

Electric Actuator Type 5857



Application

Electric actuator for heating, ventilation, and air-conditioning systems.

For force-locking Types 3222, 3222 N, 3226, 3267 and 2488 Valves (DN 15 to 25) as well as special versions of Type 3260 and Type 3226 Valves.



The Type 5857 Actuator is a linear actuator which is controlled by either a continuous-action signal or a three-point stepping signal.

Special features

- 6 mm travel
- Supply voltage
 - Three-point stepping version:
230 V, 50 Hz or 24 V, 50 Hz
 - Version with digital positioner:
24 V AC (50 and 60 Hz) or 24 V DC
- Three-point stepping version equipped with synchronous motor and maintenance-free gear or version with digital positioner equipped with stepper motor
- Motor switched off by torque switches
- Handwheel for manual override
- Travel indicator

Digital positioners

- Automatic initialization after applying operating voltage
- Reversed direction of action by activating a slide switch
- Current travel calculated over the transit time
- Operational status and errors indicated by LEDs
- Adjustable actuating times (10 to 30 s)
- Blockage detection
- Adjustable range of input voltage and output voltage
- Configuration, parameterization, diagnostic function, and direct connection for monitoring over TROVIS-VIEW software:
 - Direct data transmission over a connecting cable (direct connection with PC)
 - Data transmission over a memory pen

Accessories for version with digital positioner

- TROVIS-VIEW configuration software (6661-1061) for Type 5857 Electric Actuator
- Hardware package with a memory pen (without data logging function), connecting cable and module adapter, order no. 1400-7704



Fig. 1 · Type 5857 Electric Actuator
(three-point stepping version)

- Memory pen (without data logging function), order no. 1400-7697
- Memory pen (with data logging function), order no. 1400-9753

Principle of operation (Fig. 2)

The three-point stepping version consists of a reversible synchronous motor and a maintenance-free gear.

The version with digital positioner contains a stepper motor which is able to provide a host system with precise position feedback by counting the steps.

The actuator is connected to the valve by means of a coupling nut (4) which provides a force-locking connection between the actuator stem and the plug stem of the valve.

The control signal from the input side is transferred over the motor and the connected gear and used as the positioning force to move the actuator stem.

When the actuator stem (3) extends, the valve is closed, opposing the force of the valve spring (7). When the actuator stem retracts, the valve is opened by the plug stem (6) which follows the motion of the return spring.

The motor is switched off by torque-dependent switches when the valve has reached one of its final positions or the motor is overloaded.

The handwheel (2) allows the valve to be moved to the required position when the actuator is disconnected from the power supply.

Travel and direction of action can be read off the travel indicator (5) located on the side of the actuator.

The Type 5857 Actuator can be combined preferably with SAMSON Types 3222, 3222 N, 3267 and 2488 Valves as well as special versions of Type 3260 and Type 3226 Valves.

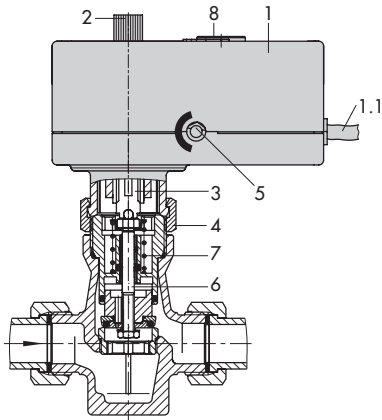
Additional electrical equipment

The actuator is also available with a digital positioner.

Positioners guarantee a predetermined assignment of valve position and control signal.

A 0 to 10 V signal can be picked up at the brown (BN) and green (GN) wires for position feedback.

The version with positioner allows the characteristic to be reversed and is suitable for split-range operation.



- | | |
|--------------------|--|
| 1 Actuator | 7 Valve spring |
| 1.1 Cable | 8 Cover, serial interface connection, slide switch and LEDs (only for version with digital positioner) |
| 2 Handwheel | |
| 3 Actuator stem | |
| 4 Coupling nut | |
| 5 Travel indicator | |
| 6 Plug stem | |

Fig. 2 · Principle of operation

Settings of the digital positioner

The settings of the digital positioner can be changed in the TROVIS-VIEW software.

Configuration	Default settings	Setting range
Input variable		
Lower range	0.0 V	0.0 to 7.5 V
Upper range	10.0 V	2.5 to 10.0 V
Position feedback signal		
Lower range	0.0 V	0.0 to 10.0 V
Upper range	10.0 V	0.0 to 10.0 V
Reference variable		
Recognize failure of input variable	No	No/yes
Out value on failure of reference variable	Internal	Internal/last travel value
Internal out value	0.0 %	0.0 to 100.0 %
Final position guide: actuator stem extends	1.0 %	0.0 to 49.9 %
Final position guide: actuator stem retracts	99.0 %	50.0 to 100.0 %
Functions		
Blockage recognition	No	No/yes
Blockage removal	No	No/yes
Report blockage	No	No/yes
Protection against valve blockage	No	No/yes
Valve travel		
Travel	6.0 mm	2.0 to 8.0 mm
Travel adjustment	Absolute	Absolute/relative
Type of movement	Normal	Slow/Normal/Fast
Dead band (sw. range)	1.0 %	0.5 to 5.0 %
Type of characteristic	Linear	Linear/equal percentage/reverse equal percentage/user-defined

Installation

Before attaching the actuator to the valve, retract the actuator stem. Only after the actuator stem has been retracted, the coupling nut may be tightened.

Mounting position

The actuator can be mounted in any position, except suspended downwards.

Electrical connection

2.5 m cable with wire-end ferrules.

Ordering text

Type 5857 Electric Actuator

Three-point stepping version:

230 V, 50 Hz / 24 V, 50 Hz

Version with positioner:

24 V DC / 24 V AC (50 and 60 Hz)

Technical data

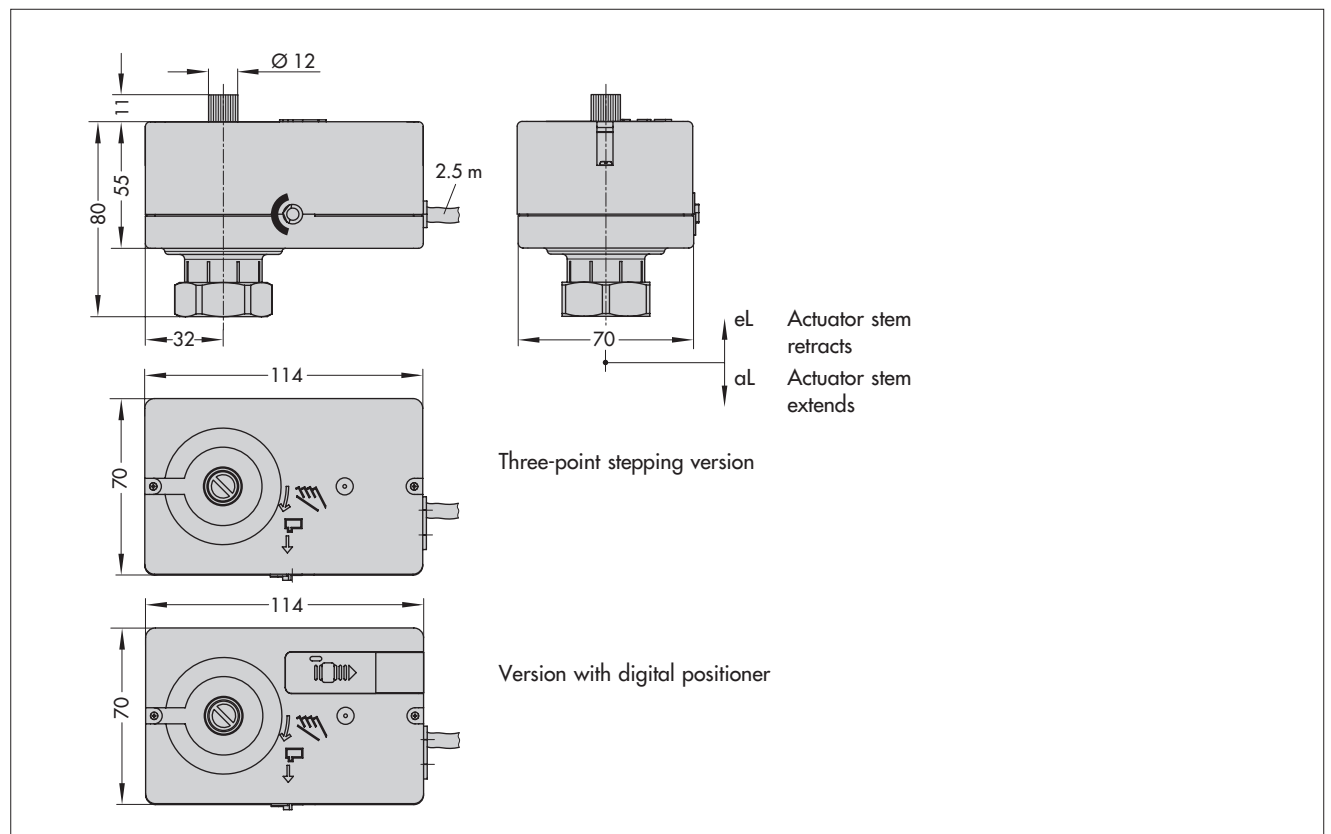
Type 5857 Actuator	Version	Three-point stepping version	With digital positioner
Connection to valve		Force-locking	Force-locking
Rated travel		6 mm	6 mm
Transit time for rated travel		20 s	30/20 ²⁾ /10 s
Nominal thrust		300 N	300 N
Power supply		230 V (±10 %), 50 Hz 24 V (±10 %), 50 Hz	24 V AC (±10 %), (50 and 60 Hz) 24 V DC (±10 %) ³⁾
Power consumption		Approx. 3 VA	5 VA
Manual override		Yes	Yes
Permissible temperatures			
Ambient		0 to 50 °C	
Storage		-20 to 70 °C	
At the connecting stem		0 to 120 °C	
Degree of protection		IP 42	IP 42
Protection class		II	II
Noise immunity		EN 61000-6-2	EN 61000-6-2
Noise emission		EN 61000-6-3	EN 61000-6-3
Weight		Approx. 0.7 kg	Approx. 0.7 kg
Digital positioner			
Input signal			0 to 10 V ¹⁾
Position feedback		-	0 to 10 V ¹⁾
Characteristic			Linear ¹⁾

1) Value can be changed in TROVIS-VIEW, refer to table on Settings of the digital positioner

2) Default setting

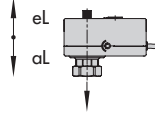
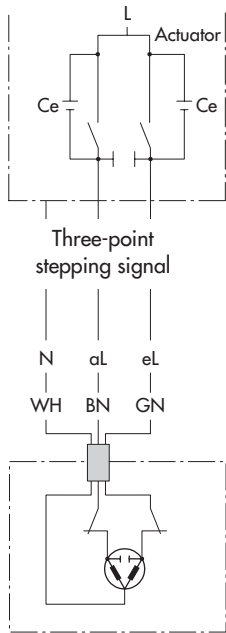
3) 10 s applies to 24 V DC (-0 %, +10 %) for Transit time for rated travel setting

Dimensions in mm



Electrical connection

Three-point stepping version



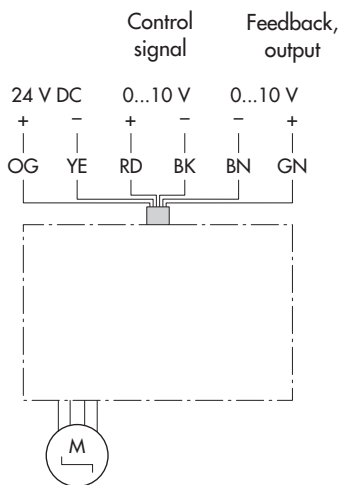
eL Actuator stem retracts
aL Actuator stem extends

WH white
BN brown
GN green

Note!

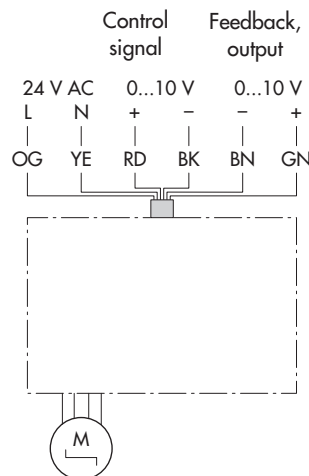
Decoupling capacitors C_e in the output circuit of the connected controller may not exceed a value of 2.5 nF in order to guarantee the proper functioning of the actuator.

Version with digital positioner with 24 V DC



BN brown
BK black
YE yellow

with 24 V AC



GN green
RD red
OG orange

Specifications subject to change without notice.



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