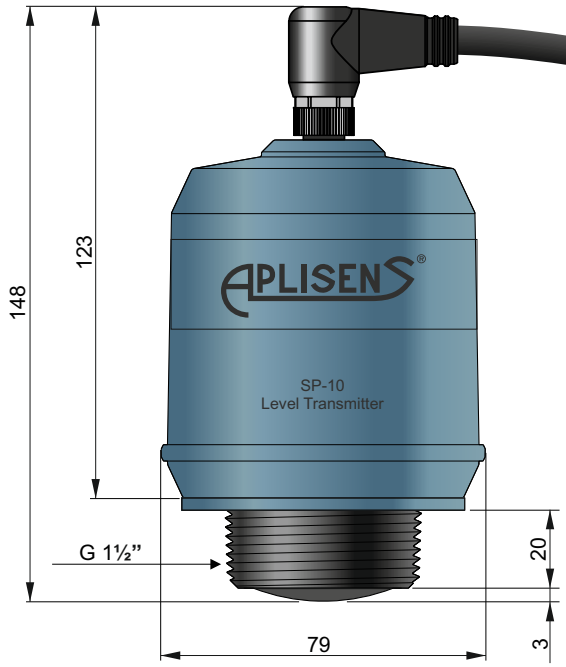
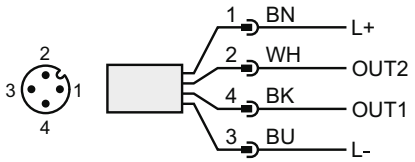
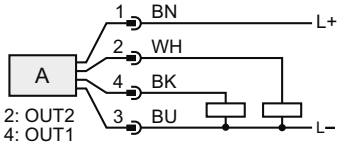
Radar level transmitter SP-10

- ✓ **Non-contact level measurement**
- ✓ **Flow measurement in open channels**
- ✓ **FMCW radar with 80 GHz technology**
- ✓ **Compact housing with IP68 protection**
- ✓ **4÷20 mA output signal**
- ✓ **Configuration via smartphone or tablet using Bluetooth® wireless technology**

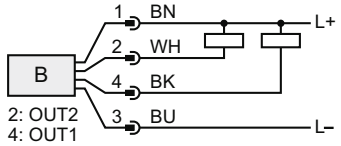




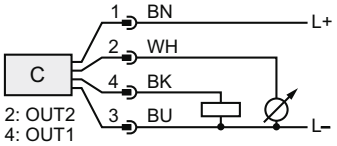
Pin	Wire color		Signal	
1	BN	Brown	L+	24 V
2	WH	White	OUT2	Digital output or active analog output 4÷20 mA
3	BU	Blue	L-	0 V
4	BK	Black	OUT1	Digital output



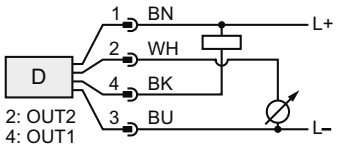
A. 2 × digital output PnP



B. 2 × digital output NpN



C. 1 × digital output PnP / 1 × analog output



D. 1 × digital output NpN / 1 × analog output

Application

The SP-10 radar level transmitter is designed to measure the level of liquids or bulk materials in tanks, pools and silos. It can also be used to measure flow in open channels. The device does not come into direct contact with the measured medium during operation. The non-contact measurement method makes the transmitter widely used in industry because it does not require frequent maintenance and the properties of the medium such as density, viscosity, temperature, pressure and pH do not affect the accuracy and stability of the measurement.

Principles of operation

The SP-10 radar transmitter uses continuous wave technology with frequency modulation. Frequency Modulated Continuous Wave (FMCW) with a frequency range from 77 to 81 GHz, which ensures high accuracy and reliability of measurement even in small and quickly filling tanks and low sensitivity to internal obstacles.

Construction

The compact housing (IP68) made of PVDF material is resistant to corrosion and difficult environmental conditions, which allows the device to be installed outdoors.

The SP-10 is equipped with a process connection with external thread G1½" which is compatible with a large number of flanges and adapters.

Complete with the radar transmitter, a G1½" nut made of PVDF is supplied. For mounting the device on pipe 2”, we recommend dedicated mounting brackets manufactured by Aplisens. The electrical connection is made using a 10 m long factory cable with an M12 plug.

Configuration

The level transmitter is configured using a mobile device (tablet or smartphone) using Bluetooth® wireless technology. The 4÷20 mA signal output ensures ease of integration with new or existing systems.

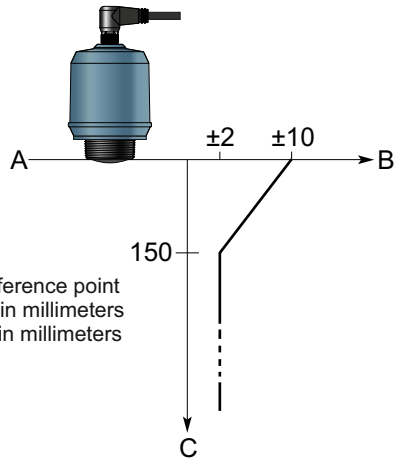
Technical data

Instrument accuracy (under reference conditions) ±2 mm

Reference conditions

- **Measurement object**	Fixed metal plate, no disturbing objects
- **Temperature**	15÷25°C
- **Ambient pressure**	960÷1060 hPa
- **Relative humidity**	25÷75%
- **Damping**	Default value, 2 s

Accuracy in the measurement range (according to picture)

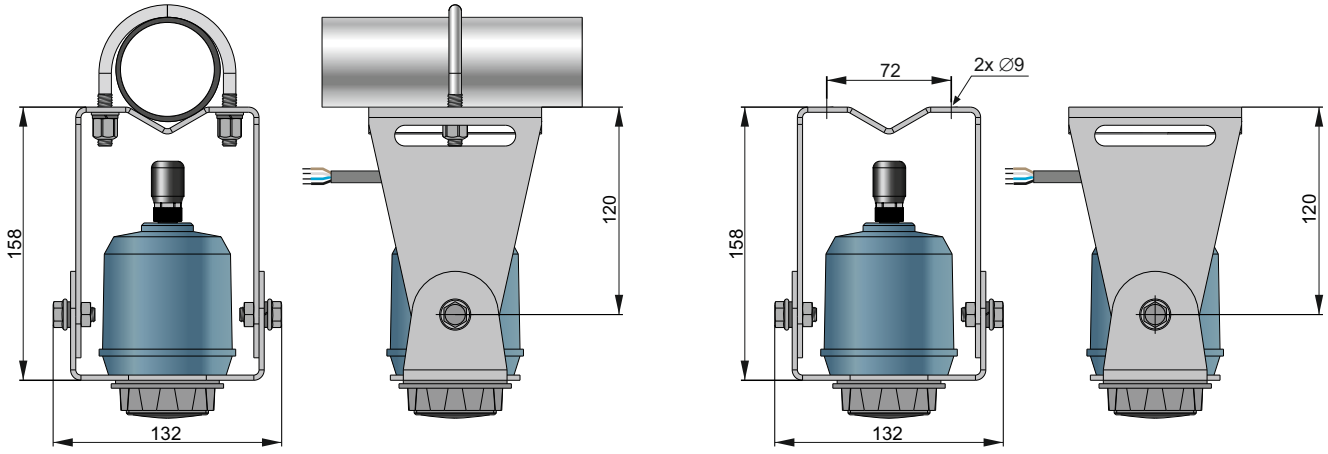


A - Device reference point
B - Accuracy in millimeters
C - Distance in millimeters

Repeatability	±1 mm
Ambient temperature effect	±1 mm/10 K
Sensor update speed	Minimum 1 update per second (usually 5 updates per second)
Maximum level speed	200 mm/s
Maximum measurement range	15 m
Measurement principle	Frequency Modulated Continuous Wave (FMCW), 77…81 GHz
Beam angle	8°
Max output power	2 mW
Internal power consumption	< 2 W (normal operation at 24V DC, no outputs) < 3,6 W (normal operation at 24V DC, active digital and analog outputs)
Humidity	0÷100% relative humidity, non-condensing
Output 1	Digital output
Output 2	Digital output or active analog output 4÷20 mA
Failure or measurement error alarm	Low: 3,5 mA (NAMUR ≤ 3,6 mA) or 3,5÷4,0 mA High: 21,5 mA (NAMUR ≥ 21,0 mA) or 20÷22,5 mA
Process pressure	-100÷300 kPa
Process temperature	-40÷80°C
Ambient temperature	-40÷80°C
Housing	IP68; material - Polyvinyldenum fluoride (PVDF)
Connection cable	Length – 10m; Material – PUR; Cross-section – 0,34 mm^2

Accessories

UR Mounting bracket



Mounting bracket for mounting the transmitter on a vertical or horizontal flat surface or 2" pipe.

Ordering procedure

Model	Code	Description
SP-10		Radar level transmitter, 10m cable
Accessories	/UR	Mounting bracket