

Application

Electric actuator for heating, ventilation and air-conditioning systems

For force-locking attachment to Types 3222, 3222 N, 3267, 2488, 2488 N, 3260 ¹⁾ and 3226 ¹⁾ Valves (DN 15 to 25).



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

Special features

- 6 mm travel
- Voltage supply
 - Three-step 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-step version with synchronous motor and maintenance-free gear or version with digital positioner and stepper motor
- Motor switched off by torque-dependent limit contacts
- Manual override
- Travel indicator

Digital positioner

- Initialization by pressing a button
- Automatic zero calibration after connecting the supply voltage
- Direction of action reversed by slide switch
- Momentary travel calculated from transit time
- Operating status and errors indicated by LEDs
- Adjustable actuating time (10 to 30 s)
- Blockage detection and removal
- Blocking protection
- Adjustable input and output signal ranges
- Configuration, parameterization, diagnostic function and direct connection for monitoring using the TROVIS-VIEW software
 - Direct data transmission using a connecting cable (direct connection to computer)
 - Data transmission over a memory pen

¹⁾ Special valve version



Fig. 1: Type 5857 Electric Actuator

Accessories for version with digital positioner

- TROVIS-VIEW software for electric actuators
- Hardware package
- Memory pen-64
- Connecting cable
- Modular adapter
- USB adapter

Principle of operation (Fig. 2)

The three-step version of the electric actuator 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 indication by counting the steps.

The actuator is connected to the valve by 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 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 as the plug stem (6) follows the motion of the return spring. The motor is switched off by torque-dependent limit switches when an end position is reached or in case the motor is overloaded.

The valve can be moved to any position in the de-energized state by the handwheel (2).

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

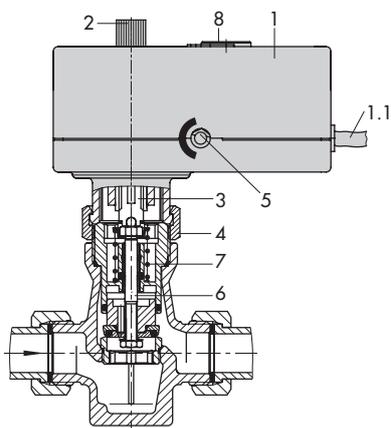
The Type 5857 Actuator can be combined preferably with SAMSON Types 3222, 3222 N, 3267, 2488, and 2488 N Valves as well as special versions of Type 3260 and Type 3226 Valves.

Additional equipment

The actuator is also available with a digital positioner.

The positioner ensures a predetermined assignment of the valve position to the input signal. A 0 to 10 V signal can be picked up at the brown (BN) and green (GN) wires for position indication.

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



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

Fig. 2: Functional diagram

Settings of the digital positioner

The digital controller settings can be changed in the TROVIS-VIEW Configuration and Operator Interface.

Configuration	Default setting	Adjustment range
Input signal		
Lower range value	0.0 V	0.0 to 7.5 V
Upper range value	10.0 V	2.5 to 10.0 V
Position feedback signal		
Lower range value	0.0 V	0.0 to 10.0 V
Upper range value	10.0 V	0.0 to 10.0 V
Functions		
Detect input signal failure	No	Yes/No
Positioning value upon input signal failure	Internal	Internal/last position
Internal positioning value	0.0 %	0.0 to 100.0 %
End position guiding (stem extends)	1.0 %	0.0 to 49.9 %
End position guiding (stem retracts)	99.0 %	50.0 to 100.0 %
Blockage		
Blockage detection	No	Yes/No
Blockage removal	No	Yes/No
Indicate blockage	No	Yes/No
Blocking protection	No	Yes/No
Travel		
Travel	6.0 mm	2.0 to 8.0 mm
Speed	Absolute	Absolute/Relative
Speed of stem movement	Standard	Slow/Normal/Fast
Dead band (switching range)	1.0 %	0.5 to 5.0 %
Characteristic type	Linear	Linear/equal percentage/reverse equal percentage/user-defined

Installation

Before mounting the actuator on the valve, retract the actuator stem. Hold the actuator stem in this position, while tightening the coupling nut.

Mounting position

Any position except suspended

Electrical connection

Connecting cable with wire-end ferrules

Ordering text

Type 5857 Electric Actuator

Three-step version:

230 V, 50 Hz/24 V, 50 Hz

Version with digital positioner:

24 V, 50 Hz, 60 Hz and DC

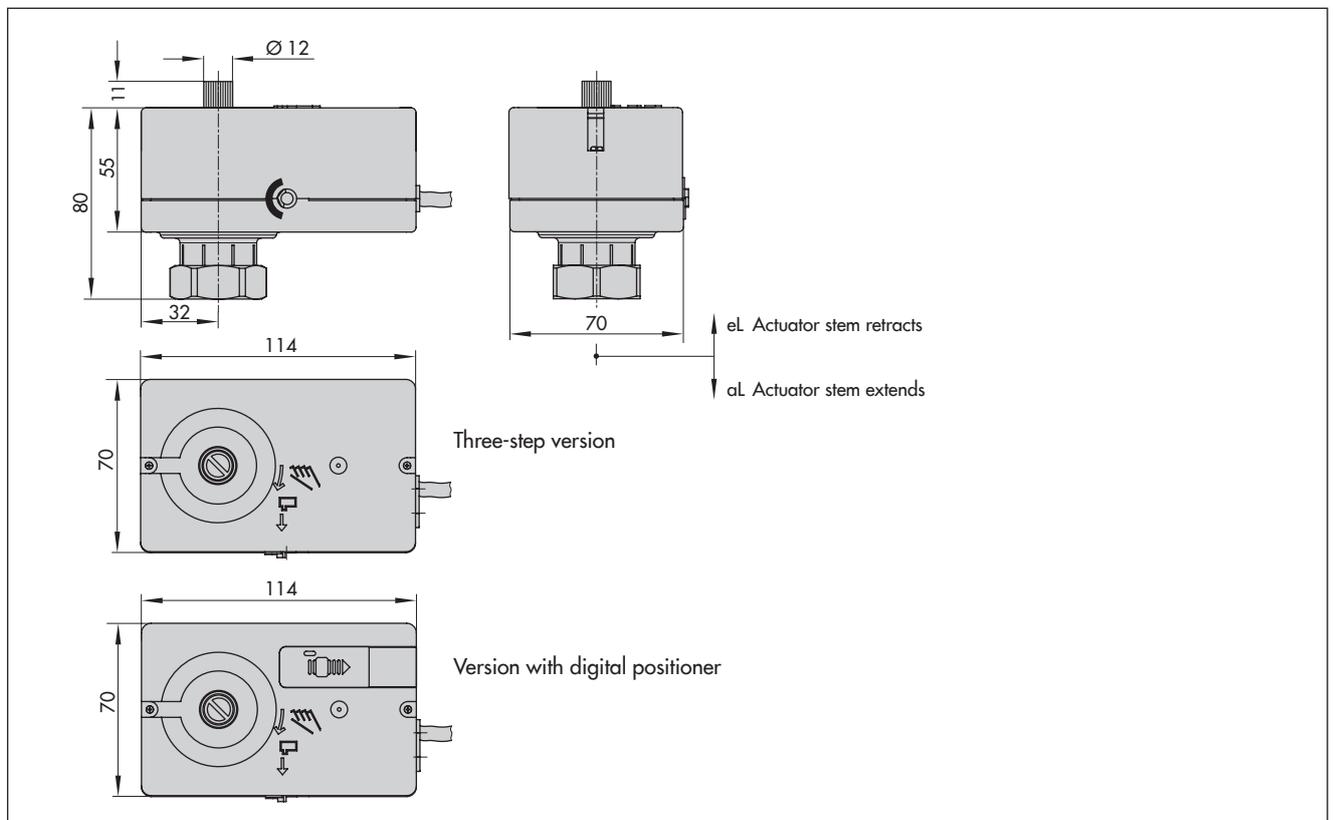
Technical data

Type 5857 Actuator	Version	Three-step	With digital positioner
Connection to valve		Force-locking	
Rated travel		6 mm	
Transit time for rated travel		20 s	30/20 ¹⁾ /10 s
Thrust		300 N	
Supply voltage		230 V (±10 %), 50 Hz 24 V (±10 %), 50 Hz	24 V (±10 %), 50 Hz, 60 Hz and DC ²⁾
Power consumption		Approx. 3 VA	5 VA
Manual override		Yes	
Permissible temperatures			
Ambient		0 to 50 °C	
Storage		-20 to +70 °C	
Medium		0 to 120 °C	
Degree of protection		IP 42 according to EN 60529	
Class of protection		II according to EN 61140	
Electromagnetic compatibility		According to EN 61000-6-2, EN 61000-6-3 and EN 61326	
Compliance		CE · EAC	
Weight		Approx. 0.7 kg	
Digital positioner		-	
Input signal			0 to 10 V ¹⁾ , R _i = 20 kΩ
Position feedback		-	0 to 10 V ¹⁾ , R _b = 1 kΩ
Characteristic			Linear ¹⁾ , equal percentage, reverse equal percentage, user-defined

¹⁾ Default setting

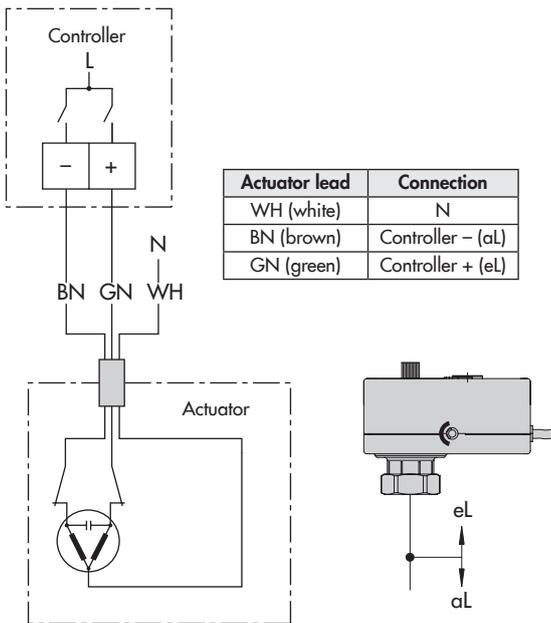
²⁾ 10 s applies to 24 V DC (-0 %, +10 %) for Transit time for rated travel setting

Dimensions in mm



Electrical connection

Three-step version



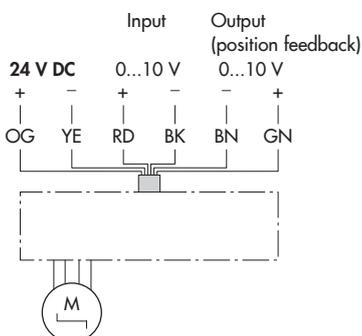
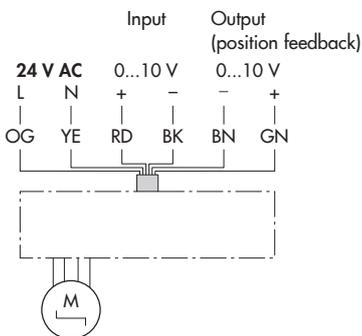
Note:

The interference suppression capacitors in the output circuit of the connected controller must not exceed a value of 2.5 nF to ensure the proper functioning of the actuator.

A special actuator version is available on request for connection to controllers with larger interference suppression capacitors.

eL Actuator stem retracts
aL Actuator stem extends

Version with positioner



OG Orange
YE Yellow
RD Red
BK Black
BN Brown
GN Green

Specifications subject to change without notice