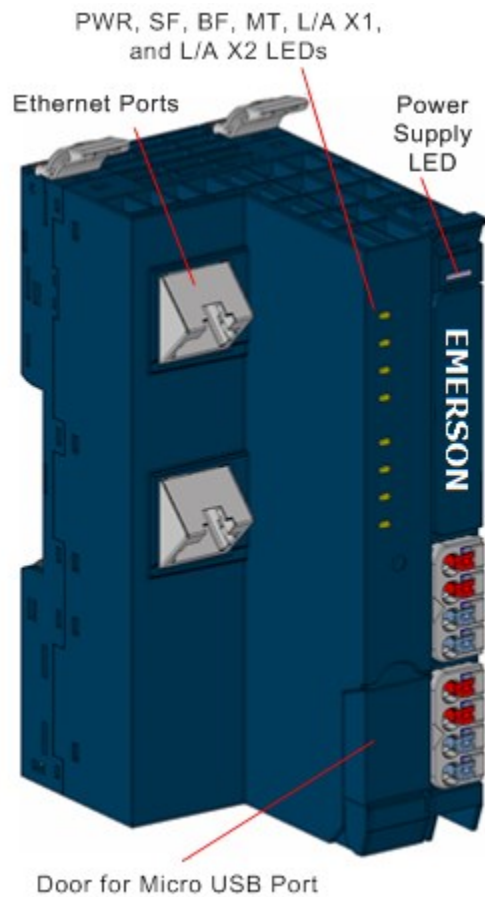


# PACSystems™ RSTi-EP

## MODBUS® NETWORK ADAPTER MODULE (EPXMBE001)



## 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.

These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met during installation, operation, and maintenance. The information is supplied for informational purposes only, and Emerson makes no warranty as to the accuracy of the information included herein. Changes, modifications, and/or improvements to equipment and specifications are made periodically and these changes may or may not be reflected herein. It is understood that Emerson may make changes, modifications, or improvements to the equipment referenced herein or to the document itself at any time. This document is intended for trained personnel familiar with the Emerson products referenced herein.

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# Product Description

The EPXMBE001 network adapter is a Modbus TCP 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 Modbus TCP 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 with 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 be allowed to de-energize for a minimum of 10 seconds after powering down, before 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
- Option of fixed or DHCP IP address configuration
- Support for daisy-chain/line, star topologies

## Ordering Information

Module	Description
EPXMBE001	RSTi-EP Slice I/O Modbus TCP Network Adapter

## Specifications

Specification	EPXMBE001	
<b>System data</b>		
Connection	2 x RJ-45	
Fieldbus protocol	Modbus TCP	
Process image	Input data width	max. 8 KB
	Parameter data	max. 1024 KB
	Diagnostic data	max. 1024 KB
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
<b>Supply</b>		
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	10 A	
Max. feed-in current for output modules	10 A	
Current consumption from system current path I <sub>sys</sub>	112 mA	
<b>Connection data</b>		
Type of connection	Spring style	
Conductor cross-section	Single-wired, fine-wired	0.14 – 1.5 mm <sup>2</sup> (AWG 26 – 16)
<b>General data</b>		
Operating temperature	-20 °C to +60 °C (-4 °F to +140 °F)	
Storage temperature	-40 °C to +85 °C (-40 °F to +185 °F)	
Air humidity (operation/transport)	5% to 95%, noncondensing as per IEC 61131-2	
Width	52 mm (2.05 in)	
Depth	76 mm (2.99 in)	
Height	120 mm (4.72 in)	
Weight	223 g (7.87 oz)	

## LEDs

### LED Status Indicators

LED	Indication	LED State/Description
PWR	Power LED	<b>Green:</b> Supply voltage connected
SF	System Fault	<b>Red:</b> Configuration error, or error in the network adapter, or error in a module, or there is a new diagnostic report <b>Red flashing:</b> Station in Force mode
BF	Bus fault	<b>Red:</b> No connection to the Fieldbus <b>Red flashing:</b> Configuration error, no connection to the control unit, or error in the parameter set
MT	Maintenance Required	<b>Yellow:</b> Error on the system bus or Fieldbus
L/A X1	Connection/Active	<b>Green / Yellow†:</b> Connection established between port 1 of the network adapter and another field device <b>Green flashing / Yellow flashing†:</b> Data being exchanged on port 1
L/A X2	Connection/Active	<b>Green:</b> Connection established between port 2 of the network adapter and another field device <b>Green flashing:</b> Data being exchanged on port 2
†Green: Transfer rate 100 Mbps Yellow: Transfer rate 10 Mbps		

## LED Indicators



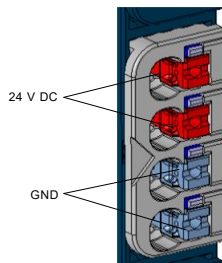
LED	EPXMBE001
Power	Green: Supply voltage > 18 V DC
Supply	Red: At least one current path < 18 V

LED	EPXMBE001
3.1	Green: Input current path supply voltage > 18 V DC
3.2	Red: Input current path supply voltage < 18 V DC
3.3	
3.4	Red: Internal fuse defective
4.1	Green: Output current path supply voltage > 18 V DC
4.2	Red: Output current path supply voltage < 18 V DC
4.3	
4.4	Red: 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 gauge), 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.

Figure 1: Connector Block



## Connector Specifications:

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

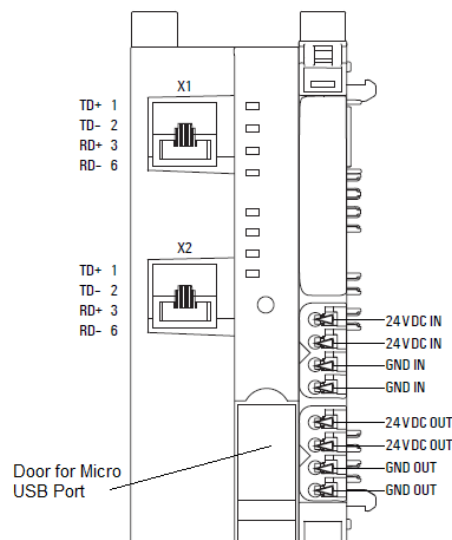
The modules do not have a fused sensor/activator power supply. All cables to the connected sensors/actuators must be fused corresponding to their conductor cross-sections (as per Standard DIN EN 60204-1, section 12).

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

For technical assistance, go to <http://pacsystems.co/support>

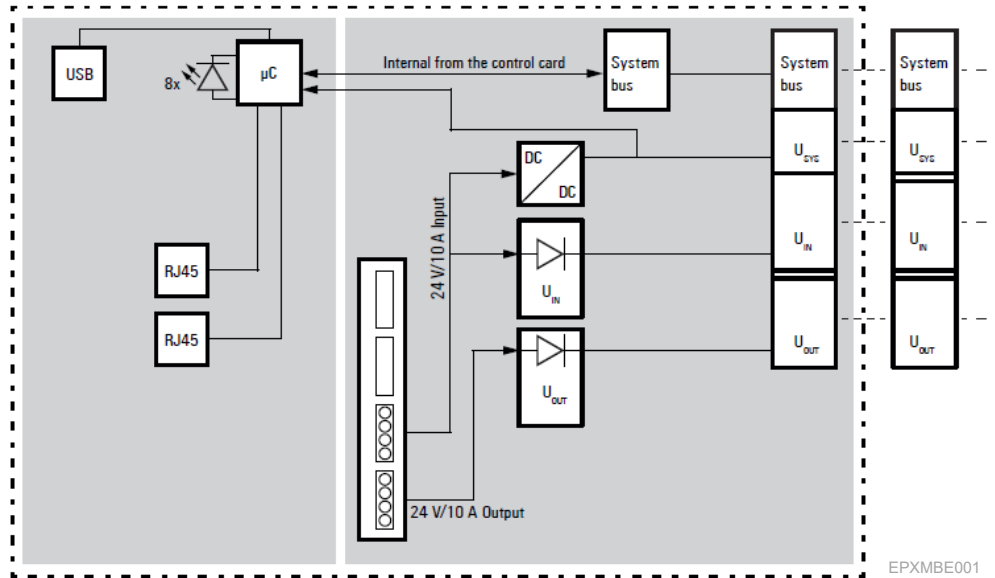
## Connection Diagram

**Figure 2: EPXMBE001**



## Connection Block Diagram

Figure 3: EPXMBE001



## 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 10 A	55°C (131 °F) : 2 x 6 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 Profibus 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, Timestamp
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
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>	

Catalog Number	Module Description
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	Bumpless Output Hot-Swap Module

## Release History

Catalog Number	Hardware Version	Firmware Version	Date	Comments
EPXMBE001-AEAH	02.00.00	02.04.04	Nov 2024	Updated Product marking to include CCC.
EPXMBE001-ADAH	02.00.00	02.04.04	Feb 2024	- Firmware release 02.04.04 - Support for EP-7990 is added to enable bumpless hot-swap operation
EPXMBE001-ACAG	02.00.00	02.04.94	Dec 2022	Firmware release 02.04.94
EPXMBE001-ACAF	02.00.00	02.04.01	May 2022	Firmware release 02.04.01
EPXMBE001-ACAE	02.00.00	02.03.00	Dec 2019	Support for two newly introduced IO modules EP-1813 (Power Measurement module) and EP-5324 ( IO-Link Communication Module) with only IPI update.
EPXMBE001-ACAE	02.00.00	02.03.00	Sep 2019	- Following Emerson's acquisition of this product, changes have been made to apply appropriate branding and registration of the product with required certification agencies. No changes to material, process, form, fit or functionality. - Brand labeling Web Application to EMERSON. - Updates to webserver:-

Catalog Number	Hardware Version	Firmware Version	Date	Comments
				<ul style="list-style-type: none"> <li>- Ordering data is removed from the General Information section of Emerson branded products.</li> <li>- Improved module parameter setting dialogue in web application.</li> <li>- Factory reset over a Modbus-Register possible.</li> </ul>
EPXMBE001-ABAD	02.00.00	02.02.00	Oct 2018	<p>New features:</p> <ul style="list-style-type: none"> <li>- The reset button appears automatically when changes in parameter settings require a restart to take effect</li> <li>- Added display of slot numbers to list of compatible modules after selecting a firmware file in multi-update view.</li> <li>- Added HTTPS support and new coupler parameter 'HTTPS settings'. [Available with Hardware version "AB" &amp; above only in combination with firmware version "AD" &amp; above]</li> <li>- Added password policy and weak password check - default username and password will remain the same</li> <li>- New languages for Web Server available. Korean, French, Spanish, Portuguese, and Italian</li> <li>- Support for EP-3664</li> </ul>
EPXMBE001-AAAD	01.00.00	02.02.00	Oct 2018	<ul style="list-style-type: none"> <li>- Added password policy and weak password check - default username and password will remain the same</li> <li>- New languages for Web Server available. Korean, French, Spanish, Portuguese, and Italian</li> <li>- Support for EP-3664</li> </ul> <p>Issue Fixes:</p> <ul style="list-style-type: none"> <li>- Fixed issue that live module unplug/replug sometimes corrupts I/O mapping</li> <li>- Fixed issue that re-installation attempt of language files sometimes causes an error message.</li> </ul>
EPXMBE001-AAAC	01.00.00	02.01.00	Nov 2017	<p>Enhancements and updates to Web Application</p> <ul style="list-style-type: none"> <li>- Configuring an additional TCP Port doesn't require a power cycle anymore &amp; reconnection via an additional TCP port is possible now</li> <li>- Web Application: <ul style="list-style-type: none"> <li>a. Tooltips for Network Adaptor LEDs</li> <li>b. Improved arrangement of module parameters &amp; general information</li> <li>c. Display of raw process data next to a physical value</li> <li>d. Web application performance improved</li> </ul> </li> <li>- Access to an illegal registered address is causing a diagnostic</li> <li>- Serial number of coupler available via Modbus</li> <li>- Module black list detection - coupler rejects incompatible modules</li> </ul>
EPXMBE001-AAAB	01.00.00	01.01.06	Sep 2016	<ul style="list-style-type: none"> <li>- Support for three new modules, EP-1804, EP-5261, and EP-5311</li> <li>- Resolves a problem, see section <i>Problems Resolved by this Release</i> for more information</li> </ul>
EPXMBE001-AAAA	01.00.00	01.01.06	Dec 2015	Documentation update only added known issues
EPXMBE001-AAAA	01.00.00	01.01.06	Nov 2015	Initial Release

# Important Product Information for this Release

## Updates

Subject	Description
N/A	N/A

## Functional Compatibility

HW Index [Ver]	FW Index [Ver]							
	AA [01.01.06]	AB [02.00.00]	AC [02.01.00]	AD [02.02.00]	AE [02.03.00]	AF [02.04.01]	AG [02.04.94]	AH [02.04.04]
AA [01.00.00]	OK	OK	OK	OK	NO	NO	NO	NO
AB [02.00.00]	NO	OK	OK	OK	OK	OK	OK	OK
AC [02.00.00]	NO	OK	OK	OK	OK	OK	OK	OK
AD [02.00.00]	NO	OK	OK	OK	OK	OK	OK	OK
AE [02.00.00]	NO	OK	OK	OK	OK	OK	OK	OK

- For HW version AAAD [01.00.00], use EPXMBE101-0007675-02\_02\_00-3.bsc file. This file is not compatible with HW version ABXX [02.00.00].
- For HW version ABAD [02.00.00], use EPXMBE001-0007669-02\_02\_00-2.bsc file. This file is not compatible with HW version AAXX [01.00.00].

## Problems Resolved by this Release

Subject	Description
N/A	N/A

## New Features and Enhancements

Subject	Description
N/A	N/A

## Known Restrictions and Open Issues

Subject	Description
N/A	N/A

## Operational Notes

Subject	Description
N/A	N/A

## Product Documentation

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

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

# Contact Information and Support Guide

Questions? We are here to help.

Before starting a case or making a call, try searching our Knowledge Base on the Customer Center website—it might have the answer you need right away.

**If you have a question, try the following:**

Search our Knowledge Base	Open a Support Ticket	Register for a Customer Account
 <a href="https://pacsystems.co/knowledge">pacsystems.co/knowledge</a>	 <a href="https://pacsystems.co/support">pacsystems.co/support</a>	 <a href="https://pacsystems.co/signup">pacsystems.co/signup</a>

## Other Helpful Links

Customer Center Home Page	Commercial Website	Contact Information
 <a href="https://pacsystems.co/customercenter">pacsystems.co/customercenter</a>	 <a href="https://pacsystems.co/commercial">pacsystems.co/commercial</a>	 <a href="https://pacsystems.co/contactus">pacsystems.co/contactus</a>

**Note:** If the product is purchased through an Authorized Channel Partner, please contact the seller directly for any support.

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