User Manual - Dahua DHI-HY-BD1

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1. Introduction

The **Dahua DHI-HY-BD1** is a **reflective infrared beam smoke detector**, designed to detect smoke presence in large open spaces. It operates by measuring the attenuation of infrared light caused by smoke in its optical path. It is ideal for factories, warehouses, airports, stations, and other large areas with unobstructed spaces.

This detector transmits the alarm signal to the **fire alarm control panel (FACP)** and features an automatic calibration system using a **stepper motor and assisted laser positioning**.

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2. Key Features

- **Simple Installation and Wiring**: Two-wire power supply without polarity, compatible with DC24V or dual-bus fire protection systems.
- **Auto-Calibration**: Automatic angle adjustment via stepper motor, eliminating manual handling.
- **High Immunity to Interference**: Neural network-based recognition algorithm minimizes false alarms from natural light.
- **Adjustable Sensitivity**: Three sensitivity levels to adapt to different environments.
- **Low Power Consumption**: Ultra-low monitoring and alarm current.
- **Drift Compensation**: Compensation algorithm for dust accumulation, reducing maintenance frequency.
- **IP65 Protection**: Resistant to dust and water, suitable for demanding environments.

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3. Installation

3.1. Prerequisites

Before installation, ensure you have:

- A clear, unobstructed area for detection.
- A stable wall mount for the detector.
- Connection to a compatible fire alarm control panel (FACP).
- Tools for mounting and alignment.

3.2. Installation Procedure

1. **Mount the Detector**: Secure the detector to the wall using the appropriate brackets.
2. **Electrical Connection**: Connect the detector to the DC24V power supply or dual-bus system.
3. **Automatic Calibration**: Activate calibration via manual or automatic encoder.
4. **Angle Adjustment**: Use laser positioning and the integrated stepper motor.
5. **System Verification**: Ensure communication with the FACP and conduct alarm tests.

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4. Usage and Maintenance

- **Regular Testing**: Perform periodic functional tests to ensure proper operation.
- **Sensor Cleaning**: Inspect and clean the detector optics to prevent dust buildup.
- **Alignment Check**: Review detector and reflector alignment every 6 months.
- **Firmware Updates**: Contact Dahua technical support for possible updates.

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5. Troubleshooting

Issue	Possible Cause	Solution
Smoke not detected	Misaligned sensor	Recalibrate beam alignment
Frequent false alarms	External light reflection	Adjust sensitivity and verify positioning
No communication with FACP	Incorrect wiring	Check and correct wiring connections

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6. Technical Specifications

- **Model**: DHI-HY-BD1
- **Operating Voltage**: DC24V
- **Monitoring Current**: ≤ 0.5mA
- **Operating Current**: ≤ 0.9mA
- **Maximum Optical Path Deviation**: ±0.5°
- **Optical Path Length**: 10 m - 100 m
- **Storage Temperature**: –10°C to +55°C
- **Operating Humidity**: ≤ 95% RH (non-condensing)
- **Dimensions**: 117 mm × 152 mm × 85.5 mm
- **Protection**: IP65
- **Color**: White

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7. Warranty and Support

For technical assistance and updates, refer to Dahua’s official documentation or contact authorized technical support.