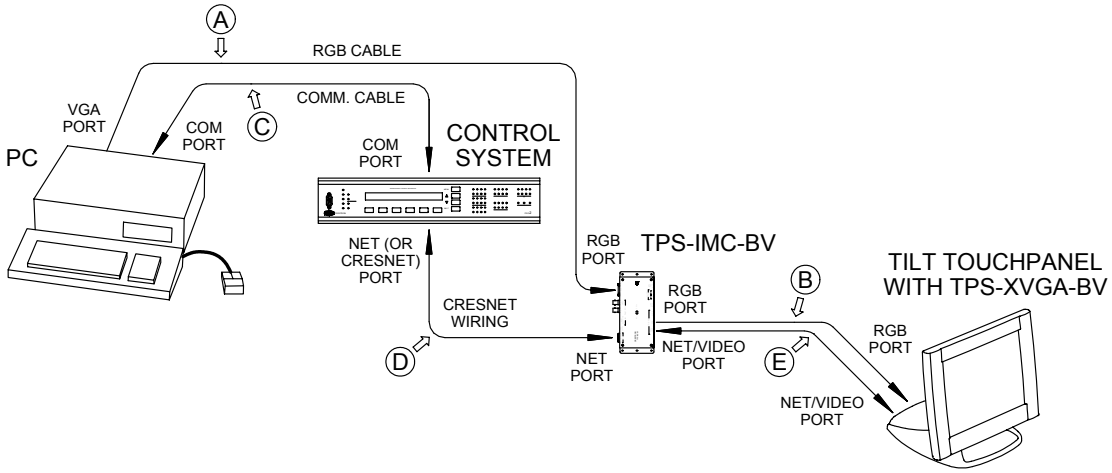
CRESNET COMMUNICATION #1 - TILT TOUCHPANEL WITH TPS-XVGA CARD							
REF	FROM		CABLING REQUIRED			TO	
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A [1]	PC	VGA	DB-15, male		DB-15, male	Touchpanel	RGB
B [2]	PC	COM	DB-9, female		DB-9, female	Control System	COM
C	Control System	NET	4-wire Cresnet		4-wire Cresnet	TPS-IMPC	NET
D [3]	TPS-IMPC	NET/VIDEO	RJ-45, 10-pin		RJ-45, 10-pin	Touchpanel	NET/VIDEO

1 Standard stranded VGA monitor cable.

2 Standard null modem serial cable.

3 A 15-foot NET/VIDEO cable is supplied with the TPS-IMPC.

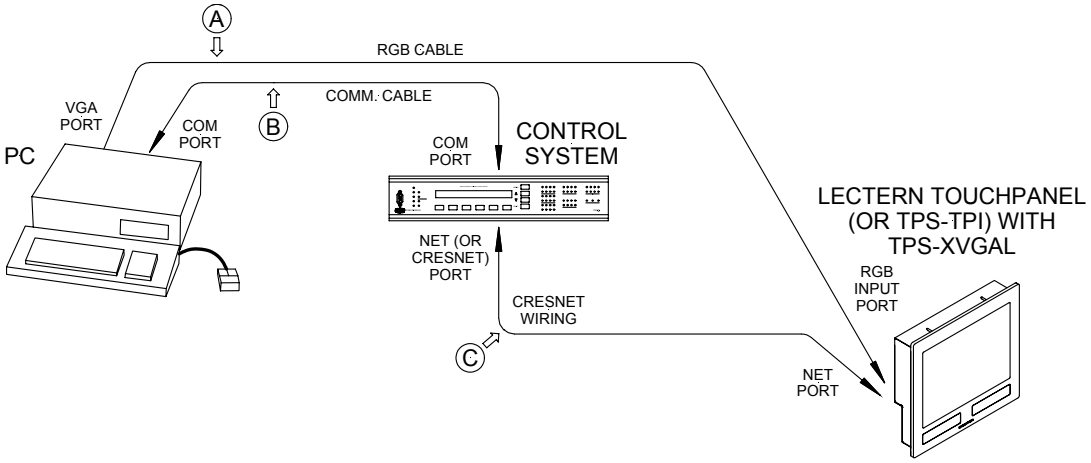
Cresnet Communication #2 - Tilt Touchpanel with TPS-XVGA-BV



CRESNET COMMUNICATION #2 - TILT TOUCHPANEL WITH TPS-XVGA-BV CARD							
REF	FROM		CABLING REQUIRED			TO	
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A [1]	PC	VGA	DB-15, male		DB-15, male	TPS-IMC-BV	RGB
B [2]	TPS-IMC-BV	RGB	RJ-45, 10-pin		RJ-45, 10-pin	Touchpanel	RGB
C [3]	PC	COM	DB-9, female		DB-9, female	Control System	COM
D	Control System	NET	4-wire Cresnet		4-wire Cresnet	TPS-IMC-BV	NET
E [2]	TPS-IMC-BV	NET/VIDEO	RJ-45, 10-pin		RJ-45, 10-pin	Touchpanel	NET/VIDEO

1 Standard stranded VGA monitor cable.
2 These connections (ref B & E) can be made with the 15-foot Triamese cable supplied with the TPS-IMC-BV if an audio connection is also desired.
3 Standard null modem serial cable.

Cresnet Communication #3 - Lectern Touchpanel with TPS-XVGAL



CRESNET COMMUNICATION #3 - LECTERN TOUCHPANEL WITH TPS-XVGAL CARD							
REF	FROM		CABLING REQUIRED			TO	
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A [1]	PC	VGA	DB-15, male		BNC-5, male	Touchpanel	RGB
B [2]	PC	COM	DB-9, female		DB-9, female	Control System	COM
C	Control System	NET	4-wire Cresnet		4-wire Cresnet	Touchpanel	NET

1 A standard stranded VGA monitor cable with DB15F to BNC-5 adapter is required. Both are commercially available.
2 Standard null modem serial cable.

2. Proceed to "VT Pro-e Programming" that begins on page 14.

PC to Touchpanel Ethernet Communication

For Touch the PC V2 operation using Ethernet communication from the PC to the touchpanel, refer to the following two sections, "Cabling Connections" and "Ethernet Setup."

NOTE: To connect the LAN port on the control system and the LAN port on the touchpanel base directly instead of through an Ethernet hub, use an Ethernet crossover cable (not supplied).

NOTE: A Crestron TPS-ENET or TPS-ENETL Ethernet expansion card must be installed in the touchpanel to enable Ethernet communication. For further information, refer to the TPS-ENET or TPS-ENETL Operations & Installation Guide (Doc. 6016 or 6013, respectively). The latest revisions can be obtained from the Downloads | Product Manuals section of the Crestron website (www.crestron.com). New users are required to register to obtain access to the FTP site.

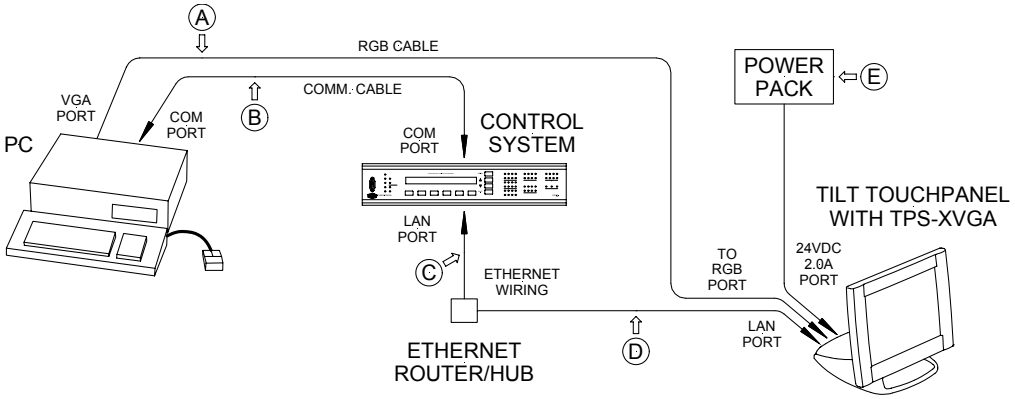
NOTE: The Crestron control system must contain an Ethernet expansion card to enable Ethernet communication. On CNX Generation control systems, the port may be labeled LAN or LAN/DPA. On 2-Series control systems, the port may be labeled LAN A or LAN B. For further information about CNX Generation Ethernet cards, refer to the CNXENET or CNXENET+ Operations & Installation Guide (Doc. 8129 or 8153, respectively). For further information about 2-Series Ethernet cards, refer to the C2ENET-1/-2 Operations & Installation Guide (Doc. 5962). The latest revisions can be obtained from the Downloads | Product Manuals section of the Crestron website (www.crestron.com).

Cabling Connections

For Touch the PC V2 operation using Ethernet communication with the PC, refer to the steps below.

1. Refer to the appropriate (for TPS-XVGA, TPS-XVGA-BV, or TPS-XVGAL card) diagrams and tables which follow and make the cable connections.

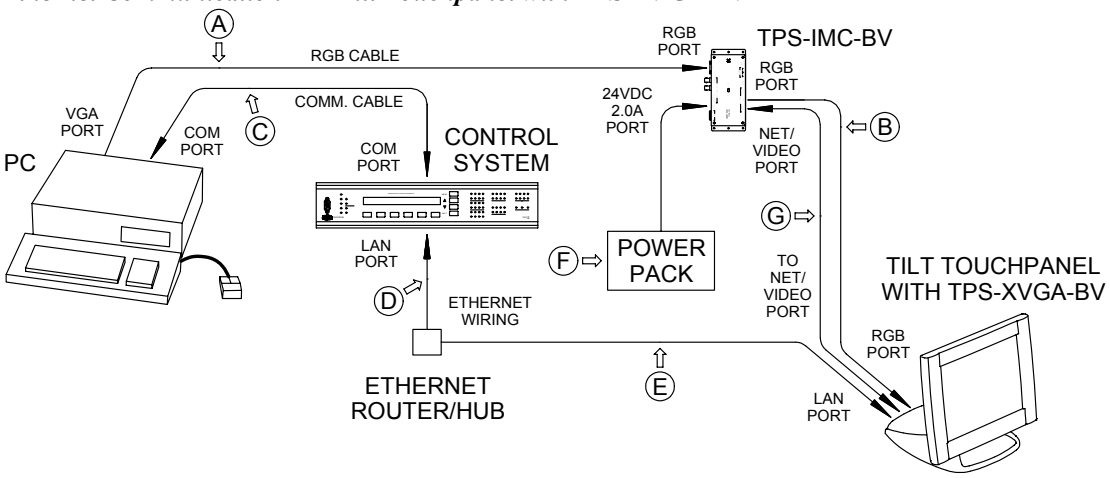
Ethernet Communication #1 - Tilt Touchpanel with TPS-XVGA



ETHERNET COMMUNICATION #1 - TILT TOUCHPANEL WITH TPS-XVGA CARD						
REF	FROM		CABLING REQUIRED		TO	
	DEVICE	PORT	CONNECTOR	CONNECTOR	DEVICE	PORT
A [1]	PC	VGA	DB-15, male	DB-15, male	Touchpanel	RGB
B [2]	PC	COM	DB-9, female	DB-9, female	Control System	COM
C [3]	Control System	LAN	RJ-45, 8-pin	RJ-45, 8-pin	Ethernet / Hub	na
D [3]	Ethernet / Hub	na	RJ-45, 8-pin	RJ-45, 8-pin	Touchpanel	LAN
E [4]	PWR. PACK	na	na		Touchpanel	24VDC 2A

1 Standard stranded VGA monitor cable.
2 Standard null modem serial cable.
3 Standard Ethernet cables (ref C & D).
4 Power pack (PW-2420RU) is NOT required if power is supplied via Cresnet.

Ethernet Communication #2 - Tilt Touchpanel with TPS-XVGA-BV



ETHERNET COMMUNICATION #2 - TILT TOUCHPANEL WITH TPS-XVGA-BV CARD							
REF	**FROM**		**CABLING REQUIRED**			**TO**	
	DEVICE	**PORT**	**CONNECTOR**	**to**	**CONNECTOR**	**DEVICE**	**PORT**
A [1]	PC	VGA	DB-15, male		DB-15, male	TPS-IMC-BV	RGB
B [2]	TPS-IMC-BV	RGB	RJ-45, 10-pin		RJ-45, 10-pin	Touchpanel	RGB
C [3]	PC	COM	DB-9, female		DB-9, female	Control System	COM
D [4]	Control System	LAN	RJ-45, 8-pin		RJ-45, 8-pin	Ethernet / Hub	na
E [4]	Ethernet / Hub	na	RJ-45, 8-pin		RJ-45, 8-pin	Touchpanel	LAN
F [5]	PWR. PACK	na	na			TPS-IMC-BV	24VDC 2A
G [2]	TPS-IMC-BV	NET/VIDEO	RJ-45, 10-pin		RJ-45, 10-pin	Touchpanel	NET/VIDEO

1 Standard stranded VGA monitor cable.

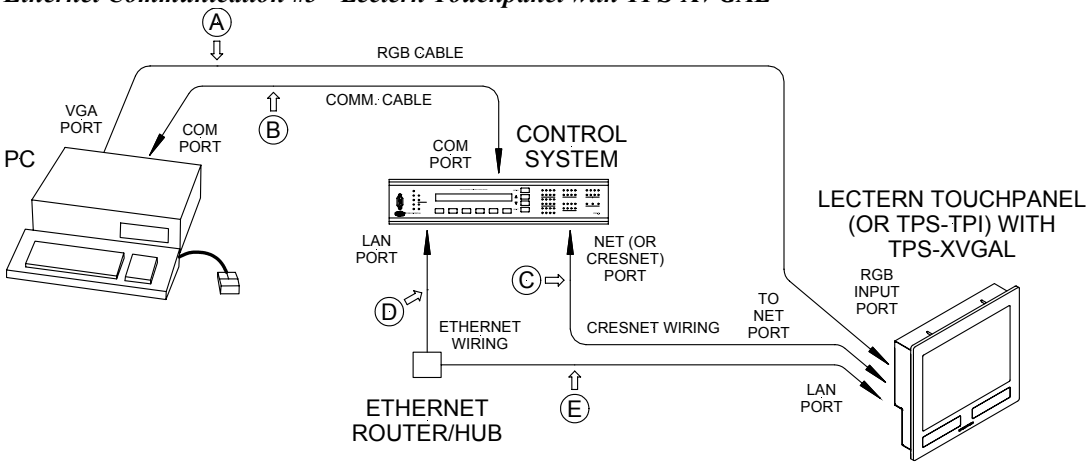
2 These connections (ref B & G) can be made with the 15-foot Triamese cable supplied with the TPS-IMC-BV.

3 Standard null modem serial cable.

4 Standard Ethernet cables (ref D & E).

5 Power pack is NOT required if control system is connected to touchpanel via Ethernet AND Cresnet.

Ethernet Communication #3 - Lectern Touchpanel with TPS-XVGAL



ETHERNET COMMUNICATION #3 - LECTERN TOUCHPANEL WITH TPS-XVGAL CARD							
REF	FROM		CABLING REQUIRED			TO	
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A [1]	PC	VGA	DB-15, male		BNC-5, male	Touchpanel	RGB
B [2]	PC	COM	DB-9, female		DB-9, female	Control System	COM
C [3]	Control System	NET	4-wire Cresnet		4-wire Cresnet	Touchpanel	NET
D [4]	Control System	LAN	RJ-45, 8-pin		RJ-45, 8-pin	Ethernet / Hub	na
E [4]	Ethernet / Hub	na	RJ-45, 8-pin		RJ-45, 8-pin	Touchpanel	LAN

1 A standard stranded VGA monitor cable with DB15F to BNC-5 adapter is required. Both are commercially available.

2 Standard null modem serial cable.

3 Cresnet wiring is required for touchpanel operating power only.

4 Standard Ethernet cables (ref D &E).

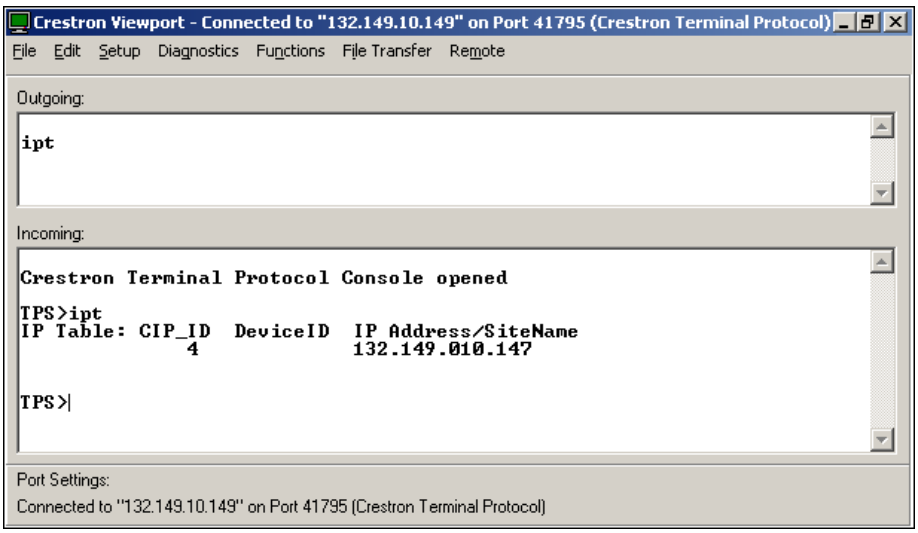
2. Proceed to "Ethernet Setup" which follows.

Ethernet Setup

Ethernet devices that are addressed by the control system may have their IP IDs set either in the SIMPL Windows program or through the Crestron Viewport using a PC. Ultimately, each IP ID is converted into an actual IP address through an IP table that exists inside the control system. The IP table is an internal list of information that contains the IP IDs and associated IP addresses of all Ethernet devices in the program. The IP table is accessed by the control system to identify and locate Ethernet devices, for purposes of communication. Follow this procedure to add the Touch The PC Driver, V2 software to the IP table of the touchpanel.

1. Using the Crestron Viewport, (**Remote | TCP/IP | Connect** or **Remote | Remote Console | Connect**) establish communication with the touchpanel.
2. As shown on the next page, use the **ipt** (IPTABLE) command to display the current IP table for the CIP interface on the touchpanel.

IP Table

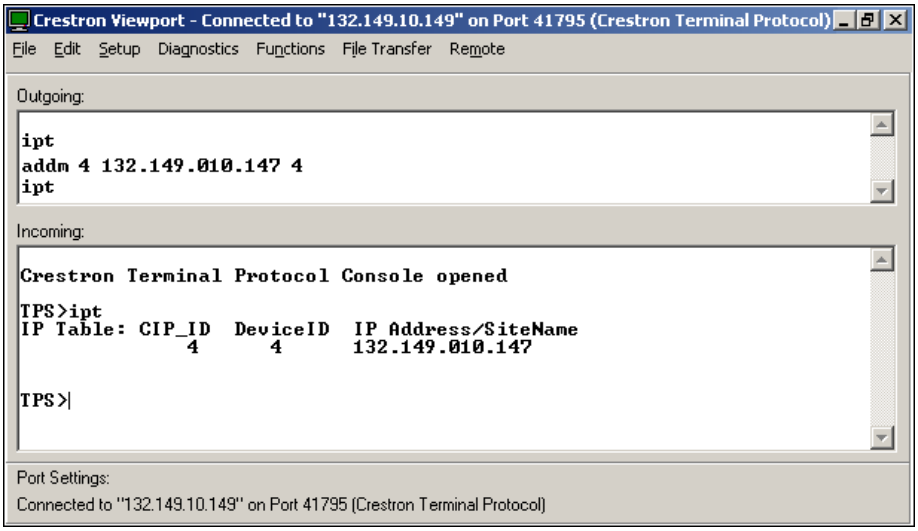


3. As shown below, using the **addm** (ADDMASTER) command to add a CIP node to the master list of the touchpanel, enter the information in the following format with spaces (no period or underscore) between the entries: CIP ID from SIMPL Windows (example of **4** is shown), IP address of touchpanel (example of **132.149.010.147** is shown), and Device ID (example of **4** is shown). To remove an IP address, use the REMM command.

NOTE: The Device ID of the Touch the PC V2 **does not have to match** the CIP ID. It will also be used in step 6 of "VT Pro-e Programming" that begins on page 14.

4. As shown below, use the **ipt** command to display the updated IP table on the touchpanel.

Updated IP Table



5. Proceed to "SIMPL Windows Programming" that begins on the next page.

SIMPL Windows Programming

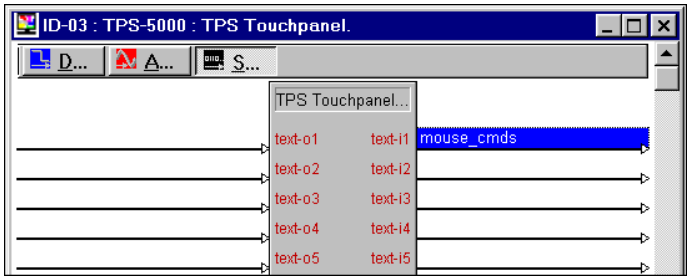
With a Cresnet or Ethernet connection (serial connection does NOT require SIMPL Windows programming), it is necessary to create a SIMPL Windows program to route the data. In the Configuration Manager, add the appropriate Plug-in Control Card or DPA Module to the control system and drag in the Cresnet or Ethernet-enabled touchpanel. (The entries in the IP table, for IP ID and IP address, must be set the same as for standard operation of the touchpanel on Cresnet or Ethernet.) Configure the devices as usual.

In the Program Manager, route the output string in the touchpanel definition to an RS-232 COM port as follows:

1. Open a *Detail View* for the touchpanel, and click the **Serial** button. Specify a signal name for a serial output (*mouse_cmds* on <**text-i1**> is shown below as an example).

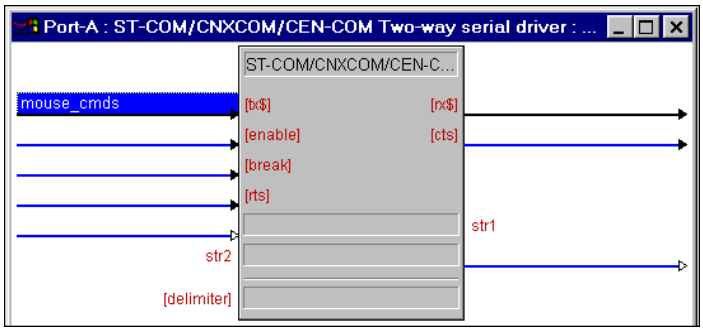
NOTE: As shown, Serial Join **1** for <**text-i1**> will be used in step 6 of "VT Pro-e Programming" that begins on page 14.

Detail View of Serial Signals for the Touchpanel in SIMPL Windows' Programming Manager



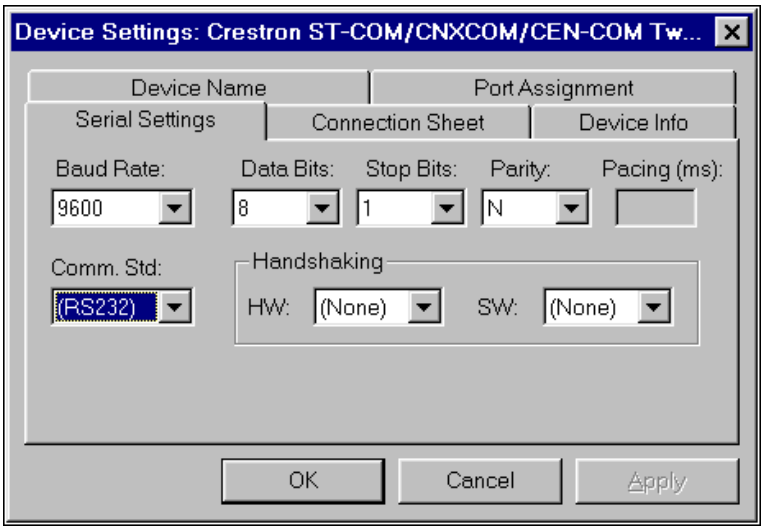
2. Open a *Detail View* of the RS-232 COM port from the appropriate slot of the Central Control Module. As shown in the following illustration, type or drag the specified string name to the <**tx$**> input. (As shown, Port A was selected.)

Detail View of Serial Signals for the RS-232 COM Port in SIMPL Windows' Programming Manager



3. In the SIMPL Windows Configuration Manager *Tree View*, open the COM port slot, and double-click **Port A**. Select the *Serial Settings* tab and make sure that the settings are as shown in the following figure.

Device Settings of the RS-232 COM Port in SIMPL Windows' Configuration Manager



4. Compile and upload the SIMPL Windows program to the control system.
5. Proceed to "VT Pro-e Programming" that follows.

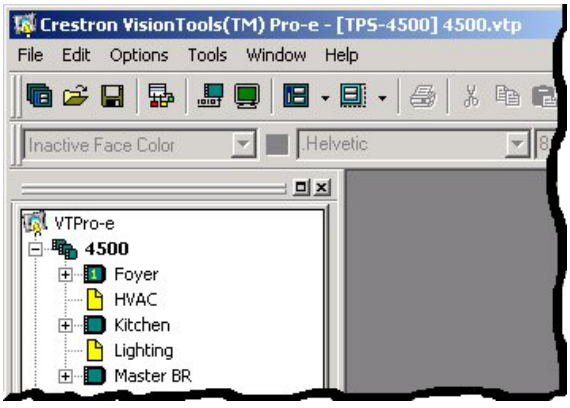
VT Pro-e Programming

The Touch the PC V2 and PC configuration must be programmed in VT Pro-e and the project uploaded to the touchpanel. This entails the following steps, which are explained in detail in this section.

An RGB object must be created on a page or subpage. To create an RGB object, perform the following steps.

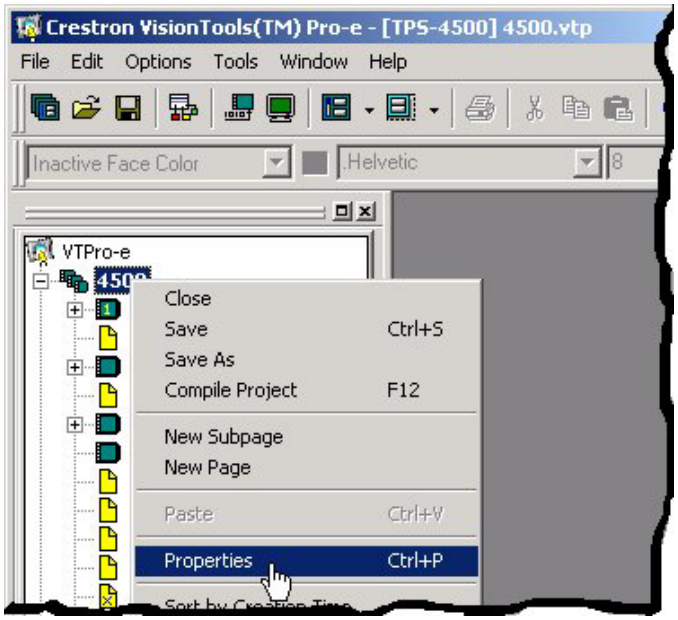
1. In VT Pro-e, open the touchpanel project.
2. As shown below, make sure that the project window is the active window.

Project Window Active



3. As shown in the following image, right-click on the project and select **Properties**.

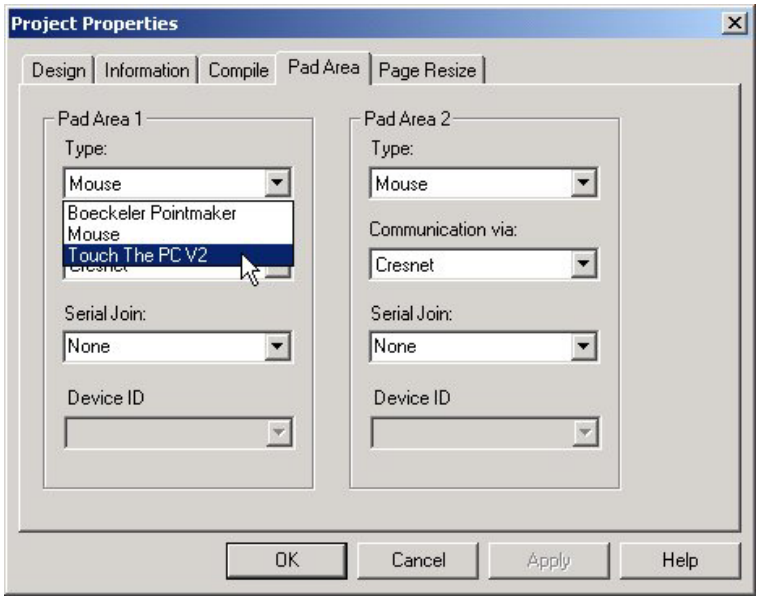
Select Project Properties



4. In the "Project Properties" window, select the *Pad Area* tab.
5. Refer to the diagram below. In the *Type* drop-down list of the desired Pad Area, select **Touch The PC V2** (Pad Area 1 is shown).

NOTE: If the **Touch The PC V2** selection does not appear, update the Crestron Database to version 16.2 or later.

Select Touch The PC V2 in Pad Area 1



6. In the *Communication via* drop-down list of the "Project Properties" window, select either **Serial** or **Cresnet** or **TCP/IP** (for Ethernet operation) and continue with this step.

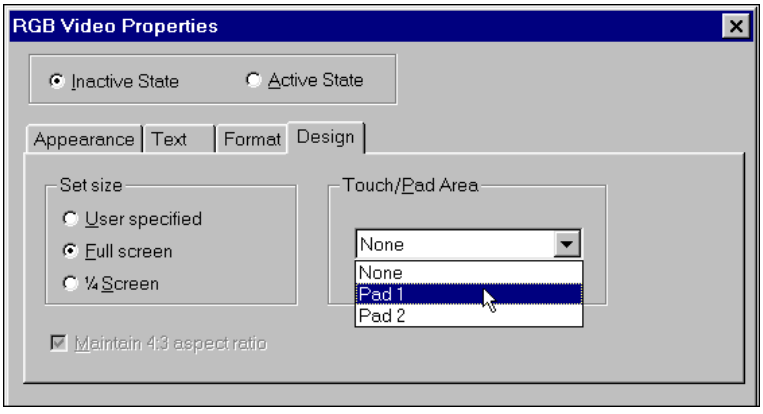
- 6a. If **Serial** is selected, proceed to step 7 below.
- 6b. If **Cresnet** is selected, select the serial join number (specified during step 1 of "SIMPL Windows Programming" that begins on page 13) to reference the assigned touchpanel serial output from the *Serial Join* drop-down list.
- 6c. If **TCP/IP** is selected, select the serial join number (specified during step 1 of "SIMPL Windows Programming" that begins on page 13) to reference the assigned touchpanel serial output from the *Serial Join* drop-down list. Then select the desired device ID from the *Device ID* drop-down list (specified during step 3 of "VT Pro-e Programming" that begins on page 14.)

7. In the "Project Properties" window, click **OK**.
8. Open (or create) a page or subpage and select **Draw | RGB Window** (or from the **Objects Drawing** toolbar, click the **Draw RGB Window** button).
9. Position the cursor on the page and drag out a box of the desired size.
10. Double-click the RGB window to display "RGB Video Properties" window and set parameters, as with any other VT Pro-e object.
11. In the "RGB Video Properties" window, select the *Design* tab.

NOTE: The bigger the window, the less noticeable will be any calibration error

NOTE: Pad 2 may be used for a second computer, an alternate connection, or a Boeckeler Pointmaker® Video Marker telestrator, a video annotation device by Boeckeler Instruments (www.pointmaker.com). For further information, refer to the latest revision of Pointmaker® Telestrator Integration Guide (Doc. 5929). This document can be obtained from the Downloads | Product Manuals section of the Crestron website (www.crestron.com). New users are required to register in order to obtain access to the FTP site.

"RGB Video Properties" Window



NOTE: If desired, buttons with special reserved join numbers to specify additional mouse and computer functions may be created. To create the buttons, refer to "Appendix A – Additional Keyboard Functionality" on page 20.

12. Save, compile, and load the project to the touchpanel.
13. The Touch the PC V2 is ready for operation.

Problem Solving

Troubleshooting

The table below and continued on the next page provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

Touch the PC V2 Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
PC hangs or displays a blue screen upon reboot.	Some PCs (particularly with Windows 95) can have problems with the "RunOnce" process upon loading a serial or mouse driver.	Make sure that there are no more than three mouse drivers (including the Crestron Touch The PC V2 driver) installed on the PC at one time.
There is no cursor movement.	Touch The PC V2 driver is not properly installed.	Uninstall then re-install Touch The PC V2 driver.
	Touch The PC V2 driver is disabled.	Right-click on system tray icon and select **Enabled**. (Enabled will be checked not X'ed.)
	Non-Microsoft serial driver does not work with Touch The PC V2 driver.	Disable the conflicting driver. (It may be necessary to uninstall & re-install Touch The PC V2 driver.)
	Touchpanel was not initialized properly.	For Serial Configuration:
		1. Check that the Pad Properties settings in VT Pro-e are correct.
		2. Use the "**RS-232 touch output**" command (touchout) to reserve the RS-232 port for touch screen output - type **RS232 touchout** and press **<ENTER>**. Verify the setting - type **RS232** and press **<ENTER>**. This should display “Current RS-232 Mode: TouchOutput.” * Reboot touchpanel.
		For Cresnet or Ethernet Configuration: Check that the Pad Properties settings in VT Pro-e are correct.

(continued on next page)

Touch the PC V2 Troubleshooting (continued)

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Touchpanel is not generating packets (no cursor movement).	PC serial port not operating properly.	From the Crestron Viewport, confirm that serial port is operational and packets are input to PC.
		1. Double-click the system tray icon to display the "Pointer Device Properties" window and select the *Status* tab.
		2. Confirm that Status window shows 0 totals for all errors.
		If errors > 0, verify baud rate of PC matches touchpanel baud rate (9600, N81).
		3. Re-initialize the driver: Select *Advanced* tab, move the bottom scroll bar slightly, and click **Apply** or run **Calibrate** from "Pointer Device Properties" window. Re-check number errors.
PC is sluggish or double-clicks unintentionally.	PC parameter for double-click speed has changed.	In Control Panel, double-click Mouse to open "Mouse Properties" window. Select *Buttons* tab and adjust double-click speed.
PC does not perform mouse functions (left-click, right-click, double-click).	PC "locked".	Reboot PC.
	Touchpanel "locked".	From the Viewport, select **Remote | Remote Console | Connect** and enter **RESTORE** command.
	Touch The PC V2 driver parameters have been changed.	If changed, parameters cannot be reset. Uninstall then re-install Touch The PC V2 driver.

* If display is not correct, type **restore** to reset factory defaults (including serial port parameter) then type **RS232 touchout**. If display is not correct after verification, refer to "Further Inquiries" on page 18 and contact Crestron customer service.

Further Inquiries

If, after reviewing this Programmer's Guide, you cannot locate specific information or have questions, please take advantage of Crestron's award winning customer service team in your area. Dial one of the following numbers.

- In the US and Canada, call Crestron's corporate headquarters at 1-888-CRESTRON [1-888-273-7876].
- In Europe, call Crestron International at +32-15-50-99-50.
- In Asia, call Crestron Asia at +852-2341-2016.
- In Latin America, call Crestron Latin America at +5255-5093-2160.
- In Australia and New Zealand, call Crestron Control Solutions at +61-2-9737-8203.

You can also log onto the online help section of the Crestron website (www.crestron.com) to ask questions about Crestron products. First-time users will need to establish a user account to fully benefit from all available features.

Future Updates

As Crestron improves functions, adds new features, and extends the capabilities of the Touch the PC V2, additional information and programming examples may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

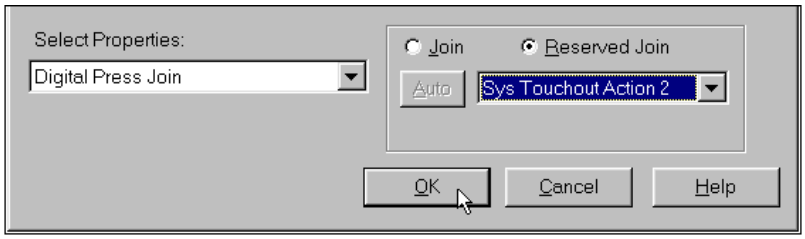
Check the Crestron website (www.crestron.com) periodically for manual update availability and its relevance. Updates are available from the Downloads | Product Manuals section and are identified as an "Addendum" in the Download column.

Appendix A – Additional Keyboard Functionality

VT Pro-e button objects can simulate up to fifteen computer and mouse functions, using special reserved joins. The following example is for a "scroll up" button.

1. Open the RGB page in VT Pro-e, create a button object and position and size it on the page. Set parameters, as usual.
2. In the "Button Properties" window, select **Digital Press Join**, click **Reserved Join**, select **Sys Touchout Action 2** from the drop-down list, and click **OK** as shown below.

Reserved Join Number Field of the "Button Properties" Window



The following table lists all the available actions that can be assigned to a button, using the reserved **Digital Press Join** selection of the "Button Properties" window.

Mouse Action Reserved Join Numbers

ACTION	RESERVED JOIN NUMBERS	
	PAD AREA 1	PAD AREA2
Code 0001	Touchout Action 1	Touchout Action 1B
Scroll Up*	Touchout Action 2	Touchout Action 2B
Scroll Down*	Touchout Action 3	Touchout Action 3B
Escape Key	Touchout Action 4	Touchout Action 4B
Tab Key	Touchout Action 5	Touchout Action 5B
Backspace Key	Touchout Action 6	Touchout Action 6B
Enter Key	Touchout Action 7	Touchout Action 7B
Spacebar Key	Touchout Action 8	Touchout Action 8B
Insert Key	Touchout Action 9	Touchout Action 9B
Delete Key	Touchout Action A	Touchout Action AB
Home Key	Touchout Action B	Touchout Action BB
End Key	Touchout Action C	Touchout Action CB
Page Up Key	Touchout Action D	Touchout Action DB
Page Down Key	Touchout Action E	Touchout Action EB
Custom (generates a "!" character)	Touchout Action F	Touchout Action FB
*Since scroll functions are not natural Windows functions, not all applications will understand them correctly.		

NOTE: Analog join number 17204 defines the default action of any press on pad area 1; join number 17210 defines the default action of any press on pad area 2. If its value is 0, there will be no click action, only cursor movement. If its value is 1, there is a left-click action for each press. If its value is 2, there is a right-click action for each press. If the default action is set to left-click, pressing on the touchpanel twice will provide double-click capabilities.

Appendix B – Cable and Wiring Specifications

Network Wiring

CAUTION: Use only Crestron power supplies for Crestron equipment. Failure to do so could cause equipment damage or void the Crestron warranty.

CAUTION: Provide sufficient power to the system. Insufficient power can lead to unpredictable results or damage to the equipment. Please use the Crestron Power Calculator to help calculate how much power is needed for the system. http://www.crestron.com/dealer-tech_resources/power_calculator.asp

NOTE: When installing network wiring, refer to the latest revision of the wiring diagram(s) appropriate for your specific system configuration, available from the Downloads | Product Manuals | Wiring Diagrams section of the Crestron website (www.crestron.com).

When calculating the wire gauge for a particular Cresnet run, the length of the run and the power factor of each network unit to be connected must be taken into consideration. If Cresnet units are to be daisy-chained on the run, the power factor of each unit to be daisy-chained must be added together to determine the power factor of the entire chain. If the unit is a home-run from a Crestron system power supply network port, the power factor of that unit is the power factor of the entire run. The length of the run in feet and the power factor of the run should be used in the resistance equation below to calculate the value on the right side of the equation.

Resistance Equation

$$R < \frac{40{,}000}{L \times PF}$$

Where: R = Resistance (refer to table below).
L = Length of run (or chain) in feet.
PF = Power factor of entire run (or chain).

The required wire gauge should be chosen such that the resistance value is less than the value calculated in the resistance equation. Refer to the following table.

Wire Gauge Values

RESISTANCE	WIRE GAUGE
4	16
6	18
10	20
15	22
13	Doubled CAT5
8.7	Tripled CAT5

NOTE: All Cresnet wiring must consist of two twisted pairs. One twisted pair is the +24V conductor and the GND conductor, and the other twisted pair is the Y conductor and the Z conductor.

NOTE: When daisy-chaining Cresnet units, strip the ends of the wires carefully to avoid nicking the conductors. Twist together the ends of the wires that share a pin on the network connector, and tin the twisted connection. Apply solder only to the ends of the twisted wires. Avoid tinning too far up the wires or the end becomes brittle.

Insert the tinned connection into the Cresnet connector and tighten the retaining screw. Repeat the procedure for the other three conductors.

Crestron RJ-45 Cabling

CAUTION: The 15-foot, 10-pin RJ-45 connector cable supplied by Crestron is a custom cable and is the only one that should be used. The end of the cable has a metal shield that is required to protect the equipment. Using non-Crestron cables will result in damage to the product. Other cables lengths are available from Crestron.

NOTE: When connecting the touchpanel to the interface module, do not confuse the 8-pin audio cable with the 10-pin net/video cable.

A 15-foot, RJ-45, 10-position, NET/VIDEO cable is supplied with the TPS-IMPC. The cable is available to provide optional lengths; part number TPS-CBL-3 is the 3-foot version, TPS-CBL-6 is a 6-foot version, and TPS-CBL-9 is the 9-foot version. Contact Crestron customer service for further information.

A 15-foot, RJ-45, Siamese (two cables joined together) cable is available from Crestron. The cable minimizes the number of individual cables attached to the touchpanel. The Siamese cable consists of a 10-position NET/VIDEO cable, an 8-position AUDIO cable and is available to provide optional lengths. Part number TPS-CBL-S3 is the 3-foot version, TPS-CBL-S6 is a 6-foot version, and TPS-CBL-S9 is the 9-foot version. This cable may be used for any system configuration when NET/VIDEO and AUDIO connections are necessary. Contact Crestron customer service for further information.

A 15-foot, RJ-45, Triamese (three cables joined together) cable is supplied with the TPS-IMC-BV. The cable minimizes the number of individual cables attached to the touchpanel. The Triamese cable consists of a 10-position NET/VIDEO cable, 10-position RGB video cable, an 8-position AUDIO cable and is available to provide optional lengths. Part number TPS-CBL-T3 is the 3-foot version, TPS-CBL-T6 is a 6-foot version, and TPS-CBL-T9 is the 9-foot version. This cable may be used for any system configuration when NET/VIDEO, RGB video and AUDIO connections are necessary. Contact Crestron customer service for further information.

DB9F Adapter and RJ-11 Modular Cable

To program the touchpanel for serial communication at the RS-232 port, a DB9F to RJ-11 adapter and 6-conductor modular (RJ-11) cable is required. These components are not supplied but are part of the SmarTouch Programming Kit (Crestron part number ST-PK). If already available, use these components. If needed, contact Crestron customer service. A cable assembly that consists of a DB9F to RJ-11 adapter and modular cable is also available from Crestron. Contact Crestron customer service for part number STCP-502.

The DB9F to RJ-11 adapter is available commercially or contact Crestron customer service for part number 15556. For RJ-11 modular cable specifications, refer to the latest revision of the Crestron Network Modular Cable Requirements (Doc. 5682). This document is available from the Downloads | Product Manuals section of the Crestron website (www.crestron.com).

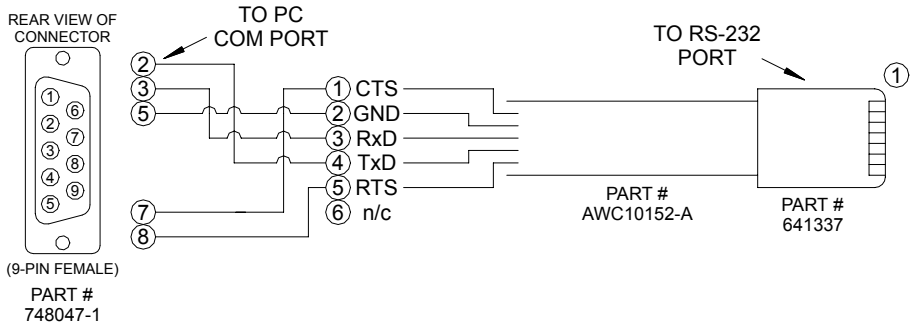
DB9F to RJ-11 Cable Fabrication

In the event that modular cables or the DB9F to RJ-11 adapter is not readily available, the table and diagram below are provided so that the cable can be fabricated. All parts are commercially available.

RJ-11 Modular Cable Pinouts

PIN	DESCRIPTION	PIN	DESCRIPTION
1	CTS (Clear to Send)	4	TxD (Transmitted Data)
2	GND	5	RTS (Request to Send)
3	RxD (Received Data)	6	Not Connected

PC to Touchpanel Cable Specification



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2. Products may be returned for credit, exchange, or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, 6 Volvo Drive, Rockleigh, N.J., or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee, plus shipping costs, on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

CRESTRON ELECTRONICS, Inc. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of three (3) years from the date of purchase from CRESTRON, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of one (1) year; touchscreen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from CRESTRON or an authorized CRESTRON dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

CRESTRON shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended, or if it has been subjected to misuse, accidental damage, modification, or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced, or removed.

This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON is not liable for any claim made by a third party or made by the purchaser for a third party.

CRESTRON shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

Except as expressly set forth in this warranty, CRESTRON makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supercedes all previous warranties.

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