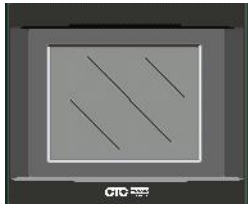


HPC/HPX Workstations

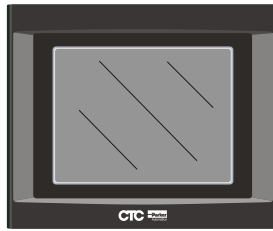
With 10", 15", and 17" panel mount touchscreen systems, and a non-display system, the new HPC PowerStation line of Industrial PCs is designed and tested to extremes. HPC PowerStations are NEMA-rated, robust units that are tougher than "light duty" Industrial workstations with more processor, media and connectivity performance for your money.

CTC's award winning InteractX Windows HMI software can be purchased, installed and licensed with HPX PowerStation versions of this workstation line. This reliable, high-performance PC platform will serve your factory automation needs for years to come!

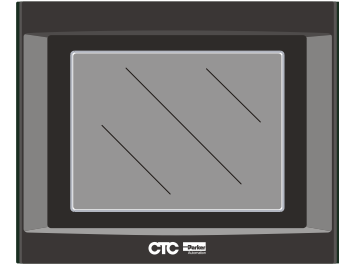
- Processor:** 2.0GHz Celeron or 2.8 GHz Pentium 4
- Hard Drive:** 40GB minimum unformatted storage area
- Expansion Cards:** Optional PCI



HPC/HPX10 PowerStation
Display: 10.4" VGA Color TFT and 10.4" SVGA Color TFT



HPC/HPX15 PowerStation
Display: 15.1" XGA Color TFT



HPC/HPX17 PowerStation
Display: 17" SXGA Color TFT



HPC/HPX00

The HPX00 is a remote, non-display PowerStation that is ideal for HMI applications where a separate monitor is preferred. This split system solution offers the same powerful processing, media and connectivity features as the HPX10/15/17. The NEMA-rated HPX00 is designed and tested to extremes and comes bundled with CTC's award-winning InteractX Windows HMI software, including features such as panel tools, graphics, alarm management, OPC communications, networking and more.

- No Display:** Remote Unit
- Processor:** 2.0GHz Celeron P4 or 2.8 GHz Pentium 4
- Hard Drive:** 40 GB minimum unformatted storage area
- Expansion Cards:** Optional PCI

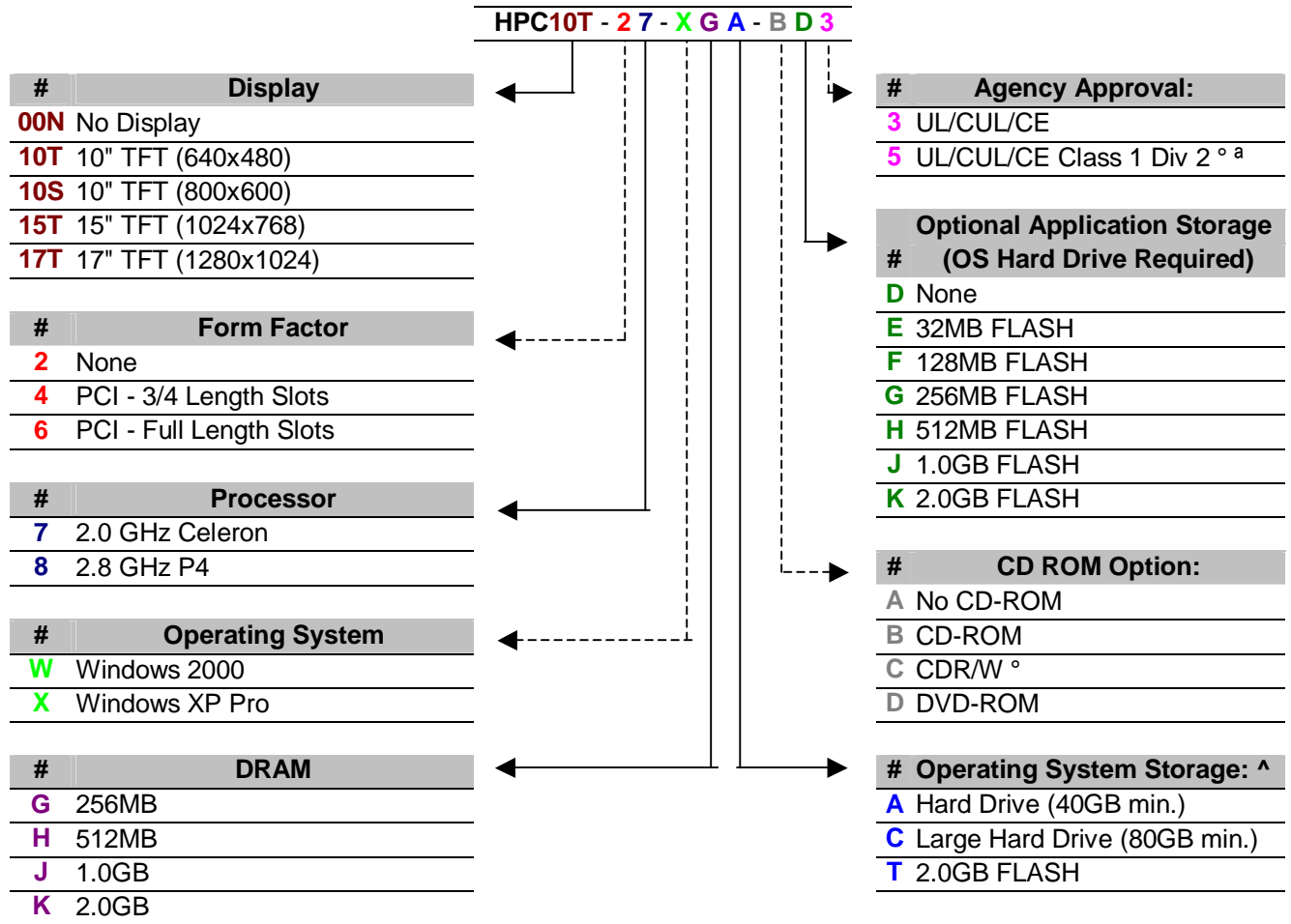
What's Different from CTC's Previous PC Design?

- No 12" or Function Key Displays
- OS support for Windows 2000 and XP Pro only
- One external CompactFlash slot (IDE bootable, no PCMCIA) – 3rd party USB option available
- No Floppy Drive - 3rd party USB option available
- Once Serial Port with display-based unit (no RS-485) – 3rd party USB option available
- AC Power only
- 2 PCI slots – no PC/104 or ISA slots
- Ports on left side rather than right/bottom – cable length must be considered
- PowerSmart functionality is limited
- Panel Mount units do not have video stretching mode
- Backshell dimensions are different (see below)

Backshell Dimension Chart

Display	HPC/HPX (h x w x d)	PC/PX (h x w x d)	Difference (depth)
00"	10.92 x 11.27 x 3.89	N/A	
10"	11.00 x 13.78 x 5.79	11.00 x 13.78 x 4.29	1.50
15"	13.31 x 16.80 x 6.63	13.31 x 16.80 x 5.89	0.74
17"	15.70 x 18.00 x 6.01	15.70 x 18.00 x 5.65	0.36

HPC Industrial PC Model Number Configurator



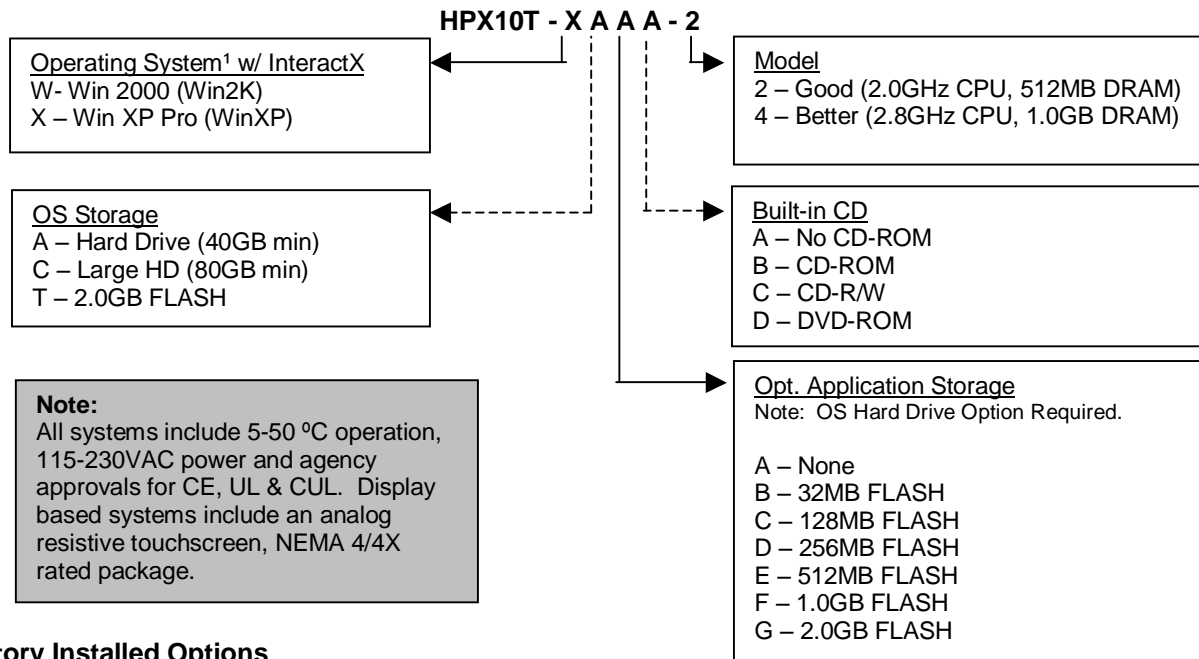
Notes and Exceptions

- ^ Actual storage volumes may be higher.
- o Class 1 Div 2 option not available with CDR/W option.
- a C1D2 systems ship with USB and PS/2 ports covered.

Note:
 All systems include 0-50 °C operation, 110VAC power and agency approvals for CE, UL & CUL. Display based systems include an analog resistive touchscreen, NEMA 4/4X rated package.

HPX PowerStation Standard Model Number Configurations

Performance	Good	Better
CPU	2.0 GHz Celeron	2.8 GHz P4
DRAM	512MB	1.0GB
OS	Windows XP	Windows XP
Hard Drive	40GB	40GB
Non-Display	HPX00N-XAAA-2	HPX00N-XAAA-4
10" Touchscreen	HPX10T-XAAA-2	HPX10T-XAAA-4
10" Touchscreen	HPX10S-XAAA-2	HPX10S-XAAA-4
15" Touchscreen	HPX15T-XAAA-2	HPX15T-XAAA-4
17" Touchscreen	HPX17T-XAAA-2	HPX17T-XAAA-4



Factory Installed Options

Parker Product Code: 610	Model #
PCI Expansion Cards	
Expansion kit: for two full length PCI cards	EXP-2200-A
Expansion kit: for two 3/4 length PCI cards	EXP-2210-A
Agency Approvals	
C1D2 Option for Performance Series PC/PX	Add "-H" to Model Number

HPC/HPX PowerStation Workstation Specifications

HPC/HPX10	HPC/HPX15	HPC/HPX17	HPC/HPX00
Display: Flat Panel Cold Cathode Fluorescent Tube Color-TFT; VGA (640 x 480) or SVGA (800 x 600) 10.4" (264 mm) Diag. 200 (VGA) or 350 (SVGA) NITS Weight & Size (HxWxD): 20 lbs. (9.1 Kg) 11.00" x 13.78" x 5.79" 279mm x 350mm x 147mm With ¾ Length PCI Expansion: 21.9 lbs. (10 Kg) 11.00" x 13.78" x 8.03" 279mm x 350mm x 204mm	Display: Flat Panel Cold Cathode Fluorescent Tube Color-TFT; XGA (1024 x 768) 15.1" (380 mm) Diag. 260 NITS Weight & Size (HxWxD): 27.4 lbs. (12.5 Kg) 13.31" x 16.80" x 6.63" 338mm x 427mm x 168mm With ¾ Length PCI Expansion: 29.3 lbs. (13.3 Kg) 13.31" x 16.80" x 8.84" 338mm x 427mm x 224mm	Display: Flat Panel Cold Cathode Fluorescent Tube Color-TFT SXGA (1280 x 1024) 17" (432 mm) Diag. 300 NITS Weight & Size (HxWxD): 27.3 lbs. (12.4 Kg.) 15.70" x 18.00" x 6.01" 399mm x 457mm x 153mm With ¾ Length PCI Expansion: 29.2 lbs. (13.3 Kg.) 15.70" x 18.00" x 8.17" 399mm x 457mm x 208mm	Remote Unit No Display 2048x1536 max. monitor resolution Weight & Size (HxWxD): 12.4 lbs. (5.6 Kg.) 10.92" x 11.27" x 3.89" 277mm x 286mm x 99mm With ¾ Length PCI Expansion: 14.3 lbs. (6.5 Kg.) 10.92" x 11.27" x 6.10" 277mm x 286mm x 155mm
Features and Specifications for Models Listed Above			
OS/Software			
Operating System	Windows 2000 or XP Professional		
InteractX (HPX models)	InteractX Runtime including panel tools, alarming, graphics, networking, VBA ActiveX and OPC		
Processor Support			
CPU	2.0GHz Celeron or 2.8 GHz Pentium 4 (Socket 478)		
Chipset	Intel 845GV/ICH4 <ul style="list-style-type: none"> ▪ 400/533MHZ FSB ▪ Intel Extreme Graphics ▪ Hyper-Threading Technology Support 		
Memory			
System	256MB Shared DDR 200/266, (2) 184-Pin Slots, 2.0GB Max.		
Video	64MB+ Shared System Memory		
Storage Options			
Hard Drive	(1) 3.5" 40GB, Enhanced IDE		
CompactFlash	(1) External Type II slot (IDE Bootable)		
Floppy	N/A		
CD ROM	24x Super Slim CD-ROM, CD-R/W or DVD-ROM (Bootable)		
User Interface			
Touchscreen	Analog Resistive		
Keyboard	(1) PS/2, with over current protection		
Mouse	(1) PS/2, with over current protection		
Expansion Slots			
	None Standard		
	Optional PCI Slots: (2) ¾ Length or (2) Full Length		
I/O Ports			
USB	(4) USB 2.0/1.1 ports Type-A, with over current protection		
Serial	(1) RS232 9-Pin D-sub (second port available on 00" units)		
Ethernet	(1) 10/100Base-T w/ RJ45		
Parallel	(1) 25-Pin D-sub		
External Video	(1) Analog 15-Pin D-sub connector		
Audio	(1) Amplified Output, (1) Line Input, (1) Microphone, AC97		
Package			
Temperature Range	0-50°C		
Rel. Humidity	5-95% (non-cond.)		
Vibration	5-500 Hz .5grms (Random-operational-HD)		
	5-500 Hz 1grms (Random-operational-CompactFlash)		
Shock	10G, 11 msec (operating)		
	30G, 11 msec (non-operating)		
Power Requirements			
	90-250 VAC; 50/60 Hz		
Agency Approval			
	UL/CUL; CE; Optional Class 1 Division 2 (pending)		

Notes on Workstation Features and Specifications

HPC/HPX Workstations

Display	Resolution	Colors	Brightness	Viewing Angle	Bulb Life*
Color TFT (10.4")	640 x 480 VGA	262,144 colors	200 NIT	+/- 70° L/R, 40°U, 70°D	50,000 Hrs.
Color TFT (10.4")	800 x 600 SVGA	262,144 colors	350 NIT	+/- 70° L/R, 40°U, 70°D	50,000 Hrs.
Color TFT (15.1")	1024 x 768 XGA	16 Million colors	260 NIT	+/- 80° L/R, 55°U, 80°D	50,000 Hrs.
Color TFT (17")	1280 x 1024 SXGA	16 Million colors	300 NIT	+/- 80° L/R, 65°U, 85°D	50,000 Hrs.

* Hour specs are typical lives to half brightness. Manufacturer rating for TFT/LCD/STN bulbs is a minimum hours of use before the bulbs reach half brightness (see above for minimums). This rating represents hours of continuous use and may be affected by the number of times the bulbs are turned on.

I/O Ports

- 25-pin IBM enhanced parallel port
- All HPC/HPX display-based units include one 9-pin RS232 port.
- Non-display HPC/HPX units have two 9-pin RS232 ports.
- 10/100Base-T, RJ45 Ethernet port standard on all units.

Specifications for Optional PCI Expansion Slots

Two PCI bus master slots are available.

Total Available Power to HPC/HPX PCI Expansion Slots

Shared between all slots:

- +3.3V @ 3.5A
- +12V @ 1.5A
- +5V @ 3.5A
- -12V @ 0.3A

Workstation Memory Guidelines

The storage memory is similar to a PC's floppy or hard disk. Non-volatile storage memory is available as solid state CompactFlash cards and hard drives. All units support Type 1 and 2 CompactFlash cards. These cards are interchangeable and replaceable with each other – however, different PowerStation models require different hardware drivers, etc. Please refer to your documentation for details.

A PCMCIA FLASH adapter is also available for use with CompactFlash cards. This adapter allows you to plug a CompactFlash cards into the adapter, plug the adapter into a PCMCIA slot on your PC, and copy application files from your PC to the FLASH disk. The CompactFlash card may then be installed to the unit simply by powering down the unit, removing the old card and inserting the new one! Due to advances in FLASH technologies, logging to CompactFlash is now supported.

Storage Solutions: CompactFlash vs. Hard Drives

Choosing the right storage option for your workstation is one of the most important decisions concerning its reliable operation throughout its installed life. Compare hard drive and CompactFlash features, and then review the requirements of your application to determine which solution is the best fit for your needs.

There are no “across the board” advantages to using either hard drive technology or CompactFlash. The decision to use either technology depends entirely on the requirements of the particular application. The table on the next page lists important application requirements that affect which storage media you should use.

Application Requirements	Relationship to Storage Media
Windows	<p>When running Windows software a hard drive is recommended, but with a larger capacity CompactFlash (1.0GB or greater), it is possible to run Windows.</p> <p>The choice depends on your storage requirements. Currently, CTC offers CompactFlash technology in 32MB, 128MB, 512MB, 1.0GB, and 2.0GB capacities. If you need more storage, then select a hard drive.</p>
Mounting	<p>If shock and vibration is a concern in your application, we recommend using CompactFlash for most reliable operation. Certain types of machine mounting (i.e. using a swing arm) can promote a vibration environment. This obviously depends on the machine and the mounting mechanisms it employs.</p>
Continuous Operation (24 Hours/7 Days a week)	<p>The expected life of a hard drive running 24 hours a day, 7 days a week is approximately 1 year. Hard drive manufacturers cite the limitations are due to heat and the technology of the internal construction materials. There are no industrially rugged hard drives currently available that support “24/7” operation.</p> <p>However, there are some measures that can be used to extend the life of a hard drive. First, you can remove power during periods of non-production and maintenance. Secondly, we strongly recommend using a power saving feature in the CMOS settings that allows the hard drive to spin down during periods of inactivity. This “sleep mode” feature is similar to a screen saver for displays. The setting is selectable from 1 to 15 minutes, which means that if there is no activity reading from or writing to the disk, the drive will “rest” until the next read or write request occurs. You should be aware that it might take several seconds for the drive to spin up again after it has been at rest. For example, it may take 2 or 3 seconds to load a new panel as the drive spins back up after it has been at rest. However, it is easy to adjust the sleep mode feature for your application so that it is transparent during normal operation. Taking advantage of the sleep mode feature will greatly extend the life of the hard drive in 24/7 applications. Hard drive manufacturer’s design is for 3-5 years lifetime under normal operating conditions (i.e. not 24/7).</p> <p>CTC recommends CompactFlash for “24/7” applications. CompactFlash does not have the mechanical life limitations found in current hard drive technology. If the application does not require data to be logged, the Compact FLASH should last indefinitely. If the application does require data to be logged, please review the Logging to CompactFlash section below.</p>
Data Logging	<p>If your application requires logging data to the drive, do you need to store more data than can be supported by CompactFlash? If so, you must select the hard drive option. Also, if you can use CompactFlash while logging data faster than once/second, you should plan on replacing the CompactFlash drive during yearly maintenance periods. Remember the CompactFlash is field replaceable and is as simple as replacing a floppy disk.</p>

DRAM Information

System Memory

PowerStation DRAM system memory is identical to a PC's system memory where programs are loaded from storage to execute.

You can easily expand your PowerStation's system memory by adding DRAM on the motherboard.

HPC/HPX (2.0GHz through 2.8GHz Systems)

The motherboard contains two 2.5v DDR DIMM sockets supporting up to 2GB of DDR200/DDR266 memory

Valid System DRAM Configurations, (2) 184-Pin DIMM Slots

DIMM Slot 1	DIMM Slot 2	Total
256 MB	-	256MB
256 MB	256 MB	512MB
256 MB	512MB	768MB
256 MB	1GB	1,256MB
512MB	-	512MB
512MB	256 MB	768MB
512MB	512MB	1GB
512MB	1GB	1,512MB
1GB	-	1GB
1GB	256 MB	1,256MB
1GB	512MB	1,512MB
1GB	1GB	2GB
-	256 MB	256 MB
-	512MB	512MB
-	1GB	1GB

Workstation Electrostatic Discharge Warning

CTC's workstation products are designed to allow you to perform upgrades, installation of I/O cards and some maintenance in the field. Upgrades such as PCI expansion slots, DRAM, FLASH memory and display backlight replacement can be purchased from CTC and installed on site by you at your convenience.

Before performing any maintenance on your workstations, we ask that you read the following paragraphs regarding ESD control.

ESD is an electronic discharge from a charged object that touches a conductive material, such as the workstation's sheet metal or logic board assembly, with its electronic components. A charged object can be the person performing the upgrade, a piece of plastic film or tape, a coffee cup, or even a shirt cuff. An example of ESD occurs when a person walks across a carpet then touches a doorknob, generating a spark (and the person feels a shock). Many of the unit's components, such as displays, DRAM, FLASH, and the CPU can be easily damaged by ESD. You can even cause ESD damage without being aware that it has happened.

It is very important that you take proper precautions against the risk of Electrostatic Discharge (ESD) damage, while performing upgrades or maintenance functions to your workstation products. Failure to do so can cause random or hard failures of these products. These precautions include:

- Transport the product in ESD preventive packaging.
The packaging includes ESD bags or conductive boxes that contain the electronic components. CTC ships all electronic components in ESD-preventive bags, and these components should be removed only when the unit is properly grounded and ready for their immediate installation.
- Install components using an ESD Field Upgrade Kit and following ESD-preventive procedures.
An ESD Field Upgrade Kits typically consist of a wrist wrap, a unit ground cord, and a portable ESD-protective mat. Manufacturers such as 3M provide such kits at a minimal cost.

CTC builds its workstation products in an ESD-controlled environment to ensure their reliability when you receive them. It is important that you follow the preceding precautions when performing upgrade or maintenance functions. This will ensure the continued reliability of your units.

Please contact CTC if you would like more information on how to prevent ESD damage to your workstation products.

Workstation Dimensions

