



## IO-Link inductive proximity sensors

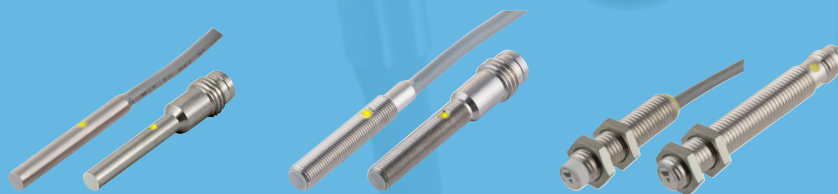
# Sensors

# IBS/ICS series

## IO-Link inductive miniature proximity sensors

The IBS and ICS series offer the ideal solution for industrial automation equipment in applications where space is limited, including tool selection, textile machines, and control of micro-mechanisms.

The advanced electronics is enclosed in a compact, robust stainless steel housing. The extended sensing range, together with the integrated short-circuit, reverse polarity and transients protection makes this sensor extremely reliable. Thanks to the on-board IO-Link communication, many combinations of functions are now available from output configurations to customized sensing distance and advanced sensing modes. The IBS04 and ICS05 are also characterized by a very high switching frequency up to 6 kHz for applications where fast detection is a must.



## Highly accurate sensing performance in a compact design

The IBS and ICS series are among the smallest inductive sensors with on-board IO-Link communication available on the market. Each device can be easily configured by setting the internal parameters via an IO-Link master.

### The range includes

- $\varnothing 4$ , M5 and M8 stainless steel housings
- Sensing distance from 0.8 mm up to 4 mm
- Flush or non-flush versions
- M8-plug or cable versions
- Advanced diagnostic functions with indication of short-circuit and overload

### Fully configurable via IO-Link v1.1

- Configurable output: NO, NC, PNP, NPN, push-pull
- Adjustable switching distance: 62% (50% for ICS08), and 100% of the maximum sensing distance
- Adjustable hysteresis: standard and extended
- Single point, two-point or window mode
- Timer functions: Turn On delay and Turn Off delay
- Temperature alarms

### Rotational speed monitoring

By setting the sensor in frequency detection and window mode it is possible to check overspeed and underspeed conditions of a cycling mechanism.

### RPM counter

The divider function allows the user to set how many activations are needed to change the output.

By setting this value equal to the number of teeth of a gear, the inductive sensor becomes an RPM counter.

### Easy mechanical customization to specific OEM requests

Different cable lengths and materials, customized labelling and pig-tail solutions with special cables and connectors are possible on request.



# ICB series

## IO-Link inductive proximity sensors



Proximity sensors play a leading role in Industry 4.0 since they are positioned down to the application level. Carlo Gavazzi has taken the decision to have IO-Link as a standard in all sensor platforms.

IO-link has been recognized as the official standard interface for sensors and actuators in industrial automation applications such as packaging, materials handling and machine tools.

It allows easy exchange of process data, remote configurations and events on the simple and inexpensive 3-wire cabling, without needing to change the existing architecture.

The ICB series can be completely configured to enable new functionalities such as the divider and speed control functions.

Every sensor is now fully configurable and allows thousands of configurations in one single device.



## A complete range from M12 to M30

The ICB series is a complete range of high performance inductive sensors for contactless and wear free detection of metallic objects in industrial automation with an IO-Link interface.

### The range includes

- M12, M18 and M30 long or short barrel nickel-plated brass housings
- Sensing distance from 4 mm up to 22 mm
- Flush or non-flush
- M12-plug or 2 metre cable
- Dual LED user interface for advanced diagnostics

### Fully configurable via IO-Link v1.1

- Configurable output: NO, NC, PNP, NPN, push-pull
- Adjustable switching distance: 33%, 50%, 75% and 100% of the maximum  $S_n$
- Adjustable hysteresis: standard and extended
- Single point, two-point or window mode
- Timer functions: Turn On delay and Turn Off delay
- Temperature alarms

### Rotational speed monitoring

By setting the sensor in frequency detection and window mode it is possible to check overspeed and underspeed conditions of a cycling mechanism.

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### Easy mechanical customization to specific OEM requests

Different cable lengths and materials, customized labelling and pig-tail solutions with special cables and connectors are possible on request.



# IBS/ICS series

## IO-Link inductive miniature proximity sensors

### IBS 04 series (3-wire DC)

Housing dimension	Ø4
Material	Stainless steel housing
Rated operational voltage	10-30 VDC
Switching frequency	≤ 6000 Hz with Sn 0.8 mm
Rated operating distance, Sn	Adjustable 0.8 / 1.3 mm
Installation type	Flush
Barrel	Short

#### IO-Link types

Cable	Configurable	<b>IBS04SF15A2IO</b>
M8 - Plug	Configurable	<b>IBS04SF15M5IO</b>

### ICS 05 series (3-wire DC)

Housing dimension	M5
Material	Stainless steel housing
Rated operational voltage	10-30 VDC
Switching frequency	≤ 6000 Hz with Sn 0.8 mm
Rated operating distance, Sn	Adjustable 0.8 / 1.3 mm
Installation type	Flush
Barrel	Short

#### IO-Link types

Cable	Configurable	<b>ICS05S23F15A2IO</b>
M8 - Plug	Configurable	<b>ICS05S23F15M5IO</b>

### ICS 08 series (3-wire DC)

Housing dimension	M8			
Material	Stainless steel housing			
Rated operational voltage	10-30 VDC			
Switching frequency	≤ 2000 Hz			
Rated operating distance, Sn	Adjustable 1 / 2 mm	Adjustable 2 / 4 mm		
Installation type	Flush	Non-flush		
Barrel	Short	Long	Short	Long

#### IO-Link types

Cable	Configurable	<b>ICS08S30F20A2IO</b>	<b>ICS08L45F20A2IO</b>	<b>ICS08S30N40A2IO</b>	<b>ICS08L45N40A2IO</b>
M8 - Plug	Configurable	<b>ICS08S30F20M5IO</b>	<b>ICS08L45F20M5IO</b>	<b>ICS08S30N40M5IO</b>	<b>ICS08L45N40M5IO</b>



#### Information:

Rated operating distance can be set to 62% (50% for ICS08) or 100% of the maximum sensing distance. Electrical outputs can be configured as PNP/NPN/Push-pull, normally open or normally closed.

# ICB series

## IO-Link inductive proximity sensors



### ICB12 series (3-wire DC)

Housing dimension	M12			
Material	Nickel-plated brass housing			
Rated operational voltage	10-36 VDC			
Switching frequency	≤ 2000 Hz			
Rated operating distance, Sn	Adjustable 1.3 / 2 / 3 / 4 mm		Adjustable 2.6 / 4 / 6 / 8 mm	
Installation type	Flush		Non-flush	
Barrel	Short	Long	Short	Long

#### IO-Link types

Cable	Configurable	<a href="#">ICB12S30F04A2IO</a>	<a href="#">ICB12L50F04A2IO</a>	<a href="#">ICB12S30N08A2IO</a>	<a href="#">ICB12L50N08A2IO</a>
M12 - Plug	Configurable	<a href="#">ICB12S30F04M1IO</a>	<a href="#">ICB12L50F04M1IO</a>	<a href="#">ICB12S30N08M1IO</a>	<a href="#">ICB12L50N08M1IO</a>

### ICB18 series (3-wire DC)

Housing dimension	M18			
Material	Nickel-plated brass housing			
Rated operational voltage	10-36 VDC			
Switching frequency	≤ 1500 Hz			
Rated operating distance, Sn	Adjustable 2.6 / 4 / 6 / 8 mm		Adjustable 4.6 / 7 / 10.5 / 14 mm	
Installation type	Flush		Non-flush	
Barrel	Short	Long	Short	Long

#### IO-Link types

Cable	Configurable	<a href="#">ICB18S30F08A2IO</a>	<a href="#">ICB18L50F08A2IO</a>	<a href="#">ICB18S30N14A2IO</a>	<a href="#">ICB18L50N14A2IO</a>
M12 - Plug	Configurable	<a href="#">ICB18S30F08M1IO</a>	<a href="#">ICB18L50F08M1IO</a>	<a href="#">ICB18S30N14M1IO</a>	<a href="#">ICB18L50N14M1IO</a>

### ICB30 series (3-wire DC)

Housing dimension	M30			
Material	Nickel-plated brass housing			
Rated operational voltage	10-36 VDC			
Switching frequency	≤ 1000 Hz			
Rated operating distance, Sn	Adjustable 4.9 / 7.5 / 11.2 / 15 mm		Adjustable 7.3 / 11 / 16.5 / 22 mm	
Installation type	Flush		Non-flush	
Barrel	Short	Long	Short	Long

#### IO-Link types

Cable	Configurable	<a href="#">ICB30S30F15A2IO</a>	<a href="#">ICB30L50F15A2IO</a>	<a href="#">ICB30S30N22A2IO</a>	<a href="#">ICB30L50N22A2IO</a>
M12 - Plug	Configurable	<a href="#">ICB30S30F15M1IO</a>	<a href="#">ICB30L50F15M1IO</a>	<a href="#">ICB30S30N22M1IO</a>	<a href="#">ICB30L50N22M1IO</a>



#### Information:

Rated operating distance can be set to 33%, 50%, 75% or 100% of the maximum sensing distance. Electrical outputs can be configured as PNP/NPN/Push-pull, normally open or normally closed.

# IBS/ICS/ICB series

## IO-Link inductive proximity sensors

### Timer functions:

- Turn ON delay
- Turn OFF delay
- Turn ON and OFF delay



### Adjustable settings:

- Sensing distance
- Hysteresis



### Switchpoint mode:

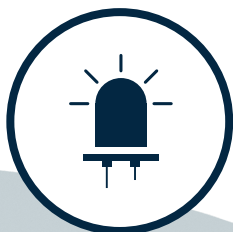
- Single point
- Two point
- Window



RPM counter







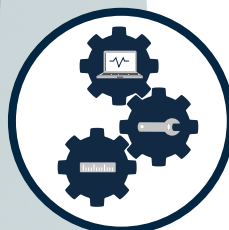
LED indication:

- Short circuit
- Overload
- Temperature alarm



Diagnostic functions:

- Underrun and overrun temperature events
- Frequency monitoring



Configurable output:

- NO, NC
- PNP, NPN
- Push-pull



Plug & play:

Automatic device reconfiguration  
in case of sensor replacement



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