

Hydro Controller H7

Multifunctional telemetry station for data acquisition and control



- Up to 96 measuring recording channels
- Up to 208 binary recording channels
- Measurements in the interval from 1 sec to 24 hours
- Possible connection of various types of sensors and probes (current, voltage, pulse inputs, 2 RS485 buses, SDI-12, ...)
- Controlled power supply of connected sensors with adjustable voltage to 18V
- Encrypted data transmissions to the server via the internal GSM/GPRS mod.
- Self-diagnostics connected to sending SMS alerts and data server
- Wide modularity of power supply methods from internal rechargeable battery through external battery and solar panel to 24 V DC or 230 V AC
- Intuitive operation and clear MENU
- Robust metal casting with IP67

Basic description

High durability and operational reliability were the decisive criteria in the development of the new H7 telemetry unit. For these reasons, the unit is housed in a rugged aluminum casting along with a backup power battery and input terminals for connecting sensors and transducers. High IP67 protection also has a USB connector and a built-in GSM / GPRS communication module.

The H7 unit contains many self-diagnostic procedures, from measuring the humidity inside the device through various control channels monitoring the voltages and currents flowing into the connected sensors and sensors, to integrating the measurement of energy consumed from the battery.

The large color touch screen and fingerboard keyboard together with the clear MENU contribute to easy intuitive operation of the unit.

Several variants of lockable cabinets are available for the installation of the H7 unit in the field, including mounting brackets and masts.

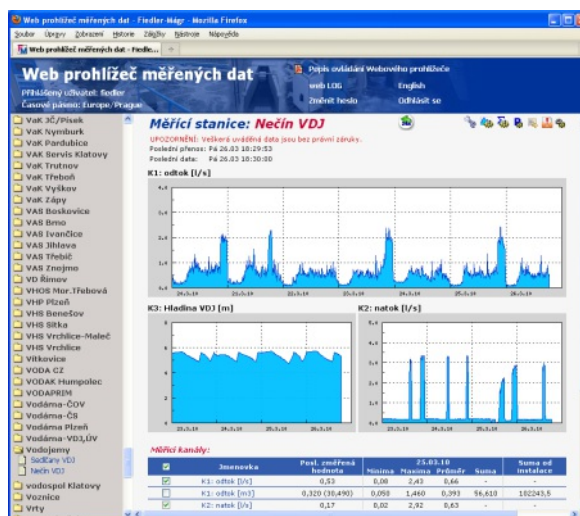
Examples of use

- Control and monitoring of water supply facilities
- Management of technological processes
- Acquisition and data collection in the field
- Limnigraphic stations and Local Warning Systems
- Meteorological stations
- Remote meter readings

Datahosting

HYDRO CONTROLLER H3, H7 uses data hosting set up on the manufacturer's server. The user does not have to set up his own server or ensure its operation and maintenance.

Authorized users can access the data stored on the server at any time via a standard web browser. In addition to graphical and tabular visualization, the server also enables statistical calculations of balance flows, searching for limit values, data exports in several formats to FTP servers or to the PC of a logged-in client, printing monthly balance reports, sending e-mails and some other functions.



BASIC FUNCTIONS AND FEATURES

Analogue recording channels

Up to 96 analog channels for recording the value of the measured quantity. Each channel can be set with its specific name, number of decimal places for archiving, measurement method, limit values for alarms and many other parameters.

There are preset units for level, flow, volume, temperature, RH, pH, redox, diss. oxygen, conductivity, pressure, rainfall, voltage, pulses, radiation and other physical quantities. The measurement is performed by an accurate 24-bit converter, adjustable resolution of the measured quantity: 0 to 3 decimal places.

The archiving interval is adjustable from 1 s to 24 h separately for each recording channel. The H7 unit supports the transition to more frequent measurements and recording of selected quantities after exceeding a certain limit value (limit alarm) or after a quick change of value (gradient alarm) and also allows to set delayed measurements for sensors with a longer rise time from power on.

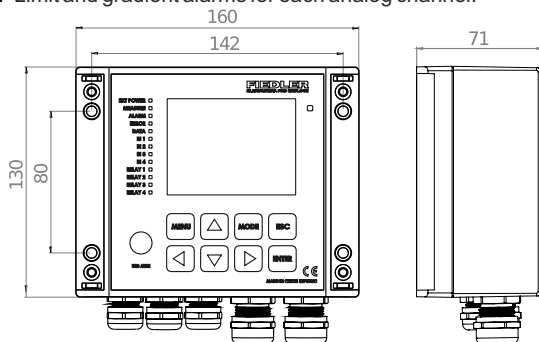
Binary recording channels

The H7 contains up to 208 binary channels. Each channel is configurable as a binary input or binary output (ON / OFF).

The input binary channel records the moment of switching on and off of the input with a time resolution of 1 s (runs and faults, security vol., ...). Output binary channels allow to command relays based on logic functions with other binary channels (AND, OR, XOR, ...).

Text channel - diary of events

- Sending data to the server, texts and phone numbers of received and sent SMS, faults of connected sensors, power failures, ...
- Unit control and above-standard functions, intuitive MENU
- Choice of different types of single and multi-channel graphs.
- Overview graphs from archived values
- Search for daily lows, highs and elapsed volumes.
- Computational functions over measuring channels (sum, moving sum or average, difference, trend, correction by 2nd order polynomial) with output to a separate channel and to SMS.
- Control of the sampling device in 4 operating modes
- Limit and gradient alarms for each analog channel.



TERMINAL BOARDS

The number of inputs and outputs is determined by the type of connection board used.

With its connection connector, the H7 / 40 station is backward compatible with the DPD-I to DPD-III connection boards of the M4016 units (easy service or modernization of existing M4016).

Internal terminal board IPD:

Inputs

- **DAV1-DAV4:** combined Digital-Analog Inputs (digital DCL, current 4 (0) -20 mA, 1 (0) -5 mA)
- **PV1-PV4:** pulse-binary inputs (OPTO or READ sensors for water meters, relay contacts, sensors with open collector)
- **RS485-I, RS485-II:** two independent serial buses for connection of measuring probes and expansion modules under the FINET, MODBUS RTU protocol, ...

Outputs:

- Two standard relays, switching contact 250 V / 5 A
- Two solid state relays 12 V / 2 A for direct switching of solenoid valves, heating circuits, other power relays, etc.
- Two active 4-20mA current outputs galvanically separated from the supply voltage

Recording and monitoring of pulse water meters flow

- 64 recording channels with support for calculation and archiving of daily, monthly and annual flow volumes.
- Calculation of instantaneous flow from pulses (REED, OPTO).
- Flow measurement in open channels
- 4 recording channels for measuring and calculating flows and flow volumes using consumption equations or KDO speed probe.
- Preset 16 equations for the most common Parshall flumes and specific overflows. User-adjustable parameters of the general consumption equation also for compound flumes and tabular input $Q = f(H)$.
- Each flow meter is assigned a counter of operating hours and the total time of non-functional flow measurement (time in fault).

Outputs

- Limit, time and logic control of own and external relays
- 4 adjustable controllers with mode selection - PID or hysteresis controller, pulse valve. Recording the status of the controller in binary channel.
- Interlock and alternation functions for controlling two or three pumps.
- Parameters for control of own and external 4-20 mA output loops.

GPRS

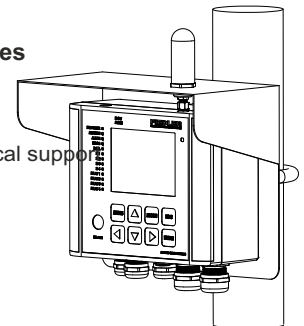
- Automatic sending of data to the server at regular intervals.
- Switch to more frequent transmissions after evaluation of the alarm condition.
- Sending data directly to email or FTP server (daily reports)
- Universal command (XML, JSON, etc.).
- Symmetric cipher for transmitted files (commands and data)
- H7 parameterization and FW upgrade via server. Backup of current parameter files on the server.

System of warning, informative and control SMS:

- Telephone directory for 48 recipients, grouping into 3 groups.
- 48 adjustable warning SMS messages (any text, automatic insertion of the current value, various trigger conditions including their duration, hysteresis, ...).
- Informative SMS compiled on the basis of the command line or query SMS (actual values, max, min, balance, operating hours, ...).
- Command SMS for control and simulation of outputs (binary and analog), setting of selected coefficients and parameters, forced sending of data to the server, ...).

Optional mounting accessories

Mounting stainless steel bracket
The KR2-V also forms a cover devices from rain and sun radiation. The holder is on a vertical support, fastens the structure with one 1.5", 2" or 2.5" caliper. There is also an assembly holder KR2-H adapted for horizontal supporting structure.



TECHNICAL PARAMETERS

Recording channels: 96 analog, 208 binary, 1 text

Data memory capacity: 6MB, up to 1 million measured values

Data memory type: FLASH, does not require permanent power

Resolution for archiving: up to ± 500 million, 0-4 decimal places

Real time clock: continuous synchronization via GPRS

Display: RGB, size 3.5", resolution 320x240 px.,

Keyboard: 8 fingerboards, mechanical press response

Optional power system: Internal Li-Ion battery, ext. battery, external voltage 14-24 V DC or 230V / 50 Hz, solar panel

Operating time from an external battery: one week to 6 months depending on the sensors and the frequency of GPRS sessions

Controlled power supply of connected sensors: 2 sections from 6 to 18 V DC

Continuous power supply for OPTO sensors: 4 V DC

GSM / GPRS module: dual, GPRS Class 12, built-in Ip67

Working temperature range: -30 to +60 ° C

Dimensions (h x w x d): 130 x 160 x 85 mm

Weight: 1480 g, Protection: IP67, metal casting