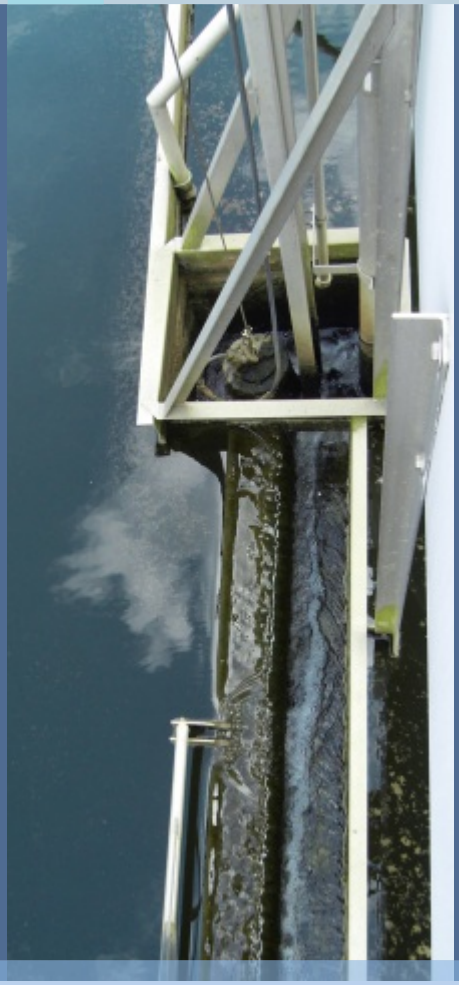
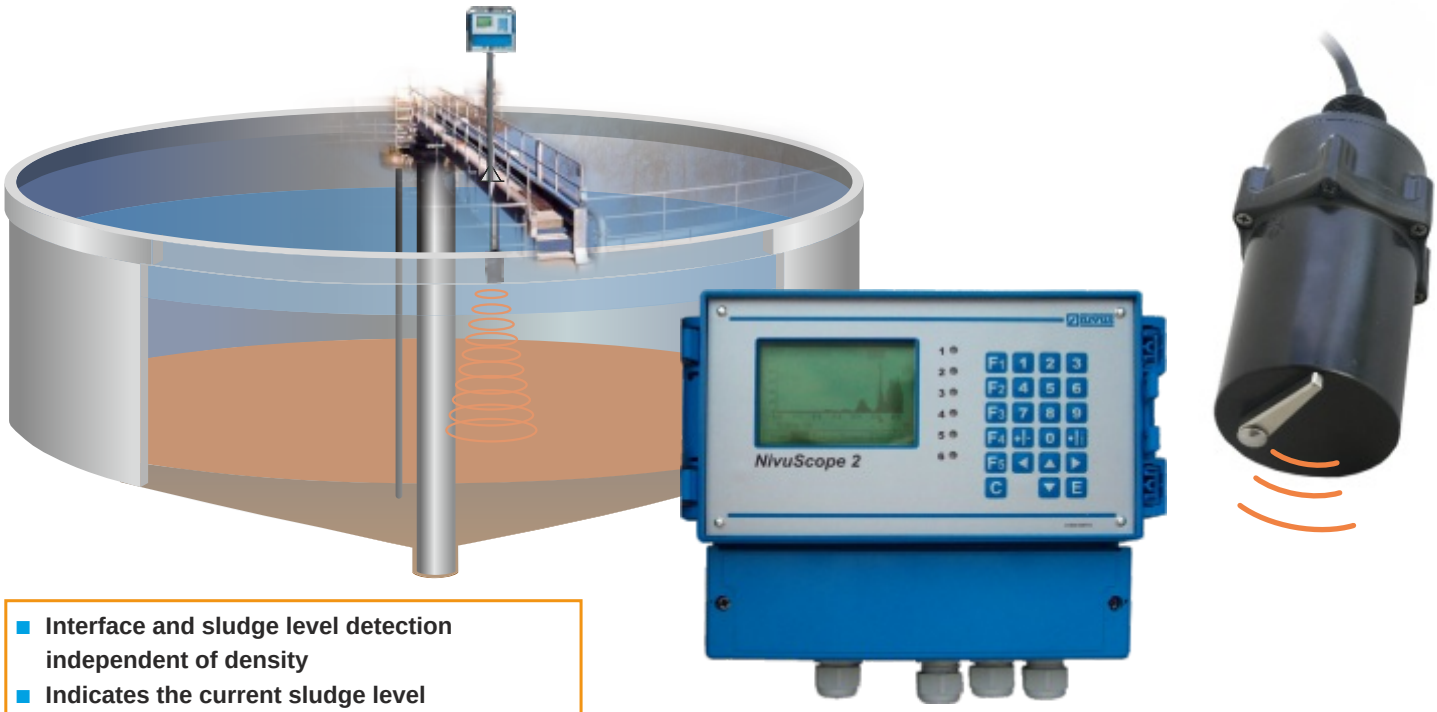


NivuScope 2

Everything Under Control:

Sludge Interface
Sludge Level
Sludge Profile



- **Interface and sludge level detection independent of density**
- **Indicates the current sludge level**
- **Programming on site via dialog mode or per RS232 via PC software**
- **No readjustment required**
- **Sensor-integrated fully automatic cleaning equipment for extreme requirements**

The integrated wiper is to avoid incrustation and algae growth on the sensor face. Wiping cycles can be set freely.

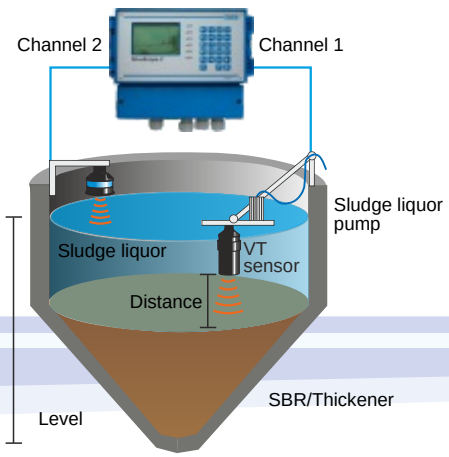
NivuScope 2 makes your tanks and basins transparent.

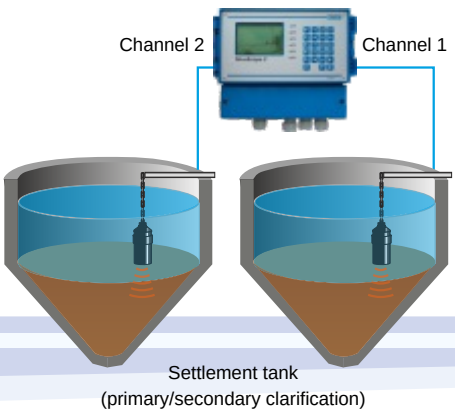
The NivuScope 2 is particularly suitable for use in:

- **Wastewater treatment plants**
  Primary and secondary clarification tanks, thickeners
- **Fresh water treatment facilities**
  Sludge sedimentation tanks
- **Industry/Chemical**
  Sedimentation monitoring
  Thickeners general

The Measurement Method

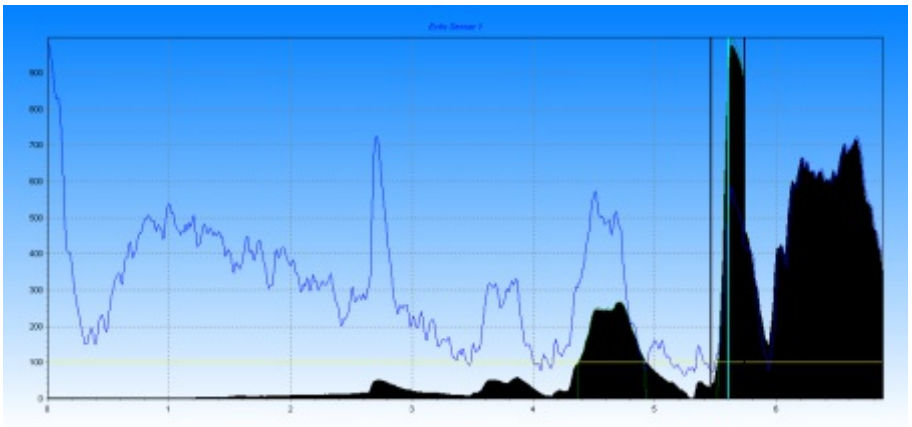
The sensor emits directed high frequency impulses into the liquid.
For that purpose, the sensor must be immersed into the liquid to be measured for a few centimetres. However it necessarily shall be positioned always above the topmost interface to be measured.
Solid particles or sludge contained in the liquid will reflect the sound waves back to the sensor, which subsequently converts the acoustic signals into electric signals. The intensity of the received signal depending on the ultrasonic transit time is evaluated and will be indicated as a graph on the display.



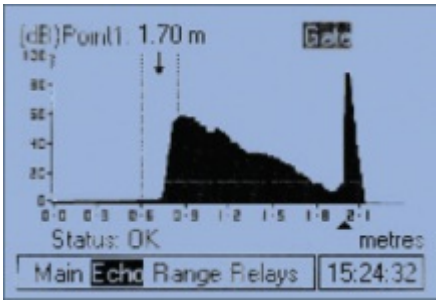


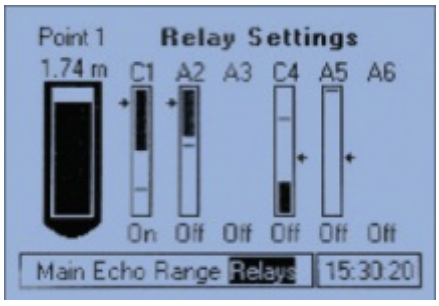
Evaluation

NivuScope 2 is equipped with a back-lit graphic display for information and adjustment purposes. Screens indicated can be easily interpreted without the need for expert knowledge and the best suitable evaluation algorithm for the respective application can be selected from four presets. The settings are largely completed as soon as the tank depth or the measurement range has been entered additionally. Anything else is done by the NivuScope 2.
The display indicates multiple parameters such as sludge level, relay conditions and echo profiles.



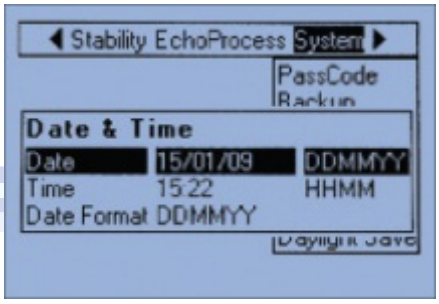
Echo image representation on PC





Initial Start-Up

The NivuScope 2 can be programmed very easy either by using the front-side keypad or via the RS232 interface utilising the PC software.



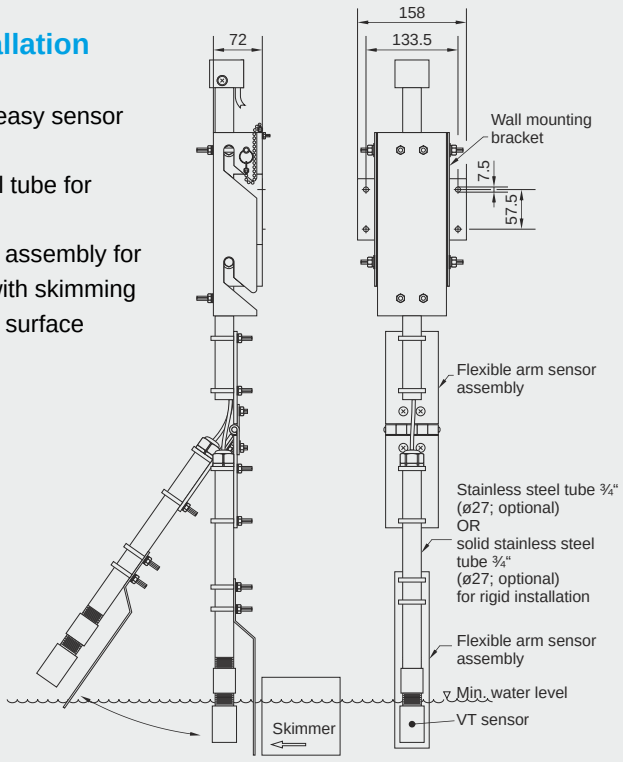
Features

The NivuScope 2 has two separate measuring channels to connect type VT or type P air-ultrasound sludge level sensors (see reverse). Hence it is possible to monitor two hy-draulically separated sedimentation tanks by using two sludge level sensors. Combining a sludge level sensor and an air-ultrasound sensor furthermore allows to control sludge water discharge.
In contrast to electro-mechanical / optical measurement systems, NivuScope 2 detects interfaces or density changes independent from the absolute density. This allows to e.g. safely avoid the topmost interface in the secondary clarification stage. The same applies for the sludge storage in the secondary clarification tank, where the sludge level must not fall below the minimum.

Recommended Installation

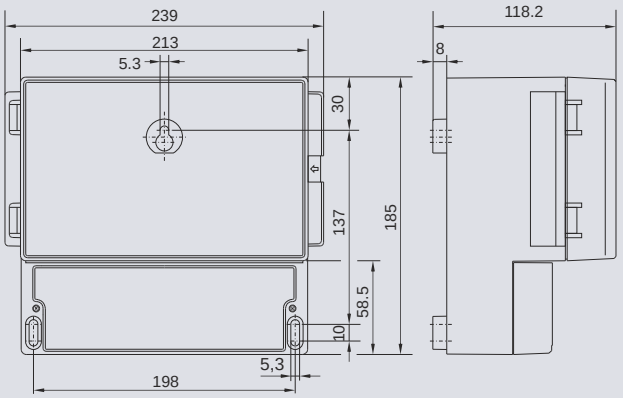
Wall mounting bracket for easy sensor removal

- with solid stainless steel tube for rigid installation
- with flexible arm sensor assembly for pendulous installation with skimming equipment on the water surface



Specifications

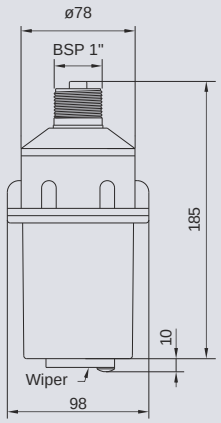
Enclosure dimensions



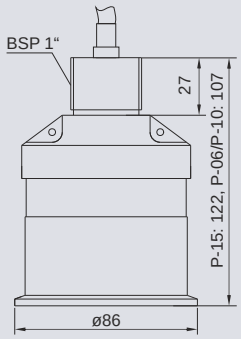
Enclosure also suitable for DIN rail mounting.

Dimensions in **mm**

Sensor dimensions type VT



Sensor dimensions type P



Transmitter

Supply power	• 100 to 240 V AC, 50/60 Hz or • 22 to 28 V DC
Power consumption	20 Watt (14 Watt typical)
Enclosure	wall mount enclosure, also suitable for DIN rail mounting • material: Polycarbonate • weight: approx. 1200 g • protection: IP65
Operating temperature	-20 °C to +50 °C
Display	full graphic back-lit LCD, 192 x 128 Pixel
Interface	RS232 / RS485 (Modbus, Profibus optional)
Outputs	• 2 x 4 - 20 mA, galvanically isolated, 1000 Ohm max. load 12 bit resolution, deviation 0.1 % • 6 relays, function: alarms/limit values/timer (all contacts as SPDT, max. 5A at max. 240 V AC)
Software (optional)	for echo evaluation and parameter settings as well as data backups

Sensors

Type	**Ultrasonic Sensor VT**
Measurement range	0.3 to 10 m not measurable zones min. 30 cm underneath of sensor and approx. 5 cm above tank bottom
Resolution	3 cm
Beam angle	6 °
Gehäuse	protection: IP68 material: Valox 357 and stainless steel 1.4401 fastening: BSP 1" outer thread includes a wiper for sensor face cleaning
Cable length	10 m, 20 m or 30 m extendable to max. 200 m
Operating temperature	-20 °C to +60 °C

Type	**Ultrasonic Sensor P-Series**
Measurement range	P-06: 0.3 to 6 m, P-10: 0.3 to 10 m, P-15: 0.5 to 15 m
Beam angle	P-06: 12°, P-10: 10°, P-15: 9°
Enclosure	protection: IP68 material: Valox 357 fastening: BSP 1" outer thread
Cable length	5, 10, 20, 30, 50 and 100 m special lengths upon request
Operating temperature	-40 °C to +95 °C