



- 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 Setting

- Synchronous mode deactivated
- Switched output on NOC
- Detect point on operating range
- Rising analogue characteristic curve between the blind zone and the operating range

Operation

Three operating modes are available for the switched output:

- 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 switched output is switched through or that the object is positioned inside the

Operating Instructions

Ipc-25/CDI/M18
Ipc-25/CDU/M18

Ultrasonic Proximity Switch with Analogue Output and Switched Output

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. In dependence of the set window limits, a distance-proportional analogue signal is output and, in dependence of the detect point, the switched output is set. Via the Sync/Com input (pin 5), the window limits of the analogue output, the switched output and the operating mode can be adjusted (teach-in). Two LEDs indicate all states. With the LinkControl adapter, which is available as accessory, all sensor parameters can optionally be set via a PC.

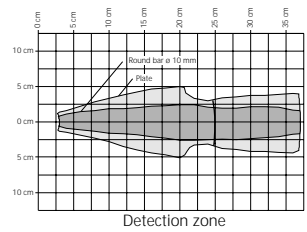
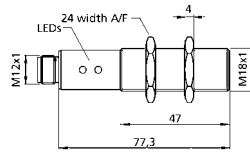
Safety Notes

- 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.

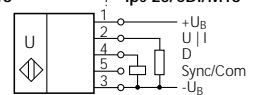
Installation

- Mount the sensor at the installation site.

Technical data



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 sleeve, 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	pnp, U _B -2 V, I _{max} = 200 mA switchable NOC/NCC, short-circuit-proof
Switching hysteresis ¹⁾	2 mm
Switching frequency ¹⁾	20 Hz
Analogue output	0 – 10 V R _L ≥ 100 kΩ at U _B ≥ 15 V, short-circuit-proof, falling/rising characteristic
	4 – 20 mA R _L ≤ 100 Ω at 10V ≤ U _B ≤ 20 V, falling/rising characteristic
Response time ¹⁾	24 ms
Time delay before availability	< 300 ms
Norm conformity	EN 60947-5-2
Order no.	Ipc-25/CDU/M18



¹⁾ Can be programmed with LinkControl

- range of the analogue window.
- In the teach-in mode, the hysteresis of the switched output is reset to the factory setting.
- In the synchronous mode, an adjustment via teach-in is not possible.
- In the »Two-way reflective barrier« operating mode, the reflector is sur-

- rounded 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.

Sensor adjustment with Teach-in procedure

<p>Normal operating mode</p> <p>Set analogue output</p>	<p>Normal operating mode</p> <p>Set switched output</p>	<p>Further settings</p>
<p>Set window margins</p> <p>Place object at position ①</p> <p>Connect Sync/Com for about 3 s to +U_B until both LEDs flash simultaneously</p> <p>both LEDs: flash mutually</p> <p>LED D1: on: rising off: falling</p> <p>LED D2: flashes</p> <p>Place object at position ②</p> <p>Connect Sync/Com for about 1 s to +U_B</p> <p>Wait for 10 s</p>	<p>Set rising/falling output characteristic curve</p> <p>Place object at position ①</p> <p>Connect Sync/Com for about 13 s to +U_B until both LEDs flash mutually</p> <p>both LEDs: flash mutually</p> <p>LED D1: on: rising off: falling</p> <p>LED D2: flashes</p> <p>Place object at position ②</p> <p>To change output characteristic connect Sync/Com for about 1 s to +U_B</p> <p>Wait for 10 s</p>	<p>Set detect point</p> <p>Place object at position ①</p> <p>Connect Sync/Com for about 3 s to -U_B until both LEDs flash simultaneously</p> <p>both LEDs: flash mutually</p> <p>LED D1: on: NOC off: NCC</p> <p>LED D2: flashes</p> <p>Place object at position ②</p> <p>Connect Sync/Com for about 1 s to -U_B</p> <p>Wait for 10 s</p>
<p>Set window mode</p> <p>Place object at position ①</p> <p>Connect Sync/Com for about 3 s to -U_B until both LEDs flash simultaneously</p> <p>both LEDs: flash mutually</p> <p>LED D1: on: NOC off: NCC</p> <p>LED D2: flashes</p> <p>Place object at position ②</p> <p>Connect Sync/Com for about 1 s to -U_B</p> <p>Wait for 10 s</p>	<p>Set two-way reflective barrier</p> <p>Place reflector at position ①</p> <p>Connect Sync/Com for about 3 s to -U_B until both LEDs flash simultaneously</p> <p>both LEDs: flash mutually</p> <p>LED D1: on: NOC off: NCC</p> <p>LED D2: flashes</p> <p>Place object at position ②</p> <p>Connect Sync/Com for about 1 s to -U_B</p> <p>Wait for 10 s</p>	<p>Set NOC / NCC</p> <p>Place object at position ①</p> <p>Connect Sync/Com for about 13 s to -U_B until both LEDs flash mutually</p> <p>both LEDs: flash mutually</p> <p>LED D1: on: NOC off: NCC</p> <p>LED D2: flashes</p> <p>Place object at position ②</p> <p>Connect Sync/Com for about 1 s to -U_B</p> <p>Wait for 10 s</p>
<p>Sync operation ¹⁾ on / off</p> <p>Switch off power supply</p> <p>While Sync/Com is connected to -U_B switch on power supply</p> <p>Keep Sync/Com connected to -U_B for about 3 s until both LEDs flash simultaneously</p> <p>LED D1: flashes</p> <p>LED D2: on: Teach-in off: Sync operation</p> <p>To change between Sync/Teach-in connect Sync/Com for about 1 s to -U_B</p> <p>Wait for 10 s</p>	<p>Zur Reset to factory setting</p> <p>Switch off power supply</p> <p>While Sync/Com is connected to -U_B switch on power supply</p> <p>Keep Sync/Com connected to -U_B for about 3 s until both LEDs stop flashing</p> <p>LED D1: flashes</p> <p>LED D2: on: Teach-in off: Sync operation</p> <p>To change between Sync/Teach-in connect Sync/Com for about 1 s to -U_B</p> <p>Wait for 10 s</p>	<p>¹⁾ If sync operation is switched on, teach-in is switched off.</p>