Shimpo CNTL-3AR

Shimpo CNTL-3AR Dirty Filter Alarm User Manual

Model: CNTL-3AR

1. Introduction

1.1 About the Shimpo CNTL-3AR

The Shimpo CNTL-3AR is a sophisticated dirty filter alarm system designed to monitor the condition of HVAC air filters. Utilizing patented FilterPulse™ technology, it provides an accurate indication of when a filter requires replacement, optimizing HVAC system performance and energy efficiency.

1.2 Key Features

- Requires a separately sold sensor bracket (BKT-001, BKT-002, or BKT-004) to form a complete dirty air filter detection system.
- Accurately detects dirty filter status regardless of environmental and mechanical changes within the HVAC system.
- Enables filter replacement only when the system demands it, preventing premature changes.
- Contributes to energy savings by ensuring optimal airflow and lower electric bills.
- Helps to lengthen the lifetime of your HVAC system by preventing strain from clogged filters.

2. Product Overview

2.1 Package Contents

Upon unpacking your Shimpo CNTL-3AR, please verify that all items listed below are present:

- Control Enclosure (CNTL-3AR unit)
- Mounting Brackets with Screws
- Cable Clamp Connectors

Note: The sensor bracket is sold separately and is essential for system operation.

2.2 Components

The CNTL-3AR system consists of the main control enclosure and a compatible sensor bracket (purchased separately). The control enclosure houses the electronics for the FilterPulse™ technology and the alarm mechanism.



Figure 1: Shimpo CNTL-3AR Control Enclosure

The sensor bracket, available in different sizes (BKT-001 for 1" filters, BKT-002 for 2" filters, BKT-004 for 4.5" filters), is designed to hold the light emitter and receiver components that interact with the air filter.



Figure 2: Various Sensor Brackets (Sold Separately)

3. Setup and Installation

3.1 Before You Begin

- Ensure you have the correct sensor bracket for your filter thickness (BKT-001, BKT-002, or BKT-004).
- Turn off power to the HVAC system before beginning installation.
- The CNTL-3AR requires a 24VAC power source.

3.2 Installation Steps

1. **Mount the Sensor Bracket:** Install the chosen sensor bracket within the HVAC system's filter housing, ensuring the light path is clear and unobstructed by the filter. Refer to the sensor bracket's specific instructions for optimal placement.
2. **Mount the Control Enclosure:** Secure the CNTL-3AR control enclosure in a suitable location near the HVAC system, using the provided mounting brackets and screws. The NEMA 4X enclosure is designed for robust environments.
3. **Connect Wiring:**

- Connect the sensor bracket's cable to the designated terminals on the CNTL-3AR control enclosure.
- Connect the 24VAC power supply to the appropriate power input terminals on the CNTL-3AR. Ensure proper polarity if specified.
- If connecting to an external alarm or building management system, wire the alarm output terminals as required.

4. **Insert New Filter:** Place a new, clean air filter into the HVAC system's filter housing.
5. **Restore Power:** Turn on the power to the HVAC system.

4. Operation

4.1 FilterPulse™ Technology

The FilterPulse™ technology operates by shining a light beam through the HVAC air filter and measuring the amount of light that passes through. As the filter accumulates dust and debris, less light will transmit through it.

4.2 Initial Calibration and Reset

After installing a new, clean filter, press the **Filter Reset** button on the CNTL-3AR. This action calibrates the sensor by taking an initial light measurement, establishing a clean filter baseline. All subsequent measurements will be compared against this baseline.

4.3 Alarm Activation

The CNTL-3AR continuously monitors the filter's condition. When the measured light transmission falls below a user-set trip point (indicating a sufficiently dirty filter), the alarm will activate. This signals that the filter needs to be replaced to maintain optimal HVAC performance and energy efficiency.

5. Maintenance

5.1 Filter Replacement

When the CNTL-3AR alarm activates, it is time to replace your HVAC air filter. Follow these steps:

1. Turn off power to the HVAC system.
2. Remove the old, dirty filter.
3. Insert a new, clean filter of the appropriate size and type.
4. Restore power to the HVAC system.
5. Press the **Filter Reset** button on the CNTL-3AR to calibrate the system to the new filter.

5.2 Cleaning

Periodically inspect the sensor bracket's light emitter and receiver for any dust or debris accumulation. Gently wipe them clean with a soft, dry cloth to ensure accurate readings. The control enclosure itself requires minimal cleaning; wipe the exterior with a damp cloth if necessary.

6. Troubleshooting

6.1 Common Issues

- **Alarm Not Activating When Filter is Dirty:**
  - Check power supply to the CNTL-3AR (24VAC).
  - Ensure sensor bracket is correctly installed and connected.
  - Verify the sensor's light path is not obstructed by anything other than the filter.
  - Confirm the initial reset was performed with a clean filter.
- **Alarm Activating Too Soon/Too Late:**
  - The CNTL-3AR may have an adjustable trip point. Refer to specific product documentation or contact support for adjustment procedures if available.
  - Ensure the initial reset was performed with a truly clean filter.
- **No Power Indication:**
  - Check the 24VAC power source and connections to the CNTL-3AR.
  - Inspect wiring for any damage or loose connections.

7. Specifications

Feature	Specification
Model Number	CNTL-3AR
Power Requirement	24VAC
Enclosure Rating	NEMA 4X
Package Dimensions	6 x 6 x 3.5 inches
Weight	1 Pound
Country of Origin	USA

8. Warranty and Support

For warranty information or technical support regarding your Shimpo CNTL-3AR Dirty Filter Alarm, please contact Shimpo customer service or visit the official Shimpo website. Ensure you have your product model number (CNTL-3AR) and purchase details available when seeking support.

Visit the Shimpo Store for more information:Shimpo Store on Amazon

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