

JTGB-HM-TX3H01

JTGB-HM-TX3H02

JTGB-HM-TX3H03

Point-Type Infrared Flame Detector
Installation and Operation Manual



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Product Safety

To prevent severe injury and loss of life or property, read the instruction carefully before installing the module to ensure proper and safe operation of the system.



European Union directive

2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points.



For more information please visit the website at www.recyclethis.info

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1 Introduction

1.1 Overview

The JTGB-HM-TX3H01/JTGB-HM-TX3H02/JTGB-HM-TX3H03 series of point-type infrared flame detectors (hereinafter referred to as 'detector') use multi-spectral signal acquisition technology and full-band wave analysis to avoid the weaknesses of traditional detectors, such as susceptibility to interference. The detectors adopt progressive amplitude modulation (PAM) signal detection technology to monitor the environment, enhancing stability and minimizing false alarms while quickly detecting and identifying flames.

These detectors are suitable for environments such as oil depots, liquor warehouses, aircraft hangars, chemical plants, military facilities, liquefied gas stations, and power plants, where fire incidents involve little or no smoldering and primarily produce open flames. They have strong resistance to interference, are unaffected by wind, rain, high temperatures, high humidity, or artificial/natural light sources, and can function effectively indoors or outdoors.

The detectors use a two-wire bus connection method, allowing direct integration with TANDA fire alarm control panels for fire alarm and fault signal transmission. They can also operate independently, outputting fire alarm signals through a signal line when triggered.

Product Type:

JTGB-HM-TX3H01	Encoded, explosion-proof, two-wire system, infrared single band
JTGB-HM-TX3H02	Encoded, explosion-proof, two-wire system, infrared dual band
JTGB-HM-TX3H03	Encoded, explosion-proof, two-wire system, infrared triple band

1.2 Features

- Two-Wire Bus Connection: Direct integration with the fire alarm system without additional modules.
- High Accuracy, Low False Alarms: Smart algorithms ensure precise fire detection and interference suppression.
- Dual Power Modes: Supports bus-powered operation and 24V independent power supply with switch output.
- High Explosion-Proof Rating: Suitable for various hazardous environments.
- Independent Operation Support: Includes fire alarm and fault contact outputs.

1.3 Technical Specifications

Operating Voltage	DC 24V (Range: 15V–28V)
Operating Current	Power Consumption: ≤0.05W Standby Current: 2mA Alarm Current: 2mA
Spectral Response	3.8μm–5.1μm
Response Time	5s–10s
Detection Angle	≤100°
Sensitivity	Level I, responsive to flames 1m–40m away (flame height: 0.1m–1.3m, flickering flame)
Explosion-Proof Rating	Ex d IIC T6 Gb / Ex tD A21 IP66 T80°C
Explosion-Proof Certificate	CE22.3505
Protection Level	IP66
Environmental Conditions	Temperature: -20°C to +60°C Humidity: ≤98%RH (45±2°C)
Adjustable Angles	360° rotation, 90° tilt
Status Indicators	Green (Normal Operation): Flashes when operational; off when internal components fail; Red (Alarm): Off during normal conditions; solid when detecting fire.

Output Modes	Bus Mode:Red/Black wires connect to loop bus. Non-Bus Mode:Red/Black wires connect to 24V power supply. Alarm Output:Yellow/White wires close when in alarm mode. Fault Output:Blue/Green wires open when in fault mode.		
Contact Capacity	DC 60V/100mA		
Compliance Standards	GB 15631-2008,	GB 3836.1-2010,	GB 3836.2-2010,
	GB 12476.1-2013,	GB 12476.5-2013	
Dimensions	Φ62mm × 163mm		

2 Structure Features and Working Principle

2.1 Appearance



Figure 1: Schematic Diagram of the Detector Appearance

2.2 Internal Structure

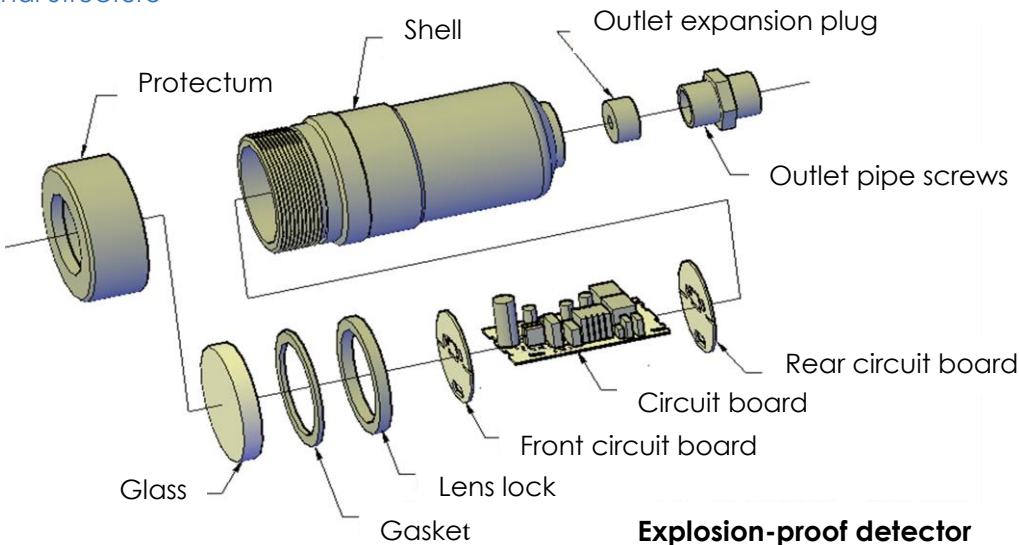


Figure 2: Schematic Diagram of the Detector Internal Structure

2.3 Working Principle

The detector uses infrared multi-band detection technology, capable of detecting the spectral radiation released by material combustion. It determines whether to trigger an alarm based on the strength of the collected signal and flicker characteristics. When the flame radiation reaches the set threshold, the detector will trigger an alarm and transmit the signal to the fire alarm controller.

The detector is explosion-proof and features an aluminum alloy structure to ensure explosion-proof

performance.

3 Installation

3.1 Installation Position

(1) The detector is suitable for industrial environments such as petroleum, chemical, metallurgy, and power industries. In petroleum applications, the protection distance of the detector is 3m to 5m; in chemical applications, it is 5m to 7m; in metallurgy applications, it is 7m to 10m; and in power applications, it is 2m to 10m. (The recommended distances above should be adjusted based on the on-site intensity to determine the detection range).

(2) When installing and wiring the detector, ensure that the monitored area is within the effective detection angle.

(3) The installation of the detector should avoid obstructions as much as possible. For obstacles with horizontal and vertical dimensions not exceeding 0.5 meters, the distance from the detector to the obstacle should be greater than 2.5 meters. For obstacles with horizontal and vertical dimensions exceeding 0.5 meters and unavoidable, the number of detectors should be appropriately increased.

3.2 Installation Methods

The detector can be installed on the ceiling, wall, or a fixed bracket. The detection direction should be oriented with the window facing downward by more than 0.3 meters. It is important to avoid infrared interference sources within the detection angle, and to ensure that the detected target's flames do not directly contact the detector during a fire event. When automatic sprinklers or other fire protection systems are activated, minimize their impact on the detector, and protective measures should be taken if necessary. The detection distance can be determined based on fire characteristics, but generally should not be less than 1.5 meters. The installation height is typically not less than 2.5 meters.

3.3 Mounting dimension

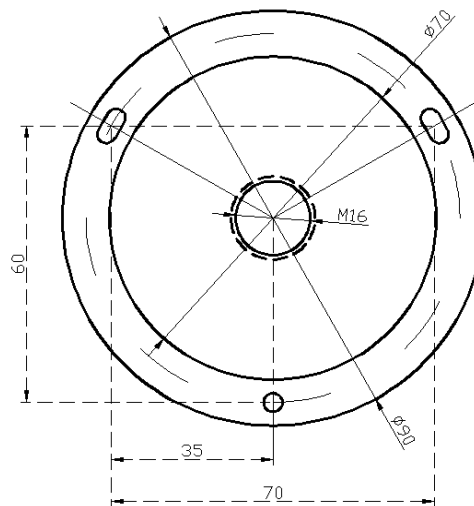


Figure 3 Schematic diagram of detector installation dimensions (unit: mm)

3.4 Debugging

1) Encoding

The detector alarm bus is connected to the handheld encoder to encode the detector. The encoding range is 1 ~ 200. Please refer to the Manual for Handheld encoder for detailed steps and methods.

2) Registration

Switch on the fire alarm controller for online device registration, the green light flashes, the detector

enters the normal monitoring state, and check whether the number of detectors installed is consistent with the number of detectors registered by the controller.

3) Test

Use the fire source to make the detector alarm, you can use the ordinary lighter to shake 1 meter away from the detector, the detector fire indicator will be steady on, and send an alarm message to the controller.

After the test, the detector is reset by the fire alarm controller.

3 Wiring

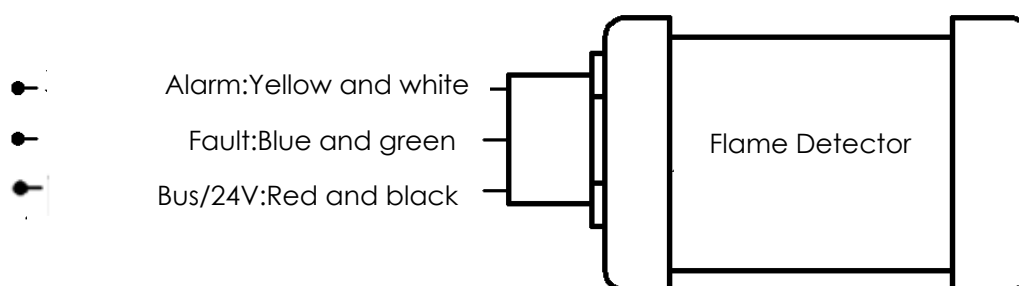


Figure 4 Detector interface identification reference figure

Wiring requirements: red and black lines are connected to the fire alarm loop bus, flame retardant or fire-resistant twix-sheathed cables with cross-sectional area ~ should be selected, and the detector shell should be well grounded to meet the explosion-proof specifications.

4 Instructions

5.1 Alarm Handling

When an alarm occurs, you can press the "silence" key of the fire alarm controller to terminate the alarm sound, and then check the alarm part according to the alarm information of the detector to confirm whether there is a fire; If a fire is confirmed, corresponding measures should be taken according to the fire situation. If it is a false alarm, check whether there is a false alarm source at the false alarm site and confirm whether it is caused by human or other factors.

5.2 Troubleshooting and Exceptions

When a fault occurs, you can press the "silence" key of the fire alarm controller to terminate the alarm sound, and then check the fault part according to the fault information of the detector, and corresponding measures should be taken according to the situation:

- (1) If the detector is faulty, it can be preliminarily solved by referring to Chapter 8 maintenance.
- (2) When the cause of the fault is unknown or cannot be recovered, please notify the installation unit or the manufacturer for maintenance as soon as possible.

5 Operation and Maintenance

General fault query table

Red pipe	Green pipe	Fault Output	Fault type	Cause and solution
	Flashing	Have	Power-up anomaly	Internal power supply or component failure. Re-power on or contact the manufacturer

Solid on	Flashin	Have	Dust accumulation fault	Wipe the lens with tissue and recalibrate the detector angle
Simultaneous flashing		Have	Function query anomaly	Malfunction or strong electric field interference. Re-power on or contact the manufacturer
Alternating flashing		Have	Data storage anomaly	Strong electric field interference or data component failure. Re-power on or contact the manufacturer

- Inspect and clean the detector window every 3–6 months.
- Ensure secure mounting and correct orientation.
- Check wiring connections for stability.
- Conduct flame simulation tests every 3–6 months to verify alarm functionality.
- Do not disassemble the detector while powered.
- Use only the specified power supply to prevent damage.
- Do not modify explosion-proof components or circuits without approval.
- Protect installation components and seals. Replace damaged or missing parts immediately.

6 Instructions

7.1 Transportation and Storage

(1) General transportation uses carton packaging. Dividers are used inside the carton to separate items. Common transportation methods can be used, with proper moisture and rain protection. The packaging box should not be inverted.

(1) General transportation uses carton packaging. Dividers are used inside the carton to separate items. Common transportation methods can be used, with proper moisture and rain protection. The packaging box should not be inverted.

(2) The equipment should be stored in a well-ventilated, dry warehouse, free from corrosive gases such as acids and alkalis. It should be kept away from strong vibrations, shocks, and intense electromagnetic fields.

7.2 Environmental Impact

This equipment meets national standards for environmental protection and safety, and has no adverse effects on the environment. Recycling and disposal should be carried out according to relevant regulations.

7.3 Precautions

- 1) The installation of detectors should comply with relevant national standards and regulations.
- 2) In case of malfunction, contact the maintenance unit in a timely manner. Disassembly is strictly prohibited.
- 3) After the detector is officially in use, it should be regularly maintained and cleaned.
- 4) During maintenance, the logical control of the maintenance area should be cut off to avoid unnecessary alarm interactions.

Disclaimer: The company's products are not covered under warranty if failure is caused by human damage, improper use, or unauthorized modifications or disassembly. The company will not bear any responsibility for any consequences arising from these actions.