



# Operating Instructions



## SolConeX switch socket, 63 A

> 8579/31



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## 2 General Information

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### 2.1 Manufacturer

R. STAHL Schaltgeräte GmbH  
 Am Bahnhof 30  
 74638 Waldenburg  
 Germany

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 Fax: +49 7942 943-4333  
 Internet: [www.stahl-ex.com](http://www.stahl-ex.com)







## 2.2 Operating Instructions Information

ID-No.: 201300 / 8579610300  
 Publication Code: 2012-06-24-BA00-III-en-02

## 2.3 Conformity to Standards and Regulations

The conformity to the standards and regulations is specified in the corresponding certificates and declarations of the manufacturer (e.g. EC Declaration of Conformity). These documents are available for download on the internet page [www.stahl-ex.com](http://www.stahl-ex.com).





## 3 Symbols Used

	<b>Safety Instructions</b> <b>Non-observance can result in damage to equipment, serious injuries or death.</b> The safety instructions contained in these operating instructions and affixed to the device must be observed!
	<b>Warning symbol</b> Danger due to explosive atmosphere!
	<b>Warning symbol</b> Danger due to live parts!
	<b>Notice</b> This graphic marks important additional information, tips and recommendations.

## 4 General Safety Instructions

### 4.1 Operating Instructions Storage



Read these operating instructions carefully and store them near the installation place. For correct operation, please observe all other documents enclosed in this delivery and the operating instructions of the equipment to be connected.

 <b>WARNING</b>	
	<b>Use the devices only for their intended purpose!</b> ► We cannot be held liable for damage caused by an incorrect or unauthorized use or by non-observance of these operating instructions. ► Use the device only if it is undamaged.
 <b>WARNING</b>	
	<b>Any unauthorized work on the device is prohibited!</b> Installation, maintenance, overhaul and repair may only be carried out by appropriately authorized and trained personnel.

**Observe the following information during installation and operation:**

- ▶ Any damage can invalidate the explosion protection
- ▶ National and local safety regulations
- ▶ National and local accident prevention regulations
- ▶ National and local assembly and installation regulations
- ▶ Generally recognized technical regulations
- ▶ Safety instructions in these operating instructions
- ▶ Characteristic values and rated operating conditions on the rating and data plates
- ▶ Additional instruction plates fixed directly to the device

## 4.2 Alterations and Modifications

 <b>WARNING</b>	
	<b>Alterations and modifications to the device are not permitted!</b> We shall not accept any liability or warranty obligations for damage resulting from alterations and modifications.

## 4.3 Special Versions

In case of additional/different order options, special versions may differ from the description given here.

## 5 Intended Use

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The switch sockets 8579/31 are explosion-protected equipment, certified for use in hazardous areas of Zones 1, 2 and 21, 22.

The devices connect portable and fixed electrical equipment as well as cables and circuits in hazardous areas.

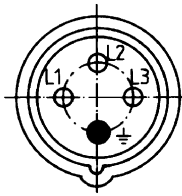
## 6 Technical Data

<b>Version</b>	<b>8579/31</b>																		
Explosion protection																			
Global (IECEX)																			
Gas und dust	IECEX PTB 06.0020 Ex d e IIC T6 (Ta = -30 ...+40 °C) Ex d e IIC T5 (Ta = -30 ...+55 °C) versions with auxiliary contacts for Ex i circuits: Ex d e [ib] IIC T6 (Ta = -30 ...+40 °C) Ex d e [ib] IIC T5 (Ta = -30 ...+55 °C)																		
Europe (ATEX)																			
Gas and dust	PTB 01 ATEX 1150 ⊕ II 2 G Ex d e IIC T6 (Ta = -30 ... +40 °C) ⊕ II 2 G Ex d e IIC T5 (Ta = -30 ... +55 °C) versions with auxiliary contacts for Ex i circuits: ⊕ II 2 G Ex d e [ib] IIC T6 (Ta = -30 ... +40 °C) ⊕ II 2 G Ex d e [ib] IIC T5 (Ta = -30 ... +55 °C)																		
Ambient temperature	see Explosion Protection data - 45 °C on request (internal lubrication with silicone grease)																		
Interlocked switch	switch with isolating characteristics, 3-pole/3-pole + N																		
Operating handle	padlockable with a padlock in 0 and I positions																		
Rated operational voltage	max. 690 V																		
Rated operational current	63 A ≥ 100 Hz, 50 A																		
Rated insulation voltage	max. 690 V																		
Switching capacity	according to IEC/EN 60947-3:																		
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">AC-3</th> <th style="width: 33%;">DC-23</th> <th style="width: 33%;">DC-1</th> </tr> </thead> <tbody> <tr> <td>690 V, 63 A</td> <td>220 V, 63 A<sup>3)</sup></td> <td>220 V, 63 A<sup>3)</sup></td> </tr> <tr> <td>18.5 kW, 220 / 230 / 240 V</td> <td>120 V, 63 A<sup>2)</sup></td> <td>120 V, 63 A<sup>2)</sup></td> </tr> <tr> <td>30 kW, 380 / 400 / 415 V</td> <td>60 V, 63 A<sup>1)</sup></td> <td>60 V, 63 A<sup>1)</sup></td> </tr> <tr> <td>37 kW, 500 V</td> <td></td> <td></td> </tr> <tr> <td>55 kW, 690 V</td> <td></td> <td></td> </tr> </tbody> </table>	AC-3	DC-23	DC-1	690 V, 63 A	220 V, 63 A <sup>3)</sup>	220 V, 63 A <sup>3)</sup>	18.5 kW, 220 / 230 / 240 V	120 V, 63 A <sup>2)</sup>	120 V, 63 A <sup>2)</sup>	30 kW, 380 / 400 / 415 V	60 V, 63 A <sup>1)</sup>	60 V, 63 A <sup>1)</sup>	37 kW, 500 V			55 kW, 690 V		
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55 kW, 690 V																			
	<p>1) 1 contact 2) 2 contacts connected in series 3) 3 contacts connected in series</p>																		
Short circuit protection	max. 80 A gG acc. to IEC/EN 60269-2																		
Connection cross-section																			
Main contacts	16 ... 50 mm <sup>2</sup> , finely stranded / stranded																		
Service life																			
Electrical	20,000 operating cycles																		
Mechanical	100,000 operating cycles																		
Tightening torque																			
Main contacts	6 Nm																		
Cover screws	3.5 Nm																		

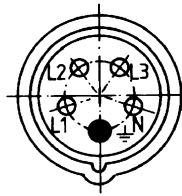
Cable gland	1 x M50 x 1.5
Cable dia. range	23 ... 35 mm
Stopping plugs	1 x M25 x 1.5
Enclosure material	polyester
Degree of protection	IP66 acc. to IEC/EN 60529
<b>Auxiliary contacts</b>	
Standard version	<b>8080/1-1</b> : 1 NC contact + 1 NO contact in the left installation slot NO contact ON delayed NO contact OFF leading (> 20 ms before opening of the main contacts) NC contact synchronizing
Possible auxiliary contacts	max. 2 auxiliary contact blocks of Type 8080/1 (slow-action contacts) <b>8080/1-1</b> : 1 NC contact + 1 NO contact NO contact ON delayed <sup>1)</sup> NO contact OFF leading (> 20 ms before opening of the main contacts) <sup>1)</sup> NC contact synchronizing <b>8080/1-3</b> : 2 NC contacts <sup>2)</sup> <b>8080/1-4</b> : 2 NO contacts <sup>2)</sup> <sup>1)</sup> only in the left installation slot, synchronizing in the right installation slot <sup>2)</sup> synchronizing in all installation slots
Rated operational voltage	250 V AC / DC 400 V AC, for equal potential of both contacts 500 V AC, when 1 NC + 1 NO and the same potential of both contacts is used
Rated operational current	max. 6 A
Short-circuit protection	10 A, tripping characteristic gG acc. to IEC/EN 60269-1
Connection cross-section	1.5 ... 2.5 mm <sup>2</sup> (AWG 16 ... 14) solid / finely stranded
Tightening torque	0.4 Nm

## 6.1 Arrangement of Contacts and Terminal Marking

View from the front. The illustrations show the 6 h position.



3P + PE



3P + N + PE

06556E00

06555E00

No. of poles	Frequency	Rated operational voltage	Colour code	Position of the earth contact
3P + PE	50 and 60 Hz	100 ... 130 V	yellow	4 h
		200 ... 250 V	blue	9 h
		380 ... 415 V	red	6 h
	60 Hz	440 ... 460 V <sup>1)</sup>	red	11 h
	50 and 60 Hz	480 ... 500 V	black	7 h
		600 ... 690 V	black	5 h
		after isolating transformer	<sup>4)</sup>	12 h
	50 Hz 60 Hz	380 V <sup>2)</sup> 440 V <sup>2)</sup>	red	3 h
	100 ... 300 Hz	> 50 V	green	10 h <sup>3)</sup>
> 300 ... 500 Hz	> 50 V	green	2 h	
3P + N + PE	50 and 60 Hz	57 / 100 ... 75 / 130 V	yellow	4 h
		120 / 208 ... 144 / 250 V	blue	9 h
		200 / 346 ... 240 / 415 V	red	6 h
		277 / 480 ... 288 / 500 V	black	7 h
		347 / 600 ... 400 / 690 V	black	5 h
	60 Hz	250 / 440 ... 265 / 460 V	red	11 h
	50 Hz	220 / 380 V <sup>2)</sup>	red	3 h
	60 Hz	250 / 440 V <sup>2)</sup>		
	100 ... 300 Hz	> 50 V	green	10 h
	> 300 ... 500 Hz	> 50 V	green	2 h
Any no. of poles	All nominal operating voltages and/or frequencies not covered by other arrangements.			1 h

**Colour code and arrangement of the earth contact, relative to the polarizing slot, for different voltages and frequencies according to IEC/EN 60309-2**

<sup>1)</sup> mainly for ship installations

<sup>2)</sup> only for refrigerated containers (according to ISO standards)

<sup>3)</sup> not standardized but recommended preferred position

<sup>4)</sup> colour code according to voltage colour code

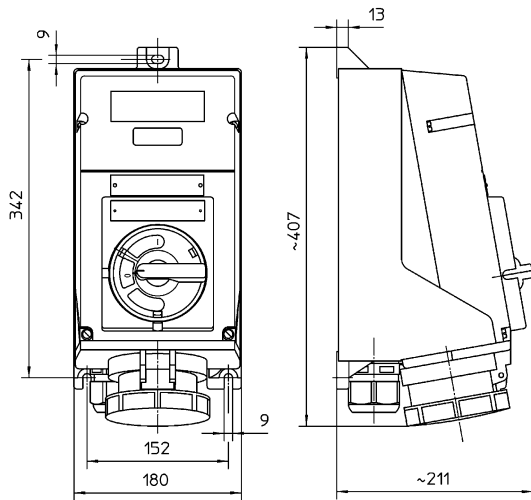
## 7 Transport and Storage

- ▶ Transport and storage are only permitted in the original packaging.
- ▶ The devices must be stored in a dry place and vibration-free.

## 8 Installation




### 8.1 Dimensional Data / Fastening Dimensions

Dimensional drawings (all dimensions in mm) - subject to alterations



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### 8.2 Installation Conditions

<b>⚠ WARNING</b>	
	<p><b>Risk of electric shock!</b> Before opening the device, disconnect it from the power supply.</p>
<b>⚠ WARNING</b>	
	<p><b>Use approved components only!</b> For unused enclosure holes, use R. STAHL stopping plugs, for unused cable entries, use R. STAHL plugs. Make sure that these components have appropriate approval and meet the requirements of IEC/EN.</p>
<b>NOTICE</b>	
	<p>When open, the switch cogwheel may not be switched, since the switching function is not guaranteed with a wrong cogwheel position!</p>



### 8.3 Opening / Closing the Enclosure


#### Opening the enclosure

- ▶ Loosen the cover screws.
- ▶ Open the cover along with the rotary actuator.

#### Closing the enclosure

- ▶ Close the cover along with the rotary actuator.
- ▶ Tighten the cover screws to the specified tightening torque (3.5 Nm).

### 8.4 Mounting and Operating Position

<b>NOTICE</b>	
	<ul style="list-style-type: none"> <li>▶ When explosion-protected electric equipment is exposed to the weather, it is advisable to provide a protective roof or wall.</li> <li>▶ The elongated holes allow vertical and horizontal adjustment during mounting.</li> </ul>

#### When mounting, make sure that


- ▶ the hinged cover is at the bottom, the connection chamber is on top
- ▶ the device is fixed in a vertical installation position to a plane wall using 3 screws ( $\varnothing$  6 ... 8 mm) and suitable washers
- ▶ all screws and nuts have been firmly tightened

### 8.5 Electrical Connection

- ▶ The information given in chapter "Technical Data" must be observed.
- ▶ The conductor connection must be made with particular care.
- ▶ The conductor insulation must reach up to the clamping points.
- ▶ Do not damage the conductor (nicking) when removing the insulation.
- ▶ Ensure that the maximum permissible conductor temperatures and the maximum permissible surface temperature are not exceeded by performing a suitable selection of electric lines and means of running them.

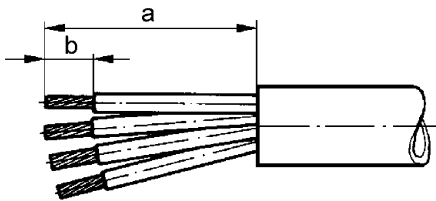
<b>NOTICE</b>	
	Always connect the protective conductor.

## 8.6 Connection

 <b>WARNING</b>	
	<b>Ensure correct conductor connection!</b>
	▶ Observe the information regarding the connection cross-sections given in chapter "Technical Data".

<b>NOTICE</b>	
	Metal cable glands are included in the earthing measures.

- ▶ Open the connecting chamber cover.
- ▶ Strip the insulation from the cable ends.
- ▶ Push the cable through the cable gland into the connection chamber.
- ▶ Clamp stripped cable ends under the corresponding clamping point.
- ▶ While clamping, ensure that the stripped cable ends are fully underneath the clamping plate.
- ▶ Make sure that the clamping points are strain-relieved.
- ▶ Tighten the union nut of the cable gland, place the connection chamber cover carefully on top and tighten it.



	a [mm]	b [mm]	max. [mm <sup>2</sup> ]
Main contacts	380	20	50
Auxiliary contacts	380	10	2.5

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## 9 Auxiliary Contacts

Standard versions are delivered with an auxiliary contact (8080/1-1: 1 NC contact and 1 NO contact) in the left installation slot.


A maximum of 2 Type 8080/1 auxiliary contacts can be used.

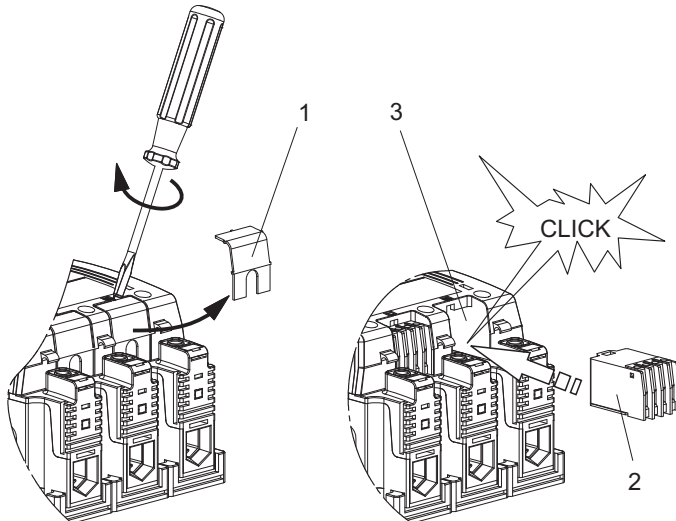
The switching function of the auxiliary contact depends on the installation slot used, see chapter "Technical Data".

### Auxiliary contacts in Ex i circuits

If the auxiliary contacts of Type 8080/1 are used in Ex i circuits, they must be provided with a cover (Art. No. 168855).

## 9.1 Mounting Auxiliary Contacts

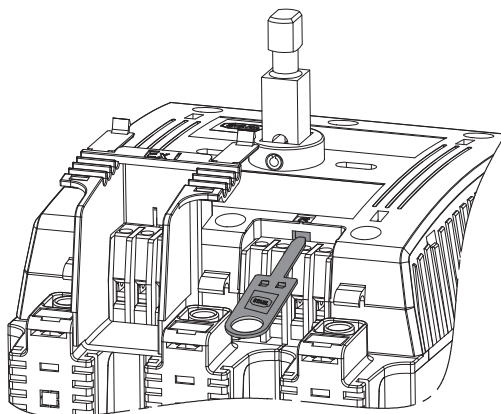
<b>NOTICE</b>	
	Before mounting an auxiliary contact, the cover (1) must be removed. The degree of protection IP20 (finger-safe) remains intact even after removing the cover.



12435E00

- ▶ Carefully remove the cover (1) of the installation slot (3) using a screwdriver or a knife.
- ▶ Carefully insert the auxiliary contact (2) into the installation slot until it engages.
- ▶ Paste the enclosed circuit diagram indicating the respective switching function to the rating plate of the switch.


## 9.2 Dismounting Auxiliary Contacts




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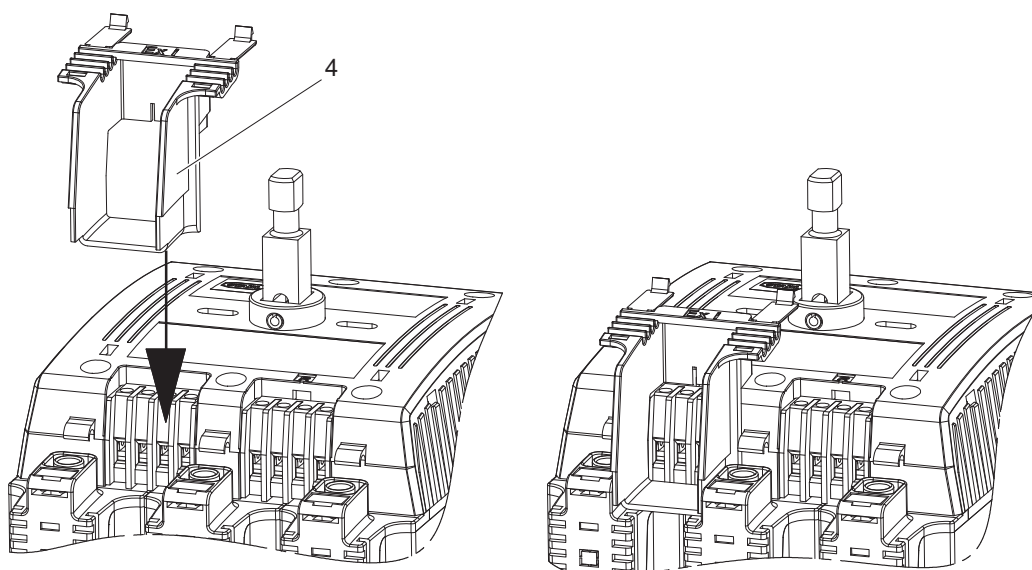
- ▶ Introduce the auxiliary contact key (Art. no. 201909) with the Stahl logo pointing upwards (!) between the auxiliary contact and the switch cover.
- ▶ Pull out the auxiliary contact along with the auxiliary contact key.

### 9.3 Auxiliary Contacts for Ex i Circuits

<b>⚠ WARNING</b>	
	<p><b>Observe the specified clearance and creepage distances!</b></p> <ul style="list-style-type: none"> <li>▶ For use in Ex i circuits, the auxiliary contacts (Type 8080/1) must be provided with a cover (Art. no. 168855).</li> <li>▶ The customer is only allowed to install an intrinsically safe auxiliary contact if no alligator clips are mounted on the two terminals located on the left and right side of the respective installation slot!</li> </ul>

### 9.4 Mounting the Ex i cover for the Auxiliary Contacts

<b>NOTICE</b>	
	<p>The Ex i cover serves to ensure the required tight string length (50 mm) between the connection points of intrinsically safe and non-intrinsically safe circuits.</p>



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- ▶ Attach the cover (4) from the top to the auxiliary contact until the lug engages.

## 10 Putting into Service

- ▶ The switch socket may only be used fully closed with the connection chamber cover in place!
- ▶ The switch socket can only be switched on with inserted plug.
- ▶ The plug may only be pulled out if the device is switched off.
- ▶ Only Type 8579/12 plugs from R. STAHL may be used.
- ▶ Make sure that the bayonet lock of the socket is closed when the plug is pulled out.

**Before commissioning, ensure that**

- ▶ no components are damaged
- ▶ the device has been installed according to regulations
- ▶ there are no foreign bodies inside the device
- ▶ all screws and nuts have been firmly tightened,
- ▶ the prescribed tightening torques have been observed
- ▶ connection has been made correctly.

**NOTICE**

- ▶ Switching on and off has to be done swiftly and completely!
- ▶ Avoid switching positions between 0 and I (ON and OFF)!

**10.1 Padlocking with a Padlock**

The switch can be padlocked with a padlock in 0 and I positions.

**11 Maintenance, Overhaul and Repair**

Consult the relevant national regulations to determine the type and extent of inspections. Plan the intervals such that any defects in the equipment which may be anticipated are promptly detected.

**⚠ WARNING****Risk of electric shock!**

Before opening the device, disconnect it from the power supply.

**The following details must be checked during maintenance:**

- ▶ Cables are held securely in place
- ▶ Compliance with the permissible temperatures (according to IEC/EN 60079)
- ▶ Damage to the enclosure and seals
- ▶ Check if screws and nuts are tight

**NOTICE**

To avoid corrosion, the plug must be pulled regularly.

**11.1 Short-circuit in the main circuit****⚠ WARNING****After a short-circuit in the main circuit, the switch must be replaced!**

Replace the switch after each short circuit in the main circuit, since with hermetically sealed equipment the state of the switching contacts cannot be checked.

**12 Cleaning**

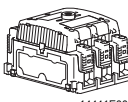


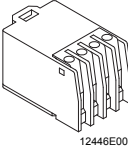
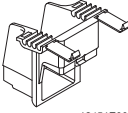

- ▶ The device may only be cleaned with a damp cloth.

## 13 Disposal

Observe the national waste disposal regulations.

## 14 Accessories and Spare Parts

⚠ WARNING	
	<p><b>If wrong accessories are used, explosion protection cannot be guaranteed!</b></p> <p>Use only original R. STAHL accessories and spare parts.</p>

Designation	Illustration	Description	Art. no.	Weight kg
Switch insert	 14441E00	8544/1-31L	167239	2.200
Plastic cable gland	 05864E00	8161/5-M25-17	138520	0.020
		8161/5-M50-35	138526	0.091
Stopping plug	 04840E00	8290/3-M25 x 1,5	143524	0.007
Auxiliary contact, Series 8080/1	 12446E00	2 NC contacts (8080/1-3)	168356	0.026
		1 NC contact + 1 NO contact (8080/1-1)	168351	0.026
		2 NO contacts (8080/1-4)	168353	0.026
		The switching function of the auxiliary contact depends on the installation slot used, see chapter "Technical Data"		
Ex i cover	 12451E00	Ex i cover for auxiliary contacts for use in Ex i circuits	168855	0.008
Auxiliary contact key	 14151E00	for removing the mounted auxiliary contact	201909	0.035