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Thank you for choosing a EUROTEC product. With this limit switch box you have purchased a quality product. To ensure functionality and for your own safety, please read these operating instructions carefully before you begin the installation. If you have any further questions, please contact:

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1. Device description
Limit switch boxes serve as position feedback and control unit of valves that are operated by pneumatic part turn actuators. The shaft of the limit switch box is connected form-fit to the shaft of the actuator and will turn when you shift the actuator. The cams which are mounted on the shaft of the limit switch box will then activate the switches which are responsible for the transmission of the electrical signal. Depending on the model, the flex limit switch boxes contain 1 to 4 mechanical micro switches or inductive proximity switches, 1-3 slot type sensors, 1-2 cylindrical sensors or 1 dual sensor.

2. Intended use
The standard flex limit switch boxes from EUROTEC are suitable for use in non-hazardous areas. The ambient temperature range depends on the housing material and the integrated switch type. It is indicated on the referring technical data sheet and on the product label.

3. Labeling
The product label on the housing is shown in figure 1. Each switch type has it’s own label. The serial number is to be found below the CE symbol. It contains the year of manufacture and the referring production number.

![Fig. 1: Product label]

4. Safe installation
To avoid mistakes, only a specialist is permitted to set up, connect and put the devices into operation. Always observe the following safety instructions before set up:

- Check if the classification on the label is appropriate to your application.
- Please consider the respective national regulations and legal requirements, as well as the requirements of the manufacturer and the generally accepted rules of technology.
- Please take appropriate measures to avoid accidental activation and improper external influence.
- Do not remove possibly existing cable entry devices until inserting the cables to ensure that any dirt remains outside the limit switch box.
- Ensure an adequate strain-relief for the supply cable or a static installation.
- Protect the equipment and cables effectively from any damage.
- Avoid static charging of plastic parts and cables. Thereto clean the equipment only with an antistatic or wet cloth.
- Connect all conductive metal parts, including accessories, to the potential equalisation.
- The equipment may only be operated in completely assembled status.
- Never disconnect energised cables or systems.

If you do not observe the safety instructions in these operational instructions or if you use or handle the device improperly, our staff cannot be held liable. Furthermore your warranty for the device and its accessory components will be void.
5. Mounting on pneumatic actuators
The limit switch boxes can be mounted quickly and easily on your actuator with the delivered screws according to VDI/VDE 3845.

1. Bring the actuator in the end position in which the flute of the actuator shaft is in parallel to the actuator housing.
2. Attach the switch box with the suitable mounting bracket to the actuator.
3. The mounting bracket can now be fastened on the actuator with the 4 delivered screws.
4. Release the 4 cover screws and open the switch box. Do not unscrew them too far so that they do remain plugged into the cover.
5. Lead the system cable through the cable gland into the switch box housing and connect the individual leads to the terminal block. Consider thereto the wiring diagram on the according data sheet or on the switch box cover and connect the housing to the potential equalization.
6. Close the switch box with the cover. Take care that the sealing of the cover is in proper position and tighten the screws firmly.

6. Electrical connection
The permitted sheath diameters are indicated on the according data sheet of the limit switch box. The circuit diagram is indicated on or inside the limit switch box cover as well as on the according data sheet.

Take care that the cable gland body, which is mounted to the housing, does remain in it's position when tightening the cable gland nut. Please use 2 fork wrenches for this procedure. One to prevent the cable gland body from turning and the other to tighten the cable gland nut. If the cable gland sealing leaves it's proper position, it will influence the level of the protection by enclosure (IP).

EUROTEC standard terminal block:
Wire cross section: 0,5 - 2,5mm²
Stripping length: 8mm

Abb. 2: Standard terminal block

7. Dismantling
When dismantling, observe the instructions from chapter 3.

1. Disconnect the housing from the power supply.
2. Loosen the 4 cover screws and open the switch box. Do not unscrew them too far so that the screws do remain plugged into the cover.
3. Disconnect the system cable from the terminal block of the limit switch box.
4. Loosen the 4 screws that hold the mounting bracket on the actuator and remove the switch box from the actuator.

8. Setting of the swivel range
In delivered status the cams are always preset on a swivel range of 0 - 90°. If you need another swivel range, please proceed with the following steps:

1. Rectangular V3 limit switches
   a. Remove the visual indication, [Fig. 5]
   b. Bring the actuator in the desired end position 1. Adjust the lower cam first. Press the cam down and turn it into the position in which it actuates the switch. Now let the cam engage again with the toothing, [Fig. 6]
   c. Bring the actuator in the desired end position 2. Press the upper cam down and turn it into the position in which it actuates the switch. Now let the cam engage again with the toothing.
   d. Finally verify your presetting through repeated switching.
   e. Mount the visual indication to the shaft of the limit switch box.
2. Cylindrical limit switches

f. Remove the visual indication. (Fig. 7)
g. Loosen the M6 nut screw and remove the upper cam. (Fig.8)
h. Unfasten the threaded rod, bring the actuator in the desired end position 1, and adjust the lower cam. Then tighten the threaded rod again firmly. (Fig. 9)
i. Bring the actuator in the desired end position 2, adjust the upper cam and tighten it again by means of the nut screw. (Fig. 10)
j. Finally verify your presetting through repeated switching of the actuator.
k. Mount the visual indication to the shaft of the limit switch box. Take care that the indication is in line with the upper end of the threaded rod. This will prevent the indication from touching upon the fixture or the cover.

9. Connection of solenoid coils

The flex limit switch boxes from EUROTEC offer the option of connecting a maximum of two magnetic coils. For the connection of a magnetic coil replace one protection plug by a cable gland M20x1.5 together with a suitable seal insert for your cable diameter. Ensure that the IP protection class as well as the ambient temperature of your cable gland match at least the characteristics of the flex box housing. Verify that with the data sheet of your cable gland.

Matching cable glands can be purchased from EUROTEC:

<table>
<thead>
<tr>
<th>Cable diameter: 6 - 12mm</th>
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<tr>
<td>Cable diameter: 5 - 9mm</td>
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</table>

The wires of your cable need to be connected to the terminal block as well as with the magnetic coil. Consider the referring operation instructions of the coil manufacturer and the wiring diagram inside the switch box cover or on the technical data sheet of the limit switch box.

10. Outdoor use

If you like to use the limit switch boxes for an outdoor application, you will need a venting element. This venting element will help to avoid condensation water inside the switch box housing due to ambient temperature variations. Please verify if a venting element is present at your limit switch box. Otherwise you need to order a suitable limit switch box with venting element. The order code "-DAE" needs to be added to the actual part number.
11. Maintenance
With the long-term outdoor use of the switch boxes and with extremely high or low ambient temperatures, the cover and shaft sealings can become porous. A safe use can only be guaranteed with a leak-proof housing. Sealings need to be replaced as soon as they are worn out, but no later than after 5 years. The necessary sealings can be ordered from EUROTEC.

12. Malfunctions
If a malfunction occurs, check the electric line connections, the supply voltage, the cam position, condensation water inside the housing, the proper function of the pneumatic actuator and of the valve below the actuator. Rectify any possible faults. If this does not rectify the malfunction, be sure there is no pressure on the device and disconnect the device from the power supply voltage. Consult an authorised and trained specialist member of the manufacturer’s staff.

13. Part number

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Schalterart | Switch type
M | Mechanisch | Mechanical
I | Induktiv | Inductive
S | Schalt | Switch
D | Doppelsensor | Dual sensor

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