

Wireless Sensor Telemetry System

Series M460 Multi-Channel Digital Telemetry System

- Accepts one to eight channels of full strain gage bridge or thermocouple
- 16-bit simultaneous sampling and digital transmission provides accurate error free data
- Integrated strain gage drivers with excitation and shunt mode for setup and verification of data
- Medium to short range operation
- Rugged environmentally sealed housing
- Powered by battery or induction power



Description

Michigan Scientific *Series M460 Digital Telemetry System* is designed for transmitting one to eight channels of strain gage bridges or thermocouple inputs. This system offers 16-bit resolution, simultaneous sampling of all channels, fully differential amplifiers for high common mode rejection, and anti-aliasing filters prior to digitization. Each individual strain gage driver features its own gain and shunt resistor values making system configuration flexible.

The system's multi-channel receiver is designed with RF diversity and error checking to prevent data loss and corruption due to reflections or shadowed transmissions. Output data is provided as high-level $\pm 10V$ analog for direct interface with most data acquisition systems. Analog output options include additional choices for data cutoff frequencies and adjustment of zero offset. Transmitter and receiver status is provided by LED indicators on the receiver's front panel as well as analog output signals that can be monitored for quality of transmission, low power conditions, and shunt status at the transmitter.

Typical applications include measurements on rotating equipment and in situations where access by a wired sensor is not possible. The system's hardened design is intended for operation in hostile environments where vibration, extreme temperatures, high accelerations and contaminants are present. These features ensure successful data measurements using our newest technology. Please visit our website at www.michsci.com for a complete list of telemetry based measurement devices and accessories.

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Specifications

PARAMETER	SPECIFICATION
TRANSMITTER	
Data transmission method	2.4 GHz FSK
Analog channels	1 to 8 full strain gauge bridges or thermocouples
ADC resolution	16-bit, no missing codes
Data Bandwidth	DC to 1000 Hz
Bridge drive excitation voltage	3.0 Vdc
Bridge amplifier input range	customer specified (mV/V)
Channel-to-channel skew	negligible (simultaneous sampling)
Operating temperature	-40 °F to +257 °F (-40 °C to +125 °C)
Power requirement	6 Vdc to 9 Vdc/65 mA
Dimensions (L x W x H)	2.3 in x 1.3 in x 0.30 in (59 mm x 33 mm x 7.6 mm)
Weight	1.2 oz (34 g)
RECEIVER	
Output at full scale	±10 V
DAC output resolution	16-bit, resolving down to 0.305 mV
DAC update rate	2,200 updates per second, simultaneous
Data filter cutoff selections	100 Hz, 1 kHz at -3 dB
Channel filter type	2-pole Bessel
Current output per channel	±35 mA
Operating temperature	-40 °F to +158 °F (-40 °C to +70 °C)
RF antenna connector (2)	reverse polarity SMA
Power requirement	9 to 36 Vdc/500 mA
Dimensions (L x W x H)	7.0 in x 3.5 in x 1.5 in (180 mm x 89 mm x 38 mm) non-induction 7.0 in x 3.5 in x 2.5 in (180 mm x 89 mm x 64 mm) with induction
SYSTEM GENERAL	
RF channels available	16
Total system delay	17 ms