

OMRON

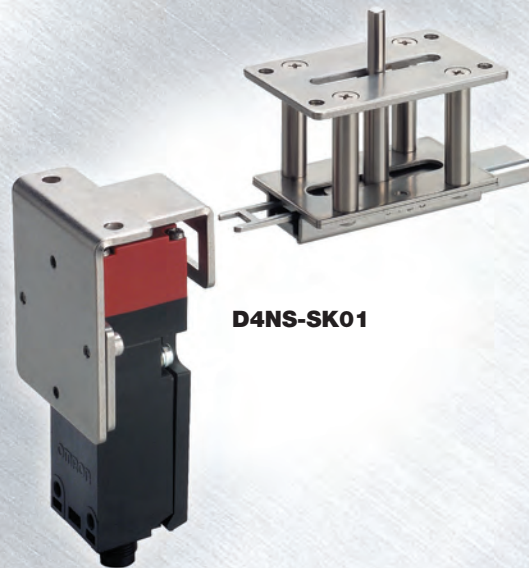
D4NS/D4JL-mounting Slide Keys

D4NS-SK01

D4NS-SK30

D4JL-SK40 **NEW**

Click!



D4NS-SK01



D4NS-SK30

CLANK!

NEW

**Is your worksite
truly safe?**

realizing



D4JL-SK40

D4NS/D4JL-mounting Slide Keys D4NS-SK/D4JL-SK

- Safety-door Switch attachments fit doors on aluminum frames as small as 20-mm² and frames that are large enough to enclose robotics.
- Shortens the lead time for Safety-door Switch mounting design.
- Enables applications in compliance with ANSI/RIA U.S. robot standards. (Excluding the D4NS-SK01.)

Note: Refer to "Precautions" on page 10.

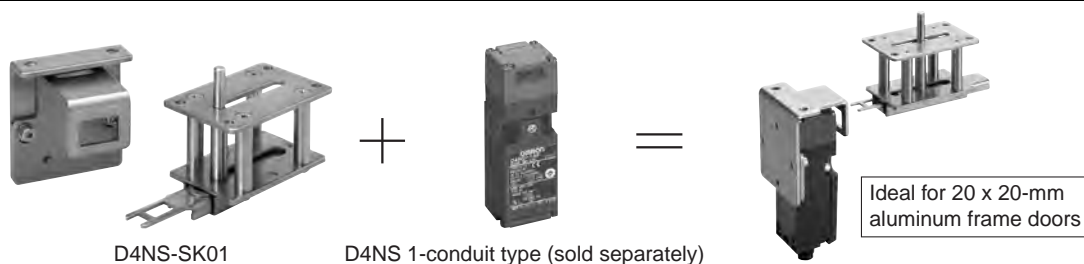


Note: Safety-door Switches are sold separately.

NEW

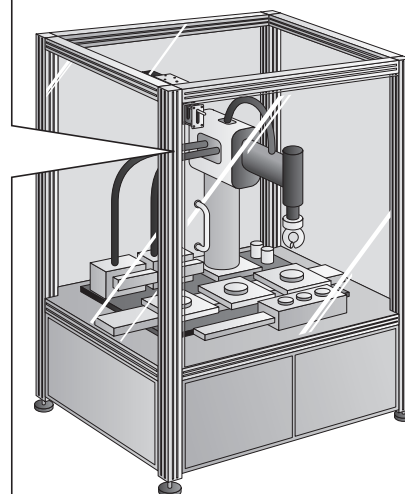
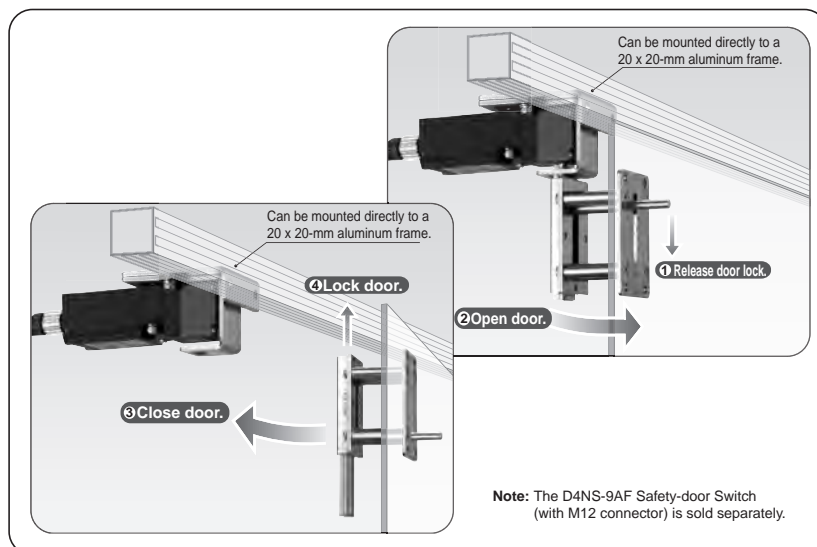
D4NS-SK01

Configuration



Features

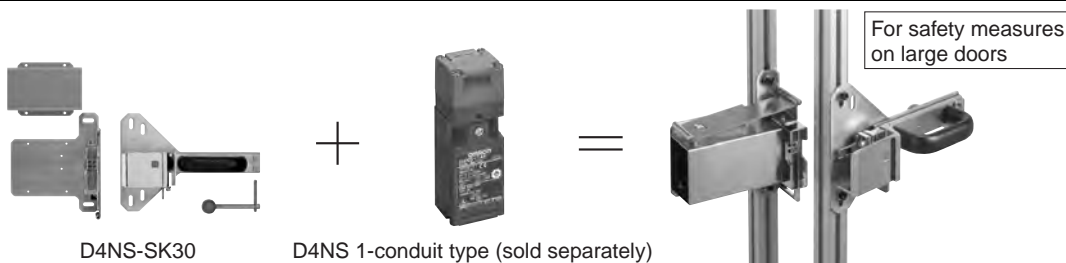
Mounts directly to 20 x 20-mm aluminum frames.



Note: Assess risk before implementing safety measures for the equipment.

D4NS-SK30

Configuration



Features

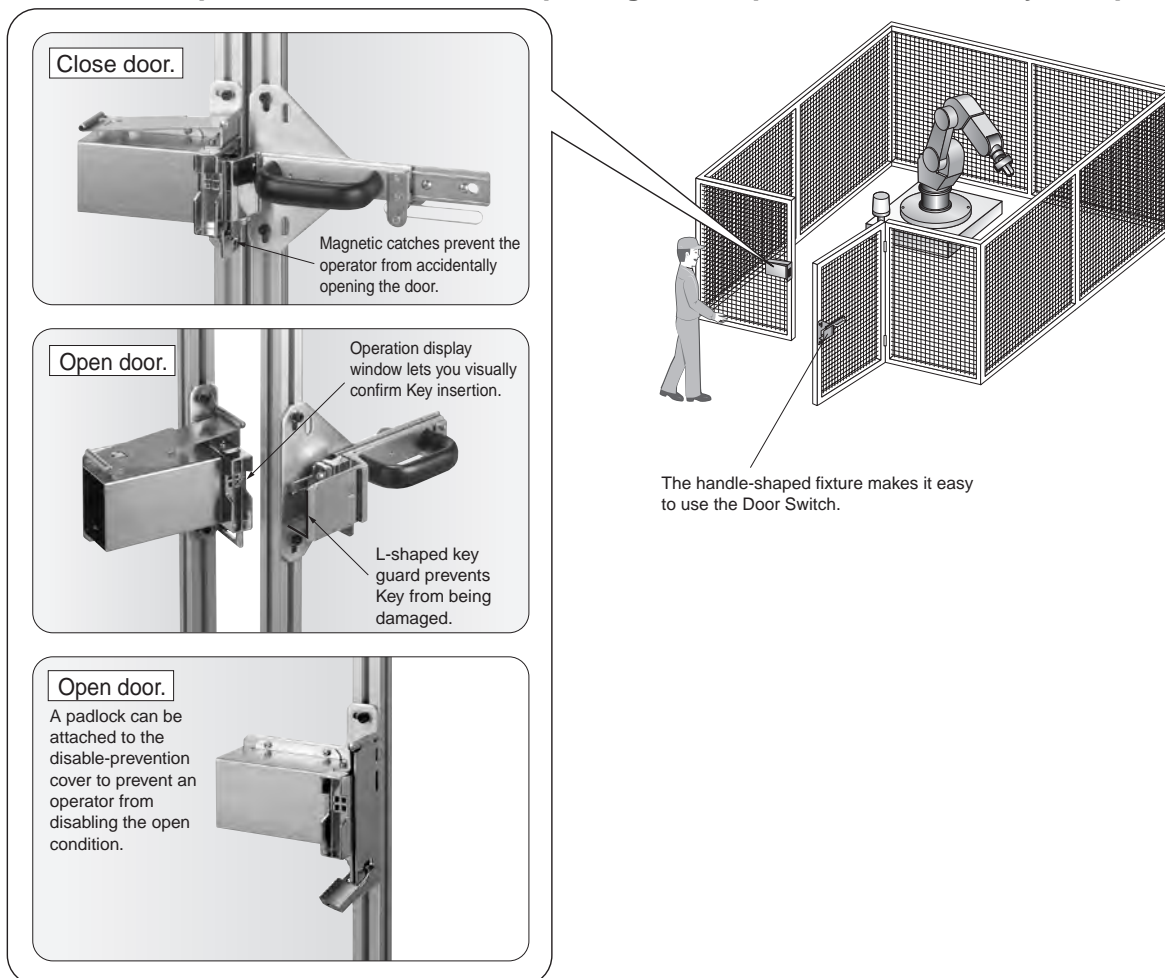
- The L-shaped key guard prevents the Key from being damaged, and helps to guide the Key in smoothly.
- When the door is opened, the key hole can be covered by the disable-prevention cover, and a padlock can be attached.
- The operator's safety is then assured because the door cannot be closed until the padlock is removed.

ANSI/RIA R15.06-1999 8.4 Protection of personnel within the safeguarded space

Personnel required to perform tasks within the safeguarded space shall be protected by:

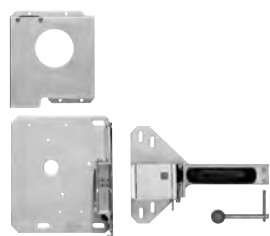
a) Preventing the re-initiation of any motion or hazardous process while personnel are within the safeguarded space, for example locking a gate open;

- The operation display window lets you visually confirm that the Key has been inserted.
- Magnetic catches prevent the door from opening if the operator accidentally bumps into it.

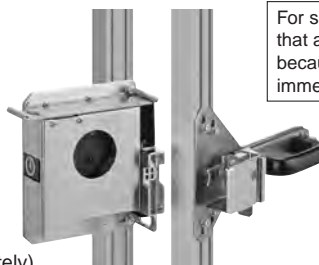


D4JL-SK40

Configuration



D4JL-SK40

D4JL model
with rear release button (sold separately)

For safety measures on large doors that are potentially dangerous because their movement cannot be immediately stopped.

Features

- Can be combined with the D4JL Guard Lock Safety-door Switch to prevent locked doors from being too easily opened.
- Even if an operator were to be trapped inside a hazardous area, the D4JL model with rear release button would allow the operator to unlock the door from the inside with the lever.

ANSI/RIA R15.06-1999 11.2.2 Interlocking portion

b) The interlocking portion of the interlocked barrier shall be installed, applied, and maintained so that:

8) be capable of being easily unlocked from the inside of the safeguarded space with or without power available, when the possibility of full body access exists;

Close door.



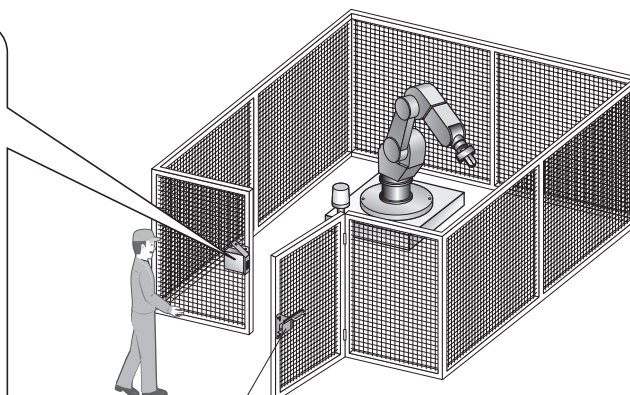
Door inner side

Press the rear release button to unlock the Guard Lock Safety-door Switch.



Open door.

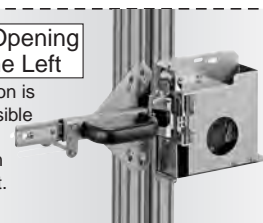
The door can be opened from inside the hazardous area by using the inner lever.



The handle-shaped fixture makes it easy to use the Door Switch.

Door Opening to the Left

Application is also possible on doors that open to the left.






Open door.

A padlock can be attached to the disable-prevention cover to prevent an operator from disabling the open condition.



Ordering Information

Appearance	Specifications	Contents	Model	Applicable Door Switch
	Weight: 422 g Mechanical durability: 20,000 operations min.	Slide Key: 1 Auxiliary mounting bracket: 1 Receptacle bracket: 1	D4NS-SK01	D4NS 1-conduit type
	Weight: 2,800 g Mechanical durability: 20,000 operations min.	Slide Key: 1 D4NS mounting tool: 1 Inner lever: 1 Inner lever mounting screws: 2 Door Switch mounting one-way screws: 2 Switch protective cover: 1 Switch protective cover screws: 4 Disable-prevention cover (already mounted on Slide Key): 1	D4NS-SK30	D4NS 1-conduit type
	Weight: 3,400 g Mechanical durability: 20,000 operations min.	Slide Key: 1 D4JL mounting tool: 1 Inner lever: 1 Inner lever mounting screws: 2 Door Switch mounting one-way screws: 3 Switch protective cover: 1 Switch protective cover screws: 4 Disable-prevention cover (already mounted on Slide Key): 1	D4JL-SK40 <i><u>NEW</u></i>	D4JL-□□F□-□6 rear release button type

- Note:**
1. The Door Switch is not included. Select the Door Switch depending on the necessary number of contacts and the conduit size.
 2. Perform risk assessment for the equipment in question, configure relay units and other safety circuits, and use properly.
 3. Ask your OMRON representative for information on the D4JL-SK30.

Applicable Door Switches

Guard Lock Safety-door Switch D4JL



- Two safety circuits and two monitor contacts provide an array of monitoring patterns.
- Standard gold-clad contacts enable use with ordinary loads and microloads.
- Models with rear release buttons allow people to unlock the Switch and escape if they are locked into hazardous areas.
- IP67 degree of protection

List of Models

Models with Rear Release Buttons

Release key type	Indicator	Lock and release types	Contact configuration (door open/closed detection switch and lock monitor switch contacts)	Conduit opening	Model
Special release key	Green	Mechanical lock Solenoid release	2NC/1NO+2NC/1NO	PG13.5	D4JL-1NFA-C6
				G1/2	D4JL-2NFA-C6
				1/2-14NPT	D4JL-3NFA-C6
				M20	D4JL-4NFA-C6
			2NC/1NO+3NC	PG13.5	D4JL-1PFA-C6
				G1/2	D4JL-2PFA-C6
				1/2-14NPT	D4JL-3PFA-C6
				M20	D4JL-4PFA-C6
			3NC+2NC/1NO	PG13.5	D4JL-1QFA-C6
				G1/2	D4JL-2QFA-C6
				1/2-14NPT	D4JL-3QFA-C6
				M20	D4JL-4QFA-C6
			3NC+3NC	PG13.5	D4JL-1RFA-C6
				G1/2	D4JL-2RFA-C6
				1/2-14NPT	D4JL-3RFA-C6
				M20	D4JL-4RFA-C6

- Note:** 1. To order models with an orange indicator, replace the "C6" at the end of the model number D4JL-□□FA-C6 with "D6".
2. For details on the D4JL, refer to the D4JL Datasheet (Cat. No. C135).
3. Ordinary D4JL types can also be mounted. However, because persons trapped inside the hazardous area cannot unlock the Switch from the inside, ordinary D4JL types do not satisfy ANSI requirements.

Safety-door Switch D4NS



- Lineup includes MBB models and three contact models with 2NC/1NO and 3NC contact forms in addition to the previous contact forms 1NC/1NO, and 2NC.
- M12-connector models are available, saving on labor and simplifying replacement.
- Standard gold-clad contacts provide high contact reliability.
- Applicable to both standard loads and microloads.
- Free of lead, cadmium, and hexavalent chrome, reducing the burden on the environment.

List of Models

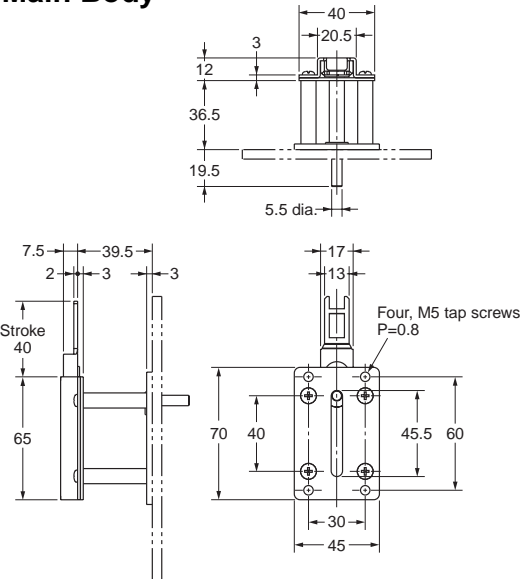
Type	Contact configuration		Conduit opening/Connector	Model
1-conduit	Slow-action	1NC/1NO	Pg13.5	D4NS-1AF
			G1/2	D4NS-2AF
			1/2-14NPT	D4NS-3AF
			M20	D4NS-4AF
		2NC	Pg13.5	D4NS-1BF
			G1/2	D4NS-2BF
			1/2-14NPT	D4NS-3BF
			M20	D4NS-4BF
		2NC/1NO	Pg13.5	D4NS-1CF
			G1/2	D4NS-2CF
			1/2-14NPT	D4NS-3CF
			M20	D4NS-4CF
		3NC	Pg13.5	D4NS-1DF
			G1/2	D4NS-2DF
			1/2-14NPT	D4NS-3DF
			M20	D4NS-4DF
	Slow-action MBB contact	1NC/1NO	Pg13.5	D4NS-1EF
			G1/2	D4NS-2EF
			1/2-14NPT	D4NS-3EF
			M20	D4NS-4EF
		2NC/1NO	Pg13.5	D4NS-1FF
			G1/2	D4NS-2FF
			1/2-14NPT	D4NS-3FF
			M20	D4NS-4FF
	Slow-action MBB contact	1NC/1NO	M12 connector	D4NS-9AF
				D4NS-9BF
1-conduit connector	Slow-action	1NC/1NO	M12 connector	D4NS-9AF
		2NC		D4NS-9BF
	Slow-action MBB contact	1NC/1NO		D4NS-9EF

Dimensions

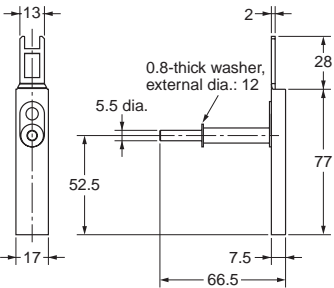
Note: All units are in millimeters unless otherwise indicated.

D4NS-SK01

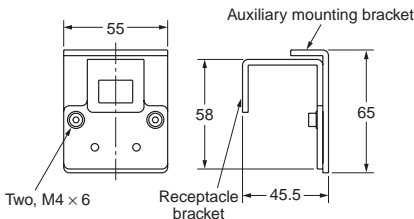
Main Body



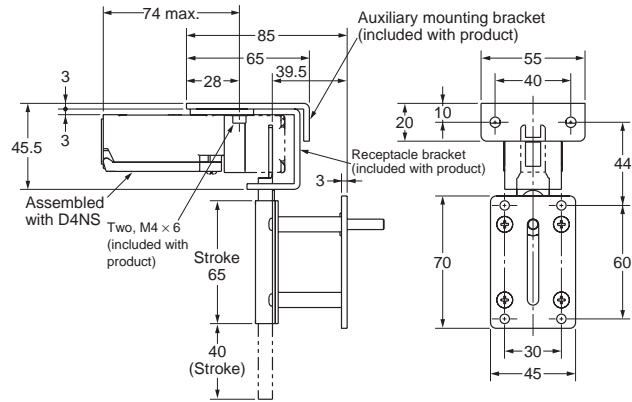
Slide Key Component



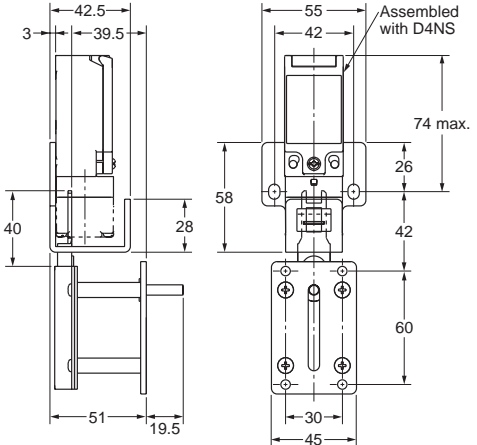
Auxiliary Mounting Bracket and Receptacle Bracket



Switch Mounting Pattern 1

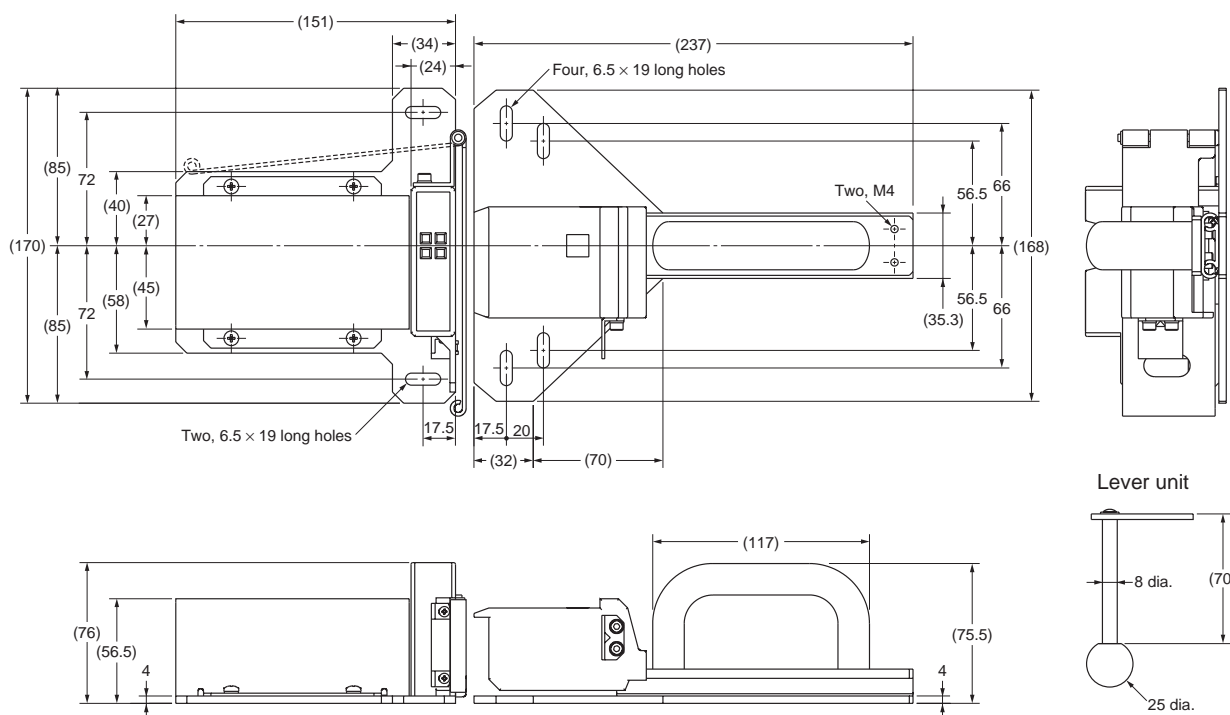


Switch Mounting Pattern 2

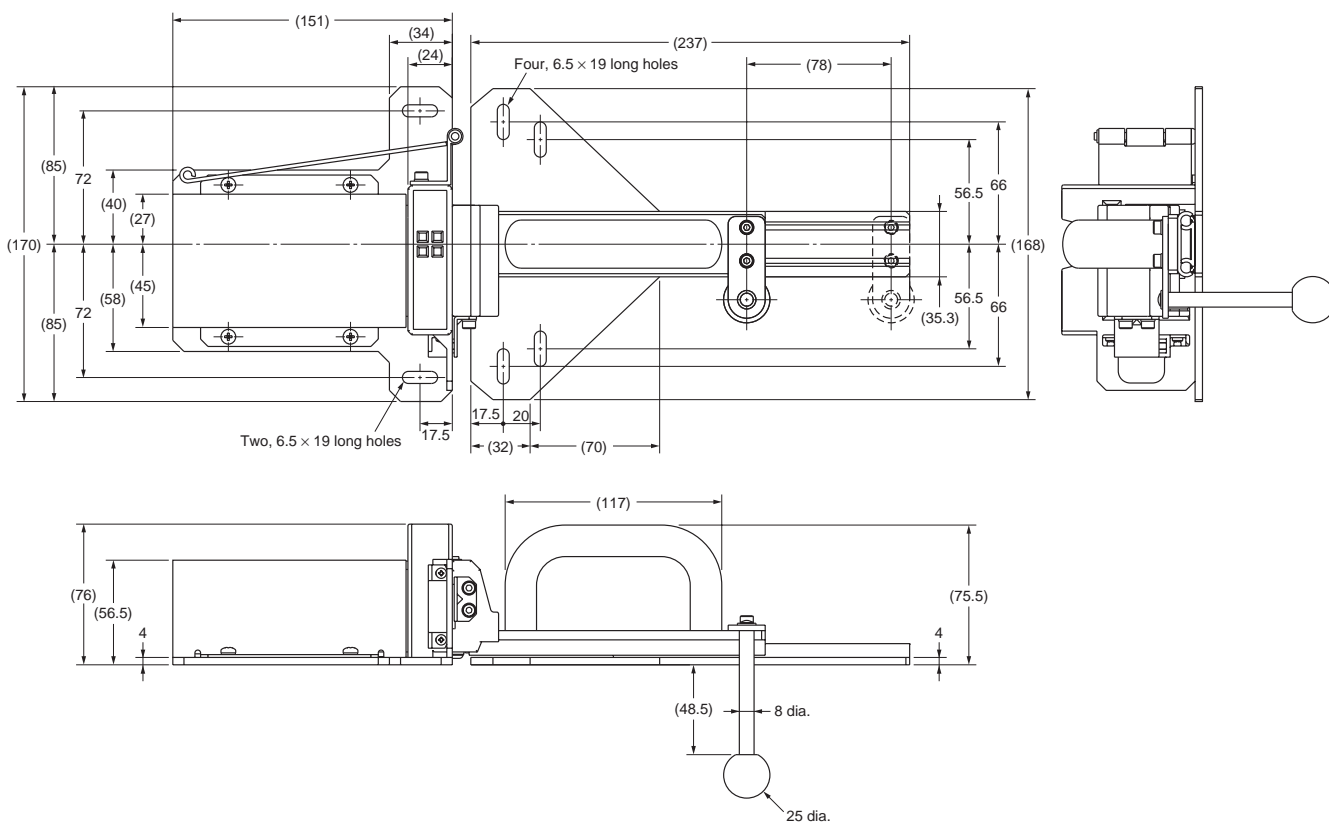


■ D4NS-SK30

Open Door

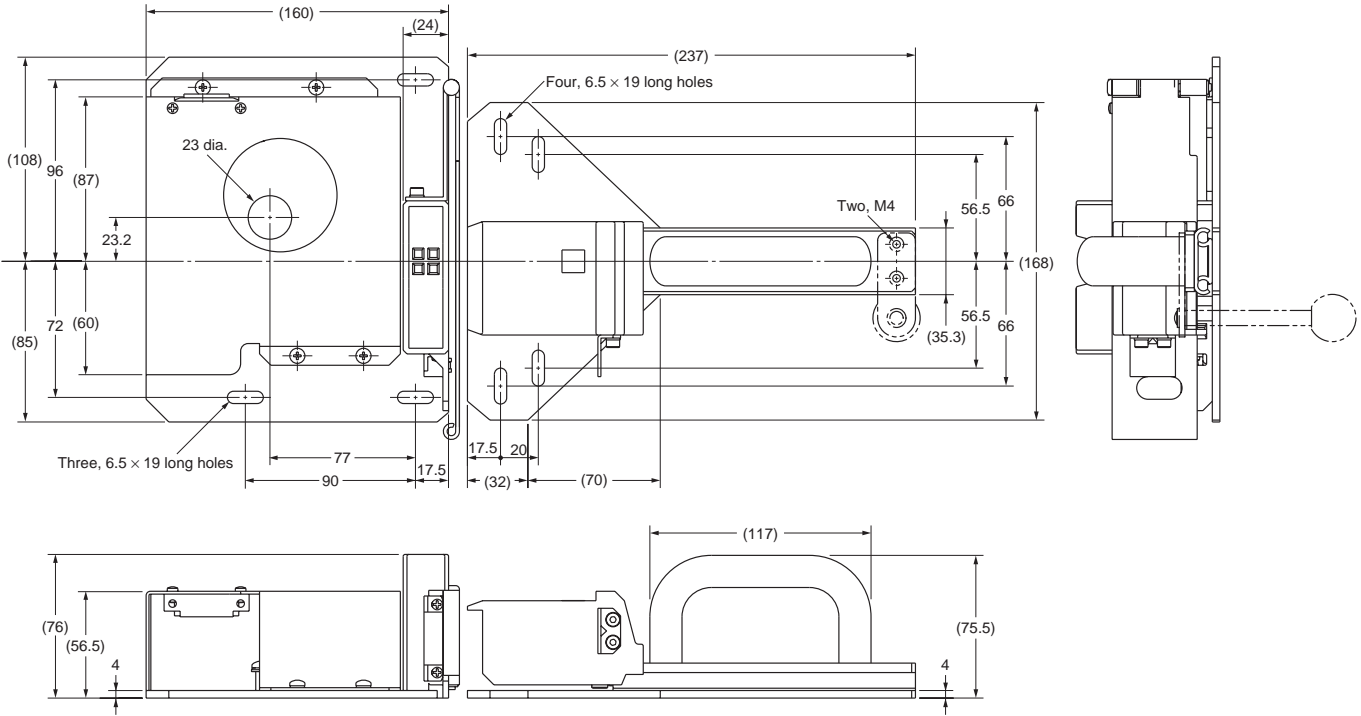


Closed Door

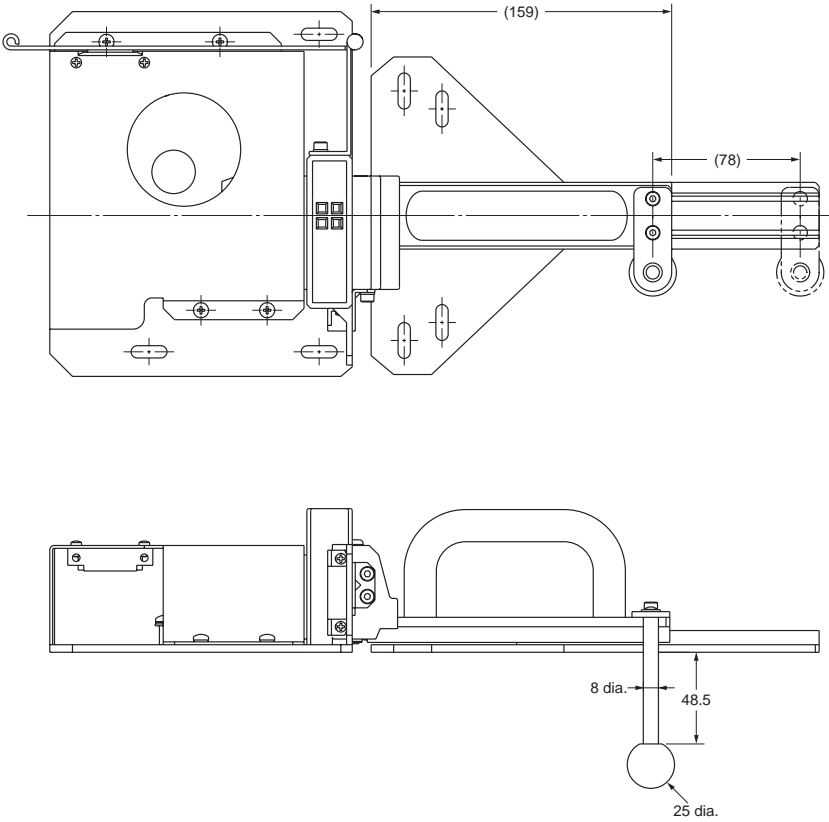


■ D4JL-SK40

Open Door



Closed Door



Precautions

CAUTION

Incorrect operation may cause injury. Also, the product is designed to be mounted so that it slides horizontally. Do not mount the product in a vertically sliding configuration.



■ Precautions for Safe Use

- Do not drop the Switch. Doing so may prevent the Switch from functioning to full capacity.
- Mount the Switch securely to prevent it from falling. Otherwise, injuries may occur.
- Do not attempt to disassemble or modify the Switch. Doing so may cause the Switch to malfunction.
- Make sure that the gap between the short bolt and guide is (± 3 mm). Otherwise, excessive wear or damage may cause malfunction.
- To ensure safety, do not operate the Switch with anything other than a Slide Key.
- Be careful to avoid pinching your hand when operating the Switch.
- Be sure to mount the Switch protective cover. Otherwise, your hand may be injured by being pinched between the short bolt and Switch when closing the door with your hand on the Switch.
- When opening the door, be sure to lower the disable-prevention cover into position, attach a padlock, or take other steps to prevent other people from operating the Switch.
- The durability of the Switch is greatly influenced by the switching conditions. Always test the Switch under actual working conditions before application and use it in a switching circuit for which there are no problems with performance.
- The user must not maintain or repair equipment incorporating the Switch. Contact the manufacturer of the equipment for any maintenance or repairs required.
- Refer to the D4JL Guard Lock Safety-door Switch, D4NS Safety-door Switch Datasheet, Instruction Sheet for details and handling information on the Switch.

■ Precautions for Correct Use

- Insert the slide handle until the red operation indicator is completely displayed in the operation display window.



Normal



Insufficient insertion

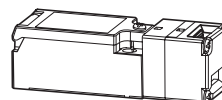
Operation display window

- Loose screws may result in malfunction. Use washers and tighten the screws to the specified torques. Also, when mounting the Switch to a door for disable-prevention purposes, purchase and use tamper-resistant screws.

Tightening Torque

Slide Key mounting screw (M6)		6.0 to 7.0 N·m
Switch mounting screw (included with product)	For D4JL	3.2 to 3.8 N·m
	For D4NS	0.5 to 0.7 N·m
Switch protective cover mounting screw (included with product)		1.2 to 1.4 N·m
Lever mounting screw (included with product)		1.2 to 1.4 N·m

- Use the D4NS-SK30 only with the D4NS Safety-door Switch head in the direction shown below.



Operation Key

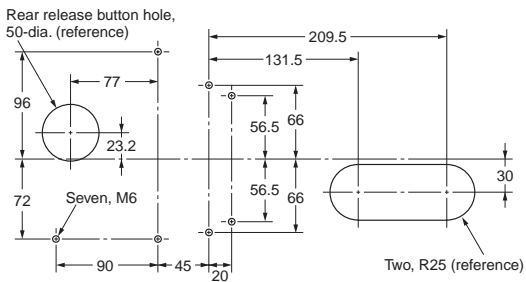
Technical Specifications

	D4JL-SK40	D4NS-SK30
Ambient operating temperature	-10 to 55°C (with no icing)	
Ambient operating humidity	95% max.	
Mechanical durability	20,000 operations min.	
Weight	Approx. 3.4 kg (not including D4JL Guard Lock Safety-door Switch)	Approx. 2.8 kg (not including D4NS Safety-door Switch)

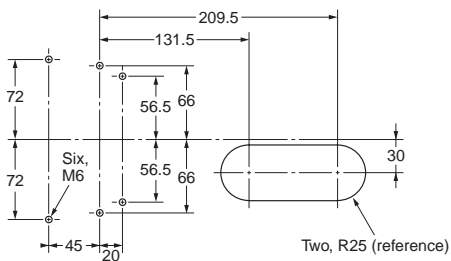
- Do not store the Switch where corrosive gases (e.g., H₂S, SO₂, NH₃, HNO₃, or CL₂) or dust are present, or in locations subject to high temperature or humidity.
- Perform maintenance inspections periodically.
- This product is for use only with OMRON Safety-door Switches. Do not use it with door switches made by other manufacturers.

■ Mounting Holes (Unit: mm)

D4JL-SK40



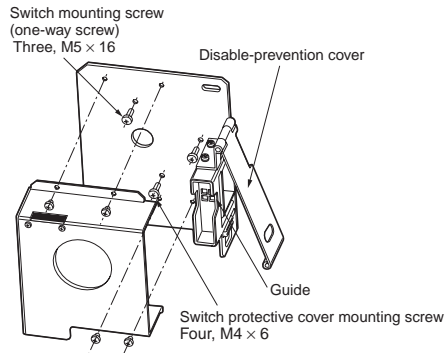
D4NS-SK30



■ Assembly

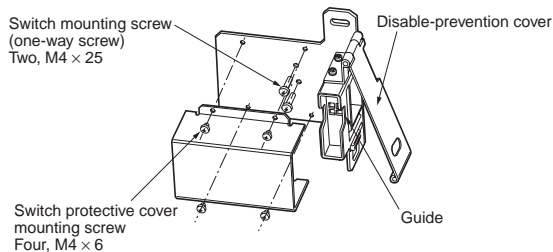
Switch part

D4JL-SK40



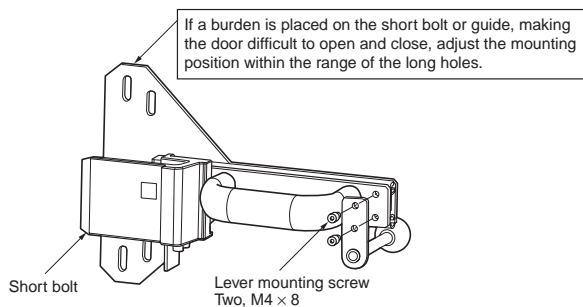
Switch part

D4NS-SK30



Handle part

D4JL-SK40/D4NS-SK30



Warranty and Application Considerations

Warranty and Limitations of Liability

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS, OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

Application Considerations

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used.

Know and observe all prohibitions of use applicable to this product.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Disclaimers

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons. Consult with your OMRON representative at any time to confirm actual specifications of purchased product.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. C136-E1-03 **In the interest of product improvement, specifications are subject to change without notice.**

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