



CT3M - TELEPHONE ACTIVATOR WITH GSM



INSTRUCTION MANUAL

Safety Information

Use of radio devices close to electronic equipment may be inadvisable:



Do not install CT3M close to medical devices like pace-makers or hearing aids. CT3M could interfere with the regular operation of these devices.



Switch off CT3M on planes. Make sure it cannot be switched back on accidentally.



Do not install CT3M near oil stations, fuel deposits, chemical plants or explosive sites since CT3M could interfere with the operation of technical equipment.



CT3M could generate interference if used near TVs, radios or PCs.



In order to prevent possible damages, only use accessories tested and certified as compatible with CT3M

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Although the contents of this manual have been checked thoroughly, Fantini Cosmi shall not be hold responsible for damages or losses.

Safety Information

The use of CT3M in life support systems or components is not allowed and, if required, it must be authorised beforehand in writing.

Life support systems are components or systems used to assist artificially the human body in its functions. In case of faulty operation, these could cause injury to patients.

No complex hardware or software system can be considered perfect. Faults can occur in systems of any kind.

To prevent damages to things and injuries to persons, it is up to the designer to devise redundant protection methods, suitable for the risk related to use.

Every CT3M unit is submitted to complete functional testing. Specifications are based on the characterisation of the tested sample unit and do not refer to measurements taken on each single manufactured unit.

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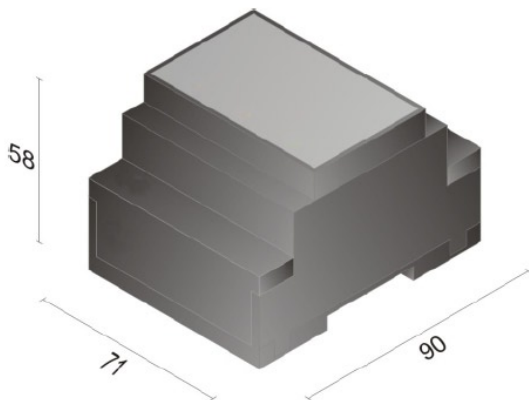
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Product description

CT3M is a GSM terminal suitable for remote control of heating systems, specially when no fixed telephone line is provided.

CT3M also enables to control two remote inputs and one output. Communication is implemented via a mobile phone and the GSM modem of the device using SMS messages.

CT3M characteristics, functions and interfaces are described on next pages.



Product description

Operation

When CT3M is connected to a Fantini Cosmi chronostat model C46A, C55-56, C51-52-53-54, C75CT-76CT, CH15X, via SMS messages it enables to read the chronostat status (ambient temperature measured, programme set, etc.) to modify the set programme and to change certain thermoregulation parameters (only for CH15X).

CT3M can automatically send a SMS message to the phone number stored inside it when an alarm conditions occurs (due to contact closing/opening).

NOTE: different alarms can be controlled by setting them parallel with each other.

Built-in antenna

CT3M is fitted with a dual band built-in antenna (GSM900/1800) located on the front panel.

To operate regularly this omnidirectional built-in antenna shall not be shielded by metallic walls (e.g.: CT3M installed in metallic boards).

CHARACTERISTICS

Specifications

Quad band
Output power:
Class 4 (2W) for
Class 1 (1W) for
Sensitivity
Power voltage:
Consumption
Operating temperature
* reduced sensitivity
Rear wall mounting on EN 50022 rail, 4 modules
Approximate weight:
Protection EN 60529: IP40
(if installed properly)
Contact rating
Voltage-free contacts

Connections

Power supply connector
Input / Output connector

Accessories

Power supply unit / battery charger N70A
CTI46 - CTI5 - CTI5X connection interfaces for Fantini
Cosmi chronostats (See paragraph "INSTALLATION",
pages 13 to 16)
Lead battery, rechargeable, external
Long-life lithium buffer battery, not rechargeable

Installation

Package contents

CT3M Telecontrol
Instruction manual

Installation and safety information

CT3M shall be installed by qualified personnel only.

If power supply is provided by an external unit, the latter shall comply with SELV1 circuits specifications according to EN60950.

If batteries are used, follow the specific instructions.

The cable between the CT3M and the power source shall not be longer than 3 m.

Power supply shall not be shared with other devices.

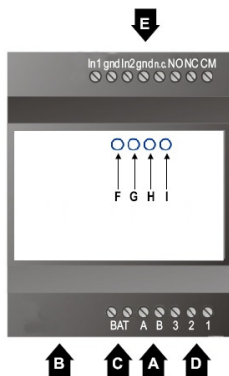
Mounting

CT3M can be quickly fitted to EN 50022 standard rails, rear wall mounting.

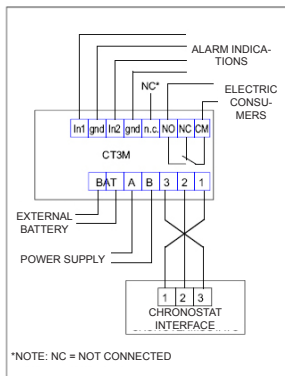
1 Safety Extremely Low Voltage

Installation

Front view



Wiring diagram



- A. Power supply input
- B. SIM card slot (remove lower cover)
- C. Lithium battery connections (see “Accessories” on page 8)
- D. Chronostat connections
- E. Input and output connections
- F. GSM network status indicator LED
- G. Input1 status indicator LED (alarm1)
- H. Input2 status indicator LED (alarm2)
- I. Relay status indicator LED

IMPORTANT NOTE: Wiring and electric connections shall be all implemented before powering the CT3M. More particularly, if connection to a Fantini Cosmi chronostat is required, connect the chronostat to the GSM activator before switching the activator on, otherwise the CT3M may not recognise the connected device.

Installation

CT3M makes available the following connections:

- Power supply terminals
- Input terminals
- Output terminals
- External battery terminals
- Chronostat interface terminals
- SIM card slot

Power supply

CT3M receives power supply from terminals A and B, on the bottom left of the container.

Power supply voltage shall be between 10 and 20 Vac/Vdc.

Use N70A power supply unit or another with similar characteristics.

The cable shall not be longer than 3 m.

Protection for polarity inversion

CT3M can be powered indifferently with alternate current or direct current, regardless of the polarity.

Fuses

If external protections are installed, set 1.5 A rapid fuse on the power supply unit line.

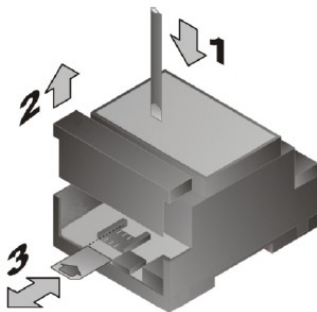
Installation

SIM card

The SIM card housing fits for 3V SIM cards suitable for use with CT3M according to GSM 11.12 phase 2+.

Fit the SIM card into the housing to start CT3M operation.

1. Disconnect CT3M from power supply unit and release the lower cover by means of a screwdriver or equivalent tool.
2. Move the cover upwards.



3. Raise the SIM card holder, insert into the slot the SIM card with the chamfered edge positioned as shown in the figure. Lower the SIM card holder and push it down to lock it in position.

Installation

CT3M connection to chronostats

To connect CT3M to a Fantini Cosmi chronostat, use the connection interfaces provided for the purpose (for CH15X chronostats refer to the relevant user's manual).

The following pages describe the different available interfaces (not included in this package) and the proper connections to be performed.

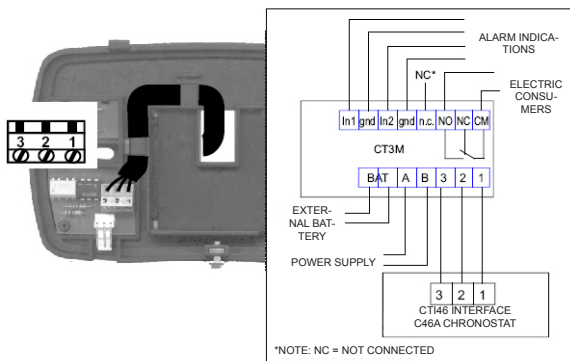
Interface description

CTI46 CONNECTION INTERFACE FOR C46A CHRONOSTAT

Replace the original C46A chronostat base with the CTI46 interface base.

Use 3 x 0.5 mm² cable, max. length: 20 metres

Connect CTI46 electronic card terminal board according to the wiring diagram shown below (interface terminals 1 - 2 - 3 with the corresponding CT3M terminals 1 - 2 - 3).



Installation

CTI5 CONNECTION INTERFACE FOR C55 - C56 CHRONOSTATS

CTI5 interface connection to C55 or C56 chronostat.

Remove the chronostat body from the base.

Open the two knockdown slots on the chronostat body as shown in the figure.

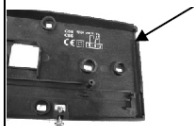
Snap-fasten the interface onto the chronostat. Take care to fit properly the female connector of the module onto the chronostat feet.

Fasten the thereby obtained unit onto the chronostat base.

Electric connections

If fixed installation with wiring under chase is required or if the cable provided with jack plug is short, use another cable 3 x 0.5 mm² with 20 m max. length. Connect one end to terminals 1 - 2 - 3 of the additional module and weld the jack plug as shown in the diagram. In case of fixed installation only: open the knockdown area on the base to friendly connect cables to terminal board.

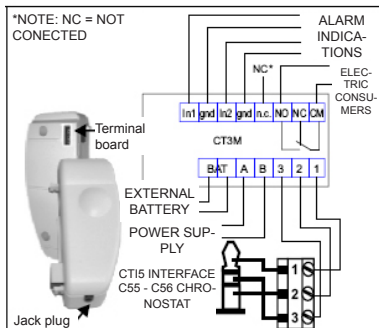
Open the knockdown area on the C55 / C56 base (for fixed installation only)



Open the two knockdown slots on the chronostat



Snap-fasten the module, take care to fit the connector properly



Installation

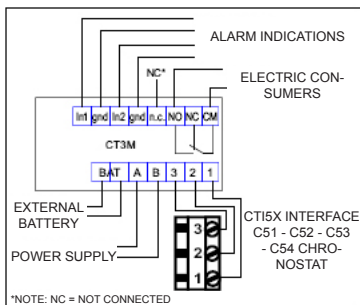
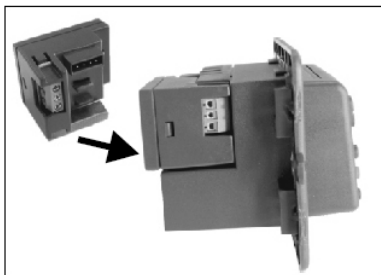
CTI5X CONNECTION INTERFACE FOR C51 - C52 - C53 - C54 CHRONOSTATS

Remove the chronostat from the relevant housing and snap-fasten CTI5X interface as shown in the figure.

Carry out the required connections.

Connect CTI5X terminal board according to the diagram shown below (interface terminals 1 - 2 - 3 with the corresponding CT3M terminals 1 -2 -3).

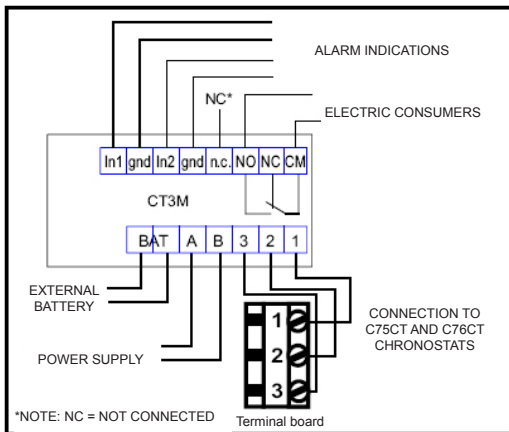
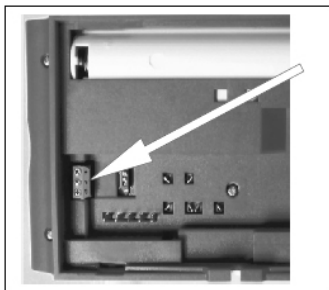
Use 3 x 0.5 mm² cable, max. length: 20 metres.



Installation

CONNECTION TO C75CT AND C76CT CHRONOSTATS

To connect C75CT (or C76CT) to CT3M no interface is required; just disconnect the chronostat from the base and connect CT3M to the terminal board set on the back of the chronostat (see the figure) according to the wiring diagram shown below.



Connection description

Input contacts

CT3M can be connected to two external clean contacts.

Contacts power supply is provided by CT3M.

Use mechanical or electromechanical contacts suitable for use with 40Vmin / 20mAmin dc.

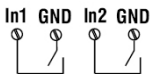
Polarity

When using electronic switches, terminals In-1 and In-2 are positive terminals whereas GND is the reference.

Anti-rebound

To prevent false operations, contacts are considered closed or open only after 1 second of stable condition.

Connection



Immunity against interference

The cable shall not be longer than 3 m.

Connection description

Output contacts

CT3M is fitted with SPDT contact from relay.

Contact characteristics

Rated voltage: 250 Vac /100 Vdc

Max. switching current 4(2)A

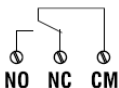
Insulation: 250 V (IEC664 / VDE 0110 - cat. III / C)

Cadmium-free contacts

Protection against overvoltages

Suitable protections against overvoltages on output contacts are recommended in the event of heavy duty.

Connection



Operating state / LED

The LED (F, see page 10), on the front panel shows the different CT3M operating states:

Operating state	LED
- Not powered	OFF
- Network search	ON (fast flashing)*
- Standby (recorded in the network)	SLOW FLASHING

* Network search usually requires a few seconds after power on.

If the led stays on flashing check for proper SIM card fitting.

The LEDs (G - H - I) on the front panel in addition to show INPUT and OUTPUT status indications show also the following CT3M operating states:

Operating state	LED
-No SIM card	Fast flashing
- Field intensity measurement	G+H+I according to field intensity#

#Field intensity is measured only at power on and during the first seven minutes after device recording on the GSM network. Field measurement can be stopped by sending whatever command via SMS message or waiting for seven minutes. G, H and I LEDs indicate field intensity as follows:

Very low intensity: G Off, H Off and I Off

Low intensity: G On flashing, H Off and I Off

Good intensity: G On flashing, H On flashing and I Off

High intensity: G On flashing, H On flashing and I On flashing

If GSM signal intensity level is lower than -109dBm, CT3M may not work properly.

Remote management

Using the SIM card

Before using the SIM card, we recommend that you test it in a mobile phone to see if it's working.

Particularly:

- Check that no PIN code has been set. If so, exclude it.
- Check the remaining credit
- Send a SMS message and check if it arrives.

Switching on

After switching the device on, SMS messages not yet delivered or sent during the first instants of operation will be cancelled without being performed.

Standby

In Standby status, CT3M is recorded in the GSM network and it is ready to send and to receive SMS messages.

Synchronisation with the GSM network is obtained through short and continuous transmissions.

CT3M consumption in this status depends on whether the network is available or not.

Sending an alarm

When input contacts are closed, the corresponding LEDs (G and H) will turn on and CT3M will send to stored numbers the following message: "Input1 ON!" or "Input2 ON!".

Alarm sending condition can however be set as follows:

Send alarm at contact closing

Send alarm at contact opening

Send alarm at both contact opening and closing

NOTE: Alarm is only sent if there is at least one mobile phone number stored, to which the alarm message can be sent. To cancel a stored phone number, to customize the alarm message or to select the alarm sending condition, follow the procedure described in paragraph "Alarm commands" on page 22.

Remote management

Output status led

When the output is active (contact closed), the corresponding led on the front panel [I] will be on.

SMS Service Centre

SMS messages are sent by CT3M to the Service Centre which will send them to final destination or store them until delivery can be made.

SMS messages sent by CT3M have 24 hours validity. Should it be not possible to deliver them within this time, they will be cancelled by the Service Centre.

If the Service Centre number is not stored on the SIM card, CT3M shall only receive but shall not send SMS messages.

Setting the SMS Services Centre

Certain GSM operators supply SIM cards with the Services Centre number stored yet.

If this number has to be entered or changed, insert the SIM card into a mobile phone and programme the number of the Service Centre.

SMS commands

CT3M can monitor the chronostat state, view the alarm and control electric consumers; all these functions are obtained by sending commands to CT3M via SMS messages. These commands are divided into:

Chronostat commands

#STATUS to know the status of chronostat, alarms and relay

#CTSTATUS to know the status of alarms and relay

#FROST to set the antifreeze programme

#ECONOMY to set the NIGHT programme (reduced)

#COMFORT to set DAY programme (normal)

#AUTO to set the AUTOMATIC programme (valid for C51, C53, C55, C75CT, CH15X)

Remote management

#AUTO1 to set the AUTOMATIC1 programme (valid for C46A, C52, C54, C56, C76CT)

#AUTO2 to set the AUTOMATIC2 programme (valid for C46A, C52, C54, C56, C76CT)

#RESUME to resume the programme set on the chronostat; output relay position will remain

Alarm commands

#TEL1= XXXXXXXXXXX* to set the first phone number to which alarm messages shall be sent. Replace "XXXXXXXXXX" with the phone number to be stored.

NOTE: Command shall always end with character "*" (asterisk)

#TEL2= XXXXXXXXXXX* to set the second phone number to which alarm messages shall be sent. Replace "XXXXXXXXXX" with the phone number to be stored.

NOTE: Command shall always end with character "*" (asterisk)

#TEL1= * to cancel the previously stored phone number 1

#TEL2= * to cancel the previously stored phone number 2

#TEL=? to know stored phone numbers

#AL1=0, TEL1, TEL2 to set alarm1 sending condition and which numbers shall receive the message. In this case alarm will be sent at contact closing to both TEL1 and TEL2. Alarm sending can be selected as follows:

0 = alarm sending at contact closing

1 = alarm sending at contact opening

2 = alarm sending at both contact opening and closing

add writing "TEL1, TEL2" to send the alarm to both stored numbers. (NOTE: always enter writing "TEL1, TEL2" although just one phone number has been set).

Remote management

Alarm commands

#AL2=0,TEL1, TEL2 to set alarm2 sending condition and which numbers shall receive the message. To select the required sending conditions and numbers refer to what described for the previous command.

#AL=? to know alarm activation condition and the associated phone numbers

#MSGIN1=INPUT1,ON,OFF to customize alarm1 messages. Just replace "INPUT1" with the alarm description (e.g.: DOOR) and ",ON,OFF" with the two conditions (e.g.: ",OPEN, CLOSED").

#MSGIN2=INPUT2,ON,OFF to customize alarm2 messages. Just replace "INPUT2" with the alarm description (e.g.: ROLLER SHUTTER) and ",ON,OFF" with the two conditions (e.g.: ",OPEN,CLOSED").

Relay commands

#ON output relay: ON (electric consumer)

#OFF output relay: OFF (electric consumer)

#MSGOUT=OUTPUT,ON,OFF to customize relay alarm message (electric consumer). Just replace "OUTPUT" with the description, e.g. "IRRIGATION" and ",ON,OFF" with the two conditions ",OPEN,CLOSED"

NOTE: customized description for every INPUT or OUTPUT shall not be longer than 20 characters, whereas the one for every parameter OPEN or CLOSED shall have max. 10 characters.

Blackout indication

#BLACKOUT=ON to set the function that in the event of blackout will send the following SMS message: "SYSTEM POWER OFF.BLACK-OUT!" (This SMS message could only be sent if lithium battery is fitted, otherwise only the message for restored system power will be sent). When system power is restored, CT3M will send the following SMS message:

"SYSTEM POWER ON.NORMAL OPERATION."

#BLACKOUT=OFF to deactivate the function that will send SMS message in the event of blackout.

Remote management

Status response

CT3M will reply to every recognized #STATUS command with the following message:

- Ambient: 23.5
- Economy: 17.0
- Comfort: 20.0
- Program: Auto2 or Auto, Comfort, Off, etc...
- Remote: Economy or Auto1, Auto, Comfort, etc...
- Input1: On or Off (according to the status)
- Input2: On or Off (according to the status)

Where:

- Ambient: shows the ambient temperature value read by the chrono-stat at that moment.
- Economy: shows the set NIGHT temperature value.
- Comfort: shows the set DAY temperature value.
- Program: shows the chronostat program ON at that moment
- Remote: shows the program set via SMS message. If no program is ON, "----" will be displayed.
- Input1: shows alarm1 input status
- Input2: shows alarm2 input status
- Output: shows CT3M output relay status

NOTE: This function is not available on C46A chronostat and therefore "?????" is displayed.

If communication between CT3M and chronostat is incorrect (or lacking) the different display fields will be filled with "?????".

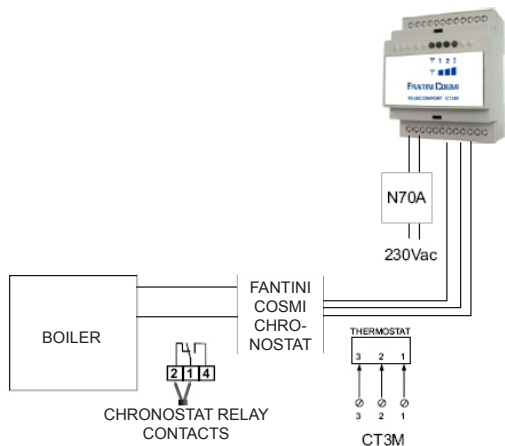
Caution: for certain chronostats (e.g. CH15X) the status response may be different from that specified above and include other parameters. This response may be provided with two different SMS messages.

Maintenance / Circuit diagram

Maintenance

Handle the SIM card with the same care as a credit card. Do not bend or scratch the SIM card and do not expose it to static electricity. Do not use chemical products to clean the SIM card or the CT3M. Do not remove coverings or markings from CT3M.

Example of CT3M-chronostat-boiler circuit diagram



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