

Danfoss MCI 15

Danfoss MCI 15 Motor Controller 037N0039 Instruction Manual

1. INTRODUCTION

This manual provides essential information for the safe and effective installation, operation, and maintenance of the Danfoss MCI 15 Motor Controller, model 037N0039. Please read this manual thoroughly before attempting to install or operate the device. Retain this manual for future reference.

2. SAFETY INFORMATION

Always observe the following safety precautions to prevent personal injury or damage to the equipment:

- Installation and maintenance should only be performed by qualified personnel.
- Ensure the power supply is disconnected before performing any wiring or maintenance.
- Verify all connections are secure and correctly wired according to the provided diagrams.
- Protect the device from moisture, dust, and extreme temperatures.
- Do not operate the controller if it appears damaged.

3. PRODUCT OVERVIEW

The Danfoss MCI 15 Motor Controller is designed for controlling motor speed and soft starting applications. It features robust construction with an integrated heat sink for efficient thermal management.



Figure 3.1: Overall view of the Danfoss MCI 15 Motor Controller, showing the front panel with branding and specifications, and the heat sink fins.



Figure 3.2: Close-up of the Danfoss MCI 15 Motor Controller's front panel, detailing the model number (MCI 15, 037N0039), electrical ratings, and adjustment potentiometers for ramp up, ramp down, kick start, and initial torque.

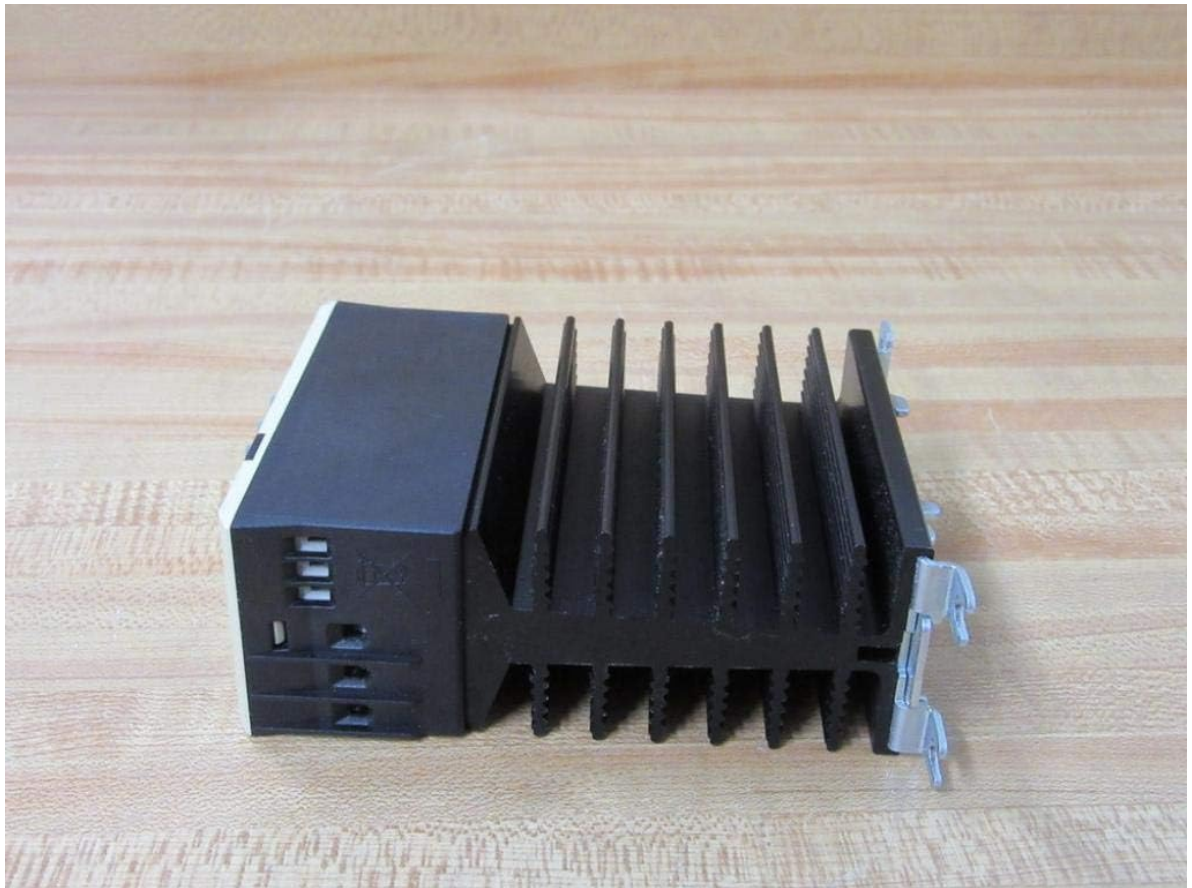


Figure 3.3: Side view of the Danfoss MCI 15 Motor Controller, highlighting the extensive heat sink design for thermal management.

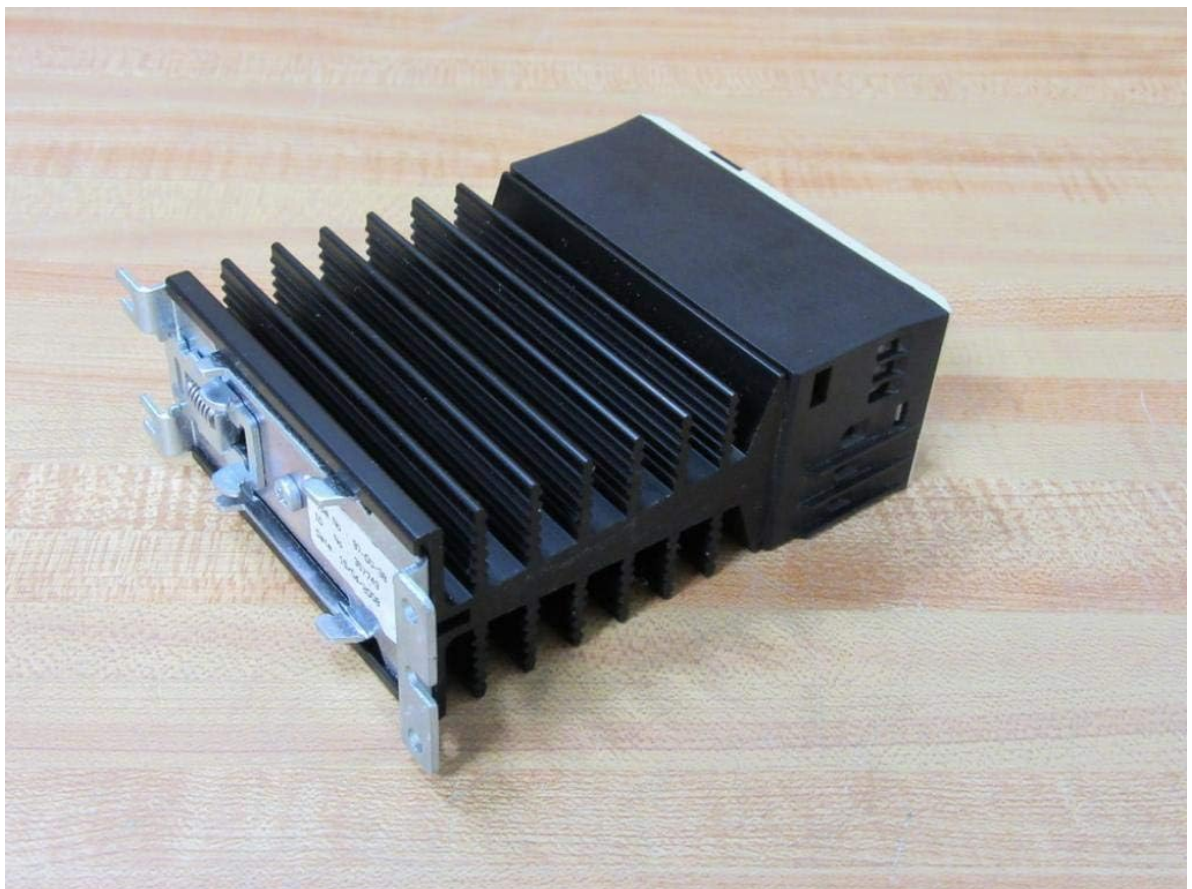


Figure 3.4: Angled rear view of the Danfoss MCI 15 Motor Controller, showing the mounting brackets and the heat sink structure.

4. SPECIFICATIONS

Key technical specifications for the Danfoss MCI 15 Motor Controller:

Parameter	Value
Model Number	MCI 15 (037N0039)
Rated Current (Ie)	Max 15 A AC 53a
Control Voltage (Uc)	24-480 V AC/DC
Operating Voltage (Ue)	380-480V 50/60Hz
Insulation Voltage (Ui)	660V
Impulse Withstand Voltage (Uimp)	4 kV
Product Dimensions	5 x 5 x 2 inches
Item Weight	1.35 pounds
Material	Copper (heat sink)
Max Fuse	50 A gL/gG
Overload Relay Trip Class	10
HP Rating (400-480V)	10 HP

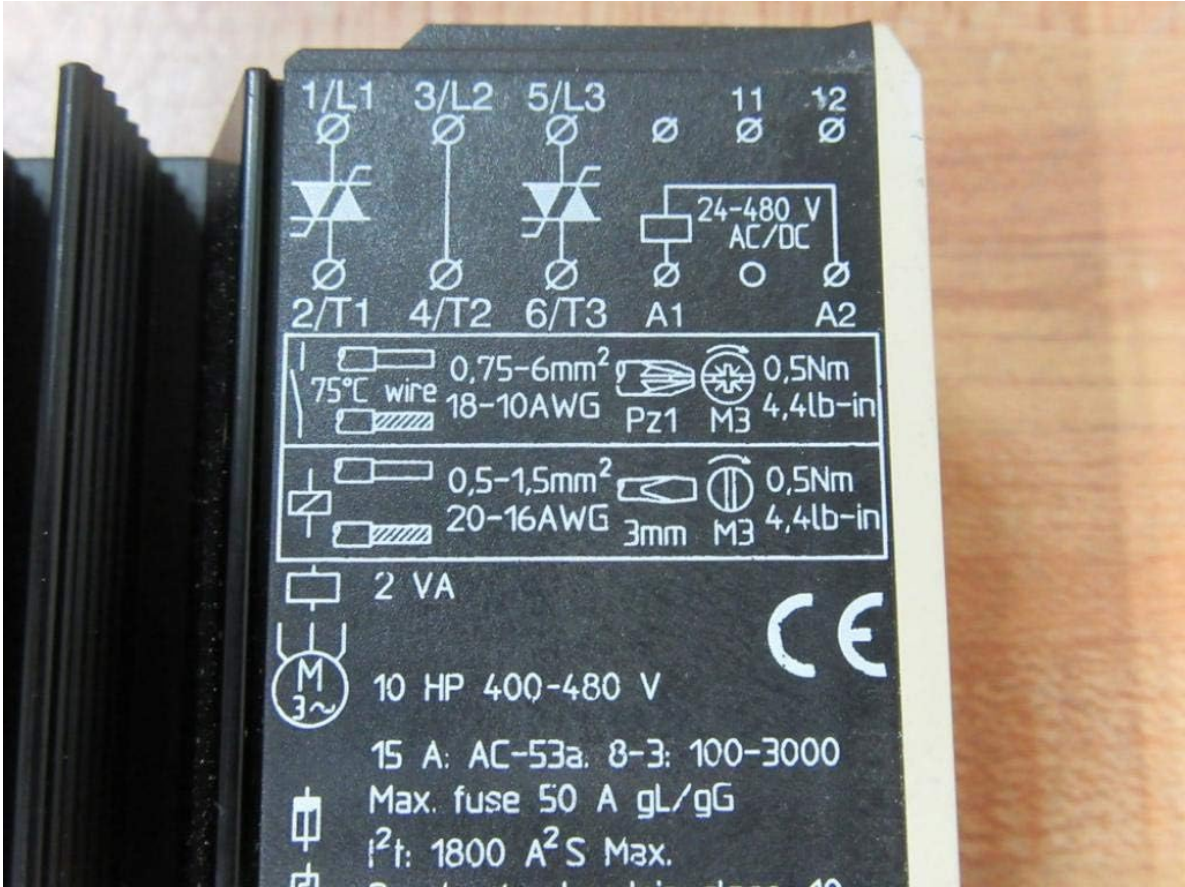


Figure 4.1: Detailed view of the wiring diagram and electrical specifications label on the Danfoss MCI 15 Motor Controller, including terminal designations (1/L1, 3/L2, 5/L3, 2/T1, 4/T2, 6/T3, A1, A2), wire size requirements, torque settings, and power ratings.

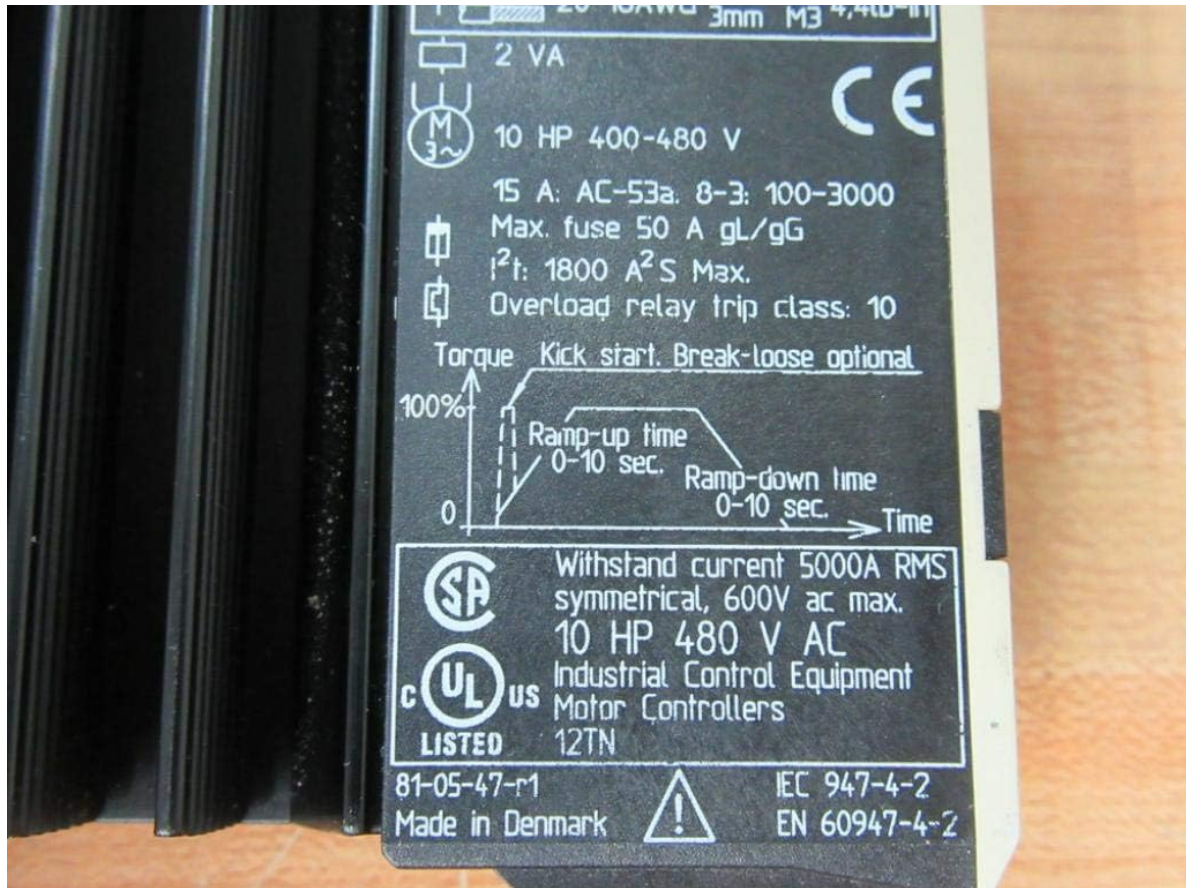


Figure 4.2: Close-up of the technical data and certifications label on the Danfoss MCI 15 Motor Controller, showing the ramp-up/ramp-down time graph, withstand current, HP rating, and regulatory listings (SP, cULus, CE).

5. SETUP AND INSTALLATION

5.1 Mounting

The Danfoss MCI 15 Motor Controller is designed for panel mounting. Ensure adequate ventilation around the heat sink to prevent overheating. Use appropriate fasteners through the mounting brackets shown in Figure 3.4.

5.2 Wiring

Refer to the wiring diagram on the device label (Figure 4.1) for correct connections. Ensure all wiring adheres to local electrical codes and safety standards.

- **Power Input (L1, L2, L3):** Connect the three-phase power supply to terminals 1/L1, 3/L2, and 5/L3.
- **Motor Output (T1, T2, T3):** Connect the motor leads to terminals 2/T1, 4/T2, and 6/T3.
- **Control Input (A1, A2):** Connect the control voltage to terminals A1 and A2.
- Use recommended wire sizes (e.g., 0.75-6mm² or 18-10AWG for power, 0.5-1.5mm² or 20-16AWG for control) and tighten terminals to the specified torque (e.g., 0.5Nm or 4.4lb-in for M3 screws).

5.3 Initial Settings

Before initial operation, adjust the potentiometers on the front panel (Figure 3.2) to desired settings:

- **Ramp Up Time:** Adjust the 'up' potentiometer to set the motor acceleration time (0-10 seconds).
- **Ramp Down Time:** Adjust the 'down' potentiometer to set the motor deceleration time (0-10 seconds).

- **Kick Start:** Adjust this potentiometer to provide an initial torque boost for starting loads.
- **Initial Torque:** Adjust this potentiometer to set the initial torque level during startup.

6. OPERATING INSTRUCTIONS

Once installed and configured, the Danfoss MCI 15 Motor Controller operates by applying a controlled voltage ramp to the motor, providing a soft start and stop. The motor will accelerate to full speed over the set ramp-up time and decelerate over the set ramp-down time.

- Apply control voltage to terminals A1 and A2 to initiate motor operation.
- Remove control voltage to initiate motor stop (soft stop).
- Monitor motor performance and adjust ramp times and torque settings as needed for optimal operation.

7. MAINTENANCE

Regular maintenance ensures the longevity and reliable operation of the motor controller.

- **Cleaning:** Periodically clean the exterior of the controller, especially the heat sink fins, to ensure proper heat dissipation. Use a dry, soft cloth. Do not use solvents or abrasive cleaners.
- **Inspection:** Regularly inspect wiring connections for tightness and signs of wear or damage. Check for any discoloration or unusual odors, which may indicate overheating.
- **Environment:** Ensure the operating environment remains within specified temperature and humidity ranges.

8. TROUBLESHOOTING

If the motor controller does not operate as expected, consider the following basic troubleshooting steps:

- **No Motor Start:** Verify power supply to the controller and motor. Check control signal to A1/A2. Ensure all wiring is correct and secure.
- **Motor Overheating:** Check for proper ventilation around the heat sink. Ensure the motor is not overloaded. Verify motor parameters are correctly set.
- **Incorrect Ramp Times:** Re-adjust the 'up' and 'down' potentiometers on the front panel.
- **Unexpected Stops:** Check for power fluctuations or intermittent control signals. Inspect for any fault indicators if available on the device or system.

For complex issues, contact Danfoss technical support.




9. WARRANTY AND SUPPORT




For information regarding product warranty, technical support, or service, please refer to the official Danfoss website or contact your local Danfoss representative. Ensure you have the model number (MCI 15) and serial number (if applicable, visible on the rear label, Figure 7.1) available when contacting support.



Figure 9.1: Rear view of the Danfoss MCI 15 Motor Controller, displaying a label with Type No., ID No., and Date of manufacture.

Related Documents - MCI 15

	<p>Danfoss VLT® Soft Starters: Comprehensive Range for AC Motor Control</p> <p>Explore the Danfoss VLT® Soft Starter series, including MCD 500, MCD 200, MCD 201, MCD 202, and MCD 100 models. Discover features, specifications, applications, and ordering information for reliable AC motor control and protection.</p>
	<p>Danfoss VLT® Soft Starter Selection Guide</p> <p>A comprehensive guide to selecting and utilizing Danfoss VLT® Soft Starters, detailing their benefits, applications, product lines (Eltwin SMC, MCD 201, MCD 202, MCD 600), technical specifications, and ordering information. Learn how soft starters improve motor lifetime, reduce energy consumption, and protect equipment.</p>
	<p>Danfoss VLT MCD 100 Soft Starter Design Guide</p> <p>This design guide provides comprehensive information on the Danfoss VLT MCD 100 series soft starters, covering features, technical specifications, selection, installation, and application examples for efficient motor control.</p>

	<p>Danfoss VLT® MCD 203 Series Compressor Starter Operating Instructions</p> <p>This document provides operating instructions, specifications, wiring diagrams, and safety information for the Danfoss VLT® MCD 203 Series Compressor Starter.</p>
	<p>Manual de Funcionamiento MCD 3000 Soft Starter</p> <p>Este manual proporciona información detallada sobre el funcionamiento, instalación y programación del arrancador suave Danfoss MCD 3000. Incluye especificaciones técnicas, diagramas de cableado y guías de solución de problemas para asegurar una operación segura y eficiente.</p>
	<p>Danfoss VLT MCD 202 Compact Starter: Operating Manual and Specifications</p> <p>Comprehensive operating instructions, specifications, wiring diagrams, and troubleshooting guide for the Danfoss VLT MCD 202 Compact Starter. Learn about installation, adjustments, and features of this motor control device.</p>