

R180 4-20 mA Sensor Tag

R180 Sensor Tags 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 tag and cable, making it easy to install the tag for maximum RF propagation
- ◆ Tag 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 Tag solution allows the 4-20 mA monitoring data to flow over the RF Code radio frequency infrastructure. All data transmitted from the sensor tags is captured by the RF Code readers and relayed to the RF Code software Zone Manager / Asset Manager 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 tag's adhesive liner and attach the tag to the top of the equipment (this ensures clear signal transmission in metal-dense equipment spaces). These tags 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
- $\pm 0.5\%$ 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 tag will perform reliably in an operating temperature range from -20 to +70 degrees Celsius. R180 tag enclosures are impact resistant and temperature stable. The R180 tag operates with a low duty cycle that translates to long battery life (typically > 5 years). Featuring a low-battery alert, the tag 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 tag 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 & Tag 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 (TAG)

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 tag)	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 (TAG)

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 Tag Features	Low battery indication
Battery Life	5 years



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