

Compact Industrial Non-display Computers

Catalog Numbers 6155R-NSXP, 6155R-NPXP, 6155R-NPXPDC, 6155F-NPXP, 6155F-NPWE, 6155F-NPXPDC, 6155F-NPWEDC

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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://www.rockwellautomation.com/literature/>) 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.
	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, 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.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

Precautions

Read and follow these precautions for use.

Environment and Enclosure Information



ATTENTION: 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.

This equipment is supplied as open type equipment. UL recognized equipment must be mounted within an enclosure that is suitably designed for those specific environmental conditions that are present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The interior of the enclosure must be accessible only by the use of a tool. UL listed equipment need not be mounted inside another enclosure. 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 the following:

- Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#), for additional installation requirements
 - 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 the conformity is available at <http://www.rockwellautomation.com/rockwellautomation/certification/overview.page>.



ATTENTION: This equipment 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 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 W of AC power directly from the public mains.

To comply with EN 55024 and EN 61000-6-2, the Ethernet port LAN cable must be less than 30 m (98.42 ft), used only indoors, and not exit the building at any point. All other I/O cables must be less than 3 m (9.84 ft) and used only indoors.

Computer Options

This table summarizes the computer options available for the 200R compact non-display industrial computers.

Cat. No.	Series	Package	Storage	Windows Operating System
6155R-NSXP	E	Standard	Hard-disk drive	XP Professional, Service Pack 3
6155R-NPXP		Performance		
6155R-NPXPDC ⁽¹⁾				
6155F-NPXP			Solid-state drive	
6155F-NPXPDC ⁽¹⁾				
6155F-NPWE		Embedded Standard 2009		
6155F-NPWEDC ⁽¹⁾				

(1) Models with a catalog number ending in DC operate from DC power.

Operating Systems

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

- Windows XP Professional, Service Pack 3
- 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 and create a new recovery image. 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.

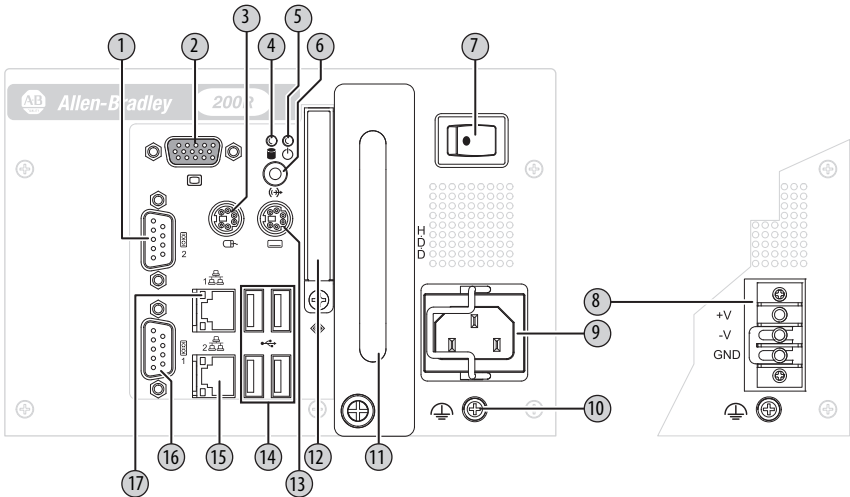
Parts List

The computers are shipped with these items:

- Mounting hardware
- AC power cord for AC power models
- Ground bus strip, pre-installed for DC power models
- Installation instructions
- Production test report
- Industrial Computer System Cloning Utility CD (red CD)

Hardware Features

The illustration shows the hardware features of the 200R compact non-display computer. The performance computer model is shown.



Item	Icon	Component
1		Serial COM port 2 ⁽¹⁾
2		VGA port
3		PS/2 mouse port
4		HDD or SSD indicator
5		Power indicator
6		Audio line-out jack
7		Power switch
8		Power input, DC ⁽²⁾
9		Power input, AC

Item	Icon	Component
10		Functional ground screw
11		HDD or SSD
12		CompactFlash Type II card slot
13		PS/2 keyboard port
14		USB ports, 4
15		Ethernet port 2 ⁽³⁾ (RJ45)
16		Serial COM port 1 ⁽¹⁾
17		Ethernet port 1 ⁽³⁾ (RJ45)

(1) Standard models have one serial COM port and Performance models have two serial COM ports.

(2) Model dependent; see page 4 for further details.

(3) Standard models have one Ethernet port and Performance models have two Ethernet ports.

Required Tools

These tools are required for computer installation:

- #2 Phillips screwdriver
- Drill motor and drill bit
- Antistatic wrist strap (recommended)

Mounting Clearances

Review the computer dimensions to make sure you allow adequate clearance around the computer for ventilation and cable connections.

Use this clearance	For
25 mm (1 in.)	Sides of computer
51 mm (2 in.)	Top of computer
13 mm (0.5 in.) ⁽¹⁾	Bottom of computer
None	Rear of computer
Adequate clearance for any cables used that extend beyond the handle.	Front of computer

(1) This clearance is not required when provided mounting hardware is used.

When mounted in an enclosure or high temperature area, the ambient temperature around the computer must not exceed the operating temperature range.

Install the Computer

The computers support various mounting options:

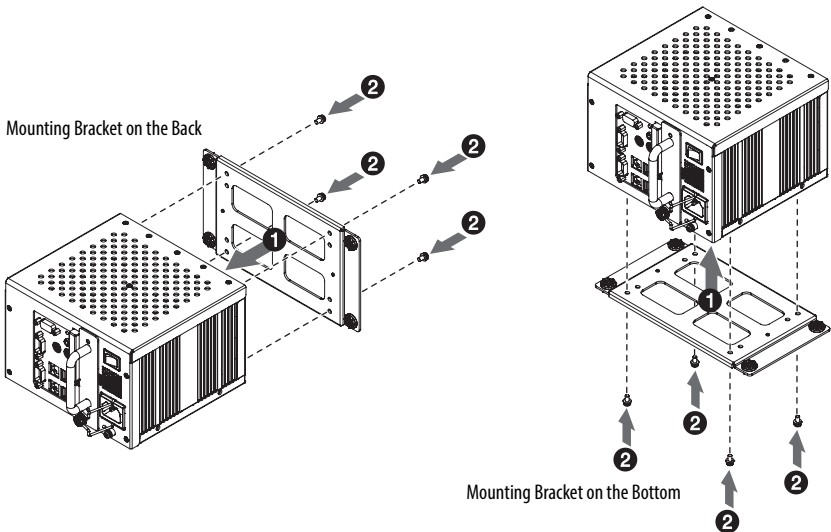
- Wall mount
- DIN rail mount
- VESA mount

A bracket with mounting screws is provided for each mounting option.

Mount the Computer on a Wall

You can mount the computer on a wall by using a mounting bracket. See page 11 for the wall-mount bracket dimensions.

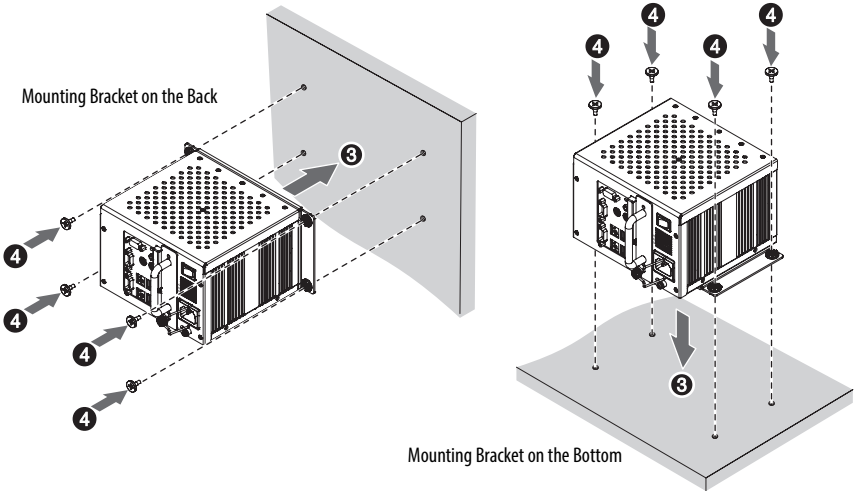
1. Drill and tap four M4 holes in the wall, a minimum of 5 mm, that correspond to the holes in the mounting bracket.
2. Attach the mounting bracket to the bottom or back of the computer (1).
3. Secure the mounting bracket with the provided M4 x 8 mm panhead screws (2).
Torque the screws to 0.686 N•m (6.072 lb•in).



4. Position the computer against the wall, aligning the holes in the mounting bracket with the holes in the wall (3).

TIP Support the computer with a shelf or other means to make installation at the appropriate height easier.

5. Insert the remaining M4 panhead screws through the mounting bracket into the wall and tighten (4).

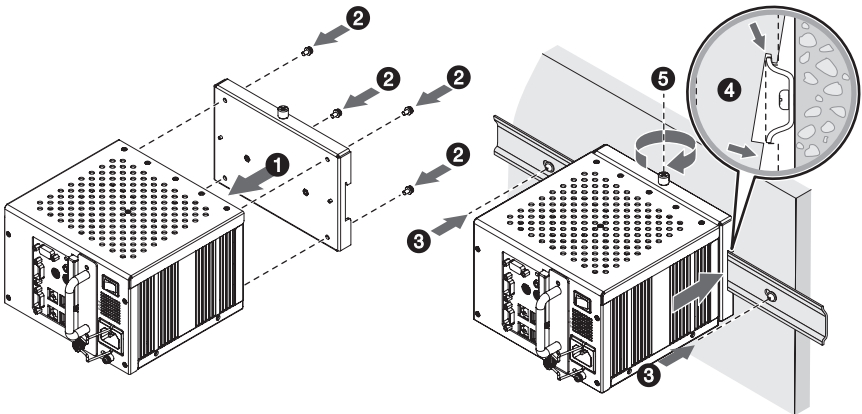


Mount the Computer on a DIN Rail

You can mount the computer on a DIN rail. The DIN-rail bracket mounts to the back of the computer. See page [11](#) for the DIN-rail bracket dimensions.

IMPORTANT Do not mount the computer on a DIN rail in high shock and vibration environments.

1. Attach the DIN-rail bracket to the back of the computer (1).
2. Secure the DIN-rail bracket by using four, M4 x 5 mm panhead screws; torque to 0.686 N•m (6.072 lb•in) (2).



TIP If you are using an existing DIN rail, skip step 3.

3. Attach and secure the DIN rail to the installation surface (3).
4. Mount the computer on a DIN rail.
 - a. Insert the upper lip of the DIN-rail bracket into the top edge of the DIN rail.
 - a. Press the computer firmly against the lower edge of the DIN rail (4).
5. Secure the installation by tightening the fastener on the DIN-rail bracket and torque to 1.18 N•m (10.42 lb•in) (5).

VESA Mount the Computer

You can mount the computer to any Allen-Bradley industrial monitor or other surface by using the provided VESA mounting bracket. This bracket is compliant with the VESA 100 x 100 mm mounting hole pattern. See page 11 for the VESA mounting bracket dimensions.

IMPORTANT If you are VESA mounting to the back of the monitor, the computer I/O panel must be facing down, and the monitor must be mounted vertically and not at an angle.

1. Attach the VESA mounting bracket to the installation surface (1).
 2. Secure the VESA mounting bracket with the four M4 x 8 mm flathead screws (2).
 3. Place the computer on the VESA mounting bracket (3).
 4. Secure the installation with four M4 x 8 mm screws (4).
- Torque the screws to 0.686 N•m (6.072 lb•in).

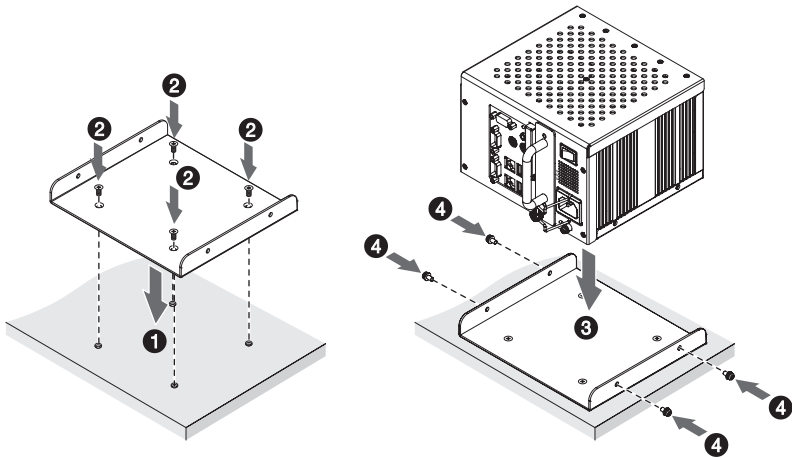
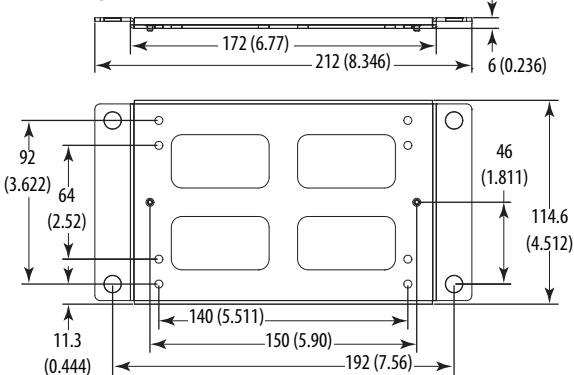


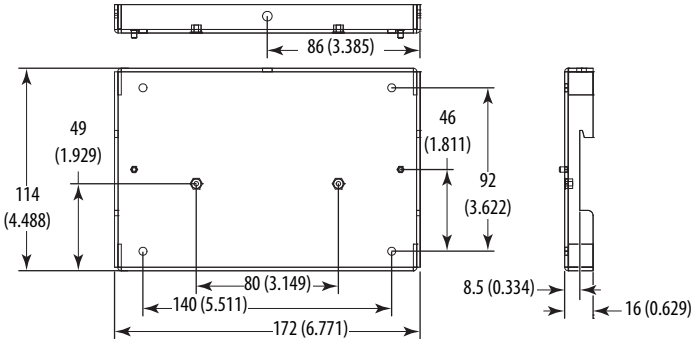
Figure 1 - Mounting Bracket Dimensions

Wall Mounting Bracket

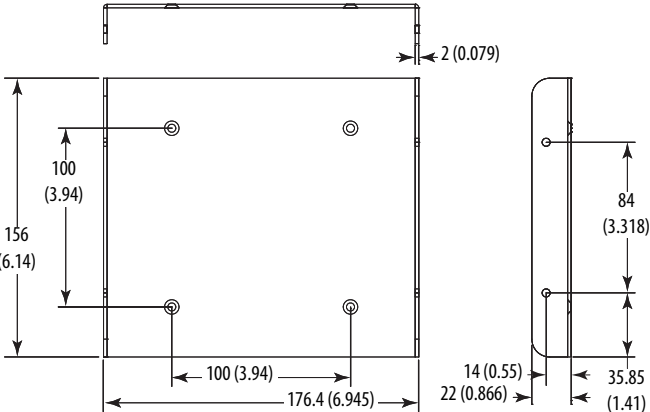
All dimensions are in mm (in.)



DIN-rail Mounting Bracket

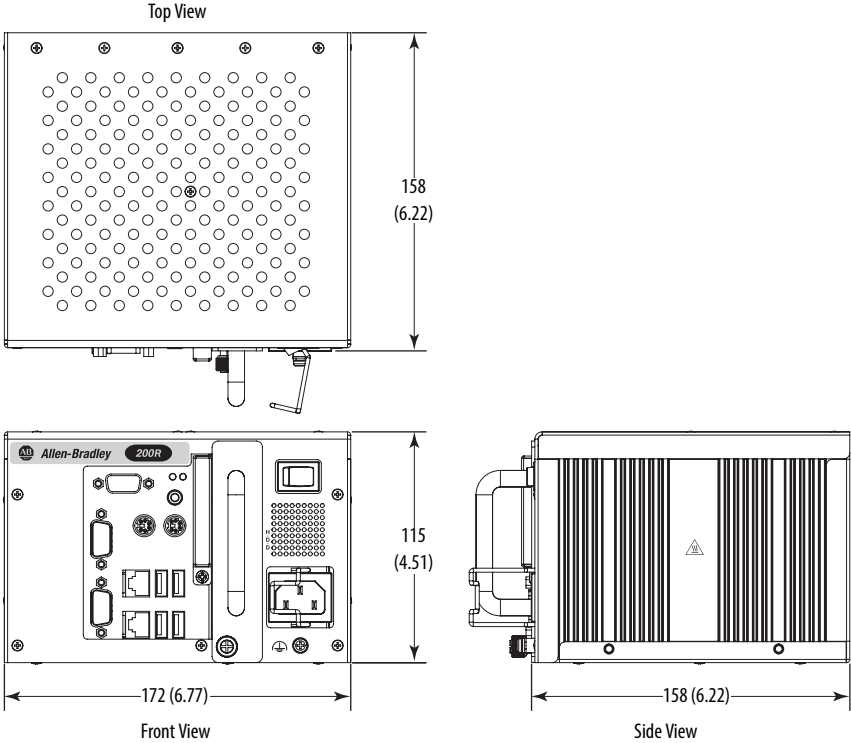


VESA Mounting Bracket



Computer Dimensions

Computer dimensions for the computer are given in mm (in).



Connect Peripherals

Connect the required peripherals such as the keyboard, mouse, and monitor to the corresponding I/O ports on the computer. Refer to [Hardware Features](#) on [page 6](#) for required connections.

Apply Power

The computer connects to either a 100...240V AC or 9...36V DC power source, depending on the model.



SHOCK HAZARD: 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.

We recommend that the computer circuit 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.

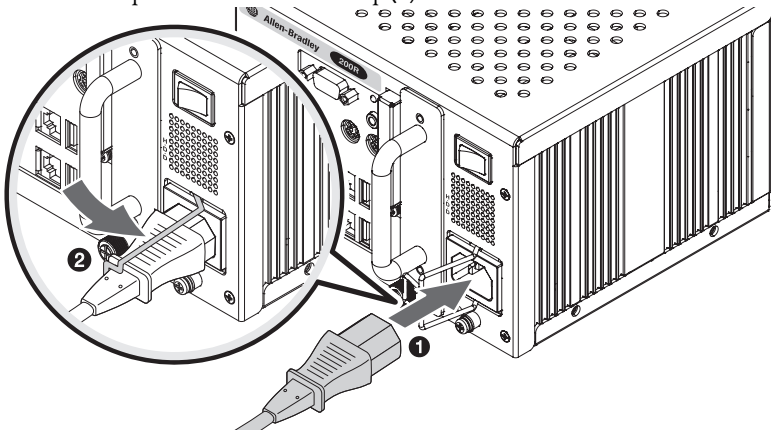
Remove the AC retention clip, if necessary, before installing the computer in a panel cutout. Reattach the clip after installing the computer.

Connect AC Power

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.

1. Connect the power cord to the AC power input (1).
2. Secure it in place with the retention clip (2).



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

Connect DC Power

Computers with a catalog number ending in DC have a DC input terminal block for connecting to a 9...36V DC power source.

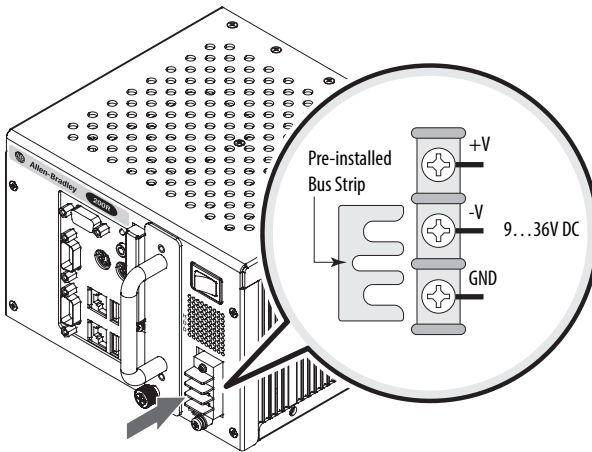
The DC power option supports operation from either a Safety Extra Low Voltage (SELV) or Protective Extra Low Voltage (PELV) power source. A pre-installed ground bus strip connects the DC common and functional ground terminals together. This is to support SELV cases where the end user requires grounding at the computer.



ATTENTION: Use a Class 2 Safety Extra Low Voltage (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.

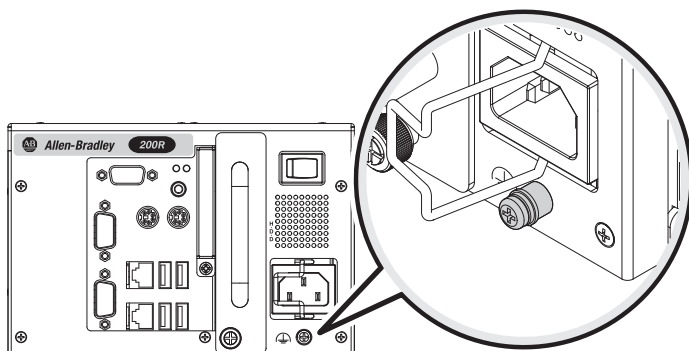
Follow these steps to connect the computer to a DC power source.

1. Turn off the main power switch or breaker.
2. Secure the DC power wires to the terminal block screws.
3. Secure the DC ground wire to the GND terminal screw.
4. Apply 9...36V DC power to the computer.



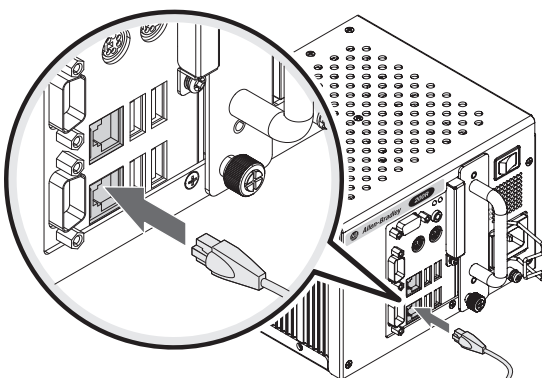
Functional Ground Screw

You are not required to use the functional ground screw for safety and regulatory compliance. However, if you want a supplemental ground, use the functional ground screw below the power input.



Connect to a Network

The computers have one or two Gigabit LAN ports, depending on the model. The computer connects to the Ethernet network by using twisted-pair Ethernet cabling with RJ45 connectors.



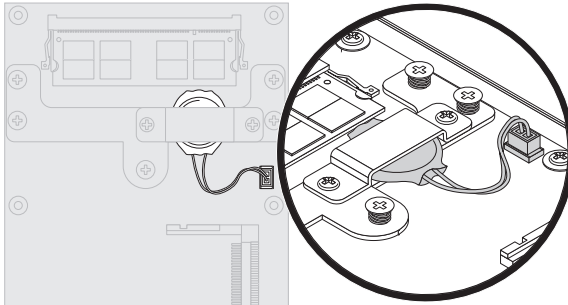
IMPORTANT

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.

Real-time Clock (RTC) Battery

This computer contains a lithium battery that must be replaced during the life of the computer. The computers use nonvolatile memory that require a battery to retain system information when power is removed. The RTC battery is on the computer's CPU board.



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

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

If your 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](#).



WARNING: To prevent voiding your product warranty, use only Allen-Bradley approved replacement parts and accessories.

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 product contains a hermetically-sealed lithium battery that may need to be replaced during the life of the product.

At the end of its life, the battery contained in this product should be collected separately from any unsorted municipal waste.

Ship or Transport the Computer

If you need to ship the computer via common carrier or otherwise transport it to another location, 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 cause damage to 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

Mechanical

Attribute	6155R-NSXP, 6155R-NPXP, 6155R-NPXPDC, 6155F-NPXP, 6155F-NPWE, 6155F-NPXPDC, 6155F-NPWEDC
Weight, approx	5 kg (11 lb)
Dimensions (HxWxD), approx	115 x 172 x 158 mm (4.51 x 6.77 x 6.22 in.), excluding handle and connector

Electrical

Attribute	6155R-NSXP, 6155R-NPXP, 6155R-NPXPDC, 6155F-NPXP, 6155F-NPWE, 6155F-NPXPDC, 6155F-NPWEDC
Input voltage, AC	100...240V, autoranging
Line frequency	47...63 Hz
Power consumption, AC	35 W (0.64 A @ 100V rms, 0.37 @ 240V rms) 64VA @ 100, 88.8VA @ 240V
Input voltage, DC	9...36V, autoranging
Power consumption, DC	35 W (3.89 A @ 9V, 0.97 A @ 36V)

Environmental

Attribute	6155R-NSXP, 6155R-NPXP, 6155R-NPXPDC, 6155F-NPXP, 6155F-NPWE, 6155F-NPXPDC, 6155F-NPWEDC
Temperature, operating	0...55 °C (32...131 °F)
Temperature, nonoperating	-20...60 °C (-4...140 °F)
Relative humidity	10...90% noncondensing
Shock, operating ⁽¹⁾	15 g (1/2 sine, 11 ms)
Shock, nonoperating ⁽¹⁾	30 g (1/2 sine, 11 ms)
Vibration, operating ⁽¹⁾ 6155R 6155F	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 ⁽¹⁾	0.012 in. p-p, (10...57 Hz); 2 g peak, (57...640 Hz)

(1) Applies to wall-mounted computers only.

Certifications

Attribute⁽¹⁾	6155R-NSXP, 6155R-NPXP, 6155R-NPXPDC, 6155F-NPXP, 6155F-NPWE, 6155F-NPXPDC, 6155F-NPWEDC
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	European RoHS China RoHS Turkey RoHS (EEE Yönetmeliğine Uygunudur. In Conformity with the EEE Regulation)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions

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

Additional Resources

For additional information on compact non-display computers, refer to the following publications.

Resource	Description
Industrial Non-display Computer User Manual, publication 6155R-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.
EFW and HORM Configuration Utility Technical Data, publication 6000-TD003	Provides information on how to configure Enhanced Write Filter (EFW) and Hibernate Once, Restore Many (HORM) features for computers with the Windows Embedded Standard 2009 operating 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.

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 manuals, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools. You can also visit our Knowledgebase at <http://www.rockwellautomation.com/knowledgebase> for FAQs, technical information, support chat and forums, software updates, and to sign up for product notification updates.

For an additional level of technical phone support for installation, configuration and troubleshooting, we offer TechConnectSM support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://www.rockwellautomation.com/support/>.

Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number 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 Worldwide Locator at http://www.rockwellautomation.com/rockwellautomation/support/overview.page , 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 [BA-DU002](#), available at <http://www.rockwellautomation.com/literature/>.

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Publication 6155R-IN002E-EN-P - July 2013

PN-30420

DIR 10000039351 (Version 02)

Supersedes Publication 6155R-IN002D-EN-P - September 2012

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