

AXM 217S: Motorised actuator for unit valves with positioner

How energy efficiency is improved

Automatic adaptation to valve and intelligent cut-off for maximum energy efficiency

Features

- Stepping motor with electronic activation and cut-out
- Attached to valve with M30 × 1.5 thread
- Version with direction of operation 1 (direct acting) or 2 (reverse acting), adjustable
- Adjustable valve strokes
- Automatic stroke adjustment (AXM217SF404)
- Maintenance-free gear unit
- Suitable for retrofitting existing installations using the appropriate adapters
- Status and diagnostic indicator via integrated bi-colour LED
- Fitting position vertically upright to horizontal, not suspended



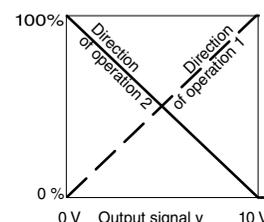
AXM217SF402

AXM217SF404



Technical data

Power supply		
Power supply		24 VAC/DC ±15 %, 50...60 Hz
Power consumption		2.5 VA / 1.5 W
Parameters ¹⁾		
Direction of operation		1 or 2 (adjustable)
Nominal stroke		3.2 mm, 4.3 mm, 5.5 mm (adjustable) Automatic stroke adjustment (F404)
Running time		8 s/mm
Sound pressure level		< 30 dB (A)
Control signal		0(2)...10 V; 5...10 V; 0...5 V R _i > 100 kΩ; 0(4)...20 mA R _i = 500 Ω
Ambient conditions		
Ambient temperature		0...50 °C, no condensation
Max. operating temperature at valve		95 °C
Storage and transport temperature		-20...65 °C
Ambient humidity		< 75% rh
Construction		
Weight		0.15 kg
Housing		Two-piece, light grey (RAL 7035)
Housing material		Plastic
Thread		Nickel-plated brass M30 × 1.5
Power cable		1.50 m long, 3 × 0.5 mm ² , light grey, pluggable 3.0 m long, halogen-free (F404)
Standards, directives		
Type of protection		IP43 (EN 60529)
Protection class		III (IEC 60730)
CE conformity according to	EMC Directive 2014/30/EU	61000-6-1, 61000-6-2, 61000-6-3 and EN 61000-6-4



¹⁾ Direction of operation and control signal can be adjusted using DIP switches. Direction of operation 1: Control signal increasing = actuator moves out (valve VUT, VUL, VCL, VDL, BUL closes and valve BXL (control passage) opens). Direction of operation 2: Control signal increasing = actuator moves in (valve VUT, VUL, VCL, VDL, BUL opens and valve BXL (control passage) closes). Factory setting: Direction of operation 2 (RA)



Overview of types

Type	Features	Actuating power
AXM217SF402	Motorised actuator for unit valves with positioner	120 N
AXM217SF404	Motorised actuator for unit valves with positioner and automatic stroke adjustment	160 N

 **AXM217SF402:** Actuating power min. 100 N, max. 150 N

Accessories

Type	Description
0550603009	Cable: 24 V, PVC, pluggable, 3 m long
0550603010	Cable: 24 V, PVC, pluggable, 7 m long
0550603011	Cable: 24 V, halogen-free, pluggable, 3 m long
0550603012	Cable: 24 V, halogen-free, pluggable, 7 m long
0371235001	Adaptor for fitting to Oventrop valves (M30 × 1)
0371361001	Adapter for fitting to Herz valves, type Herz-TS'90
0371363001	Adapter for fitting to Tour & Andersson valves, type TA/RVT (M28 × 1.5)
0550393001	Adapter for fitting to Danfoss valves, type RA 2000, 22 mm, nickel-plated brass
0550393002	Adapter for fitting to Danfoss valves, type RAVL, 26 mm
0550393003	Adapter for fitting to Danfoss valves, type RAV 25/8, 34 mm
0550393004	Adapter for fitting to Danfoss valves, type RA 2000, 22 mm, plastic

Description of operation

Auto-calibration: During commissioning (with valve fitted), the spindle of the actuator moves completely to the bottom (zero point). Then the spindle moves to the position that corresponds to the control signal. **Confirmation of the end position:** When the actuator has been in its start or end position for a lengthy period, every 2 hours the control signal is activated for around 60 seconds. This automatically recalibrates the actuator. The motor positions the valve and cuts out as soon as the stroke position matches the controller signal. The LED indicator lights up if power is applied and flashes as long as the motor is running.

Direction of operation 1:

As the positioning signal increases, the actuator spindle moves out and the VUL, VUT, VCL, VDL 2-way valves and the BUL 3-way valve (control passage) close. With the BXL 3-way valve, the control passage opens.

Direction of operation 2:

As the positioning signal increases, the actuator spindle moves in and the VUL, VUT, VCL, VDL 2-way valves and the BUL 3-way valve (control passage) open. With the BXL 3-way valve, the control passage closes.

After removing the housing cover, the following settings can be made using DIP switches:

- Setting the control signal. This can be set to 0(2)...10 V, 5...10 V or 0...5 V.
- The direction of operation 1 or 2 can be selected. Factory setting: Direction of operation 2 (RA).

Put the cap back on after making the settings.

Automatic valve stroke detection (AXM217SF404 only)



Notice

To function properly, the actuator requires a valve with a preloading of at least 2 kg.

To detect the valve stroke, the actuator moves the spindle all the way to both end positions after the operating voltage is applied.

By measuring the position of the spindle, the total stroke of the valve is calculated and stored in the actuator. As soon as the calibration cycle (red LED flashes) is completed, the actuator changes to normal mode (constant green LED).

End position confirmation (AXM217SF404 only)

If the actuator is in its end position (100%) for an hour, the position is identified again.

The actuator spindle is then moved for around 60 seconds according to the control signal in order to redetermine the end position.

LED status indicator

Status	Indicator/display	Description
Flashing green		Actuator moving to position or "end position reached"
Continuous green		Position reached
Flashing red		Calibration cycle
Continuous red		No control signal (4...20 mA or 2...10 V)
Off		No power applied

Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the "Description of operation" section.

All related product regulations must also be adhered to. Changing or converting the product is not admissible.

Engineering and fitting notes

Do not use tools to fit the actuator to the valve. In the event of a power failure, the valve can be opened by taking off the actuator. When connecting or changing the power cables, the mains power must be switched off. The actuator may be fitted to the valve only when the actuator spindle is not fully (100%) moved out.

Factory setting: 0% stroke.

Outdoor installation

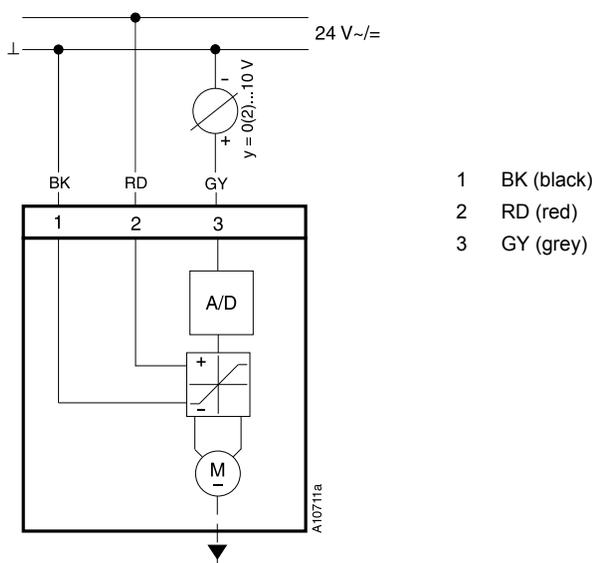
We recommend protecting the devices from the weather if they are installed outside buildings.

Disposal

When disposing of the product, observe the currently applicable local laws.

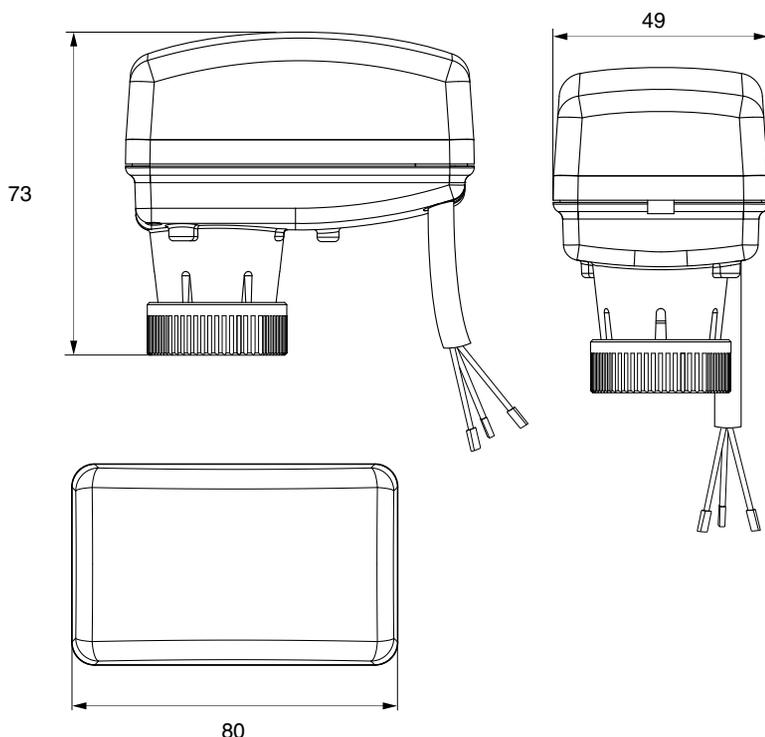
More information on materials can be found in the Declaration on materials and the environment for this product.

Connection diagram



Dimension drawing

All dimensions in mm.



DIP switch setting

DIP SWITCH OPTIONS			
<input type="checkbox"/> 0.10VDC 0.20mA	<input type="checkbox"/> 0.5VDC	<input type="checkbox"/> 5.10VDC	<input type="checkbox"/> 2.10VDC 4.20mA
<input type="checkbox"/> DA	<input type="checkbox"/> RA	<input type="checkbox"/> LIN	<input type="checkbox"/> Eq%
<input type="checkbox"/> VDC	<input type="checkbox"/> mA		

1:	CONTROL SIGNAL RANGE	4:	ACTION
2:		5:	CURVE
3:		6:	SIGNAL TYPE

3.2 mm

4.3 mm

5.5 mm

AXM217SF402

4.3 mm

DIP switches 1, 2, 3 and 6

DIP switches 1, 2 and 3 are used to set the control signal. The voltage (VDC) or current (mA) is set with DIP switch 6.

Factory setting: DIP switches 1, 2, 3 and 6 in OFF position (0...10 VDC)

DIP switch 4

The direction of operation of the actuator is set with DIP switch 4:

- Direction of operation 1: DA (Direct Acting)
- Direction of operation 2: RA (Reverse Acting)

Factory setting: DIP switch 4 in ON position (RA)

DIP switch 5

DIP switch 5 can be used to set the actuator so that the valve/actuator combination has a linear or equal-percentage characteristic.

- Use the OFF position (LIN) if the valve has a linear or equal-percentage characteristic.
- Use the ON position (Eq%) for an open/close or fast opening valve.

Factory setting: DIP switch 5 in OFF position (LIN)

AXM217SF402 stroke setting

The valve stroke can be adjusted with a jumper. It can be set to 3.2 mm, 4.3 mm or 5.5 mm.

Factory setting: 4.3 mm