

## MUPI-3 - *Universal Signal Conditioner, temperature compensated*

The MUPI-3 *Universal Signal Conditioner* is a self contained, fully functional and adjustable conditioning module, with the added ability of scale factor temperature compensation. This compact epoxy encapsulated package contains all the electronics and interface circuitry required, to operate any *Spectron* single axis electrolytic tilt sensor. Utilizing MIL spec components, this bipolar DC input/output operated device internally generates the required AC excitation voltage for the sensor, and demodulates the sensor output into a smooth amplified DC output voltage. The temperature compensation feature reduces the overall measurement error, resulting in a highly accurate output. In-line quality control during manufacturing assures maximum reliability in both commercial and military applications.



An internal circuit allows the sensor to be located up to 65 feet (20 meters) from the conditioning module, with little or no adverse effect. In addition, the power supply and/or display unit may be located up to several hundred yards or meters from the conditioning module, thereby allowing maximum field flexibility. Other MUPI-3 features include zero offset / gain / symmetry adjustments, reverse polarity protection, output overload (short circuit) protection, bifurcated/solderable terminals for easy installation, and vibration and shock survivability capabilities for hostile environments.

### **General Specifications**

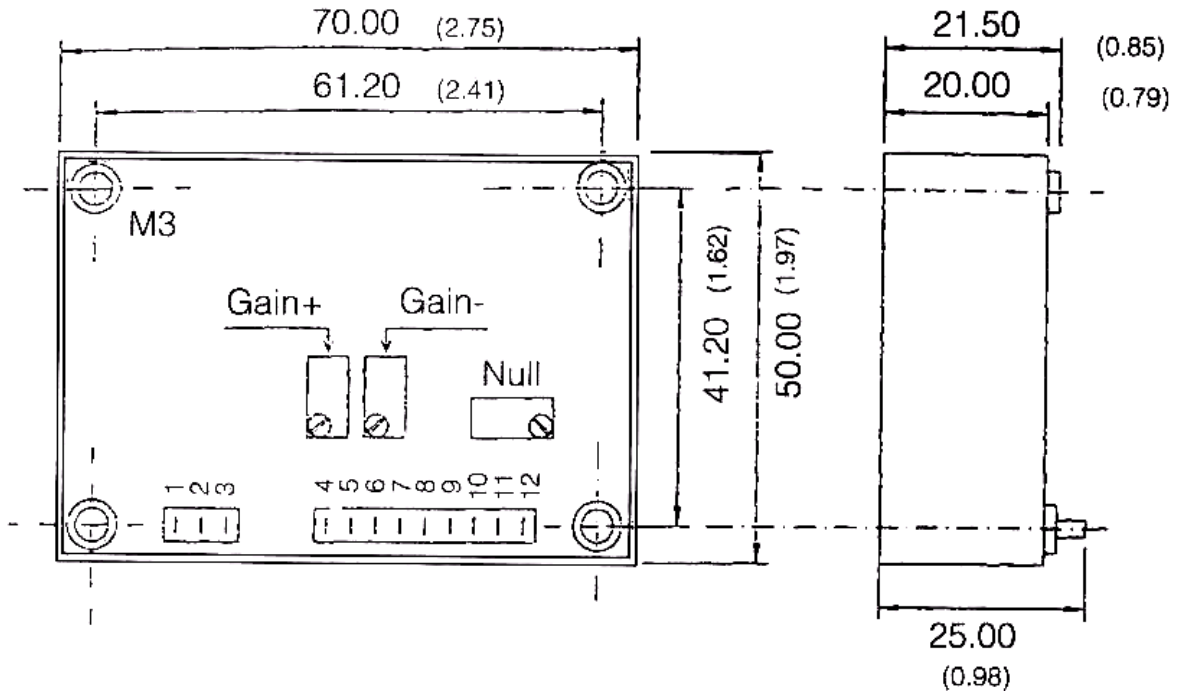
Input voltage .... +/-11 to +/-16Vdc  
 Input current, no load . .... 8 mA (maximum, either leg)  
 Sensor excitation ... ..... 5V pp, square wave, 1kHz (nominal)  
 Input impedance ..... 5 megohms  
 Output ..... +/-7Vdc @ +/-11Vdc input  
 Linearity ..... 0.04% of full scale (maximum) Time constant .. ..... 40 msec  
 Zero (null) offset adjustment ..... +/-1Vdc  
 Output ripple ..... 0.3% pp of output signal, 55dB  
 Gain and Symmetry adjustments  
     - General gain = 1 to 10x via external resistor (R2, see wiring diagram)  
     - Fine gain and symmetry = Individual plus (+) and minus (-) adjustments (+/-50%)  
 Weight .... ..... 100 grams  
 Mounting . ..... four through holes for M3 screws  
 Vibration . ..... 2g, 10 - 500Hz  
 Shock ..... 20g, 11 milliseconds, 3 directions  
 Temperature coefficients (module w/out sensor)  
     - Null ..... 0.02% full scale / C<sup>0</sup>  
     - Scale . ..... 0.03% full scale / C<sup>0</sup>  
 Temperature range  
     - Operating ..... -25 to +70C<sup>0</sup>  
     - Storage .. ..... -40 to +80C<sup>0</sup>  
 Temperature Compensation  
     - Temperature compensation of the assembly (module and sensor) can be accomplished using an external silicon temperature sensor (KTY81-120), located as close as possible to the sensor, and an optimal value resistor (R1), whose value can vary depending on the particular sensors characteristics. With this configuration, it is possible to reduce the scale temperature coefficient error from a 0.15%/C<sub>o</sub> (nominal), to 0.02%/C<sub>o</sub> (nominal). Please see wiring diagram for connection points.

駿融企業有限公司 JIN ZON ENTERPRISE CO., LTD.  
 104 台北市長安東路二段 171 號 4 樓之 3  
 4F-3, No. 171, Sec. 2, Chang An E. Rd., Taipei, Taiwan, R. O. C.  
 TEL: 886-2-27111093~5                      FAX: 886-2-27310902  
 E-mail: [jinzon@ms2.hinet.net](mailto:jinzon@ms2.hinet.net)                      Http:// [www.jinzon.com.tw/](http://www.jinzon.com.tw/)

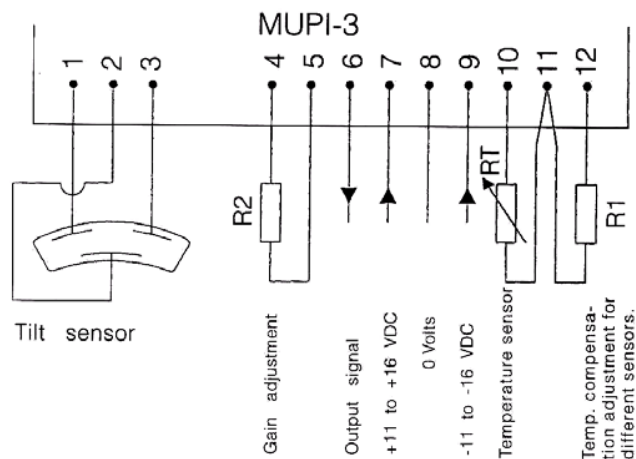
# MUPI-3 - Universal Signal Conditioner, temperature compensated

## Dimensions and Adjustments

mm (inches)



## Electrical Connections



駿融企業有限公司 JIN ZON ENTERPRISE CO., LTD.  
 104 台北市長安東路二段 171 號 4 樓之 3  
 4F-3, No. 171, Sec. 2, Chang An E. Rd., Taipei, Taiwan, R. O. C.  
 TEL: 886-2-27111093~5 FAX: 886-2-27310902  
 E-mail: [jinzon@ms2.hinet.net](mailto:jinzon@ms2.hinet.net) Http:// [www.jinzon.com.tw/](http://www.jinzon.com.tw/)

## **MUPI-3 - *Universal Signal Conditioner, temperature compensated***

駿融企業有限公司 JIN ZON ENTERPRISE CO., LTD.  
104 台北市長安東路二段 171 號 4 樓之 3  
4F-3, No. 171, Sec. 2, Chang An E. Rd., Taipei, Taiwan, R. O. C.  
TEL: 886-2-27111093~5 FAX: 886-2-27310902  
E-mail: [jinzon@ms2.hinet.net](mailto:jinzon@ms2.hinet.net) Http:// [www.jinzon.com.tw/](http://www.jinzon.com.tw/)