

Electric Limit Switch Type 4744

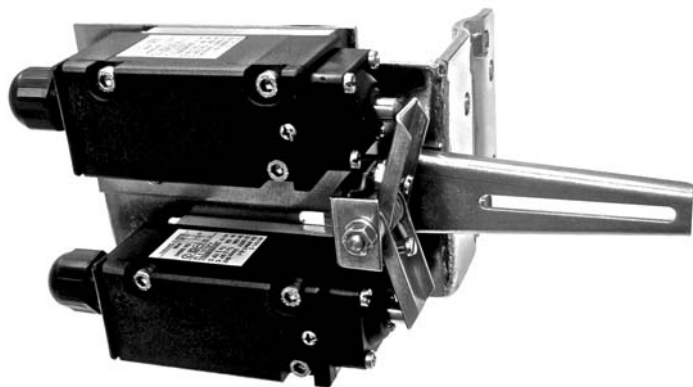


Fig. 2 · Type 4744 with two momentary-contact limit switches



Fig. 1 · Type 4744-2

Mounting and Operating Instructions

EB 8367 EN

Edition April 2004



Contents		Page
1	Description	3
1.1	Versions	3
	Technical data	3
1.2	Principle of operation	3
2	Attachment	4
3	Electrical connection	5
4	Operation – Adjusting the switching point	6
5	Dimensions in mm	7



- ▶ *Assembly, start-up and operation of the device may only be performed by trained and experienced personnel familiar with this product. According to these mounting and operating instructions, trained personnel is referred to as 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.*
- ▶ *Proper shipping and appropriate storage are assumed.*
- ▶ **Note!** *The device with a CE marking fulfils the requirements of the Directives 94/9/EC (ATEX) and 89/336/EEC. The declaration of conformity can be viewed and downloaded on the Internet at <http://www.samson.de>.*

1 Description

The limit switches are attached to pneumatic control valves and issue a limit signal when a set limit value is exceeded or not reached, especially when a control valve has reached one of its final position. This signal is suitable for transferring control signals, for example, to activate visible or audible alarms as well as for connection to central control or alarm systems.

1.1 Versions

Type 4744: Electric limit switch with one or two momentary-contact limit switches. Each contact is equipped with one NC contact and one NO contact, acting as a snap-action switch, or also switchable as a single pole double throw (SPDT).

Switches available in the degree of protection "Flameproof Enclosure" II 2 G EEx ed IIC T6 according to PTB 01 ATEX 1053.

Type 4744-2: Limit switch with one momentary-contact switch for mounting to the rod-type yoke of V2001 Series valves. Degree of protection "Flameproof Enclosure" II 2 G EEx d IIC T6 acc. to PTB 00 ATEX 1093 X.

1.2 Principle of operation

Type 4744: The stroke of the control valve is transmitted over the lever (1) to the adjusting lever (4, Fig. 5) of the limit switch unit mounted to the control valve. The adjusting lever actuates the snap-action contact of one of the momentary-contact limit switches (2) when the adjusted limit value is reached. This switch can be overridden and is equipped with an overrange protection. For primary limit value adjustment (switching point), the momentary-contact limit switch (2) is shifted on the base plate. The adjustment screw (5) is used for fine adjustment.

The terminal connections determine whether the limit switch is used either as an NO contact, an NC contact or a changeover contact.

Type 4744-2: The valve travel is transferred over the stem connector of the valve to the lever of the limit switch. The switching point can be finely adjusted using an adjustment screw.

Technical data	Type 4744	Type 4744-2
Momentary-contact switches	1 or 2	1
Load capacity ¹⁾ (switchability)	500 V AC / 4 A	250 V AC / 5 A
	125 V DC / 10 A 250 V DC / 0.4 A	250 V DC / 0.4 A
Travel range	7.5 to 100 mm	
Perm. ambient temperature ¹⁾	-20...+70 °C, -55...+70 °C with metal cable gland	-20...+75 °C
Degree of protection	IP 65	IP 66
Weight, approx.	1.75 kg	0.4 kg
Case material	Polyester	Thermosetting plastic

¹⁾ The limits specified in the relevant certificates additionally apply when used in hazardous areas

2 Attachment

Type 4744-1

The limit switch is attached according to DIN EN 60534-6 using the mounting parts (order no. 1400-5514) to the right side or left side of the valve.

Note!

The base plate together with the limit switch and pin (4) must be mounted in such a way that the lever (1) is in an horizontal position when the valve is at mid-travel.

1. Attach the plate (2) to the clamp of the valve stem connector using the two countersunk screws (3).
2. Attach the pin (4) to the plate using the nuts (5).

Valves with casted yokes:

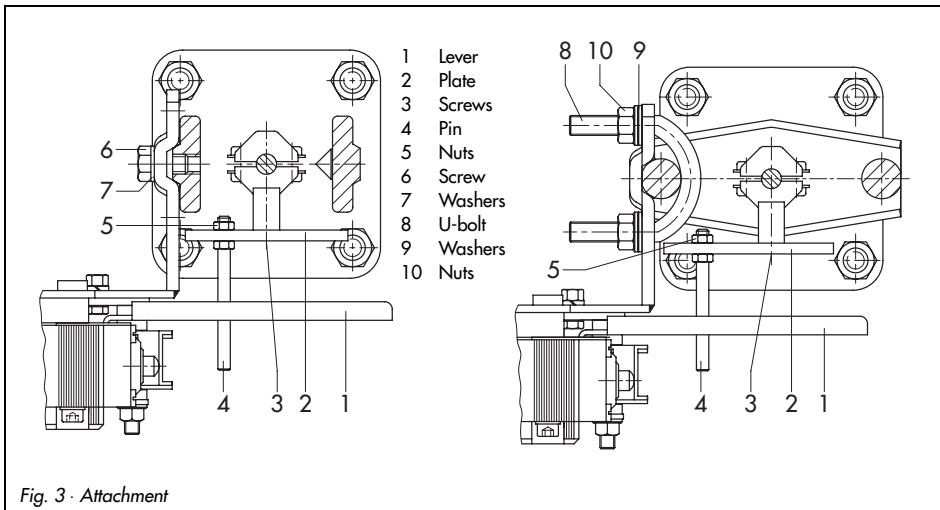
3. Place the base plate with limit switch(es) on the NAMUR rib and screw tight using screw (6) and washer (7).

Valves with rod-type yokes:

3. Place the base plate with limit switch(es) to the valve stem, align it and fasten using U-bolt (8), nuts (10) and washers (9).

Type 4744-2

1. Loosen the clamps of the stem connector on the valve. Replace the front clamp with the clamp including the U-bolt from the accessories.
2. Move the valve to the position at which you want the contact to be activated.
3. Place the clamping plate on the rod-type yoke and move it until the lever rests on the clamp of the stem connector. Align clamping plate and screw tight.



3 Electric connections



For electrical installation, you are required to 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.

The following regulations apply for installation in hazardous areas:

EN 60079-14: 1997; VDE 0165 Part 1/8.98 "Electrical apparatus for explosive gas atmospheres" and EN 50281-1-2: VDE 0165

Part 2/11.99 "Electrical apparatus for use in the presence of combustible dust".

Type 4744: Unscrew fastening screw and remove case cover.

Route wires through the cable gland to the terminals as shown in wiring diagram.

Type 4744-2: Connect as shown in the wiring diagram on the clamping plate.

Black (BK) / Blue (BU) > Normally-closed contact and

Black (BK) / Brown (BN) > Normally-open contact.

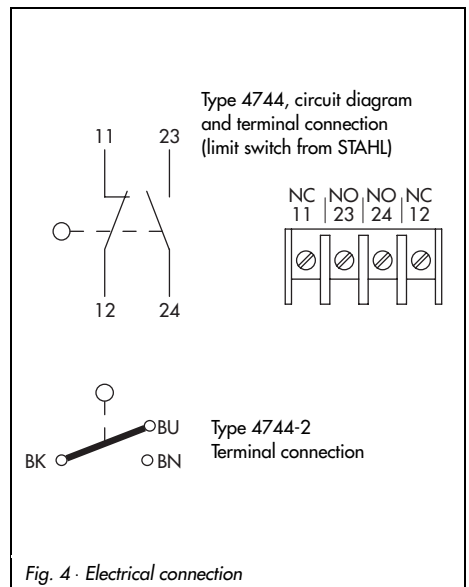


Fig. 4 · Electrical connection

4 Operation – Adjusting the switching point

Type 4744: The limit switch unit mounted to the control valve is set by the manufacturer to produce a signal when the valve travel reaches one of its final positions. The switching point can also be adjusted to at any point within the travel range.

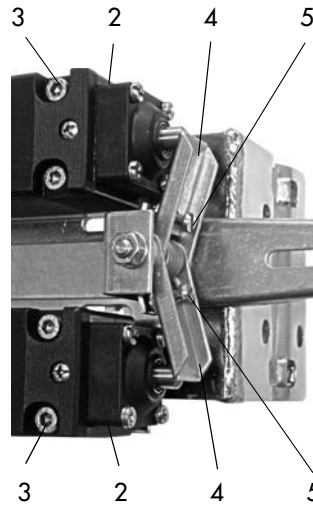
Note! Switching points can only be activated when the valve travel is 1 mm with the smallest possible lever arm and when the valve travel is 4 mm with the largest possible lever arm.

Switching point adjustment:

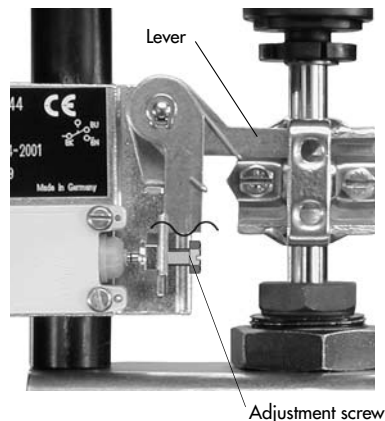
- ▶ Move the valve to the position at which you want the switching point to be activated.
- ▶ Loosen the fastening screw (3) and move the momentary-action limit switch (2) up to the switching point on the lever (4). Re-tighten fastening screw.
- ▶ Move the valve up and down close to the required switching position and make any fine adjustments to the exact switching point using the adjustment screw (5).

Type 4744-2

Move the valve up and down close to the required switching position and make any fine adjustments to the exact switching point using the adjustment screw.



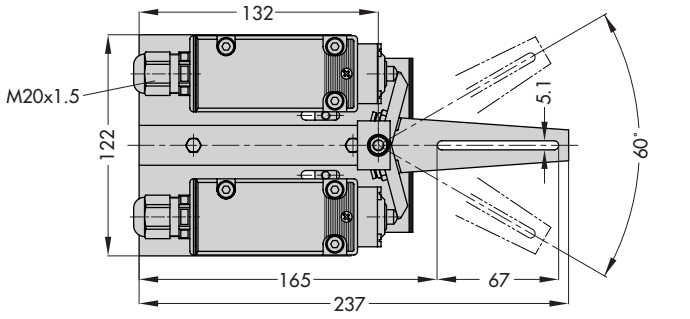
Type 4744 with two momentary-action limit switches



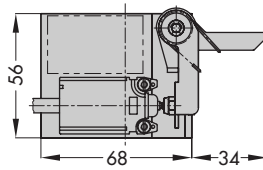
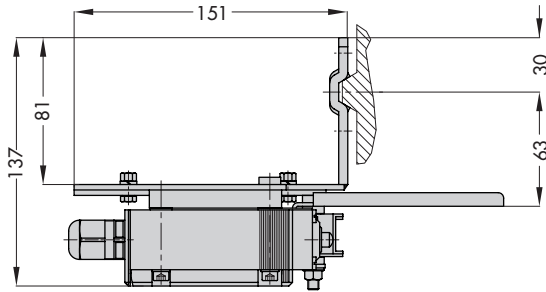
Type 4744-2

Fig. 5 · Adjusting the switching point

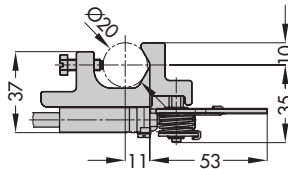
5 Dimensions in mm



Type 4744



Type 4744-2





SAMSON AG · MESS- UND REGELTECHNIK
Weismüllerstraße 3 · 60314 Frankfurt am Main · Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507
Internet: <http://www.samson.de>

EB 8367 EN

S/Z 2004-05