



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 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 flow meter via RS-232, the RTU can interrogate the meter for its most recent level, flow velocity and battery voltage measurements. Telog also provides 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, 4G LTE Category 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 (for example, once per day; every four hours) and/or in response to site alarm conditions (for example, in response to a high level event). Data may be stored in the recorder at user-defined intervals (for example, five minutes, one minute) 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 9 lb (4 kg) and measuring cuboid 7.3 in. (185 mm) L × 4.2 in. (107 mm) W × 11.5 in. (292 mm) H.



Battery Powered

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

Software Support

Telog wireless recorders are compatible with all Telog software applications, including Remote Monitoring Software 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

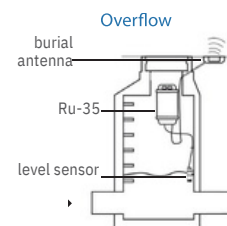
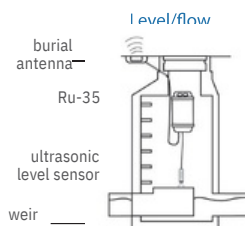
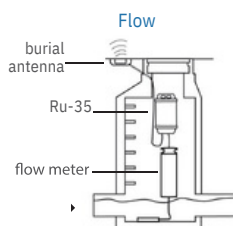
- Monitoring of popular open-channel wastewater flow meters
- Level monitoring
- Water quality sensors and sondes monitoring

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



SPECIFICATIONS

Telog Recorder Model Ru-35



Type	Multi-channel underground RTU (Recording Telemetry Unit)		
	I2C Pressure Sensors Channels 1 & 2	Resolution	12 bits (0.025%)
		Accuracy	±0.075% of full scale at 73 °F (23 °C) ±40 ppm/°F
		Temperature Range	40 to 149 °F (4 to 65 °C) For applications below this operating range, please contact your Badger Meter support team.
	Current Loop (Channel 3) (4–20 mA) Input	Resolution	12 bits (0.025%)
		Accuracy	±0.075% of full scale at 70 °F (21 °C) ±40 ppm/°F
	Analog Input (Channel 4) 0–5V DC	Resolution	12 bits (0.025%)
		Accuracy	±0.075% of full scale at 70 °F (21 °C) ±40 ppm/°F
	Digital Input 2 channels (5 and 6)	Type	Selectable pulse counter or event recorder
		Input	Contact closure or logic driven
		Excitation	3V at 20 µAmps maximum
		Pulse Width	10 ms minimum
Recording	Meter Register Inputs (Channels 7 and 8)	Reads absolute encoded register values; 4 thru 9 digits in length; 3-wire synchronous interface, ASCII coded (for example, Sensus ECR, Neptune ProRead [3-wire], Badger Meter ADE & HR-E)	
	Sampling 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 (values below represent maximum):	
		Analog input	670,000 values
		Pulse input	500,000 values
		ComSensor input	150,000 values
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	Internal Telog Cellular Modem embedded LTE certified for Cat M1 on Verizon (US) and Bell (Canada); FirstNet available in USA	
		Module: Sierra HL7810 module/less than 2 W	
		Operational Modes: 1) GSM: B2 (1900 MHz) B3 (1800 MHz) B5 (850 MHz), B8 (900 MHz) 2) UMTS: B1 (2100 MHz), B2 (1900 MHz), B4 (AWS1700), B5 (850 MHz), B6 (800 MHz), B8 (900 MHz), B19 (800 MHz)	
Inputs	Antenna	TNC connector	
	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	0–5V DC, 4–20 mA
		Excitation	Pulsed +5 or +12V DC (selectable duration)
		Resolution	0.025%; 12 bits
		Accuracy	±0.1% of full range at 70 °F (21 °C) ±50 ppm
	Digital (Two channels)	Type	Selectable pulse counter or event recorder
		Input	Contact closure or logic driven input
		Excitation	3V DC at 10 µAmps (max)
		Pulse Width	10 ms minimum
Battery	Factory installed	Dual 6-Volt 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/1
		Call schedule	15 minutes Battery life=6 months; 60 minutes Battery life=20 months; 2 hours Battery life=30 months; 24 hours Battery life=48 months
Enclosure	External Power Input	9–15V DC @ 1 Amp max	
	Cuboid	7.3 in. (185 mm) L × 4.2 in. (107 mm) W × 11.5 in. (292 mm) H	
	Two Chambers	Battery and sealed electronics	
	Weight	9 lb (4 kg)	
Environmental	Material	Injection molded polycarbonate	
	Temperature	–32 to 160 °F (0 to 70 °C); –22 to 160 °F (–30 to 70 °C) powered externally	
	Submersible	Meets IP68 (NEMA 6P) standards; –22 to 160 °F (–30 to 70 °C) powered externally	
Support Software	S-3PC	Telogers for Windows® 6.77 or later	
	DHS-Service	Telog Online	
	TW-UNITY	Remote Monitoring Software	



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 in. (5.715 mm) diameter

Ultrasonic Level Sensor Model Telog UT-35u/95 ultrasonic transmitter (ComSensor)

Frequency	95 KHz
Range	1–13 ft (0.30–4 m)
Beam Angle	8° conical
Accuracy	±0.25% over any range segment exceeding 12 in. (305 mm) (homogeneous environment)

FloWav Area Velocity and Level Sensor Model PSA-35-AV A/V Level Sensor

Range	Velocity: –5 to 20 ft/s (–1.5 to 6 m/s) Depth : 0–15 ft (0–4.6 m)
Accuracy	Velocity: ±2% of reading Depth: ±0.25% full scale ±1% of reading from 32 to 160 °F (0 to 70 °C) Accuracy over the calibrated temperature range including zero and span setting and the effects of non-linearity, hysteresis and repeatability: 0.25% FS
Size	0.9 in. (23 mm) H × 1.85 in. (47 mm) W × 6 in. (152 mm) L with 30 ft (9 m) of cable

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 FloWav Stingray (Level)
Level Sensors	Via RS-232 or RS-485:	
Sensors		Hydrolab Sondes
		Hach Pipe Sonde
Water Quality		Hach Hydrolab Multiparameter Sondes
		DataSonde 4a, MiniSonde 4a
		DS5X, DS5, MS5
		Hach Pipe Sonde
		Ponset C4E & CZTN (Conductivity)



442 738 3918



contacto@ingframex.com



www.ingframex.com