

Industrial Non-display Computers

Catalog Numbers 6177R-M4AXP, 6177R-M4PXP, 6177R-M4SXP, 6177R-R4PXP, 6177R-R4SXP, 6177R-R4LXP, 6177R-M4AS3RD, 6177R-R4AS3RD, 6177R-M3PXP, 6177R-M3PXPDC, 6177R-M3AS3

Topic	Page
Important User Information	2
Additional Resources	3
European Union Directive Compliance	3
Environment and Enclosure Information	4
Voltage Precaution	4
Operating Systems	5
Before You Begin	5
Before You Begin	5
Install the Computer	8
Product Dimensions	9
Connect Peripherals	15
Connect AC Power	15
Connect DC Power	16
Functional Ground Screw	16
Connect to a Network	17
Replace the RTC Battery	17
Load the System Defaults	20
Specifications	21

About This Publication

This publication provides pre-installation instructions and describes how to:

- machine/wall mount the 650R computer (6177R-M3xxxxx).
- machine/wall mount the 750R computer (6177R-M4xxxxx).
- rack mount the 1450R computer (6177R-R4xxxxx).

It also describes how to make peripheral, power, and network connections.

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 [SG-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, 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.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

Additional Resources

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
Industrial Non-display Computers, User Manual, publication 6177R-UM001	Provides details about how to install and operate the non-display computers, and specifications.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.rockwellautomation.com/rockwellautomation/certification/overview.page	Provides declarations of conformity, certificates, and other certification details.

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

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 product 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.

Environment and Enclosure Information

Review information on enclosures and environments before installing the product.



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

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR 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 does not need to be mounted inside another enclosure.

In addition to this publication, see the following:

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

Voltage Precaution

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



SHOCK HAZARD: Disconnect power from the computer before removing components. Failure to disconnect power could result in severe electrical shock or damage the computer.

Operating Systems

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

- Windows Server 2003 R2, Service Pack 2
- Windows XP Professional, Service Pack 3

No operating system updates have been applied to the factory image beyond the service packs.

For your convenience, 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.

To obtain the original factory image on bootable external-recovery media, which also includes the I386 source directory, contact your local technical support center.

Before You Begin

Before unpacking the product, 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 product for repair or transport it to another location. Use both the inner and outer packing cartons to provide adequate protection for a unit returned for service.

Parts List

The computers are shipped with these items:

- Power cord, AC
- Security keys for the 1450R front door
- Keys for front-panel access door
- Mounting hardware
 - Rack handles for the 1450R computer
 - Mounting brackets for the 750R computer
 - Mounting brackets for the 650R computer
 - Mounting fasteners
- Installation instructions
- Quick start guidelines
- System CDs
 - Accessory CD with Cloning Utility (red)
 - DVD burning software (6177R-M3 models only, CD format)

Required Tools

These tools are required for installation:

- #2 Phillips screwdriver
- Flat-blade screwdriver
- Drill motor and drill bit
- Antistatic wrist wrap (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 have 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 and must avoid condensation.
- In dry environments, static charges build up easily. Proper grounding of the equipment through the AC power cord 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.

Install the Computer

The computers support various mounting options:

- Machine mount
- Rack mount

Mounting Hardware

The table lists the hardware required for each type of installation.

Description	Used for	Applies to	Cat. No.
Mounting brackets (2)	Machine or wall mounting	750R	6177R-M4AXP, 6177R-M4XP, 6177R-M4SXP, 6177R-M4AS3RD
Rack handles (2)	Rack mounting	1450R	6177R-R4XP, 6177R-R4SX, 6177R-R4LXP, 6177R-R4AS3RD
Mounting brackets (2)	Machine or wall mounting	650R	6177R-M3XP, 6177R-M3XPDC, 6177R-M3AS3

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 adequate ventilation and cable connections. Sufficient air flow 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 optical disk drive.

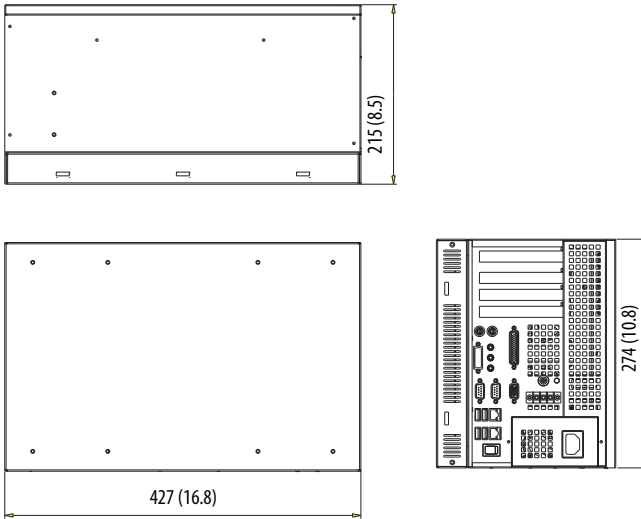


ATTENTION: Use other cooling methods, if necessary, to maintain the product temperature at its specified rating.

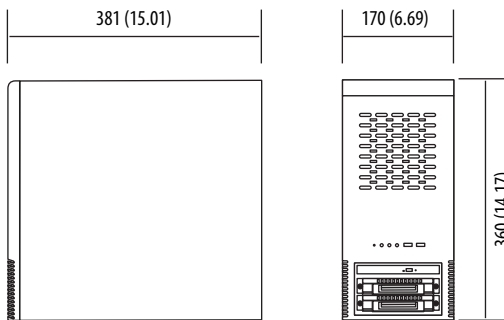
Product Dimensions

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

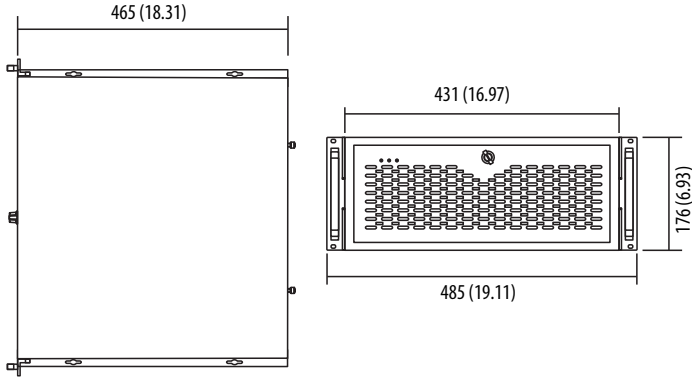
650R Computers (catalog number 6177R-M3)



750R Computers (catalog number 6177R-M4)



1450R Computers (catalog number 6177R-R4)



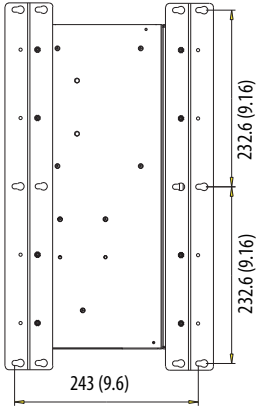
Mount the 650R Non-display Computer in a Panel

You can mount the non-display computer on a wall, panel, or 19-inch rack. The computer attaches to the panel by using the four screw slots in the front plate. Use M5 or #10 screws (or larger). Screws are not included.

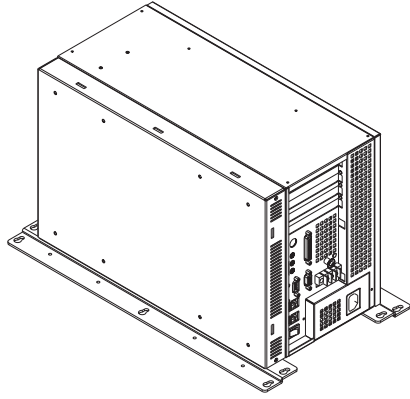


ATTENTION: Remove all electrical power from the panel before making the cutout. Make sure the area around the panel cutout is clear. Do not allow metal cuttings to enter components that are already installed in the panel. Failure to follow these warnings may result in personal injury or damage to the panel components.

Bottom Mounting Dimensions 650R

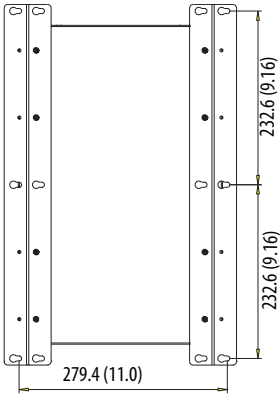


Dimensions are in mm (in.).

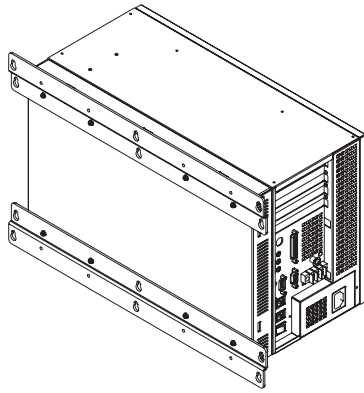


Mounting Bracket Dimensions (bottom side)

Side Mounting Dimensions 650R



Dimensions are in mm (in.).



Mounting Bracket Dimensions (side cover)

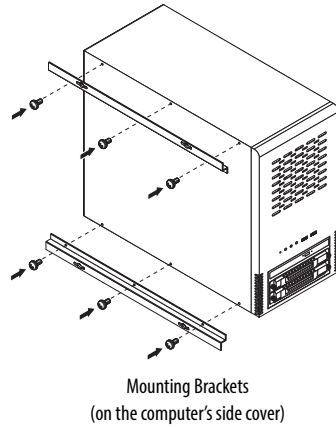
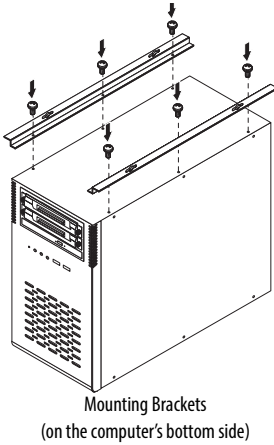
Mount the 750R Computer on a Machine

You can mount the 750R computer, catalog number 6177R-M4, on any flat surface, such as a shelf, inside a machine, or against a wall by using mounting brackets.

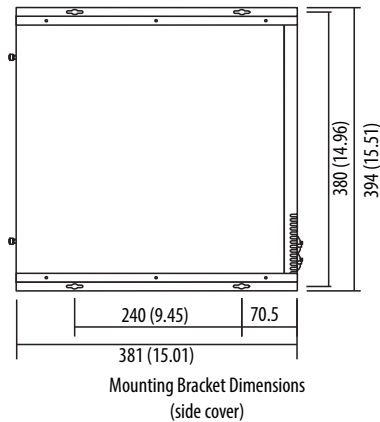
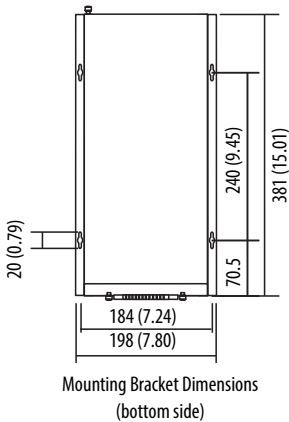
Follow these steps to mount the 750R computer.

1. Attach the two mounting brackets to the computer by using six screws.

There are two location options: the computer's bottom-side for an upright installation, or the side cover for a wall installation.



2. Drill four holes in the shelf or wall that correspond to the holes in the mounting bracket. The recommended screw size is M6...M8.



Dimensions are in mm (in.).

3. Fasten the computer assembly through the slotted holes in the brackets by using M6...M8 mounting screws.

TIP For ease of installation, make sure two or more people help to install the computer.

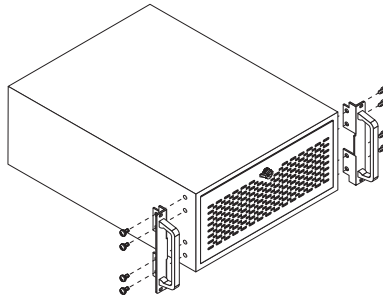
Mount the 1450R Computer on a Rack

You can install the 1450R computer (catalog number 6177R-R4) in a rack cabinet that conforms to EIA standards for equipment with 483 mm (19 in.) wide panels. The rack cabinet must accommodate the computer's 4U height and depth, and also provide rear clearance for cables and air flow. A rack cabinet with a depth of 610 mm (24 in.) is sufficient.

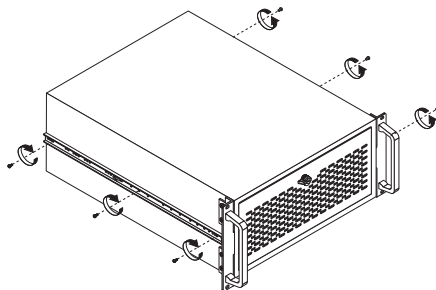
The computer must be supported by rack slides or fastened to a shelf. The four flanges of the computer are intended only to horizontally secure the unit to the front mounting rails of the rack cabinet.

Follow these steps to mount the 1450R computer.

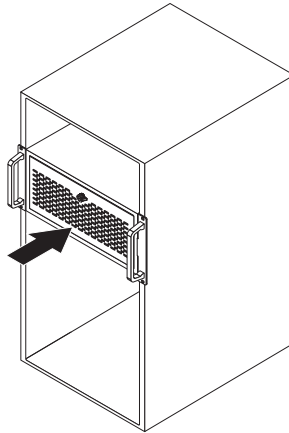
1. Review the product dimensions to confirm that there is adequate space behind the cabinet for cables and air flow.
2. Attach the supplied rack handles to the computer.



3. Install the rack slides in the rack cabinet.
4. Attach the rack slides to the computer.



5. Align the rack slides to the corresponding slides inside the cabinet.
6. Insert the computer in the rack cabinet from the front of the cabinet.

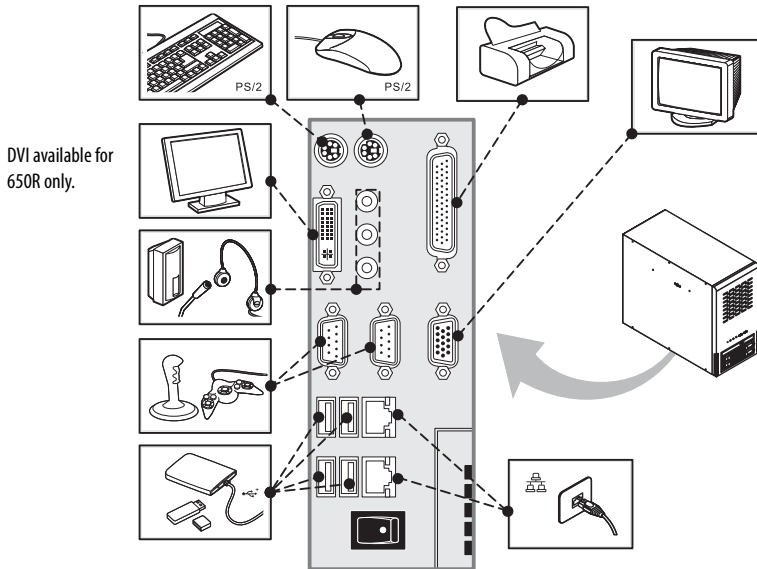


TIP For ease of installation, make sure two or more people help to install the computer.

7. Fasten one rack-mount flange to each side of the chassis with the slotted screws provided.
8. Horizontally secure the computer to the front mounting rails of the rack cabinet with the included screws.

Connect Peripherals

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



Connect AC Power

A standard IEC 320 power cable provides power to the computer. The power supply input accepts 120...240V AC.

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



ATTENTION: Connect the AC power cable 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 has 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.

Connect DC Power

The 650R computer, catalog number 6177R-M3XPDC, is available with a DC power option using a three-screw terminal block (+24VDC, 24RTN, GND).

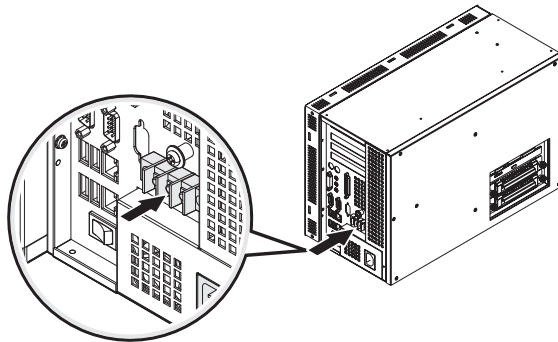
The DC power option supports operation from either a safety extra-low voltage (SELV) or protective extra-low voltage (PELV) power source. A ground bus strip is provided to let you connect the DC common and functional ground terminals together. This is to support SELV cases where the end user requires grounding at the computer.

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.

1. Secure the DC power wires to the terminal block screws.
2. Secure the ground wire to the GND terminal block screw.
3. 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 on the rear panel of the 750R and 1450R computers, or side panel of the 650R computer.

Connect to a Network

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

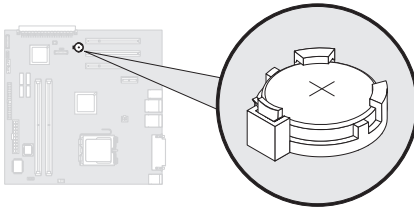
IMPORTANT To prevent performance degradation of Ethernet communication, do not subject the computer or cables to extreme radiation or conducted high-frequency noise.

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

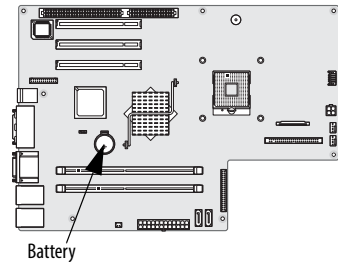
Replace the RTC Battery

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 system board.

750R and 1450R



650R



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

Estimated Battery Life Span

On-time	Expected Battery Life
0 hr/wk	4 yr
40 hr/wk	5.5 yr
80 hr/wk	7 yr

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](#).



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

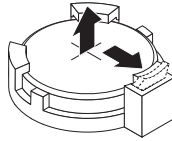
Follow these steps to replace the RTC battery.

1. Perform this pre-configuration procedure.
 - a. Turn off the computer and all of the peripherals connected to it.
 - b. Unplug all cables from the power outlets to avoid exposure to high energy levels. If necessary, label each one to expedite reassembly.
 - c. Disconnect telecommunication cables to avoid exposure to shock hazard from ringing voltages.
2. Remove the side cover.
3. Lay the computer on its side (components showing).
4. If necessary, remove any accessory boards or cables that prevent access to the RTC battery socket.
5. Remove the battery.
 - a. Insert a small screwdriver between the battery and spring latch to dislodge the battery from its socket.

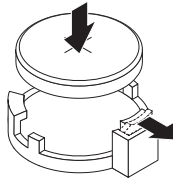
IMPORTANT

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

- b. Remove the old battery from its socket.



6. Insert the new battery with the positive polarity (+) side facing up, and make sure that it is seated completely.



7. Observe this post-configuration procedure.
 - a. Make sure all components are installed according to the described step-by-step instructions.
 - b. Make sure that no loose tools or parts are left inside the computer.
 - c. Reinstall any expansion boards, peripherals, board covers, and system cables that have previously been removed.
 - d. Reinstall the side cover.
 - e. Connect all external cables and the AC power cord to the computer.
 - f. Press the power switch to turn on the computer.
8. Reconfigure the BIOS 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 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.

Load the System Defaults

If the computer fails after you make changes in the Setup menus, restart the computer, enter Setup, and 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 in a normal manner.
2. During POST, press F2 to access the Setup Utility.
3. Press F9 to load the default values.
4. Press F10 to save the changes you made and close the Setup Utility.

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

Electrical and Mechanical Specifications

Attribute	6177R-M4, 6177R-R4, 6177R-M3
Electrical	
Input voltage, AC	90...264V AC, autoranging
Line frequency, AC	47...63 Hz
Input voltage, DC	18...32V DC
Power consumption, AC 650R 750R, 1450R	144VA (1.4 A @ 100V rms, 0.6 A @ 240V rms) 265VA (2.7 A @ 100V rms, 1.1 A @ 240V rms)
Power consumption, DC 650R	144 W (8 A @ 18V DC, 4.5 A @ 32V DC)
Power dissipation, AC 650R 750R, 1450R	144 W 265 W
Power dissipation, DC 650R	144 W
Mechanical	
Dimensions (HxWxD), approx. 650R 750R 1450R	274 x 427 x 215 mm (10.79 x 16.81 x 8.46 in.) 360 x 170 x 381 mm (14.17 x 6.69 x 15.01 in.) 176 x 431 x 465 mm (6.93 x 16.97 x 18.31 in.)
Weight, approx. 650R 750R 1450R	12.0 kg (26.50 lb) 13.8 kg (30.36 lb) 14.0 kg (30.80 lb)
Mounting option 650R 750R 1450R	M3 machine mount M4 machine mount 4U rack mount

Environmental Specifications

Attribute	6177R-M4, 6177R-R4, 6177R-M3
Temperature, operating 650R 750R and 1450R	0...55 °C (32...131 °F) 0...45 °C (32...113 °F)
Temperature, nonoperating	-20...60 °C (-4...140 °F)
Relative humidity	10...90% noncondensing
Shock, operating	15 g (1/2 sine, 11 ms)
Shock, nonoperating	30 g (1/2 sine, 11 ms)
Vibration	0.003 in p-p, 10...57 Hz, 1.0 g peak, 57...640 Hz

Certifications

Certifications⁽¹⁾	6177R-M4, 6177R-R4, 6177R-M3
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 Uygundur. 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.

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 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 [RA-DU002](#), available at <http://www.rockwellautomation.com/literature/>.

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