Manuals+ — User Manuals Simplified.

microsonic hps Plus Ultrasonic Sensors User Manual

microsonic

hps Plus Ultrasonic Sensors
User Manual

hps+25/DD/TC/E/G1 hps+35/DD/TC/E/G1
hps+130/DD/TC/E/G1 hps+340/DD/TC/E/G2
hps+340/DD/TC/G2

Operating manual
hps+ Ultrasonic Sensors for application in overpressure with two switching outputs

Contents

1 Product description
2 Assembly instructions
3 Set sensor parameters alternatively numerically using LED display…
4 …or via the Teach-in procedure
5 Technical data
6 Documents / Resources
7 Related Posts

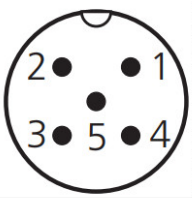
Product description

- The hps+ sensor measures the level in a vessel in up to 6 bar overpressure contactless.
- The G1 and G2 threaded pipe end permits the mounting and sealing of the sensor in a flange of the vessel. The pnp switching outputs are set according to the adjusted detect distances.
- The surfaces of the ultrasonic transducers of the hps+ sensors are protected by a PTFE film and sealed with a FFKM O-ring against the sensor housing. Therefore the surface of the ultrasonic transducer can be cleaned from cakings or spots.
- All settings are done with two push-buttons and a three-digit LED display (TouchControl). ight emitting diodes (three-colour LEDs) indicate all operation conditions.
- The output functions are changeable from NOC to NCC.
- The sensors are adjustable manually using the numerical LED display or may be trained via Teach-in processes.
- Useful additional functions are set in the Add-on-menu.
- Using the LinkControl adapter (optional accessory) all TouchControl and additional sensor parameter settings may be made by a Windows software.

Important instructions for assembly and application
All employee and plant safety-relevant measures must be taken prior to assembly, start-up or maintenance work (see operating manual for the entire plant and the operator instruction of the plant).
The sensors are not considered as safety equipment and may not be used to ensure human or machine safety!
The hps+ sensors indicate a blind zone, in which the distance cannot be measured. The operating range indicates the distance of the sensor that can be applied in normal atmospheric pressure with sufficient function reserve.

Assembly instructions

- Assemble the sensor at the installation location.
- If necessary seal the sensor with the enclosed Viton O-ring (34 x 2,5 mm or 60 x 4 mm) against the flange.
- Plug in the connector cable to the M12 connector.



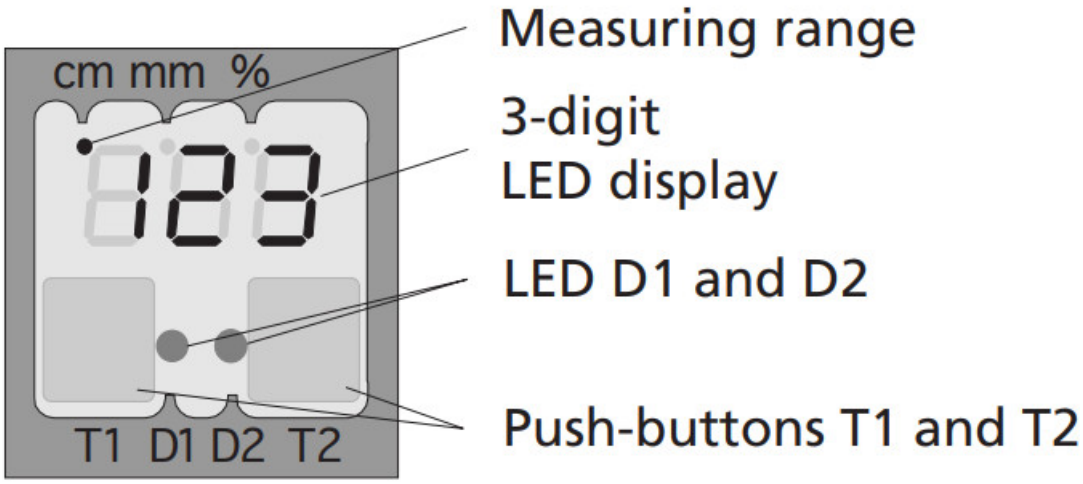
		colour
1	$+U_B$	brown
3	$-U_B$	blue
4	D2	black
2	D1	white
5	Sync/Com	grey

Fig. 1: Pin assignment with view onto sensor plug and colour coding of the microsonic connection cable

Start-up
hps+ sensors are delivered factory made with the following settings:
Switching outputs on NOC.
Detecting distances at operating range and half operating range.

- Measurement range set to maximum range at ≥ 2 bar overpressure.
- Sensitivity at normal pressure.

Set the parameters of the sensor manually or use the Teach-in procedure to adjust the detect points.



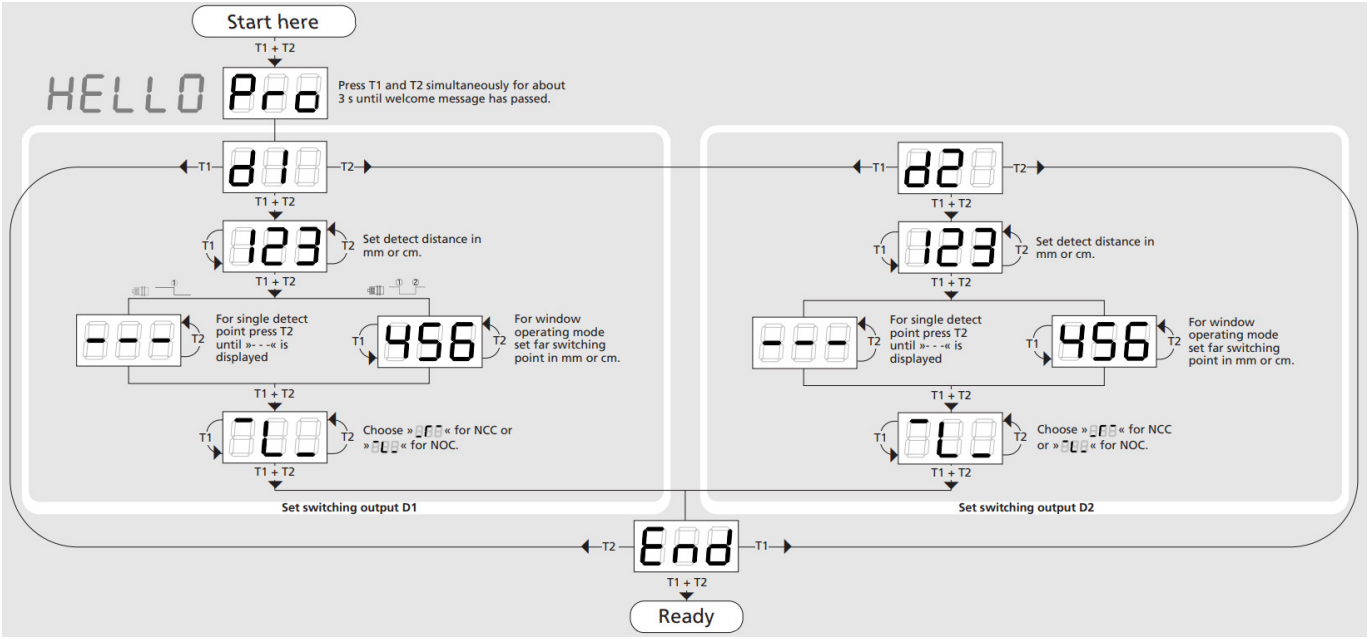
Maintenance
hps+ sensors work maintenance free. Small amounts of dirt on the surface do not influence function. Thick layers of dirt and caked on dirt affect the sensor function and therefore must be removed.
Note

- In operation in overpressure it is recommended to adjust the sensitivity of the hps+ sensor: choose the parameter A14 in the Add-on menu and set it to sensitivity
  E2 for atmospheric pressure from 1 to 3 bar or to sensitivity E3 for atmospheric pressure > 3 bar.
- hps+ sensors have internal temperature compensation. Because the sensors heat up on their own, the temperature compensation reaches its optimum working point after approx. 30 minutes of operation.
- During normal operating mode, a yellow LED signals that the corresponding switching output is set.
- During normal operating mode, the measured distance value is displayed on the LED display in mm (up to 999 mm) or cm (from 100 cm). Scale switches automatically and is indicated by a point on top of the digits.

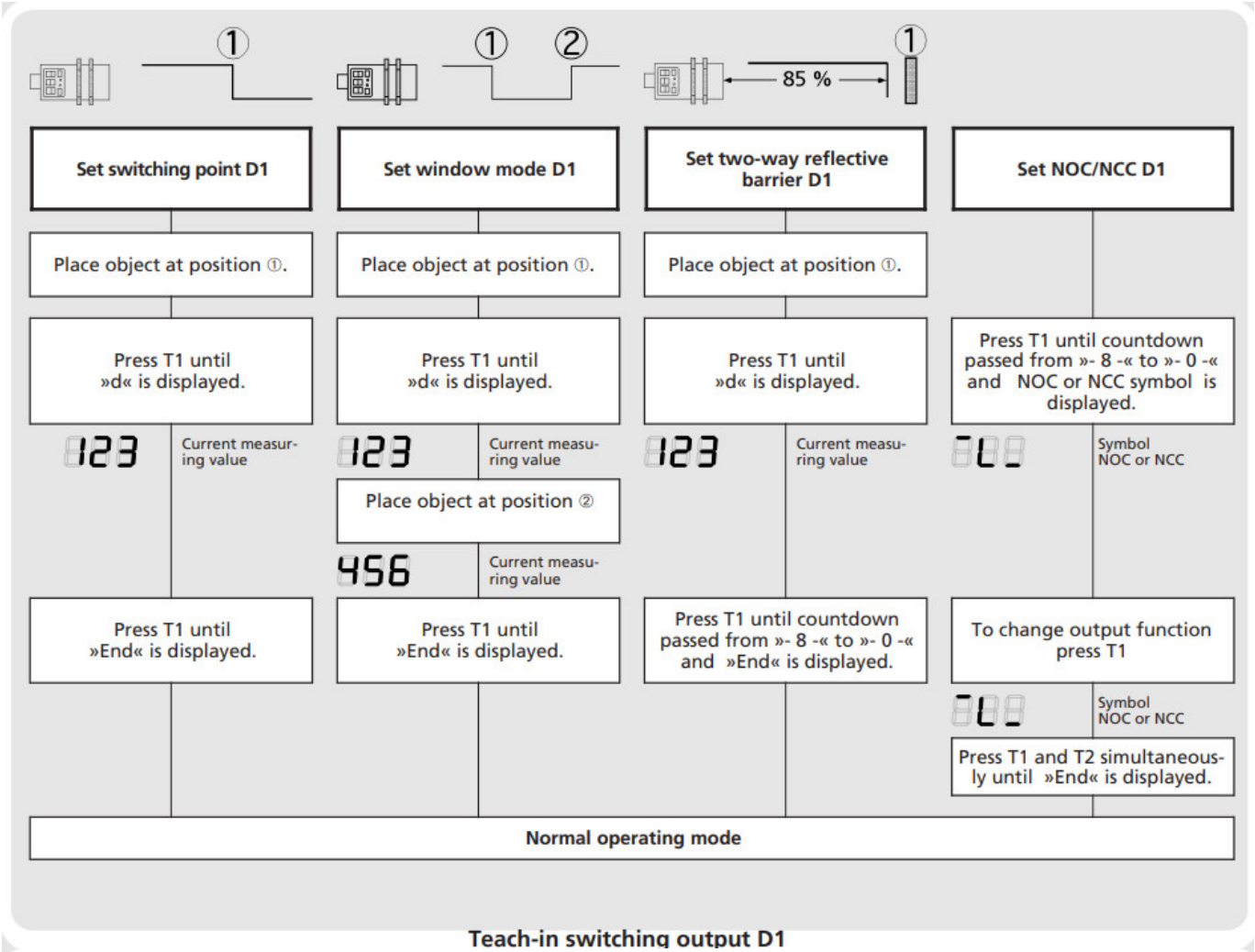
- During Teach-in mode, the hysteresis value is set back to factory settings. If no objects are placed within the detection zone the LED display shows »- – -«.
- If no push-buttons are pressed for 20 seconds during parameter setting mode, the parameter changes are saved and the sensor returns to normal operating mode.

Show parameters
Tapping push-button T1 shortly during normal operating mode shows »PAr« on the LED display.
Each time you tap push-button T1 the actual settings of the switching outputs are displayed.

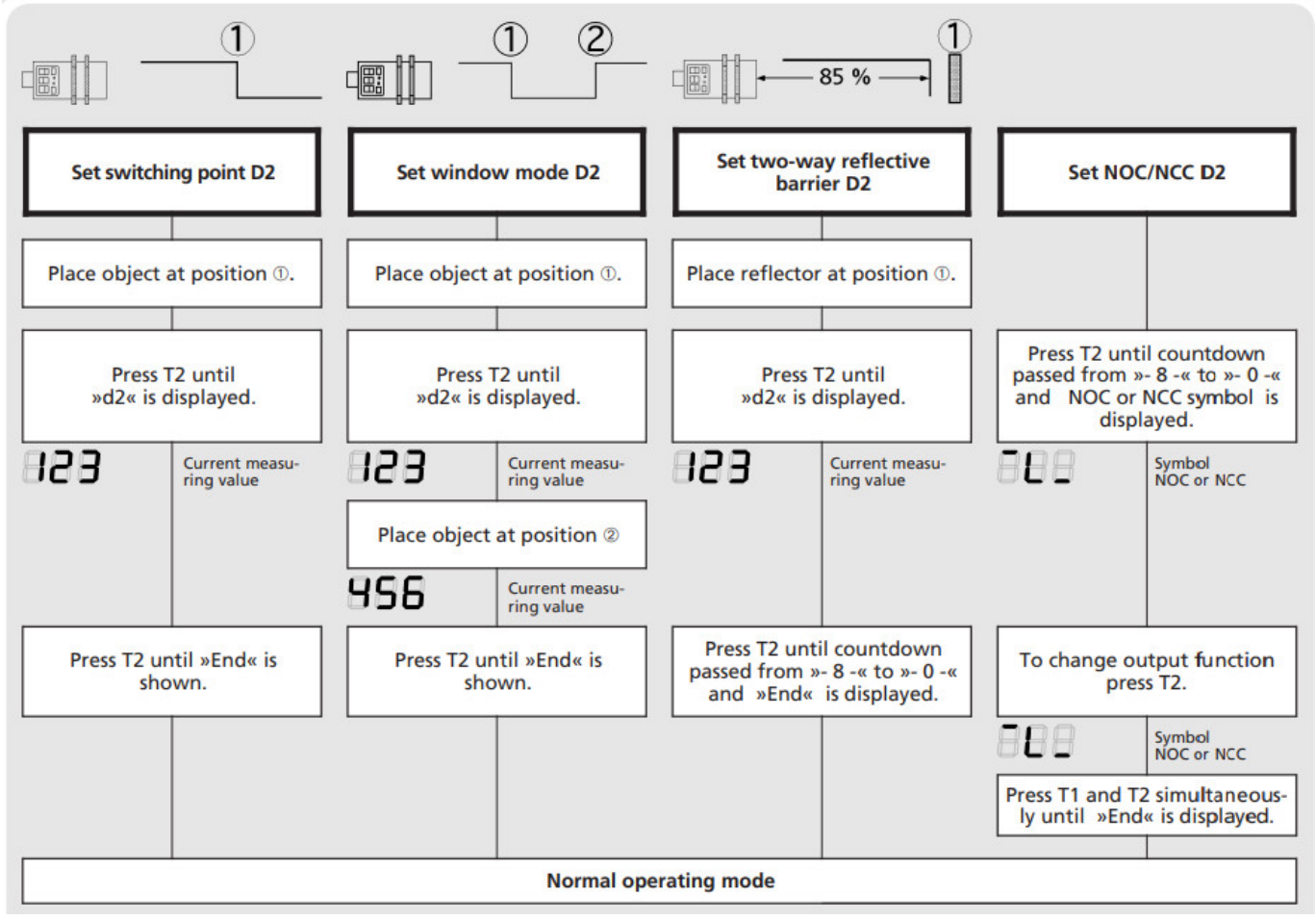
Set sensor parameters alternatively numerically using LED display…



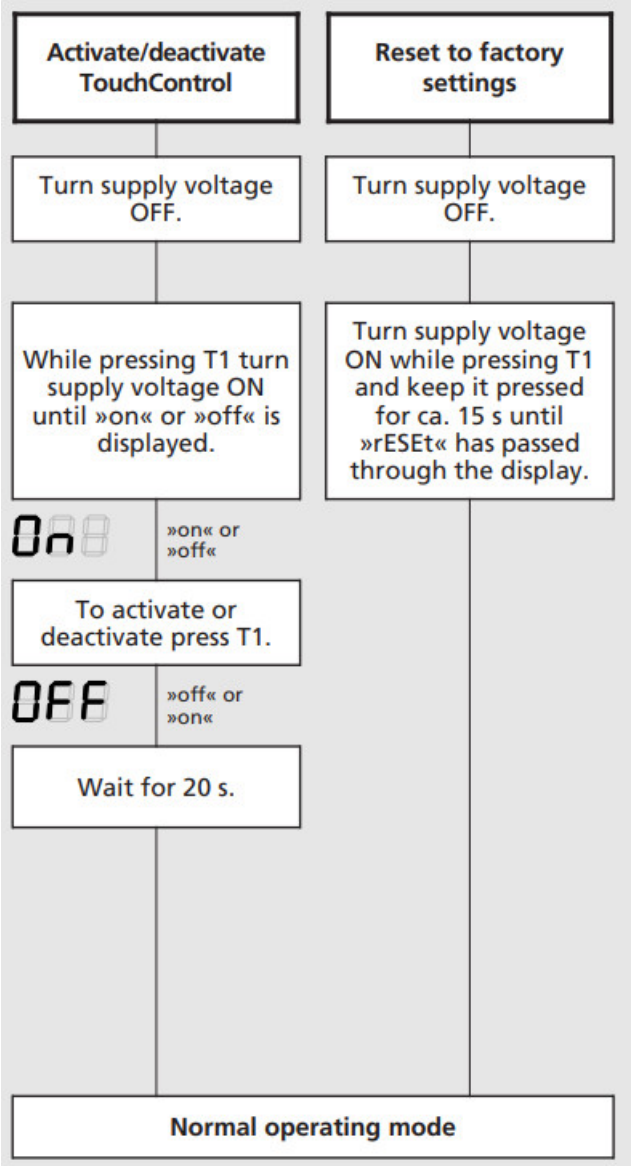
…or via the Teach-in procedure



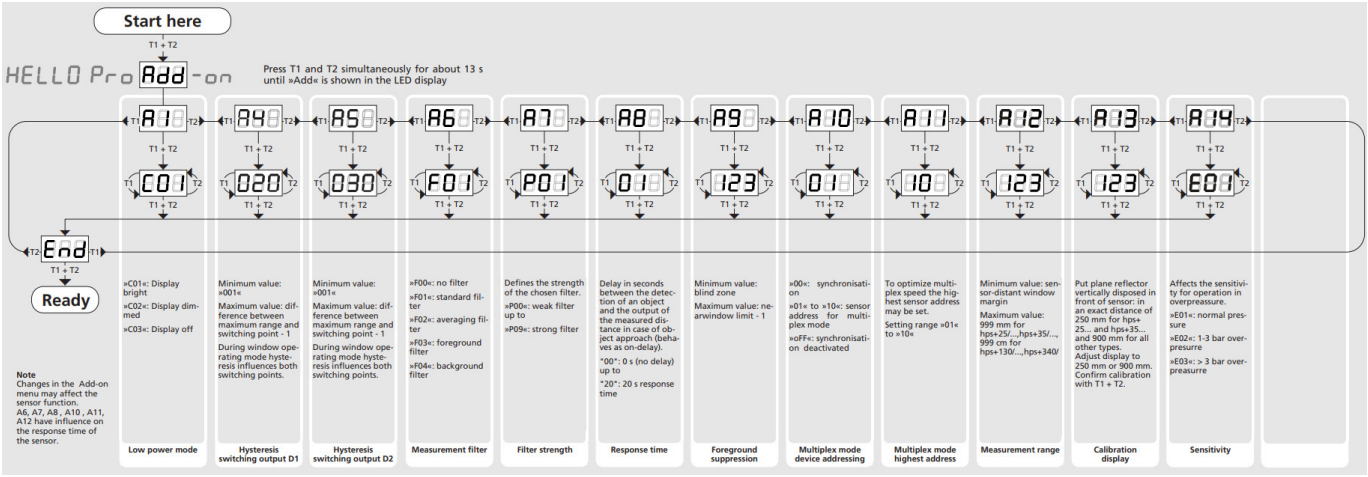
Teach-in switching output D1



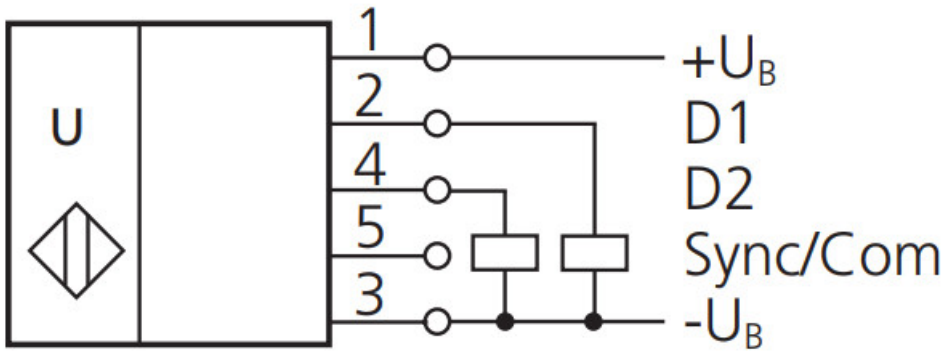
Key lock and factory setting



Useful additional functions in Add-on menu (for experienced users only, settings not required for standard applications)

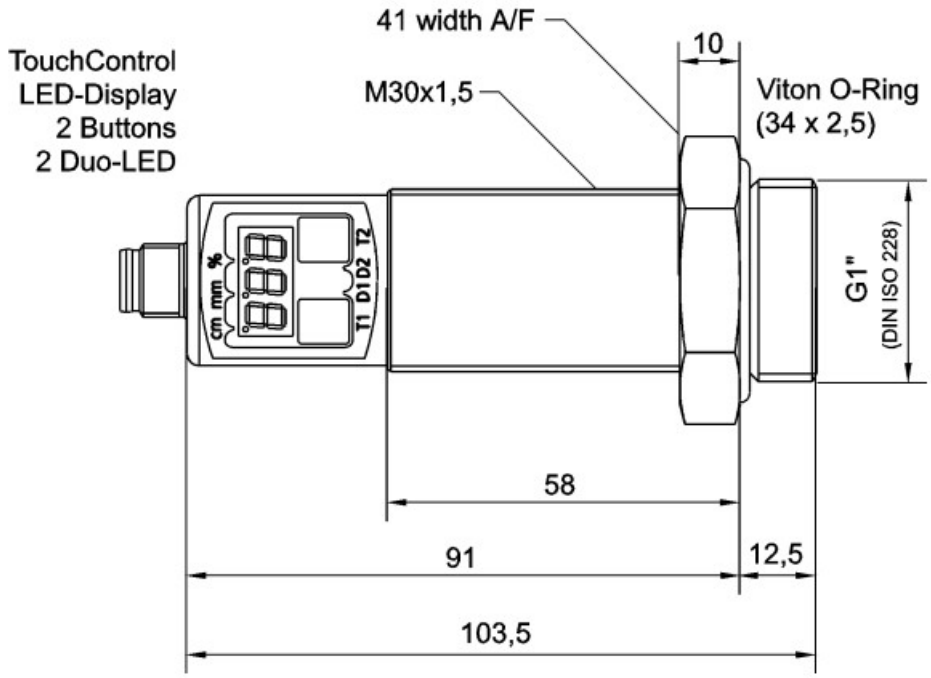


Technical data

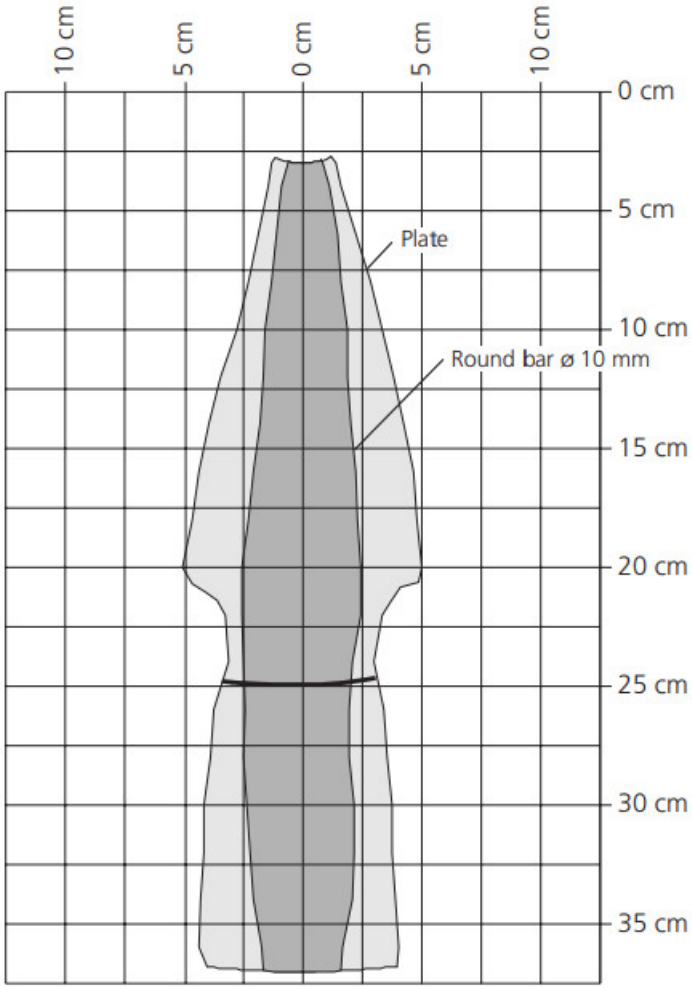


blind zone **operating range** **maximum range at normal pressure** **maximum range at ≥ 2 bar overpressure** **angle of beam spread** **transducer frequency** **resolution** **reproducibility** **accuracy** Detection zones for different objects: The dark grey areas are determined with a thin round bar and indicate the typical operating range of a sensor. In order to obtain the light grey areas, a plate (500 x 500 mm) is introduced into the beam spread from the side. In doing so, the optimum angle between plate and sensor is always employed. This therefore indicates the maximum detection zone of the sensor. It is not possible to evaluate ultrasonic reflections outside this area. Displayed is the detection zone at standard pressure. At 1 bar overpressure the sensitivity of the sensor will increase 5 times.	operating voltage UB voltage ripple no-load supply current ambient pressure housing process connection class of protection to EN 605 norm conformity type of connection controls indicators programmable operating temperature storage temperature weight switching hysteresis1) switching frequency2) response time2) time delay before availability order no. switching outputs

hps+25...

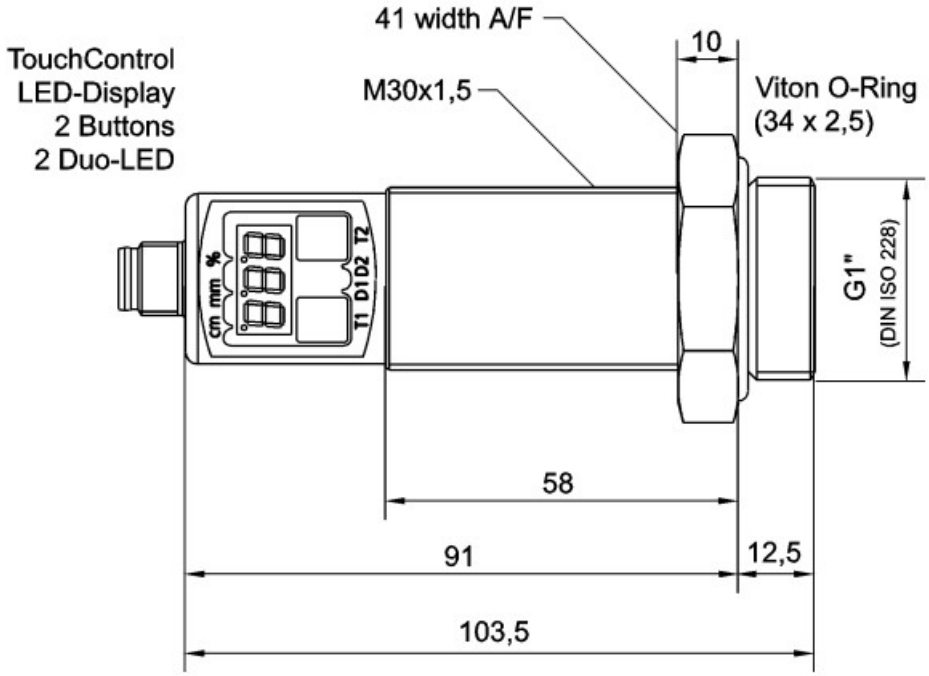


0 to 30 mm	320 kHz
250 mm	0.025 mm
350 mm	± 0,15 %
990 mm	± 1 % (temperature drift internally compensated)
Please see detection zone	

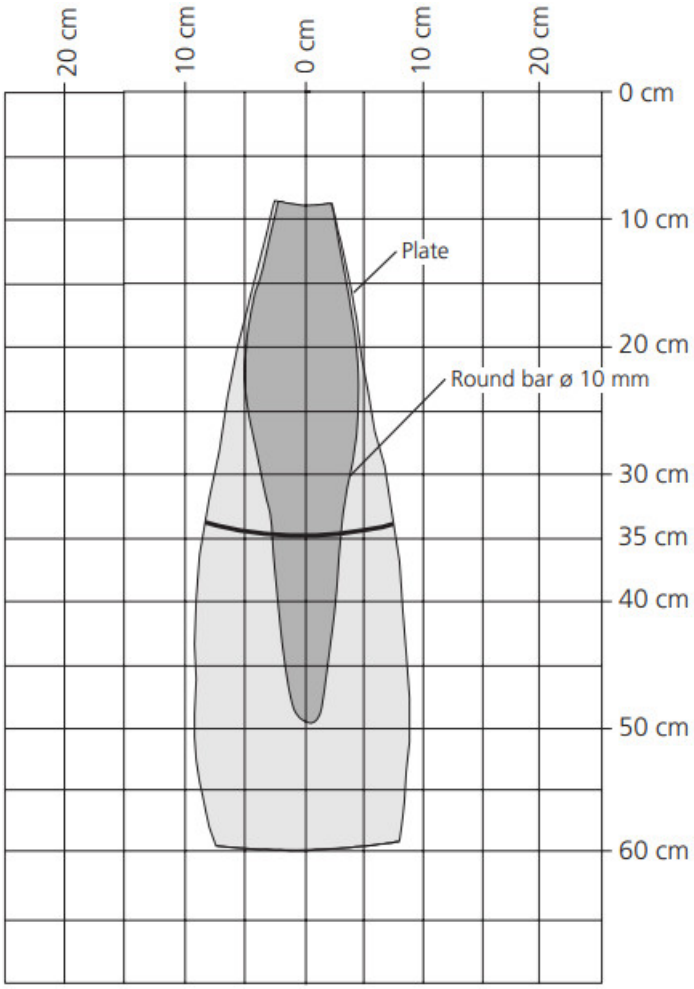


9 V to 30 V DC, short-circuit-proof	3-digit LED display, 2 three-colou
±10 %	TouchControl and LinkControl
≤ 80 mA	-25°C to +70°C
up to 6.0 bar	-40°C to +85°C
Stainless steel 1.4571, plastic parts: PBT, TPU;	210 g
Ultrasonic transducer: PTFE film, FFKM O-ring	3 mm
G1	11 Hz
IP 67	68 ms
EN 60947-5-2	< 300 ms
5-pin initiator plug, PBT	hps+25/DD/TC/E/G1
2 push-buttons (TouchControl)	2 x pnp, UB-2 V, Imax = 2 x 200 r

hps+35...

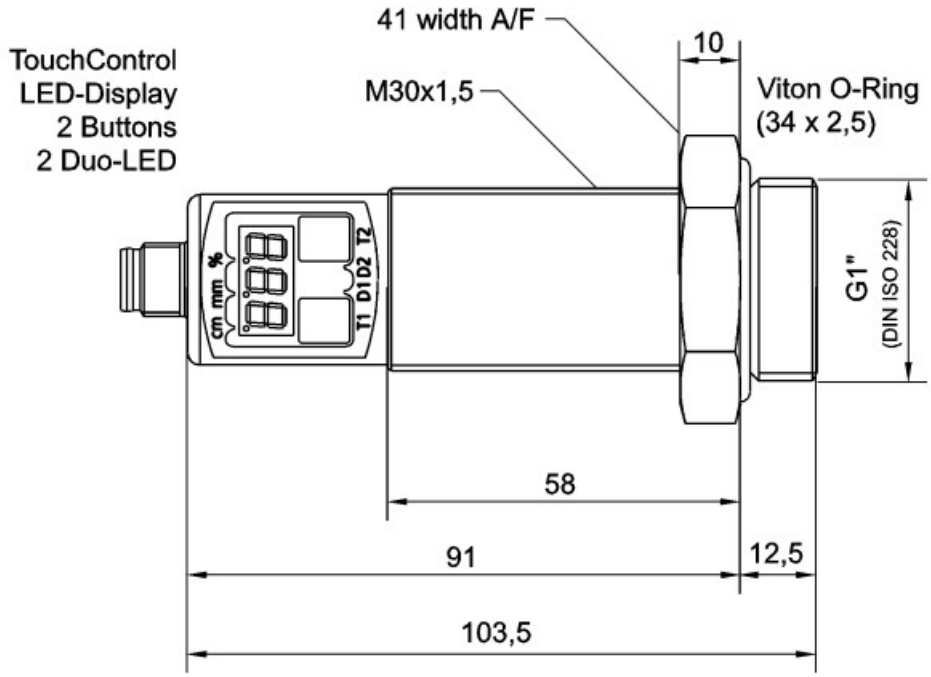


0 to 85 mm	320 kHz
350 mm	0.18 mm
600 mm	± 0,15 %
1,500 mm	± 1 % (temperature drift internally compensated)
Please see detection zone	

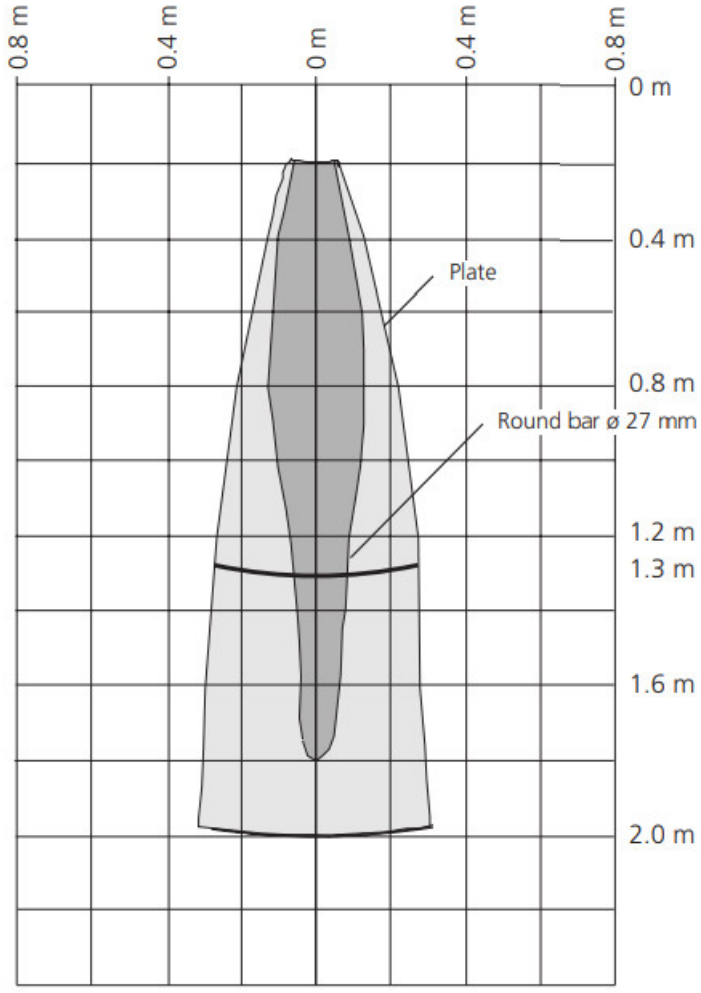


9 V to 30 V DC, short-circuit-proof ±10 % ≤ 80 mA up to 6.0 bar Stainless steel 1.4571, plastic parts: PBT, TPU; Ultrasonic transducer: PTFE film, FFKM O-ring G1 IP 67 EN 60947-5-2 5-pin initiator plug, PBT 2 push-buttons (TouchControl) 3-digit LED display, 2 three-colour LEDs	TouchControl and LinkControl -25°C to +70°C -40°C to +85°C 210 g 5 mm 9 Hz 84 ms < 300 ms hps+35/DD/TC/E/G1 2 x pnp, UB-2 V, Imax = 2 x 200 mA switchable NOC/NCC, short-circuit-proof

hps+130...

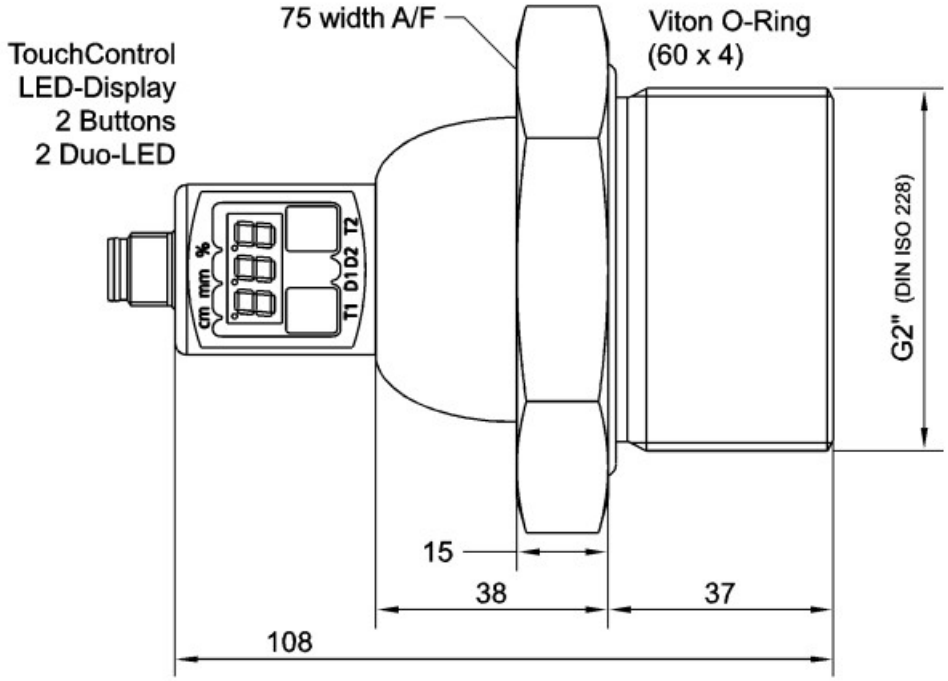


0 to 200 mm	180 kHz
1,300 mm	0.18 mm
2,000 mm	± 0,15 %
5,000 mm	± 1 % (temperature drift internally compensated)
Please see detection zone	

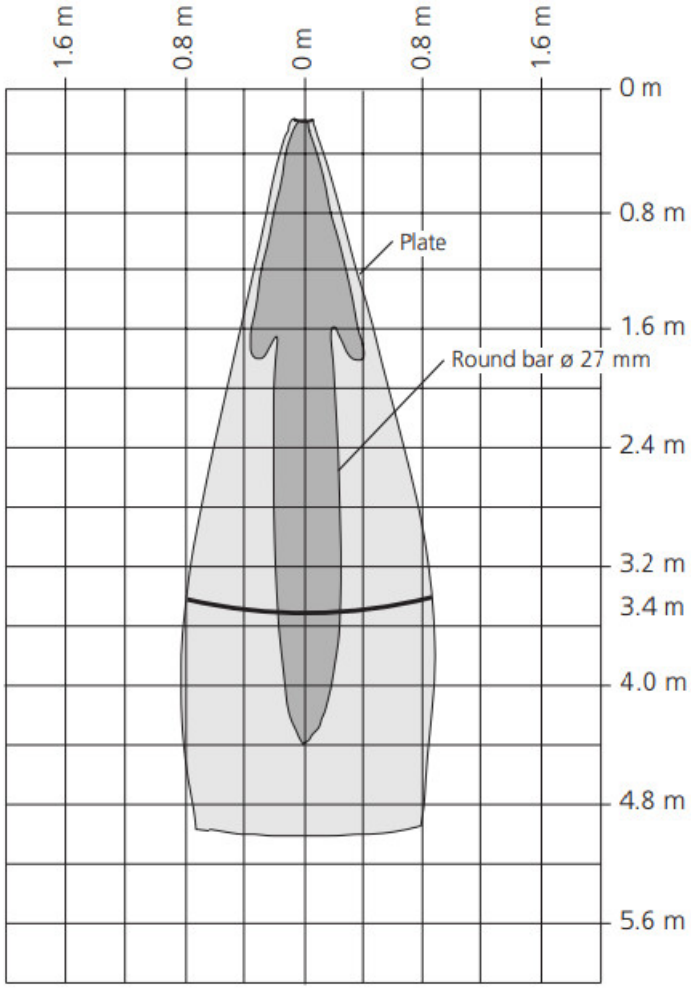


9 V to 30 V DC, short-circuit-proof ±10 % G1 IP 67 EN 60947-5-2 5-pin initiator plug, PBT ≤ 80 mA up to 6.0 bar Stainless steel 1.4571, plastic parts: PBT, TPU; Ultrasonic transducer: PTFE film, FFKM O-ring 2 push-buttons (TouchControl)	3-digit LED display, 2 three-colour LED TouchControl and Link Control -25°C to +70°C -40°C to +85°C 210 g 20 mm 5 Hz 160 ms < 300 ms hps+130/DD/TC/E/G1 2 x pnp, UB-2 V, Imax = 2 x 200 mA sv NOC/NCC, short-circuit-proof

hps+340...

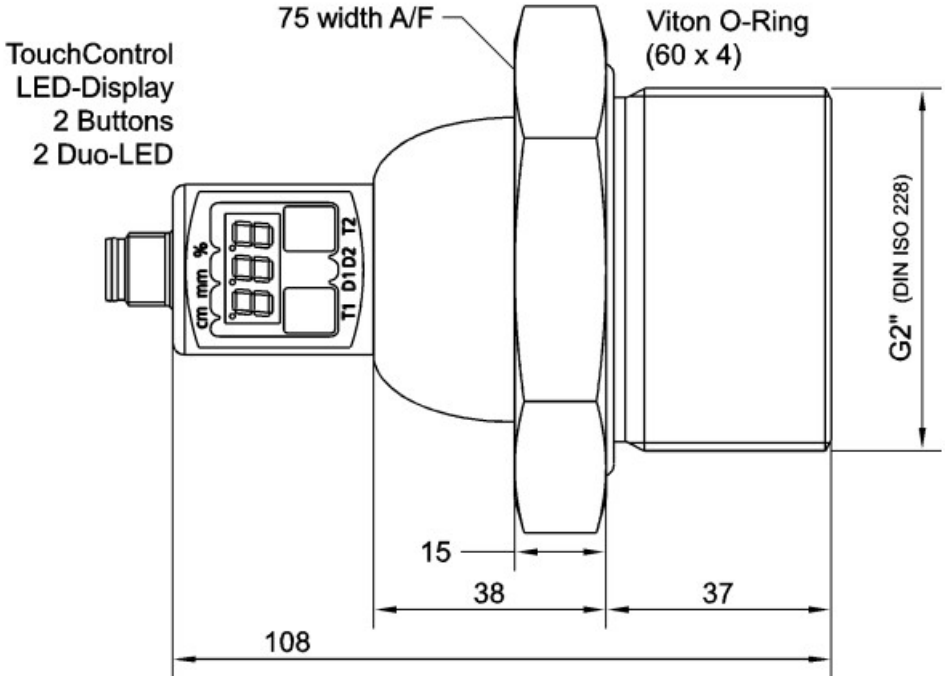


0 to 200 mm	180 kHz
1,300 mm	0.18 mm
2,000 mm	± 0,15 %
5,000 mm	± 1 % (temperature drift internally compensated)
Please see detection zone	

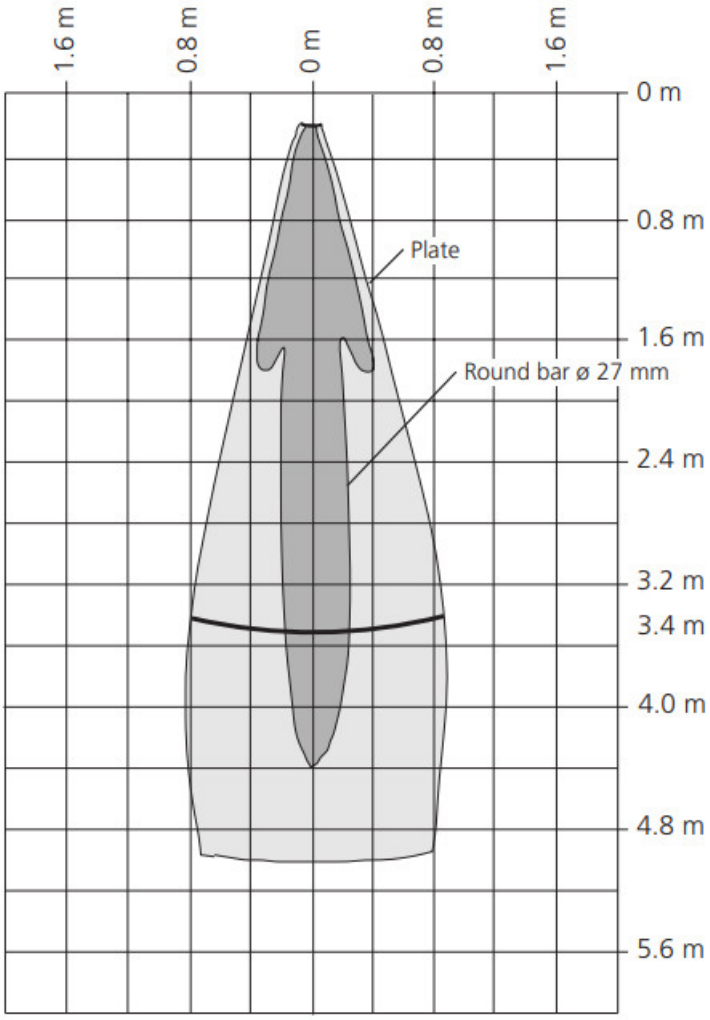


9 V to 30 V DC, short-circuit-proof ±10 % G2 IP 67 EN 60947-5-2 5-pin initiator plug, PBT ≤ 80 mA up to 6.0 bar Stainless steel 1.4571, plastic parts: PBT, TPU; Ultrasonic transducer: PTFE film, FFKM O-ring 2 push-buttons (TouchControl)	3-digit LED display, 2 three-colour LEDs TouchControl and LinkControl -25°C to +70°C -40°C to +85°C 1,200 g 50 mm 3 Hz 240 ms < 380 ms hps+340/DD/TC/E/G2 2 x pnp, UB-2 V, Imax = 2 x 200 mA switc short-circuit-proof

hps+340...



0 to 350 mm	120 kHz
3,400 mm	0.18 mm
5,000 mm	± 0,15 %
8,000 mm	± 1 % (temperature drift internally compensated)
Please see detection zone	



9 V to 30 V DC, short-circuit-proof ±10 % ≤ 80 mA up to 6.0 bar Plastic parts: PVDF, PBT, TPU; Ultrasonic transducer: PTFE film, FFKM O-ring G2 IP 67 EN 60947-5-2 5-pin initiator plug, PBT 2 push-buttons (TouchControl) 3-digit LED display, 2 three-colour LEDs	TouchControl and LinkControl -25°C to +70°C -40°C to +85°C 350 g 50 mm 3 Hz 240 ms < 380 ms hps+340/DD/TC/G2 2 x pnp, UB-2 V, Imax = 2 x 200 m switchable NOC/NCC, short-circuit

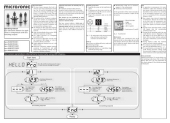
microsonic GmbH / Phoenixseestraße 7 / 44263 Dortmund / Germany / T +49 231 975151-0 / F +49 231 975151-51
E info@microsonic.de / W microsonic.de
The content of this document is subject to technical changes.
Specifications in this document are presented in a descriptive way only. They do not warrant any product features.

Registration
no. 75330-19
Approved on
June 25th, 2019

2014/30/EU

MV-DO-107940-726575

Documents / Resources

	microsonic hps Plus Ultrasonic Sensors [pdf] User Manual hps Plus, Ultrasonic Sensors, hps Plus Ultrasonic Sensors, Sensors