

▶ ▶ ▶ ACTUATOR FOR DAMPERS

Type 225

Actuator with rotation drive

5 Nm

For the application with

Dampers

Valves

other regulatory functions



Page: Content:

2	Summary actuators, Type 225
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16	Your way to Gruner



GRUNER – The Friendly Alternative

2 >>> SUMMARY, TYPE 225

● = Standard
○ = Optional

Type	225-230T-05	225-230T-05-P5	225-230T-05-S2	225-024T-05	225-024T-05-P5	225-024T-05-S2	225C-024T-05	225C-024T-05-S2
Torque	5Nm	5Nm	5Nm	5Nm	5Nm	5Nm	5Nm	5Nm
Running time (in seconds)	60...120	60...120	60...120	60...120	60...120	60...120	60...120	60...120
Control								
Tri-state	●	●	●	●	●	●		
On/Off	●	●	●	●	●	●		
Continuous control							●	●
(0) 2-10 VDC or								
(0) 4-20 mA								
Connecting Voltage								
24 VAC/DC				●	●	●	●	●
230 VAC	●	●	●					
Options								
Potentiometer		●			●			
Feedback signal (continuous)							●	●
Auxiliary switch			●			●		●
Page	3 - 4	3 - 4	3 - 4	5 - 6	5 - 6	5 - 6	7 - 8	7 - 8

● = Standard
○ = Optional

Type	225S-230T-05	225S-230T-05-P5	225S-230T-05-S2	225S-024T-05	225S-024T-05-P5	225S-024T-05-S2	225CS-024T-05	225CS-024T-05-S2
Torque	5Nm	5Nm	5Nm	5Nm	5Nm	5Nm	5Nm	5Nm
Running time (in seconds)	20...35	20...35	20...35	20...35	20...35	20...35	20...35	20...35
Control								
Tri-state	●	●	●	●	●	●		
On/Off	●	●	●	●	●	●		
Continuous control							●	●
(0) 2-10 VDC or								
(0) 4-20 mA								
Connecting Voltage								
24 VAC/DC				●	●	●	●	●
230 VAC	●	●	●					
Options								
Potentiometer		●			●			
Feedback signal (continuous)							●	●
Auxiliary switch			●			●		●
Page	9 - 10	9 - 10	9 - 10	11 - 12	11 - 12	11 - 12	13 - 14	13 - 14





Applications

To regulate dampers, valves or other regulatory functions:

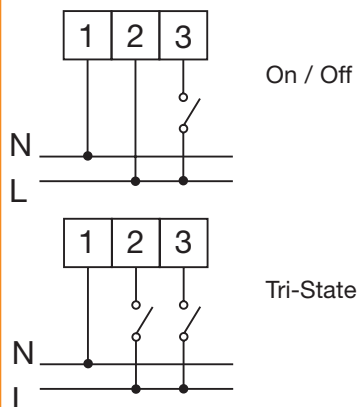
- sturdy drive
- maintenance-free
- nominal torque 4 Nm
- start-up torque 6 Nm
- position indication
- angle of rotation changeable from outside
- auxiliary switch adjustable from outside
- electromagnetic compatibility tested

Technical characteristics

Control	On/Off + Tri-state
Connecting voltage	80...265 VAC (50/60 Hz) / DC
Power consumption	1.5 W / 2.0 VA
Angle of rotation	max. 95° (changeable from outside)
Direction of rotation	changeable from inside
Running time	60...120 s @ 90°
Torque	5 Nm
Auxiliary switch	max. 2, adjustable from outside
Switching power auxiliary switch	250 VAC / 5 (2.5) A
Potentiometer	4.7 kΩ (0.2W)
Connection	terminal for cable 0,5...1,5 mm ²
Safety class	II
Protection	IP42
Dimensions	145 x 65 x 61 mm
Ambient temperature	-30...+50°C
Maintenance	maintenance-free
CE	73/23/EWG, 89/336/EWG
Weight	ca. 500 g

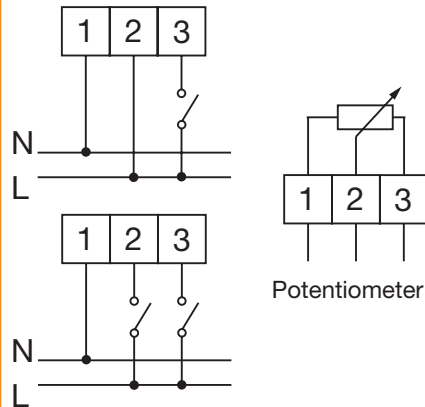
225-230T-05

Connection scheme



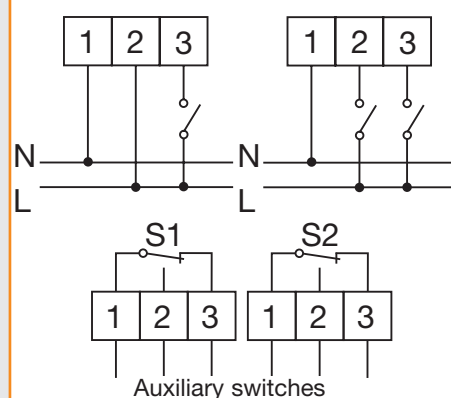
225-230T-05-P5

Connection scheme

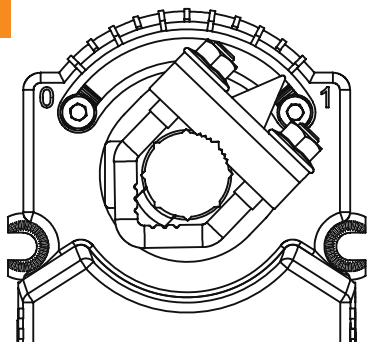


225-230T-05-S2

Connection scheme



1



Adjustment of the angle of rotation (fig. 1)

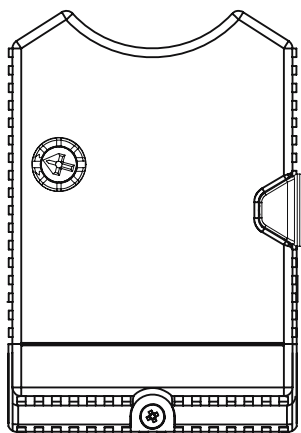
Both end stops are adjusted to 0 (0°) and 1 (90°). For smaller rotation angles, loosen the screws at the metal end stop, adjust the end stops as requested, and fasten the screws again.

Fixing of the shaft (fig. 1)

by the locking clamp to the damper shaft: □ 8...12 mm

∅ 8...16 mm

2



Adjustment of the auxiliary switch (fig. 2)

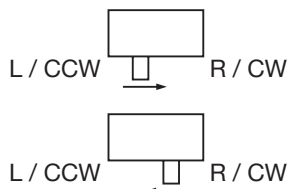
The scale at the adjusting knob corresponds to a percentage graduation, related to 0° - 90°.

- 1) End stop is set to "0": Switch off the motor and choose the requested switching position by turning the knob to the right, i.e. "2" = 20%.
- 2) End stop is set to "1": Switch off the motor and choose the requested switching position by turning the knob to the left, i.e. "8" = 20%.

Direction of rotation switch (On/Off) (fig. 3)

Direction of rotation	Clockwise (0...90°)	Counter clockwise (90...0°)
Switch position		
L / CCW	2+3 Supply	2 Supply
R / CW	2 Supply	2+3 Supply

3

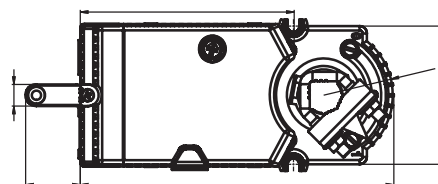
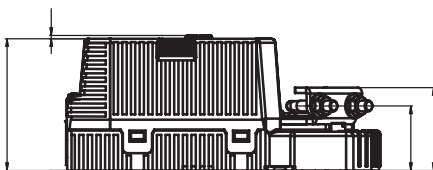
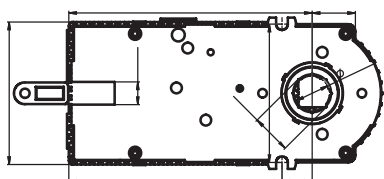


Direction of rotation switch (Tri-state) (fig. 3)

Direction of rotation	Clockwise (0...90°)	Counter clockwise (90...0°)
Switch position		
L / CCW	3 Supply	2 Supply
R / CW	2 Supply	3 Supply

Technical drawing

225-230T-05



all dimensions in mm



Applications

To regulate dampers, valves or other regulatory functions:

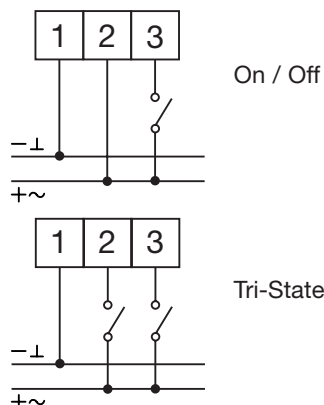
- sturdy drive
- maintenance-free
- nominal torque 4 Nm
- start-up torque 6 Nm
- position indication
- angle of rotation changeable from outside
- auxiliary switch adjustable from outside
- electromagnetic compatibility tested

Technical characteristics

Control	On/Off + Tri-state
Connecting voltage	24 VAC (50/60 Hz) / DC $\pm 20\%$
Power consumption	1.0 W / 2.0 VA
Angle of rotation	max. 95° (changeable from outside)
Direction of rotation	changeable from inside
Running time	60...120 s @ 90°
Torque	5 Nm
Auxiliary switch	max. 2, adjustable from outside
Switching power auxiliary switch	250 VAC / 5 (2.5) A
Potentiometer	4.7 k Ω (0.2 W)
Connection	terminal for cable 0,5...1,5 mm ²
Safety class	III
Protection	IP42
Dimensions	145 x 65 x 61 mm
Ambient temperature	-30...+50°C
Maintenance	maintenance-free
CE	73/23/EWG, 89/336/EWG
Weight	ca. 500 g

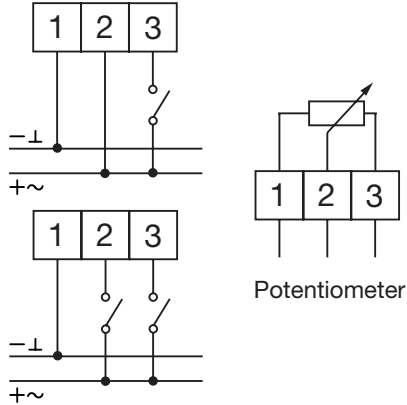
225-024T-05

Connection scheme



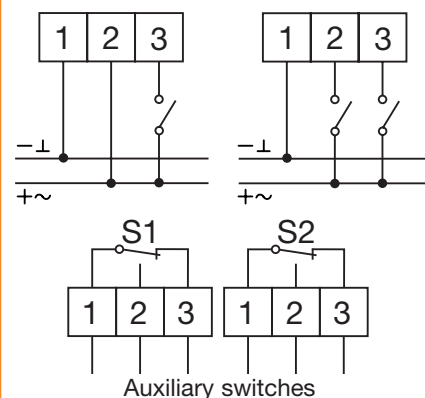
225-024T-05-P5

Connection scheme

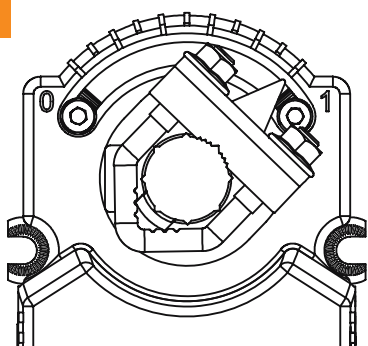


225-024T-05-S2

Connection scheme



1



Adjustment of the angle of rotation (fig. 1)

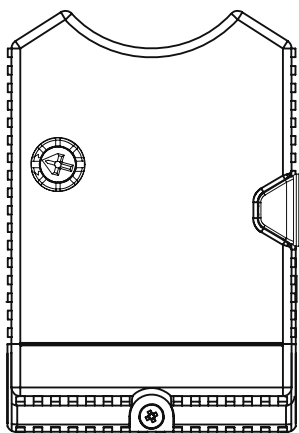
Both end stops are adjusted to 0 (0°) and 1 (90°). For smaller rotation angles, loosen the screws at the metal end stop, adjust the end stops as requested, and fasten the screws again.

Fixing of the shaft (fig. 1)

by the locking clamp to the damper shaft: □ 8...12 mm

∅ 8...16 mm

2



Adjustment of the auxiliary switch (fig. 2)

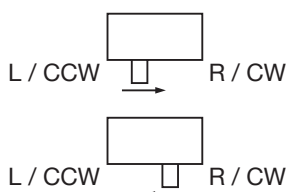
The scale at the adjusting knob corresponds to a percentage graduation, related to 0° - 90°.

- 1) End stop is set to "0": Switch off the motor and choose the requested switching position by turning the knob to the right, i.e. "2" = 20%.
- 2) End stop is set to "1": Switch off the motor and choose the requested switching position by turning the knob to the left, i.e. "8" = 20%.

Direction of rotation switch (On/Off) (fig. 3)

Direction of rotation	Clockwise (0...90°)	Counter clockwise (90...0°)
Switch position		
L / CCW	2+3 Supply	2 Supply
R / CW	2 Supply	2+3 Supply

3

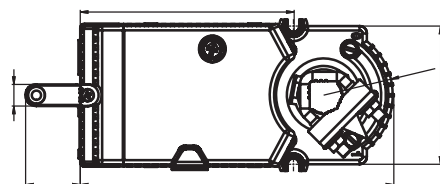
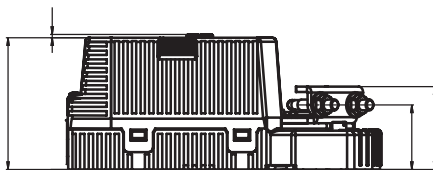
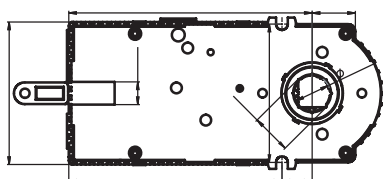


Direction of rotation switch (Tri-state) (fig. 3)

Direction of rotation	Clockwise (0...90°)	Counter clockwise (90...0°)
Switch position		
L / CCW	3 Supply	2 Supply
R / CW	2 Supply	3 Supply

Technical drawing

225-024T-05

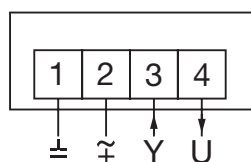


all dimensions in mm



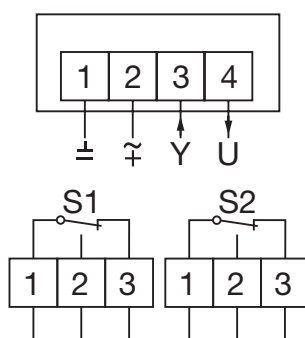
225C-024T-05

Connection scheme (Continuous control)



225C-024T-05-S2

Connection scheme (Continuous control)



Applications

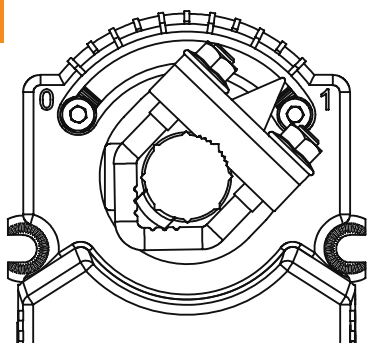
To regulate dampers, valves or other regulatory functions:

- sturdy drive
- maintenance-free
- nominal torque 4 Nm
- start-up torque 6 Nm
- position indication
- angle of rotation changeable from outside
- auxiliary switch adjustable from outside
- electromagnetic compatibility tested

Technical characteristics

Control	Continuous control
Control signal Y	0...10 VDC or 2...10 VDC (Standard) or 0...20 mA or 4...20 mA
Feedback signal U	0...10 VDC or 2...10 VDC (Standard)
Connecting voltage	24 VAC (50/60 Hz) / DC $\pm 20\%$
Power consumption	1.5 W / 2.5 VA
Angle of rotation	max. 95° (changeable from outside)
Direction of rotation	changeable from inside
Running time	60...120 s @ 90°
Torque	5 Nm
Auxiliary switch	max. 2, adjustable from outside
Switching power auxiliary switch	250 VAC / 5 (2.5) A, change-over switch
Connection	terminal for cable 0,5...1,5 mm ²
Safety class	III
Protection	IP42
Dimensions	145 x 65 x 61 mm
Ambient temperature	-30...+50°C
Maintenance	maintenance-free
CE	73/23/EWG, 89/336/EWG
Weight	ca. 500 g

1



Adjustment of the angle of rotation (fig. 1)

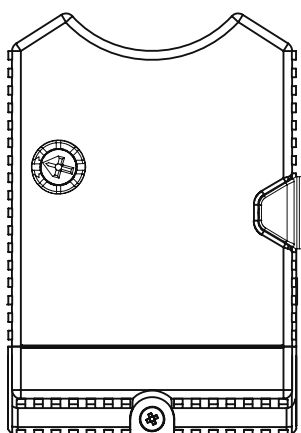
Both end stops are adjusted to 0° and 90°. For smaller rotation angles, loosen the screws at the metal end stop, adjust the end stops as requested, and fasten the screws again.

Fixing of the shaft (fig. 1)

by the locking clamp to the damper shaft: □ 8...12 mm

∅ 8...16 mm

2



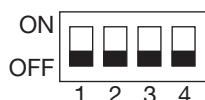
Adjustment of the auxiliary switch (fig. 2)

The scale at the adjusting knob corresponds to a percentage graduation, related to 0° - 90°.

- 1) End stop is set to "0": Switch off the motor and choose the requested switching position by turning the knob to the right, i.e. "2" = 20%.
- 2) End stop is set to "1": Switch off the motor and choose the requested switching position by turning the knob to the left, i.e. "8" = 20%.

Adjustment of the functional switches (fig. 3)

3

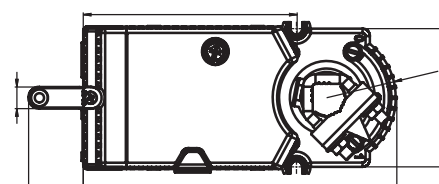
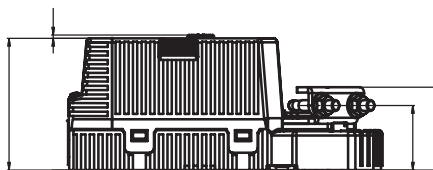
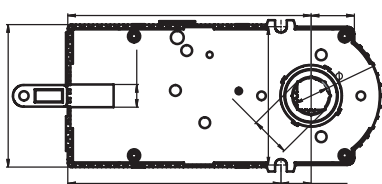


	OFF	ON
Direction of rotation		
clockwise (0...90°)	3	-
counter clockwise (90...0°)	-	3
Control signal Y		
2...10 VDC (Standard)	1, 2	-
0...10 VDC	2	1
4...20 mA	1	2
0...20 mA	-	1, 2
Teach-in of range of angle		
Active	-	4
Inactive	4	-

All switches are set to OFF by factory default. See page 15 for further instructions concerning teach-in.

Technical drawing

225C-024T-05



all dimensions in mm



Applications

To regulate dampers, valves or other regulatory functions:

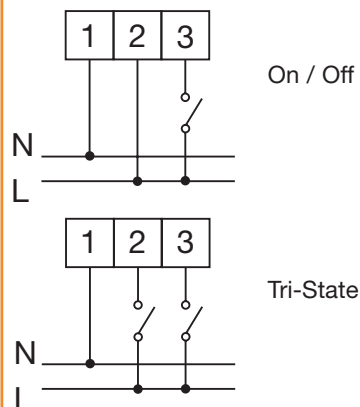
- sturdy drive
- maintenance-free
- nominal torque 4 Nm
- start-up torque 6 Nm
- position indication
- angle of rotation changeable from outside
- auxiliary switch adjustable from outside
- electromagnetic compatibility tested

Technical characteristics

Control	On/Off + Tri-state
Connecting voltage	80...265 VAC (50/60 Hz) / DC
Power consumption	2.0 W / 3.5 VA
Angle of rotation	max. 95° (changeable from outside)
Direction of rotation	changeable from inside
Running time	20...35 s @ 90°
Torque	5 Nm
Auxiliary switch	max. 2, adjustable from outside
Switching power auxiliary switch	250 VAC / 5 (2.5) A
Potentiometer	4.7 kΩ (0.2 W)
Connection	terminal for cable 0,5...1,5 mm ²
Safety class	II
Protection	IP42
Dimensions	145 x 65 x 61 mm
Ambient temperature	-30...+50°C
Maintenance	maintenance-free
CE	73/23/EWG, 89/336/EWG
Weight	ca. 500 g

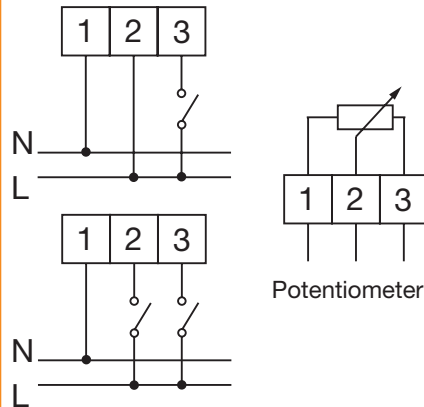
225S-230T-05

Connection scheme



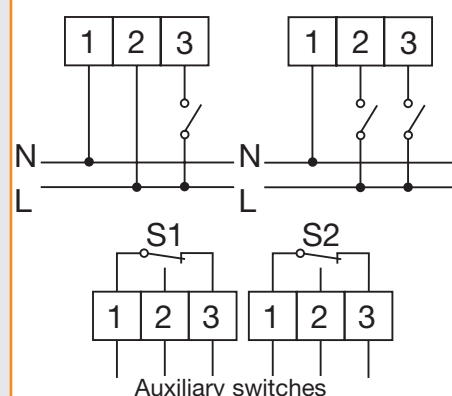
225S-230T-05-P5

Connection scheme

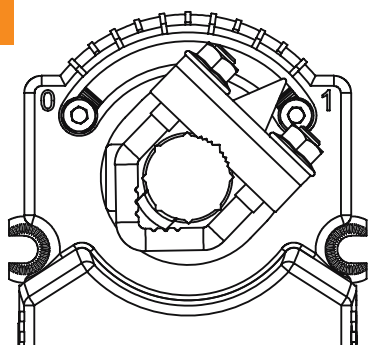


225S-230T-05-S2

Connection scheme



1



Adjustment of the angle of rotation (fig. 1)

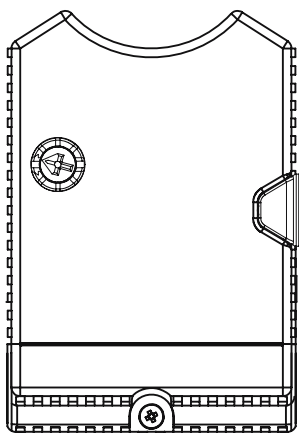
Both end stops are adjusted to 0 (0°) and 1 (90°). For smaller rotation angles, loosen the screws at the metal end stop, adjust the end stops as requested, and fasten the screws again.

Fixing of the shaft (fig. 1)

by the locking clamp to the damper shaft: □ 8...12 mm

Ø 8...16 mm

2



Adjustment of the auxiliary switch (fig. 2)

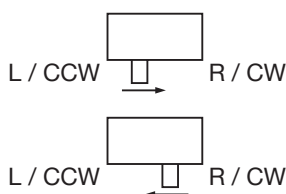
The scale at the adjusting knob corresponds to a percentage graduation, related to 0° - 90°.

- 1) End stop is set to "0": Switch off the motor and choose the requested switching position by turning the knob to the right, i.e. "2" = 20%.
- 2) End stop is set to "1": Switch off the motor and choose the requested switching position by turning the knob to the left, i.e. "8" = 20%.

Direction of rotation switch (On/Off) (fig. 3)

Direction of rotation	Clockwise (0...90°)	Counter clockwise (90...0°)
Switch position		
L / CCW	2+3 Supply	2 Supply
R / CW	2 Supply	2+3 Supply

3

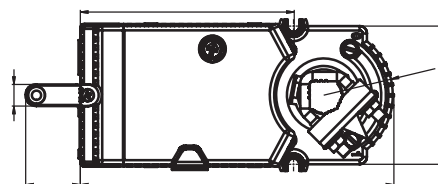
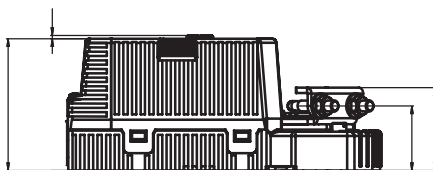
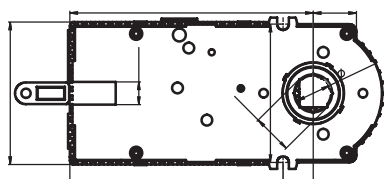


Direction of rotation switch (Tri-state) (fig. 3)

Direction of rotation	Clockwise (0...90°)	Counter clockwise (90...0°)
Switch position		
L / CCW	3 Supply	2 Supply
R / CW	2 Supply	3 Supply

Technical drawing

225S-230T-05



all dimensions in mm



Applications

To regulate dampers, valves or other regulatory functions:

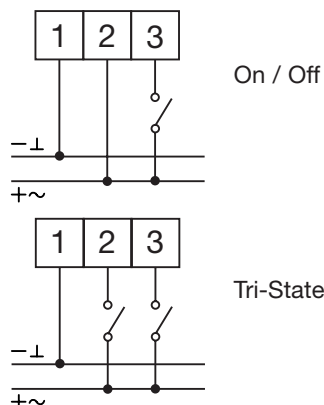
- sturdy drive
- maintenance-free
- nominal torque 4 Nm
- start-up torque 6 Nm
- position indication
- angle of rotation changeable from outside
- auxiliary switch adjustable from outside
- electromagnetic compatibility tested

Technical characteristics

Control	On/Off + Tri-state
Connecting voltage	24 VAC (50/60 Hz) / DC $\pm 20\%$
Power consumption	2.0 W / 3.0 VA
Angle of rotation	max. 95° (changeable from outside)
Direction of rotation	changeable from inside
Running time	20...35 s @ 90°
Torque	5 Nm
Auxiliary switch	max. 2, adjustable from outside
Switching power auxiliary switch	250 VAC / 5 (2.5) A
Potentiometer	4.7 k Ω (0.2 W)
Connection	terminal for cable 0,5...1,5 mm ²
Safety class	III
Protection	IP42
Dimensions	145 x 65 x 61 mm
Ambient temperature	-30...+50°C
Maintenance	maintenance-free
CE	73/23/EWG, 89/336/EWG
Weight	ca. 500 g

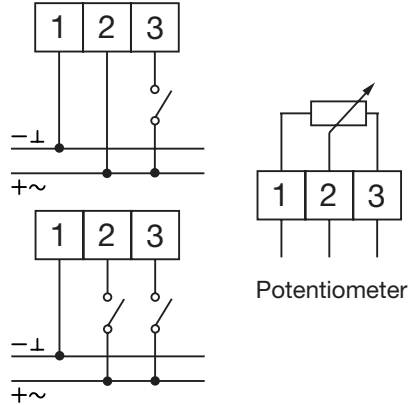
225S-024T-05

Connection scheme



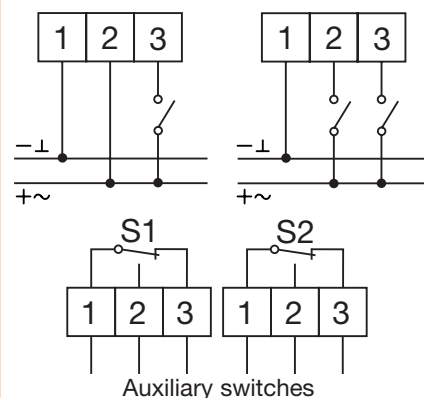
225S-024T-05-P5

Connection scheme

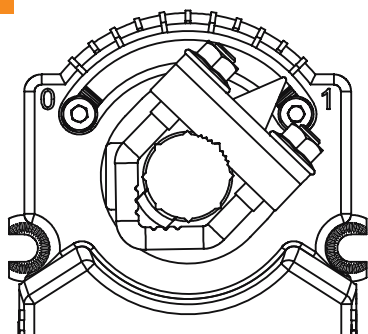


225S-024T-05-S2

Connection scheme



1



Adjustment of the angle of rotation (fig. 1)

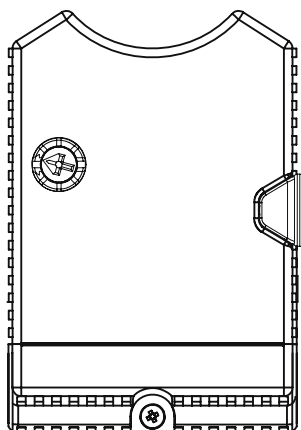
Both end stops are adjusted to 0 (0°) and 1 (90°). For smaller rotation angles, loosen the screws at the metal end stop, adjust the end stops as requested, and fasten the screws again.

Fixing of the shaft (fig. 1)

by the locking clamp to the damper shaft: □ 8...12 mm

∅ 8...16 mm

2



Adjustment of the auxiliary switch (fig. 2)

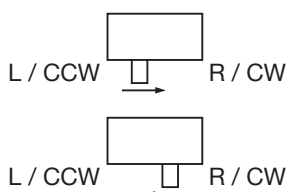
The scale at the adjusting knob corresponds to a percentage graduation, related to 0° - 90°.

- 1) End stop is set to "0": Switch off the motor and choose the requested switching position by turning the knob to the right, i.e. "2" = 20%.
- 2) End stop is set to "1": Switch off the motor and choose the requested switching position by turning the knob to the left, i.e. "8" = 20%.

Direction of rotation switch (On/Off) (fig. 3)

Direction of rotation	Clockwise (0...90°)	Counter clockwise (90...0°)
Switch position		
L / CCW	2+3 Supply	2 Supply
R / CW	2 Supply	2+3 Supply

3

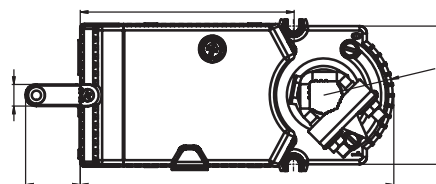
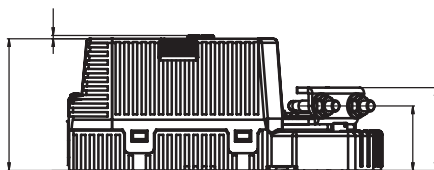
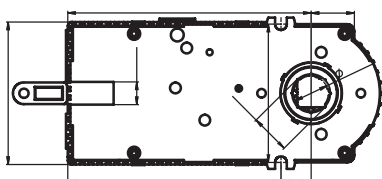


Direction of rotation switch (Tri-state) (fig. 3)

Direction of rotation	Clockwise (0...90°)	Counter clockwise (90...0°)
Switch position		
L / CCW	3 Supply	2 Supply
R / CW	2 Supply	3 Supply

Technical drawing

225S-024T-05

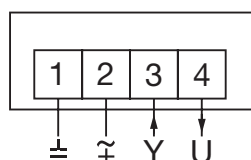


all dimensions in mm



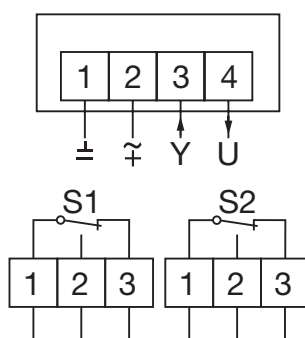
225CS-024T-05

Connection scheme (Continuous control)



225CS-024T-05-S2

Connection scheme (Continuous control)



Applications

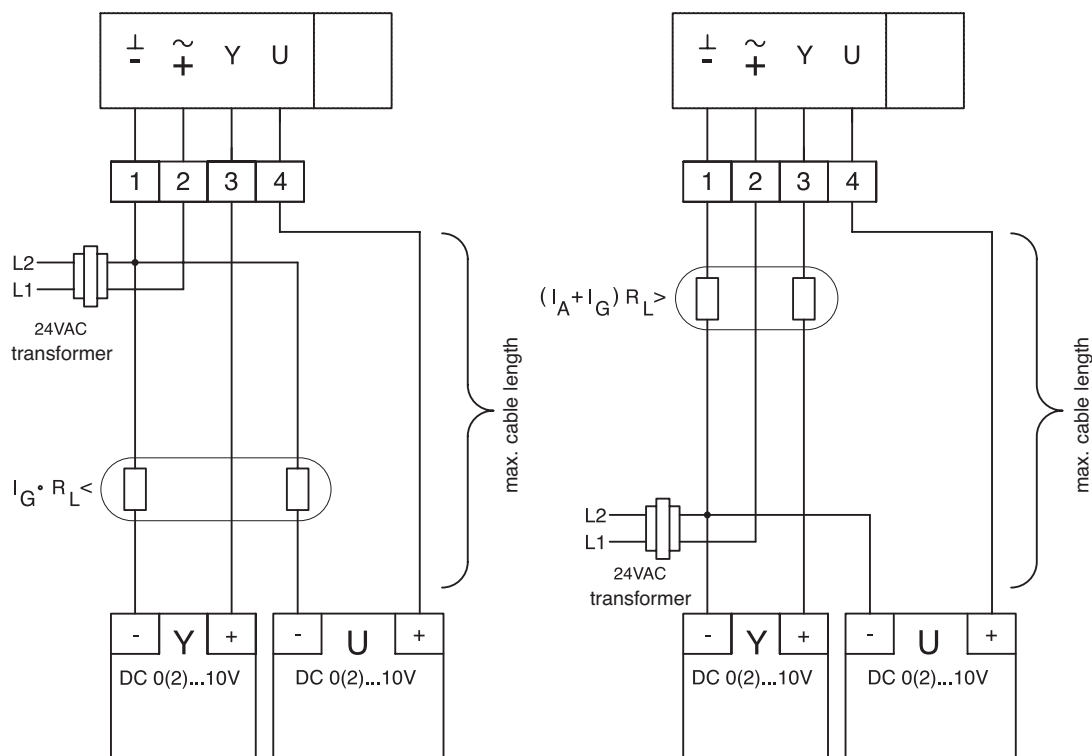
To regulate dampers, valves or other regulatory functions:

- sturdy drive
- maintenance-free
- nominal torque 4 Nm
- start-up torque 6 Nm
- position indication
- angle of rotation changeable from outside
- auxiliary switch adjustable from outside
- electromagnetic compatibility tested

Technical characteristics

Control	Continuous control
Control signal Y	0...10 VDC or 2...10 VDC (Standard) or 0...20 mA or 4...20 mA
Feedback signal U	0...10 VDC or 2...10 VDC (Standard)
Connecting voltage	24 VAC (50/60 Hz) / DC $\pm 20\%$
Power consumption	2,5 W / 4,0 VA
Angle of rotation	max. 95° (changeable from outside)
Direction of rotation	changeable from inside
Running time	20...35 s @ 90°
Torque	5 Nm
Auxiliary switch	max. 2, adjustable from outside
Switching power auxiliary switch	250 VAC / 5 (2.5) A, change-over switch
Connection	terminal for cable 0,5...1,5 mm ²
Safety class	III
Protection	IP42
Dimensions	145 x 65 x 61 mm
Ambient temperature	-30...+50°C
Maintenance	maintenance-free
CE	73/23/EWG, 89/336/EWG
Weight	ca. 500 g

Wiring configuration and recommended cable length



I_G ... current of set valve selector

I_A ... actuator current

$I_G \ll I_A$

R_L ... cable resistance

$$R_L = \frac{1}{\sigma} \times \frac{L}{A}$$

L ... cable length

A ... cable cross section

σ ... $56,2 \times 10^6 \text{ S/m}$

cable cross section	max. cable length
0,75 mm ²	23 m
1 mm ²	31 m
1,5 mm ²	46 m
2,5 mm ² *	76 m

For several actuators switched in parallel the max. cable length must be divided by the number of actuators.

* Cable cross section for terminal up to 1,5 mm²



Teach-in of range of angle > 30°

1. Actuator stand by
2. Adjusting mechanical endstops
3. Switch ON DIP 4
4. Actuator starts teach-in process of range of angle (60...120 s)
5. Turn OFF DIP 4
6. Y now corresponds to the taught-in angle

► ► ► YOUR WAY TO GRUNER

