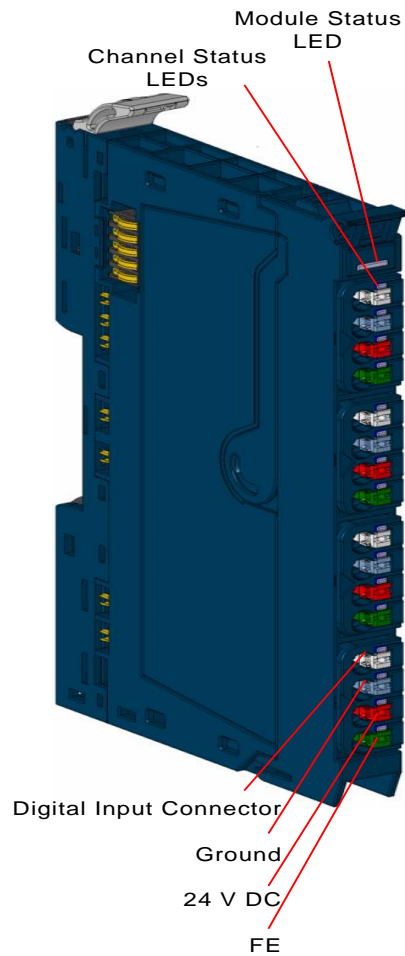


# PACSystems™ RSTi-EP

## DIGITAL INPUT MODULES

(EP-1214, EP-1218, EP-1318, EP-153F, EP-125F & EP-1804)

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



## Warning 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.

---

---

**Notes:** 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.

Emerson may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not provide any license whatsoever to any of these patents.

Emerson provides this document and the information included therein as-is and without warranty of any kind, expressed or implied, including but not limited to any implied statutory warranty of merchantability or fitness for particular purpose.

## Introduction

Eemrson 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  $\mu$ s). Depending on the configuration of the module, up to 5 or 15 time stamp entries can be evaluated.

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.

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 to 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-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-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	16	4	16	4
Sensor types	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 <sup>†</sup>			Input delay 3 ms	Input delay adjustable from 0 to 40 ms <sup>†</sup>	Input delay 3 ms	Input delay 10 ms
Off voltage	-	-	< 5 V				< 65 V
On voltage	-	-	> 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, 3-wire	1-wire	2-wire, 3-wire, 3-wire + FE	1-wire	2-wire
Reverse polarity protection	-	-		Yes			
Module diagnostics	-	-		Yes			
Individual channel diagnosis	-	-		No			
Supply							
Supply voltage	-	-		20.4V – 28.8V			

Item	EP-1214	EP-1218	EP-1318	EP-125F	EP-12F4	EP-153F	EP-1804
Current consumption from system current path $I_{SYS}$	-	-		8 mA			
Current consumption from input current path $I_{IN}$	18 mA	30 mA	30 mA	52 mA	18 mA	52 mA	No
<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	-	-		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)	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-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	--
$I_{SYS}$	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-1214	EP-1218	EP-1318	EP-125F	EP-153F	EP-1804	EP-12F4
<b>Module Status</b>	<b>Green:</b> Communication over the system bus <b>Red:</b> Module System Fault or Diagnostic Fault						<b>Green:</b> Communication on system bus <b>Red:</b> No communication on system bus or there is a diagnostic message displayed
1.1	<b>Yellow:</b> Input 0 active	<b>Yellow:</b> Input 0 active	<b>Yellow:</b> Input 0 active	<b>Yellow:</b> Input 0 active	<b>Yellow:</b> Input 0 active	<b>Yellow:</b> Input 0 active	<b>Yellow:</b> Input 0 active
1.2	--	--	--	<b>Yellow:</b> Input 1 active	<b>Yellow:</b> Input 1 active	--	--
1.3	--	<b>Yellow:</b> Input 1 active	--	<b>Yellow:</b> Input 2 active	<b>Yellow:</b> Input 2 active	--	--
1.4	--	--	<b>Yellow:</b> Input 1 active	<b>Yellow:</b> Input 3 active	<b>Yellow:</b> Input 3 active	--	--
2.1	<b>Yellow:</b> Input 1 active	<b>Yellow:</b> Input 2 active	<b>Yellow:</b> Input 2 active	<b>Yellow:</b> Input 4 active	<b>Yellow:</b> Input 4 active	<b>Yellow:</b> Input 1 active	<b>Yellow:</b> Input 1 active
2.2	--	--	--	<b>Yellow:</b> Input 5 active	<b>Yellow:</b> Input 5 active	--	--
2.3	--	<b>Yellow:</b> Input 3 active	--	<b>Yellow:</b> Input 6 active	<b>Yellow:</b> Input 6 active	--	--
2.4	--	--	<b>Yellow:</b> Input 3 active	<b>Yellow:</b> Input 7 active	<b>Yellow:</b> Input 7 active	--	--
3.1	<b>Yellow:</b> Input 2 active	<b>Yellow:</b> Input 4 active	<b>Yellow:</b> Input 4 active	<b>Yellow:</b> Input 8 active	<b>Yellow:</b> Input 8 active	<b>Yellow:</b> Input 2 active	<b>Yellow:</b> Input 2 active
3.2	--	--	--	<b>Yellow:</b> Input 9 active	<b>Yellow:</b> Input 9 active	--	--
3.3	--	<b>Yellow:</b> Input 5 active	--	<b>Yellow:</b> Input 10 active	<b>Yellow:</b> Input 10 active	--	--
3.4	--	--	<b>Yellow:</b> Input 5 active	<b>Yellow:</b> Input 11 active	<b>Yellow:</b> Input 11 active	--	--
4.1	<b>Yellow:</b> Input 3 active	<b>Yellow:</b> Input 6 active	<b>Yellow:</b> Input 6 active	<b>Yellow:</b> Input 12 active	<b>Yellow:</b> Input 12 active	<b>Yellow:</b> Input 3 active	<b>Yellow:</b> Input 3 active
4.2	--	--	--	<b>Yellow:</b> Input 13 active	<b>Yellow:</b> Input 13 active	--	--
4.3	--	<b>Yellow:</b> Input 7 active	--	<b>Yellow:</b> Input 14 active	<b>Yellow:</b> Input 14 active	--	--
4.4	--	--	<b>Yellow:</b> Input 7 active	<b>Yellow:</b> Input 15 active	<b>Yellow:</b> 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 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 with Four Wire Connectors**

---

**Note:** Image is for illustration of color coding only.

---

## Connector Specifications:

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

The pushers are color-coded for the following connections:

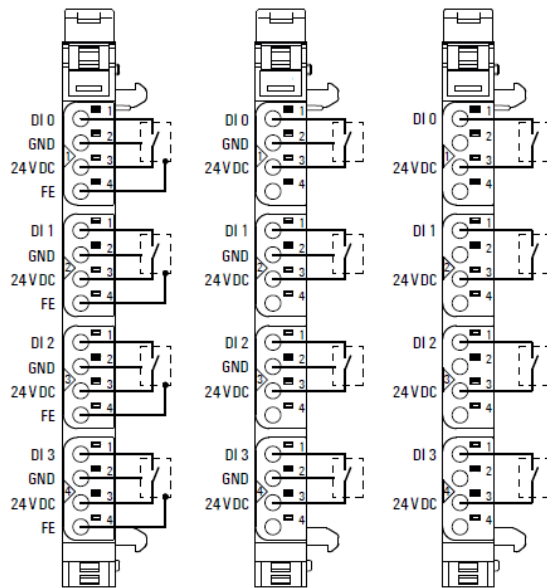
- White    Signal
- Blue     GND
- Red      24 V DC
- Green    Functional earth (FE)

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).

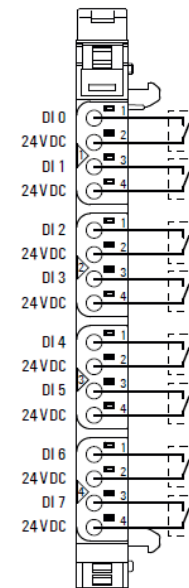
Refer to the *RSTi-EP Slice I/O User Manual* (GFK-2958) for additional information.

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

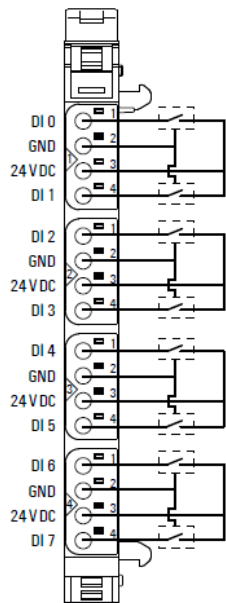
## Connection Diagrams



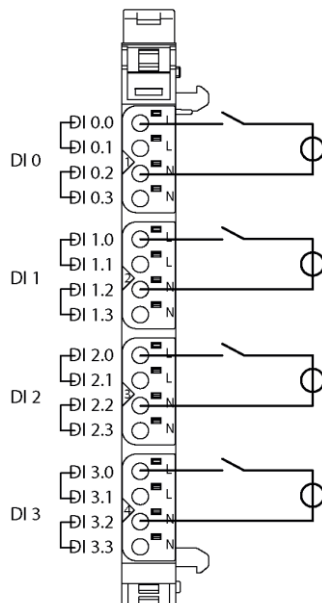
EP-1214 and EP-12F4



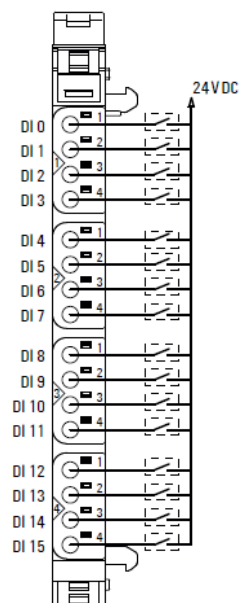
EP-1218



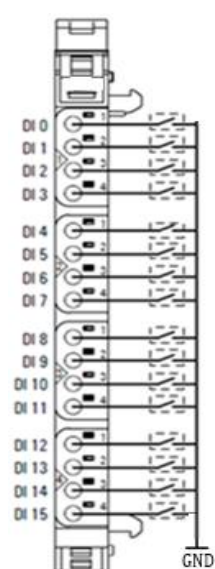
EP-1318



EP-1804



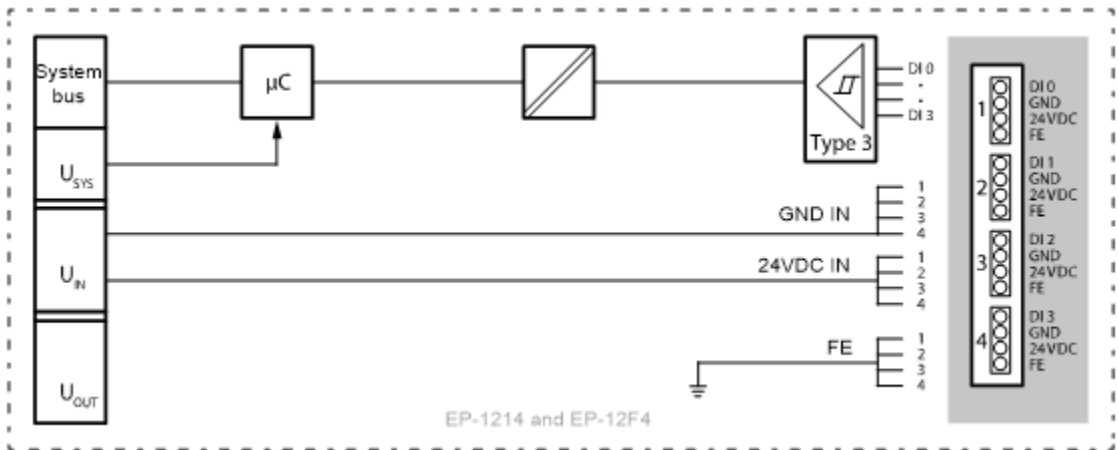
EP-125F



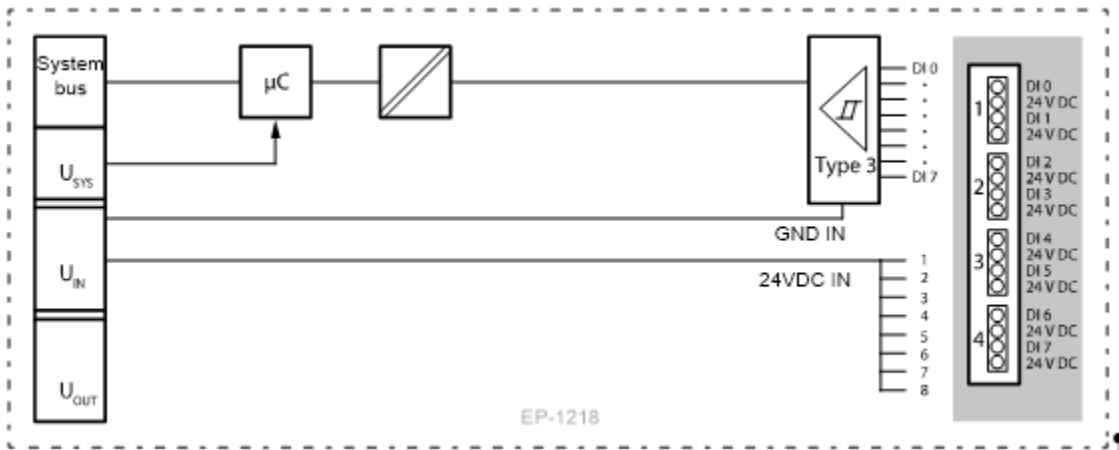
EP-153F



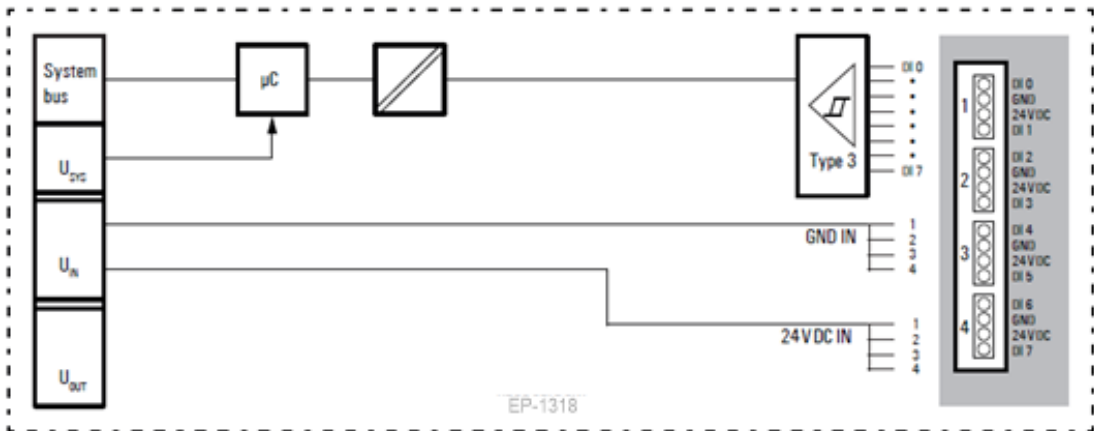
Connection Block Diagrams



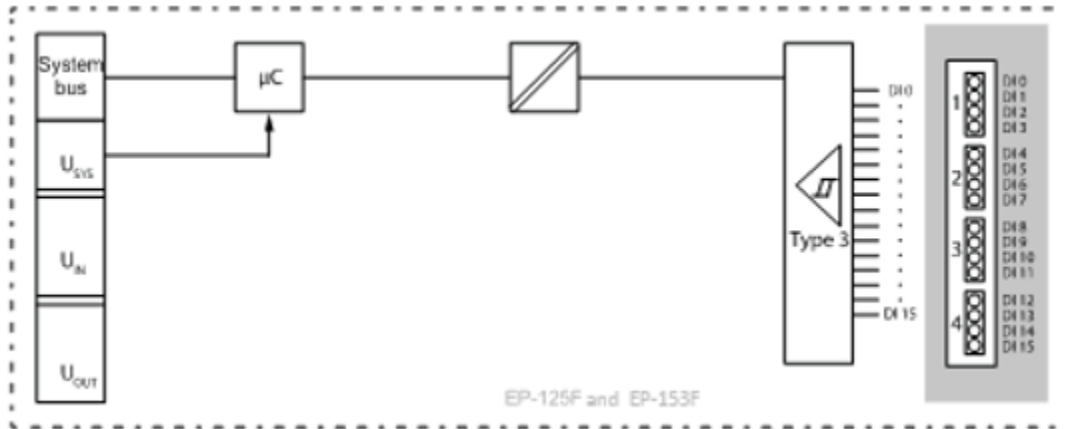
EP-1214 and EP-12F4



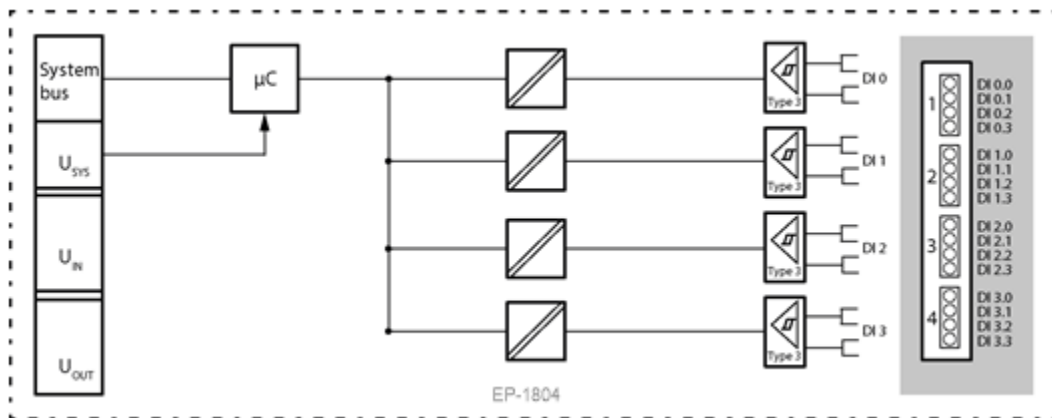
EP-1218



EP-1318



EP-125F and EP-153F



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

Ex 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-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-1318, EP-125F, EP-12F4	N/A	Dec-2015	Documentation update only
EP-1214, EP-1218, EP-1318, EP-125F, EP-12F4	N/A	Nov-2015	Initial Release

## 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-153F	New Digital Input Negative logic module EP-153F 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)

### Technical Support & Contact Information:

Home link: <http://www.Emerson.com/Industrial-Automation-Controls>

Knowledge Base: <https://www.emerson.com/Industrial-Automation-Controls/support>

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

Emerson reserves the right to modify or improve the designs or specifications of the products mentioned in this manual at any time without notice. Emerson does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any Emerson product remains solely with the purchaser.

© 2019 Emerson. All rights reserved.

Emerson Terms and Conditions of Sale are available upon request. The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are the property of their respective owners.

