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V30

Installation
Operation
Commissioning
Maintenance

CIAT

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General information

CIAT's V30 control is designed for use with system-powered air conditioning terminal units *(fan-coil units, UTA, cassettes etc.)* in 2 pipe, 2 pipe/2 wire or 4 pipe applications using recirculated air.

There are two types of V30 controls:

- those controlled by air acting on the ventilation
- those controlled by water acting on 230V thermo motor valves and on the ventilation.

V30 is available in a wall-mounted version *(to be connected by the installer)* or built-in version *(fitted and connected in the factory)*

N.B.: built-in version on Major Line CV, vertical casing

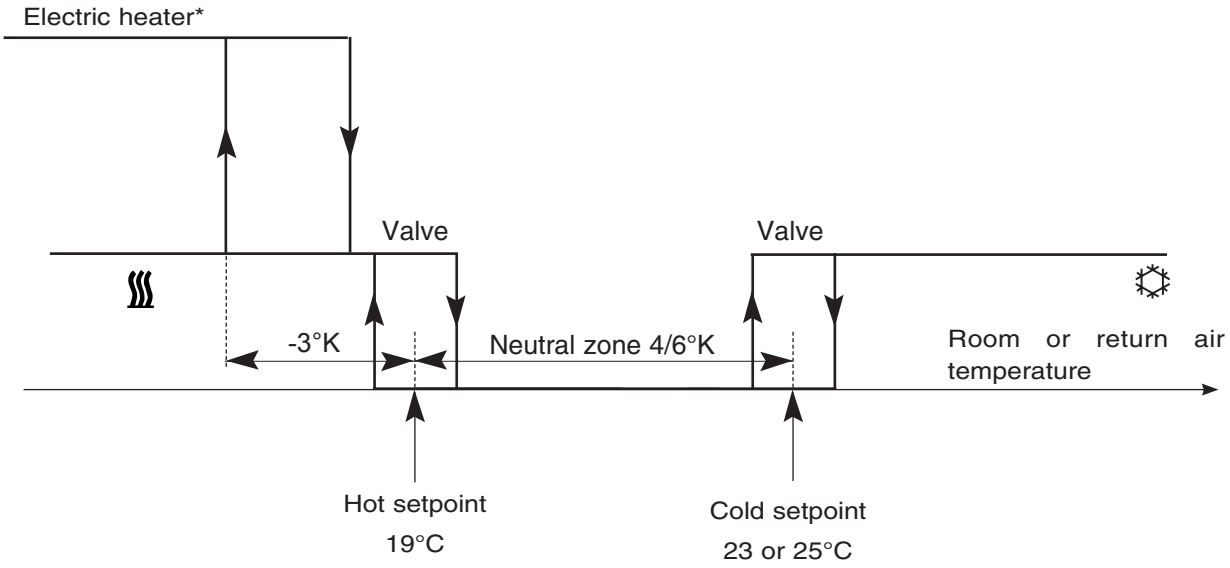
For a 2 way or 4 way valve kit, the switches located at the rear of the V30 thermostat must be reset *(see section entitled "Switch settings").*

Main functions:

- Controls a manual 3-speed fan.
- Automatic heating/cooling switching with changeover sensor.
- Potential-free input for a window contact, timer or presence sensor.
- Three speeds: Comfort/Economy/Frost protection.

Operation

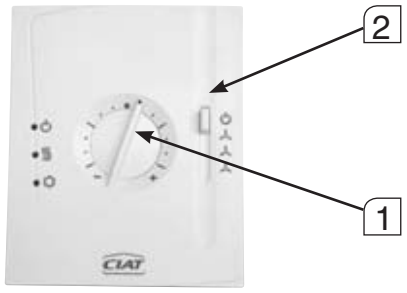
On/off control.

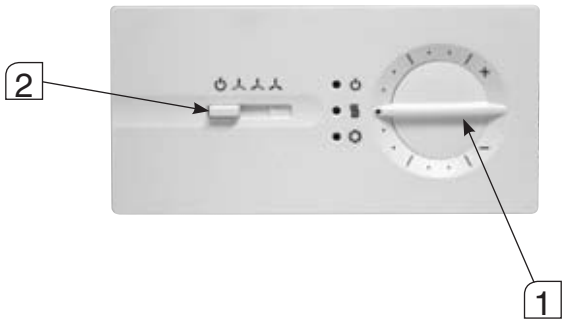


* See possible applications for electric heater management *(Section entitled: Electric heater management)*

Operating instructions

Wall-mounted unit with dial





Built-in unit *(connected to the fan coil unit)* with dial

Setting the setpoint temperature:

The setpoint temperature can be set by adjusting the ± on the dial 1

- On the comfort setting, at the centre point, the hot setpoint is 19°C and the cold setpoint is 23°C or 25°C. The setpoint values can be set within a range of ± 6°C.
- The neutral zone is 4 or 6K depending on the setting selected.
- On the economy setting, both the hot and cold setpoints are automatically offset by 5°C in relation to the comfort setpoint indicated by the position on the dial
- The frost protection setpoint is set to 8°C

Setting the fan:

- The user may choose between 3 manual fan speeds by using the button Special information for controlling an electric heater button:
- If the user selects the low fan speed, the electric heating cycle rate is limited to 50%.
- If the user selects the medium speed, the cycle rate is limited to 80%.

Limiting the cycle rate prevents the appliance from overheating.

Note on Neutral zone fan in Comfort mode only:

Setting: S.6=OFF: stop fan in neutral zone: with a built-in unit and S.6=OFF, periodic ventilation is carried out every 60 minutes and engages the fan for 1 minute on low speed.

This periodic ventilation prevents stratification and enables better irrigation of the return sensor.

This sequence is also carried out on the wall-mounted thermostat, if a return air temperature sensor is connected to terminals 8-9.

Setting S.6 = ON: Permanent ventilation in deadband:
The fan continues to operate at the speed set using the selector

Post ventilation safety period:

This is activated automatically in the following phases:
- When exiting heating or cooling mode, the fan continues to operate at low speed for approximately 2 minutes, thereby ensuring post ventilation safety.
- When the thermostat is stopped (position ⏻) there is also a 2-minute post ventilation safety period at low speed.

Because post ventilation is a safety measure, once started it will override all of the controller's other actions. If the On/Off selector and/or dial are moved while the post ventilation safety process is active on the controller, the V30 will remain inoperative until the 2-minute period has elapsed. Once the safety period is complete, the V30 starts operating again normally in heating or cooling mode, or at the selected speed.

Setting the operating speed:

Position ⏻ automatically changes the thermostat to frost protection mode *(+8°C) (with fan on low speed only)*.

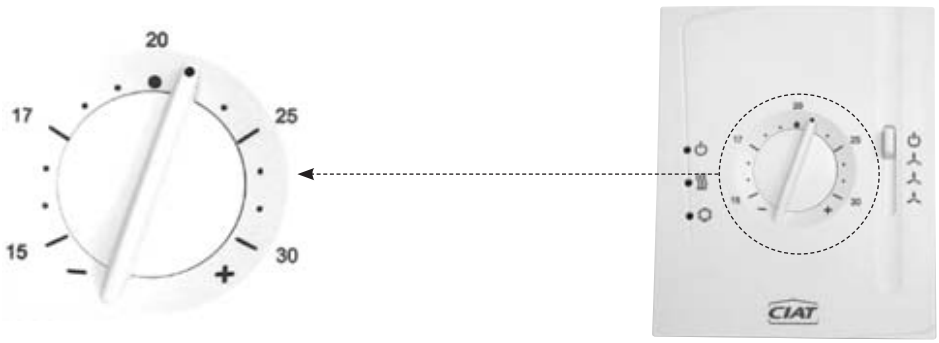
Setting the Summer/Winter changeover:

The summer/winter changeover can be set in two different ways:

- Automatically, using the changeover sensor which measures water temperature
- Remotely using a control line *(On/Off switch)*.
  - ■ Switch open: COOLING mode
  - ■ Switch closed: HEATING mode

■ **Wall thermostat, hotel version**

A version is available with graduation in degrees on the dial.



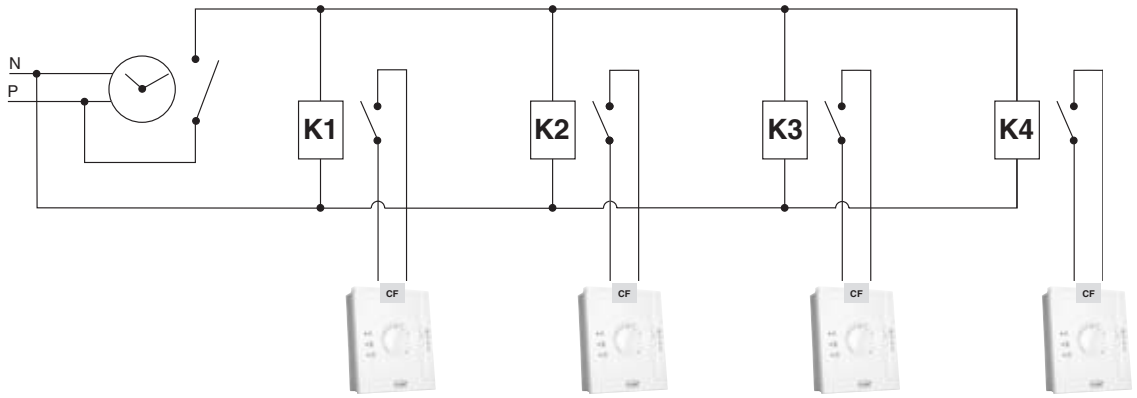
N.B.: These values, which aim to help understand how the dial works, simply give an indication of the selected temperature. There will be a slight difference between the value at which the dial is set and the actual temperature in the room, depending on the chosen settings *(possible setting of the neutral zone of 4/6°K, with the thermostat set to hot or cold)*.

Eco external switch/frost protection

An On/Off input enables the thermostat to be switched remotely to economy or frost protection mode (configurable). The direction of operation for this input can be adjusted *(normally open or normally closed).*

This is a potential-free input which should have no voltage. It is not possible to connect several controls in parallel on the same switch. Also, if there is a timer present, the installer should allow for a relay board to be fitted.
The maximum length of the line is 10 meters. The connection should be made so as to ensure there is an extra-low voltage for safety *(TBTS according to standard C15-100)* and to limit the length of the wires.

Schematic diagram of connection with timer

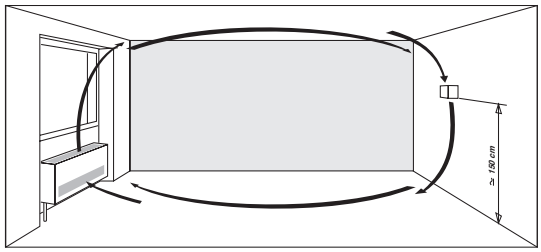


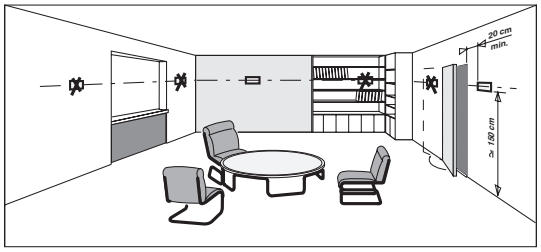
N.B.: This schematic diagram is needed for changing from comfort mode to “Eco” mode as standard *(to “frost protection” mode by on-site adjustment)*. It is strictly forbidden to carry out timed programming by switching off the thermostat power supply.

Air temperature measurement:

- A built-in thermostat regulates air temperature using a return sensor.
- A wall thermostat regulates air temperature:
  - By either using an indoor environment sensor *(built into the unit)*
  - Or by using a return sensor.

For a wall thermostat, particular attention must be paid to the position of the thermostat in the room *(do not expose it to the sun, or place it above an appliance which releases heat, place it on an inside wall)*. The end of the wiring conduit must be heat insulated.





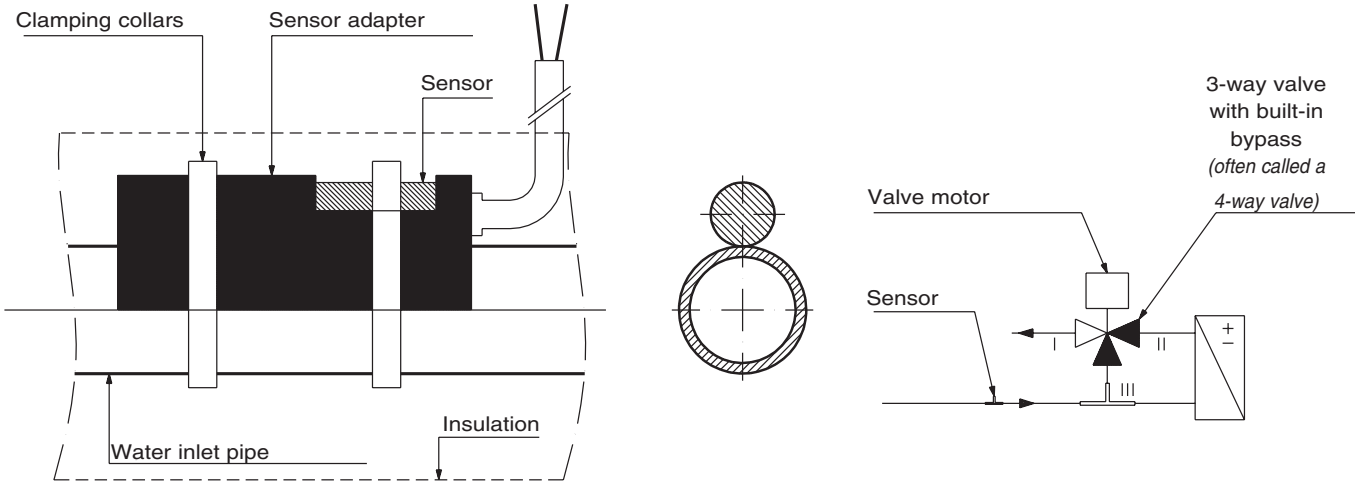
The return and changeover sensors have the same specifications.

Some Values:

Temperature	°C	5	10	15	20	25	30	35
Resistance	ohm	22,050	17,960	14,690	12,090	10,000	8,313	6,940

Water temperature measurement

The 2 pipe or 2 pipe + 2 wire fan coil units may have a water temperature measurement sensor *(or changeover sensor)*. It should be placed upline of the 4-way valve *(water network side)* by the installer. It is fitted to the pipe using electrician’s clips and must be insulated



N.B.: the changeover sensor measures the surface temperature of the pipe. There is an obvious difference between the actual water temperature and the surface temperature.

The water speed will therefore be selected so as to guarantee changeover switching.

■ If the changeover input is left "open" *(nothing is connected between terminals 10 and 11)* the thermostat deduces that the water circulating in the heater is still cold.

■ If there is a bridge between these terminals, the thermostat deduces that the water is still hot.

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Operating algorithm in the changeover sensor:

The V30 specifically manages the changeover so as to continuously optimise the room temperature control:

☛ If the C/O sensor measures a water temperature which is 7°C more than the room temperature, the water is considered to be hot.

☛ If the C/O sensor measures a water temperature which is 4°C less than the room temperature, the water is considered to be cold.

☛ If the C/O sensor measures a water temperature between these two values, the water will be considered to be neutral.

Operation of the V30 with neutral water temperature:

In this scenario, the V30 authorises opening of the valve every hour in order to check the water network temperature:

☛ If this temperature does not change, the V30 remains as it is.

☛ If this temperature varies and returns to the conditions described above, the V30 will authorise its control cycle again.

Switch parameter settings

No.	1	2	3	4	Regulation on	Application
A	ON	ON	ON	OFF	Air	2 Pipes
B	ON	ON	ON	ON	Air	2 Pipes + electric heater for main heating
C	OFF	OFF	ON	ON	Air	2 Pipes + electric heater for additional hot water
D	ON	ON	OFF	ON	Air	2 Pipes + Electric heater for main heating and for additional hot water
E	ON	OFF	ON	ON	Air	2 Pipes *(cold only)* + Electric heater with control line
F	OFF	OFF	OFF	OFF	Air + Water	2 Pipes
G	OFF	ON	ON	OFF	Air + Water	2 Pipes + electric heater for main heating
H	OFF	OFF	ON	OFF	Air + Water	2 Pipes + electric heater for auxiliary hot water
I	ON	ON	OFF	OFF	Air + Water	2 Pipes + Electric heater for main heating and for additional hot water
J	ON	OFF	ON	OFF	Air + Water	2 Pipes *(cold only)* + Electric heater with control line
K	OFF	ON	OFF	OFF	Air + Water	2 Pipes *(cold only)* + radiator
L	OFF	ON	OFF	ON	Air + Water	2 pipes *(cold only)* + radiator with control line
M	ON	OFF	OFF	OFF	Air + Water	4 Pipes
N	ON	OFF	OFF	ON	Air + Water	4 Pipes with control line

No.	Function	OFF	ON
5	Neutral zone	6K	4K
6	Neutral zone ventilation in comfort mode	Off	On
7	Mode allocated to window contact input	Economy	Frost protection
8	Active direction of the window contact input	Normally open	Normally closed

To confirm a switch modification, the appliance must be switched off.

«Reconfiguring the switches on a V30 built into a vertical cased Major Line:

- Before carrying out any operation on the V30 switch off the appliance by turning off the power supply.
  - Remove the Major Line's casing
  - As the V30 controller is not fixed to the device's frame, it remains integrated with the casing.
  - Remove the casing/thermostat assembly (fig.1).
  - Turn the casing over to access the thermostat (fig.2).
- Adjust the switches located behind the thermostat
  - Connect any water temperature and air temperature sensors to the fast-on connector:
    Terminals 1-2 for the air temperature sensor corresponding to the COM - NTC inlet on the V30.
    Terminals 3-4 for the water temperature sensor corresponding to the COM - CO inlet on the V30.

(see diagram of the built-in V30 thermostat on page 26 and the wiring diagram which corresponds to your application).»

Fig.1

Fig.2

Application details

Application	Switch setting				Application	Input Changeover (C/O)	Comfort Mode**				
							Heating mode				
	S1	S2	S3	S4			Action	Ventilation (3 speeds)	LED ⏻	LED ♨	LED ☼
A	ON	ON	ON	OFF	2 Pipes (without valve)	Closed or the sensor detects hot water	No valve	Ventilation ON	ON	ON	OFF
						Open or the sensor detects cold water			ON	OFF	OFF
						The sensor detects neither hot nor cold water			ON	OFF	OFF
B	ON	ON	ON	ON	2 Pipes (without valve) + electric heater for main heating	Closed or the sensor detects hot water	No valve	Ventilation ON	ON	ON	OFF
						Open or the sensor detects cold water			ON	OFF	OFF
						The sensor detects neither hot nor cold water	Electric heater	Ventilation ON	ON	ON	OFF
C	OFF	OFF	ON	ON	2 Pipes (without valve) + auxiliary electric heater	Closed or the sensor detects hot water	Electric heater as 2nd stage	Ventilation ON	ON	ON	OFF
						Open or the sensor detects cold water			ON	OFF	OFF
						The sensor detects neither hot nor cold water			ON	OFF	OFF
D	ON	ON	OFF	ON	2 Pipes (without valve) + electric heater used as main heater and also auxiliary	Closed or the sensor detects hot water	Electric heater as 2nd stage	Ventilation ON	ON	ON	OFF
						Open or the sensor detects cold water			ON	OFF	OFF
						The sensor detects neither hot nor cold water	Electric heater as main stage	Ventilation ON	ON	ON	OFF
E	ON	OFF	ON	ON	2 pipes (cold only) + electric heater, with control line, without valve	LP contact closed	Electric heater	Ventilation ON	ON	ON	OFF
						LP contact open			ON	OFF	OFF
F	OFF	OFF	OFF	OFF	2 pipes (with valve)	Closed or the sensor detects hot water	Valve	Ventilation ON	ON	ON	OFF
						Open or the sensor detects cold water			ON	OFF	OFF
						The sensor detects neither hot nor cold water			ON	OFF	OFF
G	OFF	ON	ON	OFF	2 pipes (with valve) + electric heater in main heating	Closed or the sensor detects hot water	Valve	Ventilation ON	ON	ON	OFF
						Open or the sensor detects cold water	Electric heater	Ventilation ON	ON	ON	OFF
						The sensor detects neither hot nor cold water	Electric heater	Ventilation ON	ON	ON	OFF
H	OFF	OFF	ON	OFF	2 pipes (with valve) + auxiliary electric heater	Closed or the sensor detects hot water	Valve + electric heater as 2nd stage	Ventilation ON	ON	ON	OFF
						Open or the sensor detects cold water			ON	OFF	OFF
						The sensor detects neither hot nor cold water			ON	OFF	OFF
I	ON	ON	OFF	OFF	2 pipes (with valve) + electric heater used as main and auxiliary heater	Closed or the sensor detects hot water	Valve + electric heater as 2nd stage	Ventilation ON	ON	ON	OFF
						Open or the sensor detects cold water	Electric heater as main stage	Ventilation ON	ON	ON	OFF
						The sensor detects neither hot nor cold water	Electric heater as main heater	Ventilation ON	ON	ON	OFF
J	ON	OFF	ON	OFF	2 pipes (cold only) + electric heater, with control line and valve	LP contact closed	Electric heater	Ventilation ON	ON	ON	OFF
						LP contact open			ON	OFF	OFF
K	OFF	ON	OFF	OFF	2 pipes (cold only) + radiator		Heating valve	Ventilation OFF	ON	ON	OFF
L	OFF	ON	OFF	ON	2 pipes (cold only) + radiator with control line	LP contact closed	Heating valve	Ventilation OFF	ON	ON	OFF
						LP contact open			ON	OFF	OFF
M	ON	OFF	OFF	OFF	4 pipes		Heating valve	Ventilation ON	ON	ON	OFF
N	ON	OFF	OFF	ON	4 pipes with control line	LP contact closed	Heating valve	Ventilation ON	ON	ON	OFF
						LP contact open			ON	OFF	OFF

LP = control line

***BL.** : Flashing

****In economy mode:** operation identical to Comfort mode with:
- Setpoint offset by +/-5°C
- LED ⏻: OFF

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Comfort Mode**					Frost Protection Mode				
Cooling mode					Heating mode				
Action	Ventilation (3 speeds)	LED			Action	Ventilation (low speed only)	LED		
		ON	OFF	OFF	No valve	Ventilation ON	BL.*	ON	OFF
No valve	Ventilation ON	ON	OFF	ON			BL.*	OFF	OFF
		ON	OFF	OFF			BL.*	OFF	OFF
		ON	OFF	OFF	No valve	Ventilation ON	BL.*	ON	OFF
No valve	Ventilation ON	ON	OFF	ON			BL.*	OFF	OFF
		ON	OFF	OFF	Electric heater	Ventilation ON	BL.*	ON	OFF
		ON	OFF	OFF	Electric heater as 2nd stage	Ventilation ON	BL.*	ON	OFF
No valve	Ventilation ON	ON	OFF	ON			BL.*	OFF	OFF
		ON	OFF	OFF	Electric heater as main stage	Ventilation ON	BL.*	ON	OFF
		ON	OFF	OFF	Electric heater as 2nd stage	Ventilation ON	BL.*	ON	OFF
No valve	Ventilation ON	ON	OFF	ON			BL.*	OFF	OFF
		ON	OFF	OFF	Electric heater as main stage	Ventilation ON	BL.*	ON	OFF
		ON	OFF	OFF	Electric heater	Ventilation ON	BL.*	ON	OFF
No valve	Ventilation ON	ON	OFF	ON			BL.*	OFF	OFF
		ON	OFF	OFF	Valve	Ventilation ON	BL.*	ON	OFF
Valve	Ventilation ON	ON	OFF	ON			BL.*	OFF	OFF
		ON	OFF	OFF			BL.*	OFF	OFF
		ON	OFF	OFF	Valve	Ventilation ON	BL.*	ON	OFF
Valve	Ventilation ON	ON	OFF	ON	Electric heater	Ventilation ON	BL.*	ON	OFF
		ON	OFF	OFF	Electric heater	Ventilation ON	BL.*	ON	OFF
		ON	OFF	OFF	Valve + electric heater as 2nd stage	Ventilation ON	BL.*	ON	OFF
Valve	Ventilation ON	ON	OFF	ON	Electric heater as main stage	Ventilation ON	BL.*	ON	OFF
		ON	OFF	OFF	Electric heater as main stage	Ventilation ON	BL.*	ON	OFF
		ON	OFF	OFF	Valve + electric heater as 2nd stage	Ventilation ON	BL.*	ON	OFF
Valve	Ventilation ON	ON	OFF	ON	Electric heater as main stage	Ventilation ON	BL.*	ON	OFF
		ON	OFF	OFF	Electric heater as main stage	Ventilation ON	BL.*	ON	OFF
		ON	OFF	OFF	Electric heater	Ventilation ON	BL.*	ON	OFF
Cooling valve	Ventilation ON	ON	OFF	ON			BL.*	OFF	OFF
Cooling valve	Ventilation ON	ON	OFF	ON	Heating valve	Ventilation OFF	BL.*	ON	OFF
		ON	OFF	OFF	Heating valve	Ventilation OFF	BL.*	ON	OFF
Cooling valve	Ventilation ON	ON	OFF	ON			BL.*	OFF	OFF
Cooling valve	Ventilation ON	ON	OFF	ON	Heating valve	Ventilation ON	BL.*	ON	OFF
		ON	OFF	OFF	Heating valve	Ventilation ON	BL.*	ON	OFF
Cooling valve	Ventilation ON	ON	OFF	ON			BL.*	OFF	OFF

***BL.** : Flashing

****In energy saving mode:** operation identical to Comfort mode with:

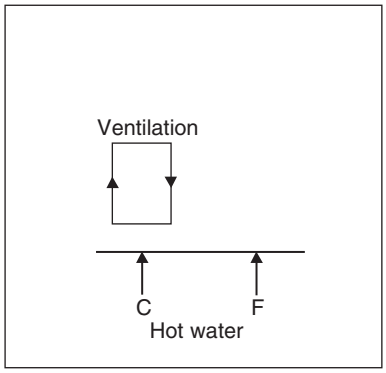
- Setpoint offset by +/-5°C
- LED ⏻: OFF

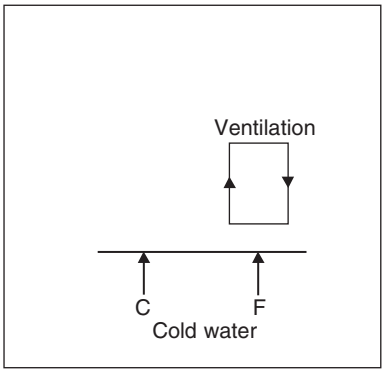
Electric heater management

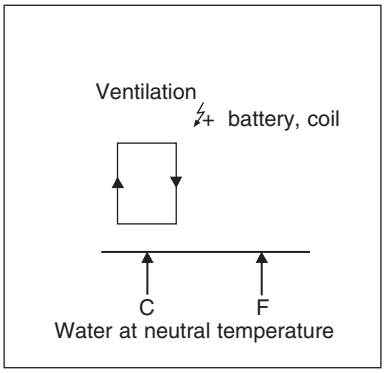
- The electric heater is managed in time-proportion mode by the thermostat according to the fan speed selected.
- The triggering sequences for the electric heater can be configured as described below.

☛ Control by air/Application B

Electric stage used as main stage

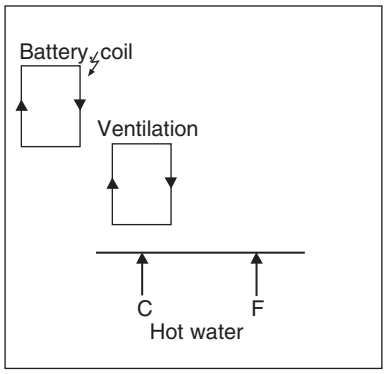


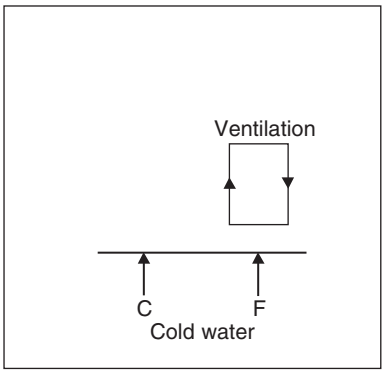


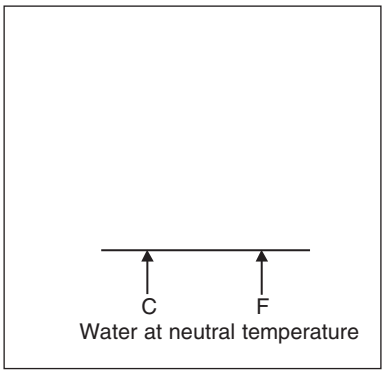


☛ Control by Air/Application C

Electric stage used as additional stage



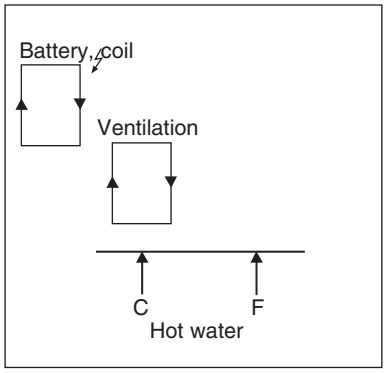


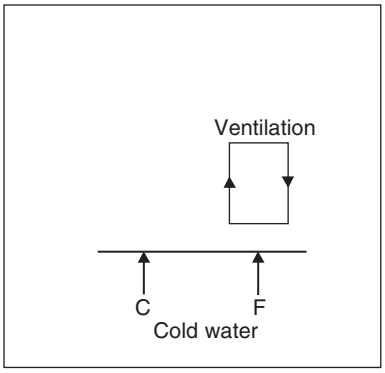


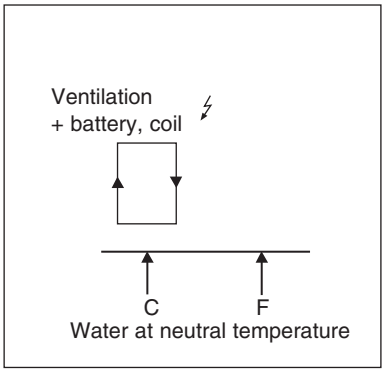
N.B.: this configuration must only be used with hot water with a temperature < 50°C to prevent any risk of the appliance overheating.

☛ Control by Air/Application D

Electric stage used as main stage + additional



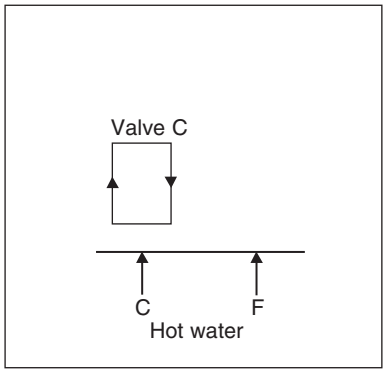


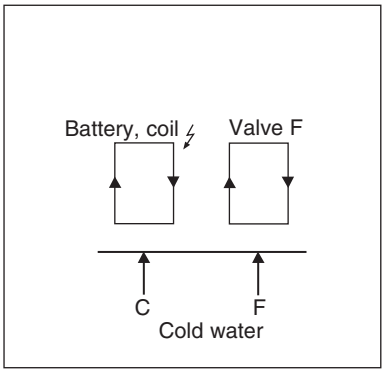


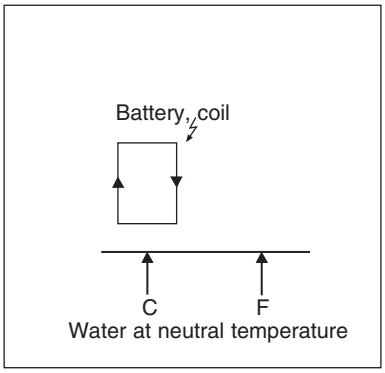
N.B.: this configuration must only be used with hot water with a temperature < 50°C to prevent any risk of the appliance overheating.

☛ **Control by Water/Application G**

Electric stage used as main stage

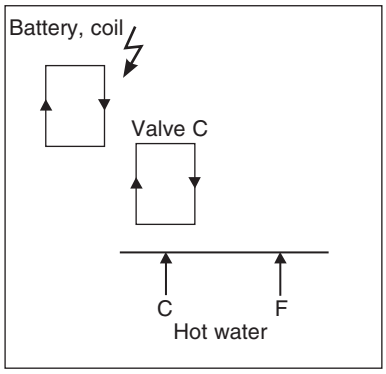


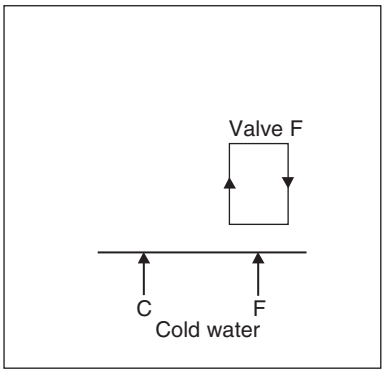


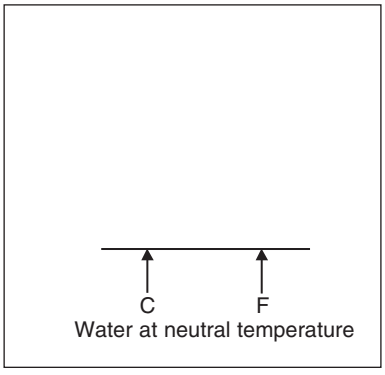


☛ **Control by Water/Application H**

Electric stage used as additional stage



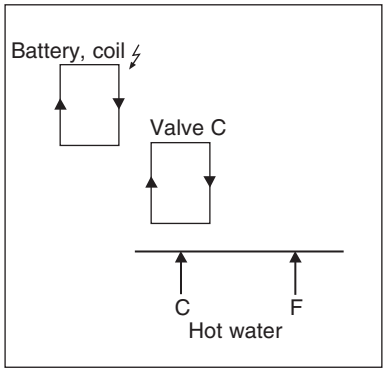


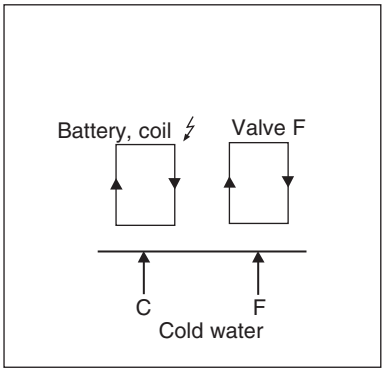


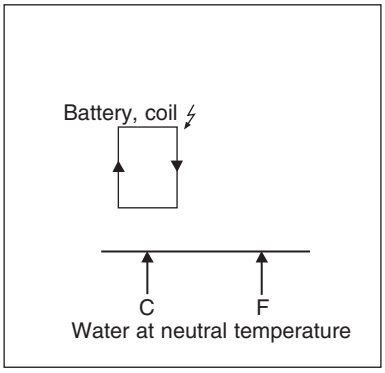
N.B.: this configuration must only be used with hot water with a temperature < 50°C to prevent any risk of the appliance overheating.

☛ **Control by Water/Application I**

Electric stage used as main stage + additional







N.B.: this configuration must only be used with hot water with a temperature < 50°C to prevent any risk of the appliance overheating.

Unit installation

N.B.!

This appliance must be installed in accordance with the connection diagram enclosed with the acknowledgement of receipt. It must be installed in accordance with accepted engineering standards and must conform with current local standards. In order to meet Class II requirements, the corresponding installation instructions must be observed.

Mounting:

- In 60 mm flush-mount box; cables pass through the rear
- directly on the wall using the designated holes, passing the cables through the pre-punched holes in the base in the higher or lower section.

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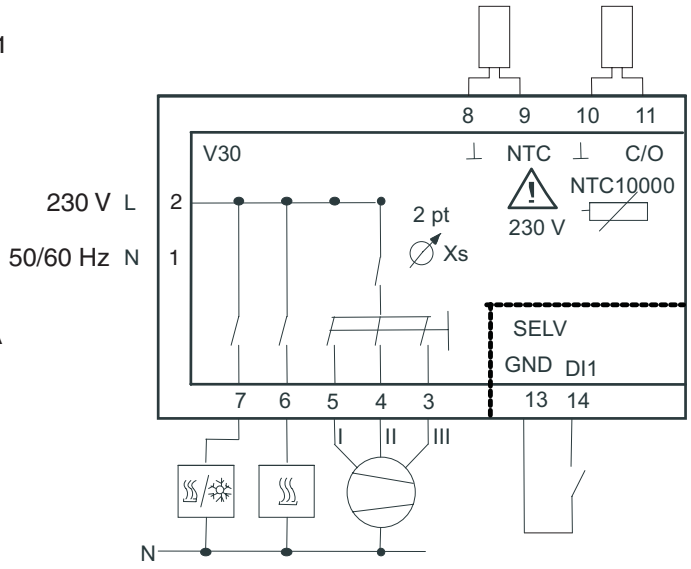
Electrical connection

- Open the unit
- Connect in accordance with the diagram provided, depending on the application. The connection wires for the regulator, changeover sensor, fan, valves and electric heater have a voltage of 230V~ and must, therefore, be sized accordingly.
- Set the switches for the selected application.

N.B.: The return or changeover sensors must be wired in order to limit the length of the wires and distance them from the power cables.

The maximum cable length with 1 thermostat and 1 appliance is 10 metres.

Unit connection diagram:



Technical specifications

- Power supply 230/1/50-60 Hz**:**
  - Maximum current on main power supply: 10A
  - Valve: 230V - 1A
  - Fan: 230V - 3A cosφ 0.9
  - Electric heater: 230V - 2000W max
  - IP30 protection rating, Class II
- Hot comfort setpoint 19°C
- Cold comfort setpoint 23 or 25°C
- Comfort setpoint settings range: +/- 6K
- Hot economy setpoint -5°K
- Cold economy setpoint +5°K
- Hysteresis: 0.5°K
- Post-ventilation 2 mins

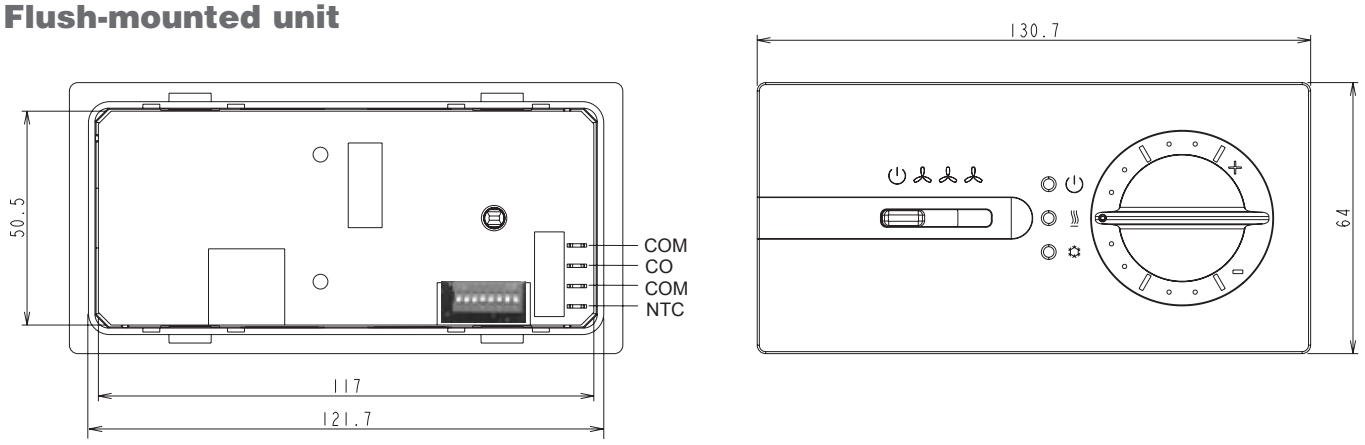
LED operation

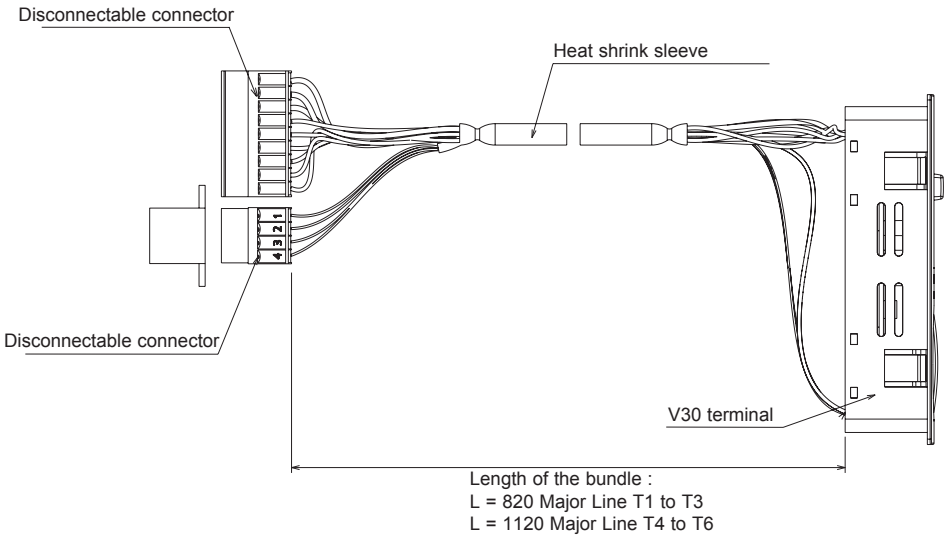
- **LED for active mode**
  - LED on in Comfort mode
  - LED off in Economy or Frost protection mode
  - Flashes if the room temperature <8°C
- **LED for heating mode and cooling**
  - The heating LED comes on when heating is activated
  - The cooling LED comes on when cooling is activated

Alarm

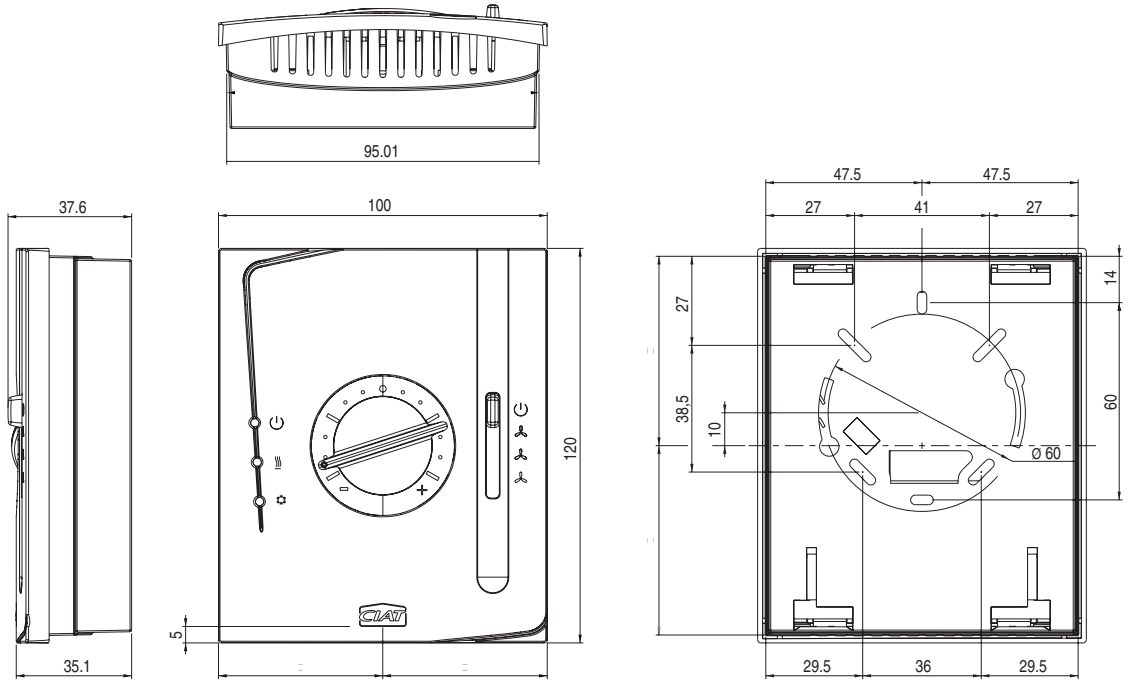
- The 3 LEDS flash: Fault in the air temperature sensors (indoor environment or return).

Flush-mounted unit





Wall-mounted unit



Tests and warranty

All our appliances are tested before shipping.

CIAT conforms to EC standards, allowing free circulation of its appliances throughout the European Union. This standard is a guarantee for the safety and protection of persons.

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OHSAS 18001

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(0,15 € / mn)