

LEVELWIZARD II

OPEN CHANNEL FLOWMETER



iSOLV

Process Instrumentation

analytical

bulk flow

distance

FLOW

level

pressure

temperature

industrial
communication

FLOTECH

Process Automation & Instrumentation

LEVELWIZARD II OPEN CHANNEL FLOWMETER



The LevelWizard II Open Channel Flowmeter is non-contacting and operates on the principle of timing the echo received from a pulse of sound in air, this provides a highly accurate calculation of flow from the measured head preceding the primary element.

Flow calculations to the British Standard BS3680 are available within the software together with calculations for a wide variety of other primary elements. Also available within the unit is a customised 32 point calibration routine which also permits the flow measurement of non - standard flumes and weirs.

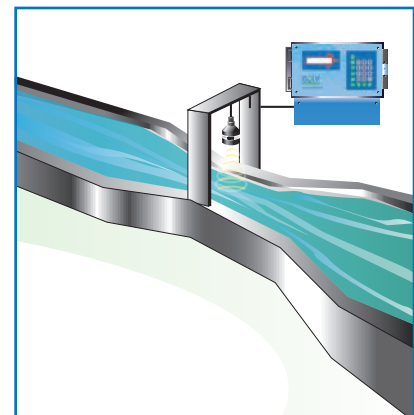
For channels without primary elements the LevelWizard II even offers the facility of connecting a Doppler Velocity Sensor (available from iSOLV) and performing the calculations of $Flow\ Q = Velocity \times area$ for a wide variety of channel shapes.

Features / Benefits

- The LevelWizard II Open Channel Flowmeter can show level, space, distance, head or flow on the display.
- The relays can be programmed to activate alarms, pump starters, or other control equipment. There is an isolated 4-20 mA output that can be connected to a chart recorder or PLC, to monitor level space or distance, independently from that shown on the display.
- There is an RS232 port, so that the LevelWizard II Open Channel Flowmeter can be operated remotely by a PC or other equipment.
- The LevelWizard II Open Channel Flowmeter can be programmed either by the built-in keypad or by using the Remote Communicator (optional) or by PC via the RS 232 Serial Interface (optional).
- One Communicator can program many iSOLV units.
- All the parameters are stored in non-volatile memory, so the information is retained in the event of power interruption. A second backup copy of all parameters can also be retained in the LevelWizard II Open Channel Flowmeter, in case a previous set of parameters needs to be restored.



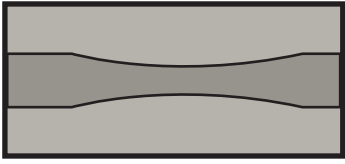
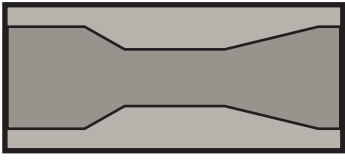
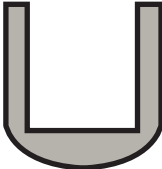

Application

It has been specifically designed to measure influent and effluent water flow from all types of municipal and industrial treatment plants.



Exponential Devices

If the primary measuring device is a simple exponential device then an exponent value is required. The LevelWizard II Open Channel Flowmeter will automatically enter the exponent value for the device chosen as detailed in the table below.

Exponent Type	
Suppressed Rectangular Weir	
Cipolletti (Trapezoidal) Weir	
Venturi Flume	
Parshall Flume	
Leopold Lagco Flume	
V-Notch Weir	
Other	As per manufacturer

Open Channel Flow Measurement

The LevelWizard provides flow indication, totalization of flow and outputs for remote alarms. It can be used in a wide range of flumes and weirs in channels and overflow structures.



Open channel flow monitoring in a typical flume



V-Notch Weir Flow Monitoring

Specifications

Physical

Weight Nominal	1 kg (2.2 lbs)
Transducer Cable	Three-core screened, can be extended with 2 or 3 core screened
Maximum Separation	500 m
Cable Entry Details	10 cable entries - 5 x M20, 1 x M16 underside, and 4 x 18mm at rear
Enclosure	240 x 184 x 118 mm, Polycarbonate, flame resistant to UL94-5V
IP Rating	IP 65
Min & Max. Temperature (electronics)	-20 °C to 55 °C

Performance

Accuracy	+/-0.25% of the measured range or 6 mm (whichever is greater)
Resolution	0.1% of the measured range or 2 mm whichever is greater)
Maximum Range	6 meters (dB6 transducer), 10 meters (dB 10 transducer)
Minimum Range	Dependent on transducer
Reading Response	Fully adjustable

Echo Processing

Description	Patented DATEM (Digital Adaptive Tracking and ECHO Mapping)
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Outputs

Analog Output	Isolated output 4-20mA or 0-20mA into 500Ω (user programmable), 0.1% resolution
Digital Output	Full Duplex RS232 via RJ11 port
Optional	RS485 conn for Modbus with Profibus DP V0 or V1 options
Volt free contacts, number and rating	5 form 'C' (SPDT) rated at 5A at 115 Vac
Display	2 row LCD display showing programmed scale, plus bar graph with direction indicators, remote communicator identifier, program/run/test mode indicators and relay status

Programming

On-board Programming	Integral keypad
PC Programming	Via RS232 (RJ11 port) or RS485 (optional)
Programming Security	Via Password (User Selectable and Adjustable)
Programmed Data Security	Via non-volatile RAM, plus backup
Data Logging (Optional)	Via RJ11 port has 256kb giving 1 year at 15 min intervals (uses PC Suite software)

Supply

Power Supply	85 - 264Vac, 50/60Hz, 22-28Vdc
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Standard, Short and Medium Range dB Transducer

Innovative designs has led to the dB range of transducers being quite unlike anything seen in ultrasonic level measurement before.

Previously, there were high voltage, frequency dependent transducers, susceptible to electrical noise and requiring special, protected interconnection cables, or weak low voltage transducers designed with flammable atmosphere approval and not application performance in mind.

The innovative transducer design, combining low power, permitting optional certification to intrinsic safety standards and utilising standard screened cable, is capable of the power and range necessary to achieve industry's demands.

The iSOLV-Pulse range of dB transducers has, as standard:

- High resolution
- Integral temperature compensation
- Narrow beam angles
- Short blocking distances
- Robust, IP 68 construction



iSOLV-PULSE dB Transducer

dB6

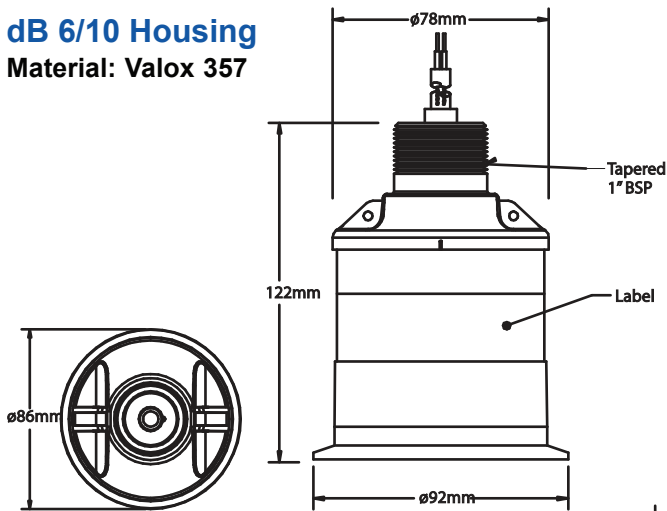
Short range liquid level measurement
Range: 0.2 to 6 m
Nominal operating frequency: 50 kHz
Housing Material: Valox
PZT ceramic transducer element
Radiating face: 45 mm diameter
Beam angle: 10°@ -3 dB
Operating Temperature Range: -40 to 95°C

dB10

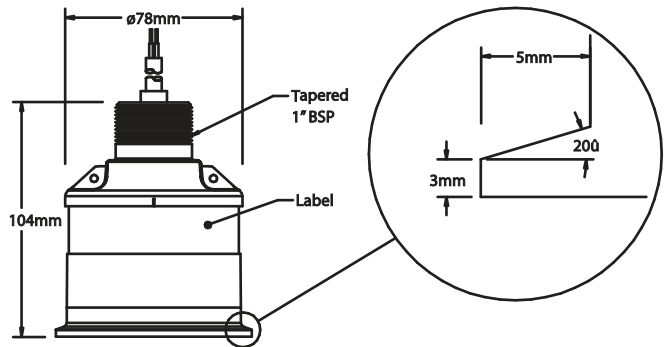
Liquid and solid level measurement
Range: 0.3 to 10 m
Nominal operating frequency: 41 kHz
Housing Material: Valox
PZT ceramic transducer element
Radiating face: 45 mm diameter
Beam angle of 10° @ -3 dB
Operating Temperature Range: -40 to 95°C

Dimension (In mm)

dB 6/10 Housing Material: Valox 357

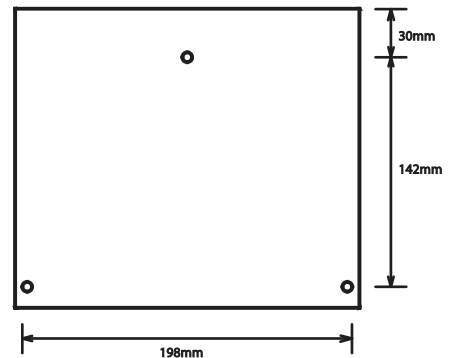
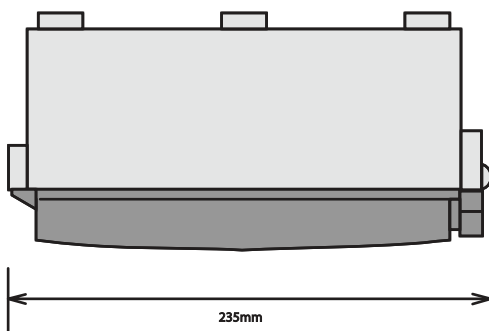
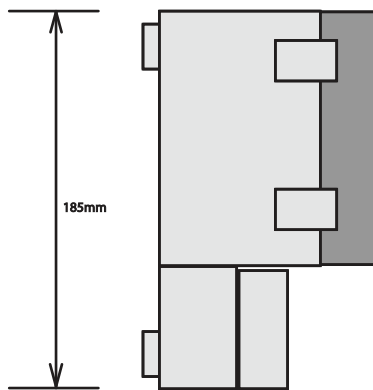
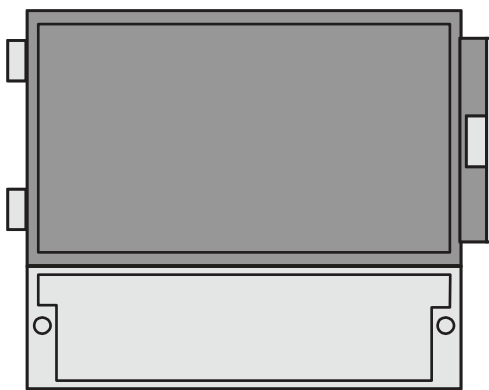


dB 15 Housing Material: Valox 357



Cable Gland Knock-outs Bottom Face:

- 1 off 16 mm
- 5 off 20 mm
- Back face 4 off 18 mm



REGIONAL NETWORK

CHINA

FLOTECH CONTROLS (SHANGHAI) CO., LTD
 B-C, Songhu Industrial Zone, No.3
 Yanghebang Road, Songjiang High-tech Park,
 Shanghai, P.R.C (201615)
 Tel: (86) 21 64593908
 Fax: (86) 21 64595018
 Email: info@flotechshanghai.com

福德控制仪器（上海）有限公司
 地址：上海松江高科技园区洋河浜路3号松沪工业
 小区B区C栋
 邮政编码：201615
 电话：(86) 21 64593908
 传真：(86) 21 64595018
 电子邮件：info@flotechshanghai.com
 网站：www.flotechshanghai.com

INDONESIA

PT FLOTECH CONTROLS INDONESIA
 Komplek Rukan Artha Gading Niaga
 Blok F/7, Jln. Boulevard Artha Gading
 Jakarta 14240, Indonesia
 Tel: (62) 21 4585 0778
 Fax: (62) 21 4585 0779
 Email: salesjkt@flotech.co.id

MALAYSIA

M - FLOTECH CONTROLS SDN BHD
 No. 20, Jalan TP 7/6
 Taman Perindustrian UEP Subang Jaya
 40400 Shah Alam
 Selangor Darul Ehsan
 Malaysia
 Tel: (60) 3 5192 5325
 Fax: (60) 3 5192 5327
 Email: sales@mflotech.com.my

SINGAPORE - HEAD OFFICE
FLOTECH CONTROLS PTE LTD
 438 Tagore Industrial Avenue
 Singapore 787814
 Tel: (65) 6553 0366
 Fax: (65) 6553 0828
 Email: info@flotech.com.sg
 Website: www.flotech.com.sg
 www.isolv.com.sg
 Reg. No.198204457H



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