

## FieldBlock™ Enclosure with:



## FOUNDATION Fieldbus Input/Output Module (FBM93\_\_\_\_)

These I/O Modules are designed to function as FOUNDATION Fieldbus nodes with termination points for connecting switches/sensors, as well as outputs to operate ultra low power (Piezo) devices such solenoid valves and relays.

### Inputs and Outputs

- Two (2) Discrete Inputs
- Two (2) Discrete Outputs

### Features

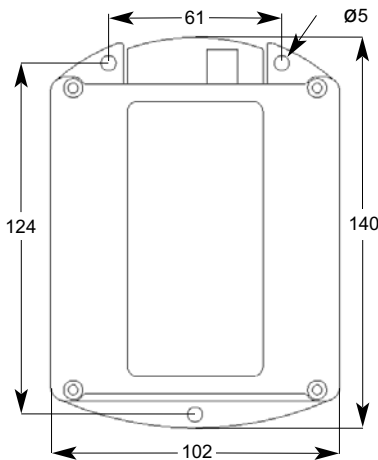
- LED input displays for Inputs 1 & 2
- Date of Last Service
- Pre-determined output Fail State



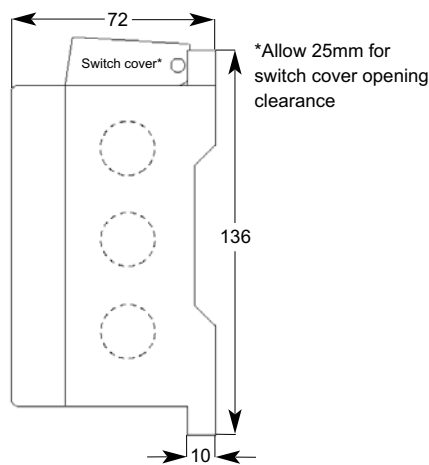
(See Page 4 detailed wiring instructions)

## FieldBlock Dimensions (in mm)

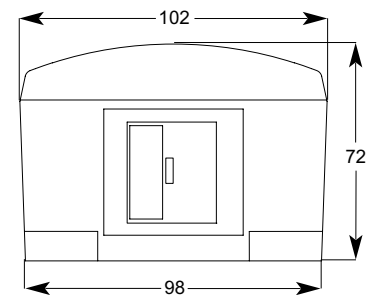
Front View



Side View



Top View



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**Example: FBM93006**

	<u>Function</u>	<u>Entry Options</u>
<b>FB M93</b>	I/O Module (2 DI/2 DO), Foundation Fieldbus	<b>004*</b> (1) 4-Pin Male Micro-Connector, (5) 4-pin Female Micro-Connectors <b>006*</b> (1) 4-Pin Male Mini-Connector, (1) 4-Pin Female Mini-Connector, (4) 4-pin Female Micro-Connectors <b>007</b> (6) 1/2 NPT Conduit Entries <b>009</b> (6) M20 cable glands (.20 -.35 diameter cable) * See Page 5 for Connector pin-out

**General Specifications**

<b>Operating Life</b>	Unlimited	<b>Temperature Range</b>	-40° to +80° C (-40° to 176° F)
<b>Materials of Construction</b>		<b>Enclosure Protection</b>	NEMA 4, 4X & 6; IP67
Housing and Cover	Lexan® Polycarbonate	<b>Warranty</b>	
Elastomer Seals	Buna-N	Complete Assemblies	Two Years
Fasteners	Stainless Steel		

Lexan is a registered trademark of General Electric Corporation.

**Mounting Instructions**

**Mounting The FieldBlock Enclosure**

1. Locate the position where the FieldBlock enclosure will be mounted. Ensure that disconnect switch cover will have sufficient clearance to be lifted.
2. Attach the FieldBlock enclosure to a wall or other stationary flat surface using the mounting holes provided.

**Attaching Cables and Connectors**

1. Cable glands and connectors are provided for convenient wiring. Ensure all connections are securely tightened.
2. Follow all applicable NEC codes and other regulations.

**Installing & Removing Cover**

1. To insure NEMA 4, 4X and 6 ratings are maintained the cover **must be** completely closed and the gasket sealed to keep out water.
2. Tighten cover screws to 05-30 inch lbs.

## Specifications

Communication Protocol: Foundation Fieldbus (H1)

Configuration: (2) Discrete Inputs for low power dry contact switches capable of operating at <.045mA @ 6.5VDC or solid state PNP capable of operating at <1mA @ 6.5 VDC  
 (2) Discrete Outputs for bus powered discrete devices that operate at ultra low power such as Piezo solenoid valves and relays. Limited to 2.0mA @ 6.5 VDC

Function Blocks 2 DI; 2 DO

Indication Input 1 = Red LED  
 Input 2 = Green LED

Voltage: 9-32 VDC (Bus Voltage)

Output Voltage: 6.5 VDC

Max. Output Current: 2.0mA @ 6.5 VDC

Current Draw: 16mA

## Standard Channel Assignments

Channel 1 (DI1) - Discrete Input 1 (Red LED);	1 = True; 0 = False
Channel 2 (DI2) - Discrete Input 2 (Green LED);	1 = True; 0 = False
Channel 3 (DO1) - Discrete Output 1 (OUT 1);	1 = True; 0 = False
Channel 4 (DO2) - Discrete Output 2 (OUT 2);	1 = True; 0 = False

## Special Channel Assignments

Channel 8 (DO1) - Discrete Output 1 (OUT 1) with state report from Discrete Input 1 (READBACK\_D)

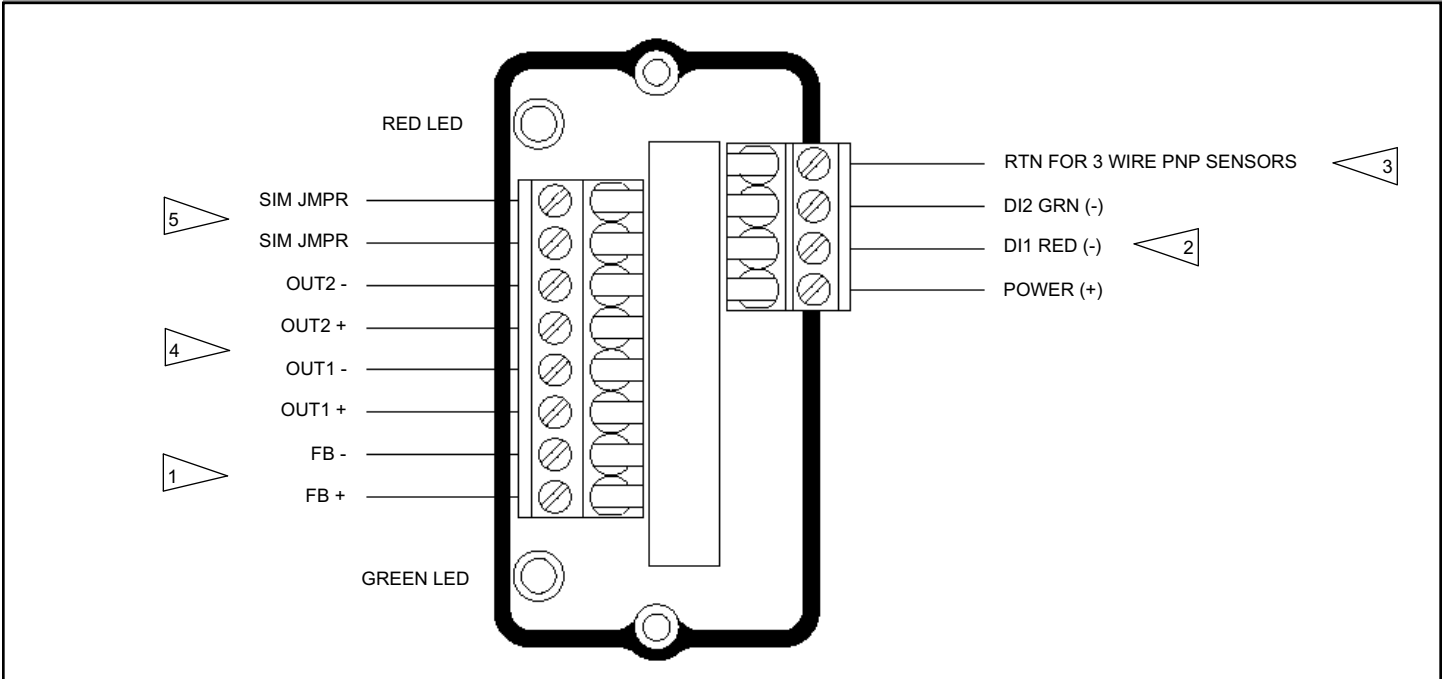
Channel 9 (DO2) - Discrete Output 2 (OUT 2) with state report from Discrete Input 2 (READBACK\_D)

## Valve Control Single Block Mode

Channel 10 (DO1) - Discrete Output 1 (OUT 1) with state report Discrete Inputs 1&2 (READBACK\_D):

READBACK\_D Values:

- 0 = None
- 1 = Discrete Input 1 is True
- 2 = Discrete Input 2 is True
- 3 = Both Discrete Inputs 1&2 are True



## INSTALLATION NOTES:

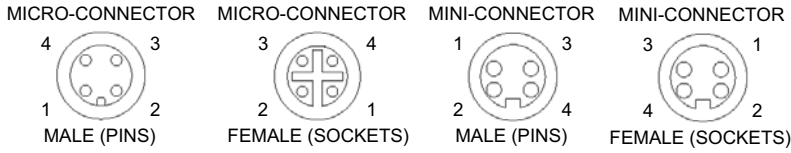
1. FOUNDATION Fieldbus bus communications connection points.
2. Bus powered Discrete Input connection points for low power dry contacts capable of operating at  $<.045\text{mA @ }6.5\text{VDC}$  or solid state PNP sensors capable of operating at  $<1\text{mA}$  and  $6.5\text{VDC}$ . Red LED is local indication of discrete input DI1 RED on/off status and the Green LED for DI2 GRN on/off status.

**NOTE: The Discrete Inputs (DI) are not galvanically isolated from the FOUNDATION signal wires. Therefore, the DI connections should not be attached to ground. If the cable runs to the DI's are long or can be exposed to electrical noise, external Opto-isolators on the DI wires may be needed to provide isolation.**

3. Connection point for the "return" of 3 wire PNP sensors. (See Note 2)
4. Connection points for Bus powered discrete outputs to operate ultra low power (Piezo) devices such solenoid valves and relays. Limited to  $2.0\text{mA @ }6.5\text{VDC}$
5. These connection points not used by the consumer.

**ENTRY OPTION 004**

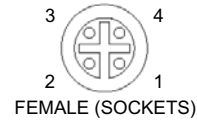
**ENTRY OPTION 006**



**MICRO-CONNECTOR**



**MICRO-CONNECTOR**



**MODEL FBM93\*\*\***

**BUS IN (BI) & BUS OUT (BO)**

PIN	WIRE COLOR	FBM93004	FBM93006		
1	BROWN	FB -	FB -		
2	WHITE	FB +	FB +		
3	BLUE	Shield	Shield		
4	BLACK	NOT USED	NOT USED		

**DISCRETE OUTPUT (DO1 & DO2)**

1	BROWN	NOT USED	NOT USED		
2	WHITE	NOT USED	NOT USED		
3	BLUE	OUT -	OUT -		
4	BLACK	OUT +	OUT +		

**DISCRETE INPUTS (DI1 & DI2)**

1	BROWN	IN +	IN +		
2	WHITE	NOT USED	NOT USED		
3	BLUE	3 WIRE RTN	3 WIRE RTN		
4	BLACK	IN -	IN -		

