

Wireless Sensor Telemetry System

Series M320 Multi-Channel Digital Telemetry System

- Accepts up to three channels of strain gage or thermocouple based measurements
- Digital wireless link provides accurate error free data transmission
- Integrated strain gage or thermocouple drivers with differential amplifiers
- Medium to short range operation
- Rugged environmentally sealed housing
- Powered by battery or induction power



Description

Michigan Scientific *Series M320 Digital Telemetry System* is designed for transmitting one to three channels of strain gage or thermocouple based transducer measurements. Typical applications include measurements made on rotating equipment or in situations where access by wired sensors is not possible. The compact design and low weight of the transmitter allows easy integration into areas of limited space and where additional mass is undesirable. The system's rugged design is intended for operation in hostile environments where vibration, extreme temperatures, high acceleration and contaminants are present.

Coupled with the optional induction power setup, this system is well suited for continuous and uninterrupted measurements in environments not tolerated well by batteries. In setups where batteries are acceptable the low power consumption allows for long test times without the need for frequent battery replacement.

Incorporated within the transmitter are three individual channels each capable of having separate gain, shunt, and signal conditioning filter values. A programmable calibration sequence is initiated on each power-up allowing user verification of system zero and preset shunt values for each channel.

The multi channel receiver provides high-level $\pm 10V$ BNC outputs for all data channels, each configurable with additional filtering and a zero adjustment for directly interfacing with most data acquisition systems. In addition, the receiver provides the user with indicators on status of received data as well as any low power conditions at the transmitter to ensure successful data measurements.

This system has been used for a broad range of measurement applications. Please visit our website at www.michsci.com for a complete list of telemetry based measurement devices and accessories.

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Rev. A

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Specifications

PARAMETER	SPECIFICATION
TRANSMITTER	
Data transmission method	2.4 GHz FSK
Analog channels	3 (configurable for full bridge or thermocouple)
Bridge drive excitation voltage	3.0 Vdc
Bridge amplifier input range	customer specified
Channel filter selection	2-pole low-pass, customer specified (1 kHz typ)
Data sampling rate	3 kHz all channels sampled simultaneously
System resolution	12 bits
Channel-to-channel skew	negligible (sample and hold)
Operating temperature	-40 °F to +257 °F (-40 °C to +125 °C)
Power requirement	4 to 9 Vdc / 35 mA without gages
Dimensions (L x W x H)	1.50 in x 1.60 in x 0.35 in (38.1 mm x 40.64 mm x 8.89 mm)
Weight	0.88 oz (25 g)
RECEIVER	
Output at full scale	±10 V
Output resolution	0.0244 %
Channel filter type	2-pole low-pass
Channel filter selection	100 Hz, 1 kHz
Current output per channel	±10 mA
Operating temperature	-40 °F to +158 °F (-40 °C to +70 °C)
RF antenna connector	reverse polarity SMA
Power requirement	9 to 36 Vdc / 500 mA
Dimensions (L x W x H)	9.25 in x 3.5 in x 1.75 in (235 mm x 88.9 mm x 45.47 mm)
SYSTEM GENERAL	
Total system delay (unfiltered data)	< 670 us Max
RF channels available	16 Min



Digital Telemetry
Induction Power



Digital Telemetry
Receiver



Engine Flexplate
Torque Transducer
Telemetry Transmitter
Assembly



Propshaft Torque
Transducer Telemetry
Transmitter Assembly

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