microsonic
Ultrasonic Sensors

Operating Instructions

Ipc-25/PK/CDD/M18E

Ultrasonic Proximity Switch with Two Switched Outputs

Product Description

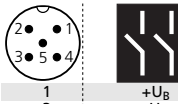
- The Ipc-25/PK/CDD/M18E sensor offers a non-contact measurement of the distance to an object which must be positioned within the sensor's detection zone. The switched outputs are set in dependence of the adjusted detect distances.
- The ultrasonic transducer surface of this sensor is laminated with a PEEK film. The transducer itself is sealed against the housing by a PTFE joint ring. This composition ensures a high resitance against many aggressive substances..
- 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.



		colour
1	$+U_B$	brown
3	$-U_B$	blue
4	D2	black
2	D1	white
5	Sync/Com.	grey

Fig. 1: Pin assignment with view onto sensor plug and colour coding of the microsonic connection cable

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.

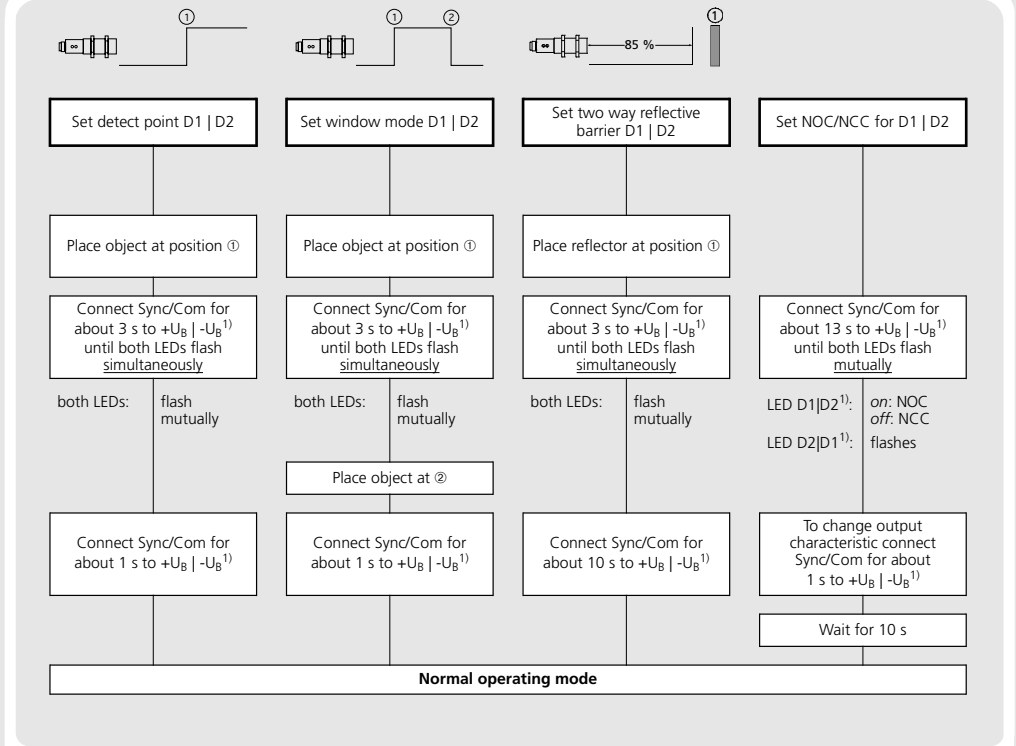
Maintenance

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

Note

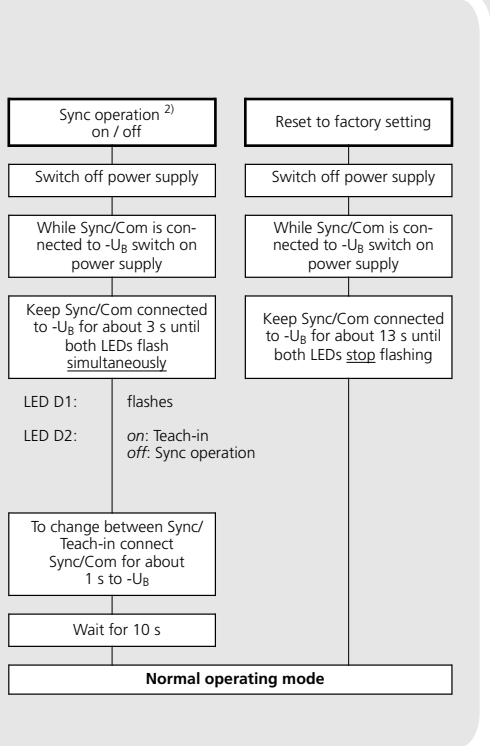
- As a result of the design the assembly of PEEK film and PTFE joint ring is not gas-proof.
- The chemical resistance has to be tested experimentally if necessary.
- The Ipc sensor has a blind zone, within which distance measurements are not possible.
- The Ipc sensor is equipped with an internal temperature 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 object has to be positioned within the range of 0-85% of the set distance.
- 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.

Sensor adjustment with Teach-in procedure



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.



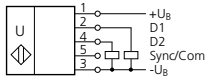
Further settings

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

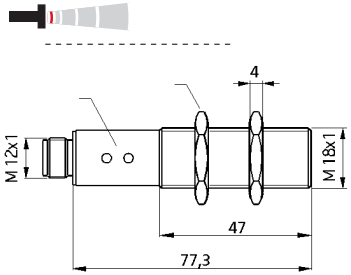
CE

2004/108/EEC

Technical data

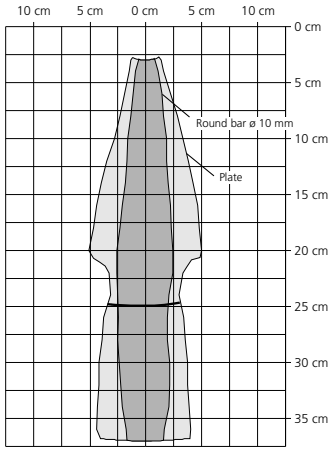


2 pnp switched outputs



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]

Detection zones
for different objects:
The dark grey areas are determind with a thin round bar (10 or 27 mm dia.) and indicate the typical operating range of a sensor. In order to obtain the light grey areas, a plate (500 x 500 mm) is introduced into the beam spread from the side. In doing so, the optimum angle between plate and sensor is always employed. This therefore indicates the maximum detection zone of the sensor. It is not possible to evaluate ultrasonic reflections outside this area.



Operating voltage U_B	10 – 30 V DC,reverse polarity protection
Voltage ripple	±10 %
No-load current consumption	< 40 mA
Housing	Stainless steel 1.4571; plastic parts: PBT;
	ultrasonic transducer : PEEK film, PTFE
Class of protection to EN 60 529	IP 67
Type of connection	5-pin M12 initiator plug, brass, nickel-plated
	Stainless steel 1.4571
Controls	Yes, Sync/Com input
Indicators	2 yellow LEDs
Programmable	Yes, LinkControl
Synchronization	Yes, internal
Operating temperature	-25°C bis +70°C
Storage temperature	-40°C bis +85°C
Weight	65 g
Switched output	2 x pnp, 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/PK/CDD/M18E**

[1] Can be programmed with LinkControl

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