



AMBIENT THERMOSTAT FOR FAN-COILS
WITH ACTUATOR



CH130RR

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Introduction

This fan-coil thermostat control kit CH130RR is made up of a CH130R thermostat and a DIN bar CH172D actuator.

The CH130R model is a fan-coil 4- or 2-pipe thermostat that allows you to control the ambient temperature both in the heating and cooling mode. These commands are sent to a CH172D actuator connected to the CH130R by means of a two-pole cable.

The CH130R is powered directly by the actuator and is able to drive two valves and also control a 3-speed fan-coil motor, in manual mode.

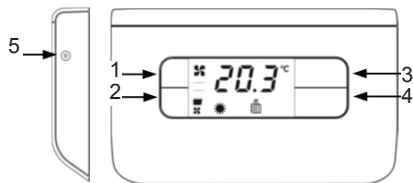
The thermostat measures the ambient temperature either through an internal probe or an external sensor. It keeps the set-point by acting on the ventilation speed.

The wide display shows the measured temperature, the fan speed, the program being run and the selected season.

The settings and data are stored in a permanent memory that will retain them even when the thermostat is not connected to the CH172D.

Controls and signals

Controls

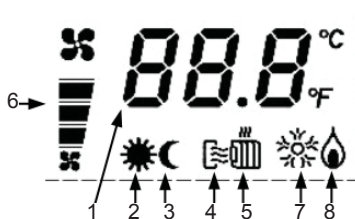


1. Fan speed increase button
2. Fan speed decrease button
3. Selected program temperature value increase button
4. Selected program temperature value decrease button
5. Thermostat reset button

Button combinations (press simultan.)

- 1+2 Summer/Winter switch
- 3+4 Comfort/Economy switch
- 2+4 Celsius/Fahreneit switch

Signals



1. Measured temperature
2. "Comfort" symbol
3. "Economy" symbol
4. "Summer" symbol
5. "Winter" symbol
6. Fan speed symbols
7. System "ON" in summer operation
8. System "ON" in winter operation

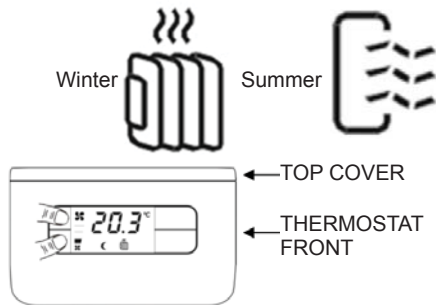
User's manual

To start the thermostat after the same has been installed, proceed as follows:

1. Select the Summer / Winter operation;
2. Select the operating mode;
3. Select the fan speed.

“Summer / Winter” selection

To switch from the “Winter” operation (i.e. heating system) to the “Summer” operation (i.e. cooling system), and vice versa, press the 1+2 button combination. The selected operation will be indicated on the display by the “Winter” or “Summer” icons.

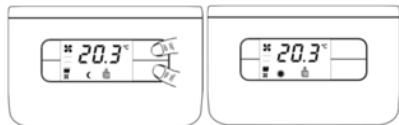


Operating modes

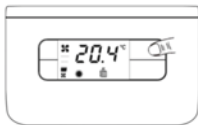
The CH130R thermostat features three different manual operating modes: “Comfort”, “Economy”, and the “OFF” function (OFF).

“Comfort” operating mode

With the “Comfort” operating mode, the thermostat regulates the heating or cooling system operation in order to always keep the same comfort temperature set. To switch from “Economy” to “Comfort”, press buttons “3” and “4” simultaneously.

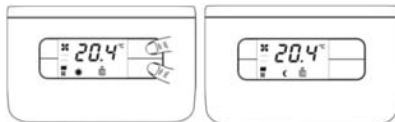


The temperature level can be modified during operation by means of buttons “3” and “4”. The temperature can be changed from 2°C to 40°C by 0.1°C steps.



“Economy” operating mode

With the “Economy” operating mode, the thermostat regulates the heating or cooling system operation in order to always keep the same economy temperature set. To switch from “Comfort” to “Economy”, press buttons “3” and “4” simultaneously.



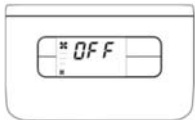
The temperature level can be modified during operation by means of buttons “3” and “4”. The temperature can be changed from 2°C to 40°C by 0.1°C steps.



“OFF” function (OFF)

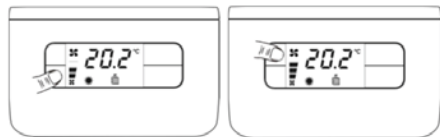
The “OFF” function can be achieved by setting the fan speed to zero: in this case, the thermostat will carry out no heat regulation, not even the antifreeze one.

The system will switch off automatically, and the “OFF” message will appear on the display.



Fan speed selection

The fan speed can be set to three fixed levels (minimum, medium, maximum) by pressing buttons “1” and “2”.



Maintenance

The thermostat should be cleaned by using a soft cotton cloth. No detergent should be used.

Installation

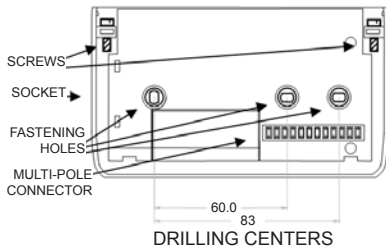
Warning! The thermostat shall be installed only by qualified personnel, in strict compliance with the law regulations in force.

The thermostat installation involves carrying out the following operations:

- Fastening the socket;
- Making the electric connections;
- Fastening the thermostat onto the socket;
- Configuring the thermostat parameters.

Fastening the socket

The thermostat is supplied complete with a socket suitable for mounting both on the wall and to rectangular or round built-in 3-seat boxes (503).



Remove the thermostat top cover.

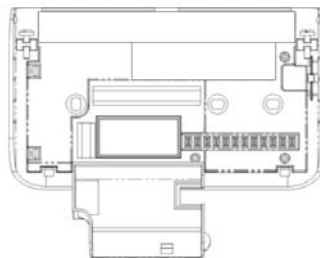
Separate the thermostat socket and front by removing the screw by means of a suitable tool and taking the front part off.

Fasten the socket to the desired surface by means of the special fastening holes; make sure that the socket is properly engaged, with no deformation, and that the connecting multi-

pole connector is located in the right bottom corner.

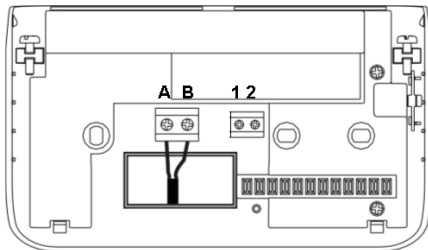
To ensure correct operation, the socket shall be placed at a height of approximately 1.5 metres from the floor, far from heat sources (direct sunlight, etc.) and doors/windows.

Electric connections



Lower the terminal protection door prior to making the connections.

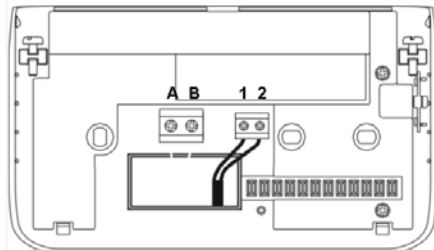
Actuator connection



Connect the power supply wires running from the CH172D actuator with terminals A and B, as illustrated in the figure.

The terminals take flexible conductors having a maximum section of 2.5 mm².

External probe connection



Connect the two external probe wires with screwed terminals "1" and "2", as illustrated in the figure.

Fastening the thermostat onto the socket

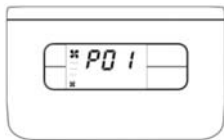
Insert and screw the thermostat down to the socket (make sure that the multi-pole connector is engaged correctly). Fit the battery top cover back into place.

Thermostat configuration

Warning! The configuration shall be performed only by qualified personnel.

The thermostat configuration allows you to customize the device operation parameters. To access the configuration program, proceed as follows:

1. Press the “Reset” button and also button 3 (with the thermostat ON).
2. Release the “Reset” button, then keep button “3” depressed for at least 3 seconds.
3. Release button “3”.



The configuration parameters are represented by an index (P01, P02...) on the display and by pressing buttons “1” and “2”, the parameter indexes will be scrolled through. Press button “3” to enter the displayed parameter.

To modify the current parameter, press buttons “1” and “2”. To exit the parameter, press button “3”. Once all parameters have been set, press button “1” until the “END” message appears, then press button “3”. Now the thermostat will save the modified parameters and will automatically exit the parameter menu.

N.B. The thermostat will send the switch-on/-off controls for the three fans and the two valves to the actuator to a fixed rate of 1 minute.

Index	Parameter	Values	Preset
P01	Type of system	1-2	1
P02	External probe	3-4-5	5
P03	Display visualization	1-2	1
P07	Ambient temperature correction	-4°C –+ 4°C (step 0.1°C)	0
P08	"Winter" lower limit set-point temperature	2°C – 40°C (step 1°C)	2,0 °C
P09	"Winter" upper limit set-point temperature	2°C–40°C (step 1°C)	40,0 °C
P10	"Summer" lower limit set-point temperature	2 °C – 40°C (step 1°C)	5,0 °C
P11	"Summer" upper limit set-point temperature	2 °C – 40°C (step 1°C)	30,0 °C
P14	Differential adjustment	±0.3 - ±2°C	±0.3 °C
END	Thermostat saving and reset		

P01: Type of system.

1 two-tube system: the thermostat will drive only the valve (ON/OFF type) used for heating both during the heating and the cooling: in fact, the valve will control both hot water and cold water.

2 four-tube system: the thermostat will drive one valve (ON/OFF type) used for heating, plus one additional valve (ON/OFF type) used for cooling, depending on the needs of the environment.

P02: External probe.

1 not available with this version.

2 not available with this version.

3 minimum window/thermostat contact: when the contact is open, the thermostat will carry out heat regulation; when it is closed, the heat regulation will not be carried out.

4 inverted minimum window/thermostat contact: the window contact will operate with an inverted logic with respect to the statements made in previous step 3.

5 none: the external probe input will not be controlled by the thermostat.

P03: display visualization

1 ambient temperature: the ambient temperature will be shown on the display.

2 set-point: the current set point will be shown on the display.

P07: ambient temperature correction

It can be adjusted from -4.0 to 4.0°C . This parameter is used to correct the acquired ambient temperature. As a matter of fact, the ambient temperature reading may, on some installations, not be satisfying, owing to the probe location (i.e. internal or resumption). With this parameter, a constant value upon reading can be added to or subtracted from.

P08: “Winter” lower limit set-point temperature

It can be adjusted from 2.0 to 40.0°C . It represents the lower limit for all the set-points (“Comfort” and “Economy”) in the heating mode.

P09: “Winter” upper limit set-point temperature

It can be adjusted from 2.0 to 40.0°C . It represents the upper limit for all the set-points

(“Comfort” and “Economy”) in the heating mode.

P10: “Summer” lower limit set-point temperature

It can be adjusted from 2.0 to 40.0°C . It represents the lower limit for all the set-points (“Comfort” and “Economy”) in the cooling mode.

P11: “Summer” upper limit set-point temperature

It can be adjusted from 2.0 to 40.0°C . It represents the upper limit for all the set-points (“Comfort” and “Economy”) in the cooling mode.

P14: differential adjustment

It can be set starting from $\pm 0.3^{\circ}\text{C}$ (value suitable for slow-inertia systems) to $\pm 2^{\circ}\text{C}$ (value suitable for very reactive systems).

Technical features of the thermostat

Power supply	By means of the CH172D actuator
Outputs	Actuator controls
Inputs	External probe input
Electric connections	Screwed terminals
Protection degree	IP20 (pollution degree 2)
Setting memorization	Non-volatile memory
Software	Class A
Temperature adjustment range	2 °C – 40 °C
Max. temperature	T45
Local controls	5 buttons
Dimensions (L x H x D)	135 X 83 X 21
External temperature probe distance	10 m max.
Reference temperature gradient	4 K/h
Actuator cable max. length	100m
Conforming to the directives	2006/95/CE, 2004/108/CE, 1993/68/CE

Complying with the standards EN60730-1, EN60730-2-9

ErP classification: ErP Class IV; 2% (EU Reg. 811/2013 - 813/2013)

DIN bar CH172D actuator

Application and use

One single CH130R thermostat can be connected with several actuators, so as to simultaneously control several fan-coils by using only two cables (see below).



Fastening and connecting

The unit has been designed to be built in (inside fan-coils, special panels or other suitable housings).

The unit shall be installed by qualified personnel in accordance with the EN regulations in force.

The distance between the actuator and the transmitter shall not exceed 100 m.

Connect the wires to the socket terminal block in accordance with the diagrams illustrated below.

If a two-tube system is available, connect only valve "1" (contact between terminals "C" and "V1"). In case of a four-tube system, valve "1" is dedicated to heating, whereas valve "2" (between "C" and "V2") is dedicated to cooling.

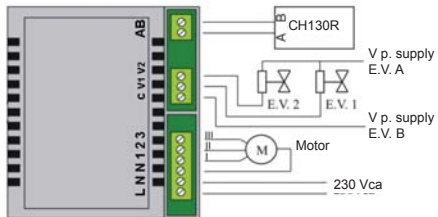
WARNING! Prior to carrying out any operation on the unit, make sure that you have disconnected the mains connecting cables.

Operation check

Refer to the specific user manual for the instruction on how to use the CH130R thermostat.

- Make sure that the actuator is correctly connected with the thermostat.
- Power the actuator by connecting the same with the electric mains.
- Switch over, on the thermostat, the fan motor speed (3 relays) and the valve control (2 relays), then verify that they have actually switched over.

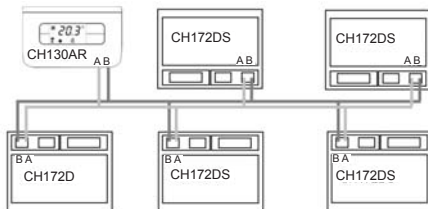
Electric connections



Connecting several actuators with a thermostat

A CH130R is able to control up to five fan-coils at the same time, by making use of only two cables to get connected with the actuators. One of such actuators shall be a CH172D, whereas the others (four at most) shall be CH172DS.

The units shall be connected in accordance with the diagram below:



Technical features of the actuator

Power supply	230V 50 Hz
Absorbed power	2VA
Input	Thermostat controls
Relay output features	5(3)A250 V~
Voltage-free switching contacts	2 valve outputs
Network voltage switching contacts	3 motor contact outputs
Container	IP00 (pollution degree 2)
Software class	A
Max. temperature	T45
Conforms with the directives	2006/95/CE, 2004/108/CE, 1993/68/CE

Complying with the standards	EN60730-1
Disconnection type	1B (micro-disconnection)
Pulse voltage	4000V
Type of assembling	DIN bar
Dimensions	DIN bar 6 module container (106 x 93 x 42 mm)

Fantini Cosmi S.p.A. reserve the right to make any necessary technical and construction modification without any obligation to give prior notice.

NOTES



DISPOSAL OF PRODUCTS

The crossed out wheeled dust bin symbol indicates that products must be collected and disposed of separately from household waste. Integrated batteries and accumulators can be disposed of with the product. They will be separated at the recycling centres. The black bar indicates that the product was placed on the market after August 13, 2005. By participating in separate collection of products and batteries, you will help to assure the proper disposal of products and batteries and thus help to prevent potential negative consequences for the environment and human health. For more detailed information about the collection and recycling programmes available in your country, please contact your local city office or the shop where you purchased the product.

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