

TR-ES2P-UNI

time relays



- **Star-Delta start-up with independently controled times T1 and T2 (1 time function; 4 time ranges)**
- AC/DC input voltages
- Cover - installation module, width 35 mm
- Direct mounting on 35 mm rail mount acc. to PN-EN 60715
- Application: in low-voltage systems
- Recognitions, certifications, directives:  

Output circuit - contact data

Number and type of contacts	2 x 1 CO
Contact material	AgNi
Rated load	AC1 8 A / 250 V AC
Max. breaking capacity	AC1 2 000 VA 8 A / 250 V AC
Max. operating frequency	3 600 cycles/hour
• at resistive load 100 VA	360 cycles/hour
• at resistive load 1 000 VA	

Input circuit

Rated voltage	AC: 50/60 Hz AC/DC	12...240 V	terminals (+)A1 – (-)A2
Must release voltage		AC: $\geq 0,3 U_n$	
Operating range of supply voltage		0,9...1,1 U_n	
Rated power consumption	AC	6,0 VA	
	DC	2,0 W	
Range of supply frequency	AC	48...63 Hz	
Duty cycle		100%	
Residual ripple to DC		10%	

Insulation according to PN-EN 60664-1

Insulation rated voltage	250 V AC
Rated surge voltage	4 000 V 1,2 / 50 μ s
Overvoltage category	III
Insulation pollution degree	2 if built-in: 3
Dielectric strength • contact clearance	1 000 V AC type of clearance: micro-disconnection

General data

Electrical life	• resistive AC1	$> 2 \times 10^5$	1 000 VA
Mechanical life (cycles)		$> 2 \times 10^7$	
Dimensions (L x W x H)		87 x 35 x 65 mm	
Weight		120 g	
Ambient temperature	• storage	-25...+70 °C	
	• operating	-25...+55 °C	
Cover protection category		IP 20	PN-EN 60529
Relative humidity		15...85%	
Shock resistance		15 g 11 ms	
Vibration resistance		0,35 mm DA 10...55 Hz	

Time module data

Functions	SD
Time ranges (start-up for the star) T1	10 s; 30 s; 1 min.; 3 min.
Timing adjustment T1	smooth - (0,05...1) x time range
Transit time (fixed) ① T2	40 ms; 60 ms; 80 ms; 100 ms
Base accuracy	$\pm 1\%$ (calculated from the final range values)
Setting accuracy	$\pm 5\%$ (calculated from the final range values)
Repeatability	$\pm 0,5\%$ or ± 5 ms
Temperature influence	$\pm 0,01\%$ / °C
Recovery time	100 ms
LED indicator	green LED U ON - indication of delta contactor supply voltage U green LED U flashing - measurement of T1 time yellow LED R ON/OFF - indication of star contactor

① Pause time between switching off the star contactor and switching on the delta contactor.

PRECAUTIONS:

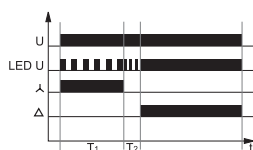
1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. 2. Never touch any live parts of the device. 3. Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire. 4. In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation.

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Time functions

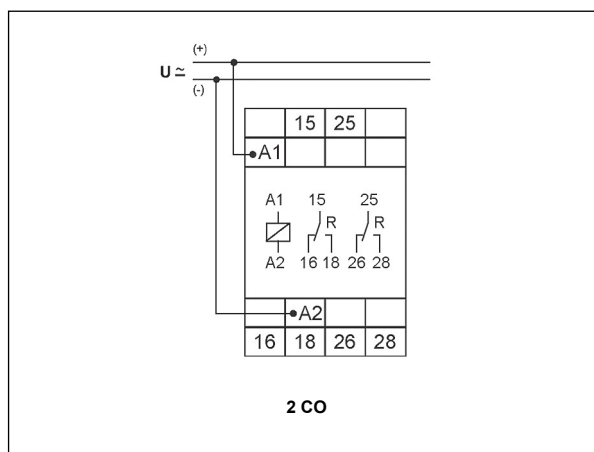
SD - Star-Delta start-up.



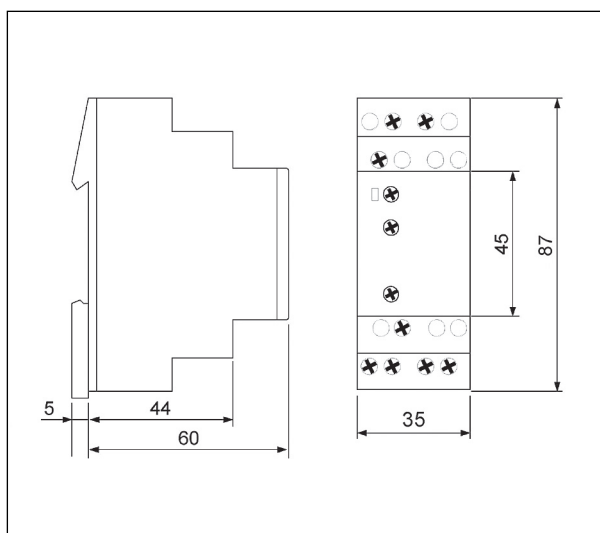
When the supply voltage U is applied, the star-contact (15-18) switches into on-position (yellow LED illuminated) and the set star-time T_1 begins (green LED flashes). After the interval T_1 has expired (green LED illuminated) the star-contact switches into off-position (yellow LED not illuminated) and the set transit-time T_2 begins. After the interval T_2 has expired the contact for the delta-contactor (25-28) switches into on-position. To restart the function the supply voltage must be interrupted and re-applied.

U - supply voltage; T_1 , T_2 - measured times; t - time axis

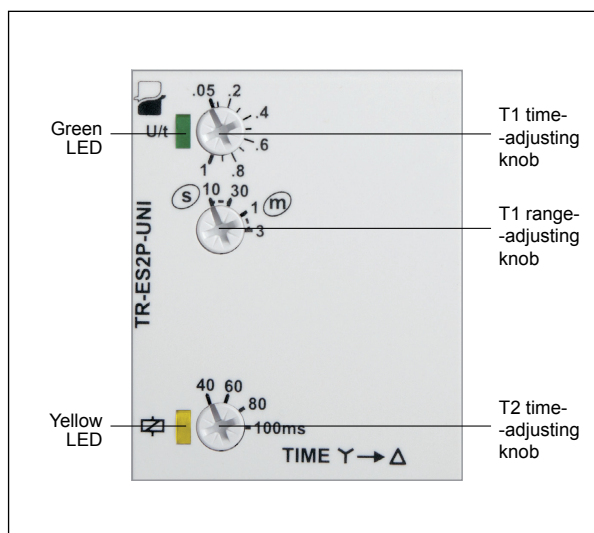
Connection diagram



Dimensions



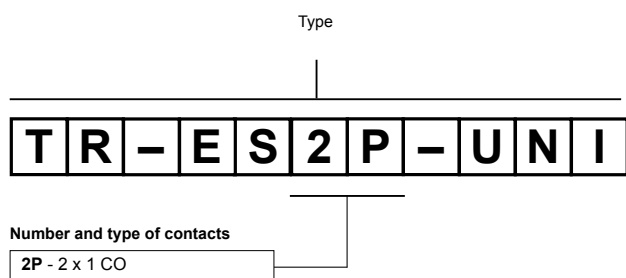
Front panel description



Mounting

Relays **TR-ES2P-UNI** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. **Connections:** max. cross section of the cables: $1 \times 2,5 \text{ mm}^2 / 2 \times 1,5 \text{ mm}^2$ ($1 \times 14 / 2 \times 16 \text{ AWG}$), length of the cable deinsulation: 6,5 mm, max. tightening moment for the terminal: 1,0 Nm. Shockproof terminal connection according to VBG 4 (PZ1 required).

Ordering codes



Example of ordering codes:

TR-ES2P-UNI

time relay **TR-ES2P-UNI**, single-function (relay perform function SD), cover - installation module, width 35 mm, two changeover contacts, rated input voltage 12...240 V AC/DC AC: 50/60 Hz