

ifm Fail-Safe Inductive 12mm Barrel Proximity Sensor



Safety technology in automation is important for safe human-machine interaction, and fail-safe sensors with safety functions are a key part of safety systems for persons and machines.

The capabilities and characteristics of inductive sensors can be used to advantage in many safety applications, for direct detection of metal allows system designers to meet many design challenges. For example, the use of inductive proximity sensors means that magnetic or mechanical characteristics do not come into play. In addition, the resulting freedom from physical wear (due to the non-contact nature of these sensors) combined with a high protection rating helps to guarantee high uptime of machines and installations.



GF711S

A magnet or coded target is not necessary for the function of these fail-safe sensors. The sensors detect metals and operate with an enable zone which is monitored for target position and dwell time.

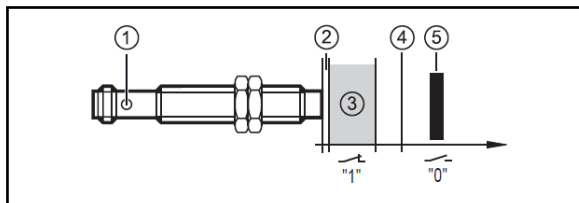
Features

- Certification to EN 60947-5-3 for electromechanical control gear
- No special actuator for electronic fail-safe sensors required
- Series connection of sensors possible
- Standard 12mm barrel housing
- OSSD output

ifm Fail-Safe Inductive 12mm Barrel Proximity Sensor Selection Guide										
Part Number	Price	Housing Diameter	Housing Material	Enable Zone	Safe Switch-Off Distance	Mounting Type	IP Rating	SIL Level/ Performance Level	Safe State Position	Drawing
GF711S	\$169.00	12mm [0.47 in]	Stainless steel	0.5 - 4 mm [0.2 - 0.16 in]	6mm [0.24 in]	Non-flush	IP65, IP67	SIL 2 / PLd	Target not present	PDF
GF854S	\$125.00	12mm [0.47 in]	Brass plated with white bronze	> 6mm [> 0.24 in]	< 3mm [< 0.12 in]	Non-flush	IP65, IP67, IP68, IP69K*	SIL 2 / PLd	Target present	PDF

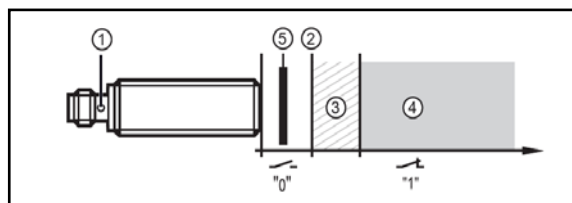
* IP69K only when used with a properly installed IP69K cable similar to EVTxxxx

GF711S



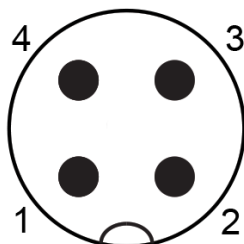
- 1 - Dual LED: signal (yellow), power (green)
- 2 - Close zone
- 3 - Enable zone
- 4 - Safe switch-off distance
- 5 - Target

GF854S



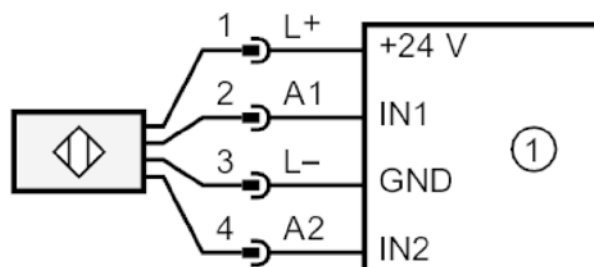
- 1 - LED: signal (yellow)
- 2 - Close zone
- 3 - Enable zone
- 4 - Safe switch-off distance
- 5 - Target

Connections



M12 4-pin Male Connector		
1	Brown	+24VDC
2	White	OSSD 1
3	Blue	0VDC
4	Black	OSSD 2

NOTE: Confirm the specific color to each pinout based on the cable used during installation.



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ifm Fail-Safe Inductive 12mm Barrel Proximity Sensor Technical Specifications		
	GF711S	GF854S
Category and PL Level (ISO 13849-1)	Category 2, PLd	
SIL Level (IEC 61508 / IEC 62061)	SIL 2	
Mission Time	$\leq 175,200$ hours if operated at ideal operating temperature $\leq 87,600$ hours if not operated at ideal operating temperature	
PFH	1.0×10^{-7}	5×10^{-8}
Mounting Type	Non-flush	
Enable Zone	0.5-4 mm [.04 - 0.16 in]	> 6mm [0.24 in]
Safe Switch-Off Distance	6mm [0.24 in]	< 3mm [0.12 in]
Safe State Position	Target not present	Target present
Output Type	Dual channel OSSD	
Operating Voltage	19.2-30 VDC	8-32 VDC
Reverse Polarity Protection	Yes	
Current Consumption	< 20mA	< 20mA
Voltage Drop (Output)	2.5V @ 30mA	
Short-Circuit Protection (Output)	Yes	
Overload Protection (Output)	No	Yes
Ideal Operating Temperature	10 to 40°C [50 to 104°F]	-25 to 70°C [-13 to 158°F]
Operating Temperature Range (Note that operating temperature affects mission time)	-25 to 70°C [-13 to 158°F]	-40 to 85°C [-40 to 185°F]
Protection Degree (DIN 40050)	IP65, IP67	IP65, IP67, IP68, IP69K* (*IP69K only when used with a properly installed IP69K cable similar to EVTxxxx)
Indication/Switch Status	Operation (GREEN) LED Signal (YELLOW) LED	Signal (YELLOW) LED
Housing Material	Stainless Steel (316L)	Brass plated with white bronze
Sensing Face Material	PBT (polybutylene terephthalate)	LCP (liquid crystal polymer)
Shock Resistance	Meets or exceeds IEC 60947-5-2	Meets or exceeds IEC60068-2-27 Ea
Vibration Resistance	Meets or exceeds IEC 60947-5-2	Meets or exceeds IEC60068-2-6 Fc
Tightening Torque	< 7 N•m	< 7 N•m
Weight	105.5 g [3.72 oz]	86.8 g [3.06 oz]
Connection	M12, A coded, 4-pin	
Agency Approvals	CE, cULus, TÜV	CE, cULus, TÜV

Safety Products



Warning: Safety products sold by AutomationDirect are Safety components only. The purchaser/installer is solely responsible for the application of these components and ensuring all necessary steps have been taken to assure each application and use meets all performance and applicable safety requirements and/or local, national and/or international safety codes as required by the application. AutomationDirect cannot certify that our products, used solely or in conjunction with other AutomationDirect or other vendors' products, will assure safety for any application. Any person using or applying any products sold by AutomationDirect is responsible for learning the safety requirements for their individual application and applying them, and therefore assumes all risks, and accepts full and complete responsibility, for the selection and suitability of the product for their respective application.

AutomationDirect does not provide design or consulting services, and cannot advise whether any specific application or use of our products would ensure compliance with the safety requirements for any application.