

Thermostats



Safety temperature Monitor (STM) Type 5343

Temperature Regulator (TR) Type 5344

Safety Temperature Limiter (STL) Type 5345

Double Thermostats TR/STL Type 5347, TR/STM Type 5348 and STM/STL Type 5349

Application

Typetested thermostats for temperature control in heat-generating plants and for use in heating, ventilation and air-conditioning applications



Thermostats functioning according to the liquid expansion principle with thermowells (accessories)

Special features

- Can be mounted either as a contact thermostat or as a thermostat with thermowell
- Easy to wire using spring-clamp terminals
- Switching capacity 16 A, 230 V
- Stable switching point thanks to ambient temperature compensation
- Degree of protection IP 54

Safety temperature monitor (STM)

- Snap-action switch and automatic reset
- Set point can be adjusted with a screwdriver after opening the housing
- The electric circuit is opened if the measuring system is broken

Temperature regulator (TR)

- Snap-action switch for temperature control
- External set point adjustment at rotary knob
- Set point range can be mechanically limited

Safety temperature limiter (STL)

- Snap-action switch
- Reset by unlocking with a screwdriver
- Set point can be adjusted with a screwdriver after opening the housing
- The electric circuit is opened if the measuring system is broken

Typetesting

The thermostats are typetested by the German Technical Inspectorate (TÜV) according to DIN EN 14597.

The corresponding DIN register numbers are listed in the Mounting and Operating Instructions EB 5206 EN.

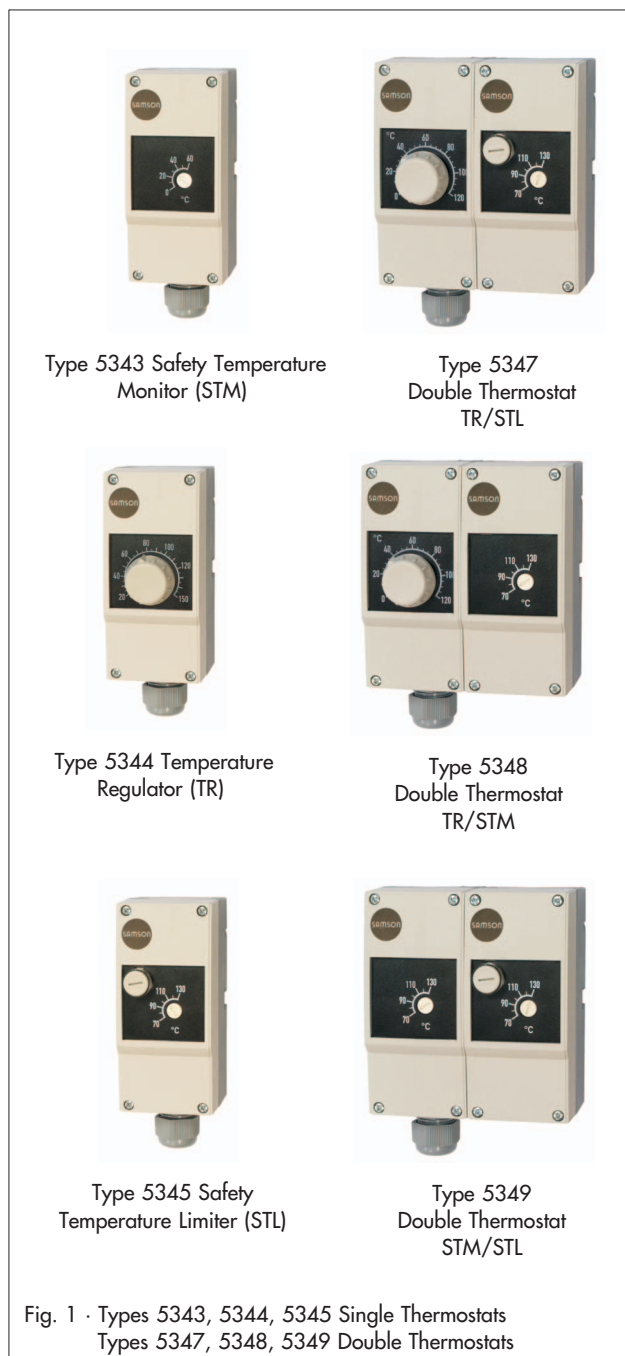


Fig. 1 · Types 5343, 5344, 5345 Single Thermostats
Types 5347, 5348, 5349 Double Thermostats

Versions

Safety temperature monitors (STM)

Type 5343-1	Set point range	0 to +60 °C
Type 5343-2	Set point range	+40 to +100 °C
Type 5343-3	Set point range	+70 to +130 °C
Type 5343-4	Set point range	+35 to +95 °C

Temperature regulators (TR)

Type 5344-1	Set point range	0 to +120 °C
Type 5344-2	Set point range	+20 to +150 °C

Safety temperature limiter (STL)

Type 5345-1	Set point range	+70 to +130 °C
Type 5345-2	Set point range	+30 to +90 °C

Double thermostat TR/STL

Type 5347-1	Set point range TR	0 to +120 °C
	Set point range STL	+70 to +130 °C
Type 5347-2	Set point range TR	0 to +120 °C
	Set point range STL	+30 to +90 °C

Double thermostat TR/STM

Type 5348-1	Set point range TR	0 to +120 °C
	Set point range STM	+70 to +130 °C
Type 5348-2	Set point range TR	0 to +120 °C
	Set point range STM	+40 to +100 °C

Double thermostat STM/STL

Type 5349-1	Set point range STL	+70 to +130 °C
	Set point range STM	+70 to +130 °C

Accessories

Thermowells for single thermostats (STM, TR, STL)

- Nickel-plated brass · CuZn (2.0401)
 - max. pressure at 150 °C: 48 bar
 - 100 x 8 mm Order no. 1400-9844
 - 150 x 8 mm Order no. 1400-9845
 - 200 x 8 mm Order no. 1400-9846
- CrNiMo steel (1.4571)
 - max. pressure at 150 °C: 88 bar
 - 100 x 8 mm Order no. 1400-9848
 - 150 x 8 mm Order no. 1400-9849
 - 300 x 8 mm Order no. 1400-9850

Thermowells for double thermostats (TR/STL, TR/STM)

- Nickel-plated brass · CuZn (2.0401)
 - max. pressure at 150 °C: 48 bar
 - 100 x (2x 8 mm) Order no. 1400-9901
 - 150 x (2x 8 mm) Order no. 1400-9851
- CrNiMo steel (1.4571)
 - max. pressure at 150 °C: 48 bar
 - 100 x 15 mm Order no. 1402-0340
 - 150 x 15 mm Order no. 1400-9853
 - 300 x 15 mm Order no. 1400-9854

Strap for mounting the contact thermostat

∅ 15 to 100 mm Order no. 1400-9865

Also available:

Type 5312-2 Frost Protection Thermostat (set point range -10 to +12 °C) to monitor the temperature in air ducts containing non-corrosive gases. Refer to Data Sheet T 5207 EN.

Principle of operation

Safety temperature monitors (STM)

The snap-action switch is triggered if the temperature at the bulb rises above the adjusted set point. When the temperature falls below the set point by approximately 8 K, the switch returns to its original position.

The electric circuit is opened when the temperature at the bulb falls below -20 °C. The circuit is automatically closed again when the temperature at the bulb rises above -20 °C.

The circuit remains permanently open if the measuring system is broken.

Temperature regulators (TR)

The snap-action switch is triggered if the temperature at the bulb rises above the adjusted set point. When the temperature falls below the set point by approximately 4 K, the switch returns to its original position.

Safety temperature limiters (STL)

The snap-action switch is triggered and locked if the temperature at the bulb rises above the adjusted set point. When the temperature falls below the set point by approximately 10 %, the snap-action switch can be unlocked manually.

The electric circuit is opened when the temperature at the bulb falls below -20 °C. The circuit is automatically closed again when the temperature at the bulb rises above -20 °C.

The circuit remains permanently open if the measuring system is broken. It is not possible to unlock the device.

Mounting

Wall mounting or mounting as a contact thermostat using a strap (for 15 to 100 mm pipe diameters)

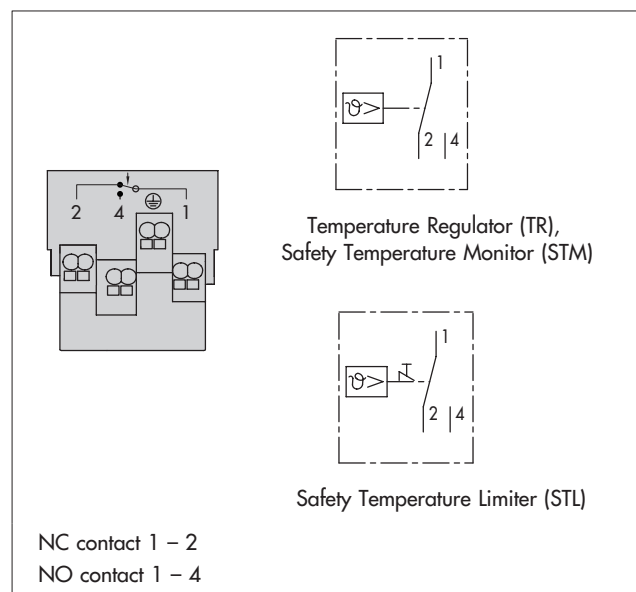
Thermowell mounting with extendable capillary (up to 2000 mm)

Mounting position

Contact thermostat: The thermostat must not be suspended with the bottom of the housing (containing the bulb) facing upwards.

Thermostat with thermowell: Any position is possible.

Electrical connection



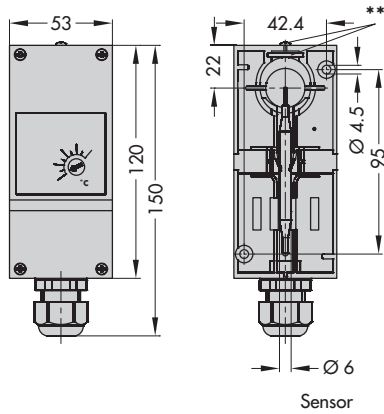
Technical data

Single thermostats: Type 5343 (STM), Type 5344 (TR), Type 5345 (STL)	
Double thermostats: Type 5347 (TR/STL), Type 5348 (TR/STM), Type 5349 (STM/STL)	
Permissible ambient temperature	
Transportation and storage	-30 to +50 °C
Service	Max. +80 °C
Max. pipe temperature when mounted as a contact thermostat	Max. +120 °C
Degree of protection	IP 54 according to EN 60529
Cable entry	M20 x 1.5 cable gland, suitable for 6 to 12 mm cable diameter
Minimum switching capacity	AC/DC = 24 V, 100 mA
Maximum switching capacity	
Safety temperature monitor (STM)	With 230 V AC +10 % NC contact: 16 (2.5) A; cos φ = 1 (0.6) NO contact: 6.3 (2.5) A; cos φ = 1 (0.6)
	With 230 V DC +10 % NC contact: 0.25 A NO contact: 0.25 A
Temperature regulator (TR)	With 230 V AC +10 % NC contact: 16 (2.5) A; cos φ = 1 (0.6) NO contact: 6.3 (2.5) A; cos φ = 1 (0.6)
	With 230 V DC +10 % NC contact: 0.25 A NO contact: 0.25 A
Safety temperature limiter (STL)	With 230 V AC +10 % NC contact: 16 (2.5) A; cos φ = 1 (0.6) Signal contact: 2 (0.4) A; cos φ = 1 (0.6)
	With 230 V DC +10 % NC contact: 0.25 A Signal contact: 0.25 A
Influence of mean ambient temperature based on the set point	A shift of the switching point arises when the ambient temperature at the knob and at the capillary deviates from the calibration ambient temperature of +22 °C: Higher ambient temperature → Lower switching point Lower ambient temperature → Higher switching point This influence is minimized by temperature compensation.
Connection	Spring-clamp terminals, 0.75 to 2.5 mm ² wire cross-section
Materials	
Bottom section of the housing	PA (reinforced)
Housing cover	ABS with window (PMMA)
Bulb and capillary	Cu (copper)
Weight	
Single thermostat	Approx. 0.225 kg
Double thermostat	Approx. 0.45 kg

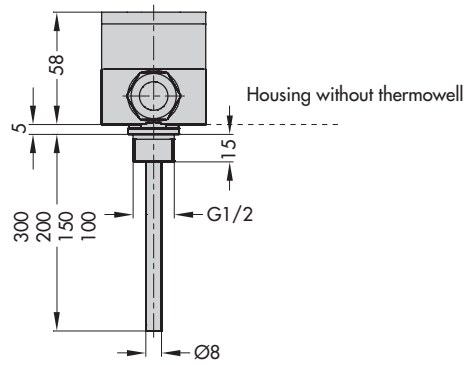
Single thermostat	Function	Set point range	Switching differential	Switching point accuracy			Max. medium temperature
Type 5343-1	STM	0 to +60 °C	Approx. 8 K	Range Range	0 to +30 °C: +0 K +30 to +60 °C: +0 K	-12 K -5 K	+85 °C
Type 5343-2	STM	+40 to +100 °C	Approx. 8 K	Range Range	+40 to +70 °C: +0 K +70 to +100 °C: +0 K	-5 K -12 K	+125 °C
Type 5343-3	STM	+70 to +130 °C	Approx. 8 K	Range Range	+70 to +100 °C: +0 K +100 to +130 °C: +0 K	-5 K -12 K	+155 °C
Type 5343-4	STM	+35 to +90 °C	Approx. 8 K	Range Range	+35 to +65 °C: +0 K +65 to +95 °C: +0 K	-5 K -12 K	+120 °C
Type 5344-1	TR	0 to +120 °C	Approx. 3 K	Range Range	0 to +60 °C: +6 K +60 to +120 °C: +3 K	-6 K -3 K	+145 °C
Type 5344-2	TR	+20 to +150 °C	Approx. 4 K	Range Range	+20 to +85 °C: +6 K +85 to +150 °C: +3 K	-6 K -3 K	+175 °C
Type 5345-1	STL	+70 to +130 °C	Approx. 8 K	Range Range	+70 to +100 °C: +0 K +100 to +130 °C: +0 K	-5 K -12 K	+155 °C
Type 5345-2	STL	+30 to +90 °C	Approx. 8 K	Range Range	+30 to +60 °C: +0 K +60 to +90 °C: +0 K	-5 K -12 K	+115 °C
Double thermostat	Function	Set point range	Switching differential	Switching point accuracy			Max. medium temperature
Type 5347-1	TR/STL	TR: 0 to +120 °C	Approx. 3 K	Range Range	0 to +60 °C: +6 K +60 to +120 °C: +3 K	-6 K -3 K	+145 °C
		STL: +70 to +130 °C	Approx. 8 K	Range Range	+70 to +100 °C: +0 K +100 to +130 °C: +0 K	-5 K -12 K	
Type 5347-2	TR/STL	TR: 0 to +120 °C	Approx. 3 K	Range Range	0 to +60 °C: +6 K +60 to +120 °C: +3 K	-6 K -3 K	+115 °C
		STL: +30 to +90 °C	Approx. 8 K	Range Range	+30 to +60 °C: +0 K +60 to +90 °C: +0 K	-5 K -12 K	
Type 5348-1	TR/STM	TR: 0 to +120 °C	Approx. 3 K	Range Range	0 to +60 °C: +6 K +60 to +120 °C: +3 K	-6 K -3 K	+145 °C
		STM: +70 to +130 °C	Approx. 8 K	Range Range	+70 to +100 °C: +0 K +100 to +130 °C: +0 K	-5 K -12 K	
Type 5348-2	TR/STM	TR: 0 to +120 °C	Approx. 3 K	Range Range	0 to +60 °C: +6 K +60 to +120 °C: +3 K	-6 K -3 K	+125 °C
		STM: +40 to +100 °C	Approx. 8 K	Range Range	+40 to +70 °C: +0 K +70 to +100 °C: +0 K	-5 K -12 K	
Type 5349-1	STM/STL	STM: +70 to +130 °C	Approx. 3 K	Range Range	+70 to +100 °C: +0 K +100 to +130 °C: +0 K	-5 K -12 K	+145 °C
		STL: +70 to +130 °C	Approx. 8 K	Range Range	+70 to +100 °C: +0 K +100 to +130 °C: +0 K	-5 K -12 K	

Single thermostats

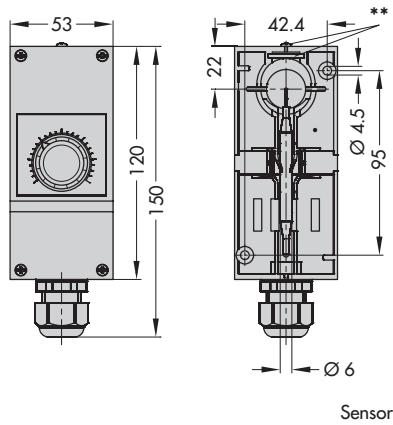
Type 5343 Safety Temperature Monitor (STM)



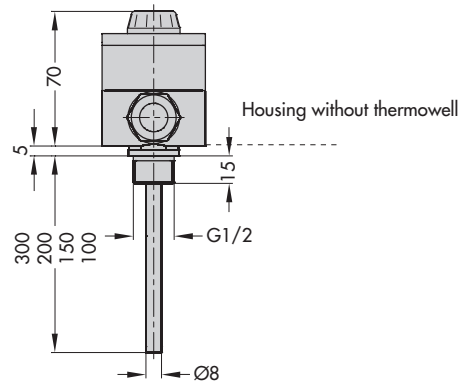
Dimensions with thermowell (accessories)



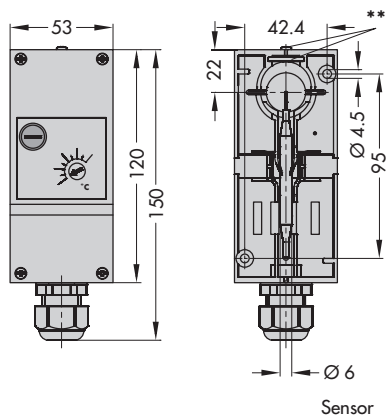
Type 5344 Temperature regulator (TR)



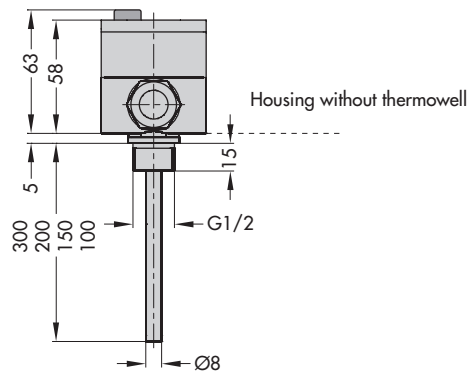
Dimensions with thermowell (accessories)



Type 5345 Safety Temperature Limiter (STL)



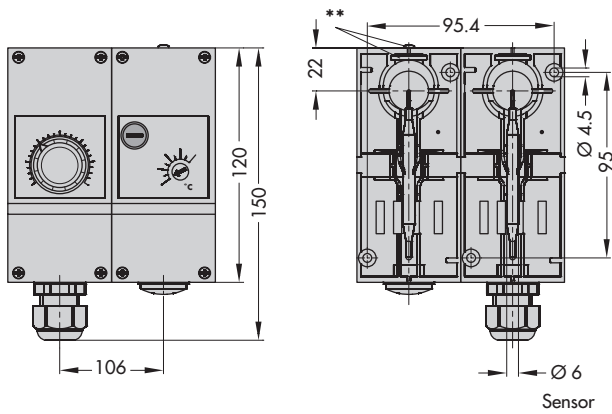
Dimensions with thermowell (accessories)



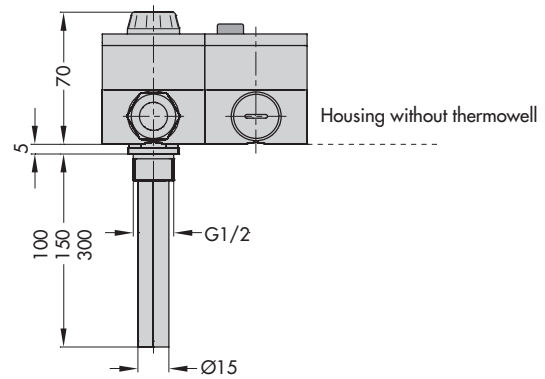
** Metal plate and screw for fastening the thermostat onto the thermowell (wall mounting)

Double thermostats

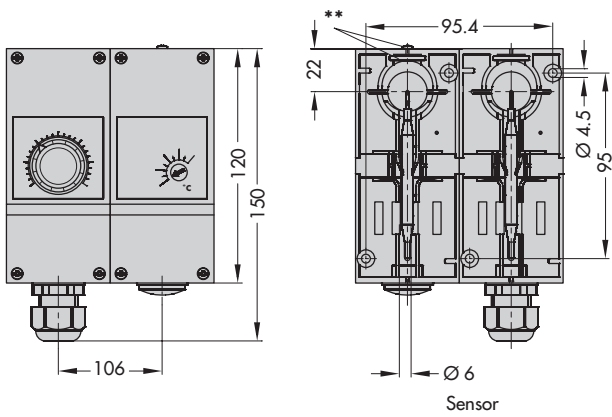
Type 5347 Double Thermostat TR/STL



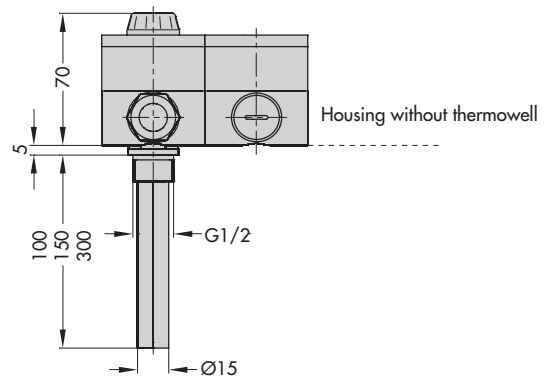
Dimensions with thermowell (accessories)



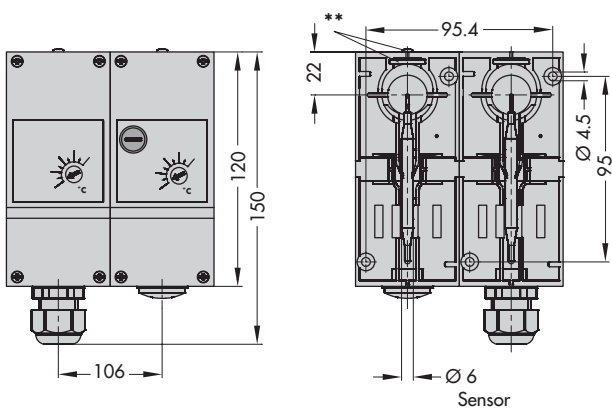
Type 5348 Double Thermostat TR/STM



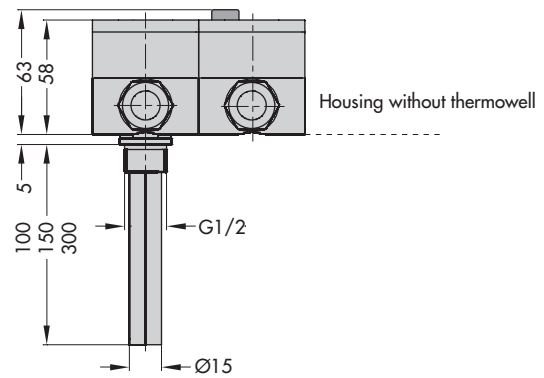
Dimensions with thermowell (accessories)



Type 5349 Double Thermostat STM/STL



Dimensions with thermowell (accessories)



** Metal plate and screw for fastening the thermostat onto the thermowell (wall mounting)

Specifications subject to change without notice.



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2011-09