



# TECHNICAL MANUAL

## Time relay RT-SD

### star-delta



## 1 DESCRIPTION

Time relay RT-SD is a microprocessor-based switching device intended for star-delta (wye-delta) electric motor starting with independent motor start and star-delta (wye-delta) transition timers.

This form of soft starting lowers the inrush current and extends the service life of the motor.

The time relay complies with IEC 61000-4-4:2004.

## 2 TECHNICAL DATA

Table 1

Characteristics	Values	
	RT-SD	RT-SD-12-240
Item code		
Rated voltage, V	24-240 AC/DC	12-240 AC/DC
Rated pulse voltage, V AC	400	
Power consumption, VA	≤1,5	
Time delay range	Starting – from 0,1 s to 10 min	
	Transition – 75/150 ms	
Set-point accuracy, %	≤5	
Repeatability, %	≤0,2	
Power interruption, ms	min 200	
Electrical life, cycles	100 000	
Mechanical life, cycles	1 000 000	
Contacts	2 CO	
Rated load current	2 x 8A at 230V	

Table 1 continued

Characteristics	Values	
	RT-SD	RT-SD-12-240
Interference immunity	3, in accordance with IEC 61000-4-4:2004	
Max. altitude above sea level, m	2000	
Degree of protection	IP20	
Pollution degree	3	
Operating temperature, °C	-5 ... 40	
Storage temperature, °C	-25 ... 75	

### Indication

Green "U" LED:

constantly lit when the relay is powered.

Red "φ" LED:

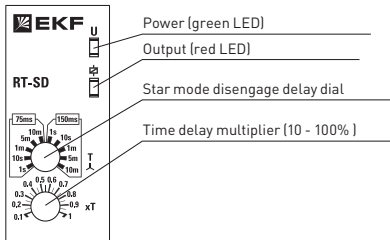
flashes red during timer countdown, constantly lit after the delta connection is engaged.

### Function diagram



Fig. 1

## Control panel



## Operation

When the relay is energized, contacts 15 - 18 closes and the relay actuates a contactor that switches the power to the electric motor in a star (wye) configuration. The relay will remain in this state until the motor start timer expires, after which the relay turns off (opens) contacts 15 - 18 and starts the transition timer. Once the transition timer expires, the relay closes contacts 25 - 28 and switches on the contactor that supplies power to the electric motor in a delta configuration.



## Wiring diagram

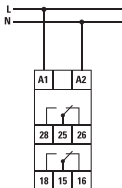


Fig. 3

## 3 OVERALL AND INSTALLATION DIMENSIONS

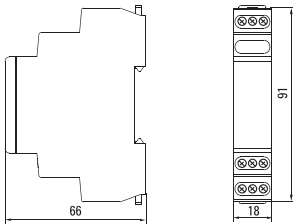


Fig. 4

## **4 OPERATION CONDITIONS**

4.1 Operating temperature: -5°C to +40°C

4.2 Max. altitude above sea level: 2000 m.

## **5 DELIVERY SCOPE**

1. Time relay RT-SD EKF – 1 pc.

2. Technical manual – 1 pc.

## **6 SAFETY REQUIREMENTS**

6.1. Do not operate relays with visible mechanical damage.

6.2. The relays conform to IEC 61140 Class 0 for protection against electrical shock and must be installed in Class 1 enclosures or higher.

## **7 MAINTENANCE**

7.1. For maintenance, follow national safety rules for operation of electrical installations.

7.2. Under normal operating conditions, visually inspect the relay and check the set modes and trigger time every 6 months. Tighten the screw terminals, as they may become loose due to cyclical changes in the ambient temperature and material flow.

7.3 The relay must be installed and maintained by qualified personnel.

7.4 Follow the wiring diagram when installing the relay.

7.5 Do not install the relay without protective cover in any area exposed to water or direct sunlight.

## **8 STORAGE AND TRANSPORTATION**

8.1 Relays can be transported by any means of enclosed transport that protects the packaged goods from mechanical impact and weather exposure.

8.2 Relays shall be stored indoors, in their original packaging, at the ambient temperatures from  $-25^{\circ}\text{C}$  to  $+75^{\circ}\text{C}$  and max. relative humidity of 80% at  $+25^{\circ}\text{C}$ .

## **9 DISPOSAL**

Life-expired and failed products shall be disposed of in compliance with the effective national and local laws and regulations.

To dispose of the product, send it to an authorized company for recycling in compliance with the effective national and local laws and regulations.

## **10 MANUFACTURER'S WARRANTY**

10.1 The manufacturer guarantees the relays comply with the declared characteristics, provided that consumers observe the operation, transportation and storage conditions and requirements.

10.2 Warranty period: 7 years.

10.3 Shelf life: 7 years.

10.4 Service life: 10 years.



**Manufacturer:** For information, refer to the product package.

**Importer and EKF trademark service representative:**

EKF ELECTRICAL SOLUTION – FZCO, Dubai Silicon Oasis, DDP, Building A2, Dubai, United Arab Emirates.

**Importer and EKF trademark service representative on the territory of the Russian Federation:** OOO «Electroresheniya», Otradnaya st., 2b bld. 9, 5th floor, 127273, Moscow, Russia. Tel.: +7 (495) 788-88-15.

**Importer and EKF trademark service representative on the territory of the Republic of Kazakhstan:**

TOO «Energoresheniya Kazakhstan», Kazakhstan, Almaty, Bostandyk district, Turgut Ozal st., 247, apt 4.

## **11 CERTIFICATE OF ACCEPTANCE**

The time relay has been manufactured in compliance with the effective laws and regulations and has been approved for operation.

Quality control stamp



EAC



v3

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