

Modulating rotary actuator for butterfly valves

- Nominal torque 150 Nm
- Nominal voltage AC 230 V
- Control modulating DC 0...10 V
- Position feedback DC 0...10 V
- with 2 integrated auxiliary switches
- State at loss of signal: closed



Technical data

| | | |
|------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------|
| Mechanical data | Housing material | Aluminium pressure casting |
| Electrical data | Nominal voltage | AC 230 V |
| | Nominal voltage frequency | 50/60 Hz |
| | Nominal voltage range | AC 207...253 V |
| | Power consumption in operation | 40 W |
| | Power consumption at rest | 5 W |
| | Power consumption for wire sizing | 115 VA |
| | Current consumption | 0.5 A |
| | Auxiliary switch | 2 x SPDT, 1 x 3° / 1 x 87° |
| | Switching capacity auxiliary switch | 5 A, AC 230 V (I protective earth) |
| | Connection supply | Terminals 2.5 mm ² (Wire 2 x 1.5 mm ² or 1 x 2.5 mm ²) |
| Functional data | Parallel operation | Yes (note the performance data) |
| | Torque motor | 150 Nm |
| | Control positioning signal Y | DC 0...10 V |
| | Control positioning signal Y note | Input impedance 100 kΩ |
| | Control operating range | DC 0.5...10 V |
| | Position feedback (measuring voltage U) | DC 0...10 V |
| | Position feedback measuring voltage U note | Max. 0.5 mA |
| | Position accuracy | ±5% |
| | Manual override | Temporary with handwheel (non-rotating) |
| | Angle of rotation | 90° (internal limit switch) |
| | Running time motor | 26 s |
| | Duty cycle | 75 % (= active time 26 s / operating time 35 s) |
| | Sound power level motor max. | 70 dB(A) |
| | Position indication | Mechanical (integrated) |
| Safety | Protection class IEC/EN | I Protective earth |
| | Degree of protection IEC/EN | IP67 |
| | EMC | CE according to 2004/108/EC |
| | Low-voltage directive | CE according to 2006/95/EC |
| | Mode of operation | Type 1 |
| | Control pollution degree | 4 |
| | Ambient temperature | -30...65°C |
| | Non-operating temperature | -30...80°C |
| | Ambient humidity | 95% r.h., non-condensing |
| | Maintenance | Maintenance-free |
| Mechanical data | Connection flange | F07 |
| Weight | Weight approx. | 11 kg |

Safety notes



- This device has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Caution: Power supply voltage!

Safety notes

- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- The device does not contain any parts that can be replaced or repaired by the user.
- The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.
- Warning: Leakage current possible (<3.5 mA)! When connecting the actuator, connect the earth first and then the supply connections! Do not disconnect the earth until after both supply connections have been disconnected!

Product features

| | |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mode of operation | The actuator is connected with a standard modulating signal and travels to the position defined by the positioning signal. The measuring voltage U serves for the electrical display of the actuator position 0 ... 100% and as slave control signal for other actuators. |
| Direct mounting | Simple direct mounting on the butterfly valve. The mounting orientation in relation to the butterfly valve can be selected in 90° (angle) increments. |
| Manual override | The butterfly valve can be closed (turn clockwise) and opened (turn anticlockwise) with the handwheel. The handwheel does not move while the motor is running. |
| Internal heating | An internal heater prevents condensation buildup. |
| High functional reliability | Mechanical end stops limit the actuator to -2° and 92°. The internal limit switches interrupt the voltage supply to the motor. In addition, a motor thermostat provides overload protection and interrupts the voltage supply if the actuator is used outside of the specified temperatures. |
| Combination valve/actuator | Refer to the butterfly valve documentation for suitable butterfly valves, their permitted medium temperatures and closing pressures. |

Electrical installation

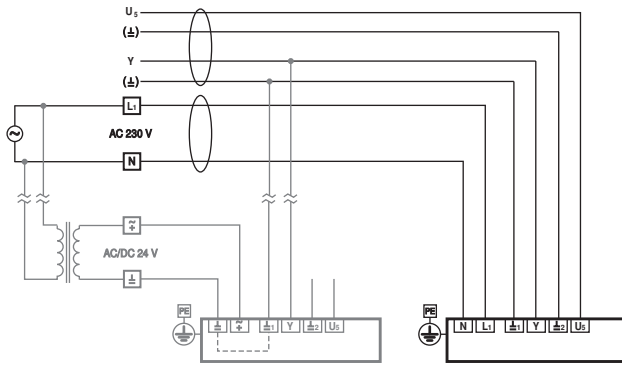


Notes

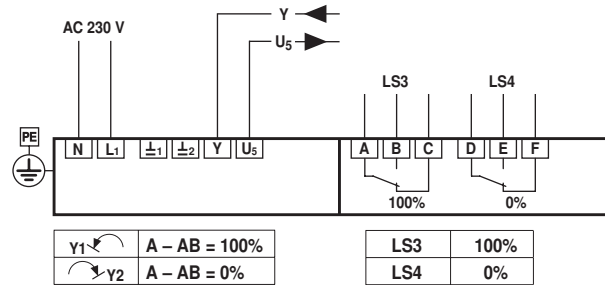
- Caution: Power supply voltage!

4-lead connection

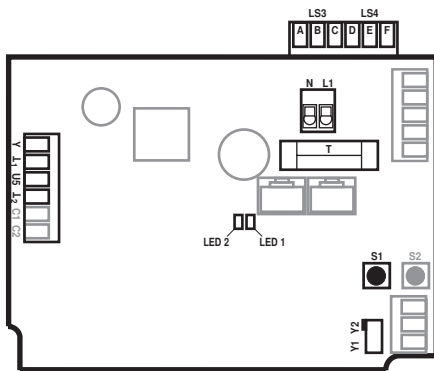
4-lead system connection



Electrical installation for 4-lead connection



Connection and function elements



N/L1: Power supply voltage

Y1: Direction of rotation switch (actuator rotates counterclockwise ccw: valve opens)

Y2: Direction of rotation switch (actuator rotates clockwise cw: valve closes)

Y: Positioning signal

U5: Position feedback

T1/T2: Ground 24V-sided

S1: Adaption button (press for 3 s: adaption procedure starts)

Adaption must take place once TC1 and TC2 have been changed

LED1 yellow On: Adaption procedure active

LED1 yellow Off: Standard mode

LED2 green On: In operation

LED2 green Off: No power supply or malfunction

T: Plug fuse (Type T10A250V)

LS3: Auxiliary switch (factory setting 87°)

LS4: Auxiliary switch (factory setting 3°)

C1/C2: not used

S2: not used

Settings



Notes

- Limit switches TC1/TC2 and angle of rotation limitation are provided with sealing varnish and may not be adjusted.

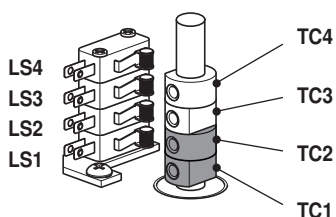
Setting cam

The setting cams for limit and auxiliary switches can be accessed by removing the housing cover.

Optionally, auxiliary switches LS4 / LS3 can be connected for signalling.

Limit switches LS2 / LS1 interrupt the voltage to the motor and are controlled by setting cams TC..

The setting cams turn with the stem. The butterfly valve closes when the stem is turning clockwise (cw) and opens when the stem is turning counterclockwise (ccw).



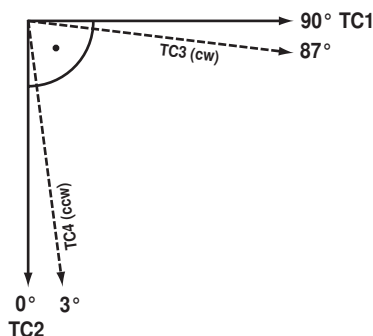
TC1/TC2 with sealing varnish: limit switches are secured against adjustment

Settings of setting cams TC..

- TC4 for auxiliary switch position closed (factory setting 3°).
- TC3 for auxiliary switch position open (factory setting 87°).
- TC2 for limit switch closed (0°).
- TC1 for limit switch open (90°).

Adjusting setting cams

- 1) Use a 2.5 mm Allen key to unscrew the corresponding setting cams TC..
- 2) Turn the setting cam using the Allen key
- 3) Set as shown in the illustration below
- 4) Use the Allen key to tighten the corresponding setting cams



TC1: OPEN
TC2: CLOSED
TC3: Present position
TC4: Desired position

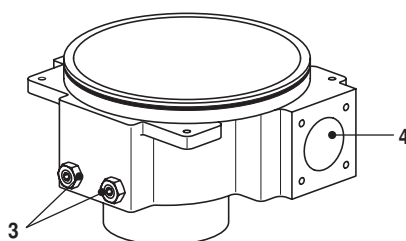
Adaptation after adjusting setting cams

An adaptation must take place after the TC1 and TC2 have been adjusted.

Mechanical angle of rotation limitation

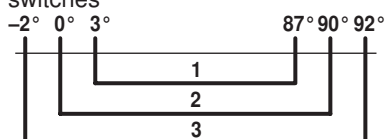
The mechanical angle of rotation (3) is set at the factory to -2° and 92° and cannot be changed.

The handwheel is rotated by means of a worm gear in a planetary gear unit. The gearing is stopped mechanically by means of two setscrews (3).



3: Angle of rotation limitation with sealing varnish:
Must not be adjusted
4: Connection handwheel

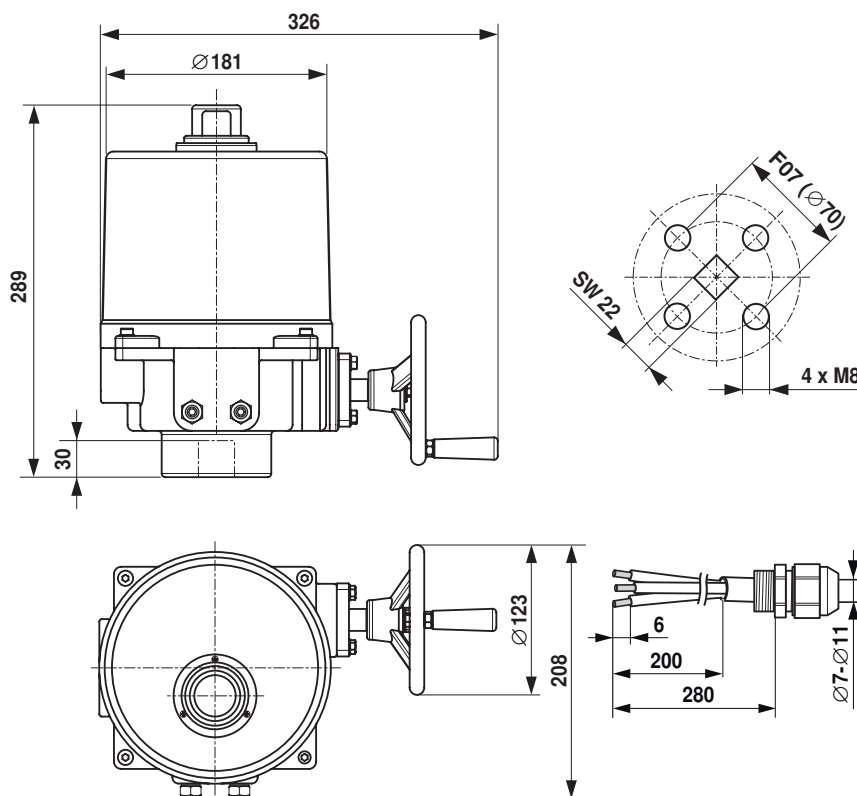
Relationship between mechanical angle of rotation limitation, limit and auxiliary switches



1: Auxiliary switch adjustable TC3 / TC4
2: Limit switch fix adjusted TC1 / TC2
3: Mechanical angle of rotation fix adjusted

Dimensions [mm]

Dimensional drawings



Further documentation

- Data sheets for butterfly valves
- Installation instructions for actuators and/or butterfly valves
- Notes for project planning for butterfly valves