

...or with the Teach-in procedure

Adjust detect point D1	Adjust window mode D1	Adjust two-way reflectiv barrier D1	Set NOC/NCC D1
Place object at position ①	Place object at position ①	Place reflector at position ①	
Press T1 until »d« is shown	Press T1 until »d« is shown	Press T1 until »d« is shown	Press T1 until countdown passed from »-8-« to »-0-« and NOC or NCC symbol is displayed
123 Current measuring value	123 Current measuring value	123 Current measuring value	000 Symbol NOC or NCC
	Place object at position ②		
	456 Current measuring value		
Press T1 until »End« is shown	Press T1 until »End« is shown	Press T1 until countdown passed from »-8-« to »-0-« and »End« is displayed	To change output function press T1
			000 Symbol NOC or NCC
			Press T1 and T2 simultaneously until »End« is displayed
Normal mode operation			
Teach-in switched output D1			

Adjust detect point D2	Adjust window mode D2	Adjust two-way reflectiv barrier D2	Set NOC/NCC D2
Place object at position ①	Place object at position ①	Place reflector at position ①	
Press T2 until »d« is shown	Press T2 until »d« is shown	Press T2 until »d« is shown	Press T2 until countdown passed from »-8-« to »-0-« and NOC or NCC symbol is displayed
123 Current measuring value	123 Current measuring value	123 Current measuring value	000 Symbol NOC or NCC
	Place object at position ②		
	456 Current measuring value		
Press T2 until »End« is shown	Press T2 until »End« is shown	Press T2 until countdown passed from »-8-« to »-0-« and »End« is displayed	To change output function press T2
			000 Symbol NOC or NCC
			Press T1 and T2 simultaneously until »End« is displayed
Normal mode operation			
Teach-in switched output D2			

Key lock and factory setting

Activate/deactivate TouchControl	Reset to factory setting
Turn supply voltage OFF	Turn supply voltage OFF
While pressing T1 turn supply voltage ON until »on« or »off« is displayed	While pressing T1 turn supply voltage ON for ca. 15 s until »ESET« has past through the display
0n8 none or »off«	
To activate or deactivate press T1	
OFF none or »off«	
To activate or deactivate press T1	
Normal mode operation	

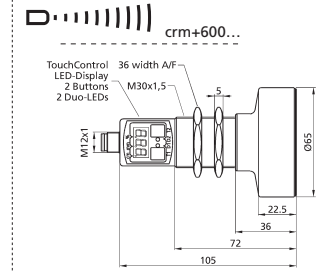
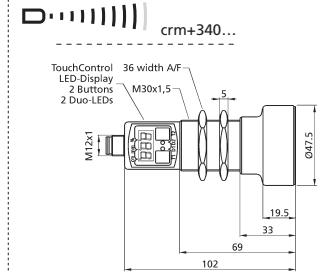
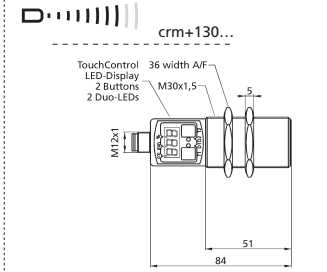
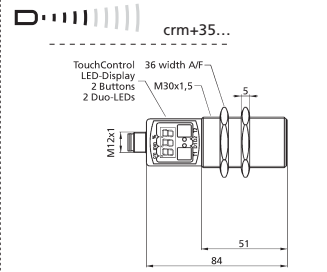
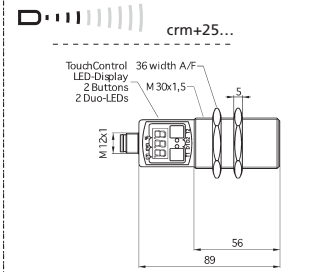
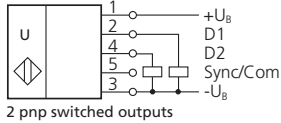
Usefull additional functions in Add-on menu (for experienced users only, settings not required for standard applications)

Start here
T1 + T2
HELLO Pro **Add-on**
Press T1 and T2 simultaneously for about 13 s until »Add« is shown in the LED-display

Ready													
»C01«: Display bright »C02«: Display dimmed »C03«: Display off	Minimum value: »001« Maximum value: difference between maximum range and detect point - 1 During window mode operation hysteresis influences both detect points.	Minimum value: »001« Maximum value: difference between maximum range and detect point - 1 During window mode operation hysteresis influences both detect points.	»F00«: no filter »F01«: standard filter »F02«: averaging filter »F03«: foreground filter »F04«: background filter	Defines the strength of the chosen filter. »P00«: weak filter up to »P09«: strong filter	Delay in seconds between the detection of an object and the output of the measured distance in case of object approach (behaves as on-delay). "00": 0 s (no delay) up to "20": 20 s response time	Minimum value: blind zone Maximum value: nearwindow limit - 1	»00«: synchronisation »01« to »10«: sensor address for multiplex mode »OFF«: synchronisation deactivated	To optimize multiplex speed the highest sensor address may be set. Setting range »01« to »10«	Minimum value: sensor-distant window margin Maximum value: 999 mm for crm+25/... and crm+35/... and 900 mm for all other types. Adjust display to 250 mm or 900 mm. Confirm calibration with T1 + T2.	Put plane reflector vertically disposed in front of sensor: in an exact distance of 250 mm for crm+25/... and crm+35/... and 900 mm for all other types. Adjust display to 250 mm or 900 mm. Confirm calibration with T1 + T2.	Affects the size of the detection zone. »E01«: high »E02«: standard »E03«: slight		
Low power mode	Hysteresis switched output D1	Hysteresis switched output D2	Measurement filter	Filter strength	Response time	Foreground suppression	Multiplex mode device addressing	Multiplex mode highest address	Measurement range	Calibration display	Detection zone sensitivity		

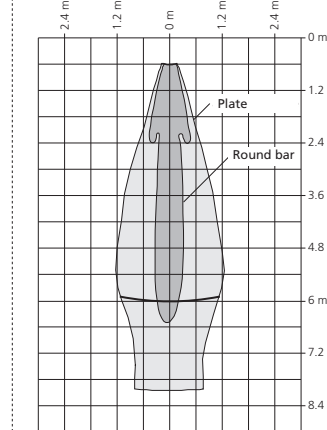
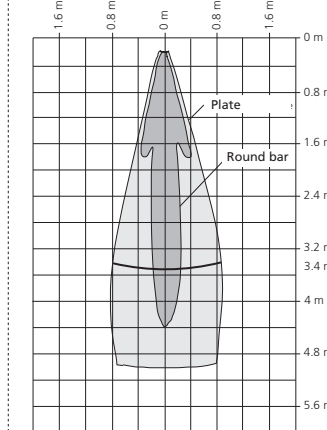
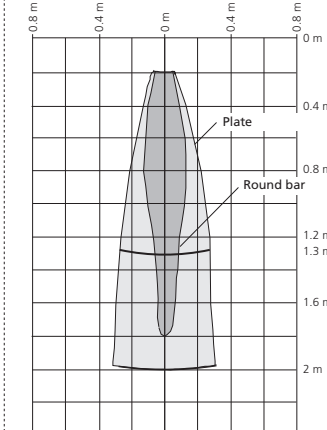
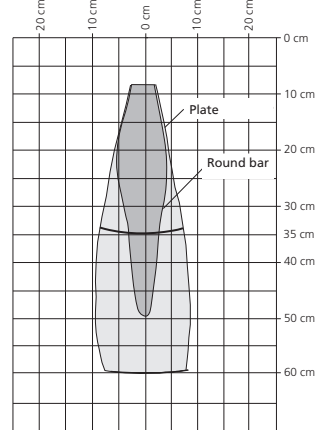
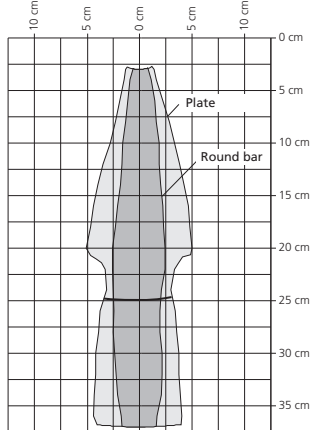
Note
Changes in the Add-on menu may impair the sensor function.
A6, A7, A8, A10, A11, A12 have influence on the response time of the sensor.

Technical data



Blind zone	0 to 30 mm	0 to 85 mm	0 to 200 mm	0 to 350 mm	0 to 600 mm
Operating range	250 mm	350 mm	1.300 mm	3.400 mm	6.000 mm
Maximum range	350 mm	600 mm	2.000 mm	5.000 mm	8.000 mm
Angle of beam spread	Please see detection zone				
Transducer frequency	ca. 320 kHz	360 kHz	200 kHz	120 kHz	80 kHz
Resolution, sampling rate	0.025 mm	± 0.15 %	0.18 mm	± 0.15 %	0.18 mm
Reproducibility	± 1 % (Temperature drift internal compensated, may be deactivated ¹⁾ 0.17%/K without compensation)				
Accuracy	± 1 % (Temperature drift internal compensated, may be deactivated ¹⁾ 0.17%/K without compensation)				

Detection zones for different objects:
The dark grey areas are determined with a thin round bar (10 or 27 mm dia.) and indicate the typical operating range of a sensor. In order to obtain the light grey areas, a plate (500 x 500 mm) is introduced into the beam spread from the side. In doing so, the optimum angle between plate and sensor is always employed. This therefore indicates the maximum detection zone of the sensor. It is not possible to evaluate ultrasonic reflections outside this area.



Operating voltage U_B	9 V to 30 V DC, reverse polarity protection	9 V to 30 V DC, reverse polarity protection	9 V to 30 V DC, reverse polarity protection	9 V to 30 V DC, reverse polarity protection	9 V to 30 V DC, reverse polarity protection
Voltage ripple	±10 %	±10 %	±10 %	±10 %	±10 %
No-load supply current	≤ 80 mA	≤ 80 mA	≤ 80 mA	≤ 80 mA	≤ 80 mA
Housing	Stainless steel 1.4571, plastic parts: PBT, TPU; Ultrasonic transducer: PEEK film, PTFE	Stainless steel 1.4571, plastic parts: PBT, TPU; Ultrasonic transducer: PEEK film, PTFE	Stainless steel 1.4571, plastic parts: PBT, TPU; Ultrasonic transducer: PEEK film, PTFE	Stainless steel 1.4571, plastic parts: PBT, TPU; Ultrasonic transducer: PEEK film, PTFE	Stainless steel 1.4571, plastic parts: PBT, TPU; Ultrasonic transducer: PEEK film, PTFE
Class of protection to EN 60529	IP 67	IP 67	IP 67	IP 67	IP 67
Norm conformity	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Type of connection	5-pin initiator plug, PBT	5-pin initiator plug, PBT	5-pin initiator plug, PBT	5-pin initiator plug, PBT	5-pin initiator plug, PBT
Controls	2 push-buttons (TouchControl)	2 push-buttons (TouchControl)	2 push-buttons (TouchControl)	2 push-buttons (TouchControl)	2 push-buttons (TouchControl)
Indicators	3-digit LED-display, 2 three-colour LEDs	3-digit LED-display, 2 three-colour LEDs	3-digit LED-display, 2 three-colour LEDs	3-digit LED-display, 2 three-colour LEDs	3-digit LED-display, 2 three-colour LEDs
Programmable	Yes, with TouchControl and LinkControl	Yes, with TouchControl and LinkControl	Yes, with TouchControl and LinkControl	Yes, with TouchControl and LinkControl	Yes, with TouchControl and LinkControl
Operating temperature	-25°C to +70°C	-25°C bis +70°C	-25°C bis +70°C	-25°C bis +70°C	-25°C bis +70°C
Storage temperature	-40°C to +85°C	-40°C bis +85°C	-40°C bis +85°C	-40°C bis +85°C	-40°C bis +85°C
Weight	150 g	150 g	150 g	210 g	270 g
Switching hysteresis¹⁾	3 mm	5 mm	20 mm	50 mm	100 mm
switching frequency¹⁾	25 Hz	12 Hz	8 Hz	4 Hz	3 Hz
Response time¹⁾	32 ms	64 ms	92 ms	172 ms	240 ms
Time delay before availability	< 300 ms	< 300 ms	< 300 ms	< 380 ms	< 450 ms
Order No.	crm+25/DD/TC	crm+35/DD/TC	crm+130/DD/TC	crm+340/DD/TC	crm+600/DD/TC
Switched output	2 x pnp, U _B - 2 V, I _{max} = 2 x 200 mA switchable NOC/NCC, short-circuit-proof	2 x pnp, U _B - 2 V, I _{max} = 2 x 200 mA switchable NOC/NCC, short-circuit-proof	2 x pnp, U _B - 2 V, I _{max} = 2 x 200 mA switchable NOC/NCC, short-circuit-proof	2 x pnp, U _B - 2 V, I _{max} = 2 x 200 mA switchable NOC/NCC, short-circuit-proof	2 x pnp, U _B - 2 V, I _{max} = 2 x 200 mA switchable NOC/NCC, short-circuit-proof

1) Can be programmed with TouchControl and LinkControl