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EN54 MONOZONE CONTROL PANEL

52002

ADVANCED FIRE CONTROL SYSTEM

Use and installation manual

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1. CONTROL PANEL DESCRIPTION

1.1 General description

52002 is an electronic control panel that may be connected to smoke and/or heat detectors for fulfilling small and medium size installations.

The features that distinguish it are simplicity of installation and placement into service, associated with ease of use. The control panel, in fact, does not need programming and/or hardware or software configuration; once connected by cabling according to the instructions described in this manual, it is operational and guarantees correct and simple use.

1.2 Technical characteristics

52002 is a **single zone** control panel that allows monitoring of a suitable area without necessitating the requirement of the subdivision into distinct areas or the addressing of detection devices or activation of the alarms.

The **dual power supply** both by power line and rechargeable battery guarantees correct functioning of the control panel for some hours even in the event of a main power fault.

It is equipped with input for the connection of smoke and heat **detection devices** (up to 5 sensors of the approved EN 54-5 type for heat and EN 54-7 for smoke) for automatic monitoring of the surveillance area.

Through the use of the line for the **remote alarm buttons** (EN 54-11 approved type buttons), it is possible at any moment to activate a fire alarm warning by manual operation.

The signalling of the fire alarm is provided by **visual** (LED indicators) and **acoustic** signallers on board the control panel that guarantees the operative autonomy.

It is possible to connect to the control panel, an **additional acoustical** warning signal (EN 54-3 approved type siren) using the outputs provisioned for that purpose (with the characteristics of polarity inversion activation).

Using the **external control for silencing**, it is moreover possible to silence in the event of internal acoustic alarm warning signal (at Level 1) or the external siren (at Level 2). Furthermore, the same control allows silencing of any acoustical warning signals should they activate in the event of fault, by the lines, or by the control panel peripherals.

As already stated above, the control panel is provisioned with **control electronics** for the functionality of the principal operational lines necessary to the performance of its functions (protection against short-circuit [CC] and open circuit [CA]). Specifically, it periodically and cyclically verifies the electrical connections of the detection sensors, the remote activation buttons, the alarm signalling output device and **provides a visual and acoustical notification (local) of any faults** due to CC or CA of the same lines.

Besides, one of the evolved functionalities of the Control Panel provides that in the event in which both the detectors line and the remote buttons line are not in condition to guarantee the correct functioning of the control panel, the same automatically goes **into Out of Service status**, showing the new status with a dedicated visual signaller.

Another technical characteristic of the control panel is that of **periodic monitoring** of the qualitative status of **the batteries**; the control panel recognizes in fact, any deterioration of the same and notifies through a dedicated brightly lit indicator. (Further details in paragraph 11).

Lastly, beyond the activation of the acoustical and visual alarms, the control panel is provisioned with an **output line dedicated** for the piloting of retention **electromagnets for fire-break doors**. That output allows, in case of fire alarm, to release those electromagnets for consequential closure of the fire-break doors.

2. SYMBOLISM AND TERMINOLOGY USED

2.1 Symbolism used



Class II Apparatus

Apparatus by which protection against electrical shock is carried out through means of not only fundamental insulation, but also through means of supplemental and reinforced insulation acts to guarantee the protection against electrical shock to objects, persons and animals.



Apparatus provided for installation within interior environments

The installation of the apparatus must be carried out only and exclusively within interior locations and protected against water sprays, dusts and humidity. The installation within exterior environments or unprotected locations is not provided for.



Controlled disposal of the apparatus

At the end of its life cycle, as provisioned by Community Directive RAEE 2002/95/EC, this electronic apparatus must be disposed of in suitable differentiated collection centres intended for electrical or electronic equipment. Disposal together with solid urban waste is not permitted.

2.2 Control panel operational levels

As defined by standards EN 54-2 and EN 54-4, the functionalities of the 52002 control panel are regulated in the activation of its functionality by three distinct operational levels:

- Level 1 (basic level), also accessible at the public level and allows access to the following functions:
 - activation of the interior acoustical fire alarm to the control panel;
 - silencing of the acoustical warning signal of the control panel following an alarm or specific fault;
 - Manual release of the door retention electromagnets.
- Level 2 (protected level with respect to the previous), you may access this only by using the issued key. That operational level (normally reserved for the security manager of the operational area of the control panel), allows carrying out the following advanced functions:
 - silencing of the acoustical alarm signaller outside of the control panel (siren);
 - reactivation of the acoustical alarm signaller outside of the control panel (siren);
 - resetting of the control panel from the fire alarm condition;
 - activation of the "test" function of the lighting indicators, acoustic warnings inside of the control panel, acoustic alarm signallers outside of the control panel, fault signalling relays of the control panel;
- Level 3 (level reserved to specific personnel with a greater level of protection than the previous), normally reserved for maintenance personnel or technical assistance installers who have specific and detailed knowledge of the product in an adequate capacity so as to intervene on the control panel to modify/expand the configuration of the installation.

NOTE: the key furnished for changing of the operational level of the control panel is of a coded type. Maintain the copy of the furnished key in a safe place, taking care not to misplace it.

2.3 Control panel options with requirements

In accordance with requirements of the EN 54-2 regulation, the 52002 control panel is provisioned with the following optional functions with requirements:

- 7.8 Output towards the fire alarm devices; (Control panel alarm output)
- 8.3 Fault signal from the points; (Control panel relay output)

3. INSTALLATION AND ASSEMBLY

3.1 Installation Warnings

The responsibility is refused for damages to objects, persons and animals for operations or connections made not in accordance with the technical instructions contained in this manual. Operations not described within this document are considered as incorrect and therefore must not be followed.

Given the installation versatility of the product, in the event of doubts or for any clarification, before proceeding with connections or operations not described within this document, please contact technical assistance.

This document related to the 52002 control panel, following the installation and its related placement into service, must be stored with care for the entire lifespan of the product or in case of need, please contact technical assistance.

NOTE: The control panel subject to this manual has been developed according to standards of quality, reliability and performance, adopted by OPERA. All the components have been selected taking their application into account and they are capable of operating in accordance with the technical specifications when the environmental conditions on the outside of their containers are in accordance with category 3K5 of EN 60721-3-3:1995

3.1.1 Installation and positioning of the Control Panel

It is recommended to install the control panel in a place suitable for its expected use, possibly avoiding the common areas transited by persons. Identify a position that is both easily reachable by the operators assigned to the management of the functionalities (operations for silencing, resetting of alarms or placing into Out of Service for maintenance) and to the technical assistance employees.

WARNING: Install the control panel only within interior and protected locations; the apparatus is not designed for installation in locations unprotected from dusts or liquids, overflowing or humidity.

WARNING: Install the control panel in an adequate area that is protected from excessive sources of heat, solar rays, dripping or overflowing of liquids.

Anchor the control panel to a reliable and suitable support to hold it. For that purpose, use the 4 anchoring holes found in the four corners of the housing.

Typically the wall installation can be performed with 4 plastic anchors having a 6mm diameter. In any case, anchoring the 52002 control panel to the wall must be performed using anchoring devices suitable to the type of supporting material to which it is installed.

3.1.2 Protection device against over-voltages and over-currents.

WARNING: The connection of the 52002 control panel power supply must be made to a electrical power supply line type that is certified according to the electrical installation regulations in force.

WARNING: The main power supply line must be protected, before the connection of the 52002 control panel, from a line over-voltage, over-current and short-circuit protection device (bipolar isolating switch - approved type - 2x10A 250V PI 4,5KA). That device (outside the control panel) must be provisioned and installed upstream of the 52002 control panel to guarantee protection from the danger of short-circuit.

3.1.3 Included installation kit

Included with the Control Panel are furnished free of charge

- no. 2 each 1K Ω 1/4W resistors (brown/black/red/gold) for the "Remote Button Line" cabling;
- no. 1 each 1K Ω 1/4W resistor (brown/black/red/gold) for the "External Siren Line" cabling;
- no. 1 each 1K Ω 1/4W resistor (brown/black/red/gold) for the "Detectors Line" cabling;

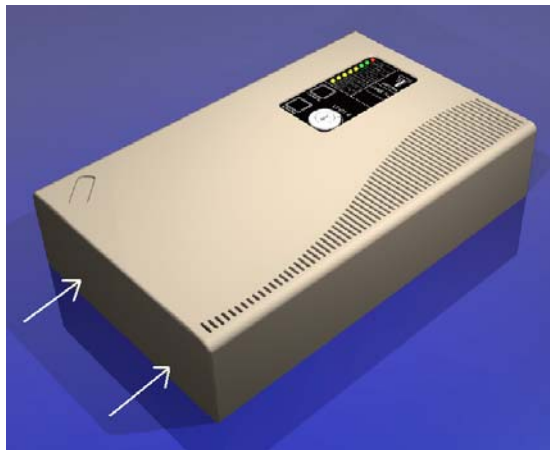
3.1.4 Interconnect cables

Make the following control panel electrical connections with cables of the following indicated specifications:

- AC power line, PVC cable or equivalent of certified type having a minimum conductor diameter of 1mm²;
- Sensors line, PVC cable or equivalent of certified type having a conductor diameter of 0,75- 1 mm²;
- Remote alarm button line, PVC cable or equivalent of certified type having a conductor diameter of 0,75- 1 mm²;
- Alarm silencing remote button line, PVC cable or equivalent of certified type having a minimum conductor diameter of 0,75mm²;

3.1.5 Positioning of the cables

The Control Panel input and output cable passage must be made using the appropriate cable knock-outs provided. Base on the need, shear off the knock-outs and position the cable. It is good installation practice, to secure the cables inside the control panel using suitable cable ties. Pay attention to the positioning of the cables so as to not degrade the insulation of the same cables.



3.2 Additional necessary external devices in the installation

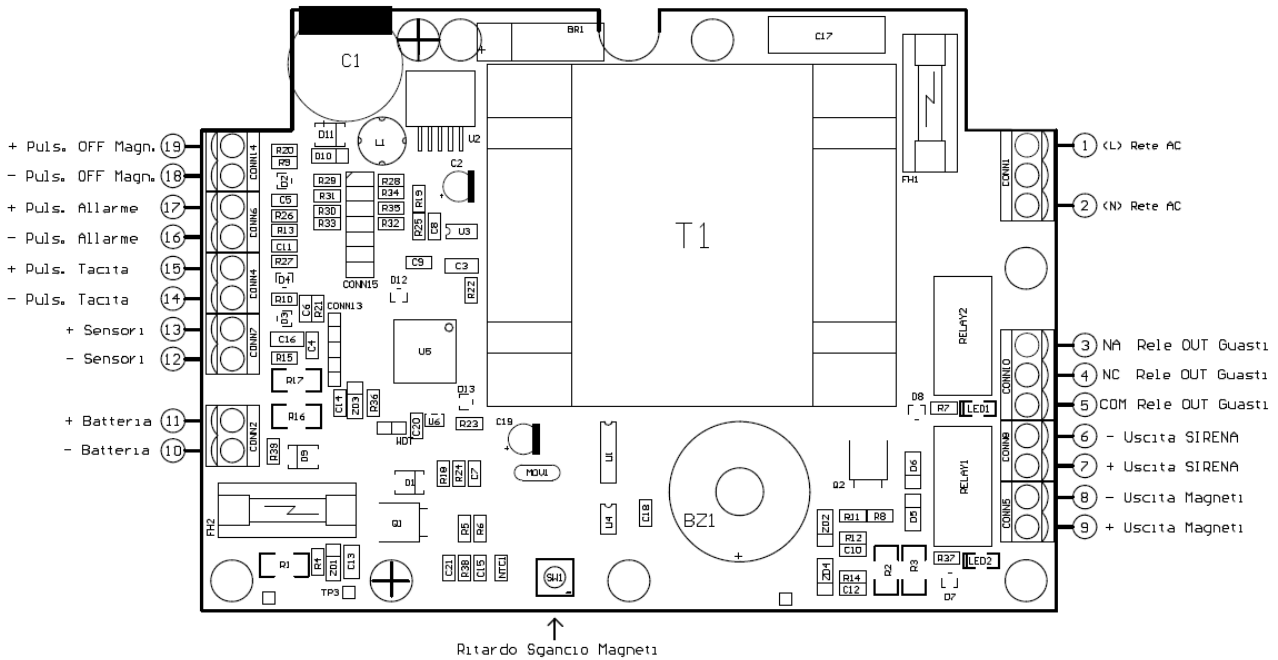
In order to guarantee the functionality in accordance with series EN 54 standards, it is obligatory that the installation of the 52002 control be completed with the following auxiliary devices:

- Heat detector (conforming to regulation EN 54-5 or EN 54-7) or combination smoke/heat detector (conforming to regulation EN 54-5 and EN 54-7)
- Remote fire alarm activation button conforming to regulation EN 51-11 (see the connection specification with R_{series} and $R_{parallel}$);
- Fire alarms and line/system fault Silencing Button; that button must be placed near the control panel and within and not further that 100cm of the same, in accordance with requirements of regulation EN 54-2;
- Battery pack for auxiliary power supplying (2 x 12 Vdc, 1.1–1.3 Ah);
- Fire alarm signalling siren conforming to regulation EN 54-3;

WARNING: *It is fundamental and obligatory that the components chosen for the completion of the Control Panel installation are of conforming and approved type according to regulations pertaining to the EN 54 series. Not being possible to provide a comprehensive list of manufacturers and models of associated devices required to complete the installation, it draws importance to this recommendation.*

The improper use of components that are not Certified or privy to approval to the previously cited regulations may cause incorrect functioning of the installation as carried out. In the event of danger, that failure of observance may cause damage to objects, persons and animals.

3.3 Control panel electrical connection



- Diagram 1 -

DESCRIPTION OF THE CONNECTION TERMINAL BLOCK FUNCTION

PIN	Port	Description
(*) (1) (2)	(L) AC Line (N) AC Line	Mono-phase power supply line input 230 Vac, 50-60 Hz (Phase – Neutral). The use of the ground protection conductor (yellow/green) is not necessary nor expected. The line must be fault protected using a protection device (as indicated in Par. 3).
(*) (3) (4) (5)	Relay OUT Faults NA NC COM	Output relay of the FAULT/OUT OF SERVICE status of the control panel. Utilize the COM/NA/NC contacts available (cleaned) to interface the Control Panel to the specific external device for signalling the fault condition. The relay, following activation of the control panel into the STANDBY position, is brought into the <u>energized state</u> . In the event of anomaly or specific fault, the relay <u>de-energizes</u> (safety active). Electrical specifications of the COM/NA/NC contacts – 1 A, 24Vac. Maximum allowable length of the line: 10m.
(*) (6) (7)	- SIREN output + SIREN output	Output for the connection of the FIRE ALARM EXTERNAL ACOUSTIC SIGNALLER (carried out by voltage polarity inversion technology). The output is protected against the CC and CA. In the event of CC or CA of the line, the specific “SIREN LINE FAULT” indicator is activated to signal the anomaly in the control panel output functionality. That signalling is accompanied by the activation of the “GENERAL OUT OF SERVICE/FAULT” indicator. Output voltage 12 Vdc Maximum number connectible: <u>2 units</u> - Maximum deliverable current: 50mA. Make the connection with a two conductor cable having a minimum conductor diameter of 0,75mm ² as shown in <u>Diag. 3</u> with a maximum allowable line length of 30 m. Residual ripple: 108 mV (1%)
(8) (9)	- Magnets output + Magnets output	Output for connection of the electromagnets line - Output voltage 23,5Vdc/350 mA max when powered by line (23,3Vdc with maximum load and line disconnected). Residual ripple: 242 mV (1%) Maximum number of electromagnets connectible to the control panel: <u>4 units</u> . – Make the connection of the electromagnets using cable having a minimum conductor diameter of 1,5 mm ² - Maximum expected length of the line: 30 m. WARNING: Do not overload the control panel output. Do not connect a number of electromagnets greater than the quantity prescribed in this manual. Risk of overheating and damaging of Control Panel components.

	PIN	Port	Description
(*)	(10) (11)	- Battery + Battery	Input for connection of auxiliary power supply (Battery). 24Vdc provided voltage – Capacity: 1,1-1,3 Ah. Only use batteries shown in the Control Panel use manual. WARNING: during the battery connection, pay attention to not invert the polarity. In any case, the control panel is protected against that mishap by way of a protection fuse, located near the battery connector.
(*)	(12) (13)	- Sensors + Sensors	Input for connection of the line for external fire alarm detectors. Maximum number of sensors provided, <u>5 units</u> . Make the connection as shown in <u>Diag. 2</u> with a maximum allowable line length of 100m.
(*)	(14) (15)	- Silencing Button + Silencing Button	Input of the fire alarm silencing and fault signalling button contacts. The control “SILENCE” functions in two modes. If the control panel is in Level <u>1</u> in the event of fire alarm, it silences <u>only</u> the acoustical signaller inside the control panel. If the control panel is in Level <u>2</u> in the event of fire alarm, it silences both the internal acoustical signaller as well as the external “ALARM SIREN”. Make the connection as shown in <u>Diag. 4</u> . NOTE: in order for Conformity to regulation EN 54-2 it is <u>prescribed to install the alarm silencing button within a distance of 100cm from the control panel</u> .
(*)	(16) (17)	- Alarm Button + Alarm Button	Input for the connection of the fire alarm remote activation buttons line. The line is protected in case of CC (short-circuit) and CA (open circuit). Make the connection as shown in <u>Diag. 1</u> with a maximum allowable line length of 30m. NOTE 1: the fire alarm activation line by “REMOTE BUTTON” is designed for a “parallel” connection of the activation buttons. That line is a “ <u>non-addressable</u> ” type, for which the possible occurrence of the CC or CA of a <u>single</u> button on the specific line may not be detected. The control panel exclusively verifies the status of the principal line and detects any CC or CA fault. (Refer to the wiring connection schematic in <u>Diag. 1</u> for the connection details). NOTE 2: in case of the installation of more buttons in parallel, the series resistor is placed in the first button, and the line load must be placed in the last button at the end of the line.
	(18) (19)	-But. Magnets OFF +But. Magnets OFF	Input for the connection of the external button for the manual release of the fire-break doors retention electromagnets. The maximum allowable line length is 30m.
	SW1	DELAY	Programming button for the electromagnets release delay time following the Alarm condition. (Programmable only by LEVEL 3).

NOTES: The connections indicated by the symbol (*) are obligatory for the correct installation of the control panel; those free of the symbol instead, albeit recommended, are optional.

WARNING: each function not previously described or not contained in this manual is not permitted.
Before making connections not described in this manual, please contact the reseller or referenced assistance listed in the first page of this document.

4. PLACING INTO SERVICE

4.1 First start-up

Having finished the electrical cabling of the Control Panel, it is now possible to turn it on.

Programming operations are not expected nor are hardware and/or software activation.

Proceed with the following sequence:

- Turn on the control panel by powering it first with the main power supply line, (using the external isolation switch required by the installation, but not furnished – ref. par. 3).
- Next, connect the auxiliary voltage battery connector.

Unless there are problems, the control panel must work and show with the display indicators "AC POWER LINE", "BATTERY POWER" and "MAGNETS POWER" on. No other illuminating or acoustical indicators should be active or flashing.

At this point, the control panel is operative and ready for the related functional testing and expected operation.

4.2 Functional testing

Once the control panel is activated, technical testing of the functionality of the peripherals is recommended. The suggested main verifications are as follows:

FAULT DESCRIPTION	CONTROL PANEL BEHAVIOR	INTERVENTION TIMESCALES
Removal of the main power supply	Flashing of the indicators "AC POWER LINE" and "GENERAL Out of Service/Fault." - Relay activation "Relay OUT Faults".	Detection: within 60 sec. Resetting: within 5 sec.
Removal of the auxiliary battery power supply	Flashing of the indicators "BATTERY POWER" and "GENERAL Out of Service/Fault." - Relay activation "Relay OUT Faults".	Detection: immediate Resetting: immediate
Simulation of the CA or CC fault of the DETECTORS line	Flashing of the indicators "Detectors Line Fault" and "GENERAL Out of Service/Fault." - Relay activation "Relay OUT Faults".	Detection: within 5 sec. Resetting: within 30 sec.
Simulation of the CA or CC fault of the REMOTE BUTTONS line	Flashing of the indicators "Rem. But. Line Fault" and "GENERAL Out of Service/Fault." - Relay activation "Relay OUT Faults".	Detection: immediate Resetting: immediate
Simulation of the CA or CC fault of the external SIREN line.	Flashing of the indicators "Siren Line Fault" and "GENERAL Out of Service/Fault." - Relay activation "Relay OUT Faults".	Detection: immediate Resetting: 10 sec.
NOTE:	Each one of the listed faults <u>must automatically</u> reset to halt the condition that it generated.	

NOTES: In the event of anomalies or malfunctions not described in the preceding table, refer to paragraph 8, "FAULTS AND TROUBLES" for resolution of the problems.

4.3 Electromagnet release delay function

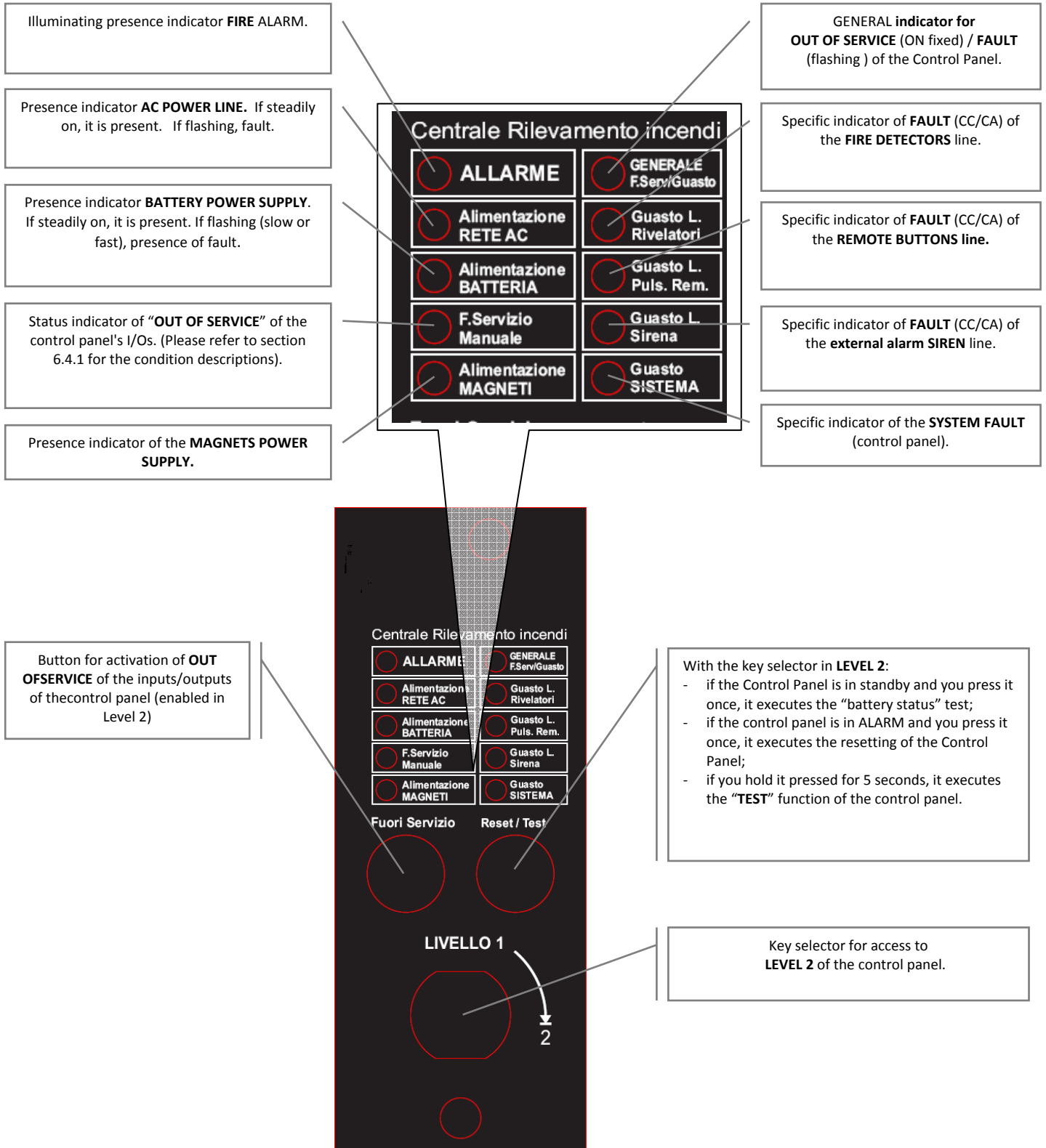
The 52002 control panel is equipped with the programming function for the **electromagnets release time**, useful for a complete personalisation of the functionality. That function provides that following an Alarm condition, the electromagnets can be released after a pre-established time delay.

The factory default setting of that delay is set to the minimum time, with an immediate release.

The procedure on how to modify that parameter is described in paragraph 6.6.

5. CONTROLS AND ILLUMINATING INDICATORS

Shown in the following is the description of the controls and indicators found on the interface outside panel of the Control Panel.



6. FUNCTIONALITY OF THE 52002 CONTROL PANEL

6.1 Standby

During the standby condition, the control panel is operational and periodically monitored, cyclically monitored for the peripherals, to verify any fault conditions or alarm signalling originating from the detector or remote button lines.

*Every 180 minutes, the control panel automatically executes testing of the battery capacity. The execution of the test is indicated by the intermittent flashing of the **"BATTERY POWER"** indicator for a duration of 5 seconds.*

From the standby condition of the Control Panel, moving the key selector into the Level 2 position is possible:

- a) to carry out the manual test of the battery capacity by pressing the **"RESET/TEST"** key once.*
- b) to carry out the complete test of the Control Panel peripherals and the acoustical and visual indicators, by pressing and holding pressed the **"RESET/TEST"** key for 5 seconds.*
- c) Carry out the programming of the fire-break doors electromagnets release delay time, using the sequence described in 6.6;*

6.2 Alarm

The Control Panel goes into an Alarm condition after one of the following events:

- signalling coming from the smoke and/or heat detector;
- alarm entry from a remote alarm signalling point;

The signalling of the Alarm condition is identified from:

- the activation of the illuminating (steady) ALARM indicator;
- the activation of the internal acoustical signaller of the control panel (continuous)
- the activation of the external acoustical signaller of the control panel (external siren);

6.2.1 Silencing of the alarms

Using the button (external) “**But. SILENCE**” it is possible to silence the internal acoustical (buzzers) and external (siren) signallers.

With the key selector in the position “Level 1”, pressing SILENCE it silences only the signaller on board the control panel.

With the key selector in the position “Level 2”, pressing SILENCE it silences both the signaller on board the control panel as well as the output of the external Siren.

NOTE: the ALARM silencing operation (at any Level when executed) maintains the control panel in alarm condition, with the respective visual indicators activated. The SILENCING operation is not to be confused with the resetting (RESET) of the Control Panel from the ALARM condition.

6.2.2 Resetting from the Alarm condition

It is possible to carry out the resetting from the Alarm condition using the “RESET/TEST” key located on the user interface panel. That operation, granted only on the condition that the control panel is set to Level 2 (key inserted and rotated to LEVEL 2 position), brings it back into STANDBY with the resulting deactivation of all the visual and acoustical indicators. Following the manual RESET, the control panel always executes a check on the battery status, indicated with the flashing of the “Battery Power” LED for 5 seconds.

6.2.3 Faults arising during the Alarm condition

The control panel automatically recognizes the faults of the detector lines, remote button lines and external siren output. In the event a failure arises when the control panel is found in Alarm condition, the same is detected and identified with the appropriate general and specific (flashing) LED indicator.

The internal acoustical signalling, in case it verifies a fault, changes from a continuous tone (alarm condition) to an intermittent tone that identifies the new ALARM + FAULT condition. Upon the fault reset, the control panel returns to the previous operational status. Those considerations apply even with multiple faults.

6.3 **Faults**

The control panel automatically detects the faults that it can verify during the functioning.

The control panel is brought into Fault condition after one of the following events:

- Short-circuit (CC) or interruption of the circuit (CA) of the detectors line;
- Short-circuit (CC) or interruption of the circuit (CA) of the alarm activation remote buttons line;
- Short-circuit (CC) or interruption of the circuit (CA) of the external siren output line;
- Lack of or reduction to below the minimum main power supply voltage threshold;
- Lack of or reduction to below the minimum auxiliary power supply (battery) voltage threshold;
- Deterioration of the internal capacity of the battery (that does not allow correct functioning of the control panel in case of a main power supply line outage;)
- Internal system fault;

The signalling of the Fault condition is identified by:

- the intermittent activation of the illuminating **“GENERAL Out of Service/Fault”** indicator
- the intermittent activation of the specific indicator of the present fault
- the intermittent activation of the acoustical signaller inside the control panel
- the activation (status change) of the control panel output relay **“Relay OUT Faults”**;

Using the external control **“Silence But.”**, it is possible in Level 1 to silence the acoustical signaller.

If beforehand silenced, upon each new Fault arising, the internal acoustical signaller will restart to sound so as to alert of the new Fault arising.

In the event of an automatic fault reset, the control panel automatically goes into standby status.

6.3.1 **Power supplies fault**

The control panel automatically detects Main and Auxiliary power supply faults, by way of illuminating and acoustical signallers.

Main:

The management of the fault signalling is provided as follows:

In the case in which the power supply line voltage is less than 195 Vac (with 4 electromagnets connected), the control panel signals the fault of the same by way of intermittent flashing of the illuminating **“AC POWER LINE”** indicator.

NOTE: From that moment in which the control panel detects the reduction, the same guarantees a 20 minute period of power supply to the door-stop electromagnets. After that period, the control panel automatically releases the electromagnets for as long as the main power supply line nominal voltage is not restored.

Auxiliary (by battery):

The management of the auxiliary voltage is provided as follows:

- From 27 - 23 Vdc the battery is considered charged and guarantees the correct performance of the functionalities;
- Under 23 Vdc in order to guarantee the maximum operational autonomy of the control panel, the electromagnets output is deactivated;
- Under 21 Vdc, the control panel activates the illuminating flashing “**BATTERY POWER**” indicator to indicate an insufficient battery voltage level that no longer allows a correct performance of its functionality. Having both power supply sources insufficient, the control panel no longer performs its functionality but continues to emit the acoustical signalling of the faults;
- At 18 volts the control panel goes completely into Out of Service with the sole “**GENERAL Out of Service/Fault**” indicator lit steadily.

The control panel automatically resets **upon reactivation of the nominal power supply line voltage**.

NOTE: After that reset it is necessary to wait a period of up to 12 hours to completely recharge the battery. In that recharging period, the periodic verification test of the battery capacity is not performed, until the battery voltage exceeds 25,5 Vdc.

6.3.2 Fault of the “± SENSORS” detectors line

The control panel's input line of the smoke and/or heat detectors is protected against the overload (100mA), the short-circuit and the open-circuit of the line. The signalling of any fault present on the line is carried out in the following way:

- Activation of the flashing general visual “**GENERAL Out of Service/Fault**” signaller;
- Activation of the flashing specific visual “**Detectors Line Fault**” signaller;
- In the event of the fault reset, the control panel is brought back into normal functioning condition.

6.3.3 “± AlarmBut.” remote buttons line fault

The input line of the remote fire alarm activation buttons of the control panel is protected against short-circuit and recognizes the interruption of the line. The signalling of the line fault is made in the following way:

- Activation of the flashing general visual “**GENERAL Out of Service/Fault**” signaller;
- Activation of the specific visual signaller “**Rem.But. Line Fault**” flashing;
- In the event of the fault reset, the control panel is brought back into normal functioning condition.

6.3.4 “± ALARM OUT” external Siren line fault

The output line of the external Siren is protected against short-circuit and overload up to 500mA. Upon exceeding the overload current, the output is deactivated for 2 seconds and the periodic attempt to reactivate the line is carried out.

The external Siren line fault signalling is carried out in the following way:

- Activation of the flashing general visual “**GENERAL Out of Service/Fault**” signaller;
- Activation of the specific visual “**Siren Line Fault**” signaller flashing;
- In the event of the fault reset, the control panel is brought back into normal functioning condition.

6.3.5 “ELECTROMAGNETS” line fault

The output line for the closure of the door electromagnets is protected against overload or short-circuit up to 500mA. Upon exceeding the overload current, the output is deactivated for 5 seconds and the periodic attempt to reactivate the line is carried out.

6.3.6 System fault

The system fault is a type of “critical” error so as to inform the user that the microprocessor, being the main functional device of the control panel, is no longer performing its expected functions. The illuminating “**SYSTEM Fault**” indicator becomes active in the event of an important blockage of the micro-controller by way of the supervisory system of the control panel.

Even if extremely improbable, in case the indicator turns on, turn off the control panel, remove the battery power supply and then restart it. If the fault persists, contact technical assistance for the necessary interventions.

6.4 Out of Service

The Control Panel is capable of recognizing the main faults that it verifies and places itself into Out of Service condition in the event those faults do not allow the correct operation of the same.

The Out of Service condition is signalled in the following way:

- Activation of the internal acoustical signalling (intermittent);
- Activation of the visual Out of Service “**GENERAL Out of Service/Fault**” indicator (steady);

The Out of Service condition may be reset in an automatic way upon resetting of the fault that generated it.

6.4.1 Manual Out of Service

It is possible to set the following functional lines of the control panel into “OUT OF SERVICE” for the activities of exclusion, maintenance and/or repairs of the peripherals:

- “Detectors line” input and “Remote Buttons Line” input;
- Alarm “External siren line” output;

From operative “Level 2” of the control panel, it is possible to carry out:

- by pressing for 1 second the “Out of Service” button, placing the external siren alarm output into “OUT OF SERVICE” ;
- by pressing for 5 seconds, the “Out of Service” button, placing into “OUT OF SERVICE” the input lines for the “detectors” and the “remote buttons for activation of the alarm;

It is also possible to perform combinations to activate and reset the partial Out of Service settings for the control panel inputs/outputs.

The deactivation of the active OUT OF SERVICE(S) is possible only and exclusively through an operation that is the reverse of the activation operation. The **RESET** after an alarm or the completed **TEST** condition of the control panel do not provide for the deactivation of any activated Out of Service.

NOTE: when all of the detector line inputs, remote buttons inputs and siren output are placed into “OUT OF SERVICE”, the control panel is no longer operative and therefore not capable to detect or signal ALARMS or FAULTS.

6.4.2 Automatic Out of Service

The control panel automatically sets itself into OUT OF SERVICE when the main power supply (electrical line) is not present and when the auxiliary voltage (battery) is at a level that does not allow the correct operational performance of the same control panel.

6.5 Test

From the **STANDBY** position of the control panel, it is possible to conduct the following functional tests:

6.5.1 Battery capacity verification

By turning the key to “Level 2” and pressing the “TEST/RESET” key once, it is possible to carry out the battery capacity verification.

The test lasts around 5 seconds and is indicated by the flashing of the corresponding “**Battery Power**” indicator.

If the test passes, the control panel remains in the **STANDBY** condition to indicate good battery status.

If the battery is in bad condition, the control panel signals that trouble by intermittent lighting of the “**GENERAL Out of Service/Fault**” indicators (normal flashing), “**BATTERY Power LED**” (slow flashing) and the local acoustical signaller.

NOTE: that signalling is **very important** and indicates that the battery needs to be substituted at the first possible opportunity, in case of main power supply line outage, the control panel may no longer guarantee its correct operational performance.

It is possible to silence the local acoustical signaller for the battery fault, using the “**SILENCE**” command outside the control panel. Once silenced, the next battery test (provided once every 3 hours), in case of that condition still remaining (deteriorated battery), the acoustic alarm will be reactivated.

6.5.2 Complete control of the functionality and peripherals of the control panel

It is possible to verify the functioning of the visual and acoustical indicators by using the “**TEST**” function of the control panel.

To activate the function, from the **STANDBY** condition, insert the key and turn it to “Level 2”.

Press and hold the “**RESET/TEST**” key for around 5 seconds (ref. par. 4).

The control panel, upon verification the correct functionality, must:

- turn on all the illuminating indicators on the panel
- activate the internal acoustical signaller of the control panel
- activate any external siren
- disengage the internal relay (safety active) indicator of the fault condition
- disengage the electromagnets line
- verify the correct internal microprocessor surveillance device (watchdog)
- perform the qualitative check of the battery status

The test lasts around 2 seconds and upon finishing, it is necessary to release the held button in order to return to the initial status of the control panel.

That **TEST** function may also be consecutively carried out more times.

6.6 Programming of the electromagnets release delay

It is possible to display the set delay time, by pressing the "SW1" button for 1 second, the button is located inside the control panel and directly accessible on the electronic circuitry (Level 3).

The number of "Magnets Power" LED flashings correspond to the selected intervals of 5 seconds.

To activate the programming of the TDELAY, the key selector must be set to "Level 2".

Using the "SW1" button, it is possible to set it with 0 to 12 intervals of 5 seconds each, up to a maximum time of 60 seconds, for the delay time that occurs between the entry into alarm condition of the control panel and the release of the electromagnets.

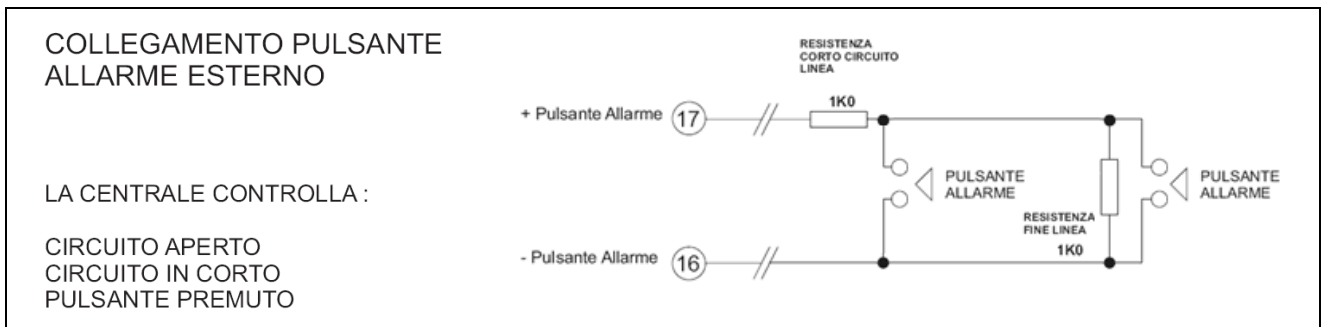
Simply put, if you want to set the delay to 10 seconds, you must set 2 flashes; if you want 30 seconds, 6 flashes, and so on.

To change the timing, proceed in the following manner:

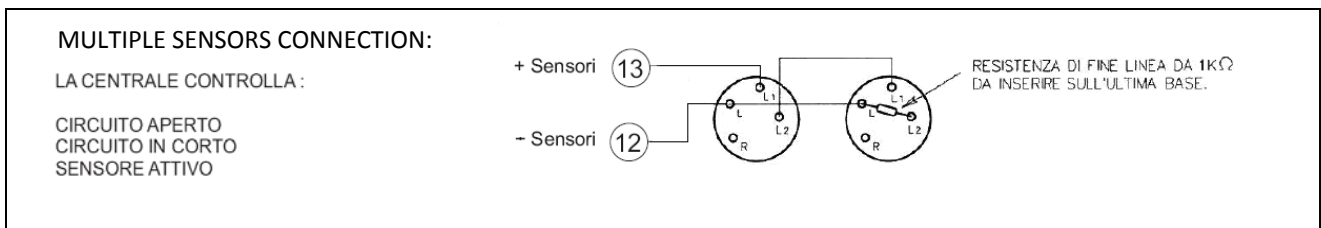
- *the procedure is done by pressing (and holding pressed) the control panel SW1 button, from standby condition. The illuminating "MAGNETS POWER" indicator turns off and then back on for 1 second. (displays the programming phase). The LED will emit a quick flash for each interval (5 sec.) that you want to introduce. Once the desired number of intervals have elapsed, release the button. At this point, to confirm the operation, the LED will display the number of flashes that you have set and (that are multiplied by 5) correspond to the delay time seconds. The procedure ends with the steady re-lighting of the LED.*

To reset it to the 0 seconds minimum delay time, carry out the above described procedure and release the button as soon as the first flash lasting 1 second occurs (no quick flashing).

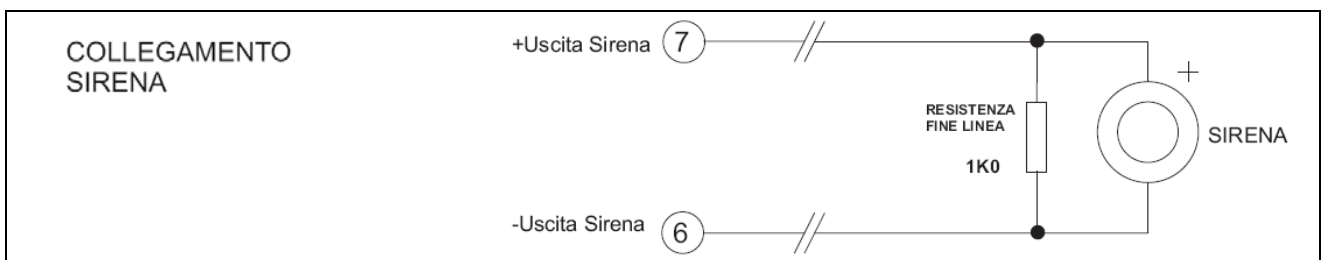
7. ELECTRICAL CONNECTION SCHEMATICS



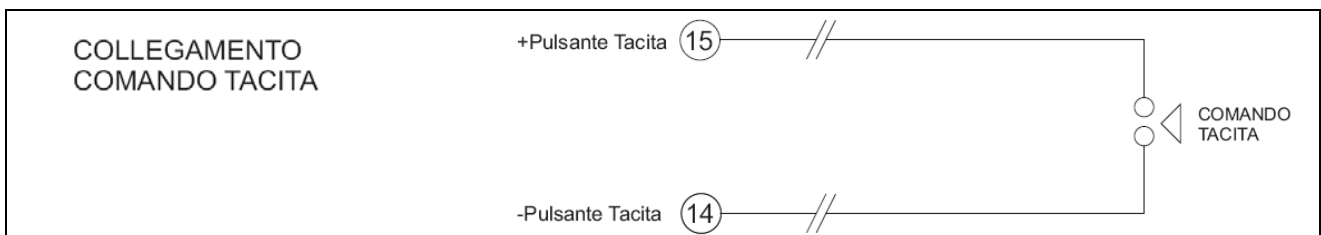
Diag. 1 – Connection schematic of the remote alarm activation button - “± But. Alarm”.



Diag. 2 – Connection schematic of the heat and smoke detector.



Diag. 3 – Main connection schematic of the fire signalling external acoustical device.



Diag. 4 – Main connection schematic of the silencing button for the alarm and fault signalling.

8. MAINTENANCE AND CLEANING

There are no specific provisions for the maintenance of the control panel.

Clean the control panel housing with a damp cloth. Avoid strong solvents and/or abrasives. Take care during the cleaning operation to not introduce liquids into the inside the control panel.

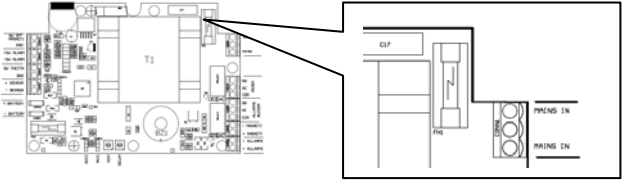
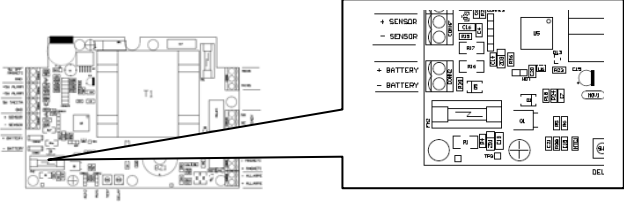
9. EUROPEAN CERTIFICATION

The control panel is provided with CE branding in reference to the Community Directive for Construction 89/106/CE products in accordance with series EN 54 standards. The Declaration of Conformity has been written by the manufacturer and is available on request at the OPERA S.r.l. company.

CE 0051
Via Somalia, 15-17 - 41122 – Modena – Italy Tel. +39 059 451708 - Fax. +39 059 451697 - info@opera-access.it - www.opera-italy.com
10 CE 0051-CPD-0264
<i>Control panel for control and signalling for detection systems and fire signalling for buildings</i>
OPERA 52002
EN 54-2+A1: 2006, EN 54-4:1997 +A1:2002 +A1:2006
<i>Furnished options:</i> (7.8) - Output to fire alarm devices (8.3) - Fault signal from points
<i>Other technical data: see TCF_OPERA 52002 in possession of the Manufacturer.</i>

10. FAULTS AND TROUBLES

Listed in the following are the typical faults that may be occur during the installation or the functioning of the control panel. Nevertheless, the list is not exhaustive and it is necessary to contact assistance for faults not listed in this summary table or in case of **persistence of the same fault**.

PROBLEMS DISCOVERED	RESOLUTION
<p>Following the installation, after having activated the power line voltage, the control panel does not turn on.</p>	<ol style="list-style-type: none"> 1. Check the presence of the power supply line to the external 3 pole terminal connectors. 2. Disconnect the power supply line from the control panel and only afterwards, verify the integrity of the power line protection fuse (see specific drawing). In case it is damaged, substitute it before reconnecting that connector. (see specifications in Par. 11). 
<p>Following the installation, with the control panel powered by the AC line, after having inserted the battery connector, the "BATTERY POWER" + "GENERAL Out of Service/Fault" indicators continue to flash and the acoustical signaller of the control panel sounds intermittently.</p>	<p>Probable interruption of the battery protection fuse. Disconnect the power supply line from the control panel and verify the status of the fuse. If it is damaged, substitute it (see specifications Par. 11) and before reconnecting that connector, verify the correct polarity. (see specific drawing).</p> 
<p>Following the installation, with the control panel powered on, one of the following indicators flashes: "Detectors Line Fault", "Fault Line But. Rem." or "Siren Line Fault".</p>	<p>Check the connections made and the relative load resistors and terminations used.</p>
<p>With the control panel in STANDBY, the external alarm siren is active.</p>	
<p>Activating the control panel alarm from "± But. Alarm " or from "± Sensors", the external siren does not sound.</p>	<p>Check the correct polarity of the siren by inverted polarity</p>
<p>The control panel is powered by power supply line (independently from the battery) but the output for the electromagnets is not activated (indicator off).</p>	<p>Check the power supply line voltage to be sure it is above 185 Vac~. (Minimum voltage required for correct functionality of the control panel).</p>
<p><u>Battery Power LED</u> flashing (slowly) and <u>General Out of Service/Fault LED</u> intermittent.</p>	<p>Battery capacity test failed; it is necessary to substitute the battery to guarantee the correct operability of the control panel.</p>

11. TECHNICAL SPECIFICATIONS

- **Power supplies:**
 - Main, from line 230 V~, +10% -15%, 100 mA, 50-60Hz.
 - Auxiliary, furnished from no. 2 batteries 12 Vdc / 1,1 - 1,3 Ah.
 - Current I_{min} : 264 mA (in accordance with EN 54-4)
 - Current I_{max} : 424 mA (in accordance with EN 54-4)
- **Protection Fuses:**
 - AC line power supply: T 200mA L 250V (5*20 mm);
 - Battery (auxiliary power supply): T 1 A L 250V (5*20 mm);
- **Operational Zones:**
 - Single zone.
- **Operational conditions for functioning:**
 - 5°C +40°C.
- **User interface:**
 - User interface panel with LED indicators for the operational status of the control panel, with the following displays:

ALARM	OUT OF SERVICE AND GENERAL FAULT
presence/fault of the AC POWER SUPPLY LINE	DETECTORS LINE FAULT
presence/fault of the BATTERY POWER	REMOTE BUTTONS LINE FAULT
MANUAL OUT OF SERVICE/TEST	SIREN LINE FAULT
ELECTROMAGNETS POWER SUPPLY	SYSTEM FAULT

- Manual Out of Service Button for the detectors line input, remote buttons input, and external siren output.
- Reset button from the ALARM condition, of FAULT or of OUT OF SERVICE.
- Inter-blocked key selector for access to the LEVEL 2 functions of the control panel.
- **Inputs (on terminal block):**
 - Line for heat and/or smoke detector(s)
 - Line for remote/alarm activation button(s)
 - Line for remote/manual electromagnets release button(s)
 - Button for silencing/reactivation high sounding alarm (local advisor + external siren).
- **Outputs (on terminal block):**
 - “± Siren Output” external line for fire alarm signalling;
 - “Relay OUT Faults” output on clean contacts COM/NA/NC of 24 Vdc relay;
 - “± Magnets Output” output for the connection of the electromagnets line. (Output voltage 23,5 Vdc).
- **Other provided functions:**
 - Battery capacity and voltage check.
 - Battery capacity test (signalling when the $R_{is} \geq 2,7\Omega$).
 - Silencing of the acoustical alarm signalling in Level 1 (+ of the external Siren in Level 2);
 - Reactivation of the alarm signalling following a new signalling on the part of one of any of the detection devices.
 - Possibility to set the lines of the DETECTORS INPUTS and REMOTE ALARM ACTIVATION BUTTONS into MANUAL OUT OF SERVICE for maintenance or intervention operations on the installation.
 - Possibility to set the output line of the EXTERNAL SIREN into MANUAL OUT OF SERVICE for maintenance or intervention operations on the installation.
 - Complete auto-test of the illuminating and acoustical indicators of the control panel.
- **Autonomy of functioning by battery:**
 - Automatic test period of the battery capacity: 180 minutes.
 - Up to 4 electromagnets: 20 minutes.

(Note: the technical data refer to batteries in efficient and completely charged conditions).

 - Maximum deliverable battery current (without AC power line supply): 314 mA.
- **Battery recharging parameters (at nominal voltage):**
 - Recharging/maintenance current: 110mA / 40mA.

- Voltage/temperature relationship for the battery recharging

