



Badger Meter Europa

VHQ 500 Flow meter for small channels and partially filled pipes

Technical Bulletin

Description

The flow meters VHQ 500-SPS (stationary) and VHQ 500-SP (portable) are designed to measure flow in sewage channels. They are equipped with a memory to store data of flow velocity, height, flow and volume with date and time. All recorded data can easily be exported through the RS 232 serial port. Actual measurement data are displayed on a alphanumeric and graphic LCD display. A matrix keypad allows free programming. The program is menu-driven. Easy to install and easy to program, all signal processing parts, the memory and output electronics are encased in a robust, water tight IP66 shock resistant housing.

Calibration

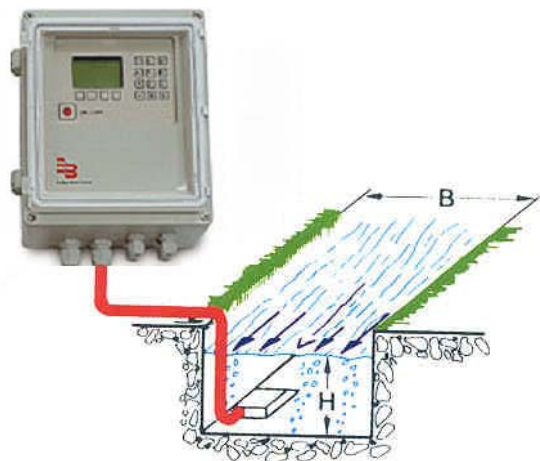
Before start-up, the unit is hydraulically balanced and programmed from the factory to suit the measurement site.

Unit programming

Channel shapes, measurement intervals, limits for height, velocity and flow can be freely selected.

Operation

Flow velocity is measured with an ultrasonic Doppler sensor. Height is established with a differential pressure transducer - both are installed in a streamlined combined measurement head. The unit can be programmed at presettable intervals. Outputs are used to control samplers and printers. Recorded data can be processed and evaluated with VHQ-software.



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Stationary



VHQ 500-SPS

Applications

Typical applications are:

- Inflow and discharge in sewage plants
- Infiltration and inflow analysis
- Sewer infiltration monitoring
- Industrial discharge monitoring

Unit characteristics

- Easy mounting
- Sampler control
- Easy programming and data evaluation
- Various channel shapes programmable
- Alphanumeric and graphic LCD display

Portable



VHQ 500-SP

Applications

Typical applications are:

- Infiltration and inflow analysis
- Sewer infiltration monitoring
- Measurements for channel calculation
- Industrial discharge monitoring
- Determination of data for sewer with storage capacity

Unit characteristics

- Easy mounting of the sensor ring
- Isolated, water tight and shock resistant housing
- Driven by a rechargeable battery
- Sample control
- Additional analogue data
- Easy programming and data evaluation
- Alphanumeric and graphic LCD display

Technical data (stationary model)

Electronics

Housing:

- IP 66 Aluminium

Dimensions:

- 230 x 125 x 280 (WxDxH)

Power supply

- 90-240VAC or 18-32 VDC

Temperature range

- 0°C up to +50°C
- -30°C up to +50°C (optional)

Display function

- Alphanumeric and graphic LCD with back light for V, H, Q and quantity.

Outputs

- 2 analogue outputs 0-20 mA (max. 500 Ω) or 4-20 mA isolated for flow, height and velocity (selectable)
- 3 relay outputs, potential free, for limit values V, H, Q, remote totalizer, sampler, max. 230 V 1 A, programmable

Memory

- 256 kB RAM \approx 25.000 measuring values

Interface

- RS 232 serial port

Evaluation software

- Report and graphic evaluation programme possible

Unit programming

- Upon 3 x 4 keypad
- PIN code protection against unauthorised access

Sensors

PVC sensor housing IP 68

- Streamlined PVC sensor housing
- Standard sensor cable length: 10 m
- Longer lengths avail. upon request (max. 50 m)

Temperature range

- 0°C up to 65°C

Dimensions

- 220 x 37 x 32 mm (LxWxH)

Flow velocity

- Measurement principle: ultrasonic Doppler
- Measurement range: 0,1 - 9 m/s
- Accuracy: \pm 2% of full scale
- Zero point drift: \pm 0,01 m/s

Height

- Measurement principle: differential pressure
- Measurement range: 12 - 2540 mm
- Accuracy: \pm 0,25% of full scale
- Housing material: Stainless steel 1.4435

Sensor mounting

- Mounting band

- Steel spring band for diameters 150 - 450 mm
- Larger diameters available upon request

Measurement site requirements

To assure a reliable measurement of height and velocity, from which flow is computed electronically, a regular, calm flow towards the sensors is necessary. An inlet of 15 D and a straight outlet run (2xD) behind the measurement site is ideal. The accuracy can be strongly affected if the unit is used in manholes where several channels join.

Technical data (portable model)

Electronics

Housing

- IP 66 metal housing, portable

Dimensions

- 250 x 200 x 320 (WxDxH)
- 2-way automatic valve
- Weight: approx. 14 kg
- Protective rubber corners

Power supply

- Battery with 12V/17 Ah (rechargeable). Battery life time: about 6 days
- or 230 VAC / 50 Hz in combination with battery charger

Temperature range

- 0°C up to +50°C

Display function

- Alphanumeric and graphic LCD with back light for V, H, Q and quantity.

Outputs

- 2 analogue outputs 0-20 mA (max. 500 Ω) or 4-20 mA isolated for flow, height and velocity (selectable)
- 3 relay outputs, potential free, for limit values V, H, Q, sampler, max. 230 V, 1A

Memory

- 256 kB RAM \approx 25.000 measuring values

Interface

- RS 232 serial port

Evaluation software

- Report and graphic evaluation programme possible

Unit programming

- Upon 3 x 4 keypad
- PIN code protection against unauthorised access

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