

Trapped Key Transfer System

SHGV | SVM | SVE



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Safe solutions for your industry

Trapped key system

Description

Area of application

The SHGV key transfer system occurs mainly in more complex manufacturing systems and equipment. It is especially suitable for the protection of distributed maintenance and service doors that are rarely used. Further areas of application are installations installed in harsh environmental conditions and in areas with high ambient temperatures, not forgetting the potentially explosive installations in the chemical and process engineering.

Cost Savings

Saving costs with movable protection equipment, without affecting the safety level is possible with the safety door monitoring system SHGV. The cost savings is achieved because no wiring is needed between the moving protection equipment and switching cabinet.

Instead, the operation of the electrical locking is taken on by an intelligent key transfer between a switching element with lock mounted on the protection equipment and a key-selector-switch as control element mounted on the control panel.

Design and way of functioning

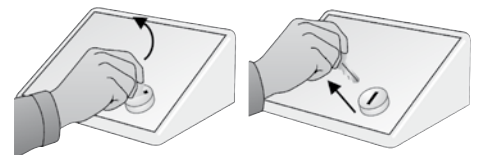
With the SHGV-system, the key contains the information as to whether the protection door or maintenance flap can be opened or not. In the initial state, all the keys used are each in a key-selector-switch that is mostly located in a central console, and from there releases functions of the machine control. The key can only be removed from there when the machine is in the safe operating mode. The operator can then use the key by inserting it into the lock barrel of the protection equipment and open the safety door. The key can only be removed when the safety door is closed and locked again. The machine or the hazardous movement can be started again once the key is back in the selector-switch. If the transfer time between making a selection with the key-selector-switch (removal of the key) and the unlocking of the protection equipment is insufficient, until a hazardous machine motion has come to a stop, then an additional key-selector-switch latch unit (SVE) may be required. The SHGV series also has a version with a second lock barrel which blocks the actuation of the first lock barrel, if an operator needs to enter a space and needs protection against the machine being started unintentionally by third parties.

The special features of this safety and interlock system is that safety doors do not have any electrical supply, nor do they require any signal cable. The information as to whether a safety door can be opened or a machine may be set in motion is transmitted with the key. This creates additional freedom and facilitates the mounting of interlock systems in particular for larger installations.

Functional sequence

The automatic mode of the machine control is released, if the NC contact(s) of a 2-digit key-selector-switch is/are closed. This corresponds to the position of the key-selector-switch, in which the key is in a non-removable position.

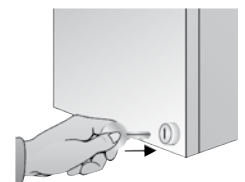
1. To interrupt or shut-down the automatic mode, the key in the key-selector-switch is switched from the non-removal position to the removal position. The NC contacts are forced open and the automatic operating mode of the machine control system is forcibly interrupted.



2. This allows the transfer of the key from key-selector-switch to the movable protection equipment.



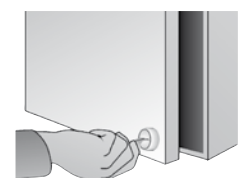
3. The unlocking of the interlock of the protection equipment is done by turning the lock barrel to the non-removal position.



4. The protection equipment can be opened.

5. A return of the key, if the protective equipment is opened, is blocked by an incorrect locking protection mechanism.

6. If the protection equipment is closed again, the blocking of the protection equipment is carried out by turning the key from the non-removal position to the removal position.



7. The return of the key to the key-selector-switch is used to switch the machine control system on again, by moving from the removal position to the non-removal position.

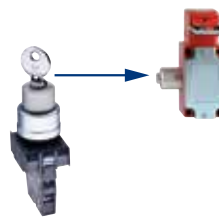
Trapped key system

Application

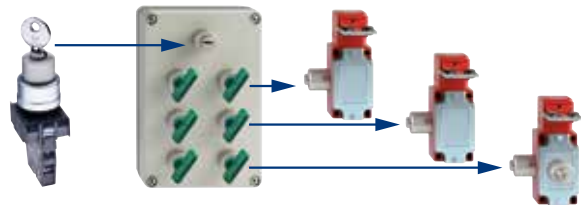
System-Configurations

Hazardous run-on time < Time for the key transfer

One key-selector-switch SHGV/ESS locks one moveable piece of protection equipment

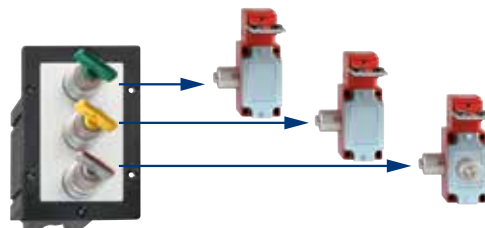


One key-selector-switch SHGV/ESS locks several moveable pieces of protection equipment using the key-distribution-station SVM

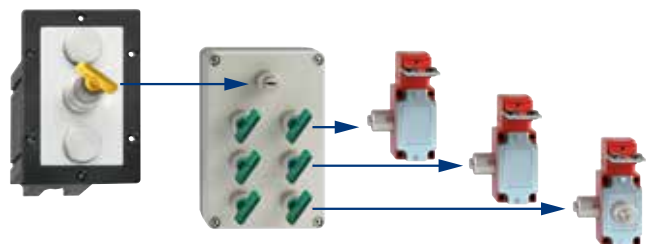


Hazardous run-on time > Time for the key transfer

A SVE key-selector-switch interlocking device locks up to 3 movable pieces of protection equipment depending on the run-on movements



A SVE key-selector-switch interlocking device locks several movable pieces of protection equipment using the SVM key-distribution-station depending on the run-on movements



Trapped key system

Overview

Overview

Components of the trapped key system		
SHGV	Interlock	Page 6
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SHGV/ESS21	Key-operated selector switch	Page 14
SVE	Solenoid interlock with key-operated selector switch	Page 16
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Trapped key system

Guard locking device SHGV - Overview of the series



■ SHGV/B01/...



■ SHGV/L01/...



■ SHGV/R01/...

Key Features

- Lock barrel at the bottom
- With one actuating head
- Actuator head can be rotated in 90° steps

- Lock barrel to left
- With one actuating head
- Actuator head can be rotated in 90° steps

- Lock barrel to the right
- With one actuating head
- Actuator head can be rotated in 90° steps

Other versions

ATEX / IECEx

■

■

■

AS-i SaW

-

-

-

Technical features

Mechanical data

Material of the enclosure

Aluminium

Aluminium

Aluminium

Latching force

5 N

5 N

5 N

Max. holding force

1750 N

1250 N

1250 N

Dimensions (W x D x H)

40 x 87 x 103 mm

87 x 43 x 103 mm

87 x 43 x 103 mm

Ambient conditions

Ambient temperature

-25 °C ... +70 °C

-25 °C ... +70 °C

-25 °C ... +70 °C

Protection class

IP65

IP65

IP65

Safety classification

Standards

EN ISO 13849-1

EN ISO 13849-1

EN ISO 13849-1

B_{10d} (NC contact)

100,000

100,000

100,000

Certificates

-

-

-



■ SHGV/LD1/...

■ SHGV/RD1/...

■ SHGV/B1.1/...

■ SHGV/L1.1/...

■ SHGV/R1.1/...

- Lock barrel left and secondary key on the front
- With one actuating head
- Actuator head can be rotated in 90° steps

- Lock barrel right and secondary key on the front
- With one actuating head
- Actuator head can be rotated in 90° steps

- Lock barrel at the bottom
- With two actuating heads
- Actuator head can be rotated in 90° steps

- Lock barrel to left
- With two actuating heads
- Actuator head can be rotated in 90° steps

- Lock barrel to the right
- With two actuating heads
- Actuator head can be rotated in 90° steps



-



-



-



-



-

Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
5 N	5 N	5 N	5 N	5 N
1250 N	1250 N	1750 N	1250 N	1250 N
87 x 87 x 103 mm	87 x 87 x 103 mm	40 x 87 x 135 mm	87 x 43 x 135 mm	87 x 43 x 135 mm
-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C
IP65	IP65	IP65	IP65	IP65

EN ISO 13849-1	EN ISO 13849-1	EN ISO 13849-1	EN ISO 13849-1	EN ISO 13849-1
100,000	100,000	100,000	100,000	100,000
-	-	-	-	-

Trapped key system

Guard locking device SHGV - Preferred types



Series	Lock barrel position			Number of safety guards	Type designation
	Bottom-side	Left	Right		
SHGV/B01/...	■			1	SHGV/B01/x1x+x3x
SHGV/L01/...		■		1	SHGV/L01/x1x+x3x
SHGV/R01/...			■	1	SHGV/R01/x1x+x3x
SHGV/LD1/.../...		■		1	SHGV/LD1/x1x/x2x+x3x
SHGV/RD1/.../...			■	1	SHGV/RD1/x1x/x2x+x3x
SHGV/B1.1/...	■			2	SHGV/B1.1/x1x+x3x
SHGV/L1.1/...		■		2	SHGV/L1.1/x1x+x3x
SHGV/R1.1/...			■	2	SHGV/R1.1/x1x+x3x

Ordering example:

SHGV-Z/SR/RD1/101/35/RT/GR+BO

Locking system	
	Standard locking system
-Z	Central locking system
Key	
	Standard silver
SR	Coloured key shaft Not in connection with a central locking system -Z!
Position of the secondary key lock barrel	
B	Lock barrel at the bottom
L	Lock barrel to left
R	Lock barrel to the right
LD	Lock barrel left and on the front
RD	Lock barrel right and on the front
Number of actuating heads	
1	1 actuating head
1.1	2 actuating heads
Key number of the lock barrels	
x1x	Key number(s) 100 ... 999 (primary key)
x2x	Key number(s) 32 - 99 the additional secondary cylinder on the front (if present)

Actuator x3x	
BO	Straight actuator
BOW	Angled actuator
BOR	Radius actuator
BOWR	Angled radius actuator
BOF/HIS.1	Telescopic actuator, rear-side fixing
BOF/HIS.2	Telescopic actuator, topside fixing
Secondary key coloured key shaft	
All colour combinations are therefore possible	
BR	Brown
GB	Yellow
RT	Red
BL	Blue
WS	White
GR	Grey
GN	Green
SW	Black

For technical reasons not all possible variations and key combinations can be delivered.

The example ordering code breakdown is provided to identify product options.

To see a wide range of other types, visit www.usa.schmersal.net.

Trapped key system

Guard locking device SHGV - Actuator



BO	BOW	BOR
<p style="text-align: right;">101014460</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> ■ Straight actuator ■ Actuating radius R_{min}: 400 mm 	<p style="text-align: right;">101014462</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> ■ Straight actuator ■ Angled ■ To front mounting ■ Actuating radius R_{min}: 400 mm 	<p style="text-align: right;">101014461</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> ■ Radius actuator ■ Actuating radius R_{min}: 350 mm
BOWR	BOF/HIS.1	BOF/HIS.2
<p style="text-align: right;">101014463</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> ■ Radius actuator ■ Angled ■ To front mounting ■ Actuating radius R_{min}: 350 mm 	<p style="text-align: right;">101025450</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> ■ Telescopic actuator ■ Flexible ■ Rear-side fixing ■ Actuating radius R_{min}: 400 mm 	<p style="text-align: right;">101025451</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> ■ Telescopic actuator ■ Flexible ■ Topside fixing ■ Actuating radius R_{min}: 400 mm

The actuator is included in the delivery of the SHGV interlocking system.

Detailed information for the selection of the actuators can be found at www.usa.schmersal.net.

Trapped key system

Key distribution station SVM - Series summary



■ SVM1/...-6/.../A

■ SVM1/...-10/.../A

■ SVM1/SR/...-6/.../A

Key Features

- Enclosure for surface mounting
- A primary lock barrel
- For 6 keys

- Enclosure for surface mounting
- A primary lock barrel
- For 10 keys

- Enclosure for surface mounting
- A primary lock barrel
- For 6 keys
- Coloured key shaft

Other versions

ATEX / IECEx

■

■

■

AS-i SaW

-

-

-

Technical features

Mechanical data

Housing material / mounting plate

Aluminium

Aluminium

Aluminium

Dimensions (H x W x D)

120 x 113.5 x 180 mm

120 x 113.5 x 240 mm

120 x 113.5 x 180 mm

Ambient conditions

Ambient temperature

-25 °C ... +50 °C

-25 °C ... +50 °C

-25 °C ... +50 °C

Protection class

IP65

IP65

IP65

Safety classification

Standards

EN ISO 13849-1

EN ISO 13849-1

EN ISO 13849-1

B_{10d} (NC contact)

100,000

100,000

100,000

Certificates

-

-

-



■ SVM1/SR/...-10/.../A

■ SVM1/...-6/.../E

■ SVM1/...-10/.../E

■ SVM1/SR/...-6/.../E

■ SVM1/SR/...-10/.../E

- Enclosure for surface mounting
- A primary lock barrel
- For 10 keys
- Coloured key shaft

- Mounting plate pre-mounted
- A primary lock barrel
- For 6 keys

- Mounting plate pre-mounted
- A primary lock barrel
- For 10 keys

- Mounting plate pre-mounted
- A primary lock barrel
- For 6 keys
- Coloured key shaft

- Mounting plate pre-mounted
- A primary lock barrel
- For 10 keys
- Coloured key shaft

■	■	■	■	■
-	-	-	-	-

Aluminium	Stainless steel	Stainless steel	Stainless steel	Stainless steel
120 x 113.5 x 240 mm	120 x 52.5 x 180 mm	120 x 54.5 x 240 mm	120 x 52.5 x 180 mm	120 x 54.5 x 240 mm
-25 °C ... +50 °C	-25 °C ... +50 °C	-25 °C ... +50 °C	-25 °C ... +50 °C	-25 °C ... +50 °C
IP65	IP65	IP65	IP65	IP65

EN ISO 13849-1	EN ISO 13849-1	EN ISO 13849-1	EN ISO 13849-1	EN ISO 13849-1
100,000	100,000	100,000	100,000	100,000
-	-	-	-	-

Trapped key system

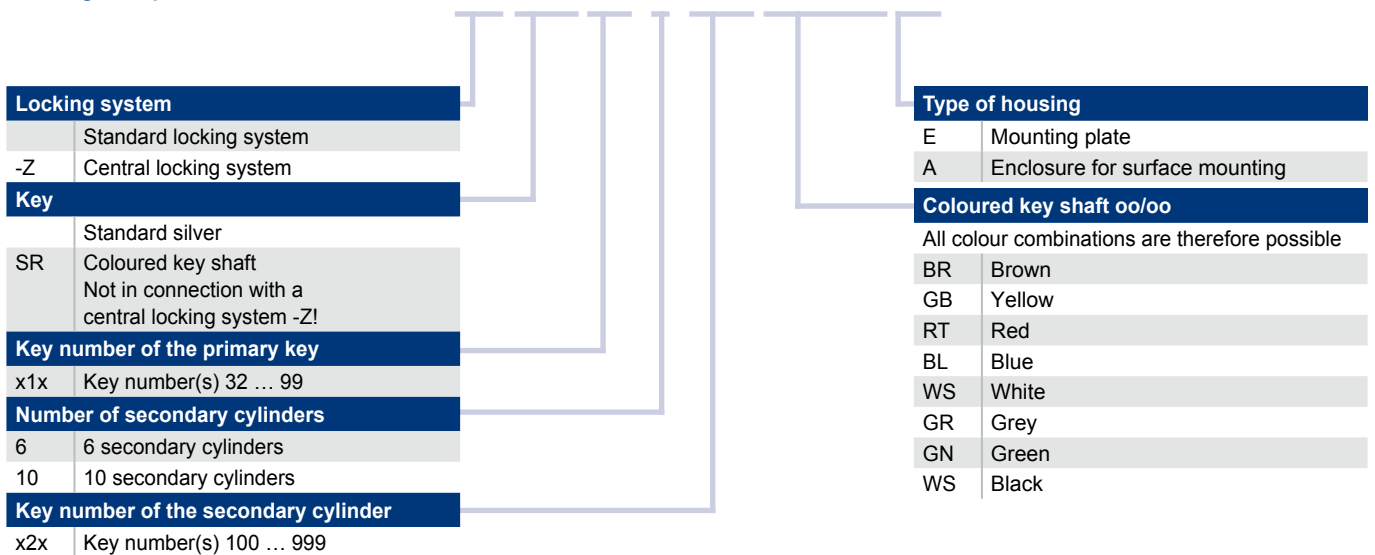
Key distribution station SVM - Preferred types



Series	Assembly housing	Assembly plate	Primary lock barrel	Number of lock barrels	Coloured key-shaft	Type designation
SVM1/...-6/.../A	■		1	6		SVM1/x1x-6/x2x/A
SVM1/...-10/.../A	■		1	10		SVM1/x1x-10/x2x/A
SVM1/SR/...-6/.../A	■		1	6	■	SVM1/SR/x1x-6/x2x/oo/oo/A
SVM1/SR/...-10/.../A	■		1	10	■	SVM1/SR/x1x-10/x2x/oo/oo/A
SVM1/...-6/.../E		■	1	6		SVM1/x1x-6/x2x/E
SVM1/...-10/.../E		■	1	10		SVM1/x1x-10/x2x/E
SVM1/SR/...-6/.../E		■	1	6	■	SVM1/SR/x1x-6/x2x/oo/oo/E
SVM1/SR/...-10/.../E		■	1	10	■	SVM1/SR/x1x-10/x2x/oo/oo/E

Ordering example:

SVM1-Z/SR/35-6/115RT/GR/A

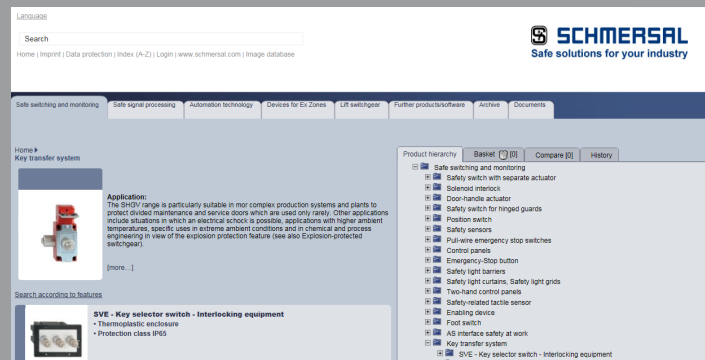


For technical reasons not all possible variations and key combinations can be delivered.

The example ordering code breakdown is provided to identify product options.

To see a wide range of other types, visit www.usa.schmersal.net.

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For detailed information, check out
www.usa.schmersal.net

Trapped key system

Key-selector-switch SHGV/ESS21 - Series summary



■ SHGV/ESS21S2/.../103

■ SHGV/SR/ESS21S2/.../103

Key Features

- Variable key numbers
- Removal position in Position 1
- 1 NC contact / 1 NO contact

- Variable key numbers
- Removal position in Position 1
- 1 NC contact / 1 NO contact
- Coloured key shaft

Other versions

ATEX / IECEx
AS-i SaW

■

-

■

-

Technical features

Electrical data

Max. switching capacity U/I

230 VAC / 8 A;
24 VDC / 5 A

230 VAC / 8 A;
24 VDC / 5 A

Connection

Screw terminals

Screw terminals

Cable section:

Solid wire

2x 0.5 ... 2.5 mm²

2x 0.5 ... 2.5 mm²

Stranded wire with conductor ferrules

2x 0.5 ... 1.5 mm²

2x 0.5 ... 1.5 mm²

Mechanical data

Material of the front-ring

Aluminium

Aluminium

Material of the lock barrel

Steel

Steel

Mounting hole

22.3 mm

22.3 mm

Front ring diameter

29.5 mm

29.5 mm

Installation height with key

62 mm

62 mm

Front plate thickness

1 ... 6 mm

1 ... 6 mm

Maintained switching positions

2

2

Ambient conditions

Ambient temperature

0 °C ... +75 °C

0 °C ... +75 °C

Protection class

IP65 (key-operated switch)

IP65 (key-operated switch)

Safety classification

Standards

EN ISO 13849-1

EN ISO 13849-1

B_{10d} (NC contact)

100,000

100,000

Certificates



Trapped key system

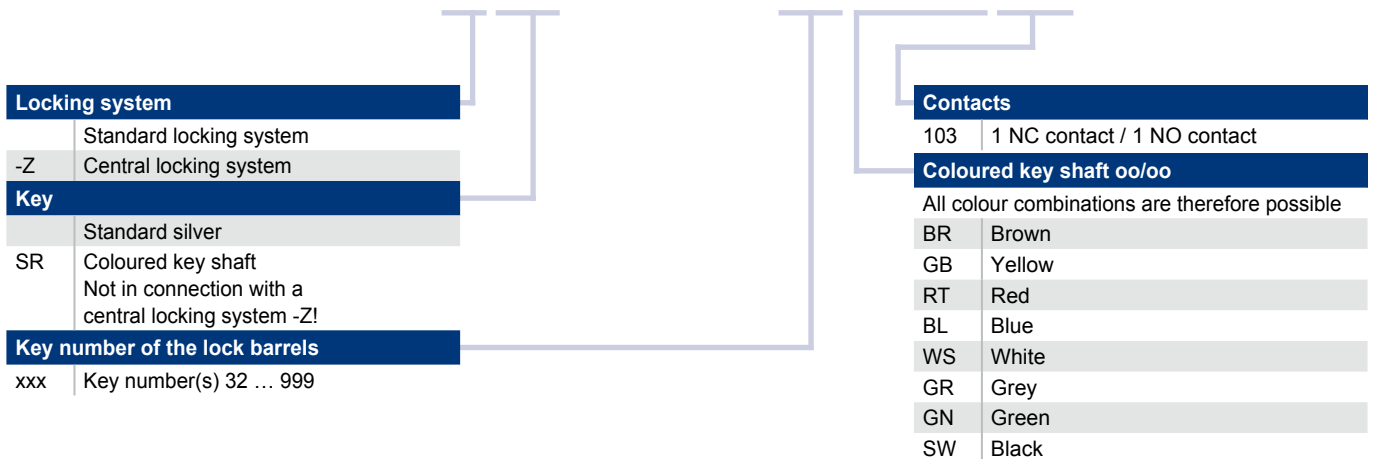
SHGV/ESS21 - Preferred types



Series	NC contacts	NO contacts	Removal position	Number of keys	Coloured key-shaft	Type designation
SHGV/ESS21S2/.../103	1	1	1	2		SHGV/ESS21S2/xxx/103
SHGV/SR/ESS21S2/.../103	1	1	1	2	■	SHGV/SR/ESS21S/xxxoo/oo/103

Ordering example:

SHGV-Z/SR/ESS21S2/101RT/GR/103



For technical reasons not all possible variations and key combinations can be delivered.

The example ordering code breakdown is provided to identify product options.

To see a wide range of other types, visit www.usa.schmersal.net.

Trapped key system

Solenoid interlock with key-operated selector switch SVE



■ SVE1/...

■ SVE1/SR/...

Key Features

- Installation housing
- One Lock barrel
- Manual release
- With up to 5 contacts

- Installation housing
- One Lock barrel
- Manual release
- Coloured key shaft
- With up to 5 contacts

Technical features

Electrical data		
Operating voltage	230 VAC / 115 VAC / 24 VDC	230 VAC / 115 VAC / 24 VDC
Power consumption	0.35 A	0.35 A
Max. switching capacity U/I	230 VAC / 4 A; 24 VDC / 4 A	230 VAC / 4 A; 24 VDC / 4 A
Connection	Screw terminals	Screw terminals
Cable section:		
Solid wire	2x 0.25 ... 2.5 mm ²	2x 0.25 ... 2.5 mm ²
Stranded wire with conductor ferrules	2x 0.25 ... 2.5 mm ²	2x 0.25 ... 2.5 mm ²
Mechanical data		
Material of the enclosure	Thermoplastic	Thermoplastic
Material of the mounting plate	Aluminium	Aluminium
Material of the lock barrel	Steel	Steel
Dimensions (H x W x D)	96 x 169 x 144 mm	96 x 171 x 144 mm
Ambient conditions		
Ambient temperature	0 °C ... +50 °C	0 °C ... +50 °C
Protection class	IP65	IP65

Safety classification

Standards	EN ISO 13849-1	EN ISO 13849-1
B _{10d} (NC contact)	100,000	100,000
Certificates	-	-



■ SVE2/...

■ SVE2/SR/...

■ SVE3/...

■ SVE3/SR/...

- Installation housing
- Two lock barrels
- Manual release
- Screw terminals
- With up to 6 contacts

- Installation housing
- Two lock barrels
- Manual release
- Coloured key shaft
- With up to 6 contacts

- Installation housing
- Three lock barrels
- Manual release
- With up to 8 contacts

- Installation housing
- Three lock barrels
- Manual release
- Coloured key shaft
- With up to 8 contacts

230 VAC / 115 VAC / 24 VDC	230 VAC / 115 VAC / 24 VDC	230 VAC / 115 VAC / 24 VDC	230 VAC / 115 VAC / 24 VDC
0.35 A	0.35 A	0.35 A	0.35 A
230 VAC / 4 A; 24 VDC / 4 A	230 VAC / 4 A; 24 VDC / 4 A	230 VAC / 4 A; 24 VDC / 4 A	230 VAC / 4 A; 24 VDC / 4 A
Screw terminals	Screw terminals	Screw terminals	Screw terminals
2x 0.25 ... 2.5 mm ²	2x 0.25 ... 2.5 mm ²	2x 0.25 ... 2.5 mm ²	2x 0.25 ... 2.5 mm ²
2x 0.25 ... 2.5 mm ²	2x 0.25 ... 2.5 mm ²	2x 0.25 ... 2.5 mm ²	2x 0.25 ... 2.5 mm ²
Thermoplastic	Thermoplastic	Thermoplastic	Thermoplastic
Aluminium	Aluminium	Aluminium	Aluminium
Steel	Steel	Steel	Steel
96 x 169 x 144 mm	96 x 171 x 144 mm	96 x 169 x 144 mm	96 x 171 x 144 mm
0 °C ... +50 °C	0 °C ... +50 °C	0 °C ... +50 °C	0 °C ... +50 °C
IP65	IP65	IP65	IP65
EN ISO 13849-1	EN ISO 13849-1	EN ISO 13849-1	EN ISO 13849-1
100,000	100,000	100,000	100,000
-	-	-	-

Trapped key system

SVE - Preferred types



Series	Lock barrel	Lock barrel position			Coloured key-shaft	Safety contacts			Auxiliary contacts	Operating voltage	Type designation
		Left	Centered	Right		Standard	-3Ö	-W			
SVE1/...	1		■			2	3	2	2	24 VDC	SVE1/xxx-24VDC
										24 VAC	SVE1/xxx-24VAC
										115 VAC	SVE1/xxx-115VAC
										230 VAC	SVE1/xxx-230VAC
SVE1/SR/...	1		■		■	2	3	2	2	24 VDC	SVE1/SR/xxxoo/oo-24VDC
										24 VAC	SVE1/SR/xxxoo/oo-24VAC
										115 VAC	SVE1/SR/xxxoo/oo-115VAC
										230 VAC	SVE1/SR/xxxoo/oo-230VAC
SVE2/...	2	■		■		2	3	3	3	24 VDC	SVE2/xxx-24VDC
										24 VAC	SVE2/xxx-24VAC
										115 VAC	SVE2/xxx-115VAC
										230 VAC	SVE2/xxx-230VAC
SVE2/SR/...	2	■		■	■	2	3	3	3	24 VDC	SVE2/SR/xxxoo/oo-24VDC
										24 VAC	SVE2/SR/xxxoo/oo-24VAC
										115 VAC	SVE2/SR/xxxoo/oo-115VAC
										230 VAC	SVE2/SR/xxxoo/oo-230VAC
SVE3/...	3	■	■	■		2	3	4	4	24 VDC	SVE3/xxx-24VDC
										24 VAC	SVE3/xxx-24VAC
										115 VAC	SVE3/xxx-115VAC
										230 VAC	SVE3/xxx-230VAC
SVE3/SR/...	3	■	■	■	■	2	3	4	4	24 VDC	SVE3/SR/xxxoo/oo-24VDC
										24 VAC	SVE3/SR/xxxoo/oo-24VAC
										115 VAC	SVE3/SR/xxxoo/oo-115VAC
										230 VAC	SVE3/SR/xxxoo/oo-230VAC

Standard safety contacts	Safety contacts -3Ö	Safety contacts -W
<p>■ Safety contacts: Magnet: 1 NC/1 NO; Key-operated selector switch: 1 NC /1 NO; NC contacts in series</p>	<p>■ Safety contacts: Magnet: 1 NC/1 NO; Key-operated selector switch: 2 NC /1 NO; NC contacts in series</p>	<p>■ Safety contacts: Magnet: 1 NC/1 NO; Key-operated selector switch: 1 NC /1 NO; NC contacts separately</p>

To see a wide range of other types, visit www.usa.schmersal.net.

Trapped key system

SVE - Ordering code



Ordering example:

SVE1-Z/SR/101RT/GR-3Ö-24VAC

Number of key-selector-switches

1	1 key-operated selector switch
2	2 key-operated selector switches
3	3 key-operated selector switches

Locking system

	Standard locking system
-Z	Central locking system

Key

	Standard silver
SR	Coloured key shaft Not in connection with a central locking system -Z!

Key number of the lock barrels

xxx	Key number(s) 32 ... 999
-----	--------------------------

Coloured key shaft oo/oo

All colour combinations are therefore possible

BR	Brown
GB	Yellow
RT	Red
BL	Blue
WS	White
GR	Grey
GN	Green
SW	Black

Rated control voltage

24 VDC	Us 24 VDC
24VAC	Us 24 VAC
115VAC	Us 115 VAC
230VAC	Us 230 VAC

Contacts

	Magnet: 1 NC/1 NO contact; Key-operated selector switch: 1 NC /1 NO contact; NC contacts in series
3Ö	Magnet: 1 NC/1 NO contact; Key-operated selector switch: 2 NC /1 NO contact; NC contacts in series
W	Magnet: 1 NC/1 NO contact; Key-operated selector switch: 2 NC /1 NO contact; NC contacts separately




For technical reasons not all possible variations and key combinations can be delivered.


The example ordering code breakdown is provided to identify product options.

To see a wide range of other types, visit www.usa.schmersal.net.

Trapped key system

Accessories

Contact element EF 103.2	101006548	Contact element EF 103.3	101006549	SHGV-SK	101183035
 <ul style="list-style-type: none"> ■ 1 NC contact / 1 NO contact ■ Screw terminals ■ Assembly flange position 2 ■ Contact labelling: 31 - 32; 43 - 44 		 <ul style="list-style-type: none"> ■ 1 NC contact / 1 NO contact ■ Screw terminals ■ Assembly flange position 3 ■ Contact labelling: 51 - 52; 63 - 64 		 <ul style="list-style-type: none"> ■ Dust shield cap 	

Coloured key-shaft	Colour	Colour code	Type designation	Material number
 <ul style="list-style-type: none"> ■ Both of the key shaft halves can be bonded together with commercially available cyanoacrylate adhesive for technical plastic. ■ Quantity 5 pieces ■ Not in connection with a central locking system! 	blue	BL	SHGV-SR/BL	101160194
	brown	BR	SHGV-SR/BR	101181721
	yellow	GE	SHGV-SR/GE	101160199
	green	GN	SHGV-SR/GN	101160197
	grey	GR	SHGV-SR/GR	101181719
	red	RT	SHGV-SR/RT	101160196
	black	SW	SHGV-SR/SW	101160193
	white	WS	SHGV-SR/WS	101160200

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