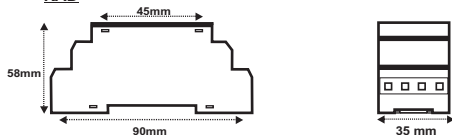


Device Leds

On	U _{min} (U ⁺)	U _{max} (U ⁺)	Out	(●) LED ON (◐) FLASH (⊗) LED OFF
●	⊗	⊗	⊗	N or L1 (supply line) is not connected or corrupted
●	⊗	⊗	●	Voltages are adjusted value
●	◐	⊗	●	Temporarily under voltage warning
●	●	⊗	⊗	Continuously under voltage warning
●	⊗	◐	●	Temporarily over voltage warning
●	⊗	●	⊗	Continuously over voltage warning
●	◐	◐	●	Respectively flash :temporarily over and under voltage warning
●	●	●	⊗	Continuously over and undr volage warning
●	◐	⊗	⊗	Leds flash together phase sequence fault
●	⊗	⊗	⊗	T-On Delay On time
●	⊗	⊗	◐	(◐) fast flasher) Phase fault warning

Dimensions

KAD



Technical specifications

Supply voltage	: 220 Vac ± % 35, 50/60 Hz (L1-N)
Under voltage setting	: 210V, 150V adjustable.
Over voltage setting	: 230V, 300V adjustable.
Hysteresis	: 5V (on the delay on)
Delay off time	: (t-off) : Between 0,1sec...20sec adjustable.
Delay On time	: (t-on) : Between 0,1sec...20sec adjustable.
Power consumption	: < 7 VA
Operating temperature	: -5°C...+55°C
Electrical life	: 100.000 On/ Off (Resistive load)
Control output	: Relay ,1 inversör, 10A/ 250 Vac (Omron)
Electrical connection	: PCB clamp
Installation	: DIN 35 rail or Vertical installation.

KRK®

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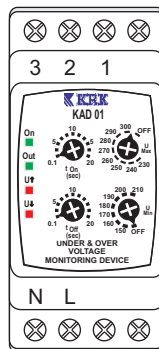
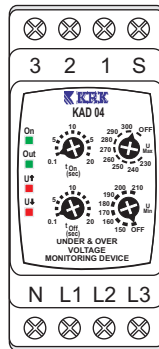
UNDER AND OVER VOLTAGE PROTECTION RELAY

True RMS



KAD 04

KAD 01



User guide

General specifications

The devices are used for single phase and three phase systems from : Phase loss, Phase sequence failure , Under voltage, Over voltage

Protection Functions

1- Phase Sequence Failure :If the sequence of the phases are wrong system doesn't work.Any case if the sequence is changed during normal operation the output is closed without delay. Umin, "U↓" and Umax, "U↑" leds are flashing.

2-Phase Loss :If the system has lost one of the phases, the output is closed without delay. And "Umin, U↓" led is lighted. (If supply phase is lost all the leds is off).

3- Under and Over Voltage Protection: Under Over voltage tolerances can be adjusted seperately.If the phase-neutral voltage values are between the adjusted levels "out" led is on. (2-3 contacts are closed). Otherwise device close the output. (1-2 contacts are closed)During normal operation any of phase voltage value decreases under the adjusted value "Umin, U↓" led is on, increases "Umax, U↑" led is on.If one of the phase is over the limit and one of the under the limit both Umin "U↓" and Umax "U↑" leds are on. If these condition continues more than adjusted delay time "out" Is off.(1-2 contacts are closed).Related warning leds remain on. If these condition continues less than adjusted time, warning leds are off.Device operating normally.

Note: If under and over buttons are off , Control is not possible

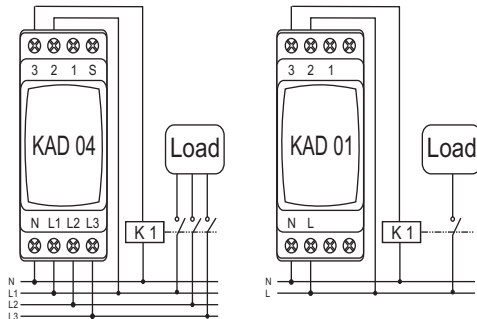
4- If any phases values decreases under $0.5 \times U_n$ or increases over $1.5 \times U_n$ device will closed the system without delay. Warning leds will light on accordingly. If phase value is big "Umax, U↑" led , if small "Umin, U↓" led is on

5-If supply voltage (L1) drops under 150 V device will closed the system without delay. And " U↓ " led is on. .

6- t-off time : If phases values out of adjusted value , at the end of t-off time "out" led is off and 1-2 contacts are closed. The fault led or leds during t-off time is on

7- t-On delay on time : If the voltages is out of adjusted value device wait during t-off time. At the end of t-off time "out" led is off.(1-2 contacts are closed). When the voltages are between adjusted value device wait during t-on time. At the end of t-on time "out" led is on.(2-3 contacts are closed)

Connection diagram



KAD 04 : If phase sequence control is not desired "S" - "N" must be