

EN7515935-03

12 - 2021

V3000 KNX

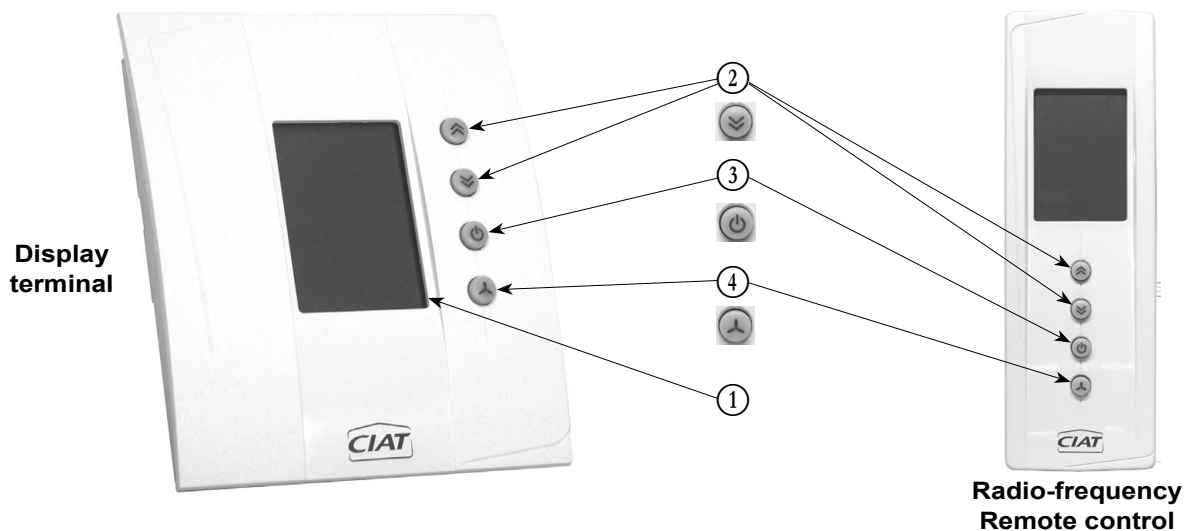
Controls manual



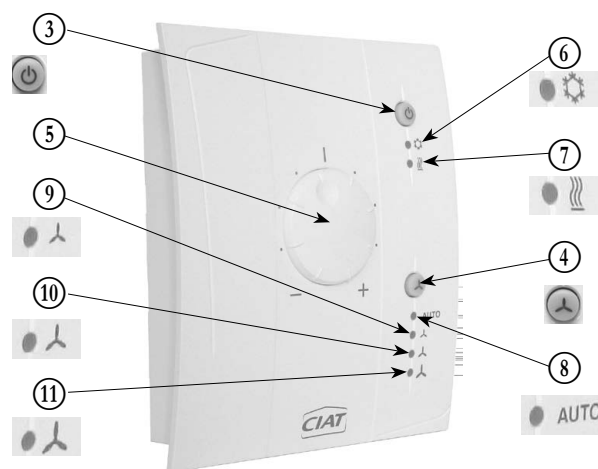
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1 - USER TERMINAL AND RADIO-FREQUENCY REMOTE CONTROL



Flush-mounted terminal



Dial terminal

① Display:

- This continuously displays the temperature detected by the sensor, the current operating mode, the chosen ventilation speed, and any alarm present.
- If you press the buttons ②, scale appears, and you can modify the desired temperature by pressing or . The temperature measured by the sensor is displayed again 8 seconds after the last time button ② was pressed.
- It also displays error messages, reports windows opened or emergency switch-off activation, thereby enabling an initial diagnostic.

② Temperature adjustment buttons:

- These enable you to adjust the temperature setpoint and also access the set-up and diagnostic values.

③ Standby button:

- This enables you to change the operating mode (comfort, standby, economy, frost protection according to the chosen set-up).

④ Ventilation button:

- This enables you to select the ventilation speed (Auto, I, II, III) if the controller is in comfort, or switch to comfort mode if the controller is in standby (see close-up of display below)

⑤ Temperature adjustment dial

⑥ Cold indicator. If lit, this indicates refrigeration

⑦ Heat indicator. If lit, this indicates heating

⑧ Automatic ventilation indicator

⑨ Low speed ventilation indicator

⑩ Medium speed ventilation indicator

⑪ High speed ventilation indicator

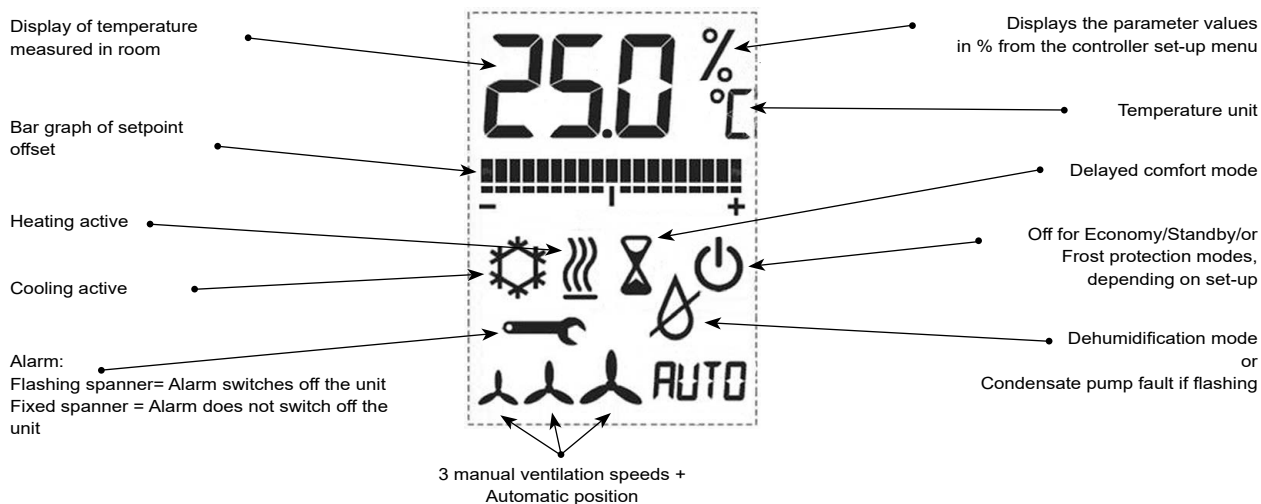
Note on Ventilation speed indicator operation:

- * If only ⑨ - ⑩ or ⑪ lit = Current manual speed selected.
- * If ⑧ + (⑨ or ⑩ or ⑪) = Current speed given by controller AUTOMATIC position.

Si un des voyants ⑧ to ⑪ est éclairé, alors le régulateur est en régime confort

Note: The wall terminals are interchangeable.








2 - CLOSE-UP OF DISPLAY TERMINAL SCREENS



Special display:






- : Stop on window contact
- Fro** : Stop on Frost protection device
- Cnf** : KNX Configuration Menu
- Add x** : Controller performing automatic Master/Slave configuration
- Lrn** : Controller in Configuration mode on a KNX bus (Learning mode for ETS)
- del** : Controller performing automatic Master/slave deconfiguration
- Err** : Error occurred during Master/Slave configuration





3 - MEANING OF SYMBOLS

Symbols	Display version	Dial version
Heating	Heating symbol  fixed	Heating LED fixed
Refrigeration	Air conditioning symbol  fixed	Air conditioning LED fixed
Delayed comfort	Hourglass  + ventilation status	One ventilation LED lit (according to user)
Comfort not delayed	Ventilation only status	
Reduced (Standby, eco, frost protection) set via KNX or standby button on terminal	Standby symbol  No ventilation indication	All ventilation LEDs off
Frost protection by window contact	Three dashes "..." in place of temperature No ventilation indication	All ventilation LEDs off
Standby or eco by presence contact or clock contact	Standby symbol  No ventilation indication	All ventilation LEDs off
Setpoint adjustment	Depends on set-up	
Ventilation	1, 2 or 3 ventilation symbols displayed simultaneously to indicate LS, MS or HS. If auto is selected, the AUTO symbol appears in addition to the ventilation symbols	If AUTO selected, the LED for current speed is lit. If AUTO is off, the speed indicator gives the manual speed selected.
Dehumidification function	Fixed water drop 	Air conditioning LED flashing
Indoor environment sensor fault if indoor environment sensor assigned priority	Adjustable spanner fixed	No particular indication
Return sensor fault if return sensor assigned priority	Adjustable spanner fixed	No particular indication
Simultaneous fault on indoor environment and return sensors	Adjustable spanner flashing	Heating + air conditioning LEDs flashing simultaneously
Safety sensor fault, "anti-condensation"	Adjustable spanner flashing	Heating + air conditioning LEDs flashing simultaneously
Condensate drain pump alarm	Flashing water drop 	Heating + air conditioning LEDs flashing simultaneously
Fan unit motor assembly alarm	Adjustable spanner flashing	Heating + air conditioning LEDs flashing simultaneously
General alarm	Adjustable spanner flashing	Heating + air conditioning LEDs flashing simultaneously
Frost protection alarm in fresh air application (antifreeze thermostat)	Letters "Fro" in place of temperature	Heating + air conditioning LEDs flashing simultaneously
Filter needs replacing	Adjustable spanner fixed	No particular indication
Device designated as Master or Slave (P00 ≠ 0) but has not yet been configured	Adjustable spanner flashing	Heating + air conditioning LEDs flashing simultaneously
Generally speaking: Alarm not disabling V3000 operation	Adjustable spanner fixed	No particular indication
Alarm stopping V3000 operation	Adjustable spanner flashing	Heating + air conditioning LEDs flashing simultaneously

4 - INSTALLATION PARAMETERS

To modify the installation parameters, a display terminal is essential (wall-mounted display terminal, flush-mounted display terminal or radio remote control terminal).

To enter set-up mode, you need to simultaneously press the standby , ventilation  and  buttons for 5 seconds, then press the  button twice, and finally the standby button  for 5 seconds.

The parameter is selected by pressing the  and  buttons. To consult a parameter value, you need to press the standby button . To validate a parameter modification, press the standby button. To exit set-up mode, press the ventilation button .

If a set-up has been changed and you go back to normal operating mode, the terminal display switches off briefly and then displays its version number (e.g. 101) for around 5 seconds, while it reconfigures the controller before going back to the normal display.

Parameter	Name	Explanation	Setting range	Default value
P00	Master/Slave/Stand-alone	The controller must be informed whether it is a master or a slave, or whether it is stand-alone. 0 = individual 1 = Master 2 = Slave by hot/cold authorisation 3 = Slave by indoor temperature 4 = Slave by actuator position	0...4	0
P01	Zone number	Zone number used for configuring a KNX installation in Push Button mode.	0...16	0
P02	Heating comfort setpoint	Setpoint for heating control in comfort mode	5...40 increments of 0.5	19.0
P03	Cooling comfort setpoint	Setpoint for cooling control in comfort mode	5...40 increments of 0.5	26.0
P04	Heating Standby setpoint	Setpoint for heating control in Standby mode	5...40 increments of 0.5	17.0
P05	Consigne Stand By refroidissement	Setpoint for heating control in Standby mode	5...40 increments of 0.5	28.0
P06	Heating economy setpoint	Setpoint for heating control in economy mode	5...40 increments of 0.5	14.0
P07	Cooling economy setpoint	Setpoint for cooling control in economy mode	5...40 increments of 0.5	32.0
P09	Supply air low limit	Setpoint below which blown air temperature limiting is activated	5...35 resolution of 0.5	16.0
P10	Supply air upper limit	Setpoint above which blown air temperature limiting is activated	20...70 resolution of 0.5	40.0
P11	Comfort setpoint setting range	Sets the maximum +/- offset from the setpoint for indoor environment devices	0.0...9.5 resolution of 0.5	4.5
P12	Air quality setpoint	If an air quality sensor is present on KONNEX bus, air quality setpoint expressed in ppm, with fixed hysteresis of 200 ppm: 0 = Function inactive 0.1...5.0 = Setpoint in thousand ppm	0...5.0 increments of 0.1	1.0
P13	Comfort operating option	0 = Inactive 1 = Dehumidification function	0:1	0
P14	Dehumidification setpoint (if option = dehumidification)	If a humidity sensor is present on KONNEX bus, the dehumidification function remains active as long as the humidity value is above the setpoint: 0 = Inactive 1... 100 = Setpoint	0...100	100
P24	Temperature sensor selection (if recycled air application)	Control sensor selection 0 = Return sensor priority 1 = Indoor environment sensor priority	0:1	Depending on application
P25	Sensor S1 calibration	Correction factor for sensor S1 (return or supply air sensor, depending on applications).	-9.9...+9.9 resol. 0.1	0
P26	Indoor environment sensor calibration	Correction factor for indoor environment sensor	-9.9...+9.9 résol. 0,1	0
P27	Changeover upper threshold	2-pipe changeover upper threshold for hot water detection in relation to ambient temperature	0/20	7
P28	Changeover lower threshold	2-pipe changeover lower threshold for cold water detection in relation to ambient temperature	0/-20	-4
P40	Ventilation in neutral zone comfort mode	In the comfort mode neutral zone, the fan may run all the time, be switched off completely, or run periodically: 0 = ventilation off 1 = permanent ventilation, any season 2 = permanent ventilation in summer 3 = ventilation periodically restarted	0:1:2:3	Depending on application
P41	Ventilation in neutral zone Standby mode	In the standby mode neutral zone, the fan may run all the time, be switched off completely, or run periodically: 0 = ventilation off 1 = permanent ventilation, any season 2 = permanent ventilation in summer 3 = ventilation periodically restarted	0:1:2:3	0
P47	Operating mode activated by standby button on user terminal.	1 = Comfort --> Frost protection 2 = Comfort --> Eco 3 = Comfort --> Standby	1:2:3	1

4 - INSTALLATION PARAMETERS

Parameter	Name	Explanation	Setting range	Default value
P48	Comfort override delay	Override to remain in comfort mode after comfort mode activation from the user terminal. It may be set to run all the time, have a limited period, or prohibit overrides 0 = Override prohibited 0.5.24 = Override time in h 24.5 = Infinite override time	0.0...24.5 (increments of 0.5 h)	24.5
P49	Action direction of auxiliary contact on input D1	The auxiliary contact on input DI1 may be normally closed or normally open: 0 = Normally open 1 = Normally closed	0:1	1
P50	Action direction of auxiliary contact on input D2	The auxiliary contact on input DI2 may be normally closed or normally open: 0 = Normally open 1 = Normally closed	0:1	1
P51	Input D1 function	This parameter enables this input to have several functions 0 = Inactive 1 = Window contact (= Frost protection) 2 = Presence contact (Max Eco) 3 = Presence contact (Max Standby) 4 = Condensate drain pump 5 = Fan unit motor alarm 6 = General alarm 7 = Air quality sensor 8 = Clock (comfort --> Eco) 9 = Clock (comfort --> Standby)	0...9	4 (or 5) (or 6)
P52	Input D2 function	This parameter enables this input to have several functions: 0 = Inactive 1 = Window contact (= Frost protection) 2 = Presence contact (Max Eco) 3 = Presence contact (Max Standby) 4 = Condensate drain pump 5 = Fan unit motor alarm 6 = General alarm 7 = Air quality sensor 8 = Clock (comfort --> Eco) 9 = Clock (comfort --> Standby) 10 = Frost protection for "Fresh air"	0...10	1 (or 10)
P55	Heating electrical power (based on 230 V)	If an electric heater is used, the power (in kW) must be indicated in this parameter, rounded up to the nearest 100W. Used for certain energy consuming applications	0...20,0 résolution de 0,1	2.0
P56	LS power	The low speed ventilation power must be indicated in this parameter, rounded up to the nearest 5W. Used for certain energy consuming applications	5...990 increments of 5	50
P57	MS power	The medium speed ventilation power must be indicated in this parameter, rounded up to the nearest 5W. Used for certain energy consuming applications	5...990 increments of 5	75
P58	HS power	The high speed ventilation power must be indicated in this parameter, rounded up to the nearest 5W. Used for certain energy consuming applications	5...990 increments of 5	75
P59	Hot water coil nominal capacity	Nominal capacity (in kW) of the hot water coil, rounded up to the nearest 100W. Used for certain energy consuming applications	0...99.0 resolution of 0.1	100
P60	Cold water coil nominal capacity	Nominal capacity (in kW) of the cold water coil, rounded up to the nearest 100W. Used for certain energy consuming applications	0...99.0 resolution of 0.1	2.0
P62	Base outdoor temperature	Lowest outdoor temperature for electric heater power limiting	-35...+5	-10
P64	Setpoint deviation from outdoor temperature	Max difference between cold setpoint and outdoor temperature 0 = Inactive	0...20	6
P67	Battery/coil use authorisation	1 = hydraulic + electric 2 = hydraulic only 3 = electric only	1:2:3	Depending on application
P93	Period for filter maintenance	At the end of this ventilation time, the maintenance pictogram appears on the screen for filter replacement. This pictogram does not stop control: 0 = Inactive 1...200 = time in days (in HS equivalent)	0...200	0
P94	Temperature displayed in °C or °F	1 = Temperature displayed in °C 2 = Temperature displayed in °F	1:2	1
P95	Temperature displayed on terminal	Actual temperature display on the indoor environment device LCD: 1 = Setpoint 2 = Measurement	1:2	2
P96	Setpoint offset value display	Display of actual temperature offset value: 1 = Not displayed (bar graph) 2 = Display offset + bar graph 3 = Display setpoint + bar graph ⁽¹⁾	1:2:3	1

- (1) The absolute setpoint displayed corresponds to the heating requirements calculated by the V3000:
- If the room temperature (°C) > current cooling setpoint: the cooling setpoint is displayed
 - If the room temperature (°C) > current heating setpoint: the heating setpoint is displayed.

5 - DIAGNOSTIC

Note:

To perform a diagnostic, you must use a display terminal.

To enter diagnostic mode, you need to press the ventilation  and  buttons simultaneously for 5 seconds.

The parameter is selected by pressing the  and  buttons. To consult a parameter value, you need to press the standby button .


To exit diagnostic mode, press the ventilation button .


Diagnostic	Name	Explanation
d01	Individual address	
d02	Master address	Only valid for configuration in Push Button mode (see KNX Bus manual NA 08.51)
d03	Zone number	
d04	Application type	1 = 2-Wire 2 = 2-Pipe 21 = 2-Pipe/2-Wire 22 = 2 Tubes Froid + radiateur 23 = 2 Tubes + convecteur élec. 4 = 4-Pipe 41 = 4-Pipe/2-Wire
d05	Application type	1 = Recycled air sequence 2 = Fresh air sequence
d06	Function to limit the temperature of blown air.	1 = Room control without supply air limiting 2 = Room control with supply air limiting 3 = Control at constant supply air temperature
d07	Type of valve motor, fan coil	1 = 3 points 2 = On/off 3 = Thermal 4 = 0/10 V
d08	Ambient temperature	Ambient temperature display
d09	Return or supply air temperature	Return or supply air temperature display
d10	Setpoint in progress	Temperature setpoint corresponding to the last regulation sequence made by the controller
d11	C/O	Temperature if room C/O or central C/O status
d12	Heating/cooling authorisation	CO = Cold HE = Hot 0 = No AU = Auto
d13	Electric/hydraulic authorisation	1 = Hydraulic + electric 2 = Hydraulic only 3 = Electric only
d14	Communication mode	Ini = Initialisation BUS = Bus switched on, no central unit BMS = Dialogue with central unit --- = Bus switched off
d15	Fan electrical consumption	Calculated fan consumption (display unit = kWh)
d16	Electric heater electrical consumption	Calculated electric heater consumption (display unit = hundred kWh)
d17	Heating heat consumption	Calculated heat consumption of heating coil (display unit = hundred kWh)
d18	Air conditioning heat consumption	Calculated heat consumption of air conditioning coil (display unit = hundred kWh)
d19	Filter maintenance time meter	Number of hours' ventilation (in high speed equivalent) since last filter replacement
d20	Controller software version	10 (example)
d21	Terminal software version	10 (example)

5 - DIAGNOSTIC

Diagnostic	Name	Explanation	
d22	Current error	Alarm code	Alarme description
		E07	Replace filter
		E08	Supply air sensor fault
		E09	Return air sensor fault
		E10	Indoor environment sensor fault
		E11	Centralised changeover not received
		E12	Fresh air frost protection alarm (supply air safety device)
		E13	Fresh air frost protection alarm (safety thermostat)
		E14	Condensation alarm
		E15	Slave cut off from master
		E16	Condensate drain pump alarm
		E17	General alarm
		E18	Fan unit alarm
		E19	Active temperature sensor fault
		E20	Condensation sensor S3 fault
		E21	Master or Slave not configured
		E22	No other Push button product selected on the bus
		E23	Impossible to connect to selected push button product
d23	Last error message	As d22	
d24	Outdoor temperature	Outdoor temperature display	

With:

E00: alarm does not switch off the terminal unit, fixed key  (E07 to E15)

E00: alarm locks the terminal unit off, flashing key  (E16 to E23)

Certain problems may be resolved by checking some fundamental points. Check using the list below before requesting servicing.





When the controller is switched on, control will only take effect after a few minutes of system initialisation.

If you have a display terminal, this displays its version number (e.g. 101) for around 5 seconds after switching on

5 - DIAGNOSTIC

Upon a mains power cut:


- when power is restored, the controller restarts automatically in the mode operating before the cut, with:
 - if Comfort Mode, it restarts in Comfort mode, but it is not store:
 - The setpoint override returns to the middle point
 - The ventilation speed returns to Auto
- All information from the KNX bus is lost.
- Error message: diagnostic d23 saves the last error message. d23 is saved even in case of a power cut.

Irregularity	Solution
User terminal	
Terminal off or no Led is lit on the terminal in comfort mode	<ul style="list-style-type: none"> No 230V supply (check fuse, fused isolator, controller connection) Check the electrical connection between the terminal and the controller (refer to wiring diagram)
Flashing water drop 	<ul style="list-style-type: none"> Check the condensate pump, the condition of the condensate pan.
Display ' _ _ _ '	Window open
Symbol  on display	See diagnostic d22
Fan coil unit	
The valves close instead of opening and vice-versa	<ul style="list-style-type: none"> If the controller has just been supplied, wait for system initiation (6 mins) Check the electrical connection of the valves (refer to wiring diagram).
No heating	<ul style="list-style-type: none"> Check that: <ul style="list-style-type: none"> The hot setpoint T°C is greater than the measured and displayed temperature Any shunt in case of a 2-pipe (hot water coil only) is present between terminals S2 and C (refer to wiring diagram). Any room changeover sensor, in case of a reversible 2-pipe coil, is correctly electrically connected and that the sensing element is in contact with the water inlet pipe The controller is correctly set up (refer to the Installation parameters procedure) If operating with an electric heater, check that the T°C limiters are activated.
No refrigeration	<ul style="list-style-type: none"> Check that: <ul style="list-style-type: none"> The cold setpoint T°C is less than the measured and displayed temperature Terminals S2 and C are not connected by a shunt in case of a 2 cold pipes only, with or without electric heater Any room changeover sensor, in case of a reversible 2-pipe coil, is correctly electrically connected and that the sensing element is in contact with the water inlet pipe The controller is correctly set up (refer to the Installation parameters procedure)
The fan always remains at high speed.	<ul style="list-style-type: none"> Check that: <ul style="list-style-type: none"> The water inlet T° is correct The water flow is sufficient The installation has been correctly bled The control parameters are suitable (proportional band, integration time) The ventilation is not in manual position III

5 - DIAGNOSTIC

Faults are automatically released once the problem related to the fault is resolved (sensor replaced...).

(1) Only the "Filter" fault requires manual release - to do so:

- Replace or clean the filter
- In the Diagnostic menu, access d19 "Filter maintenance time meter"
- Set this meter to 0 by pressing and holding the  button for 5 seconds.
- Go back out of the diagnostic menu
- The alarm is released.

Alarm code	Diagnostic	Solutions
E07	Replace filter	The triggering time for this alarm can be set under P93 It is released in D19 by setting this meter to 0 ⁽¹⁾
E08	Supply air sensor fault or absent (P78=2)	Check the sensor, its wiring at S1 and the corresponding parameter
E09	Return sensor fault (P24=0)	Check the sensor, its wiring at S1
E10	Indoor environment sensor fault (P24=1)	Check the condition and wiring of the room terminal
E11	Centralised changeover via KNX not received	Check the bus wiring, its supply, the KNX links with the Building Management System supplier
E12	Fresh air frost protection alarm (supply air safety device)	Check the hot water temperature, the hot valve
E13	Fresh air frost protection alarm (safety thermostat)	Check the hot water temperature, the hot valve, the condition of the antifreeze thermostat
E14	Condensation alarm	The terminal unit is in anti-condensation operating sequence following the appearance of condensates on the cooling coil. This alarm is present as long as there is condensation present on the cooling coil. Check the water temperature
E15	Slave cut off from master	No dialogue between a master and a slave. Check the bus (connections, supply) Check the Master controller supply
E16	Condensate drain pump alarm	Check the condensate pump
E17	General alarm	Check the condition of the contacts on D1-C and D2-C
E18	Fan unit alarm	Check the condition of the fan unit Check the condition of the contacts on D1-C and D2-C
E19	Active temperature sensor fault the 2 possible control sensors are faulty	Check the condition and wiring of the temperature sensors wired to the controller Check the condition and wiring of the wall-mounted room terminal
E20	Condensation sensor S3 fault	Check the condition and wiring of the anti-condensation sensor at S3-C
E21	Master or Slave not configured	Appears when configuring Master/Slave using push button until the master or slave is configured
E22	No other Push button product selected on the bus	Configure all products that need to be interlinked to create a Master/slave cluster
E23	Impossible to connect to selected push button product	Check that the products in push button configuration are mutually compatible Check the bus, its supply, its wiring and the master/slave parameter (P00) on each product to be configured
--	No Alarm	

With:

E00: alarm does not switch off the terminal unit. (E07 to E15)

E00: alarm locks the terminal unit off. (E16 to E23)

6 - AIR TEMPERATURE MEASUREMENT

■ Parameter P24

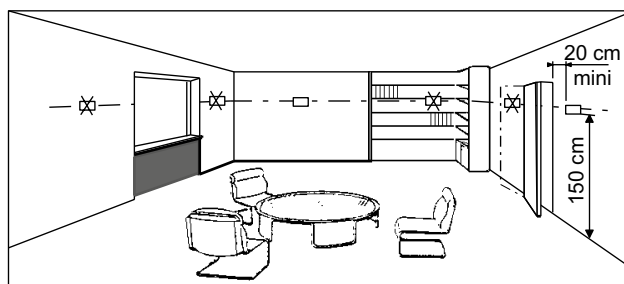
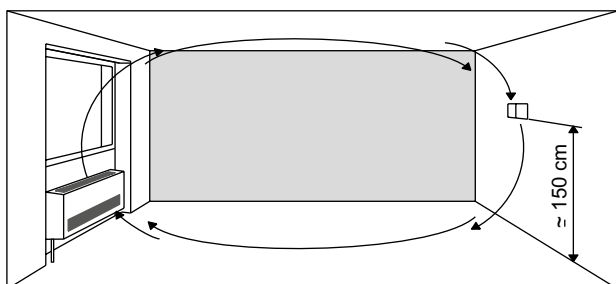
Diagnostics d08, d09

The V3000 offers the possibility of controlling the air temperature via a return sensor or an indoor environment sensor (P24).


If you can choose between the two, it is preferable to opt for the indoor environment sensor, since it provides a better picture of the room temperature.

The indoor environment sensor is situated inside the user terminal unit. When it is used, particular care must be taken in choosing the location of the user terminal in the room (do not expose it to sunlight, or place it on top of a device giving off heat - put it on an inside partition).

The end of the wiring conduit must be heat insulated.



The choice of sensor is made using parameter P24 (=0: return sensor; =1: indoor environment sensor).

If the selected sensor is faulty, the other sensor immediately takes over. A symbol  is displayed on the screen and the fault can also be looked up in the variable of diagnostic d22.

In case of doubt about the origin of the displayed temperature value, the value measured by the return sensor can be read in d09. The value measured by the indoor environment sensor can be read in d08. If the sensor is absent, the value displayed is equal to 0.0°C.

The sensor measurement can be corrected by means of parameter P25 (return sensor) or P26 (indoor environment sensor).

7 - SPECIFICATIONS OF SENSORS USED BY THE V3000

All the sensors used by the V3000 (return, changeover) have the same specifications

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

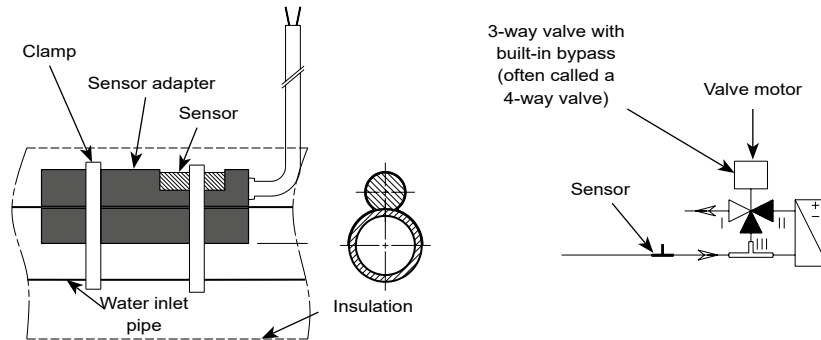
8 - WATER TEMPERATURE MEASUREMENT

■ Parameters P27, P28

Diagnostic d11, d12

The 2-pipe hot/cold fan-coil units may be fitted with a water temperature sensor (or changeover sensor). It must be positioned using a conduit clip by the installer upline of the four-way valve (water piping end). It is fastened to the pipe by means of electrician's clamps.

Position and use of the changeover sensor



■ Changeover operating algorithm:

- If the changeover sensor measures water temperature greater than 7°C (adjustable in P27) at ambient temperature, the water is deemed to be hot.
- If the changeover sensor measures water temperature less than 4°C (adjustable in P28) at ambient temperature, the water is deemed to be cold.
- If the changeover sensor measures water temperature between these 2 values, the water is deemed neutral.

■ Changeover operation with water at neutral temperature:

In this scenario, and when there is an established need from the controller, the V3000 launches a test cycle on the valve every 45 mins so as to check the network's available water temperature (valve 100 % opened to authorise water circulation in the terminal unit coil).

- If this temperature does not vary, the V3000 keeps the same status
- If this temperature varies and returns to the conditions described above, the V3000 re-authorises its control cycle



Important: the changeover sensor measures the surface temperature of the piping. 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.

- For P31 = 1, if nothing is connected between terminals S2 and C, the controller deduces that the water circulating in the coil is still cold. If there is a bridge between these terminals, the controller deduces that the water is still hot.
- For P31 = 2, the controller waits to receive the water temperature from the central management unit before starting in heating or cooling mode (if it does not receive a temperature value, it will not start its heating or cooling control sequence and will indicate alarm E11)

Diagnostic d11:

- If the controller is working based on its changeover sensor wired to S2 and C, d11 indicates the temperature read by this sensor.
- If the controller is working based on an On-off contact wired to S2 and C, or based on information from the centralised changeover
 - d11 indicates 127°C if D2/C is shunted or centralised changeover = hot water.
 - d11 indicates -72°C if D2/C is not shunted or centralised changeover = cold water.

Diagnostic d12:

Certain central management units may temporarily prohibit heating or air conditioning operation.

Diagnostic d12 will tell you the current authorisations.

Frost protection is enabled even if no heating authorisation has been activated by the supervision.



Very important: the sensor should be placed on the water inlet pipe. It must be installed on the pipe before being insulated.

9 - CONTROL ALGORITHM

Parameters P40, P41, P47, P48, P49, P50, P51, P52, P62, P67.

■ PID setting

The Proportional Integral Derivative control parameters are set in the factory.

The values are:

- Hot Proportional Band: 4 K
- Hot Integration Time: 5 min
- Hot derivative time: 1 min
- Cold Proportional Band: 2 K
- Cold Integration Time: 10 min
- Cold derivative time: 1 min

These values, validated in the laboratory, enable "Comfort" operation in most terminal unit applications.

■ Neutral zone ventilation

According to the operating mode, the neutral zone ventilation is set in the factory as follows:

- Comfort mode (P40): 0 Ventilation off (if controller with indoor environment sensor) or 3: periodic restarts (if control with return sensor)
- Standby mode (P41): 0 Ventilation off
- Economy mode: 0 Ventilation off
- Frost protection mode: 0 Ventilation off
- Neutral zone ventilation is adjustable via P40 and P41, to comfort and standby mode

It is possible either to cut off the ventilation after 2 mins post-ventilation (parameter = 0), or have constant low speed ventilation (parameter = 1), or have constant ventilation in the summer and cut off in the winter (parameter = 2), i.e. ventilation on every 30 mins for 30 seconds.

If control is applied using the return sensor, it is strongly recommended to have continuous low speed ventilation.

The setting of these parameters is derived from a compromise between control precision, physiological comfort and energy saving.

- When the V3000 is powered up, the deadband ventilation process will be effective as soon as the first heating or cooling request is made for a room.

■ Minimum ventilation time

In automatic ventilation, the controller automatically engages the ventilation speeds. To limit the number of ventilation speed changes, there is a stipulated minimum ventilation run time of 2 minutes at each speed.

■ Comfort override delay

To control energy consumption, the controller may limit the operating time in comfort mode following a user override. This delay is not applied when the order to enter comfort mode comes from the central management unit. Parameter P48 enables you to set a timer between 30 mins and 24 h, or to prohibit any comfort override (P48 = 0). This function may be disabled (P48 = 24.5).

- If P48 = 24: the setpoint overrides are not stored upon return to standby mode. The current fan speed is not memorized and returns to AUTO.
- If P48 = 24.5: the setpoint overrides are stored in all operating scenarios. The current fan speed is not memorized and returns to AUTO.

■ Operating mode activated by standby button

According to parameter P47, pressing the standby button switches between comfort and frost protection, or between comfort and economy, or between comfort and standby.

In all cases, the central management unit maintains the option of selecting each of these operating modes.

■ Electric heater operation limiting according to outdoor temperature

The controller can limit operation of the electric heater according to the outdoor temperature, once the comfort temperature has been reached.

To do so, the base outdoor temperature must be defined (P62), the minimum temperature reachable at least 5 times in the course of a normal winter.

The outdoor temperature information must come from the BMS via the KNX bus.

■ Management of heat exchanger coils

Parameter P67 indicates to the controller whether it has at its disposal a hydraulic coil and electric heater, one of the hydraulic coils only or an electric heater only.

Certain central management units modify this parameter to temporarily prohibit use of certain coils according to external events (thermodynamic unit switched off, need to limit electrical energy consumption...).

To get a better understanding of what is going on, diagnostic d13 recalls the value of P67 and d12 indicates the current status following any action by the central management unit. Depending on what is defined in P67 and what the central management unit requests (see d12), the regulator determines whether it can have hydraulic coils and electric heaters.

9 - CONTROL ALGORITHM

■ Universal inputs

The V3000 controller is equipped with 2 configurable potential free inputs. These 2 inputs D1-C and D2-C are delivered from the factory with a bridge. If you want to connect contacts to the inputs (frame contact for example), the bridges must be removed.

- Universal input D1

- This input can be configured using parameters P49 and P51
- P49: Action direction of contact, NO or NC
- P51: Enables you to slave controller operation to contact opening or closure, with the possible set-up below:
 - 0: Inactive
 - 1: Window contact comfort → Frost protection (local override impossible)
 - 2: Presence contact comfort → Eco (local override impossible)
 - 3: Presence contact comfort → Standby (local override impossible)
 - 4: Condensate pump alarm: fan coil unit switched off and cold valve closed
 - 5: Fan unit motor alarm: Complete fan coil unit shutdown
 - 6: General alarm: Complete fan coil unit shutdown
 - 7: Air quality information: enables you to send via the bus a "low air quality" signal to the room. An On-Off controller output may be synchronised with this information.
 - 8: Clock for switching Comfort → Eco (local override authorised)
 - 9: Clock for switching Comfort → Standby (local override authorised)

- Universal input D2

- This input can be configured using parameters P50 and P52
- P50: Action direction of contact, NO or NC
- P52: Enables you to slave controller operation to contact opening or closure, with the possible set-up below
 - 0: Inactive
 - 1: Window contact comfort → Frost protection (local override impossible)
 - 2: Presence contact comfort → Eco (local override impossible)
 - 3: Presence contact comfort → Standby (local override impossible)
 - 4: Condensate pump alarm: fan coil unit switched off and cold valve closed
 - 5: Fan unit motor alarm: Complete fan coil unit shutdown
 - 6: General alarm: Complete fan coil unit shutdown
 - 7: Clock for switching Comfort → Eco (local override authorised)
 - 8: Clock for switching Comfort → Standby (local override authorised)
 - 9: Air quality information: enables you to send via the bus a "low air quality" signal to the room. An On-Off controller output may be synchronised with this information.
 - 10: Frost protection for "Fresh air": fan coil unit switched off, with hot valve 100 % opened

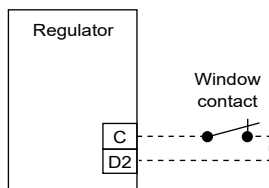
Note regarding D1 and D2:

- **Make sure that the settings of inputs D1 and D2 are always different (to avoid any risk of conflict between identical values on two different inputs).**

10 - CONNECTING THE FRAME CONTACT

Parameters P51 or P52

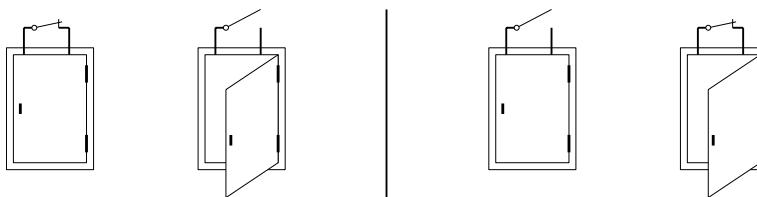
Frame contact to be wired to input D1-C or D2-C, according to your device's configuration (refer to the corresponding wiring diagram).



The cable used has a maximum length of 10 m, and minimum section of 0.9 mm². It is recommended to use a twisted and shielded cable.

Note: the window contact must be insulated from earth. If there is shielding present, it must be connected to the fan coil unit earth

■ Direction of window contact



- If the window is open and the controller has a display terminal, this will display " _ _ _ " instead of the temperature.

N.B:

- **When the window re-closes, the unit restarts automatically**
- **The terminal display will return to "normal" after 10 seconds, the synchronisation time between it and the controller**

11 - MASTER / SLAVE FUNCTION

Parameters P00 and configuration procedure:

■ Diagnostic d01 and d02

The V3000 may perform the master/slave function via 3 different ways:

- Master/slave by hot/cold authorisation (P00 = 1 on master, P00 = 2 on slaves). Each controller works according to its own temperature measurement. A slave can only heat if the master is heating. A slave can only cool if the master is cooling.
This function can take into account local temperature variations inside the same room.
- Master/slave by measured T°C mirror effect (P00 = 1 on the master, P00 = 3 on the slaves) The master sends its own temperature measurement to all slaves. All the devices in the room therefore work with an identical measurement.
- Master/slave by actuator position mirror effect (P00 = 1 on the master, P00 = 4 on the slaves), the master sends the position of its outputs to all the slaves. All the devices in the room therefore work with the same outputs position (valves, electric heater, fan).

NOTE: Do not use this configuration when there are units in the same room which are:

- **A different size, and**
- **Equipped with HEE motors (and therefore have different speed thresholds)**
- **In this case, use the configuration P00=3 on the slaves.**

In these 3 cases, the temperature setpoints, and the operating mode are the same on all the devices of the same master/slave function.

- With regards to the ventilation speeds, the first 2 authorise different speeds on the master and corresponding slaves if the Auto position is selected on the master.

The master/slave function is performed directly, with no need for the presence of a central management unit. It is sufficient to have a KNX supply and a bus meeting the KNX specifications (see Special instructions on KNX bus):


- The bus must be fed by a standardised KNX supply.
- Use KNX certified cables
- Wiring diagram (see V3000 KNX instruction manual)

■ Configuration method for Master/Slave operation


- The connection bus between the controllers must meet the KNX specifications and be fed by a KNX supply.
- This configuration is performed using a wall-mounted display terminal (using 2 display terminals is advised).
- Before configuring, all controllers connected to the KNX bus must be switched on (even if they are not affected by the master/slave).

1. Case of a Master unit with 1 slave:

a) Start with the master

- Set parameter P00 to 1.
- To switch to configurator mode press buttons   for 5 seconds, and the CnF menu will be displayed.
- Press  for 5 seconds until the display "Add ₁" flashes.

b) Go on to the slave














- Perform the same operation as above, setting parameter P00 to 2, 3 or 4 beforehand, according to the chosen slave type.
- c) The configuration takes around 1 min to 1.5 mins. It is completely finished when the fixed display "Add ₀" appears
- d) To return to normal display, press 
- e) If the display "Err" appears, an error has occurred

11 - MASTER / SLAVE FUNCTION

Check:

- The bus wiring
- Its supply
- Parameter P00 on the master and slave

And restart the operation

	Configuration	on SLAVE	on MASTER
Step 1	Set P00 on the master via the 3 buttons    (see Accessing Parameters paragraph)		Pco = 1
Step 2	Access the "CnF" menu on the Master  /  for 5 s		Switch the Master to configuration -  for 5 s - "Add _x " flashes
Step 3	Set P00 on the slave via the 3 buttons    (see "Accessing Parameters" paragraph)	P00 = 2 – 3 or 4 depending on the chosen slave type	
Step 4	Access the "CnF" menu on the Slavee  /  for 5 s	Switch the Slave to configuration -  for 5 s - "Add _x " flashes	
Step 5	Wait 1 min to 1.5 mins	Configuration step displayed, from Add ₁ to Add ₆	Configuration step displayed, from Add ₁ to Add ₆ .
Step 6	End of configuration if:	"Add ₀ " Fixed display	"Add ₀ " Fixed display
Step 7	Configuration successful	Button  to exit CnF menu	

2. Case of a Master unit with several slaves:





- 1 master must be associated with 1 slave only
- This must therefore be repeated as many times as there are slaves
- Perform the same operation as in paragraph 1 with the first slave.
- Do the same operation as in paragraph 1 with all other slaves associated with this master.
- Starting from the 2nd slave configuration lasts 30 seconds to 1 minute

Note: Allow a maximum of 15 slaves for 1 master unit.

3. Verify configuration via diagnostics d01 and d02

- d01 relates to the master
- d01 gives the address of the master on the bus, for instance: 1
- d02 relates to the slave
- d02 enables you to check which master is associated with the queried slave. All slaves with their d02 at 1 are associated with master no. 1.

Deconfiguring a Master/Slave loop








- Start with the slave
 - To switch to configurator mode, press buttons   for 5 seconds.
 - Press  for 5 seconds until the display "dEL" flashes.
- Go on to the master
 - Perform the same operation as above
- Configuration takes between 30 seconds and 1 min (approximately). It is completely finished when "dEL₀" goes back to being fixed.
- To return to normal display, press 
- If the display "Err" appears, an error has occurred

11 - MASTER / SLAVE FUNCTION

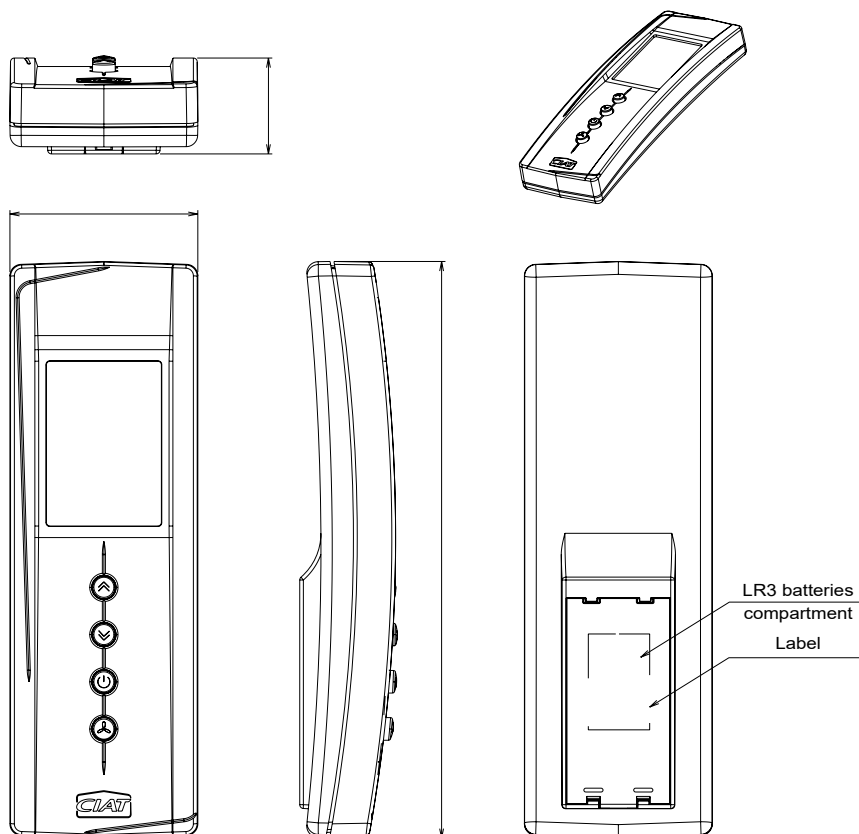
Check:

- The bus wiring
- Its power supply
- Parameter P00 on the master and slave

And restart the operation

	Configuration	on SLAVE	on MASTER
Step 1	- Access the "CnF" menu on the Slave  /  for 5 s	Switch the Slave to deconfiguration -  for 5 s - "dEL" flashes	
Step 2	- Access the "CnF" menu on the Master  /  for 5 s		Switch the Master to deconfiguration -  for 5 s - "dEL" flashes
Step 3	Wait 30 s to 1 min	"dEL ₆ " flashes	"dEL ₄ " flashes
Step 4	End of deconfiguration if:	"dEL ₀ " Fixed display	"dEL ₀ " Fixed display
Step 5	Deconfiguration successful	Button  to exit CnF menu	

12 - RADIO-FREQUENCY REMOTE CONTROL (SET-UP)



The radio-frequency remote control can only be used with a radio receiver built into the terminal unit.

This remote control enables you to remote control (up to 10 m range) a fan coil unit equipped with a radio-frequency receiver.

This radio-frequency receiver is fitted in the factory on the terminal unit. Its design enables it to be put in the room itself, if necessary.

The features and use of this remote control are the same as for the user display terminal.

The receiver and remote control periodically exchange information (return air temperature value, setpoint value, ventilation speed...).

These exchanges may take longer than with a wire terminal and need a few seconds.

Batteries: the V3000 system CIAT remote control operates with 2 LR03 alkaline batteries (provided). It is advised that these batteries are replaced once a year. (depending on the use).



Warning : there is a risk of explosion if the battery is replaced with the wrong type. Dispose of used batteries in accordance with the instructions. When replacing batteries, make sure the product is correctly and completely refitted.



IMPORTANT for Switzerland: Annex 4.10 to the norm SR 814.013 is applicable to batteries.

Safety guidelines

These instructions must be read carefully and observed. Keep this manual.

- Do not modify the remote control.
- If necessary, the remote control may be dusted with a soft, dry cloth. Do not immerse the remote control in water or other liquids, and avoid using aerosols.
- Do not disassemble the remote control as this could damage its internal components.
- Do not expose the remote control to rain or moisture. Protect the remote control from splashes of water.
- Do not place the remote control near sources of heat
- Do not drop, knock or shake the remote control.

Hazard for children

- Batteries could pose a lethal risk if swallowed. The remote control and its batteries must be kept out of the reach of young children. If a child does swallow a battery, seek medical attention immediately.
- The remote control is not a toy and must never be given to young children.
- Keep the packaging out of the reach of children. Risk of suffocation!

12 - RADIO-FREQUENCY REMOTE CONTROL (SET-UP)

Risk of injuries and health problems

- If the liquid acid leaks or becomes oxidised, avoid any contact with the skin, eyes and mucous membranes. In the event of contact with battery acid, rinse the point of contact immediately with plenty of clean water and seek medical attention immediately.
- Batteries should be removed from the unit when they are spent, or if they are not being used for prolonged periods. This will prevent damage due to leaks.
- Do not expose the batteries to extreme conditions by placing them on radiators, for example. Increased risk of leaks!
- The batteries must not be charged, opened, thrown into fire or short-circuited. Risk of explosion!





Battery recycling

- Do not dispose of batteries with the ordinary household waste. To protect the environment, batteries should be disposed of in line with the regulations in force.
- Never recharge non-rechargeable batteries. Do not disassemble batteries. Do not throw them into the fire.
- Do not expose batteries to high temperatures or direct sunlight.
- Do not incinerate them.



Configuration of the remote control with its radio-frequency receiver

If the remote control is not associated with its radio receiver (in this case the remote control displays CF1):



- Upon switching on, the radio-frequency receiver LED  flashes rapidly. If this is not the case, the radio-frequency receiver has already been configured. In this case, refer beforehand to paragraph "Removing links" below.
- Switch the radio receiver to configuration mode, pressing its button for 3 seconds until the green LED starts flashing more slowly.
- On the remote control:
 - Remove the insulation tab on the batteries to switch it on.
 - The display will then be "CF1" (Configuration Menu).
 - If "CF1" does not appear, enter the configuration menu, holding the 2 buttons  and  or 5 seconds.
 - "CF1" means that no radio receiver is associated with the remote control.
- Then on the remote control press the  button until "Add 1" appears on the screen.
- The rest of the configuration is performed automatically (around 5 seconds).
- When configuration is complete, the remote control display returns to its normal screen (temperature display...).
- The LED on the radio receiver goes out.

Note 1:

The remote control may not return to its normal display, but may return to the "CF" configuration menu:



- If CF2 is displayed, the pairing process has been completed correctly. Allow the remote control to go to standby before using it.
- If CF1 is displayed, the pairing process has failed; it is therefore necessary to restart the pairing process by clearing any links created previously (see the paragraph entitled "deleting links between the remote control and the receiver").

Note 2:

- * The LED on the radio receiver is lit once it receives an order from its associated remote control.
- * Once configured, the  button on the radio receiver enables you to start/stop the fan coil unit on which it is fitted. In parallel, the symbol  displayed on the remote control reacts according to the fan coil unit status. This enables you to check that the receiver and its remote control have been "coupled".

To remove links between a remote control and a receiver already associated.

Switch the radio receiver to configuration mode, pressing and holding its button for around 10 s, until the LED starts flashing rapidly. "Decoupling" is executed automatically

Then on the remote control, enter "config" mode by pressing the ventilation , and standby , buttons simultaneously, until "CF2" is displayed on the screen.

Press the  button until the remote control displays "del".

The rest of deconfiguration is executed automatically.

When deconfiguration is complete, the display will return to "CF1".

■ Using the radio remote control

After 30 seconds without use, the remote control will go into standby (display switches off) so as to save the batteries.

To "wake" the remote control, press any button.

A horizontal dotted line (-----) flashes on the screen while the remote control synchronises with its receiver (this will take a few seconds).

■ Battery replacement message





If the message "bAt" appears for a few seconds (instead of the flashing dotted line mentioned above) when the remote control is woken up from standby mode, replace the batteries.

12 - TELECOMMANDE RADIO FREQUENCE (PARAMETRAGES)





■ Master/Slave configuration with the radio-frequency remote control::

- 1) The KNX bus is present between the Master and Slaves, in this case the configuration procedure is the same as that described on page 13.
- 2) No bus is wired between the Master and Slave, in this case it is possible to control up to 8 terminal units with a single remote control (each terminal unit must be equipped with a radio-frequency receiver).

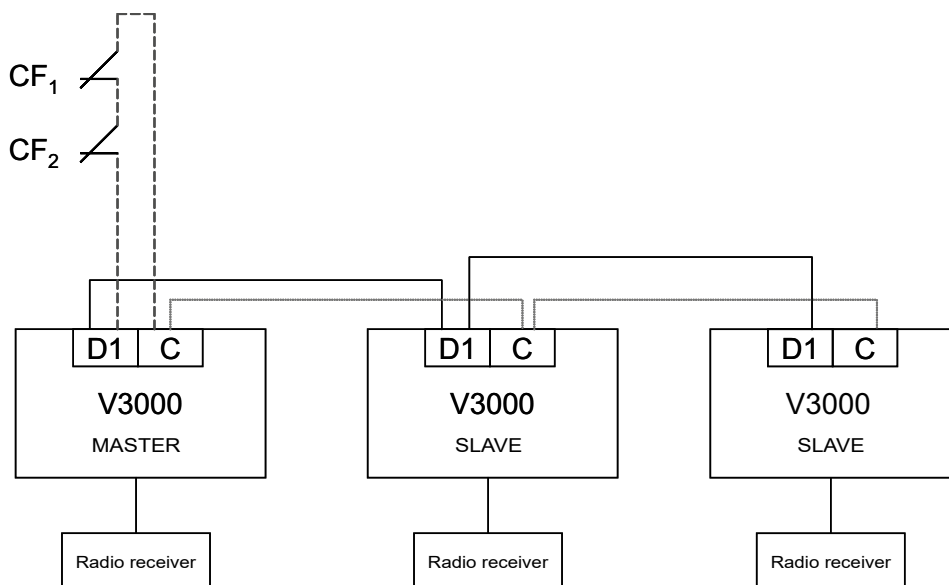
To configure

- Set P00 to 0 on all the controllers in the master/slave loop (default factory setting).
- Initially, configure the remote control with the 1st radio receiver, as per the procedure described above.
- This radio receiver thereby becomes the "master", and it will indicate to the remote control all information necessary for its operation.
- Switch receiver no.2 (slave) to "coupling", making it flash slowly using button  (hold for around 3 seconds).
- Enter the remote control Configuration menu (button  or  for 6 seconds)
- The display turns to CF2: this means that the master is correctly configured and that you can configure a slave.
- Press : "Add₂"
- The configuration is executed automatically.
- At the end of the configuration: the remote control returns to its normal display and the receiver LED goes off.
- Restart the operation for the other slaves, up to a maximum of 6 terminal units.

Removing links between a remote control and several receivers:

- Start by "decoupling" all the radio receivers by pressing their respective  buttons for more than 10 seconds (LED flashing rapidly). Deconfiguration is automatic.
- On the remote control enter the configuration menu ( and  for 5 seconds) until "CF2" is displayed.
- Press  , "dEL" appears.
- Wait until the display turns to "CF1"
- All of the receivers and the remote control are "deconfigured"

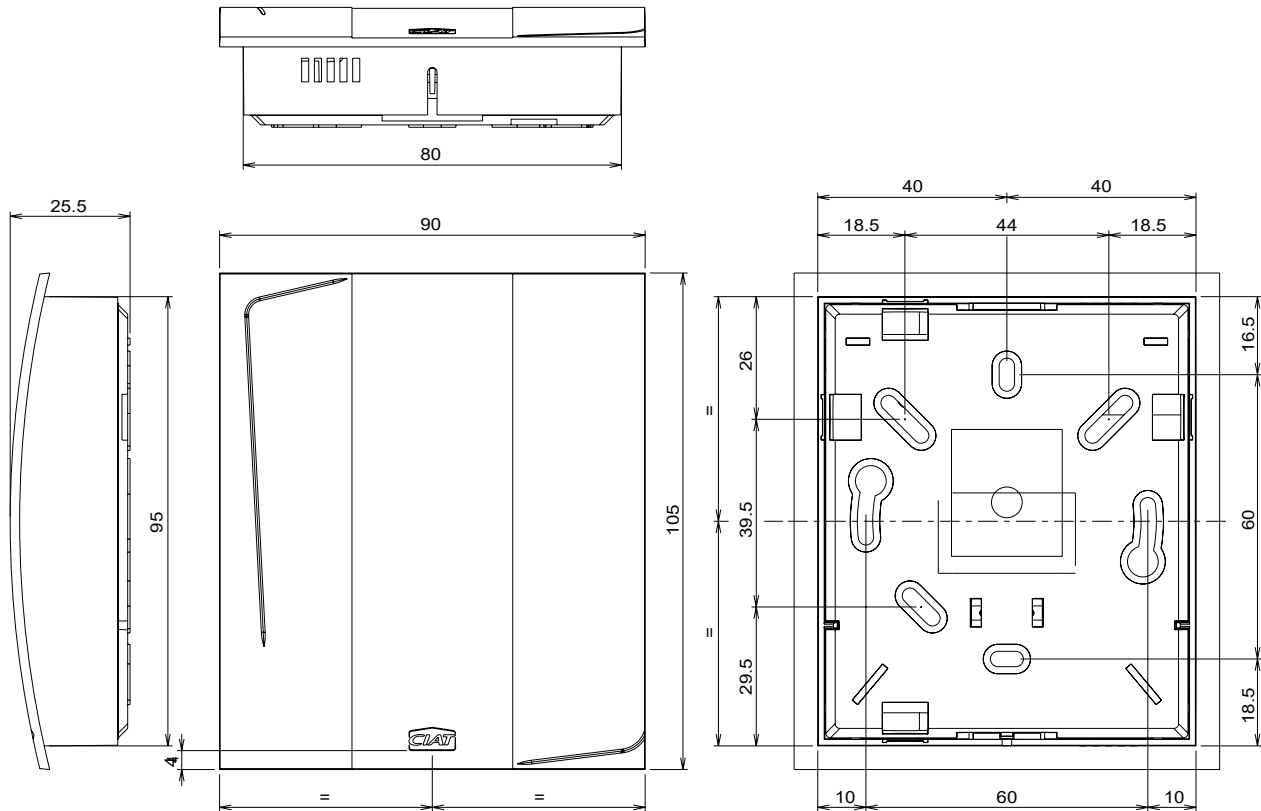
Wiring of window contacts (CF), presence contacts on inputs D1/C to D2/C in case of Master/Slave configuration without KNX bus.



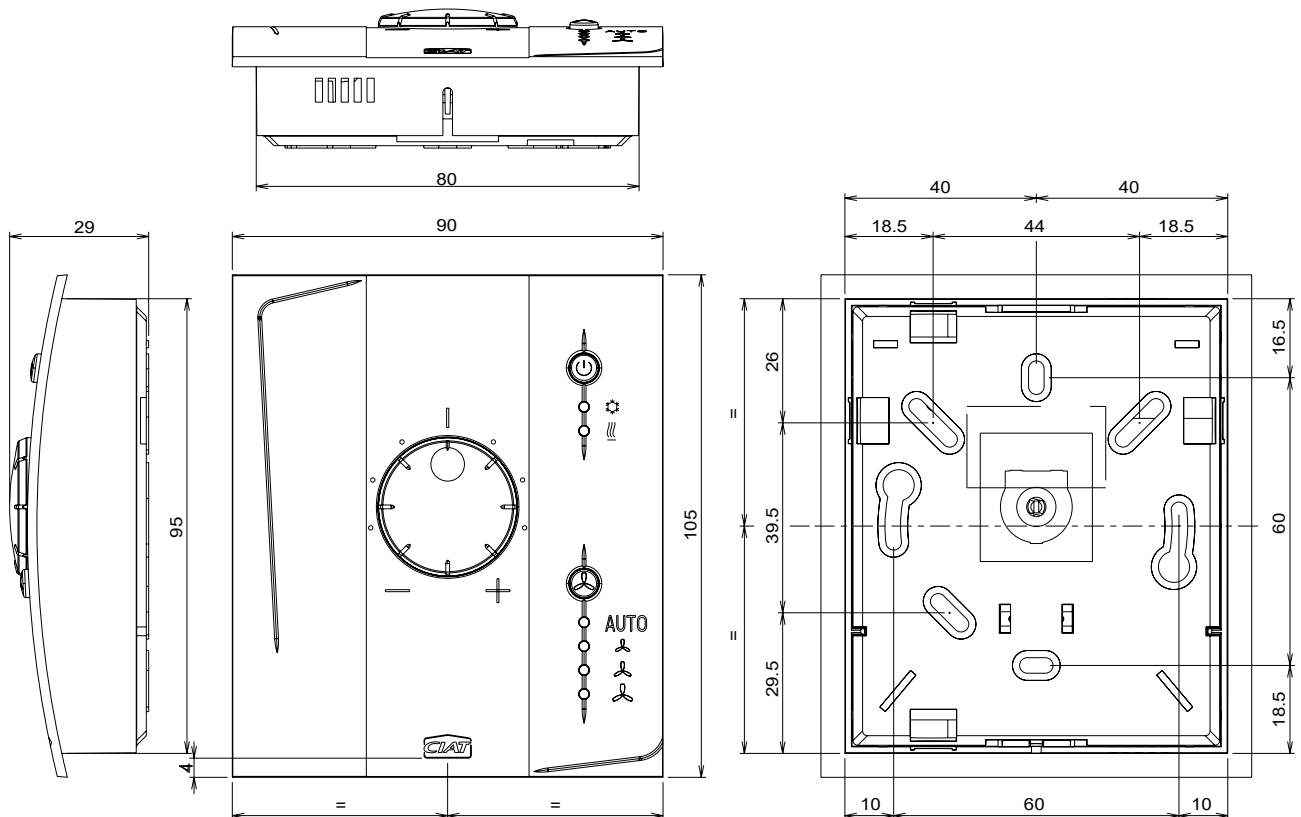
Important: he correct polarities (D1 to D1 and C to C for all controllers)

13 - TECHNICAL SPECIFICATIONS

a) Blank terminal

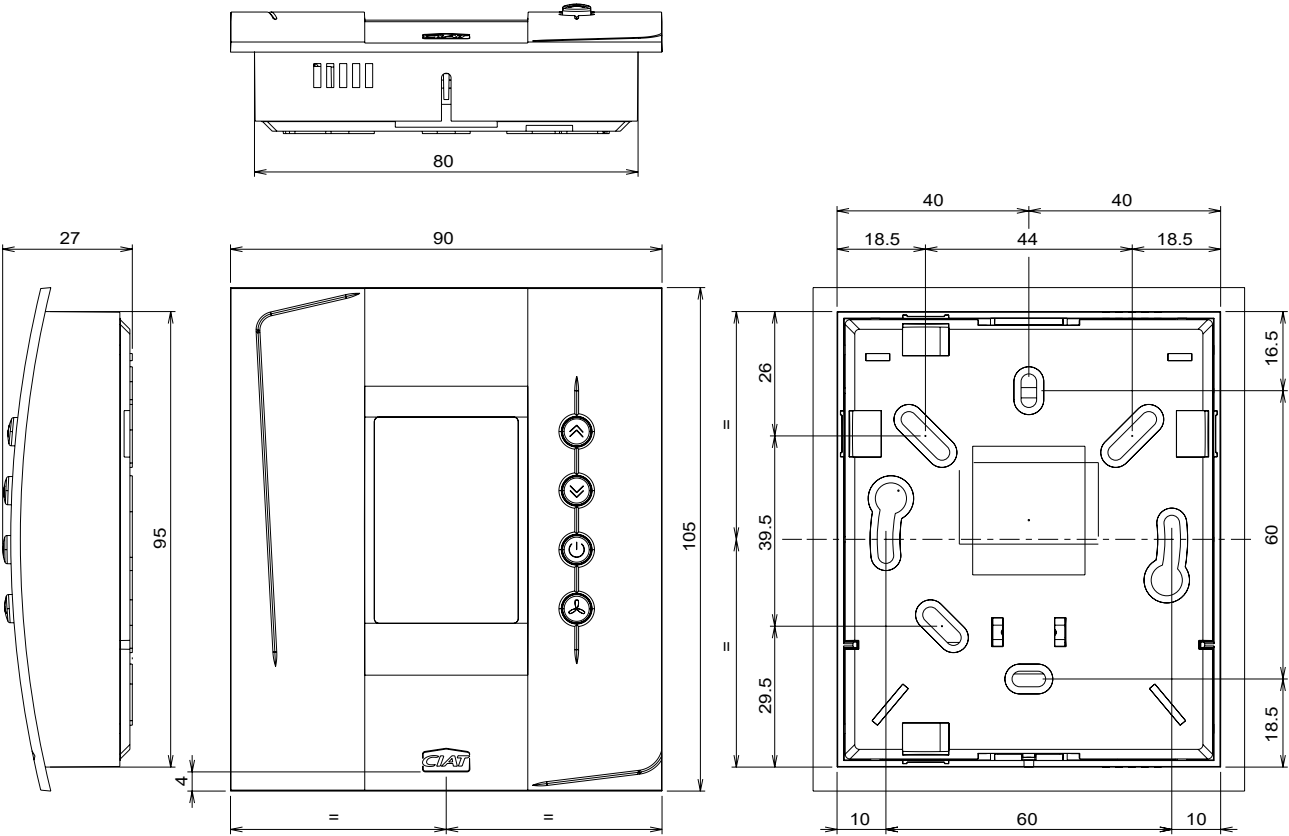


b) Wall-mounted dial terminal

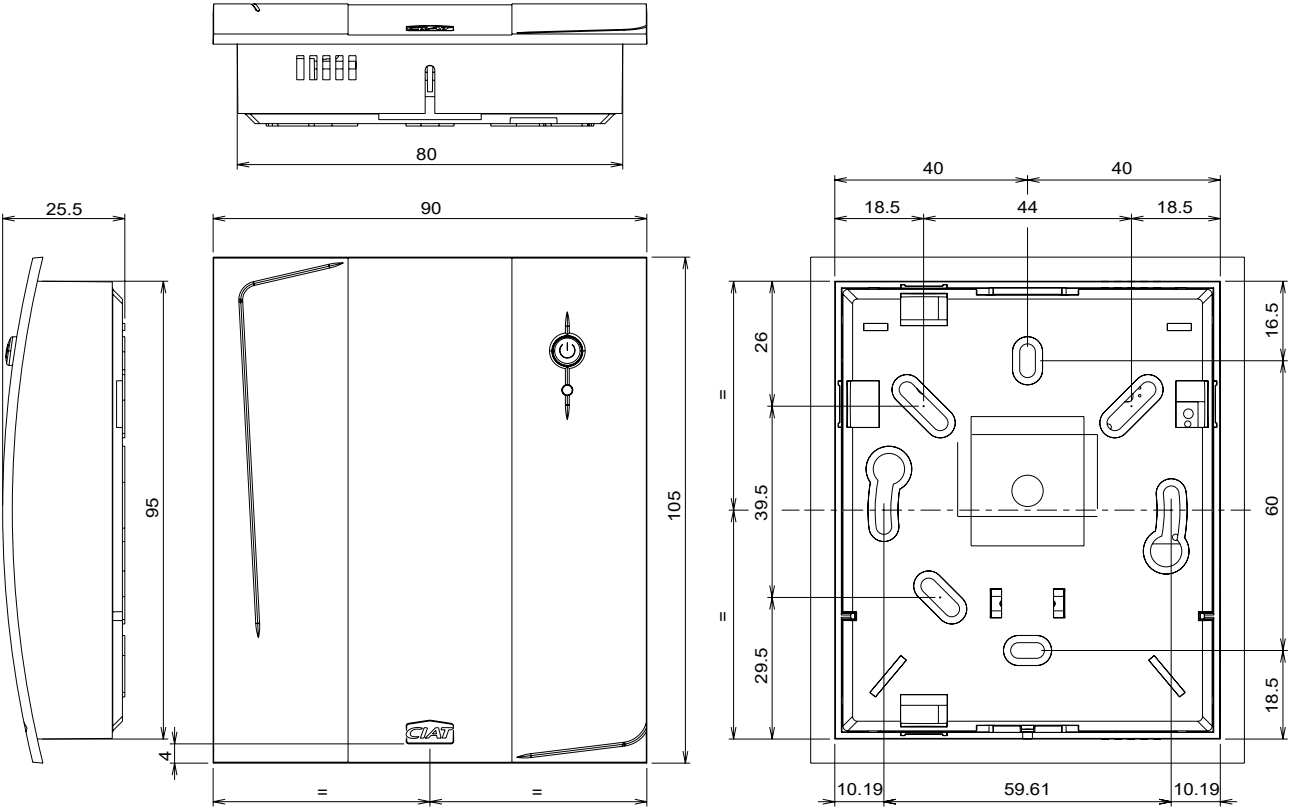


13 - TECHNICAL SPECIFICATIONS

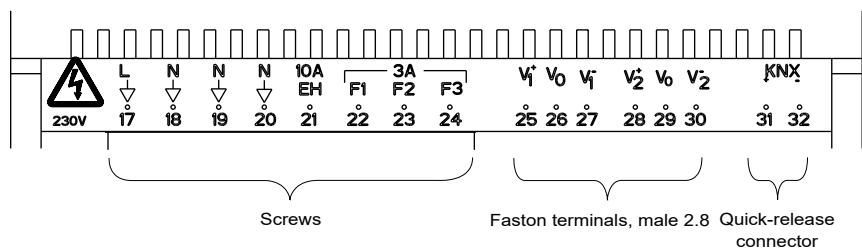
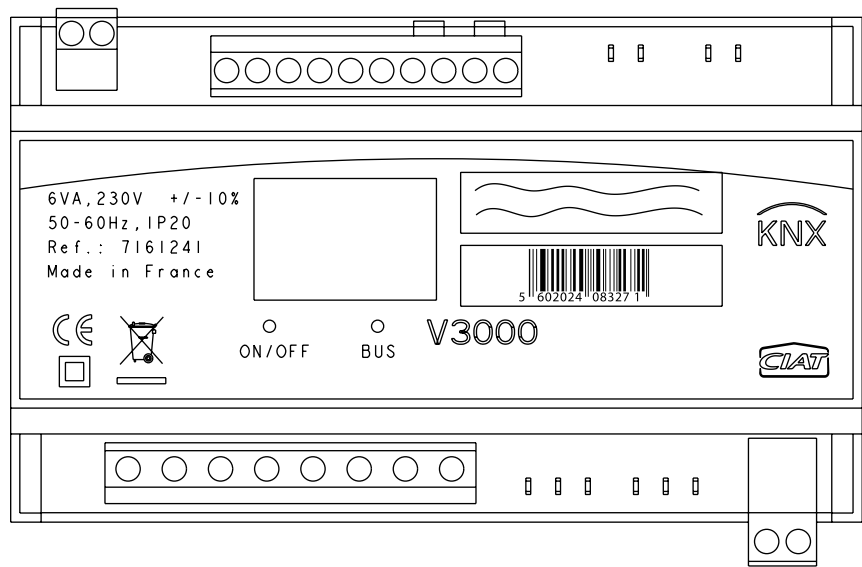
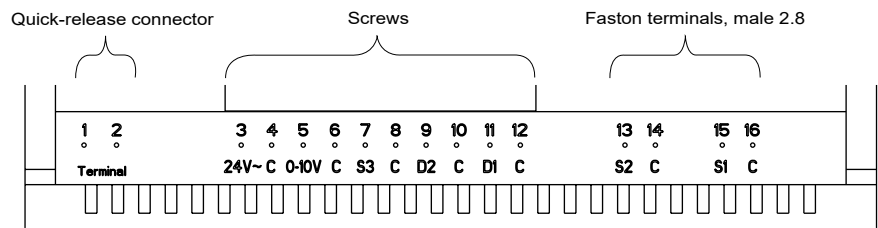
c) Display terminal



d) Radio-frequency receiver



14 - WIRING DIAGRAM



N.B.:
If the user terminal is used in the room, the connection to the controller is provided by means of flexible wires with a maximum length of 30 m and section 1 mm² (2 conductors, see terminal 1 and 2 of the regulator). It is essential to use a twisted shielded cable. The shielding must be connected to earth at a single point, to the fan coil unit eart.



Declaration of Conformity UE

This unit complies with the provisions of European Directives:

2014/30/EU (EMC)

2014/53/EU (Radio)

2011/65/EU (RoHS)

REGULATION (EC) No 1907/2006 (REACH)



UK Declaration of Conformity

This unit complies with the requirements of:

Electromagnetic Compatibility Regulations 2016

Radio Equipment Regulations 2017

The Restriction of the Use of Certain Hazardous Substances in
Electrical and Electronic Equipment Regulations 2012

UK REACH Regulations 2019

UK Importer:

Toshiba Carrier UK Ltd, Porsham Close, Roborough, Plymouth,
PL6 7DB

