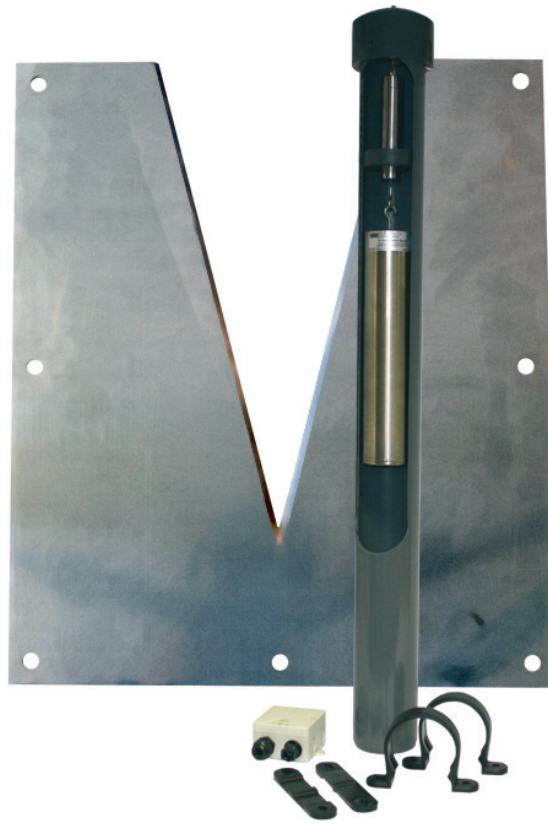


W10 VIBRATING WIRE V-NOTCH WEIR MONITOR SYSTEM

Datasheet W10



**Description**

The V-Notch Weir System is used to measure water flow volume. It is used predominately in dams, open channels such as streams and in tunnels.

The system comprises a Stainless Steel plate with a notch profile chosen to suit predicted flow rates.

Flow of water over the weir head can be measured optically with a manual steel scale, or by using a Vibrating Wire transducer.

Readings can be taken manually with a Vibrating Wire readout or remotely by means of a data acquisition system.

**Features**

- Uses proven Vibrating Wire technology
- Suitable for manual or remote monitoring
- Accurate and sensitive water level monitoring
- Rectangular or triangular notched plate
- Easy to automate via data acquisition software
- Connecting cable is strong, screened and flexible

**Benefits**

- Low cost, low maintenance system
- Simple principle of operation in manual version
- Accurate, repeatable readings over long cable lengths when using VW system
- Long working life, long-term stability and reliability
- Ideal for long-term monitoring of seepage in dams



Comprehensive information about this product and our full range is available at [www.soilinstruments.com](http://www.soilinstruments.com)  
If you would like to speak with someone directly please call +44 (0)1825 765044 or email [sales@soilinstruments.com](mailto:sales@soilinstruments.com)

## VIBRATING WIRE PRINCIPLE



A high carbon steel wire is held in tension between a fixed point and a movable point within the sensor.

The physical changes measured by the sensor result in small changes to the position of the movable point which results in a change to the tension of the wire.

The wire may be excited by either plucking or sweeping via a coil adjacent to the wire. The resulting resonant frequency (which is relative to the tension of the wire) is then recorded by the same coil. The reading can be displayed by instrument readout or recorded by data logging equipment.

### Operation

The Vibrating Wire V-Notch Weir system has three notch options to suit different water flows and a choice of using manual or remote monitoring.

Manual reading has two options:

- Manual reading of the optical readout by eye
- Manual reading of the VW transducer using a VW readout

When using remote reading, the Vibrating Wire transducer is connected to a data acquisition system.

Once the user has chosen which notch option is most suitable for a specific project, the weir plate is mounted at the exit of an approach channel or stilling basin through which the flow to be measured is channelled.

The measuring point for the head of water is located upstream of the weir plate and comprises either an optical Stainless Steel scale fixed to the basin wall for manual readings by eye, or a Vibrating Wire transducer suspended in the head of water.

### Applications

The Vibrating Wire V-Notch Weir system uses the principle of gravitational discharge of water over a triangular or rectangular notched weir plate.

Typical applications include:

- Long-term monitoring of dams
- Drainage systems in dams and tunnels
- Springs and artesian wells

### Associated products

For details on:

Catalogue code:

Dataloggers

D1

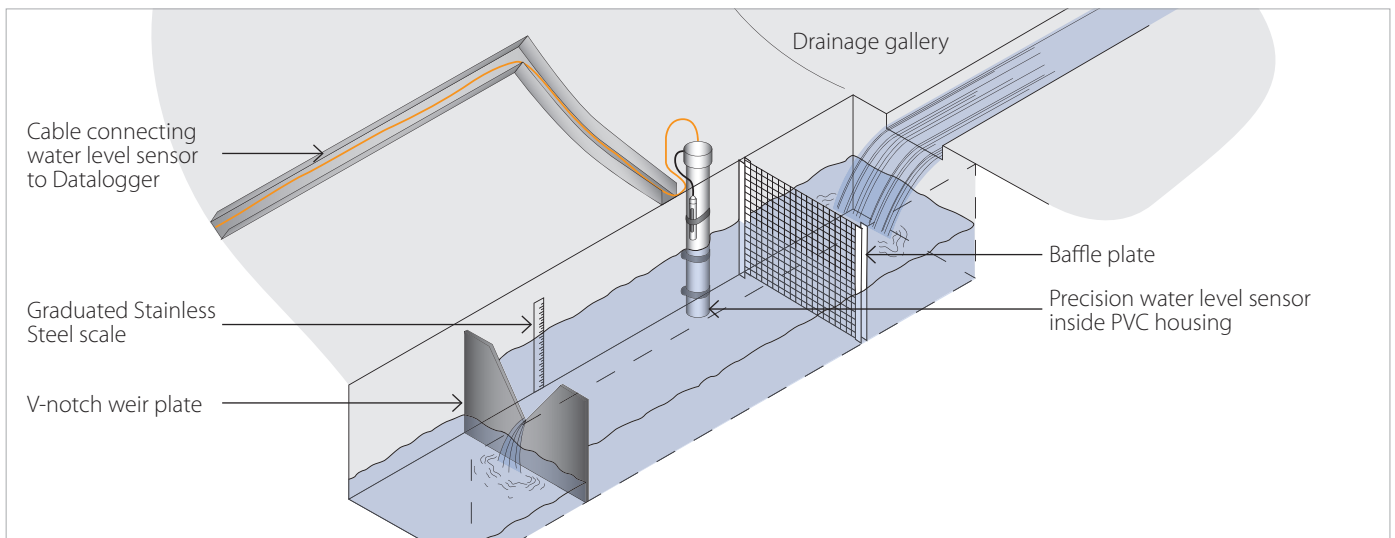
VWnote

RO-1-VW-NOTE

Terminal and Junction Boxes

RO-TB/JB/TJ

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### THE TECHNICAL RATING FOR THIS PRODUCT:

**INTERMEDIATE**



As the correct installation of any monitoring sensor or system is vital to maximise performance and accuracy, Soil Instruments makes the following recommendations, for the skill level of the installation contractor.

#### ADDITIONAL SUPPORT

We offer installation and monitoring services to support this system. For more information please email : [sales@soilinstruments.com](mailto:sales@soilinstruments.com) or call : **+44 (0) 1825 765044**

**ADVANCED**



The installer is trained and experienced in the installation of this type of instrument or systems, and is ideally a specialist Instrumentation and Monitoring contractor.

**INTERMEDIATE**



The installer already has previous experience and/or training in the installation of this instrument or system.

**BASIC**



As a minimum the installer has read and fully comprehends the manual, and if possible has observed these instruments or systems being installed by others.

## Specifications

### VW Precision Water Level Sensor

Type	Automated   Remote
Range	300mm
Resolution <sup>1</sup>	0.025% full scale (minimum)
Accuracy	0.5% full scale
Linearity	±0.5% full scale
Operating temperature	+5 to +60°C
Dimensions	150mm x Ø32mm
Weight (sensor only)	600g
Material	Stainless Steel
Excitation	Sweep or pluck

### Housing

Material	PVC
Dimensions	1025mm x Ø110mm maximum
Weight	2.6kg

### V-Notch

Range (litres per second)	15L/s	30L/s	60L/s
V Angle	28.4°	53.8°	90°
Weight (including fixings)	5.5Kg	7.4kg	10.5kg
Dimensions	350mm x 410mm x 6mm	510mm x 410mm x 6mm	820mm x 410mm x 6mm
Material	Stainless Steel		

### Baffle Plate

Weight (including fixings)	8.5kg	8.5kg	13.5kg
Dimensions	680mm x 620mm	680mm x 620mm	980mm x 620mm
Material	Zinc galvanised carbon steel		

<sup>1</sup> Dependent on readout

## Ordering information

### V-Notch Weir Plates

Includes; weir plate, baffle plate, glassfibre rule and all fixings

W10-3.1	15 litres/second - 28.4° notch angle
W10-3.2	30 litres/second - 53.8° notch angle
W10-3.3	65 litres/second - 90° notch angle
W10-3.4	100 litres/second - 90° notch angle

### V-Notch Vibrating Wire Weir Sensor

Displacement range 300mm; includes transducer with thermistor, weight, stilling housing, moisture trap, 2 desiccant tablets, fittings, terminal box, 5m instrument cable, manual and calibration certificate

W10-1.1	V-Notch weir sensor - 300m range
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### Connecting Cables and Fittings

CA-3.1-4-IC	Instrument cable; 4 core, 7/0.20 screened, polyurethane jacket, priced per metre
CA-1.1-4-A	Armoured cable; 4 cores, 1.5mm <sup>2</sup> , PVC jacket, priced per metre
W10-2.1	Replacement desiccant tablets; two required for each V-Notch weir sensor, includes pack of 20No
CA-4.2	Coloured adhesive tapes; set of 10No
CA-4.3	Crimping tool
CA-4.4	Crimping sleeves; set of 100No

### Manuals

MAN-152	V-Notch Weir
MAN-213	Vibrating Wire Precision Water Level Meter