



# TR-ES2P-UNI

## time relays



- Time relays with independently controled times T1 and T2, time function SD (Star-Delta start-up), 4 time ranges
- AC/DC input voltages
- Cover - modular, width 35 mm
- Direct mounting on 35 mm rail mount acc. to PN-EN 60715
- Applications: 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	360 cycles/hour	
<b>Input circuit</b>		
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%	
<b>Insulation</b> according to PN-EN 60664-1		
Insulation rated voltage	250 V AC	
Rated surge voltage	4 000 V 1,2 / 50 $\mu$ 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	
<b>General data</b>		
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	
<b>Time module data</b>		
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) 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 $\pm 5$ 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	

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

### PRECAUTIONS:

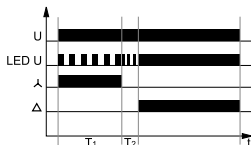
1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. 2. Never touch any live parts of the device. 3. Ensure that 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.

# TR-ES2P-UNI

## time relays

### Time functions

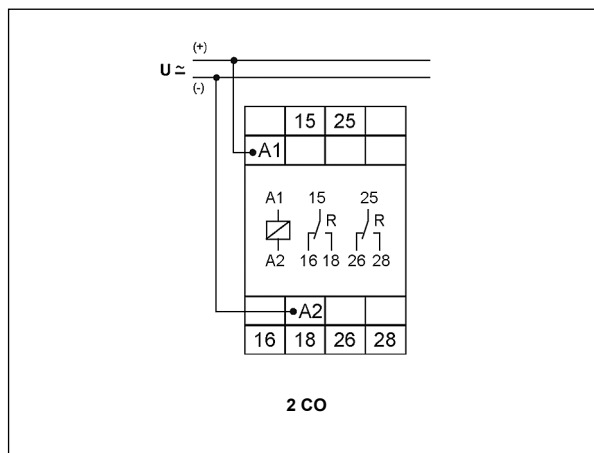
SD - Star-Delta start-up.



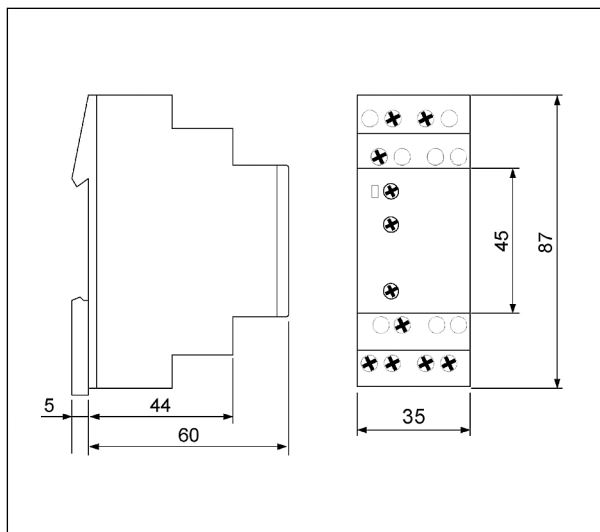
When the supply voltage U is applied, the star-contact (15-18) switches into on-position (yellow LED illuminated) and the set star-time T1 begins (green LED flashes). After the interval T1 has expired (green LED illuminated) the star-contact switches into off-position (yellow LED not illuminated) and the set transit-time T2 begins. After the interval T2 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; T1, T2 - measured times; t - time axis

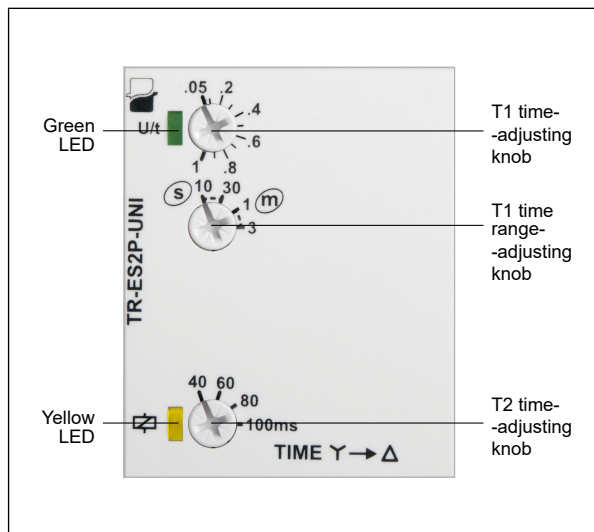
### Connection diagram



### Dimensions



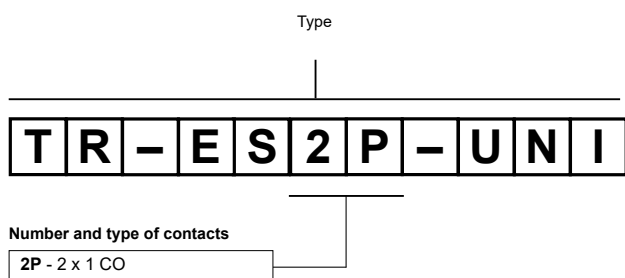
### Front panel description



### 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 x 2,5 mm<sup>2</sup> / 2 x 1,5 mm<sup>2</sup> (1 x 14 / 2 x 16 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 - modular, width 35 mm, two changeover contacts, rated input voltage 12...240 V AC/DC AC: 50/60 Hz