

RMT-101

MAXIMAL CURRENT RELAY



USERS MANUAL

1 DESCRIPTION AND OPERATION

1.1. Application

RMT-101 designed to permanent control of active value current of single-phase load in 0 to 100A range, and to turn OFF it in case of excess of user adjusted maximum allowed load current (with independent time lag) with preset cut-OFF time and subsequent automatic insertion with preset turn-ON time or with block of reclosing.

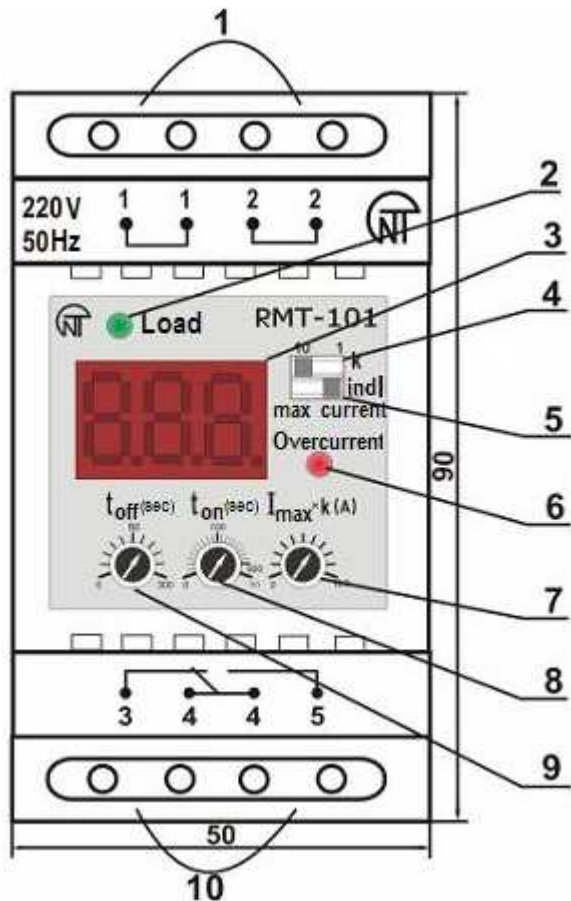
Current sitting, reaction time of relay and autoreclosing time are adjusted by user using potentiometers on the front panel of RMT-101.

Measurement is carried out by built-in current sensor without break of electrical circuit.

RMT-101 can be used as:

- digital ammeter;
- limit relay input current;
- selection relay (to select of priority load).

In RMT-101 for current measuring it is used Built-in current transformer. RMT-101 allows controlling current values and condition of load per LED indicators on the front panel.



1. Power input of RMT-101 – ~220V-240V/50Hz
2. “Load” LED
3. Digital Indicator for measurable and controlled parameters
4. Range switch of 10/100A adjuster (overcurrent adjustment)
5. Toggle for switch of indication modes (“current (now)”/ “max (current)”
6. “Overcurrent” LED indicator
7. Adjustment knob for overcurrent sitting – I_{max}
8. Adjustment knob for load reclosing delay sitting – t_{on}
9. Adjustment knob for power-cut delay sitting – t_{off}
10. Outputs of load-control relay, max. ~250V, 8A.

Figure 1 - Appearance of RMT-101

1.2. General technical characteristic of RMT-101

Operation supply voltage, V	220/240
Operation voltage range at which RMT-101 will keep working, V *	130 to 300
Power frequency , Hz	47 – 53
Current measurement range, A	0-100
Measurement inaccuracy, no worse than	1%
Adjustment range	
a) I_{max} , A	0 – 10
absolute measurement accuracy of current, A, no more than	$\pm 0,04$
b) I_{max} , A	0-99,9
absolute measurement accuracy of current, A, no more than	$\pm 0,4$
Adjustment range of t_{on} , sec	0 – 900, ∞

Adjustment range of t_{off} , sec	0 – 300
Readiness time, sec, no more than	0,5
Power consumption (under load), VA, no more than	3,0
Commutation overcurrent of the output contacts at $\cos\varphi=1$, A	8
Commutation life of the output contacts: - under 5A power load, times, no less then - under 1A power load, times, no less then	100 000 1 000 000
Protection class of: - Device - Connection terminal	IP40 IP20
Operational temperature range, °C	from -25 to +55
Storage temperature, °C	from -45 to +70
Weight , kg, no more than	0,200
Outer dimensions, 2 S-modules for 35mm DIN-rail, mm	50 x 90 x 58
Mounting to standard 35 mm DIN-rail	
Positioning	Free
* Indicator switching-off (poz.10, fig. 1) is provided at supply voltage decrease more low 120 volt and blocking of functioning RMT-101 at a supply voltage reduction more low 100 volt.	

1.3 Operation

After energization (220/240 V, 50Hz) to RMT-101, for ready-time is no more 0.5 sec, turning ON of load is occurred and it is accompanied opening of contact 3-4 and closing of contact 4-5, “**Load**” LED indicator is ON (pt.2, fig.1), value of load current is displayed on the digital indicator (pt.3, fig.1).

If current value is exceeded overcurrent sitting (in both ranges: from 0 to 99.9 A and from 0 to 10 A, it is adjusted by knob for overcurrent sitting, range choice is carried out by range switch (pt.4, fig.1), then “**Overcurrent**” LED will ON in RED color (pt.6, fig.1), counting off of power cut delay will begin (from 0 to 300 sec., it is adjusted by knob for power cut delay sitting (pt.9, fig.1), thus load current value (in Ampere) and remain time to power cutting (in seconds) will be displayed on the digital indicator alternately. When period of power cut delay is finished, then load will be cut-OFF and contact 4-5 will be opened, contact 3-4 will be closed (pt.10, fig.1), green “**Load**” LED indicator will OFF. If current value comes back to range is adjusted by knob for overcurrent sitting, then “**Overcurrent**” LED indicator will OFF, count-down of load reclosing delay will begin (from 0 to 900 sec., it is adjusted by load reclosing delay sitting knob (pt.8, fig.1)), thus remain time to turn-ON (in sec.) will displayed on the digital indicator (pt.3, fig.1).

If during power cutting current do not come back to preset range, then message ‘Err’ will be displayed on the digital indicator (pt.3, fig.1) and count-down of reclosing time will NOT begin

When time delay is finished, load will be turn-ON and contact 3-4 will be opened, contact 4-5 will be closed, “**Load**” LED indicator wills ON, load current will be displayed on the digital indicator.

During twisting of any adjustment knob (pt.7, 8, 9, fig.1) value of adjusted parameter is showed on the digital indicator, in this case decimal dot will be in the low order.

If adjustment knob for reclosing delay sitting stays in “inF” position (infinity sing “∞” on the scale) autoreclosing is disable and ‘inF’ is displayed on the digital indicator (autoreclosing is blocked). To turn-ON load RMT-101 should be short cut-OFF or user should set adjustment knob for autoreclosing sitting in position is different from ‘inF’ position. After change position of reclosing delay sitting knob to blocking autoreclosing (infinity sing “∞” on the scale (pt.7, fig.1)) “inF” will be displayed for 4 seconds on the digital indicator.

RMT-101 is able to show maximal value of current. If toggle (pt.5, fig.1) for select indication mode between “**current**” and “**max**” is set in “**max**” position, then maximal value of current will be displayed on the digital indicator (pt.3, fig.1). This maximal value corresponds to maximal fixed value of current from instant of energizing RMT-101 or from instant of restore of calculation maximal current value. Restore of calculation maximal current value is carried out simultaneously with adjustment ‘**indI**’ toggle (pt.5, fig.1) in “**current**” position.

1.4 Start-Up Preparation

Connect the product as per wiring diagram (fig.2). Wire (current of which is controlled) should be passed through corresponding an aperture of case. Adjust range of change overcurrent sitting using range switch (pt.4, fig.1), also adjust cut-OFF time sitting, reclosing time and value of overcurrent using adjustment knobs (pt.7, 8, 9, fig.1).

Attention!!! All connections must be done only on deenergized RMT-101 according to safety regulations!

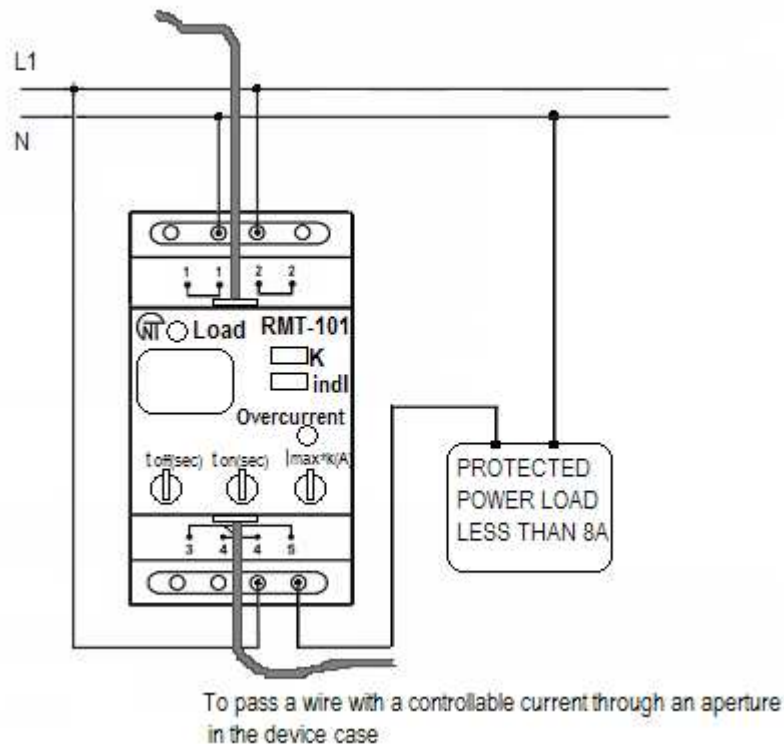


Figure 2 - Wiring diagram

Turn ON the supply power to the RMT-101. If necessary, make fine adjustment of value settings to control of which digital indicator (pt.3, fig.1) is used. RMT-101 ready for work.

To increase convenience of adjustment parameters scale of reclosing delay sitting 't_{on}' (pt.8, fig.1) has 2 range are 0 to 100 and 100 to 900 seconds, scale of power- cut delay sitting 't_{off}' (pt.9, fig.1) is also divided 2 ranges are 0 to 50 and 50 to 300 seconds with different divisions value.

2. TRANSPORTATION AND STORAGE

RMT-101 should be stored in a factory package in enclosed rooms with ambient temperature from - 45 to +70 °C and exposed to not more than 80% of relative humidity. It should be no fumes in the air that may exert a deleterious effect on package and the RMT-101 components. The Buyer must provide the protection of the relay against possible mechanical damages in transit.

3. WARRANTY PACKAGE

Operation life of RMT-101 is no less than 10 years. Where upon device should be write off as obsolete.

Novatek-Electro Ltd. company warrants a trouble-free operation of the RMT-101 device within 3 years from the date of sale, on condition that following terms are provided:

- the proper connection;
- the safety of the inspection quality control department seal;
- The integrity of the case, no traces of opening, cracks, spalls etc.

Post warranty service of the device is provided by Novatek-Electro Ltd. per independent agreement.