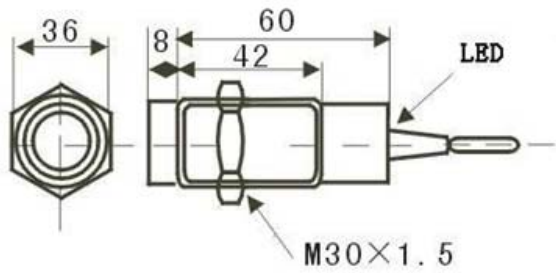# Capacity Proximity Sensor CM30

Advantages:
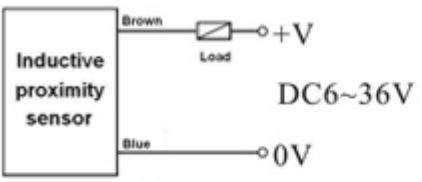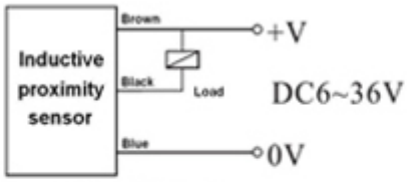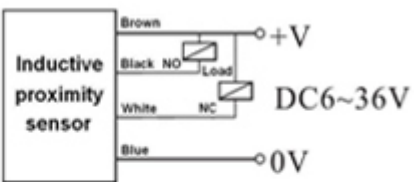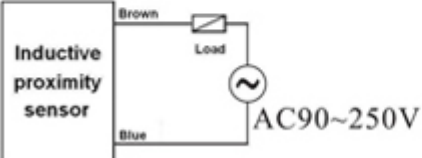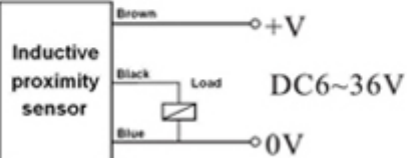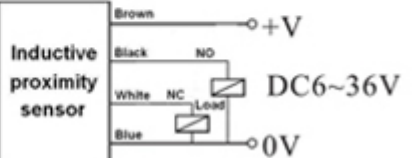
1) Compact volume, Diversified exterior

2) High precision of repeated location

3) Good performance of anti-interference

4) High on-off frequency, Wide voltage range

5) Dust proof, vibration proof, water proof and oil proof

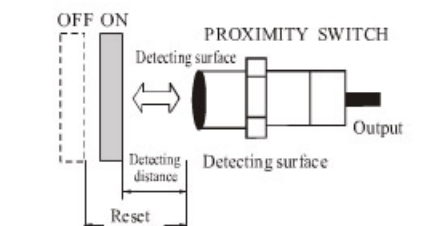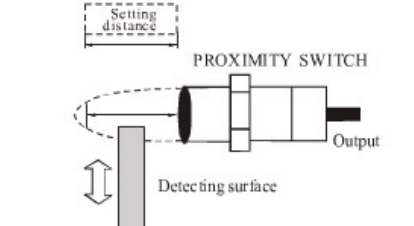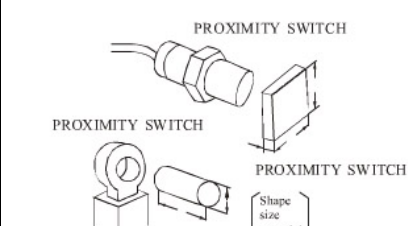6) With short-circuit protection and inverted connecting protection
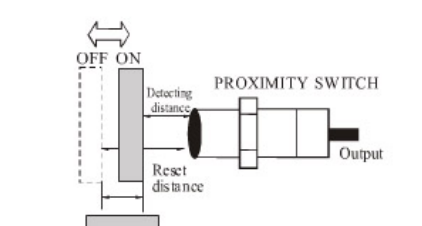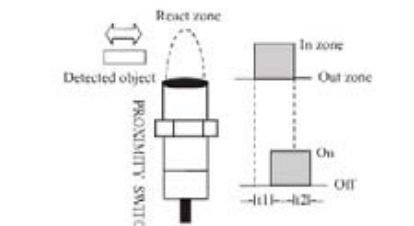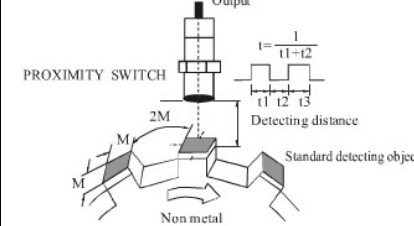
Specification:

Dimension				
Flush		Detection distance		0-10(20)mm
	DC 6 ∼ 36 V	NPN	NO	CM30-3010NA
			NC	CM30-3010NB
			NO+NC	CM30-3010NC
		PNP	NO	CM30-3010PA
			NC	CM30-3010PB
			NO+NC	CM30-3010PC
	AC 90 ∼250 V	SRC Control label silicon	NO	CM30-2010A
			NC	CM30-2010B
			NO+NC	
		Relay output		
Non-flush		Detection distance		0-15(30)mm
	DC 6 ∼ 36	NPN	NO	CM30-3015NA
			NC	CM30-3015NB
			NO+NC	CM30-3015NC
		PNP	NO	CM30-3015PA
			NC	CM30-3015PB
			NO+NC	CM30-3015PC
	AC 90 ∼250 V	SRC Control label silicon	NO	CM30-2015A
			NC	CM30-2015B
			NO+NC	
		Relay output		
Control output		DC		200mA
		SCR/Relay		300mA
Output voltage dropDC/AC				DC<3V AC<10V
Consumption current				DC<15mA AC<10mA
Standard detected object				30×30×1(A3 iron)
Repeated precision				0.05
DC/AC Response frequency				50Hz/10Hz
Working environment temperature				−25℃∼75℃
Insulation resistance				50MΩ
Shell material				Metal, ABS resin
Protection grade				IEC standard IP65

Series connection and parallel connection:

DC 2 wire type NO or NC

Inductive proximity sensor
Brown — Load — +V
DC6~36V
Blue — 0V
Max 300mA

DC 3 wire NPN type NO or NC

Inductive proximity sensor
Brown — +V
Black — Load
DC6~36V
Blue — 0V
Max 300mA

DC 4 wire NPN type NO+NC

Inductive proximity sensor
Brown — +V
Black NO — Load
White NC
DC6~36V
Blue — 0V
Max 300mA

AC 2 wire type NO or NC

Inductive proximity sensor
Brown — Load — ~
AC90~250V
Blue
Max 300mA

DC 3 wire PNP type NO or NC

Inductive proximity sensor
Brown — +V
Black — Load
DC6~36V
Blue — 0V
Max 300mA

DC 4 wire PNP type NO+NC

Inductive proximity sensor
Brown — +V
Black NO
White NC — Load
DC6~36V
Blue — 0V
Max 300mA

Explanation of technical terms:

Detection distance	Setting distance	Standard detected object
Move the detected object according to assigned method, the distance from the reference position (reference plane)to the detecting action(resetting)	Including the effects like temperature and voltage, without error action the distance passed through from the practical detection surface to the objected object.	Take as standard detected object to detect the basic performance. the shape, size and material have been determined.

Differential distance	Response time	Response frequency
The absolute value of the distance difference between the distance to action and the distance To resetting	TI:when the objected object enters the action zone, the time from proximity sensor being in action state to output appearance. T2:the time from leaving action zone to output disappearance.	Work out the tracking output times per second by repeatedly approaching the detected object Brief detection method sees the above diagram

$$t = \frac{1}{t1+t2}$$

Outward appearance illustrtion:

目标Object

距离e
Distance

Sn

I

U

开启
Open

闭合Close

距离
Distance

当一个目标靠近时，电容式接近开关的电流消耗随之增加。
When an object approaches,the current consumption of
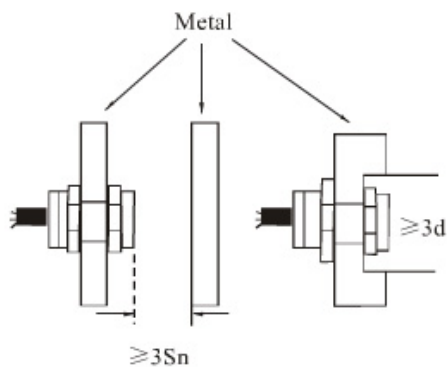capacitance proximity switch will increase proportionally.
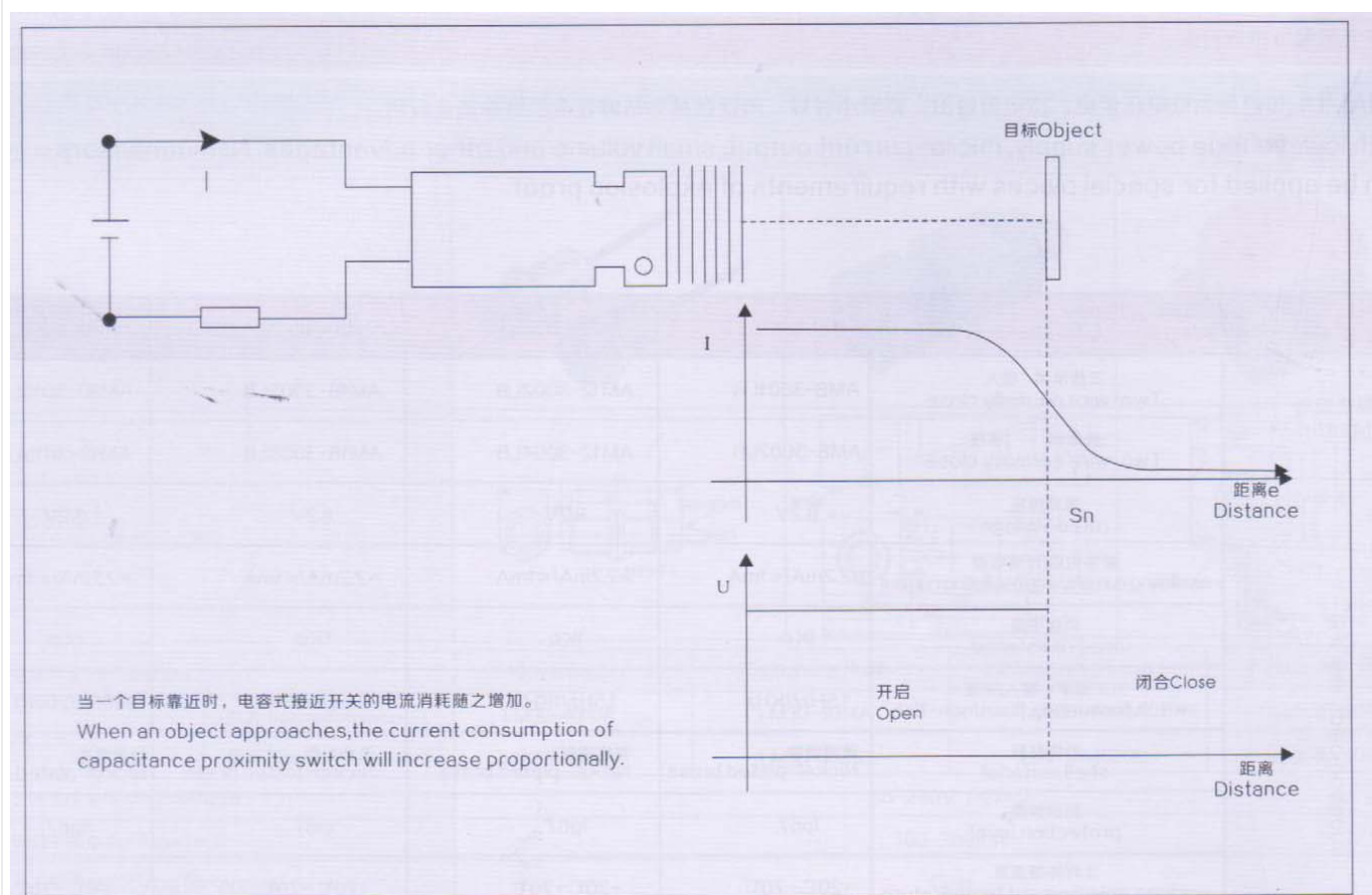
The dielectric constants for some important materials are as; osted as below:

| Materials	Dielectric constant	Materials	Dielectric constant
Synthetic resin adhesive	3.6	Styrene	3
Mica	6	Porcelain	4.4
Ebonite	4	Petrolin	2.2
Marble	8	Quartz sand	4.5
Paper	2.3	Soft rubber	2.5
Organic glass	3.2	Water	80
Alcohol	25.8	Glass	5
Cardboard	4.5	Cable rubber compound	2.5
Gasoline	2.2	Wood	2.7
Polyvinyl	2.9	Quartz glass	3.7
Silicon	2.8		

Correct use, installation and cautions:

◆Mounting screw switch
◆ Do not tighten with over-torque when mounting the switch. Adopt toothed washer when tightening

≤20kgf-cm   Toothed Washer

◆ Mounting non screw type pillar switch
◆ When adopt adjusting screw, the tightening torque should be within 2-4kgf-cm

T(kg)   Ad justable nut M3

◆ Protection against the interference of non detected object
◆ When mounting the proximity switch on the metal part,
do refer to the following diagram. Remain a certain space in advance
according to the shown diagram so as to prevent the switch from

◆ Protection against mutual interference between switches
◆ Mount according to the size which is bigger than that in the following diagram to prevent the switch from error action resulted from mutual interference if mount the switches contra-
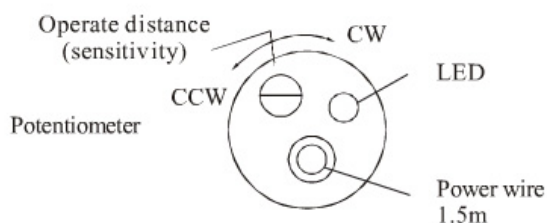
error action	positively or in parallel
Metal	Metal
≥3d	≥3d
≥3Sn	≥3Sn
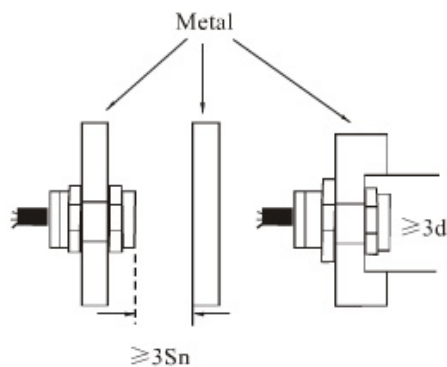
◆ Adjustable switch action distance(sensitivity) ◆ The action distance(sensitivity)of proximity switch can be adjusted by the means of trimming potentiometer. Increase the action distance and reduce sensitivity when turn clockwise. Vice versa. Do not use in the critical state of max. action distance.	◆Guard of switch lead-wire ◆ When mount switch, fix the lead-wire at a distance about 10cm from the switch with wire clip so as to prevent the switch lead-wire from damage from outer force
Operate distance (sensitivity) — CW CCW LED Potentiometer Power wire 1.5m	10cm
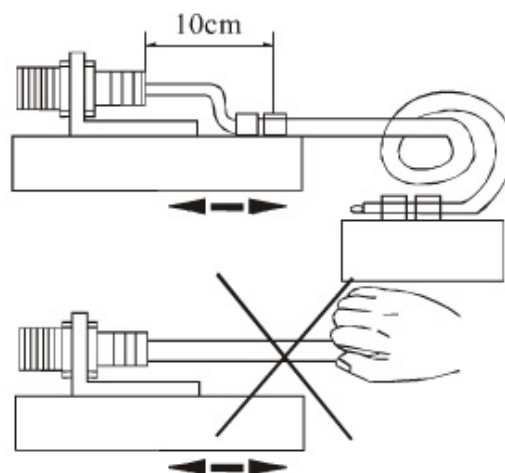
■ Cautions

◆DC switch should adopt insulation transformer and ensure stable voltage mains corrugation.

◆IF any electric power line or dynamic line passes through the surrounding of switch lead-wire, in order to prevent the switch

from damage or error action, cover the metal bushing on the switch lead-wire and ground it to the earth.

◆Set the switch use distance within the rated distance to avoid the effects from temperature and voltage

◆Wiring while power-on is strictly prohibited. Connecting the wires strictly according to the wiring diagram and output

return elementary diagram.

◆If there are any special requirements to the switch like water proof, oil proof, acid proof, base proof, high temperature proof

or with any other specifications, the users are required to give clear indication when placing an order. We can produce accord

-ing to the requirements of the use.

Application illustration of proximity switch:

图1、液位测量－－塑料或玻璃器皿
Liquid level measurement-plastic or glass container

图2、料位测量
Material level measurement

图3、断板检测
chart 3 checking for broken board

图4、瓶子计数
Fig.4 Count the bottles

图5、传送带松紧度茶油
Fig.5 detect the tightness of conveyor belt

图6、计数及料位检测
Fig.6 Counter and detect the material level