Water Distribution System Wireless Monitoring Solutions

Pump Station

Aquifer Level

Tank Level

Reservoir Level

Rainfall

Mag Meter Flow

Hydrant Pressure

Water Quality

Water Meter Flow

Pressure Reducing Valve

Water Hammer

Pressure Relief Valve

telog®

Water Distribution Monitoring

Providing water distribution monitoring solutions since 1987, Telog continues to offer the industry's leading remote data acquisition system including the most comprehensive family of battery powered, environmentally rugged wireless monitors available from any single supplier.

Telog RTUs provide a monitoring solution for virtually every sensor, meter, instrument and application found throughout water conveyance systems. Telog's data management system delivers information and alarms to your own software application, Telogers Enterprise or a data hosting web service.

Telog RTUs

Telog 32 Series RTUs (Recording Telemetry Units) are:

- Battery powered
- Cellular enabled
- Environmentally rugged
- Intended to operate for years on-site without maintenance.

All Telog 32 Series recorders include an embedded, low power m2m cellular modem which employs 1xRTT communication protocol in North America on CDMA networks or GPRS communications protocol internationally on GSM networks. This permits deployment of Telog 32 Series RTUs wherever cellular coverage is available and data automatically transfers to any designated host computer connected to the Internet.

Telog host application software **Telogers for Windows** or **Telogers Enterprise** supports hundreds of simultaneous communication sessions with remote RTUs to ensure no communications bottleneck.

The Telog 32 series RTUs operate from a single 'D' cell lithium battery that can operate the recorder for more than 5 years while executing more than 4000 cellular calls to its host computer. This would support for example 2 calls/day for 5 years or 10 calls per day for 1 year.
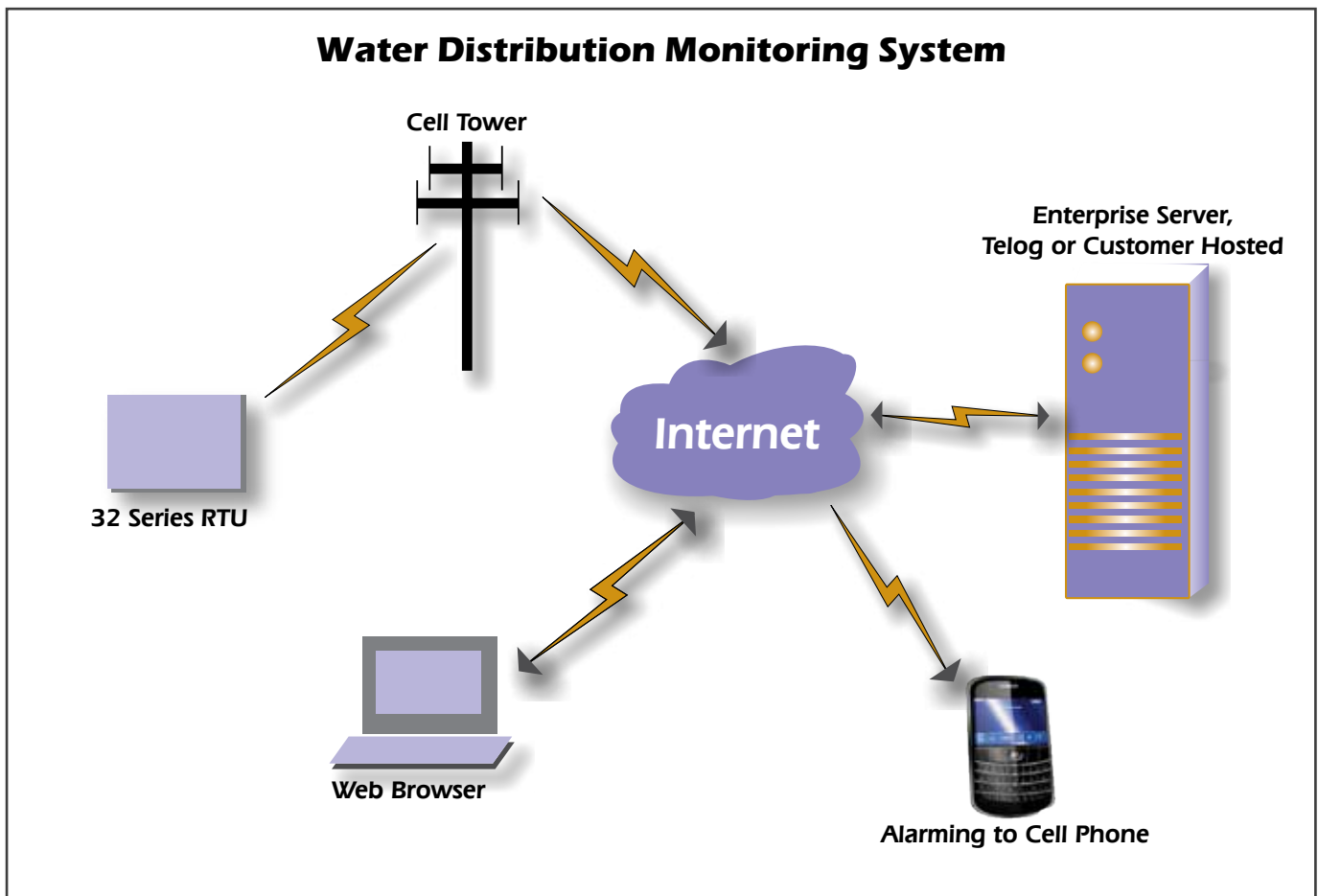
Telogers Enterprise Host Application Software

Telog's Enterprise Software is a comprehensive, scalable data management system for remote water conveyance systems. It provides real-time, alarm and historic data in user configurable reports and web server views of data from remote sensors, instruments and analyzers.

Enterprise manages remote RTU call schedules, alarm configurations, RTU communications, alarm handling, data archiving, data publishing and sharing with 3rd party software, reporting and viewing. It's computation engine performs intersite measurement analytics and post processing of reported data for automated QA/QC of measurement and system performance producing user alerts of site or measurement anomalies.

Data Hosting Service

If you prefer not to install and manage Enterprise on your corporate network, we offer a Data Hosting Service where Telog collects and manages remote RTU data on servers in a certified, secure commercial data center operating Enterprise software. Using the Telog DHS you obtain information and reports from the Telog web service.

Water Distribution Monitoring System

Cell Tower

Internet

32 Series RTU

Web Browser

Enterprise Server, Telog or Customer Hosted

Alarming to Cell Phone

# Application Descriptions

Pump Station Monitoring

Telog's Ru-32 monitors one or two pumps for on/off duration, recording the time stamps of each pump cycle along with sensors for pump input and/or output pressure. The Ru-32 is battery powered and wireless so it can be located virtually anywhere the pumps are located. Telog host software rolls up pump run time over any time period; e.g. daily, weekly, monthly etc. You can choose one of our external antenna options best suited to the size and type of building where the pumps are located.

Aquifer Level Monitoring

The PR-32 Pressure Recording System is supplied with a submersible level sensor that can monitor the level of underground aquifers to accuracies of 0.1%. You can choose a cable length from 6 feet to 600 feet and depth measurement ranges from 1 foot to 500 feet. Battery life exceeds five years when calling into the host server once per day which significantly minimizes site visit requirements. The PR-32 is small enough to install into a 4" x 7" diameter well-head. The sensor and cable can fit into a 1.5" diameter pipe.

Tank Level Monitoring
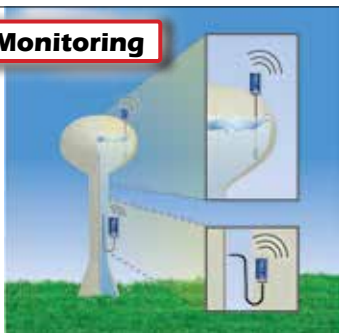
Telog's PR-32 Pressure Recorder provides a monitoring system for water tower level offering two installation approaches. You can drop a submersible level sensor into the tank from above or attach a pressure sensor to a fitting below the tank. Both methods provide an accurate means of determining tank level and Telog software can convert this level to volume if the geometry of the tanks is known. Because this system is both wireless and battery powered, installation is quick and inexpensive.

Reservoir Level Monitoring
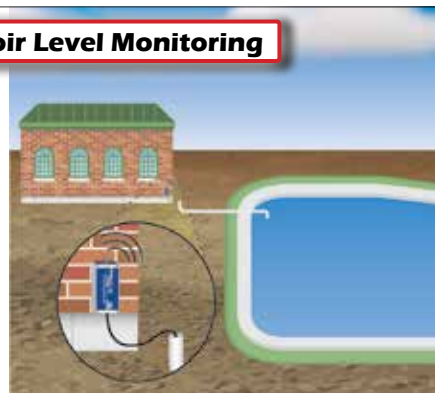
The PR-32 is ideally suited to monitor and report the level of reservoirs or other surface water bodies. Being battery powered and wireless, you can install the recorder virtually anywhere. In most applications it is only necessary to install a PVC or equivalent pipe to protect the level sensor from debris or surface ice damage.

Rainfall Monitoring

The Telog RG-32 Rain Gauge Recorder monitors the output of any tipping bucket style rain gauge to provide a record of interval rain totals of any user defined length, e.g. 5 minutes, 15 minutes etc. The RG-32 can be configured to call the host computer on a fixed schedule, e.g. daily, or it can call more frequently when it is raining, for example whenever 0.1 inch of rainfall has been accumulated. This would ensure that the user always knows what total rainfall has occurred up to the most recent 0.1 inch.

Mag Meter Monitoring

Telog's Ru-32 attaches directly to the pulse output of magnetic flowmeters (mag meters) to trend flow at user defined intervals, e.g. 5, 15, 30 minutes. Choose the pressure sensor option for a battery powered (up to 5 years), wireless flow/pressure monitoring system. You can program the recorder with hi and low alarm levels for both pressure and flow for immediate notification of out-of-range site conditions. The included external antenna can be mounted to the underside of a non-metallic meter box or attached to the top of a metallic meter vault door. Our optional burial antenna can be installed below road or sidewalk surfaces.

Application Descriptions

Hydrant Pressure Monitoring

Intended for attachment to common fire hydrants, the HPR-32 monitors system pressures and trends, min, max and average pressure history at any user interval. Data is internally recorded for many months and wirelessly transferred to the user's host computer on a schedule or in response to pressure faults or transients. The ideal product for fire flow testing, customer complaints and hydraulic model calibration.

Water Quality Monitoring

Telog's iLR-32 Current Loop Recorder can typically be attached to the output of any water quality analyzer used throughout water distribution systems including chlorine residual, pH, turbidity etc. The iLR-32 samples the current loop output frequently (e.g. every second) and reduces this data to meaningful interval data; e.g. 5 minute min/average/max or totals for transfer to your host computer on a schedule or in response to site real-time alarm conditions. Being battery powered, it can be deployed virtually anywhere the analyzer is located.

Pressure Relief Valve Monitoring

Telog's Ru-32 monitors the event switch on a pressure relief valve and also the pressure at the valve providing event history (time stamped to one second resolution) of when, for how long and at what pressure a Pressure Relief Valve operates. You can upload this information infrequently (e.g. daily) to your host computer or in response to alarm conditions; e.g. pressure trips or valve open duration. The included external antenna can be mounted to the underside of a non-metallic meter box or attached to the top of a metallic meter vault door. Our optional burial antenna can be installed below road or sidewalk surfaces.

Pressure Reducing Valve

Telog's Ru-32 can be provided with two pressure sensors to monitor the input and output of your pressure reducing valves. Additionally, the Ru-32 can monitor the valve open position if the valve is configured with a valve position potentiometer (e.g. the CLA-VAL x117D). Knowing the differential pressure, the valve position and the valve flow characteristics (provided by the PRV manufacturer) the Ru-32 computes the flow through the valve. This produces a low cost, battery powered, wireless recording and real-time alarm system for PRV vault pressure and flow.

Flow Meter Monitoring

Telog's Ru-32 can directly attach to the pulse output of common water meters recording flow totals at user defined intervals, e.g. 5, 15, 30 minutes, etc. And, since the Ru-32 is rated IP-67 submersible, it can be located in underground meter vaults. The external antenna provided with the Ru-32 can be mounted to the underside of a non-metallic meter box or attached to the top of a metallic meter vault door. Telog also offers an optional burial antenna that can be installed below road or sidewalk surfaces.
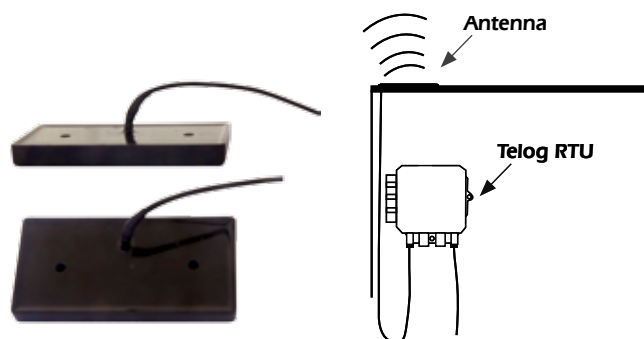
Water Hammer Monitoring
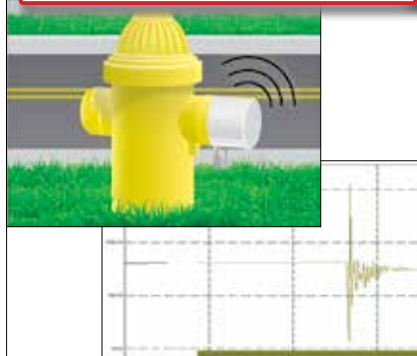
In addition to performing all the functions of the HPR-32, the HPR-32i Pressure Impulse Recorder captures water hammer and negative pressure event waveforms in a separate memory and wirelessly downloads them to Telog's host computer application. This recorder samples water pressure up to 20 samples/second, storing the waveform of impulse events that are detected by a user defined rate-of-change detector. The recorder only stores the real-time waveform during impulse events so over 200 events lasting from a few seconds to many minutes can be stored. Battery life of the HPR-32i in Impulse Recording mode can exceed 18 months.
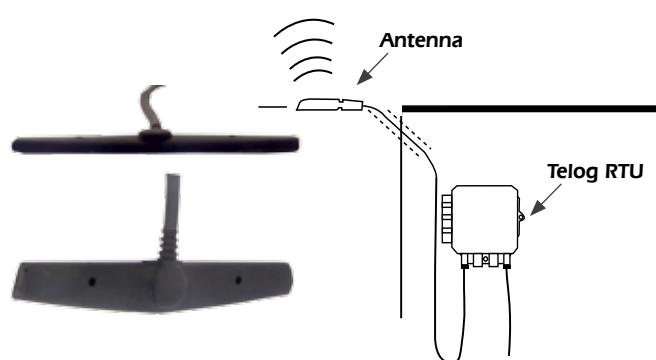
Sample Data Views

Water Meter Flow & Pressure

Water Hammer

Flow Data on GIS Map

Rainfall & Creek Level

PRV Pressure & Flow

Pump Station Report

Antenna Installation Options

A-LPA Low Profile Antenna

Antenna

Telog RTU

A-MWA Mini Wing Antenna

Antenna

Telog RTU

A-CBA-TNCSS Burial Antenna

Antenna

Telog RTU
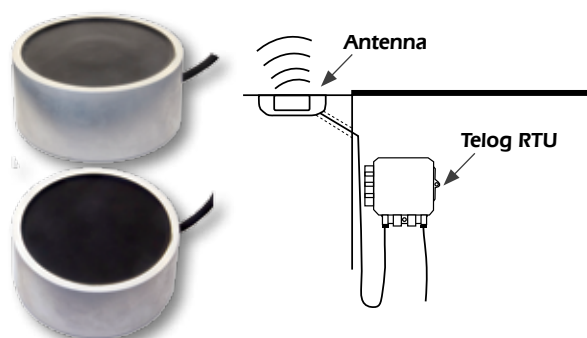
A-EMA Enclosure Mount Antenna

Antenna

Telog RTU
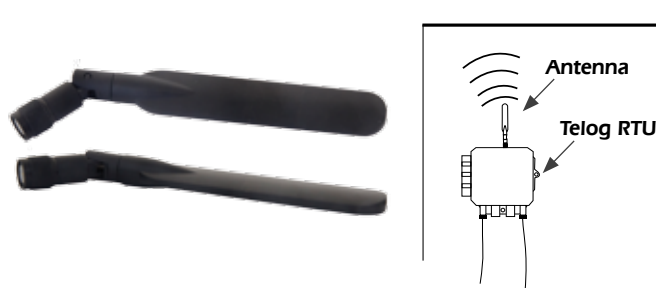
For detailed antenna specifications go to http://telog.com/Solutions/ApplicationSolutions.aspx and click "Choosing an Antenna".

32 Series Product Family

Telog Instruments, Inc.