

## Integrated Display Industrial Computers with Keypad

Catalog Numbers 6180P-12KSXP, 6180P-12BSXP, 6180P-12BPXP, 6180P-12BPXPDC, 6180P-12KPXP,  
6180P-15KSXP, 6180P-15BSXP, 6180P-15BPXP, 6180P-15KPXP, 6180P-15BPXPDC



## Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.



**WARNING:** Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.



**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

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### IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

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Labels may also be on or inside the equipment to provide specific precautions.



**SHOCK HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.



**BURN HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.



**ARC FLASH HAZARD:** Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

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This manual contains new and updated information. Changes throughout this revision are marked by change bars, as shown to the right of this paragraph.

### New and Updated Information

This table contains the changes made to this revision.

Topic	Page
Added title and updated 'Preface Objectives' section	9
Added 'Abbreviations' section	10
Updated 'Chapter Objectives' section	11, 17, 29, 33, 47
Added link to Rockwell Automation Product Compatibility and Download Center (PCDC) website	11, 49, 57, 59
Removed 'Multilingual User-interface CD Pack' section	12
Reduced what compact discs (CDs) are shipped with computer in 'Parts List' section	12
Moved existing information into 'Installation Precautions' section	18
Revised title and added information to 'Installation Guidelines' section	19
Moved existing information into 'Mounting Clearance Requirements' section	20
Moved existing installation and mounting information into 'Install the Computer' section	22
Added steps in 'Mount the Display Computer in a Panel' section	23
Moved existing AC and DC power information into 'Connect Power' section	25
Added Attention table in 'Connect Power' section	25
Updated IEC number for power cord in 'Connect AC Power' section	26
Changed Attention table to Shock Hazard table in 'Connect AC Power' section	26
Revised and added steps in 'Connect DC Power' section	27
Added information in 'Functional Ground Screw' section	27
Moved 'Operator Access' section into 'Operating Guidelines' section	29
Added information in 'Operating Guidelines' section	29
Added information in 'Start the Computer' section	30
Added information in 'Restart the Computer' section	31
Added information in 'Shut Down the Computer' section	32
Updated link to Rockwell Automation Computers and Operators Interface website	33, 53
Updated step 4 in 'Post-configuration' section	35
Added step 4 in 'Remove the Cover' section	36
Added information in 'Reinstall the Cover' section	36
Added 'Drive Precautions' section	37
Added 'Hardware Monitoring' section	47
Added Tip table in 'Troubleshooting' section	48
Revised opening paragraph for 'Troubleshooting Checklists' section	48
Replaced 'Diagnostic Utility' section with 'Load the System Defaults' section	51
Added 'Clear the CMOS' section	51
Added 'Ship or Transport the Computer' section	52
Added Turkey RoHS statement in Certifications table	55
Revised information in 'Upgrade the BIOS from the CD Drive' section	59
Revised information in 'Upgrade the BIOS from an External Floppy Disk Drive' section	61

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**Notes:**



## Preface Objectives

This preface covers the following topics:

- [Purpose of This Manual](#)
- [Additional Resources](#)
- [Abbreviations](#)

## Purpose of This Manual

This manual is a user guide for integrated display industrial computers with keypad. It provides procedures to the following:

- Install the computer.
- Make computer connections.
- Operate the computer.
- Troubleshoot the computer.

## Additional Resources

These documents contain additional information to related products from Rockwell Automation.

Resource	Description
Integrated Display Computer with Keypad Installation Instructions, publication <a href="#">6180P-IN001</a>	Provides procedures on how to install the computer and make connections to the workstation.
Cloning Utility for Rockwell Automation Industrial Computers Technical Data, publication <a href="#">6000-TD002</a>	Provides information on how to create and restore a back-up image of your computer's hard disk drive.
Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>	Provides general guidelines for installing a Rockwell Automation® industrial system.

You can view or download publications at <http://www.rockwellautomation.com/literature>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

## Abbreviations

This publication can use the following abbreviations.

Abbr	Meaning
ACPI	Advanced configuration (and) power interface
AHCI	Advanced host controller interface
AMI	American Megatrends, Inc.
AMT	Active management technology
BIOS	Basic input/output system
CF	CompactFlash
CPU	Central processing unit
CMOS	Complementary metal oxide semiconductor
COM	Communication (serial port interface)
CRC	Cyclic redundancy clock
DDR	Double data rate (RAM)
DIMM	Dual in-line memory module
DVI	Digital video interface
DVMT	Dynamic video memory technology
ECC	Error correcting code
EEA	European Environment Agency
EMC	Electromagnetic compatibility
EOS	Embedded operating system
ESD	Electrostatic discharge
EFW	Enhanced write filter
FAT	File allocation table
HDD	Hard disk drive
HORM	Hibernate once, resume many
IDE	Integrated device electronics
IEC	International Engineering Consortium
IGD	Intel graphics driver
KVM	Keyboard video mouse
LAN	Local area network
NEMA	National Electrical Manufacturers Association
ODD	Optical disk drive

Abbr	Meaning
PCB	Printed circuit board
PCDC	Product Compatibility and Download Center
PCH	Platform control hub
PCI	Peripheral component interconnect
PCIe	Peripheral component interconnect express
PEG	PCI express graphics
PELV	Protective extra-low voltage
PERR	PCI parity error
POST	Power on self test
PSU	Power supply unit
PXE	Pre-boot execution environment
RAID	Redundant array (of) independent disks
RAM	Random access memory
RIUP	Remove or insert under power
RMS	Root-mean-square
RTC	Real-time clock
SAS	Serial attached SCSI
SATA	Serial advanced technology attachment
SCSI	Small computer system interface
SELV	Safety extra-low voltage
SERR	PCI signal error
SPD	Serial presence detect
SSD	Solid-state drive
TFT	Thin film transistor
UEFI	Universal extensible firmware interface
USB	Universal serial bus
UPS	Uninterruptible power source
VBAT	Voltage (battery)
VDDR	Voltage (DDR RAM)
VGA	Video graphics array

## Features

### Chapter Objectives

This chapter provides information on the following topics:

- [Computer Overview](#)
- [Operating Systems](#)
- [Computer Options](#)
- [Before You Begin](#)
- [Parts List](#)
- [Hardware Features](#)

### Computer Overview

The integrated display computers with keypad feature an integrated 12- or 15-inch display panel. These panel mount devices feature 36 or 44 programmable function keys, a full alphanumeric keypad, and a resistive, anti-glare touch screen option. With these features, the computers can function as an industrial computer or an operator input station. It can be used to run visual interface, maintenance, control, and basic information applications from one machine. The absence of external display cables and separate component mounting requirements allows for simple integration.

These computers are available with standard and performance features. They come standard with a selection of I/O ports for peripheral connections; ISA and PCI slots for expansion options; and LAN ports for communication.

### Operating Systems

The computers are shipped with Microsoft-licensed Windows XP Professional, Service Pack 3 operating system installed and configured. No operating system updates have been applied to the factory image beyond the service packs.

The I386 source directory for Microsoft Windows is on the system drive of your computer off the root directory, C:\I386. This allows for easy removal and addition of Windows components.

Computers with HDDs include a recovery partition with the original factory image. Refer to the Cloning Utility for Rockwell Automation Industrial Computers Technical Data, publication [6000-TD002](#), for instructions.

To obtain a copy of a factory system image, contact your local technical support center or access the Rockwell Automation Product Compatibility and Download Center (PCDC) at <http://www.rockwellautomation.com/support/pcdc.page>.

## Computer Options

This table summarizes the options available for the integrated display industrial computers with keypad. A comparative summary of features for the computers is in Appendix A, [Specifications on page 87](#).

Cat. No.	Display Size (in.)	Touchscreen	Power	Package
6180P-12KSXP	12	Keypad	AC	Standard
6180P-12BSXP		Keypad and Touchscreen		
6180P-12BPXP				Performance
6180P-12KPXP		Keypad		
6180P-12BPXPDC		Keypad and Touchscreen	DC	
6180P-15KSXP	15	Keypad	AC	Standard
6180P-15BSXP		Keypad and touchscreen		
6180P-15BPXP				Performance
6180P-15KPXP		Keypad		
6180P-15BPXPDC		Keypad and touchscreen	DC	

## Before You Begin

Before unpacking the computer, inspect the shipping carton for damage. If damage is visible, immediately contact the shipper and request assistance. Otherwise, proceed with unpacking.

Keep the original packing material in case you need to return the computer for repair or transport it to another location. Use both inner and outer packing cartons to provide adequate protection for a computer returned for service.

## Parts List

The computers ship with the following items.

Item	Description
Hardware	<ul style="list-style-type: none"> <li>Power cord for AC power models</li> <li>Mounting clips</li> <li>Keys for front access cover lock</li> <li>Assembly screw bag</li> <li>Industrial Computer System Cloning Utility CD (red)</li> <li>CD with CD/DVD burning software<sup>(1)</sup></li> </ul>
Documents	<ul style="list-style-type: none"> <li>Integrated Display Industrial Computers with Keypad Installation Instructions, publication <a href="#">6180P-IN001</a></li> <li>Shipped Compact Discs (CDs) Update Release Note, publication <a href="#">6000-RN009</a></li> <li>China RoHS hazardous material table insert</li> <li>Production test report</li> </ul>

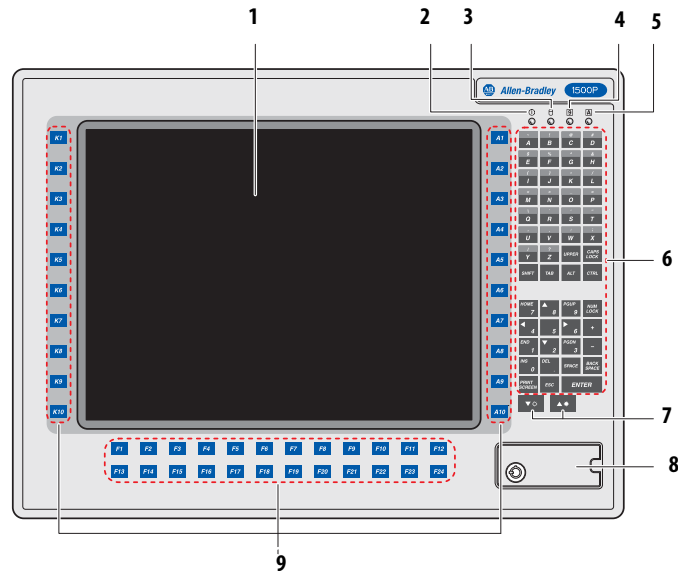
(1) Shipped only with Performance models; see the table in [Computer Options on page 12](#) for more information.

## Hardware Features

The illustrations in this section show the hardware features of each computer:

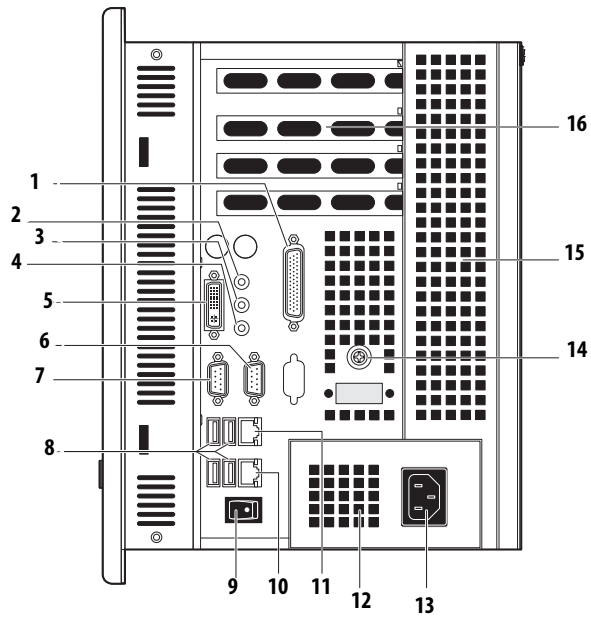
- Exterior views
  - Front panel
  - Side panel
  - Rear panel
- Interior view
- Motherboard

**Figure 1 - Front Panel**



Item	Icon	Component
1		LCD panel
2	ⓘ	Power/standby indicator shows the computer's power status. <ul style="list-style-type: none"> <li>• Green: Powered on and running</li> <li>• Flashing orange: Standby mode</li> <li>• Off: Powered off</li> </ul>
3	Ⓜ	HDD/ODD activity indicator shows the drive's status. <ul style="list-style-type: none"> <li>• Flashing red: Ongoing drive activity</li> <li>• Off: No hard drive activity</li> </ul>
4	9	NumLock indicator lights up green when the NumLock function is enabled.
5	A	CapsLock indicator lights up green when the CapsLock function is enabled.
6		Alphanumeric keypad
7		Brightness control keys / Display auto adjust
8		Front access cover - Protects the front USB ports and power switch from unauthorized access.
9		Function keys <ul style="list-style-type: none"> <li>• 1200P - 36 function keys</li> <li>• 1500P - 44 function keys</li> </ul>

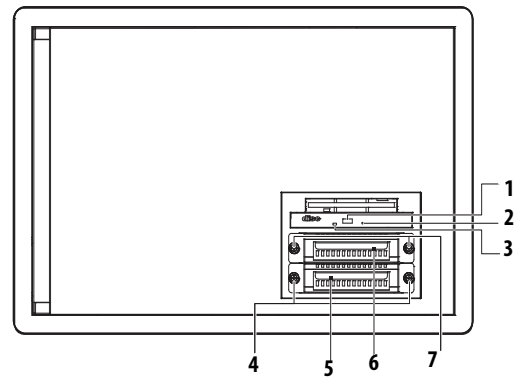
Figure 2 - Side Panel



Item	Component
1	Parallel port
2	Microphone-in jack
3	Line-out jack
4	Line-in jack
5	DVI port
6	COM 2
7	COM 1
8	USB ports (4)

Item	Component
9	Power switch
10	LAN port 2
11	LAN port 1
12	Power supply fan
13	Power input, AC
14	Functional ground screw
15	Ventilation slots
16	Expansion slot covers

**Figure 3 - Rear Panel**

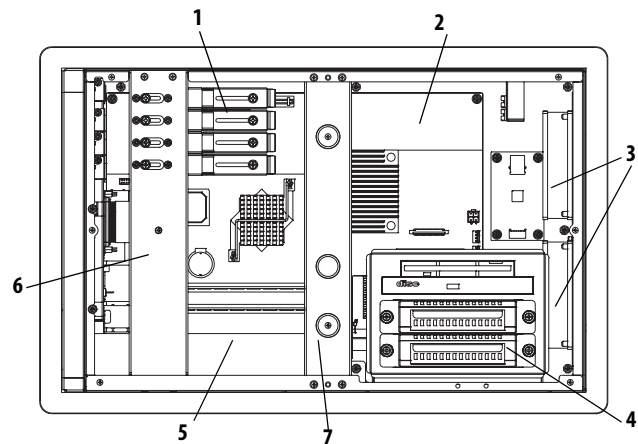


Item	Component
1	ODD eject button
2	ODD mechanical eject hole
3	ODD activity indicator
4	HDD 1 captive thumbscrews

Item	Component
5	HDD 1 bay
6	HDD 2 bay <sup>(1)</sup>
7	HDD 2 bay captive thumbscrews

(1) HDD bay shipped empty for optional, second HDD.

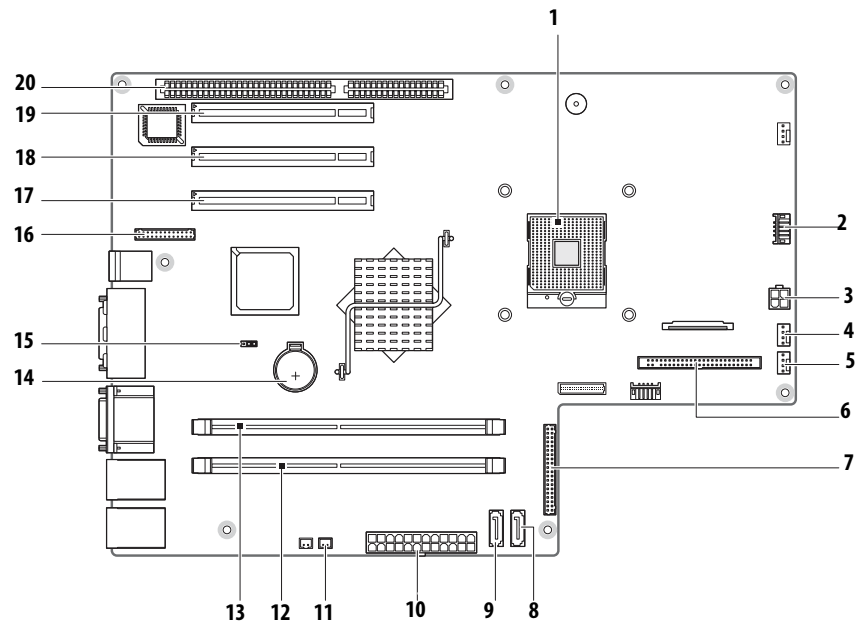
**Figure 4 - Interior View**



Item	Component
1	Expansion board hold-down clamps
2	System board
3	System fans
4	System drive cage

Item	Component
5	Power supply unit
6	Expansion board hold-down bar
7	Chassis center support bar

Figure 5 - Motherboard



Item	Component
1	LGA775 processor socket
2	Reserved for USB port connector
3	ATX12V power connector
4	Heat sink fan connector
5	System fan connector
6	ODD cable connector
7	Keypad cable connector
8	SATA 2 cable connector
9	SATA 1 cable connector
10	ATX power connector

Item	Component
11	Power switch cable connector
12	DIMM 1 slot
13	DIMM 2 slot
14	RTC battery socket
15	Clear CMOS jumper
16	Parallel port cable connector
17	PCI 3 expansion slot
18	PCI 2 expansion slot
19	PCI 1 expansion slot
20	ISA expansion slot



## Installation

### Chapter Objectives

This chapter provides information on the following topics:

- [Installation Precautions](#)
- [Installation Guidelines](#)
- [Mounting Clearance Requirements](#)
- [Computer Dimensions](#)
- [Required Tools](#)
- [Install the Computer](#)
- [Connect Peripherals](#)
- [Connect Power](#)
- [Functional Ground Screw](#)
- [Connect to a Network](#)

Review each mounting type and computer dimensions before installing.

## Installation Precautions

Read and follow these precautions before installing the computer.

### Environment and Enclosure Information



**ATTENTION:** This equipment is intended for use in a Pollution Degree 2 environment, in overvoltage Category II applications (as defined in IEC 60664-1), at altitudes up to 2000 m (6562 ft) without derating. The enclosure door must be closed.

This equipment is considered Group 1, Class A equipment according to IEC/CISPR 11. Without appropriate precautions, there can be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

This equipment can be mounted in an enclosure that is suitably designed to prevent personal injury resulting from accessibility to live parts. If not mounted inside another enclosure, the mounting method must limit the tilt of the computer to +/- 30° from vertical. Examples include articulated arm, table-top stand, wall mount, or other means having sufficient mechanical stability. The mounting means must be firmly attached to the supporting surface using screws bolts, or clamps so the computer cannot tip.

In addition to this publication, see the following:

- Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#), for additional installation requirements
- NEMA 250 and IEC 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure

### European Union Compliance

This computer meets the European Union Directive requirements when installed within the European Union or EEA regions and have the CE mark. A copy of the declaration of the conformity is available at <http://www.rockwellautomation.com/certification>.



**ATTENTION:** This computer is intended to operate in an industrial or control room environment, which uses some form of power isolation from the public low-voltage mains. Some computer configurations cannot comply with the EN 61000-3-2 Harmonic Emissions standard as specified by the EMC Directive of the European Union. Obtain permission from the local power authority before connecting any computer configuration that draws more than 75 W of AC power directly from the public mains.

To comply with EN 55024, the Ethernet port LAN cable 30 m (98.42 ft), only used indoors, and not exit the building at any point. All other I/O cables must be less than 3 m (9.84 ft) and only used indoors.

## Installation Guidelines

Follow these guidelines to make sure your computer provides safe and reliable service:

- The installation site must have sufficient power.



**ATTENTION:** To maintain an electrically safe installation, AC powered computers must be plugged into a grounded outlet.

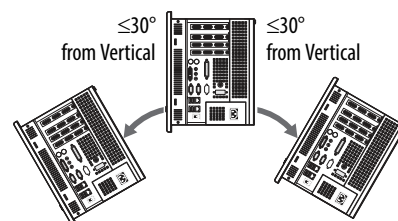
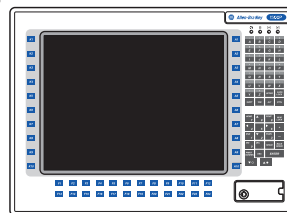
- In dry environments, static charges can build up easily. Proper grounding of the computer helps to reduce static discharges, which can cause shock and damage electronic components.
- The enclosure must allow sufficient space around air inlets and outlets to provide the circulation necessary for cooling. See [Mounting Clearance Requirements on page 20](#) for further information. Never allow air passages to become obstructed.
- The ambient air temperature must not exceed the maximum operating temperature specified in [Table 4 on page 48](#). Consider a user-supplied fan, heat exchanger, or air conditioner for heat generated by other devices in the enclosure.

**TIP** Hot air rises. The temperature at the top of the enclosure is often higher than the temperature in other parts of the enclosure, especially if air is not circulating.

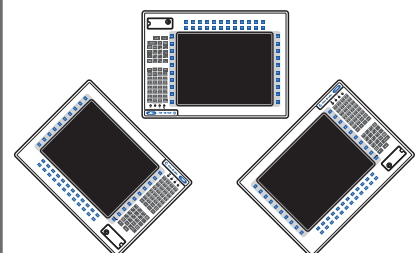
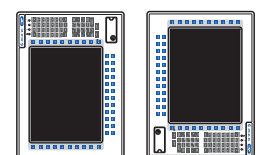
**IMPORTANT** The computer can operate at a range of extremes. However, the life span of any electronic device is shortened if you continuously operate the computer at its highest rated temperature.

- The humidity of the ambient air must not exceed limits specified in [Table 4 on page 48](#) and must avoid condensation.
- The enclosure or cover must remain in place at all times during operation. The cover provides protection against high voltages inside the computer and inhibits radio-frequency emissions that can interfere with other equipment.
- When mounted, the computer cannot be tilted more than 30° from vertical.

**Acceptable**



**Unacceptable**

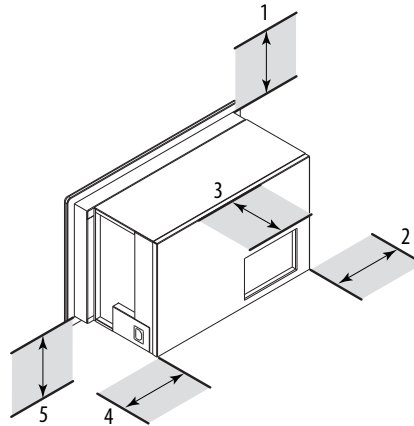


## Mounting Clearance Requirements

**IMPORTANT** Because of self-heating, do not operate the computer in an enclosure with the minimum clearances unless adequate ventilation or other cooling methods are used to lower the temperature within the enclosure.

Allow enough clearance to easily install or remove peripheral components, such as internal drives.

**Figure 6 - Minimum Clearances**



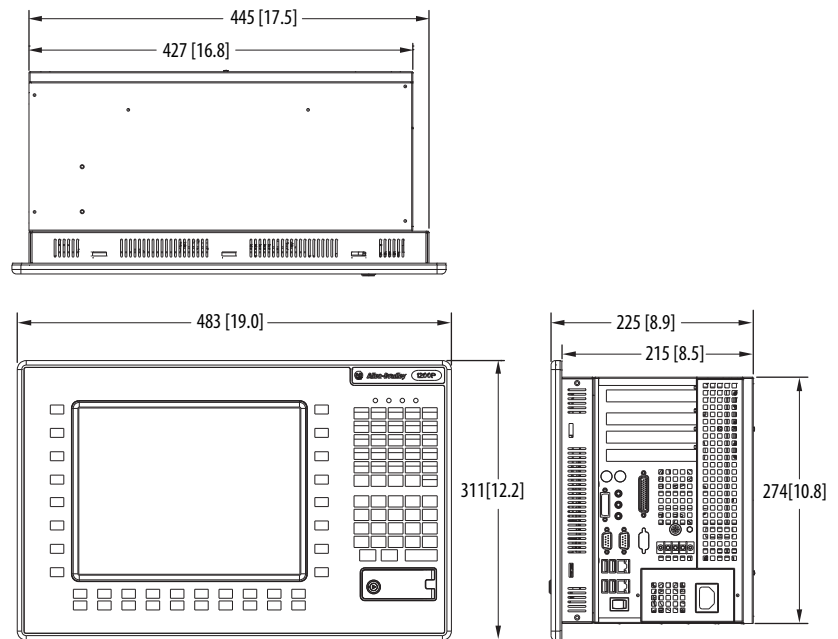
Item	Description	Value
1	Top	50 mm (2 in.)
2	Left	50 mm (2 in.)
3	Rear	
	Air flow	25 mm (1 in.)
	ODD	140 mm (5.5 in.)
	HDD access	178 mm (7 in.)
4	Right	
	I/O port access and ventilation	76.2 mm (3 in.)
5	Bottom	102 mm (4 in.)

Right and left are based on facing the front of the computer.

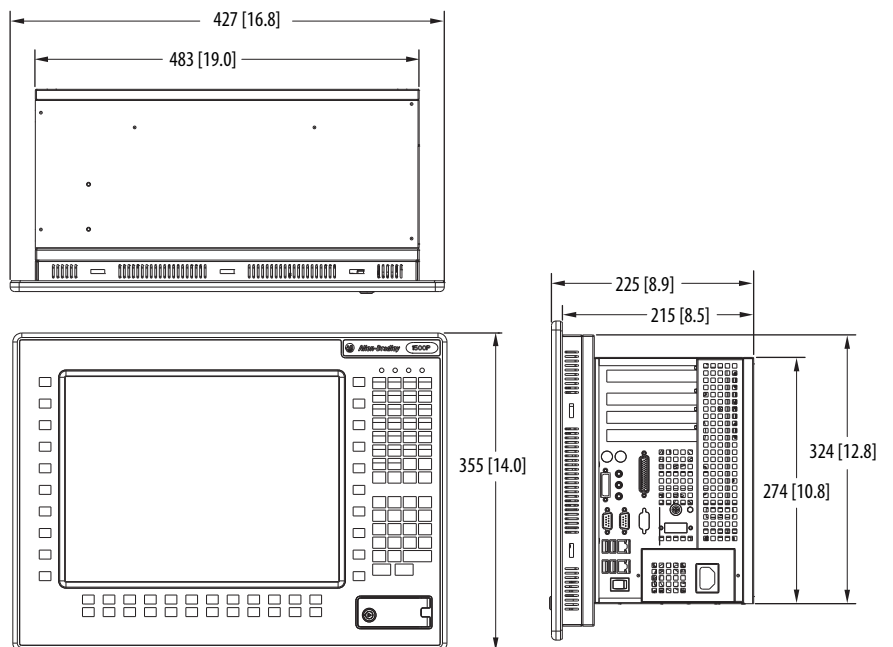
## Computer Dimensions

Review computer dimensions to estimate the clearance necessary for computer installation. Dimensions are given in mm (in.).

**Figure 7 - 1200P with Keypad**



**Figure 8 - 1500P with Keypad**



## Required Tools

These tools are required for computer installation:

- #2 cross-head screwdriver
- Panel cutout tools
- Antistatic wrist strap

## Install the Computer

You can install these computers in a panel by using mounting clips. Computers are mounted through a rectangular cutout in the panel.

### Panel Mounting Guidelines

Observe these guidelines when installing the computer in a panel:

- Remove all electrical power from the panel before making the cutout.
- Confirm that there is adequate space behind the panel. For specific information, refer to [Mounting Clearance Requirements](#) on [page 20](#).
- Cut supporting panels to specifications before installation. Take precautions so metal cuttings do not enter components already installed in panel.

Supporting panels must be at least 14 gauge for proper sealing against water and dust and to provide proper support. The mounting hardware supplied accommodates panel thickness between 1.5...5.5 mm (0.06...0.22 in.).

- Make sure the area around the panel cutout is clear.



**ATTENTION:** Failure to follow these guidelines can result in personal injury or damage to the panel components.

### Panel Cutout Dimensions

The computers must be mounted to meet the panel cutout dimensions specified below.

Model	Cutout Dimensions (HxW), approx
1200P	279.0 x 450.0 mm (10.98 x 17.72 in.)
1500P	326.4 x 429.3 mm (12.85 x 16.90 in.)

## Mount the Display Computer in a Panel

Mounting clips secure the computer to the panel, which total 10 for both computer models.

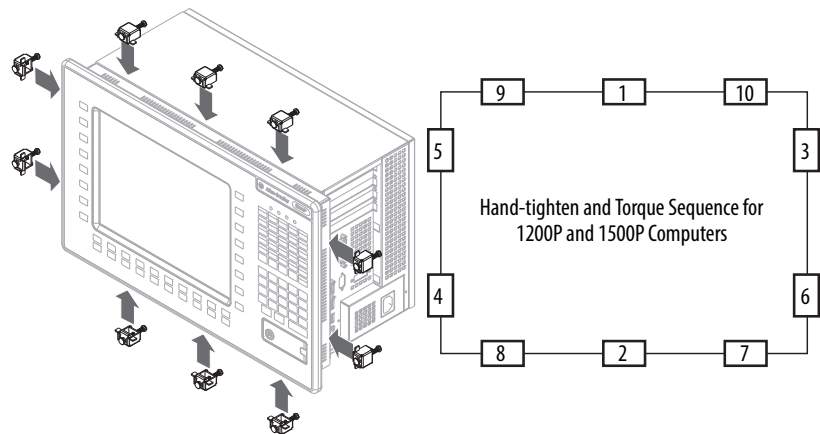
Follow these steps to mount the computer in a panel.

1. Remove power from the panel.
2. Verify that the panel surface around the area to be cut is clean and free of debris.



**ATTENTION:** Take precautions so metal cuttings do not enter components already installed in panel to avoid personal injury or damage to the panel components.

3. Cut an opening in the panel using the appropriate panel cutout dimensions.
4. Attach cables to the computer before installation if rear access to the computer will be limited after installation. For where to attach cables, see [Connect Peripherals on page 24](#).
5. Make sure the sealing gasket is properly positioned on the computer.  
This gasket forms a compression-type seal. Do not use sealing compounds.
6. Place the computer in the panel cutout.
7. Slide the mounting clips into the slots on the top, bottom, and sides of the computer.
8. Hand-tighten the mounting clips around the bezel by following the tightening sequence below.



9. Repeat this process at least three times until the clips are hand-tight and the gasket is compressed uniformly against the panel.
10. Tighten the mounting clips to a torque of 1.4 N•m (12 lb•in.) by following the torque sequence above, being sure to not overtighten.

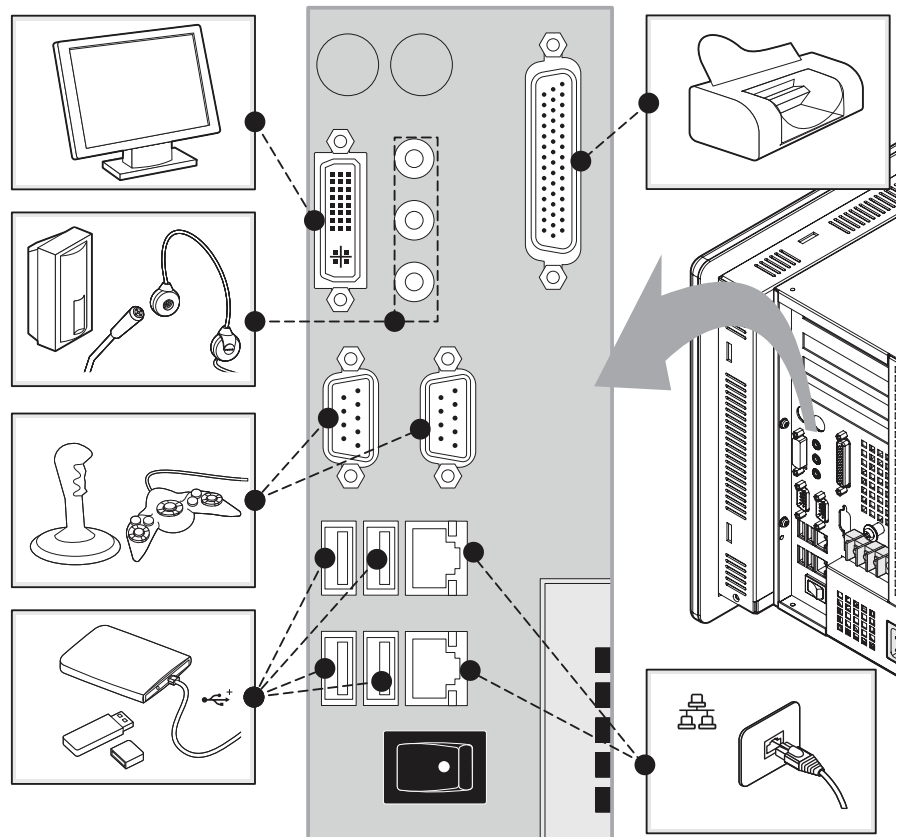
11. Repeat this process at least three times until the clips are properly torqued, making sure the gasket is compressed uniformly against the panel.



**ATTENTION:** Tighten the mounting clips to the specified torque to provide a proper seal and prevent damage to the product. Rockwell Automation assumes no responsibility for water or chemical damage to the computer or other equipment within the enclosure because of improper installation.

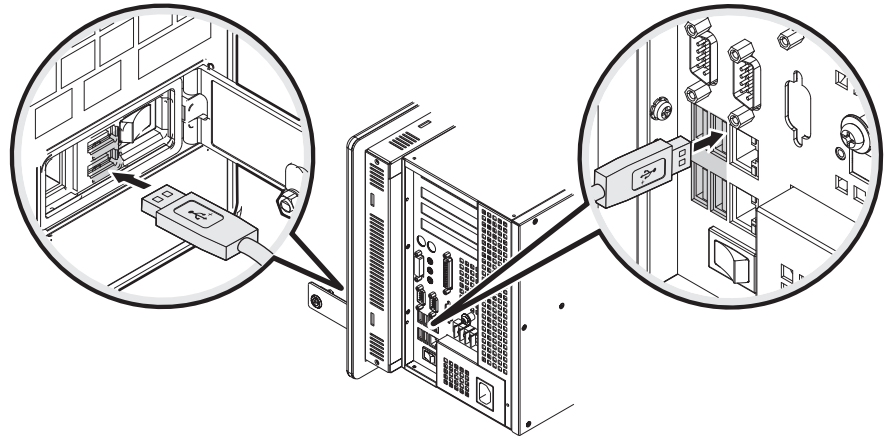
## Connect Peripherals

The following illustration shows the I/O port panel of the computers. Peripheral components compatible to each port are inside the callout figures.





The 1200P and 1500P computers have USB ports located on both the I/O port side panel and the front panel. Use these ports to connect various USB devices to the computer, such as an external drive. The front USB port is enabled or disabled through settings in the BIOS set-up menu.



## Connect Power

The computer connects to either a 90...264V AC or 18...32V DC power source, depending on the model.



**ATTENTION:** When connecting power to the computer for the first time, the following actions occur:

- The default BIOS setting automatically starts the computer after it is plugged into a power source.
- You must read and accept an End User Setup procedure for computers with a Windows operating system.

Do not disconnect power from the system until after the Windows Setup procedure is completed. Disconnecting power during this procedure can result in a corrupted system image.

Operate the computer in an industrial or control room environment, which uses some form of power isolation from the public low-voltage mains.



**ATTENTION:** Supply the computer circuit with its own disconnect. Use an uninterruptible power source (UPS) to protect against unexpected power failure or power surges.

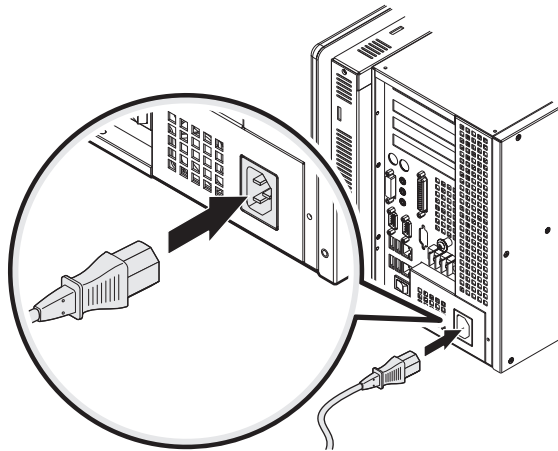
Always shut down the Windows operating system before disconnecting power to the computer to minimize performance degradation and operating system failures.

## Connect AC Power

A grounded, 3-prong IEC60320-C13 power cord provides power to the computer. The power supply input accepts 90...264V AC and is autoranging.

Follow these steps to connect the computer to an AC power source.

1. Connect the power cord to the AC power input.



2. Connect the AC power cord to a power source.



**SHOCK HAZARD:** Connect the AC power cord to a power source with an earth ground. Failure to follow this warning can result in electrical shock.

3. Apply 90...264V AC power to the computer.

## Connect DC Power

The following 6180P models are available with a DC power option using a 3-screw terminal block (+24VDC, 24VTRN, GND):

- 6180P-12BPXPDC
- 6180P-15BPXPDC

DC power models support operation from either a SELV or PELV power source. A pre-installed ground bus strip lets you connect the DC common and functional ground terminals together. This is to support some cases of SELV where grounding at the computer is required by the end user.

The power supply is internally protected against reverse polarity.



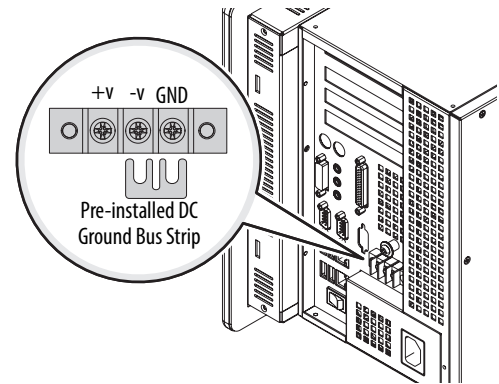
**ATTENTION:** Use a Class 2/SELV isolated and ungrounded power supply as input power to the computer. This power source provides protection so that under normal and single fault conditions, the voltage between the conductors and Functional Earth/Protective Earth does not exceed a safe value.

Follow these steps to connect the computer to a DC power source.

1. Turn off the main power switch or breaker.
2. Verify that the DC wires meet these requirements:
  - Material: Stranded copper
  - Wire gauge:  $0.325\text{...}0.823\text{ mm}^2$  (22...18 AWG)
3. Secure the DC power wires to the correct terminal-block screws, and the DC ground wire to the GND terminal screw.

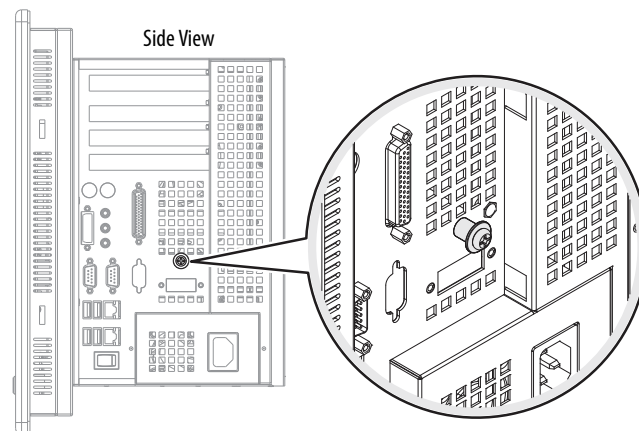
Torque the terminal screws to  $0.687\text{ N}\cdot\text{m}$  (6.1 lb•in).

4. Apply 24V DC power to the computer.



## Functional Ground Screw

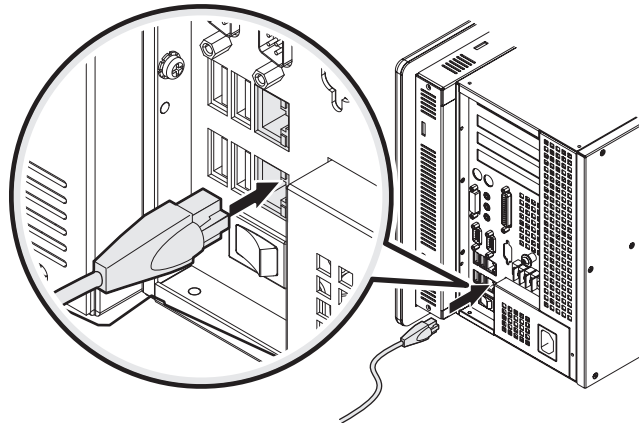
The pre-installed functional ground screw is not required for safety or regulatory compliance. However, if a supplemental ground is desired, use the functional ground screw located in the I/O area on the side panel of the computer.



If using the functional ground screw, connect the computer to earth ground by using a  $1.5\text{ mm}^2$  (16 AWG) or larger external wire. Use a ground wire with green insulation and a yellow stripe for easy identification.

## Connect to a Network

The computers connect to an Ethernet network by using CAT5 or CAT5e twisted-pair Ethernet cabling with RJ45 connectors.



---

**IMPORTANT**

To prevent performance degradation of Ethernet communication, do not subject the computer or cables to extreme radiation or conducted high-frequency noise.

Proper cable routing and power conditioning is required for reliable Ethernet communication in industrial environments. We recommend that you route all Ethernet cabling through dedicated metal conduits. Installing ferrite bead filters at the cable ends can also improve reliability.

---

## Operation

### Chapter Objectives

This chapter provides information on the following topics:

- [Operating Guidelines](#)
- [Keypad Function Setting](#)
- [Start the Computer](#)
- [Restart the Computer](#)
- [Shut Down the Computer](#)

### Operating Guidelines

Follow these operating guidelines for your computer.

- Operator access is limited to the front of the computer, which includes the display and the touchscreen (if available).



**ATTENTION:** Access to components behind the panel where the computer is installed and the front USB port (if available) is restricted to authorized and properly trained personnel.

---

- When mounted in an enclosure, keep the enclosure door closed during operation so dust and other airborne contamination do not infiltrate the computer. Open the door only for routine maintenance.
- Do not operate the computer with the covers removed. Removing the covers disrupts air flow and results in overheating.



**SHOCK HAZARD:** All covers are required to maintain EMI shield.

---

- Always use the proper power down procedures as required by your operating system, such as the Shut Down command in the Microsoft Windows operating system.
- After shutting down the computer, do not apply power again until shutdown is complete.

For computers with a HDD, the HDD must come to a complete stop, which can take up to 30 seconds after shutdown is initiated.

## Keypad Function Setting

The keypad for these computers has two functional settings labeled Set 1 and Set 4.

Function Setting	Keypad Encoding
Set 1	DOS applications
Set 4	Default setting for Windows applications

## Start the Computer

Follow these steps to start the computer.

---

**IMPORTANT** The following steps apply to when you must manually start the computer. See [Connect Power on page 25](#) for when power is applied to the computer for the first time.

---

1. Make sure any connected components with separate power supplies (such as an external display) are turned on first.
2. Make sure all necessary peripheral devices are connected to the corresponding I/O ports on the computer.
3. **AC powered models:** See [Connect AC Power on page 26](#) for how to install the AC power cord into the AC power input on the computer.  
**DC powered models:** See [Connect DC Power on page 26](#) for how to install DC power to the DC power input on the computer.
4. **AC powered models:** Plug the AC power cord into a power source or wall outlet.

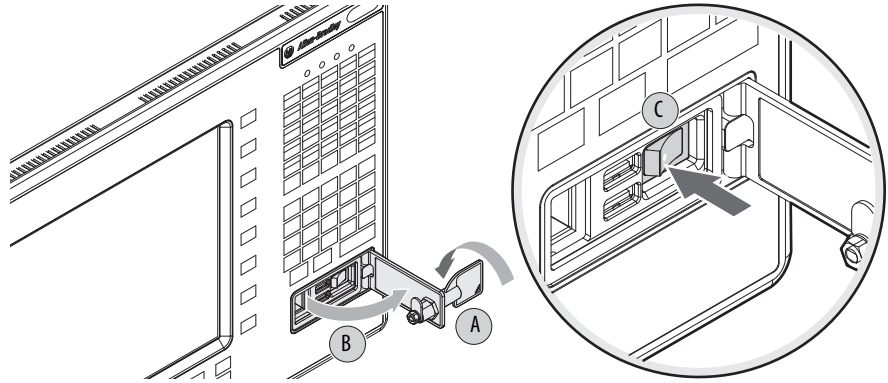


**SHOCK HAZARD:** Connect the AC power cord to a power source with an earth ground to prevent electrical shock. Failure to do so can result in electrical shock.

---

**DC powered models:** Apply 18...32V DC power to the computer.

5. Press the computer's power switch.
  - a. Unlock the front bay access cover with the provided key (A).
  - b. Open the front bay access cover (B).
  - c. Press the power switch (C).



The computer performs certain actions every time it is started or reset. See [Restart the Computer on page 31](#) for what is done.

If your computer does not start or you notice other anomalies, refer to Troubleshooting starting on [page 48](#).

## Restart the Computer

Use either of the following methods to restart your computer:

- From the Start menu, choose Restart.
- Press CTRL+ALT+DEL on the keypad.

During a restart, the computer does the following:

- Clears the RAM.
- Starts the POST.
- Initializes peripheral devices such as drives and printers.
- Loads the operating system.

Use the computer display to view the progress of the POST, the initialization of accessory devices, and the start-up dialogs for the operating system that is installed.

## Shut Down the Computer

Use either of the following methods to shut down the computer.

Method	Actions
Windows OS	With the keypad, do one of the following. <ul style="list-style-type: none"><li>• Press CTRL+ALT+DEL and click Shut Down.</li><li>• From the Start menu, click or choose Shut Down from the pull-down menu.</li></ul>
Power switch	Press the power switch to shut down the computer. See <a href="#">Hardware Features on page 13</a> for the power switch location.

After shutting down the computer, do not apply power again until shutdown is complete. For computers with a HDD, the HDD must come to a complete stop, which can take up to 30 seconds after shutdown is initiated.



## Component Replacement

### Chapter Objectives

This chapter provides information on the following topics:

- [Accessories and Replacement Parts](#)
- [Voltage Precautions](#)
- [Electrostatic Discharge Precautions](#)
- [Pre-configuration](#)
- [Post-configuration](#)
- [Required Tools](#)
- [Remove the Cover](#)
- [Reinstall the Cover](#)
- [Drive Precautions](#)
- [Replace or Install a Drive](#)
- [Install an Add-in Card](#)
- [Replace or Add Memory Modules](#)
- [Replace the RTC Battery](#)
- [Backlight Assembly Disposal](#)

### Accessories and Replacement Parts

You can view a list of accessories and replacement parts at the following Rockwell Automation website at <http://ab.rockwellautomation.com/Computers>.

Review the specifications of a new component before installing it to make sure it is compatible with the computer. Record the model and serial number, and any other pertinent information of new components for future reference.

---

**IMPORTANT** We recommend that you use only Allen-Bradley approved accessories and replacement parts.

---

## Voltage Precautions

The computers contain line voltages. Disconnect all power to the computer before you install or remove components.



**SHOCK HAZARD:** Disconnect all power to the computer before removing components.

Failure to disconnect power can result in severe electrical shock to an individual or electrostatic discharge (ESD) damage to the computer and components.

---

## Electrostatic Discharge Precautions



**ATTENTION:** Electrostatic discharge (ESD) can damage static-sensitive devices or microcircuitry.

- Disconnect all power before working on the computer as detailed in [Voltage Precautions on page 34](#).
  - Observe proper packaging and grounding techniques to prevent damage.
- 

Follow the precautions listed below:

- Transport the computer and replacement parts in static-safe containers, such as conductive tubes, bags, or boxes.
- Keep electrostatic-sensitive parts in their containers until they arrive at the designated static-free work area.
- Cover the designated work area with approved static-dissipating material:
  - Use an antistatic wrist strap connected to the work surface.
  - Use properly grounded tools and equipment.
- Keep the designated work area free of nonconductive materials, such as ordinary plastic assembly aids and foam packing.
- Avoid touching pins, leads, or circuitry.
- Always hold components with a printed circuit board (PCB) by its edges and place it with the assembly side down.

## Pre-configuration

---

**IMPORTANT** When installing hardware or performing maintenance procedures that require access to internal components, we recommend that you first back up all computer data to avoid loss.

---



**ATTENTION:** Make sure to read and understand all installation and removal procedures before you begin configuring the computer hardware.

---

Follow these steps before removing the cover or replacing a hardware component.

1. Shut down the computer and all peripherals connected to it.
2. Disconnect all cables from power outlets to avoid exposure to high energy levels.  
If necessary, label each cable to expedite reassembly.
3. Disconnect telecommunication cables to avoid exposure to a shock hazard from ringing voltages.

## Post-configuration

Follow these steps after installing or removing a hardware component.

1. Make sure all components are installed according to instructions.
2. Make sure that no tools or loose parts are left inside the computer.
3. Reinstall any expansion boards, peripherals, and system cables that were previously removed.
4. Reinstall the cover according to the instructions on [page 36](#).
5. Reconnect all external cables and power to the computer.
6. Press the computer's power switch to start the computer.

## Required Tools

The following tools are required for component replacement:

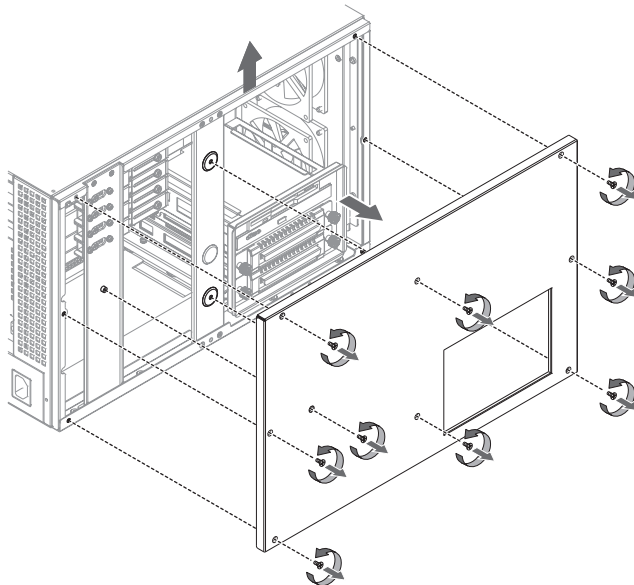
- #2 cross-head screwdriver
- Slot-head plastic screwdriver (for ODD replacement)
- Antistatic wrist strap
- Side cutters (for cutting cable ties, if necessary)

## Remove the Cover

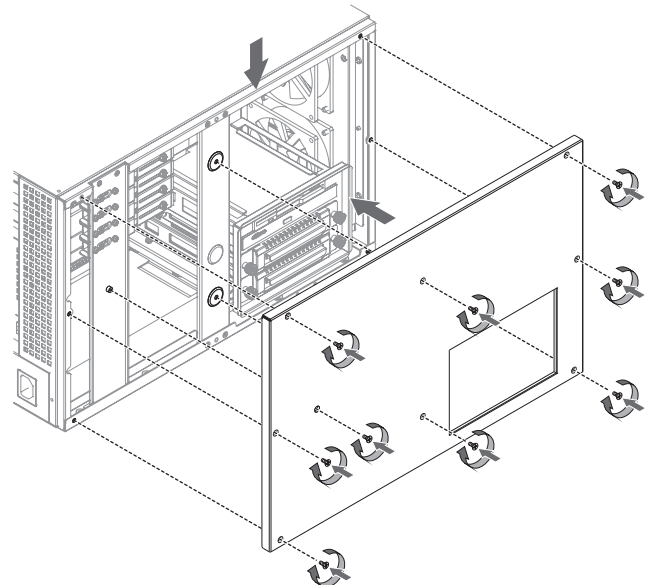
To install, replace, or upgrade internal computer components, you must first remove the cover.

Follow these steps to remove the rear cover.

1. Follow the steps for [Pre-configuration on page 35](#).
2. Loosen and remove the nine screws that secure the rear cover.
3. Detach the rear cover from the chassis.



Remove the Rear Cover



Reinstall the Rear Cover

4. After installing, replacing, or upgrading internal computer components, reinstall the cover as detailed in [Reinstall the Cover on page 36](#).

## Reinstall the Cover

Follow these steps to reinstall the rear cover.

1. Follow steps 1...3 of the [Post-configuration on page 35](#).
2. Align the rear cover against the chassis.
3. Reinstall the nine screws to secure the back cover to the chassis.  
Torque the screws to 0.6 N•m (5.2 lb•in).
4. Follow steps 4 and 5 of the [Post-configuration on page 35](#).

## Drive Precautions

Follow these precautions when working with a drive.

**IMPORTANT** Back up or clone your computer before replacing a drive.

- Do not touch internal components.
- Always handle the drive by its frame.
- Never remove or install a drive with the power on.
- Store the drive in an antistatic bag when it is not installed.



**SHOCK HAZARD:** Electrostatic discharge (ESD) can damage the computer and components. Read and follow [Electrostatic Discharge Precautions on page 34](#) before removing a drive.

Failure to follow proper safety precautions can result in severe electrical shock to an individual or ESD damage to the computer and its components.



**ATTENTION:** Mechanical shock can damage a drive. Do not drop or bump the drive.

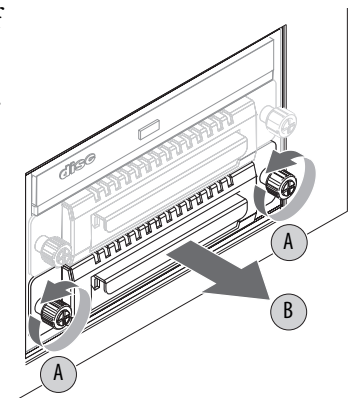
## Replace or Install a Drive

You can replace the existing HDD or install another HDD in the empty drive bay.

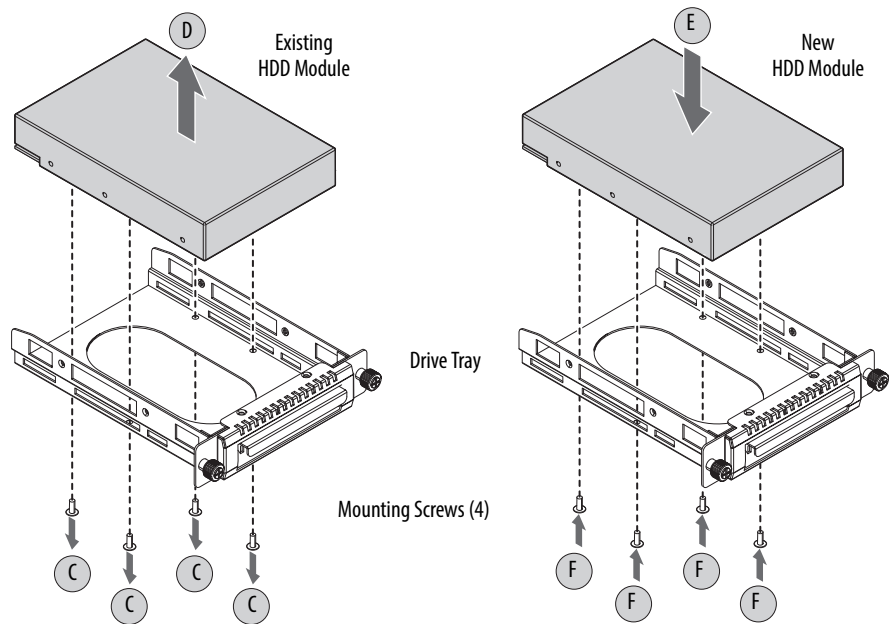
### Replace the Existing HDD

Follow these steps to replace the existing HDD, which is in the bottom bay.

1. Follow the steps for [Pre-configuration on page 35](#).
2. Remove the HDD assembly from its bay.
  - a. Loosen the two captive thumbscrews of the HDD assembly (A).
  - b. Pull the HDD assembly from its bay (B).



3. Remove the HDD module from its tray.
  - a. Remove the four mounting screws from the bottom of the tray (C).
  - b. Detach the tray from the existing HDD module (D).

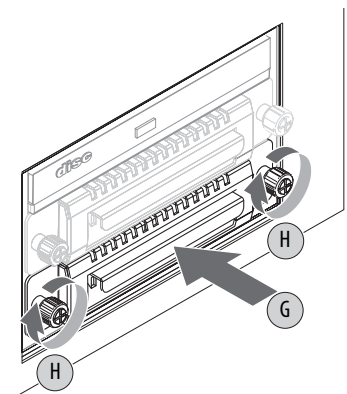


4. Install the new HDD module to the tray.



**ATTENTION:** Mechanical shock can damage a drive. Do not drop or bump the drive.

- a. Install the new HDD module with the PCB-side down.
- b. Fasten the drive tray over the HDD module (E).
- c. Secure the drive tray to the module with the four mounting screws (F). Torque the screws to 0.59 N•m (5.2 lb•in).



5. Return the HDD assembly into its bay (G).
6. Tighten the two captive thumbscrews of the drive assembly to secure it to the computer (H).
7. Follow the steps for [Post-configuration on page 35](#).

## Install a Second HDD

You can install another HDD in the secondary (top) bay.

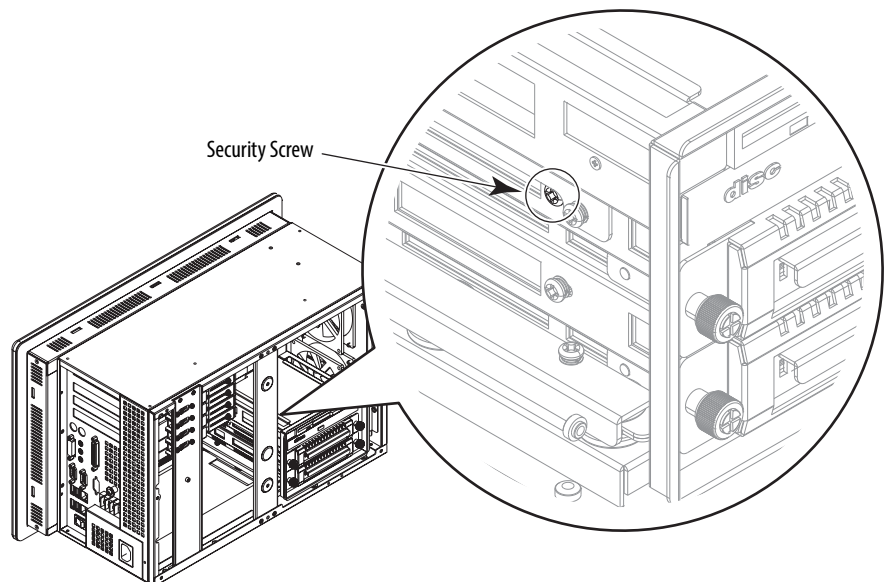
Follow these steps to install a second HDD.

1. Follow the steps for [Pre-configuration on page 35](#).

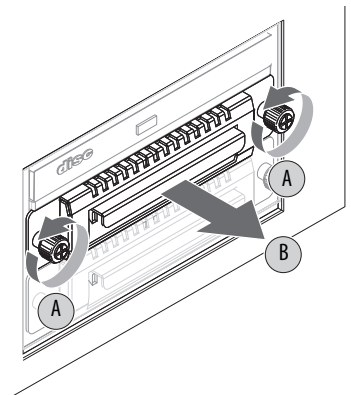
**TIP** Use an antistatic wrist strap connected to the work surface, and properly grounded tools and equipment.

2. Remove the computer cover as detailed in [Remove the Cover on page 36](#).
3. Locate and remove the security screw below the ODD; set the screw aside.

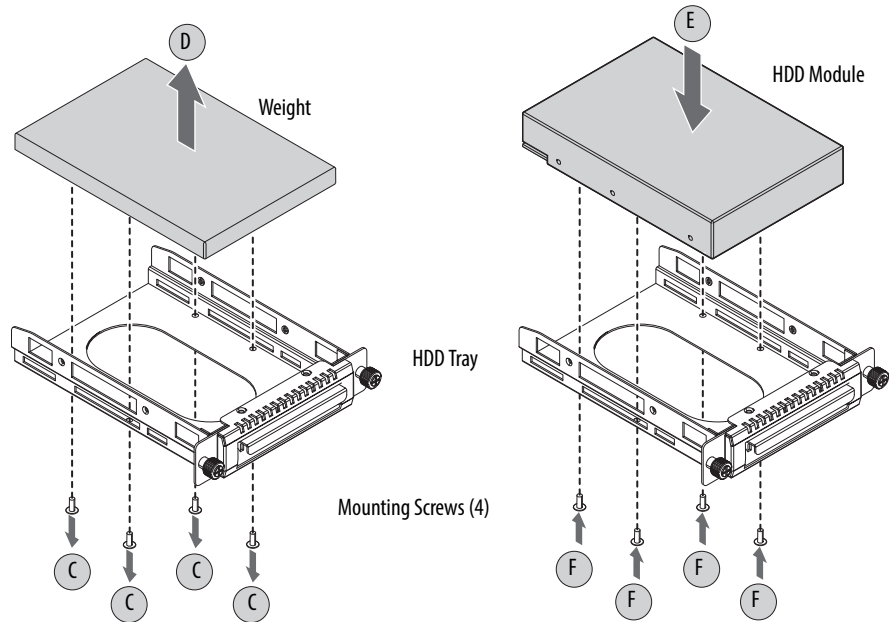
**TIP** Use a magnetized screwdriver to prevent the screw from falling into the chassis.



4. Remove the HDD assembly from the secondary bay.
  - a. Loosen the two captive thumbscrews of the HDD assembly (A).
  - b. Pull the HDD assembly from its bay (B).



5. Remove the weight from the drive tray.
  - a. Remove the four mounting screws from the bottom of the weight (C).
  - b. Detach the tray from the weight (D).

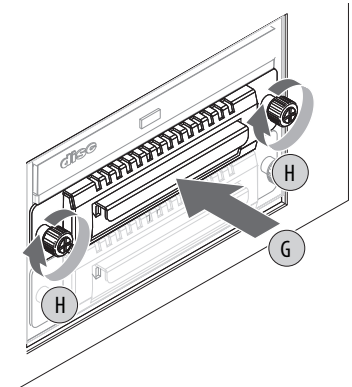


6. Install the new HDD module to the tray.



**ATTENTION:** Mechanical shock can damage a HDD module. Do not drop or bump the HDD module.

- a. Install the new HDD module with the PCB-side down.
  - b. Fasten the tray over the HDD module (E).
  - c. Secure the tray to the HDD module with the four mounting screws (F).  
Torque the screws to 0.59 N•m (5.2 lb•in).
7. Return the HDD assembly into its bay (G).
  8. Tighten the two captive thumbscrews of the HDD assembly to secure it to the computer (H).
  9. Reinstall the security screw removed in [step 3](#).
  10. Follow the steps for [Post-configuration on page 35](#).

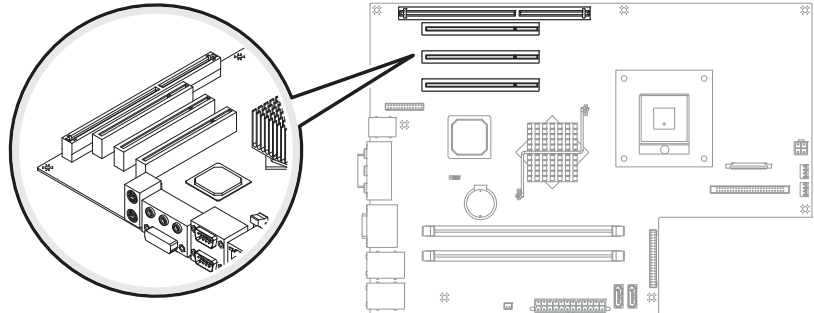




## Install an Add-in Card

The motherboard of the computers supports the following PCI slots.

- Two full-length PCI slots
- One half-length PCI slot
- One full-length ISA slot



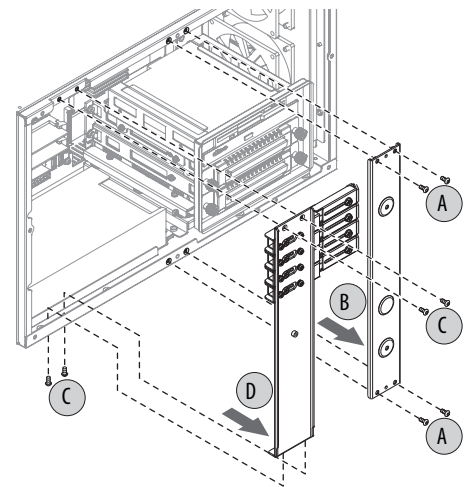
**ATTENTION:** Add-in cards are sensitive to ESD and require careful handling.

- Hold cards only by the edges.
- Do not touch the card connectors, components, or circuits.
- After removing an add-in card, place it on a flat, static-free surface, component side up.
- Do not slide the card over any surface.

**IMPORTANT** Use an antistatic wrist strap connected to the work surface, and properly grounded tools and equipment.

Follow these steps to install an add-in card.

1. Follow the steps for [Pre-configuration on page 35](#).
2. Remove the computer cover as detailed in [Remove the Cover on page 36](#).
3. Remove the four screws securing the chassis center support bar (A) and detach from the chassis (B).
4. Remove the four screws securing expansion hold-down bar (C) and detach from the chassis (D).
5. Locate an empty PCI slot.



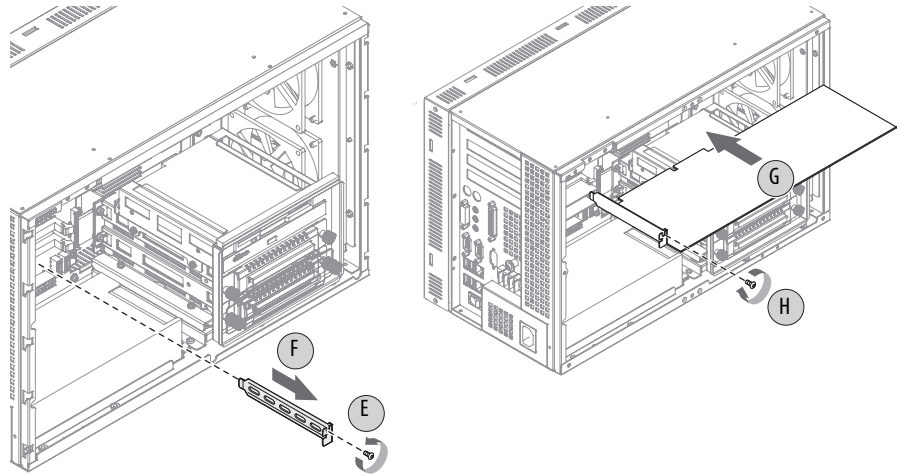
6. Remove the screw securing the slot cover of the selected PCI slot (E).
7. Pull out the slot cover (F) and store it.

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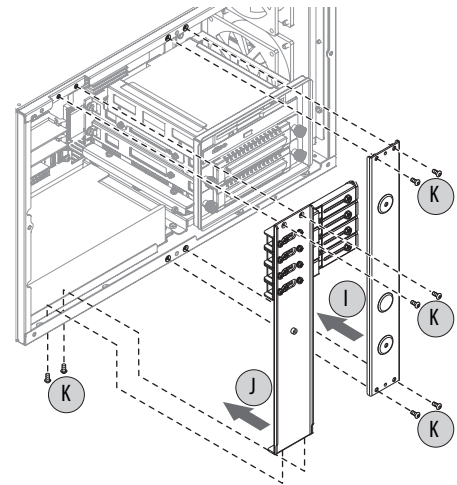
**IMPORTANT** Do not discard the slot cover. If the add-in card is removed in the future, the slot cover must be reinstalled to maintain proper cooling.

---

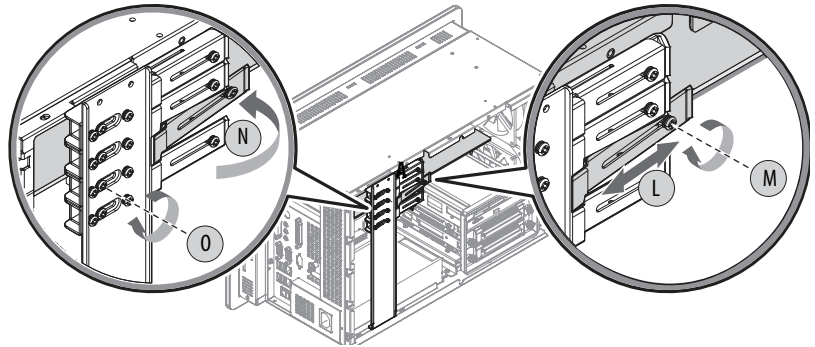
8. Remove the add-in card from its protective packaging.



9. Slide the add-in card into the selected PCI slot (G).  
Press to make sure it is firmly seated.
10. Secure the add-in card bracket to the chassis with its screw (H).
11. Connect any necessary cables to the add-in card.
12. Replace the center support and expansion board hold-down bars.
  - a. Align the center support (I) and the hold-down bar (J) against the chassis.
  - b. Secure each bar with four screws (K).



13. Secure the new add-in board in place.
  - a. Extend the clamp to the desired length (L).
  - b. Tighten the hold-down clamp screw (M).
  - c. Bend the clamp against the add-in card to secure it in place (N).
  - d. Lock the clamp screw on the hold-down bar (O).

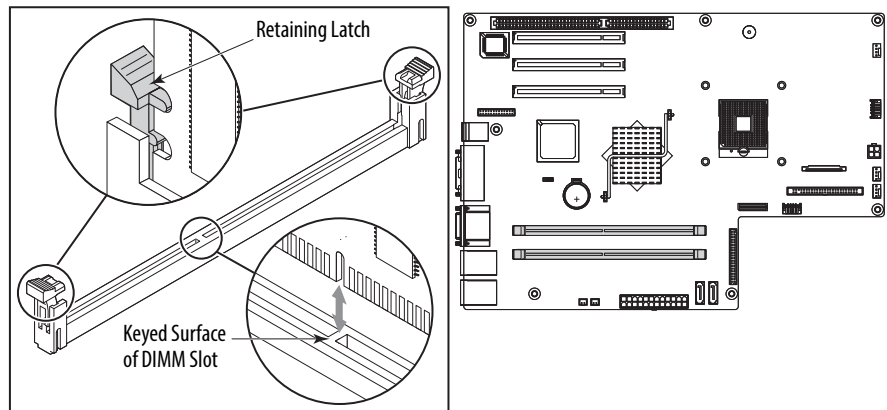


14. Refer to any installation instructions that came with the add-in card to verify that all installation steps are followed.
15. Follow the steps for [Post-configuration on page 35](#).

## Replace or Add Memory Modules

The motherboard of the computers has two dual-channel DDR-II DIMM slots that support up to 2 GB per slot with 4 GB maximum system memory.

**Figure 9 - Memory Module Slots and Module Alignment**



## Memory Configuration Guidelines

Follow these guidelines when replacing or adding memory to the computers:

- Use only standard unbuffered memory modules that conform to both PC2-5300 and SPD compliance industry standards.
- Use only DDR-II type memory modules.
- Use only memory modules with gold-plated contacts.
- Always handle a memory module by its edges.

---

**IMPORTANT** We recommend that you use only Allen-Bradley approved memory modules. Refer to <http://ab.rockwellautomation.com/Computers> for qualified replacement parts and accessories.

---

## Replace or Add a Memory Module

Follow these steps to replace or add a memory module.

---

**IMPORTANT** Use an antistatic wrist strap connected to the work surface, and properly grounded tools and equipment.

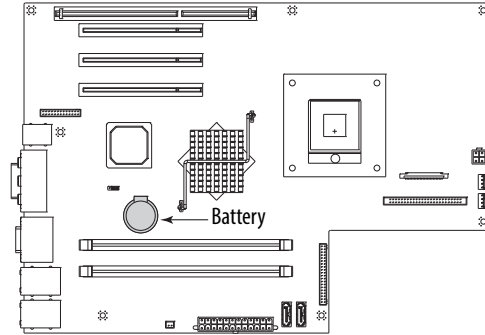
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1. Follow the steps for [Pre-configuration on page 35](#).
2. Remove the computer cover as detailed in [Remove the Cover on page 36](#).  
**TIP** To install additional memory, proceed to [step 4](#) of this section.
3. Remove the selected memory module.
  - a. If necessary, use side cutters to cut the cable tie from the retaining latches that hold the selected memory module.
  - b. Completely open the retaining latches to release the memory module from its slot and make it easier to remove. See [Figure 9 on page 43](#).
  - c. Gently pull out the memory module to remove it from its slot.
  - d. Place the memory module on a static-dissipating work surface or inside an antistatic bag.
4. Install the new memory module.
  - a. Hold the memory module by its edges as you remove it from its antistatic bag.
  - b. Orient the module so the notch on its bottom edge aligns with the keyed surface of the DIMM slot. See [Figure 9 on page 43](#).  
**TIP** The keyed surface is off center to assist the correct alignment.
  - c. Press the module fully into the slot to engage the retaining latches. See [Figure 9 on page 43](#).
5. Reinstall the computer cover as detailed in [Reinstall the Cover on page 36](#).
6. Follow the steps for [Post-configuration on page 35](#).

## Replace the RTC Battery

The computers use nonvolatile memory that require a battery to retain system information when power is removed. The 3V, 200 mAh lithium battery is on the motherboard.

The battery must be replaced during the life of the computer. Battery life depends on the amount of time the computer is on, or on-time.



On-time (hrs/wk)	Expected Battery Life (yrs)
0	4
40	5.5
80	7

If the computer does not display the correct time and date, replace the battery.



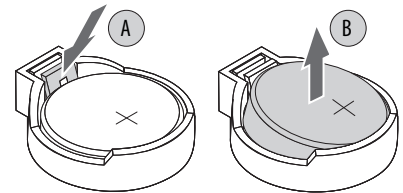
**ATTENTION:** A risk of fire and chemical burn exists if the battery is not handled properly.

- Do not disassemble, crush, puncture, or short external contacts.
- Do not expose the battery to temperatures higher than 60 °C (140 °F).
- Do not dispose of a used battery in water or fire.

For safety information on handling lithium batteries, see Guidelines for Handling Lithium Batteries, publication [AG-5.4](#).

Follow these steps to replace the RTC battery.

1. Follow the steps for [Pre-configuration on page 35](#).
2. Remove the computer cover as detailed in [Remove the Cover on page 36](#).
3. If necessary, remove any accessory boards or cables that prevent access to the RTC battery socket.
4. Remove the battery.
  - a. To dislodge the battery from its socket, insert a non-conductive tool (such as a small flat-blade plastic screwdriver) between the battery and spring latch (A).
  - b. Remove the old battery from its socket (B).



**IMPORTANT** Do not bend the spring latch when replacing the RTC battery. For proper operation, the latch must retain contact with the battery.

5. Insert the new battery with the positive polarity (+ side) facing up, and make sure that it is seated completely.
6. Reinstall the computer cover as detailed in [Reinstall the Cover on page 36](#).
7. Follow the steps for [Post-configuration on page 35](#).
8. During POST, press F2 to enter the BIOS setup and reconfigure settings.

---

**IMPORTANT** Replacing the battery results in all BIOS settings returning to their default settings. BIOS settings other than default must be reconfigured after replacing the battery.

---



This computer contains a sealed lithium battery that may need to be replaced during the life of the computer.  
At the end of its life, the battery contained in this computer should be collected separately from any unsorted municipal waste.

---

## Backlight Assembly Disposal



**ATTENTION:** The backlight assembly in this computer can contain mercury. At the end of its life, this equipment should be collected separately from any unsorted municipal waste.

---

## System Troubleshooting

### Chapter Objectives

This chapter provides information on the following topics:

- [Hardware Monitoring](#)
- [Troubleshooting](#)
- [Troubleshooting Checklists](#)
- [Diagnostic Utility](#)
- [Load the System Defaults](#)
- [Clear the CMOS](#)
- [Ship or Transport the Computer](#)

### Hardware Monitoring

The built-in hardware monitor of the computer tracks the operating threshold levels of the voltage and temperature sensors.

Follow these steps to determine whether an operating threshold has been reached.

1. Shut down the computer by using the appropriate method for the installed operating system.

See [Shut Down the Computer on page 32](#) for more information.

2. Apply power to the computer.
3. During POST, press F2 to access the BIOS set-up utility.

**TIP** Use the arrow keys on a keyboard to navigate between BIOS menus and menu selections.

4. From the BIOS-Advanced menu, select the Hardware Monitor menu.

Use this menu to determine if there is an issue with internal voltages or component temperatures.

## Troubleshooting

Follow these steps to identify and isolate an issue with the computer's operation.

1. Shut down the computer by using the appropriate method for the installed operating system.  
See [Shut Down the Computer on page 32](#) for more information.
2. Disconnect power to the computer.
3. Disconnect all peripheral devices from the computer.
4. If using a keyboard and mouse, verify that they are properly connected.
5. If using an external display, verify that it is properly connected.
6. Connect power to the computer. During POST, one of three events occurs:
  - The computer completes the start-up process.
  - A nonfatal error occurs and the related error message is displayed.
  - A fatal error occurs and the start-up process terminates.

If	Then
The computer starts	Isolate the issue by connecting peripheral devices one at a time until the issue occurs.
The issue is with a specific software or driver	Reinstall the software or driver.
The issue is not related specifically to software, a driver, or a peripheral device	Refer to the troubleshooting checklists.

**TIP** Some computers emit beeps. These audible alerts only signal that an error is detected. The beeps can apply to nonfatal and fatal errors.

## Troubleshooting Checklists

To manage common issues, use these checklists to test and verify components. If an issue occurs, refer to these checklists before calling technical support.

### Issues during Startup

- Are all connections secure?
- Are the device drivers installed?
- Are the jumpers on any add-in boards correctly positioned?
- If starting from a drive:
  - Is it formatted and set up in the BIOS?
  - Are the drive's data and power cables properly connected? Verify that the computer can start from an external bootable device.
- Are memory modules properly installed? You can reinstall them to be sure of a good connection.



- Is the BIOS properly configured? You can restore the default BIOS settings by either of the following methods:
  - Load system defaults as detailed in [Diagnostic Utility on page 51](#).
  - Use the CMOS jumper to reset the BIOS as detailed in [Clear the CMOS on page 52](#).

### Issues after Startup

- If an issue is intermittent, you can have a loose connection. Verify that the following items are secure or properly installed:
  - All connections to the computer including any add-in cards
  - The memory modules
- Does your computer have a virus? Run an anti-virus software.
- Is the BIOS properly configured? To restore the default BIOS settings, see [Diagnostic Utility on page 51](#).
- If there is a flickering display or a locked computer, restart the computer as specified in [Restart the Computer on page 31](#). Although the computers have a regulated and protected power supply, a transient voltage in the power line or peripheral cable can cause errors.
- Is the drive's data cable properly connected? Verify that the computer can start from an external bootable device.
- Is the computer overheating? Verify the following:
  - Any fan (if available) is working.
  - Any fan filter (if available) is clean.
  - Any cooling method (such as heat sink and vents) is not blocked.
  - There is proper clearance as detailed in [Mounting Clearance Requirements on page 20](#).
  - The ambient temperature is within the operating range specified in [Table 4 on page 55](#).

### Issues Running New Software

- Does the software have a hardware requirement that is not present?
- Are you using an authorized copy of the software? Some software does not work without proper activation.
- Did the software install correctly? Reinstall the software.
- Are you following the software's instructions? Refer to the software vendor's user manual.

### Issues with the Add-in Card

- Is the card installed and configured correctly? Verify the jumper and other configuration settings.
- Are the card cables properly connected?
- Is the add-in card recognized in Device Manager?
- A card issue not listed here? Refer to troubleshooting information supplied by the add-in card manufacturer.

### Issues with the Integrated Display

- Are the display contrast and brightness controls properly adjusted?  
Try to correct the issue through auto adjust by pressing and holding the two display brightness keys for a few seconds. These keys are on the front panel keypad.
- Verify that the selected character color is not the same as the background color.
- Try setting to the native resolution. Refer to Appendix A, [Specifications](#).

### Issues with an External Display

- Are the display contrast and brightness controls properly adjusted? Refer to the operating system containing the video driver for set-up functions.
- Verify that the selected character color is not the same as the background color.
- Is the display compatible with the selected video mode?
- Is the video cable properly connected?
- Is the video driver properly installed?
- Restart the computer with the external display connected and turned on.
- Is the display functioning properly? Verify display function by operating it with another computer.

## Diagnostic Utility

If you completed the troubleshooting steps and are still having issues, you can use a diagnostic utility to isolate the issue. This utility determines the cause by testing computer components.

Computers shipped before January of 2013 include a system diagnostic (green) CD with this diagnostic utility. If you need a copy of the CD, please contact your local distributor or Rockwell Automation representative, or use the resources on the back cover of this publication.

By using the diagnostic utility, you can perform an initial diagnosis without disconnecting or moving your computer. No software is installed nor does the utility affect any software already installed. Depending on the tests selected, the process can take as little as five minutes or as long as eight hours. After the diagnostic utility is run, you can generate a report for analysis by a technical support representative, expediting any necessary repair process.

## Load the System Defaults

If the computer fails after you make changes in the set-up menus, load the system default settings to correct the error. These default settings have been selected to optimize your computer's performance.

Follow these steps to load the system defaults.

1. Restart the computer as specified in [Restart the Computer on page 41](#).
2. During POST, press F2 to access the BIOS set-up utility.  
**TIP** Use the arrow keys on a keyboard to navigate between BIOS menus and menu selections.
3. Depending on your computer series, press or select the system defaults and exit the BIO set-up utility.

## Clear the CMOS

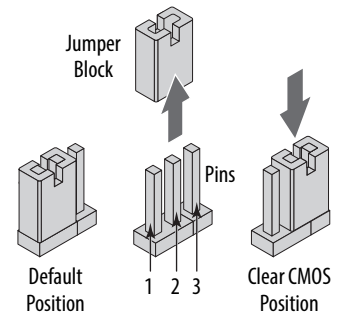
If the system configuration has been corrupted, an incorrect setting has caused error messages to be unreadable, or you cannot access the BIOS set-up utility to load the system defaults, you must clear the system configuration values stored in the CMOS.

Follow these steps to clear the CMOS.

1. Back up all system data and then shut down the computer.
2. Follow the steps for [Pre-configuration on page 30](#).
3. Remove the cover as detailed in [Remove the Bottom Plate on page 31](#).
4. Locate the CMOS jumper on the motherboard.

See [Figure 7 on page 20](#) or [Figure 8 on page 21](#) for where the CMOS jumper is on the motherboard.

5. Remove the jumper block from its default position (over pins 1 and 2).
6. Place the jumper block over pins 2 and 3 for 10 seconds.
7. Return the jumper block to its default position.




---

**IMPORTANT** The jumper block must be returned to its default position over pins 1 and 2. The computer does not start if you leave the jumper block over pins 2 and 3.

---

8. Reinstall the cover as detailed in [Reinstall the Bottom Plate on page 32](#).
9. Follow the steps for [Post-configuration on page 31](#).

---

**IMPORTANT** When you clear the CMOS, all BIOS settings return to their defaults. BIOS settings other than default must be reconfigured after clearing the CMOS.

---

10. During POST, press F2 to access the BIOS set-up utility and reconfigure settings.

## Ship or Transport the Computer

If you need to ship the computer via common carrier or otherwise transport it to another location for servicing or any other reason, you must first uninstall the computer and place it in its original packing material.



**ATTENTION:** Do not ship or transport the computer when it is installed in a machine, panel, or rack. Doing so can damage the computer. You must uninstall the computer and place it in its original packing material before shipping. Rockwell Automation is not responsible for damage incurred to a computer that is shipped or transported while installed in a machine, panel, or rack.

---

## Specifications

The following tables contain specifications for the 1200P and 1500P integrated display industrial computers with keypad. For additional specifications, go to <http://ab.rockwellautomation.com/Computers>.

**Table 1 - Hardware and Software Specifications**

Specifications	Attribute	Cat. No. 6180P-
		12KSXP, 12BSXP, 12BPXP, 12BPXPDC, 12KPXP, 15KSXP, 15BSXP, 15BPXP, 15KPXP, and 15BPXPDC
Hardware	Processor Standard Performance	Intel Core Duo Celeron M processor Intel Core Duo processor
	System chipset	Intel 945GME
	Memory slot	Dual channel DDR II, 2 DIMM slots, 2 GB/slot 4.0 GB maximum system memory
	Memory size Standard Performance	1 GB 2 GB
	PCI expansion slot	2 full length and 1 half-length slot, PCI 2.2, 5V I/O
	ISA expansion slot	1 full length slot
	Hard disk drive	3.5-inch, SATA interface, 160 GB hot-swap
	Optical disc drive Standard Performance	Slim DVD-ROM/CD-RW Slim DVD-RW
	I/O ports	<ul style="list-style-type: none"> <li>• Front USB (2)</li> <li>• Rear USB (4)</li> <li>• Serial (2)</li> <li>• DVI</li> <li>• Parallel</li> </ul>
	Audio jacks	<ul style="list-style-type: none"> <li>• Microphone-in jack</li> <li>• Line-out jack</li> <li>• Line-in jack</li> </ul>
	Ethernet LAN	2 10/100/1000 Mbps LAN ports (RJ-45)
	Status indicators	<ul style="list-style-type: none"> <li>• Caps Lock</li> <li>• NumLock</li> <li>• HDD/ODD/FDD activity</li> <li>• Power/standby</li> </ul>
	Thermal solution	<ul style="list-style-type: none"> <li>• Chassis fans (2)</li> <li>• PSU fan</li> <li>• Processor heat sink</li> </ul>
Software	Operating system	Windows XP Professional, Service Pack 3

**Table 2 - Display Specifications**

Attribute	Cat. No. 6180P-
	12KXP, 12BSXP, 12BPXP, 12BPXPDC, 12KPXP, 15KXP, 15BSXP, 15BPXP, 15KPXP, and 15BPXPDC
Display	Color Active Matrix Thin Film Transistor (TFT)
Touchscreen (optional)	Resistive antiglare
Display size (diagonal) 1200P 1500P	308 mm (12.1 in.) 381 mm (15 in.)
Display area (WxH), approx 1200P 1500P	246 x 185 mm (9.7 x 7.3 in.) 305 x 229 mm (12 x 9 in.)
Native resolution 1200P 1500P	800 x 600 1024 x 768
Viewing angle Horizontal Vertical	60° 40°
Response time	20 ms

**Table 3 - Power Specifications**

Attribute	Cat. No. 6180P-
	12KXP, 12BSXP, 12BPXP, 12BPXPDC, 12KPXP, 15KXP, 15BSXP, 15BPXP, 15KPXP, and 15BPXPDC
Input voltage, AC	90 . . . 264V AC, autoranging
Line frequency, AC	47 . . . 63 Hz
Power consumption, AC	144VA (1.4 A at 100V rms, 0.6 A at 240V rms)
Power consumption, DC	144 W (8 A at 18V DC, 4.5 A at 32V DC)
Power dissipation, AC	144 W
Power dissipation, DC	144 W
Input voltage, DC	18 . . . 32V DC
Inrush current at 24V	20 A peak, 5 ms
Power management	ACPI compliant

**Table 4 - Environmental Specifications**

Attribute	Value
Dimensions, (HxWxD), approx 1200P 1500P	311 x 483 x 225 mm (12.25 x 19.01 x 8.86 in.) 355 x 483 x 225 mm (13.97 x 19.01 x 8.86 in.)
Panel cutout dimensions (HxW), approx 1200P 1500P	279.0 x 450.0 mm (10.98 x 17.72 in.) 326.4 x 429.3 mm (12.85 x 16.9 in.)
Weight, approx 1200P 1500P	16.0 kg (35.3 lb) 17.6 kg (38.8 lb)
Temperature, operating	0...55 °C (32...131 °F)
Temperature, storage	-20...60 °C (-4...140 °F)
Relative humidity, operating <sup>(1)</sup>	20...85% without condensation
Relative humidity, nonoperating <sup>(2)</sup>	5...90% without condensation
Vibration, operating	0.006 in. p-p, (10...57 Hz); 1 g peak (57...640 Hz)
Vibration, nonoperating	0.012 in. p-p, (10...57 Hz); 2 g peak, (57...640 Hz)
Shock, operating	15 g (1/2 sine, 11 ms)
Shock, nonoperating	30 g (1/2 sine, 11 ms)
Enclosure ratings, panel mounted	IEC IP66

(1) Derate above 40 °C to 45% at 50 °C.

(2) Derate above 40 °C to 39% at 60 °C.

**Table 5 - Certifications<sup>(1)</sup>**

Regulatory Area	Standards Group	Regulatory Standard
Americas	Safety requirements	UL 60950-1 CSA C22.2 - 60950-1
	Emissions requirements	FCC Rules for class A devices
	Product certification marks	c-UL-us
Europe	Enclosure rating	IP66 per EN60529:1991
	Safety requirements	EN60950-1
	Immunity requirements	EN55024, EN61000-3-2, EN61000-3-3
	Emissions requirements	EN55022 Class A
	Product certification marks	CE mark
	EMC directive	EU Directive 2004/108/EC (as amended by 92/31/EEC and 93/68/EEC)
	Low voltage directive	EU Directive 2006/95/EC
Asia Pacific	Emissions requirements	CISPR-22
	Product certification marks	C-Tick mark
	RoHS	China RoHS Turkey RoHS (EEE Yönetmeliğine Uygundur. In Conformity with the EEE Regulation)

(1) See <http://www.rockwellautomation.com/certification> for declarations of conformity, certificates, and other certification details.

**Notes:**



## Use a Touchscreen

### Touchscreen Controller

Computers with an optional touchscreen are shipped with the touchscreen controller installed and connected. The touchscreen controller connects internally to a USB port. The touchscreen is factory configured with the proper USB and touchscreen driver settings, so no user configuration is required.

### Driver Software

The touchscreen driver is already loaded on the computer. The driver software is also available for download at the Rockwell Automation Product Compatibility and Download Center (PCDC) at <http://www.rockwellautomation.com/support/pcdc.page>.

**TIP** If you must reinstall the touchscreen driver, the touchscreen utility automatically detects the USB port used by the touchscreen controller.

### Resistive Touchscreen Technology

Resistive touchscreens are activated when you apply pressure to the touchscreen with your finger. You can operate a resistive touchscreen while wearing gloves.



**ATTENTION:** Do not use sharp instruments to activate the touchscreen. Scratching the surface of the touchscreen can damage the display.

---

### Calibrate the Touchscreen

The touchscreen supplied with the computer is factory installed and calibrated.

Follow these steps to recalibrate the touchscreen.

1. Run the touchscreen configuration utility through the PROGRAMS menu of the operating system.
2. Start the calibration routine offered within the utility.
3. Follow the calibration instructions on the touchscreen.

## Notes:

## Upgrade to a New BIOS

### BIOS Upgrade Procedure

Sometimes a new BIOS is released to enhance the performance of your computer or to correct a defect. In such cases, you can download BIOS upgrades at the Rockwell Automation Product Compatibility and Download Center (PCDC) website at <http://www.rockwellautomation.com/support/pcdc>. CD and floppy disk drive upgrades are available.

### Upgrade the BIOS from the CD Drive

Follow these steps to upgrade the BIOS in your computer from the CD drive.

1. Access the Rockwell Automation PCDC website at <http://www.rockwellautomation.com/support/pcdc>.
2. Click the Get Downloads tab (A).
3. Click the Find Product Downloads link (B).



4. Use the Product Search criteria to find your specific computer model.
5. Follow the instructions on the PCDC site to find your BIOS.

**TIP** You must be registered with the Rockwell Automation PCDC website to download files.  
You must accept a User Agreement before files can be downloaded.

6. After the download completes, click Open to access the folder where ZIP files were downloaded.



7. Open the downloaded file to locate and extract the ISO (\*.iso) file.
8. Write the ISO file to a blank CD/CD-RW with the included CD Write utility (or one of your choice).
9. With the BIOS upgrade CD in the CD drive, restart the computer.
10. During POST, press F2 to access the BIOS set-up utility.
  - TIP** Use the arrow keys on a keyboard to navigate between BIOS menus and menu selections.
11. Navigate through the BIOS set-up utility to where you can select the CD drive as your boot source.
12. Save your change and exit the BIOS set-up utility.
13. Follow the directions that appear on the display to properly upgrade the BIOS.

## Upgrade the BIOS from an External Floppy Disk Drive

Follow these steps to upgrade the BIOS in your computer from an external floppy disk drive.

1. Attach an external floppy disk drive to your computer.
2. Follow [step 1](#) through [step 6](#) in [Upgrade the BIOS from the CD Drive](#) starting on [page 59](#) before proceeding to [step 3](#) in this section.
3. Open the downloaded file to locate and extract the executable (\*.exe) file.
4. Run the extracted executable file and then write that file to a floppy disk inserted in the external floppy disk drive.

This creates a BIOS upgrade floppy disk that you can use to start your computer.

5. With the BIOS upgrade disk in the external floppy disk drive, restart the computer.
6. During POST, press F2 to access the BIOS set-up utility.

**TIP** Use the arrow keys on a keyboard to navigate between BIOS menus and menu selections.

7. Navigate through the BIOS set-up utility to where you can select the floppy disk drive as your boot source.
8. Save your change and exit the BIOS set-up utility.
9. Follow the directions that appear on the display to properly upgrade the BIOS.

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**Notes:**



**Notes:**

**Notes:**



## Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products.

At <http://www.rockwellautomation.com/support> you can find technical and application notes, sample code, and links to software service packs. You can also visit our Support Center at <https://rockwellautomation.custhelp.com/> for software updates, support chats and forums, technical information, FAQs, and to sign up for product notification updates.

In addition, we offer multiple support programs for installation, configuration, and troubleshooting. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://www.rockwellautomation.com/services/online-phone>.

## Installation Assistance

If you experience a problem within the first 24 hours of installation, review the information that is contained in this manual. You can contact Customer Support for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the <a href="#">Worldwide Locator</a> at <a href="http://www.rockwellautomation.com/rockwellautomation/support/overview.page">http://www.rockwellautomation.com/rockwellautomation/support/overview.page</a> , or contact your local Rockwell Automation representative.

## New Product Satisfaction Return

Rockwell Automation tests all of its products to help ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

## Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication [RA-DU002](#), available at <http://www.rockwellautomation.com/literature/>.

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