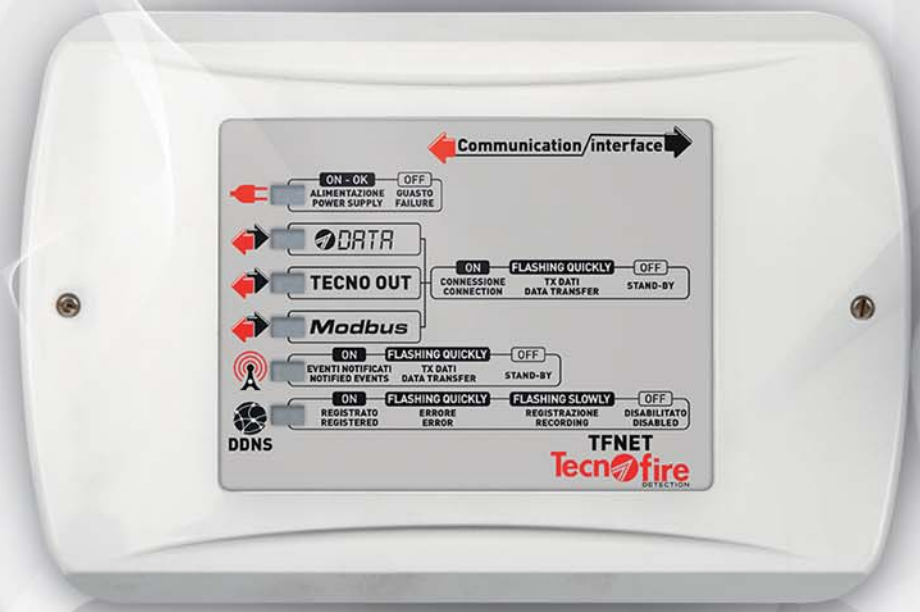
TFNET
Communication interface



PC based programming

Release	0.3
FW version	1.0.00
HW version	TFNET
Programming SW version	5.2
Updated	12/2016
Language	English

Tecnofire DETECTION
by Tecnoalarm

Centro 5.2	TFNET - TFAXFIRE Systems Compatibility					
	TFA1-298	Ver. 1.3.09	**TFA2-596**	Ver. 1.3.09	**TFA4-1192**	Ver. 1.3.09

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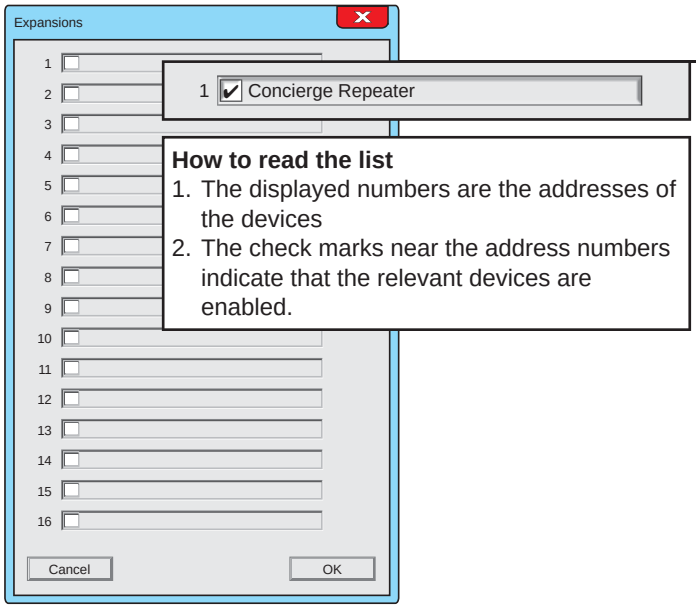
1 - EXPANSION DEVICES



1-1 - Programming of the expansion devices

It displays the synoptic panel showing the expansion devices which can be connected via the RS485 bus. The synoptic panel shows sixteen lines, numbered 1 to 16. Each row depicts the enabling status of each device and its alphanumeric description. Each identification number matches the serial identification physical address of the expansion device. Through the synoptic panel it is possible to access the programming screen of the device to be paired with each address.

Managed expansion devices	
TFA1-298	5
TFA2-596	16
TFA4-1192	16

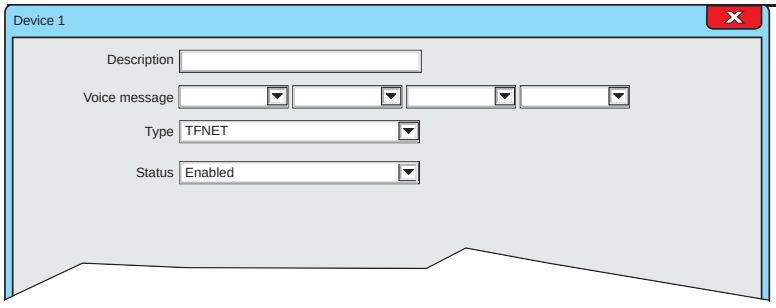


1 - List of the addresses

The menu displays the overview of the 16 addresses reserved to the expansion devices.
The synoptic panel depicts for each address a box that indicates the enabling status of the relevant device, flanked by a field that displays the alphanumeric description assigned to that device.

2 - Access to programming

To access the expansion device programming window, click on its description field.



3 - Programming screen

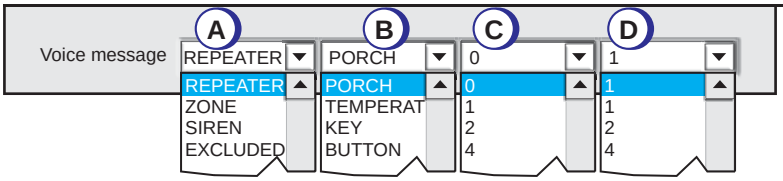
It displays the programming screen of the expansion device



The alphanumeric description is shown on the system display for every type of reporting generated by the module.
The alphanumeric description must uniquely identify the device.

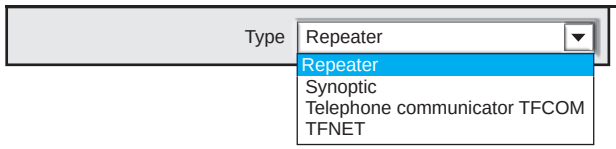
4 - Description

Select and fill the description field.
The description field allows to assign an alphanumeric description to the device (maximum length 24 characters).



5 - Voice message

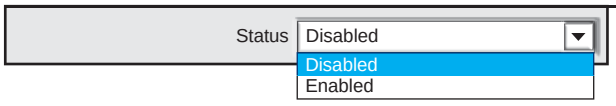
Select the pull-down menus A,B,C,D and choose the words for the voice description.
The four words A+B+C+D form the voice message which identifies the expansion.
The voice message will be played back by the control unit and from the console of the fire protection system



6 - Type

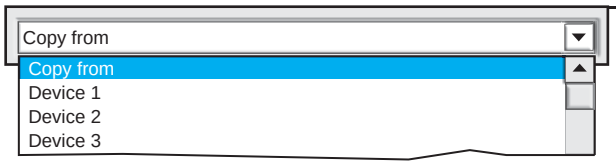
Device selection Click the pull-down menu and select the type of device to associate with the address.

Device type	Function	Further configuration
Repeater	Interactive control console for the remote management of the control unit, limited functionality to user access levels 1 and 2.	This device does not require additional programming
Signaling panel	Monitor console, used to display graphic maps. The maps can be made interactive through advanced programming.	The programming of the device must be completed by the work plan
Telephone communicator TFCOM	Telephone dialer PSTN GSM/GPRS, equipped with 8 multi-protocol channels used to send alarm and alert notifications.	The programming of the device must be completed by the work plan
TFNET	Multimode communication interface. Ip dialer equipped with 8 multi-protocol channels used to send alarm and alert notifications. Management of telematic services Tecnoalarmr, DDNS, SNTP, Email. Management of Modbus and Tecno-out protocols.	The programming of the device must be completed by the work plan



7 - Status

Enabling or disabling the device. The synoptic panel indicates the enabling status of the device, by means of the check mark in the box located next to the identification number.



8 - Copy from

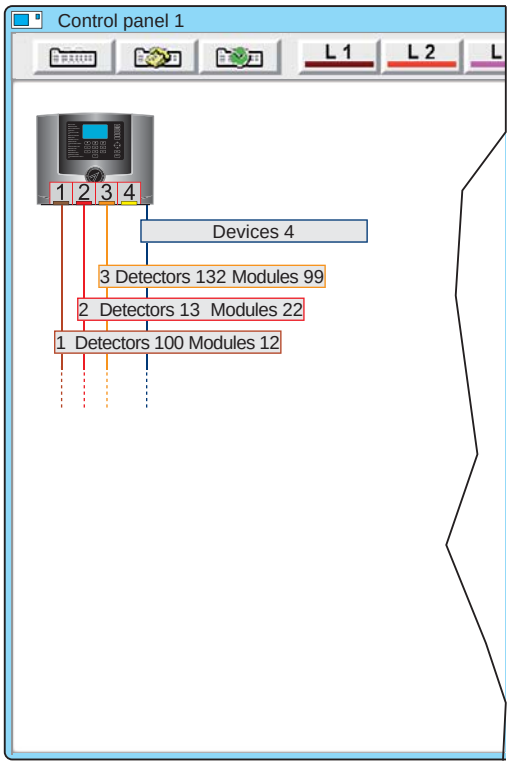
The copy function allows to quickly programming a device by copying the settings of another device already set up.
Click the pull-down menu, then click the name of the device from which the settings should be copied.



Programming of the synoptic panel for the expansion devices is completed. The programming of the expansion devices can be completed in the main selection screen menu of the control unit.
To confirm the settings, click **OK**
To cancel the settings, click **Cancel**.

1-2 Main screen of the control panel

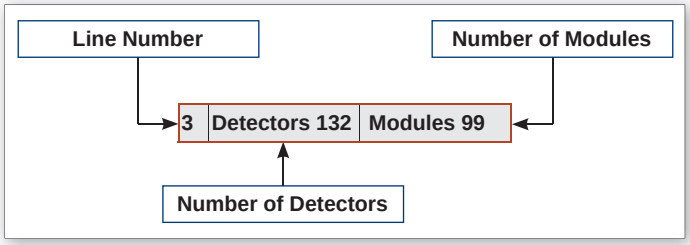
The main screen, from which it is possible to select the programming menus of the control unit, has a large white area on which the software CENTRO positions the graphical depiction of the devices of the fire protection system.



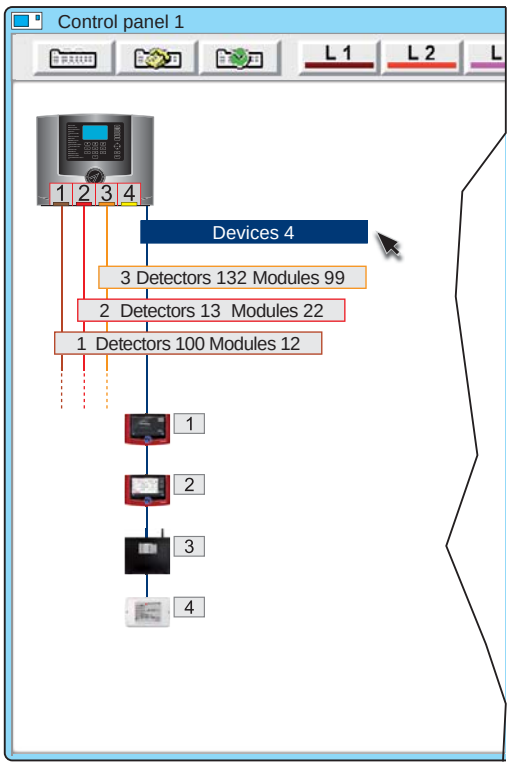
The screen displays the icon of the control unit where the detection lines and the BUS line converge.
Attention: only the connections of the Lines which have configured devices are shown.

Each connecting Line is identified by a label, which shows, in case of detection Lines, the identification number of the Line, the number of detectors and the number of configured modules. The label of the BUS Line shows only the number of enabled devices.

The labels are buttons. By clicking on them it is possible to access the display of the relevant devices.



1-3 - Display the expansion devices



To view the expansion devices, click the label of the BUS Line. The depiction of the BUS Line can be enlarged to display the icons of the expansion devices. Each icon is flanked by a pane that indicates the identification address of the device.

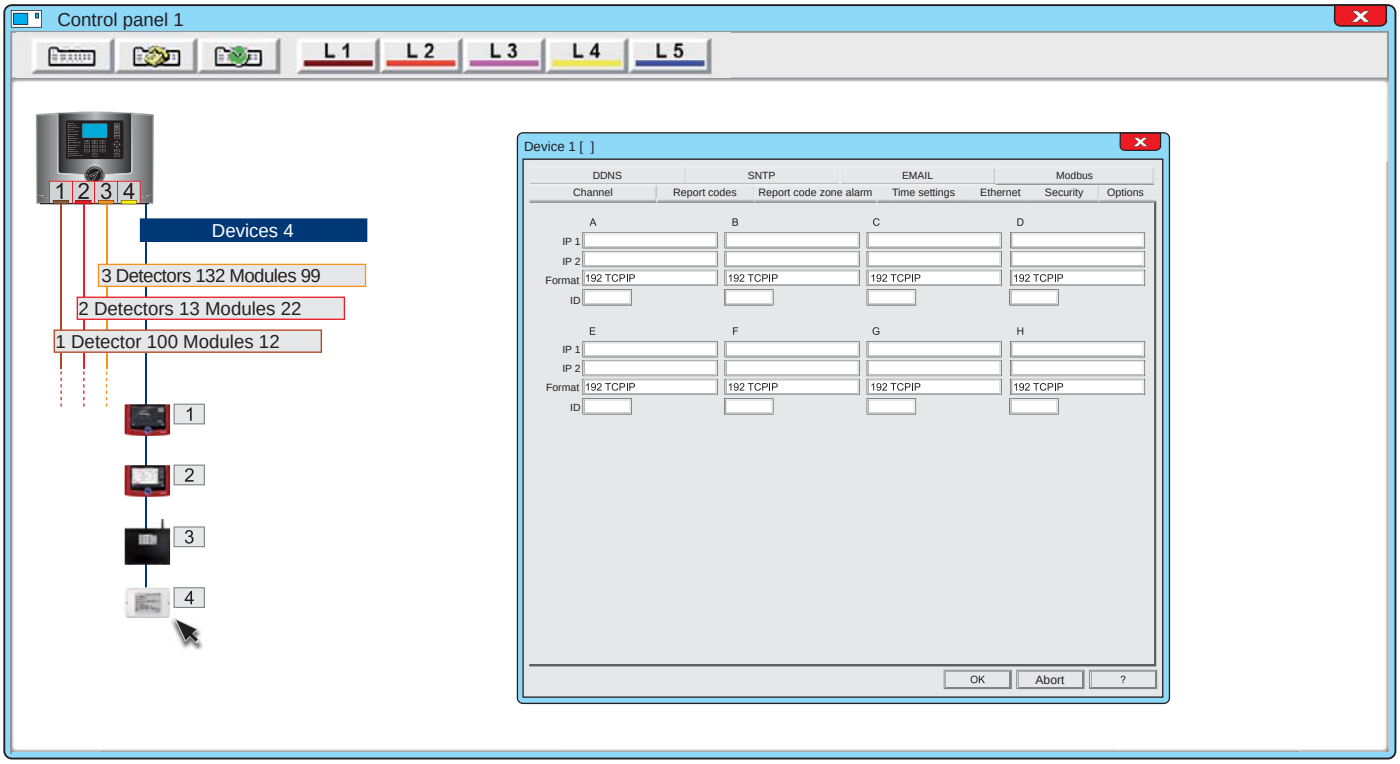
Each type of expansion device is distinguished by its own identification icon, see icon table of the expansion devices.

Icons of the expansion devices	
	Icon of repeater TFT-7
	Icon of synoptic TFT-7S
	Icon of TFCOM telephone communicator
	Icon of TFNET multimode communication interface

1-4 - Programming of the TFNET expansion device

1 - Access to programming

Click the device icon TFNET, the program displays a window which groups the menus with which it is possible to set all the operation parameters of the communication interface TFNET.



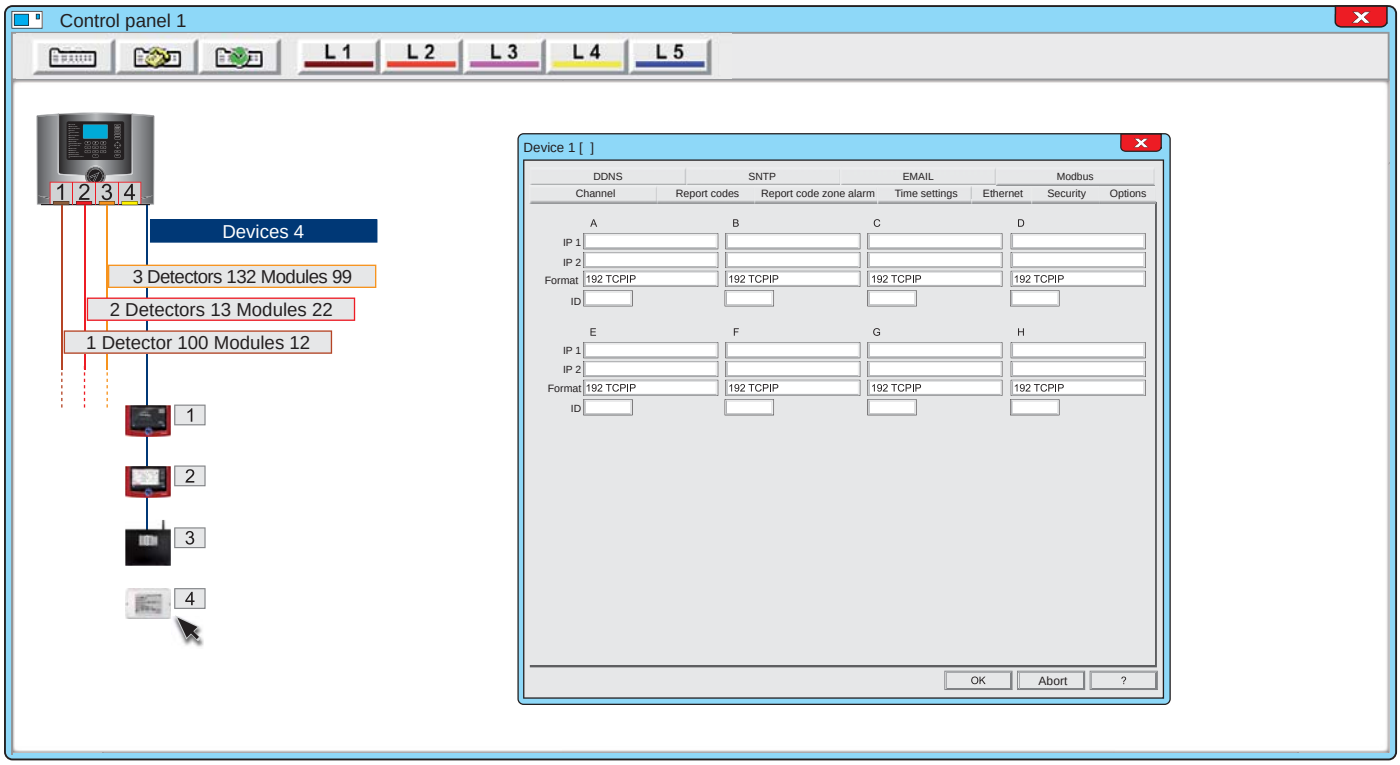
2 - Programming of the TFNET communication interface

The TFNET interface is set by means of 11 menus, through which it is possible to characterize its operation. To access the various set up menus, click the label with the menu title.

Channel	Report codes	Report code zone alarm	Time settings	Ethernet	Security	Options
DDNS	SNTP	EMAIL	Modbus			

2 - PROGRAMMING

2-1 - Access to programming



TFNET configuration

DDNS	SNTP	EMAIL	Modbus

Channel	Report codes	Report code zone alarm	Time settings	Ethernet	Security	Options

Channel — Programming menu for the 8 phone channels. Each channel can be associated with a main IP Address, a secondary IP address, a communication protocol and an identification code.

Report codes — The menu allows to associate the telephone channels with the reporting codes used to notify the events related to the system operation to the preset IP addresses.

Report code zone alarm — This menu allows to associate the telephone channels with the zones reporting codes. Such association is free, every zone managed by the control unit can be associated to one or more channels.

Time settings — Programming the channels activation delay. Enabling and setting the execution frequency of the Test call with TCP/IP.

Ethernet — Setting the IP parameters that identify the device on the network. Enabling the operation of the communication channels reserved to Servers and services. Compilation of the lists of authorized IP addresses.

Security — Setting the Passphrases used by channels for the encryption of the communication and of the Passphrases used for the communication channels: SERVICE, SERVER 1 and 2, and Tecno Out

Options — Activations: automatic muting of System failures, global muting of the dialer.
Programming of the channel designed to carry out the emergency call

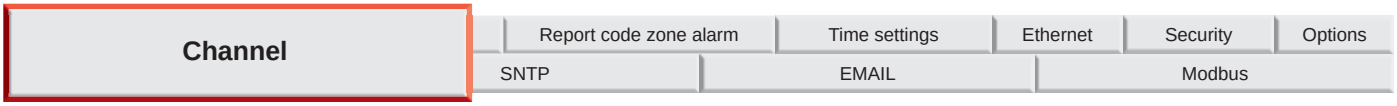
DDNS — Set up of the operation parameters of the telematic service DDNS

SNTP — Set up of the operational parameters of the telematic service SNTP

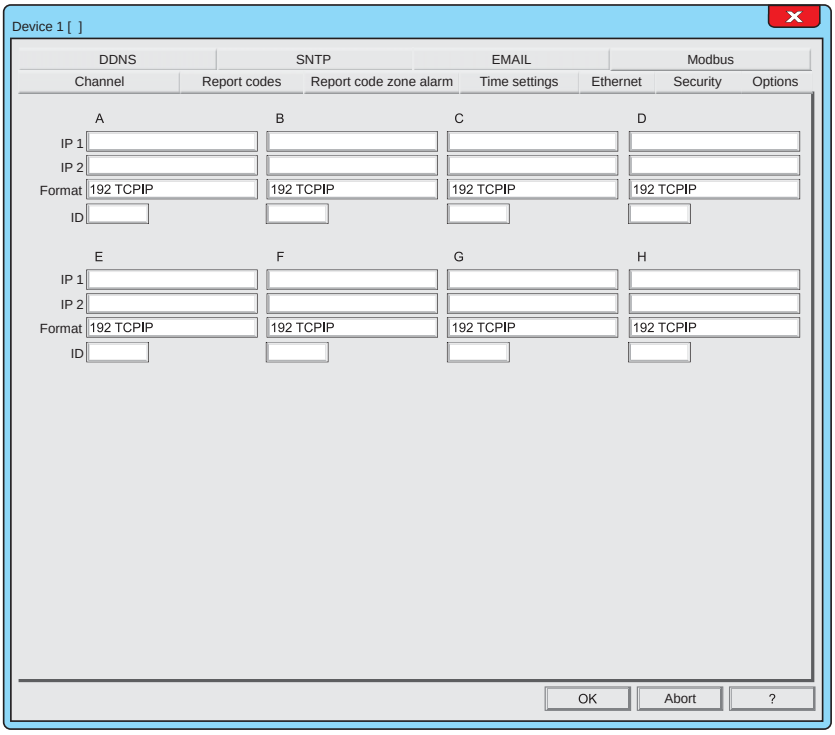
EMAIL — Set up of the recipients of the email messages and definition of the channels to be used for the submission of the notification messages

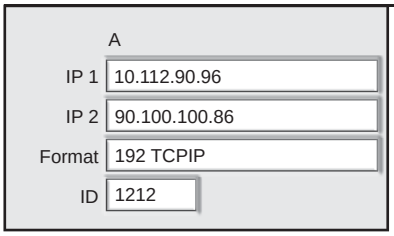
Modbus — Set up of the type of protocol and communication parameters used by the Modbus protocol

2-2 - Channel



Set up menu of the operating parameters of the phone channels. The interface has 8 Ethernet channels (A, B, C, D, E, F, G, H). Each of them can be associated with a main IP address, a secondary IP address, a communication protocol and an identification code.





1 - Programming of the channels

A - Header that identifies the channel.

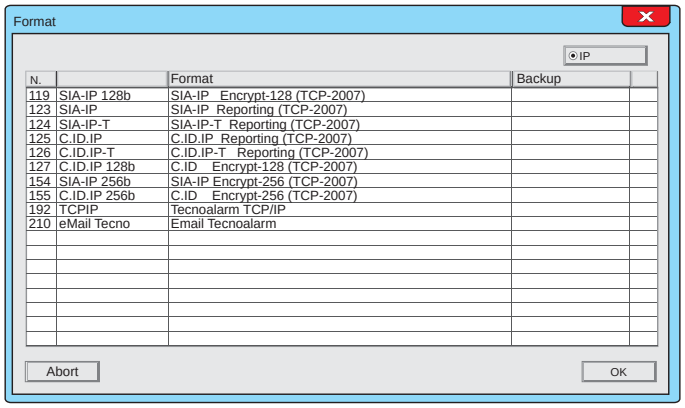
IP 1 - Main IP Address, the first address that the channel contacts in its notification cycle. To enter the address click the field (maximum length 24 characters).

IP 2 - Secondary IP address, the second address that the channel contacts in its notification cycle. To enter the address click the field (maximum length 24 characters).

Format - Selection of the communication format. The format identifies the communication mode, each protocol has its own peculiarities.

ID - identification code of the channel (maximum length of the code 6 characters). Through the identification code, the centre which has been contacted identifies the channel, and the System from which the notifications come. If the ID field is not filled in, the System is still identified by the serial code of the control unit.





2 - Format

The format is the mode of transmission of the notification events, each protocol contains its own operating rules, rules that relate to the way in which the notification is sent to the target IP address.

To choose the protocol please click the field Format.

It is displayed the window to select the protocol for the channel being set.
Select from the list the desired protocol and then click OK.



3 - ID

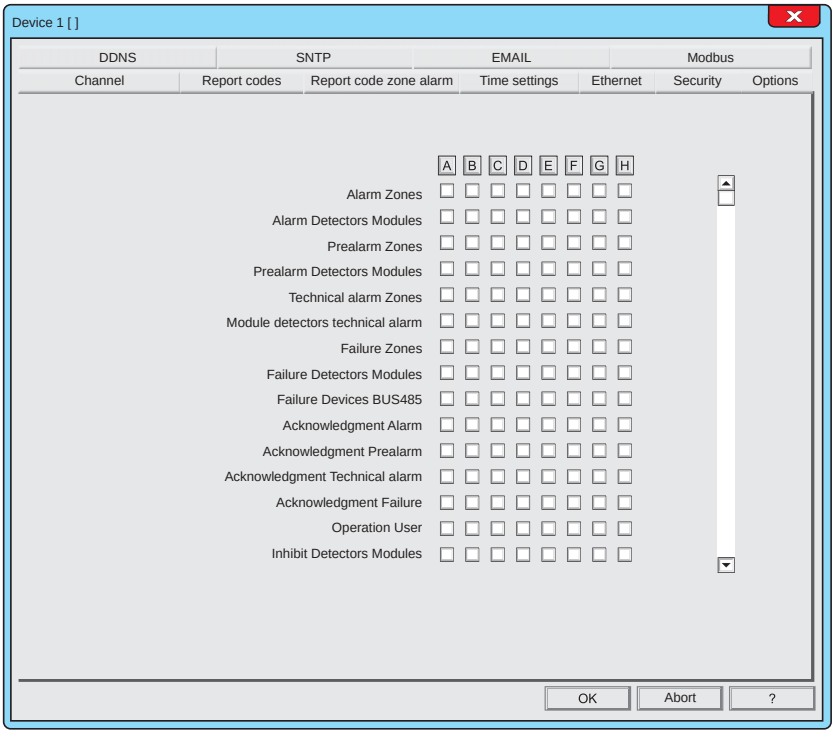
Identification code of the channel (maximum length of the code 6 digits). Through the identification code the centre which receives the notifications identifies the channel and as a result the system from which they come.



The Channel menu is completed
To confirm the settings, press **OK**.
To cancel the settings, press **Abort**.

2-3 - Report codes

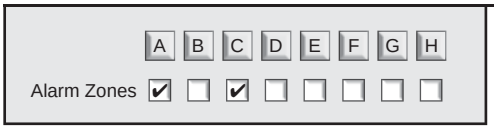
Menu to associate the reporting codes categories to the channels. The dialer uses the reporting codes to notify the preset IP addresses about the system functional events. Notifications are sent from each channel using the communication protocol set for that channel in the menu "Report codes".



Each item in the list "Report codes" (Transmittable events) represents a category of events. Enabling an item in the list, you enable all the events grouped in such category. For example, the category "Zones Alarm" groups alarm events of all the fire zones of the System (consisting in one or more control units).

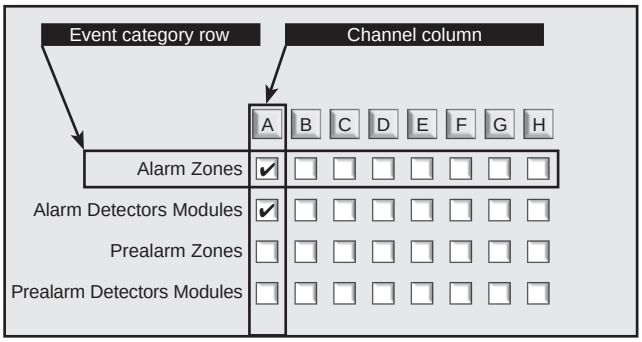
Attention: If the "Report code zone alarm" are used, do not associate to channels also the relevant notifications contained in this menu "Report codes". The notifications which must be associated with only one of such two menus are:
- Alarm Zones
- Prealarm Zones
- Technical alarm Zones
- Failure Zones
- Acknowledgment Technical alarm

If the same notifications are associated in both menus, always and only the notifications associated in the menu "Report codes" will prevail.



1 - Pairing channels and events

The available channels are 8, each channel is identified by a letter from A to H.
The event categories are shown in the table "Transmittable events categories". (See chapter 2A Additional information). Each category has a row with 8 boxes, and each box represents a channel.
Clicking the letter of one channel, you enable or disable the channel to transmit any category of events.
To enable or disable only the desired categories, click the checkbox relevant to the channel selected for notification.



Event category row
The row event is highlighted in horizontal, including the name of the category and 8 boxes, for the 8 channels.

Channel column
The column of the channel is highlighted in vertical, with an enabling box for each event row.

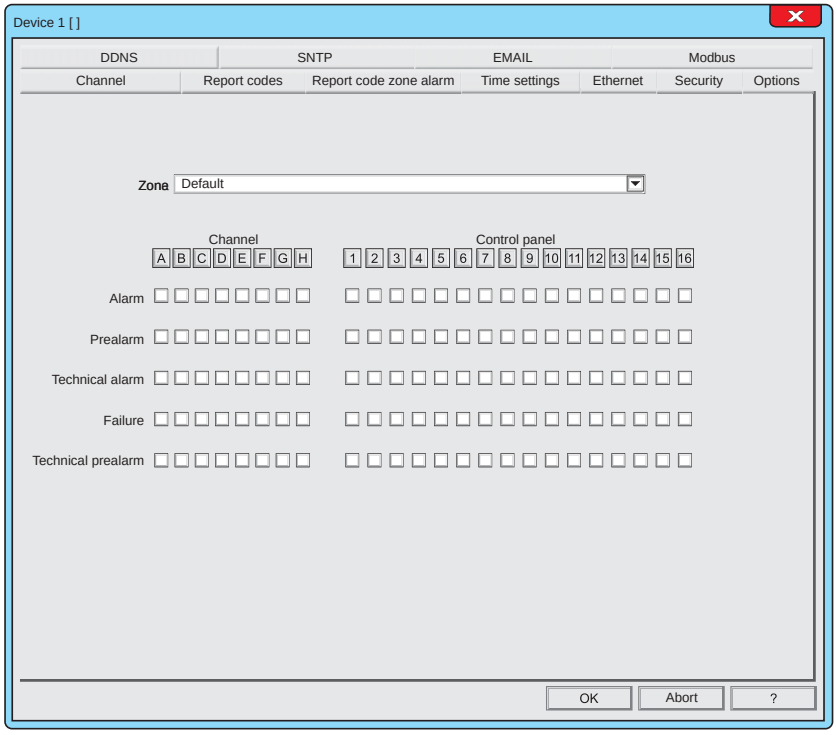


The Report Codes menu is completed
To confirm the settings, click **OK**
To cancel the settings, click **Abort**.

2-4 - Report code zone alarm

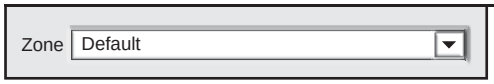
Channel | DDNS | **Report code zone alarm** | Time settings | Ethernet | Security | Options | EMAIL | Modbus

This menu allows to associate the channels with the zone reporting codes. Such association is free, every zone managed by the control unit can be associated to one or more channels. When the system consists of several control units, it is possible to select the control units and freely associate its zones to the channels.



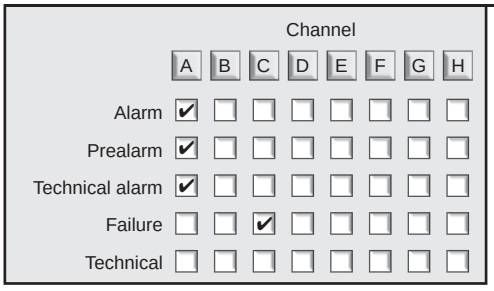
Attention: If the channels are associated to the notifications contained in the menu "Report code zone alarm", never associate also the notifications contained in the menu "Report codes".
If the same notifications are associated in both menus, always and only the notifications associated in the menu "Report codes" will prevail.

For further details
see the additional information on page 28



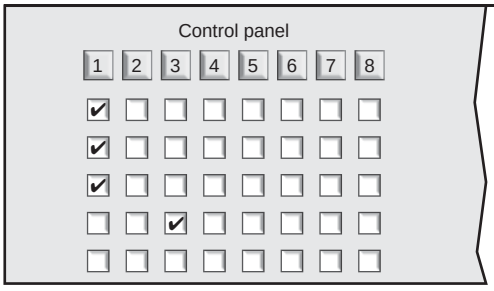
1 - Zone

Zone selection



2 - Channel

Pairing between channels and notifications: Alarm, Warning, Technical Alarm and Fault of the selected zone.



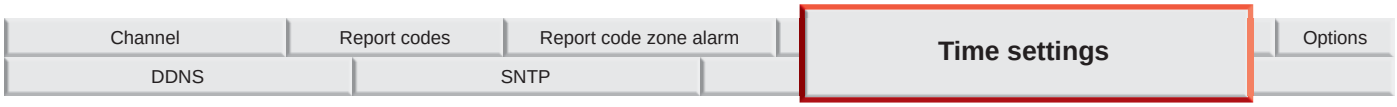
3 - Control panel

Selection of the control unit to which the number of the selected zone refers

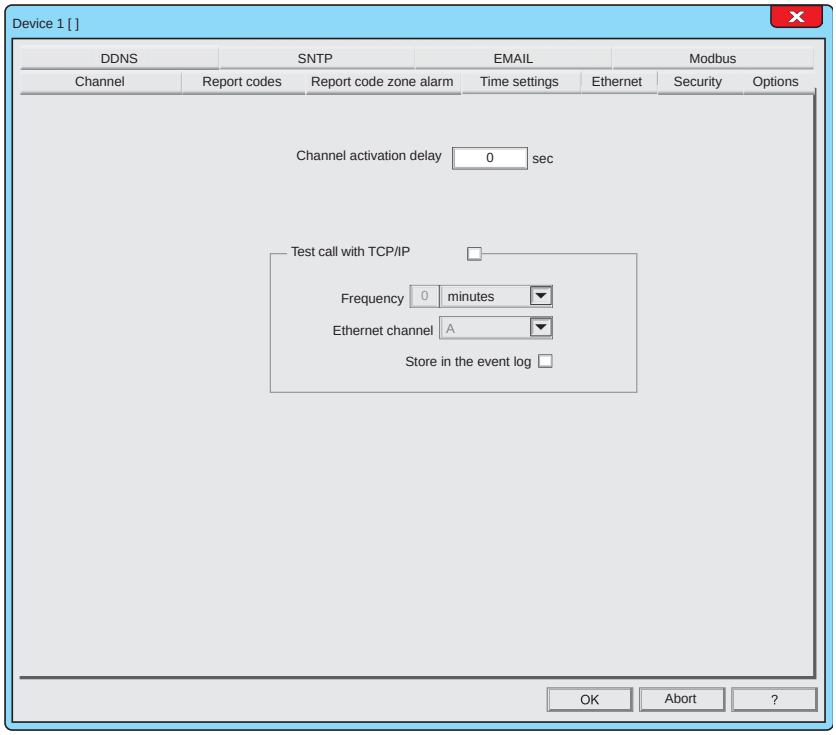


The Report Code zone alarm menu is completed
To confirm the settings, press **OK.**
To cancel the settings, press **Abort**.

2-5 - Time settings



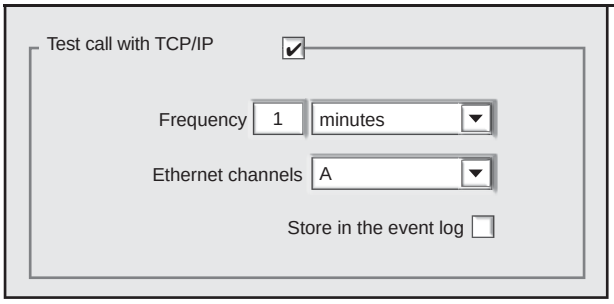
The menu allows to set up the activation delay of the channels (only for Warning and Fire alarm events). Enable and set the operating parameters of the Test call with TCP/IP.





1 - Channels activation delay

Set up of the activation delay of the channels to forward event notifications concerning Fire Warning and Alarm.
0 to 600 seconds



2 - Test call with TCP/IP

The test call with TCP/IP allows the automatic periodic check for the network connection between TFNET and Centro.
Enabling - The test call with TCP/IP only runs if it is enabled.
To enable it, click the enable box
Frequency - Setting of the numerical value of the interval (frequency); click on the box and enter the value (1 to 255). Click on the pull-down menu and choose the unit of measurement of the frequency value: minutes, hours or days.
Ethernet channel - One of the channels is used for communication. Click on the pull-down menu and select the channel to be used for this function.
Attention: the selected channel must be paired with a data protocol selected from those available, except 210 eMail Tecno.
Store in the event log - When this function is enabled, all the "Test call with TCP/IP" events are stored in the log file.

Attention: If you are using a Test frequency, with a cycle too short there is a risk of saturating the event log without need.
If this function is not enabled, only events with negative outcome are recorded.

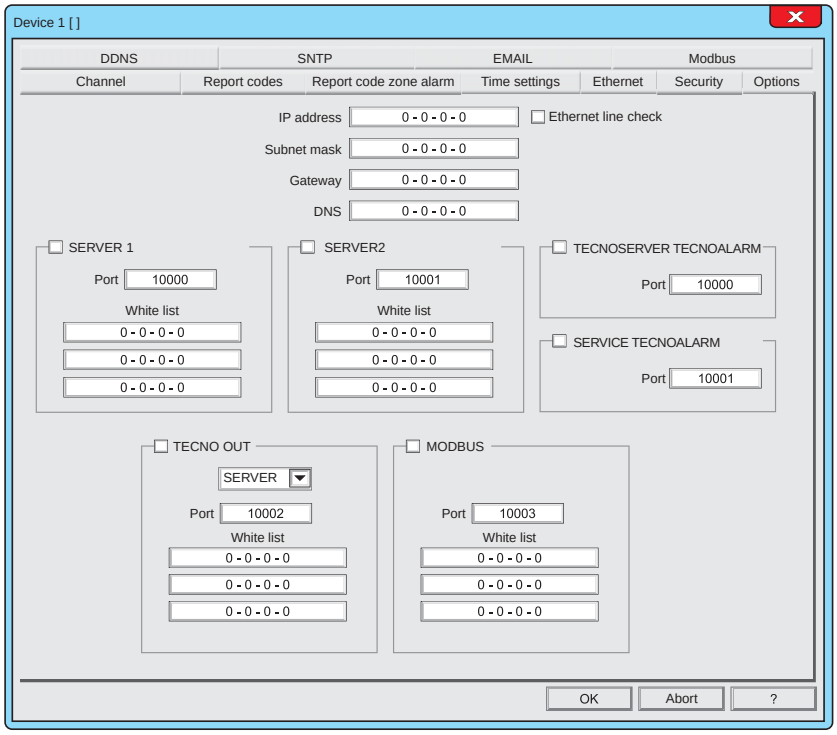


The Time settings menu is completed
To confirm the settings, press **OK.**
To cancel the settings, press **Abort**.

2-6 - Ethernet

DDNS | SNTP | Channel | Report codes | Report code zone alarm | **Ethernet** | Options

Set up menu of the network parameters necessary for the univocal and static identification of the TFNET device within the local area network (LAN). The menu allows to enable individually the operation of the available Servers and services, defining for each of them communication ports and access restrictions. The menu also allows to enable and establish the operating parameters of the optional communication protocols Tecno Out and Modbus.



DNS Address
If the field of the DNS address is not completed, the TFNET automatically uses the default address of a Public DNS: 204.152.184.76.

Editing the network parameters
Each time that in the set up you edit one or more of the following parameters:
- IP address
- Subnet mask
- Gateway
- DNS
The TFNET device detects the change and forces its own watchdog reset, the event is normally stored in the event log of the control unit that controls the system.

IP address 192-168-0-12

1 - IP address

IP address on which the TFNET communication interface is connected.
Attention: enter a static IP address.

☑ Ethernet line check

2 - Ethernet line check

Box that enables the Ethernet connection check. To enable or disable the check, click on the box.
The check is enabled when the check mark is present.
Attention: if the check is not activated, the failure notifications of the Ethernet channel are not issued.

Subnet mask 255-255-255-0

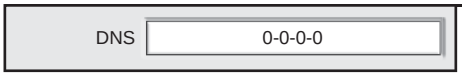
3 - Subnet mask

The Subnet mask identifies the range of addresses to which the TFNET inside belongs inside the IP subnet.

Gateway 0-0-0-0

4 - Gateway

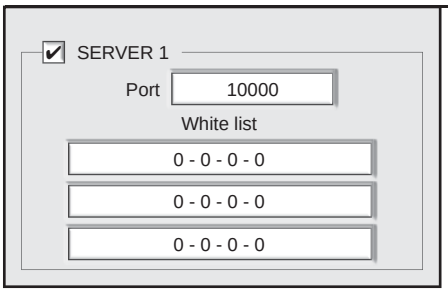
In home local networks the Gateway is usually handled by the router, therefore in this field it is sufficient to enter the IP address of the router.



5 - DNS

Address of the DNS Server used. You can enter the address of any valid Server, or you can use the same address of the router if a DNS service is implemented internally.

Summary table of communication channels			
Channel	**Modes**	**Port (default)**	**Function**
SERVER 1	Server	10000	IP communication channel for the connection to TFNET via the local area network (LAN).
SERVER 2	Server	10001	IP communication channel for connection to TFNET via WAN or VPN.
TECNOALARM TECNOSERVER	Client	10000	Channel used by TFNET to forward notifications.
TECNOALARM SERVICE	Client	10001	Channel used by TFNET to forward the notification "Test call with TCP/IP"
TECNO OUT	Client or Server	10002	Channel dedicated to the communications of the Tecno Out protocol
Modbus	Server	10003	Channel dedicated to the communication of the Modbus protocol
Attention: all communication channels can operate at the same time, but each of them can accept a single communication at a time			



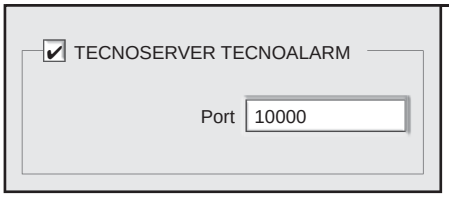
5 - SERVER 1 and SERVER 2

Enabling - To enable the channel click the box.

Port - Setting of the communication port of the Server (port used by the Clients to access the Server).
Attention: to access the Server also from an external network (WAN), the port number of the Server should also be set on the Port Forwarding of the home router.

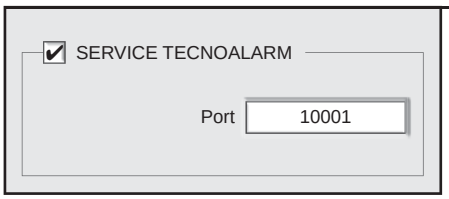
White List - editable list that contains the list of IP addresses of the Clients which are authorized to access and make requests to the Server. The list consists of one to three IP addresses that correspond to the Clients authorized to access the Server.

Attention: the IP addresses must be static. If the list is not filled (empty addresses or with zeros), there is no restriction on access.
As a result, the Server will accept incoming connections from any network node.



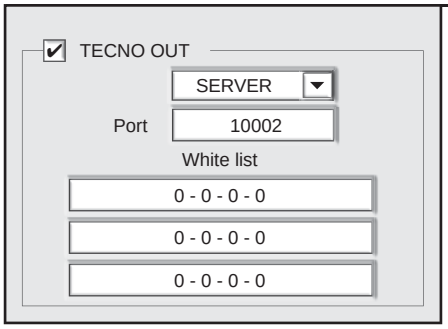
6 - TECNOSERVER TECNOALARM

Enabling - To enable the channel click the box.
Port - Set up of the port reserved for event notification to Tecnoalarm Tecnoserver or to reception centers in general. Used to forward notifications in CLIENT mode of channels A, B, C, D, E, F, G and H.



7 - TECNOALARM SERVICE

Enabling - To enable the channel click the box.
Port - Set up of the reserved port used for periodic forwarding of the notification "Test call with TCP/IP".



8A - TECNO OUT SERVER MODE (optional protocol)

Enabling - To enable the channel click the box.

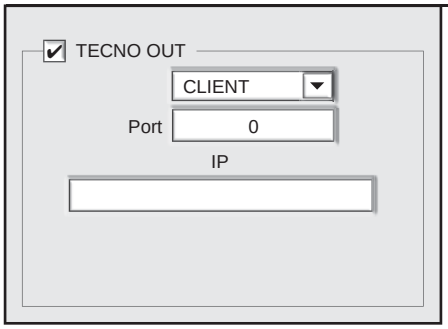
SERVER or CLIENT - Selection of the operation mode of the channel.

SERVER
Port - Setting of the communication port (port used by the Clients to access the Server).

Attention: to access the Server also from an external network (WAN), the port number of the Server should also be set on the Port Forwarding of the home router.

White list - Editable list of the IP addresses allowed to access the Server)

The Tecno Out protocol is available by purchasing the software unlock TFABIL-TECNO



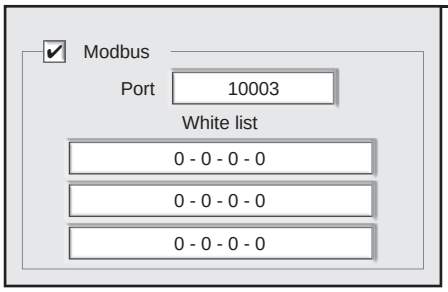
8B - TECNO OUT CLIENT MODE (optional protocol)

Enabling - To enable the channel click the box.

SERVER or CLIENT - Selection of the operation mode of the channel.

CLIENT
Port - Setting of the port used by the communication channel.
IP - IP address that you want to contact (address of the service provider)

The Tecno Out protocol is available by purchasing the software unlock TFABIL-TECNO.



9 - Modbus (optional communication protocol)

Enabling - To enable the channel click the box.

Port - Setting of the communication port of the Server (port used by the Clients to access the Server).

Attention: to access the Server also from an external network (WAN), the port number of the Server should also be set on the Port Forwarding of the home router.

White list - Editable list of the IP addresses allowed to access the Server)

The Modbus protocol is available by purchasing the software unlock TFABIL-Modbus

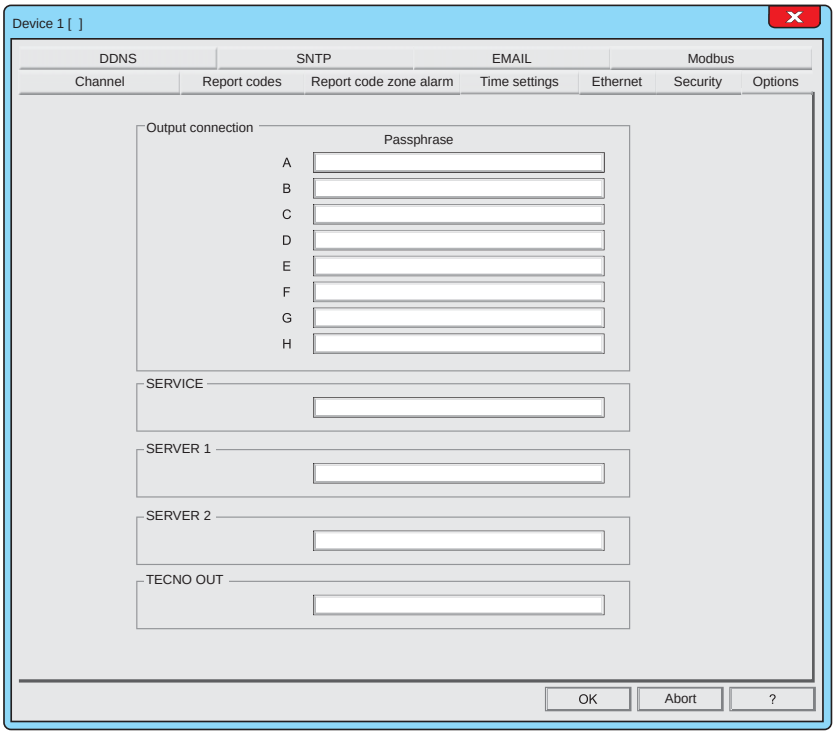


The Ethernet menu is completed
To confirm the settings, click **OK**
To cancel the settings, click **Abort**.

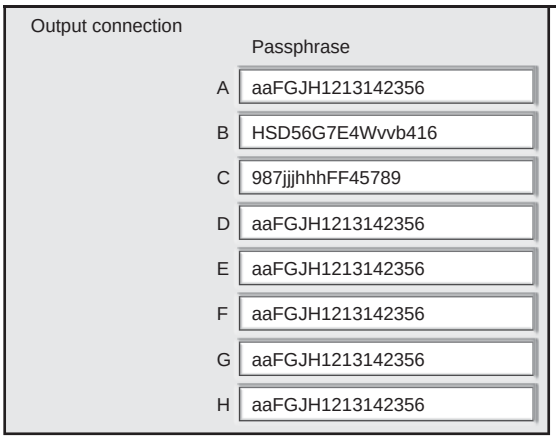
2-7 - Security

DDNS	SNTP	EMAIL	Security
Channel	Report codes	Report code zone alarm	Time settings

Programming menu for the Passphrases used to encrypt the communication data.
The Passphrase is an encryption key used to encrypt data and enhance the security level of the communication.
Data may be decoded and interpreted only by the recipient with which the Passphrase was agreed.



Attention: by filling the fields Passphrase you customize the encryption key of the communication.
If the fields passphrase are not filled, the channels use the default encryption key specific for the communication protocol used.



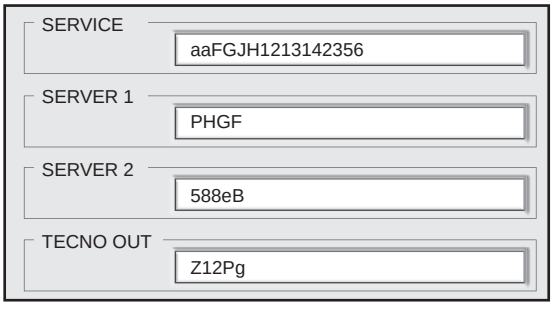
1 - Passphrases of the channels

It is possible to assign a customised encryption Passphrase to each channel (outbound communications) and to each communication channel.

Syntax rules

The table shows the syntax rules to follow in order to create the Passphrase.

Passphrase syntax rules		
Number of characters	→	maximum 32 characters
Type of characters	→	Alphanumerics, numbers or letters
Type of letters	→	Uppercase and lowercase
What to avoid	→	Characters other than numbers and letters



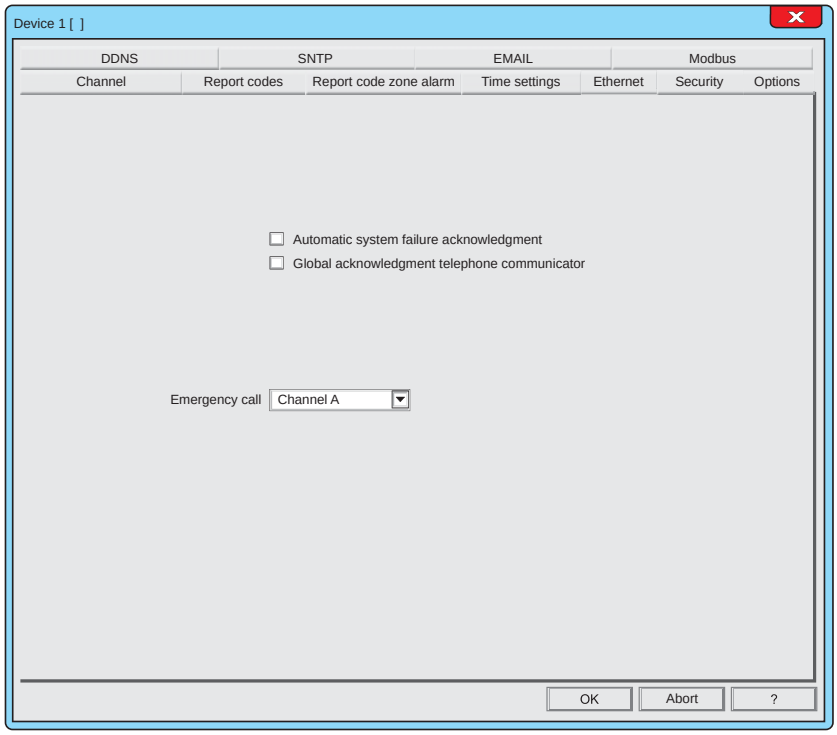


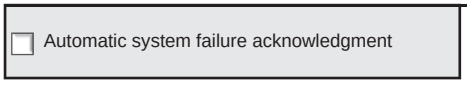
The Security menu is completed
To confirm the settings, click **OK**
To cancel the settings, click **Abort**.

2-8 - Options

DDNS	SNTP	EMAIL	Options
Channel	Report codes	Report code zone alarm	Time settings

The Option Menu allows to enable automatic muting of the faults and global muting. The menu also allows to select the channel which executes the emergency call.





1 - Automatic system failure acknowledgment

When this function is enabled, the system faults related to the TFNET dialer are automatically reported and muted.
Automatic muting occurs when the reported fault is solved (end of the cause of the notice). The fault event is stored on its onset in the event log of the control unit.



2 - Global acknowledgment telephone communicator

When this function is enabled, and a muting command is received, all the communicators in the telephone queue handling the same muted event are also muted.



6 - Emergency call

Selection of the channel to use for the emergency call.

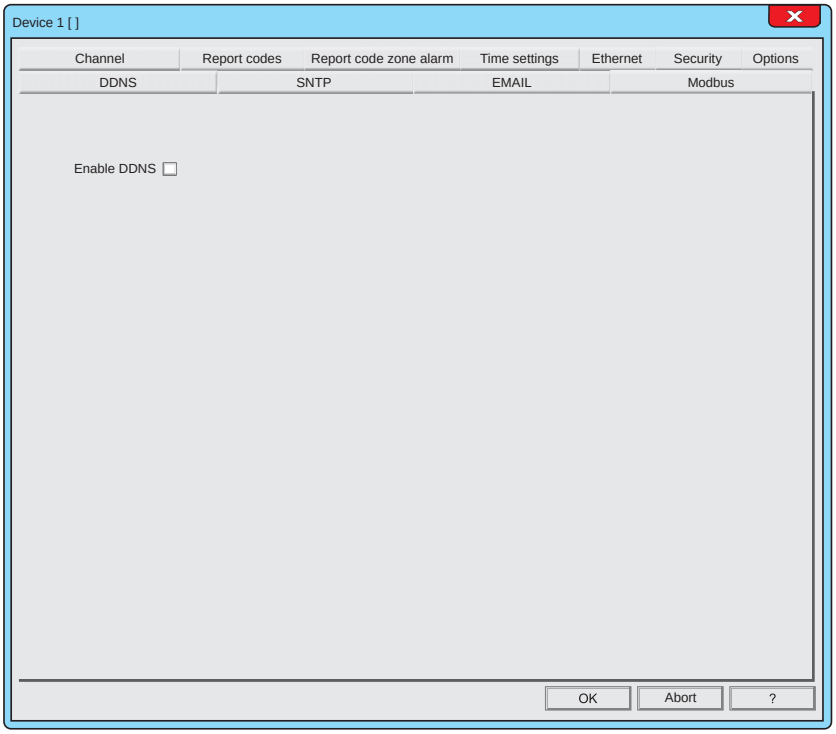


The Options menu is completed
To confirm the settings, press **OK.**
To cancel the settings, press **Abort**.

2-9 - DDNS

DDNS	Report codes	Report code zone alarm	Time settings	Ethernet	Security	Options
	SNTP	EMAIL	Modbus			

Set up menu of the operating parameters of the DDNS service.



The communication interface TFNET handles the telematic services of Tecnoalarm.
One of the services available is DynamicDNS, which allows to access the device from outside without assigning to it or to the network to which it belongs a static IP address.
To make possible its operation:
Enable the SNTP service (see SNTP menu)
Open ports 80 and 123 on the Router and Firewall on which the device is connected.
The port associated with the REMOTE SERVER channel is enabled for access from outside (settings of the Router and Firewall)
The addressing of the device does not pass through a proxy.
The Router is set to ensure that a connection request to the REMOTE SERVER port is directed to TFNET.



1 - Enable DDNS

Enabling of the DDNS service.
To enable the DDNS service, click the Enable box.
The check mark indicates that the feature is enabled.

DDNS
Enabling the DDNS function, you authorise the control unit to automatically perform its registration on the server "Tecnoalarm DDNS".
The server records the identifier of the TFNET and its WAN IP address.
From this moment onwards, any change of the WAN IP address of the router to which the TFNET communication interface is connected, is reported by TFNET to the "Tecnoalarm DDNS" that will update the recording with the new WAN IP address.

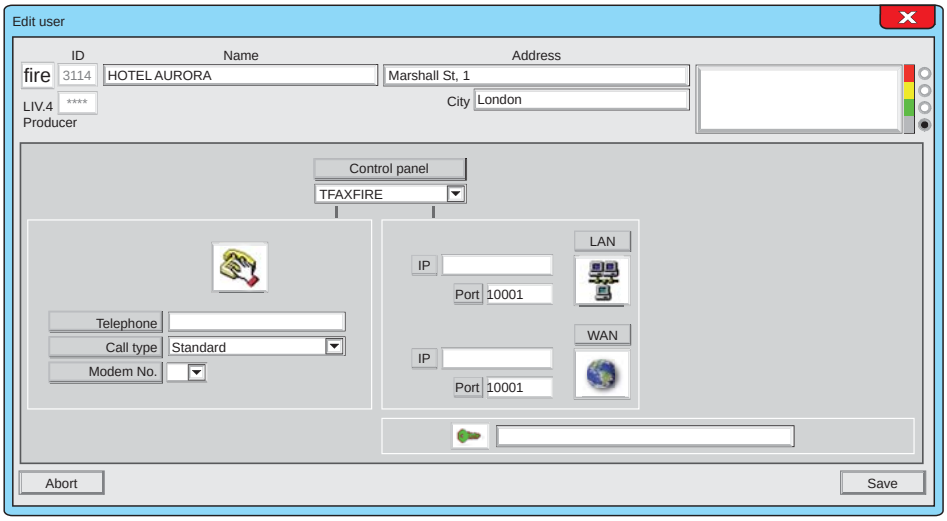


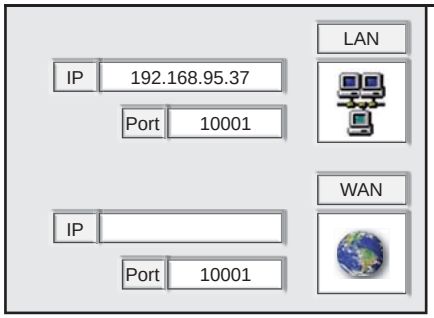
The DDNS menu is completed
To confirm the settings, press **OK.**
To cancel the settings, press **Abort**.

Editing of the user file

User file

Open the user tab and fill in the fields necessary to the operation of the TFNET and of the Tecnoalarm DDNS service.





IP connections

Programming of the LAN and WAN addresses, and of the communication ports to be used to reach the control unit from the local area network (LAN) and remotely (WAN).

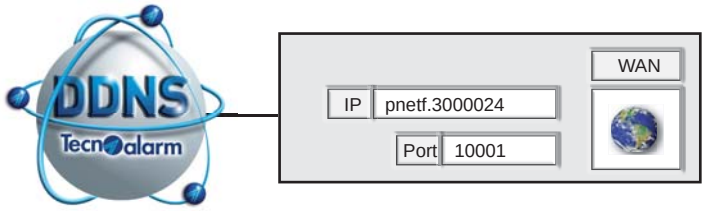
LAN

If the control unit is connected to a node on a local area network (LAN), enter the IP address of the local network to which the control panel is connected.

WAN

DDNS Tecnoalarm

If the control unit is connected to a node on a local area network (LAN), enter the IP address of the local network to which the control panel is connected.



WAN with static address

If the control unit is connected to a static IP address, enter the address.

WAN with dynamic address

If the control unit is connected to a dynamic IP address, enter the address of the DNS server used, or use the same address as the router if it implements a DNS service.

DDNS Tecnoalarm

To correctly use Tecnoalarm DynDNS, it is necessary to enter in the field IP WAN the name"pfnetf. followed by the serial number indicated on the label on the printed circuit board of the TFNET device, e.g. "pnetfxxxxxxx".

Syntax rules

For the compilation of the field IP WAN you must comply with the syntax rules shown in the following table.

Serial Number label	Syntax rules to fill in the field IP WAN			Resulting IP
2903000024 TFNET 121016	Device prefix	**pnetf.**	**Attention:** the prefix is case sensitive. To complete it, use lowercase only. The prefix must end with the full stop character	**pnetf.3000024**
	Device serial number	**2903000024**	From the serial number you must remove the first two digits and the first zero can be omitted from the compilation	



User tab is completed

To confirm and save the data entered click the **Save** button

To cancel the User card click the **Abort** button

Preparation of the ROUTER

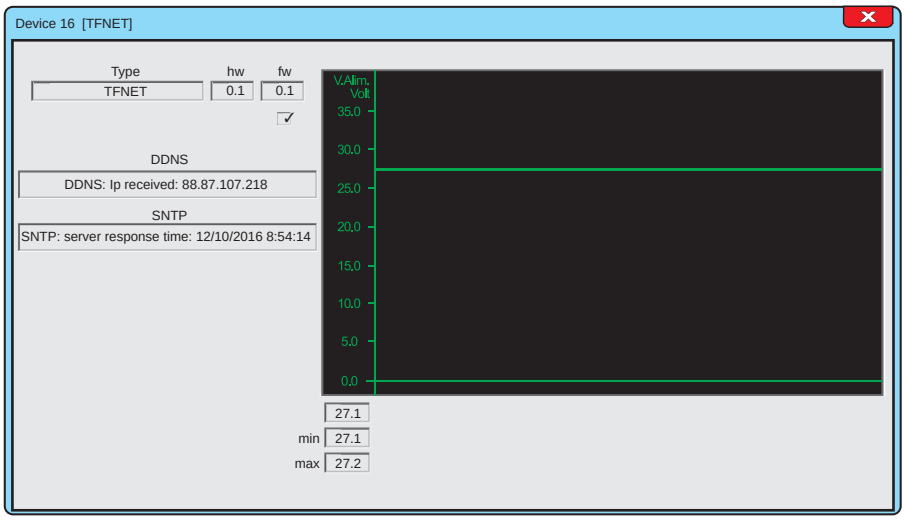
The operational preparation of the Router must be carried out by specialized personnel.

Outgoing communication between TFNET and remote devices.
To allow TFNET to reach the Tecnoalarm services, it is essential that the communication ports 123 and 80 of the router to which the device is connected are open.

Inbound communication between remote devices and TFNET.
To allow remote devices to reach the TFNET, it is essential to set up the router so that a call from outside addressed to a specific port is routed to the static IP assigned to TFNET.

RSC® analysis of the device

The RSC® analysis of the TFNET also monitors the status of the DDNS and SNTP services.







DDNS
DDNS: Ip received: 88.87.107.218

DDNS
The field DDNS monitor displays the IP Address that currently identifies the TFNET device on the network.

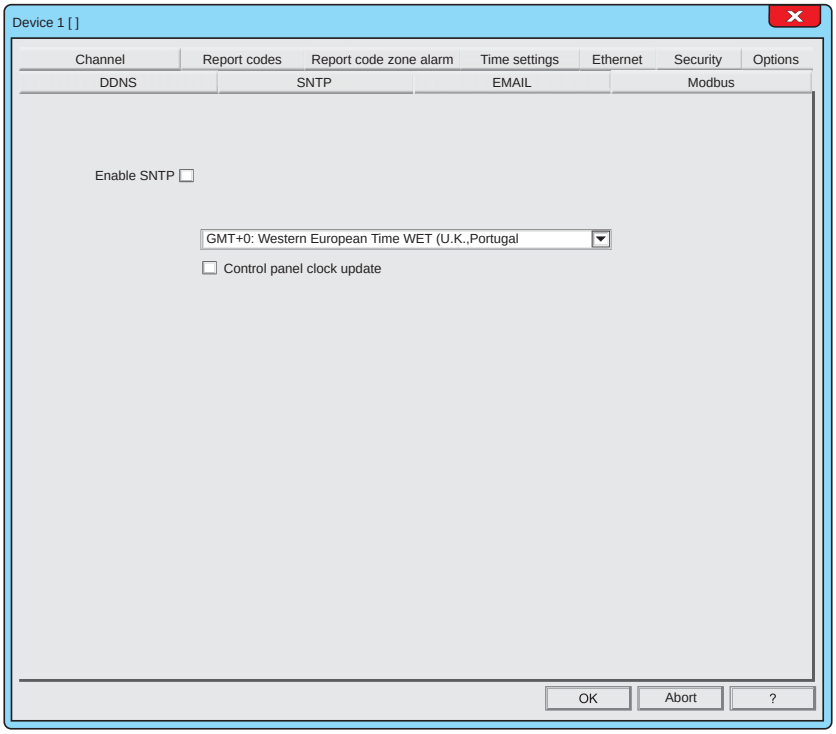
SNTP
SNTP: server response time: 12/10/2016 8:54:14

SNTP
The field SNTP monitor displays the Coordinated Universal Time with which the TFNET device is synchronized.

2-10 - SNTP

Channel			Time settings	Ethernet	Security	Options
DDNS		SNTP	EMAIL		Modbus	

Set up menu of the operating parameters of the SNTP service.



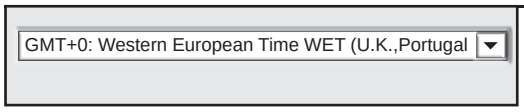


Enabling the SNTP service, you authorise the TFNET device to keep its internal clock synchronized with a NTP Server that uses the Coordinated Universal Time.
Attention: the synchronism to the SNTP service is necessary for correct operation of the telematic services DDNS AND MAIL.



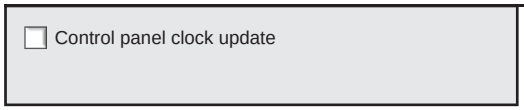
1 - Enable SNTP

Enabling of the SNTP service for automatic synchronization of the internal clock of the TFNET with the Coordinated Universal Time.



2 - Automatic European Daylight Saving Time

To use the SNTP service you must select the daylight saving time of your geographical area (for Central Europe Select GMT+1 (CET)).



3 - Control panel clock update

Enables the function of Automatic synchronization of the control unit clock.

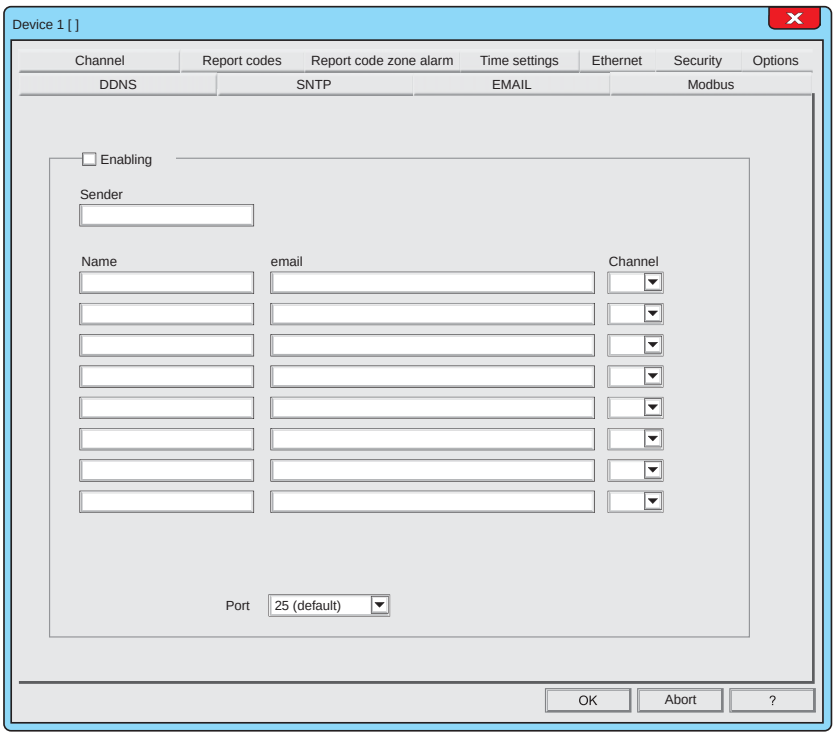


The SNTP menu is completed
To confirm the settings, press **OK.**
To cancel the settings, press **Abort**.

2-11 - EMAIL

Channel	Report codes	Report code zone alarm	**EMAIL**	Security	Options
DDNS	SNTP			Modbus	

With this menu it is possible to enable sending email notifications by email.



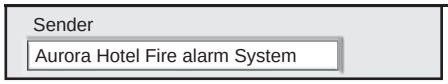


Tecnoalarm MAIL Server service
Through the Tecnoalarm Mail Server service the control unit sends email notifications to the preset recipients. The service does not require registration and is completely free.
The control unit sends the notifications to the Tecnoalarm MAIL Server, which provides to automatically forward the emails to the preset addresses.



1 - Enabling

To enable the MAIL service, click the Enable box.
The check mark indicates that the feature is enabled.



2 - Sender

Set up of Sender data (such as name and place of origin of the notifications).
Sender data are displayed in the header of each eMail.



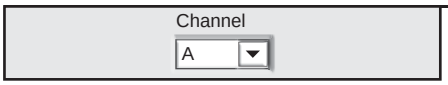
3 - Name

Set up of name, alphanumeric description with which the recipient is identified.



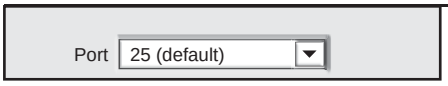
4 - email

Set up of the email address of the recipient. Please, note that an email address should never contain uppercase characters.



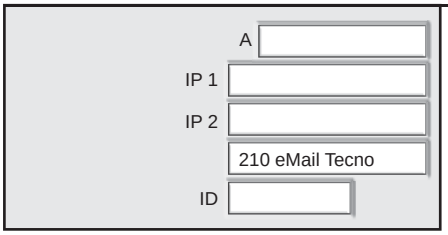
5 - Channel

Selection of the channel used to forward notifications via email.



6 - Port

Selection of the communication port used by the Router to forward emails in the network.
The control unit sends the emails to the mail server, using the port no. 25 (factory setting).
Although this is the default port for mail transfer, some service providers (ISP) block it. If the port is blocked, check the settings of the Router Firewall, or alternatively to circumvent the block of the ISP select a different port among those available.



Required additional settings

Channel
The channel used must be associated with the Tecnoalarm protocol number 210 (eMail server). The programming fields of the IP addresses associated to the channel must not be filled in.

Report codes
The channel must be associated with the reporting codes which pertain to the events that you want to notify via eMail.

SNTP
Enable the SNTP service. Programming executable in the SNTP menu of TFNET

European daylight saving time
Select the daylight saving time of your geographical area (for Central Europe Select GMT+1 (CET)). Programming executable in the SNTP menu of TFNET.

Notification format

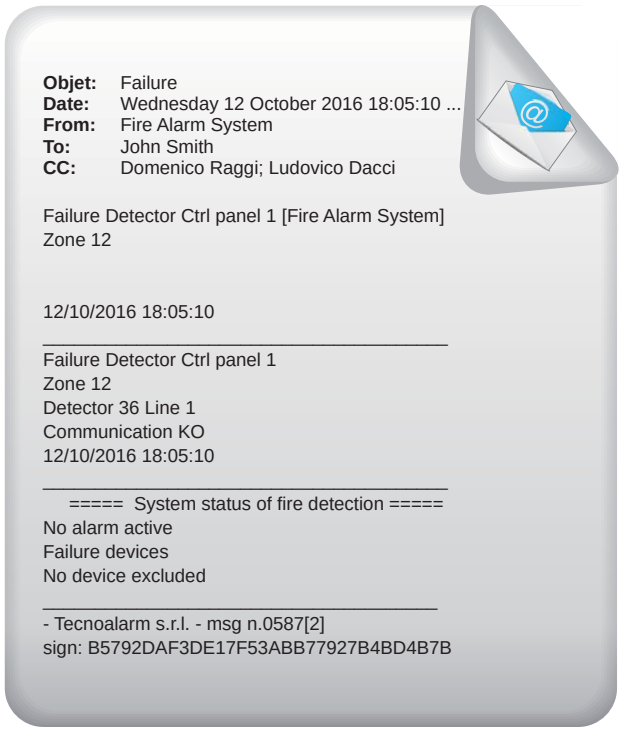
The TFNET communication interface sends notifications via mail in text format, using the protocol 210 eMail Tecno.
The Email consists of four macroblocks, listed below.

Header
The email header indicates:
Subject (Event Category)
Date (generated by SNTP service)
From: Sender (Sender Field in Email menu)
To: first email recipient in Email menu
CC: other recipients in Email menu.

Event
Events are listed by queuing time.
Each event is described on 1, 2 or 3 lines and is accompanied by date and time.
Events are separated by horizontal lines.

Summary
Summary list of the functional states of the control unit, see table "States Summary - Fire Detection System"

Document Flow
Protocol data of the document flow:
Sending server: Tecnoalarm S.r.l.
Message number.



Status of fire detection system			
Active fire alarm	**Active technical prealarm**	**No device failure**	**No excluded device**
Active fire prealarm	**No active alarm**	**Evacuation...**	**Zone under test**
Active technical alarm	**Device failure**	**Excluded devices**	**Control panel under maintenance**

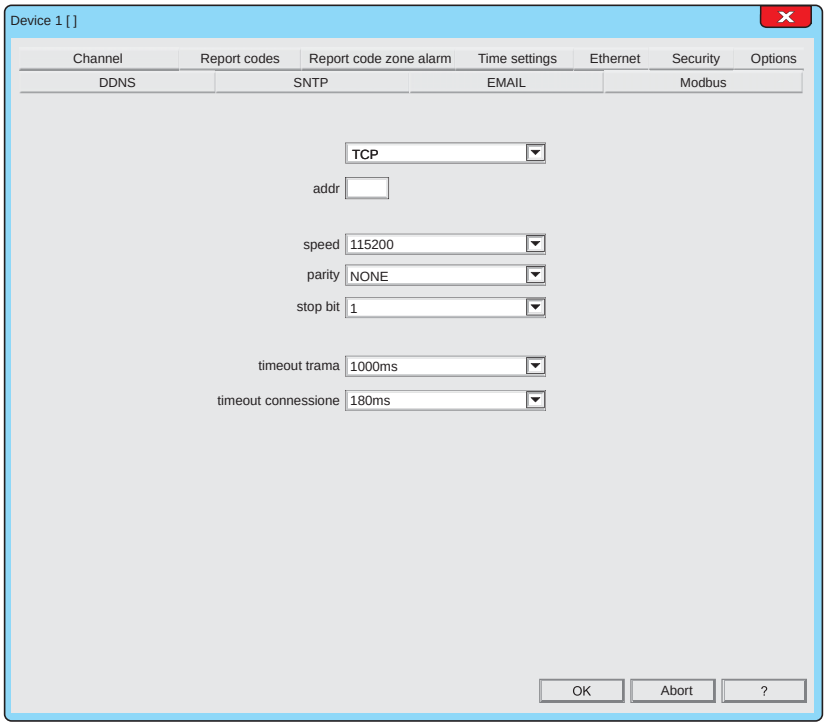


The EMAIL menu is completed
To confirm the settings, press **OK.**
To cancel the settings, press **Abort**.

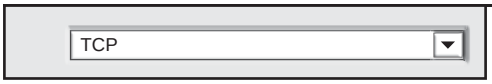
2-12 - Modbus

Channel	Report codes	Report code zone alarm	Time settings	Modbus
DDNS	SNTP	EMAIL		

Menu of the communication parameters of the channel dedicated to the Modbus protocol.
Attention: the Modbus communication protocol is optional. To use it, it is necessary to purchase the software unlock TFABIL-Modbus.



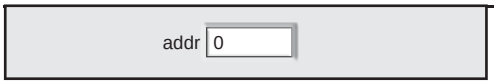
The communication interface TFNET manages the communication with Modbus protocol.
For the communication it can use an unencrypted server type TCP connection or alternatively a serial connection on the dedicated RS485 bus.
For the two communication supports TCP and RS485 you can select the most suitable transmission format among those available, see table.



1 - Protocol

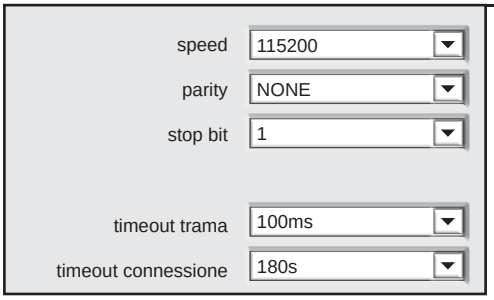
Selection of the type of connection and communication format.

Modbus protocol - supported types		
Type	**Support**	**Description**
TCP	Ethernet	TCP wrapping over Ethernet in SERVER mode
RTU TCP	Ethernet	RTU wrapping over Ethernet in SERVER mode
ASCII TCP	Ethernet	ASCII wrapping over Ethernet in SERVER mode
RTU485	BUS485	RTU wrapping on dedicated BUS485
ASCII485	BUS485	ASCII wrapping on dedicated BUS485



2 - addr

Address of the Modbus module to which the device answers



3 - Parameters of serial line RS485

For the communication on serial line bus protocols BUS485, it is possible to set the following operational parameters: **speed**, **parity** and **stop bit**.

timeout trama - parameter applicable to all protocols TCP and BUS485, the parameter value must be agreed with the reception center.
timeout connessione - parameter applicable only to TCP protocols, it indicates the maximum waiting time without communication



The Modbus menu is completed
To confirm the settings, press **OK.**
To cancel the settings, press **Abort**.

2A - ADDITIONAL INFORMATION TFNET



2A-1 - Additional information - Ethernet

1 - Communication interface

TFNET integrates an Ethernet 803.2 dialer, capable of transmitting in full and half duplex, 10Mbit to 100Mbit. The dialer uses for communication a stack of TCP/IP protocols, and 6 dedicated communication channels. Each channel is assigned a specific task. Each channel manages a single communication at a time. TFNET supervises the management of Ethernet channels. To avoid opening a channel and keeping it engaged, in case of no bidirectional communication for more than 10 seconds, it closes the communication. The channels support 128bit and 256bit AES encryption.

2 - Communication channels

Channel 1 - SERVER 1
Communication modes: SERVER
Default communication port: 10000
Proprietary communication protocol TECNOALARM TCP/IP (192)
This channel is used for the connection to TFNET via the local area network (LAN).
Channel 2 - SERVER 2
Communication modes: SERVER
Default communication port: 10001
Proprietary communication protocol TECNOALARM TCP/IP (192)
This channel is used for the connection to TFNET via WAN or VPN.
Channel 3 - TECNOALARM TECNOSERVER
Communication modes: CLIENT
Default communication port: 10000
The channel is used by TFNET to send notifications of fire detection system to the preset IP addresses.
Various communication protocols (those set for each channel).
Channel 4 - TECNOALARM SERVICE
Communication modes: CLIENT
Default communication port: 10001
The channel is used by TFNET to send the Test call with TCP/IP
Proprietary communication protocol TECNOALARM TCP/IP (192)
Channel 5 - TECNO OUT
Communication modes CLIENT or SERVER
Default communication port: 10002
The channel is dedicated to the communications of the Tecno Out protocol
Channel 6 - Modbus
Communication modes: SERVER
Default communication port: 10003
The channel is dedicated to the communications of the Modbus protocol

3 - Server Channels access restrictions

For all server type communication channels 1, 2, 5, and 6, it is possible to set a white list of 3 acceptable addresses.
If the 3 addresses are programmed as 0.0.0.0, all communications from any network address will be accepted.
Otherwise, communications from addresses not added to the white list will be rejected.

4 - Fault Management

The anomalous operation of the communication interface generates specific fault reports. When the option "Automatic faults muting" is enabled, the end of the fault automatically resets the signal and removes the events from the queue.
The types of fault monitored are:
Faulty communication interface - When the device TFNET finds any anomaly in the operation of the Ethernet interface hardware. An interface fault is reported.
No connection - When TFNET detects no connection at the physical level with the Ethernet network for more than 60 seconds, it sends to the control unit the Line KO fault report. Such check occurs only if the channel "TECNOSERVER TECNOALARM" is enabled.
Any enabled channel that is not carrying a communication for a time greater than 24 hours is automatically prompted by the control unit to perform a Test call with TCP/IP. If the channel does not respond, the Missing Channel fault is reported.
(The function is only performed for channels to which it is associated with the report code "Test call with TCP/IP"
Alarm notification failed - When an alarm notification fails, the fault "Channel without answer" is generated and sent to the control unit at the end of the cycle.

2A-2 - Additional information - Channels

1 - Channels

To send alarm notifications, the TFNET communication unit uses the built-in Ethernet dialer.
The dialer uses a dedicated transmission channel in Client mode called TECNOSERVER TECNOALARM, notifications forwarding occurs by means of 8 independent ethernet channels, identified with the letters A to H.
The reporting notification forwarding priorities are managed by the control unit according to a priority criterion based on the alphabetical identification of each channel (the channel A has the highest priorities, while the channel H has the lowest priority).
It is therefore necessary that the most important notifications are associated with the highest priority channels, privileged in sending the notifications, in order: A, B, C, D, E, F, G and H (where H has the lowest priority).
The channels are logical units which manage the communication according to the following procedure:
Dialling of the IP address of the recipient of the notification
Carrying out the communication, and possibly repeating the attempt according to the rules (prescribed by the notification cycle)
Logging the outcome of the communication
Managing the signalling LED "Transmission successful"
Reporting any failures related to its operation

2 - Operating parameters

The eight channels share the communication carrier and the dedicated Ethernet channel. However, their operation is independent. In fact, each channel forwards alert notifications on the basis of its own operating parameters. The parameters which can be set are:

Channel identifier

Numeric code (max 6 figures), by which the recipient (alarms receiving centre) identifies the origin of the notification. If the identifier is not programming, the channel sends the identification code of the control unit.

Protocol

Communication mode of the notification. The protocol should be agreed with the recipient receiving centre.
See table of the available protocols.

Addresses

The addresses No. 1 and No. 2 are the IP addresses of the recipients of the event notifications, typically the alarms receiving centre.
The second address is called only if the communication toward the first address has failed.
For the syntax of the IP addresses you can use two modes, address only or address and communication port:
IP Address only - The IP address consists of 4 numeric fields, divided by a full stop or dash.
In this case the dialer uses the port set for the client channel TECNOALARM TECNOSERVER.
IP address plus the communication port. In this case, append to the 4 numeric fields of the IP address a fifth numeric field that defines the port. The 5 fields must be separated by the dot or dash character.

3 - Notification cycle

The channels perform the alarm notification calls according to precise functional rules defined by the notification cycle.
The notification cycle is structured according to the following sequence:
Address No. 1 (main) is contacted. If this address is not reachable, Address No. 2 (secondary) is contacted.
If both numbers don't answer, the next channel associated with the event (if any) is activated.
If the channel fails to notify the event to both the addresses, it performs a maximum number of 4 attempts for each one of the 2 addresses. The minimum pause time between the attempts is 6 seconds.
Each channel has its own pause time counter, then if the subsequent attempt takes place on another channel the pause time is zero.

4 - Reporting codes

The dialer notifies any system events by sending the reporting codes. The TFNET dialer manages two types of report codes, the first called "Report Codes" sorts all System events in homogeneous categories. Enabling the category you enable transmission of all events grouped in it. The second, called "Zones report codes " only includes events relating to Zones, and provides the possibility to freely associate the events of each zone and of each control unit to the telephone channels.
The report codes categories are shown in the table "Transmittable events". For each of them are listed the grouped events, their description and their transmission priority.
To simplify the set up, the events have been collected into homogeneous categories.
Enabling a category, you enable the transmission of all the events grouped in it.
The channel sends in the same communication session all events associated with it. The notification cycle is momentarily stopped if events with highest priority must be transmitted by other channels.

5 - Event queue

When an event occurs, the dialer checks whether the event is associated with a channel. If the event is associated it becomes an item of the "Event queue". The event queue can contain up to 64 elements. The event queue is processed on the basis of the following rules:
Forwarding priority - The priority order of the transmittable event categories: 1 High priority, 2 Medium priority, 3 Low priority.
Channel - Order of priority of the channels, from A, with the highest priority to H, the lowest.
History - Chronological order; in case of equal priority, the chronologically older event is performed
When an event with higher priority is detected, with respect to the managed queue, the current call is aborted to manage the event with higher priority. The aborted call will be queued and handled as soon as possible.
The channel sends in the same communication session all the queued events associated with it.

6 - Compliance with EN 54-21 rules

Attention: the TFNET Ethernet dialer complies with regulations, but this type of equipment does not require approval.
The communication with the Ethernet carrier is accepted by the rules only inside a local area network (LAN).
The client channel TECNOALARM TECNOSERVER can send alarms and faults notifications also to a remote receiver (WAN).
This kind of use (performance) should be considered as optional. Its usage does not affect the normal operation of the control unit mandatory functions.
The communication channels: SERVER 1, SERVER 2, TECNOSERVER TECNOALARM and SERVICE TECNOALARM are used to connect the control unit to a monitoring system and/or to update the programming.
Note: regarding the remote update of the programming, the standard prescribes that it should be carried out only by a level 3 or 4 Operator, who should locally enable the update operation.

2A-3 - Protocols

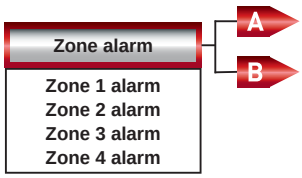
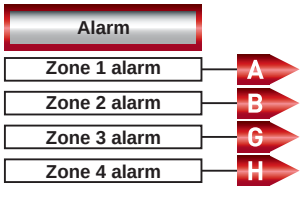
The table lists the available communication protocols. For each protocol are given: numeric identification code, name, description, transmission mode, encryption, timestamp (when available) and the information that the protocol is a backup protocol.

IP protocols							
Vector	**Number**	**Name**	**Description**	**Mode**	**Encryption**	**Timestamp**	**Backup**
IP	**119**	**SIA-IP 128b**	SIA-IP Encrypt-128 (TCP-2007)	DATA	**AES** 128 BIT ENCRYPT		
	123	**SIA-IP**	SIA-IP Reporting [TCP-2007]	DATA			
	124	**SIA-IP-T**	SIA-IP-T Reporting [TCP-2007]	DATA		✓	
	125	**C.ID-IP**	C.ID-IP Reporting [TCP-2007]	DATA			
	126	**C.ID-IP-T**	C.ID-T Reporting [TCP-2007]	DATA		✓	
	127	**C.ID.IP 128b**	C.ID Encrypt-128 (TCP-2007)	DATA	**AES** 128 BIT ENCRYPT		
	154	**SIA-IP 256b**	SIA-IP Encrypt-256 (TCP-2007)	DATA	**AES** 256 BIT ENCRYPT		
	155	**C.ID.IP 256b**	C.ID Encrypt-256 (TCP-2007)	DATA	**AES** 256 BIT ENCRYPT		
	192	**TCPIP**	Tecnoalarm TCPIP	DATA	**AES** 128 BIT ENCRYPT		
	210	**eMail Tecno**	Email Tecnoalarm	@			

2A-4 - Report codes

Transmittable events					
CR e CRZ	**Alarm Zones** Priority 1 (high)	Zone alarm	CR	**General system signals** Priority 3 (low)	Reset of loops
CR	**Alarm Detectors Modules** Priority 1 (high)	Detector alarm	CR	**Failure Software** Priorità 2 (normale)	System failure
		Module alarm			Reset of system failure
CR e CRZ	**Prealarm Zones** Priority 1 (high)	Zone prealarm	CR	**Esclusione Zone** Priority 3 (low)	Ripristino linee Esclusione zone
CR	**Prealarm Detectors Modules** Priority 1 (high)	Detetector prealarm	CR	**Inclusione Zone** Priority 3 (low)	Zone inclusion
		Module prealarm			
CR e CRZ	**Technical alarm Zones** Priority 3 (low)	Technical zone alarm	CR	**Esclusione Dispositivi (BUS485)** Priority 3 (low)	Device exclusion
CR	**Technical alarm Detectors Modules** Priority 3 (low)	Technical detector alarm	CR	**Inclusione Dispositivi (BUS485)** Priority 3 (low)	Device inclusion
		Technical module alarm			
		Reset of technical detector alarm	CR	**Esclusione Ripetizioni Centrale** Priority 3 (low)	Output exclusion
		Reset of technical module alarm			
CR e CRZ	**Failure Zones** Priority 2 (normal)	Failure of zones	CR	**Inclusione Ripetizioni Centrale** Priority 3 (low)	Output inclusion
CR	**Failure Detectors Modules** Priority 2 (normal)	Failure of detectors	CR	**Presidiato** Priority 3 (low)	Activation monitored system mode
		Failure of modules			Deactivation monitored system mode
CR	**Failure Devices (RS485)** Priority 2 (normal)	Failure of devices	CR	**Sirene** Priority 3 (low)	Acknowledgment of sirens
		Timer reset			Reset of sirens
		Reset of failure of devices	CR	**Ripristino** Priority 3 (low)	Reset
CR	**Acknowledgment Alarm** Priority 3 (low)	Acknowledgment of categorie alarms	CR	**Evacuazione** Priority 3 (low)	Activation of evacuation
CR	**Acknowledgment Prealarm** Priority 3 (low)	Acknowledgment of categorie prealarms	CR	**Test ciclico** Priority 3 (low)	Test call
CR	**Acknowledgment Technical alarm** Priority 3 (low)	Acknowledgment of categorie technical alarms	CR e CRZ	**Preallarme tecnico Zone** Priority 3 (low)	Technical prealarm zones
					Reset of technical prealarm zones
CR	**Acknowledgment Failure** Priority 2 (normal)	Acknowledgment of categorie failures	CR	**Preallarme tecnico Sensori Moduli** Priority 3 (low)	Technical prealarm detectors
CR	**Operation User** Priority 3 (low)	Automatic prealarm acknowledgment			Technical prealarm modules
					Reset of technical prealarm detectors
CR	**Inhibit Detectors Modules** Priority 3 (low)	Exclusion of detectors			Reset of technical prealarm modules
		Exclusion of modules	CR	**Tacitazione Preallarme tecnico** Priority 3 (low)	Acknowledgment of technical prealarms
CR	**Inclusion Detectors Modules** Priority 3 (low)	Inclusion of detectors			
		Inclusion of modules			
CR	**Event download requested** Priority 3 (low)	Download of event log requested			

Report code classification: the acronyms **CR** and **CRZ** indicate the classes **CR** (report codes) and **CRZ** (zone report codes).
Note: The report codes of Zone functional states can be associated with the channels in the modes: General Association and/or Specific Association.
General association: to define general associations, from Centro software use the setting screen "Report Codes".
Specific association: to define specific associations, from Centro software use the setting screen "Zone Report Codes".
With general association, the channels are associated just to the type of event, for all the zones of all the control units.
With specific association, the events of each zone of each control unit in the system can be freely associated to channels.

General Association - Reporting Codes	Specific Association - Zone reporting codes
	
Example: the reporting code "Zones Alarm" that collects alarms from all the zones is associated with the channels A and B. The two channels transmit the Zone Alarm telephone notifications indifferently to the associated telephone numbers.	**Example:** the reporting codes "Alarm" in zones 1, 2, 3 and 4 are independently associated to communicators, A, B, G and H. Each communicator transmits the Alarm telephone notification of the zone or zones associated with it.

NOTES

CE

Tecnofire DETECTION
by Tecnoalarm

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