microsonic
Ultrasonic Sensors

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 Syn/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.
- 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.

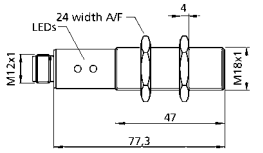
Maintenance

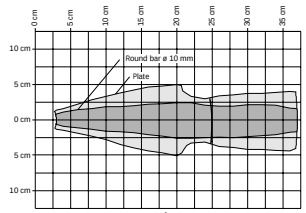
microsonic sensors are maintenance-free. With heavy dirt deposits, we recommend a cleaning of the white sensor surface.

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 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 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

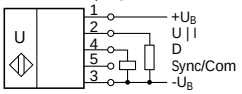




Detection zone

89/336/EEC

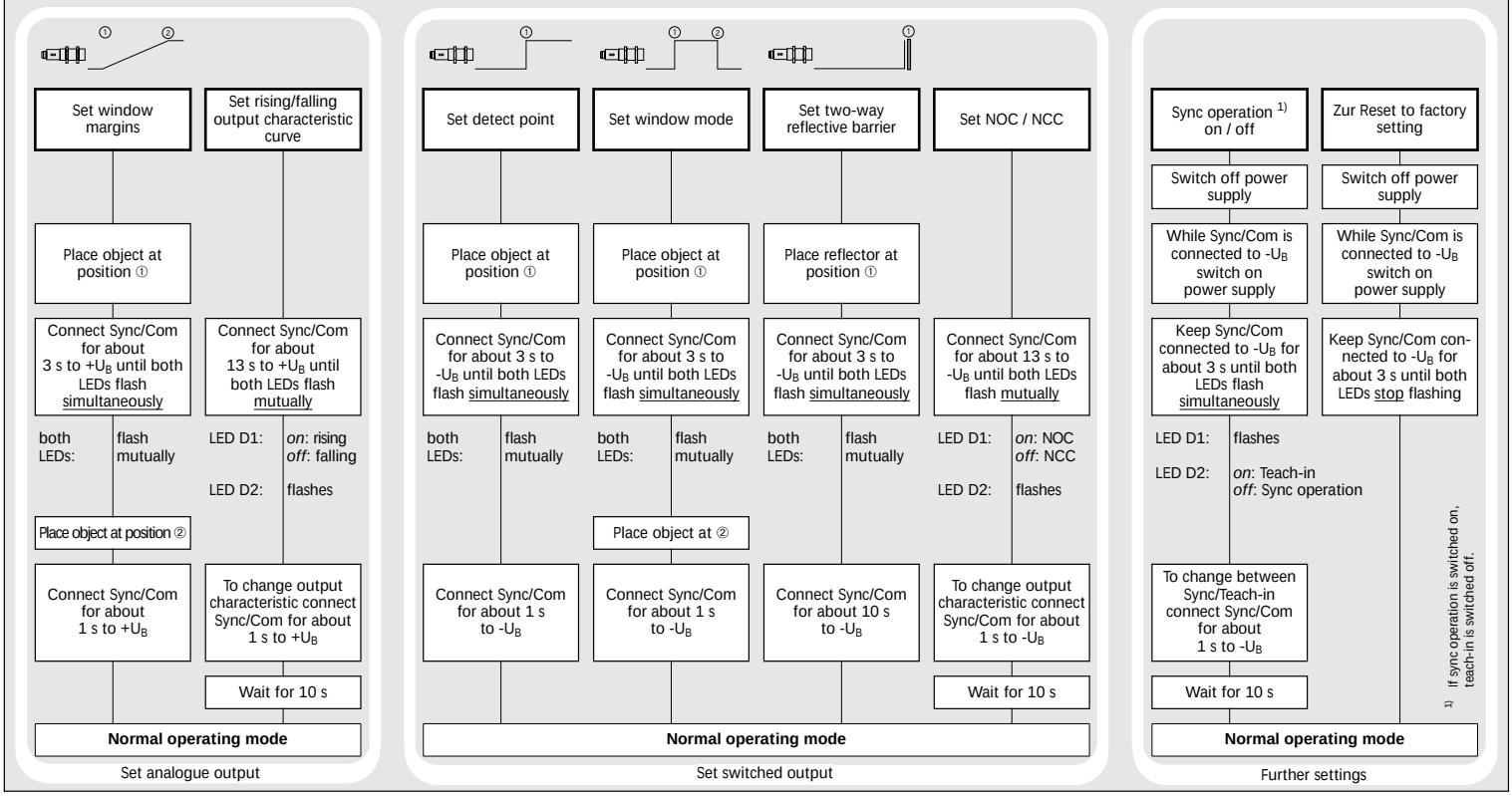
Blind zone	30 mm	
Operating range	250 mm	
Maximum range	350 mm	
Angle of beam spread	See detection zone	
Transducer frequency	320 kHz	
Resolution, sampling rate	0,08 mm	
Reproducibility	± 0,15 %	
Accuracy	Temperature drift internal compensated, ≤ 2 % may be deactivated [1]	
Operating voltage U_B	10 – 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	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	4 – 20 mA
	$R_L \geq 100\ k\Omega$ at $U_B \geq 15$ V, short-circuit-proof, falling/rising characteristic	$R_L \leq 100\ \Omega$ at $10\ V \leq U_B \leq 20$ V, $R_L \leq 500\ \Omega$ at $U_B \geq 20$ 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**	**Ipc-25/CDI/M18**



1 pnp switched output + analogue output

[1] Can be programmed with LinkControl

Sensor adjustment with Teach-in procedure



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