ENGINEERING YOUR SUCCESS.

PARKER XT/IX/PCA PowerStations

User Manual

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VICPAS
HMI Parts Center

Parker

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Important User Information

Please read and follow all safety information for the XT/IX/PCA PowerStations, including the warning and caution statements in this guide, before installing or operating the system.

Safety Information

WARNING: XT/IX/PCA PowerStations may be used to control electrical and mechanical components of motion control systems in industrial environments. To avoid serious injury or damage to equipment, test the motion system for safety under all potential conditions.

WARNING: XT/IX/PCA PowerStations are not fault-tolerant and are not designed or intended for any use in any systems, machines, or applications where failure or fault of any kind of the Products could reasonably be seen to lead to death or serious bodily injury of any person, or to severe physical or environmental damage ("High Risk Use"). You are not permitted to use, distribute, or sublicense the use of these Products in High Risk Use. High Risk Use is STRICTLY PROHIBITED.

WARNING: XT/IX/PCA PowerStations contain no user-serviceable parts. To avoid personal injury or damage to the product, do not attempt to open the case or to replace any internal components.

WARNING: USER RESPONSIBILITY- Failure or improper selection or improper use of the products described herein or related items can cause death, personal injury and property damage.

CONTENTS

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

CE Statement of Compliance

CE

Product Type: XT/IX/PCA PowerStations, Industrial HMI and PCA Products

XT/IX/PCA PowerStations comply with the protection requirements set up by the European Community (EC) Electromagnetic Compatibility (EMC) Directive 2014/30/EU as defined by the Product Specific Standard EN55022 and EN55024, which includes both emissions and immunity requirements and the power line emissions standards EN/IEC 61000-3-2, Limits for Harmonic Current Emissions and EN/IEC 61000-3-3, Limits of Voltage Fluctuations and Flicker in Low Voltage designated for Equipment used in Industrial Locations. In addition, compliance of the PowerStations is demonstrated by the application of the following standard:

- 2014/35/EU Low Voltage Directive when installed, operated, and maintained as intended
- EN 60950-1:2006 +A11:2009 +A1:2010 + A12:2011 + A2:2013
- IEC 60950-1 (ed.2) + Am1:2009 + Am2:2013
- 2014/30/EU Electromagnetic Compatibility when installed, operated, and maintained as intended

FCC Statement of Compliance

FC

Product Type: XT/IX/PCA PowerStations, Industrial HMI and PC Products

Warning: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Note: Any changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

- FCC 47 CFR Part 15 Subpart B Class A, ICES-003 Issue 5-2012, ANSI C63.4-2009

UL - Underwriters Laboratories Approval

UL61010-1, CAN/CSA-C22.2 No. 61010-1, IEC61010-2-201 for Ordinary Locations

XT/IX/PCA PowerStations have been investigated to the following standards as described in UL File **E164063**:

UL61010-1, 3rd Edition, 2012-05 / CAN/CSA-C22.2 No. 61010-1, 3rd Edition, 2012-05 and additional: IEC 61010-2-201: 2013 (First Edition).

In order to obtain Underwriters Laboratories approval for the installation, the product must meet the following criteria:

- Input power is rated at: 12 VDC or 24 VDC (-15%/+25%) SELV Limited Energy. External power to the PowerStations must be provided by a Class 2 power source. For customer convenience, Parker offers an AC-input, Model PS-60W, Class 2, 24VDC power supply, which is available for purchase.

Note: XT/IX/PCA PowerStations have been evaluated to UL61010-2-201 and complies with the same level of safety as products evaluated to UL508, or vice versa.

WARNING: If the XT/IX/PCA PowerStations are used in a manner not specified by Parker, the protection provided by the equipment may be impaired.

ANSI/ISA-12.12.01-2015, CAN/CSA C22.2 No. 213-15 for Hazardous Locations

XT/IX/PCA PowerStation models purchased from Parker with the following suffixes XTx-xxx-xxx-x5, IXx-xxx-xxx-x5, PCA-xxx-xxx-x5 have been investigated to the following standards as described in UL File **E317576, Volume 3, Section 1**:

ANSI/ISA-12.12.01-2015, Issued 2015-08-21, Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations

CAN/CSA C22.2 NO. 213-15, Issued 2015-08-21, Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations

Installation in Hazardous Locations must adhere to the following installation guidelines:

1. THESE DEVICES ARE OPEN-TYPE DEVICES AND MEANT TO BE INSTALLED IN AN ENCLOSURE SUITABLE FOR THE ENVIRONMENT, SUCH THAT THE EQUIPMENT IS ONLY ACCESSIBLE WITH THE USE OF A TOOL.

2. SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C AND D HAZARDOUS LOCATIONS OR NONHAZARDOUS LOCATIONS ONLY. TEMPERATURE RATING T5.

3. WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS.

 WARNING: If the XT/IX/PCA PowerStations are used in a manner not specified by Parker, the protection provided by the equipment may be impaired.

Contents

About This Guide

This installation guide is intended for those who are responsible for installing, configuring, and troubleshooting HMI and PC products and their associated software and accessories. It is intended for the initial hardware installation and primary hardware configuration settings. Software User Guides for the XT PowerStation with Interact Xpress and the IX PowerStation with InteractX, are available online at the following respective links: <u>http://www.parker.com/emn/XT</u>, or <u>http://www.parker.com/emn/IX</u> .

NOTE: Stay up-to-date with the latest version of this User Manual by downloading the most current copy from the web at <u>http://www.parker.com/emn/XT</u>, or <u>http://www.parker.com/emn/IX</u> or <u>http://www.parker.com/emn/PC</u>.

Assumptions of Technical Experience

Parker Hannifin Corporation assumes you are qualified in the servicing of industrial control systems, and trained in recognizing hazards in products with hazardous energy levels. To install and troubleshoot XT/IX/PCA PowerStations, you should have a fundamental understanding of the following:

- Electronic concepts such as voltage, current, and switches

- Grounding techniques, wiring, and separation of data conductors and power

- Networking and data communications

Product Naming

This guide describes the following products:

- Parker XT PowerStation: Industrial PC family that includes the Parker Interact Xpress HMI software.

- Parker IX PowerStation: Industrial PC family that includes licensed Parker InteractX HMI runtime software.

- Parker PCA PowerStation: Industrial PC family that includes Microsoft Windows for Embedded Systems (WES7P) or Windows 10 IoT Enterprise 2016 LTSB Value Edition 64-bit (Windows 10).

Notes, Cautions, and Warnings

This guide uses warnings, cautions, and notes throughout the text to draw your attention to information that is especially important or useful.

WARNING: A warning provides information about a potential for property damage, personal injury, or death.

CAUTION: A caution provides information intended to help prevent malfunction of the product or damage to the product hardware or software.

NOTE: A note provides information intended to help you make the best use of your product from Parker Hannifin Corporation.

CHAPTER 1:
Product Overview

Brief Description

The XT/IX/PCA PowerStation family of products are rugged industrial PC's with either Parker's award winning Interact Xpress or InteractX HMI software or, as a standalone industrial PC.

Major Feature Differences

The IX, XT, and PCA series all utilize the same rugged base hardware, meaning any IX, XT, or PCA series of the same size will have the same fit and form. This is a major benefit to customers who are concerned with aesthetics of their machine and consistent brand-image throughout a system utilizing different series of HMIs. In addition, this allows Parker to store pre-made base systems and build up different models as needed, significantly reducing lead times.

The main difference between each series is the functionality of each unit dictated by the software. Other major differences include the storage type and operating systems needed to support those software platforms.

	XT Series	IX Series	PCA Series
Storage	2 GB SD Card	64 GB SSD	64 GB SSD
Operating System	Windows Embedded Compact 7	Windows Embedded Standard 7 Pro or Windows 10 IoT Enterprise 2016 LTSB Value Edition 64-bit	Windows Embedded Standard 7 Pro or Windows 10 IoT Enterprise 2016 LTSB Value Edition 64-bit
Software*	Interact Xpress	InteractX + Runtime License	3rd Party, user installed + InteractX (1 hour demo)

*Primary software used. There are significant differences between the IX and PCA series versus XT in the pre-installed software.

Understanding the Series Part Numbers

The following table defines the part number breakdown although not all configurations are valid for all series or all models. Please refer to the individual specification sheet for each series for details on a specific part number. The following example part number and scheme is meant to provide a basic guideline to understanding your product part number.

1	2	3	3	4	5	6	7	8
IX	A	-	010	-	3	R	3	-	5	3

1	Series Name		5	Touchscreen Type	
	IX	InteractX PowerStation		N	No Touchscreen
	XT	Xpress Terminal PowerStation		R	Resistive Touchscreen
	PC	Industrial PC PowerStation		P	Projective Capacitive (PCAP)
2	Frame Material		6	Storage	
	A	Aluminum		2	2 GB SD Card
				3	64 GB SSD
3	Display Size				
	000	Headless unit	7	Operating System	
	007	7" Touchscreen		1	WIndows 10 with InteractX
				3	WEC7 with Interact Xpress
	010	10" Touchscreen		5	WES7P with InteractX
	015	15" Touchscreen			
	022	22" Touchscreen	8	Certifications	
				3	Standard UL, CE
4	Processor			5	Haz-Loc Class 1, Division 2
	3	1.83 GHz Quad Core, N2930			

Series Overview

XT Series PowerStation products with Interact Xpress HMI can be used as a runtime-only system, which means that applications and projects can be created on a development PC and the Xpress HMI application can be downloaded to the PowerStation. In addition, applications using the Interact Xpress HMI software can be created or changed directly on the XT unit itself or remotely from anywhere via an Internet browser.

Refer to the Interact Xpress HMI User Guide, found online at www.parker.com/emn/XT for information about how to develop projects, download them to the XT PowerStation and remote access via a network.

IX Series PowerStation products contain Windows Embedded Standard 7 (WES7P) or Windows 10 IoT Enterprise 2016 LTSB Value Edition 64-bit (Windows 10)and Parker InteractX HMI software. As the system is shipped from the factory, it is ready to download a custom InteractX project. Features of the award winning InteractX HMI software include:

- **Panel Tools** - Includes pre-configured panel tools for buttons, indicators, gauges, readouts, etc. Includes advanced tools such as the Input List for recipes, the Browser Display for web access and online documentation, and more.

- **Graphics** - Includes CAD like graphic elements, free form animation, and high quality graphics import. Also includes color, roundness, gradients, materials, and transparency.

- **Alarms** - Monitors and acknowledges real time and historical alarms with advanced features for user access, filtering, grouping, logging, printing, etc.

- **ActiveX** - Hosts standard off the shelf third party tools like Medial Player, vision tools, trending, etc.

- **Visual Basic for Applications (VBA)** - Includes fully integrated VBA with access to tools, graphics, alarms, application properties, and tags.

- **User Security Levels** - Includes multiple user access levels with unlimited number of users. Includes OS independent 21CFR11 compliant features such as user lockout, adding unique users, password aging, inactivity timeout, etc.

- **OPC Tag Server** - Any Runtime tags can be accessed by OPC Client applications such as SCADA systems, DCS, MIS applications, etc.

- **OPC Client Interface** - The OPC Client interface provides connectivity to any third party OPC Server. Runtimes can communicate with any OPC Servers for motion controllers, temperature controls, etc.

- **Bundled Communications Drivers** – The integrated COMM Server includes communications drivers including serial and Ethernet drivers for the major controller brands.

- **ActiveX Automation** - Microsoft applications such as Excel, Access, VB or C++ programs can access data values, alarms, panels, and more via InteractX's Data Object Model using ActiveX Automation.

- **Multi-Language Support** – The Designer and Runtime can allow a single application to incorporate any number of languages. During Runtime the operators can change languages with the push of a button or as part of their user log on properties.

- **Integrated Tag Editor** - The Tag Editor shows all tags in an application with their controller address.

PCA Series PowerStations have the same disk image as the IX PowerStation, except the InteractX HMI software is licensed to run for a short period of time in an evaluation mode only. InteractX will function for one hour for demo and evaluation purposes and can be licensed by the user by contacting Parker Support. Because Microsoft Windows Embedded Standard 7 Professional (WES7P) or Windows 10 IoT Enterprise 2016 LTSB Value Edition 64-bit (Windows 10) is installed on each unit, any Window's (within Microsoft's license agreement terms) compatible application software may be installed and operated by the user.

Hardware Features Overview

Each series comes with a flat front panel touch screen and is a fanless design intended to operate in rugged industrial environments. They are powered by an Intel® ATOM Bay Trail™ N2930 (1.83GHz) CPU and have 4GB of DDR3L 1600 MHz system memory. They support12/24VDC input power, resistive and capacitive touchscreen options and an IP65 compliant front panel.

- No Display (Headless), 7.0", 10.4", 15.6" & 21.5" wide format display options

- Flat front panel resistive touch screen

- Fanless design

- Intel® Bay Trail™ N2930 (1.83GHz) Quad Core CPU

- Onboard 4GB DDR3L, 1600 MHz

- 2GB SD Card or 64GB SSD, solid state storage options

- 12VDC/24VDC auto ranging power input

- IP65 compliant front panel

Figure 1.1   7" XT PowerStation Front View

Figure 1.2   7" XT PowerStation Rear View

External Ports

DC power input and all external ports are located on the back of the XT/IX/PCA PowerStation family. Refer to the figure below for port identification.

> ⚠️ Caution — The DC power input and all external ports on the back of the XT/IX/PCA are not environmentally sealed. For IP65 installations, the units are designed to be mounted in an IP65 rated enclosure with included mounting clips and IP65 sealing gasket. For applications not requiring an IP65 rating, the XT/IX/PCA can be mounted as a free standing station using the VESA mounting holes located on the back of the units. See Unit Installation for further information.

Figure 1.3   External Port Locations
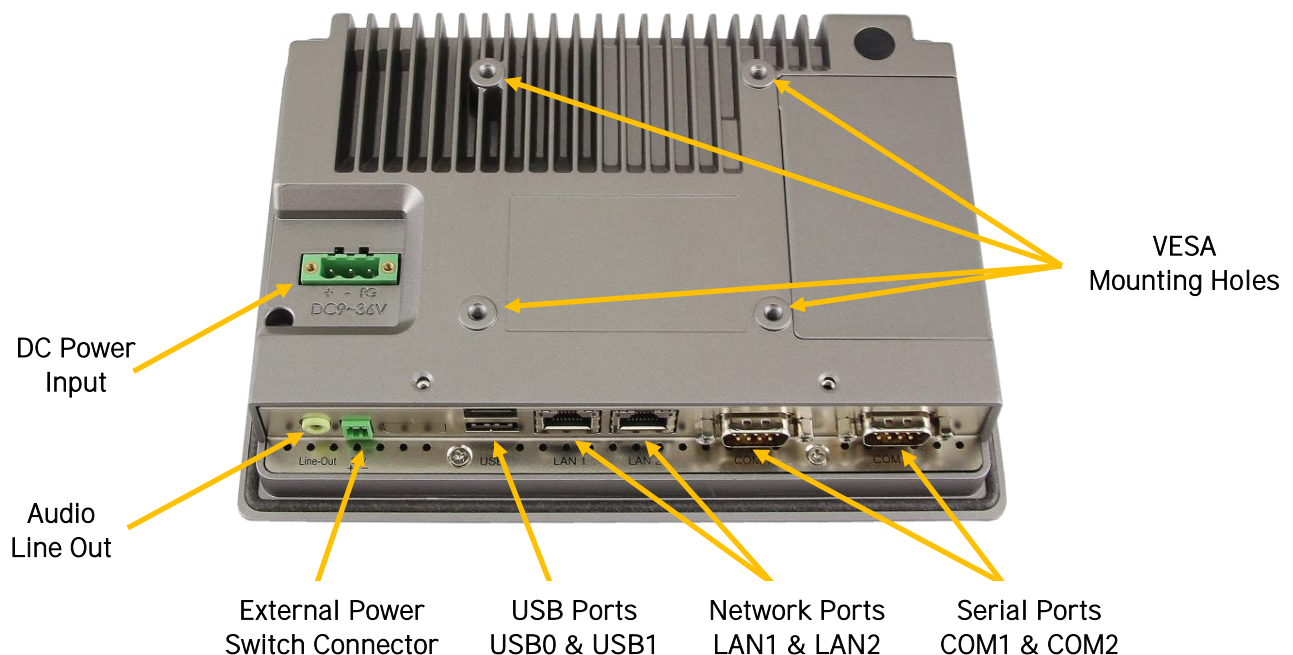
The following sections describe the functionality of these ports.

Serial Ports COM1/COM2

The XT/IX/PCA PowerStations have two serial ports that you can use to communicate with external devices at baud rates of up to 115K baud. The COM1 port supports configurable RS-232, RS-422, and RS-485 communication standards while COM2 supports RS-232 only. The COM1 default setting is RS-232.

The communication standard you select for COM1, in part, depends upon the distance between the PowerStation and the controller, as well as the communication standards that the controller supports. Use a standard DB-9F connector for attaching to this port.

⚠ Caution — When using RS-232 communications, the length of the serial cable should not exceed 65 feet (20 meters).

RS-422 and RS-485 communications offer greater noise immunity than RS-232. These standards increase the maximum cable length to 4,000 feet (1,200 meters).

RS-422 communications are full-duplex (send and receive simultaneously), while RS-485 communications are half-duplex (send or receive independently).

For either configuration, be careful not to connect any wires to unused connector pins. Information on the specific connection required for the InteractX drivers you will use is located in the Help file associated with the driver.

Example Connector Pinouts and Cable Wiring

RS-232	RS-422	RS-485
COM1/COM2 RXD 2 TXD 3 RTS 7 CTS 8 RI 9 GND 5 DCD 1 DTR 4 DSR 6	COM1 RX+ 1 RX- 2 TX- 3 TX+ 4 GND 5 NC 6 NC 7 NC 8 NC 9	COM1 NC 1 NC 2 485- 3 485+ 4 GND 5 NC 6 NC 7 NC 8 NC 9

⚠ Caution — Do not connect any signals to unused pins. Uncertain operation may result.

RS-485 Directional Control

Many third party communication drivers use the RTS signal to switch between transceiver receive and transmit mode. Conversely, some drivers expect the line directional control to be automatic. The XT/IX/PCA PowerStations have an RS-485 transceiver circuit with an automatic direction control feature that will automatically switch between receive and transmit modes. Normally the transceiver is waiting to receive data, but it will switch to transmit mode as soon as it senses data on the TxD pin of the UART and switch back to receive mode when data transmission is complete.

Serial Port COM1

COM1 is a standard type DB-9M serial port provided for direct connection to serial devices. It can be configured for RS-232, RS-422 or RS-485 communications. Configuration of this port is controlled by two features that must be configured to set the desired communications method. Configure both the hardware switch settings below (S_422 and S_232 Switch Settings) AND make the corresponding BIOS setup selection in the Advanced settings tab; Advanced/F81216 Super IO Configuration/Serial Port 1 Configuration [RS-232 is the default communication method].

> Caution — Failure to set both the S_422 and S_232 Switch Settings outlined below AND the corresponding BIOS Setup selection:
> Advanced/F81216 Super IO Configuration/Serial Port 1 Configuration
> to set the communications mode of this port will cause unexpected communications from serial port COM1.

COM1 Serial Port Connector Pin Outs

COM1 Connector Pin Out	Pin Number	RS-232 Signals	RS-422 Signals	RS-485 Signals
	Pin-1	DCD# (Data Carrier Detect)	422_RX+	NC
	Pin-2	RXD (Received Data)	422_RX-	NC
	Pin-3	TXD (Transmit Data)	422_TX-	485-
	Pin-4	DTR (Data Terminal Ready)	422_TX+	485+
	Pin-5	Ground	Ground	Ground
	Pin-6	DSR (Data Set Ready)	NC	NC
	Pin-7	RTS (Request To Send)	NC	NC
	Pin-8	CTS (Clear To Send)	NC	NC
	Pin-9	RI (Ring Indicator) - Default (Set JP1 on motherboard to select RI, 5V, or 12V)	NC	NC

COM1 Pin-9 Output Motherboard Jumper Setting:

JP1 Pins-1~6 are used to select signal output type of pin-9 of the COM1 port and can be configured as shown in the table below. JP1 is a 2x3 Pin Header located on the motherboard and can be accessed by removing the rear cover of the unit. Refer to the diagram below for its location on the motherboard.

| JP1 Pin#	Function
Close 1-2	COM1 Pin-9 RI (Ring Indicator) (default)
Close 3-4	COM1 Pin-9: +5VDC (option)
Close 5-6	COM1 Pin-9: +12VDC (option)
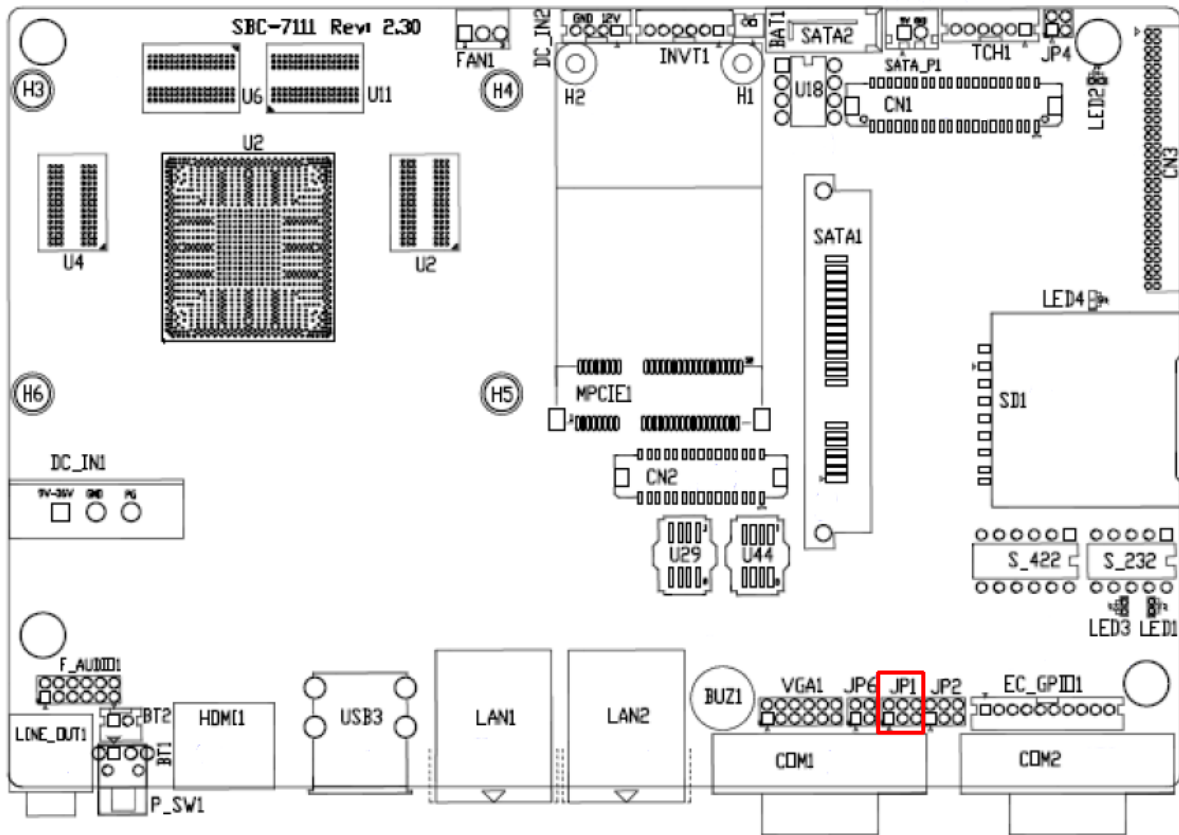
S_422 and S_232 Switch Settings:

Select the corresponding serial port COM1 switch settings to select RS232, RS422 or RS485 serial signal outputs. Both Switches S_422 and S_232 are located under the rear access cover near the SD Card and SSD connectors. Remove the two screws and cover, and also the single screw holding the SSD bracket assembly (if installed) to access the switches.

NOTE: Also Refer to BIOS Setup selection: **Advanced/F81216 Super IO Configuration/Serial Port 1 Configuration** in addition to the following switch settings to set the communications mode of this port.
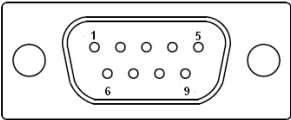
Function	S_422 Switch Setting	S_232 Switch Setting
RS232 (Default)	OFF: SW-1, SW-2, SW-3, SW-4, SW-5	ON: SW-1, SW-2, SW-3, SW-4, SW-5
RS422 (option)	ON: SW-1, SW-2, SW-3, SW-4, SW-5	OFF: SW-1, SW-2, SW-3, SW-4, SW-5
RS485 (option)	ON: SW-1, SW-2, SW-3, SW-4, SW-5	OFF: SW-1, SW-2, SW-3, SW-4, SW-5

S-422 Switch Setting	Mode
SW-6 (Off)	ATX Power
SW-6 (On)	Auto Power on (Default)
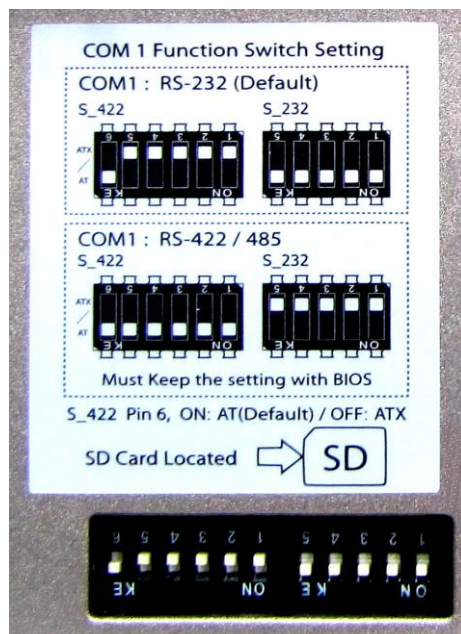
Serial Port COM2

COM2 is a standard type DB9M serial port provided for direct connection to serial devices. **It is provided for RS-232 communications only.**

COM2 Connector Pin Out	Pin Number	Signal Name
	Pin-1	DCD# (Data Carrier Detect)
	Pin-2	RXD (Received Data)
	Pin-3	TXD (Transmit Data)
	Pin-4	DTR (Data Terminal Ready)
	Pin-5	Ground
	Pin-6	DSR (Data Set Ready)
	Pin-7	RTS (Request To Send)
	Pin-8	CTS (Clear To Send)
	Pin-9	**RI (Ring Indicator) - Default** (Set JP2 on motherboard to select RI, 5V, or 12V)

COM2 Pin-9 Output Motherboard Jumper Setting:

JP2 Pins-1~6 are used to select signal output type of pin-9 of the COM2 port and can be configured as shown in the table below. JP2 is a 2x3 Pin Header located on the motherboard and can be accessed by removing the rear unit enclosure. Refer to the diagram below for its location on the motherboard.

JP2 Pin#	Function
Close 1-2	**COM2 Pin-9 RI (Ring Indicator) (default)**
Close 3-4	COM2 Pin-9: DC+5V (option)
Close 5-6	COM2 Pin-9: DC+12V (option)
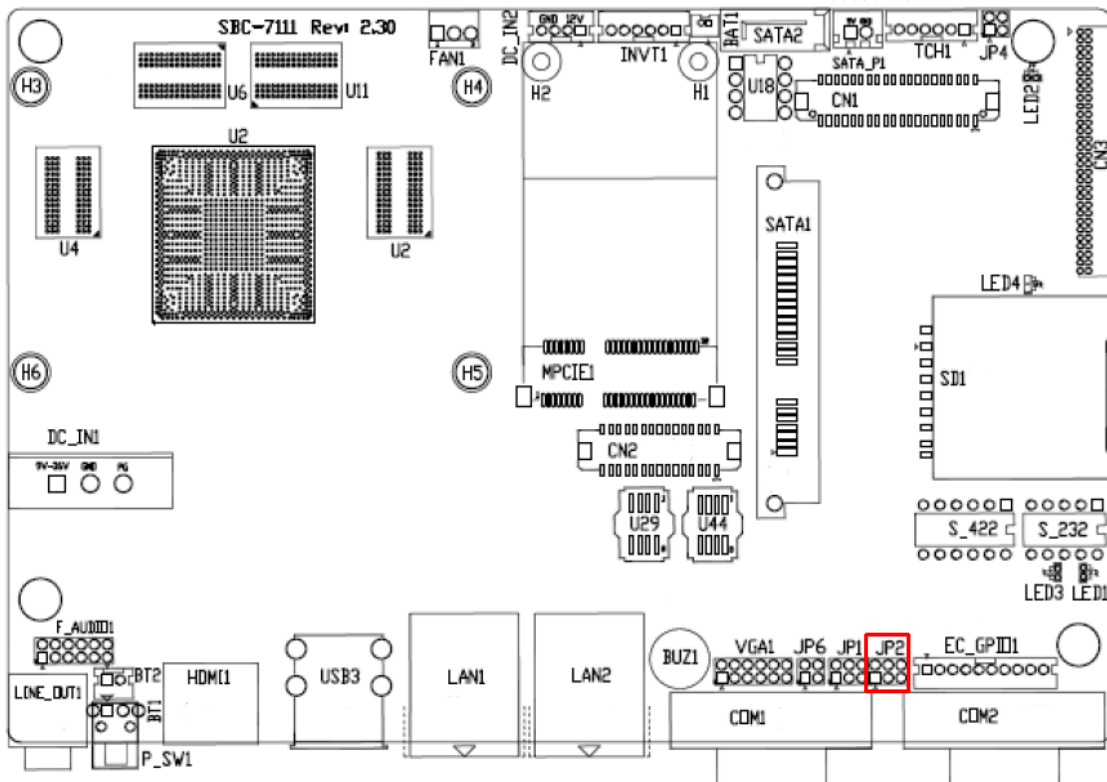
Serial Port Comparisons to the Parker XPR2/XPC2/EPX2/IPX PowerStations

If updating or replacing an older Parker XPR2, XPC2, EPX2 or IPX PowerStation product with a new Parker XT, IX or PCA PowerStation, it is important to note that the XT, IX or PCA serial port pinouts differ from the legacy products. Although the connector types are all standard male DB-9M style physical connectors, the port designations and cable wiring between the two products vary slightly.

XT/IX/PCA PowerStation Example COM1 Connector Pinouts and Cable Wiring:

RS-232	RS-422	RS-485

XPR2/XPC2/EPX2 PowerStation Example COM2 Connector Pinouts and Cable Wiring:

RS-232	RS-422	RS-485

IPX PowerStation Example COM2 Connector Pinouts and Cable Wiring:
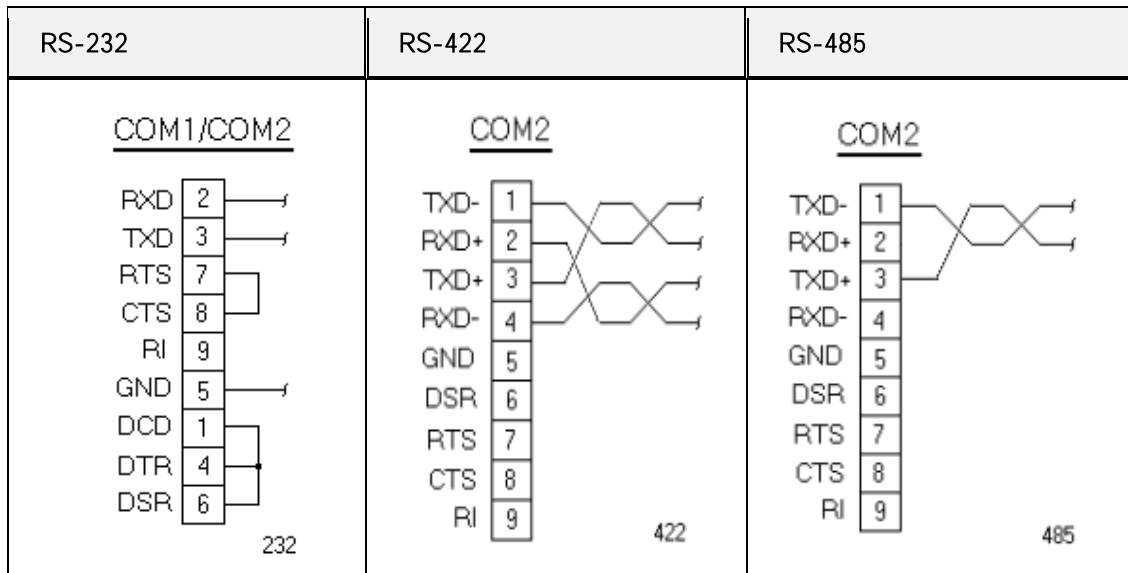
RS-232	RS-422	RS-485

COM1 Configurable RS-232/RS-422/RS-485 Serial Port Connector Pin Outs, XT/IX/PCA verses XPR2/XPC2/EPX2 and IPX PowerStations:

Pin	RS-232 Signals			RS-422 Signals			RS-485 Signals		
	XT/IX/PCA COM1	XPR2/XPC2/ EPX2 COM2	IPX COM2	XT/IX/PCA COM1	XPR2/XPC2/ EPX2 COM2	IPX COM2	XT/IX/PCA COM1	XPR2/XPC2/ EPX2 COM2	IPX COM2
Pin-1	DCD (Data Carrier Detect)	NC	DCD	422_RX+	422_TX-	422_TX-	NC	485-	485-
Pin-2	RXD (Received Data)	RXD	RXD	422_RX-	422_TX+	422_RX+	NC	485+	NC
Pin-3	TXD (Transmit Data)	TXD	TXD	422_TX-	422_RX+	422_TX+	485-	NC	485+
Pin-4	DTR (Data Terminal Ready)	NC	DTR	422_TX+	422_RX-	422_RX-	485+	NC	NC
Pin-5	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground
Pin-6	DSR (Data Set Ready)	NC	DSR	NC	NC	NC	NC	NC	NC
Pin-7	RTS (Request To Send)	RTS	RTS	NC	NC	NC	NC	NC	NC
Pin-8	CTS (Clear To Send)	CTS	CTS	NC	NC	MC	NC	NC	NC
Pin-9	RI (Ring Indicator) – Default (Set JP1 on motherboard to select RI, 5V, or 12V)	NC	RI	NC	NC	NC	NC	NC	NC

COM2 RS-232 Only Serial Port Connector Pin Outs, XT/IX/PCA verses XPR2/XPC2/EPX2 and IPX PowerStations:

Pin Number	RS-232 Signals		
	XT/IX/PCA COM2	XPR2/XPC2/EPX2 COM1	IPX COM1
Pin-1	DCD (Data Carrier Detect)	DCD (Data Carrier Detect)	DCD (Data Carrier Detect)
Pin-2	RXD (Received Data)	RXD (Received Data)	RXD (Received Data)
Pin-3	TXD (Transmit Data)	TXD (Transmit Data)	TXD (Transmit Data)
Pin-4	DTR (Data Terminal Ready)	DTR (Data Terminal Ready)	DTR (Data Terminal Ready)
Pin-5	Ground	Ground	Ground
Pin-6	DSR (Data Set Ready)	DSR (Data Set Ready)	DSR (Data Set Ready)
Pin-7	RTS (Request To Send)	RTS (Request To Send)	RTS (Request To Send)
Pin-8	CTS (Clear To Send)	CTS (Clear To Send)	CTS (Clear To Send)
Pin-9	**RI (Ring Indicator) - Default** (Set JP2 on motherboard to select RI, 5V, or 12V)	RI	RI

Caution — Please note the following differences between the new and legacy products:

- Both products have a single configurable (RS-232, RS-422, RS-485) communications port; COM1 on the new models and COM2 on the legacy models.
- Pinouts between the new and legacy models differ slightly, please refer to the Cable Wiring examples and pinout charts above.

LAN1/LAN2 Ports

The XT/IX/PCA PowerStations provide two standard RJ45 Ethernet ports with full duplex operation at 10/100/1000 Mb/s and half duplex operation at 10/100 Mb/s. Both ports provide auto Media Independent Interface (MDI) speed negotiation and auto MDI-X cable crossover (patch cables) support at all speeds. The RJ45 connectors provide ACTIVE (green) and LINK (green/amber) LED's respectively located at the left-hand and right-hand side of the Ethernet ports that indicate the activity and transmission speed of the LAN.
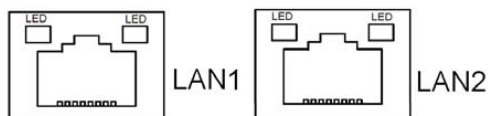
USB0/USB1 Ports

The XT/IX/PCA PowerStations provide two USB 3.0 (USB0 & USB1) compliant ports to connect USB Flash drives, keyboards, mice, etc. Both ports are ESD protected, have over-current shutdown and are backwards compatible with USB 2.0 devices.

Each USB Type A Receptacle is current limited to 1.5A.
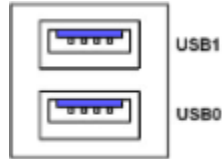
External Power Switch Connector

The External Power Switch connector P_SW1, located on the port bracket on the bottom of the unit, can be used to remotely turn OFF an IX or PCA PowerStation by wiring a momentary pushbutton switch to this connector. The mate to this connector is supplied in the ship kit included with the units. When used in conjunction with the Windows WES7P or Windows 10 operating system, the PowerStations can be turned OFF by holding the external switch closed for approximately 5-10 seconds after closing WES7P or Windows 10 on the desktop. Conversely, if the unit is OFF (the green Power LED is extinguished), momentarily closing the switch for about 2-3 seconds will allow the system to begin booting into the Windows operating system.

WES7P and Windows 10 can also enter a hibernate state by holding the switch closed for approximately 1 second. Once in this state, pressing the switch again for approximately 1 second will awake the unit from hibernation. Note that XT models with WEC7 can also be turned OFF and ON with this switch, hibernation is not supported by the (Windows CE7) and therefore implementation of the External Power Switch is not necessary.

Connection and use of this switch is optional and is not required for use of the product. It can be implemented if a remote power or hibernate switch is desired in a specific installation.
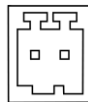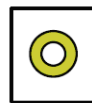

P_SW1 Connector

CAUTION: A single-pole momentary switch is required for this feature. Use of a two-position ON/OFF switch will not allow the unit to start or shutdown as expected. This is a logic level circuit, select a switch that is designed for low voltage (5VDC) and low current applications.

> ⚠ WARNING: DO NOT APPLY A VOLTAGE TO THIS CONNECTOR OR DAMAGE WILL OCCUR TO THE UNIT! This connector is provided for connection of a low voltage, low current capable, momentary pushbutton switch.

Audio Port

The XT/IX/PCA PowerStations provide one HD Audio port via a 3.5mm diameter jack. An internal Realtek ALC662 VD codec is used to provide high quality audio. Line Out can be connected to a headphone or amplifier.

 Line out

VGA Analog Video Output Port (Headless Unit Only)

The Headless models (without a flat panel display) have an analog VGA video output connector (DB15F) for connection of an external or remote display device or monitor.
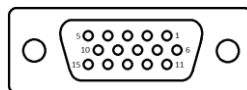
The maximum cable length for the analog interface cable is highly dependent on the quality of the cable and the resolution of display image. In general, budget cables should perform well if they are no longer than 15 to 25 feet and, depending on the quality of the cable and desired resolution, may function well to 50 feet.

> NOTE: As analog video cables increase in length, the available bandwidth decreases and with it the highest potential display resolution is lowered. For example, a short 6 foot VGA cable may support 1920x1200 without trouble, but a long cable might top out at 1024x768 video resolution without distortion, pixilation or artifacts. If the application requires a video cable exceeding 25 feet in length, we recommend that the specific cable type and length be tested in the intended application to insure proper visual operation. Video extenders are available in the market to extend the distance between the PowerStation and a monitor in excess of 4000 feet.

HDMI Digital Video Output Port (Headless Unit Only)

The Headless models (without a flat panel display) have a High Definition Multimedia Interface connector (HDMI 19F) for connection of an external or remote display device or monitor.
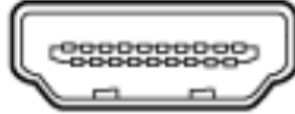

The maximum cable length for the HDMI interface cable is highly dependent on the certification and quality of the cable and the resolution of display image. Cables that have been tested at an HDMI Authorized Testing Centers will result in an issuance of a Compliance Testing Certificate indicating that they will work at their specified length. In general, budget cables should perform well if they are no longer than 15 to 25 feet.

NOTE: As digital video cables increase in length, the available bandwidth decreases and with it the highest potential display resolution is lowered. For example, a 6 foot HDMI cable may support 1920x1200 without trouble, but a longer cable might top out at 1024x768 video resolution without distortion, pixilation or artifacts. If the application requires a video cable exceeding 10 feet in length, we recommend that the specific cable type and length be tested in the intended application to insure proper visual operation. Video extenders are available in the market to extend the distance between the PowerStation and a monitor in excess of 4000 feet.

The Headless models will operate in Dual Display mode, both analog VGA and digital HDMI ports can be active simultaneously. The Intel® graphics driver running on the IX or PCA can be configured to operate in both Clone (same image on both displays) and Extended Desktop (two different images) operation.

This video port can output up to 1920 x 1200 display resolution.

SD Card

The XT PowerStations are equipped with a Secure Digital (SD) card slot that can support both SD and SDHC cards, with a maximum capacity up to 32GBs.

Although most SD cards on the market will be recognized by the system, Parker SD cards have been tested for endurance and performance and are strongly recommended for use in the PowerStations.

> ⚠️ CAUTION: When used in the XT/IX/PCA PowerStations as the primary boot device (such as in an XT PowerStation), the SD Card must be formatted as a bootable card. Simply copying Parker HMI files to a commercial SD card may not allow the card to function properly. See the section, _Parker Flashback Utility_ for reimaging the SD card.

Refer to the following illustrations for locating the SD Card connector on the various PowerStation model sizes:
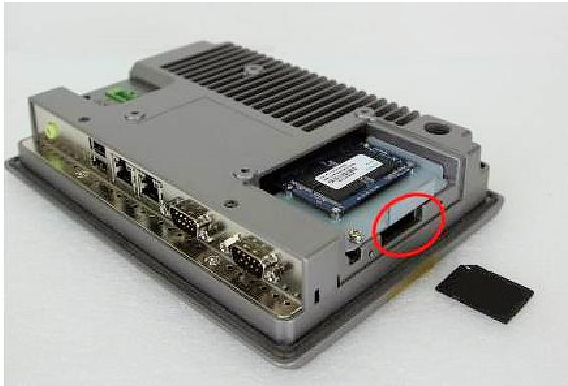
7" XT/IX/PCA SD Card Connector   **Headless, 10.1", 15.6", 21.5" SD Card Connector**

Solid State Drive (SSD)

The IX and PCA PowerStations are equipped with a Solid State Drive (SSD) SATAII connector that can support up to 128GB SSDs. The standard XT/IX/PCA PowerStation models are supplied with a 64GB SSD. The drives are formatted and loaded with the operating system and application software from the factory. See F11 Disk Image Recovery Procedure for information regarding reimaging the SDD.

Installation/Removal of SSD Module

In the event that the SSD module needs be removed or replaced, follow these steps:

Step 1	
Remove two screws to remove access cover.	
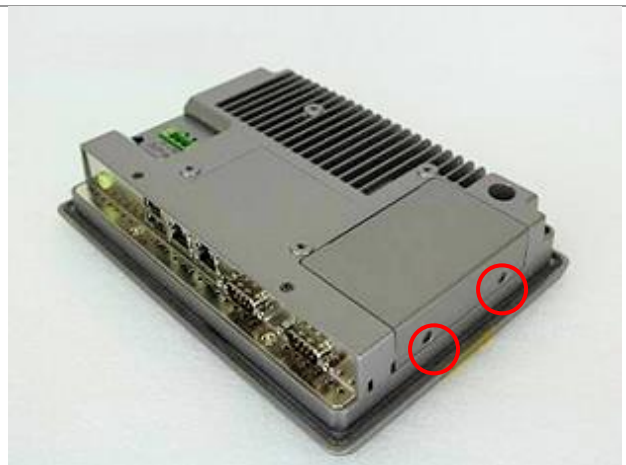
Step 2	
To remove the SSD bracket assembly, remove the retaining screw as shown and then carefully pull bracket in the direction shown to unplug the assembly from the chassis.	
Step 3 Reverse steps 1 and 2 above to replace the SSD bracket assembly and cover onto the chassis.	
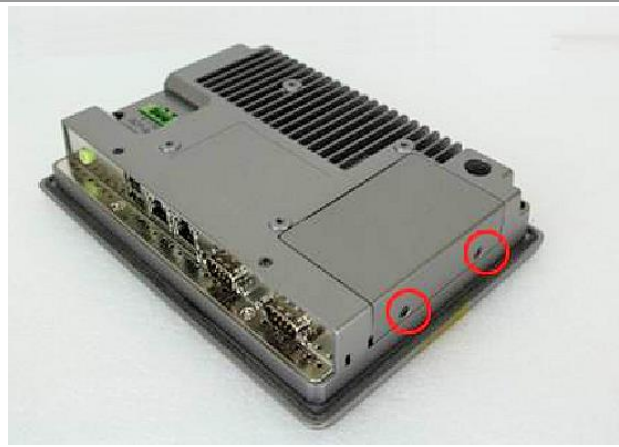
CHAPTER 2:
Installation

Checking the Shipment

Upon receiving the PowerStation product, remove all items from the packaging and confirm that you have received each item listed in the table below.

If you are missing an item, please call the factory. For contact information, see "How to obtain Technical Assistance from Parker Hannifin" in the Troubleshooting chapter of this guide.

PowerStation Ship List	
Part Name	Parker Part Number
Parker XT/IX/PCA PowerStation	XTn-nnn-nnn-nn IXn-nnn-nnn-nn PCA-nnn-nnn-nn
DC Power Input Connector, 3-Pin	57-05275
2 Pin Power Switch Connector	N/A
Parker Software License Agreement	A4-04291-102
Mounting Clips with Screws (quantity dependent on display size)	02-026781-01 7.0" & 10.1" Units (ea.) 02-026782-01 15.6" & 21.5" Units (ea.)
Quick Reference Guide	88-026687-01
Acronis True Image 2015 License Sheet (IX and PCA PowerStations only)	88-026691-01

## Installation Safety Requirements

The XT/IX/PCA family of PowerStations meet the requirements of the Electromagnetic Compliance (EMC) directive 2004/108/EC (EN55022 / EN55024) when installed according to the instructions provided in this chapter.

WARNING: XT/IX/PCA PowerStations connect to other mechanical and electrical components of your system. Be sure to test your system for safety under all potential conditions. Failure to do so may result in serious personal injury or damage to equipment.

- Incorporate emergency disconnect circuits to ensure safe and effective machine shutoff.

- Comply with local and national safety regulations and precautions for the installation.

- Control elements are to be installed in such a way as to exclude unintended operation.

- Route control and communication cables in a manner that reduces EMI interference (inductive or capacitive) which would disturb system operation or functionality. For example, do not run communication and low-voltage cables in the same raceways with power lines, motor leads, etc.

Installation Guidelines

The following section provides installation guidelines to ensure the use of best practices regarding agency, thermal, safety, and EMI considerations.

Regulatory Guidelines

This family of PowerStations have been designed for use in industrial environments. They are to be installed and factory wired according to National Electric Code (NEC) guidelines.

When providing power to the units, you can either use a 12VDC or 24VDC, Class 2, power circuit available in the control cabinet, a purchased Class 2 power supply, or an optional Parker model PS-60W Class 2 power supply, purchased separately.

WARNING: XT/IX/PCA PowerStation models purchased from Parker with the following suffixes XTx-xxx-xxx-x5, IXx-xxx-xxx-x5, PCA-xxx-xxx-x5 have been investigated for use in CLASS I, DIVISION 2, GROUPS A, B, C and D HAZARDOUS LOCATIONS or NONHAZARDOUS LOCATIONS ONLY as described in UL File E317576. The following installation guidelines must be followed for Hazardous Location:
1. THESE DEVICES ARE OPEN-TYPE DEVICES AND MEANT TO BE INSTALLED IN AN ENCLOSURE SUITABLE FOR THE ENVIRONMENT, SUCH THAT THE EQUIPMENT IS ONLY ACCESSIBLE WITH THE USE OF A TOOL.
2. SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C AND D HAZARDOUS LOCATIONS OR NONHAZARDOUS LOCATIONS ONLY. TEMPERATURE RATING T5.
3. WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS.

Thermal Guidelines

You can safely operate these products within the temperature limits specified in the Environmental Specifications in Appendix A of this document. When using a protective enclosure, remember that the temperature within an enclosure is generally higher than the external temperature. Read the following guidelines to fully understand temperature implications.

- Limit the unit's exposure to adverse conditions, such as dust, oil, moisture, and corrosive vapors in order to minimize maintenance and repair costs.
- Choose an area for the product that is free from moisture or condensing humidity.

Heat builds up rapidly in enclosed environments, compromising the performance and life span of electrical equipment. If the PowerStation operates inside an enclosure at temperature levels above its rated ambient temperature, you must cool the enclosure.

These products have been tested for use in 50 degrees Celsius (⁰C) ambient, still-air locations (60 degrees Celsius (⁰C) ambient for the Headless unit). This means that when installed, the ambient air surrounding the unit is not expected to exceed 50⁰C. An example of this type of installation would be the PowerStation mounted in a small, sealed industrial enclosure.

The most commonly overlooked aspect of this type of installation is that heat generated by the device, and other devices in the enclosure, becomes trapped and increases the ambient temperature immediately surrounding the PowerStation. This increase in temperature can sometimes exceed an additional 10 ⁰C or more. To assist in calculating the enclosure minimum volume, the section, Electrical Specifications in Appendix A of this document, contains the thermal heat dissipation (Watts) associated with each PowerStation size.

Although the thermal dynamics are not always linear, a temperature rise of 10 ⁰C degrees inside the enclosure would imply that the environment outside the sealed enclosure could not exceed 40 ⁰C for the display based systems, or the product would surpass its maximum operating temperature.

Therefore, do not install the PowerStation with its 50 ⁰C operating temperature limit into a sealed enclosure without considering the effects of the internal heat buildup.

Since elevated operating temperatures can have an adverse effect on the life of electronics, it is wise to consider the internal thermal rise. Passive venting for thermal convection, internal air circulation fans, filtered exhaust fans with filtered inlets, air conditioners, and other products are available in the market to assist in reducing the heat buildup in the industrial enclosure.

There are many attractive industrial IP65, dust-tight fan/filter assemblies available today which allow the filter to be inexpensively replaced or cleaned as part of a periodic maintenance schedule. In some cases, simply increasing the size of the enclosure can have a significant, positive effect on the installation's thermal response.

Here are some points to consider when performing a site review:

- What is the expected maximum outside ambient temperature surrounding the industrial enclosure?

- Are there any additional heat-generating components inside the enclosure?

- What is the size of the enclosure? Larger enclosures dissipate more thermal energy than smaller ones.

- What kind of environment will the enclosure be installed in - clean, water-tight, dust tight? Can the enclosure be convection cooled or is active cooling required?

Itis a wise investment to thermally plan the installation by anticipating and eliminating the heat build-up inside a sealed enclosure. Not only will this extend the life of the electronics, but it will also reduce costly equipment downtime.

Orientation and Clearance Guidelines

Select an enclosure that is large enough to allow free airflow in and around the XT/IX/PCA PowerStation.

Allow a <u>minimum</u> of two inches between the inside of the enclosure and the top, bottom, and sides of the PowerStation to allow access to the mounting clamps, sufficient air circulation and cable clearance. Verify that the surface of the enclosure on which the PowerStation is mounted is flat and free of raised or depressed areas.

Consider additional clearance below the PowerStation to allow efficient cable access and routing and to allow for insertion and removal of cables.

Mount the PowerStation in a vertical orientation to allow for proper ventilation.

> ⚠️ **WARNING:** Failure to follow these guidelines may result in overheating of the PowerStation.

Radiated Emissions Guidelines

The XT/IX/PCA family of PowerStations have been tested to comply with international electromagnetic and emission standards (EN55022 and ICES-003 FCC Part 15 Class A). To reduce radiated emissions, ensure that there is a low impedance earth connection to the PowerStation, which can be accomplished by utilizing Pin-3 on the input power connector. This connection must be made with the shortest possible, heavy gage wire or braided cable. Low-resistance (<0.5 ohms) continuity should be verified with an ohmmeter for proper grounding. In addition, all communication cables should be shielded and grounded, preferably only on one end.

Earth Grounding Guidelines

To minimize unwanted electrical interference, select a location away from equipment that produces intense electrical noise (motor drives, for example). Use good engineering practices and isolate input power to the unit and separate all data communication cables from AC power lines.

> ⚠️ **Important:** Use the PowerStation ground terminal (Pin-3 on the input power connector) to connect the unit to a suitable ground reference, such as earth ground or building steel. This ensures the unit is in compliance with immunity and emissions requirements necessary for proper operation.

Switching inductances from relays, contactors, solenoids, or switching magnets can produce significant surge voltages. It is necessary to reduce these inductive spikes to a minimum whenever possible, which may require diodes, Z-diodes, varistors, or RC elements. We recommend that you contact the manufacturer or supplier of the corresponding actuators relevant information regarding surge protection.

Unit Installation

The XT/IX/PCA PowerStation can be installed two ways; mounted to a flat panel or enclosure or to a VESA arm. Each recommended installation procedure follows.

Required Tools

Installing the PowerStation requires a small flat blade screwdriver (tip size 0.04mm x 2.5mm) for attaching the wiring to the power connector and a Phillips blade, torque screwdriver to tighten the mounting clamps.

Headless Unit, Basic Installation Steps – Panel Mounting

Perform the following steps to install the Headless PowerStation onto a sub plate in an enclosure or equipment cabinet.

1. Verify that all of the PowerStation accessories are present against the items listed in the table at the beginning of this chapter, Checking the Shipment.

2. Once a suitable mounting location has been selected, mark the screw hole locations on the enclosure panel using the Headless Mounting Pattern dimensions below. (See also Physical Dimensions and Panel Cutouts in Appendix A). Four #6 or M3.5 screws or bolts are required to mount the unit to the panel. The screw length is determined by the panel thickness of the enclosure mounting surface plus the flange thickness (0.050"/ 1.3mm) of the Headless unit. Drill four thru holes or tapped holes according to the following pattern:

Headless Mounting Pattern Dimensions

11.18″ x 5.16″ (284.0 x 131.0 mm) +/- 0.02″ (0.5 mm)

3. Hold the unit onto the mounting pattern and use four screws to attach the unit to panel. Tighten the screws securely.

WARNING: Securely tighten the screws to hold the unit to the subpanel. In a high vibration environment, use thread locking screws, lock washers or thread lock adhesive to securely hold the unit.

Touchscreen Units, Basic Installation Steps – Panel Mounting

Perform the following steps to install the XT/IX/PCA PowerStation on an enclosure or cabinet panel.

1. Verify that all of the PowerStation accessories are present against the items listed in the table at the beginning of this chapter, Checking the Shipment.

2. Once a suitable mounting location has been selected, a mounting cutout must be created. Cut a rectangular hole in the enclosure using the Panel Mounting Cutout dimensions below. (See also Physical Dimensions and Panel Cutouts in Appendix A) Be sure to follow the cutout dimensions precisely to ensure that the unit will seal properly against the enclosure surface. Also make sure that the cutout edges are free of burrs and smooth to allow for proper sealing of the perimeter gasket. The dimensional tolerance for each cutout is +/- 0.02" (0.5 mm).

Display Size	Panel Mounting Cutout Dimensions
7.0" Display	7.56" x 5.43" (192.0 x 138.0 mm)
10.1" Display	10.71" x 6.93" (272.0 x 176.0 mm)
15.6" Display	15.51" x 10.22" (394.0 x 259.5 mm)
21.5" Display	21.22" x 13.54" (539.0 x 344.0 mm)

3. Slide the unit into the cutout and attach the supplied mounting clamps, with their screws, to the perimeter of the unit in the slots provided as shown in the illustration below. Tighten the mounting clips to **8.7 pound-inch (0.97 Newton-meter)**. Tighten the screws in a crosswise sequence to ensure a good seal and prevent damage.

WARNING: Do not over tighten the mounting screws! Use a torque wrench to tighten the clip mounting screws to ensure proper mounting strength and sealing capability and so that damage to the PowerStation chassis, mounting clips, or the equipment enclosure does not occur.

NOTE: The mounting clamps for all units can only support mounting panel thicknesses up to **approximately 0.3" (8.6mm).**

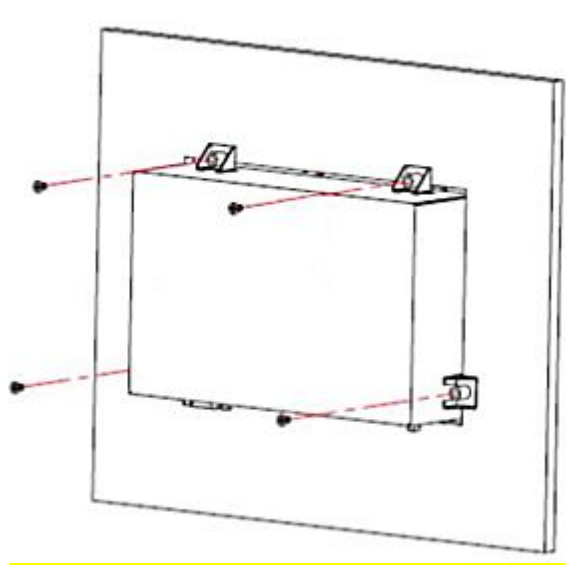*Fig 2.1   Panel Mounting Diagram*

4. Connect any Ethernet network cables depending on the installation. Refer to <u>Attaching Cables</u> later in this section.

5. Connect 12VDC or 24VDC power to the PowerStation by following the precautions described in <u>Connecting Power</u> later in this section.

Display Based Units, Basic Installation Steps – VESA Mounting

Perform the following steps to install the XT/IX/PCA PowerStation using a VESA mounting arm or bracket. Do not use the VESA mounting technique if installing the unit in a UL Hazardous Location environment (see **Warning** below).

1. Verify that all of the PowerStation accessories are present against the items listed in the table at the beginning of this chapter, <u>Checking the Shipment</u>.

2. Use four M4x5 screws (not supplied) to mount the unit to an appropriate swing arm or wall/pole mounting bracket. The screw length required is dependent on the thickness of the VESA mounting bracket. The VESA mount spacing on the rear of the PowerStation is either 75mm x 75mm or 100mm x 100mm depending on the display size. For the location of the VESA mounting holes, see: <u>Physical Dimensions and Panel Cutout</u> in Appendix A.

Display Size	VESA Mounting Pattern Dimensions
Headless	100mm x 100mm
7.0" Display	75mm x 75mm
10.1" Display	100mm x 100mm
15.6" Display	100mm x 100mm
21.5" Display	100mm x 100mm

WARNING: Be sure to not exceed the load weight specifications supplied with the mounting arm or bracket. For example, t**he 7"** PowerStation weighs 2.6 lbs. (1.18 kg) **–** select an arm that can safely support this weight. Unit weights can be found in the Appendix, <u>Physical Specifications</u>.

WARNING: XT/IX/PCA PowerStation models purchased from Parker with the following suffixes XTx-xxx-xxx-x5, IXx-xxx-xxx-x5, PCA-xxx-xxx-x5, intended for use in Class I, Division 2 Hazardous (Classified) Locations, cannot be used with the VESA mounting arm and the unit must be installed in a suitable enclosure.
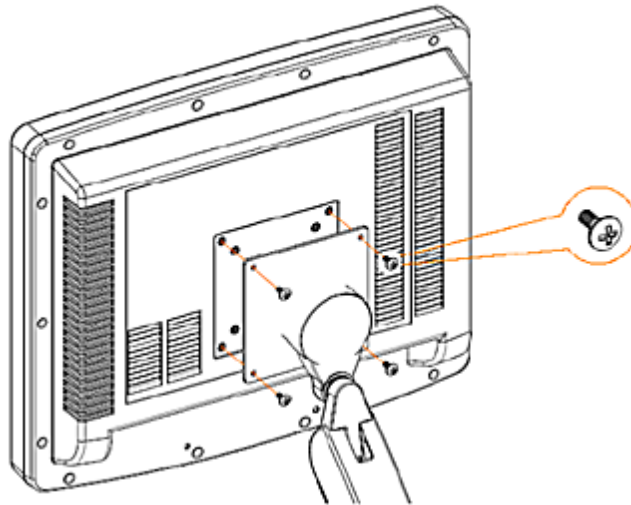
Fig 2.2   VESA Mounting Diagram

3. Connect any Ethernet network cables depending on the installation. Refer to Attaching Cables later in this section.

4. Connect 12VDC or 24VDC power to the PowerStation by following the precautions described in Connecting Power later in this section.

Attaching Cables

Ethernet Communication Cables

To ensure reliable communications with the best performance possible, the cabling components used must conform to US standard EIA/TIA 568 (T568A or T568B) or European standard EN50173-1 Class D.

Category 5 (CAT5 or preferably CAT5e) cable is recommended for Ethernet communications. The maximum allowed channel length is 100 meters or 328 feet.

Either straight through or crossover (patch) cables may be used since the PowerStation will auto detect and adjust to the type of cables used.

The cable must not be kinked or bent too tightly (the bend radius should be no less than four times the outer diameter of the cable).

Either shielded or unshielded cables may be used. Consider using shielded cables in electrically noisy environments. All shielded cables must be grounded for safety and effectiveness and a continuous shield connection maintained from end to end. Ground loops may develop when there is more than one ground connection and the difference in common mode voltage potential at these ground connections can introduce noise into the cabling.

Connecting DC Power

⚠️ **Warning:** The PowerStation has no power switch. It will start functioning as soon as 12VDC or 24VDC power is applied.

This product is intended to be supplied by a Listed Power Adapter or DC power source where the output meets SELV, Tma = 50C, and an altitude of operation = 2000m.

The PowerStation operates on nominal 12VDC or 24VDC power. Note that both the +VDC and the 0VDC pins on the input power connector are isolated from the Earth ground. Attach power as follows:

Pin Number	Marking	Description
Pin-1	(+)	+12VDC or +24VDC
Pin-2	(–)	0 VDC
Pin-3	(FG)	Earth Ground

The system input power rating for the various unit display sizes are:

Display Size	Maximum Input Power Required
00" (Headless)	24 W (max)
7.0"	23W (max)
10.1"	25W (max)
15.6"	32W (max)
21.5"	37W (max)

The following is the recommended wire gage for connection to the PowerStation power input connector:

0.20 - 1.0 mm² (IEC) / 26 – 16 AWG (UL), stripped to <10mm in length, solid or stranded wire

Connection Diagram

For convenience, the input power connector can be prewired and then plugged into the mating connector on the unit. Remember to tighten the two locking screws located on each side of the connector to prevent unintended disconnection.

⚠️ **CAUTION:** To reduce issues associated with inducing noise on the input DC power, keep the DC power input wiring away from any interfering AC sources, such as motor leads or other devices. Also keep the power wiring as short as possible.

Earth Ground

0VDC

Nominal +12VDC or +24VDC
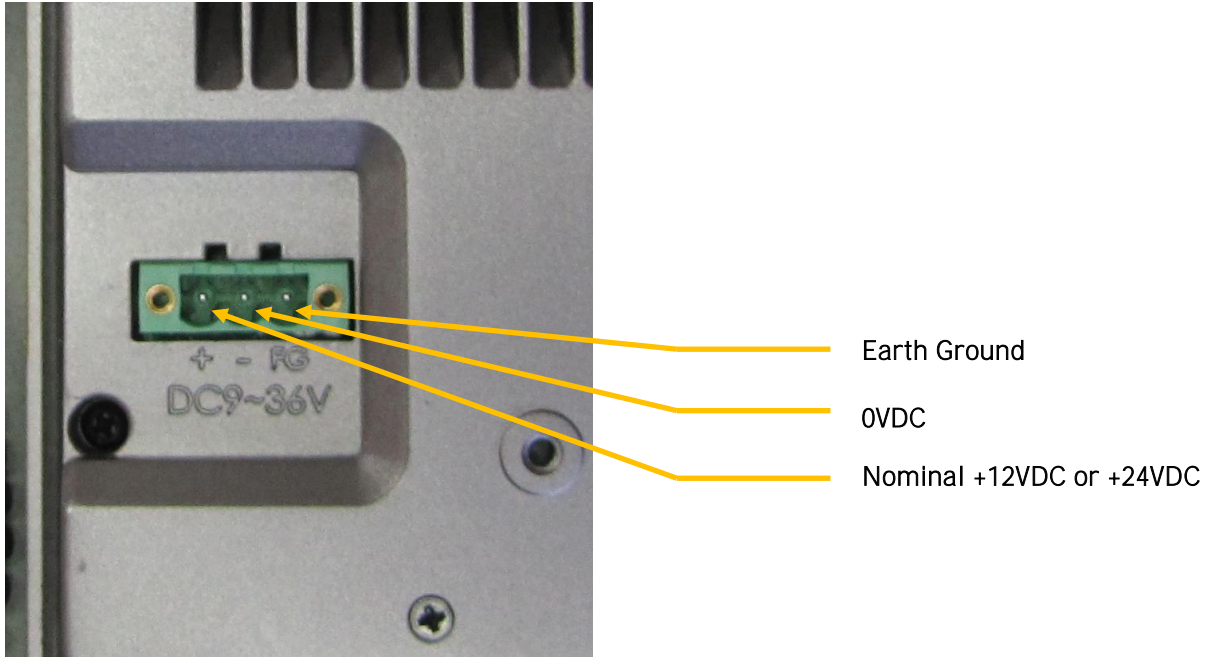
Fig 2.3   Input Power Connection Diagram

CAUTION: Do not apply AC line input power directly to the PowerStation or damage may occur.

Installing an Optional AC/DC Power Supply

The XT/IX/PCA PowerStation operates on 12VDC or 24VDC nominal input power. You can purchase an optional PS-60W Power Supply available from Parker to provide 24VDC input power if other DC machine power is not available.

⚠	CAUTION: Do not apply AC line input power directly to the PowerStation or damage may occur.

Mounting the Optional PS-60W AC Power Supply

The optional PS-60W AC power supply is DIN rail mountable. To reduce issues associated with noisy DC power input, keep the 24VDC wiring away from any AC interfering sources such as motor leads or other devices. Refer to the PS-60W or the user-supplied power supply for information regarding topics such as mounting, AC power connections, or ratings.

CHAPTER 3:
Software

XT PowerStation: Configuring the Xpress Software

When you power up the XT PowerStation for the first time, the Parker logo and/or progress bar will appear twice. After several moments the system will boot directly into the Xpress Shell and prompts to "Set Machine Name". You can keep the default name, or you can enter a unique machine name to identify this machine on a network. The machine name can be a maximum of 15 characters, using a-z, A-Z, 0-9, or underscore. The machine name must start with letters and cannot end with '-' or '_'.

XT PowerStations containing Interact Xpress HMI software are now ready for the user to download a custom Xpress application or project. Please refer to the Interact Xpress User Guide for information regarding:

- The Xpress Manager
- Using the Shell interface
- The Design Environment
- Using Tools and working with Graphics
- Sending projects from the development environment to the runtime unit.

This Interact Xpress User Guide will provide information on using the Shell interface to transfer the user's custom application to the XT unit. Note that the XT ships from the factory with Interact Xpress HMI software and a demo application already installed. Once the custom application or project has been developed on a PC or laptop computer, there are two ways to download it to the XT PowerStation SD card; via an Ethernet project transfer or copy the application directly to the SD card using a card reader.

The first time you power up the unit, you may need to change the time and date, or change the network settings, or calibrate the touchscreen. Each of these options are found by selecting the "Settings" button within the shell.

Setting the Time and Date

From the Xpress Shell, select "Settings" and then "Time and Date"

With the Time and Date screen, you can change the local time and date settings in your project. The time and date is updated in real time on both the local and remote Interact Xpress machines.

The following table describes the options available from the Time and Date screen.

| Property	Description
Set Time Zone	Use the drop down list to select the time zone.
Set Time	Use the drop down lists to set the hour (1-12), minutes (0-59), and whether or not it is AM (A) or PM (P).
Set Date	Set the Month, Day, and Year by using the drop down lists. When February is selected, if the date is set to 30 or 31, it is automatically updated to 29. The years displayed are from 2000-2100.

Daylight Saving	Select this option to activate the daylight savings settings. Your time and date will update accordingly throughout the year.

Click **OK** to accept the changes and return to the Time and Date screen. Click **Reset** to reset the values to the default settings and return to the Time and Date screen. Click **Cancel** to return to the Time and Date screen without saving.

Calibrate Touchscreen

The XT PowerStation's touchscreen will come calibrated from the factory. But if you need to re-calibrate the touchscreen, follow these instructions. From the Xpress Shell, you can navigate to the Calibrate Touchscreen option. First select the "Settings" button on the left hand side. Then select "Calibrate Touchscreen." Select "OK" in the dialog box that asks if you are sure you want to calibrate the touchscreen.

At the start of this procedure, a circle will appear in the upper left hand corner with a red dot in the middle of the circle. Use your finger or stylus to touch and hold in place until the circle goes away.   This process will repeat for each of the corners of the screen. After the fourth corner, calibration is complete. To skip the procedure, do not press the touchscreen for a few seconds to allow the software to timeout or press 'ESC' using an attached keyboard.
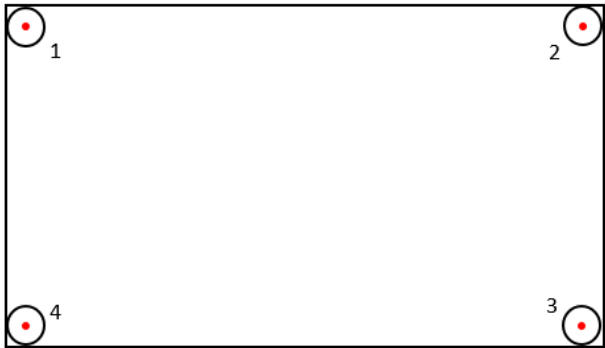
Configuring Network Settings

From the Xpress Shell, select "Settings" and then "Network Settings."

With the Network Settings menu option you can view the status of each network setting including: Machine Name, Port Number, Network Connection, IP Address, Subnet Mask, Default Gateway, Primary DNS, Secondary DNS, Primary WINS, Secondary WINS, and Proxy Server configuration options. .

Click on the **Edit…** link to change the network settings. The following table describes the options available from the Network Settings screen.

SYSTEM SOFTWARE

Property	Description
Local Area Network (LAN)	The XT hardware has two LAN ports. Select the LAN port that you want to view or edit. LAN 1 by default is set to DHCP (Dynamic) with a port number of 1235. LAN 1 is recommended as the port for Office Network, but it is not limited to this option. LAN 2 by default is set to Static with an IP Address of 192.168.10.100 with Subnet Mask 255.255.0.0. LAN 2 is recommended when connecting to a controller, but it is not limited to this option.
Machine Name	Enter a unique machine name to identify this machine on a network. The machine name can be a maximum of 15 characters, using a-z, A-Z, 0-9, or underscore. The machine name must start with letters and cannot end with '-' or '_'.
Port Number	The Xpress server makes a connection with a browser on a remote machine through a specific port. You can set the port to a specific number. The port number must be 1024 or greater. The port number must be 4 numbers. The default port number is 1235.
Network Connection	
Disable	Select the Disable radio button to prevent networking on the specified machine. All information should all be set to 0. Note: Disabling the network connection through a remote browser results in a loss of connection which can only be restored locally.
Dynamic	Select the Dynamic radio button to allow the local machine to automatically go out and request for an IP address from the server. This IP address then is used to identify this unit on a network. All of the information (IP address, subnet mask, etc.) is displayed but cannot be changed in the section below Network Connection.
Static	Select the Static radio button to assign a fixed IP address and other network settings to this machine. This IP address and the Subnet Mask will be used to identify this unit on a network. The information below Network Connection (4 IP address and 4 Subnet Mask text boxes) is available and no longer grayed out. Also 4 text boxes for each Default Gateway, Primary DNS, Secondary DNS, Primary WINS, and Secondary WINS are displayed. Every IP address and subnet mask must be filled in otherwise you will receive an error. The Default Gateway, Primary DNS, Secondary DNS, Primary WINS, and Secondary WINS do not need to be filled in, they are optional. For further information regarding the remaining settings on this page, refer to your IT department.
Subnet Mask	Enter the subnet mask required to identify the host on the network. The subnet mask provides a means of hiding the network address portion of the IP address.

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Default Gateway	Enter the gateway IP address. The gateway node serves as the access point to a network.
Primary and Secondary DNS	Enter the DNS server IP address. A DNS server translates between Internet and computer names and IP addresses.
Primary and Secondary WINS	Enter the WINS server IP address. A WINS server translates Windows computer names to IP addresses.
Access the Internet user a Proxy Server	Select this box to enable the Proxy Server address and port settings. The Proxy Server forwards requests from the unit to other servers. The server retrieves data from remote web servers.
Proxy Address	Enter the IP address or the name of the proxy server. The name can be up to 15 characters long.
Proxy Port	Enter the port number of the proxy server. The number can range from 80 to 9999 with the default set to 80.

Click **OK** to accept the changes and return to the Network Settings screen. Click **Reset** to reset the values to the default settings and return to the Network Settings screen. Click **Cancel** to return to the Network Settings screen without saving.

IX PowerStation: Configuring the InteractX Software

The IX PowerStation comes with a fully licesened version of Parker's InteractX HMI Runtime software bundled on the Machine. For support on InteractX, please refer to the InteractX User Guide on http://www.parker.com/emn/IX or in the help section of InteractX Development software.

Running InteractX 4.0 Software on IX Hardware

Creating a New Project

A new InteractX project running on the IX hardware will look best if the specific screen resolution of the hardware is considered when building panels. The resolution of the IX hardware is different depending on the screen size.

Screen Size	Resolution
IXx-007 7.0"	800 x 480
IXx-010 10.1"	1280 x 800
IXx-015 15.6"	1366 x 768
IXx-022 21.5"	1920 x 1080

After determining the best resolution to use, in InteractX, click Tools -> Application Properties... Change the Panel Defaults to match the screen resolution of the IX (this example is for the 15").
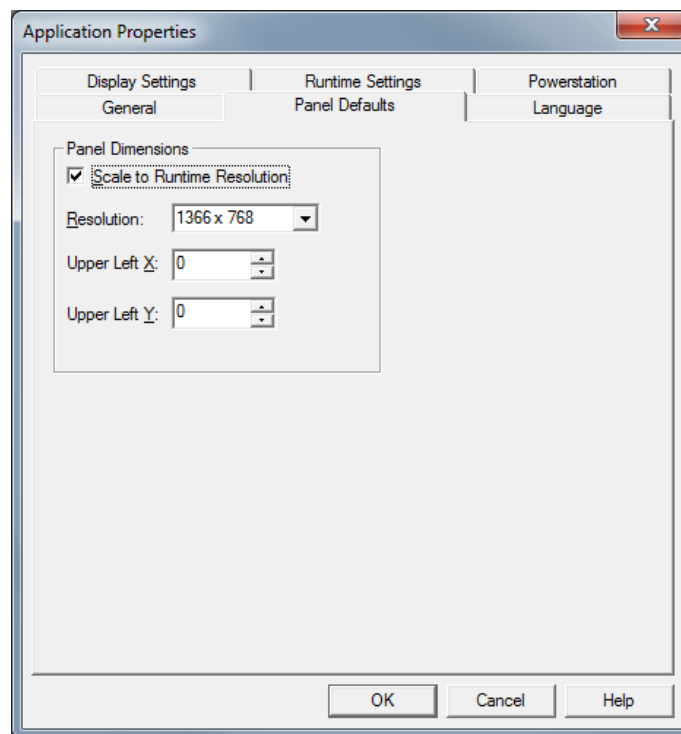
Change the Display Settings to match the screen resolution of the IX (this example is for the 15").
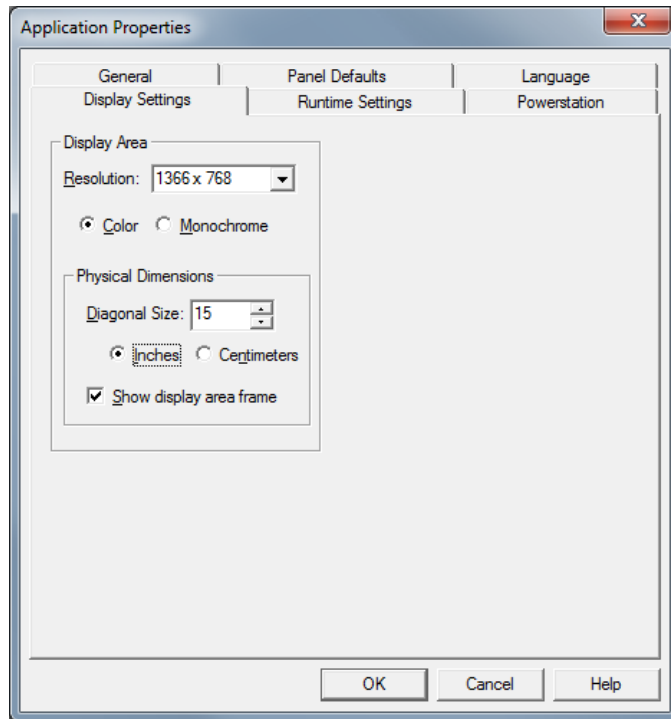
As you create panels, they will now show what will appear on the IX hardware.

This Panel was built to run in 1366 x 768 screen resolution.
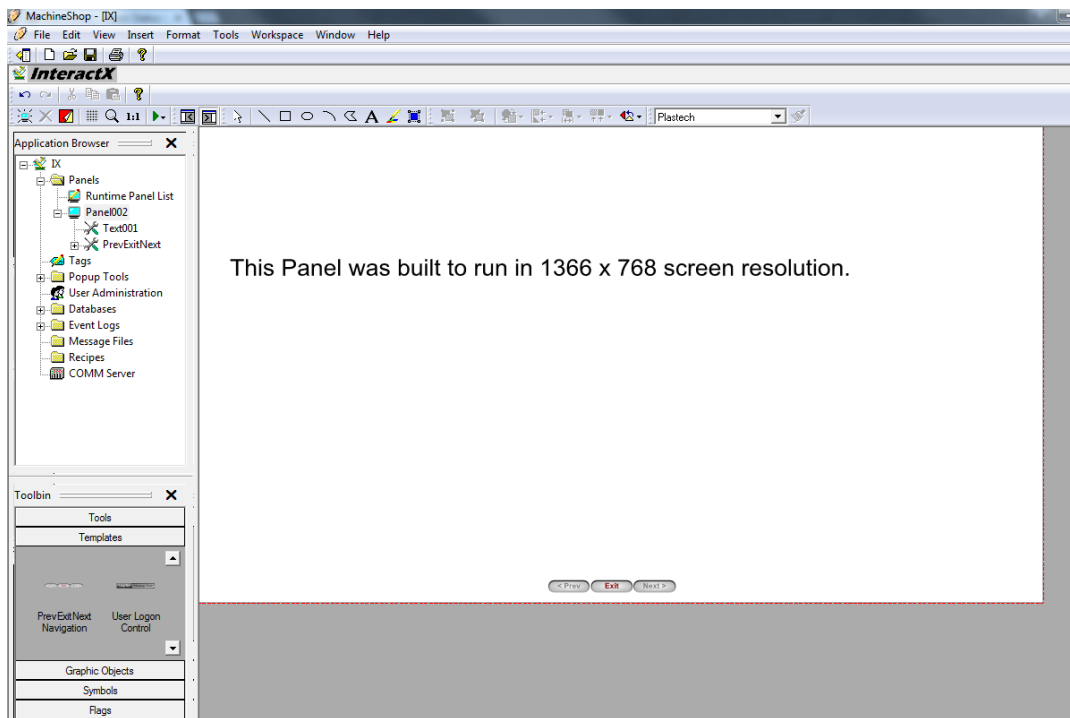
Upgrading an Existing InteractX Project

InteractX projects that were created in 4 x 3 screen resolution will, by default, scale to fit the widescreen (16 x 9 or 16 x 10) resolutions of the IX. This may cause some objects to appear stretched and the text may no longer fit the text object. It is highly recommended that each panel is examined on the IX to determine where adjustments should be made to the project for the difference in screen ratios.

Touchscreen Calibration

The IX and PCA PowerStations come from the factory with the touchscreen calibrated. But if the touchscreen needs re-calibration, follow these procedures:

The IX and PCA could have a Resistive touchscreen or a Capacitive touchscreen, depending on how it was ordered from the factory. There are different calibration procedures depending on the type of touchscreen:

As shipped from the factory and after using the F11 to restore a facory image, there are two shortcuts on the desktop for quick access to the calibration utilities. One is for resistive touch screens which are most units and one is for the 22" capacitive touchscreen. Selecting the wrong one will not cause any problems, it will just not work. If you would rather not have them on the desktop, they can be deleted and the utilities can be run as described below. There are copies of these Shortcuts in C:\PARKER\

Calibration of the resistive touchscreen can be performed within the PenMount Control Panel which can be launched from the Start Menu or from the System Tray.

Resistive Touchscreen Calibration: PenMount Control Panel

From the Start menu, select "All Programs", "PenMount Windows Universal Driver", "Utility", and "PenMount Control Panel."

In this window below, select the PenMount 6000 USB and select "Configure."
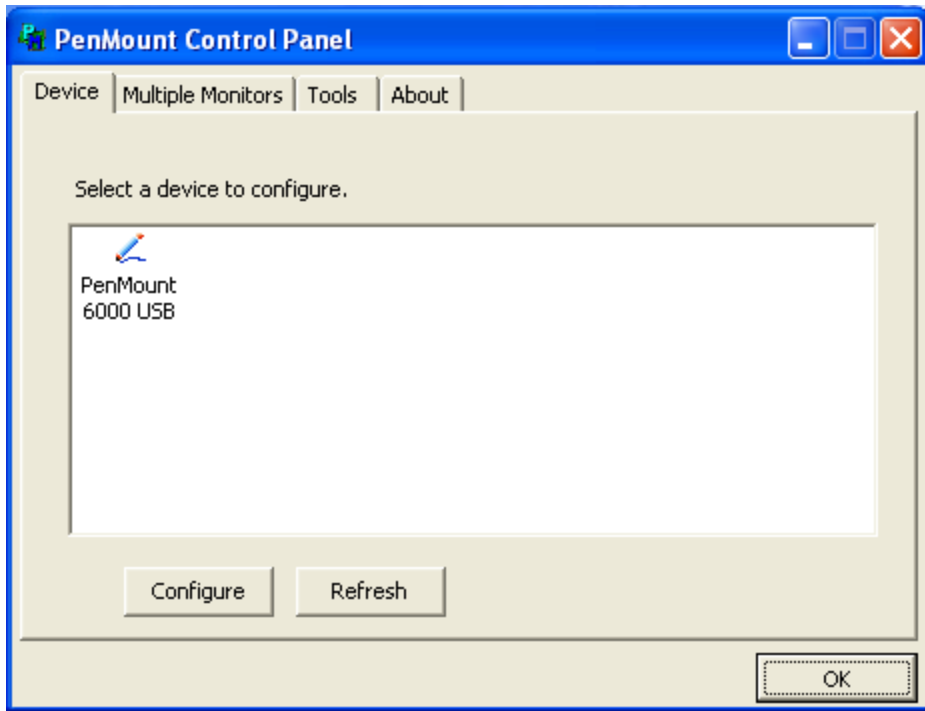
When the Device 0 window appears, click "**Standard Calibration**" to start calibration procedure
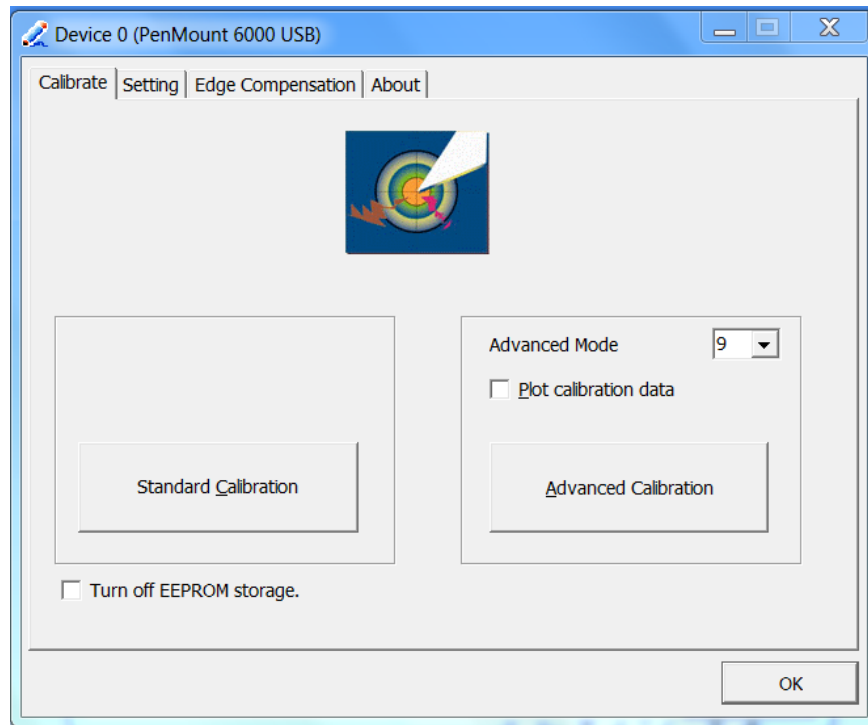
Using a plastic pointer (stylus) or your finger, touch and hold each of the 5 calibration points until they disappear. You can stop the calibration process at any time by not touching any of the points for several seconds. After the calibration, you will return to the Device 0 window.
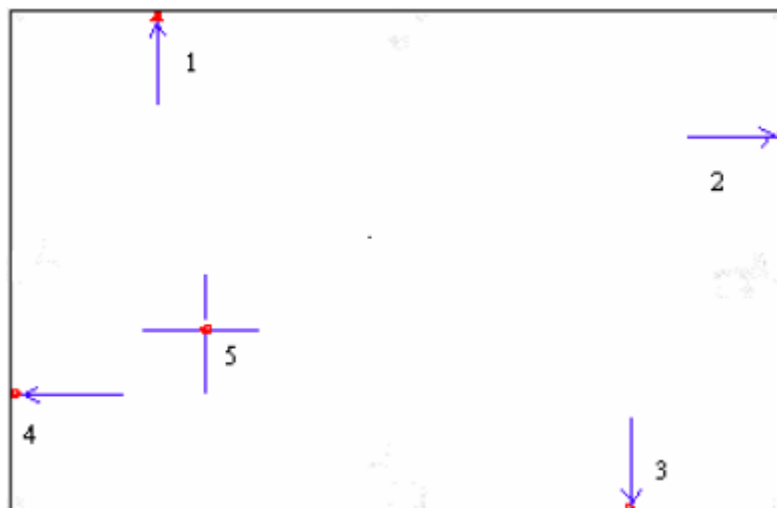
Capacitive Touchscreen Calibration: eGalaxTouch

Calibration of the capacitive touchscreen can be performed within the eGalaxTouch utility which can be launched from the Start Menu.

From the Start menu, select "All Programs", "eGalaxTouch", and "Configure Utility."

An "eGalaxTouch : USB Controller" window will appear
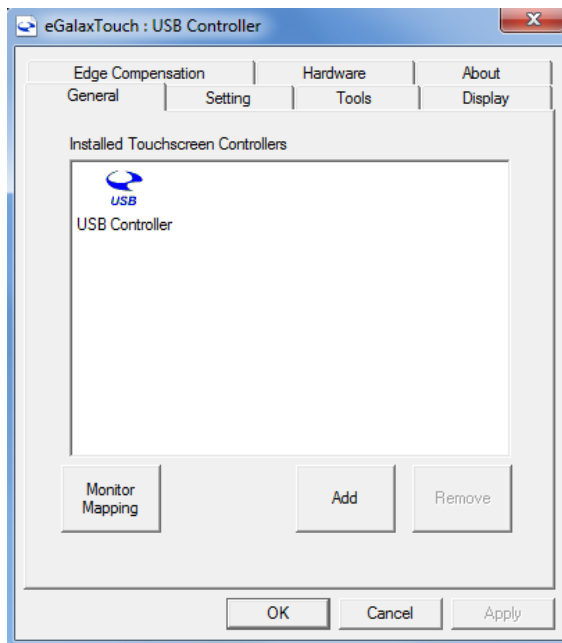
Select the "Tools" tab
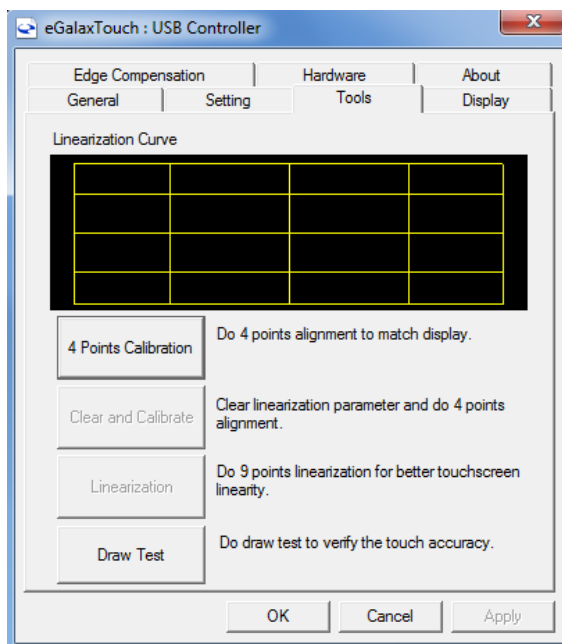
Click the "4 Points Calibration" button. A white calibration screen will appear. Using a plastic pointer (stylus) or your finger, touch, hold, and lift off the 4 calibration targets (precisely in the center) as they appear.

An "xtkutility" window will appear indicating "4 points calibration completed". Click "OK" to close the "xtkutility" window and the "eGalaxTouch: USB Controller" window.

PCA PowerStation

PCA PowerStations have the same disk image as the IX PowerStation, except that the InteractX HMI software is licensed to run for a short period of time in an evaluation mode only. InteractX will function for one hour for demo and evaluation purposes and can be licensed by the user by contacting Parker Support. Because Microsoft WES7P or Windows 10 is installed on each unit, any Window's compatible application software may be installed and operated by the user.

The touchscreen calibration procedure is the same as with the IX PowerStation.

CHAPTER 4:
BIOS Setup

BIOS Setup Utility

After CMOS battery discharge, a BIOS flashing operation or, to change BIOS settings, press the [Delete] key to enter CMOS Setup.

Refer to the following sections for a complete list of the BIOS settings. The default settings are highlighted in bracketed [bold] type.

Main Settings


```
           Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.
  Main     Advanced     Chipset     Security     Boot      Save & Exit

  BIOS Information                                         Choose the system default
  BIOS Vendor            American Megatrends               Language
  Core Version           5.010
  Compliancy             UEFI 2.4; PI 1.3
  Project Version        7111M 0.21 x64
  Build Date and Time    06/10/2015 10:19:15

  CPU Configuration
  Microcode Patch        829
  BayTrail SoC           CO Stepping

  KSC Information
  KSC Version            N/A

  Memory Information
  Total Memory           4096 MB (DDR3L)

  GOP Information
  Intel（R）GOP Driver    [N/A]

                                                           →←: Select Screen
  TXE Information                                          ↑↓  : Select Item
  Sec RC Version         00.05.00.00                       Enter:   Select
  TXE FW Version         01.01.00.1089                     +/- : Charge Opt.
                                                           F1 : General Help
  System Language        [English]                         F2: Previous Values
                                                           F3:Optimized Defaults
  System Date            [Sun 01/01/2012]                  F4:Save and Exit
  System Time            [00:00:10]                        ESC   Exit

           Version 2.17.1246. Copyright (C) 2014 American Megatrends , Inc.
```

System Time:

Set the system time, the time format is:

- **Hour:**   0 to 23
- **Minute:**   0 to 59
- **Second:**   0 to 59

System Date:

Set the system date, the date format is:

- **Day**:   Note that the 'Day' automatically changes when you set the date.
- **Month**:   01 to 12
- **Date:**   01 to 31
- **Year:**   1998 to 2099

Advanced Settings
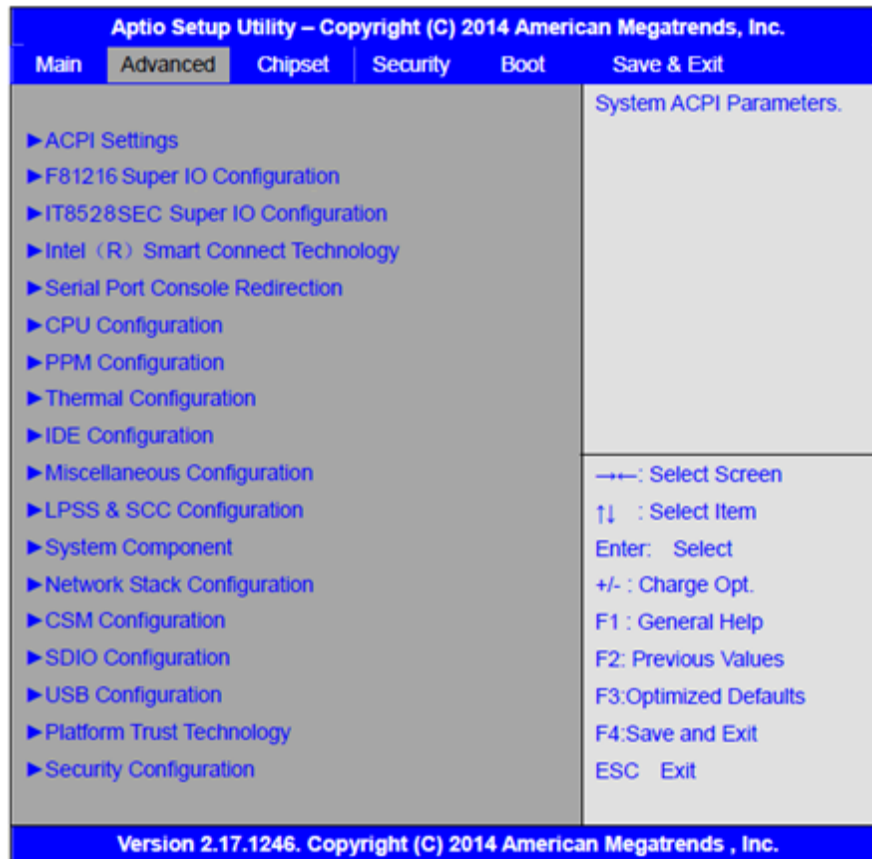
ACPI Settings

Enable ACPI Auto Conf:
- **[Disabled]**
- [Enabled]

Enable Hibernation:
- **[Enabled]**
- [Disabled]

ACPI Sleep State:
- **[S3 (Suspend to RAM)]**
- [Suspend Disabled]

Lock Legacy Resources:
- **[Disabled]**
- [Enabled]

F81216 Super IO Configuration

Super IO chip F81216

Serial Port 1 Configuration

Change Settings:
- [Auto]

Change Settings:
- [Standard Serial Port]

UART1 Mode Selection:
- [RS-232]
- [RS-485]
- [RS-422]

CAUTION: If you to change the RS-232, RS-422 or RS-485 mode configuration of COM1 (UART1) in the BIOS, you must also change the DIP switch settings for the COM1 Configurable port as well. Refer to the section: Serial Port COM1 for more information.

Serial Port 2 Configuration
- Change Settings   [Auto]

Serial Port 3 Configuration
- Change Settings   [Auto]

Serial Port 4 Configuration
- Change Settings   [Auto]

IT8528SEC Super IO Configuration

Super IO chip IT8528SEC

Intel® （R） Smart Connect Technology

ISCT Support
- [Disabled]
- [Enabled]

Serial Port Console Redirection

COM0

Console Redirection
- ▪ [**Disabled**]
- ▪ [Enabled]

Console Redirection Settings

Legacy Console Redirection

Legacy Console Redirection settings

  Serial Port for Out-of-Band Management/

  Windows Emergency Management Services (EMS)

Console Redirection
- ▪ [**Disabled**]
- ▪ [Enabled]

Console Redirection Settings

CPU Configuration

Socket 0 CPU Information

Intel® Celeron® CPU N2930 @ 1.83GHz
- ▪ CPU Signature   30678
- ▪ Microcode Patch   829
- ▪ Max CPU Speed   1830 MHz
- ▪ Mix CPU Speed   500 MHz
- ▪ Processor Cores   4
- ▪ Intel® HT Technology   Not Supported
- ▪ Intel® VT-x Technology   Supported
- ▪ L1 Data Cache   24KB x 4
- ▪ L1 Code Cache   32KB x 4
- ▪ L2 Cache   1024KB x 2
- ▪ L2 Cache   Not Present

CPU Thermal configuration

DTS:
- ▪ [**Disabled**]
- ▪ [Enabled]

CPU Speed   1834 MHz

64-bit   Supported

Limit CPUID Maximum:
- ▪ [**Disabled**]
- ▪ [Enabled]

Execute Disable Bit:

- **[Enabled]**
- [Disabled]

Intel® Virtualization Technology:

- **[Enabled]**
- [Disabled]

Power Technology

- **[Energy Efficient]**
- [Disabled]
- [Custom]

PPM Configuration

CPU C-State Report

- [Enabled]
- **[Disabled]**

Max CPU C-State

- **[C7]**
- [C6]
- [C1]

SOix

- **[Disabled]**
- [Enabled]

Thermal Configuration Parameters

IDE Configuration

Serial-ATA (SATA)

- **[Enabled]**
- [Disabled]

SATA Test Mode

- **[Disabled]**
- [Enabled]

SATA Speed Support

- [Gen2]
- [Gen1]

SATA ODD Port

- [No ODD]
- [Porto ODD]
- [Port1 ODD]

SATA Mode
- **[IDE Mode]**
- [AHCI Mode]

Serial-ATA Port 0
- [**Enabled**]
- [Disabled]

SATA Port0 Hotplug
- **[Disabled]**
- [Enabled]

Serial-ATA Port 1
- **[Enabled]**
- [Disabled]

SATA Port1 Hotplug
- **[Disabled]**
- [Enabled]

SATA Port0
- Not Present

SATA Port1
- Not Present

Miscellaneous Configuration
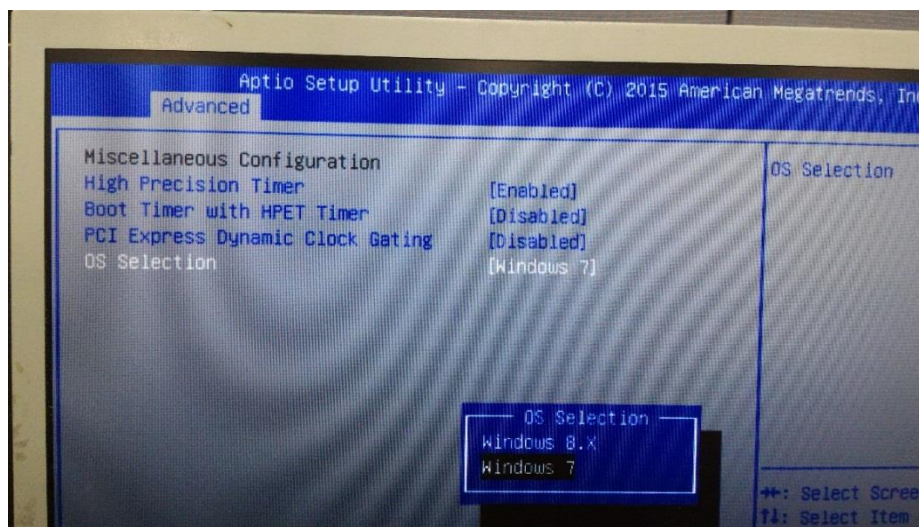
High Precision Timer
- **[Enabled]**
- [Disabled]

Boot Timer with HPET Timer
- ▪ **[Disabled]**
- ▪ [Enabled]

PCI Express Dynamic Clock Gating
- ▪ **[Disabled]**
- ▪ [Enabled]

LPSS & SCC Configuration

- ▪ LPSS & SCC Configuration   [ACPI Mode]

SCC Configuration
- ▪ SCC eMMC Support   [eMMC AUTO MODE]
- ▪ SCC eMMC 4.5 DDR50 Support   [Enabled]
- ▪ SCC eMMC 4.5 HS200 Support   [Disabled]
- ▪ eMMC Secure Erase   [Disabled]
- ▪ SCC SDIO Support   [Enabled]
- ▪ SCC SD Card Support   [Enabled]
- ▪ SDR25 Support for SD Card   [Disabled]
- ▪ SDR50 Support for SD Card   [Enabled]
- ▪ MIPI HSI Support   [Disabled]

LPSS Configuration
- ▪ LPSS DMA #1 Support   [Enabled]
- ▪ LPSS DMA #2 Support   [Enabled]
- ▪ LPSS I2C #1 Support   [Enabled]
- ▪ LPSS I2C #2 Support   [Enabled]
- ▪ LPSS I2C #3 Support   [Enabled]
- ▪ LPSS I2C #4 Support   [Enabled]
- ▪ LPSS I2C #5 Support   [Enabled]
- ▪ LPSS I2C #6 Support   [Enabled]
- ▪ LPSS I2C #7 Support   [Enabled]
- ▪ NFC   [Disabled]
- ▪ Touch Pad   [Disabled]
- ▪ I2C touch Device Address   [Auto]
- ▪ LPSS HSUART #1 Support   [Disabled]
- ▪ LPSS HSUART #2 Support   [Disabled]
- ▪ LPSS PWM #1 Support   [Enabled]
- ▪ LPSS PWM #2 Support   [Enabled]
- ▪ LPSS SPI Support   [Enabled]

SYSTEM BIOS

System Component

- PMIC ACPI Object [Enabled]
- PNP Setting [Auto]
- Witt Setting [Disabled]

Network Stack Configuration

- Network Stack [Disabled]

CSM Configuration

- CSM Support [Enabled]
- CSM16 Module Version 07.76

GateA20 Active
- [Upon Request]
- [Always]

Option ROM Messages
- **[Force BIOS]**
- [Keep Current]

Boot option filter
- **[UEFI and Legacy]**
- [Legacy only]
- [UEFI only]

Network
- **[UEFI]**
- [Do not launch]
- [Legacy]

Storage
- **[UEFI]**
- [Do not launch]
- [Legacy]

Video
- **[Legacy]**
- [UEFI]
- [Do not launch]

Other PCI devices
- **[UEFI]**
- [Do not launch]
- [Legacy]

SDIO Configuration   [Auto]

USB Configuration

    USB Module Version   8.11.02
    USB Devices: 1 keyboard, 1 Mouse，2 Hubs

    Legacy USB Support:
- [Enabled]

    XHCI Hand-off:
- [Enabled]

    EHCI Hand-off:
- [Disabled]

    USB Mass Storage Driver Support
- [Enabled]

    USB hardware delays and time-outs：

        USB transfer time-out:
  - [20 sec]
  - [10 sec]
  - [5 sec]
  - [1 sec]

        Device reset time-out:
  - [20 sec]
  - [10 sec]
  - [30 sec]
  - [40 sec]

        Device power-up delay
  - [Auto]
  - [Manual]

Platform Trust Technology

    TPM Configuration
- [Disabled]

Security Configuration

    Intel® TXE Configuration

        TXE:
  - [Enabled]

        TXE HMRFPOf:
  - [Disabled]

TXE Firmware Update:
- [Disabled]

TXE EOP Message
- [Enabled]

Intel® Anti-Theft Technology Configuration

Intel® AT:
- [Disabled]

Intel® AT Platform:
- [Disabled]

Intel® AT Suspend M:
- [Disabled]

Chipset Settings
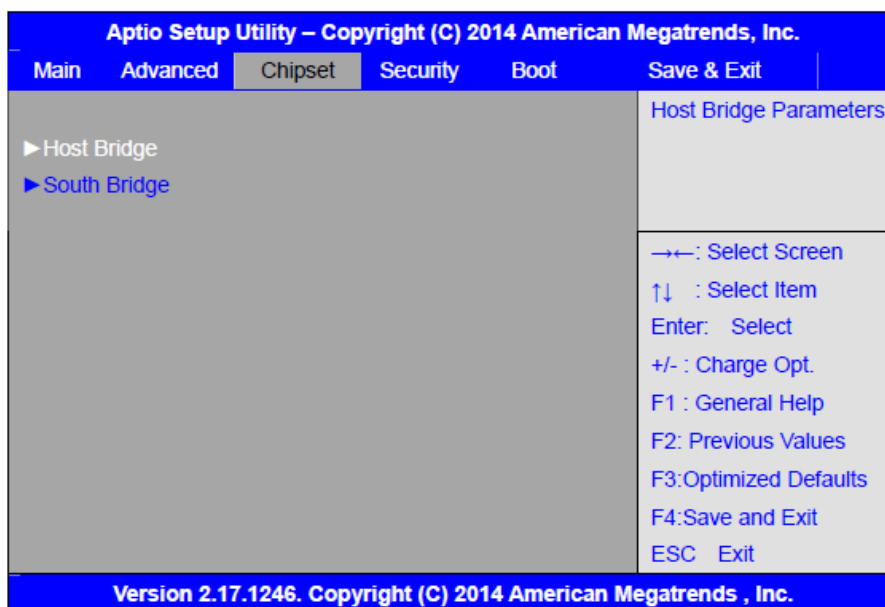
North Bridge

Intel® IGD Configuration

GOP Driver
- [Enabled]

Integrated Graphics Driver
- [Enabled]

IGD Turbo Enable
- [Enabled]

Primary Display
- [IGD]

GFX Boost
- [Disabled]

PAVC
- [LITE Mode]

DVMT Pre-Allocated
- [64M]

DVMT Total Gfx Memory
- [256MB]

Aperture Size
- [256MB]

DOP CG
- [Enabled]

GTT Size
- [2MB]

IGD Thermal
- [Disabled]

Spread Spectrum Clock
- [Disabled]

ISP Enable/Disable
- [Enabled]

ISP PCI Device Select
- [Disabled]

Vcc_Vnn Config
- [Disabled]

IGD LCD Control
Force Lid Status
- [Off]
BIA
- [Auto]

ALS Support
- [Disabled]

IGD Flat Panel
- [Auto]

Panel Scaling
- [Auto]

Graphics Power Management Control

RC6 (Render Standby)
- [Enabled]

Memory Information
- Total Memory   4096 MB (DDR3L)
- Memory Slot0   4096 MB (DDR3L)
- Memory Slot2   Not Present

Max TOLUD
- **[Dynamic]**
- [2GB]
- [2.25GB]
- [2.5GB]
- [2.75GB]
- [3GB]

Backlight PWM or DC Control
- **[PWM]**
- [DC]

Backlight PWM Control
- **[PWM Normal by BIOS]**
- [PWM Inverted by BIOS]
- Knob Control PWM by EC
- Button Control PWM by EC

BIOS Control Backlight
- **[Level 15]**

South Bridge

Azalia HD Audio
LPE Audio Support
- [Disabled]

USB Configuration

- USB OTG Support   [Disabled]
- USB VBUS   [On]
- XHCI Mode   [Smart Auto]
- USB2 Link Power Management [Enabled]
- USB 2.0(EHCI) Support   [Enabled]
- USB EHCI debug   [Disabled]
- USB Per Port Control   [Enabled]
- USB Port 0   [Enabled]
- USB Port 1   [Enabled]
- USB Port 2   [Enabled]
- USB Port 3   [Enabled]

PCI Express Configuration

High Precision Timer
- [Disabled]

Serial IRQ Mode
- [Continuous]

Global SMI Lock
- [Enabled]

BIOS Read/Write Protect
- [Disabled]

Security Settings
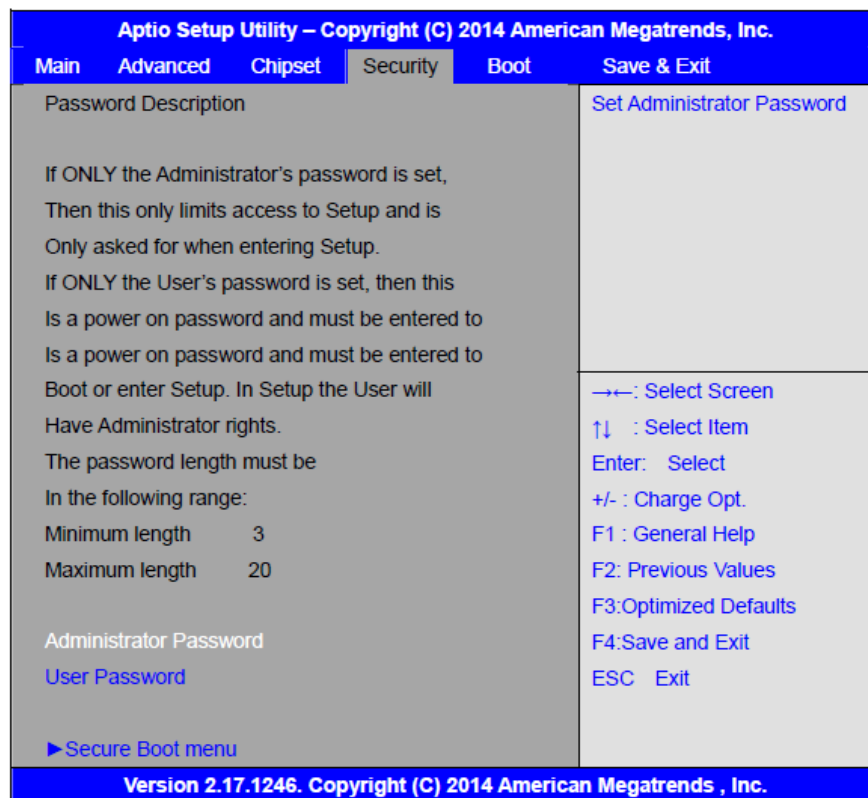
Administrator Password

User Password

Type the password with up to 20 characters and then press **Enter** key. This will clear all previously typed CMOS passwords. You will be requested to confirm the password; type the password again and press **Enter** key. You may press the **Esc** key to abandon password entry operation.

To clear the password, just press **Enter** key when password input window pops up. A confirmation message will be shown on the screen as to whether the password will be disabled. You will have direct access to BIOS setup without typing any password after system reboot once the password is disabled.

Once the password feature is used, you will be requested to type the password each time you enter BIOS setup. This will prevent unauthorized persons from changing your system configurations.

Also, the BIOS is capable of requesting users to enter the password prior to system boot, to control unauthorized access to your computer. Users may enable the feature in the Security Option of Advanced BIOS Features. If Security Option is set to System, you will be requested to enter the password before system boot and when entering BIOS setup; if Security Option is set to Setup, you will be requested for password for entering BIOS setup.

System Mode   Setup
Secure Boot   Not Active

Secure Boot:
- **[Enabled]**

Secure Boot Mode:
- **[Standard]**
- [Custom]

Key Management:
- **[Enabled]**

Boot Settings

Setup Prompt Timeout
- [1]

Bootup Numlock State
- [On]

Quiet Boot
- [Disabled]

Fast Boot
- [Disabled]

Boot Option Priorities

Boot Option #1

- UEFI: Built-in EFI Shell
- Disabled
- ******

Save & Exit Settings

Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.

| Main | Advanced | Chipset | Boot | Security | Save & Exit |

Save Changes and Exit
Discard Changes and Exit
Save Changes and Reset
Discard Changes and Reset

Save Options
Save Changes
Discard Changes

Restore Defaults
Save user Defaults
Restore user Defaults

Boot Override
UEFI:Built-in EFI Shell

Launch EFI Shell from filesystem device

►Reset System with ME disable ModeMEUD000

Exit system setup after
Saving the changes.

→←: Select Screen
↑↓ : Select Item
Enter: Select
+/- : Charge Opt.
F1 : General Help
F2: Previous Values
F3:Optimized Defaults
F4:Save and Exit
ESC   Exit

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Save Changes and Exit (Save & Exit Setup save Configuration and exit?)

- [Yes]
- [No]

Discard Changes and Exit (Exit without saving/Quit without saving?)

- [Yes]
- [No]

Save Changes and Reset (Save & reset Save Configuration and reset?)

- [Yes]
- [No]

Discard Changes and Reset (Reset Without Saving Reset without saving?)

- [Yes]
- [No]

Save Changes (Save Setup Values Save configuration?)

- [Yes]
- [No]

Discard Changes (Load Previous Values?)

- [Yes]
- [No]

Restore Defaults (Load Optimized Defaults?)

- [Yes]
- [No]

Save user Defaults (Save Values as User Defaults, Save configuration?)

- [Yes]
- [No]

Restore user Defaults (Restore User Defaults)?

- [Yes]
- [No]

Launch EFI Shell from filesystem device

- [ok]

CHAPTER 5:
Troubleshooting

Troubleshooting Overview

After installation, if the PowerStation does not function properly, use the guidelines and procedures in this chapter to troubleshoot. These guidelines also apply to troubleshooting a malfunction during normal operation of the PowerStation.

General Troubleshooting Procedures

Use the following list as a guideline for troubleshooting. The remaining sections of this chapter provide procedures for each of the guidelines in the list.

1. Check the front LED for power, it should be green.

2. If you are having difficulties powering up the XT PowerStation or experiencing functional or performance issues, it could be due to problems associated with the SD card or the installed image. See the section later in this chapter on Restoring the SD Card.

3. If you think your IX or PCA PowerStation Operating System is corrupt and needs to return to factory settings, refer to the disk image recovery section later in this chapter.

4. If the InteractX software only runs for 1 hour and then stops, then your PowerStation is not detecting that you have an InteractX license installed. If you ordered a PCA PowerStation, then you need to order the InteractX license.

5. If you lost your InteractX license key, then call Technical Support for guidance in resolving your issue, see How to Obtain Technical Assistance from Parker Hannifin.

6. Call Parker Hannifin for Technical Support for guidance in resolving your issue, see How to Obtain Technical Assistance from Parker Hannifin.

7. Check the FAQs at http://www.parkermotion.com

LED Power Indicator

The Power LED on the front surface of the unit will be green when power is applied.

Perform the following steps if the LED is not green when power is applied:

- Check connections between the power supply and the PowerStation
- Verify the input power to the PowerStation is within the 12VDC / 24VDC specification

Ethernet Connections

If you are unable to establish Ethernet Communications to the Power Station here areas to check:

- Verify the IP address & Network settings of the XT via the Configuring Network Settings.
- Check the RJ45 connections to and from the PowerStation.
- Verify that your cable is plugged into the correct LAN port.
- Check the LED status on the RJ45 LAN connectors.
- Ping the PowerStation from your host device.

XT PowerStation – Restoring the Secure Digital Card (SD)

The XT PowerStation comes with an internal 2GB Secure Digital (SD) Card installed. The SD card comes from the factory loaded with the Operating System and the necessary files to boot and run the Xpress runtime software. Customer specific projects can be copied or downloaded to this card. The SD card is used as a fixed drive and provides non-volatile memory storage for the system. Although this card is removable, it must be installed in the XT PowerStation before power up and cannot be removed while the unit is powered on.

If you are having difficulties powering up the XT PowerStation or experiencing functional or performance issues, it could be due to problems associated with the SD card or the installed image. If the SD card is suspected to be defective, a replacement card may be purchased (See How to Obtain Technical Assistance from Parker Hannifin) however, it is first recommended that you try to recover the original factory software image onto the SD Card using the Parker Flashback utility to see if the problems are resolved before returning the unit for repair. The following procedure will guide you through the restoration procedure.

Parker Flashback Utility

The Flashback Utility is a tool for restoring or upgrading the XT PowerStation's firmware and operating system onto an SD card. The Flashback utility can be found on-line via the XT product page: http://www.parker.com/emn/XT. Before you run the utility, you need a computer that has a native or external SD card reader/writer. You can use the flashback utility when:

- A new version of the XT PowerStation firmware is available.
- The user wishes to create a backup copy of the SD image.
- The factory supplied SD cards becomes corrupt or unusable.

⚠️   CAUTION: Be careful when using Flashback to restore the SD card as all information on the card will be formatted and overwritten.

Complete the following steps to restore your SD card with the Flashback Utility:

1. Save the Flashback_XT.exe executable on your computer from www.parker.com/XT.

2. Insert the SD card into a SD card reader/writer.

3. Run the Flashback_XT.exe program.
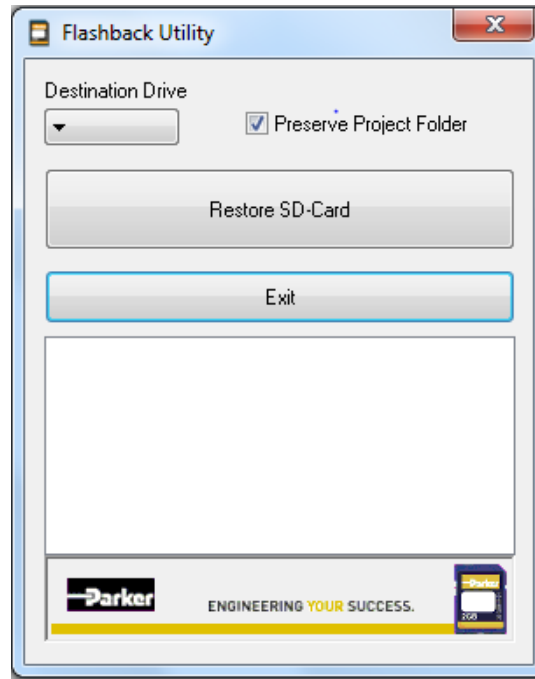
4. Select the destination drive of the SD card.

5. If you would like to preserve your project, leave the boxed checked. If you would like to erase your project too, uncheck the box.

6. Click Restore SD-Card.

7. A dialog box will appear warning that all files will be deleted. Select Yes.

8. After the process is complete, properly eject the SD card from the computer.

IX & PCA PowerStation – Restoring the Solid State Drive (SSD)

The IX and PCA PowerStations come with an internal 64GB Solid State Drive (SSD) installed. The SSD comes from the factory loaded with the Operating System, a partition containing a copy of the factory disk image, InteractX HMI runtime software and other necessary system files. This drive is used as a fixed drive and provides non-volatile memory storage.

If you are having difficulties powering up the PowerStation or experiencing functional or performance issues, it could be due to problems associated with the SSD module or the installed image. If the SSD is suspected to be defective, the unit must be returned to the factory for repair (See How to Obtain Technical Assistance from Parker Hannifin) however, it is first recommended that you try to recover the original factory software image from a recovery partition on the SSD (Drive D:) to see if the problems are resolved before returning the unit for repair. The following procedure will guide you through the restoration procedure.

F11 Disk Image Recovery Procedure

The IX and PCA PowerStations include the ability to restore the software to the original state when it left the Parker factory. This may be required if your Windows operating system is corrupted or if you need to revert back to the original state of the PowerStation.

CAUTION: For Windows 10 units there is an additional step required to re-activate Windows 10. This procedure we do in manufacturing prior to shipping the units. Unlike older OS versions, the "Activation" is not something that the recovery image can save and restore. To run the Microsoft Windows 10 Activation, this unit MUST be attached to a network with access to the Internet. The Microsoft Activation server has no offline activation option. F11 should only be used as a last resort when all other options have failed and the unit can get access to the Internet for Microsoft activation. If this is not possible, it will need to come back to Parker on an RMA to be re-imaged.

When restoring the software, it is best to have a USB keyboard and mouse plugged into the unit. To restore the drive image, follow these steps:

1. Cycle Power on the PowerStation.

2. During the boot process hit the F11 key a few times when you see the message "Press F11 to run Acronis Startup Recovery Manager"

3. Windows 7 only - Select "Cancel" when you see the message "Enter Linux kernel command line"

4. Select "Acronis True Image"

5. Select "Recovery" from the left hand menu.

6. Windows 7 only - Select "Disk and Partition Recovery"

    a. Windows 10 only – Select the option "Disk backups" and it should turn blue.

7. Windows 7 only - Select "Browse" to locate the backup file.

    a. Windows 10 only – On right side next to "Disk Recovery" select button labled "Browse for backup…"

8. If you would like to restore the image that was originally shipped from Parker, double click on the Acronis (D:) folder. Select the "Factory Restore.tib" file in this directory. Select "OK"

9. If you would like to restore the image to one created by the user, browse for the appropriate ".tib" file and select "OK"

10. Windows 7 only - Select "Next" (You may need to maximize the Window to see the "Next" button)

    a. Windows 10 only – Right Click on "Factory Restore" and select "Recover" from the dropdown.

11. Select "Recover whole disks and partitions" and then select "Next"

12. Under "Disk 2" select "NTFS" drive. Select "Next"

13. Under the Partition Location(required), select "New Location"

14. Select "NTFS (unlabeled) (C:)" and select "Accept"

15. Select "Next"

16. Select "Proceed" to start the backup process.

17. The backup recovery may take several minutes. A message "Recover operation succeeded." Will pop up when it is complete. Select OK and then close the Acronis application. The PowerStation will restart automatically.

18. After the reboot, you may have to re-activate the F11 Backup feature for a future image recovery.

19. There is an ICON on the desktop called "Activate Acronis Start Up Recovery Manager." Double click this ICON.

    a. If this Shortcut gets deleted, it can be found in C:\PARKER\ACRONIS

20. An Acronis Startup Recovery Manager window will pop. Select "Activate" to enable the F11 Backup feature. If the message says "Deactivate", the F11 feature is already enabled and you do NOT want to select the "Deactivate" and you can close the window

21. When it is finished, a message will pop up saying "Acronis Startup Recovery Manager activated successfully." Select OK to close the window.

22. The Recovery Image is the image for the PCA version of the PowerStation. If your unit is an IX version and you want to have the image converted to the IX image from the factory, double click the ICON on the desktop called "Enable InteractX." This will enable the deployment server and

have the demo project run on power up just like the IX PowerStation. After you double click this ICON, it will disappear from the desktop.

23. Windows 10 only – Connect the IXA/PCA to a network with Internet access and double click the "Activate Windows.bat" Shortcut. Failure to do the activation will result in some Windows apps not functioning and various popup messages that your Windows is not a Genuine Microsoft product. This could impact the InteractX application and products installed by the machine builder. This version of Windows 10 does not have a product key code that needs entered. It is only registered via the network.

Using Acronis to Create your Own Backup Image

The IX and PCA PowerStations include the ability to create your own backup copy of the entire disk. This may be required if your Windows operating system is corrupted or if you need to revert back to a desired default image that is different than the Factory Restore image that originally shipped with the unit from the factory. When creating the backup image, it is best to have a USB keyboard and mouse plugged into the unit. To create the backup image, follow these steps:

1. Cycle Power on the PowerStation.

2. During the boot process hit the F11 key a few times when you see the message "Press F11 to run Acronis Startup Recovery Manager"

3. Select "Cancel" when you see the message "Enter Linux kernel command line"

4. Select "Acronis True Image"

5. Select "Backup" from the left hand menu

6. Select "Disk and Partition Backup"

7. Select the drive that you would like to back up. The default drive is "NTFS (Unlabeled)(C:)" But your drive may have a new name and location.

8. Select "Next" (You may need to maximize the Window to see the "Next" button)

9. Select the "Create new backup archive" radial button.

10. Browse for the desired Backup Location and name. This would typically be the location of your back up drive, such as another PC or an external drive. This location needs enough disk space to store the recovery image. In the File name, enter the name of the new.tib back up file. Or you can select "Generate name" to have it generate the My Backup.tib name.

11. Select "OK"

12. Select "Next"

13. Select "Proceed"

14. The backup may take several minutes. A message will pop up when it is complete. Select OK and then close the Acronis application.

15. There are other options for creating your back up image or only backing up certain files. Refer to the help section in the Acronis software by selecting the "?" in the upper right hand corner.

You can also use the Acronis Software package installed on the IX or PCA to create your own backup copy of the entire disk. If you have a 7" display, running the Acronis software from Windows is not recommended because you are not able to see the entire screen. For the 7" units, we recommend using the F11 option on power up that is described above.

The Acronis Software package can be started in three ways:

1. There is an ICON on the desktop titled "Acronis True Image"

2. From the Start Menu Select "Acronis True Image"

3. From the Start Menu, select "All Programs," then the "Acronis" folder, then the "True Image" folder, then "Acronis True Image.

Once the Acronis application has started, follow these instructions to back up your drive:

1. Under the "Backup", "New Backup", select "Select Source"

2. Select "Disks and partitions"

3. Select the Local Disk (C:) as the disk you want to back up. (you may have to uncheck the (D:).

4. Select "OK."

5. Select "Select Destination"

6. To back up your C drive to an external drive, select "Your External Drive." To browse for your destination drive, select "Browse" to find your location

7. For your external drive, plug in the external drive and select OK.

8. Select "Back Up Now."

9. The backup process may take several minutes. You can monitor the status via the status bar at the bottom of the screen. You can stop the process by selecting "Stop"

10. When the process is complete a green check box circle will appear in the middle of the screen.

11. Close the window to return to the Windows desktop.

How to obtain Technical Assistance from Parker Hannifin

Contact Information for Technical Assistance
Contact your local automation technology center (ATC) or distributor.

North America	Europe
Parker Hannifin Corporation	Parker Hannifin Corporation
Electromechanical & Drives, North America	Electromechanical & Drives, Europe
5500 Business Park Drive	Robert-Bosch-Strasse 22
Rohnert Park, CA 94928	77656 Offenburg (Germany)
Telephone: (707) 584-7558	Telephone: +49 (0781) 509-0
Fax: (707) 584-8029	Fax: +49 (0781) 509-98176
Email: emn_support@parker.com	Email: em-motion@parker.com
Internet: http://www.parker.com/emn	Internet: http://www.parker.com/eme

APPENDIX A:
XT/IX/PCA PowerStation Specifications

Environmental Specifications

Environmental Specifications Table

Category	Specifications
Operating Temperature (Indoor Use Only)	0 to 50°C (32°F to 122°F) Ambient (surrounding air temp) -20 to 60°C (-4°F to 140°F) Headless Only Ambient (surrounding air temp)
Storage Temperature	-20 to +60°C (-4 to 140°F) Display based -40 to +85°C (-40 to 185°F) Headless
Relative Humidity	10% to 90% @ 40°C, non-condensing
Altitude	10,000 Feet
Heat Dissipation (approximate)	00" (No Display) – 13W 7.0" Display Size – 14W 10.1" Display Size – 11W 15.6" Display Size – 17W 21.5" Display Size – 18W
Shock Rating	15g peak; 11ms (operating)
Vibration	5-500Hz: 1 Grms random, swept sine (operating)
	1, 4, 16, 40, 80, 200Hz: 0.52 Grms, random (non-operating)
Environmental Design	IP65 Compliant Front Panel
RoHS	2011/65/EU Restriction of Hazardous Substances Directive

Electrical Specifications

Electrical Specifications Table

Category	Specifications
System	
CPU	Onboard Intel® Bay Trail™ N2930 (1.83GHz), 4 Cores
Chipset	SoC
Memory	Onboard 4GB DDR 3L 1600 MHz
Graphics	Intel® HD Graphics 311/844 MHz
I/O Ports	
USB	2 x USB 3.0 Type A (Headless Unit Only: 3 x USB 2.0 Type A)
Serial/Parallel	1 x RS-232/422/485 (Default RS-232) DB-9 Male (COM1) 1 x RS-232 DB-9 Male (COM2)
Audio	1 x Audio Jack Line Out
LAN	2 x GbE LAN RJ45
Video Output (Headless Only)	1 x VGA (Analog Output) DB-15 Female, Up to 1920 x 1200 Resolution 1 x HDMI (Digital Output) HDMI-19P, Up to 1920 x 1200 Resolution
Power	1 x 3-pin DC Power input 1 x 2-pin connector for power on/off button
Storage Device	
Storage	1 x SD card slot, up to 32GB 1 x 1.8" (MO-297) SATAII SDD bay, up to 64GB (7" only) or, 1x 2.5" SATAII SSD bay, up to 64GB (Headless, 10.1", 15.6", 21.5" only)

Expansion	
Expansion Slot	1 x Internal Mini-PCIe slot full size

Touch Screen – Resistive Touch	
TS Controller	PenMount 6000 on Board
Interface	USB
Light Transmission (%)	Over 80%

Touch Screen – Projected Capacitive (PCAP) Touch	
TS Controller	Chip on tail
Interface	USB
Light Transmission (%)	Over 90%

Power	
Power Input (Volts & Watts)	12VDC & 24VDC Nominal, Class 2 00" (No Display) – 24W maximum 7.0" Display Size – 23W maximum 10.1" Display Size – 25W maximum 15.6" Display Size – 32W maximum 21.5" Display Size – 37W maximum
Battery for RTC Backup	CR2477 Li by 2-pin header

Operating System	
OS Support	XT Models: Windows Compact 7 Edition
	IX & PCA Models: Windows Embedded Standard 7P (WES7P) or Windows 10 IoT Enterprise 2016 LTSB Value Edition 64-bit (Windows 10)

Display Specifications

Display Specifications Table

Display	7.0"	10.1"	15.6"	21.5"
Display Type	7" TFT LCD	10.1" TFT LCD	15.6" TFT LCD	21.5" TFT LCD
Max. Resolution	800 x 480 (WVGA)	1280 x 800 (WSVGA)	1366 x 768 (WXGA)	1920 x 1080 (HD)
Max. Color	262K	16.2M	16.7M	16.7M
Luminance (cd/m²)	350	350	300	250
Contrast Ratio	400 : 1	800 : 1	500 : 1	3000 : 1
Viewing angle	140(H) / 110(V)	160(H) / 160(V)	160(H) / 160(V)	178 (H) / 178(V)
Backlight Lifetime	40,000 hrs.	40,000 hrs.	50,000 hrs.	30,000 hrs.
Unit VESA Mount	75 x 75mm	100 x 100mm	100 x 100mm	100 x 100mm

Agency Approvals

The PowerStation hardware was tested in accordance with Technical Standard: EMC Directive 2004/108/EC (EN55022 / EN55024) and Technical Standard: FCC 47 CFR Part 15 Subpart B Class A, IC ICES-003 Issue 5-2012 Class A, ANSI C63.4-2009 for Information Technology Equipment.

European Community Approvals Table

Test	Specification
Harmonic Current Emissions	EN 61000-3-2: 2014
Voltage Fluctuations and Flicker	EN 61000-3-3: 2013
Electrostatic Discharge Immunity	IEC 61000-4-2: 2008
Radiated Electromagnetic Field Immunity	IEC 61000-4-3: 2006 + A1:2007 + A2:2010
Electrical Fast Transient Burst Immunity	IEC 61000-4-4: 2012
Surge Immunity	IEC 61000-4-5: 2005
Radio Frequency Common Mode Immunity	IEC 61000-4-6: 2008
Power Frequency Magnetic Field Immunity	IEC 61000-4-8: 2009
Voltage Interrupts Immunity	IEC 61000-4-11: 2004
Radiated & Conducted Emissions	EN 55022:2010 / AC:2011 (Class A)
Protection Degree IP65 (Front Panel Only)	IEC 60529:2001 (IP6X & IPX5)

Physical Specifications

Physical Specifications Table

Category	Specification		
Display	Headless	7.0"	10.1"
Dimensions W x H x D	11.69" x 6.81" x 1.33" (297.0 x 173.0 x 33.9) mm	7.95" x 5.87" x 1.57" (202.0 x 149.0 x 40.0) mm	11.22" x 7.44" x 1.93" (285.0 x 189.0 x 48.9) mm
Cutout Dimensions W x H	N/A	7.56" x 5.43" (192.0 x 138.0) mm	10.71" x 6.93" (272.0 x 176.0) mm
Weight	3.5 lbs. (1.6 kg)	2.6 lbs. (1.2 kg)	4.2 lbs. (1.9 kg)
Unit VESA Mount	100 x 100 mm	75 x 75 mm	100 x 100 mm

Category	Specification	
Display	15.6"	21.5"
Dimensions W x H x D	16.22" x 10.93' x 2.38" (412.0 x 277.5 x 60.4) mm	21.93" x 14.25" x 2.55" (557.0 x 362.0 x 64.8) mm
Cutout Dimensions W x H	15.51" x 10.22" (394.0 x 259.5) mm	21.22" x 13.54" (539.0 x 344.0) mm
Weight	10.3 lbs. (4.7 kg)	16.9 lbs. (7.7 kg)
Unit VESA Mount	100 x 100 mm	100 x 100 mm

Touchscreen Chemical Resistance Specifications

Resistive Touchscreen Chemical Resistance Table

Chemical Applied	Test for Transmittance Due to Haze		
	Transmissivity Before	Dwell Time	Transmissivity After
Window Cleaners	81.6%	1 hour @ 22 ~ 28°C	81.6%
Alcohol	81.4%	1 hour @ 22 ~ 28°C	81.3%
Toluene	81.4%	1 hour @ 22 ~ 28°C	81.1%
Oil	81.1%	1 hour @ 22 ~ 28°C	81.4%
Phenol	81.3%	1 hour @ 22 ~ 28°C	81.3%
Bleach	81.3%	1 hour @ 22 ~ 28°C	81.6%
Glycol	81.6%	1 hour @ 22 ~ 28°C	81.7%
Isopropanol	81.9%	1 hour @ 22 ~ 28°C	81.9%
Glutaraldehyde	81.9%	1 hour @ 22 ~ 28°C	81.6%

Test method: Samples of touchscreens were tested as follows:

1. Measurement of spectral transmissivity in target areas before application of chemical agent.
2. Apply agent to target area.
3. Dwell for 1 hour at target temperature.
4. After test period, wipe agent from target area with clean cloth.
5. Measure the target area again to determine any changes in transmittance due to haze.

Projective Capacitance (PCAP) Touchscreen Chemical Resistance Table

	Test for Transmittance Due to Haze, Corrosion or Damage		
Chemical Applied	Condition of Glass Prior	Condition of Glass After	Judgement
Acetic Acid	No damage on surface	No damage on surface	PASS
Acetone	No damage on surface	No damage on surface	PASS
Alcohol 95%	No damage on surface	No damage on surface	PASS
Vaseline	No damage on surface	No damage on surface	PASS
Ammonia	No damage on surface	No damage on surface	PASS
Lanoline	No damage on surface	No damage on surface	PASS
Salt Solution	No damage on surface	No damage on surface	PASS
Cold Cream	No damage on surface	No damage on surface	PASS
Cidex	No damage on surface	No damage on surface	PASS
Gasoline	No damage on surface	No damage on surface	PASS
Glycerine	No damage on surface	No damage on surface	PASS
Green Soap Water	No damage on surface	No damage on surface	PASS
Incidin Liquid	No damage on surface	No damage on surface	PASS
Incidin Plus	No damage on surface	No damage on surface	PASS
Windex	No damage on surface	No damage on surface	PASS
Isopropyl Alcohol	No damage on surface	No damage on surface	PASS
Kerosene	No damage on surface	No damage on surface	PASS
Methanol	No damage on surface	No damage on surface	PASS
Parafin Oil	No damage on surface	No damage on surface	PASS
Propanol	No damage on surface	No damage on surface	PASS
Toluene	No damage on surface	No damage on surface	PASS
Hydrochloric Acid	No damage on surface	No damage on surface	PASS
Nitric Acid	No damage on surface	No damage on surface	PASS
Sulfuric Acid	No damage on surface	No damage on surface	PASS
Caustic Soda	No damage on surface	No damage on surface	PASS
Ethyl Ether	No damage on surface	No damage on surface	PASS
Glutaraldehyde	No damage on surface	No damage on surface	PASS

Test method: Samples of touchscreens were tested as follows:

1. Observe condition of test sample prior to testing.
2. Apply 10 c.c. of agent to test sample and cover with dust free cloth.
3. Dwell at 25°C for 24 hours.
4. After test period, wipe agent from target area with clean cloth.
5. Observe condition of test sample after testing.
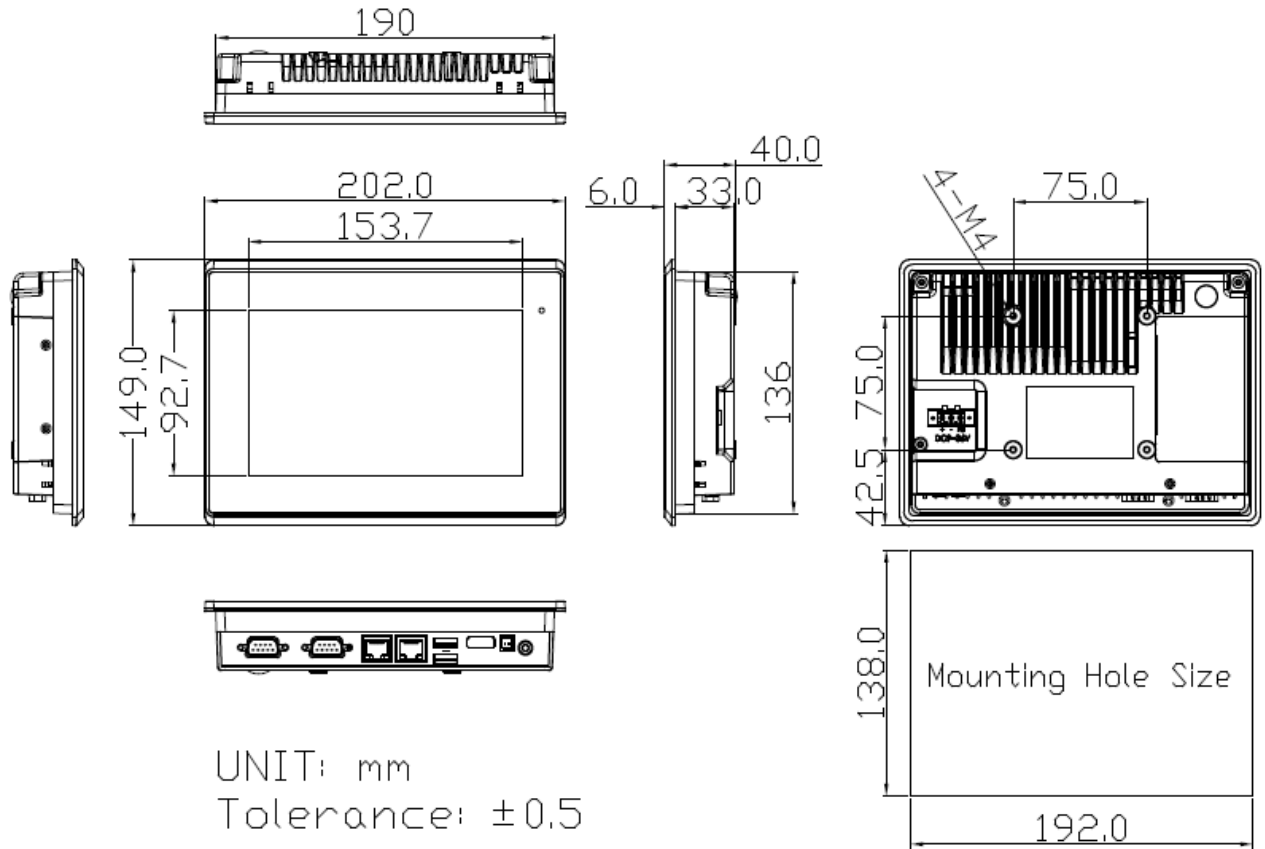6. Any damage or discoloration is not accepted.

Physical Dimensions and Panel Cutouts

UNIT: mm
Tolerance: ±0.5

Figure A.1: Headless Physical Dimensions and Panel Cutout

Figure A.2: Headless Top View

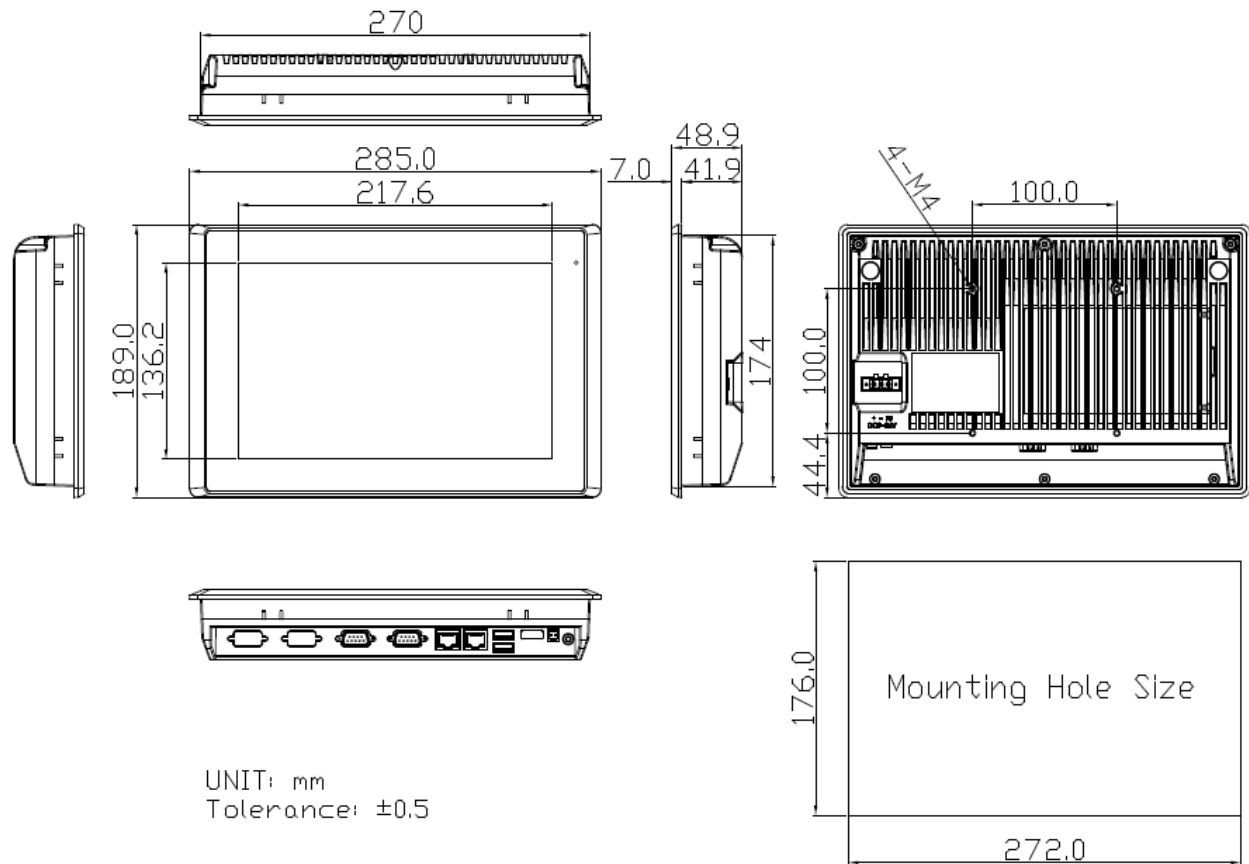*Figure A.3: 7.0" Physical Dimensions and Panel Cutout*

Figure A.4: 7.0" Rear View

Figure A.5: 10.1" Physical Dimensions and Panel Cutout

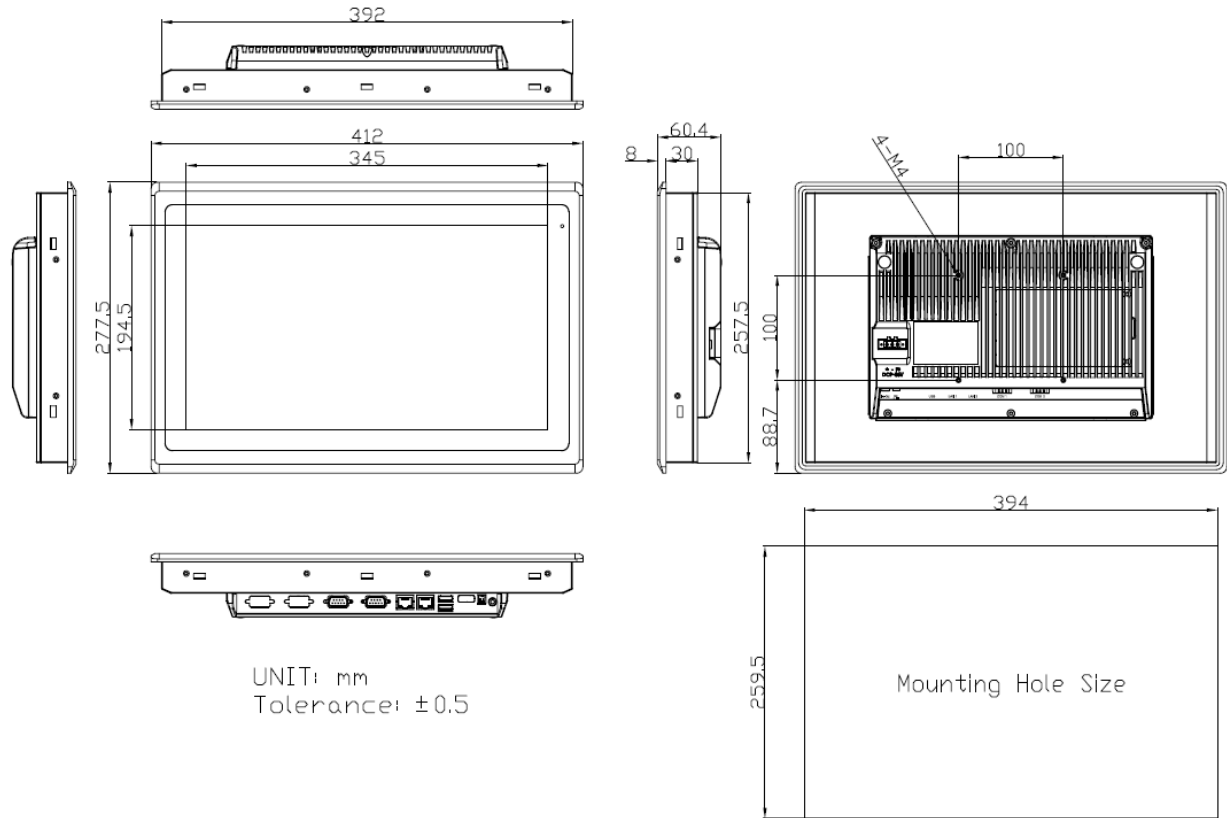**Figure A.6: 10.1" Rear View**

Figure A.7: 15.6" Physical Dimensions and Panel Cutout
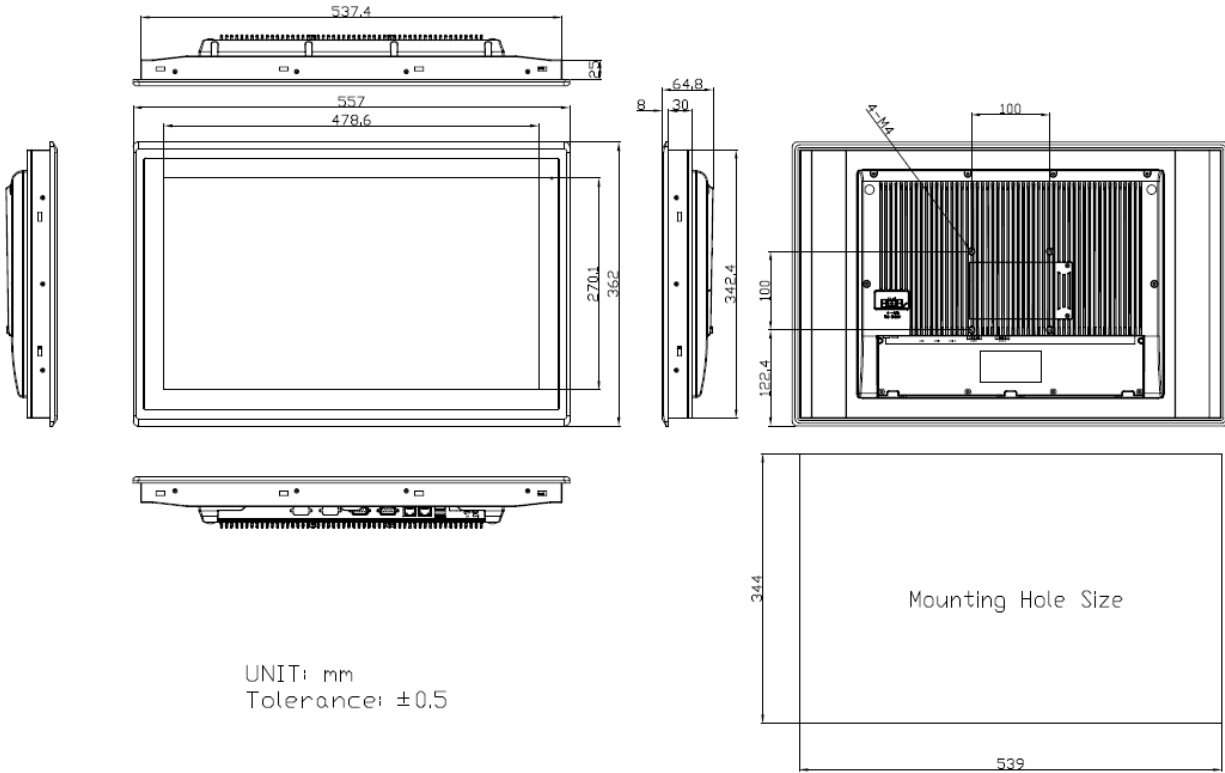

Figure A.8: 15.6" Rear View

Figure A.9: 21.5" Physical Dimensions and Panel Cutout

Figure A.10: 21.5" Rear View