The Key to Your Safety

Safety Door Lock Switches

SFDL Series

The SFDL series safety door lock switches can detect opening and closing of doors in machines, and also keep the door locked during potentially dangerous operation. The head can be rotated to change the insert direction of the operation key from 5 directions, with 6 available operation key types. Various types of connection and release keys are also available, making it easier for installation in diverse application settings.

Safety Standards

IEC/EN 60947-5-1
EN ISO 14119
GB/T 14048.5

Certifications

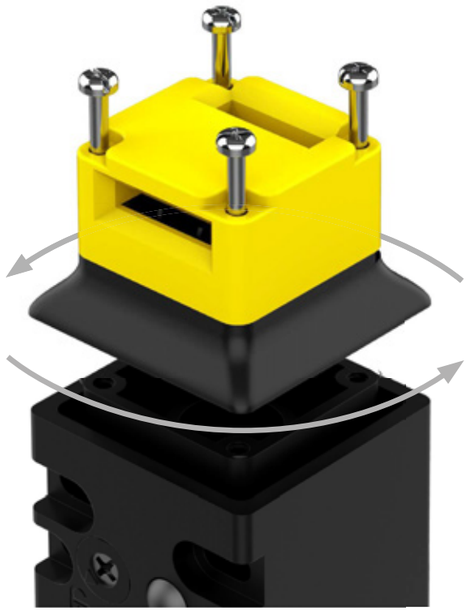
Various Models Available for Flexible Installation

The SFDL series door lock switches are available in terminal type and connector types for easy application and installation in diverse environments.

1. Head Rotation & 6 Operation Key Types

The SFDL series offers diverse installation methods for flexible installation. The head can be rotated to change the insert direction of operation keys.

6 Operation Key Types

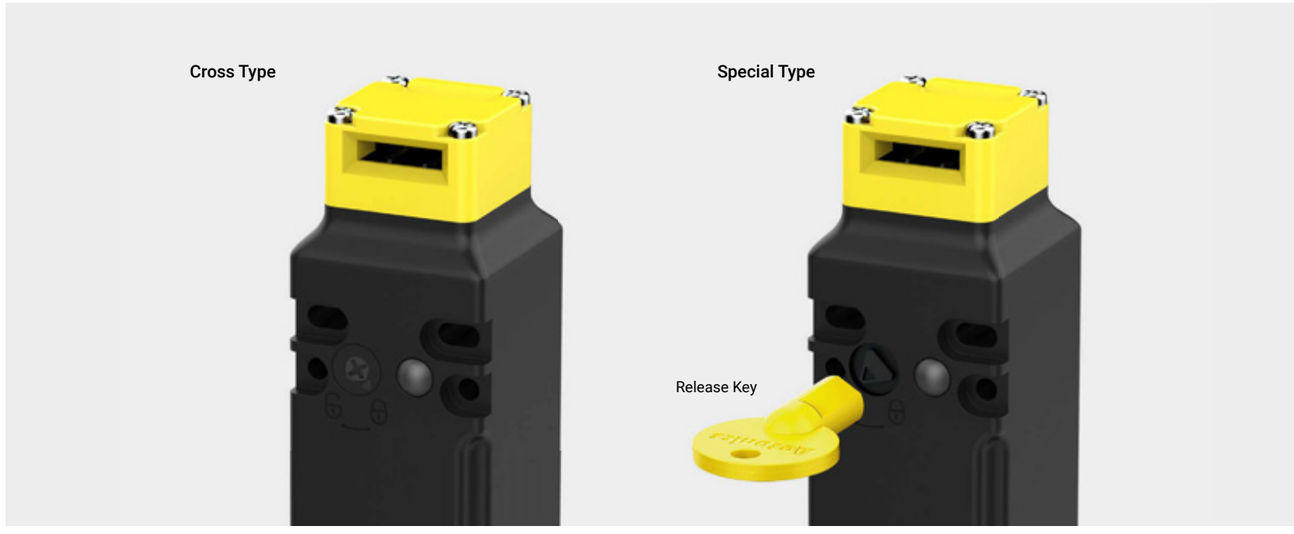


2. Two Model Types

Terminal type and connector type models are available for application in various environments. Both types can be detached easily from the body, for easier installation and maintenance.

Terminal Type **Connector Type**

Connector cable
(sold separately)



3. Release Keys Available

Cross type and special type release keys are available for wider options. Release keys can be used to manually unlock the units during emergency or product malfunction. The metallic release levers offer high durability.

Release Key

Release key type	Normal position	Manual unlock position
Cross type		
Special type		

4. Two Types of Lock/Release Methods

Two types of lock/release methods are available (Mechanical lock & solenoid release / solenoid lock & mechanical release). The mechanical lock remains locked when the operation key is inserted and unlocks with solenoid power. The solenoid lock remains locked with solenoid power and unlocks when solenoid power is cut off.

Lock/Release Method

	Mechanical Lock	Solenoid Lock
Power ON	UNLOCK	LOCK
Power OFF	LOCK	UNLOCK

5. Powerful Lock Strength

Powerful lock strength of 1,300 N ensures that the unit will remain locked under most conditions.

6. Slim and Compact Size

The door lock switches are slim and compact in size (H 155 x D 39 mm), allowing installation in tight or limited spaces.

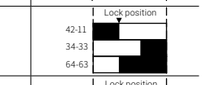
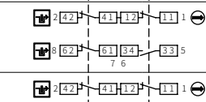
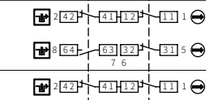
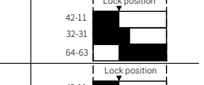
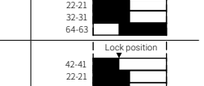
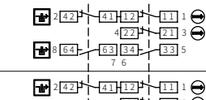
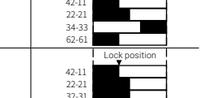
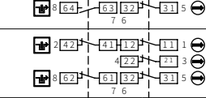
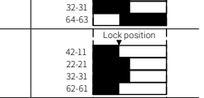
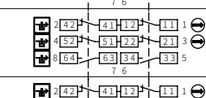
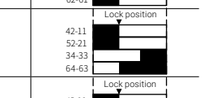
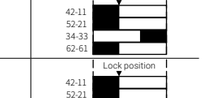
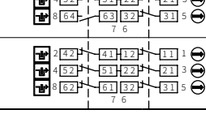
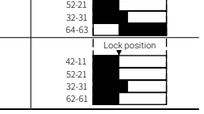
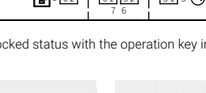
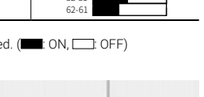
* Connector type (H155 x D39 mm), Terminal blocks type (H180 x D39 mm)

Slide Unit (Sold Separately)

The slide unit (SFDL-SD) is an accessory to prevent being locked when entering the fence using safety flat type door lock switches.

Switches with up to 6 Contacts

4-contact, 5-contact, or 6-contact switches are built in, with 16 types of contact configurations for easier application in any environment.

Model	Contact (lock monitor+ door monitor)	Connection diagram		Contact operation
		Lock monitor	Door monitor	
SFDL-□A-□□□	1 N.C./1 N.O.+ 1 N.C./1 N.O.			
SFDL-□B-□□□	2 N.C.+ 1 N.C./1 N.O.			
SFDL-□C-□□□	1 N.C./1 N.O.+ 2 N.C.			
SFDL-□D-□□□	2 N.C.+2 N.C.			
SFDL-□CA-□□□	1 N.C./1 N.O.+ 1 N.C./1 N.O.			
SFDL-□CB-□□□	2 N.C.+ 1 N.C./1 N.O.			
SFDL-□CC-□□□	1 N.C./1 N.O.+ 2 N.C.			
SFDL-□CD-□□□	2 N.C.+2 N.C.			
SFDL-□5A-□□□	1 N.C./1 N.O.+ 2 N.C./1 N.O.			
SFDL-□5B-□□□	2 N.C.+ 2 N.C./1 N.O.			
SFDL-□5C-□□□	1 N.C./1 N.O.+ 3 N.C.			
SFDL-□5D-□□□	2 N.C.+3 N.C.			
SFDL-□6A-□□□	2 N.C./1 N.O.+ 2 N.C./1 N.O.			
SFDL-□6B-□□□	3 N.C.+ 2 N.C./1 N.O.			
SFDL-□6C-□□□	2 N.C./1 N.O.+ 3 N.C.			
SFDL-□6D-□□□	3 N.C.+3 N.C.			

※ Connection diagram represents the locked status with the operation key inserted. (■: ON, □: OFF)

※ Sold separately :

Group lock device, connecting cable

Group lock device is an accessory for safety door and door lock switches, to prevent actuator operation from unauthorized access by physically blocking switch insertion area.

Side type (SFD-LT)

Upper type (SFD-LT2)

Door Lock Switches

SFDL Series

Technical Overview

Ordering Information

This is only for reference. For selecting the specific model, follow the Autonics web site.

SFDL - ❶ ❷ ❸ - ❹ ❺ ❻

❶ Lock/Release method
M: Mechanical Lock/ Solenoid Release
S: Solenoid Lock/ Mechanical Release

❷ Contact
No-mark: 4-contact (connected)
C: 4-contact (not connected)
5: 5-contact
6: 6-contact

❸ Contact composition

	4-contact	5-contact	6-contact
A	Lock 1 N.C. / 1 N.O. + Door 1 N.C. / 1 N.O.	Lock 1 N.C. / 1 N.O. + Door N.C. 2 / N.O. 1	Lock 2 N.C. /1 N.O. + Door 2 N.C. /1 N.O.
B	Lock N.C. 2 + Door N.C. 1 / N.O. 1	Lock N.C. 2 + Door N.C. 2 / N.O. 1	Lock N.C. 3 + Door N.C. 2/N.O. 1
C	Lock N.C. 1 / N.O. 1 + Door N.C. 2	Lock N.C. 1 / N.O. 1 + Door N.C. 3	Lock N.C. 2/N.O. 1 + Door N.C. 3
D	Lock N.C. 2 + Door N.C. 2	Lock N.C. 2 + Door N.C. 3	Lock N.C. 3 + Door N.C. 3

❹ Connection type
No-mark: Terminal type
C: Connector type

❺ Connection outlet specification
M20: M20 thread
G1/2: G1/2 thread

❻ Release key type
No-mark: Cross type
K: Special type

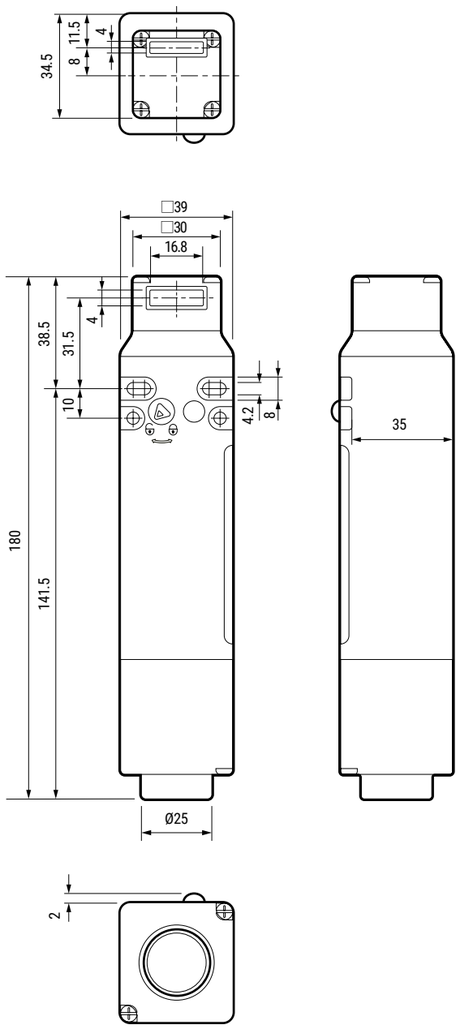
※ Sold Separately

- Operation key: SFD-K□
- Connector cable: SFDL-CND10-□
- Safety door lock slide key unit: SFDL-SDK
- Safety door lock slide unit: SFDL-SD
- Group locking device: SFD-LT□ / Connecting cable: SFD-LT-C□

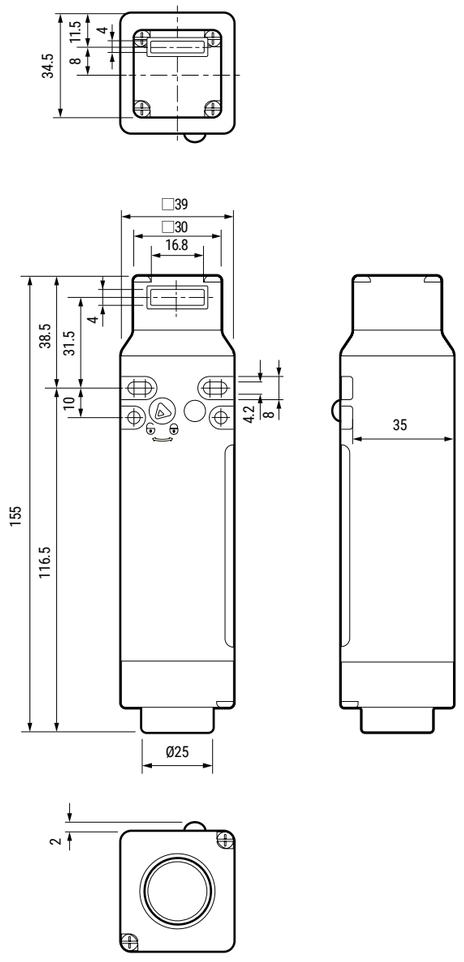
Dimensions

Unit: mm, For the detailed dimensions of the product, follow the Autonics web site.

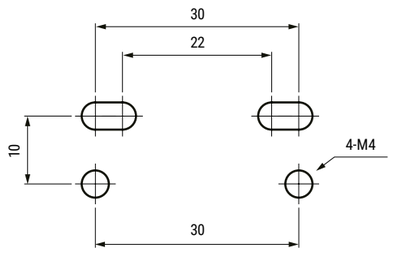
■ Terminal type



■ Connector type



■ Panel cut out



Specifications

Model	SFDL-□□□-□□	SFDL-□□□-C□□
Directing opening force	≥ 80 N	
Directing opening distance	≥ 10 mm	
Locking pullout strength	≥ 1,300 N	
Operating speed	0.05 to 1 m/s	
Operating frequency	≤ 20/min	
Mechanical life cycle	≥ 1,000,000 operations (20/min)	
Vibration (malfunction)	0.35 mm amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 10 min	
Shock	1,000 m/s² (≈ 100 G) in each X, Y, Z direction for 3 times	
Shock (malfunction)	80 m/s² (≈ 8 G) in each X, Y, Z direction for 3 times	
Ambient temperature	-10 to 55°C 01), storage: -25 to 65 °C (a non freezing or condensation environment)	
Ambient humidity	35 to 85 %RH , storage: 35 to 85 %RH (a non freezing or condensation environment)	
Protection structure	IP67 02) (IEC standard, except for head)	
Material	Head: zinc, case: polyamide 66, operation key: stainless steel 304	
Approval	CE (TUV NORD) UK cULus EAC	
Accessory	SFDL-□□□-□□K (Special type release key) : rotating key	
Applicable cable	AWG22	–
Connection type	Terminal type	Connector type
Unit weight (packaged)	≈ 375 g (≈ 440 g)	≈ 325 g (≈ 395 g)

01) UL approved ambient temperature: 50°C
02) Rated protection structure is for the switch body. Be cautious about preventing the head part from entering the foreign materials such as dust and water.

Contact block	
Rated voltage/ current for load	Resistive load: 1 A/120 VAC∼, 0.22 A/125 VDC⎓ Inductive load (IEC): AC-15 1 A/120 VAC∼, DC-13 0.22 A/125 VDC⎓ Inductive load (UL): C150, R150
Impulse dielectric strength	Between the terminals of same polarity: 1.5 kV Between the terminals of different polarity: 1.5 kV Between each terminal and non-live part: 2.5kV
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)
Contact resistance	≤ 200 mΩ
Electrical life cycle	≥ 100,000 operations (125 VAC∼/1 A)
Conditional short-circuit current	100 A
Solenoid	
Rated voltage	24 VDC⎓, class 2
Current consumption	Supplying power: 0.26A Normal: max. 0.2A (approx. 3 seconds after supplying power)
Insulation class	Class E