

Thermal - Thermal rate-of-rise sensor



TFDA-TR1



Addressed sensor with thermal or thermal rate-of-rise detection technology.
Thermal class A or B (static temperature trip value according to the set class).
Thermal rate-of-rise suffix S or R. The detector operation is supervised by a microprocessor: the detection algorithm guarantees maximum precision in determining the ambient temperature.
Programmable functions: thermal rate-of-rise suffix, thermal class, transmission visual indicator (excludable).
Provided with actuator for functional electric test. Full RSC® management of the device: setup, remote management and control of all functional parameters.
Two notification Leds with 360° visibility. Line splitter with dual insulator. Connection on LOOP.
Proprietary high speed communication protocol **FIRE-SPEED**. Assembly on universal support TFBASE01.
Degree of protection IP22. ABS V0 enclosure. Dimensions (D x H) 100 x 52mm. (support included). White.
EN 54-5: 2000 + A1: 2002 - **EN 54-17**: 2005. Certificate of homologation 1293-CPR-0526

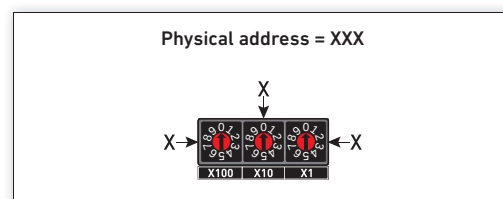
Item no. TF3TFDATR1

OBLIGATIONS AND NOTICES

The detector TFDA-TR1 can be used only if connected to a detection loop of the Tecnofire control unit models: TFA1-298, TFA2-596, TFA4-1192.
During design and installation, it is necessary to observe and apply the applicable regulations.

ADDRESSING

The physical address which identifies the detector is programmed by means of three decimal rotary selectors located on the bottom face of the detector.
The three selectors enable to set the three digits which make up the physical address number.
The selectors are marked by writings which define the position of the digit to set: X100 for hundreds, X10 for tens and X1 for units.
The numeric range of the allowed addresses for the detectors is 001 to 199.
Note: setting the address 000 excludes the detector from operation, yet the detector draws power from the loop.



Thermal - Thermal rate-of-rise sensor

LINE SPLITTER

The detector is provided with a line splitter with dual breaker.

In case of short circuit of the Loop line, the splitter activates, switching off the faulty section of the line, safeguarding the correct operation of the devices connected upstream and downstream.

The trip of the splitter ensures the correct operation of the detector.

At the same time the detection unit is sent the faulty notice "Splitter open".



SETTINGS

The detector must be set depending on the scope of use and the trip method requested.

Thermal rate-of-rise suffix

The selection of the suffix determines how the detector trips (alarm signal).

The trip methods are based on the temperature value selected for the Thermal Class, notably the suffix determines the type of increase for temperature values much lower or higher than those of the Thermal class. It is also possible to select No suffix. With this setting the sensor trips when absolute temperature value (static response temperature declared by the Thermal Class) is reached, or even earlier in case of dynamic response, detection of fast temperature increases.

Thermal class

The thermal class defines the absolute value of the trip static temperature.

Thermal rate-of-rise suffix	
Suffixes	Trip mode
R Suffix	Increases in temperature, even for temperature values much lower than those declared by the thermal class
S Suffix	Trip in case of quick temperature increments, starting from the normal operating temperature of the thermal class, only when the temperature declared by the class is reached.
No suffix	Reaching the temperature declared by the thermal class and fast increments of the temperature

Thermal class	
Class	Static response temperature
A1/A2	58°C ±2°
B	78°C ±2°

DIAGNOSTIC FUNCTIONS

The control unit manages a set of diagnostic functions specialized for the different types of detector.

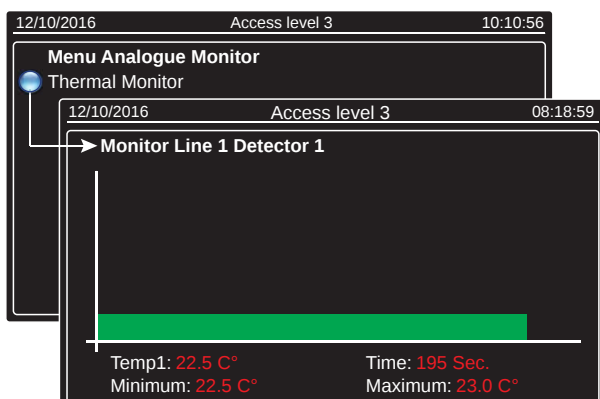
The diagnostic functions available for the thermal-thermal rate of rise detector allow to:

- Physically identify the detector.
- Identify the type of detector.
- Detect the HW version of the device.
- Detect the FW version of the device.
- Measure the electric data of operation.
- Monitor the trend of the room temperature
- Read the statistics from the communication monitor

Diagnostic functions of the detector	
Identification	Turns on the Leds of the device for its identification
Self declaration	Self declaration of the detector type
Hardware version	Self declaration of the hardware version
Firmware version	Self declaration of the firmware version
Level measurement	Measurement of the electric values of operation
Analog monitor	Thermal Monitor
Statistics	Statistic/functional values related to communication

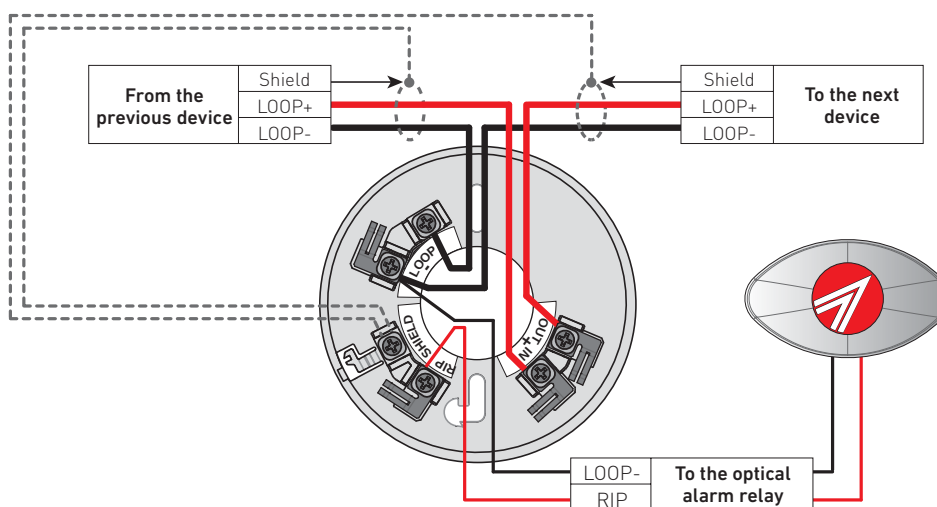
Draw
Supply level
Zero level
Draw level
Line resistance

Frames sent
Errors
Success Rate
Error rate
Latency time



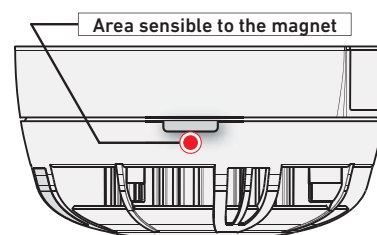
Thermal - Thermal rate-of-rise sensor

CONNECTION TO THE LOOP



ELECTRIC TEST

To verify the correct connection of the detector, it is possible to perform an electric test. To perform the test, it is necessary to move a magnet near the area indicated by the drawing, causing an alarm simulation which is sent to the control unit.



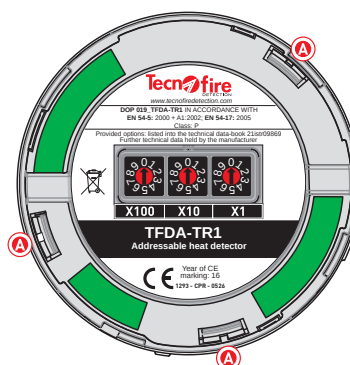
MAINTENANCE

The necessity and frequency of maintenance depends on the environmental conditions in which the detector operates, for instance, use in a kitchen environment is heavier than in a data centre environment. The deposit of impurities and fatty substances above the temperature probe can cause poor detection capability of the sensor.

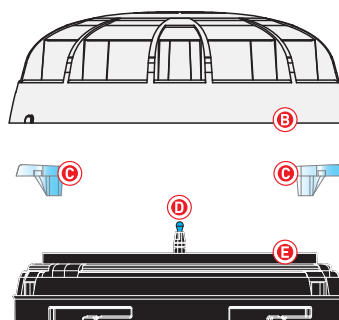
Maintenance should be carried out by specialized personnel provided with the necessary know-how and equipment to perform adequate maintenance work.

DETECTOR CLEANING AND FUNCTIONAL TEST

Remove the sensor from the base, release the cover performing via a suitable means a slight pressure on the three attachment points, raise the cover, remove the light diffusers, carefully clean the temperature probe, removing from them any sediment or grease or dust. Reassemble the detector, replacing it on its base, then proceed with suitable means to the functional testing of the detector.



A	Hooking points
B	Cover
C	Led light diffusers
D	Temperature probe
E	Detector base



Thermal - Thermal rate-of-rise sensor

DEDICATED ACCESSORIES

TFRIP-R Red luminous repeater

Item no. TF3TFRIPR

TFRIP-V Green luminous repeater

Item no. TF3TFRIPV

TFRIP-G Yellow luminous repeater

Item no. TF3TFRIPG

TFBASE01

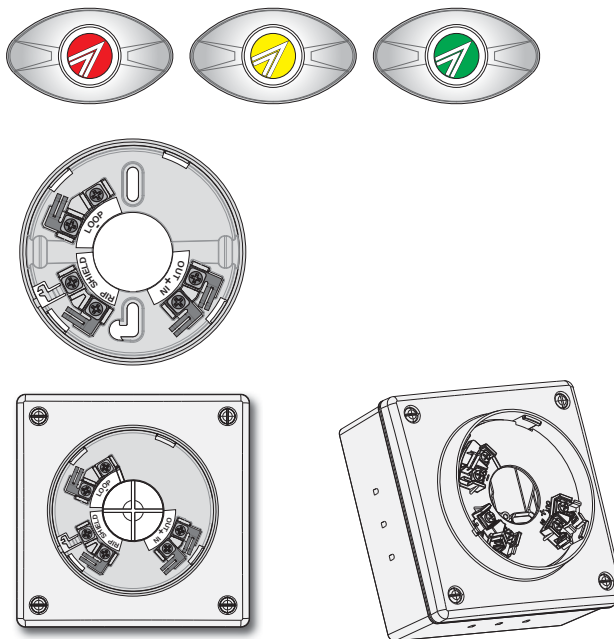
 Mounting base for detectors and siren TFIS01.
 Connector for optical relay.
 Dimensions (D x H) 100 x 19mm.
 White. ABS V0 enclosure.

Item no. TF6TFBASE01

TFBOX-S

 Junction box with integrated mounting base for detectors and siren TFIS01.
 Dimensions (L x H x P) 136 x 136 x 79mm.
 White. ABS V0 enclosure.

Item no. TF5TFBOXS



TFDA-TR1 - Technical specifications and functions

Overview	Device Name	TFDA-TR1
	Description	Addressable thermal detector
	Communication protocol	FIRE-SPEED
	Addressing	3 rotary switches
Settings	Polling frequency	2 levels
	Transmission LED	Excludable signal
	Thermal suffix	R - S - None
	Thermal class	A1/A2 - B
Electrical specifications	Power supply	From loop
	Rated Voltage	24V DC
	Operating voltage	18V...30V DC
	Draw (idle)	350µA @ 24V DC when non transmitting
	Power requirements in alarm	1.5mA @ 24V DC
	Output for repeater	9.4V DC 3mA (protected)
Physical specifications	Line splitter	Intelligent breaker (without loss of devices)
	Operating temperature:	-15°C...+70°C
	Relative Humidity	10% ... 93% (non-condensing)
	Protection class	IP22
	Enclosure	ABS V0
	Dimensions (Ø x H)	100 x 52mm (including base)
	Weight	90g
Conformity	Standards	EN 54-5: 2000 + A1: 2002 - EN 54-17: 2005
	Approval certificate	1293-CPR-0526
	Year of CE marking	16
	Number of the declaration of performance	019_TFDA-TR1
	Certification body	EVPU

 N.B. The declarations of conformity and performance can be found at: www.tecnofiredetection.com