



Data Logger Dipper-PTEC

Water Level, Temperature, Electric Conductivity incl. Salinity

Monitoring System for:

- Groundwater observation wells, geohydraulic (aquifer) tests, water drainage control at construction sites and surface water
- Robust housing made of anti-corrosive steel
- High data security due to flash-memory
- Watch-Dog-Function for high operation security
- Suitable for 1" casing and above



battery box

Dipper-PTEC



Groundwater Monitoring site
Data readout via HDA



Observation of Wells



Data Retrieval via
SEBA-HDA



Data Evaluation with SEBA-Software

Description

The **Dipper-PTEC** is designed to log conductivity, as well as water level and temperature and is the constant further development of the well proven SEBA Dipper series for the continuous monitoring of ground- and surface water, with special focus to operation and data security. It is easy to transport, program, deploy and retrieve data. It combines a data logger, power supply, pressure temperature and conductivity sensors within a small waterproof housing, (Ø22 mm).

An integrated watch-dog function inside the instrument continuously supervises the microprocessor activities and therefore can guarantee a high operation security. The Dipper-PTEC is equipped with a Flash-memory (Flash-RAM). The recorded monitoring data is stored in the memory of the Dipper-PTEC where the data is always recallable even in the unlikely event of a power supply failure.

Additional important characteristics:

- robust housing of anti-corrosive steel with high chemical resistance for the installation in well casings starting from 1" in diameter
- high accurate, robust ceramic pressure measuring cell for different measuring ranges (i.e. 1 bar, 2 bar, etc.)
- diameter independent fixing devices, suitable for all standard top pieces

Typical applications:

- Salt water intrusion & soil salination monitoring
- Remediation monitoring and studies
- Leachate monitoring at landfills, waste disposal storage sites and more
- Agricultural and stormwater runoff monitoring

Data Transfer to PC



Water Level Sensor

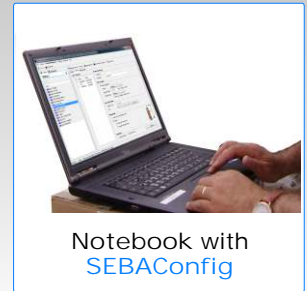
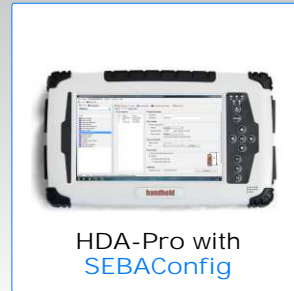
Temperature Sensor

Conductivity Sensor
incl. salinity



Integrated robust, high accuracy pressure and temperature transducer with excellent long-term stability as well as conductivity sensor with 4 electrode technique.

Operation with HDA, HDA-Pro or Notebook

The Dipper-PTEC can be operated with a standard notebook. However we recommend using our robust field-approved alternatives: HDA and HDA-Pro (Tablet PC).





Included in the delivery:

- Operation software SEBAConfig PDA for simple programming, adjustment & operation of the Dipper-PTEC, as well as for transmission of the stored measuring values to PC. 
- Evaluation software MGMDs/MLMDS ce for plausibility check of stored measuring data in form of curves and lists. 

*) Further information on HDA-Nomad see separate brochure

Included in the delivery:

- Operation software SEBAConfig for complete programming, adjustment and operation of the Dipper-PTEC, as well as for transmission of the stored measuring values to PC. 

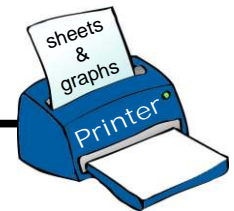
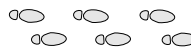
Data can be converted to ASCII-format for use with standard software for graphic and table-calculations or can be processed with SEBA's evaluation software DEMASvis (Details see below) 



Dipper-PTEC



HDA
HDA-Pro
Notebook



Dipper-PTEC can also be connected to a data transmission system e.g. SlimCom or only GSM/GPRS modem.

Further Data Processing with PC, Notebook or HDA-Pro

For a further and detailed evaluation of the registered data, programmed routines are available. Due to a simultaneous display of both graphs and tables, an ideal and clear arrangement is guaranteed.

Evaluation (Software DEMASvis)

Listing

- single measured values with date and time
- daily middle- and extreme values
- conversion of measured values with mathematical functions

Graphic

- with zoom and crosshair functions
- hard-copy routines
- multi parameter graph
- plot-routines



Technical Data

Data Logger

Electronics:

- 32 Bit microprocessor
- 4 MB Flash-memory for approx. 280,000 values
- watch-Dog function for the control of micro-processor activities
- real-time clock with backup battery
- storage of recorded data in real-time
- 16 bit resolution (ADC)
- observation function (timestamp, control value)
- measuring interval: 2 sec. to 45 days
- power supply: with external battery (4x1,5) Alkali Mangan (MN 1400 LR14)

Interface/s:

- serial communication interface RS485

Operation temperature: -20°...+70°C

Housing:

- pressure-watertight
- material: anti-corrosive steel V4a & plastic

Dimensions:

- Data logger: Ø 22mm, 300mm length
- Battery box: Ø 35mm, 345mm length

Cable:

- screened, round with integrated compensation tube and dessicator

Mounting:

- installation device in top pieces (for diameter of 1" and above)



Ø 22 mm

Sensors

Pressure Sensor for water level measurement

- robust ceramic-pressure sensor with excellent long-term stability
- accuracy: $\leq \pm 0.05\%$ = <1cm with 10m measuring range
- long-term stability: $\pm 0.1\%$ / years
- measuring range: 10 / 20 / 30 / 40m etc. resp. on request

Temperature Sensor

- NTC30-temperature sensor element with polynomial linearization
- measuring range: -5...+50°C
- accuracy: $\pm 0.1^\circ\text{C}$

Conductivity Sensor (incl. Salinity)

- 4-electrode measuring cell
- measuring range: 0..200µS/cm or 0..2mS/cm or 0..20mS/cm or 0..200mS/cm
- accuracy: $\pm 0.5\%$
- operation temp.: 0..50°C
- pressure range: 0..50 bar

HDA-Pro - robust IP65 Tablet PC

Operating System: Microsoft Windows 7 Professional
Processor: 1.6 GHz Intel Atom
RAM /Harddisk: 2 GB DDR2 RAM; 32 GB SSD
Display: 7" Widescreen 1024x600 WSVGA
- sunlight readable; robust watertight
Keyboard: Touchscreen - 10 extra keys
Protection Class: **IP65** (MIL-STD 810G)
Battery pack: 2x 2.600 mAh support minimum 6 hours operation (hot-swappable)
Interface/s: - 2x USB 2.0; RS232; LAN
- integrated microphone and speakers
- integrated **GPS** (WAAS/EGNOS); **Digital camera** 2.0 Megapixel and **Bluetooth** interface 2.0

Operating temperature: -23°C to +60°C

Dimensions: 144 x 242 x 40 (LxWxH)
& Weight: 1.100 g incl. battery pack

Accessories: 12V vehicle charger; bag
further accessories upon request



HDA - Hydrological Digital Assistant

Operating system: Windows Mobile 2003
Processor/memory: Intel PXA 255 X-Scale CPU RECON
400 MHz, 64 MB SDRAM, 64 MB NAND Flash
Display: 1/4 VGA, 240 x 320 Px, colour TFT display
Keyboard: Touchscreen, 10 keys,

Protection class: **IP 67**

Battery: 3.800 mAh NiMH-battery
for 12-30 hours operating

Drop: 26 fall from 1,2 m on concrete

Humidity resistance: MIL-STD 810F method 507.4

Interface/s: - USB-B Slave; RS232; 2 x CF-slot type II

Operating temperature: -30 °C to +60 °C

Dimensions 165 x 95 x 45 mm (LxWxH)
& Weight: 490 g incl. battery

Accessories: 12V vehicle charger; bag
further accessories upon request



*) Technical information on HDA-Nomad pls. see separate brochure

The right is reserved to change or amend the foregoing technical specification without prior notice.



SEBA Hydrometrie GmbH & Co. KG
Gewerbestr. 61a • 87600 Kaufbeuren • Deutschland
Phone: +49 (0)8341 / 9648-0
Fax: +49 (0)8341 / 9648-48
E-Mail: info@seba.de
Internet: www.seba.de

represented by: