Cronotermostato Digitale

CHRONOS KEY

Manuale d'Uso

User Manual
DIGITAL PROGRAMMABLE THERMOSTAT

Vemer SPA

PDF

Index

English

Digital programmable thermostat CHRONOS KEY

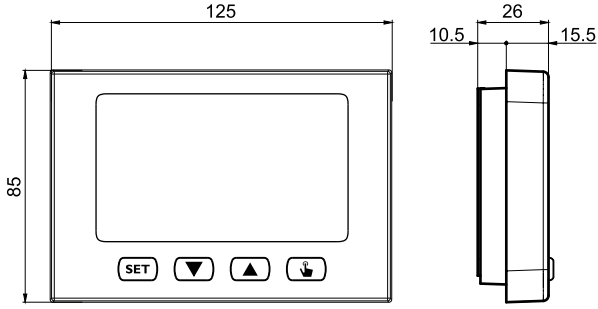
English

- **Summer and winter operating mode**
- **Models available in white and black colours**
- **Battery or 230 V power supply**
- **7 programs available for the heating mode**
  7 programs available for cooling mode
- **Wall-mounted or covered installation of box 503**
- **Weekly programming with 3 different settable temperatures**

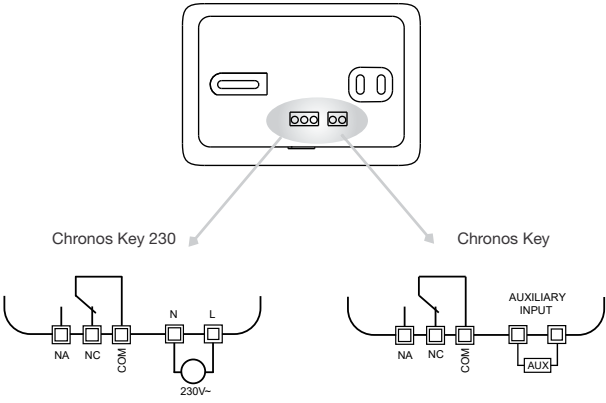
Digital programmable thermostat CHRONOS KEY

Model	Chronos Key 230 Bianco	Chronos Key 230 Nero	Chronos Key Bianco	Chronos Key Nero
Power supply	230Vac 50/60 Hz 		batteries 2 x 1,5V (type AAA) 	
Display	blue backlight (can be switched off)		blue backlight (activated with a key touch for 30 seconds)	
Digital input	—		Configurable as input for external probe or phone dialler	
Installation	Wall-mounting (or to cover three-module built-in box)			

DIMENSIONS



CONNECTION DIAGRAM



Electronic touch screen programmable thermostats series with wall-mounting suitable for the temperature control in household. Two versions are available:

- **CHRONOS KEY,** battery-powered, with a blue backlight display and with an input for the connection of an external temperature probe or an external contact to switch on/off the remote programmable thermostat (by telephone).
- **CHRONOS KEY 230,** mains powered supply, with a blue backlight display.

These instruments perform actions of 1B type and are intended for operating in environments Pollution degree 2 and Overvoltage Category III (EN 60730-1).

SAFETY WARNINGS

- **During product installation and operation it is necessary to observe the following instructions:**

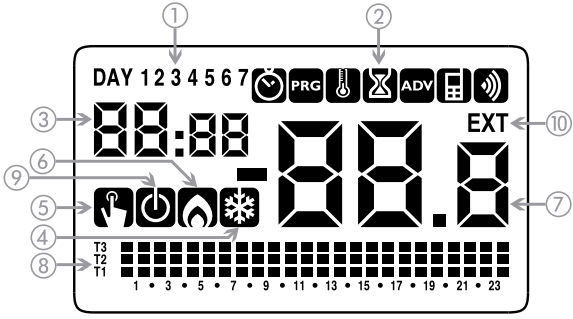
1) **The instrument must be installed by a qualified person, in strict compliance with the connection diagrams.**
2) **Do not power or connect the instrument if any part of it is damaged.**
3) **After installation, inaccessibility to the connection terminals without appropriate tools must be guaranteed.**
4) **The instruments must be installed and activated in compliance with current electric system standards.**
5) **Before accessing the connection terminals, verify that the leads are not live.**
6) **In the electrical system of the building where the instrument must be installed, a switch and a protection device from the overcurrents must be present (for Chronos Key 230 models only).**

Code	Model	Description
VE725800	Chronos Key Bianco	Programmable thermostat with battery in white
VE726600	Chronos Key Nero	Programmable thermostat with battery in black
VE727400	Chronos Key 230 Bianco	Programmable thermostat 230 V in white
VE728200	Chronos Key 230 Nero	Programmable thermostat 230 V in black

TECHNICAL SPECIFICATIONS

- Power supply Chronos Key:
  - 2 alkaline batteries 1.5 V (AAA type)
  - battery life: 1 year
  - battery charge level indication
  - charge reserve (for battery replacement): 1 minute
- Power supply Chronos Key 230:
  - 230 Vac (-15% ÷ +10%) 50/60 Hz
  - maximum consumption: 6 VA / 230 Vac
  - charge reserve (for blackout): 2 days about
- Wall mounting or to coverage three-module in built box
- Terminals Chronos Key:
  - 3 terminals for 1.5 mm^2 cable section for bistable output relay 5 A / 250 Vac
  - 2 terminals for 1.5 mm^2 cable section for digital input (external probe or on/off with telephone activator)
- Terminals Chronos Key 230:
  - 3 terminals for 1.5 mm^2 cable section for monostable output relay 5 A / 250 Vac
  - 2 terminals for 1.5 mm^2 cable section for power supply
- Temperature regulation:
  - On/off with hysteresis setting between 0,1 °C and 1°C
  - Proportional with settable band and period
- Summer/winter operating mode
- Weekly programming (7 programs available for each operating mode)
- Daily resolution: 1 hour (possibility to set delay activation of 15, 30, 45 minutes independent for each hour)
- 5 settable temperatures:
  - T1, T2, T3 in automatic operation
  - Tm in manual operation
  - Toff in off mode (antifreeze)
- Measured temperature display: 0 ÷ 50 °C
- Measurement precision: ±0.5 °C: ±0.5 °C
- Measured temperature resolution: 0.1°C
- Setpoint range: 2 ÷ 35 °C
- Clock precision: ±1 second/day
- Key lock by password
- Summer/winter time automatic change (excludable)
- Operating temperature: 0 ÷ 50 °C
- Storage temperature: -10 ÷ 65 °C
- Operating humidity: 20 ÷ 90% non condensing
- Protection degree: IP40
- Insulation: reinforced among accessible parts (frontal) and all other terminals

DISPLAY AND KEYPAD



- ① Day of the week (DAY 1 = Monday)
- ② Programming menu:
  - : date/time and summer time setting
  - PRG: programs change mode (for automatic operating)
  - : temperatures setting T1, T2. T3
  - : timing menu
  - ADV: advanced programming menu
  - : *not used*
  - : *not used*
- ③ Time and minutes
- ④ Load activation in summer mode/ cooling
- ⑤ Manual operation activation
- ⑥ Load activation in winter mode/heating
- ⑦ Measured environment temperature
- ⑧ Graphic of the active program for the current date (in automatic operation)
- ⑨ Off operation
- ⑩ Measured temperature of the external probe

English

■ *Keypad*

The keys have different functions according to the instrument status and they will be described step by step in this user manual.
Multipurpose keys are not built into the instrument, that is to say contemporary pressures of 2 or more keys.
There are two types of pressure:
- brief pressures,
- long pressures, with duration higher than 3 seconds.

During the press of a key, the display is blue.

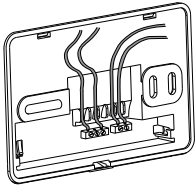
■ *Cleaning the display*

To clean the display use a soft, lint-free cloth, without using excess force.

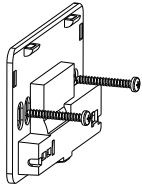
INSTALLATION

- The programmable thermostats of Chronos Key series are designed for wall-mountig. Alternatively, they can be installed to cover three-module built-in box.
- The programmable thermostat must be installed at a height of about 1.5 m above the floor, keep away from direct sunlight, far from doors, windows, heat sources, locations with excess or total lack of ventilation.

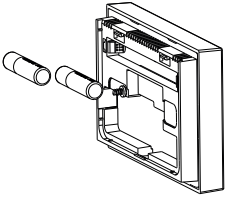
■ Connect the wires to the terminal blocks of the base, as shown in the **"connection diagram"**.



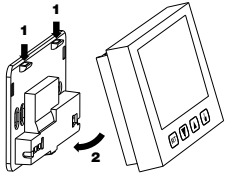
■ Fix the base on the wall using the screws supplied.



■ Only for battery power supply models only: insert the batteries into the battery compartment on the back of the programmable thermostat, respecting the polarity



■ Hook the programmable thermostat to the base, at first matching teeth with the higher side.

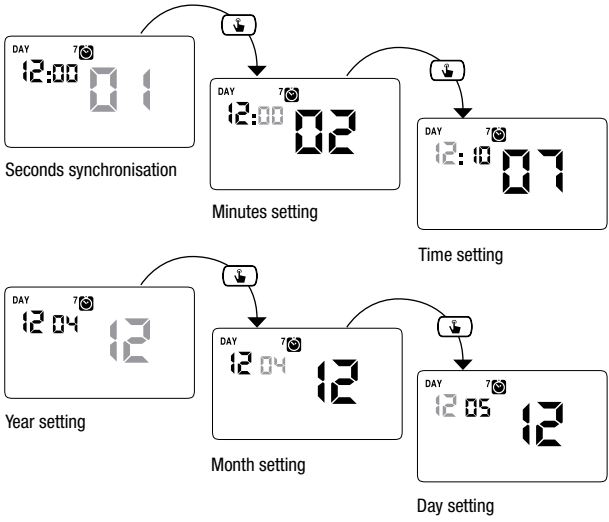


English

- **Clock setting**

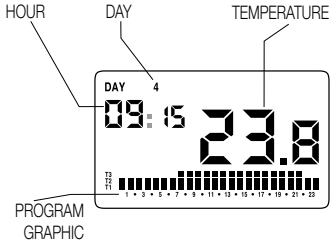
Once the instrument is mains powered, set the clock (time and date insertion).
The parameters to enter are the following:
seconds (only synchronisation at value 00), minutes, hours, year, month, day.

Use the keys (▲) and (▼) to increase and decrease the values and the key (☝) to confirm and move to the next parameter.



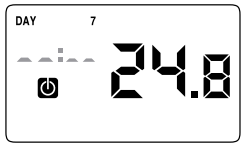
Once all values are set, press the key (SET) for a long time to exit the menu of the clock synchronisation.

Now the programmable thermostat will begin to operate with the set default parameters (see page 33) displaying the day of the week, the time, the environment temperature and the graphic of the active program.



Attention:
To operate correctly the programmable thermostat requires the time and date insertion.

If once mains powered, no value is set within about 30 seconds, the programmable thermostat begins to operate in off mode, displayed with the symbol ⏻. The time lack is displayed with flashing dashes (_ _:_ _).

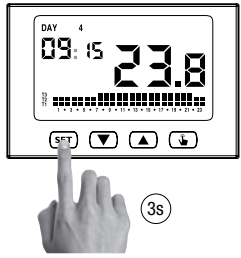


The programmable thermostat stays in off operation condition until the hour is not inserted, ensuring the maintenance of the antifreeze temperature (6°C) anyway.

In this way, the pressure of any key reactivates the menu of date/time insertion for about 30 seconds.

PROGRAMMING MENU

With this menu it is possible to modify the following operating parameters:
- Date and time
- Automatic operation programs
- Automatic operation temperatures
- Timings
- Advanced functions.



Time and date modification

To modify set hour and date:

1. From normal operating display, press the key (SET) for a long time until the symbol starts flashing on field **(2)**

2. Press the key ( ) to enter parameters modification. The seconds field starts flashing. Parameters sequence to set:

   seconds* -> minutes -> hours -> month ->day

3. Use the keys (▲) and (▼) to modify the values and the key ( ) to confirm moving to the next parameter.
   (*) for seconds it is possible only the synchronisatin at value 00

4. Once all parameters are set, to exit and to go back to the programming menu, press the key (SET) for a short time.
   To exit and to go back to the normal operation (automatic, manual) press the key (SET) for a long time or wait for the time-out expiration (about 30 seconds).

Inside this menu it is also possible to modify the parameters for winter/ summer time change. The procedure is described in a detailed way in the chapter “Summer time change” on page 25.

Programs modification

This menu allows to modify the programmings of the automatic operation.
In default status the instrument is configured to perform the program P1 from Monday

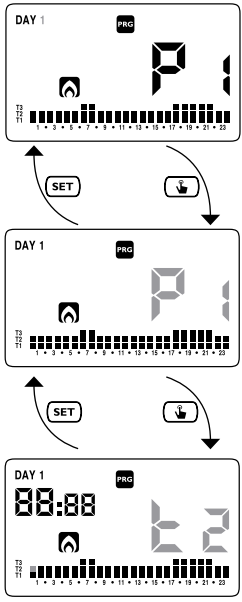
to Friday and P2 on Saturday and on Sunday (the programs profile is described at the end of this manual on page 34-35).
If this programming does not satisfy the user needs it is possible to change it.

To modify the programming:

1. From the normal operation display, press the key (SET) for a long time until the symbol starts flashing on field **(2)**

2. Press the key (▲) for a short time until the symbol PRG flashes and press the key (☝) to enter the parameters modification.

3. The programs page is displayed:
   the first day of the week (DAY 1) flashing,
   the current program (for example P1) of the current operating mode (or) and the corresponded profile of the program.



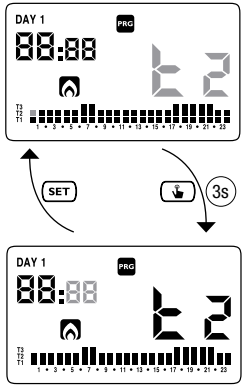
   3.1. If the set program is good, move to the next day with the keys (▲) and (▼).

   3.2. If the set program is not good, press the key (☝).
   The set program flashes: choose a different program among the 7 available programs pressing the keys (▲) and (▼).

      3.2.1. If no program exactly satisfies the user's needs, choose any program which best meet them and press the key (☝) to enter the modification of the program profile. On field **(3)** *00:00* appears while on field **(7)** flashes the temperature level (T1, T2 or T3) set for that specific time (00:00).

English

Use the keys ▲ and ▼ to change the temperature level and the key ☝ to move to the next hour. Set the desired level temperature for each hour of the day.



3.2.1.1. For each hour it is possible to delay the start of the regulation of 15', 30' or 45'
After setting the temperature as described above, press the key ☝ for a long time to set a delay.
The minutes field flashes (field **3**): set with the keys ▲ and ▼ the delay and press the key ☝ to move to the next hour.

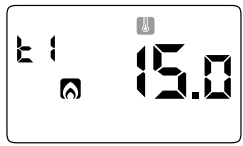
4. When the program satisfies the user's needs, go back to the day pressing twice the key SET and repeat the operation for the other days of the week.
   When all modifications have been performed, exit the programming menu pressing the key SET for a long time.

Temperatures T1, T2, T3 modification

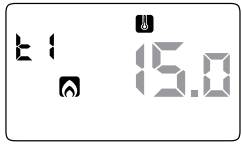
To modify the 3 temperatures of automatic operation:

1. From the normal operation display, press the key SET for a long time until the symbol starts flashing on field **(2)**

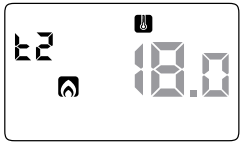
2. Press the key for a short time ▲ until the symbol flashes. Press the key ☝ to enter the parameters modification.



3. The value of the flashing T1 temperature is displayed. Modify the value with the keys (▲) and (▼) and press the key (☝) to move to the modification of T2.



4. The value of the flashing T2 temperature is displayed. Modify the value with the keys (▲) and (▼) and press the key (☝) to move to the modification of T3.



5. The value of the flashing T3 temperature is displayed. Modify the value with the keys (▲) and (▼) and press the key (☝) to go back to the page of T1 temperature.

6. Once all parameters are set, to exit and go back to the programming menu, press the key (SET) for a short time.
   To exit and go back to the normal operation press press the key (SET) for a long time or wait for the time-out expiration (about 30 seconds).

Attention: the temperature set values must respect the condition: T1 ≤ T2 ≤ T3. In cooling mode T1 is not settable and equals off system.

Timing setting

This menu allows the setting of a timing on the current operating mode, expressed in hours and days.

For further information about timings, see the chapter “Timings: what they are” on page 29).

To set a timing:

1. From the normal operation display, press the key (SET) for a long time until the symbol starts flashing on field **(2)**

2. Press the key (▲) for a short time until the symbol flashes and press the key (☝) to enter the parameters modification.

3. The value of the set timing currently flashes (00= no timing). Enter the timing value (from 1 to 99) with the keys (▲) and (▼) and press the key (☝) to move to the measurement unit change (hours and days).

4. The measurement unit starts flahing (*hour* or *dAY*). Press the keys (▲) and (▼) to choose a timing in hours (*hOUr*) or days (*dAY*).

5. Once all parameters are set, to exit and to go back to the programming menu, press the key (SET) for a short time.

   To exit and go back to the normal operation (automatic, manual) press the key (SET) for a long time or wait for the time-out expiration (about 30 seconds).

If a timing is active, the display shows the symbol .
To interrupt a timing, enter again the menu and set the value 00.

Advanced functions menu ADV

With the ADV menu it is possible to modify the following operation parameters:

- operating mode (heating or cooling)
- regulation type (on-off or proportional)
- parameters related to regulation type
- antifreeze temperature
- setting of an external supporting input
- selection of the control probe
- keypad lock by password
- system operation hours.

To enter the menu ADV:

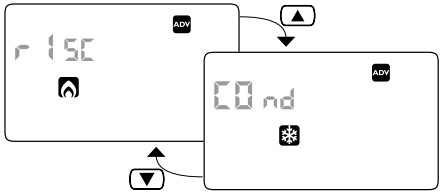
1. From the normal operation display, press the key (SET) for a long time until the symbol starts flashing on field **(2)**.

2. Press the key (▲) for a short time until the symbol ADV starts flashing and press the key ( ) to enter the parameters modification.

3. Now the first parameter of the menu starts flashing:
   press the keys (▲) and (▼) to modify the parameter and the key ( ) to confirm and move to the next parameter.
   To exit the parameters modification press the key (SET).

Operating mode

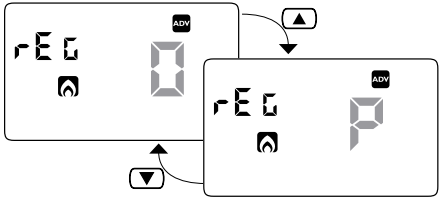
This parameter allows to specify the operating mode of the programmable thermostat, between winter-heating mode ( ) and summer-cooling mode ( ).



For further information about the operating mode see the chapter “Regulation types” on page 27.

Regulation type (only for heating mode)

For heating mode it is possible to choose between on/off (*rEG 0*) or proportional (*rEG P*) regulation.



For further information about regulation type see the chapter “Regulation types” on page 27.

Regulation parameters

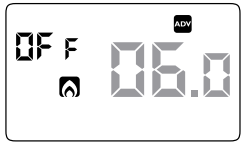
In case of **on/off** regulation the only parameter to set is the hysteresis (*d IF*), which can have values between 0.1°C and 1°C.

In case of proportional regulation the parameters to set are the regulation band (bnd) and the regulation time (PEr).

> For further information about how to choose these values see the chapter "Regulation types" on page 27.
> Remember that the preset settings are suitable for the most part of the situations: to change these settings only if it is really necessary.

Antifreeze temperature (only for heating mode)

For the heating mode it is possible to set a safety temperature (antifreeze temperature OFF) to maintain also if the programmable thermostat is switched off.
It is possible to choose a value between 1°C and 10°C. It is also possible to deactivate the antifreeze function pressing the key (▼) until the display shows "_ _._". In this case, no safety temperature is maintained, if the programmable thermostat is switched off.



External supporting input settings (only for battery powered models)

The programmable thermostat allows to connect a remote external temperature probe to display (otherwise also to regulate) the measured temperature where the probe is placed in or to connect a voltage free contact if you want to connect an external contact with which to turn it on or off the remote chronothermostat.

Field will display the writing ESt and the selected option will flash. Choose:
- °C to connect an external temperature probe
- d iG to connect a external contact

The characteristics of the probe are the following:
- Degree of protection: IP66
- Cable length: 2 meters (extensible up to 40 meters with a bipolar cable min section 1 mm^2)
- Operating temperature: -40 °C ÷ +60 °C

Code	Model	Capacity
VN883500	X.Temp	-40 °C ÷ +60 °C

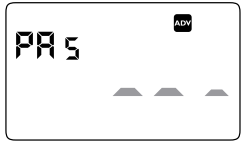
Choosing the regulation probe

In case of an external probe is present, it is possible to choose whether to use the internal probe or the external one as a regulation sensor.

Field will display the writing SnSr and on field the current set value will flash.
Choose:
- Int to use the internal probe
- ESt to use the external probe and press (☝) to confirm the choice.

If the external probe is selected, the symbol "**EXT**" is activated, after exit the menu.
During the normal operation the display shows the measured temperature by the selected probe for the regulation (inside or outside).
Pressing the key (SET) it is possible to display the temperaure value measured by the other probe.

Password for keypad lock

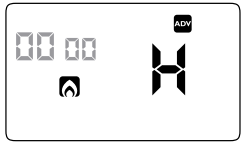


It is possible to set a keypad lock if the programmable thermostat is installed in public places or however to prevent anyone from modifying the operation parameters.

To set a password, enter on field PAS a value between 001 and 999. To deactivate the password press the key (▼) until **"---"** appears.

When the keypad is locked, the thermostat performs all its functions using the set regulation parameters.
If the keypad lock is active and one key is pressed, the display shows the writing bLoc with flashing dashes for few seconds: enter the password to unlock the keypad, which will be unlocked for 30 seconds from the last pressure.

System operation hours



This page shows the total number of hours of the system operation (relay ON) for the current mode (indicated by the symbols ❄ or 🔥).
The hour meter has 4 digits and it is resettable pressing the key (☝) for a long time until 0000 appears.

MANUAL OPERATION

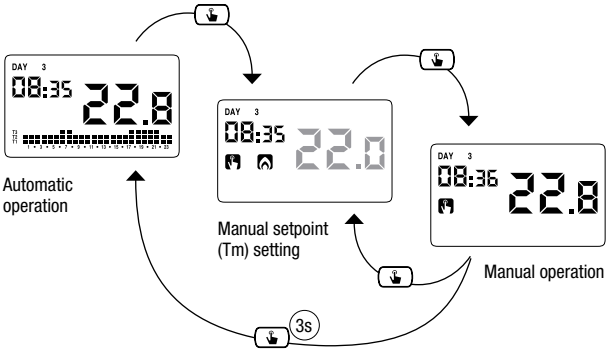
During manual operation the instrument performs as a normal thermostat, adjusting on the basis of the Tm temperature (manual setpoint), independently from the day and the time where it is.
The manual operation is signalled with the switch on of the symbol on field **(5)**.

To move from the automatic to the manual operation:

1. press the key for a short time. In the field **(7)** the setpoint (Tm) currently set flashes
2. set the desired setpoint with the keys ▲ and ▼ and confirm with the key
3. now on field **(7)** the value of the environment temperature appears again and the instrument operates in manual mode.

To change the setpoint (Tm) press the key and repeat the points 2 and 3.

To go back to the automatic operation press the key for a long time (about 3 seconds).



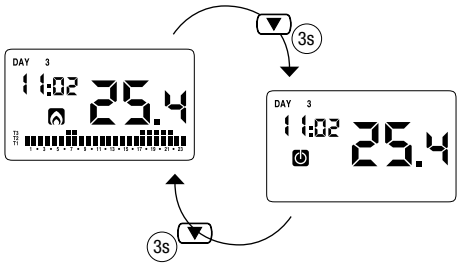
OFF OPERATION

In off mode the instrument does not perform any regulation (*) but it continues to display the day, the time and the measured temperature.

(*) In caso of heating / winter mode the instrument maintains a minimum temperature - Toff antifreeze temperature - to avoid the freezing of the systems where the instrument is installed.
Toff can have values between 1°C and 10°C or it can be completely shut down: in this case the maintenance of minimum temperature is not guaranteed. The set default Toff is 6°C but it is possible to modify this value entering the ADV menu (see “Antifreeze temperature” page 19).

To switch the instrument off press the key (▼) until the symbol ⏻ is displayed (field **(9)**).

To reactivate the regulation, turning back to the operating (automatic or manual) which is before the switching off, press the key (▼) for about 3 seconds.



Remotely switching off (only for battery powered models)

The battery powered Chronos Key have a settable input for the connection of an external probe or a clean contact. The free contact can be conncted to a telephone activator to switch on/off the programmable thermostat remotely by their own telephone.
The contact can have one of these two positions:

- open → normal operation (according to the settings)
- closed → programmable thermostat in off mode

Remote off status is displayed with the flash of the symbol on field **(9)** to differentiate it from the keypad off status (fixed on field **(9)**).

Attention: remote off status (closed contact) is more important than any other programming, so the instrument will be in off status until the contact does not turn back to the open position.

BACKLIGHT MANAGEMENT

The programmable thermostats of the Chronos Key series have a LED backlit display with led. There are some differences between battery powered models and mains powered models.

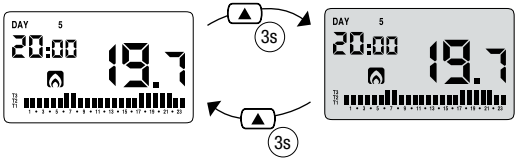
Chronos Key battery models

In battery-powered models the backlighting display is normally OFF and it is actived (blue color) just pressing a key or after the programming menu.

Chronos Key models 230 Vac

In the 230 Vac power supplied models the display backlighting is normally ON.

Backlighting switching OFF
If not desired the backlighting function can be disabled (for example in bedrooms). Then the thermostat continues its normal operation and the the backlighting is actived just pressing a key or after the programming menu.



MINIMUM AND MAXIMUM VALUE

It is possible to display the measured values of minimum and maximum temperature. To display these values press the key (▲) (maximum value H) or (▼) (minimum value LO).

During the display it is possible the resetting of these values pressing the key (☝) until 3 dashes appear in place of the temperature.

SUMMERTIME CHANGE

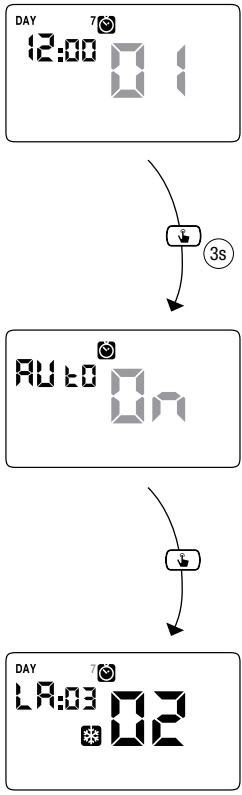
Summertime (DST) is the convention to step up of one hour clock hands during the summer time in order to prolong the sunlight in the evening to the loss of the early morning.
In European countries summertime (DST) starts on the last Sunday of March and ends on the last Sunday of October.

The programmable thermostat manages the summer/winter time change as follows:
- increasing of one hour to move from winter time to summer time
- decreasing of one hour to move from summer time to winter time

In off status the instrument is configured to move from summertime on the last Sunday of March at 02:00 AM to go back to winter time on the last Sunday of October at 03:00 AM according to Europe convention.
However it is possible to deactivate the automatic time change or to change the date and the hour of the time change.

To change settings:

1. enter the menu of time and date change, pressing the key (SET) for a long time until the symbol starts flashing.
2. press the key (☝) to enter the time and date modification. Now, during the modification of any parameter (seconds, minutes, hour, year, month or day) press the key (☝) for a long time until the display shows the writing AUTO appears on field **(3)**.
3. Choose with the key (▲) and (▼) the automatic time change activation (AUTO On) or deactivation (AUTO OFF) and confirm with the key (☝).
4. If OFF go back to the date/time change; if On the current setting for the passage to summer time is displayed (indicated with the symbol ❄). For example:
   a. on Sunday (1) of the last week (LA) of March (03) at 2 AM (02)
   b. if it is necessary change the parameters with the keys (▲) and (▼) and move to the next parameter with the key (☝). The sequence requires the insertion of:
      i. day (1…7) of the week
      ii. week of the month (first, second, third, fourth, last – LA)
      iii. month (1…12)
      iv. hour
5. press the key (☝) the current setting for the passage to the winter time is displayed (indicated with the symbol). For example:
   a. on Sunday (7) of the last week (LA) of October (10) at AM (03)
   b. if it is necessary change the parameters with the keys (▲) and (▼) and move to the next parameter with the key (☝). The sequence requires the insertion of:
      i. day (1…7) of the week
      ii. week of the month (first, second, third, fourth, last – LA)



iii. month (1…12)
iv. hour

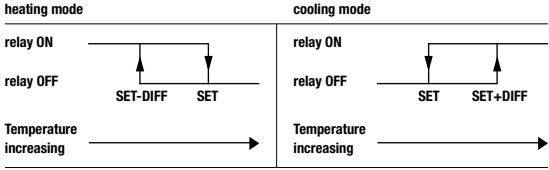
6. Once all parameters are set, to exit and to go back to the programming menu, press for a short time the key (SET).
   To exit and to go back to the normal operation press the key (SET) for a long time or wait for the time-out expiration (about 30 seconds).

REGULATION TYPE

The Chronos Key has two types of regulation:

On/off regulation

During on/off regulation the programmable thermostat measures once a minute the environment temperature and performs the regulation according to the following logic:



where SET stands for the setpoint and DIFF stands for the hysteresis (useful to avoid continuous switches on/off dangerous for the system in proximity to the reaching of the setpoint).

Proportional regulation (only for heating)

In heating mode, the on/off regulation is available and also the proportional regulation which in some systems allows a more precise regulation to obtain a constant temperature.

This regulation requires to specify two parameters:

- the band, stands for the temperature values to perform the proportional regulation. The band is centered on the setpoint and it can have values between 0.5°C and 5°C; beyond these values the heating will be always on (if setpoint-band > environment temperature) or always off (if setpoint + band < environment temperature).

- The regulation period stands for the duration of the regulation cycle (activation time + deactivation time of heating) and can have values of 10, 20 or 30 minutes.

During the operation, at the beginning of the regulation period, the instrument measures the environment temperature and compares it to the programmed setpoint: according to this difference the activation time is calculated (and consequently the deactivation time). When the measured temperature is next to the setpoint value – band, the activation time will be predominant compared to the deactivation time. On the contrary, when the measured temperature is next to the setpoint value + band, the deactivation time will be predominant compared to the activation time.
After the regulation period, the instrument compares again the environment temperature to the setpoint and it updates the activation and deactivation times for the new period.

The result of the proportional regulation is subordinated to the correct selection of the parameters.

Select the value of the regulation period as follows:

- 10' for low thermal inertia systems (fan-coil)
- 20' for medium thermal inertia systems (aluminium radiators)
- 30' for medium thermal inertia systems (cast iron radiators)

Select the regulation band value as follows:

- broad band (5°C) for systems with high thermal gradient
- narrow band (0.5°C) for systems with low thermal gradient

Attention: in default status the instrument is configured to operate in on/off mode with hysteresis set at 0.3°C. This configuration is suitable for the most part of the situations, for this reason it is recommended to modify it only in particular situations.

To modify the regulation type, hysteresis values (on/off regulation), band and period (proportional regulation) see "Regulation parameters" at page 18).

Emergency regulation (only for heating mode only)

The instrument performs an emergency regulation if an error occurs during the reading of the probe or in case of loosing the hour data.

In case of **probe error**, if the antifreeze function is not deactivated, the instrument activates the load for 10 minutes every 4 hours. The display shows the writing Err on field **(7)**.

In case of **loosing time data** (because of depleted batteries or a blackout is longer than the charge reserve) the instrument restarts from the off mode, adjusting the temperature according to the antifreeze temperature, if it has not been deactivated before. Set again date/time to go back to the normal operation (programs modifications and settings are stored).

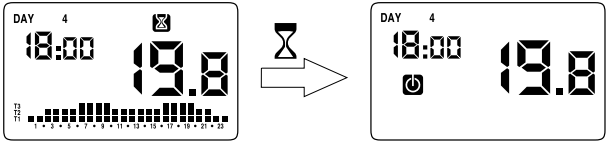
TIMINGS: WHAT THEY ARE

Timings allow to maintain the current operation (automatic, manual, off) for a certain period of time (hours or days) and after the programmable thermostat changes the operating mode, as explained below.

The timed operations are the following:

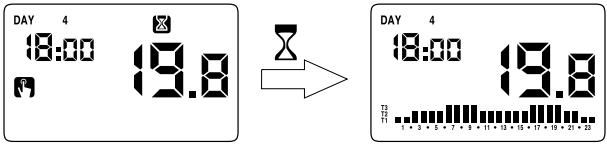
Timed automatic mode

When a timing is set in automatic mode, the status is maintained until the end of the timing. After that, the operation will switch to OFF mode.



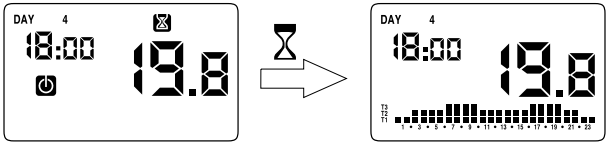
Timed manual mode

When a timing is set in manual mode, the status is maintained until the end of the timing. After that, the operation will switch to automatic mode.



Timed off mode

When a timing is set in OFF mode, the status is maintained until the end of the timing. After that, the operation will switch to the status before the deactivation (automatic or manual).



When the timing is set, the display shows the symbol .

Attention: timings can end before programmed expiration, if one of these actions occur:

- hour/date modification (modification of the summer time change included)
- manual modification of the operating mode
- switching of digital input (only for battery models)
- change of the operating logic from winter to summer (or viceversa)

To set a timing, see chapter “Timing setting” at page 16.

INSTRUMENT RESET

In case of erasing all performed settings and to turning back to the default settings, proceed as follows:

1. switch off and switch on the power supply of the programmable thermostat (230 V versions) or disconnect the thermostat from the wall-mounted base and reconnect it (battery versions).
2. during the flashing of the backlight press the key (SET) until the display shows the writing *dEF*.

Default settings are indicated on page 33 of this manual.

BATTERY REPLACEMENT

The models Chronos Key Bianco and Chronos Key Nero signal the depleted battery status and flashing the display.
In this status the regulation is always guaranteed, but it is recommended to replace the batteries as soon as possible! (*)

In case of decreasing the level of batteries further, the programmable thermostat enters low-energy mode, it switches off the display and does not any regulation.

(*) Remove the depleted batteries and replace them with the new ones in maximum time of one minute (charge reserve) to avoid loosing date and hour settings. (On the contrary, the performed programmings are stored even after this limit of time).

Attention: after batteries replacement, the display may switch on within 15 seconds at max.

DISPOSAL OF BATTERIES

⚠ It is necessary to remove the batteries before the instrument is scrapped.

⚠ In case of replacement, dispose of the batteries in the appropriate places separate waste collection containers.

REFERENCE STANDARDS

Compliance with Community Directives
2014/35/UE (LVD) and 2014/30/UE (EMCD)
is declared in reference to the harmonized standard:
EN 60730-2-7, EN 60730-2-9

information to users pursuant to art. 14 of the directive 2012/19 / EU of the european parliament and of the council of 4 july 2012 on waste electrical and electronic equipment (WEEE)

If the crossed-out bin symbol appears on the equipment or packaging, this means the product must not be included with other general waste at the end of its working life.

The user must take the worn product to a sorted waste center, or return it to the retailer when purchasing a new one.

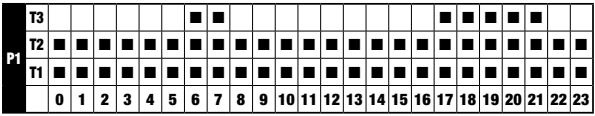
Products for disposal can be consigned free of charge (without any new purchase obligation) to retailers with a sales area of at least 400 m^2, if they measure less than 25 cm.

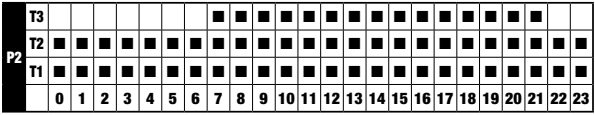
An efficient sorted waste collection for the environmentally friendly disposal of the used device, or its subsequent recycling, helps avoid the potential negative effects on the environment and people's health, and encourages the re-use and/or recycling of the construction materials.

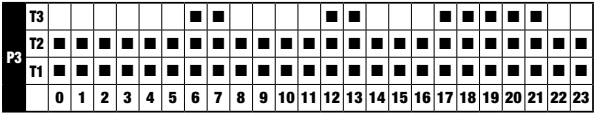
DEFAULT VALUES

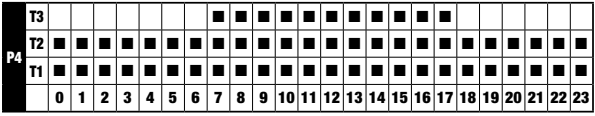
Parameter	min	max	step	default
winter manual setpoint	2.0°C	35.0°C	0.1°C	21.0°C
summer manual setpoint	2.0°C	35.0°C	0.1°C	25.0°C
T1 winter	2.0°C	T2	0.1°C	15.0°C
T2 winter	T1	T3	0.1°C	18.0°C
T3 winter	T2	35.0°C	0.1°C	21.0°C
T2 summer	10.0°C	T3	0.1°C	23.0°C
T3 summer	T2	35.0°C	0.1°C	25.0°C
antifreeze temperature	1.0°C	10.0°C	0.1°C	6.0°C
operating mode	winter	summer	-	winter
regulation type	ON/OFF	PROP	-	ON/OFF
ON/OFF hysteresis	0.1°C	1.0°C	0.1°C	0.3°C
proportional band	0.5°C	5.0°C	0.1°C	0.5°C
proportional period	10'	30'	10'	10'
password	0	999	1	000 (deactivated)
winter hour meter	0		1	0
summer hour meter	0		1	0
summer hour meter, enable	ON	OFF	-	ON
winter/summer time change				Summer: LAST DAY7 March 02:00 AM Winter: LAST DAY7 October 3:00 AM
activation delay	0'	45'	15'	0'
timed operations	0h	99d	1h	0h

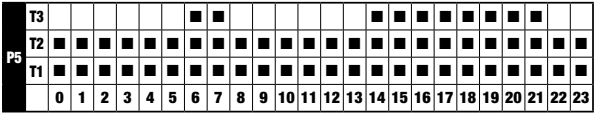
WINTER PRESET PROGRAMS

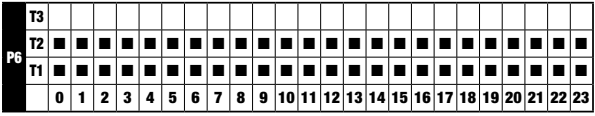


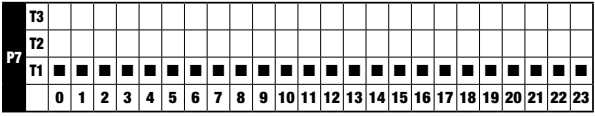












SUMMER PRESET PROGRAMS

P1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
T3	■	■	■	■	■	■			■	■	■	■	■	■	■	■	■						■	■
T2	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

P2	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
T3																							■	■
T2	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

P3	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
T3	■	■	■	■	■	■			■	■	■	■			■	■	■						■	■
T2	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

P4	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
T3	■	■	■	■	■	■	■												■	■	■	■	■	■
T2	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

P5	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
T3	■	■	■	■	■	■			■	■	■	■	■	■									■	■
T2	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

P6	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
T3																								
T2	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

P7	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
T3																								
T2																								
T1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

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