Huayong NLQ4-125/3P

Huayong NLQ4-125/3P Automatic Transfer Switch User Manual

Model: NLQ4-125/3P (Three-Phase)

Introduction

This manual provides essential information for the safe and efficient installation, operation, and maintenance of your Huayong NLQ4-125/3P Automatic Transfer Switch (ATS). The ATS is designed to automatically switch between a primary power source (e.g., utility grid) and a secondary power source (e.g., generator) to ensure continuous power supply to critical loads. Please read this manual thoroughly before installation and use.

Important Safety Information

WARNING: Electrical shock hazard. Improper installation or operation can result in serious injury or death. Always follow local electrical codes and standards.

- Installation and maintenance must be performed by qualified electrical personnel only.
- Ensure all power sources are disconnected before performing any work on the ATS.
- Verify correct wiring and connections before applying power.
- Do not operate the ATS if it appears damaged.
- Wear appropriate personal protective equipment (PPE) when working with electrical systems.
- The switch housing is made of flame-retardant material, but proper ventilation and clearance must be maintained.

Product Overview

The Huayong NLQ4-125/3P is a three-phase automatic transfer switch designed for reliable power management. It features a robust design and efficient switching capabilities.

Key Features:

- **Superior Quality:** The switch housing is constructed from flame-retardant material, ensuring resistance to flame, ruggedness, and corrosion. It features all-copper silver point contacts for good conductivity and high connection efficiency.

- **Fast Switching:** Designed for millisecond switching, with a switching time of less than 50ms, ensuring minimal interruption to power supply.
- **Automatic Operation:** Automatically transfers load between main power and backup power when abnormalities are detected in the primary source.
- **Wide Application:** Suitable for residential neighborhoods, commercial buildings, shopping malls, hospitals, schools, and other critical power applications.
- **Designed for Pz30 Distribution Box:** Specifically designed for home track TV installation and use with Pz30 distribution boxes.

Component Identification:

Figure 1: Front view of the Huayong NLQ4-125/3P ATS, showing main power (A), backup power (B), and load side terminals. The manual/auto switch and indicator light are visible.

Figure 2: Top-front view of the ATS, highlighting the R, S, T phase indicators and the main power (A) and backup power (B) input terminals. The manual override lever is also visible.

Figure 3: Angled view showing the control panel with the "Manual" and "Auto" selector switch, the red indicator light, and the main power (A) and backup power (B) status indicators. Control wiring terminals are also visible.

Figure 4: Side-rear view of the ATS, showing the robust terminal connections for the load side and the overall compact design suitable for distribution box installation.

Specifications

Parameter	Value
Model Number	NLQ4-125/3P
Rated Operational Voltage	400V (Three-Phase)
Rated Current (Example)	50A (Available in 20A, 32A, 40A, 50A, 63A, 80A, 100A, 125A variants)
Rated Frequency	50Hz/60Hz

Parameter	Value
Switching Time	Less than 50ms
Coil Working Voltage Range	85%-110% of rated working voltage
Housing Material	Flame-retardant material
Item Weight	Approximately 1.98 pounds
Package Dimensions	Approximately 1.18 x 0.79 x 0.39 inches (Note: This seems incorrect for the actual product size, likely a packaging error in source data. Refer to physical product for accurate dimensions.)

Note: Specific current ratings (e.g., 3P50A, 3P100A) refer to different variants of the NLQ4-125/3P series. Ensure you have the correct variant for your application.

Setup and Installation

IMPORTANT: All installation procedures must be carried out by a licensed electrician in accordance with national and local electrical codes. Failure to do so may result in property damage, serious injury, or death.

1. **Power Disconnection:** Before beginning any work, ensure that both the main utility power and any backup power sources (e.g., generator) are completely disconnected and locked out. Verify zero voltage at all connection points.
2. **Mounting:** Mount the ATS securely within a suitable electrical enclosure, such as a Pz30 distribution box, ensuring adequate clearance for wiring and ventilation.
3. **Main Power Connection (Source A):** Connect the three-phase main utility power lines (R, S, T) and neutral (N) to the designated "Main Power A" input terminals on the ATS. Ensure connections are tight and secure.
4. **Backup Power Connection (Source B):** Connect the three-phase backup power lines (R, S, T) and neutral (N) from your generator or secondary source to the designated "Backup Power B" input terminals on the ATS. Ensure connections are tight and secure.
5. **Load Connection:** Connect the three-phase load lines (R, S, T) and neutral (N) from your electrical panel or critical loads to the "Load side" output terminals of the ATS.
6. **Control Wiring:** Connect the control voltage input terminals (NH, NA, NN for Main Power A control; RH, RA, RN for Backup Power B control) as per the wiring diagram provided with the product. These typically require AC220V for operation.
7. **Verification:** Double-check all wiring connections for correctness, tightness, and proper insulation. Ensure no loose strands or potential short circuits.
8. **Enclosure Closure:** Close and secure the electrical enclosure.
9. **Initial Power-Up:** Restore power to the backup source first, then the main utility power. Observe the ATS for proper operation and indicator lights.

Refer to the specific wiring diagram included with your product for detailed connection instructions.

Operating Instructions

The Huayong NLQ4-125/3P ATS is designed for automatic operation, but also includes a manual override.

Automatic Mode:

- Set the selector switch on the front panel to "Auto".

- When the main utility power (Source A) is stable and within operational parameters, the ATS will connect the load to Source A. The "A" indicator light will illuminate.
- If the main utility power fails or falls outside acceptable parameters, the ATS will automatically detect the abnormality. After a short delay, it will initiate a transfer to the backup power source (Source B). The "B" indicator light will illuminate.
- When the main utility power is restored and stable, the ATS will automatically switch the load back to Source A.

Manual Mode:

- To manually switch between power sources, set the selector switch on the front panel to "Manual".
- Use the manual override lever (often green, labeled "Bclose" and "Aclose") to physically switch the contacts to either Source A or Source B.
- **CAUTION:** Only operate in manual mode when absolutely necessary and with full understanding of the power sources involved. Ensure the load can handle the selected source.

Maintenance

Regular maintenance ensures the longevity and reliable operation of your ATS. Always disconnect all power sources before performing maintenance.

- **Visual Inspection (Quarterly):** Check for any signs of physical damage, loose connections, discoloration from overheating, or accumulation of dust and debris.
- **Cleaning (Annually):** With power disconnected, use a soft, dry cloth or a vacuum cleaner to remove dust and debris from the interior and exterior of the ATS. Do not use liquids.
- **Terminal Tightness (Annually):** Verify that all power and control wiring terminals are securely tightened. Loose connections can cause overheating and arcing.
- **Functional Test (Annually):** Periodically test the automatic transfer function by simulating a main power outage (e.g., by temporarily shutting off the main breaker, if safe to do so and permitted by local regulations). Observe if the ATS transfers to backup power and then back to main power upon restoration.
- **Contact Inspection (Every 3-5 years or as needed):** For advanced maintenance, a qualified technician may inspect the contacts for wear or pitting.

Troubleshooting

If you encounter issues with your ATS, refer to the table below. For problems not listed or if solutions do not resolve the issue, contact qualified service personnel.

Problem	Possible Cause	Solution
ATS does not transfer to backup power during main power outage.	◦ ATS in Manual mode. ◦ Backup power source (generator) not running or faulty. ◦ Control wiring issue for backup power. ◦ Low input voltage to coil (below 85% of rated).	◦ Set ATS to "Auto" mode. ◦ Check generator operation and fuel. ◦ Verify control wiring connections (RH, RA, RN). ◦ Ensure backup power voltage is stable and sufficient.

Problem	Possible Cause	Solution
ATS does not switch back to main power after restoration.	◦ ATS in Manual mode. ◦ Main power not fully restored or unstable. ◦ Control wiring issue for main power.	◦ Set ATS to "Auto" mode. ◦ Verify main power stability and voltage. ◦ Check control wiring connections (NH, NA, NN).
No power to load from either source.	◦ Both power sources are off. ◦ Loose load side connections. ◦ Internal fault in ATS.	◦ Check both main and backup power sources. ◦ Inspect and tighten load side terminals (with power off). ◦ Contact qualified service personnel.
ATS indicator lights not working.	◦ No power to ATS control circuit. ◦ Faulty indicator light.	◦ Verify control voltage supply (AC220V) to the ATS. ◦ Contact qualified service personnel for repair.

Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or contact your vendor. Keep your purchase receipt for warranty claims.
Manufacturer: Huayong