RADIO TELEMETRY SYSTEM FOR mV AND BRIDGE TYPE SENSORS

RT400 Series
Radio Telemetry System for Sensors

Starts at $370

LC501, load cell, $340, shown smaller than actual size, see page F-62 for details.

TRANSMIT—RECEIVE—DISPLAY

- Up to 500 hr Battery Life
- 13-Bit Resolution
- Tough ABS Enclosures
- Interference-Free Transmission
- Individual Coding Allows Up to 256 Units
- Sensor Excitation

Applications
- Difficult-to-Wire Installations
- Remote Monitoring of Strain Gages
- Remote Stress Analysis
- Weighing Systems
- Remote Pressure Monitoring

An Innovative Solution
In difficult installations, OMEGA's remote telemetry system for mV sensors provides an innovative alternative to costly cables or wires.

The RT400 system enables remote data acquisition from sensors, without hard-wiring.

The RT400 transmitter easily interfaces with any resistor-based or strain gage–based sensor and converts the sampled analog signal to digital code. This code is sent to the receiver via FM radio transmission. There, the original analog signal is reconstructed and a scaled output signal is produced.

The built-in UHF radio transmitter and receiver circuits operate on 916 MHz and are type approved, allowing license-free use. A fixed, compact, ¼ wave helical antenna on both transmitter and receiver units enables line-of-sight operating ranges from up to 200 yards.

The compact design incorporates miniature microprocessor-based circuitry, which provides 16-bit analog-to-digital conversion and digital encoding for the radio transmission. Owing to highly reliable designs and data error-detection techniques, data transmission is safe and free from errors caused by interference.

The transmitter and receiver units are powered by rechargeable batteries. Battery life can be extended up to 500 hours by using duty-cycle power saving (a 1000 Ω load sampled every 10 seconds). Both the transmitter and receiver units are lightweight and housed in a rugged ABS case that provides environmental protection against water or dust to IP65 standards.

An 8-way DIP switch sets the transmitter and receiver address codes. The 8-bit address code prevents interference from adjacent sets, and up to 256 codes are available.

The RT400 transmitter will interface directly with a Wheatstone bridge sensor. An excitation voltage of 3.3 Vdc powers the sensor. The excitation signal goes on 60 ms before the sensor output is sampled, then switches off to extend battery life. Bridge sensitivities from ±2 mV/V to ±400 mV/V are available for maximum sampling sensitivity.

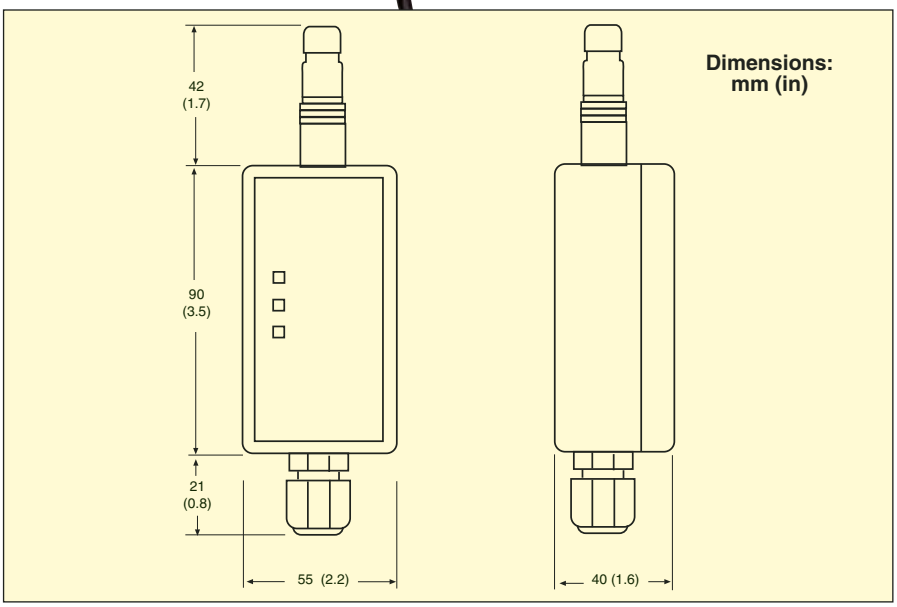
In reconstructing the signal from the transmitter, the RT400 receiver produces a scaled output of 0 to ±2.5 Vdc.

RANGES OF UP TO 200 YARDS

DP25B-E, process meter, $245, see page D-23 for details.

RT400R, receiver, $425, shown smaller than actual size.

Connects to 4 mA display



SPECIFICATIONS

RT400T TRANSMITTER

Frequency Range: 915.50 MHz or 433.92 MHz
Transmitter Power: <10 mW
Transmission Interval: 500 ms to 10 s adjustable
Address ID: 0 to 255, switch selectable
User-Selectable Input Ranges:
±2 mV/V
±10 mV/V
±200 mV/V
±400 mV/V
Resolution: >0.02% (13-bit)
Sensor Excitation: 3.3 Vdc
Power Requirement: Internal 3.6 Vdc @ 120 mAh rechargeable battery
Standby Current: 150 µA
Battery Life: 500 hr typical when fully charged
Housing: High-impact ABS
Dimensions: 55 x 90 x 40 mm (2.2 x 3.5 x 1.6")
Weight: 120 g (4.2 oz)
Operating Temperature: -10 to 55°C (26 to 131°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Antenna: 42 mm ¼ wave helical
Sensor Connection: 4 screw terminals for 0.5 to 1.5 mm (24 to 15 AWG) wire
Cable Gland: Accepts cable diameter 3.0 to 6.5 mm (0.16 to 0.25")

RT400R RECEIVER

Frequency Range: 916.50 MHz or 433.92 MHz
Receiver Sensitivity: -133 dBm
Communication Failure Alarm: Adjustable time delay, open drain output (100 mA max current); LED indication
Analog Output: 0 to ±2.5 Vdc
Resolution: >0.02% (13-bit)
Power Requirement: 12 Vdc from battery pack
Internal Battery: 3.6 Vdc @ 120 mAh rechargeable battery (included)
Battery Life: 8 hr typical when fully charged
Battery Charger: 12 Vdc @ 20 mA for 7 hr or continuous float charge
Housing: High-impact ABS
Dimensions: 55 x 90 x 40 mm (2.2 x 3.5 x 1.6")
Weight: 120 g (4.2 oz)
Operating Temperature: -10 to 55°C (26 to 131°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Antenna: 42 mm ¼ wave helical

AVAILABLE FOR FAST DELIVERY!

To Order *(Specify Model Number)*

MODEL NO.	PRICE	DESCRIPTION
RT400T	**$370**	Transmitter module
RT400R	**425**	Receiver module with rechargeable battery pack and analog output
RT400-CHARGER	**50**	Extra AC charger
CE-1911	**175**	Reference Book: Circular Storage Tanks and Silos

Comes with complete operator's manual.

***Ordering Example: RT400T,** transmitter, and **RT400R,** receiver (complete system), $370 + 425 = **$795.** An AC charging unit is standard with RT400R. Order a second charger if simultaneous charging of both units is necessary in your application.*

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