

PACSystems™ RSTi-EP

DIGITAL INPUT MODULES (EP-1214, EP-1218, EP-12A8,
EP-1318, EP-153F, EP-125F & EP-1804)

DIGITAL INPUT MODULES WITH TIME STAMP (EP-12F4)



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.

CAUTION

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

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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Introduction

Emerson provides a range of RSTi-EP digital input modules with 4, 8 or 16 inputs, which are primarily used to receive binary control signals from sensors, transmitters, switches or proximity switches. Their flexible design allows them to meet your demands with reserve potential.

All modules are fully compliant with IEC 61131-2. They can be switched on the input side with type-1 and type-3 sensors in accordance with IEC 61131-2.

The wiring connectors on each module are color-coded for ease of wiring. Refer to the section 'Field Wiring' for additional information.

The time stamp module EP-12F4 can detect up to 4 binary control signals and provide them with a time stamp (resolution 1 μ s). Depending on the module's configuration, up to 5 or 15 time stamp entries can be evaluated.

The digital input module EP-12A8 can detect up to 8 binary control signal and inputs are isolated from each other and from the system supply.

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 labeling equipment. Each I/O module can be labeled using the markers to ensure clear identification when replacing individual modules or electronic units.

A green Module Status LED indicates there is communication on the system bus. Additionally, there are Yellow LEDs for each input to indicate when it is active. Refer to the section, LED Status for additional information.

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

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 Module 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

- Positive or Negative Logic
- Spring style technology for ease of wiring
- DIN rail mounted
- Double-click installation for positive indication of correct installation
- Up to 16 sensor inputs
- Compatible with type-1 and type-3 sensor inputs per IEC 61131-2
- Time stamping available
- Supports hot insertion and extraction

Ordering Information

Module	Description
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-12A8	Digital Input, 8 Points, Positive Logic , 2-Wire, Isolated
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-1804	Digital Input, 4 Points, 110/230 VAC (65 – 277 VAC), 2 Wire, Isolated .
EP-12F4	Digital Input, 4 Points, Positive Logic 24VDC, 2,3, or 4-Wire, Time stamp

Specifications

Item	EP-1214	EP-1218	EP-12A8	EP-1318	EP-125F	EP-12F4	EP-153F	EP-1804
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							
Inputs								
Channels	4	8	8	8	16	4	16	4
Sensor types	Type 1 and Type 3 sensors as per IEC 61131-2	Type 1 and Type 3 sensors as per IEC 61131-2 for 24 V DC and 48 V DC	Type 1 and Type 3 sensors as per IEC 61131-2 for 24 V DC and 48 V DC (max upto 60 V)	Type 1 and Type 3 sensors as per IEC 61131-2	Type 1 and Type 3 sensors as per IEC 61131-2	Type 1 and Type 3 sensors as per IEC 61131-2	N-Switching , Type 1 and Type 3 sensors as per IEC 61131-2	P-switching, for Type 3 sensors as per IEC 61131-2
Input filter	Input delay adjustable from 0 to 40 ms†				Input delay 3 ms	Input delay adjustable from 0 to	Input delay	Input delay 10 ms

Item	EP-1214	EP-1218	EP-12A8	EP-1318	EP-125F	EP-12F4	EP-153F	EP-1804
						40 ms [†]	3 ms	
Off voltage	-	-	<10 V			< 5 V		< 65 V
On voltage	-	-	>11 V			> 11 V		≥ 80 V
Max. input current per channel	-	-	-	-	-	3 mA	-	-
Sensor supply	max. 2 A per plug, total max. 8 A	max. 15 mA per channel	-	max. 2 A per plug, total max. 8 A	No	Yes	No	No
Sensor connection	2-wire, 3-wire, 3-wire + FE	2-wire	2-wire	2-wire, 3-wire	1-wire	2-wire, 3-wire, 3-wire + FE	1-wire	2-wire
Reverse polarity protection	-	-	Yes			Yes		
Module diagnostics	-	-	Yes			Yes		
Individual channel diagnosis	-	-	-			No		
Isolation	-	-	500 V(Channel to Channel) 500 V (Channel to supply)	-		-		
Supply								
Supply voltage	-	-	-			20.4V – 28.8V		
Current consumption from system current path I _{sys}	-	-	8 mA			8 mA		
Current consumption from input current path I _{IN}	18 mA	30 mA	No	30 mA	52 mA	18 mA	52 mA	No
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	87 g (3.07 oz)	85 g (2.99 oz)	85 g (2.99 oz)	83 g (2.93 oz)	87 g (3.07 oz)	89 g (3.07 oz)	88 g (3.07 oz)	87 g (3.07 oz)
[†] When used with PROFIBUS-DP network adapter it is limited to 20 ms								

Current Demand for Digital Input Module

Product	I _{sys}	I _{IN}	I _{OUT}	I _s	I _L
EP-1214	8 mA	18 mA	--	x	--
EP-1218	8 mA	30 mA	--	x	--
EP-12A8	8 mA	No	--	x	--
EP-1318	8 mA	30 mA	--	x	--
EP-125F	8 mA	52 mA	--	--	--
EP-153F	8 mA	52 mA	--	x	--
EP-1804	8 mA	No	--	--	--
EP-12F4	8 mA	18 mA	--	x	--
<p>I_{sys} Current consumption from the system current path</p> <p>I_{IN} Power consumption from input current path</p> <p>I_{OUT} Power consumption from output current path</p> <p>I_s Current demand of the connected sensors</p> <p>I_L Current demand of the connected actuators</p> <p>x Must be included when calculating the power supply</p>					

LEDs

LED	EP-1214	EP-1218	EP-12A8	EP-1318	EP-125F	EP-153F	EP-1804	EP-12F4
Module Status			Green: Communication over the system bus Red: Module System Fault or Diagnostic Fault					Green: Communication on system bus Red: No communication on system bus or there is a diagnostic message displayed
1.1	Yellow: Input 0 active	Yellow: Input 0 active	--	Yellow: Input 0 active	Yellow: Input 0 active	Yellow: Input 0 active	Yellow: Input 0 active	Yellow: Input 0 active
1.2	--	--	Yellow: Input 0 active	--	Yellow: Input 1 active	Yellow: Input 1 active	--	--
1.3	--	Yellow: Input 1 active	--	--	Yellow: Input 2 active	Yellow: Input 2 active	--	--
1.4	--	--	Yellow: Input 1 active	Yellow: Input 1 active	Yellow: Input 3 active	Yellow: Input 3 active	--	--
2.1	Yellow: Input 1 active	Yellow: Input 2 active	--	Yellow: Input 2 active	Yellow: Input 4 active	Yellow: Input 4 active	Yellow: Input 1 active	Yellow: Input 1 active
2.2	--	--	Yellow: Input 2 active	--	Yellow: Input 5 active	Yellow: Input 5 active	--	--

LED	EP-1214	EP-1218	EP-12A8	EP-1318	EP-125F	EP-153F	EP-1804	EP-12F4
2.3	--	Yellow: Input 3 active	--	--	Yellow: Input 6 active	Yellow: Input 6 active	--	--
2.4	--	--	Yellow: Input 3 active	Yellow: Input 3 active	Yellow: Input 7 active	Yellow: Input 7 active	--	--
3.1	Yellow: Input 2 active	Yellow: Input 4 active	--	Yellow: Input 4 active	Yellow: Input 8 active	Yellow: Input 8 active	Yellow: Input 2 active	Yellow: Input 2 active
3.2	--	--	Yellow: Input 4 active	--	Yellow: Input 9 active	Yellow: Input 9 active	--	--
3.3	--	Yellow: Input 5 active	--	--	Yellow: Input 10 active	Yellow: Input 10 active	--	--
3.4	--	--	Yellow: Input 5 active	Yellow: Input 5 active	Yellow: Input 11 active	Yellow: Input 11 active	--	--
4.1	Yellow: Input 3 active	Yellow: Input 6 active	--	Yellow: Input 6 active	Yellow: Input 12 active	Yellow: Input 12 active	Yellow: Input 3 active	Yellow: Input 3 active
4.2	--	--	Yellow: Input 6 active	--	Yellow: Input 13 active	Yellow: Input 13 active	--	--
4.3	--	Yellow: Input 7 active	--	--	Yellow: Input 14 active	Yellow: Input 14 active	--	--
4.4	--	--	Yellow: Input 7 active	Yellow: Input 7 active	Yellow: Input 15 active	Yellow: Input 15 active	--	--

Field Wiring

The connection frame can take up to four connectors, and four wires can be connected to each connector. The Spring style technology allows for 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 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 with Four Wire Connectors



Note: Image is for illustration of color coding only.

Connector Specifications:

- Conductor cross-section 0.14 to 1.5 mm² (26 – 16 gauge)
- Maximum ampacity: 10 A
- 4-pole

The pushers are color-coded for the following connections:

- White Signal
- Blue GND
- Red 24 V DC
- Green Functional earth (FE)

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 visit the support links located at the end of this document.

Connection Diagrams

Figure 2: EP-1214 and EP-12F4

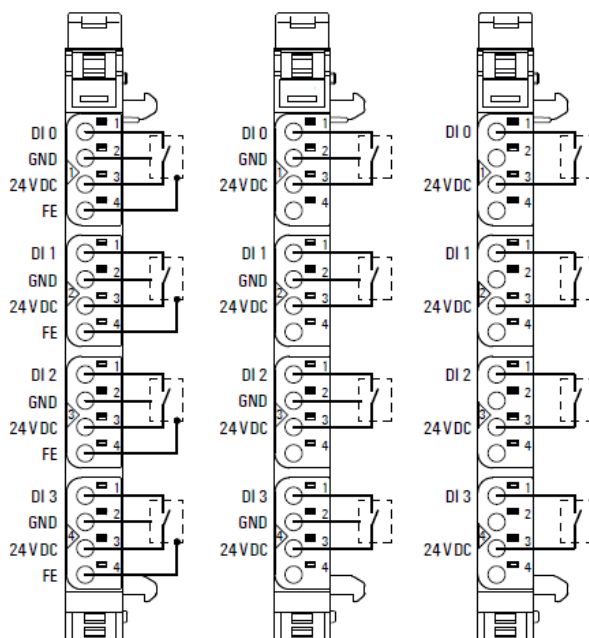


Figure 3: EP-1218

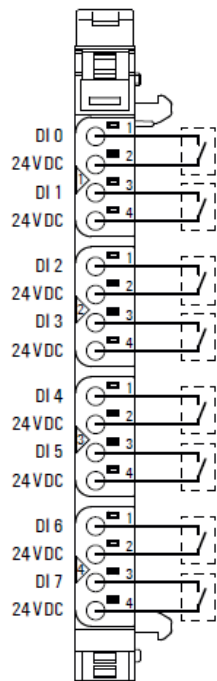


Figure 4: EP-12A8

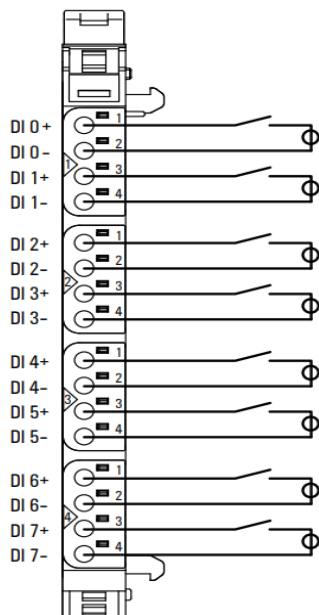


Figure 5: EP-1318

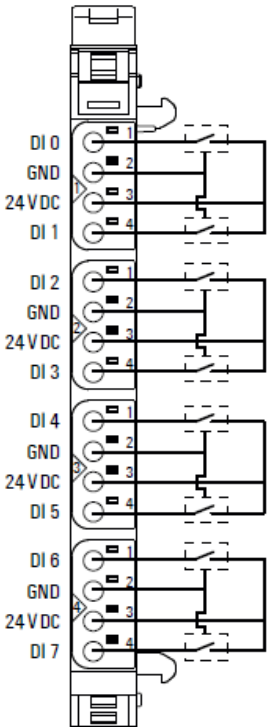


Figure 6: EP-1804

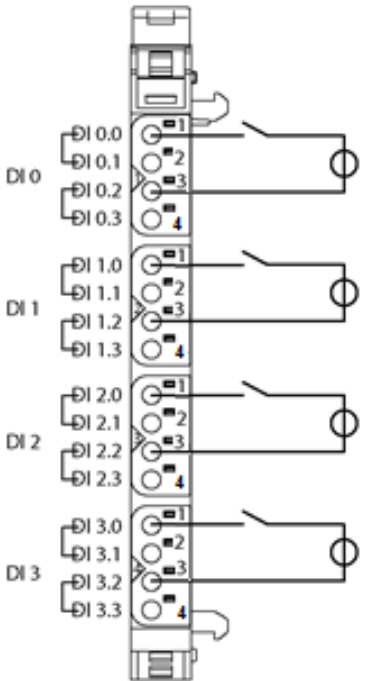


Figure 7: EP-125F

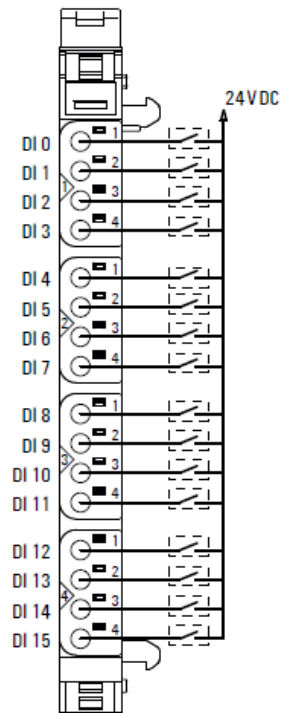
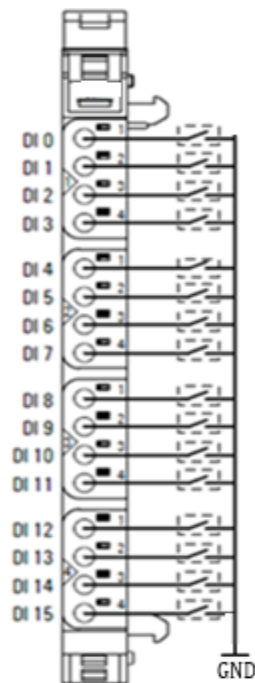


Figure 8: EP-153F



Connection Block Diagrams

Figure 9: EP-1214 and EP-12F4

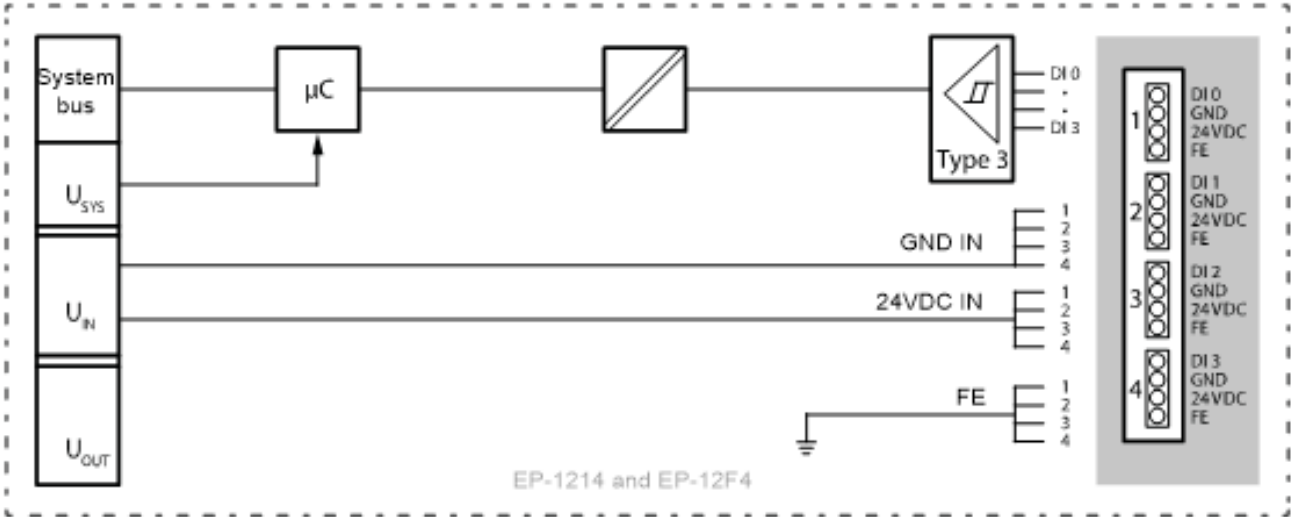


Figure 10: EP-1218

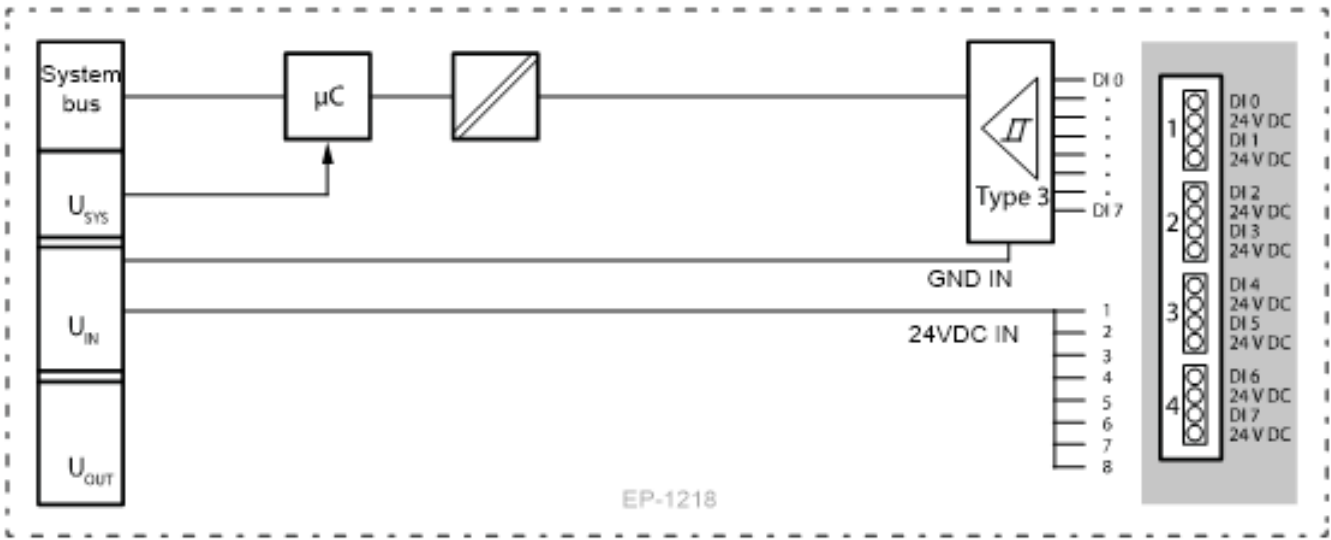


Figure 11: EP-12A8

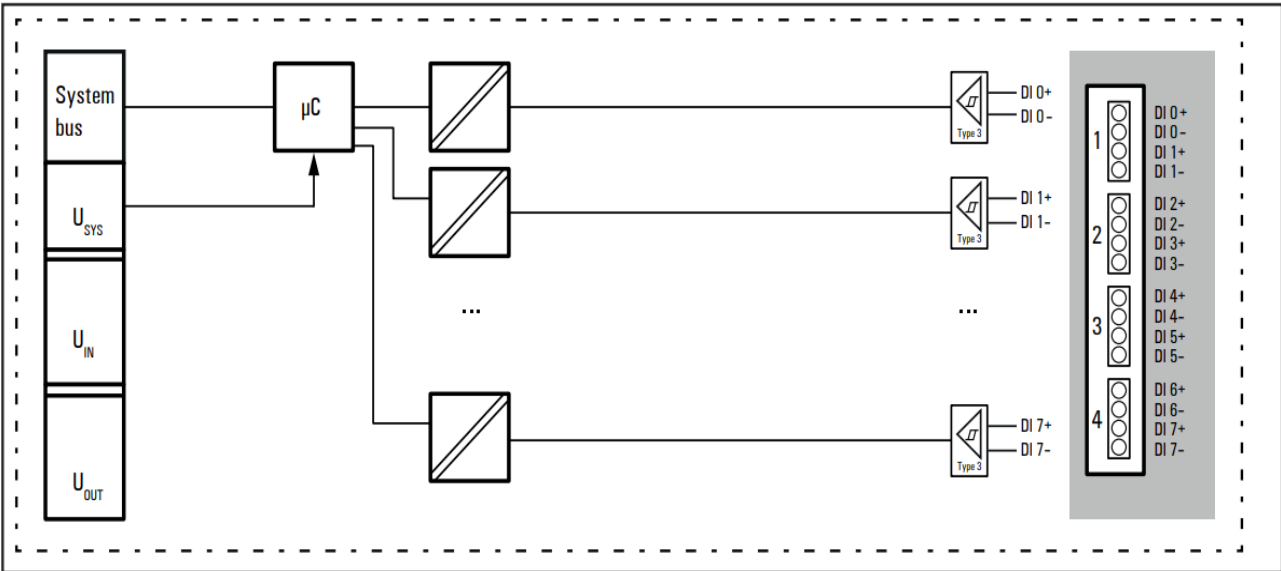


Figure 12: EP-1318

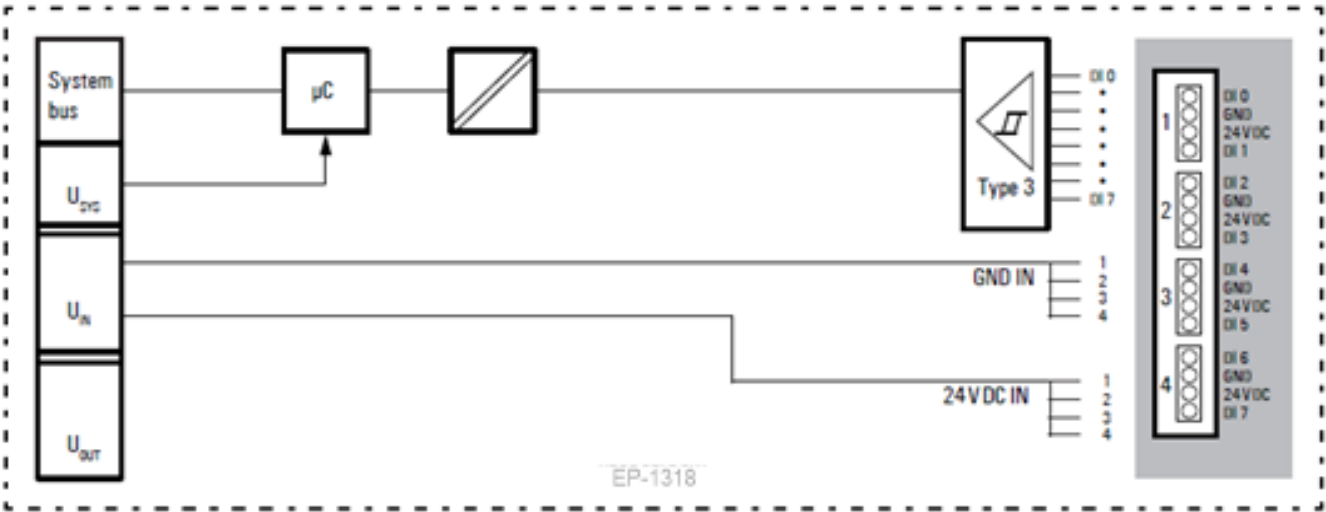


Figure 13: EP-125F and EP-153F

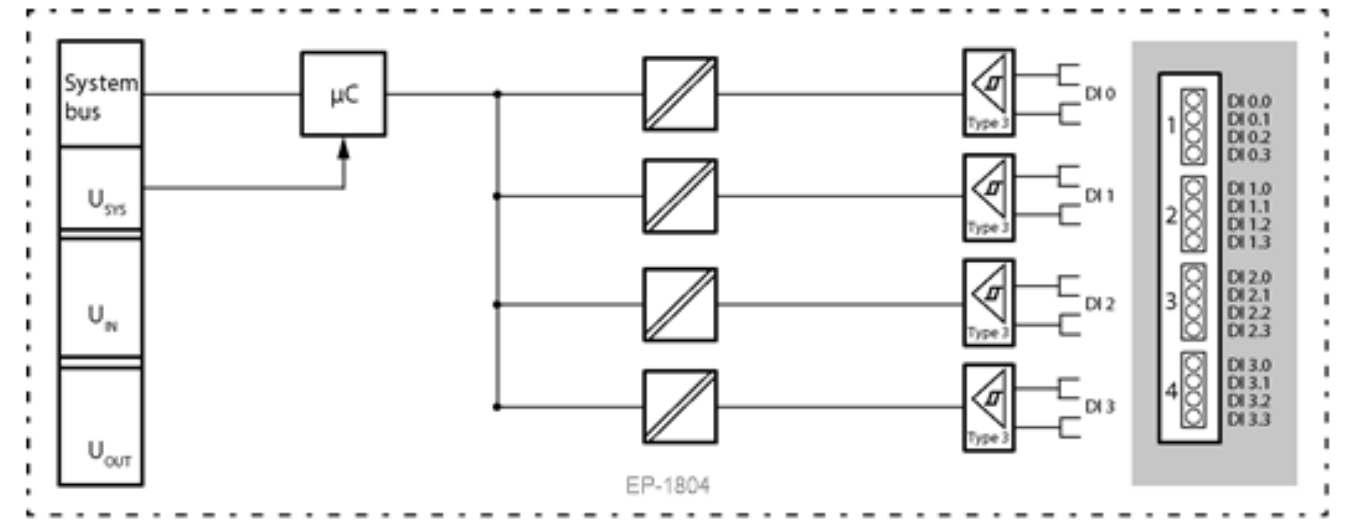
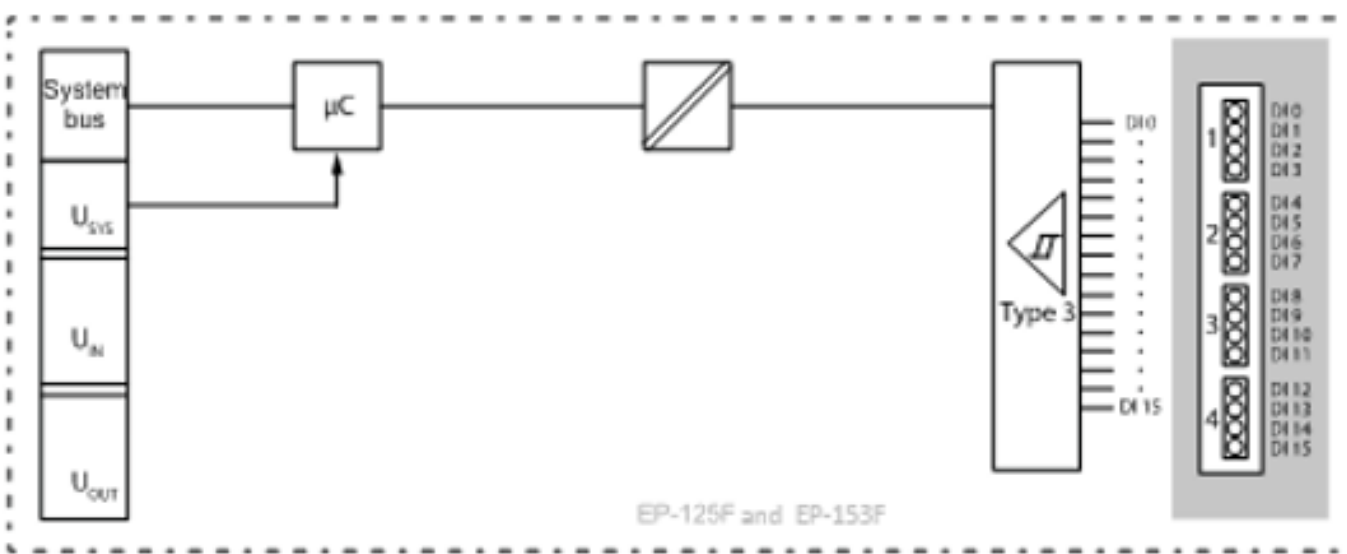


Figure 14: EP-1804



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)

Release History

Catalog Number	Firmware Version	Date	Comments
EP-12A8-A	N/A	Feb 2025	Added new module
EP-1218-E EP-125F-E EP-1318-E EP-1214-E EP-12F4-D EP-1804-D EP-153F-B	N/A	Jan 2024	Updated product markings to include UKCA, CCC & Morocco.
EP-1218-D EP-125F-D EP-1318-D EP-1214-D EP-12F4-C EP-1804-C EP-153F	N/A	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. Added New Digital Input Negative logic module
EP-1218-C EP-125F-C EP-1318-C EP-1214-C EP-12F4-C EP-1804-C	N/A	Mar-2018	These product revisions are updated to be usable in marine / shipbuilding application and pass marine certification tests. [DNV-GL & Lloyd's Register].
EP-1804	N/A	Aug-2016	Added new Phase-2 module
EP-1214 EP-1218 EP-131 EP-125F EP-12F4	N/A	Dec-2015	Documentation update only
EP-1214 EP-1218	N/A	Nov-2015	Initial Release

Catalog Number	Firmware Version	Date	Comments
EP-1318 EP-125F EP-12F4			

Important Product Information for this Release

Updates

None

Functional Compatibility

N/A

Problems Resolved by this Release

None - Documentation update only

New Features and Enhancements

Modules	Description
EP-12A8	New Digital Input (8 channel Isolated) Positive logic module EP-12A8 added to RSTi-EP IO Product line.

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)

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 steps:

Search our Knowledge Base	Open a Support Ticket	Register for a Customer Account
 pacsystems.co/knowledge	 pacsystems.co/support	 pacsystems.co/signup

Other Helpful Links

Customer Center Home Page	Commercial Website	Contact Information
 pacsystems.co/customercenter	 pacsystems.co/commercial	 pacsystems.co/contactus

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