



OTT system solutions
Stand-alone compact systems
for hydrological applications

OTT HydroSystems

Convenient solutions for stand-alone
measuring stations

The turn-key OTT HydroSystems allow hydrological measuring stations to be set up using only a few manual operations. The high-quality and completely fitted system cabinets include components for power supply and everything that is needed for saving and transmitting measured data. Several system options are available, each of which featuring particularly attractive value for your money.

In each of these options, the IP-enabled and highly energy-efficient OTT netDL 500 data-logger is the core of the system. Several SDI-12 sensors may be connected to the logger, as it has numerous channels. Optionally, the measured data may be remotely transferred via the built-in cellular modem, some versions offer Ethernet or satellite communication. The required antennas are already included in the system.

OTT HydroSystems are designed to be used with measuring stations that are powered by solar energy or mains supply. Moreover, they are ideally suited to be used at remote locations. The lockable stainless steel system cabinets are dust and splash-water proof and a built-in breathing gland provides sufficient ventilation and drainage.

Quantitative
Hydrology

Appropriate basic configuration, options meeting the demand

High-quality basic configuration

In addition to power supply components, the basic configuration of the rugged control cabinet includes everything needed for saving and transferring the measured data. In detail, the basic configuration includes the following components:

- Lockable stainless steel control cabinet including breathing gland
- OTT netDL 500 IP datalogger with built-in modem and flat antenna
Exception: Version F includes the netDL 1000 unit.
- Solar controller; compatible rechargeable battery and solar panel including outrigger available as accessories
Exception: Versions F and G are designed to be powered by mains supply.
- Connector for SDI-12 sensors such as OTT RLS (radar sensor), OTT PLS (pressure probe), OTT SE 200 (shaft encoder) or OTT CBS (bubble sensor)
- Overvoltage protection
- Wiring diagram

All components within the control cabinet are fully installed, the datalogger is already pre-configured. The control cabinet may be installed to the mast as well as to the wall, e.g. within the gauge station. For both installation types, convenient stainless steel brackets are available as accessories.



Core of the basic configuration: OTT netDL 500/1000 datalogger

The rugged IP dataloggers featuring large storage have been developed particularly for data management in environmental monitoring. Thanks to power management, they operate in a very energy-efficient way. The built-in cellular modem provides for remote data transfer, the netDL 1000 unit additionally provides communication through Ethernet. Both loggers feature high flexibility, since they are able to handle conventional dial-up connections as well as all major web communication protocols. The internal TCP/IP stack ensures hardware independent and smooth operation.

Features and benefits

- Efficient power management
- Cellular modem; flat antenna included
- Ethernet interface (netDL 1000)
- Internal web server
- Redundant communication paths
- Compatible with all major communication protocols (HTTP, SMTP, FTP, ...) and data formats (incl. XML)
- USB interface for easy communication on site
- Display unit including jog shuttle for quick overview
- Standard SDI-12 and RS-485 (SDI-12) interfaces; optionally, analogue sensors may be connected



System versions

OTT HydroSystems are available in seven different versions. Standardization of the compact systems allows for cost-efficient production resulting in significant savings, compared with individual solutions.

Except for a few exceptions, control cabinet and basic configuration are the same for all system versions. For water level measurement, a bubble sensor may be installed. Optionally, the control cabinet also includes components for communication via satellite.

By default, mains-powered versions have an extended power supply overvoltage protection. If necessary, extended overvoltage protection including conductors for solar power supply and sensor electronics is also available.

High-quality measurement technology in a modular system

	A	B	C	D	E	F	G
Basic configuration	■	■	■	■	■	■	■
SDI-12/RS-485 connector	■	■	■	■	■	■	■
Analogue connector					■		
Solar power supply	■	■	■	■	■		
Mains power supply						■	■
OTT netDL 500 datalogger	■	■	■	■	■		■
OTT netDL 1000 datalogger						■	
Bubble sensor			■	■			
Satellite transmitter (GOES/Meteosat)		■		■			

HydroSystem A

- Basic configuration
- Optional extended overvoltage protection

Version A offers the entire basic configuration as a compact system. It is ideal to quickly and easily set up a measuring station for data communication while providing solar power supply.

Any sensors may be connected to the SDI-12 interface. The only requirement is that they have to be compatible with the SDI-12 Standard.

HydroSystem B

- Basic configuration
- GPS controlled satellite transmitter for GOES/Meteosat, including antenna
- Optional extended overvoltage protection

Also version B offers the entire basic configuration as a compact system. Additionally, it is provided with a satellite transmitter including transmitting antenna and is thus suited for locations with insufficient cellular radio infrastructure or for redundant remote transfer.

HydroSystem C

- Basic configuration
- OTT CBS bubble sensor
- Optional extended overvoltage protection



Version C is already water level measurement enabled, since – in addition to the basic configuration – the high-quality OTT CBS bubble sensor is installed in the control cabinet and connected to the datalogger.

HydroSystem D

- Basic configuration
- OTT CBS bubble sensor
- GPS controlled satellite transmitter for GOES/Meteosat, including antenna
- Optional extended overvoltage protection

Also version D is already water level measurement enabled. Thanks to the built-in satellite transmitter, the system may also be used in locations in which remote data transfer via cellular radio is not ensured because of poor network coverage.

HydroSystem E

- Basic configuration
- Connectivity for four analogue sensors

Version E is designed for applications in which both SDI-12 and analogue sensors are used. By default, connectivity for four analogue sensors is provided; optionally, up to eight sensors may be connected.

HydroSystem F

- Basic configuration including the OTT netDL 1000
- Ethernet interface
- Mains power supply
- Extended power supply overvoltage protection
- Optional extended overvoltage protection for sensors



Version F is equipped with the OTT netDL 1000 datalogger, which also provides communication through Ethernet. This version is designed to be used for stations, which are powered by mains supply.

HydroSystem G

- Basic configuration
- Mains power supply
- Extended power supply overvoltage protection
- Optional extended overvoltage protection for sensors

Version G offers a solid basic configuration for data communication and connecting SDI 12 sensors, similar to version A. As opposed to this version, it is designed to be used with mains power supply.

OTT HydroSystems – compact, turn-key, convenient



Features and benefits

- Standardized configuration resulting in particularly attractive value for your money
- All components are already installed, pre-wired, and pre-configured – minimum installation operations
- Powerful IP datalogger providing efficient power management and diverse communication options (GSM/GPRS, 3G, USB, RS-232, Ethernet)
- Optional: OTT CBS water level sensor – indirect measuring method, therefore ideally suited for locations that are exposed to lightning
- Optional: Certified GOES/Meteosat satellite transmitter – provides remote data transfer also in cases of poor cellular radio infrastructure
- Rugged lockable stainless steel system cabinet – particularly designed for field applications
- Cabinet enclosure fitted with breathing gland – for sufficient ventilation and drainage
- Convenient stainless steel mast mounting bracket – for easy installation to masts of 1" ... 4" (accessory)
- Stainless steel wall bracket – for safe wall mounting, e.g. in gauge station (accessory)

Applications

- Quick and easy installation of solar or mains powered hydrological measuring stations, even in remote locations
- Reliable and efficient water level measurement, e.g. in streams, rivers, canals, lakes, or reservoirs
- Remote data transfer via cellular radio, Ethernet, and/or satellite



Technical Data

Cabinet

- Dimensions (W x H x D):
380 mm x 500 mm x 210 mm
- Housing material: Stainless steel
- Protection class: IP65
- Lockable
- Breathing gland
- Max. dimension battery: (W x H x D)
190 mm x 175 mm x 130 mm

Temperature range cabinet

components included
-25 °C ... +50 °C

Power Supply (solar energy)

- Solar controller OTT PR1205
- Optional: Solar panel 12 V/30 W,
460 mm x 530 mm (W x H)
with 1" outrigger
- Optional: Battery 12 V/26 Ah

Power Supply (mains power)

- Power Control Unit OTT PCU12
- Optional: Battery 12 V/7 Ah

Enhanced overvoltage protection Mains power supply (solar optional)

- SPD acc. to EN 61643-11: Type 3
- SPD acc. to IEC 61643-1/-11: Class III

Enhanced overvoltage protection Sensors (optional)

- EN 61643-21
- IEC 61643-21

OTT netDL 500/1000

- IP Datalogger
- Integrated modem
(GSM/GPRS or 3G)
- Communications interfaces:
USB Host and USB Device,
RS-232 (full DB9)
Ethernet (netDL 1000)
- Sensors interfaces:
SDI-12, RS-485 (SDI-12)
2x status/impulse input
2x switched output
Analogue inputs (optional)
- Flat antenna

GOES/Meteosat satellite transmitter

Modes of operation:

- GOES 300/1200 bps (CS 2.0)
Self-Timed Transmission Mode
Random Transmission Mode
- CGMS International 100 bps
- Meteosat 100 bps (SRDCP-MSG 2. Gen.)
- Meteosat 1200 bps (HRDCP)

Approval certificates:

- NESDIS/EUMETSAT
- Transmitting antenna:
- Type: Cross-Yagi
- Antenna gain: 11dBi
- For mounting on 2" tube

OTT CBS

Bubble sensor

- Measuring range: 0 ... 15 m (0 ... 50 ft)
- Resolution: 1 mm (0.01 ft)
- Accuracy: ± 0.5 mm

OTT EPS 50 bubble chamber (accessory)

Inner diameter of measuring tube:
2 mm or 4 mm