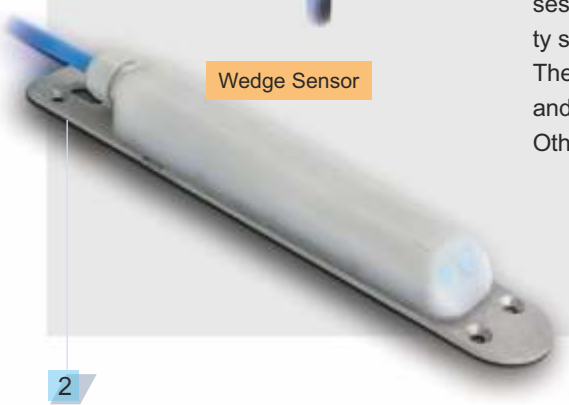
measure analyse optimise

OCM F

Flow Meter for part filled and full Pipes, Channels and Flumes

- Reasonable purchase costs
- Reliable, with more than 30 years of product experience
- Easy mounting without additional constructions
- Integrated 3-step controller
- Measurement in heavily polluted and abrasive media

Pipe Sensor



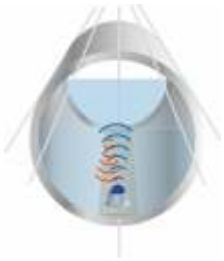
Wedge Sensor

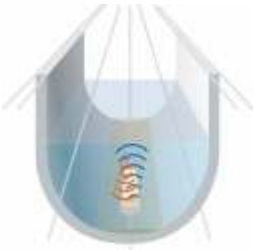
OCM F

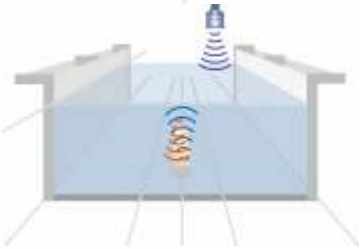
Fix installation flow meter for slightly to heavily polluted media in part filled and full pipes, channels and flumes.

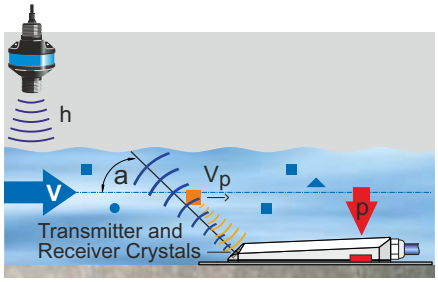
General Discription

The OCM F flow metering system utilises a fully bidirectional ultrasonic velocity sensor.
The intelligent Doppler sensor detects and directly evaluates the flow velocity. Other than with mag meters, this method has an absolutely stable zero point. Moreover, the dynamic measurement range for minimum level and flow is very high. Level measurement can be carried out either by a sensor-integrated pressure cell or by using an external sensor.









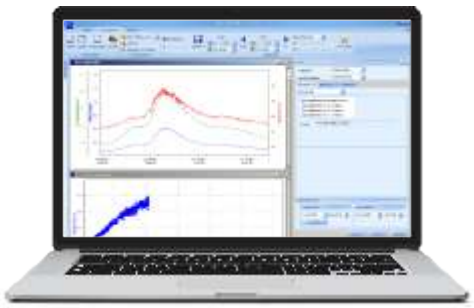
p = Level measurement with pressure (combi sensor)
h = Level measurement with ultrasound (external sensor)
V_p = Particle velocity
a = Transmission angle between ultrasound and flow direction

Measurement principle

The measurement principle is based on the classic Doppler method where an ultrasonic signal with a defined frequency is transmitted into a liquid at a known angle.
A portion of the ultrasound energy is reflected by the solid particles or gas bubbles carried with the liquid. Due to the movement of the particles a frequency distortion occurs which is direct proportional to the particle velocity. The flow velocity can be determined from this frequency shift subsequently. From the flow profile and the multitude of reflecting particles a frequency spectrum results. This spectrum, suitable for hydraulic assessment of measurement places, can be indicated on the OCM F display. The newly developed intelligent Doppler sensor directly detects and evaluates the flow velocity.

Operation / Programming

Thanks to the intuitive user interface it is very easy to set up the OCM F for the requirements of various applications. Additional input devices like Computers etc. are not needed. Programmed settings are indicated clearly.



Visualisation of measurement data with NivuSoft

Memory

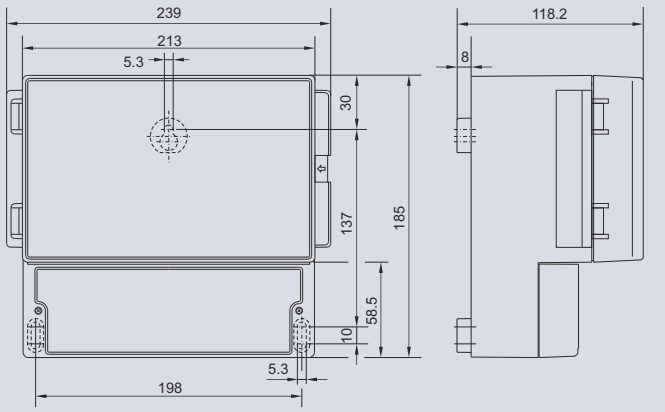
The internal memory enables storage of medium velocity information as well as temperature and flow data. With the frontside USB socket measurement data as well as settings can be read out. The free NivuSoft measurement data software enables easy visualisation of readings.

Typical Applications

- Wastewater treatment plants: intake and discharge also for aeration tank, sedimation tank and recirculation.
- Permanent measurements on storm water basin and storm water retention basin
- Flow measurement in channel networks
- Industrial wastewater networks
- and many more

Specifications

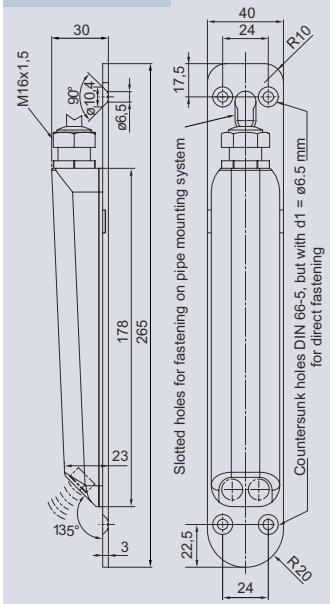
Transmitter



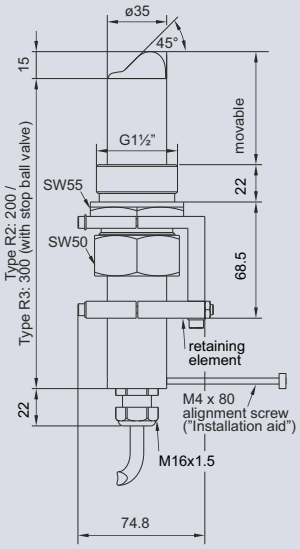
Wall mount enclosure also suitable for DIN rail mounting.

Dimensions in **mm**

Wedge Sensor



Pipe Sensor



Dimensions in **mm**

Transmitter

Power supply	• 100 to 240 V AC, +10 % / -15 %, 47 to 63 Hz or • 24 V DC ±15 %, 5 % residual ripple
Power consumption	AC 7 VA typical. CD: 6 W typical
Wall mount enclosure	• material: Polycarbonate (NEMA 4) • weigth: approx. 1200 g • protection: IP 65
Ex approval (option)	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
Operation	6-button keypad, multilingual
Input	• 1 x 4–20 mA for external level (2-wire-sensor) • 2 x 0/4–20 mA with 12 bit resolution for external level and external setpoint • 4 x digital input • 1 active compact Doppler sensor connectable (flow velocity; combi sensor with additional level measurement)
Outputs	• 3 x 0/4–20 mA, load 500 Ohm, 12 bit resolution, deviation 0.1 % • 5 relays (SPDT) loadable up to 230 V AC / 2 A (cos j 0.9)
Regulator	3-step controller, quick-close control, adjustable slide position at disturbance, auto flush function in case of blocked slide valve
Data memory	64,512 datapoints, accessible via USB

Sensors

Measurement principle	• Doppler (flow velocity) • piezo-resistive pressure measurement (level)
Measurement frequency	• wedge sensors 1 MHz • pipe sensors 750 kHz
Protection	IP 68
Ex approval (option)	II 2 G Ex ib IIB T4
Operation temperature	-20 °C to +50 °C (-20 °C to +40 °C in Ex zone 1)
Operating pressure	• combi sensor with pressure measurement (only wedge sensor): max. 1 bar • sensors without pressure meas.: max. 4 bar
Cable length	10/15/20/30/50/100 m pre-configured; special length upon request
Constructions	• wedge sensor for installation on channel bottom • pipe sensor incl. retaining element for installation in pipes
Flow Velocity Measurement	
Measurement range	-600 cm/s to +600 cm/s
Measurement uncertainty	±1 % of final values of measurement range
Zero point drift	absolutely stable zero point
Sonic lobe	±5 degrees
Temperature Measurement	
Measurement range	-20° C to +60° C
Measurement uncertainty	±0.5 K
Level Measurement - Pressure	
Measurement range	0.005 - 5 m
Zero point drift	max. 0.75 % of final value (0 - 50° C)
Measurement uncertainty (standing medium)	<0.5 % of final value

You can find more information in the instruction manual or on **www.nivus.com**

NIVUS GmbH
Head Office
Im Taele 2
75031 Eppingen, Germany
Phone: +49(0)726291910
Fax: +49(0)72629191999
info@nivus.com
www.nivus.com

NIVUS AG
8750 Glarus, Switzerland
Phone: +41(0)556452066
swiss@nivus.com

NIVUS Austria
3382 Loosdorf, Austria
Phone: +43 (0)27545676321
austria@nivus.com

NIVUS Sp. z o.o.
81-212 Gdynia, Poland
Phone: +48(0)587602015
biuro@nivus.pl

NIVUS France
67870 Bischofsheim, France
Phone: +33(0)388999284
info@nivus.fr

NIVUS Ltd.
CV33 9BW, Warwickshire, UK
Phone: +44(0)1926632470
info-uk@nivus.com

NIVUS Middle East (FZE)
Sharjah Free Zone, UAE
Phone: +9716 5578224
middle-east@nivus.com

NIVUS Korea Co. Ltd.
Incheon, Korea 21984
Phone: +82322098588
korea@nivus.com

NIVUS Vietnam
Hanoi, Vietnam
Phone: +841204467724
vietnam@nivus.com

Specifications subject to change. 05.2020 - 1.000 - FA