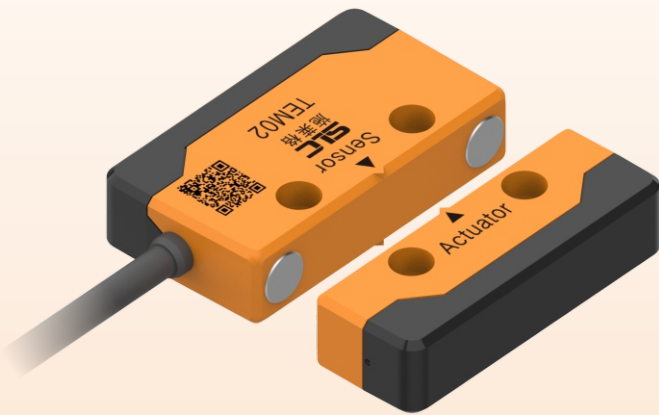




TEM02 series RFID safety switch



Product features

TEM02 series RFID magnetic holding safety switch based on RFID technology safety switch compared with mechanical switch or magnetic switch has the characteristics of detection confidentiality (can provide unique code), strong anti-interference, safety and reliability. The patented product combines the functions of safety door switches and door magnets, saving installation space and working hours, and can effectively prevent false alarms or false alarms, or artificial and abnormal triggers. Safety certified according to EN/IEC60947-5-3 and ISO13849-1 PLe。

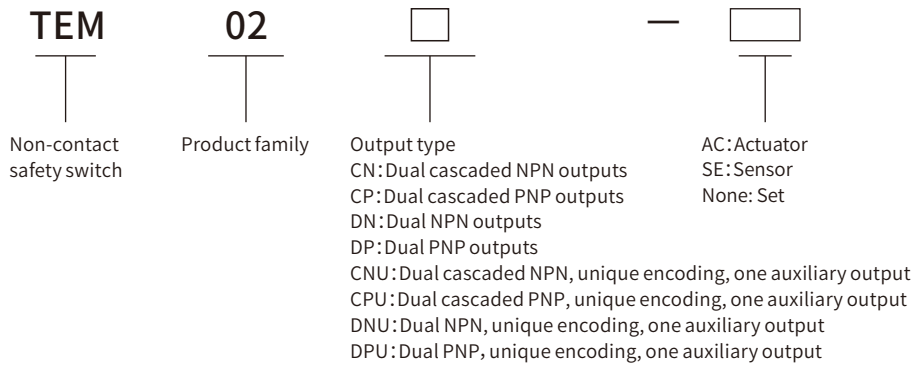
- ◆ Dual-channel design reduces the probability of dangerous failure and improves safety performance;
- ◆ TEM02 has a magnetic holding function, the magnetic holding force can reach 15N, which can replace the door magnet;
- ◆ 22mm pitch mounting holes, easy to use;
- ◆ Can be used with safety door latch.

Product parameters

Technical parameters	
Safety standards	ISO 13849-1 IEC/EN60947-5-1 IEC/EN60947-5-3
Security classification	Category 4 switches consistent with ISO 13849-1/Suitable for PLe/PLd
Authentication	CE CQC
Horizontal working distance	Conduction 0~10mm
Operating voltage	24VDC±15%
Operating current	80mA (without load)
Output current	150mA
Phoenix time	60ms
Response time	60ms
Degree of protection	IP67
Operating frequency	1HZ
Operating temperature	-10~+55°C
Relative humidity	5-95%
Material	Nylon/stainless steel
Magnetic holding force	15N
Average hourly probability of dangerous failure PFHd	2.7×10^{-8}
Average hourly probability of dangerous failure MTTFd	412 year



TEM02 displays safety switch model descriptions

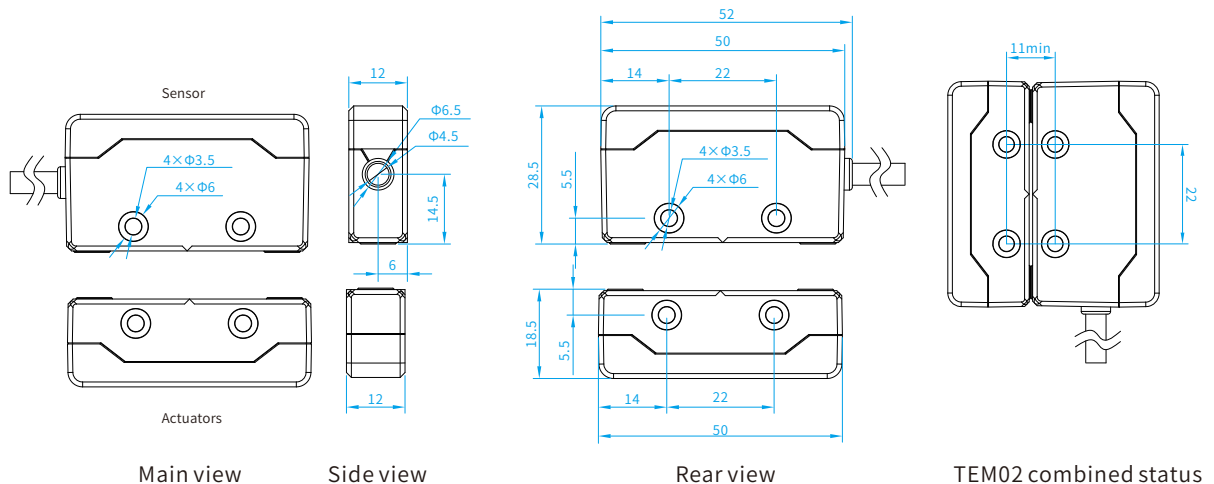


TEM02 series safety switch selection guide and model description

Model			Specification	Order number (Actuators+Sensor)
Actuators	Sensor	Actuators+Sensor		
TEM02CN-AC	TEM02CN-SE	TEM02CN	6-core direct lead magnetic hold cascaded NPN output	LOT522922L023CN
TEM02CP-AC	TEM02CP-SE	TEM02CP	6-core direct lead magnetic hold cascaded PNP output	LOT522922L023CP
TEM02DN-AC	TEM02DN-SE	TEM02DN	4-core direct lead magnetic hold NPN output	LOT522922L023DN
TEM02DP-AC	TEM02DP-SE	TEM02DP	4-core direct lead magnetic hold PNP output	LOT522922L023DP
TEM02CN-AC	TEM02CNU-SE	TEM02CNU	7-core direct lead magnetic hold cascaded NPN output	LOT522922L023CNU
TEM02CP-AC	TEM02CPU-SE	TEM02CPU	7-core direct lead magnetic hold cascaded PNP output	LOT522922L023CPU
TEM02DN-AC	TEM02DNU-SE	TEM02DNU	5-core direct lead magnetic hold NPN output	LOT522922L023DNU
TEM02DP-AC	TEM02DPU-SE	TEM02DPU	5-core direct lead magnetic hold PNP output	LOT522922L023DPU

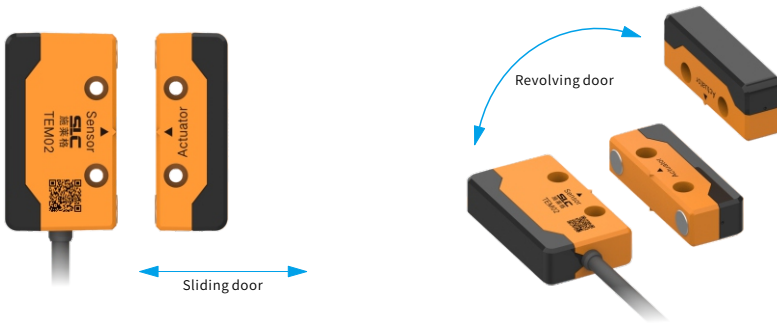
※The cable outlet length is 3m by default.

TEM02 series safety switch installation size (mm)



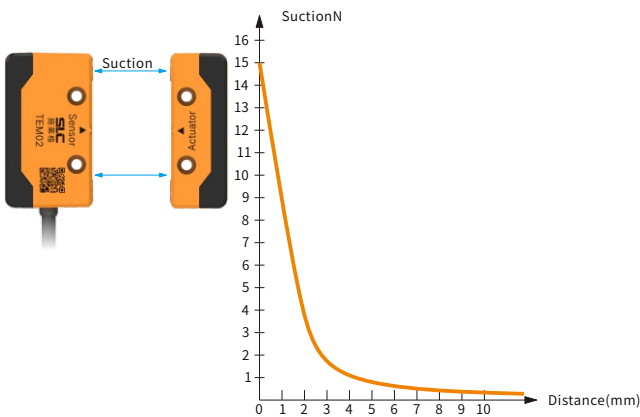
※Depending on the product configuration and manufacturing process, the actual product size and weight may vary, please refer to the actual product.

TEM02 series safety switch approach direction

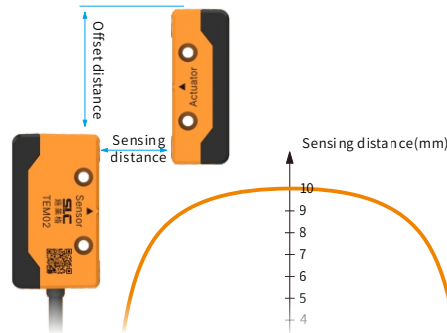


※Pay attention to the movement range of the door during installation to prevent the actuator from exceeding the area and damaging the safety switch when closing the door.

Safety switch suction curve

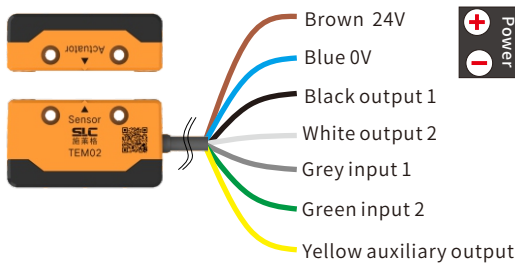


Safety switch sensing distance



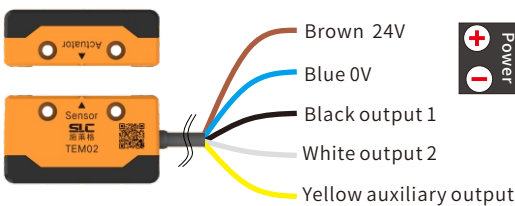
TEM02 series safety switch application wiring diagram

TEM02CP(CN) type safety switch wiring definition (with cascaded output)



※Universal code has no auxiliary output

TEM02 series safety switch wiring definition (without cascade)



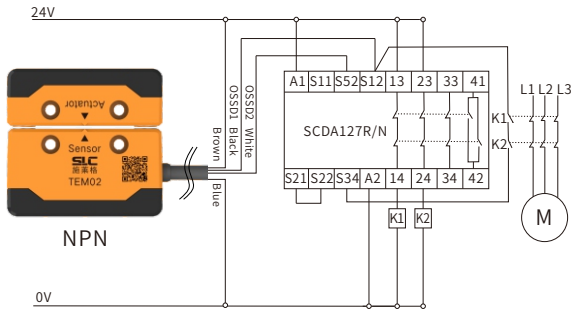
※Universal code has no auxiliary output

No.	Signal definition	Color	Illustrate
1	24V	Brown	Power +
2	0V	Blue	Power -
3	Output 1	Black	Safety output 1
4	Output 1	White	Safety output 2
5	Input 1	Grey	Cascade input 1
6	Input 2	Green	Cascade input 2
7	Auxiliary output	Yellow	Non-secure output

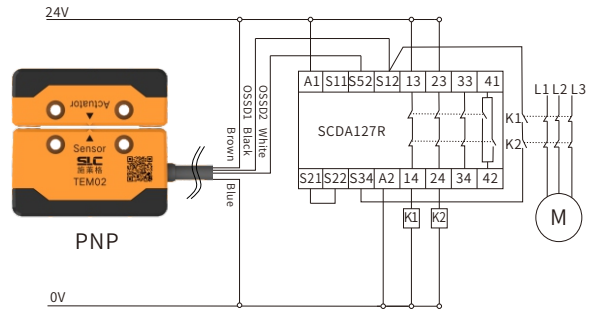
No.	Signal definition	Color	Illustrate
1	24V	Brown	Power +
2	0V	Blue	Power -
3	Output 1	Black	Safety output 1
4	Output 2	White	Safety output 2
5	Auxiliary output	Yellow	Non-secure output

TEM02 SERIES RFID SAFETY SWITCH

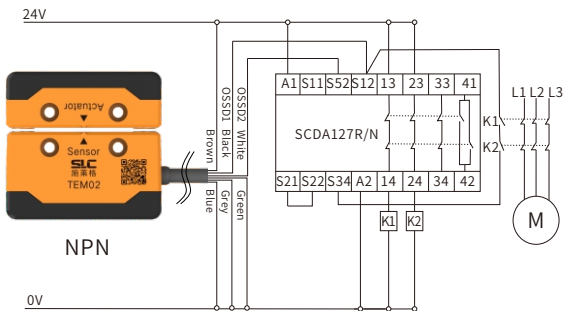
Example of NPN output application wiring



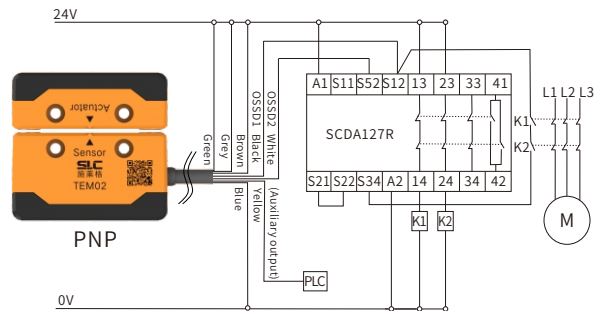
Example of PNP output application wiring



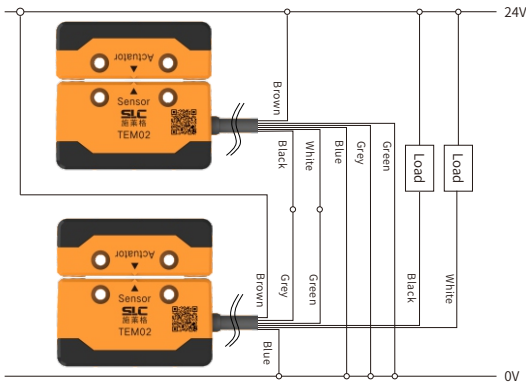
Example of cascading NPN output cable connections



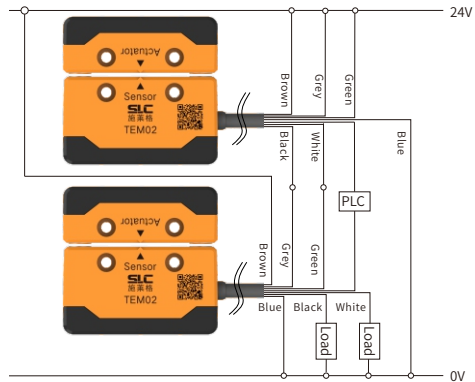
Example of cascading PNP output cable connections



Example of cascaded NPN output cascades



Example of cascaded PNP output cascades



TEM02 series unique coding configuration

Unique encoding sensor initialization

When the unique code sensor is powered on for the first time, there is no corresponding unique code (traffic light 4HZ flashes alternately), and the unique code needs to be initialized.

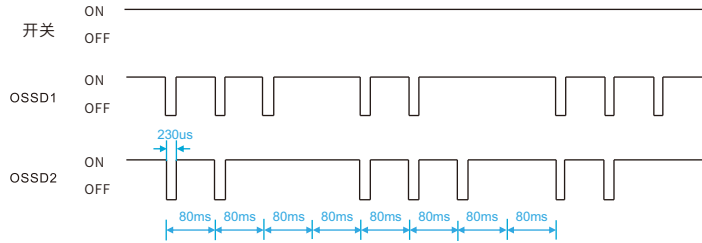
Initialization steps:

- ① Before powering on, the unique coding actuator used to pair is close to the unique coding sensor;
- ② Then power on, see that the LED light stops flashing alternately red and green 4HZ, the unique encoding initialization is successful (this process requires at least 5s);
- ③ This actuator and this sensor are successfully paired;
- ④ Power back on.











※Remarks. It is forbidden to pair multiple unique coded sensors with the same unique coded actuator.






> The TEM02 safety switch outputs self-diagnostic timing


TEM02 series safety switches have output self-diagnosis function. During the output on-period, the switch's internal control sequencing controls the single-periodic active shutdown of OSSD1 and OSSD2 outputs sequentially. During the short shutdown of OSSD1 or OSSD2, the internal timing control unit of the switch detects whether the OSSD1 or OSSD2 level is consistent with the expected result, and if it is consistent, the OSSD switch is in normal working condition; If it is inconsistent with the desired result, the OSSD fails, and the system will immediately shut down both OSSDs to ensure functional safety, at which point the switch red LED flashes to indicate the fault. Therefore, when the safety switch is connected to a PLC or a fast smart device with MCU control, it is necessary to set the filter out pulse at the port (1ms recommended) to prevent the PLC or MCU from detecting this waveform and causing the machine to stop. The figure below shows the waveform timing diagram of the self-diagnostic output of the PNP type switch.



> TEM02 series safety switch indicator status

LED signal status during normal operation			
RED light	Green light	Product status	Output status
Off 	On 	There are RFID tags, there are input signals	Output open
Off 	4Hz flash 	RFID tag, no Hall signal	Output close
Off 	1Hz flash 	RFID tags, no input signals	Output close
On 	Off 	No RFID tag (universal code)	Output close
Double flash 	Off 	No RFID tag (unique code)	Output close

LED signal status during fault			
RED light	Green light	Product status	Output status
1Hz flash 	On 	OSSD output failure	Output close
4Hz flash 	4Hz flash 	Hardware failure and cannot be recovered	Output close
Alternating 4Hz flashes 		Unique encoding does not match the label	Output close



Warn

- Please connect the dual output to the control security system of the device, if the order output will not be this security level.
- Please confirm that the wiring is performed when the power is off.
- Please confirm that the change in the power supply voltage does not exceed the rated range.
- Do not run the wire with or within the same line with the high voltage line or power line, this may cause a fault due to induction.
- Do not use for a short period (2s) after the power is turned on.