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instruments

Low-maintenance measurement setup for online measurement of salinity

Datasheet

Low-maintenance online salinity measurement

Salination of rivers, groundwater and inland waters is a growing problem in many countries. The ‘online salinity measurement’ described here provides a very low-maintenance way to quickly detect salt intrusion and to monitor the salt concentration over time. The sensor uses a UV-LED to reduce or prevent bio-fouling.

The whole setup consists of three components: a data logger with cellular modem, a solar panel and a sensor. These can be mounted on, for example, a pole or at a weir, a pumping station or any other structure.

The data logger is equipped with an internal modem and antenna. The acquired measurement data is directly transferred over the cellular network to your or our server. This way you have direct online access to your data.

Thanks to the solar panel and the rechargeable batteries, no connection to mains power is needed. This greatly simplifies the installation work!

Features:

- Can easily be placed by a single person.
- Measures conductivity and temperature.
- Salinity is derived from conductivity and temperature.
- Uses 4-electrode measurement. This is suitable down to very low salinity values.
- Low maintenance, because a UV-LED prevents bio-fouling on the sensor.
- Uses the state-of-the-art LTE-M or NB-IoT network, or GPRS.
- Data is directly available online.
- Completely integrated solution with just three components.

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Sensor:

- Subcon connector.
- Digital sensor with internal calibration.
- UV-LED to reduce or prevent fouling.

Conductivity

- Measurement range: 100 mS/cm.
- Measurement uncertainty: 25 µS/cm or ± 0.5% of full scale.
- Measurement principle: 4 electrodes.

Temperature

- Measurement range: -2 to 35°C.
- Measurement uncertainty: ± 0.02 °C.

Conductivity and temperature sensor with UV anti-fouling

Datalogger:

- The housing contains the advanced OMC-048 scriptable data logger with integrated modem, plus batteries, a charge controller and an antenna.
- Measurement interval configurable from 1 minute to 1 day.
- Uses the 4G LTE-M1/NB1 IoT cellular network, or GPRS.
- Reliable and secure communication (encryption).
- Supports various internet communication protocols.
- 32 GB SD card for data storage.
- Connectors for connection to the sensor and the solar panel.

OMC-044 data logger

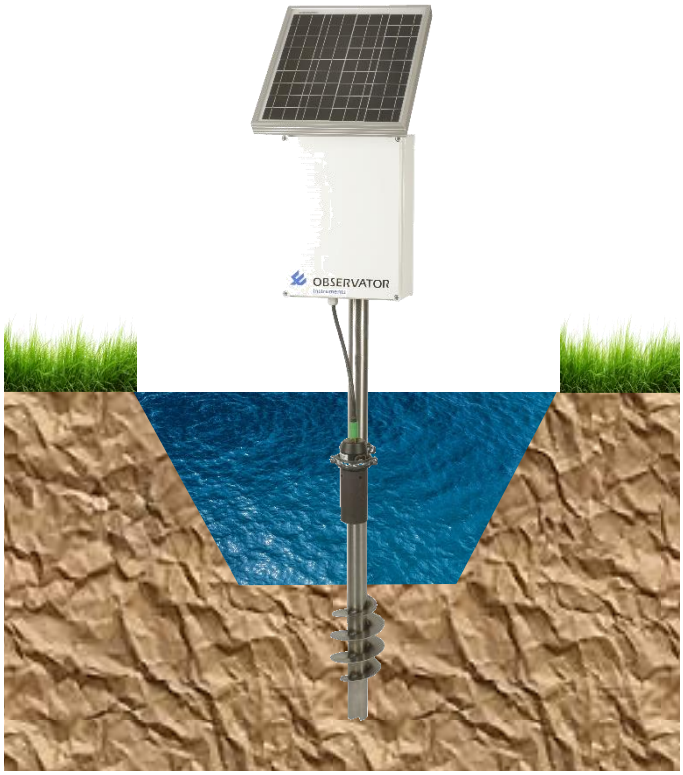
Alternatives:

- Version without solar panel (external power required).
- Connection for external antenna (instead of internal antenna).
- Only the OMC-048 logger (for installation in a cabinet with power supply).

Pole mounting(optional parts):

- Pole with screw thread Ø 40 mm, various lengths.
- Bracket for the data logger.
- Bracket for the sensor.
- Bracket for the solar panel.
- Solar panel (20 Wp).
- Protecting tube for the sensor with belonging brackets.

Note: all brackets for pole diameter 40-60 mm.

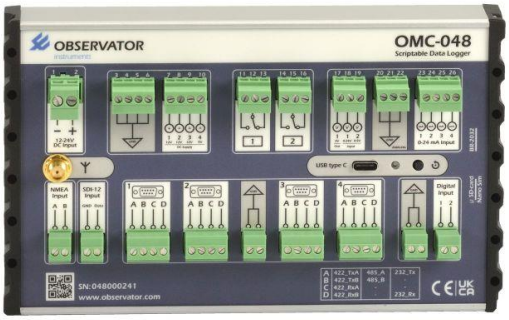


Measurement setup on a pole with screw thread (protecting tube not shown)

Installation on existing structures

The logger can simply be mounted on a wall or in a cabinet. If mains power is available, a version without solar panel and without batteries can be selected. This will require a 12V supply. Optionally an external antenna can be connected as well. If there already is a suitable cabinet with a power supply, only the OMC-048 logger itself (see picture) needs to be installed.

The mounting of the sensor depends on the local situation.

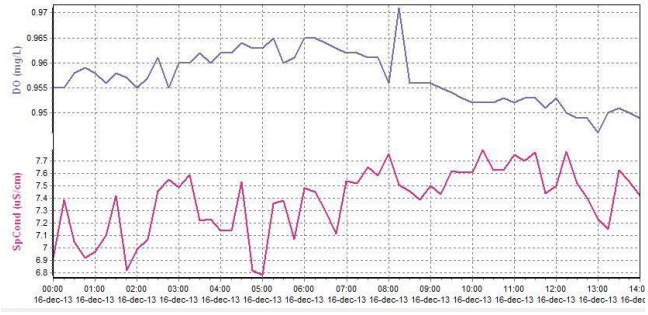


The OMC-048 data logger

Online measurement data

The data logger can transfer its data to an arbitrary server, using various secure protocols. It allows you to receive the data directly, without intervening third parties, in your own ICT environment. For more details, please have a look at the OMC-048 data logger on our website.

As an alternative, Observator can also host a webpage for you. You will only have to login to the website to see all your data. You can view charts, tables and reports. You can also receive alarm messages by mail, whenever a threshold is crossed. For more information, please have a look at OMC-Data-Online on our website.



Online measurement data (OMC-Data-Online)

Possible extensions

Next to, or instead of, the conductivity and temperature sensor, it is possible to use a range of other sensors. The logger offers ample provisions for that. For example, you can add sensors (with or without wiper) for water level, dissolved oxygen (DO), pH, blue-green algae, chlorophyl, nitrate and so on. Or you can add an EXO multiparameter sonde for all the above. Also a weather station - for measuring wind, air temperature, humidity and so on - can easily be added.

Possible extension (example): EXO3S multiparameter sonde

Possible extension (example): weather station

Alternative system

In addition to the low-maintenance system described here, we also offer a more economical and very compact version, called ‘Compact online salinity measurement’. You can find the brochure on our website.

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TURBIDITY SENSORS

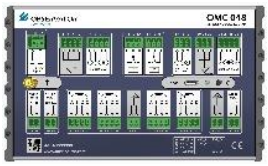
DATA BUOYS

DISCHARGE MEASUREMENT

WATER LEVEL SENSORS

WATER QUALITY SENSORS

HANDHELDS WATER QUALITY



DATA LOGGERS

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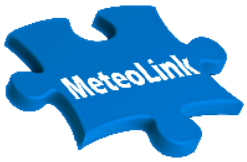

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