MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

FOXBORO

FBM242

FIELDBUS I/O MODULE

Used with the applicable Foxboro I/A Series DCS configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Schneider Electric / Foxboro official product specification

Foxboro™ DCS

FBM242, Externally Sourced, Discrete Output Module

PSS 41H-2S242

Product Specification

May 2025

Overview

The FBM242 Discrete Output Module contains 16 discrete output channels, which are sourced externally, rated up to 2 A at 60 VDC. Associated termination assemblies (TAs) provide for discrete outputs to loads of 2 A at 60 VDC, relay outputs (120 VAC/125 VDC, or 240 VAC), or relay outputs with power distribution and fusing. Each output is fully isolated from other channels and ground.

The module interfaces electrical output signals from a control processor to the field devices. It executes a digital I/O application program, with ladder logic support, and provides a Fail-Safe Configuration option for the outputs.

Features

- 16 discrete outputs
- Supports discrete output signals at voltages of:
  - 15 to 60 VDC
  - 120 VAC/125 VDC
  - 240 VAC
- Each input and output is galvanically isolated; group isolated when used with external excitation
- Rugged design suitable for enclosure in Class G3 (harsh) environments
- Executes the Discrete I/O or Ladder Logic program, with the following configurable options: Input Filter Time, Fail Safe Configuration, Fail-Safe Fall-Back, and Sustained or Momentary Outputs
- Various Termination Assemblies (TAs) that contain:
  - Current limiting devices
  - Fuses
  - Relay outputs with external power source, fusing, and power distribution
  - Solid state outputs
  - Redundant power distribution

Standard Design

The module has a rugged extruded aluminum exterior for physical protection of the circuits. Enclosures specially designed for mounting the Fieldbus Modules (FBMs) provide various levels of environmental protection, up to harsh environments (Class G3), per ISA Standard S71.04.

Visual Indicators

Green and red light-emitting diodes (LEDs) incorporated into the front of the module provide visual indication of the module operational status, as well as the discrete states of the individual output points.

Easy Removal/Replacement

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

Fieldbus Communication

A Fieldbus Communications Module or a Control Processor interfaces to the redundant 2 Mbps module Fieldbus used by the FBMs. The FBM242 accepts communication from either path (A or B) of the redundant 2 Mbps Fieldbus. If one path is unsuccessful or is switched at the system level, the module continues communication over the active path.

Current Limiting

Field power for contacts or solid state switches is current limited.

Modular Baseplate Mounting

The module mounts on a DIN rail mounted Modular baseplate, which accommodates up to four or eight FBMs. 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 (TAs)

Field I/O signals connect to the FBM subsystem via DIN rail mounted TAs. The TAs used with the FBM242 are described in Termination Assemblies, page 10.

Functional Specifications

Output Channels	16 isolated channels.
Applied Voltage	15 to 60 VDC (maximum)
Load Current	2.25 A (maximum) per channel
Load Current-In-Rush	8 A (maximum) for 20 ms per channel at 30°C. 6.4 A (maximum) for 20 ms per channel at 70°C.
On-State Voltage Drop	0.2 V (maximum) at 2.25 A
Off-State Leakage Current	0.1 mA (maximum)
Inductive Loads	Module output may require a protective diode or metal oxide varistor (MOV) connected across the inductive load.
Output Channel Isolation	Each channel is galvanically isolated from all other channels and earth (ground). The module withstands, without damage, a potential of 600 VAC applied for one minute between any channel and ground, or between a given channel and any other channel. **⚠⚠DANGER** **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH** Although the module can withstand a maximum of 600 VAC applied for one minute between any channel, DO NOT apply voltages beyond the published input ranges. The channels are NOT intended for permanent connection to hazardous voltage circuits. Understand that connection of these channels to voltages greater than 30 VAC or 60 VDC violates electrical safety code requirements and may expose users to electric shock. **Failure to follow these instructions will result in death or serious injury.**
Communication	Communicates with its associated FCM or FCP via the redundant 2 Mbps module Fieldbus
Power Requirements	• Input Voltage Range (Redundant): 24 VDC +5%, -10% • Consumption (Maximum) 3 W (maximum) at 24 VDC • Heat Dissipation (Maximum) 6.5 W (maximum) at 24 VDC (with all outputs at 1.5 A each)
Calibration Requirements	Calibration of the module and termination assemblies are not required.
Regulatory Compliance: Electromagnetic Compatibility (EMC):	• *European EMC Directive 2004/108/EC (Prior to April 20, 2016) and 2014/30/EU (Beginning April 20, 2016)*: Meets: EN61326-1:2013 Class A Emissions and Industrial Immunity Levels

Regulatory Compliance: Product Safety	• *Underwriters Laboratories (UL) for U.S. and Canada*: UL/UL-C listed as suitable for use in UL/UL-C listed Class I, Groups A-D; Division 2; temperature code T4 enclosure based systems when connected to specified Foxboro DCS processor modules. Communications circuits also meet the requirements for Class 2 as defined in Article 725 of the National Electrical Code (NFPA No.70) and Section 16 of the Canadian Electrical Code (CSA C22.1). For more information, see the *Standard and Compact 200 Series Subsystem User's Guide* (B0400FA). • *European Low Voltage Directive 2006/95/EC (Prior to April 20, 2016) and 2014/35/EU (Beginning April 20, 2016) and Explosive Atmospheres (ATEX) directive 94/9/EC (Prior to April 20, 2016) and 2014/34/EU (Beginning April 20, 2016)* DEMKO certified as Ex nA IIC T4 for use in certified Zone 2 enclosure when connected to specified processor modules as described in the *Standard and Compact 200 Series Subsystem User's Guide* (B0400FA).
RoHS Compliance	Complies with European RoHS Directive 2011/65/EU, including amending Directives 2015/863 and 2017/2102
IECEx Certification	IECEx Certified