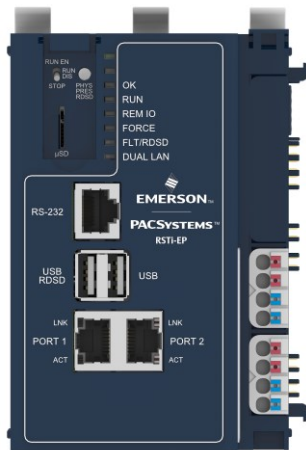


RSTi-EP CPE200 Series Controllers

Quick Start Guide

GFK-3109B

Dec 2022



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Initial Checks

Upon receiving your 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 will fully cooperate with you, however, should such action be necessary.

After unpacking the equipment, record all serial numbers. Serial numbers are required if you should 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.

Front Panel Description

Figure 1: Front Panel View of EPXCPE205

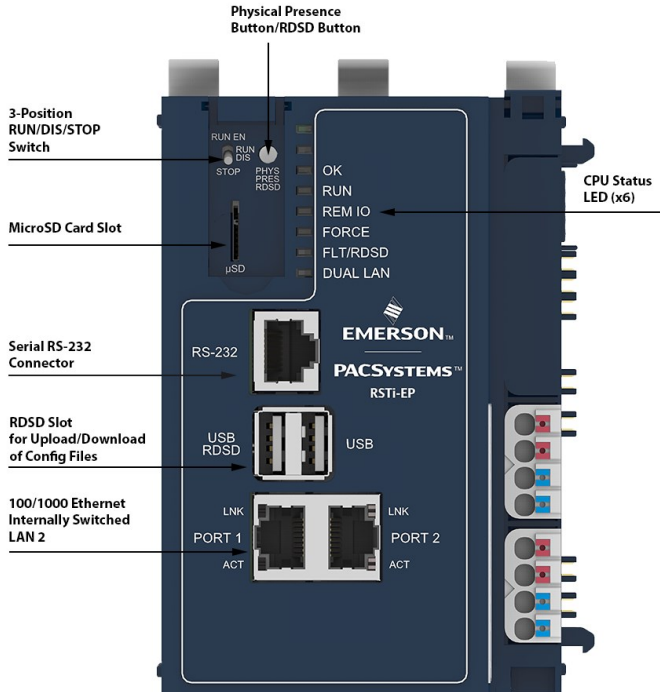
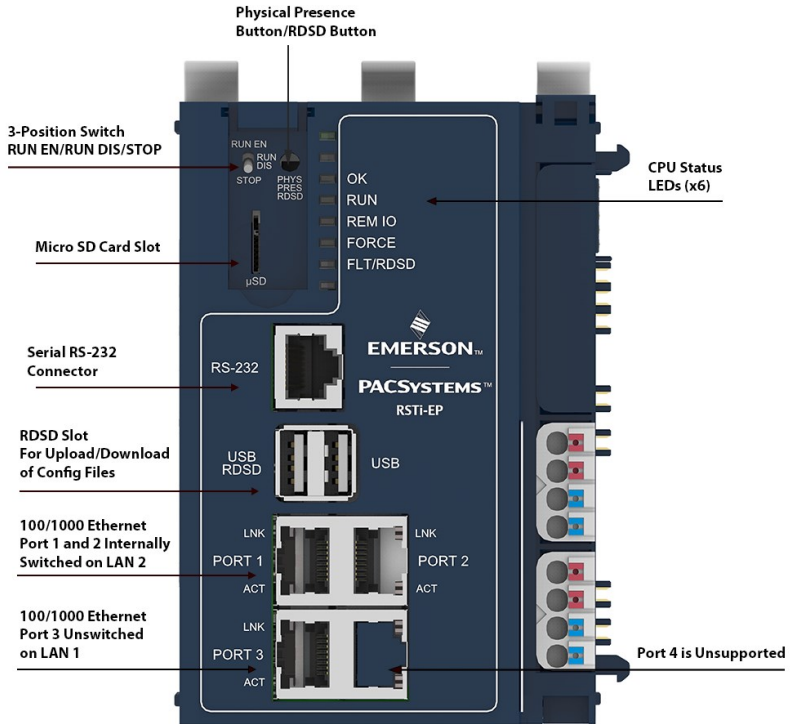


Figure 2: Front Panel View of EPXCPE210/215/220/240



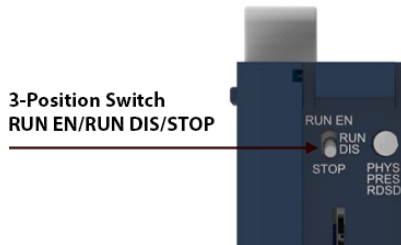
Displays and LED Indicators

Label	Function	Description/Notes
OK	LED	Multi-function PLC LED.
RUN	LED	Multi-function PLC LED.
REM IO	LED	Remote IO state LED. PLC LED that will indicate whether ALL or SOME PROFINET devices are connected.
FORCE	LED	PLC LED that indicates a "forced" value is present in User Logic.
FLT/RDSD	LED	PLC LED that will indicate a STOP-FAULT condition, IP Conflict Detected, and also the RDSD state.
DUAL LAN	LED	PLC LED that indicates EPXCPE205 LAN mode configuration. This LED is not labeled on any other EPXCPE model.
RUN EN	RUN/STOP Switch	PLC in Run Outputs Enabled.
RUN DIS	RUN/STOP Switch	PLC in Run Outputs Disabled.
STOP	RUN/STOP Switch	PLC in Stop.
PHY PRES RDSD	Physical Presence/RDSD	Button for Physical Presence actions (i.e. password change), RDSD and reset to factory defaults. RDSD – Single press to perform an upload. RDSD – Double press to perform a download. Is used to initiate Reset to Factory Default Settings.
μSD	Micro SD card	Port for the micro SD card.
RS232	Serial Port	Port for serial communications. Only support RS-232.
USB RDSD	USB 2.0/RDSD	USB connection for RDSD, and potentially other features in the future.
PORT X	Ethernet Port	Ethernet Ports. X = 1, 2, 3, or 4.
LNK	Ethernet Port LED	LED that indicates Ethernet Link and Speed. Belongs to the Ethernet Connector.
ACT	Ethernet Port LED	LED that indicates Ethernet activity on the link. Belongs to the Ethernet Connector.

Ethernet Port LEDs

- The Ethernet Port LEDs are located in the PHY connector itself. They are controlled by the PHY
- There are two LEDs per port, one for Link/Speed (“LNK”) and one for Activity (“ACT”)
- **Ethernet LinkSpeed (“LNK”):**
 - **GREEN** indicates 1 Gbps
 - **AMBER** indicates 100 Mbps
 - **OFF** indicates 10 Mbps (currently not supported per spec)
- **Ethernet Activity (“ACT”):**
 - **GREEN** indicates Link
 - **BLINKING GREEN** indicates activity on the link

Figure 2: 3-Position Switch RUN EN/RUN DIS/STOP



Front Display LEDs

LED Label	LED State	Operating State
OK	Green (steady)	Powered up, the controller is up and ready.
	Amber (steady)	Thermal warning – a warm condition
	Red (steady)	Thermal shutdown - hot temperature condition
OK RUN	Green (flashing in unison)	Reset to factory defaults
RUN REM IO	Green (flashing in unison)	Programmable parts update
RUN	Green (steady)	The controller is running with I/O outputs enabled
	Green (flashing)	Fatal error blink code during power up
	Amber (steady)	The controller is running with I/O outputs disabled
REM IO	Green (steady)	All PROFINET devices connected
	Green (flashing)	Unit is starting up (see LED power-up sequence)
	Amber (steady)	Some PROFINET devices connected
FORCE	Amber (steady)	The controller has a forced value(s)

LED Label	LED State	Operating State
FLT/RDSD	Green (steady)	USB device present and RDSD is ready
	Green (steady)	RDSD Operation completed successfully
	Green (flashing)	RDSD download operation in progress
	Amber (flashing)	RDSD upload operation in progress
	Red (steady)	The controller is in a Stop-Fault state
	Red (flashing)	RDSD has failed
	Red (flashing)	If RDSD is not being performed, indicates IP conflict detected
DUAL LAN (EPXCPE205 only)	Green (steady)	Dual LAN operating mode
	Off	Single LAN operating mode

RUN/STOP Switch

The EPXCPE models all feature a 3-position switch, labeled: “STOP, RUN DIS, RUN EN” (Figure 1 and Figure 2).

Run/Stop Switch Position	CPU Sweep Mode
RUN EN	The CPU runs with I/O outputs enabled
RUN DIS	The CPU runs with I/O outputs disabled
STOP	The CPU is not allowed to go into RUN mode

Connectors and Ports

Ethernet Ports

The following tables indicate the default IP address for each ethernet port.

Important

When storing a hardware configuration with a new IP address to the PACSystems controller while connected via Ethernet, the connection will succeed and then immediately disconnect because the PACSystems controller is now using a different IP address than the programmer. The user must enter the new IP address in Target Properties PAC Machine Edition’s Inspector window before connecting and reuploading the program for it to be stored in the user flash.

EPXCPE205 Single LAN Mode		
	Port 1	Port 2
Default IP Address	192.168.0.100 10.10.0.100	
Subnet Mask	255.255.255.0	
Gateway	0.0.0.0	

EPXCPE205 Dual LAN Mode*		
	Port 1	Port 2
Default IP Address	192.168.0.100	10.10.0.100
Subnet Mask	255.255.255.0	
Gateway	0.0.0.0	

*Dual LAN Mode is the default configuration for the EPXCPE205.

EPXCPE210/215/220/240				
	Port 1	Port 2	Port 3	Port 4
Default IP Address	10.10.0.100		192.168.0.100	N/A
Subnet Mask	255.255.255.0			
Gateway	0.0.0.0			

Serial COM Port (RS-232)

Pin No.	Signal Name	Description
1	DSR	Data Set Ready
2	DCD	Data Carrier Detect
3	DTR	Data Terminal Ready
4	GND	Signal Ground
5	RXD	Receive Data
6	TXD	Transmit Data
7	CTS	Clear to Send
8	RTS	Request to Send

Power Connectors

Supply	
Supply voltage for system and inputs	20.4 V – 28.8 V
Supply voltage for outputs	20.4 V – 28.8 V
Max. feed-in current for input modules (including current for RSTI-EP internal 5V DC --> 1.5A@24V)	8.5 A + 1.5 A
Max. feed-in current for output modules	10 A
Current consumption from system current path I_{SYS}	116 mA
Connection data	
Type of connection	Spring style



Conductor cross-section	Single-wired, fine-wired	0.14 – 1.5 mm ² (AWG 26 – 16)
Connection LEDs		
PWR LED	Green: Supply voltage > 18Vdc Red: At least one current path < 18 V	
	1 -Green: Input current path supply voltage > 17 V D	
	2- Red: Input current path supply voltage < 17 V DC	
	3 Blue: Ground	
	4 Blue: Ground	
	1- Green: Output current path supply voltage > 17 V DC	
	2- Red: Output current path supply voltage < 17 V DC	
	3 Blue: Ground	
	4 Blue: Ground	

Figure 3: Power Feed Minimum Current Draw

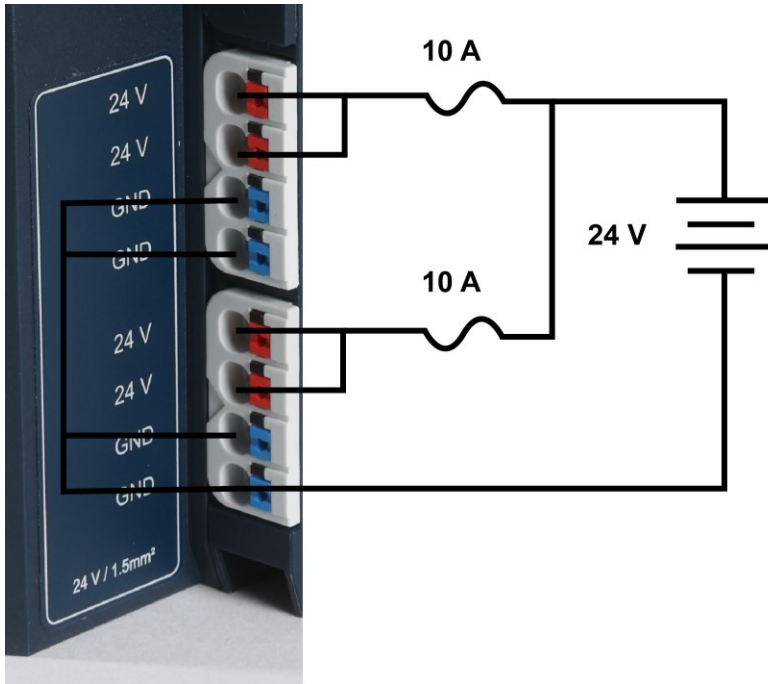
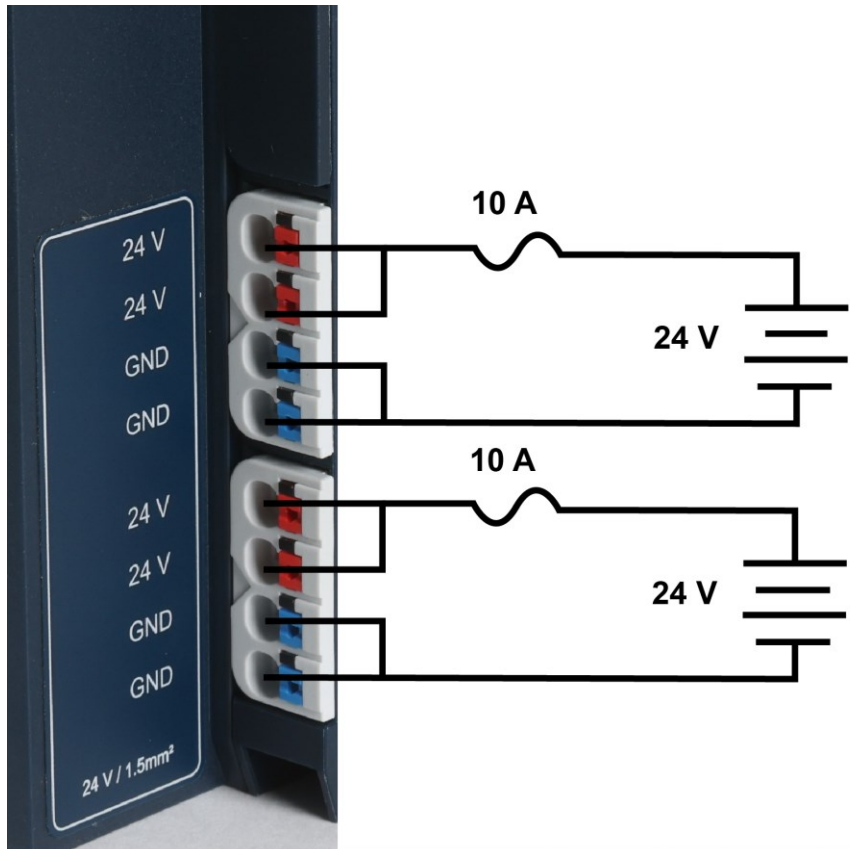


Figure 4: Power Feed Maximum Current Draw



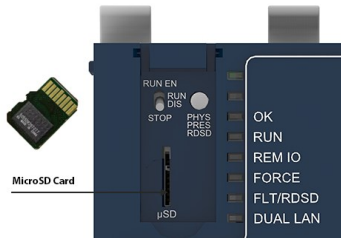
MicroSD Card Interface

The MicroSD card slot is located under the front door, just below the RUN/STOP switch (Figure 5). It supports ServReq 56/57 data retention/restore functionality discussed in GFK-2950.

The interface supports SD, SDHC, and SDXC MicroSD cards up to Version 3.0. The card formatting is required to be either FAT or FAT32 with MBR partitioning.

Insert the card into the slot, oriented as described below. Apply pressure on it until you feel some resistance. The card will latch into place and can then be read by the equipment. To remove, apply pressure again to eject the card from the slot.

Figure 5: MicroSD Card

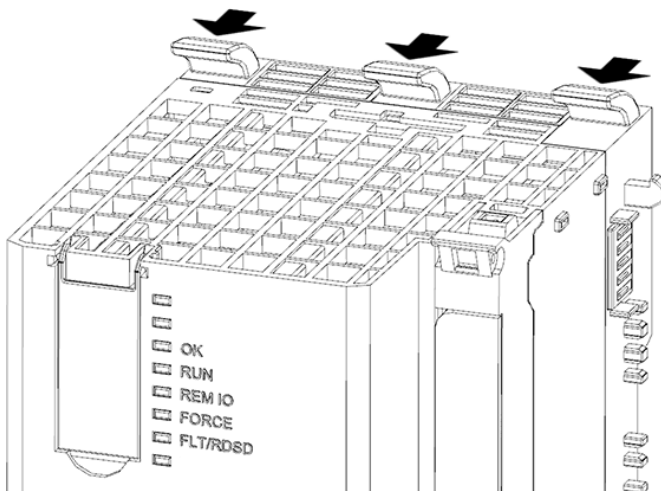


Note: The MicroSD card needs to be inserted in the slot with the correct orientation. The pins of the card need to face towards the right side of the controller.

DIN Rail Installation

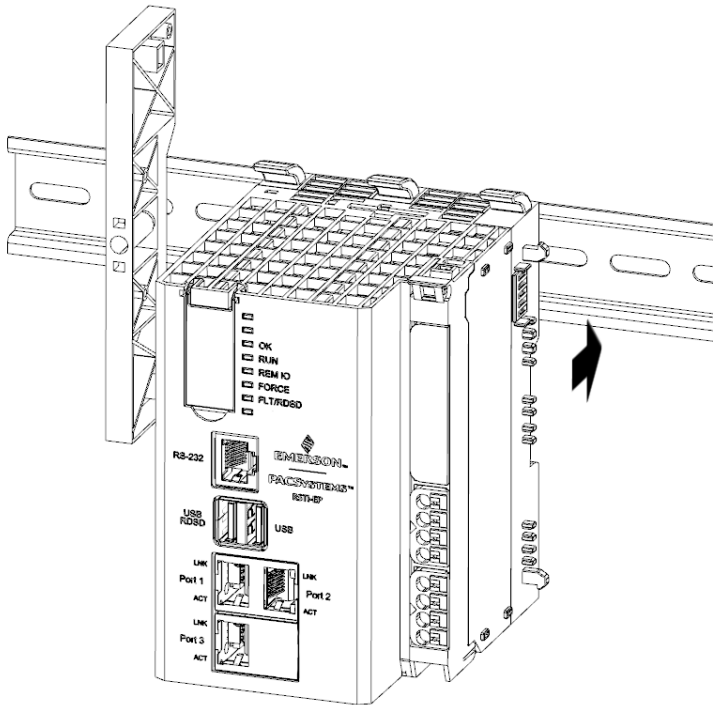
1. Begin by releasing the three closed levers located on the top of the CPE200 controller. Pull the levers toward the face of the controller to the open position.

Figure 3: Release Levers



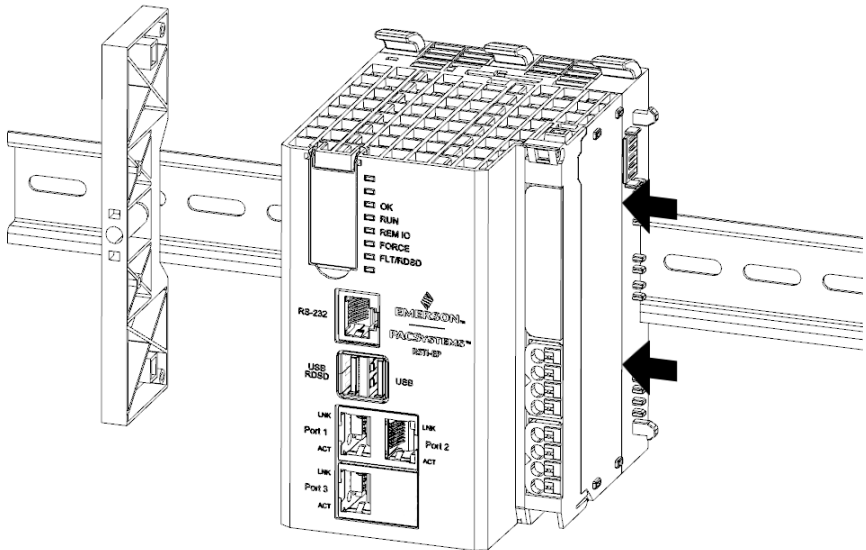
2. Attach the controller to the DIN rail. The controller should rest on the rail, but be able to move freely side-to-side.

Figure 4: Mount to DIN Rail



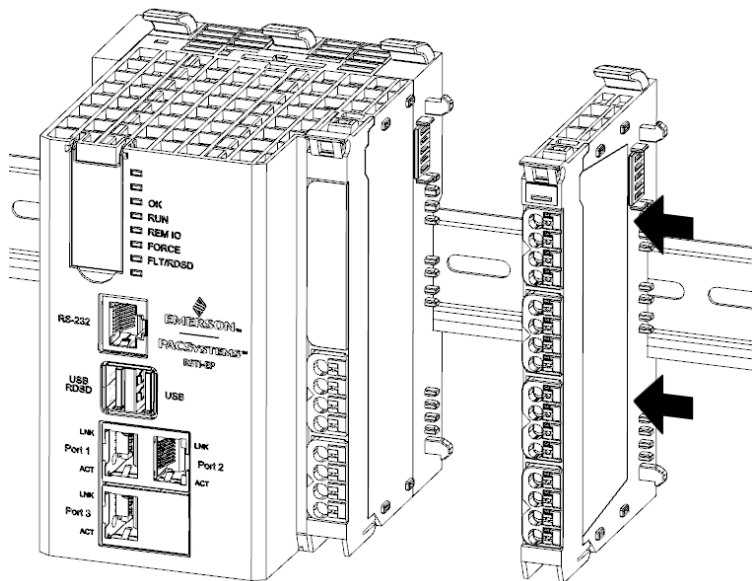
- Slide the controller along the DIN rail into place. The controller should be in the left-most position and rest against a stop block (if applicable).

Figure 5: Slide Controller to the Left



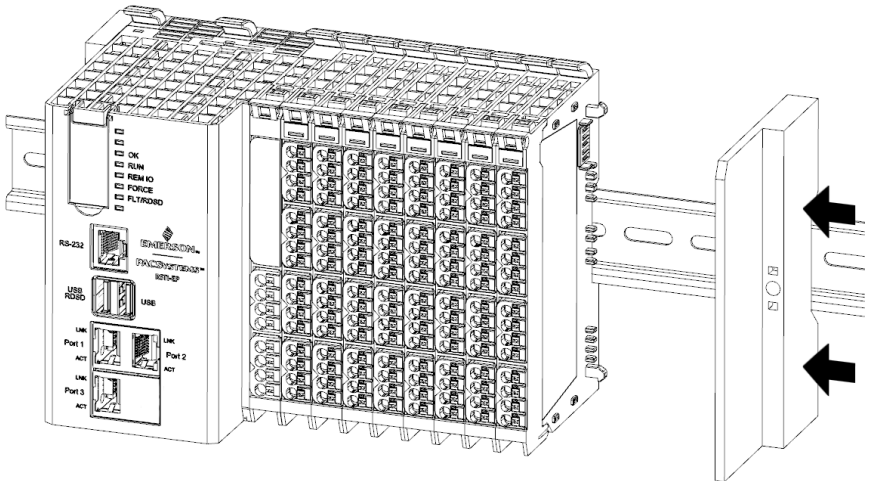
- Repeat the steps for each of the IO modules. Connect the first IO module into connectors on the right side of the controller. Each subsequent IO module will connect to the previous module.

Figure 6: Slide and Connect Each I/O Module



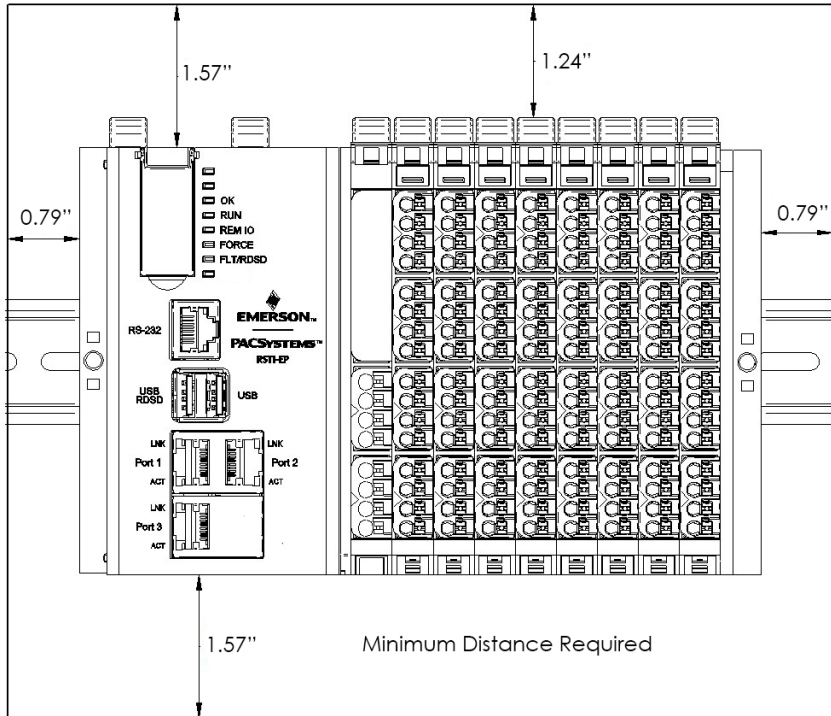
- After all the I/O modules have been connected, mount the protective endplate into the last I/O module to protect the exposed connectors.

Figure 7: Slide the End Plate into the Last Module



Thermal Requirements

Figure 14: Minimum Distance Requirements



Controller Start-up

Required Components

- EPXCPE200 controller
- Power for this equipment this equipment shall be provided by one or two independent power supplies that provide an SELV source with a minimum 32 V dc listed fuse with 10A max rating for each independent power rail. The 4-pole pluggable terminal block for the power input and output terminal block header located on the front is installed on the connection frame that is shipped with the package. This mating connector accepts wire sizes 26 to 16 AWG (0.361 mm to 1.29mm). Strip the insulation from the lines to a length of approx. 0.4 in \pm 0.04 in (10 mm \pm 1 mm), (even if you are using wire-end ferrules. If you use wire-end ferrules with plastic collars, strip the wires to 0.5 in \pm 0.04 in (12 mm \pm 1 mm). To insert fine stranded wires without wire-end ferrules, the pusher must be pressed in with a screwdriver and released to latch the wire
- The temperature rating for copper wire: 80 °C. Wiring should be stripped before connecting to the mating connector and cannot exceed 30 m in length
- A DIN rail, typically mounted in an enclosure
- A computer running PAC Machine Edition (PME) configuration and programming software. PME Version 10.00.0.9413.
Ethernet cable for connecting the programming computer running PME to the EPXCPE controller.

Basic Installation Steps

For start-up and configuration of the EPXCPE, complete the following steps:

1. Mount the EPXCPE to a DIN-rail as outlined in section DIN Rail Installation.
2. Connect the EPXCPE to the power supply.
3. Plug the Ethernet cable from the programmer computer (the computer that runs PAC Machine Edition) into Port 3. (For the EPXCPE205, connect the Ethernet cable to Ports 1 or 2.)
4. Plug the Ethernet cable for the PROFINET network into Port 1 or Port 2.
5. Apply power to the EPXCPE.

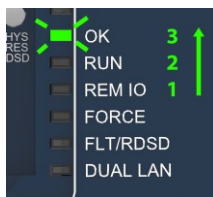
LED Behavior During Startup

After connecting to the power supply, apply power to the EPXCPE. The controllers will require several seconds to power up.

Power-up LED Sequence:

1. The CPU's REM IO LED will blink **GREEN** when the power is applied before turning it off.
2. The RUN LED will turn solid **GREEN** before turning it off.
3. The OK LED will turn solid **GREEN and remain on**.

Figure 8: LED Illumination Sequence



Installation in Hazardous Areas

Refer to Installation and Maintenance Requirements (GFK-3110) that shipped with the device.

Network Configuration

For information regarding default IP addresses, please consult the section Ethernet Ports.

EPXCPE205

The EPXCPE205 operating mode can be configured for Single LAN mode or Dual LAN mode. The default operating mode is Dual LAN mode.

Single LAN Mode	All protocols including MRP will be supported.
	Dual LAN LED will be OFF .
Dual LAN Mode	LAN 2 (port 2) All protocols are supported except PROFINET MRP.
	Dual LAN LED will turn solid GREEN .

Figure 6: Single LAN Mode

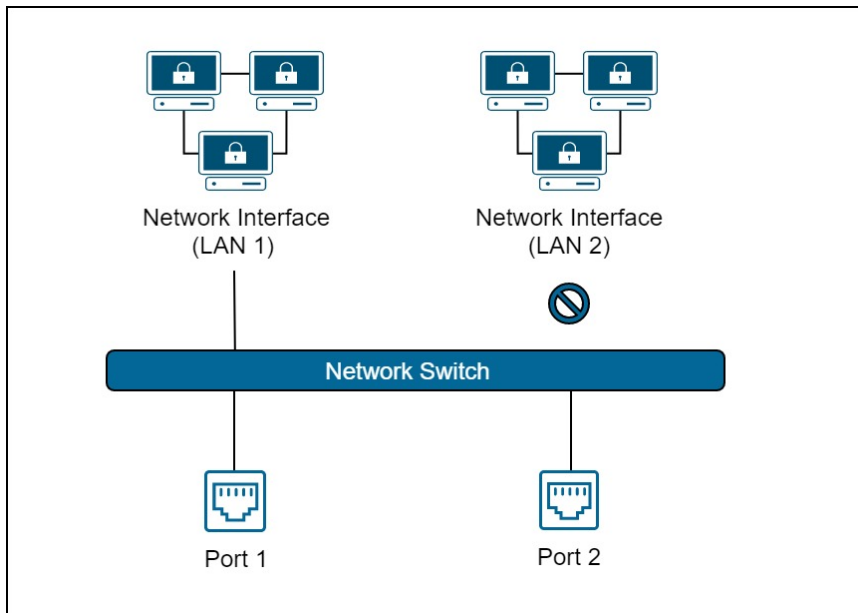
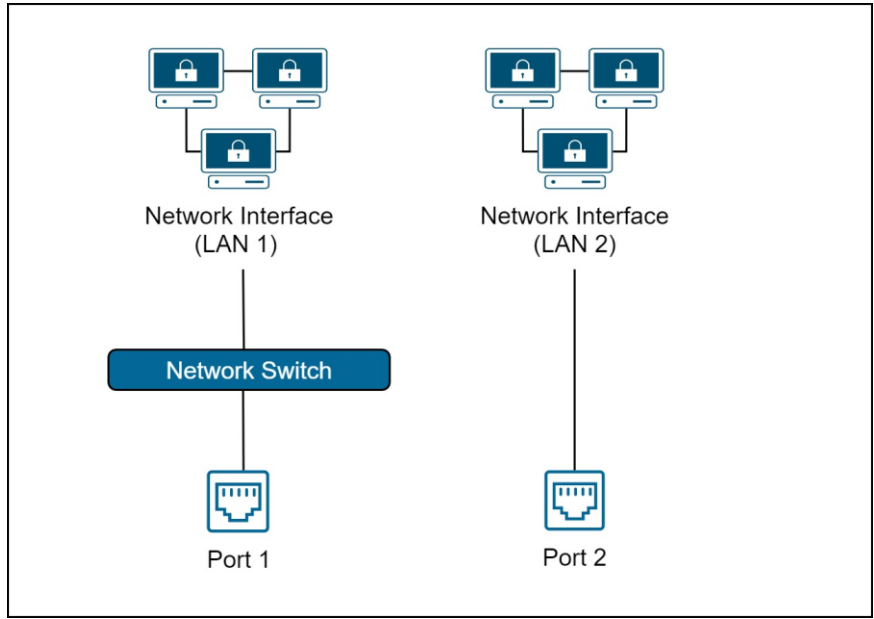


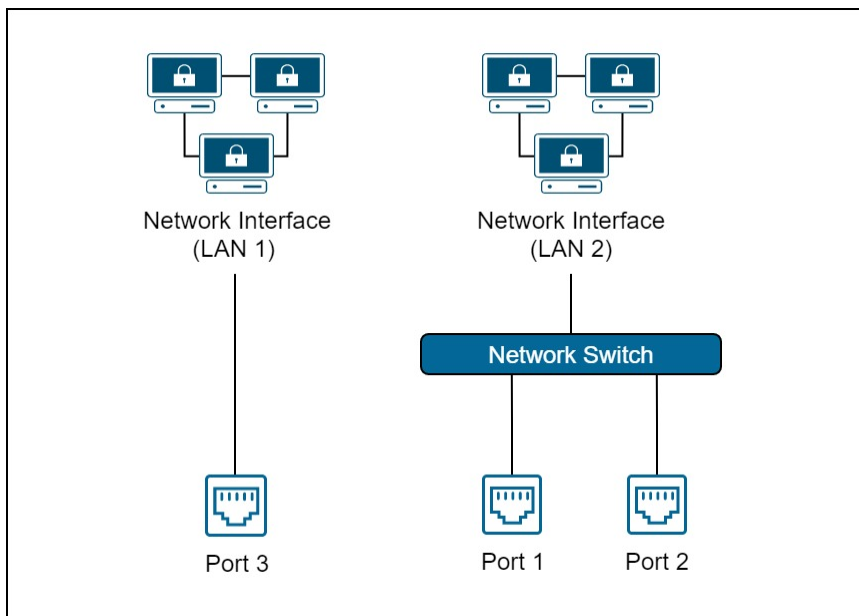
Figure 7: Dual LAN Mode



EPXCPE210/215/220/240

LAN 1	Port 3. Unswitched. All protocols are supported except PROFINET.
LAN 2	Ports 1 and 2. Switched. All protocols are supported.

Figure 8: Network Configuration



EPXCPE205 Network Configuration Procedure

The EPXCPE205 supports two network operating modes: Single LAN and Dual LAN operating modes. To switch between the modes, the user must use the Set Operating Mode menu, which is accessible from the controller web page. (See steps below.)

IMPORTANT: Changing the operating modes will clear all user-stored controller logic. The IP addresses, controller, and IO faults will remain.

1. Begin by navigating to the controller web page by entering the IP address of the LAN you are connected to into the web browser.
2. At the top-right of the page, select the Operating Mode tab and select **Change Operating Mode**.
3. Once redirected to the change operating mode page, select the operating mode you wish to configure. **Note:** if the user selects the operating mode that they are currently in, nothing will happen.
4. To confirm the selection, press and hold the physical presence button on the controller until the webpage says to release it.
5. The controller will now reboot and come up in the new operating mode.

Update Firmware Webpage Password

Login to the webpage and select **Administrator** and follow the process of changing the password.

The webpage password can be updated while the PLC is in all modes (Run IO enabled, Run IO disabled, Stop, or Stop Fault).

Reset to Factory Defaults

IMPORTANT

1. **Before beginning, ensure the following:**
 2. **The controller is in STOP disabled mode.**
 3. **No USB stick is inserted.**
 4. **The Password Web Page is not waiting for input (password change).**
-

1. Begin by pressing the Physical Presence button (PHY PRES) for 10 seconds, The OK LED and RUN LEDs will blink **GREEN**, indicating the Reset to Factory is occurring.
2. Release the PHY PRES button.
3. Blinking will cease and the board will be reset.
4. The following actions will result.
 - a. Resets the IP addresses to their factory defaults shown in section Ethernet Ports
 - b. Resets the Web page firmware password to its default setting. (Password is **sierra**)
 - c. Deletes controller and IO faults
 - d. Clears NVRAM

Removable Data Storage Device (RDSD)

The EPXCPE user program and/or memory contents may be saved to a USB device via a single press of the push button or loaded into the CPU from a USB device via a double press of the pushbutton. Similarly, data can be selected and saved. In this way, an application may be cloned and copied from one device to another

If the USB device in use already has a PACS_folder (user program) and a single press of the pushbutton occurs, a backup of the existing PACS_folder is made (PACS_folder_backup) and then the upload occurs. If the archive already exists on the USB device, a new archive will be created, and the upload will take place.

If one needs to restore the backup version, delete the PACS_folder on the USB device and then rename the folder PACS_folder_backup to PACS_folder at the root of the USB device.

Periodic Maintenance

Real-Time Clock Battery

The EPXCPE200 is shipped with a real-time clock (RTC) battery pre-installed. Over time this battery will need to be replaced. No action is needed during the initial installation.

Should the RTC battery fail, the CPU date and time will reset to 12:00 AM, 01-01-2001 at start-up. The CPU operates normally with a failed or missing RTC battery; however, the initial CPU time-of-day (TOD) clock information will be incorrect.

To replace the RTC battery and reset the RTC time, refer to the RX3i, & RSTi-EP CPU Reference Manual (GFK-2222AS) or later.

Battery required:

Lithium 3v BR2032 by Panasonic or Rayovac
(Emerson Part Number: IC690ACC001B)

Additional Information

PAC Logic Developer-PLC Getting Started	GFK-1918
PACSystems RX3i and RSTi-EP CPU Reference Manual	GFK-2222
PACSystems RX3i and RSTi-EP TCP/IP Ethernet Communications User's Manual	GFK-2224
PACSystems TCP/IP Ethernet Communications Station Manager Manual	GFK-2225
PACSystems RXi, RX3i, and RSTi-EP Controller Secure Deployment Guide	GFK-2830
PACSystems RX3i and RSTi-EP CPU Programmer's Reference Manual	GFK-2950
PACSystems HART® Pass-Through User Manual	GFK-2929
PACSystems RX3i PROFINET IO Controller User Manual	GFK-2571
PROFINET I/O Devices Secure Deployment Guide	GFK-2904
PACSystems DNP3 Outstation User Manual	GFK-3103
PACSystems RSTi-EP User Manual	GFK-2958
PACSystems Functional Safety Manual	GFK-2956

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General Contact Information

Website

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

Technical Support

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

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