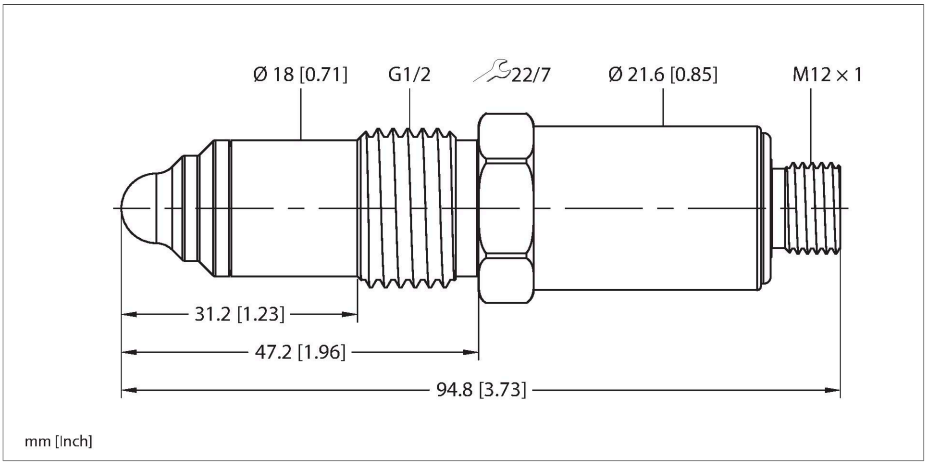
NCLS-30-UN6X-H1141
Capacitive Limit Level Sensor



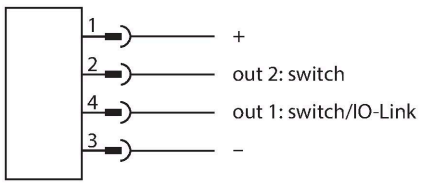
Technical data

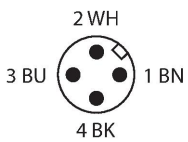
Type	NCLS-30-UN6X-H1141
ID	100004249
Mounting location	any
Installation information	Please use the NCLS limit level sensor only with original Turck process adapters!
Required permittivity (εr)	1.5
Pressure resistance	10 bar
Vacuum resistance	-1 bar
Ambient temperature	-10…+70 °C
Medium temperature	0…+100 °C
Comment on the media temperature	0…+130 °C for < 1 h at an ambient temperature of 40 °C
Storage temperature	-20…+70 °C
CIP/SIP-capable	yes
Electrical data	
Operating voltage U_B	12…32 VDC
	In IO-Link mode
Power consumption	3 W
Switch-on time	< 0.3 s
Response time	< 0.2 s
Switching frequency	≤ 5 Hz
Isolation test voltage	0.5 kV
Communication protocol	IO-Link
SIO mode-compatible	Yes
Number of digital outputs	2
Output function	4-wire, NO/NC, NPN
Short-circuit protection	yes

Features

- Media-contacting detection of limit levels in tanks and pipes
- Detection of different substances (liquid, viscous, granular, powder form)
- Hygienic PEEK tip, CIP/SIP compatible
- EHEDG certified (with NCLS-WA1 process adapter)
- Highly visible ring LED
- 12…32 VDC, power consumption: typically 1 W, max. 3 W
- Two digital outputs, separately adjustable as NO/NC
- PNP, NPN or push-pull, switchable
- IO-Link for parameterization/process values
- Process connection G1/2" male thread, hygienic (in combination with TURCK adapters)
- 4-pin connector device, M12 × 1

Wiring diagram





Functional principle

Capacitive proximity switches are designed for wear-free detection of metal (electrically conductive) as well as non-metal (not electrically conductive) objects. A key feature

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Technical data

Wire break/reverse polarity protection	yes/Complete
Insulation class	III
Tests/approvals	
Approvals	CE EHEDG
IO-Link	
IO-Link specification	V 1.1
Programming	FDT/DTM
Transmission physics	corresponds to 3-wire physics (PHY2)
Transmission rate	COM 2/38.4 kbps
Process data width	16 bit
Measured value information	14 bit
Switchpoint information	2 bit
Frame type	2.2
Included in the SIDI GSDML	Yes
Mechanical data	
Design	Threaded barrel, G ½"
Dimensions	94.8 x 22 x 22 mm
Housing material	Stainless steel, 1.4404 (AISI 316L)
Materials (contact with media)	Plastic, PEEK
Max. tightening torque of housing nut	20 Nm
Process connection	G 1/2" male thread, hygienic
Electrical connection	Connector, M12 × 1
Vibration resistance	2 Hz (1 mm)
Shock resistance	7 g (11 ms)
Protection class	IP67 IP69K
MTTF	1080 years acc. to SN 29500 (Ed. 99) 40 °C
Power-on indication	Ring LED, Green
Switching state	Ring LED, Green, (Reverse of operating voltage indicator)

Mounting instructions

of the NCLS limit level sensors is the ability to detect and differentiate between various liquids, viscous materials, granular materials and powders by making contact with the media. They are extremely well suited for detecting level limits (max./min.) and changes to the media in tanks and pipelines.

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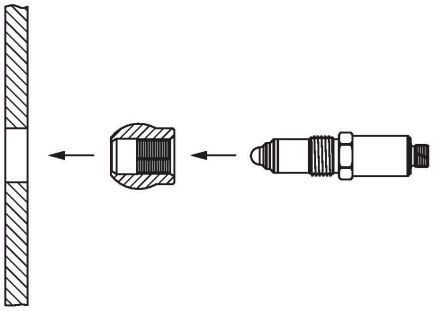
Product features



Please use the NCLS limit level sensor only with original Turck process adapters!

In principle, the sensor can be installed in any position and any location.

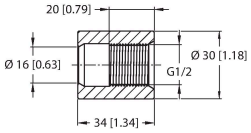
Mounting positions where deposits occur as a result of highly adhesive or viscous media or air pockets must be avoided.

A minimum distance of 15 mm must be maintained between the sensor tip and any adjacent objects (e.g. the wall of a container or pipe).

The relative permittivity (εr) of the medium must be >1.5.

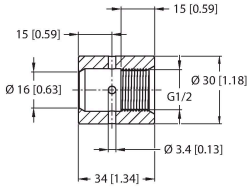
Accessories

NCLS-WA0	100004429



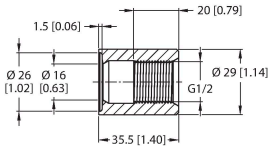
G1/2" cylindrical welding sleeve process adapter without control bore for NCLS capacitive limit level sensors, metallic sealing for hygienic applications, material 316L, max. temperature 140 °C

NCLS-WA1	100004430



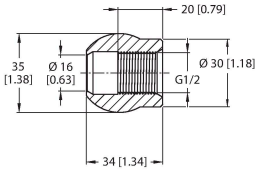
G1/2" cylindrical welding sleeve process adapter with control bore for NCLS capacitive limit level sensors, metallic sealing for hygienic applications, material 316L, max. temperature 140 °C, EHEDG

NCLS-WA2	100004431



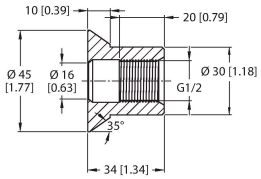
G1/2" weld collar sleeve process adapter without control bore for NCLS capacitive limit level sensors, metallic sealing for hygienic applications, material 316L, max. temperature 140 °C

NCLS-WA4	100004432



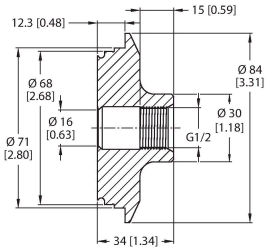
G1/2" ball sleeve process adapter without control bore for NCLS capacitive limit level sensors, metallic sealing for hygienic applications, material 316L, max. temperature 140 °C

NCLS-WA7	100004433



G1/2" welding sleeve process adapter with collar for NCLS capacitive limit level sensors, metallic sealing for hygienic applications, material 316L, max. temperature 140 °C

NCLS-VA	100004434



G1/2" Varivent process adapter DN50 for NCLS capacitive limit level sensors, metallic sealing for hygienic applications, material 316L, max. temperature 140 °C

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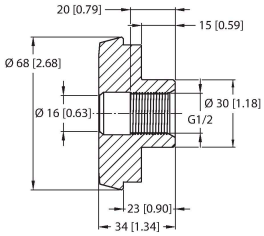
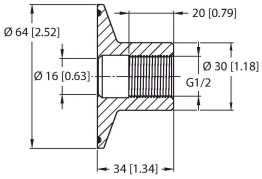
NCLS-DF50	100004435



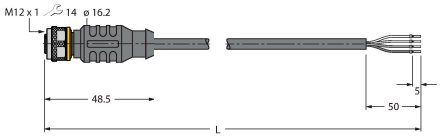
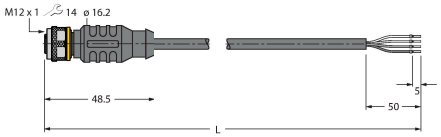
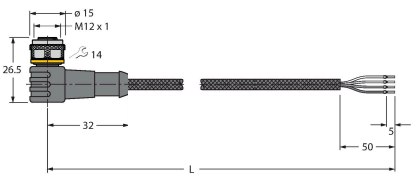
G1/2" dairy screw connection process adapter DN50 for NCLS capacitive limit level sensors, metallic sealing for hygienic applications, material 316L, max. temperature 140 °C

NCLS-TC50	100004436



G1/2" triclamp process adapter DN50 for NCLS capacitive limit level sensors, metallic sealing for hygienic applications, material 316L, max. temperature 140 °C

Accessories

Dimension drawing	Type	ID	
	FAA-81-1.4571	100001991	Screw-in adapter for immersion sensors from the series FS.. , FP..; material: Stainless steel 1.4571 (316Ti); process connection: G3/4"
	RKC4.4T-P7X2-2/TEL	6626162	Connection cable, M12 female connector, straight, 4-pin, 2 LEDs, cable length: 2 m, jacket material: PVC, black; cULus approval
	RKC4.4T-P7X2-2/TXL	6626795	Connection cable, M12 female connector, straight, 4-pin, 2 LEDs, cable length: 2 m, jacket material: PUR, black; cULus approval
	RKCV4.4T-2/TXL	6627544	Connection cable, M12 female connector, straight, 4-pin, cable length: 2 m, jacket material: PUR, black; stainless steel coupling nut; cULus approval
	RKC4.4T-2/TXL1001	6628825	Connection cable, M12 female connector, straight, 4-pin, cable length: 2 m, protective jacket material: aramid fibers, yellow; temperature peak: 200 °C
	WKC4.4T-3/TXL1001	6634582	Connection cable, M12 female connector, angled, 4-pin, cable length: 2 m, protective jacket material: aramid fibers, yellow; temperature peak: 200 °C

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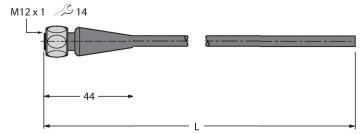
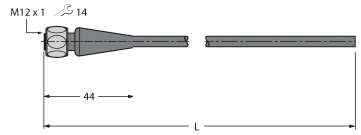
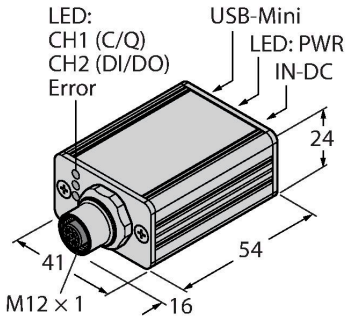
Dimension drawing	Type	ID	
	RKH4.4-2/TFE	6934473	Connection cable, M12 female connector, straight, 4-pin, stainless steel coupling nut, cable length: 2 m, jacket material: PVC, gray; temperature range: -25…+80 °C
	RKH4.4-2/TFG	6933086	Connection cable, M12 female connector, straight, 4-pin, stainless steel coupling nut, cable length: 2 m, jacket material: TPE, gray; temperature range: -40…+105 °C
	RKC4.4T-2/TEL	6625013	Connection cable, M12 female connector, straight, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval

Accessories

Dimension drawing	Type	ID	
	USB-2-IOL-0002	6825482	IO-Link Master with integrated USB port

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