



Ics⁺

The Ics⁺ ultrasonic sensors in a compact square housing – with analogue/switching outputs and IO-Link.

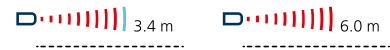
HIGHLIGHTS

- › Very compact housing with a base area of only 62.2 mm x 62.2 mm
- › IO-Link interface › for support of the new industry standard
- › Synchronisation and multiplex mode › for simultaneous operation of up to ten sensors in close quarters
- › 8 m maximum detection range
- › UL Listed to Canadian and US safety standards

BASICS

- › 1 Push-Pull switching output, or 2 pnp switching outputs
- › Analogue output 4–20 mA and 0–10 V › with automatic switching between current and voltage outputs
- › microsonic Teach-in by using button T1 and T2
- › 0.18 mm to 2.4 mm resolution
- › Temperature compensation
- › 9–30 V operating voltage
- › LinkControl › for configuration of sensors from a PC





The Ics+ ultrasonic sensors




have block-like plastic housing (PBT) with a base area of only 62.2 x 62.2 mm and four fastening bores.

The sensors are Listed to applicable UL Standards and requirements by UL for Canada and the US.

Two dual colour LEDs

show all operating statuses.

Three output stages for selection:

-  1 Push-Pull switching output with an IO-Link
-  2 pnp switching outputs
-  1 analogue output 4–20 mA and 0–10 V

Using the two buttons T1 and T2

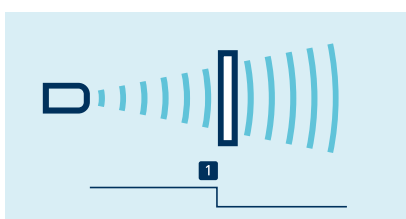
the Ics+ sensors can be easily set.

The Ics+ sensors with switching outputs have three operating modes:

- Single switching point
- Two-way reflective barrier
- Window mode

Teach-in of a single switching point

- Place object **1** to be detected at the desired distance.
- Push button T1 for approx. 3 seconds.
- Then push button T1 again for approx. 1 second.

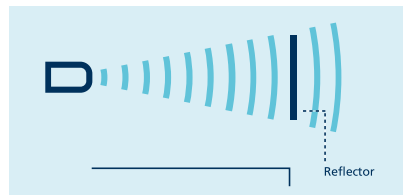


Teach-in of switching point

Teach-in of a two-way reflective barrier

with a fixed mounted reflector

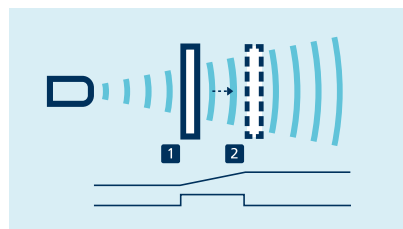
- Push button T1 for approx. 3 seconds.
- Then push button T1 again for approx. 10 seconds.



Teach-in of a two-way reflective barrier

For setting the analogue output

- initially position the object to be acquired to the sensor-close window limit **1**.
- Push button T1 for 3 seconds.
- Then move the object to the sensor-distant window limit **2**.
- Then push button T1 again for approx. 1 second.



Teach-in of an analogue characteristics or a window with two switching points

For configuration of a window

with two switching points on a single switched output, the procedure is the same as setting the analogue.

Analogue sensors

check the connected working resistance at the output and automatically switch to 4–20 mA current output or 0–10 V voltage output.

NCC/NOC

and rising/falling analogue characteristics can also be set via the buttons.

LinkControl

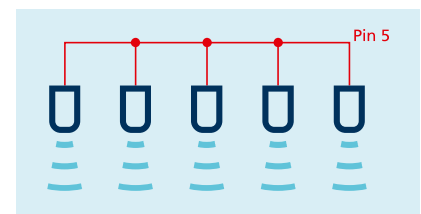
permits comprehensive parameterisation of the Ics+ ultrasonic sensors via the LinkControl adapter LCA-2 which connects the sensors to the PC.



Sensor connected to the PC via LCA-2 for programming

Easy to synchronise

If several Ics+ ultrasonic sensors are operated in one application, they can be synchronised via pin 5 to prevent interference.



Synchronisation via pin 5

If more than ten sensors need to be synchronised, this can be carried out with the SyncBox1 (see the chapter “Accessories”). Synchronisation via pin 5 is also possible in IO-Link mode.

IO-Link

Ultrasonic sensors Ics+340/F and Ics+600/F have a Push-Pull switching output and support IO-Link in version 1.0 (see “Function and advantages: IO-Link in detail”).

Ics⁺ 340

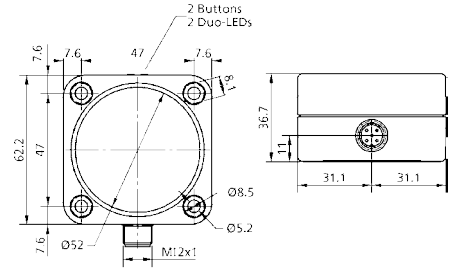
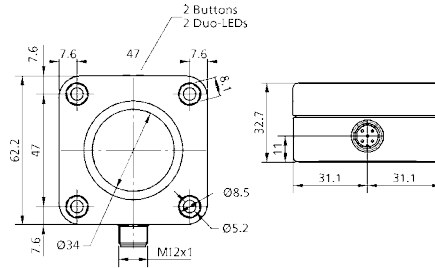
Ics⁺ 600



measuring range

350–5,000 mm

600–8,000 mm



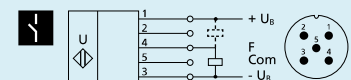
blind zone	350 mm	600 mm
operating range	3,400 mm	6,000 mm
maximum range	5,000 mm	8,000 mm
angle of beam spread	please see i	please see i
transducer frequency	120 kHz	80 kHz
resolution/sampling rate	0.18 mm	0.18 mm
reproducibility	± 0.15 %	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)	± 1 % (temperature drift internally compensated)
operating voltage U _B	9 V to 30 V DC, reverse polarity protection	9 V to 30 V DC, reverse polarity protection
no-load current consumption	≤ 60 mA	≤ 60 mA
housing	PBT; ultrasonic transducer: polyurethane foam, epoxy resin with glass content	PBT; ultrasonic transducer: polyurethane foam, epoxy resin with glass content
class of protection according to EN 60529	IP 67	IP 67
type of connection	5-pin M12 initiator plug	5-pin M12 initiator plug
controls	2 push-buttons	2 push-buttons
scope for settings	<ul style="list-style-type: none"> Teach-in via push-button LCA-2 with LinkControl IO-Link 	<ul style="list-style-type: none"> Teach-in via push-button LCA-2 with LinkControl IO-Link
indicators	2 three-colour LEDs	2 three-colour LEDs
IO-Link	V 1.0	V 1.0
IO-Link SIO mode support	yes	yes
IO-Link min. cycle time	43.2 ms	60.8 ms
Smart Sensor Profile	-	-
operating temperature	-25°C to +70°C	-25°C to +70°C
storage temperature	-40°C to +85°C	-40°C to +85°C
weight	180 g	240 g
switching hysteresis ¹⁾	50 mm	100 mm
switching frequency ¹⁾	4 Hz	3 Hz
response time ¹⁾	172 ms	240 ms
delay prior to availability	< 380 ms	< 450 ms
order number	Ics+340/F	Ics+600/F
switching output	Push-Pull, U _B -3 V, -U _B +3 V, I _{max} = 100 mA	Push-Pull, U _B -3 V, -U _B +3 V, I _{max} = 100 mA



Enclosure Type 1
For use only in industrial
machinery NFPA 79 applications.



1 Push-Pull switching output



1 Push-Pull switching output

¹⁾ Can be programmed with LinkControl.

Ics⁺340

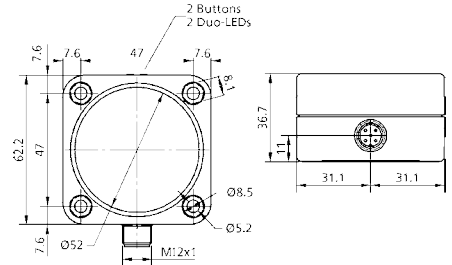
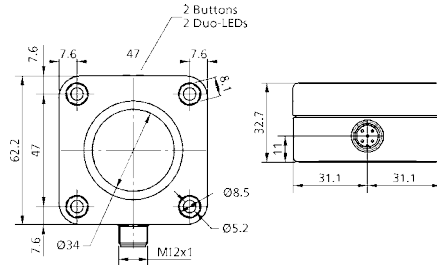
Ics⁺600



measuring range

350–5,000 mm

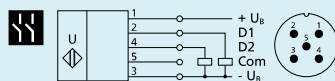
600–8,000 mm



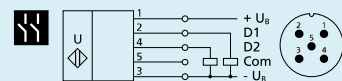
blind zone	350 mm	600 mm
operating range	3,400 mm	6,000 mm
maximum range	5,000 mm	8,000 mm
angle of beam spread	please see i	please see i
transducer frequency	120 kHz	80 kHz
resolution/sampling rate	0.18 mm	0.18 mm
reproducibility	± 0.15 %	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)	± 1 % (temperature drift internally compensated)
operating voltage U_B	9 V to 30 V DC, reverse polarity protection	9 V to 30 V DC, reverse polarity protection
no-load current consumption	≤ 60 mA	≤ 60 mA
housing	PBT; ultrasonic transducer: polyurethane foam, epoxy resin with glass content	PBT; ultrasonic transducer: polyurethane foam, epoxy resin with glass content
class of protection according to EN 60529	IP 67	IP 67
type of connection	5-pin M12 initiator plug	5-pin M12 initiator plug
controls	2 push-buttons	2 push-buttons
scope for settings	<ul style="list-style-type: none"> Teach-in via push-button LCA-2 with LinkControl 	<ul style="list-style-type: none"> Teach-in via push-button LCA-2 with LinkControl
indicators	2 three-colour LEDs	2 three-colour LEDs
operating temperature	-25°C to +70°C	-25°C to +70°C
storage temperature	-40°C to +85°C	-40°C to +85°C
weight	180 g	240 g
switching hysteresis ¹⁾	50 mm	100 mm
switching frequency ¹⁾	4 Hz	3 Hz
response time ¹⁾	172 ms	240 ms
delay prior to availability	< 380 ms	< 450 ms
order number	Ics+340/DD	Ics+600/DD
switching outputs	2 x pnp, $U_B=2 V$, $I_{max} = 2 \times 200 mA$ NOC/NCC adjustable, short-circuit-proof	2 x pnp, $U_B=2 V$, $I_{max} = 2 \times 200 mA$ NOC/NCC adjustable, short-circuit-proof



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2 pnp switching outputs



2 pnp switching outputs

Ics⁺340

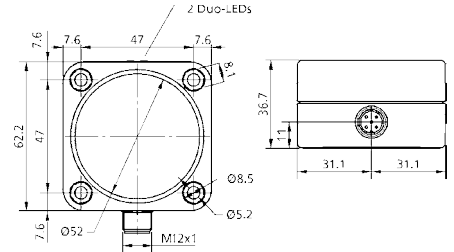
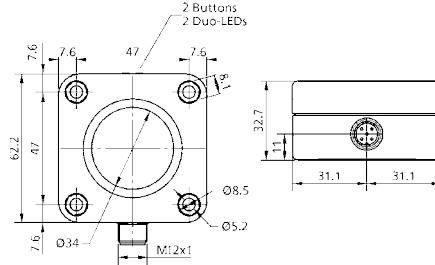
Ics⁺600



measuring range

350–5,000 mm

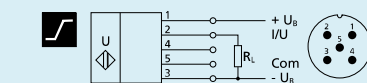
600–8,000 mm



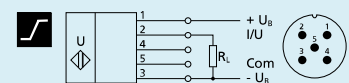
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operating range	3,400 mm	6,000 mm
maximum range	5,000 mm	8,000 mm
angle of beam spread	please see i	please see i
transducer frequency	120 kHz	80 kHz
resolution/sampling rate	0.18 mm to 1.5 mm, depending on the analogue window	0.18 mm to 2.4 mm, depending on the analogue window
reproducibility	± 0.15 %	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)	± 1 % (temperature drift internally compensated)
operating voltage U _B	9 V to 30 V DC, reverse polarity protection	9 V to 30 V DC, reverse polarity protection
no-load current consumption	≤ 60 mA	≤ 60 mA
housing	PBT; ultrasonic transducer: polyurethane foam, epoxy resin with glass content	PBT; ultrasonic transducer: polyurethane foam, epoxy resin with glass content
class of protection according to EN 60529	IP 67	IP 67
type of connection	5-pin M12 initiator plug	5-pin M12 initiator plug
controls	2 push-buttons	2 push-buttons
scope for settings	<ul style="list-style-type: none"> • Teach-in via push-button • LCA-2 with LinkControl 	<ul style="list-style-type: none"> • Teach-in via push-button • LCA-2 with LinkControl
indicators	2 three-colour LEDs	2 three-colour LEDs
operating temperature	-25°C to +70°C	-25°C to +70°C
storage temperature	-40°C to +85°C	-40°C to +85°C
weight	180 g	240 g
response time ¹⁾	172 ms	240 ms
delay prior to availability	< 450 ms	< 450 ms
order number	Ics+340/IU	Ics+600/IU
analogue output	current output 4–20 mA voltage output 0–10 V short-circuit-proof, switchable rising/falling	current output 4–20 mA voltage output 0–10 V short-circuit-proof, switchable rising/falling



Enclosure Type 1
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analogue output



analogue output

¹⁾ Can be programmed with LinkControl.

