

Radio wave temperature control systems

740 series



cert. n° 0003
ISO 9001

01118/05 GB



Function

Over the last decade, technology has entered our homes with increasingly more advanced audio/video systems and electrical appliances. The new frontier is represented by the evolution of technical systems owing to legitimate expectations of more comfortable, safer and more flexible household systems.

Household automation via the development of the RADIO SYSTEM permits easily integrating household management and control products and services.

Within this framework, the radio wave temperature control system is a significant application:

- easy to adjust temperature room by room
- straightforward installation
- modular integration
- full freedom with interior decoration

Product range

740 series Radio wave temperature control

740000 code Radio chrono-thermostat

740201 code Radio thermostat

740100 code Wall-mounting receiver ___ 1 channel

740101 code Concealed receiver _____ 1 channel

740104 code Wall-mounting receiver _ 2 channels

740202 code Wall-mounting receiver ___ 8 channels

740204 code Power bar _____ 4 channels

740206 code Power bar _____ 6 channels

740208 code Power bar _____ 8 channels

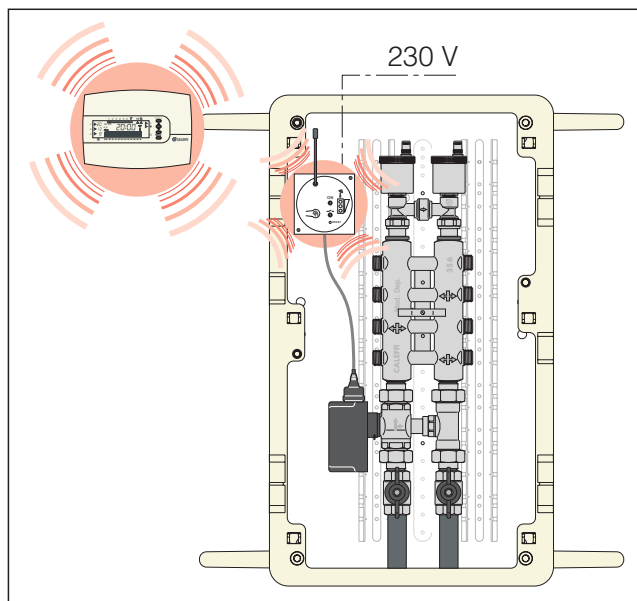
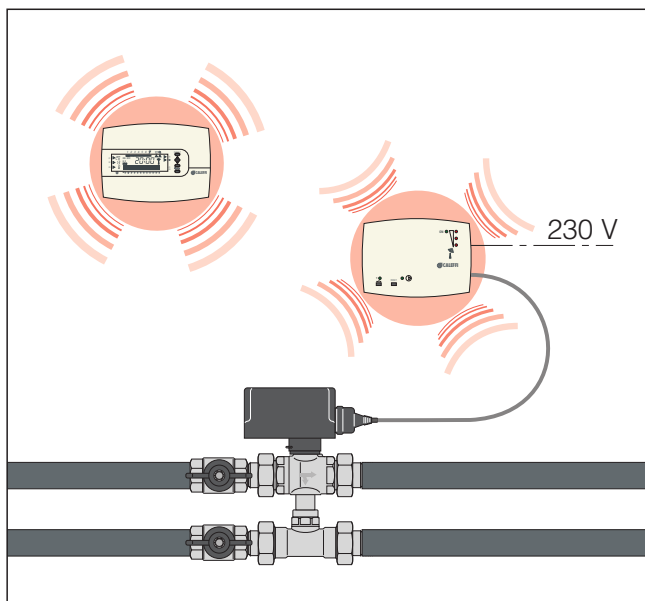
740102 code Timer + wall-mounting receiver kit _____ 1 channel

740103 code Timer + concealed receiver kit _____ 1 channel

740112 code Timer + wall-mounting receiver + servomotor kit 646002 code ___ 1 channel

740113 code Timer + concealed receiver + servomotor kit 646002 code ____ 1 channel

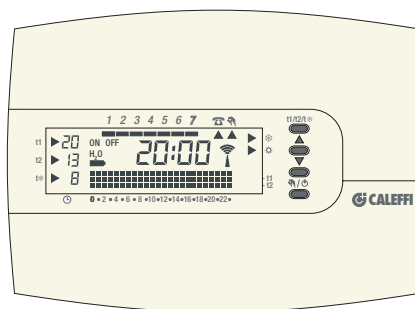
Typical installations



Technical specifications

Weekly digital chrono-thermostat with radio transmitter (740000 code)

Power supply:	2 x 1,5 V alkaline penlight
Operating time:	1 year
Frequency:	868,35 MHz
Maximum range in free air:	120 m
Antenna:	integrated
Contact capacity:	5 (2) A / 250 V
Installation:	wall mounting
Protection rating:	IP 30
Insulation class:	III
Control input for telephone programmer code 739000	
Temperature levels:	2 + antifreeze
Reference standards:	LVD EN 60 730-1 EMC EN 301 489-3 RADIO EN 300 220-3



Dimensions:
120 x 80 x 18 mm

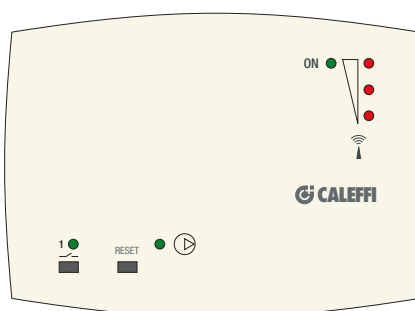


Programming: minimum 30 min
Manual function - Temporary function - Receiver coupling test function
- ON/OFF operation with adjustable differential from 0,2 to 0,7°C.

Wall-mounting receiver:

1 channel (740100 code) 2 channels (740104 code)

Power supply:	230 V - 50-60 Hz
Contact capacity:	5 (2) A / 250 V
Output type:	free contact on switching
Reception frequency:	868,35 MHz
Protection rating:	IP 30
Insulation class:	II
Maximum range in free air:	130 m
Reference standards:	LVD EN 60 730-1 EMC EN 301 489-3 RADIO EN 300 220-3



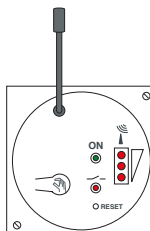
Dimensions:
132 x 90 x 25 mm



Recess-mounting receiver for plastic consumer box:

1 channel (740101 code)

Power supply:	230 V - 50-60 Hz
Contact capacity:	5 (2) A / 250 V
Output type:	N/O free contact
Protection rating:	IP 30
Insulation class:	II
Maximum range in free air:	max 120 m



Dimensions:
60 x 60 x 44 mm



Thermostat with radio transmitter (740201 code)

Power supply:	2 x 1,5 V alkaline penlight
Operating time:	1 year
Frequency:	868,35 MHz
Maximum range in free air:	130 m
Operation:	ON/OFF with differential that can be set from 0,3°C to 0,6°C
Protection rating:	IP 30

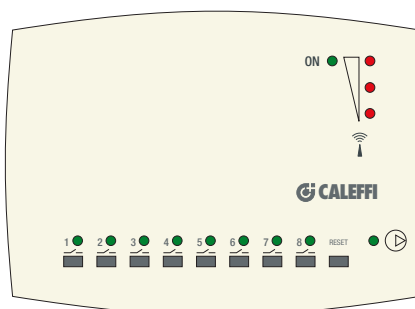


Dimensions:
76 x 81 x 40 mm



8-channel wall-mounting receiver (740202 code)

Power supply:	18 V (via control bar)
Input:	1 VA
Max bus length:	100 m (2 x 0,5 mm ²)
Reception frequency:	868,35 MHz
Signal range in free air:	max 120 m
Protection rating:	IP 30
Insulation class:	II



Dimensions:
132 x 90 x 25 mm

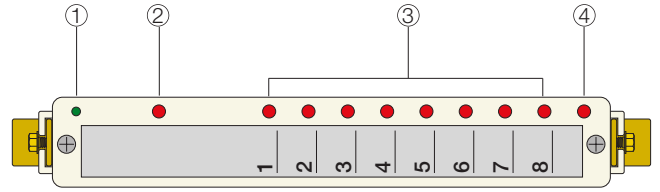


Power bar:

4 outputs + aux (740204 code)
6 outputs + aux (740206 code)
8 outputs + aux (740208 code)

Power supply: 230 V - 50-60 Hz
 Input: 5,5 VA maximum (8 outputs)
 Output type: relay with single-pole switchover contact
 - Polarized N/O-N/C - 8 (2) A / 250 V
 Auxiliary output type: relay with single-pole switchover contact
 potential-free N/O-N/C-COM - 8 (2) A / 250 V
 Maximum total load 8 outputs: 16 A
 Protection rating: IP 52 (with rubber cable clamps)
 Insulation class: II

Reference standards: LVD EN 60 730-1
 EMC EN 301 489-3
 RADIO EN 300 220-3



Dimensions:
 250 x 43 x 76 mm

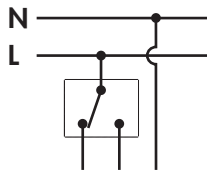


- ①- LED Power supply 230 V present
- ②- LED Bus fault
- ③- LED 1÷8 Channel status
- ④- LED Pump status

Operational/functional characteristics

Relay output

Each relay output of the power bar has a double switchover.



It is therefore possible to pilot both a two-wire and a 3-wire generic valve.

- PUMP CONTROL

The pump control permits starting up the pump when there is an active channel (zone) and stopping the pump when all the channels are OFF.

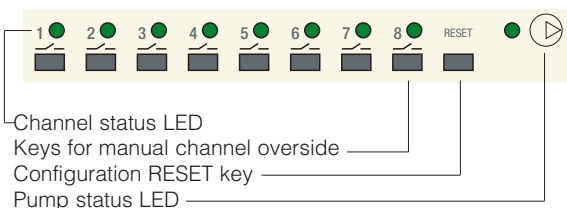
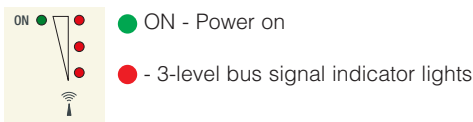
Since thermo-electric actuators, characterised by a starting lag (delay), are often installed, pump starting can be programmed in the receiver as:

R - Delayed (120 s)

or

I - Instantaneous

FRONT PANEL OF 8-CHANNEL RECEIVER



Master function

The MASTER function is the authority of a temperature control device to define periods of attenuation for itself and for the other devices (slaves) associated with it.

The MASTER function can be performed only by the radio chrono-thermostat (740000 code).

It is nevertheless possible to combine more than one master in a temperature control system.

The decision to have a temperature control system with a number of master chrono-thermostats that interact with the 8-channel receiver may be made in order to have 2 or more entirely separate and independent zones as regards both time and temperature levels.

After making this first distinction, the other temperature control devices can, in the self-learning phase, be associated with a specific master or remain completely independent.

All the devices associated in the learning phase are independent in comfort operation as regards their temperature settings. The temperature setting can be selected on the thermostat knob.

During attenuation, controlled by the master chrono-thermostat with its clock function, the crossed devices check that the attenuation setting selected on the master chrono-thermostat is observed.

Lastly, all the devices (thermostats and chrono-thermostats too) that are not combined with a master device act independently according to their temperature settings.

The association criterion must follow the proper path:

- temperature control device
- receiver
- control bar
- valve servocontrol

In this connection it is possible, on the front of the receiver, to pin the combined service channel by channel.

Radio systems - architecture

The modularity and ease of transmitter/receiver coupling make various operational architectures possible.

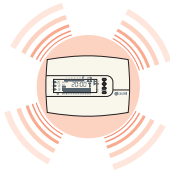
The modular implementation makes it easy, even in the future, to add on new temperature control devices.

All this is possible until the capacities of the receiver and differentiated outputs (power bar relay) are fully saturated.

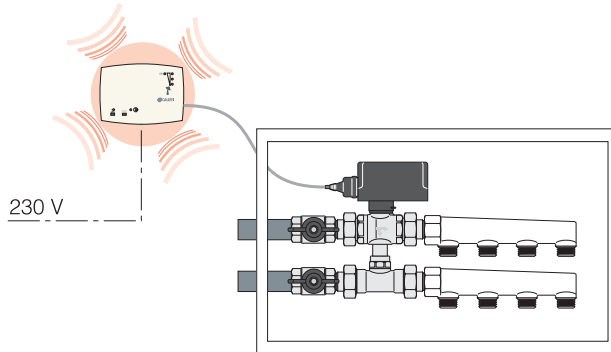
The following suggestions are by no means exhaustive.

1) Temperature control of a single zone (consumer plumbing boxes made of metal).

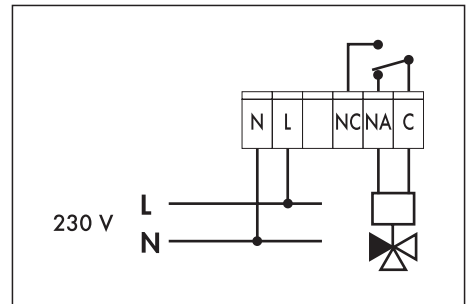
740000 code



740100 code

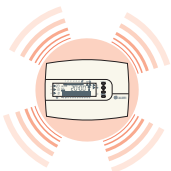


Receiver terminal board

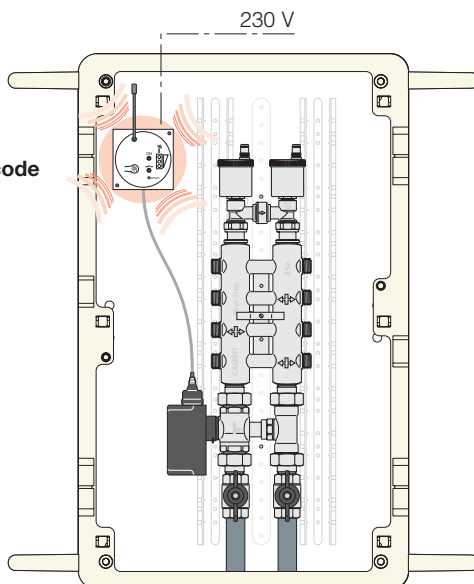


2) Temperature controls of a single zone (consumer plumbing box made of plastic).

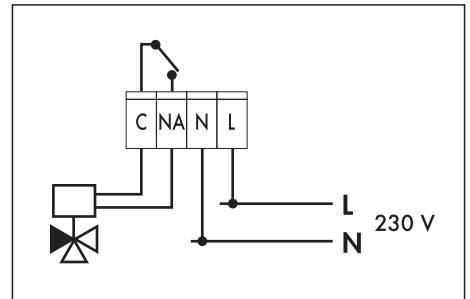
740000 code



740101 code



Receiver terminal board



The distinction between wall-mounting receiver (740100 code) and concealed receiver (740101 code) depends on the type of material (metal - plastic) of the plumbing box.

N.B. The metal boxes have the property of shielding the radio signals.

Note: For both solutions it is possible to supply a complete pre-wired kit.

740102 code - Timer + wall-mounting receiver

740112 code - Timer + wall-mounting receiver + servomotor 646002 code

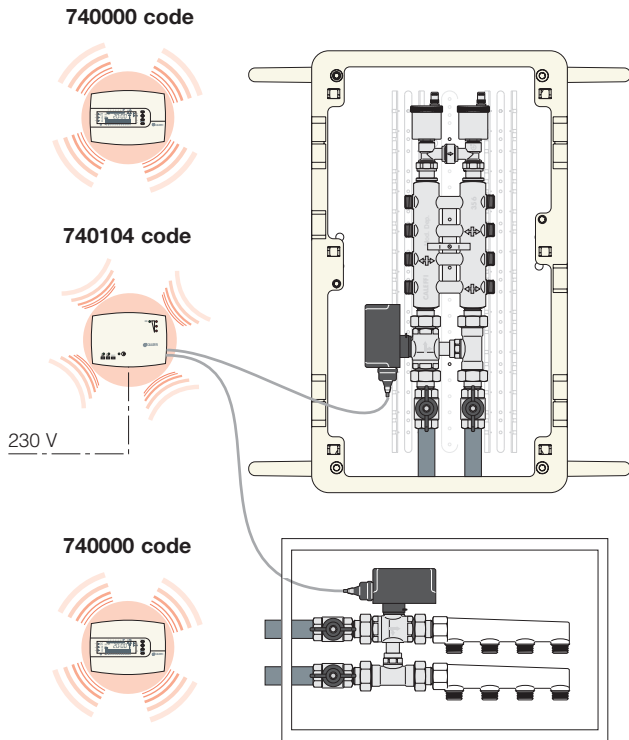
740103 code - Timer + concealed receiver

740113 code - Timer + concealed receiver + servomotor 646002 code

3) Temperature control of two completely independent zones

With the same 2-channel wall-mounting receiver (740104 code) it is possible to have two setups.

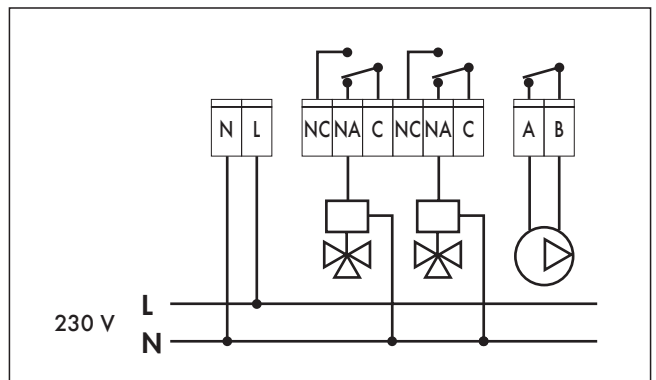
- Each zone is governed by its own chrono-thermostat with its own time settings and levels of comfort and attenuation settings.



- The system pump is activated when required by a zone.

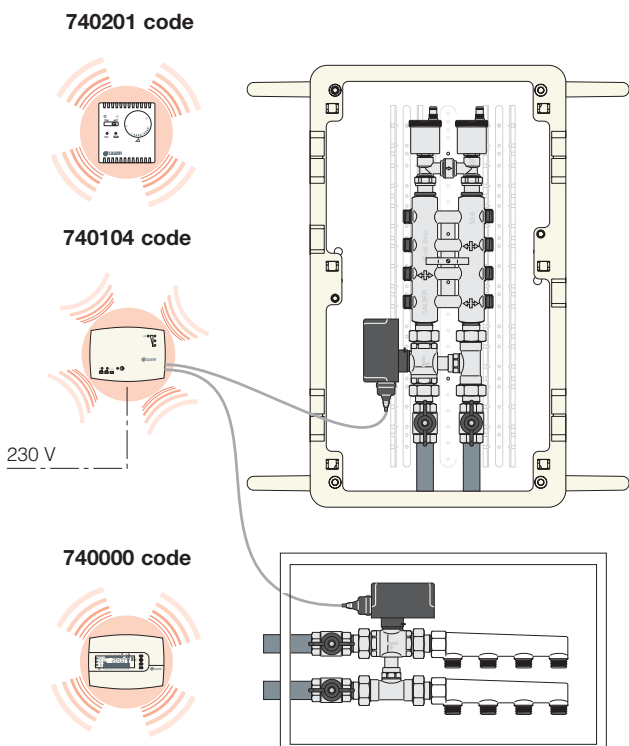
- The system pump is stopped if no zone requires the temperature control service.

Receiver terminal board



4) Main zone temperature control with chrono-thermostat Secondary zone temperature control with thermostat

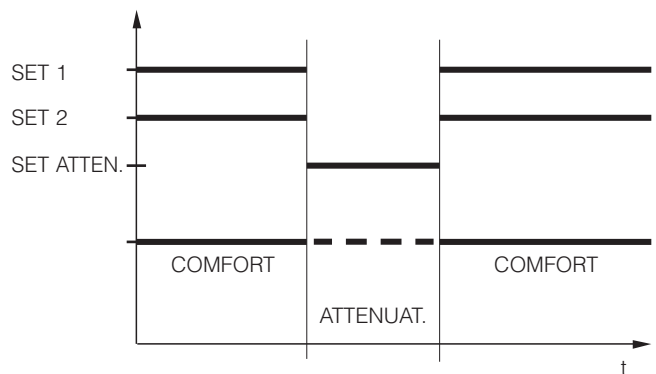
The type of system is identical to that of example 3.



In this example, the chrono-thermostat 740000 code, according to its programming, determines the comfort and attenuation times for both zones.

In periods of comfort zone 1 is temperature controlled according to the first temperature setting and zone (2) is governed according to the temperature setting selected on the radio thermostat (740201 code).

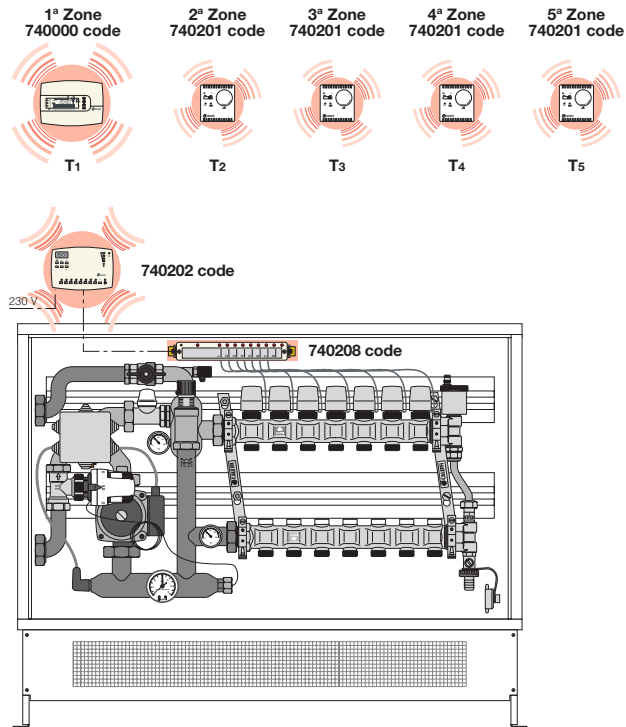
In periods of attenuation zone 1 and zone 2 are temperature controlled according to the attenuation temperature setting of the chrono-thermostat.



5) Consumer temperature control with associated subzones

This setup, which provides room-by-room temperature control, is especially suited for panel heating systems where each loop is controlled by a thermo-electric actuator (6560 series).

The control bar permits having **electrical voltage all concentrated** inside the consumer plumbing module.



8-channel receiver (740202 code)

The 8-channel receiver acquires the ON/OFF operating information from the single zone/subzone temperature control elements by radio and, via the 2-way bus, transfers operation to the corresponding output relays inside the control bar, turning the relevant electric valve(s) on/off.

The control bar has three variants:

740204 code - 4 relays

740206 code - 6 relays

740208 code - 8 relays

Under the control of a single relay **it is possible to associate one or more electrical valves** (this is particularly suited to control a room served by 2 - 3 floor loops where there is a single thermostat or chrono-thermostat).

The number of electric valves that can be associated is determined by the saturation of the intensity of the current 5 (2) A of the contacts of the single relay.

In the case of thermo-electric actuator (series 6560), devices with a high input especially at start-up, the maximum number of controls that can be associated with the same relay (channel) is:

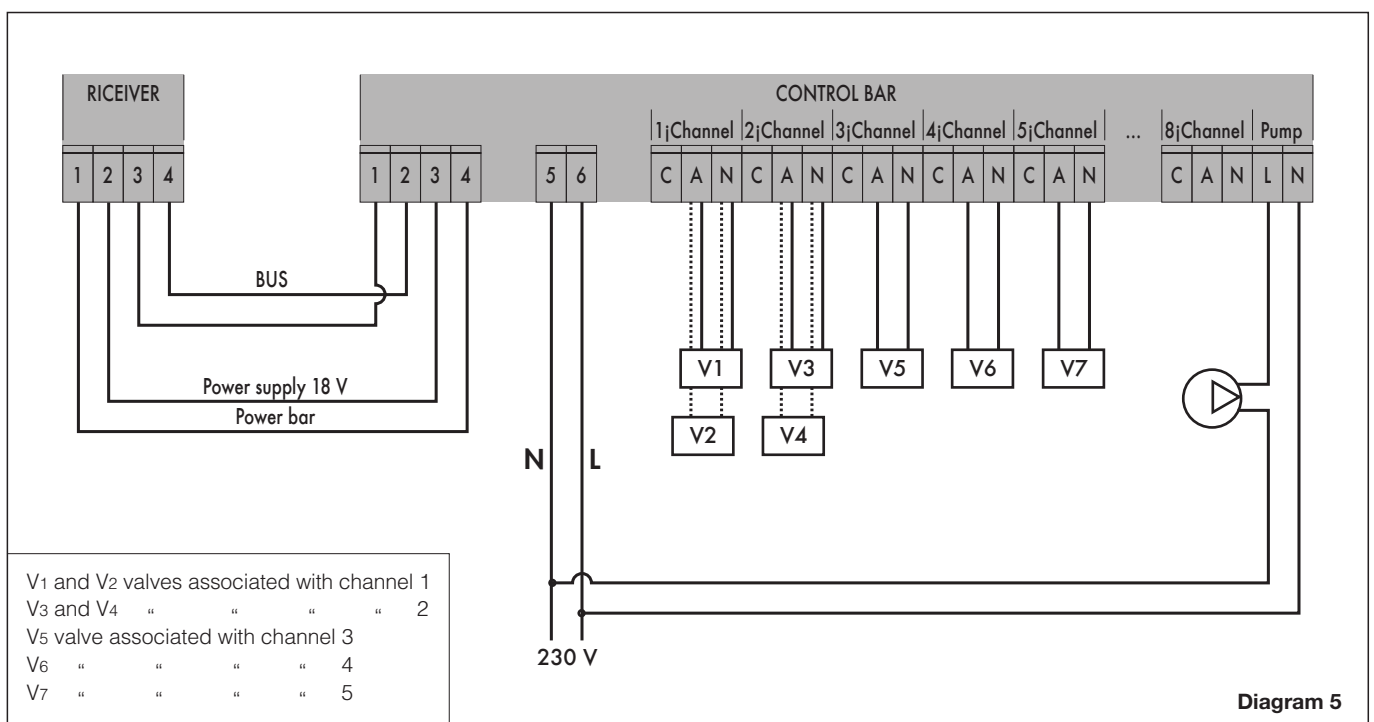
656102 code - 230 V - max 4

656104 code - 24 V - max 2

Example of coupling

- Chrono-thermostat defined as master of devices T₂ - T₃ - T₄ - T₅

- Chrono-thermostat associated with channel 1 / T₂ channel 2 / T₃ channel 3 / T₄ channel 4 / T₅ channel 5.



Alternative solutions

Referring to diagram 5, which considers a single temperature control device as master and all the others as slaves, we can see how the user can reconfigure some devices either as masters of themselves or of other devices.

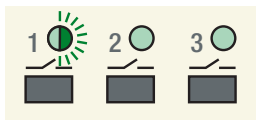
It is thus possible to split a large zone (consumer) into several zones with or without associating the other temperature control devices.

It is likewise possible to suspend the master function temporarily. The phase of personalization guided by audible and visual signals is characterised by the self-learning function and permits these modifications easily even by NON specialized personnel.

Tx-Rx SELF-LEARNING procedure

- The self-learning function is necessary in the phase of the first installation to couple each transmission device (chrono-thermostat/thermostat) with a specific channel of the receiver.
- Press the TEST key on the thermostat or chrono-thermostat for at least 4 seconds.
- By keeping the button pressed on the receiver for the channel where you want to save the transmitter (e.g. channel 1), coupling is performed.

The channel LED blinks



to confirm acquisition.

- Turn off the TEST function on the thermostat or chrono-thermostat.

And then proceed in the same way to couple the other devices.

Note: When receiving a test signal the channel LED may be in the following three conditions:

- 1) LED on steady
The channel is already occupied by another device
- 2) LED blinking
Channel learned by the device at that time in the test phase
- 3) LED off
The channel is free of devices

MASTER setup

- This function is only active on the chrono-thermostat. Remember that this function is used to combine a set of devices that are already coupled (transmitter/receiver channel) with a main device (MASTER) that, for the entire set, will modulate the periods of comfort and attenuation.
- Press the MASTER key on the chrono-thermostat until the display shows

MASTER

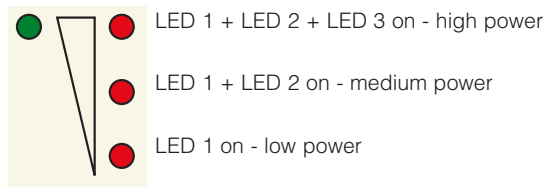
- When the MASTER radio signal reaches the receiver, the channel LEDs will show the current situation according to the following logic

- 1) LED blinking
Channel under the domain of the active master
- 2) LED off
Channel free and not in the domain of the active master

Any outputs on which the transmitting device defined master has already been self-learned, it starts blinking since a self-learned chrono-thermostat is already master of itself.

Signal diagnostics

- During the self-learning procedure the receiver supplies the quality of the signal at visual and audible level by progressively illuminating the three LEDs accompanied by a beep.



The visual-audible sequence is repeated cyclically every 3 seconds.

SPECIFICATION SUMMARIES

740000 code

Digital chrono-thermostat, with weekly programming and radio transmitter (transmission frequency 868,35MHz) with max range 130 m in free air - 2 temperature levels + antifreeze - telephone control input - test function in couplings with the receiver.

740100 code

Wall-mounting radio receiver - 1 channel - with indication of RF signal level.

740101 code

Concealed radio receiver - 1 channel - with indication of RF signal level.

740104 code

Wall-mounting radio receiver - 2 channels - with pump activation and indication of RF signal level.

740201 code

Analog thermostat with radio transmitter (transmission frequency 868,35MHz) with max range 130 m in free air - test function in coupling with the receiver - summer winter control.

740202 code

Wall-mounting radio receiver - 8 channels - with pump activation - equipped with control bus, reprogrammable non-volatile memory for coupling and assigning to master - manual forcing of channel output status - three-level test signal visual and audible indicator.

740204 code

Power bar with 4 channels with pump activation, channel status indicator light, dialogue on 2-wire bus equipped with anchor slides on bottom of consumer plumbing box. Power supply 230 V.

740206 code

Power bar with 6 channels with pump activation, channel status indicator light, dialogue on 2-wire bus equipped with anchor slides on bottom of consumer plumbing box. Power supply 230 V.

740208 code

Power bar with 8 channels with pump activation, channel status indicator light, dialogue on 2-wire bus equipped with anchor slides on bottom of consumer plumbing box. Power supply 230 V.

We reserve the right to change our products and their relevant technical data, contained in this publication, at any time and without prior notice.

