



an OTT HydroMet brand

OTT netDL 500/1000 IP capable data logger family fit for the future





IP capable data logger family fit for the future

OTT netDL 500/1000

The IP compatible OTT netDL 500 and 1000 data loggers were developed specifically for use at hydrology and meteorology stations. Along with their standard task of collecting data, the flexible data loggers are masters of all current methods of remote data transfer and are equipped to communicate via the Internet. As a result, the new loggers not only meet today's requirements, but are also perfectly equipped to meet the demands of tomorrow.

Based on their modular design, the loggers are individually configured according to customer specifications and are therefore perfectly tailored to their particular application. As a true communication all-rounder, transmitting data to a server or database is possible via various communication technologies. Mobile communication utilizing

4G/3G/2G as well as IoT technology 4G LTE-M is available with the OTT netDL data logger. Ethernet, RS 232, Satellite (MeteoSAT, GOES), USB ports and an integrated web server create additional communication possibilities. Those who need a high level of data availability can use different communication routes concurrently. Also, short polling cycles may be set, since the loggers may be used in a multitasking environment and are capable to communicate with all connected sensors in parallel. High storage capacity and efficient power management go without saying in this connection. At the same time, these all-rounders are easy to operate and can even be controlled remotely using network management software, Windows operating program or even a standard browser.

Overview of the interfaces

Fast, reliable, and pioneering

- Cellular networks: 4G, 3G and GSM/GPRS as well as 4G LTE-M - m2m communication IoT - via modem (RS232).
- Ethernet interface for the netDL 1000 enables the data-logger with various options e.g. connection to an IP Router (ALLIP network), Fiber Optic converter, Ethernet switch, IP-Cameras, IP satellite communication etc.
- Standardized interfaces and support for a number of transfer protocols (HTTP, HTTPS, FTP, FTPS, MQTT, MQTTS, SMTP,...) and data formats (XML, ASCII, csv, zrxp,...) for easy integration into existing and future systems.
- Redundant communication paths when different protocols are used – provides maximum data availability.
- Parallel processing of data of all channels – minimises transfer times and allows short polling cycles.
- Time sync is through SNTP which provides precisely timed long-term series of measurements to be carried out.
- Internal TCP/IP stack for hardware independent smooth operation.
- Encrypted secure data transfer through HTTPS/ FTPS/ MQTTS.
- Comprehensive alarm management.

Sensor interfaces

Both loggers feature all interfaces that are commonly used with hydro-meteorological stations. If necessary, we add extension modules to the loggers as specified by the customer. Benefit for you: only purchase the modules you need and get a device that is perfectly matched to your particular application.

Available extension modules (interface boards)

- Analogue input board (for analogue sensors)
- Analogue output board
- Barometric input board

Remote data transfer

The flexible loggers are real all-rounders when it comes to transferring data remotely. You can transfer data through mobile phones as well as over Ethernet (netDL 1000), a dedicated line, or satellite. In particular, they are well prepared for IP communication.



Sensor interfaces and outputs	netDL 1000	netDL 500
SDI-12 V1.3	✓	✓
SDI-12 via RS485	✓	✓
Modbus RTU (master)	✓	✓
Pulse/status input	4	2
Analogue input ¹⁾²⁾	max. 12	max. 6
Analogue output ¹⁾	max. 6	max. 4
Status output (2)	✓	✓
Switch output (2)	✓	✓
<i>switches external devices ON/OFF, e.g. external modems</i>		
Ethernet (for coupling data loggers or connecting IP cameras)	✓	

Communication interfaces	netDL 1000	netDL 500
4G/3G/2G via modem (RS232)	✓	✓
IoT 4G LTE-M via modem (RS232)	✓	✓
Ethernet 10 BASE-T	✓	✓
Satellite (GOES & MeteoSat)	✓	✓
USB host and device	✓	✓
Display controlled via Jog-Shuttle	✓	✓

¹⁾ Available as an extension module

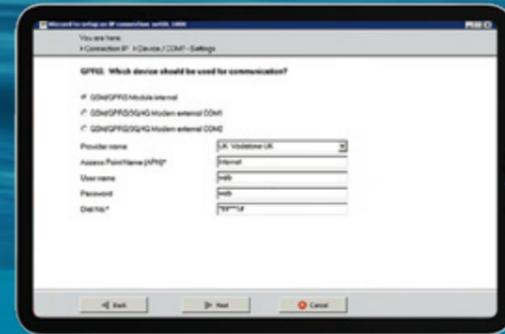
²⁾ Optional isolation

New options for your measurement network

Guided configuration

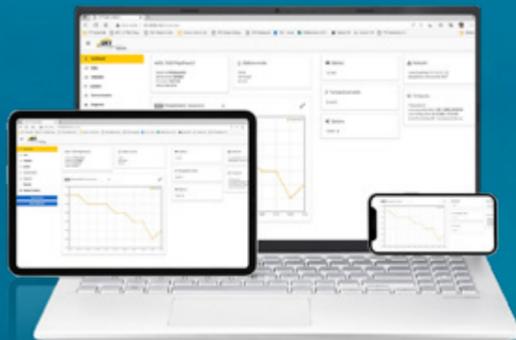
An operating program for Windows-based PCs or tablets allows the netDL unit to be configured even by persons who are not specialized in such type of work.

- Setup wizard including step-by-step guidance
- Online help with information on all important steps
- Meaningful messages and internal plausibility checks
- Templates for the configuration of the individual channels



Access from anywhere

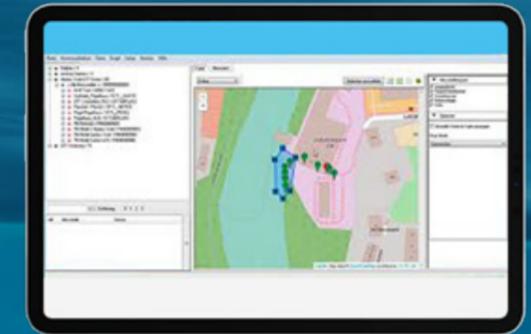
Thanks to the built-in web server, authorised persons may access the data logger from anywhere using a standard web browser. No special software is required. A static IP address or dynamic DNS is used to establish a connection to the logger for accessing the unit. In this way, you may look into data or adjust basic parameters of the logger by PC, tablet, or smartphone. Access rights are used to control read and write access.



Efficient measurement network management

Imagine a firmware update is available and you can update all data loggers of your measurement network at once. The Hydras 3 net software can do this. This software solution generates a central HTTP server from which all netDL data loggers of a measurement network may be managed easily and efficiently. This saves time and helps keep control over the process.

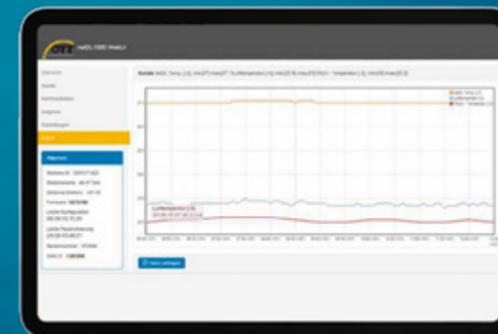
Only the server needs a static IP address. Users may access it directly or through clients, e.g. to perform a firmware update or to change parameters of individual or several loggers at the same time. All commands are saved on the server. The loggers connect to the server in regular intervals, retrieve the commands relevant to them and return feedback on the success of their execution. To do this, they do not need a static IP address. This is particularly useful for stations without DSL connection, because SIM cards having a static IP address are very rare.



At any time, the user interface map view provides a good overview over the entire measurement network and the status of the individual stations.

Easy troubleshooting

During operation, diagnostics tools providing detailed logging information help identify and quickly troubleshoot any problem.



OTT Hydras3 net features

Hydras 3 net facilitates managing the measurement network. Many operations are done by one click and configuring operations may be conveniently performed from a PC. Obvious benefit: You need to access stations less often.

- **Map view** – clear overview of the measurement network; individual stations may be selected by simply clicking on them.
- **Network status** – immediate information whether all components are running smoothly.
- **Firmware management** – time-saving updates for all or selected netDL data loggers.
- **Sensors and channels** – only a few clicks are required for configuring selected/all data loggers.
- **Configuration management** – used to retrieve, deploy, and save configurations.
- **Maintenance window** – direct access to individual data loggers as needed.
- **Diagnostics** – identify errors and troubleshoot them more quickly.
- **IP cam images** – used to provide station pictures.
- **Runs on Windows** – may be used independent of any other existing data management software.

Field of application

Environment

Applications

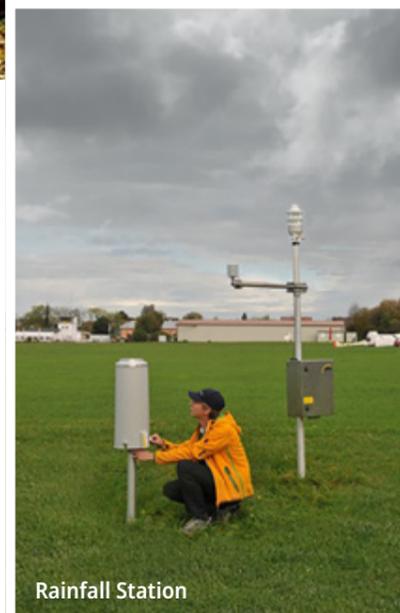
- Remote and urban environmental monitoring
- Surface water stream gauging
- Water quality monitoring
- Basic meteorological stations



Flood warning



Observation & Meteorology



Rainfall Station

Technical Specifications

Communications interfaces	Ethernet RJ-45 10 Base-T (netDL 1000: 1) USB Host and USB Device RS-232 (netDL 1000: 2; netDL 500: 1)
Sensor interfaces <i>(standard version)</i>	SDI-12 V1.3 RS-485 (SDI-12/Modbus RTU) Pulse/status input (netDL 1000: 4; netDL 500: 2) Status output (2) Switch output (2)
Input/output modules	Analogue inputs (configurable) Analogue outputs (configurable) Analogue inputs, isolated (configurable) Serial input module for OTT Sensors Barometric input board
Measuring channels	Standard: 40; optionally 120
IP communication	HTTP/HTTPS (TLS 1.2), FTP/FTPS (PROT C), MQTT/MQTTS, SMTP, Socket Integrated webserver and integrated IP stack Cell communication 4G/3G/2G or 4G LTE-M via modem (RS232) Cell communication 3G/2G via optional internal modem
Integrated modem <i>(optional)</i>	2G/GSM 3G/2G/GSM
External modem <i>(optional as accessories)</i>	G/3G/2G EU version 4G
Operating system	RTOS with power management for minimal power consumption
Time synchronisation	SNTP (Simple Network Time Protocol)
Power supply	9 ... 28 V DC (typ. 12 V DC)
Power consumption at 12 V DC	Sleep mode: < 250 µA; Sleep mode, impulse active: < 10 mA Active mode: approx. 25 mA ... max. 400 mA (depending on configuration)
RAM / NOR / NAND Flash	4 MB / 8 MB / 256 MB
Data memory	Up to 1,100,000 values OTT Parsivel spectral data (up to 30 days)
Display	Graphical dot matrix (122 x 32 pixels) LED backlight Controlled by jog shuttle
Status display	2 x LED (variant with integrated modem)
Temperature range	Operation: -40 °C ... +70 °C Storage: -50 °C ... +85 °C Internal modem: -30 °C ... +70 °C Display (display on): -20 °C ... +70 °C
Relative humidity	5 ... 95 % (non condensing)
Dimensions (L x W x H)	netDL 1000: 232 mm x 124 mm x 86 mm netDL 500: 148 mm x 124 mm x 86 mm
Housing	ABS
Protection class	IP 40
CE/FCC/IC	RoHS compliant



Insights for Experts

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