

## 1 loop control unit



### TFA1-298



0051  
CPR - 0444

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✓

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2.7A

✓

Item no. TF1TFA1298-UK

#### OVERVIEW

The fire alarm analog control unit TFA1-298 is designed and built in compliance with the standards EN 54- 2-A1:2006 (main unit) and EN 54-4-A2:2006 (supply section).  
The design was implemented as part of a ISO9001 quality management system that involves the application of a set of rules for project planning and plans all subsequent test and control activities necessary for the production of all the items that make up the above control units.  
All the components of the equipment were selected for the intended purposes. Their specifications are met when the environmental conditions outside the enclosure correspond to those specified for the class 3K5 of standard EN 60721-3-3: 1995.  
Indoor use: the control unit should be installed in a location protected from the inclemency of the weather. Temperature and humidity control is not required in the installation environments.

#### PHYSICAL STRUCTURE

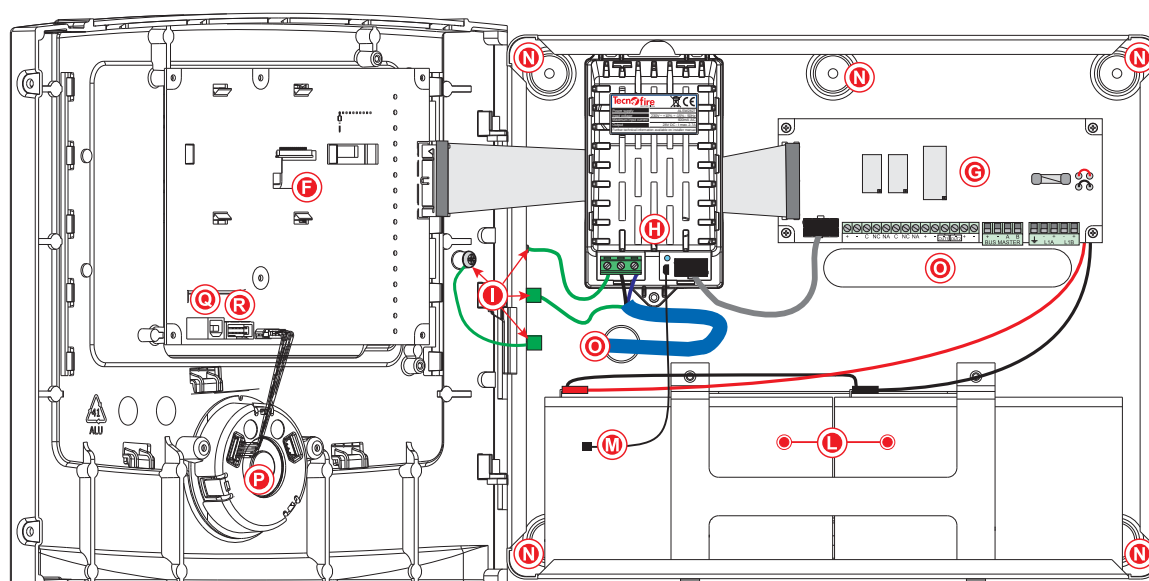
Addressable fire alarm control unit, constituted by a modular structure composed of:

- Metal cabinet which can hold two 12V-7h batteries.
- CPU controller card that integrates the user interface consisting of display, and management and programming keyboard.
- Connection card on which the connection infrastructures of detection loop, system bus and outputs are located.
- Fly-back switching power supply 24V - 2.7A [ALSW2827]

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|          |                       |          |         |          |                     |
|----------|-----------------------|----------|---------|----------|---------------------|
| <b>A</b> | Notification Led area | <b>B</b> | Display | <b>C</b> | Management key area |
| <b>D</b> | Numeric keys area     |          |         |          |                     |



|          |                       |          |                                   |          |                      |
|----------|-----------------------|----------|-----------------------------------|----------|----------------------|
| <b>F</b> | CPU card              | <b>L</b> | 12V 7 Ah batteries                | <b>P</b> | Internal speaker     |
| <b>G</b> | Connection board      | <b>M</b> | NTC probe for battery temperature | <b>Q</b> | USB Port             |
| <b>H</b> | ALSW2827 power supply | <b>N</b> | Wall mount holes                  | <b>R</b> | TTL serial interface |
| <b>I</b> | Ground Connection     | <b>O</b> | Cable entry                       |          |                      |

### SIGNALLING OUTPUTS

The unit is equipped with dedicated mandatory signalling outputs: Alarm, Siren and Fault, and with two freely programmable open collectors.

### DETECTION LOOP

The detection Loop can manage 199 sensors and 99 modules. The programming of the devices connected to the LOOP is facilitated by the auto-learning function. Device polling speed with full load Loop of less than 1 sec. For privileged devices, it is possible to set a higher frequency

### LOGICAL STRUCTURE

150 logic detection zones freely customizable as Fire or technological zones.  
Automatic management of the Default Zone.  
100 virtual logical Zones, freely assembled, which can be subjected to Boolean Formulas for functional conditioning of the system.

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### USER INTERFACE

Multi-purpose user interface consisting of: colour graphic display, 16 signalling LEDs, extended programming and management system keyboard, speech synthesis with customizable multilingual dictionary and speaker dedicated to sound alerts. The intensity of the sound alerts can be programmed, alerts modes depend on the signalled events. The graphic display of the control unit uses a clear iconography, the information is displayed in hierarchical order. The use of colours and the variable size of the fonts highlight the alerts according to their relevance. The display of the alarm information structured on multiple levels of detail, enables a rapid classification and a clear identification of the source of the alarm. In cases of obvious danger, data is integrated in the display of the alarm plan related to the event.

### ACCESS LEVELS

Access to basic functions and system programming regulated by passwords which control the access levels to the system. The control unit recognizes 4 access levels. The first access level is not subject to access password, it enables to acknowledge the alarm and examine the associated detail information. The access levels 2-User, 3-Installer and 4-Manufacturer, are regulated by password and provide access, in accordance with the different skills, to functional information and programming of the system.

### MANNED OPERATION

The System provides the "Manned" operation mode. The activation of this operating mode is subject to the recognition of a level 2 password. The Manned function can only be activated if the system is being supervised by personnel in charge of its control. In Manned operating mode, the System has a different mode of reporting alarm events.

### AUTOMATED CONTROLS

The system automatically performs functions based on the programming of: System timers, 4-year calendar, 8 time ranges, 100 Boolean formulas.

### RSC® FUNCTIONS

The RSC® functions allow to program, monitor and remotely control the system locally or remotely. With the RSC® functions you can perform the following tasks:

- Hardware consistency check: the check analyses and records the operating parameters and the hardware and software identification data for all devices. The collected data is correlated with the programming data of the system.
- Parametric analysis: the data recorded by the hardware consistency function is used as comparison data for subsequent parametric analyses, with this analysis, all possible deviations from the values previously recorded are detected and reported.
- Device monitor: the function allows to select a single device of the System to perform a dynamic real-time monitoring of all the operating parameters of the device.

### SYSTEM REPORTS

The RSC® functions allow to automatically obtain a number of report files that can be printed or stored. The reports are very useful, with them it is possible to officially document the following data:

- Programming Report: the report includes all the programming data of all the devices that make up the system.
- Hardware consistency report: the report contains all the functional and identification data of all the devices that make up the system.
- Parametric analysis report: the report collects and compares each time the functional data of the devices that make up the system, highlighting the deviations and the drifts of the values recorded and certified in the previous parametric analyses.
- Event Log Report: the report shows the event data stored by the control unit.

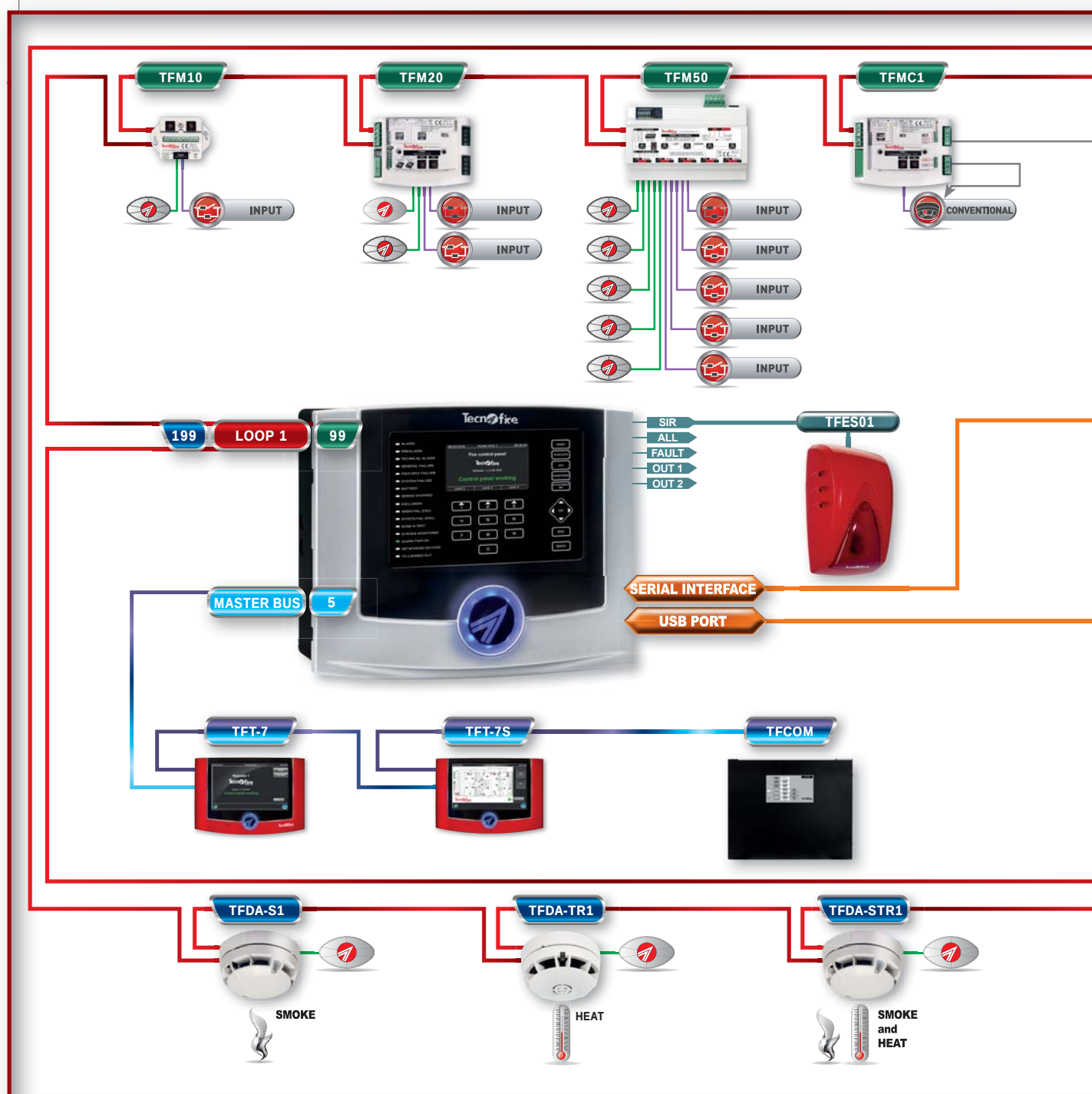
The events can be filtered by date and/or event type.

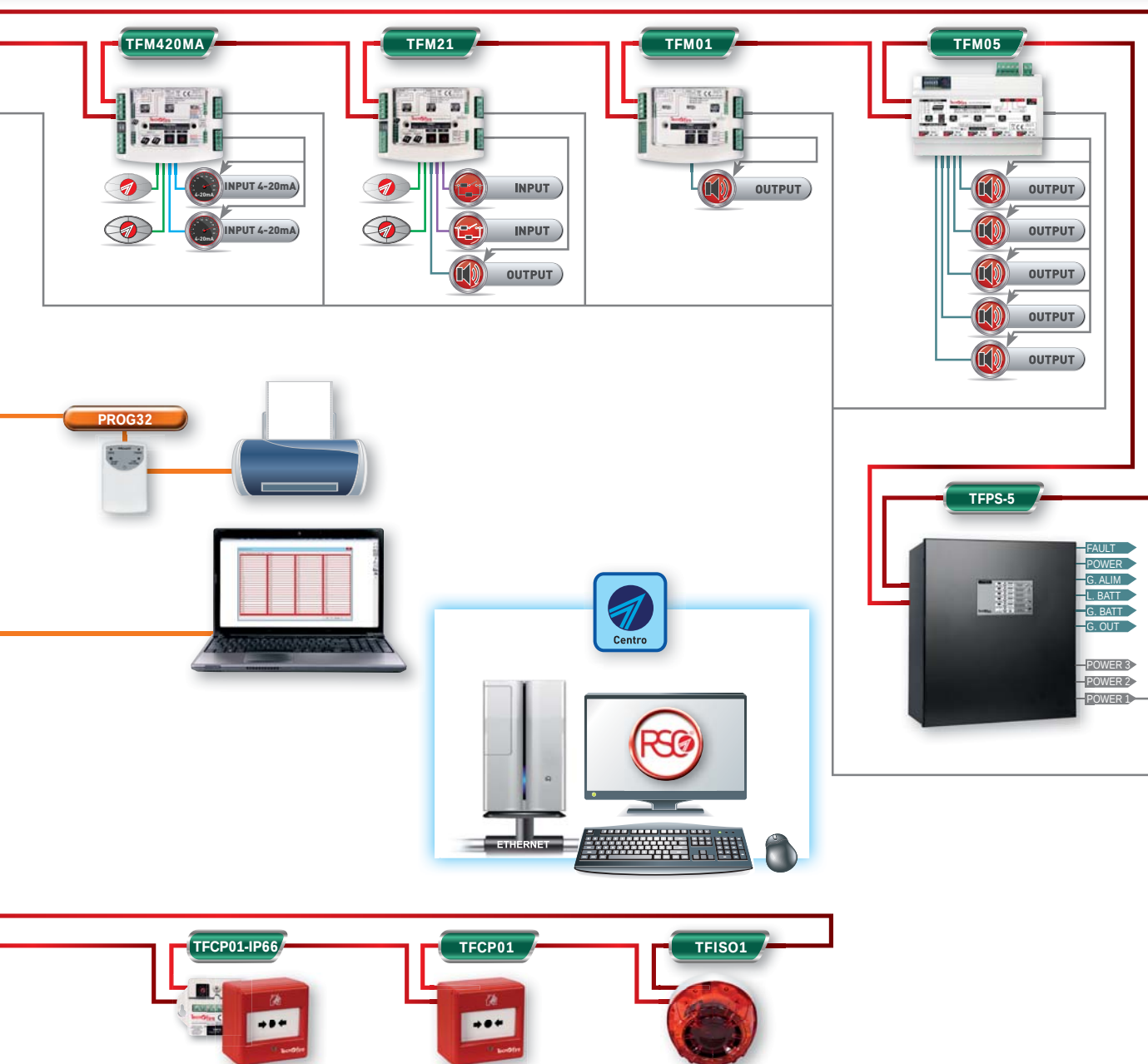
### MANAGEMENT SOFTWARE

The system can be fully managed by software modules that allow programming and management by means of TFCOM communicator, through GPRS connection

## System Configuration

|                  | TFA1-298 |
|------------------|----------|
| REPEATERS        | 5        |
| DETECTION LINES  | 1        |
| SENSORS FOR LINE | 199      |
| MODULES FOR LINE | 99       |



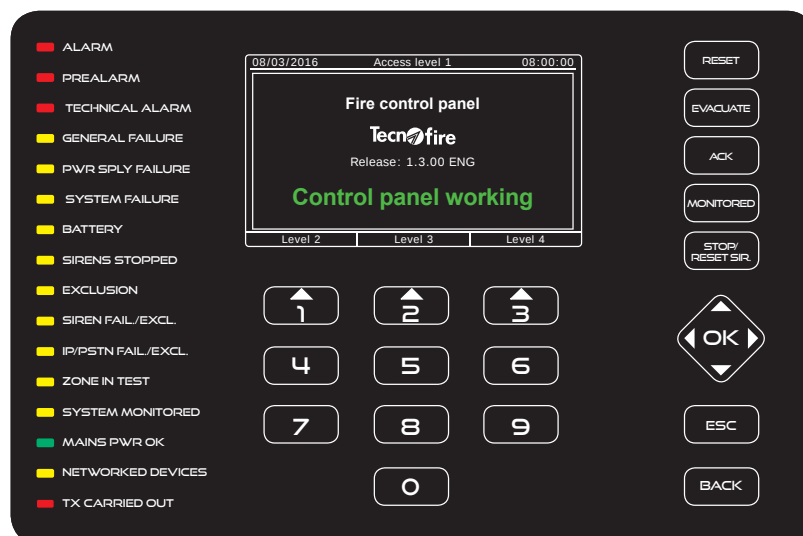


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### CONTROL UNIT PANEL

The management interface of the control unit consists of a TFT colour graphic display 480 x 272 pixels, 16 signalling LEDs, 5 function buttons, 7 navigation buttons and 10 keys, with which the user can interact for programming and complete management of the system.

The management interface is completed by the speaker that, according to the functional states of the control unit, provides audible alarms or notifications by speech synthesis.



### OPERATIONAL LEVELS AND ACCESS CODES

The control unit provides 4 access levels and 10 access codes. The levels are:

Level 1, Level 2, Level 3 and Level 4.

The table "Access codes to factory programmed levels" illustrates the sequence of keys to type to access the levels.

Access key to the level + Code + Confirmation Key.

#### Level 1

The control unit, when not operating, provides access to the functions reserved to Level 1. Without having to type a code, you can perform the following operations:

A- Access to the upper levels with the keys: 1 or 2 or 3 and the relevant password

B- Alarm acknowledgement pressing the MUTE key

C- Display of the current alarms previously acknowledged, stored in event categories folders.

#### Level 2

You can access to Level 2 pressing the key 1 and the relevant "user" code.

At level 2, it is possible to perform all the operations of the previous level and the following operations:

A - Control unit reset pressing the RESET key.

B- Control unit operating state change: Manned to Unmanned and vice versa.

C- Manual activation of an Evacuation alarm.

D - Access to the list of menus reserved to Level 2.

#### Level 3

You can access Level 3 pressing the key 2 and entering the relevant "Installer/maintainer" code of the staff authorized to edit important operating parameters.

At level 3 it is possible to perform all the operations of the previous levels and to access the menus reserved to Level 3.

#### Level 4

It is possible to access Level 4 by pressing the key 3 and entering the code of the "Staff authorized by the manufacturer", highly qualified personnel authorised by the manufacturer to carry out technical services of particular importance. At level 4 it is possible to perform all the operations of the previous levels and to access the menus reserved to Level 4.

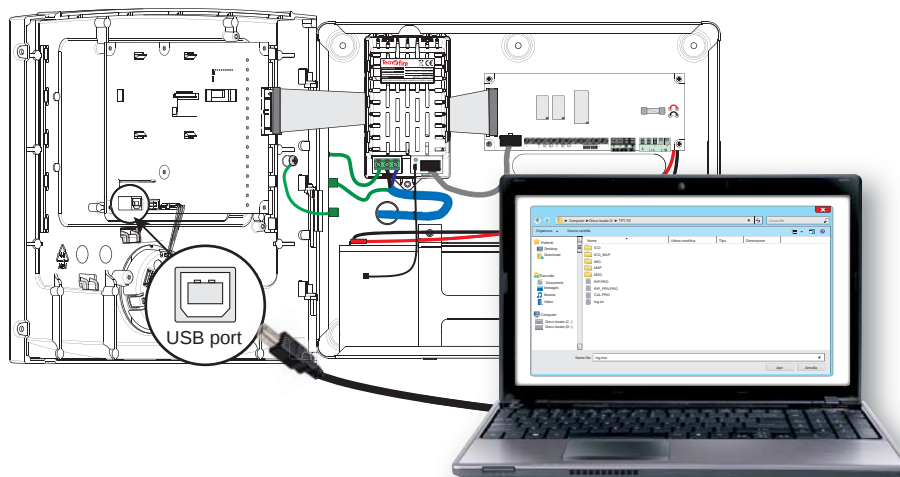
| Access codes to factory programmed levels                                           |                                                                                                                  |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
|  | <b>Level 1 access is not subject to password</b>                                                                 |
|                                                                                     | <b>Access to level 2</b><br> |
|                                                                                     | <b>Access to level 3</b><br> |
|                                                                                     | <b>Access to level 4</b><br> |

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### USB INTERFACE - PORT

The front USB port allows to connect the control unit directly to a PC, with which it is possible to program the control unit, and to update its firmware. This connection supports only the TECNOFIRE standard protocol from the programming and monitoring software.

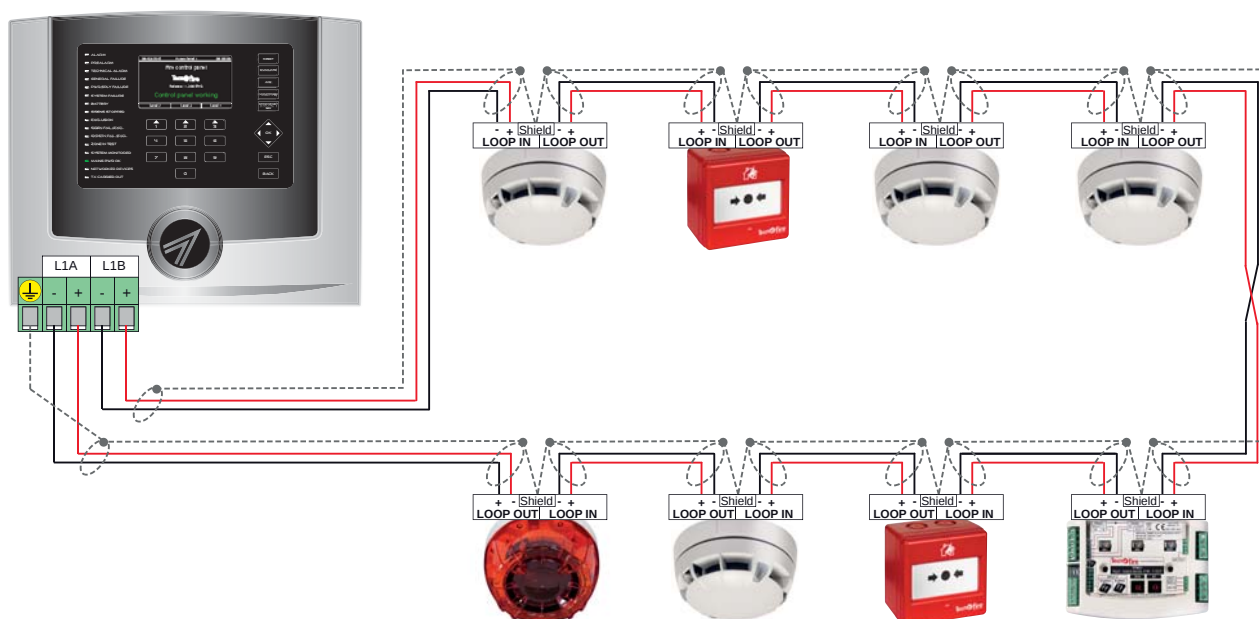
The USB interface can also be enabled by the Access levels 3 and 4, so as to allow access to the data Flash memory of the control unit as a drive. With this procedure it is possible to customize the dictionaries.



### DETECTION LINE CONNECTION

On the Detection line of the control unit it is possible to connect up to 199 sensors and up to 99 modules. The Detection line can be connected in Closed line or Open line mode. In Open line mode the standard EN 54 establishes 32 (sensors or modules) as the maximum limit of devices which can be connected to the Detection line. For Line connection, we recommend to use 2-pole shielded twisted cable, with flexible wires, whose section must be at least 1 mm<sup>2</sup>. For reasons of electrical safety and induced interference

rejection, the cable shield must be connected in such a way as to never be interrupted, always connecting on every device the shield of the input line with the shield of the output line. The cable shield must be connected to ground, the connection must be carried out at a single point, that is on the Line connection terminal marked with the earth symbol. The maximum length allowed for the laying of the detection line, with cable with suitable section, can never exceed 3000 meters.



## TFA1-298 - Technical and functional specifications

|                               |                                                               |                         |                         |                                      |                            |
|-------------------------------|---------------------------------------------------------------|-------------------------|-------------------------|--------------------------------------|----------------------------|
| Detectors<br>Modules<br>Zones | Total controllable detectors                                  | 199                     | Power supply            | Modular power supply                 | Type A (switching)         |
|                               | Total controllable modules                                    | 99                      |                         | Supply voltage                       | 230V AC +10 -15% 50Hz      |
|                               | Total controllable zones                                      | 150                     |                         | Maximum current requirements         | 600mA AC                   |
|                               | Virtual zones                                                 | 100                     |                         | Nominal values                       | 2.7A @ 27.6V DC            |
| Signalling<br>outputs         | Specialised relays                                            | 2                       |                         | Maximum current deliverable          | I max. 2.7A                |
|                               | Programmable open collectors                                  | 2                       |                         | Max ripple                           | ≤230mV pp                  |
|                               | Controlled output for siren                                   | 1                       |                         | Battery protection                   | Fuse T-1A                  |
| Control unit<br>provisions    | TFT True Color graphic display                                | 480 x 272 pixel         | Battery                 | Flammability class                   | V-2 or higher              |
|                               | Speech synthesis                                              | Multilingual dictionary |                         | Internal resistance                  | max. 1.5 Ω                 |
|                               | Detection loop                                                | 1                       |                         | Trip voltage                         | For Vbat <17.6V            |
|                               | Serial BUS RS485                                              | 1 - Master BUS          |                         | Charge time (2 x 12V-7Ah)            | 100% in 12 hours           |
|                               | Event memory capacity                                         | 4096                    | Physical specifications | Environmental class                  | 3K5 EN 60721-3-3:1995      |
| Management<br>modes           | Access levels                                                 | 4                       |                         | Operating temperature                | +5° C... +40° C            |
|                               | Access codes                                                  | 10                      |                         | Relative humidity                    | 10%...93% (non condensing) |
|                               | Manned system mode                                            | Programmable            |                         | Battery housing                      | 2 x 12V/7.2Ah              |
| Communication<br>protocols    | Detection loop                                                | FIRE-SPEED              |                         | Protection Degree                    | IP30                       |
|                               | BUS RS485                                                     | FIRE-BUS                |                         | Enclosure                            | Aluminium-Metal            |
| Automated<br>controls         | Formulas                                                      | 100                     |                         | Dimensions (L x H x D)               | 361 x 301 x 107mm          |
|                               | Alarm plans                                                   | 50                      |                         | Weight (without battery)             | 2.7Kg                      |
|                               | Time ranges                                                   | 8                       | Conformity              | Control unit                         | EN 54-2: 1997+A1: 2006     |
|                               | Calendar years                                                | 4 (programmable)        |                         | Power supply                         | EN 54-4: 1997+A2: 2006     |
| System<br>expandability       | Expansion devices<br>BUS RS485 connection.<br>Maximum 5 units | Control unit repeater   |                         | Certification number                 | 0051-CPR-0444              |
|                               |                                                               | Synoptic repeater       |                         | Year of CE marking                   | 15                         |
|                               |                                                               | Telephone dialler       |                         | Number of declaration of performance | 015_TFA1-298               |
| Serial printer                | Management                                                    | Notified body           |                         | IMQ                                  |                            |
| Electrical<br>specifications  | CPU power requirements                                        | 200mA @ 24V DC          |                         |                                      |                            |
|                               | Electrical outputs                                            | Max. 50mA               |                         |                                      |                            |
|                               | Loop power supply voltage                                     | 20V...27.6V DC          |                         |                                      |                            |
|                               | BUS RS485 voltage supply                                      |                         |                         |                                      |                            |
|                               | Siren voltage supply                                          |                         |                         |                                      |                            |

N.B. The declarations of conformity and performance are available on the website: [www.tecnofiredetection.com](http://www.tecnofiredetection.com)