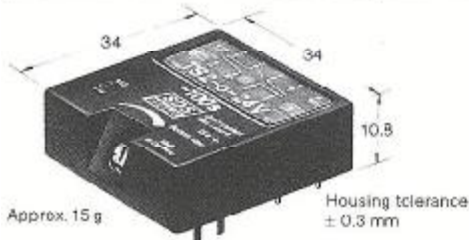


NAIS

NEW PCB TIME DELAY RELAY TIME-ON OR TIME-OFF DELAY OR PULSE RELAY

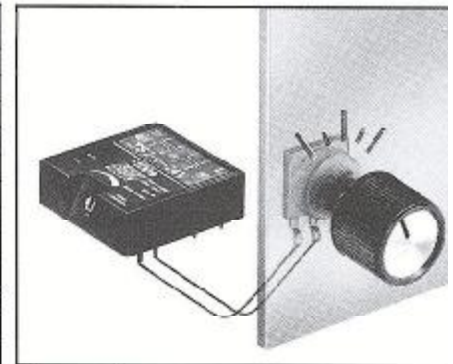
TS-RELAYS



Housing material: CRASTIN SK-615 FR Polycarbonate
Basic grid 2.54 mm
PCB hole dia. Ø 1.3 mm ± 0.1 mm

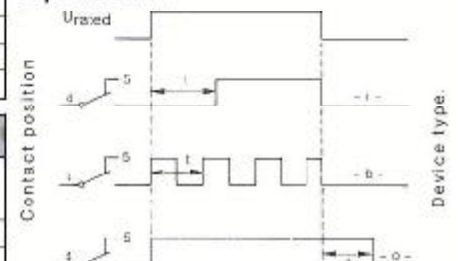
- The elegant solution to time delay problems.
- High repeat accuracy and reliability.
- Not susceptible to external disturbance.
- Increase in timing delay by using an external capacitor with time-off delay device -o-.
- No auxiliary power supply required with time-off delay operation.
- No „first cycle effect“, with the time-on delay device. The first and followi operations are of the same duration.

Characteristics		Remarks
Contact arrangement	NO = normally open, NC = normally closed, CO = changeover	2NO/2NC/2CO/3NO/1NC (2NO/1CO/1NC)
Max. make/rated/break current	A	20 / 5 / 5
Voltage switching range	V	10 ⁵ -250
Power switching range	W (VA)	10 ¹⁰ -100 (1'000)
Contact material		AuAg10
Volumetric/contact resistance	mΩ	30/10
Operational life ¹⁾		See also the S relay data sheet
5A, 1000 VA / 5A, 100W switching ops.		
4A, 1000 VA / 0.1A, 1W switching ops.		
Voltage withstand: cont./cont.-control circuitry	V _{eff}	750 / 1500
Insulation resistance: cont./cont.-control circuitry	Ω	10 ¹³ / 10 ¹⁰
Shock-, vibration resistance	g, g/Hz	50, 20 / 1000
Life of trimmer		> 00 operations
Type of protection	Potentiometer/Contacts	dust tight / P 50
Storage temperature	°C	-20/+85
Permiss. ambient temp. at max. load	°C	-20/+85
Min. control pulse duration at rated voltage.	ms	100



Operating characteristics								
Type: -i- "on" delay -b- pulse relay	Operating voltage V	Current consumpt. mA	Type: -o- "off" delay	Operating voltage V	Current consumpt. mA			
TS2-/TS3-/TS4-i/-b- 5V	4.0 - 9.0	≈40	TS2-/TS3-/TS4-o- 5V	4.5 - 9.0	≈31			
TS2-/TS3-/TS4-i/-b- 12V	6.5 - 18.0	≈20	TS2-/TS3-/TS4-o- 12V	8.5 - 18.0	≈23			
TS2-/TS3-/TS4-i/-b- 24V	17.0 - 30.0	≈11	TS2-/TS3-/TS4-o- 24V	18.0 - 28.0	≈23			
Rated time: „on“ delay „i“	0 s +)	10 s	100 s	800 s	Rated time: „off“ delay „o“	0 s +)	10 s	100 s
Minimum timing range [s] at rated voltage	~1000	0.1-10	1-100	8-800	Minimum timing range [s] at rated voltage	0.3-100	0.1-10	1-100
Time tolerance at U _{rated} ± 10%	< 1%				Time tolerance at U _{rated} ± 10%	-	approx 20%	
pulse relay „b“	pulse frequency	0.04... 5 Hz *			Time delay increase with C _{ext} [pF]**	-	1.5 s	4.7 s

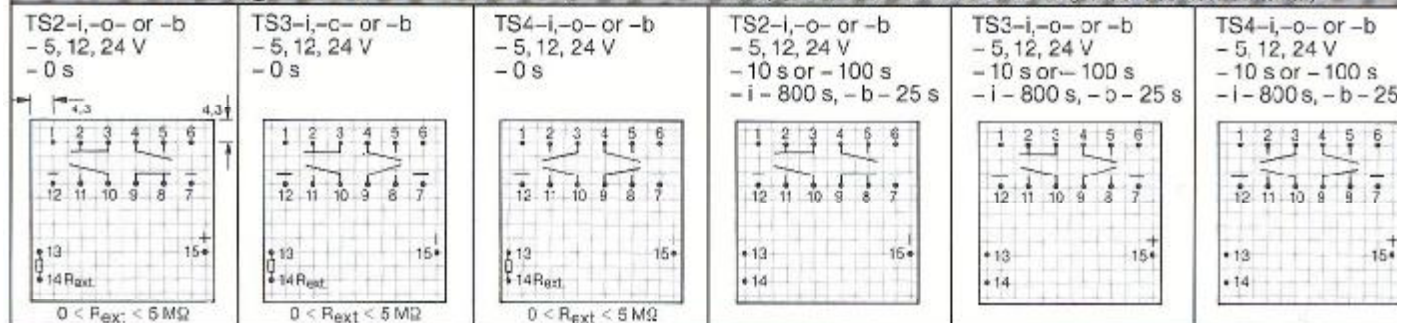
Operation



+ The trimmer is omitted on the -i/-o-0s device. This must be replaced by an external potentiometer. The time delay thus achievable is 20 s per 100 kΩ with the -i- devices and approx 20 s per 1 MΩ with the -o- device. The minimum time delays are 1s (with -i-) and 0.1s (with -o-). With the -o-0s device, the pulse frequency is 5 Hz, ms and is inversely proportional to R_{ext} (i. e. at 12 kΩ the pulse frequency is 1 Hz).

** Connect C_{ext} between pins 12 and 13!

Connection diagrams (bottom view) Warning! No reverse battery protection. Warning! pins 1 and 6 may not be connected. Pins 7 and 12 are negative and connected internally.



Ordering example

type TS 2 - i - 24 V - 10 s

i = time-„on“ o = time-„off“ relay
b = pulse relay

Rated voltage _____
Rated time _____

Note:
Excitation voltage ripple should be maintained below 5% by use of appropriate smoothing.
Strong external magnetic fields influence relay data.
¹⁾ Data concerning operational life is based on resistive loads and ambient temperature of 20-30°C.

TR-W Wiping function on request

With surge voltages (1.2/50µsec) over DC 500V TS-i. b. w. relays may not operate as intended.