



### Advantages

- Contactless measurement
- Improved accuracy in combination with ultrasonic horizontal profile scanner
- Optional surcharge sensor available
- Installation without interrupting processes
- Maintenance-free
- Area correction by sediment detection

**NivuFlow 550**  
**NivuFlow 7550**

**Radar Flow Meter**  
**+ Surcharge Sensor**  
**+ Sediment Detection**  
**+ Automatic Calibration**



# NivuFlow 550 Radar Flow Measurement

The NIVUS radar flow measurement system offers a contactless solution for open channel flow. Our measurement system operates with continuous wave Doppler and provides easy installation and maintenance. The NivuFlow Series is suitable for all kind fluids. Our modular approach offers flexibility for best results in any application.

### Determination of surface velocity

- Low maintenance through contactless radar sensor
- Easy installation and operation
- Ideal for use with all liquids, even aggressive / abrasive media

### Effortless use especially for difficult applications

- Measurement places with high pollutant load and sedimentation
- Measurement places featuring bed load / debris
- Measurement places with installation restrictions in the channel
- Shooting discharge at low flow levels and high velocities

### Extended range of application with optional surcharge sensor

- Uninterrupted and reliable flow measurement during surcharge events
- Sediment detection with ultrasonic level measurement in surcharge conditions



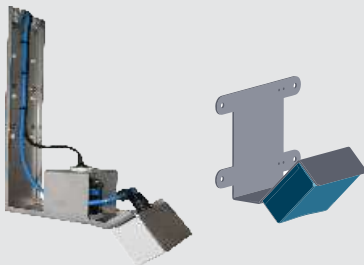
## Modular System

Our Radar flow measurement system is modular. Therefore we can offer the suitable solution for each application.

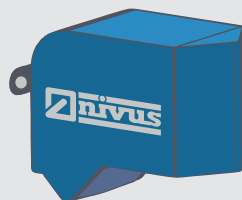
### Your Advantages

- Ideal level measurement on the correct location
- Choose the optimum level measurement method for the application
- Optional ultrasonic measurement for reliable flow measurement in surcharge conditions
- Enhanced accuracy by redundant ultrasonic flow measurement

Radar flow sensor fastening variants



Radar flow compact module



Ultrasonic surcharge sensor



Radar Ultrasonic Hydrostatic

Level sensors



NivuFlow 550 NivuFlow 7550

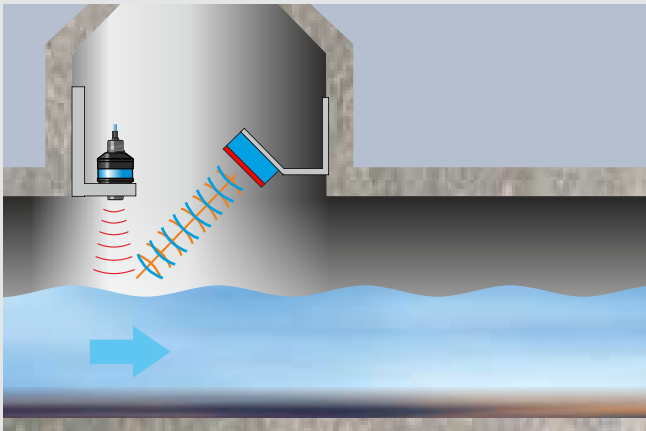
Transmitter



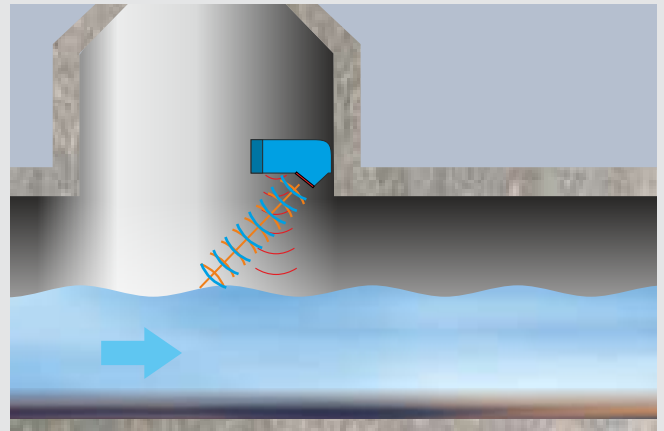
IP 68 field housing

# Installation Examples

## Standard Installations

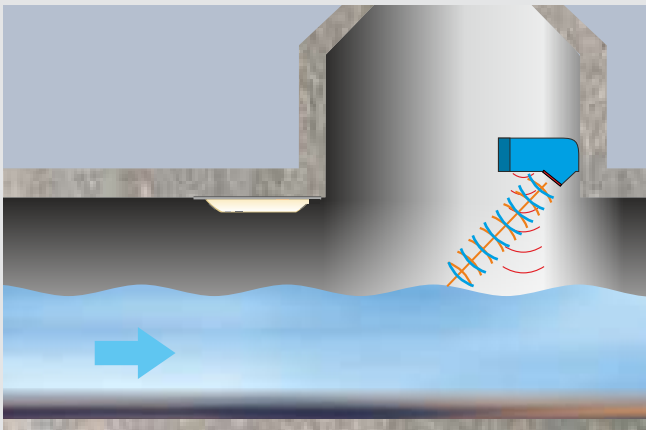


**Modular radar flow measurement** installation with separate ultrasonic level measurement

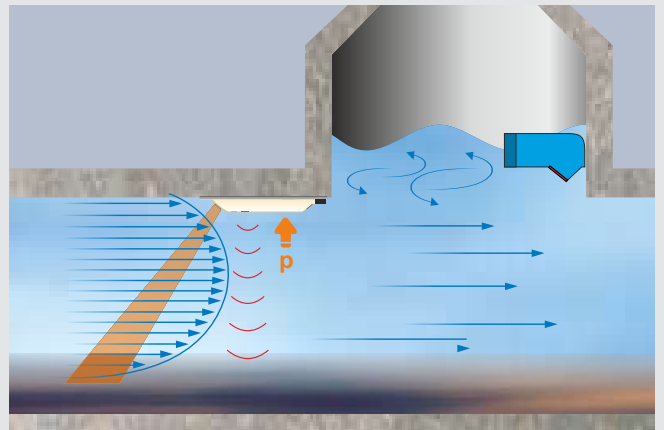


**Compact radar flow measurement** with ultrasonic or radar level measurement in single housing

## Radar Flow Measurement and Surge Flow Measurement



**Normal conditions:** Radar flow measurement with combined ultrasonic or radar level measurement in operation. The surcharge sensor is not active at low level flow.

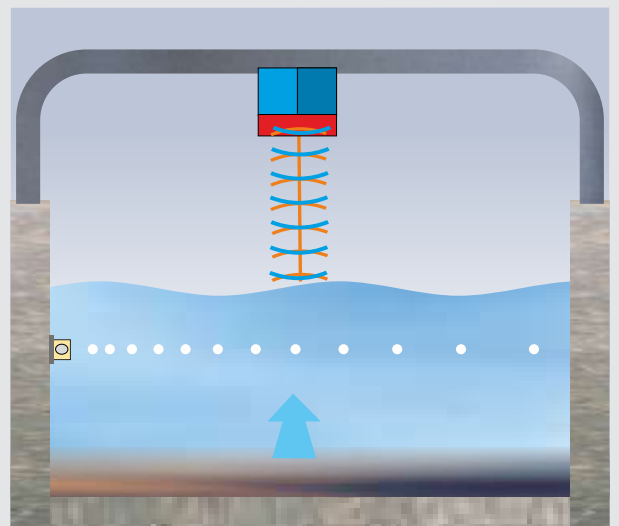


**Surcharge conditions:** Ultrasonic flow measurement detects flow profile with combined hydrostatic level measurement. An additional ultrasonic level measurement detects sediments on ground level.

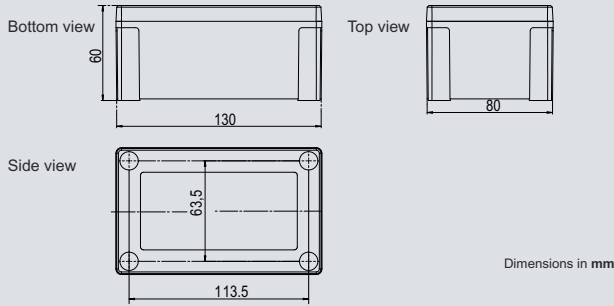
## Hybrid Flow Measurement with Surface Radar and Ultrasonic Profile Scanner

### Your Advantages

- Redundant flow measurement
  - Contactless Radar surface velocity measurement
  - Ultrasonic sideways velocity profile sensor
- Two independent flow measurement technologies increase the accuracy and reliability
- All sensors are above the area of sedimentation,
- No maintenance
- Reliable measurement independently of wave formations, storm conditions as well as in low flow level circumstances



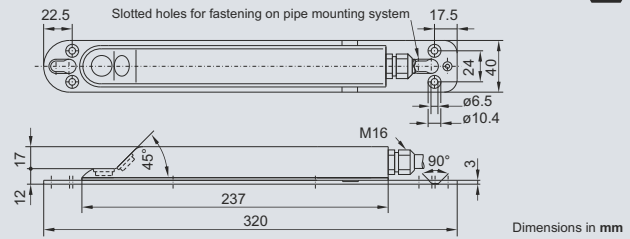
## Radars Sensor, Type OFR



### OFR Radar Sensor

Measurement method	Radars - 24 GHz - ISM band
Measurement range	0.15 m/s - 10 m/s
Temperature range	-30 °C to 70 °C -20 °C to 50 °C in ATEX Zone 1
Measurement distance	0.3 m - 10 m
Protection	IP 68 - completely encapsulated
Enclosure material	high-performance composite
Interface	RS485 for connection to NivuFlow or OCM Pro CF transmitters
Measurement uncertainty	± 0.5 % of measurement value; ± 0,01 m/s
Ex Approval	II 2 G Ex ib IIB T4 Gb; TÜV 16 ATEX 185271X; IECEX 16.0034X

## Ultrasonic Sensor, Type POA



### Surcharge Flow-Level Sensor (optional)

#### Flow Measurement

Measurement method	ultrasonic profile scanner (cross correlation)
Measurement range	- 6 m/s up to + 6 m/s
Protection	IP 68
Measurement uncertainty	0,5% of measurement value (v: 0,05 - 0,5 m/s); 1% of measurement value (v > 0,5 m/s)

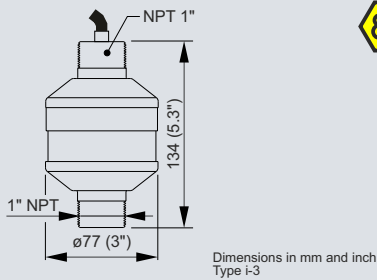
#### Level Measurement

Measurement method	hydrostatic for surcharge detection
Measurement range	0 - 10 m

#### Sediment Detection

Measurement method	ultrasound
Measurement range	0 - 5 m
Ex Approval	II 2 G EEx ib IIB T4 Gb; TÜV 03 ATEX 2262; IECEX TUN 15.0014

## Type NMIxxx...



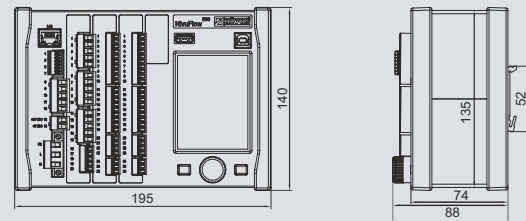
### i-Series Level Sensor

Measurement Method	Ultrasound
Measurement range	up to 15 m
Power supply	10 - 28 V DC
Outputs	HART® – loop powered (2-wire) 4 - 20 mA (3.8 - 22 mA)
Functions	level, distance, empty space, volume and linearisation using 16 breakpoints
Operating temperature	-40 to 80 °C
Configuration	PC software for parameter setting, echo evaluation, linearisation and agitator avoidance
Sensor body material	Valox 357 PBT, optional: PVDF
Protection	IP68
Ex Approval	II 2 GD Ex m IIC T4 or II 1 GD Ex ia IIC T4; TRAC12ATEX0031X
Startup time	4 sec. typical
Measurement uncertainty	0,25 % (Type i-3)
Resolution	2 mm (Type i-3)

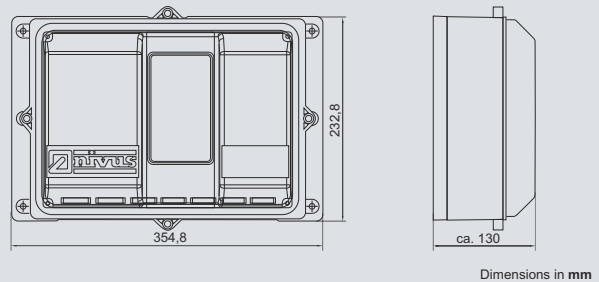
### Type of Transmitter

Radars flow measurement + level measurement (radar, ultrasonic, hydrostatic)	NivuFlow 550
Radars flow measurement and level measurement + surcharge measurement with ultrasonic cross correlation sensor	NivuFlow 7550
Hybrid flow measurement with radar and ultrasonic cross correlation sensors + level measurement (radar, ultrasonic, hydrostatic)	NivuFlow 7550

## Transmitter, Type NivuFlow



### Field Enclosure



### NivuFlow 550 / NivuFlow 7550

Power supply	100 to 240 V AC, +10 % / -15 %, 47 to 63 Hz or 9-36 V DC
Power consumption	typical 14 VA
Enclosure	Aluminium, plastic (transmitter enclosure) Plastic (field enclosure)
Protection	IP 20, IP 68 with optional field enclosure
Operating temperature	-20°C to +70°C
Max. humidity	80%, non-condensing
Display	240 x 320 pixel, 65536 colours
Operation	rotary pushbutton, 2 function keys, menus in English, French and other languages plug with cage clamp terminals
Connection	plug with cage clamp terminals
Inputs	up to 7 x 4 - 20 mA, up to 4 x RS 485
Outputs	up to 4 x 0/4 - 20 mA, up to 5 x relays (SPDT)
Data memory	2.0 GB internal memory, flexibly expandable, readout on faceplate via USB stick
Communication	Modbus, HART®
Measurement uncertainty	flow (Q): ± 5% typical; ± 2% under reference conditions