Cera-Diver

Q1: What do Divers actually do?

Answer:
The Diver is a complete datalogger in one housing. It consists of pressure and temperature sensors, a battery, a datalogger, and a communication medium. It automatically measures the groundwater level and temperature with a pre-determent sample frequency, such as twice an hour. The water pressure is recalculated to a water level. Also any effects due to temperature changes are compensated using an active look-up table before the water levels are calculated.

Q2: Which instruments are necessary for monitoring the groundwater level?

Answer:

To monitor groundwater levels using a Diver®, you need the following instruments (at a minimum):

Diver datalogger (number of Divers should equal the number of boreholes)
one Baro-Diver to monitor the barometric pressure
one USB Reading Unit
Software
Laptop or Pocket PC with USB connection

Q3: Can I place the Diver® close to an electrical pump?

Answer:
Yes. The electronics, the pressure and temperature sensors, and the battery are all

contained within one stainless steel housing. As a result, the proximity of the electrical or magnetic fields does not influence the Diver®'s performance. Also, indirect lightning has no affect on Diver®'s performance.

Q4: How should I install my Diver?

Answer:
Most Divers are installed in a monitoring well below the water surface. The depth at which you suspend the Diver depends on the measurement range of the instrument. Prior to installation, determine the lowest possible water level measured from the top of the monitoring well casing (or another reference point). If you now hang the Diver below this depth, you are sure that the Diver will always measure the water level. The Diver can be installed using a DDC (Diver Data Cable) or suspended on a stretch-free steel cable using the suspension eye. Attach the cable using two cable clips to the cap of the monitoring well casing and the suspension eye of the Diver.

Q5: How do I connect a Diver to my computer?

Answer:

How you connect a Diver to your computer depends on the manner in which the Diver is installed in the monitoring well:

A Diver that is suspended on a steel cable in the monitoring well must first be taken out of the monitoring well before the Diver data can be read out, via a USB reading unit, using a Pocket PC or computer:

1. Connect the read-out unit to your computer via the USB port. We recommend that only an AS330 read-out unit be used. This unit is suitable for all types of loggers and is fitted with a USB connection. The required driver is supplied with the tool. A text file that is supplied explains how to carry out the installation.

2. Unscrew the suspension eye of the Diver.

3. Place the Diver upside down in the USB reading unit.

A Diver that is suspended from a Diver Data Cable can be left in the monitoring well. You can read out the Diver data using a Pocket PC or directly into your computer using a DDC interface cable:

1. Connect the DDC interface cable to your computer. If you use a Pocket PC, connect the DDC interface cable to the Pocket PC.

2. Unscrew the protective cap from the end of the Diver Data Cable.

3. Connect the connector of the interface cable to the end of the Diver Data Cable.

4. Read out the Diver measurement data into your computer or Pocket PC.

5. Replace the protective cap on the Diver Data Cable.

Q6: Why can't Logger Data Manager read out my Divers?

Answer:
The Mini, Micro and Cera Diver are supported by Logger Data Manager 5 and higher. Earlier versions of this software do not support these Divers. Please note the error message and send this to us for investigation.

Q7: Can I only use the Divers at sea level?

Answer:
No, you can use the Divers at any altitude, from 300 m below sea level to 5,000 m above sea level.

Q8: Do you always need two Divers for one monitoring well measurement?

Answer:
No, but you must plan for at least one Baro-Diver per network to monitor the barometric pressure. For instance, in a network of 20 monitoring wells, you should install 20 Divers and one Baro-Diver. For larger networks we recommend that an additional Baro-Diver should be installed as a reserve.

Q9: How long does the battery of a Diver last?

Answer:

The battery life depends on the measurement frequency, read-out and programming cycles and the type of Diver.

With respect to the battery of the Mini, Micro, Cera and Baro-Diver the following applies:

5 million measurements
500 read-out cycles
500 programming cycles

Experience suggests that you should expect a maximum life of 10 years based on the lithium battery being used.

Q10: Can the Divers be used in seawater?

Answer:
The Mini- and Micro-Divers are made from stainless steel 316L. This material is unsuitable for use in seawater. The Cera-Diver is made of the ceramic material zirconia. This material is not subject to corrosion and can be used in seawater.

Q11: How can I clean my Diver if it is very contaminated?

Answer:
If your Diver is very contaminated you can clean it using a very dilute acetic or phosphoric acid solution. Place the diver in the solution for some time. After cleaning, rinse the Diver well using clean water, in particular the flow openings. If necessary, use a soft cloth to remove deposits. Never use hard brushes, abrasives or sharp objects to clean your Diver.

Q12: Does the Diver require calibration?

Answer:

Schlumberger Water Services calibrates the Divers, before they are delivered. A manufacturer's calibration certificate can be supplied on delivery.

The Divers can only be calibrated by Schlumberger Water Services. In case of doubt of the measurement values, the user can only carry out a test measurement.

Q13: How do I change the units from metric to imperial?

Answer:

When you open the LDM Software, go to the "Application Management" tab and verify that you are in the advanced mode, not the basic mode. The units will then be listed on the lower portion of this tab & you can make the appropriate selections. Pocket-Diver is not offering this option yet.

Please note: Changing the units will cause the software to change all stored data sets to the units selected.

Q14: How do I manually calculate the offset?

Answer:

If using Diver Data Cable: Take a manual reading & then do a live update on the Diver. This will give you simultaneous readings of the water level. If you are using Top of Casing as your reference level, add these 2 values together, enter them into the offset field under the location tab as a negative figure. The software will then express all readings as a negative number representing distance below the top of casing. Please note: You may only do a live update if the Diver has been started.

If using Optical Reading Unit: Take a manual reading before extracting Diver from well, use the last measurement recorded by the Diver and follow the above instructions.

Q15: When I try to read the settings for the connected Diver, I get the message "No timely response from Diver".

Answer:

Go to the application manager tab and verify that the correct com port has been selected.

Please note: The USB Reading Unit or PC Interface Cable must be connected prior to starting LDM.

Q16: I changed the settings on my Diver but when I downloaded my data they were still set to the factory defaults.

Answer:
Always remember to program settings to connected logger using the icon third from the left before starting the Diver. You should always verify that the new settings have been programmed to the Diver by re-reading the settings before starting the Diver.

Q17: When I tried to download my Divers in the field using the Optical Reading Unit I got "No timely response" message.

Answer:
The USB reading unit is opaque and therefore sensitive to light. If you try to download data or program a Diver in direct sunlight it cannot communicate. Move the reading unit to a shady area or cover it to shield it from the sun.