

NivuFlow 750 NivuFlow 700

High accurate flow measurement for slightly polluted and dirty media in part filled and full pipes, channels and more



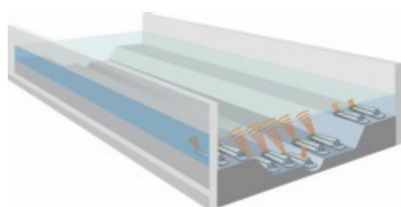
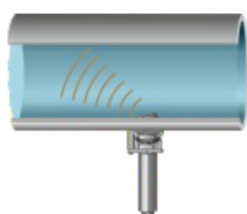
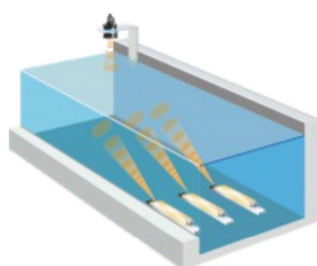
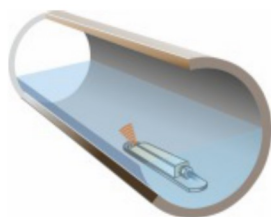
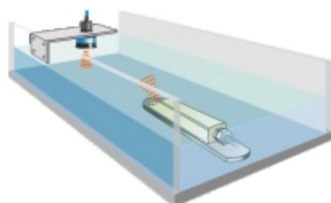
Our proven transmitter family systematically developed further

Flow measurement systems by NIVUS stand for innovation, reliability and highest accuracy.

NivuFlow 750/700 is a fixed transmitter for continuous flow measurement, flow control as well as for storage of measurement values recorded in slight to heavily polluted media featuring various consistencies.

It is designed for use in open channels, closed and part filled pipes (NivuFlow 700: full pipes) with various shapes and dimensions. The transmitter can handle up to 3 measurement spots and up to 9 flow sensors.





Flow measurement systems at the highest technical level

- Very high measurement accuracy
- Suitable even for very difficult applications
- Up to 3 measurement spots and up to 9 flow sensors (M9 version)
- Real-time measurement of real flow velocity profiles
- Intuitive, modern operating concept for quick and easy initial start-up
- Integrated numeric flow models
- Measurement in channels, part filled and full pipes as well as flumes
- Weatherproof version for outdoor use
- Ex approval Zone 1
- High-resolution graphic daylight display
- Extensive diagnostic functions for reliable initial start-up and quick maintenance
- Compact construction for narrow switching cabinets
- Quick wiring thanks to easily accessible connection points
- Universal, standardised interfaces for easy integration
- Online connection/data transmission and remote maintenance via Internet
- MCERTS certified



Typical Applications

WWTPs, channel networks, discharge constructions, industrial wastewater networks, measurement places for billing, intakes, drainage lines, return sludge lines, recirculation lines and many more



The right sensor for each application

The complete flow measurement system consists of the NivuFlow 750/700 transmitter and the appropriate sensors.

For flow velocity measurement starting at flow levels as low as 3 cm up to several meters in pipes, flumes and channels of various shapes and dimensions there is a wide selection of sensors available: flow velocity sensors with and without integrated flow level measurement as well as air-ultrasonic flow level sensors.

Your benefits

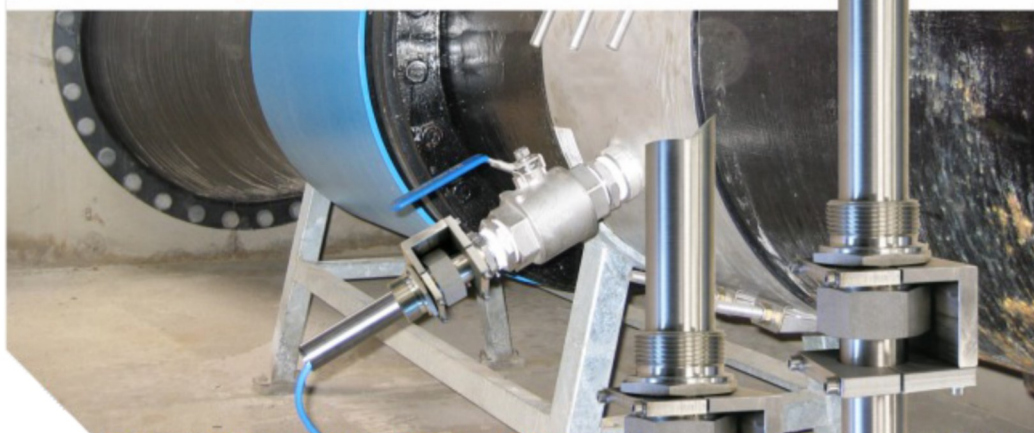
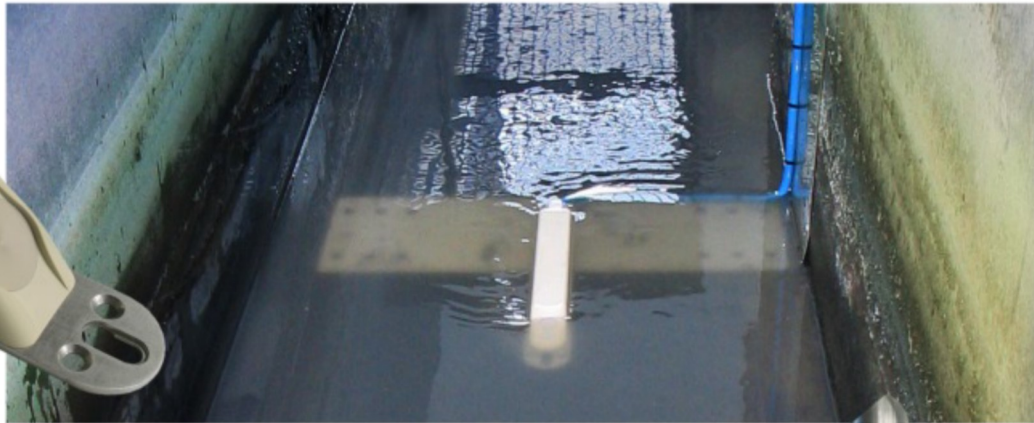
- Absolutely zero point stable and drift-free sensors
- Low installation expenses through perfectly matched mounting accessories
- Installation under process conditions
- Various sensor constructions guarantee the best solution for each application
- Digital signal transmission for error-free connections over long distances
- Ex approval Zone 1



Air-ultrasonic sensor for level measurement, installed in flume crown



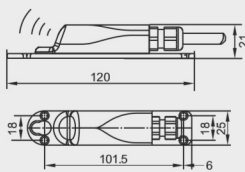
Flow velocity sensors for installation on channel bottom or channel walls



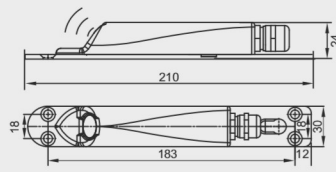
Flow velocity sensors for installation in pipes and in the NIVUS Pipe Profiler

Mini Sensor family for small channels

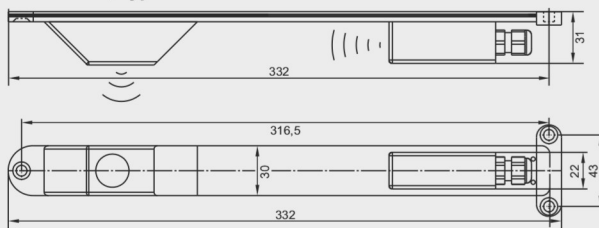
Flow velocity sensor CSM



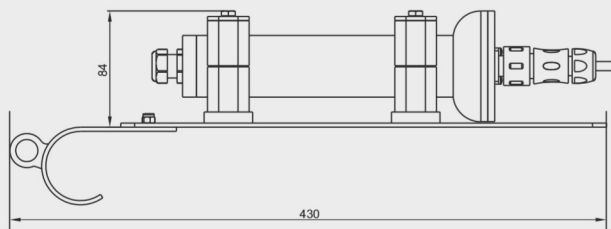
Flow velocity sensor CSM-D



Level sensor, Type DSM



Electronic Box, Type EBM



Dimensions in mm

Flow velocity sensor Type CSM, CSM-D

Measurement principle	cross correlation detecting the real flow profile
Minimum fill level	CSM: 3 cm, CSM-D: 5.5 cm
Protection	IP68
Ex-Approval (optional)	II 2 G Ex ib IIB T4 Gb
Measurement range	-100 cm/s to +600 cm/s
Operating temp.	-20 °C to +50 °C, -20 °C to +40 °C in Ex Zone 1
Operating pressure	CSM: max. 4 bar, CSM-D: max. 1 bar
Number of scan layers	max. 16
Meas. uncertainty	< 1 % of measurement value (v > 1 m/s)
(per scan layer)	< 0.5 % of measurement value +5 mm/s (v < 1 m/s)
Zero point drift	absolutely stable zero point

CSM-D: level measurement - pressure

Measurement range	0 to 500 cm
Zero point drift	max. 0.75% of final value
Meas. uncertainty	< 0.5 % of final value

Level sensor, Type DSM

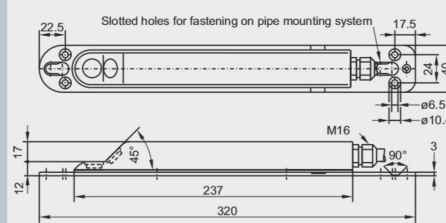
Measurement principle	transit time using air-ultrasound
Protection	IP68
Ex-approval (optional)	II 2 G Ex ib IIB T4 Gb
Measurement range	0 to 200 cm
Meas. uncertainty	< ±5 mm
Dead zone	(starting at mounting plate) 4 cm

Electronic Box, Type EBM for connection to NIVUS transmitters

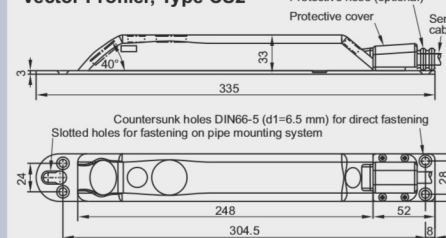
Protection	IP68
Ex-approval (optional)	II 2 G Ex ib IIB T4 Gb

Sensors POA/CS2 for medium and large channels

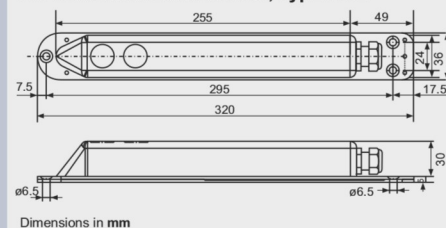
Water-Ultrasonic Sensors, Type POA



Vector Profiler, Type CS2

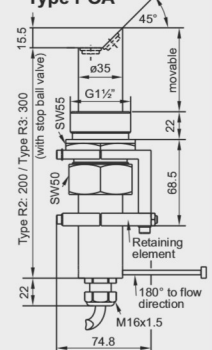


Air-Ultrasonic Level Sensor, Type OCL

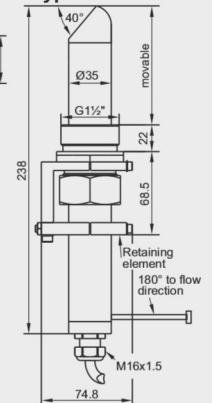


Dimensions in mm

Pipe Sensors Type POA

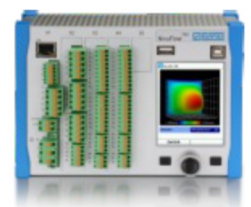


Type CS2



Measurement principle	<ul style="list-style-type: none"> cross correlation with digital pattern detection for flow velocity measurement ultrasonic transit time for level measurement piezoresistive pressure meas. for level measurement
Meas. range (v)	-100 cm/s to +600 cm/s
Meas. range (h)	pressure 500 cm ultrasound internal up to 200 cm
Protection	IP68
Ex Approval (optional)	II 2 G Ex ib IIB T4 (ATEX), Ex ib IIB T4 Gb (IECEX)
Operating temp.	-20°C to +50°C (-20°C to +40°C in Ex Zone 1)
Storing temperature	-30°C to +70°C
Meas. uncertainty	deviation < 1 % (v > 1 m/s), < 0.5 % + 5 mm/s (v < 1 m/s)
Operating pressure	max. 4 bar (combi sensor w. pressure cell max. 1 bar)
Cable length	up to 100 m, other lengths on request
Sensor types	POA or CS2 (for levels of several meters): flow velocity using cross correlation or flow velocity and level, temperature measurement level measurement using water-ultrasound (optional) level measurement using pressure (optional) OCL : level measurement using ultrasound
Constructions	wedge sensor for installation on channel bottom or sidewall pipe sensor for installation in pipes

You can find the complete specifications in the instruction manual or on www.nivus.com





Nivu Flow 750 / 700 - Universal transmitter

The intuitive one-hand operation and the bright high-resolution colour display allow quick, easy and cost-efficient commissioning on site. Additional input devices or software are not required.

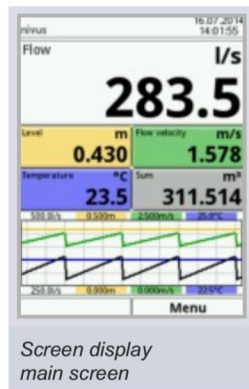
The latest integrated numeric discharge models enable more accurate, more stable and more reliable determination of flow rates even under very difficult measurement conditions. The 3D flow profile is calculated in real time and is reproducibly and verifiably indicated on the transmitter display.

Factors influencing the calculation results such as channel shapes, discharge behaviour and wall roughness are considered during flow calculation.

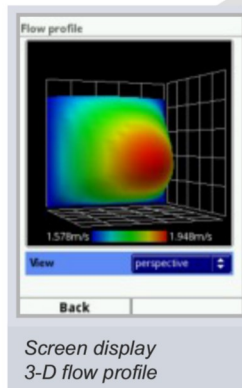
In addition to the compact DIN rail version there is a weatherproof field unit available featuring appropriate connection space for outdoor installation



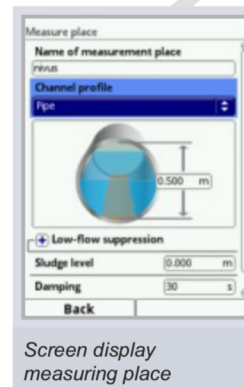
Screen display menu



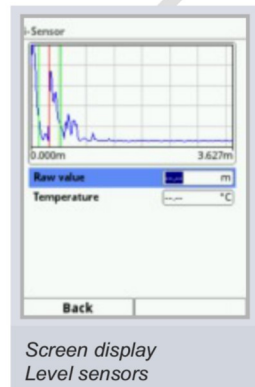
Screen display main screen



Screen display 3-D flow profile



Screen display measuring place

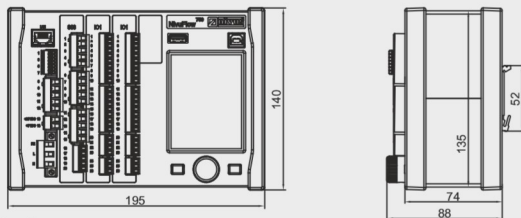


Screen display Level sensors



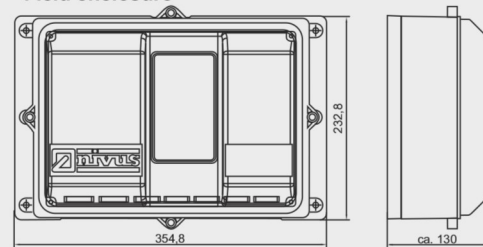
Technical Information NivuFlow 750/700

DIN rail enclosure for easy installation in switching cabinet



Dimensions in mm

Field enclosure

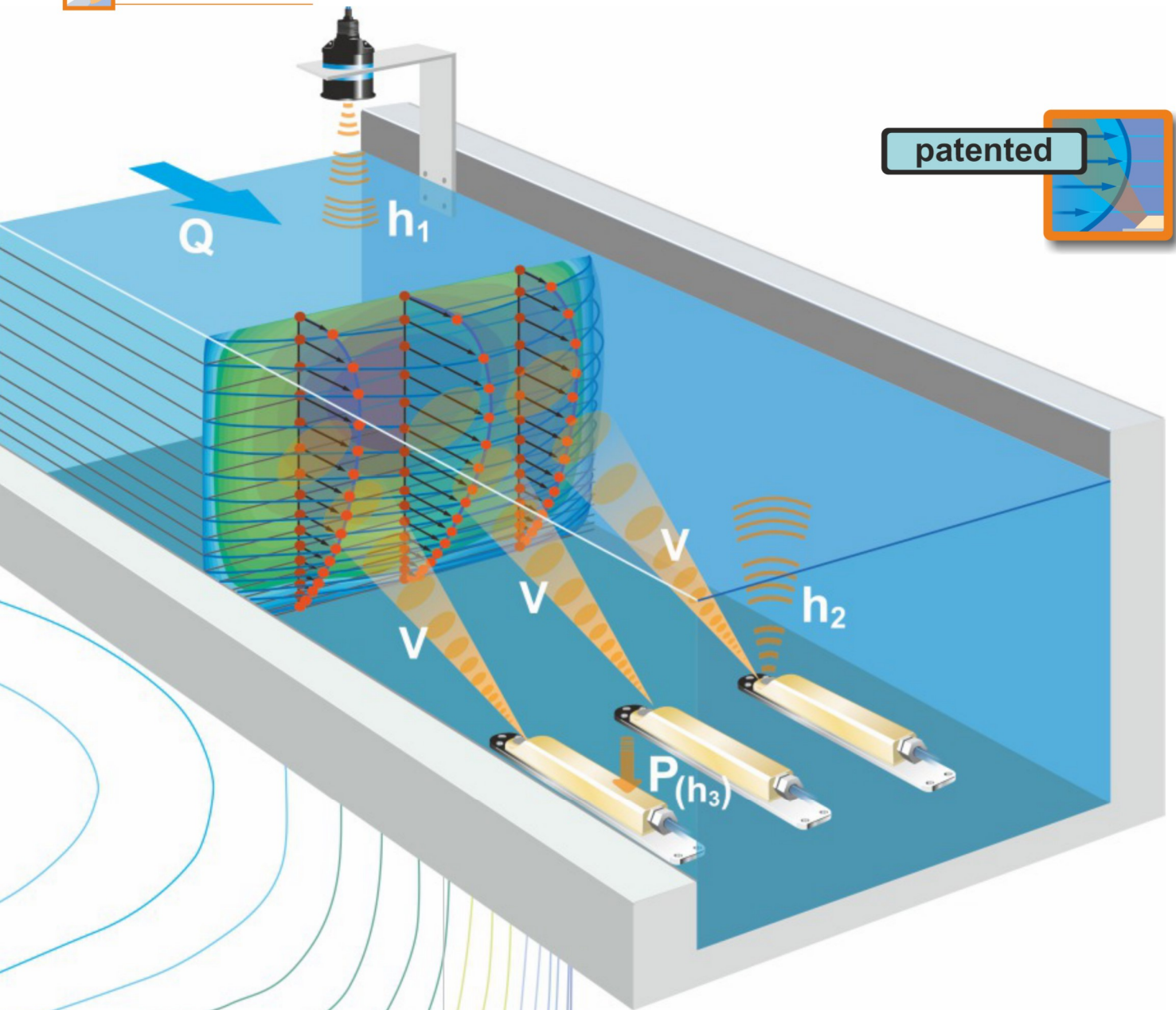


Power supply	85 to 240 VAC, +10 % / -15 %, 47 to 63 Hz or 9-36 V DC
Power consumption	typical 14 VA
Enclosure	Aluminium, plastic (installation in switching cabinet), plastic (field enclosure)
Protection	IP 20 (installation in switching cabinet), IP 68 (field enclosure)
Operating temperature	-20°C to +70°C
Storage temperature	-30°C to +75°C
Max. humidity	80%, non-condensing
Display	240 x 360 pixel, 65536 colours
Operation	rotary pushbutton, 2 function keys, menus in German, English, French, Swedish and other languages
Connection	plug with cage clamp terminals
Inputs	up to 7 x 4 - 20 mA, up to 4 x RS 485 for connection of up to 9 flow velocity sensors (via multiplexer)
Outputs	up to 4 x 0/4 - 20 mA, up to 5 x relays (SPDT)
Controller	3-step controller, quick close control, adjustable valve position in case of error
Data memory	1.0 GB internal memory, readout on faceplate via USB stick
Communication	Modbus, HART

You can find the complete specifications in the instruction manual or on www.nivus.com



NivuFlow is available as unit for installation in control cabinet or with a robust field enclosure



How the NivuFlow 750/700 measures

Flow cannot be measured directly. Multiple factors are required to detect the flow Q: average flow velocity and the flow cross section which leads to the general formula:

$$Q = v_{(average)} \cdot A$$

The flow cross section A is investigated by continuously measuring the filling level considering the channel shape.

The flow velocity is detected by using the particles' velocity. Most media contain a certain load of dirt particles or gas bubbles which move in the same velocity as the liquid itself.



The flow measurement principle as video under: www.nivus.com