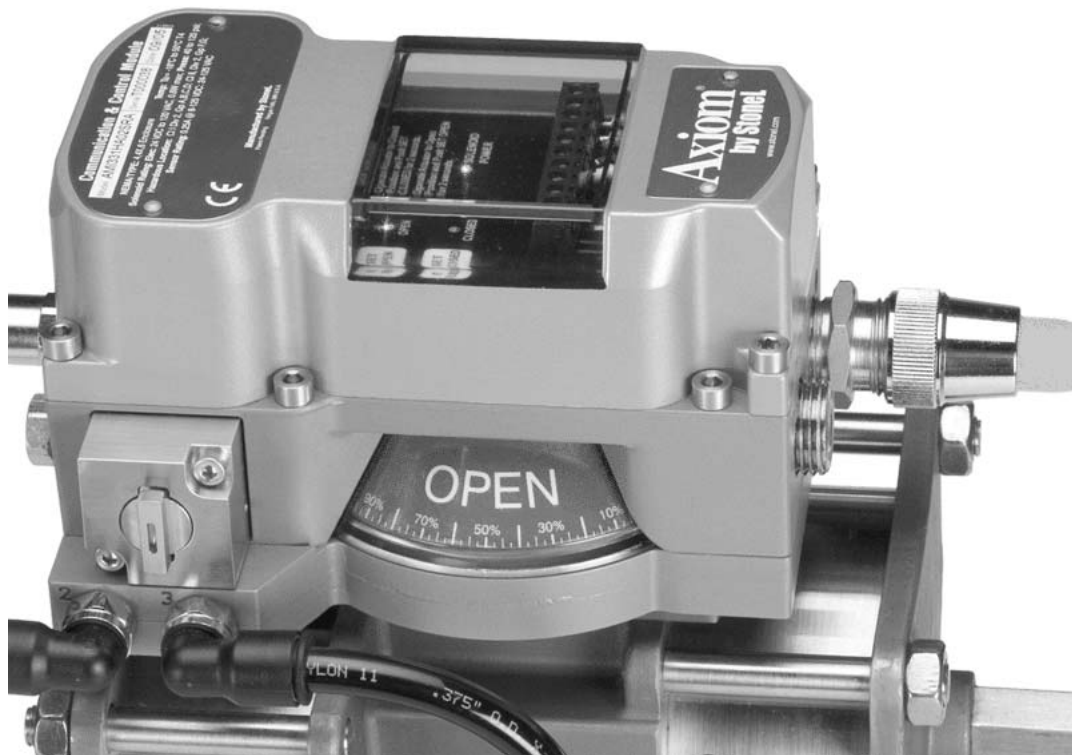


**Axiom**<sup>®</sup> with  **AS-Interface**  
**Sensing & Communications Module** (Extended Addressing)  
(AMI97\_\_\_\_\_)

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## Installation & Adjusting Instructions



**IMTEX Controls Limited**  
Unit 5a Valley Industries  
Hadlow Road, Tonbridge  
Kent, TN11 0AH, UK

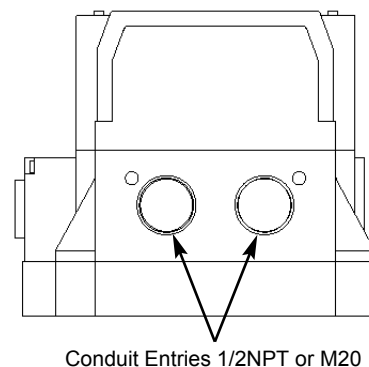
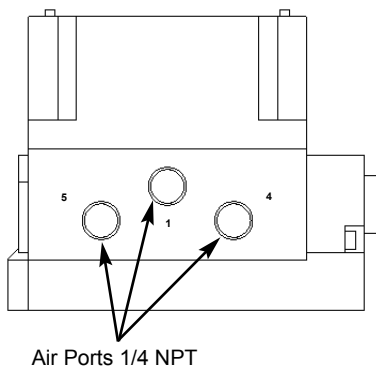
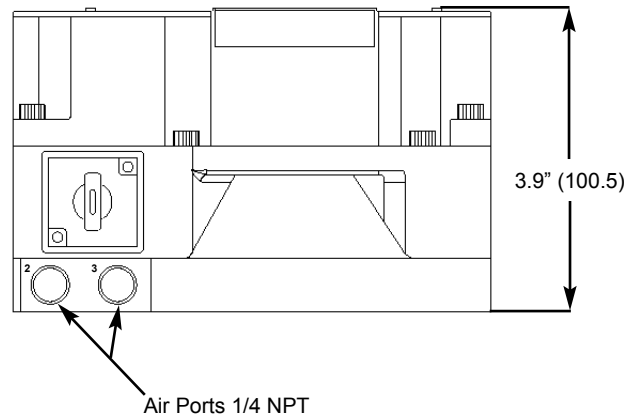
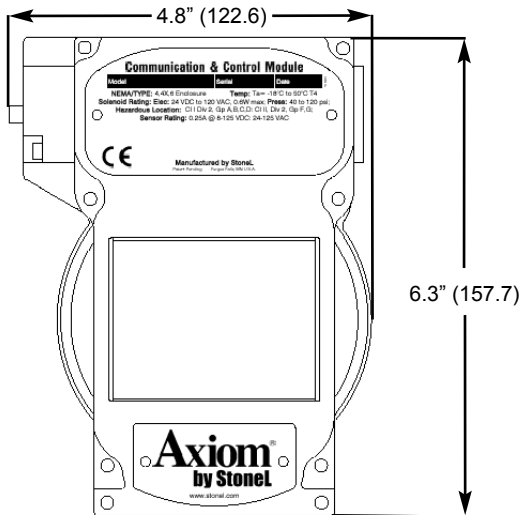
Tel : +44(0)1732 850360  
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# Axiom Model Selector

	Function	Pneumatic Valve	Conduit/Connectors	Capabilities	Visual Indicator
<b>AMI</b>	<b>Sensor Modules</b> <b>33</b> (2) SST N.O. Sensors <b>34</b> (2) SST N.C. Sensors <b>44</b> (2) NAMUR Sensors <i>(I.S.; DIN 19234)</i> <b>Valve Communication</b> <b>Terminals (VCT)</b> <b>92</b> DeviceNet VCT <b>93</b> Foundation Fieldbus VCT <i>(Bus Power Outputs; I.S.)</i> <b>94</b> Foundation Fieldbus VCT <i>(Externally Powered Outputs)</i> <b>95</b> Modbus VCT <b>96</b> AS-Interface VCT <b>97</b> AS-Interface VCT <i>(with Extended Addressing)</i>	<b>Single Solenoid Spring Return</b> <b>1H</b> 24VDC/120VAC Universal <i>(Use with Function Option 33 or 34)</i> <b>1D</b> 24VDC <i>(Use with Function Option 92, 94, 95, 96, 97)</i> <b>1E</b> 12VDC Intrinsically Safe <i>(Use with Function Option 44)</i> <b>Dual Solenoid Shuttle Piston</b> <b>2H</b> 24VDC/120VAC Universal <i>(Use with Function Option 33 or 34)</i> <b>2D</b> 24VDC <i>(Use with Function Option 92, 94, 95, 96, 97)</i> <b>2E</b> 12VDC Intrinsically Safe <i>(Use with Function Option 44)</i> <b>Single Piezo Spring Return</b> <b>1A</b> Intrinsically Safe or Standard <i>(Use with Function Option 93)</i> <b>Dual Solenoid Shuttle Piston</b> <b>2A</b> Intrinsically Safe or Standard <i>(Use with Function Option 93)</i>	<b>A02</b> (2) 1/2" NPT <b>A05</b> (2) M20 <b>A10</b> (1) 4-Pin Mini Connector <b>A11</b> (1) 5-Pin Mini Connector <b>A13</b> (1) 4-Pin Micro Connector <b>A15</b> (1) 5-Pin Micro Connector	<b>S</b> Standard	<b>RA</b> Red Closed/ Green Open
			<b>Model Number Example: AMI971DA02SRA</b>		

## Dimensions - Inches (mm)



## AS-Interface Module Specifications

Communication Protocol: AS-Interface  
 Configuration: (2) Discrete Inputs (Sensors)  
 (2) Auxiliary Discrete Inputs  
 (1) Discrete Output (Solenoid)  
 Voltage: 24-30 VDC (AS-I Voltage)  
 Output Voltage: 24 VDC  
 Max. Output Current: 100mA  
 Max. Output Power: 2.4 Watts

ID/IO Codes: ID = F; IO = 4; ID1 = F; ID2 = E  
 Default Address: 00  
 Bit Assignment:

Inputs	Outputs
Bit 1 = Aux Input 1	Bit 1 = Not Used
Bit 2 = Aux input 2	Bit 2 = Not Used
Bit 3 = Green LED	Bit 3 = OUT 1
Bit 4 = Red LED	Bit 4 = Not Used

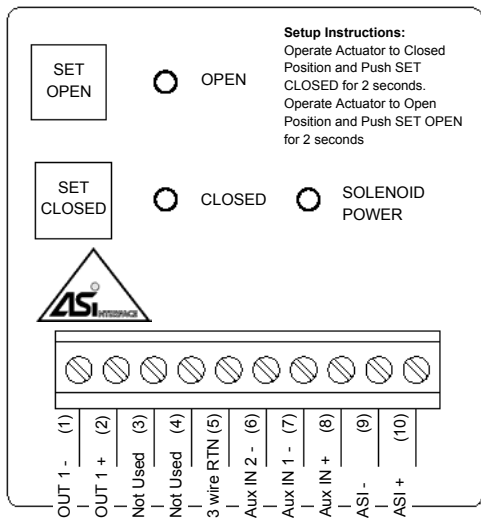
### To Bench Test an AS-Interface Sensing & Communications Module:

To test sensors, use a 24 Vdc power supply. No series load resistor is required. Operate actuator to the closed position. Apply power across the "ASI+" and "ASI-" terminal points. Press and hold "Closed Set" button until "Closed LED is lit (2 seconds). Release button. Operate actuator to the open position. Press and hold "Open Set" button until "Open LED is lit (2 seconds). Release button. Set points are retained even after power is removed. A functioning AS-Interface network is required to test communications.

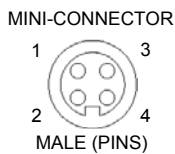
### WARNING:

**DO NOT APPLY EXTERNAL POWER TO THE OUTPUT TERMINALS. THIS WILL CAUSE PERMANENT DAMAGE TO THE UNIT**

## Wiring Diagram/Connector Pin-Out

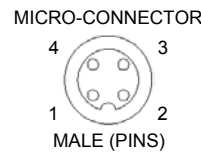


### Connector Option (A10)



PIN	AMI97__A10__
1	ASI+
2	Not Used
3	ASI-
4	Not Used

### Connector Option (A13)



PIN	AMI97__A13__
1	ASI+
2	Not Used
3	ASI-
4	Not Used

# General Specifications and Ratings

## Materials of Construction

Cover: Lexan® Polycarbonate  
 Housing: Epoxy Coated Anodized Aluminum  
 Fasteners: Stainless Steel  
 O-Rings: Nitrile compound  
 Valve Manifold: Epoxy Coated Anodized Aluminum  
 Operating Life: One Million Cycles  
 Temperature Range: See Solenoid Specifications

## Enclosure Protection

NEMA: 4, 4X, 6; IP67

## Hazardous Location Ratings

Nonincendive: Class I&II, Div 2, All Gas Groups

## Warranty

Sensing & Communication Module: Five Years  
 Mechanical Components: Two Years

# Pneumatic Valve Specifications

## General Pneumatic Specifications

Valve Design: Pilot operated spool valve  
 Pilot Operator Options: Solenoid Coil or Piezo  
 Configuration:  
 Single Pilot: 5-Way, 2-Position, Spring Return  
 Dual Pilot: 5-Way, 2-Position, Shuttle Piston  
 Flow Rating: 0.75 Cv (10.7 Kv)  
 Porting: 1/4" NPT  
 Operating Pressure: 40 psi to 120 psi (2.7 to 7.5 bar)  
 Filtration Requirements: 40 Microns  
 Operating Temperature: See pilot specifications  
 Operating Life: 1 million cycles  
 Manual Override: Internal momentary  
 Material of Construction:  
 Spool: Anodized aluminum  
 Body: Epoxy coated anodized aluminum  
 O-ring Spacers: Polysulphone  
 End Caps & Fasteners: Stainless Steel  
 O-rings: A Nitrile Compound

## Solenoid Coil Specifications

### 24 VDC/120 VAC Universal (1H, 2H)

Operating Voltage: 22 VDC min/130 VAC max  
 Power Consumption: 0.6 Watts  
 AC Current Consumption: 18mA  
 Operating Temperature: -20° C to 65° C (-4° F to 150° F)  
 Filtration Requirements: 40 Microns

### 24 VDC (1D, 2D)

Operating Voltage: 24 VDC  
 Power Consumption: 0.5 Watts  
 Operating Temperature: -20° C to 65° C (-4° F to 150° F)  
 Filtration Requirements: 40 Microns

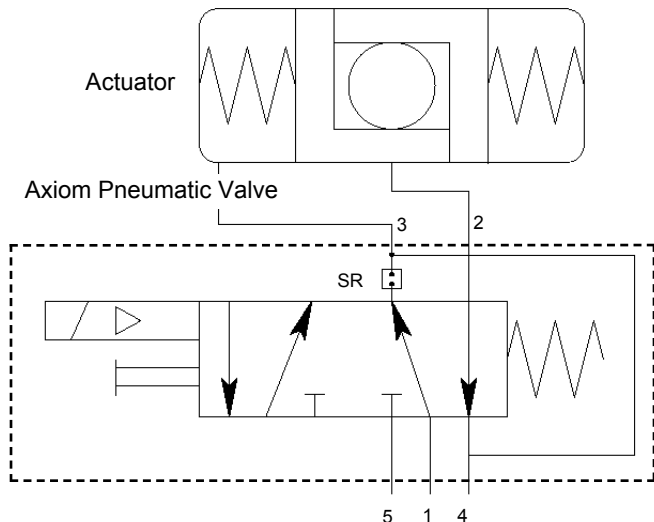
### 12 VDC (1E, 2E) (Intrinsically Safe)

Operating Voltage: 12 VDC (output of barrier)  
 Power Consumption: 0.5 Watts  
 Operating Temperature: -20° C to 65° C (-4° F to 150° F)  
 Filtration Requirements: 40 Microns  
 Entity Parameters: Ui=28VDC; li=120mA; Ci=0; Li=0; Pi=1.0W

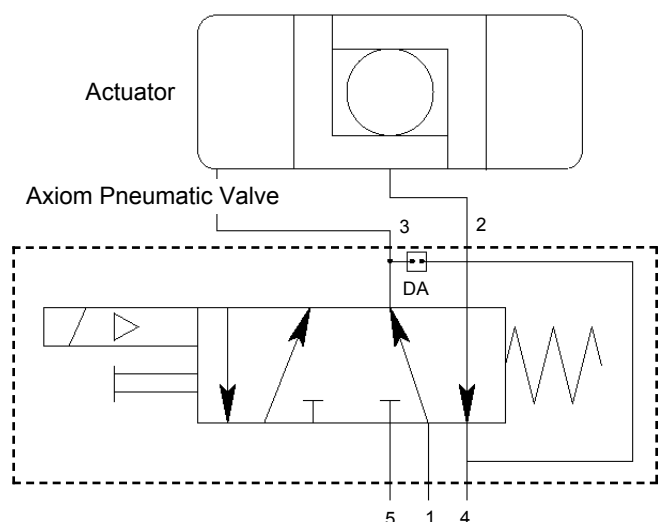
### Piezo (1A, 2A)

Operating Voltage: 5.5 VDC to 9.0 VDC  
 Current Consumption: 2.0 mA @ 6.5 VDC  
 Temperature Range: -10° C to 60° C (14° F to 140° F)  
 Filtration Requirements: Dried/30 Microns

**Spring Return Actuator with Rebreather Open**



**Double Acting Actuator with Rebreather Closed**

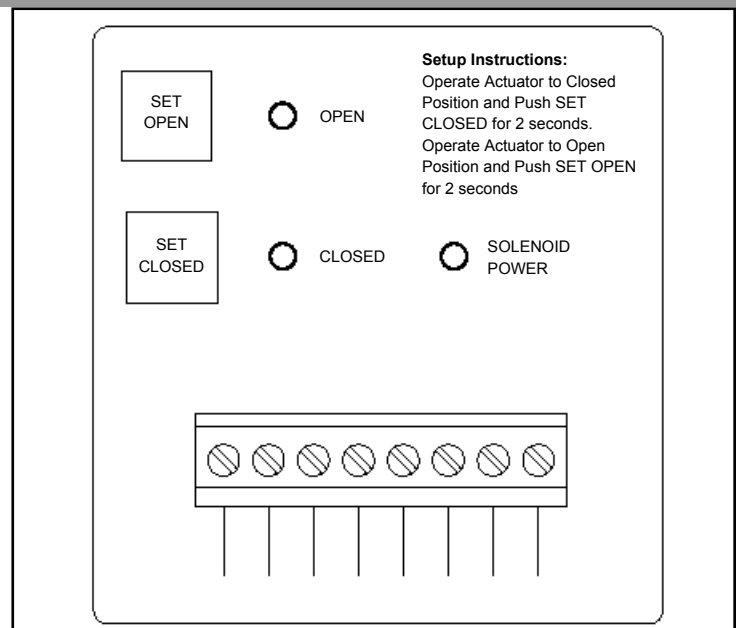


**Note: To mount the Axiom requires a StoneL mounting kit specific to the actuator the Axiom is to be mounted to. StoneL Axiom mounting kits are sold separately.**

1. Refer to Axiom Assembly Drawing located on Page 6 when performing mounting and assembly procedures.
2. Remove Axiom unit from shipping container. Ensure all listed items are present.
3. With an M4 allen wrench, loosen the four captive Axiom Cover Screws (Item# 1), remove cover.
4. Determine if the actuator the Axiom is to be mounted on is double acting (DA) or spring return (SR). Flip the Axiom body (Item# 4) over and ensure the DA/SR Plug (Item# 5) is in the correct position. (See Detail - A on Page 6). If the DA/SR Plug is in the incorrect position, gently remove plug with a pair of pliers and insert into the proper hole.
5. From the mounting kit package, locate the Air Manifold Plate (Item# 14). Place the Air Manifold Plate on the actuator. Using an M4 allen wrench, fasten down with the four Air Manifold Mounting Screws (Item# 11). Torque screws to 25 - 30 in.lbs (2.8 - 3.4Nm).
6. Place Visual Indicator Drive Block (Item# 10) into slot on the actuator shaft. Place Visual Indicator Drum Coupler (Item# 8) onto the Visual Indicator Drive Block. Next, place the Visual Indicator Drum (Item# 7) onto the Visual Indicator Drum Coupler. Align the holes in all three items with the the threaded hole in the actuator shaft and fasten down with the Visual Indicator Drum Retaining Screw (Item# 9). Leave screw loose in order to facilitate indexing of the visual indicator.
7. With the actuator in the closed position, center the Visual Indicator Drum until the "OPEN" quadrant is centered between the "V.I INDEX" markings on the Air Manifold Plate. (See Detail - B on Page 6). Tighten down with the Visual Indicator Drum Retaining Screw 15 - 20 in.lbs (1.7 - 2.3Nm).
8. Verify Air Manifold Plate Orifice O-rings (Item# 12) and Visual Indicator Cover O-ring (Item# 13) are in place.
9. Place the Visual Indicator Cover (Item# 6) over the Visual Indicator Drum assembly then set the Axiom Body (Item# 4) in place. With an M4 allen wrench, torque the Axiom Body Screws to 25 - 30 in.lbs (2.8 - 3.4Nm).
10. After all wiring and sensor setting procedures have been completed, install Axiom Cover and torque Axiom Cover Screws to 15 - 20 in.lbs (1.7 - 2.3Nm).

## Sensing & Communications Module Sensor Setting Instructions

1. With the Sensor & Communication Module (CCM) wired to the control system and power applied, (Refer Wiring Diagram located on Page 4), operate actuator to the closed position.
2. Press and hold "Closed Set" button until "Closed LED is lit (2 seconds). Release button.
3. Operate actuator to the open position.
4. Press and hold "Open Set" button until "Open LED is lit (2 seconds). Release button.
5. Set points are retained even after power is removed.
6. Sensor & Communication Modules on Axiom units with a single solenoid have a "Solenoid Power" LED indicating when solenoid power is applied.



ITEM#	DESCRIPTION	QTY
1	Axiom Cover Screws	4
2	Axiom Cover	1
3	Axiom Body Screws	4
4	Axiom Body	1
5	DA/SR Plug	1
6	Visual Indicator Cover	1
7	Visual Indicator Drum	1
8	Visual Indicator Drum Coupler	1

Item# 9 thru 14 are provided with the mounting kit.  
Mounting kits are sold separately

9	Visual Indicator Drum Retaining Screw	1
10	Visual Indicator Drive Block	1
11	Air Manifold Plate Mounting Screws	4
12	Air Manifold Plate Orifice O-rings	3
13	Visual Indicator Cover O-ring	1
14	Air Manifold Plate	1

