TEMPCO Type K HD

TEMPCO Type K HD Magnet Thermocouple Instruction Manual

Model: Type K HD | Brand: TEMPCO

1. Introduction

This manual provides comprehensive instructions for the proper installation, operation, and maintenance of your TEMPCO Type K HD Magnet Thermocouple. This device is engineered for accurate and reliable temperature measurement in various industrial applications, utilizing a magnetic attachment for convenient surface temperature sensing.

2. Product Overview

The TEMPCO Type K HD Magnet Thermocouple is a robust temperature sensing device. It features a spring-loaded thermocouple element attached to a 6-pole magnet, ensuring consistent contact with ferromagnetic surfaces for precise temperature readings. The thermocouple utilizes Type K insulation (PTFE) and comes with a 12-foot lead length, terminating in fork terminals for easy connection.

Figure 1: TEMPCO Type K HD Magnet Thermocouple. This image displays the complete thermocouple assembly, including the magnetic probe head, the braided lead wire, and the fork terminal connectors.

Key Features:

- **Thermocouple Type:** K
- **Insulation:** PTFE
- **Lead Length:** 12 ft (144 inches)
- **Error Accuracy:** +/-2.2 °C, +/-0.75 %
- **Temperature Limit:** 400 °F
- **Thermocouple Element:** 20 AWG
- **Construction:** Spring-loaded thermocouple attached to a 6-pole magnet
- **Probe Length:** 1.25 inches
- **Material:** 304 Stainless Steel
- **Grounded** / **Ungrounded:** Grounded
- **Connector Type:** Fork Terminal

3. Safety Information

Adherence to safety guidelines is crucial for preventing injury and equipment damage. Please read and understand all safety instructions before installing or operating the thermocouple.

- Always disconnect power to the measurement system before making any electrical connections or disconnections.

- Do not exceed the specified temperature limit of 400 °F (204 °C). Exceeding this limit can damage the thermocouple and lead to inaccurate readings.
- Ensure proper electrical polarity when connecting the thermocouple to a temperature controller or data acquisition system. Incorrect polarity will result in inaccurate readings.
- Avoid placing the thermocouple in direct contact with live electrical circuits unless specifically designed and rated for such applications.
- Handle the lead wire carefully to prevent damage to the insulation or internal conductors.
- Consult local electrical codes and safety regulations for proper installation and operation.

4. Setup

4.1 Unpacking

Carefully remove the thermocouple from its packaging. Inspect the device for any visible damage that may have occurred during shipping. If any damage is observed, do not proceed with installation and contact your supplier.

4.2 Installation

Follow these steps to properly install your TEMPCO Type K HD Magnet Thermocouple:

1. **Prepare the Connection Point:** Ensure the temperature controller or data acquisition system is powered off and ready to receive a Type K thermocouple input.
2. **Connect the Fork Terminals:** Connect the red fork terminal to the positive (+) input and the white fork terminal to the negative (-) input of your temperature monitoring device. Type K thermocouples use specific color codes for polarity.
3. **Select Measurement Surface:** Identify a clean, ferromagnetic surface where temperature measurement is required. Ensure the surface is free from debris, rust, or paint that could impede good thermal contact.
4. **Attach the Magnet:** Firmly place the magnetic probe head onto the selected ferromagnetic surface. The 6-pole magnet and spring-loaded design will ensure optimal contact for accurate temperature transfer.
5. **Secure the Lead Wire:** Route the 12-foot lead wire away from potential hazards, excessive heat, or moving parts. Use appropriate cable management techniques to prevent strain or damage to the wire.

5. Operating Instructions

Once installed, operating the TEMPCO Type K HD Magnet Thermocouple is straightforward:

1. **Verify Attachment:** Ensure the magnetic probe is securely attached to the measurement surface and that the lead wire connections are firm.
2. **Power On System:** Power on your temperature controller or data acquisition system.
3. **Monitor Readings:** Observe the temperature readings on your connected device. Allow a few moments for the thermocouple to stabilize and provide an accurate reading of the surface temperature.
4. **Adjust Placement (if needed):** If readings appear inconsistent or inaccurate, temporarily power off your system, re-evaluate the probe's placement, and ensure optimal surface contact.

6. Maintenance

Regular maintenance ensures the longevity and accuracy of your thermocouple.

- **Inspect Lead Wire:** Periodically inspect the entire length of the lead wire for any signs of fraying, cuts, or damage to the PTFE insulation. Replace the thermocouple if significant damage is found.

- **Clean Magnet Surface:** Keep the magnetic probe head clean and free of dust, grease, or metallic particles. A clean contact surface is essential for accurate temperature transfer. Use a soft, dry cloth for cleaning.
- **Check Connections:** Ensure the fork terminals remain securely fastened to your monitoring device. Loose connections can lead to intermittent or inaccurate readings.
- **Avoid Excessive Bending:** Do not bend the thermocouple probe or lead wire sharply, as this can damage the internal conductors or insulation.

7. Troubleshooting

If you encounter issues with your thermocouple, refer to the following troubleshooting guide:

Problem	Possible Cause	Solution
No temperature reading or 'Open Circuit' error	Loose or incorrect wiring; Damaged lead wire; Faulty thermocouple element.	Check all connections for tightness and correct polarity (red to +, white to -). Inspect the lead wire for visible damage. If damage is present, replace the thermocouple.
Inaccurate or inconsistent readings	Poor contact with the measurement surface; Incorrect thermocouple type selected on monitoring device; Electromagnetic interference (EMI); Exceeding temperature limits.	Ensure the magnet is firmly attached to a clean, flat ferromagnetic surface. Verify that your monitoring device is configured for a Type K thermocouple. Route lead wires away from power cables or sources of EMI. Confirm the measured temperature is within the 400 °F limit.
Readings are reversed (e.g., temperature decreases when it should increase)	Incorrect polarity of connections.	Reverse the connections of the red and white fork terminals at your monitoring device.

8. Technical Specifications

Detailed specifications for the TEMPCO Type K HD Magnet Thermocouple:

Specification	Value
Thermocouple Type	K
Insulation	PTFE
Lead Length	12 ft (144 inches)
Error Accuracy	+/-2.2 °C, +/-0.75 %
Temperature Limit	400 °F (204 °C)

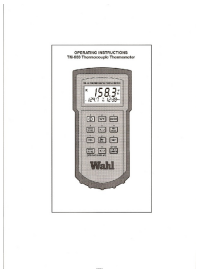
Specification	Value
Thermocouple Element	20 AWG
Construction	Spring-loaded thermocouple attached to 6-pole Magnet
Probe Length	1.25 inches
Material	304 Stainless Steel
Grounded / Ungrounded	Grounded
Plug or Connector Type	Fork Terminal
Product Dimensions (L x W x H)	10 x 7 x 1.5 inches
Manufacturer	Tempco Electric Heater Corp
ASIN	B0078RSFRI
UPC	094705296110

9. Contact and Support

For technical assistance, warranty information, or further support regarding your TEMPCO Type K HD Magnet Thermocouple, please contact TEMPCO customer service through their official website or designated support channels. Provide your model number (Type K HD) and ASIN (B0078RSFRI) when seeking assistance.

Related Documents - Type K HD

	Proster PST095 Digital Thermometer Instruction Manual User manual for the Proster PST095 dual-channel digital thermometer, detailing its features, operation, specifications, and safety warnings for various thermocouple types.
	TASI TA612ABC Thermocouple Thermometer User Manual This user manual provides detailed instructions for the TASI TA612ABC dual-input thermocouple thermometer, highlighting its high-precision measurement capabilities for K and J type thermocouples.

	[Wahl TM-500 Thermocouple Thermometer Operating Instructions] Comprehensive operating instructions and specifications for the Wahl TM-500 digital thermocouple thermometer, covering its features, modes, functions, and technical details for accurate temperature measurement.
	[Mastech MS6514 Digital Thermometer Quick Start Guide] Quick start guide for the Mastech MS6514 Digital Thermometer, covering setup, operation, and specifications for K, J, T, E, N, R, S type thermocouples.
	[EL-USB-TC Thermocouple Data Logger with USB Interface - Lascar Electronics] Detailed overview of the Lascar EL-USB-TC thermocouple data logger, featuring temperature measurement ranges for J, K, and T types, USB interface, programmable alarms, and LED status indicators. Includes specifications, software details, and product range comparison.
	[RS PRO Legionella Thermometer with Integral Timer - Model 204-8413] User manual and specifications for the RS PRO Legionella Thermometer (Model 204-8413). Features microprocessor control, integral 1 & 2 minute timers, °C/°F scales, and T/K thermocouple compatibility for accurate temperature checks in legionella applications. Includes operating instructions, troubleshooting, and technical specifications.