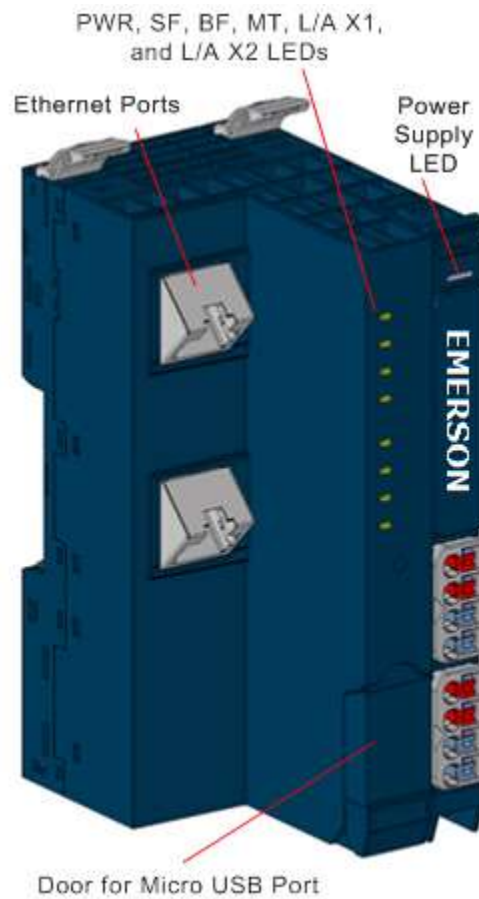


# PACSystems™ RSTi-EP

## EtherNet/IP™ NETWORK ADAPTER MODULE (EPXEIP001)



## Warnings and Caution Notes as Used in this Publication

### **WARNING**

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

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### **CAUTION**

Caution notices are used where equipment might be damaged if care is not taken.

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**Note:** Notes merely call attention to information that is especially significant to understanding and operating the equipment.

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# Product Description

The EPXEIP001 network adapter is a is an EtherNet/IP™ participant developed according to IEC 61158. The network adapter is the head module for the RSTi-EP communication bus, to which up to 64 active RSTi-EP modules can be connected. The EtherNet/IP network adapter has two Ethernet ports and an integrated switch.

The network adapter can be accessed with a system-independent web server application via the USB service interface or the Ethernet. Thus, all information, such as diagnostics, status values and parameters, can be read and all connected modules can be simulated or forced.

The station's main power supply is integrated in the network adapter. Power is supplied via two 4-pole connectors, separated into the input and output current paths.

Caution, the RSTi-EP station is usually installed on a horizontally positioned DIN rail. Installation on vertically positioned DIN rails is also possible. However, the heat dissipation is reduced such that the derating values change (refer to the section, Thermal Derating).

Modules should to be allowed to de-energize for a minimum 10 seconds after power down, prior to starting any maintenance activity. The network adapter cannot be hot-swapped.

Refer to the RSTi-EP Slice I/O User Manual (GFK-2958) for additional information.

Refer to the RSTi-EP Power Supply Reference Guide, a software utility available on PAC Machine Edition V9.00, for detailed power-feed requirements.

## Module Features

- Supports up to 64 active RSTi-EP modules
- Spring-style technology for ease of wiring
- DIN rail mounted
- Double-click installation for positive indication of correct installation
- Built-in Web Server for diagnostic information and firmware update through Ethernet and micro USB port
- Support for daisy-chain/line, star topologies

# Ordering Information

Module	Description
EPXEIP001	EtherNet/IP Network Adapter with 2 Copper Ports

# Specifications

Specification	EPXEIP001	
System data		
Connection	2 x RJ-45	
Fieldbus protocol	EtherNet/IP	
Process image	Input data width	max. 2 x 494 byte
	Parameter data	max. 64 x 64 byte

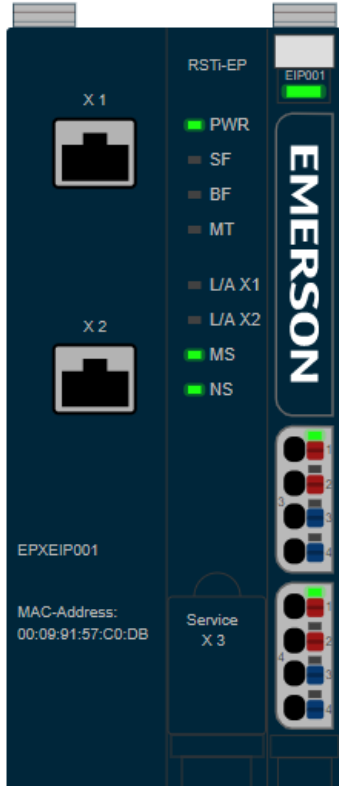
Specification		EPXEIP001	
	Diagnostic data	max. 64 x 47 byte	
Number of modules	max. 64 active		
Configuration interface	Micro USB 2.0		
Transfer rate	Fieldbus	10 Mbps/100 Mbps	
	RTSi-EP system bus	Max. 48 Mbps	
Supply			
Supply voltage for system and inputs	24 V DC +20% / -15%		
Supply voltage for outputs	24 V DC +20% / -15%		
Max. feed-in current for input modules	max. 10 A		
Max. feed-in current for output modules	max. 10 A		
Current consumption from system current path I <sub>sys</sub>	112 mA		
Temperature Data <sup>1)</sup>			
< HW 02.00.00	Operation (horizontal installation)	-20 °C to +60 °C / - 4 °F ... +140 °F (2 x 8 A power supply) -20 °C to +55 °C / - 4 °F ... +131 °F (2 x 10 A power supply)	
	Operation (vertical installation)	-20 °C to +55 °C / - 4 °F ... +131 °F (2 x 6 A power supply) -20 °C to +50 °C / - 4 °F ... +122 °F (2 x 8 A power supply)	
Connection data			
Type of connection	"PUSH IN"		
Conductor cross-section	Single-wired, fine-wired	0.14 – 1.5 mm² (AWG 26 – 16)	
General data			
Operating temperature	-20°C to +60°C (-4 °F to +140 °F)		
Height	120 mm (4.72 in)		
Weight	223 g (7.87 oz)		
1) Restrictions for the use in potentially explosive atmosphere: Only horizontal installation and max. 8 A power supply!			

## LEDs

### LED Status Indicators

LED	Indication	LED State/Description
PWR	Power LED	Green: Supply voltage connected
SF	System Fault	Red: Configuration error, or error in the network adapter, or error in a module, or there is a new diagnostic message Red flashing: Station in Force mode
BF	Bus fault	Red: No connection to the fieldbus Red flashing: Configuration error, no connection to the control unit, or error in the parameter set
MT	Maintenance Required	Yellow: Error on the system bus or fieldbus
MS	Module Status	Red: More than one module does not fit the start-up configuration (V1: or no fieldbus connection) Red flashing: One module does not fit the start-up configuration or there is a diagnosis report on at least one module Green: Ready for operation Green flashing: Coupler not configured Red/green flashing: LED self test during start
NS	Network status	Red: IP-Adress conflict Red flashing: Timeout of the exclusive owner connection Green: At least one EtherNet/IP connection is established Green flashing: no EtherNet/IP connection is established Red/green flashing: LED self test during start Off: At least one EtherNet/IP connection is established Yellow: Address conflict or no IP address configured. Yellow flashing (1 Hz): valid IP address but no EtherNet/IP connection established. Yellow flashing (4 Hz): Connection timeout on an exclusive owner
L/A X1	Connection/Active	Green / Yellow <sup>†</sup> : Connection established between port 1 of the network adapter and another field device Green flashing / Yellow flashing <sup>†</sup> : Data being exchanged on port 1
L/A X2	Connection/Active	Green: Connection established between port 2 of the network adapter and another field device Green flashing: Data being exchanged on port 2
<sup>†</sup> Green: Transfer rate 100 MBit/s Yellow: Transfer rate 10 MBit/s		

LED Indicators



The image shows the front panel of the EPXEIP001 device. It features two RJ45 ports labeled X1 and X2. To the right of these ports are several status LEDs: PWR (green), SF (brown), BF (brown), MT (brown), L/A X1 (brown), L/A X2 (brown), MS (green), and NS (green). Below the LEDs is a service port labeled X3. The device has a blue faceplate with the Emerson logo. A small label at the top right indicates the model EPXEIP001. A MAC address label is visible at the bottom left: MAC-Address: 00:09:91:57:C0:DB.

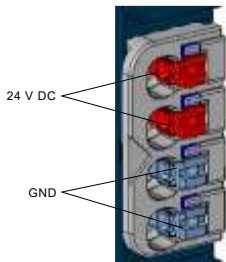
LED	EPXEIP001
<b>Power Supply</b>	<b>Green:</b> Supply voltage > 18 V DC <b>Red:</b> At least one current path < 18 V

3.1	<b>Green:</b> Input current path supply voltage > 18 V DC
3.2	<b>Red:</b> Input current path supply voltage < 18 V DC
3.3	
3.4	<b>Red:</b> Internal fuse defective
4.1	<b>Green:</b> Output current path supply voltage > 18 V DC
4.2	<b>Red:</b> Output current path supply voltage < 18 V DC
4.3	
4.4	<b>Red:</b> Internal fuse defective

Field Wiring

The connection frame has one connector, and two 24 V DC wires can be connected to each connector, along with two ground connections. Those four connectors are used as shown in the following figure. The Spring style technology allows either finely stranded or solid wire with crimped wire-end ferrules or ultrasonically welded wires, each with a maximum cross-section of 1.5 mm<sup>2</sup> (16 guage), to be inserted easily through the opening in the clamping terminal without having to use tools. To insert fine stranded wires without wire-end ferrules, the pusher must be pressed in with a screwdriver and released to latch the wire.



Connector Block

### Connector Specifications:

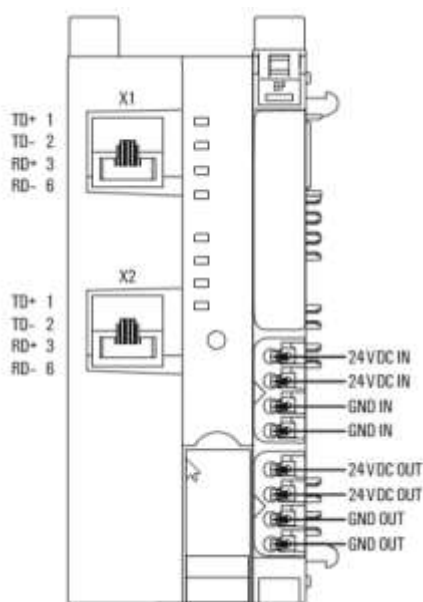
- Conductor cross-section 0.14 to 1.5 mm<sup>2</sup> (26 – 16 guage)
- Maximum ampacity: 10 A
- 4-pole

The modules do not have a fused sensor/activator power supply. All cables to the connected sensors/actuators must be fused corresponding to their conductor cross-sections (as per Standard DIN EN 60204-1, section 12).

Refer to the *RSTi-EP Slice I/O User Manual* (GFK-2958) for additional information.

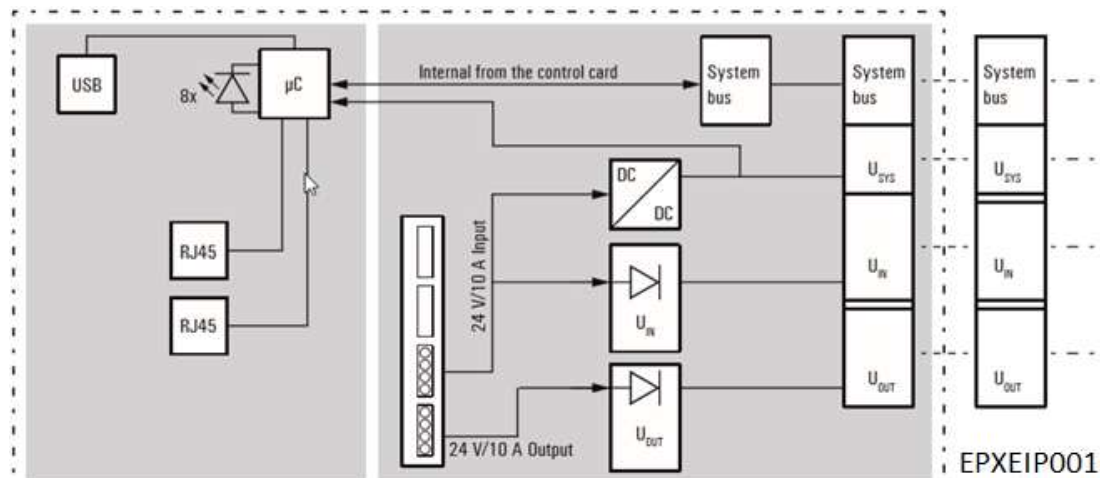
For technical assistance, go to <https://www.emerson.com/Industrial-Automation-Controls/support>.

### Connection Diagrams



**EPXEIP001**

## Connection Block Diagrams



## Installation in Hazardous Areas

### ⚠ WARNING

EQUIPMENT LABELED WITH REFERENCE TO CLASS I, GROUPS A, B, C & D, DIV. 2 HAZARDOUS AREAS IS SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C, D OR NON-HAZARDOUS AREAS ONLY

EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2;

EXPLOSION HAZARD – WHEN IN HAZARDOUS AREAS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES; AND

EXPLOSION HAZARD – DO NOT CONNECT OR DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS.

## ATEX Marking

Ⓔ II 3 G Ex Na IIC T4 Gc

Ta: -20°C to +60°C (-4° F to +140 °F)



## Thermal Derating

The power supply is restricted according to the temperature. The following values apply for the horizontal and vertical positioning of the RSTi-EP station:

### Temperature-dependent Values for the Power Supply

Power Supply	Horizontal	Vertical
Network adapter power supply	60°C (140 °F) : 2 x 8 A	55°C (131 °F) : 2 x 6 A
	55°C (131 °F) : 2 x 10 A	50°C (122 °F) : 2 x 8 A
Power-feed module power supply	60°C (140 °F) : 1 x 10 A	55°C (131 °F) : 1 x 8 A

Refer to the RSTi-EP Slice I/O Module User Manual (GFK-2958) for additional information.

## Supported Modules and Power Supplies

The following modules can be used with this release of the RSTi-EP Network Adaptor :

Catalog Number	Module Description
<b>Digital Input Modules</b>	
EP-1214	Digital Input, 4 Points, Positive Logic 24VDC, 2,3, or 4 Wire
EP-1218	Digital Input, 8 Points, Positive Logic, 24VDC 2 Wire
EP-1318	Digital Input, 8 Points, Positive Logic, 24VDC 3 Wire
EP-125F	Digital Input, 16 Points, Positive Logic, 24VDC, 1 Wire
EP-153F	Digital Input, 16 Points, Negative Logic, 24VDC, 1 Wire
EP-12F4	Digital Input, 4 Points, Positive Logic 24VDC, 2,3, or 4 Wire, Time stamp
EP-1804	Digital Input, 4 Points 110/230 VAC (65 – 277 VAC), 2 Wire, Isolated
<b>Digital Output Modules</b>	
EP-2214	Digital Output, 4 Points, Positive Logic 24VDC, 0.5A, 2,3, or 4 Wire
EP-2614	Digital Output, 4 Points, Positive Logic 24VDC, 2.0A, 2,3, or 4 Wire
EP-2634	Digital Output, 4 Points, Positive/Negative Logic 24VDC, 2.0A, 2,3, or 4 Wire
EP-2218	Digital Output, 8 Points, Positive Logic, 24VDC, 0.5A, 2 Wire
EP-225F	Digital Output, 16 Points, Positive Logic, 24VDC, 0.5A, 1 Wire
EP-291F	Digital Output, 16 Points, Negative Logic, 24VDC, 0.5A, 1 Wire
<b>Digital Relay Output Modules</b>	
EP-2714	Digital Relay Output, 4 Points, Positive Logic, 24 – 220 VDC/VAC, 6A, 2 Wire
EP-2814	Solid-state Relay Output Module
<b>Analog Input Modules</b>	
EP-3164	Analog Input, 4 Channels Voltage/Current 16 Bits 2, 3, or 4 Wire
EP-3264	Analog Input, 4 Channels Voltage/Current 16 Bits with Diagnostics 2, 3, or 4 Wire
EP-3124	Analog Input, 4 Channels Voltage/Current 12 Bits 2, 3, or 4 Wire
EP-3368	Analog Input, 8 Channels Current 16 Bits 2, 3, or 4 Wire
EP-3468	Analog Input, 8 Channels Current 16 Bits 2, 3, or 4 Wire, Channel Diagnostic
EP-3664	Analog Input, 4 Channels Voltage/Current 16 Bits with Diagnostics 2, 3, or 4 Wire, Differential Input

Catalog Number	Module Description
EP-3704	Analog Input, 4 Channels RTD 16 Bits with Diagnostics 2, 3, or 4 Wire
EP-3804	Analog Input, 4 Channels TC 16 Bits with Diagnostics 2, 3, or 4 Wire
EP-1813	Power Measurement Module, 8 Channels
<b>Analog Output Modules</b>	
EP-4164	Analog Output, 4 Channels Voltage/Current 16 Bits 2, 3, or 4 Wire
EP-4264	Analog Output, 4 Channels Voltage/Current 16 Bits with Diagnostics 2, 3, or 4 Wire
<b>Speciality Modules</b>	
EP-5111	1 Channel High Speed Counter, AB 100 kHz 1 DO 24VDC, 0.5A
EP-5112	2 Channel High Speed Counter, AB 100 kHz
EP-5212	2 Channel Frequency Measurement, 100 kHz
EP-5261	1 Channel Serial Communications, 232, 422, 485
EP-5311	1 Channel SSI Encoder, BCD or Gray-Code Format, 5/24 VDC
EP-5422	2 Channels PWM Output, Positive Logic, 24VDC, 2.0 A
EP-5442	2 Channels PWM Output, Positive Logic, 24VDC, 0.5 A
EP-5324	IO-Link Communication Module, 4 Channels
<b>Power Feed Modules for Input Current Path</b>	
EP-7631	Power Module, 1 Channel 24VDC Input Flow 10A
<b>Power Feed Modules for Output Current Path</b>	
EP-7641	Power Module, 1 Channel 24VDC Output Flow 10A
<b>Safe Feed-input Modules</b>	
EP-1901	1 Safe Feed-Input, 24 VDC
EP-1902	2 Safe Feed-Inputs, 24 VDC, Programmable Delay
EP-1922	2 Safe Feed-Inputs, 24 VDC
<b>Potential Distribution Modules</b>	
EP-711F	Power Module, 16 Channels 24VDC Potential Distribution +24 VDC from Input Current Path
EP-751F	Power Module, 16 Channels 24VDC Potential Distribution +24 VDC from Output Current Path
EP-700F	Power Module, 16 Channels 24VDC Potential Distribution Functional Earth
EP-710F	Power Module, 16 Channels 24VDC Potential Distribution +0VDC from Input Current Path
EP-750F	Power Module, 16 Channels 24VDC Potential Distribution +0VDC from Output Current Path
<b>Hot swap Modules</b>	
EP-7990	Bump-less output Hot swap module

## Release History

Catalog Number	Hardware Version	Firmware Version	Date	Comments
EPXEIP001-ABAC	01.00.00	02.04.03	Feb-24	Firmware release 02.04.03 Support for EP-7990 is added to enable bump-less hot-swap operation
EPXEIP001-AAAB	01.00.00	02.04.00	May-22	Firmware release 02.04.00
EPXEIP001-AAAA	01.00.00	02.03.01	Nov-19	Initial Release

## Important Product Information for this Release

### Updates

The product comes with pre-loaded firmware as part of the this Initial release :- EPXEIP001-AAAA. The product can be loaded with Initial Firmware release in the field using the Web firmware upgrade kit, which can be downloaded from :- <https://www.emerson.com/Industrial-Automation-Controls/support>.

Modules	Firmware Version	Upgrade Kit
EPXEIP001-ABAC	02.04.03	EPXEIP001-0007675-02_04_03-8.zip which consists of 1) EPXEIP001-0007675-02_04_03-8.bsc 2) ethip-v1.2-EMERSON-EPXEIP001.eds 3) FW_upgrade_procedure

## Functional Compatibility

None

## Problems Resolved by this Release

Subject	Description
Channel diagnostics faults are reported during hot-swap of the modules.	During hot-swap of an I/O module, the network adapter may report additional channel diagnostics messages in addition to the expected <i>Loss of Module</i> or <i>Addition of Module</i> fault.
Output behavior during hotswap	During hot insertion or removal of IO modules, a transient Loss of Power up-to 500ms may occur on the network adapter and IO modules, during which all of the outputs may drop to zero. This system behavior should be verified against the application requirements before hot insertion or removal of the IO module is done.

## New Features and Enhancements

None

## Known Restrictions and Open Issues

None

## Operational Notes

None

## Product Documentation

RSTi-EP Slice I/O Module User Manual (GFK-2958)

RSTi-EP Slice I/O Functional Safety Module User Manual (GFK-2956)

# General Contact Information

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

Knowledge Base: <https://www.emerson.com/iac-support>

## Technical Support

### Americas

Phone: 1-888-565-4155  
1-434-214-8532 (If toll free option is unavailable)

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Technical Support: [support.mas.apac@emerson.com](mailto:support.mas.apac@emerson.com)

Any escalation request should be sent to [mas.sfdcescalation@emerson.com](mailto:mas.sfdcescalation@emerson.com)

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