Software

PC configuration

<u>Manual</u>

WARNINGS

THIS MANUAL MUST BE CAREFULLY READ BY ALL PERSONS WHO ARE OR WILL BE RESPONSIBLE FOR INSTALLING, USING OR SERVICING THIS PRODUCT.

OTHERWISE, IT COULD FAIL TO PERFORM AS DESIGNED AND PERSONS WHO RELY ON THIS PRODUCT FOR THEIR SAFETY COULD SUFFER SEVERE PERSONAL INJURY OR DEATH.

Sensitron S.r.l provides a guarantee for the product supplied. This guarantee lapses if installation, use or maintenance are not carried out in accordance with the instructions of this manual.

For further information about installation, maintenance and, eventually, restoration of this product, please contact Sensitron S.r.l.

THIS MANUAL EXCLUSIVELY DESCRIBES THE CONFIGURATION SOFTWARE USED FOR GAS CONTROL PANEL OF MULTISCAN ++ SERIES (8, 16, 32, 64, 128 AND 256), MULTISCAN ++ PARK SERIES (16, 32, 64, 128 AND 256) AND PL4 + D. THE INFORMATION REPORTED IS NOT SUFFICIENT FOR THE COMPLETE USE OF THE GAS CONTROL UNITS, THEREFORE PLEASE REFER TO THE PROPER INSTRUCTION MANUAL SUPPLIED BY THE MANUFACTURER.

Summary

L'indice è vuoto perché non stai utilizzando gli stili paragrafo che hai scelto di visualizzarvi.

1. Introduction

The PC configuration software is a simple and complete interface for programming the gas control units produced by Sensitron S.r.l.

The software is used to:

- Load the data from the gas control unit and check its programming and event log;
- Simplify changes to the gas control unit's operating modes (such as sensor alarm levels);
- Download the configuration and changes made to the gas control unit;
- Maintenance;
- Initial programming of the gas control unit by a Sensitron technician or installer.

1.1 Minimum pc hardware requirements

Operating System	Windows XP, Windows Vista, Windows 7 o Windows 10
CPU	Pentium 3, 500Mhz
RAM	1 Gb
Hard Disk	400MB di spazio libero

2. Installation

Connection to the PC takes place through USB port available and follow the described instructions.

3. Launching the program

Launch the program from the Windows program bar by clicking on "Configuratore Centrali Galileo"
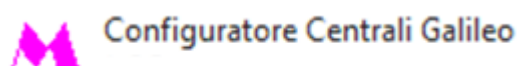

Fig. 3.a) Program name in the Windows list

The login window will appear. Each user must be authorised to use the program. See the chapter entitled "User Management Application" in this manual to create users with their relevant permissions.

The first time the program is used after installation, the only user present is Sensitron with a default password. The username Sensitron is the Administrator, which is the highest level user with permissions to access all program functions. Then enter the following in the window of Fig. 3.b.
Enter the following credentials:
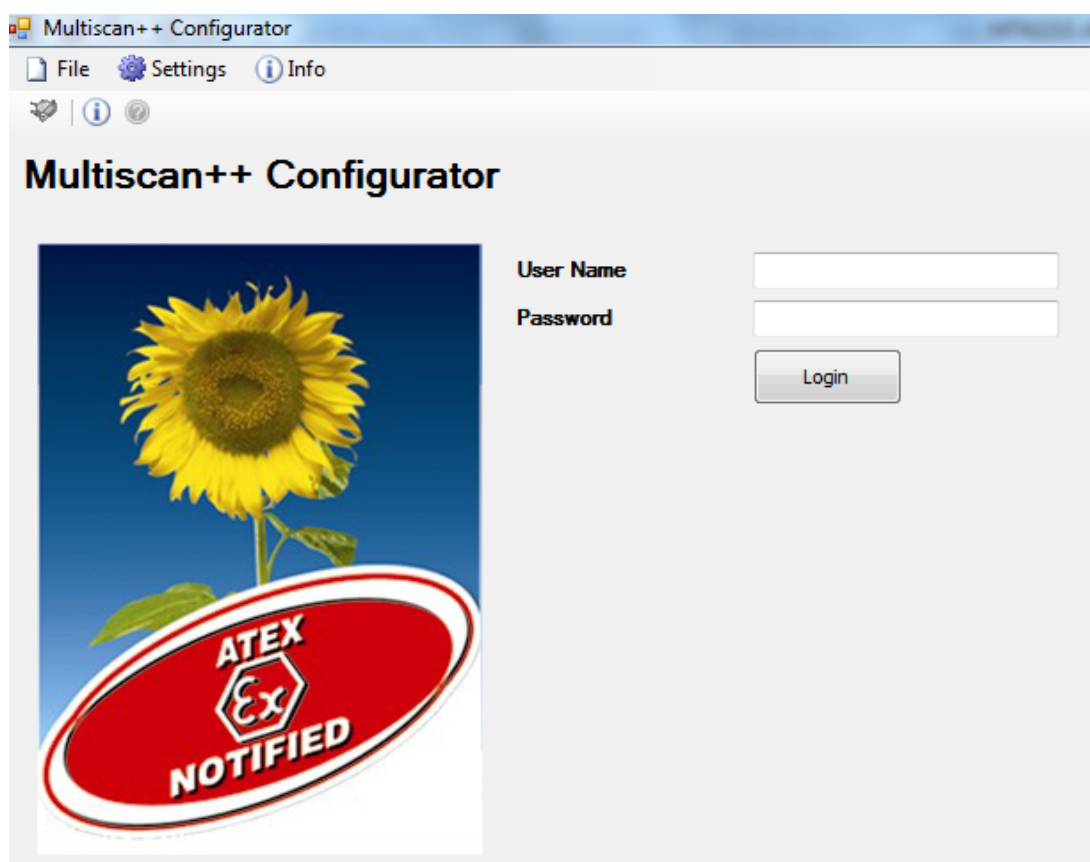
User name: **sensitron**
Password: **543210**

Fig. 3.b) Configuration program login screen.

3.1 Gas control unit selection

Once login has been performed the control unit selection screen will show.
It is possible to choose a control unit from the drop menu, or let the program detect which control unit is connected by clicking the "CPU Detection" button. By clicking the "Config Detect" button is possible to select the correct control unit according to a previous saved configuration file. User must click the "Config Detect" button in order to choose a configuration file; once the file has been selected, the software will display the correct control unit in the drop menu.
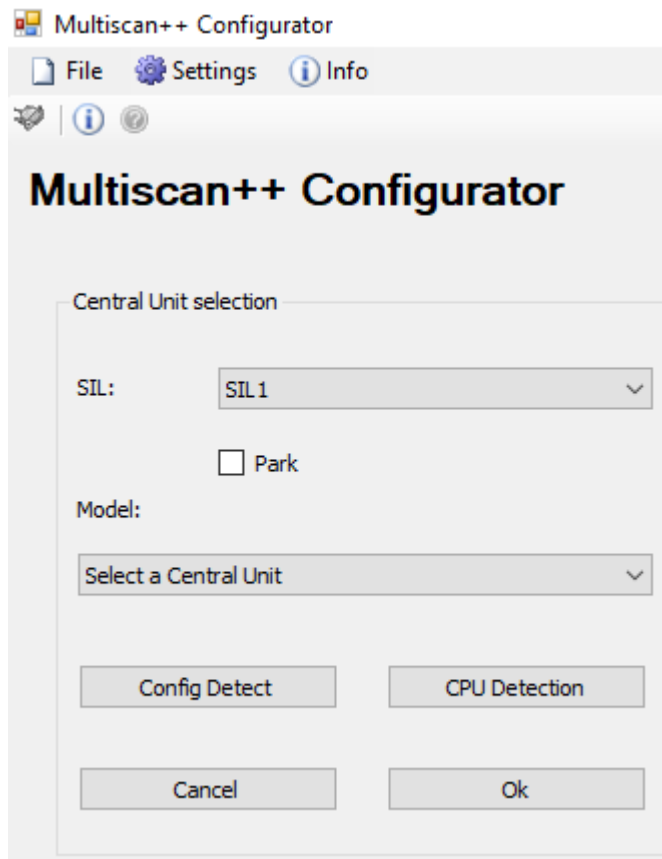
Fig. 3.1.a) Gas control unit selection screen

3.2 Main program screen

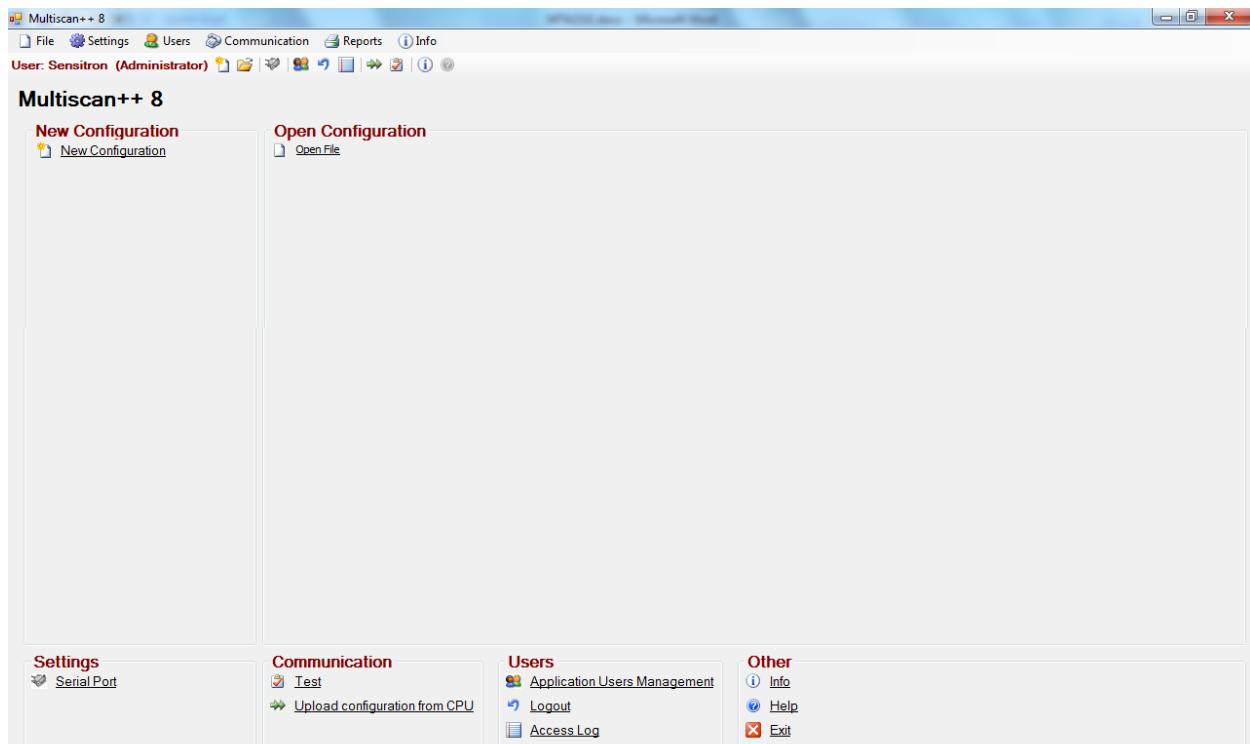Once selected the gas control unit, the screen reported in Fig. 3.2.a) will be displayed.

Fig. 3.2.a) Main program screen (Administrator level user)

The following menu can be selected from the main screen:

New configuration: to create a new system configuration.

Open file: to open an existing configuration.

Serial port: sets a PC serial port for data transfer to and from the connected gas control unit.

Test: performs a PC gas control unit serial connection test.

Load configuration from CPU: to load the configuration from the gas control unit.

User management application: programming and related levels of users.

Logout: To logout the user.

Log access: Displays the login and logout history.

Info: Displays the program version.

Help: Online Support (available in the future).

Exit: To exit the program.

4. Program menu

The various program functions are only visible if the user who logged in has the permissions to use them.

The configuration software includes plausibility checks on the modification and the entry of new parameters.

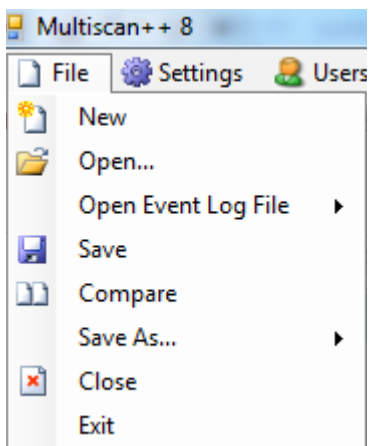The following chapters list program menus and describe their functions.

4.1 File

Fig. 4.1.a) Menu file

New   to create a new system configuration

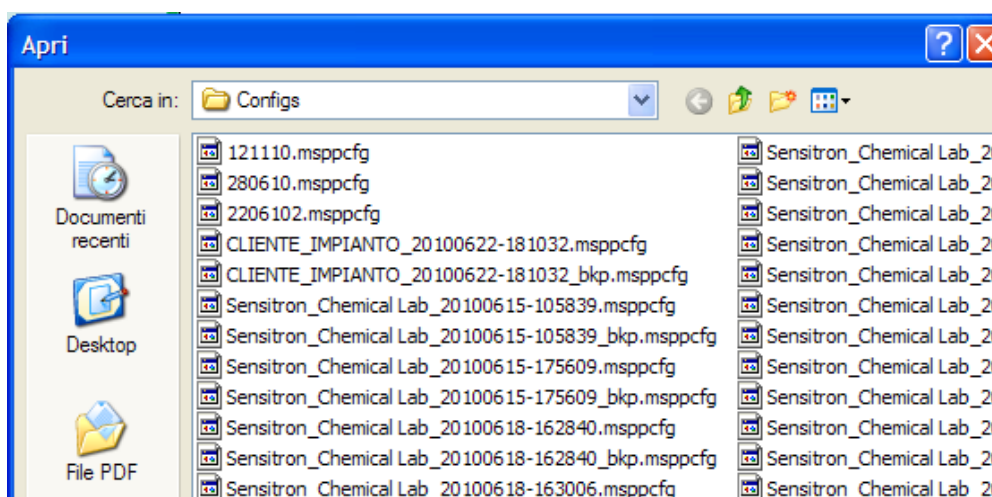***Open***   to open an existing configuration

Fig. 4.1.b) Open an existing system file

Open Event Log   to view the history of events previously loaded by the gas control unit (Refer to ***Communication*** Menu, Paragraph 4.4)
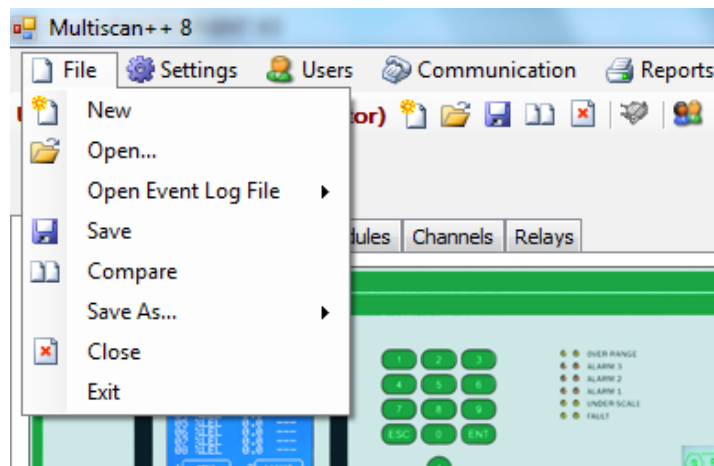
Fig. 4.1.c) Open an event log file

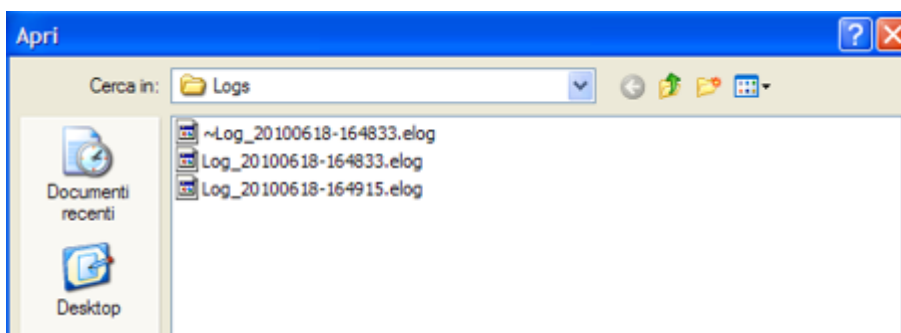From "**Open event log**" it is possible to open an event file previously loaded and saved in the appropriate folder.

*Fig. 4.1.d) Path of a * .elog event log file*

Fig. 4.1.e) Event log list

Clicking **"Save"** saves changes made to the system.

Click "**Compare**" to compare the system file in the current session with another previously created file. When you click "Compare", a window appears where you can select the file to be compared.
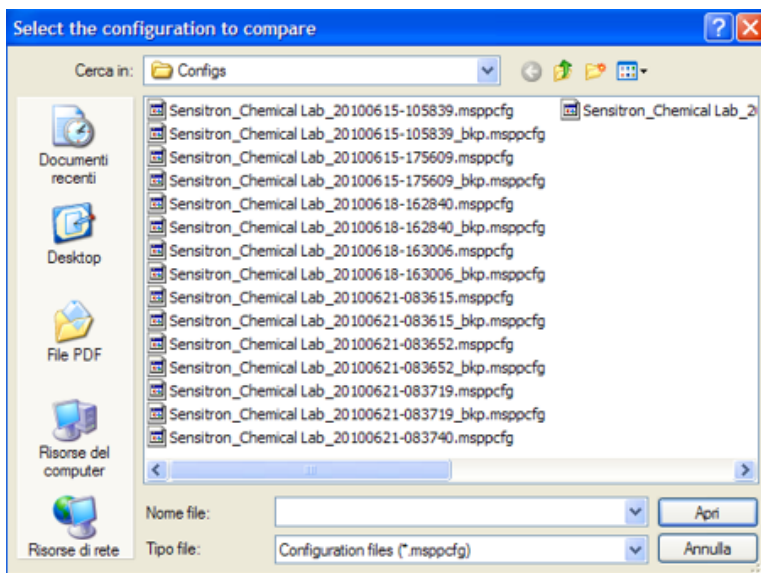

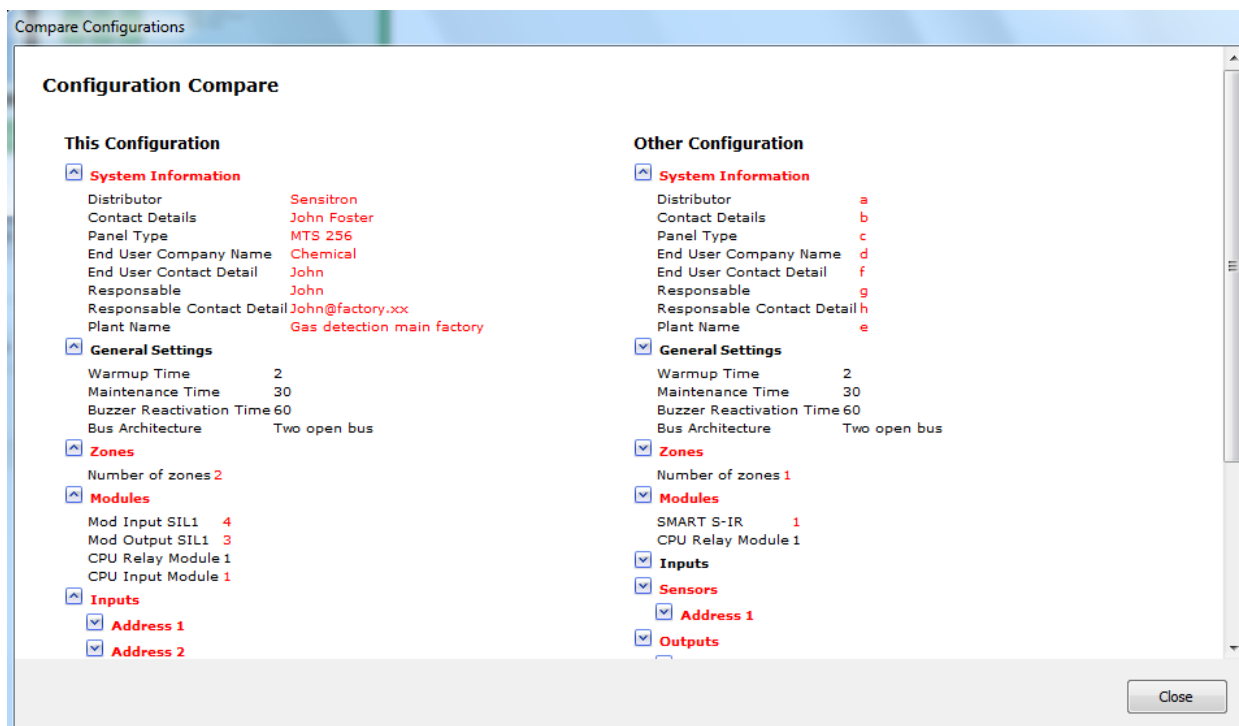*Fig. 4.1.h) Folder of the system file to be compared*

Fig. 4.1.i) System file comparison window

By clicking "Save As..." two submenu will show: "Central Unit File" and "BlackMagic File". By choosing the first one the current configuration will be saved

with a new filename, while the option "Blackmagic File" will save the configuration with a format suitable to the BlackMagic.

"Close" to close the file on which you are working

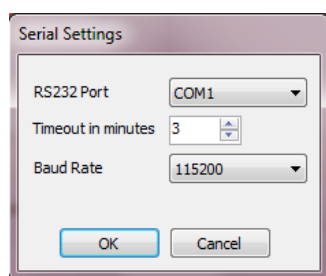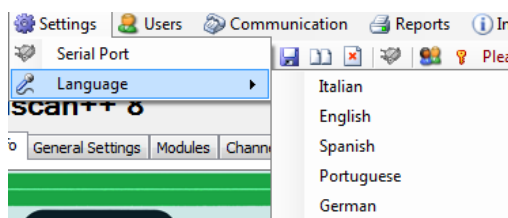*"Exit"* to exit the Configuratore Centrali Galileo program

4.2 Settings

Fig. 4.2.a) Settings Menu

With *"Serial port"*, the PC serial port for data uploading and downloading is selected. Select the communication speed with the PC (Baud rate) as set on the gas control unit. Please, refer to the manual of gas control panel.

"Language" to choose the language of the software. When creating or editing a system configuration, remember to click *"Save"* before changing the program language or all changes will be lost.
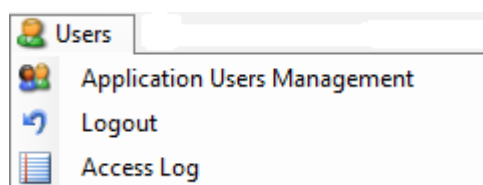
4.3 Users

Fig. 4.3.a) User Menu

"Application Users Management" allows enabled program users to use the configuration software and the relative permission levels to perform the various functions.

Fig. 4.3.b) User programming window

When the program is used for the first time after installation, the only existing user is **Sensitron** with a default password of **543210**. Sensitron user has the highest administrator level and allows access to all program functions. The Name, password and Contact Info can be changed for the Sensitron user, but not the username (Sensitron) and Permissions (Administrator).

It is possible to create an unlimited number of users, each with their own Name and Surname, Password, Permission level (Category), Contact data and Permissions.

Fig. 4.3.c) User programming window

The table **"User Management"** has as columns:

Name and surname: identifying information of the user.

Username: name to be entered at login.

Password: Alphanumeric code for each user.

Category: User permission level in order to be able to perform the various program functions. There can be 4 levels. The "Administrator" has access to all program functions. Level 1, Level 2 and Level 3 (highest level after the Administrator).

Contact Info: data to trace the user (e.g. e-mail address, telephone number, etc.).

Permissions: assignment of authorisations to the user to execute the various operational functions of the program. Click "Permissions" to open the window with the list of gas control panel program functions.
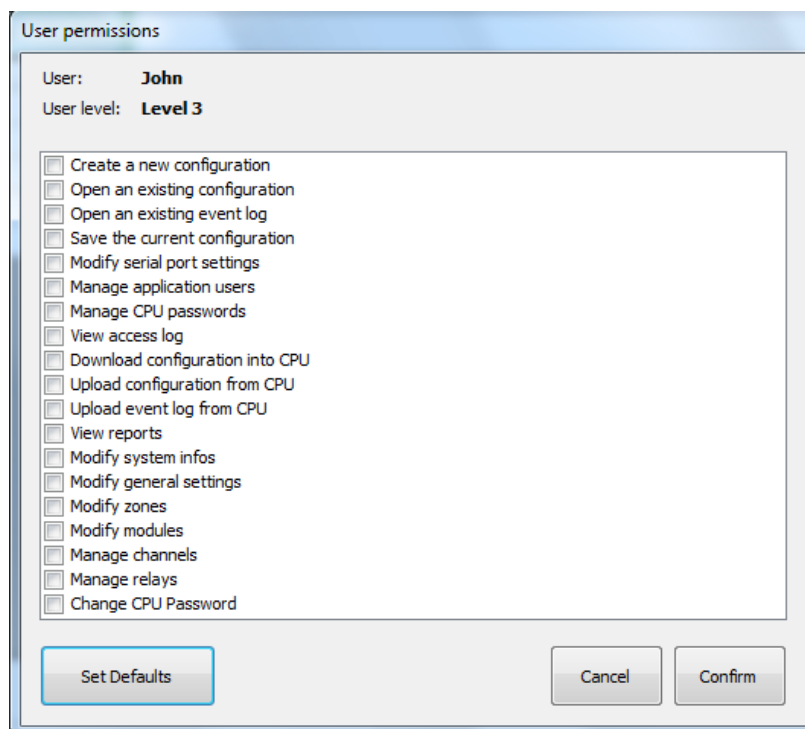

Fig. 4.3.d) User permissions programming window

Flag the various boxes to enable the relevant function for the user. By clicking on "Set Default", depending on the level of the user programming (Level 1 or 2 or 3), a pre-compiled selection of enabled functions is automatically associated with the user (which can always be modified).

"**CPU password management**" is selected to program users of the PL4 +D gas control unit and the related operational level (Operator, Maintenance and Engineer).
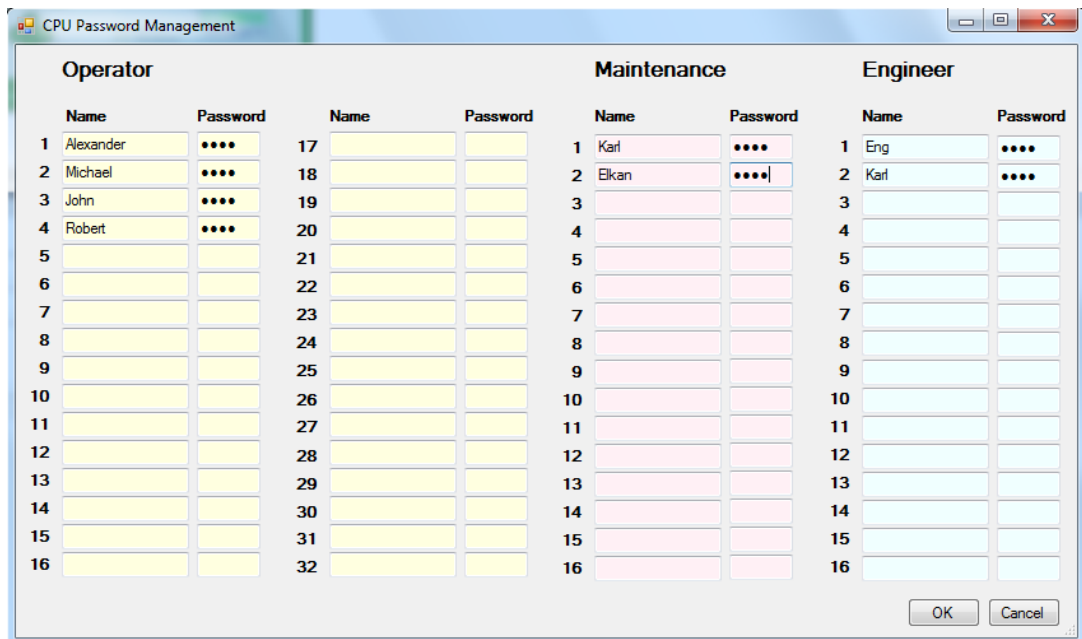
Fig. 4.3.e) Gas control unit user programming window

It is possible to have up to 64 users in the gas control unit, of which 32 are at an Operator level, 16 are at a Maintenance level and 16 are at the Engineer level. For the operation of various levels of gas control unit users, see the "System Power Up and Operation" section of this manual. Passwords must be 4 numeric digits long.

"Logout" logs out the user from the program. The Login window reappears where a new user can login. See chap. 4.3 and Fig. 4.3.b.

"Access Log" displays the program Login and Logout log as well as operations conducted and the operations performed.

Data/Ora	Utente	Tipo evento	Evento
15/02/2011 16.38			Multisystem starting
15/02/2011 16.38			Application Data Path: C:\Programmi\Multiscan_SIL1\App_Data
15/02/2011 16.38			Application Config Path: C:\Documents and Settings\Guido\Documenti\Multiscan++ SIL1\Configs
15/02/2011 16.38			Creating mutex
15/02/2011 16.39			Starting main thread
15/02/2011 16.39			Version 1.4.4
15/02/2011 16.39			Multiscan++
15/02/2011 16.40	sensitron		Login accepted: User=sensitron
15/02/2011 16.40	Sensitron	Open	Loaded file C:\Documents and Settings\Guido\Documenti\Multiscan++ SIL1\Configs\Sensitron_Che...

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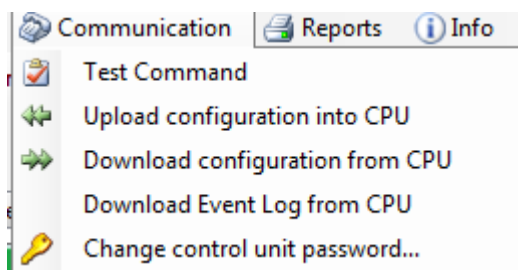*Fig. 4.3.f) Application Log Window*

4.4 Communication

Fig. 4.4.a) Communication Menu

The "**Communication**" menu allows for parameters for data exchange between the PC with the software and the gas control unit to be set.
Note: connection between the two devices is essential in order to exchange data between the PC and the gas control panel.
Connect the PC to the gas control unit through the appropriate USB port on the main panel. Please refer to the manual of the panel the position of USB port.

"Test command" verifies the correct connection between the gas control unit and PC. Whenever data is exchanged between the gas control unit and PC, a password must be entered to establish the connection (Serial Password). The password entered is compared with that on the gas control unit, and the connection is established.
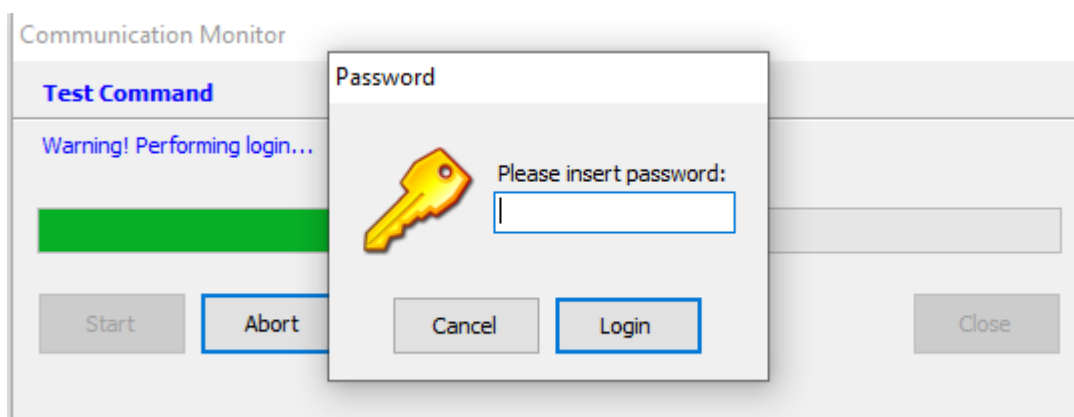

Fig. 4.4.d) Request for entering the serial password

The default password is **000000**, but can be changed by clicking "**Change control unit Password**".
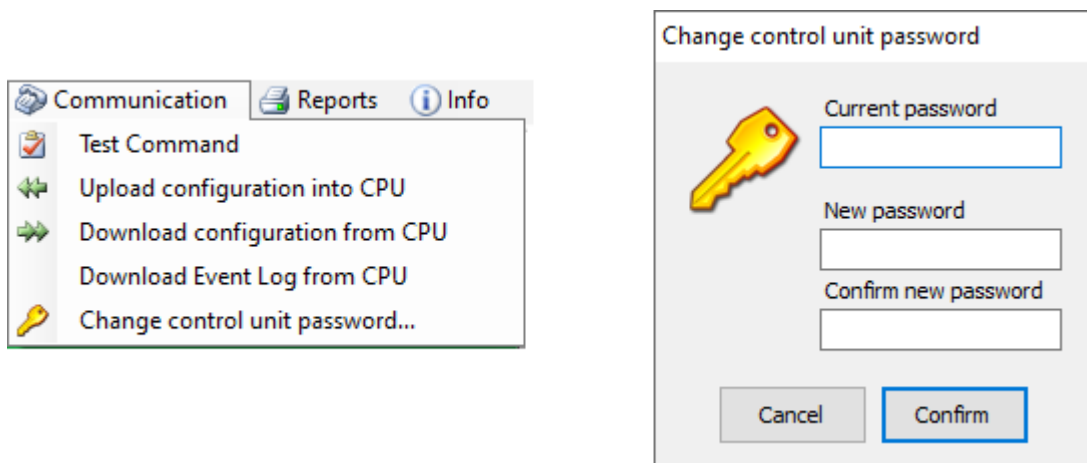**Warning:** If the new password is lost, it will no longer be possible to access the gas control unit.

Fig. 4.4.e) Modification of the serial password

"Upload configuration into CPU" allows to send the created file from the PC to the gas control unit.
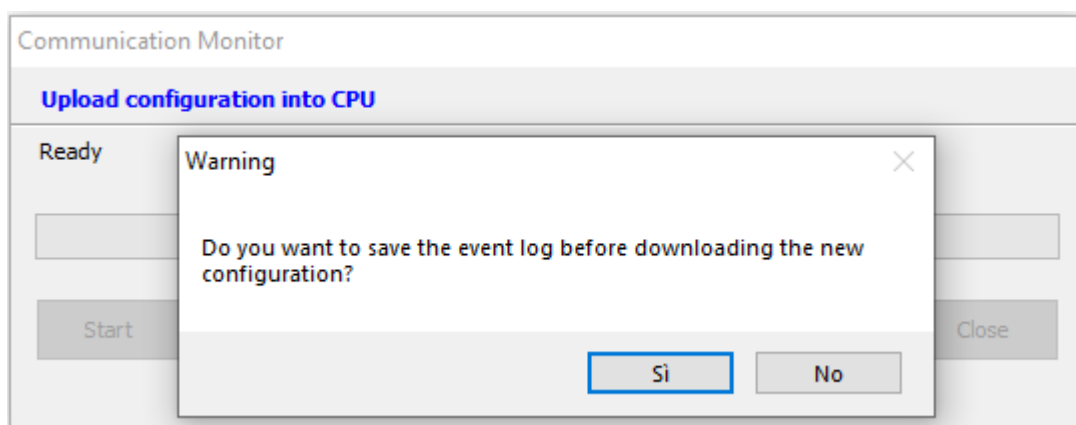

Fig. 4.4.f) Message request to save in log of the gas control unit

Before starting the data upload and download procedure, a warning message appears asking if you wish to save the gas control unit event log. When a new configuration is downloaded with different data (new gas detectors, zones and system modules, new users, etc.) the gas control unit event log may no longer be updated. It is therefore suggested to save the gas control unit event log on the PC by clicking Yes.

The gas control unit serial password is then requested. Click Login. If the password is correct, data download starts and a progress bar appears.
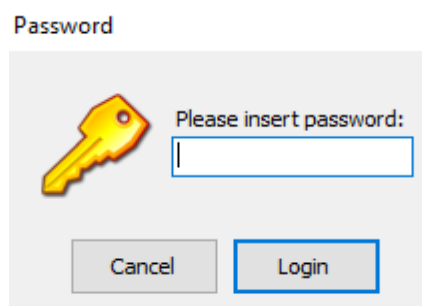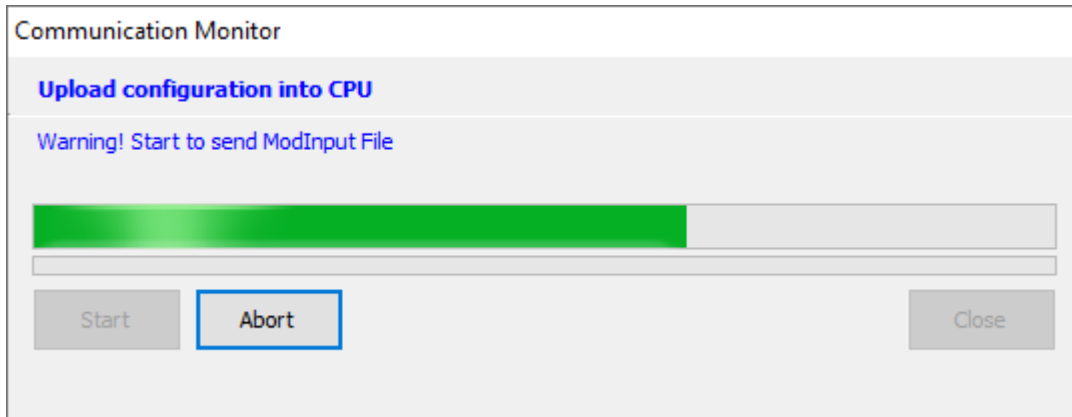
Fig. 4.4.g) Data upload to the gas control unit

"Download configuration from CPU" is the opposite procedure to the data upload. This lets you load the system file from the CPU (programming resident in the CPU). The sequence of operations is the same as for data upload, see above. At the end of the data upload, the system file is automatically saved in the appropriate folder on the PC.
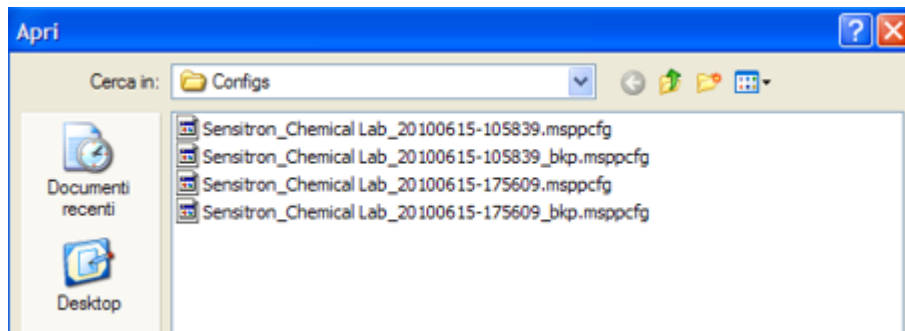

Fig. 4.4.h) Open an existing system file

"Download event log from CPU" allows for the event log file to be loaded from the gas control unit.
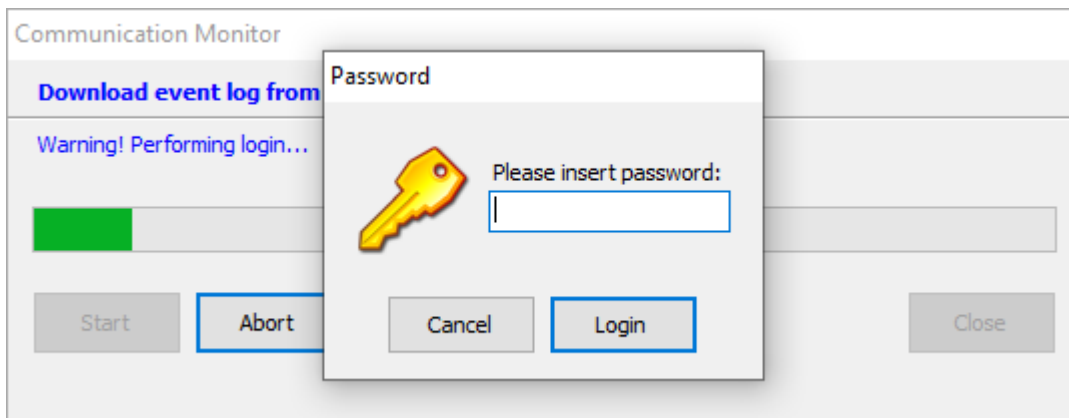
Fig. 4.4.i) Download event log file

After entering the password, the event log file starts uploading and this operation may take up to one minute. At the end of uploading, events are automatically saved in a PC file with default path: c: \ Documents and settings \ user \ Documents \ UNIT MODEL \ Logs, and shown on a special screen.

Fig. 4.4.l) Event log screen

The various columns are explained below

Id: identification number of the event. It can be used for a comparison with the event in the gas control unit.

Date: date and time of the event.

Type Event: type of event. Events can be of the following types:

Event Type	Description
Confirmation	Acknowledge/mute an event
Reset	Reset an event

Info	Events such as user login and logout, alarm reset, etc.
Configuration	Gas control unit configuration error
Settings	Gas control unit settings were changed (i.e. detector alarm threshold)
Alarm	Alarm event
Fault	Fault event
Emergency	Emergency event (typically a power fault)
Serial Trace	Event concerning data transfer on the serial port (data upload and download from PC)

Event: more detailed indication of the type of event

Value: value of the gas concentration (for an alarm event)

Unit: unit of measurement of the measured value

User: identification of the user in for a "user" event (Ack, Reset, Login etc.)

Device: hardware device that generated the event (Rio Input module, gas detector, Rio Out module etc.)

Zone: the system area

Channel: identifier of the channel (detector) that generated the event

Search criteria can also be entered in the window to optimize the underlying event list display. Criteria can be by event type and/or date and time. Using the **PRINT** button, if a printer is connected to the PC, the event list can be printed.

"**Change gas control unit password**" see the explanation at the beginning of the "**Communication**" chapter.
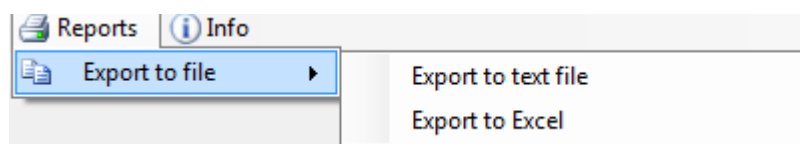
4.5 Report

Fig. 4.5.a) Event log screen

The Reports menu lets you export the current configuration file to be used with other programs. There are two export formats: **"Export to text file"** and **"Export to Excel".**

If exported as a text file, configuration parameters can be consulted using any text editor program (Notepad, Word, etc.).

Configuration parameters are best viewed when exported as an Excel file. Naturally, Excel must be installed on the PC.
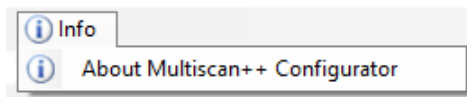
4.6 Info

Fig. 4.6) Menu Info

Through the **"Info"** menu it is possible to view information about the version of the program.

5. Modification or creation of a new configuration file

Using the "*Open*" command in the *File* menu, a previously configured configuration file can be accessed to be changed, if necessary. See the following chapters.

"*New*" command in the "*File*" menu allows to create a new configuration file.
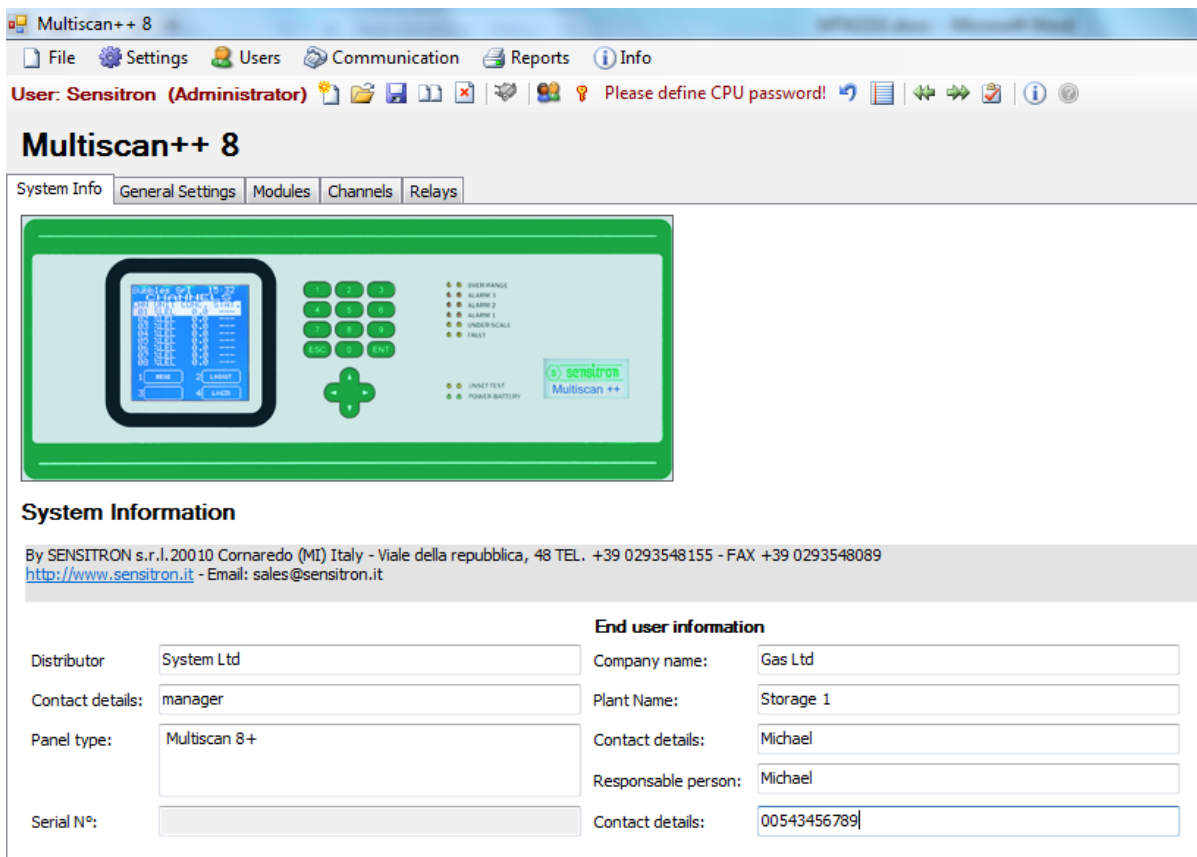
5.1 System information

Fig. 5.1) System information screen

Complete the fields with data on the company supplying the system and that where the system is installed. Also enter also the names of the various contact people.
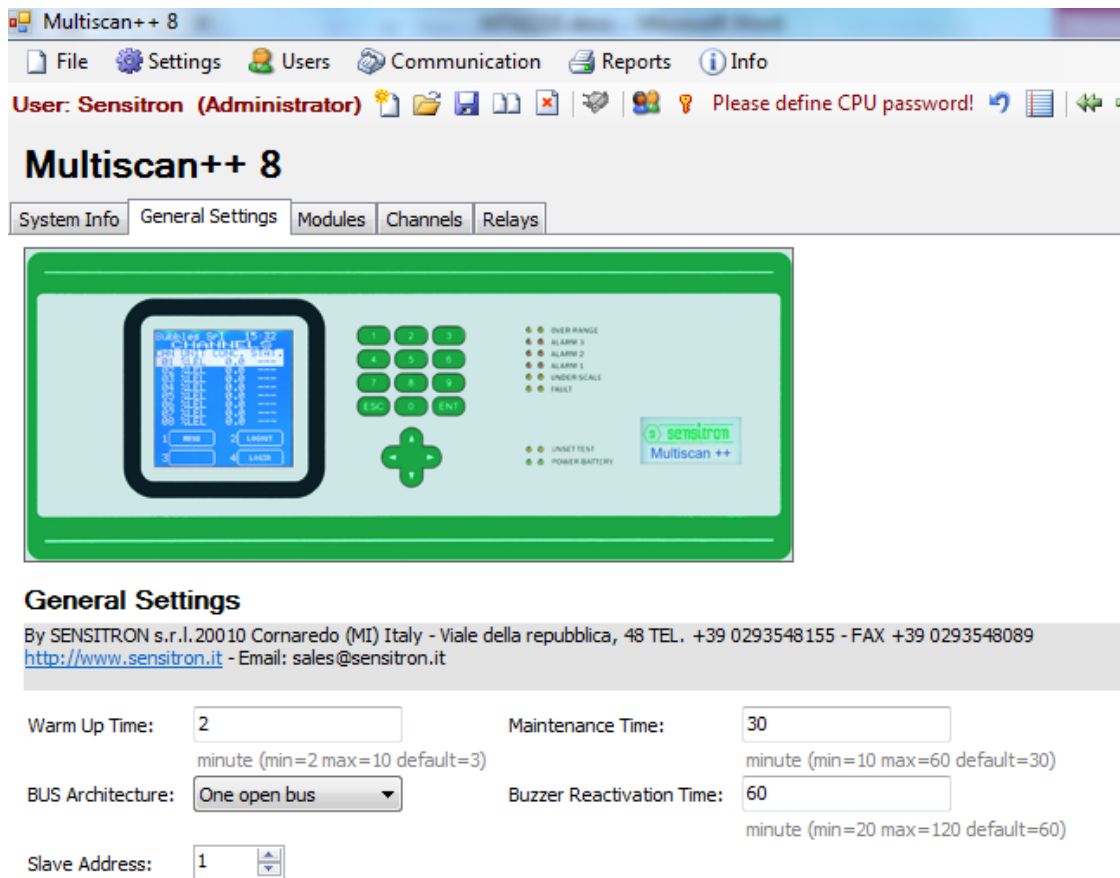
5.2 General settings

Fig. 5.2) general settings screen

In **"General Settings"**, the following can be set:

"Warm-up Time" is the stand-by time of the gas control unit immediately after powering on before it is operational.

"Bus Architecture" the number of buses that the gas control unit can manage. The PL4 +D gas control unit only has one open bus.

"Slave address" is the address of the gas control unit if it is connected to a Scada remote system (or similar).

"Maintenance time" is the time in which a channel put in Test/Maintenance remains there before automatically switching to operational mode.

"Buzzer Reactivation Time" is the time that elapses before the buzzer starts playing again, after it has been silenced by an ACK command.
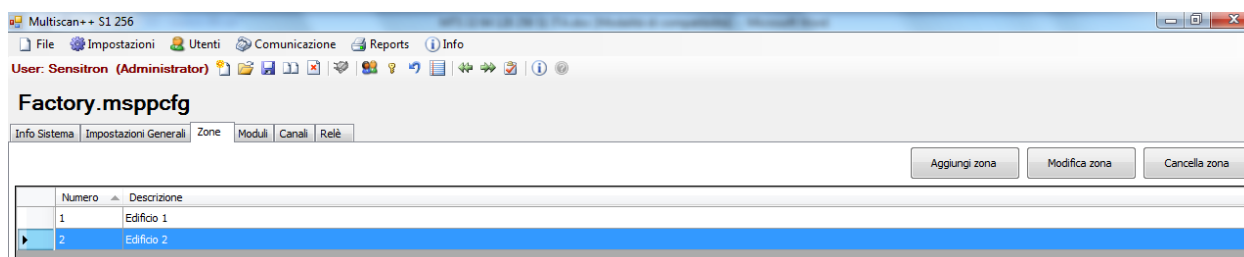
5.3 Zones

Fig. 5.3) Zone settings screen

The creation of zones is not mandatory for the reliable function of the gas detection system. It is an aid for the user to indicate useful additional information in the case of alarms.

The definition of "Zones" allows a logical dividing of the gas detection system according the needs of the user. "Zones" may be defined in relation to

- Physical position of in/out modules or detectors
- Type of danger. Detectors for explosive gases, toxic substances, etc.
- Different gases: Methane, Carbon Monoxide, Oxygen etc.

A maximum number of 16 zones may be specified.

5.4 Modules (IN/OUT, individual sensors or Remote Monitor)

"Modules" In/Out modules and the detectors that comprise the system are configured. The system layout must be known to correctly set the various field devices. What you need to know:

- Detectors and IN and OUT modules (relays) installed in the system.
- Any zone they belong to
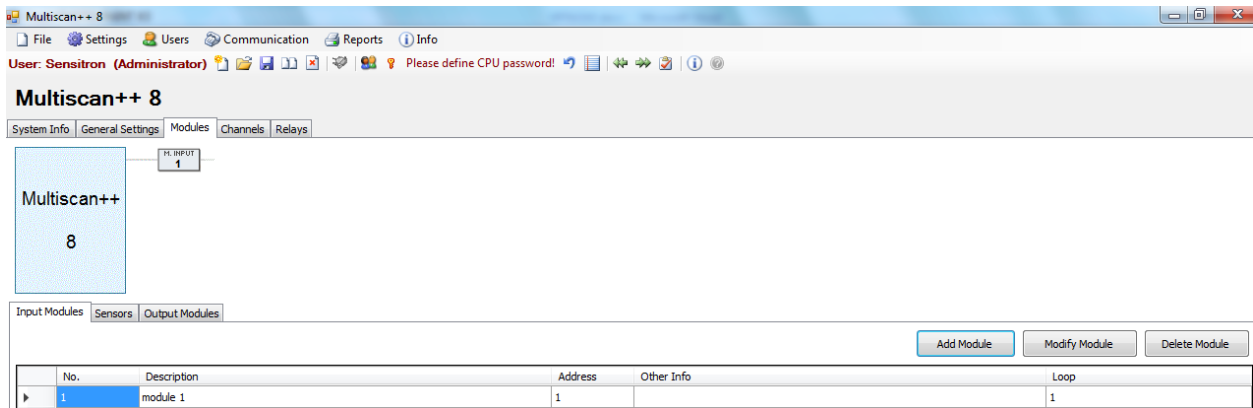- On which loops (RS485 bus) they are connected, and that their address is (for PL4 +D only bus1)

Fig. 5.4.a) Peripheral screen (Input Modules)

- **_Input Modules_**

The ST.G/IN8 analogue input modules on the system are configured in **_Input Modules_**.

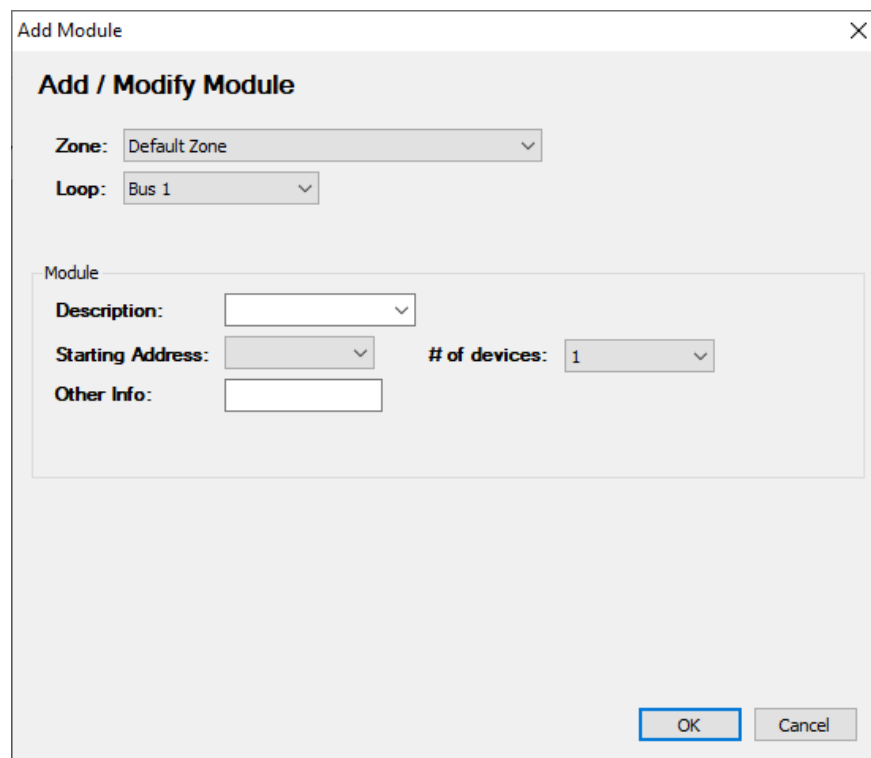Click **_Add Input Module_** to open the window shown in Fig. 5.4 b.

Fig. 5.4.b) Input module configuration

Zone	Zone to which the module belongs.
Loop	Loop number (RS485 bus) to which the module is physically connected. PL4 +D only Loop1.
Description	Description of the module.

Address	Address of the module. From 1 to 256 (Refer to chap. *2-Installation* of panel manual for further information.)
# Of devices	Number of modules to insert.
Other Information	Additional description.

Click on **"Modify Input Module"** to modify the parameters of the module.

Click **"Delete Input Module"** to delete the module.

- **Sensors**

In **"Sensors",** the gas detectors on the system that are **directly connected to the loops (RS485 bus) of the gas control unit (max 8)** can be configured. Refer to Chap. *2-Installation* of the panel manual for additional information.
By clicking on **Sensors**, the window in Fig. 5.4 c appears.

Fig. 5.4.c) Sensor configuration (directly connected on the RS485 Bus)

Zone	Detector zone.
Loop	Loop number (RS485 bus) to which the module is physically connected. PL4 +D only Loop1.
Description	Description of the detector.

Address	Address of the detector. From 1 to 256 (Refer to chap. ***2-Installation*** of panel manual for further information).
# Of devices	Number of detectors to connect.
Other Information	Additional description.
Sensor Type	Select the model of the gas detector used (see detector label).

Click ***"Modify sensor"*** to change the sensor parameters.

Click ***"Delete sensor"*** to delete the sensor.

- ***Output Modules***

The ST.G/OUT16 output modules on the system are configured in "***Output Modules***".
Click ***Add Output Module*** to display the window in Fig. 5.4 d.
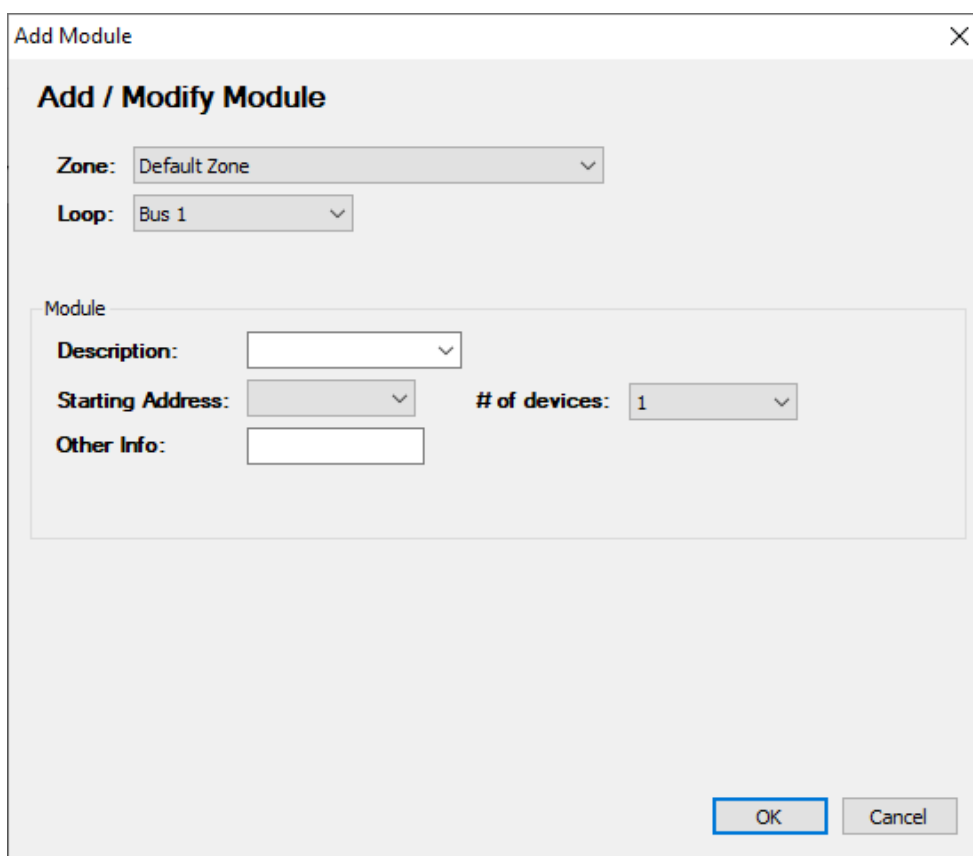
Fig. 5.4.d) Output module setting screen

Zone	Zone to which the module belongs.
Loop	Loop number (RS485 bus) to which the module is physically connected. PL4 +D only Loop1.

Description	Description of the module.
Address	Address of the module. From 1 to 256 (Refer to chap. *2-Installation* of panel manual for further information).
# of devices	Number of modules to connect.
Other information	Additional description.

Click *"Modify module"* to change the module parameters.

Click *"Delete Output Module"* to delete the module.

- **Remote Monitor**

The option "**Remote Monitor**" allows to configure the remote terminal unit RTU +D.
Click **Add Monitor** to open the window shown in Fig. 5.4 e.

Fig. 5.4.e) Remote Monitor setting screen

| **Zone** | Zone to which the monitor belongs. |
| **Loop** | Loop number (RS485 bus) to which the monitor is physically connected. PL4 +D only Loop1. |

Description	Description of the monitor.
Address	Address of the monitor. From 1 to 256 (Refer to chap. ***2-***
Installation	of panel manual for further information).
# of devices	Number of monitors to connect.
Other information	Additional description.

Click **"Modify Monitor"** to change the monitor parameters.

Click **"Delete Monitor"** to delete the monitor.

5.5 Channels

Use the "**Channels**" menu to enable and program individual settings for gas detectors in the system.

- ***Channel overview***
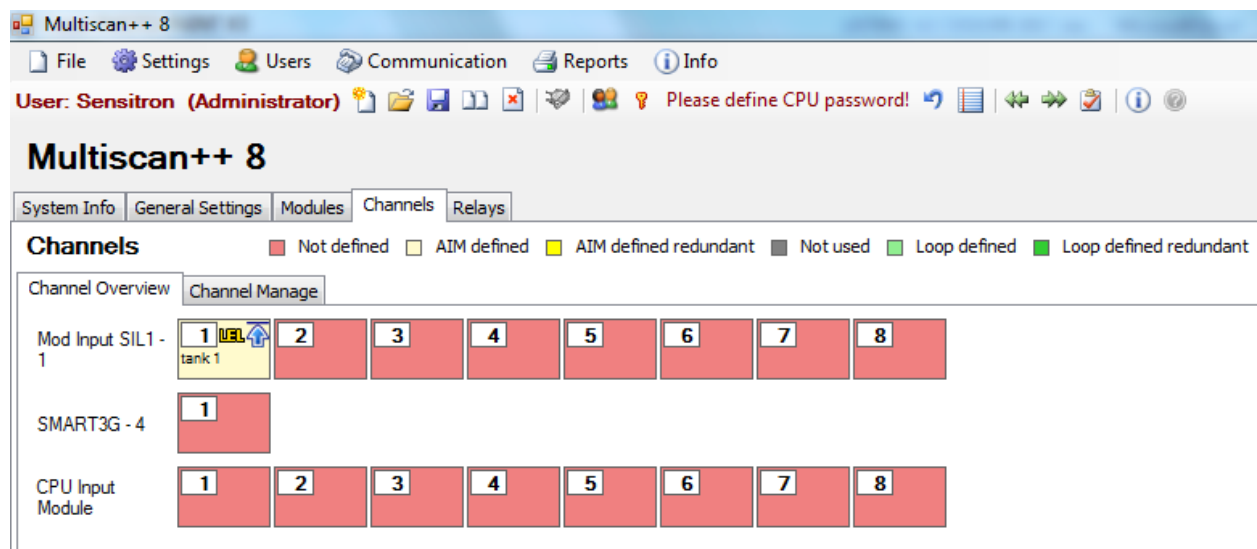
Fig. 5.5.a) Summary map of channels (detectors)

The **Channel Overview** gives a summary of how many Input modules and how many detectors the system is composed of, how many of these are defined (rectangle with data present inside) and if the detectors are connected in the gas control unit (CPU Input Module) or via Input Modules (Mod Input SIL1) or directly (addressed sensors). Different colours represent different characteristics like Not defined, Defined, Redundant etc.

To choose a channel to view its data, simply pass the mouse over the channel and the data for this channel will be shown by a popup window. To set or modify the

channel parameters, click on it with the mouse and you will automatically access the "**Channel Management**" screen where settings can be changed.
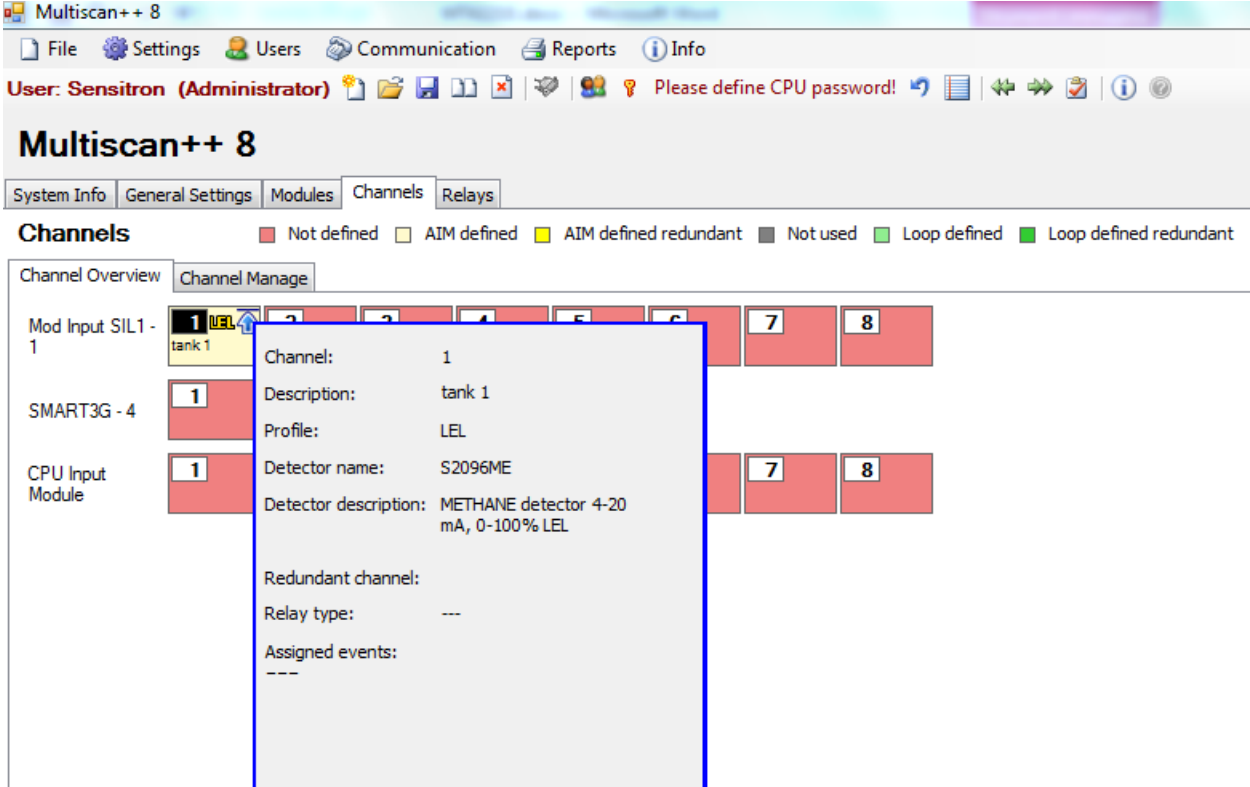
Fig. 5.5.b) Channel parameter summary window

- ***Channel Managment***

Fig. 5.5.c) Channel Manage screen

Program a channel (gas detector)

An input channel (gas detector) is mainly programmed by entering data in three main fields in the "***Detector***" option:

1) The ***Profile*** specifies the unit of measurement to be set based on the type of gas to be detected and type of detector connected. Ex: % LFL

In **"Profile",** there are pre-compiled modes for different types of gas detection. Depending on the type chosen, the following channel setting modes may be different and linked to the characteristics of the chosen *Profile*.

The choice of the **"Profile"** must coincide with the detector connected to the channel that is being programmed. E.g. if a petrol fume explosivity detector is connected to the channel, **LFL** must be selected (Lower Flammable Limit) in **Profile**; if a CO (Carbon Monoxide) detector is connected to the channel, Toxic must be chosen in **Profile**.

Fig. 5.5.d) Channel details screen

The available Profiles are:
LFL
OXYGEN DEFICENCY
OXYGEN ENRICHMENT
OXYGEN FOR INERTIZATION
OXYGEN MIXED MODE
REFRIGERANTS
TOXIC

If Park control unit:
L.F.L.
TOXIC (PARK)
TOXIC (PARK) EN50545-1

2) In **"Gas type",** the gas to be chosen is chosen from a proposed list. The gases in the list are only those allowed by the previously chosen **"Profile"**.

The choice of the **"Gas Type"** must coincide with the detector connected to the channel that is being programmed. For example, if a Smart 3G CO (Carbon Monoxide) detector is connected to the channel, you must choose Toxic in **Profile** and Carbon Monoxide in **Gas Type**. If a methane detector is connected to the channel, % LFL should be selected in **Profile** and Methane in **Gas Type**.
This is an additional aid to correctly enter gas detector settings.

3) In **"Detector Model"**, select the code of the gas detector that has been connected to the channel being programmed from a list. This is a further aid for correctly inserting the gas detector configuration data. The list that appears in **"Detector Module"** will only contain detectors that meet the characteristics of the other two criteria set in **"Profile"** and **"Gas Type".** The "Channel Description" is not mandatory for the reliable function of the gas detection system.
It is not necessary to enter text in **"Channel Description"**, but it can be useful for simpler identification of the gas detector. In the case of alarms all information related to the detector(s) in alarm condition will be indicated at the display on request.
The **"Channel Description"** can be information about the point where the gas detector is installed or the gas to be detected, or even that the channel is redundant with another, etc.
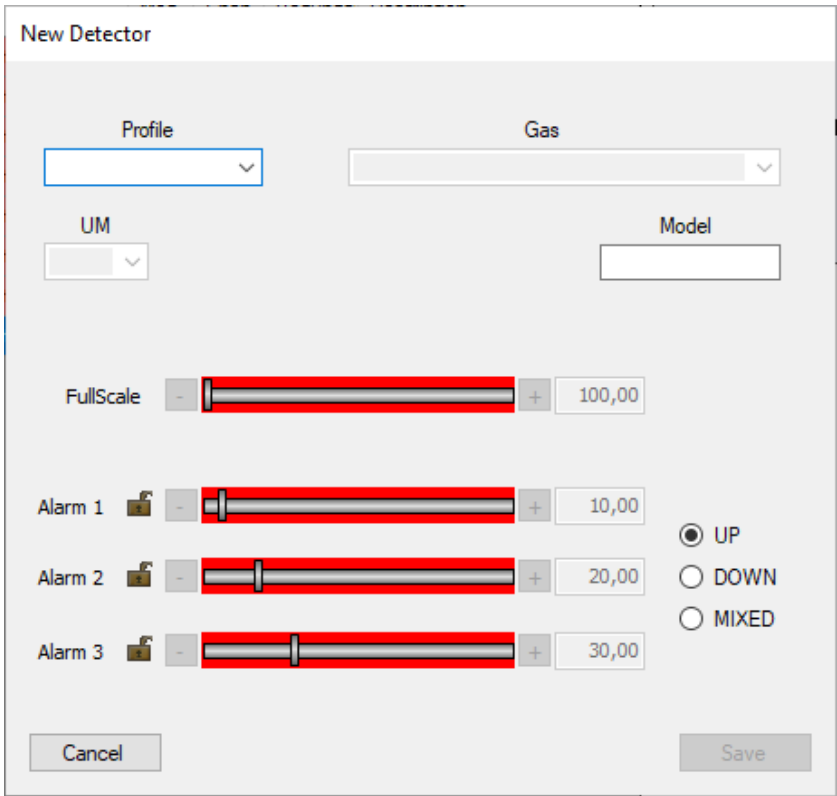

Fig. 5.5.e) New Detector screen

In the submenu "**Alarm Settings**" the threshold values for all three alarm levels can be modified within a specified range indicated by red bars.
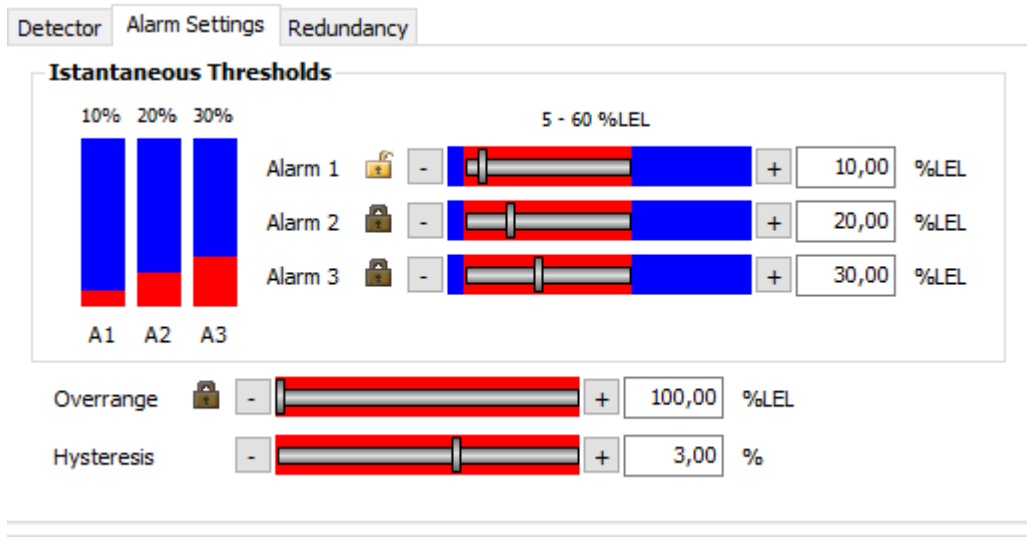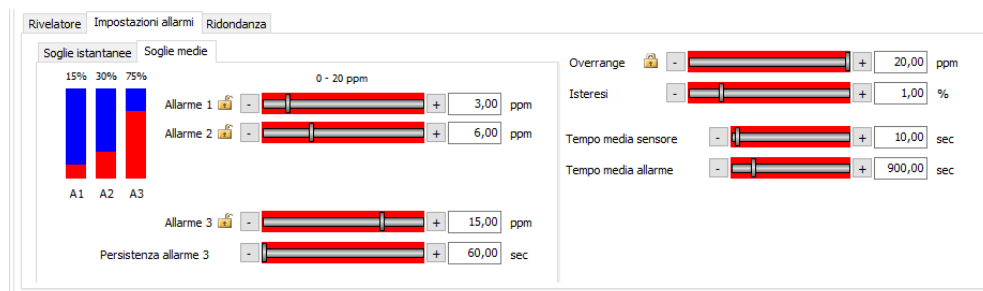

Fig. 5.5.f) Alarm settings screen

Fig. 5.5.g) Videata impostazione soglie medie di allarme per centrali Park

Alarm threshold settings and operating modes vary according to the selected Profile and Gas Type. There are two threshold modes, Average and Real-time.

If Park control unit:
- For the LFL Profile only real-time thresholds can be set.
- For the Toxic Park Profile, both real-time and average thresholds can be set.
- For the Toxic Park EN50545-1 Profile, only average thresholds can be set.
- Set the Alarm levels set-points in the range of the red bars

Note on Average threshold operations according to EN 50545 standards
*Alarm thresholds 1 & 2 are activated if the gas value read by the detector exceeds an average concentration in a set time (**Average alarm time**).*

*Instead, threshold 3 immediately triggers if the concentration value read by the detector exceeds the set alarm 3 value for a certain period of time (**Persistence Alarm 3**).*
The unit display normally displays the average value read by the detector (except in Graphic mode where the real-time value is displayed).

The arrow on the top left indicates rising alarm values for the LFL profile. The alarm values from 1 to 3 correspond to an increase in gas concentration.
The configuration software verifies that the data entered by the programmer are correct. There are general rules, such as:
- The value of alarm 3 can't exceed the full-scale.
- The value of alarm 2 cannot be equal to or less than the value of alarm 1. This also applies to alarm 3 with respect to alarm 2.

The red horizontal bars indicate the range within which the value can be set for each alarm.

Note: for the LFL profile (flammable gases), the alarm value cannot be higher than 60% LFL (limitation for group II devices, EN 60079-29)

In the Profile **"Oxygen deficiency",** the value of Alarm 1 will be higher than Alarm 2, which in turn will be higher than Alarm 3.
Note: Oxygen in the air we breathe has a concentration of approximately 20.9%, and thresholds of 19% (Al1), 18% (Al2) and 17% (Al3) are normally set to detect oxygen deficiency.

The **"Overrange"** value is typically set at 100% of the measurement scale. Only if a fourth alarm threshold becomes necessary can the overrange be modified and used as the fourth alarm threshold.

The **"Hysteresis "** indicates which signal variation will be ignored when it occurs near the alarm threshold.
Modification of alarm levels
The alarm threshold values can be modified step by step, by clicking on the - and + keys to the left and right of the horizontal bars or by entering a numerical value directly in the appropriate field to the right of the horizontal bar. Once the value of an alarm threshold has been changed, the range of the red bars of the other Alarm thresholds will also be modified. If the value of Alarm entered falls outside

of the permitted limits, it is not accepted by the software and must be modified to continue programming.

If Park control unit:

- **Average Sensor Time:** the frequency with which the unit queries each sensor to obtain the read concentration value. The value can be set between 8 and 60 seconds. *Note: the sensor saves the value read every 10 ms*

- **Average Alarm Time:** the time within which the average used by the unit to activate Alarms 1 & 2 is calculated. If the average value calculated in Average Alarm Time is higher than the Alarm 1 & 2 values, the unit activates the corresponding alarms.

- **Persistence Alarm 3:** the time a read gas concentration persists over threshold 3 triggering Alarm 3.

Redundant channel

If the system requires a very high security level, two detectors are to be placed at each measuring point, instead of one. Programming of the two redundant channels must be identical.
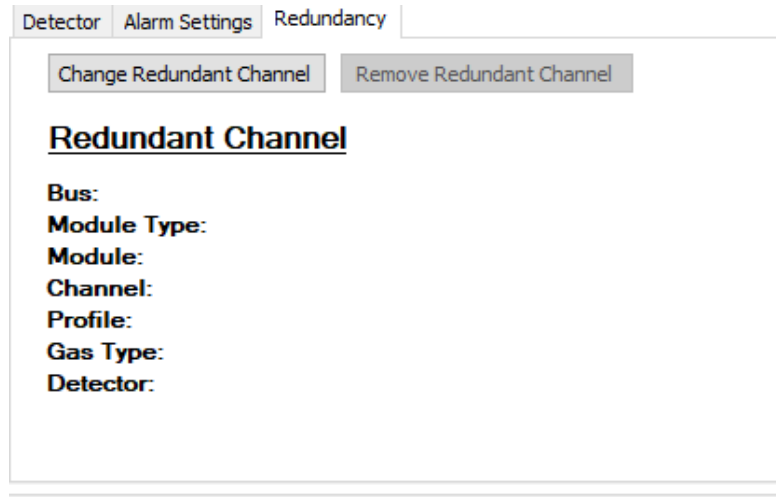
Fig. 5.5.g) Redundant Channel configuration screen

How to program a **Redundant channel**
Channel 1 of module 1 has been programmed. By selecting the "**Redundancy**" option without a channel currently programmed as redundant, data are not present (bottom left of the screen).
By selecting the **Add Redundant Channel** option, the screen in Fig. 5.5.h

Fig. 5.5.h) List of options for redundant channel

Chose the Redundant channel and confirm by Accept.

If the chosen Redundant channel has a different configuration, the configuration will be automatically modified, matching the configuration of the other channel (a small message will appear at the right part of the screen).
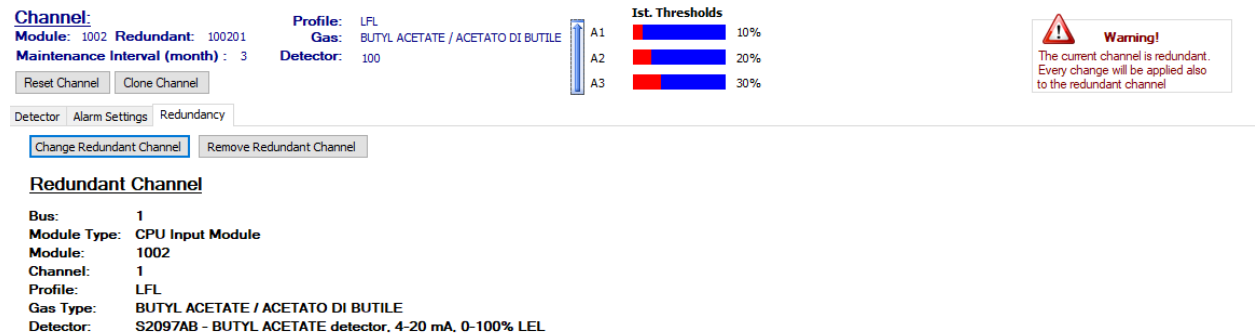
Fig. 5.5.i) Warning message after choice of redundant channel

5.6 Relay (outputs)

Using the **"Relay"** menu, the characteristics of the outputs of ST.G/OUT16 S modules that are part of the system are enabled and programmed.

- *Relay overview*
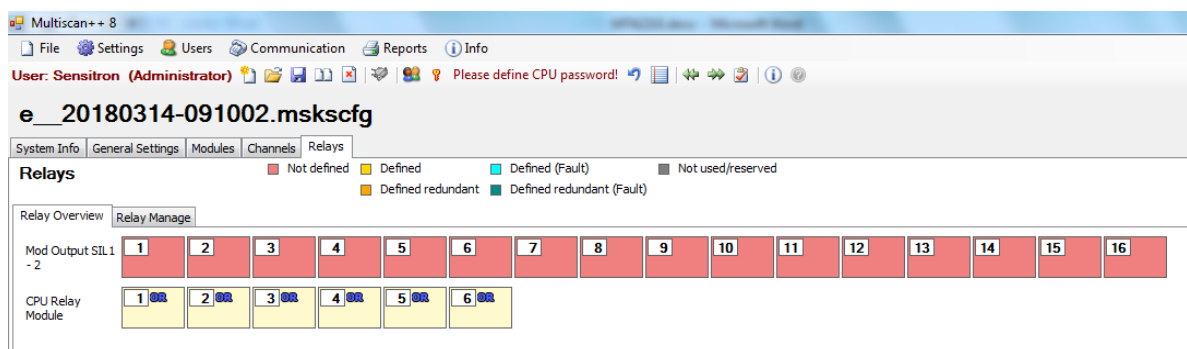
Fig. 5.6.a) Relay overview screen

The **relay overview (outputs)** gives a summary of the number of output modules and consequently how many outputs the system is composed of, and how many of these are defined (rectangle with data present inside). Different colours represent different characteristics like Not defined, defined redundant etc.

For a summary of the programming data of each output, hover over it with the mouse and a summary window will appear with the configuration parameters. To

set or modify the output parameters, click on it with the mouse and you will automatically access the "**Relay Management**" screen where settings can be defined.
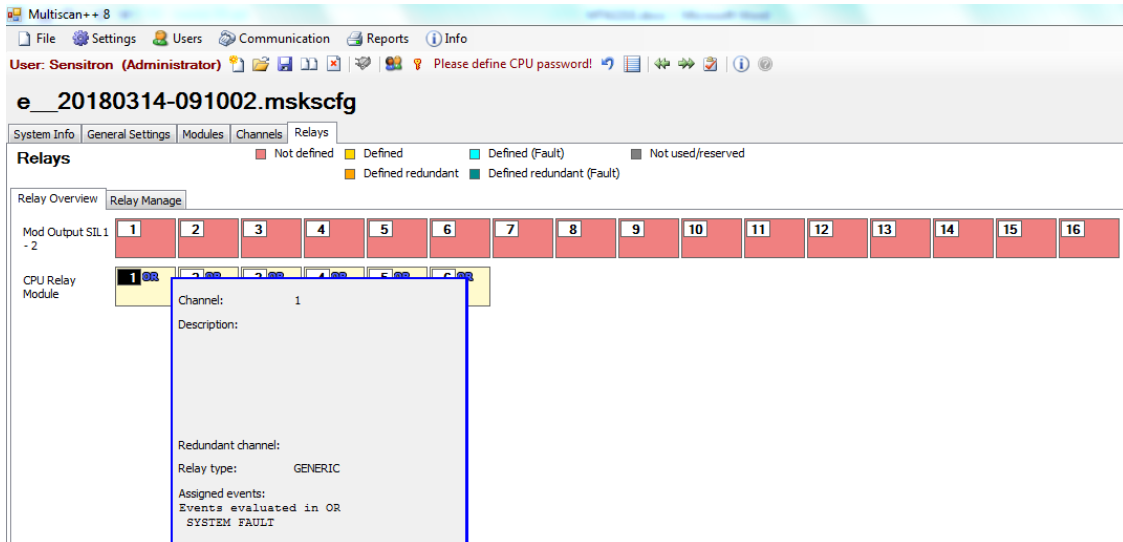
Fig. 5.6.b) Output detail window that appears when hovering with the mouse
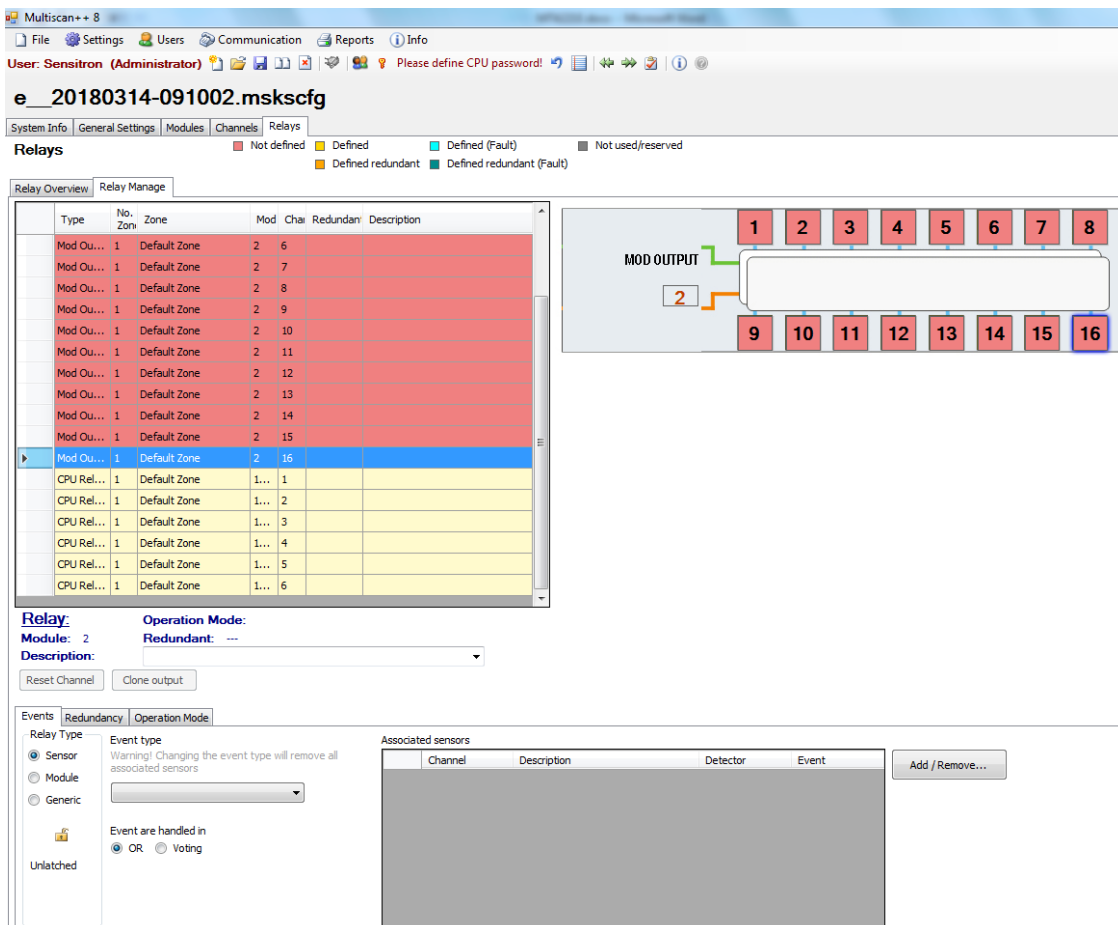
- ***Relay Managment***

Fig. 5.6.c) Output programming screen

The **Relay** window allows to manage output modules. The available options are:

Events — programming of the event that activates the output.

Redundancy — in systems where higher security is required, 2 outputs can be used for a single activation (or to activate two separate actuators that secure the same system).

Operating mode — output mode (instantaneous, impulsive, time-based).

Relay Type — selects the type of event that can be associated with the output: event from Sensor (Alarm, Fault, Under Scale etc.) or event from Module (IN or OUT module Fault) or Generic event (Alarm, Fault, Network Error, Low Battery, etc.)

Type of event — depends on the type of relay chosen. For a sensor event, it can be: Fault, Alarm1, Alarm2, etc.

OR — With the **OR** function, in order to activate a programmed output, just one of the events associated to the output is sufficient.

Vote — if you wish to condition the activation of the output at the simultaneous presence of more than one of the events associated with the output (AND function), use the "**Vote**" option.

Associated sensors is the window where the sensors to associate with the output are chosen.

Add/Remove — to open the Associated Sensors window.

New output programming

Selecting the new output, by the Relay Type mode select if it is a Sensor event, a Module event or a Generic event.

Sensor: select Sensor in Relay Type. From the Event Type window, select the case for which the output must be activated: Measurement scale, Alarm1, Alarm2, Alarm3, Overrange, Underscale, Sensor Fault.
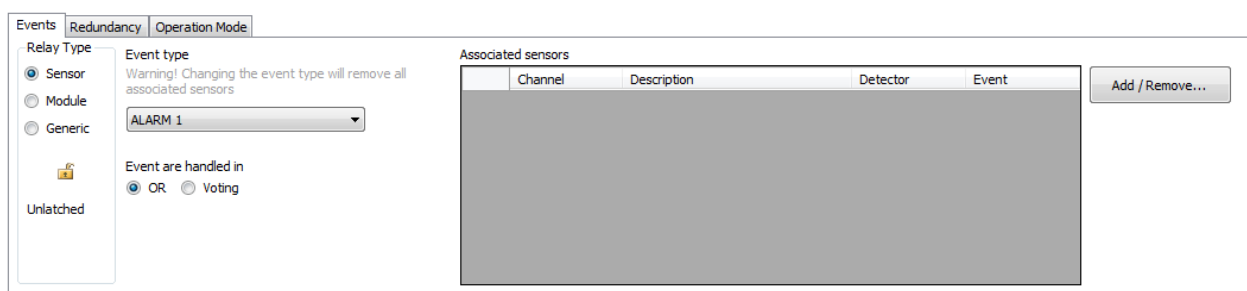
Fig. 5.6.d) Event type selection

Pressing the **Add/Remove** button will open the **Select Sensor** window where the address or sensor addresses to be associated with the output can be selected.

The padlock shown to the left of the Event Type list indicates whether the relay output is stored or not. The closed padlock means the output is stored (a user reset is required to restore normal status after an alarm).
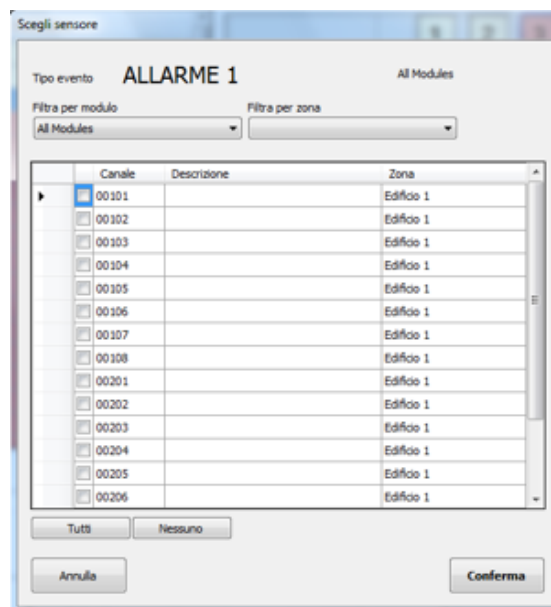

Fig. 5.6.e) Sensor selection window
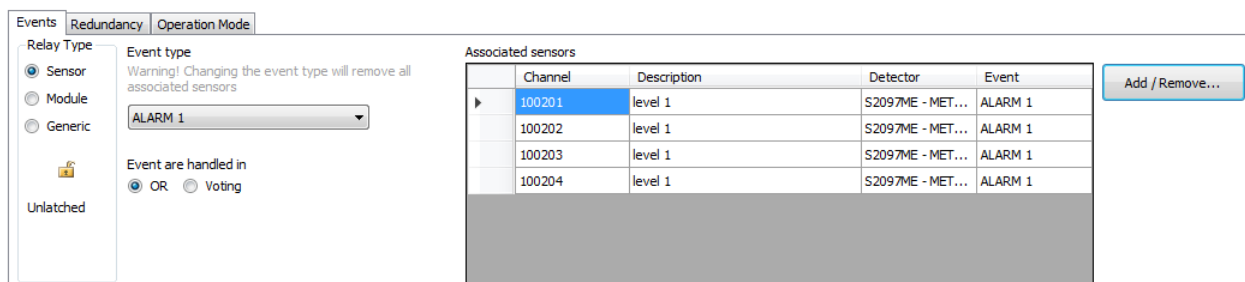
After checking the sensors to associate them, press Confirm.

Fig. 5.6.f) Associated sensors window, after selection

"Module" event: Select Module Event and associate it as a Module Fault event type (generic Fault of an IN or OUT module) or OFFLINE Module (Communication fault of an IN or OUT module).
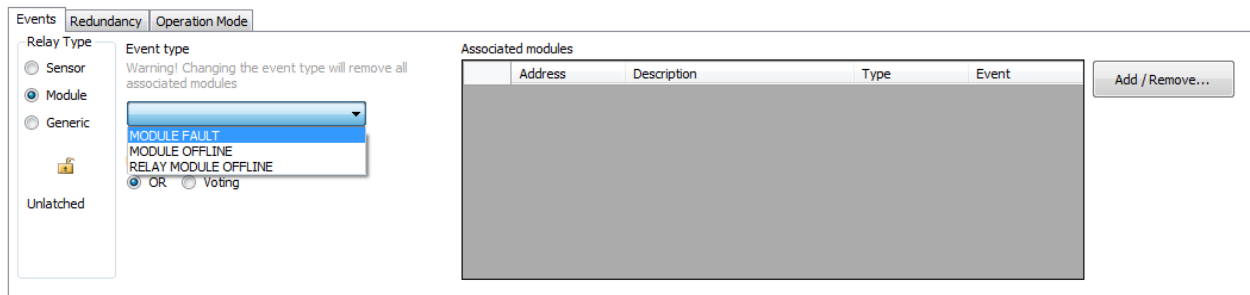
Fig. 5.6.g) Event association window from a Module

"Generic" event: select Generic to associate a system event to the output among those offered in the list.
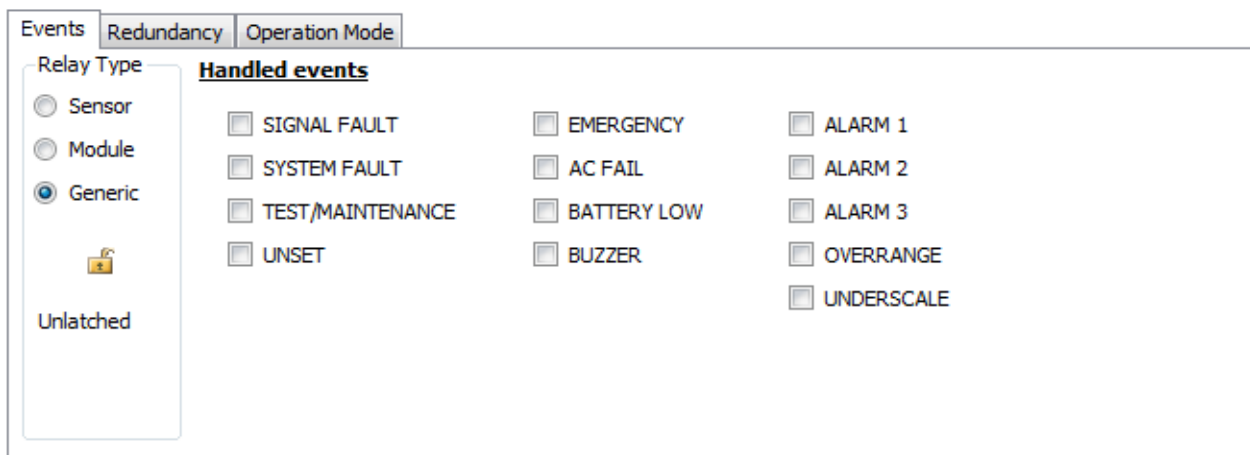
Fig. 5.6.h) Window for generic events (system events)

OR and **Vote** functions
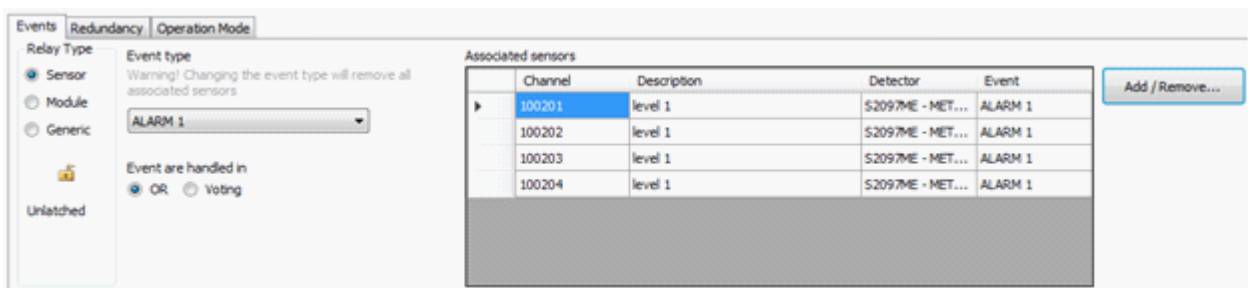
Fig. 5.6.i) **OR** *and* **Vote** *functions*

OR function

By selecting OR, a single event (between the events shown in the Associated Sensors summarizing screen) is enough to activate the output.

Voting Function
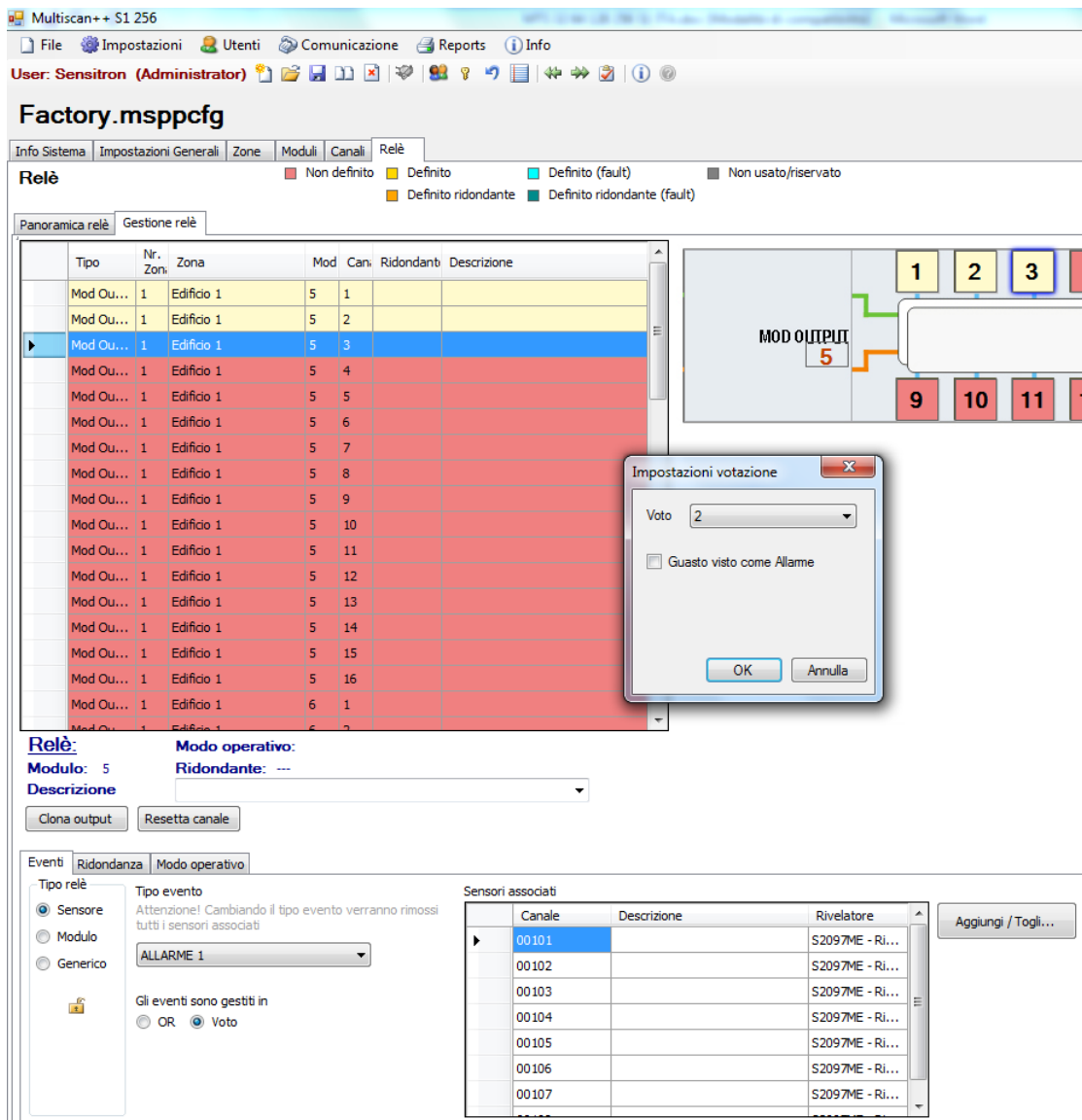
Fig. 5.6.l) Output programming window with Vote option

With the **OR** function, to activate the output programmed, just one of the events associated with the output is required in the **Associated Sensors** list. If the activation of the output to the simultaneous presence of more than one of the selected events (AND function) is desired, use the "***Vote***" option.

By clicking on the ***"Vote"*** option, a setting window will appear in which you must enter the number of events that must occur simultaneously to activate the output that is being programmed. Ex. when entering 2, 2 of the 4 ***Associated Sensors*** must be present at the same time to activate the output. A maximum number of 6 events can be entered.

If "***Fault seen as an Alarm***" is checked, any of the channels in Fault will be considered as if in Alarm.

Redundant output

In systems that require higher safety, 2 outputs can be used for a single activation (or to activate two distinct actuators that put the same system in safety conditions). The settings procedure for two redundant outputs must be practically identical.
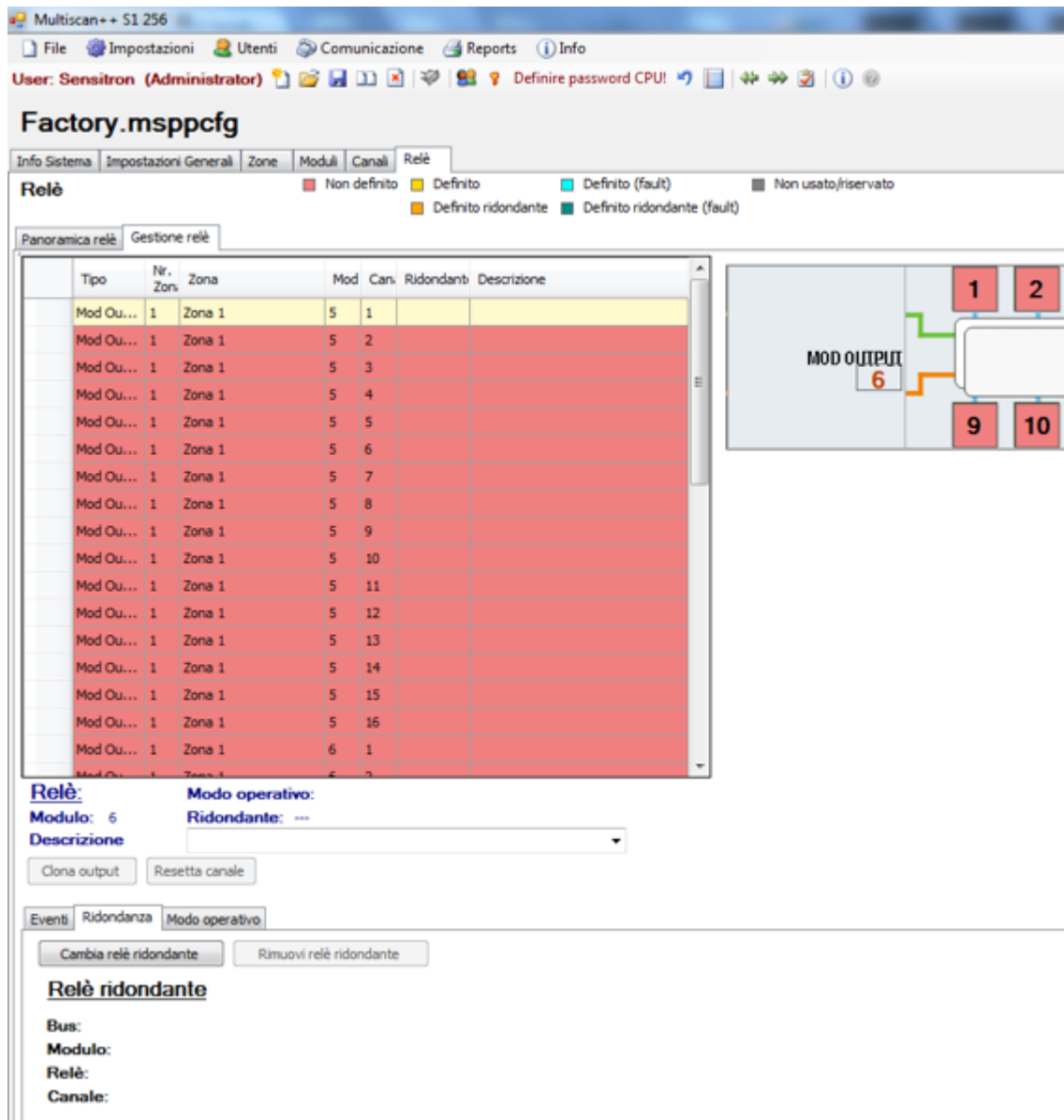
Fig. 5.6.m) Redundant output configuration screen

How to program a *Redundant Relay*

The output 1 of module 5 has been programmed. By selecting the "Redundancy" option without an output currently programmed as redundant, data are not present (bottom left of the screen).

By selecting the *Redundant relay* option, the screen in Fig.5.5.g

Fig. 5.6.n) List for the selection of the redundant channel

Chose the Redundant output and confirm by pressing Accept.

If the chosen Redundant output has a different configuration, the configuration will be automatically modified, matching the configuration of the other output (a small message will appear at the right part of the screen).

In the screen for configuring the output, in the Redundancy option, the redundant output indication will appear on the lower left (see Fig. 5.5.o).
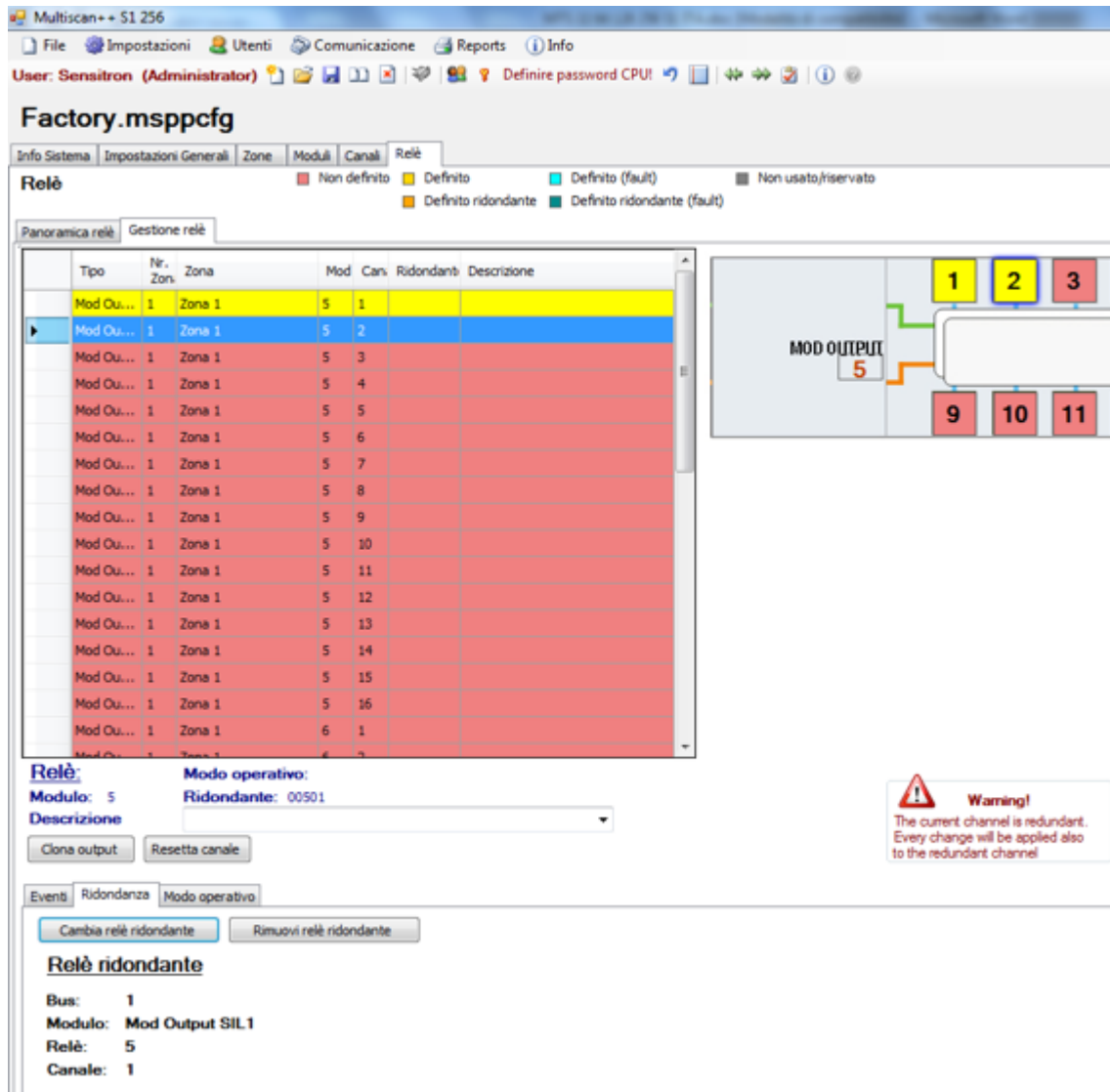
Fig. 5.6.o) Screen with redundant output indication

Output operating mode

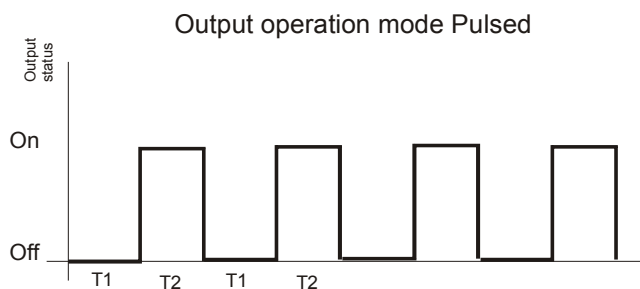There are three options for the output Operating Mode Click on **"Operating Mode".**
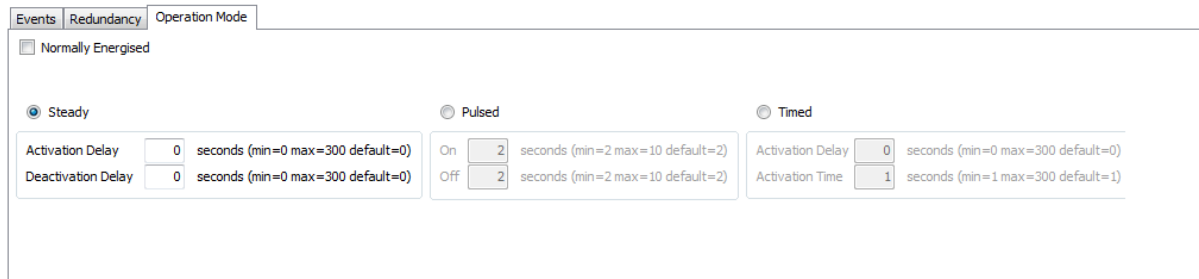

Fig.5.6 p) Output operating mode

Instant: follows the status of the event: Active event: (detector in alarm) activated output (after any delay); event reset: output deactivated (after a period of delay).
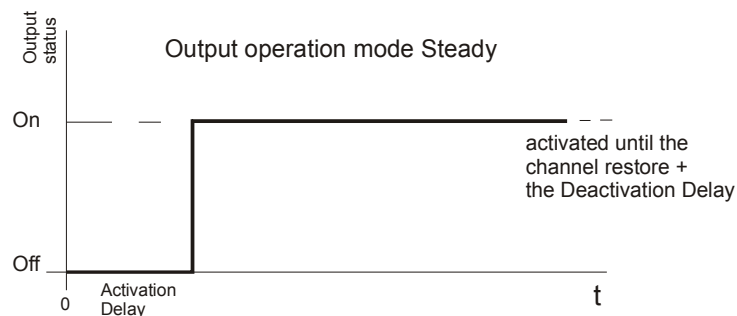
Impulsive: intermittent mode with settable ON and OFF time.

Time-based: individual impulse with activation delay time and deactivation delay that can be set.

Output operation mode Timed
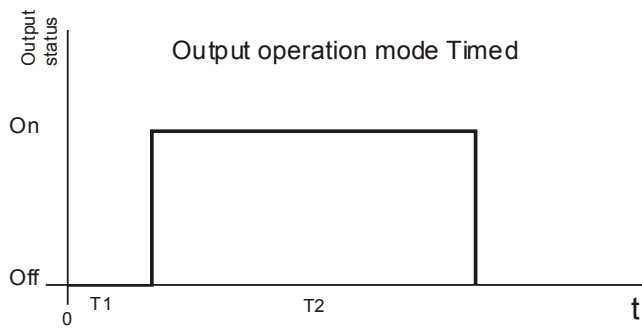
The "**Normally On**" option defines whether the output is normally activated or normally deactivated during regular operation.

Fig.5.6 q) Output operating mode

The aforementioned information does not bind the manufacturer, which reserves the right to make any changes that it deems useful for product improvement.

CE

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