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DATA LOGGER DN4020

DATA LOGGER DN4020 is a device for measuring physical quantities, collecting and saving measurement data, which can be connected to sensors with communication interface or digital output - water level, temperature, humidity, rainfall, etc.

It is a technologically advanced device that is intended, thanks to its small size and ease installation especially for installation directly into boreholes, but it can be deployed in other applications concerned with the measurement of physical quantities.

low power consumption
the device is characterized by a very low consumption

sensors and probes
easy connection of intelligent sensors via RS485

enhanced resistance
allows to work in extreme environments from -40 to +60 ° C and protection against atmospheric moisture to IP67

Bluetooth
Datalogger is equipped for direct communication with a PC or a device with Android OS with a wireless Bluetooth low energy version 4.0. With this technology it is possible to connect wirelessly datalogger to the distance up to 10 m without any local activation of Bluetooth at datalogger. It is possible to obtain the data record from the borehole without handling the cover (locks, lids, etc.).

Using and typical application

Water level measurement in boreholes, river profiles, in water supply and sewerage system; Monitoring of physical quantities (level, flow, rainfall, etc.). Environmental monitoring, measurement in vegetative, horticultural and agricultural sectors; Measuring units for scientific and research facilities.

Inputs and outputs of datalogger DN4020
- 1x digital input (can be used as a binary input or counter)
- 1x digital output (can be used as a switched power for sensors), choice of duration (power in advance, impulse of defined length), set the time of first measurement

Bluetooth
With wireless Bluetooth low energy version 4.0 it is possible to configure the datalogger, download daily data and logs using the program DN4000. Communication is protected by several levels of passwords, each providing different rights for access to values and configuration changes.

RS485
The advantage is the ability to connect smart sensors, that communicate via RS485 over HART protocol and feature better parameters than analog probes. These probes can be connected very easily, their addresses are loaded automatically. In one RS485 loop can be simultaneously connected more smart sensors and devices.

Software DN4000

The software DN4000 is intended for communication with the measurement and recording units DN4000, DN4000 Compact, DN4010 and DN4020. It is user friendly and there is no need for separate manual, all individual items are explained via local help. The software runs on PCs with Microsoft Windows 8.1 and above, or on devices with OS Android (tablets, mobile phones).

Using the software DN4000 and wireless Bluetooth low energy version 4.0 can be locally performed:
- complete setup of datalogger
- download saved data from internal memory, logs and the current configuration of datalogger
- edit the downloaded configuration of datalogger and save it to PC or to datalogger
- delete daily data and logs of events in the internal memory
- show a direct measurement of the active channels
- calibrate and adjust measuring probe
- edit passwords for logging on to the datalogger

Mechanical construction
- The electronics is placed in a plastic tube of length 250 mm and diameter 40 mm.
- Probe wires are connected inside the datalogger on screw terminals and the cable will be fastened with tightening the cable grommet in the bottom of the datalogger. Inside the housing is placed a silicagel bag that captures moisture not only inside the datalogger, but also from the probe capillary.
- Grommet can be equipped with PTF filter to prevent penetration of atmospheric moisture and providing barometric pressure compensation of levels probes.

Installing the datalogger
The datalogger is stabilized using a stainless steel band, which can be mechanically adjusted according to the borehole seal or another location.

Power supply of dataloggeru
- The datalogger is powered from a primary Li-SOCl2 battery LS26500 with a capacity of 7.7 Ah, which can be easily replaced in the field.
- Current consumption of the datalogger ranges from 50 µA at idle to pulses ca. 15 mA during the measurement. The datalogger can operate more than 5 years with this battery and with measuring period of one-hour.

Additional parameters
- Measuring interval in range of 1 second to 24 hours
- (suitable for pumping and slug tests)
- 8MB Flash which records at least 50 000 values (200 000 to 500 000 values according to the settings)
- Date and time of the datalogger is controlled by an internal crystal oscillator.

Measured channels
Each measurement channel can be named according to own needs, data can be recorded with different period (1 second to 24 hours). To every measured channel can be created virtual channels (i.e. channels whose value is obtained by calculation from the measured value of the channel). Data are recorded in the internal memory in an easily readable text form as a daily files, which helps fast search. The structure of the data file contains an identification header (serial number, name, measuring channels). In the memory of datalogger is also created a file of operational messages, which saves information about executed settings and failures in system.