NEMOS N200+

IP68 GSM DATALOGGER

The NEMOS N200+ is a battery-powered data acquisition device with GSM communication, designed for use in manholes and flood-prone environments. In its basic configuration, it has 4 digital inputs suitable for flow meters and 2 analog inputs. Optionally, it can be equipped with a MODBUS RTU interface and 1 or 2 integrated pressure probes capable of detecting water hammer events.

The Nemos N200+ incorporates the latest narrowband communication technologies, NB-IoT and CAT.M1, while still supporting the 2G standard. This ensures that the device can communicate with the most widely available networks currently (2G) and is prepared for the future development of NB-IoT/CAT.M1.

The unique concept of a detachable antenna of the Nemos N200+ combines the best features of an integrated antenna solution, including mechanical robustness and IP68 protection, with the flexibility of being able to disassemble the enclosure and install an external antenna if necessary.

For local communication and diagnostics, a Bluetooth radio is included, allowing these tasks to be comfortably performed from outside the confined space or manhole.

ZEUS 6 PLATFORM
ZEUS 6, the free monitoring platform from Microcom, allows you to monitor your installation through the ZeusWeb portal and the ZeusMobile mobile application for iOS and Android.

FEATURES

- 4 digital inputs designed for flow meters
- 2 analog inputs, configurable for either 0-10 VDC or 4/20 mA modes
- 2 voltage outputs ranging from 5 to 24 VDC for powering analog transducers
- Bluetooth 4.0 LE

- Optionally, 1 or 2 integrated pressure probes with fast sampling up to 128 Hz
- Typical batery life of 10 years
- IP68 protection (2m for 100 days)
- High-performance detachable antenna
- 5-year warranty

DETACHABLE ANTENNA

The innovative concept of a detachable antenna of the Nemos N200+ offers two configurations:

● **Integrated antenna:** the datalogger and the antenna form a solid and watertight unit. The half-wave dipole design offers excellent performance above 90%.

● **External antenna:** the detachable antenna enclosure gives access to a stainless steel SMA connector, thus allowing the installation of an external antenna.

The IP68 certification of the Nemos N200+ has been validated for both configurations.

BATTERY LIFE

The NEMOS N200+ is supplied with two battery capacities: a 7.2v and 14AH pack or two packs for a total of 7.2v and 28AH. This is, respectively, double and quadruple the usual in its sector.

Channels	Sampling Freq.	Transmission Freq.	Capacity	Estim. Bat. Life*
Flow and pressure	5 minutes	24 hours	Single pack	10 years
Flow and pressure	5 minutes	1 hour	Double pack	4 years
Flow and pressure (transient detection mode)	5 minutes	24 hours	Single pack	5 years

* Test conditions: Temperature 20 ºC, RSSI: -93 dBm, download on Zeus server via GPRS.

PRESSURE

The NEMOS N200+ is the most advanced datalogger in its sector in terms of pressure monitoring. This is due to a highly energy-efficient implementation, which makes continuous pressure measurement viable, despite the limitations imposed by battery power.

Pressure monitoring can be configured in two modes:

● **Low consumption mode:** pressure is read every second. This generates statistics of maximum, minimum, and average for each recording period. The impact on battery life is negligible.

● **Transient detection mode:** pressure is read between 8 and 128 times per second depending on the configuration and detected pressure gradient, recording pressure transients and water hammer events. The high sampling frequency of 128Hz allows for recording peak pressures with high fidelity.

TECHNICAL SPECIFICATIONS

GENERAL
Battery capacity .... Single pack 7.2 V / 14 Ah (default)
.... Double pack 7.2 V / 28 Ah (optional)
IP rating .... IP68 2 m. 100 days
Operating temperature .... -20 ºC to +75 ºC
Radio modem chipset .... GSM/2G/NB-IoT/LTE-M (default)
.... GSM/2G/3G (optional)
Internal memory .... >150.000 logs
Antenna .... Half-lambda dipole (detachable)
Real-time clock .... High precision +- 2ppm. NTP synchronization
Configuration and diagnostics .... Bluetooth 4.0
External materials .... Polycarbonate / ABS

ANALOG INPUTS
Number 2
Type .... 0-10 V or 4/20 mA
Accuracy .... 0,1 %
Resolution .... 16 bits
Impedance .... Voltage mode 2 MΩ
.... Current loop mode 125 Ω

DIGITAL INPUTS
Number 4
Sampling frequency .... 64 Hz / 256 Hz

VOLTAGE POWER OUTPUTS
Number 2
Type .... 5 to 24 VDC
Max. output current. .... 40 mA
Accuracy .... 5 %

PRESSURE SENSORS (OPTIONAL)
Number .... 1 or 2
Type .... 0-10 / 0-20 Bar
Sampling frequency .... Low consumption mode: 1 Hz
.... Transients detection mode: 8 -128 Hz
Accuracy .... 0,4 %FSE
Hose connection .... Ø 8 mm. Pneumatic fitting

FIELD BUS / EXT. POWER SUPPLY (OPTIONAL)
BUS Type .... MODBUS RTU / RS-485
Input voltage range .... 9 to 30 VDC

IMPROVEMENTS OVER PREVIOUS

New box design to accommodate the IP68 enclosure of the detachable antenna.

Modem with 2G/NB-IoT/Cat.M1 technology.

Bayonet type connectors.

ACCESSORIES

F100-N
Intelligent capacitive sensor for reliable detection of overflow events in wastewater networks.

THOR-2
Module for driving two Latch type solenoids. 12 VDC / 2-wire

EXCALIBUR M1
High-performance GSM IP68 antenna. Designed for operation in manholes and confined spaces.

VEGAPULS C11 / C21 / C22
Radar sensor for measuring the level of liquids and bulk solids.

Y200-LP
Ultrasonic sensor for the measurement of water level without contact.
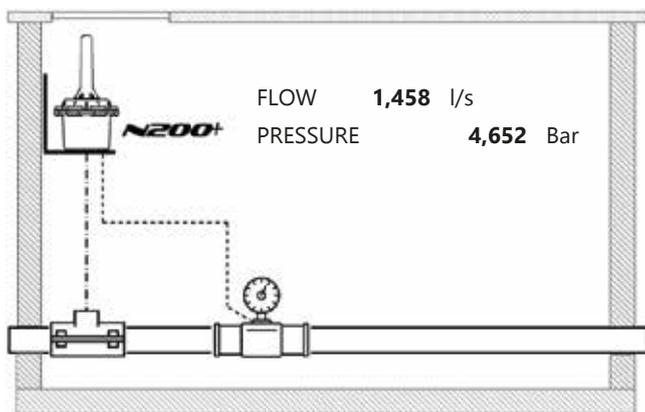

NEMOS BATPLUS
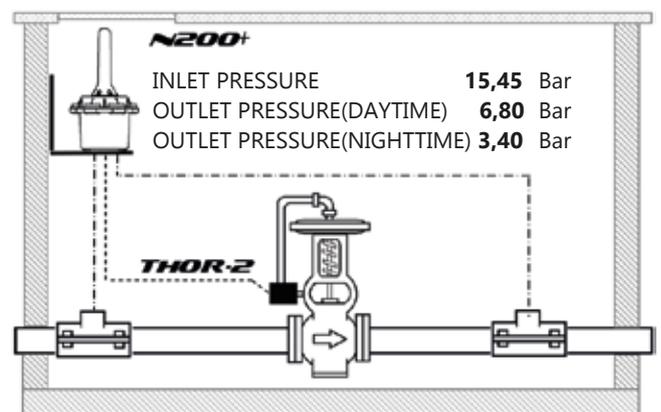IP68 battery pack compatible with Nemos N200+ 14.4 VDC / 13 Ah

USE CASES

MONITORING OF OVERFLOW EVENTS

Detection and quantification of overflow events on storm tanks without electrical supply.
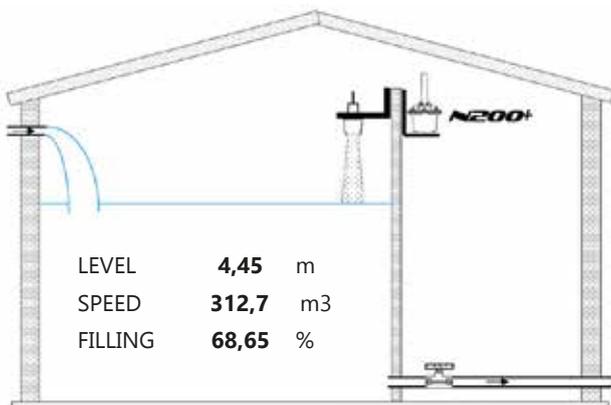

FLOW	**1,458**	l/s
PRESSURE	**4,652**	Bar

LEAK DETECTION

Comprehensive supervision of drinking water supply networks.

INLET PRESSURE	**15,45**	Bar
OUTLET PRESSURE(DAYTIME)	**6,80**	Bar
OUTLET PRESSURE(NIGHTTIME)	**3,40**	Bar

PRESSURE REGULATING VALVES

Recording of level at the inlet/outlet and automatic control of the outlet pressure.

LEVEL	**4,45**	m
SPEED	**312,7**	m3
FILLING	**68,65**	%

LEVEL MONITORING

In tanks and wells without electrical supply.

LEVEL	**0,250**	m
SPEED	**3,745**	m/s

nivel

velocidad
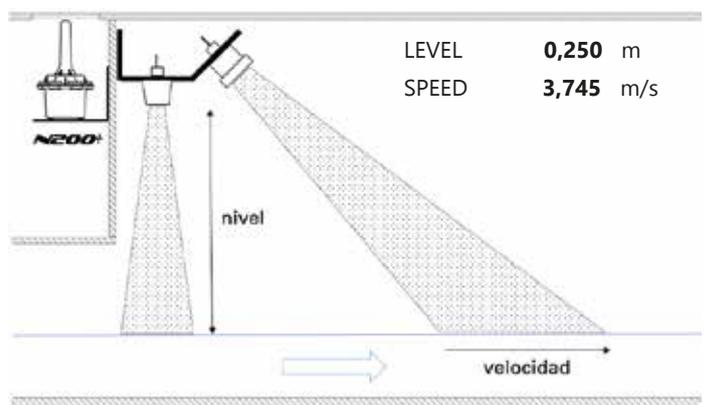
MEASUREMENT OF LEVEL AND FLOW IN RIVERS AND OPEN CHANNELS

Contactless measurement of water level and speed.

ZEUS 6
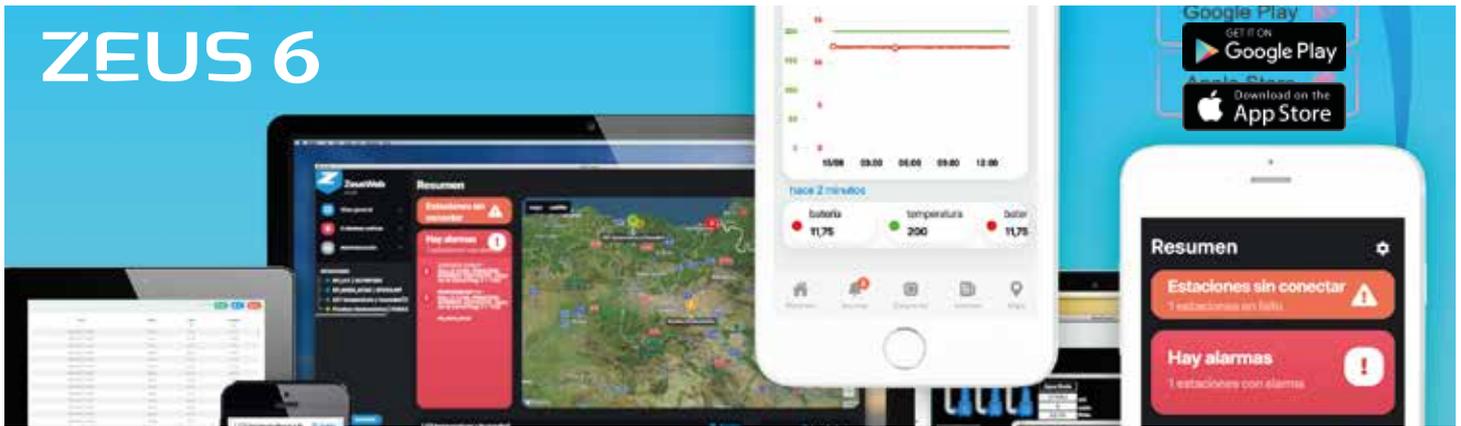
The standout features of ZEUS, the online SCADA that Microcom provides to its customers for free, are its ease of use and the application of the latest web technologies to offer an interface as secure as any online banking service.

All you need is a simple web browser to access the service and start managing your facilities from anywhere. When you're away from the office, the ZEUSmobile mobile application available for iOS and Android provides optimized access for phones and tablets, as well as the receipt of alarms using PUSH technology, making SMS obsolete in most cases.

ZEUS is not just for visualization, it also allows for the reconfiguration of remote stations without the need to physically be there, the sending of commands, and the management of users and stations. Integration into other platforms is guaranteed through the most common current standards such as OPC UA and REST API.

TOOLS AND FEATURES

Display of historical data in graphic format
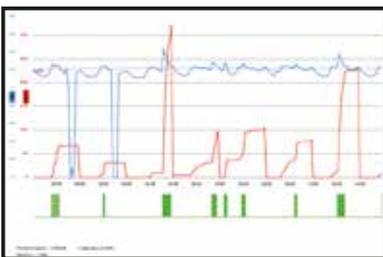
Real-time supervision through synoptics
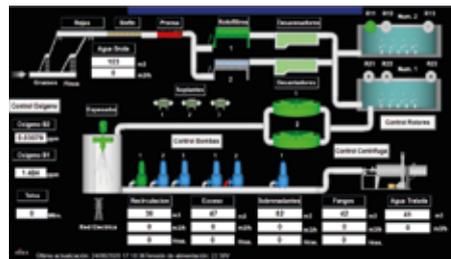
Geolocated map of stations

Example of visualization in:

ZEUS mobile

Comprehensive report generation tool

Reception, management, and forwarding of alarms

Maximum security thanks to the most advanced web standards: HTTPs / SSL

Remote configuration of Hermes and Nemos devices

Advanced user and privilege management

Availability of the Zeus Synoptic Builder tool for the creation of synoptics.

ZeusAPI / OPC UA SERVER Easy integration of data into other platforms through OPC UA and REST API