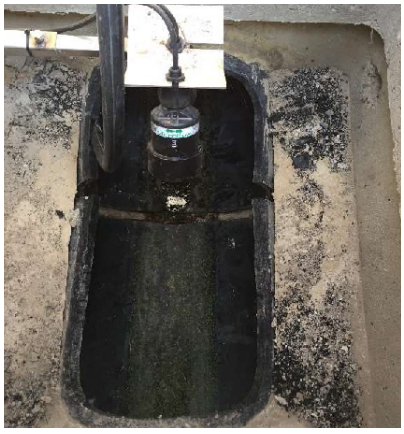
MicroFlow

Doppler effect radar microwave liquid surface velocity sensor not in contact with the liquid to be measured

Certification: CE, ATEX / IECEx

- Non-contact microwave doppler radar
- Economical
- Lightweight, compact design
- It needs a minimum of wave motion. Minimum speed ≥0.2 ÷ 0.3m/s depending on the type of wave motion
- Minimum installation cost
- No interruption of flow service for its installation
- Maintenance-free
- RS485 Modbus protocol
- IP68
- Intrinsically safe ATEX executions for hazardous area on request

The MicroFlow sensor provides accurate, repeatable performance in surface velocity measurement.
It can be used as an independent tool or as part of a more complex system.
The MicroFlow is based on the award-winning, world-leading Pulsar technology for flow measurement in open pipes and channels.
The MicroFlow can be installed as a stand-alone speed sensor, sending data via RS485 Modbus or integrated into a more complex system, for example with UltraRanger Speedy Interface, AquaRanger VHQ or Ultimate Controller and a UTFxx series transducer.
The 'Velocity x Area' calculation using MicroFlow allows for a cost-effective choice in flow measurement over the installation of a primary measuring element (e.g. channels), and provides a viable alternative where site hydraulics do not allow for a channel restriction.



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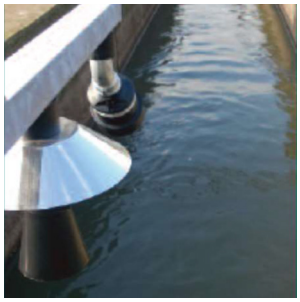
Easy bracket installation supporting MicroFlow

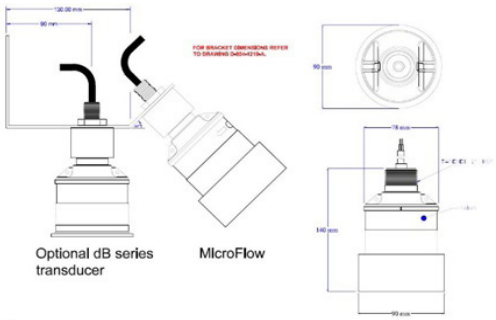


Velocity measurement in narrow and long channels (l≥ 15 ÷ 20d).
Rain protection screen built-in as standard

Flow measurement in narrow underground U-channels

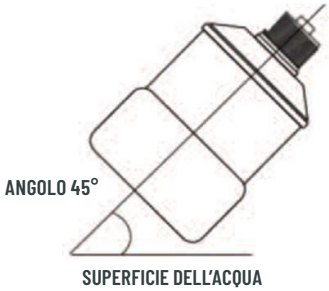
Speed measurement in wide channels

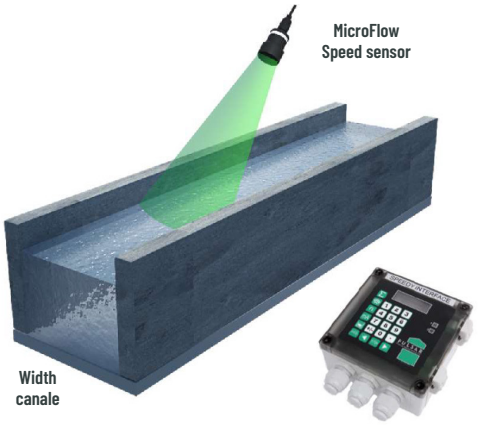
Field mounting of MicroFlow and UTF03HR ultrasonic level transducer for level measurement



For optimal performance:

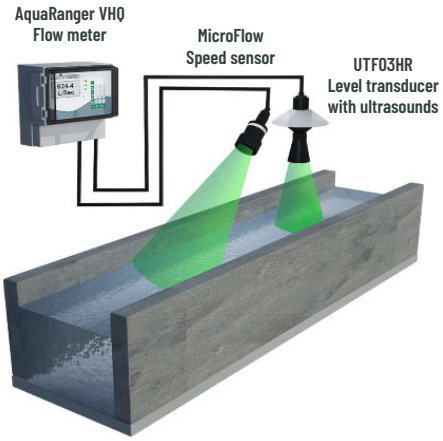
- Mounting angle 45°.
- Suitable for speeds ≥0.2 ÷ 0.3m/s with minimal wave motion
- Mounting in the centre of the channel and with a clear, unbroken vision of the liquid surface
- The mounting height of the MicroFlow should be up to 3 times the width of the channel or 3m (whichever is less) above the minimum water level for proper measurement at any level
- The number of installed transducers depends on the channel width (typical No. 1 Microflow every 1.5 to 2m of channel width)

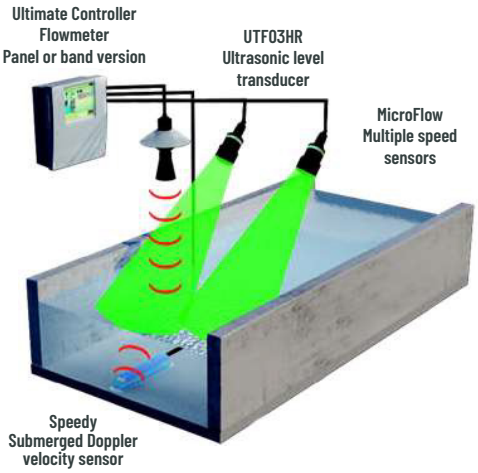




Expandable:

- Using a MicroFlow with the AquaRanger VHQ and UTF03HR in the case of a single measurement of speed
- Using multiple MicroFlows with Ultimate Controller and the UTF03HR for channels with width greater than 1.5m or with few straight sections
- With the Ultimate Controller it can also be including the Speedy speed sensor (Doppler submerged) to add a measurement of submerged speed





For a complete system for flow measurement in open channels add and install an AquaRanger VHQ and ultrasonic level transducer UTF03HR

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Technical Specifications *(MicroFlow)*

PHYSICAL CHARACTERISTICS

Sensor body material	Valox 357
Mounting connection	1 "BSP or M20x 1.5 via adapter supplied
Fixing bracket	Mounting bracket with 45° bend (optional)
Sensor body dimensions	89mm x 140mm (Diameter x Height)
Sensor weight	1Kg nominal (excluding cable)
Sensor cable extension	Maximum 500m (5-pole shielded cable min. $0.^{5mm2}$, N.3 twisted/twisted pairs shielded recommended)

ENVIRONMENTAL CHARACTERISTICS

Enclosure protection	IP68
Temperature range	-20°C ÷ +60°C

APPROVALS

Approval for ATEX & IECEx explosion-proof zones	Ex II 2 G D | Ex mb IIC T4 Gb | Ex mb IIIC T135°C Db
EC approval	Complies with BS EN61326-1:2013 standards for emissions and immunity
RADAR approvals	EN 300-440-1, EN 300-440-2, FCC 15.245

PERFORMANCE

Power supply voltage	10 ÷ 28Vcc
Input power	0.36W maximum
Speed range	0.2/0. 3 ÷ 6.0m/sec (wave-dependent)
Accuracy	The largest of ±0.5% or 0.05m/sec
Optimum installation	Optimum 45° inclination, mounting in the centre of the channel and with a clear, uninterrupted view of the liquid surface
Speed measurement	Non-contact microwave
RADAR	K-band (ISM)
Transmission power	<15dBm
Angle width	20°

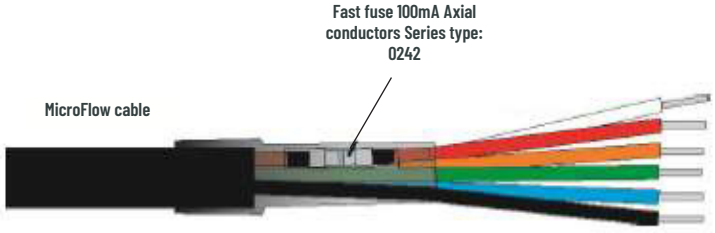
OUTPUTS

Communication	RS485 and Modbus RTU
Compatibility with meters	UltraRanger Speedy Interface, AquaRanger VHQ and Ultimate Controller

PROGRAMMING

PC Programming	Via RS485 Modbus
Security programming	Via access code
Programmed data integrity	Via non-volatile memory
PC configuration and monitoring software:	MicroFlow PC, compatible with Windows 7/8/10

MicroFlow - Connection Diagram



Cable Colour	Function
Red	10 ÷ 28Vdc (power supply)
Black	0Vcc
Orange	RS485+
White	RS485-
Blue	RS485 Common
Green	Screen

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Typical installations

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