

# STELA-1 Small telemetric station

Basic point of monitoring nets

5.1

**FIEDLER**



- Pulse inputs for REED and OPTO flow rate sensors
- Current inputs for pressure and water level sensors
- RS485 or RS232 interface for intelligent device connection
- Operational time up to 8 years without battery exchange
- GSM/GPRS module for data transfer to the Internet
- Integrated system of warning and informative SMS message
- Low operational cost thanks to possibility of using common credit SIM cards (0,05 EUR / day)
- Modern design, economic RISC microprocessor wide SW
- Massive metal cover with high protection
- Low cost

## Example of application

STELA-1 telemetric station is suitable for data acquisition from objects with no power supply and where is no need of data transfer in intervals lower than 1 day. After achieving of pre-set limit values, data transfer and warning SMS transfer is activated immediately.

### Typical application of STELA-1 station:

- Continual monitoring of flow rates, pressures and water levels in measuring holes or in water towers.
- Underground water level monitoring.
- Open flows and flow rates recording.
- Build-up of rainfalls measuring stations and water level stations, possibility of warning SMS messages sending.
- Technology monitoring or security of buildings.
- Distant connection of selected measuring devices to the Internet, through RS232 or RS485 interface.

## Basic description

STELA-1 telemetric station consists of wide programmable 16-channel data logger, compatible with M4016 station and an in-built GSM/GPRS communication module. STELA-1 station has its own battery supply, designed for many years of operating.

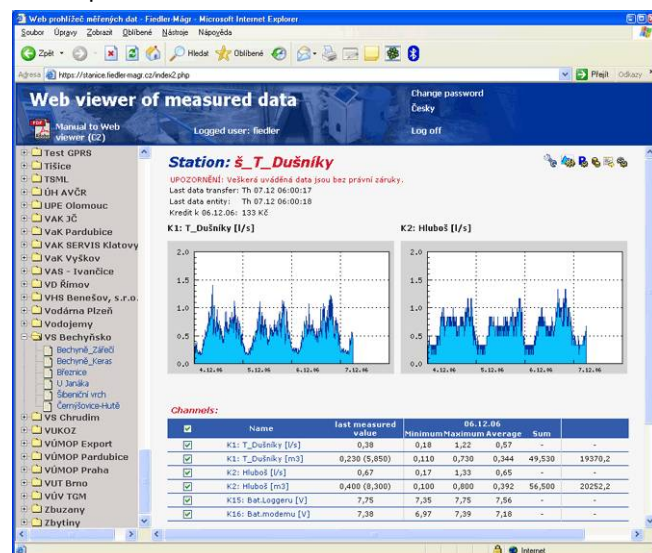
STELA-1A is a type of station which contains two supply pieces with total output voltage of 7V for supply of OPTO sensors. STELA-1B, another type, has 4 of this supply pieces. Its 14 V output voltage enables direct supply of pressure or water level sensors, with output signal of 4-20mA. Both station types have the exact massive design with high protection.

STELA station support dynamic placing of recording channels, have memory for 300 000 measured values, event diary and contain FW control of GSM/GPRS communication module.

## Datahosting

STELA-1 station makes use of producers data hosting, which was originally determined for more sophisticated M4016 telemetric stations. No need for the user to own server and to do operations and services.

Registered users have access to saved data on server, through standard web browser, whenever. Except of graphical and chart visualization, server also enables statistical calculations of balance flow rates, search out of limit values, data exports in several sizes and other functions.



## Price list

### STELA-1A

Small telemetric station - 2 battery (U=7V)..... 21.600,-CZK

### STELA-1B

Small telemetric station - 4 battery (U=14V)..... 22.600,-CZK

### Datahosting

Lease of place on server ..... 80,-CZK/ station/ month

Cheap and reliable telemetric system with its own power source for a long time operation

Water level record

Flow meter reading

Pressure registration

Immediation flow rate calculation and recording

Low operational cost

Own power source

GPRS communication

Warning SMS system

Water Supply  
Hydro-meteorology  
Science & Research

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## Measuring channels

Specific name, number of decimal positions for measuring and archivation, units, measuring method and many other parameters are possible to assign to each recording channel.

Archivation interval is adjustable separately for each channel. After getting over set limits (limit alarm) or after quick change of values (gradient alarm), station data logger enables to display more often a record of selected values.

## Basic program functions

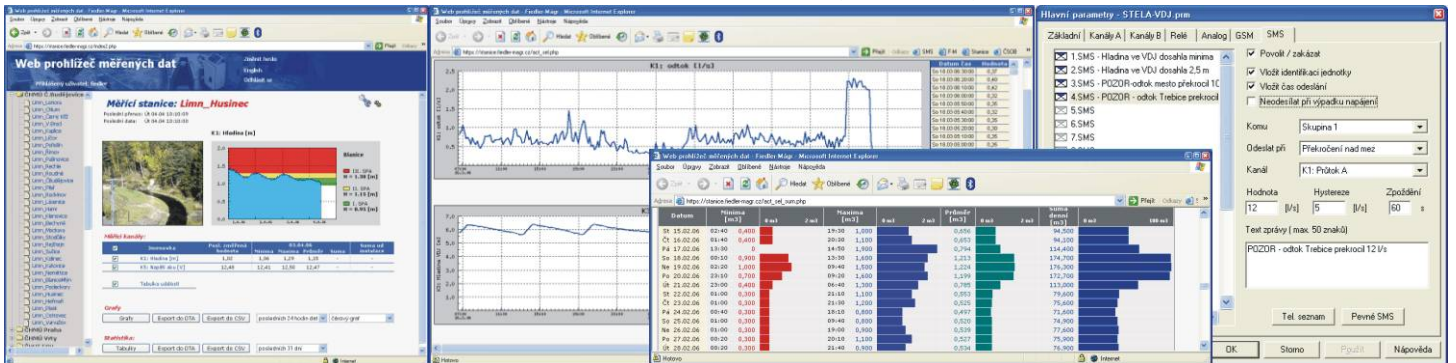
- Calculate an actual flow rate from pulses (REED and OPTO).
- Pre-set equation for actual flow rate in open channel calculation. Calculation of actual flow rate from H/Q chart.
- Monitoring of daily and total flow from the date of installation.
- Calculating function above measuring channels ( total, sliding total or average, differences, trends, correction with polynom of second number) with output into separate channel and into SMS...
- Limit alarms and gradient alarms for each channel

## Data transfer between server and STELA-1 stations:

- Measured data transfer to server in set times.
- After alarm state evaluation, switch to more often transfers.
- Controlling supply of GPRS module enables long year lasting operations with no need of battery exchange more than 3000 data reports or SMS messages.
- Parameterization through server including saving changes in setting.
- Setting of time at the station according to server.
- FW data logger upgrade through server

## Warning and informative SMS system:

- Phonebook for 16 recipients, grouping enabled.
- 32 adjustable warning SMS messages (arbitrary text, automatic including of actual value, various launching conditions with operating period, hysteresis).
- Possibility to compound informative SMS messages (actual values, remaining credit balance, maximums and minimums...) Time of informative messages delivery is adjustable in daily, weekly and monthly demand.



## Connecting of sensors

### Inputs: (Basic version)

- **AV1-AV2:** 2 current inputs: analogue signal 0-20 mA, 4-20 mA, 1-5 mA, 0-5 mA, 0-1 mA.
- Variation: 2 voltage inputs: 0 to 2,5V
- **PV3-PV4:** 2 quick inputs determined for OPTO or REED

Selected inputs and supply voltage for connected sensors go to 8-pin circle connector with high IP67 protection. Station might be ordered together with cable, connector and with terminal unit. Terminal unit is placed in a small installation box. For smaller number of connecting sensors, its possible to deliver only cable together with connector and with tightened cable sleeve for three wires.

### Further input types (on request)

- **RS-485:** Serial network interface for connection of separate measuring probes with FINET protocol (e.g. US1200-ultrasonic water level sensor)
- **RS-232:** Special device connection (e.g. ultrasonic flow meter, multi-parametric electrochemical probe etc.)
- **AV7:** Differential voltage input 20mV, completed with source of constant power for connection of strain-gauge sensor..
- **PV1-PV2:** 2 pulse inputs designated for REED sensors or as a inputs of binary states
- **AV5:** 1 temperature input for direct Pt1000 sensor connection

## TECHNICAL PARAMETERS

- **Recording channels:** 16 analogues, 2 binary, 1 textual
- **AD converter resolution:** 16 bits, 0-3 decimal place
- **Storage Interval:** adjustable separately for each recording channel, in range from 1 minute up to 1 day.
- **Data memory:** 2MB Flash, up to 300.000 values
- **Supported value:** flow, water level, pressure, rainfalls, temp.
- **Real time correction:** automatic from server
- **Supply voltage:** 2 or 4 lithium batteries 3,6V / 13Ah, batteries are easily exchangeable right in field.
- **Number of sent data reports or SMS messages:** 3.000 - 4.000
- **Operational time:** Up to 8 years with no need for battery exchange. It depends on type and number of connected sensors, measuring frequency and number of data reports.
- **GSM/GPRS module:** GPRS Class 12, slots: 4Rx / 4Tx
- **GSM antennae connector:** FME
- **Working temperature range:** -20 ... +55 °C
- **Instrument housing:** stainless steel and TEKAFORM plastic
- **Possibility of security:** steel loop for lock, binary input for warning SMS
- **Dimension:** diameter 50 mm, length 330 mm (STELA-1B: 480 mm)
- **Weight:** 1,05 kg (Stela-1B: 1,55 kg)
- **Protection:** IP67

data server: <https://stanice.fiedler-magr.cz>



**STELA - small telemetric set with battery supply**