



# Fail-safe inductive sensor directly detects metal.



## Detection without magnetic target or coded actuator.

- Suitable for operator and machine safety.
- Reliable end position monitoring on moving machine parts.
- Convenient connection to safety PLC, bus systems and logic.
- No wear: maximum machine uptime and safety.
- Certified to IEC 62061 SILcl2, ISO 13849-1 PL d, complies with IEC 61508 SIL2.

TÜV certified

cULus approval

SIL2

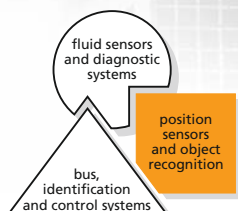
PL d

### Requirement profiles for the fail-safe sensor:

Reliable positioning on rotary indexing tables and machine tools. Reliable triggering of slow travel or switching off in end positions for presses, gantry robots and actuators. Reliable area monitoring for robots.

The fail-safe sensor increases the uptime and safety of your installation and can be connected to certified safety relays without cross fault monitoring.

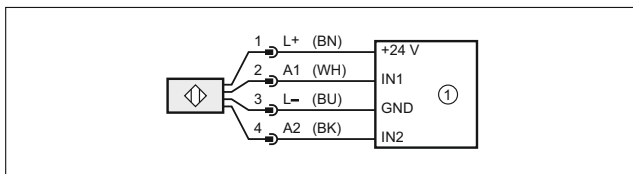
Wear-free operation guarantees low maintenance costs of your installation. Faults such as coil break or coil short circuit are diagnosed and the sensor passes into the defined safe state. Even a cross fault between the supply voltage and one of the two outputs does not affect the safety function of the sensor.



Inductive safety applications are special applications which require a non-contact and safe detection of a metal object.



Type / design	Enable zone [mm]	Current rating [mA]	Protection rating	Safety-related reliability (to IEC 61508)	Ambient temperature [°C]	Order no.
<b>M12 connector · Output function 2 PNP no (OSSD)</b>						
M30 / nf	1...15	100	IP 65 / IP 67	$PFD_{avg} < 1 \times 10^{-3} / PFH_D < 1,0 \times 10^{-7}/h$	-25...70	<b>GI711S</b>
M30 / f	1...10	100	IP 65 / IP 67	$PFD_{avg} < 1 \times 10^{-3} / PFH_D < 1,0 \times 10^{-7}/h$	-25...70	<b>GI712S</b>

**Wiring diagram**







1) Evaluation unit or PLC

**Evaluation unit**

Type	Description	Order no.
	Safety relay Relay outputs	<b>G1501S</b>
	Safety relay Semiconductor outputs	<b>G1503S</b>

**Connectors and splitter boxes**

Type	Description	Order no.
	M12 socket, 2 m black, PUR cable	<b>EVC001</b>
	M12 socket, 5 m black, PUR cable	<b>EVC002</b>
	M12 socket, 2 m black, PUR cable	<b>EVC004</b>
	M12 socket, 5 m black, PUR cable	<b>EVC005</b>

**Technical data (extract)**

<b>Certified to IEC 62061 SILcl2 and ISO 13849-1 Complies with the requirements to IEC 61508 SIL2</b>		
Operating voltage	[V]	24 DC (19.2...30 DC)
Short-circuit protection		•
Reverse polarity protection		•
Operating mode		Permanent operation (maintenance-free)
Service life T	[h]	87600 (10 years)
Test interval T1	[h]	= service life T
Status indication	LED	
Switching status		yellow
Operating voltage		green

**Category is history – now there is SIL and PL.**

In the past you were familiar with categorisation to EN 954-1, this has been replaced by SIL and IEC 62061 and PL to ISO 13849-1.

The qualitative approach is no longer sufficient so the quantitative approach has been added. The standards IEC 62061 and ISO 13849-1 now consider also the average probability of failure of components (called probabilistic approach).

The new approaches have been developed also because the EN 954-1 did not take into account the time behaviour (e.g. test interval, life time).

These characteristics of the sensors or the individual components are described in the Safety Integrity Level (SIL 1-3) and the Performance Level (PL a-e).

ifm offers you "safe" assistance, today as well as in the future. [www.ifm.com/gb/safe](http://www.ifm.com/gb/safe)

You can find more information on the standards at: [www.zvei.org](http://www.zvei.org) or [www.vdma.org](http://www.vdma.org)

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**Position sensors and object recognition**