



extract from our online catalogue:

**Ics+600/F/A**

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## Ics+

The Ics+ ultrasonic sensors come in a very compact square-shaped housing - with analogue or switching output + IO-Link.

### Highlights

- > Very compact housing dimensions > only 62 mm x 62 mm x 37.2 mm
- > IO-Link interface > for support of the new industry standard
- > Smart Sensor Profiles > more transparency between IO-Link Devices
- > 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
- > 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

### Basics

## ***The lcs+ ultrasonic sensors***

have a block-like plastic housing with a base area of only 62 × 62 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.

### ***Using the two Teach-in buttons T1 and T2***

the lcs+ sensors can be easily set (Teach-in).

### ***Three output stages are available for selection:***



1 Push-Pull switching output with pnp or npn switching technology with IO-Link interface



2 pnp switching outputs



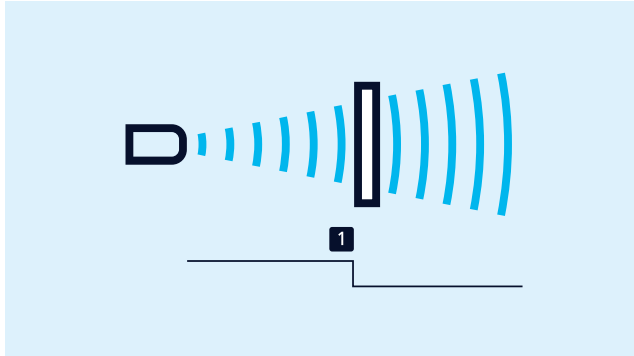
1 analogue output 4–20 mA or 0–10 V

### ***The lcs+ sensors with switching output have three operating modes:***

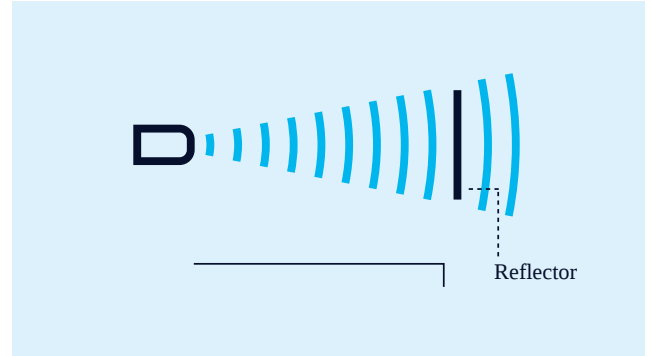
- Single switching point
- Two-way reflective barrier
- Window mode

### ***Teach-in of a single switching point***

- Place object to be detected (1) at the desired distance
- Push button T2 for about 3 seconds
- Then push button T2 again for about 1 second



*Teach-in of a switching point*



*Teach-in of a two-way reflective barrier*

### ***Teach-in of a two-way reflective barrier***

with a fixed mounted reflector

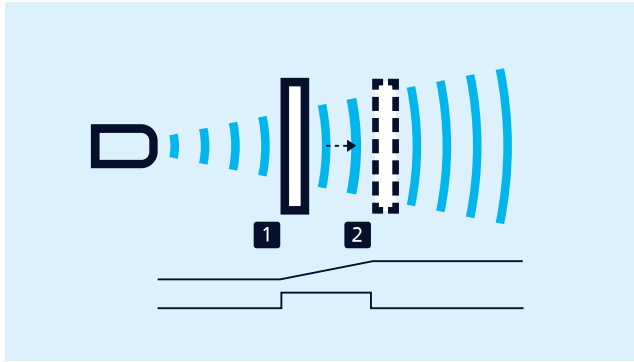
- Push button T1 for about 3 seconds
- Then push button T1 again for about 10 seconds

### ***For setting the analogue output***

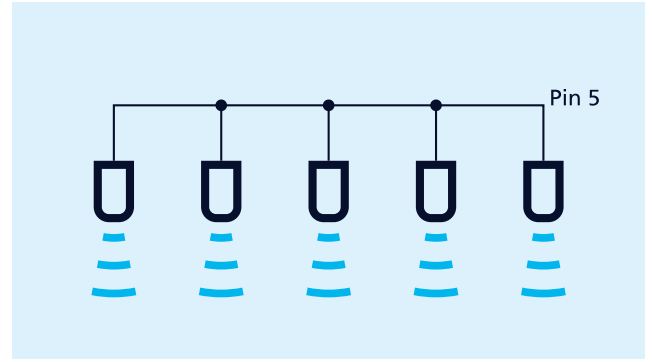
- Initially position the object to be detected to the sensor-close window limit (1)
- Push button T1 for about 3 seconds
- Then move the object to the sensor-distant window limit (2)
- Then push button T1 again for about 1 second

### ***For configuration of a window***

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



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



*Synchronisation using pin 5*

### **Easy to synchronise**

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

If more than 10 sensors must be synchronised, this can be carried out with the SyncBox1, which is available as an accessory. Synchronisation via pin 5 is also possible in IO-Link mode.

### **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 lcs+ 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*

### **IO-Link**

Ultrasonic sensors lcs+340/F/A and lcs+600/F/A have a Push-Pull switching output and support IO-Link in version 1.1 as well as the Smart Sensor profile.

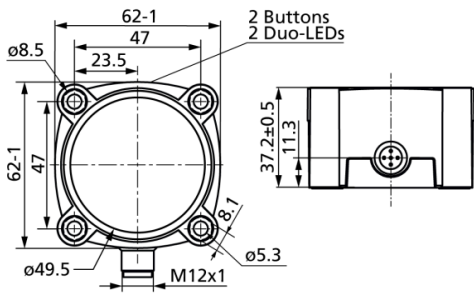
***You have special requirements?***

Nothing as simple as that.

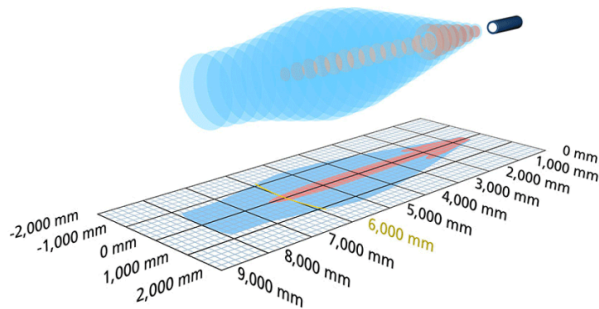
With us, you can easily find an individual solution. Let us talk about your application: +49 231 97 51 51-82.

# lcs+600/F/A

## scale drawing



## detection zone



1 x Push-Pull

8,000 mm

|                 |                                                                                  |
|-----------------|----------------------------------------------------------------------------------|
| design          | cuboidal                                                                         |
| operating mode  | IO-Link<br>proximity switch/reflective mode<br>reflective barrier<br>window mode |
| particularities | IO-Link<br>Smart Sensor Profile<br>UL Listed                                     |

## Ultrasonic-Specific

|                      |                                                  |
|----------------------|--------------------------------------------------|
| means of measurement | echo propagation time measurement                |
| transducer frequency | 80 kHz                                           |
| blind zone           | 600 mm                                           |
| operating range      | 6.000 mm                                         |
| max. range           | 8,000 mm                                         |
| resolution           | 0.18 mm                                          |
| reproducibility      | ± 0.15 %                                         |
| accuracy             | ± 1 % (temperature drift internally compensated) |

## Electrical Data

|                             |                                            |
|-----------------------------|--------------------------------------------|
| operating voltage $U_B$     | 9 - 30 V d.c., reverse polarity protection |
| voltage ripple              | ± 10 %                                     |
| no-load current consumption | ≤ 60 mA                                    |
| type of connection          | 5-pin M12 initiator plug                   |

## outputs

|                             |                                                                                                  |
|-----------------------------|--------------------------------------------------------------------------------------------------|
| output 1                    | switching output<br>Push-Pull, $U_B-3\text{ V}$ , $-U_B+3\text{ V}$ , $I_{\max} = 100\text{ mA}$ |
| switching frequency         | 3 Hz                                                                                             |
| response delay              | 240 ms                                                                                           |
| delay prior to availability | < 450 ms                                                                                         |

### Inputs

|         |                                    |
|---------|------------------------------------|
| input 1 | com input<br>synchronisation input |
|---------|------------------------------------|

### housing

|                                 |                                                    |
|---------------------------------|----------------------------------------------------|
| material                        | PBT                                                |
| ultrasonic transducer           | polyurethane foam, epoxy resin with glass contents |
| class of protection to EN 60529 | IP 67                                              |
| operating temperature           | -25°C to +70°C                                     |
| storage temperature             | -40°C to +85°C                                     |
| weight                          | 240 g                                              |

### Technical Features/Characteristics

|                          |                                                               |
|--------------------------|---------------------------------------------------------------|
| temperature compensation | yes                                                           |
| controls                 | 2 push-buttons                                                |
| scope for settings       | Teach-in via push-button<br>LCA-2 with LinkControl<br>IO-Link |
| synchronization          | yes                                                           |
| multiplex                | yes                                                           |
| indicators               | 2 x three-colour LED                                          |

### Accessories

|                      |                                                                                   |
|----------------------|-----------------------------------------------------------------------------------|
| deployable accessory | KST5A-2/M12<br>KST5A-5/M12<br>KST5G-2/M12<br>KST5G-5/M12<br>LCA-2<br>LCA-2 Koffer |
|----------------------|-----------------------------------------------------------------------------------|

### pin assignment

