

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

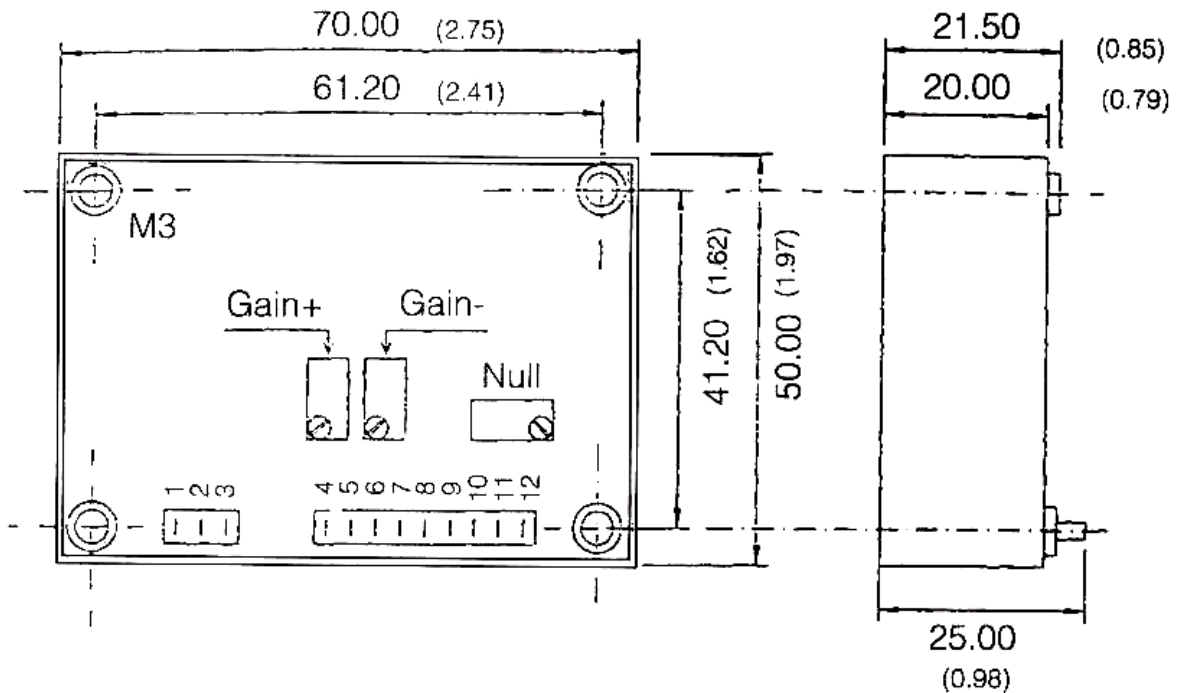
Input voltage +/-11 to +/-16Vdc
Input current, no load 8 mA (maximum, either leg)
Sensor excitation 5V pp, square wave, 1kHz (nominal)
Input impedance 5 megohms
Output +/-7Vdc @ +/-11Vdc input
Linearity 0.04% of full scale (maximum) Time constant 40 msec
Zero (null) offset adjustment +/-1Vdc
Output ripple 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 / C⁰
- Scale 0.03% full scale / C⁰
Temperature range
- Operating -25 to +70C⁰
- Storage -40 to +80C⁰
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_o (nominal), to 0.02%/C_o (nominal). Please see wiring diagram for connection points.

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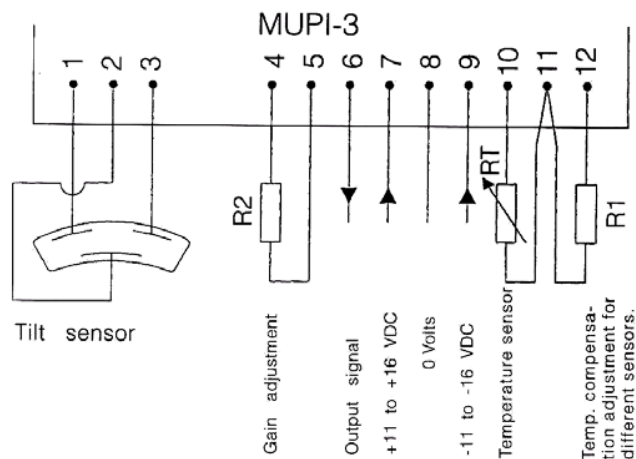
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Dimensions and Adjustments

mm (inches)



Electrical Connections



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