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extract from our online catalogue:

# *lpc+15/CFU*

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microsonic GmbH / Phoenixseestraße 7 / 44263 Dortmund / Germany / **T** +49 231 975151-0 / **F** +49 231 975151-51 / **E** info@microsonic.de
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# lpc+

lpc+ well equipped: 2 Push-Pull switching outputs or 1 Push-Pull switching output with an analogue output in M18 housing.

## Highlights

- Analogue output 4–20 mA or 0–10 V plus 1 Push-Pull switching output in M18 design
- IO-Link interface › for support of the new industry standard
- Smart Sensor Profiles › more transparency between IO-Link Devices
- Improved temperature compensation › adjustment to working conditions within 120 seconds
- UL Listed to Canadian and US safety standards

## Basics

- 2 Push-Pull switching outputs › pnp or npn basis
- 4 detection ranges with a measurement range of 20 mm to 1.3 m
- microsonic Teach-in on pin 5
- 0.1 mm resolution
- 10–30 V operating voltage
- LinkControl › for configuration of sensors from a PC

# The Ipc+ ultrasonic sensors

are optionally equipped with two Push-Pull switching outputs or an analogue output plus a Push-Pull switching output. The compact series with M18 threaded sleeves coves four detection ranges from 20 mm to 1.3 m.

Ultrasonic sensors with the Push-Pull output stage support SIO and IO-Link modes. Sensors with analogue output are optionally available with 4–20 mA current output or 0–10 V voltage output.In SIO mode, sensors are configured using the microsonic Teach-in procedure on pin 5.

### two output stages:

2 output stages and 4 detection ranges available:



2 Push-Pull-switching outputs, optionally in pnp or npn circuitry with IO-Link interface



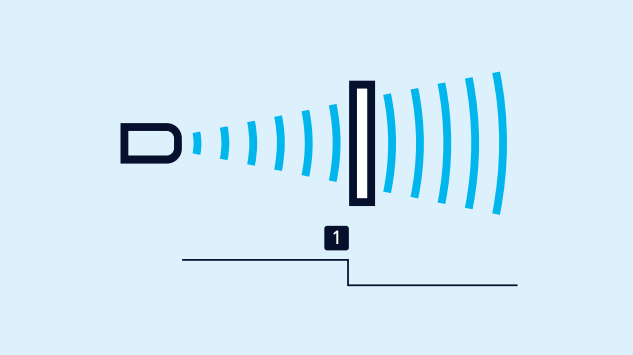
1 Push-Pull switching output and analogue output 4–20 mA or 0–10 V

### Sensors with switching output have three operating modes:

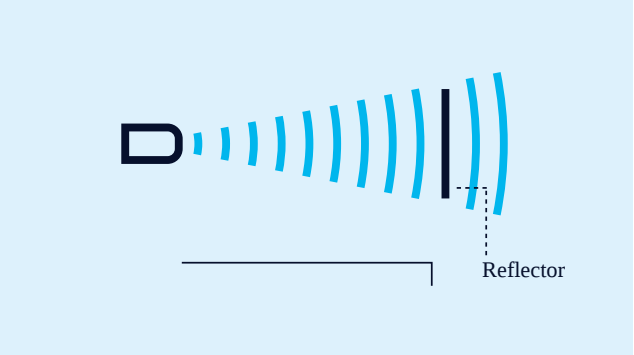
- Single switching point
- Two-way reflective barrier
- Window mode

### Teach-in of a single switching point

- Place object to be detected (1) at the desired distance
- Apply $+U_B$ to pin 5 for about 3 seconds
- Then apply $+U_B$ to pin 5 again for about 1 second




*Teach-in of a switching point*




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

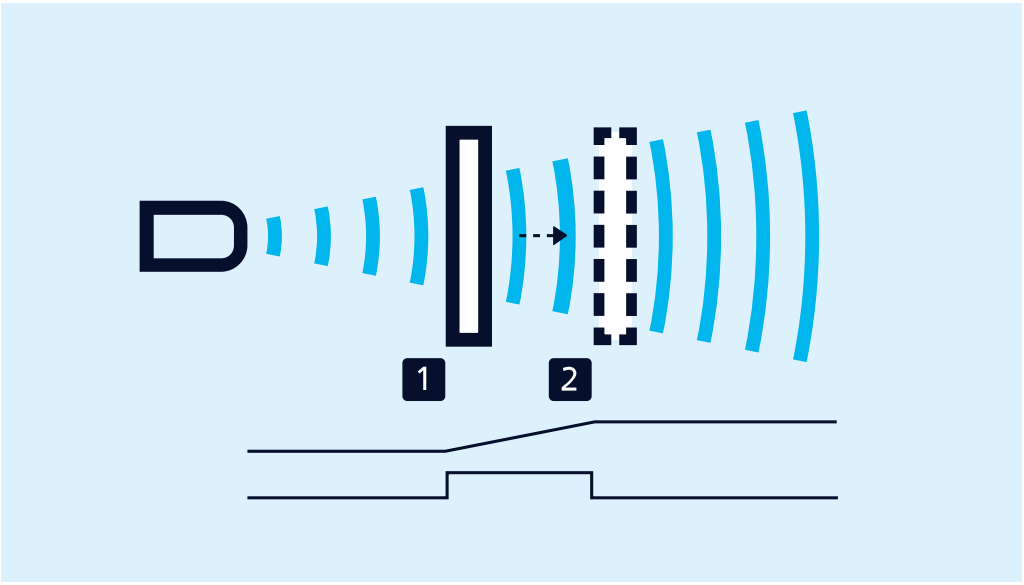
### *Teach-in of a two-way reflective barrier*

with a fixed reflector

- Apply +$U_B$ to pin 5 for about 3 seconds
- Then apply +$U_B$ to pin 5 again for about 10 seconds

### *For configuration of a window*

- Place object at the near edge of the window (1)
- Apply +$U_B$ to pin 5 for about 3 seconds
- Then move the object to the far edge of the window (2)
- Then apply +$U_B$ to pin 5 again for about 1 second




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

### *NCC/NOC*

and rising/falling analogue characteristic curve can also be set via pin 5.

## *LinkControl*

optionally permits the extensive parameterisation of Ipc+ sensors. The LCA-2 LinkControl adapter , which is available as an accessory, can be used to connect Ipc+ sensors to the PC.

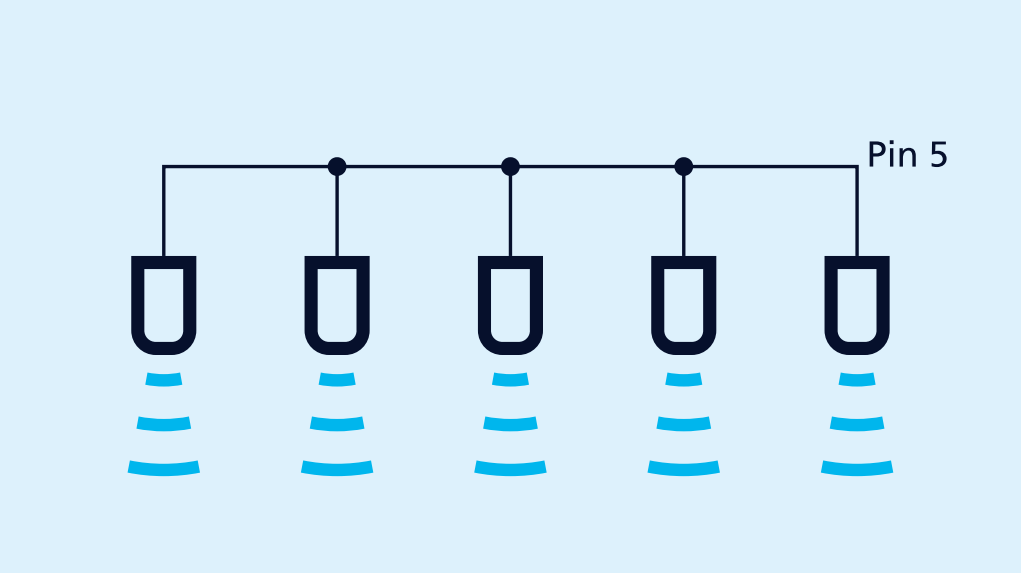



*Sensor connected to the PC via LCA-2 for programming*

## *Easy to synchronise*

A number of Ipc+ ultrasonic sensors can be run closely packed in applications synchronised to stop them from influencing one another. To this end, the sync mode has to be activated and all the sensors are to be electrically connected one to another with pin 5.

If more than 10 sensors must be synchronised, this can be carried out with the SyncBox1 , which is available as an accessory.




*Synchronisation using pin 5*

### *IO-Link integrated*

in version 1.1. The Ipc+ ultrasonic sensors are equipped with Smart Sensor Profile, which creates more transparency between IO-Link devices.

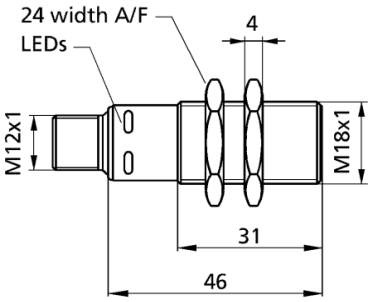

## *You have special requirements?*

Nothing as simple as that.

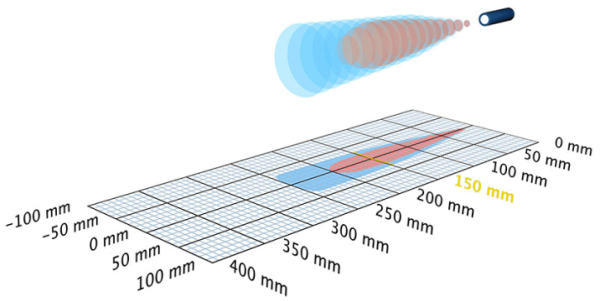
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# lpc+15/CFU

## scale drawing




## detection zone




1 x Push-Pull + 1 x analog 0-10 V

250 mm

| | |
|---|---|
| design | cylindrical M18 |
| operating mode | IO-Link<br>proximity switch/reflective mode<br>reflective barrier<br>window mode<br>analogue distance measurement |
| particularities | IO-Link<br>Smart Sensor Profile<br>UL Listed |

## Ultrasonic-Specific

| | |
|---|---|
| means of measurement | echo propagation time measurement |
| transducer frequency | 380 kHz |
| blind zone | 20 mm |
| operating range | 150 mm |
| max. range | 250 mm |
| reproducibility | ± 0.15 % |
| accuracy | ± 1 % (temperature drift internally compensated) |

## Electrical Data

| | |
|---|---|
| operating voltage $U_B$ | 10 - 30 V d.c., reverse polarity protection |
| voltage ripple | ± 10 % |
| no-load current consumption | ≤ 50 mA |
| type of connection | 5-pin M12 initiator plug |

## outputs

| | |
|---|---|
| output 1 | analogue output<br>voltage: 0-10 V, short-circuit-proof<br>switchable rising/falling |
| Ausgang 2 | switching output<br>Push-Pull, $U_B$-3 V, -$U_B$+3 V,$I_{max}$ = 100 mA<br>NOC/NCC adjustable, short-circuit-proof |
| switching hysteresis | 2.0 mm |
| switching frequency | 25 Hz |
| response delay | 32 ms |
| delay prior to availability | < 300 ms |

## Inputs

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

## housing

| | |
|---|---|
| material | brass sleeve, nickel-plated, plastic parts, PBT, PA |
| 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 | 35 g |
| further versions | lpc+15/WK/CFU |
| further versions | 90° angular head |

## Technical Features/Characteristics

| | |
|---|---|
| temperature compensation | yes |
| controls | com input |
| scope for settings | Teach-in via com input on pin 5<br>LCA-2 with LinkControl<br>IO-Link |
| synchronization | yes |
| multiplex | yes |
| indicators | 2 x LED green, 2 x LED yellow |

## Accessories

| | |
|---|---|
| deployable accessory | KST5A-2/M12<br>KST5A-5/M12<br>KST5G-2/M12<br>KST5G-5/M12<br>BF-18<br>LCA-2<br>LCA-2 Koffer<br>SyncBox1<br>UF-90/M18 |

## *pin assignment*

