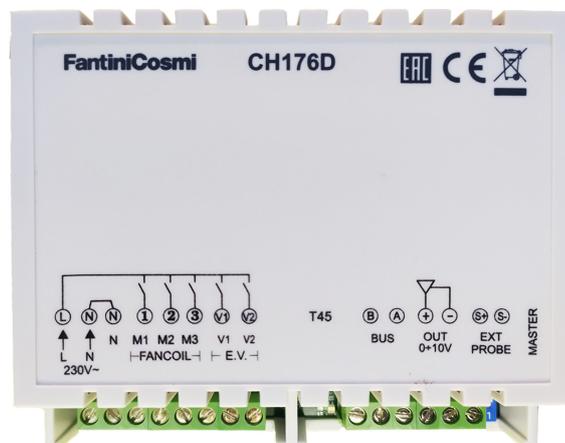




INSTRUCTIONS FOR USE

# KIT CH130ARR2

ROOM THERMOSTAT  
AND ACTUATOR  
FOR FAN COIL CONTROL



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Thank you for purchasing a **FANTINI COSMI S.p.A.** product

Please read this instruction manual carefully and always keep it at hand should you need to consult it for any reason.

The documentation reflects the characteristics of the product. However, for regulatory or commercial developments, customers should verify the availability of updates relating to this documentation on the FANTINI COSMI S.p.A. website: [pdf.fantincosmi.it](http://pdf.fantincosmi.it)

## OPERATION

The unit **CH130ARR2** is a kit consisting of a thermostat **CH130AR2** and an actuator **CH176D** that connected with a bipolar cable, allows the remote control of two valves, the three-speed motor, or a 0 ..10V motor, of a fan coil. The thermostat reads the room temperature and controls it from the fan coil's motor valves and speed in order to obtain the best climate comfort. Fan adjustment can be automatic or manual, depending on the settings made by the user from the function keys, which, together with the LCD screen facilitates daily operation of the system. The non-polarised bipolar cable connecting the thermostat to the module has dual function:

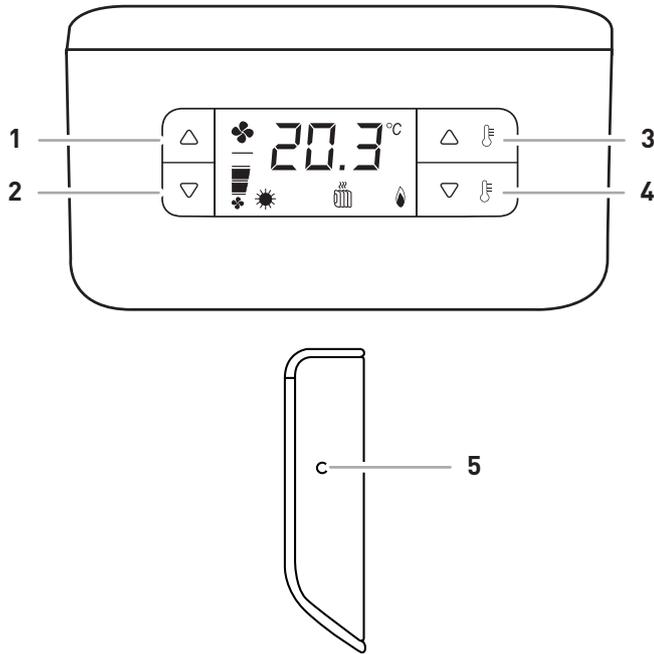
- thermostat power supply,
- communication bus between thermostat and actuation module.

It is possible to connect a single thermostat to several actuators in order to control more fan coils simultaneously with only two cables. For this application, follow the detailed instructions in the unit installation manual **CH176D**.

## CONTENTS OF PACKAGE

- 1 thermostat
- 2 screws
- 1 user manual
- 1 actuator

## DESCRIPTION OF DISPLAY KEYS



## CONTROLS

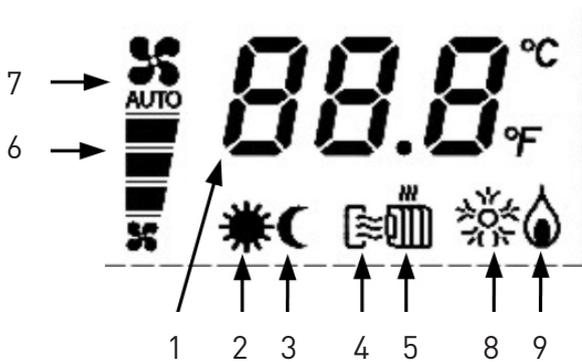
1	Increases the fan speed or sets automatic ventilation
2	Reduces the ventilation speed or sets OFF mode (thermostat off).
3	Increases the current temperature set point
4	Decreases the current temperature set point
5	Thermostat reset without loss of settings

## ADVANCED CONTROLS

Simultaneously pressing the two keys enables the following settings:

1 and 2	Comfort/Economy mode change
3 and 4	Summer/Winter mode change (pressing > 3 sec)

## WARNINGS KEY



1	Measured or set temperature
2	Comfort mode
3	Economy mode
4	Summer mode
5	Winter mode
6	Fan speed indicator (MIN-MED-MAX)
7	Automatic fan mode
8	Fan-coil cooling enabled
9	Fan-coil heating enabled

**Note:** in 4-pipe plants, when both symbols 4 and 5 light up it indicates AUTOMATIC mode.

With the active minimum sensor function, the symbol 8 or the flashing symbol 9 indicates that the supply water temperature is outside the set limits. In this case, ventilation is interrupted.

## TECHNICAL FEATURES

Power supply	via remote actuator CH176D
Exit	Proprietary BUS
Auxiliary input	for potential-free contact
Probe input	NTC 10K0hm (Fantini EC15-EC18-EC19-EC20)
Electrical connections	screw clamps
Protection rating	IP20
Degree of pollution	2
Settings memorisation	non-volatile memory
Software	Class A
Temperature adjustment field	2°C - 40°C
Maximum temperature	T45
User interface	LCD display and 4 keys
Dimensions (L x H x D)	135 x 83 x 21 mm
Reference thermal gradient	4 K/h
Complies with Directives	Directive 2014/35/EU Directive 2014/30/EU
Complies with Standards	EN60730-1 EN60730-2-9
ErP classification	<ul style="list-style-type: none"> <li>■ ErP Class I; 1% [Reg. EU 811/2013 - 813/2013]</li> </ul>
Product not made in Italy	

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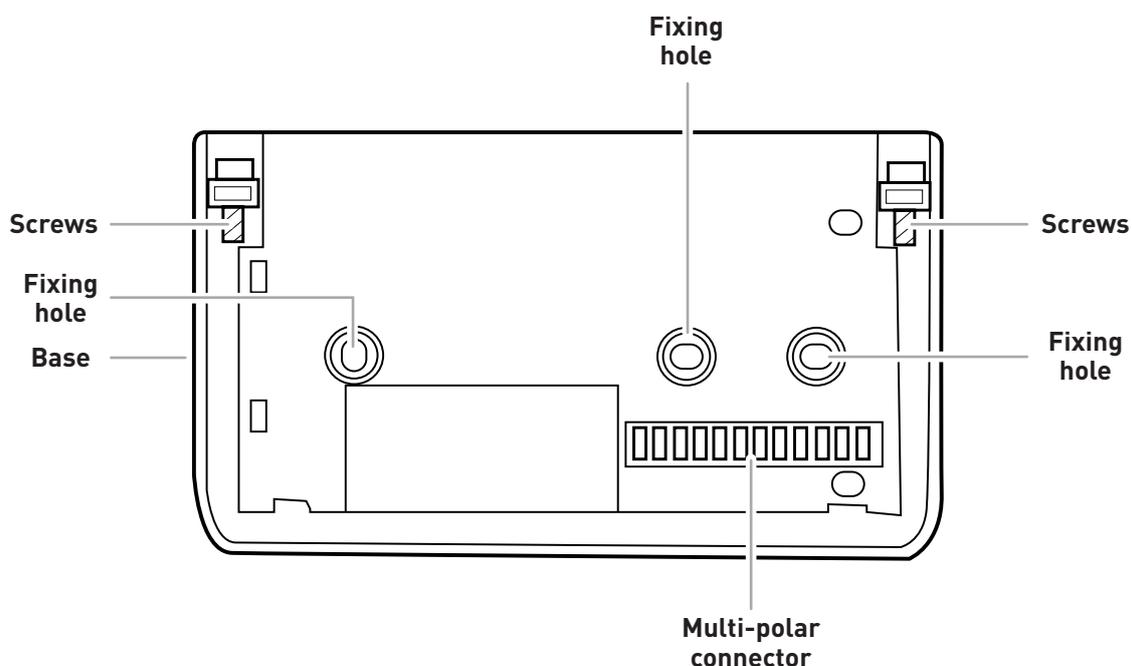
## 1 - INSTALLATION



### ATTENTION!

Installation must be carried out by qualified personnel, in compliance with the requirements concerning installation of electrical devices. Make sure that the power network is disconnected before making any connections or working on the device.

The thermostat **CH130AR2** is supplied with a base suitable for assembly both wall-mounted and recessed in rectangular 3-place box (503) or round.

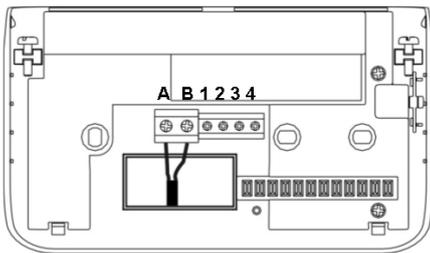


- Remove the top cover of the thermostat.
- Divide the base and front of the thermostat by removing the screws with a specific tool and extracting the front part.
- Fix the base to the required surface by means of the specific fixing holes; and make sure that the base is well secured, without deformations and that the multi-polar connector is at the bottom right corner.
- For proper operation, the base must be approximately 1.5 metres above the floor, away from heat sources (direct sunlight, etc.) and from doors and windows.
- Insert the thermostat on the base and screw it, making sure that the multi-polar connector is inserted properly.
- Refit the top cover.

## 2 - ELECTRICAL CONNECTION

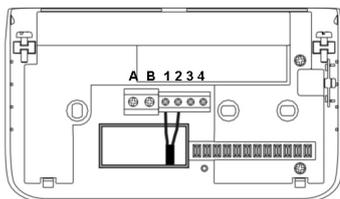
For further information regarding connection of the thermostat-actuator-fan coil system, refer to the connection diagrams in the **CH176D** unit installation manual. Electrical connections must be carried out as shown in the connection diagram. Please note that connection of the external probe (EXP1) and input for remote control (SEL1), are subject to certain configuration parameter settings.

### Connection of the actuator



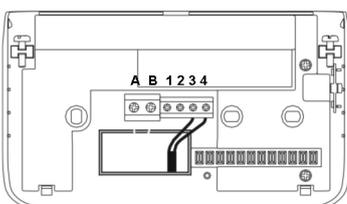
Connect the power wires coming from the actuator CH172D to terminals A and B, as shown in the figure. Flexible conductors with a max cross-section of 2.5 mm<sup>2</sup> can fit in the terminals.

### Connection of auxiliary input



Connect the two auxiliary input wires to the screw terminals 1 and 2, as shown in the figure.

### Connection of the external probe



Connect the two wires of the external probe to the screw terminals 3 and 4, as shown in the figure.

## 3 - DIRECTIONS

### 3.1 - START-UP

To start the thermostat after installation, follow the procedure below:

1. Configure the functional parameters (by the installer).
2. Set the operating mode (Summer or Winter).
3. Set the operating mode (Comfort or Economy).
4. Set the fan speed ((MIN-MED-MAX or Automatic).

### 3.2 - SUMMER/WINTER MODE SELECTION

The current operating mode is indicated by the relative symbol. To change current operating mode settings, simultaneously press keys 1 and 2 (pressing > 3 sec).

**Note:** the operating mode cannot be changed if the thermostat is enabled to manage change-over (locally or remotely) or if the 4-pipe system is enabled in AUTOMATIC mode.

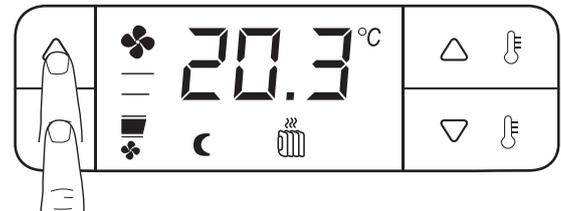
Winter  
mode



Summer  
mode



Automatic  
mode



### 3.3 - OPERATING MODES

The thermostat has three different operating modes: Comfort, Economy, OFF.

The current setting is displayed with the relative symbols.

The room temperature is displayed during normal operation. To view the value of the temperature adjustment setting in the current operating mode, press key 3 or 4.

COMFORT



ECONOMY



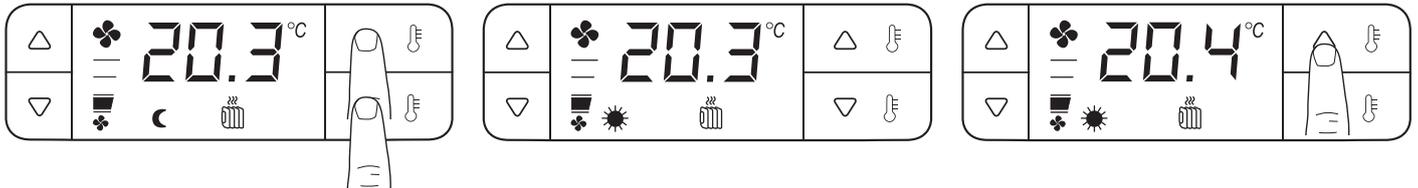
### 3.4 - COMFORT MODE

In this mode, the thermostat controls the temperature in order to keep the set Comfort temperature constant.

To change from Economy to Comfort, simultaneously press keys 3 and 4.

To check the currently set Comfort temperature, press key 3 or 4.

To change the set Comfort temperature value, repeatedly press key 3 (to increase it) or key 4 (to decrease it). The temperature is changed in steps of 0.1°C.



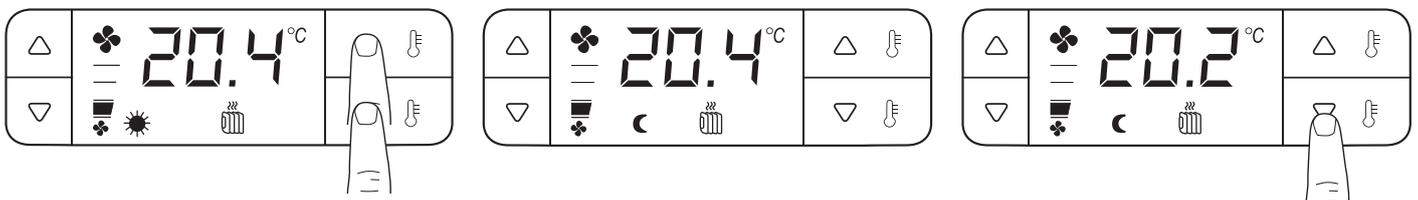
### 3.5 - ECONOMY MODE

In this mode, the thermostat controls the temperature in order to keep the set Economy temperature constant.

To change from Comfort to Economy, simultaneously press keys 3 and 4.

To check the currently set Economy temperature, press key 3 or 4.

To change the set Comfort temperature value, repeatedly press key 3 (to increase it) or key 4 (to decrease it). The temperature is changed in steps of 0.1°C.



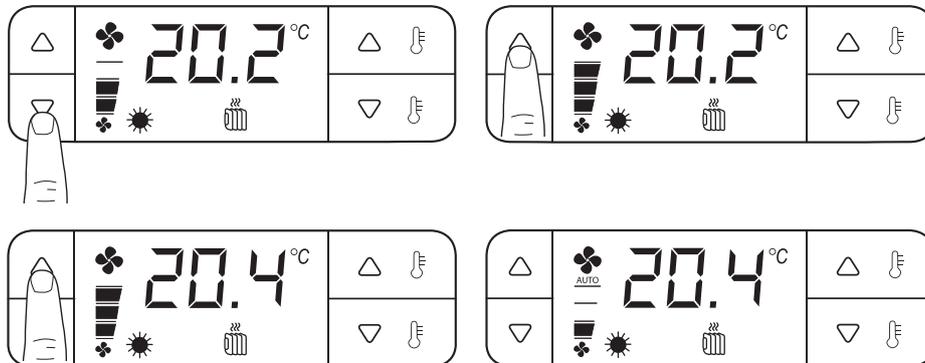
### 3.6 - OFF

In this mode, the thermostat stops any adjustment. If the thermostat is in winter mode, only antifreeze protection is active. To check the currently set antifreeze temperature, press key 3 or 4. To change the set Antifreeze temperature value, repeatedly press key 3 (to increase it) or key 4 (to decrease it). The temperature is changed in steps of 0.1°C. To switch to OFF mode, repeatedly press key 2 to decrease the fan speed until the wording OFF appear on the screen.



### 3.7 - FAN SPEED SETTING

There are three different fan speeds: minimum, medium, and maximum. The speed can be set manually by selecting one of the three speeds, or automatic. In AUTO, the thermostat will use the most suitable fan speed to reach and maintain the requested room temperature.



## 4 - KEY LOCK

To enable the key lock function, useful in preventing the thermostat from being used by unauthorised persons, follow the steps below:

- Enter the thermostat configuration menu
- In parameter **P01** enter a password other than **000**
- Exit the thermostat configuration menu
- The key lock is active.

To disable the key lock function, perform the operations described above again and, after entering the current password, set parameter **P01** to **000**.

### 4.1 - TEMPORARY KEY UNLOCK

When one of the disabled keys is pressed, in accordance with parameter **P20**, the display will show "**Loc**" and, below, **000** will flash, inviting you to enter the unlock password. Confirm by pressing key **3** or **4**.

The keys will be locked automatically one minute after the last time any of them were pressed.

## 5 - FAULTS

The presence of one or more faults is indicated on the display by the following error codes:

<b>E01</b>	External temperature probe failure
<b>E02</b>	Temperature probe failure on remote actuator
<b>E03</b>	Remote actuator CH176D does not respond to messages
<b>E04</b>	Internal temperature probe failure

## 6 - MAINTENANCE

It is recommended to use a soft cotton cloth without any detergent to clean the thermostat.

## 7 - THERMOSTAT CONFIGURATION



### ATTENTION!

Thermostat parameters configuration must only be carried out by qualified technical personnel.

Thermostat operation in relation to a specific design is subject to correct setting of certain operation configuration parameters, which can be consulted and/or edited by accessing a technical menu, as described below:

- Press RESET and key 4;
- Release RESET whilst holding key 1 for minimum 3 seconds;
- Release key 1.

P01 is displayed on the screen, which refers to the first alphanumeric identification index of the parameters list.

The configuration parameters are displayed with an alphanumeric index P... (P01- P51); press keys 1 and 2 to scroll through the entire list of parameters.

To display the current setting or edit an individual parameter, press key 3. Then press keys 1 and 2 to select the new setting and confirm by pressing 3.

Once the parameter settings have been completed, press 1 until the wording END appears and press 3 to confirm. The thermostat will save the new parameters in the non-volatile memory and go back to normal operation.

**Note:** the thermostat forwards the various controls (valves control, fan speed control) to the CH176D actuation unit every minute.

### 7.1 - USER-EDITABLE PARAMETERS

PARAMETER	DESCRIPTION	DEFAULT	FIELD
P01	Password	000	000: password disabled 386: universal password
P02	Unit of measure	CEL	CEL: Celsius FAH: Fahrenheit
P03	Auxiliary input status display (AUX IN)		cL: closed oP: open
P04	Temperature display on remote actuator input		-50°C ... 50°C cL: closed oP: open
P05	Temperature display on external sensor input		-50°C ... 50°C cL: closed oP: open
End	Exit the user parameters menu + save parameters. If keys <b>1-2-4</b> are pressed simultaneously for three seconds, you access the hidden menu for changing the system installation parameters ( <b>P06...P51</b> ). These parameters should only be configured by qualified technical personnel.	End	

## 7.2 - SYSTEM INSTALLATION PARAMETERS (HIDDEN MENU)

PARAMETER	DESCRIPTION	DEFAULT	FIELD
<b>P06</b>	Plant type ( <b>PLANT</b> )	<b>2P</b>	<b>2P: 2 pipes</b> 4P: 4 pipes
<b>P07</b>	Hot water/electrical resistance valve selection	<b>1</b>	<b>1: hot water valve</b> 2: electrical resistance
<b>P08</b>	Ventilation modes	<b>1</b>	<b>1: continuous</b> 2: continuous-stop winter mode 3: continuous-stop summer mode 4: subordinated to valve status 5: subordinated-stop in winter mode 6: subordinated-stop in summer mode
<b>P9</b>	Adjustment modes	<b>1</b>	<b>1: Manual Winter/Summer mode</b> 2: Automatic Winter/Summer mode
<b>P10</b>	Anti-stratification	<b>1</b>	<b>1: not active</b> 2: summer only 3: winter only
<b>P11*</b>	Temperature sensor on remote actuator sensor input  Reading frequency : Once a minute	<b>1</b>	<b>1: not connected</b> 2: winter only minimum sensor 3: winter/summer minimum sensor 4: automatic change-over 5: return ( only if P13 is other than 6 )
<b>P12</b>	Temperature sensor on external sensor input  Reading frequency : Once a minute  Options 7-8-9 are only visible if CH172D was selected as remote actuator ( P51 )	<b>1</b>	<b>1: not connected</b> 2: ON/OFF 3: <b>manual</b> change-over 4: comfort/economy 5: reduction (-3.0°C winter +3.0°C summer) 6: return ( only if P12 is other than 5 ) 7: winter only minimum sensor 8: winter/summer minimum sensor 9: <b>automatic</b> change-over
<b>P13</b>	Auxiliary input  Reading frequency : Once every 10 seconds	<b>1</b>	<b>1: not connected</b> 2: ON/OFF 3: <b>manual</b> change-over 4: comfort/economy 5: reduction (-3.0°C winter +3.0°C summer)
<b>P14</b>	<b>P13 - P14</b> input polarity	<b>1</b>	<b>n.o.</b> normally open <b>n.c.</b> normally closed <b>1: P12 (n.o.) P13 (n.o.)</b> <b>2: P12 (n.o.) P13 (n.c.)</b> <b>3: P12 (n.c.) P13 (n.o.)</b> <b>4: P12 (n.c.) P13 (n.c.)</b>
<b>P15</b>	Room temperature correction	<b>0.0 °C</b>	-4.0°C ... 4.0°C (0.1°C step)
<b>P16</b>	Temperature correction on external sensor	<b>0.0 °C</b>	-4.0°C ... 4.0°C (0.1°C step)
<b>P17</b>	Temperature correction on remote sensor	<b>0.0 °C</b>	-4.0°C ... 4.0°C (0.1°C step)

PARAMETER	DESCRIPTION	DEFAULT	FIELD
<b>P18</b>	Display mode	<b>1</b>	<b>1: Troom view</b> 2 = set point view
<b>P19</b>	OFF display mode	<b>1</b>	<b>1: 'OFF' view</b> 2: view from <b>P18</b>
<b>P20</b>	Key lock mode	<b>1</b>	<b>1</b> All keys locked <b>2:</b> Setpoint + W/S + E/C key lock <b>3:</b> W/S + E/C key lock
<b>P21</b>	Regulation differential in winter mode	<b>Std</b>	Std / 0.3°C ... 5.0°C (step 0.1°C)
<b>P22</b>	Regulation differential in summer mode	<b>Std</b>	Std / 0.3°C ... 5.0°C (step 0.1°C)
<b>P23</b>	Summer set point upper limit      comfort	<b>30.0 °C</b>	2.0°C ... 30.0°C (0.1°C step)
<b>P24</b>	Summer set point lower limit      comfort	<b>2.0 °C</b>	2.0°C ... 30.0°C (0.1°C step)
<b>P25</b>	Summer set point upper limit      economy	<b>30.0 °C</b>	2.0°C ... 30.0°C (0.1°C step)
<b>P26</b>	Summer set point lower limit      economy	<b>2.0 °C</b>	2.0°C ... 30.0°C (0.1°C step)
<b>P27</b>	Winter set point upper limit      comfort	<b>30.0 °C</b>	2.0°C ... 30.0°C (0.1°C step)
<b>P28</b>	Winter set point lower limit      comfort	<b>2.0 °C</b>	2.0°C ... 30.0°C (0.1°C step)
<b>P29</b>	Winter set point upper limit      economy	<b>30.0 °C</b>	2.0°C ... 30.0°C (0.1°C step)
<b>P30</b>	Winter set point lower limit      economy	<b>2.0 °C</b>	2.0°C ... 30.0°C (0.1°C step)
<b>P31</b>	Upper limit set-point automatic regulation	<b>30.0 °C</b>	2.0°C ... 30.0°C (0.1°C step)
<b>P32</b>	Lower limit set-point automatic regulation	<b>2.0 °C</b>	2.0°C ... 30.0°C (0.1°C step)
<b>P33</b>	Minimum sensor threshold in winter mode	<b>34.0 °C</b>	28.0°C ... 42.0°C (step 0.1°C)
<b>P34</b>	Minimum sensor threshold in summer mode	<b>22.0 °C</b>	10.0°C ... 25.0°C (step 0.1°C)
<b>P35</b>	Minimum sensor tripping differential	<b>4.0 °C</b>	2.0°C ... 6.0°C (0.1°C step)
<b>P36</b>	Lower change-over temp. threshold	<b>22.0 °C</b>	15.0°C ... 24.0°C (step 1.0°C)
<b>P37</b>	Upper change-over temp. threshold	<b>32.0 °C</b>	26.0°C ... 35.0°C (step 1.0°C)
<b>P38</b>	Dead zone range (automatic regulation)	<b>2.0 °C</b>	-1.0°C ... 6.0°C (1.0°C step)
<b>P39*</b>	<b>Minimum</b> manual fan speed (0..10V)	<b>1.0V</b>	1.0V ... 6.0V (step 0.1V)
<b>P40*</b>	<b>Medium</b> manual fan speed (0..10V)	<b>5.0V</b>	3.0V ... 8.0V (step 0.1V)
<b>P41*</b>	<b>Maximum</b> manual fan speed (0..10V)	<b>10.0V</b>	6.0V ... 10.0V (step 0.1V)
<b>P42</b>	Ventilation speed change-over hysteresis (IrL)	<b>0.5 °C</b>	0.5°C ... 2.0°C (0.1°C step)
<b>P43*</b>	<b>Minimum winter</b> automatic fan speed (0..10V)	<b>1.0V</b>	1.0V ... 6.0V (step 0.1V)
<b>P44*</b>	<b>Maximum winter</b> automatic fan speed* (0..10V)	<b>10.0V</b>	5.0V ... 10.0V (step 0.1V)
<b>P45*</b>	<b>Minimum summer</b> automatic fan speed (0..10V)	<b>1.0V</b>	1.0V ... 6.0V (step 0.1V)
<b>P46*</b>	<b>Maximum summer</b> automatic fan speed (0..10V)	<b>10.0V</b>	5.0V ... 10.0V (step 0.1V)
<b>P47</b>	Proportional band in <b>winter</b> automatic mode	<b>3.5 °C</b>	2.0°C ... 6.0°C (0.1°C step)
<b>P48</b>	Proportional band in <b>summer</b> automatic mode	<b>3.5 °C</b>	2.0°C ... 6.0°C (0.1°C step)
<b>P49*</b>	Enable ventilation relay	<b>YES</b>	YES: relays enabled + 0..10V output no: relays disabled (only 0..10V output)
<b>P50</b>	Remote actuator selection	<b>176</b>	<b>176:</b> CH176D <b>172:</b> CH172D
<b>P51</b>	Restoring factory settings (default)	<b>no</b>	<b>no</b> YES

PARAMETER	DESCRIPTION	DEFAULT	FIELD
End	Exit the user parameters menu + save parameters	End	

\* Parameters not visible if the remote actuator CH172D is selected in parameter P50

#### P06 Plant type (plant)

2P **2-PIPE SYSTEM:** the thermostat only manages valve **V1** (on/off type) regardless of heating or cooling operation.

4P **4-PIPE SYSTEM:** the thermostat manage valve **V1** (on/off type) for heating and valve **V2** (ONE/OFF type) for cooling.

#### P07 Hot water valve

1 **HOT VALVE:** actuator output **V1** controls the water supply valve in heating.

2 **ELECTRICAL RESISTANCE:** actuator output **V1** controls an electrical resistance for heating. In this case, when the resistance is switched off, the fan still remains active (two minutes of post-ventilation) to enable the resistance to cool down.

#### P08 Ventilation modes

1 **CONTINUOUS:** once the set point is reached, the fan still remains active at the manually set speed or at MIN speed if automatic ventilation is set.

2 **CONTINUOUS-STOP IN WINTER MODE:** as in 1 except in heating where ventilation is switched off.

3 **CONTINUOUS-STOP IN SUMMER MODE:** as in 1 except in cooling where ventilation is switched off.

4 **AUXILIARY:** the fan is only enabled if the valve is enabled (heating or cooling in progress).

5 **SUBORDINATED-STOP IN WINTER MODE:** as in 4 except in heating where ventilation is switched off.

6 **SUBORDINATED-STOP IN SUMMER MODE:** as in 4 except in cooling where ventilation is switched off.

#### P09 Adjustment modes

1 **SUMMER/WINTER:** the thermostat carries out temperature control according to the current mode (Summer/Winter).

2 **AUTOMATIC:** the thermostat carries out temperature control by heating or cooling in order to obtain the best climate comfort (4-pipe systems only)

**Note:** when selecting option 2, the adjustment involves parameter **P38**;  
By selecting option 2 **SUMMER/WINTER** mode cannot be changed manually.

#### P10 Anti-stratification operation

This setting is only effective if **P11=5** or **P12 = 6** (adjustment with return sensor)

1 **NOT ACTIVE:** the function is not managed.

2 **SUMMER ONLY:** the function is only managed if the thermostat is in summer mode.

3 **WINTER ONLY:** the function is only managed if the thermostat is in winter mode.

**Note:** if ventilation is not active for 15 straight minutes, the anti-stratification function switches on for two minutes ventilation at MEDIUM speed regardless of minimum sensor consent.

#### P11 Temperature sensor on remote actuator sensor input

1 **NOT CONNECTED:** the input is not used.

2 **MINIMUM SENSOR WINTER ONLY:** connecting a temperature probe to the supply pipe, the thermostat will not start the fan until the temperature of the water has reached the value set in item **P33**.

3 **SUMMER/WINTER MINIMUM SENSOR:** connecting a temperature probe to the supply pipe, the thermostat will not start the fan until the temperature of the water has reached the value set in item **P33** (winter mode) or **P34** (summer mode).

4 **CHANGE-OVER SENSOR:** connecting a temperature probe to the supply pipe, the thermostat automatically manages the Winter/Summer change-over with the temperatures programmed in items **P36** and **P37**.

- 5 **AIR RETURN SENSOR:** connecting a temperature probe in the air return point (usually under the fan coil), the thermostat manages temperature control with the temperature read by this probe.

**Note:** by selecting option 4 SUMMER/WINTER mode cannot be changed manually.

#### P12 Temperature sensor on external temperature sensor input

- 1 **NOT CONNECTED:** the input is not used.
- 2 **ON/OFF:** by connecting a normally open or normally closed contact, according to what is selected in item **P14**, the thermostat goes into off mode or on mode.
- 3 **Manual change-over:** by connecting a normally open or normally closed contact, according to what is selected in item **P14**, the thermostat goes into winter mode or summer mode.
- 4 **Comfort/economy:** by connecting a normally open or normally closed contact, according to what is selected in item **P14**, the thermostat goes into comfort mode or economy mode.
- 5 **REDUCTION:** connecting a normally open or normally closed contact, according to what is selected in item **P14**, there is a reduction of 3.0°C in the setpoint temperature value in winter mode, or an increase of 3.0°C in the setpoint temperature value in summer mode.
- 6 **AIR RETURN SENSOR:** connecting a temperature probe in the air return point (usually under the fan coil), the thermostat manages temperature control with the temperature read by this probe.
- 7 **MINIMUM SENSOR WINTER ONLY:** connecting a temperature probe to the supply pipe, the thermostat will not start the fan until the temperature of the water has reached the value set in item **P33**.
- 8 **SUMMER/WINTER MINIMUM SENSOR:** connecting a temperature probe to the supply pipe, the thermostat will not start the fan until the temperature of the water has reached the value set in item **P33** (winter mode) or **P34** (summer mode).
- 9 **CHANGE-OVER SENSOR:** connecting a temperature probe to the supply pipe, the thermostat automatically manages the Winter/Summer change-over with the temperatures programmed in items **P36** and **P37**.

#### P13 Auxiliary input

- 1 **NOT CONNECTED:** the input is not used.
- 2 **ON/OFF:** by connecting a normally open or normally closed contact, according to what is selected in item **P14**, the thermostat goes into off mode or on mode.
- 3 **Manual change-over:** by connecting a normally open or normally closed contact, according to what is selected in item **P14**, the thermostat goes into winter mode or summer mode.
- 4 **Comfort/economy:** by connecting a normally open or normally closed contact, according to what is selected in item **P14**, the thermostat goes into comfort mode or economy mode.
- 5 **REDUCTION:** connecting a normally open or normally closed contact, according to what is selected in item **P14**, there is a reduction of 3.0°C in the setpoint temperature value in winter mode, or an increase of 3.0°C in the setpoint temperature value in summer mode.

#### P15 Room temperature correction

#### P16 Temperature correction on external sensor

#### P17 Temperature correction on remote sensor

These parameters are used to correct the room temperature value read, since in certain installations, the room temperature read may be unsatisfactory due to the position of the probe (internal or return).

#### P18 Display mode

- 1 **Troom:** the display usually shows the room temperature.
- 2 **Set-point:** the display always shows the current temperature set point value.

#### P19 OFF display mode

- 1 The display shows 'OFF'.
- 2 The display shows the room temperature or set-point according to what is selected under **P19**.

**P20 Key lock mode**

With active password, select the number and type of locked keys.

- 1 All keys locked
- 2 Key lock applied to set-point editing, changing from summer to winter mode and vice versa, and changing from comfort set-point to economy set-point and vice versa.
- 3 Key lock applied to changing from summer to winter mode and vice versa, and changing from comfort set-point to economy set-point and vice versa.

**P21-P22 Adjustment differential**

The differential value that can be set is between 0.3°C and 5.0°C, or standard Std (default = Std).

**P33 Minimum sensor threshold triggered (winter mode)**

This setting is only effective if **P11 = 2** or **P11 = 3** or **P12 = 7** or **P12 = 8**

When the supply temperature falls below the set value, the thermostat stops ventilation.

**P34 Minimum sensor threshold triggered (summer mode)**

This setting is only effective if **P11 = 2** or **P11 = 3** or **P12 = 7** or **P12 = 8**

When the supply temperature rises above the set value, the thermostat stops ventilation.

**P36 Lower change-over threshold**

This setting is only effective if **P11 = 4** or **P12 = 9**

When the supply temperature drops below the set value, the thermostat automatically switches from heating to cooling.

**P37 Upper change-over threshold**

This setting is only effective if **P11 = 4** or **P12 = 9**

When the supply temperature rises above the set value, the thermostat automatically switches from cooling to heating.

**P38 Dead zone interval**

When the thermostat operates in **AUTOMATIC** with subordinated ventilation in the dead zone, the fan is off; with continuous ventilation, minimum speed remains enabled.

**P50 Remote actuator selection**

Selection of the remote actuator model that CH133AR2 will be connected to:

**176**: CH176D (equipped with remote temperature sensor and 0..10V output)

**172**: CH172D (relay only)

## 8 - DIN RAIL CH176D ACTUATOR

### OPERATION

The **CH130AR2** unit is an actuation model which, connected to a thermostat for fan coil CH133AR2 - CH133RR - CH130AR2 - CH130ARR - CH130RR via a bipolar cable, allows to remotely control the two valves, the three-speed motor or a 0 .. 10V, motor, and accept a temperature sensor connected to the appropriate input.

The bipolar cable connecting the module to the thermostat, has a dual function:

- powering the fan coil thermostat,
- communication bus between thermostat and actuation module.

The **CH130AR2C** unit is compatible with the **CH172D** actuator via external set-up. It is possible to connect a single thermostat to several actuators, so as to control more than one fan coil simultaneously with only two cables; for this application, carefully follow the detailed instructions in the document.

### TECHNICAL FEATURES

Power supply and absorbed power	230Vac 50Hz - 2VA
BUS A/B input	Power supply + thermostat data (default setting: SLAVE)
Relay output features	5(3)A 250V~
Voltage-free switching contacts with mains voltage	2 valve outputs (N-V1 and N-V2)
Mains voltage switching contacts	3 motor contact outputs (M1, M2 and M3)
0 ... 10V output	20 mA - 470Ω
Probe input	NTC 10 KΩ (Fantini EC15-EC18-EC19-EC20)
Protection rating	IP00
Software class	A
Maximum temperature	T45
Degree of pollution	2
Complies with Standards	EN60730-1 and second parts
Micro-disconnection	1B
Impulse voltage	4000V
Assembly type and dimensions	6-module DIN Rail
Product not made in Italy	

## INSTALLATION

The device is designed for installation on DIN rail, but its small size facilitate the installation inside the fan coil also.

### ATTENTION!



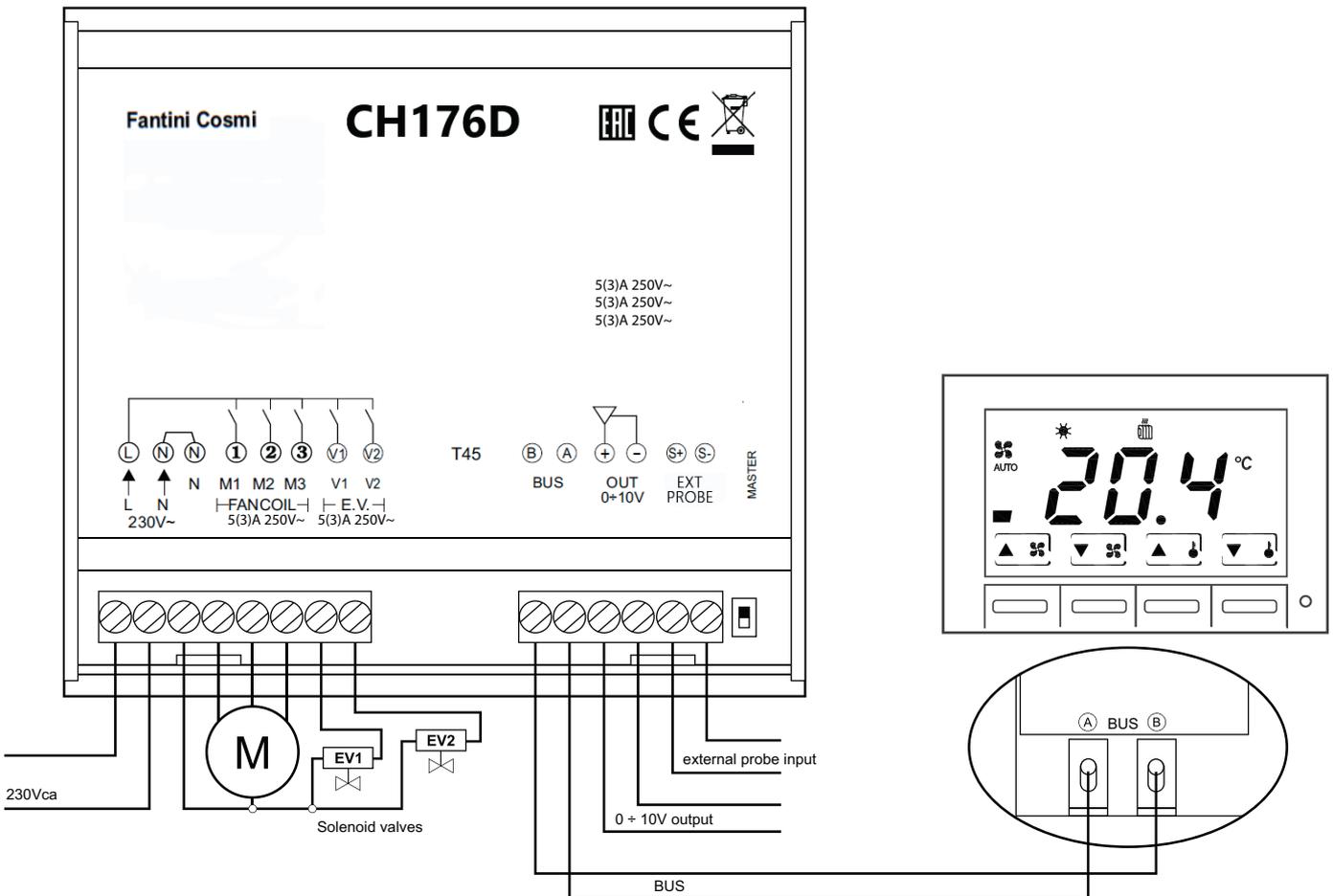
The end parts (live) of the CH176D must be installed in a container or fan coil inaccessible by the user. Installation must be carried out by qualified personnel, in compliance with the requirements concerning installation of electrical devices. Make sure that the power network is disconnected before making any connections or working on the device.

The following figure shows the circuit diagram of the connections.

The distance between the actuator module and thermostat must not exceed 100 metres.

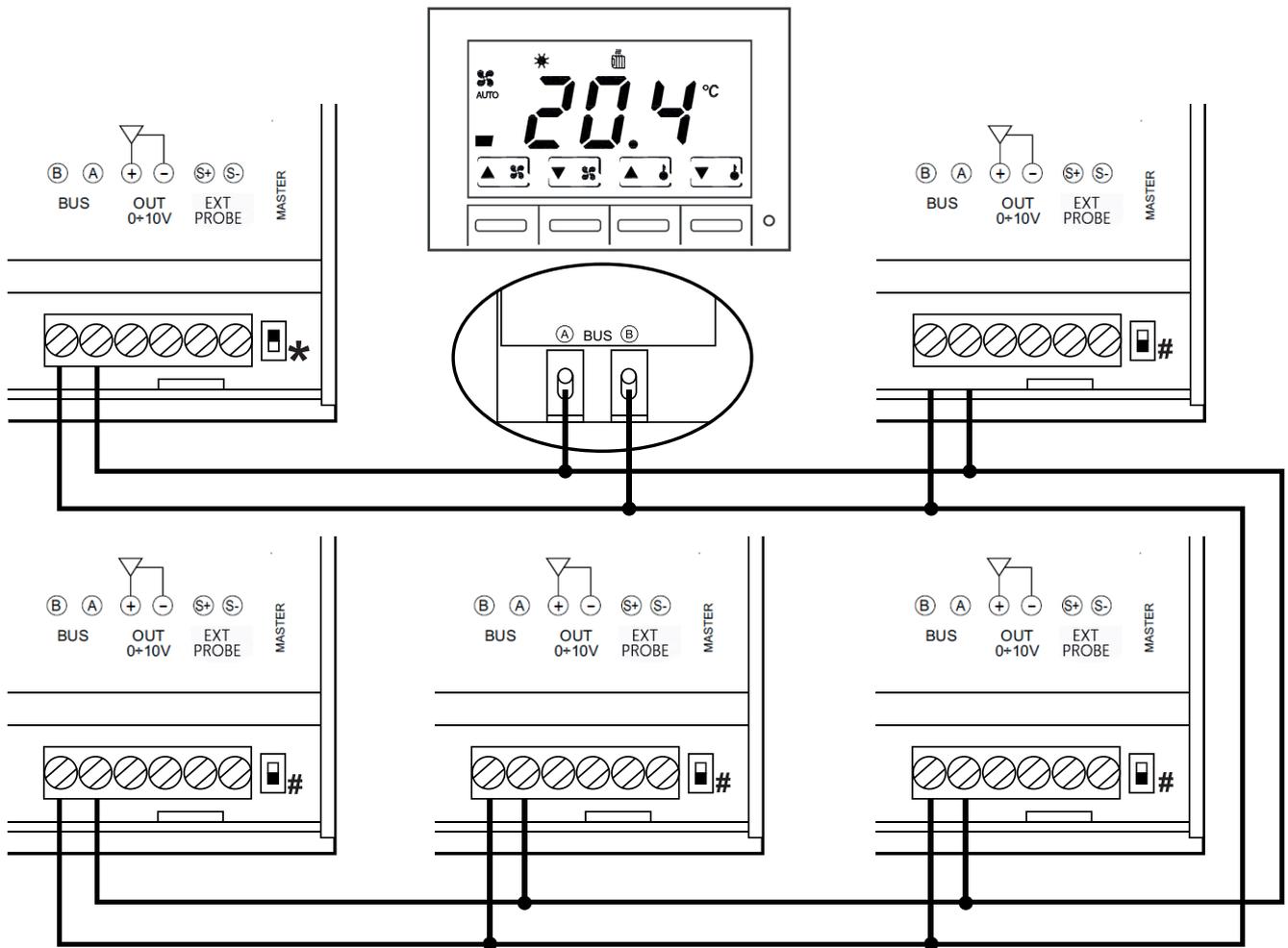
In air conditioning systems with four pipes, valve 1 (terminals N and V1) controls the heating circuit while valve 2 (terminals N and V2) controls the cooling circuit.

The temperature sensor (NTC 10KΩ) must be connected to the PROBE input. The 0 ... 10V motor must be connected to the specific 0-10V OUT output, respecting its polarities.



## CONNECTING SEVERAL MODULES TO ONE THERMOSTAT

A CH133AR2 - CH133RR - CH130AR2 - CH130ARR - CH130RR thermostat can control up to five fan-coils simultaneously, using only two wires to connect to the various actuation modules. In this case, only one of the two CH176D modules must have the "BUS selector" in "MASTER" position, while all others must be left in "SLAVE" mode (default setting). The temperature probe connected to the actuation module set up as "MASTER" is the one read by the thermostat. The connection between the various devices must be made as per the diagram in the following figure.



Note:

\* BUS selector in ON position (MASTER)

# BUS selector in OFF position (SLAVE)

## OPERATING MODE SELECTION

If thermostats CH133RR - CH130RR - CH130ARR are connected to the actuation module, it must be configured in CH172D mode. The selection is made by switching on the actuation module by means of the configuration of the probe input according to the following diagram:

**CH176D:** probe input free or connected to a temperature probe

**CH172D:** temperature probe input permanently short-circuited by means of a conductor cable

## LUMINOUS STATUS INDICATOR

The CH176D unit is equipped with a status indicator made via a two-coloured LED diode.

Flashing red: the actuation module is configured as Master and is receiving a command from the thermostat.

Flashing green: the actuation module is configured as Slave and is receiving a command from the thermostat.

Flashing red and green alternately: protection. After twenty minutes during which the actuation module does not receive commands from the thermostat, the relays are deactivated and the 0 ... 10V output is brought to 0V. Upon reception of a command, the actuation module resumes normal operation.

## COMMISSIONING AND OPERATIONAL CHECK

Commissioning and testing procedure:

- make sure that the actuator is properly connected to the thermostat;
- set the "BUS selector" to ON (MASTER);
- set up the actuation module as CH176D or CH172D (according to the thermostat connected to it);
- supply 230Vac power to the actuator;
- check that the thermostat is turned on;
- by consulting the manual of the thermostat, set it in the different operating modes (winter and summer) with consistent set-points and gradually select the various ventilation speeds (1, 2 and 3), check switching of the various relay and the subsequent actuations of the V1/V2 valves and the fan coil motor.

## DISPOSAL



The symbol of the crossed-out wheeled bin indicates that the products must be collected and disposed of separately from household waste. The batteries and integrated accumulators may be disposed of together with the product. They will be separated at the recycling facilities. A black bar indicates that the product was placed on the market after 13 August 2005. Participating in the separate collection of products and batteries contributes to the correct disposal of these materials and therefore avoids possible negative consequences for the environment and human health. For more detailed information on the collection and recycling programmes available in your country, contact the local authorities or the sales point where you purchased the product.

## GENERAL WARRANTY CONDITIONS

The conventional warranty lasts 24 months, starting from the date the equipment is installed. The warranty covers all parts of the equipment, with the exception of those subjected to normal wear through use.

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