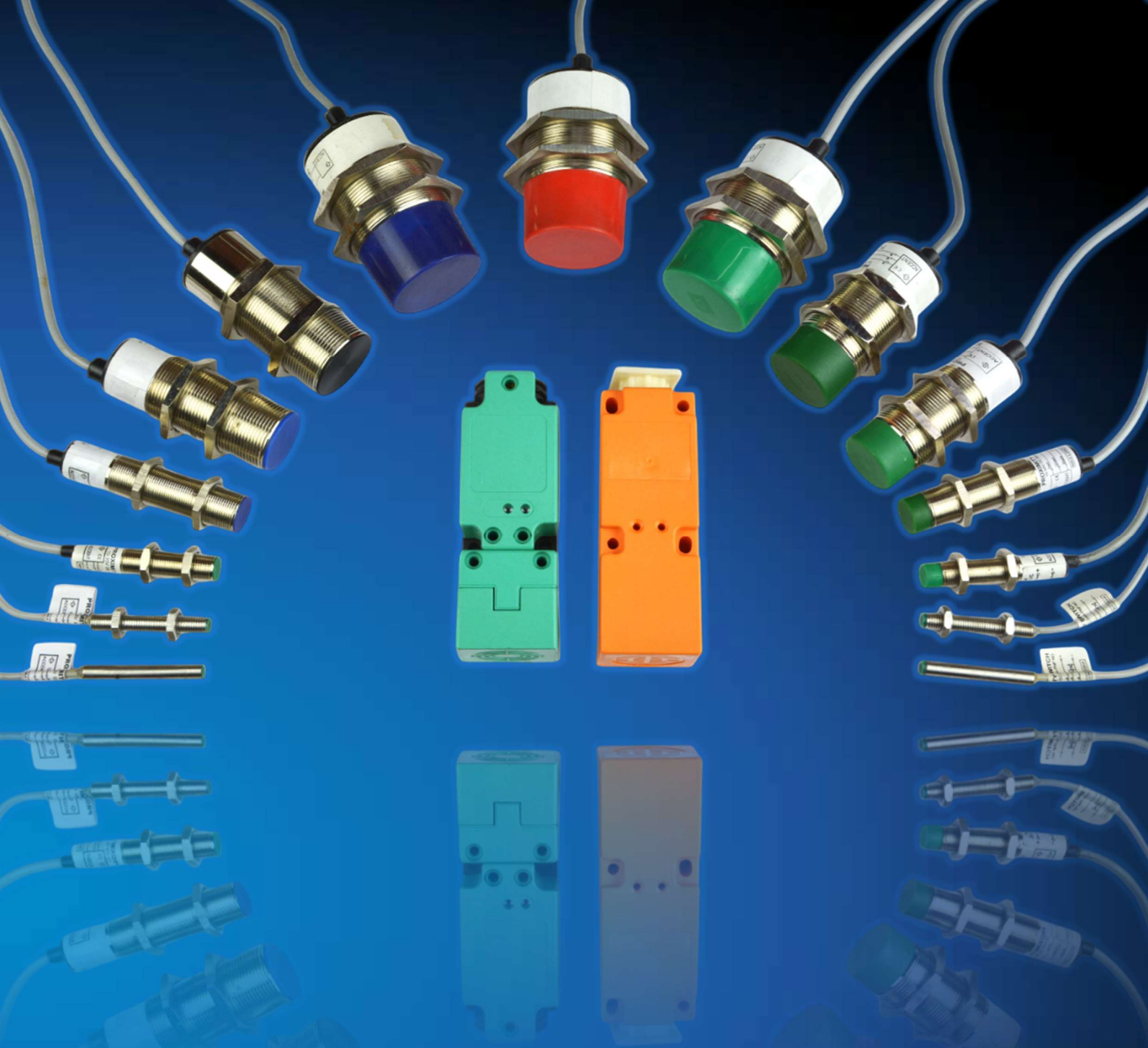


ACCENT CONTROLS (P) LTD.

ACCENT

INDIA'S NO.1. PROXIMITY SWITCH MANUFACTURER

INTRODUCTION

Our collaborator, Kastl Electronic GmbH and Co. KG, Germany, have been developing Proximity Switches since 1962. They have obtained many German and worldwide patents for some of their Proximity Switch designs. With the Proximity Switches covered in this leaflet, these patented designs are now available to the Indian user. This collaboration has enabled ACCENT to introduce THICK-FILM HYBRID micro-electronic circuitry into Proximity Switch Manufacture, for the first time in India.

The switches covered in this leaflet conform to most of the stipulations of IEC 60947-5-2 Currently no Indian (BIS).

ADVANTAGES OF INDUCTIVE PROXIMITY SWITCHES

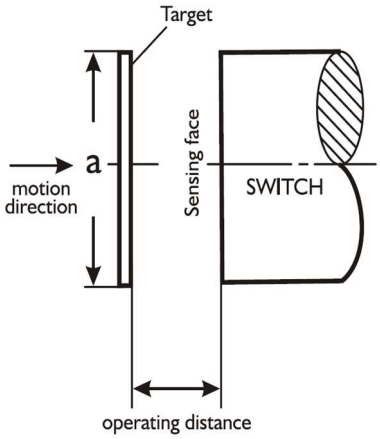
- Contactless operation (no roller or Plunger required).
- Hence no wear-and-tear.
- Solid state construction (no moving parts hence exceptionally long life.
- Exceptionally high switching frequency (up to 5000 times per second).
- Clean, reliable switching (no contact bounce).
- Reliable operation even under extreme
- Conditions (Insensitive to water, lubricants, coolants, dust, vibrations etc.).

OPERATING PRINCIPLE

An alternating electromagnetic field is developed at the sensing face of a Proximity Switch. When a metallic object enters this field energy is absorbed.
The amplitude of the oscillations of the electromagnetic field is consequently reduced. This reduction in amplitude is processed internally and an output stage is switched on (or off).
For DC switches this output stage is either a NPN or a PNP transistor; for AC switches it is a thyristor.

TARGET

The target is a square made of mild steel



OPERATING DISTANCE

This is the distance at which a target, approaching the sensing face of a switch causes the output signal to change.

RATED OPERATING DISTANCE Sn

This is a conventional quantity used to designate the operating distance. It does not take into account either manufacturing tolerances or variations due to external conditions such as voltage and temperature.

EFFECTIVE OPERATING DISTANCE Sr

This is the operating distance of an individual switch when measured at rated temperature (20°C) and at rated voltage (10-30V for DC switches; 40-250V for AC switches). It will be between 90% and 100% of the rated operating distance Sn.

USABLE OPERATING DISTANCE

This is the operating distance of an individual switch when measured with the ambient temperature and supply voltage being within the limits specified. It will be within 81% and 121% of the rated operating distance Sn.

ACTUATION DISTANCE Sa

This is the distance within which the correct operation of a switch under specified temperature and voltage conditions, is assured. It falls between 0 and 81% of the rated operating distance (Sn).

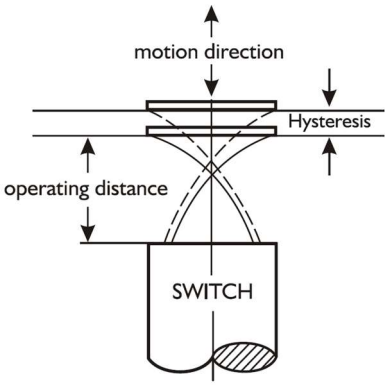
Target Material	Correction factor (% of Sn)
1) Chrome-Nickel	90%
2) Brass	50%
3) Aluminium	40%
4) Copper	40%

REPEAT ACCURACY

The repeat accuracy of the usable operating distance is the difference between any two measurements, measured over an 8-hour period, with the ambient temperature between 15°C and 30°C and with the supply voltage between -5% and +5% of the rated voltage.

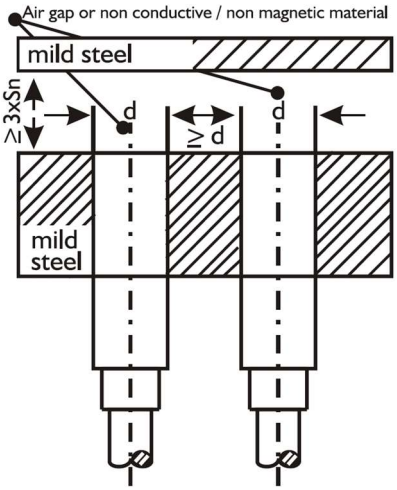
HYSTERESIS

This is the difference between the switching points when the target approaches (i.e. when the switch is actuated) and when the target leaves (i.e. when the switch is de-actuated) the sensing face of a switch. It is between 1% and 15% of the effective operating distance for a DC Switch and between 3% and 20% of the effective operating distance for an AC Switch, without hysteresis, a switch output will chatter, in case of vibration of the target.



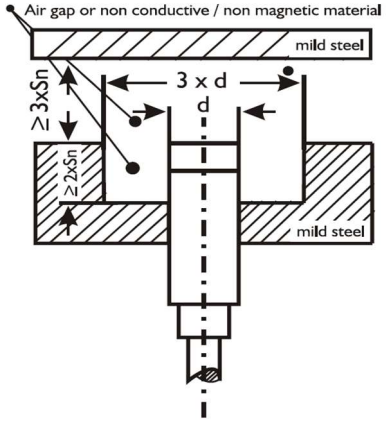
FLUSH MOUNTING IN METAL

This is possible for switches whose metal housing extends up to the sensing face. To avoid interference adjacent switches should be mounted only as shown in the figure below.



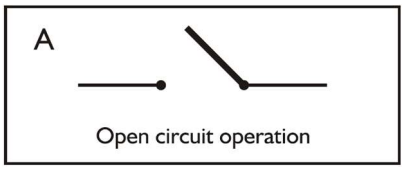
NON-FLUSH MOUNTING IN METAL

This is mandatory for switches whose metal housing does not extend up to the sensing face. To avoid false sensing from the sides, these switches must therefore be mounted only in the metal-free zone as shown in the figure below

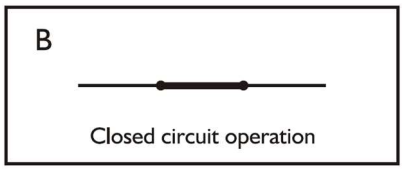


OUTPUT FUNCTIONS

(A) Normally open (Make) function (NO) When a metal target is detected, the output switching element of the switch closes thereby causing the output current to flow



(B) Normally closed (break) function (NC) When a metal target is detected, the output switching element of the switch opens thereby blocking the flow of the output current.



NO-LOAD CURRENT

This is the current consumed by a DC Switch when the output transistor is off i.e., when there is no external load current. It is indicated at the maximum rated voltage (30V DC)

RESIDUAL CURRENT

This is the current which continues to flow through the external load when the switch is in the off condition.

VOLTAGE DROP

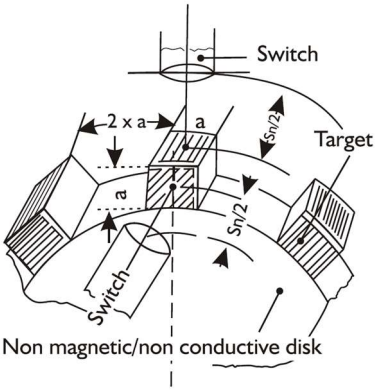
This is measured across a switch at the minimum ambient temperature (-15°C), when the switch is closed and is carrying the maximum load current specified and when the switch is supplied with the maximum supply voltage (30 VDC for DC Switches and 250 VAC for AC Switches.)

TEMPERATURE DRIFT

As stated earlier, the effective operating distance of a Switch is measured at rated temperature (+20°C). Temperature drift indicates the change in the effective operating distance due to a variation in the ambient temperature within the working temperature range of a switch (-15°C to +65°C). For the switches covered in this leaflet the temperature drift is within 10% of the rated operating distance Sn.

SWITCHING FREQUENCY

To measure it, standard targets (constructed as detailed above) are set up at intervals on a non-magnetic, non-conductive rotating disk (see figure). The switch is positioned at a distance of half its rated operating distance from these targets. The speed of rotation of the disk is gradually increased. When the on or off time of the output signal falls below 50 Microseconds or when the amplitude of the output signals falls below 90% of the starting value, the maximum switching frequency has been reached.



PROTECTIVE FEATURES ON DC SWITCHES

1. Reverse polarity protection:
This protects the switch against incorrect (reverse) connection of the power supply wires. This is a standard feature on all DC Switches

2. Short Circuit protection:
This protects the switch against overload or short circuit of the output. When a short circuit occurs, a switch gradually becomes in-operative. Upon removal of the short the switch is automatically ready for normal operation (i.e. the power supply does not have to be switched off and on to restore normal operation of the switch, as is required in conventional short circuit protection). This protection is available only where it is indicated.

Fundamentals of Photoelectric Sensing

A photoelectric switch is an electrical device that responds to a change in the intensity of the (transmitted) light falling on it.

It has two main parts - a transmitter of light (most often a Light Emitting Diode or LED) and a receiver of light (generally a photodiode or a phototransistor).

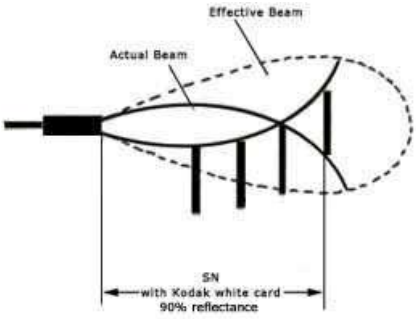
The LED is generally pulse modulated at relatively high speeds and the receiver is "tuned" to this frequency of modulation.

The receiver thus responds mainly to the transmitted light and is thus relatively unaffected by ambient factory lighting.

Since the transmitter and receiver may be either housed together or separately, three different modes of photoelectric sensing, each with their own unique application capabilities, are possible. These are discussed below.

Diffuse Reflection (or Proximity) Sensing

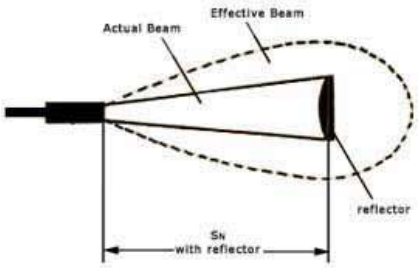
Here the transmitter and receiver are housed together in one enclosure. If the target object returns an adequate amount of light to the receiver, detection occurs (see figure below).



This sensing mode offers comparatively lower distances than the two modes. It is particularly useful in applications where mounting space exists only on one side of the detection path (for instance overhead detection of objects moving along a conveyor).

Retroreflective Sensing

Here too the transmitter and receiver are housed together in one enclosure with a prismatic reflector positioned across the detection area and aligned with the sensor (see figure below).

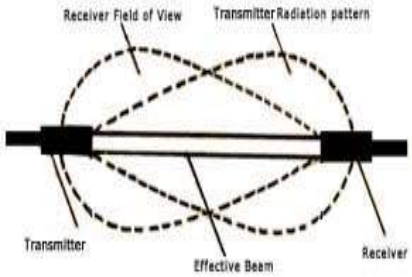


This reflector returns nearly all the transmitted light that falls on it back to the receiver (with the returned light beam being parallel to the transmitted beam) thus enabling relatively large sensing distances. When an opaque object interrupts the effective beam of the switch (or atleast reduces its intensity to below a threshold level), detection occurs.

Given the comparatively large size of the effective beam, this mode is not suited for the detection of small objects. It is also not recommended for the detection of shiny objects (as the light beam returned by such objects is parallel to the transmitted beam, the sensor may confuse them for the reflector and thus may not detect them reliably). It however finds wide application in the detection of relatively larger objects in conveyor applications. Where space does not permit the installation of two enclosures (as required by the through beam mode), the retroreflective mode should be the mode of choice.

Through Beam (or Opposed Beam) Sensing

Here the transmitter and receiver are housed in separate enclosures. These are positioned opposite each other, across the detection area, and aligned so that the transmitted light is fully available to the receiver (see figure below).



When the target object interrupts the effective beam, detection occurs.

This mode of sensing is thus best suited for detection of opaque objects. It should also be considered for the detection of relatively small targets. Lastly this sensing mode is the most reliable in adverse environments where dust, dirt, moisture, smoke etc could seriously degrade the performance of the other modes.

The separate mounting arrangements for the transmitter and receiver notwithstanding, the opposed mode will always be the most reliable of the three modes for the detection of opaque object

INDUCTIVE PROXIMITY SENSOR

- DC - 3 wire
- DC - 2 wire
- AC - 2 wire
- NAMUR

INDUCTIVE PROXIMITY SWITCH (DC 3 Wire Series)		
Dimension	M6.5	M6.5
Installation	Flush	Non-Flush
Rated Operating Distance (Sn)	1 mm	2 mm
Actual Sensing Distance (Sa)	0.8 mm	1.6 mm
Dimensional Details	Figure No.1	Figure No.2
Features • 3-Wire DC Switch • High Switching Speed • Immune to EMI • Shock & Vibration Resistant • Protection Class – IP67 • Reverse Polarity Protected • Output circuit – NPN/PNP; NO/NC		

DC 3 Wires	PNP	NO	D30C-0601-PM-2	D30C-0602-PM-2
		NC	D30C-0601-PB-2	D30C-0602-PB-2

DC 3 Wires	NPN	NO	D30C-0601-NM-2	D30C-0602-NM-2
		NC	D30C-0601-NB-2	D30C-0602-NB-2

Minimum Target size (min)	6.5 x 6.5 x 1 mm
Repeat Accuracy	≤ 10% mm
Hysteresis	≤ 15% of Sn
Operating Voltage	10 - 30 V DC
Maximum Load Current	200 mA
No Load Current	≤ 13 mA
Residual Current	≤ 0.1 mA
Switching Frequency	5000 Hz
O/P status Indicator	Yes
Voltage Drop	≤ 2 V
Correction factor - Brass / Al	0.5 / 0.4
Operating Temperature Range	-10°C to 70°C
Reverse Polarity Protection	Yes
Short Circuit Protection	No
Environmental Protection	IP67
Temperature Drift	≤ 10% of Sn
Rated Insulation Voltage	≤ 0.5 KV
Dielectric strength	1000VAC @ 50Hz – 1 min
Vibration resistance	10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each
Shock resistance	30g for 1ms in X, Y & Z axis for 6 mins each
Housing Material	Nickel Plated Brass Stainless Steel on request
Termination	Prewired 2m

INDUCTIVE PROXIMITY SWITCH (DC 3 Wire Series)			
M8x1	M8x1	M12x1	M12x1
Flush	Non-Flush	Flush	Non-Flush
1 mm	2 mm	2 mm	4 mm
0.8 mm	1.6 mm	1.6 mm	3.2 mm
Figure No.3	Figure No.4	Figure No.5	Figure No.6
			

D30C-0801-PM-2	D30C-0802-PM-2	D30C-1202-PM-3S	D30C-1204-PM-3S
D30C-0801-PB-2	D30C-0802-PB-2	D30C-1202-PB-3S	D30C-1204-PB-3S

D30C-0801-NM-2	D30C-0802-NM-2	D30C-1202-NM-3S	D30C-1204-NM-3S
D30C-0801-NB-2	D30C-0802-NB-2	D30C-1202-NB-3S	D30C-1204-NB-3S

8 x 8 x 1 mm	12 x 12 x 1 mm
≤ 10% mm	
≤ 15% of Sn	
10 - 30 V DC	
200 mA	
≤ 13 mA	
≤ 0.1 mA	
5000 Hz	
Yes	
≤ 2 V	≤ 3.5 V
0.5 / 0.4	0.5 / 0.4
-10°C to 70°C	-10°C to 70°C
Yes	
No	Yes
IP67	
≤ 10% of Sn	
≤ 0.5 KV	
1000VAC @ 50Hz – 1 min	
10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each	
30g for 1ms in X, Y & Z axis for 6 mins each	
Nickel Plated Brass Stainless Steel on request	
Prewired 2m M12 Connector (On request)	

INDUCTIVE PROXIMITY SWITCH (DC 3 Wire Series)		
Dimension	M18x1	M18x1
Installation	Flush	Non-Flush
Rated Operating Distance (Sn)	5 mm	8 mm
Actual Sensing Distance (Sa)	4 mm	6.4 mm
Dimensional Details	Figure No.7	Figure No.8
Features • 3-Wire DC Switch • High Switching Speed • Immune to EMI • Shock & Vibration Resistant • Protection Class – IP67 • Reverse Polarity Protected • Output circuit – NPN/PNP; NO/NC		

DC 3 Wires	PNP	NO	D30C-1805-PM-3S	D30C-1808-PM-3S
		NC	D30C-1805-PB-3S	D30C-1808-PB-3S

DC 3 Wires	NPN	NO	D30C-1805-NM-3S	D30C-1808-NM-3S
		NC	D30C-1805-NB-3S	D30C-1808-NB-3S

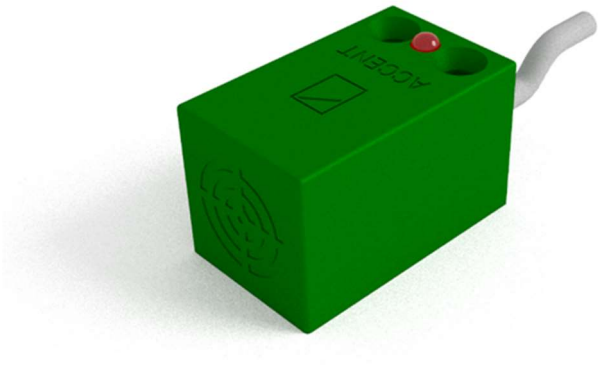
Minimum Target size (min)	18 x 18 x 1 mm	24 x 24 x 1 mm
Repeat Accuracy	≤ 10% mm	
Hysteresis	≤ 15% of Sn	
Operating Voltage	10 - 30 V DC	
Maximum Load Current	300 mA	
No Load Current	≤ 13 mA	
Residual Current	≤ 0.001 mA	
Switching Frequency	2000 Hz	
O/P status Indicator	Yes	
Voltage Drop	≤ 3.5 V	
Correction factor - Brass / Al	0.5 / 0.4	
Operating Temperature Range	-10°C to 70°C	
Reverse Polarity Protection	Yes	
Short Circuit Protection	Yes	
Environmental Protection	IP67	
Temperature Drift	≤ 10% of Sn	
Rated Insulation Voltage	≤ 0.5 KV	
Dielectric strength	1000VAC @ 50Hz – 1 min	
Vibration resistance	10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each	
Shock resistance	30g for 1ms in X, Y & Z axis for 6 mins each	
Housing Material	Nickel Plated Brass Stainless Steel on request	
Termination	Prewired 2m M12 Connector (On request)	

INDUCTIVE PROXIMITY SWITCH (DC 3 Wire Series)			
M30x1.5	M30x1.5	M36x1.5	M50x1.5
Flush	Non-Flush	Non-Flush	Non-Flush
10 mm	15 mm	20 mm	30 mm
8.1 mm	12.1 mm	16.2 mm	24.3 mm
Figure No.9	Figure No.10	Figure No.11	Figure No.12
			
D30C-3010-PM-3S	D30C-3015-PM-3S	D30C-3620-PM-3S	D30C-5030-PM-3S
D30C-3010-PB-3S	D30C-3015-PB-3S	D30C-3620-PB-3S	D30C-5030-PB-3S
D30C-3010-NM-3S	D30C-3015-NM-3S	D30C-3620-NM-3S	D30C-5030-NM-3S
D30C-3010-NB-3S	D30C-3015-NB-3S	D30C-3620-NB-3S	D30C-5030-NB-3S
30 x 30 x 1 mm	45 x 45 x 1 mm	60 x 60 x 1 mm	90 x 90 x 1 mm
≤ 10% mm			
≤ 15% of Sn			
10 - 30 V DC			
300 mA			
≤ 13 mA			
≤ 0.001 mA			
1000 Hz		500 Hz	100 Hz
Yes			
≤ 3.5 V			
0.5 / 0.4			
-10°C to 70°C			
Yes			
Yes			
IP67			
≤ 10% of Sn			
≤ 0.5 KV			
1000VAC @ 50Hz – 1 min			
10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each			
30g for 1ms in X, Y & Z axis for 6 mins each			
Nickel Plated Brass Stainless Steel on request			
Prewired 2m M12 Connector (On request)			

INDUCTIVE PROXIMITY SWITCH (DC 3 Wire Series)		
Dimension	17x17	17x17
Installation	Flush	Non-Flush
Rated Operating Distance (Sn)	5 mm	8 mm
Actual Sensing Distance (Sa)	4 mm	6.4 mm
Dimensional Details	Figure No.13	

Features

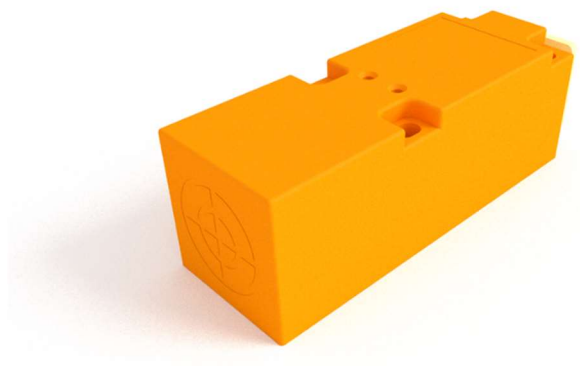
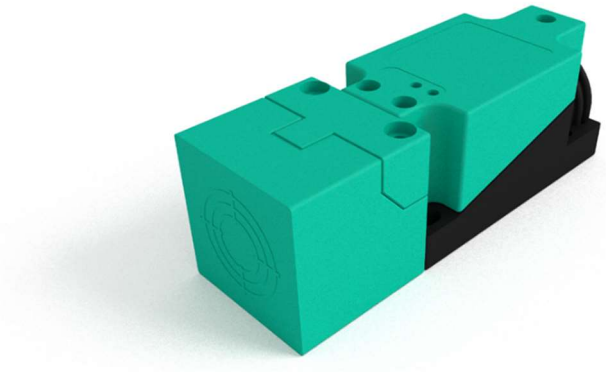
- 3-Wire DC Switch
- High Switching Speed
- Immune to EMI
- Shock & Vibration Resistant
- Protection Class – IP67
- Reverse Polarity Protected
- Output circuit – NPN/PNP; NO/NC



DC 3 Wires	PNP	NO	D30B-1705-PM-3S	D30B-1708-PM-3S
		NC	D30B-1705-PB-3S	D30B-1708-PB-3S

DC 3 Wires	NPN	NO	D30B-1705-NM-3S	D30B-1708-NM-3S
		NC	D30B-1705-NB-3S	D30B-1708-NB-3S

Minimum Target size (min)	18 x 18 x 1 mm	24 x 24 x 1 mm
Repeat Accuracy	≤ 10% mm	
Hysteresis	≤ 15% of Sn	
Operating Voltage	10 - 30 V DC	
Maximum Load Current	300 mA	
No Load Current	≤ 13 mA	
Residual Current	≤ 0.001 mA	
Switching Frequency	2000 Hz	
O/P status Indicator	Yes	
Voltage Drop	≤ 3.5 V	
Correction factor - Brass / Al	0.5 / 0.4	
Operating Temperature Range	-10°C to 70°C	
Reverse Polarity Protection	Yes	
Short Circuit Protection	Yes	
Environmental Protection	IP67	
Temperature Drift	≤ 10% of Sn	
Rated Insulation Voltage	≤ 0.5 KV	
Dielectric strength	1000VAC @ 50Hz – 1 min	
Vibration resistance	10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each	
Shock resistance	30g for 1ms in X, Y & Z axis for 6 mins each	
Housing Material	PPE	
Termination	Prewired 2m	

INDUCTIVE PROXIMITY SWITCH (DC 3 Wire Series)			
40x40 (Fixed Head)	40x40 (Fixed Head)	40x40 (Rotatable Head)	40x40 (Rotatable Head)
Non-Flush	Non-Flush	Non-Flush	Non-Flush
15 mm	20 mm	15 mm	20 mm
12.1 mm	16.2 mm	12.1 mm	16.2 mm
Figure No.14		Figure No.15	
			

D30B-4015-PM-3S-FH	D30B-4020-PM-3S-FH	D30B-4015-PM-3S-RH	D30B-4020-PM-3S-RH
D30B-4015-PB-3S-FH	D30B-4020-PB-3S-FH	D30B-4015-PB-3S-RH	D30B-4020-PB-3S-RH

D30B-4015-NM-3S-FH	D30B-4020-NM-3S-FH	D30B-4015-NM-3S-RH	D30B-4020-NM-3S-RH
D30B-4015-NB-3S-FH	D30B-4020-NB-3S-FH	D30B-4015-NB-3S-RH	D30B-4020-NB-3S-RH

45 x 45 x 1 mm	60 x 60 x 1 mm	45 x 45 x 1 mm	60 x 60 x 1 mm
≤ 10% mm			
≤ 15% of Sn			
10 - 30 V DC			
300 mA			
≤ 13 mA			
≤ 0.001 mA			
500 Hz			
Yes			
≤ 3.5 V			
0.5 / 0.4			
-10°C to 70°C			
Yes			
Yes			
IP67			
≤ 10% of Sn			
≤ 0.5 KV			
1000VAC @ 50Hz – 1 min			
10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each			
30g for 1ms in X, Y & Z axis for 6 mins each			
PPE			
Prewired 2m			

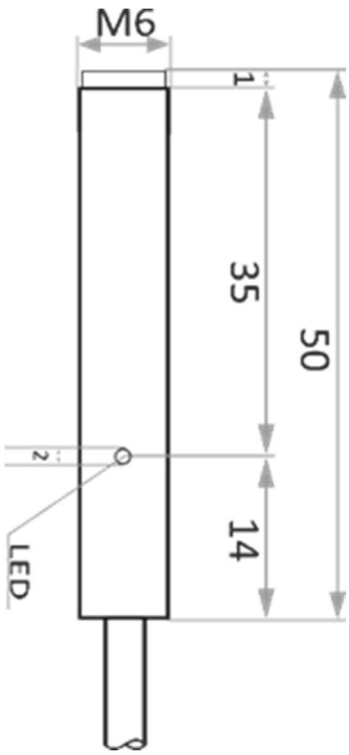


Figure No. 01

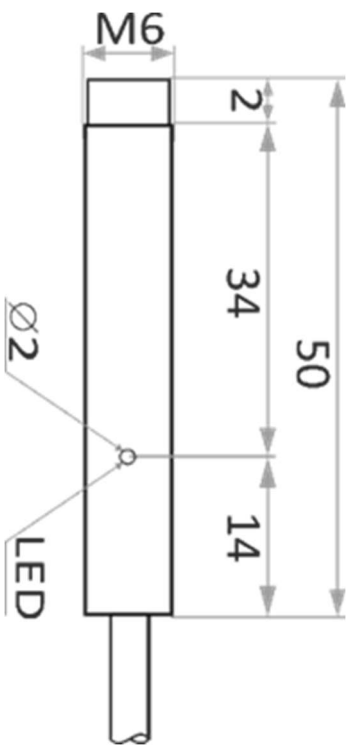


Figure No. 02

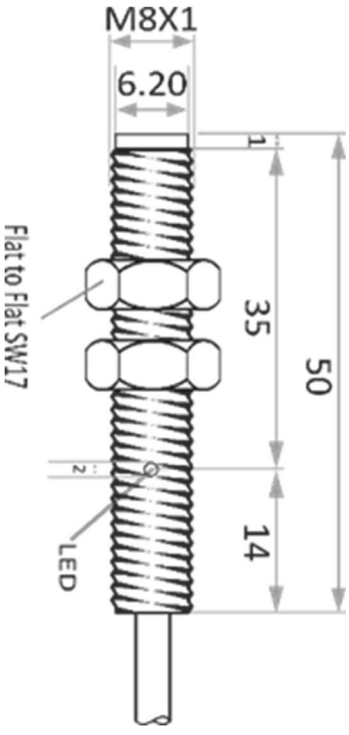


Figure No. 03

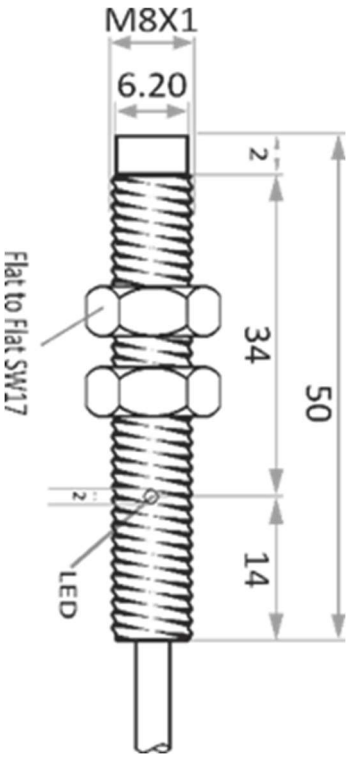


Figure No. 04

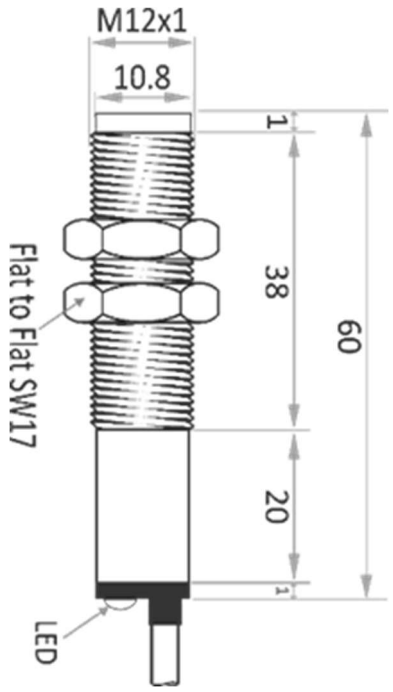


Figure No. 05

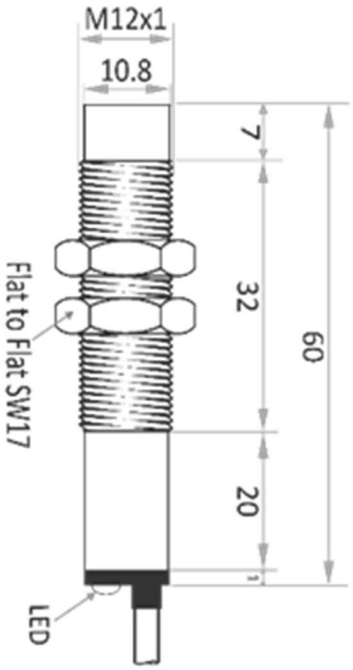


Figure No. 06

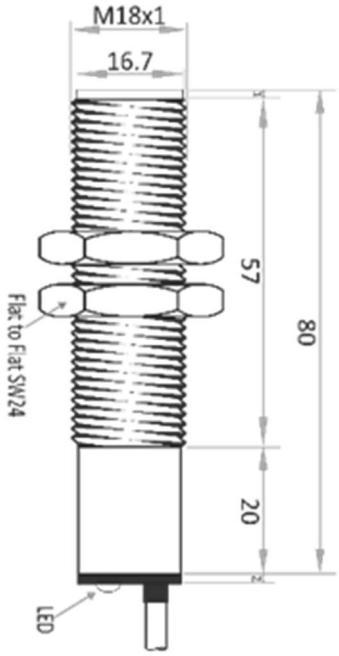


Figure No. 07

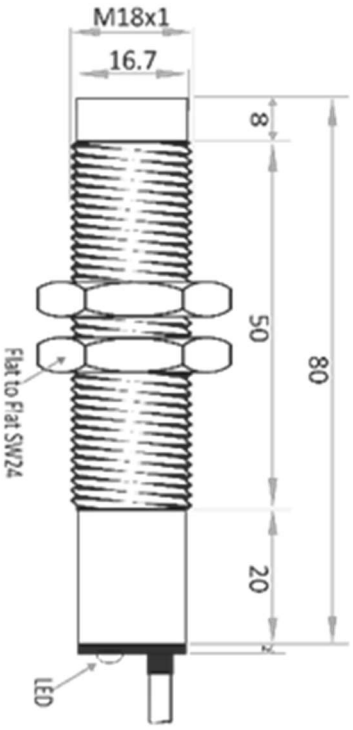


Figure No. 08

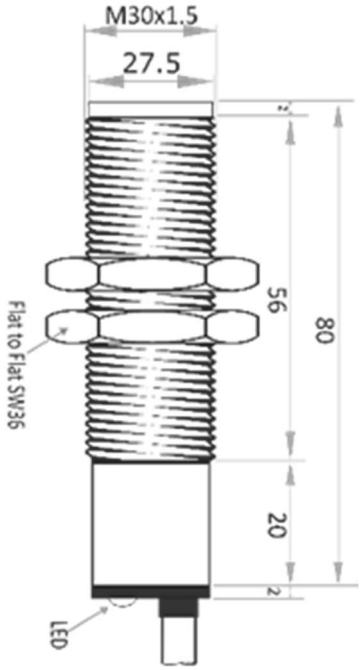


Figure No. 09

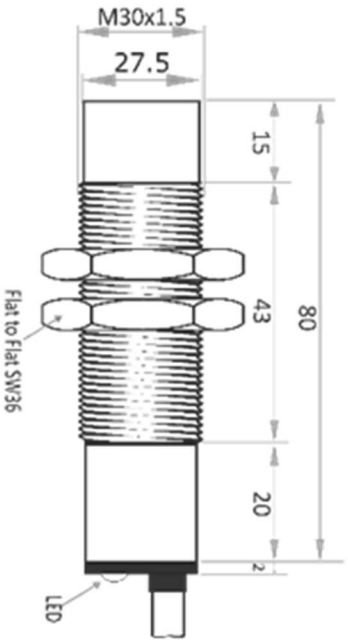


Figure No. 10

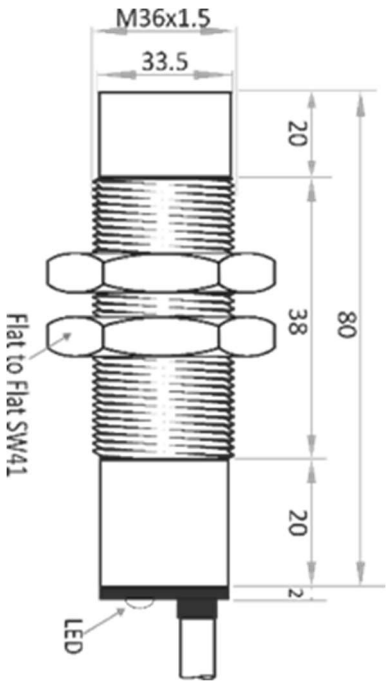


Figure No. 11

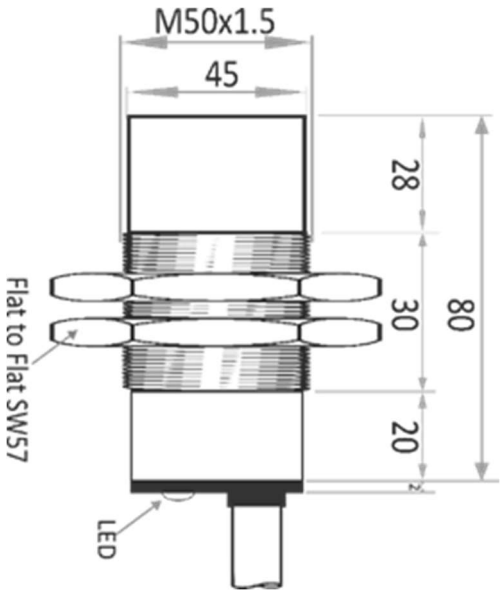


Figure No. 12

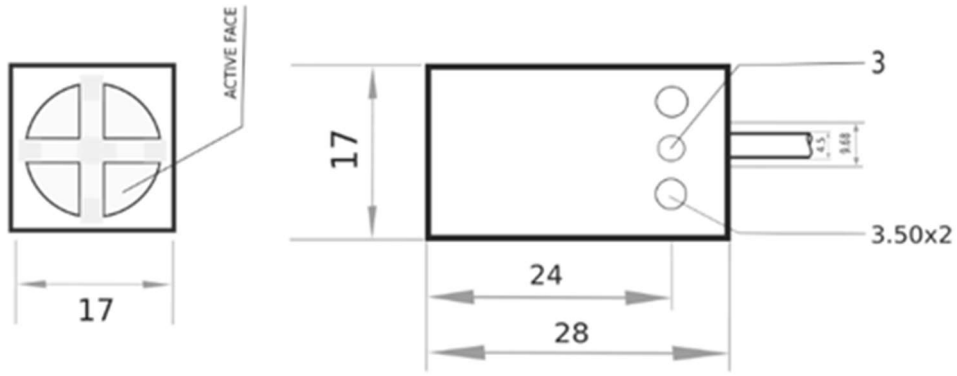


Figure No. 13

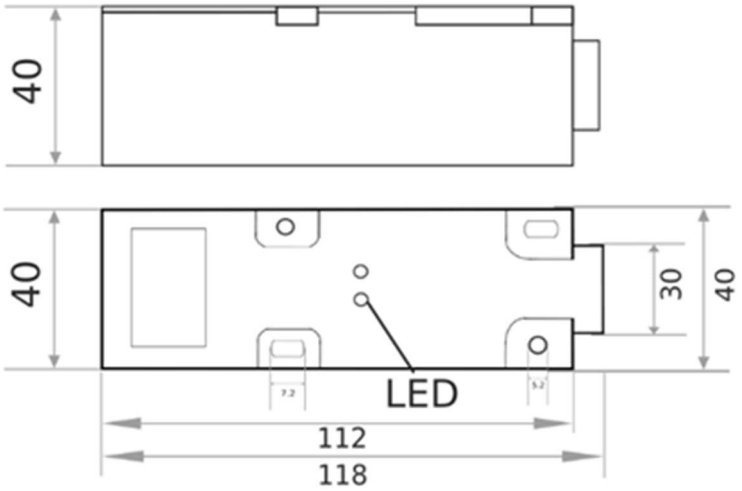


Figure No. 14

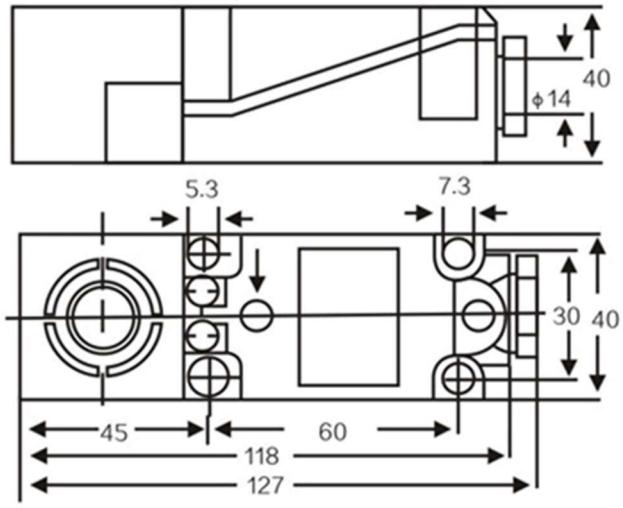


Figure No. 15

INDUCTIVE PROXIMITY SENSOR - DC (3 or 4 Wires)

Ordering Code	D	3	0	C	-	1 8	0 5	-	P	M	3	S	-	C2

Basic Switch Type
DC - D

No. of Wires
3
4

Sensing Technique
Inductive - 0

Housing Style
Cylindrical - C
Rectangular - R
Box - B

Housing Dimension
C M6.5 - 06
M8x1 - 08
M12x1 - 12
M18x1 - 18
M30x1.5 - 30
M36x1.5 - 36
M50x1.5 - 50
B 17x17 - 17
40x40 - 40F(Fixed Head) or 40R (Rotatable Head)
R 40x26 - 40

Sensing Range
1mm - 01
2mm - 02
4mm - 04
5mm - 05
8mm - 08
10mm - 10
15mm - 15
20mm - 20
30mm - 30

Output Circuit Type
PNP - P
NPN - N

Output Contact Type
Normally Open - M
Normally Close - B
Complementary(NO+NC) - C

Load Current
100mA - 1
200mA - 2
300mA - 3

Version
Economy (without SCP) - E
Short Circuit Protection (SCP) - S

Termination
Cable Length in meters - CX
M12, 3 Pin Connector - 3 Pin
M12, 4 Pin Connector - 4 Pin

- *DC - 2 wire*

INDUCTIVE PROXIMITY SENSOR

INDUCTIVE PROXIMITY SWITCH (DC 2 Wire Series)		
Dimension	M6.5	M6.5
Installation	Flush	Non-Flush
Rated Operating Distance (Sn)	1 mm	2 mm
Actual Sensing Distance (Sa)	0.8 mm	1.6 mm
Dimensional Details	Figure No.16	Figure No.17
Features • 2-Wire DC Switch • High Switching Speed • Immune to EMI • Shock & Vibration Resistant • Protection Class – IP67 • Reverse Polarity Protected • Output circuit – NPN/PNP; NO/NC		

DC 2 Wires	NO	D20C-0601-M-2	D20C-0602-M-2
	NC	D20C-0601-B-2	D20C-0602-B-2

Minimum Target size (min)	6.5 x 6.5 x 1 mm
Repeat Accuracy	≤ 10% mm
Hysteresis	≤ 15% of Sn
Operating Voltage	10 - 30 V DC
Residual Ripple (at operating Voltage)	≤ 10 %
Output Circuit Type	2 Wire; NO / NC
Max. Load Current (On state)	≤ 100 mA
Min. Load Current (On state)	> 4mA
Off State current	< 0.75 mA
Switching Frequency	5000 Hz
O/P status Indicator	Red LED
Voltage Drop	≤ 3.5V @ 4mA ≤ 4.5 @100mA
Correction factor - Brass / Al	0.5 / 0.4
Operating Temperature Range	-10°C to 70°C
Reverse Polarity Protection	Yes
Over load & Short circuit Protection	No
Environmental Protection	IP67
Dielectric strength	1000VAC @ 50Hz – 1 min
Vibration resistance	10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each
Shock resistance	30g for 1ms in X, Y & Z axis for 6 mins each
Temperature Drift	≤ 10% of Sn
Housing Material	Nickel Plated Brass Stainless Steel on request
Termination	Pre wired Cable 2m

INDUCTIVE PROXIMITY SWITCH (DC 2 Wire Series)			
M8x1	M8x1	M12x1	M12x1
Flush	Non-Flush	Flush	Non-Flush
1 mm	2 mm	2 mm	4 mm
0.8 mm	1.6 mm	1.6 mm	3.2 mm
Figure No.18	Figure No.19	Figure No.20	Figure No.21
			

D20C-0801-M-2	D20C-0802-M-2	D20C-1202-M-3S	D20C-1204-M-3S
D20C-0801-B-2	D20C-0802-B-2	D20C-1202-B-3S	D20C-1204-B-3S

8 x 8 x 1 mm	12 x 12 x 1 mm
≤ 10% mm	
≤ 15% of Sn	
10 - 30 V DC	
≤ 10 %	
2 Wire; NO / NC	
≤ 100 mA	
> 4mA	
< 0.75 mA	
5000 Hz	
Red LED	
≤ 3.5V @ 4mA ≤ 4.5 @100mA	
0.5 / 0.4	
-10°C to 70°C	
Yes	
No	Yes
IP67	
1000VAC @ 50Hz – 1 min	
10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each	
30g for 1ms in X, Y & Z axis for 6 mins each	
≤ 10% of Sn	
Nickel Plated Brass Stainless Steel on request	
Pre wired Cable 2m M12 Connector (On request)	

INDUCTIVE PROXIMITY SWITCH (DC 2 Wire Series)		
Dimension	M18x1	M18x1
Installation	Flush	Non-Flush
Rated Operating Distance (Sn)	5 mm	8 mm
Actual Sensing Distance (Sa)	4 mm	6.4 mm
Dimensional Details	Figure No.22	Figure No.23
Features • 2-Wire DC Switch • High Switching Speed • Immune to EMI • Shock & Vibration Resistant • Protection Class – IP67 • Reverse Polarity Protected • Output circuit – NPN/PNP; NO/NC		

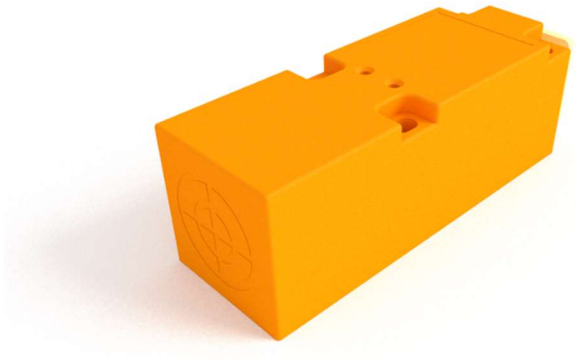
DC 2 Wires	NO	D20C-1805-M-2	D20C-1808-M-2
	NC	D20C-1805-B-2	D20C-1808-B-2

Minimum Target size (min)	18 x 18 x 1 mm	24 x 24 x 1 mm
Repeat Accuracy	≤ 10% mm	
Hysteresis	≤ 15% of Sn	
Operating Voltage	10 - 30 V DC	
Residual Ripple (at operating Voltage)	≤ 10 %	
Output Circuit Type	2 Wire; NO / NC	
Max. Load Current (On state)	≤ 300 mA	
Min. Load Current (On state)	> 4mA	
Off State current	< 0.75 mA	
Switching Frequency	1000 Hz	
O/P status Indicator	Red LED	
Voltage Drop	≤ 3.5V @ 4mA ≤ 4.5 @100mA ≤ 6.5V @300mA	
Correction factor - Brass / Al	0.5 / 0.4	
Operating Temperature Range	-10°C to 70°C	
Reverse Polarity Protection	Yes	
Over load & Short circuit Protection	Yes	
Environmental Protection	IP67	
Dielectric strength	1000VAC @ 50Hz – 1 min	
Vibration resistance	10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each	
Shock resistance	30g for 1ms in X, Y & Z axis for 6 mins each	
Temperature Drift	≤ 10% of Sn	
Housing Material	Nickel Plated Brass Stainless Steel on request	
Termination	Pre wired Cable 2m M12 Connector (On request)	

INDUCTIVE PROXIMITY SWITCH (DC 2 Wire Series)			
M30x1.5	M30x1.5	M36x1.5	M50x1.5
Flush	Non-Flush	Non-Flush	Non-Flush
10 mm	15 mm	20 mm	30 mm
8.1 mm	12.1 mm	16.2 mm	24.3 mm
Figure No.24	Figure No.25	Figure No.26	Figure No.27
			
D20C-3010-M-2	D20C-3015-M-2	D20C-3620-M-2	D20C-5030-M-2
D20C-3010-B-2	D20C-3015-B-2	D20C-3620-B-2	D20C-5030-B-2

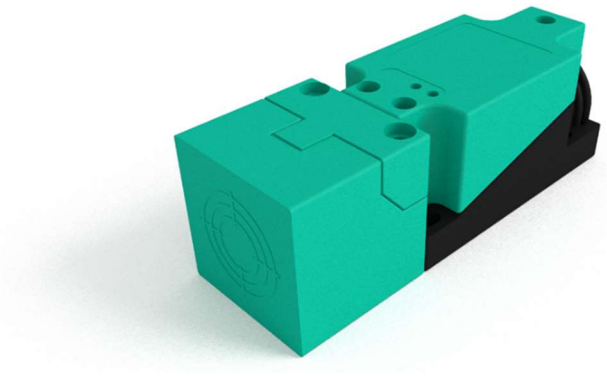
30 x 30 x 1 mm	45 x 45 x 1 mm	60 x 60 x 1 mm	90 x 90 x 1 mm
≤ 10% mm			
≤ 15% of Sn			
10 - 30 V DC			
≤ 10 %			
2 Wire; NO / NC			
≤ 300 mA			≤ 100 mA
> 4mA			> 5mA
< 0.75 mA			
750 Hz		500 Hz	100 Hz
Red LED			
≤ 3.5V @ 4mA ≤ 4.5 @100mA ≤ 6.5V @300mA			
0.5 / 0.4			
-10°C to 70°C			
Yes			
Yes			
IP67			
1000VAC @ 50Hz – 1 min			
10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each			
30g for 1ms in X, Y & Z axis for 6 mins each			
≤ 10% of Sn			
Nickel Plated Brass Stainless Steel on request			
Pre wired Cable 2m M12 Connector (On request)			

INDUCTIVE PROXIMITY SWITCH (DC 2 Wire Series)		
Dimension	40x40 (Fixed Head)	40x40 (Fixed Head)
Installation	Non-Flush	Non-Flush
Rated Operating Distance (Sn)	15 mm	20 mm
Actual Sensing Distance (Sa)	12.1 mm	16.2 mm
Dimensional Details	Figure No.28	



DC 2 Wires	NO	D20B-4015-M-2-FH	D20B-4020-M-2-FH
	NC	D20B-4015-B-2-FH	D20B-4020-B-2-FH

Minimum Target size (min)	45 x 45 x 1 mm	60 x 60 x 1 mm
Repeat Accuracy	≤ 10% mm	
Hysteresis	≤ 15% of Sn	
Operating Voltage	10 - 30 V DC	
Residual Ripple (at operating Voltage)	≤ 10 %	
Output Circuit Type	2 Wire; NO / NC	
Max. Load Current (On state)	≤ 300 mA	
Min. Load Current (On state)	> 4mA	
Off State current	< 0.75 mA	
Switching Frequency	750 Hz	
O/P status Indicator	Red LED	
Voltage Drop	≤ 3.5V @ 4mA ≤ 4.5 @100mA ≤ 6.5V @300mA	
Correction factor - Brass / Al	0.5 / 0.4	
Operating Temperature Range	-10°C to 70°C	
Over load & Short circuit Protection	Yes	
Reverse Polarity Protection	Yes	
Environmental Protection	IP67	
Dielectric strength	1000VAC @ 50Hz – 1 min	
Vibration resistance	10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each	
Shock resistance	30g for 1ms in X, Y & Z axis for 6 mins each	
Temperature Drift	≤ 10% of Sn	
Housing Material	PPE	
Termination	Pre wired Cable 2m	

INDUCTIVE PROXIMITY SWITCH (DC 2 Wire Series)	
40x40 (Rotatable Head)	40x40 (Rotatable Head)
Non-Flush	Non-Flush
15 mm	20 mm
12.1 mm	16.2 mm
Figure No.29	
	

D20B-4015-M-2-RH	D20B-4020-M-2-RH
D20B-4015-B-2-RH	D20B-4020-B-2-RH

45 x 45 x 1 mm	60 x 60 x 1 mm
≤ 10% mm	
≤ 15% of Sn	
10 - 30 V DC	
≤ 10 %	
2 Wire; NO / NC	
≤ 300 mA	≤ 100 mA
> 4mA	> 5mA
< 0.75 mA	
500 Hz	100 Hz
Red LED	
≤ 3.5V @ 4mA ≤ 4.5 @100mA ≤ 6.5V @300mA	
0.5 / 0.4	
-10°C to 70°C	
Yes	
Yes	
IP67	
1000VAC @ 50Hz – 1 min	
10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each	
30g for 1ms in X, Y & Z axis for 6 mins each	
≤ 10% of Sn	
PPE	
Pre wired Cable 2m	

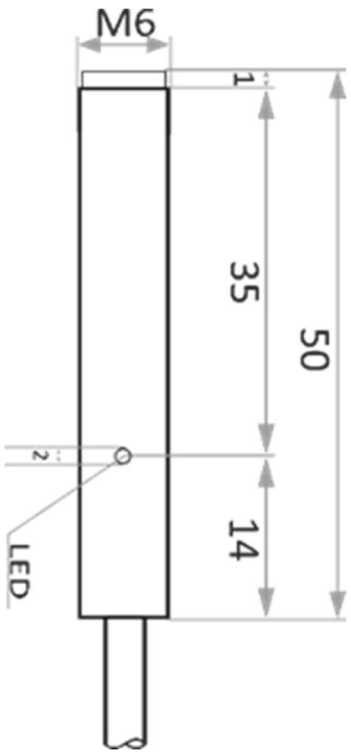


Figure No. 16

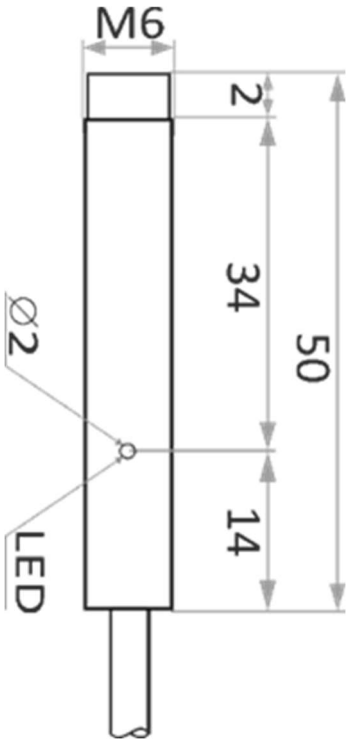


Figure No. 17

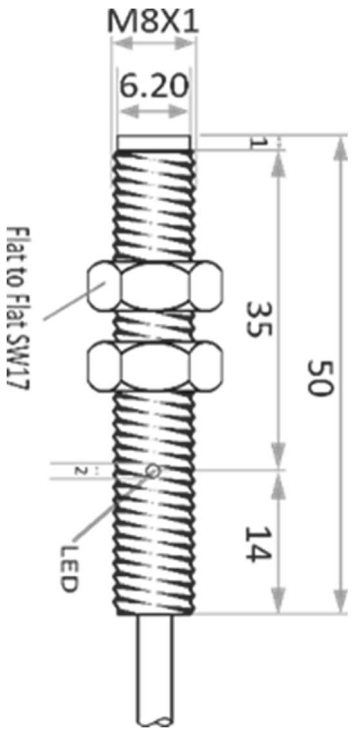


Figure No. 18

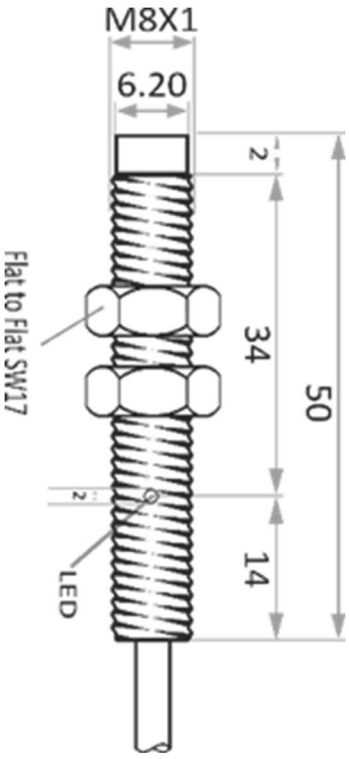


Figure No. 19

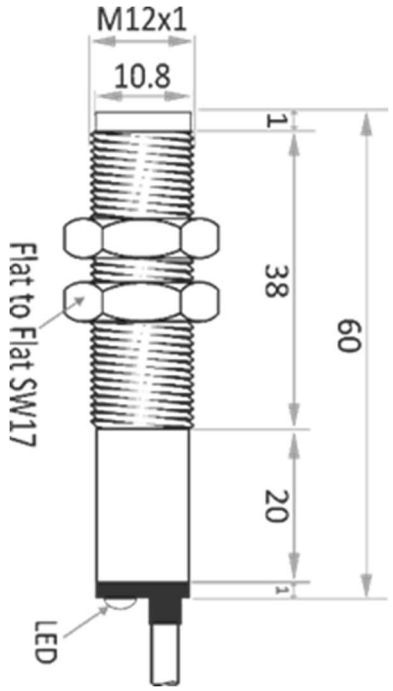


Figure No. 20

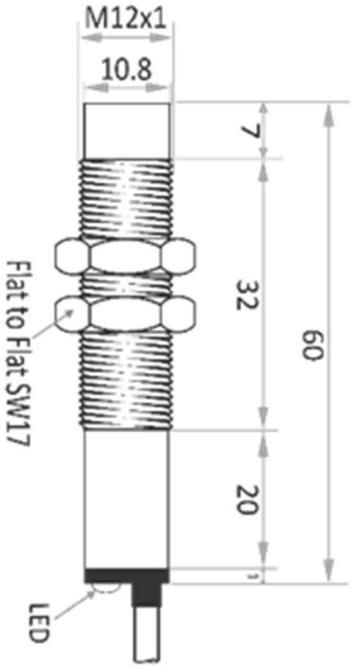


Figure No. 21

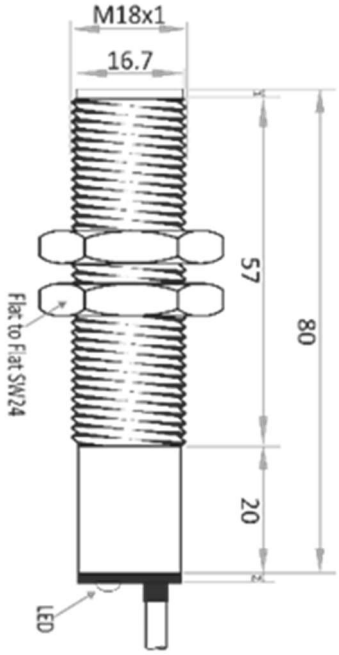


Figure No. 22

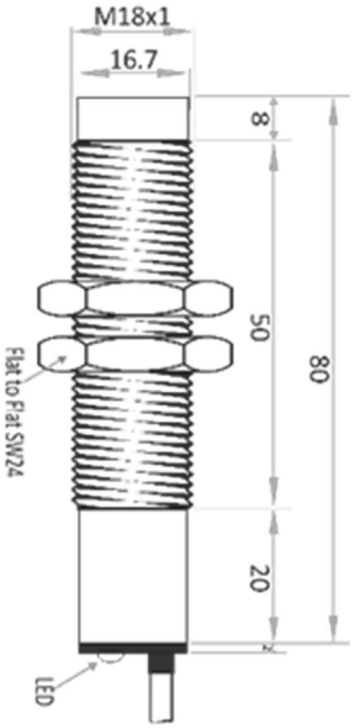


Figure No. 23

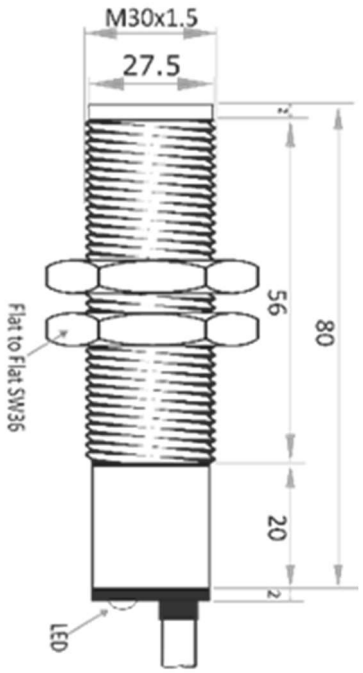


Figure No. 24

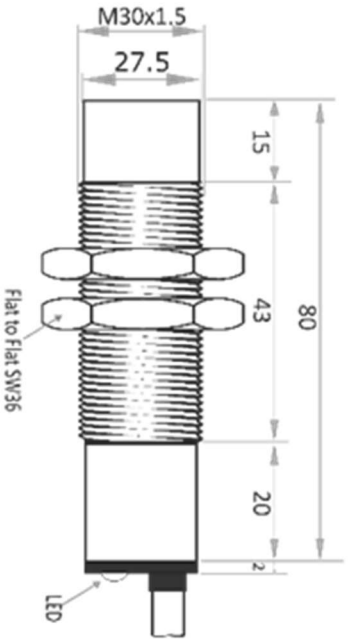


Figure No. 25

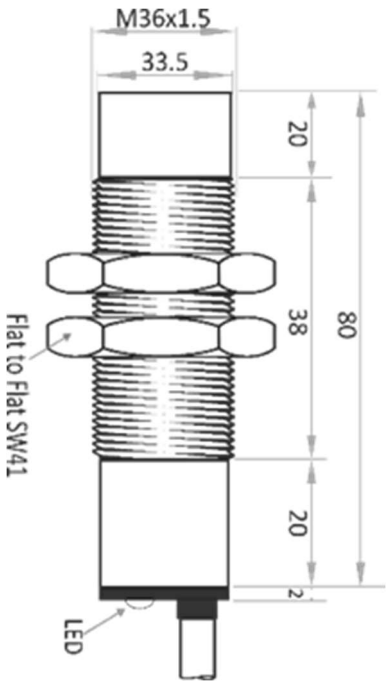


Figure No. 26

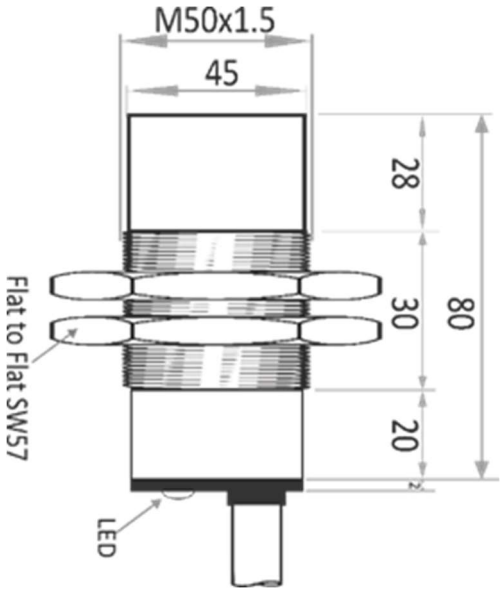


Figure No. 27

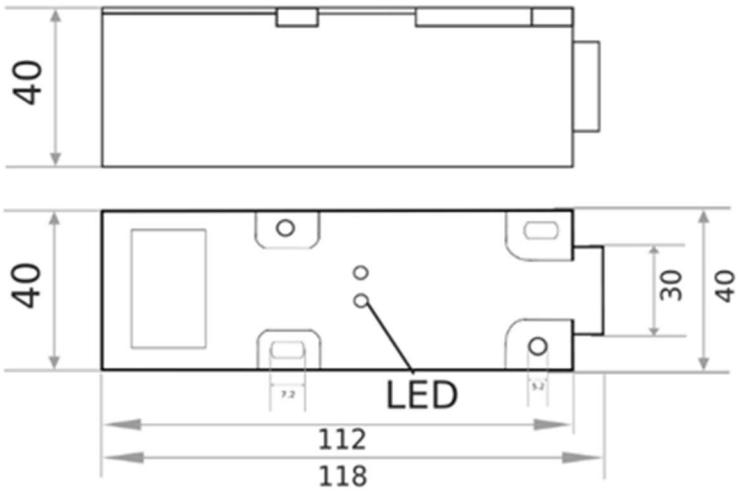


Figure No. 28

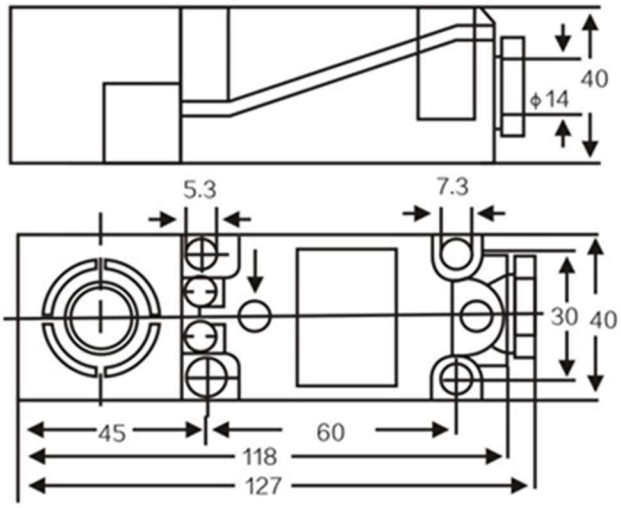


Figure No. 29

INDUCTIVE PROXIMITY SENSOR - DC (2 Wires)

Ordering Code	D	2	0	C	-	1 8	0 5	-	M	3	-	C2

Basic Switch Type
DC - D

No. of Wires
2

Sensing Technique
Inductive - 0

Housing Style
Cylindrical - C
Rectangular - R
Box - B

Housing Dimension
C M6.5 - 06
M8x1 - 08
M12x1 - 12
M18x1 - 18
M30x1.5 - 30
M36x1.5 - 36
M50x1.5 - 50
B 17x17 - 17
40x40 - 40F(Fixed Head) or 40R (Rotatable Head)
R 40x26 - 40

Sensing Range
1mm - 01
2mm - 02
4mm - 04
5mm - 05
8mm - 08
10mm - 10
15mm - 15
20mm - 20
30mm - 30

Output Contact Type
Normally Open - M
Normally Close - B

Load Current
100mA - 1
200mA - 2
300mA - 3

Termination
Cable Length in meters - CX

- AC - 2 wire

INDUCTIVE PROXIMITY SENSOR

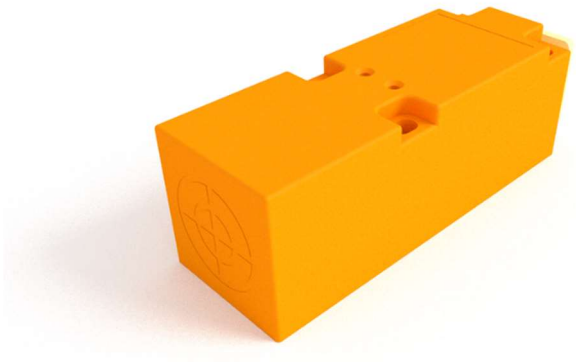
INDUCTIVE PROXIMITY SWITCH (AC) – 200mA			
Dimension	M12x1	M18x1	M18x1
Installation	Flush	Flush	Non-Flush
Sensing distance Sn	2 mm	5 mm	8 mm
Actual Sensing Distance (Sa)	1.6 mm	4.0 mm	6.4 mm
Dimensional Details	Figure No.30	Figure No.32	Figure No.33
Features • 2-Wire AC Switch • Working Voltage 40-250V AC • Shock & Vibration Resistant • Protection Class – IP67 • Load Current – up to 200mA			

DC 2 Wires	NO	A20C-1202-M-2	A20C-1805-M-2	A20C-1808-M-2

Minimum Target size (min)	12 x 12 x 1 mm	18 x 18 x 1 mm	24 x 24 x 1 mm
Repeat Accuracy	≤ 10% mm		
Hysteresis	≤ 15% of Sn		
Operating Voltage	40 - 250V AC		
Maximum Load Current (NO)	200 mA		
No Load Current	≤ 10 mA		
Residual Current	≤ 3.5 mA		
Switching Frequency	25 Hz		
O/P status Indicator	Yes		
Voltage Drop	≤ 12V AC		
Correction factor - Brass / Al	0.5 / 0.4 / 0.4		
Operating Temperature Range	-10°C to 70°C		
Environmental Protection	IP67		
Temperature Drift	≤ 10% of Sn		
Rated Insulation Voltage	≤ 0.5 KV		
Dielectric strength	1000VAC @ 50Hz – 1 min		
Vibration resistance	10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each		
Shock resistance	30g for 1ms in X, Y & Z axis for 6 mins each		
Housing Material	Nickel Plated Brass Stainless Steel on request		
Termination	Prewired 2m (2 x 0.44 Sq. mm)		

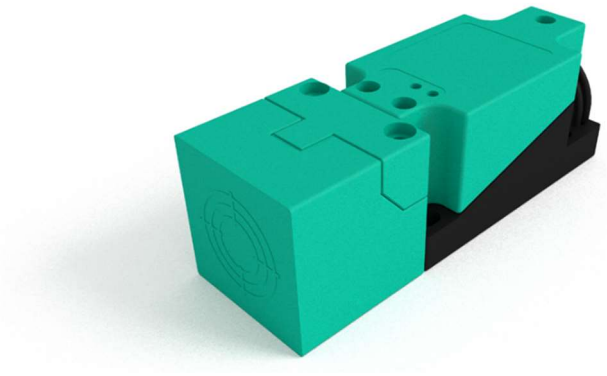
INDUCTIVE PROXIMITY SWITCH (AC) – 200mA			
M30x1.5	M30x1.5	M36x1.5	M50x1.5
Flush	Non-Flush	Non-Flush	Non-Flush
10 mm	15 mm	20 mm	30 mm
8.1 mm	12.1 mm	16.2 mm	24.3 mm
Figure No.34	Figure No.35	Figure No.36	Figure No.37
			
A20C-3010-M-2	A20C-3015-M-2	A20C-3620-M-2	A20C-5030-M-2
30 x 30 x 1 mm	45 x 45 x 1 mm	60 x 60 x 1 mm	90 x 90 x 1 mm
≤ 10% mm			
≤ 15% of Sn			
40 - 250V AC			
200 mA			
≤ 10 mA			
≤ 3.5 mA			
25 Hz			
Yes			
≤ 12V AC			
0.5 / 0.4 / 0.4			
-10°C to 70°C			
IP67			
≤ 10% of Sn			
≤ 0.5 KV			
1000VAC @ 50Hz – 1 min			
10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each			
30g for 1ms in X, Y & Z axis for 6 mins each			
Nickel Plated Brass Stainless Steel on request			
Prewired 2m (2 x 0.44 Sq. mm)			

INDUCTIVE PROXIMITY SWITCH (AC) – 200mA		
Dimension	40x40 (Fixed Head)	40x40 (Fixed Head)
Installation	Non-Flush	Non-Flush
Sensing distance Sn	15 mm	20 mm
Actual Sensing Distance (Sa)	12.1 mm	16.2 mm
Dimensional Details	Figure No.38	



DC 2 Wires	NO	A20B-4015-M-2	A20B-4020-M-2

Minimum Target size (min)	45 x 45 x 1 mm	60 x 60 x 1 mm
Repeat Accuracy	≤ 10% mm	
Hysteresis	≤ 20% of Sn	
Operating Voltage	40 - 250V AC	
Maximum Load Current (NO)	≤200 mA	
No Load Current (On State)	≤ 10 mA	
Residual Current	≤ 3.5 mA	
Switching Frequency	25 Hz	
O/P status Indicator	Yes	
Voltage Drop	≤ 12V AC	
Correction factor - Brass / Al	0.5 / 0.4 / 0.4	
Operating Temperature Range	-10°C to 70°C	
Environmental Protection	IP67	
Temperature Drift	≤ 10% of Sn	
Rated Insulation Voltage	≤ 0.5 KV	
Dielectric strength	1000VAC @ 50Hz – 1 min	
Vibration resistance	10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each	
Shock resistance	30g for 1ms in X, Y & Z axis for 6 mins each	
Housing Material	Nickel Plated Brass	
Termination	Prewired 2m (2 x 0.44 Sq. mm)	

INDUCTIVE PROXIMITY SWITCH (AC) – 200mA	
40x40 (Rotatable Head)	40x40 (Rotatable Head)
Non-Flush	Non-Flush
15 mm	20 mm
12.1 mm	16.2 mm
Figure No.39	
	

A20B-4015-M-2	A20B-4020-M-2

45 x 45 x 1 mm	60 x 60 x 1 mm
≤ 10% mm	
≤ 15% of Sn	
40 - 250V AC	
≤200 mA	
≤ 10 mA	
≤ 3.5 mA	
25 Hz	
Yes	
≤ 12V AC	
0.5 / 0.4 / 0.4	
-10°C to 70°C	
IP67	
≤ 10% of Sn	
≤ 0.5 KV	
1000VAC @ 50Hz – 1 min	
10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each	
30g for 1ms in X, Y & Z axis for 6 mins each	
Nickel Plated Brass	
Prewired 2m (2 x 0.44 Sq. mm)	

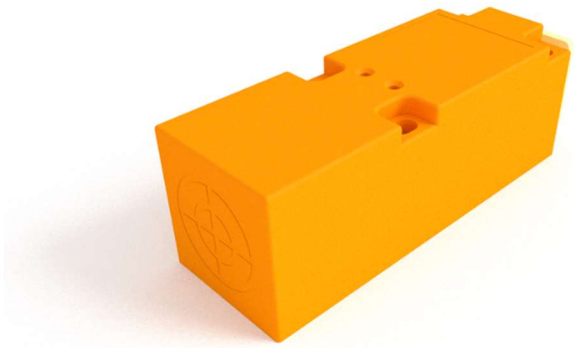
INDUCTIVE PROXIMITY SWITCH (AC) – 500mA		
Dimension	M18x1	M18x1
Installation	Flush	Non-Flush
Sensing distance Sn	5 mm	8 mm
Actual Sensing Distance (Sa)	4.0 mm	6.4 mm
Dimensional Details	Figure No.32	Figure No.33
Features • 2-Wire AC Switch • Working Voltage 40-250V AC • Shock & Vibration Resistant • Protection Class – IP67 • Load Current – up to 500mA		

DC 2 Wires	NO	A20C-1805-M-5	A20C-1808-M-5
	NC	A20C-1805-B-5	A20C-1808-B-5

Minimum Target size (min)	18 x 18 x 1 mm	24 x 24 x 1 mm
Repeat Accuracy	≤ 10% mm	
Hysteresis	≤ 15% of Sn	
Operating Voltage	40 - 250V AC	
Maximum Load Current	500 mA	
No Load Current	≤ 10 mA	
Residual Current	≤ 3.5 mA	
Switching Frequency	25 Hz	
O/P status Indicator	Yes	
Voltage Drop	≤ 4.5V AC	
Correction factor - Brass / Al	0.5 / 0.4 / 0.4	
Operating Temperature Range	-10°C to 70°C	
Environmental Protection	IP67	
Temperature Drift	≤ 10% of Sn	
Rated Insulation Voltage	≤ 0.5 KV	
Dielectric strength	1000VAC @ 50Hz – 1 min	
Vibration resistance	10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each	
Shock resistance	30g for 1ms in X, Y & Z axis for 6 mins each	
Housing Material	Nickel Plated Brass Stainless Steel on request	
Termination	Prewired 2m (2 x 0.44 Sq. mm)	

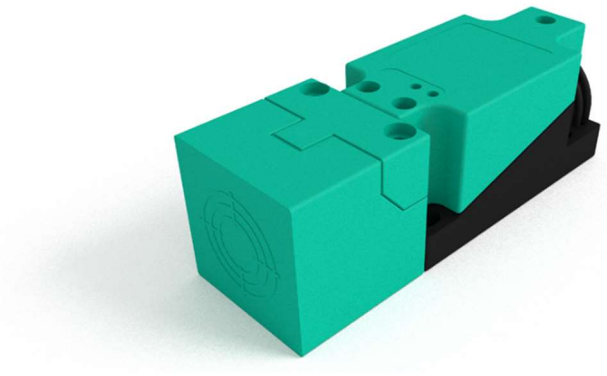
INDUCTIVE PROXIMITY SWITCH (AC) – 500mA			
M30x1.5	M30x1.5	M36x1.5	M50x1.5
Flush	Non-Flush	Non-Flush	Non-Flush
10 mm	15 mm	20 mm	30 mm
8.1 mm	12.1 mm	16.2 mm	24.3 mm
Figure No.34	Figure No.35	Figure No.36	Figure No.37
			
A20C-3010-M-5	A20C-3015-M-5	A20C-3620-M-5	A20C-5030-M-5
A20C-3010-B-5	A20C-3015-B-5	A20C-3620-B-5	A20C-5030-B-5
30 x 30 x 1 mm	45 x 45 x 1 mm	60 x 60 x 1 mm	90 x 90 x 1 mm
≤ 10% mm			
≤ 15% of Sn			
40 - 250V AC			
500 mA			
≤ 10 mA			
≤ 3.5 mA			
25 Hz			
Yes			
≤ 4.5V AC			
0.5 / 0.4 / 0.4			
-10°C to 70°C			
IP67			
≤ 10% of Sn			
≤ 0.5 KV			
1000VAC @ 50Hz – 1 min			
10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each			
30g for 1ms in X, Y & Z axis for 6 mins each			
Nickel Plated Brass Stainless Steel on request			
Prewired 2m (2 x 0.44 Sq. mm)			

INDUCTIVE PROXIMITY SWITCH (AC) – 500mA		
Dimension	40x40 (Fixed Head)	40x40 (Fixed Head)
Installation	Non-Flush	Non-Flush
Sensing distance Sn	15 mm	20 mm
Actual Sensing Distance (Sa)	12.1 mm	16.2 mm
Dimensional Details	Figure No.38	



DC 2 Wires	NO	A20B-4015-M-5	A20B-4020-M-5
	NC	A20B-4015-B-5	A20B-4020-B-5

Minimum Target size (min)	45 x 45 x 1 mm	60 x 60 x 1 mm
Repeat Accuracy	≤ 10% mm	
Hysteresis	≤ 20% of Sn	
Operating Voltage	40 - 250V AC	
Maximum Load Current	≤500 mA	
No Load Current (On State)	≤ 10 mA	
Residual Current	≤ 3.5 mA	
Switching Frequency	25 Hz	
O/P status Indicator	Yes	
Voltage Drop	≤ 4.5V AC	
Correction factor - Brass / Al	0.5 / 0.4 / 0.4	
Operating Temperature Range	-10°C to 70°C	
Environmental Protection	IP67	
Temperature Drift	≤ 10% of Sn	
Rated Insulation Voltage	≤ 0.5 KV	
Dielectric strength	1000VAC @ 50Hz – 1 min	
Vibration resistance	10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each	
Shock resistance	30g for 1ms in X, Y & Z axis for 6 mins each	
Housing Material	Nickel Plated Brass	
Termination	Prewired 2m (2 x 0.44 Sq. mm)	

INDUCTIVE PROXIMITY SWITCH (AC) – 500mA	
40x40 (Rotatable Head)	40x40 (Rotatable Head)
Non-Flush	Non-Flush
15 mm	20 mm
12.1 mm	16.2 mm
Figure No.39	
	

A20B-4015-M-5	A20B-4020-M-5
A20B-4015-B-5	A20B-4020-B-5

45 x 45 x 1 mm	60 x 60 x 1 mm
≤ 10% mm	
≤ 15% of Sn	
40 - 250V AC	
≤500 mA	
≤ 10 mA	
≤ 3.5 mA	
25 Hz	
Yes	
≤ 4.5V AC	
0.5 / 0.4 / 0.4	
-10°C to 70°C	
IP67	
≤ 10% of Sn	
≤ 0.5 KV	
1000VAC @ 50Hz – 1 min	
10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each	
30g for 1ms in X, Y & Z axis for 6 mins each	
Nickel Plated Brass	
Prewired 2m (2 x 0.44 Sq. mm)	

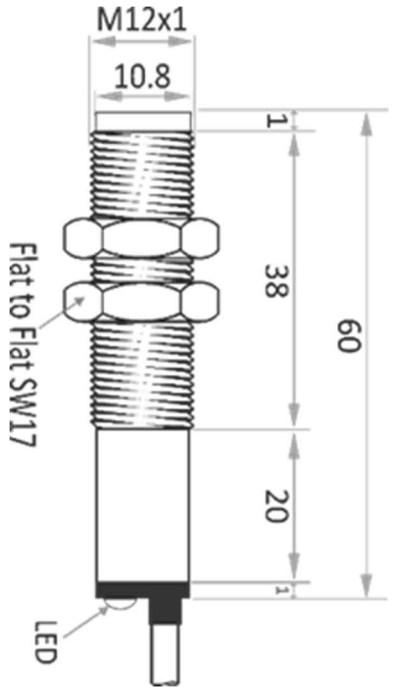


Figure No. 30

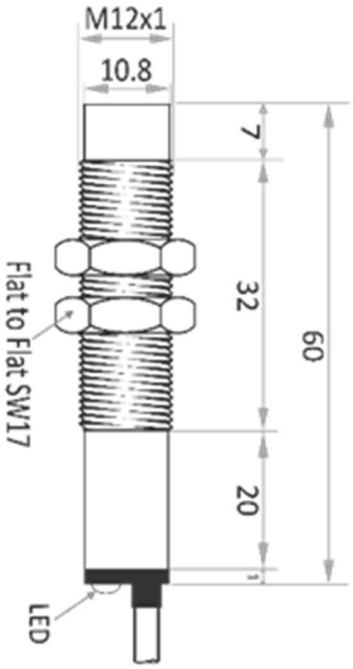


Figure No. 31

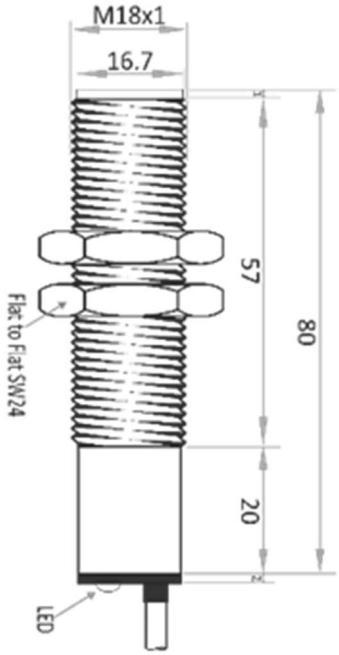


Figure No. 32

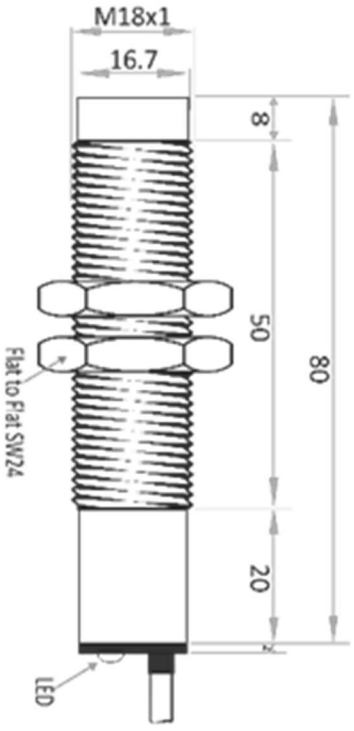


Figure No. 33

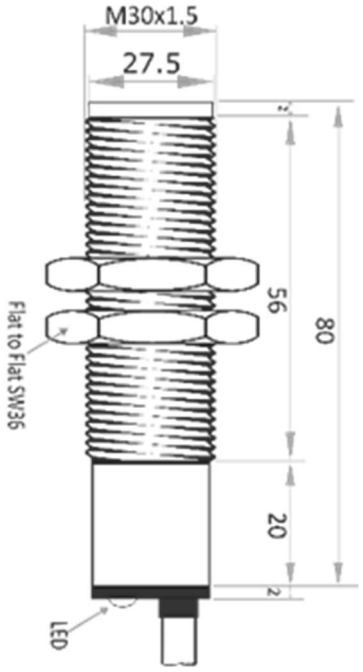


Figure No. 34

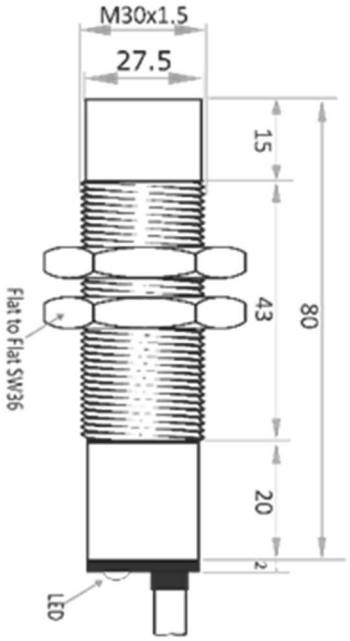


Figure No. 35

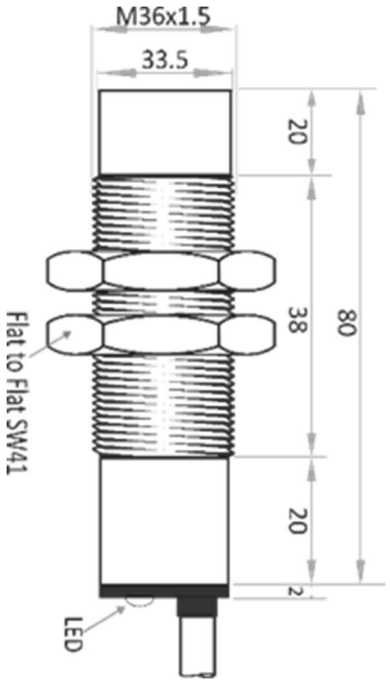


Figure No. 36

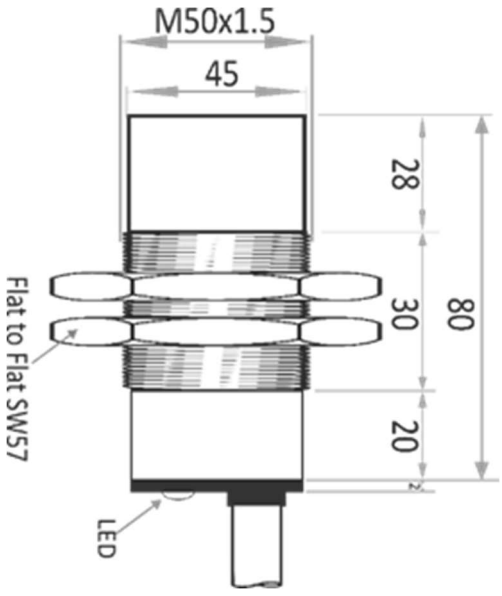


Figure No. 37

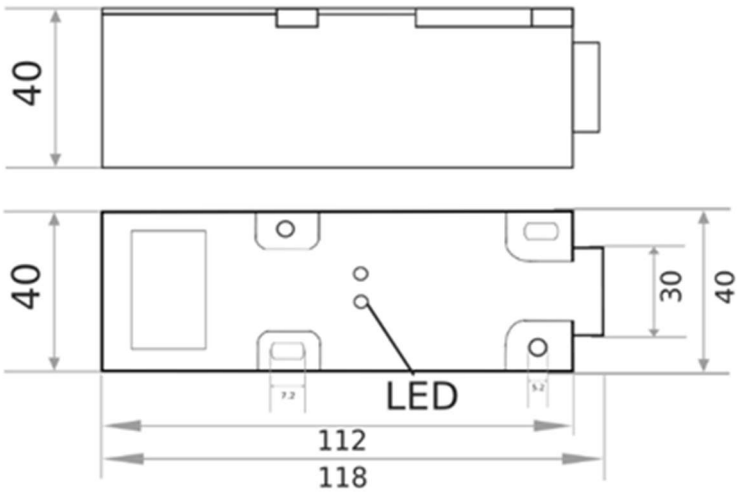


Figure No. 38

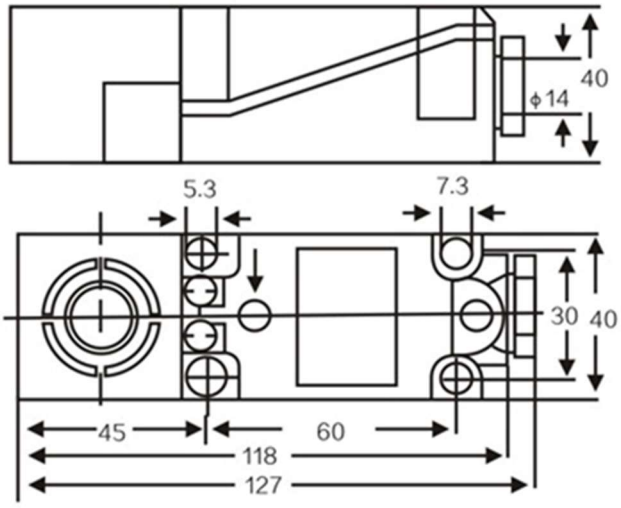


Figure No. 39

INDUCTIVE PROXIMITY SENSOR - AC (2 Wires)

Ordering Code	A	2	0	C	-	1 8	0 5	-	M	3	-	C2

Basic Switch Type
AC - A

No. of Wires
2

Sensing Technique
Inductive - 0

Housing Style
Cylindrical - C
Rectangular - R
Box - B

Housing Dimension
C M6.5 - 06
M8x1 - 08
M12x1 - 12
M18x1 - 18
M30x1.5 - 30
M36x1.5 - 36
M50x1.5 - 50
B 17x17 - 17
40x40 - 40F(Fixed Head) or 40R (Rotatable Head)
R 40x26 - 40

Sensing Range
1mm - 01
2mm - 02
4mm - 04
5mm - 05
8mm - 08
10mm - 10
15mm - 15
20mm - 20
30mm - 30

Output Contact Type
Normally Open - M
Normally Close - B

Load Current
100mA - 1
200mA - 2
300mA - 3
500mA - 5

Termination
Cable Length in meters - CX

NAMUR PROXIMITY SENSOR

- *DC - 2 wire*

NAMUR INDUCTIVE PROXIMITY SWITCH (DC)		
Dimension	M12x1	M12x1
Installation	Flush	Non-Flush
Sensing distance Sn	2 mm	4 mm
Actual Sensing Distance (Sa)	1.6 mm	3.2 mm
Dimensional Details	Figure No.40	Figure No.41
Features • Intrinsically Safe NAMUR Sensor • Cylindrical Metal housing • High Switching Speed • Shock & Vibration Resistant • Protection Class – IP67 • Output circuit type – Namur		

DC 2 Wires	NC	D20C-1202-NA	D20C-1204-NA

Minimum Target size (min) (Mild Steel)	12 x 12 x 1 mm
Repeat Accuracy	≤ 10% mm
Hysteresis	≤ 15% of Sn
Operating Voltage	7.7 - 9 V DC
Nominal Voltage	8.2 VDC
Residual Ripple (at operating Voltage)	≤ 10 %
Output Circuit Type	Namur
O/P Current (undamped/No Target)	> 3mA
O/P Current (damped/Target present)	< 1mA
Effective Resistance in Control Circuit	500 – 1100 ohms
Self-capacitance of sensor	< 30nf
Switching Frequency	5000 Hz
Correction factor - Brass / Al / Cu	0.5 / 0.4 / 0.4
Operating Temperature Range	-10°C to 85°C
Environmental Protection	IP67
Dielectric strength	1000VAC @ 50Hz – 1 min
Vibration resistance	10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each
Shock resistance	30g for 1ms in X, Y & Z axis for 6 mins each
Temperature Drift	≤ 10% of Sn
Housing Material	Nickel Plated Brass Stainless Steel on request
Termination	2 x 0.22mm^2, 2m Cable (Connector available on request)
Standard Compliance	IS 5780-1980 NAMUR DIN 19234

NAMUR INDUCTIVE PROXIMITY SWITCH (DC)			
M18x1	M18x1	M30x1.5	M30x1.5
Flush	Non-Flush	Flush	Non-Flush
5 mm	8 mm	10 mm	15 mm
4.0 mm	6.4 mm	8.1 mm	12.1 mm
Figure No.42	Figure No.43	Figure No.44	Figure No.45
			
D20C-1805-NA	D20C-1808-NA	D20C-3010-NA	D20C-3015-NA
18 x 18 x 1 mm	24 x 24 x 1 mm	30 x 30 x 1 mm	45 x 45 x 1 mm
≤ 10% mm			
≤ 15% of Sn			
7.7 - 9 VDC			
8.2 VDC			
≤ 10 %			
Namur			
> 4mA			
< 1mA			
500 – 1100 ohms			
< 30nf			
2000 Hz		1000 Hz	
0.5 / 0.4			
-10°C to 85°C			
IP67			
1000VAC @ 50Hz – 1 min			
10Hz – 55Hz, 1mm in X, Y & Z axis for 30 mins each			
30g for 1ms in X, Y & Z axis for 6 mins each			
≤ 10% of Sn			
Nickel Plated Brass Stainless Steel on request			
2 x 0.22mm^2, 2m Cable (Connector available on request)			
IS 5780-1980 NAMUR DIN 19234			

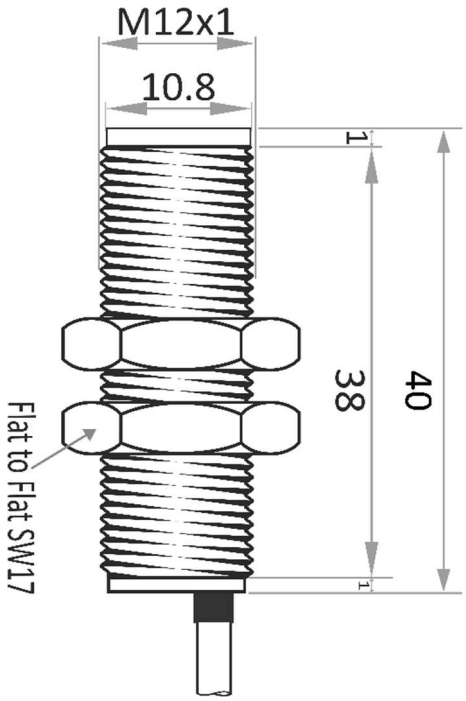


Figure No. 40

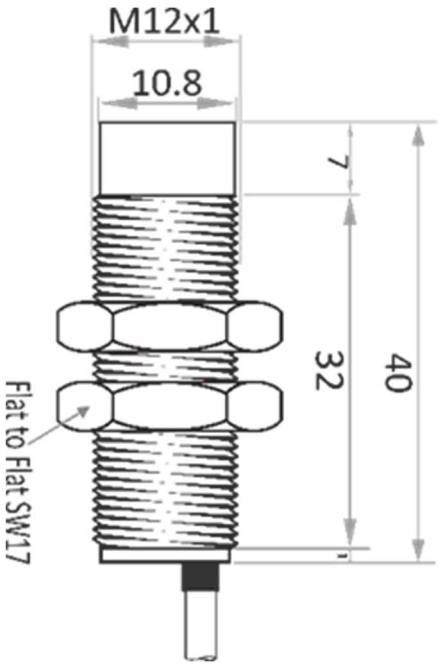


Figure No. 41

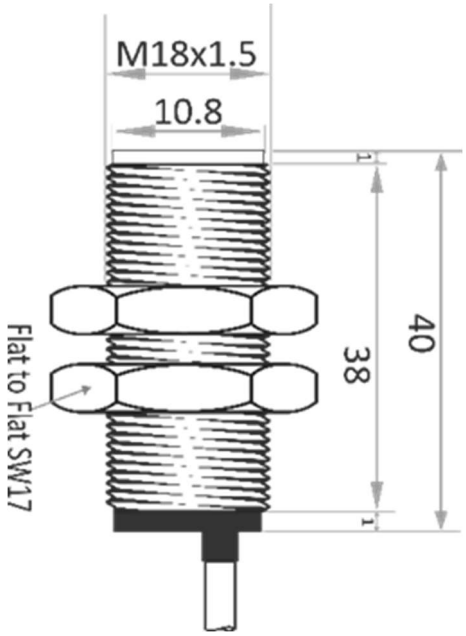


Figure No. 42

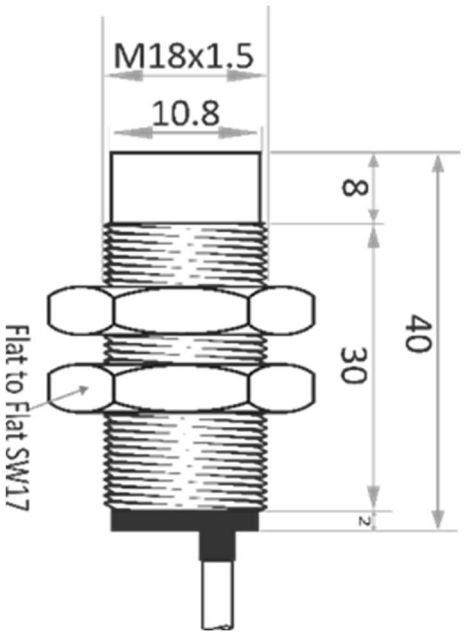


Figure No. 43

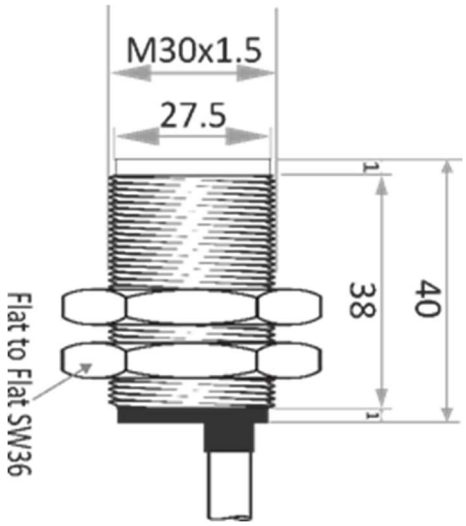


Figure No. 44

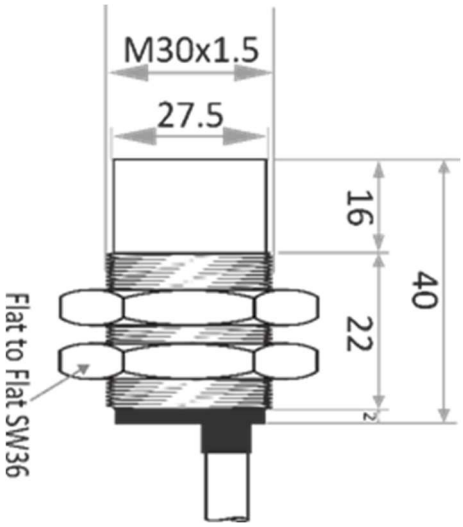


Figure No. 45

NAMUR INDUCTIVE PROXIMITY SENSOR - DC (2 Wires)

Ordering Code	D	2	0	C	-	1 8	0 5	-	NA

Basic Switch Type
DC - D

No. of Wires
2

Sensing Technique
Inductive - 0

Housing Style
Cylindrical - C

Housing Dimension

C	M12x1 - 12
	M18x1 - 18
	M30x1.5 - 30
	M36x1.5 - 36
	M50x1.5 - 50

Sensing Range
2mm - 02
4mm - 04
5mm - 05
8mm - 08
10mm - 10
15mm - 15
20mm - 20
30mm - 30

Output Circuit
Namur - NA

PHOTO ELECTRIC SENSOR

- Diffuse
- Retro Reflective
- Through Beam

Photoelectric Proximity Sensors

Intelligent Sensing Solutions for Modern Automation

In today's fast-paced industrial environments, precision, reliability, and efficiency are more critical than ever. Our range of **Photoelectric Proximity Sensors** is engineered to meet these demands, offering state-of-the-art light-based detection solutions that deliver accurate, contactless sensing across a wide variety of applications.

Photoelectric sensors operate by emitting a beam of light—either visible or infrared—and detecting changes in the beam to determine the presence, position, or absence of an object. This non-contact method ensures minimal wear and tear, greater durability, and consistent performance, even in high-speed or harsh environments.

Technology That Adapts to Your Needs

Our sensors are available in multiple configurations to suit diverse sensing requirements:

- **Through-Beam Sensors**
  Offer the longest sensing range and the highest reliability by using separate emitter and receiver units. Ideal for detecting small objects or transparent materials.
- **Retro-Reflective Sensors**
  Utilize a single housing with a built-in emitter and receiver, along with a reflector. These are space-saving and simple to install, suitable for most standard detection tasks.
- **Diffuse Reflective Sensors**
  Combine the emitter and receiver in one unit and detect light reflected directly from the object. Perfect for close-range detection where space is limited.

Each sensor type comes equipped with advanced features such as background suppression, ambient light immunity, adjustable sensitivity, and LED status indicators for easy diagnostics.

Key Features & Benefits

- **Non-contact detection** minimizes mechanical wear and maintenance
- **Fast response times** for high-speed production lines
- **Compact and robust housing** designs for easy integration
- **Versatile mounting options** to suit various machines and layouts
- **Wide range of detection distances**, up to several meters
- **Reliable operation in dusty, oily, or wet conditions**

Whether used for position sensing, counting, object detection, or safety interlocking, our photoelectric sensors provide exceptional accuracy and reliability.

PHOTO ELECTRIC SWITCH (DC) – Nickel Plated Brass Housing							
Type		Diffuse		Diffuse			
Dimension		M18x1		M30x1			
Dimensional Details		Figure No.46		Figure No.47			
Sensing distance **Sn** (mm)		100	300	500	1000	1500	
		500	1000				
Features	• Metal Housing • Adjustable Sensing Range • Protection Class – IP67 • Load Current upto 200mA • Short circuit protected • Output circuit type - NPN / PNP; NO / NC						

PNP DC 3 Wires	NO (Light ON)	D31C-18DR-**Sn**-PL-2S	D31C-30DR-**Sn**-PL-2S
	NC (Dark ON)	D31C-18DR-**Sn**-PD-2S	D31C-30DR-**Sn**-PD-2S

NPN DC 3 Wires	NO (Light ON)	D31C-18DR-**Sn**-NL-2S	D31C-30DR-**Sn**-NL-2S
	NC (Dark ON)	D31C-18DR-**Sn**-ND-2S	D31C-30DR-**Sn**-ND-2S

Minimum target Size	200x200 mm white paper of 90% reflectivity
Hysteresis	< 25% (of Sd)
Light Source	Infrared
Maximum Ambient Light	10000 lux
Opening Angle	±10°
Operating Voltage	10 - 30 V DC
Supply Voltage Ripple	< 10% peak to peak
Maximum Load Current	200 mA
Current Consumption	≤ 50 mA
Switching Frequency	250 Hz
Voltage Drop	< 2.5V
Operating Temperature Range	0°C to 60°C
Distance/Detection Range adjustment (Optional)	Via Multi turn Potentiometer
Environmental Protection (without / with range adjustment)	IP67 / IP64
Reverse Polarity Protection	Yes
Short Circuit Protection	Yes
Temperature Drift at switching Point	± 10%
Housing Material	Housing: Nickel Plated Brass (Stainless Steel on request) Lens: PMMA
Standard length of Cable	2m
Plug in Connector (On Request)	M12 Connector (3/4 Pin)

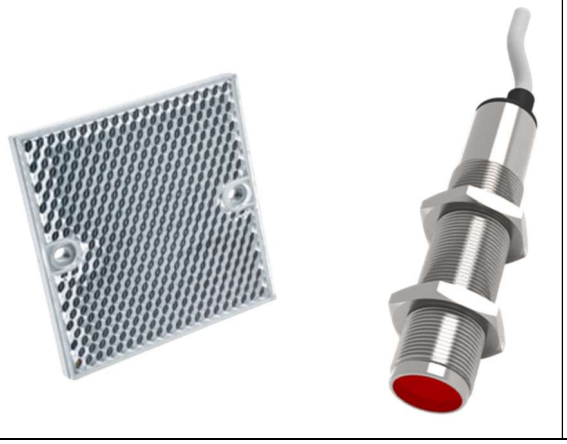
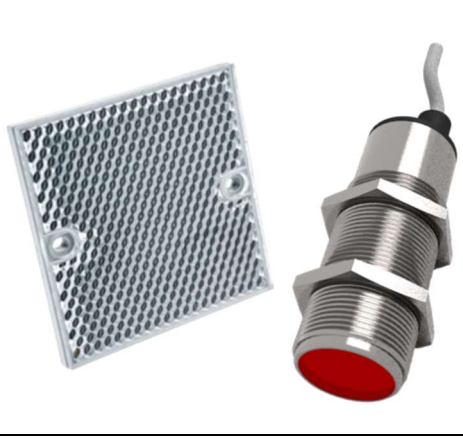
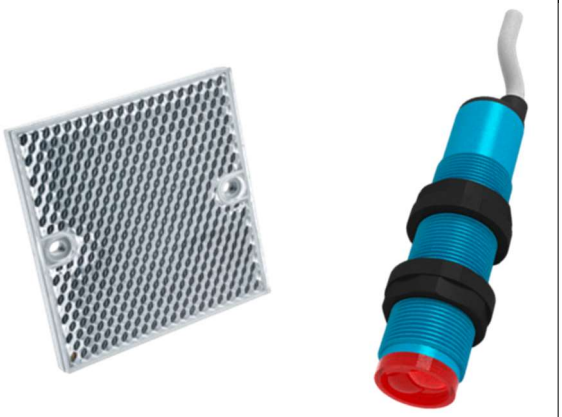
PHOTO ELECTRIC SWITCH (DC) – Nickel Plated Brass Housing								
Retro Reflective			Retro Reflective	Through Beam				
M18x1			M30x1	M18x1				
Figure No.48			Figure No.49	Figure No.50				
100-1000	200-2000	300-3000	2500-15000	1000	3000	5000		
500-5000		1500-10000	3500-20000	10000		15000		
								
D31C-18RR-**Sn**-PL-2S			D31C-30RR-**Sn**-PL-2S	D31C-18TB-**Sn**-PL-2S				
D31C-18RR-**Sn**-PD-2S			D31C-30RR-**Sn**-PD-2S	D31C-18TB-**Sn**-PD-2S				
D31C-18RR-**Sn**-NL-2S			D31C-30RR-**Sn**-NL-2S	D31C-18TB-**Sn**-NL-2S				
D31C-18RR-**Sn**-ND-2S			D31C-30RR-**Sn**-ND-2S	D31C-18TB-**Sn**-ND-2S				
200x200 mm white paper of 90% reflectivity								
< 25% (of Sd)								
Infrared								
10000 lux								
±10°								
10 - 30 V DC								
< 10% peak to peak								
200 Ma								
≤ 50 mA								
250 Hz								
< 2.5V								
0°C to 60°C								
Via Multi turn Potentiometer								
IP67 / IP64								
Yes								
Yes								
± 10%								
Housing: Nickel Plated Brass (Stainless Steel on request) Lens: PMMA								
2m								
M12 Connector (3/4 Pin)								

PHOTO ELECTRIC SWITCH (DC) – Plastic Housing						
Type	Diffuse		Diffuse			
Dimension	M18x1		M30x1			
Dimensional Details	Figure No.46		Figure No.47			
Sensing distance **Sn** (mm)	100	300	500	1000	1500	
	500	1000				
Features • Plastic Housing • Adjustable Sensing Range • Protection Class - IP67 • Load Current upto 200mA • Short circuit protected • Output circuit type - NPN / PNP; NO / NC						

PNP DC 3 Wires	NO (Light ON)	D31C-18DR-**Sn**-PL-2S-PBT	D31C-30DR-**Sn**-PL-2S-PBT
	NC (Dark ON)	D31C-18DR-**Sn**-PD-2S-PBT	D31C-30DR-**Sn**-PD-2S-PBT

NPN DC 3 Wires	NO (Light ON)	D31C-18DR-**Sn**-NL-2S-PBT	D31C-30DR-**Sn**-NL-2S-PBT
	NC (Dark ON)	D31C-18DR-**Sn**-ND-2S-PBT	D31C-30DR-**Sn**-ND-2S-PBT

Minimum target Size	200x200 mm white paper of 90% reflectivity
Hysteresis	< 25% (of Sd)
Light Source	Infrared
Maximum Ambient Light	10000 lux
Opening Angle	±10°
Operating Voltage	10 - 30 V DC
Supply Voltage Ripple	< 10% peak to peak
Maximum Load Current	200 mA
Current Consumption	≤ 50 mA
Switching Frequency	250 Hz
Voltage Drop	< 2.5V
Operating Temperature Range	0°C to 60°C
Distance/Detection Range adjustment (Optional)	Via Multi turn Potentiometer
Environmental Protection (without / with range adjustment)	IP67 / IP64
Reverse Polarity Protection	Yes
Short Circuit Protection	Yes
Temperature Drift at switching Point	± 10%
Housing Material	Housing: Nickel Plated Brass (Stainless Steel on request) Lens: PMMA
Standard length of Cable	2m
Plug in Connector (On Request)	M12 Connector (3/4 Pin)

Retro Reflective			Retro Reflective	Through Beam		
M18x1			M30x1	M18x1		
Figure No.48			Figure No.49	Figure No.50		
100-1000	200-2000	300-3000	2500-15000	1000	3000	5000
500-5000		1500-10000	3500-20000	15000		10000
						

D31C-18RR-**Sn**-PL-2S-PBT	D31C-30RR-**Sn**-PL-2S-PBT	D31C-18TB-**Sn**-PL-2S-PBT
D31C-18RR-**Sn**-PD-2S-PBT	D31C-30RR-**Sn**-PD-2S-PBT	D31C-18TB-**Sn**-PD-2S-PBT

D31C-18RR-**Sn**-NL-2S-PBT	D31C-30RR-**Sn**-NL-2S-PBT	D31C-18TB-**Sn**-NL-2S-PBT
D31C-18RR-**Sn**-ND-2S-PBT	D31C-30RR-**Sn**-ND-2S-PBT	D31C-18TB-**Sn**-ND-2S-PBT

200x200 mm white paper of 90% reflectivity
< 25% (of Sd)
Infrared
10000 lux
±10°
10 - 30 V DC
< 10% peak to peak
200 Ma
≤ 50 mA
250 Hz
< 2.5V
0°C to 60°C
Via Multi turn Potentiometer
IP67 / IP64
Yes
Yes
± 10%
Housing: PPE Lens: PMMA
Prewired 3 Core, 2m Cable

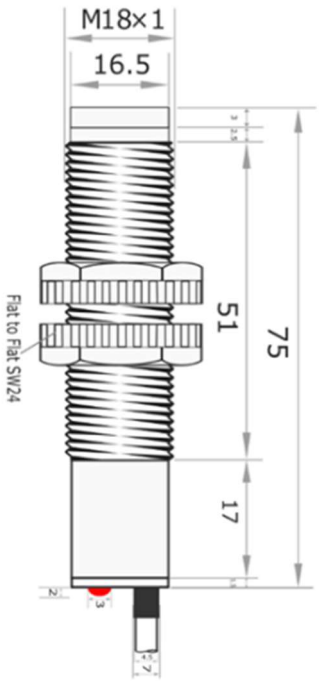


Figure No. 46

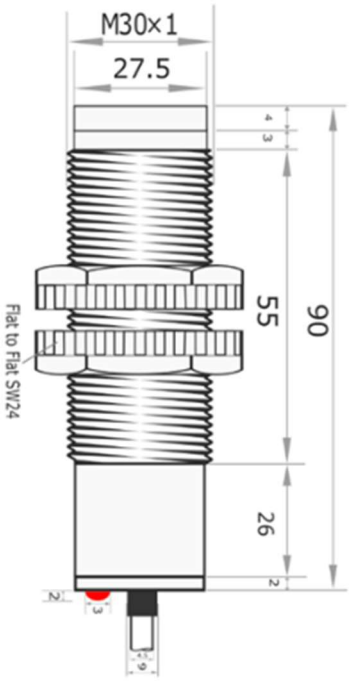


Figure No. 47

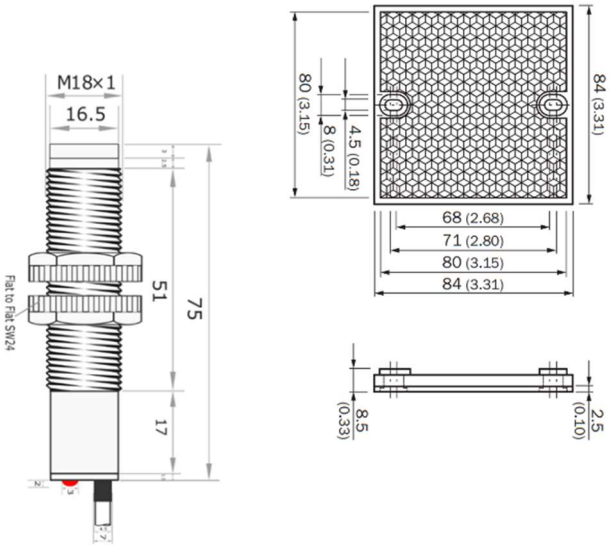


Figure No. 48

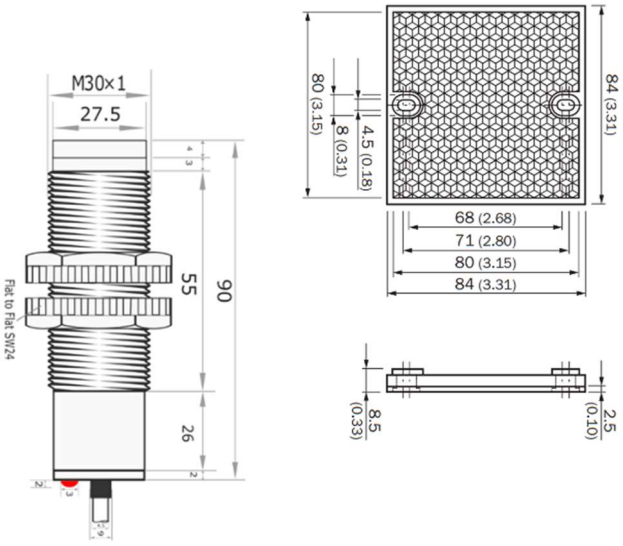


Figure No. 49

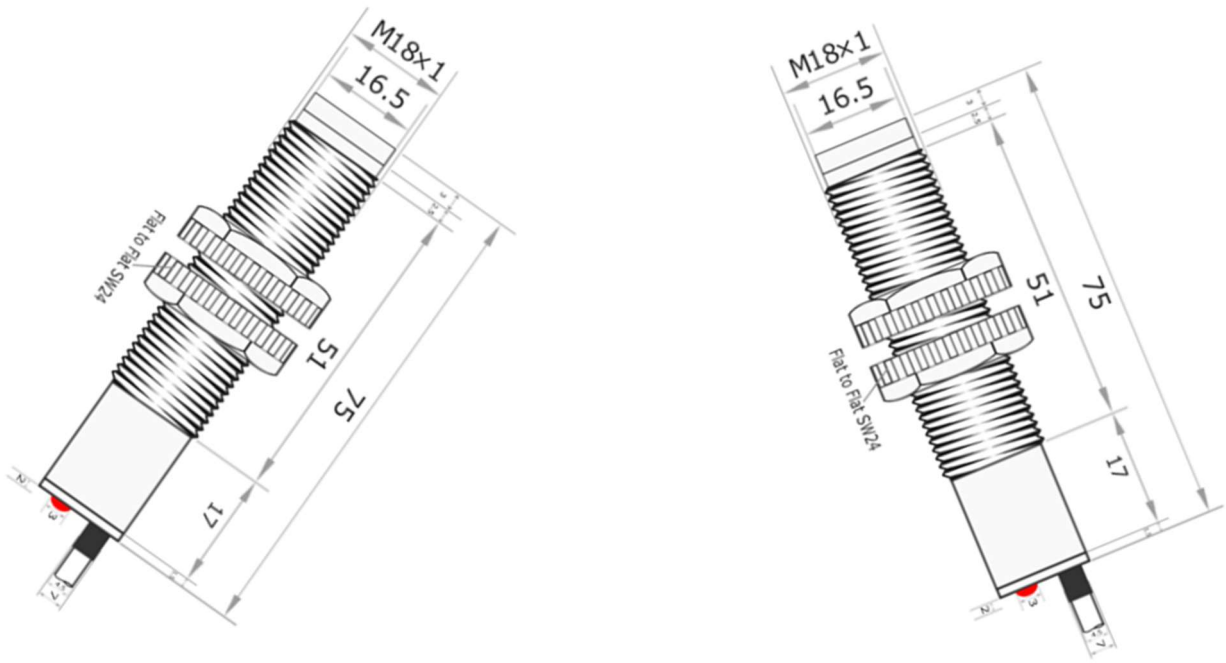

M18x1
16.5
Flat to Flat SW24
51
75
17
M18x1
16.5
51
75
Flat to Flat SW24
17

Figure No. 50

PHOTO ELECTRIC SENSOR - DC (3 or 4 Wires)

Ordering Code	D	3	1	C	-	18	DR	-	100	-	P	L	2	S	-	C2

Basic Switch Type
DC - D

No. of Wires
3
4

Sensing Technique
Photoelectric - 1

Housing Style
Cylindrical - C

Housing Dimension
C M18x1 - 18
M30x1.5 - 30

Type of Sensor
Diffuse Reflective - DR
Retro-Reflective - RR
Through Beam - TB

Detection Range
DR 100 - 500 mm (M18)
1000 - 2500 mm (M30)
RR 1000 - 1000 mm (M18)
15000 - 20000 mm (M30)
TB 1000 - 15000 mm (M18)

Output Circuit Type
PNP - P
NPN - N

Output Contact Type
Light ON - L
Dark ON - D
Complementary(NO+NC) - C

Load Current
100mA - 1
200mA - 2

Version
Economy (without SCP) - E
Short Circuit Protection (SCP) - S

Termination
Cable Length in meters - CX

CAPACITIVE PROXIMITY SENSOR ▪ DC - 3 wire

CAPACTIVE PROXIMITY SWITCH (DC 3 Wire Series)	
Dimension	M30x1
Sensing Distance (Sd)	10 mm
Actual Sensing Distance (Sa)	8.1 mm
Dimensional Details	Figure No.51

Features

- **Cylindrical Metal housing**
- **Shock & Vibration Resistant**
- **Protection Class – IP64**
- **Fine Setting Pot available**
- **Short Circuit & Reverse Polarity Protected**

DC 3 Wires	PNP	NO	D32C-3010-PM-3S
		NC	D32C-3010-PB-3S

DC 3 Wires	NPN	NO	D32C-3010-NM-3S
		NC	D32C-3010-NB-3S

Minimum Target size (min)	45 x 45 x 1 mm	
Correction Factors	Metals/Water	1.0
	Glass	0.6
	Wood	0.6
	Oil	0.5
	PVC	0.4
Hysteresis	< 20% (of Sd)	
Operating Voltage	10 - 30 V DC	
Ripple Voltage	< 10%	
Maximum Load Current	300 mA	
Current Consumption	≤ 13 mA	
Switching Frequency	100 Hz	
Residual Current	0.001 mA	
Voltage Drop	≤ 2.5V	
Sensing Distance Adjustment	Via Multi-turn Pot	
O/P Status Indicator	Red LED	
Operating Temperature Range	-10°C to 50°C	
Reverse Polarity Protection	Yes	
Short Circuit Protection	Yes	
Distance/Detection Range adjustment (Optional)	Via Multi turn Potentiometer	
Environmental Protection	IP64	
Temperature Drift at switching Point	≤ 10% of Sn	
Housing Material	Nickel Plated Brass	
Standard length of Cable	3 core Cable 2mtr	

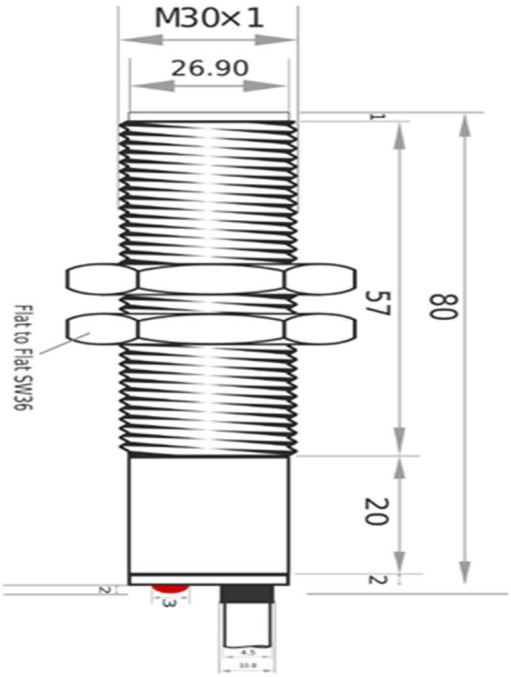


Figure No. 51

CAPACITIVE PROXIMITY SENSOR - DC (3 Wires)

Ordering Code	D	3	2	C	-	3	0	1	0	-	P	M	3	S	-	C2
Basic Switch Type																
DC - D																
No. of Wires																
3																
Sensing Technique																
Capacitive - 2																
Housing Style																
Cylindrical - C																
Housing Dimension																
M30x1.5 - 30																
Sensing Range																
10mm - 10																
Output Circuit Type																
PNP - P																
NPN - N																
Output Contact Type																
Normally Open - M																
Normally Close - B																
Load Current																
100mA - 1																
200mA - 2																
300mA - 3																
Version																
Economy (without SCP) - E																
Short Circuit Protection (SCP) - S																
Termination																
Cable Length in meters - CX																
M12, 3 Pin Connector - 3 Pin																
M12, 4 Pin Connector - 4 Pin																

ANALOG INDUCTIVE SENSOR ▪ *DC - 3 wire*

ANALOG INDUCTIVE SENSOR (DC 3 Wire Series)		
Dimension	M6.5x1	M6.5x1
Installation	Flush	Non-Flush
Sensing distance Sn	1 mm	2 mm
Actual Sensing Distance (Sa)	0.8 mm	1.6 mm
Dimensional Details	Figure No.52	Figure No.53
Features • Good Linearity • Potentiometer for fine adjustments • Reverse Polarity Protected • Easy mounting		

DC 3 Wires	PNP	NO	D30C-0601-A_	D30C-0602-A_

Minimum Target size (min)	45 x 45 x 1 mm	
Operating Range	0 - 1 mm	0.5 – 2 mm
Measuring Range	1 mm	1.5 mm
Linearity	1.7 %	
Repeatability	0.018 mm	
Response Time	5 µs	
Output	A1 - 0 to 5 VDC	
Operating Voltage	18 - 30 VDC	
Ripple Voltage	≤ 10 %	
Maximum Load Current	≤ 10 mA	
Current Consumption	< 10 mA	
Correction factor - Brass / Al	0.5/0.45	
Residual Current	0.1 mA	
Operating Temperature Range	-10°C to 65°C	
Adjustment	Not Applicable	
Reverse Polarity Protection	Yes	
Environmental Protection	IP67	
Temperature Drift	5 µ/°C	
Housing Material	Nickel Plated Brass	
Standard length of Cable	3 core Cable 2mtr	

ANALOG INDUCTIVE SENSOR (DC 3 Wire Series)			
M8x1	M8x1	M12x1	M12x1
Flush	Non-Flush	Flush	Non-Flush
1 mm	2 mm	2 mm	4 mm
0.8 mm	1.6 mm	1.6 mm	3.2 mm
Figure No.54	Figure No.55	Figure No.56	Figure No.57
			
D30C-0801-A_	D30C-0802-A_	D30C-1202-A_	D30C-1204-A_

8 x 8 x 1 mm		12 x 12 x 1 mm	
0 - 1 mm	0.5 - 2 mm	0.5 - 2 mm	0.5 - 4 mm
1 mm	1.5 mm	1.5 mm	3.5 mm
1.7 %		1.7 %	
0.018 mm		0.018 mm	
5 µs		5 µs	
A1 - 0 to 5 VDC		A1 - 0 to 5V DC A2 - 0 to 10V DC A3 - 4 to 20 mA A4 - 0 to 20 mA	
18 - 30 VDC		18 - 30 VDC	
≤ 10 %		≤ 10 %	
≤ 10 mA		≤ 10 mA	
< 10 mA		< 10 mA	
0.5/0.45		0.5/0.45	
0.1 mA		0.1 mA	
-10°C to 65°C		-10°C to 65°C	
Not Applicable		Not Applicable	
Yes		Yes	
IP67		IP67	
5 µ/°C		5 µ/°C	
Nickel Plated Brass		Nickel Plated Brass	
3 core Cable 2mtr		3 core Cable 2mtr	

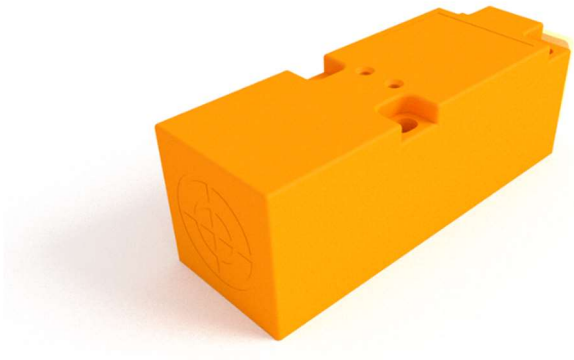
ANALOG INDUCTIVE SENSOR (DC 3 Wire Series)		
Dimension	M18x1	M18x1
Installation	Flush	Non-Flush
Sensing distance Sn	5 mm	8 mm
Dimensional Details	Figure No.58	Figure No.59
Features • Good Linearity • Potentiometer for fine adjustments • Reverse Polarity Protected • Easy mounting		

DC 3 Wires	PNP	NO	D30C-1805-A_	D30C-1808-A_

Minimum Target size (min)	18 x 18 x 1 mm	24 x 24 x 1 mm
Operating Range	1.5 - 5 mm	1.5 - 8 mm
Measuring Range	3.5 mm	6.5 mm
Linearity	1.7 %	
Repeatability	0.018 mm	
Response Time	5 µs	
Output	A1 - 0 to 5V DC A2 - 0 to 10V DC A3 - 4 to 20 mA A4 - 0 to 20 mA	
Operating Voltage	18 - 30 VDC	
Ripple Voltage	≤ 10 %	
Maximum Load Current	≤ 10 mA	
Current Consumption	< 10 mA	
Correction factor - Brass / Al	0.5/0.45	
Residual Current	0.1 mA	
Operating Temperature Range	-10°C to 65°C	
Adjustment	Not Applicable	
Reverse Polarity Protection	Yes	
Environmental Protection	IP67	
Temperature Drift	5 µ/°C	
Housing Material	Nickel Plated Brass	
Standard length of Cable	3 core Cable 2mtr	

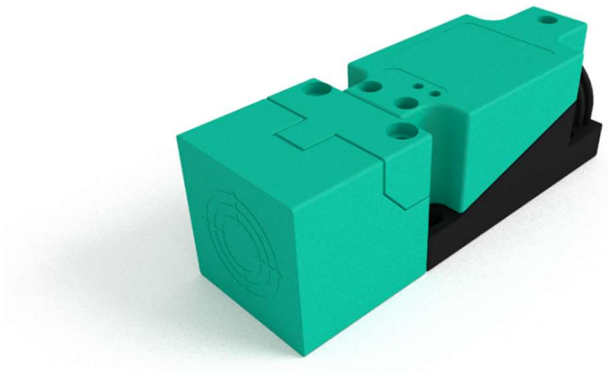
ANALOG INDUCTIVE SENSOR (DC 3 Wire Series)			
M30x1	M30x1	M36x1	M50x1
Flush	Non-Flush	Non-Flush	Non-Flush
10 mm	15 mm	20 mm	30 mm
Figure No.60	Figure No.61	Figure No.62	Figure No.63
			
D30C-3010-A_	D30C-3015-A_	D30C-3620-A_	D30C-5030-A_
30 x 30 x 1 mm	45 x 45 x 1 mm	60 x 60 x 1 mm	90 x 90 x 1 mm
1.5 - 10 mm	1.5 - 15 mm	1.5 - 20 mm	1.5 - 30 mm
8.5 mm	13.5 mm	18.5 mm	28.5 mm
1.7 %		1.7 %	
0.018 mm		0.018 mm	
5 µs		5 µs	
A1 - 0 to 5V DC A2 - 0 to 10V DC A3 - 4 to 20 mA A4 - 0 to 20 mA		A1 - 0 to 5V DC A2 - 0 to 10V DC A3 - 4 to 20 mA A4 - 0 to 20 mA	
18 - 30 VDC		18 - 30 VDC	
≤ 10 %		≤ 10 %	
≤ 10 mA		≤ 10 mA	
< 10 mA		< 10 mA	
0.5/0.45		0.5/0.45	
0.1 mA		0.1 mA	
-10°C to 65°C		-10°C to 65°C	
Not Applicable		Not Applicable	
Yes		Yes	
IP67		IP67	
5 µ/°C		5 µ/°C	
Nickel Plated Brass		Nickel Plated Brass	
3 core Cable 2mtr		3 core Cable 2mtr	

ANALOG INDUCTIVE SENSOR (DC 3 Wire Series)		
Dimension	40x40 (Fixed Head)	40x40 (Fixed Head)
Installation	Non-Flush	Non-Flush
Sensing distance Sn	15 mm	20 mm
Dimensional Details	Figure No.64	



DC 3 Wires	PNP	NO	D30B-4015-A_-FH	D30B-4020-A_-FH

Minimum Target size (min)	45 x 45 x 1 mm	60 x 60 x 1 mm
Operating Range	1.5 - 15 mm	1.5 - 20 mm
Measuring Range	13.5 mm	18.5 mm
Linearity	1.7 %	
Repeatability	0.018 mm	
Response Time	5 µs	
Output	A1 - 0 to 5V DC A2 - 0 to 10V DC A3 - 4 to 20 mA A4 - 0 to 20 mA	
Operating Voltage	18 - 30 VDC	
Ripple Voltage	≤ 10 %	
Maximum Load Current	≤ 10 mA	
Current Consumption	< 10 mA	
Correction factor - Brass / Al	0.5/0.45	
Residual Current	0.1 mA	
Operating Temperature Range	-10°C to 65°C	
Adjustment	Not Applicable	
Reverse Polarity Protection	Yes	
Environmental Protection	IP67	
Temperature Drift	5 µ/°C	
Housing Material	PPE	
Standard length of Cable	3 core Cable 2mtr	

ANALOG INDUCTIVE SENSOR (DC 3 Wire Series)	
40x40 (Rotatable Head)	40x40 (Rotatable Head)
Non-Flush	Non-Flush
15 mm	20 mm
Figure No.65	
	

D30B-4015-A_-RH	D30B-4020-A_-RH

45 x 45 x 1 mm	60 x 60 x 1 mm
1.5 - 15 mm	1.5 - 20 mm
13.5 mm	18.5 mm
0.018 mm	
5 µs	
A1 - 0 to 5V DC A2 - 0 to 10V DC A3 - 4 to 20 mA A4 - 0 to 20 mA	
18 - 30 VDC	
≤ 10 %	
≤ 10 mA	
< 10 mA	
0.5/0.45	
0.1 mA	
-10°C to 65°C	
Not Applicable	
Yes	
IP67	
5 µ/°C	
PPE	
3 core Cable 2mtr	

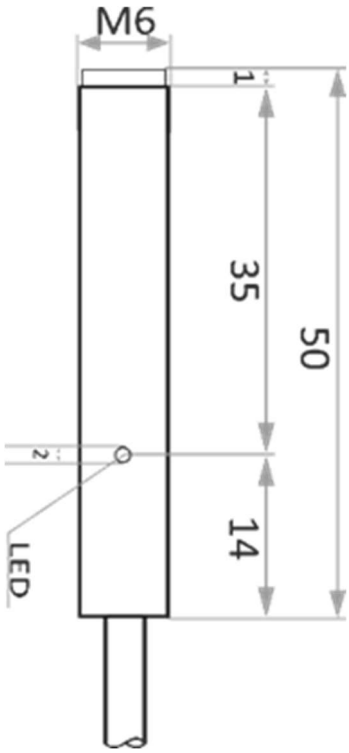


Figure No. 52

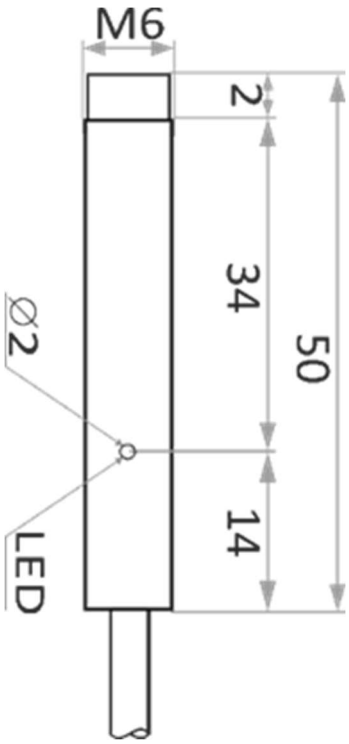


Figure No. 53

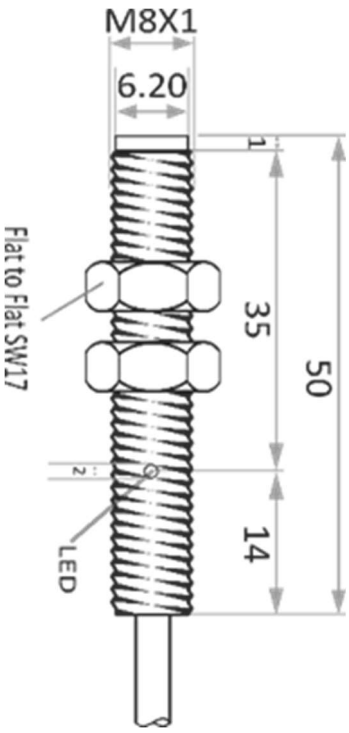


Figure No. 54

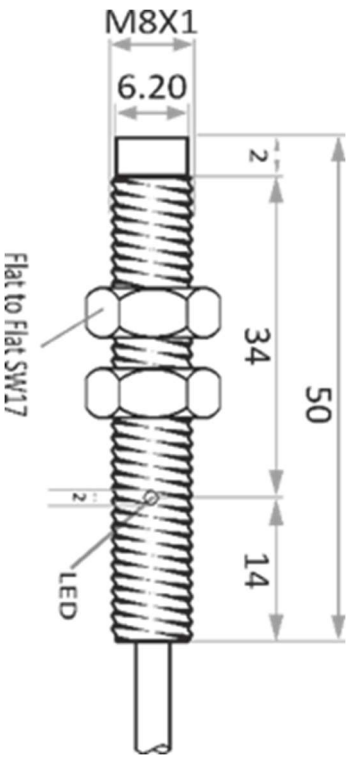


Figure No. 55

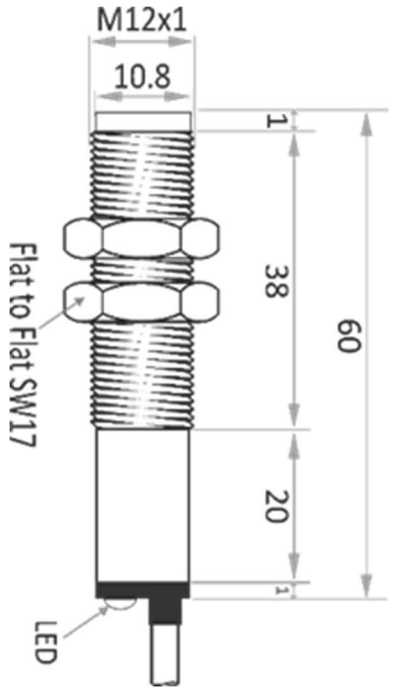
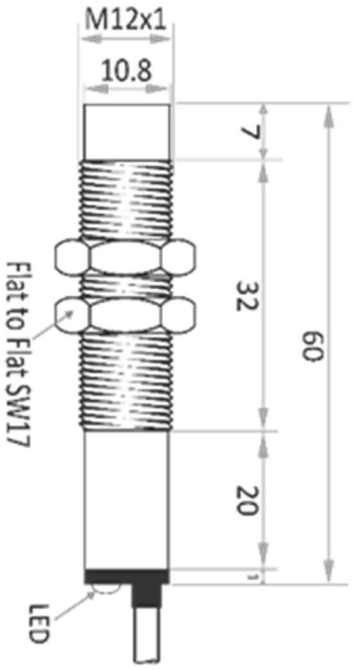


Figure No. 56



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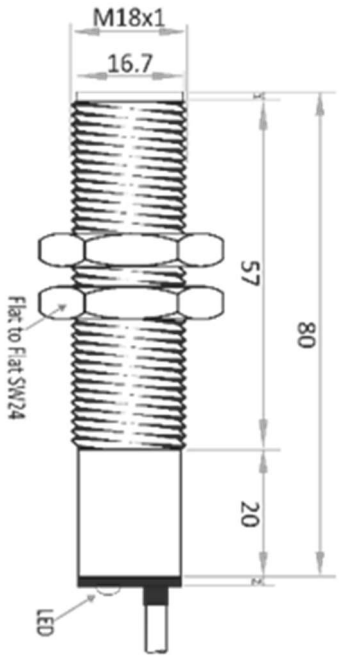


Figure No. 58

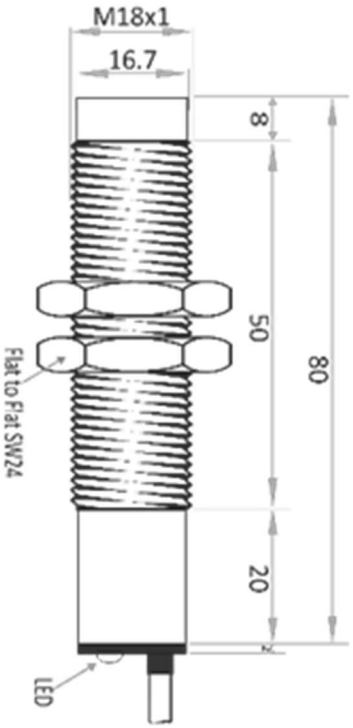


Figure No. 59

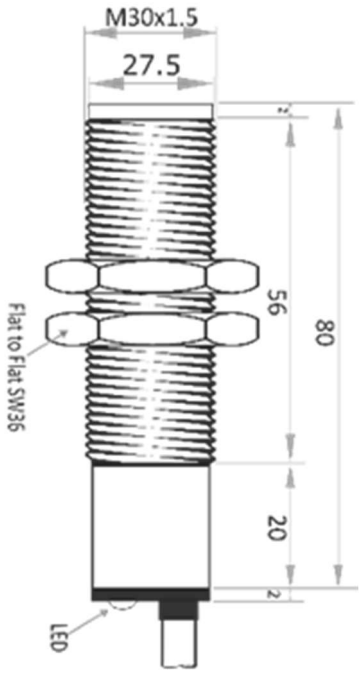


Figure No. 60

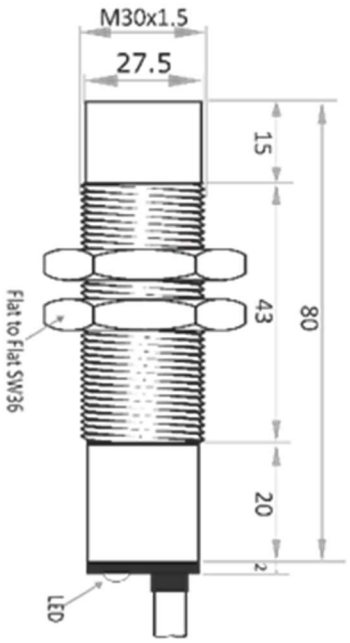


Figure No. 61

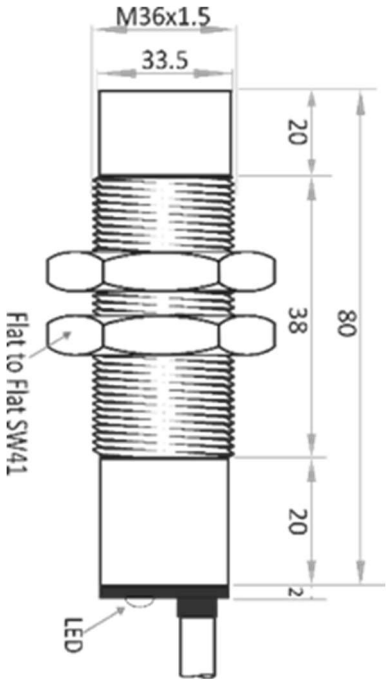


Figure No. 62

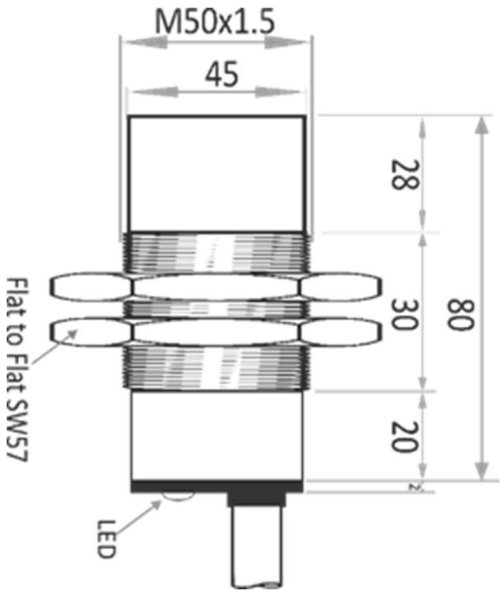
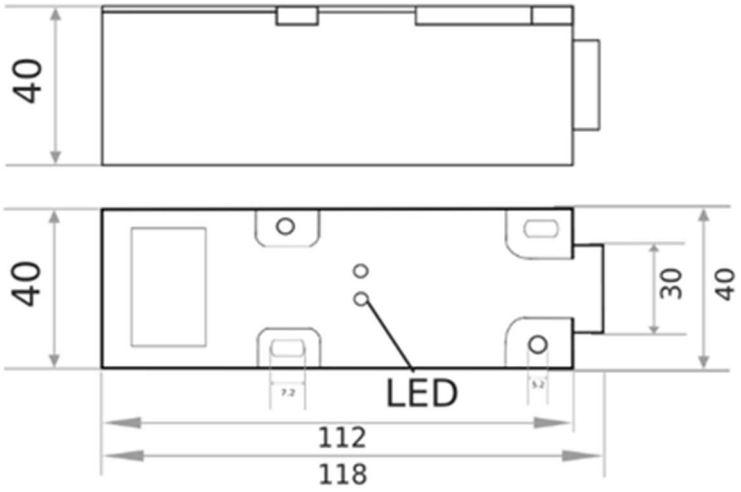


Figure No. 63



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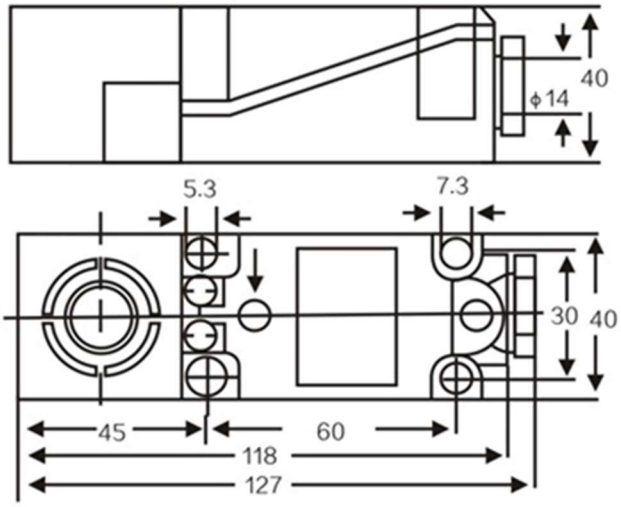


Figure No. 65

ANALOG INDUCTIVE SENSOR - DC (3Wires)

Ordering Code	D	3	0	C	-	1 8	0 5	-	AV	V1	C2

Basic Switch Type
DC - D

No. of Wires
3

Sensing Technique
Inductive - 0

Housing Style
Cylindrical - C
Rectangular - R
Box - B

Housing Dimension
C M6.5 - 06
M8x1 - 08
M12x1 - 12
M18x1 - 18
M30x1.5 - 30
M36x1.5 - 36
M50x1.5 - 50
B 17x17 - 17
40x40 - 40F(Fixed Head) or 40R (Rotatable Head)
R 40x26 - 40

Sensing Range
1mm - 01
2mm - 02
4mm - 04
5mm - 05
8mm - 08
10mm - 10
15mm - 15
20mm - 20
30mm - 30

Output Circuit Type
Analog Voltage - AV
Analog Current - AI

Output Signal
AV 0 to 10 V - V0
0 to 10 V - V1
AI 0 to 20 mA - A0
4 to 20 mA - A1

Termination
Cable Length in meters - CX
M12, 3 Pin Connector - 3 Pin
M12, 4 Pin Connector - 4 Pin

MAGNETIC PROXIMITY SENSOR ▪ *DC - 3 wire*

HALL EFFECT SENSOR (DC)			
Features • Digital Output • High Switching Frequency • Omnipolar, Unipolar and Bipolar Type • Reverse Polarity Protection • Output Circuit PNP / NPN; NO / NC			
Cylindrical Metal Housing	M12	M18	M30
Dimensional Details (Refer Figure No.)	Figure No.66	Figure No.67	Figure No.68
Mounting Style	Flush		
Sensing Distance (Sn)	Magnet Dependent		
Type	Omnipolar, Unipolar & Bipolar switch		
Operate Point (BOP)	3.5 mT		
Release Point (BRP)	2 mT		
Hysteresis	1.5 mT		
Operating Voltage	5 - 30 V DC		
Switching output	NPN		
Output function	NO		
Max. Load Current (On state)	≤ 30 mA		
Current Consumption (No Load)	≤ 3 mA		
Switching Frequency	10 KHz		
Output rise time (10% to 90%)	≤ 10 µs		
Output fall time (90% to 10%)	≤ 1 µs		
Reverse Supply Protection	up to -22 V		
Short-Circuit Protection	Yes		
Operating Temperature Range	-20 °C to +80 °C		
Housing Material	Nickel Plated Brass		
Termination	Pre wired 1mtr		

Speed and Direction Magnetic Sensor (DC)			
Features	• Speed & Direction Detection • High Switching Frequency • Omnipolar and Unipolar Type • Reverse Polarity Protection		
Cylindrical Metal Housing		M18	M30
Dimensional Details		Figure No.67	Figure No.68
Mounting Style		Flush	
Sensing Distance (Sn)		Magnet Dependent	
Type		Omnipolar/Unipolar	
Operate Point (BOP)		3.5 mT	
Release Point (BRP)		2 mT	
Hysteresis		1.5 mT	
Operating Voltage		10 - 30 V DC	
Switching output		NPN	
Output function		NO	
Max. Load Current (On state)		≤ 100 mA	
Current Consumption (No Load)		≤ 3 mA	
Switching Frequency		5 KHz	
Output High Level		> (VCC – 0.7V)	
Output Low Level		< 0.7V	
Output rise time (10% to 90%)		≤ 10 µs	
Output fall time (90% to 10%)		≤ 1 µs	
Reverse Supply Protection		Yes	
Operating Temperature Range		-20 °C to +80 °C	
LED Indication	**Green**	Direction Indication	
	Red	Speed Indication	
Housing Material		Nickel Plated Brass	
Termination		Pre wired 2mtr	

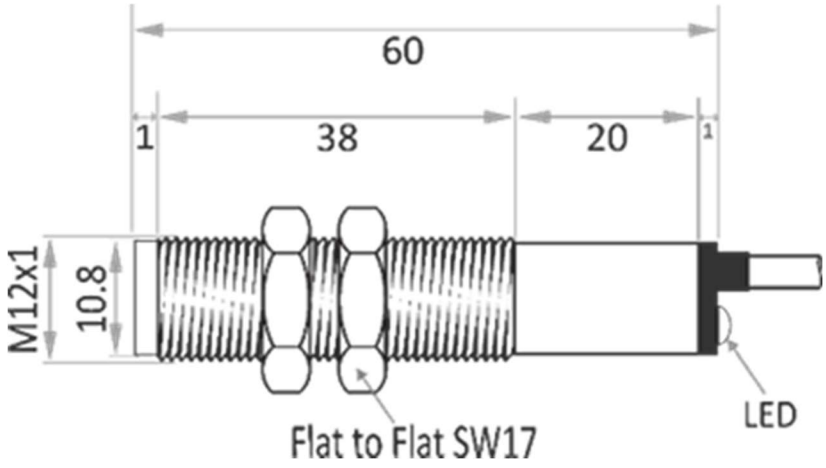


Figure No. 66

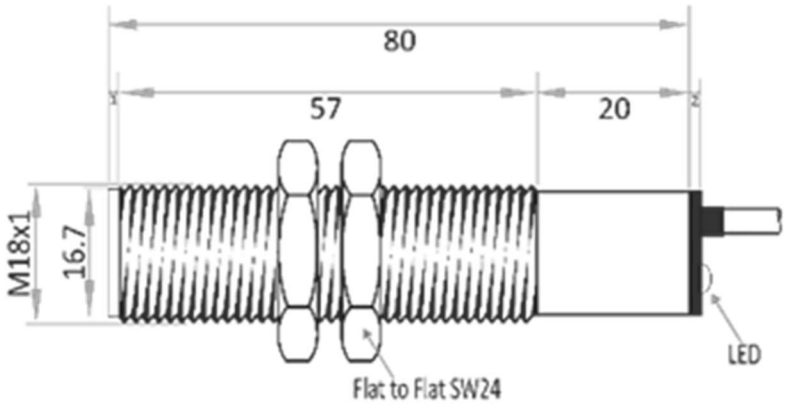


Figure No. 67

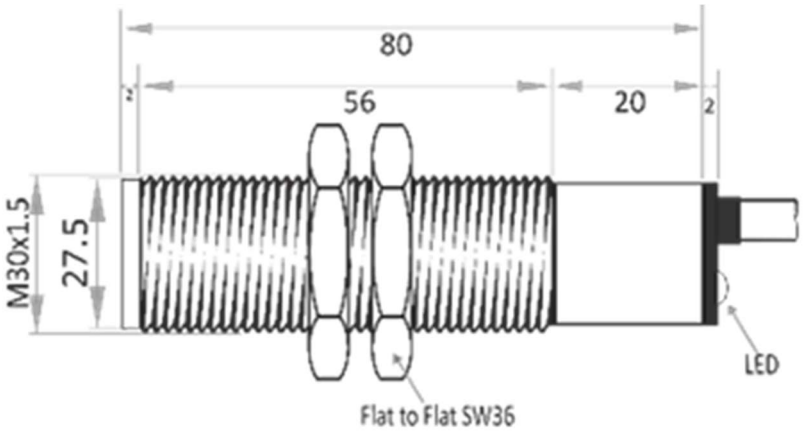
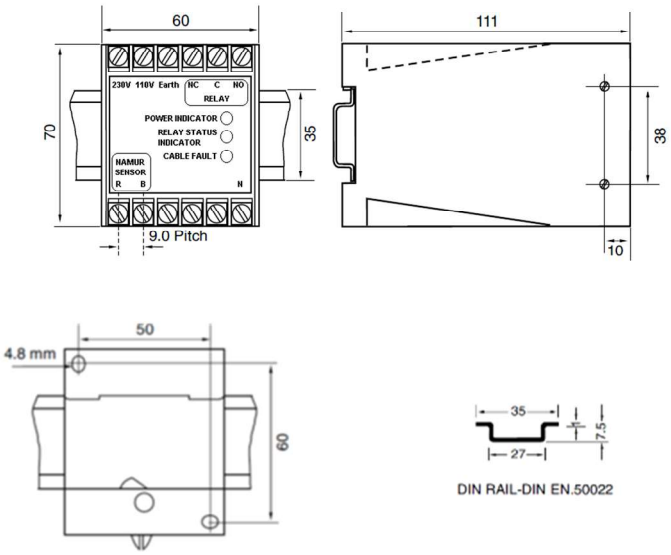
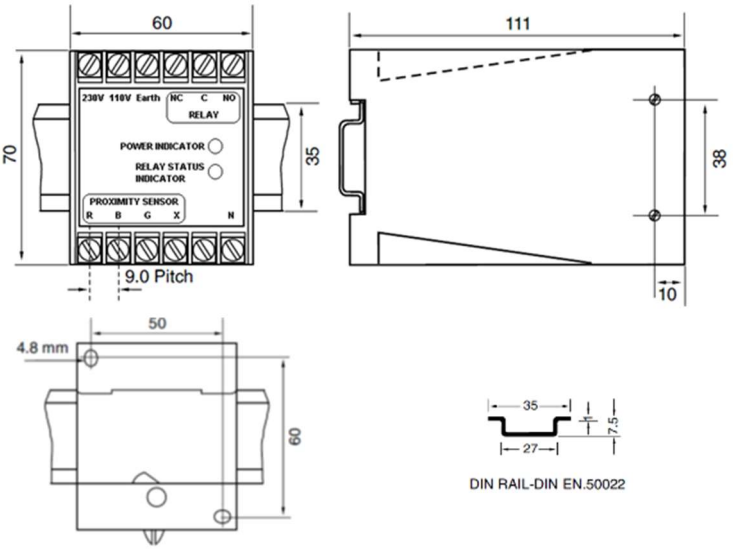


Figure No. 68

POWER SUPPLIES

- NAMUR
- REGULAR

Namur Control Unit	
	
Power Supply	110 Vac / 230Vac; 50Hz
Terminals	6+6 Nos; Slotted
Short circuit Protection	Internal Fuse – 100mA
Power supply for Namur Sensor	8.2 Vdc through Zener Barrier
Sensor type - compatibility	Namur 2 Wire
Indicators	Power, Relay status Cable Fault *(optional)*
Relay Contact arrangement	SPDT, Form C
Relay Contact Rating	230 VAC/24 VDC; 6A
Relay switching speed	12 mS
Min Relay Life Expectancy	1 Lakh operations *at rated load*
Opti Coupled O/P	YES – *optional on request*
Operating Environment	Non-hazardous (Safe area) or Inside Flameproof enclosure
Environmental Protection	IP40
Housing Type	DIN Rail / Panel Mount
Housing Dimensions	60 x 70 x 111 mm
Mounting	DIN Rail 35mm / Screw Fitting
Housing Material	ABS
Operating Temperature range	-0 to 60^{o} C
Insulation	>100 meg. ohms *at 500V DC*
Breakdown Voltage	>2500 Vac

Control Unit	
	
Power Supply	110 Vac / 230Vac; 50Hz
Terminals	6+6 Nos; Slotted
Short circuit Protection	Internal Fuse – 100mA
Power supply for Namur Sensor	24 VDC; 100mA
Sensor type - compatibility	PNP / NPN
Indicators	Power & Relay status
Relay Contact arrangement	SPDT, Form C
Relay Contact Rating	230 VAC/24 VDC; 6A
Relay switching speed	12 mS
Min Relay Life Expectancy	1 Lakh operations *at rated load*
Opti Coupled O/P	YES – *optional on request*
Operating Environment	-
Environmental Protection	IP40
Housing Type	DIN Rail / Panel Mount
Housing Dimensions	60 x 70 x 111 mm
Mounting	DIN Rail 35mm / Screw Fitting
Housing Material	ABS
Operating Temperature range	-0 to 60^{o} C
Insulation	>100 meg. ohms *at 500V DC*
Breakdown Voltage	>2500 Vac

HOT METAL DETECTOR : HMD Pyrometer

HOT METAL DETECTOR (STATIC)		
		
Model Description	CSC-HMD-24V-6W (MODULE ONLY)	
	CSC-HMD-24V-6W-CJ (Cooling Jacket)	
Sensing Object Type	Wire, 5 mm diam., 800 °C	0.30 to 0.60 m
	Bars 10 to 40 mm, 700 °C	0.50 to 1.50 m
	Billet	1.50 to 2.50 m
	Plate	2 to 4 m
	Bloom, Slab	3 to 5 m
Relay Contact Rating	(30VDC@2A) (125VAC@0.6A) (110VDC@0.6A)	
Response time (Relay)	Make time: 8 Ms	
	Break time: 4 Ms	
Operating ambient temperature	-10 to 75 °C (14 to 170 °F)	
	Up to 120 °C (250 °F) with water-cooling	
	(Industrial quality water at about 25 °C (77 °F), 1-2 bar and 1-2 l/min)	
Cable	6 wires multi-conductor TEFLON cable 1 Meter	
Protecting rating	IP 67 (Stainless Steel case)	
	Power – Green Led	
	Detection – Red Led	

HOT METAL DETECTOR (HMD) WIRING DETAILS DUAL OUTPUT

PIN Number	WIRE COLOUR	DESCRIPTION
1	RED	24 V DC (±20%) @1 A
2	BLACK	GROUND 0 V DC
3	GREEN	OUTPUT 24 V DC
4	YELLOW	RELAY - COMMON
5	BLUE	RELAY - NORMALLY OPEN
6	WHITE	RELAY - NORMALLY CLOSE

HOT METAL DETECTOR (PYROMETER)		
		
Model	CSC-250	CSC-450
Temperature Range	250 to 1650 °C	450 to 2250 °C
Spectral Range	5µm	1.1µm
Distance to Spot Ratio	50:1	100:1
Response Time	60ms	20ms
Accuracy	± 2%	± 1%
Emissivity (ε)	0.100 - 1.100	
Analog Output	4 - 20 mA	
Digital Output	RS-485 (2 Wire Half Duplex) Networkable	
Relay Output / Response time	48 V, 300 mA / < 2 ms	
Power Supply	24 VDC, 500 mA	
Operating Temp. Range	without cooling 0 to 65 °C	
	with air cooling 0 to 120 °C	
	with water cooling 0 to 175 °C	
Storage Temp. Range	-20°C…70°C	

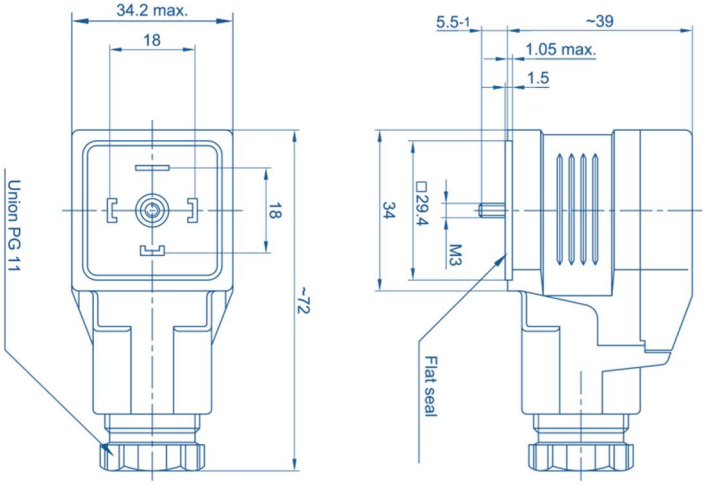
SMART HOME SENSOR

- *Door Sensor*
- *Mirror Sensor*

DOOR SENSOR (DC)	
	
Input Voltage	DC 12V/24V
Output Current	DC 5A
Max. Load Current (On state)	5A
Off State current	60 mA
Wattage	60W/120W
Operating Temperature Range	-10°C to 60°C
Sensing Distance	≤ 100 mm (White) and ≤ 30 mm (Black)
Diameter	16 mm
Length	38 mm
Housing Material	Plastic
Reverse Polarity Protection	Yes
Termination	Pre wired Cable 1m

MIRROR SENSOR (DC)	
	
Input Voltage	DC 12V
Output Voltage	DC 12V 5A
Max. Load Current (On state)	5A
Off State current	60mA
Wattage	60W
Operating Temperature Range	-10°C to 60°C
Dimensions	50 x 50 x 18 mm
Housing Material	Plastic
Reverse Polarity Protection	Yes
Type of Model	1. On-Off
	2. Touch On-Off
	3. Three Colour
	4. Colour Temperature
Termination	Male Female Connector

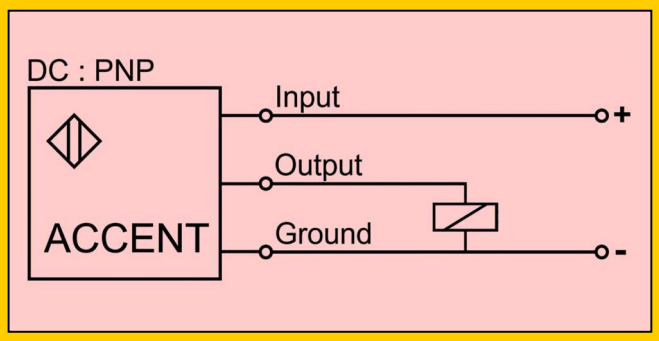
SIGNAL CONDITIONER ▪ MUW Series

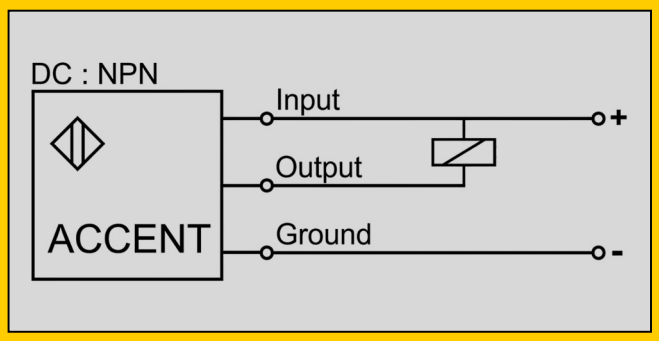
ACCENT MUW 250 (Signal Conditioner)			
			
Output Type	Voltage	0 to 10V	MUW 250-1
	Current	4 to 20mA	MUW 250-4
Mechanical data			
Dimensions			see drawing
Protection class			IP 65 (DIN 400 50 / IEC 529)
Screw-type terminals			0.5 mm^2
Recommended cable dia. 4 - 10 mm			3 or 4core twisted with protective braiding
Weight			approx. 75 g
Electrical data			
Operating voltage			18 … 30 VDC
Input resistance			> 10 MΩ
Reverse voltage protection			Yes
Current consumption			max. 35 mA
Internal reference voltage for the position transducer, highly stable and short circuit-proof			> 10 V DC
Permissible connection resistance of the position transducer			≥ 700 Ω
Adjustment range Zero point			10 %
Gain			1…2
Linearity			0.01 (typical) %
Temperature coefficient			30 (typical) ppm/K
Temperature range			-25...+70 °C

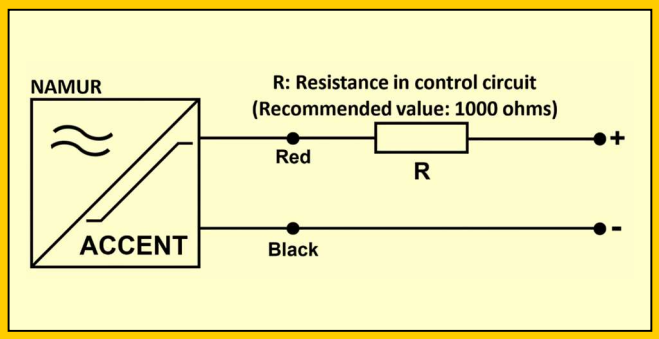
PROXIMITY SWITCHES

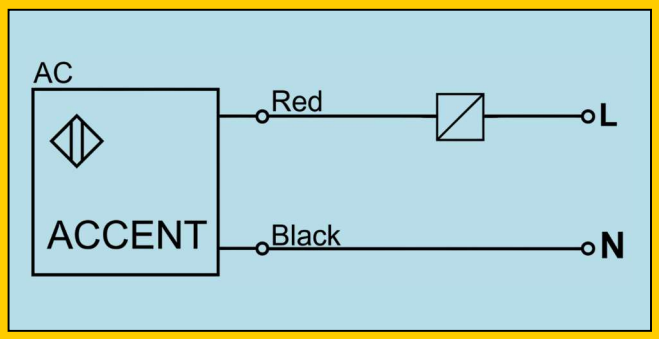
ACCENT

INDIA's NO.1 PROXIMITY SWITCH MANUFACTURER









ACCENT India
Proximity Switches

novotechnik Germany
Position Transducers

CONTELEC
A company of the Siedle-Group

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INDIA's NO.1 PROXIMITY SWITCH MANUFACTURER

ACCENT CONTROLS

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