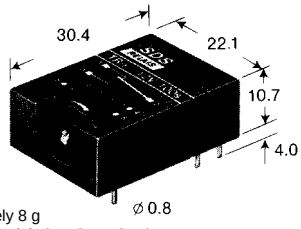
Discontinued

Panasonic
ideas for life

PROVEN PCB TIME DELAY RELAY WITH ADJUSTABLE TIME-ON OR TIME-OFF DELAY OR PULSE RELAY

TR-RELAYS

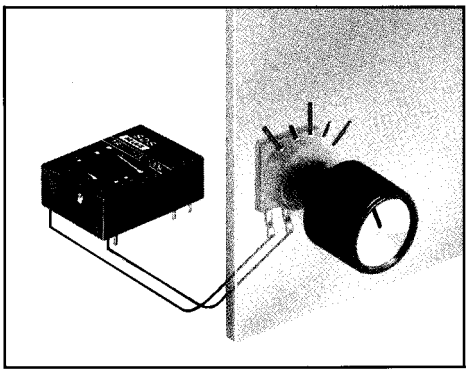


Approximately 8 g
Housing material: CRASTIN SK-615 FR
Basic grid 2.54 mm
PCB hole dia. ∅ 1.0 mm ± 0.1 mm
Housing tolerance ± 0.3 mm

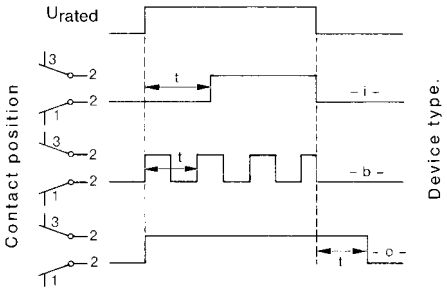
- **Not susceptable to external disturbance.**
- **Increase in timing range by using an external capacitor with time-off delay device – o –.**
- **No „first cycle effect", with the time-on delay device. The first and following operations are of the same duration.**

Characteristics

			Remarks
Type of contacts (CO = changeover)		1 CO	
Max. make/rated/break current	A	3 / 1 / 1	
Voltage switching range	VDC (VAC)	10^{-5}-110 (240)	240 V using only
Power switching range	W (VA)	10^{-4}-20 (30)	1 circuit
Contact material		AuCo	See also the R relay data sheet
Volumetric/contact resistance (at 5 V, 10 mA)	mΩΩ	50 / 30	
Operat. life [1] mech. with contact loading	switching ops.	10^9	
0.5 A, 10 W / 1 A, 1 W	switching ops.	10^7 / 10^8	
0.2 A, 12 V / 1 mA, 1 mV	switching ops.	10^8 / 10^9	
Voltage withstand: cont./cont.-control circuitry	V_{eff}	500 / 750	
Insulation resistance: cont./cont.-control circuitry	Ω	10^9 / 10^{10}	
Shock and vibration resistance	g-g/Hz	50-20 / 2000	Independant of position
Life of trimmer		>100 operations	typically 1000 ops.
Type of protection		dust tight / IP50	
Storage temperature	°C	-20 / +85	
Permiss. ambient temp. at max. load	°C	-20 / +65	Consequently, time tol: < 4% with -i- devices 30 % with -0- devices
Min. control pulse duration at rated voltage.	ms	100	



Operation



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

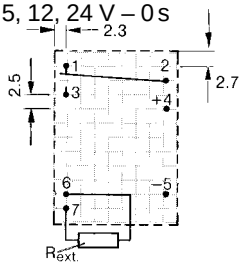
Operating characteristics

Type: – i – "on" delay – b – pulse relay	Operating voltage V	Current Consumpt. mA	Type: – o – "off" delay	Operating voltage V	Current Consumpt. mA
TR – i – 5 V/TR – b – 5 V	4.0 – 9.0	30	TR – o – 5 V	4.5 – 9.0	65
TR – i – 12 V/TR – b – 12 V	8.5 – 18.0	15	TR – o – 12 V	8.5 – 18.0	35
TR – i – 24 V/TR – b – 24 V	17.0 – 30.0	14	TR – o – 24 V	18.0 – 28.0	25

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	1-1000	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} ± 20%	< 2%				Time tolerance at U_{rated} ± 20%	–	approx 5%	
Pulse relay „b"	pulse frequency	0.04 … 5 Hz*			Time delay increase with C_{ext} per µF	–	1.5 s	4.7 s

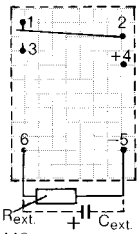
Connection diagram (bottom view) Warning! No revers battery protection

TR – i – 5, 12, 24 V – 0 s
TR – b – 5, 12, 24 V – 0 s



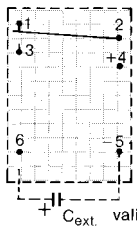
0 < R_{ext} < 5 MΩ

TR – o – 5, 12, 24 V – 0 s



10 kΩ < R_{ext} < 2.2 MΩ

TR – o – 5, 12, 24 V – 10 s or 100 s
TR – i – 5, 12, 24 V – 10 s, 100 s or 800 s
TR – b – 5, 12, 24 V – 25 s



valid only for – o –

Ordering example

TR – i – 24 V – 10s

Type
i = time-„on", o = time-„off" delay
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 TR-i. b. w relays may not operate as intended.