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## PF-431-LED TRMS

Automatic  
phase switch



519024311672502

**Do not dispose of this device in the trash along with other waste!** According to the Law on Waste, electro coming from households free of charge and can give any amount to up to that end point of collection, as well as to store the occasion of the purchase of new equipment (in accordance with the principle of old-for-new, regardless of brand). Electro thrown in the trash or abandoned in nature, pose a threat to the environment and human health.



### Purpose

The PF-431-LED True RMS automatic phase switch is used to maintain the continuity of power supply of single-phase receiver. In the event of supply phase loss or if the phase exceeds the correct voltage values, a different phase with the correct parameters will be directed to the output.

By measuring the RMS value of the voltage (True RMS), the switch guarantees the correct operation even when operating with a severely disturbed power supply network.



The "LED" version of the relay is equipped with a contact designed to cooperate with receivers with high starting current, such as: LED fluorescent lamps, ESL fluorescent lamps, electronic transformers, discharge lamps, etc.

## Functioning

A three-phase voltage is applied at the input of the switch. Voltage of one of the phases is applied at the output of the switch.

The electronic system of the switch controls RMS values of the applied phase voltages so that the output voltage is not lower than 190 V or higher than 280 V. Phase with the correct parameters is directed at the output of the switch. The corresponding LED light indicates that the indicated phase is connected to the output of the switch. L1 phase is the priority phase, i.e. that if its parameters are correct, this phase will be always switched to the output.

If a voltage in L1 phase would drop below 190 V, its loss or increase above 280 V (the green L1 LED goes off), the electronic system will switch phase L2 to the output (if its parameters are correct).

In the case of a simultaneous lack of correct voltages in L1 and L2 phases (L1 and L2 green LEDs go off), the L3 phase will be switched to the output.

When the correct supply voltage returns to the L1 phase (voltage in the range 190÷280 V), the system switches this phase to the output. After connecting the supply voltage the system blinks once with all LEDs, which indicates the appearance of voltage on the device (but not on the output). Then the device analyzes the network parameters and switches to the appropriate phase output. If the power supply N wire is connected to the wrong place, instead of switching one of the phases to the output, the device will signal an incorrect connection by lighting the LEDs in the order L1, L2, L3 („passing” diode). In this case, disconnect the power supply from the device and connect the input wires correctly.



Prolonged operation with incorrectly connected neutral wire can cause irreparable damage to the controller.

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The device also monitors the voltage at the output contact, which allows you to detect the „gluing” of the internal relay contacts. If this situation is detected, all 3 LEDs will flash cyclically.

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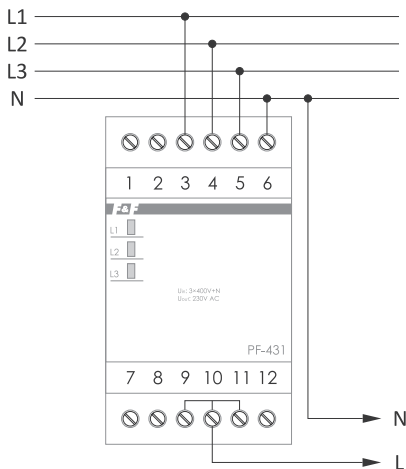
The protection works only when switching from a lower priority phase to a phase with a higher priority (for example from L2 to L1). It does not work when switching to a lower priority phase (for example from L1 to L2).

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## Mounting

1. Turn off the power.
2. Connect the input voltages to terminals 3, 4, 5 and the neutral wire to terminal 6. The phase with the most variable parameters should be connected to terminal 5, whereas the phase with stabilized parameters to terminal 3 as the priority phase.
3. Connect the supplied single-phase circuit to terminal 10 (phase) and the neutral wire of the network.
4. Turn on the power supply and check the continuity of power supply of the connected single-phase circuit by successive voltage disconnections in L1 and then L2 phases.

## Wiring diagram



The outputs 9, 10, 11 are connected in parallel, which means that the output signal is available on each of them.

- 3 power supply input – L1 phase
- 4 power supply input – L2 phase
- 5 power supply input – L3 phase
- 6 power supply input – neutral N-wire
- 9-11 power supply output

## Technical data






input voltage	3×400 V+N
output voltage	230 V AC
maximum load current (AC-1)*	16 A (120 A/20 ms)**
minimum voltage value L1, L2, L3	190 V
maximum voltage value L1, L2, L3	280 V
return hysteresis	10 V
voltage measurement error	±1%
switching time	1.0÷1.5 s
output voltage indication	3×LED
power consumption	1.6 W
terminal	4.0 mm <sup>2</sup> screw terminals (cord) 2.5 mm <sup>2</sup> screw terminals (wire)
tightening torque	0.5 Nm
working temperature	-25÷40°C
dimensions	3 modules (52.5 mm)
mounting	on TH-35 mm rail
ingress protection	IP20

\* The actual permissible load depends on the nature of the receivers. In the case of powering large appliances, heating or a large number of, for example, LED lamps, it is recommended to use the PF-441 switch with additional contactors.

\*\* The value depends on the nature of the load. More information in the power table on the next page.

## Power table

Table for loads supplied with 230 V AC:

				
tungsten	halogen	fluorescent	energy-saving	LED
3000 W	2500 W	1500 W	750 W	750 W

The above data are indicative and will heavily depend on the design of a specific receiver (that is especially important for LED bulbs, energy-saving lamps, electronic transformers and pulse power supply units), switching frequency and operating conditions.

For more information visit: [www.fif.com.pl](http://www.fif.com.pl).

## Warranty

F&F products are covered by a 24-month warranty from the date of purchase. The warranty is only valid with proof of purchase. Contact your dealer or contact us directly.

## CE declaration

F&F Filipowski L.P. declares that the device is in conformity with the essential requirements of The Low Voltage Directive (LVD) 2014/35/EU and the Electromagnetic Compatibility (EMC) Directive 2014/30/UE.

The CE Declaration of Conformity, along with the references to the standards in relation to which conformity is declared, can be found [www.fif.com.pl](http://www.fif.com.pl) on the product subpage.

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