GAS CONTROL UNIT

CITY

CE424P

Max 24 Inputs 4÷20mA

USER INSTRUCTIONS

⚠️ **Please read and keep care of this manual and the manual of installed sensors too.**

All documentation relating to gas detection plant should be preserved, because it contains the procedures to be used during the routines verification and / or during the periodic calibration. We recommend that you always complete the *Setup Memorandum Tables* in the last pages of this manual. This will facilitate any possible change to the configuration and/or in case of additional sensors, and operations and maintenance service

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INFORMATION AND WARNINGS OF USE

The CE424 is a control unit for gas alarm systems up to 24 independent detection points. The simple installation and easy configuration via the buttons make the unit suitable for use in many areas, both civil and industrial.

⚠️ *It should be noted that inappropriate use or lack of maintenance can affect the operation of the device and thus preventing the proper activation of alarms with potential serious consequences for the user.*

TECNOCONTROL disclaims any responsibility if the product is misused, altered or not as planned or outside the rated operating limits or put in work incorrectly. The choice and use of the product are the sole responsibility of the individual operator.

The rules, laws, etc.. mentioned, are the ones valid on the date of issue. In any case, must be observed all applicable national regulations in the country of use.

The information contained in this document are accurate, current at the date of publication, and are the result of continuous research and development, the specifications of this product and what is indicated in this manual may be changed without notice.

ⓘ *The Central has a clock with the automatic DST change. In the absence of power supply, the clock works with the lithium battery (on the board in the cover), its life, in normal operation is over 5 years.*

If the lithium battery is exhausted and the central remained completely without power, at startup, you will need to enter the correct date and time (see page 32) and then the battery must be replaced soon with a new one.

NOTES FOR READING INSTRUCTION

CE424P	Control unit for 4 gas detectors, expandable up to 8 with 1 ES404. Equipped with # 5 relay outputs expandable to 9 with 1 ES4014. The unit has also # 1 Logic Input.
ES404	*Expansion card with 4 inputs (4÷20mA) for gas detectors.*
ES414	*Expansion card with 4 relay outputs.*
ES415	*Expansion card with 1 RS485 serial port – **Communication via** Modbus RTU binary*
RU	*Remote Unit CE380UR, with 8 input 4 to 20mA for gas detectors, which can be installed up to 2 expansion cards ES380UR, each with 4 relay outputs.*
SENSORS	*It is the name that, for simplicity, are indicated the various models of Remote Gas Sensors, with current output 4 to 20mA, that can be connected to the CE424P.*
FIRMWARE	*Program inserted into the microcontroller which controls CE424P functioning.*
⚠️	*Symbol that indicates an important warning in the instructions.*
ⓘ	*Symbol indicates information or additional explanation in the instructions.*

SOMMARIO

DESCRIPTION

Fig.1 - *CE424P - Wall mount housing*

SD-CARD
4 or 8 Sensors Inputs
5 or 9 Relay Outputs
n.1 Logic Input
n.2 RS485 (COM1 e COM2) up to 16 detectors and 16 relay outputs, with 2 remotes CE380UR
n.1 RS485 (COM3) Modbus
Mains Supply 90÷264 VAC
Battery (optional)

FAULT   ON   ALARM

- **The CE424P is wall mount "GIUGIARO DESIGN" housing 379x241x133 mm:**
- **The CE424P can be connected to all of our Gas Detectors (*Sensors*):**
  The CE424 can control up to 4, 8, 16 or 24 remote gas detectors.

> ℹ️ **From January. 2017 the TS282xx (IP65) series, supersede all TS220xx and the TS292xx.** *(Example: TS292KM will become TS282KM or the TS220EO will become TS282EO).*

- Three-Wire, 4÷20mA linear output models with "Replaceable Cartridge Sensor" for:
  *Flammable gases with Catalytic sensor (*20% LEL range*) TS292K(IP65) or TS293K(Ex"d") series.*
  *Flammable gases with Pellistor sensor (*100% LEL range*) TS292P(IP65) or TS293P (Ex"d") series.*
  *Flammable gases with Infrared sensor (*100% LEL range*) TS293I(Ex"d") series.*
  Toxic gases with electrochemical cell TS220E (IP65) or TS293E (Ex"d") series.
  Carbon dioxide with Infrared sensor TS210IC2 (IP54), TS220IC2 (IP65) or TS293IC2 (Ex"d").
  *Oxygen with electrochemical cell (*25% volume range*) TS220EO or TS293EO (Ex"d").*
  With dual sensor for Parking TS255CB or TS255CN2.
  Refrigerant gases with Semiconductor sensor TS220SFx (IP65) series.
- Three-Wire, 4÷20mA linear output models with Display and with "**Replaceable Cartridge Sensor**" for:
  *Flammable gases with Pellistor sensor (*100% LEL range*) TS593P (Ex "d") series.*
  *Flammable gases with Infrared sensor (*100% LEL range*) TS593I (Ex"d") series.*
  *Toxic gases with electrochemical cell (*25% volume range*) TS593EO (Ex"d").*
- *Should be connecting all models without the replaceable Cartridge:*
  Refrigerant gases with Infrared sensor TS210IF (IP42) series.
  Flammable gases with Catalytic sensor SE192K (IP65) or SE193K (Ex"d") series. They can only be used in non-industrial environments, such as boiler rooms.

> ℹ️ *May be connected, even discontinued models. Detectors three-wire 4 to 20mA linear for flammable gases or those two-wire 4 to 20mA linear for toxic gases or oxygen, produced until December 2008. Or the IR101or IR102 for CO_2 in production until December 2014.*

> ⚠️ *Inputs are configurable for 4÷20mA sensors with referred current to ground and operating characteristics same as our products (unit in %LEL or ppm, minimum operating voltage, absorption, load resistance etc.).*
> *__We accept no liability for any malfunction, failure or damage caused by products not compatible or not we produce.__*

- **Each Sensor may be associated with a ZONE:**
  The sensors can be grouped into **Zones** (Max 6), which can associate up to 2 relay outputs different for each alarm level and a FAULT.

- **Each ZONE can be set according to operating LOGIC:**
  The logic used are the typical logic functions (**AND**, **OR**), management of adjacent sensors (**CORR.CON**, **CIRC.CON**). Note that **PARK-ITA** is a function only for Italy (Italian Ministerial Decree 01/02/1986).
- **Each INPUT (Sensor) is self-protected and has a FAULT signal:**
  All sensors inputs are protected against short-circuit or wire breakings. If a short-circuit occurs, the power supply to that input, is automatically stopped (all others continue to work properly). At the same time, the FAULT signal is activated.
- **Each Sensor can be configured in two ways:**
  Preconfigured Setup: Here you can choose one of the models of our production, (**See list in Table on page 41**), which is then automatically set in the configuration recommended by the respective thresholds and relay outputs. Is enough set the output number (relay) to complete the configuration. The manual changes are, however, permitted.
  General Configuration: Here you can configure any type of sensor (*compatible or a new model not yet listed*), manually entering all parameters.
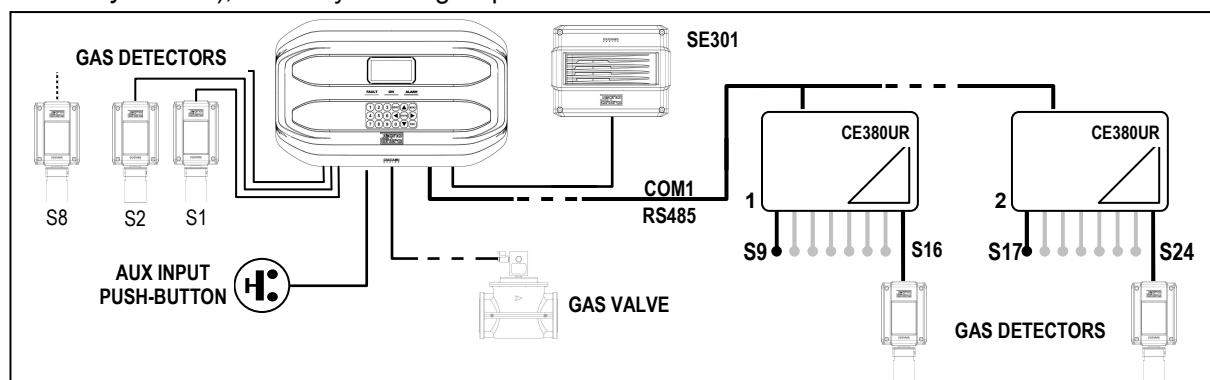
- **The AUX input is configurable and can be associated with a relay output:**
  - Can be configured to activate one of the available relays and can be used by devices with NO or NC contact outputs (*gas sensors with a relay contact, smoke sensors, buttons, etc.*).
- **The CE424 can manage up to 5, 9, 17 or 25 Alarm relays:**
  Each sensor has three alarm levels (**Threshold 1, Threshold 2 and Threshold 3**) and a **FAULT**, freely addressable to any relay output.
- **The alarm thresholds can be configured with special mode of operation:**
  For use in car parking "**PARKING EN**" (EN 50545-1) or to the workplace, such as exposure limit value **TLV**.
- **Each output (relay) can be configured as follows:**
  - **Silenceable**: the output is disabled for the *Silence time*, when *RESET* is carried out and the sensor is above the set threshold. This function can, for example, be used for the outputs connected to audible warning devices.
  - **Silence Time:** is the time, adjustable from 0 to 300 seconds, so **Silenceable output** (*e.g. relay connected to a siren*) is disabled when the **RESET** is performed and a sensor is above the set threshold
  - **Hysteresis ON**: is the delay, adjustable from 0 to 300 seconds, of the relay, associated with an alarm threshold.
  - **Hysteresis OFF:** is the delay, adjustable from 0 to 300 seconds, of the relay to return to normal condition, when it ends the alarm.
  - **Time ON**: is adjustable from 0 to 300 seconds. This function can only be used if you want to stop the alarm output after a finite time, even if the sensor remains above the alarm threshold set (*This function cannot be used in conjunction with Hysteresis OFF delay*). For example you can use it to enable devices that cannot be powered down, or to send a pulse to a phone dialer.
  - **Memorized**: the relay remains in alarm, even if the sensor returns below the threshold (*this function does not work if the Time ON or into Hysteresis OFF has already been inserted a value other than zero*), to return to normal conditions must be done **RESET**. Serves, for example, to prevent the accidental or unauthorized resetting of a block valve of the gas, without first checking the cause of the alarm.
  - **Positive Logic**: the operation of the relay can be set normally activated or in positive logic, therefore, if the relay fails, or is completely out of power, automatically moves into the Alarm position, the NC contact becomes NO.
- **The CE424 have a BUZZER inside:**
  The internal *Buzzer* sounds a *Beep* every touch of the keyboard. It can also be set to sound in case of Fault and / or Alarm.

- **The CE424 can store the Events:**
  The system can store up to 100 events comprising Alarms, Faults, Power ON, Mains blackout and Resetting, that can be re-called at any time.
- **The CE424 has an SD CARD slot** It can be used for:
  - Future updates of the central unit firmware.
  - Loading or Saving the configuration of the control panel and rescue the events.
  - Data Logger (Storing in time, of the values read by the sensors, in text format).
- **The central CE424 has 2 RS485 serial ports:**
  On both ports, 1 or 2 can be connected remote units CE380UR.
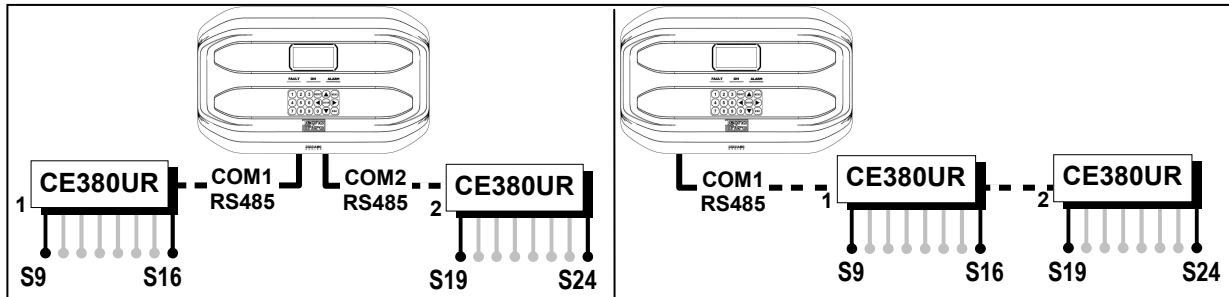
- **The CE424 is protected by 3 LEVELS of PASSWORD:**

Some menus are accessible up to three password levels, with a code composed of 4 numbers. The levels are for access to functions, used by the respective authorized persons.

    LEVEL 1: for the User
    LEVEL 2: for the Installer or Maintenance technician.
    LEVEL 3: only for Manufacturer.

> ⚠ THE FOLLOWING INSTRUCTIONS DESCRIBES ALL THE CENTRAL SYSTEM SETUP PROCEDURES AS WELL AS THE INSTALLATION PROCEDURES TO BE EXECUTED ONLY BY AUTHORISED AND EXPERIENCED PERSONNEL.
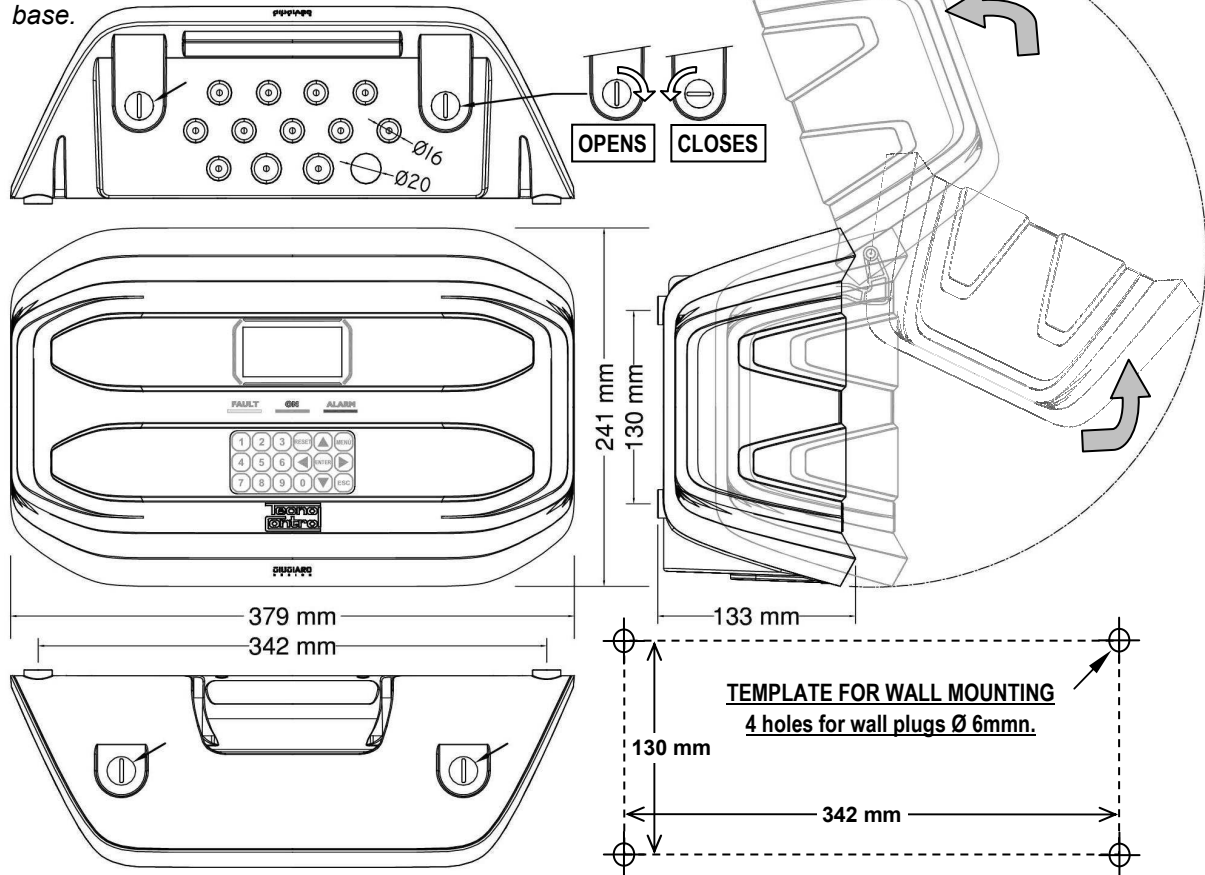
CE424P INSTALLATION

WARNING: The **CE408** is to be installed in an area protected from direct sunlight and rain. Please note that for safety the CE408 is to be installed in safe areas where there are present or can form flammable atmospheres and concentrations exceeding 24 % volume oxygen.

CLEANING: To clean the exterior of the enclosure, use a soft damp cloth with water, do not use solvents or abrasive cleaners.

POSITION: The **CE424P** should be mounted on the wall using 4 screws and wall plugs (Ø 6 mm) or 4 M4 screws and nuts, if the wall is not in masonry. The housing's base must be fixed through the 3 holes, one in the center and the other in the bottom corners (*Fig.2*). The electrical connections should be executed all on the housing base.

Fig 2 – CE424P Dimensions and Template for wall mounting

The cover unlocks (with a coin) by turning 90° the 4 buttons located above and below the enclosure. It is opened by pulling and then rotating it up until it rests at the base.

OPENS   CLOSES

241 mm   130 mm

379 mm
342 mm
133 mm

TEMPLATE FOR WALL MOUNTING
4 holes for wall plugs Ø 6mmn.

130 mm

342 mm

Ø16
Ø20

OPENING-CLOSING THE HOUSING

The housing has two sliding internal hinges. To open the case, you must:

1- With a coin or screwdriver (blade 10-12 mm), unlock the 4 closing buttons, turning them 90 ° clockwise.
2- Gently, pull the cover outwards of about 4 cm and then rotate it up and place it on the upper edge of the base housing, in this way remain in the open position.
3- To close the housing act in reverse order. Pay attention that the cover and the locking mechanism enter into place. Finally block 4 buttons, turning 90 ° counterclockwise. To facilitate the closure, press on the lid, the buttons, which are eccentric, will bring the lid to adhere to the gasket.

ELECTRICAL CONNECTIONS

The electrical connections should be executed all on the housing base.

The details of the connections to the mains, the two batteries, the AUX input and relay output R9 are illustrated in Figure 3. While the details of the connections to the sensors and the other outputs are illustrated in Figure 4.

The terminals are of "polarized inlet" type (1). We suggest to use lugs adequate to the conductors (2) and to fix the wires to the box structure to avoid excessive stress to the circuits and to the terminals. Use a screwdriver (3) with the right dimensions.

Input terminal, plug-polarized
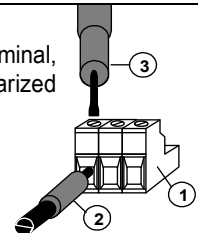
Considering that, it should be normal procedure disconnect power to the electronic equipment when installing, or changing the connections, or when disconnecting or connecting expansion cards.

IMPORTANT: TO AVOID IRREVERSIBLE DAMAGE, DISCONNECT THE POWER SUPPLY TO THE CONTROL PANEL, MAINS POWER AND BATTERY (IF PRESENTS) DURING INSTALLATIO (WIRING CABLES) OR BEFORE YOU INSTALL ANY EXPANSION BOARDS OR UNPLUG OR RE-CONNECT THE FLAT CABLE.

Only if necessary, for maintenance or installation requirements, the housing cover can be separated from its base, first remove mains power and remove the batteries, then disconnect the flat cable, press on the two side tabs as shown in *Fig. 3*. Then you need to release the cover from sliding hinges (press fit). To reconnect it, proceed in reverse order and after hanging up the lid hinges, push the flat cable into the connector, respecting the polarization, the two levers close automatically locking it. Only then you can reconnect power supply.

BATTERIES: Inside the housing, it can also accommodate **two 12V/1.3Ah Lead batteries** connected in series (*Fig.3*) to assure the system powering in case of mains blackout. The battery life is about 30 minutes with 8 sensors. (The *batteries are not included in the delivery, but are available on request*).

If required, to increase the autonomy (6 hour), it can be used two 7Ah batteries connected in series, but causes the greatest dimension, shall be installed in a case outside the CE408P.

Cable glands: the lower side of the housing has 13 inputs designed for metric cable glands (ISO pitch *1.5 mm)*. N.10 are for glands M16x1.5 mm (*that accept external cables Ø 4÷8 mm*) and n.3 are for glands M20x1.5 mm (*that accept external cables Ø 6÷12 mm*).
These passages are closed, but they are not manually breakable, according to the installation requirements, they must be drilling. To facilitate the operation, they have a centering for the drill bit.
Please, pay attention not touch the tip of the internal circuits or the power supply cables
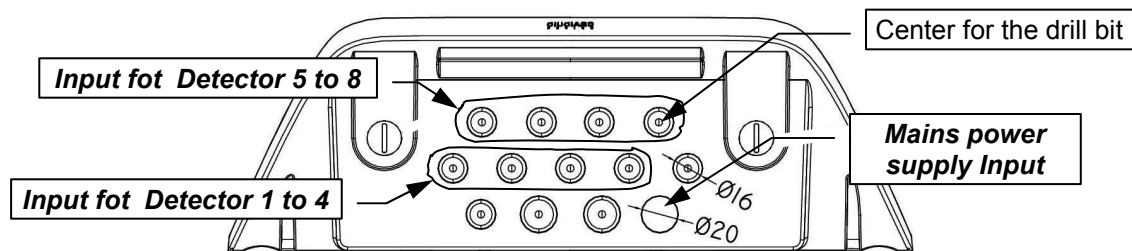
POWER CONNECTION

The installation must include a power line protection device. To the mains line, a bipolar disconnecting switch dedicated for the gas detection system. The device, clearly identified, must act only on Phase and Neutral, but not on the Earth. It is advisable to also provide for a surge protector, lightning etc.

Mains Power Supply (**90÷264Vdc / 47÷63Hz**) should be connected to terminal L, N and Earth at the right of the housing base. The terminal has a protective fuse (5x20) 2A.

The two 12V/1.3Ah Lead batteries if required should be connected in series to **BAT+** (Red) and **BAT-** (Black) terminals. For the series connection, use the black cable supplied with two terminals (4.8 mm Fastens).

The auxiliary input (**AUX**) can be used to connect devices with a NO or NC contact (*gas sensors with relay contacts, smoke sensors, buttons, etc.*). It can be configured to activate one of the available relays. It can be connected to multiple devices if it's are homogeneous. (If the device has an NC contact must be connected in series or in parallel if it's have all a contact NO).

Output Relay 9 has the same characteristics and use of those described on the next page.

Fig 3 – CE424P Wiring diagram for Power, Batteries, AUX input and output 9.
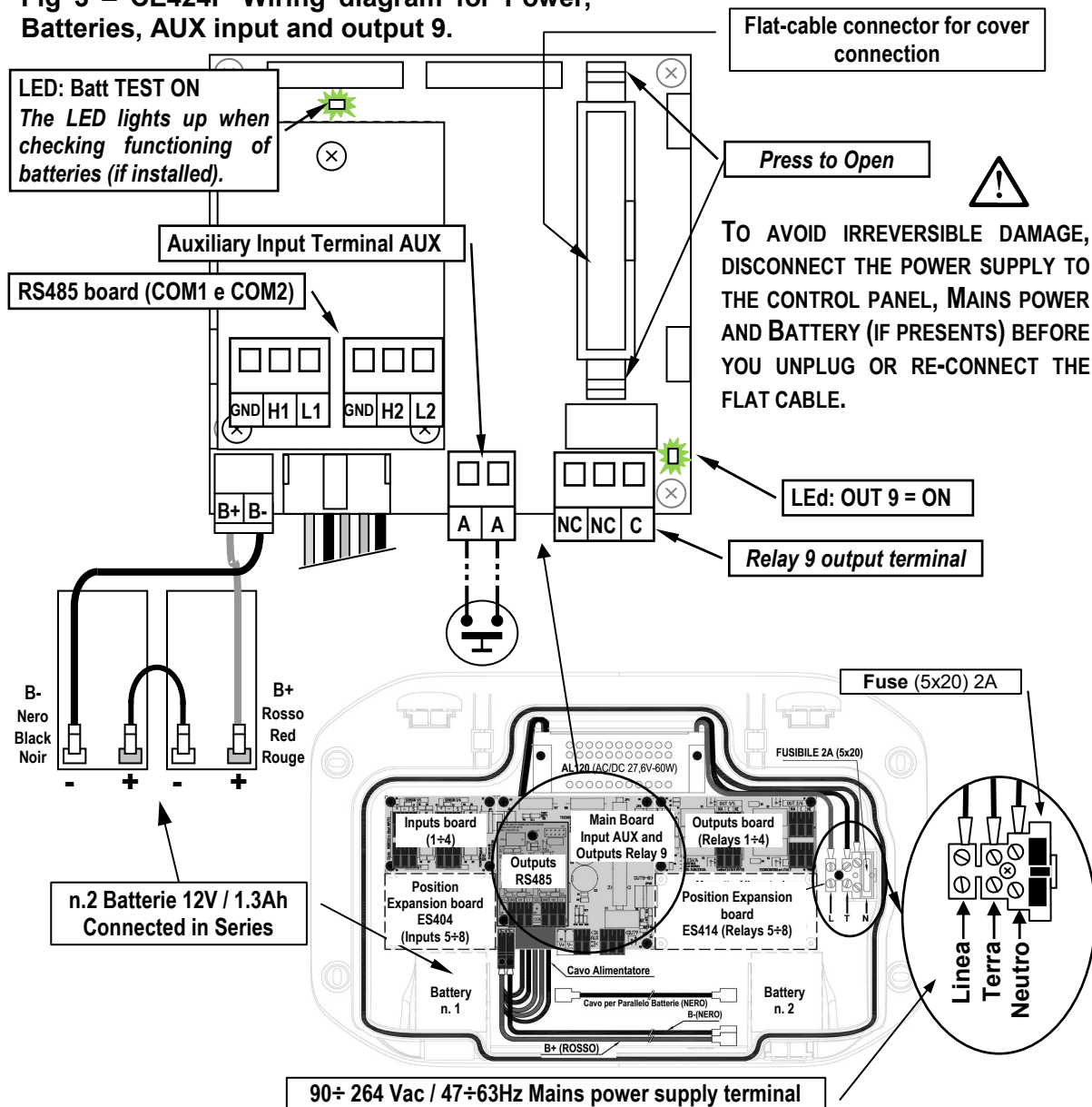
CONNECTION WITH GAS DETECTORS

⚠️ **Please refer also to the specifics User's Manuals enclosed with the Gas Detectors and the Remote Units.**

ℹ️ *Please note, that the CE424 has a board with 4 inputs and a board with 4 outputs. In Central can be installed, a board ES404 and ES414 to have a total of 8 inputs and 9 outputs. The diagrams, for simplicity, show all the 8 detectors and all relays outputs.*

Detectors connection, (**from 1 to 8**) with three-wire 4÷20mA transmitters, should be performed on the inputs board, mounted in the base, on the left. The input terminals, "+, - and "S" should be connected to the corresponding terminals of the sensor.

The connection of the other detectors (**9-24**) should be carried out into Remote Unit (please, see the specific instructions).
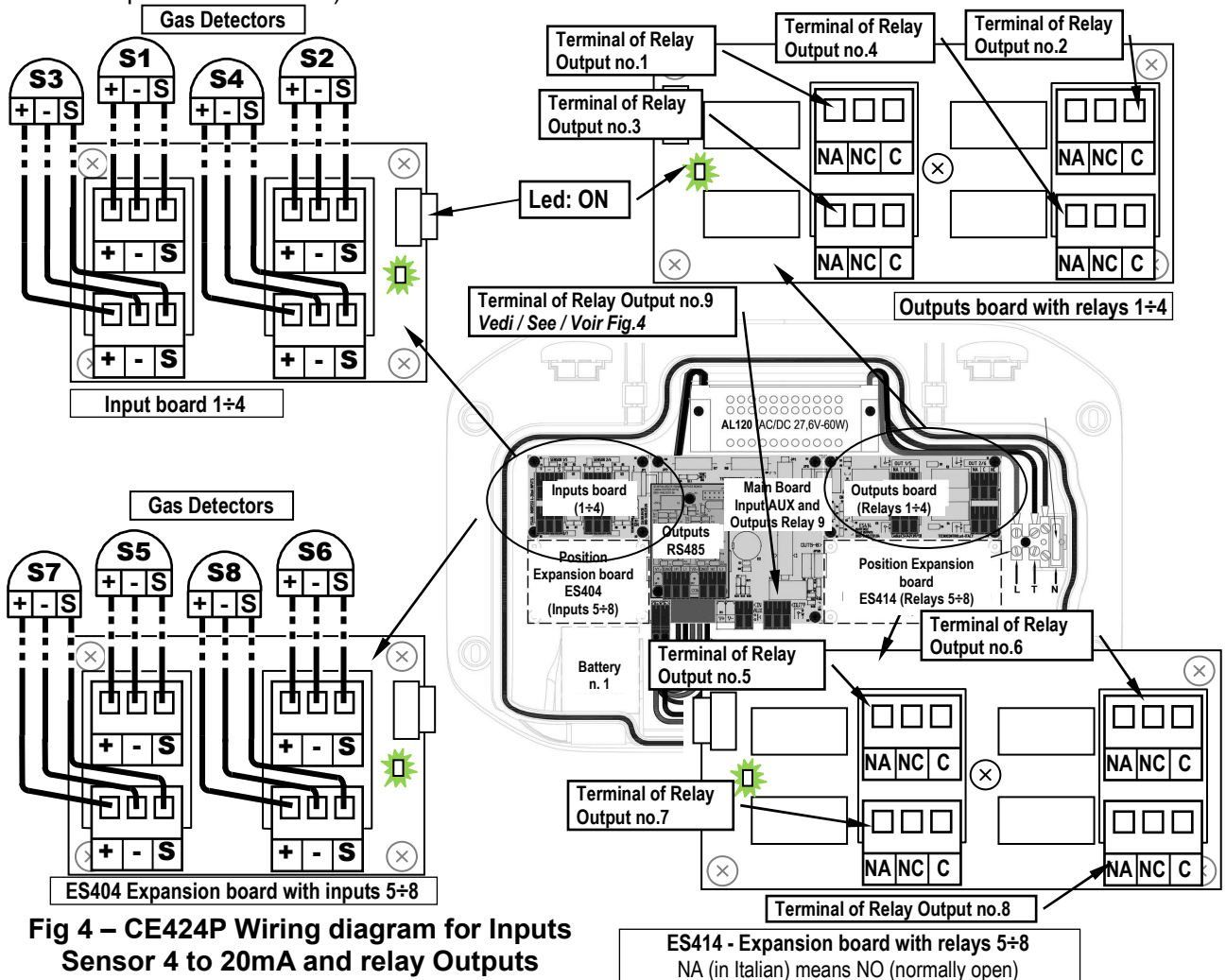
The connection wire section between the CE424 and the sensors should be suitable to the distance, as shown in the table. The connection needs a shielded cable. (Cables for control and signaling with shielding copper braid). Shield should be connected only to the central unit side, and on an only point of EARTH that has to be equipotential.

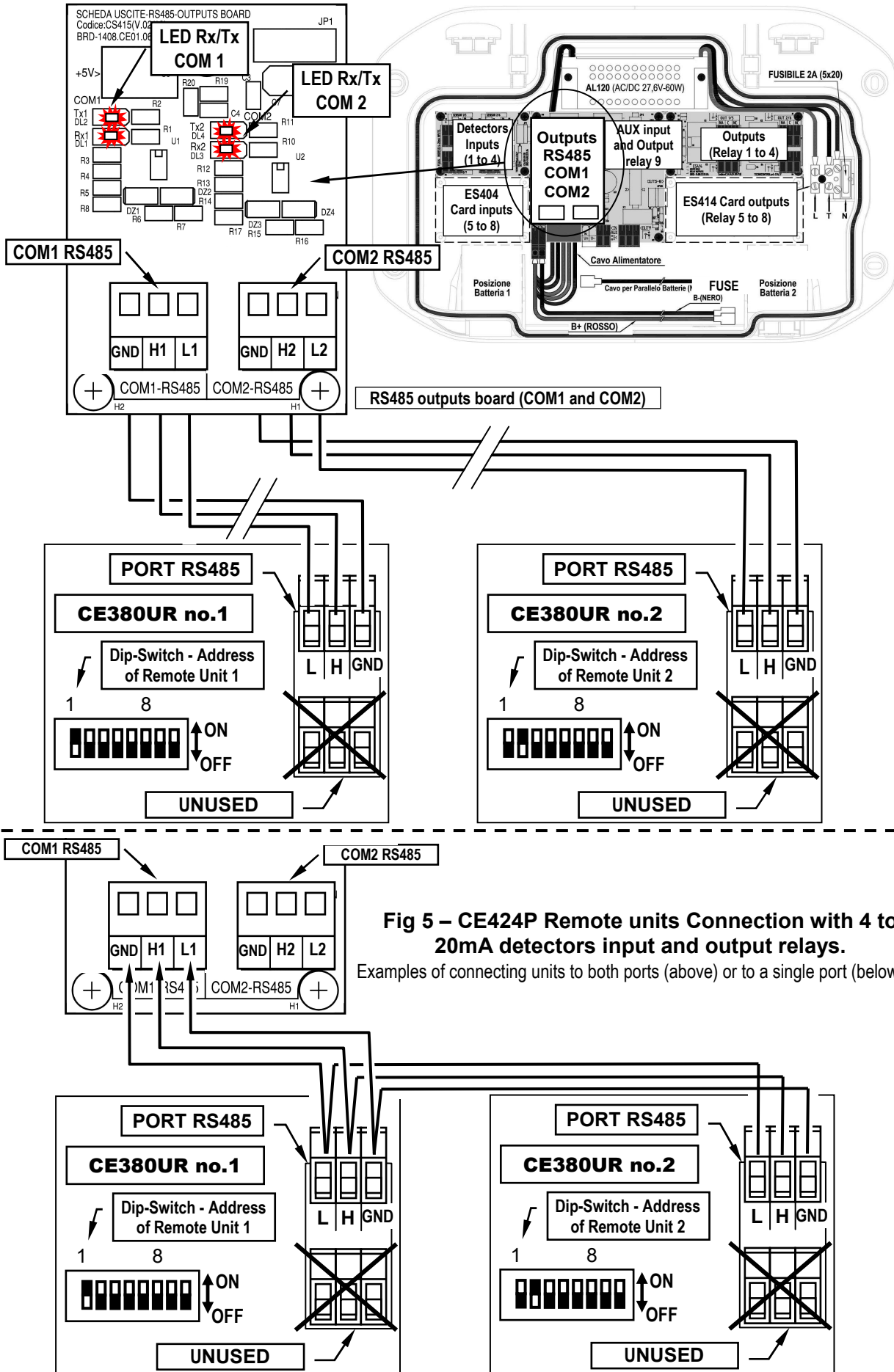| Distance	Cable
Max 200 meters	3 x1 mm^2 shielded
Max 400 metri	3 x 1.5 mm^2 shielded
Max 600 metri	3 X 2.5 mm^2 shielded

The connection to the internal outputs (**relays 1 to 9**) should be performed on the outputs board, mounted in the base, on the right. *The relay output 9 is located on the central board, see Figure 3.* The nominal load of relay is 250 VAC - 2 A or 30 VDC – 2 A (resistive load).

The relay have changeover free voltage contacts, on the boards, indications **NA means NO** (*Normally Open*), **NC** (*Normally Closed*), **C** (*Common*), refer to the relays in the normal position (not powered). If an output is configured as *POSITIVE LOGIC*, the NO contact will become NC and NC will become NA.

The connection of the other outputs (**relays 10÷25**) should be carried out into Remote Unit (please, see the specific instructions).

Fig 4 – CE424P Wiring diagram for Inputs Sensor 4 to 20mA and relay Outputs

Fig 5 – CE424P Remote units Connection with 4 to 20mA detectors input and output relays.

Examples of connecting units to both ports (above) or to a single port (below).

EXPANSION BOARD ES415 – MODBUS

The connection to a monitoring system via Modbus RTU binary protocol (**COM3**) is carried on the optional expansion board ES415 (PC-Card Modbus output).
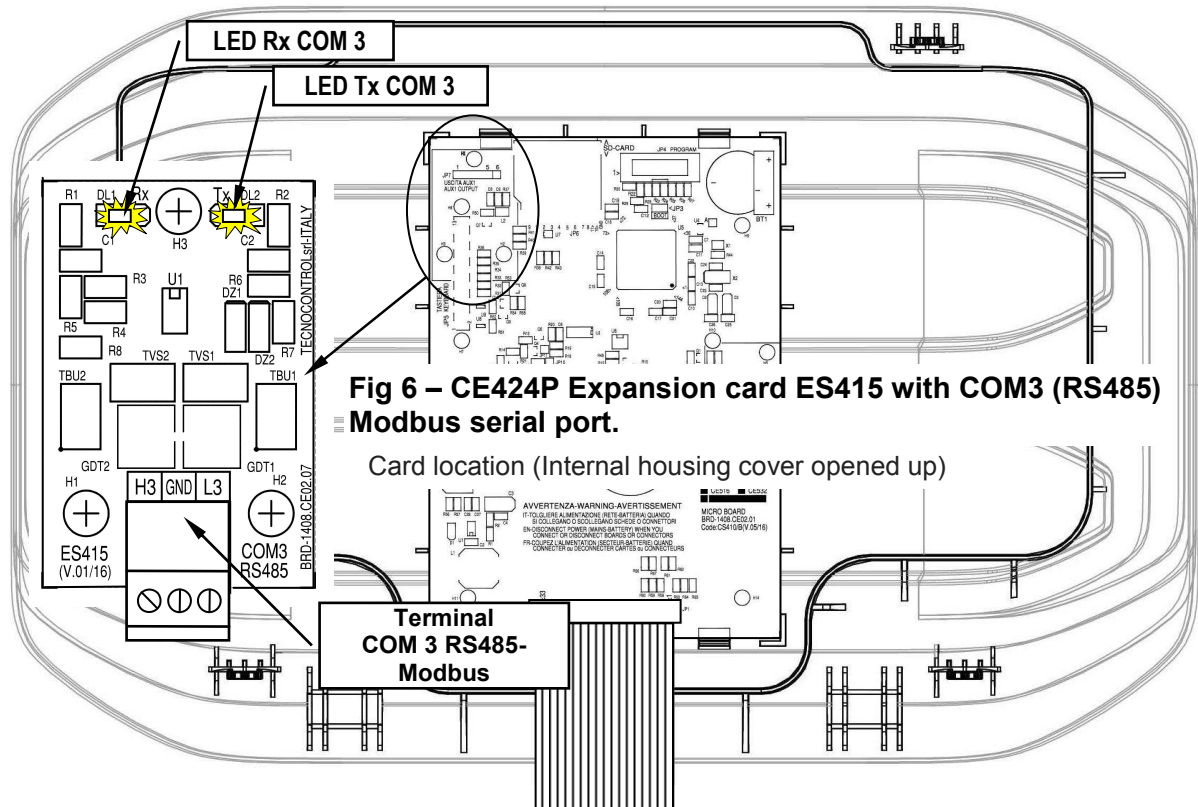The ES415 board is mounted on the main board, placed in housing cover. (See Figure 6). Pay attention, to put the terminals into the connector on the motherboard, making the first, matching the three click columns with the corresponding holes and then pressing to insert them.

The "**H3** (**D1**)", "**GND** (**Common**)," and "**L3 (D0)**" terminals of the RS485 serial port (COM3) are to be connected to the supervision system (Master) or dedicated isolated converter (not included).
On standard MODBUS system, all devices are connected (in parallel) on a distribution cable with 3 shielded wires. Two form a balanced pair of twisted conductors, on which the bidirectional data, typically at 9600 bits per second are transmitted. The third conductor (if used) is the common to all of the bus devices.

> ⚠ **To avoid irreversible damage, disconnect the power supply to the control panel, Mains power and Battery (if presents) before you unplug or re-connect, any expansion card.**

Fig 6 – CE424P Expansion card ES415 with COM3 (RS485) Modbus serial port.

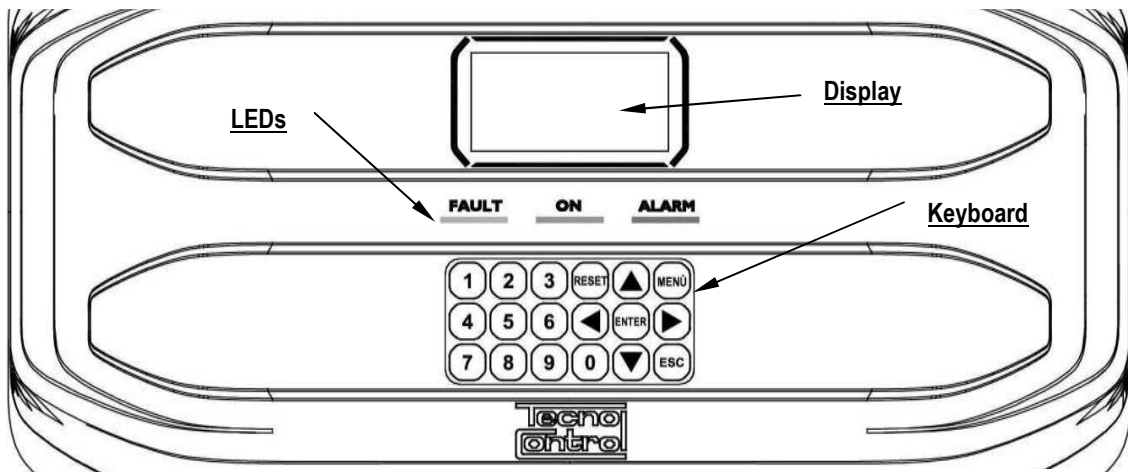Card location (Internal housing cover opened up)

UNIT'S OPERATION

Fig 5 – CE424P Keyboard

Keyboard:

The keyboard is backlit. To save energy, the brightness is reduced to half after 10 seconds of non-use.

RESET	***Can only be used on the main screen***, it is used to reset the latched outputs to normal operation, but only if the Sensor or Zone or Input has returned from the alarm condition. If there are active alarms, outputs configured as **Silenceable** (e.g. alarm) returns to normal operating conditions only for the time of **silencing** by default.
▲ ▼	Scroll through the display screens and the numeric digits up and down. Keeping the key pressed, increases the values' speed scrolling. In the *main screen* changes to display the status of sensors, inputs and configured zones.
MENÙ	Call up the *Main Menu* from any screen.
ENTER	Confirm the inserted data and in the *main screen* allows you to select the detail's sensors
◄ ►	Scroll through the pages (6 sensors at a time and 7 events at a time), and input fields. Keeping the key pressed, increases the speed scrolling.
ESC	Cancel an operation and in the *main screen* is used to enter to *Main Menu.*
0 ÷ 9	They insert a number directly into numeric fields and recall the related submenu in the specific screens. Also in the *main screen*, key **0** recalls a brief screen of the alarm's status (see below).

- ***Single digit numeric field (password entry, etc.).***
  By pressing a numeric key the number is displayed in the field.
- ***Screens 'Enable ...', 'Disable ...', 'Copy ...', 'Delete ...', 'Settings-> Date & Time':***
  Pressing the first time, a numeric key the number is displayed in its field (deleting any existing number), and the next digits will be always inserted to the right of the number.

Example: To enter the number "**23**", press the **2** and then **3**.

If the number exceeds the maximum acceptable value, message will appear "**PARAMETER OUT OF RANGE**". -------------------------->

```
PARAMETER
OUT OF RANGE
```

- ***All other Screens:***
  As above, but in addition, when you press the ► key, the last digit entered will be erased and you can continue to enter additional digits.

Example: If you have entered the number "**23**", and then you want to change it to "**25**", simply press the ► then press the **5** key.

If you have already entered a single digit, pressing ► will display the minimum amount accepted by the field. Then, by pressing a number key, the number already present is deleted and replaced with the new one.

LED indications

The **CE424P** has 3 LEDs, which show the status of unit operation (*see also Appendix*).

FAULT (Yellow LED)	*Flashing = Preheat (Start Unit) or Firmware Update.* *Fixed ON = Fault (Sensor) + Buzzer if enabled.* *Short flashing = Output relay associated with a latched Fault.* *Rapid flashing = Batteries Fault.*
ON (Green LED)	*Fixed ON = Operation with mains power.* *Flashing = Operation with the batteries.*
ALARM (Red LED)	*Fixed ON = Alarm 3 is active (Sensor or Zone) + Buzzer if enabled.* *Flashing = Alarm 1 and / or 2 active (sensor or area or logic input).* *Short flashing = alarm latched (indented) (sensor or area or logic input).*

Display Backlight Indications

The **CE424** has the display (backlight) that changes colours depending on the state of operation of the plant (*see also Appendix*).

YELLOW	*Fault (Detector or Zone or Remote Unit) or fault memorised*
CLEAR BLUE	*No active alarm.*
LIGHT RED	*Alarm memorized (indented) (Detector, Zone or logic input).*
MEDIUM RED	*Alarm 1 and / or 2 active (Detector or Zone or logic input).*
BRIGHT RED	*Alarm 3 is active (Detector or Zone) or Firmware updating is in progress*

Internal Buzzer Indications

The **CE424** has an internal buzzer that emits a **beep** when a key is pressed. It can also be configured to sound in the event of a fault and / or an alarm.

Sound short (0.1s)	**is always active**	Confirms the pressing of a key
Continuous sound	**if configured**	Fault (*Sensor or Zone*)
Continuous sound	**if configured**	Alarm 3 is active (Sensor or Zone)

Display – Initial Screens

The **CE424P** when powered, for 5 seconds shows the model name and firmware version.

This information shall be accessible also in the menu Settings→General→Info. For more information read the chapter Settings.

Only at first power (and only then) will be asked to choose your language and to indicate if the battery is present. Use the key [▲] and [▼] to scroll through the languages and pressing the key [ENTER] to confirm the choice.

From this screen, you cannot go out without being made a choice.

If necessary, these choices can be changed. Please see forward Service→Battery. For more information read the chapter Service...

After starts a decreasing count of 60 seconds, the time required to boot the central unit, and allow the sensor to stabilize (**preheating time**).

After the preheating time, appears the **main screen** that the control unit displays in normal operation. The date is shown in the top row, the first 6 sensors (*with the measured concentration and its state*) and in the last line, the battery status of charge (*if installed*) and presence of the mains: The number in the lower left corner indicates the current access level (level 0 if it is blank). The word "**SD**" on the bottom right indicates active the data storage.

Symbols used to indicate the status of the battery (if installed):

▮ = Full charge   ▮ = Half charge.   ▯ = Low charge

▯ = Discharge   ▯ Flashing = Fault.

⚠ *If by mistake, the battery (configured present) being disconnected and / or connected with the control unit power from mains, the yellow LED lights up on fast blinking, to resume the normal operation of the battery, it will be necessary turn off and on the unit.*

Symbols used to indicate the presence of mains power:

⌁ = mains operation (*is absent, when the power is by the batteries*).

⚠ If the control unit, had lost the date and time, due to a malfunction or discharge of the clock backup battery, screen will be displayed for entering updated values (*The unit's safety functions are guaranteed, except those involving the use of date that will be wrong*). By changing these parameters, see below, the section **SETTINGS→DATE and TIME**

The status of a sensor, which appears on the main screen, may be:

- - - -	*not Configured*	The Sensor (detector) is not Configured
* * * *	*disable*	The Sensor is disabling. (the outputs (relay) are not activated if an alarm occurs)
OFF LINE	*UR not connected*	The detector connected to a remote unit that is not connected.
FAULT	*Guasto*	input current is less than 1mA
NORM.	*Normal*	There is no gas and there are no active alarms. The text blinks when relay output is latched (*Sensor or Zone, returned to normality after an alarm or a fault*).
AL.1	*Allarm 1*	The first alarm threshold has been exceeded
AL.2	*Allarm 2*	The second alarm threshold has been exceeded
AL.3	*Allarm 3*	The third alarm threshold has been exceeded.
F.S.	*Full Scale*	Current > 24 mA. The gas concentration has exceeded the Sensor range or the sensor may be faulty.

When a sensor, a logic input or a zone, activate a relay output, the main screen appears a brief display of alarm status. This allows checking quickly, the total number of active relays and their relative alarm level.
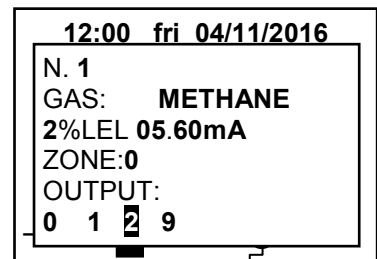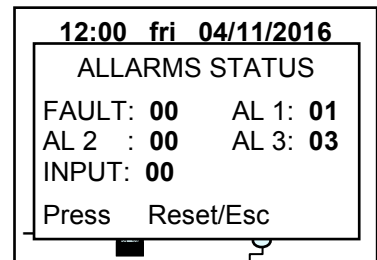
The details of the individual items is as follows:

FAULT	Indicates the number of active relays, relative to exceeding the threshold of a fault (current <1 mA or> 24 mA), of a sensor or a group of sensors that belong to a zone.
AL. 1	Indicates the number of active relays, relating to exceeding the threshold of alarm 1, of a sensor or a group of sensors that belong to a zone.
AL. 2	Indicates the number of active relays, related to exceeding the threshold of alarm 2, of a sensor or a group of sensors that belong to a zone.
AL .3	Indicates the number of active relays, relating to exceeding the alarm threshold 3, of a sensor or a group of sensors that belong to a zone.
INPUT	Indicates the number of active relay, logic input.

The screen can be closed by pressing the [esc] key or the [RESET] key. If the alarms persist the screen reappears after 10 minutes. If a new alarm occurs the screen will appear again automatically. You can call the screen at any time by pressing the [0] key on the main screen. ---------→

```
12:00  fri  04/11/2016
    ALLARMS STATUS
FAULT: 00     AL 1: 01
AL 2  : 00    AL 3: 03
INPUT: 00

Press    Reset/Esc
```

From the *Main screen*, by pressing [◄] and [►] keys, to scroll through the sensors, in groups of 6 at a time. Pressing [ENTER] key highlights the sensor in the first row. While, using the keys [▲] and [▼] to scroll through the sensors (in the page) shown on the display.

Pressing the key [ENTER] again, you view the details of the highlighted sensor, (of course only if it is configured). -------------------------------------→

```
12:00  fri  04/11/2016
N. 1
GAS:      METHANE
2%LEL 05.60mA
ZONE:0
OUTPUT:
0  1  2  9
```

Explanations of the details are as follows:

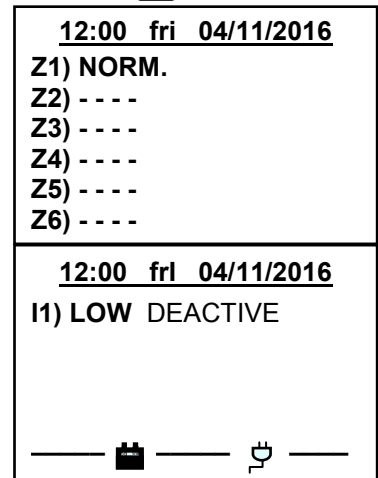|	
1ˢᵗ row	shows the **number** of the sensor
2ⁿᵈ row	shows the **name of the gas** being measured.
3ʳᵈ row	shows the currently measured **gas** concentration, the unit of measure and current value (mA) (*current generated by the sensor*).
4ᵗʰ row	indicates the **Zone**
6ᵗʰ row	• the indicates the **output** number (Relay), corresponding respectively to: **1ˢᵗ Threshold (AL1) 2ⁿᵈ Threshold (AL2) 3ʳᵈ Threshold (AL3) FAULT**. **Value** 0 **(zero)** indicates, at that threshold, the output not been assigned, while the **highlighted value** indicates that output relay is currently active (*alarm*). The values are real time updated.

Pressing the [ESC] key it returns to the screen of the sensors. Then press again the [ESC], to return to the *Main Screen.*

Using the keys [▲] and [▼] is displayed, in cyclic mode, the situation of the Zones (from **Z1** to **Z6**) and the Logic Input **AUX** (**I1**). --------------------→

$\boxed{i}$ *Note that the model CE408P has only 2 Zone and 1 Logic Input*

The status of a logic input can only be **ACTIVE** or **DEACTIVE**, while a Zone has the same status of a sensor, except for the full-scale. ----------→

Press [ESC] to enter the *Main Menu*.

```
12:00  fri  04/11/2016
Z1) NORM.
Z2) - - - -
Z3) - - - -
Z4) - - - -
Z5) - - - -
Z6) - - - -
```

```
12:00  frI  04/11/2016
I1) LOW  DEACTIVE




 ——— 🔋 ——— 🔌 ———
```
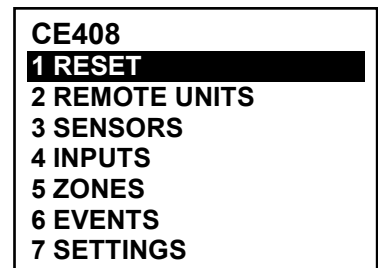
MAIN MENU

The **CE424** is provided with a main menu from which you can manage all of its functions.

The name of each line indicates the thematic area on which we can take action, by accessing the corresponding submenus.--------------------------→

Pressing the key [▲] and [▼] to scroll through the menus.

Pressing [ENTER] or keys [1] .to. [9] and [0] to enter the corresponding submenus.

```
CE408
1 RESET
2 REMOTE UNITS
3 SENSORS
4 INPUTS
5 ZONES
6 EVENTS
7 SETTINGS
```

⚠️ *Some submenus have an access level (Password) indicated by the symbol "lock" visible when the level was not enabled. To enable it, you must enter the specific password, as shown in Access menu. Carried out the enabling, the "locks" of the enabled level disappear.* 🔒

If you try to enter a submenu without entering the password, the access is denied. A higher access level also enables the lower one.---------------→

$\boxed{i}$ *The required access level is indicated, when necessary, to the left of the individual items of the manual. To enable them, with the password, see the menu Access.*

```
SENSORS

 STOP    LEVEL NOT
         ENABLED
         ACCESS
         DENIED
         Press Esc

7 DETAILS
```
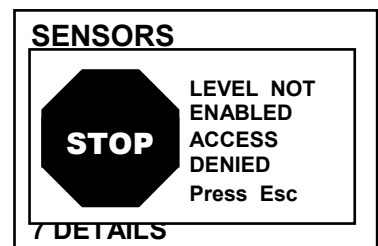
List and short description of the accessible menus and the required Password:

1-RESET	Performs silencing or Resetting the alarms and faults, not active and return to the main menu.
2- REMOTE UNITS	Enter a submenu where you can enable ①, disable ①, configure ②, modify ②, copy ②, delete ② and view the details of the remote units.
3-SENSORS	Enter a submenu where you can enable ①, disable ①, configure ②, modify ②, copy ②, delete ② and view the details of the sensors.
4- INPUTS	Enter a submenu where you can enable ①, disable ①, configure ②, modify ②, copy ②, delete ② and view the details of the logic input.
5-ZONE	Enter a submenu where you can enable ①, disable ①, configure ②, modify ②, delete ② and view the details of the zones.
6- EVENTS	Enter a submenu where you can view, all events or ones related only to faults / alarms.
7- SETTINGS	Enter a submenu where you can change, the language ①, general settings, the buzzer settings ①, date and time ① and settings the Modbus ② protocol.
8- ACCESS MENU	Enter a submenu where you can enable, disable, modify, the password, of the relative access levels ① ②.
9-SERVIZIO	Enter a submenu where you can perform electrical testing ② of the control unit manage the battery ② and display the status of the sensors ②. Start-Up is not accessible.
0-SD CARD	Enter a submenu where you can update ② the Firmware of the control panel via an SD Card, upload or save the configuration ②, save the events ② or store the values ① read by the detectors (Detectors' data logger) on the SD card (if inserted).

RESET

The **RESET** item in the main menu, performs the same function as the [RESET] key, reset the latched outputs to normal operation, but only if the Sensor or Zone or Input has returned from the alarm condition.

If there are active alarms, outputs configured as Silenceable (e.g. an alarm) return to normal operating conditions only for the **time of silencing.**

When performing the **RESET** (with key or from the menu), the display shows the confirm message for about 3 seconds, then the previous screen reappears automatically. --→
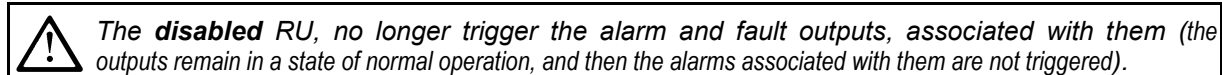
```
12:00  fri  04/11/2016

   ⊙          RESET

              PERFORMED
```
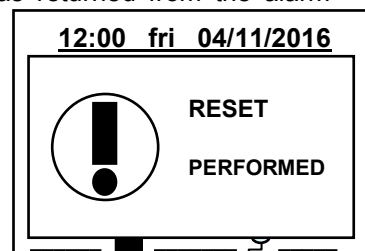
REMOTE UNITS

In this submenu you can manage remote units connected to the central unit.--→

Below, the individual items are described in detail, with the same level password, which is indicated in parentheses.

```
UNITÀ REMOTE
1 ENABLE
2 DISABLE
3 CONFIGURE
4 COPY
5 MODIFY
6 DETAILS
```
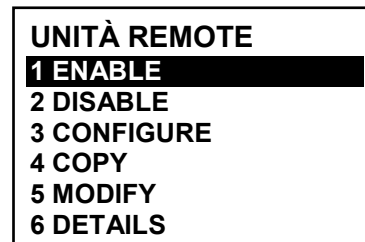
***RU* ENABLE/DISABLE (Level 1)**: These two items allow you to **enable** or **disable** one or more remote units, even simultaneously.

⚠ *The **disabled** RU, no longer trigger the alarm and fault outputs, associated with them (the outputs remain in a state of normal operation, and then the alarms associated with them are not triggered).*

On the main screen, the symbol "*****" appears to the left of the sensors belongs to the Remote Unit disabled.

To **enable** or **disable** a RU press the [ENTER] key on the relevant item, highlighted or using keys [1] or [2]. With [▲] and [▼] it is possible to select, if you take action on a single RU (first line) or on a group of RU (second line).--→

```
ENABLE

REM. UNIT  N.

FROM N.    TO N.
```
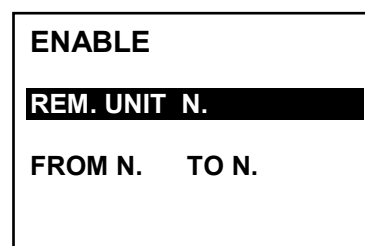
Pressing ENTER on the first line, will highlight the number of the RU. Then you choose the desired number, with ▲ and ▼ or using the numeric keys and then pressing ENTER the confirmation window will appear.
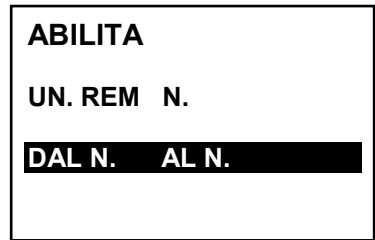
Pressing ENTER on the second line, will highlight the first RU's number of the group. --→

ABILITA

UN. REM   N.

DAL N.   AL N.

i *You can **enable** or **disable** all RU, including between two, both from the smallest to the largest number, and the reverse, If the two numbers of sensors were equal, the effect is identical to the management of a single RU.*

With ▲ and ▼ or using the number keys, you can choose the number of required RU, pressing ◄ and ► you change from one value to another and then, pressing ENTER confirmation window will appear. --→
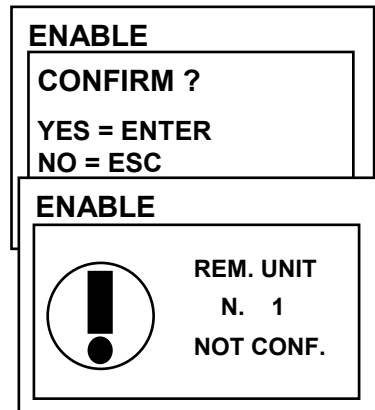
Press again ENTER to confirm or in case you want to go back, press ESC .

If the RU is not configured, a window notifies you that the operation is not possible.--→
Then the screen returns to the selection of the RU.

ENABLE

CONFIRM ?

YES = ENTER
NO = ESC

ENABLE

! REM. UNIT
N.   1
NOT CONF.

⚠ *If you have selected a group of RU, the ones that have been configured are **enabled or disable**. Dialog box appears to warn you that you have selected one or more RU not configured.*

If this procedure is correct, a window notifies you that the operation has been successful. --→
Then the screen returns to the beginning of the management for Enabled or Disable the RU.
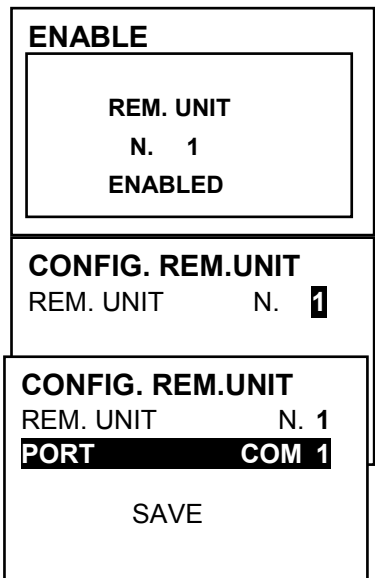
CONFIGURE (Level 2): To access the RU configuration, press ENTER on its item highlighted or simply press key **3** .

Then you can choose the RU's number to be configure, using ▲ and ▼ or the numeric key and pressing ENTER to confirm.------------------------→

With ▲ and ▼ you scroll through the various items and then pressing ENTER on the item, the value is highlighted to indicate that it is editable --→
To change the value use ▲ and ▼ or the numeric keys. then pressing ENTER I the change will be accepted. Pressing ESC will restores the previous value and the entire row is selected, indicating that you can only scroll through the items.

ENABLE

REM. UNIT
N.   1
ENABLED

CONFIG. REM.UNIT
REM. UNIT   N.   **1**

CONFIG. REM.UNIT
REM. UNIT   N. **1**
PORT   COM 1

SAVE

Description of items related to the Remote Units:

REM.UNIT: indicates the number of the RU installed. This number corresponds to the RU that must be set with the DIP-Switches (**please see the specific RU manual**).

⚠ *The central unit considers configurable, the numbers of the sensors according to the number of RU configured. The 1st RU manages the sensors from no. 9 to 16, the 2nd RU those from 17 to 24. The same concerns the relay outputs (if any), the 1st RU controls the relays from no. 10 to no. 17, the 2nd RU those from no.18 to 25.*

PORT: Sets the number of serial port which the RU is connected to. The control panel manages two RS485serial ports, COM 1 and COM 2. Please enter the correct port number.

i *Please note that if the number of RU or the port is not correct, the RU will result out of line.*

Then move on the SAVE and pressing [ENTER] confirmation window will appear. Press again [ENTER] to confirm or in case you want to go back, press [ESC].

If this procedure is correct, a window notifies you that the operation has been successful. ---→
Then the screen returns to the RU configuration.

CONFIG. REM.UNIT.

> REM. UNIT
> N. 1
> CONFIGURED

DELETE (Level 2): This item allows you to delete a RU or a group of RU. Press [ENTER] on the relevant item or simply press key [4].

⚠ ***WARNING: deleting a Remote Unit, will be deleted both all the sensors connected to it, both the corresponding relay outputs, if installed** (RU no.1 OUT 10 to 18 and for the RU n.2 OUT 19 ÷ 25).* ***IMPORTANT:** **If these relays were related to Sensors or Areas that do not belong to the RU cancelled, those outputs in the configuration will be set to 0 (no relay), then the outputs of these sensors will have to be reconfigured.***

Then using [▲] and [▼] it is possible to select, if you take action on a single RU (first line) or group of RU (second line). --------------------------→
Pressing [ENTER] on the first line, will be highlighted the number of the single RU. Then with numeric keys or with [▲] e [▼] you choose the number of RU you want delete, then pressing again [ENTER] will appear the confirmation window.
Pressing [ENTER] on the second line, will be highlighted the 1st RU of the group. --→

DELETE
REM. UNIT   N.
FROM N.   TO N.

DELETE
REM. UNIT   N.
FROM N.   TO N.

ⓘ *You can delete all RU, between 2. Both from the smallest number too largest, or the contrary. If two numbers, of zones were equal, the effect is equal to management of a single RU.*

With numerical keys or with [▲] and [▼] you choose the number of RU you want, with [◄] and [►] you can go from one extreme to another. Finally, pressing [ENTER] the confirmation window will appear. ----------------→

DELETE
CONFIRM ?
YES = ENTER
NO = ESC

Press [ENTER] to confirm or [ESC] to go back. Each time you press it, you will return to the previous step.
After confirmation, the window will notify that the operation has been successful.--→
Then the screen returns the beginning of the management the deletion.

DELETE

> REM. UNIT   N. 1
> DELETED

MODIFY (Level 2): this item allows modifying a RU already configured. Press [5] key or [ENTER] on its item. The parameters are modified and saved in a similar way to the configuration of the RU.

DETAILS: This item allows you to see parameters of a RU already configured, pressing [ENTER] on its item or simply press key [6]. -----------→
The voices are the same as the RU configuration. You can scroll through them using [▲] and [▼]. The status of the RU is indicated at the end of the screen: **Present** or **Out of Line** or **Disabled**.
In case you want to go back, press [ESC].

REM. UNIT DETAILS
REM. UNIT.　　N. **1**
PORT　　　　　N. **1**
STATUS　 :　**PRESENT**

SENSORS

In this submenu you can manage the sensors connected to the unit.

i *The 2-Configure menu, should only be used for a new sensor, to modify the parameters of an already configured sensor only use the 6-Edit menu.*

Below, the individual items are described in detail, with the same level password, which is indicated in parentheses.----------------------------------→

```
SENSOR
1 ENABLE
2 DISABLE
3 CONFIGURE
4 COPY
5 DELETE
6 MODIFY
7 DETAILS
```

ENABLE/DISABLE (Level 1): These two items allow you to enable or disable one or more sensors, even simultaneously.

⚠ The **disabled** sensors, no longer trigger the alarm and fault outputs, associated with them. (The outputs remain in a state of normal operation, and then the alarms associated with them are not triggered).

Disabled status is displayed on the main screen, next to the sensor, with asterisks "*********".

To **enable** or **disable** a sensor press the [ENTER] key on the relevant item, highlighted or using keys [1] or [2]. With [▲] and [▼] it is possible to select, if you take action on a single sensor or on a group of sensors.---→

The first line, is acting on a single sensor. Pressing [ENTER] on the first line, will highlight the number of the sensor. Then you choose the desired number, with [▲] and [▼] or using the number keys (see above) and then pressing [ENTER] the confirmation window will appear.

The second line, acts on a group of sensors.----------------------------------→

Pressing [ENTER] on the second line, will highlight the first sensor's number of the group.

```
ENABLE

SENSOR  N.

FROM N.    TO N.
```

```
ENABLE

SENSOR  N.

FROM N.    TO N.
```

i *You can **enable** or **disable** all sensors, including between two, both from the smallest to the largest number, and the reverse.*

With [▲] and [▼] or using the number keys, you can choose the number of required sensor, pressing [◄] and [►] you change from one value to another and then, pressing again [ENTER] confirmation window will appear. --→

Press [ENTER] to confirm. In case, you want to go back, press [ESC]. Each time you press this key, you will return to the previous step.

If the sensor or one of the group's sensors is not configured, a window notifies you that the operation is not possible.----------------------------------→
Then the screen returns to the selection of the sensor.

```
ENABLE

  CONFIRM ?

YES = ENTER
NO = ESC
```

```
ENABLE

STOP   SENSOR
       N.  1
       NOT CONF.
```

⚠ *If you have selected a group of sensors, the ones that have been configured are enabled or disable.*

If this procedure is correct, a window notifies you that the operation has been successful. --→
Then the screen returns to the beginning of the management for Enabled or Disable.

```
ENABLE

   SENSOR
   N.    1
   ENABLED
```

CONFIGURE (Level 2): There are two ways to configure a sensor. The first allows you to choose between those **preconfigured sensors**, the second allows a **generic configuration**. -------------------------------→
In the first case, you can configure only the models of our production (*see list in Table on Page 41*), which have some parameters fixed (*non-editable*) and other editable, all have already been set, including the configuration of the outputs. In the second case, you can manually enter all the parameters, which are freely editable.
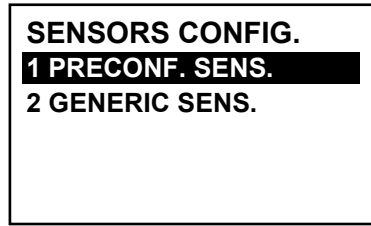
```
SENSORS CONFIG.
1 PRECONF. SENS.
2 GENERIC SENS.
```

⚠ *For safety, the outputs are configurable only when configuring or changing a sensor, a logic input or a zone. You cannot configure the outputs separately.*

Configuring PRECONFIGURED SENSOR: To access the configuration, press [ENTER] on the relevant item highlighted or simply press key [1].

You can choose the sensor's number to be configure, using [▲] and [▼] keys or the numeric key and pressing [ENTER]. -----------------------------------→

```
PRECONFIG. SENS.
SENSOR  N.    1
```
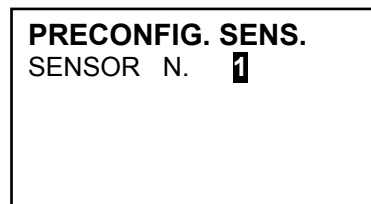
⚠ *To avoid errors, the sensors of the RU not configured, are not displayed.*

ℹ *To configure a dual sensor (**TS255 series**), you must use two consecutive sensors (1-2, 2-3, 3-4, etc.); starting with the first of the two. You cannot start from the sensor n. 8.*

⚠ *For safety, if you choose a previously configured sensor, the screen that warns of the possible error, with you can confirm with [ENTER] and continue, configuring it as if it were a new sensor, instead of pressing [ESC] will cancel the operation and you can choose another sensor.*

```
SENS. PRECONF.
┌─────────────────┐
│ SENSORE UTILIZ. │
│  CONTINUARE ?   │
│ SI= ENTER       │
│ NO= ESC         │
└─────────────────┘
```
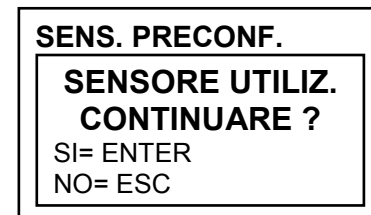
Then you can choose the model number.
The code of our products consists of 2 letters followed by 3 numbers, and, if necessary, by other letters (2 to 4). -------------------------------------→
To choose the desired one, is followed the same structure, must be chosen before the first two letters, then 3 numbers and then the other letters (*if present*).

With [▲] and [▼] you can scroll between the groups of letters and numbers that make up the model, with [ENTER] you can confirm your choice and move on. With [ESC] you can go back.

```
PRECONFIG. SENS.
SENSOR  N.    1
MODEL:  IR
        SE
        TS
```

```
PRECONFIG. SENS.
SENSOR  N.    1
MODEL:  TS210
        TS220
        TS255
        TS292
        TS293
```
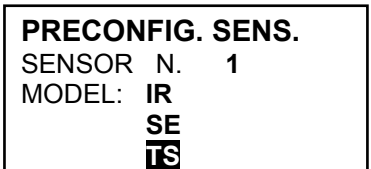
Example: *for model **TS292KM**, first select **TS** and confirm by pressing [ENTER]. Then select the second item **TS292** and confirm with [ENTER] key. Finally complete the selection by selecting the complete entry **TS292KM** and finally confirm with [ENTER].*

```
PRECONFIG. SENS.
SENSOR  N.    1
MODEL:  TS292KB
        TS292KG
        TS292KI
        TS292KM
```
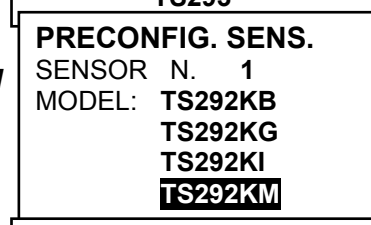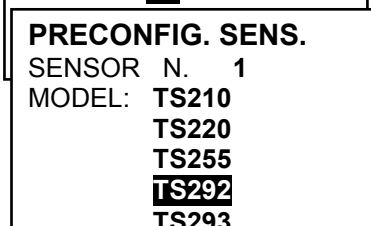
After choosing the model, its configuration is automatically loaded.→
To scroll through the different items, use [▲] and [▼] keys. Pressing [ENTER] on the item, the value is highlighted to indicate that it is editable.

To change the value use [▲] and [▼] or the numeric keys, while using [◀] and [▶] you change from to another field in the same row (*where applicable*). Then pressing [ENTER] the change will be accepted. Pressing [ESC] will restores the previous value and the entire row is selected, indicating that you can only scroll through the items.

```
PRECONFIG. SENS.
SENSOR  N.    1
MODEL:  TS292KM

TAG:
TYPE:    Flammable
GAS:     METHANE
UoM:     % LEL
```
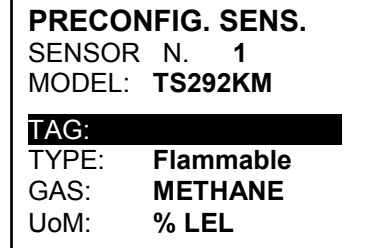
Description of items related to the Preconfigured sensor:

TAG	It is a **TAG** than 10 characters, selectable one at a time, where you can write a note or a reminder for a sensor (e.g. FLOOR 2, BOILER, etc.).
AL.	Defines the type of **ALARM** of the sensor and establishes how they should be set the thresholds of the various alarm levels. In the specific: • *INCREASING*: The alarm levels will be set in ascending order, i.e. *SENSOR SCALE ≥ ALARM 3 ≥ ALARM 2 ≥ ALARM 1 ≥ FAULT (current <1mA)*. All our sensors, except Oxygen detectors, are set with this type of alarm. • *DECREASING*: The alarm levels must be set in descending order, i.e. *FAULT (current <1mA) ≤ ALARM 3 ≤ ALARM 2 ≤ ALARM 1 ≤ SENSOR SCALE.* Only our Oxygen detectors are set with this type of alarm. • *OXYGEN*: The alarm levels should be set to detect deficiency or excess of the normal presence of oxygen in the air (20.9% v / v), i.e. *FAULT (current <1mA) ≤ ALARM 2 ≤ ALARM 1 ≤ 20.5% volume and 21.5% volume ≤ ALARM 3 ≤ SENSOR SCALE.* Our Oxygen detectors can be set with this type of alarm.

i *Only for Oxygen detectors, Alarm 2 is displayed as AL↓, while the alarm 3 as AL↑*

- *TLV:* (*Threshold Limit Values*) are the exposure limit values for toxic substances to which workers may be exposed every day for the entire duration of working life without harmful effects. Must be set in ascending, i.e. *SENSOR SCALE ≥ ALARM 3 ≥ ALARM 1 ≥ ALARM 2 ≥ FAULT (current <1 mA).* In this case, each alarm level is a value obtained with a temporal average. TLVs in detail are:
  - **ALARM 1 = TLV-TWA (T**ime-**W**eighted **A**verage**)** is the *time-weighted average concentration* for a conventional 8-hour workday and a 40-hour workweek, to which it is believed that nearly all workers may be repeatedly exposed, day after day, without adverse effect. This alarm is triggered when the weighted average concentration within 8 hours exceeds the set threshold.
  - **ALARM 2 = TLV-STEL (T**hreshold **L**imit **V**alue–**S**hort-**T**erm Exposure Limit**)** is the concentration to which it is believed that workers can be *exposed continuously for a short period* of time without suffering from irritation, chronic or irreversible tissue damage, or narcosis. STEL is defined as a 15-minute TWA exposure, which should not be exceeded at any time during a workday. This alarm is triggered when the weighted average concentration in the last 15 minutes, exceeds the set threshold.
  - **ALARM 3 = TLV-C (T**hreshold **L**imit **V**alue-**C**eiling**)** is the concentration that *should not be exceeded* during any part of the working exposure. This type of alarm is triggered when the instantaneous concentration exceeds the set threshold. Are not carried out, time weighted average.

i *Only our sensors for detection of toxic gases can be set up with this type of alarm.*

- *PARKING EN*: The alarm levels should be set so increasing, i.e. *SENSOR SCALE ≥ ALARM 3 ≥ ALARM 2 ≥ ALARM 1 ≥ FAULT (current <1 mA).* In this case, the first two levels of alarm representing a value obtained with a time average between 5 and 60 min. (*according to standard EN 50545-1 for the car parks*). This value can be set via the parameter **TWA**. Level 3, however is instantaneous.

i *This type of alarm (see Table 3) can only be set with our sensors for toxic gases in car parks car (series TS220 and TS293 / EC/EN/EN2) or the dual sensors (series TS255).*

- *ZONE:* Sets the area that will be associated with the sensor. The areas available are 2. The area **0** means that the sensor is not associated in any area
- *TWA:* This parameter can only be changed in the sensors where the alarm is **PARKING EN** (*in all other cases is fixed at zero*). Is how many minutes are carried out time-weighted average for the activation of the 2 alarms? The value can be chosen between 5 and 60 min. (*in accordance with standard EN50545-1 for the car parks*).
- *THRESHOLD:* Indicates the value, above which, the corresponding alarm is activated.

⚠ *The thresholds have a hysteresis to prevent the output will cycle on and off continuously (concentration fluctuates around the threshold value). This hysteresis is 20% of the value of the set threshold, for all models of sensors. Only exception is for models for detection of oxygen (TS220EO/TS293EO/TS593EO) whose hysteresis is 2%. The level of fault (FAULT) has a hysteresis of 1mA, so a sensor failure comes out when his current exceeds 2mA.*

Description of the items relating to the outputs:

OUTPUT N.   Indicates the number of the output (*relay*). The configurable outputs ranging from 1-9. The output of **0** indicates that there is no output associated with that alarm level.

⚠️   ***If the output boards are not properly connected or mounted, for safety, the corresponding outputs cannot be configured.***
- *If the board ES414 is not connected to the terminal **OUT 1-4** outputs will only be available from 5 to 9.*
- *If the board ES414 is not connected to the terminal **OUT 5-8** outputs will only be available from 1 to 4 and 9.*
- *If it was not connected any board ES414, the only output available is 9.*
- *If output cards have not been installed into the Remote Units, the corresponding relay will not be available. (for the 1st RU: OUT 10 to 18 and for the 2nd RU: OUT 19 to 25.*

The outputs have to configure in a unique way. So, if you were choosing the same output for different alarm levels will be considered valid, only the configuration of the higher alarm. You cannot choose the same output for a level of alarm and fault

---

SILENCEABLE Indicates that the output is disabled, the **Silence time**, when **RESET** is performed. This function can be used for the outputs connected to audible warning devices

SILENCE T.   Indicates the **Silence time** (adjustable from 0 to 300 seconds), so Silenceable output is cancelled by **RESET**.

DELAY ON   is the relay delay (Adjustable from 0 to 300 seconds) associated with an alarm threshold.

ℹ️   *If the alarm type was selected as **PARKING EN** and you were programming the output on the threshold 3, this delay can only be set from 60 to 300 seconds*

DELAY OFF   The first item **DELAY OFF** (adjustable from 0 to 300 seconds), is the relay's delay, to return to normal status, when it ends the alarm condition.

TIME ON   The second item, **TIME ON** (adjustable from 0 to 300 seconds) can only be used to stop the alarm output after a preset time, even if the sensor remains above the alarm threshold set. (It *can be used to activate devices that cannot be powered on or to send a pulse to a phone-dialer*).

⚠️   The two functions **HISTER.OFF** and **TIME ON**, cannot be used together, or with the **SAVE** function. *For safety, if the delay is set other than zero, the parameter stores will be automatically changed to **NO**.*

POS.LOGIC   setting it to **YES**, indicates that the output operation is in **POSITIVE LOGIC** or the relay is normally activated, so, in case of failure automatically moves into the position of the alarm, and then the NC contact becomes NO.

LATCHED   setting it to **YES**, indicates that the relay remains in alarm, even if the sensor back below the alarm set. To bring it back into the normal, **RESET** must be performer.

⚠️   *The function **LATCHED**, cannot be used simultaneously with **DELAY OFF** or **TIME ON**. For safety, if the parameter **LATCHED**, was set **YES**, the parameters **DELAY OFF** and **TIME ON**, will be automatically set to Zero*

At the end of the screen is written **SAVE** to save the configuration entered. Pressing [ENTER] the confirmation window will appear. Press again [ENTER] to confirm, or press [ESC] to go back and make changes.

ℹ️   *Only for double sensors, TS255 series, at the end of the screen, the message **CONTINUE** appears. Because in this case, must be programmed two consecutive sensors. Only after the second configuration, you can save the configuration entered.*

PRECONFIG. SENS.
ERROR CONFIGURATION CONTROL PARAMETERS

If the set thresholds were in contrast with the criteria for this type of alarm set, or if it had selected the same output for one of the alarm levels and the Fault, a warning message will appear. --------------------------------------→
Then the screen returns to the configuration of the sensor.

If this procedure is correct, a window notifies you that the operation has been successful. --→

Then the screen returns to the selection of the type of configuration.

```
┌─────────────────────────┐
│ PRECONFIG. SENS.        │
│ ┌─────────────────────┐ │
│ │      SENSOR         │ │
│ │      N.   1         │ │
│ │    CONFIGURED       │ │
│ └─────────────────────┘ │
└─────────────────────────┘
```

Configuring a GENERIC SENSOR: to proceed with the configuration, press [ENTER] on its line or simply the key [2].

Then, in the corresponding screen, with [▲] and [▼] key or with the numerical ones and then pressing [ENTER] you can choose the number of the sensor to be configured.---→

```
┌─────────────────────────┐
│ GENERIC SENSOR          │
│ SENSOR   N.     1       │
│                         │
│                         │
│                         │
└─────────────────────────┘
```

Then the model is set as **GENERIC** and it is possible, move on to setting of all parameters.
The parameters should be inserted similarly to the configuration of the Preconfigured Sensor. In this case, however, you can also change the following items:

Description of the items relating to the Generic Sensor:

TYPE	It indicates the gas that the sensor will detect. You can choose between <u>Flammab</u>. (Flammable), <u>Toxic</u>, <u>Vital</u> (e.g. Oxygen), <u>Asphyxian</u>. (e.g. CO_2 is asphyxiating) and *Refriger*. (Refrigerant e.g. R134a).
GAS	It indicates the name of the gas for which the sensor has been calibrated. You can choose between METHANE, LPG, PETROL (*Petrol vapours*), HYDROGEN, VARIOUS (*various gases*), STYRENE, ACETYLENE, AMMONIA, *CO*, CO_2, H_2S, *NO*, NO_2, SO_2, *HCN, OXYGEN, CL_2* e *HCL*.
UoM	It indicates the **unit of measurement** of the concentration detected by the sensor. You can choose between *%LEL* (Lower Explosive Limit), *%vol* (Volume), *ppm* (parts per million), *ppb* (parts per billion) and *°C* (temperature in degrees Celsius).
RANGE	It shows the sensor's **full scale**. It consists of four digits and you can also set the decimal point. The numbers allowed, ranging from a minimum of **1**, **0.1** or **0.01** up to a maximum of **9999**, **99.9** or **9.99**. Other values or combinations are not accepted and, if entered, will display the previous value

With the [◄] and [►] you can move from one digit to another, while you can change the value with [▲] e [▼] or with the numerical ones and then press [ENTER] to confirm.

[*i*] *The configurations of the full scale that use a number of digits less than 4 must be preceded by a <u>space</u>*

*Example: To obtain a **Range** of **90** to enter **space**, **space**, **9**, **0**. Instead, the values **space**, **9**, **0**, space or **9**, **0**, **space**, **space**, will not be accepted.*

COPY (Level 2): This item allows you to copy the configuration of a sensor to another sensor or group of sensors.

To copy a sensor, press [ENTER] on its item or simply the key [4].

Then you enter the screen where pressing [ENTER] and using [▲] and [▼] keys or the numerical ones, you can choose which sensor to copy.------→

After pressing [ENTER] again to confirm, you can use the [▲] and [▼] key, choose whether to copy on a single sensor or in a group.-------------------→

The first line acts on a single sensor. Pressing [ENTER] on the first line, will be highlighted the number of the sensor.

Then press [▲] and [▼] keys or the numerical ones, to select the desired number, then press [ENTER] will appear the confirmation window.

```
┌─────────────────────────┐
│ COPY                    │
│                         │
│ SENSOR   N.     1       │
│                         │
│                         │
│                         │
└─────────────────────────┘
```

```
┌─────────────────────────┐
│ COPY                    │
│                         │
│ SENSOR   N.     1       │
│ ON   SENSOR N.          │
│                         │
│ FROM N.   TO N.         │
└─────────────────────────┘
```

The second line, acts on a group of sensors. Pressing [ENTER] on the second line will be highlighted the number of the first sensor group. -----→

i *You can copy all sensors, between 2. Both from the smallest number too largest, or the contrary. If two numbers, of sensor were equal, the effect is equal to the management of the single sensor*

COPY

SENSOR N. **1**

ON SENSOR N.

FROM N.   TO N.

With [▲] and [▼] key or with the numerical ones, you choose the number of sensor you want, then with the keys [◄] and [►], you can go from one extreme to another. Then press [ENTER], the confirmation window will appear.--→

COPY

CONFIRM ?

YES = ENTER
NO = ESC

Press [ENTER] to confirm. To go back, press [ESC]. Each time you press it, you will return to the previous step.

If the sensor you want to copy is not configured, a window notifies you that the operation is not possible.--→

Next, the screen returns to the choice of sensor.

COPY

STOP **SENSOR**
        N. 1
        NOT CONF.

If this procedure is correct, a window notifies you that the operation has been successful. --→

Then the screen returns to the beginning of the copy management.

COPY

SENSOR   N. 1
        COPIED
FROM N. 2 TO N. 4

DELETE (Level 2): This item allows you to delete the configuration of a **sensor** or a **group of sensors**.

To delete a sensor, press [ENTER] on the relevant item or the key [**5**].

Using [▲] and [▼] keys, you can choose which sensor or group to delete. --→

The first line acts on a single sensor. Pressing [ENTER] on the first line, will be highlighted the number of the sensor.

With [▲] and [▼] key or with the numerical ones, you choose the number of sensor you want, then pressing [ENTER] will appear the confirmation window.

The second line acts on a group of sensors.--------------------------------→

Pressing [ENTER] on the second line, will be highlighted the 1st sensor number of the group.

DELETE

SENSOR N.

FROM N.   TO N.

DELETE

SENSOR N.

FROM N.   TO N.

i *You can delete all sensors, between 2. Both from the smallest number too largest, or the contrary. If two numbers, of sensor were equal, the effect is equal to the management of the single sensor*

With [▲] and [▼] key or with the numerical ones, you choose the number of sensor you want, with the [◄] and [►] keys, you can go from one extreme to another. Then press [ENTER], the confirmation window will appear. --→

DELETE

CONFIRM ?

YES = ENTER
NO = ESC

Press [ENTER] to confirm. To go back, press [ESC]. Each time you press it, you will return to the previous step.

After confirmation, the window will notify that the operation has been successful.--→

Then the screen returns the beginning of the management the deletion.

DELETE

SENSOR   N. 1
        DELETED

MODIFY (Level 2): This item allows modifying a sensor already configured.

To modify a sensor press [ENTER] on its entry or simply press the key [6].

The parameters are modified and saved similarly to the configuration Preconfigured, but in this case, it is not possible to change the following items: **MODEL**, **TYPE**, **GAS**, **UoM**, **RANGE**, **AL**.

DETAILS: This item allows you to see parameters of a sensor configured.

To see the details of a sensor, press [ENTER] on its entry. In case you want to go back, press [ESC] or

simply press the key [7]. To go back, press [ESC].

Choosing the sensor, the voices are the same as the configuration of a sensor Preconfigured. You can scroll through them using [▲] and [▼].

Then at the end of the screen, is also referred to the enable status of the sensor.

Finally, selecting the row containing the number, if it is different from zero, you can press [ENTER] to view its details. ----------------------------------→

THRESHOLD__1:	**7**
OUTPUT_1 N. :	**0**
THRESHOLD __2:	**10**
OUTPUT_2 N. :	**2**
THRESHOLD __3:	**20**
OUTPUT _3 N.:	**3**

The items of the details can be scrolled with [▲] and [▼] keys. In addition, at the end of the screen, displays the status of silencing output.

LOGIC INPUT

In this submenu is possible to manage the logic input connected to the unit. ---→

[i] *It is recalled that the central CE424P, has only one logic input.*

INPUTS
1 ENABLE
2 DISABLE
3 CONFIGURE
4 DELETE
5 MODIFY
6 DETAILS

ENABLE/DISABLE (Level 1): These two items allow you to **enable** or **disable** the only one *Logic input*. The status **Disabled** is displayed on the main screen, next to Input, the symbol "*****".

⚠ *The input **disabled**, do not activate the relay output associated with it. The output remains in a state of normal operation and therefore the devices attached to them are not triggered*

To **Enable** or **Disable** the Logic Input, press [ENTER] on the highlighted item or

simply pressing the key [1] or [2].

Pressing [ENTER] the confirmation window will appear--------------------------→

Press [ENTER] to confirm or to go back, press [ESC].

If the Logic Input were not been configured, a window notifies you that the operation is not possible e then the screen returns to the selection of Input. --→

If this procedure is correct, a window notifies you that the operation has been successful. ---→

Then the screen returns the beginning of the management the Enable or Disable.

ENABLE
INPUT N.   **1**

ENABLE
CONFIRM ?
YES = ENTER
NO = ESC

ENABLE
❗   **INPUT**
N.   1
NOT CONF.

ENABLE
INPUT
N.   1
ENABLED

CONFIGURE (Level 2): Press ⌈ENTER⌉ on the item or simply the key ⌈3⌉ to configure the Logic Input.

⚠ *For safety, the outputs are configurable only in configuration or modification of a Sensor, a Logic Input or a Zone. You cannot configure the outputs separately.*

Press ⌈ENTER⌉ to configure the Logic Input.--→

ⓘ *It is recalled that the central CE424P, has only one logic input.*

```
INPUT   CONFIG.
 INPUT      N.  1
```

Use ⌈▲⌉ and ⌈▼⌉ to scroll through the various items and then pressing ⌈ENTER⌉ is highlighted only the value, indicating that you can change it. -----→
Then, with the numeric keys or with the ⌈▲⌉ and ⌈▼⌉ you can change the values, while with ⌈◄⌉ and ⌈►⌉ you move from field to field on the same line (*where applicable*) and then pressing ⌈ENTER⌉ the change is accepted.

```
 INPUT   CONFIG.
 INPUT            N.   1
 ACTIVE    :        LOW
 OUTPUT N.:           0
 SILENCE MODE :      NO
 SILCENCE T. :       0s
 DELAY   ON :        0s
 DELAY   OFF :       0s
```

While pressing ⌈ESC⌉ restores the previous value and the entire line is highlighted, indicating that you can only scroll through the items. The following explains the various items in detail.
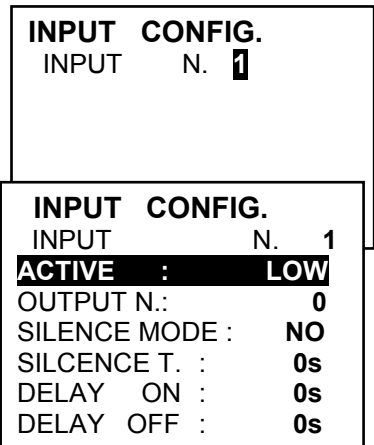
Description of items relating to Logic Input:

ACTIVE	Indicates how we consider, activated the entrance. **LOW** means that it is active when it is short-circuited (*e.g. pushbutton*). **HIGH** means that it is active when open.

Description of items relating to Outputs (relays):

ⓘ *This description is one written in the chapter CONFIGURE SENSORS. Please see page 16 (OUTPUT No, SILENCEABLE, SILENCE T., DELAY ON, DELAY OFF/TIME ON, POS.LOGIC, LATCHED).*

At the end of the screen, is written **SAVE**, to save the configuration inserted. Pressing ⌈ENTER⌉ the confirmation window will appear.

Press again ⌈ENTER⌉ to confirm. In case you want to go back, press ⌈ESC⌉.

After having confirmed, a window notifies you that the operation has been successful. --→

Then the screen returns the beginning of the management Configure Logic Inputs.

```
INPUT   CONFIG.

       INPUT
       N.  1
    CONFIGURED
```
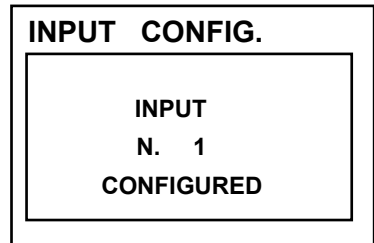
DELETE (Level 2): This item allows you to delete the configuration of the *Logic Input*.

To delete the input, press the key ⌈4⌉ or ⌈ENTER⌉ on the relevant highlighted item. Pressing again ⌈ENTER⌉ the confirmation window will appear. -----------→

```
DELETE
INPUT      N.  1
```

```
DELETE
  CONFIRM ?
 YES = ENTER
 NO = ESC
```

Press ⌈ENTER⌉ to confirm or to go back, press ⌈ESC⌉. -----------------------------→

If this procedure is correct, a window notifies you that the operation has been successful. --→
Then the screen returns the beginning of the Delete item management.

```
DELETE

  INPUT        N. 1
    DELETED
```
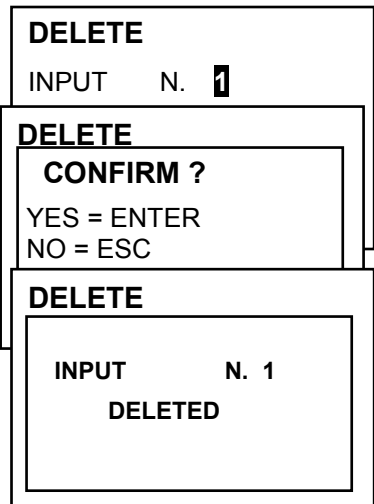
MODIFY (Level 2): This item allows modifying a Logic input already configured, press the key [5] or [ENTER] on its item. The parameters are modified and saved similarly to the configuration.

DETAILS: This item allows you to see parameters of a Logic input already configured, press the key [6] or [ENTER] on its item. The voices are the same as the configuration of the Logic Input, are shown entries for the input and the number of the corresponding output. In case you want to go back, press [ESC].

You can scroll through them using [▲] and [▼]. Then at the end of the screen, is also referred to its status, and the enabling status of the Logic Input.

Finally, selecting the row containing the output number, if it is different from zero, you can press [ENTER] to view its details. ----------------------------→

The items of the details can be scrolled with [▲] and [▼] keys. In addition, at the end of the screen, displays the status of silencing output.

```
 INPUT DETAILS
INPUT              N. 1
ACTIVE      :      LOW

OUTPUT   N. :         2

STATE       :      HIGH
ENABLE      :      YES
```

ZONES

In this submenu is possible to manage the Zones in which you can associate groups of sensors, connected to the unit. -------------------------→
The zones can be used in different ways compatible with the number of available outputs:

A - To group more sensors of the same model, and using for all the same outputs (relay) only configured in the area. In the individual sensors can only be configured the alarm thresholds, setting the number of outputs to '0 '. In this case when the sensors belonging to the area, exceed the thresholds set, also how has been made the choice of operating logic, will trigger the related relay outputs...

B - To group different models of sensors, placed in the same room or on the same floor. In the individual sensors can only be configured the alarm thresholds and relays outputs, and in the area is possible set the relay outputs common to all these sensors.

```
ZONES
1 ENABLE
2 DISABLE
3 CONFIGURE
4 DELETE
5 MODIFY
6 DETAILS
```

ENABLE/DISABLE (Level 1): These two items allow you to **enable** or **disable** one or more Zones, even simultaneously.
Disabled status is displayed on the main screen, next to the Zone, with asterisks "*****".

> ⚠ The **disabled** Zones, no longer trigger the alarm and fault outputs, associated with them (the outputs remain in a state of normal operation, and then the alarms associated with them are not triggered).

To **Enable** or **Disable** a zone, press the key [1] or [2] or the [ENTER] key on the relevant item.
With [▲] and [▼] it is possible to select, if you take action on a single zone or on a group of Zones. ---→
The first line, is acting on a single Zone. Pressing [ENTER] on the first line, will highlight the number of the zone. Then, with the numeric keys or with [▲] and [▼] you can choose the desired number and pressing [ENTER] the confirmation window will appear.

The second line, acts on a group of Zones, pressing [ENTER] on the second line, will highlight the first zone's number of the group.----------------------→

```
ENABLE

ZONE N.

FROM N.    TO N.
```

```
ENABLE

ZONE N.

FROM N.    TO N.
```

> ℹ *You can **enable** or **disable** all Zones, including between two, both from the smallest to the largest number, and the reverse.*

With [▲] and [▼] key, you can choose the number of required Zone, pressing [◄] and [►] you change from one value to another and then pressing again [ENTER] confirmation window will appear. ------------------------→

Press [ENTER] to confirm or in case, you want to go back, press [ESC].

If the zone or one of the group's Zones is not configured, a window notifies you that the operation is not possible. ---------------------------------→
Then the screen returns to the selection of the Zone.

⚠️ *If you have selected a group of Zone, the ones that have been configured are enabled or disable. Dialog box appears to warn you that you have selected one or more zones are not configured.*

If this procedure is correct, a window notifies you that the operation has been successful. --→
Then the screen returns to the beginning of the management for Enabled or Disable.

```
ENABLE

  CONFIRM ?

 YES = ENTER
 NO = ESC
```

```
ENABLE

 (!)        ZONE
            N.  1
         NOT  CONF.
```

```
ENABLE

            ZONE
            N.  1
         ENABLED
```

CONFIGURE (Level 2): Press [ENTER] on the item to configure a Zone.

⚠️ *For safety, the outputs are configurable only when configuring or changing a sensor, a logic input or a zone. You cannot configure the outputs separately.*

Using the numeric keys or the [▲] and [▼] and then pressing [ENTER] you can choose the Zone's number to be configured.------------------------------→

Then, use the [▲] and [▼] key, to scroll through the different items. Pressing [ENTER] on the item, the value is highlighted to indicate that it is editable. --→
Use the numeric keys or [▲] and [▼] to change the value, while using [◄] and [►] you can move from field to field on the same row (*where applicable*). Then pressing [ENTER] the change will be accepted. Pressing [ESC] will restores the previous value and the entire row is selected, indicating that you can only scroll through the items.

```
ZONE  CONFIG.
ZONE N.          1
```

```
ZONE  CONFIG.
ZONA     N.   1
LOGIC :          AND
OUTPU_1_THRESH_1
OUPUT N. :         0
SILENCE MODE :    NO
SILENCE T.  :     0s
IST.ON      :     0s
```

Description of items related to the Zone:

LOGIC It defines the logical operator to activate of the outputs (*relay*) on the thresholds:
- **AND (***logical product***):** The outputs relating to thresholds, are triggered only when all the sensors in the area exceeds its threshold.
- *OR (logical sum)***:** The outputs relating to thresholds are triggered when one or more sensors in the area exceed its threshold. (It is the **normal operation**, each sensor activates the alarms at exceeding of the set threshold)
- *CORR.CON* (*Correspondent Consecutive***):** The outputs relating to thresholds are triggered when two consecutive sensors in the area exceed its threshold. The last and the first are not considered consecutive (e.g. installation along a corridor).
- *CIRC.CON* (*Circular Consecutive***):** The outputs relating to thresholds are triggered when two adjacent sensors in the area exceed its threshold. The last and the first are considered consecutive (e.g. installation in a circle).
- *PARK-ITA (Only for Italy, Parking in accordance with the Italian Ministerial Decree):* The outputs relating to thresholds are triggered when two sensors belonging to the zone exceeds its threshold. This configuration should be used if you have to program the control panel according to **DM 02/01/1986 (point b of paragraph 3.9.3)** valid only in Italy for the car parks.

ⓘ *Please note that the CE424 has two outputs for each level of alarm, and a fault output, for a total of 7 outputs configurable for each zone.*

Description of the items relating to the outputs:

⚠️ *This description is the same as one written in the chapter CONFIGURE SENSORS. Please see page 16 (OUTPUT N, SILENCEABLE, SILENCE T., DELAY ON, DELAY OFF/TIME ON, POS.LOGIC, LATCHED).*

At the end of the screen is written **CONTINUE** to proceed in the configuration (*in the configurations of outputs relative to threshold 1 and threshold 2*). Press again ENTER, you can continue until, in the configuration screen of the outputs on the threshold 3, and Fault, there is the message **SAVE**, that allows you to save the configuration entered.

```
ZONE  CONFIG.

      ZONE
    N.   1
  CONFIGURED
```

Pressing ENTER the confirmation window will appear. Press again ENTER to confirm, or press ESC to go back and make changes.

If this procedure is correct, a window notifies you that the operation has been successful. --→
Then the screen returns to the Zone configuration.
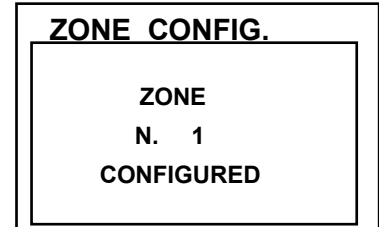
DELETE (Level 2): This item allows you to delete a Zone or a **group of Zones.**

⚠️ *WARNING: deleting a zone, relay outputs, configured no longer be available.*

To delete a zone, simply press key **4** or ENTER on the relevant item. Then using ▲ and ▼ key, you can choose which Zone or group to delete. ---→
The first line acts on a single Zone. Pressing ENTER on the first line, will be highlighted the number of the single zone. Then with numerical keys or with ▲ and ▼ you choose the number of Zone you want, then pressing again ENTER will appear the confirmation window.

Pressing ENTER on the second line, will be highlighted the 1st zone number of the group.---→

```
DELETE

ZONE        N.

FROM N.    TO N.
```

```
DELETE

ZONE   N.

FROM N.    TO N.
```

⚠️ *You can delete all zones, between 2. Both from the smallest number too largest, or the contrary. If two numbers, of zones were equal, the effect is equal to management of a single Zone.*

With numeric keys or with ▲ and ▼ you choose the number of zone you want. With ◀ and ▶ you can go from one extreme to another. Then pressing ENTER the confirmation window will appear.------------------→

```
DELETE

  CONFIRM ?

YES = ENTER
NO = ESC
```

Press ENTER to confirm, or press ESC to go back. Each time you press it, you will return to the previous step.

After confirmation, the window will notify that the operation has been successful.---→

```
DELETE

    ZONE        N.  1
      DELETED
```

Then the screen returns the beginning of the management the deletion.
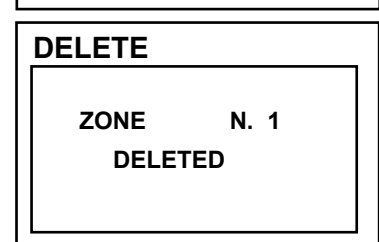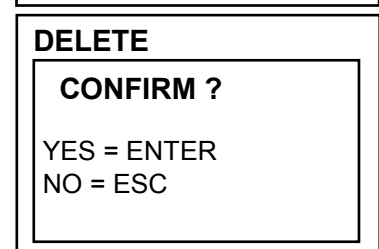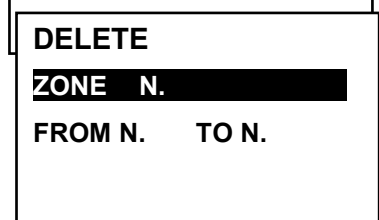
MODIFY (Level 2): This item allows modifying a Zone already configured. Press ENTER on its item or simply press key **5**. The parameters are modified and saved in a similar way to the configuration of the Zone.

DETAILS: This item allows you to see parameters of a Zone already configured, pressing ENTER on its item or simply press key **6**. The voices are the same as the configuration of the Zones, are shown the zones and the number of the corresponding output. In case you want to go back, press ESC.
You can scroll through them using ▲ and ▼. Then at the end of the screen, is also referred to its status, and the enabling status of the Zone.

Finally, selecting the row containing the output number, if it is different from zero, you can press [ENTER], to view its details. ----------------------------→

The items of the details can be scrolled with [▲] and [▼]. In addition, at the end of the screen, displays the status of silencing output.

```
  ZONE   DETAILS
 ZONE              N. 1
 LOGIC:            AND

 OUTPU_1_THRESH_1
 OUTPUT   N. :        2
 OUTPU_2_THRESH_1
```

EVENTS

In this submenu is possible to view the last **100** stored events. -----------→

ALARMS/FAULTS: are only events related to **faults** and **alarms** of the sensors, of the inputs, outputs and related zones. They are sorted from newest to oldest.

```
 EVENTS
 1 ALLARMS/FAULTS
 2 ALL ONES
```

ⓘ *The control unit stores the events in a cyclic manner, i.e., after 100, the oldest event is deleted.*

To view the Events, press [ENTER] on its item or simply press key [1]. The screen shows the date, time and type of event. The events are displayed in groups of on the same day starting with the most recent.

Events and Days can be scrolled using [▲] and [▼] key.

- **First line**: is the event date, in the format dd / mm / yy (Day / Month / Year).
  Each subsequent line is an event
- **First part**: it is the time of the event, in the format hh / mm / ss (Hours / Minutes / Seconds).
- **Second part**: the event type is as follows:
  o **First letter:** indicates the object to which the event refers:
    ▪ **'S':** Sensor.
    ▪ **'I':** Logic Input.
    ▪ **'Z':** Zone.
    ▪ **'O':** Output (relay).
  o **Two numbers:** Is the number of the object to which the event refers.
  o **Status**: This is the new state reached by the object that caused the event. Specifically:
    ▪ The Logic Inputs can have 2 states: **ACT**. (*Active*) or **DEA**. (*Deactive*).
    ▪ Outputs (relay) can have 3 states: **ACT**. (Active), **DEA**. (*Deactive*), **SIL**. (*Silenced*).
    ▪ Sensors and Zones can have 6 states: **FLT** (*Fault*), **NORM** (*Normal*), **AL1** (*Alarm 1*), **AL2** (*Alarm 2*), **AL3** (*Alarm3*), **OVS↑** (*Over scale*).

Example*: in the screen, on the left.*
The *first line* indicates that you are seeing those of November 04, 2016. →
The **second line** shows that, at 15, 12 minutes and 3 seconds (15:12:03) the sensor no.2 (S02) has exceeded the threshold of alarm 1 (AL 1).
The **third line** shows that, at 14, 45 minutes and 21 seconds (14:45:21), the output relay no.5 (U 05) have been activated (ACT.).
The **fourth line** shows that, at 10, 38 minutes and 57 seconds (10:38:57) the Logic Input no.1 (I 01) has been deactivated (DEA).
In the *other rows*, there are no events.

```
 EVENTS     04/11/16
 15:12:03      S 02 AL1
 14:45:21      U 05 ACT.
 10:38:57      I 01 DEA.
   NO    EVENT
   NO    EVENT
   NO    EVENT
   NO    EVENT
```

ALL: are the all events, stored in the unit, sorted from newest to oldest, faults and alarms (*sensors, inputs, outputs and related zones*) and generic (*presence or absence of mains power, control panel power on, and the reset*).

To access this viewing, press [ENTER] on the relevant item or simply press key [2]. Using [◄] and [►] you can scroll through the events, which are displayed and sorted in the same way described above for the submenu **ALARM / FAULT**.

In addition to the above matters are those of the generic event that, after the hour, they can show the following details:
- **POWER ON:** Indicates that the control panel has been switched on.
- **MAIN YES:** Indicates that the unit is powered from the mains (*if the batteries are installed*).
- **MAIN NOT:** Indicates that the unit is powered by batteries (*only if batteries are installed*).
- **RESET:** Indicates that has been executed, the Reset command.

SETTINGS

In this sub menu, you can manage some settings of the unit. --------------→

LANGUAGE (Level 1): To change the language of the unit, press [ENTER] on the relevant item or simply press key [1].

Using [▲] and [▼] choosing from the list, the one you want, then pressing [ENTER] or the related numeric key. ---------------------------------------→

Will appear the confirmation window, press again [ENTER] to confirm, or to go back, press [ESC].

A window notifies you that the operation has been successful. ------------→
Then the screen returns to the beginning of the Settings management.

GENERALS: Pressing [ENTER] on this item or simply press key [2], you can edit or view other settings of the control panel. Using numeric keys or [▲] and [▼] you choose which item change or view.

- **CONTRAST:** Adjusts the display contrast. Press [ENTER] or simply press key [1] and then adjust the value using [▲] and [▼] key.--------→

Reached the desired value, pressing [ENTER] the confirmation window will appear. If you wish to go back, press [ESC] otherwise press [ENTER] again to confirm. A window will prompt you that the operation was successful. Then the screen returns the beginning of manage Settings.

- **INFO:** Displays the model, firmware version, and contact details (address, telephone and email address). --------------------------→
Press [ESC] to exit this display.

BUZZER (Level 1): you can handle activate the internal buzzer, if there is a fault or alarm of a sensor, or a zone, press [ENTER] on this item, then using [▲] and [▼] key, you can choose which item to edit.
- **ALARMS:** When set to **YES**, the internal buzzer will be activated if a sensor or a zone goes into Alarm condition.
- **FAULTS:** When set to **YES**, the internal buzzer will be activated if a sensor or a zone goes into fault condition.

Press [ENTER] and using [▲] and [▼] key, to modify these parameters ----→
After choosing the desired value, pressing [ENTER] the confirmation window will appear. Then press [ENTER] to confirm or to go back, press [ESC]. Then a window will prompt you that the operation was successful. Then the screen returns the beginning of manage Settings.

DATE and TIME (Level 1): To change the date and time, press [ENTER] on its item. With [▲] and [▼] or simply press key [4], values can be modify, using [◄] and [►] you can go from one value to another. ------→
Then move on the **SAVE** and press [ENTER]. Confirmation window will appear. In case you want to go back, press [ESC] or press [ENTER] to confirm. The window will inform you that the operation was successful.

SETTINGS
1 LANGUAGE
2 GENERALS
3 BUZZER
4 DATEandTIME

LANGUAGE
1 ITALIAN
2 ENGLISH
3 FRENCH
4 ESPAÑOL

LANGUAGE

SETTINGS
SAVED

GENERALS
1 CONTRAST   15
2 INFO

CE408
Ver.   1.00
TECNOCONTROL srl
Via Miglioli, 47
20090 Segrate (MI)
ITALY
Tel +39 02 26922890
info@tecnocontrol.it

BUZZER

ALLARMS: **NO**
FAULTS: NO

TIME
10: 15
DATE
04 / 11 / 2016
SAVE

Then the screen returns the beginning of manage Settings.
If it had been inserted, an incorrect date (i.e.: 30/02 / ....) window will warn you of the error. --→
Then the screen returns the beginning of manage Date and Time.

```
DATE
NOT VALID

SAVE
```

⚠ The central unit has an internal battery that powers the clock when the unit is turned off. If date and time are required on power, the backup battery may be discharge and / or faulty, please contact our customer service for replacement.
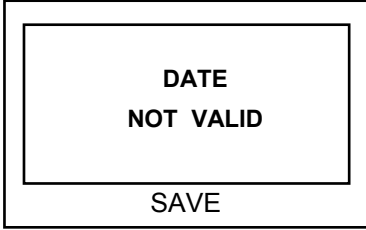
MODBUS (Level 2): In this submenu, you can set up an external system with protocol Modbus Rtu binary input: -----------------------→

- **ADDRESS:** the control unit address can be between 1 and 100. If you enter 0 (zero) disables the communication. -------------------→
- **SPEED**: you can set up the following baud rate, 19200 (default), 2400, 4800 or 9600 baud.--→

```
MODBUS
1 ADDRESS
2 SPEED
2 INFO MODBUS
```

```
ENTER
MODBUS ADDRESS
    0
```

```
ENTER
MODBUS SPEED
    9600
```
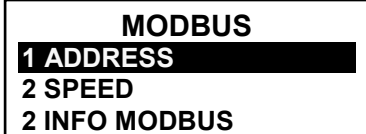
⚠ To change the baud rate, if it is already set, first, it should be discontinued transmission, ie putting to 0 (zero) the address or by stopping data from the Master.
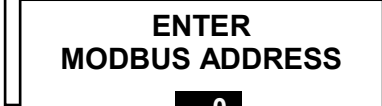
- **INFO MODBUS:** It displays the Address and Baud Rate.------------→

ℹ The communication occurs through the Modbus RTU *(Remote Terminal Unit)* binary protocol, using the RS485 serial port (COM3) The COM3 port is on the expansion board ES415 (PC-Card Modbus output).

```
MODBUS
ADDRESS:        0
SPEED:        9600
```
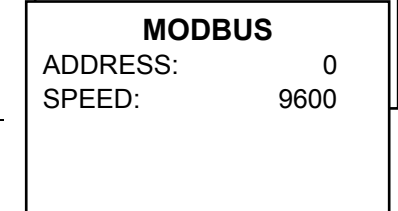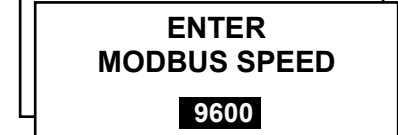
Communication Parameters

PARAMETER	SETTING
Baud rate (Speed)	19200 – 2400 – 4800 - **9600**
Parity	No parity
Data bit	8
Stop bit	1

Function Codes and Reading

- *The sensor status reading is done through the command Read Holding Registers (code 03).*
- *For each gas detector (sensor) are available 2 registers (non-consecutive).*
- *The registers can only be read.*
- *1 to 200 are the registers with the current values (same numbering of the sensors).*
- *301 to 500 are the sensor status registers (the register 301 contains the status of the sensor 1).*
- *NOTE: The value of a "NOT CONFIGURED" sensor is always 0.*
- *Since the submitted values, are the word (16-bit signed), to represent decimal numbers, certain values are multiplied by a factor determined by the number of decimal places specified in the configuration of the sensor. If the decimal digits are 0, the value does not undergo multiplication. With a number, multiply it by 10, with 2 digits for 100 and 3 figures for 1000.*
- *As for the status of the sensors, the table below explains the meaning of the possible values.*

The table specifies the meaning of the possible values, of the sensor status.

Value	Descriprion
0	Gas Detector fault for lack of signal (<1mA) or Disabled
1	*VALUE NOT USED*
2	Gas Detector in the normal state
3	Gas Detector in a state of pre-alarm AL1
4	Gas Detector in a state of pre-alarm AL2
5	Sensor in a state of alarm AL3
6	*VALUE NOT USED*
7	Gas Detector fault for excessive signal (>24mA)
8	Oxygen Gas Detector in the state of Alarm for Oxygen deficiency
9	Oxygen Gas Detector in the state of Alarm for Oxygen Excess
100	Status unknown
255	Gas Detector not configured

ACCESS MENU

In this submenu, you can manage the passwords, for access to the protected menus. Press |ENTER| or the related numeric key -------------------→

The PASSWORD Level 1 and Level 2
are factory-set to *0000*.

i *Please note that the accessible levels are only the first two:*
LEVEL 1: for the User
LEVEL 2: for the installer or Maintenance technician
LEVEL 3: is reserved only to the Manufacturer (Tecnocontrol).

ACCESS MENU
1 LEVEL   1
2 LEVEL   2
3 LEVEL   3

ENABLE LEVEL: This item allows you to **enable** the relative access level.

Press |ENTER| on its item or simply press keys [**1**]. ----------------------------→

With the numeric keys or [▲] and [▼] key, you can enter the value,

with [◀] and [▶] you move from one number to another. ----------------→

After entering the password, move to **OK** and press |ENTER|.

If the password is correct, the window will confirm you that the operation has been successful.---→
Then the screen returns the beginning of managing access to menus.

i *Enabling an access code on the display at the bottom left, shows the number of its access level. In addition, the "locks" 🔒 of the level enabled, disappears.*

⚠ *For safety, after 1 hour, all passwords are restored.*

If an incorrect password was entered, the window alert you of the error and return to the screen for entering the password.---------------------→

LEVEL 1
1 ENABLE LEVEL
2 DISABLE LEVEL
3 MODIF. PASSWORD

ENTER
PASSWORD
LEVEL 1

0000
OK

ENTER

LEVEL   1
ENABLED

ENTER

STOP   **PASSWORD**
INCORRECT

DISABLE LEVEL: This item allows you to **disable** the relative access level.

i *By performing the disabled, are disabled also all higher levels (e.g. disabling level 1, are disabled, the levels 2 and 3).*

Press |ENTER| on its item or simply press keys [**2**].Then will appear the confirmation window. Press |ENTER| to confirm, or to go back, press |ESC|.

Then a window notifies you that the operation has been successful. -----→
Then the screen returns to the beginning of the manage Access Menu.

LEVEL 1

LEVEL   1
DISABLED

MODIF. PASSWORD: This item allows allows you to **modify the password**, of the corresponding level of access.

Press |ENTER| on its item or simply press key [**3**]. Will appear, the screen where you will be asked to enter before the old password and then the new one.

If the old password was wrong, the window alert you of the error and then return to the screen for entering the password.
If the operation is correct, after entering the new password, the window inform you that the operation has been successful.--------------------------→
Then the screen will return the beginning of managing access to menus.

i *If the password of an access level were lost or forgotten, you can change it by entering the password, of a higher access level.*

ENTER

PASSWORD
LEVEL 1
MODIFIED

__Example__: if it had been lost the password for level 1, you can change it by inserting, instead of the old one, the password for level 2 or level 3.

⚠️ ***After programming, you may want to enter the new password for Level 1 and Level 2. When you enter the new password, remember to write them down and keep them in a safe place. In case of loss of password, please contact Our customer service.***

⚠️ ***This procedure must be performed with extreme caution, by authorized and trained personnel, as they are activated, the relay outputs, which activate the devices connected to both the internal functions of the central.***

SERVICE

In this submenu you can manage the maintenance of the unit. ------------→

SERVICE
1 ELECTRIC TEST
2 BATTERY
3 SENSORS STATUS
4 FACTORY TEST

ELECTRIC TEST (Level 2): Pressing [ENTER] on the relevant item or simply press key [1], the submenu will appear where you can choose which tests to perform. ---→

To start a test, press [ENTER] on its item or the corresponding numeric key:

ELECTRIC TEST
1 DISPLAY
2 KEYBOARD
3 LEDS/BUZZER
4 OUTPUTS
5 AUX
6 SD CARD
7 RS485

- **DISPLAY:** Check the display operation, all the pixels are lit in sequence. After 3 seconds, return to the previous screen.
- **KEYBOARD:** Check the key operation. Will appear the screen with the name of the keys, such as places in the keyboard. *When a key is pressed, the display is shown the corresponding name.* To return to the previous screen press [ESC] twice.

- **LED/BUZZER:** Check the operation of the LEDs and buzzer. First, the LEDs switches off, and then turn them on in sequence, Yellow, Green and Red, then for 1 second activate the buzzer. Then automatically returns to the previous screen.

- **OUTPUTS:** Check the operation of the relay outputs. Are displayed, the numbers of all internal relays. With the [▲] and [▼] keys changes the screen to display the relays of the Remote Units. The relays closed (*positive safety*), are displayed in bold. With [◄] and [►] key, moves the cursor to the desired relay, pressing the [ENTER] button will change its state. To exit, press [ESC].

ℹ️ *This test also checks the internal output boards. The outputs that are not installed are not displayed*

⚠️ *Consider that for the remote units will display all the relays, even if in the CE380UR are not installed the expansion cards ES380UR.*

- **AUX:** Check the operation of the Logic Input. Appears on the display its status, i.e., if the contact is **OPEN** or **CLOSED**. Press [ESC] to return to the previous screen.

- **SD CARD:** checks the presence of the memory card. The display shows if the SD Card is **present** or **absent**. *If the SD Card was inserted and was not detected, the card may be not properly inserted or the card's slot is faulty.* Press [ESC] to return to the previous screen.

- **RS485**: You can verify operation of the two RS485 ports, by linking the terminals, H1 with H2 and L1 with L2 and then start testing. If the test fails, you will need to replace the card. At the end of the test, the unit returns to the previous screen.

BATTERY (Level 2): Pressing key [2] or [ENTER] on the relevant item, you can choose if the battery is installed, or manually perform the function test and display the battery voltage.

Then with [▲] and [▼] keys, you can choose the item to edit. Pressing [ENTER] you can change the value using the [▲] and [▼] key.-----------------→

BATTERY		
PRES. BATT.		**NO**
TEST BATT	:	NO
V.BATT.	:	27,51

After choosing the desired value, press [ENTER] to confirm or press [ESC] to go back.

i | *The battery test is automatically performed every day. If there is no voltage, the battery test cannot be executed and will be suspended if it is in progress*

⚠ | *The control unit will be automatically powered by the battery, in the event of mains failure. If the voltage of the battery falls below 22 VDC, the control unit will automatically shut down to prevent damage to the battery (discharging). When the mains supply is present, the battery is charged and kept charged.*

PRES. BAT. *(Presence Battery):*
- When set **NO**, the battery is not present. *In the main screen, the icon in the bottom left will be absent and if there is no mains power, the control panel will shut down.*
- When set **YES**, indicating the presence of the battery. *In the main screen, the icon in the bottom left indicates the charge status of the battery according to the following scheme:*
  - ▮ : Battery full charge. The battery voltage is greater than 26.5 VDC.
  - ▮ : Battery partially charges. The battery voltage is between 24 VDC and 26.5 VDC.
  - ▮ : Battery half charge. The battery voltage is between 24 VDC and 22 VDC.
  - ▯ : Battery discharge. The battery voltage is 20.7 VDC and 22 VDC.
  - ▯ (*Flashing*): Battery Fault. The battery voltage is below 20.7 VDC or greater than 28 VDC. The battery is considered faulty and is no longer charged. So you will need to replace the two batteries.

TEST BAT. *(Test Battery):*
- When set *YES*, it is activated or indicates that the test is in progress. The test takes about a minute, and checks, with a load, the proper functioning of the battery. If during the test, the battery voltage drops below 20.7 VDC, is reported as a **Fault** (*see above*), and the battery will not be recharged. *The test will not be activated in the absence of mains or battery.*
- When set *NO*, the test indicates that you disable or do not on the battery test.

⚠ | *When the Battery Test is active, on the power board, placed in the base of the housing, its LED will light, (**BAT TEST ON**). Consider that the two power resistors (load) will heat up during the test.*

SENSORS STATUS (Level 2): This item allows you to view the current value of the sensors connected to the analog inputs.

Press ENTER on the relevant item or simply press key **3**. You will see input sensors value, in current (mA), using ◄ and ► key, to scroll through all the sensors (up to 24) even if not configured.-------------------→
To go back, press ESC.

SENSORS STATUS
1) 04.00 mA
2) 05,23 mA
3) 04,05 mA
4) 12,38 mA
5) 12,00 mA
6) 11,58 mA

i | *If the board ES404, had not been installed, the displayed values of the corresponding inputs, should not be considered, normally remain at zero. (detectors not connected). If the Remote Units's inputs have not the sensors connected, remain at zero. If the Remote Units are not connected, the text "OFF LINE" appears on the right of the detector's number.Consider that, for all the values shown, the two digits after the decimal point may fluctuate.*

FACTORY TEST (Level 3): *This submenu is not* **available**, *is reserved for the factory testing*.

SD CARD In this submenu you can manage the SD card after it has been inserted in its slot. The card slot is on the circuit, in the housing cover. --→

SD CARD
1 UPDATE FIRMWA.
2 COPY CONF. FROM
3 COPY CONF. ON
4 COPY EVENTS ON
5 DATA LOGGING

⚠ | The SD Card compatible, are **SD** and **SDHC** cards **up to 32GB**. The **SDXC** card must be formatted with **FAT32** (max 32GB). Normally, the unit accepts all SD Card, it is advisable to use those qualified producers.

UPDATE FIRMWA. (Level 2): This item allows you to *update the firmware* of the unit, using an update file previously saved on an SD Card The file must be downloaded from our website "**www.tecnocontrol.it**" in *DOWNLOAD> SOFTWARE> Firmware Update CE424* and then follow the instructions.

Pressing ⌨ENTER on the relevant item or simply press key ⌨1, you will see what to do before you start the upgrade procedure.

ⓘ *First, move the jumper JP3 in position "CLOSED" and then insert the SD card into its slot (see below figure 6).*

Then press ⌨ENTER to start the update, or press ⌨ESC to go back. ------------→

<div style="border:1px solid #000; padding:8px;">

UPDATE FIRMWARE
INSERT IN THE
CONTROL UNIT
THE JUMPER JP3
THE SD CARD
AND PRESS ENTER

</div>

Fig.6- Board into housing cover

SD-CARD slot

JUMPER JP3

JP3 OPEN   **JP3 CLOSED**

ⓘ *The update can also be done without going into the menu, simply restarting the unit, after performing the above operations*

⚠ **Only if the above procedure is correct the unit will restart. Otherwise the system is not continuing.**
The control unit checks that the SD card this card is a valid file for the update. If there was more than one, the file is loaded with the latest version.

When the Unit restarts, it starts the automatic update of firmware, the duration of which is about 3 to 4 minutes. This phase is indicated by a flashing yellow LED and a display message. ----------------------------------→

**WAITING
UPDATE
IN PROGRESS**

If there is no any file in the SD Card, or there was a previous version of the firmware or equal to the one already installed, the control panel will report it and then reboot without upgrades. ----------------------------------→

**FIRMWARE
MISSING
OR
JUST PRESENT**

If the SD Card is unreadable, the panel will report it and then reboot normally. --→

**SD CARD
NOT READABLE**

If the SD Card, it had not been inserted or cannot be detected, the control panel will report it and then reboot normally.
Check that you have correctly inserted the card, and if necessary check its operation using the test.
(see *menu Service → Electric Test → SDCard*). ----------------------------→

**SD CARD
MISSING**

After the upgrade, a message will confirm that the transaction is completed, in addition will be switched on for 3 seconds, the green LED and buzzer. Then the panel will restart in normal operation. ----------------→

**UPDATE
SUCCEEDED**

ⓘ **Replace the jumper JP3 in position "OPEN",** if not, every time you restart, and the panel will check if there is an update file on the SD card.

If the update was not successful, the display informs you that the operation has failed, and for 3 seconds to turn on, the red LED and buzzer. Then it will automatically restart in normal operation, but with the previous firmware version.---→

**UPDATE
FAILED**

⚠ If any errors occur during the upgrade, the firmware may be incomplete. This event will be signaled by the message, **FIRMWARE CORRUPT** that appears when you restart the control unit. In this case, try unpowered and restore power to the control unit and repeat the update. If the problem persists, verify the integrity and correctness of the update file, loading the previous working version of Firmware. Otherwise please contact our customer service.

COPY CONF. FROM (Livello 2): This item, "**Copy Configuration From**" allows you to load a configuration (*Sensors, Logic Input, Zone, Remote Units and Outputs*) of a control unit using a file previously saved on the SD Card. The file, named "**CE424_CF.txt**", can **ONLY** be created using the "**COPY CONF. ON**" (see below). This function can be used to restore a CE424 configuration (with memory failure) or to transfer the same configuration on other CE424.

Press key [2] or [ENTER] on its item, before you start the process will display a brief explanation. --→

ⓘ *In case of error or malfunction, the panel configuration will be deleted. We recommend that you do not complete the table list (See at the end of this manual).*

After you have entered the SD card, press [ENTER] to start copying and updating the configuration or press [ESC] to go back. When copying a message appears, wait for. --→

If the SD Card is not on file or can not be read, the display will show a message, and then will reappear submenu SD Card. ------------------------→

If an error occurs in the Read / Write or if the file was corrupt, the panel will report the error, will erase the current configuration and then will restart normally to reload the configuration. - →

If the result is correct, the panel will report through a message and then will restart normally to reload the configuration. --------------------------- →

COPY CONF.   FROM
INSERT IN THE CONTROL UNIT THE SD CARD AND PRESS ENTER

WAITING

ERROR FILE MISSING O NOT READABLE

ERROR OPERATION FAILED

CONFIGURATION DELETED

WAITING REBOOT IN PROGRESS

OK REBOOT IN PROGRESS
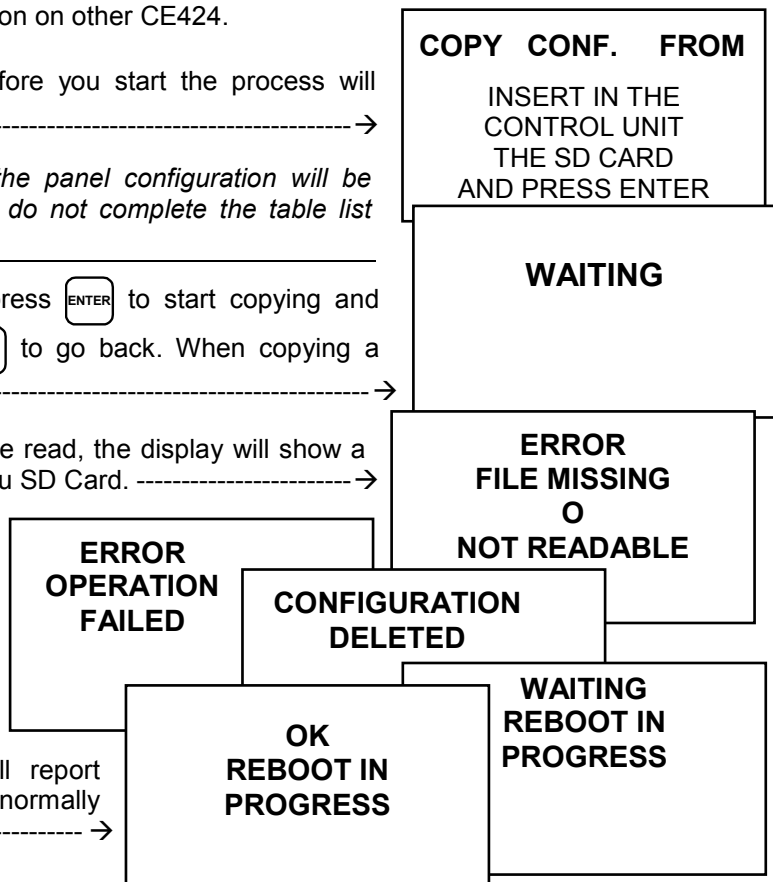
COPIA CONF. ON (Livello 2): This item, "**Copy Configuration On**" allows you to save the configuration (*Sensors, Logic Input, Zone, Remote Units and Outputs*) of the control unit into the SD Card. The file, named "**CE424_CF.txt**", can **ONLY** be created using this funtion. This file can be used as indicated above in the previous function.

Press key [3] or [ENTER] on its item, before you start the process will display a brief explanation. After you have insert the SD card, press the [ENTER] to start saving configuration or press [ESC] to go back. -----------------→

ⓘ The sequence of operation described below is also valid for the "**Copy Events Up**" and "**Save Data**".

When copying, a message appears, wait for. ----------------------------------→

If the SD Card is not on file or can not be read, the display will show a message, and then will reappear submenu SD Card. ----------------------→

If the SD Card is not formatted or illegible, the panel will report through a message and will return to the submenu SD Card. ------------------------→

COPY CONF.   ON
INSERT IN THE CONTROL UNIT THE SD CARD AND PRESS ENTER

WAITING

ERROR SD CARD PROTECTED

ERROR SD CARD NOT READABLE
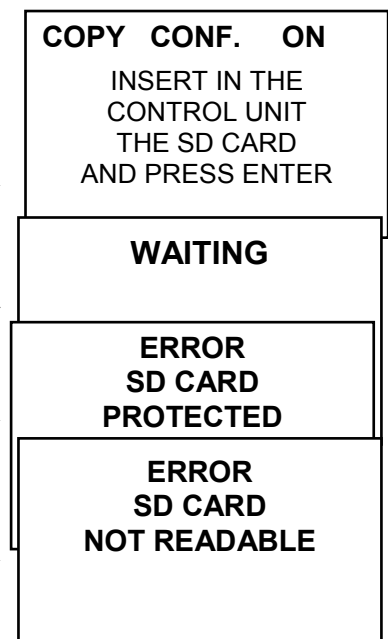
Then at the end, the panel will report the result through a message and will return to the submenu SD Card. --- →

```
OK
OPERATION
SUCCEEDED
```

```
ERROR
OPERATION
FAILED
```

COPY EVENTS ON (Livello 2): This item, "**Copy Events On**" allows you to save on the SD Card, the list of events logged by the panel. The text file format, "**CE424_EV.txt**" can **ONLY** be created with this function.

Press key [**4**] or [ENTER] on its item, before you start the process will display a brief explanation. After you have entered the SD card, press [ENTER] to start save the events or press [ESC] to go back. ----------------------→

Then the operating procedure continues as described in the previous function (See above).

```
COPY  EVEN.  ON
INSERT IN THE
CONTROL UNIT
THE SD CARD
AND PRESS ENTER
```

DATA LOGGING (Livello 2): This item allows you t**o save in a continuous manner**, the values read from the control panel (**Data Logger of Sensors, Logic input and Zone**), these data are written every minute to SD Card in a text file "**DL_No.Month_No.Year.txt** "which can be imported into Microsoft Excel to analyze the content or display it with a graph (see example below).

The values **No. Month and No. Year** two digits indicate the month and the last two are the year, as they are set on the date of the central unit.

Press key [**5**] or [ENTER] on its item, before you start the process will display a brief explanation. Then press [ENTER] to start recording or press [ESC] to go back.--→

Then the operating procedure continues as described in the previous function (See above).

If the procedure has been successful, the screen submenu SD CARD, shows text "**STOP STORE**." instead of the item "**DATA LOGGING**".-----→

Pressing key [**5**] or [ENTER] on its item, it is possible to stop the data storage, the panel will display a message and will return to the submenu SD Card --→

Press [ESC] to return to the main screen.

[*i*] *The data storage is reported on the main screen, at the bottom right, with "SD".*

```
DATA LOGGING
INSERT IN THE
CONTROL UNIT
THE SD CARD
AND PRESS ENTER
```

```
SD CARD
1 UPDATE FIRMWA.
2 COPY CONF. FROM
3 COPY CONF. ON
4 COPY EVENTS ON
5 STOP DATA LOG.
```

```
DATA LOGGING

STOPPED
```

Example: how to import the file in Microsoft Office Excel 2007 (in other versions, the procedure may be slightly different):
1) Open Microsoft Excel 2007.
2) Click on top of the "*Data*" field.
3) Click on the top left, in the "*External Data*" on the "*Text*".
4) Select the file "*DL_NoMonth_No.Year.txt*" and press on the button "*Import*".
5) Select in the "*Original data type*" field "*Fixed width*".
6) Press "*Finish*" and then on "*OK*".
7) Now the file will be loaded. The fields are disposed in the following way:
    a) The first line contains: the date, the number of sensors, the number of logic inputs (**preceded by the letter "I"**) and the zone numbers (**preceded by the letter "Z"**).
    b) Below the date are listed minutes of when they have been recorded readings.
    c) Below the sensors are three columns which represent the values, the unit of measurement and status.
    d) Below the logic inputs and the areas it is written the state.
    e) If a device is not configured, it is indicated by the symbol "**--------**".

f) If a logic input or a zone is disabled, it is indicated by "*****".

g) If a sensor is disabled, the value will still be recorded, but the state has indicated by "*****".
If a sensor belongs to a disabled RU, its value is not recorded and it is displayed by symbol "*********".

h) The structure is repeated daily.

8) You can scroll through the values and analyze them or view the trend through a chart by selecting the column of the minutes and the recorded values

APPENDIX

CE424 Technical Specifications	
AC power supply and frequency	90 to 264 V AC / 47 to 63 Hz
AC Maximum consumption [(1)]	1,6A a 110VAC / 1A at 230V AC
Max current delivered by the power supply	2,7 A at 27,6V DC
Power consumption at 24VDC [(2)]	30 W Max
number of detectors that can be connected	Max no. 24
Analog Input 4 to 20 mA (Linear)	8 maximum, of which n.4 factory installed, others are expandable to 8 with expansion board ES404
Analog Input - Load resistance	100 Ohms
Max.Current/Voltage available per imput	100 mA / 24 VDC (−10/+15%)
Logic imputs (for Remote Unit CE380UR)	no.2 RS485 serial Port (COM1 and COM2)
Remote units that are connectable (CE380UR)	No.2 (each including 8 4 to 20 mA Linear inputs 4 to 20 mA Linear and 8 output relay with 2 expansion cards ES380UR).
Internal Output relay (*with voltage free changeover contacts*)	9 maximum, of which n.5 factory installed, expandable to 9 with the expansion board ES414
Nominal load of relay (*SPDT contact on each relay*)	250 VAC – 2 A or 30 VDC – 2 A resistive load.
Logic inputs	1 (for NA or NO dry contacts)
SD card accepted	SD e SDHC max 32Gb SDXC formatted by PC with FAT32 (max 32Gb).
Display	monochrome LCD graphical display with RGB backlight
Optical indications	n. 3 LEDs (Yellow, Green and Red)
Acoustic indications	Internal Buzzer
Keyboard	18 keys with backlight
Backup battery (*optional*) [(3)]	n. 2 Pb 12VDC / 1.3Ah (connected in series)
Battery operating time (*with 4 sensors*) [(4)]	About 80 minutes
Battery operating time (*with 8 sensors*) [(4)]	About 60 minutes
Temperature of use (with batteries) / Humidity	+5 to +40 °C / 5 to 95% relative humidity
Dimensions and Protection rating.	379x241x133 mm IP42 [(5)]
Weight (*without the batteries*)	about 2.2 Kg Batteries Weight 1,2 Kg

(1) With all the 8 sensors connected and 9 relays activated.
(2) Max power absorption at 27.6VDC supplied from the power supply (with 8 sensors).
(3) The batteries are not included. If it were required more autonomy, can be used 2 Pb Batteries 12V 3Ah or 7Ah connected in series, but due to their size, they should be installed in an external housing. Autonomy, with 8 sensors becomes: about 2 hours with 3Ah batteries (each sensor in less increases the autonomy of approx 10 min) and about 5 hours with the 7Ah (each sensor in less increases the autonomy of approx 30min .).
(4) Each sensor in less, increases the autonomy of approx 5 minutes (eg, with 6 sensors, the range increases to 10 min.=70 min.).
(5) Using metric cable glands (M16 and M20 Pitch 1.5mm ISO) with appropriate protection rating..

TABLE with summary of Fault and Alarm messages.

CONDITION	Backlight Display	Displaying	Yellow LED	Green LED	RED LED	Buzzer if configured
Sensor not Configured	Clear blue	- - - -		Fixed ON		
Sensor (<1mA) or Zone in Fault	Yellow	FAULT	Fixed ON	Fixed ON		Activated
Sensor or Zone returned from a Fault, but with output relay latched.	Yellow	NORM (Blinking)	Short blinking(2)	Fixed ON		
Sensor operating normally	Clear blue	NORM		Fixed ON		
Battery Operation - (with graphical indication, from Full Charge up to Discharge)	Clear blue	▄÷▢		Blinking (1)		
Batteries Fault	Clear blue	▢ Blinking(1)	Rapid blinking(3)	Fixed ON		
Sensor or Zone or Logic Input, in Alarm 1	Medium Red	AL 1		Fixed ON	Blinking	
Sensor or Zone or Logic Input, in Alarm 2	Medium Red	AL 2		Fixed ON	Blinking	
Sensor or Zone in Alarm 3	Bright Red	AL 3		Fixed ON	Fixed ON	Activated
Sensor or zone or logic input, with Alarm 3 returned to normal, but with relay output latched.	Light Red	NORM (Blinking)		Fixed ON	Short blinking(2)	
Sensor (>24mA) over the Full Scale	Bright Red(4)	F.S.	Fixed ON	Fixed ON	Fixed ON	

(1) Blinking = 1sec ON / 1sec OFF / (2) Short blinking = 0,1sec ON / 1sec OFF / (3) Rapid blinking = 0,1sec ON / 0,1sec OFF

(4) I if a sensor is set with alarm "descending" the display turns yellow.

DISPLAY MESSAGE	EXPLICATION	See page
PARAMETER OUT OF RANGE	A number exceeds the maximum acceptable value.	14
WRONG PASSWORD	Was entered a wrong code level.	35
FIRMWARE CORRUPTED	The CE424P is not able to start, Firmware incomplete or missing	30
UPDATE FAILED	The CE424P is not able to update the firmware from SD-Card	38

TABLE 1
List of PRECONFIGURED SENSORS with Display and Replaceable Cartridge Sensor

i From Genn. 2017 types TS282xx (IP65) supersede all TS220xx and the TS292xx (Eg. TS292KM becomes TS282KM or the TS220EO becomes TS282EO).

WITH CATALYTIC SENSORS FOR FLAMMABLE GASES				Alarm Levels		
MODELS	**GAS**	**RANGE**	**UNIT**	**Threshold 1 (AL1)**	**Threshold 2 (AL2)**	**Threshold 3 (AL3)**
TS292 KB TS293KB	PETROL	0÷20	%LIE	7 [1]	10	20
TS292 KG TS293KG	LPG (Butane)					
TS292KI TS293KI	HYDROGEN					
TS292KM TS293KM	METHANE					

WITH PELLISTOR SENSORS FOR FLAMMABLE GASES				Alarm Levels		
MODELS	**GAS**	**RANGE**	**UNIT**	**Threshold 1 (AL1)**	**Threshold 2 (AL2)**	**Threshold 3 (AL3)**
TS292PB TS293PB	PETROL	0-100	%LIE	8 [1]	12	20
TS292PG TS293PG	LPG (Butane)					
TS293PE	ACETYLENE					
TS292PI TS293PI	HYDROGEN					
TS292PM TS293PM	METHANE					
TS293PS	STYRENE					
TS292PX TS293PX TS293PX-H	FLAMMABLE					

WITH INFRARED (NDIR) SENSORS FOR FLAMMABLE GASES				Alarm Levels		
MODELS	**GAS**	**RANGE**	**UNIT**	**Threshold 1 (AL1)**	**Threshold 2 (AL2)**	**Threshold 3 (AL3)**
TS293IE	ACETYLENE	0-100	%LIE	8 [1]	12	20
TS293IG	LPG (Butane)					
TS293IM	METHANE					
TS293IX	FLAMMABLE					

WITH ELECTROCHEMICAL SENSORS FOR TOXIC GASES				Alarm Levels		
MODELS	**GAS**	**RANGE**	**UNIT**	**Threshold 1 (AL1)**	**Threshold 2 (AL2)**	**Threshold 3 (AL3)**
TS220EA TS293EA TS220EA-H TS293EA-H	NH_3	0-300	ppm	10	20	50
TS220EC-S TS293EC-S TS220 EC-H TS293 EC-H	CO	0-300	ppm	25	50	150
TS220ECL	CL_2	0-10.0	ppm	0.3	0.5	1.0
TS220EH TS293EH	H_2S	0-100	ppm	10	20	50
TS220EHCL	HCL	0-10.0	ppm	3.0	5.0	10.0
TS220EHCN TS293EHCN	HCN	0-10.0	ppm	2.0	3.0	5.0
TS220EN TS293EN	NO	0-100	ppm	10	20	50
TS220EN2 TS293EN2	NO_2	0-30.0	ppm	3.0	6.0	15.0
TS220ES TS293ES	SO_2	0-20.0	ppm	5.0	7.5	10.0

WITH ELECTROCHEMICAL SENSORS FOR VITAL GASES					Alarm Levels		
MODELS		**GAS**	**RANGE**	**UNIT**	**Threshold 1 (AL1)**	**Threshold 2 (AL2)**	**Threshold 3 (AL3)**
TS220EO TS293EO	*Alarm = OXYGEN*	O_2	0÷25.0	% vol	19.5	18.5 [2]	22.5 [3]
	Alarm= DECREASING				20.0	19.5	18.5

WITH INFRARED (NDIR) SENSORS FOR ASPHYXIATING GAS				Alarm Levels		
MODELS	**GAS**	**RANGE**	**UNIT**	**Threshold 1 (AL1)**	**Threshold 2 (AL2)**	**Threshold 3 (AL3)**
TS220IC2 TS293IC2	CO_2	0-5.00	% vol	0.50	1.00	2.00
TS220IC2-H TS293IC2-H	CO_2	0-5000	ppm	1000	1800	2500
TS210IC2 *IR101/IR102*[4]	CO_2	0-2.00	% vol	0.20	0.50	1

GAS SENSORS WITH TWO SENSORS FOR PARKING				Alarm Levels		
MODELS	**GAS**	**RANGE**	**UNIT**	**Threshold 1 (AL1)**	**Threshold 2 (AL2)**	**Threshold 3 (AL3)**
TS255CB (TS250CB)	CO	0-300	ppm	30	60	150
	PETROL	0-20	%LIE	7[1]	10	20
TS255CN2	CO	0-300	ppm	30	60	150
	NO_2	0-30.0	ppm	3.0	6.0	15.0

WITH SEMICONDUCTOR SENSOR FOR REFRIGERANT GAS				Alarm Levels		
MODELS	**GAS**	**RANGE**	**UNIT**	**Threshold 1 (AL1)**	**Threshold 2 (AL2)**	**Threshold 3 (AL3)**
TS220SFx-H TS293SFx-H	Refrigerant	0-1000	ppm	400	600	1000

Refrigerant gases: SF1-H (R134a) - SF2-H (R404a) - SF3-H (R407c) SF4-H (R410a) - SF5-H (R507).

List of PRECONFIGURED SENSORS with Display and Replaceable Cartridge Sensor

WITH PELLISTOR SENSORS FOR FLAMMABLE GASES				Alarm Levels		
MODELS	GAS	RANGE	UNIT	Threshold 1 (AL1)	Threshold 2 (AL2)	Threshold 3 (AL3)
TS593PX-H	FLAMMABLE	0-100	%LIE	8 [1]	12	20

WITH INFRARED (NDIR) SENSORS FOR FLAMMABLE GASES				Alarm Levels		
MODELS	GAS	RANGE	UNIT	Threshold 1 (AL1)	Threshold 2 (AL2)	Threshold 3 (AL3)
TS593IG	LPG (Butane)	0-100	%LIE	8 [1]	12	20
TS593IM	METHANE					

WITH ELECTROCHEMICAL SENSORS FOR VITAL GASES					Alarm Levels		
MODELS		GAS	RANGE	UNIT	Threshold 1 (AL1)	Threshold 2 (AL2)	Threshold 3 (AL3)
TS593EO	*Alarm = OXYGEN*	O_2	0÷25.0	% vol	19.5	18.5 [2]	22.5 [3]
	Alarm= DECREASING				20.0	19.5	18.5

List of PRECONFIGURED SENSORS <u>without</u> Replaceable Cartridge Sensor

WITH CATALYTIC SENSORS FOR FLAMMABLE GASES					Alarm Levels		
MODELS		GAS	RANGE	UNIT	Threshold 1 (AL1)	Threshold 2 (AL2)	Threshold 3 (AL3)
SE192 KG	SE193 KG	LPG (Butane)	0÷20	%LIE	7 [1]	10	20
SE192KM	SE193KM	METHANE					

The SE183K models, are configurable as the corresponding SE193, the only difference is the housing.

<u>**NOTE**</u>: **UNIT** = Unit of measure
(1)   It is not recommended to set pre-alarm levels lower than the value indicated.
(2)   the Alarm for oxygen deficiency is displayed as **AL.↓**.
(3)   the Alarm for oxygen excess is displayed as **AL.↑**.
(4)   Product discontinued or no longer in stock

<u>TABLE 2</u> – PRECONFIGURED values for TLV

MODELS			GAS	RANGE	UNIT	Alarm levels		
						TLV-TWA Threshold 1	TLV-STEL Threshold 2	TLV-Ceiling Threshold 3
TS220EA	TS293EA		NH_3	0-300	ppm	25 (COSHH)/(OSHA)	35 (COSHH)	50 (OSHA)
TS220EA-H	TS293 EA-H							
TS220EC-S	TS293 EC-S		CO	0-300	ppm	30 (COSHH)	200 (COSHH)	250
TS220EC-H	TS293 EC-H							
TS220ECL			CL2	0-10.0	ppm	0.5 (OSHA)	0.5 (COSHH)	1.0
TS220EH	TS293EH		H_2S	0-100	ppm	5 (COSHH)	10 (COSHH)	20
TS220EHCL			HCL	0-10.0	ppm	5.0 (OSHA)	5.0 (COSHH)	10.0
TS220EHCN	TS293EHCN		HCN	0-10.0	ppm	4.7 (OSHA)	10 (COSHH)	4.7 (OSHA)
TS220EN	TS293EN		NO	0-100	ppm	25 (COSHH)/(OSHA)	25 (COSHH)	50 (OSHA)
TS220EN2	TS293EN2		NO_2	0-30	ppm	3.0 (COSHH)	5.0 (COSHH)	15.0
TS220ES	TS293ES		SO_2	0-20.0	ppm	2 (COSHH)	5 (COSHH)	10
TS220IC2	TS293IC2	TS593IC2	CO_2	0-5.00	% v/v	0.50 (COSHH)/(OSHA)	1.50 (COSHH)	3.00
TS210IC2	IR101 / IR102 [4]		CO_2	0-2.00	% v/v	0.50 (COSHH)/(OSHA)	1.50 (COSHH)	2.00

$\boxed{i}$ The values indicated, refer to the requirements of the institutions that deal about the health of workers. The European Department <u>**COSHH**</u> (*Control Of Substances Hazardous to Health*) and the U.S. Department <u>**OSHA**</u> (*Occupational Safety and Health Administration*).

TABLE 3 – PRECONFIGURED values for use with PARKING-EN (EN50545-1)

MODELS		GAS	RANGE	UNIT	TWA (min.)	Alarm levels		
						Threshold 1 (AL1)	Threshold 2 (AL2)	Threshold 3 (AL3)
TS220EC-S TS293EC-S TS220EC-H TS293EC-H		CO	0-300	ppm	15	30	60	150
TS220EN TS293EN		NO	0-100	ppm	15	10	20	50
TS220EN2 TS293EN2		NO₂	0-30	ppm	15	3.0	6.0	15.0
TS255CB [TS250CB⁽⁴⁾]		CO	0-300	ppm	15	30	60	150
TS255CN2		CO	0-300	ppm	15	30	60	150
		NO₂	0-30.0	ppm	15	3.0	6.0	15.0

⚠️ As indicated in the standard EN50545-1, the **TWA** values, shown in Table 3, can be setted from 5 to 60 minutes, while the delay of the relay activation, in **HYST.ON** (Hysteresis ON) **THRESHOLD 3**, can be set from 60 to 300 seconds.

TABLE 4 – USED ONLY IN ITALY - Values to be set to use with PARKING-ITA (DM 1.02.1986)

MODELS		GAS	RANGE	UNIT	Recommended alarm levels		
					Threshold 1 (AL1)	Threshold 2 (AL2)	Threshold 3 (AL3)
TS220 EC-S TS293EC-S TS220 EC-H TS293 EC-H		CO	0-300	ppm	30	50	100
TS292KB TS293KB		PETROL	0-20	%LEL	7	10	20
TS255CB [TS250CB⁽⁴⁾]		CO	0-300	Ppm	30	50	100
		PETROL	0-20	%LEL	7	10	20

⚠️ **Only for parking made Italy**, according to DM 12/01/1986, all the sensors for the detection of CO, must be configured with an alarm type INCREASING, and all should be associated to the same zone, setting the logic, as PARK-ING.
The THRESHOLD 1 can not be used.
The THRESHOLD 2 for the sensor for Petrol vapours can not be used. The output in the THRESHOLD 3 must be configured in the programming of all the individual sensors.
The output in the THRESHOLD 2 for CO sensors must be configured in the programming of outputs available for ZONE (OUTPUT_1_ THRESHOLD_2, OUTPUT _2_SOGLIA_2).

TABLE 3 - Relays operation's PRECONFIGURED parameters.

SENSORS FOR FLAMMABLE GASES

Relay Number	ALARM	Silenceable	Hysteresis ON (seconds)	Hysteresis OFF (seconds)	Time ON (seconds)	Positiv Logic	Latched Output
1	AL 1	NO	5	0	0	NO	NO
2	AL 2	NO	10	0	0	NO	NO
3	AL 3	NO	30	0	0	YES	YES
4	FAULT	NO	45	0	0	YES	NO

SENSORS FOR TOXIC AND ASPHYXIATING GASES (CO₂)

Relay Number	ALARM	Silenceable	Hysteresis ON (seconds)	Hysteresis OFF (seconds)	Time ON (seconds)	Positiv Logic	Latched Output
1	AL 1	NO	1	0	0	NO	NO
2	AL 2	NO	5	0	0	NO	NO
3	AL 3	NO	30⁽¹⁾	0	0	NO	NO
4	FAULT	NO	40	0	0	YES	NO

(1) In the case that the alarm is set to, **PARKING-EN**, this value is equal to "60".

SENSORS FOR VITAL GASES (Oxygen)

Relay Number	ALARM	Silenceable	Hysteresis ON (seconds)	Hysteresis OFF (seconds)	Time ON (seconds)	Positiv Logic	Latched Output
1	AL 1	NO	5	0	0	NO	NO
2	AL ↓	NO	10	0	0	YES	YES
3	AL ↑	NO	10	0	0	YES	YES
4	FAULT	NO	30	0	0	YES	NO

SETUP MEMORANDUM TABLES

It is recommended to compile these tables, as a reminder of the configuration done. Furthermore these data should be photocopied and attached a copy to the central and other documentation of the plant.

Inputs (4÷20mA Gas Detectors) configuration (CE424)

Sensor Number [1÷8]	1	2	3	4	5[1]	6[1]	7[1]	8[1]
Sensor Model								
Tag								
Type (Flammable, Toxic, Vitale, Refrigerant)								
Gas Detected (Name or Formula)								
Unit of measure (% LEL, %vol, ppm, ppb or °C)								
Full Scale (Max 9.99 oppure 99.9 oppure 9999)								
Alarm Type (Increasing, Decreasing, Oxygen, TLV, Parking-EN)								
Zone (1÷2)								
T.W.A. (Only alarms PARKING-EN)								
Threshold 1 (Alarm 1)								
Output 1 (Relay Number)								
Threshold 2 (Alarm 2)								
Output 2 (Relay Number)								
Threshold 3 (Alarm 3)								
Output 3 (Relay Number)								
Fault (Relay Number)								

Outputs (relays) configuration (CE424)

Output Relay Number [1÷9]	1	2	3	4	5[2]	6[2]	7[2]	8[2]	9
Annotation									
Silenceable [3] (NO/YES)									
Time of Silence (from 0 to 300 Seconds)									
Hysteresis ON[4] (from 0 to 300 Seconds)									
Hysteresis OFF[5] (from 0 to 300 Seconds)									
Time ON[6] (from 0 to 300 Seconds)									
Positiv Logic (NO/YES)									
Latched output [7] (NO/YES)									

Logic imput configuration (CE424)

Input Number [1]	1
Active (High NO or Low NC)	
Output (Relay Number)	
Silenceable [3] (NO/YES)	
Time of Silence (from 0 to 300 Seconds)	
Hysteresis ON[4] (from 0 to 300 Seconds)	
Hysteresis OFF[5] (from 0 to 300 Seconds)	
Time ON[6] (from 0 to 300 Seconds)	
Positiv Logic (NO/YES)	
Latched output [7] (NO/YES)	

Inputs (4÷20mA Gas Detectors) configuration - Remote Unit no.1 (CE380UR)

Sensor Number [9÷16]	9	10	11	12	13	14	15	16
Sensor Model								
Tag								
Type (Flammable, Toxic, Vitale, Refrigerant)								
Gas Detected (Name or Formula)								
Unit of measure (% LEL, %vol, ppm, ppb or °C)								
Full Scale (Max 9.99 oppure 99.9 oppure 9999)								
Alarm Type (Increasing, Decreasing, Oxygen, TLV, Parking-EN)								
Zone (1÷2)								
T.W.A. (Only alarms PARKING-EN)								
Threshold 1 (Alarm 1)								
Output 1 (Relay Number)								
Threshold 2 (Alarm 2)								
Output 2 (Relay Number)								
Threshold 3 (Alarm 3)								
Output 3 (Relay Number)								
Fault (Relay Number)								

Outputs (relays) configuration - Remote Unit no.1 (CE380UR)

Output Relay Number [10÷17]	10[1]	11[1]	12[1]	13[1]	14[2]	15[2]	16[2]	17[2]
Annotation								
Silenceable [3] (NO/YES)								
Time of Silence (from 0 to 300 Seconds)								
Hysteresis ON [4] (from 0 to 300 Seconds)								
Hysteresis OFF [5] (from 0 to 300 Seconds)								
Time ON [6] (from 0 to 300 Seconds)								
Positiv Logic (NO/YES)								
Latched output [7] (NO/YES)								

NOTA [1]   Only if the 1st Expansion Board ES380UR with 4 relays is installed.

NOTA [2]   Only if the 2nd Expansion Board ES380UR with 4 relays is installed, for a total of 4 (1st ES380UR)+4 (2nd ES380UR) = 8 Relay Outputs.

NOTE [3]   Normally leave NO. It is only used to temporarily disable the outputs related to audible warning devices.

NOTA [4]   It is recommended to always set a value between 10 and 60 seconds. (typically 10 to 20 sec. for Optical/Acoustic alarms and 30 to 60 sec. for Solenoid shut-off of the gas) . In case of alarm **PARKING-EN**, the minimum is 60 sec., but only for the relay set for the threshold 3 .

NOTA [5]   Normally leave ZERO. It is used only to enable devices that must remain in operation more than alarm. This function can not be used together with the function **Time ON** and you can not select **YES** the **Larched Output**.

NOTA [6]   Normally leave ZERO. This function can not be used together with the function **Hysteresis OFF** and you can not select **YES** the **Larched Output**.

NOTA [7]   The Output Latched is set **YES** only if **Hysteresis OFF** or **Time ON** are set to ZERO. Normally should be set to **YES** to prevent the resetting of an actuator (eg. Solenoid shut-off of the gas) without first verifying that the Central is in alarm.

Inputs (4÷20mA Gas Detectors) configuration - Remote Unit no.2 (CE380UR)

Sensor Number [17÷24]	9	10	11	12	13	14	15	16
Sensor Model								
Tag								
Type (Flammable, Toxic, Vitale, Refrigerant)								
Gas Detected (Name or Formula)								
Unit of measure (% LEL, %vol, ppm, ppb or °C)								
Full Scale (Max 9.99 oppure 99.9 oppure 9999)								
Alarm Type (Increasing, Decreasing, Oxygen, TLV, Parking-EN)								
Zone (1÷2)								
T.W.A. (Only alarms PARKING-EN)								
Threshold 1 (Alarm 1)								
Output 1 (Relay Number)								
Threshold 2 (Alarm 2)								
Output 2 (Relay Number)								
Threshold 3 (Alarm 3)								
Output 3 (Relay Number)								
Fault (Relay Number)								

Outputs (relays) configuration of the Remote Unit no.2 (CE380UR)

Output Relay Number [18÷25]	10[1]	11[1]	12[1]	13[1]	14[2]	15[2]	16[2]	17[2]
Annotation								
Silenceable [3] (NO/YES)								
Time of Silence (from 0 to 300 Seconds)								
Hysteresis ON [4] (from 0 to 300 Seconds)								
Hysteresis OFF [5] (from 0 to 300 Seconds)								
Time ON [6] (from 0 to 300 Seconds)								
Positiv Logic (NO/YES)								
Latched output [7] (NO/YES)								

NOTA [1] Only if the 1st Expansion Board ES380UR with 4 relays is installed.

NOTA [2] Only if the 2nd Expansion Board ES380UR with 4 relays is installed, for a total of 4 (1st ES380UR)+4 (2nd ES380UR) = 8 Relay Outputs.

NOTE [3] Normally leave NO. It is only used to temporarily disable the outputs related to audible warning devices.

NOTA [4] It is recommended to always set a value between 10 and 60 seconds. (typically 10 to 20 sec. for Optical/Acoustic alarms and 30 to 60 sec. for Solenoid shut-off of the gas) . In case of alarm **PARKING-EN**, the minimum is 60 sec., but only for the relay set for the threshold 3 .

NOTA [5] Normally leave ZERO. It is used only to enable devices that must remain in operation more than alarm. This function can not be used together with the function **Time ON** and you can not select **YES** the **Larched Output**.

NOTA [6] Normally leave ZERO. This function can not be used together with the function **Hysteresis OFF** and you can not select **YES** the **Larched Output**.

NOTA [7] The Output Latched is set **YES** only if **Hysteresis OFF** or **Time ON** are set to ZERO. Normally should be set to **YES** to prevent the resetting of an actuator (eg. Solenoid shut-off of the gas) without first verifying that the Central is in alarm.

Zones configuration (CE424)

Zona Number [1÷6]	1	2	3	4	5	6
LOGICA (AND, OR, CORR.CON, CIRC.CON, PARKing-ITA)						
Output 1 threshold 1 (Relay Number for AL1)						
Silenceable [3] (NO/YES)						
Time of Silence (from 0 to 300 Seconds)						
Hysteresis ON[4] (from 0 to 300 Seconds)						
Hysteresis OFF[5] (from 0 to 300 Seconds)						
Time ON[6] (from 0 to 300 Seconds)						
Positiv Logic (NO/YES)						
Latched output [7] (NO/YES)						
Output 2 threshold 1 (Relay Number for AL1)						
Silenceable [3] (NO/YES)						
Time of Silence (from 0 to 300 Seconds)						
Hysteresis ON[4] (from 0 to 300 Seconds)						
Hysteresis OFF[5] (from 0 to 300 Seconds)						
Time ON[6] (from 0 to 300 Seconds)						
Positiv Logic (NO/YES)						
Latched output [7] (NO/YES)						
Output 1 threshold 2 (Relay Number for AL2)						
Silenceable [3] (NO/YES)						
Time of Silence (from 0 to 300 Seconds)						
Hysteresis ON[4] (from 0 to 300 Seconds)						
Hysteresis OFF[5] (from 0 to 300 Seconds)						
Time ON[6] (from 0 to 300 Seconds)						
Positiv Logic (NO/YES)						
Latched output [7] (NO/YES)						
Output 2 threshold 2 (Relay Number for AL2)						
Silenceable [3] (NO/YES)						
Time of Silence (from 0 to 300 Seconds)						
Hysteresis ON[4] (from 0 to 300 Seconds)						
Hysteresis OFF[5] (from 0 to 300 Seconds)						
Time ON[6] (from 0 to 300 Seconds)						
Positiv Logic (NO/YES)						
Latched output [7] (NO/YES)						
Output 1 threshold 3 (Relay Number for AL3)						
Silenceable [3] (NO/YES)						
Time of Silence (from 0 to 300 Seconds)						
Hysteresis ON[4] (from 0 to 300 Seconds)						
Hysteresis OFF[5] (from 0 to 300 Seconds)						
Time ON[6] (from 0 to 300 Seconds)						
Positiv Logic (NO/YES)						
Latched output [7] (NO/YES)						
Output 2 threshold 3 (Relay Number for AL3)						
Silenceable [3] (NO/YES)						
Time of Silence (from 0 to 300 Seconds)						
Hysteresis ON[4] (from 0 to 300 Seconds)						
Hysteresis OFF[5] (from 0 to 300 Seconds)						
Time ON[6] (from 0 to 300 Seconds)						
Positiv Logic (NO/YES)						
Latched output [7] (NO/YES)						

Output Fault (Relay Number)		
Silenceable [3] (NO/YES)		
Time of Silence (from 0 to 300 Seconds)		
Hysteresis ON[4] (from 0 to 300 Seconds)		
Hysteresis OFF[5] (from 0 to 300 Seconds)		
Time ON[6] (from 0 to 300 Seconds)		
Positiv Logic (NO/YES)		
Latched output [7] (NO/YES)		

NOTE [1] Only if the Expansion Board ES404 with 4 inputs is installed. In each CE408, can be installed one ES404 to obtain a total of 8 Inputs 4-20mA (4 imputs standard + 4 with ES404).

NOTE [2] Only if the Expansion Board ES414 with 4 relay is installed. In each CE408, can be installed one ES414 to obtain a total of 9 relays outputs (5 outputs standard + 4 with ES414).

NOTE [3] Normally leave NO. It is only used to temporarily disable the outputs related to audible warning devices.

NOTA [4] It is recommended to always set a value between 10 and 60 seconds. (typically 10 to 20 sec. for Optical/Acoustic alarms and 30 to 60 sec. for Solenoid shut-off of the gas) . In case of alarm **PARKING-EN**, the minimum is 60 sec., but only for the relay set for the threshold 3 .

NOTA [5] Normally leave ZERO. It is used only to enable devices that must remain in operation more than alarm. This function can not be used together with the function **Time ON** and you can not select **YES** the **Larched Output**.

NOTA [6] Normally leave ZERO. This function can not be used together with the function **Hysteresis OFF** and you can not select **YES** the **Larched Output**.

NOTA [7] The Output Latched is set **YES** only if **Hysteresis OFF** or **Time ON** are set to ZERO. Normally should be set to **YES** to prevent the resetting of an actuator (eg. Solenoid shut-off of the gas) without first verifying that the Central is in alarm.

ANNOTATIONS:

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Password LEVEL 1 (For the User)	Password LEVEL 2 (For Installer or Maintenance technician)	Model.	Serial Number
		CE424P	SN:

1st Remote Unit Model.	Serial Number	2nd Remote Unit Model.	Serial Number
CE_ _ _UR	SN:	CE_ _ _UR	SN:

⚠ *We suggest to write down and store the code (max. 4 numbers) in a safety place. In case the Password get lost, contact our Service Dept. That will give an emergency Code.*

ℹ *The Serial Number, is in the label, at the center of the CE408P base or is displayed on the screen from the* menu **Settings → General → Info**