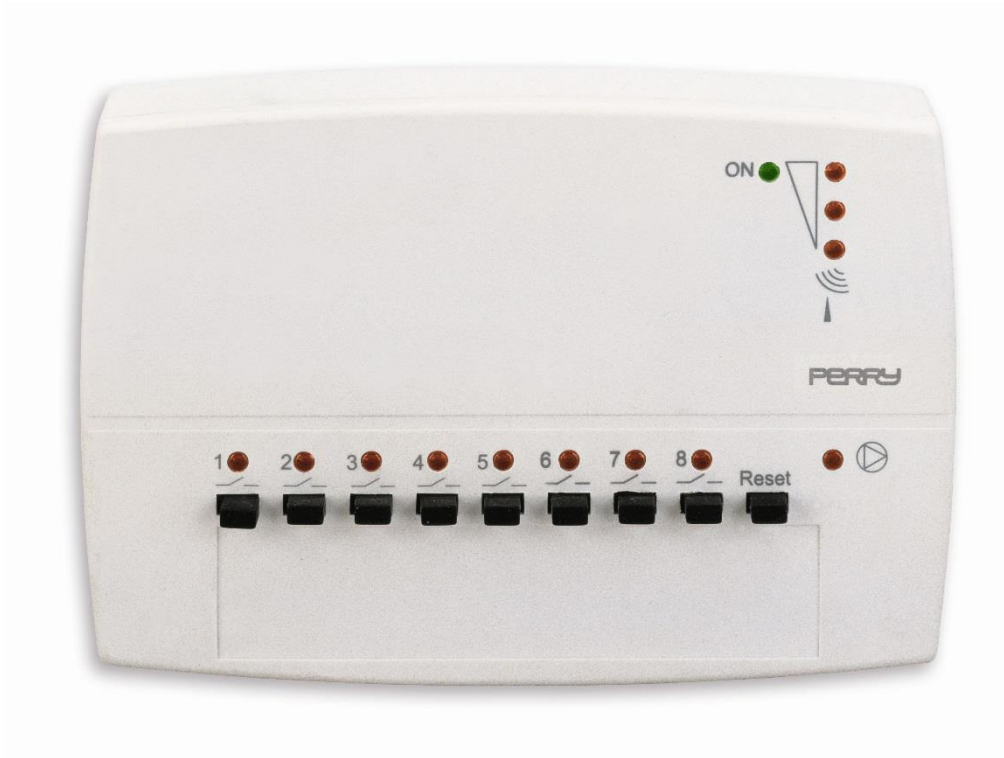


INSTRUCTION INSTALLATION AND USE

ZONE STATE CONTROL UNIT



INDEX

	Page
1 GENERAL DESCRIPTION	3
2 AESTHETIC ASPECT	3
3 PRODUCT DESCRIPTION	3
3.1 SELF-LEARNING OF THE PRIMARY DEFINED TRANSMITTER DEVICES	3
3.2 OPTICAL INDICATION OF THE LEVEL OF THE RECEIVED RADIO SIGNAL	4
3.3 ACOUSTIC INDICATION OF THE LEVEL OF THE RECEIVED RADIO SIGNAL	4
3.4 FAULT SIGNALING OF THE TRANSMITTER DEVICE	5
3.4.1 Failure due to the absence of transmissions	5
3.4.2 Failure due to low battery	5
3.5 DELETING A DEVICE FROM A CHANNEL, IN THE ABSENCE OF THE SIGNAL SENT BY THE TRANSMITTER	5
3.6 CONFIGURATION OF A DEFINED MASTER DEVICE	5
3.6.1 Manual Master Activation	6
3.6.2 Master Activation from Profile	6
3.7 MANUAL FORCING OF THE OUTPUT STATUS	7
3.8 PUMP IMPLEMENTATION DELAY	7
3.9 CIRCUIT RESET AND LAMP-TEST	7
4 TECHNICAL CHARACTERISTICS	8
4.1 TECHNICAL DATA	8
4.2 REFERENCE REGULATIONS	8
5 PRINCIPLE CONNECTION DIAGRAM	9
6 ELECTRICAL CONNECTIONS	10

1 GENERAL DESCRIPTION

It is a Radio Frequency receiver, designed to store up to 8 transmitting devices (Thermostats or Chrono thermostats) and a maximum of 2 Chrono thermostats called Master. The receiver has an output intended to drive a pump, a boiler, etc. The output is activated when at least one of the users is active, when instead no user is active, the output will be OFF.

The receiver in question works on the frequency of 868.35MHz and receives and interprets the RF signals sent by radio thermostats and Chrono thermostats.

2 AESTHETIC ASPECT



3 PRODUCT DESCRIPTION

1.1 Self-learning of the Primary transmitting devices

Only one transmitting device can be stored on each channel of the receiver, but on the contrary, a transmitting device can control multiple channels of the receiver.

The assignment of the various devices to the channels cannot be lost even if the power supply fails to the receiver.

In order to register a transmitting device (Chrono thermostat or Thermostat) in a receiver, it is necessary to put the transmitting device in the test condition by pressing the relative button for at least 4 seconds.

At this point, by pressing and holding the button of the channel of the receiver on which you want to store the device, the first valid reception of the test code, the learning takes place, with consequent flashing of the corresponding channel LED (1 / 2sec ON and 1 / 2sec OFF) and confirmation beep. The channel LED will continue to flash for 4 seconds and if it no longer receives the test signal, it will return to signal the status of the relative output; output ON = relay attracted = LED on, output OFF = relay released = LED off.

If, while the test signal arrives, you realize that you have mistakenly learned the device on a channel, you can cancel it, simply by pressing the relative button again, as a consequence the LED turns off.

During the arrival of a test signal from a device, if one or more channels of the receiver are already occupied by other devices, the relative indicator LED will light up and remain on; at this point it is possible to delete the previous device and insert the new one, simply by pressing the button of the channel where you want to insert it, as a consequence there is a signal beep and the flashing of the corresponding channel for the whole time of signal reception. Also in this case it is possible to permanently delete the device from the channel, simply by pressing the button while the test code arrives; the indicator LED will go off.

The above is valid for any of the eight channels of the receiver.

NOTE: Only test codes can be self-learned; codes received from normal transmissions cannot be considered self-learning.

Summarizing, during the reception of a test signal, the channel led can be found in the following three conditions:

Channel LED on steady = channel already occupied by another device.

Flashing channel led = channel learned by the device at the time being tested.

Channel led off = channel free from devices.

3.2 Optical indication of the level of the radio signal received

Therefore, as described above, upon arrival of a test signal, the receiver will deactivate the display of the status of the outputs, showing:

- the channels controlled by the device under test by flashing the corresponding channel LEDs,
- possibly the channels occupied by other devices by means of a fixed lighting of the channel LED
- the free channels through the LED off.

At the same time, the receiver will show the signal reception level by turning on the Vmeter LEDs.

There are three levels that correspond to: signal received with low power = ignition of the lower LED (LEVEL1), with medium power = ignition of the lower and intermediate LED (LEVEL2), up to the signal received with high power = ignition of all three led of the bar.

In the event that the receiver no longer detects the test signal, after 4 seconds, it automatically returns to the display of the status of the outputs.



At any time during normal receiver operation, pressing the channel button for at least one-second displays for 5 sec. the quality level of the last signal received by the corresponding Primary transmitter.

This allows you to check, at any time, the intensity of the signal received; therefore the last RF level received by each channel will be stored in the temporary memory of the microcontroller.

3.3 Acoustic indication of the level of the radio signal received

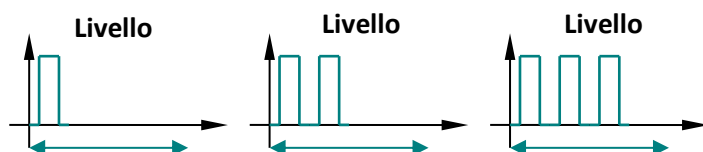
To simplify the verification of the device's range by the installer, the identification of the quality of the radio signal received may also be acoustic.

In this case, it is necessary to test the transmitting device (Chrono thermostat or Thermostat) by pressing the TEST button for at least 7 seconds, awaiting confirmation from the transmitting device itself.

At this point, on the receiver, in addition to the normal optical level signal, there is also an acoustic response from the buzzer to each reception of the ACOUSTIC TEST code, in practice, when each LED on the bar lights up, an acoustic signal will correspond.

Lighting only lower led = an acoustic warning.

Lighting of the entire LED bar = three acoustic warnings.



From a transmitter that is already in the TEST phase, you can enter this mode by simply pressing the TEST button for another 3 seconds.

To deactivate this function, simply press the activation button of the test signal on the transmitter for at least one second (Chrono thermostat or Thermostat).

3.4 Failure signaling of the transmitting device

The receiver reports the anomaly of an associated transmitting device, in the following two cases:

- **Absence of receptions**
- **Battery about to die**

In both cases, the anomaly is indicated by the synchronized flashing of the "ON" LED and the LEDs relating to the channels controlled by the failed device (1/2sec ON and 1/2sec OFF).

3.4.1 Failure due to the absence of transmissions:

It occurs when a signal does not reach the receiver for more than 40 minutes from a transmitter device, self-learned in one or more channels.

Furthermore, if during the entry into this failure, the channel concerned is the only one in the ON state, the output relay which is therefore attracted is immediately released, to return to attract itself as soon as a new command arrives from the transmitting device.

All this because the zone in failure must clone the behavior of the relative motorized zone valve, which closes automatically when it is in fault due to non-reception for more than 40 minutes.

3.4.2 Failure due to low battery

It occurs when a signal containing the information (via the appropriate bit) of an almost discharged battery reaches the receiver from a self-learned transmitting device in one or more channels.

3.5 Elimination of a device from a channel, in the absence of the signal sent by the transmitter.

At any time, it is possible to delete the device stored in it from any channel even if the device itself cannot send the TEST signal, because it is faulty.

By pressing the channel to be freed for at least 10 seconds, after this time, the device emits a series of acoustic signals (series of beeps from 1 / 2sec ON and 1 / 2sec OFF), to indicate "imminent cancellation", keeping the button pressed for another three seconds the channel is canceled confirmed by an acoustic signal (long beep); instead releasing the button before the three seconds have elapsed, the function is exited, without therefore obtaining cancellations, but access to the "Manual Exit Activation" function.

3.6 Configuration of a device called Master

Only one MASTER device can be stored on each channel of the receiver, but on the contrary a Master device can control multiple channels of the receiver.

The eight channels of a receiver can be controlled by a maximum of 2 devices called MASTER (ex: channels 1, 5 and 8 under the Chrono Master "A", channels 2, 3 and 7 under the Master "B" and channels 4 and 6 not controlled by any Master), (Multimaster function).

A Chronothermostat device already self-learned as PRIMARY must not be considered Master of itself.

The configuration procedure is as follows:

Press the MASTER Button on the radio programmable thermostat for at least 3 seconds; the chronothermostat will issue a TEST code but with the MASTER bit "YES" (in normal TEST, this bit is always set as "NO").

Upon arrival of the test signal "from master", the receiver will deactivate the display of the status of the outputs, showing the current situation of the channels using the following logic:

LED on steady = Channels already occupied by another Master device

Flashing LED = Channels under the domain of the active master

Led off = channel free or not inserted in the domain of the active Master.

Pressing a button relating to an output not inserted in the Master domain entails its insertion, with consequent flashing of the relative channel LED (1 / 2sec ON and 1 / 2sec OFF) and confirmation beep (1 second).

Pressing the button, of a channel placed under the master's domain, involves the removal of the Master from that channel.

If you try to have a MASTER configured for an output not managed by any thermostat or Chrono thermostat, the learning will be ignored, but a Chrono thermostat in Test Master, not self-learned in the receiver, can be inserted as Master of one or more channels.

The information attributing the master device to the channels cannot be lost even if the power supply to the receiver fails; therefore, it must be recorded in the EEPROM of the Microcontroller.

Only radio programmable thermostats can act as master, for a thermostat it is not possible.

In normal operation, for a Chrono thermostat there can be two Master operating modes, namely: "Manual Master" and "Master from profile".

3.6.1 Manual Master Activation:

This function allows the "SET" temperature of a Chrono thermostat called "MASTER" to be adopted, to all the channels of a receiving element, on which other primary defined devices (Chrono thermostats and Thermostats) have been self-learned and the MASTER device has been configured same. The measured temperature, which the receiver will take as a reference, will always be the one detected and transmitted by the individual Primary devices.

In this way, when you want to obtain the same temperature on all rooms of a building, it is not necessary to force the SET temperature on each transmitter of the system (Chrono thermostats and Thermostats), but simply set it in the Master device and set the MASTER function

In case of the 1TXCRTX03 Chrono thermostat, the procedure for setting the Manual MASTER function is as follows:

force the Chrono thermostat into manual operation (temporary or permanent), then press the "**MASTER**" button

As a consequence there will be the lighting of the index that points to the word MASTER, in addition to the one already on and after 5 seconds the sending of a radio transmission containing the setting information.

At any time of the Manual MASTER forcing period, the set temperature can be varied between t comfort, t economy and t antifreeze by pressing the relative keys.

The device remains in Manual MASTER forcing until a subsequent pressing of the "MASTER" key, or of the "**MANUAL**" key, or until the temporary manual forcing expires.

As a consequence, a radio transmission is sent containing the new setting settings, including the "**TYPE OF MASTER**" bit.

3.6.2 Master Activation from Profile:

This function allows to adopt the "economy" temperature of a thermal profile of a Chronothermostat called "MASTER", to all the channels of a receiving element, on which other primary defined devices (Chronothermostats and Thermostats) have been self-learned and have been configured the MASTER device itself. The measured temperature, which the receiver will take as a reference, will always be the one detected and transmitted by the individual Primary devices.

When the profile of the Master chronothermostat changes to the comfort temperature, the Master will no longer impose its temperature on the other devices.

In this way, when desired, it is not necessary to force the reduction temperature (economy) on each actuator device of the system (Chronothermostats and Thermostats), but it is sufficient to set it in the Master device and set the "PROFILE MASTER" function.

Again in case of the Chrono thermostat, the procedure for setting the MASTER function from Profile is as follows:

During the execution of any program of the Chrono thermostat, (P01-P05), press the "MASTER" key.

As a consequence, the index pointing to the word MASTER will light up and after 5 seconds a radio transmission will be sent containing the setting information. As soon as the profile changes from "comfort" to "economy" or "antifreeze", there is a transmission with the information of MASTER FROM PROFILE (by setting the appropriate bits)

Vice versa, if the set profile changes from "economy" or "antifreeze" to "comfort", there is a transmission with the information of MASTER "NO" (by setting the appropriate bits). The pointer index, however, continues to remain lit on MASTER, until the voluntary shutdown

The device remains in MASTER forcing from the profile, until a subsequent pressing of the MASTER button.

As a consequence, a radio transmission is sent containing the new setting settings.

3.7 Manual forcing of the state of the outputs:

In order to be able to perform tests on the hydraulic system at any time, it is possible to force the state of the receiver output.

By holding down the button for the channel to be tested for at least 6 seconds, the output status will switch from Off to ON or vice versa, this action will be displayed by turning the relative red "channel" LED on or off.

"Channel" led = on = "pump" led on = output in ON state

"Channel" LED = off = "Pump" LED off if all the other channels are also off = output in OFF state

The exit will be forced when the button is released, therefore reaching 6 seconds of pressure will be signaled by a short beep (ABOUT 0.5 seconds). The exit from the manual function occurs automatically after 5 minutes from activation.

At the end of the manual function timing, the receiver emits an acoustic signal (continuous beep).

By pressing the button relative to the channel placed in manual, the operator has the option to reset the function. Otherwise, after 5 seconds the receiver resumes normal operation.

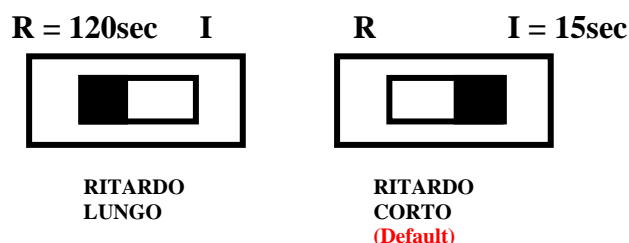
During manual operation, the last codes sent to the channel (s) whose status has been forced will be stored in a temporary memory and then implemented as soon as the receiver resumes automatic operation.

3.8 Pump activation delay:

Depending on the position of the actuator of a switch located inside the receiver board, the high delay or a short delay in the implementation of the pump command can be set.

- **Short delay:** by setting the switch to "I", a small delay of 15 seconds is obtained for the relay to allow the motorized valves to perform the opening maneuver before operating the pump (the valve needs 10 seconds to neutral time to start the maneuver).

- **High delay:** by setting the switch to "R", the delay time will depend on what is set in a location of the internal memory of the microcontroller and will be 120 seconds by default, but adjustable from 0 to 255 seconds from the factory. Electro-thermic heads or to the zone valves, to perform the opening maneuver before operating the pump (in general, this type of valve takes about 2 minutes to open completely).



The default position with which the receivers leave the factory is on I (15 seconds).

3.9 Circuit reset and Lamp-Test:

By pressing the reset button on the front panel of the receiver, the microcontroller is reset, thus eliminating all the information that was present in its temporary memory, the information relating to the self-learning of the primary devices, the configurations of the Master device, if any, remain in permanent memory the delay time of the pump output. After the Reset, all the LEDs on the receiver turn on for 2 seconds and an equally long beep (lamp-test). The output piloting will start in the OFF condition and its status will be updated as soon as the self-learned devices send the necessary information via radio.



This function is useful if the receiver exhibits abnormal operation due, for example, to the action of EMC disturbances.

4 TECHNICAL CHARACTERISTICS:

4.1 Technical data:

The main technical characteristics of the receivers in question are listed below:

- Power supply 230V ac (50 / 60Hz) (Umin: 195Vac; Umax: 264Vac)
- Device consumption 0.8VA max.
- outputs Relay 1
- Resistive load applicable to the 1250W/250Vac output (5A cosφ = 1) (2A cosφ = 0.6)
- RF reception frequency 868.35MHz +/- 400KHz
- Super heterodyne single conversion RF receiver type with integrated VCO and PLL
- Detection type of the ASK receiver (OOK)
Duration of the shortest decodable code bit 333μS +/- 10%
- Receiver sensitivity > -106dBm
- Method of receiving the signal from the ether via a lamda / 4 antenna, internal or external to the device
- Signaling of the level of the signal received by LED bar lighting, on three levels
- Anomaly signaling of the paired devices by flashing the "ON" led and the corresponding channel
- Signaling of the status of the paired devices by turning the relative channel LEDs on or off
- Signaling of the pump output status by turning on the relative LED
- Immunity to electromagnetic disturbances > 10V / m between 1MHz and 1GHz
- Resistance to electrostatic discharges 8KV for discharges into the air 4KV for contact discharge
- Degree of protection IP30 (wall mounting)
- Normal Pollution

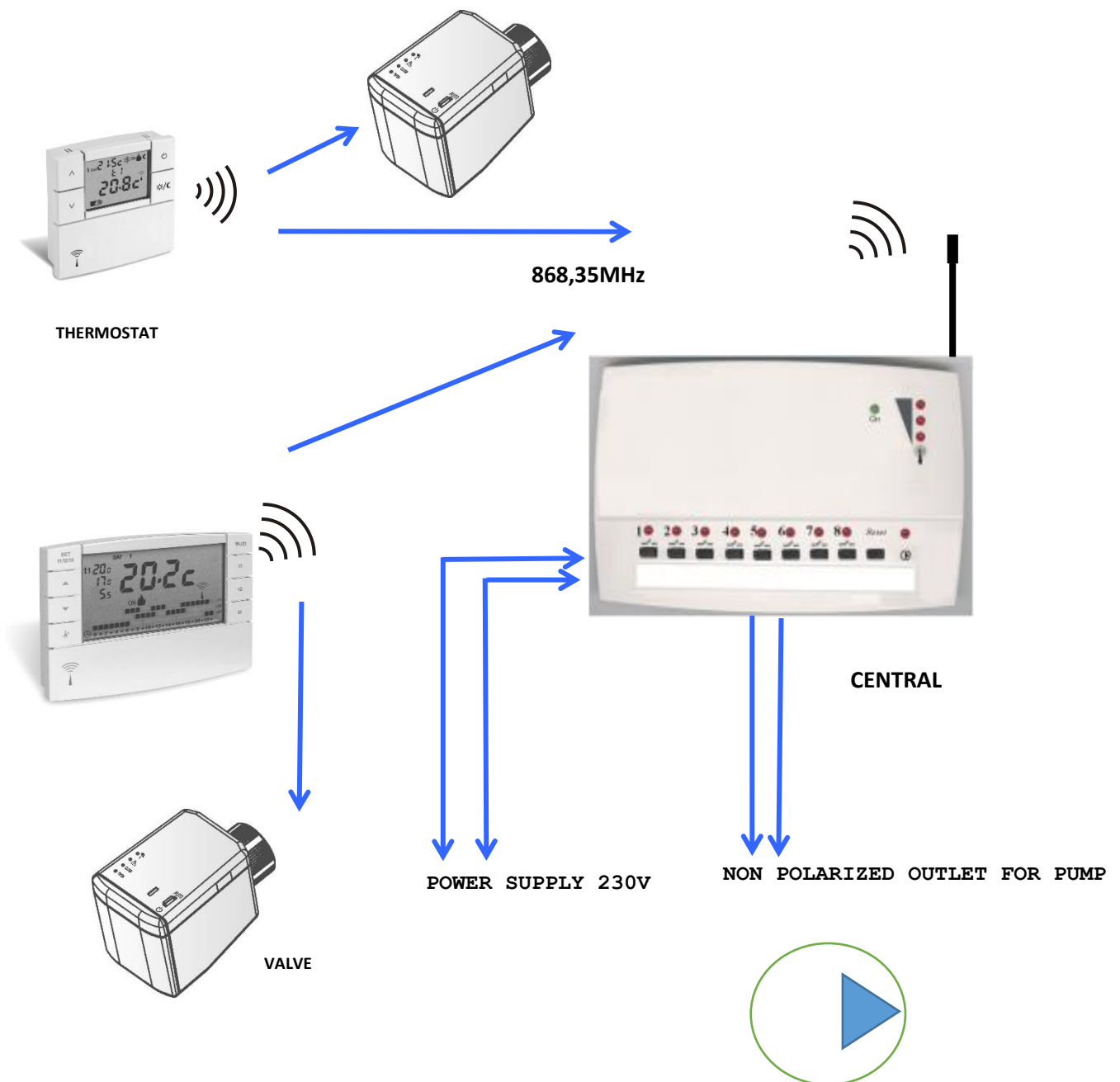
- Class II insulation type
- Operating temperature -20 ° C / + 70 ° C
- Storage temperature -25 ° C / + 85 ° C
- Cross section of the wires at the terminals from 1mm² to 2.5mm²
- Type of ON / OFF thermostat with hysteresis band (differential)

4.2 Reference regulations:

- Security: EN60730-1
- Electromagnetic Compatibility: EN 301489-3
- Radio frequency: EN300220-3

5 PRINCIPLE CONNECTION DIAGRAM

Below is the basic connection diagram of the Zone State Control Center.



6 ELECTRICAL CONNECTIONS

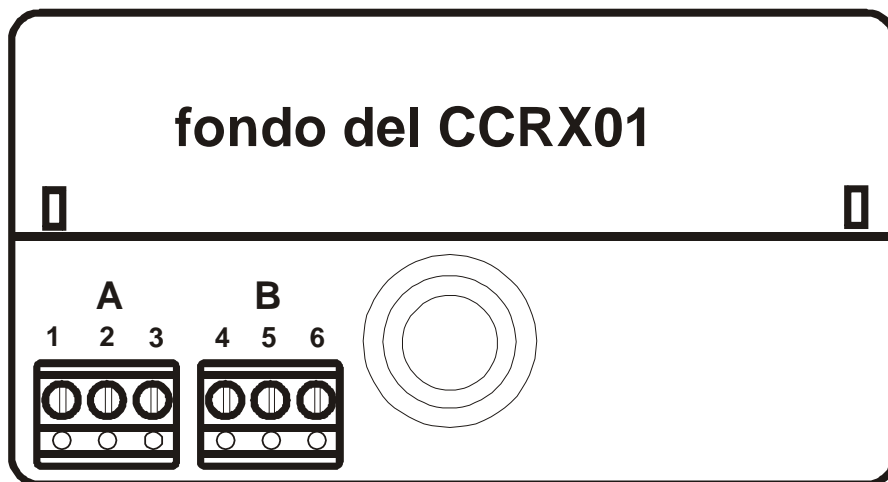
The indications of the terminals for the electrical connections are shown:

A Electrical clamp

- 1= N = NEUTRAL
- 2= L= PHASE 230V ac
- 3= L= splitting of the phase

B Electrical clamp

- 4= NC = normally closed contact of the pump control output
- 5= C= common output pump control
- 6= NO= normally open contact of the pump control output



MORSETTO "A"

- 1 = N = Neutro 230Vac
- 2 = L = Fase 230Vac
- 3 = L = Sdoppiamento della Fase 230Vac

MORSETTO "B"

- 4 = NC = Contatto normalmente chiuso dell'uscita Comando Pompa
- 5 = C = Comune dell'uscita Comando Pompa
- 6 = NO = Contatto normalmente aperto dell'uscita Comando Pompa