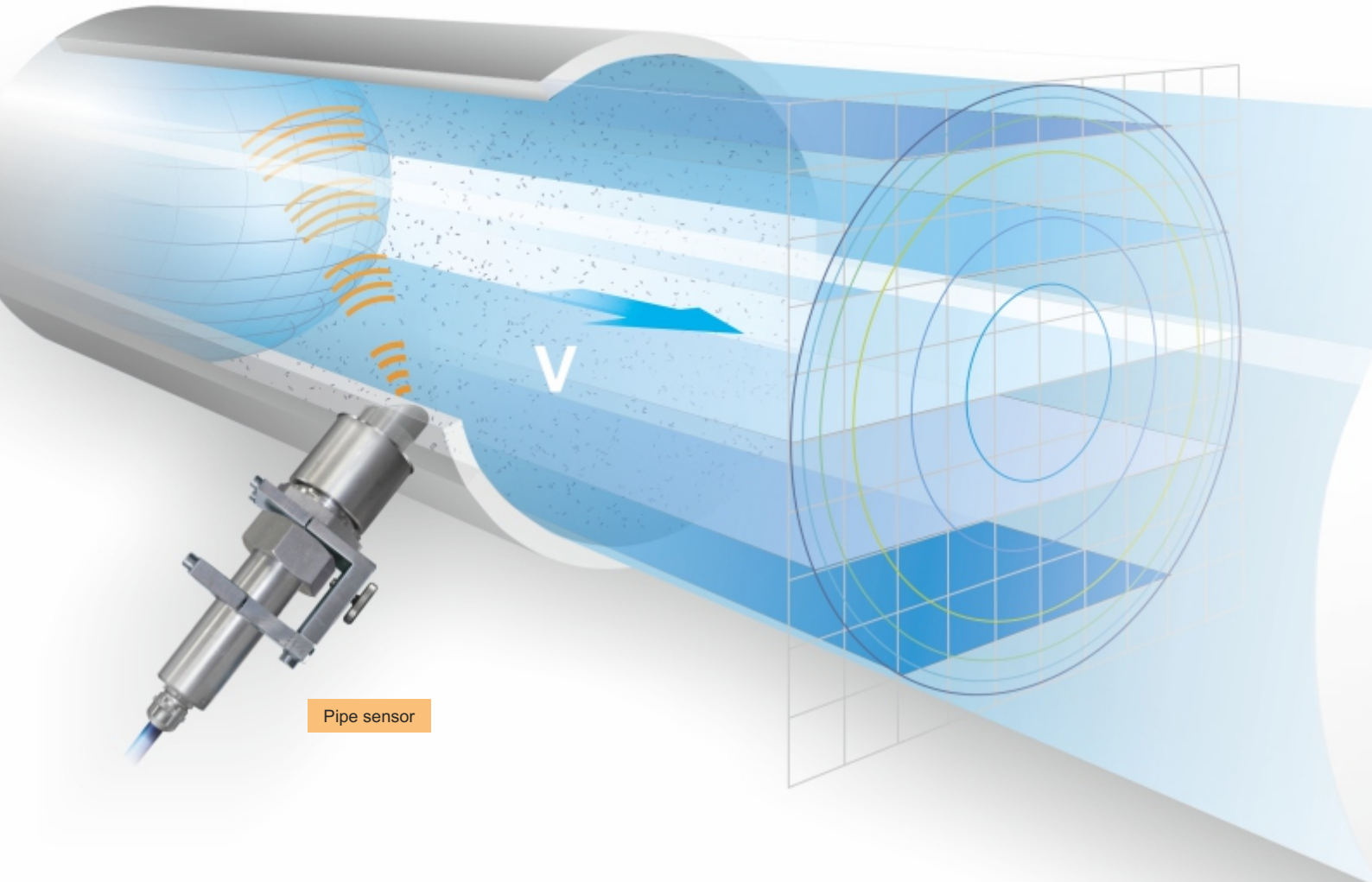


NFP
NIVUS Full Pipe

Flow Measurement
for full Pipes



Pipe sensor

- very high accuracy
- attractive price
- low installation costs
- real flow velocity profile measurement using cross correlation with digital pattern detection
- spatial allocation of single velocities
- absolutely stable zero point and drift-free
- no electrodes, no conductivity required
- suitable for measurements in river water, rain water, process water, dirty water, sludges, cooling water, municipal and industrial waste water etc.
- Ex zone 1 optional

The NFP (NIVUS Full Pipe) has been developed particularly for flow measurement in full pipes with diameters between 100 and 800 mm. Based on the cross correlation method, the system can be used in a range of slightly to heavily polluted media. The NFP combines network measurements including adapted area weighting with a flow profile correction.

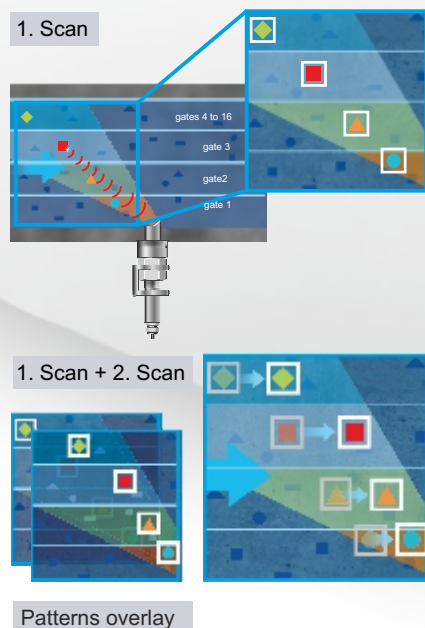
The unit has high accuracy and an unrivalled cost/performance ratio. Appropriate NIVUS accessories facilitate installation and keep maintenance expenses low. Therefore the NFP is an ideal substitute for obsolete or defect MID's and other measurements. It is not necessarily required to remove existing measurement systems.

Efficient and highly accurate

Measurement principle

- The measurement method for universal use in slight to heavily polluted media
- Very high accuracy
- Measures the real flow velocity profile

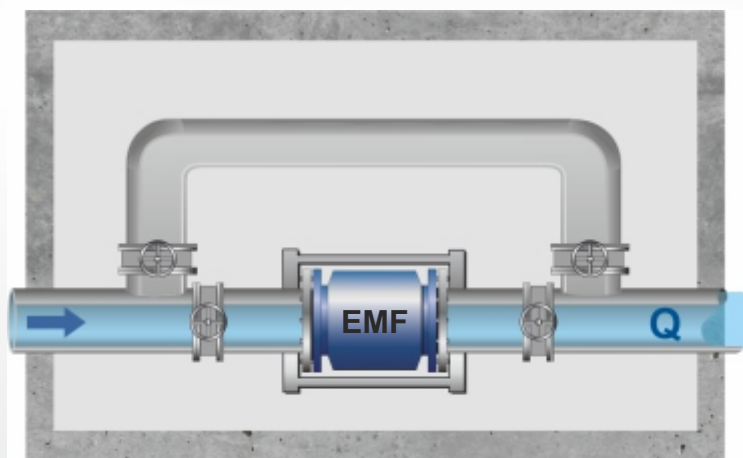
Reflecting particles within the medium (solid particles, minerals or gas bubbles) are scanned using an ultrasonic impulse and the resulting echo pattern is saved. A second scan follows within a few milliseconds. The correlation of both signals allows to compute the flow velocity. By repeating this procedure in different flow levels the real flow velocity profile can be determined.



Easy installation - very easy retrofitting

- Installation without interruption of processes
- Easy to transport
- Quick and easy installation
- Easy maintenance and calibration
- No need to remove defective EMFs for retrofitting

Installation comparison DN 800



Installation of magnetic-inductive flow measurement



Interruption of operation



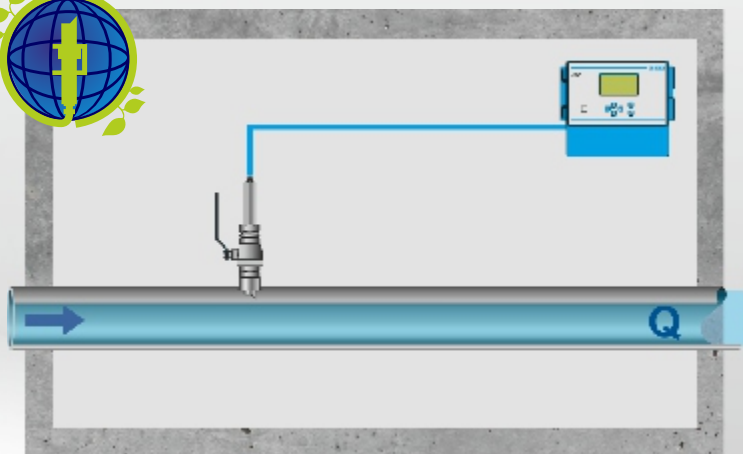
Installation and Transportation



3 Mechanics



1 - 2 Days



Installation of ultrasonic flow measurement using NFP



Install while running



Easy transportation and installation



1 Mechanic



2 Hours

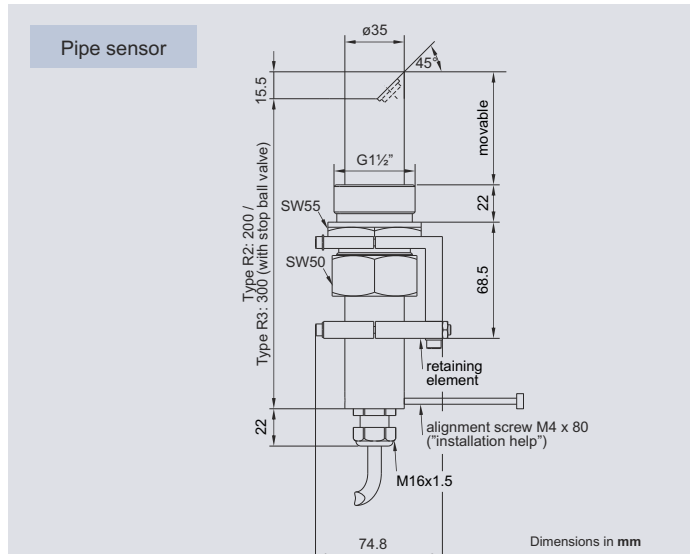
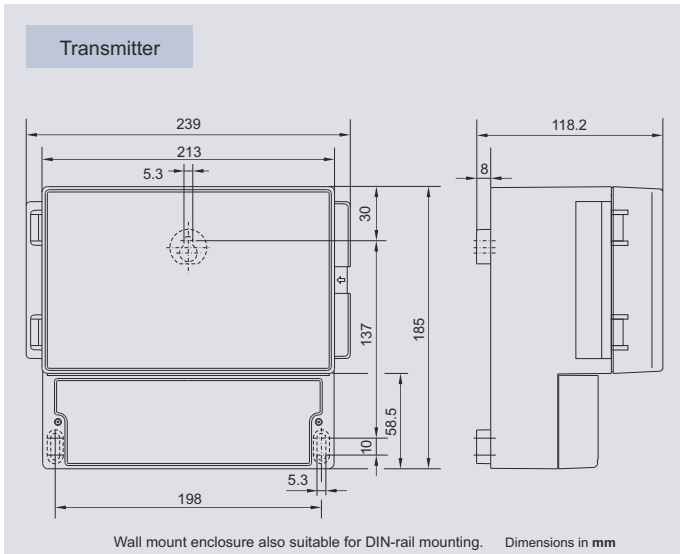
The NFP is outstandingly suitable for use in:

- pump stations for rain water, dirty water and combined waste water
- waste water treatment plants
- pressure pipelines
- drainage lines
- return sludge lines
- recirculation lines
- and many more



We provide suitable accessories such as welding nozzle, tapping saddles, stop ball valve for easy sensor installation and maintenance.

Specifications



Transmitter

Power supply	100 to 240 V AC; + 10 % / -15 %, 47 to 63 Hz or 24 V DC ± 15 %, 5 % residual ripple
Power consumption	max. 18 VA (7 VA typical)
Wall mount enclosure	material: Polycarbonate weight: approx. 1620 g protection: IP 65, if lid is closed and locked
Ex approval (optional)	II(2)G [Ex ib] IIB
Operating temperature	-20 °C to +60 °C
Storage temperature	-30 °C to +70 °C
Max. humidity	90 %, non-condensing
Display	full graphic, back-lit LCD, 128 x 64 pixels
Operation	6 keys, multilingual dialog mode
Inputs	1 digital input, 1 active sensor connectable
Outputs	1 (optional 3) x 0/4-20 mA, load 500 Ohm, 12 bit resolution, deviation less than 0.1 % (after calibration) 2 relays (SPDT)
Parameter transmission	via front-side USB interface

Sensors

Sensor type	pipe sensor/flow velocity sensor
Measurement principle	correlation with digital pattern detection
Measurement range (v)	-1 m/s to +6 m/s
Measurement frequency	1 MHz
Protection	IP 68
Ex approval	II 2 G Ex ib IIB T4
Operating temperature	-20 °C to +50 °C (-20 °C to +40 °C in Ex zone 1)
Storage temperature	-30 °C to +70 °C
Measurement uncertainty	deviation less than 1 %*
Operating pressure	max. 4 bar
Cable length	10, 20, 30, 50, 100m; special length upon request
Materials	Polyurethane, stainless steel 1.4571, PPO GF30, PA, HDPE
Option	chemically resistant sensor made of PEEK, cable with FEP coating
Accessories for pipe sensors	
Tapping saddle	for sensor mounting in pipes with inner diameters from 100 to 800 mm
Stop ball valve	for removal of sensors from pipes without pressure
Welding nozzle	straight construction (90°)
Retractable fitting	for removal of sensors under process conditions

The specifications above are extracts from the complete documentation. You can find the complete specifications on our data sheets.

Accessories



Tapping saddles



Stop ball valve



Retractable fitting

*Reference conditions: inner pipe diameter 250 mm, medium water, velocity 1 m/s < v < 4 m/s, medium temperature 20 °C, air temperature 20 °C, air pressure 1013 mbar

NIVUS GmbH Im Taele 2 75031 Eppingen, Germany Phone: +49 (0) 72 62 / 91 91 - 0 Fax: +49 (0) 72 62 / 91 91 - 999 E-mail: info@nivus.com Internet: www.nivus.com	NIVUSAG Hauptstrasse 49 8750 Glarus, Switzerland Phone: +41 (0) 55 / 645 20 66 Fax: +41 (0) 55 / 645 20 14 E-mail: swiss@nivus.com Internet: www.nivus.com	NIVUS Sp. z o.o. ul. Hutnicza 3 / B-18 81-212 Gdynia, Poland Phone: +48 (0) 58 / 760 20 15 Fax: +48 (0) 58 / 760 20 14 E-mail: poland@nivus.com Internet: www.nivus.pl	NIVUS France 14, rue de la Paix 67770 Sessenheim, France Phone: +33 (0) 3 88 07 16 96 Fax: +33 (0) 3 88 07 16 97 E-mail: france@nivus.com Internet: www.nivus.com	NIVUS Ltd. Weston under Wetherley Royal Leamington Spa CV33 9BW, Warwickshire Phone: +44 (0)1926 632470 E-mail: info@nivus.com Internet: www.nivus.com
---	---	---	--	---