# PROFINET® Scanner EPXPNS001

GFK-2965

November 2015


***PROFINET Scanner***

The EPXPNS001 PROFINET Scanner is a PROFINET I/O device certified by the PROFINET user organization. The network adapter is the head module for the RSTi-EP system bus, to which up to 64 active RSTi-EP modules can be connected. The PROFINET network adapter has two Ethernet ports, and an integrated switch.

The PROFINET Scanner 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 PROFINET Scanner. 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 PROFINET Scanner 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 PME 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
- Supports Media Redundancy Protocol (MRP) Client mode operation
- Support for daisy-chain/line, star, or ring (MRP) technologies
- Two switched Ethernet ports; 8-conductor RJ-45 shielded twisted pair 10/100 Mbps copper interfaces
- Fast start-up < 500 ms with a maximum of 10 modules

## Ordering Information

| Module | Description |
|---|---|
| EPXPNS001 | RSTi-EP Slice I/O PROFINET IRT Network Adapter |

## Specifications

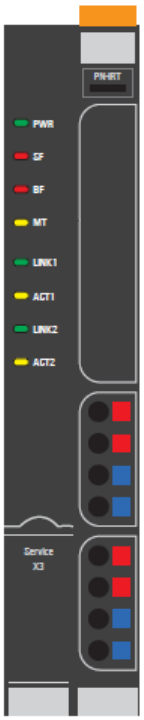
| | EPXPNS001 | |
|---|---|---|
| **System data** | | |
| **Connection** | 2 x RJ-45 | |
| **Fieldbus protocol** | PROFINET Version 2.3 Class C I/O Device (IRT, RT) | |
| **Process image** | Input data width | max. 512 bytes |
| | Output data width | max. 512 bytes |
| | Parameter data | max. 4362 bytes |
| | Diagnostic data | max. 1408 bytes |
| **Number of modules** | max. 64 active | |
| **Configuration interface** | Micro USB 2.0 | |
| **Transfer rate** | Fieldbus | Max. 100 Mbps |
| | RTSi-EP system bus | Max. 48 Mbps |
| **Data format** | Default: Motorola | Configurable: Intel |
| **PROFINET I/O Update Rate** | Configurable selections: 1ms, 2ms, 4ms, 8ms, 16ms, 32ms, 64ms, 128ms, 256ms and 512ms | |
| **Supports MRP** | Yes | |
| **Supply** | | |
| **Supply voltage for system and inputs** | 20.4V – 28.8V | |
| **Supply voltage for outputs** | 20.4V – 28.8V | |
| **Max. feed-in current for input modules** | 10 A | |
| **Max. feed-in current for output modules** | 10 A | |
| **Current consumption from system current path $I_{SYS}$** | 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) |
| **General data** | | |
| **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 DIN EN 61131-2 | |
| **Width** | 52 mm (2.05 in) | |
| **Depth** | 76 mm (2.99 in) | |
| **Height** | 120 mm (4.72 in) | |
| **Weight** | 220 g (7.76 oz) | |
| **Configuration** | V2.3 GSDML file is available on the Support website *http://support.ge-ip.com* for download and import into Proficy Machine Edition. The GSDML supporting a firmware release is part of the firmware upgrade kit available on the Support website. | |

## *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 PROFINET Scanner, or error in a module, or there is a new diagnostic report<br>**Red flashing:** Station in Force mode |
| **BF** | Bus fault | **Red:** No connection to the fieldbus<br>**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 |
| **LINK 1** | Connection | **Green:** Connection established between port 1 of the PROFINET Scanner and another field device |
| **ACT 1** | Active | **Yellow flashing:** Data being exchanged on port 1 |
| **LINK 2** | Connection | **Green:** Connection established between port 2 of the PROFINET Scanner and another field device |
| **ACT 2** | Active | **Yellow flashing:** Data being exchanged on port 2 |

***LED Indicators***




| LED | EPXPNS001 |
|---|---|
| Power Supply | **Green:** Supply voltage > 18 V DC<br>**Red:** At least one current path < 18 V |
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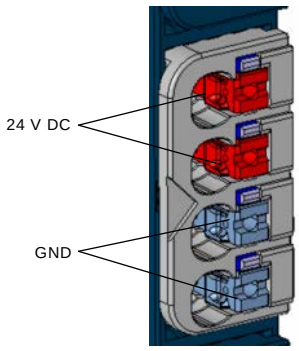
| | |
| 3.1 | **Green:** Input current path supply voltage > 18 V DC |
| 3.2 | **Red:** Input current path supply voltage < 18 V DC |
| 3.3 | |
| 3.4 | **Red:** Internal fuse defective |
| 4.1 | **Green:** Output current path supply voltage > 18 V DC |
| 4.2 | **Red:** Output current path supply voltage < 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 mm² (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:

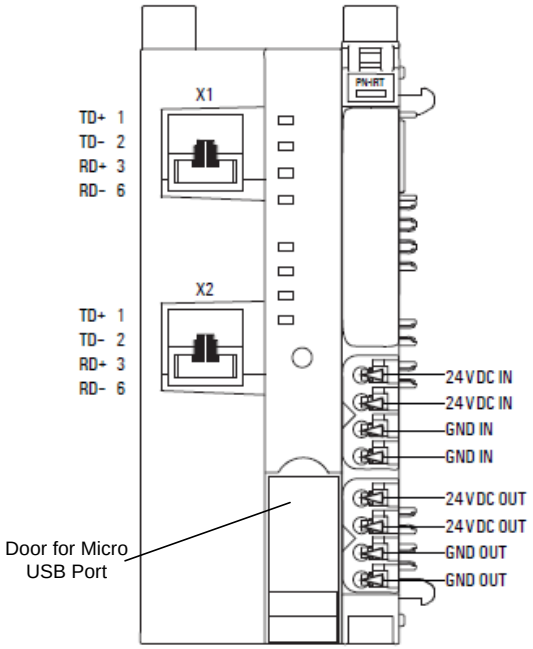
- conductor cross-section 0.14 to 1.5 mm² (26 – 16 guage)
- max. ampacity: 10 A
- 4-pole

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.

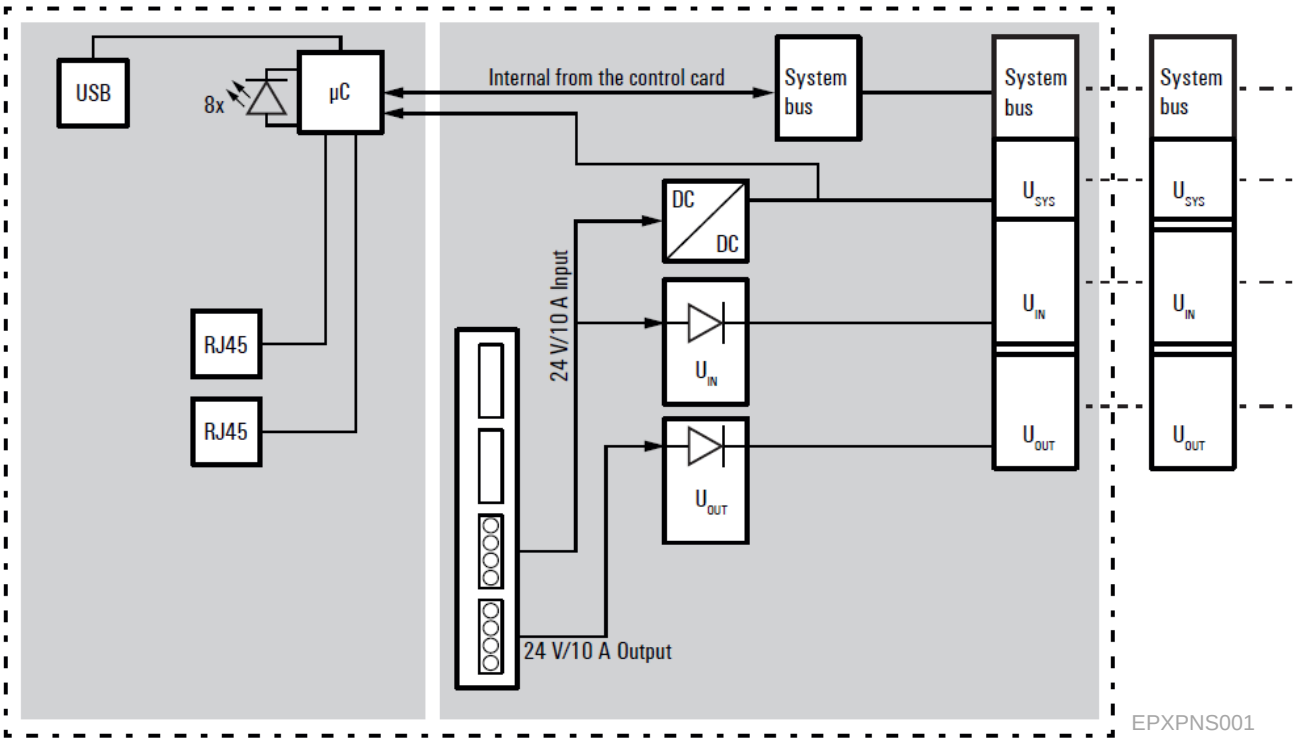
For technical assistance, go to http://support.ge-ip.com.

## *Connection Diagrams*




***EPXPNS001***

## *Connection Block Diagrams*




***EPXPNS001***

*For public disclosure*

## Installation in Hazardous Areas

- 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

**WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2;**

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

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

### ATEX Marking

Ⓔx 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***

| | Horizontal | Vertical |
|---|---|---|
| **Network adapter power supply** | 60°C (140 °F) : 2 x 8 A<br>55°C (131 °F) : 2 x 10 A | 55°C (131 °F) : 2 x 6 A<br>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 PROFINET Network Adaptor :

| *Catalog Number* | *Module Description* |
|---|---|
| | ***Digital Input Modules*** |
| 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-12F4 | Digital Input, 4 Points, Positive Logic 24VDC, 2,3, or 4 Wire, Time stamp |
| | ***Digital Output Modules*** |
| 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 Input, 16 Points, Positive Logic, 24VDC, 0.5A, 1 Wire |
| | ***Digital Relay Output Modules*** |
| EP-2714 | Digital Relay Output, 4 Points, Positive Logic, 24 - 220 VDC/VAC, 6A, 2 Wire |
| EP-2814 | Solid-state Relay Output Module |

| | |
|---|---|
| ***Analog Input Modules*** | |
| 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-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 |
| ***Analog Output Modules*** | |
| 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 |
| ***Speciality Modules*** | |
| 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-5422 | 2 Channels PWM Output, Positive Logic, 24VDC, 2.0 A |
| EP-5442 | 2 Channels PWM Output, Positive Logic, 24VDC, 0.5 A |
| ***Power Feed Modules for Input Current Path*** | |
| EP-7631 | Power Module, 1 Channel 24VDC Input Flow 10A |
| ***Power Feed Modules for Output Current Path*** | |
| EP-7641 | Power Module, 1 Channel 24VDC Output Flow 10A |
| ***Safe Feed-input Modules*** | |
| 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 |
| ***Potential Distribution Modules*** | |
| 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 |

## *Release History*

| ***Catalog Number*** | ***Firmware Version*** | ***Date*** | ***Comments*** |
|---|---|---|---|
| EPXPNS001 | 01.00 | Nov-2015 | Initial Release |

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## Important Product Information for this Release

### Updates

Initial Release

### Funcional Compatibility

Initial Release

### Problems Resolved by this Release

None – Initial Release

### New Features and Enhancements

None – Initial Release

### 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)