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Warmrmr PMR-440N7

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Model: PMR-440N7

1. INTRODUCTION

The Warmrmr PMR-440N7 is an advanced motor protection relay designed to safeguard industrial motors from various electrical faults. This device continuously monitors the power supply to the motor, detecting conditions such as over-voltage, under-voltage, phase loss, phase imbalance, and overload. By promptly disconnecting the motor when a fault is detected, the PMR-440N7 helps prevent costly damage and extends the operational life of your equipment. This manual provides essential information for the safe and effective installation, operation, and maintenance of your PMR-440N7 motor protector.

2. SAFETY INFORMATION

Please read and understand all safety instructions before installing, operating, or maintaining this device. Failure to follow these instructions may result in serious injury or property damage.

- **Qualified Personnel Only:** Installation and maintenance should only be performed by qualified electrical personnel.
- **Disconnect Power:** Always disconnect all power to the motor and control circuit before performing any wiring, installation, or maintenance.
- **Proper Grounding:** Ensure the device and associated equipment are properly grounded according to local and national electrical codes.
- **Voltage Ratings:** Verify that the supply voltage matches the device's specified voltage ratings.
- **Terminal Torque:** Tighten all terminal screws to the specified torque to ensure secure connections and prevent overheating.

3. PRODUCT OVERVIEW

The Warmmr PMR-440N7 motor protector is a compact, DIN-rail mountable device featuring a robust design for industrial environments. It includes various indicators and adjustment dials on its front panel for easy configuration and status monitoring.



Figure 3.1: Front view of the PMR-440N7 Motor Protector. This image displays the L1, L2, L3 power terminals, PWR and TRIP status indicators, Auto-Reset switch, TEST/RESET button, and adjustment dials for Over Voltage (OV), Under Voltage (UV), Overload/Over Current (OT), and Phase Imbalance (UB).



Figure 3.2: Side view of the PMR-440N7 Motor Protector. The product label clearly indicates the model number PMR-440N7, control voltage (Ue 440VAC), auxiliary contact ratings (50/60Hz AC, 1 N/C N/O), and terminal torque (1.7 N.m).

Key Components:

- **L1, L2, L3 Terminals:** Main power input terminals for monitoring the motor supply.
- **PWR Indicator:** Illuminates when the device is powered on and operating normally.
- **TRIP Indicator:** Illuminates when a fault condition is detected, indicating the motor has been disconnected.
- **Auto-Reset Switch:** Selects between automatic or manual fault reset modes.
- **TEST/RESET Button:** Used to manually test the trip function or reset the device after a fault.
- **Adjustment Dials:** Allow precise setting of protection parameters for Over Voltage (OV), Under Voltage (UV), Overload/Over Current (OT), and Phase Imbalance (UB).
- **Auxiliary Contacts:** (Not visible on front, but specified on label) Used to control the motor starter coil or provide fault indication to a control system.

4. SETUP AND INSTALLATION

Follow these steps for proper installation and initial setup of the PMR-440N7 motor protector.

4.1 Mounting

The PMR-440N7 is designed for DIN rail mounting. Securely attach the device to a standard 35mm DIN rail within an electrical enclosure, ensuring adequate ventilation and clearance from other heat-generating components.

4.2 Wiring

Refer to the wiring diagram provided with your motor control system and the device's terminal markings. Ensure all connections are secure and correctly phased.

- **Power Circuit Connection:** Connect the three-phase power lines (L1, L2, L3) that supply the motor directly to the corresponding L1, L2, L3 terminals on the PMR-440N7.
- **Control Circuit Connection:** Connect the auxiliary contacts (typically labeled 95, 96, 98) of the PMR-440N7 in series with the motor starter coil. The normally closed (NC) contact (e.g., 95-96) is typically used to interrupt the control circuit upon a fault, while the normally open (NO) contact (e.g., 95-98) can be used for fault indication.
- **Control Voltage:** The device monitors the main power lines for its control voltage (Ue 440VAC).

4.3 Initial Settings

Adjust the protection parameters using the dials on the front panel according to your motor and system requirements.

- **Over Voltage (OV) / Under Voltage (UV):** Set these dials to the desired voltage thresholds. For a 440V system, typical settings might be +10% for OV and -10% for UV, but consult your motor specifications.
- **Overload/Over Current (OT):** Set this dial based on the motor's full load amperage (FLA). This setting determines the trip current and time delay for overload protection.
- **Phase Imbalance (UB):** Adjust this dial to the maximum permissible percentage of phase voltage imbalance for your application.
- **Auto-Reset:** Select 'On' for automatic reset after a fault clears or 'Off' for manual reset via the TEST/RESET button. For critical applications, manual reset is often preferred.

5. OPERATING INSTRUCTIONS

Once installed and configured, the PMR-440N7 operates largely automatically.

- **Power-Up:** Apply power to the motor circuit. The **PWR** indicator on the PMR-440N7 should illuminate, indicating the device is powered and monitoring.
- **Normal Operation:** During normal operation, the **PWR** indicator remains lit, and the **TRIP** indicator remains off. The auxiliary contacts are in their normal state (e.g., 95-96 closed, allowing the motor starter to energize).
- **Fault Condition:** If a fault (e.g., over-voltage, phase loss) occurs, the PMR-440N7 will detect it, the **TRIP** indicator will illuminate, and the auxiliary contacts will change state (e.g., 95-96 open), de-energizing the motor starter and stopping the motor.
- **Resetting a Fault:**
 - **Manual Reset:** If the Auto-Reset switch is 'Off', press the **TEST/RESET** button after the fault condition has been cleared. The **TRIP** indicator will turn off, and the device will return to normal monitoring.

- **Automatic Reset:** If the Auto-Reset switch is 'On', the device will automatically reset and attempt to restart the motor (if the control circuit allows) once the fault condition has cleared and a set delay time has passed.
- **Testing:** Press the **TEST/RESET** button briefly to simulate a trip condition and verify the device's functionality. The **TRIP** indicator should illuminate, and the auxiliary contacts should change state.

6. MAINTENANCE

The Warmmr PMR-440N7 is designed for minimal maintenance. However, periodic checks are recommended to ensure continued reliable operation.

- **Visual Inspection:** Periodically inspect the device for any signs of physical damage, discoloration, or loose connections.
- **Terminal Tightness:** Check that all wiring terminals are securely tightened to the specified torque (1.7 N.m) to prevent resistance buildup and overheating.
- **Cleaning:** Keep the device free from dust and debris. Use a soft, dry cloth for cleaning. Do not use solvents or abrasive cleaners.
- **Functional Test:** Perform a functional test using the **TEST/RESET** button periodically to confirm the trip mechanism is working correctly.

7. TROUBLESHOOTING

This section provides solutions to common issues you might encounter with the PMR-440N7 motor protector.

Problem	Possible Cause	Solution
PWR indicator is off.	No power supply to L1, L2, L3 terminals.	Check the main power supply to the device. Ensure all connections are secure.
TRIP indicator is on, motor is stopped.	Fault condition detected (e.g., OV, UV, phase loss, imbalance, overload).	Identify and rectify the fault condition. Check supply voltage, motor current, and phase balance. Reset the device manually or wait for auto-reset if enabled.
Motor does not start after fault clears.	Device requires manual reset; Auto-Reset is 'Off'.	Press the TEST/RESET button. Verify control circuit wiring to the motor starter.
Device trips frequently without apparent fault.	Settings are too sensitive or intermittent power issues.	Review and adjust OV, UV, OT, and UB settings. Check for unstable power supply or loose connections.

8. SPECIFICATIONS

Parameter	Value
Model	PMR-440N7
Brand	Warmrmr
Control Voltage (Ue)	440VAC
Operating Voltage Range	340-480V
Auxiliary Contact	50/60Hz AC, 1 N/C N/O
Terminal Torque	1.7 N.m
Item Weight	200 g
Country of Origin	China

9. WARRANTY INFORMATION

This Warmrmr PMR-440N7 Motor Protector is covered by a standard limited warranty against manufacturing defects. Please refer to your purchase documentation or contact your supplier for specific warranty terms and conditions. The warranty does not cover damage resulting from improper installation, misuse, unauthorized modification, or natural disasters.

10. SUPPORT

For any questions, technical assistance, or support regarding your Warmrmr PMR-440N7 Motor Protector, please contact our customer service. We are available 24 hours online to assist you.

Contact Information: Refer to your product packaging or purchase invoice for specific contact details.