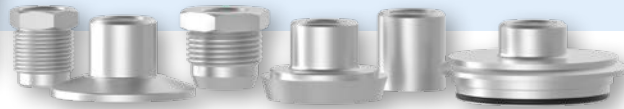


# Ultrasonic level switch

## SonarFox® USG 20



- **Piggable:** Flush installation without interfering contours for optimum cleaning results
- **Also suitable for small pipe cross sections**
- **Modular process connection concept for application diversity**
- **No wearing parts**



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**Application** Ideal for applications in which vibration level switches cannot be used due to the interfering contour "vibration fork" (pipe cross section, cleaning method) and float switches cannot be used because of flow, turbulence or formation of deposits. Particularly suited for small pipe diameters or as an overflow alarm or for dry-run protection. Due to flush installation, the device is ideal for hygienic processes, cleaning methods using pigging and efficient CIP and SIP cycles.

**Description** The level switch SonarFox® USG 20 is flush with the inside wall of the tank or the pipe. Compared to vibration level switches, USG 20 is piggable so that it can also be used as a measuring point in systems with CIP or SIP. USG 20 is connected via a threaded connection G½. The modular adapter concept allows for adaptation to the measuring point via the screwed connection and a great variety of process connections (such as G¾, G1, Tri-Clamp, dairy fitting or VARIVENT) or a weld-in socket. Compatible mechanical and electrical connections enable easy retrofitting and replacement of vibration forks.

### Technical specifications

#### Density of medium

Independent of density

#### Dynamic viscosity of the medium

Max. 10,000 mPa • s

#### Operating temperature range

Wetted parts

can be cleaned up to 150 °C (60 min)

Medium: -20/+100 °C

Ambient: -20/+60 °C

#### Process pressure

10 bar

#### Process connection

G½

See accessories table for available adapters

#### Housing

Stainless steel 304 (1.4301)

Process connection: stainless steel 316 L (1.4435)

Sensor surface: PEEK

#### Supply voltage

DC 12–28 V

#### Power input

< 1 W

#### Output

ISO 4400 active DC (max. 1 A)

(active if "Wetted/Dry", selectable via connection)

M 12 x 1, 4-pin

1 x wetted active DC (max. 1 A)

1 x dry active DC (max. 1 A)

M 12 x 1, 8-pin

2 x voltage-free changeover contact

(max. 0.5 A/30 V)

#### Switching delay

After transition "Dry > Liquid": 0.02 s

After transition "Liquid > Dry": 0.02 s

#### Switching point

At 50 % wetted

#### Switching hysteresis

Approx. 2 mm

Maximum switching frequency 1 Hz

#### Function test

With test magnet for simulation of the switching signal

#### Electrical connection

Connector and junction box as per ISO 4400

(DIN 43650-A) IP 65 or M 12 x 1 (IP 67)

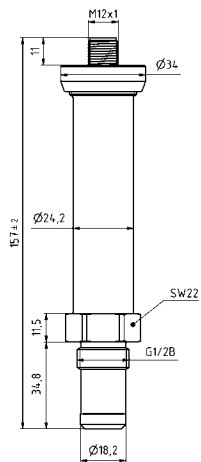
4-pin/8-pin

# Ultrasonic level switch SonarFox® USG 20

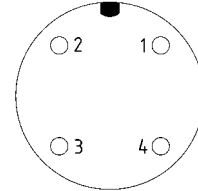


## Housing types and dimensions (mm)

USG 20-1/-2

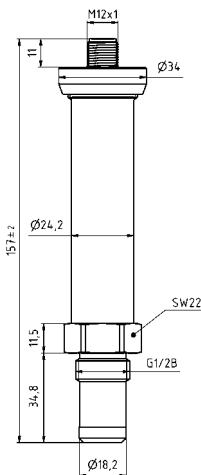


Wiring diagram USG 20-1, USG 21-1

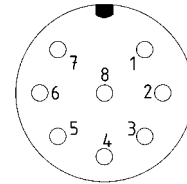


- ① +24 V
- ② Active if "Dry"
- ③ GND
- ④ Active if "Wetted"

USG 20-1/-2, USG 21-1/-2

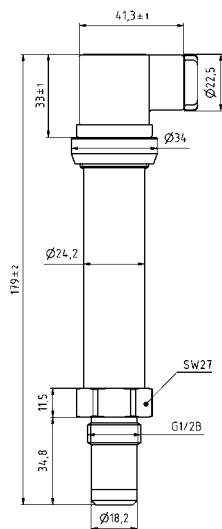


Wiring diagram USG 20-2

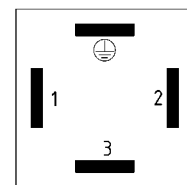


- ① Output "Dry"
- ② COM "Dry/Wetted"
- ③ Output "Wetted"
- ④ +24 V
- ⑤ Output self-test "OK"
- ⑥ COM self-test
- ⑦ Output self-test "Error"
- ⑧ GND

USG 20-3, USG 21-3



Wiring diagram USG 20-3



- ① GND
- ② Active if "Dry"
- ③ +24 V

- ① GND
- ② +24 V
- ③ Active if "Wetted"