ACI A/100KS-D-4"-PB

Instruction Manual

ACI A/100KS-D-4"-PB Duct Temperature Sensor

Model: A/100KS-D-4"-PB | Brand: ACI

1. INTRODUCTION

The ACI A/100KS-D-4"-PB Duct Temperature Sensor is a precision instrument designed for accurate temperature measurement within HVAC, building automation, and light industrial systems. This sensor utilizes a 100k ohm thermistor at 77°F (25°C) to provide reliable temperature data. Its robust design includes a plastic duct mount configuration with a mounting flange for easy installation and a foam pad to minimize vibration. The sensing element is double encapsulated to prevent moisture infiltration, ensuring long-term performance and reliability.

Typical applications for this sensor include zone control, air handling units, and general temperature monitoring within ductwork environments.

2. SAFETY INFORMATION

Please read all instructions carefully before installation and operation. Failure to follow these instructions may result in equipment damage or personal injury.

- Disconnect all power to the system before installation or maintenance.
- Installation should be performed by qualified personnel in accordance with all local and national electrical codes.
- Do not exceed the specified operating temperature or humidity ranges.
- Avoid exposing the sensor to corrosive chemicals or excessive mechanical stress.
- Ensure proper grounding to prevent electrical hazards.

3. COMPONENTS AND PACKAGE CONTENTS

Verify that all components are present and undamaged before proceeding with installation.

- ACI A/100KS-D-4"-PB Duct Temperature Sensor (with integrated plastic enclosure and 4-inch probe)
- Mounting Screws (typically included, verify with packaging)

Figure 3.1: ACI A/100KS-D-4"-PB Duct Temperature Sensor. This image shows the ACI A/100KS-D-4"-PB Duct Temperature Sensor. It features a black plastic enclosure with a metal temperature probe extending upwards. The enclosure has a mounting flange and visible knockouts for wiring.

4. SETUP AND INSTALLATION

The ACI duct temperature sensor is designed for straightforward installation in ductwork.

4.1. Site Selection

1. Choose a location in the ductwork that provides a representative temperature reading of the air stream. Avoid areas directly downstream of coils, fans, or other heat sources/sinks that could skew readings.
2. Ensure sufficient clearance for mounting the plastic enclosure and inserting the probe into the duct.

4.2. Mounting

1. Drill a hole in the ductwork large enough to accommodate the 4-inch sensor probe.
2. Position the sensor's mounting flange against the duct surface. The integrated foam pad on the enclosure

helps dampen vibrations and provides a seal.

3. Secure the enclosure to the duct using appropriate screws through the mounting holes on the flange.

4.3. Wiring

1. Open the plastic enclosure.

2. Route the necessary wiring through one of the knockouts provided on the enclosure.

3. Connect the sensor wires to your building automation system or controller according to the system's wiring diagram. Refer to the specifications section for thermistor resistance values.

4. Ensure all connections are secure and insulated.

5. Close the enclosure securely after wiring is complete.

5. OPERATING PRINCIPLES

The A/100KS-D-4"-PB sensor operates on the principle of thermistor resistance change with temperature. A thermistor is a type of resistor whose resistance is strongly dependent on temperature, more so than in standard resistors. As the ambient air temperature within the duct changes, the resistance of the 100k ohm thermistor element changes accordingly. Your building automation system or controller measures this resistance change and converts it into a temperature reading.
The double-encapsulated sensing element ensures that the thermistor remains protected from moisture, which is crucial for maintaining accuracy and longevity in duct environments.

6. MAINTENANCE

The ACI Duct Temperature Sensor is designed for minimal maintenance. However, periodic checks can ensure optimal performance.

- **Annual Inspection:** Annually inspect the sensor and its wiring for any signs of physical damage, corrosion, or loose connections.

- **Cleaning:** If dust or debris accumulates on the probe or enclosure, gently wipe it clean with a soft, dry cloth. Do not use abrasive cleaners or solvents.

- **Recalibration:** While these sensors are generally stable, if significant discrepancies in temperature readings are observed, consult your building automation system's documentation for recalibration procedures or consider professional service.

7. TROUBLESHOOTING

This section provides solutions to common issues you may encounter.

Problem	Possible Cause	Solution
No temperature reading or incorrect reading.	Loose wiring connection. Sensor damaged. Incorrect wiring to controller. Controller input misconfigured.	Check all wiring connections for tightness. Inspect sensor for physical damage. If damaged, replace. Verify wiring against controller's specifications. Confirm controller input is set for a 100k ohm thermistor.

Problem	Possible Cause	Solution
Temperature reading is consistently high/low.	Sensor located in an unrepresentative area. Calibration offset in controller. Sensor aging.	Relocate sensor to a more appropriate position in the duct. Check controller settings for any applied offsets and adjust if necessary. If sensor is old, consider replacement.
Intermittent readings.	Loose connection. Interference. Moisture ingress (unlikely due to encapsulation).	Check and secure all wiring connections. Ensure wiring is routed away from sources of electrical interference. Inspect enclosure for signs of damage that could allow moisture.

8. SPECIFICATIONS

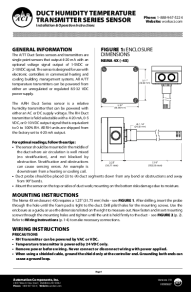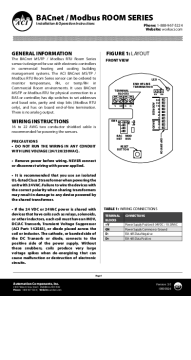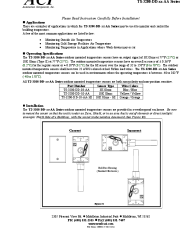| Attribute	Value
Model	A/100KS-D-4"-PB
Brand	ACI (Automation Components Inc.)
Sensor Type	Thermistor
Resistance	100k ohms @ 77°F (25°C)
Probe Length	4 inch
Enclosure Material	Plastic
Mounting	Duct Mount with Flange
Special Features	Foam pad for vibration dampening, Double encapsulated sensing element
ASIN	B01M0V9CEK
Date First Available	September 22, 2016

9. WARRANTY AND SUPPORT
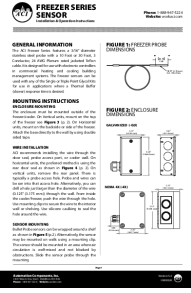
For specific warranty information, please refer to the documentation provided with your purchase or visit the official ACI website. ACI products are typically covered by a manufacturer's warranty against defects in materials and workmanship.

For technical support, troubleshooting assistance beyond this manual, or to inquire about replacement parts, please contact ACI customer service or your authorized distributor. Contact information can usually be found on the manufacturer's website or on your purchase invoice.

Manufacturer: Automation Components Inc. (ACI)

Website: www.workaci.com (Example link, verify official site)

Related Documents - A/100KS-D-4"-PB

[ACI Freezer Series Sensor Installation and Operation Instructions](#)
Comprehensive guide for installing, operating, and troubleshooting ACI Freezer Series temperature sensors. Includes product specifications, wiring diagrams, and mounting instructions for commercial HVAC and building management systems.

[Installation Guide for ACI Series Cassette Air Conditioners](#)
Detailed installation instructions for ACI series cassette air conditioners, including safety precautions, mounting dimensions, and connection procedures. Covers models like ACI-25HRDC1C, ACI-35HRDC1C, ACI-53HRDC1C, ACI-71HRDC1A, ACI-105HRDC3A, ACI-140HRDC3A, and ACI-180HRDC3A.

[ACI Duct Humidity Temperature Transmitter Series Sensor Installation and Operation](#)
Installation and operation instructions for ACI's Duct Humidity Temperature Transmitter Series Sensors (A/TT and A/RH). Covers general information, mounting, wiring, calibration, troubleshooting, and product specifications for HVAC building management systems.

[ACI BACnet/Modbus Room Series Sensor Installation and Operation Manual](#)
Comprehensive installation and operation guide for the ACI BACnet MS/TP and Modbus RTU Room Series temperature and humidity sensors. Covers wiring, mounting, configuration, and specifications for building management systems.

[ACI TS-3200-DD-xx-AA Series Outdoor Temperature Sensor Installation and Operation](#)
Installation and operation instructions for the ACI TS-3200-DD-xx-AA Series outdoor mounted temperature sensors. Includes applications, operating specifications, installation guidelines, troubleshooting tips, and WEEE directive information.