R180 4-20 mA Sensor

RF CODE Sensors

R180 Sensors are designed for deployment with industrial process control equipment, devices and sensors using 4-20 mA current loops, enabling wire-free transmission of industry-standard measurements for specialty and industrial applications.

Features & Benefits

- 4-20 mA wired interface via replaceable 8-foot insulated cable (24 AWG stranded)
- Adhesive mounting options for the sensor and cable, making it easy to install the sensor for maximum RF propagation
- Sensor relays 4-20 mA payloads for upstream compiling and interpretation in the software stack
- Standard reporting interval of 3x per minute; optional custom firmware configurations to adjust communication and beacon rates for specific applications
- 5-year battery life with user-accessible / replaceable coin cell batteries
- Modular cable that is easy to install and to cut to length, with a binding connector to reduce the chance for accidental unplugging

The 4-20 mA current loop is a common method of relaying sensor information in monitoring applications with a need for analog sensors. The 4-20 mA sensor is a device used to measure physical parameters (such as temperature, pressure, speed, liquid flow rates), with 4 mA representing the lowest end of the range (sensor reading) and 20 mA the highest (sensor reading). The R180 Sensor solution allows the 4-20 mA monitoring data to flow over the RF Code radio frequency infrastructure. All data transmitted from the sensors is captured by the RF Code readers and relayed to the RF Code software Zone Manager, Asset Manager, or CenterScape and into other applications. The 4-20 mA current loop readings can be visualized via:

- Live table and map views
- Interactive graphing
- Scheduled reports and graphs
- Alerting and thresholds

The battery-powered 433 MHz RF transmitter features an industrial-strength adhesive backing for quick and easy installation. Simply peel off the sensor's adhesive liner and attach the sensor to the top of the equipment (this ensures clear signal transmission in metal-dense equipment spaces).
These sensors report their own unique ID and a portion of the 4-20 mA loop current value once every 10 seconds using RF Code's patented communication protocol; this results in three (3) sensor readings per minute.

4-20 mA supported specifications:

- 1.25 uA resolution
- ±0.5% accuracy
- 100 ohm resistance
- Loop supply not included; the sensor must provide the power (or a separate power supply is required)

The R180 ships with an 8-foot 24 AWG stranded cable that can be cut to fit or spliced.

Powered by three (3) field-replaceable coin cell batteries, the R180 sensor will perform reliably in an operating temperature range from -20 to +70 degrees Celsius. R180 enclosures are impact resistant and temperature stable. The R180 sensor operates with a low duty cycle that translates to long battery life (typically > 5 years). Featuring a low-battery alert, the sensor will continue to report 4-20 mA data for at least three months following this alerting.

Designed for deployment with industrial process control equipment, devices and sensors using 4-20 mA current loops, the R180 4-20 mA sensor enables you to use the RF Code wire-free sensor network to monitor the status of 4-20 mA sensors and supported devices.

RF Code R180 4-20 mA Sensor Specifications

OPERATION	
Operating Frequency	433.92 MHz
Group Code & Sensor ID Codes	> 540,000 unique IDs per Group Code
Typical Transmission Range	> 30 ft in the data center; up to 300 ft open field
Radiated Emissions	71.8 dBuV/m at 3 meters (maximum)
Modulation	ASK
Stability	Saw stabilized

ENCLOSURE: RF TRANSMITTER (SENSOR)	
Width	2.53 in (64.3 mm); 3.50 in (88.9 mm) including mounting wings
Depth	2.53 in (64.3 mm)
Height	1.03 in (26.2 mm)
Case Weight (with sensor)	2.61 oz (74 g)
Construction	ABS
Durability	Tough, impact resistant and temperature stable
Mounting Options	Mechanical screws (2 places) or adhesive pads

ENVIRONMENTAL: RF TRANSMITTER (SENSOR)	
Operating Temperature*	-20° C to +70° C (-4° F to +158° F)
Storage Temperature	-40° C to +80° C (-40° F to +176° F)

POWER	
Battery Type	Three (3) Lithium CR2032 replaceable coin cells
Smart Sensor Features	Low battery indication
Battery Life	5 years

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