

PACSystems™ RX3i Central Processing Unit

IC695CPE302-Bxxx

IC695CPE305-Bxxx

IC695CPE310-Bxxx

Quick Start Guide



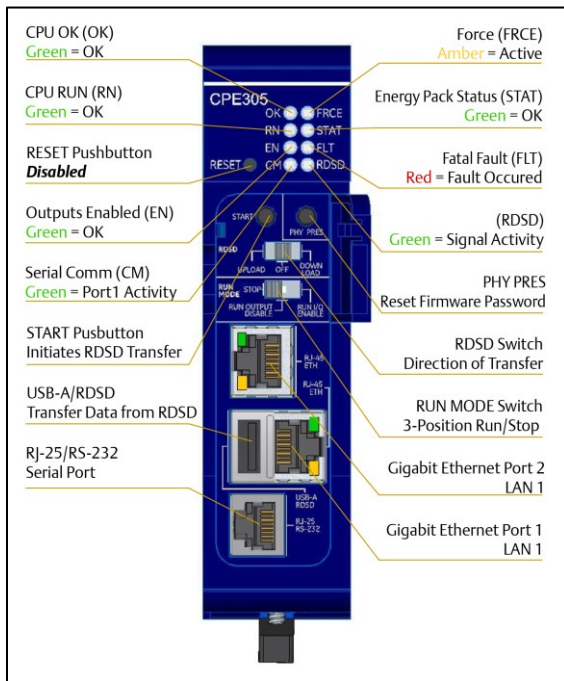
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Front Panel Description

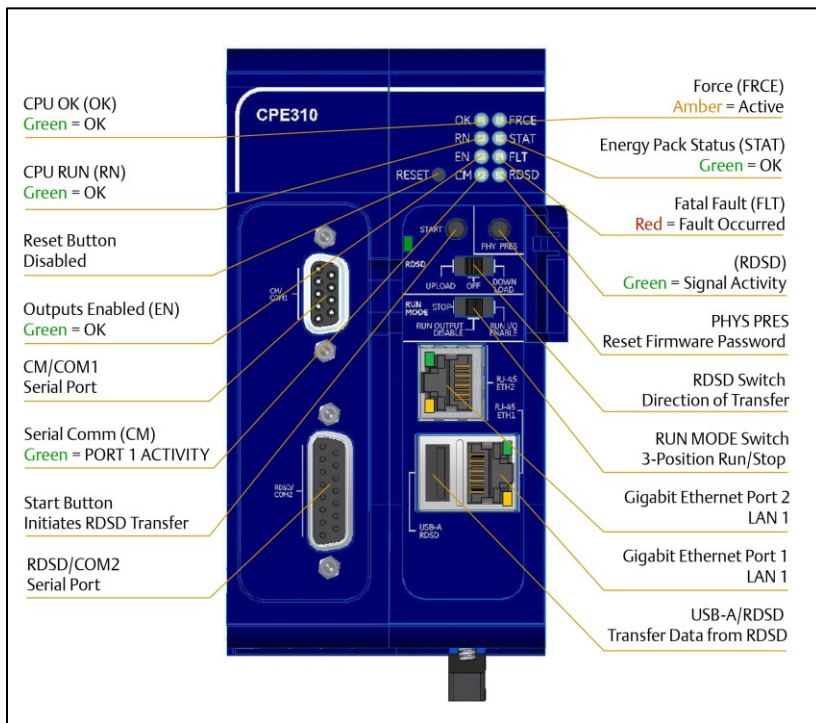
CPE302-Bxxx/CPE305-Bxxx

Figure 1: Front Panel Description



CPE310-Bxxx

Figure 2: Front Panel Description



Switches

The RDSD and Run Mode switches are located behind the front protective door. The Reset switch is not used. Switch operation is given in the following table.

Switch Operation

RDSD Switches	Function	
Start Pushbutton	Pressing this switch initiates RDSD data transfer. (The three-position switch must be set to Upload or Download.)	
RDSD Switch	The RDSD Switch enables and disables RDSD data transfer and selects the direction of data transfer.	
	Upload	Loads application from CPU to RDSD.
	Off	Disables RDSD data transfer.
	Download	Stores application from RDSD to CPU.
PHY PRES Pushbutton	Used to reset the password on the firmware upgrade webpage.	
Run Mode Switch	Run I/O Enable	The CPU runs with I/O sweep enabled.
	Run Output Disable	The CPU runs with outputs disabled.
	Stop	The CPU is not allowed to go into Run mode.

The **Run Mode** switch can be disabled in the programming software in Hardware Configuration (HWC). The switch's memory protection function can be disabled separately in HWC. The **Run Mode** switch is enabled by default. The memory protection functionality is disabled by default.

Real-Time Clock Battery

The CPE302/305/310-Bxxx is shipped with a real-time clock (RTC) battery (IC690ACC001) installed.

There are no diagnostics or indicators to monitor RTC battery status. The RTC battery has an estimated life of 5 years and must be replaced every 5 years on a regular maintenance schedule. If the RTC battery fails, the CPU date and time are reset to 12:00 AM, 01-10-2000 at startup. The CPU operates normally with a failed or missing RTC battery; only the initial CPU Time-of-day (TOD) clock information will be incorrect.

For instructions on replacing the Real-Time Clock Battery, please refer to the PACSystems™ RX3i and RSTi-EP CPU Reference Manual (GFK-2222).

Ethernet Ports

The embedded Ethernet interface supports communications with PAC Machine Edition programming software using the proprietary SRTP protocol. The CPE302/305/310-Bxxx CPU provides two SRTP server connections.

The embedded Ethernet interface has two RJ-45 Ethernet ports that are switched internally and can automatically sense the data rate (10 Mbps or 100 Mbps or 1000 Mbps), duplex status (half or full duplex), and cabling arrangement (straight-through or crossover) of the attached link.

Serial Port

The CPE302/305-Bxxx provides one RS-232 serial interface to external devices. The CPE310-Bxxx provides two COM Ports, COM1 an RS-232 serial interface with a standard D-sub 9-pin female connector, and COM2 an RS-485 serial interface with D-sub 15-pin female connector. The serial ports of CPE302/305/310-Bxxx are electrically isolated. For serial port pin assignments and details on serial communications, refer to the *PACSystems RX3i and RSTi-EP CPU Reference Manual*, GFK-2222.

The RS-232 port does not supply the 5 VDC power offered by other RX3i and Series 90-30 CPUs. Cable IC693CBL316 must be used for RS-232 serial connections to the CPE302/305-Bxxx.

Removable Data Storage Devices (RDSDs)

The CPE302/305/310-Bxxx provides the ability to transfer applications to and from an RDSD (USB-compatible device, such as a memory stick, smartphone, digital camera, or MP3 device). Once the data is copied to the RDSD, it can be written to other RX3i CPE302/305/310-Bxxx CPUs with no programmer software needed. The RDSD interface requires a user-supplied flash memory device that complies with the USB 2.0 Specification.

The USB port must be enabled in the RX3i configuration to transfer data between the CPU and the RDSD. The CPE302/305/310-Bxxx is shipped with the RDSD (USB) port enabled. Complete details of the use of RDSDs are found in the *PACSystems RX3i and RSTi-EP CPU Reference Manual*, GFK-2222.

Energy Pack

The CPE302/305/310-Bxxx preserves user memory using an Energy Pack without the need to periodically replace batteries. The IC695ACC400 Energy Pack powers the CPU long enough for the CPU to write its user memory contents to the CPU's non-volatile storage during a system power loss. Installation of the Energy Pack is found in the *Module Installation* section.

Light-Emitting Diode Indicators (LEDs)

LED	LED State	Operating State
OK	 Green, ON steady	CPU passed power-up diagnostics, functioning properly
	 OFF	Power is not applied, or the CPU has a problem, which may be indicated by RN and EN blink pattern
	 Green, blinking	CPU in Stop-Halt state; possible watchdog timer fault. Refer to the fault tables. If the programmer cannot connect, cycle power with a charged Energy Pack attached and refer to fault tables
RN	 Green, ON steady	CPU passed power-up diagnostics, functioning properly
	 OFF	Power is not applied, or the CPU has a problem, which may be indicated by RN and EN blink pattern
	 Green, blinking	CPU in Stop-Halt state; possible watchdog timer fault. Refer to the fault tables. If the programmer cannot connect, cycle power with a charged Energy Pack attached and refer to fault tables

LED	LED State	Operating State
EN	 Green, ON steady	Output scan is enabled.
	 OFF	Output scan is disabled.
RN/EN	 Green, blinking	CPU is in firmware update mode, it enters this mode when initiated through a web browser. In this mode, the CPU is updating its firmware and the images of other internal programmable devices.
CM	 Green, blinking	Signal activity on the COM1 port.
	 OFF	No activity on the COM1 port.
FRCE	 Amber, ON steady	Override active on at least one-bit reference.
	 OFF	No overrides applied.
STAT	 OFF	Energy Pack is not connected.
	 Green, blinking	Energy Pack charging; not yet charged above the minimum operating voltage.
	 Green, ON Steady	Energy Pack is charged above its minimum operating voltage.
	 Red, ON	Energy Pack circuit fault.
	 Red, blinking	Energy Pack is near its end of life and should be replaced soon.
FLT	 OFF	No fatal faults.
	 Red, ON	CPU is in Stop/Faulted mode because a fatal fault has occurred.
RDSD	 Green, blinking	Indicates signal activity on USB-A/RDSD/COM2 Port.
	 OFF	No activity on USB-A/RDSD/COM2 Port.

Hardware Installation

Initial Checks

Upon receiving your RX3i equipment, carefully inspect all shipping containers for damage. If any part of the system is damaged, notify the carrier immediately. The damaged shipping container should be saved as evidence for inspection by the carrier.

As the consignee, it is your responsibility to register a claim with the carrier for damage incurred during shipment. Emerson Automation Solutions will fully cooperate with you, however, should such action be necessary.

After unpacking the RX3i equipment, record all serial numbers. Serial numbers are required if you need to contact Customer Care during the warranty period. All shipping containers and all packing material should be saved should it be necessary to transport or ship any part of the system.

Verify that all components of the system have been received and that they agree with your order. If the system received does not agree with your order, contact Customer Care.

Installation Guidelines

For information on installation areas, please consult the RX3i Installation and Maintenance Requirements documentation (GFK-3069) included with the product.

Module Installation

For the initial startup and configuration of the CPE302/305/310-Bxxx, complete the following steps. For full details on CPE302/305/310-Bxxx operation, refer to the *PACSystems RX3i and RSTi-EP CPU Reference Manual*, GFK-2222.

1. Remove power from the RX3i rack and install the CPE302/305/310-Bxxx.
2. The CPE302/305/310-Bxxx may be installed in any slot in the RX3i Main rack, except the highest-numbered slot or slot 0.
3. Holding the module firmly, align the module with the correct slot and connector, then swing the module down until the module's connector engages the backplane's backplane connector.

Figure 3: Module Installation



4. For CPE302/305-Bxxx:
 - a. Visually inspect the module to be sure it is properly seated.
 - b. Tighten the two captive screws located in the module's bottom bracket to fasten the bottom to the backplate. Tighten screws using a #1 Phillips screwdriver. Tighten to 0.7 N-m (6 in-lbs.).
5. For CPE310-Bxxx:
 - a. Ensure the release lever on the bottom of the module snaps into place in the bottom module retainer of the backplane.
 - b. Visually inspect the module to be sure it is properly seated.
6. Mount the Energy Pack on the left side of the module in slot 0 of the rack (typically a power supply).
 - a. Engage the Energy Pack's mounting hooks (at the top) on the frame of the leftmost module.
 - b. Rotate the bottom of the Energy Pack into place, engaging the bottom hooks. The latch will snap into place.
 - c. Connect cable IC695CBL001 from the connector on the bottom of the Energy Pack to the corresponding connector on the bottom of CPE302/305/310-Bxxx.
7. If required, connect the CPE302/305/310-Bxxx to the Ethernet network.
8. Apply power to the rack.

Note: When the Energy Pack is powered up for the first time or is in a system that has been powered down long enough to completely discharge the Energy Pack, it may require a few seconds for it to charge to its operating level. The CPU's **STATUS** LED will blink green during this time.

Module Initial Startup

You Will Need:

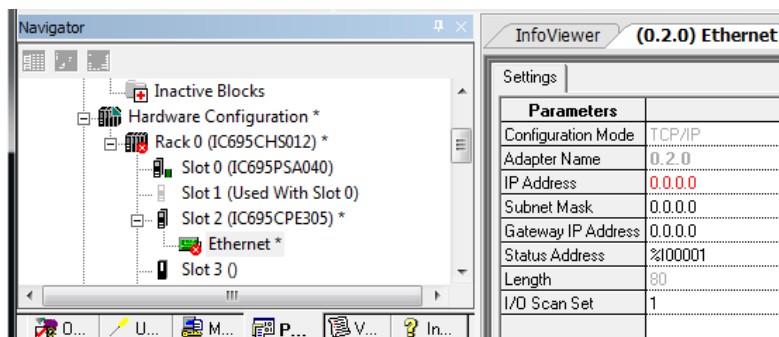
- PACSystems RX3i CPU Firmware 10.60 or later.
- PAC Machine Edition™ configuration and programming software, version 8.00 SIM 7 or later.
- An IC693CBL316 serial or Ethernet cable for connecting the computer running the PAC Machine Edition programmer to the RX3i CPU.

Initial Configuration

1. Using PAC Machine Edition (PME) software, configure the CPE302/305/310-Bxxx in an RX3i target.

Note: If you intend to use the module's embedded Ethernet interface, you will probably need to assign it a new IP address. To configure the embedded Ethernet interface in Machine Edition, expand the CPU slot to display the Ethernet daughterboard. The Settings tab for the embedded Ethernet module contains IP Address, Subnet Mask, and Gateway IP Address (see the following diagram). Consult your network administrator for the proper values for these parameters.

Figure 4: Configuration of the Ethernet Port on CPE302/305/310-Bxxx



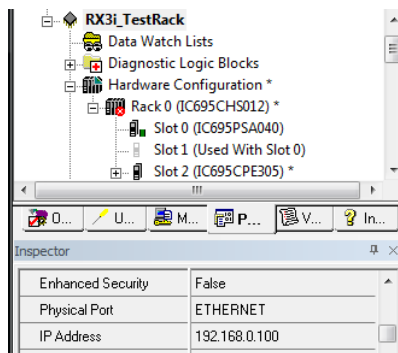
2. Go online with the target and download the configuration. You can use one of the following methods for the initial connection to the CPE302/305/310-Bxxx:
 - a. Connect to CPE302/305-Bxxx using an IC693CBL316 cable, and connect to the module's RJ-25 RS-232 serial port to the programmer's computer. The computer must be equipped with a RS-232 serial port with a standard AT-style nine-pin male D-connector.
 - b. Connect to CPE310-Bxxx using a standard straight-through cable to the module's COM1 port (RS-232) from the serial port of the programmer's computer. The computer must be equipped with a RS-232 serial port with a standard AT-style nine-pin male D-connector.

- c. Connect to the module's Ethernet port, using the factory-loaded IP address, 192.168.0.100.

Note: This address is intended only for the initial connection to complete the configuration. After the initial configuration download must be changed before connecting to the Ethernet network. When you store a hardware configuration with a different IP address, the temporary IP address is lost; it is not restored by a Clear operation.

- d. Through the Ethernet connection of an ETM001 in the same rack with a known IP address configuration.

Figure 5: IP Address Visible in Inspector Pane



Additional Information

<i>PACSystems RX3i and RSTi-EP CPU Reference Manual</i>	GFK-2222
<i>PACSystems CPU Programmer's Reference Manual</i>	GFK-2950
<i>PACSystems RX3i System Manual</i>	GFK-2314
<i>PACSystems RX3i IC695CPE302-Bxxx/IC695CPE305-Bxxx/ IC695CPE310-Bxxx CPU Important Product Information</i>	GFK-3248
<i>PACSystems RX3i and RSTi-EP TCP/IP Ethernet Communications User Manual</i>	GFK-2224

User manuals, product updates, and other information sources are available on the Support website.

General Contact Information

Please visit us for product support or updated product information:

Online Technical Support and GlobalCare

<http://www.emerson.com/industrial-automation-controls/support>

Additional Information

<http://www.emerson.com/industrial-automation-controls>

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