

# Motorised temperature regulating unit for heating and air conditioning systems



01254/17 GB  
replaces dp 01254/14 GB

## 167...WYP - 167...UPM series



### Function

The motorised temperature regulating unit **is configured for use with an outside compensated or modulating temperature regulator to control the flow temperature** in heating and air conditioning systems.

Complete with motorised three-way mixing valve, flow and return temperature gauges, secondary circuit shut-off valves and pre-formed shell insulation.

This unit can be coupled to the 559 series SEPCOLL separator/distribution manifold with 125 mm centre distance connections, cooling version.

### Product range

#### Upward flow, flow on RH side Downward flow, flow on LH side

Code 167640WYP	Motorised temperature regulating unit for heating and air conditioning. With YONOS PARA 25/6 RKA pump. Centre distance 125 mm _____	size DN 25 (1")
Code 167641UPM	Motorised temperature regulating unit for heating and air conditioning. With UPML 25-95 pump. Centre distance 125 mm _____	size DN 25 (1")

#### Upward flow, flow on LH side Downward flow, flow on RH side

Code 167650WYP	Motorised temperature regulating unit for heating and air conditioning. With YONOS PARA 25/6 RKA pump. Centre distance 125 mm _____	size DN 25 (1")
Code 167651UPM	Motorised temperature regulating unit for heating and air conditioning. With UPML 25-95 pump. Centre distance 125 mm _____	size DN 25 (1")

### Technical specifications

#### Materials

<b>Temperature regulating unit with motorised three-way valve</b>	
Body:	brass EN 12165 CW617N
Headwork:	brass EN 12164 CW614N
Obturator:	brass EN 12164 CW614N
Seals:	EPDM

#### Connection pipes

Material:	Fe 360 steel
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#### Check valve

Body:	brass EN 12164 CW614N
Obturator:	PPAG40

#### Shut-off valves

Body:	brass EN 12165 CW617N
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#### Actuator technical specifications

Synchronous motor:	three-point type
Electric supply:	230 V (ac)
Power consumption:	6 VA
Auxiliary microswitch contact rating:	6 (2) A (230 V)
Protection class:	IP 65
Operating time:	50 s (90° rotation)
Length of power cable:	0.8 m
Dynamic torque:	9 N·m

#### Performance

Medium:	water, glycol solutions
Maximum percentage of glycol:	30%
Maximum working pressure:	10 bar
Primary inlet working temperature range:	5–100°C
Connections:	- system side: 1" F (ISO 228-1)
	- boiler side: 1 1/2" M (ISO 228-1)
	- connections centre distance: 125 mm

#### Insulation

Material:	closed cell expanded PE-X
Density:	- internal part 30 kg/m <sup>3</sup> - external part 50 kg/m <sup>3</sup>
Thermal conductivity (DIN 52612):	- at 0°C, 0,038 W/(m·K) - at 40°C, 0,045 W/(m·K)
Coefficient of resistance to water vapour diffusion (DIN 52615):	>1300
Working temperature range:	0–100°C
Reaction to fire (DIN 4102):	class B2

#### Pump

High efficiency pump:	
- code 167...WYP:	WILO YONOS PARA 25/6 RKA
- code 167...UPM:	Grundfos UPML 25-95
Body:	cast iron
Electric supply:	230 V - 50/60 Hz
Max ambient humidity/temperature:	see specific instruction sheet
Protection class:	
- YONOS PARA 25/6 RKA:	IPX4D
- UPML 25-95:	IPX2D
Pump centre distance:	130 mm
Pump connections:	1 1/2" (ISO 228-1) with nut

#### Temperature gauges

Double scale:	0–80°C (32–176°F)
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#### Safety thermostat kit for heating code 165004 (optional)

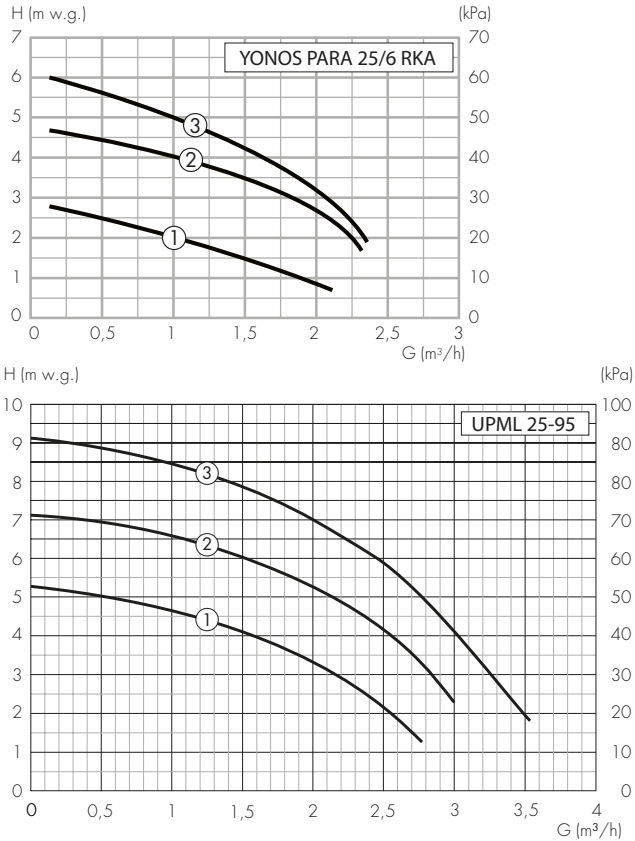
Setting temperature:	55°C ±3
Protection class:	IP 65
Contact rating:	10 A / 240 V

#### Safety thermostat kit for air conditioning code 165007 (optional)

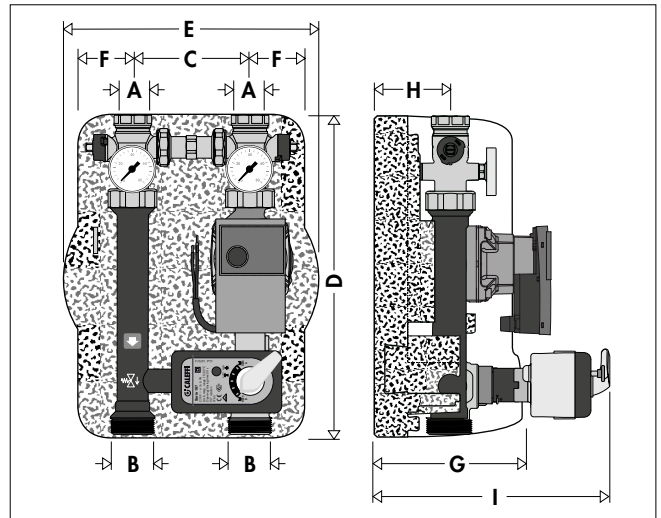
Setting temperature:	10°C ±3
Protection class:	IP 65
Contact rating:	10 A / 240 V

## Head available at the regulating unit connections

Test performed with constant pressure control



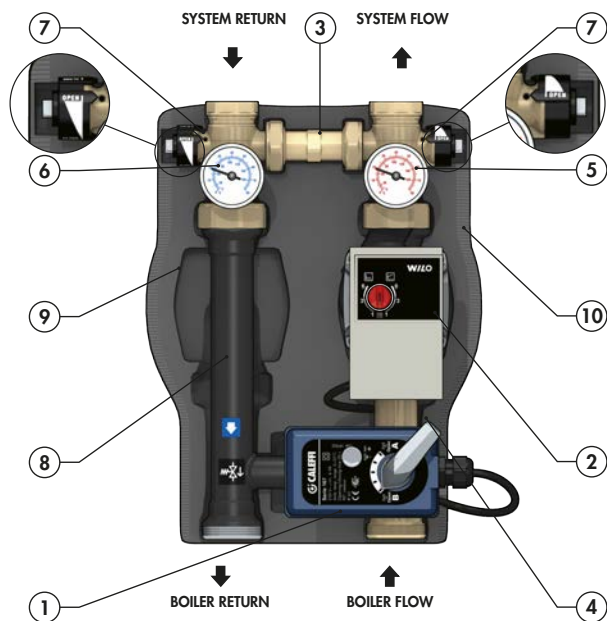
## Dimensions



Code	DN	A	B	C	D	E	F	G	H	I	Mass (kg)
1676.0 WYP	25	1"	1 1/2"	125	380	255	55	205	35	210	6,0
1676.1 UPM	25	1"	1 1/2"	125	360	235	55	205	35	225	7,0

### Note:

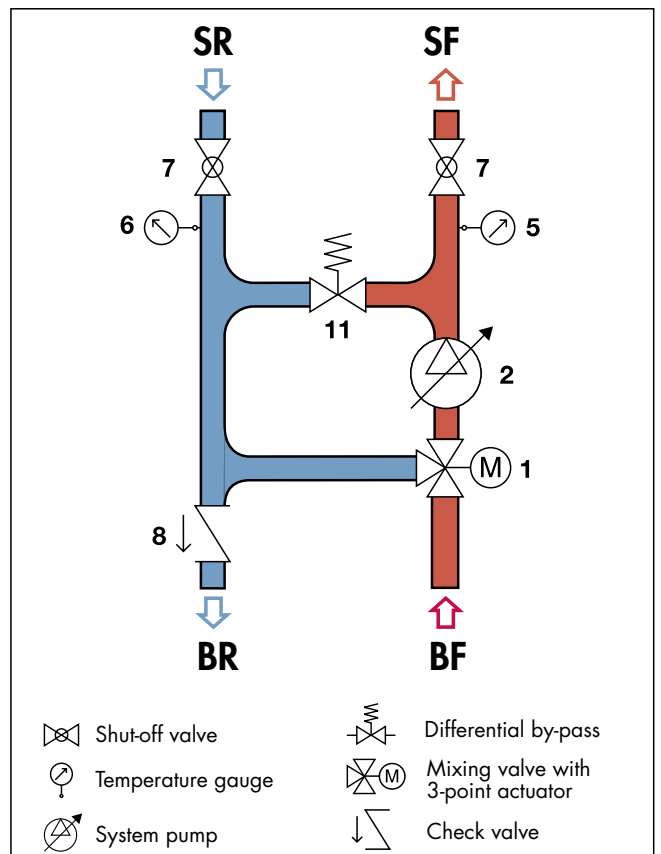
The pumps can operate with constant or proportional pressure control, which adapts the performance to system requirements. For further details, see the installation instruction sheet of the pumps in the package.



### Characteristic components

- 1 Mixing valve with 3-point actuator
- 2 WILO YONOS PARA 25/6 RKA or Grundfos UPML 25-95 pump
- 3 Blind spacer (closed)
- 4 Regulator probe connection
- 5 Flow temperature gauge
- 6 Return temperature gauge
- 7 Secondary circuit shut-off valves
- 8 Connection pipe (with check valve)
- 9 Operating spanner for shut-off valves on secondary circuit
- 10 Insulation
- 11 Optional differential by-pass (see tech. broch. 01239)

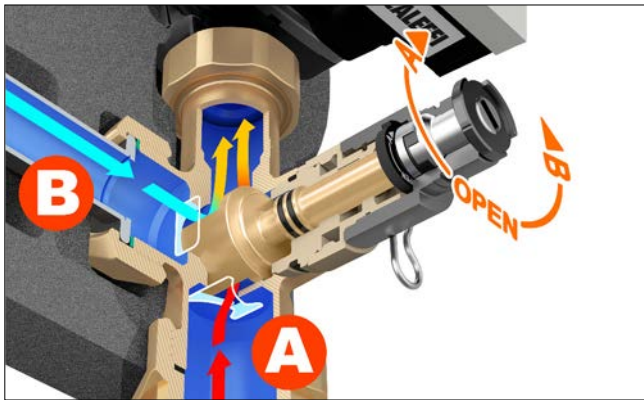
### Hydraulic diagram



**Construction details**

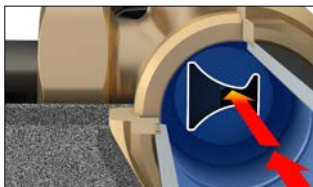
**Mixing valve**

The mixing valve is a three-way model with sector obturator featuring adjustment and by-pass ports specifically constructed to obtain equipercantage/linear characteristics. This adjustment characteristic guarantees the best possible system response to the various load conditions.



Adjustment port - A

By-pass port - B

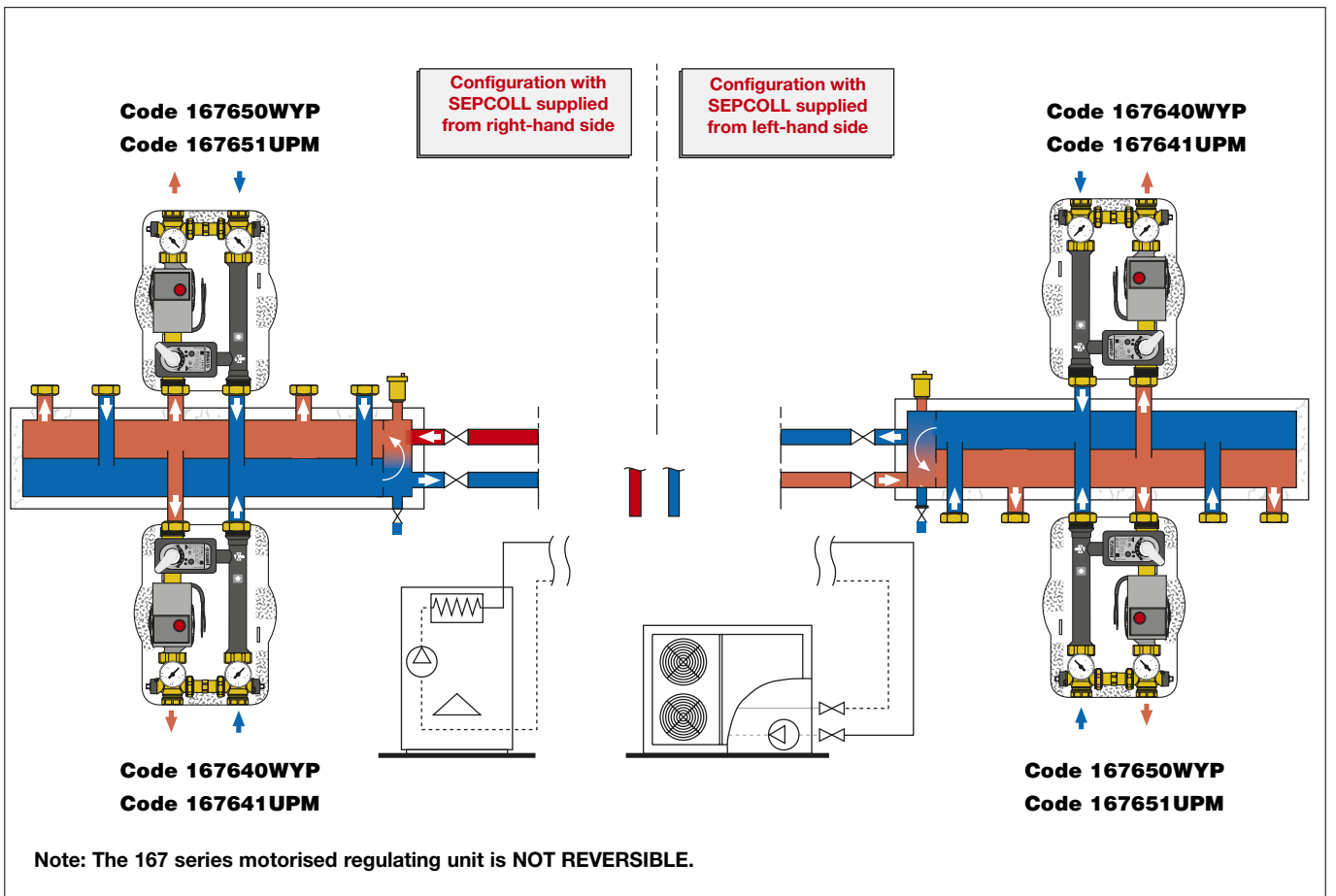


**Thermal decoupler**

Between the valve body and the actuator there is a polymer thermal decoupler, which contains two stainless steel stems and a central insulating ring. This prevents the transmission of heat from the electric actuator to the thermal medium. This prevents condensation build-up inside the actuator.



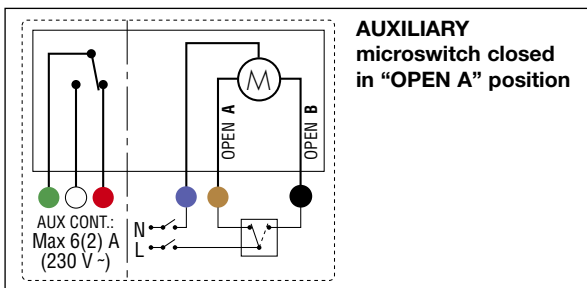
**Installation**



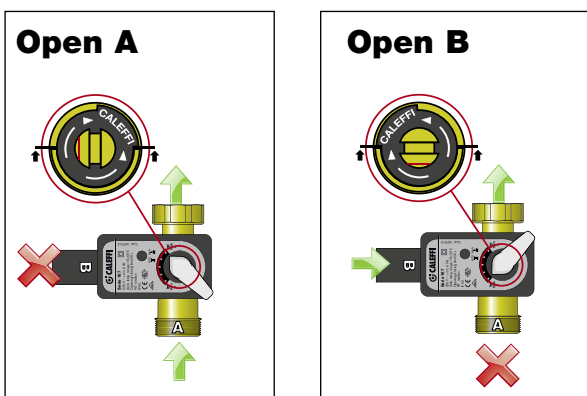
### Mixing valve operating principle

**UPWARD flow version. Flow on RH side.**  
**DOWNWARD flow version. Flow on LH side.**  
 Code 167640WYP - 167641UPM

#### Wiring diagrams

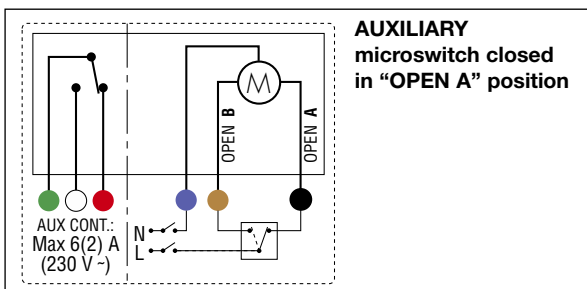


#### Mixing valve actuator operating principle

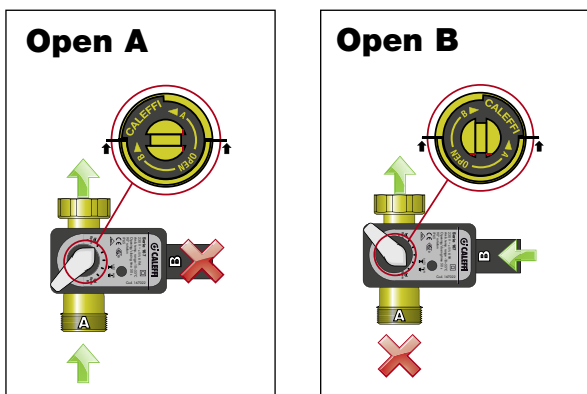


**UPWARD flow version. Flow on LH side.**  
**DOWNWARD flow version. Flow on RH side.**  
 Code 167650WYP - 167651UPM

#### Wiring diagrams



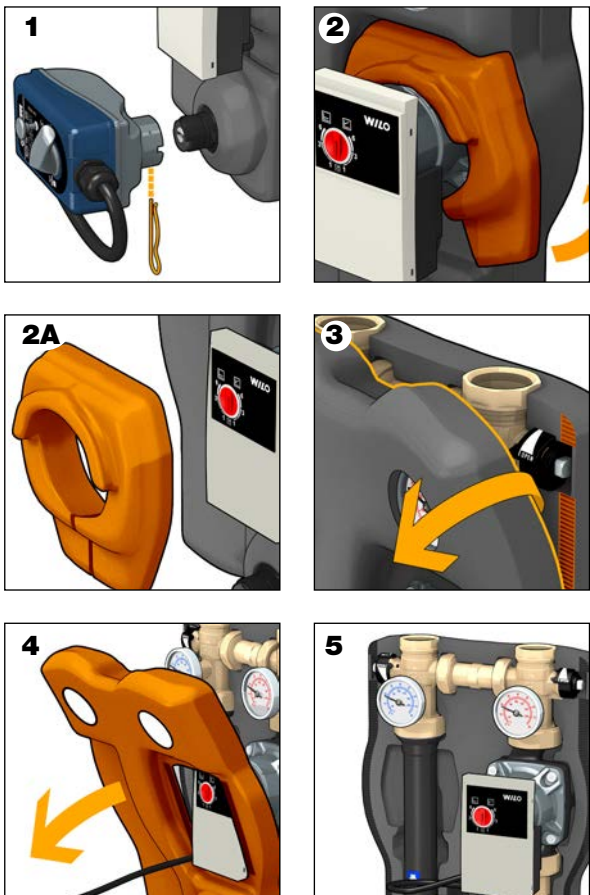
#### Mixing valve actuator operating principle



### Unit installation

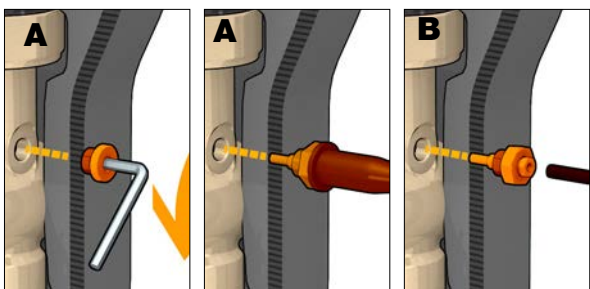
#### Removing the insulation

- 1) Extract the clip from the base of the actuator.
- 2) Remove the circulator protective insulation. Figure (2A) shows a detail of the correct positioning of the circulator protective shell.
- 3) Remove the front of the unit's insulation. The two half shells are held together by a strip of Velcro.
- 4) Remove the front half shell, making the circulator pass through it. The power cable enters through the hole in the insulation (pay attention to this detail during the reassembly procedure).
- 5) The unit is ready to install. To refit the insulation, perform the steps in reverse order.



#### Regulator probes positioning

- A) For combination with the Caleffi modulating digital regulator for heating and cooling code 161010, unscrew the associated plug using a 4 mm Allen wrench and screw the flow probe (supplied with the regulator) into the threaded hole, as shown in the figure.
- B) For combination with the Caleffi temperature regulator for heating and cooling code 152021, unscrew the associated plug using a 4 mm Allen wrench and screw in the probe pocket (supplied) in its place. Insert the probe directly into the pocket.



## Hydraulic separators-manifolds



### 559331 SEPCOLL 3+1.

Hydraulic separator-manifold for heating and air conditioning systems.

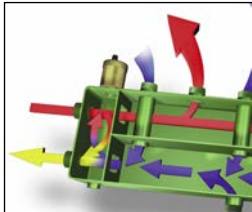
Centre distance: 125 mm. Steel body, PN 6. **With insulation.**  
1 1/4" F main connections.  
1 1/2" outlet connections with captive nut:  
three at the top and one at the bottom (can be inverted).  
Working temperature range: 0–100°C.  
Complete with mounting bracket.



### 559320 SEPCOLL 2.

Hydraulic separator-manifold for heating and air conditioning systems.

Centre distance: 125 mm. Steel body, PN 6. **With insulation.**  
1" F main connections. Outlet connections:  
two 1 1/2" connections at top with captive nut.  
Working temperature range: 0–100°C.  
Complete with mounting bracket.



#### Maximum recommended flow rates at the inlets of SEPCOLL separator 559 series

Outlets	Primary	Secondary (total)
2	2 m³/h	5 m³/h
3+1	2,5 m³/h	6 m³/h



559331



559320

## Regulators



### 161

Digital regulator with synoptic diagram for heating and cooling complete with immersion flow probe with pocket and return probe Pt 1000 Ø 6 mm. Optional outside compensated probe.  
Temperature adjustment range: 5–95°C.  
Supply: 230 V - 50/60 Hz.  
Protection class: IP 20 / EN 60529.  
Probe cable length: 1,5 m.



Code

161010



### 161 tech. broch. 01329

Dew point sensor.  
Working range: 30–100 RH%.



Code

161004



### 1520

Digital temperature controller for heating and cooling. Complete with flow probe, outside probe and limit relative humidity probe.  
Electric supply: 230 V - 50/60 Hz.  
Power consumption: 5,5 VA.  
Protection class: IP 40.



Code

152021 1 channel

## Accessories



### 165

Safety thermostat kit.  
Protection class: IP 65.  
M4 threading.

Code

Setting

165004 55°C ±3

165007 10°C ±3



### 165003

Sensor holder extension.  
Connections 1" M x 1" F.  
Side connections M4 F x M4 F x 1/8" F x 1/4" F.

The safety thermostats are used to control the maximum and minimum flow temperature to the system. To facilitate the positioning of the bulbs, the sensor holder extension **code 165003** can be installed on the regulating unit flow line.



## Wiring diagram

For safety thermostat electric connection details, please refer to the documentation corresponding to the three-point regulator.

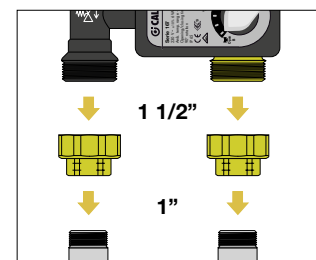


### 165002

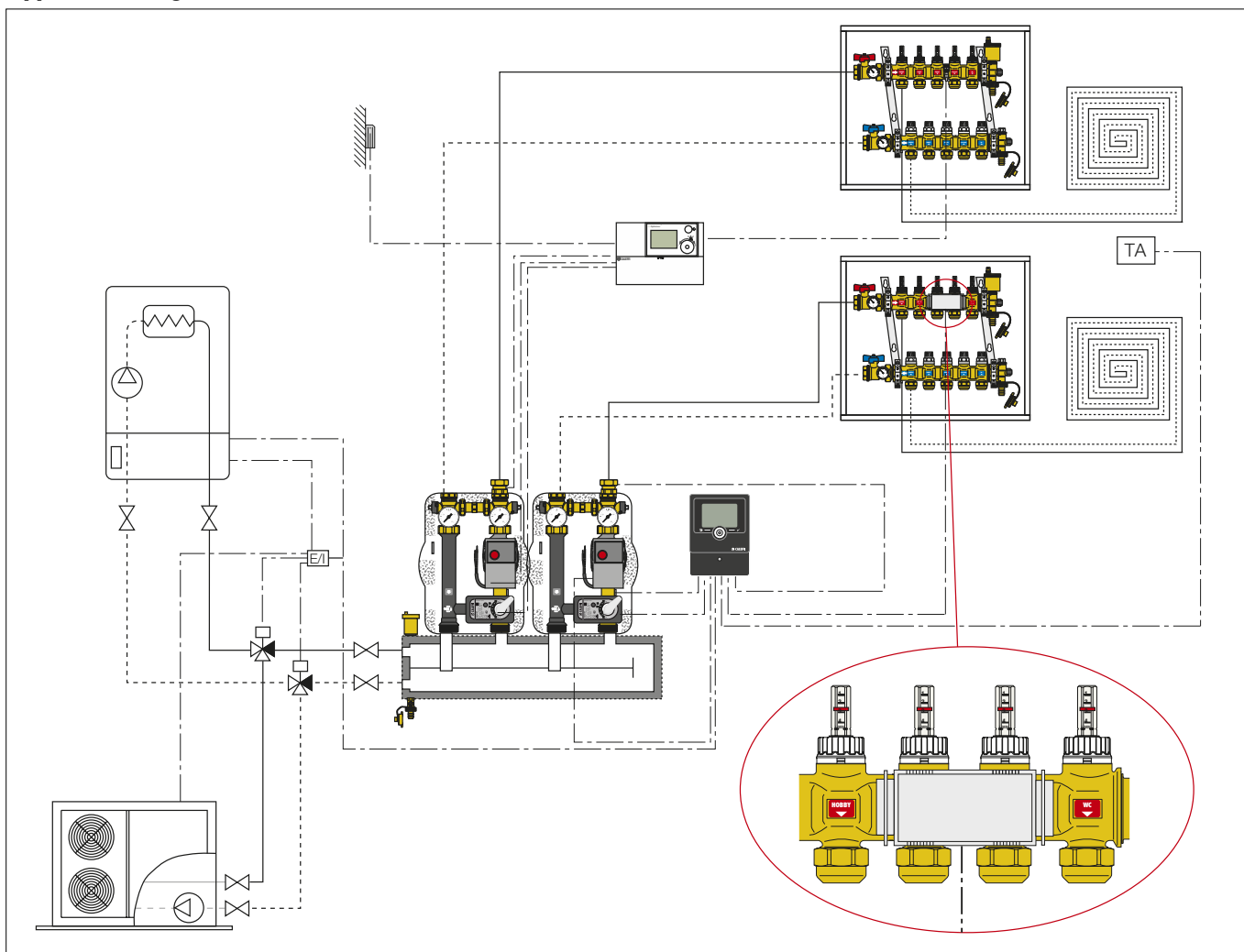
Female union with captive nut, complete with seal.  
Connections: 1 1/2" F with captive nut x 1" F.

## Installation example

The union with captive nut allows installation of the 167 series unit on any 1" M pipe.



## Application diagrams



## SPECIFICATION SUMMARY

### 167...WYP - 167...UPM series

Motorised temperature regulating unit for heating and cooling systems. Configuration with upward flow and flow on right hand side (or upward flow and flow on left hand side). Connections to primary circuit 1 1/2" M (ISO 228-1). Connections to secondary circuit 1" F (ISO 228-1). Connection centre distance to the primary and secondary circuit 125 mm. Primary inlet working temperature range 5–100°C. Maximum working pressure 10 bar. Complete with: motorised three-way mixing valve, brass body, brass obturator. Three-point actuator, electric supply 230 V - 50/60 Hz, protection class IP 65. YONOS PARA 25/6 RKA (UPML 25-95) high efficiency pump, protection class IPX4D (UPML 25-95 IPX2D); temperature gauges with double scale 0–80°C (32–176°C); secondary circuit shut-off valves. With pre-formed shell insulation in closed-cell expanded PEX.

#### Code 165004

Safety thermostat kit for heating, setting temperature 55°C, protection class IP 65.

#### Code 165007

Safety thermostat kit for cooling, setting temperature 10°C, protection class IP 65.

#### Code 165002

Female union with captive nut, complete with seal. Connections 1 1/2" F x 1" F (ISO 228-1).

#### Code 165003

Sensor holder extension. Connections 1" M x 1" F (ISO 228-1) with captive nut.

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