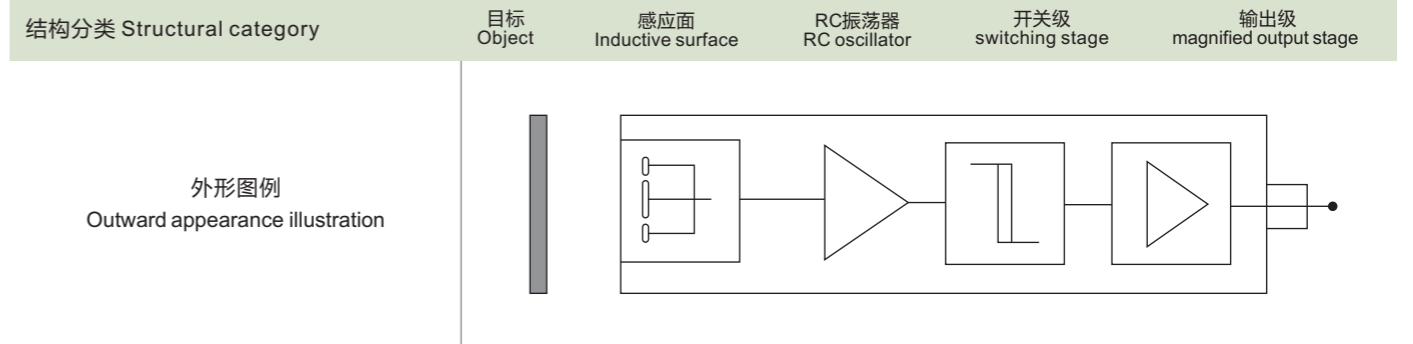


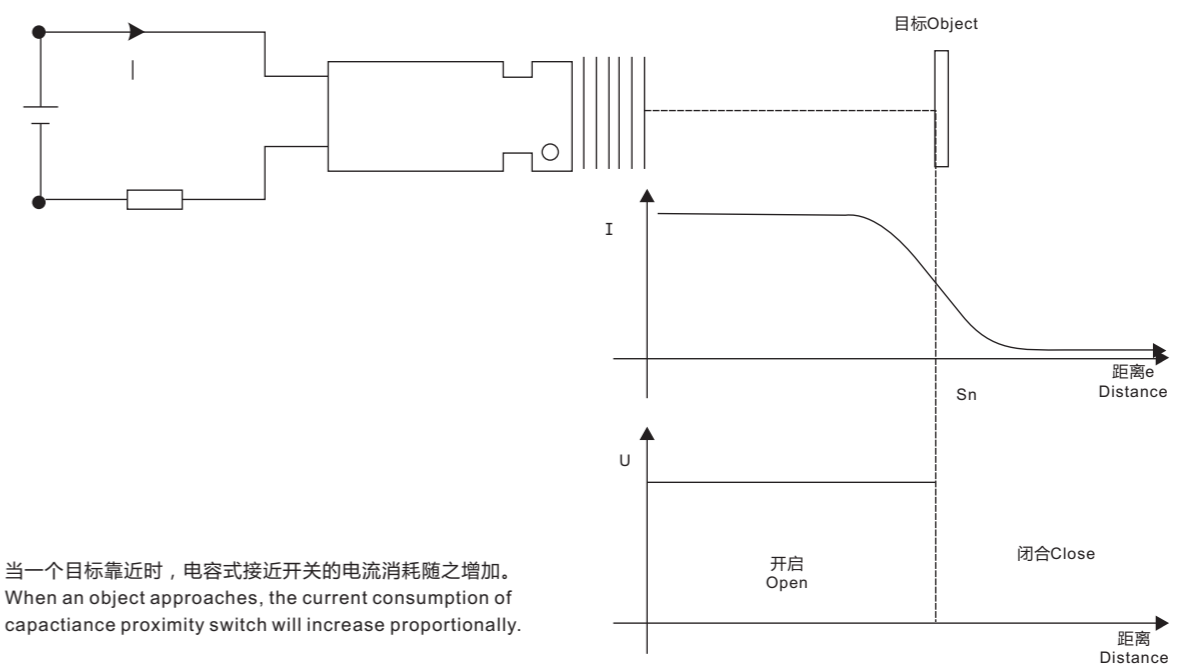
电容式接近开关的工作原理 Working principle of capacitance proximity switch



电容式接近开关 Capacitance proximity switch

- ✦ 电容式传感器的感应面由两个同轴金属电极构成，很象“打开”的电容电极，该两个电极构成一个电容，串接在RC震荡回路中。
- ✦ 电源接通时，RC振荡器不振荡，当一个目标朝着电容器的电极靠近时，电容器的容量增加，使振荡器开始振荡。通过后级电路的处理，将停振和振荡两种信号转换成开关信号，从而起到了检测有无物体存在的目的。该传感器能检测金属物体，也能检测非金属物体，对金属物体可以获得最大的动作距离，对非金属物体动作距离决定于材料的介电常数 ϵ ，材料的介电常数越大，可获得的动作距离越大。
- ✦ The induction surface of capacitance sensor is composed of two coaxial metal electrodes, which form a capacitor and connected on RC oscillation circuit, just like an open capacitor electrode.
- ✦ When connecting to power supply, RC oscillator does not work. When an object is close to capacitor electrode, the capacitor capacity will increase, and the oscillator will vibrate. Through the treatment of behind stage circuit, both signals of stop oscillation and oscillation will be converted to switch signs for checking the existence of object. this distance can be obtained, but to nonmetal object, the action distance is determined by material dielectric constant, the more dielectric constant, the more action distance will be obtained.

外形图例 Outward appearance illustration



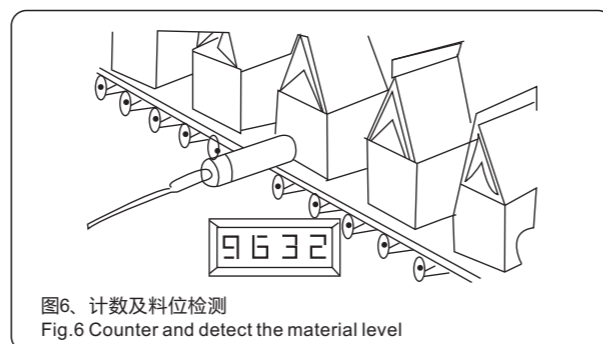
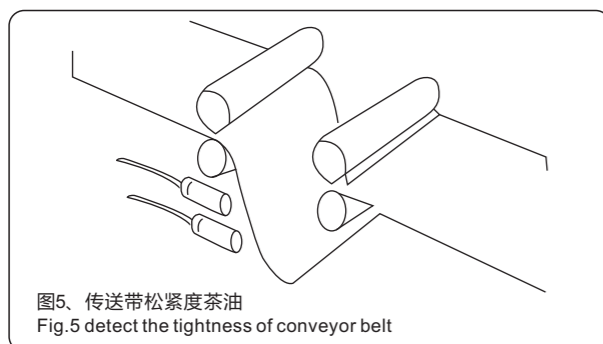
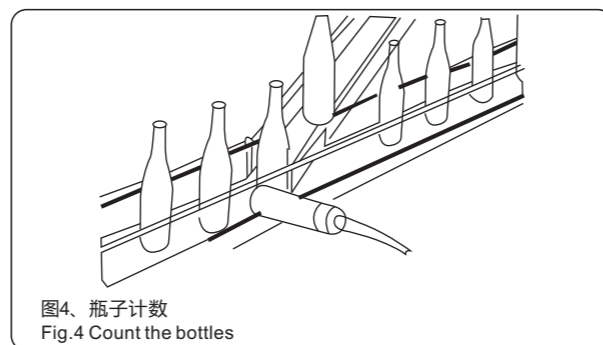
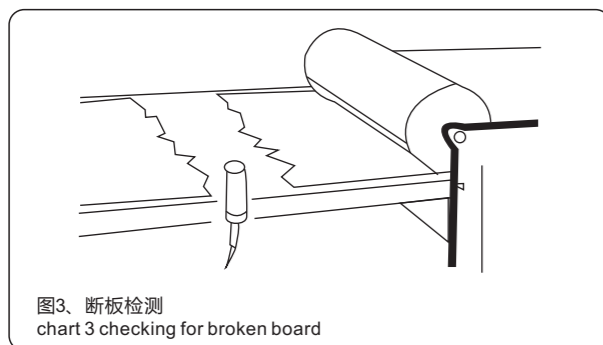
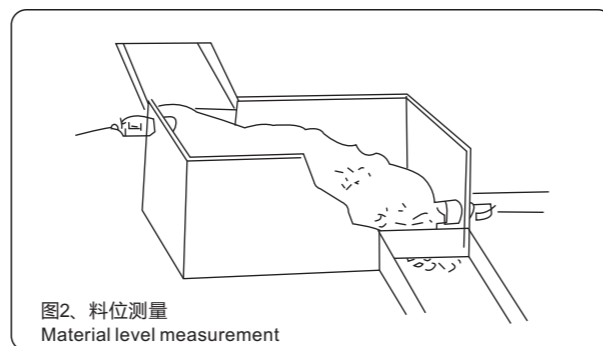
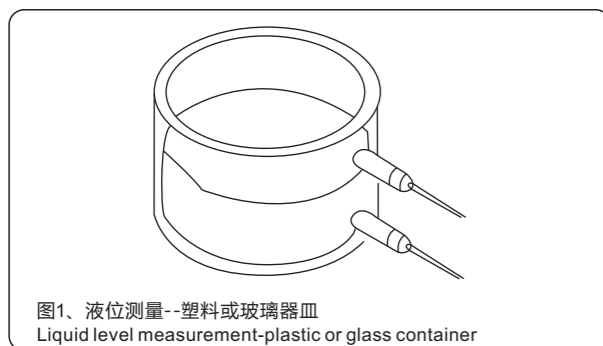
电容式接近开关 CAPACITANCE PROXIMITY SWITCH

一些重要材料的介电常数如下表:

The dielectric constants for some important materials are as listed as below:

材料 Materials	介电常数 Dielectric constant	材料 Materials	介电常数 Dielectric constant	材料 Materials	介电常数 Dielectric constant	材料 Materials	介电常数 Dielectric constant
合成树脂粘接剂 Synthetic resin adhesive	3.6	苯乙烯 Styrene	3	酒精 Alcohol	25.8	聚乙烯化合物 Polyvinyl	2.9
云母 Mica	6	陶瓷 Porcelain	4.4	玻璃 Glass	5	石英玻璃 Quartz glass	3.7
硬橡胶 Ebonite	4	石蜡 Petrolin	2.2	硬纸 Cardboard	4.5	硅 Silicon	2.8
大理石 Marble	8	石英沙 Quartz sand	4.5	电缆胶皮化合物 Cable rubber compound	2.5		
纸 Paper	2.3	软橡胶 Soft rubber	2.5	汽油 Gasoline	2.2		
有机玻璃 Organic glass	3.2	水 Water	80	木材 Wood	2.7		

应用图例 application illustration



电容式接近开关 CAPACITANCE PROXIMITY SWITCH

结构分类 Structural category

电容式接近开关 Capacitance proximity switch

外形编号 Outward Appearance code

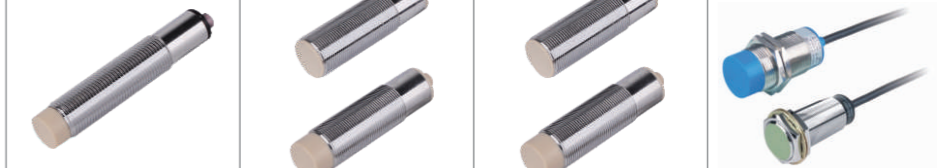
CM12

CM18

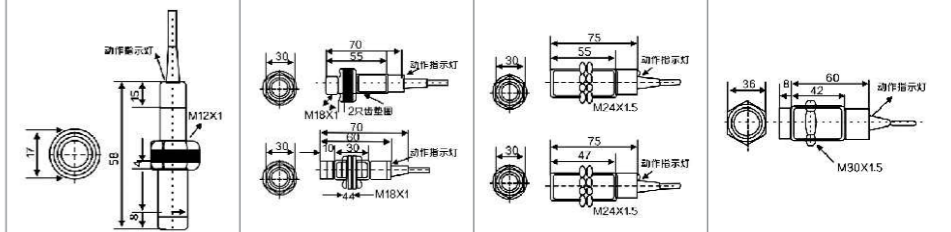
CM24

CM30

外形图例
Outward appearance illustration



外形尺寸
Overall dimensions



检测距离 DETECTION DISTANCE

0-2mm

0-5mm

0-8mm

0-10mm

Z a b u d o f l u s h a n y	直流 DC 6-36 VDC	NPN	NO	CM12-3002NA	CM18-3005NA	CM24-3008NA	CM30-3010NA	
			NC	CM12-3002NB	CM18-3005NB	CM24-3008NB	CM30-3010NB	
			NO+NC	CM12-3002NC	CM18-3005NC	CM24-3008NC	CM30-3010NC	
		PNP	NO	CM12-3002PA	CM18-3005PA	CM24-3008PA	CM30-3010PA	
			NC	CM12-3002PB	CM18-3005PB	CM24-3008PB	CM30-3010PB	
			NO+NC	CM12-3002PC	CM18-3005PC	CM24-3008PC	CM30-3010PC	
	交流 AC 90- 250 VAC	SCR 可控硅 Control- lable silicon	NO	CM12-2002A	CM18-2005A	CM24-2008A	CM30-2010A	
			NC	CM12-2002B	CM18-2005B	CM24-2008B	CM30-2010B	
			检测距离 DETECTION DISTANCE					
			NO	CM12-3004NA	CM18-3008NA	CM24-3012NA	CM30-3015NA	
W y s u n i e t y	直流 DC 6-36 VDC	NPN	NO	CM12-3004NA	CM18-3008NA	CM24-3012NA	CM30-3015NA	
			NC	CM12-3004NB	CM18-3008NB	CM24-3012NB	CM30-3015NB	
			NO+NC	CM12-3004NC	CM18-3008NC	CM24-3012NC	CM30-3015NC	
		PNP	NO	CM12-3004PA	CM18-3008PA	CM24-3012PA	CM30-3015PA	
			NC	CM12-3004PB	CM18-3008PB	CM24-3012PB	CM30-3015PB	
			NO+NC	CM12-3004PC	CM18-3008PC	CM24-3012PC	CM30-3015PC	
	交流 AC 90- 250 VAC	SCR 可控硅 Control- lable silicon	NO	CM12-2004A	CM18-2008A	CM24-2012A	CM30-2015A	
			NC	CM12-2004B	CM18-2008B	CM24-2012B	CM30-2015B	

可检测体 Detectable object

导体及介电体 conductor and dielectric body

消耗电流 Consumption current

Typ DC (NPN PNP): 8 mA przy DC12 V, 15 mA przy 24 V, typ AC: 10 mA lub mniej, DC < 15 mA, AC < 10 mA

输出电流 Output current

Prąd stały: 200 mA, prąd przemienny: 300 mA

可输出电压降 Output voltage drop DC/AC

DC (NPN PNP) 3 V lub mniej, typ AC: 7 V lub mniej, DC < 3 V, AC < 7 V

响应频率 DC/AC Response frequency

Prąd stały: 50 Hz, prąd przemienny: 10 Hz

外壳材料 Shell material

金属 Metal

ABS树脂/金属 Resin, Metal

金属 Metal

金属 Metal/ABS树脂 Resin

工作环境温度 Working environment temperature

-25°C~70°C

绝缘电阻 Insulation resistance

50MΩ

防护等级 Protection grade

IEC标准IP54 IEC standard IP54

可替代国内型号 Aliyemative model at home and abroad

LJC18A3-□□

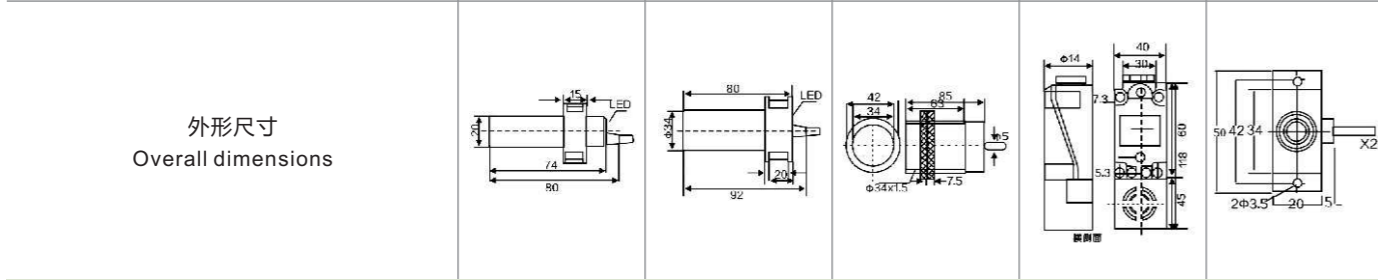
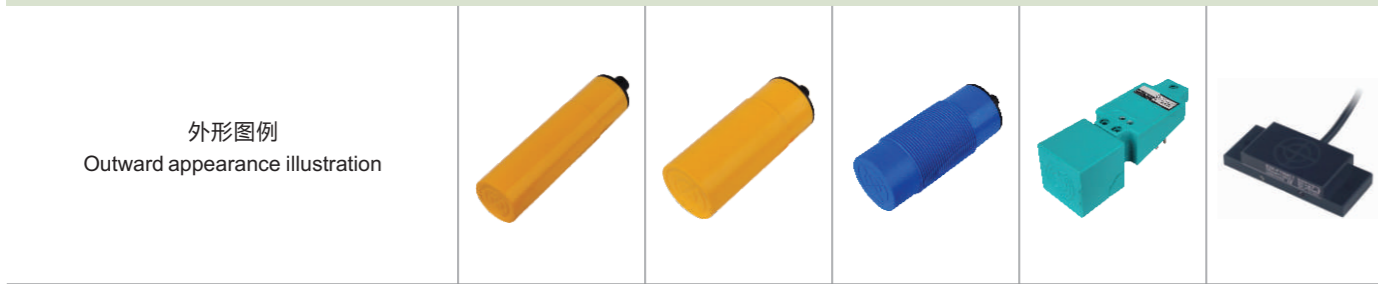
LJC24A3-□□

E2K-X15M□

电容式接近开关 CAPACITANCE PROXIMITY SWITCH

结构分类 Structural category 电容式接近开关 Capacitance proximity switch

外形编号 Outward Appearance code	CM20	CM34	CM35	CMF37	E2K
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检测距离 DETECTION DISTANCE

Z a b o u n d o w n y	Flush	直流 DC 6-36 VDC	NPN	NO				
				NC				
				NO+NC				
	交流 AC 90- 250 VAC	SCR 可控硅 Control- lable silicon	PNP	NO				
				NC				
				NO+NC				

检测距离 DETECTION DISTANCE	0-10mm	0-20mm	0-25mm	0-25mm	0-10mm
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W y s u n i e t y	Flush	直流 DC 6-36 VDC	NPN	NO	CM20-3010NA	CM34-3020NA	CM35-3025NA	CM37-3025NA	E2K-F10MC1		
				NC	CM20-3010NB	CM34-3020NB	CM35-3025NB	CM37-3025NB	E2K-F10MC2		
				NO+NC	CM20-3010NC	CM34-3020NC	CM35-3025NC	CM37-3025NC	E2K-F10MC3		
			交流 AC 90- 250 VAC	SCR 可控硅 Control- lable silicon	PNP	NO	CM20-3010PA	CM34-3020PA	CM35-3025PA	CM37-3025PA	E2K-F10MF1
						NC	CM20-3010PB	CM34-3020PB	CM35-3025PB	CM37-3025PB	E2K-F10MF2
						NO+NC	CM20-3010PC	CM34-3020PC	CM35-3025PC	CM37-3025PC	E2K-F10MF3
	Non-Flush	交流 AC 90- 250 VAC	SCR 可控硅 Control- lable silicon	NPN	NO	CM20-2010A	CM34-2020A	CM35-2025A	CM37-2025A	E2K-F10MA0	
					NC	CM20-2010B	CM34-2020B	CM35-2025B	CM37-2025B	E2K-F10MAC	

可检测体 Detectable object	导体及介电体 conductor and dielectric body				
消耗电流 Consumption current	直流(NPN PNP)型 DC12V时8mA 24V时15mA、交流型: 10mA以下、DC<15mA、AC<10mA				
输出电流 Output current	直流:200mA, 交流型:300mA				
可输出电压降 Output voltage drop DC/AC	直流(NPN PNP)3V以下, 交流型:7V以下、DC<3V、AC<7V				
响应频率 DC/AC Response frequency	直流(NPN-PNP) 50Hz, 交流型:10Hz				
外壳材料 Shell material	ABS树脂 Resin	ABS塑料 Plastic	ABS塑料 Plastic	ABS塑料 Plastic	ABS塑料 Plastic
工作环境温度 Working environment temperature	-25°C~70°C				
绝缘电阻 Insulation resistance	50MΩ				
防护等级 Protection grade	IEC标准IP54 IEC standard IP54				
可替代国内型号 Aiyemative model at home and abroad		E2K-C25□□			