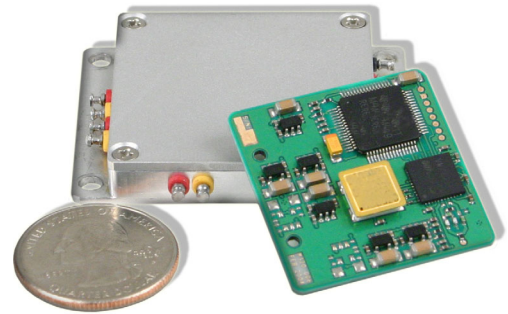


# Wireless Sensor Telemetry System

## Series 320 Multi-Channel Digital Telemetry System

- Accepts up to six 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



Transmitter

## Description

Michigan Scientific *Series 320 Digital Telemetry System* is designed for transmitting one to six 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 six 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](http://www.michsci.com) for a complete list of telemetry based measurement devices and accessories.

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## Specifications

| PARAMETER                            | SPECIFICATION                                    |
|--------------------------------------|--|
| <b>TRANSMITTER</b>                   |  |
| Data transmission method             | 2.4GHz FSK                                       |
| Analog channels                      | 6 (configurable for full bridge or thermocouple) |
| Bridge drive excitation voltage      | 3.0VDC   |
| Bridge amplifier input range         | customer specified                               |
| Channel filter selection             | 2-pole low-pass, customer specified (1kHz typ)   |
| Data sampling rate                   | 3kHz 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 16VDC / 20mA                                |
| Dimensions (L x W x H)               | 1.50 x 1.60 x 0.35 in. (38.1 x 40.64 x 8.89 mm)  |
| Weight                               | 0.88oz. (25g)                                    |
| <b>RECEIVER</b>                      |  |
| Output at full scale                 | ±10V   |
| Output resolution                    | 0.0244%  |
| Channel filter type                  | 2-pole low-pass                                  |
| Channel filter selection             | 100Hz, 1kHz                                      |
| Current output per channel           | ±10mA  |
| Operating temperature                | -40°F to +158°F (-40°C to +70°C)                 |
| RF antenna connector                 | reverse polarity SMA                             |
| Power requirement                    | 9 to 36VDC / 500mA                               |
| Dimensions (L x W x H)               | 9.25 x 3.5 x 1.75 in. (235 x 88.9 x 45.47 mm)    |
| <b>SYSTEM GENERAL</b>                |  |
| Total system delay (unfiltered data) | < 670us 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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