

MOUNTING AND OPERATING INSTRUCTIONS



EB 8357 EN

Translation of original instructions



Type 4740 Electric Limit Switch

Edition January 2015



Note on these mounting and operating instructions

These mounting and operating instructions assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices.

- For the safe and proper use of these instructions, read them carefully and keep them for later reference.
- If you have any questions about these instructions, contact SAMSON's After-sales Service Department (aftersaleservice@samson.de).



The mounting and operating instructions for the devices are included in the scope of delivery. The latest documentation is available on our website at www.samson.de > **Service & Support** > **Downloads** > **Documentation**.

Definition of signal words

DANGER

Hazardous situations which, if not avoided, will result in death or serious injury

WARNING

Hazardous situations which, if not avoided, could result in death or serious injury

NOTICE

Property damage message or malfunction

Note

Additional information

Tip

Recommended action

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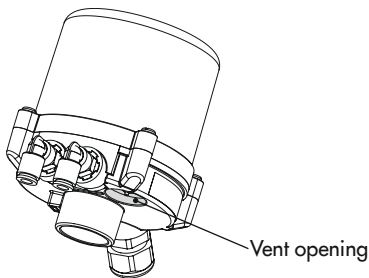
1 General safety instructions

For your own safety, follow these instructions concerning the mounting, start up and operation of the limit switch:

- The device is to be mounted, started up or operated only by trained and experienced personnel familiar with the product.
According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible dangers due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.
- Any hazards that could be caused in the valve by the process medium and the operating pressure or by moving parts are to be prevented by taking appropriate precautions.
- If inadmissible motions or forces are produced in the pneumatic actuator as a result of the supply pressure, it must be restricted using a suitable supply pressure reducing station.

To avoid damage to any equipment, the following also applies:

- Do not operate the device with the back of the device/vent opening facing upwards.
- Do not seal the vent opening when the device is installed on site.




- Proper shipping and storage are assumed.

i Note

*Devices with a CE marking fulfill the requirements of the Directive 2014/30/EU.
The declaration of conformity is included in the appendix of this document.*

2 Markings on the device

2.1 Nameplate

SAMSON 4740	Limit Switch	
1	2	
Model 4740-	3	
Var-ID	4	Serial no. 5
SAMSON AG D-60314 Frankfurt		Made in Germany

- 1 Marking to indicate without/with solenoid valve
- 2 Marking to indicate inductive/mechanical proximity switch
- 3 Article code
- 4 Configuration ID
- 5 Serial number

2.2 Article code

Limit switch	Type	4740-	0	0	0	x	x	x	x	0	0	x	x
Design													
Inductive proximity sensor NCB2-V3-NO						1							
Mechanical microswitch XGG 12-88-S20						5							
Switching element													
With two switching elements (standard)							2						
Solenoid valve													
Without								0					
24 V DC								1					
Pneumatic connection													
Without									0				
Push-in L-connector QS-G 1/8-6									1				
ISO 228/1-G 1/8									2				
Special version													
Without												0	0

3 Design and principle of operation

The Type 4740 Limit Switch can be mounted on the following devices:

- Type 3353 Angle Seat Valve (see Fig. 1)
- Type 3354 Globe Valve
- Type 3379 Pneumatic Actuator

The inductive proximity switches or microswitches cause signals to be sent to a control or alarm system when the travel exceeds or falls below the adjusted limit.

The limit switch can optionally be fitted with a 3/2-way solenoid valve. When the integrated solenoid valve is energized, supply air is applied to the actuator. When the solenoid valve is de-energized, the actuator is vented and the control valve moves to its fail-safe position.

The switching points of the limit contacts can be changed within the travel range after installation. See section 5.1 on page 20.

3.1 Versions

Two versions of the Type 4740 Limit Switch are available:

- With inductive proximity switches
- With microswitches

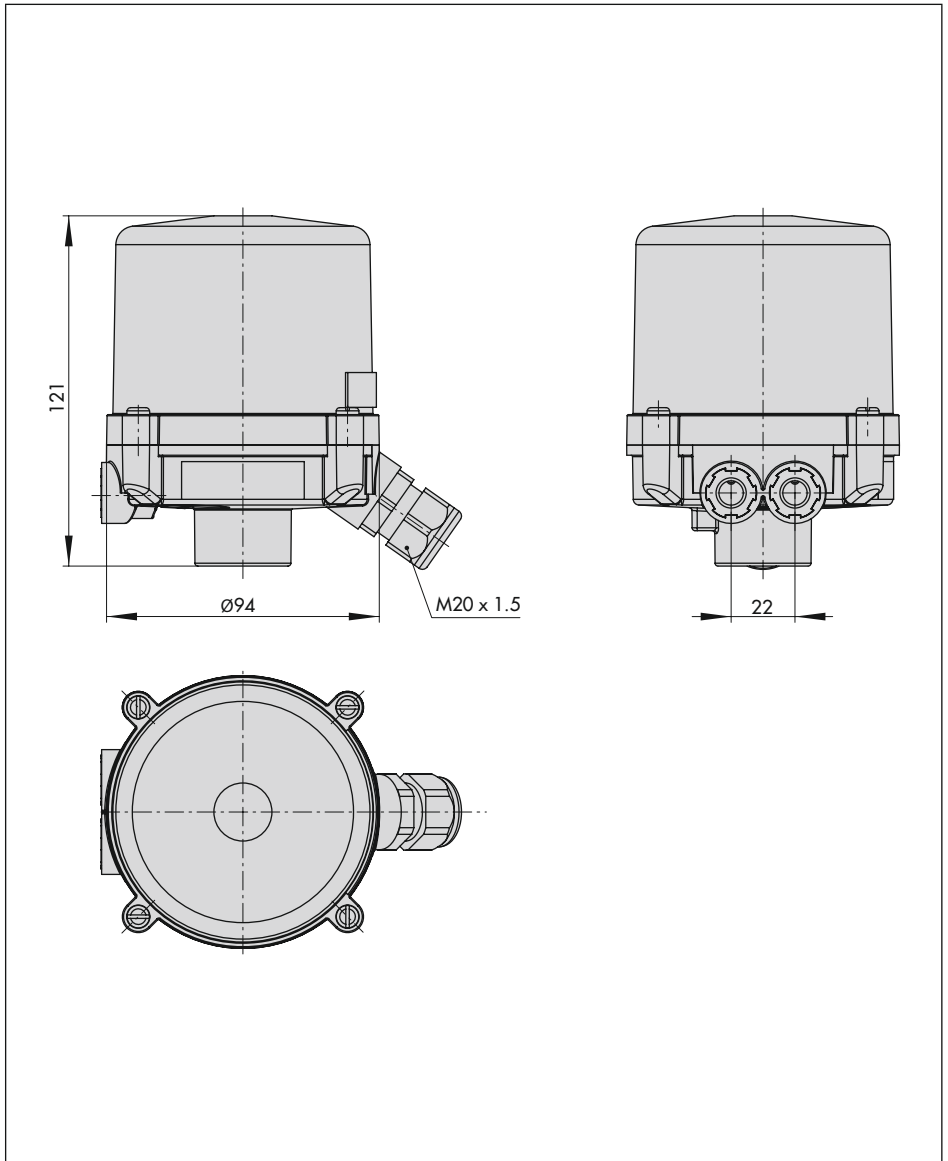


Fig. 1: Type 4740 Limit Switch with optional solenoid valve on a Type 3353 Angle Seat Valve

3.2 Technical data

Electric limit switch	Type 4740
Travel range	0 to 15 mm
Ambient temperature range	-20 to +65 °C
Degree of protection	IP 65
Version with inductive proximity switches	
Nominal voltage	8.2 V DC over isolating switch amplifier according to EN 60947-5-6
Version with microswitches	
Switching capacity	250 V AC, 16 (6) A
Option: 3/2-way solenoid valve	
Nominal voltage	24 V DC
Power	1.5 W
Flow rate	55 l _n /min (K _v = 0.035)
Maximum operating pressure	7 bar
Pneumatic connection	Push-in L-connector QS-G 1/8-6 or ISO 228/1-G 1/8
Materials	
Housing	Polyamide
Cover	Polycarbonate
Filter	Polyethylene
Mounting kit	Stainless steel
Weight	
Limit switch (including solenoid valve)	Approx. 550 g
Mounting kit	Approx. 180 g

3.3 Dimensions in mm



4 Mounting and start-up

4.1 Mounting on Type 3353 and Type 3354 Valves

i Note

The mounting unit (1400-9922) is required to mount the limit switch on the Type 3353 Angle Seat Valve and the Type 3354 Globe Valve.

4.1.1 Preparing the mounting kit

→ Refer to Fig. 2

⚠ WARNING

Risk of cut injury due to sharp thread.
Do not touch the sharp thread of the adapter.

i Note

The spacer (4) is only required to mount the limit switch on a fail-close (FA/NC) valve.

Limit switch with inductive proximity switches

→ Thread the guided bushing (2) with the beveled part (2.1) facing downward onto the stem of the adapter (3.1), while holding the screw inside the adapter stationary.

Limit switch with microswitches

→ Thread the guided bushing (2) with the straight rim (2.2) facing downward onto the stem of the adapter (3.1), while holding the screw inside the adapter stationary.

Fail-open (FE/NO) version

→ The spacer is not required.

Fail-open (FA/NC) version

→ Insert the spacer (4) into the sleeve of the adapter (3.2) as far as it will go.

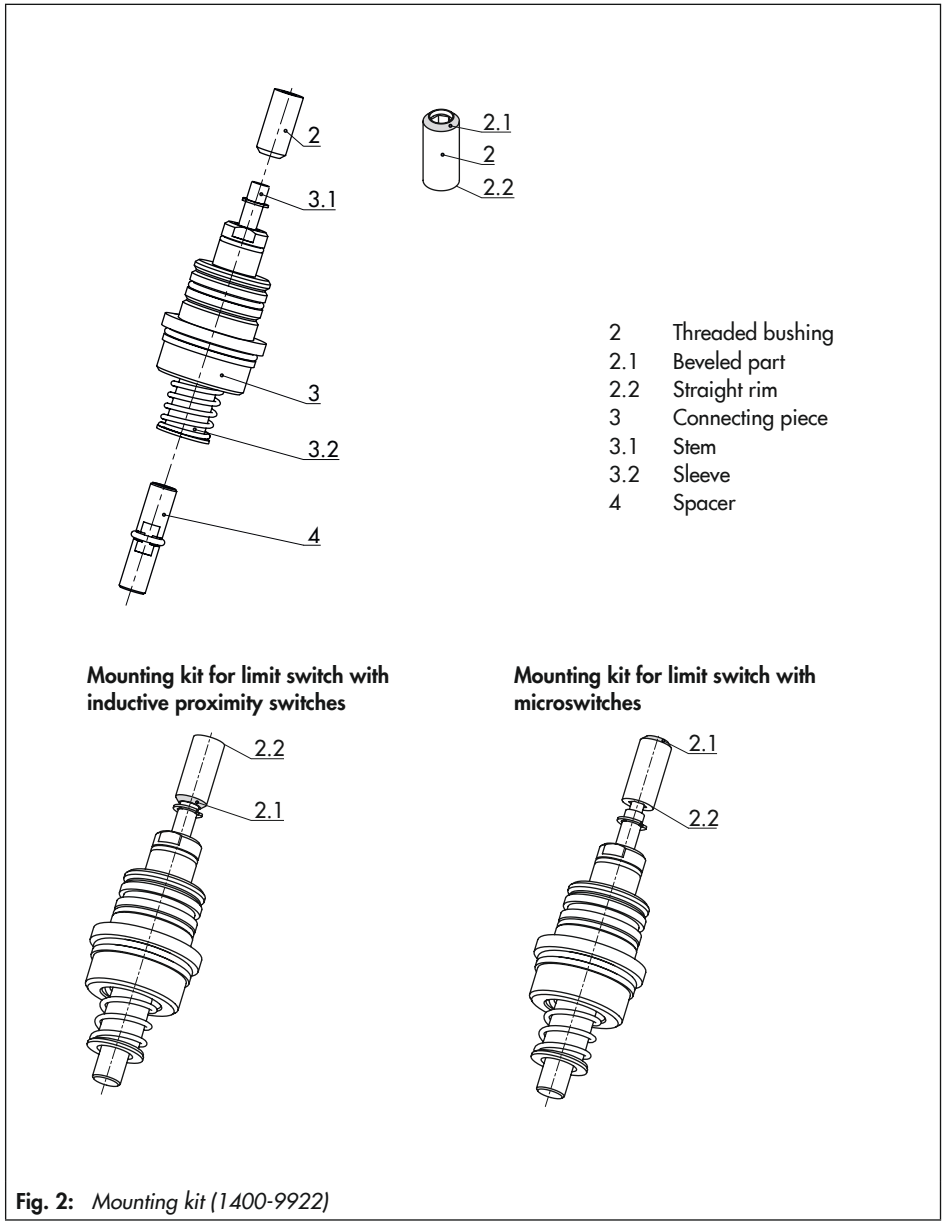


Fig. 2: Mounting kit (1400-9922)

4.1.2 Mounting on the control valve

→ Refer to Fig. 3

⚠ WARNING

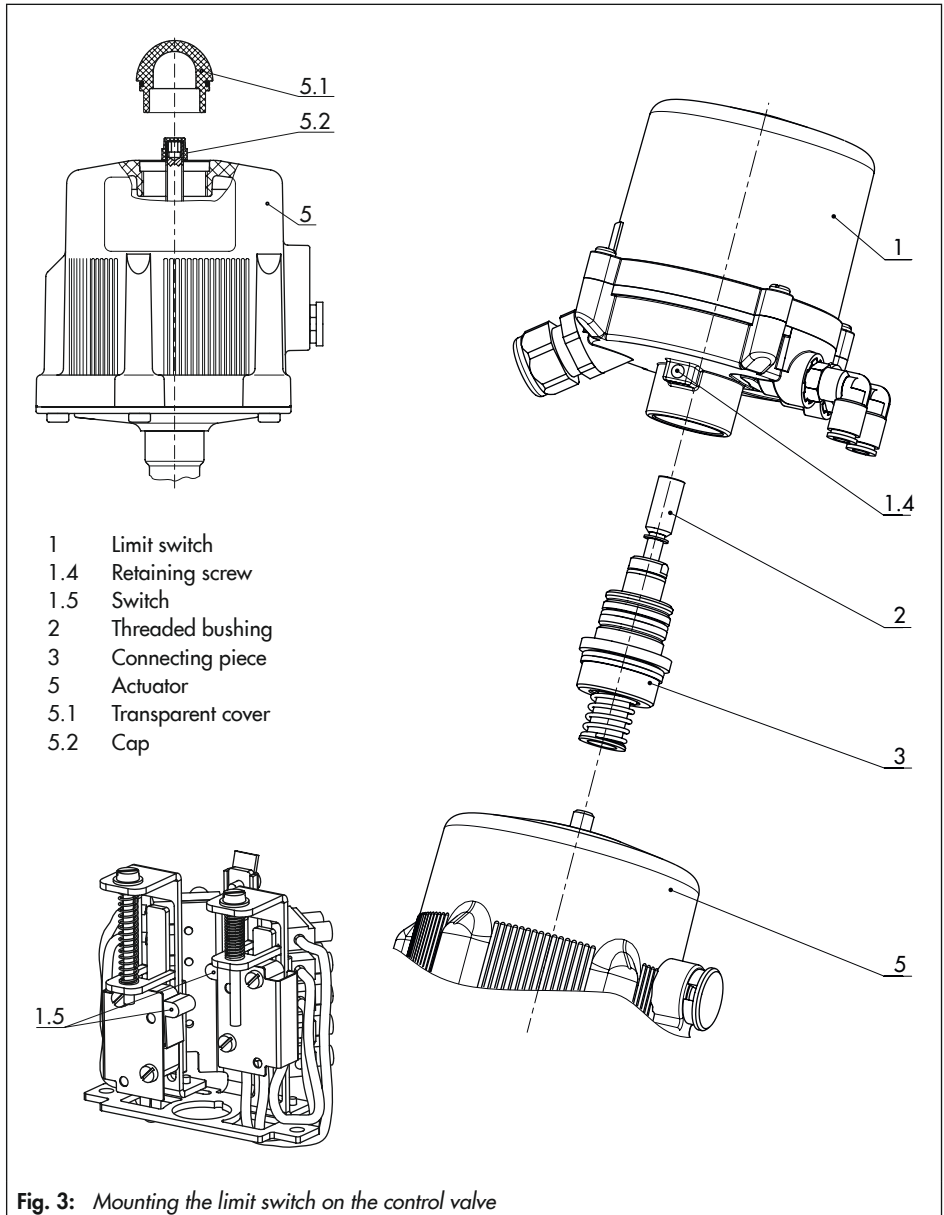
*Risk of personal injury due to preloaded springs in the adapter.
Keep hold of the adapter when screwing or unscrewing it and secure it against sudden unintentional release.*

Fail-open (FE/NO) version

1. Use an open-end wrench (width across flats 32) or a pair of pliers to remove the transparent cover (5.1) from the actuator (5).
2. Use a socket wrench (width across flats 11) to unscrew the cap (5.2) from the actuator stem.
3. Thread the ready-assembled adapter (see section 4.1.1) from the top into the actuator (5).
→ Make sure that the adapter does not spring back as a result of the spring compression.
4. Carefully place the limit switch (1) on the ready-assembled adapter.
→ For the version with microswitches, make sure that the switches (1.5) in the limit switch do not get damaged.
5. Lock the limit switch in the required position using the retaining screw (1.4).

Fail-close (FA/NC)

1. Extend the actuator stem (apply air to the actuator).
2. Use an open-end wrench (width across flats 32) or a pair of pliers to remove the transparent cover (5.1) from the actuator (5).
3. Use a socket wrench (width across flats 11) to unscrew the cap (5.2) from the actuator stem.
4. Retract the actuator stem (vent the actuator).
5. Thread the ready-assembled adapter (see section 4.1.1) from the top into the actuator (5).
→ Make sure that the adapter does not spring back as a result of the spring compression.
6. Carefully place the limit switch (1) on the ready-assembled adapter.
→ For the version with microswitches, make sure that the switches (1.5) in the limit switch do not get damaged.
7. Lock the limit switch in the required position using the retaining screw (1.4).



4.2 Mounting on Type 3379 Pneumatic Actuator

i Note

The mounting kit (1402-1067) is required to mount the limit switch on the Type 3379 Pneumatic Actuator.

4.2.1 Preparing the mounting kit

→ Refer to Fig. 4

⚠ WARNING

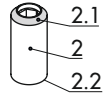
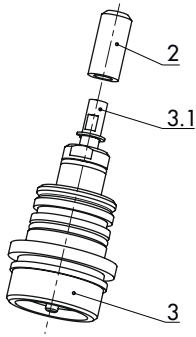
*Risk of cut injury due to sharp thread.
Do not touch the sharp thread of the adapter.*

Limit switch with inductive proximity switches

→ Thread the guided bushing (2) with the beveled part (2.1) facing downward onto the stem of the adapter (3.1), while holding the screw inside the adapter stationary.

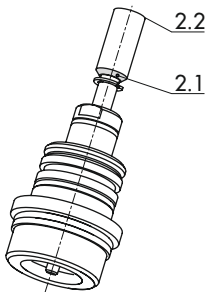
Limit switch with microswitches

→ Thread the guided bushing (2) with the straight rim (2.2) facing downward onto the stem of the adapter (3.1), while holding the screw inside the adapter stationary.



- 2 Threaded bushing
- 2.1 Beveled part
- 2.2 Straight rim
- 3 Connecting piece
- 3.1 Stem

Mounting kit for limit switch with inductive proximity switches



Mounting kit for limit switch with microswitches

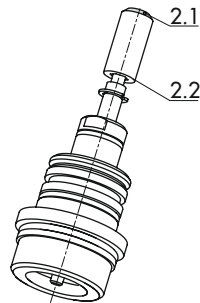
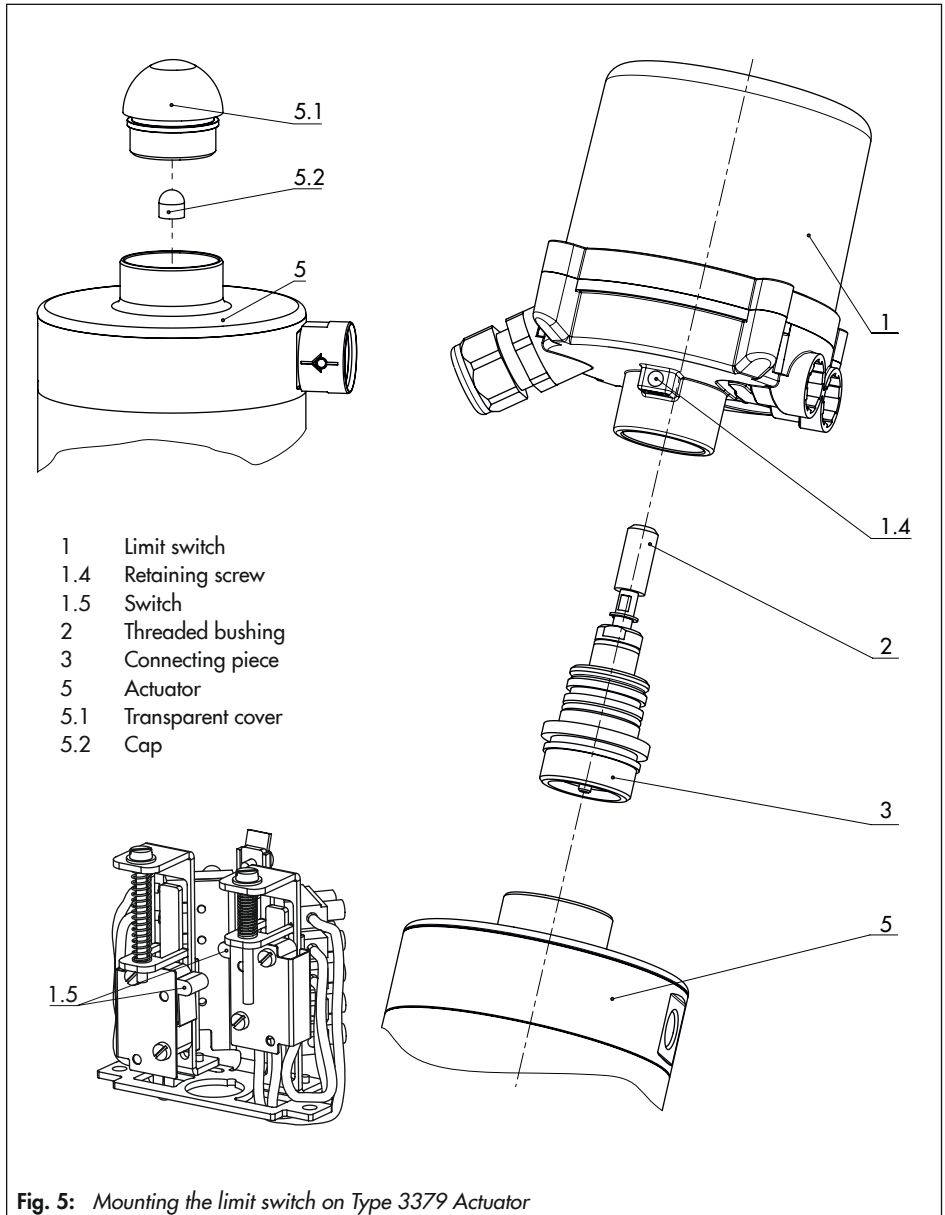


Fig. 4: *Mounting kit (1402-1067)*

4.2.2 Mounting on actuator

→ Refer to Fig. 5

1. Use an open-end wrench (width across flats 32) or a pair of pliers to remove the transparent cover (5.1) from the actuator (5).
 2. Pull the cap (5.2) off the actuator stem.
 3. Thread the ready-assembled adapter (see section 4.2.1) from the top into the actuator (5).
 4. Carefully place the limit switch (1) on the ready-assembled adapter.
- For the version with microswitches, make sure that the switches (1.5) in the limit switch do not get damaged.
5. Lock the limit switch in the required position using the retaining screw (1.4).



4.3 Installation

4.3.1 Electrical connection

⚠ DANGER

Risk of electric shock!

For electrical installation, observe the relevant electrotechnical regulations and the accident prevention regulations that apply in the country of use. In Germany, these are the VDE regulations and the accident prevention regulations of the employers' liability insurance.

1. Unscrew the four screws on housing cover and take the cover off the actuator.
2. Route wires through the cable gland to the terminals as shown in Fig. 6.
3. Place on the housing cover and fasten it.

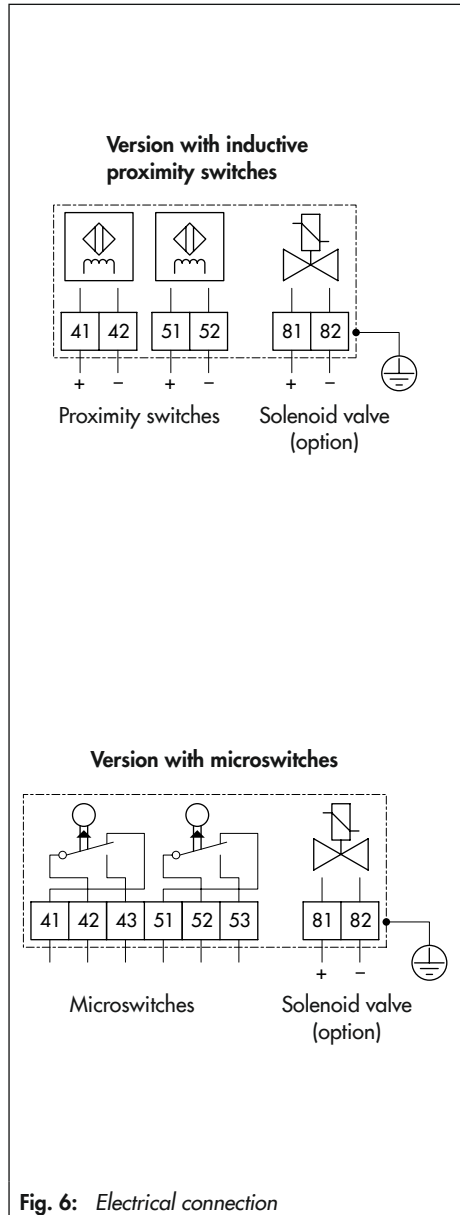


Fig. 6: Electrical connection

4.3.2 Pneumatic connection

NOTICE

Risk of malfunction due to failure to comply with required air quality.

- Only use supply air that is dry and free of oil and dust.
- Read the maintenance instructions for upstream pressure reducing stations.
- Blow through all air pipes and hoses thoroughly before connecting them.

Two pneumatic connections exist on the limit switch version with solenoid valve (see Fig. 7).

The following assignment apply to the connections:

- Connection 1: Supply
- Connection 2: Output

The screw fittings are designed as:

- Push-in L-connector QS-G 1/8-6 or
- ISO 228/1-G 1/8.

→ See article code on page 6

Note

The pneumatic connections in the version without solenoid valve are sealed with stoppers.

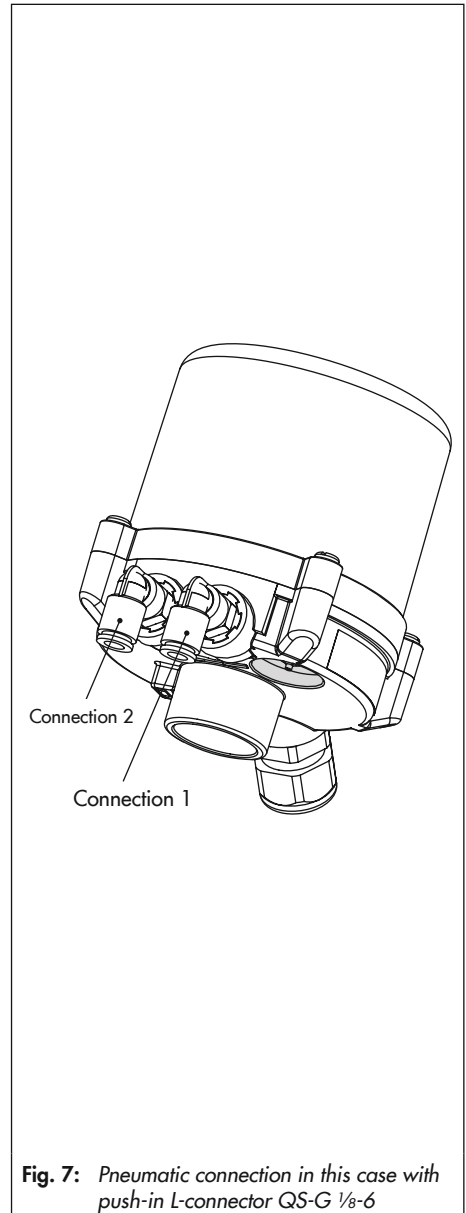


Fig. 7: *Pneumatic connection in this case with push-in L-connector QS-G 1/8-6*

5 Start-up

5.1 Adjusting the limit contacts

The switching point of the limit contacts can be changed within the travel range after installation.

To adjust the switching point, proceed as follows:

1. Unscrew the four screws on housing cover of the limit switch and take the cover off the actuator.
2. Loosen the two screws (1.1) of the limit contact (1.3) to be adjusted so that the limit contact (1.3) can move on the rail (1.4).
3. Adjust the switching point with the screw (1.2):
 - ➔ Turn the screw clockwise to move the limit contact towards the top end position.
 - ➔ Turn the screw counterclockwise to move the limit contact towards the bottom end position.
4. Lock the limit contact (1.3) in position with the screws (1.1).
5. Replace the housing cover of the limit switch and fasten down with the four screws.

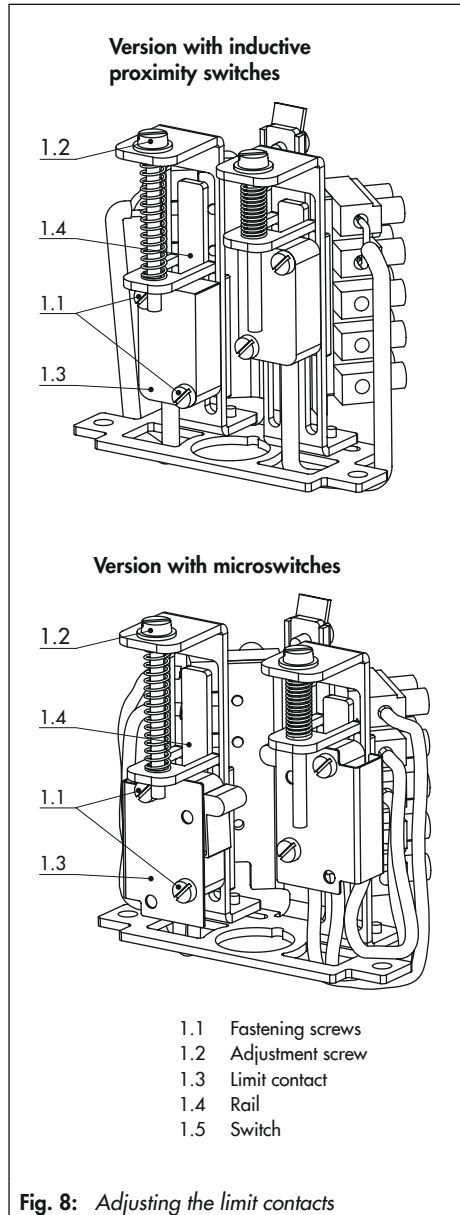


Fig. 8: Adjusting the limit contacts

6 Disposal



SAMSON is a producer registered at the following European institution ► <https://www.ewrn.org/national-registers/national-registers>.
WEEE reg. no.:
DE 62194439/FR 025665

- Observe local, national and international refuse regulations.
- Do not dispose of components, lubricants and hazardous substances together with your other household waste.

i Note

We can provide you with a recycling passport according to PAS 1049 on request. Simply e-mail us at offersaleservice@samsongroup.com giving details of your company address.

💡 Tip

On request, we can appoint a service provider to dismantle and recycle the product.



**EU Konformitätserklärung / EU Declaration of Conformity /
Déclaration UE de conformité**

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller/
This declaration of conformity is issued under the sole responsibility of the manufacturer/
La présente déclaration de conformité est établie sous la seule responsabilité du fabricant.
Für das folgende Produkt / For the following product / Nous certifions que le produit

**Grenzsinalgeber / Limit Switch / Contact de position
Typ/Type/Type 4740**

wird die Konformität mit den einschlägigen Harmonisierungsrechtsvorschriften der Union bestätigt/
the conformity with the relevant Union harmonisation legislation is declared with/
est conforme à la législation d'harmonisation de l'Union applicable selon les normes:

EMC 2014/30/EU	EN 61000-6-2:2005, EN 61000-6-3:2007 +A1:2011, EN 61326-1:2013
LVD 2014/35/EU	EN 60730-1:2016, EN 61010-1:2010
RoHS 2011/65/EU	EN 50581:2012

Hersteller / Manufacturer / Fabricant:

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3
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Deutschland/Germany/Allemagne

Frankfurt / Francfort, 2017-07-29

Im Namen des Herstellers/ On behalf of the Manufacturer/ Au nom du fabricant.

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