

# INDUCTIVE PROXIMITY SENSORS AND SWITCHES

MPIS-Series

**Introduction:**

MHDM series of high performance eddy current based operated inductive proximity sensors/switches are available in more than 25 different models in cylindrical/fasten/threaded barrels in variety of dimensions with different contact voltage/current rating. These proximity switches, virtually offering solutions to flow, speed, torque, power, frequency measurement and control in paper, machine-tools, plastic/yarn, milk/brewery plant, petrochemical industry, organic/inorganic chemical, rubber, sugar, textiles, water management/treatment, heavy electrical/mechanical industries, research and development organizations and many defense applications. Special machine design ensures better efficiency and enhanced torque transmission. These sensors are immune to stray side sensing with inherent over voltage/short circuit protection.

**Operating Principle:**

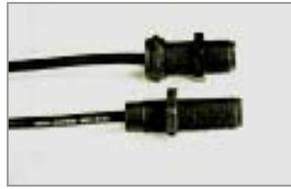
Inductive proximity sensors are suitable for the detection of metallic elements. The operating principle is based on a high frequency oscillator able to create an electromagnetic field in the close surroundings of the sensor. The presence of a metallic object (actuator) in the operating area causes a decrease of the oscillation amplitude. This happens when part of the electromagnetic energy that is transferred from the sensor to the actuator is dissipated by the effect of the Foucault Parasitic currents. The oscillation amplitude, therefore, decreases in accordance with the distance between the actuator and the sensor. This provides the sensor with analogic information about the object position (analog sensors) or can be turned, using a threshold circuit, into a digital signal (ON-OFF sensors). The accuracy of the sensor depends on the actuator shape and size and is strictly linked to the nature of the metal. The cases of the inductive proximity sensors can be a metallic cylindrical, plastic or metallic rectangular, or plastic slot.



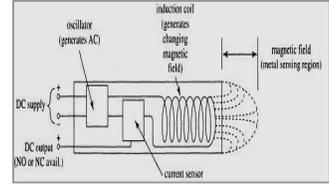
Cylindrical threaded non flash



Cylindrical threaded flash type



Fasten mounted with hole



pictorial view of eddy sensor

**Electrical and mechanical specifications of Inductive proximity switches:**

2.0 < Pr < 50.0 Watts

Technical data	Cylindrical W/ W.O. collar Flush/Non flush	Cylindrical w/the W/ W.O. collar Flush/Non flush	Cuboidal With hole	S.M.D. mounting				
Housing size	M08	M12	M18	MM30	M48	D=4/D=6.5	18x18x36 mm	12x26x40 mm
Output mode	PNP/NPN	PNP/NPN	PNP/NPN	PNP/NPN	PNP/NPN	PNP/NPN	PNP/NPN	PNP/NPN
Supply voltage[D.C.]	12-24	12-24	12-24	12-24	12-24	12-24	12-24	12-24
Sense range m.m.	1.5/2.0	1.8/2.5	4.0/5.6	8.0/12.0	18	4	4	2.4/4
Load/work current[m.a.]	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Switching frequency [Hz]	2000/800	1500/400	600/200	400/100	80	3000	400	700
Hysteresis band	+/- 10%	+/- 10%	+/- 10%	+/- 10%	+/- 10%	+/- 10%	+/- 10%	+/- 10%
Connection mode	D=5 , 2mm	D=5 , 2mm	D=5 , 2mm					
Ambient temp °C	90	90	90	90	90	90	90	90
Temperature variation	15	15	15	15	15	15	15	15
Reverse polarity protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Short circuit protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shock resistance[g]	50	50	50	50	50	50	50	50
Housing material	Brass/Nylon	Brass/Nylon	Brass/Nylon	Brass/Nylon	Brass/Nylon	Brass/Nylon	Brass/Nylon	Brass/Nylon
Storage Temperature	85	85	85	85	85	85	85	85
Protection class	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67
Termination	X/Y/Z	X/Y/Z	X/Y/Z	X/Y/Z	X/Y/Z	X/Y/Z	X/Y/Z	X/Y/Z

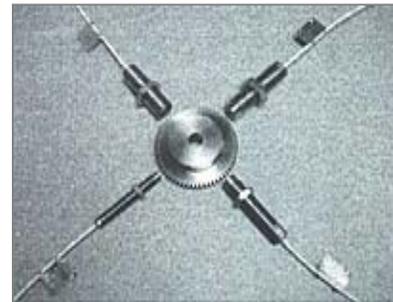
**Various Shapes of proximity sensor:**



Plug-in type proximity sensor  
Note: Cableterminalcode:X-30mm insulated cable cut with 5 mm tinned strip wire. 2Y-30mm insulated cable cut with individual spade terminal. Z-30mm insulated cable cut with individual trimmed terminal.



Sensor with mounting



sensor for gear sensing

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