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KÜBLER RADAR SENSORS

RAD51C.020.11111.1118
Radar Sensor 0.15m ... 20m range Analogue + 3 switching outputs

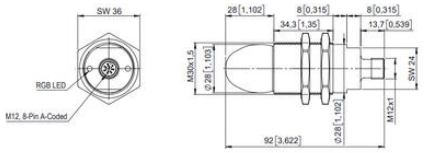
- Insensitive to dust, wind, rain, fog, temperature fluctuations and ambient light.
- Maximum focusing for precise measurement.
- Contactless measurement and wide measuring range for flexible use.
- Simple commissioning thanks to graphical user interface.

PRODUCT DESCRIPTION

The Kübler radar sensors use the latest FMCW radar technology for precise measurements in the µm range at a high measurement rate of up to 500 Hz. This fast measurement rate enables real-time monitoring and control, which increases efficiency and reaction speed in dynamic environments.
The measuring range of up to 40 m and the small blind zone of just 0.1 m offer maximum flexibility for applications in the steel industry, logistics, mobile automation and agricultural technology. The narrow aperture angle of just +/-1.5° guarantees focused measurements that deliver maximum accuracy even in demanding environments - ideal for complex applications such as condition monitoring and condition monitoring of machines or bridges.

TECHNICAL DATA

Analogue outputs	4 - 20 mA
Distance max	20 m
Distance Min	0.15 m
Electrical connection	M12 8-pin connector
IP class	IP67, IP69K
LED indication	No
Material of sensor housing	Stainless steel 1.4404
Resolution	100
Supply voltage dc max	40 V DC
Supply voltage dc min	10 V DC
Switching Outputs	3xPNP/NPN
Temperature operational max	70 °C
Temperature operational min	-40 °C



Terminal assignment

Function	M12 connector, 8-pin, A-coded									
Power supply	Signal:	A	+V	CL	OUT 2	OUT 1	B	0 V	OUT 3	⏚
Analog output	Pin:	1	2	3	4	5	6	7	8	PH
Switching outputs										

+V: supply voltage sensor +V DC
0 V: Ground sensor GND (0V)
A, B: RS485 Communication
CL: analog output (4 ... 20 mA)
OUT 1, 2, 3: switching outputs
PH ⏚: connector housing (Shield)

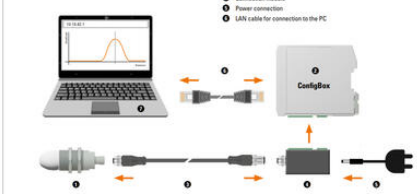
Individual setting options via the configuration box and configuration software

Connection

The radar sensor ❶ is first connected to the PC ❷ via the configuration box ❸.

All necessary connecting elements are included in the scope of delivery of the configuration box ❸:

❹ M12 connecting cable, 8-pin with male and female contacts
❺ Connection module
❻ Power connection
❼ LAN cable for connection to the PC



Commissioning / diagnosis

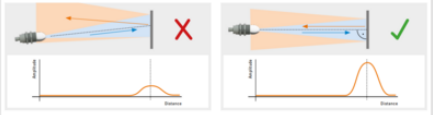
After connection, as shown above, the configuration software is opened via the browser - **URL = 10.10.42.1** (no "www").
The software can be used to configure the sensor to the respective application requirements or to check its status during operation.

In addition to the visualization of the echo curve (radar signal), the following settings can be configured, for example:

- Configuration of the analog interface
- Setting the switching points for the switching outputs
- Setting the measuring range
- Setting the signal threshold value
- Selecting the desired signal for multiple peaks
- and much more

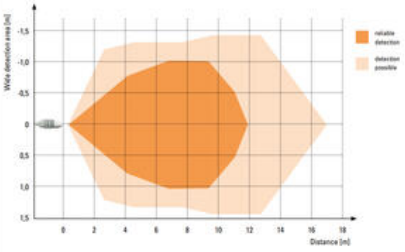
Simple start-up and analysis

Optimal alignment of the sensor to the measurement object by visualizing the measurement result during installation



Radar detection area

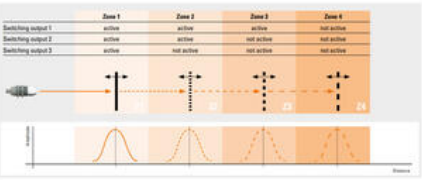
The detection pattern shows the extent to which a 25 mm diameter round metal rod illuminated by the radar sensor is detected.

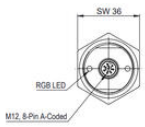


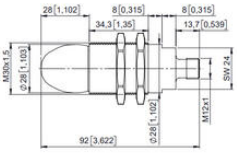
Setting safety areas via the switching outputs

Up to 4 safety ranges can be defined by specifying measuring ranges for the activation of the three switching outputs.
Depending on the range in which an object is detected, different actions can be triggered.

	Zone 1	Zone 2	Zone 3	Zone 4
Switching output 1	active	active	active	not active
Switching output 2	active	active	not active	not active
Switching output 3	active	not active	not active	not active







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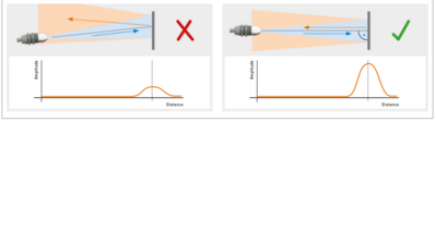

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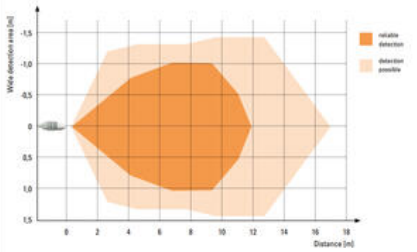

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