



**SEBA**  
HYDROMETRIE

# Dipper-PTEC Data Logger

Reliable measuring of water level, temperature and conductivity

## Advantages for the user:

- Reliable and robust
- Precise and offers long-term stability
- Slender construction
- Easy operation
- Expandable
- Individually programmable
- Practically maintenance-free



Pump tests



Construction Monitoring



Long-Term Monitoring



Flow Measurement



Well control



# Dipper-PTEC



Making a good product even better — time and again, this is the challenge that faces our development engineers. Experience, expertise, technical progress, and, of course, feedback from our customers from around the world — this teamwork allows us to achieve new and better developments!

The new Dipper-PTEC provides the user with all the benefits of a modern measuring instrument: a slender and robust construction, a broad measuring range at maximum resolution, reliable and maintenance-free sensor technology, and easy operation. With a multitude of additional technical refinements, the new Dipper-PTEC compares excellently with other devices on the market.

Of course, a modern environmental-monitoring system cannot be operated without practical accessories for programming and data retrieval, as well as powerful data-management and analysis software. As a full-service provider, we are a one-stop shop offering you everything you need to achieve smooth measurement operation — from collection right through to analysis!

## Logger



Dipper-PTEC

- Robust, stainless-steel housing with high material resistance for use in extreme conditions (monitoring of landfills, contaminated sites, etc.).
- Slender 22 mm Ø for installation in well casings starting at 1.5".
- External power-pack module with 4 x 1.5 V C-type replaceable, commercially available batteries (optional: lithium C batteries for operating times > 5 years)
- Freely programmable channels for water level, temperature, conductivity, salinity, TDS value, water density, and battery voltage



## Sensor technology

What use is the best logger without reliable, long-lasting sensor technology? None whatsoever! In close coordination with our long-term partners, we ensure that our sensors are always state-of-the-art. A glance at the technical details will show that we never compromise on precision and reliability.

### conductivity

A four-electrode measuring cell for determining conductivity is a must for anyone who values high reliability and a broad linear measuring range! Since it can even compensate for contamination on the electrodes, the Dipper-PTEC is ideally equipped for stationary use.

With a measuring range of 0–200 mS, practically all applications are covered. At the same time, in order to ensure the highest possible resolution, the Dipper-PTEC automatically divides the full measuring range into four sectors: 0–200 mS/cm; 0.2–2 mS/cm; 2–20 mS/cm, and 20–200 mS/cm.

### salinity

### TDS

### water-density



Quality is not always a given in pressure sensors — except with us!

Our capacitive, ceramic relative-pressure measuring cells, with available measuring ranges of 0–200 m, are precise, reliable, robust, and easy to clean, and stand out with their high levels of long-term stability.

For special-purpose tasks (e.g., for pressure measurements in brine), optional piezoresistive absolute-pressure sensors made of titanium are also available — just give us a call!



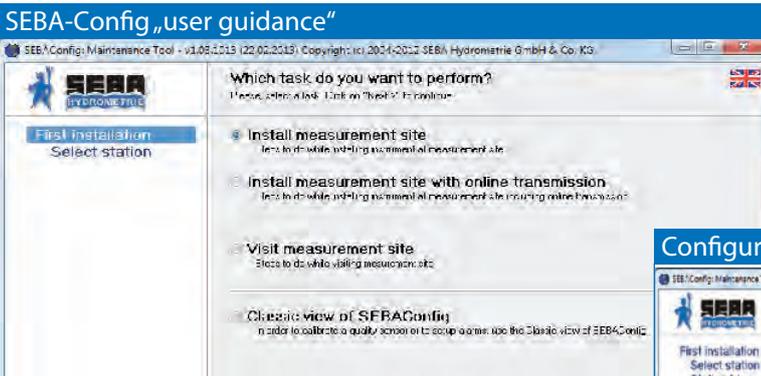
Temperature measurements are carried out with an NTC30 gauge that is linearized using a polynomial to a high degree of accuracy. The sensor is incorporated into the plastic part of the conductivity sensor, near to the measuring electrode.



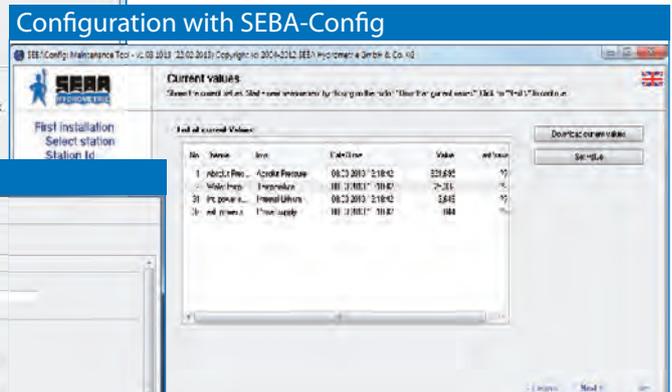
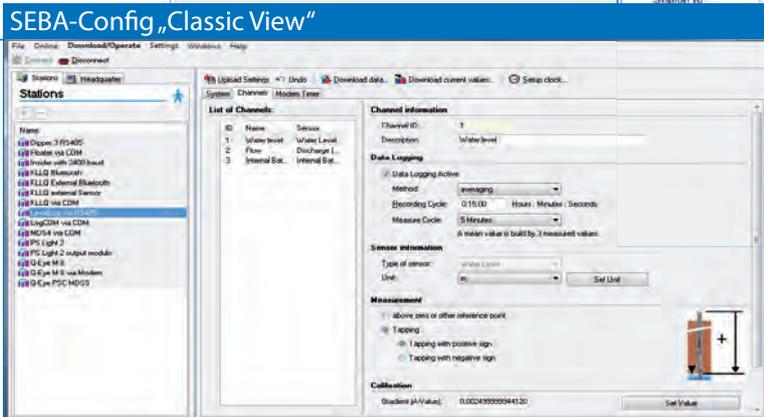
## SEBA-Config

The new "SEBA-Config" software for Windows XP and 7 offers the user a comprehensive, "easy to use tool" for initial installation and subsequent operation. Programming a logger has never been easier: Install the Dipper-PTEC, launch SEBA-config and off you go!

Of course, the Dipper-PTEC does more than just collect data. In the corresponding mode, it also provides you with exactly the measured data that you actually need: Quicklog mode for pumping tests, results mode for recording incidents of excess levels or shortfalls, determination of average values in the monitoring of surface-water levels, or simply taking measurements at fixed intervals. Voila!

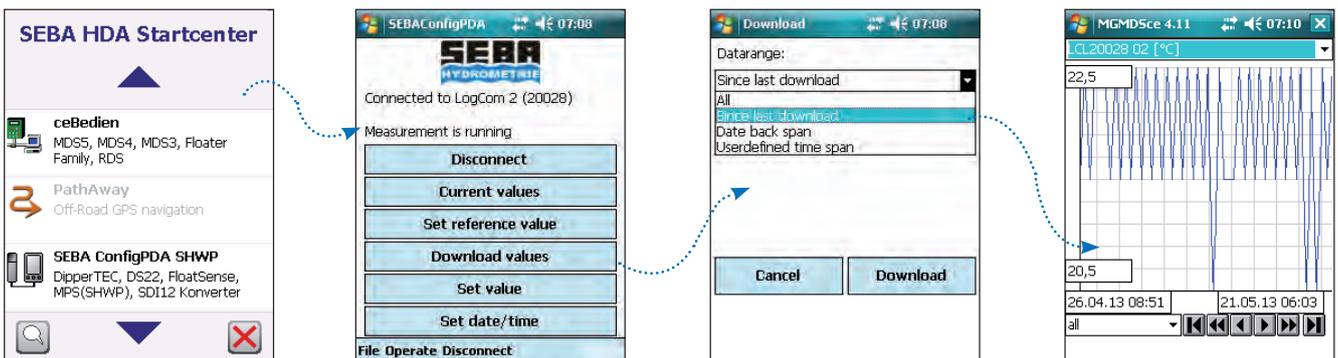


Additionally, with the SEBA-Config software it is possible to insert check values recorded during site visits, so that later back in the office a detailed quality assurance (QA) on the PC is possible.



## SEBA-Config PDA

The users of PDAs, tablet PCs and smartphones can also use SEBA-Config on their devices. With SEBA-Config PDA for Windows Mobile and SEBA-ConfigApp for Android operating systems, programming is clear and simple. With just one click, the retrieved time series are delivered to the user in the form of graphs and/or a list for plausibility checking.



# Connectivity options



SEBA loggers can be downloaded and programmed with any operation terminal of your preference.

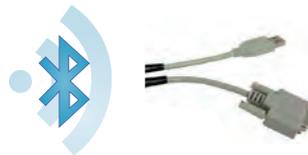
## Operation Terminal

Notebook



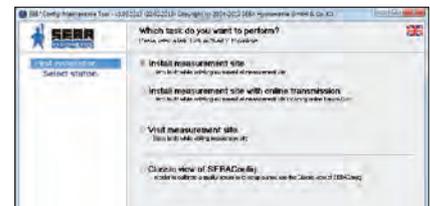
## Mode of Transmission

Interface cable (USB/RS232) / Bluetooth



## Operation software

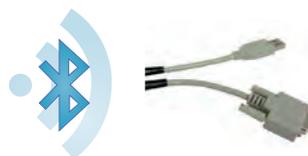
SEBA-Config



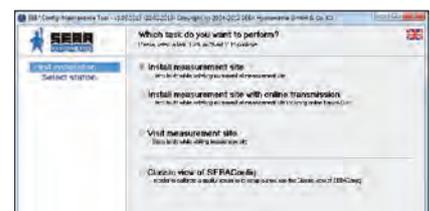
HDA-Pro



Interface cable (USB/RS232) / Bluetooth



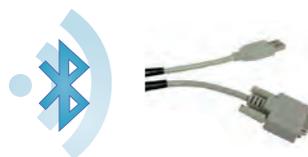
SEBA-Config



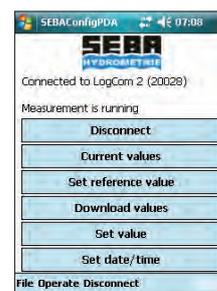
HDA



Interface cable (RS232) / Bluetooth



SEBA-Config PDA



Smartphone / Tablet (Android)



Bluetooth



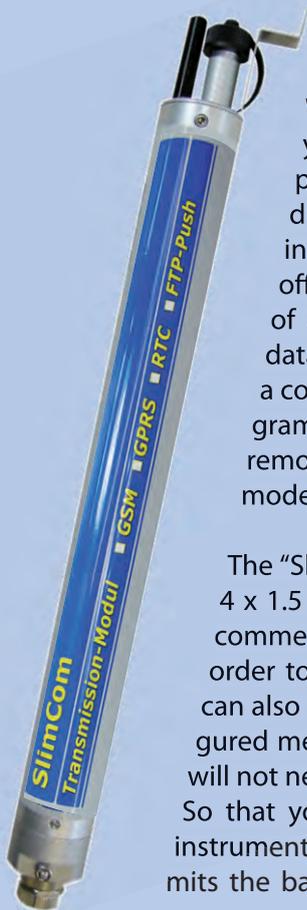
SEBA-ConfigApp



Further technical details please refer to separate leaflet on SEBA-HDA/SEBA-HDA-Pro

Are you already using Dipper-PTEC, but need current data without having to constantly travel to your measuring sites to download it? Do you want to save on operating costs for maintaining your monitoring network? Do you have underground and/or above-ground measuring sites with a pipe diameter of 1.5" or more? Then we have the solution!

## Dipper-PTEC with data transmission:



### SlimCom 3G

With the SEBA "SlimCom" data-transmission module, your data comes straight to you in your office. Simply insert a data card, unplug the power-pack module and connect the "SlimCom" to the Dipper-PTEC instead, then program the destination address — and off you go! Whether in routine operation or in the case of an incident: your "SlimCom" sends you all relevant data independently via GPRS (or optionally by SMS) to a communication server of your choice. Using freely programmable time slots, you can also adjust parameters remotely or retrieve data conventionally via a telephone modem or GSM/GPRS.

The "SlimCom" data-transmission module is operated with 4 x 1.5 V alkali-manganese batteries as standard; these are commercially available and easy to change. Alternatively, in order to maximize the operating lives of the batteries, you can also use 4 x 3.6 V lithium C cells. Depending on the configured measurement and transmission intervals, the batteries will not need to be changed for a couple of years.

So that you are always kept up-to-date on your measuring instrument's current system status, the "SlimCom" always transmits the battery voltage along with the measured values. If a measurement reaches or falls below a critical threshold, you will be notified of this immediately by SMS.



Monitoring well



Subsurface installation

Furthermore, the measuring system not only detects incidents but also reacts promptly to them by transmitting measured data to the central station at shorter intervals (dynamic push). This ensures you always have things firmly under control. Especially when it really matters!





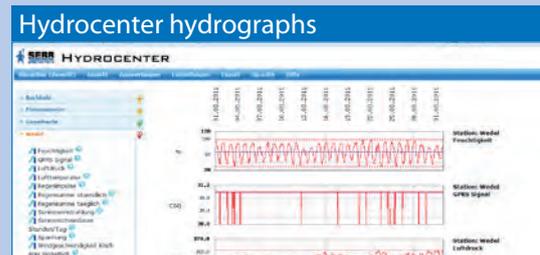
## SEBA-Hydrocenter Pro (Webmodule)

Do you not have a communication server of your own? Would you prefer to not deal with data management yourself, and are you tired of always asking your system administrator for help? With the SEBA-Hydrocenter, we provide you with a password-protected Internet portal that we use to supply you with current measurements online in a clearly presented form. The only thing you have to do is place the order. We take on the initial setup, creation of your measuring sites, data provision, and server hosting. This gives you the freedom to concentrate on the essentials!

### Hydrocenter - Web Map



### Hydrocenter hydrographs



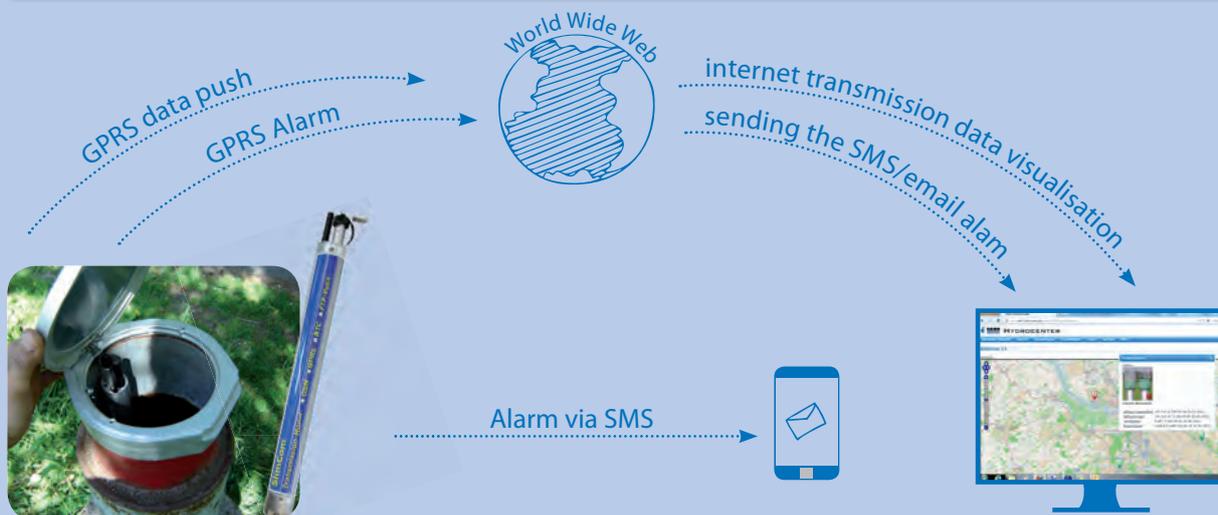
### Hydrocenter - data export



Advantages for the user:

1. At the office, at home, or out and about, your data is always available online.
2. Current measured data is displayed clearly in the form of lists and multiple graphs
3. Incidents (e.g., missing measured values, critical battery voltage) are displayed visually
4. Measured data can be shared with other authorized users (environmental agencies, engineering firms, consortium members, etc.) in password-protected form.
5. The geographical locations of the measuring sites are marked on OpenStreetMap
6. Time series can be downloaded to a local PC for further processing.

## How the SEBA-Hydrocenter Pro works



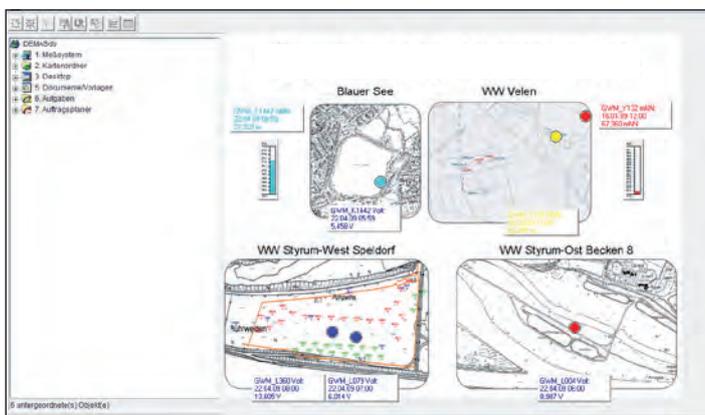
For further technical details see leaflet SEBA-Hydrocenter



## DEMASdb and DEMASvis

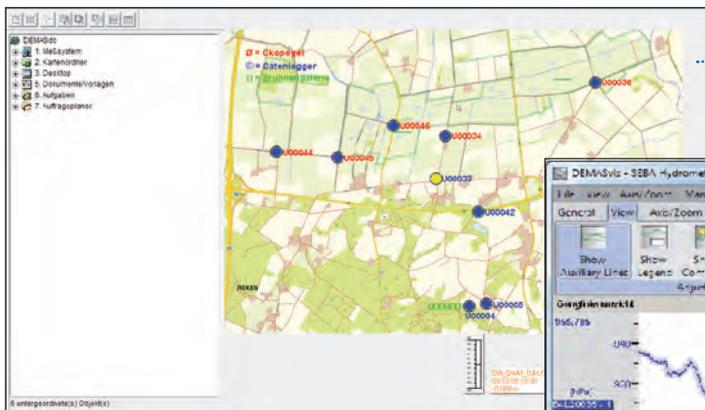
Ultimately, you want to be able to work effectively with the collected data on your own PC. Right? Experience shows that this can be a rather tedious process with the usual spreadsheet programs. With our “DEMASdb” data-management software and “DEMASvis” for visualizing and processing time series, you have everything you need! Your data flows freely and without hindrance from your measuring site to your database archive, with no cumbersome conversion processes — this saves huge amounts of time, money and patience when it comes to data handling.

DEMASdb is a graphical database interface designed especially for the purpose of recording, archiving and managing measured data. DEMASdb is suitable for both large and small monitoring networks. Whether it is online or offline data, DEMASdb channelizes all incoming measured data, stores these in the included database, and therefore brings order to the system.

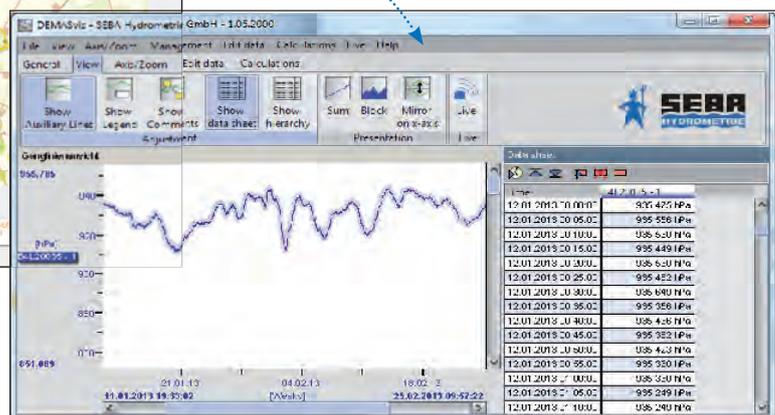


Alternatively, DEMASdb can also be linked to existing SQL databases (e.g., Oracle, Microsoft SQL Server, MySQL). DEMASdb is also multi-user capable: a large number of users can access the data set, and yet the system ensures that all data remains consistent. Configurable user rights can be used to impose restrictions on partially authorized or unauthorized users.

With DEMASdb's export function, you can convert your time series into various formats and pass them on to third parties.



DEMASvis



DEMASvis can be supplied both as a single-workstation application and as a module in conjunction with DEMASdb. A simple click on the desired measuring site in the Stations Explorer opens DEMASvis in order to display the collected data in a clear form as a graph or list. Furthermore, a multitude of editing and calculation functions are available to you, along with extensive correction options (reference correction, drift correction, and more).

Interested?

Download both tools from our download archive at [www.seba-hydrometrie.com](http://www.seba-hydrometrie.com) and give them a try!



# Technical data

## Dipper-PTEC

### Electronics:

- 32-bit microprocessor
- 4 MB flash storage (= 280,000 measured values)
- Watchdog for monitoring microprocessor activities
- Real-time clock with back-up battery
- Operating-temperature range: -25...+70°C

### Housing:

- Material: Stainless steel, rust-free
- Dimensions: 22 mm Ø, 320 mm length
- Protection class: IP68

### Storage of measured values:

- Storage of measured values in real time
- 16-bit resolution
- Storage of control values with date/time
- Measurement interval: 30 seconds to 99 hours; Optional: in 2 seconds
- Programming: Cyclic operation, Quicklog, determination of averages, event control
- Max. 32 channels (water level, temperature, conductivity, salinity, TDS value, water density, battery voltage, etc.)

### Power-pack module:

- Power supply with 4 x 1.5 V replaceable C-type batteries (alkali-manganese, MN1400, LR14, C)  
Option: Lithium C cells sufficient for approx. 5 years (at 15 min. intervals)
- Material (housing pipe): Aluminum
- Dimensions: 35 mm Ø, 345 mm length
- Protection class: IP68
- Installation device for top pieces of min. 2"
- Option: Installation plates for 2–6" pipe diameter
- RS 485 serial-communication interface with protective cap,  
Optional connection via Bluetooth interface



### Pressure sensor

- Robust ceramic pressure sensor providing long-term stability
- Measuring principle: Capacitive
- Measurement accuracy:  $\pm 0.05\%$  = 1 cm for 20 m measuring range
- Long-term stability:  $\pm 0.1\%$  / year
- Temperature stability:  $\pm 0.01\%$  / K
- Measurement ranges: 2 / 10 / 20 / 40 / 100 / 200 m or as specified

### Temperature sensor

- NTC30 with polynomial linearization
- Measuring range:  $-5...+50^\circ\text{C} \pm 0.1^\circ\text{C}$
- Measurement accuracy:  $\pm 0.1^\circ\text{C}$

### Conductivity sensor

- Measuring cell: 4-pole with automatic compensation for contamination
- Measuring range (total): 0–200 mS/cm
- Automatic subdivision of measuring range: 0–200  $\mu\text{S}/\text{cm}$ ; 0.2–2 mS/cm; 2–20 mS/cm; 20–200 mS/cm
- Resolution: 0.03  $\mu\text{S}/\text{cm}$ ; 0.3  $\mu\text{S}/\text{cm}$ ; 3  $\mu\text{S}/\text{cm}$ ; 30  $\mu\text{S}/\text{cm}$
- Measurement accuracy:  $\pm 1\%$  for 0–200  $\mu\text{S}/\text{cm}$  measuring range  
 $\pm 0.5\%$  for 0.2–200 mS measuring range
- Pressure range: 0..50 bar

**Special cable:** Shielded round cable with integrated pressure-compensation tube (up to max. 1,000 m length) incl. moisture absorber, two-stage, consisting of drying cartridge and Gore-Tex membrane, RS484 interface for direct connection to the power-pack module

## SlimCom 3G

### Housing

Aluminum, IP67  
Dimensions: Standard: Ø 35 mm, length 380 mm  
Length incl. antenna 420 mm

### GSM/GPRS modem (integrated):

- Frequency: 850/900MHz/1800/1900 MHz (EGSM, quad-band), GPRS
- HF output max.: 2 W (850/900 MHz); 1 W (1800/1900 MHz)
- SIM card: 1.8 V/3 V
- Power consumption: ~ 50 mA (receive)  
0 mA (stand-by)  
0.5 A (transmit)
- FTP-push operation: ZRXP, D-channel, CSV format
- SMS data transmission: In binary format

### Interfaces: RS 232

Option: Bluetooth (via external add-on module)

### SMS-alarm:

SMS alarm to max. 8 cell phones  
SMS alarm to FAX device

### Time slots:

Freely programmable (number, duration, time)

### Power supply:

Standard: 4 x 1.5 V alkaline-manganese batteries  
Operating time: > 1 year based on 1 query/day

### Option:

4 x 3.6 V lithium batteries  
Operating time: > 8 years based on 1 query/week (depending on the quality of the GSM connection)

### Antenne:

Screwed on, robust, weather-resistant  
With short rod antenna (dual-band) as standard \*)

### Operating temperature:

-25...+70°C

\*) It is possible to connect external antennas (e.g. subsurface antenna, puck antenna, angle rod antenna, etc.)



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