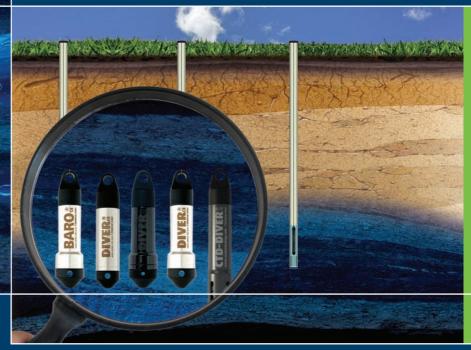




Reliable, accurate groundwater Diver dataloggers and software

# **Diver-Suite**



# <u>Diver-Suite</u>

#### SMART MONITORING TECHNOLOGY

Diver-Suite\* from Schlumberger Water Services provides a robust line of Diver\* dataloggers for groundwater and environmental professionals. The Diver\* dataloggers accurately measure and record fluctuations in groundwater levels, temperature and conductivity<sup>1</sup>.

#### SUITABLE FOR ANY ENVIRONMENT

From the technologically advanced Micro-Diver\* to the corrosion resistant CTD-Diver\*, Diver dataloggers are hermetically sealed to external influences. Electrical and/or environmental effects cannot affect the measurement results. With an extended battery life up to 10 years, this translates to long-term uninterrupted service.

All Divers can be used from 300 meters below to 5000 meters above sea level without the need to reprogram the datalogger. All Divers operate from -20  $^{\circ}$ C to 80  $^{\circ}$ C.

#### WIDE RANGE OF APPLICATIONS

- · Long-term water level monitoring
- Groundwater monitoring network automation
- Pumping and slug tests
- Watershed, drainage basin and recharge areas
- Stream gauging, lake levels and reservoirs
- Harbour and tidal fluctuation monitoring
- Wetlands and stormwater run-off monitoring
- Aquifer storage and recovery projects
- Saltwater intrusion projects
- Discharge monitoring
- Monitoring landfill sites
- Monitoring groundwater and surface water interactions

#### ACCURATE MEASUREMENTS

Divers monitor groundwater pressure with a typical accuracy of  $\pm 0.05\%$  full scale range from 0 °C to 50 °C<sup>2</sup>. The CTD-Diver is equipped with a four-electrode sensor for recording conductivity with an accuracy of  $\pm 1\%$  of reading.

#### From the Field to the Office



Field Advantage Achieve precise measurements of groundwater levels, temperature, and

conductivity in the field. Diver-Suite is part of a full range of products designed to streamline your monitoring workflow.



**Office Integration** Program multiple Diver dataloggers, download measurements onto

your PC, and export data to a spreadsheet or modeling program - Diver-Office Premium\* is a flexible "project-based" data management application designed for exchanging critical Diver information.

# Mini-Diver

#### A proven concept

The Mini-Diver\* is based on an ingenious and proven concept and is acknowledged as the most reliable instrument for the autonomous measuring and recording of groundwater level and temperature. Its internal memory of 24000 measurements per parameter provides sufficient capacity to perform nearly one measurement every ten minutes for six months. For each measurement, the Diver registers the date and time, groundwater level, and temperature.



#### **Highlights**:

- hermetically sealed in stainless steel housing
- fixed measurements

#### **General Specifications**

Dimensions Memory Wetted parts housing o-rings pressure sensor cap / nose cone Battery life Sample interval Mass ø18-22 mm × 90 mm 24000 measurements

stainless steel (316L) Viton ® ceramic (Al<sub>2</sub>O<sub>3</sub>) Nylon PA6 30% glass fibre 10 years (dependant on usage) 0.5 second to 99 hours 55 grams

cost effective

#### **Temperature specifications**

range / compensated -20 °C to 80 °C / 0 °C to 50 °C accuracy' ±0.1 °C resolution 0.01 °C

#### **Pressure specifications**

Туре	DI 501	DI 502	DI 505	DI 510
Range	10 mH <sub>2</sub> 0	20 mH <sub>2</sub> 0	50 mH <sub>2</sub> 0	100 mH <sub>2</sub> 0
- accuracy+	±0.5 cmH <sub>2</sub> 0	±1.0 cmH <sub>2</sub> 0	±2.5 cmH <sub>2</sub> 0	±5.0 cmH <sub>2</sub> 0
- resolution	0.2 cmH <sub>2</sub> 0	0.4 cmH <sub>2</sub> 0	1.0 cmH <sub>2</sub> 0	$2.0 \text{ cmH}_2\text{O}$

<sup>1</sup>Only available with CTD-Diver. <sup>2</sup>Baro-Diver: -10°C to 50°C

+ typical accuracy

## Micro-Diver

#### Small in size, great in performance

Measuring only 88 mm in length and 18 mm in diameter, the Micro-Diver is the smallest Diver capable of accurately recording groundwater levels and temperature. The Micro-Diver is specifically designed for monitoring wells too small to accommodate larger dataloggers. In addition to its compact size, the Micro-Diver's memory capacity can store up to 48000 measurements per parameter - almost one measurement every ten minutes for an entire year.



#### **Highlights**:

- · hermetically sealed in stainless steel housing
- various measurement methods: fixed, event dependent, averaging, and pumping test
- suitable for 19 mm monitoring wells

#### **General Specifications**

Dimensions Memory
Wetted parts
housing
o-rings
pressure sensor
cap / nose cone
Battery life
Sample interval
Mass

stainless steel (316L) Viton ®

ø18 mm × 88 mm 48000 measurements

ceramic (Al<sub>2</sub>O<sub>3</sub>) Nylon PA6 30% glass fibre 10 years (dependant on usage) 0.5 second to 99 hours 45 grams

#### **Temperature specifications**

 range / compensated -20 °C to 80 °C / 0 °C to 50 °C

 accuracy\*
 ±0.1 °C

 resolution
 0.01 °C

#### **Pressure specifications**

Туре	DI 601	DI 602	DI 605	DI 610
Range	10 mH₂0	20 mH₂0	50 mH₂0	100 mH₂O
<ul> <li>accuracy<sup>+</sup></li> </ul>	±1.0 cmH <sub>2</sub> 0	±2.0 cmH <sub>2</sub> 0	±5.0 cmH <sub>2</sub> 0	±10.0 cmH <sub>2</sub> 0
- resolution	0.2 cmH <sub>2</sub> 0	0.4 cmH <sub>2</sub> 0	$1.0 \text{ cmH}_2\text{O}$	2.0 cmH₂0

+ typical accuracy

# Cera-Diver

#### At home in any environment

Monitoring groundwater under potentially corrosive conditions, such as brackish water and seawater, requires a robust and durable datalogger. The ceramicshelled Cera-Diver\* is designed specifically for such environments. This highly reliable and compact Diver measures groundwater levels with a typical accuracy of ±0.05% (FS). The Cera-Diver is equipped with a memory for 48000 measurements per parameter.



#### Highlights:

- hermetically sealed in ceramic housing
- various measurement methods: fixed, event dependent, averaging, and pumping test

#### **General Specifications**

Dimensions Memory Wetted parts housing o-rings pressure sensor cap / nose cone Battery life Sample interval Mass ø18-22 mm × 90 mm 48000 measurements

ceramic (ZrO<sub>2</sub>) Viton ®

ceramic (Al<sub>2</sub>O<sub>3</sub>) Nylon PA6 30% glass fibre 10 years (dependant on usage) 0.5 second to 99 hours 50 grams

robust corrosion resistant housing

#### **Temperature specifications**

range / compensated -20 °C to 80 °C / 0 °C to 50 °C accuracy' ±0.1 °C resolution 0.01 °C

#### **Pressure specifications**

Туре	DI 701	DI 702	DI 705	DI 710
Range	10 mH₂0	20 mH₂0	50 mH₂O	100 mH₂O
<ul> <li>accuracy<sup>+</sup></li> </ul>	±0.5 cmH <sub>2</sub> 0	±1.0 cmH <sub>2</sub> 0	±2.5 cmH₂0	±5.0 cmH <sub>2</sub> 0
- resolution	0.2 cmH <sub>2</sub> 0	0.4 cmH <sub>2</sub> 0	1.0 cmH <sub>2</sub> 0	$2.0 \text{ cmH}_2\text{O}$

+ typical accuracy

### **CTD-Diver**

#### **Reliable in all conditions**

Where there is a need to monitor not only groundwater levels but also saltwater intrusion, injected wastewater, or contamination from chemical discharges and landfill sites, the ceramic-casing on the CTD-Diver is the instrument of choice. In addition to the pressure and temperature sensor, the CTD-Diver has a four-electrode conductivity sensor for reading conductivity across an expanded measurement range (0-120 mS/cm). There are two options for measuring conductivity: displaying measured conductivity or specific conductivity at 25 °C.

The CTD-Diver accurately records up to 48000 measurements of groundwater levels, temperature, and conductivity with corresponding date and time.

#### **Highlights:**

- · Hermetically sealed in ceramic housing
- · Various measurement methods: fixed, eventdependent, averaging, and pumping test
- Robust corrosion resistant sensor and housing

- **General Specifications**
- Dimensions Memory Wetted parts housing conductivity sensor housing conductivity sensor o-rings pressure sensor cap / nose cone Battery life Sample interval Mass

#### **Temperature specifications**

range / compensated	-20 °C to 80 °C / 0 °C to 50 °C	)
accuracy+	±0.1 °C	
resolution	0.01 °C	

**Conductivity specifications** user adjustable range

platinum electrodes on ceramic (Al<sub>2</sub>O<sub>3</sub>) carrier

ø18-22 mm × 135 mm

48000 measurements

ceramic (ZrO<sub>2</sub>)

ceramic (ZrO<sub>2</sub>)

ceramic (Al<sub>2</sub>O<sub>3</sub>)

Nylon PA6 30% glass fibre

accuracy+

resolution+

1 second to 99 hours

10 years (dependant on usage)

Viton ®

95 grams

10 µS/cm to 120 mS/cm ±1% of reading 0.1 % of reading

#### **Pressure specifications**

Туре	DI 271	DI 272	DI 273
Range	10 mH₂0	50 mH₂O	100 mH <sub>2</sub> 0
- accuracy*	±0.5 cmH <sub>2</sub> 0	±2.5 cmH <sub>2</sub> 0	±5.0 cmH <sub>2</sub> 0
- resolution	0.2 cmH₂O	1.0 cmH₂0	2.0 cmH <sub>2</sub> 0
+ twoicel			

typica

### **Baro-Diver**

#### **Compensate barometric pressure**

The Baro-Diver\* ensures that you accurately capture changes in atmospheric pressure. Conveniently priced and easy to adjust, one Baro-Diver covers a radius of up to 15 km, depending on the topography.

Based on proven, innovative technology, the Baro-Diver has an internal memory capable of storing 24000 measurements per parameter.

For each measurement, the Baro-Diver simultaneously registers barometric pressure, air temperature, date and time.



• measures atmospheric pressure for accurate barometric compensation of Divers

#### **General Specifications**

Dimensions Memory Wetted parts housing o-rings pressure sensor cap / nose cone Battery life Sample interval Mass

ø18-22 mm × 90 mm 24000 measurements

stainless steel (316L) Viton ® ceramic (Al<sub>2</sub>O<sub>3</sub>) Nylon PA6 30% glass fibre 10 years (dependant on usage) 0.5 second to 99 hours 55 grams

#### **Temperature specifications**

range / compensated	d -20 °C to 80 °C / -10 °C to 50°C
accuracy*	±0.1 °C
resolution	0.01 °C

#### **Pressure specifications**

Туре	DI 500
Range	1.5 mH <sub>2</sub> 0
- accuracy+	±0.5 cmH <sub>2</sub> 0
- resolution	0.2 cmH <sub>2</sub> 0
- resolution + typical accuracy	$0.2 \text{ cmH}_20$

**Highlights:** 

- hermetically sealed in stainless steel housing

### Diver data management software

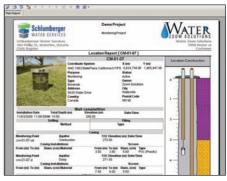
User-friendly applications for your Desktop or Handheld PC

### **Diver-Office Premium**

Diver-Office Premium\* software provides users with a full range of tools for management of well location details, displaying borehole lithology and well construction data, plotting time-varying Diver data (groundwater elevation, temperature, conductivity), and validating data quality in a seamlessly integrated groundwater software package.

- Diver Data Management Program Diver dataloggers, start/stop Divers and download Diver data to a shared SQL database.
- Monitoring Well Data Management Create, modify and display X, Y location data, borehole lithology and well construction details.
- Shared Database Securely share Diver data over a network and collaborate with all team members in your groundwater monitoring projects.
- Expanded Data Options Capture a full range of environmental variables affecting groundwater recharge including precipitation, evaporation, and discharge data.
- OA/QC and Statistics Apply essential QA/QC checks to raw data, identify and correct data anomalies, and gain confidence in your data assessments.
- Report Automation Effectively communicate and present monitoring data, location details, well construction data and lithology in detailed reports and customized time series plots.
- Data Flexibility Export well profiles to image files, export time-series data to Excel<sup>TM</sup>, import location data from Excel<sup>TM</sup>/Access<sup>TM</sup>.





Report on well construction and lithology

MS Excel and MS Access are trademarks of Microsoft Corp

### **Diver-Pocket**

Built for your Handheld PC or PDA, the Diver-Pocket\* software reads data stored in Diver dataloggers, displays time-series plots, and exports data to various formats. Download a complimentary version from our website www.swstechnology.com

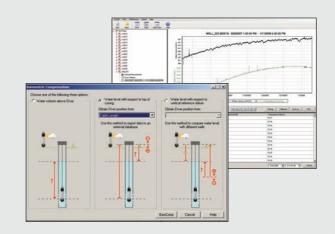
### **Diver-Pocket Premium**

The Diver-Pocket Premium\* software extends the features of Diver-Pocket, with the added capability to program Divers, including the measurement method, frequency, and the start date/time.



### **Diver-Office**

Use the Diver-Office\* desktop application to calibrate, read, and program all Divers in the Diver-Suite. Download measurements onto your PC, view time series data in a plot or tabular form, and export data to a spreadsheet or groundwater modeling program. Download a complimentary version from our website www.swstechnology.com





### About Schlumberger Water Services

Managing the world's water resources is no small task. We tackle global water challenges with our worldwide network of hydrologists, geologists, and environmental experts. Combined with powerful and cost-effective technologies, we are successfully managing the world's water resources, for now and the future.

Our people and technology drive your success.



t +61 2 9894 4511 e sales@aqualab.com.au w www.aqualab.com.au

