

Flood warning system

3.2

FIEDLER

Reliable warning system with wide software

Low purchase and operational costs

Warning SMS system

Easy expanding

Auto-diagnostics

GPRS communication

Data hosting on producer's server

Long-term operating without external supply



- Flow rate metering and recording
- Easy supplementation of further sensors (rainfalls, temperatures...)
- Automatic warning SMS messages sending
- Questioned SMS responding
- Regular data sending into the Internet through GSM/GPRS network
- Data access through web browser
- Modern technology enables permanent operation even without power supply
- Compact design with high protection
- High input endurance against over

Basic description

Set of local flood protection warning system forms one or more recording units M4016-G3 with built in GSM/GPRS modem, pressure or ultrasonic sensor of water level with an appropriate holder and reserve charging accumulator, solar panel or power supply voltage unit according to a place of system installation.

System can be easily enlarged of monitoring of amount and intensity of rainfalls, of measuring water temperature and air temperature and of monitoring of other physical values.

Program support on producer's server, on which data from stations can be sent regularly and where web pages are generated for registered clients, is also a component of warning system. Access to saved data is possible whenever through standard web browser.

Station normally measures continuously watermarks and other set up values. After achieving of alarm level (usually 1.SPA) first warning SMS will be automatically sent from the station to recipients from the list. Station parameters enable to adjust up to 30 different SMS not only for different water levels of monitoring river, but also even for growth of water level, for rainstorms etc.

Local warning system is possible to operate even without a regular data transfer on server and its possible to use only SMS. Measured items remain saved for its possible later processing in data memory of M4016 unit.

Installation

Pressure sensor of water level is placed in a metal protector embedded into stem-bank (river side) or attached to other fixed buttress in water. An ultrasonic sensor is usually installed on bridge constructions.

M4016-G3 station might be at a distance of hundred meters from measuring sensors on an appropriate accessible place, the best is in proximity of line voltage supply.

The screenshot displays the FIEDLER web portal interface. The top section shows the 'Otava - Horažďovice' station with a water level graph and a table of data. The bottom section shows the 'Blanický Mlýn' station with a similar graph and table. A hand holding a mobile phone is visible on the right side of the screen, indicating SMS functionality.

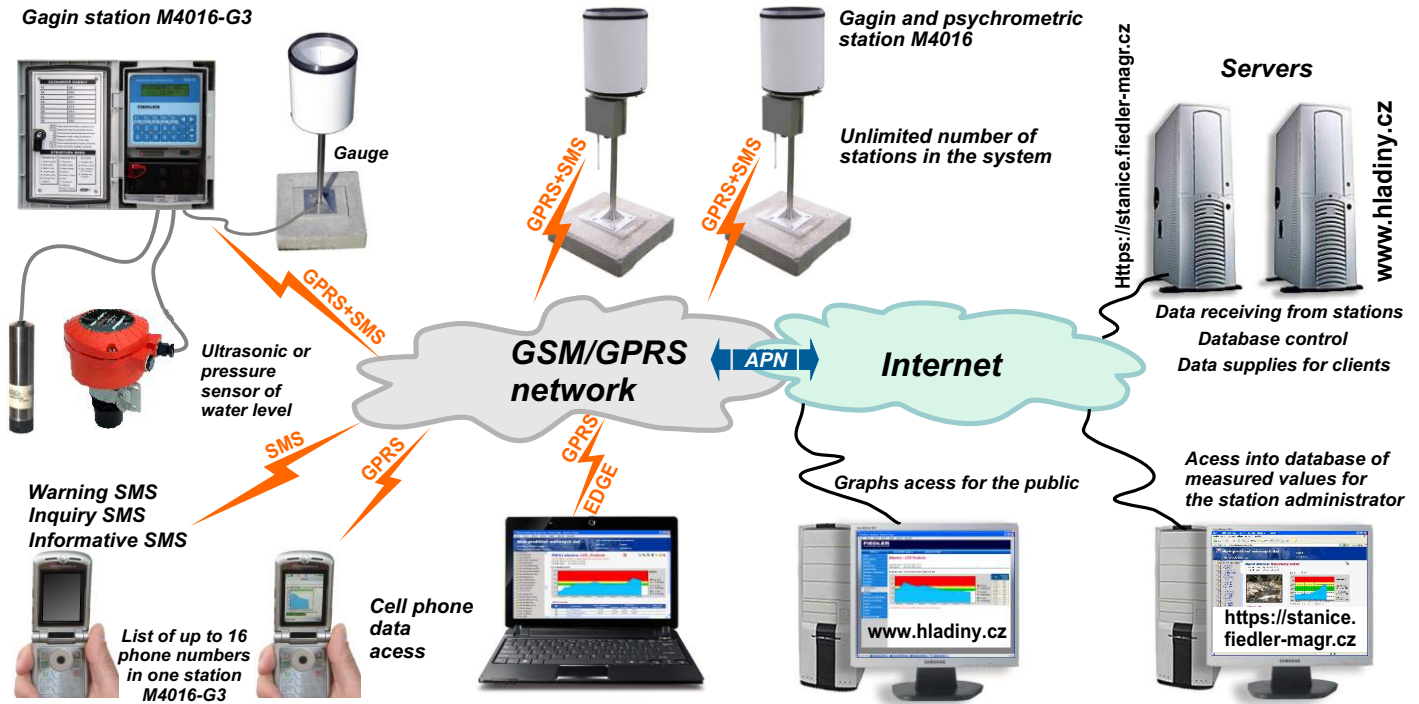
Time	Water Level [cm]
20.06.09	56
21.06.09	56
22.06.09	56
23.06.09	56
24.06.09	56
25.06.09	56
26.06.09	56
27.06.09	56
28.06.09	56
29.06.09	56
30.06.09	56

Time	Water Level [m]
6.7.09	1.2
7.7.09	1.2
8.7.09	1.2
9.7.09	1.2

Water Supply
Hydro-meteorology
Science & Research

FIEDLER-MÁGR Electronics for ecology
Grünwaldova 18, 370 01 České Budějovice
Tel.: 420/386 358 274, 420/603 569 565

Full list of products and price list are available on:
www.fiedler-magr.cz
e-mail: fiedler@fiedler-magr.cz



Data transfer and data visualization

www

- Regular sending of measured items into database to server through internal GSM/GPRS modem.
- After analyzing of alarm stage to set more frequent data sending. This is possible for the period of water level elevation
- Even cheap prepaid SIM cards (Twist, Go...) might be used.
- An operational log of the station (text of received and sent SMS including telephone numbers of senders and recipients, system failures, external power failure, information about completed data transfers etc.) and measured data are transferred to sever.
- Registered users have an opportunity to inspect data saved in database on server through standard web browser. Individual users have their own areas of access separated reciprocally. Selected pages are possible to access even for non-registered users of the Internet.
- Basic web screen of gaging station contains except of statistic review (actual item, achieved maxima and minima) graphical expression of water level flow for last 4 days with tingeing of separate SPA levels as well.
- It is possible to display graphs of particular measuring channels or historical graphs of any archived month for more detailed review. Each graph is completed with chart of items.
- Special web page displays monthly charts of statistic items (daily minima and maxima, flow rates).
- Displayed data might be easily exported from the Internet right into Microsoft Excel and MOST programs for further processing.
- After achieving of measured limited value, station might, besides of sending warning SMS, realize an extraordinary data transfer to server.

Warning SMS messages system

SW

- Activation of warning SMS messages system after achieving of pre-set water level. Possibility of setting a number of different limit water levels simultaneously.
- Fast water level growth might evoke sending of warning SMS before achieving of limited level. (Gradient alarm)
- After rain gauge installation, warning SMS messages might be also activated by rainstorm or long lasting rain.
- Adjustable hysteresis and time condition of limited item value protects from false alarms.
- Automatic sending of warning SMS messages on 16 telephone numbers. Recipients might be grouped.
- In addition to cell phones, warning SMS might be sent also to e-mail addresses or on electronically signaling mechanisms.
- Station might insert actual items into text of warning SMS message.
- Build-in auto detection of station state can warn user of low tension (voltage) of supply accumulator, failure or renewal of power supply voltage, credit decline of prepaid SIM card under set value, failure of connected water level sensor etc.
- Station will send an informative SMS as an answer for questioned SMS of registered user of system or regularly in a set time. System time of the unit itself is synchronized according to timeserver from the Internet.
- Contents of an automatically sent informative SMS is possible to compile in advance (actual items, achieved maxima or minima, tendency of decline or rise, flowing capacities...)

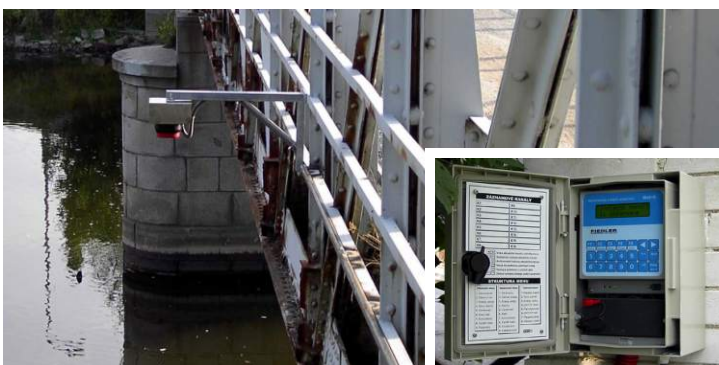
Purchase and operational costs



Set of devices for local warning system costs according to sensor type and method of external supply from 41.800 CZK up to 52.500 CZK.

Server and its software are not necessary to purchase, because producer provides it for registered users for 100Kč / month/station lease of area in its own secured server and all services accompanying (data hosting).

Operational costs for GPRS data services range at prepaid SIM cards 1-3 CZK / day / station according to number of channels occupied and set frequency of data sending. At tariff SIM cards are these costs approximately half (without tariff payments) and costs related to credit charging at prepaid cards fall.



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