

Telemetry Application: Instrument to Internet

Tony Arnerich & Jane Reverand, R&D Department

An In-Situ client has effectively used their proprietary telemetry system to enable direct transmission of the water level in a well for real-time viewing on their website by their customers. The client operates a nationwide network of access points with which their remote units can bidirectionally communicate. They also operate a web hosting service that collects and processes the raw measurement data, then displays it in a format suitable for the end customer.

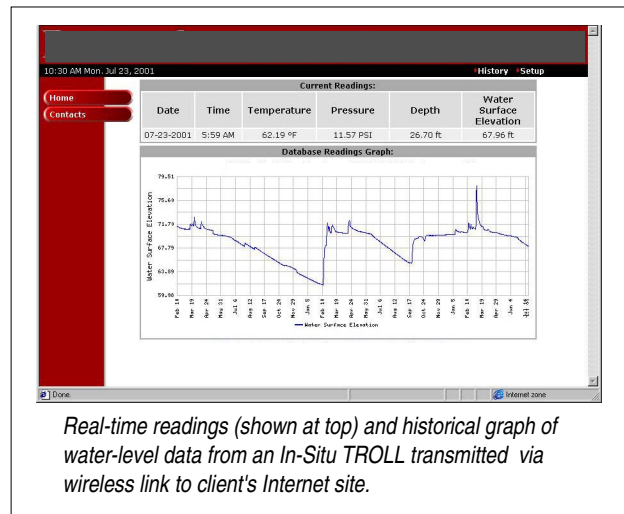
In-Situ staff worked with the client to implement a subset of the TROLL command interface. Under a non-disclosure agreement the client was provided with sufficient detail on the required commands to be able to acquire and interpret water level and temperature readings.

The client's customer operates a TROLL 4000 smart probe in a deep well located at a remote distance from its office.

Communication equipment was installed that interfaced with the probe using In-Situ's device commands. Power and telemetry equipment were protected by a locked metal enclosure at the wellhead.

The TROLL logs background water-level data continuously on a pre-programmed schedule. When the customer accesses the web page that is dedicated to this probe, a command is sent over the client's communication network to initiate a reading in the instrument. The remote system replies within seconds. In addition, scheduled connections take place around the clock. Customers with an Internet connection and an assigned

login can view a graphical display of the water level in the well at the moment of login. Along with current readings of temperature, pressure, depth, and water surface elevation, the website graphs the variations in water surface elevation over the history of the installation.



Real-time readings (shown at top) and historical graph of water-level data from an In-Situ TROLL transmitted via wireless link to client's Internet site.



Equipment installed at the wellhead (clockwise from white box on left): proprietary telemetry link, instrument communication cable, PVC well casing with 2" inner casing enclosing TROLL, and batteries to power the telemetry link and the TROLL. All components are completely enclosed and locked.

The equipment included:

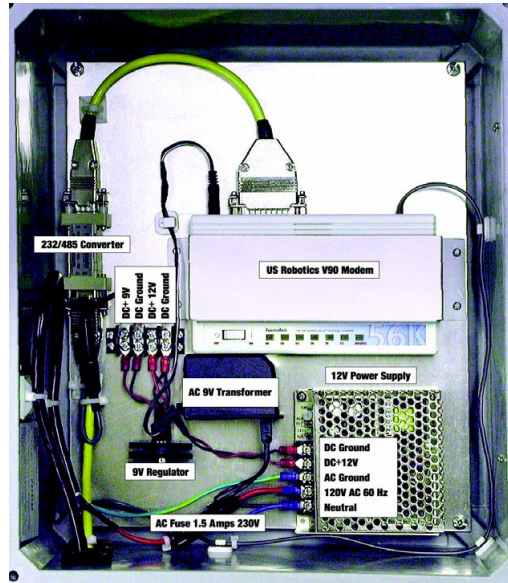
- In-Situ TROLL 4000 smart probe, 30 psig range
- Downhole cable
- RS232 communication cable
- Battery-based power system
- Proprietary telemetry modem

These components are completely enclosed at the wellhead for protection from weather and vandalism.

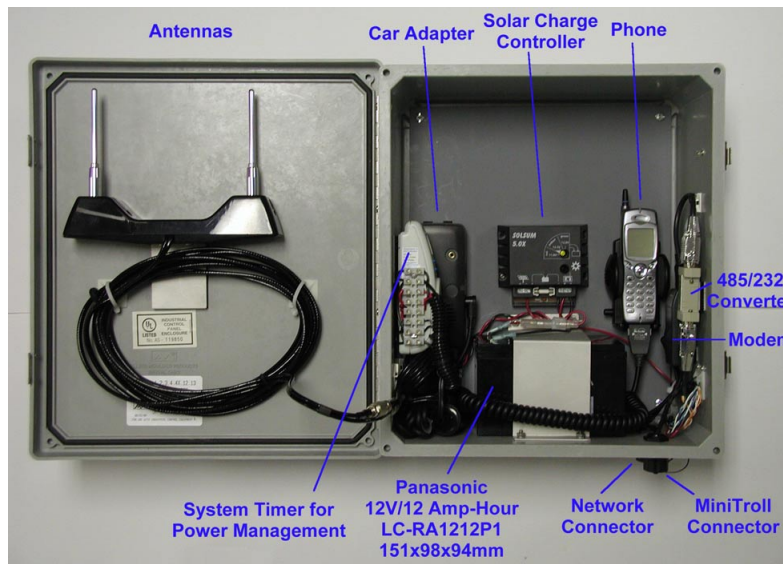
OTHER OPTIONS

In-Situ's own telemetry system options include North American analog cell modem, spread-spectrum radio modem (902-928 MHz), and 1200 baud line modem. Power supply options include solar panels with storage battery and AC line power (85-265V 50/60 Hz). Enclosures can be fabricated from low-cost fiberglass or high-security steel.

Two recent custom installations for transmitting miniTROLL data are shown here. Other configurations are in development. Call us at 1-800-446-7488 for more information on telemetry systems.



Line Power, Line Modem Components



Solar Power, Cell Phone Components (Japanese system)

1 800 4INSITU

(toll-free, US and Canada) or 307 742 8213 www.in-situ.com

