microsonic Ics+340/F/A Ultrasonic Proximity Switch with One Switching Output And IO-Link User Manual

microsonic
IO-Link

Ics+340/F/A Ultrasonic Proximity Switch with One Switching Output And IO-Link User Manual

Operating manual
Ultrasonic proximity switch with one switching output and IO-Link
Ics+340/F/A
Ics+600/F/A

Contents

Product Description

The Ics+ sensor offers a non-contact measurement of the distance to an object which must be positioned within the sensor's detection zone.
The switching output is set conditional upon the adjusted detect distance. Via the Teach-in procedure, the detect distance and operating mode can be adjusted. One LED indicates operation and the state of the switching output. The Ics+ sensors are IO-Link-capable in accordance with IO-Link specification V1.1 and support Smart Sensor Profile like Digital Measuring Sensor.

Safety Notes

- Read the operating manual prior to start-up.
- Connection, installation and adjustments may only be carried out by qualified staff.
- No safety component in accordance with the EU Machine Directive, use in the area of personal and machine protection not permitted.

Proper Use

Ics+ ultrasonic sensors are used for non-contact detection of objects.

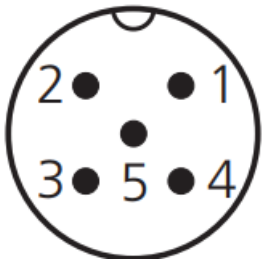
		colour
1	+UB	brown
3	–UB	blue
4	F	black
2	–	white
5	Sync/Com	grey

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

Installation

- Mount the sensor at the place of fitting.
- Connect a connection cable to the M12 device plug, see Fig. 1.

Start-up

- Connect the power supply.
- Set the parameters of the sensor, see Diagram 1.

Factory setting

- Switching output on NOC
- Detect distance at operating range

Operating Modes
Three operating modes are available for the switching output:

- Operation with one switching point

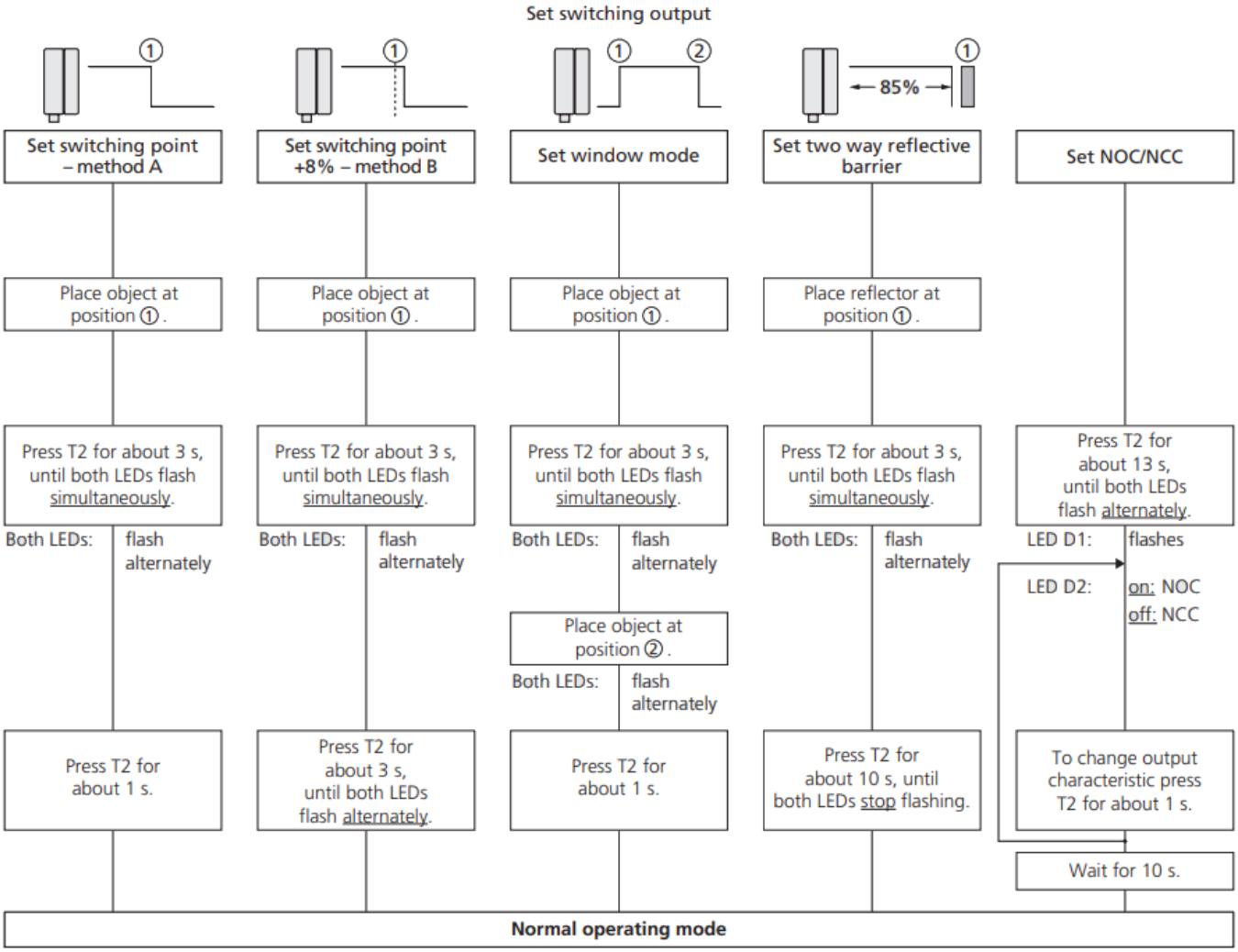
  The switching output is set when the object falls below the set switching point.
- Window mode

  The switching output is set when the object is within the window limits.
- Two-way reflective barrier

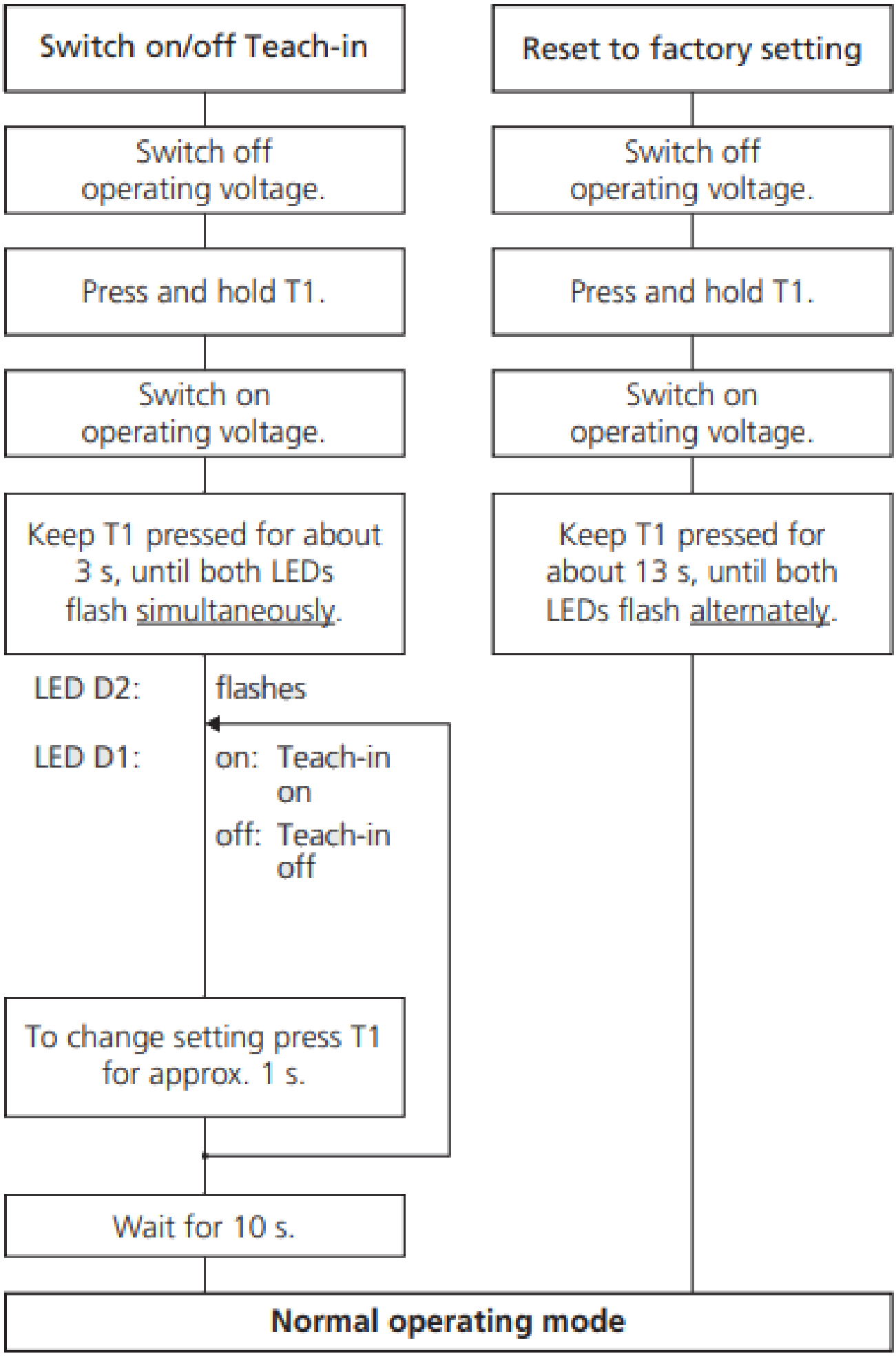
  The switching output is set when the object is between sensor and fixed reflector.

		
lcs+340…	≥2.00 m	≥18.00 m
lcs+600…	≥4.00 m	≥30.00 m

Fig. 2: Minimal assembly distances without synchronisation
Diagram 1: Set sensor parameters via Teach-in procedure


Set switching output
①
Set switching point – method A
Place object at position ①.
Press T2 for about 3 s, until both LEDs flash simultaneously.
Both LEDs: flash alternately
Press T2 for about 1 s.
①
Set switching point +8% – method B
Place object at position ①.
Press T2 for about 3 s, until both LEDs flash simultaneously.
Both LEDs: flash alternately
Press T2 for about 3 s, until both LEDs flash alternately.
① ②
Set window mode
Place object at position ①.
Press T2 for about 3 s, until both LEDs flash simultaneously.
Both LEDs: flash alternately
Place object at position ②.
Both LEDs: flash alternately
Press T2 for about 1 s.
①
85%
Set two way reflective barrier
Place reflector at position ①.
Press T2 for about 3 s, until both LEDs flash simultaneously.
Both LEDs: flash alternately
Press T2 for about 10 s, until both LEDs stop flashing.
Set NOC/NCC
Press T2 for about 13 s, until both LEDs flash alternately.
LED D1: flashes
LED D2: on: NOC
off: NCC
To change output characteristic press T2 for about 1 s.
Wait for 10 s.
Normal operating mode

Further settings

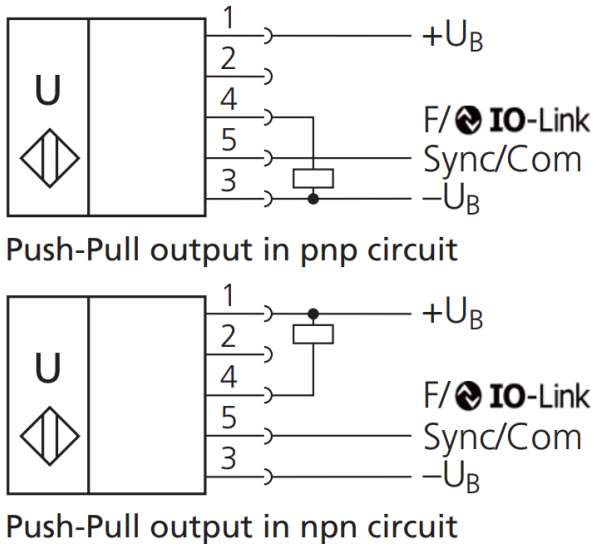
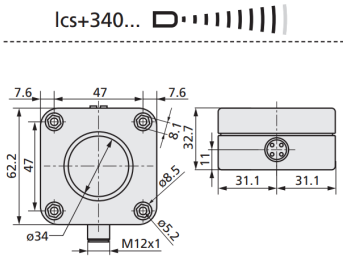
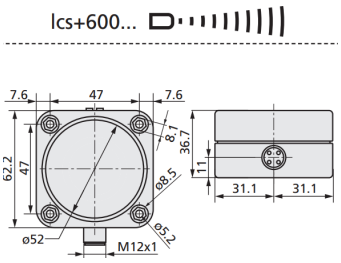


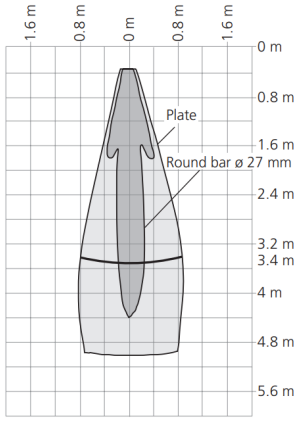
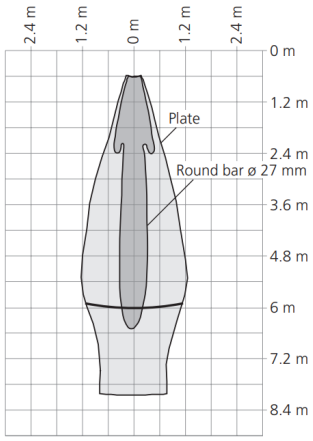
Synchronisation
If the assembly distance of multiple sensors falls below the values shown in Fig. 2, the internal synchronisation should be used. For this purpose set the switching outputs of all sensors in accordance with Diagram 1. Finally interconnect each pin 5 of the sensors to be synchronised.
Maintenance
microsonic sensors are maintenancefree. In case of excess caked-on dirt we recommend to clean the white sensor surface.

Notes

- The sensors of the lcs+ family have a blind zone, within which a distance measurement is not possible.
- The lcs+ sensors are equipped with an internal temperature compensation. Due to the sensors self heating, the temperature compensation reaches its optimum workingpoint after approx. 30 minutes of operation.
- In the normal operating mode, an illuminated yellow LED signals that the switching output is switched through.
- The lcs+ sensors have a push-pull switching output.
- In the »Two-way reflective barrier« operating mode, the object has to be within the range of 0-85 % of the set distance.
- In the »Set detect point – method A« Teach-in procedure the actual distance to the object is taught to the sensor as the detect point. If the object moves towards the sensor (e.g. with level control) then the taught distance is the level at which the sensor has to switch the output.
- If the object to be scanned moves into the detection area from the side, the »Set detect point +8 % – method B« Teach-in procedure should be used. In this way the switching distance is set 8 % further than the actual measured distance to the object. This ensures a reliable switching distance even if the height of the objects varies slightly.

Technical data

		
blind zone	0 to 350 mm	0 to 600 mm
operating range	3,400 mm	6,000 mm
maximum range	5,000 mm	8,000 mm
angle of beam spread	see detection zones	see detection zones
transducer frequency	120 kHz	80 kHz

resolution	0.18 mm	0.18 mm
reproducibility	±0.15 %	±0.15 %
detection zones for different objects: The dark grey areas represent the zone where it is easy to recognise th e normal reflector (round bar). This indicates the ty pical operating range of the sensors. The light gre y areas represent the zone where a very large ref lector–for instance a plate – can still be recognised. The req uirement here is for an optimum alignment to the s ensor. It is not possible to evaluate ultrasonic refle ctions outside this area.		
accuracy	±1 % (temperature drift inter nally compensated; can be deactivated 1) , 0,17 %/K without compensation)	±1 % (temperature drift inte rnally compensated; can be deactivated 1) , 0,1 7 %/K without compensatio n)
operating voltage UB	9 to 30 V DC, reverse polari ty protection	9 to 30 V DC, reverse polari ty protection
voltage ripple	±10 %	±10 %
no-load current consumption	≤60 mA	≤60 mA
housing	PBT, Polyester; ultrasonic tr ansducer: polyurethane foam, epoxy r esin with glass content	PBT, Polyester; ultrasonic tr ansducer: polyurethane foam, epoxy r esin with glass content
class of protection per EN 60529	IP 67	IP 67
type of connection	5-pin M12 circular plug, PBT	5-pin M12 circular plug, PB T
controls	2 push-buttons	2 push-buttons
programmable	Teach-in via push-buttons LCA-2 with LinkControl, IO-Link	Teach-in via push-buttons LCA-2 with LinkControl; IO-Link
indicators	2 LEDs yellow/green (switching output set/not set)	2 LEDs yellow/green (switching output set/not set)
synchronisation	internal synchronisation up t o 10 sensors	internal synchronisation up t o 10 sensors
operating temperature	–25 to +70 °C	–25 to +70 °C
storage temperature	–40 to +85 °C	–40 to +85 °C
weight	180 g	240 g
switching hysteresis1)	50 mm	100 mm

switching frequency1)	4 Hz	3 Hz
response time1)	172 ms	240 ms
time delay before availability1)	<380 ms	<450 ms
norm conformity	EN 60947-5-2	EN 60947-5-2
order no.	lcs+340/F/A	lcs+340/F/A
switching output		

1) Can be programmed via LinkControl and IO-Link.

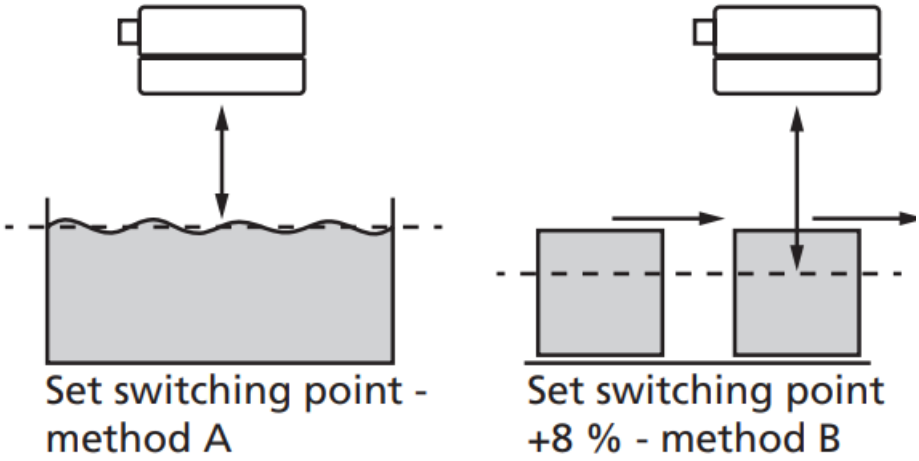


Fig. 3: Setting the detect point for different directions of movement of the object

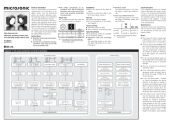
- The sensor can be reset to its factory setting (see »Further settings«).
- Using the LinkControl adapter (optional accessory) and the LinkControl software for Windows® , all Teach-in and additional sensor parameter settings can be optionally undertaken.
- The latest IODD file and informations about start-up and confituration of lcs+ sensors with IO-Link, you will find online at: **www.microsonic.de/lcs+**.
- For further informations on IO-Link see **www.io-link.com**.

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

2014/30/EU

MV-DO-198383-785219

Documents / Resources

	microsonic Ics+340/F/A Ultrasonic Proximity Switch with One Switching Output And IO-Link [pdf] User Manual Ics 340 F A Ultrasonic Proximity Switch with One Switching Output And IO-Link, Ics 340 F A, Ultrasonic Proximity Switch with One Switching Output And IO-Link, Switching Output And IO-Link, Output And IO-Link

References

- sonic: sonic
- IO-Link