Foxboro FBM204 P0914SY

Official Technical Reference Excerpt

Foxboro FBM204 P0914SY combines four isolated 0 to 20 mA input channels with four isolated 0 to 20 mA output channels for Foxboro process loops.

VERIFIED PRODUCT ROLE

Characteristic 1

Provides four analog inputs and four analog outputs for its mixed analog i/o module function.

Characteristic 2

Handles 0 to 20 mA measurement and control loops through the documented Foxboro system path.

Characteristic 3

Works with the selected termination assembly and redundant 2 Mbps module Fieldbus.

Characteristic 4

Each channel is galvanically isolated from the other channels and ground.

MANUFACTURER DOCUMENT

Manufacturer source	Schneider Electric, Foxboro DCS FBM204 0 to 20 mA I/O Module Product Specification, PSS 31H-2S204.
Evidence boundary	Technical statements are limited to the identified product or applicable manufacturer family.
Selection control	Use the complete ordering string and verify the installed system before purchase or installation.

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Foxboro Evo™ Process Automation System Hardware

Product Specifications

Foxboro® by Schneider Electric

PSS 31H-2S204

FBM204, 0 to 20 mA I/O Module



The FBM204, 0 to 20 mA Input/Output contains four 20 mA dc analog input channels and four 20 mA dc analog output channels.

OVERVIEW

The FBM204, 0 to 20 mA Input/Output module contains four 0 to 20 mA dc analog input channels and four 0 to 20 mA dc analog output channels. Each input channel accepts an analog sensor input such as a 4 to 20 mA transmitter, or a self-powered 20 mA source. Each output channel drives an external load and produces a 0 to 20 mA output. The inputs/outputs are galvanically isolated from other channels and ground.

The FBM204 performs the signal conversion required to interface the electrical input/output signals from the field sensors to the optionally redundant fieldbus.

The FBM204 executes the Analog I/O application program, which provides the following configurable options: Conversion Time, Fail-Safe Configuration (Hold/Fallback), and Analog Output Fail-Safe Fallback Data (on a per channel basis). When used with I/A Series® software v8.6 to v8.8 or Foxboro Evo™ Control Core Services software v9.0 or later, the FBM may instead execute a distributed PIDA (DPIDA) application program to provide a fast control loop running in it.

The FBM204 is electrically compatible with standard HART signals.

FEATURES

The key features of the FBM204 are:

- Four 20 mA dc analog input channels
- Four 20 mA dc analog output channels
- Each input and output channel is galvanically isolated
- Rugged design suitable for enclosure in Class G3 (harsh) environments
- Execution of an analog I/O application program that provides conversion time and configurable options for Rate of Change Limits
- High accuracy achieved by sigma-delta data conversions for each channel
- Termination Assemblies (TAs) for locally or remotely connecting field wiring to the FBM204
- TA for use with Output Bypass Station to maintain outputs during maintenance operations
- 3-tier termination assembly for per channel internally and/or externally loop powered transmitters.
- Support for DPIDA control blocks.

HIGH ACCURACY

For high accuracy, the module incorporates Sigma-Delta data conversion on a per channel basis, which provides new analog input readings every 25 ms, and a configurable integration period to remove any process and/or electromagnetic noise.

STANDARD DESIGN

FBM204 has a rugged extruded aluminum exterior for physical protection of the circuits. Enclosures specially designed for mounting the FBMs provide various levels of environmental protection, up to harsh environments, per ISA Standard S71.04.

VISUAL INDICATORS

Light-emitting diodes (LEDs) incorporated into the front of the module provide visual status indications of Fieldbus Module functions.

EASY REMOVAL/REPLACEMENT

The module can be removed/replaced without removing field device termination cabling, or power or communications cabling.

FIELDBUS COMMUNICATION

A Fieldbus Communications Module or a Control Processor interfaces to the redundant 2 Mbps module Fieldbus used by the FBMs. The FBM accepts communication from either path (A or B) of the 2 Mbps Fieldbus — should one path fail or be switched at the system level, the module continues communication over the active path.

MODULAR BASEPLATE MOUNTING

The module mounts on a DIN rail mounted Modular baseplate, which accommodates up to four or eight Fieldbus Modules. The Modular baseplate is either DIN rail mounted or rack mounted, and includes signal connectors for redundant Fieldbus, redundant independent dc power, and termination cables.

TERMINATION ASSEMBLIES

Field I/O signals connect to the FBM subsystem via DIN rail mounted TAs. The TAs used with the FBM204 are described in “TERMINATION ASSEMBLIES AND CABLES” on page 6.

Table 2. Cables Types and Part Numbers (Continued)

Cable Length m (ft)	Type 1 P/PVC [a]	Type 1 LSZH [b]
2.0 (6.6)	RH931RM (supersedes P0931RM)	RH928AC (supersedes P0928AC)
3.0 (9.8)	RH916DC (supersedes P0916DC)	RH928AD (supersedes P0928AD)
5.0 (16.4)	RH916DD (supersedes P0916DD)	RH928AE (supersedes P0928AE)
10.0 (32.8)	RH916DE (supersedes P0916DE)	RH928AF (supersedes P0928AF)
15.0 (49.2)	RH916DF (supersedes P0916DF)	RH928AG (supersedes P0928AG)
20.0 (65.6)	RH916DG (supersedes P0916DG)	RH928AH (supersedes P0928AH)
25.0 (82.0)	RH916DH (supersedes P0916DH)	RH928AJ (supersedes P0928AJ)
30.0 (98.4)	RH916DJ (supersedes P0916DJ)	RH928AK (supersedes P0928AK)

(a) P/PVC is polyurethane outer jacket and semi-rigid PVC primary conductor insulation. Temperature range; -20 to +80°C (-4 to +176°F).

(b) Low smoke zero halogen or low smoke free of halogen (LSZH) is a material classification used for cable jacketing. LSZH is composed of thermoplastic or thermoset compounds that emit limited smoke and no halogen when exposed to high sources of heat. Temperature range; -40 to +105°C (-40 to +221°F)

Use of Termination Assemblies in 100 Series Upgrade Subsystem

When an FBM204 is used to replace the 100 Series FBM04, it may use any of the appropriate termination assemblies listed above for the FBM04's field I/O wiring. Alternatively, the FBM204 can accept this field wiring through a Termination Assembly Adapter (TAA) instead of a termination assembly. This is discussed in *Termination Assembly Adapter Modules for 100 Series Upgrade* (PSS 31H-2W4).

Related models and source control

Use these live ApterPower pages for comparison. Verify each complete ordering string independently.

RELATED PRODUCT REFERENCES

Bently Nevada 330103-02-08-10-02-CN	Technical-reference companion. Review the complete ordering string before selection.
Bently Nevada 330103-02-04-10-02-CN	Technical-reference companion. Compare the required interface and system position.
Bently Nevada 330901-10-60-70-02-05	Technical-reference companion. Confirm the execution independently for the intended task.

EXACT-SELECTION CONTROLS

Product identity	Confirm the complete FBM204 P0914SY marking.
System interface	the selected termination assembly and redundant 2 Mbps module Fieldbus
Technical boundary	Use FBM204 P0914SY only with the selected termination assembly and redundant 2 Mbps module Fieldbus; verify every interface and the controlled project configuration before energizing or pressurizing the subsystem.
Source	Schneider Electric, Foxboro DCS FBM204 0 to 20 mA I/O Module Product Specification, PSS 31H-2S204.

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