



Thermal actuators

STP72E...

for radiator valves, small valves and zone valves

- Operating voltage AC/DC 24 V, 2-position control signal or PDM (pulse-duration modulation)
- Positioning force 105 N
- For direct mounting with union nut (no tools required)
- Standard version with 1.5 m PVC connecting cable
- Optional connecting cables:
 - 1.5 m, 2.5 m and 4.5 m cables
 - Connecting cables with LED operation indication
 - Non halogen connecting cables
- Supports synchronous running of several actuators in parallel
- Tactile position indication
- Robust construction, quiet operation, no maintenance required
- Optional tamper-proof fitting to prevent dismantling

Use

For water-based control of terminal units, heating and cooling zones

Standard applications (valve closed when actuator de-energized):

- For Siemens small valves types VVP47..., VXP47... and VMP47...
- For retrofitting Siemens small valves 2W..., 3W... und 4W... with AL100 adapter

Special applications (valve open when actuator de-energized):

- For Siemens radiator valves, MiniCombiValves, zone valves and valves from other manufacturers

Type summary

Type	Operating voltage	Positioning time at 20 °C	Positioning signal	Connecting cable
STP72E	AC / DC 24 V	180 s	2-position	1.5 m
STP72E/00			2-position, PDM ¹⁾	without

¹⁾ pulse-duration modulation

Accessories

Adapter type	For valve makes	Adapter type	For valve makes
AV51	Beulco old (M30x1.0)	AV56	Giacomini
AV52	Comap	AV57	Herz
AV53	Danfoss RA-N (RA2000)	AV58	Oventrop old (M30 x 1.0)
AV54	Danfoss RAVL	AV59	Vaillant
AV55	Danfoss RAV	AV60	TA ¹⁾
		AV61	Markaryd

¹⁾ No adapter required for type TBV-C

Type	Connecting cable for STP72E/00	
ASY2L15	1.5 m	Connecting cable 1.5 m
ASY2L25	2.5 m	Connecting cable 2.5 m
ASY2L45	4.5 m	Connecting cable 4.5 m
ASY2L15L	1.5 m	Connecting cable 1.5 m, with LED operation indication
ASY2L25L	2.5 m	Connecting cable 2.5 m, with LED operation indication
ASY2L45L	4.5 m	Connecting cable 4.5 m, with LED operation indication
ASY2L15HF	1.5 m	Connecting cable 1.5 m, non halogen, to VDE 0207-24
ASY2L25HF	2.5 m	Connecting cable 2.5 m, non halogen, to VDE 0207-24
ASY2L45HF	4.5 m	Connecting cable 4.5 m, non halogen, to VDE 0207-24

Type	Description
AL41	Tamper-proof fitting to prevent dismantling of actuators (for radiator valves only)
AL100	Adapter for retrofitting installed 2W..., 3W... and 4W... valves

Ordering

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

- Example 1: 1 actuator STP72E with 1.5 m connecting cable and
1 adapter AV53
- Example 2: 1 actuator STP72E/00 without connecting cable,
1 connecting cable ASY2L15L, 1.5 m connecting cable with LED operation indication
1 adapter AV53

Delivery

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

Equipment combinations

	Valve type	Description	k_{vs} [m ³ /h]	\dot{V} [l/h]	PN class	Data sheet	
Standard combination, NC	VVP47...	2-port valves	0.25...4.0		PN 16	N4847	
	VXP47...	3-port valves					
	VMP47...	3-port valves with T-bypass	0.25...2.5				
	2W... ¹⁾	2-port valves	0.6...2.5			N4846	
	3W... ¹⁾	3-port valves	0.6...4.0				
	4W... ¹⁾	3-port valves with T-bypass	0.6...2.5				
Combinations, NO	V...I46..., V...S46...	Zone valves ²⁾	2...5			N4842	
	VDN..., VEN..., VUN...	Radiator valves ²⁾	0.09...1.41		PN 10	N2105, N2106	
	VPD..., VPE...	MCV radiator valves ²⁾		25...483		N2185	
	VD1...CLC	Small valves ²⁾	0.25...2.6			N2103	
	Radiator valves ²⁾ (M30 x 1.5) from other manufacturers without adapter, further manufacturers on request:						
	<ul style="list-style-type: none"> • Heimeier • Cazzaniga • Oventrop M30 x 1.5 (from 2001) • Honeywell-Braukmann • MNG • TA-type TBV-C • Junkers • Beulco new 						
For other radiator valves with type AV... ²⁾ adapters, see «Type summary / Accessories», page 2							

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)

\dot{V} = Volumetric flow at a stroke of 0.5 mm

¹⁾ Replacement for STE22 and STE72 thermal actuators (adapter AL100 required).

²⁾ refer to the following «Application note».

Technical note

NO, NC valves

NO valves	<ul style="list-style-type: none"> • Valve is open without actuator (normally open). • Valve stem is extended. • Radiator valves like VDN..., VEN..., VUN..., VPD... or VPE... are usually NO valves.
NC valves	<ul style="list-style-type: none"> • Valve is closed without actuator (normally closed). • Valve stem is extended. • Small valves like V...P47... are usually NC valves.

Valve and actuator combinations

NO function	<ul style="list-style-type: none"> • STP... actuator stem is retracted, when de-energized. • NO valve is required.
NC function	<ul style="list-style-type: none"> • STP... actuator stem is retracted, when de-energized. • NC valve is required.

Note on the NO function (Normally Open)

In most applications the small valves V...P47... are equipped with STP72E... thermal actuators, i.e. when the actuator is de-energized, the actuator stem is retracted and the valve is closed.

If the reverse function is required, STA72E..., SFA71... actuators (data sheets N4875, N4863) are used, i.e. when the actuator is de-energized, the actuator stem is extended and the valve is open.

Application note

		STA72E...	STP72E...
		Actuator de-energized	
Radiator valves	<ul style="list-style-type: none"> • VDN..., VEN..., VUN... • VPD..., VPE... 	closed	open ¹⁾
Small valves	• V...P47...	A ↔ AB open ¹⁾	A ↔ AB closed
	• VD1...CLC	closed	open ¹⁾
Zone valves	• V...I46..., V...S46...	AB ↔ A closed	AB ↔ A open ¹⁾

Technical and mechanical design

The following description of functions applies to standard applications (valve closed when actuator de-energized) with terminal unit valve types VVP47..., VXP47... and VMP47..., and types 2W..., 3W... and 4W....

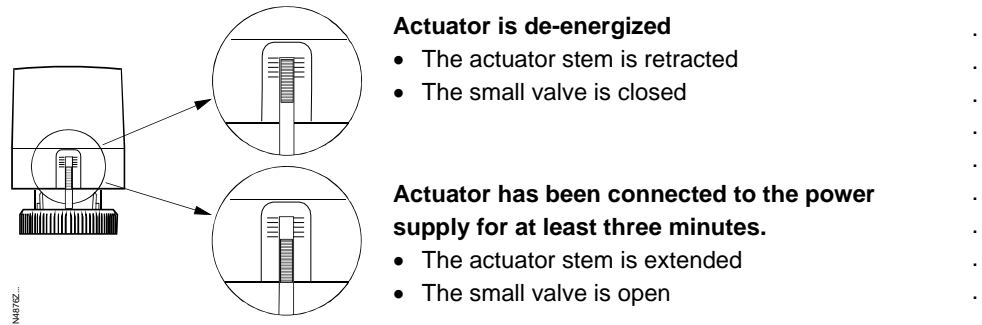
Function

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

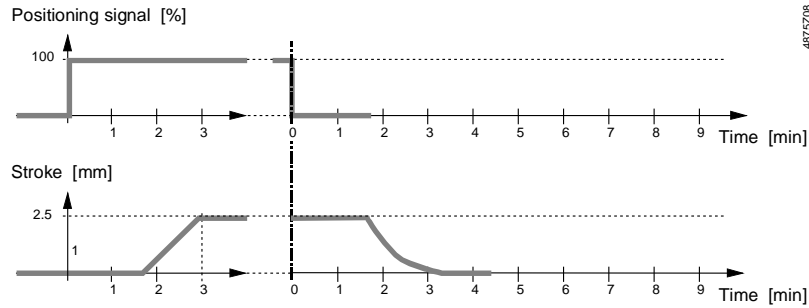
Die STP72E... thermal actuators operate noiseless.

Position indication

The movement and the valve position are indicated by a tactile green bar which moves up and down with the actuator stem.



Positioning times opening / closing

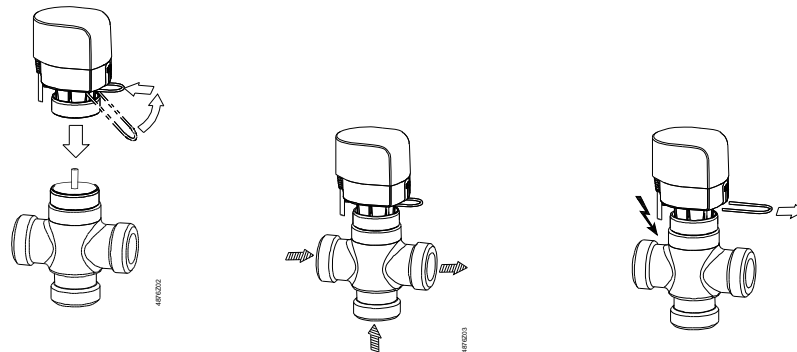


at 20° C ambient temperature

The positioning time depends on the voltage and the ambient temperature. Duty cycle of the control signal is 100 %

Opening without a positioning signal

With an STP72E... actuator fitted, the valve can be opened to approximately 50% of its stroke without a positioning signal. This enables the hydraulic system to be filled with the medium. For this purpose, the U-pin supplied must be inserted between the actuator housing and the stem as shown in the diagram below.



Note Ensure that the U-pin is removed once the system has been filled.

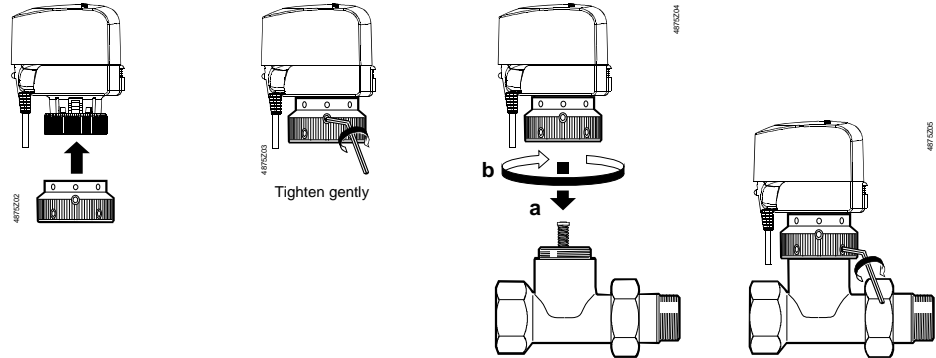
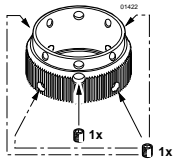
Accessories

Adapter type AV... for third-party valves

Adapter types AV51 to AV61 are available for mounting the STP72E... actuators on third-party radiator valves as shown under «Type summary / Accessories», page 2.

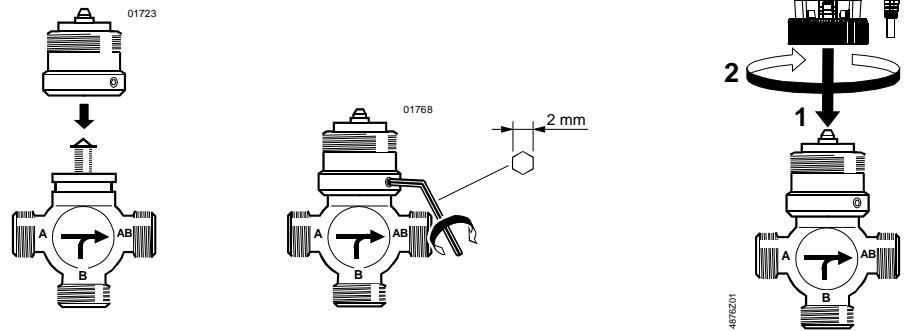
Note In these applications, the valves are open when the actuators are de-energized.

Tamper-proof fitting AL41 (for radiator valves only)



AL100 adapter

When retrofitting valve types 2W..., 3W... and 4W... with the STP72E... actuator, an AL100 adapter is required.



Mounting and installation notes

Mounting instructions are printed on the plastic packaging.

The STA72E... 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.
- Plug in the connecting cable.
- Only after mounting switch on operating voltage.



Do not use pipe wrenches, spanners or similar!

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

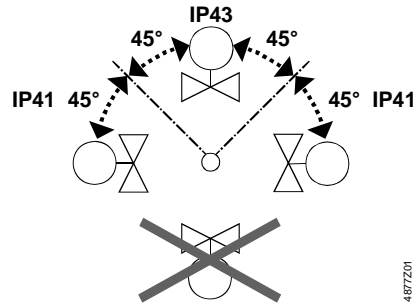
Orientation



Warning

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

The actuator is maintenance-free.

Repair

Before replacing the connecting cable, disconnect the operating voltage.

Opening the actuator can cause it irreparable damage.

The actuator cannot be repaired, it must be replaced as a complete unit.

Disposal



The device must not be disposed of as domestic waste.

Legislation may demand special handling of certain components, or it may be sensible from an ecological point of view.

Current local legislation must be observed.

Warranty

The technical data given for these applications is valid only for valves used in conjunction with the Siemens and third-party actuators listed under «Equipment combinations», page 3.

If the STP72E... actuators are used with other valves, then the user is responsible for ensuring correct functioning and all claims under Siemens Switzerland Ltd / HVAC Products warranty are invalidated.

Technical data

		STP72E, STP72E/00
Power supply	Operating voltage	AC 24 V, DC 24 V $\pm 20\%$ ¹⁾
	Frequency	50 / 60 Hz
	Power consumption at 50 Hz	
	operation	2.5 W
	on power-up	6 VA
	Switch-on current (transient)	250 mA
	Primary fuse	external
Signal inputs	Positioning signal	2-position, PDM ²⁾
	Parallel operation of several actuators	max. 10
Functional data	Positioning time at 20 °C, 50 Hz	180 s
	Positioning force	105 N $-4/+20$ N
	Nominal stroke	2.5 mm
	Permissible temperature of medium in the connected valve	1...110 °C
	Actuator de-energized	actuator stem retracted
	Radiator valves VDN..., VEN..., VUN...	open
	MCV MiniCombiValves VPD..., VPE...	open
	Small valves VD1...CLC	open
	Small valves V...P47...	A \leftrightarrow AB closed
	Zone valves V...I46...	AB \leftrightarrow A open
	Maintenance	no maintenance required
Electrical connection	Cable length	STP72E (standard) STP72E/00
		PVC 1.5 m; strands 2 x 0.50 mm ² cable ASY2L...refer accessories page 2
Mounting	Fixing on valve	Union nut M30 x 1.5; nickel-plated
	Orientation	Upright to horizontal; do not suspend
Use		Suitable for indoor use
Colors	Cover	white, RAL9003
	Base	light gray , RAL 7035
	PVC cable	light gray , RAL 7035
	Non halogen cables	dark gray, RAL 7037
Norms and standards	Meets requirements for CE marking:	
	EMC directive	2004/108/EC
	Immunity	EN 61000-6-1 Residential
	Emission	EN 61000-6-3 Residential
	Low voltage directive	2006/95/EC
	Electrical safety	SELV (PELV to IEC 60364-4-41)
	Protection class	III to EN 60730
	Contamination level	2 to EN 60730
	Protection standard	
	Mounted upright $\pm 45^\circ$	IP 43 to EN 60529
Mounted between upright and horizontal	IP 41 to EN 60529	
Environmental compatibility	ISO 14001 (Environment) ISO 9001 (Quality) SN 36350 (Environmentally compatible products) RL 2002/95/EG (RoHS)	

Dimensions / Weight

Dimensions		refer to «Dimensions», page 8
Weight	STP72E	0.147 kg
	STP72E/00	0.105 kg
	ASY2L15...	0.42 kg
	ASY2L25...	0.64 kg
	ASY2L45...	0.105 kg
Materials	Cover and base	polycarbonate
	Connecting cable ASY2Lxx	PVC
	Connecting cable ASY2LxxL	PVC with green LED operation indication
	Connecting cable ASY2LxxHF	non halogen to VDE 0207-24
	xx = length in [dm], available	1.5 m; 2.5 m; 4.5 m; strands 2 x 0.50 mm ²

¹⁾ Only admissible with extra low voltage (SELV or PELV)

²⁾ PDM = pulse duration modulation

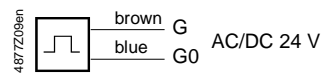
General environmental conditions

	Operation EN 60721-3-3	Transport EN 60721-3-2	Storage EN 60721-3-1
Temperature	+5...+50 °C	-20...+60 °C	+5...+50 °C
Temperature for quasi-proportional control	+5...+40 °C		
Humidity	5...85 % r. h.	5...95 % r. h.	5... 95 % r. h.

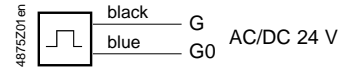
Connecting cable

STP72E...

PVC cables:



Non halogen cables:



Dimensions

Dimensions in mm

