

# TFH-280A

## Analog Addressable Heat Detector

### Technical Manual



**TELEFIRE FIRE & GAS DETECTORS LTD**

PO Box 7036  
Petach Tikva 49250  
Israel

Tel: 972 3 921 1955

Fax: 972 3 921 1816

eMail: [marketing@telefire.co.il](mailto:marketing@telefire.co.il)

Web: [www.telefire.co.il](http://www.telefire.co.il)



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**Note**

The terms "**Trouble**" as used in NFPA 72 guideline, UL 864 and UL 268 standards and "**Fault**" as used in EN 54 standards are used interchangeably throughout this manual.

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**Note**

Do not install, operate, and maintain this product before fully reading this manual.

## 1 Introduction

Telefire's TFH-280A is an advanced Analog Addressable Heat Detector that combines two modes of operation: fixed temperature and rate of temperature rise. It is compatible with the ADR-3000 Analog Addressable Control Panel.

The detector contains a powerful microprocessor enabling accurate control of the heat sensing element, signal processing and two-way communication between the detector and the control panel.

The detector contains an alarm LED that has 360° visibility. This LED flickers during normal operation and is on during an alarm.

Soft-set address – the detector's address is programmed into its memory without the use of mechanical switches or moving parts.

The detector monitors the temperature by using a thermistor that provides an output proportional to the air temperature.

The TFH-280A heat detector can operate in either of two modes that can be configured at the control panel via a menu:

- **Fixed Temperature Mode** – the alarm point is selected between 50°C – 90°C in 1°C steps (122°F to 194°F in 1.8°F increments).
- **Combined Mode** – Rate of Temperature Rise and Fixed heat detection. In this mode the alarm threshold for the rate of temperature rise can be set between 7°C /minute and 13°C /minute (12.6°F and 23.4°F) and the fixed temperature threshold is 60°C (140°F).

The detector contains an alarm LED that has 360° visibility. This LED flashes during normal operation and is latched on during an alarm.

## 2 Compatibility

### 2.1 Control Panels

The TFH-280A is compatible with Telefire's ADR-3000 Analog Addressable Control Panel.

### 2.2 Bases

The TFH-280A is compatible with Telefire's TFB-180 Standard Detector Base.



#### Warning

**Do not connect these detectors to control panels made by manufacturers other than Telefire.**

## 3 Installation

Planning of quantity and location of detectors shall be done according to the local codes and regulations and in accordance to the planning consultant's requirements.

### 3.1 Pre-Installation Planning

#### 3.1.1 Capacity Planning

Ensure that the total number of initiating devices (detectors, switches, call point, etc.) does not exceed the maximum allowed per detection zone, floor area, or other limitations as specified by the applicable standards and regulations. Ensure that the ADR-3000 has an available address for each detector.

### 3.1.2 Cabling Planning

The detector is connected to the control panel via a TFB-180 standard detector base via a two-wire connection (the control panel's SLC loop). The detector has an output for activating a TFL-1AN Auxiliary Signaling Indicator for Analog Addressable Detectors. It is recommended that you use a twisted pair cable for SLC connection. Please look at the technical manuals of the TFB-180 and TFL-1AN for additional details about connecting the SLC cables and TFL-1AN to the base.

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**Note**

Notify the operator or the security personnel that the system will be temporary disconnected before adding detectors to the control panel.

## 3.2 Installation

### 3.2.1 Address Programming

Assign the TFH-280A's address in the range of 1 – 127 prior to installation by using the PROG-4000 Analog Addressable Detector and Accessory Programmer. Please refer to the PROG-4000 manual for additional details.

### 3.2.2 ADR-3000 Configuration

Configure the detector as “**Heat Detector**” in the ADR-3000. Configure the detector's sensitivity at the control panel, if required.

Please refer to the ADR-3000 technical manual for a detailed description of programming and configuration.

### 3.2.3 Location

The TFH-280A Heat Detector is recommended for use in locations where smoke detectors are unsuitable, particularly in areas that are subject to excessive fumes, such as boiler rooms or kitchens.

Observe NFPA 72 guidelines and local fire codes when installing the TFH-280A.

Use only Telefire's TFB-180 Standard Detector Base.

For remote signaling use only Telefire's TFL-1NA Auxiliary Signaling Indicator for Analog Addressable Detectors.

**UL**

**UL Requirement**

Heat detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

### 3.2.4 Connecting to the ADR-3000 SLC Line

Connect the SLC to the detector's base. Refer to the TFB-180 technical manual for wiring diagrams.

All wiring must conform to applicable local codes, ordinances and regulations.

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**Note**

Measure the wiring to ensure there are no shorts before connecting the wiring to the control panel.

Connecting or adding detectors to the control panel shall be done when all power to the control power (AC and batteries) is disconnected.

### 3.3 Post-Installation – Field Test

Perform a field test (also known as "Walk Test") to ensure that all detectors function properly. Please see the control panel's manual for a detailed explanation on how to perform a field test.

Testing is automatic other than the activation of the detector that is done manually by putting a magnet next to the detector's test point. See section 4.1.1 for a detailed explanation on how to perform the test.

Ensure that the detector functions properly and is included in the necessary activation matrices.



**Warning**

**Do not apply naked flame to the detector!**

### 3.4 Documentation

Mark the detector's address on the label.

## 4 Maintenance

The ADR-3000 control panel monitors the analog detectors continuously. Any abnormal condition in the detector will cause a trouble signal to be displayed on the control panel.

### 4.1 Periodic Testing

Fire alarm systems should be checked periodically. Please refer to NFPA and local fire codes to determine service frequency.

Use the control panel's Walk Test mode to perform automatic reset. Please refer to the control panel's manual for additional details on how to perform Walk Test.

#### 4.1.1 Test Procedure – Locally

1. Apply a magnet to the side of the detector next to the LED for 3 – 5 seconds. This activates an internal testing circuit that simulates presence of alarm temperature in the detector, tests the sensing mechanism and the detector's electronic circuit.



**Warning**

**Do not apply naked flame to the detector!**

2. The analog value representing the temperature will be transmitted to the control panel for evaluation. The control panel will transmit a signal to the detector to turn on its LED. During the test the detector's values may be observed at the control panel. Please refer to the ADR-3000 manual for additional information.
3. Once the detector is in alarm mode, it keeps the alarm condition until reset by the control panel. If the control panel is in "Walk Test" mode, it will reset the alarm after a few seconds. Please refer to the ADR-3000 manual for instructions on how to conduct a walk test.

#### 4.1.2 Test Procedure – From the Control Panel

It is also possible to test the detector using the ADR-3000's "Monitor" option menu. Please refer to the ADR-3000 manual for instructions on how to use and interpret the monitor screen.

## 5 Indications and Troubleshooting

The detector includes an indicating LED that flashes with every access from the control panel and is turned solid on during alarm.

A detailed message will also be displayed on the control panel and remote annunciators.

Please see the control panel's manual for a detailed explanation of alarm, fault, and maintenance alarm indication.

## 6 Specification

Diameter .....	101 mm including base
Height (including base and LED).....	52 mm
Weight .....	106 gr.
Operating Temperature Range .....	-10°C – +60°C (14°F – 140°F)
Relative Humidity Range .....	10% – 93% non-condensing
Sensitivity Range (set at control panel)	
Rate of Rise Mode .....	7°C – 13°C /minute or 60°C
Fixed Temperature Mode.....	50°C – 90°C in 1°C increments
Operating Voltage	
(supplied by control panel via SLC).....	21V, Modulated
Maximum Current Consumption:	
Quiescence mode .....	200µA
Alarm mode (without Auxiliary Indicators) .....	2.6mA
Alarm mode (3 Auxiliary Indicators) .....	35mA
Maximum Current to auxiliary indicators .....	50mA
Local Indication	Local red LED (light-emitting diode) and an auxiliary indicator output. Use only Telefire's TFL-1AN Auxiliary Indicator for Analog Addressable Conventional Detectors. Connect up to 5 auxiliary indicators to each detector.

**All values are nominal. Specifications are subject to change without prior notice**

## 7 Certification

Telefire's TFH-280A Analog Addressable Heat Detector has the following approvals:

- EN 54-5 Approved
- IS 1220 Approved
- GOST Approved
- UL 521 Compliant
- CE Marked