NEW

Safety Edge/ Edge Controller

SGE/SCC

SAFETY, TECHNOLOGY & INNOVATION

Introducing the New Safety Edge - Friendly to Human and Machines

realizing

EDGE

SAFETY EDGE & EDGE CONTROLLER

SGE
Safety Edge

SCC
Edge Controller

Introducing the New Safety Edge - Friendly to Human and Machines

The SGE Safety Edge, mounted to moving parts such as doors and fences of mechanical equipment, will stop hazards from moving parts or undergo a complete system shutdown upon detection of contact with persons or objects. Its elastic material and shock absorption properties soften the impact on such persons or objects. The SCC Edge Controller conforms to Safety Category 3. Occurrance of any short-circuits and/or breaks are continually monitored and the status shown with LED indicators.

APPLICATION

Protecting people in such areas like:

Shutter Door

The Safety Edge mounted to the end of a shutter door stops the downside movement of the shutter to prevent shearing of a person or object when it detects a contacts with them.

Reciprocating Table of a Machine Tool

The Safety Edge, mounted to the moving part of a reciprocating table, will stop the table's movement to prevent collision with the moving part or jamming between the moving part and structures such as walls or poles upon detection of contact with workers.

Protective Door of a Processing Machine

The Safety Edge, mounted to the moving part of a protective door, will stop door movement to prevent jamming of persons or objects upon detection of contact with them.

Large-scale Lift

The Safety Edge, mounted to the moving part of a large lift, will upon detection of impact, stop the downward movement of the lift to not only prevent jamming of workers but also to lessen the impact of a contact with them.

Extensive Lineup

We have prepared a lineup, tailor-made to fit with your devices and applications.

- **Sensor length**
  150 to 6,100 mm
  (in 10 mm increments)
- **Height**
  34 to 80 mm in six series

When using applications that require increased water resistance, please use models that give sealing covers.

Easy to Order & Assembly Free

By covering just 4 points, a ready-to-use Safety Edge will be delivered to you:

Shape

Select a shape from six series as required in your application or equipment

POINT 1

Wiring

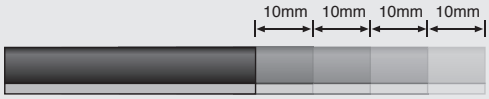
Select wiring from four types (2-wire/connector (male/female) cable, terminating resistor) and cable length from 100 mm to 10,000 mm (in 100 mm increments) for both ends of the Safety Edge.

POINT 2

POINT 3

Length

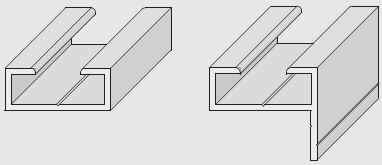
Select the length of the Safety Edge between 150 mm to 6,100 mm (in 10 mm increments).



POINT 4

Mounting base

An L-shaped mounting base is also provided depending on the mounting location (except the SGE-125 series)

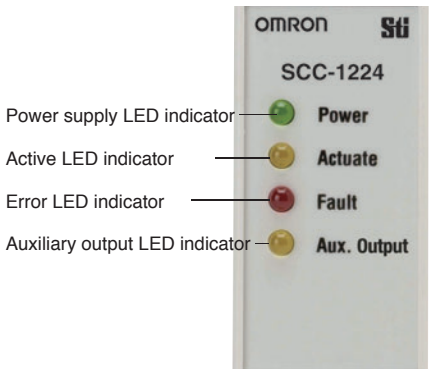


Note: For details, refer to "Model Number Structure" on page 4 or later.

SCC Edge Controller

Dedicated SCC Edge Controller that regulates a system conforming to Safety Category 3.

- Dedicated SCC Edge Controller enables establishment of a safety system conforming to Safety Category 3 (when hazards are directly blocked by built-in relays)
- Any short-circuits or breaks in the system are monitored and its status is indicated with LED.
- Authentificated under major safety standards



Note: For details on LED indicators, refer to "Connection" on page 16.

Safety Edge/Edge Controller

SGE/SCC

Safety sensors to detect contacts by mounting to moving parts of hazards

- Conforms to Safety Category 3 in combination with the dedicated controller.
  (applied when internal relays with forcibly guided contacts disable hazard source directly)
- Simple one-unit structure integrating sensor and cover.
- Resistant to the side force.
- Can be used in various applications.
  Sensor length: 150 mm to 6,100 mm, Height: 34 mm to 80 mm
- Models with sealing covers for doors are provided (SGE-125L, SGE-245L).
- Certified standard: EN1760-2 (Safety Edge Standard)

⚠ **Be sure to read the *"Safety Precautions"* on page 20.**

NEW

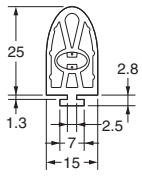
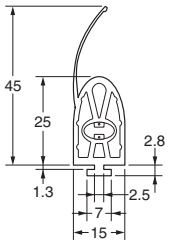
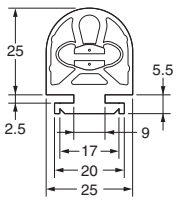
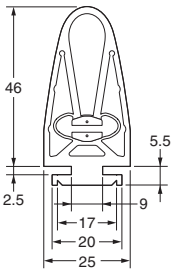
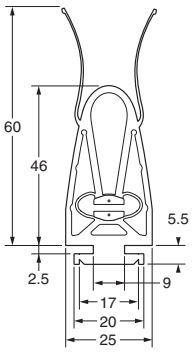
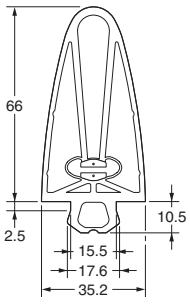
Model Number Structure

Ordering process

SGE series safety edges are custom order products according to customer's equipment or application.
Select a product and specifications as shown in the following steps, and contact your OMRON representative.

Step 1. Models

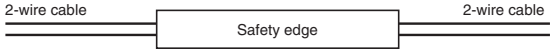
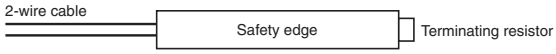
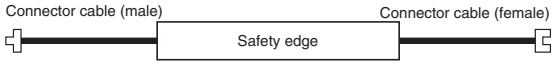
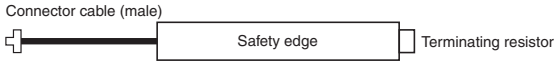
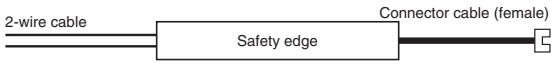
Select a cross-sectional shape of a safety edge (sensor).
Select the most appropriate model to the equipment used, considering actuation distance (amount of compression required from an application of pressure to the safety edge to detection), and actuation force (compression force at the actuation distance).
Six series with different cross-sectional shapes are provided.

Code	125	125L	225	245	245L	365
Model	SGE-125	SGE-125L	SGE-225	SGE-245	SGE-245L	SGE-365
Shape						
Actuation distance	1.77 mm		4.7 mm	6.73 mm		5.16 mm
Actuation force	27.3 N		64.1 N	69.1 N		78.2 N

Note: 1. For the differences in characteristics, refer to "*Specifications*" on page 9.
2. Models with sealing cover to reduce liquid splash to the inside and outside of the door are available (SGE-125L and SGE-245L). These models can be used in applications where sensors are installed on moving doors of machines.
3. Values of actuation distance and actuation force are representative values under an ambient temperature of 20°C and movement speed of V = 10 mm/s.
For value changes by ambient temperature and movement speed, refer to "*Characteristics*" on page 11 to 14.

Step 2. Wiring Configuration and Cable Termination

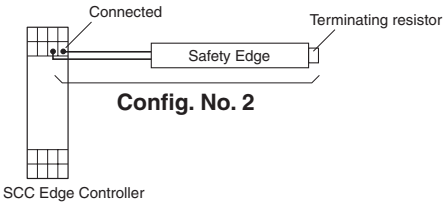
Determine a wiring configuration according to the number of safety edges (sensor) in series. (Up to 5 safety edges can be connected in series.) There are five types of cable termination for both ends of the safety edge. The method can be selected from the combinations of 2-wire cable, cable with M8 connector (male or female), and terminating resistor as shown below.

Configuration No.	Outline drawing	Wiring configuration and cable termination
0		2-wire cable on both sides
2		2-wire cable on one side, terminating resistor on the other side (8.2kΩ 0.25W) ✻
3		Connector cable on one side (male), connector cable on the other side (female)
4		Connector cable on one side (male), terminating resistor on the other side (8.2kΩ 0.25W) ✻
5		2-wire cable on one side, connector cable on the other side (female)

Note: 1. To connect safety edges in series, two types of methods are available : Using a 2-wire cable or M8 connector.
2. To connect with an edge controller, a 2-wire cable should be used.
✻ Use of a terminating resistor is required on one side of the last series-connected safety edge.

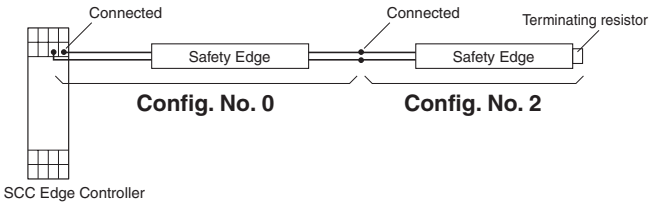
Configuration Example

Using one safety edge (Configuration No. 2 x 1)

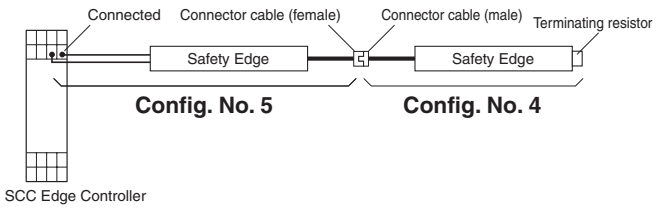


Using two safety edges

Connecting using 2-wire cables
(Config. No. 0 x 1) + (Config. No. 2 x 1)

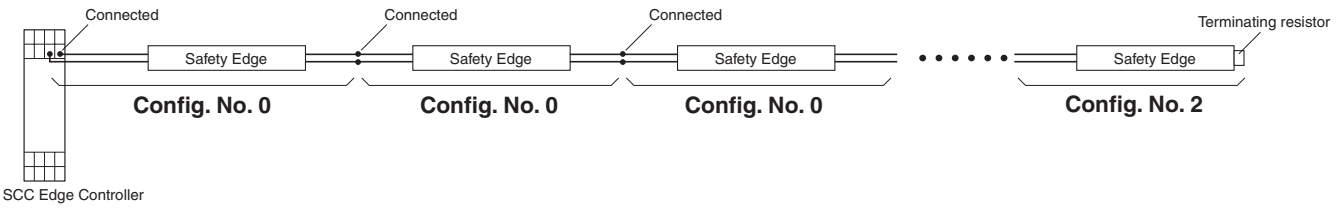


Connecting using connectors
(Config. No. 5 x 1) + (Config. No. 4 x 1)



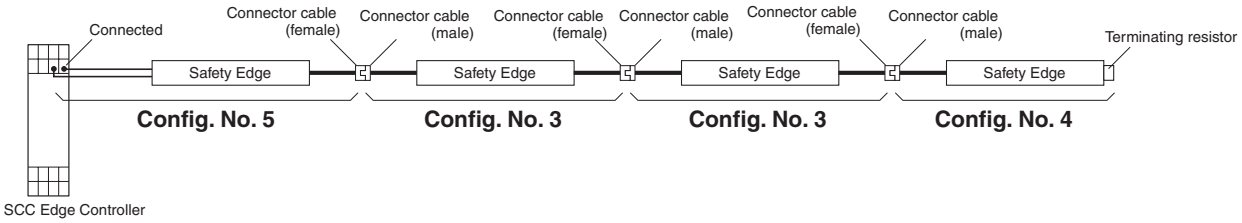
Using N safety edges

Connecting using 2-wire cables
(Config. No. 0 x (N - 1)) + (Config. No. 2 x 1)



Connecting using connectors

(Config. No. 5 x 1) + (Config. No. 3 x (N-2)) + (Config. No. 4 x 1)



Step 3. Sensor Length

Determine the length of a safety edge.

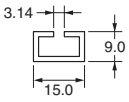
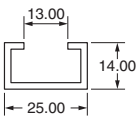
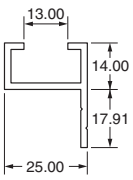
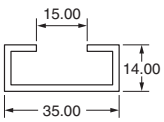
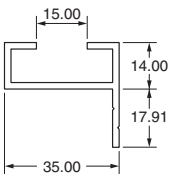
The length can be selected from **0150** mm minimum✻ to **6100** mm maximum with increments of 10 mm.

✻ When the length is less than 1,000 mm, zero "0" is added on the top of the number to make it four digits.

Note: The user cannot cut the safety edge.

Step 4. Mounting Base

Aluminum base is used to mount a safety edge (sensor) to equipment. Select one from the following.

Model	SGE-125	SGE-225/245		SGE-365	
Code	**None**	**None**	**L**	**None**	**L**
Shape					

Note: 1 A base with more than 2 m is cut and split before delivery as shown below.

Sensor length = LEN (mm)	Mounting base cut length (mm)	No. of split bases
0150 to 1200	LEN	1
1210 to 2400	1/2 LEN	2
2410 to 3600	1/3 LEN	3
3610 to 4800	1/4 LEN	4
4810 to 6000	1/5 LEN	5
6010 to 6100	1/6 LEN	6

(Example) When the sensor length LEN is 2,700 mm, three 900 mm mounting bases will be provided.

Step 5. Cable Length and Cable Termination

Determine the cable length of both ends of the safety edge.

The length can be selected from **00100** mm minimum to **10000** mm maximum with increments of 100 mm.

Note: 1. For internal terminal registor side, there is no cable. Cable length is not specified.

2. Code length is indicated by five digits. Add 00 on the top the number for 100 mm or more and less than 1,000 mm, add 0 for 1,000 mm or more and less than 10,000 mm.

Determine the cable termination method for both ends of a safety edge and add a code at the end of the cable length.

Code	Specification
C	2-wire cable
M	Connector cable (male)
F	Connector cable (female)

Note: When using a terminating resistor, cable termination method is not required to be selected.

Orders can be customized by selecting items from Step 1 to 5.

Also see *"Model Number Legend"* on the following page.

Model Number Legend

Safety Edge

SGE - □□□□ - □ - □□□□ □ □□□□□□ - □□□□□□

1	2	3	4	5	6
Code (3 to 4 digits)	Config. No.	Code (4 digits)	Code (None/L)	Code (6 digits)	Code (None/6 digits)

Model | Specification

1. Type

Code	Cross-section dimensions (including standard mounting base) ✻
125	15 mm x 34 mm
125L	15 mm x 54 mm (including sealing cover)
225	25 mm x 39 mm
245	25 mm x 60 mm
245L	25 mm x 74 mm (including sealing cover)
365	35 mm x 80 mm

✻ For dimensions including L-shaped base, refer to *"Dimensions/Terminal Arrangement"* on page 17.

2. Wiring Configuration and Cable Termination

Configuration No.	Specification
0	2-wire cable on both sides
2	2-wire cable on one side, terminating resistor on the other side
3	Connector cable on one side (male), connector cable on the other side (female)
4	Connector cable on one side (male), terminating resistor on the other side
5	2-wire cable on one side, connector cable on the other side (female)

3. Sensor Length

Code	Specification
4-digit number	0150 to 6100 mm (in increments of 10 mm)

4. Mounting Base

Code	Applicable Series
None	SGE-125(L) ✻
	SGE-225
	SGE-245(L) ✻
	SGE-365
L	SGE-225
	SGE-245(L) ✻
	SGE-365

Note: For details, refer to *"Dimensions/Terminal Arrangement"* on page 17.

✻ The code "L" in selectable series means that sealing cover is provided.

5 and 6. Cable Length and Cable Termination

When the configuration number of "2" is **2** or **4**, specify "5" only, when it is **0**, **3**, or **5**, specify "5" and "6" (on account of cable termination on both sides).

Terminal code C: 2-wire cable M: Connector cable (male) F: Connector cable (female)

Config. No. of 2	5		6	
	Cable Length (5 digits)	Terminal code	Cable Length (5 digits)	Terminal code
0	**00100 to 10000** (in increments of 100 mm)	**C**	**00100 to 10000** (in increments of 100 mm)	**C**
2	**00100 to 10000** (in increments of 100 mm)	**C**	**Terminating resistor**	None
3	**00100 to 10000** (in increments of 100 mm)	**M**	**00100 to 10000** (in increments of 100 mm)	**F**
4	**00100 to 10000** (in increments of 100 mm)	**M**	**Terminating resistor**	None
5	**00100 to 10000** (in increments of 100 mm)	**C**	**00100 to 10000** (in increments of 100 mm)	**F**

Edge Controller

SCC-□

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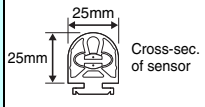
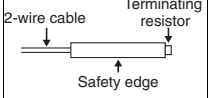
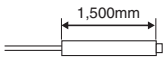
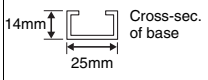
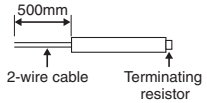
7. Type

Code	Specification
1224	The auxiliary output is one-shot timer output that turns ON between two and three second after the application of pressure to the safety edge.
1224ND	While pressure is applied to the safety edge, the auxiliary output is kept ON.

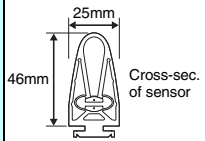
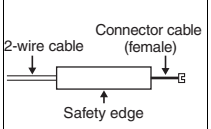
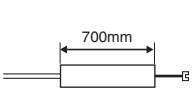
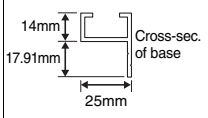
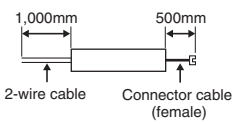
Selection Example 1

SGE-225-2-1500 500C

Sequence	Step 1	Step 2	Step 3	Step 4	Step 5
Location					
Category	1. Type	2. Config. No.	3. Sensor Length	4. Mounting Base	5. Cable Length and Cable Termination
Code/Config. No.	**225**	**2**	**1500**	**None**	**00500C**

Selection Example 2

SGE-245-5-0700L 01000C-00500F

Sequence	Step 1	Step 2	Step 3	Step 4	Step 5	
Location						
Category	1. Type	2. Config. No.	3. Sensor Length	4. Mounting Base	5. Cable Length and Cable Termination	6. Cable Length and Cable Termination
Code/Config. No.	**245**	**5**	**0700**	**L**	**01000C**	**00500F**

Ordering Information

Edge Controller

Appearance	Safety output	Auxiliary output	Ratings	Terminal	Model
	DPST-NO	SPST-NO (One-shot timer that turns ON between two and three seconds after the application of pressure to the safety edge)	24 VDC	Screw terminals	**SCC-1224**
		SPST-NO (Kept ON during the application of pressure to the safety edge)			**SCC-1224ND**

Safety Edge

Appearance	Cross-sectional dimensions (including a standard mounting base) ✻	Actuation distance	Material	Model	Specification (Cable)
	15 mm x 34 mm	1.77 mm	TPE	**SGE-125-□-□**	**□ (-□)**
	15 mm x 34 mm 15 mm x 54 mm (including sealing cover)			**SGE-125L-□-□**	**□ (-□)**
	25 mm x 39 mm	4.7 mm	EPDM	**SGE-225-□-□ (L)**	**□ (-□)**
	25 mm x 60 mm	6.73 mm		**SGE-245-□-□ (L)**	**□ (-□)**
	25 mm x 60 mm 25 mm x 74 mm (including sealing cover)			**SGE-245L-□-□ (L)**	**□ (-□)**
	35 mm x 80 mm	5.16 mm		**SGE-365-□-□ (L)**	**□ (-□)**

✻ For dimensions including L-shaped base, refer to *"Dimensions/Terminal Arrangement"* on page **17**.

Specifications

Edge Controller

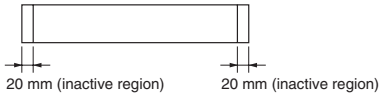
Item \ Model	SCC-1224 SCC-1224ND
Safety edge inputs	Up to five series connections on the safety edges
Response time	13 ms max.
Power supply voltage	115 VAC±5%, 3.3 VA or 24 VDC±10%, 1.5 VA
Safety output	DPST-NO (Rated resistive load: 250 VAC/30 VDC 4A)
Auxiliary output	SPST-NO SCC-1224: One-shot timer that turns ON between two and three seconds after the application of pressure to the safety edge SCC-1224ND: Kept ON during the application of pressure to the safety edge (Rated resistive load: 250 VAC, 2.5 A/30 VDC, 2.5 A
Terminating resistor	8.2 kΩ
Ambient operating temperature	-20 to 50°C (With no icing or condensation)
Degree of protection	IP20
Terminal type	Screw terminals
Terminal tightening torque	0.5 to 0.6 N·m
Mounting method	DIN rail mounted
Weight (factory-set)	210 g

Safety Edge

Item \ Model	SGE-125 SGE-125L	SGE-225	SGE-245 SGE-245L	SGE-365
Material ✻1	TPE	EPDM		
Material hardness	65 Shore A			
Max. length of a single safety edge	6.1 m			
Actuation distance	1.77 mm	4.7 mm	6.73 mm	5.16 mm
Actuation force	27.3 N	64.1 N	69.1 N	78.2 N
Overtravel distance (400N +20°C)	10.47 mm	6.48 mm	20.75 mm	33.78 mm
Maximum operation angle	2 x 20°C		2 x 45°C	
Inactive end region ✻2	20 mm			
Connecting cable	2 conductors, 0.34 mm^2			
Mechanical durability	100,000 operations min.			
Ambient temperature	During operation: -20 to 55°C (with no icing), During storage: -25 to 75°C (with no icing)			
Operating ambient humidity	0 to 90%RH			
Degree of protection	IP65			
Unit weight	0.18 kg/m (SGE-125) 0.20 kg/m (SGE-125L)	0.51 kg/m	0.77 kg/m (SGE-245) 0.82 kg/m (SGE-245L)	1.10 kg/m

✻1. TPE: Thermoplastic Elastomer
EPDM: Ethylene Propylene Rubber

✻2. There is an inactive region of 20 mm in both ends of the safety edge.



Mechanical Force

Material	TPE						EPDM					
Model	SGE-125						SGE-225, SGE-245, SGE-365					
Features / Strength ✱	1	2	3	4	5	6	1	2	3	4	5	6
Tear Strength (Resistance)			3						3			
Ultimate Tensile Strength			3						3			
Rebound Elasticity at 20°C		2						2				
Resistance Against Permanent Deformation			3	4				2				
Abrasion			3						3			
Elongation at Tear				4	5				3			
Cold Flexibility		2						2				

Note: 1 = Excellent
2 = Very good
3 = Good
4 = Fair
5 = Poor
6 = Very poor

Environmental Resistance

Material	TPE						EPDM					
Model	SGE-125						SGE-225, SGE-245, SGE-365					
Features / Tolerance ✱	1	2	3	4	5	6	1	2	3	4	5	6
Heat Stability				4				2				
Oxidation Stability	1						1					
UV Stability	1						1					
Weather/Ozone Resistance	1						1					
Flame Resistance						6						6
Gas Permeability			3							4		

Note: 1 = Excellent
2 = Very good
3 = Good
4 = Fair
5 = Poor
6 = Very poor

Chemical Resistance

Material	TPE						EPDM					
Model	SGE-125						SGE-225, SGE-245, SGE-365					
Features / Effects ✱	1	2	3	4	5	6	1	2	3	4	5	6
Water Resistance	1						1	2				
Diluted Acids	1							2				
Diluted Bases	1							2				
Non-Oxidizing Acids		2						2				
Oxidizing Acids		2								4		
ASTM Oil #3		2										6
Vegetable Oils	1	2									5	
Organic Solvents								2				
Ester Solvents		2	3					2				
Ketone Solvents (Containing Oxygen)		2	3						3			
Aliphatic Hydrocarbons Solvents (Gasoline)											5	
Aromatic Hydrocarbons												6
Hydrocarbons		2	3								5	6
Alcohol	1						1					

Note: 1 = No Effects, Permanent Contact
2 = Few Effects, Some Contact
3 = Medium Effects, Some Contact
4 = Noticeable Effects, Reduced Contact
5 = Severe Effects, Very Brief Contact
6 = Extreme Effects, Avoid Contact

Characteristics

Force Distance

SGE-125Characteristic Values for Test Speed v = 10 mm/s

Test Temperature	+20°C	+55°C	-20°C
Actuating Force F_A (N)	27.3	16.9	55.6
Actuating Distance S_B (mm)	1.77	1.22	2.54
Overtravel Distance Sv at 250N in mm	8.25	12.9	6.16
Overtravel Distance Sv at 400N in mm	10.47	13.7	7.35
Overtravel Distance Sv at 600N in mm	11.46	14.6	9.8

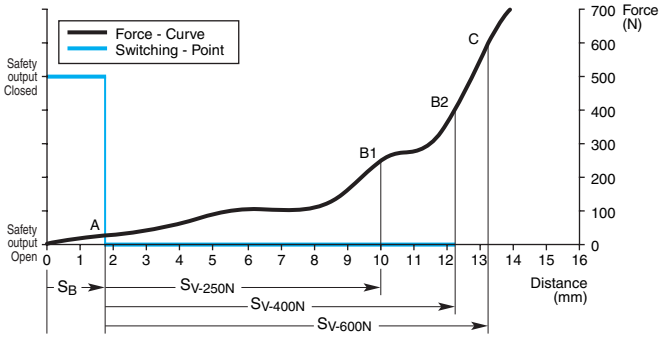
Note: Tested according to EN 1760-2, test unit round 80 mm, actuating point C3.

SGE-125 (Characteristic Values for Test Speed v = 100 mm/s)

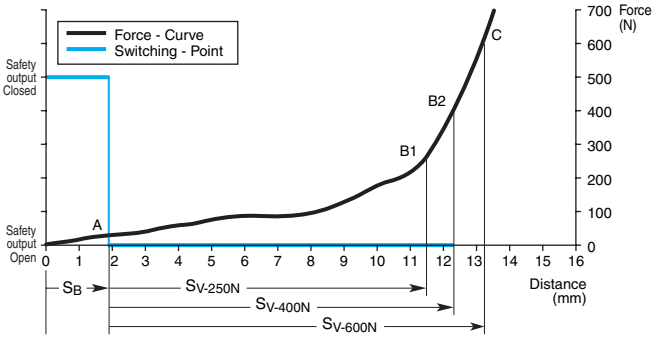
Test Temperature	+20°C	+55°C	-20°C
Actuating Force F_A (N)	33	21.9	104.5
Actuating Distance S_B (mm)	2.26	1.9	10.1
Overtravel Distance Sv at 250N in mm	9.1	10.1	2.37
Overtravel Distance Sv at 400N in mm	10.04	11.1	6.42
Overtravel Distance Sv at 600N in mm	10.9	12.28	7.3

Note: Tested according to EN 1760-2, test unit round 80 mm, actuating point C3.

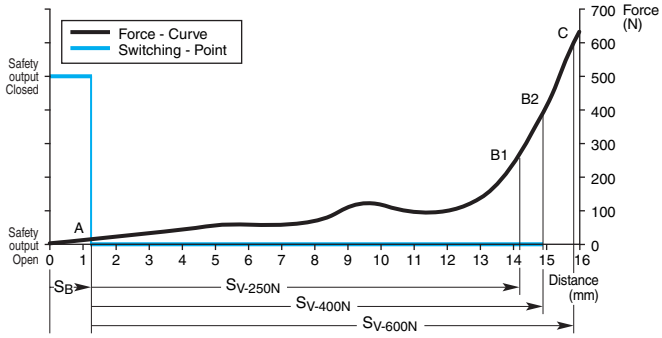
Test Temperature +20°C



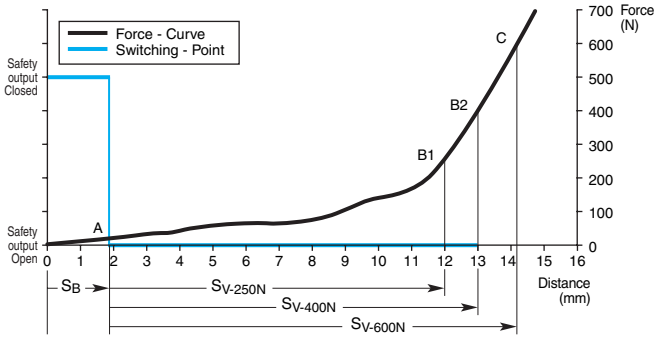
Test Temperature +20°C



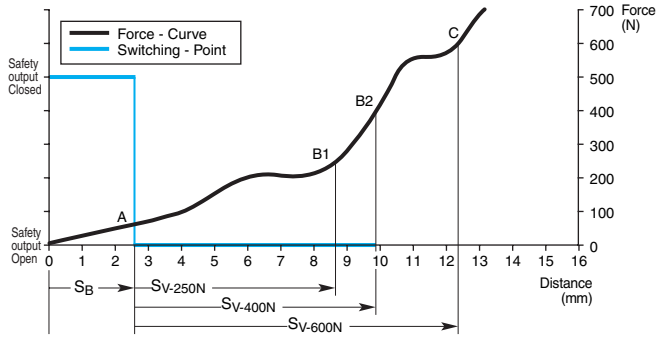
Test Temperature +55°C



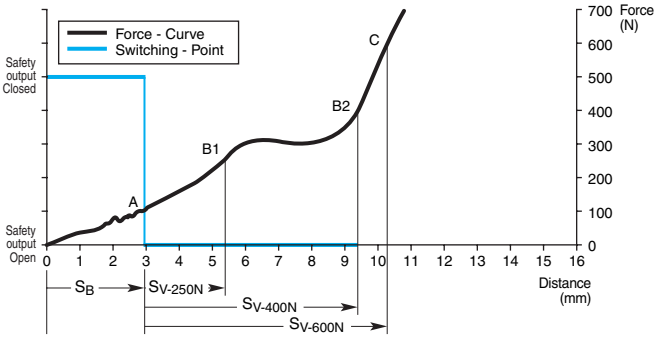
Test Temperature +55°C



Test Temperature -20°C



Test Temperature -20°C



SGE-225 (Characteristic Values for Test Speed v = 10 mm/s)

Test Temperature	+20°C	+55°C	-20°C
Actuating Force F_A (N)	64.1	47.5	116.8
Actuating Distance S_B (mm)	4.7	4.3	4.7
Overtravel Distance Sv at 250N in mm	3.24	5.0	1.62
Overtravel Distance Sv at 400N in mm	6.48	8.7	2.74
Overtravel Distance Sv at 600N in mm	9.28	11.25	5.4

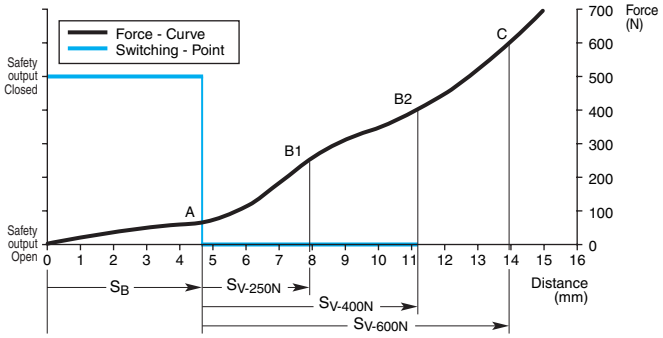
Note: Tested according to EN 1760-2, test unit round 80 mm, actuating point C3.

SGE-225 (Characteristic Values for Test Speed v = 100 mm/s)

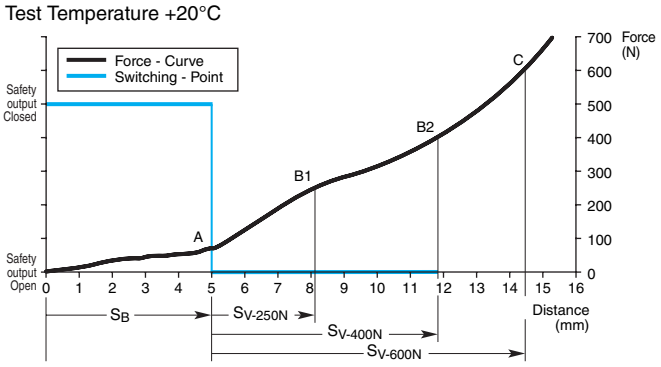
Test Temperature	+20°C	+55°C	-20°C
Actuating Force F_A (N)	70.9	47.5	148.8
Actuating Distance S_B (mm)	5	4.3	5.56
Overtravel Distance Sv at 250N in mm	3.1	5	0.97
Overtravel Distance Sv at 400N in mm	6.9	8.7	2.07
Overtravel Distance Sv at 600N in mm	9.48	11.25	3.52

Note: Tested according to EN 1760-2, test unit round 80 mm, actuating point C3.

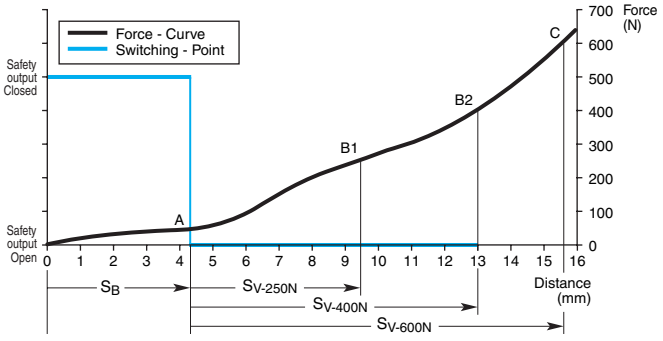
Test Temperature +20°C



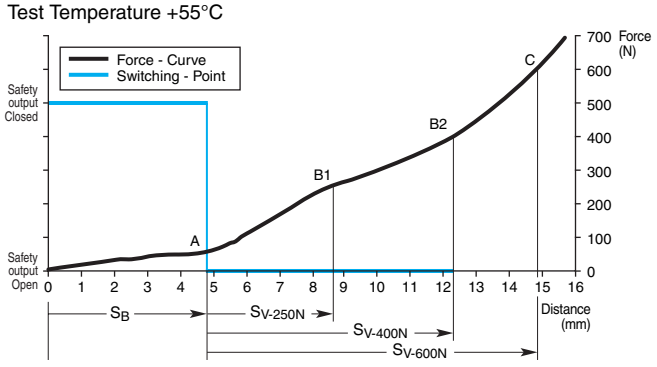
Test Temperature +20°C



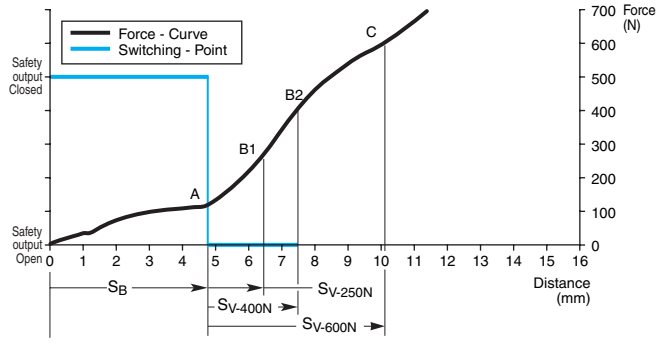
Test Temperature +55°C



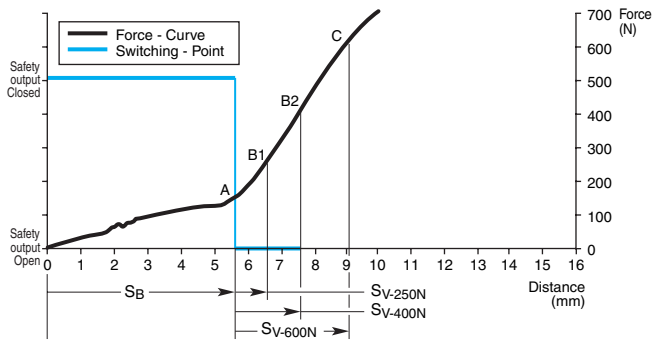
Test Temperature +55°C



Test Temperature -20°C



Test Temperature -20°C



SGE-245 (Characteristic Values for Test Speed v = 10 mm/s)

Test Temperature	+20°C	+55°C	-20°C
Actuating Force F_A (N)	69.1	76.4	109
Actuating Distance S_B (mm)	6.73	8.63	5.54
Overtravel Distance Sv at 250N in mm	17.92	18.58	9
Overtravel Distance Sv at 400N in mm	20.75	22.0	19.48
Overtravel Distance Sv at 600N in mm	23.3	24.66	21.96

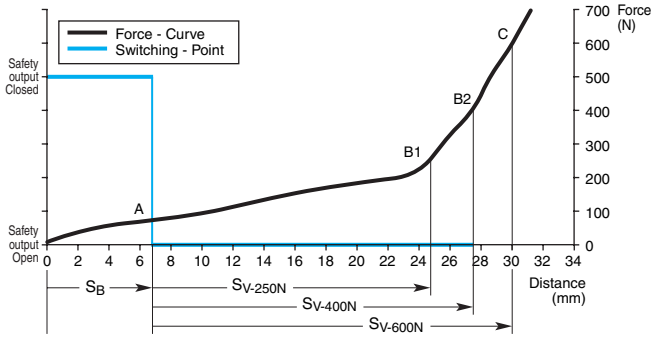
Note: Tested according to EN 1760-2, test unit round 80 mm, actuating point C3.

SGE-245 (Characteristic Values for Test Speed v = 100 mm/s)

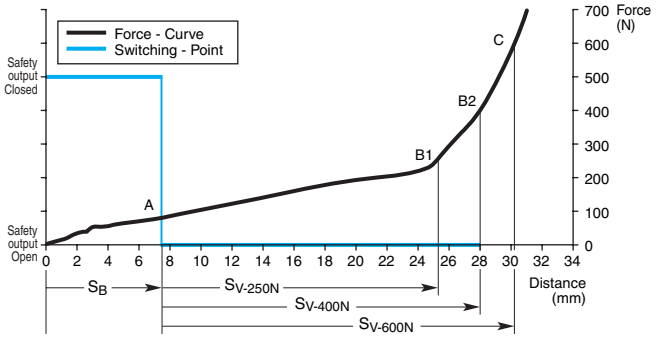
Test Temperature	+20°C	+55°C	-20°C
Actuating Force F_A (N)	81.2	82.3	117.4
Actuating Distance S_B (mm)	7.47	9.28	6.83
Overtravel Distance Sv at 250N in mm	17.75	17.71	7.55
Overtravel Distance Sv at 400N in mm	20.51	20.91	18.23
Overtravel Distance Sv at 600N in mm	22.72	23.51	20.51

Note: Tested according to EN 1760-2, test unit round 80 mm, actuating point C3.

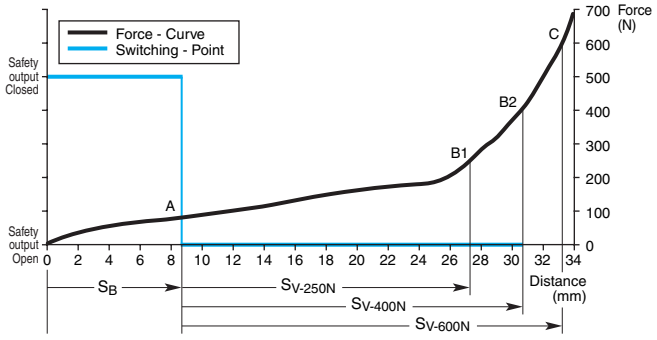
Test Temperature +20°C



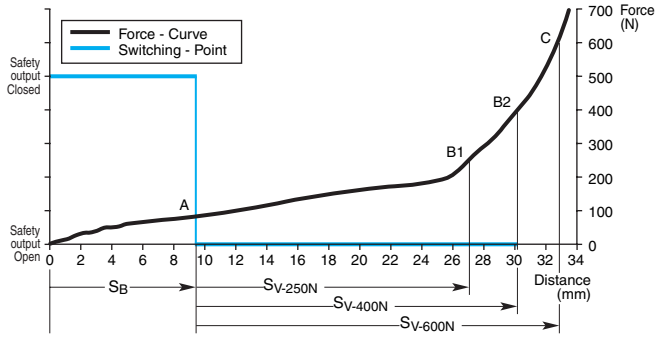
Test Temperature +20°C



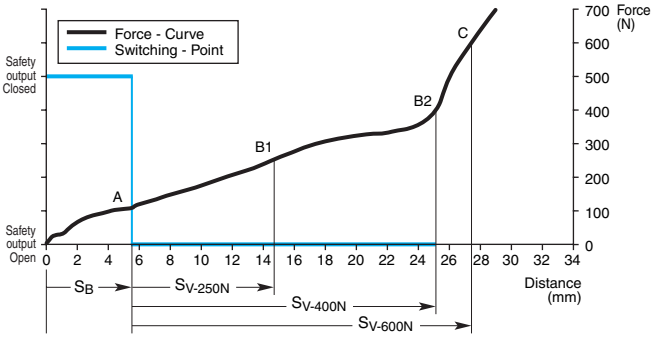
Test Temperature +55°C



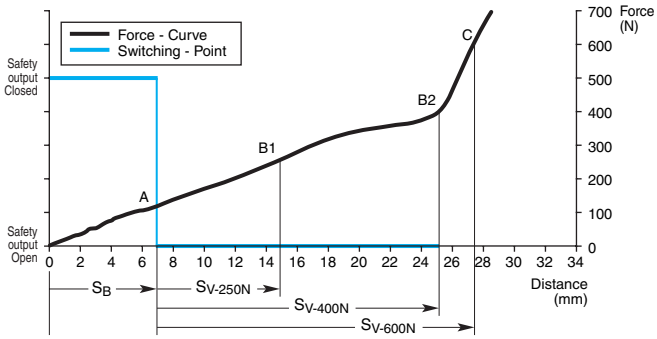
Test Temperature +55°C



Test Temperature -20°C



Test Temperature -20°C



SGE-365 (Characteristic Values for Test Speed v = 10 mm/s)

Test Temperature	+20°C	+55°C	-20°C
Actuating Force F_A (N)	78.2	55.2	148.78
Actuating Distance S_B (mm)	5.16	4.99	5.18
Overtravel Distance Sv at 250N in mm	29.82	32.75	4.1
Overtravel Distance Sv at 400N in mm	33.78	36.15	30.82
Overtravel Distance Sv at 600N in mm	36.51	38.94	33.49

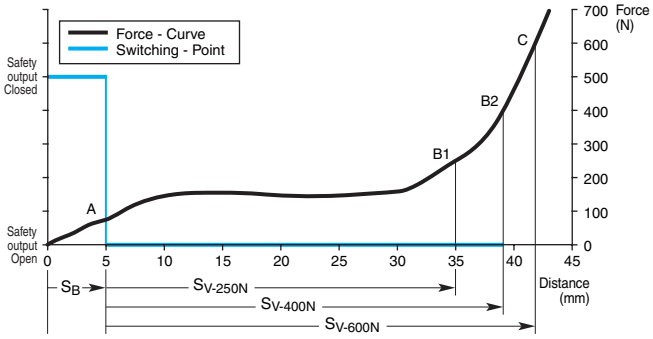
Note: Tested according to EN 1760-2, test unit round 80 mm, actuating point C3.

SGE-365 (Characteristic Values for Test Speed v = 100 mm/s)

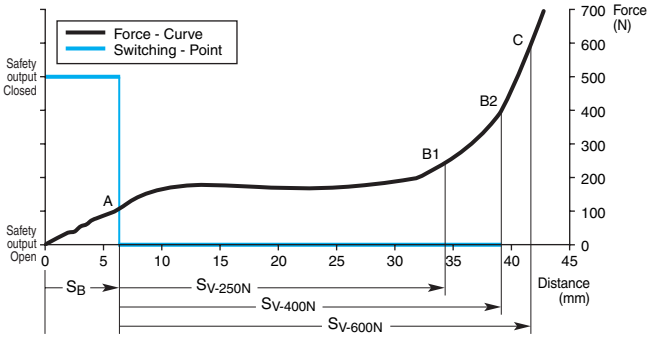
Test Temperature	+20°C	+55°C	-20°C
Actuating Force F_A (N)	107.7	73.5	146.96
Actuating Distance S_B (mm)	6.23	5.92	5.96
Overtravel Distance Sv at 250N in mm	28.37	31.33	5.92
Overtravel Distance Sv at 400N in mm	32.76	34.9	30.74
Overtravel Distance Sv at 600N in mm	35.34	37.65	33.61

Note: Tested according to EN 1760-2, test unit round 80 mm, actuating point C3.

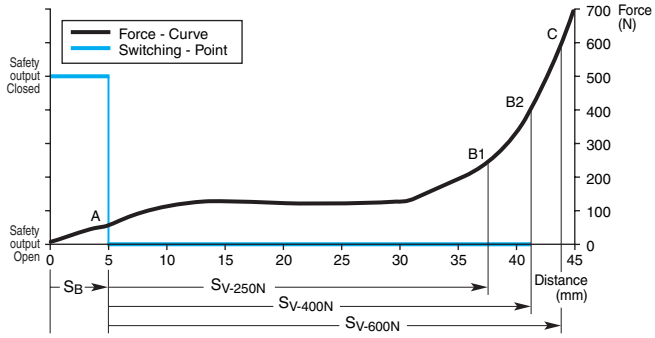
Test Temperature +20°C



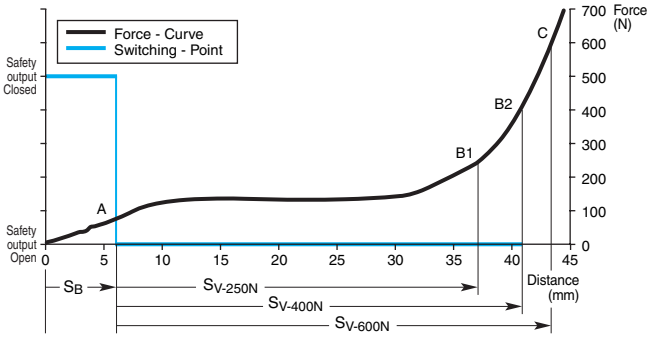
Test Temperature +20°C



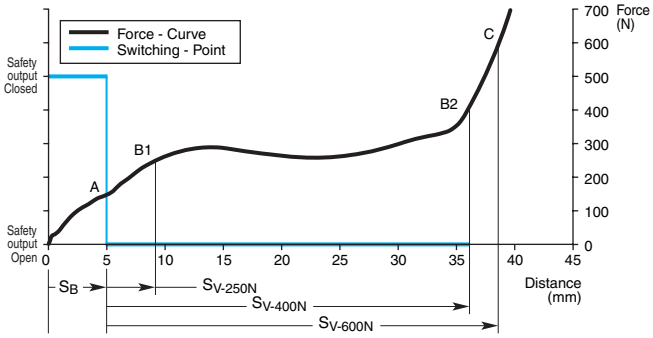
Test Temperature +55°C



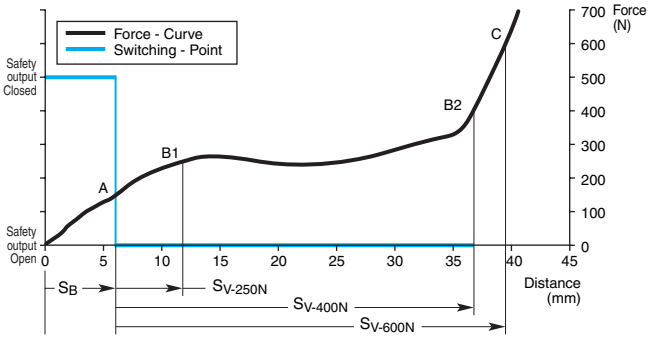
Test Temperature +55°C



Test Temperature -20°C



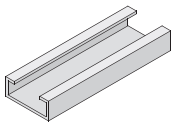
Test Temperature -20°C



Installation

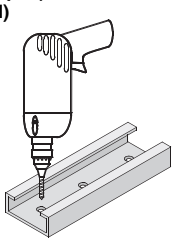
Safety edges must only be installed by authorized persons.

1. To facilitate installation of the safety edge, the mounting base may only be attached to even surfaces. If the safety edge is mounted in a bend, the radius must not be less than the specified minimum.



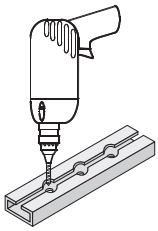
2. The mounting base must be fitted with countersunk screws or rivets. A diameter of 4 mm is sufficient. The holes of 4.5 mm must be evenly distributed over the entire length of the mounting base with distances between them not exceeding 300 mm. They have to be countersunk according to the screw size.

For SGE-225/245 (L-shaped)
For SGE-365 (L-shaped)

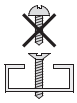


When using SGE-125, drill a pilot hole to the groove such that the head of a countersunk screw can go through (approx. 8 mm).

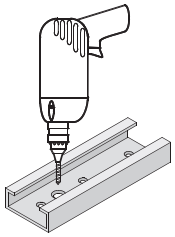
For SGE-125



3. Pan- or round-head screws should not be used. Otherwise the connecting wire in the mounting base could be damaged.

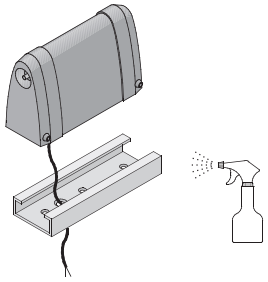


4. In order to lead the connecting wire through the mounting base, an 8 mm hole has to be drilled in the appropriate place. Carefully remove the burr from both sides.

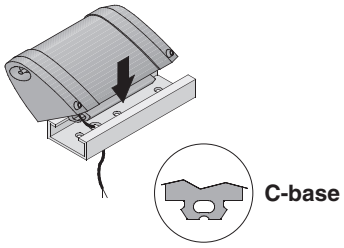


5. The connecting wire and the cable end with the terminal resistor have to be placed in the mounting base.

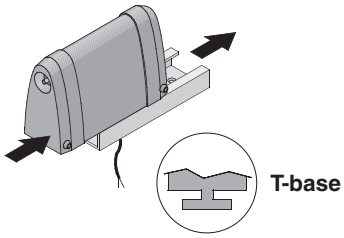
6. In order to make fitting the safety edge easier, the mounting base and the safety edge should be sprayed with soapy water. Once the soap suds have evaporated, the safety edge is firmly fitted in the aluminum base. To prevent a subsequent slipping of the safety edge, talcum powder, oils or similarly durable lubricants must not be used.



7. Safety edges with a C-base (SGE-365) have to be clipped with one side into the mounting base. Then press in the complete c-base. Pulling or pushing the safety edge into the mounting base can cause damage to the safety edge and should be avoided at all costs.



8. Safety edges with T-bases (SGE-125/-125L/-225/-245/-245L) have to be inserted from the side along the groove of the mounting base.

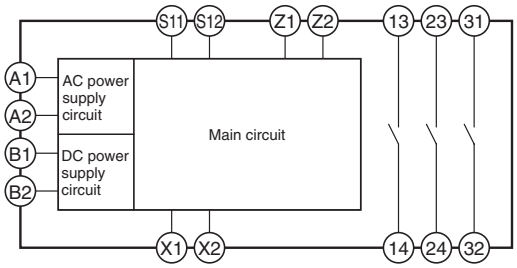


Any other methods of fastenings are only permitted on prior agreement with the manufacturer.

Connections

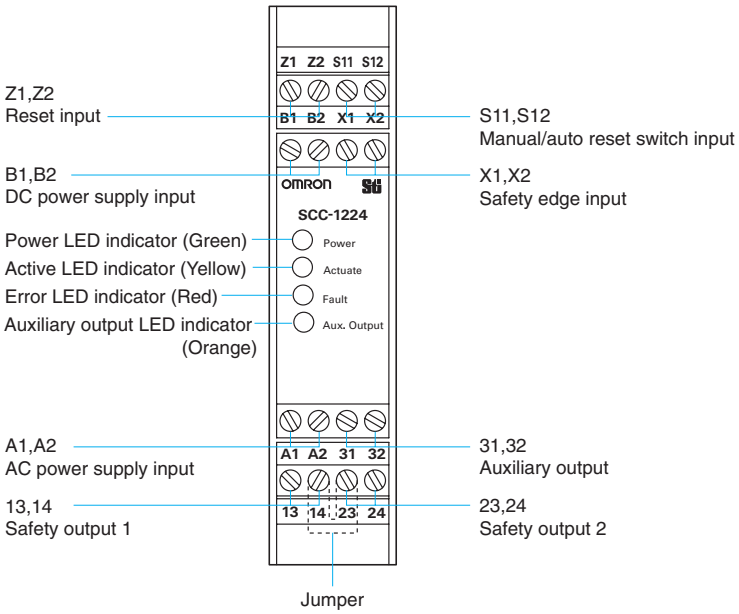
Internal Connection Diagram

SCC-1224
SCC-1224ND



Wiring for input/output

SCC-1224
SCC-1224ND



Note: A jumper is set between terminal 14 and 23 in the default settings.
Remove the jumper if safety output 1 and 2 are not connected in series.

Terminals

Signal name	Terminal name	Operation	Wiring
Safety edge input	X1, X2	Connect to SGE Safety Edge.	Connect a 2-wire cable to SGE Safety Edge.
Manual/ auto reset switch input	S11, S12	Switch between auto reset and manual reset.	• For auto reset, open the terminal between S11 and S12 (Default setting) • For manual reset, short-circuit the terminal between S11 and S12.
DC power supply input	B1, B2	Power supply input terminals to be used with DC power supply.	Open when using them with AC power supply.
Reset input	Z1, Z2	Input terminals for reset switch (NO contact) Connect to pushbutton switch or key switch.	They do not need to be connected for auto reset mode.
AC power supply input	A1, A2	Power supply input terminals to be used with AC power supply.	Open when using them with DC power supply.
Auxiliary output	31-32	• SCC-1224 Operates as one-shot delay timer that closes contacts after power is turned ON or when the SGE safety edge operates, and open after 2 seconds or less than 3 seconds. • SCC-1224ND Contacts close when the SGE safety edge operates, and keeps closed until the safety edge returns to its normal operation.	Open when not used. Do not use this contact for safety circuits.
Safety output 1	13-14	Turn the output ON or OFF according to safety edge inputs and reset inputs.	Open when not used. A jumper is set between terminal 14 and 23 in the default settings. Remove the jumper if safety output 1 and 2 are not connected in series.
Safety output 2	23-24		

LEDs

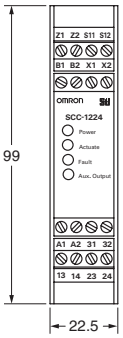
Name	Description
Power supply LED indicator (Green)	Lights when the power supply is ON.
Active LED indicator (Yellow)	Lights when pressure is applied to the SGE safety edge, blinks during interlock state. When pressure is released, the interlock is reset and turned OFF.
Error LED indicator (Red)	Lights when a wiring error of the safety edge occurs such as cable disconnection of the SGE safety edge, contact failure of terminal X1 and X2 of the SCC edge controller, or when a terminating resistor is not connected to the safety edge.
Auxiliary output LED indicator (Orange)	Lights when pressure is applied to the SGE safety edge, and blinks when an auxiliary output contact is closed (auxiliary output ON) SCC-1224: Lights OFF after 2 seconds or more/less than 3 seconds. SCC-1224ND: Keeps ON while pressure is applied to the SGE safety edge.

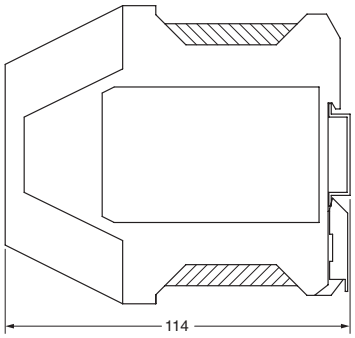
Dimensions/Terminal Arrangement

(Unit: mm)

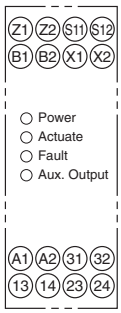
Edge Controller

SCC-1224
SCC-1224ND



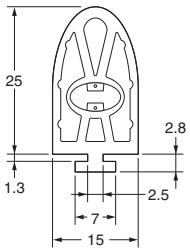


Terminal Arrangement

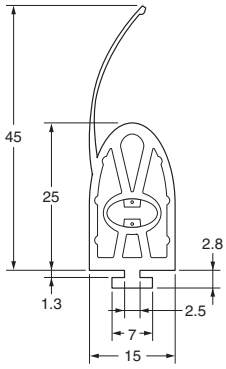


Safety Edge

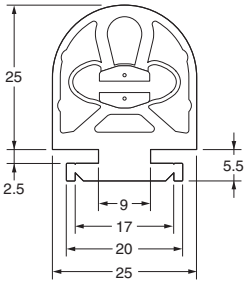
SGE-125



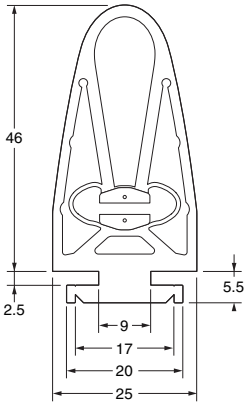
SGE-125L



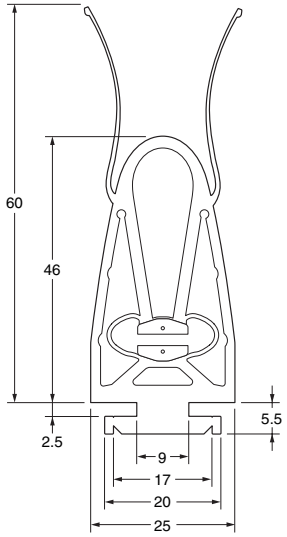
SGE-225



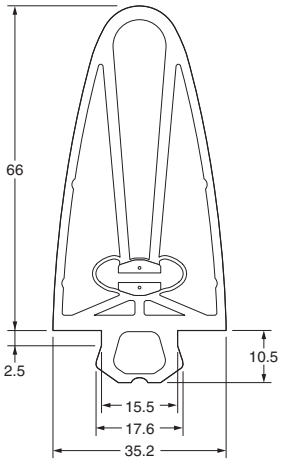
SGE-245



SGE-245L

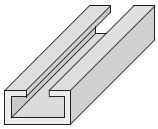


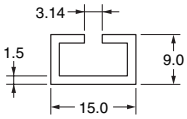
SGE-365



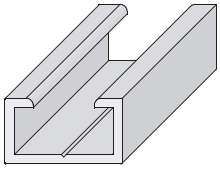
Mounting Bases

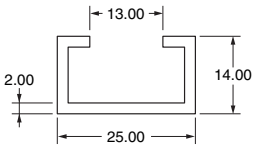
For SGE-125



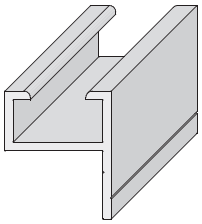


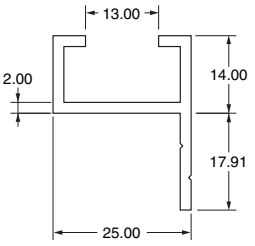
For SGE-225/245



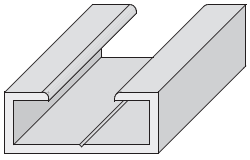


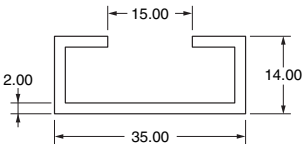
For SGE-225/245 L-shaped



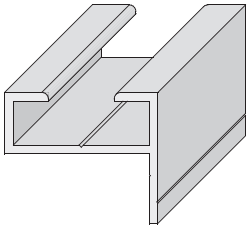


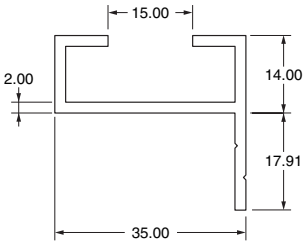
For SGE-365





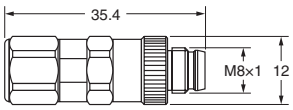
For SGE-365 L-shaped



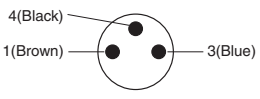


Connectors

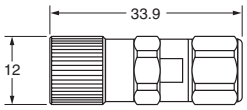
Connector (male) Terminal code: M



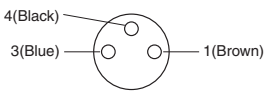
Pin arrangement



Connector (female) Terminal code: F

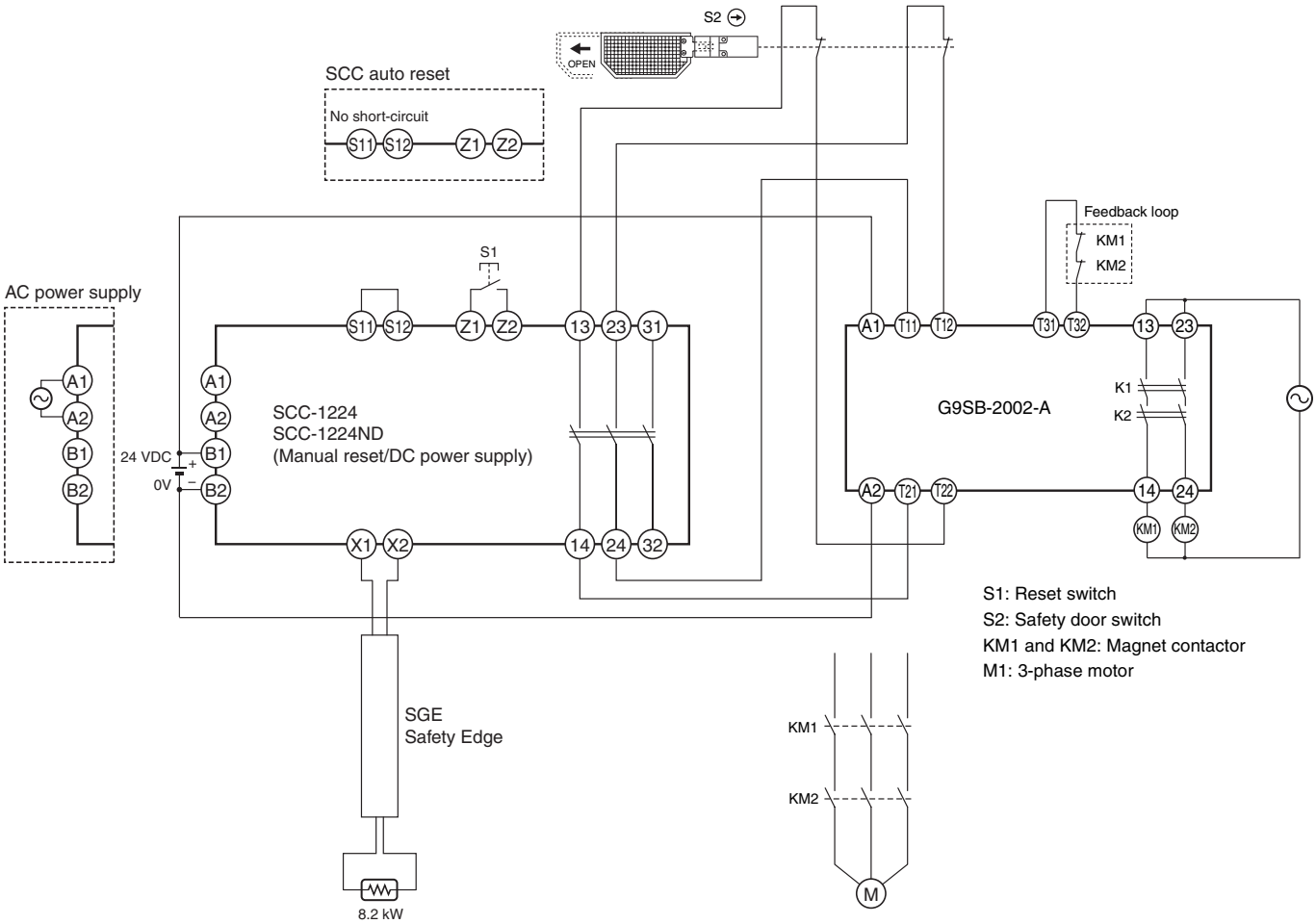


Pin arrangement



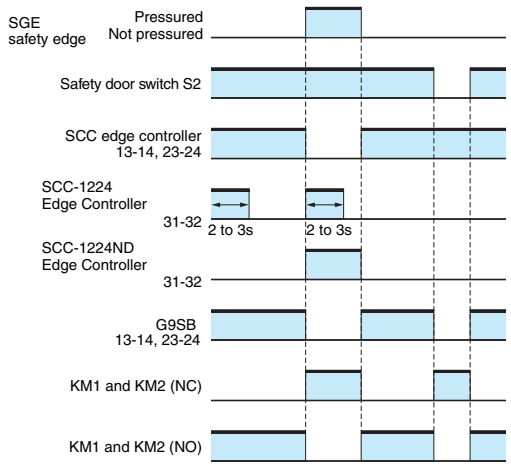
Application Examples

SGE + SCC + Safety Door Switch (D4GS-N/D4NS/D4BS) + G9SB (Auto Reset)

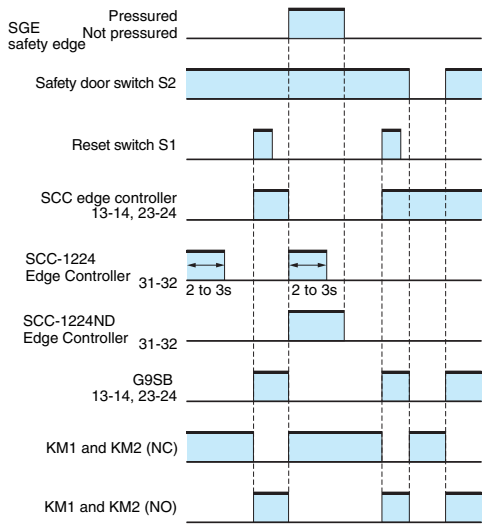


Note: The circuit example shown above conforms to category 3.

Timing Chart (SCC Auto Reset)



Timing Chart (SCC Manual Reset)



Safety Precautions

⚠WARNING

Edge Controller

Serious injury may possibly occur due to breakdown of safety outputs.
Do not connect loads beyond the rated value to the safety outputs.

Serious injury may possibly occur due to loss of required safety functions.
Serious injury may occur due to loss of required safety functions. Do not use the Safety Edge with logics that the operation of the mat might turn ON the guarded equipment. Use the Safety Edge with logics by which safety outputs turn OFF in a hazardous state.

Serious injury may possibly occur due to loss of required safety functions.
Wire the Edge Controller properly so that supply voltages or voltages for loads do NOT touch the safety outputs accidentally.

Safety Edge

Serious injury may possibly occur due to loss of required safety functions.
When using a safety edge, design a safety system counting the velocity and weight of detecting objects.

Precautions for Safe Use

Edge Controller

(1) Be sure to turn OFF the power before performing wiring. Do not touch any of the terminals while the power is being supplied. Doing so may result in electric shock.
(2) Do not perform wiring when there is a risk of lightning. Doing so may result in electric shock.
(3) Apply the specified voltage to input terminals. Applying a different voltage may prevent proper operation and may result in product damage or burning.
(4) Use a power supply of the specified voltage. Do not use power supplies with large ripples or power supplies that intermittently generate incorrect voltages.
(5) Do not under any circumstances, use the product for loads that exceed the product's contact ratings, such as the switching capacity (switching voltage and switching current.) During so may not only result in faulty insulation, contact deposition, contact failure, or other problems affecting product performance, it may also result in damage or burning.
(6) Relay durability depends greatly on the switching conditions. Confirm operation under the actual conditions in which the Relay will be used. Make sure the number of switching operations is within the permissible range. If a Relay is used after performance has deteriorated, it may result in insulation failure between circuits and burning of the Relay itself.
(7) Do not use the product in locations subject to explosive or flammable gases. Doing so may cause combustion or explosion due to Relay heating or arcing during switching.
(8) Do not drop the product or use components that have been disassembled. Doing so may not only adversely affect performance characteristics, it may also result in damage.
(9) Connect a fuse to the Switch in series to protect the Switch from short-circuit damage or ground faults. Not doing so may result in damage.

Safety Edge

(1) Be sure to turn OFF the power before performing wiring. Doing so may result in electric shock.
(2) Do not perform wiring when there is a risk of lightning. Doing so may result in electric shock.
(3) Do not use the product in locations subject to explosive or flammable gases. Doing so may cause combustion or explosion due to Relay heating or arcing during switching.
(4) Do not drop the product or use components that have been disassembled. Doing so may not only adversely affect performance characteristics, it may also result in damage.

Precautions for Correct Use

Edge Controller

(1) Handle with care

Do not drop the product or expose it to excessive vibration or mechanical shock. The product may be damaged and may not function properly.

(2) Adhesion of solvent

Do not allow organic solvents, such as alcohol, thinner, trichloroethane, or gasoline, to come into contact with the product. Such solvents make the markings on the Edge Controller illegible and cause deterioration of parts.

(3) Storage and operating conditions

Do not store or use the products under the following conditions.

1. In direct sunlight
2. At ambient temperatures not between -20 and 55°C
3. At relative humidity not exceeding 90% or under temperature changes that could causes condensation
4. At air pressure out of the range of 86 to 106 kPa
5. In corrosive or combustible gases
6. Where subject to vibration or mechanical shock beyond the rated values
7. Where subject to contact with water, oil, or chemicals
8. In an atmosphere containing excessive dust, saline, or metal powder

(4) Wiring

1. Use the following to wire to the Edge Controller.
   - Stranded wire (Flexible wire): 0.75 to 1.5 mm^2
   - Solid wire: 0.75 to 1.5 mm^2
   - Strip the cover of wire no longer than 7 mm.
   - Terminal tightening torque: 0.5 to 0.6 N·m
2. Ground the negative side of the power supply. A controller with the positive side grounding will not work.

(5) Mounting of multiple Edge Controllers

Place the safety edges farther than 25 mm from the nearest SCC.

(6) Mounting of the Edge Controller to DIN rails

Use end plates (PFP-M: sold separately) on both ends of SCC.

(7) This is a Class A product (Product in industrial setting). Use of the product in residential setting may cause radio disturbance. In such case, take appropriate measures.

Safety Edge

(1) Make sure to use the Safety Edge SGE series in combination with the Edge Controller SCC series.

(2) Handle with care

1. Do not drop the product or expose it to excessive vibration or mechanical shock. The product may be damaged and may not function properly.
2. Do not apply loads on a certain location of the Safety Edge for a long period of time. It may damage the Safety Edge.
3. Do not use the Safety Edge submerged in water or in locations continuously subject to splashes of water.

(3) Adhesion of solvent

Do not allow organic solvents, such as alcohol, thinner, trichloroethane, or gasoline, to come into contact with the product. Such solvents make the markings on the Edge Controller illegible and cause deterioration of parts.

(4) Storage and operating conditions

Do not store or use the products under the following conditions.

1. In direct sunlight
2. At ambient temperatures not between -25 and 75°C
3. At air pressure out of the range of 86 to 106 kPa
4. In corrosive or combustible gases
5. Where subject to vibration or mechanical shock beyond the rated values
6. Where subject to contact with water, oil, or chemicals
7. In an atmosphere containing excessive dust, saline, or metal powder

(5) Mounting of the Safety Edge

1. Use dedicated mounting brackets to install the Safety Edge.
2. Do not install the Safety Edge on an environment with a projection. Install it on a flat surface.
3. Do not pull the cables to lift or move the Safety Edge.
4. Do not use the Safety Edge with a cover on it.

(6) This is a Class A product (Product in industrial setting). Use of the product in residential setting may cause radio disturbance. In such case, take appropriate measures.

Safety Category

This product meets Safety Category 3 requirements when used as a single unit.
To implement a Safety Category 3 circuit with an external safety relay or magnet contactor connected, a safety controller is required separately.

MEMO

READ AND UNDERSTAND THIS CATALOG

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

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- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

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 PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

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