



Data Logger MDS Dipper-TEC

Water Level, Temperature, Electrical 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
- Nearly Maintenance Free: battery lifetime approx. 8 years,
- Suitable for 2" casing and above



MDS Dipper-TEC



4" Monitoring Well



Observation of Wells



Data Retrieval via SEBA-HDA



Data Evaluation with SEBA-Software

Description

The new SEBA Data Logger type MDS Dipper-TEC is the constant further development of the well proven MDS Dipper Series for the continuous monitoring of ground- and surface water, with special focus to operation and data security.

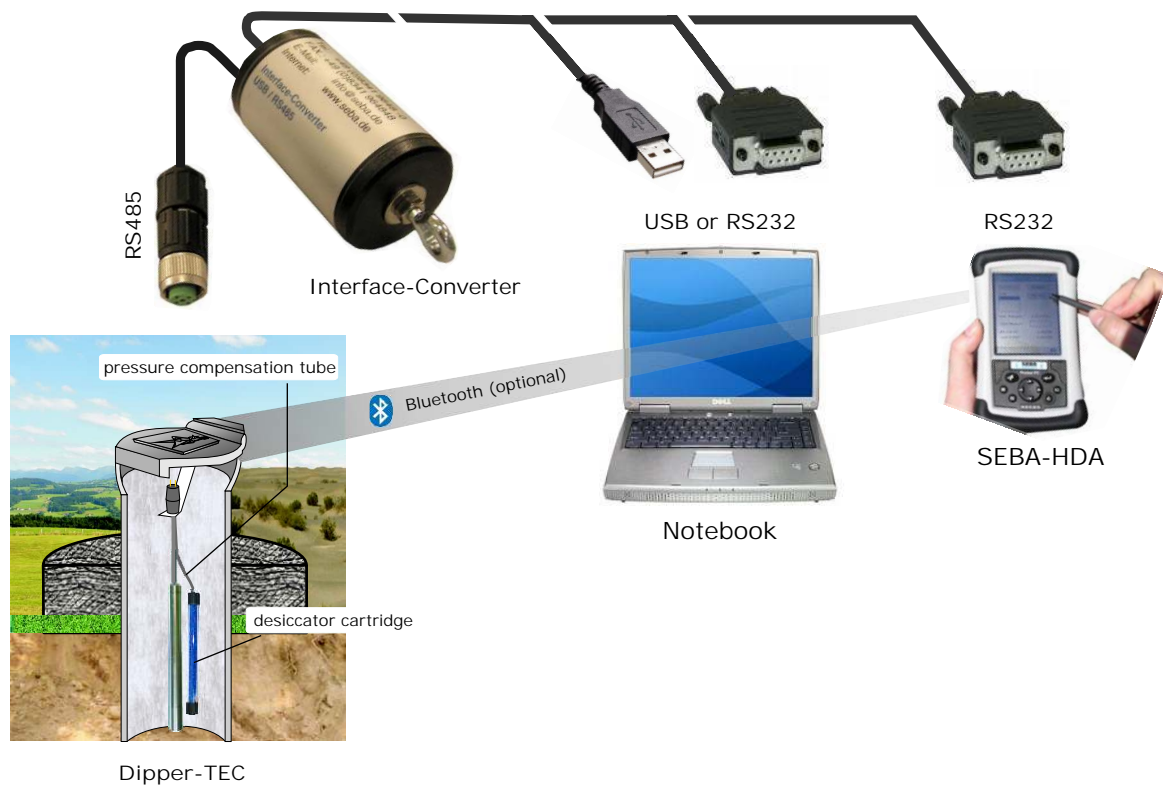
An integrated watch-dog-function in the MDS-Dipper-TEC continuously supervises the microprocessor activities and therefore can guarantee a high operation security. The MDS Dipper-TEC is equipped with a Flash-memory (Flash-RAM). The recorded monitoring data is stored in the memory of the Dipper-TEC where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

Additional important characteristics of the MDS Dipper-TEC:

- robust housing of anti-corrosive steel with high chemical resistance for the installation in well casings starting from 2" in diameter
- exchangeable lithium batteries for >8 years operation (depending on the adjusted measuring interval)
- high accurate, robust ceramic pressure measuring cell for different measuring ranges (i.e. 1 bar, 2 bar, etc.)
- diameter independent fixing device, suitable for all standard top pieces

The new MDS Dipper-TEC sets new standards in regards to operation and data-security, as well as functionality!

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 or Notebook

Robust HDA for the rough field operation as alternative to a notebook. Vibration, impact, dust and water resistant housing according to IP67 for operation between -30°C up to +60°C.

Long durability up to 30 hours.

Simple operation resp. input of parameters (i.e. of control values) via TFT-colour-LCD-touchscreen or pin.

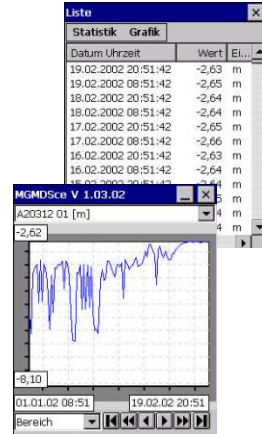
Included in the delivery:

- Operation software SEBAConfig for simple programming, adjustment and operation of SEBA Data Loggers (e.g Dipper-3), 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.

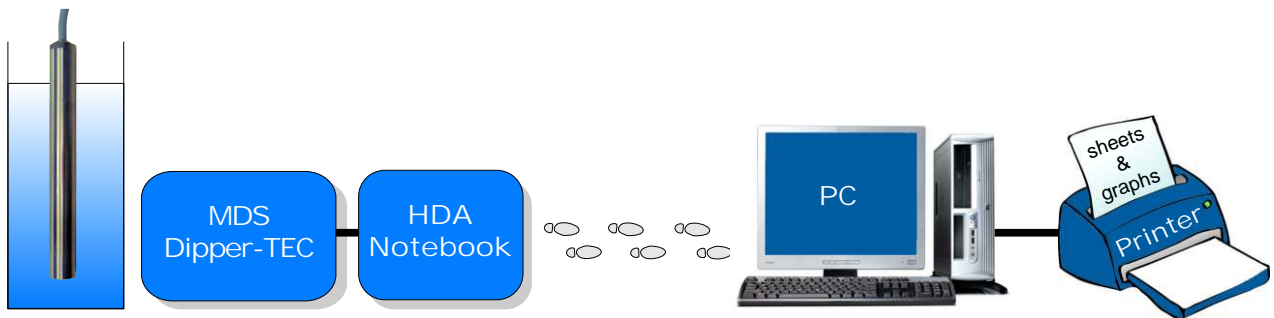


HDA with SEBAConfig

MLMDS CE
for easy presentation
in data sheets



MGMDs CE
for presentation
in form of curves



Of course, your data logger can directly be connected to a PC (e.g. Notebook) or to a data transmission modem, thanks to its serial interface.

Evaluation with PC

For the data evaluation, pre-programmed routines are available for the client - which guarantee an easy operation.

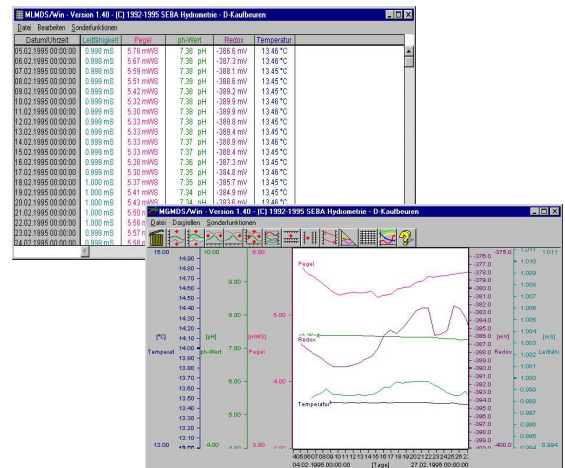
Evaluation (Software MGMDs / MLMDS)

Lists

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

Graphic

- parameter lines with zoom and fade-cross functions
- hard-copy routines
- multi parameter graphs
- plot-routines



Read out- and Configuration Software SEBAConfig

- configuration of data logger
- output in ASCII-format for the use with standard software for graphic and table-calculations
- special routine for data transmission to UNIX systems

Technical Data

Data Logger (MDS Dipper-TEC)

- SMD-technique with auto-testing routine
- 16 Bit microprocessor
- 1 MB Flash-memory for appr. 80,000 values
- Watch-Dog function for the control of micro-processor activities
- serial communication interface RS 485
- real-time clock
- power supply with exchangeable lithium battery sufficient for > 8 years (with 60 min. measuring interval)
- operation temperature: -20°...+70°C

Storage of recorded data:

- Storage of recorded data in real-time
- 16 bit resolution
- optimized memory usage through binary data-structure with date and time
- observation function (timestamp, control value)
- storage of control values
- measuring interval: 1 min. to 45 days

Housing:

- pressure-watertight metal housing (V4a steel)
- supply- and adaption unit with integrated desiccator and pressure compensation tube
- material: anti-corrosive steel V4a
- dimensions: Ø 40mm, 480mm length
- installation device in top pieces (for diameter of 2" and above)

Pressure Sensor for water level measurement

- robust ceramic-pressure sensor with excellent long-term stability
- accuracy: $< \pm 0.1\% = < 1\text{cm}$ with 10m measuring range
- long-term stability: $\pm 0.1\%$ / years
- measuring interval: 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

Special cable screened round cable with integrated compensation tube



SEBA-HDA

Processor/
memory: Intel PXA 255 X-Scale CPU 200-800 MHz
64 MB SDRAM, 64 MB NAND Flash

Display: 1/4 VGA, 240x320 pixel, colour TFT
with touchscreen and front light

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

Humidity
resistance: MIL-STD 810F method 507.4

Drop: 26 drops from 1.2 m on concrete

Protection class: IP 67

Size: Length: 165mm, Width: 95mm, Height: 45mm

Weight: 490 g incl. battery

Battery: 3,800mAh NiMH-battery for 12–30 hours
operation

Operating system: Windows Mobile 2003

Connections: 1 x USB-B Slave (12 Mbps),
1 x RS232 (115 Kbps)

Keyboard: 1 x Charging, 2 x CF-slot type II
10 keys, softkeyboard for input of
alpha-numerical characters

Included in delivery:

- Battery charger
- Software SEBAConfig CE
- MGMD/MLMD CE for presentation of tables and graphs

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



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