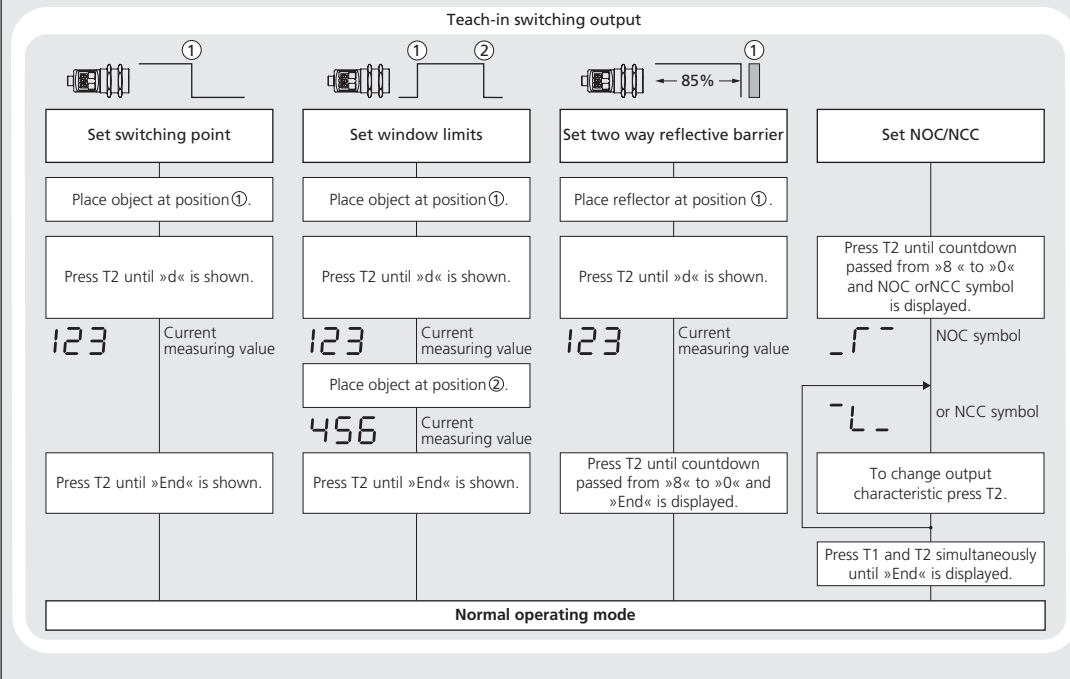
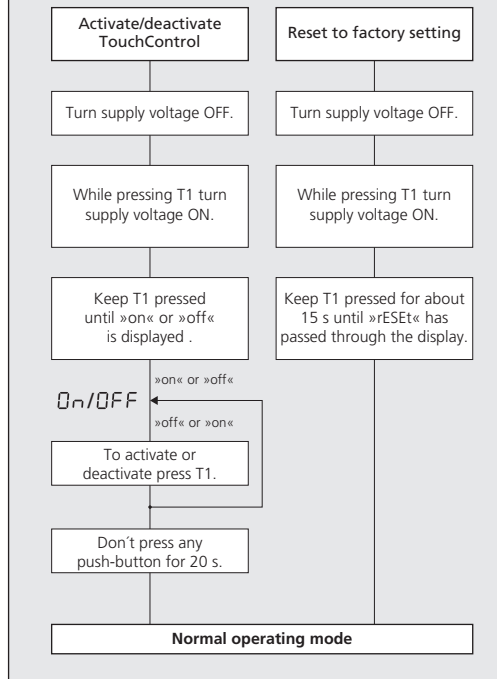




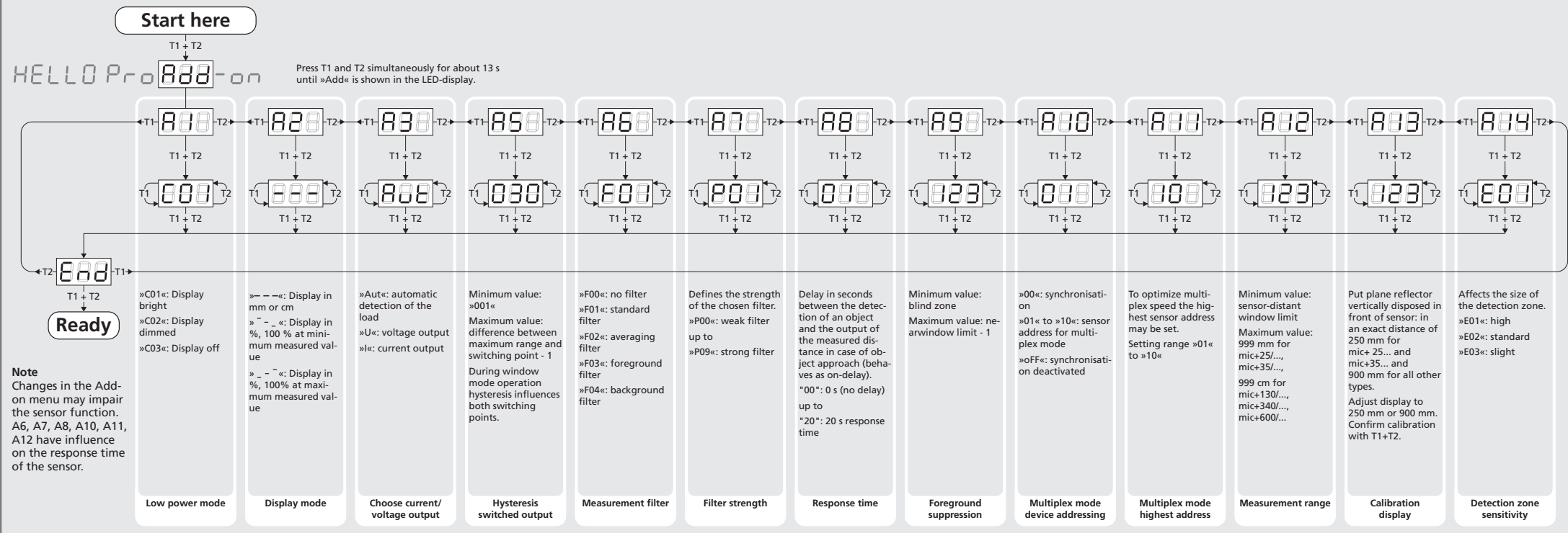
**Diagram 2: Set sensor parameters via Teach-in procedure**



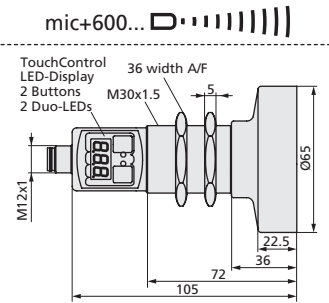
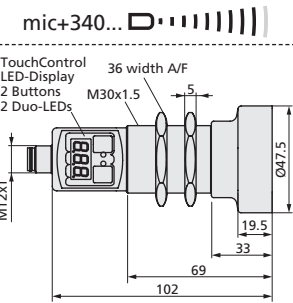
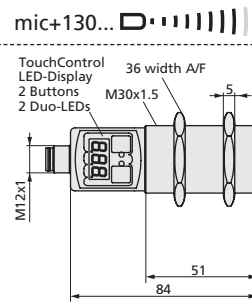
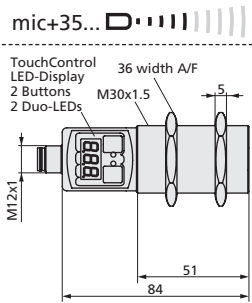
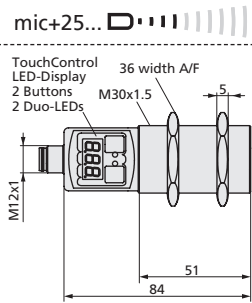
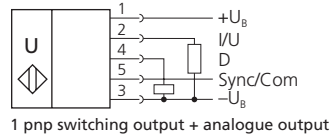
**Diagram 3: Key lock and factory setting**



**Diagram 4: Useful additional functions in Add-on menu (for experienced users only, settings not required for standard applications)**

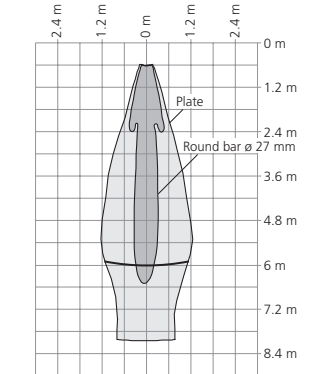
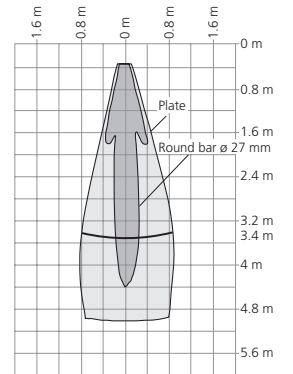
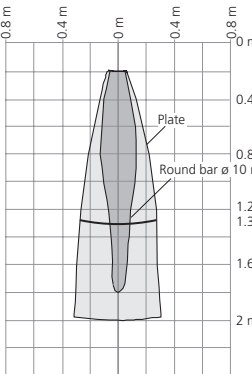
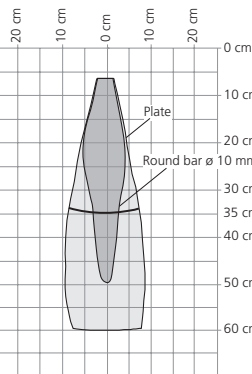
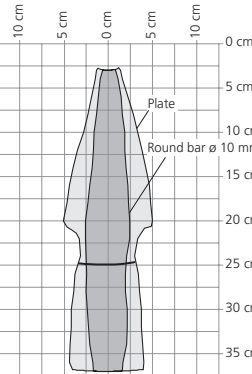


**Technical data**



<b>blind zone</b>	0 to 30 mm	0 bis 65 mm	0 to 200 mm	0 to 350 mm	0 to 600 mm
<b>operating range</b>	250 mm	350 mm	1,300 mm	3,400 mm	6,000 mm
<b>maximum range</b>	350 mm	600 mm	2,000 mm	5,000 mm	8,000 mm
<b>angle of beam spread</b>	see detection zone	see detection zone	see detection zone	see detection zone	see detection zone
<b>transducer frequency</b>	320 kHz	400 kHz	200 kHz	120 kHz	80 kHz
<b>resolution</b>	0.025 to 0.10 mm, depending on the analogue window	0.025 to 0.17 mm, depending on the analogue window	0.18 to 0.57 mm, depending on the analogue window	0.18 to 1.50 mm, depending on the analogue window	0.18 to 2.40 mm, depending on the analogue window

**detection zones**  
for different objects:  
The dark grey areas represent the zone where it is easy to recognise the normal reflector (round bar). This indicates the typical operating range of the sensors. The light grey areas represent the zone where a very large reflector – for instance a plate – can still be recognised. The requirement here is for an optimum alignment to the sensor. It is not possible to evaluate ultrasonic reflections outside this area.



<b>reproducibility</b>	±0.15 %	±0.15 %	±0.15 %	±0.15 %	±0.15 %
<b>accuracy</b>	±1 % (Temperature drift internal compensated, may be deactivated <sup>3)</sup> , 0.17%/K without compensation)	±1 % (Temperature drift internal compensated, may be deactivated <sup>3)</sup> , 0.17%/K without compensation)	±1 % (Temperature drift internal compensated, may be deactivated <sup>3)</sup> , 0.17%/K without compensation)	±1 % (Temperature drift internal compensated, may be deactivated <sup>3)</sup> , 0.17%/K without compensation)	±1 % (Temperature drift internal compensated, may be deactivated <sup>3)</sup> , 0.17%/K without compensation)
<b>operating voltage U<sub>B</sub></b>	9 to 30 V DC, short-circuit-proof, Class 2	9 to 30 V DC, short-circuit-proof, Class 2	9 to 30 V DC, short-circuit-proof, Class 2	9 to 30 V DC, short-circuit-proof, Class 2	9 to 30 V DC, short-circuit-proof, Class 2
<b>voltage ripple</b>	±10 %	±10 %	±10 %	±10 %	±10 %
<b>no-load supply current</b>	≤ 80 mA	≤ 80 mA	≤ 80 mA	≤ 80 mA	≤ 80 mA
<b>housing</b>	Brass sleeve, nickel-plated, plastic parts: PBT, TPU; Ultrasonic transducer: polyurethane foam, epoxy resin with glass content	Brass sleeve, nickel-plated, plastic parts: PBT, TPU; Ultrasonic transducer: polyurethane foam, epoxy resin with glass content	Brass sleeve, nickel-plated, plastic parts: PBT, TPU; Ultrasonic transducer: polyurethane foam, epoxy resin with glass content	Brass sleeve, nickel-plated, plastic parts: PBT, TPU; Ultrasonic transducer: polyurethane foam, epoxy resin with glass content	Brass sleeve, nickel-plated, plastic parts: PBT, TPU; Ultrasonic transducer: polyurethane foam, epoxy resin with glass content
<b>class of protection to EN 60529</b>	IP 67	IP 67	IP 67	IP 67	IP 67
<b>norm conformity</b>	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
<b>type of connection</b>	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
<b>controls</b>	2 push-buttons (TouchControl)	2 push-buttons (TouchControl)	2 push-buttons (TouchControl)	2 push-buttons (TouchControl)	2 push-buttons (TouchControl)
<b>indicators</b>	3-digit LED display, 2 three-colour LEDs with TouchControl and LinkControl	3-digit LED display, 2 three-colour LEDs with TouchControl and LinkControl	3-digit LED display, 2 three-colour LEDs with TouchControl and LinkControl	3-digit LED display, 2 three-colour LEDs with TouchControl and LinkControl	3-digit LED display, 2 three-colour LEDs with TouchControl and LinkControl
<b>programmable</b>	with TouchControl and LinkControl	with TouchControl and LinkControl	with TouchControl and LinkControl	with TouchControl and LinkControl	with TouchControl and LinkControl
<b>operating temperature</b>	-25 to +70 °C	-25 to +70 °C	-25 to +70 °C	-25 to +70 °C	-25 to +70 °C
<b>storage temperature</b>	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C
<b>weight</b>	150 g	150 g	150 g	210 g	270 g
<b>switching hysteresis<sup>1)</sup></b>	3 mm	5 mm	20 mm	50 mm	100 mm
<b>switching frequency<sup>2)</sup></b>	25 Hz	12 Hz	8 Hz	4 Hz	3 Hz
<b>response time<sup>2)</sup></b>	32 ms	64 ms	92 ms	172 ms	240 ms
<b>time delay before availability</b>	<300 ms	<300 ms	<300 ms	<380 ms	<450 ms
<b>order No.</b>	<b>mic+25/DIU/TC</b>	<b>mic+35/DIU/TC</b>	<b>mic+130/DIU/TC</b>	<b>mic+340/DIU/TC</b>	<b>mic+600/DIU/TC</b>
<b>switching output</b>	pnp, U <sub>B</sub> = 2 V, I <sub>max</sub> = 200 mA	pnp, U <sub>B</sub> = 2 V, I <sub>max</sub> = 200 mA	pnp, U <sub>B</sub> = 2 V, I <sub>max</sub> = 200 mA	pnp, U <sub>B</sub> = 2 V, I <sub>max</sub> = 200 mA	pnp, U <sub>B</sub> = 2 V, I <sub>max</sub> = 200 mA
<b>current output 4 to 20 mA</b>	switchable NOC/NCC, short-circuit-proof	switchable NOC/NCC, short-circuit-proof	switchable NOC/NCC, short-circuit-proof	switchable NOC/NCC, short-circuit-proof	switchable NOC/NCC, short-circuit-proof
<b>voltage output 0 to 10 V</b>	R <sub>L</sub> ≤ 100 Ω at 9 V ≤ U <sub>B</sub> ≤ 20 V; R <sub>L</sub> ≤ 500 Ω at U <sub>B</sub> ≥ 20 V	R <sub>L</sub> ≤ 100 Ω at 9 V ≤ U <sub>B</sub> ≤ 20 V; R <sub>L</sub> ≤ 500 Ω at U <sub>B</sub> ≥ 20 V	R <sub>L</sub> ≤ 100 Ω at 9 V ≤ U <sub>B</sub> ≤ 20 V; R <sub>L</sub> ≤ 500 Ω at U <sub>B</sub> ≥ 20 V	R <sub>L</sub> ≤ 100 Ω at 9 V ≤ U <sub>B</sub> ≤ 20 V; R <sub>L</sub> ≤ 500 Ω at U <sub>B</sub> ≥ 20 V	R <sub>L</sub> ≤ 100 Ω at 9 V ≤ U <sub>B</sub> ≤ 20 V; R <sub>L</sub> ≤ 500 Ω at U <sub>B</sub> ≥ 20 V
	Rising/falling output characteristic	Rising/falling output characteristic	Rising/falling output characteristic	Rising/falling output characteristic	Rising/falling output characteristic
	R <sub>L</sub> ≥ 100 kΩ at U <sub>B</sub> ≥ 15 V, short-circuit-proof	R <sub>L</sub> ≥ 100 kΩ at U <sub>B</sub> ≥ 15 V, short-circuit-proof	R <sub>L</sub> ≥ 100 kΩ at U <sub>B</sub> ≥ 15 V, short-circuit-proof	R <sub>L</sub> ≥ 100 kΩ at U <sub>B</sub> ≥ 15 V, short-circuit-proof	R <sub>L</sub> ≥ 100 kΩ at U <sub>B</sub> ≥ 15 V, short-circuit-proof
	Rising/falling output characteristic	Rising/falling output characteristic	Rising/falling output characteristic	Rising/falling output characteristic	Rising/falling output characteristic

<sup>1)</sup> Can be programmed via TouchControl and LinkControl. <sup>2)</sup> With TouchControl and LinkControl, the selected filter setting and the maximum range influence the switching frequency and the response time. <sup>3)</sup> Can be deactivated via LinkControl.