

# UNDERVOLTAGE RELAY

- Application in 3-phase / 4-wire mains
- Tripping on undervoltage (single phase sensitive)
- No auxiliary voltage required
- Independent delay time



## Operation

The measuring relay RUAT-M/0 is designed for 3-phase 4-wire mains to trip in the case of undervoltage with a user-adjustable time delay (0.1-3 s or 1-10 s).

Normal operating conditions are indicated by the green LED on the front panel and contacts 9-11 and 10-12 are closed. In the case of undervoltage the red LED lights up and the delay time circuit gets started. If the undervoltage condition still persists at the end of the delay time the relay trips and contacts 7-11 and 8-12 are closed.

Delayed tripping is maintained even in the case of total 3-phase power fail. Returning to normal conditions both the output relay and the LEDs change over immediately. The recovery time after total power fail is  $\leq 300$  ms.

The RUAT-M/0 relay is enclosed in a plastic case (flame retardant, self extinguishing), which fits into a special 14 pin plug-in socket. The socket (type U or K) provides screw terminals  $2 \times 4 \text{ mm}^2$ . A 35 mm DIN rail adapter is available for socket K.

Note: Apply rated voltage for at least 1 second to the RUAT-M/0 before first use after shipment to ensure correct initial position of the latching output relay contacts.

## Specifications

(other values on request)

Rated voltage  $U_N$  .....: 3 x 400 / 230 V AC, 3 x 100 / 57 V AC

Delay time  $t_V$ .....: 0.1-3 s , 1-10 s

Please specify **rated voltage** and **delay time** on order

Setting range .....: 60% to 100%  $U_N$

Disengaging ratio.....: 3% (Hysteresis)

Frequency range.....: 45 - 60 Hz

Power consumption .....: 2 VA

Overload (continuous) .....: 140%  $U_N$

Accuracy .....: 2%

Set point repeatability .....:  $< 1\%$

Temperature coefficient .....:  $0.01\% / ^\circ\text{C}$

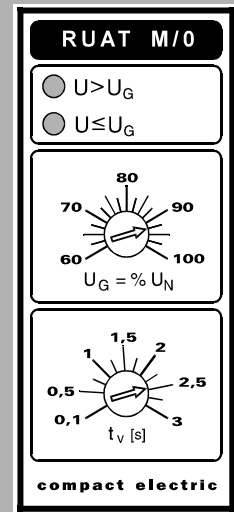
Frequency coefficient .....:  $+0.5\% / \text{Hz}$

Operating temperature .....:  $-20 - +60 ^\circ\text{C}$

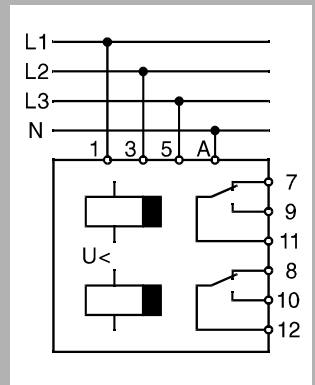
Storage temperature .....:  $-40 - +85 ^\circ\text{C}$

Recovery time after total power fail .....:  $\leq 0.3 \text{ s}$

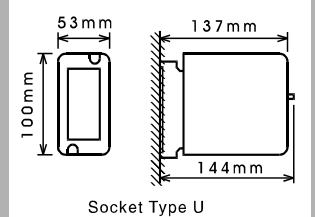
# RUAT-M/0



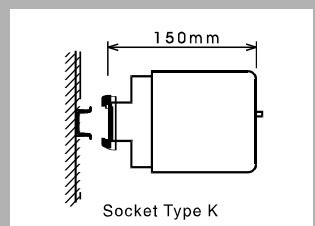
front view



wiring diagram



Socket Type U



Socket Type K

dimensions

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## Output Relay (2 changeover contacts)

Rated / Max. switching voltage .....	250 V / 380 V AC
Rated / Max. switching current .....	8 A / 8 A AC
Rated switching power .....	2000 VA (cos $\varphi$ = 1)
Make-break capacity .....	250 V / 8 A AC (cos $\varphi$ = 1) 250 V / 4 A AC (cos $\varphi$ = 0.4) 250 V / 0.4 A DC (6 * 10 <sup>3</sup> operating cycles) 30 V / 5 A DC (6 * 10 <sup>3</sup> operating cycles)
Electrical endurance .....	10 <sup>5</sup> operating cycles
Mechanical endurance .....	10 <sup>6</sup> operating cycles
Contact material .....	gold flash over silver alloy

Safety Standard: EN 60255-6 10.95

## Insulation

test voltage .....	IEC 255-5: 2.5 kV <sub>RMS</sub> 50 Hz 1 min
impulse test .....	IEC 255-5: 5 kV 1.2/50 $\mu$ s
Mechanical resistance .....	IEC 255-21-1 class 1 IEC 255-21-2 class 1 IEC 255-21-3
Operating position .....	any position

## Electromagnetic compatibility

Immunity:

EN 50082-2 (Industry) 2.95

IEC 255-22-1 1 MHz disturbance test class III (2.5 kV)

IEC 255-22-2 (IEC 801-2) electrostatic discharge immunity test class III (8 kV)

IEC 255-22-3 (IEC 801-3) high frequency disturbance test / 10 V/m

IEC 225-22-4 (IEC 801-4) burst class III, 2 kV 5/50 ns 5 kHz 15 ms

Emission:

EN 50081-1 (radiated RF) 3.92

## Maximum EMC interference (rated voltage applied)

Set point .....

Set point .....	$\leq$ 3%
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Delay time .....

Delay time .....	$\leq$ 10%
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Protection degree .....

Protection degree .....	IP40
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Case material .....

Case material .....	Polycarbonat
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Flame retardance .....

Flame retardance .....	UL 94 V-0, self-extinguishing
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Weight .....

Weight .....	0.3 kg
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## Installation instructions

- 1) To ensure specified EMC features keep a minimum distance of 1.5 cm to other equipments or metallic parts.
- 2) Lock the case on the socket by the two clamping devices (metal spring clips with two notches). To lock the case push down the spring clips with a screwdriver positioned in the notches near the outside of the case. To unlock the case push down the spring clips using the notches near the inside of the case.

Specifications are subject to change without notice



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