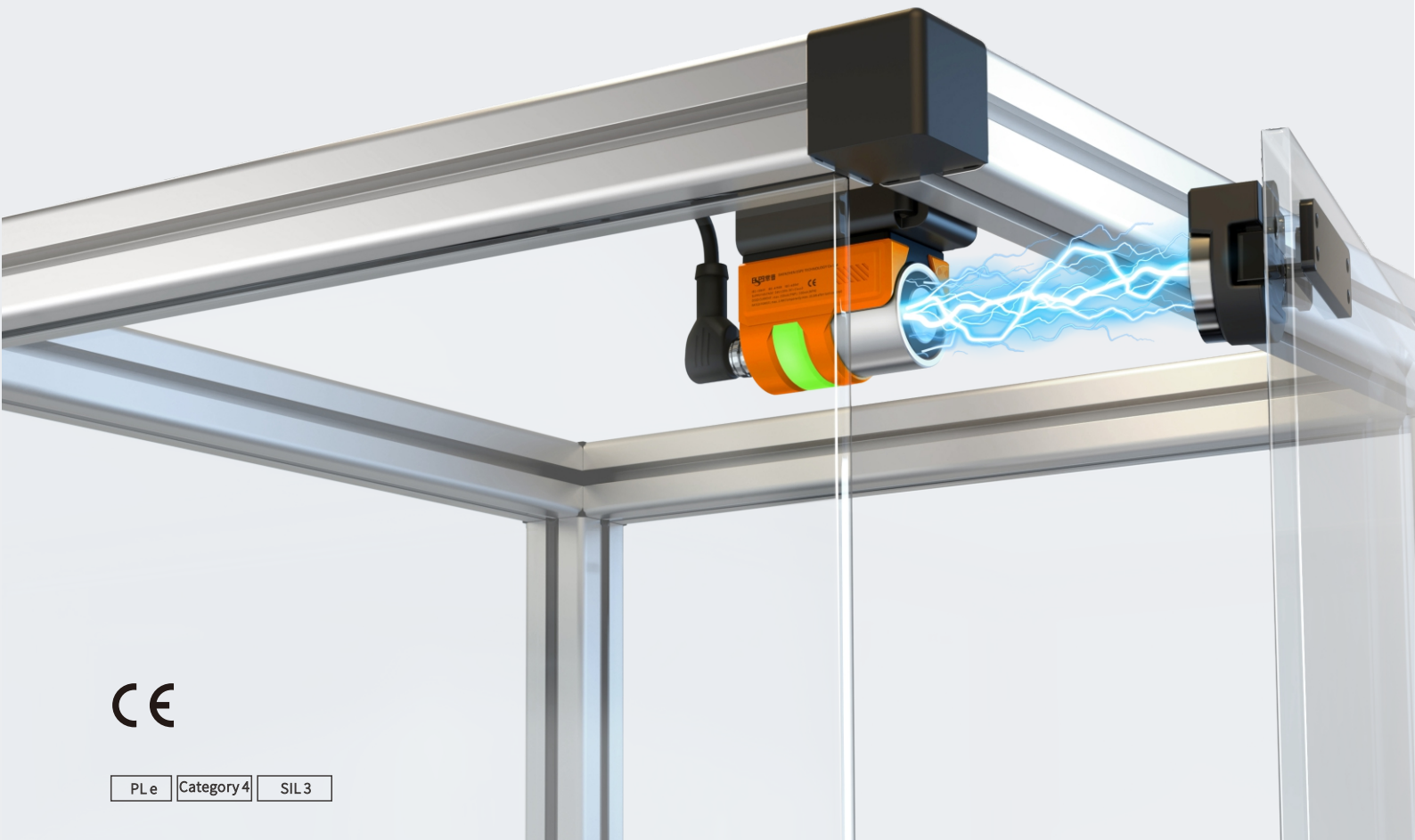


SLE21 Series

Miniature Safety Interlock Switch



Product introduction

SLE21 series is an electromagnetic locking safety interlock switch, the misalignment constructure and strong holding force ensure an optimized solution for movable guarding doors. The switch with advantage of electromagnetic and miniature size support new solution for small equipment with smaller inertia. Non-contact feature is available in high cleanliness and dust-free workshop like semiconductor, automobile manufacturing, beverage & food production etc.

Product feature

- 500N electromagnetic force lock.
- Adopt "Electromagnetic" locking and keyless constructure.
- Easy to integrate (max. 20sets).
- Permanent magnet built-in actuator .
- Small size, easy to install.
- Full perspective indicator light.
- Non-contact without powder.
- IP65 / IP67 protection level.

Product parameter

Type		Hinged door	
		Miniature size	
		M12 connector	
		Standard mode	Advanced mode
Working distance	Sao(Off-On)	4mm	
	Sar(On-Off)	4mm	
Response time	Lock→release	200ms	
	Release→lock	200ms	
	Detect→non-detect	20ms+2ms* (cascading amount-1)	
	Non-detect →detect	300ms+25ms* (cascading amount-1)	
Control output	Output method	Transistor output*2	
	Max. load current	150mA	
	Residual voltage (during ON)	2.5V max. (5m cable) 3.5V (31m cable)	
	OFF stage voltage	2.0V max. (5m cable) 3V (31m cable)	
	Leakage current	0.5mA max.	
	Max. capacitive load	4uF	
	Load wiring resistance	2.5Ω max.	
AUX output (Not safety output)	Output	Transistor	
	Max. load current	50mA	
	Residual voltage (when ON)	2.5V max. (5m cable) 3.5V (31m cable)	
External input (Short circuit current)	Safety input	Approx. 1.5mA x 2	
	Lock control input (OSSD switching input)	Approx. 5mA	
	Reset/ EDM input	Approx. 5mA (only for advanced function)	
	EDM option input	Approx. 2.5mA (only for advanced function)	
Power	Power supply	24VDC±10% (ripple P-P 10% Class 2)	
	Power consumption	<5W	
Circuit protection		Reverse current protection, short-circuit protection and surge protection for each output	
Environmental resistance	Enclosure rating	IP67	
	Ambient temperature	-10°C~+55°C (No freezing)	
	Storage temperature	-25°C~+70°C (No freezing)	
	Operating relative humidity	5% to 95%RH	
	Storage relative humidity	5% to 95%RH	
	Vibration resistance	10 to 55Hz, double amplitude 2.0mm, 5 minutes in each of tine X, Y, and Z direction (IEC60947-5-3)	
	Shock resistance	30G in X, Y, Z directions 6 times each axis (IEC60947-5-3)	
Applicable standards (safety)		EN ISO13849-1:2015 (PL e, Category 4) , IEC60947-5-3, EN60947-5-3	

SLE21 Safety Interlock Switch

Model explanation (e.g.: SLE21-□□□□□)

Series	Locking method	Configuration	Coding method	Output method	Lead wire
SLE21	— □ 0: Power to lock	□ 0: Standard mode 1: Advanced mode	□ 0: Universal coding 1: Unique coding	□ N: NPN P: PNP	□ C: M12 connector

Description for standard & advanced mode

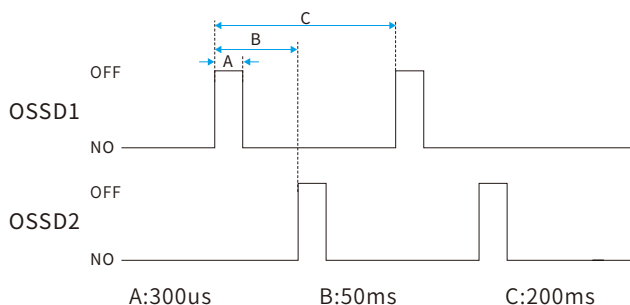
	Safety output	AUX output	Safety input	Lock input	OSSD action switch	EDM/ reset	EDM option
Standard	●	●	●	●	●	—	—
Advanced	●	●	●	●	●	●	●

SLE21 selection sheet

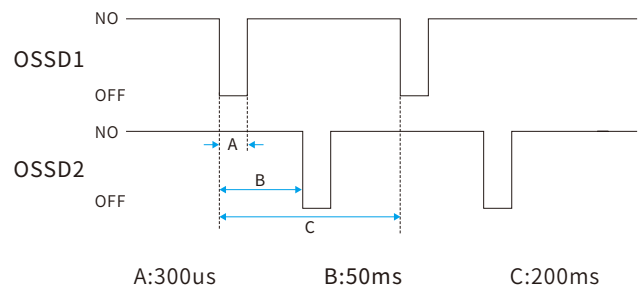
Locking method	Configuration	Output method	Coding method	Model
Power to lock	Standard	NPN	Universal coding	SLE21-000NC
		NPN	Unique coding	SLE21-001NC
		PNP	Universal coding	SLE21-000PC
		PNP	Unique coding	SLE21-001PC
	Advanced	NPN	Universal coding	SLE21-010NC
		NPN	Unique coding	SLE21-011NC
		PNP	Universal coding	SLE21-010PC
		PNP	Unique coding	SLE21-011PC

Timing diagram

NPN output timing diagram

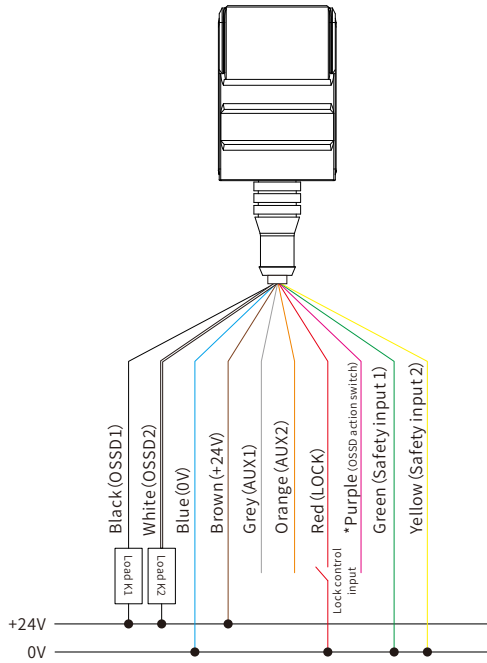


PNP output timing diagram



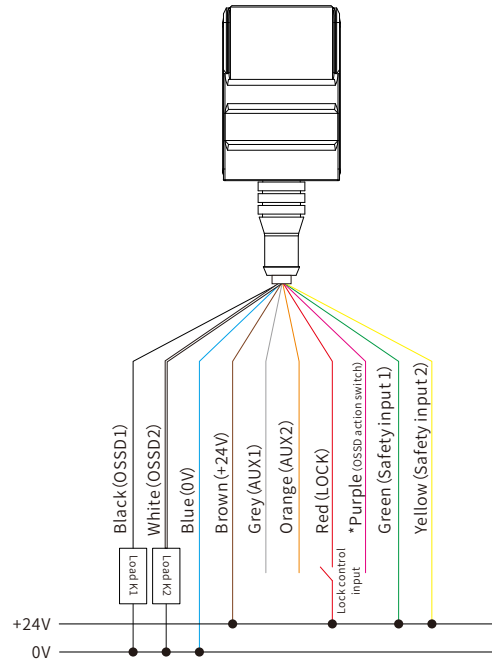
Wire diagram

SLE21 standard mode (NPN, no cascade)



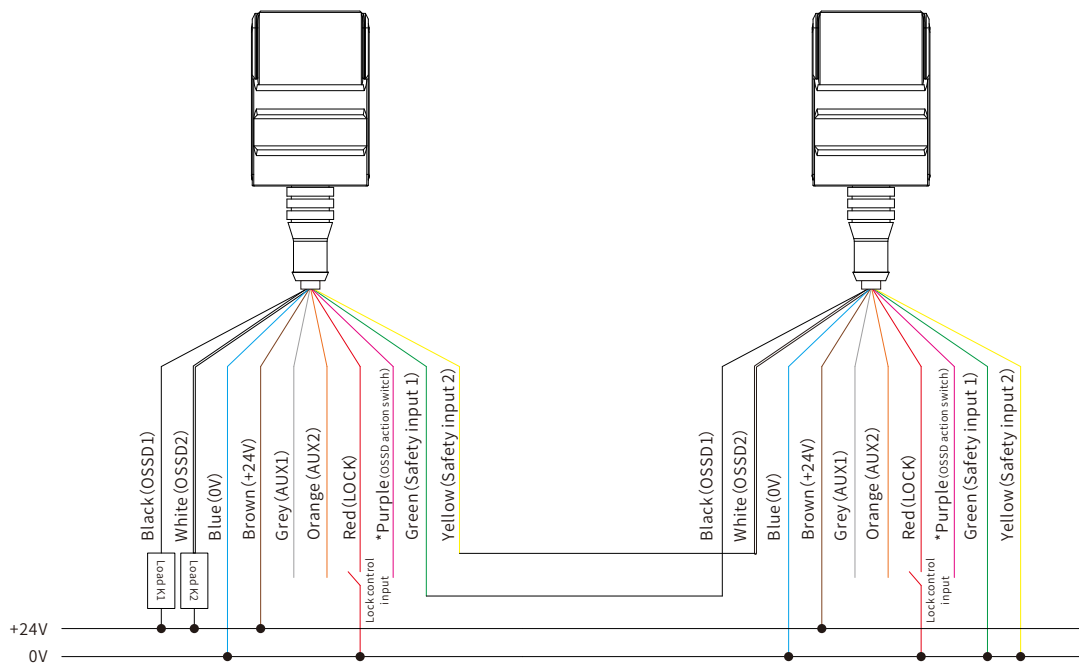
*Open/close link, purple is connected with 0V; Lock link, purple disconnected

SLE21 standard mode (PNP, no cascade)



*Open/close link, purple is connected with +24V; Lock link, purple disconnected

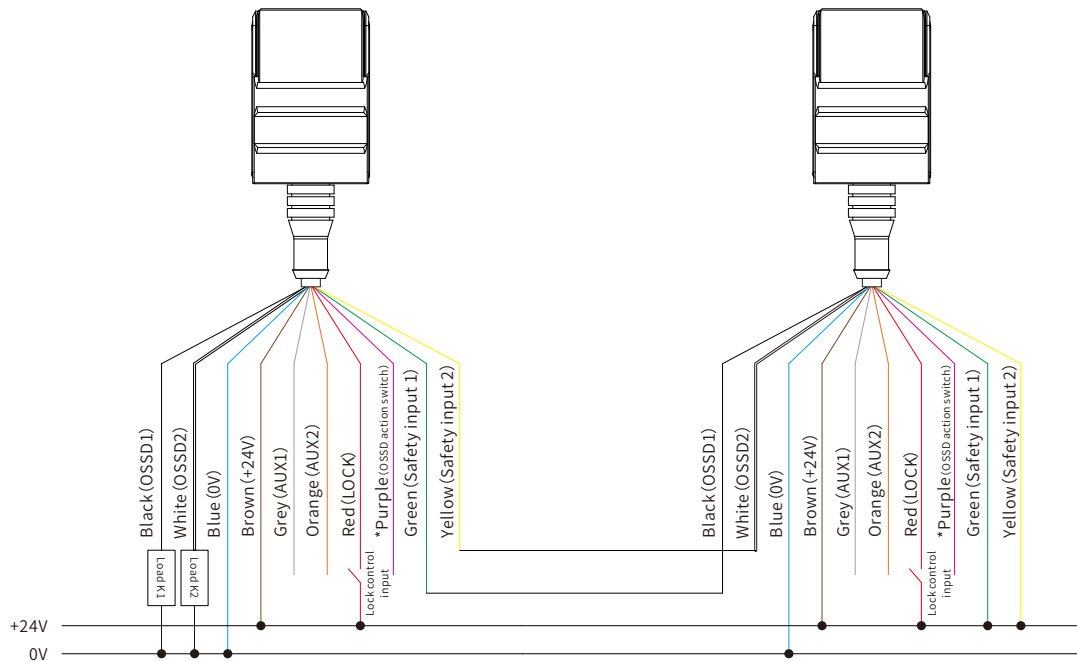
SLE21 standard mode (NPN, cascade)



*Open/close link, purple is connected with 0V; Lock link, purple disconnected

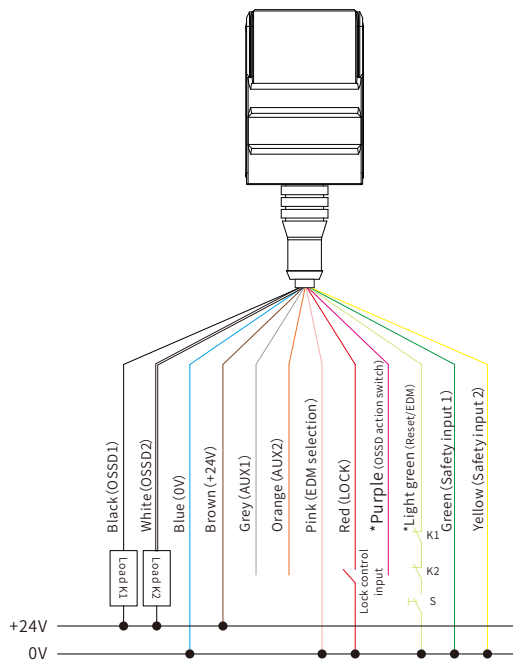
SLE21 Safety Interlock Switch

SLE21 standard mode (PNP, cascade)



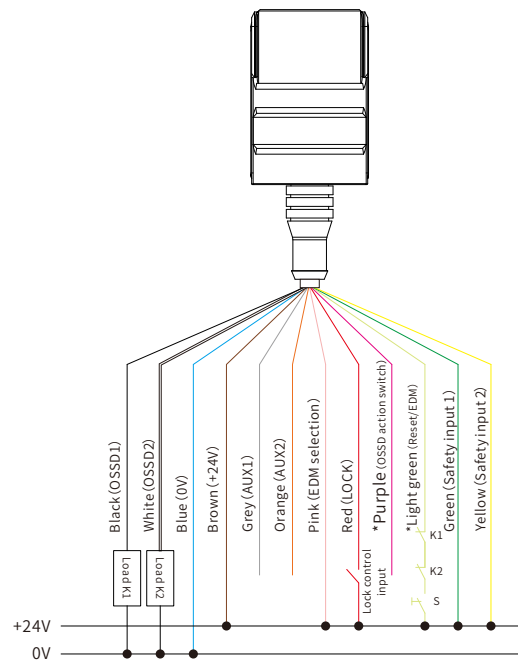
*Open/close link, purple is connected with +24V; Lock link, purple disconnected

SLE21 advanced mode (NPN, no cascade)



*Open/close link, purple is connected with 0V; Lock link, purple disconnected
 *1. Use EDM and reset: wiring as picture
 2. Do not use EDM reset: select EDM (pink wire), reset /EDM (light green wire) connect to +24V;
 3. Only use EDM: EDM function (pink wire) selection input should be open and insulated.
 K1, K2: external equipment (force guided relays, electromagnetic contactors, etc.)
 S: Reset switch

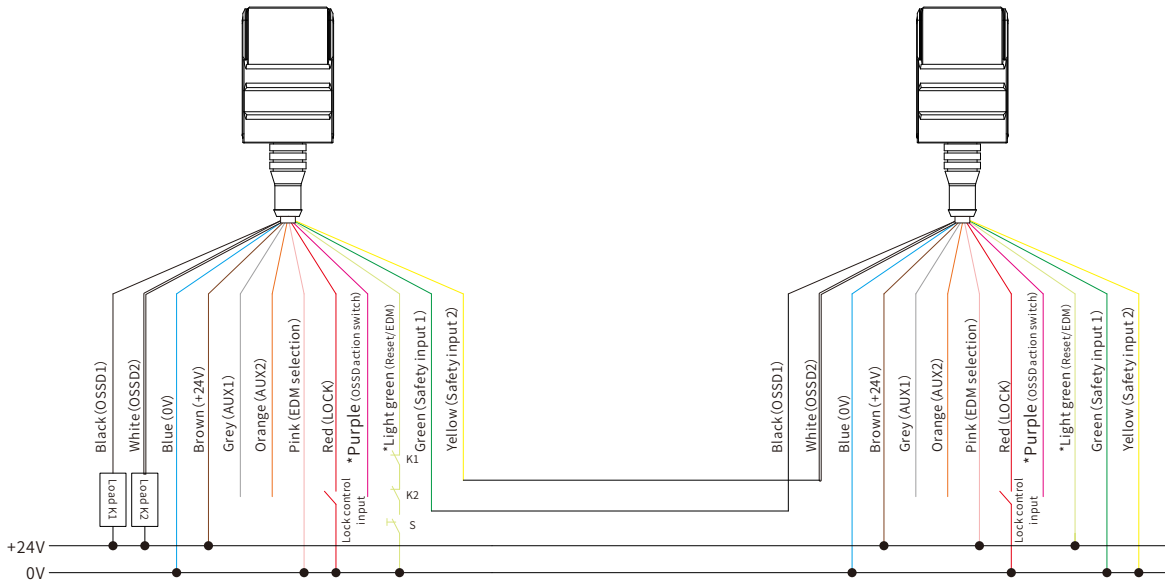
SLE21 advanced mode (PNP, no cascade)



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Wire diagram

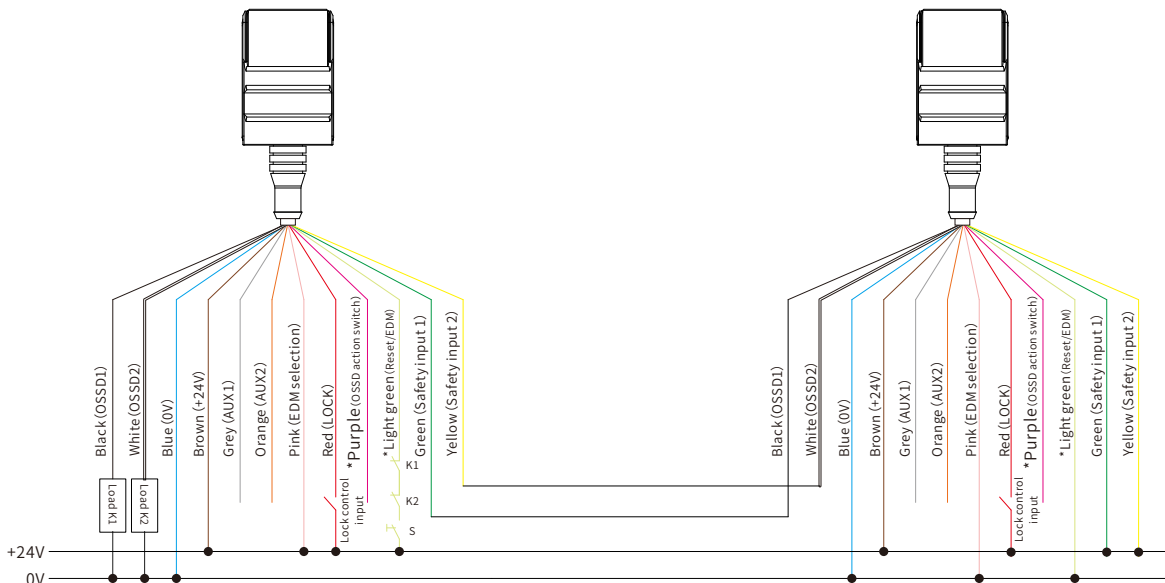
SLE21 advanced mode (NPN, cascade)



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SLE21 advanced mode (PNP, cascade)

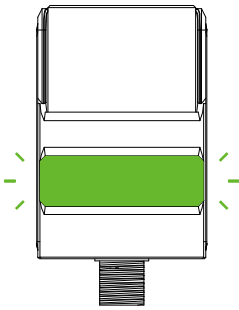


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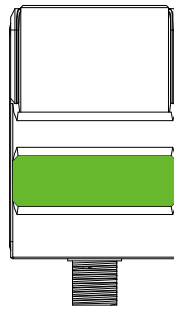
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SLE21 Safety Interlock Switch

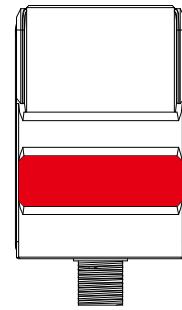
LED Indicator



Closed - green light flash



Closed & Locked – green steady



Open -red steady

Lock linked (OSSD switch)

LED indicator	Status			
	OSSD	Safety input	LOCK	Actuator
Green	ON	ON	ON	Presence
Red	OFF	ON/OFF	ON/OFF	Absence
Green blink	OFF	ON	OFF	Presence
Orange	OFF	OFF	ON	Presence
Orange blink	OFF	OFF	OFF	Presence
Orange flash	OFF	EDM false		
Red blink	OFF	System false		
Alternating in red, green and orange	OFF	Code uniquely and confirmed, waiting for restart		
Alternating in red and green	OFF	Code uniquely but not confirmed		
OFF	OFF	Power OFF		

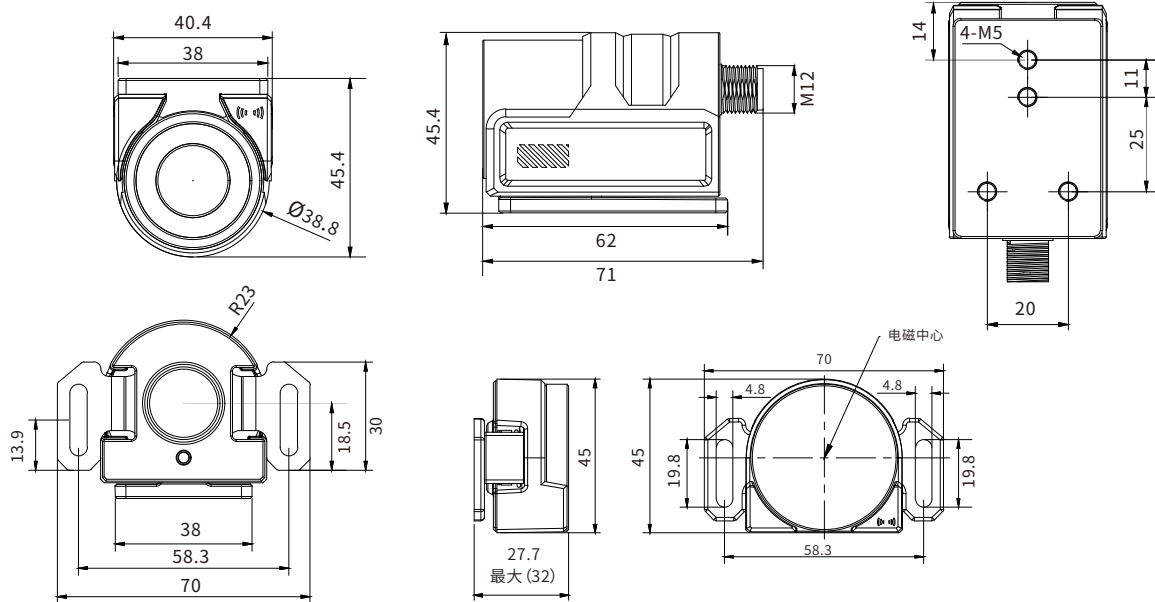
If set in manual reset, the indicator turns to orange light until reset/EDM operated.

Open/close link (OSSD switch)

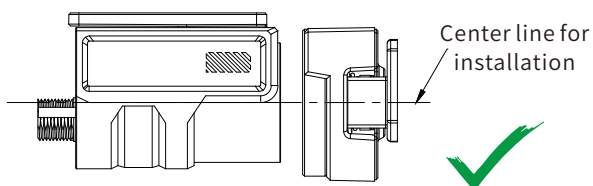
Indicator LED	Status			
	OSSD	Safety input	LOCK	Actuator
Green	ON	ON	ON	Presence
Red	OFF	ON/OFF	ON/OFF	Absence
Orange	OFF	OFF	ON/OFF	Presence
Orange flash	OFF	EDM false		
Red flash	OFF	System false		
Alternating in red, green and orange	OFF	Code uniquely and confirmed, waiting for restart		
Alternating in red and green.	OFF	Code uniquely but not confirmed		
OFF	OFF	Power OFF		

If set in manual reset, the indicator turns to orange light until reset/EDM operated.

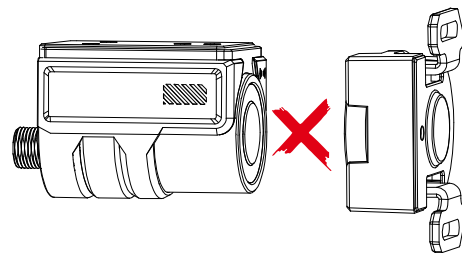
Product size



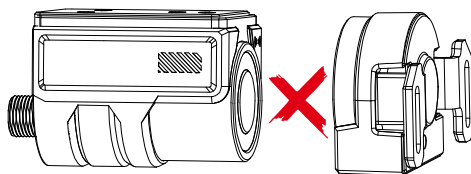
Installation



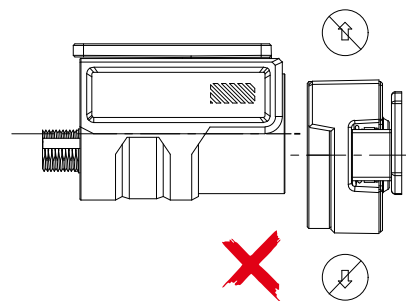
1. Correct installation, main unit and sensing surface of actuator are facing each other.



2. Wrong installation, main unit and sensing surface of actuator with 90° apart.



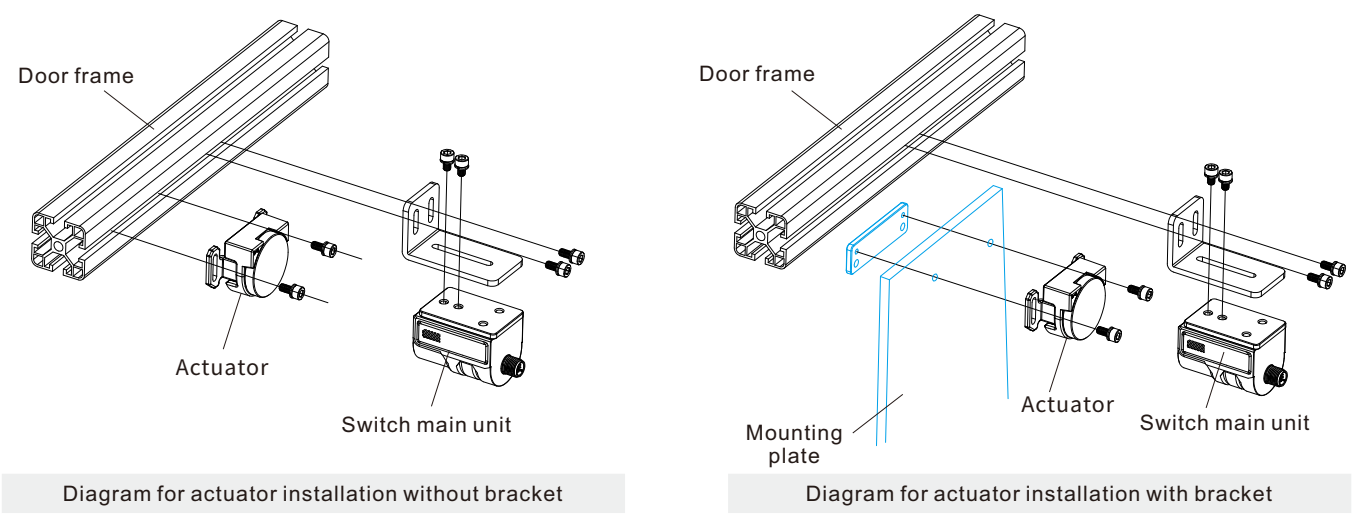
3. Wrong installation, main unit and sensing surface of actuator with 180° apart.



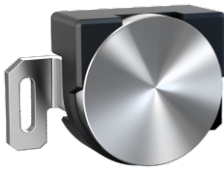
4. Wrong installation, main unit and sensing surface of actuator is not at the same level.

SLE21 Safety Interlock Switch

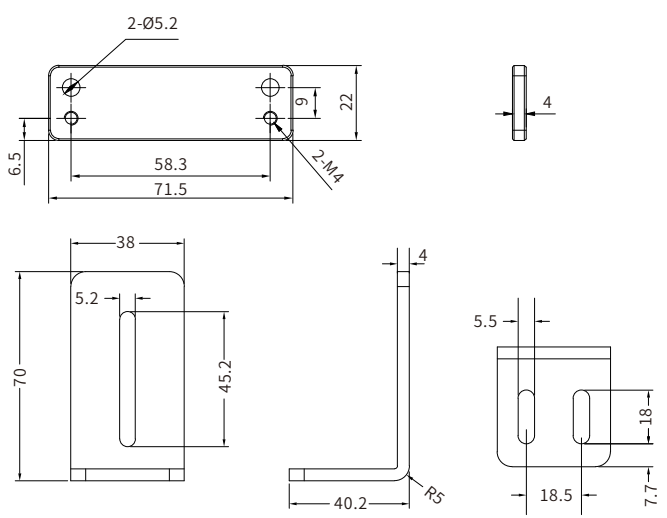
Installation mode



SLE21 Safety interlock component

Step 1	Step 2	Step 3	Step 4
			
Switch main unit	Actuator	Installation bracket	Cable for SLE21

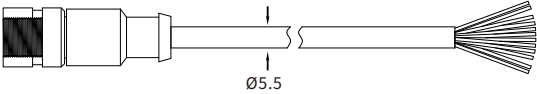
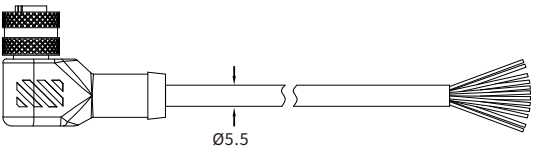
Bracket

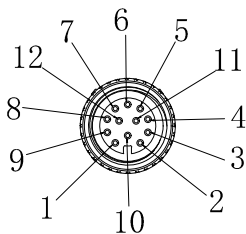
Picture	Name	Size
	SLE21-EL1	 Technical drawing of the SLE21-EL1 bracket showing dimensions in mm: - Top view: 2-Ø5.2, 9, 22, 58.3, 71.5, 6.5, 2-M4 - Side view: 38, 5.2, 45.2, 70 - End view: 4, R5, 40.2 - Detail view: 5.5, 18.5, 18, 7.7

Cable

Series		Pin of connector	Cable	Length
SLE21	-	P		
				
		12:12 Pin	S: terminated cable with straight connector L: terminated cable with L shape connector	1: 1m 3: 3m 5: 5m 10: 10m 20: 20m

Cable option

Standard cable	Connector type	Length	Model
	Straight connector	1m	SLE21-P12S1
		3m	SLE21-P12S3
		5m	SLE21-P12S5
		10m	SLE21-P12S10
		20m	SLE21-P12S20
	L type connector	1m	SLE21-P12L1
		3m	SLE21-P12L3
		5m	SLE21-P12L5
		10m	SLE21-P12L10
		20m	SLE21-P12L20



Wire sequence of M12 waterproof connector

M12-12 PIN wire:

1. Brown-positive of power
2. Blue - negative of power
3. Grey - AUX output 1
4. Black - OSSD 1
5. White - OSSD 2
6. Green – safety input 1
7. Yellow – safety input 2
8. Red – lock control 1
9. Light green – EDM
10. Pink – EDM selection
11. Orange – AUX output 2
12. Purple – OSSD switch