Brief Operation Manual

NAFD-400IR

Fixed-Type Infrared Flame Detector

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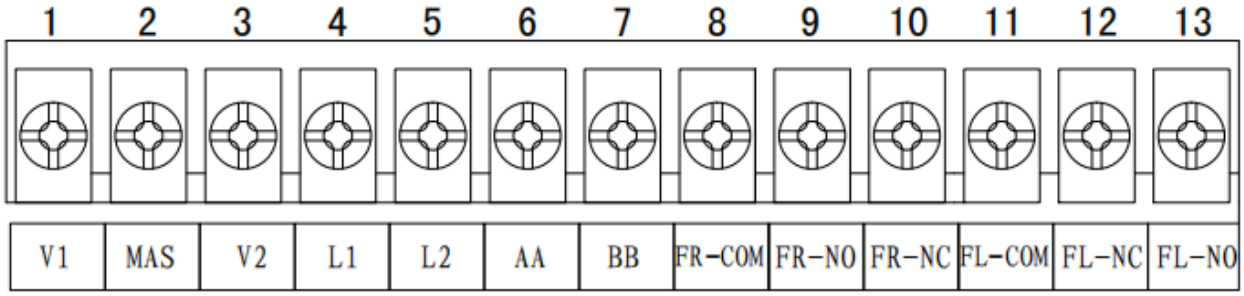
1、Electrical Connection and Commissioning

The corresponding relationship between the connection cable and the internal terminal block is as shown in the figure：



Connection Cable to Internal Terminal Block Wiring Diagram

Detector Wiring Definitions are shown in the table below：

No.	Definition	Circuit Characteristics	Description
1	V1	+24V	Positive power supply
2	MAS	Current output terminal	Reserved
3	V2	GND	Negative power supply
4	L+	Bus interface positive	Fire protection bus interface
5	L-	Bus interface negative	
6	AA	RS-485 communication terminal	Reserved
7	BB	RS-485 communication terminal	
8	FR-COM	Alarm relay common terminal	Fire alarm output (normally open during normal operation; closes upon fire alarm)
9	FR-NO	Alarm relay normally open terminal	
10	FR-NC	Alarm relay normally closed terminal	
11	FL-COM	Fault relay common terminal	Fault output (closes after power-on; opens upon fault or power loss)
12	FL-NC	Fault relay normally closed terminal	
13	FL-NO	Fault relay normally open terminal	

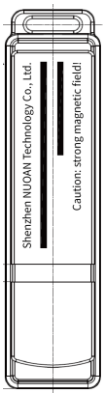
1.1、 Status Indication

During operation, the working status of the detector can be monitored through the status indication LEDs (as shown in the table below).

Status / **Action**	Normal	Alarm	Fault
LED Indication	Green flashing	Red steady on	Yellow steady on
Current Output	4 mA	20 mA	2 mA
FR Contact	Open	Closed	Open
FL Contact	Closed	Closed	Open

2、 Operation Methods

2.1、Adjustment Tools



Magnetic Adjustment Bar

2.2、Detection Sensitivity Setting

The detector detection sensitivity is divided into four levels (Level I, Level II, Level III, and Level IV). The detection sensitivity can be set using a magnetic wand. To set the sensitivity, bring the magnetic wand close to the position approximately 30 degrees to the left and right below the detector viewing window. When the red indicator lights up, the setting is successful. Remove the magnetic wand, and the patrol indicator will flash once more, increasing the sensitivity by one level. This can be set continuously up to Level IV; applying the magnetic wand again will cycle back to Level I to meet the requirements of different application environments.

2.3、Detector Self-Test

After the detector is powered on, it enters self-test mode: If the green indicator flashes, the detector has entered patrol mode; if the yellow indicator remains steadily on, the detector has a fault. Please check and confirm the DC24V power cable connection, or contact an authorized service provider for repair or replacement.

2.4、On-Site Detector Verification

The detector installation site is located in a hazardous area where open flames are strictly prohibited. To verify detector functionality, a flame simulator may be used for testing. Prior to testing, the alarm system should be switched to manual or disabled mode to prevent equipment activation upon detector alarm, thereby avoiding unnecessary losses.

Within a range of 0.5 m to 3 m from the flame detector, press the button to activate the flame simulator light source switch. Align the flame simulator's indicating laser with the detector under test and gently move it from side to side until the detector indicator turns red. Depending on the detector sensitivity

setting, the alarm response time typically ranges from 4 to 28 seconds. If the detector does not respond within 30 seconds, this indicates low sensitivity or detector malfunction, requiring replacement or repair.

3、 Operation and Maintenance

1）The detector enters normal operation immediately upon power-on; when a fire alarm occurs, the indicator turns red.

2）When integrating the detector into the system, complete testing should be performed in advance: place a flame within the detector's effective field of view, continuously shake or fan the flame rapidly to create continuous flickering, and observe its alarm function and detection range.

3）The detector window glass surface should be inspected regularly for cleanliness and wiped periodically. Contaminated window glass will affect detector sensitivity and may, in severe cases, prevent the detector from alarming during an actual fire condition.

4）Opening the detector cover while powered is strictly prohibited. Before cleaning, temporarily disable the detector and disconnect the logic control function of the area or system under maintenance to avoid unnecessary alarm activations.

5）Use only the specified detector operating power supply; non-compliant power supplies may damage the detector.

6）Detector wiring must be secure and correct; the detector shield braid shall be connected to the enclosure, with grounding firmly established.

7）Users shall not disassemble the detector arbitrarily to avoid unnecessary damage or losses.

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