measure analyse optimise

## 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

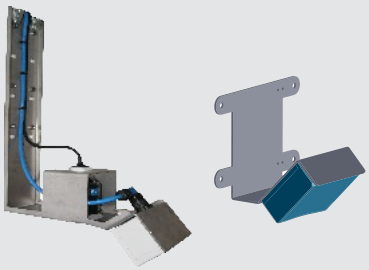
## Modular System

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

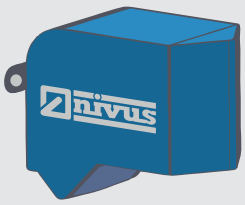
**Your Advantages**

- 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

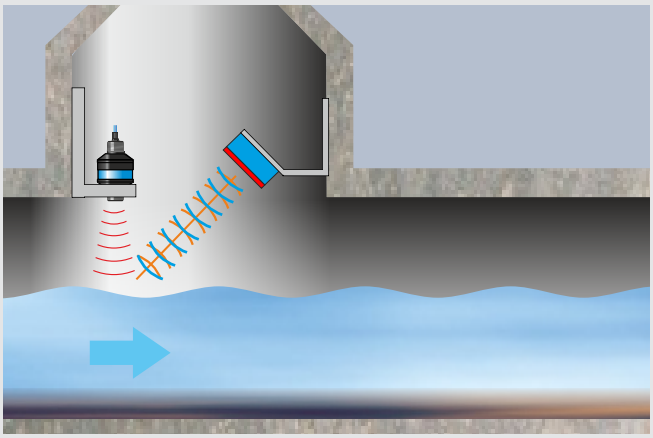
NivuFlow 550 | NivuFlow 7550

Transmitter

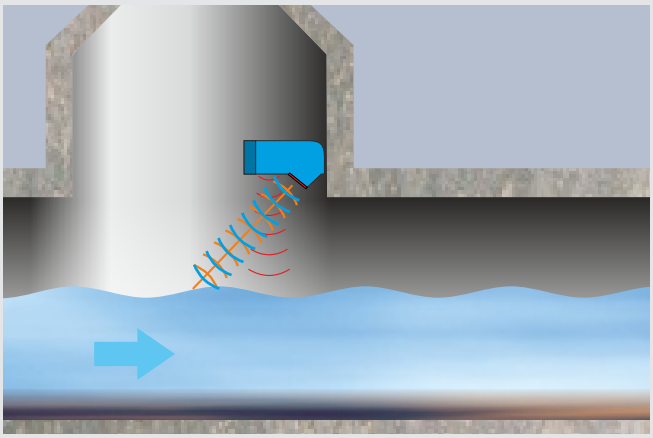
IP 68 field housing

# Installation Examples

## Standard Installations

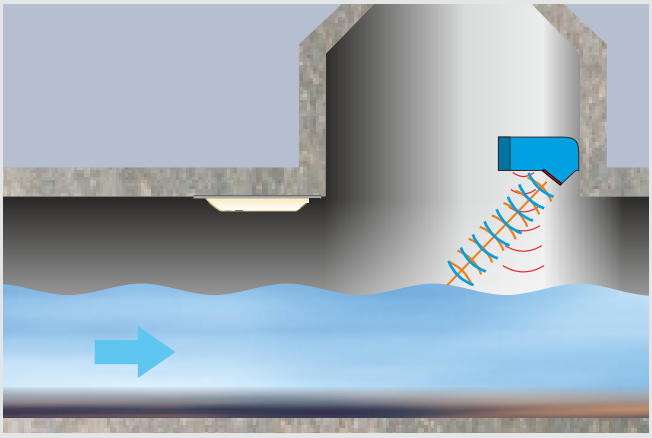


**Modular radar flow measurement** installation with separate ultrasonic level measurement

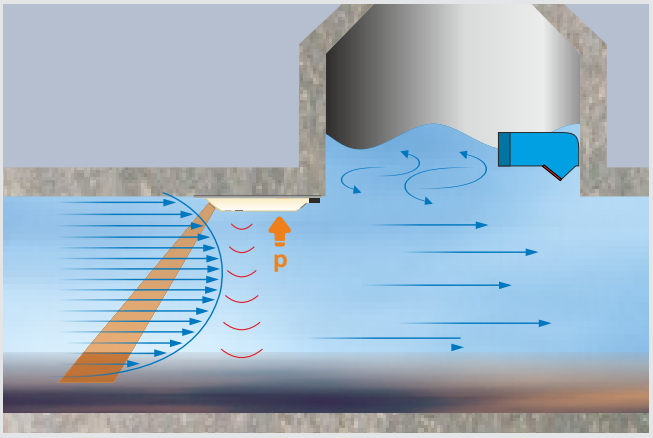


**Compact radar flow measurement** with ultrasonic or radar level measurement in single housing

## Radar Flow Measurement and Surcharge 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.

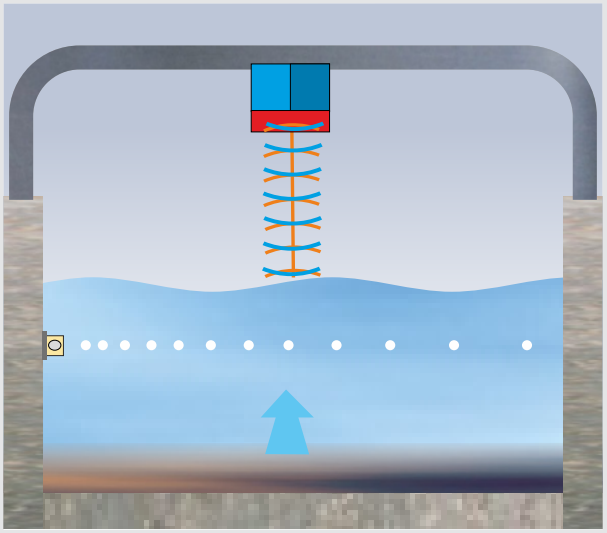



**Surcharge conditions:** Ultrasonic flow measurement detects flow profile with combined hydrostatic level measurement. An additional ultrasonic level measurement detects sediments on ground level.

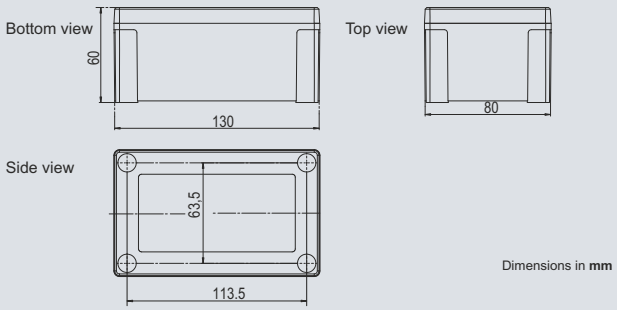
## Hybrid Flow Measurement with Surface Radar and Ultrasonic Profile Scanner

### Your Advantages

- Redundant flow measurement
  - Contactless Radar surface velocity measurement
  - Ultrasonic sidewards velocity profile sensor
- Two independent flow measurement technologies increase the accuracy and reliabbility
- 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



## Radar Sensor, Type OFR

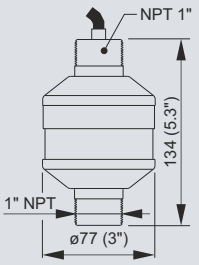



Dimensions in **mm**

## OFR Radar Sensor

| | |
|---|---|
| Measurement method | Radar - 24 GHz - ISM band |
| Measurement range | 0.15 m/s - 15 m/s |
| Temperature range | -30 °C to 70 °C<br>-20 °C to 60 °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 |
| Ex Approval | II 2 G Ex ib IIB T4 Gb; TÜV 16 ATEX 185271X; IECEx 16.0034X |

## Type NMIxxx...




Dimensions in mm and inch
Type i-3

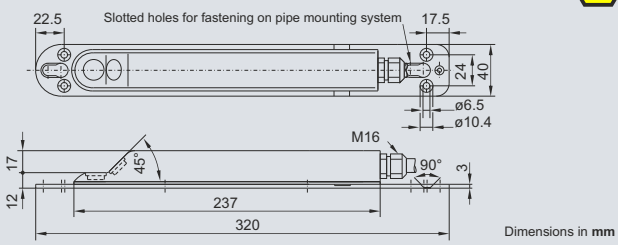
## i-Series Level Sensor

| | |
|---|---|
| Measurement Method | Ultrasound |
| Measurement range | up to 15 m |
| Power supply | 10 - 28 V DC |
| Outputs | HART® – loop powered (2-wire)<br>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

| | |
|---|---|
| Radar flow measurement<br>+ level measurement (radar, ultrasonic, hydrostatic) | NivuFlow 550 |
| Radar flow measurement and level measurement<br>+ surcharge measurement with ultrasonic cross correlation sensor | NivuFlow 7550 |
| Hybrid flow measurement with radar and ultrasonic cross correlation sensors<br>+ level measurement (radar, ultrasonic, hydrostatic) | NivuFlow 7550 |

## Ultrasonic Sensor, Type POA

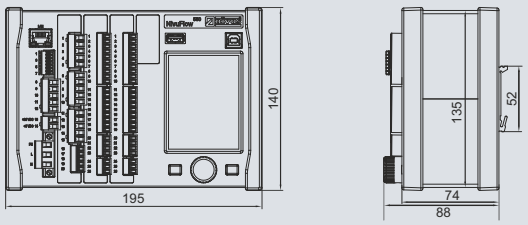



Dimensions in **mm**

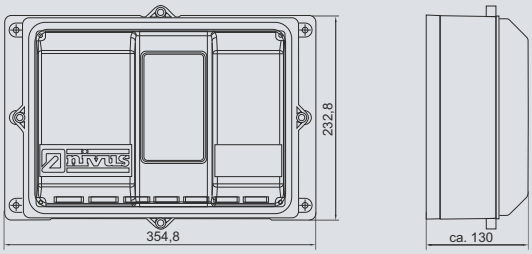
## Surcharge Flow-Level Sensor (optional)

| | |
|---|---|
| **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);<br>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 |

## Transmitter, Type NivuFlow




## Field Enclosure




Dimensions in **mm**

## NivuFlow 550 / NivuFlow 7550

| | |
|---|---|
| Power supply | 100 to 240 V AC, +10 % /-15 %,<br>47 to 63 Hz or 9-36 V DC |
| Power consumption | typical 14 VA |
| Enclosure | Aluminium, plastic (transmitter enclosure)<br>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,<br>menus in English, French and other languages |
| 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,<br>readout on faceplate via USB stick |
| Communication | Modbus, HART® |

Specifications subject to change. 08.2024

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