Warrick 3E1B

Warrick 3E1B Multi-Probe Fitting Red Brass Level Control Sensor Instruction Manual

Model: 3E1B | **Brand:** Warrick

1. Introduction

The Warrick 3E1B Multi-Probe Fitting Red Brass is a conductivity electrode designed for reliable liquid level control applications. This sensor is engineered for industrial environments, capable of withstanding pressures up to 250 PSI and temperatures up to 406°F. It features a 1-inch NPT connection for secure and robust installation. This manual provides essential information for the proper setup, operation, and maintenance of your Warrick 3E1B sensor.

2. Setup and Installation

Proper installation is crucial for the accurate and safe operation of the Warrick 3E1B sensor. Always ensure power is disconnected before beginning any installation or maintenance procedures.

2.1 Mechanical Installation

1. **Mounting Location:** Select a mounting location that allows for easy access for maintenance and ensures the probes will be immersed in the liquid at the desired control levels.
2. **Threaded Connection:** The 3E1B features a 1-inch NPT (National Pipe Taper) connection. Apply appropriate thread sealant to the sensor's threads and carefully screw it into the mating pipe or vessel opening. Tighten securely to prevent leaks, but do not overtighten.
3. **Pressure and Temperature Limits:** Ensure the operating pressure does not exceed 250 PSI and the operating temperature does not exceed 406°F. Exceeding these limits can damage the sensor and compromise safety.

Figure 1: Warrick 3E1B Multi-Probe Fitting with the cover removed, illustrating the internal electrode connection points.

2.2 Electrical Connections

1. **Power Disconnection:** Always ensure that all power to the control system is disconnected before making any electrical connections.
2. **Wiring:** Connect the sensor to a compatible Warrick control relay (sold separately) according to the relay's wiring diagram. The 3E1B is a multi-probe fitting, allowing for connection of multiple probes for different level detection points (e.g., high, low, common).
3. **Grounding:** Ensure proper grounding of the sensor and control system to prevent electrical hazards and ensure reliable operation.
4. **Enclosure:** After wiring, securely replace the sensor's cover to maintain its environmental rating and protect internal components.

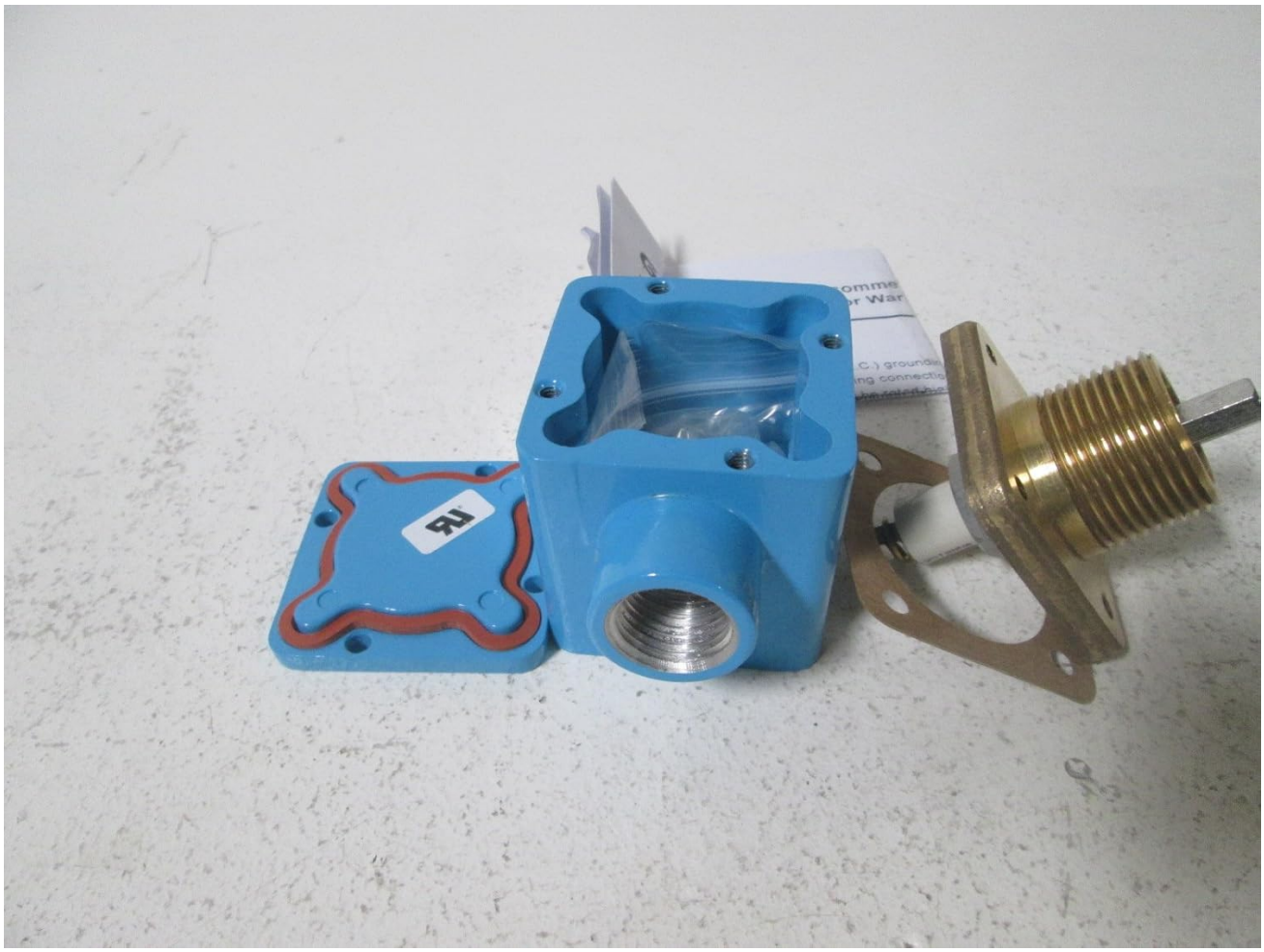

Figure 2: Side view of the Warrick 3E1B Multi-Probe Fitting, highlighting the 1-inch NPT threaded connection for process integration.

3. Operating Principles

The Warrick 3E1B sensor operates on the principle of electrical conductivity. When the liquid level rises and makes contact with a probe, an electrical circuit is completed between the probe and a common reference (typically the vessel wall or a common probe). This change in conductivity is detected by a connected control relay, which then activates or deactivates a connected device (e.g., pump, valve, alarm) to maintain the desired liquid level.

- **Conductive Liquids:** This sensor is designed for use with electrically conductive liquids. Non-conductive liquids (e.g., oils, distilled water) will not be detected.
- **Multi-Probe Functionality:** The multi-probe design allows for precise control of liquid levels, enabling differential control (e.g., starting a pump at a low level and stopping it at a high level) or alarm activation at specific points.

4. Maintenance

Regular maintenance ensures the longevity and reliable performance of your Warrick 3E1B sensor.

- **Periodic Inspection:** Visually inspect the sensor and probes periodically for any signs of corrosion, damage, or material buildup.
- **Probe Cleaning:** If the probes become coated with scale, sludge, or other non-conductive materials, clean them thoroughly. Disconnect power before cleaning. Use a non-abrasive cleaner suitable for the probe material and process liquid.
- **Connection Check:** Verify that all electrical connections are secure and free from corrosion.
- **Gasket Integrity:** Ensure the enclosure gasket is intact and properly seated to maintain the sensor's

environmental protection.

5. Troubleshooting

If you encounter issues with your Warrick 3E1B sensor, consider the following troubleshooting steps:

- **No Level Detection:**
  - Check if power is supplied to the control relay.
  - Verify all electrical connections are correct and secure.
  - Inspect probes for heavy coating or damage that might prevent electrical contact. Clean if necessary.
  - Ensure the liquid is sufficiently conductive for the sensor to operate.
- **Erratic Readings:**
  - Check for electrical interference from nearby equipment.
  - Inspect for partial coating on probes that might cause intermittent contact.
  - Verify proper grounding of the system.
- **Leaks at Connection:**
  - Ensure the NPT connection is properly sealed with thread sealant and tightened to the correct torque.
  - Check for damage to the threads on either the sensor or the mating pipe.

6. Specifications

Feature	Specification
Model Number	3E1B
SKU	B222030
Type	Conductivity Electrode / Sensor
Material	Red Brass
Maximum Pressure	250 PSI
Maximum Temperature	406°F
Process Connection	1-inch NPT
Product Dimensions	9 x 8 x 5 inches
Item Weight	1 pounds
Manufacturer	WARRICK
ASIN	B008FVD4NG
Date First Available	December 11, 2014

7. Warranty Information

No specific warranty information is provided with this manual. For details regarding the warranty period and terms for the Warrick 3E1B Multi-Probe Fitting, please refer to the manufacturer's official documentation, product packaging,

or contact your authorized supplier or distributor.

8. Support and Contact

For technical assistance, product inquiries, or support, please contact Warrick customer support or your authorized distributor. When contacting support, please have the following information readily available:

- Product Model Number: **3E1B**
- Product SKU: **B222030**
- Date of Purchase
- Description of the issue