



## Thermal actuators

for radiator valve types VD..., VE..., VU..., and VPD... and VPE...

**STA21...**  
**STA71...**

- **STA21...** AC 230 V operating voltage, 2-position control signal
- **STA71...** AC/DC 24 V operating voltage, 2-position control signal or PDM (pulse-duration modulation)
- Positioning force 105 N
- For direct mounting with union nut (no tools required)
- Standard versions with 1.2 m or 5 m connecting cables
- Two-wire connection
- Position indication
- Robust construction, quiet operation, no maintenance required
- Optional tamper-proof fitting to prevent dismantling

### Application

- For Siemens radiator valve types VD..., VE... and VU...
- For Siemens MiniCombiValves (MCV) types VPD... and VPE...
- For radiator valves supplied by Heimeier, Cazzaniga, Oventrop M30 x 1.5, Honeywell-Braukmann, MNG and TA type TBV-C (all *without* adapters)
- For radiator valves with actuators fixed with an M30 x 1.5 union nut, nominal closing dimensions  $11.6 \pm 0.3$  mm and nominal stroke 2.5 mm (without adapter)
- With the appropriate adapters, the actuators can be used with valves from other manufacturers (see «Types / Accessories»)

## Types

Type	Operating voltage	Positioning time at 20 °C	Positioning signal	Connecting cable
STA21	AC 230 V	3 min	2-position	1.2 m
STA21/50				5.0 m
STA71	AC 24 V			1.2 m
STA71/50				5.0 m

## Accessories

Adapter type	For valve makes	Adapter type	For valve makes
AV51	Beulco	AV56	Giacomini
AV52	Comap	AV57	Herz
AV53	Danfoss RA-N (RA2000)	AV58	Oventrop, old (M30x1.0)
AV54	Danfoss RAVL	AV59	Vaillant
AV55	Danfoss RAV	AV60	TA <sup>1)</sup>
		AV61	Markaryd

<sup>1)</sup> No adapter required for type TBV-C

Type	Description
AL41	Tamper-proof fitting to prevent dismantling of actuators

## Ordering

When ordering please specify the quantity, product name and type code.

Example: **1 actuator, type STA21 with 1.2 m cable and 1 adapter, type AV55**

## Delivery

The valves, actuators and accessories are supplied in separate packages.

## Compatibility

Valve type	Description	$k_{vs}$ [m <sup>3</sup> /h]	PN class	Data sheet
VD..., VE..., VU...	Radiator valves	0.25 ... 3.4	PN10	2145, 2146
VPD..., VPE...	MCV radiator valves	0.02 ... 0.48		2185
For other radiator valves, with type AV... adapters, see «Types / Accessories»				

$k_{vs}$  = Nominal flow rate of cold water (5 to 30 °C) through the fully opened valve ( $H_{100}$ ) at a differential pressure of 100kPa (1bar).

Note In most applications, the radiator valves are fitted with type **STA...** thermal actuators, with the result that when the actuator is *de-energized*, the actuator stem is *extended* and the valve is *closed*.

In applications for which the reverse function is required, type **STP...** actuators (data sheet 4878) are used, in which case when the actuator is *de-energized* the actuator stem is *retracted* and the valve is *open*.

## Technical and mechanical design

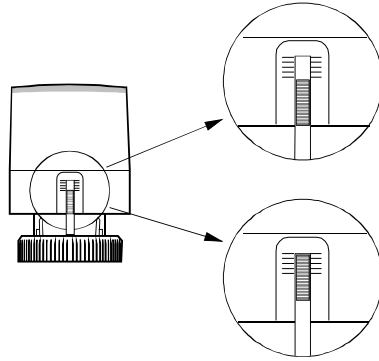
### Type of operation

When the control signal is applied to the actuator, the temperature of the heating element rises, which causes the solid expansion medium to expand. This expansion is converted into a linear movement, causing the actuator stem to retract. The valve is opened by the force of the spring. When the actuator is de-energized, the actuator stem is extended and the valve closes.

The STA21... and STA71... thermal actuators have no rotating parts. Consequently, they operate quietly and are not subject to wear.

### Position indication

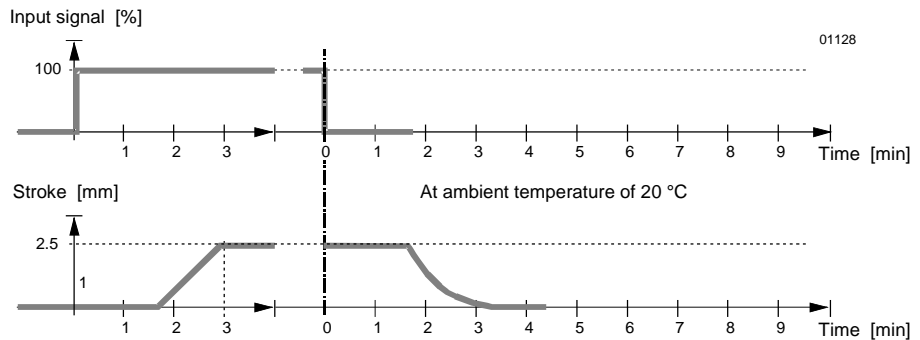
The valve position is indicated by a blue bar which moves up and down the actuator stem.



In this position, the actuator is de-energized. The actuator stem is extended and the valve is closed.

In this position the valve has been connected to the power supply for at least three minutes. The actuator stem is retracted and the valve is open.

### Positioning times opening / closing



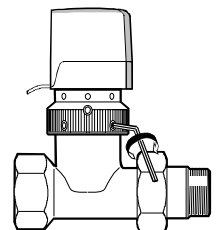
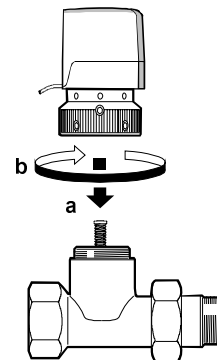
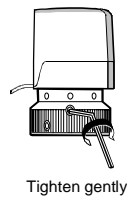
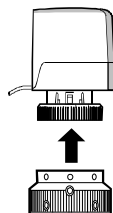
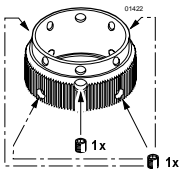
The positioning time depends on the voltage and the ambient temperature.

## Accessories

### Adapter type AV... for third-party valves

Adapter types AV51 to AV61 are available for mounting the STA... actuators on third-party radiator valves as shown under «Types / Accessories».

### Tamper-proof fitting AL41



## Mounting and installation notes

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Mounting instructions are printed on the plastic packaging.

The STA... actuator and valve are delivered as separate units. They are easy to assemble on site shortly before commissioning:

- Remove the protective cover from the valve body
- Put the actuator in position and tighten the union nut manually.



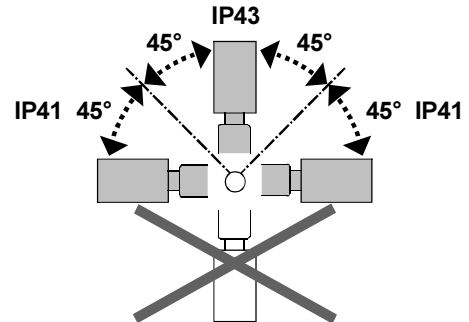
**Do not use pipe wrenches, spanners or similar!**

- The plastic packaging can be used as a temporary cover for protection from dust etc.

### Orientation



**The actuators must be installed only in a position from upright to horizontal.**  
**Under no circumstances must the actuator be suspended below the horizontal.**



### Notes on electrical installation

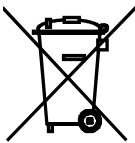
- Installation must be carried out in compliance with local installation regulations.
- The cable must be connected downwards so that it leads away from the bottom.
- A means of isolation from the power supply must be provided, for example by connecting an automatic circuit breaker or switch fuse upstream of the control unit.

### Maintenance

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The connecting cable must not be replaced by any other cable. Opening the actuator can cause it irreparable damage. Faulty actuators must be replaced as complete units.

### Disposal



The device includes electrical and electronic components and must not be disposed of as domestic waste.

**Current local legislation must be observed.**

### Warranty

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The technical data given for these applications is valid only for valves used in conjunction with the Siemens and third-party actuators listed under «Compatibility».

**If the STA... actuators are used with other valves, then the user is responsible for ensuring correct functioning.**

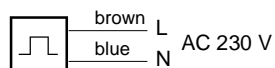
## Technical data

		STA21, STA21/50	STA71, STA71/50
Power supply	Operating voltage	AC 230 V, 50...60 Hz	Extra low voltage <sup>1)</sup> AC 24 V, 50 ... 60 Hz or DC 24 V
	Voltage tolerance	±15 %	±20 %
	Power consumption		
	Operation	2.5 W	2.5 W
	On power-up	58 VA	6 VA
	Switch-on current (transient)	250 mA	
	Primary fuse	External	
Control	Positioning signal	2-position (operating voltage on/off)	
Operating data	Positioning time at 20 °C	3 min	
	Nominal stroke	2.5 mm	
	Positioning force	105 N -4/+20 %	
	Actuator de-energized	Actuator stem extended	
	Radiator valves	Closed	
	Maintenance	No maintenance required	
Materials	Cover and base	Polycarbonate	
Electrical connection	Connecting cable (integral)	Stranded conductor / 2 x 0.75 mm <sup>2</sup>	
	Cable length STA... STA.../50	1.2 m 5.0 m	
Dimensions / Weight	Dimensions (H x W)	See «Dimensions»	
	Weight	0.15 kg	
Mounting	Fixing on valve	Union nut, M30 x 1.5	
	Orientation	Upright to horizontal; do not suspend	
Safety	Product safety	EN60730:2.7	EN60730:2.7
	Overvoltage category	II	III
	Contamination level	2	2
	Electrical safety	SELV-E (PELV to IEC364-4-41)	
	Protection standard		
	Mounted upright ± 45 °	IP43 to EN60529	
	Mounted between upright and horizontal	IP41 to EN60529	
	Conformity	Meets the requirements for <b>CE</b> marking	
General	Use	Suitable for indoor use	
Ambient conditions	Normal operation	+5 ... 50 °C, 5 ... 85 % rh	
	Storage	+5 ... 50 °C, 5 ... 95 % rh	
	Transport	-20 ... 60 °C, 5 ... 95 % rh	

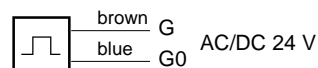
<sup>1)</sup> Only admissible with extra low voltage (SELV or PELV)

## Connecting cable

### STA21, STA21/50



### STA71, STA71/50



## Dimensions

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All dimensions in mm

