FANTINI COSMI

WEEKLY CHRONOTHERMOSTAT WITH INTEGRATED GSM-MODEM

CH140GSM

INDEX

PACKAGE CONTENT

- 1 chronothermostat
- 2 screws
- 1 user manual

1 INSTALLATION

CH140GSM chronothermostat must be installed on the wall, or in a 3-module or round embedded box, at a height of about 1.5 m above the floor.

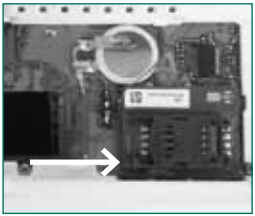
PERFORM THE FOLLOWING STEPS:

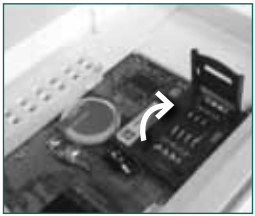
- → disconnect the power supply of the electrical circuit acting on the main switch of the electrical panel;
- → remove the back base from chronothermostat body, using a tool on the corresponding slot (see Figure 1);
- → remove, from the base, the insulating protection, unscrewing the proper imperishable screw;
- → make the electrical connections, as shown in the figure 5 (see page 5);
- → fix the base on the wall or in the embedded box, using the provided screws;
- → replace the insulating protection, tightening the screw;
- → open the SIM-compartment on the back of the chronothermostat, as shown in the figure 2;
- → insert a SIM-card* (n.b. page 4), respecting the direction shown in the figure 3 (see page 4), and close, pressing easy, the holder of the SIM-card;
- → bring the Switch 1 in position ON, figure 4 (see page 4), in order to connect the lithium battery already present in chronothermostat's body to the power supply circuit;
- → hang up, pressing CH140GSM body on the base installed on the wall.
- → restore the power supply of the electrical circuit.

→ figure 1

→ figure 2

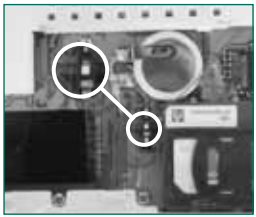
push
to release





→ figure 3

→ figure 4



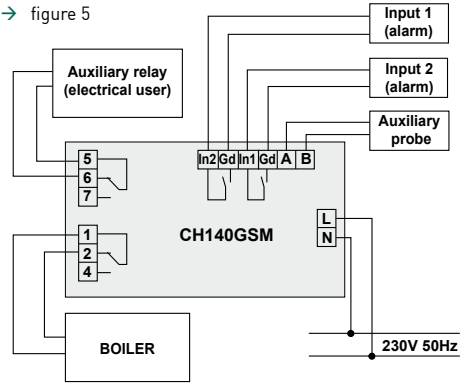
* N.B. Used SIM-card corresponds to the standard GSM 11.12 phase 2+ (practical, any SIM-card of the standard mobile telephony operators, except the cards of USIM 3G operator). You may have a contract with rechargeable option (in case, check SIM-card credit) or a subscriber's contract (just removing the PIN-code). In addition must be enabled the SMS service: before inserting the SIM-card in the device is advisable to test it by using in a mobile phone, trying to send and receive SMS-messages.

NOTE: After inserting the SIM-card and turning on the CH140GSM, the SMS-messages not yet delivered or sent in the first moments of operation will be deleted without being executed.

ATTENTION: the two auxiliary inputs must be connected to voltage-free contacts (dry), with cables not longer than 3m.

2 ELECTRICAL CONNECTIONS

→ figure 5



ATTENTION: The installation must be performed by qualified personnel only.

ATTENTION: before proceeding with the electrical connections, make sure that the power supply of the installation is disabled, by means of the main switch located on the electrical panel.

3 BUFFER BATTERY FUNCTIONING

CH140GSM internal battery has the only purpose of enabling the chronothermostat to turn off the system and remaining in "low consumption" mode during voltage absence. In this situation, on the display will appear the inscription: **"Blackout"**.

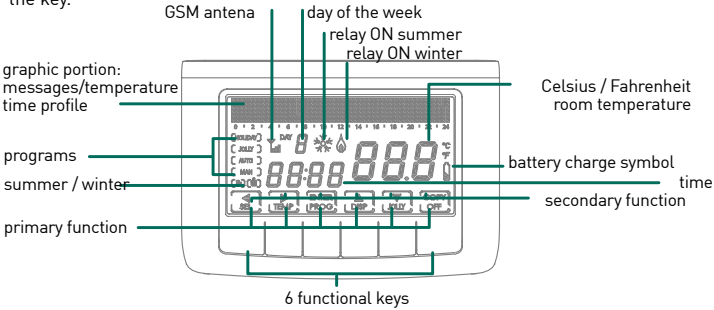
If the battery sign started to flash on the display,
means that the battery is used up: contact the nearest Fantini Cosmi Service Center.

N.B. even when the battery charge is low, the chronothermostat will operate normally, but will not be ensured system turning off and date/time storing during the blackout.

4 QUICK PROGRAMMING GUIDE

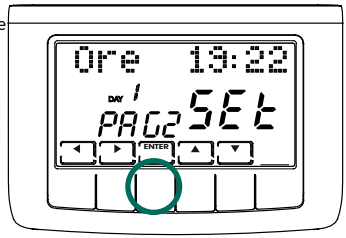
KEYS DESCRIPTION

The chronothermostat is equipped with 6 keys, whose functions varies depending on the situation and is described by the symbol that appears on the display according to the key.



N.B.: first pressing of a key doesn't cause any action, except for the one that turns on the display light, in order to allow a better view.

TIME AND DATE SETTING



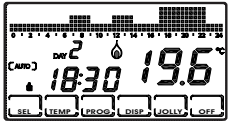
After switching on the device, press briefly the **PROG** key: appears the inscription "Setup"; now press the key ▶, to enter on the page "Hours". Use the buttons ▲ and ▼ for setting the hour and than press ▶ for passing to "Minutes" setting.
Press again ▶ for selecting, in sequence, the Year, Month and Day.
Pressing ▶, you may choose to disable the automatic change of summer/solar time: initially, this function is active, but you can disable it by choosing "NO" by means of the keys ▲ and ▼.
It is always possible to return to the previous page by pressing the button ◀.
To exit the Setup menu press **ENTER**.

OPERATING PROGRAMS

CH140GSM chronothermostat allows different working modes, called programs:

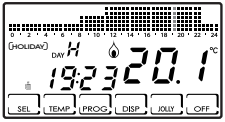
- WEEKLY PROGRAM "AUTO":

it is possible to associate to every half-hour one of four programmable temperatures, for each day of the week. This is the program that appears after turning on the chronothermostat and, generally, is the most frequently used.



- DAILY PROGRAM "HOLIDAY":

as in the AUTO program, you can select one of the four programmable temperatures for every half-hour, only this sequence is repeated, the same, every day.



- TEMPORARY PROGRAM "JOLLY":

you can choose to maintain a certain temperature for a determined number of hours, after which the device returns to previously operating program.

- MANUAL PROGRAM "MAN":

the chronothermostat maintains a fixed temperature, specified from time to time, for an unlimited time, until will be selected another program.

- SWITCHED OFF SYSTEM OR WITH ANTIFREEZE PROGRAM "OFF/ANTIFREEZE":

the system remains switched off or, alternatively, is keeping a very low temperature (from 2 to 7°C), in order to avoid liquid freezing in the heating system.

SET TEMPERATURES

In AUTO and HOLIDAY programs is possible to set four different temperatures and to select one for every half-hour of the day. Three of these temperatures (T1, T2 and T3) can take values from 2° to 40°C, while the fourth, T antifreeze (TA), can vary from 2° to 7°C, or can be set to "OFF" (ie, the system is turned off). The MANUAL program has a specific temperature (TMan), as well has the program JOLLY (Tj), which are set in their corresponding screens and can take values from 2° to 40°C.
The ANTIFREEZE/OFF program, instead, follows with the temperature TA, as mentioned before, can vary from 2° to 7°C, alternatively, can be set to "OFF", this meaning the completely shutdown of the system.

OPERATING PROGRAMS SETTING

→ PROGRAM SELECTION

Pressing the button SEL are selected in cyclic order, different operating programs: AUTO -› MAN -› OFF -› HOLIDAY -› AUTO.
NOTE: the temporary program - JOLLY is not included in the sequence of programs, but may be selected directly with JOLLY key.

→ TEMPERATURES SETTING

During AUTO, HOLIDAY and OFF programs press TEMP key to change the values of the four programmable temperatures: pressing several times the key TEMP appear in sequence the values T1, T2, T3, Ta; position under T, if you wish to modify the parameter and use the arrows ▲ and ▼ for increasing or decreasing the temperature by 0.1°C increments.
Return to the initial position with the arrow ◀.
Take into consideration that T1 will be always less or equal to T2, and T2 less or equal to T3.
In JOLLY program TEMP button alternates the visualization of the set temperature Tj and the hours left until the end of the program: these two values can be changed with the keys ▲ and ▼.
In MAN program, the fixed temperature TMan may be changed by means of the keys ▲ and ▼.

→ CURRENT DATE AND TIME MODIFICATION

Press briefly the button PROG to enter the "Setup" menu, where it is possible to change the time, date, winter/summer operation and utomatically daylight saving function.

→ CUSTOMIZATION OF "AUTO" WEEKLY PROGRAMMING AND "HOLIDAY" DAILY PROGRAMMING

Hold pressed the key **PROG** until appears the inscription "Config".
In this menu you can program the weekly (AUTO program) and daily (HOLIDAY program) profiles and set the advanced functions (for their description, see the following sections).

NOTE: if appears the word "Setup" instead of "Config", it has been pressed too briefly the key PROG; now you must press ENTER for returning to the normal operating status and try again.

Entering the "Config" menu appears the page that allows choosing the desired temperature (T1/T2/T3/Ta) for every half-hour of the indicated day (from 1 to 7 for indicating the days from Monday to Sunday).

NOTE: T1/T2/T3/Ta are displayed on the right side of the display with the symbols

t 1 - t 2 - t 3 - t A

By means of the keys ▶ and ◀ you may move from half-hour in half-hour to the right or to the left.
Using the keys ▲ and ▼ you may pass from one programmed temperature to another.

Through the key **PROG** (briefly pressing) is possible to pass to the next day (DAY 1 -› 2 -› 3 -› 4 -› 5 -› 6 -› 7 -› H).

Press the key COPY for copying the current day's temperature profile on the following day.

After H (profile of the daily program Holiday) you pass to the parameter correction page.

With PROG (long pressing) or with ◀ to the beginning of Day 1 you go straight to Correction page.

From Correction page onward with **ENTER** for exiting the "Config" menu.

→ "JOLLY" PROGRAM SETTING

In all programs, except MAN, by pressing the button JOLLY is selected the temporary program: this program allows you to define the desired temperature and its duration in hours (up to a maximum of 240, i.e. 10 days).
For example, may be useful for maintaining a lower temperature for a whole weekend when is no one home.
Entering this program, you may change the duration, which initially is an hour, and increase hours number with the key ▲, or decrease with the key ▼.
Pressing **TEMP** it is possible to display and modify the temperature Tj, using the keys ▲ and ▼.
Pressing again **TEMP**, the device returns for displaying the duration of JOLLY program.
After this time expiry the device returns to the previously operating program.

→ "OFF/ANTIFREEZE" PROGRAM SETTING

Pressing the key OFF, from any operating program, the chronothermostat switches to shutdown/antifreeze status.
The antifreeze temperature (Ta) is programmable through the key TEMP, from an OFF value (the boiler always switched off) to a range between 2,0 and 7,0°C, with a precision of 0,1°C , using the arrows ▲ and ▼.
The device returns to OFF status using the arrow ◀.
Pressing the button OFF it returns to the previous operating status.

→ ALTERNATIVE VIEWS

During AUTO and HOLIDAY programs, other information can be displayed instead of the temperature profile, pressing several times the key **DISP**.
At the first pressing appears the temperature programmed for the current half-hour, at the second pressing appears the "enlarged" temperature profile (from one hour before to three hours after the current half-hour), at the third pressing the date is displayed, at the fourth - the status of the two alarm inputs (I1 for "Input 1" and I2 for "Input 2", "On" if are open, "Off" if the corresponding contacts are closed in short circuit), at the fifth - the status of the two relays (O1 for "Output relay 1" and O2 for "Output relay 2", "On" for closed contacts 1 and 2 and "Off" for open contacts 1 and 2), at the sixth - it returns to the initial temperature profile.

5 FEATURES IN DETAIL

AVAILABLE PROGRAMS

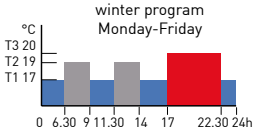
CH140GSM has several operating modes (programs):

- weekly program - "AUTO"
- daily program - "HOLIDAY"
- temporary program - "JOLLY"
- manual program - "MAN"
- switched off system or with antifreeze program "OFF/ANTIFREEZE"

→ WEEKLY PROGRAM "AUTO"

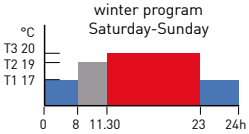
In AUTO operating mode may be used 4 temperature levels (Ta, T1, T2, T3), according to a schedule of 30 minutes increments, about 24 hours to 7 days. The days are numbered from 1 to 7 and correspond to seven days of the week, starting from Monday.
In order to simplify the programming it is possible to set the first day and copy it on the following days.
The default values for the days 1 – 5 (from Monday to Friday) are:

00:00 – 06:30 T1
06:30 – 09:00 T2
09:00 – 11:30 T1
11:30 – 14:00 T2
14:00 – 17:00 T1
17:00 – 22:30 T3
22:30 – 24:00 T1



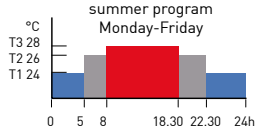
while the default values for the days 6 and 7 (Saturday and Sunday) are:

00:00 – 08:00 T1
08:00 – 11:30 T2
11:30 – 23:00 T3
23:00 – 24:00 T1



The values of the 4 temperatures can be customized using the function TEMP.

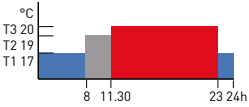
The temperature profile (time variation) can be programmed using the function PROG.



In case of summer operation (cooling) the default program is shown as in the figure.

→ DAILY PROGRAM "HOLIDAY"

During HOLIDAY operating mode can be used 4 temperature levels, according to a programming of 30 minutes steps, around 24 hours per day.
Here it is obtained a daily programming, independently from the days of the week.
The default temperature profile is:

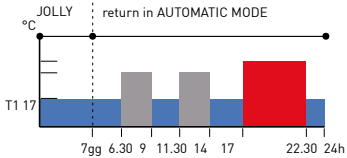


00:00 – 08:00 T1
08:00 – 11:30 T2
11:30 – 23:00 T3
23:00 – 24:00 T1

Temperature values can be customized using the function TEMP.
The temperature profile (time variation) can be programmed using the function PROG.

→ JOLLY

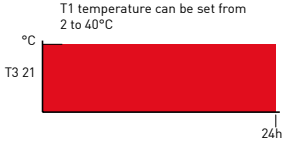
JOLLY mode allows you to set a customizable temperature (Tj) for a number of hours that can be programmed (from 1 to 240). It is used when is required a temporary variation of the program without changing the parameters, e.g. in order to keep a higher temperature more time for an evening with the friends or keeping it lower during an absence in the weekend.



If you entered JOLLY mode through the corresponding key, at the expiry the system automatically returns to the current programming.

→ MANUAL

MAN mode allows you to set in manual mode a fixed temperature (Tman), that varies between +2.0 and +40.0 degrees, without having to expire or modify the weekly or daily programming.



It can be used for e.g. for keeping the house, during an absence, at a temperature different from those of the daily schedule, or to remotely turn on the system bringing it to a constant temperature.

→ OFF

OFF mode is used when is required system switch off.
It uses the temperature TA (antifreeze) as a reference, to ensure the system protection at low temperatures.
Normally, TA is set to +5 degrees, but can be set to OFF, thereby obtaining the completely shutdown of the boiler. The weekly or daily schedules remain unchanged.

CUSTOMIZABLE TEMPERATURES

The system involves the use of 4 different temperature levels, three of normal use and one, called "antifreeze", for using when is required to keep the boiler off, but without the risk of freezing the system liquid.
The programming of the three T values is conditioned by the reciprocal values, in order that T1 can not be higher than T2, T2 can not be higher than T3 or lower than T1, T3 can not be lower than T2.
It is therefore necessary to pay attention to their programming, which is obtained by pressing the **TEMP** function.

T1 varies between +2.0 and +T2 degrees, with variations of 0.1 °C [default 17.0]
T2 varies between +T1 and +T3 degrees, with variations of 0.1 °C [default 19.0]
T3 varies between +T2 and +40.0 degrees, with variations of 0.1 °C [default 20.0]
TA (antifreeze) varies between +2.0 and +7.0 degrees, with variations of 0.1 °C, or it can be OFF, i.e. the boiler remains always switched off [default 5.0].

KEYS AND ADVANCED FUNCTIONS

SEL KEY USING

SEL button selects chronothermostat's operating mode, according to the following programs:

- → HOLIDAY
- → AUTO
- → MANUAL
- → OFF

To change the chosen program, press the key SEL in sequence (cyclic). The first 3 states are marked with a small inscription on the left side of display, while OFF state appears in the graphic area on the top.

TEMP KEY USING

→ In AUTO, HOLIDAY and OFF

Pressing the key **TEMP** you enter the programming of the 4 temperatures used in these modes.
With the arrows ▲ and ▼ the temperatures are changed, with the condition that T1 can not be higher than T2, T2 can not be higher than T3 or lower than T1, T3 can not be lower than T2.

By means of **TEMP** key the device passes to the following temperature (cyclic) T1›T2›T3›Ta›T1.
Pressing ◀ it will return to the main window.

→ **TEMP** (long pressing)
If a temperature probe is connected to the terminals "Auxiliary probe", it is displayed also the temperature regarding this probe in the upper side of the display. This indication remains even changing the type of display (pressing the key DISP) or changing the operating program.
Pressing again and holding TEMP key, the unit returns to the normal viewing mode.
If it is selected the "External Probe" setting (see CONFIG menu), the temperature of the internal probe will be displayed on the top of CH140GSM, and the temperature of the external probe will be displayed in the center of the unit.
It can be connected to "Auxiliary probe" terminals the following Fantini Cosmi temperature probes: EC18 (external probe), EC19 (floor probe), EC20 (ambient probe).

→ In JOLLY

Pressing the key **TEMP** the device passes alternately from Tj programming to the programming of Jolly period duration (from zero to 240 hours, equivalent to 10 days).
With ▲ and ▼ may be varied Tj (between +2 and + 40°) and the duration (steps of 1 hour).

PROG KEY USING

→ **PROG** (briefly pressing) -› SETUP

→ Winter/PAG1/Set
with ▲ or ▼ switches from Winter to Summer and vice versa
with ▶ the page is changed, with **ENTER** the device exits **PROG**.

→ HH hours (flashing) : MM/PAG2/SEt
with ▲ the hours are increased cyclically, with ▼ the hours are decreased cyclically.
with ▶ the page is changed, with **ENTER** the device exits **PROG**.

→ Min. HH:MM (flashing) /PAG3/Set
with ▲ the minutes are increased cyclically, with ▼ the minutes are decreased cyclically.
with ▶ the page is changed, with **ENTER** the device exits **PROG**.

→ Year: AAAA/PAG4/Set
with ▲ the years are increased, with ▼ the years are decreased
with ▶ the page is changed, with **ENTER** the device exits **PROG**.

→ Months: MM/PAG5/Set
with ▲ the months are increased cyclically, with ▼ the months are decreased cyclically
with ▶ the page is changed, with **ENTER** the device exits **PROG**.

→ Day: GG/PAG6/Set
with ▲ the days are increased cyclically, with ▼ the days are decreased cyclically
with ▶ the page is changed, with **ENTER** the device exits **PROG**.
NOTE: with the prescribed date, the chronothermostat automatically determines the day of the week.

→ Ora Leg SI/PAG7/Set
Selects automatically the daylight saving time, applicable in European countries and others. Such predisposition allows to have an automatic knowledge about the time in the moment of changing the time zone (March and October), with ▲ or ▼ you may pass to YES or NO. With ▶ the device returns to page 1 (Winter/Summer), with **ENTER** it exits **PROG**.

→ **PROG** (long pressing) -› CONFIG.

It presents the display of day 1, with the temperature graph every half-hour, the indication of the half-hour and the associated temperature (t1 t2 t3 tA).
Day 1 corresponds to Monday, and so on. H day is the Holiday day, which does not vary during the week.
With ▶ is possible to move forward with half-hour.
With ▲ or ▼ is possible to move up or down from tA to t1 to t2 to t3.
With **PROG** (briefly pressing) you may change the day (1, 2, 3, 4, 5, 6, 7, H).
After H you pass to page 2 (Correction).
With **PROG** (long pressing) you pass immediately to page 2.
With **COPY** is possible to copy the temperature profile of the current day on the following day. From page 2 onward with **ENTER** for exiting the programming.
With ◀ you return to the previous half-hour (even to the day before).
With ◀ at the beginning of Day 1 you pass immediately to page 2.

→ Correction/PG02/XX.X°
Allows you to change the measured temperature, which due to the embedded wall installation, and maybe at a non-optimal depth, may not indicate the real sensed temperature.
It is recommend to calibrate it by comparing with a thermometer placed in the desired area.
With ▲ and ▼ it is modified the temperature value on the display.
With ▶ you pass to page 3, with **ENTER** exit the function.

→ Celsius/PG03/XX.X°
Allows you to choose the temperature scale to be displayed, between Celsius degrees and Fahrenheit degrees.
With ▲ or ▼ you pass from Celsius to Fahrenheit.
With ▶ you pass to page 4, with **ENTER** exit the function.

→ Light OFF-ON Xs/PG04/con
With this function is possible to adjust the display backlighting (blue light). You may choose to not have it (OFF), to have it with a programmable duration between 1 and 9 seconds, or for having it always (ON).
When the backlight is set to "always ON" or "always OFF", to access various functions is enough to press once the keys.
With ▲ or ▼ is possible to pass from OFF to ON, choosing the duration (1-9 sec, always ON).
With ▶ you pass to page 5, with **ENTER** exit the function.

→ Int. Light X/PG05/con
Allows you to modify display brightness, up to 9 levels.
With ▲ or ▼ is possible to change the brightness level (1-9).
With ▶ you pass to page 6, with **ENTER** exit the function.

→ Italiano/PG06/con
Allows you to change the language used during programming.
With ▲ or ▼ is possible to pass cyclically from one language to another.
With ▶ you pass to page 7, with **ENTER** exit the function.

→ Probe Int/PG07/selected temperature probe
This submenu page is available only if a temperature probe has been connected (EC18, EC19 or EC20 of Fantini Cosmi) to "Auxiliary probe" terminals.
With this setting you can specify which probe will be used by the chronothermostat for temperature control; normally is used the internal probe of CH140GSM ("Int" on the display), but is possible to select also the external auxiliary probe ("Ext"), by pressing the keys ▲ or ▼.

This can be useful, for example, when you can not install the chronothermostat in the desired place for maintaining effectively the set temperature. In this way, on the central side of the display is shown the temperature measured by the external probe and CH140GSM performs temperature control based on this probe and ignoring the internal one.
With ▶ you pass to page 8, with **ENTER** exit the function.

→ Blocking? NO(Yes)/PG08/con
It allows locking of the keyboard with a numeric code of 4 digits.
This works only once, then should be enabled again.
With ▲ or ▼ you switch from NO to YES, then with **ENTER** is required the password, inserted by means of the arrows ▲ or ▼, selecting the digits with ▶ and ◀.
With **ENTER** memorize it, turning back the display in normal operation, that appears only pressing the key **ENTER**. Pressing will require the password, which will be inserted by means of the arrows ▲ and ▼ , followed by **ENTER**. The display returns to normal programming, allowing all functions.
With ▶ you pass to page 9, with **ENTER** exit the function.

→ Reset? NO (YES)/PG09/con
With ▲ or ▼you switch from NO to YES. Pressing **ENTER,** while is displayed "YES" all parameters (except date and time) are brought to the factory settings.
With ▶ you pass to page A, with **ENTER** exit the function.

→ Relay'2:SMS/PG10/-
Allows you to use the Relay 2 of CH140GSM for different uses, in fact, connecting the electrical users to the terminals 5-6-7 of the Relay 2 and configuring properly in this submenu, is possible to add the accessory functionalities to CH140GSM.
Available functions are:

SMS: Relay 2 is switched on (i.e., closes the contacts 5 and 6 and opens the contacts 5 and 7) with SMS command # ON and is switched off (i.e., opens the contacts 5 and 6 and closes the contacts 5 and 7) with SMS command # OFF.

EST: Relay 2 is used for temperature control, but only if is selected Summer regulation, while the relay 1 is only for Winter regulation; in this way is possible to use CH140GSM for heating and cooling without changing the electrical connection at the season change.

Relay 2 will not execute more SMS commands #ON and #OFF.

PRG: Relay 2 will switch on and off all days of the specified ON and OFF schedule; in this way can be controlled, for example, the irrigation system or an aquarium lamp, completely independent of other CH140GSM functions. For programming the time schedules of ON and OFF, select PRG and press the key ▶ will be displayed initially the switch on schedule and the inscription ON: press the keys ▲ and ▼ for changing the hour and the minute in which the Relay 2 will be turned on every day; subsequently, press again ▶ for viewing and changing with ▲ and ▼ the switch off schedule (now displayed through the inscription OFF).

0+1: Relay 2 will turn on if at least one of the two auxiliary inputs (Input 1 or Input 2) will be closed in short circuit (i.e., will be OFF). Vice versa, if both auxiliary inputs are electrically open (i.e., will be ON), Relay 2 is turned off.

0x1: Relay 2 will turn on if both auxiliary inputs (Input 1 and Input 2) will be closed in a short circuit (i.e., will be OFF). Vice versa, if at least one auxiliary input is electrically open (i.e., will be ON), Relay 2 is turned off.

NOTE: keep in mind that the two auxiliary inputs must be commanded in opening and closing by the "clean" electrical contacts, i.e. voltage free, as the relay or thermostat contacts. Otherwise you will face an irreparable failure of the chronothermostat.

→ CH140GSM vX.Y/--/GSM
Allows you to view the software version of CH140GSM chronothermostat. Pressing **ENTER**, the device returns to the normal operating page.

With ▶ it returns to time profile programming (page 1).

DISP KEY USING

DISP key lets you view, only in the AUTO and HOLIDAY states, windows with various information, also depending on the functioning state.

The viewed windows are as follows:

→ Day profile / hour:min / Tamb
→ Current set temperature (e.g. T3=20.0°) / hour:min /Tamb
→ 4-hour profile (-1+3) / hour:min / Tamb
→ Gg/Mm/Aaaa / hour:min /Tamb
→ I1 on-off I2 on-off / hour:min / Tamb (state of the two auxiliary inputs)
→ O1 on-off O2 on-off / hour_min / Tamb (Relay 1 and 2 state)

JOLLY KEY USING

JOLLY key allows you to replace in normal operation a temperature stretch to a fixed value for a predetermined time interval.
The viewed window is:

→ duration of JOLLY state (HH h MM m) / hour:min / Tamb

With the arrows ▲ and ▼ is possible to modify the duration of JOLLY state, with 1 hour steps. Jolly temperature is set by pressing the key **TEMP** that leads with viewing the following window:

→ Tj=xx.x° / hour:min / Tamb

This window will remain on the display until will be pressed again the key TEMP, in which case the device returns to the previous display, indicating the state duration. To exit JOLLY state before it expiry you may bring to zero hours number by means of the arrow ▼ and wait a minute, to automatically return to the origin state, or by pressing the key **SEL** to switch to the state required for operating, with the cycle AUTO, MAN, HOLIDAY, OFF.

OFF KEY USING

OFF key allows you to bring the system from any operating state to the shutdown state.The displayed window is:

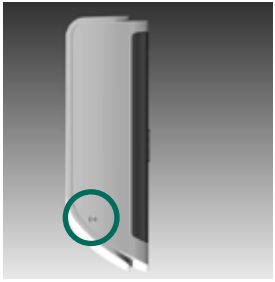
→ OFF / hour:min / Tamb

Antifreeze temperature (Ta) may be programmed through the key TEMP, from an OFF value (the boiler is always turned off) to a range between 2.0 and 7.0°C, with a precision of 0.1°C, using the arrows ▲ and ▼. The viewed window is:

→ Ta=x.x° / hour:min / Tamb

Keeping more time the arrows pressed, the value rapidly increases or decreases automatically. For returning to the window OFF, press the arrow ◀.
Pressing again the key **OFF** the unit returns to the previous operating state.

RESET



Due to unpredictable and unusual events, is possible that the device needs to be restarted (e.g. in case of blocking as a result of a strong electromagnetic interference): in this case, you can act by pressing the little round button (RESET), positioned on the right side of the device (see figure), using a paperclip or a pin; the device restarts the operation with the words: "Fantini Cosmi/CH140GSM" for some seconds, then goes to AUTO mode.
The entire previous configuration is retained, as was memorized by the chronothermostat.
Date and time are not normally modified.
If instead you wish to return to the factory settings, the system will be restarted with the RESET command in PROG/CONFIG menu, where from you exit the AUTO state.
In this case, all settings and customizations made by the user will be lost and replaced with the factory settings, except for the date and time.

6 REMOTE PROGRAMMING THROUGH SMS

By using GSM function is possible:

- to control the home temperature,
- to program the home temperature,
- to receive notification about changes of the two alarm contacts status (for e.g., a boiler alarm, an antitheft alarm, a low temperature alarm, a boiler malfunction, an alarm for sewage tanks overflow, etc.),
- to turn on or off an external user at 230VAC, 500W (such as irrigation system) through an internal relay.

CH140GSM allows a remote user to send an SMS with the possibility to know only the system state or to command the state to be located in.

During the whole remote control, on CH140GSM display appears several times the inscription "Received Remote Command".

GSM antenna symbol flashes quickly on the display if isn't possible to register to GSM network (low network level, CH140GSM is installed in a not reachable location, no SIM-card inserted or invalid SIM-card, etc.).
The flashing becomes slower if the chronothermostat is properly connected to the GSM network.
In addition, from two minutes after turning on the device for about 7 minutes, you will see a measure of field intensity, with a maximum of three accessed bars next to the antenna symbol.

SMS-COMMANDS

SMS-messages used to manage CH140GSM chronothermostat are the following:

■ **#STATUS** allows knowing CH140GSM, alarms and relay state.
When was sent such message, CH140GSM in less than one minute, responds with two state SMS composed as follows (an example of real operation in AUTO mode):

→ FIRST MESSAGE

TAMB=22.9	current ambient temperature reading
T1=17.0	set temperature T1
T2=19.0	set temperature T2
T3=23.0	set temperature T3
TOFF=5.0	set temperature T Antifreeze
TMAN=16.5	set temperature T Manual
TJOL=19.0	set temperature T Jolly
HJOL=1	Jolly program duration (hours)
DJOL=0	Jolly program duration (days)
PROGRAM=AUTO	prescribed program on CH140GSM
REMOTE= ---	remotely prescribed program (--- : none)
PLANT=OFF	chronothermostat relay state
BATT=HI	CH140GSM batteries state

→ SECOND MESSAGE

INPUT1=OFF	alarm 1 state
INPUT2=OFF	alarm 2 state
OUTPUT=OFF	relay state

This is a standard reply for each sent message.

As follows are presented only the different lines compared with the message shown above:

■ **#FROST** sets the antifreeze program, that brings in OFF the system.
The replay message reports: PROGRAM=OFF
REMOTE=OFF
On CH140GSM display will be shown the flashing OFF (while setting it with SEL will be fixed).

- **#RESUME** command for returning from the state sent through remote control to the state set on CH140GSM.

The replay message reports:
```
PROGRAM=AUTO
REMOTE= ---
```
On CH140GSM the display returns to AUTO mode.

- **#MAN** command for setting MANUAL state with TMan set in CH140GSM (present in the status message).

The replay message reports:
```
PROGRAM=MANUAL
REMOTE=MANUAL
```
On CH140GSM we have MAN state (flashing for indicating the remote setting) and TMan=16.5.

- **#ECONOMY** command for setting MANUAL state with TMan equal to T1 (present in the status message).

The replay message reports:
```
PROGRAM=MANUAL
REMOTE=ECONOMY
```
On CH140GSM we have MAN state (flashing for indicating the remote setting) and TMan=17.0, coincident with T1.

- **#COMFORT** command for setting MANUAL state with TMan equal to T3 (present in the status message).

The replay message reports:
```
PROGRAM=MANUAL
REMOTE=COMFORT
```
On CH140GSM we have MAN state (flashing for indicating the remote setting) and TMan=20.0, coincident with T3.

- **#AUTO** command for setting AUTO state (weekly programming).

The replay message reports:
```
PROGRAM=AUTO
REMOTE=AUTO
```
On CH140GSM we have AUTO state (flashing for indicating the remote setting).

- **#HOL** command for setting HOLIDAY state (daily programming).

The replay message reports: `PROGRAM=HOLIDAY`
`REMOTE=HOLIDAY`
On CH140GSM we have HOLIDAY state (flashing for indicating the remote setting).

- **#JOL** command for setting Jolly state.

The replay message reports: PROGRAM=JOLLY
REMOTE=JOLLY
On CH140GSM we have Jolly state (flashing for indicating the remote setting).

- **#T1=**`value`

Sets the temperature value for T1.
`Value` is written in DU.d form, ie DecineUnità.decimale (for e.g. **#T1=19.2**).
The Dozens can be omitted (for e.g. 9.0). The reply message reports the new value of T1.

- **#T2=**`value`

Sets the temperature value for T2.
`Value` is written in DU.d form, ie DecineUnità.decimale (for e.g. **#T2=20.4**).
The Dozens can be omitted (for e.g. 9.0). The reply message reports the new value of T2.

- **#T3=**`value`

Sets the temperature value for T3.
`Value` is written in DU.d form, ie DecineUnità.decimale (for e.g. **#T3=24.3**).
The Dozens can be omitted (for e.g. 9.0). The reply message reports the new value of T3.

- **#TMAN=**`value`

Sets the temperature value for MANUAL program.
`Value` is written in DU.d form, ie DecineUnità.decimale (for e.g. **#TMAN=22.0**).
The Dozens can be omitted (for e.g. 9.0). The reply message reports the new value of TMAN.

- **#TJOL=**value

Sets the temperature value for JOLLY program.
Value is written in DU.d form, ie DecineUnità.decimale (for e.g. **#TJOL=24.0**).
The Dozens can be omitted (for e.g. 9.0). The reply message reports the new value of TJOL.

- **#HJOL=**value

Sets the hours value for JOLLY program.
Value is written in DU form, ie DecineUnità (for e.g. **#HJOL=12**).
The Dozens, if equal to zero, may be omitted (for e.g. 8).
The scheduled number of hours JOLLY replaces the hours or the days that were previously set, manually or by SMS.
The reply message reports the new value of HJOL.

- **#DJOL=**value

Sets the days number for JOLLY program.
Value is written in DU form, ie DecineUnità (for e.g. **#DJOL=8**).
The Dozens, if equal to zero, may be omitted.
The scheduled number of days JOLLY replaces the hours or the days that were previously set, manually or by SMS.
The reply message reports the new value of DJOL.

COMMANDS FOR ALARMS

- **#TEL1=**XXXXXXXXXX* sets the first telephone number to which has to be sent the message related to alarms. Replace "XXXXXXXXXX" with the telephone number to be stored in the memory. N.B. Please note that the command has to end with the character "*" (asterisk).

- **#TEL2=**XXXXXXXXXX* sets the second telephone number to which has to be sent the message related to alarms. Replace "XXXXXXXXXX" with the telephone number to be stored in the memory. N.B. Please note that the command has to end with the character "*" (asterisk).
- **#TEL1=*** cancels the telephone number 1 previously stored.
- **#TEL2=*** cancels the telephone number 2 previously stored.

- **#TEL=**? is used for knowing the stored telephone numbers.
- #AL1=0, TEL1, TEL2 sets the sending condition for alarm1and to which numbers has to be sent. In this case an alarm will be sent at contacts closing, to TEL1 as well to TEL2.

- The choice of the sending condition is done according to the following: 0 = sends an alarm at contacts closure 1 = sends an alarm at contacts opening 2 = sends an alarm in case of contacts closing or opening; "TEL1,TEL2" the alarm will be sent to the two stored telephone numbers. (NB.: Always insert the expression ",TEL1,TEL2" even if was set only one telephone number.)

- **#AL2=**0,TEL1,TEL2 sets the sending condition for alarm2 and to which numbers to send it. For choosing the sending condition and to which numbers to send the alarm will be applied the same remarks made for the previous command.

- **#AL=**? is used for knowing the activation status of the alarms and associated phone numbers.
- #MSGIN1=INPUT1,ON,OFF allows you to customize the messages related to alarm1, simply by replacing with "INPUT1" the alarm description (e.g. INPUT DOOR) and with ",ON,OFF," the two conditions (for example the inscription ",OPEN, CLOSED").

- **#MSGIN2=**INPUT2,ON,OFF allows you to customize the messages related to alarm2, simply by replacing with "INPUT2" the alarm description (e.g. SHUTTER) and with ",ON,OFF" the two conditions (for example the inscription "RISED,LOWERED").

9 FOR KNOWING MORE...

WINTER OPERATION

CH140GSM is a system for turning on or off the boiler (or depending on the systems: pump, burner or the valve that controls water flow), in order to send hot water to the radiators or to the heating panels, only when it is required to raise the ambient temperature.
The flow will be interrupted only when the desired temperature is reached.
In this section will be discussed in detail chronothermostat's application in the cases, more diffuse, than the places equipped with radiators.
Rooms with under floor heating require a different programming, related to a different thermal inertia of the system, because the under floor heating works with low temperature water and with much longer time, because the environment is becoming warm or cool.
Consult your installer for a proper programming.

OPERATION PRINCIPLE

CH140GSM continuously measures the ambient temperature and compares it with the temperature required for having at that time. If the ambient temperature is lower than the desired one, the chronothermostat commands the boiler to turn on and keeps it operating until the ambient temperature reaches the required one.

CH140GSM is connected by means of two wires to the boiler and boiler's control is done through an open contact (boiler turning off) when is reached the set temperature (upper threshold), and when the contact is closed (boiler turning on) the boiler needs to produce heat, because the temperature has dropped by a tenth of a degree below the set value (lower threshold).
The radiators may be warm (or cold) in the moment of temperature decreasing from the value above the threshold to the value below the threshold, i.e. when the boiler is turned off.
Do not be surprised if for some moments the radiators aren't hot, is not a system malfunction. This may happen especially during the days with the outside temperature not too rigid.
It is recommended, in case of doubt, to check if the room temperature indicated by CH140GSM is the required one.

It is also advisable to have a thermometer placed in the most suitable location for measuring the room temperature; the temperature indicated by the chronothermostat, in fact, may be subjected to measurement error due to some factors, not just to the location where is installed the embedded box, but, in particular, to the position recessed in the wall: the measured temperature in this case is greatly influenced by the temperature of the wall itself, especially the first few days after device restarting in some houses that aren't always inhabited, where the wall temperature rises much slower than the ambient air.
The daily profile is programmed in two modes:

- WEEKLY MODE, during which you may define a different temperature profile for each day of the week, thus allowing a different programming between the working days (from Monday to Friday), when you leave the house during the day is possible to keep a lower temperature for this time of absence, and during the weekend (Saturday and Sunday) it is required a higher temperature during the day. In this way every day of the week can be programmed individually.
- DAILY MODE, for using it when the presence in the house does not change during the week (housewives, retirees, second houses for vacation) and here is programmed a single profile valid for all days of the week.

N.B.: In case of radiant panel heating the daily programming may not have significant changes during several hours, as the system inertia is much higher than that of a system with radiators. It is therefore advisable to use profiles with more daily changes.

In case, if is required the system switch off (e.g. second houses) you may bring your CH140GSM in a state (called OFF) in which you choose either:

- the boiler is always turned off, or
- the boiler provides an antifreeze temperature, programmable, recommended around 5-6 degrees; particularly, in mountain areas where the temperature drops easily below zero, there may appear the possibility of water freezing in the pipes and accordingly their breakage.

If you want to manually set on 24 hours for an unlimited term the desired temperature, to a fixed value, may be used the program that makes the system to operate in manual (MANUAL) mode.
If instead you want to operate the system to a desired temperature (fixed) for a limited period of time, may be used the JOLLY program, setting the hours number of this operation.

CH140GSM POSITIONING IN A CIVIL HOUSE

CH140GSM is an embedded device, therefore very compact. For its correct reading and programming, it should be installed at a height convenient for such operations, about 1,50 - 1,60 meters, keeping in mind that at this height the measured temperature can be slightly higher than the reference temperature of the environment. For this purpose exists the possibility to introduce a correction of the measured temperature in order to bring it back to that of the reference.
Normally, the chronothermostat is located in the central position of the apartment, in a place as much as possible away from cold spots (windows or doors), from hot spots (radiators or kitchens) or away from direct sunlight, in order to not be too influenced by these sources.

TEMPERATURE CONTROL IN OTHER ROOMS

There exist some factors that can significantly affect the behavior of the system, some of them are related to the house project, such as wall and windows insulation, the arrangement and the radiating surface of the radiators, while other factors are set during installation, such as water temperature in the radiators; generally these factors are not controlled by the end user, but by the designers/ installers.
The end user can manage the temperature in different rooms of the house, depending on a single chronothermostat (CH140GSM), usually located in the living room. Based on the principle that the radiators in all the rooms have been properly dimensioned, i.e. in order to ensure the same temperature throughout the house, there may arise the need to obtain in other rooms a different temperature regulation than the living room.
In order to obtain the temperature adjustment in other rooms, it is recommended to install on the radiators of the corresponding rooms the thermostatic valves that are useless for the living room, and can be used only for manual regulation of the present radiators, by means of the upper valves with knob and bottom valves with screw.
Particularly, these thermostatic valves can be used in the bedrooms, where you do not stay during the day and even during the night you may prefer to have a temperature lower than that of the living room.
If the temperature obtained in the bedroom by means of the thermostatic regulation is sufficient (in normal case, it is accepted a temperature that isn't higher than the temperature of the living room) no action is needed, if instead isn't reached the desired temperature, it is suggested to partially close the valves (upper or bottom) of the radiators from the living room for making the boiler to work more time, in this way obtaining the possibility to raise the temperature in other rooms.

EFFECT OF THE FLOW (WATER DELIVERY) TEMPERATURE AND BOILER'S WARM WATER

As mentioned above, normally the water temperature in the radiators is adjusted by the installer according to installation dimensions, according to the heat dissipation of the apartment and to the rapidity of obtaining room temperature variations.
The correct temperature calibration, should allow the radiators to pass from a low temperature (e.g. during the night) to a higher temperature in a reasonable period of time.
If the flow temperature is too low, it impedes from reaching the desired temperature in the scheduled time. In fact, the supplied calories are used on two fronts: for increasing again the room temperature and simultaneously for compensating heat dissipation to outside (heat demand).
To manage such profile, with variations of various degrees and based on factor savings for reducing the dissipations during the hours of reduced internal/external temperature difference, here is required to be used a water delivery temperature of about 70 degrees.

If instead is required a lower water delivery temperature (50 degrees), it has to be used a temperature profile tending to maintain as much as possible a constant temperature, the limit is the same during 24 hours, in order that the boiler should only continuously compensate the heat losses to the outside and never will have the difficult task of raising the room temperature by several degrees. Such profile is suggested particularly for condensing boilers, which work properly only with low return temperatures.
In this case, it is recommended to oversize the radiators and to use a pump which ensures a low circulation speed of the liquid in the system.
The decision of this approach is ultimately the most economically and convenient and depends on many factors and is therefore left to the end user choice.
However it is recommended to take a very good care of the building insulation, of doors and windows in particular, with which you may obtain big savings in heating cost.

SUMMER OPERATION

CH140GSM, as described above, has as its primary task the management of the winter temperature, therefore for controlling the boiler of the heating installation. However, there is a command that allows you to invert the operation logic, in case of its use for managing a summer air conditioning system: in this case, in fact, CH140GSM must close the contact of the air conditioning control (switch on) when the temperature is higher than the set reference value and open (switch off) when the temperature is lower.
Once you set this parameter, the programming is identical to the winter operation, which simply refers to this manual.
The intervention differential in summer mode is ± 0,3 °C.

MAINTENANCE

During the blackout (power failure) periods, the programmed parameters will not be lost, as all settings are stored in a nonvolatile memory.

Furthermore, CH140GSM is equipped with an internal backup lithium battery, which guarantees system shutdown during power failures.
In these situations, on the display will appear the inscription **“Blackout”** and CH140GSM remains in a state of “standby” until voltage will be restored.

For cleaning it is recommended to use only soft and dry cloth/textile.
Do not use water or other liquids.

TECHNICAL SPECIFICATIONS

Temperature regulation range	2-40 °C, increment of 0,1°C
T.ambient measurement/visualization range	-35 +60 °C
Power supply	230V 50Hz
Maximum power consumption	10 W
Connection to the boiler	3 screw terminals (closed + open)
Contacts rating	5(3)A / 250 Vac
Action type	1.B.U (microdisconnection)
Software	class A
Minimum regulation differential	0,1°C
Reference thermal gradient	4K/h
Maximum room temperature	T45
Electrical insulation	⧈ double insulation
Protection degree	IP20
Pollution degree	2
Pulse voltage	4000V
Complies with the standards	EN 60730-1 and additional parts, Directive R&TTE EN 301 489-1, EN 301 489-7, EN 301 511
Installation	on the wall
Dimensions	68 x 52,5 x 58 mm
Quad band	EGSM850/900/1800/1900 MHz
Output power	- Class 4 (2W) for 850/900 MHz - Class 1 (1W) for 1800/1900 MHz
Sensibility	- 107dBm@850/900MHz - 106dBm@1800/1900MHz
Connections	Power supply connector - 2,5mm² (AWG14). Inputs/Outputs connector - 2,5mm² (AWG14).
This product is not manufactured in Italy.	

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