



Manual

for limit-switch-boxes type DRA
Type of protection: flame proof enclosure

1. Description

Limit-switch-boxes 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 DRA. 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 DRA are appropriate for the intended use in explosive areas.
The housing has the protection class type flame proof enclosure „d“ and dust protection „tb“. The instruction manual of the proximity sensors or micro switches has to be regarded.



- The device must be grounded
- You may clean it with a damp cloth only!

Labeling according ATEX



II2G Ex db IIB T6 Gb
II2D Ex tb IIIC T80°C Db

EC-type examination certificate no.:
IBExU17ATEX1050X

Labeling according IECEx:



Ex db IIB T6 Gb
Ex tb IIIC T80°C Db

IECEx certificate no.:
IECEx IBE 17.0018X



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 and optionally wired solenoid valves are certified for the intended Ex-zone!

Electrical data

Electrical characteristics comply with the instruction manual of the mounted sensors or switches.

Maximum values:

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

Temperature range

Max. ambient temperature: +60°C
Min. ambient temperature: -40°C with PUR-foam-seal (black)
-60°C with VMQ-sealing (silicon, red)

Depending on the used mounting parts the min. ambient temperature can be higher.

3. Cable entries and blind plugs

Depending on their design the limit switch boxes offer the possibility to mount up to three cable entries or blind plugs.

You may only use cable entries or blind plugs with protection class flame proof enclosure „d“ and dust protection with certification for the required Ex zone. The threads for the cable entries or blind plugs are M20x1,5 or 1/2" NPT. Instruction manuals of the used cable entries and blind plugs have to be regarded.

Make sure that there is a sufficient mains lead cleat. All cables and wires as well as cable glands must be suitable for usage at ambient temperature from -60°C to +60°C.

Depending on the assembled parts the limit switch boxes can contain ignition sources acc. EN 60079-14, chapter 10.4.2.

When choosing cables and cable glands / bushes the relevant requirements have to be regarded.

Non-used threads for lead-in of cables and wires have to be locked permanently with appropriate blind plugs, approved according EN 60079-1, 11.9.

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|------------------------------|--------|--------------------------|------------------------|
| created: 20.06.2017 | by: SH | revised: 25.07.2017 | by: RT |
| ROTECH Antriebselemente GmbH | | Tel.: +49(0) 7243-5931-0 | http://www.rotech.de |
| | | Fax: +49(0) 7243-5931-31 | E-Mail: info@rotech.de |



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4. Mounting

You have to use cover screws with tightness class 8.8 as minimum.

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|---|---|
|  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> |
|---|---|

1. Bring the actuator to a completely „Open“ or „Close“ position.



*Close: Valve closed: Channel position is abreast the actuators longitudinal axis
Open: Valve open: Channel position is towards the actuators axis*

2. Equate the modules axis with the actuator.

3. Attach the box with bracket on the actuator and fix it.

4. Device must be switched to zero-potential. Unfasten cover screws and remove housing cover.

5. Device must be grounded. There is one external and one internal grounding connection.

6. Lead the system cable through the cable gland and wire it on the terminal block.



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

7. Refasten housing cover. Fastening torque of the cover screws: 3 Nm

You may use cover screws with tightness class 8.8 as minimum only.

8. Make sure that there is a sufficient mains lead cleat.

5. Adjusting switch-points

Ex factory the limit-switch-boxes 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. Device must be switched to zero-potential. Unfasten cover screws and remove housing cover.

2. Depending on the type of proximity switch, the limit switch boxes are equipped with different activators.

- Actuation with switch cams or switch plates:
Push down the exterior ring of the switch cam of the sensor, which has to be readjusted. Turn the switch cam until the designated position has been reached. By disengaging the switch cam, it snaps into place again.
- Actuation with damping flag:
Loosen the Hexagon socket head cap screw between the sensors. Now turn the switch cam underneath the sensors until the switch flag in its end position damps the sensors.
- Actuation with switch flag:
Unscrew the fastening nuts and move the sensor forward or backward until the designated switch point has been reached. The switch flag may not contact the front side of the sensor!

3. Proceed similarly with other switch-points.

4. Refasten housing cover (fastening torque of the screws tightness class min. 8.8: 3 Nm)

6. Connection of solenoid valves

Depending on their design the switch-boxes offer the possibility to additionally connect up to two solenoid valves on the terminal block. You may only wire solenoid valves with approval for the required Ex-zone. At some limit switch boxes it is not possible to additionally wire solenoid valves.



Consider the instruction manual and the explosion protection labeling of the solenoid valve.

If you want to wire solenoid valves additionally, act as follows:

1. Device must be switched to zero-potential.

2. Remove the blind plugs and replace it by a certified cable gland acc. point 3.

3. Unfasten cover screws and open housing cover.

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4. Lead the system cable through the cable gland and wire it on the terminal block.
Manual of the cable glands must be regarded!



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

5. Refasten housing cover (fastening torque of the screws tightness class min. 8.8: 5 Nm)

7. Maintenance

Repairs of the flameproof joints and threads für cable glands are not allowed.

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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