# Junction Module (JM™) Enclosure with:

## *DeviceNet* Input/Output Module (JMM92____)

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

### Inputs and Outputs

- Two (2) Discrete Inputs
- Two (2) Discrete Outputs
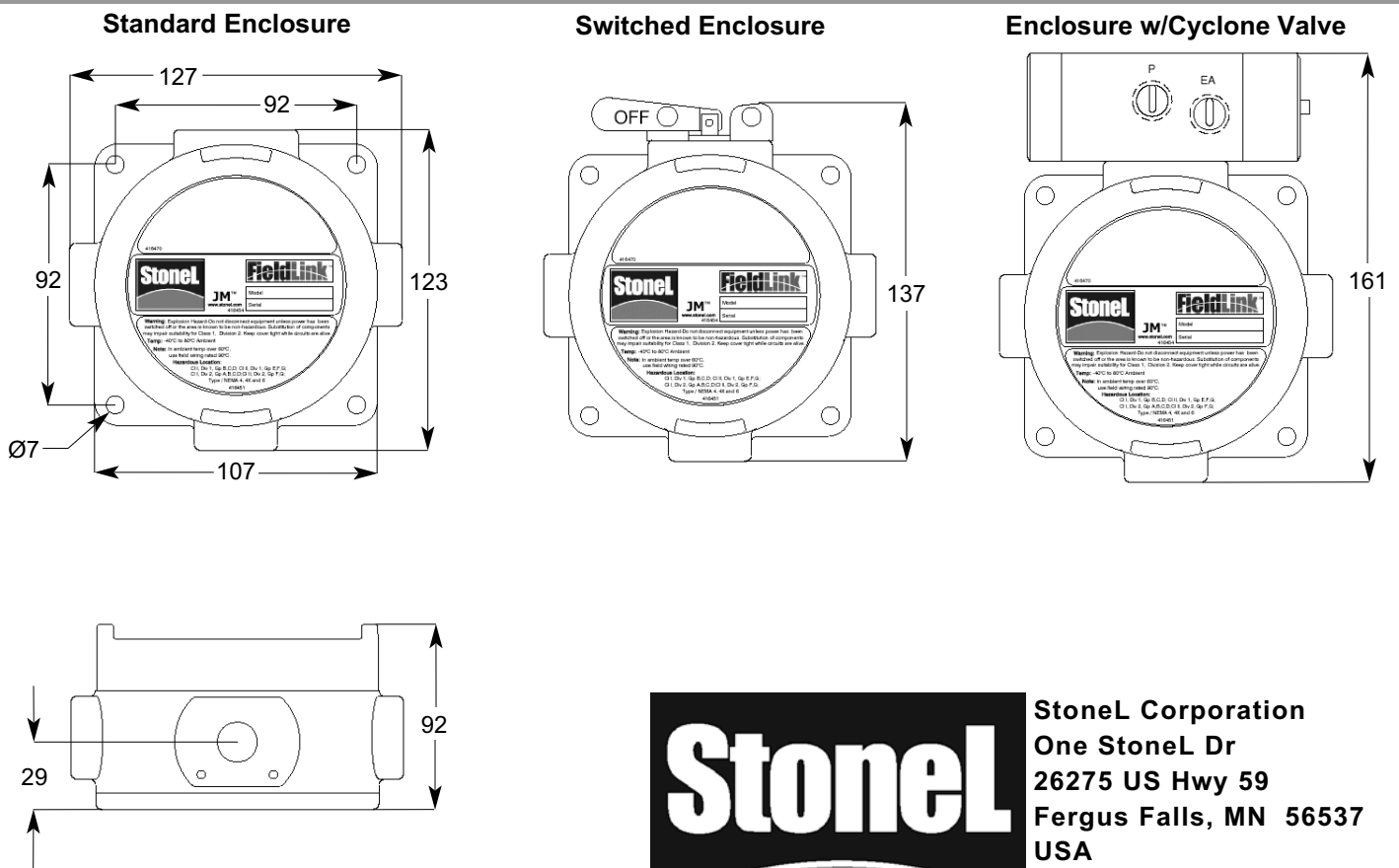- One (1) Analog Input (4-20mA)

### Features

- LED input displays for Inputs 1 & 2
- Optional Integrated Solenoid
- Pre-determined output fail state
- Cycle count
- Date of last service

**(See Page 3 detailed wiring instructions)**

## JM Enclosure Dimensions (in mm)

**Standard Enclosure**



127
92
92
123
Ø7
107

**Switched Enclosure**



OFF
137

**Enclosure w/Cyclone Valve**



P    EA
161



92
29



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## Example:    JMM922HE3

| | | Function | Solenoid | | | | | Enclosure | Conduit Entries |
|---|---|---|---|---|---|---|---|---|---|
| **JM** | **M92** | I/O Module (2 DI/2 DO/1 AI), DeviceNet (only w/ Solenoid 11,2B,2E,2H,2L) | **11** No Solenoid | | | | | **C** Clear Cover | **3** (3) 1/2" NPT |
| | | | | | | | | **E** Epoxy Coated Aluminum | **N** (4) 1/2" NPT |
| | | | **Pilot** | **Type** | **Brass** | **SS** | | | **6** (3) M20 |
| | | | 1-Solenoid | 2-Postn,5-Way | 2H | 2B | | | **M** (4) M20 |
| | | | 1-IS Piezo | 2-Postn,5-Way | 3G | 3A | | | **9** (3) 3/4" NPT |
| | | | 2-Solenoid | 2-Postn,5-Way | 2L | 2E | | | **T** (4) 3/4" NPT |

## General Specifications

**Operating Life** Unlimited

**Materials of Construction**

Housing and Cover — Marine grade anodized aluminum epoxy coating

Clear Cover — Lexan® Polycarbonate

Elastomer Seals — Buna-N

Fasteners — Stainless Steel

**Warranty**

Complete Assemblies — Two Years

Lexan is a registered trademark of General Electric Corporation.

**Temperature Range** -40° to +80° C (-23° to 180° F)

**Enclosure Protection** NEMA 4, 4X & 6; IP67

**Hazardous Area Ratings**

**Explosion Proof** (Aluminum Cover)
Class I, Div. 1 and 2, Groups B,C,D
Class II, Div. 1 and 2, Groups E,F,G

**Non-incendive** (Clear Cover)
Class I, Div. 2, Groups A,B,C,D
Class II, Div. 2, Groups E,F,G
(Not all units carry approvals, consult factory)

## Mounting Instructions

### Mounting The JM Enclosure

1. Locate the position where the JM enclosure will be mounted. Ensure that there is sufficient room to operate the disconnect switch levers and to remove the cover.
2. Attach the JM enclosure to a wall or other stationary flat surface using the mounting holes provided.
3. Secure the cover until hand tight

### Attaching Conduit and Fittings

1. Conduit entries are provided for the convenient attachment of threaded conduit and threaded conduit fittings. Attach threaded fittings and conduits securely.
2. Follow all applicable NEC codes and other regulations.

### Installing & Removing Cover

1. To insure NEMA 4, 4X. 6 and hazardous location ratings are maintained the cover **must be** completely closed and the O-Ring sealed to keep out water.

### DeviceNet 2 DI/2 DO/1 AI Input/Output Modules

| | | | |
|---|---|---|---|
| Operating Voltage | 24 VDC via DeviceNet voltage | **Bit Assignment:** | |
| Discrete Inputs | (2) 7mA @ 24 VDC gold contact mechanical, low power reed, or 2 wire and 3 wire PNP solid state sensors | **Inputs: (3 Bytes)** | **Outputs (1 Byte)** |
| | | Bit 0 = Input 1 (Red) | Bit 0 = Output 1 |
| | | Bit 1 = Input 2 (Green) | Bit 1 = Output 2 |
| Analog Input | (1) Analog (4-20 mA) input. 8 bit resolution (0.4%) | Bit 4 = Fault Bit (On if both Input 1 and Input 2 bits are set) | |
| Outputs | (2) 24 VDC - Bus Powered (4 Watts total power available) | Bits 8-15 = Analog Input (Low Byte) Bits 16-23 = Analog Input (High Byte) | |
| Current Usage | 60mA (no I/O enabled) | Operating Life | Unlimited |
| Default Address | 63 | Warranty | Two Years |

## Input/Output Module Wiring Diagram and Installation Notes
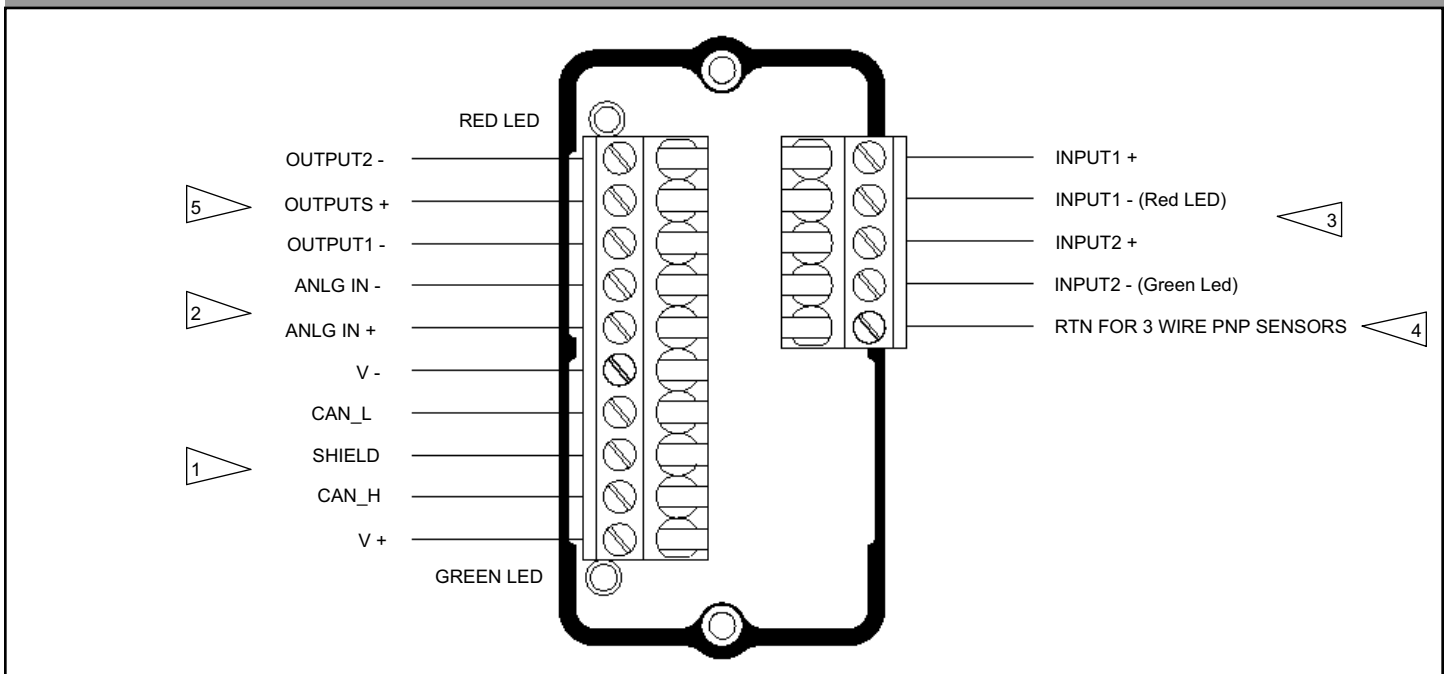


### INSTALLATION NOTES:

1. DeviceNet bus communications connection points.
2. 24 VDC Bus powered Analog Input device connection points. (4-20mA)
3. Bus powered Discrete Input connection points for low power (7mA @ 24 VDC) gold contact mechanical switches, low power reed, or 2 wire and 3 wire PNP solid state proximity sensors (max allowable current leakage of sensors 0.165mA). Red LED is local indication of discrete Input 1 on/off status and the Green LED for discrete Input 2 on/off status.
4. Connection point for the "return" of 3 wire PNP sensors. (See Note 3)
5. Connection points for 24 VDC Bus powered Discrete Outputs (4 watts total power available) for low power solenoid valves and relays. For models with single coil pneumatic valves, coil is pre-wired to Output 1 (DO bit 0). For models with dual coil pneumatic valves, coil one is pre-wired to Output 1 (DO bit 0) and coil two is pre-wired to Output 2 (DO bit 1)

The Cyclone Pneumatic Valve is a pilot operated 5-way spring return which may be used for single and double-acting actuators. It features a direct-acting solenoid with manual override for the pilot. The porting is sized to tolerate contaminants up to 40 microns in size which may be found in conventional pneumatic systems.

The Cyclone Pneumatic Valve is O-ring sealed on the Junction Module (JM) enclosure to maintain it's temporary submersibility rating.

24 VDC Pilot
    Power ................................................. 1.8 Watts
    Current draw ..................................... 75 mA @24VDC
Temperature .................................................... -18°C to +50°C
Filtration Requirements ................................... 40 Microns
Pressure Range .............................................. 25 to 120 PSI
    Cv ....................................................... 0.75 (10.7 Kv)
Piezo Pilot
    Current draw ..................................... 2mA @6.5VDC
Temperature .................................................... -10°C to +60°C
Filtration Requirements ................................... 30 Microns
Pressure Range .............................................. 25 to 120 PSI
    Cv ....................................................... 0.75 (10.7 Kv)
Porting ............................................................ 1/4" NPT
Valve Body Material ........................................ 360 brass or 303 Stainless
Operating Life ................................................. 1 million cycles

## Manual Overrides:
One internal momentary and One external locking.

## Variable Speed Adjustment:
Each cylinder port is internally ported to a unique exhaust port (EA for exhaust of port A and EB for exhaust of port B). To vary actuator speed flow restrictors may be added to EA or EB to reduce exhaust flow and actuator speed in either direction.

## Single-Acting Vent to Atmosphere or Refresh:
Exhaust (EA or EB) and secondary ports (A or B) may be blocked for single-acting operation with the actuator venting directly to atmosphere. Alternatively, the secondary port may be plumbed to the actuator supplying air to the spring side of the actuator and preventing it from ingesting atmospheric contaminants.
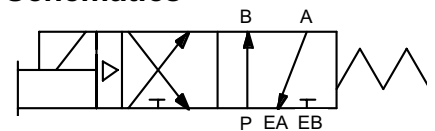
## Pneumatic Porting
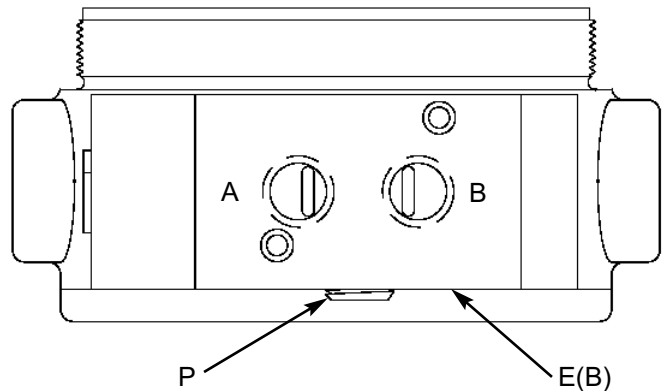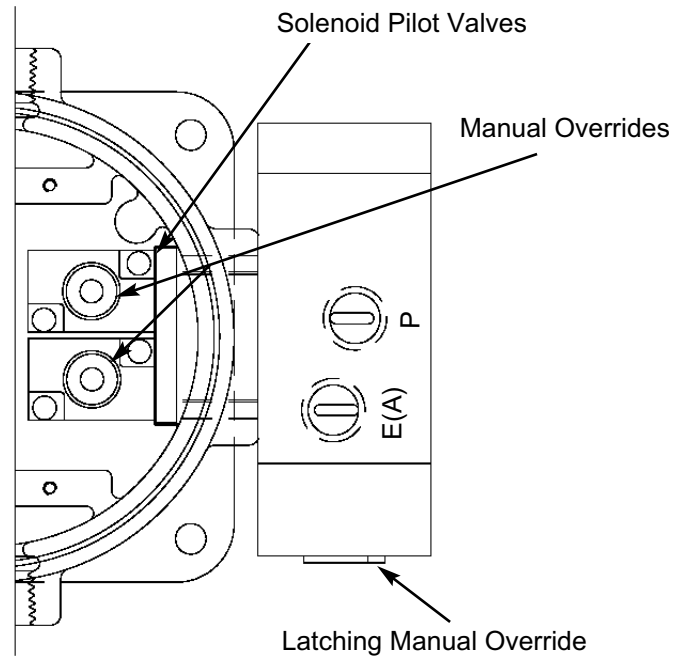


P - Pressure Port (1/4 " NPT)
A - Cylinder Port (1/4" NPT)
B - Cylinder Port (1/4" NPT)
E(A) - Exhaust for Cylinder Port A (1/4" NPT)
E(B) - Exhaust for Cylinder Port B (1/4" NPT)

## Schematics

Single Coil: 5 way with Pneumatic pilot



Dual Coil: Shuttle Piston with 2 Pneumatic pilots (2 Position Valve with position detent