Set point thermostatic regulating unit

182 series

BS EN ISO 9001:2000 Cert. n° FM 21654
UNI EN ISO 9001:2000 Cert. n° 0003
01190/09 GB

Function

The temperature regulating unit is made to be used in radiant panel systems, in combination with distribution manifolds.
The set point regulating unit performs the function of keeping the flow temperature constant, at the set value, for the medium distributed in a low temperature system for floor radiant panels.
In this particular series, the temperature is regulated by a specific hydraulic unit equipped with a thermostatic three-way valve with a built-in sensor.

Patent application No. MI2006A001935.

CE

Reference documentation

- Tech. broch. 01126 Manifolds in composite specifically designed for radiant panel systems 670 series.

Product range

Code **182**5.1 Pre-assembled set point thermostatic regulating unit with manifolds and box, with UPS 25-60 pump

Technical specifications

Materials

Regulating unit with thermostatic three-way valve

Body:	brass EN 1982 CB753S
Headwork:	brass EN 12164 CW614N
Obturator:	PSU
Seals:	EPDM

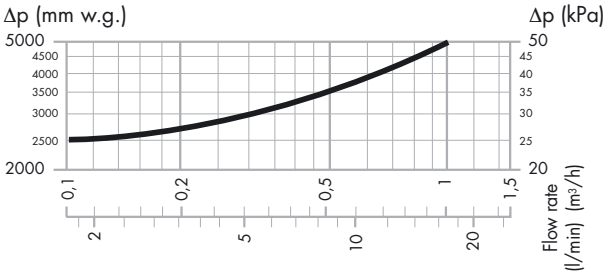
Flow adapter unit

Body:	brass EN 1982 CB753S

Performance

Medium:		water, glycol solutions
Max. percentage of glycol:		30%
Control temperature range:		25–55°C
Accuracy:		±2°C
Primary inlet max. temperature:		90°C
Max. working pressure:		4 bar
Panel manifold differential by-pass setting (code 182000, optional):		25 kPa (2.500 mm w.g.)
Liquid crystal digital thermometer scale:		24–48°C
Pressure gauge scale:		0–10 bar
Connections:	- to regulating unit:	3/4" M with union
	- panel circuit outlets:	3/4" for coupling with adapter code 675850
	- outlet centre distance:	50 mm
	- centre distance between primary circuit connections:	60 mm

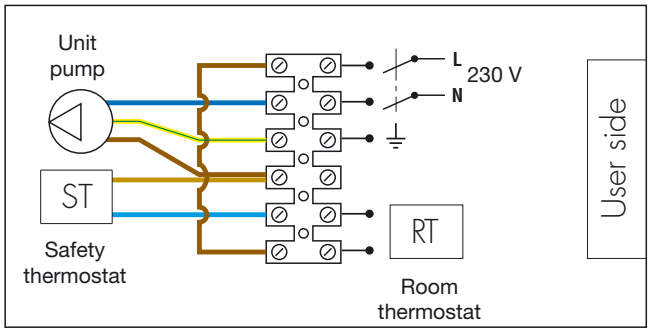
Panel circuit differential by-pass graph



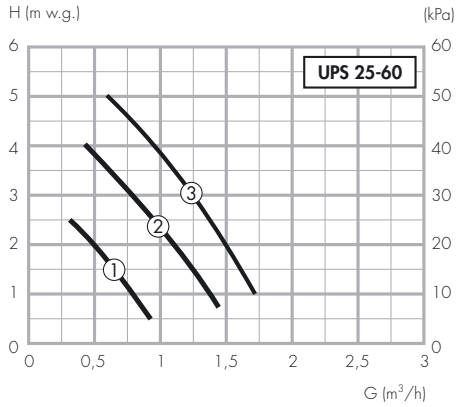
Safety thermostat

Factory set:	55°C ±3°C
Protection class:	IP 55
Contact rating:	10 A / 240 V

Electrical connection diagram



Head available at the regulating unit connections



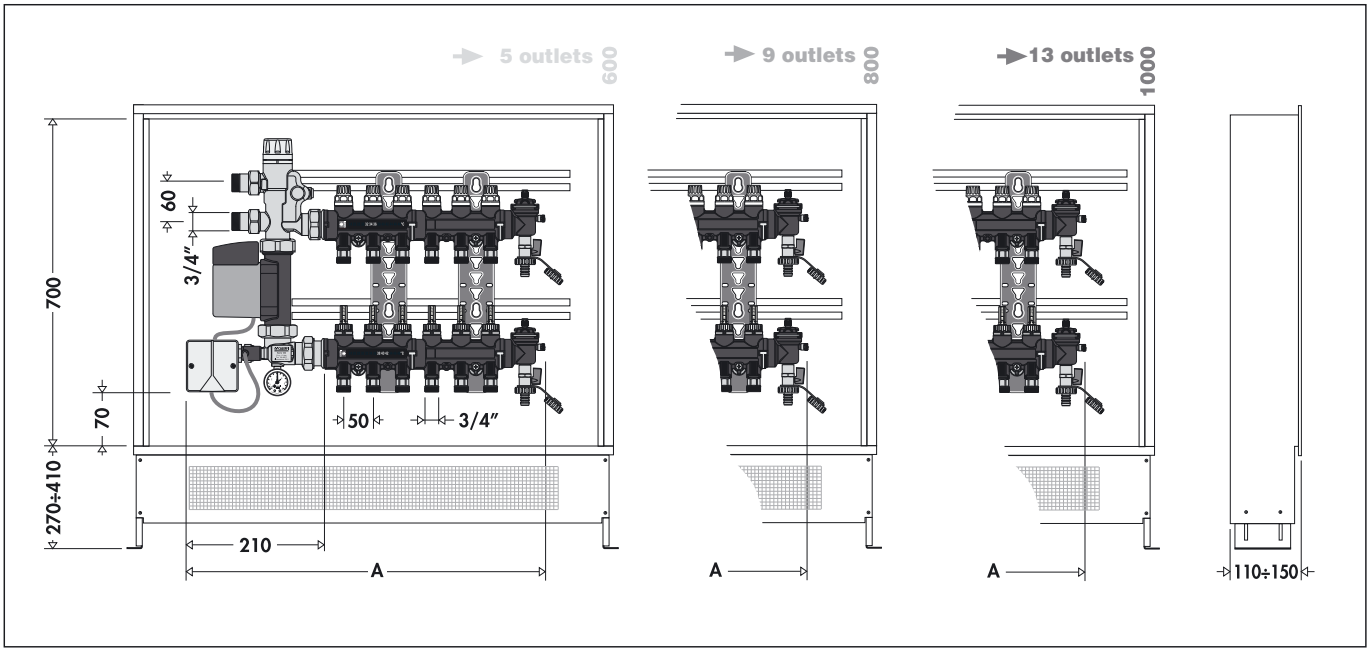
Power consumption

Speed	I (A)	P (W)	n (rpm)
3	0,40	90	1800
2	0,30	65	1100
1	0,20	45	700

Pump

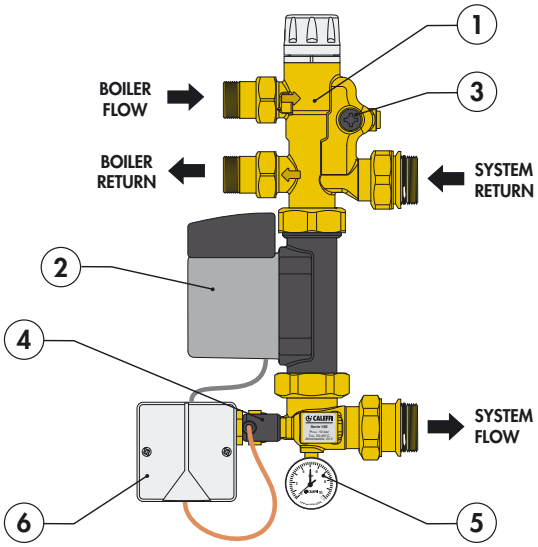
Three-speed pump:	model UPS 25-60
Material: - body:	cast iron GG 15/20
Electric supply:	230 V - 50 Hz
Max. ambient humidity:	95%
Max. ambient temperature:	80°C
Protection class:	IP 44
Pump centre distance:	130 mm
Pump connections:	1 1/2" with nut

Dimensions

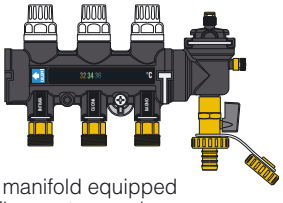


Code	1825C1	1825D1	1825E1	1825F1	1825G1	1825H1	1825I1	1825L1	1825M1	1825N1	1825O1
Panel outlets	3	4	5	6	7	8	9	10	11	12	13
A	435	485	535	585	635	685	735	785	835	885	935

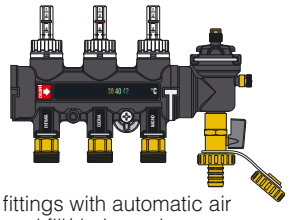
Characteristic components



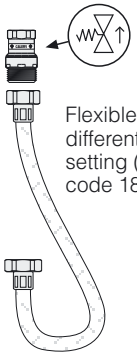
Return manifold equipped with shut-off valves.



Flow manifold equipped with flow meters and balancing valves.



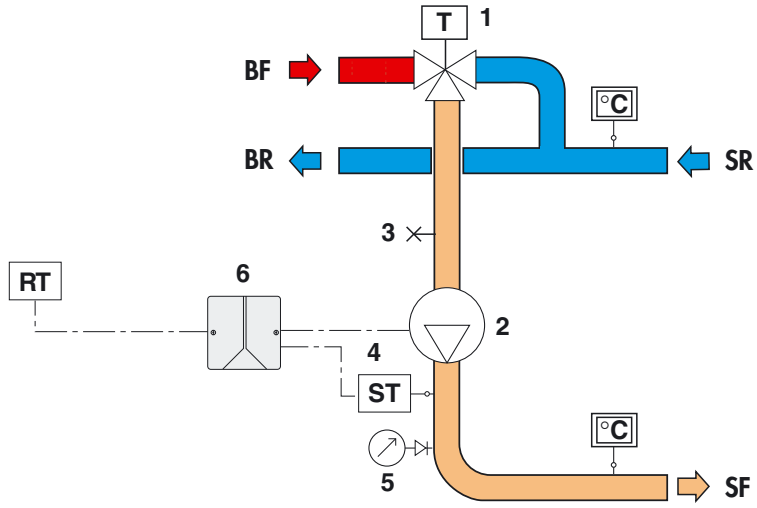
End fittings with automatic air vent and fill/drain cock.

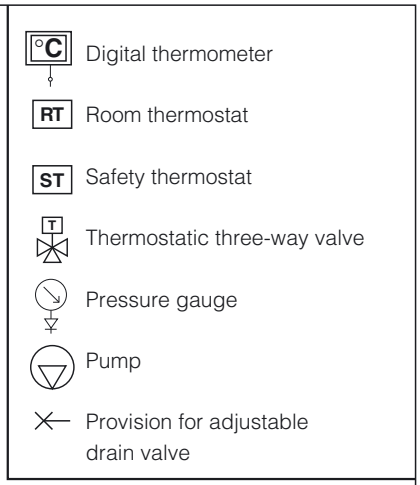


Flexible kit for differential by-pass setting (optional, code 182000)

1. Thermostatic three-way mixing valve with built-in sensor
2. Three-speed circulation pump UPS 25-60
3. Provision for adjustable drain valve
4. Safety thermostat
5. Pressure gauge
6. Electrical wiring case

Hydraulic diagram





Operating principle

The regulator element inside the thermostatic three-way valve consists of a temperature sensor (1) fully immersed in the mixed water outlet chamber. By expanding and contracting, it continuously ensures a correct proportioning of hot water, coming from the boiler, and water returning from the panel circuit.
The water intake is regulated by a shaped obturator (2) that slides inside a special cylinder placed between the hot water flow (3) and the water returning from the circuit (4).
Even if the thermal load of the secondary circuit or the inlet temperature from the boiler change, the mixing valve automatically adjusts the flow rates until it obtains the set temperature.

Construction details

Regulating unit body
The valve body, containing the temperature regulating device, is made out of a single casting with connections to the primary and secondary circuits. A specific internal channel carries the system return medium to the regulating valve, making it possible for the unit to be smaller in size and easy to connect.

Reduced head losses
The three-way mixing valve is equipped with a special obturator that acts on calibrated water orifices. This ensures a high flow rate and a reduced size, while maintaining accurate temperature control.

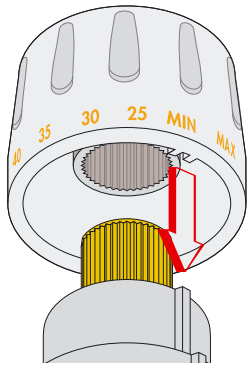
Non-sticking materials
The materials used for the mixing valve construction eliminate potential sticking due to scale. All functional parts, such as the obturator, valve seats and guides, have been made using a special material with low friction coefficient, which ensures performance over time.

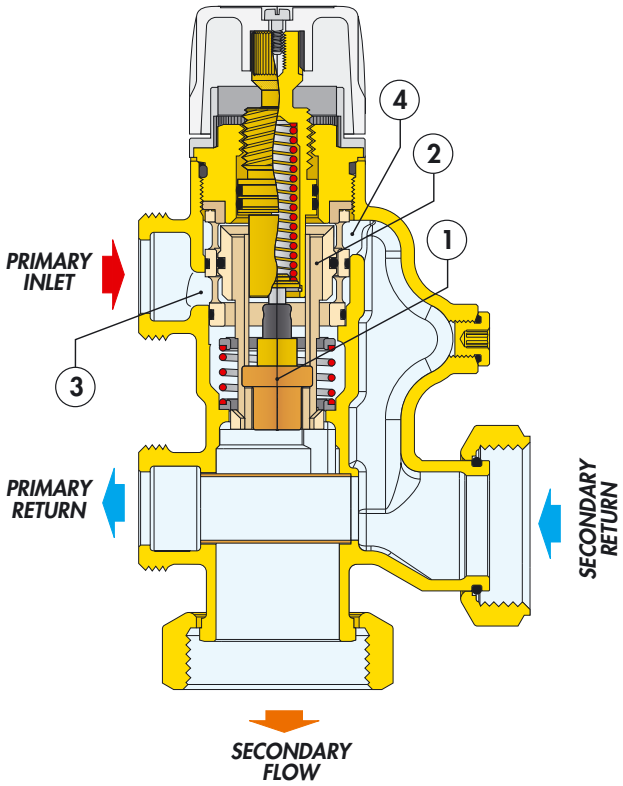
Low-inertia thermostatic sensor
The temperature-sensitive element, the “engine” of the thermostatic three-way valve, has low thermal inertia; in this way it can quickly react to changes in the conditions of inlet pressure and temperature, shortening the valve response time as the thermal load changes.

Temperature adjustment and locking
The control knob is used to adjust temperature in a full turn (360°) between min. and max. It also has tamper protection for locking the temperature at the set value.

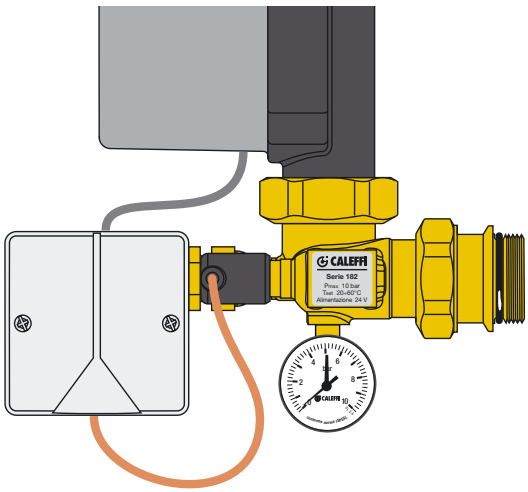
Adjustment locking

Turn the knob onto the required number, unscrew the upper screw, remove the knob and put it back on so that the internal reference couples with the protrusion on the knob carrier ring nut.



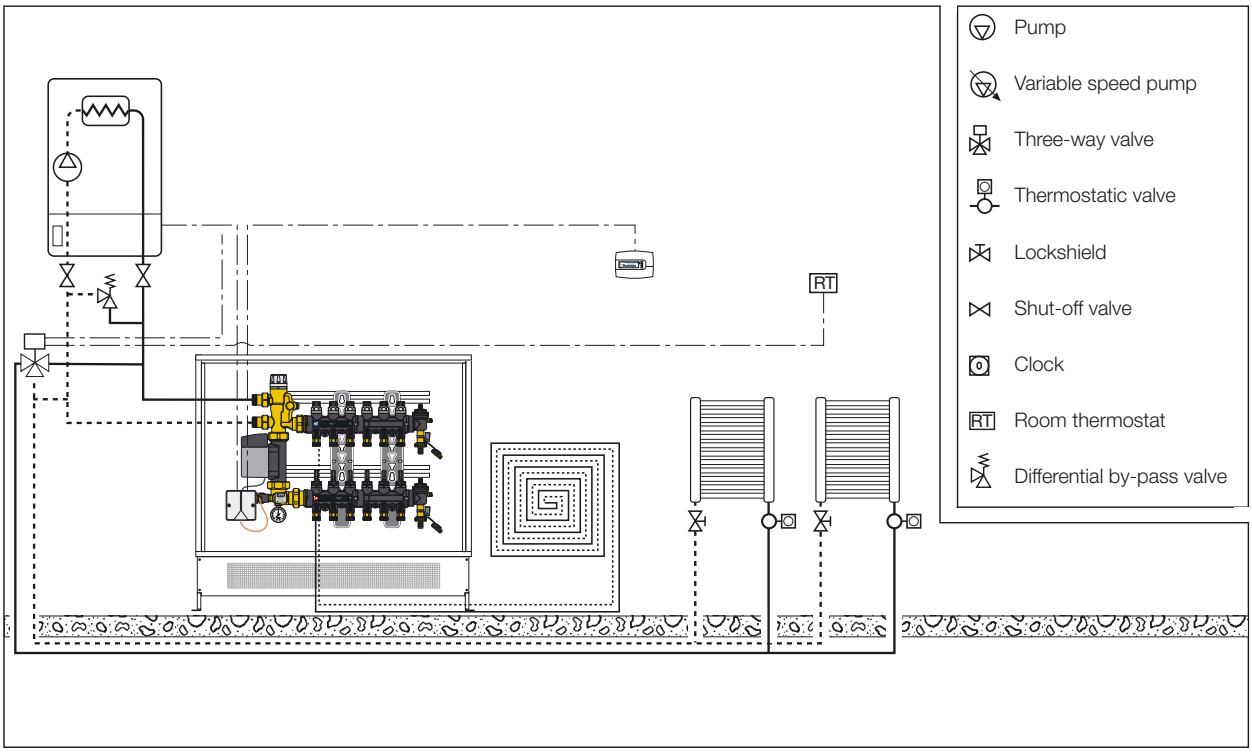


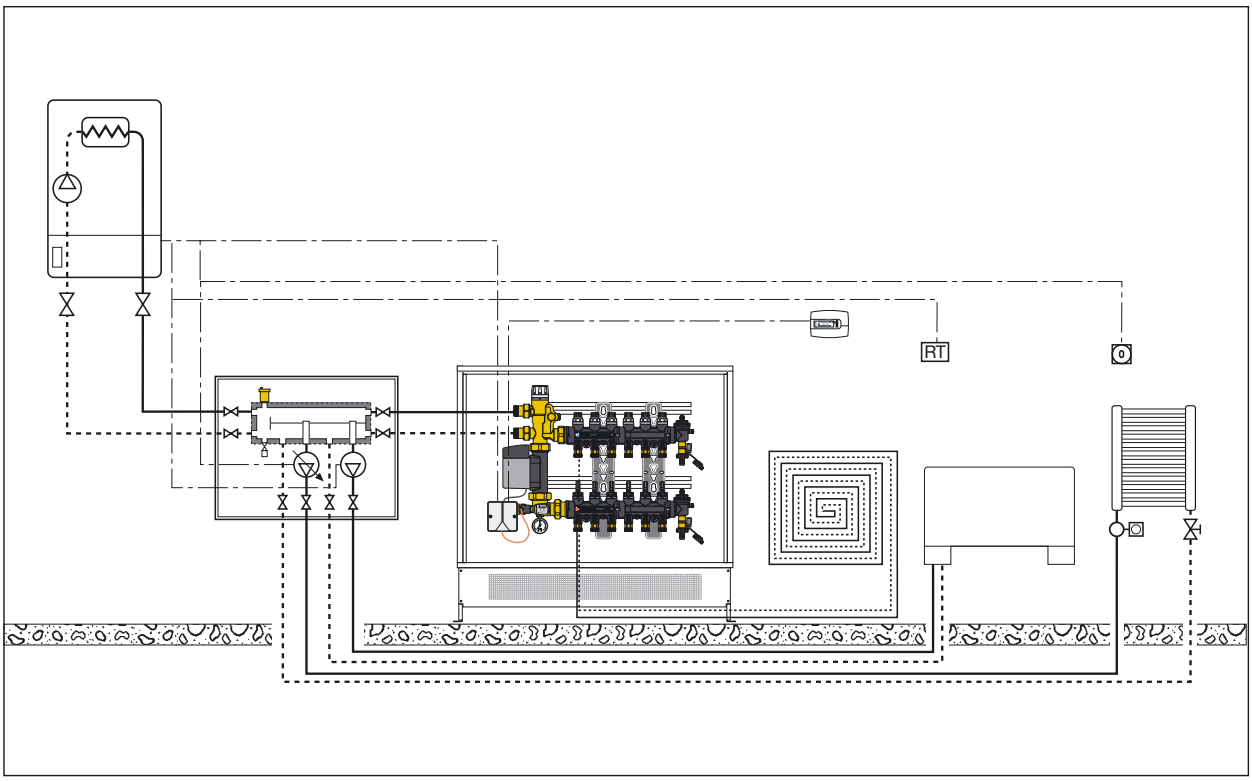
Flow unit
The flow unit is made out of a single casting with the necessary ports to connect with the functional components such as the safety thermostat and the pressure gauge.



Safety thermostat
We recommend the safety thermostat is connected to the heat generator so that the electric supply is cut off when the triggering temperature is reached. To do so, connect the two safety thermostat wires directly to the generator and create an electrical jumper between the two contacts on the terminal board for unit 182, previously connected to the safety thermostat.

Application diagrams





SPECIFICATION SUMMARY

182 series

Set point thermostatic regulating unit. Connections to the regulating unit 3/4" M with union. Panel circuit outlet connections 3/4" for coupling with adapter code 675850. Medium water and glycol solutions; maximum percentage of glycol 30%. Adjustment temperature range 25–55°C. Maximum temperature at primary circuit inlet 90°C. Maximum working pressure 4 bar. Panel manifold differential by-pass setting (optional, code 182000) 25 kPa. Liquid crystal thermometer scale 24–48°C. Pressure gauge scale 0-10 bar.

Complete with: flow manifold for panel system with 3 outlets (from 3 to 13) with PA66GF body, flow rate regulating valve with flow meter with a scale of 1–4 l/min; return manifold for panel system with 3 outlets (from 3 to 13) with PA66GF body, shut-off valve. Regulating unit with thermostatic three-way valve with brass body and headwork, PSU obturator and EPDM seals. Flow adapter unit with brass body. Electric supply 230 V - 50 Hz. Safety thermostat: factory set 55°C ±3°C, protection class IP 55, contact rating 10 A / 240 V. Three-speed UPS 25-60 pump, protection class IP 44. Supplied preassembled in painted steel box. Closure with a push-fit clamp. Depth adjustable from 110 to 150 mm, including floor supports adjustable in height from 270 to 410 mm.

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