

Application

The RA series is a comprehensive programme of radiator thermostats which covers all central and district heating systems. RA is a self-actuating proportional controller with a small P-band.

The RA sensor range includes:

- RA 2990: built-in sensor with frost protection, temperature range 5-26°C, facilities for limiting and locking the temperature set-point. RA 2980 has an additional anti-theft facility.
- RA 2992: remote sensor with frost protection, temperature range 5-26°C, facilities for limiting and locking the temperature set-point. RA 2982 has an additional anti-theft facility.
- RA 2920: Tamperproof model with built-in sensor, frost protection, temperature range 5-26°C, facilities for limiting and locking the temperature set-point.
- RA 2922: Tamperproof model with remote sensor, frost protection, temperature range 5-26°C, facilities for limiting and locking the temperature set-point.

RA 2992 and 2922 are equipped with 2 m of ultra-thin capillary tube, which is coiled up within the remote sensor housing. After sensor mounting capillary tube is pulled out to the required length.

- RA 5060/5070 Series: remote temperature adjuster with frost protection. Temperature range 8-28°C, facilities for limiting and locking the temperature set-point.
 - RA 5062: length of capillary tube 2 m
 - RA 5065: length of capillary tube 5 m
 - RA 5068: length of capillary tube 8 m
 - RA 5074: length of capillary tube 2+2 m

All thermostatic sensors can be combined with all RA 2000 valve bodies.

A union nut establishes a simple but strong connection between sensor and valve body. Anti-theft protection prevents the sensor from unauthorised removal. (See accessories).

The technical data for RA valve bodies in combination with RA sensors meet Euronorm EN 215-1.

Ordering and specifications

RA thermostatic sensors

Type	Code no.	Model	Cap. tube	Temp. range ²⁾
RA 2990	013G2990	Standard , built-in sensor	-	5-26 °C
RA 2992	013G2992	Standard, remote sensor	0-2 m ¹⁾	5-26 °C
RA 2920	013G2920	Tamperproof, built-in sensor	-	5-26 °C
RA 2922	013G2922	Tamperproof, remote sensor	0-2 m ¹⁾	5-26 °C
RA 5062	013G5062	Remote temperature adjuster	2 m	8-28 °C
RA 5065	013G5065	Remote temperature adjuster	5 m	8-28 °C
RA 5068	013G5068	Remote temperature adjuster	8 m	8-28 °C
RA 5074	013G5074	Remote adjuster with remote sensor	2 + 2 m	8-28 °C

¹⁾ The remote sensor is delivered with all of the capillary tube coiled up within the sensor. When mounting the sensor, only the capillary tube required is uncoiled.

²⁾ Temperatures stated for Xp = 2K, i.e. the valve is closed at 2 °C higher room temperature.

Accessories

Product	Code no.
Manual setting knob for RA valves, plastic	013G5002
Manual setting knob for RA valves, brass	013G3300
Limiting pins for RA 2990/92 (30 pcs.)	013G1215
Limiting pins for RA 2920/22 (30 pcs.)	013G1237
Anti-theft plugs for RA 2990/92 (20 pcs.)	013G5245
Scale cover for RA 2920/22 (20 pcs.)	013G1672
Toolkit, Allen key & locking pin tool	013G1236
Compact adaptor for RA 5062/65/68 to RA 2000 valves	013G5190
Adaptor for RA 5060/5070 to RA 2000 valves	013G5191
Adaptor for RA 5060/5070 to RAVL valves	013G5192
Adaptor for RA 5060/5070 to RAV valves	013G5193

Setting the temperature

The required room temperature is set by turning the setting dial. The temperature scales show the correlation between scale values and the room temperature. The temperature values stated are for guidance only as the obtained room temperature will often be influenced by installation conditions.

The temperature scales are stated according to European standards at $X_p = 2^\circ\text{C}$. This means that the radiator thermostats close at a sensor temperature which is 2°C higher than

stated on the temperature scales.

Locking and limitation of the temperature set-point of RA sensors are carried out using the limiter pins placed at the back of the sensor.

Locking and max./min limitation of the remote temperature adjuster type RA 5060 are carried out by the limiter tabs. The limiter tabs will be covered by the setting dial. The procedure is described in the instruction.

RA 2990 /92 RA 2920/22

* = Frost protection setting

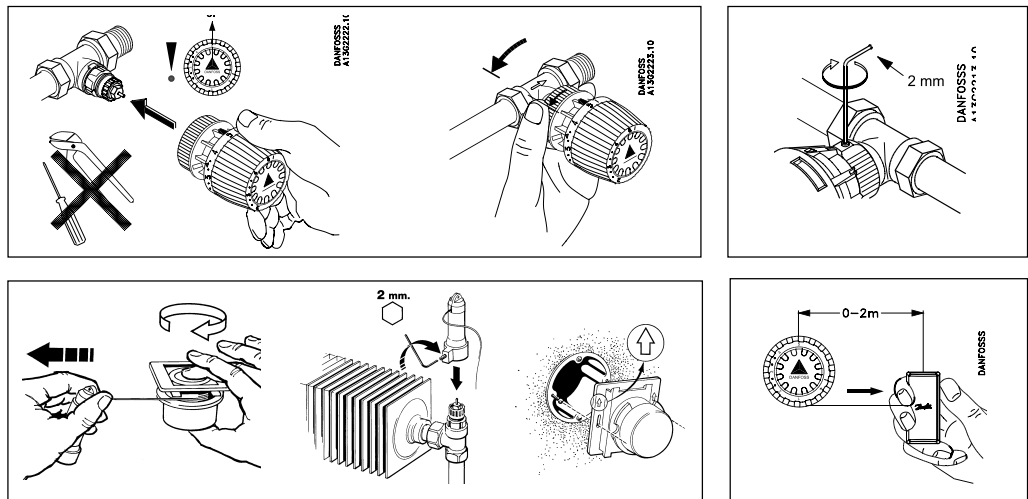
7	9,5	14	17	20	23	26	28°C
	*	1	2 • •	3 • •	4	5	
5	7,5	13	15	18	21	24	26°C

RA 5062, RA 5065, RA 5068, RA 5074

10	14	18	22	26	30°C
*	1	2 • • •	3 • • •	4	5
8	12	16	20	24	28°C

* = Frost protection setting

Mounting



Choose the right sensor

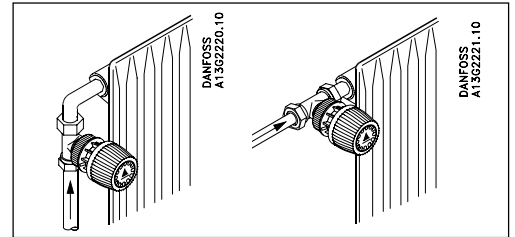
The thermostatic sensor should be selected on the basis of the following criteria:

The sensor must always be able to register the temperature of the ambient air.

Radiator thermostats with built-in sensors

These should always be fitted horizontally so that the ambient air can pass freely over the sensor.

Danfoss does not recommend the fitting of a built-in sensor in vertical position because heat effect from the valve body and possibly surface pipes will cause incorrect operation of the thermostat.

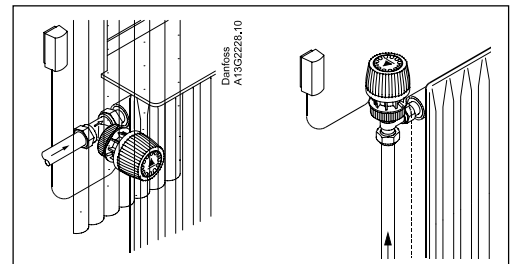


Radiator thermostats with remote sensor

These should be used when:

- Curtains cover the sensor
- Sensor is affected by surface pipes
- Sensor is affected by draught
- It is necessary to mount the sensor in vertical position if there are adjacent obstructions.

The remote sensor must be mounted on the wall, away from curtains, or on the skirting board beneath the radiator if free of surface pipes. All remote sensors are now supplied with ultra-thin capillary tube. Simply pull out the length required (2 m maximum) and fix using clips provided or special tacker gun.



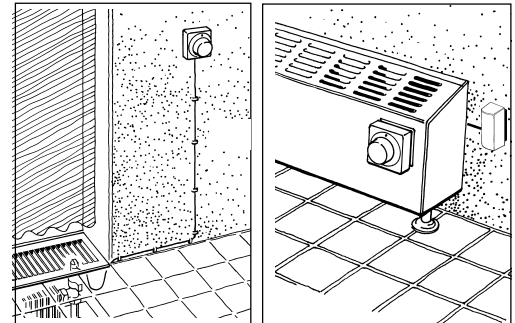
Radiator valves with remote adjustment

The remote temperature adjuster is used on radiators or convectors which are hidden in a cabinet or in other ways inaccessible to the user. In addition, the room temperature adjuster is used in integral sockets and installation ducts.

The sensor and the setting part of a remote setting unit are integrated.

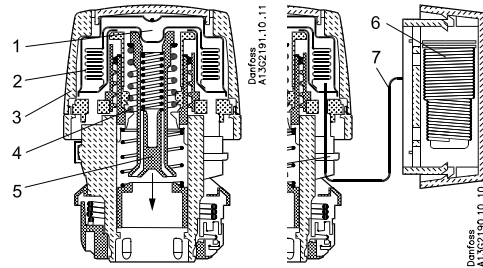
The remote temperature adjuster is placed in an easily accessible place where the ambient air can at the same time pass freely over the sensor. This is ideal where the valve is inaccessible to the user.

The temperature adjuster should be mounted between 1.2 and 1.6 m above the floor.

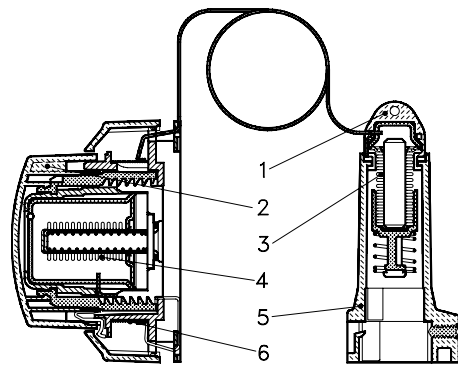


Sensor operation principle

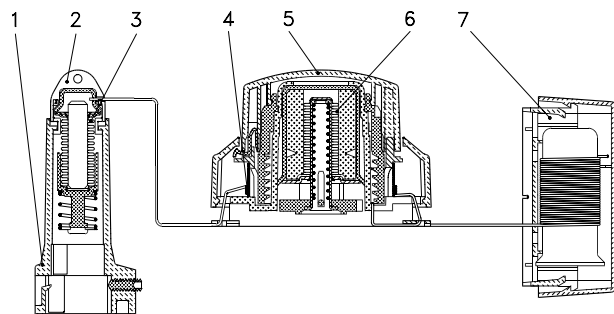
1. Actuator
2. Bellows
3. Setting dial
4. Setting spring
5. Spindle
6. Remote sensor
7. Capillary tube



1. Actuator
2. Setting part
3. Setting bellows
4. Operation bellows
5. Valve adaptor
6. Capillary tube, rolled up

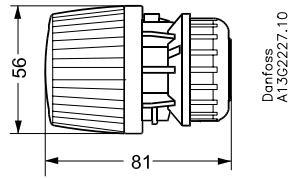


1. Valve adapter
2. Actuator
3. Setting bellows
4. Capillary tube, rolled up
5. Setting dial
6. Operation bellows
7. Remote sensor

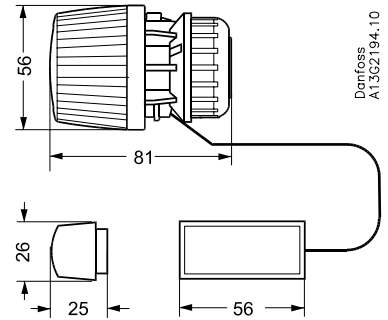


Max. ambient sensor temperature: 60°C.

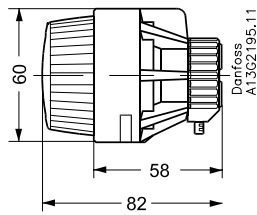
Dimensions



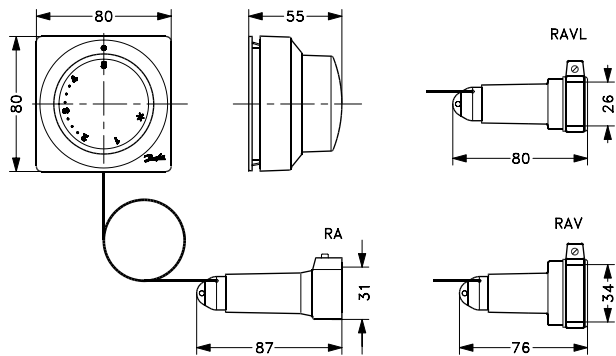
*Standard model
RA 2990*



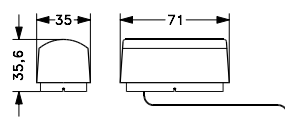
*Model with remote sensor
RA 2992*



*Tamperproof model
RA 2920*



*Remote temperature adjuster
with adapters for all Danfoss
valves and M30x1.5*



*Remote temperature sensor
for RA 5070*

