

# XAM



- In-line Voltage Amplifier
- Small dimensions
- Cable Gland or Connector Output

## DESCRIPTION

Measurement Specialties, Inc. offers comprehensive measurement solutions including electronic signal conditioning and display units.

The XAM is a miniature in-line amplifier that adapts to most Wheatstone bridge based sensors (fitted with semiconductor or metal gauges).

Power supply is unipolar on the XAM-MV, which accepts 10 to 30 V unregulated voltage with outputs up to 10.5 V. The bipolar version XAM-BV requires  $\pm 12$  to  $\pm 18$  V regulated and stabilized supply with a maximum signal output of  $\pm 10.5$  V. The zero can be adjusted within 20% of the dynamic range by a potentiometer, externally accessible. The gain is usually factory set, but a gain set potentiometer allows individual fine adjustments.

When used with metal gauge fitted sensors (or semiconductor gauges in a half bridge configuration) a shunt calibration resistance can be built into the amplifier to be easily set by the end user. The standard version is supplied with a miniature connector on the sensor's side of the amplifier to facilitate installation. With its rugged and compact housing the XAM is designed for on-board applications.

## FEATURES

- $\pm 10.5$  V Amplified Voltage Output
- Unipolar or Bipolar Power Supply / Output
- Zero and Gain Adjust Potentiometer
- Connector and / or Sealed Cable Output

## APPLICATIONS

- Suited for Wheatstone Bridge Sensors
- For on board sensor installation
- Laboratory and Research

## PERFORMANCE SPECIFICATIONS

Ambient Temperature: 20±1°C (unless otherwise specified)

### General Characteristics

|                       |  |
|-----------------------|--|
| Dimensions            | 15mm [.59 in]  |
| Material              | Aluminum Alloy   |
| Connections           | Miniature connector and cable gland  |
| Operating Temperature | -10°C to 70°C [14 to 158°F]  |
| Storage Temperature   | -20°C to 80°C [-4 to 176°F]  |
| Wiring                | Shielded cable to power supply (version CP) or sensor (version PC)<br>Standard length 2 m (6.5 ft) |

### Amplifier Performance

|                           |  |
|---------------------------|--|
| Gain G                    | 10 to 1000 ±5 %                          |
| Gain Adjust Potentiometer | ± 20 %                                   |
| Frequency Response (-3dB) | 20kHz@G=10, 4kHz @ G=100, 400Hz @ G=1000 |

### Electrical characteristics-MV (unipolar)

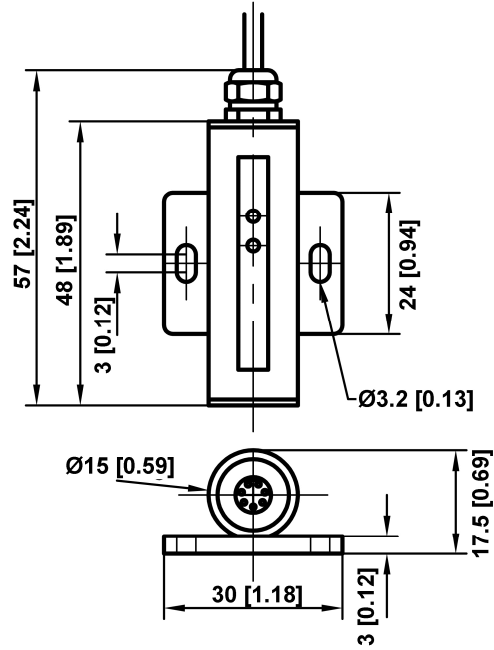
|   |                               |                        |
|---|-------------------------------|------------------------|
| Power Required (Vin)                    | 10 to 30 Vdc                  | 15 to 30 Vdc           |
| Output Signal (Vout)                    | 0.5 V to 5.5 V max            | 0.5 V to 10.5 V max    |
| Sensor Supply Voltage (Function of Vin) | 5 V max. Vin=10Vmin           | 10 V max. Vin=15 V min |
| Exit Voltage Drift                      | 100 ppm /°C                   |                        |
| Zero Offset Minimum                     | 0.5V                          |                        |
| Zero Adjust                             | To 20% of Vout                |                        |
| Gain Adjust                             | ± 5 % of nominal gain         |                        |
| Input Impedance                         | 1GΩ                           |                        |
| Output Impedance                        | 10Ω                           |                        |
| Output Current                          | 5 mA max                      |                        |
| Current Consumption                     | Depending on connected sensor |                        |
| Common Mode Ratio Rejection             | > 95dB min                    |                        |
| Input Protection                        | Reverse polarity protected    |                        |
| Average Input Offset Drift              | 5μ V /°C                      |                        |

### Electrical Characteristics- BV (Bipolar)

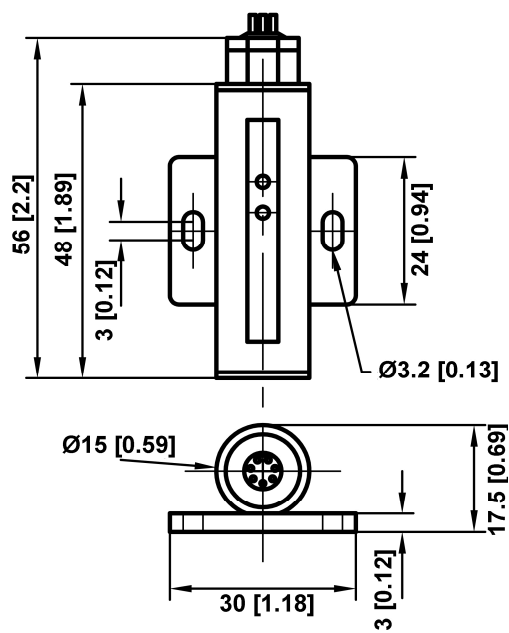
|   |                               |                          |
|---|-------------------------------|--------------------------|
| Power Required (Vin)                    | ±12 to ±18 V                  | ± 15 to ± 18 V           |
|   | Regulated and stabilized      | regulated and stabilized |
| Output Signal (Vout)                    | ±7.5 V max                    | ±10.5 V max              |
| Sensor Supply Voltage (function of Vin) | 7 V max Vin=± 12 V min        | 10 V max. Vin=± 15 V min |
| Exit Voltage Drift                      | 100 ppm /°C                   |                          |
| Zero Offset                             | 0 V                           |                          |
| Zero Adjust                             | To 20% of Vout                |                          |
| Gain Adjust                             | ± 5 % of nominal gain         |                          |
| Input Impedance                         | 1G Ω                          |                          |
| Output Impedance                        | 10 Ω                          |                          |
| Output Current                          | 5 mA max                      |                          |
| Current Consumption                     | Depending on connected sensor |                          |
| Common Mode Ratio Rejection             | >95 dB min                    |                          |
| Input Protection                        | Reverse Polarity Protected    |                          |
| Average Input Offset Drift              | 5 μV/°C                       |                          |

## DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)

### XAM-CP



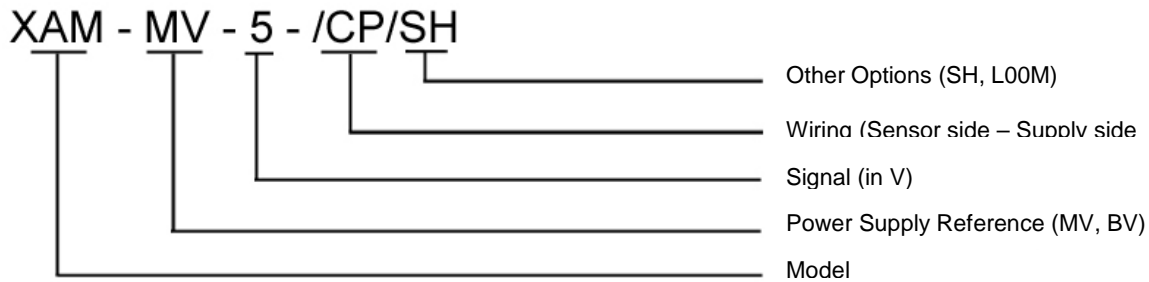
### XAM-CC



## OPTIONS

|                     |  |
|---------------------|--|
| <b>MV</b>           | : Unipolar Tension   |
| <b>BV</b>           | : Bipolar tension  |
| <b>1-10</b>         | : 1 to 10 V (MV Model)   |
| <b>± 1 to ± 10V</b> | : BV Model   |
| <b>CP</b>           | : Connector (to sensor) /Cable gland (to power supply)           |
| <b>CC</b>           | : Connector / Connector  |
| <b>PP</b>           | : Cable gland / Cable gland                                      |
| <b>PC</b>           | : Cable gland (to sensor) / Connector (to power supply)          |
| <b>SH</b>           | : Shunt Calibration  |
| <b>L00M</b>         | : Special cable length, replace "00" with total length in meters |

## ORDERING INFO



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