

# *Catalogue of Automatic Fire Alarm Systems*

*Edition 2 - 2017*

**Tecn1fire**  
DETECTION



HI-TECHNOLOGY & DESIGN  
WORLDWIDE FROM ITALY



# TECNOFIRE FIRE ALARM SYSTEMS



## More than a brand, a guarantee

Tecnoalarm plays a major role in the construction of the Tecnofire brand: research and development resources, investment capacity, quality as well as reliable and technologically advanced solutions, inherited from the parent company, add special value to the fire alarm systems of the new company division.

The strategic development of the Tecnofire brand involves operative autonomy, the constant research of innovative technologies and the continuous extension of the sales network, with the aim to guarantee growth and customer satisfaction in the long run.

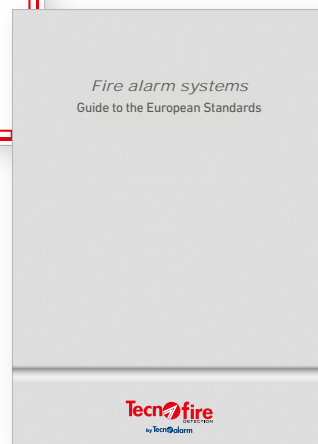
The backing of a strong brand with decades of experience, of which Tecnoalarm is one, guarantees the customer of Tecnofire not only high-quality products but also a top-level technical, commercial and logistic support.

## Tecnofire training courses

Technical training is a fundamental field of activity of Tecnofire, addressing planners, installers as well as system integrators. The aim is to enhance the knowledge of the products and technologies from Tecnofire and facilitate the application of the standards that regulate the installation and maintenance of fire alarm systems.

A rich and diversified training offer, with specific courses for each topic, allows to deepen the knowledge of the products so as to be able to use their full potential. Particular attention is paid to interactivity. The Tecnofire showrooms and training facilities are fully equipped permitting a practical demonstration and an active involvement of the participants.





Tecnofire also provides the planners and installers with a wide range of supporting material and competent and professional consultancy services in line with the sector's continuous technical and regulatory evolution.

The training courses are held in the Tecnofire showrooms and training facilities on a regular basis.

At the end of the course, the participants receive a certificate of attendance.

## Security professionals

The planners and installers who apply the technologies from Tecnofire are professionals able to carry out a thorough fire risk assessment and identify the solutions which provide the highest level of protection.

To assist them, Tecnofire is preparing a **Guide to the European Standards for Fire Alarm Systems**, which has the purpose to explain the European regulatory framework in a simple and comprehensive way.

The website [www.tecnofiredetection.com](http://www.tecnofiredetection.com) provides a wide range of supporting material, such as standards, specifications for tenders, technical drawings, data sheets, information notes etc.

The Tecnofire sales representatives are available for feasibility studies and project consultancy.





## EN 54 certification

The entire range of products is developed and produced according to the guidelines of the ISO 9001 quality management system and is certified to the European standards EN 54.

**IMQ**

**EVPU**



## RSC® Technology

RSC® (Remote Sensitivity Control) technology by Tecnoalarm has come out on top among lots of other technologies, products and services, by virtue of its reliability, completeness and versatility. Therefore, the decision to implement it in the fire alarm systems from Tecnofire, too.

Its implementation adds great value to the systems thanks to the possibility of managing them completely from a distance and thus reducing the time and cost of maintenance. RSC® technology provides not only many advantages relating to the simplification of management but also in terms of timeliness and economy of the service.

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The automatic fire alarm systems from Tecnofire guarantee the highest standards of fire protection and safety. Three systems are available to satisfy any installation requirement, from small to medium- and large-sized systems, thanks also to the possibility of networking several fire alarm panels.

## Systems

**TFA1-298**

**TFA2-596**

**TFA4-1192**



## 1 loop addressable fire alarm system



### Basic features of the system

- Addressable fire alarm panel
- Expandability:  
max. 5 expansions connected via serial bus
- 1 loop
- 199 addressable detectors per loop
- 99 addressable modules per loop
- Serial bus protocol: "Fire-Bus" proprietary protocol
- 1 RS485 serial bus port (master)
- Loop protocol: "Fire-Speed" proprietary protocol
- Hard-programmed outputs: alarm, siren, failure
- Programmable outputs: 2 open-collector outputs
- Hard-wired zones: 150 zones programmable as fire detection or technical zone
- Virtual zones: 100 zones to be used as operation category for the Boolean functions
- 100 Boolean functions, 43 operation categories
- 50 alarm plans to be associated to the zones
- 8 time periods to be used as operation category
- Customizable 4-years calendar
- Event buffer capacity: 4,096 events
- Serial printer management
- Modular switching power supply
- Max. output current: 2.7A
- Bay for 2x 12V/7Ah batteries

### Access levels and protection

- Access levels: level 1 = operator, level 2 = user, level 3 = installer, level 4 = manufacturer
- Protection of access to the system: the access to level 2, 3 and 4 is protected by password
- Passwords: 8 user passwords, 1 installer password, 1 manufacturer password
- Protection of access to the monitored system mode: the monitored system mode is protected by a level 2 password

### User interface

- True color TFT display 482 x 272 pixel
- Function keys, 16 signaling LED
- Voice synthesis (vocabulary customizable through the programming software)
- Integrated speaker with volume setting
- Specific notification mode for each event category
- Iconographic event viewing  
Information is displayed in a hierarchical order, according to its importance.
- Intuitive signaling thanks to different colors and font sizes
- Multi-level event viewing
- Quick classification and clear identification of the origin of the event
- Zone alarm notification accompanied by viewing of the alarm plan

### Connection ports

- USB port for the direct connection of a PC
- Serial port for the connection of a PC and a serial printer through the PROG32 or PROG USB interface

### Control by PC

- Programming of the system
- Upgrade of the firmware of the devices
- Download of the reports
- Customization of the vocabulary, icons and fonts

### Software

- Optional software for programming and monitoring of the system

### RSC® tools and reports

- RSC® tool – Hardware Coherence Control
- RSC® tool – Parametric Analysis
- RSC® tool – Device Monitor
- Report – Programming data file
- Report – Hardware Coherence Control data file
- Report – Parametric Analysis data file
- Report – Event log file

MODEL	ITEM NO.	EN 54-2 EN 54-4	RSC	LOOP	VOICE SYNTHESIS	PRINTER PORT	USB PORT	POWER SUPPLY	METAL BOX
TFA1-298	TF1TFA1298-UK	0051-CPR-0444	✓	1	✓	✓	✓	2.7A	✓

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روپروی پالایشگاه نفت پارس، پلاک ۱۲

## TFA1-298 - Technical and functional specifications

<b>Detectors Modules Zones</b>	Total connectable detectors	<b>199</b>
	Total connectable modules	<b>99</b>
	Total zones	<b>150</b>
	Virtual zones	<b>100</b>
<b>CPU outputs</b>	Hard-programmed relays	<b>2</b>
	Programmable open-collectors	<b>2</b>
	Controlled siren output	<b>1</b>
<b>System features</b>	True color TFT display	<b>480 x 272 pixel</b>
	Voice synthesis	<b>3</b>
	Detection loops	<b>1</b>
	RS485 serial buses	<b>Master Bus (1 port)</b>
	Event buffer capacity	<b>4096</b>
<b>Access management</b>	Access levels	<b>4</b>
	Access codes	<b>10</b>
	Monitored system mode	<b>3</b>
<b>Protocols</b>	Loop	<b>Fire-Speed</b>
	RS485 serial bus	<b>Fire-Bus</b>
<b>Automation</b>	Formulas	<b>100</b>
	Alarm plans	<b>50</b>
	Time periods	<b>8</b>
	Calendar	<b>Quadrennial (programmable)</b>
<b>Expandability</b>	Serial expansions (max. 5)	<b>TFT-7</b>
		<b>TFT-7S</b>
		<b>Telephone communicator</b>
		<b>Ethernet interface</b>
	Serial printer	<b>3</b>
<b>Electrical specifications CPU</b>	CPU board consumption	<b>200mA @ 24V DC</b>
	Electrical outputs	<b>I max. 50mA</b>
	Power supply voltage (loop, serial bus, sirens)	<b>20V...27.6V DC</b>

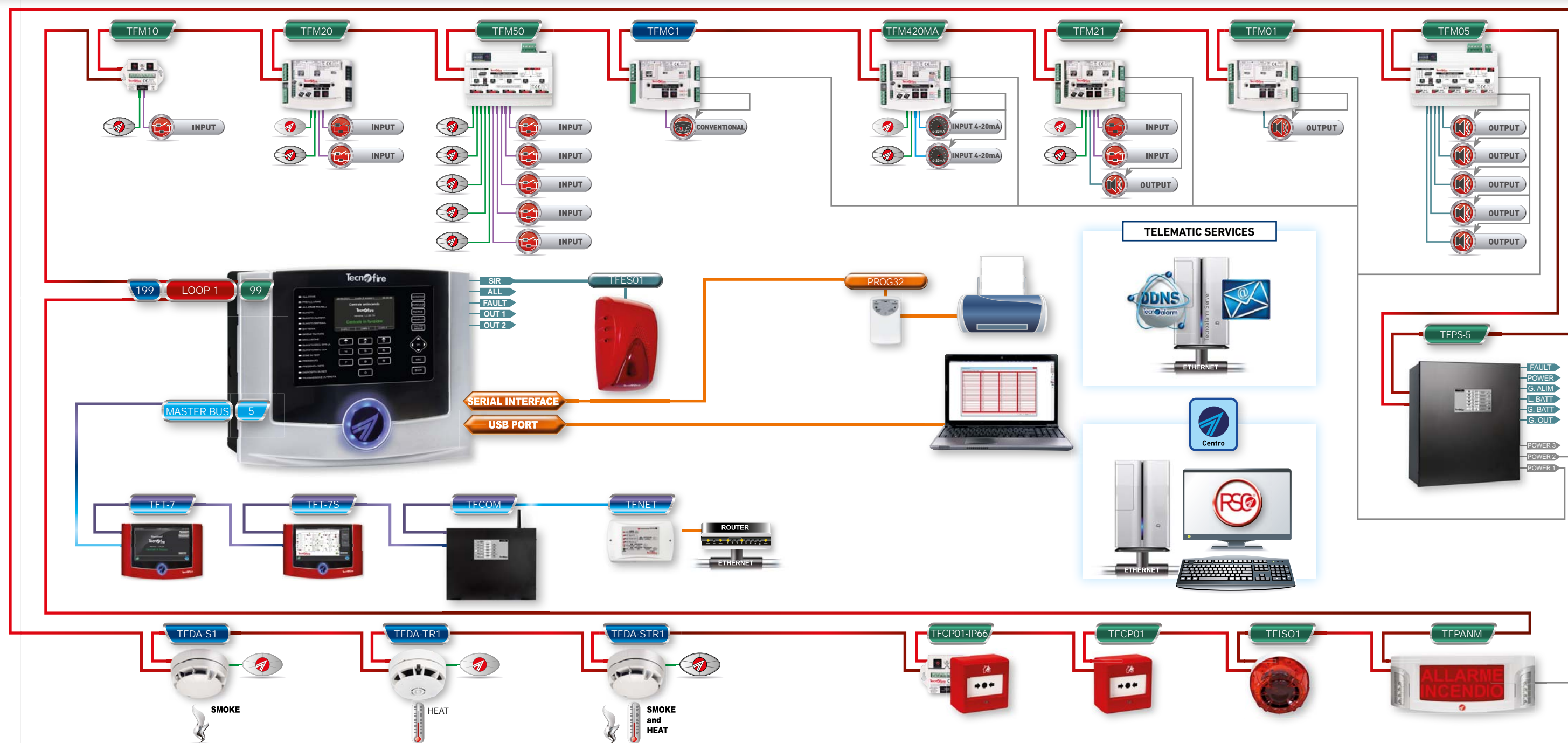
<b>Modular power supply</b>	Type	<b>A - switching</b>
	Operating voltage	<b>230V AC +10% -15% 50Hz</b>
	Power supply consumption	<b>600mA AC</b>
	Rated output current	<b>2.7A @ 27.6V DC</b>
	Max. current available	<b>2.7A</b>
	Peak-to-peak ripple voltage	<b>≤230mV p-p</b>
	Battery protection fuse	<b>T 1A</b>
<b>Battery</b>	Capacity	<b>2x 12V/7.2Ah</b>
	Flame class	<b>V-2 or superior</b>
	Internal resistance	<b>1.5 ohm</b>
	Release voltage	<b>&lt;17.6V DC</b>
	Recharge time	<b>100% in 48h</b>
<b>Physical specifications</b>	Environmental class	<b>3K5 (EN 60721-3-3:1995)</b>
	Operating temperature	<b>+5°C...+40°C</b>
	Relative humidity (without condensation)	<b>10%...93%</b>
	Protection class	<b>IP30</b>
	Casing	<b>Aluminum - Metal</b>
	Dimensions (L x H x D)	<b>361 x 301 x 107mm</b>
<b>Conformity</b>	Weight (without batteries)	<b>2.7kg</b>
	Fire alarm panel	<b>EN 54-2:1997 + A1:2006</b>
	Power supply	<b>EN 54-4:1997 + A2:2006</b>
	Certification number	<b>0051-CPR-0444</b>
	Year of CE marking	<b>15</b>
	Number of declaration of performance	<b>015_TFA1-298</b>
	Notified body	<b>IMQ</b>



# TFA1-298

## System configuration

MAX. SYSTEM CONFIGURATION TFA1-298	
REPEATERS	5
LOOPS	1
DETECTORS PER LOOP	199
MODULES PER LOOP	99



# TFA2-596 - TFA4-1192



## 2 and 4 loop addressable fire alarm systems



### Basic features of the system

- Addressable fire alarm panel
- Programmable local or master/slave functioning mode
- Expandability in the local functioning mode: max. 16 expansions connected via serial bus
- Expandability in the master/slave mode: max. 16 panels and max. 256 expansions networked via serial bus
- 2 loops (TFA2-596) or 4 loops (TFA4-1192)
- 199 addressable detectors per loop
- 99 addressable modules per loop
- Serial bus protocol: "Fire-Bus" proprietary protocol
- 2 RS485 serial buses (master and slave)
- Loop protocol: "Fire-Speed" proprietary protocol
- Hard-programmed outputs: alarm, siren, failure
- Programmable outputs: 3 free-contact relay outputs, 3 open-collector outputs
- Control output: reset
- Hard-wired zones: 300 zones programmable as fire detection or technical zone
- Virtual zones: 100 zones to be used as operation category for the Boolean functions
- 400 Boolean functions, 43 operation categories
- 200 alarm plans to be associated to the zones
- 32 time periods to be used as operation category
- Customizable 4-years calendar
- Event buffer capacity: 4096 events
- Serial printer management
- Modular switching power supply Fly-back type
- Max. output current: 5A
- Bay for 2x 12V/12Ah batteries

### Access levels and protection

- Access levels: level 1 = operator, level 2 = user, level 3 = installer, level 4 = manufacturer
- Protection of access to the system: the access to level 2, 3 and 4 is protected by password
- Passwords: 8 user passwords, 1 installer password, 1 manufacturer password
- Protection of access to the monitored system mode: the monitored system mode is protected by a level 2 password

### User interface

- True color TFT display 482 x 272 pixel
- Function keys, 16 signaling LED
- Voice synthesis (vocabulary customizable through the programming software)
- Integrated speaker with volume setting
- Specific notification mode for each event category
- Iconographic event viewing  
Information is displayed in a hierarchical order, according to its importance
- Intuitive signaling thanks to different colors and font sizes
- Multi-level event viewing
- Quick classification and clear identification of the origin of the event
- Zone alarm notification accompanied by viewing of the alarm plan

### Ethernet hub

- Standard Ethernet interface 803.2 half/full duplex 10 Mbit to 100 Mbit 4 channels
- Local Server channel: LAN connection
- Remote Server channel: WAN or VPN connection
- Tecnoserver channel: 8 channels for event notification
- Call back channel: connection with CMS
- Protocols: 5 internet protocols (e.g. Contact-ID, SIA)
- Event notification: report codes for 13 categories
- 2 IP addresses per channel for a total of 16 addresses
- Security: data encryption
- AES 128 bit data encryption supported
- Passphrase: specific passphrase for each channel, including call back and server channels
- Access to the server channels protected by a whitelist of IP addresses
- Programmable test call function with TCP/IP

### Connection ports

- USB port for the direct connection of a PC
- Serial port for the connection of a PC and a serial printer through the PROG32 or PROG USB interface

### Control by PC

- Programming of the system
- Upgrade of the firmware of the devices
- Download of the reports
- Customization of the vocabulary, icons and fonts

### Software

- Optional software for programming and monitoring of the system and remote management via LAN or WAN

### RSC® tools and reports

- RSC® tool - Hardware Coherence Control
- RSC® tool - Parametric Analysis
- RSC® tool - Device Monitor
- Report - Programming data file
- Report - Hardware Coherence Control data file
- Report - Parametric Analysis data file
- Report - Event log file

MODEL	ITEM NO.	EN 54-2 EN 54-4	RSC	LOOP	VOICE SYNTHESIS	IP	PRINTER PORT	USB PORT	POWER SUPPLY	METAL BOX
TFA2-596	TF1TFA2596-UK	0051-CPR-0389	✓	2	✓	✓	✓	✓	5A	✓
TFA4-1192	TF1TFA41192-UK	0051-CPR-0388	✓	4	✓	✓	✓	✓	5A	✓

## TFA2-596 - TFA4-1192 - Technical and functional specifications

Detectors Modules Zones	Total connectable detectors	796 (TFA4-1192) 398 (TFA2-596)	Expandability	Serial expansions (max. 16)	TFT-7
	Total detectors per loop	199			TFT-7S
	Total connectable modules	396 (TFA4-1192) 198 (TFA2-596)			Telephone communicator
	Total modules per loop	99			Ethernet interface
	Total zones	300	Electrical specifications CPU	Network configuration	1 master + 15 slaves
	Virtual zones	100		Serial printer	3
CPU outputs	Hard-programmed relays	2	Modular power supply	CPU board consumption	200mA @ 24V DC
	Programmable relays	3		Electrical outputs	1 max. 50mA
	Programmable open-collectors	3		Power supply voltage (loop, serial bus, sirens)	20V...27.6V DC
	Controlled siren output	1	Battery	Type	A - switching Fly-back
	Reset output	1		Operating voltage	230V AC +10% -15% 50Hz
System features	True color TFT display	480 x 272 pixel		Power supply consumption	700mA AC
	Voice synthesis	3		Rated output current	5A @ 27.6V DC
	Detection loops	4 (TFA4-1192) 2 (TFA2-596)		Max. current available	5A
	RS485 serial buses	Master Bus (1 port) Slave Bus (1 port)		Peak-to-peak ripple voltage	≤150mV p-p
	Event buffer capacity	4096		Battery protection fuse	T 1.6A
Access management	Access levels	4	Physical specifications	Capacity	2x 12Ah/12V
	Access codes	10		Flame class	V-2 or superior
	Monitored system mode	3		Release voltage	<17.6V DC
Protocols	Loop	Fire-Speed		Recharge time	100% in 48h
	RS485 serial bus	Fire-Bus			
Ethernet hub	Type	Standard 803.2		Environmental class	3K5 (EN 60721-3-3:1995)
	Connection channels	Local Server		Operating temperature	+5°C...+40°C
		Remote Server		Relative humidity (without condensation)	10%...93%
		Tecnoserver		Protection class	IP30
		Call back		Casing	Aluminum - Metal
	Notification channels	8		Dimensions (L x H x D)	441 x 347 x 149mm
	IP addresses	16 (2 per channel)		Weight (without batteries)	6.2kg
	Transmittable events	15 categories	Conformity	Fire alarm panel	EN 54-2:1997 + A1:2006
	Protocols	5 IP protocols		Power supply	EN 54-4:1997 + A2:2006
	Encryption	AES 128 bit		Certification number	0051-CPR-0388 (TFA4-1192) 0051-CPR-0389 (TFA2-596)
	Transmission time	SIA IP DC-09 10s		Year of CE marking	14
	Call event queue	64 events		Number of declaration of performance	002_TFA4-1192 (TFA4-1192) 003_TFA2-596 (TFA2-596)
				Notified body	IMQ
Automation	Formulas	400 (TFA4-1192) 200 (TFA2-596)			
	Alarm plans	200 (TFA4-1192) 100 (TFA2-596)			
	Time periods	32			
	Calendar	Quadrennial (programmable)			
	Test call with TCP/IP	3			

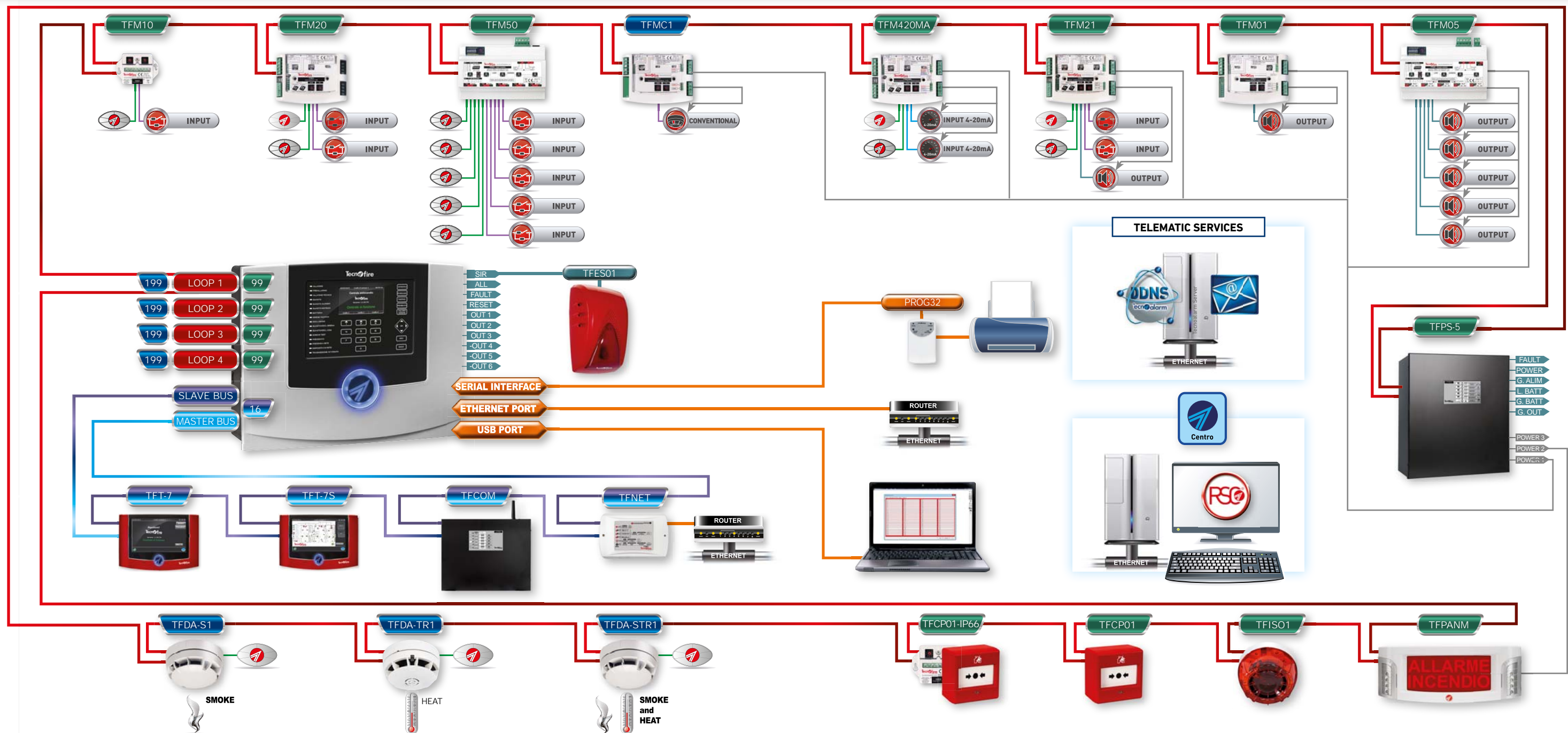


# TFA2-596 - TFA4-1192

## System configuration

	Max. system configuration TFA2-596	Max. system configuration TFA4-1192	Max. network configuration TFA4-1192
REPEATERS	16	16	Max. 256 [16 x 16]
LOOPS	2	4	Max. 64 [4 x 16]
DETECTORS PER LOOP	199	199	
TOTAL DETECTORS	398 [199 x 2]	796 [199 x 4]*	Max. 12736 [796 x 16]*
MODULES PER LOOP	99	99	
TOTAL MODULES	198 [99 x 2]	396 [99 x 4]	Max. 6336 [396 x 16]

\* The EN 54-2 standard allows to connect 512 detectors and/or manual call points to one single fire alarm panel.  
Therefore, the maximum number of detectors managed by a Tecnofire network is 8,192 [512 devices multiplied by 16 fire alarm panels].



# TFA2-596 - TFA4-1192

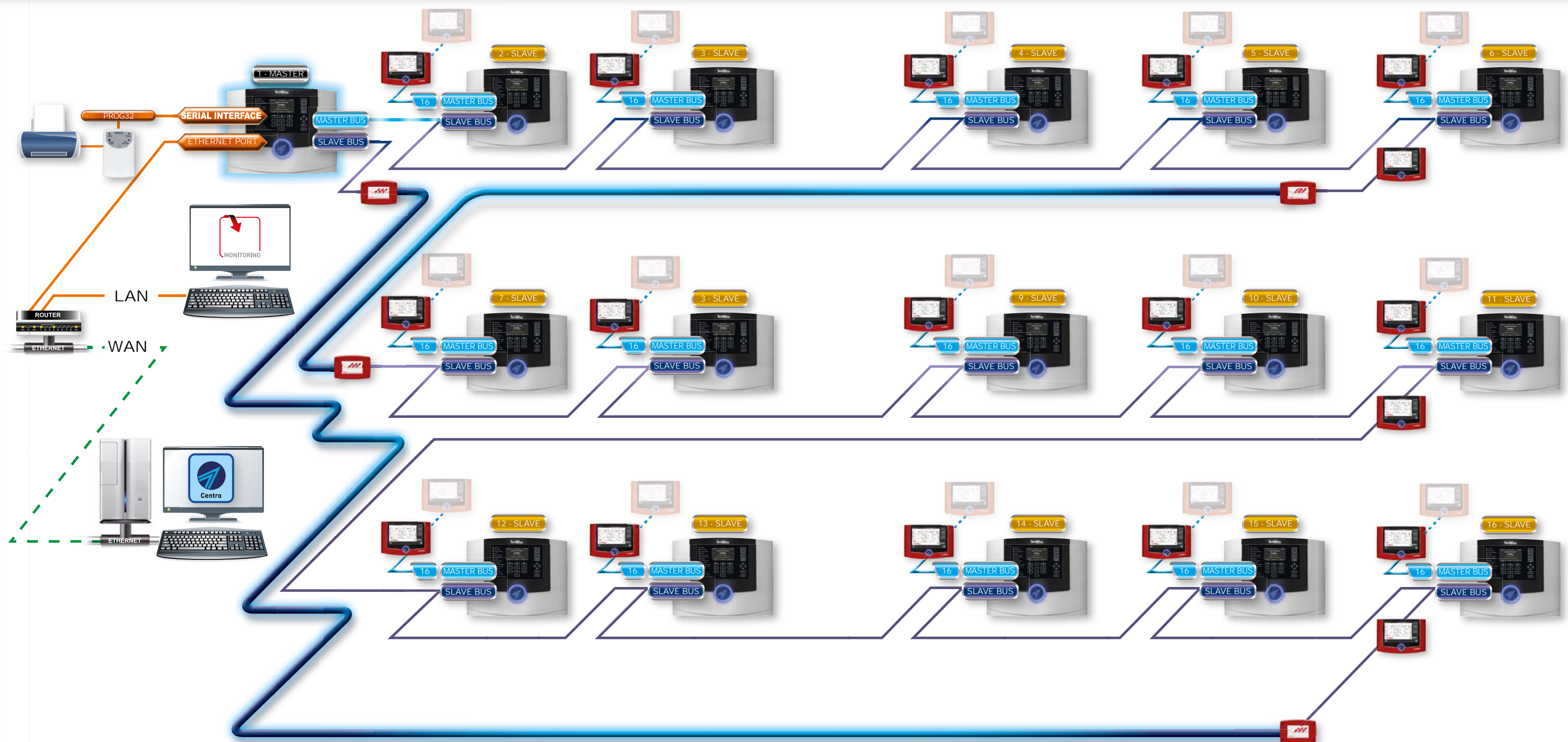


### Network configuration

	Max. system configuration TFA2-596	Max. system configuration TFA4-1192	Max. network configuration TFA4-1192
REPEATERS	16	16	256 (16 x 16)
LOOPS	2	4	64 (4 x 16)
DETECTORS PER LOOP	199	199	
TOTAL DETECTORS	398 (199 x 2)	796 (199 x 4)*	12736 (796 x 16)*
MODULES PER LOOP	99	99	
TOTAL MODULES	198 (99 x 2)	396 (99 x 4)	6336 (396 x 16)
ZONES	300	300	4800 (300 x 16)
VIRTUAL ZONES	100	100	1600 (100 x 16)

\* The EN 54-2 standard allows to connect 512 detectors and/or manual call points to one single fire alarm panel.  
Therefore, the maximum number of detectors managed by a Tecnofire network is 8,192 (512 devices multiplied by 16 fire alarm panels).

The network can be composed of up to 16 addressable fire alarm panels. The connection is made through a supervised RS485 serial bus using either copper cables or glass fiber. The network is arranged in a hierarchy, one master fire alarm panel has the complete control over up to 15 slave fire alarm panels. All information and signaling will be collected by the master. Network functioning is in compliance with the EN 54-13 standard. Restrictive clause: The standard EN 54-2 chapter 13.6 provides that a failure may not affect more than 512 detectors and/or manual call points nor compromise their designated functions. As a consequence, to preserve the compliance with the EN 54-2 standard a maximum of 512 detectors and/or manual call points can be connected to each fire alarm panel. Therefore, the maximum number of detectors managed by a Tecnofire network is 8,192 (512 devices multiplied by 16 fire alarm panels).



## Telematic services

The Ethernet interface TFNET implements the management of the Tecnoalarm telematic services DDNS Tecnoalarm, SNTP and Mail Server Tecnoalarm.



These services are managed automatically by a dedicated server and aim at simplifying and protecting the Ethernet connection of the Tecnofire systems.



### DDNS TECNOALARM

The system's name and IP address are automatically recorded on the DDNS server and transmitted to the internet. Whenever the system registers that its IP address has changed, it automatically communicates the new address to the DDNS server which updates the registered IP address and transmits the information to the DNS servers on the internet.



### SNTP

The system's internal clock is automatically synchronized with an NTP server which uses the universal coordinated time (UTC).



### MAIL SERVER TECNOALARM

The systems are equipped with a Mailer Client for the transmission of emails. The Mail Server Tecnoalarm provides a hard-programmed account for the system, through which it transmits the emails received from the system to a total of 8 recipients. The emails contain the time of occurrence of the events as well as the system status.



The Tecnofire expansions permit the increase and decentralization of the control and signaling points of the system as well as the expansion of the telephone notification devices. The TFA1-298 fire alarm panels manage up to 5 expansions, the TFA2-596 and TFA4-1192 manage a total of 16 expansions.

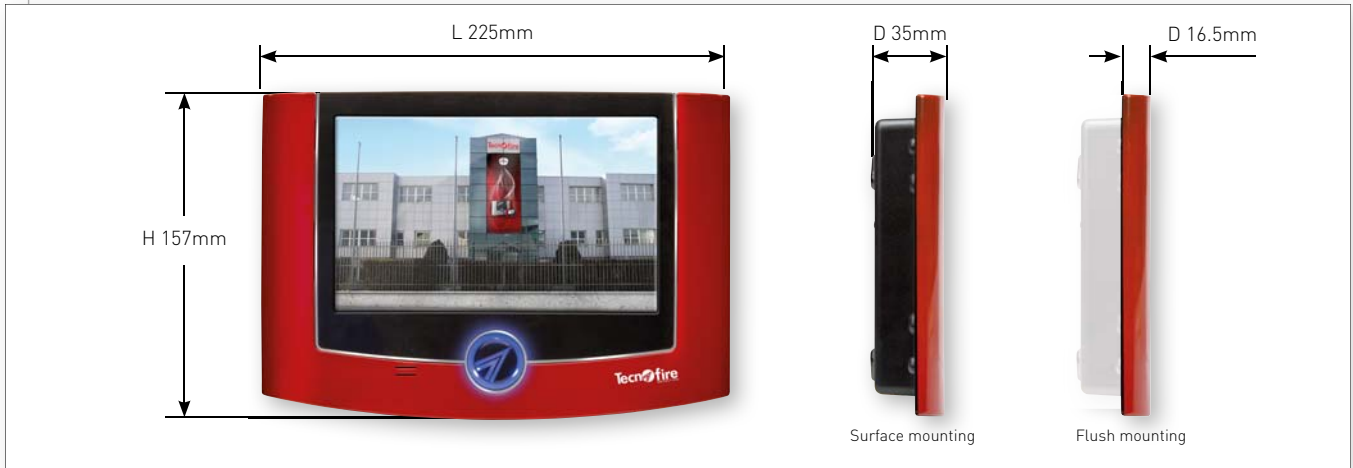
## Expansions



## Repeater panels







The repeater panels with 7 inch touch screen, voice synthesis function and optional floor plan management make decentralized alarm signaling and fire alarm system management easy and intuitive.



<b>TFT-7</b>	
	<p>The TFT-7 repeater panel is a multi-purpose user interface composed of a 7 inch TFT screen, a multilingual voice synthesis function with a bi-lingual mode, an acoustic signaling device as well as a vocal and graphic help function. A total of 16 repeater panels can be distributed over the system. The integrated flash memory permits the customization of the graphic interface and the vocabulary by a PC or an external HDD connected to the USB port. A specific software module permits the implementation of the floor plan management.</p> <p>RS485 serial connection - Surface or flush mounting - Refined ultra-thin design - ABS V0 casing - IP40 - Dimensions (L x H x D) 225 x 157 x 35mm - Red cover plate (exchangeable)</p> <p><b>CORREZIONE DEL</b> <b>02-02-17</b></p> <p>Item no. TF2TFT7-IT</p>
<b>TFT-7S</b>	
	<p>The TFT-7S is a repeater panel with floor plan management. It provides the same features as the TFT-7 repeater panel and in addition the interactive management of floor plans. The repeater panel manages up to 32 floor plans, which are viewed according to different operating modes. On each floor plan, it is possible to position a total of 32 icons, which are associated to the devices of the system or function as navigation soft keys. In case of alarm, the floor plan which identifies the place of origin of the alarm is automatically viewed.</p> <p>RS485 serial connection - Surface or flush mounting - Refined ultra-thin design - ABS V0 casing - IP40 - Dimensions (L x H x D) 225 x 157 x 35mm - Red cover plate (exchangeable)</p> <p>Item no. TF2TFT7S-IT</p>

### TFT-7 - Software plug-in

<b>TFABIL-TFTS</b>	<p>Software plug-in for the TFT-7 repeater panel permitting the implementation of the floor plan management</p>
Item no. TF2TFABILTFTS	

	<b>TFT7-LCGT</b>	Titanium gray cover plate	<b>Item no. TF2TFT7LCGT</b>
	<b>TFT7-LCG</b>	Silver gray cover plate	<b>Item no. TF2TFT7LCG</b>
	<b>TFT7-LCN</b>	Black cover plate	<b>Item no. TF2TFT7LCN</b>
	<b>TFT7-LCB</b>	White cover plate	<b>Item no. TF2TFT7LCB</b>
	<b>TFBASE-TFT7LT</b>		
	The desk stand represents an ergonomic solution in those cases in which the repeater panel must be placed on the work desk. Continuous tilt adjustment – Refined design – IP40 – ABS V0 – Dimensions support base (L x H) 200 x 110mm – White color		
	<b>TFBASE-TFT7L</b>		
	Flush mount base for repeater panels N.B. The repeater panel always comes with flush mount base.		
	<b>TFCAV0-USB TFT</b>		
	Mini USB cable for programming of repeater panels		
	<b>Item no. TF2TFCAVOMINIUS</b>		

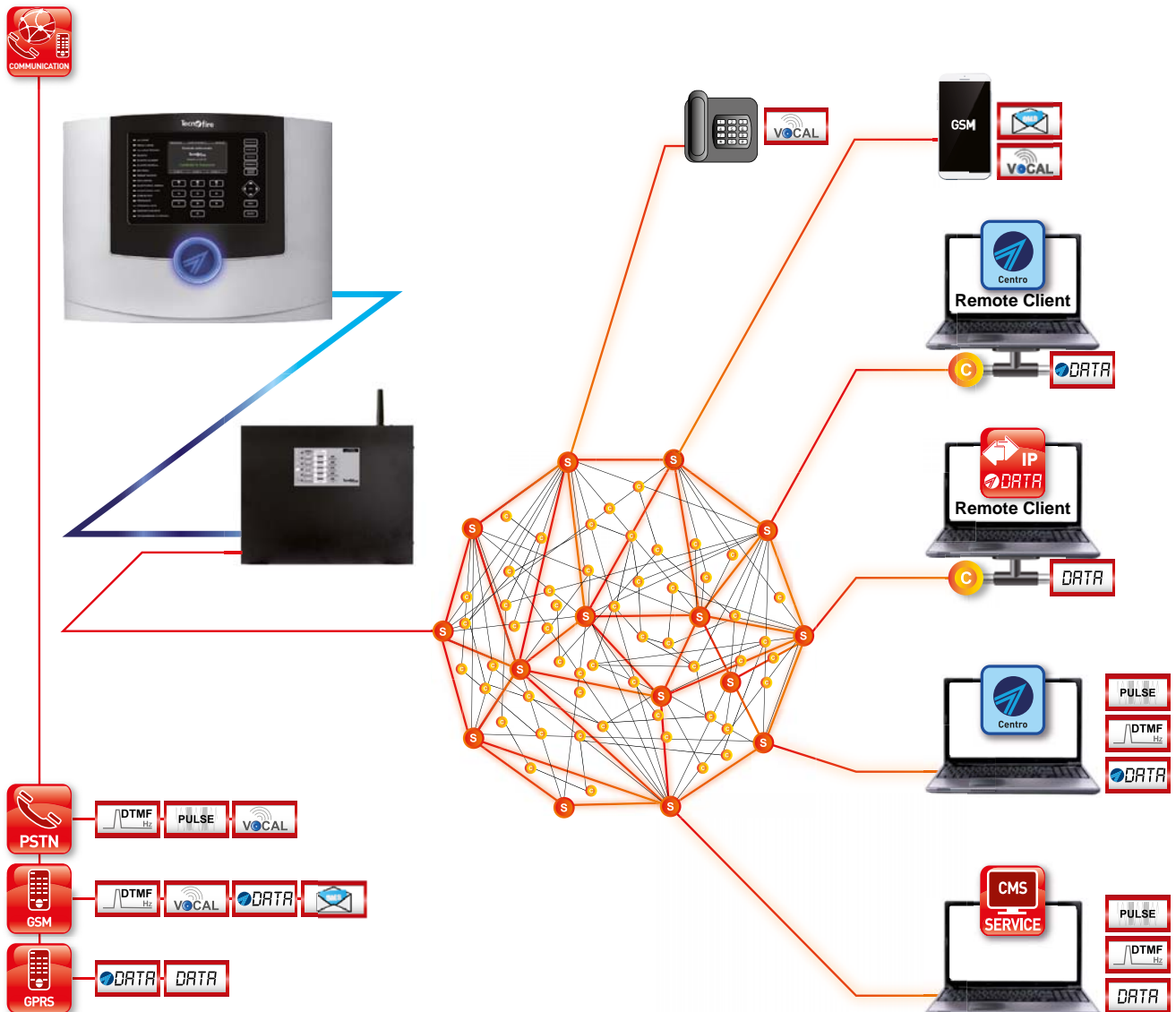
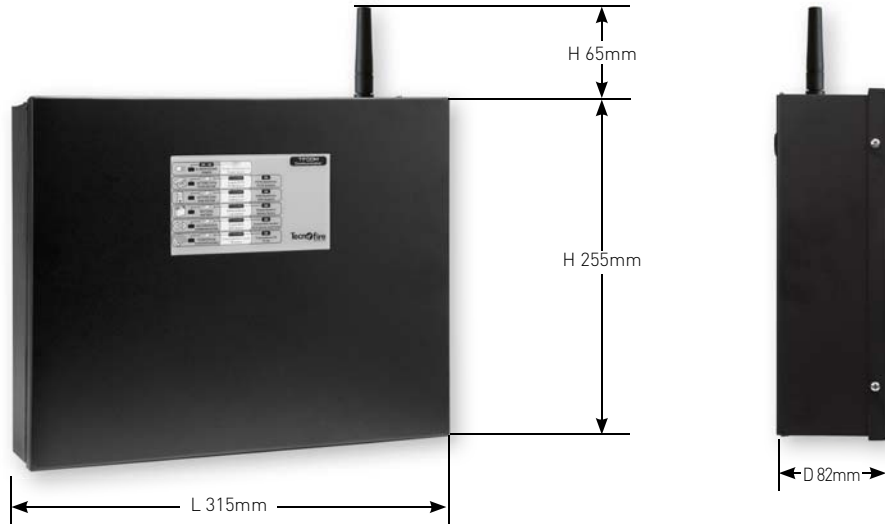
## TFT-7 - TFT-7S - Technical and functional specifications


















General features	Description	TFT-7 Repeater panel	Hardware	Memory	Flash 1 Gbit
		TFT-7S - Repeater panel with floor plan management		Port	USB
	Protocol	<b>FIRE-BUS</b>	Electrical specifications	Power supply	<b>Over Serial Bus</b>
	Address programming	<b>Digital</b>		Rated voltage	<b>24V DC</b>
	Connection	<b>RS485</b>		Operating voltage	<b>18V...30V DC</b>
User interface	Screen	<b>Resistive 7 inch color TFT</b>		Stand-by consumption	<b>90mA @ 24V DC</b>
	Resolution	<b>800 x 480 pixel</b>		Max. consumption	<b>240mA @ 24V DC</b>
	Info graphics	<b>Dynamic icons</b>	Physical specifications	Operating temperature	<b>-5°C...+40°C</b>
	Voice synthesis	<b>Multilingual</b>		Relative humidity (without condensation)	<b>10%...93%</b>
	Speaker	<b>Multifunction</b>		Protection class	<b>IP40</b>
	Help function	<b>Vocal and graphic</b>		Casing	<b>ABS V0</b>
	Graphic interface	<b>Customizable</b>		Dimensions (L x H x D)	<b>225 x 157 x 35mm</b>
	Floor plans	<b>Up to 32 (TFT-7S only)</b>		Weight	<b>350g</b>
	Icons per floor plan	<b>Up to 32 (TFT-7S only)</b>	Conformity	Approved for use with TFA1-298, TFA2-596 and TFA4-1192 control panels	








# Telephone communicators




The PSTN telephone communicator TFCOM with optional GSM-GPRS interface expands the system's communication vectors and protocols for the notification of alarms.



<b>TFCOM</b>	       
	<p>The TFCOM is an addressable telephone communicator with on-board PSTN and optional GSM-GPRS interface.</p> <p>The communicator provides 8 channels for event notification and 1 call back channel for the connection with the monitoring station.</p> <p>Transmission formats: Voice, SMS, Ring, DTMF, Data - AES 128 bit and AES 256 bit data encryption - Independent passphrase for each channel - Self test of communication vectors, power supply, battery, serial bus communication - Front panel with 6 status LED - Failure output - Bay for 12V/7Ah battery - Integrated RSC® technology: programming, remote management of all functioning parameters - On-board flash memory for customization of the vocabulary (managed by PC as an external HDD) - USB port - RS485 serial connection - Surface mounting - IP30 - Metal casing - Dimensions (L x H x D) 315 x 255 x 82mm - Black color</p> <p>EN 54-21:2006 - Certification number 0051-CPR-0454 (approved for use with TFA1-298, TFA2-596 and TFA4-1192 control panels)</p>
	Item no. TF2TFCOM
<b>TFESP-GSM GPRS</b>	      
	<p>The TFESP GSM-GPRS is a GSM 2G interface for the telephone communicator TFCOM.</p> <p>Transmission formats: Voice, SMS, Ring, DTMF, Data - AES 128 bit and AES 256 bit data encryption - Independent passphrase for each channel - Automatic airtime request for prepaid SIM cards - Plug-in connection to TFCOM board</p> <p>EN 54-21:2006 - Certification number 0051-CPR-0454 (approved for use with TFA1-298, TFA2-596 and TFA4-1192 control panels)</p>
	Item no. TF2TTFESPGSMGPRS

FORMATS AND VECTORS							
	Remote management	IP DATA	DATA	SMS	VOICE	DTMF	PULSE
<b>TFCOM</b>	✓		✓		✓	✓	✓
<b>TFESP GSM-GPRS</b>	✓	✓	✓	✓	✓	✓	

#### TFCOM - Accessories

	<p><b>TFPROLANTENNA</b></p> <p>4m extension cord for the connection of the antenna to the GSM 2G interface</p>
	Item no. TF2TPROLANTENN



## TFCOM - Technical and functional specifications

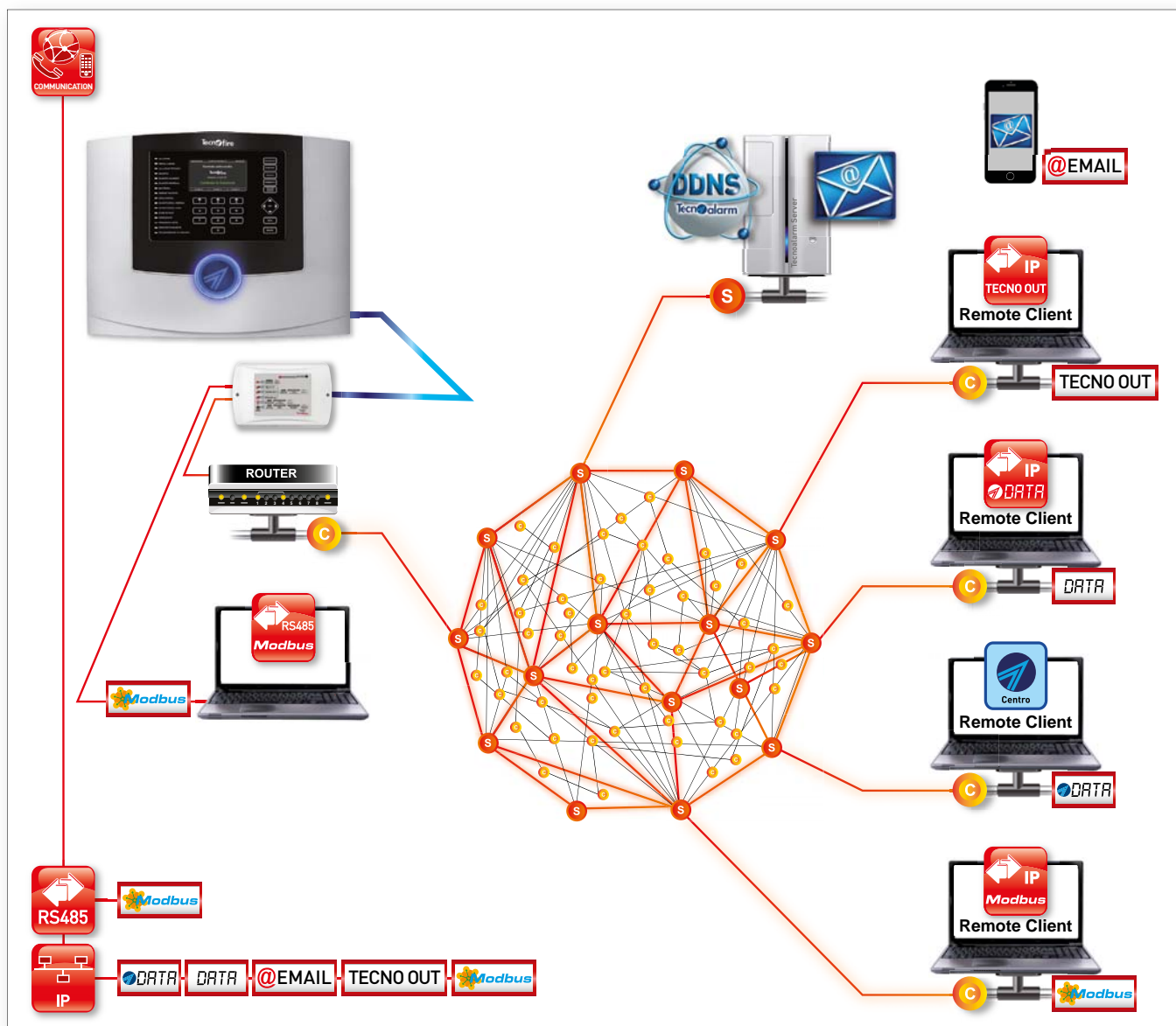
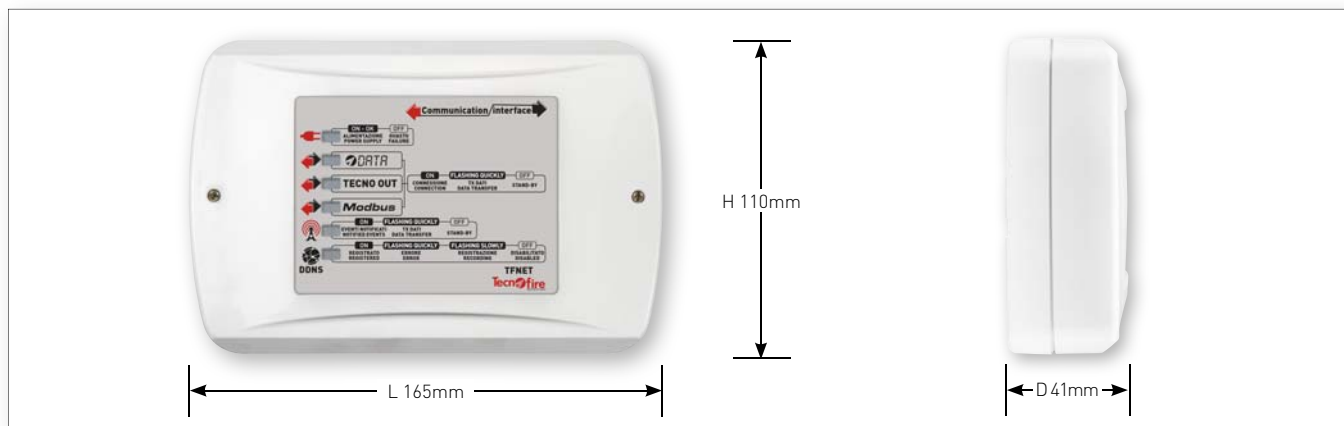
General specifications	Model	<b>TFCOM</b>	Battery	Capacity	<b>1x 12V/7Ah</b>
	Description	<b>Telephone communicator</b>		Flame class	<b>V-2 or superior</b>
	Protocol	<b>Fire-Bus</b>		Release voltage	<b>&lt;8.9V</b>
	Address programming	<b>Dip-switch</b>		Recharge voltage	<b>Max. 0.85A</b>
	Connection	<b>RS485</b>		Recharge time	<b>100% in 12h</b>
Telephone section	Channels	<b>8</b>	Electrical specifications	Power supply	<b>Over serial bus</b>
	PSTN vector	<b>On-board</b>		Rated voltage	<b>24V DC</b>
	GSM-GPRS vector (optional)	<b>TFESP GSM-GPRS</b>		Operating voltage	<b>20V...27.6V DC</b>
	Transmittable events	<b>33 categories</b>		Stand-by consumption	<b>90mA @ 24V DC</b>
	Transmittable zone events	<b>5</b>		Max. consumption	<b>140mA @ 24V DC</b>
	Telephone numbers/ IP address	<b>2 per channel (max. 24 digits)</b>	Physical specifications	Operating temperature	<b>-5°C...+40°C</b>
	Call event queue	<b>32</b>		Relative humidity (non-condensing)	<b>10%...93%</b>
	Communication protocols	<b>29</b>		Protection class	<b>IP30</b>
	Voice synthesis	<b>✓</b>		Casing	<b>Metal</b>
PSTN interface	Class	<b>ATE2</b>		Dimensions (L x H x D) (w/o antenna)	<b>315 x 255 x 82mm</b>
	Conformity	<b>ETSI ES 203 021-1</b>		Antenna height	<b>65mm</b>
	Vocal transmission time	<b>12s</b>		Weight (without batteries)	<b>2.5kg</b>
	Transmission time D4	<b>Contact ID 17s</b>	Conformity	GSM 2G interface	<b>R&amp;TTE 1999/05/EC class 1/TTE</b>
	Transmission time M3	<b>Contact ID 19s</b>		PSTN telephone communicator	<b>CPR 305/2011</b>
GSM 2G interface	Class	<b>ATE4</b>		Standards	<b>EN 50136-1-1 EN 50136-2-1 EN 54-21:2006</b>
	Transmission time D4	<b>SIA IP DC-09 10s</b>		Certification number	<b>0051-CPR-0454</b>
	Transmission time M3	<b>SIA IP DC-09 10s</b>		Year of CE marking	<b>16</b>
Hardware	Flash memory	<b>1 Gbit</b>		Number of declaration of performance	<b>016_TFCOM</b>
	USB port	<b>✓</b>		Notified body	<b>IMQ</b>
Outputs	Failure	<b>PTC-protected relay (I max. 750mA)</b>		Approved for use with TFA1-298, TFA2-596 and TFA4-1192 control panels	










The TFNET interface provides a 10/100 Mbit IP/Ethernet node and can be connected both to the LAN and the WAN network.

It implements the management of the telematic services DDNS Tecnoalarm, SNTP and Mail Server Tecnoalarm.




Thanks to specific software plug-ins, the interface is able to manage the protocols Tecno Out and Modbus.










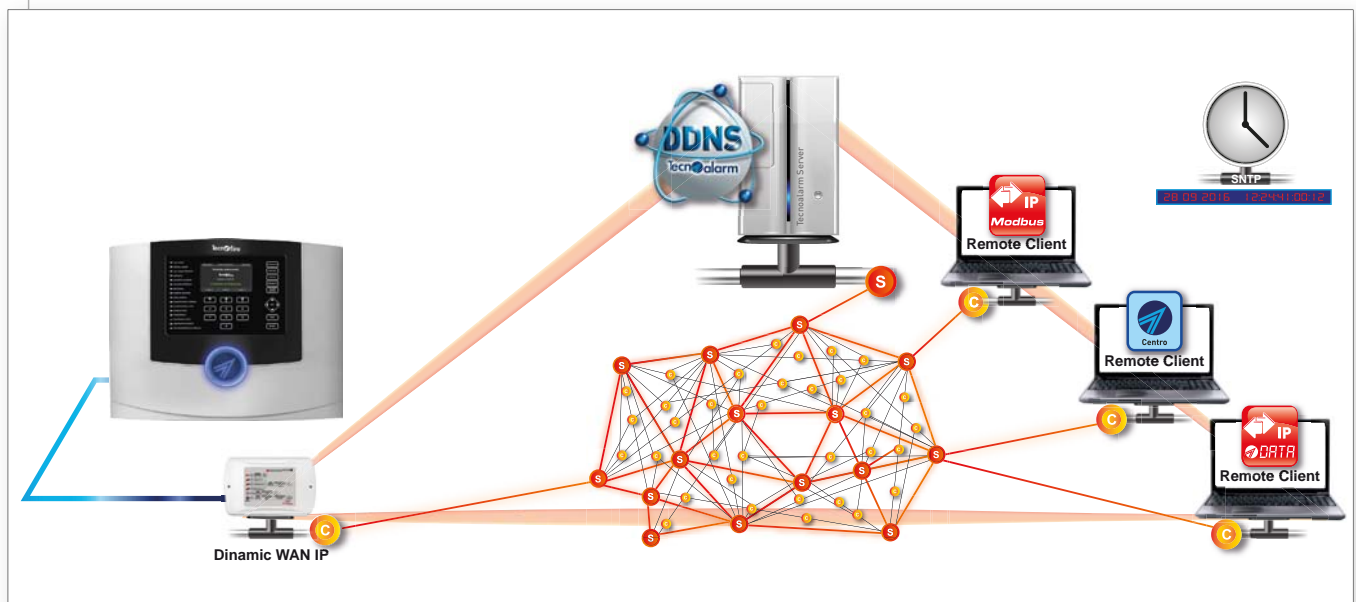
## Ethernet interfaces

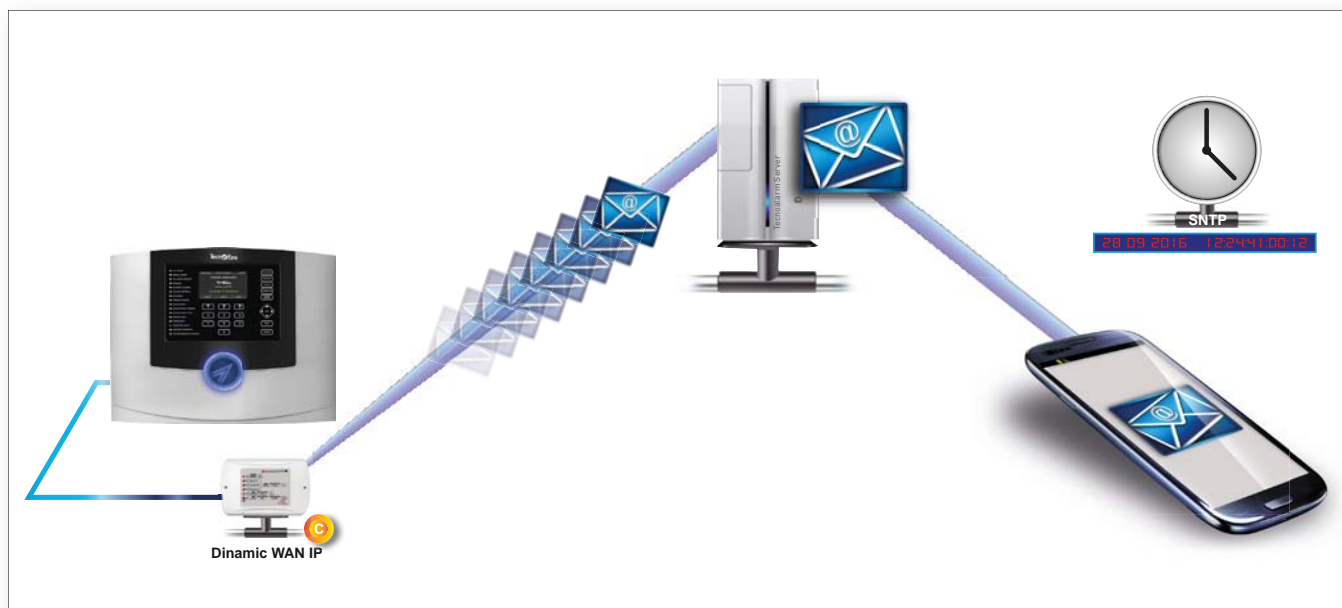
<b>TFNET</b>						
	<p>The TFNET is an Ethernet interface with 8 channels for event notification. Transmission formats: Data, Email - AES 128 bit and AES 256 bit data encryption - Independent passphrase for each channel - Self test of communication vectors, power supply, serial bus communication - Front panel with 6 status LED - Integrated RSC® technology: programming, remote management of all functioning parameters - RS485 serial connection - Surface mounting - IP30 - ABS V0 casing - Dimensions (L x H x D) 165 x 110 x 41mm - White color</p>					
<b>Item no. TF2TFNET</b>						

### TFNET - Software plug-in

<b>TFABIL-MODBUS</b>	Software plug-in for the TFNET interface permitting the implementation of the Modbus protocol. The protocol functions both locally via RS485 serial bus and via LAN/WAN network		
Item no. TF2TFABILMODBUS			
<b>TFABIL-TECNO</b>	Software plug-in for the TFNET interface permitting the implementation of the Tecno Out protocol. The protocol functions via LAN/WAN network		
Item no. TF2TFABILTOUT			






<b>FORMATS AND VECTORS</b>							
	DDNS	Remote management	Email	IP Data	IP Modbus	IP Tecno Out	RS485 Modbus
	✓	✓	✓	✓	Optional	Optional	Optional





### TFNET - Technical and functional specifications

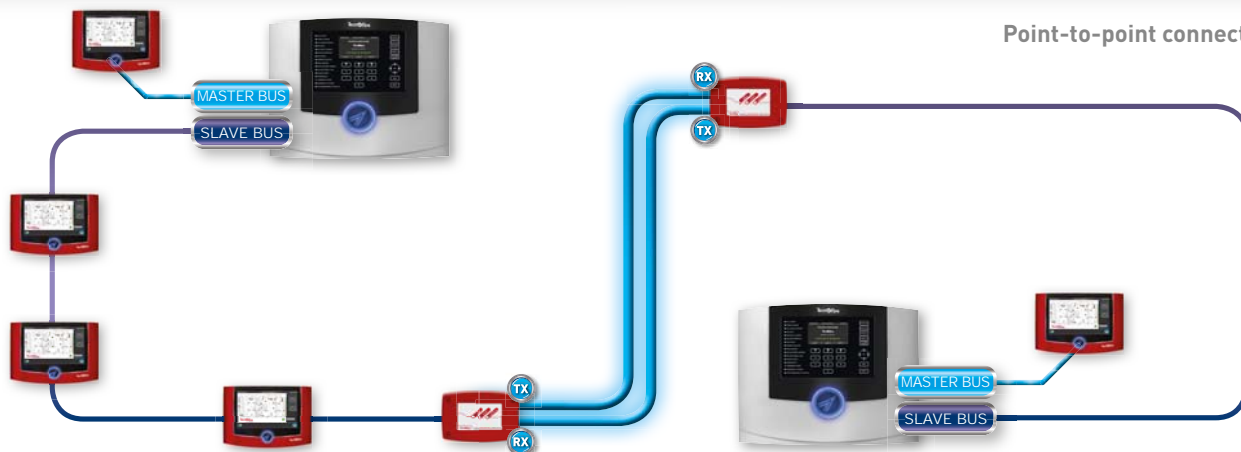
General specifications	Model	TFNET
	Description	Ethernet interface
	Protocol	Fire-Bus
	Address programming	Dip-switch
	Connection	RS485
IP node	Class	Standard 803.2 - ATE4
	Ethernet channels	Server 1
		Server 2
		Tecnoserver Tecnoalarm
		Service Tecnoalarm
		Tecno Out (optional)
		Modbus (optional)
	Channels	8
	Transmittable events	33 categories
	Transmittable zone events	5
Automation	Telephone numbers/ IP address	2 per channel (max. 24 digits)
	Call event queue	64 events
	Communication protocols	10
	Test call with TCP/IP	✓
Electrical specifications	Power supply	Over serial bus
	Rated voltage	24V DC
	Operating voltage	20V...27.6V DC
	Stand-by consumption	90mA @ 24V DC
	Max. consumption	140mA @ 24V DC
Physical specifications	Operating temperature	-5°C...+40°C
	Relative humidity (non-condensing)	10%...93%
	Protection class	IP30
	Casing	ABS V0
	Dimensions (L x H x D)	165 x 110 x 41mm
	Weight	200g
Conformity	Directive	R&TTE 1999/05/EC class 1/TTE
	Standards	EN 50136-1-1 EN 50136-2-1
	Approved for use with TFA1-298, TFA2-596 and TFA4-1192 control panels	

<b>TFSFC01</b>		   
	<p>The TFSFC01 is a RS485-fiber optic converter for long-distance serial data transmission over fiber optic cables. The converter can be used for point-to-point connections, with a 2km maximum length for each track, or loop connections, with 4km maximum loop length. The converter extends the maximum track length for data transmission and is especially indicated for use in particularly disturbed areas, outdoor applications subject to electrostatic discharges and elimination of ground loops.</p> <p>Master/slave mode - Functional settings by dip-switch - 3 signaling LED (power supply, data reception via fiber optics, data reception via serial bus) - Casing ABS V0</p> <p>Dimensions (L x H x D) 140 x 92 x 38mm - Red color</p>	
	Item no. TF1TFSFC01	

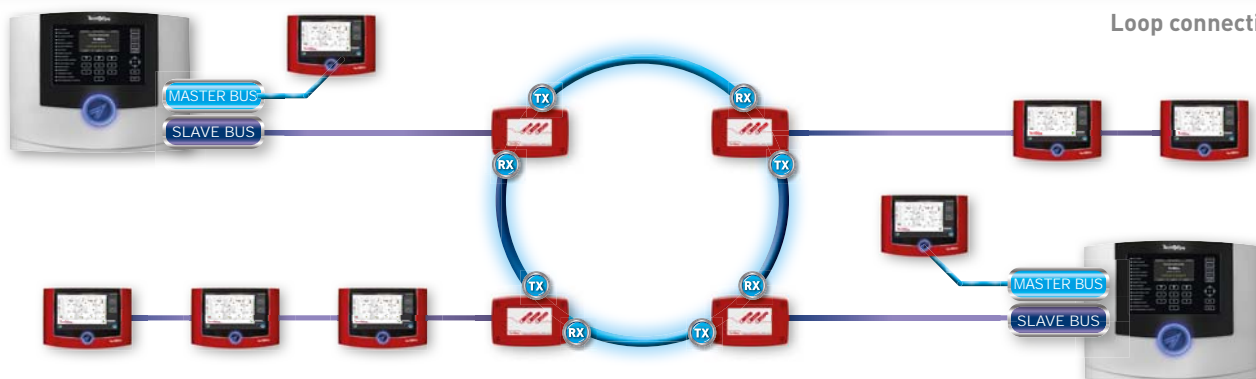
## TFSFC01 - Technical and functional specifications

General features	Description	Fiber optic converter	Electrical specifications	Rated voltage	24V DC
	Data input/output interface	RS485		Operating voltage	8V...31V DC
		Fiber optics		Rated consumption	27mA @ 28V DC
Baud rate	Tecnofire Fire-Bus	115,200bps	Physical specifications	Environmental class	II
Fiber optics	Fiber optic cable	50/125µm or 62.5/125µm		Operating temperature	-20°C...+70°C
	Wave length	850nm		Protection class	IP42
	Connection	ST connector		Casing	ABS V0
	Connection type	Point-to-point (2km per track)		Dimensions (L x H x D)	140 x 92 x 38mm
		Loop (4km)		Weight	130g
Status signaling	Power supply	✓			
	RX RS485	✓			
	RX fiber optics	✓			

Point-to-point connection



Loop connection





## Addressable devices









The range of Tecnofire addressable modules is composed of input-output modules with different functional specializations, interfaces for conventional and 4-20mA devices, manual call points, power supply units, sirens as well as optical acoustic alarm devices.

























The modules are connected to the loop of the fire alarm panel and use the proprietary Fire-Speed protocol.

MODULE		LOGIC UNITS	
TFM10	Input module	1	1 input
TFM20	Input module	2	2 inputs
TFM50	Input module	5	5 inputs
TFM21	Input-output module	3	2 inputs + 1 output
TFM01	Output module	1	1 output
TFM05	Output module	5	5 outputs
TFM420MA	Interface for 4-20mA devices	2	2 inputs
TFMC1	Interface for conventional devices	1	1 input
TFCP01	Manual call point	1	1 unit
TFIS01	Siren	2	1 siren + 1 alias
TFPANM	Optical acoustic alarm sign board	2	1 board + 1 alias
TFPS-5	Power supply	1	1 unit

























## INPUT-OUTPUT MODULES AND INTERFACES

<div>TFM10</div>	<div><div></div><div><div>1</div><div>LOGICAL UNIT</div></div><div><div>1</div><div>INPUT</div></div><div><div></div><div>ABS V0 BOX</div></div></div>
<div></div>	<div><p>The TFM10 is an addressable module composed of 1 supervised physical/logical unit: 1 input. Programmable functions: 4 functioning modes (generate alarm, generate acknowledgment, generate reset, none), 2 input types (alarm or failure) – 2 repeater control outputs for input status signaling – Input status LED – Integrated RSC® technology: programming, remote management of all functioning parameters – Dual loop isolator – Connection to loop – Proprietary high-speed protocol Fire-Speed – Surface mounting – IP40 – Casing ABS V0 – Dimensions (L x H x D) 69.5 x 49.8 x 17mm (length reducible to 49.8mm) – White color EN 54-18: 2005/AC: 2007 – EN 54-17: 2005 – Certification number 1293-CPR-0490</p></div>
<div>Item no. TF4TFM10</div>	








<div>TFM20</div>	<div><div></div><div><div>2</div><div>LOGICAL UNITS</div></div><div><div>2</div><div>INPUTS</div></div><div><div></div><div>ABS V0 BOX</div></div></div>
<div></div>	<div><p>The TFM20 is an addressable module composed of 2 supervised physical/logical units: 2 inputs, which are individually identified by the system and occupy up to 2 addresses. Programmable functions: 4 functioning modes (generate alarm, generate acknowledgment, generate reset, none), 2 input types (alarm, failure) – 2 repeater control outputs for input status signaling – 2 input status LED – Integrated RSC® technology: programming, remote management of all functioning parameters – Dual loop isolator – Connection to loop – Proprietary high-speed protocol Fire-Speed – Mounting on the surface or DIN rail TFDIN – IP40 – Casing ABS V0 – Dimensions (L x H x D) 112 x 78 x 25mm – White color EN 54-18: 2005/AC: 2007 – EN 54-17: 2005 – Certification number 1293-CPR-0420</p></div>
<div>Item no. TF4TFM20</div>	

<b>TFM50-HP</b>	    
	<p>The TFM50-HP is an addressable module composed of 5 supervised physical/logical units: 5 inputs, which are individually identified by the system and occupy up to 5 addresses. Programmable functions: 4 functioning modes (generate alarm, generate acknowledgment, generate reset, none), 2 input types (alarm, failure) - 5 repeater control outputs for input status signaling - 5 input status LED - Integrated RSC® technology: programming, remote management of all functioning parameters - Dual loop isolator - Connection to loop - Proprietary high-speed protocol Fire-Speed - Mounting on the surface or DIN rail TFDIN - IP40 - Casing ABS V0 - Dimensions (L x H x D) 144 x 92 x 71.5mm - White color EN 54-18: 2005/AC: 2007 - EN 54-17: 2005 - Certification number 1293-CPR-0527</p>
Item no. TF4TFM50HP	
<b>TFM50-LP</b>	    
	<p>As TFM50-HP but with low-profile casing – Dimensions (L x H x D) 144 x 92 x 38.5mm</p>
Item no. TF4TFM50LP	
<b>TFM21</b>	    
	<p>The TFM21 is an addressable module composed of 3 supervised physical/logical units: 2 inputs and 1 output, which are individually identified by the system and occupy up to 2 addresses. Programmable functions: 4 functioning modes for inputs (generate alarm, generate acknowledgment, generate reset, none), 2 input types (alarm, failure), 2 functioning modes for outputs (acknowledgeable, non-acknowledgeable), 2 output types (contact, controlled output), output activation delay, output activation time, output activation can be subjected to formula – Protected power supply input for load – 2 repeater control outputs for input status signaling – 3 input/output status LED – Integrated RSC® technology: programming, remote management of all functioning parameters – Dual loop isolator – Connection to loop – Proprietary high-speed protocol Fire-Speed – Mounting on the surface or DIN rail TFDIN – IP40 – Casing ABS V0 – Dimensions (L x H x D) 112 x 78 x 25mm – White color EN 54-18: 2005/AC: 2007 – EN 54-17: 2005 – Certification number 1293-CPR-0419</p>
Item no. TF4TFM21	
<b>TFM01</b>	    
	<p>The TFM01 is an addressable module composed of 1 supervised physical/logical unit: 1 output. Programmable functions: 2 functioning modes (acknowledgeable, non-acknowledgeable), 2 output types (contact, controlled output), output activation delay, output activation time, output activation can be subjected to formula – Protected power supply input for load – Output status LED – Integrated RSC® technology: programming, remote management of all functioning parameters – Dual loop isolator – Connection to loop – Proprietary high-speed protocol Fire-Speed – Mounting on the surface or DIN rail TFDIN – IP40 – Casing ABS V0 – Dimensions (L x H x D) 112 x 78 x 25mm – White color EN 54-18: 2005/AC: 2007 – EN 54-17: 2005 – Certification number 1293-CPR-0421</p>
Item no. TF4TFM01	







## Addressable modules

<b>TFM05-HP</b>						
	<p>The TFM05-HP is an addressable module composed of 5 supervised physical/logical units: 5 outputs. Programmable functions: 2 functioning modes (acknowledgeable, non-acknowledgeable), 2 output types (contact, controlled output), output activation delay, output activation time, output activation can be subjected to formula – Protected power supply input for load – 5 output status LED – Integrated RSC® technology: programming, remote management of all functioning parameters – Dual loop isolator – Connection to loop – Proprietary high-speed protocol Fire-Speed – Mounting on the surface or DIN rail TFDIN – IP40 – Casing ABS V0 – Dimensions (L x H x D) 144 x 92 x 71.5mm – White color EN 54-18: 2005/AC: 2007 – EN 54-17: 2005 – Certification number 1293-CPR-0528</p>					
Item no. TF4TFM05HP						
<b>TFM05-LP</b>						
	<p>As TFM05-HP but with low-profile casing – Dimensions (L x H x D) 144 x 92 x 38.5mm</p>					
Item no. TF4TFM05LP						
<b>TFMC1</b>						
	<p>The TFMC1 is an addressable interface composed of 1 supervised physical/logical unit: 1 input for conventional devices. Opto-isolated power supply input for conventional detectors – Programmable functions: prealarm signaling – Input status LED – Integrated RSC® technology: programming, remote management of all functioning parameters – Dual loop isolator – Connection to loop – Proprietary high-speed protocol Fire-Speed – Mounting on the surface or DIN rail TFDIN – IP40 – Casing ABS V0 – Dimensions (L x H x D) 112 x 78 x 25mm – White color EN 54-18: 2005/AC: 2007 – EN 54-17: 2005 – Certification number 1293-CPR-0492</p>					
Item no. TF4TFMC1						
<b>TFM420MA</b>						
	<p>The TFM420MA is an addressable interface composed of 2 supervised physical/logical units: 2 inputs for 4-20mA devices, which are individually identified by the system and occupy up to 2 addresses. Programmable functions: prealarm signaling, 3 functioning modes (generate alarm, prealarm threshold, alarm threshold) – 2 repeater control outputs for input status signaling – 2 input status LED – Integrated RSC® technology: programming, remote management of all functioning parameters – Dual loop isolator – Connection to loop – Proprietary high-speed protocol Fire-Speed – Mounting on the surface or DIN rail TFDIN – IP40 – Casing ABS V0 – Dimensions (L x H x D) 112 x 78 x 25mm – White color EN 54-18: 2005/AC: 2007 – EN 54-17: 2005 – Certification number 1293-CPR-0491</p>					
Item no. TF4TFM420MA						













<b>TFCP01</b>				
	<p>The TFCP01 is an addressable manual call point. Integrated RSC® technology: programming, remote management of all functioning parameters - Dual loop isolator - Connection to loop - Proprietary high-speed protocol Fire-Speed - Fitting either with a resettable actuator or a break glass release button - Accessories included - Glass with protective film against injury - Opening and reset key included - IP44 - Casing ABS V0 - Dimensions (L x H x D) 86 x 86 x 53mm - Red color EN 54-11: 2001 + A1: 2005 - EN 54-17: 2005 - Certification number 1293-CPR-0418</p>			
	<b>Item no. TF5TFCP01</b>			
<b>TFCP01-IP66</b>				
	<p>The TFCP01-IP66 is a conventional manual call point for outdoor mounting. The call point can be connected to the loop through the addressable input module TFM10. The module can be installed inside the casing of the call point. Accessories included - Glass with protective film against injury - Opening and reset key included - IP66 - Casing ABS V0 (TFM10 module not included) - Dimensions (L x H x D) 86 x 86 x 53mm - Red color EN 54-11: 2001 + A1: 2005 - Certification number 0832-CPD-0904</p>			
	<b>Item no. TF5TFCP01IP66</b>			



















POWER SUPPLIES

<b>TFPS-5</b>						
	<p>The TFPS-5 is an addressable power supply. Operating voltage 230V AC - Rated output current: 5A @ 27.6V DC - 3 outputs for external load with max. 1.1A current - Self test function with automatic battery disconnection in case of deep discharge - 6 status LED on the front panel - Failure output: relay with potential-free contact - Bay for 2x 12V/17Ah batteries - Integrated RSC® technology: programming, remote management of all functioning parameters - Dual loop isolator - Connection to loop - Proprietary high-speed protocol Fire-Speed - Operating temperature: -5°C...+40°C - IP30 - Metal casing - Dimensions (L x H x D) 320 x 365 x 170mm - Black color EN 54-4:1997 + A1:2002 + A2:2006 - EN 54-17:2005 - Certification number 0051-CPR-0432</p>					
	<b>Item no. TF5TFPS5</b>					

SIRENS

<b>TFIS01</b>									
	<p>The TFIS01 is an addressable siren, composed of up to 2 supervised physical/logical units, which are individually identified by the system and occupy up to 2 addresses. The dual ID or device alias mode permits the functional duplication of the siren, so that two different signaling modes and sound types can be programmed. Programmable functions: 2 functioning modes (acknowledgeable, non-acknowledgeable), 2 signaling modes (optical-acoustic, acoustic), 64 sound types, 2 volume levels, activation delay, activation time, activation can be subjected to formula - Integrated RSC® technology: programming, remote management of all functioning parameters - Dual loop isolator - Connection to loop - Proprietary high-speed protocol Fire-Speed - Mounting on universal base TFBASE01 - IP22 - Casing ABS V0 - Dimensions (Ø x H) 120 x 65mm - Red color EN 54-3:2001 + A2:2006 - EN 54-17: 2005 - Certification number 1293-CPR-0422</p>								
	<b>Item no. TF5TFIS01</b>								


## ALARM SIGN BOARDS

TFPANM									
	<p>The TFPANM is an optical acoustic alarm sign board composed of 2 supervised physical/logical units, which are individually identified by the system and occupy up to 2 addresses. The dual ID or device alias mode permits the functional duplication of the alarm sign board. Programmable functions: 2 functioning modes (acknowledgeable, non-acknowledgeable), 2 signaling modes (optical acoustic, acoustic), 8 sound types, activation delay, activation time, activation can be subjected to formula - Integrated RSC® technology: programming, remote management of all functioning parameters - Dual loop isolator - Connection to loop - Proprietary high-speed protocol Fire-Speed - Maximum consumption 50mA - Surface mounting with TFB0X-P base (not included) or semi-flush mounting - IP21C - Casing ABS V0 - On-wall dimensions (L x H x D) 373 x 150 x 33mm - In-wall dimensions (L x H x D) 74 x 54 x 32mm - White color EN 54-3:2001 + A2:2006 – EN 54-17:2005 – EN 54-23:2010</p>								
TFPANM-AI	<p>Optical acoustic alarm sign board with FIRE ALARM warning</p> <p>Item no. TF5TFPANMAI-UK</p>								
									
TFPANM-AC	TFPANM-EL	TFPANM-VE	TFPANM-AG						
									
Not available in English	Not available in English	Not available in English	Not available in English						

### Connection scheme




## TFPANM - Accessories

	<p><b>TFBOX-P</b></p> <p>Surface mount base for TFPANM and TFPAN - 4 fairleads with exchangeable inserts for closing or connecting Ø 20mm pipe sleeves - Dimensions (board + base) (L x H x D) 373 x 150 x 63mm</p> <p>Item no. TF5TFBOXP</p>
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The range of Tecnofire addressable detectors is composed of devices with different specializations including combo versions which combine several sensor technologies. The detectors communicate with the control panel using the proprietary high-speed scanning protocol "Fire-Speed".







DETECTOR	THERMAL CLASS	SUFFIX
<b>TFDA-S1</b> Optical smoke detector	-	-
<b>TFDA-TR1</b> Rate-of-rise detector	A1/A2/B	R/S
<b>TFDA-STR1</b> Combined optical smoke and heat detector	A1	R

DETECTORS				
<b>TFDA-S1</b>				
	<p>The TFDA-S1 is an addressable optical smoke detector. Functioning is supervised by a microprocessor the algorithm of which guarantees best detection features and high precision in the densimetric analysis of the smoke captured by the chamber. The automatic gain control (AGC) is able to compensate dynamically the loss of sensitivity caused by the deposits inside the smoke chamber. Should the detection capacity be compromised by the deposit of dust in the smoke chamber, this is automatically signaled to the fire alarm panel which will require maintenance.</p> <p>Programmable functions: 3 sensitivity levels, excludable LED signaling for data communication - Integrated actuator of electrical connection test - Integrated RSC® technology: programming, remote management of all functioning parameters - 2 signaling LED visible at 360° - Dual loop isolator - Connection to loop - Proprietary high-speed protocol Fire-Speed - Mounting on universal base TFBASE01 - IP22 - Casing ABS V0 - Dimensions (Ø x H) 100 x 52mm (mounting base not included) - White color</p> <p>EN 54-7: 2000 + A1: 2002 + A2: 2006 - EN 54-17: 2005 - Certification number 1293-CPR-0424</p>			
Item no. TF3TFDAS1				
<b>TFDA-TR1</b>				
	<p>The TFDA-TR1 is an addressable rate-of-rise detector with programmable class and suffix. Functioning is supervised by a microprocessor the algorithm of which guarantees high performance in the detection of the ambient temperature.</p> <p>Programmable functions: thermal class A1, A2 or B (static response temperature depending on the programmed class), suffix S or R, excludable LED signaling for data communication - Integrated actuator of electrical connection test - Integrated RSC® technology: programming, remote management of all functioning parameters - 2 signaling LED visible at 360° - Dual loop isolator - Connection to loop - Proprietary high-speed protocol Fire-Speed - Mounting on universal base TFBASE01 - IP22 - Casing ABS V0 - Dimensions (Ø x H) 100 x 52mm (mounting base not included) - White color</p> <p>EN 54-5: 2000 + A1: 2002 - EN 54-17: 2005 - Certification number 1293-CPR-0526</p>			
Item no. TF3TFDATR1				













## Addressable detectors

<b>TFDA-STR1</b>					
	<p>The TFDA-STR1 is an addressable Combo 2T detector, composed of 2 independent sections, an optical smoke detector and a class A1R rate-of-rise detector (static response temperature 58°C). Functioning is supervised by a microprocessor the algorithm of which guarantees high performance in the detection of the ambient temperature and high precision in the densimetric analysis of the smoke captured by the chamber. The automatic gain control (AGC) is able to compensate dynamically the loss of sensitivity caused by the deposits inside the smoke chamber. Should the detection capacity be compromised by the deposit of dust in the smoke chamber, this is automatically signaled to the fire alarm panel which will require maintenance.</p> <p>Programmable functions: 3 sensitivity levels, excludable prealarm function, 4 detection logics, individually excludable detection technology, excludable LED signaling for data communication – Integrated actuator of electrical connection test – Integrated RSC® technology: programming, remote management of all functioning parameters – 2 signaling LED visible at 360° – Dual loop isolator – Connection to loop – Proprietary high-speed protocol Fire-Speed – Mounting on universal base TFBASE01 – IP22 – Casing ABS V0 – Dimensions (Ø x H) 100 x 52mm (mounting base not included) – White color</p> <p>EN 54-7: 2000 + A1: 2002 + A2: 2006 – EN 54-5: 2000 + A1: 2002 – EN 54-17: 2005 – Certification number 1293-CPR-0423</p>				
<b>Item no. TF3TFDASTR1</b>					

## PIPE DETECTORS

<b>TFDA-DUCT</b>	    
	<p>Analysis chamber for ventilation and air-conditioning pipes Venturi tube principle - Single air intake and discharge - Universal mounting base TFBASE01 included - IP65 - Casing ABS V0 - Dimensions (L x H x D) 165 x 279 x 83mm - To be used with TFDA-S1 detector and TFTUBO-DUCT 60 pipe EN 54-27</p>
	<b>Item no. TF3TFDADUCT</b>
<b>TFTUBO-DUCT 60</b>	<p>Sampling pipe with separate air intake and discharge - Length 60cm</p>
	<b>Item no. TF3TFTUBODUCT60</b>
<b>TFCOVER-DUCT</b>	<p>Anti-condensation cover for installation in extremely cold or in outdoor areas The cover protects the analysis chamber against the effects of weather and UV radiation. Dimensions (L x H x D) 460 x 273 x 122mm</p>
	<b>Item no. TF3TFCOVERDUCT</b>



	<p><b>TFVETRO-CP01</b></p> <p>Replacement glass for TFCP01 and TFCP01-IP66 manual call points Sold in packs of 10</p> <p>Item no. TF5TFVETROCP01</p>		<p><b>TFBASE01</b></p> <p>Universal base for TFIS01 sirens and TFDA-S1, TFDA-TR1, TFDA-STR1 detectors Optical repeater output - ABS V0 - Dimensions (Ø x H) 100 x 19mm - White color</p> <p>Item no. TF6TFBASE01</p>
	<p><b>TFCOP-CP01</b></p> <p>Transparent replacement cover for TFCP01 and TFCP01-IP66 manual call points Sold in packs of 10</p> <p>Item no. TF5TFCOPCP01</p>		<p><b>TFBOX-S</b></p> <p>Junction box with integrated base for TFIS01 sirens and TFDA-S1, TFDA-TR1, TFDA-STR1 detectors ABS V0 - Dimensions (L x H x D) 136 x 136 x 79mm - White color</p> <p>Item no. TF5TFBOXS</p>
	<p><b>TFKEY-CP01</b></p> <p>Opening and reset key for TFCP01 and TFCP01-IP66 manual call points Sold in packs of 10</p> <p>Item no. TF5TFKEYCP01</p>		<p><b>TFBOX-B</b></p> <p>Junction box with exchangeable inserts for closing or connecting Ø 20mm pipe sleeves Compatible with base TFBASE01 - ABS V0 - Dimensions (Ø x H) 101 x 38mm - White color</p> <p>Item no. TF6TFBOXB</p>
	<p><b>TFDIN</b></p> <p>DIN rail for mounting the modules TFM20, TFM21, TFM01 and interfaces TFCM1 and TFM420MA</p> <p>Item no. TF5TFDIN</p>		<p><b>TFBOX-M</b></p> <p>Junction box with recess for mounting TFM10, TFM20, TFM21, TFM01 modules and TFCM1, TFM420MA interfaces ABS V0 - Dimensions (L x H x D) 136 x 136 x 63mm - White color</p> <p>Item no. TF5TFBOXM</p>
	<p><b>TFRIP-R INC</b></p> <p>Optical repeater Visible at 360° - Non-polarized connection - Flush mounting - IP67 - Red color</p> <p>Item no. TF3TFRIPRINC</p>		<p><b>TFRIP-R</b></p> <p>Optical repeater Visible at 360° - Dimensions (L x H x D) 78 x 45 x 25mm - Red color</p> <p>Item no. TF3TFRIPR</p>
	<p><b>TFRIP-V</b></p> <p>Optical repeater Visible at 360° - Dimensions (L x H x D) 78 x 45 x 25mm - Green color</p> <p>Item no. TF3TFRIPV</p>		<p><b>TFRIP-G</b></p> <p>Optical repeater Visible at 360° - Dimensions (L x H x D) 78 x 45 x 25mm - Yellow color</p> <p>Item no. TF3TFRIPG</p>



















Tecnofire provides a selection of the most performing additional equipment from the major manufacturers with the best price-performance ratio. The equipment has been tested to ensure the highest possible degree of compatibility and functional integration with the Tecnofire products.  
The integration of additional equipment in the Tecnofire fire alarm systems guarantees a top performance level.

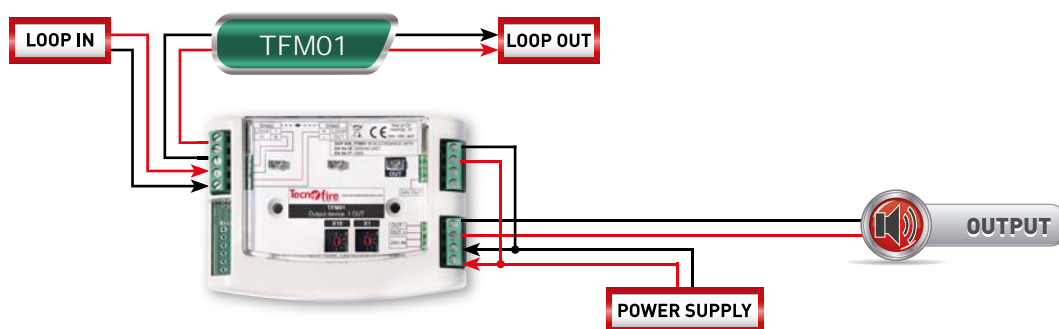
## Conventional devices




### OPTICAL ACOUSTIC ALARM SIGN BOARDS

TFPAN	      		
	<p>The TFPAN is an optical acoustic alarm sign board. The board can be connected to the loop through the addressable output module TFM01. Programmable functions: 2 signaling modes (optical acoustic, acoustic) - Maximum consumption 45mA - Surface mounting with TFB0X-P base (not included) or semi-flush mounting - IP21C - Casing ABS V0 - On-wall dimensions (L x H x D) 373 x 150 x 33mm - In-wall dimensions (L x H x D) 74 x 54 x 32mm - White color EN 54-3:2001 + A2:2006 - EN 54-23:2010</p>		
TFPAN-AI	<p>Optical acoustic alarm sign board with FIRE ALARM warning</p> <p>Item no. TF7TFPANAI-UK</p>		
			
TFPAN-AC	TFPAN-EL	TFPAN-VE	TFPAN-AG
			
Not available in English	Not available in English	Not available in English	Not available in English

































#### Connection scheme



















### TFPAN - Accessories

	<p><b>TFBOX-P</b></p> <p>Surface mount base for TFPANM and TFPAN - 4 fairleads with exchangeable inserts for closing or connecting Ø 20mm pipe sleeves - Dimensions (board + base) (L x H x D) 373 x 150 x 63mm</p> <p>Item no. TF5TFBOXP</p>
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<b>TFPAN-03</b>		    	
		Optical acoustic alarm sign board Exchangeable polycarbonate film - Surface mounting - Sound level 108dB(A) @ 1m - Maximum consumption 58mA - Dimensions (L x H x D) 365 x 180 x 50mm Item no. TF7TFPAN03	
<b>TFPELL3-AG</b>	<b>TFPELL3-AL</b>	<b>TFPELL3-EL</b>	<b>TTFPELL3-SC</b>
-	ALARM	EVACUA.IMMEDIATE	EXTINGUISHING
Not available in English	Refer to reseller	Refer to reseller	Refer to reseller
<b>TFPAN-05</b>		      	
		Optical acoustic alarm sign board for indoor and outdoor use Exchangeable polycarbonate film - Surface or flush mounting - Maximum mounting height 4.2 meters - Sound level 88dB(A) @ 1m - Maximum consumption 100mA - Dimensions (L x H x D) 365 x 147 x 72mm EN 54-3 - Certification number 0051-CPD-0256 Item no. TF7TFPAN05	
<b>TFPELL5-EL</b>	<b>TFPELL5-SC</b>		
EVACUA.IMMEDIATE	EXTINGUISHING		
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<b>TFPAN-04</b>		       	
		Optical acoustic alarm sign board Exchangeable polycarbonate film - Mounting on the surface or using 503 flush-mount box (reduced thickness 14mm) - Coverage volume code W-4.6-9.1 - Maximum mounting height 4.6 meters - Sound level 92dB(A) @ 1m - Maximum consumption 50mA - Dimensions (L x H x D) 292 x 130 x 55mm EN 54-3 - EN 54-23 - Certification number 1328-CPR-0427 Item no. TF7TFPAN04	
<b>TFPELL4-EL</b>	<b>TFPELL4-AG</b>	<b>TFPELL4-SC</b>	
EVACUA.IMMEDIATE	-	EXTINGUISHING	
Refer to reseller	Not available in English	Refer to reseller	
<b>TFPAN-02</b>		       	
		Optical acoustic alarm sign board Exchangeable polycarbonate film - Surface or flush mounting - Coverage volume code W-4.2-8.5 (303qbm) - Maximum mounting height 4.2 meters - Sound level 88dB(A) @ 1m - Maximum consumption 130mA - Operating temperature -10°C...+50°C - Casing ABS V0 - Dimensions (L x H x D) 365 x 147 x 72mm EN 54-3 - EN 54-23 - Certification number 1328-CPD-0297 Item no. TF7TFPAN02	
<b>TFPELL2-EL</b>	<b>TFPELL2-SC</b>		
EVACUA.IMMEDIATE	EXTINGUISHING		
Refer to reseller	Refer to reseller		






























## OPTICAL FIRE ALARM DEVICES

<b>TFL04</b>	      
	Optical fire alarm device Surface mounting - Coverage volume 135cbm - Maximum mounting height 2.4 meters - Maximum consumption 25mA - Dimensions (Ø x H) 93 x 38mm - Red color EN 54-23 - Certification number 0333-CPD-075441
	<b>Item no. TF7TFL04</b>
<b>TFL05</b>	      
	Optical fire alarm device Surface mounting - Ceiling mounting at a maximum height of 3 meters - Coverage volume 132cbm - Maximum consumption 25mA - Dimensions (Ø x H) 93 x 38mm - White color EN 54-23 - Certification number 0333-CPD-075443
	<b>Item no. TF7TFL05</b>











## ACOUSTIC FIRE ALARM DEVICES

<b>TFS03</b>	      
	Acoustic fire alarm device Surface mounting - Sound level 100dB(A) @ 1m - 2 control inputs - 2 alarm modes - Programmable functions: 32 alarm tones (6 certified alarm tones), volume high and low - Maximum consumption 32mA - Dimensions (Ø x H) 93 x 105mm - Red color EN 54-3 - Certification number 0832-CPD-1651
	<b>Item no. TF7TFS03</b>
<b>TFC05</b>	     
	Fire alarm bell Surface mounting - Sound level 95dB(A) @ 1m - Maximum consumption 35mA - Dimensions (Ø x H) 155 x 85mm - Red color EN 54-3 - Certification number 0832-CPD-0137
	<b>Item no. TF7TFC05</b>
<b>TFS04</b>	       
	Acoustic fire alarm device Surface mounting - Sound level 120dB(A) @ 1m - 3 control inputs - 3 alarm modes - Programmable functions: 42 alarm tones, volume - Maximum consumption 450mA - Dimensions (L x H x D) 168 x 168 x 155mm - Red color EN 54-3 - Certification number 0832-CPD-0566
	<b>Item no. TF7TFS04</b>

**OPTICAL ACOUSTIC FIRE ALARM DEVICES**

<b>TFSL02</b>	 VISUAL ALARM DEVICE	 EN 54-3 EN 54-23	 2 INPUTS ALARM MODE	 TYPE W-2.4-7.5	 SOUND LEVEL 102dB(A) @1m	 24V DC	 INDOORS OR OUTDOORS -25°+70°	 IP65	 ABS V0 BOX
	<p>Optical acoustic fire alarm device Surface mounting - Coverage volume 135cbm - Maximum mounting height 2.4 meters - Sound level 102dB(A) @ 1m - 2 control inputs - 2 alarm modes - Programmable functions: 32 alarm tones (6 certified alarm tones), volume high and low - Maximum consumption 37mA - Dimensions (L x H x D) 95 x 135 x 95mm - Red casing - White flashlight EN 54-3 - EN 54-23 - Certification number 0333-CPR-075444</p>								
<b>Item no. TF7TFSL02</b>									
<b>TFSL03</b>	 VISUAL INDICATION DEVICE	 EN 54-3	 3 ALARM MODE INPUTS	 42 SOUND TYPES	 SOUND LEVEL 120dB(A) @1m	 24V DC	 INDOORS OR OUTDOORS -25°+70°	 IP66	 ABS V0 BOX
	<p>Optical acoustic fire alarm device Surface mounting - Sound level 120dB(A) @ 1m - 3 control inputs - 3 alarm modes - Programmable functions: 42 alarm tones, volume - Maximum consumption 1.07A - Dimensions (L x H x D) 168 x 212 x 155mm - Red casing - Red flashlight EN 54-3 - Certification number 0832-CPD-0568</p>								
<b>Item no. TF7TFSL03</b>									
<b>TFSL04</b>	 VISUAL INDICATION DEVICE	 EN 54-3	 3 ALARM MODE INPUTS	 42 SOUND TYPES	 SOUND LEVEL 120dB(A) @1m	 24V DC	 INDOORS OR OUTDOORS -25°+70°	 IP66	 ABS V0 BOX
	<p>The same as TFSL03 but gray casing and yellow flashlight</p>								
<b>Item no. TF7TFSL04</b>									

**SELF-POWERED OPTICAL ACOUSTIC FIRE ALARM DEVICES**

<b>TFES01</b>									
	<p>The TFES01 is a self-powered magneto-dynamic siren for outdoor mounting. Programmable trigger signal: reverse polarity - LED flashlight - Programmable sound type (15 tones) - Self test of the power supply, battery, horn and flash light - Failure output: opto-isolated relay - Sound level 107dB (A) @ 1m (sound type 1) - Max. consumption 350mA - Rated voltage 24V DC - Step-down converter for battery recharge - 12V/2.1Ah battery - Surface mounting - IP33C (EN 60529:1991 + A1:2000) - Casing PC ABS 5VA - Dimensions (L x H x D) 211 x 315 x 98mm - Red color EN 54-3:2001 + A2:2006 - Certification number 1293-CPR-0493</p>								
<b>Item no. TF7TFES01</b>									

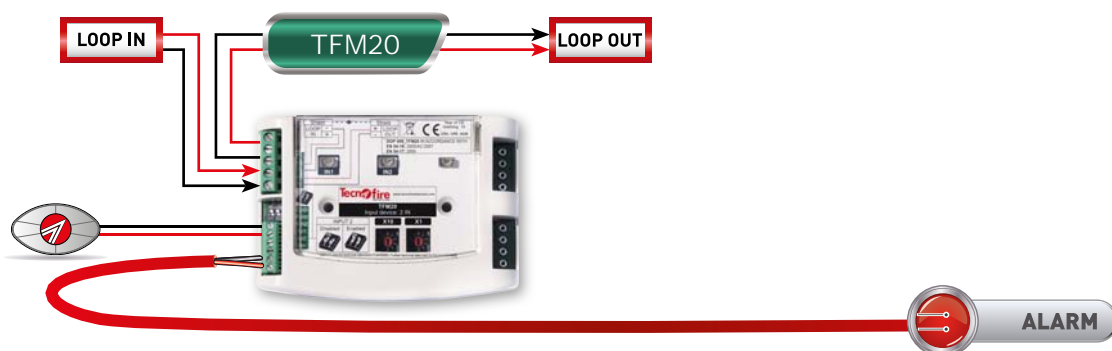
# Heat detection cables



Tecnofire provides a full range of non-resettable linear heat detection cables.  
The sensing elements, 2 copper-plated steel wires, are insulated by thermosensitive polymers.

<b>TFCTS-68</b>			
	Alarm temperature 68°C - Operating temperature max. 40°C - Withstand voltage max. 100V DC - Red thermoplastic coating - External diameter 4.5mm - Weight 25kg/km - 100m hanks		
	<b>Item no. TF12TFCTS68</b>		
<b>TFCTS-68 ULFM</b>			
	Alarm temperature 68°C - Operating temperature -40°C...+38°C - Withstand voltage max. 100V DC - Red thermoplastic coating - External diameter 4mm - Weight 25kg/km - 100m hanks - UL/FM		
	<b>Item no. TF12TFCTS68ULFM</b>		
<b>TFCTS-105</b>			
	Alarm temperature 105°C - Operating temperature max. 40°C - Withstand voltage max. 100V DC - Black thermoplastic coating - External diameter 4.5mm - Weight 25kg/km - 100m hanks		
	<b>Item no. TF12TFCTS105</b>		
<b>TFCTS-105 ULFM</b>			
	Alarm temperature 105°C - Operating temperature -40°C...+79°C - Withstand voltage max. 100V DC - Red thermoplastic coating - External diameter 4mm - Weight 25kg/km - 100m hanks - UL/FM		
	<b>Item no. TF12TFCTS105ULF</b>		

## Connection scheme





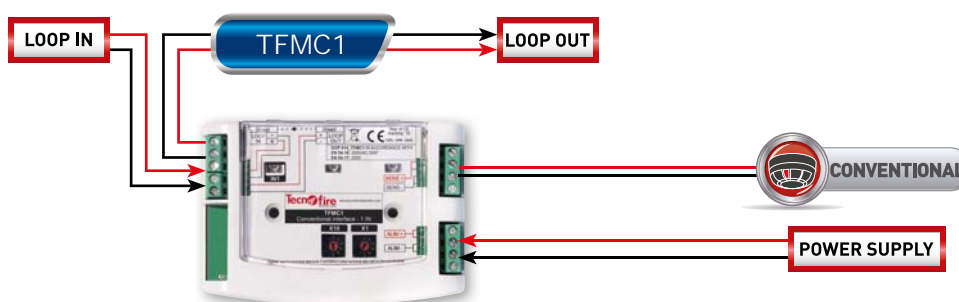


The electronic heat detectors permit heat detection in the static or rate-of-rise mode.  
Functional attributes, such as thermal class and suffix, can be set in the factory according to the customer's requirements.

<b>TFDC-TR4</b>	
	<p>Electronic point heat detector Especially suitable for high-risk industrial applications and dangerous atmospheres - Completely immune to electromagnetic disturbances, dust, humidity and exhaust gas - Programmable functions: thermal class A1, A2, B, C or D, suffix R or S, alarm reset, LED signaling - Short circuit isolator - Connection to loop through addressable interface TFMC1 (not included) - Self test - Stand-by consumption 30µA - Alarm consumption approx. 20mA - Operating temperature -20°C...+110°C - IP65 - Aluminum casing - Dimensions (L x H x D) 203 x 95 x 60mm EN 54-5:2000 + A1:2002 - Certification number 0068-CPR-009</p>
	<b>Item no. TF12TFDCTR4</b>
<b>TFDC-TR5</b>	
	<p>Electronic point heat detector Especially suitable for potentially explosive atmospheres - Completely immune to electromagnetic disturbances, dust, humidity and exhaust gas - Programmable functions: thermal class A1, A2, B, C or D, suffix R or S, alarm reset, LED signaling - Short circuit isolator - Connection to loop through addressable interface TFMC1 (not included) - Self test - Stand-by consumption 30µA - Alarm consumption approx. 20mA - Operating temperature -20°C...+110°C - IP66 - Aluminum casing - 1 way tube connector 1/2 inch NPT - Dimensions (L x H x D) 160 x 85 x 75mm ATEX, EN 54-5:2000 + A1:2002 - Certification number 0068-CPR-009</p>
	<b>Item no. TTF12TFDCTR5</b>

DETECTOR CONFIGURATION			
THERMAL CLASS	SUFFIX	ALARM RESET	LED SIGNALING
<b>A1</b> Static 54°...65°C	<b>R</b> Static + rate-of-rise	<b>M</b> Manual	<b>Mode 1</b> Off = stand-by On = alarm
<b>A2</b> Static 54°...70°C	<b>S</b> Static	<b>A</b> Automatic	<b>Mode 2</b> Flashing = stand-by On = alarm Off = failure
<b>B</b> Static 69°...85°C			
<b>C</b> Static 84°...100°C			
<b>D</b> Static 99°...115°C			
N.B. Other thermal classes have not been certified.			



## Connection scheme



## Flood detectors



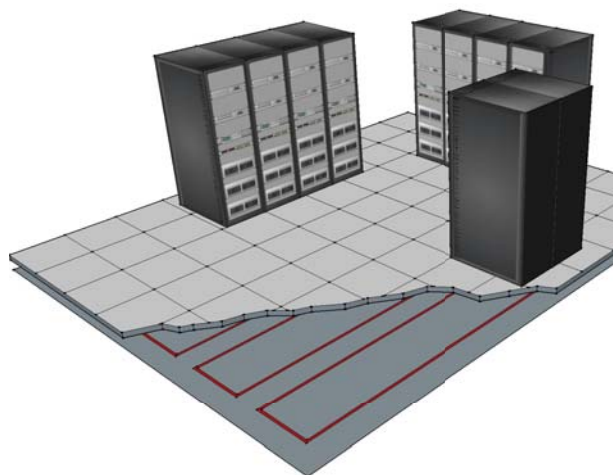
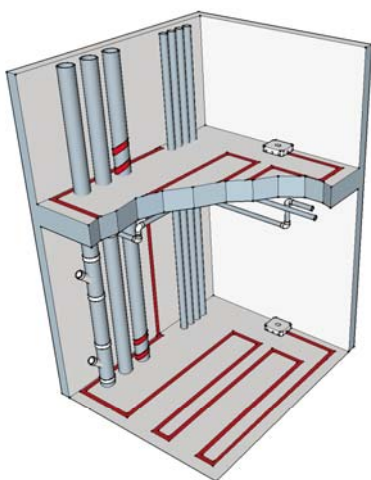
The range of conventional devices provides point or linear flood detectors for indoor and outdoor use, especially suitable for monitoring of ditches and interspaces.

<b>TFRPL-108</b>		10V DC ÷ 30V DC	INDOORS OR OUTDOORS 0° +60°	IP68
	Point flood detector for the detection of water and a great variety of compounds Especially suitable for monitoring flooding of ditches and interspaces - Signaling LED for operating status - 1 meter prewired cable - Free changeover relay with 1A 30V DC contacts - Operating voltage 10V...30V DC - Maximum consumption 30mA - Operating temperature 0°C...+60°C - IP68 - Casing ABS - Dimensions (L x H x D) 73 x 92 x 36mm			
<b>Item no. TF12TFRPL108</b>				
<b>TFSLA</b>		12V DC ÷ 24V DC	INDOORS MAX +200°	
	Linear water leak detector Detection tape made of 2 stainless steel wires on inherently fireproof polyester fabric - Stable sensitivity along the track - Resistance <6 ohm/m - Capacity <10pF/m - Operating temperature max. 200°C - Tape length 25mm - White color - 25m hanks			
<b>Item no. TF12TFSLA</b>				

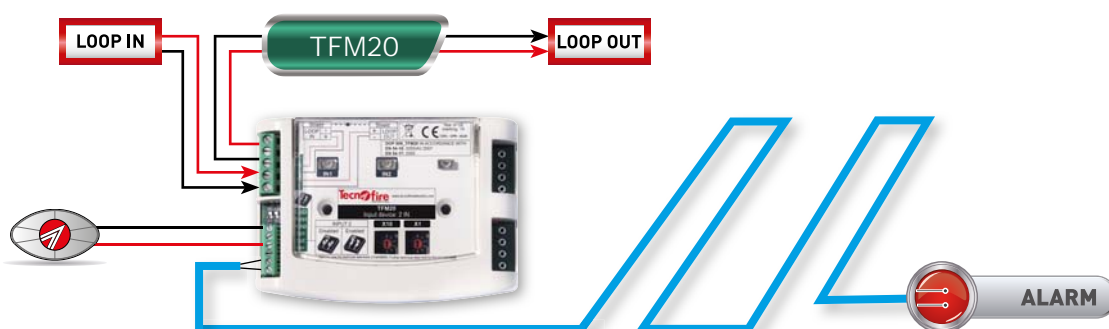
### Application

Its flexibility and adaptability makes TFSLA capable of satisfying any installation requirement. The tape can be placed both horizontally and vertically, as well as wrapped around pipes.

It is particularly suitable for the detection of water leaks in large areas, such as the interspaces of raised floors.



### Connection scheme





The range of extraction units selected by Tecnofire offers models capable of satisfying any application requirement. It comprises 1 and 2 channel ICAM or VESDA models, equipped with laser detection chamber (classes A, B, C compliant with EN 54-20). The top-of-the range models provide WI-FI ports and permit management by PC, Tablet and Smartphone.






The technical department of Tecnofire offers a consultancy service for the correct dimensioning of the air sampling system according to the specifications of the project. The length of the tubes and the size of the holes are calculated by a specific flow simulation software, compliant with the current UNI 9795:2013 standard. Their interaction with the Tecnofire systems has been tested and evaluated in order to obtain an excellent functional synergy and the maximum technical satisfaction.

<b>TFUCA-01</b>		<b>1</b> CHANNEL	<b>1</b> ZONE	<b>100m</b> CLASS A 3 B 6 C 18	<b>24V DC</b>	<b>INDOORS</b> -10°+55°	 <b>IP65</b>		
	1 channel 1 zone extraction unit for 25mm ABS pipes Pipe length max. 100m - Classes A (3 holes), B (6 holes), C (18 holes) - Analysis of the air with 2 high sensitivity addressable sensors - Negative pressure max. 250Pa - 3 programmable relay outputs - Max. consumption 300mA - Dimensions (L x H x D) 259 x 184 x 66mm VDS, CPD, EN 54-20								
<b>Item no. TF13TFUCA01</b>									
<b>TFUCA-02</b>		<b>2</b> CHANNELS	<b>1</b> ZONE	<b>100m</b> CLASS A 3 B 6 C 18	<b>24V DC</b>	<b>INDOORS</b> -10°+55°	 <b>IP65</b>		
	2 channels 2 zones extraction unit for 25mm ABS pipes Pipe length max. 100m - Classes A (3 holes), B (6 holes), C (18 holes) - Analysis of the air with 2 high sensitivity addressable sensors - Negative pressure max. 250Pa - 3 programmable relay outputs - Max. consumption 300mA - Dimensions (L x H x D) 259 x 184 x 66mm VDS, CPD, EN 54-20								
<b>Item no. TF13TFUCA02</b>									
<b>TFUCA-06</b>		<b>1</b> CHANNEL	<b>1</b> ZONE	<b>COVERAGE</b> 250m <sup>2</sup>	<b>25m</b> CLASS A 12 B 12 C 12	<b>LASER</b> 	<b>24V DC</b>	<b>INDOORS</b> -10°+55°	 <b>IP30</b>
	1 channel 1 zone extraction unit for 25mm ABS pipes Pipe length max. 25m - Classes ABC (12 holes to be sized by Aspire-2 software) - Coverage max. 250sqm - Laser detection chamber - Ultrasonic flow sensing - Dual stage air filter - Sensitivity range 0,025%...20% obs/m - Self-diagnosis function with programmable thresholds - 3 programmable relay outputs - Status LED - Memory with 18,000 events capacity - RS232 port - Max. consumption 295mA - Dimensions (L x H x D) 255 x 185 x 90mm VDS, LPCB, CPD, EN 54-20, UL, ULC, FM								
<b>Item no. TF13TFUCA06</b>									
<b>TFUCA-07</b>		<b>1</b> CHANNEL	<b>1</b> ZONE	<b>COVERAGE</b> 500m <sup>2</sup>	<b>50m</b> CLASS A 30 B 30 C 30	<b>LASER</b> 	<b>24V DC</b>	<b>INDOORS</b> -10°+55°	 <b>IP30</b>
	1 channel 1 zone extraction unit for 25mm ABS pipes Pipe length max. 50m - Classes ABC (30 holes to be sized by Aspire-2 software) - Coverage max. 500sqm - Laser detection chamber - Ultrasonic flow sensing - Dual stage air filter - Sensitivity range 0,025%...20% obs/m - Self-diagnosis function with programmable thresholds - 3 programmable relay outputs - Status LED - Memory with 18,000 events capacity - RS232 port - Max. consumption 490mA - Dimensions (L x H x D) 256 x 183 x 92mm VDS, LPCB, CPD, EN 54-20, UL, ULC, FM								
<b>Item no. TF13TFUCA07</b>									

## Extraction units

<b>TFUCA-08</b>		1 CHANNEL	1 ZONE	COVERAGE 800m <sup>2</sup>	80m CLASS A B C x x 12	LASER	24V DC	INDOORS -10°+55°	IP30
		1 channel 1 zone extraction unit for 25mm ABS pipes Pipe length max. 80m – Class C (12 holes to be sized by Aspire-2 software) – Coverage max. 800sqm – Laser detection chamber – Air flow control – Dual stage air filter – Sensitivity range 0,06%...6% obs/m – Self-diagnosis function with programmable thresholds – 3 programmable relay outputs – Status LED – Max. consumption 245mA – Dimensions (L x H x D) 224 x 225 x 85mm LPCB, CPD, EN 54-20							
		Item no. TF13TFUCA08							
<b>TFUCA-09</b>		1 CHANNEL	1 ZONE	COVERAGE 1600m <sup>2</sup>	110m CLASS A B C x x 18	LASER	24V DC	INDOORS -10°+55°	IP30
		1 channel 1 zone extraction unit for 25mm ABS pipes Pipe length max. 110m – Class C (18 holes to be sized by Aspire-2 software) – Coverage max. 1600sqm – Laser detection chamber – Air flow control – Dual stage air filter – Sensitivity range 0,06%...6% obs/m – Programmable alarm thresholds – 3 programmable relay outputs – Status LED – Max. consumption 245mA – Dimensions (L x H x D) 224 x 225 x 85mm LPCB, CPD, EN 54-20							
		Item no. TF13TFUCA09							
<b>TFUCA-10</b>		2 CHANNELS	1 ZONE	COVERAGE 100m <sup>2</sup>	6m CLASS A B C 4 4 4	LASER	24V DC	INDOORS -10°+55°	IP30
		2 channels 1 zone extraction unit for 25mm ABS pipes Pipe length max. 6m per channel – Classes ABC (4 holes) – Coverage max. 100sqm – Laser detection chamber – Ultrasonic flow sensing – Monitored air filter – Sensitivity range 0,005%...3% obs/m – 3 programmable relay outputs – Status LED – Memory with 1,000 events capacity – Surface or flush mounting – Max. consumption 190mA – Dimensions (L x H x D) 260 x 228 x 110mm LPCB, CPD, EN 54-20, UL, ULC							
		Item no. TF13TFUCA10							
<b>TFUCA-11</b>		1 CHANNEL	1 ZONE	COVERAGE 800m <sup>2</sup>	80m CLASS A B C 30 36 40	LASER	24V DC	INDOORS -10°+55°	IP30
		1 channel 1 zone extraction unit for 25mm ABS pipes Pipe length max. 80m – Classes A (30 holes), B (36 holes), C (40 holes), holes to be sized by Aspire-2 software – Coverage max. 800sqm – Laser detection chamber – Dual stage air filter – Sensitivity range 0,005%...20% obs/m – Self-diagnosis function with programmable thresholds – 3 programmable relay outputs – Status LED – Memory with 12,000 events capacity – RS232 port – Max. consumption 246mA – Dimensions (L x H x D) 225 x 225 x 85mm VDS, LPCB, CPD, EN 54-20, UL, ULC, FM							
		Item no. TF13TFUCA11							
<b>TFUCA-12</b>		4 CHANNELS	1 ZONE	COVERAGE 1600m <sup>2</sup>	200m CLASS A B C 30 60 100	LASER	24V DC	INDOORS -10°+55°	IP30
		4 channels 1 zone extraction unit for 25mm ABS pipes Pipe length max. 200m – Classes A (30 holes), B (60 holes), C (100 holes), holes to be sized by Aspire-2 software – Coverage max. 1600sqm – Laser detection chamber – Dual stage air filter – Sensitivity range 0,005%...20% obs/m – Self-diagnosis function with programmable thresholds – 3 programmable relay outputs – Status LED – Memory with 18,000 events capacity – RS232 port – Max. consumption 390mA – Dimensions (L x H x D) 350 x 225 x 125mm VDS, LPCB, CPD, EN 54-20, UL, ULC, FM							
		Item no. TF13TFUCA12							

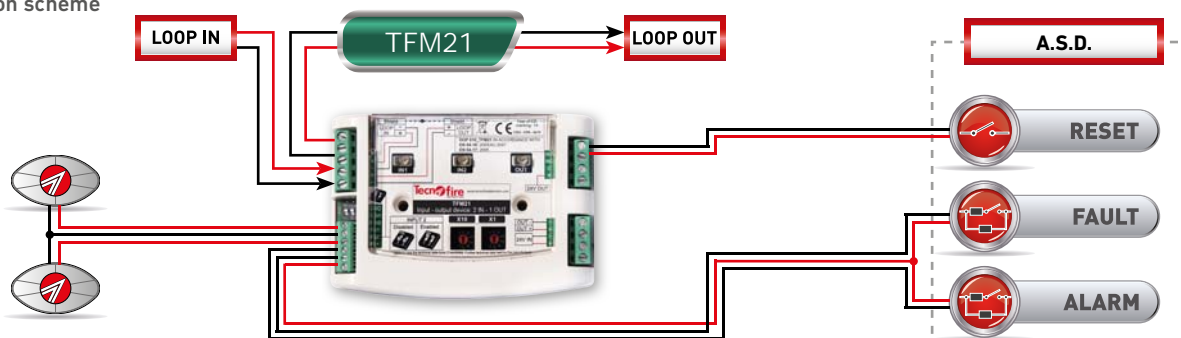
















<b>TFUCA-13</b>		<div>4 CHANNELS</div> <div>1 ZONE</div> <div>COVERAGE 1600m²</div> <div>200m CLASS A 30 B 60 C 100</div> <div>LASER</div> <div>24V DC</div> <div>INDOORS -10°+55°</div> <div>IP30</div>	<p>4 channels 1 zone extraction unit for 25mm ABS pipes Pipe length max. 200m – Classes A (30 holes), B (60 holes), C (100 holes), holes to be sized by Aspire-2 software – Coverage max. 1600sqm – Laser detection chamber – Dual stage air filter – Sensitivity range 0,005%...20% obs/m – Self-diagnosis function with programmable thresholds – 3 programmable relay outputs – Display for status signaling – Memory with 18,000 events capacity – RS232 port – Max. consumption 390mA – Dimensions (L x H x D) 350 x 225 x 125mm VDS, LPCB, CPD, EN 54-20, UL, ULC, FM</p>	Item no. TF13TFUCA13
<b>TFUCA-14</b>		<div>4 CHANNELS</div> <div>4 ZONES</div> <div>COVERAGE 1600m²</div> <div>200m CLASS A 40 B 40 C 60</div> <div>LASER</div> <div>24V DC</div> <div>INDOORS -10°+55°</div> <div>IP30</div>	<p>4 channels 4 zones extraction unit for 25mm ABS pipes Pipe length max. 200m – Classes A (40 holes), B (40 holes), C (60 holes), holes to be sized by Aspire-2 software – Coverage max. 1600sqm – Laser detection chamber – Dual stage air filter – Sensitivity range 0,005%...20% obs/m – Self-diagnosis function with programmable thresholds – 7 programmable relay outputs – Status LED – Memory with 18,000 events capacity – RS232 port – Max. consumption 300mA – Dimensions (L x H x D) 350 x 150 x 85mm VDS, LPCB, CPD, EN 54-20, UL, ULC, FM</p>	Item no. TF13TFUCA14
<b>TFUCA-15</b>		<div>4 CHANNELS</div> <div>4 ZONES</div> <div>COVERAGE 1600m²</div> <div>200m CLASS A 40 B 40 C 60</div> <div>LASER</div> <div>24V DC</div> <div>INDOORS -10°+55°</div> <div>IP30</div>	<p>4 channels 4 zones extraction unit for 25mm ABS pipes Pipe length max. 200m – Classes A (40 holes), B (40 holes), C (60 holes), holes to be sized by Aspire-2 software – Coverage max. 1600sqm – Laser detection chamber – Dual stage air filter – Sensitivity range 0,005%...20% obs/m – Self-diagnosis function with programmable thresholds – 12 programmable relay outputs – Status LED – Memory with 18,000 events capacity – RS232 port – Max. consumption 300mA – Dimensions (L x H x D) 350 x 150 x 85mm VDS, LPCB, CPD, EN 54-20, UL, ULC, FM</p>	Item no. TF13TFUCA15
<b>TFUCA-16</b>		<div>4 CHANNELS</div> <div>4 ZONES</div> <div>COVERAGE 1600m²</div> <div>200m CLASS A 40 B 40 C 60</div> <div>LASER</div> <div>24V DC</div> <div>INDOORS -10°+55°</div> <div>IP30</div>	<p>4 channels 4 zones extraction unit for 25mm ABS pipes Pipe length max. 200m – Classes A (40 holes), B (40 holes), C (60 holes), holes to be sized by Aspire-2 software – Coverage max. 1600sqm – Laser detection chamber – Dual stage air filter – Sensitivity range 0,005%...20% obs/m – Self-diagnosis function with programmable thresholds – 7 programmable relay outputs – Display for status signaling – Memory with 18,000 events capacity – RS232 port – Max. consumption 300mA – Dimensions (L x H x D) 350 x 150 x 85mm VDS, LPCB, CPD, EN 54-20, UL, ULC, FM</p>	Item no. TF13TFUCA16
<b>TFUCA-17</b>		<div>4 CHANNELS</div> <div>4 ZONES</div> <div>COVERAGE 1600m²</div> <div>200m CLASS A 40 B 40 C 60</div> <div>LASER</div> <div>24V DC</div> <div>INDOORS -10°+55°</div> <div>IP30</div>	<p>4 channels 4 zones extraction unit for 25mm ABS pipes Pipe length max. 200m – Classes A (40 holes), B (40 holes), C (60 holes), holes to be sized by Aspire-2 software – Coverage max. 1600sqm – Laser detection chamber – Dual stage air filter – Sensitivity range 0,005%...20% obs/m – Self-diagnosis function with programmable thresholds – 12 programmable relay outputs – Display for status signaling – Memory with 18,000 events capacity – RS232 port – Max. consumption 300mA – Dimensions (L x H x D) 350 x 150 x 85mm VDS, LPCB, CPD, EN 54-20, UL, ULC, FM</p>	Item no. TF13TFUCA17

## Extraction units

<b>TFUCA-18</b>	       
	<p>4 channels 1 zone extraction unit for 25mm ABS pipes, especially suitable for industrial applications with a high exposure to vapors and dust            Pipe length max. 360m – Classes A (24 holes), B (28 holes), C (60 holes), holes to be sized by Aspire-2 software – Coverage max. 1600sqm – Laser detection chamber – Ultrasonic flow sensing – Patent-registered dual stage air filter with anti-fluff – Sensitivity range 0,005%...20% obs/m – Self-diagnosis function with programmable thresholds – 5 programmable relay outputs – Status LED – Memory with 18,000 events capacity – USB port – BACnet Ethernet port – Max. consumption 440mA – Dimensions (L x H x D) 427 x 317 x 180mm            VDS, LPCB, CPD, EN 54-20, UL, ULC, FM</p>
	Item no. TF13TFUCA18
<b>TFUCA-04</b>	       
	<p>4 channels 4 zones extraction unit for 25mm ABS pipes            Pipe length max. 800m – Class A (80 holes) – Coverage max. 2000sqm – Laser detection chamber – Ultrasonic flow sensing – Sensitivity range 0,0002%...20% obs/m – 7 programmable relay outputs – Status LED – USB, TCP/IP, WIFI ports – Max. consumption 700mA – Operating temperature ambient 0°C...+39°C, sampled air -20°C...+60°C – Dimensions (L x H x D) 350 x 225 x 135mm            VDS, CPD, EN 54-20, UL, ULC</p>
	Item no. TF13TFUCA04
<b>TFUCA-05</b>	        
	<p>4 channels 4 zones extraction unit for 25mm ABS pipes            Pipe length max. 800m – Class A (80 holes) – Coverage max. 2000sqm – Laser detection chamber – Ultrasonic flow sensing – Sensitivity range 0,0002%...20% obs/m – 7 programmable relay outputs – 3.5 inch touch screen – USB, TCP/IP, WIFI ports – Max. consumption 700mA – Operating temperature ambient 0°C...+39°C, sampled air -20°C...+60°C – Dimensions (L x H x D) 350 x 225 x 135mm            VDS, CPD, EN 54-20, UL, ULC</p>
	Item no. TF13TFUCA05

Connection scheme





















	<p><b>TFTB-25</b></p> <p>ABS pipe – External diameter 25mm – Length 3000mm – Thickness 1.9mm – PN16 red color</p> <p>Item no. TF13TFTB25</p>		<p><b>TFMN-25</b></p> <p>ABS collar – External diameter 25mm – Thickness 1.9mm – PN16 red color (sold in packs of 10)</p> <p>Item no. TF13TFMN25</p>
	<p><b>TFCR-25 90</b></p> <p>ABS bent pipe – 90° – External diameter 25mm – Thickness 1.9mm – PN16 red color (sold in packs of 10)</p> <p>Item no. TF13TFCR2590</p>		<p><b>TFCR-25 45</b></p> <p>ABS bent pipe – 45° – External diameter 25mm – Thickness 1.9mm – PN16 red color (sold in packs of 10)</p> <p>Item no. TF13TFCR2545</p>
	<p><b>TFTP-25</b></p> <p>ABS end cap – External diameter 25mm – Thickness 1.9mm – PN16 red color (sold in packs of 10)</p> <p>Item no. TF13TFTP25</p>		<p><b>TFTEE-25</b></p> <p>ABS T-joint – External diameter 25mm – Thickness 1.9mm – PN16 red color (sold in packs of 10)</p> <p>Item no. TF13TFTEE25</p>
	<p><b>TFST-25</b></p> <p>Bracket for ABS pipes – External diameter 25mm – Thickness 1.9mm – PN16 red color (sold in packs of 20)</p> <p>Item no. TF13TFST25</p>		<p><b>TFDTC-25</b></p> <p>ABS T-joint with flexible pipe and PVC washer with standard 2mm hole – Joint: external diameter 25mm, thickness 1.9mm – Pipe: external diameter 100mm, length 30mm</p> <p>Item no. TF13TFDTC25</p>
	<p><b>TFTB-10</b></p> <p>Rilsan® pipe – Internal diameter 10mm – Red color – 100m hanks</p> <p>Item no. TF13TFTB10</p>		<p><b>TFTB-25F30</b></p> <p>Flexible pipe with coupling links – External diameter 25mm – Length 300mm</p> <p>Item no. TF13TFTB25F30</p>
	<p><b>TFTB-25F100</b></p> <p>Flexible pipe with coupling links – External diameter 25mm – Length 1000mm</p> <p>Item no. TF13TFTB25F100</p>		<p><b>TFCLA</b></p> <p>Adhesive for PVC and ABS – 500ml bottle</p> <p>Item no. TF13TFCL</p>
	<p><b>TFFT-25EN</b></p> <p>External filter with exchangeable cartridge for air extraction units – Suitable for areas with high exposure to dust – Diameter 25mm – Red color – EN 54-20</p> <p>Item no. TF13TFFT25EN</p>		<p><b>TFFT-25ENS</b></p> <p>Refill for external filter TFFT-25EN (sold in packs of 4)</p> <p>Item no. TF13TFFT25ENS</p>

The accessories for extraction units are characterized by a good resistance to shocks and chemical agents. They can be used with operating temperatures from -40°C to +70°C. They have been produced in line with the quality system EN ISO 9001 and are compliant to BS 5391-1 and EN 1452-3. They have been certified by LPCB to EN 54-20 clause 5.7, EN 61386-1 class 1131.

# Linear smoke detectors





The range of linear smoke detectors includes models with reflective or point-to-point infrared light and point-to-point or multi-point configurations. All the detectors are equipped with an integrated automated laser pointer.

TFBD-OS	     	
	<p>Linear-type optical smoke detector with point-to-point infrared or UV light The system can be composed of a receiver and up to 7 transmitters. The multi-point configuration increases significantly the detection capacity. Range 6 to 150m depending on the reception angle and the transmission power – Great configuration flexibility and adaptability to architectural requirements – Sophisticated algorithm of the receiver permits the mapping and control of signals coming from the transmitters – Easy installation and alignment thanks to a wide reception angle of the receiver and great orientation facilities – Easy setting through dip-switch – Dynamic compensation of the deterioration of sensitivity due to dust deposits – Good vibration and alignment tolerance – High false alarm immunity – Optional self-powered transmitter TFBD-OSE SP for alignment FM, UL, VDS, NF, CPD, EN 54-12 – Certification number 0333-CPD-075387</p>	
TFBD-OSI 10	<p>Receiver for standard transmitters – Range 30 to 150m – Reception angle 7° horizontal, 4° vertical</p> <p>Item no. TF9TFBDOSI10</p>	  
TFBD-OSI 45	<p>Receiver for operating with maximum 7 transmitters – Range 11 to 60m or 22 to 120m according to transmitter type – Reception angle 38° horizontal, 19° vertical</p> <p>Item no. TF9TFBDOSI45</p>	 <div>CORREZIONE 02-02-17</div>
TFBD-OSI 90	<p>Receiver for operating with maximum 7 transmitters – Range 6 to 34m or 12 to 68m according to transmitter type – Reception angle 80° horizontal, 48° vertical</p> <p>Item no. TF9TFBDOSI90</p>	   
TFBD-OSE SP	<p>Standard power transmitter – Lithium battery (5 years autonomy)</p> <p>Item no. TF9TFBD0SESP</p>	 
TFBD-OSE SPW	<p>Standard power transmitter – External 24V DC power supply</p> <p>Item no. TF9TFBD0SESPW</p>	 
TFBD-OSE HPW	<p>High power transmitter for multi-point configurations – External 24V DC power supply</p> <p>Item no. TF9TFBD0SEHPW</p>	 

<b>TFBD-5000 50</b>								
	<p>Linear-type optical smoke detector with reflective infrared light The system is composed of a controller wired to a receiver-transmitter and a reflection panel. The controller can be installed remotely, the electrical connection between the controller and the receiver-transmitter is made with 2 wires. It is possible to connect a second receiver-transmitter to double the detection area. Independent functional settings as well as alarm and failure outputs for each pair – Programmable sensitivity – Range 5 to 50m – Integrated automated laser pointer – Dynamic compensation of the deterioration of sensitivity due to dust deposits – Automatic compensation of misalignment due to structural sinking – Good vibration tolerance – High false alarm immunity FM, UL, VDS, NF, CPR, EN 54-12 – Certification number 0832-CPR-F0390</p>							
<b>Item no. TF9TFBD500050</b>								
<b>TFBDT-5000 50</b>	Additional receiver-transmitter for TFBD-5000 50							
<b>Item no. TF9TFBDT500050</b>								
<b>TFBD-5000 100</b>								
	<p>Linear-type optical smoke detector with reflective infrared light The system is composed of a controller wired to a receiver-transmitter and a reflection panel. The controller can be installed remotely, the electrical connection between the controller and the receiver-transmitter is made with 2 wires. It is possible to connect a second receiver-transmitter to double the detection area. Independent functional settings as well as alarm and failure outputs for each pair – Programmable sensitivity – Range 50 to 100m – Integrated automated laser pointer – Dynamic compensation of the deterioration of sensitivity due to dust deposits – Automatic compensation of misalignment due to structural sinking – Good vibration tolerance – High false alarm immunity FM, UL, VDS, NF, CPR, EN 54-12 – Certification number 0832-CPR-F0390</p>							
<b>Item no. TF9TFBD5000100</b>								
<b>TFBDT-5000 100</b>	Additional receiver-transmitter – TFBD-5000 100							
<b>Item no. TF9TFBDT5000100</b>								
<b>TFBD-50 50</b>								
	<p>Linear-type optical smoke detector with reflective infrared light The system is composed of a receiver-transmitter and a reflection panel. Programmable sensitivity (3 settings) – Range 5 to 50m – Manual alignment – Good vibration tolerance – High false alarm immunity VDS, CPD, EN 54-12 – Certification number 0786-CPD-20045</p>							
<b>Item no. TF9TFBD5050</b>								
<b>TFBD-50 100</b>								
	<p>Linear-type optical smoke detector with reflective infrared light The system is composed of a receiver-transmitter and a reflection panel. Programmable sensitivity (3 settings) – Range 50 to 100m – Manual alignment – Good vibration tolerance – High false alarm immunity VDS, CPD, EN 54-12 – Certification number 0786-CPD-20045</p>							
<b>Item no. TF9TFBD50100</b>								

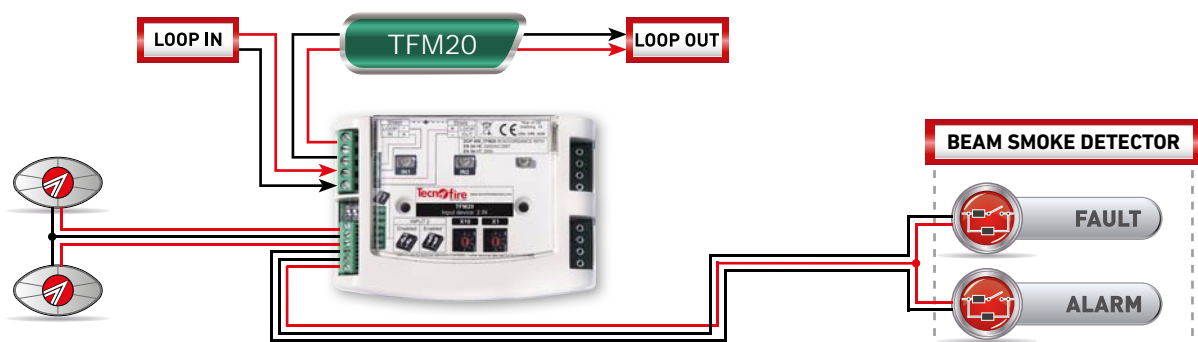


## Linear smoke detectors

<b>TFBD-EX</b>		END TO END RX—TX	RANGE 10÷100m	24V DC	OUTDOORS -20°+55°	EEx-d IP66
	<p>Linear-type optical smoke detector with point-to-point infrared light The system is composed of a controller and a pair of infrared receiver and transmitter. The controller can be installed remotely, the electrical connection between the controller and the receiver or the transmitter is made with 2 wires. Programmable sensitivity – Adjustable range 10 to 100m – Dynamic compensation of the deterioration of sensitivity due to dust deposits – Good vibration and alignment tolerance – High false alarm immunity – Optional alignment tool and swivel mounting bracket ATEX, EN 54-12 – Certification number 0786-CPD-20196</p> <p><b>Item no. TF9TFBDEX</b></p>					
<b>TFBD-3000 120</b>		LASER 	END TO END RX—TX	RANGE 5 ÷ 120m	24V DC	INDOORS -10°+55°  IP54
	<p>Linear-type optical smoke detector with point-to-point infrared light The system is composed of a controller and a pair of infrared receiver and transmitter. The controller can be installed remotely, the electrical connection between the controller and the receiver or the transmitter is made with 2 wires. It is possible to connect a second pair of receiver and transmitter to double the detection area. Independent functional settings as well as alarm and failure outputs for each pair – Programmable sensitivity – Adjustable range 5 to 120m – Integrated laser pointer – Dynamic compensation of the deterioration of sensitivity due to dust deposits – Good vibration and alignment tolerance – High false alarm immunity VDS, CPD, UL, EN 54-12 – Certification number 0786-CPD-21162</p> <p><b>Item no. TF9TFBD3000120</b></p>					
<b>TFBDT-3000 120</b>	Additional pair of receiver and transmitter for TFBD-3000 120	TX RX EXTRA PAIR	RANGE 5 ÷ 120m	<b>Item no. TF9TFBDT3000120</b>		

**CORREZION**  
02-02-1

Connection scheme







A comprehensive range of gas detectors is available for the detection of toxic, flammable and refrigerant gases in the indoors, outdoors and even in high-risk environments


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## TOXIC GAS DETECTORS

TFDG-EXD		<div><div>TOXIC GAS</div><div>ELECTRO-CHEMICAL CELL</div><div>ZONE 1 CATEGORY 2</div><div>OUTPUTS 4-20mA and CONTACT</div><div>12V DC ÷ 24V DC</div><div>INDOORS OR OUTDOORS -20°+50°</div><div>EX ATEX IP65</div><div>ALUMINUM BOX</div></div>			
		<p>Gas detector with electrochemical cell and proportional 4-20mA output for zone 1 category 2</p> <p>Operating pressure 80KPa...110KPa – Max. air velocity &lt;6m/s – Zero tracking and self-test – Plug-in calibration tool – Optional 3-relay board (to be mounted inside the casing) – Operating voltage 12V...24V DC – Max. consumption 70mA @ 12V – Die-cast aluminum casing – Dimensions (L x H x D) 130 x 155 x 90mm</p> <p>ATEX EXD II2G, SIL1, EMC EN 50270:2011, EN 61000</p>			










GAS	MODEL	ITEM NO.	GAS	MODEL	ITEM NO.
Toxic Ammonia	TFDG-EXD AMCT	TF10TFDGMCTEXD	Carbon Monoxide	TFDG-EXD COE	TF10TFDGC0EEXD
Hydrogen Sulfide	TFDG-EXD IDS	TF10TFDGIDSEXD	Oxygen	TFDG-EXD OXG	TF10TFDGOXGEXD
Nitric Oxide	TFDG-EXD MDA	TF10TFDGMDAEXD			

TFDG-EXN				<div>TOXIC GAS</div>		<div>ELECTRO-CHEMICAL CELL</div>		<div>ZONE 2 CATEGORY 3</div>		<div>OUTPUTS 4-20mA and CONTACT</div>		<div>12V DC ÷ 24V DC</div>		<div>INDOORS OR OUTDOORS -20°+50°</div>		<div>Ex ATEX IP55</div>		<div>ALUMINUM BOX</div>	
		<p>Gas detector with electrochemical cell and proportional 4-20mA output for zone 2 category 3 Operating pressure 80KPa...110KPa – Max. air velocity &lt;6m/s – Zero tracking and self-test – Plug-in calibration tool – Optional 3-relay board (to be mounted inside the casing) – Operating voltage 12V...24V DC – Max. consumption 70mA @ 12V – Die-cast aluminum casing – Dimensions (L x H x D) 106 x 170 x 65mm ATEX EXN II3G, SIL1, EMC EN 50270:2011, EN 61000</p>																	
GAS		MODEL		ITEM NO.		GAS		MODEL		ITEM NO.									
Toxic Ammonia		TFDG-EXN AMC		TF10TFDGMCEXN		Carbon Monoxide		TFDG-EXN COE		TF10TFDGC0EEXN									
Ethylene		TFDG-EXN ETL		TF10TFDGETLEXN		Oxygen		TFDG-EXN OXG		TF10TFDGOXGEXN									
Hydrogen Sulfide		TFDG-EXN IDS		TF10TFDGIDSEXN															










TFDG-PK			<div><div>TOXIC GAS</div><div>ELECTRO-CHEMICAL CELL</div><div>OUTPUTS 4-20mA and CONTACT</div><div>12V DC ÷ 24V DC</div><div>INDOORS -10°+60°</div><div>IP55</div><div>ALUMINUM BOX</div></div>														
			<p>Gas detector with electrochemical cell and proportional 4-20mA output Zero tracking and self-test – Plug-in calibration tool – Optional 3-relay board (to be mounted inside the casing) – Operating voltage 12V...24V DC – Max. consumption 40mA @ 12V – Operating temperature -10°C...+60°C – IP55 – Die-cast aluminum casing – Dimensions (L x H x D) 100 x 180 x 65mm EMC EN 50270:2011, EN 61000</p>														
GAS			MODEL			ITEM NO.			GAS			MODEL			ITEM NO.		
Nitrogen Dioxide			TFDG-PK BDA			TF10TFDGBDAPK			Carbon Monoxide			TFDG-PK COE			TF10TFDGC0ECPK		
Carbon Dioxide			TFDG-PK CO2			TF10TFDGC02PK											

## Gas detectors









### FLAMMABLE GAS DETECTORS

<b>TFDG-EXD</b>	       
	<p>Catalytic gas detector with proportional 4-20mA output for zone 1 category 2            Operating pressure 80KPa...110KPa – Max. air velocity <math>\leq 6\text{m/s}</math> – Zero tracking and self-test –            Plug-in calibration tool – Optional 3-relay board (to be mounted inside the casing) –            Operating voltage 12V...24V DC – Max. consumption 130mA @ 12V – Die-cast aluminum casing –            Dimensions (L x H x D) 130 x 155 x 90mm            ATEX EXD II2G, SIL1, EMC EN 50270:2011, EN 61000</p>





GAS	MODEL	ITEM NO.	GAS	MODEL	ITEM NO.
Butyl Acetate	<b>TFDG-EXD ADB</b>	TF10TFDGA DBEXD	Diethyl Ether	<b>TFDG-EXD ETE</b>	TF10TFDGETEEXD
Ethyl Acetate	<b>TFDG-EXD ADE</b>	TF10TFDGA DEEXD	Ethylene	<b>TFDG-EXD ETL</b>	TF10TFDGETLEXD
Vinyl Acetate	<b>TFDG-EXD ADV</b>	TF10TFDGA DVEEXD	LPG	<b>TFDG-EXD GPL</b>	TF10TFDGGPLEX
Acetylene	<b>TFDG-EXD ACL</b>	TF10TFDGA CLEXD	Hydrogen	<b>TFDG-EXD IDR</b>	TF10TFDGIDREX
Acetone	<b>TFDG-EXD ACT</b>	TF10TFDGA CTXEXD	Iso Butane	<b>TFDG-EXD IBT</b>	TF10TFDGIBTEXD
Acetic Acid	<b>TFDG-EXD ACA</b>	TF10TFDGA CAEXD	Iso Pentane	<b>TFDG-EXD IPT</b>	TF10TFDGIPTXEXD
Butyl Alcohol	<b>TFDG-EXD ALB</b>	TF10TFDGA LBEXD	Jet Propellant Type 8	<b>TFDG-EXD JP8</b>	TF10TFDGJP8EXD
Ethyl Alcohol	<b>TFDG-EXD AET</b>	TF10TFDGA ETXEXD	Methane	<b>TFDG-EXD MET</b>	TF10TFDGMETEXD
Iso Butyl Alcohol	<b>TFDG-EXD AIB</b>	TF10TFDGA IBEXD	Methyl Ethyl Ketone	<b>TFDG-EXD MKT</b>	TF10TFDGMKTXEXD
Iso Propyl Alcohol	<b>TFDG-EXD AIP</b>	TF10TFDGA IPXEXD	Nonane	<b>TFDG-EXD NON</b>	TF10TFDGNONEXD
Propyl Alcohol	<b>TFDG-EXD APR</b>	TF10TFDGA PREX	Ethylene Oxide	<b>TFDG-EXD ODE</b>	TF10TFDGO DEEXD
Ammonia	<b>TFDG-EXD AMC</b>	TF10TFDGA MCXEXD	Pentane	<b>TFDG-EXD PTN</b>	TF10TFDGP TNEXD
Benzene	<b>TFDG-EXD BNZ</b>	TF10TFDGB NZEXD	Propane	<b>TFDG-EXD PRP</b>	TF10TFDGPRP EXD
Butane	<b>TFDG-EXD BTN</b>	TF10TFDGB TNEXD	Propylene	<b>TFDG-EXD PRL</b>	TF10TFDGPRLEXD
Cyclohexane	<b>TFDG-EXD CES</b>	TF10TFDGC SEEXD	Styrene	<b>TFDG-EXD STN</b>	TF10TFDGSTNEXD
Cyclopentane	<b>TFDG-EXD CPT</b>	TF10TFDGC PTXEXD	Toluene	<b>TFDG-EXD TOL</b>	TF10TFDGTOL EXD
Heptane	<b>TFDG-EXD EPT</b>	TF10TFDGE PTXEXD	Tri Methylbenzene	<b>TFDG-EXD TMB</b>	TF10TFDGTMBEXD
Hexane	<b>TFDG-EXD ESN</b>	TF10TFDGE SNEXD	Patrol Vapors	<b>TFDG-EXD VDB</b>	TF10TFDGV DBEXD
Ethane	<b>TFDG-EXD ETN</b>	TF10TFDGE TNEXD	Xylene	<b>TFDG-EXD XLN</b>	TF10TFDGLNEXD

<b>TFDG-EXN</b>	       
	<p>Catalytic gas detector with proportional 4-20mA output for zone 2 category 3            Operating pressure 80KPa...110KPa – Max. air velocity <math>\leq 6\text{m/s}</math> – Zero tracking and self-test –            Plug-in calibration tool – Optional 3-relay board (to be mounted inside the casing) –            Operating voltage 12V...24V DC – Max. consumption 130mA @ 12V – Die-cast aluminum casing –            Dimensions (L x H x D) 106 x 170 x 65mm            ATEX EXN II3G, SIL1, EMC EN 50270:2011, EN 61000</p>


GAS	MODEL	ITEM NO.	GAS	MODEL	ITEM NO.
Butane	<b>TFDG-EXN BTN</b>	TF10TFDGB TNEXN	Propane	<b>TFDG-EXN PRP</b>	TF10TFDGPRP EXN
LPG	<b>TFDG-EXN GPL</b>	TF10TFDGG PLEXN	Patrol Vapors	<b>TFDG-EXN VDB</b>	TF10TFDGV DBEXN
Methane	<b>TFDG-EXN MET</b>	TF10TFDGM ETXEXN			

<b>TFDG-PK</b>	      
	<p>Catalytic gas detector with proportional 4-20mA output            Zero tracking and self-test – Plug-in calibration tool – Optional 3-relay board (to be mounted inside the casing) –            Operating voltage 12V...24V DC – Max. consumption 90mA @ 12V –            Operating temperature -10°C...+60°C – IP55 – Die-cast aluminum casing –            Dimensions (L x H x D) 100 x 180 x 65mm            EMC EN 50270:2011, EN 61000</p>

GAS	MODEL	ITEM NO.	GAS	MODEL	ITEM NO.
LPG	<b>TFDG-PK GPL</b>	TF10TFDGG PLPK	Patrol Vapors	<b>TFDG-PK VDB</b>	TF10TFDGV DBPK
Methane	<b>TFDG-PK MET</b>	TF10TFDGMETPK			

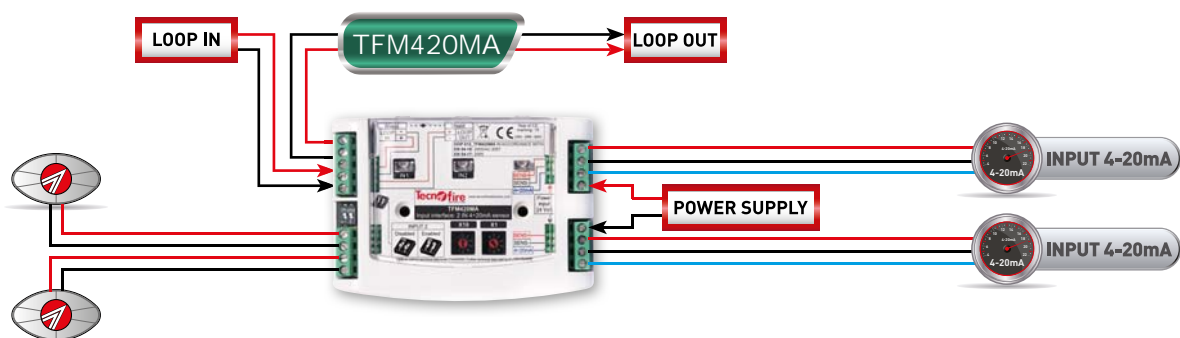
TFDGR-IP MET		<div><div>FLAMMABLE  GAS</div><div>CATALYTIC DETECTOR</div><div>OUTPUTS 4-20mA and CONTACT</div><div>24V DC</div><div>INDOORS -10°+50°</div><div> IP65</div><div> ABS V0 BOX</div></div>						
		<p>Catalytic gas detector with proportional 4-20mA output, free changeover relay and 0%...30% LEL catalytic sensor</p> <p>High selectivity and resistance to unburned gases or vapors at industrial sites –</p> <p>Power supply 24V DC – Max. consumption 50mA @ 12V – Operating temperature -10°C...+50°C –</p> <p>Surface mounting on the wall at approx. 30cm height or on the ceiling – IP65 – Casing ABS V0 –</p> <p>Dimensions (L x H x D) 115 x 80 x 55mm</p> <p>EN 50270</p>						
GAS	MODEL	ITEM NO.						
Methane	TFDGR-IP MET	TF10TFDGRMETIP						

## REFRIGERANT GAS DETECTORS

TFDG-EXD		<div><div>REFRIGERANT GAS</div><div>INFRARED DETECTOR</div><div>ZONE 1 CATEGORY 2</div><div>OUTPUTS 4-20mA and CONTACT</div><div>12V DC ÷ 24V DC</div><div>INDOORS OR OUTDOORS -20°+50°</div><div>ATEX IP65</div><div>ALUMINUM BOX</div></div>					
		Infrared gas detector with proportional 4-20mA output for zone 1 category 2 and 0/2000ppm infrared sensor - Operating pressure 80KPa...110KPa - Max. air velocity <6m/s – Zero tracking and self-test - Plug-in calibration tool - Optional 3-relay board (to be mounted inside the casing) - Operating voltage 12V...24V DC - Max. consumption 70mA @ 12V - Die-cast aluminum casing - Dimensions (L x H x D) 106 x 170 x 65mm ATEX EXD II2G, SIL1, EMC EN 50270:2011, EN 61000					

GAS	MODEL	ITEM NO.	GAS	MODEL	ITEM NO.
SF6	TFDG-EXD SF6	TF10TFDGSF6EXD	R404A	TFDG-EXD R404A	TF10TFDGR404EXD
R1234YF	TFDG-EXD R1234YF	TF10TFDGR123EXD	R407A	TFDG-EXD R407A	TF10TFDGR407EXD
R125	TFDG-EXD R125	TF10TFDGR125EXD	R507	TFDG-EXD R507	TF10TFDGR507EXD
R134A	TFDG-EXD R134A	TF10TFDGR134EXD			






















Connection scheme



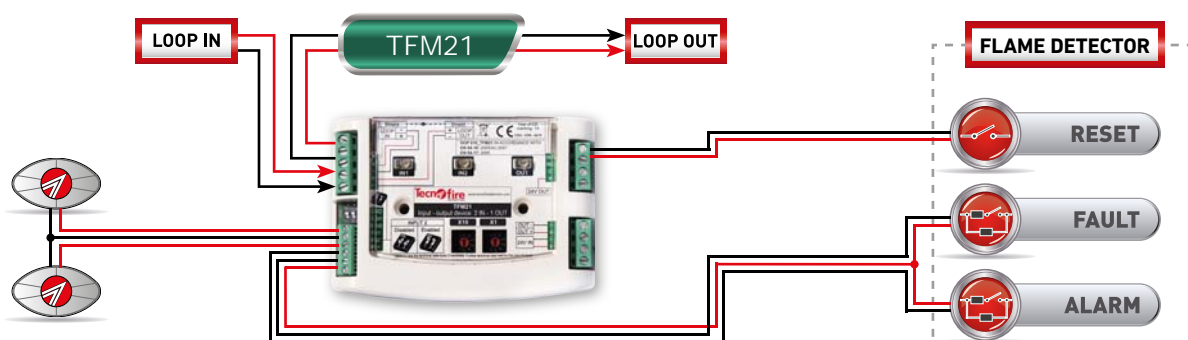
# Optical flame detectors






The range of optical flame detectors offers models with multi-point infrared or dual technology (UV + IR) configurations. The detectors are suitable for indoor and outdoor use and even for use in environments with high risk of explosion.

<b>TFDF-EX IR2</b>	     
	<p>Dual infrared (IR2) flame detector Operating range 0.75μm...2.7μm – Outputs: proportional 4-20mA, alarm relay and failure relay – High immunity to light interference – High smoke, vapor and dust tolerance – Programmable response time and sensitivity – Self test – Operating voltage 14V...30V DC – Stand-by consumption 8mA – Operating temperature -10°C...+55°C – EXD – IP66 – Aluminum casing – Dimensions (L x H x D) 146 x 150 x 137mm SIL2, ATEX, EN 54-10 – Certification number 0832-CPR-F0577</p>
	<b>Item no. TF14TFDFIR2EX</b>
<b>TFDF-EX IR3</b>	     
	<p>Triple infrared (IR3) flame detector Operating range 0.75μm...2.7μm – Outputs: proportional 4-20mA, alarm relay and failure relay – High immunity to light interference – High smoke, vapor and dust tolerance – Programmable response time and sensitivity – Self test – Operating voltage 14V...30V DC – Stand-by consumption 8mA – Operating temperature -10°C...+55°C – EXD – IP66 – Aluminum casing – Dimensions (L x H x D) 146 x 150 x 137mm SIL2, ATEX, EN 54-10 – Certification number 0832-CPR-F0578</p>
	<b>Item no. TF14TFDFIR3EX</b>
<b>TFDF-EX UVIR2</b>	     
	<p>UV and dual infrared (IR2) flame detector Operating ranges UV 185nm...260nm, infrared 1μm...2.7μm – Outputs: proportional 4-20mA, alarm relay and failure relay – High immunity to light interference – High smoke, vapor and dust tolerance – Programmable response time and sensitivity – Self test – Operating voltage 14V...30V DC – Stand-by consumption 8mA – Operating temperature -10°C...+55°C – EXD – IP66 – Aluminum casing – Dimensions (L x H x D) 146 x 150 x 137mm SIL2, ATEX, EN 54-10 – Certification number 0832-CPR-F0579</p>
	<b>Item no. TF14TFDFUVIR2EX</b>

## Connection scheme





TFDF IR2		Dual infrared (IR2) flame detector Operating range 0.75µm...2.7µm – Outputs: proportional 4-20mA, alarm relay and failure relay – High immunity to light interference – High smoke, vapor and dust tolerance – Programmable response time and sensitivity – Self test – Operating voltage 14V...30V DC – Stand-by consumption 8mA – Operating temperature -10°C...+55°C – IP66 – Aluminum casing – Dimensions (L x H x D) 108 x 142 x 82mm SIL2, EN 54-10 – Certification number 0832-CPR-F0582
Item no. TF14TFDFIR2		
TFDF IR3		Triple infrared (IR3) flame detector Operating range 0.75µm...2.7µm – Outputs: proportional 4-20mA, alarm relay and failure relay – High immunity to light interference – High smoke, vapor and dust tolerance – Programmable response time and sensitivity – Self test – Operating voltage 14V...30V DC – Stand-by consumption 8mA – Operating temperature -10°C...+55°C – IP66 – Aluminum casing – Dimensions (L x H x D) 108 x 142 x 82mm SIL2, EN 54-10 – Certification number 0832-CPR-F0583
Item no. TF14TFDFIR3		
TFDF UVIR2		UV and dual infrared (IR2) flame detector Operating ranges UV 185nm...260nm, infrared 1µm...2.7µm – Outputs: proportional 4-20mA, alarm relay and failure relay – High immunity to light interference – High smoke, vapor and dust tolerance – Programmable response time and sensitivity – Self test – Operating voltage 14V...30V DC – Stand-by consumption 8mA – Operating temperature -10°C...+55°C – IP66 – Aluminum casing – Dimensions (L x H x D) 108 x 142 x 82mm SIL2, EN 54-10 – Certification number 0832-CPR-F0584
Item no. TF14TFDFUVIR2		







#### OPTICAL FLAME DETECTORS - Accessories

	<b>TFDF-SSAM</b> Mounting bracket adjustable on 2 axes for TFDF series detectors <b>Item no. TF14TFDFSSAM</b>		<b>TFDF-WSSS</b> Protection plate for TFDF-EX series detectors <b>Item no. TF14TFDFWSSS</b>
	<b>TFDF-SSWS</b> Protection plate for TFDF series detectors <b>Item no. TF14TFDFSSWS</b>		<b>TFDF-FT</b> Tester for TFDF and TFDF-EX series detectors <b>Item no. TF14TFDFFT</b>

# Electromagnetic door holders




A comprehensive range of electromagnetic fire door holders is available including heavy-duty models and those with automatic release.

<b>TFEM-50</b>		HOLDING FORCE 50Kg	WALL MOUNTING	24V DC	INDOORS -10°+55°	IP40
	Electromagnetic fire door holder with emergency release and cushioned armature Built-in release spring – Holding force 50kg – Power supply voltage 24V DC – Max. consumption 45mA – Surface wall mounting – Casing ABS V0 – Dimensions (L x H x D) 70 x 106 x 45mm EN 1155 – Certification number 0407-CPD-065	Item no. TF8TFEM50				
<b>TFEMR-50</b>		HOLDING FORCE 50Kg	SMALL SIZE	WALL MOUNTING	24V DC	INDOORS -10°+55° IP40
	Small-sized electromagnetic fire door holder with emergency release and cushioned armature Built-in release spring – Holding force 50kg – Power supply voltage 24V DC – Max. consumption 45mA – Surface wall mounting – Casing ABS V0 – Dimensions (L x H x D) 65 x 92 x 36mm EN 1155 – Certification number 0407-CPD-065	Item no. TF8TFEMR50				
<b>TFEMR-100</b>		HOLDING FORCE 100Kg	SMALL SIZE	WALL MOUNTING	24V DC	INDOORS -10°+55° IP40
	Small-sized electromagnetic fire door holder with emergency release and cushioned armature Built-in release spring – Holding force 100kg – Power supply voltage 24V DC – Max. consumption 100mA – Surface wall mounting – Casing ABS V0 – Dimensions (L x H x D) 65 x 92 x 41mm EN 1155 – Certification number 0407-CPD-065	Item no. TF8TFEMR100				
<b>TFEMS-50 150</b>		HOLDING FORCE 50Kg	WALL OR FLOOR MOUNTING	24V DC	INDOORS -10°+55°	IP40
	Electromagnetic fire door holder with emergency release and cushioned armature Built-in release spring – Holding force 50kg – Power supply voltage 24V DC – Max. consumption 45mA – Surface wall mounting or floor mounting – Mounting bracket with adjustable reach 127mm...157mm – Casing ABS V0 – Dimensions (L x H x D) 120 x 120 x 180...210mm EN 1155 – Certification number 0407-CPD-065	Item no. TF8TFEMS50150				
<b>TFEMS-50 300</b>		HOLDING FORCE 50Kg	WALL OR FLOOR MOUNTING	24V DC	INDOORS -10°+55°	IP40
	Electromagnetic fire door holder with emergency release and cushioned armature Built-in release spring – Holding force 50kg – Power supply voltage 24V DC – Max. consumption 45mA – Surface wall mounting or floor mounting – Mounting bracket with adjustable reach 277mm...307mm – Casing ABS V0 – Dimensions (L x H x D) 120 x 120 x 330...360mm EN 1155 – Certification number 0407-CPD-065	Item no. TF8TFEMS50300				
<b>TFEMP-50</b>		HOLDING FORCE 50Kg	FLOOR MOUNTING	24V DC	INDOORS -10°+55°	IP40
	Electromagnetic fire door holder with emergency release and cushioned armature Built-in release spring – Holding force 50kg – Power supply voltage 24V DC – Max. consumption 45mA – Floor mounting – Casing ABS V0 – Dimensions (L x H x D) 109 x 100 x 92mm EN 1155 – Certification number 0407-CPD-065	Item no. TF8TFEMP50				









## HEAVY-DUTY DOOR HOLDERS

<b>TFEM-300</b>	<div><div><div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div></div> <div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div></div> 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## HEAVY-DUTY DOOR HOLDERS - Accessories

	<b>TFEMS-30</b> L-Bracket for vertical mounting on door frames – Anodized aluminum – Length 25mm  Item no. TF8TFEMS300
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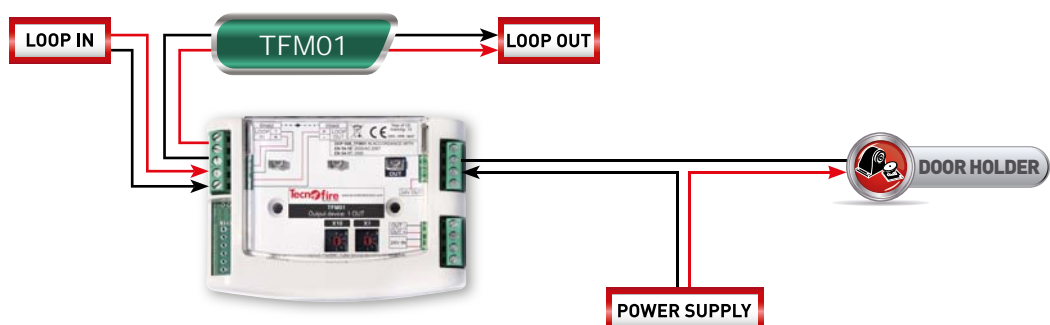
## DOOR HOLDERS WITH AUTOMATIC RELEASE

<b>TFEMFS-50</b>							
	<p>Electromagnetic fire door holder with automatic release (adjusted to 70°) Built-in release spring – Holding force 50kg – Adjustable drawing force (4...12kg) – Power supply voltage 24V DC – Max. consumption 60mA – Wall or floor mounting – Casing satin-finished stainless steel – Dimensions (Ø x H) 90 x 40mm EN 1155 – Certification number 0407-CPD-095</p>						
<b>Item no. TF8TFEMFS50</b>							

## DOOR HOLDERS WITH AUTOMATIC RELEASE - Accessories

	<b>TFEMFS-CS4</b> Hinged and cushioned armature – Length 40mm  Item no. TF8TFEMFSCS4		<b>TFEMFS-CS8</b> Hinged and cushioned armature – Length 80mm  Item no. TF8TFEMFSCS8
	<b>TFEMFS-EM</b> Spacer for telescopic holder  Item no. TF8TFEMFSEM		<b>TFEMFS-STM</b> Telescopic holder for wall or floor mounting – Satin-finished stainless steel  Item no. TF8TFEMFSSTM

### Connection scheme



The cables are made of Low Smoke Zero Halogen (LSZH) materials and resist to fire for either 120 minutes (PH120) or 30 minutes (PH30) as prescribed for fixed Automatic Fire Alarm (AFA) systems in high-rise buildings. They are suitable for laying in embedded and/or surface mount pipes, raceways or racks (even without separators).

## PH120 CABLES



Fire-resistant cables for fixed automatic fire alarm systems  
Flexible red copper conductors – Insulating tape of glass/mica and elastomeric compound – Jacket of flame-retardant LSZH thermoplastic compound (compliant with EN 50363-0, quality M1, VDE 0207HM2) – Red color – Operating temperature -25°C...+90°C – Insulation 100/100V – Test voltage 2000V – U0=400V  
LSZH, RoHS, CE

<b>FIRE-RESISTANT CABLES PH120 LSZH FTE40HM1 FOR AFA SYSTEMS</b>		<b>HALOGEN GAS EMISSION</b>	<0.5%	EN 50267-2-1 IEC 60754-1
<b>FIRE-RESISTANCE TEST</b>	EN 50200 PH30-PH120 Test report IMQ 01SL00223/1	<b>CORROSIVENESS OF COMBUSTION GAS</b>	pH >4.3 Conductivity <10µS/mm	EN 50267-2-1 IEC 60754-1
<b>FLAME-RETARDANCY TEST</b>	EN 60332-1-2	<b>SMOKE OPACITY</b>	Transmittance >70%	EN 61034-2
<b>FIRE-RETARDANCY TEST</b>	EN 60332-3-25	<b>TOXICITY INDEX</b>	<2	Italian standard (CEI 30-37/4-0)

## LOOP CABLE

EN 50200

CEI 20-105

PH 120

INSULATION 0.6/1KV

TWISTED CABLE

SHIELDED CABLE

Shielded fire-resistant power and signaling cable for fixed automatic fire alarm systems  
100m hanks (500m spools upon request)

Branded "Tecnofire Loop Fire-Speed"

NAME	CONFIGURATION	ITEM NO.	ELECTRICAL RESISTIVITY ohm/km	EXTERNAL DIAMETER	RADIUS OF CURVATURE	WEIGHT kg/km
<b>TFCF-2X075 SCH</b>	2x0.75	<b>TF18TFCF2X075S</b>	<26	7mm (±5%)	35mm (±10%)	57.3
<b>TFCF-2X1 SCH</b>	2x1	<b>TF18TFCF2X1S</b>	<19.5	7.5mm (±5%)	37.5mm (±10%)	65.2
<b>TFCF-2X15 SCH</b>	2x1.5	<b>TF18TFCF2X15S</b>	<13.3	8.7mm (±5%)	43.5mm (±10%)	87.2
<b>TFCF-2X25 SCH</b>	2x2.5	<b>TF18TFCF2X25S</b>	<7.98	10.1mm (±5%)	50.5mm (±10%)	119.2

## 24V CABLE

EN 50200

CEI 20-105

PH 120

INSULATION 0.6/1KV


TWISTED CABLE

Fire-resistant power cable for fixed automatic fire alarm systems  
100m hanks (500m spools upon request)

Branded "Tecnofire 24V DC User"

NAME	CONFIGURATION	ITEM NO.	ELECTRICAL RESISTIVITY ohm/km	EXTERNAL DIAMETER	RADIUS OF CURVATURE	WEIGHT kg/km
<b>TFCF-2X15</b>	2x1.5	<b>TF18TFCF2X15</b>	<13.3	8.7mm (±5%)	43.5mm (±10%)	82.6
<b>TFCF-2X25</b>	2x2.5	<b>TF18TFCF2X25</b>	<7.98	10.1mm (±5%)	50.5mm (±10%)	114.6

RS485 BUS CABLE			EN 50200	PH 120	INSULATION 0.6/1KV	TWISTED CABLE	SHIELDED CABLE
Shielded fire-resistant power and signaling cable for fixed automatic fire alarm systems 100m spools (500m spools upon request)							
Branded "Tecnofire BUS RS485"							
NAME	CONFIGURATION	ITEM NO.	ELECTRICAL RESISTIVITY ohm/km	EXTERNAL DIAMETER	RADIUS OF CURVATURE	WEIGHT kg/km	
<b>TFCF-BUS485</b>	2x1.5+2x1	<b>TF18TFCFBUS485</b>	1sqmm <19.5 1.5sqmm <13.3	11.6mm (±5%)	58mm (±10%)	164.5	

PH30 CABLES			
		Fire-resistant cables for fixed automatic fire alarm systems Flexible red copper conductors – Insulating tape of elastomeric silicone compound (compliant with EN 50363) – Jacket of flame-retardant LSZH thermoplastic compound (compliant with EN 50363-0, quality M1) – Red color – Operating temperature -25°C...+90°C – Insulation 100/100V – Test voltage 2000V – U0=400V LSZH, RoHS, CE	
<b>FIRE-RESISTANT CABLES PH30 LSZH FTE40HM1 FOR AFA SYSTEMS</b>		<b>FLAME-RETARDANCY TEST</b>	EN 60332-1-2
<b>FIRE-RESISTANCE TEST</b>	EN 50200 PH30-PH120 Test report IMQ 01SL00223/1	<b>FIRE-RETARDANCY TEST</b>	EN 60332-3-25

LOOP CABLE			EN 50200	CEI 20-105	PH 30	INSULATION 0.4KV	TWISTED CABLE	SHIELDED CABLE
Shielded fire-resistant power and signaling cable for fixed automatic fire alarm systems 100m hanks (500m spools upon request)								
Branded "Tecnofire Loop Fire-Speed"								
NAME	CONFIGURATION	ITEM NO.	ELECTRICAL RESISTIVITY ohm/km	EXTERNAL DIAMETER	AVERAGE THICKNESS JACKET	AVERAGE THICKNESS INSULATING TAPE		
<b>TFCF-2X1 PH30</b>	2x1	<b>TF18TFCF2X1PH3</b>	<19.5	7mm (±2%)	0.8mm	0.5mm		
<b>TFCF-2X15 PH30</b>	2x1.5	<b>TF18TFCF2X15PH3</b>	<13.3	7.6mm (±2%)	0.9mm	0.6mm		



It is indispensable to ensure the continuity of service of the fire alarm systems, even in case of power failure. For this reason, Tecnofire has selected a range of high-quality long-life batteries.

## YUASA

	<b>TFBY-12 2</b>
	Rechargeable lead battery Yuasa 12V DC/2.3Ah Dimensions (L x H x D) 178 x 64 x 34mm <b>Item no. TF17TFBY1221</b>
	<b>TFBY-12 7</b>
	Rechargeable lead battery Yuasa 12V DC/7Ah Dimensions (L x H x D) 151 x 97.5 x 65mm <b>Item no. TF17TFBY127</b>
	<b>TFBY-12 12</b>
	Rechargeable lead battery Yuasa 12V DC/12Ah Dimensions (L x H x D) 151 x 97.5 x 98mm <b>Item no. TF17TFBY1212</b>
	<b>TFBY-12 17</b>
	Rechargeable lead battery Yuasa 12V DC/17Ah Dimensions (L x H x D) 181 x 167 x 76mm <b>Item no. TF17TFBY1217</b>

## FIAMM

	<b>TFBF-12 2</b>
	Rechargeable lead battery Fiamm 12V DC/2Ah Dimensions (L x H x D) 178 x 67 x 34.5mm <b>Item no. TF17TFBF122</b>
	<b>TFBF-12 7</b>
	Rechargeable lead battery Fiamm 12V DC/7.2Ah Dimensions (L x H x D) 151 x 99 x 65mm <b>Item no. TF17TFBF1272</b>
	<b>TFBF-12 12</b>
	Rechargeable lead battery Fiamm 12V DC 12Ah Dimensions (L x H x D) 151 x 99 x 98mm <b>Item no. TF17TFBF1212</b>
	<b>TFBF-12 18</b>
	Rechargeable lead battery Fiamm 12V DC 18Ah Dimensions (L x H x D) 181 x 165.5 x 76mm <b>Item no. TF17TFBF1218</b>

The Tecnofire software offers multiple facilities for programming and managing the Tecnofire fire alarm systems and, supporting the sophisticated diagnostic tools of the exclusive RSC® technology, allows to fully exploit their great potentialities. The printable reports certify functioning and programming of the system and the numerous customizable and constantly updated software services permit to provide the customers with interesting and innovative after-sales services.

## Software

### PROGRAMMING

Software for programming of the Tecnofire systems locally, through the serial bus, or via LAN

### REMOTE MANAGEMENT WITH TCP/IP

Software for remote management of the Tecnofire systems via LAN and WAN

### MONITORING

Software for monitoring of the Tecnofire systems locally, through the serial bus, or via LAN



**PROGRAMMING**

**TFSW-PROGRAMMAZIONE**



Software for programming of the Tecnofire systems  
RSC® management – Management of up to 32 floor plans per system – Connection via serial bus or Ethernet LAN – Windows 32/64 bit compatible

Item no. TF15TFSWPRG



USB cable for direct connection of the fire alarm panel

**TFCAVO-USB TFA**

Item no. TF1TFCAVOUSB



TCP/IP

**REMOTE MANAGEMENT WITH TCP/IP**

**TFSW-TCP/IP**



Software for remote programming and monitoring of the Tecnofire systems using TCP/IP proprietary protocols  
Data encryption with customized passphrases – RSC® management – Management of up to 32 floor plans per system – Connection via serial bus, Ethernet LAN or WAN – Windows 32/64 bit compatible  
N.B. The software is available in two configurations for the management of 100 or 1000 systems. It is protected by dongle (to be ordered separately).

**TFSW-TCP/IP 100**

Item no. TF15TFSWTCP100

**TFSW-TCP/IP 1000**

Item no. TF15TFSWTCP1000



USB-RS232-RS485-TTL interface  
USB cable included

N.B. The PROG USB functions as dongle for the software TFSW-TCP/IP.

**TFPROG USB**

Item no. TF1TFPROGUSB



**MONITORING**

**TFSW-TECNOMONITOR**



Software for monitoring of the Tecnofire systems  
RSC® management – Management of up to 32 floor plans per system – Connection via serial bus or Ethernet LAN – Windows 32/64 bit compatible  
N.B. The software is protected by dongle (to be ordered separately).

Item no. TF15TFSWTECNOM



USB-RS232-RS485-TTL interface  
USB cable included

N.B. The PROG USB functions as dongle for the software TFSW-TECNOMONITOR.

**TFPROG USB**

Item no. TF1TFPROGUSB

## LICENSE OPTIONS

### TFSW-TECNOMSG

Item no. TF15TFSWTMSG

License option for the software TFSW-PROGRAMMAZIONE and TFSW-TCP/IP permitting the customization of the vocabulary of the fire alarm panels

## SERVICES

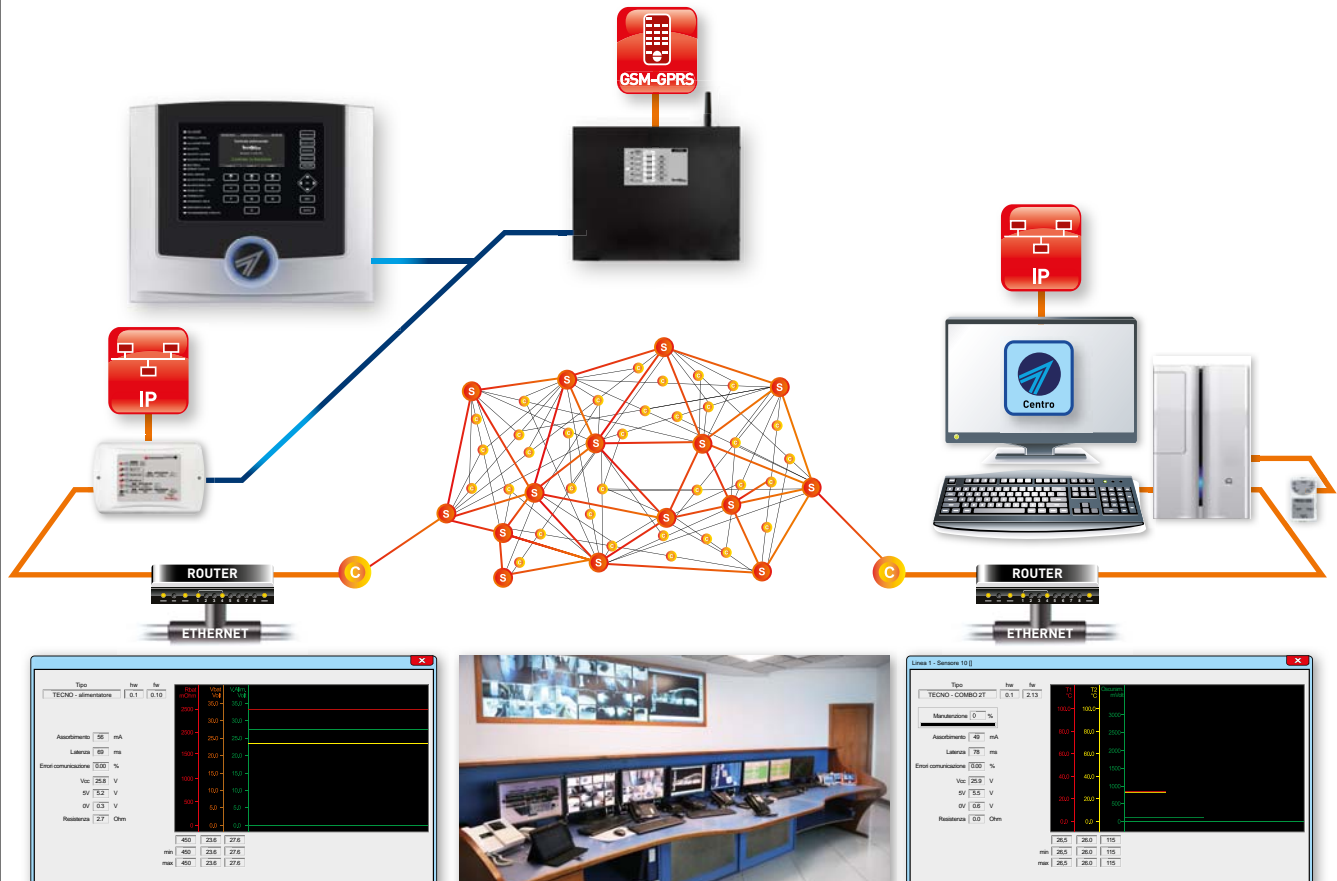
### TFSW-COPIA

Item no. TF15TFSWCOPIA

Copy of the user license for any Tecnofire software

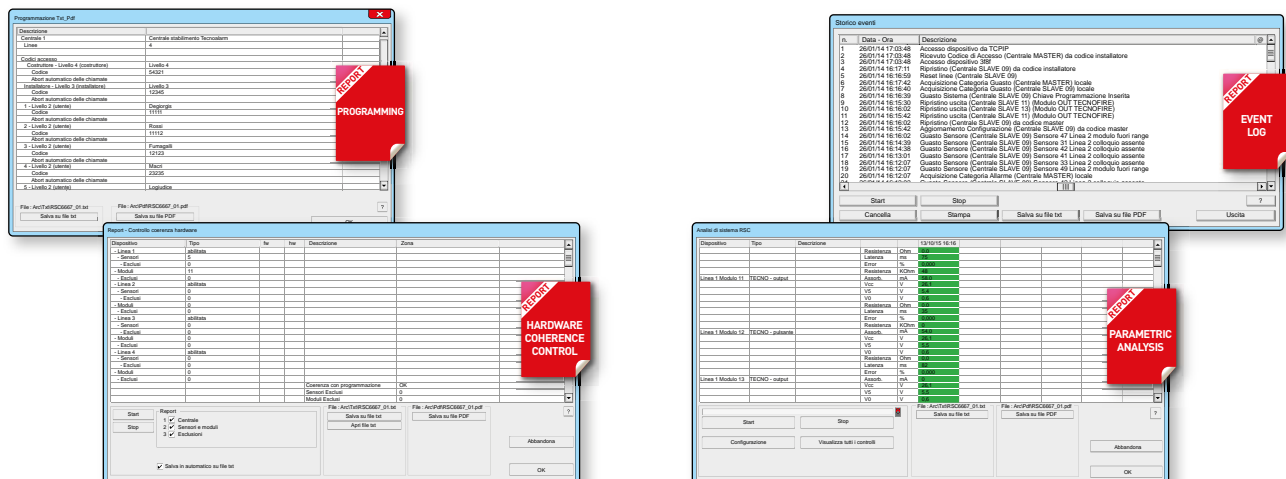
### Added value

The remote management software is an investment which increases the professional value of the installation company and reduces the costs of the management of the systems. It allows to remotely assess the need for technical measures and to define the ordinary and preventive maintenance operations. Remote management minimizes the need for travelling the territory, and thus the connected costs.



### Documentation

The programming and remote management software, TFSW-PROGRAMMAZIONE and TFSW-TCP/IP, allow to produce documents which certify the correct programming and functioning of the system.







The company's communication strategy aims at enhancing the brand Tecnofire and strengthening the goals achieved so far. Tecnofire promotes and communicates effectively to the market the excellence of their products, with harmonized procedures, capable of valuing and transmitting cognitively the brand identity, with product demonstration tools, display equipment, coordinated clothing and accessories, which can promote and encourage the sales activities.

## Merchandising



# Merchandising



**Display equipment** - The coordinated and functional display equipment characterizes and organizes the exhibition space at the point of sale and increases its attractiveness.









**Apparel** - The use of coordinated apparel and clothing accessories also pursues the goals of brand communication. The professional image transmitted by the staff is positively perceived by the customer.





































## DISPLAY EQUIPMENT

















	<p><b>TF-ESPOSITORE01</b></p> <p>Counter display – Black Plexiglas® – Wall mounting or on sideboard Dimensions (L x H x D): 1000 x 1060 x 150mm</p> <p>Item no. TF19TFESPOSIT01</p>		<p><b>TF-BASEESPOS</b></p> <p>Sideboard – Transparent Plexiglas® – Dimensions (L x H x D): 1000 x 840 x 300mm</p> <p>Item no. TF19TFBASEESPOS</p>
	<p><b>TF-PANNELLO01</b></p> <p>Exhibition panel – Alucobond® – Dimensions (L x H x D): 1000 x 1000mm</p> <p><b>ALUCOBOND®</b></p> <p>Item no. TF19TFPANNELLO1</p>		

## APPAREL

	<p><b>TF-CAPPELLINO</b></p> <p>Baseball cap with Worldwide from Italy logo – White color</p> <p>Item no. TF19TFCAPPEL</p>		<p><b>TF-POLO</b></p> <p>Polo shirt with Worldwide from Italy logo – White color</p> <p>Item no. TF19TFPOLO</p>
	<p><b>TF-CAMICIA</b></p> <p>Shirt with Worldwide from Italy logo – White color</p> <p>Item no. TF19TFCAMICIA</p>		<p><b>TF-PANTALONE</b></p> <p>Trousers with Tecnofire logo – Red color</p> <p>Item no. TF19TFPANTALONE</p>
	<p><b>TF-FELPA</b></p> <p>Sweatshirt with zip fastener and Worldwide from Italy logo on the front and on the back – White color</p> <p>Item no. TF19TFFELPA</p>		<p><b>TF-GIUBBOTTO</b></p> <p>Jacket with Worldwide from Italy logo – Gray color</p> <p>Item no. TF19TFGIUBBOTTO</p>

Systems	
	<b>RSC®</b> System managing devices with RSC® technology
	<b>EN 54-2 - EN 54-4</b> Device certified to the indicated standards
	<b>LOOP</b> System featuring loop connection
	<b>VOICE SYNTHESIS</b> System featuring voice synthesis
	<b>IP</b> On board LAN interface
	<b>PRINTER PORT</b> System equipped with serial printer port
	<b>USB PORT</b> System equipped with USB port
	<b>POWER SUPPLY</b> Device providing a proper power supply unit
	<b>METAL BOX</b> Casing primarily made of metal
Expansions	
	<b>RSC®</b> Device featuring RSC® technology
	<b>DISPLAY</b> Device equipped with a display of the indicated size [inch]
	<b>TOUCH SCREEN</b> Device equipped with touch screen
	<b>VOICE SYNTHESIS</b> Device featuring voice synthesis
	<b>FLOOR PLANS</b> Device featuring floor plan management
	<b>ICONS</b> Number of icons managed per floor plan
	<b>FLASH MEMORY</b> Device equipped with flash memory

	<b>USB PORT</b> Device equipped with USB port
	<b>ABS BOX</b> Casing primarily made of ABS
	<b>ABS BOX</b> Casing primarily made of ABS
	<b>INTERNAL EXPANSION</b> Expansion module to be mounted inside the casing
	<b>EN 54-21</b> Device certified to the indicated standard
	<b>PSTN</b> Device supporting the PSTN vector
	<b>GSM-GPRS</b> Device supporting the GPRS vector
	<b>IP</b> Device supporting the IP vector
	<b>2G</b> Device supporting the GSM 2G vector
	<b>PROTOCOLS</b> Device supporting the indicated number of communication protocols
	<b>GSM ATE2</b> ATE performance criteria of the GSM vector according to the protocols used
	<b>GPRS ATE4</b> ATE performance criteria of the GPRS vector according to the protocols used
	<b>IP ATE4</b> ATE performance criteria of the IP vector according to the protocols used
	<b>SELF-POWERED</b> Device equipped with proper power supply
	<b>DATA</b> Digital data protocol
	<b>SMS</b> Short Message Service protocol
	<b>VOCAL</b> Voice protocol
	<b>DTMF</b> Dual-Tone Multifrequency data protocol

	<b>PULSE</b> Protocol using tone modulation
	<b>EMAIL</b> Email protocol
	<b>DDNS TECNOALARM</b> Tecnoalarm Dynamic Domain Name System service
	<b>IP DATA</b> IP data protocol
	<b>IP MODBUS</b> IP Modbus protocol
	<b>IP TECNO OUT</b> IP Tecno Out protocol
	<b>RS485 MODBUS</b> Serial Modbus protocol
Serial bus extensions	
	<b>RS485 FIBER-OPTIC</b> RS485-fiber optic converter
	<b>POINT-TO-POINT CONNECTION</b> Maximum track length in meters
	<b>RING CONNECTION</b> Maximum loop length in meters
	<b>ABS V0 BOX</b> Casing primarily made of ABS V0
Addressable modules	
	<b>RSC®</b> Device featuring RSC® technology
	<b>LOGICAL UNIT</b> Device composed of the indicated number of logical units, identified by the system as independent zones
	<b>INPUT</b> Number of inputs available
	<b>OUTPUT</b> Number of outputs available
	<b>INPUTS 4-20mA</b> Number of 4-20mA outputs available
















<b>1</b> INPUT CONVENTIONAL DETECTORS	<b>INPUT CONVENTIONAL DETECTORS</b> Number of inputs available for the connection of conventional detection devices
<b>FORMULAS</b> AND & NOT! OR!	<b>FORMULAS</b> Device managing Boolean functions
<b>DIN</b> RAIL MOUNT BOX	<b>DIN RAIL MOUNT BOX</b> Mounting on DIN rail
<b>SOUND LEVEL</b> 99dB(A) @1m	<b>SOUND LEVEL</b> Device featuring the indicated sound level (dB) at the indicated distance
<b>64</b> SOUND TYPES	<b>SOUND TYPES</b> Number of programmable sound types
<b>FLASHING MODE</b>	<b>FLASHING MODE</b> Device equipped with independent flashlight
<b>VID</b> VISUAL INDICATION DEVICE	<b>VID</b> Visual indication device compliant with EN 54-3
<b>VAD</b> VISUAL ALARM DEVICE	<b>VAD</b> Visual alarm device compliant with EN 54-23 and EN 54-3 (if equipped with sounder)
<b>EN 54-3</b> <b>EN 54-23</b>	<b>EN 54-3 - EN 54-23</b> Device certified to the indicated standards
<b>OPTICAL SYNC</b>	<b>OPTICAL SYNC</b> Synchronization of optical signaling of several fire alarm devices
<b>28V 5A</b>	<b>28V 5A</b> Device providing the indicated output voltage/current
<b>3</b> OUTPUTS 1.1A	<b>OUTPUTS</b> Number of power supply outputs managed and available current for loads
<b>PC-ABS V0 BOX</b>	<b>PC-ABS V0 BOX</b> Casing primarily made of polycarbonate and ABS V0
<b>ABS V0 BOX</b>	<b>ABS V0 BOX</b> Casing primarily made of ABS V0
<b>METAL BOX</b>	<b>METAL BOX</b> Casing primarily made of metal
<b>Addressable detectors</b>	
<b>RSC®</b>	<b>RSC®</b> Device featuring RSC® technology
<b>SMOKE</b>	<b>SMOKE</b> Smoke detector


















<b>HEAT</b>	<b>HEAT</b> Heat detector
<b>RATE-OF-RISE</b>	<b>RATE-OF-RISE</b> Rate-of-rise detector
<b>COMBO 2T</b>	<b>COMBO 2T</b> Combined technology detector
<b>ABS V0 BOX</b>	<b>ABS V0 BOX</b> Casing primarily made of ABS V0
<b>SMOKE DETECTOR</b>	<b>SMOKE DETECTOR</b> Device housing smoke detector
<b>AIR SAMPLING</b>	<b>AIR SAMPLING</b> Air sampling
<b>VENTURI TUBE</b>	<b>VENTURI TUBE</b> Venturi tube principle
<b>IP65</b>	<b>IP65</b> Ingress protection class of the casing
<b>Optical acoustic alarm devices</b>	
<b>VID</b>	<b>VID</b> Visual indication device compliant with EN 54-3
<b>VAD</b>	<b>VAD</b> Visual alarm device compliant with EN 54-23 and EN 54-3 (if equipped with sounder)
<b>EN 54-3</b>	<b>EN 54-3</b> Device certified to the indicated standard
<b>EN 54-23</b>	<b>EN 54-23</b> Device certified to the indicated standard
<b>EN 54-3</b> <b>EN 54-23</b>	<b>EN 54-3 - EN 54-23</b> Device certified to the indicated standards
<b>TYPE W-4.6-9.1</b>	<b>TYPE W-4.6-9.1</b> Wall mount type with the indicated coverage volume code
<b>TYPE C-3-7.5</b>	<b>TYPE C-3-7.5</b> Ceiling mount type with the indicated coverage volume code
<b>OPTICAL SYNC</b>	<b>OPTICAL SYNC</b> Synchronization of optical signaling of several fire alarm devices
<b>15</b> SOUND TYPES	<b>SOUND TYPES</b> Number of programmable sound types
















<b>3</b> ALARM MODE INPUTS	<b>ALARM MODE INPUTS</b> Number of control inputs for alarm mode differentiation
<b>SELF POWERED</b>	<b>SELF-POWERED</b> Device equipped with proper power supply
<b>SOUND LEVEL</b> 107dB(A) @1m	<b>SOUND LEVEL</b> Device featuring the indicated sound level (dB) at the indicated distance
<b>LED TECHNOLOGY</b>	<b>LED TECHNOLOGY</b> Device equipped with LED flashlight
<b>SELF TEST</b>	<b>SELF TEST</b> Device featuring self test function
<b>24V DC</b>	<b>24V DC</b> Device functioning with the indicated power supply voltage
<b>INDOORS OR OUTDOORS</b> -25°+70°	<b>INDOORS OR OUTDOORS</b> Device functioning in indoor or outdoor areas with the indicated operating temperature
<b>IP54</b>	<b>IP54</b> Ingress protection class of the casing
<b>METAL BOX</b>	<b>METAL BOX</b> Casing primarily made of metal
<b>ABS V0 BOX</b>	<b>ABS V0 BOX</b> Casing primarily made of ABS V0
<b>PC-ABS 5VA BOX</b>	<b>PC-ABS 5VA BOX</b> Casing primarily made of polycarbonate and ABS 5VA
<b>Heat detection cables</b>	
<b>HEAT-SENSITIVE</b> 68°C	<b>HEAT-SENSITIVE</b> Heat detection cable with indicated alarm threshold
<b>HEAT-SENSITIVE</b> 68°C UL/FM	<b>HEAT-SENSITIVE UL/FM</b> Heat detection cable certified to UL/FM with indicated alarm threshold
<b>INDOORS OR OUTDOORS</b> MAX +40°	<b>INDOORS OR OUTDOORS</b> Device functioning in indoor or outdoor areas with the indicated operating temperature

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Electronic heat detectors	
	<b>HEAT</b> Heat detector
	<b>RATE-OF-RISE</b> Rate-of-rise detector
	<b>10V DC ÷ 30V DC</b> Device functioning with the indicated operating voltage
	<b>OUTDOORS</b> Device functioning in outdoor areas with the indicated operating temperature
	<b>ATEX IP66</b> ATEX compliant ingress protection class of the casing
Flood detectors	
	<b>10V DC ÷ 30V DC</b> Device functioning with the indicated operating voltage
	<b>INDOORS OR OUTDOORS</b> Device functioning in indoor or outdoor areas with the indicated operating temperature
	<b>INDOORS MAX</b> Device functioning in indoor areas with the indicated operating temperature
	<b>IP68</b> Ingress protection class of the casing
Extraction units	
	<b>CHANNELS</b> Number of suction channels managed
	<b>ZONES</b> Number of zones managed
	<b>COVERAGE</b> Maximum coverage in sqm
	<b>CLASS</b> Number of holes per class
	<b>LASER</b> Device equipped with laser detection chamber
	<b>TOUCH SCREEN</b> Device equipped with touch screen

	<b>24V DC</b> Device functioning with the indicated power supply voltage
	<b>INDOORS</b> Device functioning in indoor areas with the indicated operating temperature
Linear smoke detectors	
	<b>SELF-ALIGNING</b> Device performing automatic compensation of misalignment
	<b>LASER</b> Device equipped with automated laser pointer
	<b>REFLECTION</b> Device equipped with reflective infrared light
	<b>END-TO-END</b> Device equipped with point-to-point infrared light
	<b>RANGE</b> Maximum range in meters
	<b>UV + IR DETECTION</b> Device equipped with point-to-point infrared or UV light
	<b>RX UNIT</b> Receiver
	<b>TX UNIT</b> Transmitter
	<b>TX HIGH POWER</b> High power transmitter
	<b>MULTI TX OPERATION</b> Device featuring multi-point configurations
	<b>RX ANGLES</b> Horizontal and vertical reception angles
	<b>OUTDOORS</b> Device functioning in outdoor areas with the indicated operating temperature
	<b>ATEX IP66</b> ATEX compliant ingress protection class of the casing
	<b>IP44 OR IP66</b> Ingress protection class of the casing
	<b>24V DC</b> Device functioning with the indicated power supply voltage

	<b>24V DC OR BATTERY</b> Device functioning with the indicated power supply voltage or a battery
	<b>LITHIUM BATTERY</b> Device functioning with a lithium battery
Gas detectors	
	<b>TOXIC GAS</b> Toxic gas detector
	<b>FLAMMABLE GAS</b> Flammable gas detector
	<b>REFRIGERANT GAS</b> Refrigerant gas detector
	<b>ZONE CATEGORY</b> Category and number of zones managed
	<b>ELECTROCHEMICAL CELL</b> Gas detector with electrochemical cell
	<b>CATALYTIC DETECTOR</b> Catalytic gas detector
	<b>OUTPUTS</b> Number and type of outputs available
	<b>12V DC ÷ 24V DC</b> Device functioning with the indicated operating voltage
	<b>INDOORS OR OUTDOORS</b> Device functioning in indoor or outdoor areas with the indicated operating temperature
	<b>IP65</b> Ingress protection class of the casing
	<b>ATEX IP65</b> ATEX compliant ingress protection class of the casing
	<b>ABS V0 BOX</b> Casing primarily made of ABS V0
	<b>ALUMINUM BOX</b> Casing primarily made of aluminum

**CORREZIONE DEL  
03-03-17**



## Optical flame detectors

<b>OUTPUTS</b> 4-20mA and CONTACT	<b>OUTPUTS</b> Number and type of outputs available
<b>14V DC ÷ 30V DC</b>	<b>14V DC ÷ 30V DC</b> Device functioning with the indicated operating voltage
<b>INDOORS OR OUTDOORS -10°+55°</b>	<b>INDOORS OR OUTDOORS</b> Device functioning in indoor or outdoor areas with the indicated operating temperature
<b>Ex ATEX IP66</b>	<b>ATEX IP66</b> ATEX compliant ingress protection class of the casing
<b>ALUMINUM BOX</b>	<b>ALUMINUM BOX</b> Casing primarily made of aluminum

## Electromagnetic door holders

<b>HOLDING FORCE 100Kg</b>	<b>HOLDING FORCE</b> Holding force in kg
<b>AUTOMATIC RELEASE 70°C</b>	<b>AUTOMATIC RELEASE</b> Device equipped with thermal sensor for automatic release at the indicated temperature
<b>SMALL SIZE</b>	<b>SMALL SIZE</b> Device of small dimensions
<b>WALL MOUNTING</b>	<b>WALL MOUNTING</b> Device suitable for wall mounting
<b>FLOOR MOUNTING</b>	<b>FLOOR MOUNTING</b> Device suitable for floor mounting
<b>WALL OR FLOOR MOUNTING</b>	<b>WALL OR FLOOR MOUNTING</b> Device suitable for wall or floor mounting
<b>24V DC</b>	<b>24V DC</b> Device functioning with the indicated power supply voltage
<b>INDOORS -10°+55°</b>	<b>INDOORS</b> Device functioning in indoor areas with the indicated operating temperature
<b>IP40</b>	<b>IP40</b> Ingress protection class of the casing

## Cables

<b>EN 50200</b>	<b>EN 50200</b> Cable compliant with the indicated standard
<b>CEI 20-105</b>	<b>CEI 20-105</b> Cable compliant with the indicated standard
<b>PH 120</b>	<b>PH120</b> Cable compliant with the indicated standard
<b>INSULATION 0.6/1KV</b>	<b>INSULATION</b> Insulation of the cable in Volt
<b>TWISTED CABLE</b>	<b>TWISTED CABLE</b> Twisted-pair cable
<b>SHIELDED CABLE</b>	<b>SHIELDED CABLE</b> Shielded cable

## Software

<b>Centro</b>	<b>CENTRO</b> Software for Windows
<b>PROGRAMMING</b>	<b>PROGRAMMING</b> Software for programming of Tecnofire systems via serial bus or LAN
<b>TCP/IP</b>	<b>TCP/IP</b> Software for remote management of 100 or 1000 Tecnofire systems via LAN/WAN
<b>MONITORING</b>	<b>MONITORING</b> Software for monitoring of Tecnofire systems via serial bus or LAN

## Merchandising

<b>EXPO</b>	<b>EXPO</b> Coordinated display equipment
<b>APPAREL</b>	<b>APPAREL</b> Coordinated apparel

## 1. PREMISES

This document contains the general terms of sale and delivery that govern the business relations between Tecnoalarm S.r.l. (Seller) and its customers (Buyers), for any type of product and service. Unless otherwise specified, these terms are applied to all Buyers, in this case professional customers. The terms are an integral part of the "Tecnoalarm General Catalogue", and are considered implicitly known to and accepted by the Buyer when placing the purchase order. The terms, if no other agreement (void if not in written form) exists, are to be considered as binding for the sale of any product of Tecnoalarm. The Seller reserves the right to change them without notice and without prejudice to the validity of previous terms in force at the time of the order. Any different terms and conditions used by the Buyer shall not apply to the relations between the parties if not accepted in writing and, in any case, shall be coordinated with these terms, unless expressly exempted by written act. The acceptance of these terms and the accompanying warranty conditions, as well as all the subsequent relations, agreements, and generally, the behaviors of the parties eventually governed by the same, do not entail the transfer to the Buyer of any exclusive right, nor the establishment of relations of granting, commission and mandate, with or without representation. Equally, they do not give the Buyer the right to market the Tecnoalarm products via e-commerce, or any other form of mail order sales nor to use in any form the mark, the name or other distinctive marks of Tecnoalarm.

## 2. PURCHASE ORDERS

No purchase order sent by the Buyer shall be binding for the Seller if not expressly accepted in writing. The order accepted by the Seller constitutes a firm and irrevocable proposal of contract. Sending an order and collecting the goods by the Buyer shall entail the contextual and integral recognition, knowledge and acceptance of the terms and the attached warranty conditions. The Seller is not bound, except with the express confirmation or subsequent ratification, by the declarations of its agents, business procurers, distributors and other commercial auxiliaries. The acceptance without expressed reservation by the Buyer of products non-compliant in terms of type or quantity, or sent with conditions other than those contained in the request of the Buyer or the offer of the Seller, implies the acceptance by the Buyer of the supply and the terms applied by the Seller. These reservations, even if made in the form of clarifications or corrections to the terms of delivery, shall not be effective if they will not be formulated by the Buyer in writing, immediately after the receipt of the goods.

## 3. PLACING OF ORDERS

Except as provided in the previous article, the Seller only accepts orders placed according to the procedure provided for in this article. All orders must be submitted in writing and complete in every part needed for the correct identification of the requested products. The Buyer may request the cancellation or modification of the order only before the execution of the same, through written communication. The Seller has the right to not accept changes or cancellations if the order is already being processed. The changes and the cancellation of the purchase orders, to be effective, must be expressly accepted by the Seller in writing.

## 4. DELIVERY OF THE PRODUCTS

No purchase order sent by the Buyer will be fulfilled by the Seller if not expressly accepted. Unless otherwise agreed in writing between the parties, the Seller shall deliver the products "ex works" (EXW) Turin, one of his subsidiaries or decentralized warehouses, within the terms of delivery agreed on the acceptance of the order. If required, the Seller will take care of the transport of the products and - in the absence of specific instructions of the Buyer - will choose the carrier that it deems appropriate. Unless otherwise specifically agreed in writing, the transport will take place with the clause "free carrier" (FCA) at the expense and risk of the Buyer. The cost of the transport and packaging, unless otherwise agreed, will be added to the price of the products purchased. The delivery deadline shall be deemed to be respected if the goods are promptly delivered to the carrier. In any case, the Seller shall not be liable for transport delays that cannot be imputed to him. In the case of delayed delivery, the Buyer may cancel the part of the order not delivered only after notifying the Seller, by registered letter with acknowledgement of receipt or with certified e-mail, his intention to do so, and after granting 15 weekdays, from receipt of such communication, within which the Seller can deliver all the products specified in the reminder and not yet delivered. It is excluded any liability of the Seller for damages derived from delayed or total or partial non-delivery of the purchase order. In case the Buyer fails to collect the goods within the agreed time, he will have to refund the Seller the storage costs until delivery or sale of the goods to third parties, which may take place after 30 days from the originally agreed delivery date. Failure or delay of fulfilment of a partial delivery does not implicate the non-fulfilment of the delivery obligation in itself and will have no effect on the other partial deliveries.

## 5. PRICES AND TERMS OF PAYMENT

The prices specified by the Seller in quotations, order confirmations and invoices are based on the price list expressed in Euro, excluding VAT, in force on the day of the order confirmation. Unless otherwise specified, all prices are net of transportation, and any other tax, fee and locally due rate. The applicable taxes are those in force on the date of billing. Any discount on the prices charged by the Seller shall only be applicable if agreed to in writing and only in case of full compliance with the payment terms fixed. In no case will the discounts offered be extendable to supplies, also of similar goods or identical products, performed prior to or subsequent to the order to which the discounts apply. If the costs of raw materials and/or the workforce used by the Seller should suffer changes such as to modify by more than 10% the original balance, the price will be adjusted in proportion, with the option of the parties to terminate the agreement within 10 days from the notice of the variation in the price. The invoices of the Seller are accepted if they are not challenged in writing by the Buyer within 14 days of their receipt. Unless otherwise specifically agreed in writing, the method and term of payment are those previously agreed with the Seller and stated in the customer file. Any payments made to the agents of the Seller must be previously authorized in writing by the latter. According to this, any payment made to subjects not previously authorized for collection shall not discharge the obligation. Any credit instruments accepted by the Seller is subject to collection. Any delay or irregularity in the payment shall give the Seller the right to suspend deliveries and/or terminate the contracts and/or cancel orders in progress, even if not related to the payments in question, as well as the right to compensation for any damages. From the date of expiry of the payment, the default interests at the legal rate provided for in the Decree 231/2002, amended by the Decree 192/2012, shall be entirely due. In no event the Buyer will be authorized to reduce or offset the price with any credit, however occurring, against the Seller, unless prior written permission of this is granted. For the imputation of payment, reference will be made in any case to the provisions of art. 1193 par. 2 C.C. [Italian Civil Code]. The Buyer is obliged to complete payment, even in the event of a dispute or controversy, according to the condition "solve et repete".

## 6. RETENTION OF TITLE

In the case where the payment is carried out, in whole or in part, after delivery, the delivered products shall remain the property of the Seller up to the full payment of the agreed price, within the meaning of art. 1523 C.C. [Italian Civil Code]. The Seller shall have the right to repossess any product with retention of title and the Buyer shall bear the costs. The Seller may withhold as penalty any sum received as payment, without prejudice to the right to compensation for the greater damage. If the Buyer relinquishes the products to a third party, the rights of the Seller shall be transferred to the resale price up to the full payment.

## 7. TECHNICAL DESCRIPTIONS AND SPECIFICATIONS OF THE PRODUCTS

The technical data, dimensions, features, specifications, colors, weights, prices and any other data relating to the products contained in the technical and advertising documentation of the Seller, as well as the characteristics of the samples and models which may be provided to the Buyer, are merely indicative and are not binding, unless they were expressly mentioned in the offer and/or in the written acceptance by the Seller. Any statements or advertising of third parties in no way bind the Seller. Any technical design or document provided to the Buyer that enables to manufacture the products sold, or parts of them, remains the exclusive property of the Seller and shall not be copied, reproduced, transmitted to third parties or however used without the prior written consent. In addition, the Seller remains exclusive holder of all intellectual or industrial property rights relating to the products. The Seller reserves the right, at its sole discretion and without the need for any notice, to make the changes deemed most appropriate that do not adversely affect the functionality, the quality, and the aesthetics of the product itself, with the only obligation to inform the Buyer about the changes.

## 8. WARRANTY OF THE SELLER

Unless otherwise agreed in writing between the parties, the Seller ensures that its products (with the exception of those parts which are not directly produced) are free from flaws/defects for a period of two (2) years from the date of delivery of the goods to the Buyer. The warranty does not operate with reference to those products whose defects are due to:

- damage in transit
- improper use or negligent handling
- failure to comply with the Seller's instructions relating to the assembly and/or operation of the products
- lack of ordinary maintenance and preservation of the products
- normal wear and tear of moving parts
- repairs and/or changes made by the Buyer or by third parties without the prior written permission of the Seller.

The Seller will, in its sole discretion, replace or repair the defective or faulty products or parts, provided that the Buyer's claim is covered by the warranty and notified within the deadlines referred to in this article. The Buyer shall notify the Seller, under penalty of loss of the right to appeal, of the presence of patent defects within eight days from delivery of the products, or hidden defects or those not detectable by reasonable inspection within eight days from discovery. After the above deadlines have expired, the products are considered as permanently accepted. Claims must be made in writing and must indicate in detail the alleged defects or non-conformities, as well as the references to the relevant invoice, DDT or order confirmation of the Seller. In addition, upon request of the Seller, adequate photographic documentation must be attached to the claims. Incomplete claims will not be covered by the warranty. The products subject to complaint should be immediately sent to the head office of the Seller, or to any other place that the latter will indicate from case to case, at the costs and expenses of the Buyer, unless otherwise agreed between the parties, in order to allow the Seller to complete the necessary checks. The warranty does not cover any damage or defects of the products resulting from, or directly related to, parts assembled/added by the Buyer. If a claim is totally or partially unfounded, the Buyer shall indemnify the Seller for all the costs incurred for the checks. In every case, the Buyer shall not assert any warranty rights towards the Seller if the products have not been paid according to the terms and conditions agreed. The Seller shall not be responsible for any damage arising and/or connected to defects of the products, except in the case of his proven deliberateness or gross negligence. In any case, the Seller shall not be liable for incidental or consequential damages of any nature, such as losses or lost profits arising from inactivity of the Buyer.

## 9. RESPONSIBILITY OF THE MANUFACTURER

The products with Tecnoalarm brand are manufactured in accordance with the regulations in force in Italy and in the European Union. The Seller is responsible for damages to persons or property arising from the products sold, only in the event of his proven gross negligence in the manufacture of the products themselves. In no event, it shall be considered liable for incidental or consequential damages, loss of production or lost profits. Except as provided above, the Buyer shall not consider the Seller liable in all the actions of third parties based on liability arising from products sold to them and shall indemnify for the damage caused by the claims in question.

## 10. FORCE MAJEURE

In all cases of force majeure occurring (including but not limited to: lack of supply of raw materials, significant predictable increases of the prices of the same, fire, flood, disturbances in the transport sector, strikes, lock-outs or other similar events, which prevent or reduce the productive capacity of the Seller or block the transport between the plant of the Seller and the place of destination of the products), the Seller shall be entitled to an extension of up to 90 days, extendible to up to 180 days in the most serious cases, of the deadline for the delivery of the products, provided that it promptly notices in writing the Buyer about the occurrence of force majeure. Should the condition of force majeure subsist on expiry of the above time limits, the Buyer may terminate this agreement by giving written notice to the Seller by means of registered letter with acknowledgement of receipt or certified e-mail.

## 11. CHANGES AND INTERPRETATION OF THE TERMS

For the interpretation of these terms, only the original Italian text shall be considered legally binding. Unless otherwise specified, every reference to price lists, general terms of sale and delivery or other documents from the Seller or third parties is meant as referring to the above mentioned documents in force at the time of the reference itself. Any modification or integration made by the parties to the agreements to which these terms apply, must be made in writing, otherwise they will be void. The derogation to one or more provisions of these terms should not be interpreted extensively or by analogy and does not imply the desire to waive the terms in their entirety.

## 12. APPLICABLE LAW

For whatever not expressly provided in these terms, the rules laid down by the Italian law, or, alternatively, the uses and practices, shall apply. Since international sales are not explicitly regulated by these terms, these will be governed by the Vienna Convention on the International Sale of Goods of 1980. For the interpretation of the terms of return and other commercial terms possibly used by the parties, refer to the INCOTERMS of the International Chamber of Commerce in Paris. Any foreign uses and practices are not binding in any way for the Seller.

## 13. DISPUTES AND COMPETENT COURT

For any disputes regarding or in any way connected to the agreements to which these terms apply, the only competent Court is that of Turin, Italy.

## 14. CONFIDENTIALITY

Any production technology and/or information of the parties (including expedients, design and information) whether or not patented, shall be treated as essentially confidential and shall not be used or disclosed in the absence of prior written permission.

## 15. FINAL PROVISIONS

Any communication between the parties shall be sent to the respective addresses resulting from the business correspondence exchanged.

If the Seller fails to:

- apply one of the present terms
- require to the Buyer to perform any provision of these terms,

this may not be construed as present or future waiver of that provision, nor in any way affect the right of the Seller to have each of the provisions executed in the future. The express waiver by the Seller of any of the provisions of these terms does not constitute a waiver to their future respect by the Buyer.

The agreement may not be transferred in whole or in part without the prior consent of the other party.

Turin, December 2015

Tecnoalarm S.r.l.

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