Industrial Integrated Display Computers

Catalog Numbers 6181P-2PXP, 6181P-2PXPDC, 6181P-12NPXP, 6181P-12TPXP, 6181P-12TPXPDC, 6181F-12TPXP, 6181F-12TPWE, 6181F-12TPXPDC, 6181F-12TPWEDC, 6181P-12NSXP, 6181P-12TSXP, 6181F-12TSXP, 6181F-12TSWE, 6181P-15NPXP, 6181P-15TPXP, 6181P-15TPXPDC, 6181P-15TPXPSS, 6181F-15TPXP, 6181F-15TPWE, 6181F-15TPXPDC, 6181F-15TPWEDC, 6181F-15TPXPSS, 6181F-15TPWESS, 6181P-15NSXP, 6181P-15TSXP, 6181F-15TSXP, 6181F-15TSWE, 6181P-17NPXP, 6181P-17TPXP, 6181P-17TPXPDC, 6181F-17TPXP, 6181F-17TPWE, 6181F-17TPXPDC, 6181F-17TPWEDC, 6181F-17TPXPSS, 6181F-17TPWESS, 6181P-17TPXPSS, 6181P-17NSXP, 6181P-17TSXP, 6181F-17TSXP, 6181F-17TSWE

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Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://literature.rockwellautomation.com) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

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.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
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 consequences.
SHOCK HAZARD ⚡	Labels may be on or inside the equipment (for example, drive or motor) to alert people that dangerous voltage may be present.
BURN HAZARD ♨	Labels may be on or inside the equipment (for example, drive or motor) to alert people that surfaces may reach dangerous temperatures.

Environment and Enclosure Information

Review the information on enclosures and environments before installing the product.

ATTENTION	Environment and Enclosure
	This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 m (6561 ft) without derating.

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

UL listed equipment need not be mounted inside another enclosure if NEMA Type and IEC ratings are not required, but the mounting method must limit the tilt of the product to ±60° from vertical. An example is a tabletop stand. The mounting means must be firmly attached to the supporting surface using screws, bolts, or clamps so the computer cannot tip. These units ship with a gasketed bezel to meet specified NEMA and IEC ratings only when mounted in a panel or enclosure with an equivalent rating. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

In addition to this publication, see:

- Industrial Automation Wiring and Grounding Guidelines, for additional installation requirements, publication 1770-4.1.

- NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure.

European Union Directive Compliance

This product 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 Conformity is available at the Rockwell Automation website http://ab.com under Product Certification.

ATTENTION ⚠	This product is intended to operate in an industrial or control room environment, which utilizes some form of power isolation from the public low-voltage mains. Some computer configurations may not 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 Watts of AC power directly from the public mains.

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

Product Options

This table summarizes the product options available for the industrial integrated display computers.

Catalog Number	Model	Series	Display Size	Touchscreen	Package
6181P-2PXP	NDM	E	Non-display	n/a	Performance
6181P-2PXPDC[1]					
6181P-12NPXP	1200P		12.1 in.	No	Performance
6181P-12TPXP				Yes	
6181P-12TPXPDC[1]					
6181F-12TPXP[2]					
6181F-12TPWE[2]					
6181F-12TPXPDC[1][2]					
6181F-12TPWEDC[1][2]					
6181P-12NSXP				No	Standard
6181P-12TSXP				Yes	
6181F-12TSXP[2]					
6181F-12TSWE[2]					
6181P-15NPXP	1500P		15 in.	No	Performance
6181P-15TPXP				Yes	
6181P-15TPXPDC[1]					
6181P-15TPXPSS[3]					
6181F-15TPXP[2]					
6181F-15TPWE[2]					
6181F-15TPXPDC[1][2]					
6181F-15TPWEDC[1][2]					
6181F-15TPXPSS[2][3]					
6181F-15TPWESS[2][3]					
6181P-15NSXP				No	Standard
6181P-15TSXP				Yes	
6181F-15TSXP[2]					
6181F-15TSWE[2]					

[1]   Models with a catalog number ending in DC operate from DC power.

[2]   Models with a catalog number with a base number ending in F have solid state hard drives.

[3]   Models with a catalog number with a base number ending in SS have a stainless steel bezel.

Catalog Number	Model	Series	Display Size	Touchscreen	Package
6181P-17NPXP	1700P	E	17 in.	No	Performance
6181P-17TPXP				Yes	
6181P-17TPXPDC[1]					
6181F-17TPXP[2]					
6181F-17TPWE[2]					
6181F-17TPXPDC[1][2]					
6181F-17TPWEDC[1][2]					
6181F-17TPXPSS[2]					
6181F-17TPWESS[2]					
6181P-17TPXPSS[3]					
6181P-17NSXP				No	Standard
6181P-17TSXP				Yes	
6181F-17TSXP[2]					
6181F-17TSWE[2]					

[1] Models with a catalog number ending in DC operate from DC power.

[2] Models with a catalog number with a base number ending in F have solid state hard drives.

[3] Models with a catalog number with a base number ending in SS have a stainless steel bezel.

Operating System

The computers are shipped with one of these Microsoft-licensed embedded operating systems:

- Windows XP Professional for Embedded Systems, Service Pack 2b
- Windows Embedded Standard 2009

No Windows XP operating system updates have been applied to the factory image beyond the service packs. All available Windows Embedded Standard 2009 operating system updates have been applied as of September 2009.

For computers with Windows XP, 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 rotating hard-disk drives include a recovery partition on the system drive containing the original factory image. You can use the supplied Computer System Cloning CD to restore the operating system from the recovery partition, create a new recovery image, and create bootable external-recovery media. Refer to the Cloning Utility technical data, publication 6000-TD002, for instructions.

Computers with Windows Embedded Standard 2009 include a utility for configuring the Enhanced Write Filter (EWF) and Hibernate Once Restore Many (HORM) features. Refer to the EWF/HORM Configuration Utility technical data, publication 6000-TD003, for instructions.

To obtain the original factory image on bootable external-recovery media, contact your local technical support center.

Multilingual User Interface CD Pack

The following section only applies to systems that contain the Microsoft Multilingual user-interface (MUI) CD pack.

The Microsoft Multilingual User-interface (MUI) CD Pack contains a collection of different language sets that can be installed into the operating system. The MUI pack provides a localized start menu and system icons support.

The instructions for installing MUI languages on your computer are supplied with the MUI CD Pack.

Parts List

Your computer is shipped with the following items:

- Panel mounting clips (display models only)
- Power cord, (for AC power models)
- Ground bus strip, pre-installed (for DC power models)
- Panel cutout template
- Installation Instructions
- Production test report
- System CDs
  - Accessory CD with Cloning Utility (red)
  - System Support CD with Diagnostic Utility (green)
  - Microsoft Multilingual User Interface (MUI) CD Pack (gray, 5 cd-pack), where applicable
  - DVD burning software (performance models only)

Required Tools

These tools are required for product installation:

- Panel cutout tools (panel mount only)
- #2 Phillips screwdriver
- Antistatic wrist strap (recommended)

Installation Guidelines

Follow these guidelines to make sure your product provides safe and reliable service.

- The installation site must have sufficient power.

ATTENTION	To maintain an electrically safe installation, the AC powered products must be plugged into a grounded outlet.

- The enclosure must allow sufficient space around air inlets and outlets to provide the circulation necessary for cooling. Never allow air passages to become obstructed.
- The ambient air temperature must not exceed the maximum operating temperature. Consider heat produced by other devices in the enclosure. You may need a user-supplied fan, heat exchanger, or air conditioner to meet this condition.
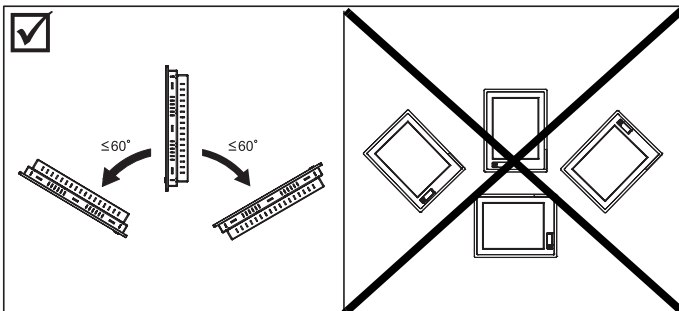
TIP	Hot air rises. The temperature at the top of the enclosure is often higher than the temperature in other parts of the enclosure, especially if air is not circulating.

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

- The humidity of the ambient air must not exceed specified limits. In very dry environments, static charges build up readily. Proper grounding of the equipment helps to reduce static discharges, which may cause shocks and damage electronic components.
- The enclosure or cover must remain in place at all times during operation. The cover provides protection against high voltages inside the product and inhibits radio-frequency emissions that might interfere with other equipment.
- When mounted, the product cannot be tilted more than ±60° from vertical.
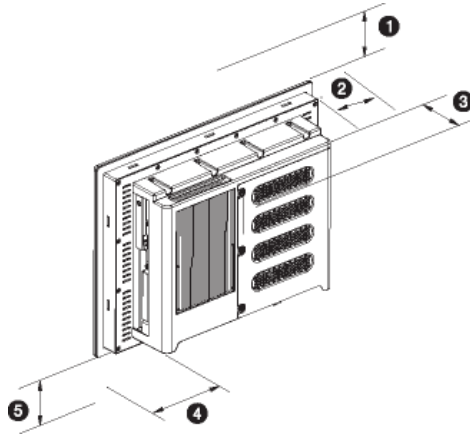
Mounting Clearances

When selecting an installation site for the computers, be sure to allow adequate clearance on the sides and rear of the computer for proper ventilation, cable connection, and hardware access. Sufficient airflow throughout the system unit is required to maintain proper cooling. Clearance should be enough to allow convenient installation or removal of peripheral components, such as the CompactFlash card.

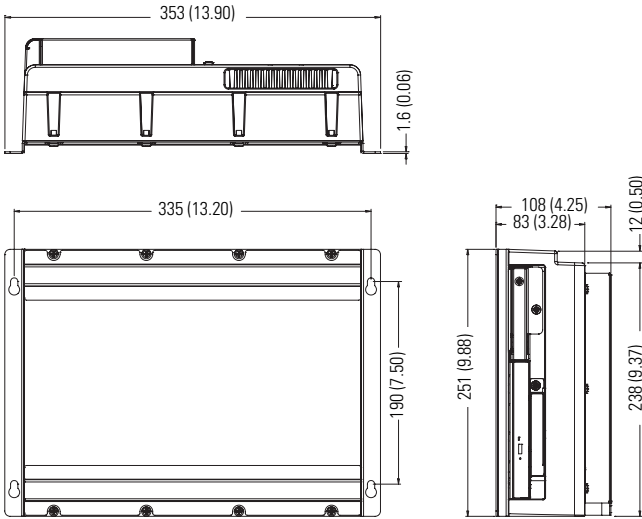| **IMPORTANT**	Use adequate ventilation or other cooling methods to maintain the product temperature at its specified rating.
	Because of self-heating, do not operate the computer in an enclosure using the minimum clearances unless adequate ventilation or other cooling methods are used to lower the temperature within the enclosure.

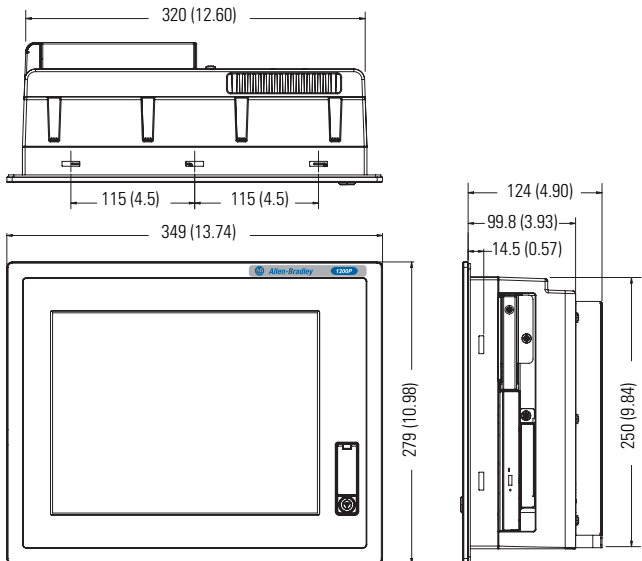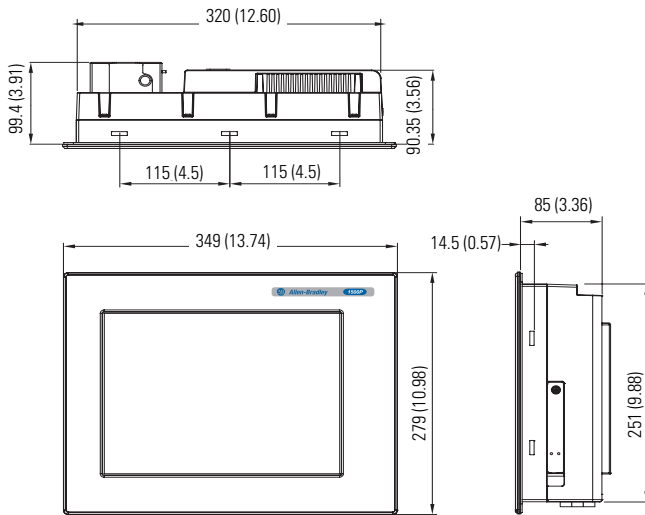| Item	Description	Value
1	Top	50 mm (2 in.)
2	Back	50 mm (2 in.)
3	Left (for airflow)	50 mm (2 in.)
4	Right (for airflow and drive access)	127 mm (5 in.)
5	Bottom (for I/O port access and ventilation)	102 mm (4 in.)

Product Dimensions

Product dimensions for the computers are given in mm (in).
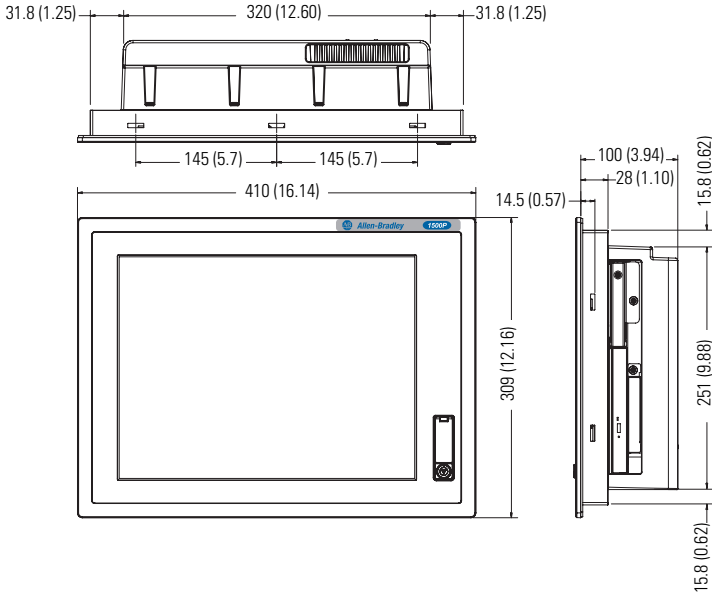
1200P Non-display Computers
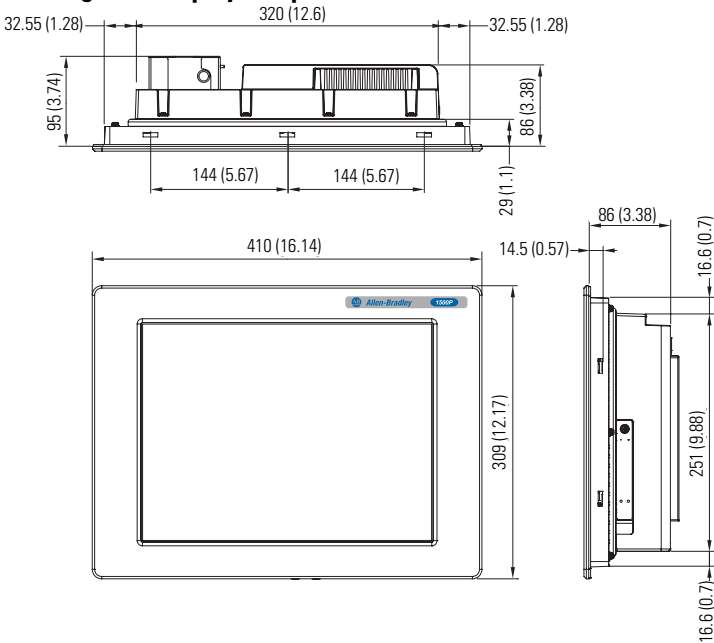

1200P Integrated Display Computer - Performance

1200P Integrated Display Computer - Standard

320 (12.60)

99.4 (3.91)

90.35 (3.56)

115 (4.5)   115 (4.5)

85 (3.36)

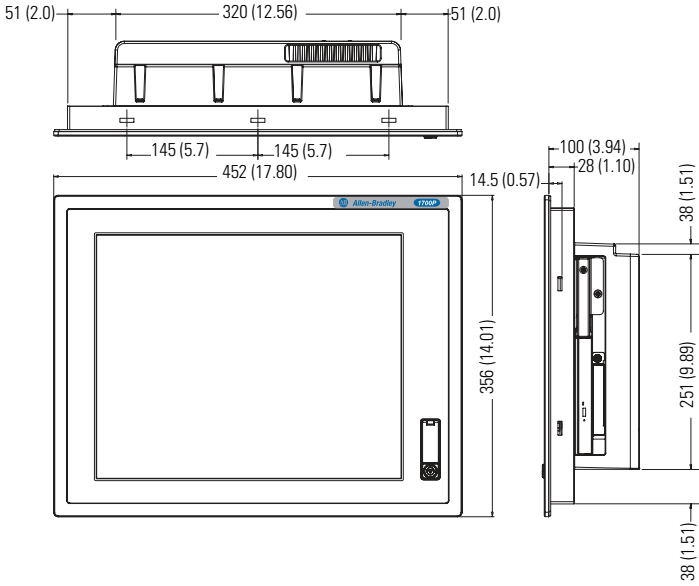349 (13.74)

14.5 (0.57)

279 (10.98)

251 (9.88)

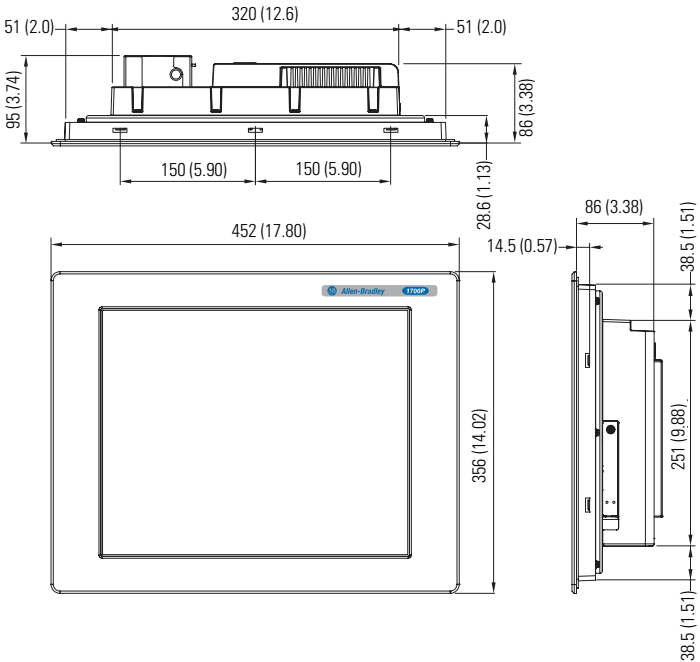## 1500P Integrated Display Computer - Performance

1500P Integrated Display Computer - Standard

1700P Integrated Display Computers - Performance

1700P Integrated Display Computer - Standard

Install the Computer

The computers support the following mounting options:

- Panel mount
- Wall mount (for non-display computers)

Panel Mounting Guidelines

Observe these guidelines when installing the unit 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 <u>Mounting Clearances</u> on <u>page 9</u>.
- 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 to ensure proper sealing against water and dust and to provide proper support. The mounting hardware supplied accommodates panel thickness between 1.5 to 5.5. mm (0.06…0.25 in.).

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

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

Panel Cutout Dimensions

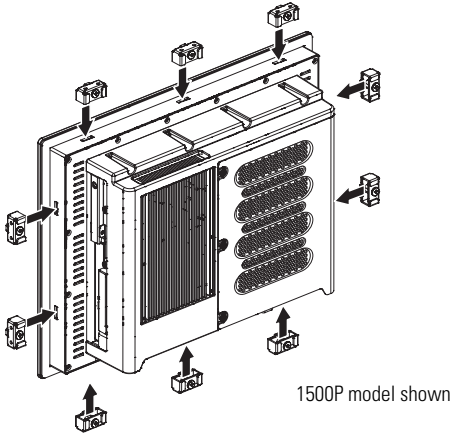The products must be appropriately mounted in the panel cutout specified below.

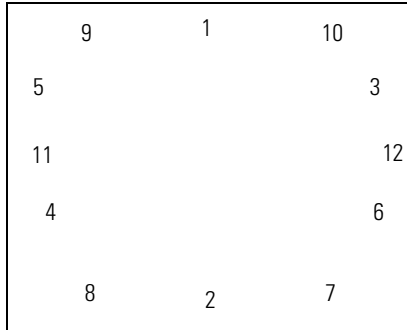| Computer Model	Cutout Dimensions (HxW), approx.
1200P	254.0 x 324.0 mm (10.0 x 12.76 in.)
1500P	285.0 x 386.6 mm (11.24 x 15.22 in.)
1700P	329.5 x 424.0 mm (12.97 x 16.69 in.)

Mount the Display Computer in a Panel

Mounting clips secure the display computer to the panel. The number of clips varies by model.

Follow these steps to mount the computer in a panel.

1. Remove power from the panel.

2. Cut an opening in the panel using the appropriate panel cutout dimensions.

3. Place the computer in the panel cutout.

4. Slide the mounting clips into the holes on the top, bottom, and sides of the computer.

1500P model shown

5. Gradually tighten the clips, one at a time, around the bezel using the specified sequence starting with the center clips and continuing to the corner clips.

```
              9          1         10

        5                                3

        11                              12

          4                            6


              8          2         7
```

6. Tighten the mounting clips to a torque of 1.4 N•m (12 lb•in) by using the sequence in step 5, being sure not to overtighten.

   Repeat this process at least three times until the clips are properly torqued, making sure the gasket is compressed uniformly against the panel.
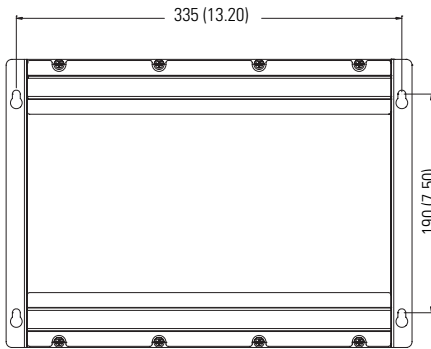
ATTENTION Tighten the mounting clips to the specified torque to provide a proper seal and prevent damage to the product. Rockwell Automation assumes no responsibility for water or chemical damage to the product or other equipment within the enclosure because of improper installation.

Mount the Non-display Computer on a Wall

Four mounting screws secure the non-display computers to a wall.

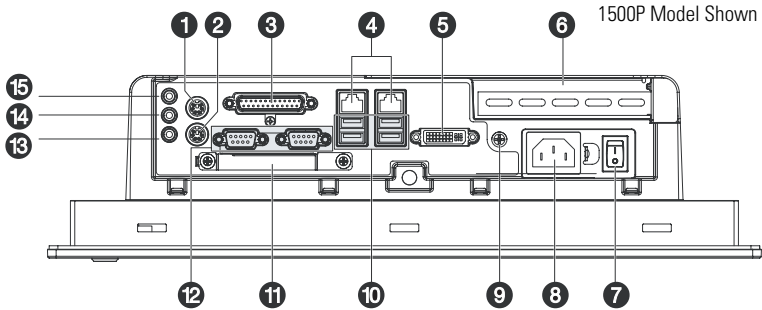Follow these steps to mount a non-display computer:

1. Make sure the power is disconnected.

2. Mount the computer to a wall by using four M5 panhead screws and tighten to a torque that is appropriate for the screw and wall material.

3. The illustration shows the location of the holes with the dimensions in mm (inches).

Connect Peripherals

Connect the required necessary peripherals such as keyboard and mouse.
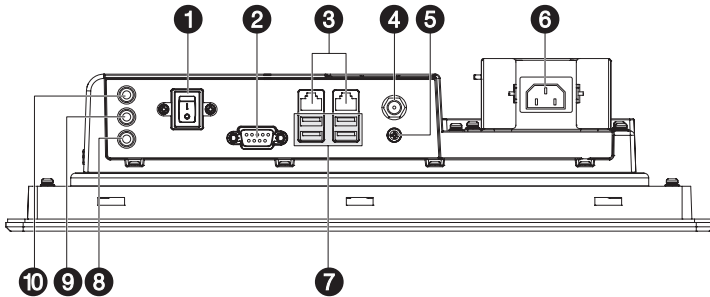
Performance and Non-display Models

1500P Model Shown

Item	Component
1	PS/2 mouse port
2	PS/2 keyboard port
3	Parallel port
4	Ethernet ports (RJ–45), 2
5	DVI-I port
6	PCI riser slot cover[1]
7	Power switch
8	Power input, AC or DC[2]
9	Functional ground screw
10	USB ports, 4
11	CompactFlash Type II card slot
12	Serial COM ports, 2
13	Microphone-in jack
14	Audio line-out jack
15	Audio line-in jack

[1]   1500P and 1700P have one PCI riser slot; 1200P and non-display computers have two PCI riser slots.

[2]   Model dependent.

Standard Model

1500P Model Shown

Item	Component
1	Power switch
2	Serial COM port
3	Ethernet ports (RJ–45), 2
4	Power input, DC
5	Functional ground screw
6	Power input, AC
7	USB ports, 4
8	Microphone-in jack
9	Audio line-out jack
10	Audio line-in jack

Apply Power

The computer connects to either a 100…240V AC or 18…32V DC power source, depending on the model.

ATTENTION	• Connect the AC power cord or the DC ground connection to a power source with an earth ground to prevent electrical shock. Failure to follow this warning could result in electrical shock.
⚠	• The computer circuit should have its own disconnect. Use an uninterruptible power source (UPS) to protect against unexpected power failure or power surges.
	• Always shut down the operating system before removing power to minimize performance degradation and operating system failures.
	• You may need to remove the AC retainer clip before installing the computers in a panel cutout. Reattach the clip after installing the unit.

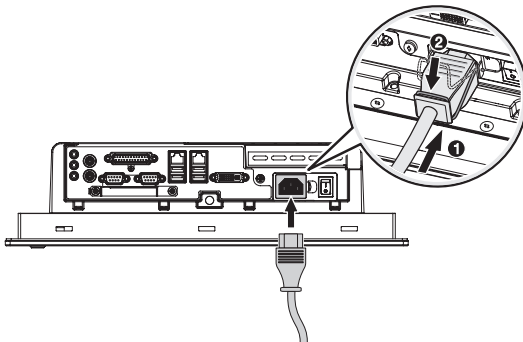## Connect AC Power to Performance and Non-display Computers

A grounded 3-prong IEC320 power cord provides power to a computer with an AC power input. The power supply input accepts 100…240V AC and is autoranging.

TIP	If using an alternate IEC320 cord, make sure the female end of the cord is sized appropriately for the retention clip.

Follow these steps to connect AC power to performance and non-display computers.

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

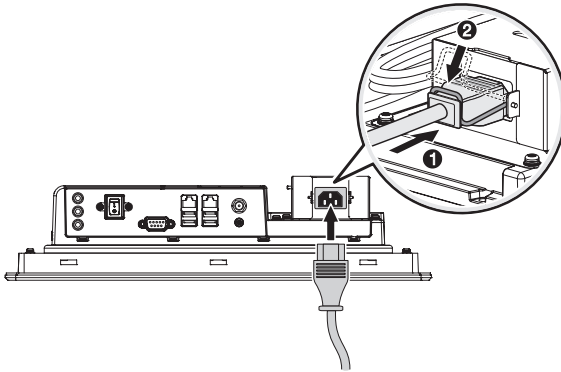2. Secure the power cord in place with the retention clip.

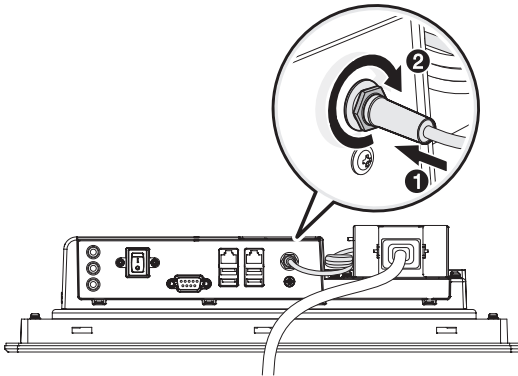3. Apply 100…240V AC power to the computer.

Connect AC Power to Standard Computers

Follow these steps to connect AC power to the standard computers.

1. Connect the power cord to the AC power input **(1)**, and secure it in place with the retention clip **(2)**.

2. Connect the DC barrel connector to the power input jack **(1)** and twist the locking ring clockwise to secure it in place **(2)**.

3. Apply 100…240V AC power to the computer.

Connect DC Power

Performance and non-display computers with a catalog numbers ending in DC have a DC input terminal block for connecting to a 18…32V DC power source.

The DC power option supports operation from either Safety Extra-low Voltage (SELV) or Protected Extra-low Voltage (PELV) power source. A ground bus strip is provided to allow a user to connect the DC common and functional ground terminals together. This is to support some cases of SELV where grounding at the product may be required by the end user.

The power supply is internally protected against reverse polarity.
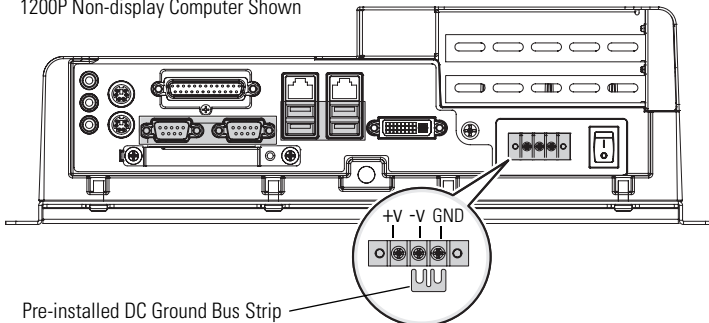
ATTENTION ⚠	Use an SELV isolated and ungrounded power supply as input power to the computer. This power source provides protection so that under normal and single fault conditions, the voltage between the conductors and Functional Earth/Protective Earth does not exceed a safe value.

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

1. Verify the main power switch or breaker is off.

2. Verify that the DC power wires meet these requirements:
   - Material: Stranded copper
   - Wire gauge: #22…#18 AWG

3. Secure the DC power wires to the terminal block screws, and the ground wire to the GND terminal screw.

   Tighten the terminal to a torque of 0.687 N•m (6.1 lb•in.).
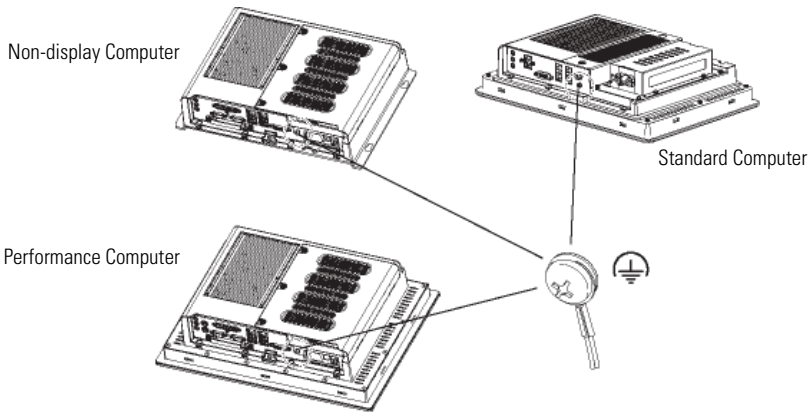
4. Apply 18…32V DC power to the computer.

1200P Non-display Computer Shown

+V -V GND

Pre-installed DC Ground Bus Strip

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 in the I/O port panel of the computer.

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

Non-display Computer

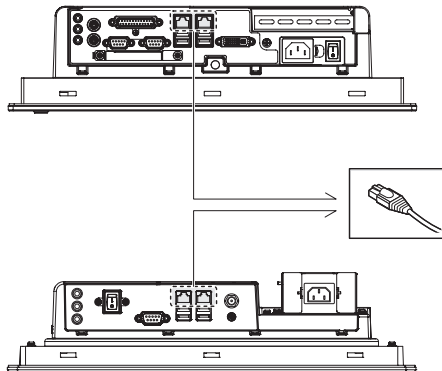Standard Computer

Performance Computer

Connect to a Network

The computers have two Gigabit LAN ports. The computers connect to an Ethernet network using CAT5 or CAT5E twisted-pair Ethernet cabling with RJ-45 connectors.

Performance and
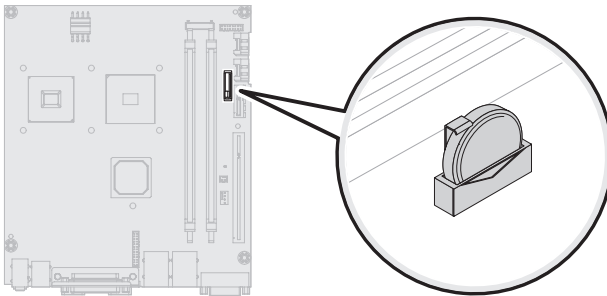Non-display Computer

Standard Computer

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 to be sure of reliable Ethernet communication in an industrial environment. Rockwell Automation recommends that you route all Ethernet cabling through dedicated metal conduits. Installing ferrite bead filters at the cable ends may also improve reliability.

RTC Battery

This product contains a lithium battery which is intended to be replaced during the life of the product.

The computers use nonvolatile memory that require a battery to retain system information when power is removed. The battery is located beside the DIMM1 slot.

The battery life depends on the amount of time the computer is powered on.

Battery Life

On Time	Expected Battery Life
0 hours/week	4 years
40 hours/week	5.5 years
80 hours/week	7 years

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

ATTENTION	Replace the battery with a specially-packaged replacement part from Allen-Bradley. Use of another battery may present a risk of fire or explosion.

	At the end of its life, the used battery should be collected separately from any unsorted municipal waste and recycled.

WARNING	A risk of fire and chemical burn exists if the battery is not handled properly. Do not disassemble, crush, puncture, or short external contacts, or expose the battery to temperatures higher than 85 °C (185 °F).
	Do not dispose of a used battery in water or fire. Dispose of used batteries according to the manufacturer's instructions.

IMPORTANT	Loss of BIOS settings occurs when the battery is removed. BIOS settings must be reconfigured whenever the battery is replaced.

Ship or Transport the Product

If you need to ship the product via common carrier or otherwise transport it to another location, you must first uninstall the product and place it in its original packing material.

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

Specifications

Industrial Integrated Display Computers

Attribute	Value
Electrical	

Performance and non-display, AC
    Input voltage, AC
    Line frequency
    Power consumption, AC
	100…240V AC, autoranging
	47…63 Hz
	110 VA (0.95 A @ 100V rms, 0.46A @ 240V rms)

Performance and non-display, DC
    Input voltage, DC
    Power consumption, DC
	18…32V DC
	95 W (5.28 A @ 18V 2.97 A @ 32V)

Standard models
    Input voltage, AC
    Line frequency
    Input voltage, DC[1]
    Power consumption, AC
	100…240 V AC, autoranging
	47…63 Hz
	20V DC (3.25 A)
	100 VA (1 A @ 100V rms, 0.42 A @ 240V rms)

Heat dissapation[2]	65W (222 BTU/h)
Mechanical	

Weight, approx
    Non-display
    1200P, Performance
    1200P, Standard
    1500P, Performance
    1500P, Standard
    1500P, Performance, SS
    1700P, Performance
    1700P, Standard
    1700P, Performance, SS
	7.7 kg (16.98 lb)
	9.5 kg (20.94 lb)
	7.85 kg (17.31 lb)
	10.7 kg (23.59 lb)
	9.0 kg (19.84 lb)
	11.9 kg (26.24 lb)
	12.6 kg (27.78 lb)
	11.0 kg (24.25 lb)
	14.5 kg (31.97 lb)

Dimensions, overall (HxWxD)
    Non-display
    1200P
      Performance
      Standard
    1500P
      Performance
      Standard
    1700P
      Performance
      Standard
	251 x 353 x 108 mm (7.5 x 13.20 x 4.25 in.)
	
	279 x 349 x 124 mm (10.98 x 13.74 x 4.90 in.)
	279 x 349 x 99 mm (10.98 x 13.74 x 3.91 in.)
	
	309 x 410 x 100 mm (12.16 x 16.14 x 3.94 in.)
	309 x 410 x 95 mm (12.16 x 16.14 x 3.74 in.)
	
	356 x 452 x 100 mm (14.01 x 17.80 x 3.94 in.)
	356 x 452 x 95 mm (14.01 x 17.80 x 3.74 in.)

Enclosure ratings (for display models only)[3]
    Performance
    Standard
    Stainless steel models
	NEMA Type 1, 12, 4, and IEC IP66
	NEMA Type 1, 12, 4, and IEC IP66
	NEMA Type 1, 12, 4X, and IEC IP66

[1]   Power adapter required.

[2]   Add-in cards and peripherals are not included in the heat dissipation value. Calculate heat dissipation separately for installed add-in cards and peripherals

[3]   Type ratings only apply when unit is properly mounted on a flat surface of an equivalent type enclosure.

Environmental	

Temperature, operating
    Standard
    Performance 1700P
    Performance 1200P, 1500P, Non-display
	0…50 °C (32…122 °F)
	0…50 °C (32…122 °F)
	0…55 °C (32…131°F)

Temperature, nonoperating	-20…60 °C (-4…140 °F)
Relative humidity	10…90% noncondensing
Shock, operating[1][2]	15 g (1/2 sine, 11 ms)
Shock, nonoperating[1]	30 g (1/2 sine, 11 ms)
Vibration, operating 6181P[1][2] 6181F[1]	0.006 in. p-p, (10…57 Hz); 1 g peak, (57…640 Hz) 0.012 in. p-p, (10…57 Hz); 2 g peak, (57…640 Hz)
Vibration, nonoperating	0.012 in. p-p, (10…57 Hz); 2 g peak, (57…640 Hz)

[1] Applies to panel mounted computers only.

[2] The optical disc drive is considered a maintenance device. Do not operate computers with this drive in environments with the shock and vibration levels listed. Do not operate the drive in temperatures above 45 °C (113 °F).

Certification [1]	
c-UL-us	UL/c-UL Listed per UL 60950-1 and CSA C22.2 No. 60950-1-03
CE	Marked for all applicable directives EMC 2004/108/EC LVD 2006/95/EC
RoHS	China RoHS
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions

[1] See http://ab.com for declarations of conformity, certificates, and other certification details.

Additional Resources

For additional information on the Non-display Computers, refer to the following publications.

Resource	Description
Industrial Integrated Display Computer User Manual, publication 6181P-UM002	Gives an overview of the system and provides procedures to install the computer, set up computer connections, operate the computer, and troubleshoot the computer.
Cloning Utility Technical Data, publication 6000-TD002	Provides information on how to create and restore a backup image of your computer's hard drive.
Diagnostic Utility for Industrial Computers, publication 6000-TG001	Provides information on how to diagnose hardware issues with industrial computers.
EWF and HORM Configuration Utility Technical Data, publication 6000-TD003	Provides information on how to configure Enhanced Write Filter (EFW) and Hiberate Once Restore Many (HORM) features for computers with the Windows Embedded Standard 2009 operating system.

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