



EN 215-1



RTN51..



RTN71 with remote sensor



RTN81 with remote adjuster

ACVATIX™

## Thermostatic Actuators

**RTN51..**

**RTN71**

**RTN81**

for radiator valves VDN.., VEN.., VUN.., VPD.. and VPE..

- **Self-acting, without auxiliary power**
- **High-quality fluid-filled sensor with fast acquisition of room temperature changes**
- **Direct mounting with union nut, no tools required**
- **Robust construction, maintenance-free, noiseless operation**
- **Protection against dismantling (optional)**
- **RTN51.. white (matt or glossy)**

### Use

- For use with Siemens radiator valves type VDN.., VEN.. and VUN..
- For use with Siemens MiniCombiValves (MCV) type VPD.. and VPE..
- For radiator valves supplied by Heimeier, Cazzaniga, Oventrop M30 x 1.5, Honeywell-Braukmann, MNG, Junkers and Beulco new (all without adapter)
- For radiator valves with actuators secured with an M30 x 1.5 union nut, nominal closing dimension  $11.6 \pm 0.3$  mm and nominal stroke 1.5 mm (without adapter)
- With the appropriate AV adapters, the actuators can be used with valves from other manufacturers (refer to "Type summary / Accessories")

## Type summary

Type reference	Description
RTN51	RAL 9016, matt
RTN51G	RAL 9016, glossy
RTN71	Version with remote sensor
RTN81	Version with remote adjuster

## Accessories

Adapter type	For valve makes	Adapter type	For valve makes
AV52	Comap	AV57	Herz
AV53	Danfoss RA-N (RA2000)	AV58	Oventrop < 2002
AV54	Danfoss RAVL	AV59	Vaillant
AV55	Danfoss RAV	AV60	TA < 2002
AV56	Giacomini	AV61	MMA Markaryd

Type reference	Description
ATN2	Fitting to prevent dismantling of actuator

## Ordering

Example:

Product number	Stock number	Description	Quantity
RTN51	RTN51	Thermostatic actuator	6
AV57	AV57	Adapter	1

Delivery

Valves and accessories are packed separately.

Rev. no.

See overview, page 7.

## Equipment combinations

Valve type reference	Description	$k_{vs}$ [m <sup>3</sup> /h]	$\dot{V}$ [l/h]	PN class	Data Sheet
VDN.., VEN.., VUN..	Radiator valves	0.09...1.4		PN10	2105, 2106
VPD.., VPE..	MCV radiator valves		25...483		2185
For other radiator valves with type AV.. adapters, refer to «Type summary / Accessories»					
Radiator valves (M30 x 1.5) from other manufacturers, without adapter:					
<ul style="list-style-type: none"> <li>Heimeier</li> <li>Cazzaniga</li> <li>Junkers</li> <li>Oventrop M30 x 1,5 (since 2001)</li> </ul>		<ul style="list-style-type: none"> <li>Honeywell-Braukmann</li> <li>MNG</li> <li>Beulco new</li> </ul>			

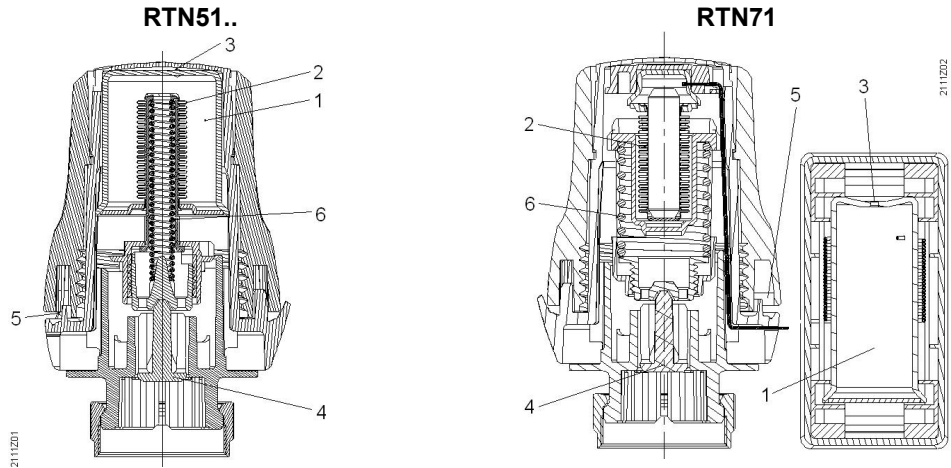
$k_{vs}$  = Nominal flow rate of cold water (5 to 30 °C) through the fully open valve ( $H_{100}$ ) at a differential pressure of 100 kPa (1 bar)

## Technical design / mechanical design

### Mode of operation

The fluid-filled sensor responds to deviations from the room temperature setpoint. When the room temperature rises, the fluid inside the metal capsule expands, exerting pressure on the bellows and the stem, which causes the valve to continuously close so that the radiator's heat output will be reduced. When the room temperature falls, the bellows expands, thereby opening the valve so that the radiator's output will be increased again.

This design allows the radiator valve to be continuously operated, thus achieving smooth regulation of the flow of heating water to the radiator, resulting in a constant room temperature in accordance with the room temperature setpoint.



- 1 Fluid-filled sensor
- 2 Bellows
- 3 Overtravel mechanism
- 4 Stem
- 5 Limit tappet
- 6 Closing spring

The head of the actuators and the remote adjuster have a scale and symbols that correspond to the following room temperature setpoints:

0	*	1	2	3	4	5
Valve fully closed (only with RTN51.. and RTN71)	Frost protection at 8 °C	12 °C	16 °C	20 °C	24 °C	28 °C

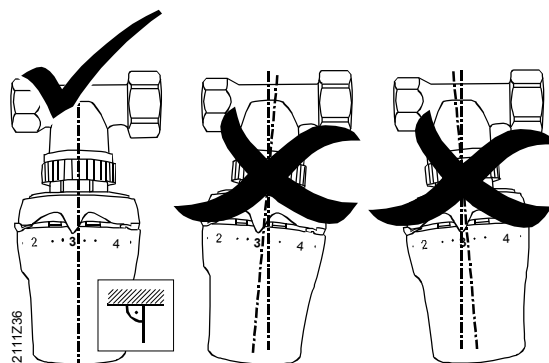
If, from the frost protection symbol, the head is turned in the direction of 0, a click can be heard, indicating that frost protection is no longer ensured.

### Setting setpoint range

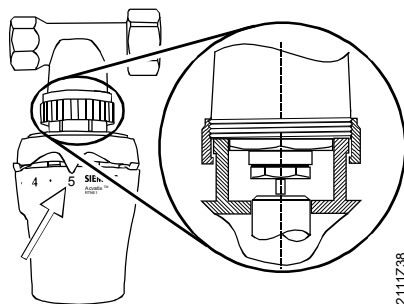
2 easily adjustable captive tappets are used to set the required setpoint setting range:

	<ul style="list-style-type: none"> <li>• Turn tappet until stop is reached (at the setpoint indicator)</li> </ul>	<ul style="list-style-type: none"> <li>• Push on tappet</li> </ul>	<ul style="list-style-type: none"> <li>• Turn head until required stop is reached</li> <li>• Release tappet</li> </ul>
Setting maximum limitation	2111228	2111229	2111230
Setting minimum limitation	2111231	2111232	2111233

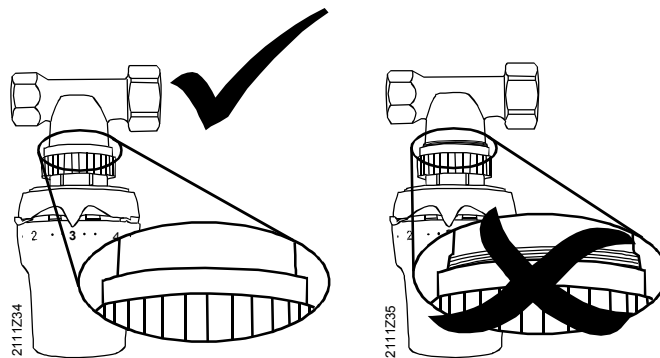
**Important:**



When mounting the actuator to the valve, ensure that valve and actuator form a right angle.



For that, select scale number 5 and ensure that the actuator rests correctly.



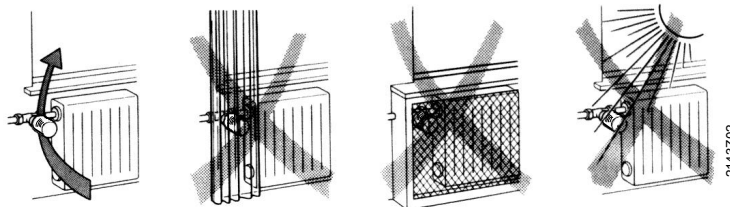
Then, tighten the actuator correctly.

**The sensing element of the thermostatic actuator must always be able to acquire the temperature of circulating room air.**

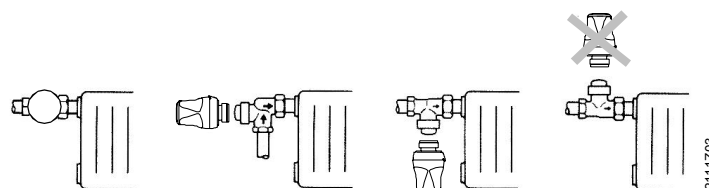
The type of thermostatic actuator (RTN51.. / RTN71 / RTN81) is selected based on this criterion.

**RTN51..**  
with built-in sensing element

The actuator must not be covered by radiator enclosures, furniture or curtains and it must not be affected by direct solar radiation or air drafts.



The actuator must not be fitted in the upright position to ensure that measurement of the room air will not be affected by rising air from the hot water pipe.

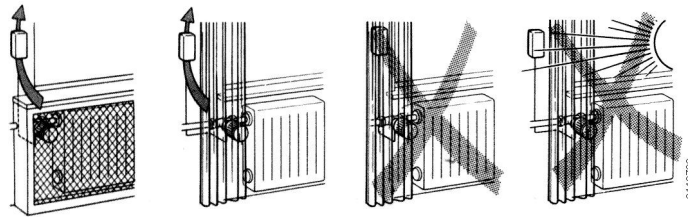


Mounting Instructions are printed on the package.

### RTN71

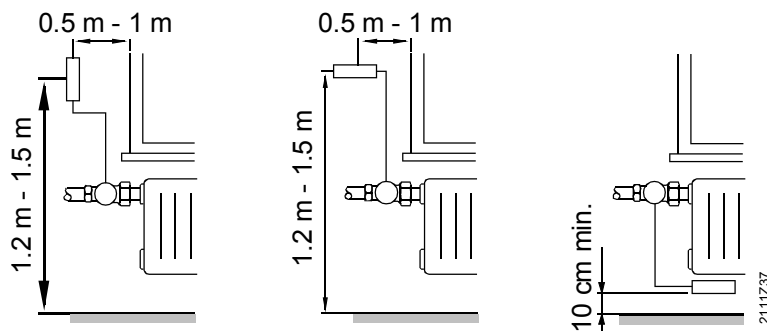
Version with remote sensing element and capillary tube

This type of actuator is for use on applications where the criteria of the RTN51.. standard versions are not satisfied. This actuator can be fitted in any position. The sensing element must not be covered and it must not be affected by direct solar radiation or air drafts.



In case of unknown conditions (especially in new buildings), it is always advisable to use this version.

For comfort reasons, the sensing element should be located as shown in the following illustration:



When mounted on poorly insulated outer walls, a thermally insulating layer should be fitted in between.

Mounting Instructions are printed on the package.

### RTN81

Version with remote sensing element and remote adjuster

For applications where the radiator or convector valve is not accessible or not easily accessible. The actuating section can be fitted in any position. For the sensing element, the same criteria apply as for the RTN71 (location of the remote adjuster is to be considered).

Mounting Instructions no. 74 319 0466 0 are enclosed with the packaging.

## Maintenance

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The thermostatic actuators are maintenance-free.

### Repair

The actuators, sensors and remote adjusters cannot be repaired. The complete units must be replaced.

### Disposal



The device must not be disposed of together with 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

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Application-related technical data are only warranted when used in connection with the valves listed under "Equipment combinations" (page 2).

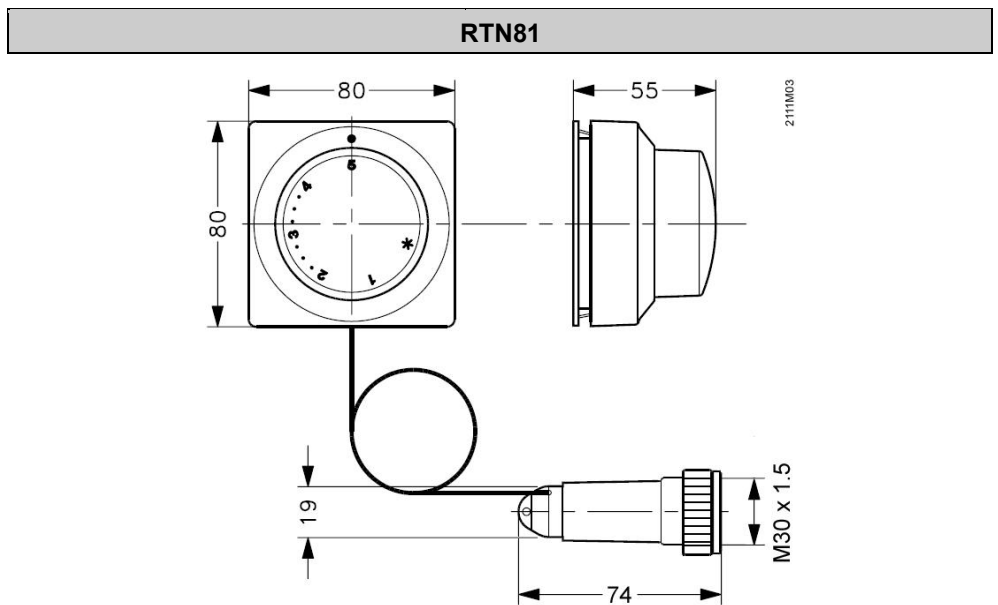
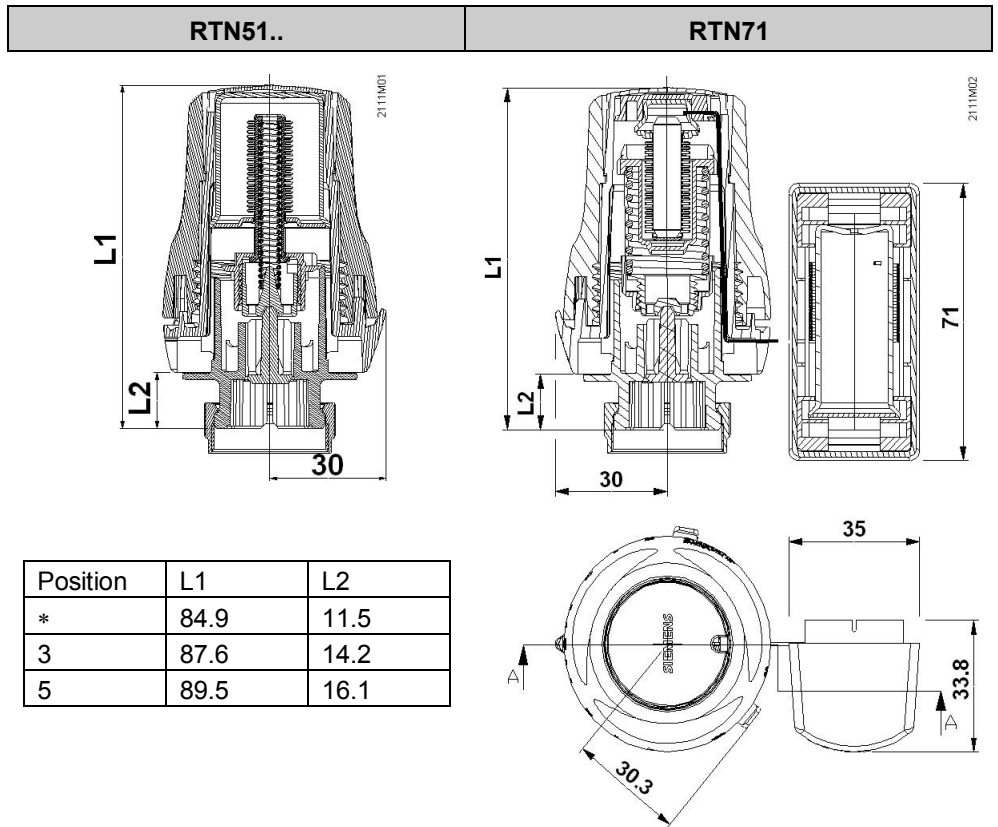
**When using the RTN.. actuators in connection with valves from other manufacturers, proper functioning must be ensured by the user.**

## Technical data

		RTN51..	RTN71	RTN81
Design	Conformity	CEN standard EN 215-1		
	Drive principle	liquid expansion		
	Remote sensor		✓	✓
	Remote adjuster			✓
	Capillary tube		2 m (stainless steel 18/8)	
Functional data	Setpoint setting range	8...28 °C		
	Setting scale	0, *, 1...5		*, 1 ... 5
	Frost protection position	✓		
	Minimum / maximum limitation	captive tappets		
	Perm. medium temperature	120 °C		
	Perm. sensor temperature	40 °C		
	Influence of water temperature	≤ 1.5 K	≤ 0.75 K	
	Influence of differential pressure	≤ 1 K		
	Hysteresis	≤ 1 K		
	Proportional band	2 K		
	Dimensions / weight	Dimensions	refer to "Dimensions" (page 7)	
Fixing on valve		union nut M30 x 1.5		
Weight		0.157 kg	0.202 kg	0.227 kg
Housing colors	- Actuator RTN51 RTN51G	RAL 9016, matt RAL 9016, glossy	RAL 9016, matt	
	- Sensor	RAL 9016, matt	RAL 9016, matt	
	- Remote adjuster	RAL 9016, matt	RAL 9016, matt	
Standards	Environmental compatibility	ISO 14001 (Environment) ISO 9001 (Quality) SN 36350 (Environmentally compatible products) RL 2002/95/EG (RoHS)		
Materials	- Union nut - Stem - Manual knob	- brass, nickel-plated - PBT, 30 % glass - ABS		
<b>General ambient conditions</b>		<b>Operation</b> EN 60721-3-3	<b>Transport</b> EN 60721-3-2	<b>Storage</b> EN 60721-3-1
Environmental conditions		Class 3K3	Class 2K3	Class 1K3
Temperature		+1...+40 °C	-25...+70 °C	-5...+50 °C
Humidity		5...85 % r.h.	< 95 % r.h.	5...95 % r.h.

## Dimensions

Dimensions in mm



## Revision numbers

Product number	Valid from rev. no.	Product number	Valid from rev. no.
RTN51	..A	RTN71	..A
RTN51G	..A	RTN81	..A

