Telog RS-45

Wireless recorder for above-ground monitoring

APPLICATIONS

- Pump station performance
- Tank level monitoring
- I&I studies
- Distribution pressure monitoring
- Smart sensor data collection

BENEFITS

- Versatile input options for analog, digital pulses and events
- Smart sensor support for MODBUS, SDI-12 and I2C
- Remote programming through Trimble Unity RM
- Flexible power options with standard UPS backup
- Improved reliability with Cat M1 and "Always-On" support

Trimble's Telog® RS-45 is an all-new, versatile recording telemetry unit (RTU) created for today's demanding data acquisition needs. Designed for above-ground installation, the RS-45 is an economical and comprehensive solution with an IP-65 rated enclosure, allowing for a variety of data input types to address multiple applications. With a wide variety of power options, the RS-45 can be installed anywhere for near real-time monitoring, system performance analysis, and improved situational awareness.

Robust Data Collection

The Telog RS-45 is a multi-channel RTU with eight analog, eight digital (dry-contact) and eight event (alarm) inputs. Additionally, two independent, smart sensor ports (MODBUS or SDI12) are available, allowing connections to external sensors such as the Telog Raven-Eye 2® (contactless flow monitoring), ultrasonic level, and digital pressure sensors to support complex applications like pump station performance monitoring and wastewater RDII studies.

Flexibility for the Future

With the introduction of Cat M1 cellular technology, embedded Bluetooth, and support for smart sensors, the RS-45 is designed to provide a modern, reliable recording solution to keep up with our customer's demanding data acquisition needs.

Smart Data Intelligence

Collecting, analyzing, and understanding data from a network of monitoring sites is challenging. The Telog RS-45 directly integrates with the Trimble Unity® Remote Monitoring platform to provide the best data intelligence solution in this form factor. Built to provide near real-time monitoring with alarming capabilities in a compact, presentable form factor, the RS-45 is the perfect fit for a wide variety of applications.

Designed for Retrofitting

The RS-45 builds on the successful legacy of decades of previous Telog RS systems and recorders. Whether you are reusing legacy sensors or using newer smart sensors, the RS-45 fits more inputs and capabilities in the same enclosure size to add more monitoring possibilities for existing sites.

Communication Options

The power of every Trimble RS-45 recorder is its wireless data transfer capability. Cellular technology enables unmanned monitoring of remote sites, instant updates, and alarm notifications. The RS-45 employs a low-power cellular Cat M1 modem certified for operation on the Verizon Wireless® (US) and Bell Wireless (Canada) networks.

Packaging

The Telog RS-45 system is packaged in a 12"L x 10"W x 6"H NEMA 4x hinged lid enclosure with IP65 watertight fittings.

Power Options

The Telog RS-45 system is primarily powered by mains power. Other power options include UPS function (battery backup), solar, external DC.

Software Support

The Telog RS-45 works with Trimble Unity Remote Monitoring (RM) and Telog Enterprise software. Trimble Unity RM cloud and mobile software offers water and wastewater utilities and service providers the tools needed to proactively monitor asset performance, optimize water and wastewater operations, reduce asset failure and repair costs, improve customer service, and gather critical telemetry data for reporting, regulatory compliance, and capital planning. The software seamlessly integrates with Esri ArcGIS® to create location-aware data visualizations, dashboards, and analytics that can be shared across the organization, offering real-time situational awareness.

Specs Sheet

Supported Inputs Types and Count

- Digital (Pulse or Event) Inputs - 8
- Alarm (Event) Inputs - 8
- Analog Inputs - 8
- Smart Sensor Input Ports - 2

Analog Inputs Details

- Software (TURM) Selectable Range
  - Voltage bipolar or unipolar 500 mV, 1, 2, 5, 10, or 20 V full scale
  - Current bipolar or unipolar 20 mA full scale or unipolar 4-20 mA
  - Onboard switches to convert from Current to Voltage input type

- Excitation for voltage and current transmitters
  - Always on 5V @ 100mA and 13.8V nominal @ 250mA

- Resolution
  - 14 bits (0.0625% of full scale)

- Accuracy
  - ±0.15% (at 75° F), ±50ppm/°F

- Sampling
  - Sample rate
    - 1 per sec to 1 per 8 hours for each channel type
  - Sample interval
    - 1 second to 8 hour, synchronized to the hour
    - Values saved: Minimum, average, and/or maximum per interval

Pulse/Event Input Details

- User selectable between Pulse counting or Event recording
- Input Trigger
  - Uncommitted contact or active logic signals

- Excitation
  - 10 µA contact sensing current; 3 volt pull-up

- Contact bounce
  - 1 ms maximum, software programmable bounce filter

- Pulse Totalizing Availability

- Pulse rate - Variable with following two options:
  - Low speed - 300/s with bounce filter (Low Speed)

- High speed - 20,000/s with no bounce filter (High Speed)
- Maximum pulses
  - 65,000 per interval

- Values saved
  - Totals Per interval

Event Recording Details

- Event rate - 1 event/s maximum
- Values saved - Event with time stamp (in mm:dd:yy:hh:mm:ss format)

Alarms/Event Input Details

- Type
  - Event recording only

- Input Trigger
  - Uncommitted contact or active logic signals

- Excitation
  - 10 µA contact sensing current; 3 volt pull-up

- Contact bounce
  - 1 ms fixed

Smart Sensor Input Details

- Number of supported sensors - Two in total
- Supported Sensors
  - Trimble Sensors:
    Ultrasonic Level, Pressure, Depth, Contactless Flow C-RS-SS cable is required if using an Ru-35 sensor (PT-DSU, UT-35U, or Raven-Eye). Any Trimble sensor with flying leads (PT-DS, UT-33F) can be connected directly without a cable.

  - External Sensors:
    - MODBUS - Selectable RS-232 or RS-485 to 115 Kbps
    - SDI-12

Power Supply Details

- Uninterruptible System Power Supply (Included)
  - 86-264VAC IN
  - 13.8VDC Out to RTU
  - Battery Backup - 12V @ 5-hr Sealed Lead Acid

- External DC Input (Optional / Alternate)

- Regulated 9-15 VDC IN (15W, 1A max)

Local Alarms

- Number of Alarms - Four
- Type - Open collector transistor switch to ground
- Max Ratings
  - Voltage 30 VDC
  - Current 100 mAmps

- Activation
  - Analog inputs
    - 4 programmable amplitude levels per channel
    - Low, Low-Low, High, High-High

  - Event & Alarm
    - Positive and/or Negative transition

  - Pulse Inputs
    - Pulse count exceedance per interval

Communication (External)

- Wireless
  - Bluetooth Low Energy (BLE) 4.0 to PC or Mobile App

- Wired
  - RS-232 up to 19.2K baud
    - M12 Type A with Telog C-31, CU-CTS or CU-CTS-USB cable

- Cellular
  - Internal Telog WM2/M embedded LTE category M1
    - Modem certified on Verizon in USA
    - Modem certified on Bell in Canada

  - Antenna - TNC connector

Communication (Internal)

- Status LED - Green, Yellow, and Red indicators
- Onboard Tamper Button
  - Press for 5 seconds to initiate wireless communication to the server

Environmental & Mechanical

- Clock accuracy ± 0.01%
- Operating Temperature -4 to 140º F

- Material - Polycarbonate
- Size - 10" x 12" x 6"
- Ingress Protection - IP65, NEMA 4X enclosures

Support Software

- TW-UNITY Trimble Unity
- S-3PC Telogers for Windows® version 6.60 or later
- S-3EP Telog Enterprise version 6.60 or later

Additional Information on Trimble Sensors

Pressure Level Sensor

- Model: Telog **PT-DSu**
- Type Strain gauge pressure sensor
- Range Selectable 5, 10, 30, 100, 300, 1000 PSIG
- Accuracy over the calibrated temperature range including zero, span setting and the effects of non-linearity, hysteresis and repeatability: 0.25% FS
- Cable: Vented Polyurethane 0.225" diameter [5.715 mm]

Ultrasonic Level Sensor (95KHz)

- Model: Telog **UT-35u/95** ultrasonic transmitter (ComSensor)
- Frequency: 95 KHz
- Range: one foot to 13 feet
- Beam Angle: 8º conical
- Accuracy: ±0.25% over any range segment exceeding 12 inches (homogeneous environment)

Ultrasonic Level Sensor (150Khz)

- Model: Telog **UT-35u/150** ultrasonic transmitter (ComSensor)
- Frequency: 150 KHz
- Range: 4 inches to 7 feet
- Beam Angle: 8º conical
- Accuracy: ±0.25% over any range segment exceeding 12 inches (homogeneous environment)