

ifm Fail-Safe Inductive 40mm Cube Proximity Sensor

**GM701S**

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.

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.

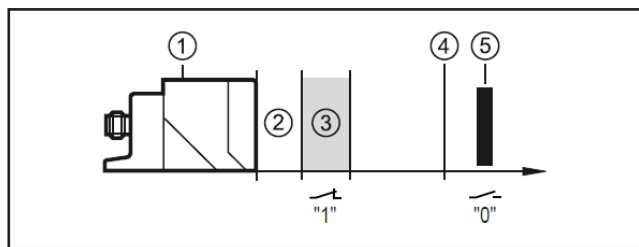
Features

- Certification to EN 60947-5-3 for electromechanical control gear
- No special actuator for electronic fail-safe sensors required
- 40mm cube housing
- OSSD output

ifm Fail-Safe Inductive 40mm Cube Proximity Sensor Selection Guide

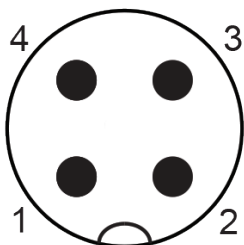
Part Number	Price	Housing	Housing Material	Enable Zone	Safe Switch-Off Distance	Mounting Type	IP Rating	SIL Level/ Performance Level	Safe State Position	Drawing
<u>GM701S</u>	\$275.00	40mm [1.57 in] cube	Die-cast zinc	10-15 mm [0.40 - 0.59 in]	30mm [1.18 in]	Non-flush	IP65, IP67	SIL 3 / PLe	Target not present	<u>PDF</u>
<u>GM705S</u>	\$275.00	40mm [1.57 in] cube	Die-cast zinc	4-20 mm [0.16 - 0.79 in]	45mm [1.77 in]	Non-flush	IP65, IP67	SIL 3 / PLe	Target not present	<u>PDF</u>

GM70xS



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

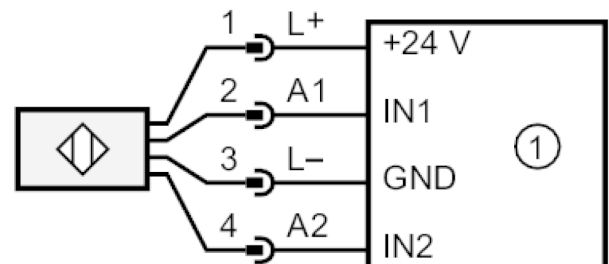
Connections



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 40mm Cube Proximity Sensor Technical Specifications

	GM701S	GM705S
Category and PL Level (ISO 13849-1)	Category 3, Plc	
SIL Level (IEC 61508 / IEC 62061)	SIL 3	
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^{-8}	
Mounting Type	Non-flush	
Enable Zone	10-15 mm [0.39 - 0.59 in]	4-20 mm [0.16 - 0.79 in]
Safe Switch-Off Distance	30mm [1.18 in]	45mm [1.77 in]
Safe State Position	Target not present	
Output Type	Dual channel OSSD	
Operating Voltage	19.2-30 VDC	
Reverse Polarity Protection	Yes	
Current Consumption	$< 15\text{mA}$	$< 30\text{mA}$
Voltage Drop (Output)	2.5V @ 100mA	
Short-Circuit Protection (Output)	Yes	
Overload Protection (Output)	No	No
Ideal Operating Temperature	10 to 40°C [50 to 104°F]	10 to 40°C [50 to 104°F]
Operating Temperature Range (Note that operating temperature affects mission time)	-25 to 70°C [-13 to 158°F]	-25 to 60°C [-13 to 140°F]
Protection Degree (DIN 40050)	IP65, IP67	
Indication/Switch Status	Operation (GREEN) LED Signal (YELLOW) LED	
Housing Material	Die-cast zinc	Die-cast zinc
Sensing Face Material	PPE (polyphenylene ether)	PPE (polyphenylene ether)
Shock Resistance	Meets or exceeds IEC 60947-5-2	Meets or exceeds IEC 60947-5-2
Vibration Resistance	Meets or exceeds IEC 60947-5-2	Meets or exceeds IEC 60947-5-2
Weight	342.5 g [12.08 oz]	355 g [12.52 oz]
Connection	M12, A coded, 4-pin	
Agency Approvals	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.