

PROXIMITY SWITCHES

INTRODUCTION

Jayashree Electron has been manufacturing quality Proximity Switches since year 1980. As one of the largest manufacturers, we offer over 500 models of Inductive, Capacitive, Optical, Ultrasonic & Magnetic Proximity Switches. With continuous induction of latest technologies, our proximity switches are keeping pace with time. With over 2000 satisfied customer spread all over India & abroad, we are committed to maintain high standards in Quality and Prompt deliveries.

APPLICATION

Proximity switches provide better alternative to the conventional electro-mechanical limit switches for position sensing. It is a best solution to all linear / rotary counting applications. They find wide application in Machine tools, Foundries, Rolling mills, Automobile, Textile, Pharmaceutical, Material handling and all automation systems in general.

CONSTRUCTION

The Proximity switches are generally available in tubular enclosures with diameter from 4 mm to 140 mm. These enclosures are made of Stainless Steel, Nickel Plated Brass or Engineering Plastics as required by the application.

These switches are totally epoxy potted to meet IP-68 grade of protection. The switches are also available in various other shapes such as Rectangular, Slot, Block, Button, and insert type modules. Our Proximity Switches meet CE requirements.

ADVANTAGES

- Non-Contact sensing.
- No operating force necessary.
- No mechanical moving part.
- No backlash.
- Bounce-free operation.
- Operation possible from different directions
- Compact sizes and versatile sensing arrangement.
- Works in rugged Industrial Environment consisting of dust, water, lubricants and cutting oils.
- High switching frequency.
- High repeat accuracy.
- Visual LED indications for status of switch
- Suitable for Intrinsically safe operation in Hazardous areas.
- Withstands vibrations and mechanical shocks
- Long and maintenance free life.

TYPES OF PROXIMITY SWITCHES

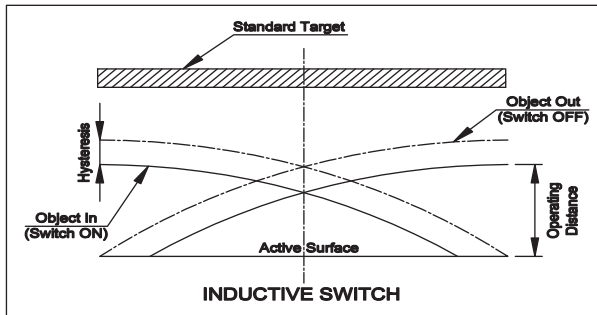
A critical element of sensing, automation & control, Proximity Switches are available in Inductive, Capacitive, Optical, Ultrasonic and Magnetic based on the object Sensing principle.

TYPE	SENSING PRINCIPLE	FEATURES	APPLICATIONS
INDUCTIVE	Damping of oscillations by conductive materials	Senses only metallic objects Useful for medium counting speed Short Sensing gaps	Machine Tools / Robotics Bulk Material handling For Counting / Position Sensing
CAPACITIVE	Senses dielectric properties of object material	Senses non-metallic, metallic as well as liquid Low counting speed	Pharmaceuticals / Food Processing Plastics For Level Sensing / Automation
OPTICAL	Infra-red reflection	Senses any object Longer Sensing Distance Medium counting speed High position sensing accuracy	Robotics / Automobile / Foundry / Plastic / Pharma / Food Processing / Engg. For Position / Level sensing / Counting / Automation Safety / Instruments
MAGNETIC	Magnetic reluctance/Reed Switch	Senses only ferrous objects / magnets High counting speed	Automobile / Process Engg. For High Speed counting Cylinder / Valve sensing applications
ULTRASONIC	High Frequency Ultra-Sound Wave Propagation	Senses any material. Long sensing gaps	Automobile / Process Engg. For Distance measurement Level sensing.

EXPLANATION OF TECHNICAL TERMS

SENSING DISTANCE

This is the distance between the target and the sensing face at which the switch operates. This is usually specified considering a standard object for each type of switch.



STANDARD OBJECTS

For different types of switches following objects are considered as standard while specifying the sensing gap
 Inductive - MS disc of min. 1 mm thick and size same as sensing face.

Capacitive - Water/MS of min. 10mm thick and size same as sensing face.

Optical - White paper of 100x100 mm size.

Magnetic - Ferrous Material.

REPEAT ACCURACY

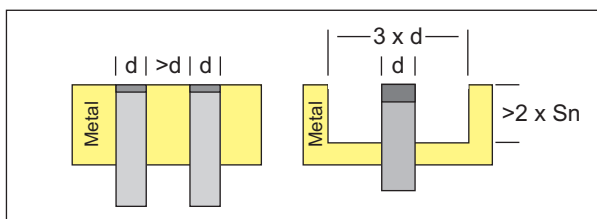
This is the accuracy within which the switch operates repeatedly at same point given stable operating conditions. For Inductive switches, the accuracy is better than $\pm 0.2\%$

RESPONSE TIME

This is the time in which the switch changes its state after target enters the sensing zone. For DC switches the response time can be as low as 0.3 milliseconds but for AC switches this is around 20 milliseconds.

FLUSH MOUNTING

Switches referred to as flush type (embedded) can be mounted inside metal body and have only frontal electromagnetic field. The sensing distance in this case is limited to 0.7 times the sensing distance specified for a non-flush type switch.



NON-FLUSH MOUNTING

These type of switches should necessarily be mounted with sensing zone in metal free area.

SUPPLY VOLTAGE

For DC switches, a filtered and ripple-free regulated power supply should be used and for AC switches the supply should be EMI free as far as possible

SWITCHING HYSTERESIS

This is a differential between "Switch ON" and "Switch OFF" point of the switch. This is adjusted within limits 5% to 15% of the specified sensing distance

OUTPUT LOGIC

The output switching element (either a Transistor or Thyristor) can be normally in Closed (ON) or Open (OFF) condition.

The output logic has to be very carefully selected considering the application requirement.

For specific applications, the inductive switches above M24 size are available with built-in electromagnetic relay to give a potential free output contact for switching external loads. The output logic in this case can be NO, NC and CO (Change-Over) type. Switches with a specific output logic such as latched type. Oscillator type are available on request.

LOAD CURRENT

This is the maximum current, which the switch can either sink or source to the external load.

APPLICABLE STANDARDS

Following standards are being followed for design and manufacture :

- IEC-60947-5-2
- UL-508
- CSA 22.2 NO. 14-95
- S 13947-5-2

TYPES OF OUTPUT CONNECTIONS

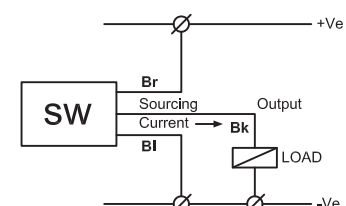
3-Wire & 4-Wire DC

SW3051 / 4051 / 5051 / 6051 / 7071

These switches operate on DC voltages from 5 volts to 240 volts. Standard models operate on 10-30 V DC and can be used with logic circuits, Counters or to drive Relay Coil directly. The output of these switches can be either PNP or NPN or both.

With PNP output, the switching is in the sourcing mode and the load must be connected between the Output and the Negative of the supply. Conversely with NPN output the switching is in sinking mode and the load must be connected between the output and the positive of the supply. All 3 wire and 4 wire DC switches are internally protected against inductive voltage spikes, spurious line noise. Reverse polarity and short circuit conditions.

Connection Diagram For 3 Wire DC PNP Switch



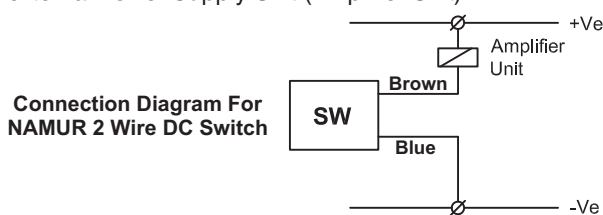
GENERAL SPECIFICATIONS (Standard Switch)

Supply Voltage	: 10 to 30 V DC
Reverse Polarity Protection	: Provided for all models
Short Circuit Protection	: Provided for sizes M8 & above
Operating Temperature	: -25°C to +70°C
Indication	: Red LED

2-Wire DC (NAMUR)

SW 4052 / 5052

The NAMUR type sensors are Intrinsically safe Proximity Switches designed to work in the hazardous areas. The working voltage & current levels of these switches are restricted to safe values as per the recommended standards. These sensors are to be used with an external Power Supply Unit (Amplifier Unit).



GENERAL SPECIFICATIONS

Supply Voltage : 8.5 V DC

Indications : Red LED

Operating Current For 'NC' Type Switch

TARGET	Switch Current I mA
Absent	$3 < I < 5$
Present	$I < 1 \text{ mA}$

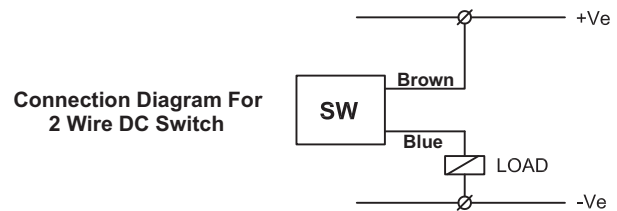
Other specifications are as per specifications of 3 Wire DC Proximity Switches.

- Intrinsically Safe as per IS-5780-2004 and IS 13346 - 2004
- Approved by - ERTL / CCOE.
- Amplifier Unit (Power Supply Unit)
 - Type - PSU 4052.
 - Supply Voltage - 110 / 240 V AC
 - Output contacts - 1NO + 1NC
 - Contact Rating - 5 A @ 240 V AC
- Approved by - ERTL / CCOE.

2-Wire DC

SW 4053 / 5053 / 6053

These Switches are designed to operate external loads connected in series with the switch. These switches differ from the NAMUR type due to higher operating voltage and currents. During operation, there is a voltage drop of about 6 V across the switch & the load connected in series gets the reduced supply voltage accordingly.



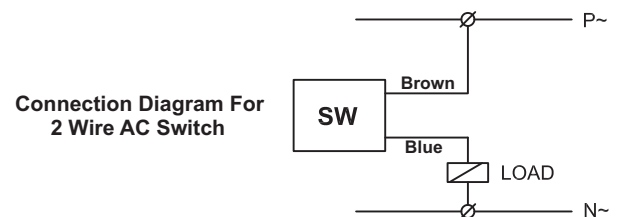
GENERAL SPECIFICATIONS

Supply Voltage	: 15 to 30 V DC
Indication	: Red LED
Over Current Protection	: Provided
Operating Temperature	: -25°C to +70°C
Cable Length	: 10 meter max.

2-Wire AC

SW 4055 / 5055 / 6055

The AC Switches are designed for 2 wire connection and operate on full line voltage. The loads are to be connected in series with the switch in a similar manner to that of a mechanical limit switch. The external load can be PLC, Contactor, Relay etc. The operating (OFF state) current of these switches is less than 2 mA.



GENERAL SPECIFICATIONS

Supply Voltage	: 24 / 110 / 240 / 20-240 V AC
Quiescent Current	: Less than 2 mA
Load Current	: 200-400 mA (max.) 10 mA (min.)
Inrush Current	: 10 x specified load current for 10 ms.
Indication	: Red LED
Protection	: Against surges by MOV
Start-up Delay	: 50 ms max.

Note : The switches require about 8 V for its own working and will always give output voltage less by 8 V than supply voltage.

- For PLC loads, special low quiescent current models available.

2-Wire AC/DC

SW 4054 / 5054

These switches operates on AC as well as DC from 20 volts to 240V. The load is to be connect in similar manner to 2-wire AC switches.

SPECIAL FUNCTION SWITCHES

Switches with special function as given below are available against specific requirement.

LINEAR OUTPUT

Inductive / Capacitive / Optical / Ultrasonic type sensors are available with linear output signal (4-20 mA / 0-10 V DC) proportionate to object distance. Details are given under individual sections.

FAIL SAFE SWITCHES

Inductive type switches, used for critical applications are available in a special fail safe version. These are three wire DC switches and work with a specially designed micro-processor control unit. The controller continuously monitors healthiness of sensors and gives a signal if the sensor is not working. These models are available for normal as well as hazardous environment. These switches are available in M18 and above sizes.

NON-FERROUS SWITCHES

Inductive type switches have maximum sensing gap defined for ferrous object. The sensing gap reduces for other metals. Special models are available to sense only non-ferrous object such as Al, Cu, Gold etc. at the same distance as ferrous object. These switches are available in M18 and above sizes in SW 4051 and SW 4055 types. Details are given under separate heading in later sections.

SWITCHES WITH BUILT-IN TIMER

Switches above M18 size (DC or AC) provided with built-in timer function are available on request. In such switches, the output will change its state after the set time delay (ON Delay) or return to normal state after time delay (OFF Delay). This feature is available with all types of proximity switches except Magnetic.

LARGER SENSING AREAS

Switches with built-in multiple sensing heads to cover larger sensing areas for sensing special objects such as textile and bearing rings, Hollow objects, Pipes etc. These switches are supplied in custom made enclosures to suit specific requirement.

HIGH TEMPERATURE MODELS

Switches operating up to 150°C ambient temp. are available for specific applications. These switches are generally used with an external amplifier unit. This amplifier unit can be installed up to a distance of 10 meters at normal ambient temperature.

COLOUR BAND / SPECTRUM SENSORS

These sensors are available only in optical category. The Colour Mark Sensor can detect a preset colour band and the output will change-over. In spectrum sensors, the output voltage or current changes with changing colour bands. Details are given under separate heading.

TEACH TYPE SWITCHES

Special Inductive / Optical switches are available in 'Teach' type version to sense an object within specified distance band. These are available in M18 and above sizes.

WELD IMMUNE SWITCHES

Same model of Inductive switches are available to work in highly electrical noisy Area such as Welding Machine.

HIGH PRESSURE SWITCHES

High pressure Inductive Type proximity switches are available for various applications, especially in the field of hydraulics for pressures up to 500 bar.

ALL METAL PROXIMITY SWITCHES

Inductive proximity switches with all body of stainless steel including front cap, to meet special requirement, are available in M12, M18 and M30 sizes.

Inductive Proximity Switches

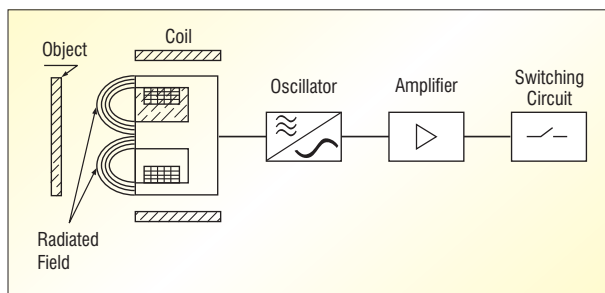
Series - SW 405 / 415

PRINCIPLE OF OPERATION

Series SW 405 Inductive Proximity Switches, available in varied shapes & sizes, are a reliable option for applications in Machine tools, Foundries, Rolling mills, Automobiles, Textiles, Pharmaceuticals and Material Handling systems.

This type of switches work on 'Damped Oscillator' principle. During operation a frontally radiated electromagnetic oscillating field is projected from the sensing face. Any electrically conductive material entering this field causes damping of the oscillations.

This change is detected by the in-built sensitive & reliable electronic circuit and is converted into an effective output signal.



APPLICATIONS

For Counting / Position Sensing of various objects in

- Bulk Material handling
- Automobile
- Steel Plants
- Fertilizer
- Cement
- Engineering Industries

SENSING OBJECT MATERIAL

The standard Inductive Proximity Switches can sense any metallic (electrically conductive) object. However, we have special type of switches to sense either only ferrous objects or sense only non-ferrous (Cu, Al etc.) objects. The details for the non-ferrous sensing switches are described elsewhere.

SENSING ZONE

this switch has a dome shaped electro-magnetic field present in front of the sensing area. The switch will sense the object entering into this domain.

SENSING DISTANCE (Sn)

This is the distance between the target and the sensing face at which the switch operates. This is usually specified considering M.S. as target material.

CORRECTION FACTOR

Targets other than MS actuate the Inductive Switches at relatively less distance with correction factor as given below. However this criteria is not applicable to special "Non-ferrous sensing models".

CORRECTION FACTOR TABLE

Object Material	Correction Factor
MS	1
SS	0.8
Brass	0.5
Al	0.45
Cu	0.4

NON-FERROUS INDUCTIVE SWITCHES

All standard inductive switches sense presence of any metal but will offer stated sensing distance only for ferrous materials like MS.

The type SW 4051-NF is specially developed to sense only non-ferrous metals such as Copper, Aluminium, Gold, Tin, Zinc etc. The biggest advantage of this type of switch is that the non-ferrous objects are sensed from larger distances as compared to standard models. These switches are available in M18 and above sizes. The other operating features are same as those of standard 3 wire DC Switches.

HIGH PRESSURE SWITCHES

Special high pressure type Inductive Proximity Switch has been developed for direct use in a Hydraulic cylinder.

The switch construction is sturdy and is rated for pressure upto 500 bar.

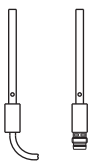
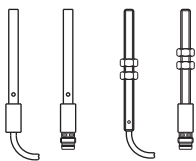
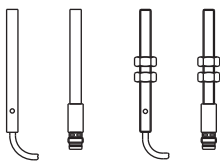
These switches are also available in connector version for easy replacement.

Sizes & Sensing Distance

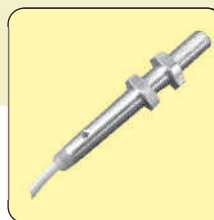
These switches are available from 4 mm dia. to 140 mm dia with sensing distance from 0.5mm to 100 mm.

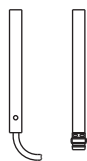
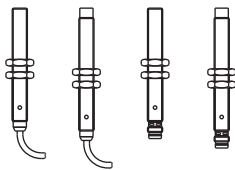
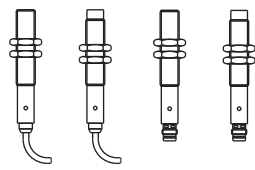
INDUCTIVE PROXIMITY SWITCHES



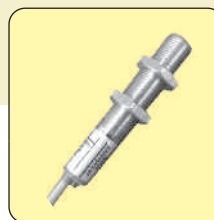
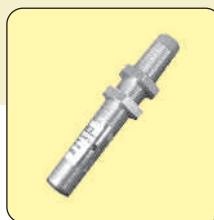
INDUCTIVE	Ø4	Ø5 M5	Ø6 M6
			
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	Ø4	Ø5, M5	Ø6, M6
Length (mm)	35, 50, 65	35, 50, 65	35, 50, 65
Sensing Distance Sn. (mm)	F - 0.5	F - 0.8	F - 1
Enclosure	S	S	S
Load Current (mA)	100 mA	100 mA	100 mA
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	3000	2000	2000
Logic Available	PO, PC, NO, NC	PO, PC, NO, NC	PO, PC, NO, NC
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC/DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.

INDUCTIVE PROXIMITY SWITCHES



INDUCTIVE	Ø6.5	M8	M10
			
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	Ø6.5	M8	M10
Length (mm)	35, 50, 65	35, 50, 65	50, 65
Sensing Distance Sn. (mm)	F - 1	F - 1.5 NF - 2	F - 1.5 NF - 2
Enclosure	S	B, S	B, S
Load Current (mA)	100	200	100
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	2000	1000	1000
Logic Available	PO, PC, NO, NC	PO, PC, NO, NC	PO, PC, NO, NC
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	N.A.	M8	M10
Length (mm)	N.A.	35, 50, 65	50, 65
Sensing Distance Sn. (mm)	N.A.	F - 1.5 NF - 2	F - 1.5 NF - 2
Enclosure	N.A.	B.S.	B.S.
Load Current (mA)	N.A.	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	N.A.	D4	D4
Switching Frequency (Hz)	N.A.	1000	1000
Logic Available	N.A.	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	N.A.	M8	M10
Length (mm)	N.A.	35, 50, 65	50, 65
Sensing Distance Sn. (mm)	N.A.	F - 1.5 NF - 2	F - 1.5 NF - 2
Enclosure	N.A.	B, S	B, S
Load Current (mA)	N.A.	100	100
Supply Voltage (V DC)	N.A.	D6	D6
Switching Frequency (Hz)	N.A.	1000	1000
Logic Available	N.A.	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC/DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	N.A.	M8	M10
Length (mm)	N.A.	80	80
Sensing Distance Sn. (mm)	N.A.	NF - 2 F - 1.5	NF - 2
Enclosure	N.A.	B.S.	B.S.
Load Current (mA)	N.A.	200	100
Supply Voltage (V AC)	N.A.	A1 to A4	A1 to A4
Switching Frequency (Hz)	N.A.	15	15
Logic Available	N.A.	NO, NC	NO, NC

INDUCTIVE PROXIMITY SWITCHES



INDUCTIVE	M12	M14	M16
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	M12	M14	M16
Length (mm)	40, 50, 65	40, 50, 65	35, 50, 65
Sensing Distance Sn. (mm)	F - 2.5 NF - 4	F - 2.5 NF - 4	F - 3 NF - 5
Enclosure	B, A, S	B, A, S	B, S
Load Current (mA)	200	200	200
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	1000	1000	1000
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	M12	M14	M16
Length (mm)	40, 50, 65	40, 50, 65	35, 50, 65
Sensing Distance Sn. (mm)	F - 2.5 NF - 4	F - 2.5 NF - 4	F - 3 NF - 5
Enclosure	B, A, S	B, A, S	B, S
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	1000	1000	1000
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	M12	M14	M16
Length (mm)	40, 50, 65	40, 50, 65	35, 50, 65
Sensing Distance Sn. (mm)	F - 2.5 NF - 4	F - 2.5 NF - 4	F - 3 NF - 5
Enclosure	B, A, S	B, A, S	B, S
Load Current (mA)	200	200	200
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	1000	1000	1000
Logic Available	NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	M12	M14	M16
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 2.5 NF - 4	F - 2.5 NF - 4	F - 3 NF - 5
Enclosure	B, A, S	B, A, S	B, S
Load Current (mA)	200	200	200
Supply Voltage (V AC/DC)	A6	A6	A6
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	M12	M14	M16
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 2.5 NF - 4	F - 2.5 NF - 4	F - 3 NF - 5
Enclosure	B, A, S	B, A, S	B, S
Load Current (mA)	200	200	200
Supply Voltage (V AC)	A1 to A5	A1 to A5	A1 to A5
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC

INDUCTIVE PROXIMITY SWITCHES



INDUCTIVE	M18	M20	M22
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	M18	Ø20	M22
Length (mm)	35, 50, 65	50, 65	65
Sensing Distance Sn. (mm)	F - 5 NF - 8	F - 7 NF - 10	F - 5 NF - 8
Enclosure	B, A, S, T	A	B, S
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	500	500	500
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	M18	Ø20	M22
Length (mm)	35, 50, 65	65	65
Sensing Distance Sn. (mm)	F - 5 NF - 8	F - 7 NF - 10	F - 5 NF - 8
Enclosure	B, A, S, T	A	B, S
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	500	500	500
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	M18	Ø20	M22
Length (mm)	35, 50, 65	65	65
Sensing Distance Sn. (mm)	F - 5 NF - 8	F - 7 NF - 10	F - 5 NF - 8
Enclosure	B, A, S, T	A	B, S
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	500	500	500
Logic Available	NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	M18	Ø20	M22
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 5 NF - 8	F - 7 NF - 10	F - 5 NF - 8
Enclosure	B, A, S, T	A	B, S
Load Current (mA)	400	400	400
Supply Voltage (V AC/DC)	A6	A6	A6
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	M18	Ø20	M22
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 5 NF - 8	F - 7 NF - 10	F - 5 NF - 8
Enclosure	B, A, S, T	A	B, S
Load Current (mA)	400	400	400
Supply Voltage (V AC)	A1 to A5	A1 to A5	A1 to A5
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC

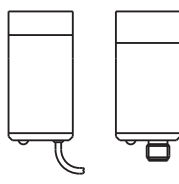
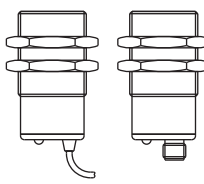
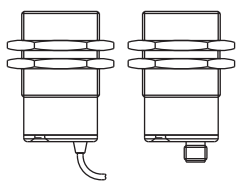
INDUCTIVE PROXIMITY SWITCHES



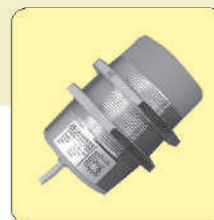
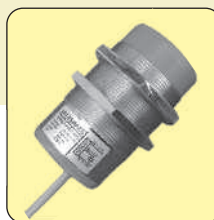
INDUCTIVE	M24	M30	M32
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	M24	M30	M32
Length (mm)	50, 65	50, 65	65
Sensing Distance Sn. (mm)	F - 8 NF - 10	F - 10 NF - 15	F - 10 NF - 15
Enclosure	B, S	B, A, S, T	B, S
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	500	200	200
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	M24	M30	M32
Length (mm)	50, 65	50, 65	65
Sensing Distance Sn. (mm)	F - 8 NF - 10	F - 10 NF - 15	F - 10 NF - 15
Enclosure	B, S	B, A, S, T	B, S
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	500	200	200
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	M24	M30	M32
Length (mm)	50, 65	50, 65	65
Sensing Distance Sn. (mm)	F - 8 NF - 10	F - 10 NF - 15	F - 10 NF - 15
Enclosure	B, S	B, A, S, T	B, S
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	500	200	200
Logic Available	NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	M24	M30	M32
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 8 NF - 10	F - 10 NF - 15	F - 10 NF - 15
Enclosure	B, S	B, A, S, T	B.S.
Load Current (mA)	400	400	400
Supply Voltage (V AC/DC)	A6	A6	A6
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	M24	M30	M32
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 8 NF - 10	F - 10 NF - 15	F - 10 NF - 15
Enclosure	B, S	B, A, S, T	B, S
Load Current (mA)	400	400	400
Supply Voltage (V AC)	A1 to A5	A1 to A5	A1 to A5
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC

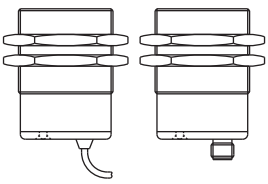
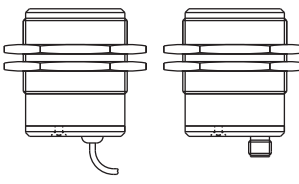
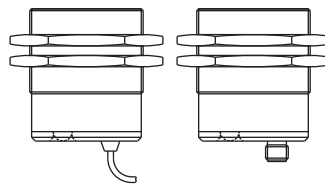
INDUCTIVE PROXIMITY SWITCHES



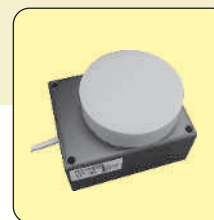
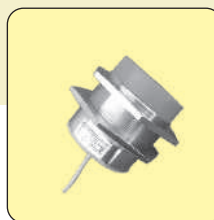
INDUCTIVE	Ø34	M36	M42
			
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	Ø34	M36	M42
Length (mm)	65	65	65
Sensing Distance Sn. (mm)	F - 12 NF - 16	F - 13 NF - 16	F - 15 NF - 18
Enclosure	A	B, S	B, S
Load Current (mA)	200	400	400
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	200	200	200
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	Ø34	M36	M42
Length (mm)	65	65	65
Sensing Distance Sn. (mm)	F - 12 NF - 16	F - 13 NF - 16	F - 15 NF - 18
Enclosure	A	B, S	B, S
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	200	200	200
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	Ø34	M36	M42
Length (mm)	65	65	65
Sensing Distance Sn. (mm)	F - 12 NF - 16	F - 13 NF - 16	F - 15 NF - 18
Enclosure	A	B, S	B, S
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	200	200	200
Logic Available	NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	Ø34	M36	M42
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 12 NF - 16	F - 13 NF - 16	F - 15 NF - 18
Enclosure	A	B, S	B, S
Load Current (mA)	400	400	400
Supply Voltage (V AC/DC)	A6	A6	A6
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	Ø34	M36	M42
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 12 NF - 16	F - 13 NF - 16	F - 15 NF - 18
Enclosure	A	B, S	B, S
Load Current (mA)	400	400	400
Supply Voltage (V AC)	A1 to A5	A1 to A5	A1 to A5
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC

INDUCTIVE PROXIMITY SWITCHES



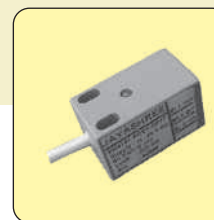
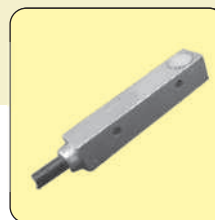
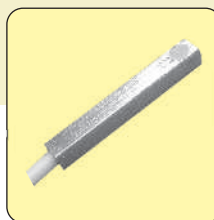
INDUCTIVE	M50	M55	M60
			
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	M50	M55	M60
Length (mm)	65	65	65
Sensing Distance Sn. (mm)	F - 16 NF - 20	F - 16 Nf - 20	F - 20 NF - 25
Enclosure	B, S	B, S	B, S
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	200	100	200
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	M50	M55	M60
Length (mm)	65	65	65
Sensing Distance Sn. (mm)	F - 16 NF - 20	F - 16 NF - 20	F - 20 NF - 25
Enclosure	B, S	B, S	B, S
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	200	100	200
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	M50	M55	M60
Length (mm)	65	65	65
Sensing Distance Sn. (mm)	F - 16 NF - 20	F - 16 NF - 20	F - 20 NF - 25
Enclosure	B, S	B, S	B, S
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	200	100	200
Logic Available	NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	M50	M55	M60
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 16 NF - 20	F - 16 NF - 20	F - 20 NF - 25
Enclosure	B, S	B, S	B, S,
Load Current (mA)	400	400	400
Supply Voltage (V AC/DC)	A6	A6	A6
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	M50	M55	M60
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 16 NF - 20	F - 16 NF - 20	F - 20 NF - 25
Enclosure	B, S	B, S	B, S
Load Current (mA)	400	400	400
Supply Voltage (V AC)	A1 to A5	A1 to A5	A1 to A5
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC

INDUCTIVE PROXIMITY SWITCHES



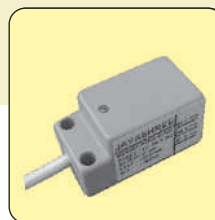
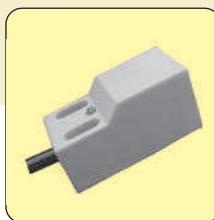
INDUCTIVE	M80	D150	H100*80*45
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	M80	D150	H100*80
Length (mm)	65	185x185x87.5	100x80x45
Sensing Distance Sn. (mm)	F - 30 NF - 35	F - 100	NF - 40
Enclosure	B, S	A	A
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	200	100	100
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	M80	D150	H100*80
Length (mm)	65	185 x 185 x 87.5	100 x 80 x 45
Sensing Distance Sn. (mm)	F - 30 NF - 35	F - 100	F-40
Enclosure	B, S	A	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	200	100	100
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	M80	D150	H100*80
Length (mm)	65	185 x 185 x 87.5	100 x 80 x 45
Sensing Distance Sn. (mm)	F - 30 NF - 35	F - 100	F-40
Enclosure	B, S	A	A
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	200	100	100
Logic Available	NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	M80	D150	H100*80
Length (mm)	65	185 x 185 x 87.5	100 x 80 x 45
Sensing Distance Sn. (mm)	F - 30 NF - 35	F - 100	F-40
Enclosure	B, S	A	A
Load Current (mA)	400	400	400
Supply Voltage (V AC/DC)	A6	A6	A6
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	M80	D150	H100*80
Length (mm)	80	185 x 185 x 87.5	100 x 80 x 45
Sensing Distance Sn. (mm)	F - 30 NF - 35	F - 100	F-40
Enclosure	B, S	A	A
Load Current (mA)	400	400	400
Supply Voltage (V AC)	A1 to A5	A1 to A5	A1 to A5
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC

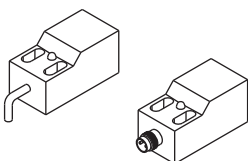
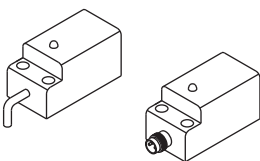
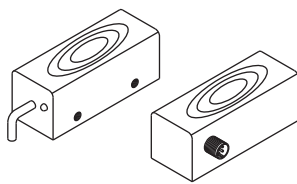
INDUCTIVE PROXIMITY SWITCHES



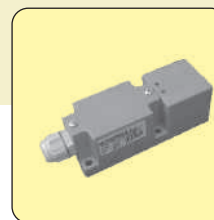
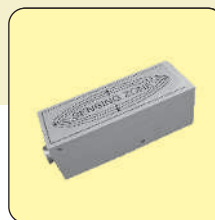
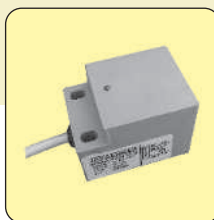
INDUCTIVE	DB4	DB8	D17
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	N.A.	DB8	D17
Length (mm)	30 x 4 x 4	40 x 8 x 8	30 x 17 x 17
Sensing Distance Sn. (mm)	0.5	1	5
Enclosure	B	B, S	A
Load Current (mA)	100	100	200
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	1000	1000	500
Logic Available	PO, NO	PO, NO	PO, NO
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	N. A.	N. A.	D17
Length (mm)	N. A.	N. A.	30 x 17 x 17
Sensing Distance Sn. (mm)	N. A.	N. A.	5
Enclosure	N. A.	N. A.	A
Load Current (mA)	N. A.	N. A.	3 to 5 mA
Supply Voltage (V DC)	N. A.	N. A.	D4
Switching Frequency (Hz)	N. A.	N. A.	500
Logic Available	N. A.	N. A.	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	N. A.	N. A.	D17
Length (mm)	N. A.	N. A.	30 x 17 x 17
Sensing Distance Sn. (mm)	N. A.	N. A.	5
Enclosure	N. A.	N. A.	A
Load Current (mA)	N. A.	N. A.	200
Supply Voltage (V DC)	N. A.	N. A.	D4
Switching Frequency (Hz)	N. A.	N. A.	500
Logic Available	N. A.	N. A.	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	N. A.	N. A.	N.A.
Length (mm)	N. A.	N. A.	N.A.
Sensing Distance Sn. (mm)	N. A.	N. A.	N.A.
Enclosure	N. A.	N. A.	N.A.
Load Current (mA)	N. A.	N. A.	N.A.
Supply Voltage (V AC/DC)	N. A.	N. A.	N.A.
Switching Frequency (Hz)	N. A.	N. A.	N.A.
Logic Available	N. A.	N. A.	N.A.
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	N. A.	N. A.	N.A.
Length (mm)	N. A.	N. A.	N.A.
Sensing Distance Sn. (mm)	N. A.	N. A.	N.A.
Enclosure	N. A.	N. A.	N.A.
Load Current (mA)	N. A.	N. A.	N.A.
Supply Voltage (V AC)	N. A.	N. A.	N.A.
Switching Frequency (Hz)	N. A.	N. A.	N.A.
Logic Available	N. A.	N. A.	N.A.

INDUCTIVE PROXIMITY SWITCHES



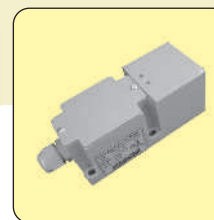
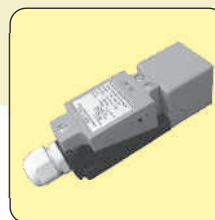
INDUCTIVE	D18	D20	DFS25
			
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	D18	D20	DFS25
Length (mm)	36 x 18 x 18	38 x 20 x 20	65 x 25 x 25
Sensing Distance Sn. (mm)	8	5	2-9
Enclosure	A	A	A
Load Current (mA)	200	200	200
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	500	500	50
Logic Available	PO, NO	PO, NO	PO, PC, NO, NC, PDO, NDO
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	D18	D20	DFS25
Length (mm)	36 x 18 x 18	38 x 20 x 20	65 x 25 x 25
Sensing Distance Sn. (mm)	8	5	2-9
Enclosure	A	A	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	500	500	50
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	D18	D20	DFS25
Length (mm)	N.A.	38 x 20 x 20	65 x 25 x 25
Sensing Distance Sn. (mm)	N.A.	5	2-9
Enclosure	N.A.	A	A
Load Current (mA)	N.A.	200	200
Supply Voltage (V DC)	N.A.	D6	D6
Switching Frequency (Hz)	N.A.	500	50
Logic Available	N.A.	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	D18	D20	DFS25
Length (mm)	N.A.	N.A.	65 x 25 x 25
Sensing Distance Sn. (mm)	N.A.	N.A.	2-9
Enclosure	N.A.	N.A.	A
Load Current (mA)	N.A.	N.A.	200
Supply Voltage (V AC/DC)	N.A.	N.A.	A6
Switching Frequency (Hz)	N.A.	N.A.	15
Logic Available	N.A.	N.A.	NO, NC
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	D18	D20	DFS25
Length (mm)	N.A.	N.A.	65 x 25 x 25
Sensing Distance Sn. (mm)	N.A.	N.A.	2-9
Enclosure	N.A.	N.A.	A
Load Current (mA)	N.A.	N.A.	200
Supply Voltage (V AC)	N.A.	N.A.	A1 to A5
Switching Frequency (Hz)	N.A.	N.A.	15
Logic Available	N.A.	N.A.	NO, NC

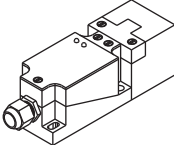
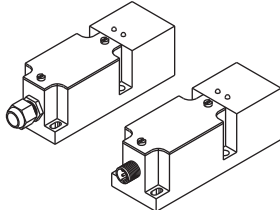
INDUCTIVE PROXIMITY SWITCHES



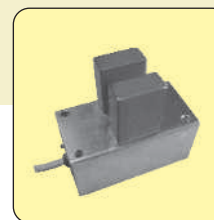
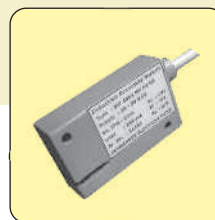
INDUCTIVE	D35	DFS40	D40
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	D35	DFS40	D40
Length (mm)	35 x 35 x 48	112.5 x 40 x 40	112.5 x 40 x 40
Sensing Distance Sn. (mm)	15	2-13	15
Enclosure	A	A	A
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D1 to D8	D1 to D8	D1 to D8
Switching Frequency (Hz)	200	100	100
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	D35	DFS40	D40
Length (mm)	35 x 35 x 48	112.5 x 40 x 40	112.5 x 40 x 40
Sensing Distance Sn. (mm)	15	2-13	15
Enclosure	A	A	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	200	100	100
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	D35	DFS40	D40
Length (mm)	35 x 35 x 48	112.5 x 40 x 40	112.5 x 40 x 40
Sensing Distance Sn. (mm)	15	2-13	15
Enclosure	A	A	A
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	200	100	100
Logic Available	NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	D35	DFS40	D40
Length (mm)	35 x 35 x 48	112.5 x 40 x 40	112.5 x 40 x 40
Sensing Distance Sn. (mm)	15	2-13	15
Enclosure	A	A	A
Load Current (mA)	400	400	400
Supply Voltage (V AC/DC)	A6	A6	A6
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	D35	DFS40	D40
Length (mm)	35 x 35 x 48	112.5 x 40 x 40	112.5 x 40 x 40
Sensing Distance Sn. (mm)	15	2-13	15
Enclosure	A	A	A
Load Current (mA)	400	400	400
Supply Voltage (V AC)	A1 to A5	A1 to A5	A1 to A5
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC

INDUCTIVE PROXIMITY SWITCHES



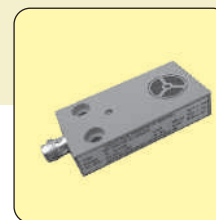
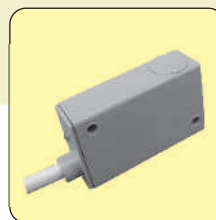
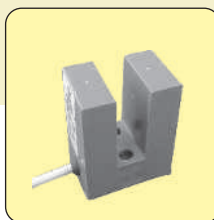
INDUCTIVE	DV40	D50	G-2
			
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	DV40 (Variable Sensing Head)	D50	Gap 2
Length (mm)	118 x 40 x 40	120 x 50 x 50	36 x 9.6 x 10
Sensing Distance Sn. (mm)	15	20	2 mm
Enclosure	A	A	A
Load Current (mA)	400	400	200
Supply Voltage (V DC)	D1 to D8	D1 to D8	D1 to D6
Switching Frequency (Hz)	100	100	200
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, NO
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	DV40 (Variable Sensing Head)	D50	Gap 2
Length (mm)	118 x 40 x 40	120 x 50 x 50	36 x 9.6 x 10
Sensing Distance Sn. (mm)	15	20	2 mm
Enclosure	A	A	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	100	100	200
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	DV40 (Variable Sensing Head)	D50	N.A.
Length (mm)	118 x 40 x 40	120 x 50 x 50	N.A.
Sensing Distance Sn. (mm)	15	20	N.A.
Enclosure	A	A	N.A.
Load Current (mA)	400	400	N.A.
Supply Voltage (V DC)	D6	D6	N.A.
Switching Frequency (Hz)	100	100	N.A.
Logic Available	NO, NC	NO, NC	N.A.
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	DV40 (Variable Sensing Head)	D50	N.A.
Length (mm)	118 x 40 x 40	120 x 50 x 50	N.A.
Sensing Distance Sn. (mm)	15	20	N.A.
Enclosure	A	A	N.A.
Load Current (mA)	400	400	N.A.
Supply Voltage (V AC/DC)	A6	A6	N.A.
Switching Frequency (Hz)	15	15	N.A.
Logic Available	NO, NC	NO, NC	N.A.
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	DV40 (Variable Sensing Head)	D50	N.A.
Length (mm)	118 x 40 x 40	120 x 50 x 50	N.A.
Sensing Distance Sn. (mm)	15	20	N.A.
Enclosure	A	A	N.A.
Load Current (mA)	400	400	N.A.
Supply Voltage (V AC)	A1 to A5	A1 to A5	N.A.
Switching Frequency (Hz)	15	15	N.A.
Logic Available	NO, NC	NO, NC	N.A.

INDUCTIVE PROXIMITY SWITCHES



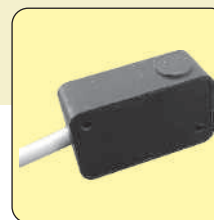
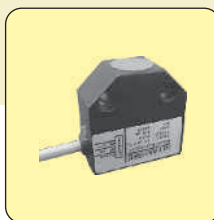
INDUCTIVE	G-3.5	G-5	G-10
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	Gap 3.5	Gap 5	Gap 10
Length (mm)	15 x 19	75 x 50 x 72	75 X 50 x 72
Sensing Distance Sn. (mm)	3.5 mm	5 mm	10 mm
Enclosure	A	A	A
Load Current (mA)	100	200	200
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D8
Switching Frequency (Hz)	100	200	200
Logic Available	PO, NO	PO, NO	PO, NO
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	Gap 3.5	Gap 5	Gap 10
Length (mm)	15 x 19	75 x 50 x 72	75 X 50 x 72
Sensing Distance Sn. (mm)	3.5 mm	5 mm	10 mm
Enclosure	A	A	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	100	200	200
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC/DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	N.A.	Gap 5	Gap 10
Length (mm)	N.A.	75 x 50 x 72	75 x 50 x 72
Sensing Distance Sn. (mm)	N.A.	5 mm	10 mm
Enclosure	N.A.	A	A
Load Current (mA)	N.A.	200	200
Supply Voltage (V AC)	N.A.	A1 to A5	A1 to A5
Switching Frequency (Hz)	N.A.	15	15
Logic Available	N.A.	PO, NO	PO, NO

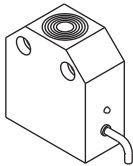
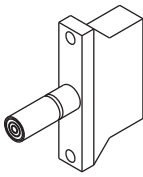
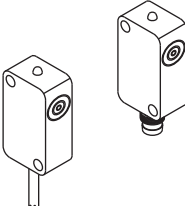
INDUCTIVE PROXIMITY SWITCHES



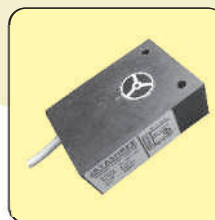
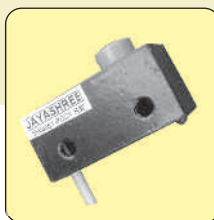
INDUCTIVE	G-15	H40*25*12	H50*25*10
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	Gap 15	H402512	H5025
Length (mm)	61 x 30 x 45	40 x 25 x 12	50 x 25 x 10
Sensing Distance Sn. (mm)	15 mm	4	5
Enclosure	A	A	B
Load Current (mA)	200	200	200
Supply Voltage (V DC)	D1 to D8	D1 to D6	D1 to D6
Switching Frequency (Hz)	500	300	300
Logic Available	PO, NO	PO, PC, NO, NC	PO, PC, NO, NC
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	Gap 15	H402512	H5025
Length (mm)	61 x 30 x 45	40 x 25 x 12	50 x 25 x 10
Sensing Distance Sn. (mm)	15 mm	4	5
Enclosure	A	A	B
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	500	300	300
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	Gap 15	H402512	H5025
Length (mm)	61 x 30 x 45	40 x 25 x 12	50 x 25 x 10
Sensing Distance Sn. (mm)	15 mm	4	5
Enclosure	A	A	B
Load Current (mA)	200	200	200
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	500	300	300
Logic Available	NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC/DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.?
Logic Available	N.A.	N.A.	N.A.
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.?
Logic Available	N.A.	N.A.	N.A.

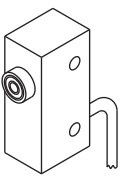
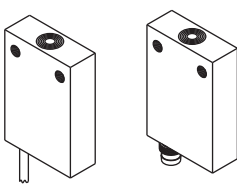
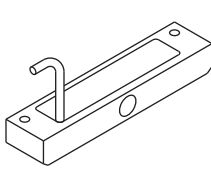
INDUCTIVE PROXIMITY SWITCHES



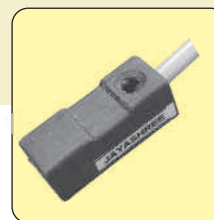
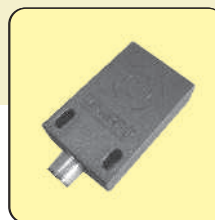
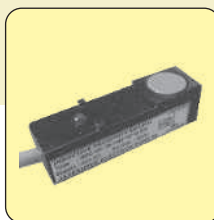
INDUCTIVE	H50*45*12	IN-10	H28*16*10
			
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	H5022	IN10-4	H2816
Length (mm)	50 x 45 x 22	120 x 102 x 86	28 x 16 x 10
Sensing Distance Sn. (mm)	5	5	1.5
Enclosure	B	A+B	A
Load Current (mA)	200	200	1000
Supply Voltage (V DC)	D1 to D6	D1 to D8	D1 to D6
Switching Frequency (Hz)	500	100	200
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	H5022	IN10-4	H2816
Length (mm)	50 x 45 x 22	120 x 102 x 86	28 x 16 x 10
Sensing Distance Sn. (mm)	5	5	1.5
Enclosure	B	A+B	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	500	100	200
Logic Available	NO, NC	NO, NC	PO, PC, NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	H5022	IN10-4	H2816
Length (mm)	50 x 45 x 22	120 x 102 x 86	28 x 16 x 10
Sensing Distance Sn. (mm)	5	5	1.5
Enclosure	B	A+B	A
Load Current (mA)	200	200	1000
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	500	100	200
Logic Available	NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC/DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	H5022	IN10-4	N.A.
Length (mm)	50 X 45 X 22	120 x 102 x 86	N.A.
Sensing Distance Sn. (mm)	5	5	N.A.
Enclosure	B	A+B	N.A.
Load Current (mA)	200	200	N.A.
Supply Voltage (V AC)	A1 to A5	A1 to A5	N.A.
Switching Frequency (Hz)	15	15	N.A.
Logic Available	NO, NC	NO, NC	N.A.

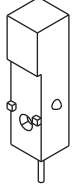
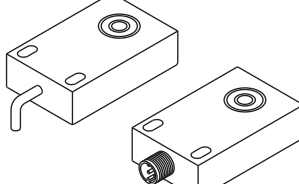
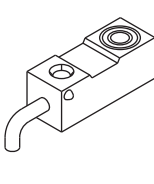
INDUCTIVE PROXIMITY SWITCHES



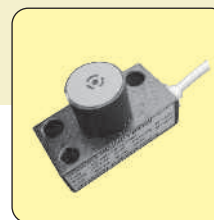
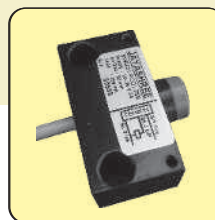
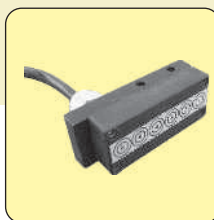
INDUCTIVE	H44*21*16	H54*37*14	H72*16*10
			
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	H4421	H5437	H7216
Length (mm)	44 x 21 x 16	54 x 37 x 14	72 x 16 x 10
Sensing Distance Sn. (mm)	3	2.5	1.5
Enclosure	A	A	A
Load Current (mA)	200	200	200
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	1000	1000	1000
Logic Available	PO, PC, NO, NC	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	H4421	H5437	H7216
Length (mm)	44 x 21 x 16	54 x 37 x 14	72 x 16 x 10
Sensing Distance Sn. (mm)	3	2.5	1.5
Enclosure	A	A	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	1000	1000	1000
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	H4421	H5437	H7216
Length (mm)	44 x 21 x 16	54 x 37 x 14	72 x 16 x 10
Sensing Distance Sn. (mm)	3	2.5	1.5
Enclosure	A	A	A
Load Current (mA)	200	200	200
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	1000	1000	1000
Logic Available	NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC/DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.

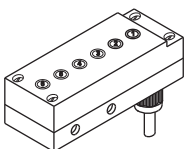
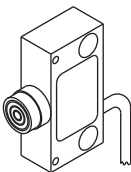
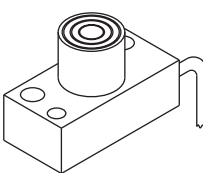
INDUCTIVE PROXIMITY SWITCHES



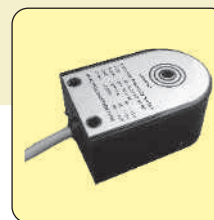
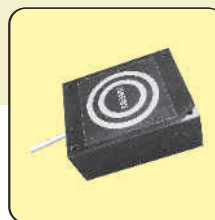
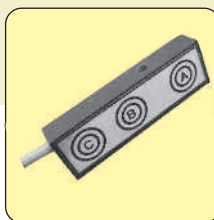
INDUCTIVE	H45*12*12	H55*35*15	H27*10*10
			
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	H4512	H5515	H2710
Length (mm)	45 x 12 x 12	55 x 35 x 15	27 x 10 x 10
Sensing Distance Sn. (mm)	2.5	10	2
Enclosure	A	A	A
Load Current (mA)	200	200	100
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	1000	100	1000
Logic Available	PO, PC, NO, NC	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	H4512	H5515	H2710
Length (mm)	45 x 12 x 12	55 x 35 x 15	27 x 10 x 10
Sensing Distance Sn. (mm)	2.5	10	2
Enclosure	A	A	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	100
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	1000	100	1000
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	H4512	H5515	N.A.
Length (mm)	45 x 12 x 12	55 x 35 x 15	N.A.
Sensing Distance Sn. (mm)	2.5	10	N.A.
Enclosure	A	A	N.A.
Load Current (mA)	200	200	N.A.
Supply Voltage (V DC)	D6	D6	N.A.
Switching Frequency (Hz)	1000	100	N.A.
Logic Available	NO, NC	NO, NC	N.A.
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC/DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	N.A.	H5515	N.A.
Length (mm)	N.A.	55 x 35 x 15	N.A.
Sensing Distance Sn. (mm)	N.A.	10	N.A.
Enclosure	N.A.	A	N.A.
Load Current (mA)	N.A.	200	N.A.
Supply Voltage (V AC)	N.A.	A1 to A5	N.A.
Switching Frequency (Hz)	N.A.	15	N.A.
Logic Available	N.A.	NO, NC	N.A.

INDUCTIVE PROXIMITY SWITCHES



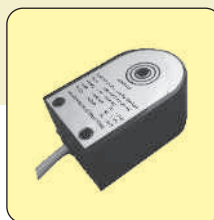
INDUCTIVE	H79*30	H38*55	H30*45
			
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	N.A.	H3855	H3045
Length (mm)	N.A.	38 x 55 x 16	30 x 45 x 22
Sensing Distance Sn. (mm)	N.A.	5	5
Enclosure	N.A.	A	A
Load Current (mA)	N.A.	200	200
Supply Voltage (V DC)	N.A.	D1 to D6	D1 to D6
Switching Frequency (Hz)	N.A.	500	500
Logic Available	N.A.	PO, PC, NO, NC	PO, PC, NO, NC
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	N.A.	H3855	H3045
Length (mm)	N.A.	38 x 55 x 16	30 x 45 x 22
Sensing Distance Sn. (mm)	N.A.	5	5
Enclosure	N.A.	A	A
Load Current (mA)	N.A.	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	N.A.	D4	D4
Switching Frequency (Hz)	N.A.	500	500
Logic Available	N.A.	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	H7930	H3855	H3045
Length (mm)	79 x 30 x 24	38 x 55 x 16	30 x 45 x 22
Sensing Distance Sn. (mm)	2	5	5
Enclosure	A	A	A
Load Current (mA)	400	200	200
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	200	500	500
Logic Available	NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC/DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.

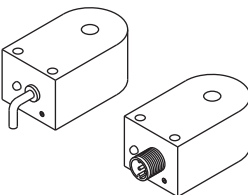
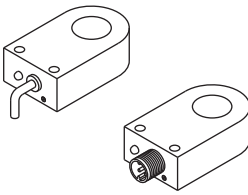
INDUCTIVE PROXIMITY SWITCHES



INDUCTIVE	H20*63	H100*80*45	R-6
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	N.A.	H10080	R6
Length (mm)	N.A.	100 x 80 x 45	61 x 37 x 30
Sensing Distance Sn. (mm)	N.A.	50	6
Enclosure	N.A.	A	A
Load Current (mA)	N.A.	300	200
Supply Voltage (V DC)	N.A.	D1 to D6	D1 to D6
Switching Frequency (Hz)	N.A.	200	100
Logic Available	N.A.	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	N.A.	H10080	R6
Length (mm)	N.A.	100 x 80 x 45	61 x 37 x 30
Sensing Distance Sn. (mm)	N.A.	50	6
Enclosure	N.A.	A	A
Load Current (mA)	N.A.	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	N.A.	D4	D4
Switching Frequency (Hz)	N.A.	200	200
Logic Available	N.A.	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	H2063	H10080	R6
Length (mm)	20 x 11 x 63	100 x 80 x 45	61 x 37 x 30
Sensing Distance Sn. (mm)	5	50	6
Enclosure	A	A	A
Load Current (mA)	200	300	400
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	500	200	100
Logic Available	PO, PC, NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	H2063	H10080	N.A.
Length (mm)	20 x 11 x 63	100 x 80 x 45	N.A.
Sensing Distance Sn. (mm)	5	50	N.A.
Enclosure	A	A	N.A.
Load Current (mA)	200	300	N.A.
Supply Voltage (V AC/DC)	A6	A6	N.A.
Switching Frequency (Hz)	15	15	N.A.
Logic Available	PO, PC, NO, NC	NO, NC	N.A.
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	N.A.	H10080	R6
Length (mm)	N.A.	100 x 80 x 45	N.A.
Sensing Distance Sn. (mm)	N.A.	50	N.A.
Enclosure	N.A.	A	N.A.
Load Current (mA)	N.A.	300	N.A.
Supply Voltage (V AC)	N.A.	A1 to A5	N.A.
Switching Frequency (Hz)	N.A.	15	N.A.
Logic Available	N.A.	NO, NC	N.A.

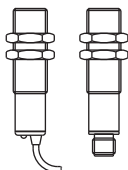
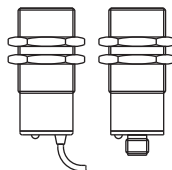
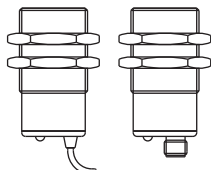
INDUCTIVE PROXIMITY SWITCHES

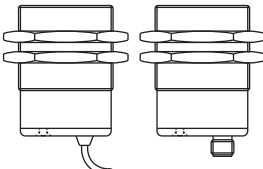
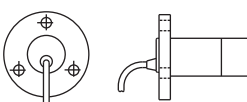
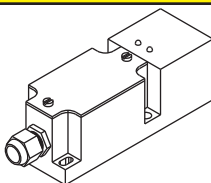


INDUCTIVE	R-10	R-22	R-30
			
SW 4051/4151	DC 3/4 WIRE		
Dimension : Dia.	R 10	R 22	R 30
Length (mm)	61 x 37 x 30	71 x 41 x 16	73 x 52 x 17
Sensing Distance Sn. (mm)	10	20	30
Enclosure	A	A	A
Load Current (mA)	200	200	200
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	100	100	100
Logic Available	PO, PC, NO, NC	PO, PC, NO, NC	PO, PC, NO, NC
SW 4052/4152	DC 2 WIRE NAMUR		
Dimension : Dia.	R 10	R 22	R 30
Length (mm)	61 x 37 x 30	71 x 41 x 16	73 x 52 x 17
Sensing Distance Sn. (mm)	10	20	30
Enclosure	A	A	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	100	100	100
Logic Available	NO, NC	NO, NC	NO, NC
SW 4053/4153	DC 2 WIRE		
Dimension : Dia.	R 10	R 22	R 30
Length (mm)	61 x 37 x 30	71 x 41 x 16	73 x 52 x 17
Sensing Distance Sn. (mm)	10	20	30
Enclosure	A	A	A
Load Current (mA)	200	200	200
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	100	100	100
Logic Available	NO, NC	NO, NC	NO, NC
SW 4054/4154	AC/DC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC/DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.
SW 4055/4155	AC 2 WIRE		
Dimension : Dia.	R 10	N.A.	N.A.
Length (mm)	61 x 37 x 30	N.A.	N.A.
Sensing Distance Sn. (mm)	10	N.A.	N.A.
Enclosure	A	N.A.	N.A.
Load Current (mA)	200	N.A.	N.A.
Supply Voltage (V AC)	A1 to A5	N.A.	N.A.
Switching Frequency (Hz)	15	N.A.	N.A.
Logic Available	PO, PC, NO, NC	N.A.	N.A.

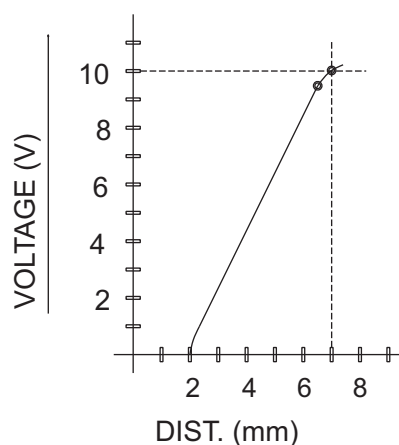
ANALOGUE PROXIMITY SWITCHES



INDUCTIVE	M18	M30	M36
			
SW 4051/4151	DC 3 WIRE		
Dimension : Dia.	M18	M30	M36
Length (mm)	65	65	65
Sensing Distance Sn. (mm)	F : 2-5 NF : 2-8	F : 2-10 NF : 3-15	F : 2-10 NF : 3-15
Enclosure	A	A	B,S
Load Current (mA)	20mA	20mA	20mA
Supply Voltage (V DC)	D10	D10	D10
Switching Frequency (Hz)	25	25	25
Logic Available	LOI, LOV	LOI, LOV	LOI, LOV

INDUCTIVE	M18	M30	M36
			
SW 4051/4151	DC 3 WIRE		
Dimension : Dia.	M50	C20	M80
Length (mm)	65	48	65
Sensing Distance Sn. (mm)	F : 4-12 F : 5-16	F : 0-9	F : 4-12
Enclosure	B,S	A	A
Load Current (mA)	20mA	20mA	20mA
Supply Voltage (V DC)	D10	D10	D10
Switching Frequency (Hz)	25	25	25
Logic Available	LOI, LOV	LOI, LOV	LOI, LOV

Graph for 'LOV'



Capacitive Proximity Switches

Series - SW 505

INTRODUCTION

The Series SW 505 Capacitive Proximity Switches are designed for sensing wide range of materials. These switches give a superior performance for detection of various non-metallic objects where Inductive type switches can not function.

The major applications of Capacitive Switches include sensing of;

- Liquid level
- Plastic granules & parts
- Sand / Bulk Material Level
- Food / Grain / Confectionary
- Paper & rubber
- Glass bottles / Tins in packaging

WORKING PRINCIPLE

The switch works on the principle of resonant oscillator circuit. A pair of brass/copper disc form the electrodes of a capacitor & the object acts as a dielectric media. The change in capacitance value, due to presence of object, is sensed by a precision integrated circuit. An effective output signal is generated at a preset value of capacitance.

CONSTRUCTION

These are offered in tubular threaded housing from size M12 to M80. The enclosures are made of Brass, Stainless Steel or Engineering Plastics. Special shapes, Teflon housings are provided against requirements.

Standard models are provided with an integrated 2 meter long cable. Connector type versions are available with built-in male connectors.

SENSING DISTANCE

The nominal sensing distance of any size of switch is specified with Water as standard object and tested at 25°C. Depending upon the material of the object to be detected, the distance will vary. The sensitivity of the sensor is adjustable with a trimpot provided usually on the rear side of the sensor. Typical Sensing distance chart for a M30 size sensor, for different objects is shown in Fig-1.

EFFECT OF AMBIENT CONDITIONS ON SENSITIVITY

The sensing distance is affected by change in ambient temperature, humidity, size and material of the object.

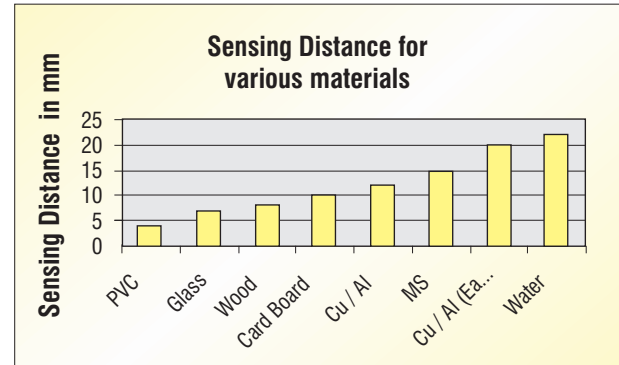


Fig.1

GENERAL SPECIFICATIONS

Operating Temperature	: 55°C Max.
Response Time	: 2 to 5 milliseconds
Hysteresis	: 3% to 15 % of actuating point
Protection Grade	: IP-67
Quiescent Current	: 1) DC - 8 mA Max. 2) AC - 2 mA Max.
Indication	: LED for object status
Output	: 1) To drive a Relay 2) PLC Compatible

SPECIAL MODELS

Special High Temperature models of Capacitive switches are available with Operating Temperature upto 150°C max.

These switches are provided with a teflon front cap and with suitable teflon cable.

These switches are to be used with a specially designed controller/amplifier unit.

The permitted operating length between sensor and the controller is maximum 5 meters.

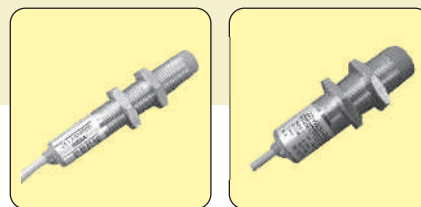
NAMUR type switches are available with CMRI-Certificate and approved Power Supply Unit with built-in Zener barrier circuit.

PROTECTIONS

All the Capacitive switches are provided with Reverse polarity, Overload, short circuit and false pulse protections.

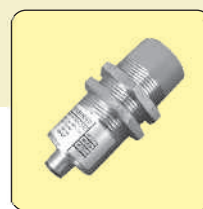
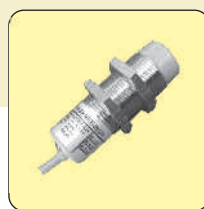
Rugged construction along with IP-67 grade of protection renders these switches to be very useful for liquid level monitoring applications.

CAPACITIVE PROXIMITY SWITCHES



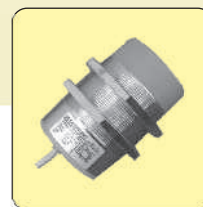
CAPACITIVE	M12	M18	Ø20
SW 5051/5151	DC 3/4 WIRE		
Dimension : Dia.	M12	M18	Ø20
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	NF-2-5	F-2-5 NF-2-10	F-2-7 NF-2-10
Enclosure	B, A, S	B, A, S, T	A
Load Current (mA)	200	400	400
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	25	50	50
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO
SW 5052/5152	DC 2 WIRE NAMUR		
Dimension : Dia.	M12	M18	Ø20
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	NF-2-3 F-2-5	NF-2-5 F-2-10	NF-2-7 NF-2-10
Enclosure	B, A, S	B, A, S, T	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	25	50	50
Logic Available	NO, NC	NO, NC	NO, NC
SW 5053/5153	DC 2 WIRE		
Dimension : Dia.	M12	M18	Ø20
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	NF-2-3 F-2-5	NF-2-5 F-2-10	NF-2-7 NF-2-10
Enclosure	B, A, S	B, A, S, T	A
Load Current (mA)	200	400	400
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	25	50	50
Logic Available	NO, NC	NO, NC	NO, NC
SW 5054/5154	AC/DC 2 WIRE		
Dimension : Dia.	M12	M18	Ø20
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	NF-2-3 F-2-5	NF-2-5 F-2-10	NF-2-7 NF-2-10
Enclosure	B, A, S	B, A, S, T	A
Load Current (mA)	200	400	400
Supply Voltage (V AC/DC)	A6	A6	A6
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC
SW 5055/5155	AC 2 WIRE		
Dimension : Dia.	M12	M18	Ø20
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	NF-2-3 F-2-5	NF-2-5 F-2-10	NF-2-7 NF-2-10
Enclosure	B, A, S	B, A, S, T	A
Load Current (mA)	200	400	400
Supply Voltage (V AC)	A1 to A5	A1 to A5	A1 to A5
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC

CAPACITIVE PROXIMITY SWITCHES



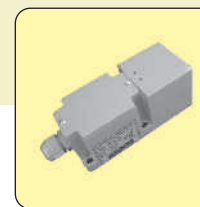
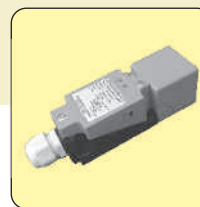
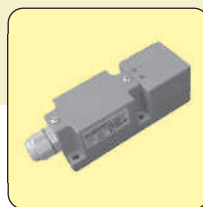
CAPACITIVE	M24	M30	Ø34
SW 5051/5151	DC 3/4 WIRE		
Dimension : Dia.	M24	M30	Ø34
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	NF-2-8 F-2-10	NF-2-10 F-3-15	NF-3-12 NF-3-16
Enclosure	B, S	B, A, S, T	A
Load Current (mA)	400	400	200
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	50	50	50
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO
SW 5052/5152	DC 2 WIRE NAMUR		
Dimension : Dia.	M24	M30	Ø34
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	NF-2-8 F-2-10	NF-2-10 F-3-15	NF-3-12 NF-3-16
Enclosure	B, S	B, A, S, T	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	50	50	50
Logic Available	NO, NC	NO, NC	NO, NC
SW 5053/5153	DC 2 WIRE		
Dimension : Dia.	M24	M30	Ø34
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	NF-2-8 F-2-10	NF-2-10 F-3-15	NF-3-12 NF-3-16
Enclosure	B, S	B, A, S, T	A
Load Current (mA)	400	400	200
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	50	50	50
Logic Available	NO, NC	NO, NC	NO, NC
SW 5054/5154	AC/DC 2 WIRE		
Dimension : Dia.	M24	M30	Ø34
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	NF-2-8 F-2-10	NF-2-10 F-3-15	NF-3-12 NF-3-16
Enclosure	B, S	B, A, S, T	A
Load Current (mA)	400	400	200
Supply Voltage (V AC/DC)	A6	A6	A6
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC
SW 5055/5155	AC 2 WIRE		
Dimension : Dia.	M24	M30	Ø34
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	NF-2-8 F-2-10	NF-2-10 F-3-15	NF-3-12 NF-3-16
Enclosure	B, S	B, A, S, T	A
Load Current (mA)	400	400	200
Supply Voltage (V AC)	A1 to A5	A1 to A5	A1 to A5
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC

CAPACITIVE PROXIMITY SWITCHES



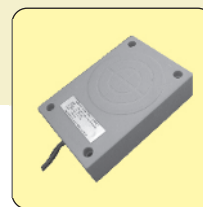
CAPACITIVE	M36	M50	M60
SW 5051/5151	DC 3/4 WIRE		
Dimension : Dia.	M36	M50	M60
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 3-13 F - 3-16	F - 3-16 NF - 3-20	F - 3-20 NF - 3-25
Enclosure	B, S	B, S	B, S
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	50	50	50
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO
SW 5052/5152	DC 2 WIRE NAMUR		
Dimension : Dia.	M36	M50	M60
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 3-13 F - 3-16	F - 3-16 NF - 3-20	F - 3-20 NF - 3-25
Enclosure	B, S	B, S	B, S
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	50	50	50
Logic Available	NO, NC	NO, NC	NO, NC
SW 5053/5153	DC 2 WIRE		
Dimension : Dia.	M36	M50	M60
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 3-13 F - 3-16	F - 3-16 NF - 3-20	F - 3-20 NF - 3-25
Enclosure	B, S	B, S	B, S
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	50	50	50
Logic Available	NO, NC	NO, NC	NO, NC
SW 5054/5154	AC/DC 2 WIRE		
Dimension : Dia.	M36	M50	M60
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 3-13 F - 3-16	F - 3-16 NF - 3-20	F - 3-20 NF - 3-25
Enclosure	B, S	B, S	B, S
Load Current (mA)	400	400	400
Supply Voltage (V AC/DC)	A6	A6	A6
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC
SW 5055/5155	AC 2 WIRE		
Dimension : Dia.	M36	M50	M60
Length (mm)	80	80	80
Sensing Distance Sn. (mm)	F - 3-13 F - 3-16	F - 3-16 NF - 3-20	F - 3-20 NF - 3-25
Enclosure	B, S	B, S	B, S
Load Current (mA)	400	400	400
Supply Voltage (V AC)	A1 to A5	A1 to A5	A1 to A5
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC

CAPACITIVE PROXIMITY SWITCHES



CAPACITIVE	D40	DV40	D50
SW 5051/5151	DC 3/4 WIRE		
Dimension : Dia.	D40	DV40 (Variable Sensing Head)	D50
Length (mm)	112.5 x 40 x 40	118 x 40 x 40	120 x 50 x 50
Sensing Distance Sn. (mm)	3 - 15	3 - 15	3 - 20
Enclosure	A	A	A
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D1 to D8	D1 to D8	D1 to D8
Switching Frequency (Hz)	100	100	100
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO
SW 5052/5152	DC 2 WIRE NAMUR		
Dimension : Dia.	D40	DV40 (Variable Sensing Head)	D50
Length (mm)	112.5 x 40 x 40	118 x 40 x 40	120 x 50 x 50
Sensing Distance Sn. (mm)	3 - 15	3 - 15	3 - 20
Enclosure	A	A	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	100	100	100
Logic Available	NO, NC	NO, NC	NO, NC
SW 5053/5153	DC 2 WIRE		
Dimension : Dia.	D40	DV40 (Variable Sensing Head)	D50
Length (mm)	112.5 x 40 x 40	118 x 40 x 40	120 x 50 x 50
Sensing Distance Sn. (mm)	3 - 15	3 - 15	3 - 20
Enclosure	A	A	A
Load Current (mA)	400	400	400
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	100	100	100
Logic Available	NO, NC	NO, NC	NO, NC
SW 5054/5154	AC/DC 2 WIRE		
Dimension : Dia.	D40	DV40 (Variable Sensing Head)	D50
Length (mm)	112.5 x 40 x 40	118 x 40 x 40	120 x 50 x 50
Sensing Distance Sn. (mm)	3 - 15	3 - 15	3 - 20
Enclosure	A	A	A
Load Current (mA)	400	400	400
Supply Voltage (V AC/DC)	A6	A6	A6
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC
SW 5055/5155	AC 2 WIRE		
Dimension : Dia.	D40	DV40 (Variable Sensing Head)	D50
Length (mm)	112.5 x 40 x 40	118 x 40 x 40	120 x 50 x 50
Sensing Distance Sn. (mm)	3 - 15	3 - 15	3 - 20
Enclosure	A	A	A
Load Current (mA)	400	400	400
Supply Voltage (V AC)	A1 to A5	A1 to A5	A1 to A5
Switching Frequency (Hz)	15	15	15
Logic Available	NO, NC	NO, NC	NO, NC

CAPACITIVE PROXIMITY SWITCHES



CAPACITIVE	H50*25*10	H55*35*15	H120*80
SW 5051/5151	DC 3/4 WIRE		
Dimension : Dia.	H5025	H5515	H120*80
Length (mm)	50 x 25 x 10	55 x 35 x 15	120 x 80 x 30
Sensing Distance Sn. (mm)	5	10	50
Enclosure	B	A	A
Load Current (mA)	200	200	400
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	300	100	500
Logic Available	PO, PC, NO, NC	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO
SW 5052/5152	DC 2 WIRE NAMUR		
Dimension : Dia.	H5025	H5515	H120*80
Length (mm)	50 x 25 x 10	55 x 35 x 15	120 x 80 x 30
Sensing Distance Sn. (mm)	5	10	50
Enclosure	B	A	A
Load Current (mA)	3 to 5 mA	3 to 5 mA	3 to 5 mA
Supply Voltage (V DC)	D4	D4	D4
Switching Frequency (Hz)	300	100	500
Logic Available	NO, NC	NO, NC	NO, NC
SW 5053/5153	DC 2 WIRE		
Dimension : Dia.	H5025	H5515	H120*80
Length (mm)	50 x 25 x 10	55 x 35 x 15	120 x 80 x 30
Sensing Distance Sn. (mm)	5	10	50
Enclosure	B	A	A
Load Current (mA)	200	200	400
Supply Voltage (V DC)	D6	D6	D6
Switching Frequency (Hz)	300	100	500
Logic Available	NO, NC	NO, NC	NO, NC
SW 5054/5154	AC/DC 2 WIRE		
Dimension : Dia.	N.A.	N.A.	N.A.
Length (mm)	N.A.	N.A.	N.A.
Sensing Distance Sn. (mm)	N.A.	N.A.	N.A.
Enclosure	N.A.	N.A.	N.A.
Load Current (mA)	N.A.	N.A.	N.A.
Supply Voltage (V AC/DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)	N.A.	N.A.	N.A.
Logic Available	N.A.	N.A.	N.A.
SW 5055/5155	AC 2 WIRE		
Dimension : Dia.	N.A.	H5515	H120*80
Length (mm)	N.A.	55 x 35 x 15	120 x 80 x 30
Sensing Distance Sn. (mm)	N.A.	10	50
Enclosure	N.A.	A	A
Load Current (mA)	N.A.	200	400
Supply Voltage (V AC)	N.A.	A1 to A5	A1 to A5
Switching Frequency (Hz)	N.A.	15	15
Logic Available	N.A.	NO, NC	NO, NC

OPTICAL PROXIMITY SWITCHES

Series - SW 605

INTRODUCTION

The Optical Proximity Switches are a reliable solution for automation where other Proximity Switches have limitations.

These are Infra-red type sensors incorporating advance and reliable technology.

These switches have a distinct advantage of higher sensing distance over Inductive and Capacitive type of switches.

These can work more reliably in a noisy electro-magnetic radiation environment. As an infra-red wavelength light source is used, it is immune to visible light interference.

APPLICATIONS

These switches are very useful for counting and position sensing applications in Pharma, Food, Paper, Plastic & Automobile industry. They also work effectively in level sensing applications for solids, grains, sand, ice and other non-metallic bulk material. Some typical applications are -

- Component positioning sensing in Electronic Industry
- Counting of bottles, Jars, Containers etc.
- Glass sheet position sensing
- For security & safety in Machine Tools, Presses etc.
- Color sensing applications

PRINCIPLE OF OPERATION

These switches incorporate an Infra-red transmitter & receiver device housed in a single enclosure or separate enclosures. The precision pulsed transmitter beam is interrupted or reflected by the object. The advanced electronic circuit generates an effective output signal when the object is sensed.

Thru-Beam (TB) type switches have separate transmitter & receiver. The object is sensed when the beam is interrupted.

Diffuse Scan (DS) type switches have both transmitter & receiver in the same enclosure.

The closely focussed beam is reflected back by the object.

Retro-Reflective (RR) type switches use a special reflector to reflect back the beam. When an object interrupts the beam, an output signal is generated. These models have greater sensing distance compared to DS type. The receiver does not consider any reflections from other objects or sources.

EXPLANATION OF TECHNICAL TERMS

STANDARD OBJECT

The sensing distance specified for DS switch is considered with a white object having minimum 90% reflectivity.

SENSING DISTANCE

This is the maximum specified range of a sensor measured at 25°C using a standard object.

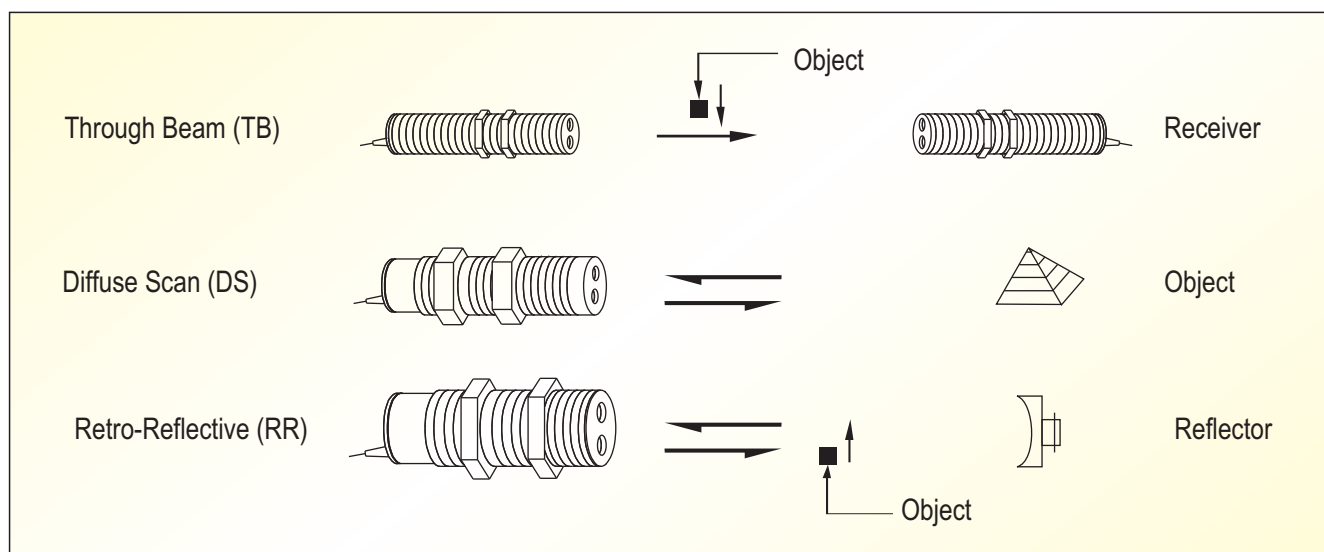
CONSTRUCTION

These switches are offered in tubular metallic, acrylic & plastic enclosures. Standard models are available with integrated 2-meter long cable. Switches with built-in (Male) connectors (International M8/M12 size) for quick connections are also available.

SWITCHES WITH OPTICAL FIBRE

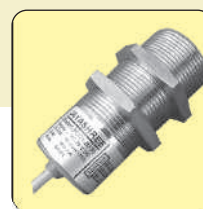
Special model of Optical Switches are available with an integrated Optical Fibre cable for flexible mounting and for sensing miniature objects / high temperature objects.

This switch is of through-beam type and is available in H type enclosures.



OPTICAL PROXIMITY SWITCHES

SW 6051 / 6151



OPTICAL	M12	M18	M30
AC / DC 2/3/4 Wire			
Dimension : Dia.	M12	M18	M30
Length (mm)	65, 80	65, 80	65, 80
Sensing Distance Sn. (mm)	F - 50	F - 200	F - 1 Mtr.
Enclosure	B, A, S	B, A, S, T	B, A, S, T
Load Current (mA)	200	400	400
Supply Voltage (V DC)	D1 to D6 A1 to A5	D1 to D6 A1 to A5	D1 to D6 A1 to A5
Switching Frequency (Hz)	25	50	50
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO

SW 6051 / SW 6055 TB

OPTICAL	M12	M18	M30
AC / DC 2/3/4 Wire			
Dimension : Dia.	M12	M18	M30
Length (mm)	65, 80	65, 80	65, 80
Sensing Distance Sn. (mm)	F - 2 Mtr.	F - 5 Mtr.	F - 10 Mtr.
Enclosure	B, A, S	B, A, S, T	B, A, S, T
Load Current (mA)	200	400	400
Supply Voltage (V DC)	D1 to D6 A1 to A5	D1 to D6 A1 to A5	D1 to D6 A1 to A5
Switching Frequency (Hz)	25	50	50
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO

SW 6051 / SW 6055 RR

OPTICAL	M12	M18	M30
AC / DC 2/3/4 Wire			
Dimension : Dia.	M12	M18	M30
Length (mm)	65, 80	65, 80	65, 80
Sensing Distance Sn. (mm)	F - 500	F - 1 Mtr.	F - 5 Mtr.
Enclosure	B, A, S	B, A, S, T	B, A, S, T
Load Current (mA)	200	400	400
Supply Voltage (V DC)	D1 to D6 A1 to A5	D1 to D6 A1 to A5	D1 to D6 A1 to A5
Switching Frequency (Hz)	25	50	50
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO

OPTICAL PROXIMITY SWITCHES

SW 6151 / SW 6155 DS



OPTICAL	M12	M18	M30
AC / DC 2/3/4 Wire			
Dimension : Dia.	M12	M18	M30
Length (mm)	65, 80	65, 80	65, 80
Sensing Distance Sn. (mm)	F - 50	F - 200	F - 1 Mtr.
Enclosure	B, A, S	B, A, S, T	B, A, S, T
Load Current (mA)	200	400	400
Supply Voltage (V DC)	D1 to D6 A1 to A5	D1 to D6 A1 to A5	D1 to D6 A1 to A5
Switching Frequency (Hz)	25	50	50
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO

SW 6151 / SW 6155 TB

OPTICAL	M12	M18	M30
	Transmitter Receiver	Transmitter Receiver	Transmitter Receiver
AC / DC 2/3/4 Wire			
Dimension : Dia.	M12	M18	M30
Length (mm)	65, 80	65, 80	65, 80
Sensing Distance Sn. (mm)	F - 2 Mtr.	F - 5 Mtr.	F - 10 Mtr.
Enclosure	B, A, S	B, A, S, T	B, A, S, T
Load Current (mA)	200	400	400
Supply Voltage (V DC)	D1 to D6 A1 to A5	D1 to D6 A1 to A5	D1 to D6 A1 to A5
Switching Frequency (Hz)	25	50	50
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO

SW 6151 / SW 6155 RR

OPTICAL	M12	M18	M30
AC / DC 2/3/4 Wire			
Dimension : Dia.	M12	M18	M30
Length (mm)	65, 80	65, 80	65, 80
Sensing Distance Sn. (mm)	F - 500	F - 1 Mtr.	F - 5 Mtr.
Enclosure	B, A, S	B, A, S, T	B, A, S, T
Load Current (mA)	200	400	400
Supply Voltage (V DC)	D1 to D6 A1 to A5	D1 to D6 A1 to A5	D1 to D6 A1 to A5
Switching Frequency (Hz)	25	50	50
Logic Available	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO	PO, PC, NO, NC, PDO, NDO

OPTICAL PROXIMITY SWITCHES



OPTICAL	H28*16	H31*17	H40*25
	DC 3 Wire		
Enclosure Type	H28*16	H31*17	H40*25
Dimension : Length (mm)	28 x 16 x 10	31 x 17 x 12	40 x 25 x 12
Sensing Distance (DS)	20	20	120
(RR)	N.A.	N.A.	300
(TB)	N.A.	N.A.	300
Enclosure	A	A	A
Load Current (mA)	100	200	200
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	50	50	15
Logic Available	PO, NO	PO, NO	PO, NO
OPTICAL	H28*16	H31*17	H40*25
	DC 3 Wire		
Enclosure Type	H60*40	H50*55	H35*35
Dimension : Length (mm)	60 x 40 x 20	50 x 55 x 22	44 x 35 x 18
Sensing Distance (DS)	300	500	100
(RR)	N.A.	2 Mtr.	N.A.
(TB)	N.A.	10 Mtr.	N.A.
Enclosure	A	A	A
Load Current (mA)	200	200	100
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	15	50	50
Logic Available	PO, NO	PO, NO	PO, NO
OPTICAL	H28*16	H31*17	H40*25
	DC 3 Wire		
Enclosure Type	H50*25	R22	G100
Dimension : Length (mm)	50 x 25 x 15	40 x 40 x 38	128 x 81 x 30
Sensing Distance (DS)	50	N.A.	N.A.
(RR)	200	For Water Drop	120
(TB)	1 Mtr.	N.A.	N.A.
Enclosure	A	A	A
Load Current (mA)	100	200	200
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	10	10	15
Logic Available	PO, NO	PO, NO	PO, NO

MAGNETIC PROXIMITY SWITCHES / SPEED SENSORS

Series SW 705 / SW 715 / MSP 706/MSP /716 MSP 707/MSP 717

The series SW 705 Magnetic Proximity Switches are available in two broad categories.

- **Position sensing switches with Reed Element.**
- **2-Wire / 3-Wire Magnetic pick-up Sensors.**

These switches are available in different shapes and sizes. Tubular models are available in Brass/SS enclosures in sizes M12, M18 and M30 and above.

SWITCHES WITH REED ELEMENT

These switches are used only for position sensing application. These incorporate a hermetically sealed sensitive reed element. The object should necessarily be a magnet. These are provided with 2-core built-in cable. The output is a potential free contact and can switch external load directly.

The switching voltage and contact rating depends upon switch size. Special models of latching type switches are available for direction sensing applications.

GENERAL SPECIFICATIONS

Sensing Range: 10 to 50 mm depending upon Strength of object magnet.

Termination : Integrated 2/3-core cable

Load : 500 mA Max.

Object : Magnet

Operating Temp : 70°C / 200°C

Protection Grade : IP-67

APPLICATIONS

Position sensing in hydraulic cylinders,

Roto-meters,

Direction sensing applications

Level sensing of liquids

MAGNETIC PICK-UP SENSORS

(Series MSP 706/MSP 716)

HALL EFFECT SENSORS

(Series MSP 707/MSP 717)

These sensors can be used only for sensing motion of a ferrous object e.g. Gear Wheel. These incorporate a special high strength ALNICO Magnet with a properly designed coil. Special high frequency sensors incorporate a Hall effect sensor.

These switches are available in 2/3-wire design. The 3-wire type switches have output logics / operating voltages similar to other types of switches described earlier.

The 2-wire switches should be necessarily used with a special controller / amplifier unit.

APPLICATIONS

- Turbine high-speed sensor.
- Bucket Elevator high temperature sensor.

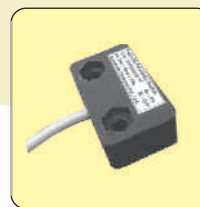
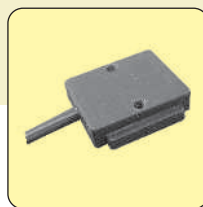
AUTOMOBILE SENSORS

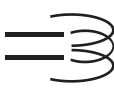
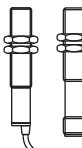
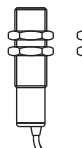
Special / custom built models are available for Automobile applications as below;

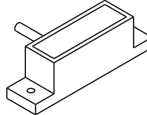
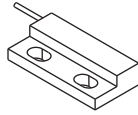
- Transfer case speed sensor.
- Wheel Rotation sensor for Fare-meter.
- Door close sensor.
- Timing Sensor.
- Clutch worn-out sensor.

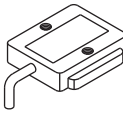
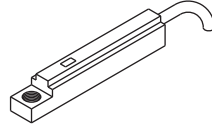
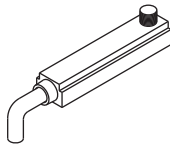
MAGNETIC PROXIMITY SWITCHES

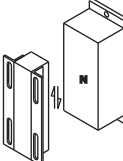
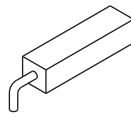
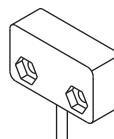
DC SW7051/ AC SW7055



MAGNETIC	M8	M12	M18
			
Dimension : Dia.	M8	M12	M18
Length (mm)	50, 65	50, 65	50, 65
Sensing Distance Sn. (mm)	F - 1.5	F - 1.5	F - 3
Enclosure	B, S	B, A, S	B, A, S, T
Load Current (mA)	200	200	400
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	25	25	50
Logic Available	NO, NC	NO, NC	NO, NC

MAGNETIC			
			
Dimension : Dia.	H1211	H6520	H2814
Length (mm)	26 x 12 x 11	65 x 16 x 20	28 x 14 x 6
Sensing Distance Sn. (mm)	10	20	3
Enclosure	H	H	A
Load Current (mA)	50	200	50
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	50	50	50
Logic Available	NO, NC	NO, NC	NO, NC

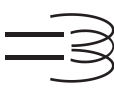
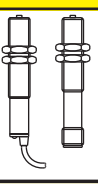
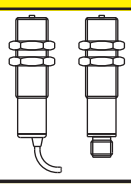
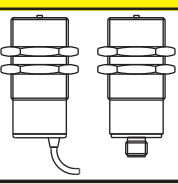
MAGNETIC			
			
Dimension : Dia.	H2526	H5*26	H5*30
Length (mm)	25 x 26 x 6	4 x 5 x 26	5 x 7 x 30
Sensing Distance Sn. (mm)	20	20	10
Enclosure	A	H	A
Load Current (mA)	100	100	100
Supply Voltage (V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	50	50	50
Logic Available	NO, NC	NO, NC	NO, NC

MAGNETIC			
			
Dimension : Dia.	H5625	H7*30	H3822
Length (mm)	110 x 56 x 25	7 x 8 x 30	38 x 22 x 12
Sensing Distance Sn. (mm)	100	10	20
Enclosure	A	H	A
Load Current (mA)	100	100	50
Supply Voltage (V AC/DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)	50	50	50
Logic Available	NO, NC	NO, NC	NO, NC

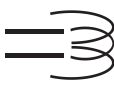
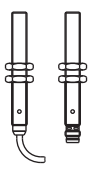
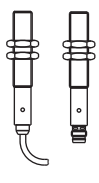
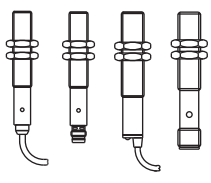
MAGNETIC PROXIMITY SWITCHES

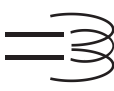
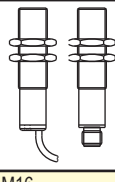
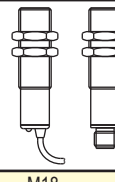
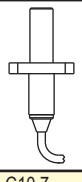
DC SW7061



MAGNETIC		M12	M18	M30
				
Dimension :	Dia.	M12	M18	M30
	Length (mm)	50, 65	50, 65	50, 65
Sensing Distance	Sn. (mm)	F - 1.5	F - 3	F - 10
Enclosure		B, A, S	B, A, S, T	B, A, S, T
Load Current	(mA)	N.A.	N.A.	N.A.
Supply Voltage	(V DC)	N.A.	N.A.	N.A.
Switching Frequency (Hz)		5000	5000	5000
Logic Available		N.A.	N.A.	N.A.

DC SW7071

MAGNETIC				
				
Dimension :	Dia.	M8	M10	M12
	Length (mm)	35, 50, 65	50, 65	50, 65
Sensing Distance	Sn. (mm)	F - 1.5	F - 1.5	F - 1.5
Enclosure		B, S	B, S	B, A, S
Load Current	(mA)	50	50	50
Supply Voltage	(V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)		5000	5000	5000
Logic Available		PO, NO	PO, NO	PO, NO

MAGNETIC				
				
Dimension :	Dia.	M16	M18	C10.7
	Length (mm)	35, 50, 65	50, 65	50
Sensing Distance	Sn. (mm)	F - 3 NF - 5	F - 3	F - 3
Enclosure		B, S	B, A, S, T	B
Load Current	(mA)	50	50	50
Supply Voltage	(V DC)	D1 to D6	D1 to D6	D1 to D6
Switching Frequency (Hz)		5000	5000	5000
Logic Available		PO, NO	PO, NO	PO, NO

ULTRASONIC PROXIMITY SWITCHES

SERIES SW 305 / SW 315

The series SW 305 Ultrasonic Proximity Switches are ideally suitable for level monitoring applications. The Ultrasonic Sensors are available in different enclosures to detect various types of objects.

The sensing range covers from 0.2 m to 20 meters. The output signal is either in the form of a switching signal or a linear output current or voltage signal. These sensors have the ability to perform in dry and dusty environments. The performance of these sensors is not affected by the presence of impeding materials like Ash, Soot, and Sawdust etc.

These sensors are immune to electrical noise level generally present in the typical industrial environment.

WORKING PRINCIPLE

These switches incorporate a precise and delicate piezo Ceramic Ultrasonic transducer pair. The sensors are available in open as well as sealed type transducers.

The transmitter sends a modulated Ultrasonic Signal, which is reflected by the object.

A microprocessor-based circuit precisely measures the time taken to travel the distance from object to sensor. Effective output signal (either linearly varying or switching type)

is generated depending upon application.

APPLICATIONS

- Anti-collision detection for cranes.
- Level controller for liquids and solids.
- Detection of moving objects.
- Opening / Closing of doors by detecting motion.

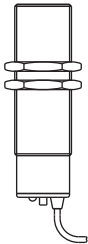
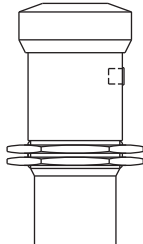
GENERAL SPECIFICATIONS

Output Signal	: Switching/ Linear output
Protection Grade	: IP-67
Termination	: Integrated 2-meter long cable.
Sensing Range	: 0.4 to 20 meters depending on model and application.

FEATURES

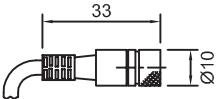
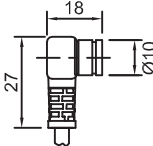
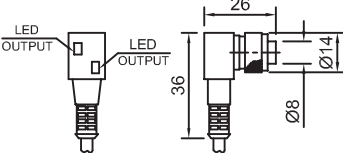
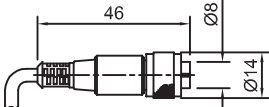
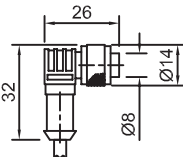
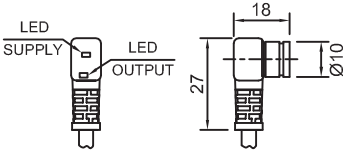
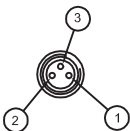
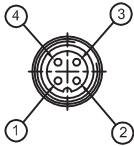
The Ultrasonic Sensors are provided with programming facility. General features available in programmable sensors are as below;

- Outputs: Push-button "teachable"
- Measurement Rate: 40 per second
- Response Time: 50 ms (FAST), 50mm/sec (SLOW)
- Resolution: 0.086 mm
- Repeatability 0.1% target range @ constant temp.
- Working Temp: -40°C to +70°C
- RS-232 / RS-485 Communication for calibration using software.

ULTRASONIC	M30	M60 Prog.
		
SW 3051	DC 3 Wire	
Dimension : Dia.	M30	M60
Length (mm)	100	100
Sensing Distance Sn. (mm)	0.2 to 2 Mtr.	0.2 to 10 Mtr.
Enclosure	A	A
Load Current (mA)	20	20
Supply Voltage (V DC)	D1 to D6	D6
Switching Frequency (Hz)	10	20
Logic Available	PO, NO, LO	LO

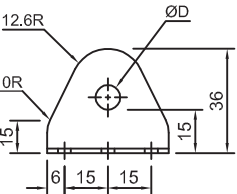
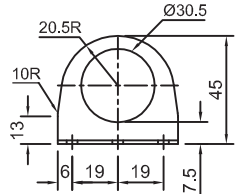
ACCESORIES

CORDSETS

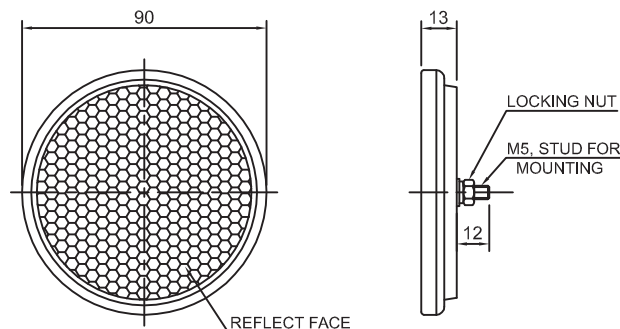
CF8SB-2	CF8LB-2	CF8LL-2	ORDERING CODE FOR CORDSET
STRAIGHT TYPE - M8  CONNECTIONS A	'L' TYPE - M8 (Without Led)  CONNECTIONS A	'L' TYPE - M12 (With Led)  CONNECTIONS B	
CF12SB-2	CF12LB-2	CF12LL-2	ORDERING CODE FOR CORDSET
STRAIGHT TYPE - M12  CONNECTIONS A	'L' TYPE - M12 (Without Led)  CONNECTIONS B	'L' TYPE - M8 (With Led)  CONNECTIONS B	
CONNECTION A  1 - Brown 2 - Blue 3 - Black		CONNECTION B  1 - Brown 2 - White 3 - Blue 4 - Black	

Basic Code CF: Connector Cordset	CF	12	S	B	2
Size 08: M8 12: M12					
Mounting S: Straight L: Angled / "L" Type					
LED Indication B: Without LED L: With LED					
Cable Length 2: 2 m long cable L: 5 m long cable					
Note: Standard Cable Length is 2 meters with 0.4mm cable core size					

MOUNTING BRACKETS

MB8A, MB12, MB18A		MB30		MOUNTING BRACKET																																																																																						
	<table><thead><tr><th>CAT. REF.</th><th>ØD</th></tr></thead><tbody><tr><td>MB8A</td><td>8.5</td></tr><tr><td>MB12A</td><td>12.5</td></tr><tr><td>MB18A</td><td>18.5</td></tr></tbody></table>	CAT. REF.	ØD	MB8A	8.5	MB12A	12.5	MB18A	18.5			<table><tr><td>Basic Code</td><td>MB 12</td><td>M</td><td>S</td><td>A</td></tr><tr><td>MB: Mounting Bracket</td><td></td><td></td><td></td><td></td></tr><tr><td>Size</td><td></td><td></td><td></td><td></td></tr><tr><td>08: M8, 12: M12</td><td></td><td></td><td></td><td></td></tr><tr><td>18: M18, 30: M30</td><td></td><td></td><td></td><td></td></tr><tr><td>Material of Construction</td><td></td><td></td><td></td><td></td></tr><tr><td>M: Steel, S: Stainless Steel</td><td></td><td></td><td></td><td></td></tr><tr><td>Steel</td><td></td><td></td><td></td><td></td></tr><tr><td>P: Plastic Moulded</td><td></td><td></td><td></td><td></td></tr><tr><td>Surface Finish</td><td></td><td></td><td></td><td></td></tr><tr><td>S: Satin Finish</td><td></td><td></td><td></td><td></td></tr><tr><td>N: Nickel Plated</td><td></td><td></td><td></td><td></td></tr><tr><td>B: Black Powder Coated</td><td></td><td></td><td></td><td></td></tr><tr><td>Construction</td><td></td><td></td><td></td><td></td></tr><tr><td>A: Triangular Construction</td><td></td><td></td><td></td><td></td></tr></table>				Basic Code	MB 12	M	S	A	MB: Mounting Bracket					Size					08: M8, 12: M12					18: M18, 30: M30					Material of Construction					M: Steel, S: Stainless Steel					Steel					P: Plastic Moulded					Surface Finish					S: Satin Finish					N: Nickel Plated					B: Black Powder Coated					Construction					A: Triangular Construction				
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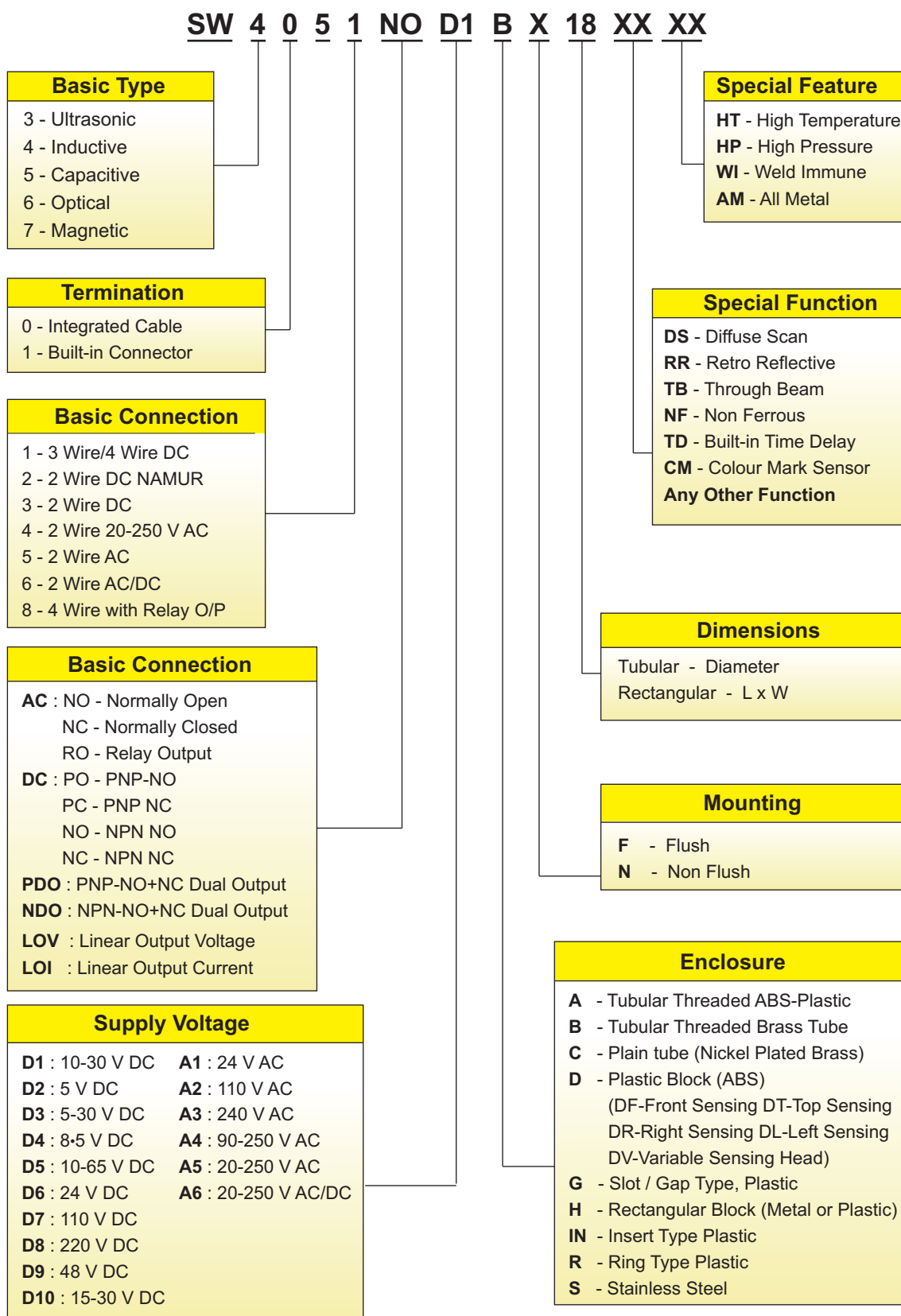
REFLECTOR FOR OPTICAL SWITCH



Important: For valid combinations, please refer to the price list

SELECTION CHART

While selecting a switch please follow this nomenclature



The Sensing Distance, Load Current, Switch Length, Cable Length, Operating Temperature will be as per factory standard unless otherwise specifically mentioned.

Example : Inductive Proximity Switch of 3-Wire DC PNP tubular type with 24 mm diameter will have following type no. **SW 4051 PO D1 B24**