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› ESSISH APR-3/APR-4 Phase Reversal Controller User Manual

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Three-Phase Relay Motor Sequence Protector

INTRODUCTION

This user manual provides comprehensive instructions for the installation, operation, and maintenance of the ESSISH APR-3 and APR-4 Phase Reversal Controllers. These devices are designed to protect three-phase motors from damage caused by phase loss or phase reversal, ensuring reliable and safe operation of your equipment.

Please read this manual thoroughly before using the product to ensure correct usage and to prevent potential hazards.

IMPORTANT SAFETY INFORMATION

- Always disconnect power before installing, wiring, or performing maintenance on the device.
- Installation and wiring should only be performed by qualified personnel in accordance with local and national electrical codes.
- Ensure the product's voltage rating (AC220V/380V) matches your power supply.
- Do not operate the device if it appears damaged.
- This device is a protective relay; it does not replace proper electrical system design and safety practices.

PRODUCT OVERVIEW

The APR-3 and APR-4 are compact phase reversal and phase loss protection relays. They monitor the three-phase power supply to detect incorrect phase sequence (reversal) or the absence of one or more phases (loss), and activate a relay contact to protect connected equipment.

Key Features:

- Protects against phase loss and phase reversal.
- Available in AC220V and AC380V versions.
- One set of normally open and one set of normally closed contacts.
- Compact design for easy integration.

Product Models:

- **APR-3:** Phase Reversal Controller, Rating: 10A.
- **APR-4:** Phase Controller (likely includes phase loss detection).

Visual Reference:

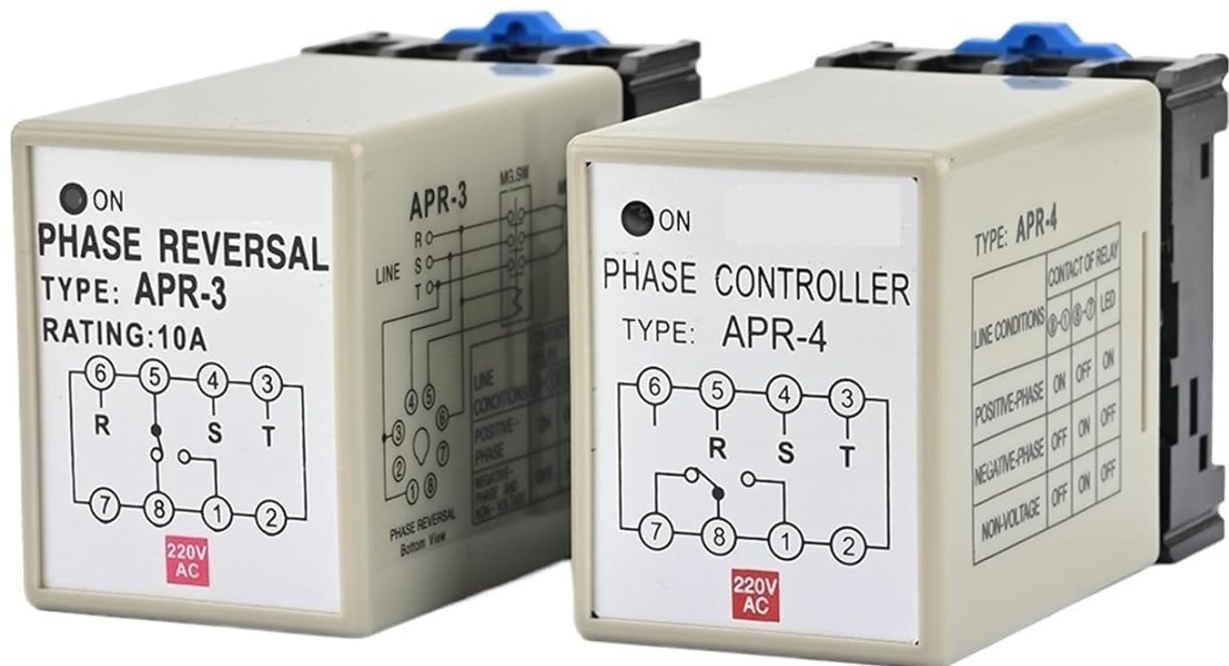


Figure 1: Front view of both APR-3 and APR-4 models, showing their labels and basic wiring diagrams.



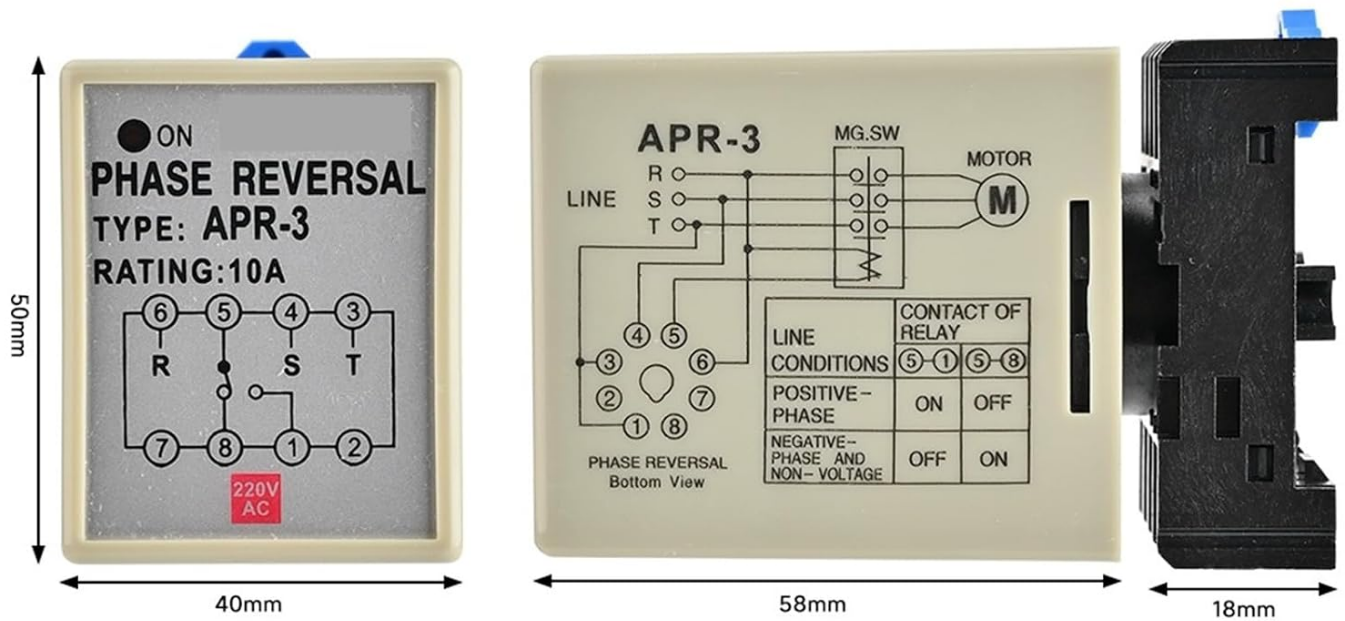
APR-3

Figure 2: Detailed view of the APR-3 model, including its dimensions (50mm height, 40mm width, 78mm depth) and a wiring diagram for phase reversal detection.



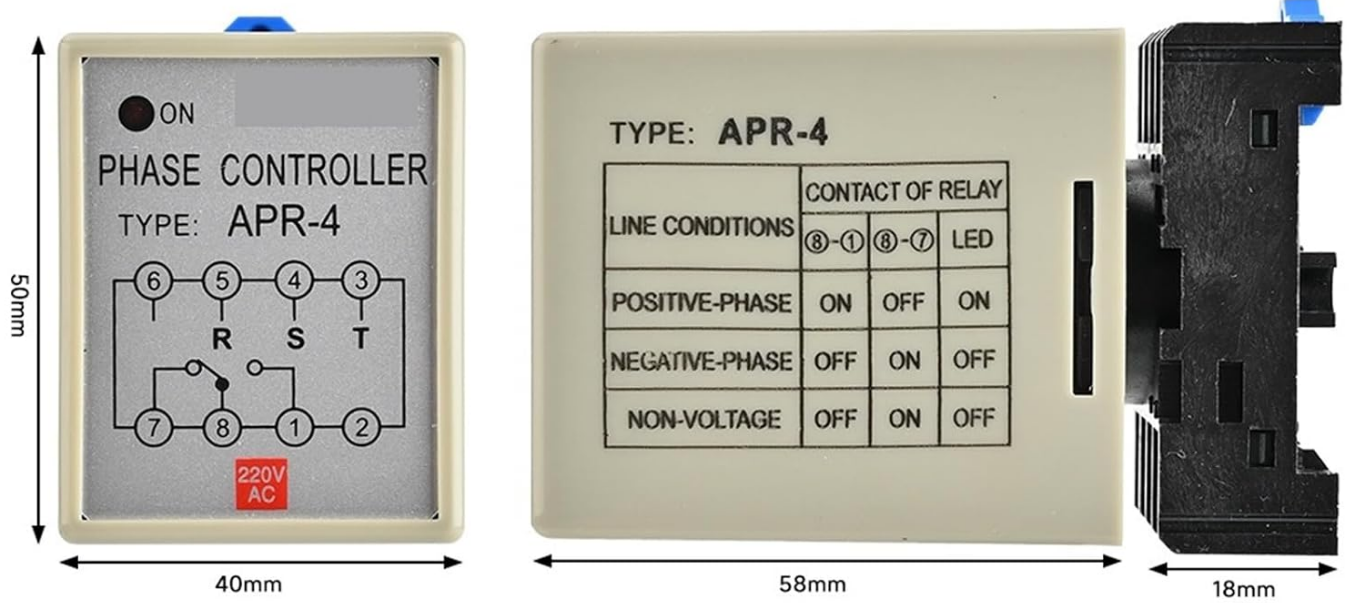
APR-4

Figure 3: Detailed view of the APR-4 model, including its dimensions (50mm height, 40mm width, 78mm depth) and a diagram indicating LED states for positive phase, negative phase, and non-voltage conditions.



APR-3

Figure 4: Front and side view of the APR-3 model, showing its compact form factor with dimensions of 50mm height, 40mm width, and 58mm depth for the main body, plus an 18mm extension for the connector.



APR-4

Figure 5: Front and side view of the APR-4 model, showing its compact form factor with dimensions of 50mm height, 40mm width, and 58mm depth for the main body, plus an 18mm extension for the connector.

APR-4 APR-3

AC220V/380V



Figure 6: The APR-3 controller shown alongside a compatible 8-pin relay socket, indicating its socket mount design.

SPECIFICATIONS

Feature	Detail
Product Models	APR-3, APR-4
Product Voltage	AC220V / AC380V
Contact Form	One set of Normally Open (NO) and one set of Normally Closed (NC)
Contact Capacity	250V / 10A
Mounting Type	Socket Mount
Connector Type	Screw (on socket)

Feature	Detail
Operation Mode	Automatic
Dimensions (approx.)	50mm (H) x 40mm (W) x 78mm (D)
Manufacturer	ESSISH
Country of Origin	China

SETUP AND INSTALLATION

- Power Disconnection:** Before beginning installation, ensure that all power to the circuit where the controller will be installed is completely disconnected and locked out.
- Mounting:** The APR-3/APR-4 controllers are designed for socket mounting. Securely install the compatible 8-pin relay socket (e.g., PF083A) onto a DIN rail or panel using appropriate fasteners.
- Wiring (Refer to Product Label Diagrams):**
 - Connect the three-phase power lines (R, S, T) to the corresponding input terminals on the relay socket. Refer to the wiring diagram printed on the side of the APR-3/APR-4 unit for exact terminal assignments (e.g., terminals 1, 2, 3 for input).
 - Connect the control circuit to the relay's output contacts (Normally Open and Normally Closed). For example, terminals 6 and 8 might be Normally Open, and 5 and 7 Normally Closed. These contacts will switch based on the detected phase conditions.
 - Ensure all connections are tight and secure to prevent loose contacts and potential hazards.
- Insert Controller:** Once wiring is complete, carefully insert the APR-3 or APR-4 controller into its socket, ensuring all pins align correctly.
- Power Restoration:** After verifying all connections and ensuring the controller is properly seated, restore power to the circuit.

Note: The specific terminal numbers for R, S, T inputs and NO/NC outputs are typically indicated on the product's label or a separate wiring diagram provided with the socket. Always cross-reference with the physical product.

OPERATING INSTRUCTIONS

The ESSISH APR-3/APR-4 Phase Reversal Controllers operate automatically once installed and powered correctly.

- Normal Operation:** When the three-phase power supply is correct (correct phase sequence and no phase loss), the controller's internal relay will be energized, and its Normally Open (NO) contacts will close, allowing the connected equipment to operate. The "ON" indicator light (if present) will illuminate.
- Phase Reversal Detection (APR-3):** If the phase sequence of the input power supply is reversed (e.g., R-S-T becomes R-T-S), the APR-3 will detect this condition. The internal relay will de-energize, opening the NO contacts and closing the NC contacts, thereby stopping the connected motor or equipment to prevent damage.
- Phase Loss Detection (APR-4):** If one or more phases of the input power supply are lost, the APR-4 will detect this condition. The internal relay will de-energize, opening the NO contacts and closing the NC contacts, protecting the connected equipment from operating under unbalanced power conditions.
- Indicator Lights:** Some models (like APR-4) may feature indicator lights (LEDs) to show the status of the phases (e.g., Positive-Phase, Negative-Phase, Non-Voltage). Refer to the product label for specific LED indications.

The controller continuously monitors the power supply and will automatically reset to normal operation once the fault condition is corrected.

MAINTENANCE

The ESSISH APR-3/APR-4 controllers are designed for minimal maintenance. However, periodic checks are recommended to ensure optimal performance and longevity.

- **Visual Inspection:** Periodically inspect the unit and its wiring for any signs of damage, discoloration, or loose connections. Ensure the controller is securely seated in its socket.
- **Cleaning:** If necessary, gently clean the exterior of the unit with a dry, soft cloth. Do not use abrasive cleaners or solvents. Ensure power is disconnected before cleaning.
- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature and humidity ranges to prevent premature failure.

No user-serviceable parts are inside the unit. Do not attempt to open or repair the controller yourself.

TROUBLESHOOTING

Problem	Possible Cause	Solution
Controller not energizing / Equipment not starting	No power supply; Incorrect wiring; Phase loss; Phase reversal.	Check power supply to the circuit. Verify all wiring connections against the diagram. Check for missing phases or incorrect phase sequence in the input power.
Controller trips frequently	Unstable power supply; Intermittent phase loss/reversal.	Investigate power quality issues. Consult an electrician to diagnose power supply stability.
Indicator lights not behaving as expected (APR-4)	Incorrect power input; Faulty unit.	Verify input voltage and phase presence. If conditions are normal and lights are off or erratic, the unit may be faulty.
Unit feels hot	Overload on contacts; Poor ventilation.	Ensure the load current does not exceed the 10A contact capacity. Provide adequate ventilation around the unit.

If troubleshooting steps do not resolve the issue, contact qualified technical support.

WARRANTY AND SUPPORT

ESSISH products are manufactured to high-quality standards. For specific warranty information, please refer to the warranty card included with your purchase or contact your point of sale. Keep your purchase receipt as proof of purchase. For technical support or inquiries, please contact ESSISH customer service through the vendor from whom you purchased the product. Provide your product model (APR-3 or APR-4) and a detailed description of the issue.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question