microsonic
Ultrasonic Sensors

Operating Instructions

Ipc-25/CDD/M18
Ipc-25/CEE/M18

Ultrasonic Proximity Switch with Two Switched Outputs

Product Description

The Ipc sensor offers a non-contact measurement of the distance to an object which must be positioned within the sensor's detection zone. The switched outputs are set in dependence of the adjusted detect distances.
Via the Syn/Com input (pin 5), the detect distances and operating modes can be adjusted (teach-in). Two LEDs indicate the states of the switched outputs.
With the LinkControl adapter, which is available as accessory, all sensor parameters can optionally be set via a PC.

Safety Notes

- Read the operating instructions prior to start-up.
- Connection, installation and adjustment works may only be carried out by expert personnel.
- No safety component in accordance with the EU Machine Directive.

Installation

- Mount the sensor at the installation site.
- Connect a connection cable to the M12 device plug.

Start-Up

- Connect the power supply.
- Carry out the adjustment in accordance with the diagram.

Factory Settings

- Synchronous mode deactivated
- Switched outputs on NOC
- Detect points at 150 and 250 mm

Operation

Three operating modes are available for both switched outputs:

- Operation with one detect point
- Window mode
- Two-way reflective barrier

Synchronisation

With the synchronous mode activated and an electrical interconnection of the Sync/Com inputs (pin 5), up to 10 sensors can be synchronised.

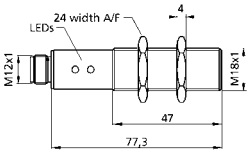
Maintenance

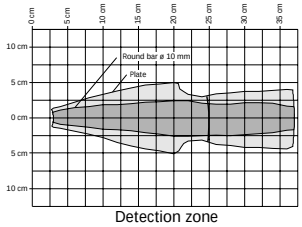
microsonic sensors are maintenance-free. With heavy dirt deposits, we recommend a cleaning of the white sensor surface.

Note

- The Ipc sensor has a blind zone, within which distance measurements are not possible.
- The Ipc sensor is equipped with an internal temperature compensation. Due to the sensor's self-heating, the temperature compensation reaches its optimum working point after approx. 30 minutes of operation.
- In the normal operating mode, an illuminated LED signals the corresponding switched output is swiched through.
- In the teach-in mode, the hystereses are reset to the factory setting.
- In the synchronous mode, an adjustment of the detect points is not possible.
- In the »Two-way reflective barrier« operating mode, the reflector is surrounded by a symmetrical window of ± 8 % of the distance value.
- If no signal is transmitted to the Sync/Com input for 30 seconds during the teach-in setting, the settings made hitherto are deleted.
- The sensor can be reset to its factory setting.

Technical data

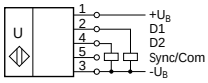




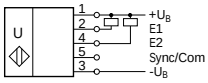
Detection zone

89/336/EEC

Blind zone	30 mm
Operating range	250 mm
Maximum range	350 mm
Angle of beam spread	See detection zone
Transducer frequency	320 kHz
Resolution, sampling rate	0,08 mm
Reproducibility	± 0,15 %
Accuracy	Temperature drift internal compensated, ≤ 2 % may be deactivated [1]
Operating voltage U_B	10 - 30 V DC, reverse polarity protection
Voltage ripple	±10 %
No-load current consumption	< 40 mA
Housing	Brass sleave, nickel-plated, plastic parts: PBT, ultrasonic transducer: polyurethane foam, epoxy resin with glass content
Class of protection to EN 60 529	IP 67
Type of connection	5-pin M12 initiator plug, brass, nickel-plated
Controls	Yes, Sync/Com input
Indicators	2 yellow LEDs
Programmable	Yes, LinkControl
Synchronization	Yes, internal
Operating temperature	-25°C to +70°C
Storage temperature	-40°C to +85°C
Weight	65 g
Switched output	2 x pnp, U_B-2 V 2 x npn, -U_B+2 V I_{max} = 2 x 200 mA switchable NOC/NCC, short-circuit-proof
Switching hysteresis [1]	2 mm
Switching frequency [1]	25 Hz
Response time [1]	24 ms
Time delay before availability	< 300 ms
Norm conformity	EN 60947-5-2
Order no.	**Ipc-25/CDD/M18** **Ipc-25/CEE/M18**



2 pnp switched outputs



2 npn switched outputs

[1] Can be programmed with LinkControl

Sensor adjustment with Teach-in procedure

Set detect point D1 | D2	Set window mode D1 | D2	Set two way reflective barrier D1 | D2	Set NOC/NCC for D1 | D2
Place object at position ①	Place object at position ①	Place reflector at position ①	
Connect Sync/Com for about 3 s to +U_B | -U_B[1] until both LEDs flash simultaneously	Connect Sync/Com for about 3 s to +U_B | -U_B[1] until both LEDs flash simultaneously	Connect Sync/Com for about 3 s to +U_B | -U_B[1] until both LEDs flash simultaneously	Connect Sync/Com for about 13 s to +U_B | -U_B[1] until both LEDs flash mutually
both LEDs: flash mutually	both LEDs: flash mutually	both LEDs: flash mutually	LED D1|D2[1]: *on*: NOC *off*: NCC LED D2|D1[1]: flashes
	Place object at ②		
Connect Sync/Com for about 1 s to +U_B | -U_B[1]	Connect Sync/Com for about 1 s to +U_B | -U_B[1]	Connect Sync/Com for about 10 s to +U_B | -U_B[1]	To change output characteristic connect Sync/Com for about 1 s to +U_B | -U_B[1]
			Wait for 10 s
Normal operating mode			

Set switched output D1 and D2

[1] To set up D1 connect Sync/Com with +U_B, LED D1 displays the state of the switched output.
To set up D2 connect Sync/Com with -U_B, LED D2 displays the state of the switched output.

Sync operation [2] on / off	Reset to factory setting
Switch off power supply	Switch off power supply
While Sync/Com is connected to -U_B switch on power supply	While Sync/Com is connected to -U_B switch on power supply
Keep Sync/Com connected to -U_B for about 3 s until both LEDs flash simultaneously	Keep Sync/Com connected to -U_B for about 13 s until both LEDs stop flashing
LED D1: flashes LED D2: *on*: Teach-in *off*: Sync operation	
To change between Sync/ Teach-in connect Sync/Com for about 1 s to -U_B	
Wait for 10 s	
Normal operating mode	

Further settings

[2] If sync operation is switched on, teach-in is switched off.

microsonic GmbH • Hauert 16 • D-44227 Dortmund • Tel: +49 2 31 / 97 51 51-0 • Fax: +49 2 31 / 97 51 51-51 • E-Mail: info@microsonic.de • www.microsonic.de
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