

Acvatix™

Electromotive actuator

SUA21/3



For zone valves

- AC 230 V operating voltage, 2-position control signal
- Positioning force 170 N
- Direct mounting with M30 x 1.5 union nut (no tools required)
- 3-wire connection with integral 0.8 m connecting cable
- LED indicates actuator motion
- Parallel connection of multiple actuators are possible

Use

- For Siemens zone valves: VVI46.. and VXI46.. and combi valve VPI46.. and VPP46..
- Primarily in heating, ventilation and air conditioning systems for water-based control of hot water and cold water
- Heating and cooling zones
- Control valves for fan coil units
- Zone valve for floor heating via heating distributors (manifolds)
- Chilled ceiling units
- ON/OFF control for domestic hot water boilers
- Shut off valve for wall mounted boiler applications

Technical design

The actuator opens the valve electrically. It incorporates an electric motor and gear mechanism. The maximum stroke is limited mechanically (valve seat). No motor power consumption in fully open and closed position. The actuator is connected with a 0.8 m cable, which is an integral part of it. The actuator can open or close the valve via controller (thermostat) output signal.

2-position SPST control signal

The actuator requires an on/off controller, typically a room thermostat.

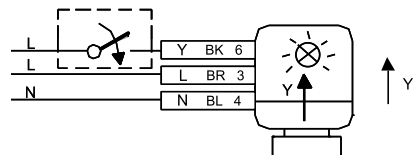
Voltage at Y:	Stem retracts	Valve opens
No voltage at Y:	Stem extends	Valve closes



⚠ CAUTION

Do not operate the SUA21/3 actuators in a 3-position control mode!

LED operating mode display, example of SUA21/3:



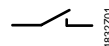
Voltage on Y: LED is lit
No voltage on Y: LED is off at end position

The LED is lit when the actuator stem protrudes, retracts, or the valve fully opens. The LED goes out when the actuator stem protrudes to the valve's fully closed position.

Type summary

Type	Stock number	Operating voltage	Positioning time		Control signal ¹⁾	Cable length
			open	close		
SUA21/3	S55176-A104	AC 230 V	10 s at 50 Hz		2-position, SPST	0.8 m

¹⁾SPST = single pole, single throw



Ordering

When ordering, please specify the type and quantity.

Example:

Type	Stock number	Designation	Quantity
SUA21/3	S55176-A104	Electromotive actuator	50
AL60	S55174-A173	Supporting ring	50

Delivery

The valves and actuators are supplied in separate packages. For better valve assembly, the position of the actuator stem is retracted upon delivery.

Equipment combinations

Zone valves

Type	Description	K _{vs}	PN class	ΔP _{max}	DN	Data sheet
		[m ³ /h]		[kPa]		
VVI46.15..	2-port valve, internal thread Rp	2.15	PN 16	400	15	A6V10421629
VVI46.20..		3.5		400	20	
VVI46.25..		5.0		250	25	
VXI46.15..	3-port valve, internal thread Rp	2.15		400	15	
VXI46.20..		3.5		400	20	
VXI46.25..		5.0		250	25	

K_{vs}: Nominal flow rate of cold water (5...30 °C) through the fully open valve (H100) by a differential pressure of 100 kPa (1 bar)

ΔP_{max}: Maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorized valve

Combi valves¹⁾

Connection	Type	Stock no.	DN	H ₁₀₀	V̇ _{min}	V̇ ₁₀₀	ΔP _{min}	Data sheet
				[mm]	[m ³ /h]	[m ³ /h]	[kPa]	
Internally threaded	VPI46.15L 0.2	S55264-V109	15	2.5	30	200	600	N4855
	VPI46.15L 0.6	S55264-V110	15		100	575		
	VPI46.15L 0.2Q	S55264-V112	15		30	200		
	VPI46.15L 0.6Q	S55264-V113	15		100	575		
Externally threaded	VPP46.10L 0.2	S55264-V101	10		30	200		
	VPP46.15L 0.2	S55264-V102	15		30	200		
	VPP46.15L 0.6	S55264-V102	15		100	575		
	VPP46.10L 0.2Q	S55264-V105	10		30	200		
	VPP46.15L 0.2Q	S55264-V106	15	30	200			
	VPP46.15L 0.6Q	S55264-V107	15	100	575			

Only with mounting AL60 accessory, can the SUA21/3 drive the VPI46.. or VPP46..valve.

Room thermostats

Type	Room thermostat compatible to SUA21/3
RAB...	RAB11; RAB11.1; RAB21; RAB31; RAB31.1
RAA...	RAA11; RAA21; RAA31...; RAA41
RCC...	RCC10; RCC20; RCC30
RCU...	RCU10
RDF...	RDF110...; RDF310.2/MM; RDF300.02; RDF302; RDF510; RDF530; RDF600...; RDF800...;
RDG...	RDG100...; RDG110
RDD...	RDD100; RDD100.1; RDD100.1RFS; RDD310/MM; RDD310/EH
RDE...	RDE100; RDE100.1; RDE100.1RFS; RDE410/EH
RDH...	RDH100; RDH100RF/SET
RDJ...	RDJ100; RDJ100RF/SET
REV...	REV13...; REV24...; REV24RF/SET
RDS...	RDS110


Product documentation

Topic	Title	Document ID:
Mounting and installation	Mounting instructions ¹⁾	A6V10450107
Standards and directives	CE declarations	A5W90000522
	RCM declarations	A5W90000858
Environmental compatibility	Environmental declarations	A6V10634107

¹⁾ The mounting instructions is enclosed in product packaging.

Notes

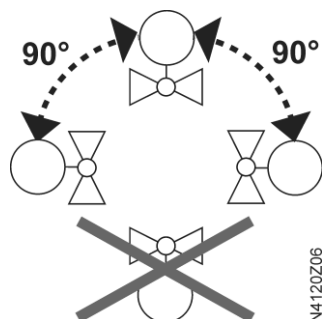
Mounting

	▲ WARNING
	Do not use pipe wrenches, spanners or similar tools.

Valve and actuator are easy to assemble on site before commissioning:

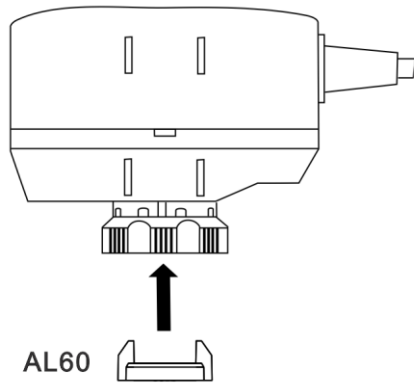
- Remove protective cover from the valve body.
- Position the actuator and manually tighten the union nut.

Orientation



AL60 supporting ring

The AL60 supporting ring must be positioned before mounting the actuator SUA21/3 on VPI46.. and VPP46.. valves.



A6V11678004Z01

Installation

- Observe admissible temperatures (see “Technical data [→ 7]”).
- Operate the actuator only with alternating current (see “Technical data [→ 7]”).
- Do not twist the cable.
- Magnets can damage the actuator.
- Provide isolation from the power supply, e. G.: Connect a circuit breaker or fuse switch upstream of the actuator and controller (typically a room thermostat).

	<p>⚠ CAUTION</p>
	<p>National safety regulations Failure to comply with national safety regulations may result in personal injury and property damage.</p> <ul style="list-style-type: none"> • Observe national provisions and comply with the appropriate safety regulations.

	<p>⚠ CAUTION</p>
	<p>Phase cut and pulse-duration-modulated (PDM) signals are not suitable. Regulations and requirements to ensure the safety of people and property must be observed at all times!</p>

Commissioning

- Check wiring.
- Check the functions of the actuator.

Maintenance

SUA21/3 actuators require no maintenance.

	<p>⚠ WARNING</p>
	<p>The operating voltage must be switched off during any maintenance process!</p>

Repair

- Faulty actuators cannot be repaired and must be replaced by complete units.
- The actuator can be replaced without removing the valve.

Disposal



The valve is considered an electronics device for disposal in terms of European Directive 2012/19/EU and may not be disposed of as domestic garbage.

- Disassemble the valve into individual parts prior to disposing of it and sort the individual parts by the various types of materials.
- Comply with all local and currently applicable laws and regulations.

Warranty

Technical data on specific applications are valid only together with Siemens products listed under "Equipment combinations". Siemens rejects any and all warranties in the event that third-party products are used.

Technical data

Power supply	
Operating voltage	AC 230 V
Tolerance	+10 %/-15 %
Frequency	50/60 Hz
Power consumption	6 VA at 50 Hz (when running only)
Primary fuse or breaker rating	External, 2 A quick blow

Signal input	
Control signal	2-position (SPST) ¹⁾
Parallel operation	Permitted ²⁾

¹⁾ Phase cut and pulse-duration-modulated (PDM) signals are not suitable, 3 position operation not permissible, SPST = Single Pole, Single Throw

²⁾ Consider controller's output power

Operating data	
Position with de-energized contact Y	See "Technical design [-> 2]"
Positioning time (open/close)	10 s at 50 Hz 8.3 s at 60 Hz
Positioning force	170 N
Nominal stroke	2.5 mm
Permissible temperature of medium in the connected valve	1...110 °C

Electrical connection	
Connecting cable (integral)	3-core, 0.8 m 3 x 0.75 mm ² (18 AWG)

Mounting	
Fixing on valve	Plastic union nut M30 x 1.5
Orientation	Upright to 90°, horizontal; do not suspend

Standards	
EU conformity (CE)	A6V10634158
Housing protection degree	IP 40
Protection class	II Class as per EN 60730-1
Environmental compatibility	The product environmental declaration (A6V10634107) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

Housing color	
Cover/base	Plastic / light gray, RAL 7035
Union nut	Silver-gray, RAL 7001

General ambient conditions			
	Operation EN 60721-3-3	Transport EN 60721-3-2	Storage EN 60721-3-1
Environmental conditions	Class 3K3	Class 2K3	Class 1K3
Temperature	+1...+50 °C	-25...+70 °C	-5...+50 °C
Humidity	5...85 % r.h.	<95 % r.h.	5...95 % r.h.

Materials

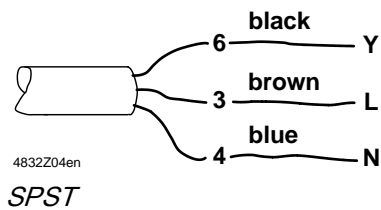
Cover/base: PBT

Weight

306 g

Diagrams

Connection terminals

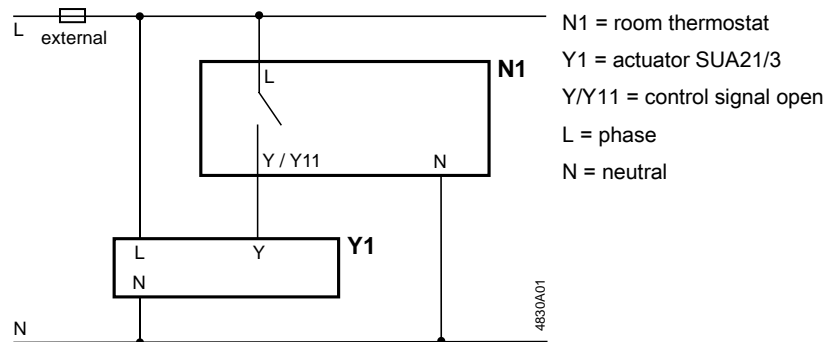


Control signal OPEN (AC 230 V)

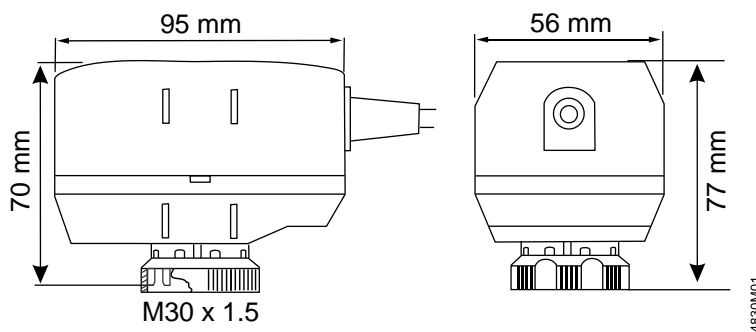
Phase (AC 230 V)

Neutral

Connection diagrams



Dimensions



Revision numbers

Type	Valid from rev. no.
SUA21/3	..A

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