

ON THE LEVEL

Water Monitoring News and Updates

Solinst[®]

High Quality
Groundwater
and Surface Water
Monitoring
Instrumentation

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New! LevelSender Simple Telemetry for Levelloggers

Solinst has introduced a new telemetry system that is designed to work with the Levellogger Series. The LevelSender is low cost, and simple to install – allowing you to easily upgrade your existing Levellogger installations with telemetry. The LevelSender is compact, so you can discreetly install it in a 2" well with a Levellogger and Barologger connected. The LevelSender uses cellular communication to send remote water level data to your home station computer database and your smart device using email and text messaging. Two-way communication allows remote updates from the home station computer, simplifying operation and maintenance.

- Receive email or SMS notifications
- Data sent to your smart device & PC
- Simple setup, operation & maintenance
- Low cost, compact design (fits a 2" well)
- Compatible with Levellogger[®]

Levelloggers Monitor Irrigation Channels in Peru

Irrigated agriculture in Peru has been an important part of the country's growth and development, dating back before the Incan Empire. Recently, concerns including water stress, declining water quality, and vulnerability to climate change have induced a push from the Peruvian government to improve the performance of the existing irrigation systems.

The National Water Authority (Autoridad Nacional del Agua, ANA) is responsible for designing and implementing sustainable irrigation practices nationally. They work with local Water Users Boards who operate and maintain the irrigation systems regionally.

The ANA has an objective of accurately calculating the average amount (volume) of water used by each of the Boards. This data will allow them to track and determine the ideal amount of water to allocate to each Board and the agricultural users in that region.



Flume Installed in an Irrigation Channel to Monitor Volume

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Leveloggers Monitor Irrigation Channels in Peru

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Flow is monitored, and volume is calculated using flumes in the irrigation channels. Flumes are fixed shaped hydraulic structures that create a relationship between water velocity and level in the channel. Generally, flow is measured by calculating the velocity of water through the area of the flume. As flumes are a set width, height of water (head) is required to calculate the area, thus flow.

Traditionally, the height of water is determined by manually reading the level from visual markings on the side of the flumes. These readings have low accuracy and provide low-resolution data, as the levels are only recorded periodically.

High Tech Service, exclusive distributor of Solinst products in Peru, installs, calibrates, and repairs environmental monitoring instruments for projects throughout the country. High Tech Service started working with the Peruvian government in October 2014, to help provide a more efficient way to collect high-resolution data from the flumes.

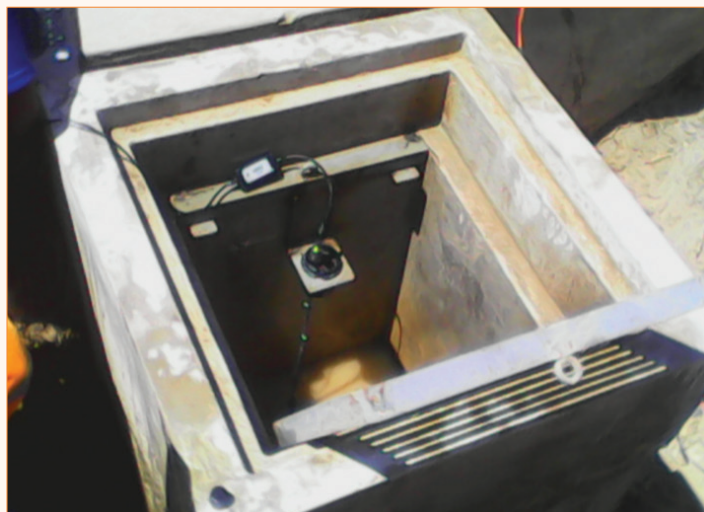
After several meetings with stakeholders, the ANA, and Water Users Boards, High Tech Service was given the assignment of installing Solinst Levelogger water level dataloggers to measure the height of water in each of the flumes.

Once installed, Leveloggers can be left unattended to automatically record and store continuous water level measurements. As a result, the costs to send out personnel for manual data collection are reduced, while the amount of reliable data recorded is increased.

To protect the Leveloggers (and associated Barologgers for barometric compensation of the water level data), concrete structures to house the instruments were built next to the flumes. A total of 148 monitoring stations have been installed in 6 different regions of Peru; 3 in Tumbes, 47 in Piura, 38 in Lambayaque, 27 in Huaral, 25 in Arequipa, and 8 in Tacna.



Water Level Data Downloaded in the Field Using a Laptop and Levelogger Software



Concrete Structure Built to Protect the Leveloggers and Barologgers

The Leveloggers and Barologgers have been set to record at either 5 or 10 minute intervals. The water level and barometric data are regularly downloaded in the field using a laptop and Levelogger PC Software. To optimize efficiency, if future budget allows, High Tech Service is hoping to use telemetry to remotely send the measurements to a central database.

Currently, the Levelogger data is being used to determine flow (volume) with greater accuracy than previous practices. The data will allow allocation of an exact volume of water to each user, and help to effectively control irrigated water usage throughout the country.

Solinst thanks Jesus Lino Ayala, Manager of Operations at High Tech Service S.A.C, for providing the details of this project.

Levelogger Compatibility Explained Ensuring Proper Hardware, Firmware & Software

We are continually improving and upgrading our Levelogger Series of water level dataloggers with new functionality and features, as such, there are periodic software and firmware releases to go with these enhancements.

Solinst always recommends using the latest software and firmware with your Leveloggers to get the most out of the instruments, but how do you know when these releases happen, and if you need to update?

Our full post in the [ON THE LEVEL Blog](#) explains how you can check for updates, manually, as well as take advantage of our automatic update options.

Also provided are helpful tips to follow when you have determined that you do actually need a software or firmware update, including data downloading, PC compatibility and USB driver installations.

Be sure to check out the entire article to ensure you always keep up to date!

Software & Firmware
User Guides / Datasheets & Instructions

Check your hardware compatibility

Software

Current Versions	Version	Release Date	Download File
Levelogger Series Software Compatible with Windows 7, 8, and 10. Read our Hardware Compatibility Guide (PDF)	4.3.0	Jan. 27, 2017	Sign In or Register
Levelogger Series Software (Spanish)	4.1.2	Nov. 4, 2015	Sign In or Register
LevelSender Software	1.0.0	Nov. 8, 2016	Sign In or Register
RRL Remote Utility Compatible with Windows XP, 7 and 8.	1.3.0	Dec. 1, 2014	Sign In or Register
STS Telemetry Software Compatible with Windows XP, 7 and 8.	1.4.0	Dec. 1, 2014	Sign In or Register

Solinst Levelogger App

Current Versions	Version	Release Date	Download File
Levelogger App for Android™	1.1.0	Aug. 16, 2016	Sign In or Register
Levelogger App for iOS	3.0.1	Jul. 19, 2016	Get the App

Enhancing Water Basin Management in Turkey

The General Directorate of State Hydraulic Works (DSI) in Turkey, have developed a long-term program to enhance the country's water basin management through 2023. Their goals include, improving water quality, and gaining current and ongoing information on groundwater and surface water resources.

Plans involve conducting hydrogeological investigations, geological surveys, creating models, and reporting water resource data in all water basins in Turkey. As part of the program, the DSI established a number of groundwater observation wells at different locations along the boundaries of the water basins. The wells are being used to measure continuous water level and temperature data.

FORAMEC, exclusive distributor of Solinst products in Turkey, supplied groundwater monitoring equipment to multiple water basins for use in 100 observation wells. The first project was the Akarçay Water Basin.



Preparing a Levelogger for Installation in the Akarçay Water Basin

30 observation wells in Akarçay have been equipped with Leveloggers to record groundwater level and temperature data, every 12 hours. Accompanying Barologgers are installed in 6 locations in the basin to provide data for barometric compensation. The Leveloggers are deployed on Direct Read Cables, so data can be periodically downloaded without removing them from the well.

The Burdur Water Basin, a neighbouring basin of Akarçay, was FORAMEC's next project. The Burdur Water Basin is known as the Region of Lakes. There are lakes of many sizes in this area, including Burdur Lake, which is the seventh largest in Turkey. Burdur Lake has excellent beaches, giving it potential as a tourist destination. The DSI has great interest in protecting Lake Burdur.

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5 Things to Look for When Selecting an Absolute Water Level Datalogger

There are many absolute water level dataloggers on the market, so how do you decide which one is best for you? We have boiled it down to what we think are five major things to look for to ensure your application needs are met, and your water level monitoring project runs according to plan.

1. An accurate, durable pressure sensor.

No matter what the material, pressure sensors/transducers are going to expand and contract when they are repeatedly exposed to different pressures and temperatures. It is good to look for a sensor that has an over-pressurization rating as a safety factor. Also, look for one with a wide operating temperature range specification.

2. Software that is user-friendly and saves you time.

First off, you want software that is intuitive and easy to use, allowing you to get your water level datalogger up and running quickly.

It should provide you with multiple programming options so you can tailor the logging regime to fit whatever you are trying to capture with your data. Programming options should be easily understood, along with starting and stopping the logger, and downloading the data.

3. Flexible deployment options to suit your unique applications.

Whether you are monitoring water levels in a well, or tidal fluctuations on the Atlantic Coast, your water level datalogger should provide multiple options for deployment.

Simply put: a compact instrument is

easier to deploy. It can fit into narrow wells, and can be inconspicuously placed in surface water applications.

4. Protection in your long-term projects and extreme conditions.

You need not only a durable pressure sensor, but also an entirely durable instrument. To be able to use your water level datalogger in marine or other environments, you need an instrument that can stand up in these conditions.

Having a housing that is made of a non-corrosive material, like stainless steel, is beneficial. But for long-term projects, having more protection is better. A corrosion resistant coating on the body, like the Levelogger Edge's titanium-based PVD coating, allows you to keep your logger deployed for longer periods before maintenance is required.

5. An easy way to get that data out of the datalogger.

You should have options for easy downloading in the field, or in the office. A quick connection to your PC Software, and a click of a button to download the data.

But, what if you don't want to bring a laptop PC to the field?

Many companies have been taking advantage of the wide use of smart device technology, and developing Apps to communicate with their water level dataloggers.

For more information on how Solinst Leveloggers meet and exceed all of these criteria, read the full article in our **ON THE LEVEL Blog**.

Enhancing Water Basin Management in Turkey

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Installing a Levellogger at an Observation Well in the Burdur Water Basin

Burdur Water Basin was provided 30 Levelloggers for installation in the observation wells. For this project, 2 DataGrabber USB data transfer devices are being used to download the water level and temperature data in the field. A Model 101 Water Level Meter is being used to take periodic, manual depth to water measurements.

The most recent project for FORAMEC, was the Ergene Water Basin. Many industrial facilities are located around the Ergene Water Basin. As such, the DSI established a number of groundwater observation wells to monitor the quantity and quality of water resources in the Ergene Water Basin. 40 observation wells in the Ergene Water Basin have been equipped with Levelloggers. DataGrabber devices are also being utilized in this region.

It's great to see the major steps that Turkey is taking towards improved water basin management. Their efforts will go a long way in ensuring sustainability of their groundwater and surface water resources.

Solinst thanks Uğur Gökhan Top of FORAMEC for providing the details of these projects.

Selecting the Right Solinst Groundwater Sampler

There is much to think about before selecting a groundwater sampler for your project.

Here are just a few things you probably need to consider:

- What you are sampling for
- Type of sample you need
- Your sampling frequency
- Well characteristics
- Ease of sampler operation
- Local regulations, requirements, protocols, SOPs
- Sampling environment/site
- Your budget

Thankfully, Solinst has a wide range of groundwater samplers to choose from, so you'll be able to find one that meets your criteria.

Solinst groundwater samplers can generally be categorized into four different types:

Peristaltic Pumps:



Peristaltic pumps use mechanical peristaltic operation to obtain a sample. Rotating rollers depress silicone tubing, creating a vacuum, which displaces any fluid or gas in the chosen direction.

Solinst offers the 410 Peristaltic Pump. The 410 is very portable, can be used for purging, low flow and regular flow sampling of shallow groundwater.

Inertial Pumps:

Inertial pumps retrieve samples by repeatedly lowering and raising a footvalve connected to tubing. Water enters the tubing on the downward stroke and is retained on the upward stroke, causing water to gradually rise through the tubing.

Solinst offers the 404 Inertial Pump in various diameters and stainless steel or Delrin® footvalves. It is an inexpensive, easy-to-operate pump for purging and sampling, and is ideal for dedication.

Pneumatic Pumps:

Pneumatic pumps are air/gas driven. They are connected to drive and sample tubing. When lowered, hydrostatic pressure fills the pump. Air/gas is applied to the drive tubing forcing water out of the pump and up the sample tubing. The system is vented and water refills the pump. Repeated drive/vent cycles bring samples to the surface.



The Solinst 407 Bladder Pumps and 408 Double Valve Pumps are our options. These pumps are ideal for low flow sampling at greater depths and for obtaining representative VOC samples. There are portable and dedicated options.

Grab Samplers:

Grab samplers obtain samples of a set volume at a single depth. Typically, the sampler is lowered to depth, and then simply raised to surface. A check ball(s) retains the sample as the sampler is lifted.

Solinst has a few options: 428 BioBailer™, 429 Point-Source Bailer, and 425 Discrete Interval Sampler. These samplers are great for spot samples, and no-purge sampling. They are easy to dedicate or transport.

For a Quick Q&A to Choosing a Groundwater Sampler, read the full article in our **ON THE LEVEL Blog**