Telog Ru-35

WIRELESS MULTI-CHANNEL RECORDING TELEMETRY UNIT FOR UNDERGROUND MONITORING

UNDERGROUND MONITORING IN HARSH ENVIRONMENTS

The Telog Ru-35 provides real-time monitoring and alarming of flow, pressure and water quality instruments and sensors found in the harsh environments of sewers and underground water vaults. When you combine the Telog Ru-35 RTU with a Trimble Telog software option, you have a powerful system of wireless wastewater infrastructure monitoring that is consistently delivering real-time data and alarms from the field, straight to your desktop or browser. This enables Situational Awareness of the performance of the collection system, improves regulatory compliance and enables network modeling calibration.

Sensor Support
The Telog Ru-35 supports multiple sensor interface options including RS-232, RS-485, analog and digital inputs with MODBUS, SDI-12 and I2C protocol support. For example, when connected to an open-channel flowmeter via RS-232, the RTU can interrogate the meter for it's most recent level, flow velocity and battery voltage measurements. Trimble Telog also provide optional sensors that may be directly attached to the Telog Ru-35 including ultrasonic and pressure level, water quality Sondes, temperature, level switches and rain gauges.

Wireless Communication
Using cellular technology enables unmanned monitoring of remote sites as well as instant updates and alarm notifications. The Ru-35 uses a low power, LTE Cat M1 cellular communication modem certified on multiple cellular systems. This ensures maximum coverage, reliability of service and alignment with cellular carriers technology roadmaps.

Collecting Data
The Telog Ru-35 may be configured to call its host server on a schedule (e.g. once per day; every four hours, etc.) and/or in response to site alarm conditions (e.g. in response to a high level event). Data may be stored in the recorder at user defined intervals (e.g. five minutes, one minute, etc.) without concern for data loss, because the recorder will store from 150,000 to 670,000 values, depending on input type, before overwriting the oldest data.

Packaging
The cellular modem, antenna, process signal conditioning, data recorder and battery are integrated into an IP68 rated, environmentally rugged package weighing nine pounds (four kg) and measuring cuboid 7.3" (185 mm) L x 4.2" (107 mm) W x 11.5" (292 mm) H.

Battery Powered
This RTU is powered by dual user replaceable 6-volt lantern batteries providing an operating life of six months to two years depending on the sensor interface and call schedules.

Software Support
Trimble Telog wireless recorders are compatible with all Telog software applications, including Trimble Unity, Telog Enterprise and Telogers for Windows application software. This ensures that utilities have a complete solution addressing all their remote monitoring requirements delivered in a manner that suits each individual utility's operations and IT needs.

Applications

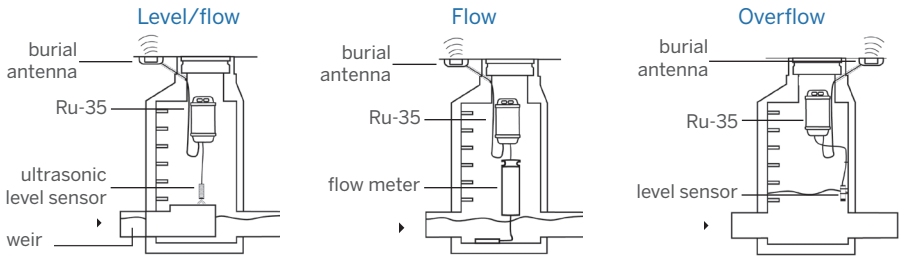
- Monitoring of popular open-channel wastewater flow meters
- Level monitoring
- Water quality sensors and sondes monitoring

Benefits

- Real-time situational awareness of overflows and high/low level events
- Model asset performance, reduce overflows and pollution
- Increased regulatory compliance
- Reduced confined space entries with wireless configuration

Features

- Wireless communication via 4G LTE cellular and Bluetooth Low Energy
- Alarm notification
- Time stamped events
- User programmable
- IP68 Rating



Telog Ru-35 WIRELESS MULTI-CHANNEL RECORDING TELEMETRY UNIT FOR UNDERGROUND MONITORING

RECORDER MODEL: Telog Ru-35

Type Multi- channel underground RTU (Recording Telemetry Unit)

Recording
- Sample rate: Programmable from 1/sec up to 8 hours; each channel
- Data interval: Programmable from 1/sec up to 8 hours; each channel

Memory
- Size: 1 MB
- Storage method: Wrap around (first-in; first-out),
- Data capacity: Dynamically allocated to active channels, any combination of:
  - Analog input: 670,000 values
  - Pulse input: 500,000 values
  - Event input: 150,000 values
  - ComSensor input: 250,000 values

  (Values above represent maximum.)

Communication
- Standard: Bluetooth Low Energy (BLE) for local connection with computer
- Backup: Wired local RS-232 via sensor port, auto-selected baud rate to 115 Kbps
- Cellular: Telog Internal Modem certified on LTE Cat M1 for Verizon in USA, LTE Cat1 on Sprint in USA. HSPA modem certified on Bell in Canada

Antenna: TNC connector

Inputs Limited to two ComSensors + two analog + two digital
- ComSensor/meter: Selectable RS-232 or RS-485 to 115 Kbps
  Modbus
  SDI-12
  I2C
  Protocol determined by meter or sensor
- Analog (Two channels)
  - Selectable ranges: 0-5 VDC, 4-20 ma
  - Excitation: Pulsed +5 or +12 VDC, (selectable duration)
  - Resolution: 0.025%; 12 bits
  - Accuracy: ±0.1% of full range at 70 °F ±50 ppm
- Digital (Two channels)
  - Type: Selectable pulse counter or event recorder
  - Input: Contact closure or logic driven input
  - Excitation: 3 VDC at 10 µAmps (max)
  - Pulse width: 10 mS minimum

Battery
- Factory installed: Dual 6 V alkaline lantern battery
  Rayovac 6-Volt Spring Terminals Alkaline F Cell | 808
- Battery Life Example:
  - Input ComSensor: Modbus
  - Sample rate: Five minutes
  - Communication: Wireless LTE Cat M1
  - Call schedule
    - 15 minutes: Battery life=7 months
    - 60 minutes: Battery life=2 years
    - 2 hours: Battery life=3 years
    - 24 hours: Battery life=4.5 years

External Power Input: 9 to 15 VDC @ 1 amp max

Enclosure
- Cuboid: 7.3"L x 4.2"W x 11.5"H [185mmL x 107mmW x 292mmH]
- Two Chambers: Battery and sealed electronics
- Weight: 9 lbs. [4 kg]
- Material: Injection molded polycarbonate

Environmental
- Temperature: 32 °F to 160 °F [0 °C to 70 °C]
  -22 °F to +160 °F powered externally
- Submersible: Meets IP68 (NEMA 6P) standards
  -22 °F to +160 °F [-30 °C to 70 °C] powered externally

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

TRIMBLE TELOG SUPPLIED 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 and 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

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

FloWav Area Velocity and Level Sensor

Model: PSA-35-AV A/V Level sensor
- Range: Velocity: -5 to 20 ft/s
  Depth : 0 to 15 feet
- Accuracy: Velocity: +/-2% of reading
  Depth: +/-0.25% full scale +/-1% of reading from 32 °F to 160 °F
- Size: 0.9"H x 1.85"W x 6"L with 30 feet of cable

TRIMBLE TELOG SUPPORTED METERS AND SENSORS

Flow meters
- Via RS-232 or RS-485: ADS Flow Shark, ADS Triton, ADS Triton+
  Hach FL900 Flow Meter
- Interface to meter: Hach Sigma 900 Series
- Serial interface port: ISCO 2100 Series
  Hach Flo-Dar & Flo-Tote3 Sensors/Meters
  ISCO ADFM & accQmin

Level Sensors: Via RS-232 or RS-485: FloWav Stingray (Level)

Sensors: Hydrolab Sondes
Hach Pipe Sonde

Water Quality: Hach Hydrolab Multiparameter Sondes
DataSonde 4a, MiniSonde 4a
DS5X, DS5, MS5
Hach Pipe Sonde
Ponsel C4E & CZTN (Conductivity)

DESIGNED & ASSEMBLED IN THE USA

Specifications within this brochure are subject to change without notification.

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