

Ultrasonic Sensor Part no.: 664-853xx-x / 6640-xxxxxxx

Operating instruction according to Electromagnetic Compatibility Regulations 2016 No.1091

Product description

The described ultrasonic sensors:

- measure the distance to the medium without contacting it and according to their detection area.
- have a blind zone from which distance measuring is not possible.
- have an internal temperature compensation. Due to the self-heating of the ultrasonic sensors the temperature compensation reaches its optimum operating point after an operating time of about 30 minutes.

Intended use

Non-contact distance measurement of lubrication oils and greases in the frame of the technical data.

Regulatory notes

Electrical equipment according to directive EMC 2014/30/EU



Enclosure Type 1

For use in industrial machinery
NFPA 79 applications only

Display of the switching states

	Switch points			Indication by LED		
	D1	D2	D3	D1	D2	
High-level indication	A	A	B	green	green	C
Between high- and pre-low-level indication	B	A	B	orange	green	C
Pre-low-level signal	B	A	A	orange	green	D
Low-level indication	B	B	B	orange	orange	C

A = switched, B = not switched, C = permanent, D = flashing

Safety instructions

Read these operating instructions before the installation and commissioning. Installation and electrical connection by authorized qualified personnel only.

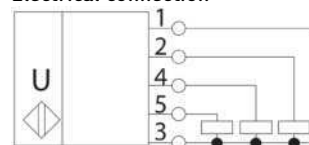
Installation and commissioning

- Clean the installation surface. When doing so make sure that no dirt enters the reservoir. Mount the ultrasonic sensor with the sensor surface (white area) centrically above the bore (Ø 20 mm) into the reservoir lid.
- Connect the connection cable to the M12 plug.
- Switch the power supply on.

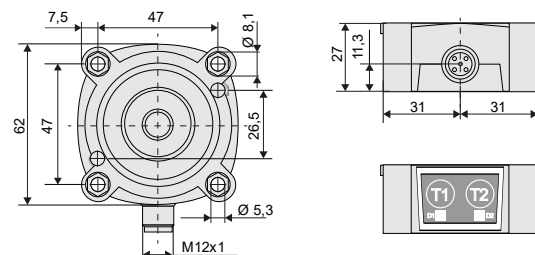
Cleaning

Clean the sensor surface (white area) if it is contaminated.

Electrical connection



		Colour
1	+ U _B	brown
2	D1	white
3	- U _B	blue
4	D2	black
5	D3 / Com	grey



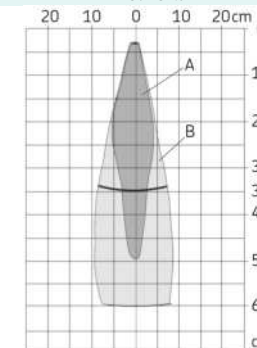
Technical data

Order number	664-853xx-x / 6640-xxxxxxx
Blind zone (the previously detected signal continues to be output)	0 - 65 mm
Scanning range limit	600 mm
Opening angle of the sound beam	see detection zone
Ultrasonic frequency	approx. 400 kHz
Switching frequency	3.7 Hz
Resolution	0, 18 mm
Accuracy	±1 %
Repeatability	±0.15 %

The dark grey areas indicate the zone in which the standard reflector (pipe) is reliably detected. The light grey areas indicate the zone in which a big reflector – e.g. lubricant – is still detected. Outside the light grey area an evaluation is not possible any more.

A = aligned plate

B = tube



Operating voltage U _B	9 - 30 V DC protected against reverse polarity
Residual ripple	±10 %
No-load current consumption	≤ 60 mA
Housing material	PBT, polyester, ultrasonic transducer: PUR, epoxy resin with glass contents
Type of connection	5-pole M12 circular socket connector
Type of protection following EN 60529	IP 67
Display elements	LED D1 (green / red) LED D2 (green)
Operating and storage temperature ranges	-40 °C to +70 °C
Weight	120 g
Response delay	272 ms
Readiness delay	< 300 ms
Compliance with standards	DIN EN 60947-5-2
Switching output	3x pnp; UB-2V; I _{max} = 3x 200 mA; NO contact, short-circuit proof

Switch points	High-level indication D1; low-level indication D2 corresponding to the reservoir size; pre-low-level indication D3 programmable on customer request, pre-set to 10 mm above low-level (optional use possible)
---------------	---

EU Declaration of Conformity in accordance with Directive 2014/30/EU, Annex IV

The manufacturer hereby declares under its sole responsibility conformity of the product described below with all relevant harmonization legislation of the European Union at the time of placing on the market.

Designation / Type: Ultrasonic sensor

Item numbers: 664-853xx-x / 6640-xxxxxxx

Furthermore, the following directives and standards were applied in the respective applicable areas:

2014/30/EU: Electromagnetic Compatibility

2011/65/EU: RoHS II

EN 60947-5-2:2007/A1:2012

EN 60947-5-7:2003

EN 61000-6-2:2005/AC:2005

EN 61000-6-3:2007/A1:2011/AC:2012

EN IEC 63000:2018

Walldorf, 2023/06/21

Jürgen

Kreutzkämper

Manager, R&D

Germany

Stefan Schürmann

Manager, PD

Germany South

Manufacturer: SKF Lubrication Systems Germany GmbH, Heinrich-Hertz-Str. 2-8, 69190 Walldorf, Germany

UK Declaration of Conformity pursuant to the Electromagnetic Compatibility Regulations 2016 No. 1091, Annex IV

The manufacturer hereby declares under its sole responsibility conformity of the product described below with all relevant harmonization legislation of the United Kingdom at the time of placing on the market.

Designation / Type: Ultrasonic sensor

Item numbers: 664-853xx-x / 6640-xxxxxxx

Furthermore, the following regulations and standards were applied in the respective applicable areas:

Electromagnetic Compatibility Ordinance 2016 No. 1091

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

No. 3032

EN 60947-5-2:2007/A1:2012

EN 60947-5-7:2003

EN 61000-6-2:2005/AC:2005

EN 61000-6-3:2007/A1:2011/AC:2012

EN IEC 63000:2018

Walldorf, 2023/06/21

Jürgen

Kreutzkämper

Manager, R&D

Germany

Stefan Schürmann

Manager, PD

Germany South

Manufacturer: SKF Lubrication Systems Germany GmbH, Heinrich-Hertz-Str. 2-8, 69190 Walldorf, Germany

© Copyright SKF

Document no.: 951-181-037-EN / Version: 03 / Last updated: 2023/10/31