Manual

for limit-switch-boxes type 1061…

bürkert FLUID CONTROL SYSTEMS

1. Description

Signal devices are used to report and control the position of valves which are operated by pneumatic actuators. Depending on their design the signal boxes are equipped with mechanical micro-switches, 3-wire proximity or NAMUR sensors. Some types are additionally equipped with integrated 3/2- or 5/2-way solenoid valve, which can be used for activating of pneumatic actuators.
With the enclosed mounting parts the boxes can be easily and quickly mounted on actuators or valves.

Limit-switches-boxes type 1061-773153, -773731, -773883, -774336 may be mounted, wired and put into operation by qualified personnel, only. The qualified personnel must be well informed concerning type of protections and regulations about electrical equipment in explosive areas. For this type of switch-box all relevant remarks and conditions are marked with the symbol Ex in the following.

Types overview:

A Electro-mechanic / inductive feedback signal, with solenoid valve, with ASi-plug-in-card
Art.-No.: 773145, 773146, 773147, 773148, 773288, 773290, 773291, 773298

B Electro-mechanic / inductive feedback signal, with solenoid valve, without ASi-plug-in-card
Art.-No.: 773139, 773140, 773141, 773142, 773143, 773144, 773638, 770061, 774337, 773853

C Electro-mechanic / inductive feedback signal, without solenoid valve, with ASi-plug-in-card
Art.-No.: 773149, 773150

D Electro-mechanic / inductive feedback signal, without solenoid valve, without ASi-plug-in-card
Art.-No.: 773151, 773152, 774044, 774135, 774398

E Electro-mechanic / inductive feedback signal, without solenoid valve, without ASi-plug-in-card
design with increased safety Ex
Art.-No.: 773153, 773731, 773883, 774336

F Electro-mechanic / inductive feedback signal, without solenoid valve, without ASi-plug-in-card
with IEC-Ex marking of sensor and solenoid valve
Art.-No.: 773908

G Electro-mechanic / inductive feedback signal, with solenoid valve, without ASi-plug-in-card, with M12 connector
Art.-No.: 773873, 773645, 773729

2. Explosion protection and labeling Ex

(relevant for type "E" only)

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 sensors have the protection class "intrinsic safety" (ia or ib). The configuration of the protection types of the limit switch boxes are conform with the used sensors. The operation manual and the EC type test certificate of the sensors have to be regarded.

- If the aluminium housing shall be installed in Ex-Zone 0 the operator has to take appropriate measures to avoid the danger of firing by friction or impact!
- 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 sensor

Ex II2G Ex e ia IIC T6 Gb or Ex II2D Ex ia tb IIIC T80°C Db IP65

CE 0123

EC type-examination certificate no.: PTB 10 ATEX 1061 X

Manufacturer: Rotech Systemkomponenten
Im Katzentach 16-18
76275 Ettlingen (Germany)

Manufacturer article-no.: APFN…B, ACR1…

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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 data

Nominal voltage 8 V DC
Measuring plate not detected: ≥ 3 mA
Measuring plate detected: ≤ 1 mA

Temperature range

Minimal ambient temperature: -25°C
Maximum ambient temperature: +60°C
The maximum allowable ambient temperature can definitely be lower. The coherency between the maximum allowable ambient temperature, the temperature class / max. surface temperature and the electrical supply data of the intrinsic safe sensors has to be taken from the EC type test certificate.

3. Assembling

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

CAUTION	**Risk of injury** The electric components inside the box carry dangerous voltage. Moreover there is a risk of bruise by some rotating parts. → Do not open the housing while operating!

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

   Closed: Valve is closed, Channel position is abreast the actuators longitudinal axis.
   Open: Valve is open, *Channel position towards actuator axis.*
2. Equate the modules axis with the actuator.
3. The device must be grounded.
4. Attach the box with bracket on the actuator or valve and fix it.
5. Connect the control unit. Depending on category type:

ASi programming information	
Profil:	S-D.A.E.
IO-Code:	D
ID-Code:	A
ID1-Code:	7
ID2-Code:	E

B+D+ E+F **System connection with cable gland M20x1,5**

Lead the system cable through the cable gland and wire the single conductors on the terminal block.
Make sure that there is a sufficient mains lead cleat!

A+C **System connection with ASi-ribbon-cable or M12-connector**

Insert the yellow ASi-ribbon-cable into the plug-part and clip it into the counter piece, respectively connect a suitable mating connector with the 4-pole M12-connection (depending on design)

G **System connection with 8-pole M12-connector**

Connect a suitable socket to the male 8-pole M12-connector on the housing.

Please note the wiring diagram in the technical data sheet.
The wiring diagram can also be found in the box.

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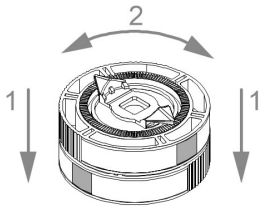
4. Adjusting switch-points

Ex factory the modules are adjusted in the following way:

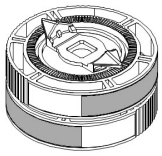
Switch-point close: Position Valve/Actuator at 2° to 6°
Switch-point open: Position Valve/Actuator at 84° to 88°

If readjustment should be necessary proceed as following:

1. Untighten cover screws and open the housing.
2. Position „Closed": Keep pushing down the lower switch cam (1) and turn it (2) until the micro-switch is activated respectively the sensor is damped.
3. Position „Open": Keep pushing down the upper switch cam (1) and turn it (2) until the micro-switch is activated respectively the sensor is damped.
4. Close the housing. (Fastening torque of the screws: 1,4 Nm)



Non-Ex-sensors
(only for end position damped)



NAMUR-sensors
(standard setting:
end position undamped)

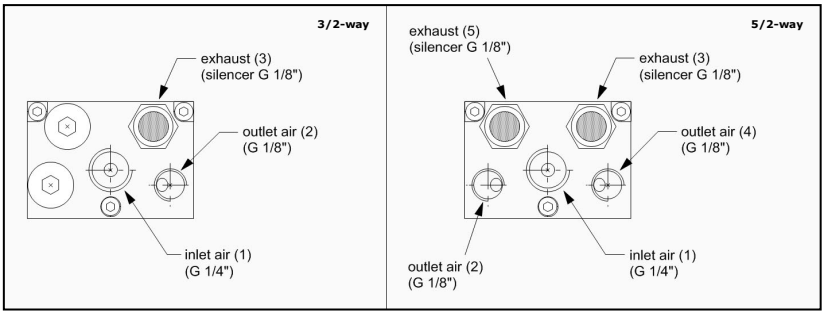
Micro switches

5. Solenoid valve

The limit-switch-boxes type **A+B+G** are equipped with an integrated 3/2- or 5/2-way solenoid valve. It is already wired on the terminal block, which means that the supply voltage comes via the system connection.

See the wiring diagram in the technical data sheet.
The wiring diagram can also be found in the box.

The pneumatic connection to the solenoid valve is realized by an external connection block.
The types of connection are shown in adjacent drawing.



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.

Seals should be checked and, if necessary, exchanged at least after five years.
Gaskets may be replaced by qualified personnel only.
Seals and other parts can be ordered at all times.

7. General information

Contact addresses

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