Mars 33490

Mars 33490 Heat Pump Defrost Thermostat User Manual

Model: 33490

1. Introduction

This manual provides instructions for the proper installation, operation, and maintenance of the Mars 33490 Heat Pump Defrost Thermostat. This device is designed to manage the defrost cycle of heat pump systems, ensuring efficient operation by sensing the temperature of the outdoor coil.

2. Product Features

- Designed specifically for heat pump defrost applications.
- Features a 3/8 inch tube mounting mechanism for secure attachment.
- Equipped with 54 inch leads for flexible and convenient wiring.
- Activates (opens) at approximately 80°F (26.7°C) to terminate defrost.
- Deactivates (closes) at approximately 30°F (-1.1°C) to initiate defrost.

3. Safety Information

Important Safety Instructions

Read all instructions carefully before installation or operation. Failure to follow these instructions could result in property damage, personal injury, or death.

- Always disconnect power to the heat pump system at the circuit breaker before installing or servicing the thermostat.
- Installation should be performed by a qualified HVAC technician or licensed electrician to ensure safety and proper function.
- Ensure all wiring complies with local electrical codes and regulations.
- Do not operate the heat pump system if the thermostat or any associated components are visibly

damaged.

- This product may be subject to California Proposition 65. For more information, visit www.P65Warnings.ca.gov. Wash hands after handling.

4. Setup and Installation

Installation Guide

The Mars 33490 defrost thermostat is designed for secure mounting on a 3/8 inch diameter tube within the heat pump system.

1. **Power Disconnection:** Before commencing any work, ensure the main power supply to the heat pump unit is completely disconnected at the circuit breaker to prevent electrical shock.
2. **Mounting Location:** Identify a suitable 3/8 inch diameter tube on the heat pump's outdoor coil. This location should accurately reflect the coil's temperature for effective defrost control.
3. **Mounting the Thermostat:** Securely attach the thermostat to the selected 3/8 inch tube using its integrated mounting clip. Ensure there is good thermal contact between the thermostat's sensor and the tube for accurate temperature readings.
4. **Wiring:** Connect the 54 inch leads of the thermostat into the heat pump's control circuit. Refer to the heat pump manufacturer's specific wiring diagram for correct connections. Typically, this thermostat is wired in series with the defrost control board's sensor input.
5. **Verify Connections:** Double-check all wiring connections to ensure they are secure and correctly terminated according to the wiring diagram.
6. **Restore Power:** Once installation is complete and all connections have been verified, safely restore power to the heat pump system.

Image 1: Mars 33490 Heat Pump Defrost Thermostat. This image shows the compact design of the thermostat, featuring

its white cylindrical body, copper-colored base, metal mounting clip, and black electrical leads. The 3/8 inch tube mount is visible, designed for secure attachment to a heat pump's refrigerant line.

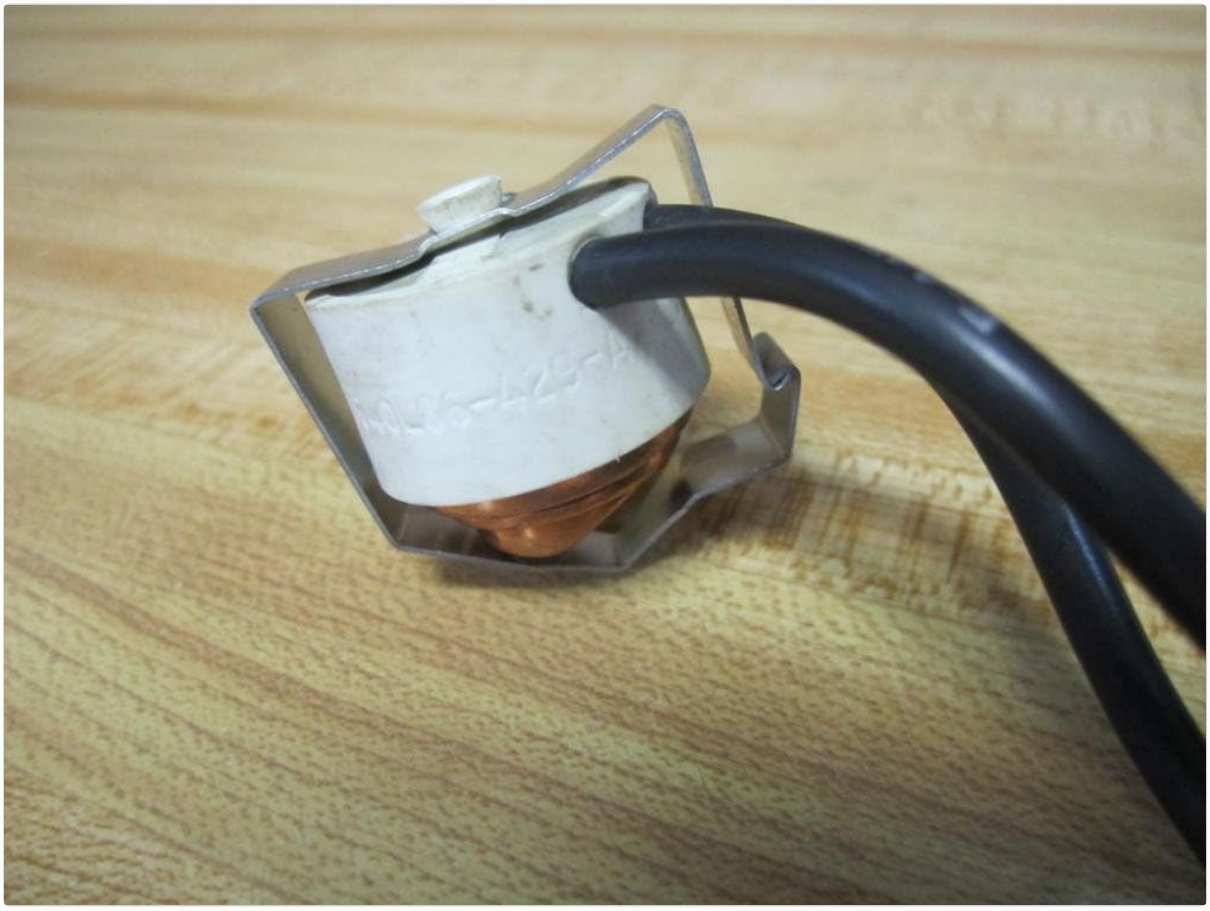

Image 2: Side view of the Mars 33490 Heat Pump Defrost Thermostat. This perspective highlights the robust metal mounting clip that secures the thermostat to a refrigerant tube, along with the entry point of the black wiring leads into the thermostat body. The product identification numbers are faintly visible on the white casing.

5. Operation

Functional Operation

The Mars 33490 is an automatic defrost thermostat that operates by sensing the temperature of the outdoor coil. It functions as follows:

- When the coil temperature rises to approximately **80°F (26.7°C)**, the thermostat's internal switch will open. This signal typically indicates that the coil is clear of ice and signals the defrost cycle to terminate.
- When the coil temperature drops to approximately **30°F (-1.1°C)**, the thermostat's internal switch will close. This action initiates or allows the defrost cycle to begin, provided other defrost conditions (e.g., time, pressure differential) are met by the heat pump's main control board.

This thermostat works in conjunction with the heat pump's main control board to ensure efficient defrosting, preventing excessive ice buildup on the outdoor coil and maintaining optimal heating efficiency.

6. Maintenance

Maintenance Guidelines

The Mars 33490 Defrost Thermostat is designed for reliable, long-term operation and is generally maintenance-free. However, periodic inspection is recommended to ensure continued optimal performance.

- **Annual Inspection:** During routine heat pump maintenance, visually inspect the thermostat for any signs of physical damage, corrosion, or loose wiring connections.
- **Cleanliness:** Ensure the area around the thermostat is kept free from debris, dirt, leaves, or ice buildup that could interfere with accurate temperature sensing.
- **Secure Mounting:** Verify that the thermostat remains securely mounted to the refrigerant tube to maintain proper thermal contact and accurate temperature readings.

If any damage is observed, or if the heat pump exhibits unusual defrost behavior (e.g., no defrost, continuous defrost), consult a qualified HVAC technician for diagnosis and repair.

7. Troubleshooting

Troubleshooting Common Issues

This section provides general guidance for common issues related to defrost thermostat operation. Always consult a qualified technician for complex diagnostics and repairs, especially when dealing with electrical components.

Problem	Possible Cause	Solution
Heat pump not defrosting	Defrost thermostat failure (stuck open circuit)	A qualified technician should test thermostat continuity. Replace if faulty.
Heat pump defrosts too frequently or infrequently	Improper thermostat mounting, poor thermal contact, or faulty thermostat	Verify secure mounting and good thermal contact with the refrigerant tube. A technician can test thermostat operation and replace if necessary.
Thermostat appears physically damaged	Physical impact, environmental exposure, or wear	Disconnect power and replace the thermostat immediately to prevent further system issues.

8. Specifications

Technical Specifications

- **Model:** Mars 33490
- **Manufacturer:** Mars
- **Part Number:** 33490
- **Open Temperature:** 80°F (26.7°C)
- **Close Temperature:** 30°F (-1.1°C)
- **Mounting Type:** 3/8 inch Tube Mount
- **Lead Length:** 54 inches
- **Product Dimensions:** Approximately 5 x 3 x 2 inches (12.7 x 7.6 x 5.1 cm)
- **Item Weight:** Approximately 4 ounces (113 grams)

- **Batteries Required:** No
- **Date First Available:** May 20, 2010

9. Warranty and Support

Warranty Information and Customer Support

For specific warranty details regarding your Mars 33490 Heat Pump Defrost Thermostat, please refer to the documentation provided with your original purchase or contact Mars customer support directly.

For technical assistance, troubleshooting beyond this manual, or to inquire about replacement parts, please contact your authorized Mars dealer or visit the official Mars website for support resources.

Manufacturer: Mars

Part Number: 33490

ASIN: B003N6AB98