

Automatic phase switch AZF-7S

Description

The AZF-7S automatic phase switch is designed to ensure continuous power supply to single-phase loads in installations using two- or three-phase networks, as well as in systems with two or three different voltage sources sharing a common neutral conductor (N). The device protects loads from unwanted voltage drops and surges in the network. **Using external contactors or relays, the AZF-7S allows for powering loads with parameters dependent on the component used**. For proper standard operation of the AZF-7S, contactors or relays equipped with a NO (Normally Open) contact should be used.

Principle of operation

The AZF-7S continuously monitors the voltage on each phase. When a phase supplying power to a load no longer meets the required parameters (drops below 180 VAC or rises above 260 VAC), the device automatically switches the appropriate relay or contactor, redirecting power to another phase with the correct values.

The AZF-7S automatic phase switch operates in L1 phase priority mode. This means that if the L1 phase meets the voltage requirements, it will always be selected. **If the L2 or L3 phase should have priority in a given installation, you must make the change yourself. This means that the selected phase (L2 or L3) is connected to the terminal marked L1 on the AZF-7S.**

Voltage measurement is performed using the TRMS method. The device is resistant to mains frequency fluctuations in the 47-52 Hz range.

LED signaling

Three red LEDs indicate the status of the three-phase network (they do not directly indicate the selected phase). This allows the device to perform an additional function and act as a three-phase modular lamp, providing information about the network status.

The LED lighting configuration indicates the currently selected phase:

- **LEDs L1, L2, L3 are lit** - selected phase: L1 (priority)
- **only the L2 and L3 diodes are lit** - selected phase: L2
- **only the L1, L2 diodes are lit** - selected phase: L1 (priority)
- **only the L1, L3 diodes are lit** - selected phase: L1 (priority)
- **only the L1 diode lights up** - selected phase: L1
- **only the L2 diode lights up** - selected phase: L2
- **only the L3 diode lights up** - selected phase: L3

Three **LEDs flash simultaneously** when none of the phases have the correct parameters – there will be no voltage at the output because no phase is fed to it.



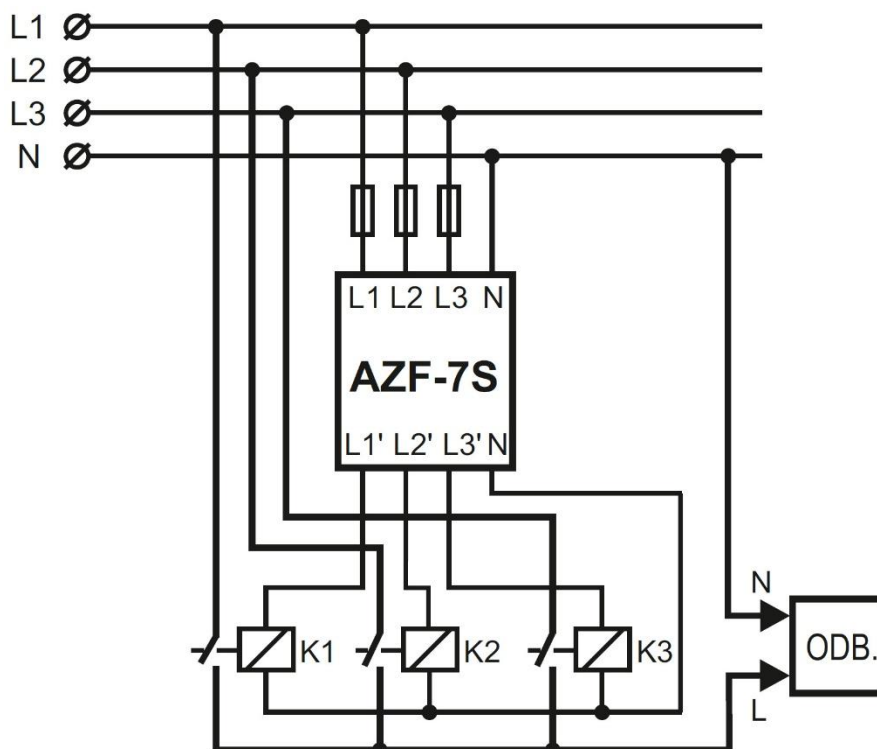
Technical data

Parameter name	Value
Rated supply voltage	3 x 400 / 230 V AC + N
Operating supply voltages	80 to 270 VAC
Rated power supply frequency	50 Hz
Power supply operating frequency	47 to 52 Hz
Operating temperature range	-20 to 50 °C
Max power consumption	2.4 VA
Operating mode	Priority power supply from L1
Executive element	Relay
Number of relay outputs	3
Contact arrangement	3 x voltage output
Maximum load current AC-1	5A / 250V AC
Maximum load current AC-15	0.8 A / 250 V AC
Maximum LED load power	Depends on the contactors used
Measurement of U power supply from 47 to 52 Hz	80 to 270 VAC
Upper threshold U of the power switch L1 L2 L3	260V AC

Parameter name	Value
Lower threshold U of the power switch L1 L2 L3	180V AC
Hysteresis U when switching power supply	10V
Measurement accuracy	±0.5%
U power failure switch delay	< 100 ms
Switch delay "<" / ">" U power supply	< 100 ms
Case	Modular housing (1 DIN module)
Degree of protection	IP20
Installation	TH35 rail
Clamp type	Elevator
Wire stripping length	6.5 mm
Single-wire conductor	0.25 to 2.5 mm ²
Multi-stranded conductor (stranded wire) without ferrule	0.25 to 2.5 mm ²
Stranded wire with square crimp sleeve	0.25 to 2.5 mm ²
Tighten to maximum torque	0.5 Nm

Full technical specifications are available on the website www.pollin.pl/do-pobrania or by scanning the QR code provided in the warranty and guarantee section.

Connection diagram



Installation

The AZF-7S automatic phase switch must be installed in accordance with applicable electrical standards and regulations. The following guidelines are intended to ensure the installer's safety and the proper operation of the device:

1. **Authorizations** - The device may only be installed by a person with appropriate qualifications and authorizations to work on electrical installations.
2. **Disconnecting the power supply** - Before starting any work, it is essential to disconnect the power supply at the distribution board and make sure that the circuit is voltage-free (e.g. using a voltage indicator).
3. **Personal Protection** - The installer should use personal protective equipment such as electrically insulating gloves and safety glasses.
4. **Mechanical installation** - The device should be mounted on a standard TH35 rail in the distribution board, ensuring stable mounting and adequate ventilation space.
5. **Connecting Wires** - Connections should be made according to the wiring diagram provided by the manufacturer. Ensure that terminals are tightened with the correct torque and that wires of the appropriate cross-section are used. Only one wire may be inserted into each terminal – regardless of whether it is solid or stranded with a crimped ferrule.
6. **Checking the connections** - After completing the installation, carefully check the correctness of all connections, make sure that the terminals are securely tightened and that there are no exposed wires that could cause a short circuit or a shock hazard.
7. **Restoring Power** - After completing the installation and inspection, turn on the power and check the operation of the device according to the instructions.
8. **Testing** - After installation, verify the correct operation of the device by simulating a phase loss of "L1" and then "L2." In the first case, the AZF-7S should switch the load to phase "L2," and in the second – to phase "L3." A similar reaction will occur when the voltage on any phase drops below the lower threshold or exceeds the upper threshold. The AZF-7S device is designed exclusively for use as an intermediate controller. The internal miniature relays (5 A) are optimized for controlling the coils of external power contactors (AC-15 utilization category).

NOTE: The relays used in the AZF-7S device have a rated current of 5 A for resistive loads (AC-1).

When controlling loads of a different nature, the permissible rated current is significantly reduced:

- Inductive loads (AC-15): (e.g. contactor coils, transformers) – recommended protection and load max. 0.8 A. The electric arc generated during disconnection may lead to rapid burning of the contacts.
- Capacitive and LED loads: (e.g. switched-mode power supplies, LED lighting) – recommended protection and load 0.5 A – 0.8 A. Very high surge currents occurring during switching on may cause permanent welding (gluing) of the relay contacts.
- Contact protection: When controlling large contactors with coils with significant inductance, it is recommended to use external suppression systems in the form of RC circuits or varistors connected in parallel with the coil. This solution improves circuit protection and extends the life of the device's contacts.

No Modifications - Any modifications to the device or its components are prohibited. This may result in malfunctions and a safety hazard.

Warranty and guarantee – short information

The warranty applies to every purchaser, including consumers. Warranty claims should be directed to the seller from whom the purchase was made.

If a defect is found in the device, the customer has the right to choose: he or she can use the statutory warranty (in accordance with the provisions of the Civil Code) or the manufacturer's warranty.



Pollin Guarantee



Pollin devices are covered by a 10-year manufacturer's warranty – Zakład Elektroniczny POLLIN Wojciech Polak. The warranty applies only to devices purchased by businesses and covers material and manufacturing defects.

Warranty claims should be submitted by e-mail to: pollin@pollin.pl, in accordance with the procedure described in the full version of the document.

The warranty does not cover, among other things, mechanical damage, unauthorized modifications, installation by unqualified persons and natural wear and tear of consumables.

The full text of the warranty terms is available at: <https://pollin.pl/do-pobrania> or via the attached QR code.

Markings



This symbol on a device indicates that the used equipment should not be disposed of with other household waste. Used equipment should be taken to one of the designated electronic waste collection points or returned to the store when purchasing new equipment. Improper disposal of electronic waste poses a threat to the environment and human health.



The CE marking confirms that the product meets the essential requirements of all applicable European Union directives and regulations.



This marking indicates that installation, connection and all servicing of the device may only be performed by qualified personnel with electrical qualifications.

Technical support – the fastest help from Pollin experts

If you have any questions regarding the operation, configuration or installation of the device, **please contact us by email – this is the fastest way to obtain technical support**.

Send a message to: support@pollin.pl, describe the problem in detail and leave your contact number and the hours when we can call you.

Our engineers will review your request and make every effort to provide you with professional assistance as quickly as possible.



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