

# TECHNICAL DATA SHEET

## SAFETY DOOR SWITCHES DEVICE EOX-D6 series



### Contents

- Product features
- Technical data
- Electrical wiring
- Accessories
- Installation diagram
- Back unlocking
- Safety door bolt

## Product Features

All-metal structure, strong, safe and durable;

Multiple functions: with mechanism locking and monitoring functions;

Multiple coding methods: unique coding and universal coding methods are optional.

Independent redundant dual output: prevent safety hazards caused by failure of a single circuit;

Cascade connection of door switches can reduce the number of input points;

Small appearance: cross-sectional size 30mm\*30mm;

Flexible installation: can be directly installed on an aluminum frame not exceeding 30mm

## EOX-D6 series

### Suitable for monitoring

- Safety doors      Safety windows

### Applicable industries

- Automated production lines
- Robotic production lines
- Dangerous test areas
- Isolated areas, etc.



### Forced safety output

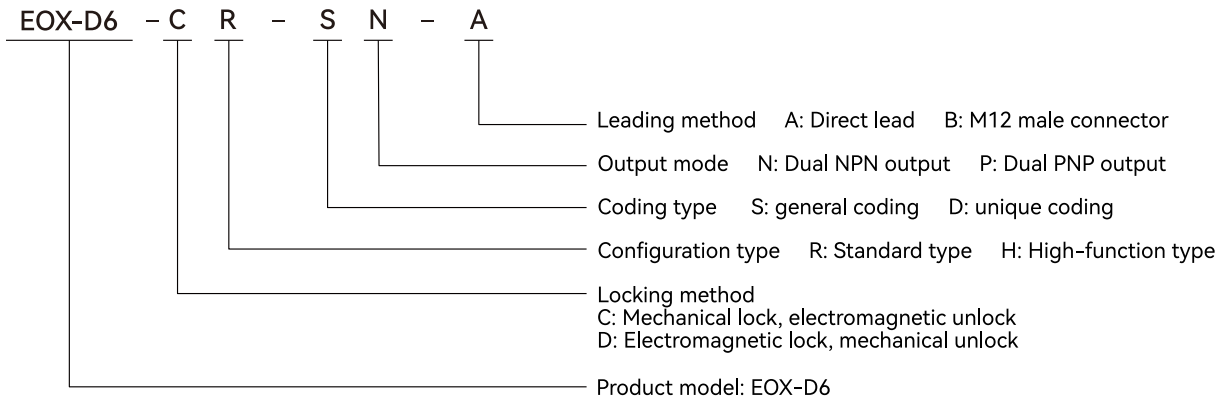
- Forced safety output At least 2 NC contacts for safety monitoring
- Additional multiple auxiliary signal contact combinations are available



## Model Description

**Main sensor model:**

Selection example: EOX-D6-CR-SN-A



Note\* The default cable is 3m. If you need other lengths, please contact customer service

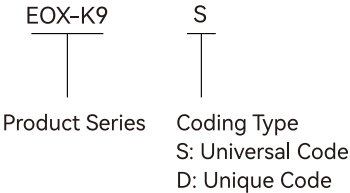
The difference between standard type and high-function type

	Standard type	High-function
Safety output channel	●	●
AUX output channel	●	●
Safety input channel	●	●
Lock input channel	●	●
EDM		●
Reset		●

**Actuator Model:**



Selection example: EOX-K9S



## Model List


Locking method	Configuration type	Encoding type	Output method	Lead method	Model
Mechanical lock	Standard type	Universal code	NPN	Direct outlet	EOX-D6-CR-SN-A
				M12 connector	EOX-D6-CR-SN-B
			PNP	Direct outlet	EOX-D6-CR-SP-A
		M12 connector		EOX-D6-CR-SP-B	
		Unique code	NPN	Direct outlet	EOX-D6-CR-DN-A
				M12 connector	EOX-D6-CR-DN-B
	PNP		Direct outlet	EOX-D6-CR-DP-A	
		M12 connector	EOX-D6-CR-DP-B		
	High-function type	Universal code	NPN	Direct outlet	EOX-D6-CH-SN-A
				M12 connector	EOX-D6-CH-SN-B
			PNP	Direct outlet	EOX-D6-CH-SP-A
		M12 connector		EOX-D6-CH-SP-B	
Unique code		NPN	Direct outlet	EOX-D6-CH-DN-A	
			M12 connector	EOX-D6-CH-DN-B	
	PNP	Direct outlet	EOX-D6-CH-DP-A		
M12 connector		EOX-D6-CH-DP-B			
Electromagnetic lock	Standard type	Universal code	NPN	Direct outlet	EOX-D6-DR-SN-A
				M12 connector	EOX-D6-DR-SN-B
			PNP	Direct outlet	EOX-D6-DR-SP-A
		M12 connector		EOX-D6-DR-SP-B	
		Unique code	NPN	Direct outlet	EOX-D6-DR-DN-A
				M12 connector	EOX-D6-DR-DN-B
	PNP		Direct outlet	EOX-D6-DR-DP-A	
		M12 connector	EOX-D6-DR-DP-B		
	High-function type	Universal code	NPN	Direct outlet	EOX-D6-DH-SN-A
				M12 connector	EOX-D6-DH-SN-B
			PNP	Direct outlet	EOX-D6-DH-SP-A
		M12 connector		EOX-D6-DH-SP-B	
Unique code		NPN	Direct outlet	EOX-D6-DH-DN-A	
			M12 connector	EOX-D6-DH-DN-B	
	PNP	Direct outlet	EOX-D6-DH-DP-A		
M12 connector		EOX-D6-DH-DP-B			

Note\* The default cable is 3m. If you need other lengths, please contact customer service

## Technical Parameters

Standards		ISO13849-1 (Category 4/Plc); IEC/EN60947-5-3
Certification		CE
Lock method		Mechanical lock/electromagnetic lock
Safety output		NPN*2/PNP*2
Response time	Lock → Unlock	100ms (independent work)
	Unlock → Lock	
Lock	Lock holding force Fzh	≥2000N
	Lock bolt insertion deviation	≤2mm
	Mechanical durability	>1 million times (door operation speed 1m/s)
	Operation frequency	1Hz
	Minimum radius of revolving door	≥220mm
	Manual unlocking	front, back
Cascade connection		up to 20 units
Control output (OSSD output)	Output type	Transistor output x2
	Maximum load current	≤200mA
	Residual voltage (ON)	<2.5V@200mA
	Voltage when OFF	≤2V@cable 5m
	Leakage current	≤0.5mA
	Maximum load capacity	2.2uF
	Load connection resistance	≤2.5Ω
AUX output (non-safety output)	Output type	Transistor output
	Number of outputs	1
	Maximum load current	50mA
	Residual voltage (when ON)	≤2.5V@50mA
External input (break current)	Safety input	1.5mA*2
	Reset/EDM input	About 10mA*1
	Lock control input	About 10mA*1
Power supply	Operating voltage	DC24V±15%
	Rated power	4.6W (no load)
Protection		Safety circuit breaker protection, current limit, overload protection, overvoltage protection, overheating protection stop and restart, reverse polarity protection, transient noise protection, failure pulse protection
Environmental resistance	Enclosure protection grade	IP65
	Action environment temperature	-20°C~55°C (no freezing)
	Storage environment temperature	-25°C~70°C (no freezing)
	Action environment humidity	5%~95%RH
	Storage environment humidity	5%~95%RH
	Vibration resistance	10 to 55Hz, double amplitude 2.0mm, 5 minutes in each direction of X, Y, and Z (IEC60947-5-3)
	Impact resistance	30g 6 times in each direction of X, Y, and Z (IEC60947-5-3)
Risk time		100ms
Start time		3.5s
Material		Nylon/zinc alloy/stainless steel

## Accessory model list

Category	Product Image	Product Name	Model
Actuator		Universal coded actuator	EOX-K9S
		Unique coded actuator	EOX-K9D
Mounting bracket		Mounting bracket for pivot (Applicable to hinged doors and leaf doors that open to the left)	OX-K9-L
		Mounting bracket for pivot (Applicable to hinged doors and leaf doors that open to the right)	OX-K9-L1
		Sliding mounting bracket (Applicable to sliding doors that open to the left)	OX-K9-T1
		Sliding mounting bracket (Applicable to sliding doors that open to the right)	OX-K9-T2
M12 cable		Standard cable (8-pin)	The standard line length is 3m. For details, please contact customer service
		High-performance cable (12-pin)	

## Indicator light status description



Number	Name	Light color	Status description
①	Output indicator light	Red, Green	OSSD output: green OSSD off: red OSSD error: red flashing (2Hz) EDM error: red flashing (1Hz)
②	Input indicator light	Green	Normal input: on No input (waiting for input): off Waiting for RSET reset: 1Hz flashing
③	Lock indicator light	Green	Door locked: on Lock abnormality: 2Hz flashing (electromagnet error, optocoupler error) No RFID: 1Hz flashing Unlocked: off
④	Status indicator light	Red, Green	Locked and output: green light No output: red light Voltage error: red light flashing 2Hz Internal fault self-check error: red light flashing 1Hz Internal data calibration error: green light flashing 1Hz

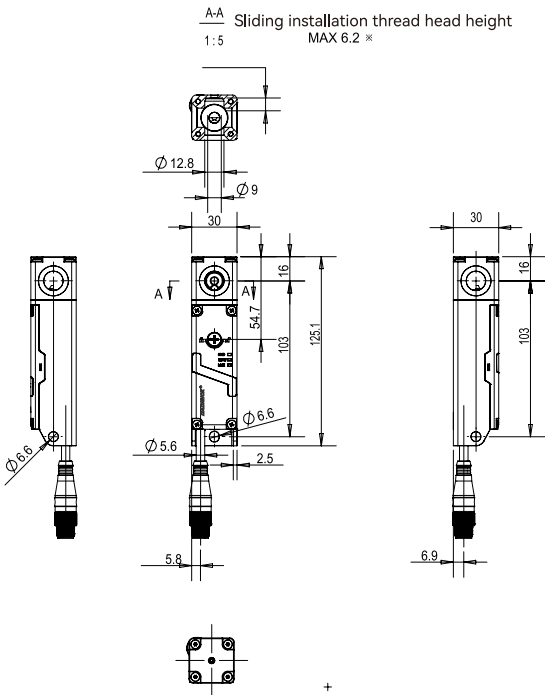
## LED status during normal operation

Working status	Indicator light	Status description
Close the door and lock it	<p>Working status indicator: green light on OSSD output indicator: green light on INPUT input indicator: yellow light on LOCK lock indicator: green light on</p>	<ol style="list-style-type: none"> <li>1. Detect that the key signal is normal,</li> <li>2. Detect that the key is inserted in place and the door is closed</li> <li>3. The input signal is normal</li> <li>3. Lock and output normally</li> </ol>
Unlock the door and open it	<p>Working status indicator: red light on OSSD output indicator: red light on INPUT input indicator: yellow light on LOCK lock indicator: off</p>	<ol style="list-style-type: none"> <li>1. No key signal detected</li> <li>2. Key not inserted properly, door opened</li> <li>3. Input signal normal</li> <li>3. Not locked and no output</li> </ol>
Close the door and lock it	<p>Working status indicator: red light on OSSD output indicator: red light on INPUT input indicator: yellow light on LOCK lock indicator: green light low flashing</p>	<ol style="list-style-type: none"> <li>1. Key signal not detected</li> <li>2. Input signal normal</li> <li>3. Locked but no output</li> </ol>
Close the door and lock it	<p>Working status indicator: red light on OSSD output indicator: red light on INPUT input indicator: off LOCK lock indicator: green light on</p>	<ol style="list-style-type: none"> <li>1. No input signal</li> <li>3. Locked but no output</li> </ol>

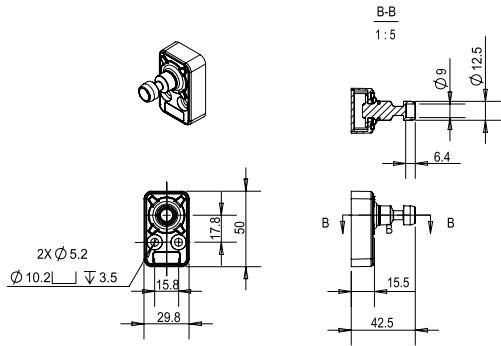
LED status during normal operation			
Working status	Indicator light	Status description	
OSSD error		<p>Working status indicator: green light on</p> <p>OSSD output indicator: green light on</p> <p>INPUT input indicator: yellow light on</p> <p>LOCK lock indicator: green light on</p>	<ol style="list-style-type: none"> <li>OSSD short circuit or incorrect wiring.</li> <li>Inductive load causes voltage surge on OSSD.</li> <li>OSSD is affected by electrical interference.</li> <li>OSSD failure.</li> </ol>
EDM error		<p>Working status indicator: red light on</p> <p>OSSD output indicator: red light on</p> <p>INPUT input indicator: yellow light on</p> <p>LOCK lock indicator: off</p>	EDM input is not wired correctly
Lock abnormality		<p>Working status indicator: red light on</p> <p>OSSD output indicator: red light on</p> <p>INPUT input indicator: yellow light on</p> <p>LOCK lock indicator: off</p>	Electromagnet error or optocoupler error
Hardware failure		<p>Working status indicator: red light on</p> <p>OSSD output indicator: red light on</p> <p>INPUT input indicator: off</p> <p>LOCK lock indicator: green light on</p>	<ol style="list-style-type: none"> <li>Internal fault self-check error</li> <li>Hardware failure</li> </ol>

## Product Dimensions

EOX-D6 safety door switch

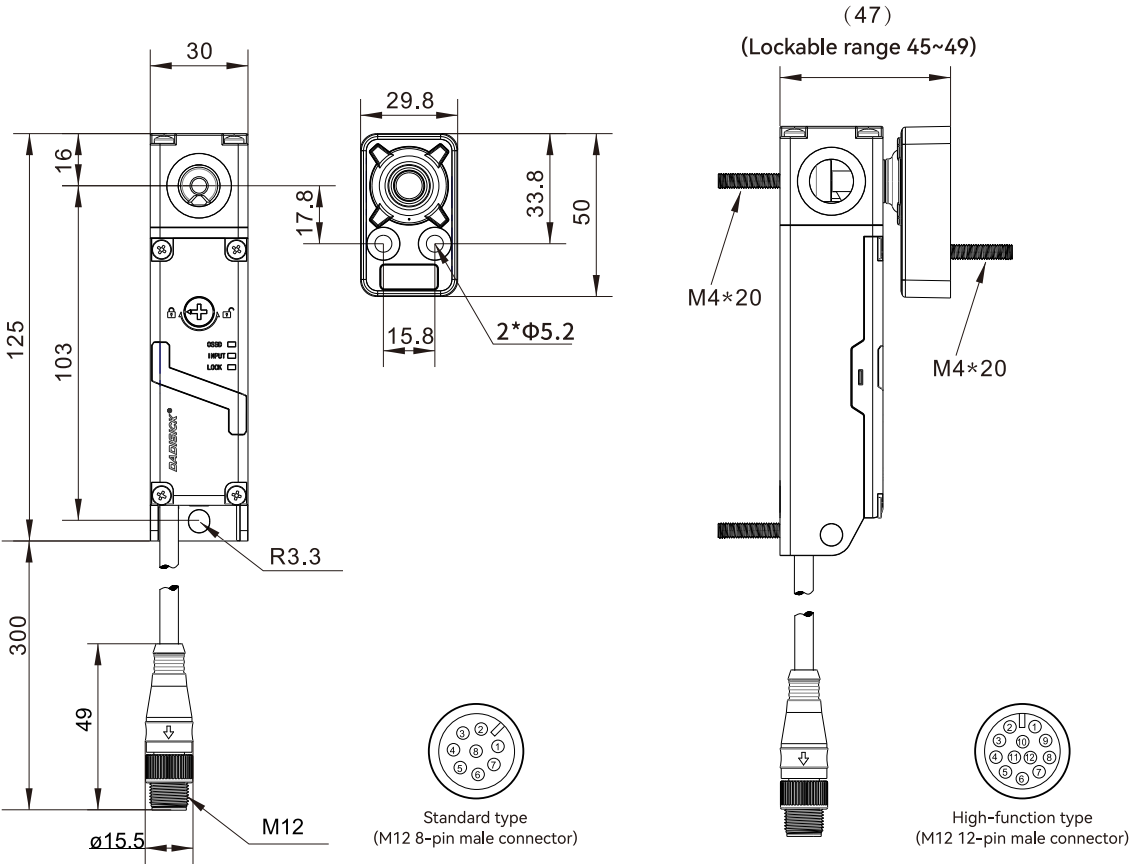


EOX-K9 operation key

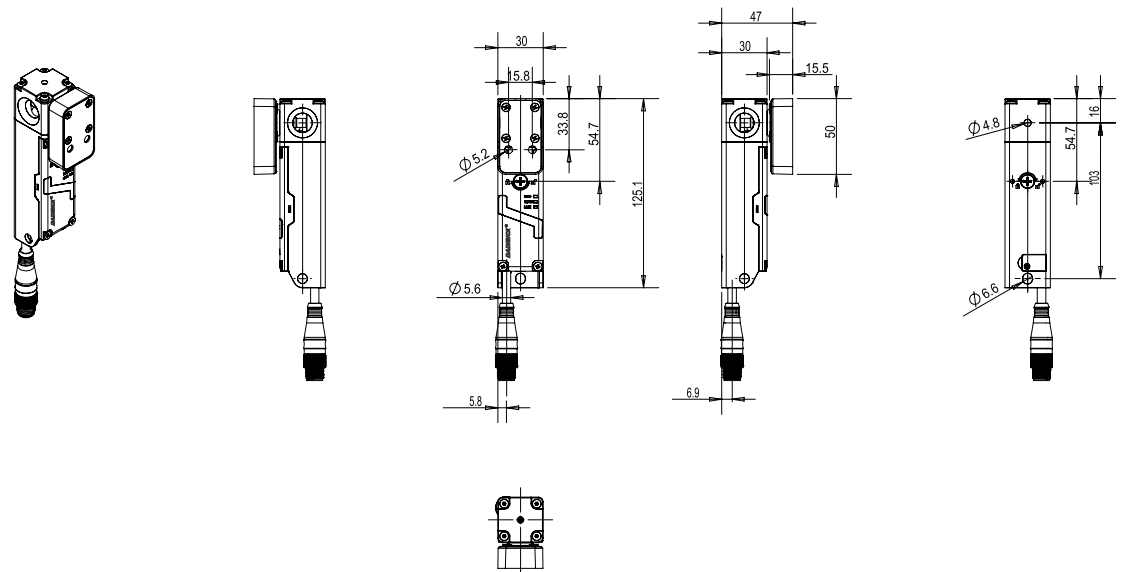


Unit: mm

**Product Dimensions**

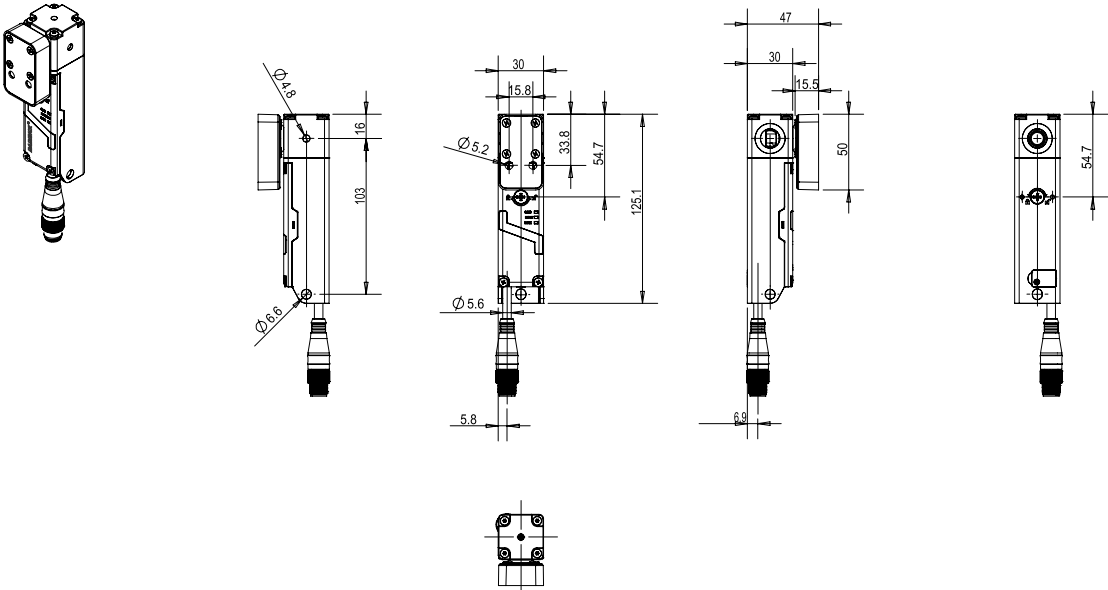


**EOX-D6 safety door switch and EOX-K9 shaft installation (applicable to hinged doors and hinged doors)**

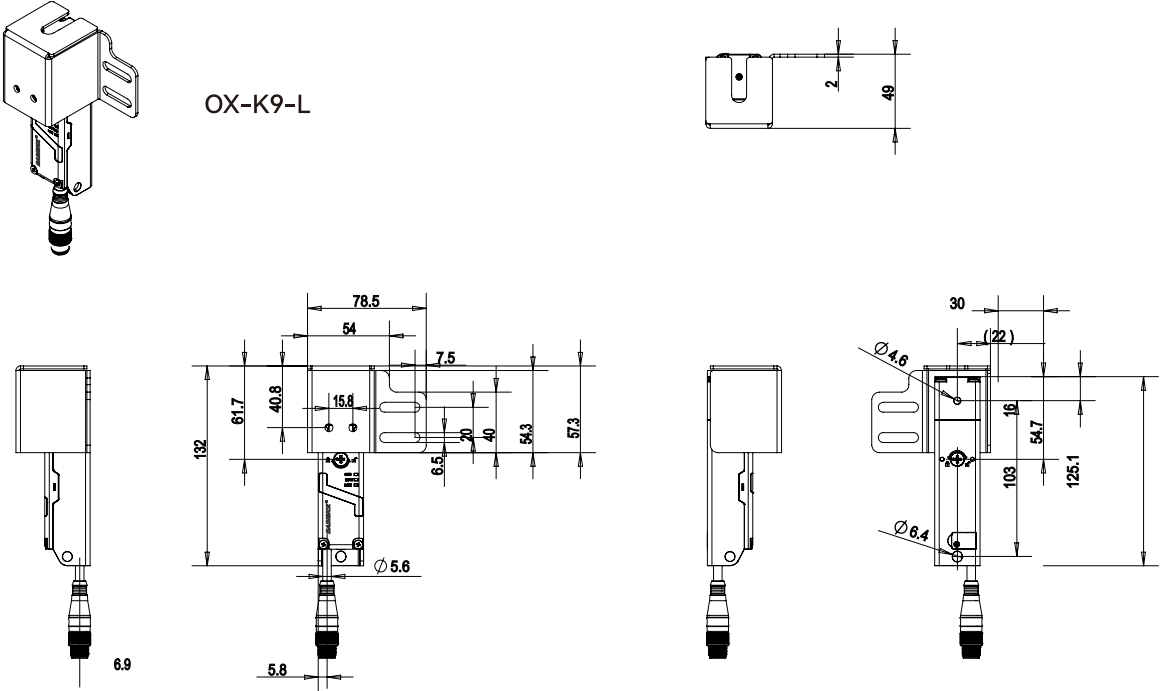


Unit: mm

**EOX-D6 safety door switch and EOX-K9 sliding installation (suitable for sliding doors)**

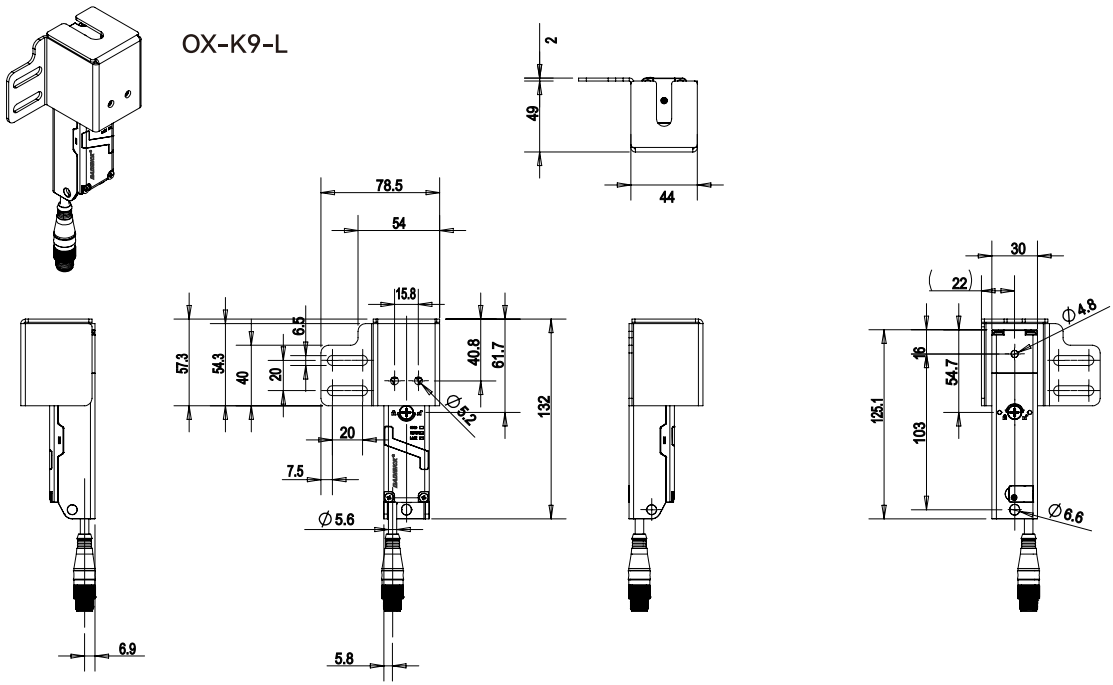


**OX-K9-L mounting bracket for pivot (door opening to the right), EOX-D6 safety door switch and OX-K9 pivot mounting**

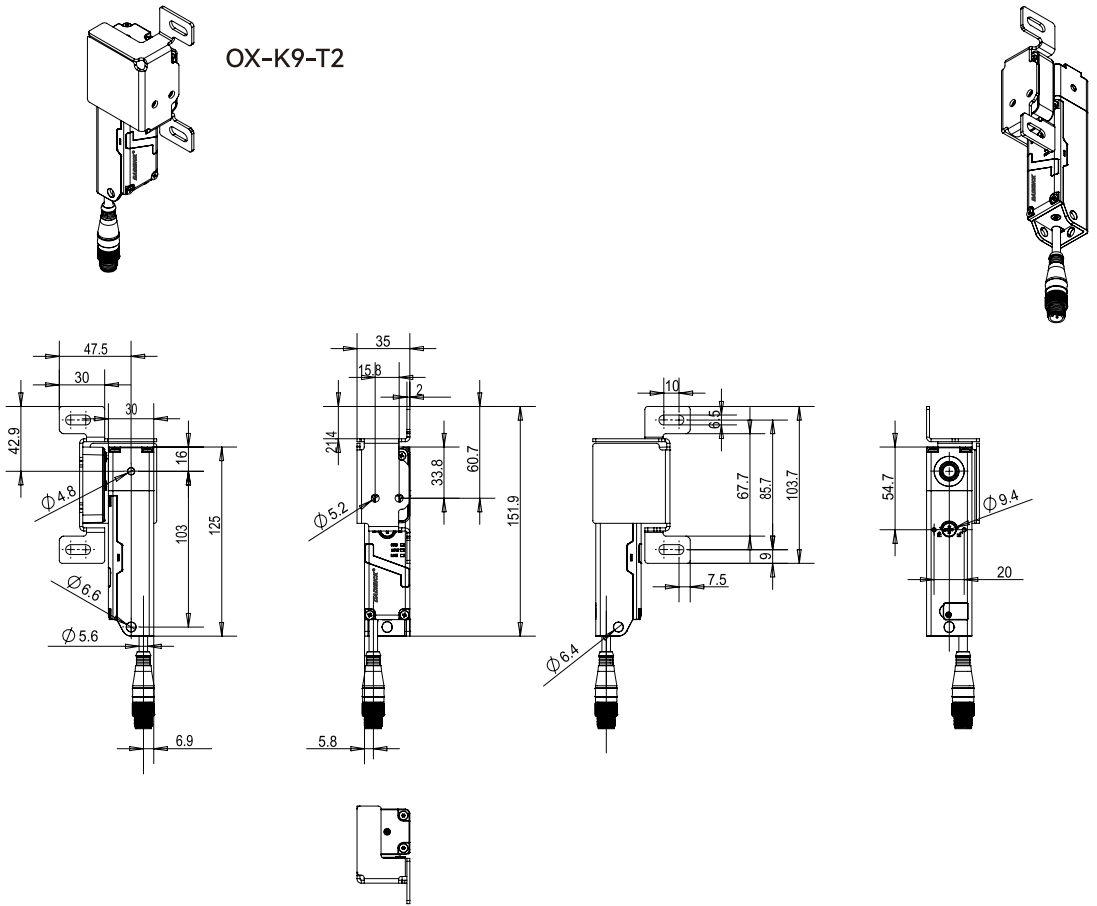


Unit: mm

OX-K9-L mounting bracket for pivot (door opens to the left), EOX-D6 safety door switch and OX-K9 pivot mounting

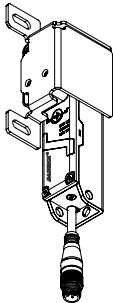


Sliding mounting bracket OX-K9-T2 (door opens to the right), EOX-D6 safety door switch and EOX-K9 sliding mounting

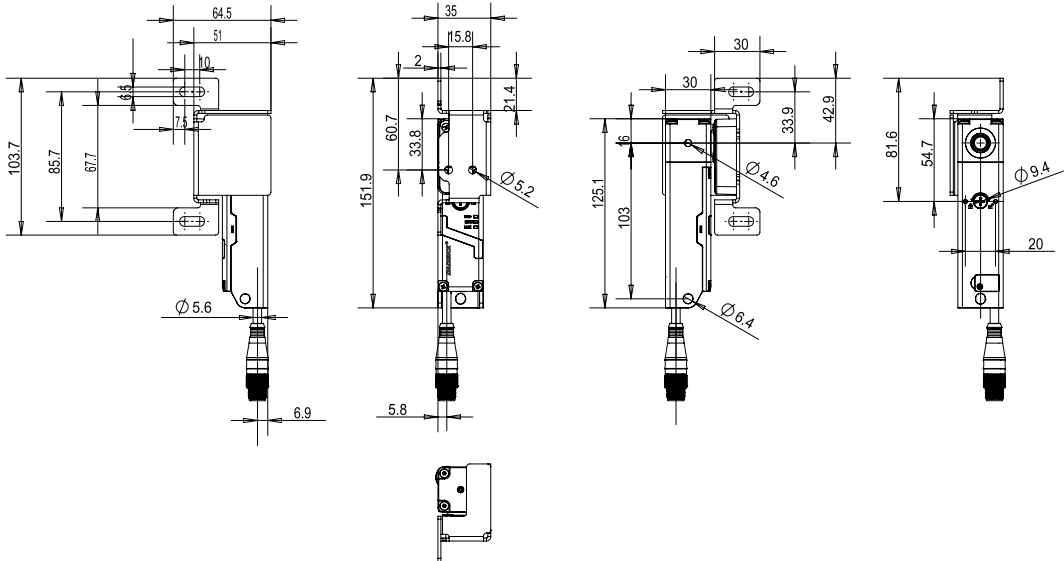
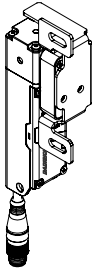


Unit: mm

Sliding mounting bracket OX-K9-T1 (door opens to the left), EOX-D6 safety door switch and OX-K9 sliding mounting



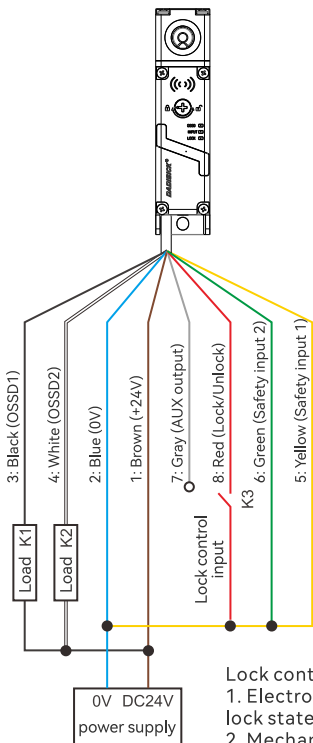
OX-K9-T1



Unit: mm

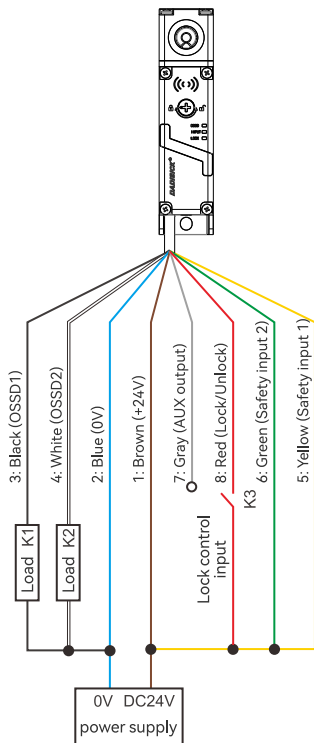
Product Wiring Diagram

EOX-D6 safety door switch standard type (NPN, no cascade)



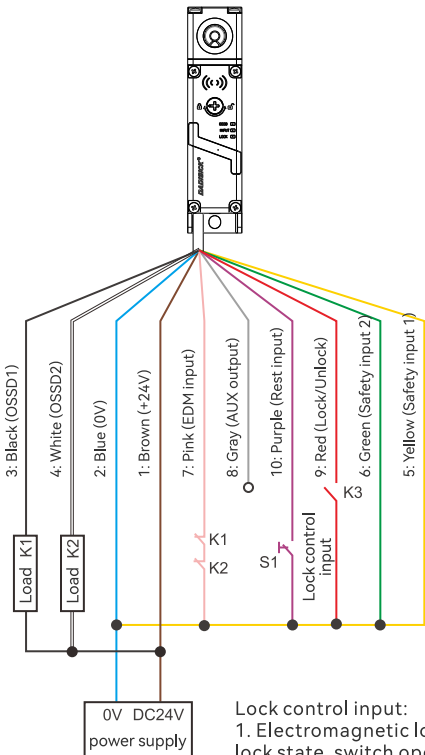
Lock control input:  
 1. Electromagnetic lock, mechanical release: K3, switch closed lock state, switch open unlock state;  
 2. Mechanical lock, electromagnetic release: K3, switch open lock state, switch closed unlock state.

EOX-D6 safety door switch standard type (PNP, no cascade)



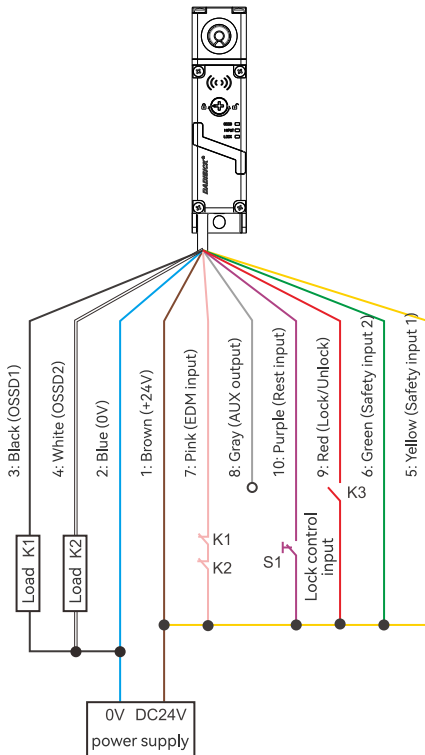
Lock control input:  
 1. Electromagnetic lock, mechanical release: K3, switch closed lock state, switch open unlock state;  
 2. Mechanical lock, electromagnetic release: K3, switch open lock state, switch closed unlock state.

EOX-D6 safety door switch high-function type (NPN, no cascade)



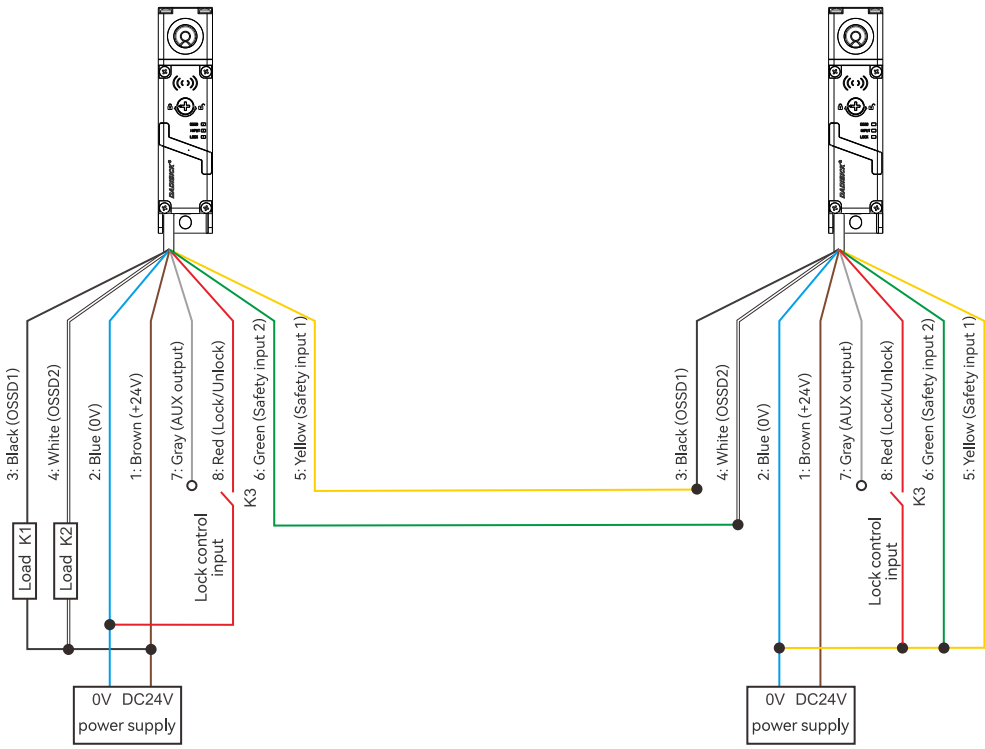
Lock control input:  
 1. Electromagnetic lock, mechanical release: K3, switch closed lock state, switch open unlock state;  
 2. Mechanical lock, electromagnetic release: K3, switch open lock state, switch closed unlock state.  
 Note: When the EDM function is not in use, the pink line (EDM input) and the gray line (AUX output) can be short-circuited.

EOX-D6 safety door switch high-function type (PNP, no cascade)



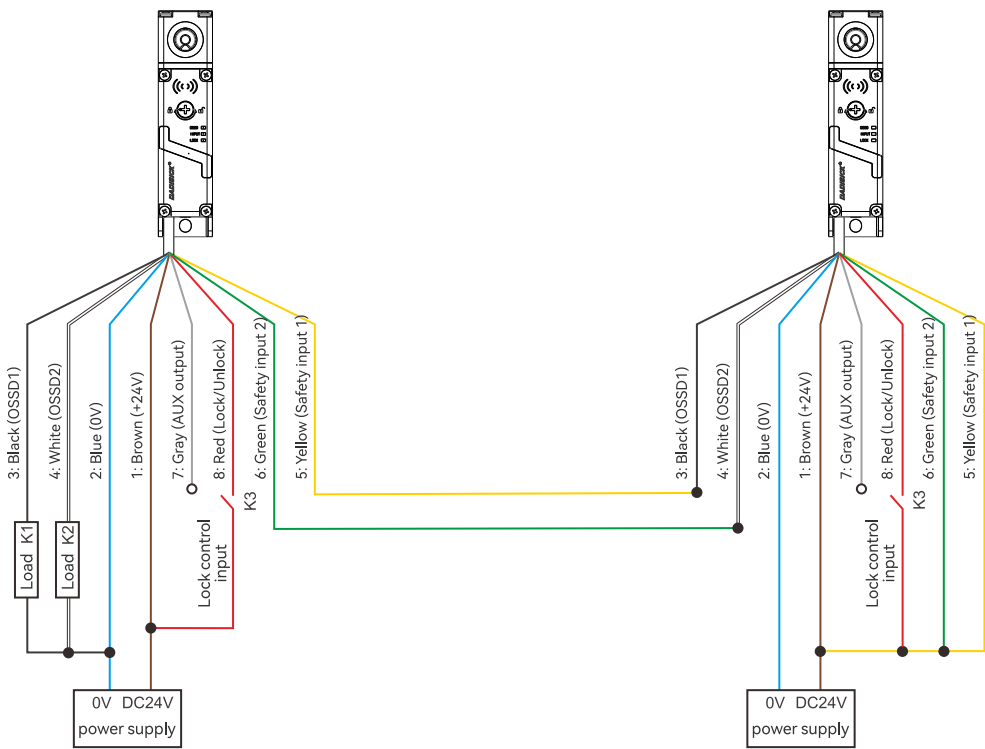
Lock control input:  
 1. Electromagnetic lock, mechanical release: K3, switch closed lock state, switch open unlock state;  
 2. Mechanical lock, electromagnetic release: K3, switch open lock state, switch closed unlock state.  
 Note: When the EDM function is not in use, the pink line (EDM input) and the gray line (AUX output) can be short-circuited.

EOX-D6 safety door switch standard type (NPN, cascade)



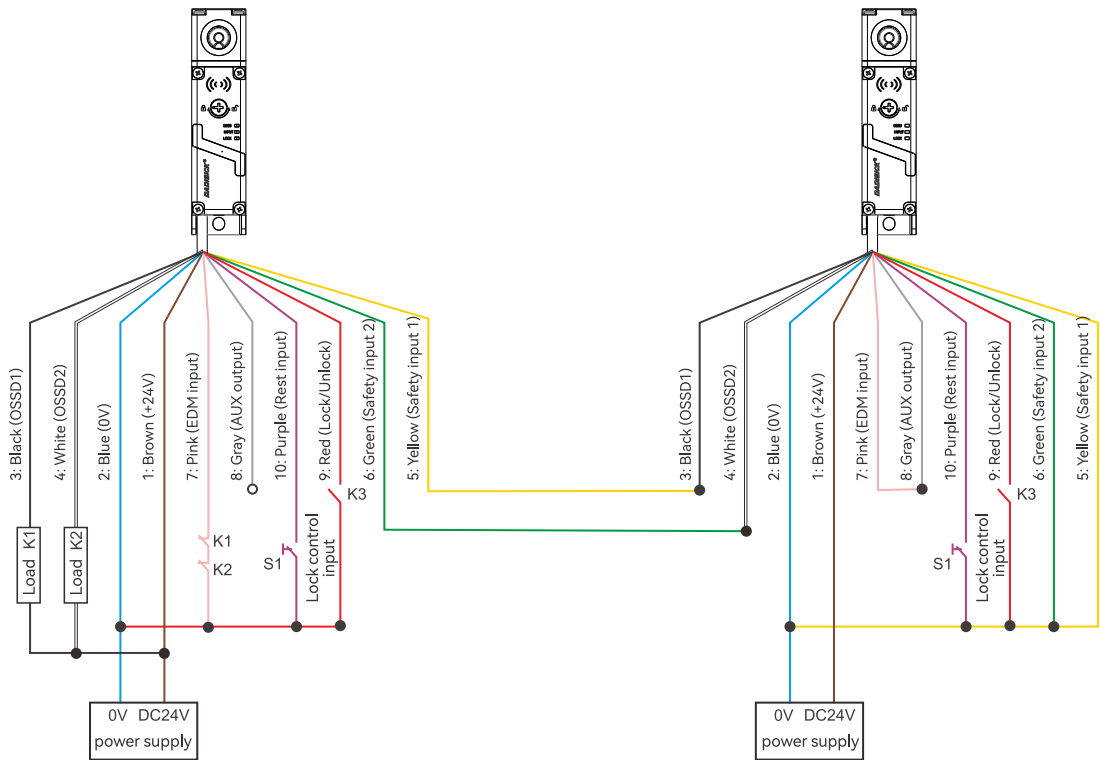
Lock control input:  
 1. Electromagnetic lock, mechanical release: K3, switch closed lock state, switch open unlock state;  
 2. Mechanical lock, electromagnetic release: K3, switch open lock state, switch closed unlock state.

EOX-D6 safety door switch standard type (PNP, cascade)



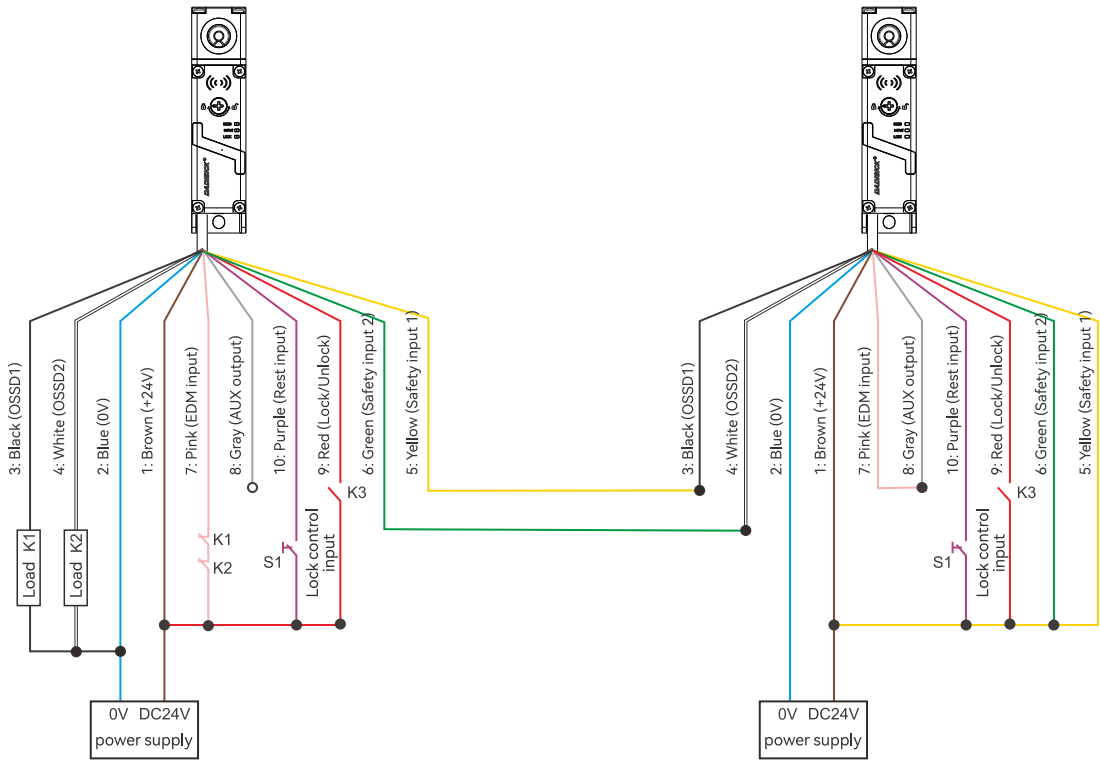
Lock control input:  
 1. Electromagnetic lock, mechanical release: K3, switch closed lock state, switch open unlock state;  
 2. Mechanical lock, electromagnetic release: K3, switch open lock state, switch closed unlock state.

EOX-D6 safety door switch high function type (NPN, cascade)



Lock control input:  
 1. Electromagnetic lock, mechanical release: K3, switch closed lock state, switch open unlock state;  
 2. Mechanical lock, electromagnetic release: K3, switch open lock state, switch closed unlock state.  
 Note: When the EDM function is not in use, the pink line (EDM input) can be connected to 0V or short-circuited with the gray line (AUX output)

EOX-D6 safety door switch high function type (PNP, cascade)



Lock control input:  
 1. Electromagnetic lock, mechanical release: K3, switch closed lock state, switch open unlock state;  
 2. Mechanical lock, electromagnetic release: K3, switch open lock state, switch closed unlock state.  
 Note: When the EDM function is not in use, the pink line (EDM input) can be connected to 24V or short-circuited with the gray line (AUX output)