



1. Description

Signal devices are used to report and control the position of valves which are operated by pneumatic actuators. With the enclosed mounting parts the boxes can be easily and quickly mounted on actuators or valves.

This manual is valid for limit switch boxes type ALB with pressure-capsulated mechanical micro switches.

These limit switch boxes may only be mounted, wired and installed by qualified personnel. The staff has to be trained in methods of explosion protection and must be well informed about the regulations of equipment in explosive areas.

2. Explosion protection and labeling

The limit switch boxes type ALB are appropriate for the intended use in explosive areas.

The aluminium housing has the protection class type „increased safety“ (e), the micro switches have the protection class “pressure-capsulated“ (d). The configuration of the protection types of the limit switch boxes are conform with the used mounting parts. The operation manual and the EC type test certificate of the switches have to be regarded.



- The device may only be installed in areas, where electrostatic charge by manual friction is not expected. You may clean it with a damp cloth only!
- The device must be grounded!

Labeling, depending on used type of micro switch

For installation in zone 1 or 21:

II2G Ex ed IIC T6 Gb or II2D Ex tb d IIIC T80°C Db IP65

EC-type examination certificate: PTB 10 ATEX 1061 X



0123



The labeling is located on the type plate of the limit switch box. Before start of operation in explosive area make sure that the limit switch box, the sensors and optionally wired solenoid valves are certified for the intended Ex-zone!

Electrical characteristics

Rated voltage max. 250 V AC/DC
 Rated current max. 4 A
 Rated cross section max. 4 mm²

Temperature range

Minimal ambient temperature: -20°C
 Maximum ambient temperature: +60°C

3. Assembling

You have to use appropriate intrinsically safe equipment according to operating instructions when wiring the box.

 WARNING	<p>Risk of injury</p> <p>The electric components inside the box carry dangerous voltage. Moreover there is a risk of bruise by some rotating parts.</p> <p>→ Do not open the housing while operating!</p>
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1. Bring the actuator to a completely “Open” or “Close” position.



Close: Valve is closed, Channel position is abreast the actuators longitudinal axis.
Open: Valve is open, Channel position towards actuator axis.

Please consider the rotation direction of the actuator: The limit switch box is presetted for clockwise rotating actuators. For counterclockwise you have to reset the switch flag.

Wrong position of the switch flag can result in damaging the roller leavers or micro switches. Therefore once activate the actuator before making the electrical connection of the switches!

2. Equate the modules axis with the actuator.
3. Attach the box with bracket on the actuator or valve and fix it.
4. The device must be grounded.

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5. Adapt the appropriate intrinsic safe control unit by leading the system cable through the cable gland and wiring the single conductors with the terminal block.



*Please note the wiring diagram in the technical data sheet.
The wiring diagram can also be found inside the housing cover of the box.*

Make sure that there is a sufficient mains lead cleat.

4. Adjusting switch-points

Ex-factory the modules are adjusted in the following way:

Switch-point close: Position Valve/Actuator at 0° to 3°
Switch-point open: Position Valve/Actuator at 87° to 90°
(Switch-points of other switches optionally)

If readjustment should be necessary proceed as following:

1. The device must be switch to zero-potential.
2. Open screws and the housing cover.
3. Unscrew the fastening screws and move the micro switch forward or backward until the designated switch point has been reached.
The switch flag in its end position may not damage the roller lever or the micro switch.
4. Proceed similarly with other switch-points.
5. Tighten the fastening screws.
6. Refasten housing cover. (Fastening torque of the screws: 1,4 Nm)

5. Connecting solenoid valves

Depending on their design the switch-boxes offer the possibility to additionally connect up to two solenoid valves on the terminal block. When installing the devices in explosive areas, you may wire approved solenoid valves only.

Consider the instruction manual and the explosion protection labelling of the solenoid valve!

If you want to wire solenoid valves additionally act on the following plan:

1. Remove the sideways blind plug and replace it by a suitable cable gland M16x1,5.
2. Open screws and the housing cover.
3. Lead the system cable through the cable gland and wire it with the terminal block.



*Please note the wiring diagram in the technical data sheet.
The wiring diagram can also be found inside the housing cover of the box.*

4. Refasten housing cover! (Fastening torque of the screws: 1,4 Nm)



Some types of limit switch boxes don't offer the possibility to additionally connect solenoid valves.

6. Maintenance

Long-time outdoor usage can cause gaskets to become brittle after some time. Safe operation can only be guaranteed with leak-proof boxes.



*Gaskets should be exchanged immediately when they are damaged, or at least after five years.
Gaskets may be replaced by qualified personell only.
Gaskets can be ordered at Rotech Systemkomponenten anytime.*

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