

# Crestron **Serial Mouse Control Driver** Software

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Programmer's Guide



**CRESTRON**

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# Contents

<b>Serial Mouse Control Driver</b>	<b>1</b>
Introduction	1
Driver Requirements	2
Quickstart Procedure	2
Driver Software Installation	3
Configuring the System	5
PC to Touchpanel Serial Communication	5
PC to Touchpanel Cresnet Communication	7
PC to Touchpanel Ethernet Communication	9
SIMPL Windows Programming	13
VT Pro-e Programming	16
Problem Solving	19
Troubleshooting	19
Further Inquiries	22
Future Updates	22
Future Firmware Upgrades	22
Appendix 1 - Keyboard Functionality	23
Appendix 2 - Additional PC and Mouse Functions	24
Appendix 3 - Cable and Wiring Specifications	25
Cresnet 4-Wire Wiring	25
Crestron RJ45 Cabling	26
DB9F Adapter and RJ11 Modular Cable	26
DB9F to RJ11 Cable Fabrication	27
Software License Agreement	28
Return and Warranty Policies	30
Merchandise Returns / Repair Service	30
CRESTRON Limited Warranty	30



# Serial Mouse Control Driver

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## Introduction

The Crestron Serial Mouse Control Driver, 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 touch-sensitive computer monitor, compatible with Microsoft® Windows™ 98/XP and Windows 2000/NT.

When you use the touchpanel as a monitor for a computer connected to your Crestron system, the Serial Mouse Control Driver lets you control the cursor movement and simulate the functions of a traditional mouse using your finger on the touchpanel to simulate typical computer mouse click and drag functions. In operation, use of the Serial Mouse Driver is similar to using a tablet device (such as a graphics tablet). For example, touching the cursor and dragging it across the screen, as you would do with a regular mouse, actually creates a selection box and selects displayed items in the path, as though you had done a left-click-and-drag operation. The way to move the cursor using the Serial Mouse Driver is to touch the screen where you want the cursor to be. Also, if you move the cursor to a location with the Mouse Driver, and then move it to a different location with the regular mouse, the Serial Mouse Driver “thinks” it is still at the earlier location. Before you can perform a function through the Serial Mouse Driver at the new location, you must touch the screen at that location.

The Serial Mouse Driver operation can be configured via a serial connection between the touchpanel and personal computer (PC), a wired connection through the Crestron remote control system (herein referred to as the Cresnet system), or an Ethernet/local area network (LAN), a local Crestron LAN, or a wide area network (WAN). Ethernet communication allows access to any Crestron Internet protocol (IP) control device, remote diagnostic and upgrade functions, access to Crestron’s network analyzer, and the ability to activate any device connected to the system.

The version of the Serial Mouse Control Driver listed in the “Driver Requirements” section below, supports inputs for two pointing devices, specifies serial join numbers during the “pad area” setup, and the Network/CIP Transmission Symbols are initialized automatically during control system reboot, eliminating the use of the “todest” and “toformat” commands. Additionally, the programming in VisionTools™ Pro-e (VT Pro-e) no longer requires that a slider be created.

## Driver Requirements

To program the touchpanel for use with the Serial Mouse Control Driver, a PC that contains VT Pro-e and SIMPL™ Windows is required. Refer to the table below for the requirements of the touchpanel, PC and Cresnet system.

### *Driver Requirements*

REQUIREMENT	SPECIFICATION
Serial Mouse Control Driver (UPDD)	Version 02.56.18 or later <sup>1</sup>
VisionTools™ Pro-e (VT Pro-e)	Version 2.3.3.1 or later <sup>1</sup>
Isys™ Touchpanel Firmware	Version 1.010.0 or later <sup>2,3</sup>
PC Requirements:	
Hard Drive Space	5 MB <sup>4</sup>
Operating System	Microsoft Windows® 98/XP/2000/NT

- 1 The latest software versions can be obtained from the What's New page (Touchpanels, SIMPL Windows, VisionTools Pro-e, and Crestron Database sections) or Downloads page (TOUCHPNL, SIMPLWIN, VTPRO-E, and CRESDB Libraries) of Crestron's website ([www.crestron.com](http://www.crestron.com)).
- 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 page of Crestron's website ([www.crestron.com](http://www.crestron.com)).
- 3 The firmware upgrade files can be obtained from the What's New page (Touchpanels section) or Downloads page (TOUCHPNL and UPGRADES Libraries) of Crestron's website. Crestron recommends that the latest firmware be loaded into the touchpanel.
- 4 The PC requirements pertain only to the Serial Mouse Control Driver. Additional requirements for SIMPL Windows and/or VT Pro-e are not included. Refer to the documentation supplied with the software for further information.

## Quickstart Procedure

The PC that contains the Serial Mouse Control Driver may be configured for serial, Cresnet, or Ethernet communication with the touchpanel. This section contains brief descriptions of the steps required for utilizing the Serial Mouse Control Driver.

### ***Mouse Driver Operation via Serial Communications***

- Install Serial Mouse Control Driver software (page 3)
- Change touchpanel RS-232 settings to RS-232 Port for Touch Output (page 5)
- Connect COM port of PC to RS-232 port of touchpanel using RJ11 modular cable and adapter, Crestron part number 15556 (page 5)
- In VT Pro-e (page 16):
  - Set the RGB object to PAD 1 or PAD 2
  - Set the project properties according to the RGB selected PAD area
    - Type: **Mouse**
    - Communication via: **Serial**
  - Save, Compile, and load the project to the touchpanel

### ***Mouse Driver Operation via Cresnet Communications***

- Install Serial Mouse Control Driver 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 **16**):
  - Set the RGB object to PAD 1 or PAD 2
  - Set the project properties according to the RGB selected PAD area
    - Type: **Mouse**
    - Communication via: **Cresnet**
    - Serial Join: **1** (example)
  - Save, Compile, and load the project to the touchpanel

### ***Mouse Driver Operation via Ethernet Communications***

- Install Serial Mouse Control Driver software (page **3**)
- Connect COM port of PC to COM port of control system with null modem cable (page **10**)
- 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 **16**):
  - Set the RGB object to PAD 1 or PAD 2
  - Set the project properties according to the RGB selected PAD area
    - Type: **Mouse**
    - 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 Serial Mouse Control Driver software, download the self-extracting zip file from the What's New page (Touchpanels section) or Downloads page (TOUCHPNL Library) of Crestron's website ([www.crestron.com](http://www.crestron.com)). New users are required to register in order to obtain access to the FTP site. Search for **TPAD\*.EXE**. TPAD\*.EXE will create two folders, UPDD (Universal Pointer Device Driver) and UPDD Playback Utility, plus the PDF version of this programmer's guide.

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**CAUTION:** Crestron's licensed version of the UPDD is based upon the manufacturers default settings. With the exception of name of pointer device and COM port selection, **DO NOT** change default settings during setup. If altered, the settings cannot be reset and the driver software must be uninstalled then re-installed. Reinstallation of Microsoft® Windows™ may also be necessary.

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**NOTE:** Certain pairs of COM ports, such as 1 and 3, or 2 and 4, may be configured to use the same system interrupts within the Windows operating system, making it difficult to use both COM ports simultaneously. If so, it may be necessary to change the COM port setting. It is strongly recommended that the selected COM port be dedicated only for the Serial Mouse Control Driver. Refer to the Windows documentation for further information.

**NOTE:** Crestron recommends that the baud rate for both the touchpanel and PC port be set at the default rate of **9600, N, 8, 1**.

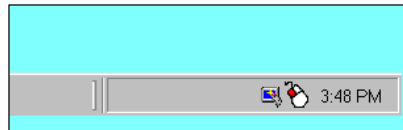
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Open the UPDD Driver folder and run **setup.exe**. All of the default settings should be kept, although two may be altered if desired. For example, the name of the pointer device can be changed from the default "Device 1" to "Crestron Touchpanel". In the Port dialog, a COM port other than the default COM1 can be selected, to specify the COM port from which the PC will receive the serial mouse commands.

Setup.exe will finish with a prompt to restart the computer. The computer **MUST** be restarted. After restarting the computer, open the UPDD Playback Utility folder and run **setupply.exe**. The default settings should not be altered. Navigate through each dialog and accept each default to complete the installation.

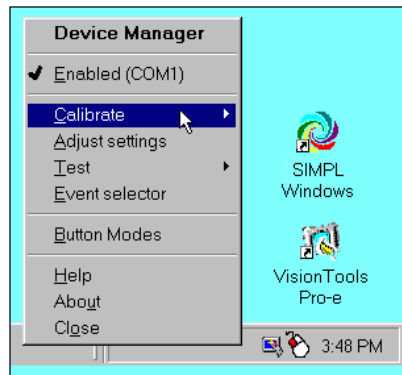
The Windows **Start** menu will now list UPDD and UPDD Playback Utility as programs, and the system tray of the Windows status bar will include icons shown below.

*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.

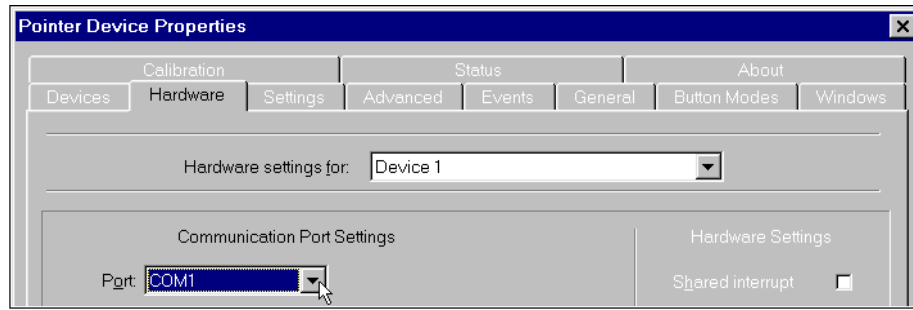
*Select Calibrate*



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



*Hardware Tab*



**NOTE:** COM port selection is the only item that can be changed. Adjusting any other setting will cause the driver to fail, requiring the driver to be reinstalled.

**NOTE:** For additional keyboard functionality programmed into the touchpanel, refer to “[Appendix 1 - Keyboard Functionality](#)” on page 23.

## Configuring the System

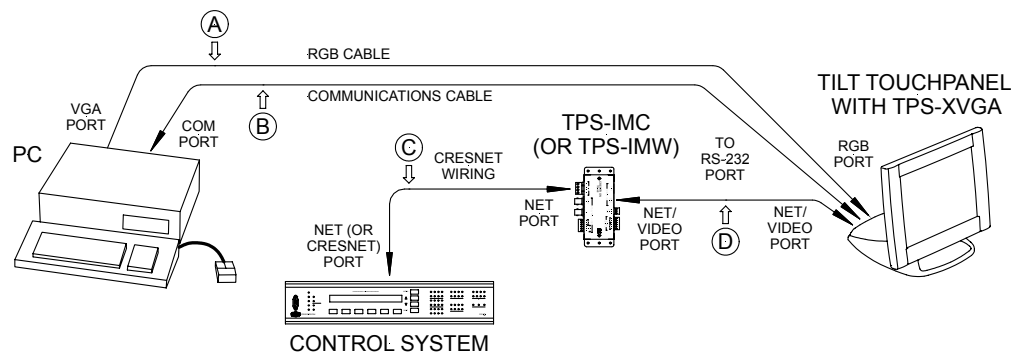
The PC that contains the Serial Mouse Control Driver may be configured for serial, Cresnet, or Ethernet communication with the touchpanel. TPS tilt touchpanels may contain a TPS-XVGA or TPS-XVGA-BV card. TPS lectern touchpanels (and TPS-TPI user interface) utilize a TPS-XVGA card. To configure the PC, touchpanel, and specific TPS-XVGA card, refer to an appropriate section below and or on the next eight pages.

### PC to Touchpanel Serial Communication

For Serial Mouse Control Driver 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-XVGA card) diagrams and tables below and on the next page and make the cable connections.

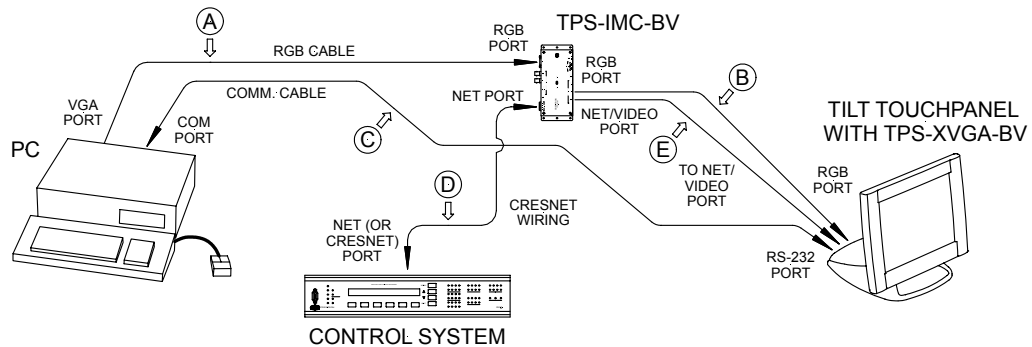
*Serial Communication #1 - Tilt Touchpanel with TPS-XVGA*



SERIAL COMMUNICATION #1 - TILT TOUCHPANEL WITH TPS-XVGA CARD							
REF	FROM		CABLING REQUIRED		TO		
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A <sup>1</sup>	PC	VGA	DB-15, male		DB-15, male	Touchpanel	RGB
B <sup>2</sup>	PC	COM	DB-9, female		RJ-11, 6-pin	Touchpanel	RS-232
C <sup>3</sup>	Control System	NET	4-wire Cresnet		4-wire Cresnet	TPS-IMC	NET
D <sup>4</sup>	TPS-IMC	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 RJ11 cable (supplied with touchpanel) and DB9F to RJ11 adapter. For cabling specifications, refer to Appendix 3 on page 25 of this guide.  
 3 During serial communications, the control system and Cresnet wiring are required for touchpanel basic functionality and operating power. For Cresnet 4-wire specifications, refer to Appendix 3 on page 25 of this guide.  
 4 A 15-foot NET/VIDEO cable is supplied with the TPS-IMC. For further information about Crestron NET/VIDEO cables, refer to Appendix 3 on page 25 of this guide.

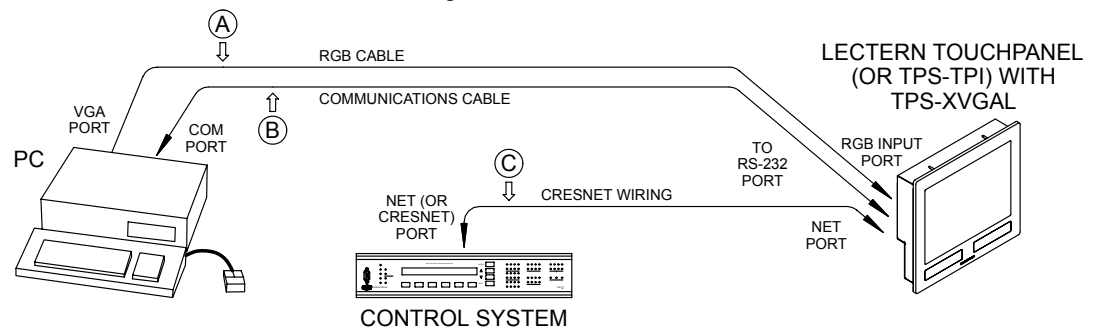
*Serial Communication #2 - Tilt Touchpanel with TPS-XVGA-BV*



SERIAL COMMUNICATION #2 - TILT TOUCHPANEL WITH TPS-XVGA-BV CARD							
REF	FROM		CABLING REQUIRED		TO		
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A <sup>1</sup>	PC	VGA	DB-15, male		DB-15, male	TPS-IMC-BV	RGB
B <sup>2</sup>	TPS-IMC-BV	RGB	RJ-45, 10-pin		RJ-45, 10-pin	Touchpanel	RGB
C <sup>3</sup>	PC	COM	DB-9, female		RJ-11, 6-pin	Touchpanel	RS-232
D <sup>4</sup>	Control System	NET	4-wire Cresnet		4-wire Cresnet	TPS-IMC-BV	NET
E <sup>2</sup>	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. For further information about the Triamese cable and other cabling options, refer to Appendix 3 on page 25 of this guide.  
 3 This connection can be made via a modular RJ11 cable (supplied with touchpanel) and DB9F to RJ11 adapter. For cabling specifications, refer to Appendix 3 on page 25 of this guide.  
 4 During serial communications, the control system and Cresnet wiring are required for touchpanel basic functionality and operating power. For Cresnet 4-wire specifications, refer to Appendix 3 on page 25 of this guide.

*Serial Communication #3 - Lectern Touchpanel with TPS-XVGA*



SERIAL COMMUNICATION #3 - LECTERN TOUCHPANEL WITH TPS-XVGA CARD						
REF	FROM		CABLING REQUIRED		TO	
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE
A <sup>1</sup>	PC	VGA	DB-15, male	BNC-5, male	Touchpanel	RGB
B <sup>2</sup>	PC	COM	DB-9, female	RJ-11, 6-pin	Touchpanel	RS-232
C <sup>3</sup>	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 RJ11 cable (supplied with touchpanel) and DB9F to RJ11 adapter. For cabling specifications, refer to Appendix 3 on page 25 of this guide.  
 3 During serial communications, the control system and Cresnet wiring are required for touchpanel basic functionality and operating power. For Cresnet 4-wire specifications, refer to Appendix 3 on page 25 of this guide.

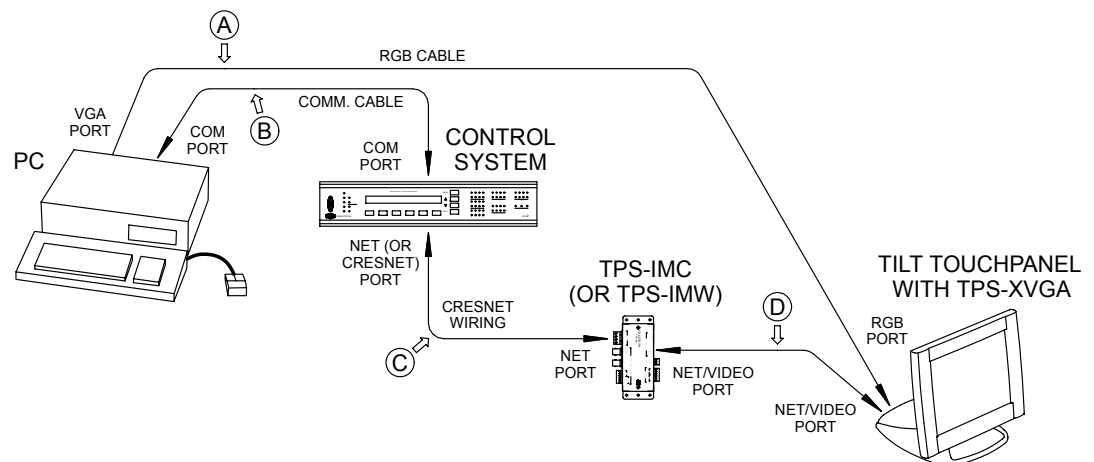
3. Proceed to “[VT Pro-e Programming](#)” that begins on page 16.

**PC to Touchpanel Cresnet Communication**

For Serial Mouse Control Driver operation using Cresnet communication from the PC to the touchpanel, refer to the steps below.

1. Refer to the appropriate (for TPS-XVGA, TPS-XVGA-BV, or TPS-XVGA) diagrams and tables below and on the next page and make the cable connections.

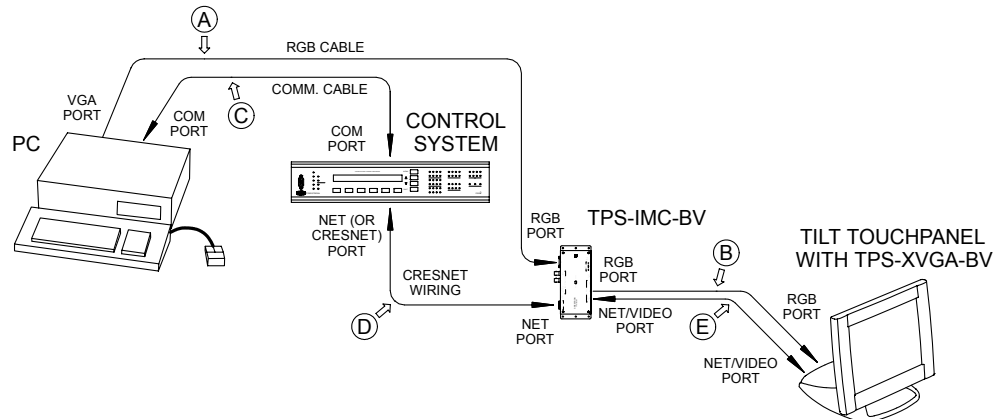
*Cresnet Communication #1 - Tilt Touchpanel with TPS-XVGA*



CRESNET COMMUNICATION #1 - TILT TOUCHPANEL WITH TPS-XVGA CARD							
REF	FROM		CABLING REQUIRED		TO		
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A <sup>1</sup>	PC	VGA	DB-15, male		DB-15, male	Touchpanel	RGB
B <sup>2</sup>	PC	COM	DB-9, female		DB-9, female	Control System	COM
C <sup>3</sup>	Control System	NET	4-wire Cresnet		4-wire Cresnet	TPS-IMC	NET
D <sup>4</sup>	TPS-IMC	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 For Cresnet 4-wire specifications, refer to Appendix 3 on page 25 of this guide.  
 4 A 15-foot NET/VIDEO cable is supplied with the TPS-IMC. For further information about Crestron NET/VIDEO cables, refer to Appendix 3 on page 25 of this guide.

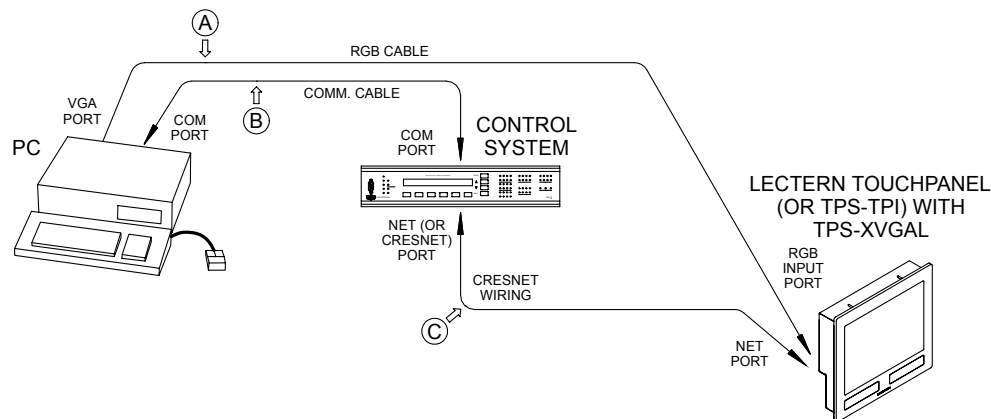
*Cresnet Communication #2 - Tilt Touchpanel with TPS-XVGA-BV*



CRESNET COMMUNICATION #2 - TILT TOUCHPANEL WITH TPS-XVGA-BV CARD							
REF	FROM		CABLING REQUIRED		TO		
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A <sup>1</sup>	PC	VGA	DB-15, male		DB-15, male	TPS-IMC-BV	RGB
B <sup>2</sup>	TPS-IMC-BV	RGB	RJ-45, 10-pin		RJ-45, 10-pin	Touchpanel	RGB
C <sup>3</sup>	PC	COM	DB-9, female		DB-9, female	Control System	COM
D <sup>4</sup>	Control System	NET	4-wire Cresnet		4-wire Cresnet	TPS-IMC-BV	NET
E <sup>2</sup>	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. For further information about the Triamese cable, connections without audio and other cabling options, refer to Appendix 3 on page 25 of this guide.  
 3 Standard null modem serial cable.  
 4 For Cresnet 4-wire specifications, refer to Appendix 3 on page 25 of this guide.

*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 <sup>1</sup>	PC	VGA	DB-15, male		BNC-5, male	Touchpanel	RGB
B <sup>2</sup>	PC	COM	DB-9, female		DB-9, female	Control System	COM
C <sup>3</sup>	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.  
 3 For Cresnet 4-wire specifications, refer to Appendix 3 on page 25 of this guide.

2. Proceed to “[SIMPL Windows Programming](#)” that begins on page 13.

## PC to Touchpanel Ethernet Communication

For Serial Mouse Control Driver 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. 5867 or 5829, respectively). The latest revisions can be obtained from the Products page (PRODUCT MANUALS section) or Downloads page (MANUAL Library) of Crestron’s website ([www.crestron.com](http://www.crestron.com)). New users are required to register to obtain access to the FTP site.

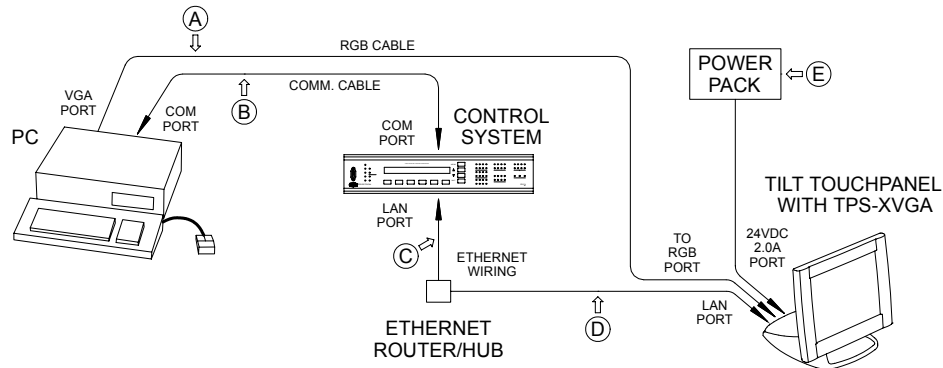
**NOTE:** The Crestron control system must contain an Ethernet expansion card to enable Ethernet communication. On CNX Generation control systems, the port may be labeled LAN or LAN/DPA. On 2-Series control systems, the port may be labeled LAN A or LAN B. For further information about CNX Generation 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 Operations & Installation Guide (DOC. 5962). The latest revisions can be obtained from the Products page (PRODUCT MANUALS section) or Downloads page (MANUAL Library) of Crestron’s website ([www.crestron.com](http://www.crestron.com)).

### Cabling Connections

For Serial Mouse Control Driver 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 on the next two pages and make the cable connections.

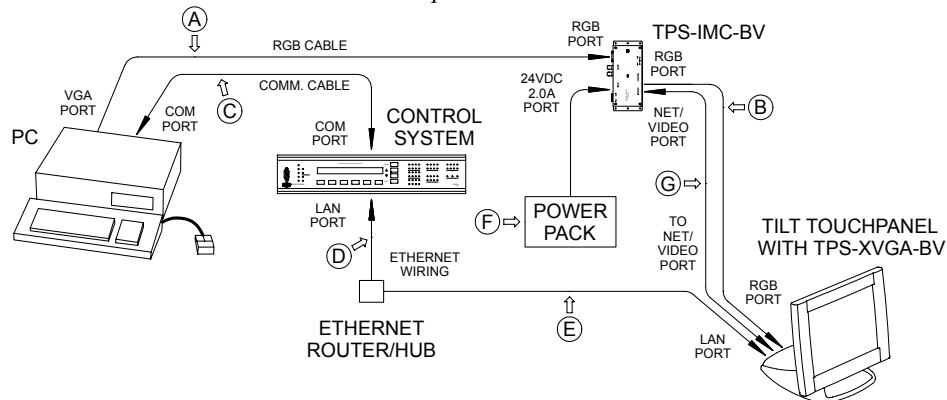
#### Ethernet Communication #1 - Tilt Touchpanel with TPS-XVGA



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

1 Standard stranded VGA monitor cable.  
 2 Standard null modem serial cable.  
 3 Standard Ethernet cables (ref C & D).  
 4 Power pack is NOT required if control system is connected to touchpanel via Ethernet AND Cresnet.

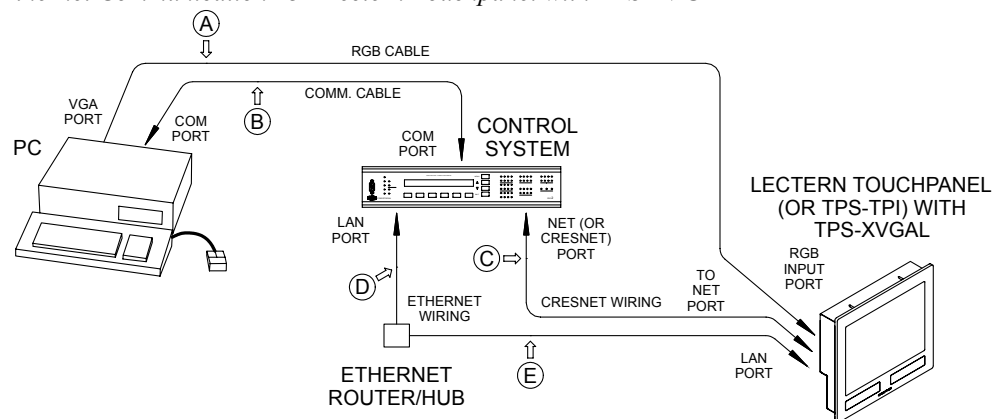
#### Ethernet Communication #2 - Tilt Touchpanel with TPS-XVGA-BV



ETHERNET COMMUNICATION #2 - TILT TOUCHPANEL WITH TPS-XVGA-BV CARD							
REF	FROM		CABLING REQUIRED		TO		
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A <sup>1</sup>	PC	VGA	DB-15, male		DB-15, male	TPS-IMC-BV	RGB
B <sup>2</sup>	TPS-IMC-BV	RGB	RJ-45, 10-pin		RJ-45, 10-pin	Touchpanel	RGB
C <sup>3</sup>	PC	COM	DB-9, female		DB-9, female	Control System	COM
D <sup>4</sup>	Control System	LAN	RJ-45, 8-pin		RJ-45, 8-pin	Ethernet / Hub	na
E <sup>4</sup>	Ethernet / Hub	na	RJ-45, 8-pin		RJ-45, 8-pin	Touchpanel	LAN
F <sup>5</sup>	PWR. PACK	na			na	TPS-IMC-BV	24VDC 2A
G <sup>2</sup>	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. For further information about the Triamese cable and other cabling options, refer to Appendix 3 on page 25 of this guide.  
 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-XVGA*



ETHERNET COMMUNICATION #3 - LECTERN TOUCHPANEL WITH TPS-XVGA CARD							
REF	FROM		CABLING REQUIRED		TO		
	DEVICE	PORT	CONNECTOR	to	CONNECTOR	DEVICE	PORT
A <sup>1</sup>	PC	VGA	DB-15, male		BNC-5, male	Touchpanel	RGB
B <sup>2</sup>	PC	COM	DB-9, female		DB-9, female	Control System	COM
C <sup>3</sup>	Control System	NET	4-wire Cresnet		4-wire Cresnet	Touchpanel	NET
D <sup>4</sup>	Control System	LAN	RJ-45, 8-pin		RJ-45, 8-pin	Ethernet / Hub	na
E <sup>4</sup>	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. For Cresnet 4-wire specifications, refer to Appendix 3 on page 25 of this guide.  
 4 Standard Ethernet cables (ref D & E).

2. Proceed to “[Ethernet Setup](#)” that begins [below](#).

**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 Serial Control Mouse Driver 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

The screenshot shows a terminal window titled "Crestron Viewport - Connected to '132.149.10.149' on Port 41795 (Crestron Terminal Protocol)". The menu bar includes File, Edit, Setup, Diagnostics, Functions, File Transfer, and Remote. The "Outgoing" field contains the command `ipt`. The "Incoming" field shows the following output:

```

Crestron Terminal Protocol Console opened
TPS>ipt
IP Table: CIP_ID  DeviceID  IP Address/SiteName
           4           132.149.010.147
TPS>|

```

At the bottom, the "Port Settings" section indicates: "Connected to '132.149.10.149' on Port 41795 (Crestron Terminal Protocol)".

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).

---

**NOTE:** The Device ID of the Serial Mouse Control Driver **MUST** match the CIP ID and will also be used in step 6 of “[VT Pro-e Programming](#)” that begins on page [16](#).

---

### Add Device ID to Table

The screenshot shows a terminal window titled "Crestron Viewport - Connected to '132.149.10.149' on Port 41795 (Crestron Terminal Protocol)". The menu bar includes File, Edit, Setup, Diagnostics, Functions, File Transfer, and Remote. The "Outgoing" field contains the command `addm 4 132.149.010.147 4`. The "Incoming" field shows the following output:

```

Crestron Terminal Protocol Console opened
TPS>ipt
IP Table: CIP_ID  DeviceID  IP Address/SiteName
           4           132.149.010.147
TPS>|

```

At the bottom, the "Port Settings" section indicates: "Connected to '132.149.10.149' on Port 41795 (Crestron Terminal Protocol)".



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

*Updated IP Table*

```

Crestron Viewport - Connected to "132.149.10.149" on Port 41795 (Crestron Terminal Protocol)
File Edit Setup Diagnostics Functions File Transfer Remote

Outgoing:
ipt
addm 4 132.149.010.147 4
ipt

Incoming:
Crestron Terminal Protocol Console opened
TPS>ipt
IP Table: CIP_ID DeviceID IP Address/SiteName
           4       4       132.149.010.147

TPS>|

Port Settings:
Connected to "132.149.10.149" on Port 41795 (Crestron Terminal Protocol)

```

- Proceed to “[SIMPL Windows Programming](#)” that begins [below](#) 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 and to transmit the touch output destination setting to the touchpanel when the system reboots (the default "todest" setting is RS-232). 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.

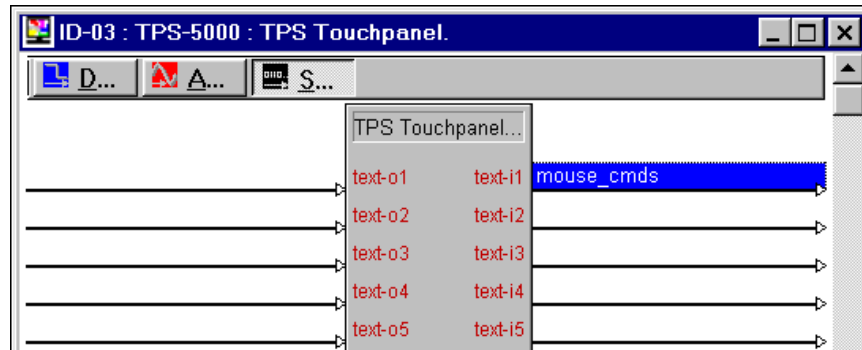
In the Program Manager, route the output string in the touchpanel definition to an RS-232 COM port as follows:

- 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).

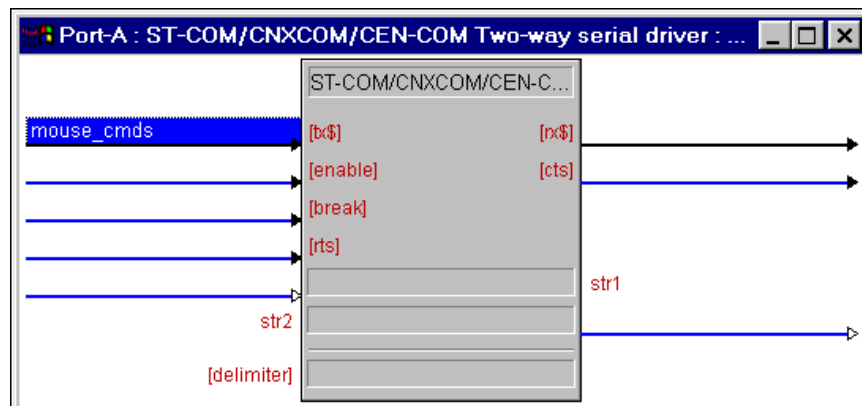
---

**NOTE:** As shown, Serial Join **1** for **<text-i1>** will be used in step 6 of “[VT Pro-e Programming](#)” that begins on page **16**.

---

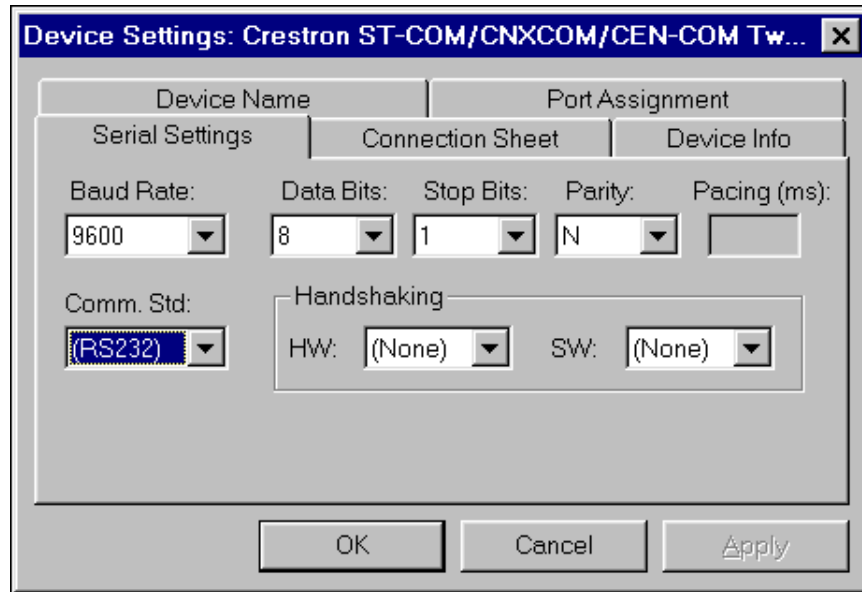
*Detail View of Serial Signals for the Touchpanel in SIMPL Windows' Programming Manager*

2. Open a “Detail View” of the RS-232 COM port from the appropriate slot of the Central Control Module. As shown below, 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 below.

*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 begins [below](#) on the next page.

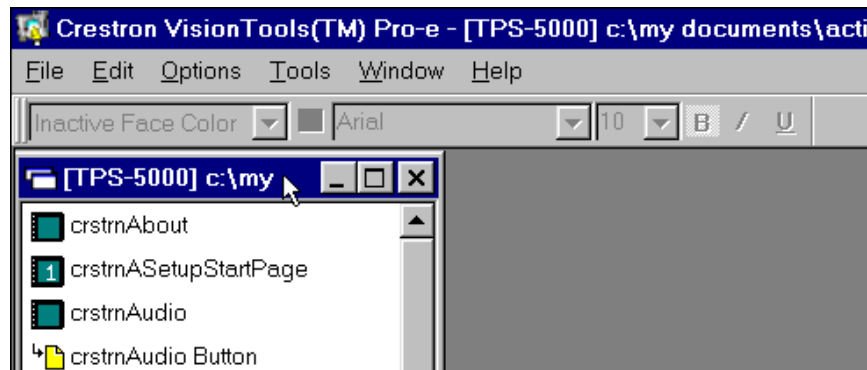
## VT Pro-e Programming

The Serial Mouse Control Driver 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.

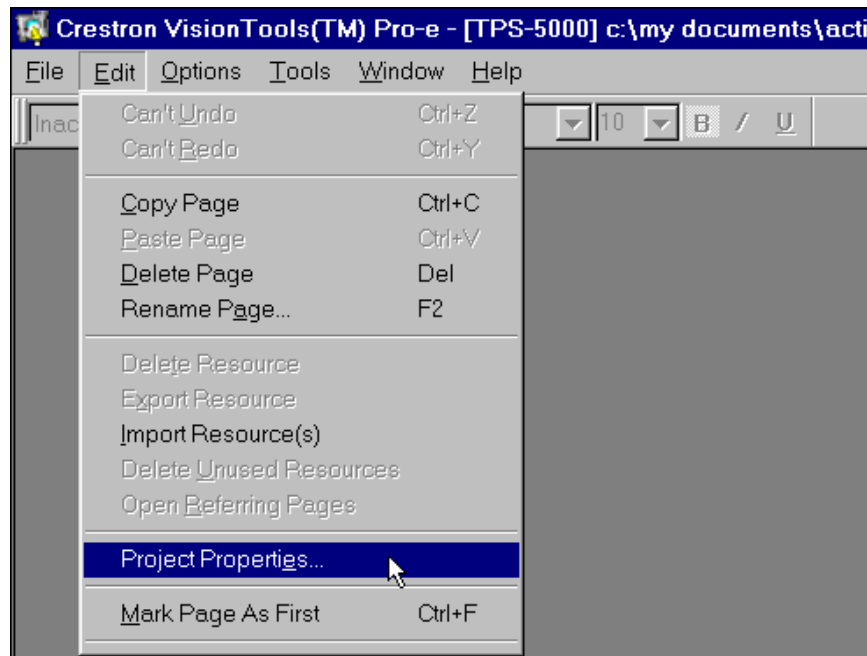
1. In VT Pro-e, open the touchpanel project.
2. As shown below, make sure that the project window is the active window.

*Project Window Active*



3. As shown below, select **Edit | Project Properties**.

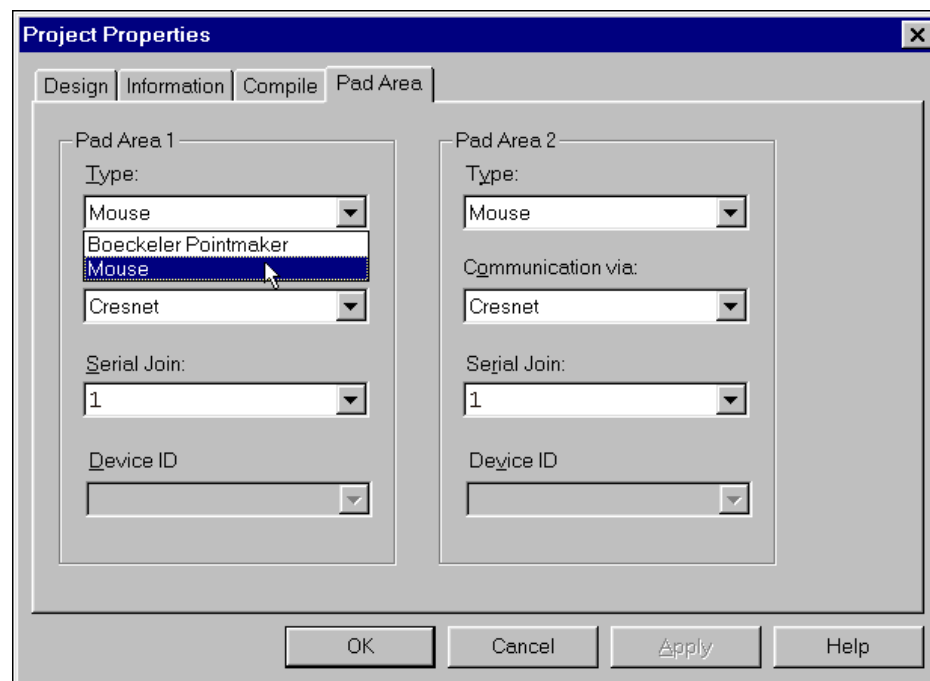
*Select Project Properties*




4. In the Project Properties dialog box, select the **Pad Area** tab.

5. Refer to the diagram below. In the **Type** drop-down list of the desired Pad Area, select **Mouse** (Pad Area 1 is shown).

*Select Mouse in Pad Area 1*



6. In the **Communication via** drop-down list of the Project Properties dialog box, 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 16.)
7. In Project Properties dialog box, 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” dialog box and set parameters, as with any other VT Pro-e object.
11. In the RGB Video Properties dialog box, select the **Design** tab.

---

**NOTE:** Full screen RGB video is recommended. If full screen RGB video is not used, calibration of the screen is required.

---

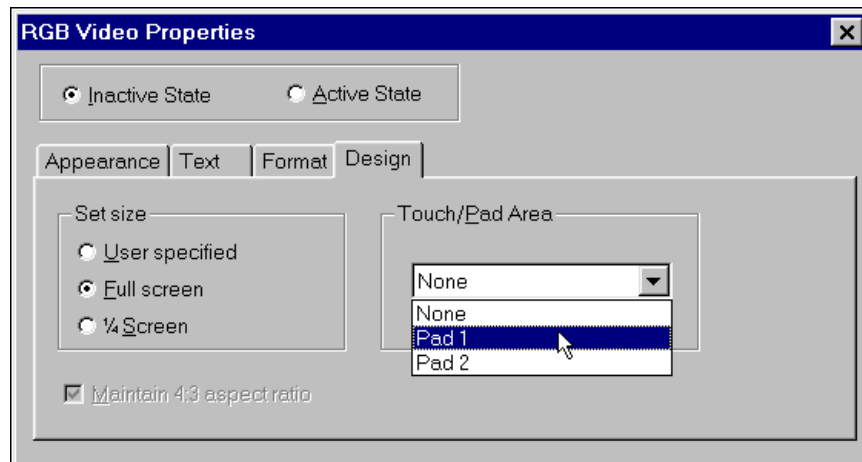
12. As shown on the next page, make sure that **Full Screen** is selected and, in the Touch/Pad Area, select **Pad 1** (or Pad 2, if appropriate).

---

**NOTE:** Pad 2 may be used if a second (or alternative setup) mouse driver is needed. The Pad 2 may also be used for the Boeckeler Pointmaker® Video Marker telestrator, a video annotation device by Boeckeler Instruments ([www.pointmaker.com](http://www.pointmaker.com)). For further information, refer to the latest revision of Pointmaker Telestrator Programmer's Guide (Doc. 5929). This document can be obtained from the What's New page (Touchpanels section) or Downloads page (MANUAL and TOUCHPNL Libraries) of Crestron's website ([www.crestron.com](http://www.crestron.com)). Search for TELE.PDF. New users are required to register in order to obtain access to the FTP site.

---

*RGB Video Properties Dialog Box*



---

**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 2 - Additional PC and Mouse Functions](#)” on page 24.

---

13. Save, Compile, and load the project to the touchpanel.
14. The Serial Mouse Control Driver is ready for operation.

## Problem Solving

### Troubleshooting

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

*Serial Mouse Control Driver 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 Serial Mouse Control Driver) installed on the PC at one time.
No cursor movement.	Serial Mouse Control Driver not properly installed.	Uninstall then re-install mouse driver.
	Serial Mouse Control Driver is disabled.	Right-click on system tray icon and select <b>Enabled</b> . (Enabled will be checked not X'ed.)
	Non-Microsoft serial driver does not work with Serial Mouse Control Driver.	Disable the conflicting driver. (It may be necessary to uninstall & re-install Serial Mouse Control Driver.)
	Touchpanel was not initialized properly.	For Serial Configuration: 1. From the Crestron Viewport, establish communication with the TPS console and use the "touch output format" command (toformat) to verify mouse control - type <b>toformat mouse</b> and press <b>&lt;ENTER&gt;</b> . Verify the setting - type toformat and press <b>&lt;ENTER&gt;</b> . This should display "Current Touchout Format: PC Mouse." * 2. Use the "RS-232 touch output" command (touchout) to reserve the RS-232 port for touch screen output - type <b>RS232 touchout</b> and press <b>&lt;ENTER&gt;</b> . Verify the setting - type RS232 and press <b>&lt;ENTER&gt;</b> . This should display "Current RS-232 Mode: TouchOutput." * Reboot touchpanel.

*Serial Mouse Control Driver Troubleshooting (continued)*

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
(Continued) No cursor movement.	(Continued) Touchpanel was not initialized properly.	<p>3. Use the “touch output destination” command (todest) to verify RS-232 - type <b>todest RS232</b> and press <b>&lt;ENTER&gt;</b>. Then verify the setting - type <b>todest</b> and press <b>&lt;ENTER&gt;</b>. This should display “Current Touchout Destination: RS-232”. *</p> <p>For Cresnet or Ethernet Configuration:</p> <p>1. From the Crestron Viewport, establish communication with the TPS console and use the “touch output format” command (toformat) to verify mouse control - type <b>toformat mouse</b> and press <b>&lt;ENTER&gt;</b>. Verify the setting - type <b>toformat</b> and press <b>&lt;ENTER&gt;</b>. This should display “Current Touchout Format: PC Mouse.” *</p> <p>2. Use the “touch output destination” command (todest) to verify Cresnet - type <b>todest cresnet</b> and press <b>&lt;ENTER&gt;</b>. Then verify the setting - type <b>todest</b> and press <b>&lt;ENTER&gt;</b>. This should display “Current Touchout Destination: Cresnet” for Cresnet or “Current Touchout Destination: Ethernet” for Ethernet communication. *</p>
Touchpanel is not generating packets (no cursor movement).	PC serial port errors.	<p>From the Crestron Viewport, confirm that serial port is operational and packets are input to PC.</p> <p>1. Double-click the system tray icon to display the <b>Pointer Device Properties</b> dialog box and select the <b>Status</b> tab.</p> <p>2. Confirm that Status window shows 0 totals for all errors. If errors &gt; 0, verify baud rate of PC matches touchpanel baud rate (9600, N81). Re-initialize the driver: Select <b>Advanced</b> tab, move the bottom scroll bar slightly, and click <b>Apply</b> or run <b>Calibrate</b> from Pointer Device Properties dialog box. Re-check number errors.</p>



*Serial Mouse Control Driver Troubleshooting (continued)*

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
(Continued) Touchpanel is not generating packets (no cursor movement).	(Continued) PC serial port errors.	<p style="text-align: center;"><b>CAUTION:</b></p> <p>The next troubleshooting action should be performed <b>ONLY</b> by advanced PC users. If performed incorrectly, reformatting of the PC hard-drive could become necessary. Contact Crestron customer service for further information.</p> <p>Check PacketsPerSecond setting in the Windows Registry under <b>HKEY_LOCAL_MACHINE\ SYSTEM\ CurrentControlSet\ Services\ TBUPDDWD (or TBUPDDNT)\ Parameters\ 1</b>, which should be approximately 5 or 10. (1 is too slow, system is not responsive.) If all else fails, change the Registry setting for <b>HKEY_LOCAL_MACHINE\ SYSTEM\ CurrentControlSet\ Services\ TBUPDDWD (or TBUPDDNT)\ Parameters\ 1\ directHarwareAccess</b> from 0 to 1 and reboot. (This bypasses the loaded driver.)</p>
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 dialog box. 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 <b>Remote   Remote Console   Connect</b> and enter RESTORE command.
	Serial Mouse Control Driver not properly installed.	Uninstall then re-install mouse driver. Make sure that cursor movement and function playback are installed.
Serial Mouse Control Driver parameters have been changed.	If changed, parameters cannot be reset. Uninstall then re-install mouse driver.	

\* If display is not correct, type **restore** to reset factory defaults (including serial port parameter) then reset **todest** and **toformat**. If display is not correct after verification, refer to [“Further Inquiries”](#) on page 22 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 by calling:

- In the US and Canada, call Crestron's corporate headquarters at 1-888-CRESTRON [1-888-273-7876] or 1-201-767-3400.
- 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, call Crestron Pacific at +613-9480-2999.

For local support from exclusive Crestron factory-trained personnel in New Zealand, call Amber Technologies at +649-410-8382.

## Future Updates

As Crestron improves functions, adds new features, and extends the capabilities of the Serial Mouse Control Driver, additional information 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.

The Downloads page of the Crestron website ([www.crestron.com](http://www.crestron.com)) directs the reader to the location and description of each update. Check the site periodically for update availability and its subjective value. New users are required to register in order to obtain access to the FTP site.

## Future Firmware Upgrades

As Crestron improves functions, adds new features, and extends the capabilities of the TPS user interfaces, firmware upgrades may be made available. The upgrade files can be obtained from the What's New page (Touchpanels section) or the Downloads page (TOUCHPNL Library) of Crestron's website ([www.crestron.com](http://www.crestron.com)).

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## Appendix 1 - Keyboard Functionality

This appendix documents how to change the keyboard functionality of the serial mouse driver, i.e. how it determines that a left or right-click or keyboard character has been entered. It does not affect the movement of the mouse. Crestron ships the driver already configured for standard functionality as documented in this guide.

---

**CAUTION:** These changes should be made by *advanced users only*.

---

Bring up the dialog for the keyboard configuration utility from the Windows **Start** menu. Select **Programs**, then **UPDD Playback Utility**, and finally **Control Program**.

The Isys touchpanels output binary information which can be interpreted by the mouse driver in various ways. In particular, there are four bits, labeled **EV00**, **EV01**, **EV02**, **EV03**, that are interpreted as actions and not mouse positioning. Select a trigger name and then EV00 through EV03 respectively in the fields labeled "Data". Click **Set**, select the bit pattern that represents how each of these fields are set, and then select the System Event that corresponds to that pattern, e.g. VK\_LBUTTON is Left Button, VK\_ESCAPE is the ESCAPE key, etc. Select the button that corresponds to the click action, e.g. *click down*, *click up*, etc. (This option only applies to buttons, not keys.) Click **Apply** to accept the changes, or select **Reset** to indicate that the button is being released rather than pressed. This is necessary for click and drag functionality.

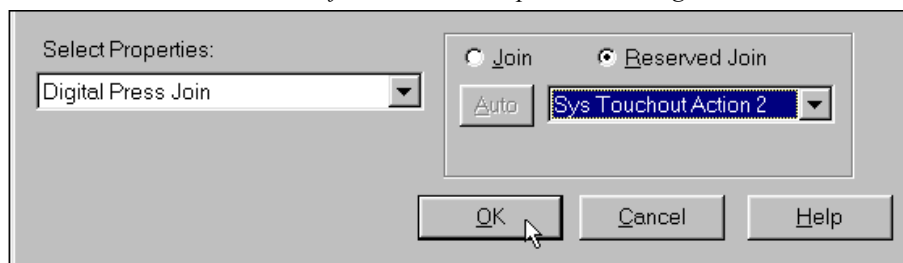
Macro capability, in the bottom section of the dialog, does not function in Crestron versions of the UPDD Playback Utility.

## Appendix 2 - Additional PC and Mouse Functions

VT Pro-e button objects can simulate up to fifteen computer and mouse functions, using special reserved join numbers. The following example is for a “right-click” 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” dialog box, select **Digital Press Join**, click **Reserved Join**, select **Sys Touchout Action 2** from the drop-down list, and click **OK** as shown below. This is the reserved join number that corresponds to a right-click.

*Reserved Join Number Field of the “Button Properties” Dialog Box*



The table below lists all the available actions that can be assigned to a button, using the reserved **Digital Press Join** field of the “Button Properties” dialog.

*Mouse Action Reserved Join Numbers*

ACTION	RESERVED JOIN NUMBERS	
	PAD AREA 1	PAD AREA 2
Primary Click (left-click) *	Sys Touchout Action 1	Touchout Action 1B
Secondary Click (right-click) *	Sys Touchout Action 2	Touchout Action 2B
Primary Double-Click *	Sys Touchout Action 3	Touchout Action 3B
Escape Key	Sys Touchout Action 4	Touchout Action 4B
Tab Key	Sys Touchout Action 5	Touchout Action 5B
Backspace Key	Sys Touchout Action 6	Touchout Action 6B
Enter Key	Sys Touchout Action 7	Touchout Action 7B
Spacebar Key	Sys Touchout Action 8	Touchout Action 8B
Insert Key	Sys Touchout Action 9	Touchout Action 9B
Delete Key	Sys Touchout Action A	Touchout Action AB
Home Key	Sys Touchout Action B	Touchout Action BB
End Key	Sys Touchout Action C	Touchout Action CB
Page Up Key	Sys Touchout Action D	Touchout Action DB
Page Down Key	Sys Touchout Action E	Touchout Action EB
Custom (generates a "!" character)	Sys Touchout Action F	Touchout Action FB

\* These actions should not be performed using a combination of touchscreen and PC mouse. For example, if using primary click (left-click) on the touchscreen to select an icon, do not use PC mouse to attempt a primary double-click.

**NOTE:** Analog join number 17204 defines the default action of any press on the touchpanel. 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 the default action is set to left-click, pressing on the touchpanel twice will provide double-click capabilities.

---

## Appendix 3 - Cable and Wiring Specifications

### Cresnet 4-Wire Wiring

**NOTE:** If making category 5 connections to the Cresnet peripherals, refer to the latest revision of the Cresnet Mini Network CAT 5 Interconnect Drawing (Doc. 5819). This document can be obtained from the Products page (PRODUCT MANUALS section, manuals for software and wiring diagrams section) or Downloads page (CABLES and MANUAL Libraries) of Crestron's website ([www.crestron.com](http://www.crestron.com)). Search for CAT5.PDF.

---

When calculating the wire gauge for a particular Cresnet run, the length of the run and the load 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 load factor of each unit to be daisy-chained must be added together to determine the load factor of the entire chain. If the unit is a home-run from a Crestron system power supply network port, the load factor of that unit is the load factor of the entire run. The length of the run in feet and the load 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

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

Where: R = Resistance (refer to next table). L = Length of run (or chain) in feet. LF = Load 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 table below.

#### Wire Gauge Values

RESISTANCE (R)	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 RJ45 Cabling

A 15-foot, RJ45, 10-position, NET/VIDEO cable is supplied with the TPS-IMC. 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, RJ45, 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, RJ45, 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 RJ11 Modular Cable

To program the touchpanel for serial communication at the RS-232 port, a DB9F to RJ11 adapter and 6-conductor modular (RJ11) 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 RJ11 adapter and modular cable is also available from Crestron. Contact Crestron customer service for part number STCP-502.

The DB9F to RJ11 adapter is available commercially or contact Crestron customer service for part number 15556. For RJ11 modular cable specifications, refer to the latest revision of the Crestron Network Modular Cable Requirements (Doc. 5682). This document can be obtained from the Products page (PRODUCT MANUALS section, manuals for software and wiring diagrams section) or Downloads page (CABLES and MANUAL Libraries) of Crestron's website ([www.crestron.com](http://www.crestron.com)). Search for MODULAR.PDF. New users are required to register in order to obtain access to the site.

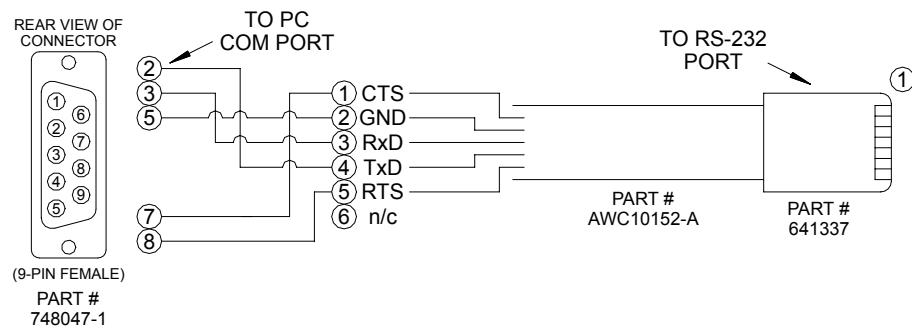
## DB9F to RJ11 Cable Fabrication

In the event that modular cables or DB9F to RJ11 adapter is not readily available, the table and diagram below are provided so that the cable can be fabricated. All parts are commercially available.

### *RJ11 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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## Software License Agreement

This License Agreement (“Agreement”) is a legal contract between you (either an individual or a single business entity) and Crestron Electronics, Inc. (“Crestron”) for software referenced in this guide, which includes computer software and, as applicable, associated media, printed materials, and “online” or electronic documentation (the “Software”).

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1. No merchandise may be returned for credit, exchange, or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number, and return address.
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