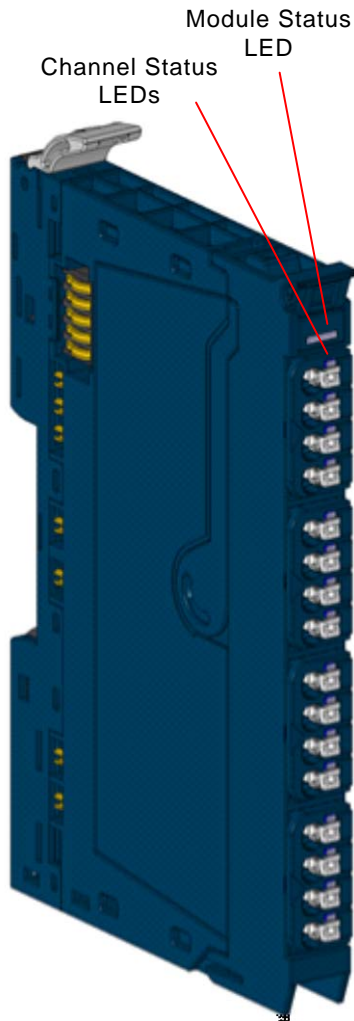


Analog Output Modules EP-4164, EP-4264



Analog Output Module

GE provides RSTi-EP analog output modules with up to 4 analog outputs at +/-10 V, +/-5 V, 0-10 V, 0-5 V, 2-10 V, 1-5 V, 0-20 mA or 4-20 mA. The resolution is 16 bit per channel. An output can be connected to each connector, the internal switching is carried out automatically. The output range is defined using parameterization. A status LED is assigned to each channel. The outputs are supplied with power from the output current path (I_{OUT}).

The EP-4264 module provides individual channel diagnosis with channel related error messages.

Each module features a type plate, which includes identification information, the key technical specifications, and a block diagram. In addition, a QR code allows for direct online access to the associated documentation. The software for reading the QR code must support inverted QR codes.

Markers are available as accessories for labelling equipment. Each I/O module can be labelled using the markers to ensure clear identification when replacing individual modules or electronic units.

The RSTi-EP station is usually installed on a horizontally positioned DIN rail. Installation on vertically positioned DIN rails is also possible.

The outputs as well as the sense-lines of the AO modules must not be used as power outputs.

Modules should be allowed to de-energize for a minimum 10 seconds after power down, prior to starting any maintenance activity.

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

- Control up to four analog outputs
- Module diagnosis
- *Spring style* technology for ease of wiring
- DIN rail mounted
- Double-click installation for positive indication of correct installation
- Supports indirect firmware update through the network monitor
- Supports hot insertion and extraction

GFK-2961A

Ordering Information

| Module | Description |
|---------|--|
| 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 |

Specifications

| | EP-4164 | EP-4264 |
|---|---|---------|
| System Data | | |
| Data | Process, parameter, and diagnostic data depend on the network adapter used. | |
| Interface | RSTi-EP system bus | |
| System bus transfer rate | 48 Mbps | |
| Potential isolation | Channel/system bus = yes Channel/channel = no | |
| Outputs | | |
| Number | 4 | |
| Output levels | 1. Voltage (0 – 5 V, ±5 V, 0 – 10 V, ±10 V, 1 – 5 V, 2 – 10 V) 2. Current (0 – 20 mA, 4 – 20 mA) | |
| Response time | 1 ms for 4 channels | |
| Resolution | 16 bits | |
| Accuracy | 0.1 % FSR max., 0.05 % FSR typ. | |
| Temperature coefficient | 20 ppm voltage / 31 ppm current measurement / K | |
| Max. error between T _{min} and T _{max} | ±220 ppm FSR | |
| Monotony | Yes | |
| Crosstalk between the channels | ±0.001 % FSR max. | |
| Repeat accuracy | < ±1 mV eff. | |
| Output ripple | max. 0.001 % | |
| Voltage load resistance | ≥ 1 kΩ (at > 50°C (122 °F) max ambient temperature, total sensor current of 10 mA per channel but 25 mA per module) | |
| Current load resistance | ≤ 600 Ω including field cable resistance | |
| Actuator connection | 2-wire (current and voltage; automatic detection), 4-wire (voltage) | |
| Short-circuit-proof | Yes | |
| Module diagnosis | Yes | |
| Individual channel diagnosis | No | Yes |
| Substitute value | Yes | |
| Can be used with EP-19xx module | Yes | |
| Supply | | |
| Supply voltage | 20.4V – 28.8V | |
| Current consumption from system current path I _{sys} | 8 mA | |
| Current consumption from output current path I _{out} | 85 mA | |

| | EP-4164 | EP-4264 |
|------------------------------------|---|----------------|
| 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 IEC 61131-2 | |
| Width | 11.5 mm (0.45 in) | |
| Depth | 76 mm (2.99 in) | |
| Height | 120 mm (4.72 in) | |
| Weight | 83 g (2.93 oz) | 98 g (3.47 oz) |

Current Demand for Analog Output Modules

| Product | I _{sys} | I _{IN} | I _{OUT} | I _s | I _L |
|------------------|--|-----------------|------------------|----------------|----------------|
| EP-4164 | 8 mA | -- | 85 mA | -- | -- |
| EP-4264 | 8 mA | -- | 85 mA | -- | -- |
| I _{sys} | Current consumption from the system current path | | | | |
| I _{IN} | Power consumption from input current path | | | | |
| I _{OUT} | Power consumption from output current path | | | | |
| I _s | Current demand of the connected sensors | | | | |
| I _L | Current demand of the connected actuators | | | | |
| x | Must be included when calculating the power supply | | | | |

LEDs

| LED | EP-4164 | EP-4264 |
|----------------------|--|--|
| Module Status | Green: Communication over the system bus Red: Module System Fault or Diagnostic Fault | Green: Communication over the system bus Red: Module System Fault or Diagnostic Fault |
| 1.1 | Red: Channel 0 at voltage output: overload short-circuit, at current output: shunt resistance too high or line break detected | Red: Channel 0 at voltage output: overload short-circuit, at current output: shunt resistance too high or line break detected |
| 1.2 | -- | -- |
| 1.3 | -- | -- |
| 1.4 | -- | -- |
| 2.1 | Red: Channel 1 at voltage output: overload short-circuit, at current output: shunt resistance too high or line break detected | Red: Channel 1 at voltage output: overload short-circuit, at current output: shunt resistance too high or line break detected |
| 2.2 | -- | -- |
| 2.3 | -- | -- |
| 2.4 | -- | -- |
| 3.1 | Red: Channel 2 at voltage output: overload short-circuit, at current output: shunt resistance too high or line break detected | Red: Channel 2 at voltage output: overload short-circuit, at current output: shunt resistance too high or line break detected |
| 3.2 | -- | -- |
| 3.3 | -- | -- |
| 3.4 | -- | -- |
| 4.1 | Red: Channel 3 at voltage output: overload short-circuit, at current output: shunt resistance too high or line break detected | Red: Channel 3 at voltage output: overload short-circuit, at current output: shunt resistance too high or line break detected |
| 4.2 | -- | -- |
| 4.3 | -- | -- |
| 4.4 | -- | -- |

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Field Wiring

The connection frame can take up to four connectors, and four wires can be connected to each connector. Those four connectors are shown in the following figure. The *Spring style* technology allows either finely stranded or solid wire conductors 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>.

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



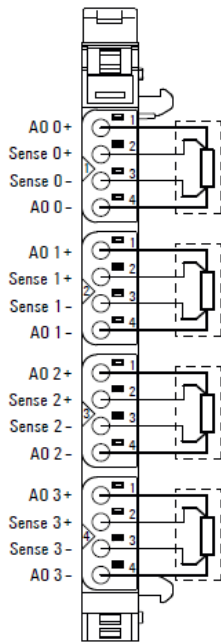
WARNING - EXPLOSION HAZARD - DO NOT CONNECT OR DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS.

ATEX Marking

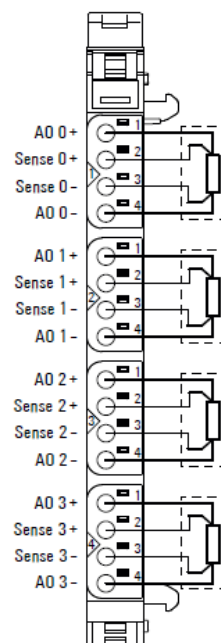
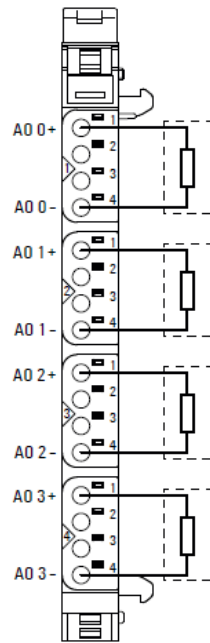
Ⓔ II 3 G Ex nA IIC T4 Gc

Ta: -20°C to +60°C (-4° F to +140 °F)

Connection Diagrams



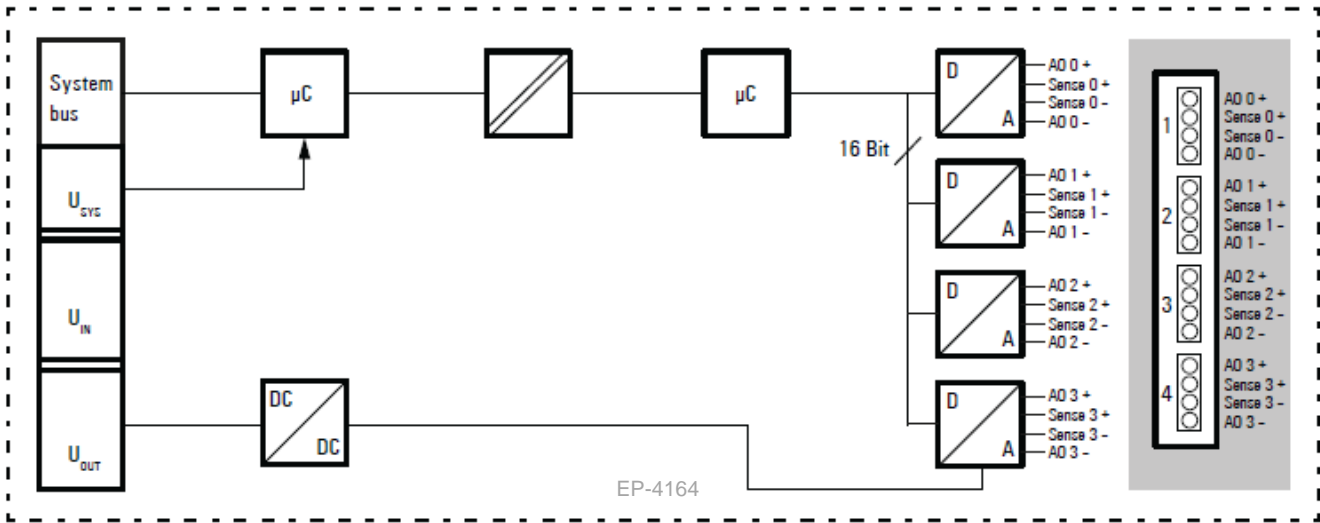
EP-4164



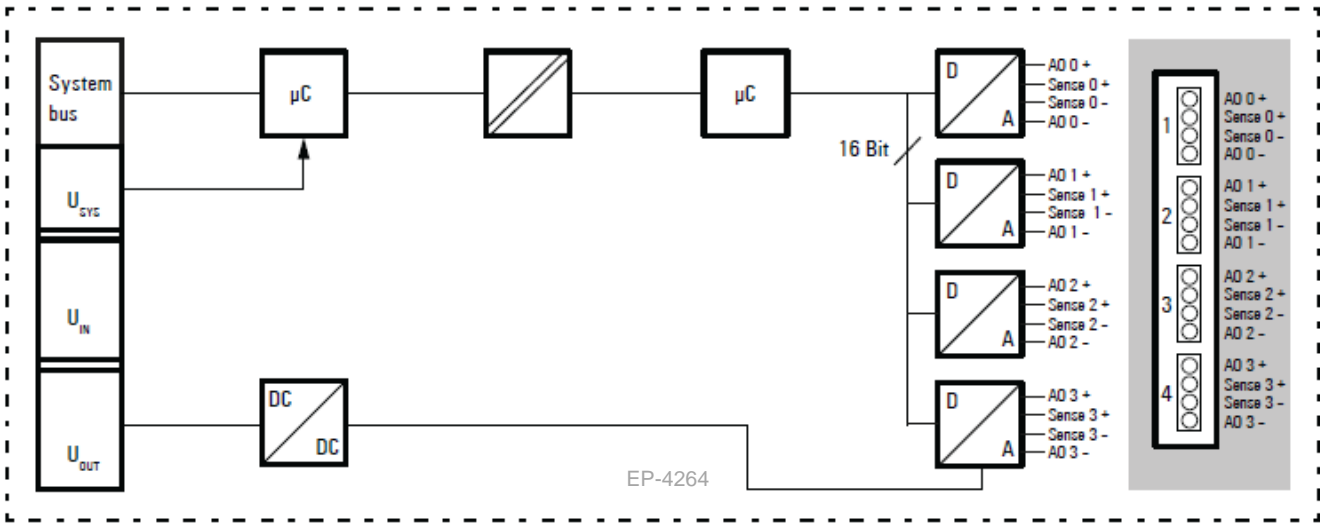
EP-4264

GFK-2961A

Connection Block Diagrams



EP-4164



EP-4264

Release History

| Catalog Number | Firmware Version | Date | Comments |
|------------------|------------------|----------|---------------------------|
| EP-4164, EP-4264 | 01.01 | Dec-2015 | Documentation update only |
| EP-4164, EP-4264 | 01.01 | Nov-2015 | Initial Release |

Important Product Information for this Release

Updates

None – Documentation update only

Funcional Compatibility

N/A

Problems Resolved by this Release

None – Documentation update only

New Features and Enhancements

None – Documentation update only

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 Funcional Safety Module User Manual (GFK-2956)



1-800-433-2682

1-434-978-5100

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