

Safety Switches



- Multiple contact points available
- Plastic and metal materials available, 4 optional head mounting directions
- Locking force is 1300N, excellent anti-tensile performance

Follow these steps to choose the Safety Switch that's best for you !

Step 1

Step 1

Choose the products lineup

Choose by operating principle and shape

Operating principle	Products Lineup	Page
Mechanical Lock	AR1 	DB-03 ▶
	AR2 	DB-03 ▶
Electromagnetic Lock	AR3 	DB-03 ▶
	AR4 	DB-03 ▶
Electromagnetic/Mechanical Lock	AR5 	DB-09 ▶
Non-Contact Type(RFID)	AR10 	DB-11 ▶

Curtains

Switch

Selection Guide

Locking Type

Non-Contact Type

Mechanical Locked Safety Switches

AR1/2/3



PLe

SIL 3



PLe

SIL 3



PLe

SIL 3



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SIL 3

Basic Features	Working Principle	Mechanical	Electronical			
	Housing	Rectangular				
	Switching principle	Slow action switching element				
	Locking force	>1300N				
	Contact spacing	>2.0x2.0mm				
	Forced disconnection force	Standard: >60N; Strong tensile: >80N	>60N			
	Forced disconnection pre-travel	>10mm				
	Operating speed	0.1~0.5m/s				
	Operating frequency	≤20 times/min	≤20 times/min			
	Indicator	Green/yellow available				
Electrical Data	Usage category	AC-15/DC-13 available by model				
	Rated operating voltage	24V/240V available by model				
	Rated operating current	2A/3A available by model				
	Contact resistance	<25mΩ				
	Rated insulation voltage	300V				
	Insulation resistance	< 100MΩ/500VDC	> 100MΩ/500VDC	> 100MΩ/500VDC	> 100MΩ/500VDC	
	Dielectric strength	2500V AC at 50/60Hz for 1 min				
	Short circuit current	100A				
	Electric shock protection rating	Class II				
	Environmental Conditions	Operating Temperature	-10°C~+70°C (No Freezing)	-10°C~+55°C (No Freezing)		
Operating Humidity		5%~85% RH (No Condensation)	5%~95% RH (No Condensation)			
Contamination rating		3 (EN60947-5-1)				
Vibration resistance		10~55Hz, 1.5mm double amplitude for 2hours each in X/Y/Z directions				
Shock resistance		Durability	1000m/s ²			
		Misoperation	300m/s ²			
Enclosure rating		IP67				
Mechanical Data	Connection	Connector/cable available				
	Mechanical life	≥1,000,000times				
	Electrical life	≥150,000 times(24VAC/3A)				
	Dimensions (WxHxD)	30x30.1x96mm	88x34.3x108mm	38x38.6x165mm	36x38x135mm	
	Housing material	PA66				
	Weight	96.5g	370.6g	253.4g	268g	
	Model	AR1 Series	AR2 Series	AR3 Series	AR4 Series	

AR1 – ① ② ③

Code	Mark	Define
①	Installation direction	F: 4 directions selectable(default is front)/Plastic D: 4 directions selectable(default is front)/Metal
②	Connection	2: M20(Terminal)
③	Switch	A: 1NC/1NO(Slow) B: 2NC(Slow)
		C: 2NC/1NO(Slow) D: 3NC(Slow)

AR2 – ① ② ③ ④ ⑤ ⑥

Code	Mark	Define
①	Installation direction	F: 4 directions selectable(default is front)/Plastic D: 4 directions selectable(default is front)/Metal
②	Connection	2: M20(Terminal)
③	Lock type/Release type	A: Mechanical lock/Electromagnetic release(DC 24V) B: Mechanical lock/Electromagnetic release(AC 110V)
		G: Electromagnetic lock(DC 24V)/Mechanical release H: (AC 110V)Electromagnetic lock/Mechanical release
④	Indicator	Blank: Green LED,DC 24V
		B: Orange LED,DC 24V
⑤	The location of key	F: Top S: Front
⑥	Switch	A: 1NC/1NO(Slow)+1NC/1NO(Slow)
		B: 1NC/1NO(Slow)+2NC(Slow)
		C: 2NC(Slow)+1NC/1NO(Slow)
		D: 2NC(Slow)+2NC(Slow)
		E: 2NC/1NO(Slow)+1NC/1NO(Slow)
		F: 2NC/1NO(Slow)+2NC(Slow)
		G: 2NC/1NO(Slow)+2NC/1NO(Slow)
		H: 3NC(Slow)+1NC/1NO(Slow)
		I: 3NC(Slow)+2NC(Slow)
		J: 3NC(Slow)+3NC(Slow)
K: 3NC(Slow)+2NC/1NO(Slow)		
L: 2NC/1NO(Slow)+3NC(Slow)		

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Mechanical Locked Safety Switches

Encoding rules

AR3 – ① ② ③ ④ ⑤ ⑥

Code	Mark	Define
①	Installation direction	F: 4 directions selectable(default is front)/Plastic D: 4 directions selectable(default is front)/Meta
②	Connection	2: M20(Terminal) 3: M16(Terminal)
③	Lock type/Release type	A: Mechanical lock/Electromagnetic release(DC 24V) B: Mechanical lock/Electromagnetic release(AC 110V) G: Electromagnetic lock(DC 24V)/Mechanical release H: (AC 110V)Electromagnetic lock/Mechanical release
④	Indicator	Blank: Green LED,DC 24V
⑤	The location of key	Blank: Front F: Back A: 1NC(Slow)+1NO(Slow) B: 2NC(Slow)+1NC/1NO(Slow) C: 1NC(Slow)+1NC(Slow) D: 1NC(Slow)+2NC(Slow) E: 2NC(Slow)+2NO(Slow) F: 1NC(Slow)+1NC/1NO(Slow) G: 2NC(Slow)+2NC(Slow) H: 1NC/1NO(Slow)+1NC/1NO(Slow) I: 3NC(Slow)+1NO(Slow) J: 3NC(Slow)+1NC(Slow) K: 1NC(Slow)+3NO(Slow) L: 1NC(Slow)+3NC(Slow) M: 1NC/1NO(Slow)+2NC(Slow) N: 1NC/1NO(Slow)+2NO(Slow)
⑥	Switch	

AR4 – ① ② ③ ④ ⑤ ⑥ ⑦

Code	Mark	Define
①	Installation direction	F: 4 directions selectable(default is front)/Plastic D: 4 directions selectable(default is front)/Metal
②	Connection	3: M16(Terminal)
③	Lock type/Release type	A: Mechanical lock/Electromagnetic release(DC 24V) B: Mechanical lock/Electromagnetic release(AC 110V) G: Electromagnetic lock(DC 24V)/Mechanical release H: (AC 110V)Electromagnetic lock/Mechanical release
④	Indicator	Blank: Green LED,DC 24V B: Orange LED,DC 24V
⑤	The location of key	Blank: Front F: Back
⑥	The type of key	Blank: Standard(Resin) H: Special(Resin)
⑦	Switch	A: 1NC(Slow)+1NO(Slow) C: 1NC(Slow)+1NC(Slow)

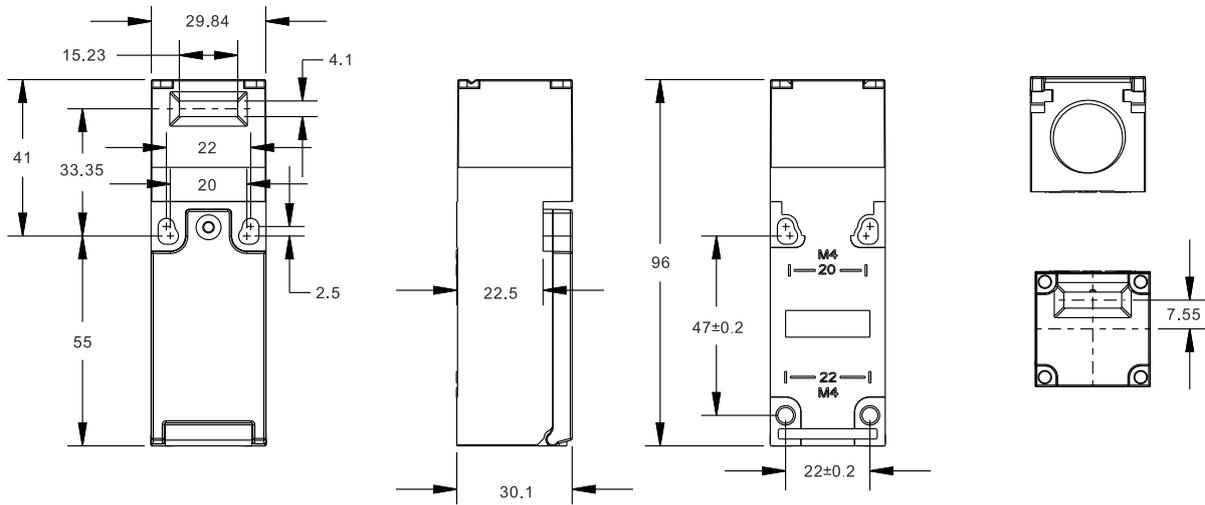
Mechanical Locked Safety Switches

Dimensions

Unit: mm

Safety

AR1 Series



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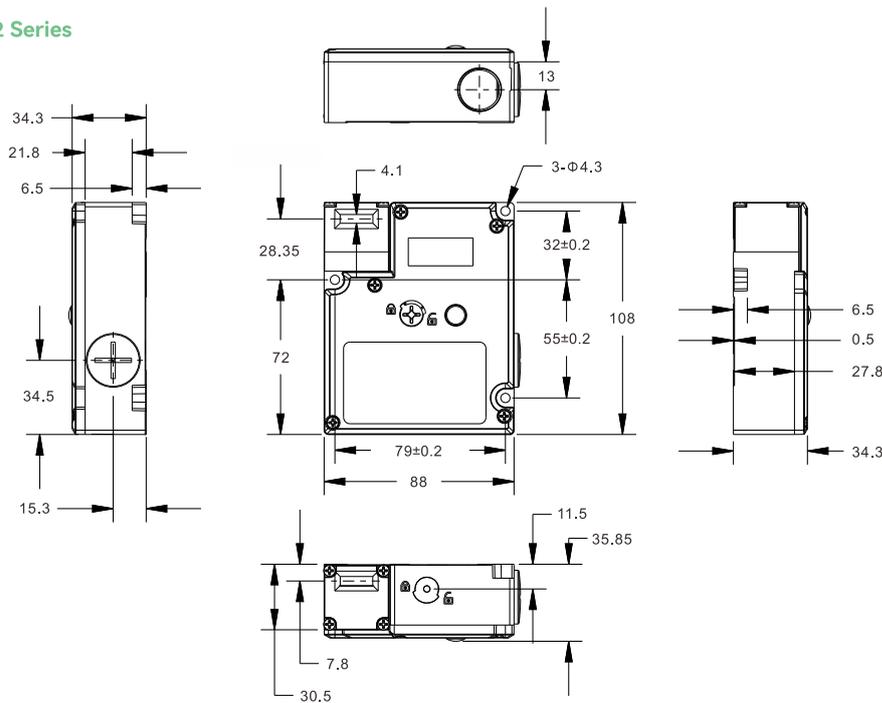
Switch

Selection Guide

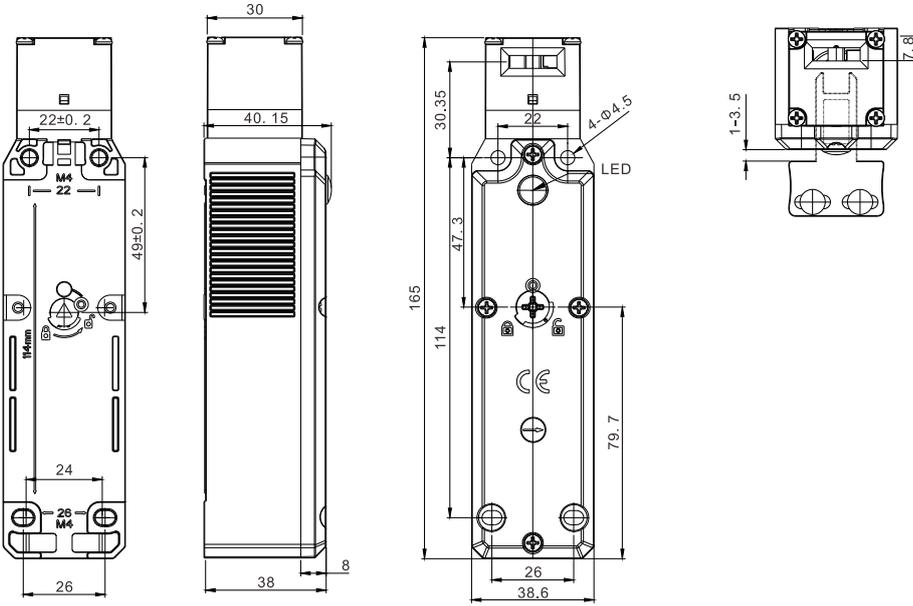
Locking Type

Non-Contact Type

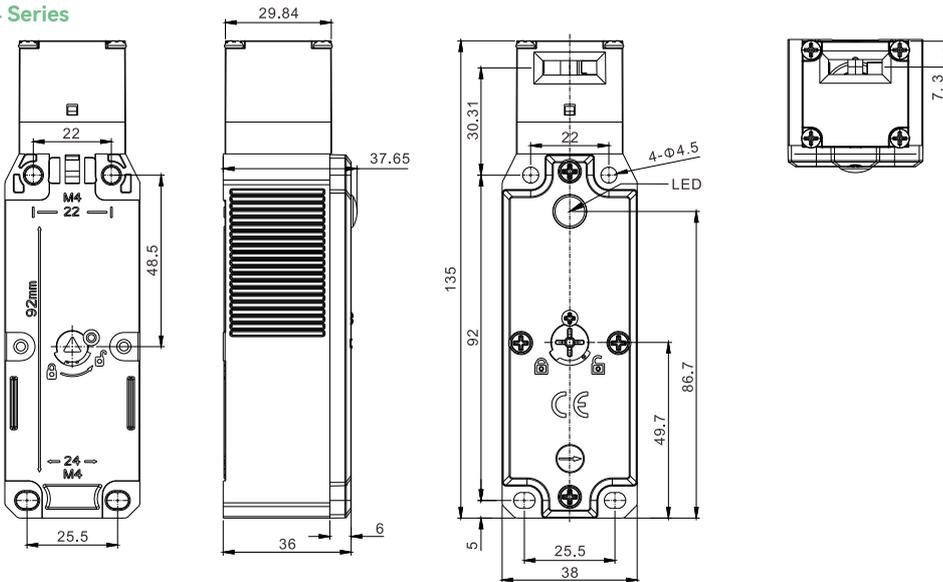
AR2 Series



AR3 Series



AR4 Series



Electronically Locked Safety Switches

AR5



- Curtains
- Switch
- Selection Guide
- Locking Type
- Non-Contact Type

Basic Features	Lock type		Power-to-release/Power-to-lock	
	Output		NPN/PNP available by model	
	Response time	Lock→Unlock	100ms	
		Unlock→Lock		
	Risk time		100ms	
	Start time		3.5s	
	Lock	Locking force (Fzh)	≥2000N	
		Alignment tolerance of lock	≤2mm	
		Mechanical life-span	≥1 million cycles (with door operation speed of 1 m/s)	
		Acceptable operation frequency	1Hz	
Door radius		≥220mm		
Auxiliary release		Front, back		
Electrical Data	Cascading		<20 units	
	Control output (OSSD output)	Output	Transistor outputs x 2	
		Max. load current	≤200mA	
		Residual voltage (during ON)	<2.5V/200mA	
		OFF state voltage	<2V/5m	
		Leakage current	≤0.5mA	
		Max. capacitive load	2.2uF	
		Load wiring resistance	<2.5Ω	
	AUX (Non-safety related output)	Output	Transistor output	
		Number of outputs	1	
		Max. load current	50mA	
	External input (Shortcircuit current)	Safety input	1.5mA	
		Reset/EDM input	10mA	
		Lock control input	10mA	
		OSSD operation switching input	10mA	
	Power supply	Power voltage	24V DC ±15%	
		Power consumption	4.6W	
	Protection circuit		Safety circuit breaker protection, current limit, overload protection, overvoltage protection, overtemperature protection stop and restart, reverse polarity protection, transient noise protection, fail-safe pulse protection	
	Environmental Conditions	Enclosure rating		IP65
		Operating Temperature		-20°C~55°C (No Freezing)
Storage Temperature		-25°C~70°C (No Freezing)		
Operating Humidity		5%~95%RH (No Condensation)		
Storage Humidity		5%~95%RH (No Condensation)		
Vibration resistance		10~55Hz, 2.0mm double amplitude for minutes each in X/Y/Z directions		
Shock resistance		30G in X/Y/Z directions 6 times each axis(IEC60947-5-3)		
Mechanical Data	Dimensions (WxHxD)		29.7x29.8x125.75mm	
	Housing material		Nylon+Zinc alloy+Stainless steel	
	Weight		470g	
Model		AR5 Series		

AR5 - [1] [2] [3] [4] [5] - [6]

Code	Mark	Define
①	Code rule	0: Universal code 1: Unique code
②	Configuration	0: Standard 1: Senior
③	Lock type	0: Electromagnetic 1: Mechanical
④	Output	N: NPN P: PNP
⑤	Connection	E: M12 Connector Blank: Cable
⑥	Length of cable	1M: 1m 5M: 5m 10M: 10m 20M: 20m

Curtains

Switch

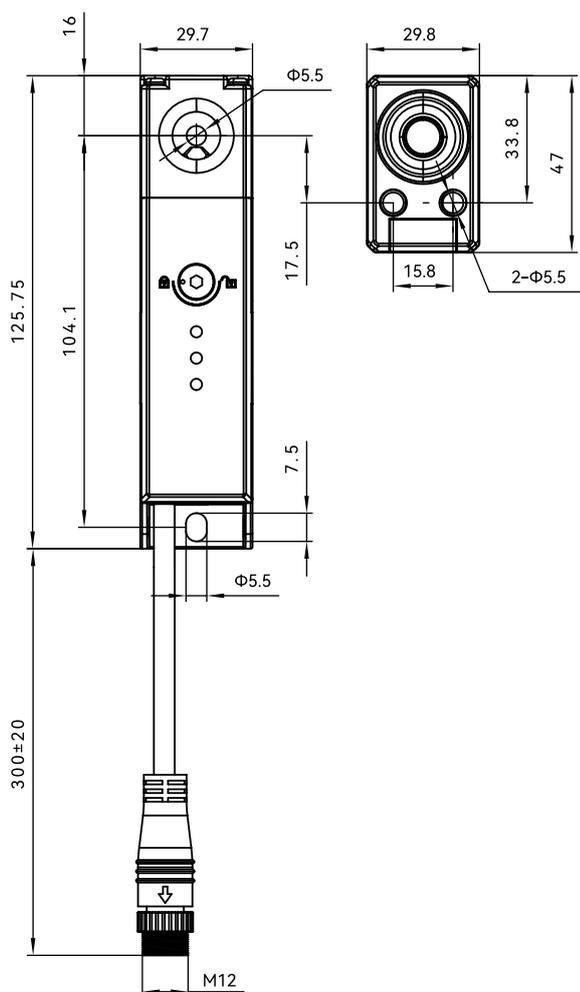
Selection Guide

Locking Type

Non-Contact Type

Unit: mm

Dimensions



Safety Switches(RFID)

AR10

Safety



NEW!

CE

SIL 3

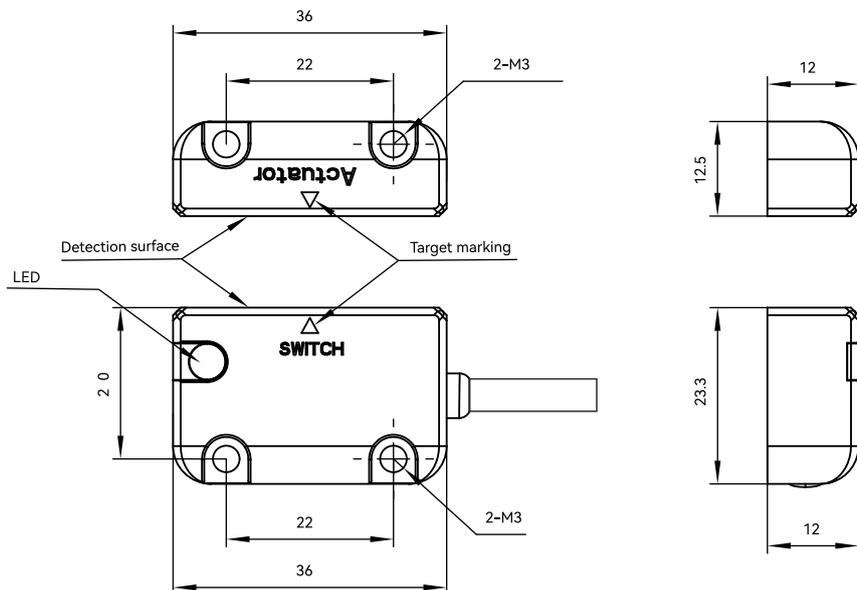
PLe

Basic Features	Coding type	Coded target	
	Cascade	Yes	
	Safe switch on distance(Sao)	0~10mm	
	Safe switch off distance(Sar)	12~25mm	
	Sar-Sao	8~15mm	
	Horizontal working distance	0~10mm	
	Vertical working distance	0~8mm	
	Indicator	More than 2 lights	
Electrical Data	Operation model	N.C.	N.O.
	Operating voltage	24V DC ±15%	
	Operating current	30mA	
	Output current	150mA	
	Response time	60ms	
	Operating frequency	1Hz	
Environmental Conditions	Enclosure rating	IP67	
	Operating Temperature	-10°C~55°C(No Freezing)	
	Storage Temperature	-15°C~60°C(No Freezing)	
	Operating Humidity	5%~95%RH(No Condensation)	
	Storage Humidity	5%~95%RH(No Condensation)	
Mechanical Data	Connection	2m cable	
	Housing material	Thermoplastic	
	Weight	57g	
Model	2CH NPN	AR10-NC	AR10-NO
	2CH PNP	AR10-PC	AR10-PO
	2CH cascade NPN	AR10-DNC	AR10-DNO
	2CH cascade PNP	AR10-DPC	AR10-DPO

Encoding rules

AR10 – ① ② ③

Code	Mark	Define
①	Output	N: 2CH NPN P: 2CH PNP DN: 2CH cascade NPN DP: 2CH cascade PNP
②	Switch	C: Normally closed O: Normally open
③	The length of cable	Blank: 2m 5: 5m



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Switch

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