

## Mini-Hermet VOXZ Fire Protection Signaling Switch

**VOXZ Fire Protection Signaling Switches** are pressure-operated electric switches for use in connection with sprinkler equipment, water spray systems, and like protection systems, as a means of initiating electrical alarms upon flow of water in the equipment or for actuation of other auxiliary equipment.



### Features and Benefits

#### Built-In Quality

- Rigid quality standards maintained from raw material to finished product.

#### Hermetically Sealed Switching Capsule

- Isolates switching elements from corrosive, hostile and hazardous environments and virtually eliminates problems from corrosion.

#### Field Adjustable Set Points

- Full range adjustability without disconnecting electrical power while maintaining explosion proof integrity, self-locking adjustment, no charge for factory calibration.

#### Instrument Quality

- High resolution of Set Points, high repeatability, narrow dead band, negligible temperature effect, high overrange and proof pressures.

#### Warranty

- 3 years from date of manufacture.

#### Robust Construction

- High cycle rate tolerance, long life, not critical to vibration, protected internal hermetically sealed switching element capsule.

#### Cost Effective

- Simple, fast installation without special tools, long service life. Periodic service or spare parts not required.

#### Delivery

- Routine shipments 7 to 10 working days. Emergency shipments via air within 48 hours.

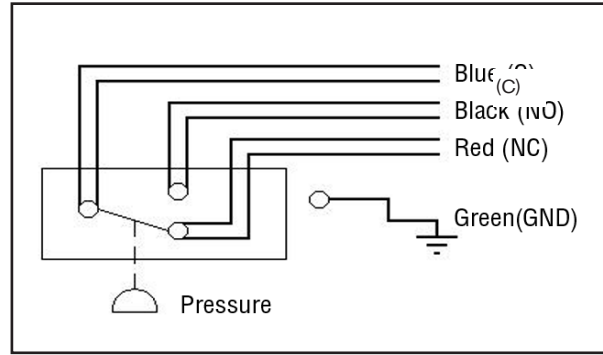
#### Service

- Factory service engineers and area factory representatives provide effective and prompt worldwide service.

# Mini-Hermet VOXZ Fire Protection Signaling Switch

## Principle

The SOR Mini-Hermet VOXZ Fire-Protection signaling switch is a single-pole, double-throw (SPDT) pressure switch designed for redundant fire protection systems. The sensing element is a force-balance, piston-actuated assembly sealed by a flexible diaphragm and a static-o-ring. There are only three wetted parts – a pressure port, a diaphragm and an o-ring.



## How to Order

Model Number System (For Reference Only)

# 5AH-AX/JX3-M4-C1A



Order Number	Reference Model Number
9013-297	1AH-AX45-M4-C1A
9013-298	1AH-JX45-M4-C1A
9013-299	9AH-AX45-M4-C1A
9013-300	9AH-JX45-M4-C1A
9013-301	9AH-AX4-M4-C1A
9013-302	9AH-JX4-M4-C1A
9013-303	5AH-AX3-M4-C1A
9013-304	5AH-JX3-M4-C1A

Part Number	Adjustable Range psi	Overrange psi	Proof psi	Electrical Rating	
				AC Rating	DC Rating
9013-297	500 - 4000	5000	6000	250V (11A)	125V (0.5A), 30V (5A)
9013-298				125V (1A)	30V (1A)
9013-299	200 - 1750	2500	6000	250V (11A)	125V (0.5A), 30V (5A)
9013-300				125V (1A)	30V (1A)
9013-301	100 - 500	2500	6000	250V (11A)	125V (0.5A), 30V (5A)
9013-302				125V (1A)	30V (1A)
9013-303	25 - 240	1500	2500	250V (11A)	125V (0.5A), 30V (5A)
9013-304				125V (1A)	30V (1A)

# Mini-Hermet VOXZ Fire Protection Signaling Switch

## Step 1: Pressure Specification

5AH-AX/JX3-M4-C1A

This table is a listing of piston-spring combinations and the corresponding adjustable ranges, dead bands, overrange and proof pressures. Adjustable range is expressed for increasing pressure; the Set Point must be within the adjustable range. Dead band is expressed as typical. See Dead Band Considerations at the bottom of switching element page 7.

Reference Piston-Spring Designator	Adjustable Range		Typical Dead Band		Overrange		Proof	
	psi	bar	psi	bar [mbar]	psi	bar	psi	bar
5 - 3	25 to 240	1.7 to 16	6.6	0.5	1500	100	2500	170
9 - 4	100 to 500	7 to 35	15.9	1.0	2500	170	6000	410
9 - 45	200 to 1750	14 to 120	45	3.1				
1 - 45	500 to 4000	35 to 275	294	20.3	5000	340	6000	410

## Step 2: Housing

5AH-AX/JX3-M4-C1A

Service	Description	Designator
Hazardous Locations	Electrical conduit connection 1/2" NPT(M). NEMA 4, 4X, IP65, IP66, IP67. Material: Stainless steel.	AH

## Step 3: Switching Element

5AH-AX/JX3-M4-C1A

Service	Contact Form	Electrical Connection	AC Rating (See Note 1)		DC Rating (See Note 1)				Dead Band Multiplier	Designator
			volts	amps	volts	amps	volts	amps		
Normal AC/DC	SPDT	18" 18 AWG Color-Coded Standard Wire Leads	250	11	125	.5	30	5	1.5	AX
Gold Contacts for Low Power Data Acquisition Interface	SPDT	1/2" NPT(M) Conduit Connection	125	1	-	-	30	1	1.0	JX

### Notes

- Ambient Temperature Limits: -40 to 167°F (-40 to 75°C)
- Electrical connections are 18" 18 AWG color-coded stranded wire leads.
- Wire Lead Color Code

Red	NC	(Normally Closed)
Black	NO	(Normally Open)
Blue	C	(Common)
Green	G	(Ground - Earth)

**CAUTION:** The hermetically sealed switching element capsule assembly has been precisely positioned in the housing; over-travel has been precisely adjusted and secured at the factory for optimum performance. Field replacement of the capsule is not practical and is not recommended. Removal or breakage of the tack weld voids the warranty. Movement of the capsule in the housing will degrade performance and could render the device inoperative.

## Dead Band Considerations

- Dead band values are expressed as typical expected at mid-range with the JX switching element assembly installed. When optional switching elements are specified, corresponding dead band multipliers must be applied.
- Dead bands are fixed (non-adjustable).

Switching Element Designators	Multiplier
JX	1.0
AX	1.5

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## Step 4: Diaphragm and O-Ring 5AH-AX/JX3-M4-C1A

O-Ring Material	°F	°C
Viton	32 to 400	0 to 204

O-Ring (Wetted)	Diaphragm (Wetted)	Designator
Viton	316SS	M4

## Step 5: Pressure Port

5AH-AX/JX3-M4-C1A

Piston		6, 9, 1
Process Connection Size		1/4" NPT(F)
Pressure Port Material	316 Stainless Steel Wrought	C1A

## Agency Approval

UL Listed

Category VOXZ Pressure Switches

SOR recognizes that there is no industry convention with respect to terminology and definitions pertinent to pressure switches. This glossary applies to SOR pressure with hermetically switching element capsules.

### Pressure Switch

A bi-stable electromechanical device that actuates/deactuates one or more electrical switching element(s) at a predetermined discrete pressure/vacuum (Set Point) upon rising or falling pressure/vacuum.

### Adjustable Range

The span of pressure between upper and lower limits within which the pressure switch can be adjusted to actuate/deactuate. It is expressed for increasing pressure.

### Set Point

That discrete pressure at which the pressure switch is adjusted to actuate/deactuate on rising or falling pressure. It must fall within the adjustable range and be called out as increasing or decreasing pressure.

### Dead Band

The difference in pressure between the increasing Set Point and the decreasing Set Point. It is expressed as typical, which is an average with the increasing Set Point at mid range for a pressure switch with the standard K switching element. It is normally fixed (non-adjustable).

### Overrange

The maximum input pressure that can be continuously applied to the pressure switch without causing permanent change of Set Point, leakage or material failure.

### Proof Pressure

The maximum input pressure that can be continuously applied to the pressure switch without causing leakage or catastrophic material failure. Permanent change of Set Points may occur, or destruction of the device may be rendered inoperative.

### Repeatability

The ability of a pressure switch to successively operate at a Set Point that is approached from a starting point in the same direction and returns to the starting point over three consecutive cycles to establish a pressure profile. Repeatability on SOR switches will be smaller than 1% of full scale per ISA/ANSI S51.1.

### SPDT Switching Element

Single-Pole, Double Throw (SPDT) has three connections: C – Common, NO – Normally Open and NC – Normally Closed, which allows the switching element to be electrically connected to the circuit in either NO or NC state.

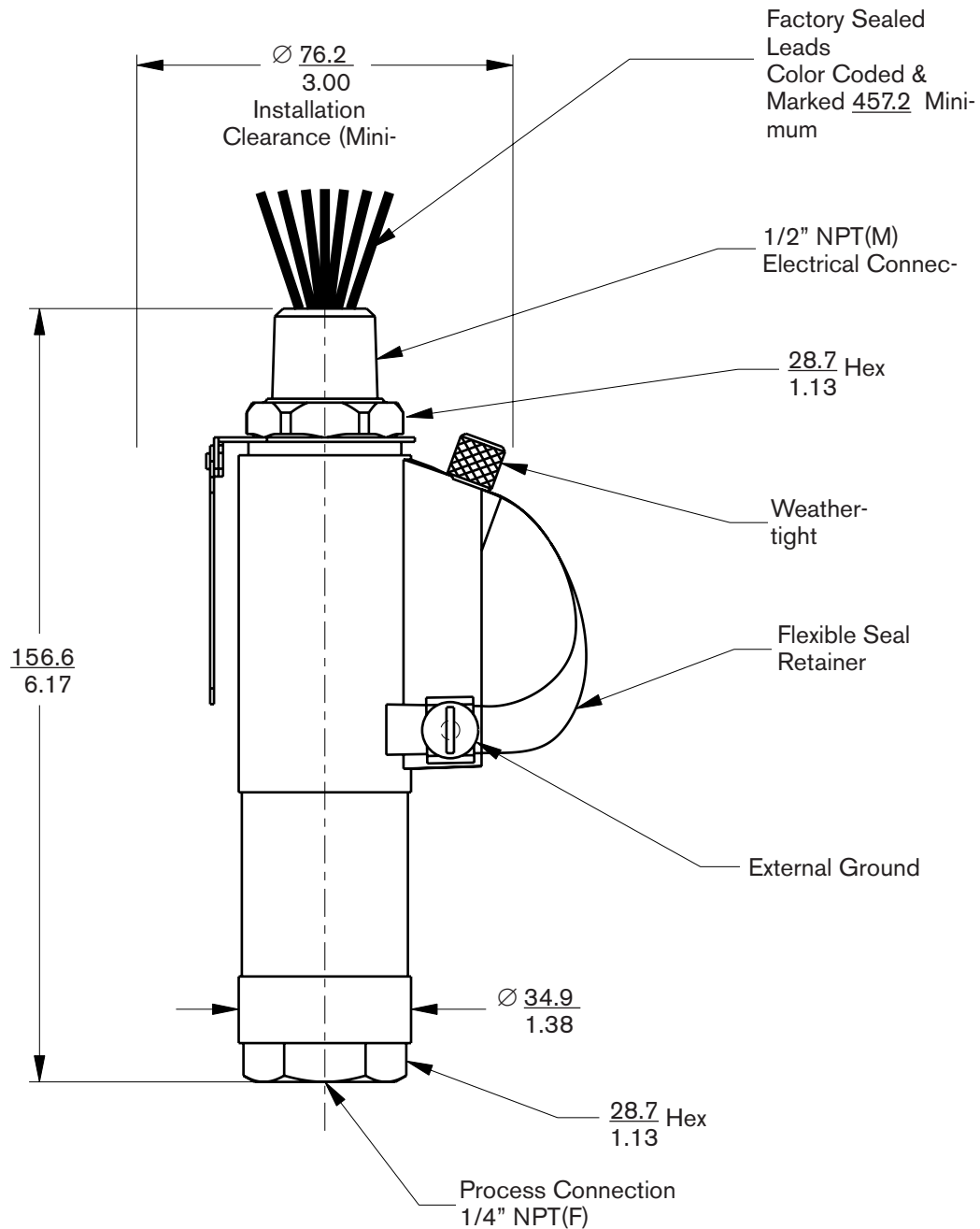
### Hermetically Sealed

A welded steel capsule with glass-to-metal, factory-sealed, electrical leads that isolates the electrical switching element(s) from the environment.

# Mini-Hermet VOXZ Fire Protection Signaling Switch

## Dimensions

Dimensions in this catalog are for reference only. They may be changed without notice. Contact the factory for certified drawings for a particular model number.







MEASUREMENT AND CONTROL

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