

## FR900020

### Filling level sensors • Radar

Sensor filling level, radar, 62lang, G1/2", 18-35V DC, programmable/configurable, 2x PNP/NPN NC/NO, 0/4-20mA, IO-Link, M12 plug connector 4-pin, IP67/IP69k, M12 plug connector 4-pin, stainless steel 1.4404, IP67, parameterization



### IO-Link interface

The FR900020 radar sensor from ipf electronic is an electronic distance sensor that is used for continuous level measurement in liquid media. It works contactless with pulsed FMCW radar (frequency-modulated continuous wave radar) and reliably detects the distance to stationary objects.

The sensor regularly emits a radar signal with a linearly increasing and de-energizing frequency. The frequency changes at a constant rate. If the signals hit objects in the measuring range, they are reflected. The distance is precisely determined based on the transit time and the frequency difference of the reflected signal.

The FR900020 is suitable for a wide range of applications in almost all branches of industry and is especially designed for use in tanks up to a height of 5 meters. Its narrow angle of beam spread of 10° minimizes disturbing influences caused by installations or foreign objects in the tank.

Its use is particularly recommended where optical or ultrasonic sensors are affected by environmental conditions such as temperature fluctuations, gas or vapor layers, pressure conditions (excess pressure, negative pressure, vacuum), dust, wind or light.

#### The radar technology used enables, among other things

- reliable measurements of liquids, even with gas overlays (e.g. ammonia) or foaming
- measurements through container walls, for example in IBC containers or through protective windows made of materials such as PTFE or PP

When ultrasonic measurements reach their limits, the FR900020 offers a powerful alternative. The 122 GHz radar sensor is characterized by particularly good signal bundling and remains insensitive to soiling and temperature fluctuations.

#### Advantages:

- Independent of weather conditions
- Resistant to extreme temperatures
- Resistant to moisture, dirt and temperature fluctuations
- Radiation through certain materials possible
- 122 GHz radar technology
- Simple start-up (plug & play)
- Remote monitoring and parameterization via IO-Link
- Maintenance-free operation

**Electrical features**

Response/decay time	0.03 ms
Type of switching function	Programmable/configurable
Type of analog output	0 - 20mA   4 - 20mA
Type of electrical connection	Connector M12
Type of switching output	Push-pull
Rated switching current	200 mA
Setting procedure	Parameterization via IO-Link
No-load current	20 mA
Number of pins	4
Supported communication interface	IO-Link
Operating voltage (DC)	18 - 35 V
Measuring range	300 - 5000 mm
Relative permittivity ( $\epsilon_r$ ) of the medium $\geq$	4
Electrical connection	M12 4-pin plug connector
Operating voltage	18-35VDC
ardTEEL_Schutzfunktionen	Short circuit protection   Reverse polarity protection

**Mechanical features**

Tightening torque	50 Nm
Type of process connection	G1/2 inch
Design	Cylinder, screw-thread
Pressure resistance	10 bar
Diameter	26 mm
Thread length	14 mm
Length	62 mm
Probe length	17 mm
Medium temperature	-40 - 85 °C
Degree of protection (IP)	IP67 / IP69k
Housing material	Stainless steel
Sensing element material	Plastic (PEEK)
Thread dimension	1/2 inch
Ambient temperature	-40 - 85 °C
dimensions	1/2 inch, 62mm long

**Optical features**

Angle of beam spread	10 °
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**Other features**

IO-Link version	V1.1
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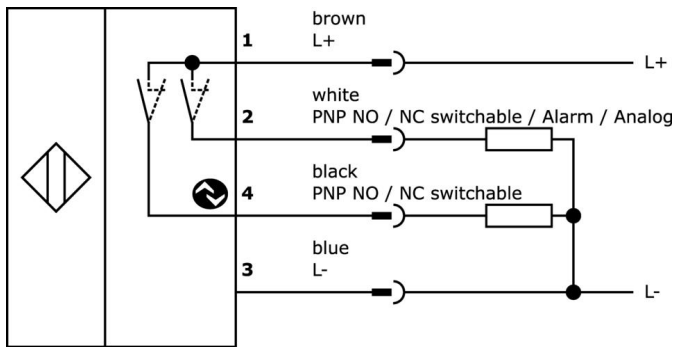
**Classification**

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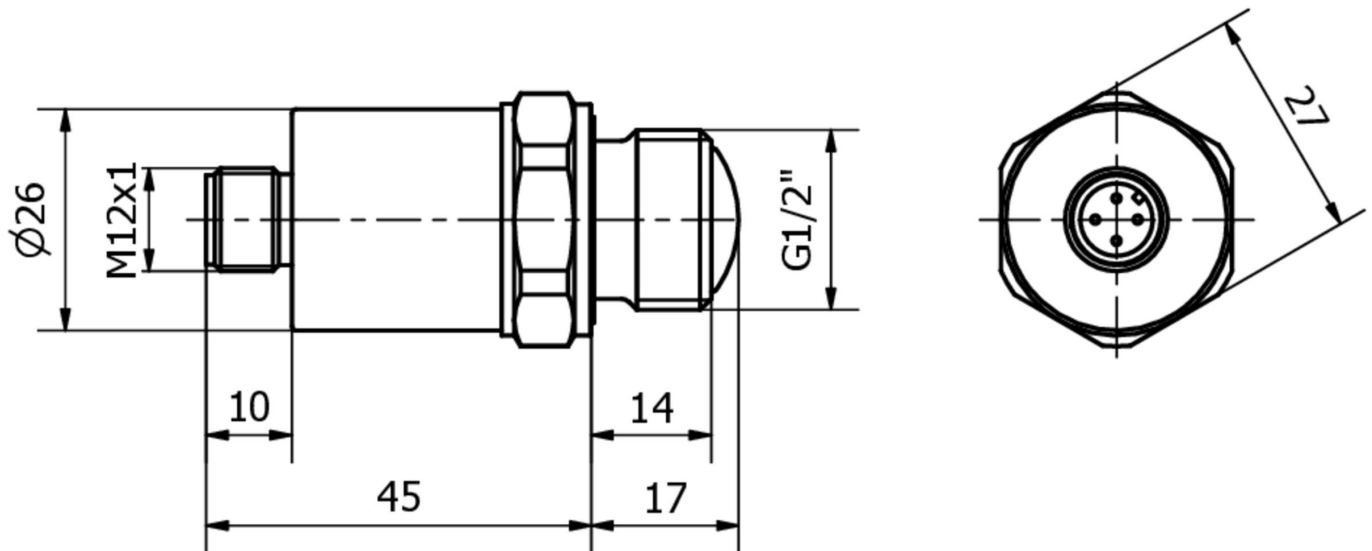
**More**

IPF Product Group	352 Level sensors (Radar)
packaging dimensions	170 x 160 x 65 mm
gross weight	161 g
Customs tariff number	90261029
WEEE number	40951076
Reach-compliant	Yes
RoHS-compliant	Yes
MTTF value	214 year(s)

**Connection**




**Dimensional drawing**




**Extract accessories program**


**VK205321**

 Connection cable, 2m, M12 socket 4-pin angular, free cable end, 4x0. 34mm<sup>2</sup>, PUR (polyurethane), Ø5. 5mm, 250V, -25-90°C, IP67, shielded, suitable for trailing chain and torsion resistant, oils and cooling lubricants, welding area, silicone-free


**VK205325**

 Connection cable, 2m, M12 socket 4-pin straight, free cable end, 4x0. 34mm<sup>2</sup>, PUR (polyurethane), Ø5. 5mm, 250V, -25-90°C, IP67, shielded, suitable for trailing chain and torsion resistant, oils and cooling lubricants, welding area, silicone-free


**VK205621**

 Connection cable, 2m, M12 socket 5-pin angular, free cable end, 5x0. 34mm<sup>2</sup>, PUR (polyurethane), Ø6mm, 60V, -25-90°C, IP67, shielded, suitable for trailing chain and torsion resistant, oils and cooling lubricants, welding area, silicone-free


**VK205625**

 Connection cable, 2m, M12 socket 5-pin straight, free cable end, 5x0. 34mm<sup>2</sup>, PUR (polyurethane), Ø6mm, 60V, -25-90°C, IP67, shielded, suitable for trailing chain and torsion resistant, oils and cooling lubricants, welding area, silicone-free


**VK200321**

 Connection cable, 2m, M12 socket 4-pin angular, free cable end, 4x0. 34mm<sup>2</sup>, PUR (polyurethane), Ø4. 7mm, 250V, -40-90°C, IP67, suitable for trailing chain and torsion resistant, oils and cooling lubricants, welding area, silicone-free


**VK200325**

 Connection cable, 2m, M12 socket 4-pin straight, free cable end, 4x0. 34mm<sup>2</sup>, PUR (polyurethane), Ø4. 7mm, 250V, -40-90°C, IP67, suitable for trailing chain and torsion resistant, oils and cooling lubricants, welding area, silicone-free


**VK200621**

 Connection cable, 2m, M12 socket 5-pin angular, free cable end, 5x0. 34mm<sup>2</sup>, PUR (polyurethane), Ø5. 4mm, 60V, -25-90°C, IP67, suitable for trailing chain and torsion resistant, oils and cooling lubricants, welding area, silicone-free

**VK200625**

 Connection cable, 2m, M12 socket 5-pin straight, free cable end, 5x0. 34mm<sup>2</sup>, PUR (polyurethane), Ø5. 4mm, 60V, -25-90°C, IP67, suitable for trailing chain and torsion resistant, oils and cooling lubricants, welding area, silicone-free

**VY000005**

 IO-Link master, 41x24x67mm, IO-Link, M12, With USB interface

You can find further accessories on our homepage



**Installation**

Mounting / installation may only be carried out by a qualified electrician!



**Disposal**

WEEE number according to § 6 para. 3 ElektroG: 40951076

**Safety warnings**

/ Before initial operation, please make sure to follow all safety instructions that may be provided in the product information.

/ Never use these devices in applications where the safety of a person depends on their functionality.

/ Any software, drivers or IODD files that may be required to operate your device can be downloaded free of charge from our homepage: [www.ipf-electronic.com](http://www.ipf-electronic.com)