INDUCTIVE RING AND TUBE SENSORS

di-soric

INDUCTIVE
RING SENSORS, TUBE SENSORS, AND WIRE-BREAK SENSORS

Ring sensors for reliably detecting objects of all sizes

Our inductive ring sensors detect the smallest metallic parts that are conveyed in supply tubes for further processing. With its flawless shielding of the magnetic field, the IRSD series is particularly suitable for narrow spaces in a metallic environment or in environments where several sensors are installed adjacent to one another. The IRB series, on the other hand, is particularly well suited for easily detectable objects.

We have a reliable and practical solution for any application.

IRSD ring sensors – Greatest flexibility

The new generation of inductive ring sensors can be optimally adjusted to applications via IO-Link. They feature impressive multi-functionality. They make it possible to choose between NO/NC, static and dynamic switching principle, differential mode (push-pull), pnp and npn in a targeted manner.

IRB ring sensors – Maximal simplicity

The IRB series impresses with its simple plug-and-play handling. The sensors come preset from production and are protected against manipulation.
Simple applications can be implemented with the sensors from the IRB series.

Inductive ring sensors

Tube sensors for flexible assembly on tubes and pipes with different diameters

Tube sensors detect metallic objects in tubes, e.g. for accumulation monitoring and part counting, in a simple manner. Their conventional fastening method with cable ties allows the sensors to be assembled easily and their compact, robust design also makes them suited for use in harsh environments.

Wire-break sensors with high resolution for the finest wires

Our wire-break sensors were developed to inspect wires for breakage points.
With their very high resolution, they can detect wire breakages of the finest wires.

IS tube sensors

Tube sensors are perfectly suited for flexible assembly. Their tasks are detecting parts and part counting.

IRDB wire-break sensors

With the IRDB series, wires are inspected for breakage points. Thanks to their very high resolution, they can detect wire breakages of the finest wires.

INDUCTIVE RING SENSORS
IRSD

Reliable detection of the smallest metallic objects in automated production

Our inductive ring sensors detect the smallest metallic parts that are conveyed in supply tubes for further processing. With IO-Link, the sensors can be adjusted individually to applications or various objects.

In the case of parts that are fed very quickly, the integrated pulse stretching generates an output signal that can be easily analyzed. All devices from di-soric are reliably protected against overload, short-circuit and polarity reversal.

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IO-Link

Highlights

- Flexible integration thanks to a compact design and minimal assembly distances
- Flexible adjustment on the device, remotely via IO-Link or via its digital input
- Optimal adaptation for process-reliable operation
- Suited for use in harsh environments thanks to robust housing and high IP protection type
- Integration of sensors in the smallest spaces
- Small inventory through a reduction in variants
- Extended information on the machine process via IO-Link

Features

- High resolution
- Static or dynamic operating principle can be set
- Pulse stretching adjustable
- NO/NC can be set
- PP/PNP/NPN switchable
- Short response time
- Intelligent teach-in process
- Remote Teach via IO-Link or pin 2
- Extended diagnostic function via IO-Link
- 2 switchable working frequencies
- High IP67 protection type
- M12 connection technology ideal for industrial applications

Supportive, smart IO-Link functions

Diagnostic function stability	Shows when object detection is impaired, for example due to soiling. After cleaning and once sufficient functional reliability is established, the status bit is reset.
Working frequency switching	This function prevents mutual influencing of sensors assembled directly adjacent to one another.
Autoteach / Intelliteach	This function is available for teaching in falling or quickly passing objects. It enables the automatic teach-in of objects and the intelligent concealment of environmental conditions.
Highest degree of flexibility during integration	Through a variety of setting options such as switching of NO/NC or static and dynamic, the sensors can be set perfectly to the most diverse applications.

Large variety for a large number of applications: 16 variants in 8 sizes

8 sizes with the detection ranges from a minimum of 6 mm to a maximum of 50 mm ensure that the IRSD can find their place in any ring sensor application. All sizes have IO-Link and are available with or without potentiometer.

IRSD with IO-Link, with / without potentiometer

Size	Detection range	Ø dynamic resolution	Ø static resolution
IRSD-6	Ø 6 mm	0.5 mm	1.0 mm
IRSD-10	Ø 10 mm	0.6 mm	1.5 mm
IRSD-15	Ø 15 mm	0.8 mm	2.0 mm
IRSD-20	Ø 20 mm	1.0 mm	2.5 mm
IRSD-25	Ø 25 mm	1.2 mm	3.0 mm
IRSD-30	Ø 30 mm	1.8 mm	4.0 mm
IRSD-35	Ø 35 mm	2.0 mm	4.5 mm
IRSD-50	Ø 50 mm	2.5 mm	6.0 mm

IRSD
APPLICATION EXAMPLES

Assembly and handling technology

The highest process reliability with high resolution in the supply of springs

Classic sensors meet their limits in marginal applications of supply technology.

With its high resolution, the IRSD even detects low-mass objects with process reliability.
Being firmly fixed on the tube, the objects are always detected at the correct position.

Inductive ring sensor
IRSD-6-G3-B4

Assembly and handling technology

Error-free assembly through reliable setting

A manual adjustment of sensors at manual work places always carries a residual risk.

As an alternative, at manual work places with small lot quantities, the IRSD sensors can be flexibly set to new formats via IO-Link.

The assembler can concentrate completely on his assembly steps – without having to check whether they are using the right screws.

Inductive ring sensor
IRSD-15P-G3-B4

Assembly and handling technology

Complete control and small assembly distances across larger distances

Often in automated assembly, metallic components in various formats are screwed, riveted, or welded together.

They are supplied from a central warehouse directly to the assembly site through tubes over large distances.

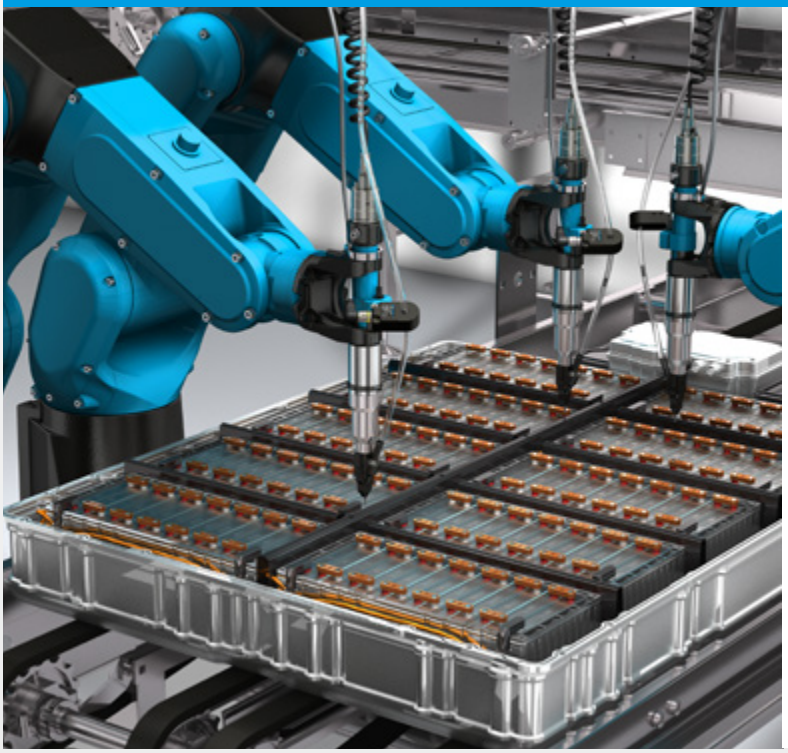
Due to the their different working frequencies, the sensors from the IRSD series can be installed directly adjacent to one another without mutually influencing each other. Through IO-Link, they can be configured and controlled by the control system.

Inductive ring sensor

IRSD-25-G3-B4

Assembly and handling technology

Best-suited for use in harsh environments



Best suited for robotic applications:

Sensors from the IRSD series are robust and can be safely assembled on any robot, without sliding or being impeded by quick motions.

The sensors can also be checked via IO-Link or reconfigured.

Inductive ring sensor

IRSD-30-G3-B4

INDUCTIVE RING SENSORS
IRB STANDARD

Simple integration and reliable detection

The inductive ring sensors of the IRB Standard series in the sizes Ø 10.1 mm to 27 mm detect the smallest metallic parts. They can be put into service quickly and have no adjusting elements. These sensors work according to the static operating principle and exhibit a short response time.

Features

- High IP protection type
- Short response time
- No teaching necessary
- M12 connection technology ideal for industrial applications

Highlights

- May be used in harsh environments
- Fixed and simple commissioning
- Resistant to dirt
- High IP67 protection type
- Protected against manipulation

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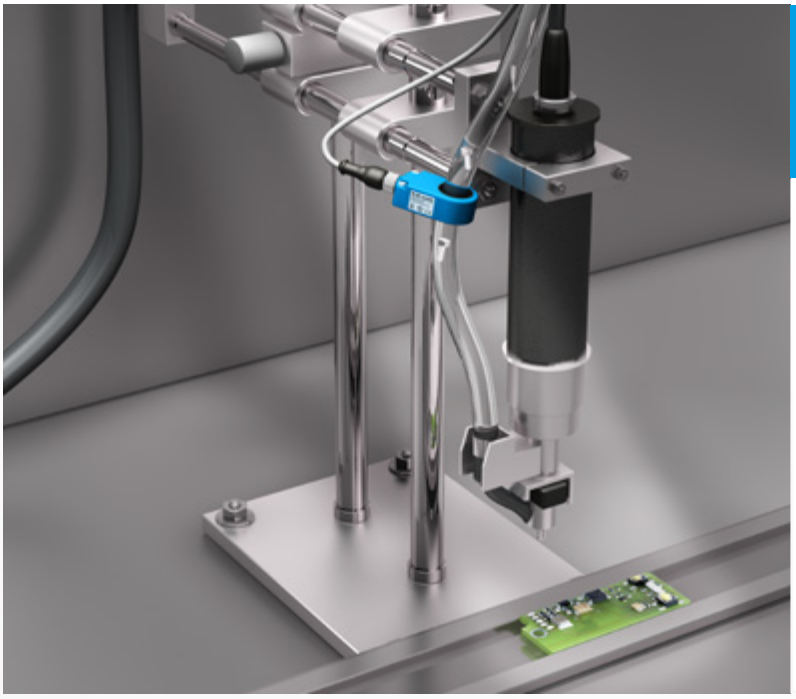
IRB STANDARD
APPLICATION EXAMPLES



Electronics industry

Plug and play with our IRB Standard

Best suited for simple applications:
The IRB series distinguishes itself through very simple integration and fast commissioning. Since the sensors function without potentiometers, they are protected against manipulation.

Inductive ring sensor
IRB 27 PS-B3

Assembly and handling technology

Versatile use and robust

Sensors from the IRB series come pre-calibrated from the factory and may be exchanged very easily as needed.

Inductive ring sensor
IRB 10 PS-B3

IRB Standard

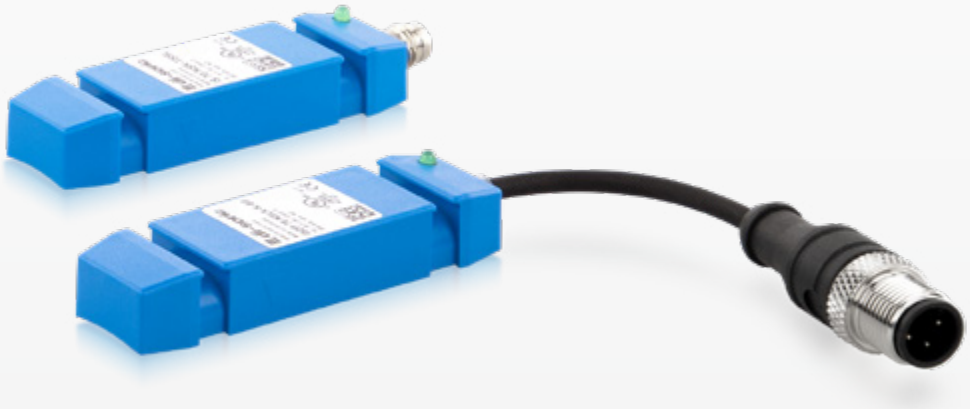
Size	Detection range	Switching output	Ø static resolution
IRB 10	Ø 10 mm	npn / pnp	2.0 mm
IRB 15	Ø 15 mm	npn / pnp	2.5 mm
IRB 20	Ø 20 mm	npn / pnp	3.0 mm
IRB 27	Ø 27 mm	pnp	5.0 mm

INDUCTIVE TUBE SENSORS
IS AND ISDP

For simple detection and counting of objects in tubes

Tube sensors are perfectly suited for flexible assembly. Their tasks are detecting parts and part counting. The static and dynamic evaluation principle enables simple accumulation monitoring to be implemented.

The compact sensors can be adapted quickly to various tube cross-sections – without disassembly of the supply tube thanks to their conventional fastening system.



Highlights

- Simple integration
- Flexible assembly on tubes with different diameters
- Protected against manipulation
- Resistant to dirt

Features

- High resolution
- Static or dynamic operating principle
- High IP67 protection type
- Short response time
- Connection technology ideal for industrial applications
- With M8 plug or cable with M12 plug connector
- Simple fastening concept
- Low weight

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IS / ISDP
APPLICATION EXAMPLE

Assembly and handling technology
Flexible assembly and detection of simple objects

Sensors from the IS series can be assembled very simply and flexibly on tubes with different diameters.

They come calibrated from the factory and are suited to the detection of simple metallic objects.

Tube sensor
IS 70 PSK-TSSL

Tube sensors

Size	Switching distance	Switching output	Connection
IS with static evaluation			
IS 70	14.0 mm	npn / pnp, NO	Connector, M8, 3-pin
IS 70	14.0 mm	npn / pnp, NO	Connector, 0.04 m, M12, 3-pin
ISDP with dynamic evaluation			
ISDP 70	14.0 mm	npn / pnp, NO	Connector, M8, 3-pin
ISDP 70	14.0 mm	npn / pnp, NO	Connector, 0.04 m, M12, 3-pin

INDUCTIVE WIRE-BREAK SENSORS
IRDB AND IRDBD

Safe detection of the smallest parts and wire breakages

The inductive wire-break sensors of the IRDB and IRDBD series are used for detecting wire breaks. The sensors are available in the sizes Ø 4 mm and 6 mm. They can be commissioned quickly and can be regulated via their 3 potentiometers. These sensors work according to the static or dynamic operating principle and exhibit a short response time.

Highlights

- Detection of the smallest objects
- Extended maintenance intervals due to durable materials
- Flexible integration
- Suited for use in harsh environments

Features

- Very high resolution
- Static or dynamic operating principle
- Pulse stretching adjustable
- NO/NC can be set
- High IP67 protection type
- Wear-resistant ceramic insert
- Short response time
- M12 connection technology ideal for industrial applications

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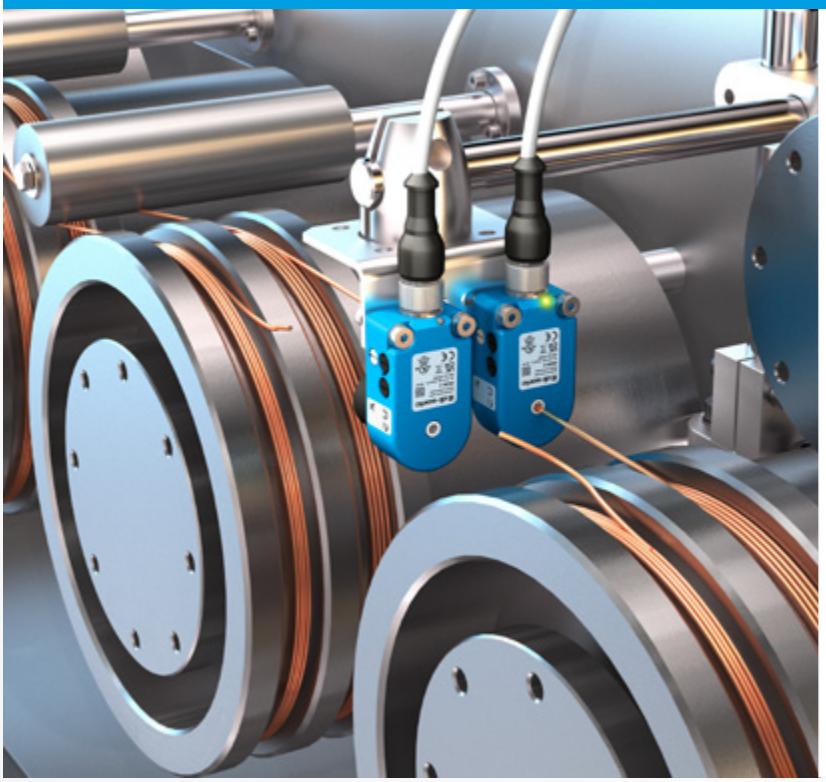
IRDB / IRDBD
APPLICATION EXAMPLE

Assembly and handling technology
Reduction of rejects through timely detection of wire breakages



Wire-break sensors of the IRDB series reliably detect the end of wires or breakages in wires in automated wire production due to their enlarged detection range.

Wire-break sensor
IRDB 4 PSOK-IBS

Wire-break sensors

Size	Detection range	Switching output	Ø resolution
IRDB with static evaluation			Static
IRDB 4	Ø 4.0 mm	npn / pnp, NO/NC	0.2 mm
IRDB 6	Ø 6.1 mm	npn / pnp, NO/NC	0.2 mm
IRDBD with dynamic evaluation			Dynamic
IRDBD 4	Ø 4.0 mm	npn / pnp, NO/NC	0.1 mm
IRDBD 6	Ø 6.1 mm	pnp, NO/NC	0.1 mm

MORE FLEXIBLE, MORE TRANSPARENT, MORE EFFICIENT
PRODUCTION PROCESSES WITH IO-LINK

IO-Link is a worldwide communication standard according to IEC 61131-9. Sensors and actuators become intelligent devices through their variety of function and performance with IO-Link. Production processes thereby become more flexible, more transparent, and more cost-efficient.

IO-Link transforms sensors into digital products and enables Industry 4.0 system designs.

di-soric products and their IO-Link benefits

1 Ready for digitization

Digitize your systems with IO-Link.

IO-Link supports the identification, configuration and diagnosis of many sensors, and this makes the remote maintenance of systems possible right down to the device.

With parameter memory in the IO-Link master, sensors can easily be exchanged and commissioned with identical settings.

2 Configuration facilitates commissioning

Sensors can be conveniently adjusted via the control system without manual operation using IO-Link. Sensor settings are directly visible in the control system and shorten the commissioning times of machines and systems.

Using a configuration coordinated with the application case, the productivity of sensors in machines and systems can be optimized.

3 Preventive maintenance through diagnosis

The reliable function of sensors is of the utmost importance in automation.

Via IO-Link, sensors detect additional data, such as the function reserve of the distance to the object. If the objects or ambient conditions change, an assessment of the sensor function is possible. Diagnosis enables optimized commissioning, coordinated service cycles and the use of remote maintenance.

All products have IO-Link and the latter's advantages: www.di-soric.com

GENERAL INFORMATION
ACCESSORIES

Connection technology

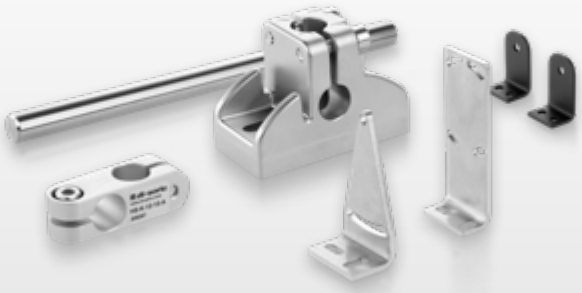
In the area of connection technology, a wide variety of electrical contacts for custom industrial-suited assembly are available. This includes connection lines, adapter plugs, and attachable plug connectors.

Signal preparation

Logic distributors can link two sensors with one another (e.g. AND/OR function). Function adapters change switching signals, e.g. npn, pnp, inversion, pulse stretching.

Universal mounting technology

di-soric offers tailored bracket and fastening systems for all of its sensors, image processing systems, identification systems and lighting.



Test & parameterization devices

Test & parameterization devices facilitate function tests of lighting and sensors. IOL Master and IOL Portable enable the diagnosis and the configuration of IO-Link-capable lighting and sensors without additional control. The sensor tester is suited for pnp and npn sensors.

IOL MASTER
Operation on PC via USB

IOL PORTABLE
Handheld operation without PC

SENSOR TESTER
ST 7PNG

SOLUTIONS. CLEVER. PRACTICAL.

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