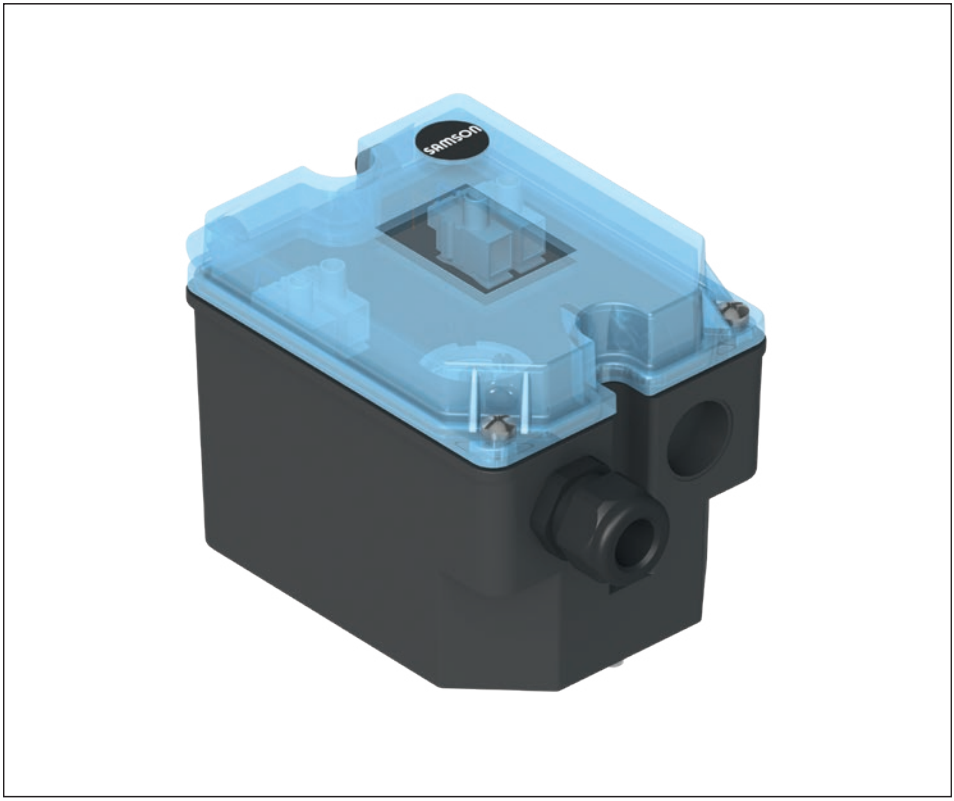
MOUNTING AND OPERATING INSTRUCTIONS

EB 3773 EN

Translation of original instructions



Type 3773 Limit Switch

Edition November 2021

CE Ex certified

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. The images shown in these instructions are for illustration purposes only. The actual product may vary.

➔ 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 (aftersalesservice@samsongroup.com).

Documents relating to the device, such as the mounting and operating instructions, are available on our website at ***www.samsongroup.com > 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

1 Safety instructions and measures

Intended use

The SAMSON Type 3773 Limit Switch is mounted on pneumatic rotary actuators according to VDI/VDE 3845. It issues an electric signal when the valve travel exceeds or falls below an adjusted limit. The signal is suitable for switching control signals, issuing visual and audible alarms or for connection to central control or alarm systems. The device is designed to operate under exactly defined conditions (e.g. temperature). Therefore, operators must ensure that the limit switch is only used in applications where the operating conditions correspond to the technical data. In case operators intend to use the limit switch in other applications or conditions than specified, contact SAMSON.

SAMSON does not assume any liability for damage resulting from the failure to use the device for its intended purpose or for damage caused by external forces or any other external factors.

➔ Refer to the technical data for limits and fields of application as well as possible uses.

Reasonably foreseeable misuse

The Type 3773 Limit Switch is ***not*** suitable for the following applications:

– Use outside the limits defined during sizing and by the technical data

Furthermore, the following activities do not comply with the intended use:

– Use of non-original spare parts
– Performing maintenance activities not described in these instructions

Qualifications of operating personnel

The limit switch must be mounted, started up and serviced by fully trained and qualified personnel only; the accepted industry codes and practices must be observed. 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 hazards due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

Explosion-protected versions of this device must be operated only by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.

Personal protective equipment

No personal protective equipment is required for the direct handling of the limit switch. Work on the control valve may be necessary when mounting or removing the device.

➔ Observe the requirements for personal protective equipment specified in the valve documentation.

➔ Check with the plant operator for details on further protective equipment.

Revisions and other modifications

Revisions, conversions or other modifications of the product are not authorized by SAMSON. They are performed at the user's own risk and may lead to safety hazards, for example. Furthermore, the product may no longer meet the requirements for its intended use.

Warning against residual hazards

To avoid personal injury or property damage, plant operators and operating personnel must prevent hazards that could be caused in the control valve by the process medium, the operating pressure, the signal pressure or by moving parts by taking appropriate precautions. Plant operators and operating personnel must observe all hazard statements, warning and caution notes in these mounting and operating instructions, especially for installation, start-up and service work.

Responsibilities of the operator

Operators are responsible for proper use and compliance with the safety regulations. Operators are obliged to provide these mounting and operating instructions to the operating personnel and to instruct them in proper operation. Furthermore, operators must ensure that operating personnel or third parties are not exposed to any danger.

Responsibilities of operating personnel

Operating personnel must read and understand these mounting and operating instructions as well as the specified hazard statements, warning and caution notes. Furthermore, the operating personnel must be familiar with the applicable health, safety and accident prevention regulations and comply with them.

Referenced documentation

The following documents apply in addition to these mounting and operating instructions:

– The mounting and operating instructions of the components on which the limit switch is mounted (valve, actuator, valve accessories etc.).

1.1 Notes on possible severe personal injury

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

Incorrect installation, operation or maintenance of the limit switch in potentially explosive atmospheres may lead to ignition of the atmosphere and ultimately to death.

➔ For mounting and electrical installation in hazardous areas, observe the explosion protection approvals as well as the relevant electrotechnical regulations and the accident prevention regulations that apply in the country of use. EN 60079-14 applies in Europe: Electrical installations design, selection and erection

➔ Installation, operation or maintenance of the limit switch must only be performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.

Risk of fatal injury as a result of electrostatic discharge at the housing.

The housing of the limit switch is made of polycarbonate and may become electrostatically charged when handled incorrectly. An electric spark generated by electrostatic discharge may lead to ignition of a potentially explosive atmosphere and cause death.

➔ Clean a device installed in dust atmospheres regularly.

➔ Only use a damp cloth or wipes to clean the housing surface.

1.2 Notes on possible personal injury

⚠ WARNING

Incorrect electrical connection will render the explosion protection unsafe.

➔ Adhere to the terminal assignment and observe correct polarity.

➔ Do not undo the enameled screws.

➔ Do not exceed the maximum permissible values (Ui, Ii, Pi, Ci, Li) specified in the EU type examination certificates when interconnecting intrinsically safe electrical equipment.

1.3 Notes on possible property damage

NOTICE

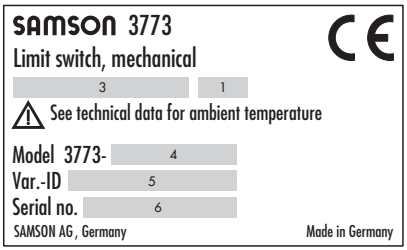
Disruption to the process

➔ Do not mount or service the limit switch while the process is running and only after isolating the plant by closing the shut-off valves.

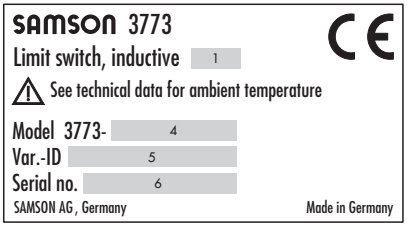
2 Markings on the device

2.1 Nameplate

Version without explosion protection

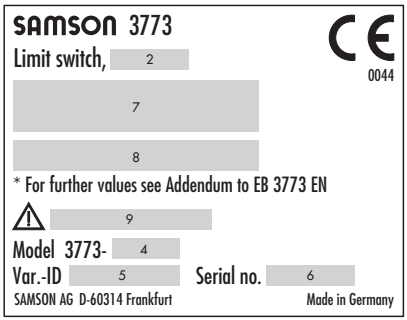


Version with electric microswitches



Version with inductive proximity switches

Explosion-protected version



1 Degree of protection
2 Limit contact version (mechanical/inductive)
3 Permissible contact load
4 Model number
5 Configuration ID
6 Serial number [1)]
7 Type of protection for explosion-protected devices
8 Maximum values of the EU Type Examination Certificate
9 Temperature limits in the test certificates for explosion-protected devices

1) The first two figures of the serial number in reverse order indicate the year of manufacture of the limit switch (example: serial number 81xxxxx ➔ Year of manufacture = 2018).

2.2 Article code

Limit switch Type 3773-	x	x	x	x	x	x	x	x	x	x	0	x	x	x	0	0	0	x	x
Explosion protection																			
Without	0	0	0																
ATEX: II 2G Ex ia IIC T4/T6 Gb II 2D Ex ia IIIB T95°C Db	1	1	0																
IECEx: Ex ia IIC T4/T6 Gb Ex ia IIIB T95°C Db	1	1	1																
Limit contact																			
Inductive SC3,5-N0-WH (–40 to +80 °C)				0	2														
Inductive SJ3,5-SN (–40 to +80 °C)				0	5														
Inductive SJ3,5-S1N (–40 to +80 °C)				0	6														
Microswitch XGK19-88-S20 with silver contact (–40 to +80 °C)				2	0														
Microswitch XGK12-81-S20 with gold contact (–40 to +80 °C)				2	1														
Number of contacts																			
Two contacts						2													
Switching angle																			
<100°							0												
Terminals																			
Screw terminals								1											
Cage clamp terminals								2											
Electrical threaded connections																			
M20x1.5									1										
Degree of protection																			
IP 65										0									
Housing material																			
Black plastic (polyarylamide PA MXD6 – GF50)												0							
Cover																			
Blue plastic (polycarbonate (PC) Makrolon®)													0						

Limit switch	**Type 3773-**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**0**	**x**	**x**	**x**	**0**	**0**	**0**	**x**	**x**
Permissible ambient temperature																				
–25 to +80 °C (+65 °C in T6)															0					
Hardware version																				
Index: 00																			9	9

3 Design and principle of operation

The Type 3773 Limit Switch is suitable for mounting on rotary actuators according to VDI/VDE 3845, level 1 and level 2. It is fitted with two inductive proximity switches or two electric microswitches.

An adapter is used to connect the shaft (1) of the limit switch to the actuator shaft. For most applications the contacts are adjusted to issue a signal when the actuator has reached one of its end positions. Two adjustment screws (3) are used to continuously adjust the switching point to any position within the angle of rotation to signalize an intermediate position.

Version with inductive proximity switches

The limit switch has adjustable metal tags (5) on the shaft. When the tag is inside the magnetic field of the proximity switch (4), the proximity switch is attenuated and the output has a high impedance (switching function "Contact open"). When the tag leaves the magnetic field, the proximity switch is unattenuated and the output has a low impedance (switching function "Contact closed"). The tag can be adjusted to a switching point between 0 and 100° at the adjustment screw (3).

Version with electric microswitches

The limit switch has two adjustable cam disks (7) on the shaft. The cam disk activates the electric microswitch (6) over the roller on the switch lever. The cam disks can be adjusted to a switching point between 0 and 100° at the adjustment screws (3).

Terminal versions

Depending on the ordering specifications, the limit switch has screw terminals or cage clamp terminals.

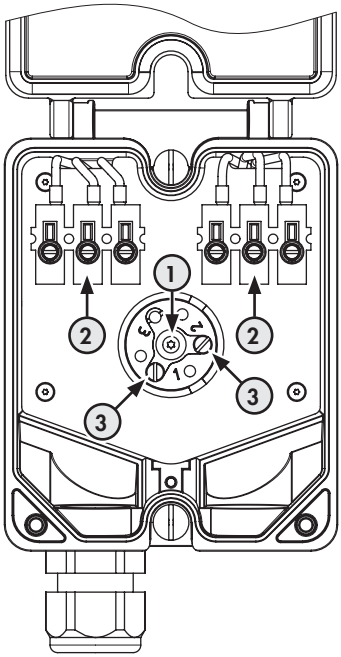


Fig. 3-1: *Operating controls of the Type 3773 Limit Switch*

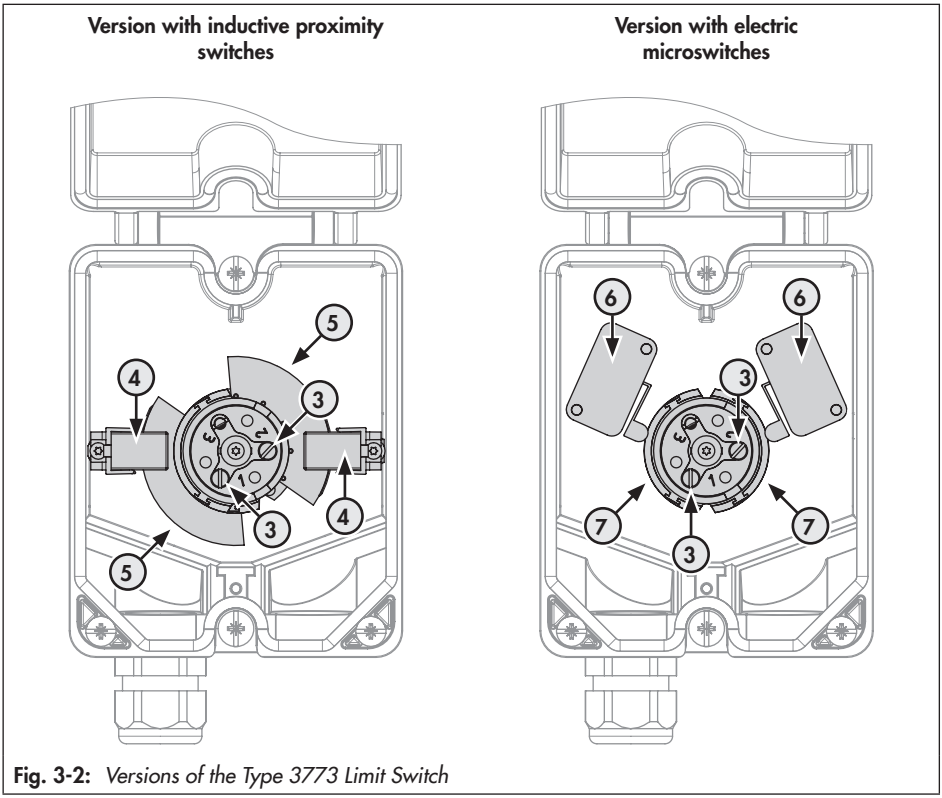


Fig. 3-2: *Versions of the Type 3773 Limit Switch*

Legend for Fig. 3-1 and Fig. 3-2:

1 Shaft
2 Terminals (screw terminals in this example)
3 Adjustment screws
4 Proximity switch
5 Metal tag
6 Microswitch
7 Cam disk

3.1 Technical data

Table 3-1: *Technical data of Type 3773 Limit Switch*

Type 3773 Limit Switch	
Angle of rotation	0 to 100°
Electromagnetic compatibility	Complying with EN 61000-6-2, EN 61000-6-3 and NAMUR Recommendation NE 21
Degree of protection	IP 65
Explosion protection	Type of protection II 2/3 G/D Ex ia T6
Electrical connection	1x cable gland M20x1.5
Number of contacts	2
Permissible ambient temperature [1]	–40 to +80 °C
Weight	Approx. 0.4 kg

[1] Observe the temperature limits in the test certificate for explosion-protected versions.

Materials	
Housing	Polyarylamide PA MXD6 – GF50
Housing cover	Polycarbonate (PC) Makrolon®
Follower shaft	Polyoxymethylene (POM)
Housing breather	Polyethersulfone on PET nonwoven fabric
Screws	Stainless steel A4-70
Terminals	Polyamide 6.6

Table 3-2: *Technical data of inductive proximity switches*

Inductive proximity switches			
Version	**-02**	**-04**	**-05**
	SC3,5-N0-WH	SJ3,5-SN	SJ3,5-S1N
Switching function	NAMUR NC contact		NAMUR NO contact
Switching accuracy in mm	0.06 to 0.1	<0.2	<0.3
Control circuit			
Temperature [1]	–40 to +80 °C	–40 to +80 °C	–40 to +80 °C
Safety approval		SIL capability	

Limit contact in type of protection Ex ia IIC for use in hazardous areas (Zone 1)				
Version		**-02**	**-04**	**-05**
Output voltage	U_i	16 V DC		
Output current	I_i	52 mA		
Power dissipation	P_i	169 mW		
Outer capacitance	C_i	150 nF	30 nF	
Outer inductance	L_i	150 µH	100 µH	
Temperature		–40 °C ≤ Ta ≤ +45 °C		

1) The permissible ambient temperature depends on the permissible ambient temperature of the components, type of protection and temperature class.
A restricted temperature range may arise for SIL applications.

Table 3-3: *Technical data of electric microswitches*

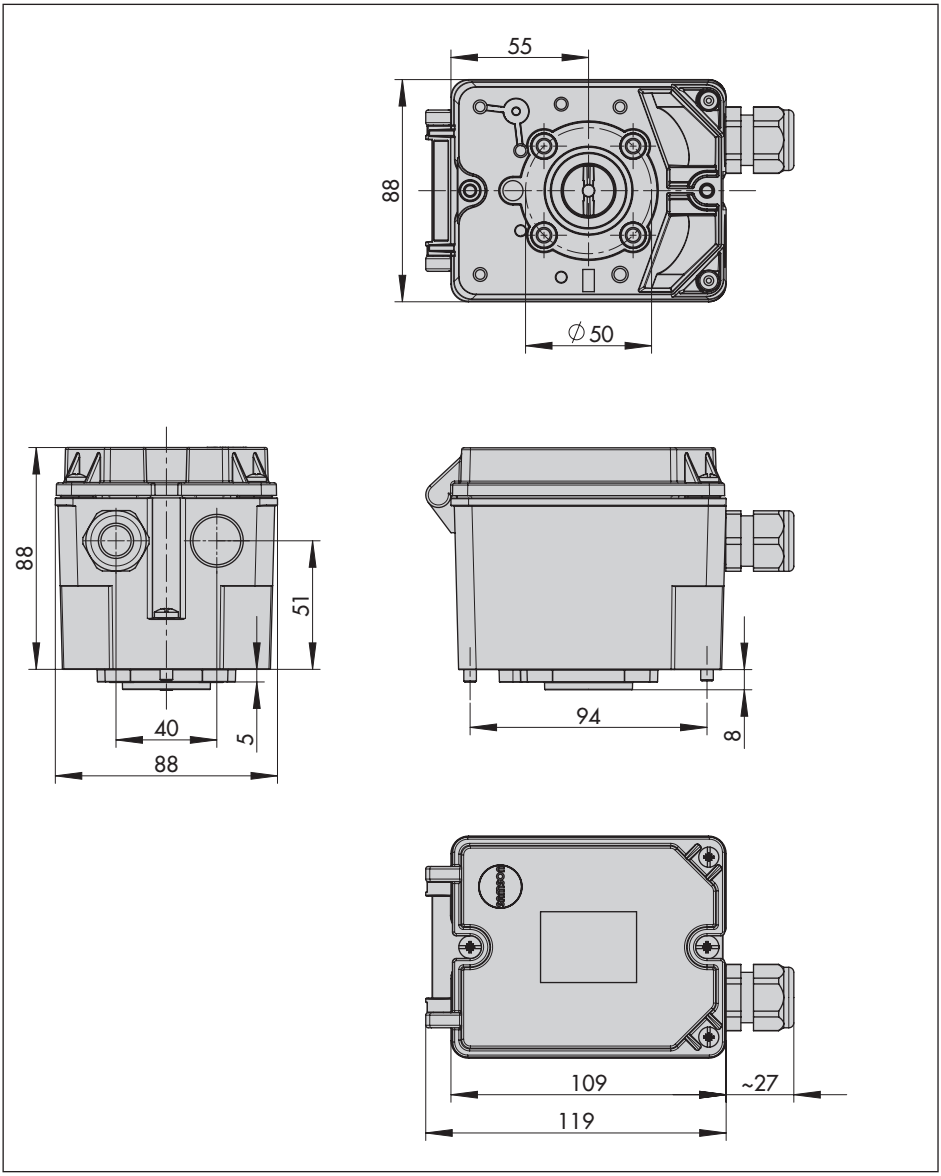
Electric microswitches			
Version		**-20**	**-21**
		XGK19-88-S20	XGK12-81-S20
Contact		Silver contact	Gold contact
Switching function		Changeover contact/SPDT (single-pole/double-throw type)	
Switching accuracy		On request	On request
Temperature 1)		–40 to +80 °C	–40 to +80 °C
Permissible contact load		250 V AC/10 A 125 V DC/0.5 A 24 V DC/10 A	
Safety approval		–	–
Limit switch in type of protection Ex nA II for use in hazardous areas (Zone 2 or 22)			
Version		**-20**	**-21**
Output voltage	U_i	28 V	
Output current	I_i	115 mA	
Power dissipation	P_i	500 mW	
Outer capacitance	C_i	0 nF	
Outer inductance	L_i	0 µH	
Temperature		–40 °C ≤ Ta ≤ +80 °C	

1) The permissible ambient temperature depends on the permissible ambient temperature of the components, type of protection and temperature class.
A restricted temperature range may arise for SIL applications.

Table 3-4: *Summary of explosion protection approvals*

	Certification			Type of protection/comments
Type 3773 -110	EU type examination certificate	Number	TÜV 18 ATEX 8323 X	II 2G Ex ia IIC T4/T6 Gb II 2D Ex ia IIIB T95°C Db
		Date	2019-04-13	
Type 3773 -111	**IECEx**	Number	IECEx TUR 19.0010X	Ex ia IIC T4/T6 Gb Ex ia IIIB T95°C Db
		Date	2019-04-13	

3.2 Dimensions in mm



4 Shipment and on-site transport

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

4.1 Accepting the delivered goods

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Check that the specifications on the nameplate of the limit switch match the specifications in the delivery note. See the 'Markings on the device' section for nameplate details.
2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).

4.2 Removing the packaging from the limit switch

Observe the following sequence:

➔ Do not remove the packaging until immediately before installation of the limit switch.

➔ Dispose and recycle the packaging in accordance with the local regulations.

4.3 Transporting the limit switch

Transport instructions

– Protect the limit switch against external influences (e.g. impact).

– Protect the limit switch against moisture and dirt.

– Observe transport temperature depending on the permissible ambient temperature (see the 'Design and principle of operation' section).

4.4 Storing the limit switch

NOTICE

Risk of damage to the limit switch due to improper storage.

➔ *Observe the storage instructions.*

➔ *Avoid long storage times.*

➔ *Contact SAMSON in case of different storage conditions.*

Note

We recommend regularly checking the prevailing storage conditions during long storage periods.

Storage instructions

– Protect the limit switch against external influences (e.g. impact, shocks, vibration).

- Do not damage the corrosion protection (coating).
- Protect the limit switch against moisture and dirt. In damp spaces, prevent condensation. If necessary, use a drying agent or heating.
- Observe storage temperature depending on the permissible ambient temperature (see the 'Design and principle of operation' section).
- Do not place any objects on the limit switch.

5 Installation

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

5.1 Installation conditions

Work position

The work position for the limit switch is the front view onto the device cover seen from the position of operating personnel.

Plant operators must ensure that, after installation of the limit switch, the operating personnel can perform all necessary work safely and easily access the device from the work position.

Mounting orientation

The limit switch may be installed in any position.

5.2 Preparation for installation

Before mounting, make sure the following conditions are met:

– The limit switch is not damaged.

Proceed as follows:

➔ Lay out the necessary material and tools to have them ready during mounting.

Table 5-1: *Accessories for attachment according to VDI/VDE 3845, level 1*

Designation			Order no.
Mounting kit for mounting on rotary actuator, 20 mm, fixing level AA1			**100015897**
Consisting of:	1x	Mounting bracket VDI/VDE 3845, 20 mm shaft height	0300-1214
	4x	Cap screw ISO 4762, M5x12	8333-1249
	4x	Disk spring DIN 2093, B10, 1.4310	8392-0691
Mounting kit for mounting on rotary actuator, 30 mm, fixing level AA2			**100015792**
Consisting of:	1x	Mounting bracket VDI/VDE 3845, 30 mm shaft height	0300-1330
	4x	Cap screw ISO 4762, M5x12	8333-1249
	4x	Disk spring DIN 2093, B10, 1.4310	8392-0691
Mounting kit for mounting on rotary actuator, 30 mm, fixing level AA4			**100015889**
Consisting of:	1x	Mounting bracket VDI/VDE 3845, 50 mm shaft height	0300-1330
	4x	Cap screw ISO 4762, M5x12	8333-1249
	4x	Disk spring DIN 2093, B10, 1.4310	8392-0691

5.3 Mounting the limit switch

The Type 3773 Limit Switch is suitable for mounting on rotary actuators according to VDI/VDE 3845, level 1 and level 2.

5.3.1 Attachment according to VDI/VDE 3845, level 1

➔ See Table 5-1 for required accessories

➔ See Fig. 5-1

1. Use the disk springs and cap screws to fasten the mounting bracket onto the inner holes on the actuator.
2. Fasten the adapter (included in the delivery) in the groove of the actuator shaft.
3. Open the housing cover.
4. Fasten the limit switch onto the actuator yoke using the two fastening screws.
5. Refasten the housing cover.
   Max. permissible tightening torque of the cover screws: 0.8 Nm

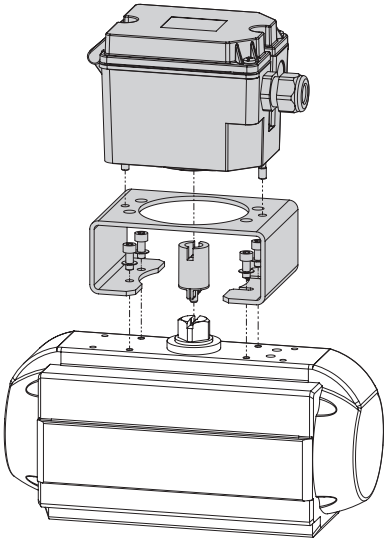


Fig. 5-1: *Attachment according to VDI/VDE 3845, level 1*

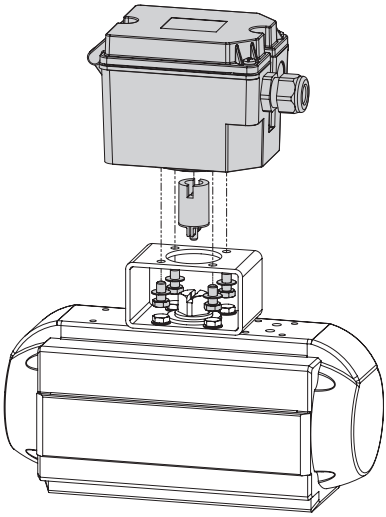


Fig. 5-2: *Attachment according to VDI/VDE 3845, level 2*

5.3.2 Attachment according to VDI/VDE 3845, level 2

1. See Fig. 5-2
2. Fasten the adapter (included in the delivery) in the groove of the actuator shaft.
3. Open the housing cover.
4. Fasten the limit switch onto the actuator yoke using the four fastening screws.
5. Refasten the housing cover.
   Max. permissible tightening torque of the cover screws: 0.8 Nm

5.4 Electrical connections

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

➔ *For mounting and electrical installation in hazardous areas, observe the explosion protection approvals as well as the relevant electrotechnical regulations and the accident prevention regulations that apply in the country of use. EN 60079-14 applies in Europe: Electrical installations design, selection and erection*

➔ *Installation, operation or maintenance of the limit switch must only be performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

⚠ DANGER

Risk of fatal injury as a result of electrostatic discharge at the housing.

➔ *Ensure that the device, cables and other plant components cannot rub against each other.*

⚠ WARNING

Incorrect electrical connection will render the explosion protection unsafe.

➔ *Adhere to the terminal assignment and observe correct polarity.*

➔ *Do not undo the enameled screws.*

➔ *Do not exceed the maximum permissible values (Ui, Ii, Pi, Ci, Li) specified in the EU type examination certificates when interconnecting intrinsically safe electrical equipment.*

Selecting cables and wires

➔ Observe the relevant clauses of EN 60079-14 for installation of intrinsically safe circuits.

➔ Seal cable entries left unused with plugs.

Cable entry

The signal lines are connected is made using the M20x1.5 cable gland. Depending on the limit switch version, screw terminals or cage clamp terminals are available to connect a wire cross-section of 2.5 mm² (see Fig. 5-4).

➔ Connect the wiring as shown in Fig. 5-3.

➔ Observe the correct polarity.

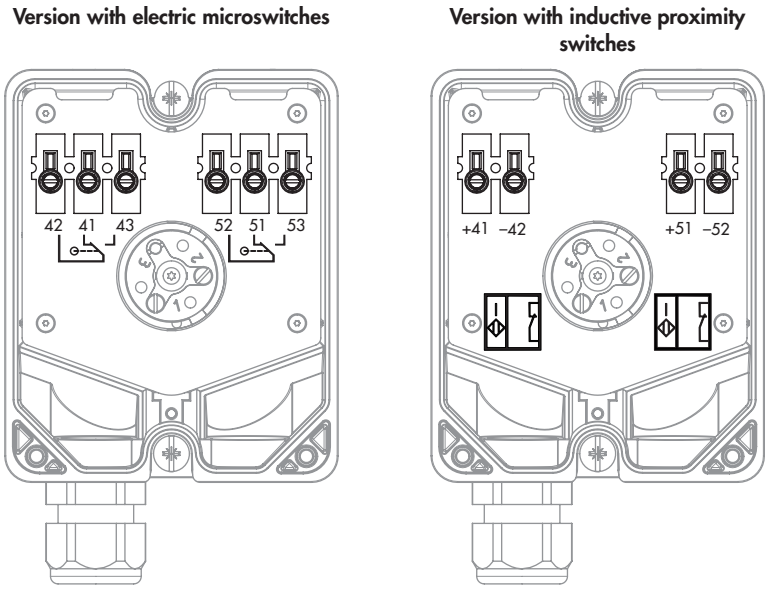


Fig. 5-3: *Terminal assignment of the terminals*

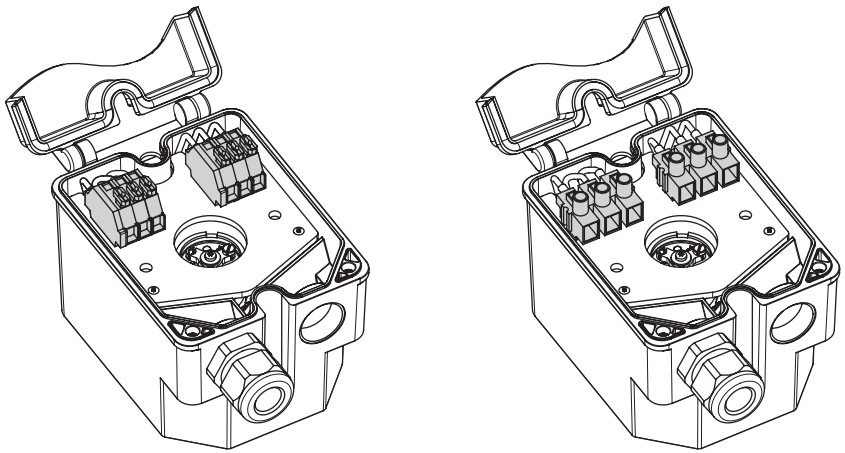


Fig. 5-4: *Terminal versions*

6 Start-up

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

➔ *For mounting and electrical installation in hazardous areas, observe the explosion protection approvals as well as the relevant electrotechnical regulations and the accident prevention regulations that apply in the country of use. EN 60079-14 applies in Europe: Electrical installations design, selection and erection*

➔ *Installation, operation or maintenance of the limit switch must only be performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

⚠ DANGER

Risk of fatal injury as a result of electrostatic discharge at the housing.

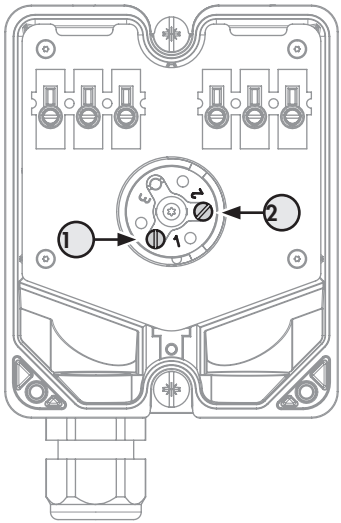
➔ *Ensure that the device, cables and other plant components cannot rub against each other.*

6.1 Adjusting the limit contacts

The Type 3773 Limit Switch is fitted with two inductive proximity switches or two electric microswitches (depending on the version).

For most applications the contacts are adjusted to issue a signal when the actuator has reached one of its end positions. Two adjustment screws (3) are used to continuously adjust the switching point to any position within the angle of rotation (0 to 100°) to signalize an intermediate position.

➔ Adjust the switching point as shown in Fig. 6-1.



1 Adjustment screw for switching point 1
2 Adjustment screw for switching point 2

Fig. 6-1: *Adjusting the switching point*

Switching point shift due to temperature changes

The limit contacts and their operating elements react to temperature changes.

To ensure reliable switching, the switching hysteresis between the actuator's switching position and the limit contact's switching point must be larger than the switching point shift caused by the temperature change.

➔ The switching point shift must be compensated for by **x** turns of the adjustment screw on adjusting the limit contact:

- Switching point shift $\Delta T = 50$ K
- Angle of rotation: ≤2°
- Turns of the adjustment screw: **x** = 1/16

7 Operation

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

➔ *Installation, operation or maintenance of the limit switch must only be performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

The limit switch issues a signal when an adjusted limit is exceeded or not reached as soon as it is connected to the power supply.

8 Malfunction

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

➔ *For mounting and electrical installation in hazardous areas, observe the explosion protection approvals as well as the relevant electrotechnical regulations and the accident prevention regulations that apply in the country of use. EN 60079-14 applies in Europe: Electrical installations design, selection and erection*

➔ *Installation, operation or maintenance of the limit switch must only be performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

⚠ DANGER

Risk of fatal injury as a result of electrostatic discharge at the housing.

➔ *Ensure that the device, cables and other plant components cannot rub against each other.*

Proceed as follows in the event of a malfunction:

➔ Check attachment.

➔ Check the configuration of the mounting parts.

➔ Check power supply/electrical signal.

➔ Check the control valve to ensure it functions properly.

8.1 Emergency action

Plant operators are responsible for emergency action to be taken in the plant.

Tip

Emergency action in the event of valve failure is described in the associated valve documentation.

9 Servicing

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

➔ *For mounting and electrical installation in hazardous areas, observe the explosion protection approvals as well as the relevant electrotechnical regulations and the accident prevention regulations that apply in the country of use. EN 60079-14 applies in Europe: Electrical installations design, selection and erection*

➔ *Installation, operation or maintenance of the limit switch must only be performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

⚠ DANGER

Risk of fatal injury as a result of electrostatic discharge at the housing.

➔ *Ensure that the device, cables and other plant components cannot rub against each other.*

⚠ WARNING

Incorrect electrical connection will render the explosion protection unsafe.

➔ *Adhere to the terminal assignment and observe correct polarity.*

➔ *Do not undo the enameled screws.*

➔ *Do not exceed the maximum permissible values (Ui, Ii, Pi, Ci, Li) specified in the EU type examination certificates when interconnecting intrinsically safe electrical equipment.*

NOTICE

Disruption to the process

➔ *Do not mount or service the limit switch while the process is running and only after isolating the plant by closing the shut-off valves.*

NOTICE

Malfunction due to the use of unapproved accessories.

➔ *Only use the accessories listed in the 'Installation' section to mount the limit switch.*

Note

The limit switch was checked by SAMSON before it left the factory.

– *The product warranty becomes void if service or repair work not described in these instructions is performed without prior agreement by SAMSON's After-sales Service.*

– *Only use original spare parts by SAMSON, which comply with the original specifications.*

9.1 Servicing explosion-protected devices

⚠ DANGER

Risk of fatal injury as a result of electrostatic discharge at the housing.

The device's housing is made of polycarbonate and may become electrostatically charged when handled incorrectly. An electric spark generated by electrostatic discharge may lead to ignition of a potentially explosive atmosphere and cause death.

Clean a device installed in dust atmospheres regularly. Only use a damp cloth or wipes to clean the housing surface.

If a part of the device on which the explosion protection is based needs to be serviced, the device must not be put back into operation until a qualified inspector has assessed it according to explosion protection requirements, has issued an inspection certificate, or given the device a mark of conformity.

Inspection by a qualified inspector is not required if the manufacturer performs a routine test on the device before putting it back into operation and the passing of the routine test is documented by attaching a mark of conformity to the device.

Replace explosion-protected components only with original, routine-tested components by the manufacturer.

Devices that have already been operated outside hazardous areas and are intended for future use inside hazardous areas must comply with the safety requirements placed on serviced devices. Before being operated inside hazardous areas, test the devices according to the specifications for servicing explosion-protected devices.

9.2 Maintenance, calibration and work on equipment

➔ Interconnection with intrinsically safe circuits to check or calibrate the equipment inside or outside hazardous areas must be performed only with intrinsically safe current/voltage calibrators and measuring instruments to rule out any damage to components relevant to explosion protection.

➔ Observe the maximum permissible values specified in the certificates for intrinsically safe circuits.

9.3 Preparation for return shipment

Defective limit switches can be returned to SAMSON for repair.

Proceed as follows to return devices to SAMSON:

1. Remove the limit switch (see the 'Removal' section).
2. Send the limit switch to your nearest SAMSON subsidiary. SAMSON subsidiaries are listed on our website at ▶ www.samsongroup.com > Contact.

9.4 Cleaning the housing cover

! NOTICE

Incorrect cleaning will damage the housing cover.

The housing cover is made of Makrolon® and will be damaged when cleaned with abrasive cleaning agents or agents containing solvents.

➔ *Do not rub the housing cover dry.*

➔ *Do not use any cleaning agents containing chlorine or alcohol or abrasive cleaning agents.*

➔ *Use a non-abrasive, soft cloth for cleaning.*

9.5 Periodic inspection and testing of the limit switch

We recommend inspection and testing according to Table 9-1 at the minimum.

Table 9-1: *Recommended inspection and testing*

Inspection and testing	Action to be taken in the event of a negative result
Check the markings, labels and nameplates on the limit switch for their readability and completeness.	Contact SAMSON when nameplates or labels are damaged, missing or incorrect to renew them.
	Clean any inscriptions that are covered with dirt and are illegible.
Check the limit switch to ensure it is mounted firmly.	Tighten the any loose mounting screws.
Check the power supply wires.	Tighten any loose cable glands.
	Make sure that the stranded wires are pushed into the terminals and tighten any loose screws on the the terminals.
	Renew damaged lines.

10 Decommissioning

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

➔ *For mounting and electrical installation in hazardous areas, observe the explosion protection approvals as well as the relevant electrotechnical regulations and the accident prevention regulations that apply in the country of use. EN 60079-14 applies in Europe: Electrical installations design, selection and erection*

➔ *Installation, operation or maintenance of the limit switch must only be performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

⚠ DANGER

Risk of fatal injury as a result of electrostatic discharge at the housing.

➔ *Ensure that the device, cables and other plant components cannot rub against each other.*

To decommission the limit switch, proceed as follows:

1. Disconnect the electrical power supply.
2. Open the limit switch cover and disconnect the wires for the power supply.

11 Removal

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

➔ *For mounting and electrical installation in hazardous areas, observe the explosion protection approvals as well as the relevant electrotechnical regulations and the accident prevention regulations that apply in the country of use. EN 60079-14 applies in Europe: Electrical installations design, selection and erection*

➔ *Installation, operation or maintenance of the limit switch must only be performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

⚠ DANGER

Risk of fatal injury as a result of electrostatic discharge at the housing.

➔ *Ensure that the device, cables and other plant components cannot rub against each other.*

1. Put the limit switch out of operation (see the 'Decommissioning' section).
2. Remove the wires for the power supply from the limit switch.
3. To remove the limit switch, loosen the two fastening screws on the device.

12 Repairs

A defective limit switch must be repaired or replaced.

NOTICE

Risk of damage to the limit switch due to incorrect service or repair work.

➔ *Do not perform any repair work on your own.*

➔ *Contact SAMSON's After-sales Service for repair work.*

12.1 Returning devices to SAMSON

Defective limit switches can be returned to SAMSON for repair.

Proceed as follows to return devices to SAMSON:

1. Put the limit switch out of operation (see the 'Decommissioning' section).
2. Remove the limit switch (see the 'Removal' section).
3. Proceed as described on the Returning goods page of our website
   ▶ www.samsongroup.com > Service & Support > After-sales Service > Returning goods

13 Disposal

We are registered with the German national register for waste electric equipment (stiftung ear) as a producer of electrical and electronic equipment, WEEE reg. no.: DE 62194439

➔ Observe local, national and international refuse regulations.

➔ Do not dispose of components, lubricants and hazardous substances together with your other household waste.

Tip

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

14 Certificates and instructions concerning explosion protection

14.1 Certificates

The following certificates are included on the next pages:

– EU type examination certificate for Type 3773-110
– IECEx certificate for Type 3773-111

The certificates shown were up to date at the time of publishing. The latest certificates can be found on our website:
▶ www.samsongroup.com > Products & Applications > Product selector > Valve accessories > Type 3773

14.2 Instructions concerning explosion protection

The instructions stipulated by SAMSON for the explosion protection of the Type 3773 Limit Switch are based on the above listed certificates.

(1) EU-TYPE EXAMINATION CERTIFICATE

(2) Equipment and Protective Systems intended for use in Potentially Explosive Atmosphere - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number

TÜV 18 ATEX 8323 X Issue: 00

(4) Equipment: **Limit Switch 3773-110****

(5) Manufacturer: **SAMSON AKTIENGESELLSCHAFT**
(6) Address: **Weismüllerstraße 3**
60314 Frankfurt am Main, Germany

(7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV Rheinland Zertifizierungsstelle für Explosionsschutz of TÜV Rheinland Industrie Service GmbH, Notified Body No. 0035 in accordance with Article 21 of the Council Directive 2014/34/EU of 26th February 2014, certifies this product which has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmosphere, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report 557/Ex8323.00/18

(9) Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0: 2018 **EN 60079-11: 2012**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and specification for construction of the equipment or protective system. It does not cover the process for actual manufacture or supply of the equipment or protective system, for which further requirements of the directive are applicable.

(12) The marking of the equipment shall include the following:

II 2 G Ex ia IIC T4/T6 Gb **II 2 D Ex ia IIIB T95°C Db**

TÜV Rheinland Zertifizierungsstelle für Explosionsschutz Cologne, 2019-04-13

Dipl.-Ing. Klausgünter Graff

This EU-Type Examination Certificate without signature and stamp shall not be valid.
This EU-Type Examination Certificate may be circulated only without alteration. Extracts or alterations are subject to approval by the TÜV Rheinland Industrie Service GmbH TÜV Rheinland Group Am Grauen Stein 51105 Köln
Tel. +49 (0) 221 806-0 Fax. + 49 (0) 221 806 114

www.tuv.com

DAkkS Deutsche Akkreditierungsstelle D-ZE-11052-03-00

TÜVRheinland® Precisely Right.

TÜVRheinland®
Precisely Right.

(13) Annex

(14) **EU Type Examination Certificate**

TÜV 18 ATEX 8323 X Issue: 00

(15) Description of equipment

15.1 Equipment and type:

Limit Switch 3773-110**

15.2 Description

The Type 3773 Limit Switch issues an electrical signal when an adjusted limit value is exceeded or reached. The signal is suitable for reversing control signals, generating visual and audible alarm, or for connection to central control or alarm systems. It can be used in hazardous atmospheres of up to zone 1 or zone 21.

Model code:
3773-110**

Type Code:

3 7 7 3 -	x x x x x	
	Explosion protection	
	0 0 0	Not Ex
	1 1 0	II 2 G Ex ia IIC T6 Gb / II 2 D Ex ia IIIB T 95°C (according to ATEX)
	1 1 1	Ex ia IIC T6 Gb / Ex ia IIIB T 95°C Db (according to IECEx)
	Switch Options	
	0 1	Inductive Switch Type SC3,5-NO-YE
	0 2	Inductive Switch Type SC3,5-NO-WH
	0 3	Inductive Switch Type SC3,5-NO-BU
	0 4	Inductive Switch Type SJ3,5-N LED
	0 5	Inductive Switch Type SJ3,5-SN
	0 6	Inductive Switch Type SJ3,5-S1N
	0 7	Inductive Switch Type SI3,5-K10-Y1
	2 0	Micro Switch Type XGK19-88-S20 contact silver
	2 1	Micro Switch Type XGK12-81-S20 contact gold
	2 4	Micro Switch Type ABV 1615503R contact silver
	2 5	Micro Switch Type ABV 1615513R contact gold
	2 6	Micro Switch Type EF83161-3 contact silver
	2 7	Micro Switch Type 83132 (DPDT) contact silver

15.3 Technical Data

Electrical data:

Gas and Dust Atmosphere:

Inductive Limit Switches:

Connection @ terminals +41 / -42 *and* +51 / -52						
Type of protection: Ex ia IIC / IIIB						
Model Code	**U_i**	**Type**	**I_i**	**P_i**	**C_i**	**L_i**
3773-11001or 3773-11101	16 V	2	25 mA	64 mW	150 nF	150 µH
		3	52 mA	169 mW	150 nF	150 µH
3773-11002 or 3773-11102	16 V	2	25 mA	64 mW	150 nF	150 µH
		3	52 mA	169 mW	150 nF	150 µH
3773-11003 or 3773-11103	16 V	2	25 mA	64 mW	150 nF	150 µH
		3	52 mA	169 mW	150 nF	150 µH
3773-11004 or 3773-11104	16 V	2	25 mA	64 mW	50 nF	250 µH
		3	52 mA	169 mW	50 nF	250 µH
3773-11005 or 3773-11105	16 V	2	25 mA	64 mW	30 nF	100 µH
		3	52 mA	169 mW	30 nF	100 µH
3773-11006 or 3773-11106	16 V	2	25 mA	64 mW	30 nF	100 µH
		3	52 mA	169 mW	30 nF	100 µH
3773-11007 or 3773-11107	20 V	-	60 mA	130 mW	250 nF	350 µH

Electric Microswitches:

Connection @ terminals 41 , 42 , 43 and 51 , 52 , 53					
Type of protection: Ex ia IIC / IIIB					
Model Code	**Ui**	**Ii**	**Pi**	**Ci**	**Li**
3773-11020 or 3773-11120	28V	115 mA	500 mW	0 nF	0 µH
3773-11021 or 3773-11121					
3773-11024 or 3773-11124					
3773-11025 or 3773-11125					
3773-11026 or 3773-11126					
3773-11027 or 3773-11127					

This EU Type Examination Certificate without signature and official stamp shall not be valid.
This certificate may be circulated without alteration. Extracts or alterations are subject to approval by:
Zertifizierungsstelle of TÜV Rheinland Industrie Service GmbH

Environmental data:

Gas Atmosphere:

Inductive Switches operation with type of protection Intrinsic Safety Ex ia IIC:

Model code	Temperature class	Type	Permissible ambient temperature T_a
3773 -11001 or 3773 -11101	T4	2	-40 °C ≤ T_a ≤ +80 °C
		3	-40 °C ≤ T_a ≤ +75 °C
	T6	2	-40 °C ≤ T_a ≤ +65 °C
		3	-40 °C ≤ T_a ≤ +40 °C
3773 -11002 or 3773 -11102	T4	2	-40 °C ≤ T_a ≤ +80 °C
		3	-40 °C ≤ T_a ≤ +80 °C
	T6	2	-40 °C ≤ T_a ≤ +66 °C
		3	-40 °C ≤ T_a ≤ +45 °C
3773 -11003 or 3773 -11103	T4	2	-40 °C ≤ T_a ≤ +80 °C
		3	-40 °C ≤ T_a ≤ +80 °C
	T6	2	-40 °C ≤ T_a ≤ +66 °C
		3	-40 °C ≤ T_a ≤ +45 °C
3773 -11004 or 3773 -11104	T4	2	-40 °C ≤ T_a ≤ +80 °C
		3	-40 °C ≤ T_a ≤ +80 °C
	T6	2	-40 °C ≤ T_a ≤ +66 °C
		3	-40 °C ≤ T_a ≤ +45 °C
3773 -11005 or 3773 -11105	T4	2	-40 °C ≤ T_a ≤ +80 °C
		3	-40 °C ≤ T_a ≤ +80 °C
	T6	2	-40 °C ≤ T_a ≤ +66 °C
		3	-40 °C ≤ T_a ≤ +45 °C
3773 -11006 or 3773 -11106	T4	2	-40 °C ≤ T_a ≤ +80 °C
		3	-40 °C ≤ T_a ≤ +80 °C
	T6	2	-40 °C ≤ T_a ≤ +66 °C
		3	-40 °C ≤ T_a ≤ +45 °C
3773 -11007 or 3773 -11107	T4	-	-25 °C ≤ T_a ≤ +70 °C
	T6	-	-25 °C ≤ T_a ≤ +70 °C

Micro Switches operation with type of protection Intrinsic Safety Ex ia IIC (The temperature rise of the micro Switches is negligible.):

Model Code	Permissible ambient temperature T_a
3773 -11020 or 3773 -11120	-40 °C ≤ T_a ≤ +80 °C
3773 -11021 or 3773 -11121	-40 °C ≤ T_a ≤ +80 °C
3773 -11024 or 3773 -11124	-40 °C ≤ T_a ≤ +80 °C
3773 -11025 or 3773 -11125	-40 °C ≤ T_a ≤ +80 °C
3773 -11026 or 3773 -11126	-40 °C ≤ T_a ≤ +80 °C
3773 -11027 or 3773 -11127	-20 °C ≤ T_a ≤ +80 °C

Dust atmosphere:

Inductive switches operation with type of protection Intrinsic Safety Ex ia IIIB:

Model code	Maximum surface temperature	Maximum Permissible ambient temperature	
		Type 2	Type 3
3773 -11001 or 3773 -11101	T 95 °C	-40 °C ≤ T_a ≤ +60 °C	-40 °C ≤ T_a ≤ +35 °C
3773 -11002 or 3773 -11102		-40 °C ≤ T_a ≤ +60 °C	-40 °C ≤ T_a ≤ +49 °C
3773 -11003 or 3773 -11103		-40 °C ≤ T_a ≤ +60 °C	-40 °C ≤ T_a ≤ +49 °C
3773 -11004 or 3773 -11104		-40 °C ≤ T_a ≤ +60 °C	-40 °C ≤ T_a ≤ +49 °C
3773 -11005 or 3773 -11105		-40 °C ≤ T_a ≤ +60 °C	-40 °C ≤ T_a ≤ +49 °C
3773 -11006 or 3773 -11106		-40 °C ≤ T_a ≤ +60 °C	-40 °C ≤ T_a ≤ +49 °C
3773 -11007 or 3773 -11107		-25 °C ≤ T_a ≤ +70 °C	

Micro Switches operation with type of protection Intrinsic Safety Ex ia IIIB (The temperature rise of the micro Switches is negligible.):

The max. surface temperature is equal to the max. ambient temperature.

List of used equipment and components:

Gerät/ Device	Hersteller/ Manufacturer	Typ/ Type	Ex-Kennzeichnung/ Ex-Marking	Bescheinigung-Nr./ Certificate no.
Proximity switches	Pepperl+Fuchs GmbH	SC3,5-NO-YE SC3,5-NO-WH SC3,5-NO-BU SJ3,5-N LED	Ex ia IIC T6 Ga/Gb Ex ia IIIC Txxx°C Da	PTB 99 ATEX 2219 X IECEx 11.0092X
Proximity switches	Pepperl+Fuchs GmbH	SJ3,5-SN SJ3,5-S1N	Ex ia IIC T6 Ga/Gb Ex ia IIIC Txxx°C Da	PTB 00 ATEX 2049 X IECEx 11.0091X
Proximity switches	Hans Turck GmbH & Co. KG	SI3,5-K10-Y1	Ex ia IIC T6 Ga/Gb Ex ia IIIC Txxx°C Da	KEMA 02 ATEX 1090 X IECEx KEM 06.0036X

(16) Test-Report No. 557/Ex8323.00/18

(17) Special Conditions for safe use

1. Explosion hazard due to electrostatic charge: In hazardous areas, the device must be erected and maintained in such a way that no static charge can occur on the plastic housing. See user manual.
2. For electrical installation, the EN 60079-14 needs to be observed.

(18) Basic Safety and Health Requirements

Covered by afore mentioned standard

TÜV Rheinland Zertifizierungsstelle für Explosionsschutz Cologne, 2019-04-13

Dipl.-Ing. Klauspeter Graff

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx TUR 19.0010X
Issue No: 0
Certificate history:
Issue No. 0 (2019-04-13)

Status: **Current**

Page 1 of 3

Date of Issue: **2019-04-13**

Applicant: **SAMSON AKTIENGESELLSCHAFT**
Weismüllerstraße 3
60314 Frankfurt am Main
Germany

Equipment: **Limit switch 3773**
Optional accessory:

Type of Protection: **Ex ia**

Marking:
Ex ia IIC T4/T6 Gb / Ex ia IIIB T 95°C Db

Approved for issue on behalf of the IECEx Certification Body: Dipl.-Ing. Klauspeter Graffi

Position: Head of Certification Body

Signature:
(for printed version)

Date: 2019-04-13

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

TUV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Cologne
Germany

TÜVRheinland

IECEx Certificate of Conformity

Certificate No:	IECEx TUR 19.0010X	Issue No: 0
Date of Issue:	**2019-04-13**	Page 2 of 3
Manufacturer:	**SAMSON AKTIENGESELLSCHAFT** Weismüllerstraße 3 60314 Frankfurt am Main **Germany**	

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

DE/TUR/ExTR19.0010/00

Quality Assessment Report:

DE/TUN/QAR06.0011/08

IECEx Certificate of Conformity

Certificate No: IECEx TUR 19.0010X Issue No: 0

Date of Issue: 2019-04-13 Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Limit switch type 3773 - 111**

For details see attachment

SPECIFIC CONDITIONS OF USE: YES as shown below:

Explosion hazard due to electrostatic charge: In hazardous areas, the device must be erected and maintained in such a way that no static charge can occur on the plastic housing. See user manual.

For electrical installation, the IEC 60079-14 needs to be observed

Annex:

IECEx_TUR_19.0010_Attachment.pdf

Device: Limit switch type 3773
Type: 3773-111**

Manufacturer: SAMSON AKTIENGESELLSCHAFT

Address: Weismüllerstraße 3,
60314 Frankfurt am Main, Germany

Subject and type
Limit switch type 3773

3773 -	x x x x	x	
	Explosion protection		
	0 0 0		Not Ex
	1 1 0		II 2 G Ex ia IIC T6 Gb / II 2 D Ex ia IIIB T 95°C (according to ATEX)
	1 1 1		Ex ia IIC T6 Gb / Ex ia IIIB T 95°C Db (according to IECEx)
		Switch Options	
		0 1	Inductive Switch Type SC3,5-NO-YE
		0 2	Inductive Switch Type SC3,5-NO-WH
		0 3	Inductive Switch Type SC3,5-NO-BU
		0 4	Inductive Switch Type SJ3,5-N LED
		0 5	Inductive Switch Type SJ3,5-SN
		0 6	Inductive Switch Type SJ3,5-S1N
		0 7	Inductive Switch Type SI3,5-K10-Y1
		2 0	Micro Switch Type XGK19-88-S20 contact silver
		2 1	Micro Switch Type XGK12-81-S20 contact gold
		2 4	Micro Switch Type ABV 1615503R contact silver
		2 5	Micro Switch Type ABV 1615513R contact gold
		2 6	Micro Switch Type EF83161-3 contact silver
		2 7	Micro Switch Type 83132 (DPDT) contact silver

General product information
The Type 3773 Limit Switch issues an electrical signal when an adjusted limit value is exceeded or reached. The signal is suitable for reversing control signals, generating visual and audible alarm, or for connection to central control or alarm systems. It can be used in hazardous atmospheres of up to zone 1 or zone 21.

Technical data

Electrical data:

Gas and dust atmosphere:

Inductive Limit Switches:

Connection @ terminals +41 / -42 *and* +51 / -52						
Type of protection: Ex ia IIC / IIIB						
Model Code	**U_i**	**Type**	**I_i**	**P_i**	**C_i**	**L_i**
3773-11001or 3773-11101	16 V	2	25 mA	64 mW	150 nF	150 µH
		3	52 mA	169 mW	150 nF	150 µH
3773-11002 or 3773-11102	16 V	2	25 mA	64 mW	150 nF	150 µH
		3	52 mA	169 mW	150 nF	150 µH
3773-11003 or 3773-11103	16 V	2	25 mA	64 mW	150 nF	150 µH
		3	52 mA	169 mW	150 nF	150 µH
3773-11004 or 3773-11104	16 V	2	25 mA	64 mW	50 nF	250 µH
		3	52 mA	169 mW	50 nF	250 µH
3773-11005 or 3773-11105	16 V	2	25 mA	64 mW	30 nF	100 µH
		3	52 mA	169 mW	30 nF	100 µH
3773-11006 or 3773-11106	16 V	2	25 mA	64 mW	30 nF	100 µH
		3	52 mA	169 mW	30 nF	100 µH
3773-11007 or 3773-11107	20 V	-	60 mA	130 mW	250 nF	350 µH

Electric Microswitches:

Connection @ terminals 41 , 42 , 43 and 51 , 52 , 53					
Type of protection: Ex ia IIC / IIIB					
Model Code	**Ui**	**Ii**	**Pi**	**Ci**	**Li**
3773-11020 or 3773-11120	28V	115 mA	500 mW	0 nF	0 µH
3773-11021 or 3773-11121					
3773-11024 or 3773-11124					
3773-11025 or 3773-11125					
3773-11026 or 3773-11126					
3773-11027 or 3773-11127					

Environmental data:
Gas atmosphere:

Inductive Switches operation with type of protection Intrinsic Safety Ex ia IIC:

Model code	Temperature class	Type	Permissible ambient temperature T_a
3773 -11001 or 3773 -11101	T4	2	-40 °C ≤ T_a ≤ +80 °C
		3	-40 °C ≤ T_a ≤ +75 °C
	T6	2	-40 °C ≤ T_a ≤ +65 °C
		3	-40 °C ≤ T_a ≤ +40 °C
3773 -11002 or 3773 -11102	T4	2	-40 °C ≤ T_a ≤ +80 °C
		3	-40 °C ≤ T_a ≤ +80 °C
	T6	2	-40 °C ≤ T_a ≤ +66 °C
		3	-40 °C ≤ T_a ≤ +45 °C
3773 -11003 or 3773 -11103	T4	2	-40 °C ≤ T_a ≤ +80 °C
		3	-40 °C ≤ T_a ≤ +80 °C
	T6	2	-40 °C ≤ T_a ≤ +66 °C
		3	-40 °C ≤ T_a ≤ +45 °C
3773 -11004 or 3773 -11104	T4	2	-40 °C ≤ T_a ≤ +80 °C
		3	-40 °C ≤ T_a ≤ +80 °C
	T6	2	-40 °C ≤ T_a ≤ +66 °C
		3	-40 °C ≤ T_a ≤ +45 °C
3773 -11005 or 3773 -11105	T4	2	-40 °C ≤ T_a ≤ +80 °C
		3	-40 °C ≤ T_a ≤ +80 °C
	T6	2	-40 °C ≤ T_a ≤ +66 °C
		3	-40 °C ≤ T_a ≤ +45 °C
3773 -11006 or 3773 -11106	T4	2	-40 °C ≤ T_a ≤ +80 °C
		3	-40 °C ≤ T_a ≤ +80 °C
	T6	2	-40 °C ≤ T_a ≤ +66 °C
		3	-40 °C ≤ T_a ≤ +45 °C
3773 -11007 or 3773 -11107	T4	-	-25 °C ≤ T_a ≤ +70 °C
	T6	-	-25 °C ≤ T_a ≤ +70 °C

Micro Switches operation with type of protection Intrinsic Safety Ex ia IIC (The temperature rise of the micro Switches is negligible.):

Model Code	Permissible ambient temperature T_a
3773 -11020 or 3773 -11120	-40 °C ≤ T_a ≤ +80 °C
3773 -11021 or 3773 -11121	-40 °C ≤ T_a ≤ +80 °C
3773 -11024 or 3773 -11124	-40 °C ≤ T_a ≤ +80 °C
3773 -11025 or 3773 -11125	-40 °C ≤ T_a ≤ +80 °C
3773 -11026 or 3773 -11126	-40 °C ≤ T_a ≤ +80 °C
3773 -11027 or 3773 -11127	-20 °C ≤ T_a ≤ +80 °C

Dust atmosphere:

Inductive switches operation with type of protection Intrinsic Safety Ex ia IIIB:

Model code	Maximum surface temperature	Maximum Permissible ambient temperature	
		Type 2	Type 3
3773 -11001 or 3773 -11101	T 95 °C	-40 °C ≤ T_a ≤ +60 °C	-40 °C ≤ T_a ≤ +35 °C
3773 -11002 or 3773 -11102		-40 °C ≤ T_a ≤ +60 °C	-40 °C ≤ T_a ≤ +49 °C
3773 -11003 or 3773 -11103		-40 °C ≤ T_a ≤ +60 °C	-40 °C ≤ T_a ≤ +49 °C
3773 -11004 or 3773 -11104		-40 °C ≤ T_a ≤ +60 °C	-40 °C ≤ T_a ≤ +49 °C
3773 -11005 or 3773 -11105		-40 °C ≤ T_a ≤ +60 °C	-40 °C ≤ T_a ≤ +49 °C
3773 -11006 or 3773 -11106		-40 °C ≤ T_a ≤ +60 °C	-40 °C ≤ T_a ≤ +49 °C
3773 -11007 or 3773 -11107		-25 °C ≤ T_a ≤ +70 °C	

Micro Switches operation with type of protection Intrinsic Safety Ex ia IIIB (The temperature rise of the micro Switches is negligible.):

The max. surface temperature is equal to the max. ambient temperature.

1 Safety instructions for ATEX and IECEx

The following safety instructions and safety-related notes must be included in the operating and mounting instructions as required according to Clause 30 of IEC/EN 60079-0 and the Directive 2014/34/EU.

The device must be mounted, started up and serviced by fully trained and qualified personnel only who are familiar with the product; the accepted industry codes and practices are to be observed. 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 hazards due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

Explosion-protected versions of this device must be operated only by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.

To avoid personal injury or property damage, plant operators and operating personnel must prevent hazards that could be caused in the control valve by the process medium, the operating pressure, the signal pressure or by moving parts 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.

Proper shipping and storage are assumed.

1.1 Electrical connections

⚠ DANGER

Risk of fatal injury due to the formation of an explosive atmosphere.
For mounting and electrical installation in hazardous areas, observe the explosion protection approvals as well as the relevant electrotechnical regulations and the accident prevention regulations that apply in the country of use.
EN 60079-14 applies in Europe: Electrical installations design, selection and erection

⚠ WARNING

Incorrect electrical connection will render the explosion protection unsafe.
Adhere to the terminal assignment and observe correct polarity.
Do not undo the enameled screws.
Do not exceed the maximum permissible values (U_i, I_i, P_i, C_i, L_i) specified in the EC type examination certificates when interconnecting intrinsically safe electrical equipment.

Selecting cables and wires

Observe the relevant clauses of EN 60079-14 for installation of intrinsically safe circuits. Seal cable entries left unused with plugs.

1.2 Servicing explosion-protected devices

If a part of the device on which the explosion protection is based needs to be serviced, the device must not be put back into operation until a qualified inspector has assessed it according to explosion protection requirements, has issued an inspection certificate, or given the device a mark of conformity.

Inspection by a qualified inspector is not required if the manufacturer performs a routine test on the device before putting it back into operation. Document the passing of the routine test by attaching a mark of conformity to the device.

Replace explosion-protected components only with original, routine-tested components by the manufacturer.

Devices that have already been operated outside hazardous areas and are intended for future use inside hazardous areas must comply with the safety requirements placed on serviced devices. Before being operated inside hazardous areas, test the devices according to the specifications for servicing explosion-protected devices.

1.3 Maintenance, calibration and work on equipment

Interconnection with intrinsically safe circuits to check or calibrate the equipment inside or outside hazardous areas is to be performed only with intrinsically safe current/voltage calibrators and measuring instruments to rule out any damage to components relevant to explosion protection.

Observe the maximum permissible values specified in the certificates for intrinsically safe circuits.

⚠ DANGER

Risk of fatal injury as a result of electrostatic discharge at the housing.
The device's housing is made of polycarbonate and may become electrostatically charged when handled improperly. An electric spark generated by electrostatic discharge may lead to ignition of a potentially explosive atmosphere and cause death.
Clean the device in dust atmospheres regularly. Only use a damp cloth or wipes to clean the housing surface.

2 Explosion protection data

ATEX: II 2 G Ex ia IIC T6 Gb/II 2 D Ex ia IIIB T 95 °C

IECEx: Ex ia IIC T6 Gb/Ex ia IIIB T 95 °C Db

2.1 Signal current circuit

Inductive limit contacts

Terminals +41/–42 and +51/–52						
Type of protection: Ex ia IIC/IIIB						
Type designation	**U_i**	**Type**	**I_i**	**P_i**	**C_i**	**L_i**
3773-11001 or 3773-11101	16 V	2	25 mA	64 mW	150 nF	150 µH
		3	52 mA	169 mW	150 nF	150 µH
3773-11002 or 3773-11102	16 V	2	25 mA	64 mW	150 nF	150 µH
		3	52 mA	169 mW	150 nF	150 µH
3773-11003 or 3773-11103	16 V	2	25 mA	64 mW	150 nF	150 µH
		3	52 mA	169 mW	150 nF	150 µH
3773-11004 or 3773-11104	16 V	2	25 mA	64 mW	50 nF	250 µH
		3	52 mA	169 mW	50 nF	250 µH
3773-11005 or 3773-11105	16 V	2	25 mA	64 mW	30 nF	100 µH
		3	52 mA	169 mW	30 nF	100 µH
3773-11006 or 3773-11106	16 V	2	25 mA	64 mW	30 nF	100 µH
		3	52 mA	169 mW	30 nF	100 µH
3773-11007 or 3773-11107	20 V	–	60 mA	130 mW	250 nF	350 µH

Electric microswitches

Terminals 41, 42, 43 and 51, 52, 53				
Type of protection: Ex ia IIC/IIIB				
Ui	**I_i**	**P_i**	**C_i**	**L_i**
28 V	115 mA	500 mW	0 nF	0 µH

2.2 Temperatures

2.2.1 Intrinsic safety Ex ia IIC

Inductive limit contacts in type of protection intrinsic safety Ex ia IIC

Type designation	Temperature class	Type	Permissible ambient temperature Ta
3773-11001 or 3773-11101	T4	2	–40 °C ≤ Ta ≤ +80 °C
		3	–40 °C ≤ Ta ≤ +75 °C
	T6	2	–40 °C ≤ Ta ≤ +65 °C
		3	–40 °C ≤ Ta ≤ +40 °C
3773-11002 or 3773-11102	T4	2	–40 °C ≤ Ta ≤ +80 °C
		3	–40 °C ≤ Ta ≤ +80 °C
	T6	2	–40 °C ≤ Ta ≤ +66 °C
		3	–40 °C ≤ Ta ≤ +45 °C
3773-11003 or 3773-11103	T4	2	–40 °C ≤ Ta ≤ +80 °C
		3	–40 °C ≤ Ta ≤ +80 °C
	T6	2	–40 °C ≤ Ta ≤ +66 °C
		3	–40 °C ≤ Ta ≤ +45 °C
3773-11004 or 3773-11104	T4	2	–40 °C ≤ Ta ≤ +80 °C
		3	–40 °C ≤ Ta ≤ +80 °C
	T6	2	–40 °C ≤ Ta ≤ +66 °C
		3	–40 °C ≤ Ta ≤ +45 °C
3773-11005 or 3773-11105	T4	2	–40 °C ≤ Ta ≤ +80 °C
		3	–40 °C ≤ Ta ≤ +80 °C
	T6	2	–40 °C ≤ Ta ≤ +66 °C
		3	–40 °C ≤ Ta ≤ +45 °C
3773-11006 or 3773-11106	T4	2	–40 °C ≤ Ta ≤ +80 °C
		3	–40 °C ≤ Ta ≤ +80 °C
	T6	2	–40 °C ≤ Ta ≤ +66 °C
		3	–40 °C ≤ Ta ≤ +45 °C
3773-11007 or 3773-11107	T4	–	–25 °C ≤ Ta ≤ +70 °C
	T6	–	–25 °C ≤ Ta ≤ +70 °C

Electric microswitches in type of protection intrinsic safety Ex ia IIC

Type designation	Permissible ambient temperature Ta
3773-11020 or 3773-11120	–40 °C ≤ Ta ≤ +80 °C
3773-11021 or 3773-11121	–40 °C ≤ Ta ≤ +80 °C
3773-11024 or 3773-11124	–40 °C ≤ Ta ≤ +80 °C
3773-11025 or 3773-11125	–40 °C ≤ Ta ≤ +80 °C
3773-11026 or 3773-11126	–40 °C ≤ Ta ≤ +80 °C
3773-11027 or 3773-11127	–20 °C ≤ Ta ≤ +80 °C

2.2.2 Intrinsic safety Ex ia IIIB

Use with flammable dusts in hazardous areas:

Type designation	Maximum surface temperature	Max. perm. ambient temperature	
		Type 2	Type 3
3773-11001 or 3773-11101	T 95 °C	–40 °C ≤ Ta ≤ +60 °C	–40 °C ≤ Ta ≤ +35 °C
3773-11002 or 3773-11102	T 95 °C	–40 °C ≤ Ta ≤ +60 °C	–40 °C ≤ Ta ≤ +49 °C
3773-11003 or 3773-11103	T 95 °C	–40 °C ≤ Ta ≤ +60 °C	–40 °C ≤ Ta ≤ +49 °C
3773-11004 or 3773-11104	T 95 °C	–40 °C ≤ Ta ≤ +60 °C	–40 °C ≤ Ta ≤ +49 °C
3773-11005 or 3773-11105	T 95 °C	–40 °C ≤ Ta ≤ +60 °C	–40 °C ≤ Ta ≤ +49 °C
3773-11006 or 3773-11106	T 95 °C	–40 °C ≤ Ta ≤ +60 °C	–40 °C ≤ Ta ≤ +49 °C
3773-11007 or 3773-11107	T 95 °C	–25 °C ≤ Ta ≤ +70 °C	

The dust protection of the microswitches is ensured through intrinsic safety of Group IIC according to Clause 5.5 of EN 60079-11/IEC 60079-11. The temperature rise of the microswitches is negligible.

i ***Note***

The associated certificates can be found on our website (www.samson.de > Products & Applications > Product selector).

15 Annex

15.1 After-sales service

Contact our after-sales service for support concerning service or repair work or when malfunctions or defects arise.

You can reach our after-sales service at aftersalesservice@samsongroup.com.

Addresses of SAMSON AG and its subsidiaries

The addresses of SAMSON AG, its subsidiaries, representatives and service facilities worldwide can be found on our website (www.samsongroup.com) or in all SAMSON product catalogs.

Required specifications

Please submit the following details:

- Order number and position number in the order
- Type, serial number, firmware version, device version

EB 3773 EN

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