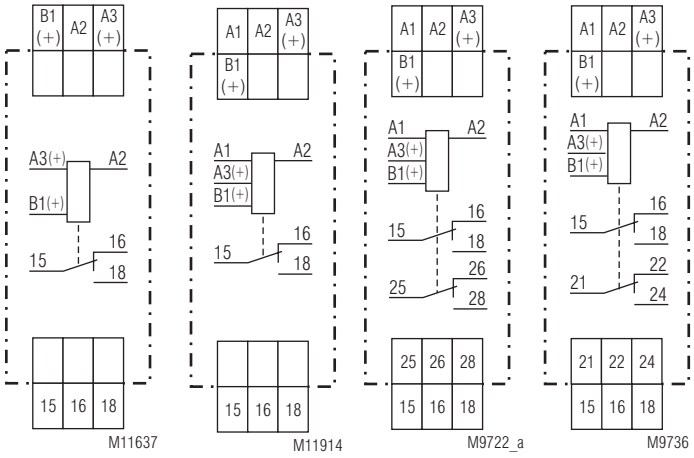
MULTITIMER
Multifunction relay
RK 7817

0274527

Product Description

The multifunction timers RK 7817 in compact stepped front enclosures fulfills all the demands to modern time control devices. It completes the RK- timer range that covers with only a few single function variants all common timing functions, time ranges and voltage models. The MULTI-TIMER offers 8 functions, simply selectable via rotary switch and time ranges between 0.02 s and 300h. Besides the standard 1 c/o contact also a second c/o contact or an instantaneous c/o contact is available as option. Therefore this multifunction timer is suitable to realize flexible, time depending controls in industry and building automation.

Circuit Diagrams



RK 7817.81 with aux. voltage AC/DC 24 V or DC 12 V

RK 7817.81

RK 7817.82

RK 7817.32

Connection Terminals

Terminal designation	Signal description
A1, A3(+), A2	Auxiliary voltage
B1(+), A2	Control input (different control functions depending on selected time function)
15, 16, 18	1. changeover contact (delayed)
25, 26, 28 21, 22, 24	2. changeover contact (delayed) 2. changeover contact (instantaneous contact)

Your Advantages

- Timers in compact design enclosures for consumer units
  - multifunction relay RK 7817 with 8 functions and adjustment aid for quick setting of long times

Features

- According to IEC/EN 61 812-1
- 8 time ranges adjustable from 0.02 s to 300 h via rotational switches
- Dual-voltage-version AC 230 V + AC/DC 24 V or AC 110 ... 127 V + AC/DC 24 V
- Signle-voltage-version AC/DC 24 V or DC 12 V
- 1 changeover contact
- As option units with second changeover contact (only for voltage AC 230 V + AC/DC 24)
  - on delayed
  - as instantaneous contact
- 8 functions via rotational switches adjustable:
  - delay on energisation (AV)
  - fleeting on make (EW)
  - delayed pulse (IE)
  - flasher, start with puls (BI)
  - delay on de-energisation (RV)
  - pulse forming function (IF)
  - fleeting on break (AW)
  - delay on energisation and de-energisation (AV / RV)
- With time interruption / time adding
- LED indicators for operation, contact position and time delay
- As option with plug in terminal blocks for exchange of devices, available
  - with screw terminals
  - with cage clamp terminals
- Width: 17.5 mm

Approvals and Markings

CE | c UL us LISTED * Canada / USA

* see variants

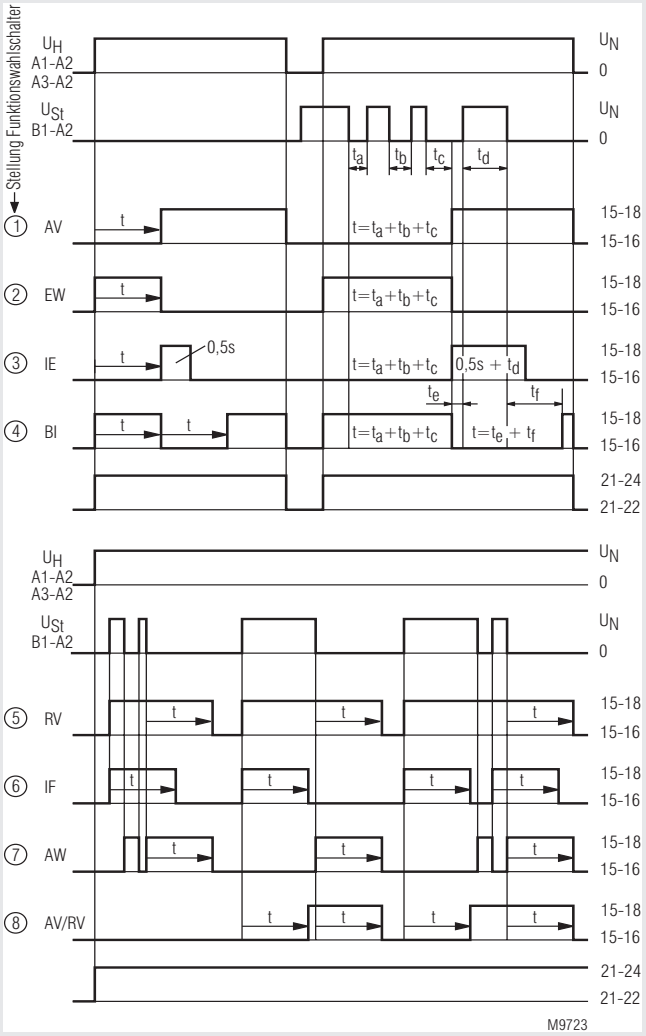
Application

Time dependent controls

Indicators

green LED:	on, when supply connected
yellow LED "R/t":	shows status of output relay and time delay (15-16-18):
-Continuous off:	output relay not active; no time delay
-Continuous on:	output relay active no time delay
-Flashing (short on, long off)	time delay: output relay not active
-Flashing (long on, short off)	time delay: output relay active

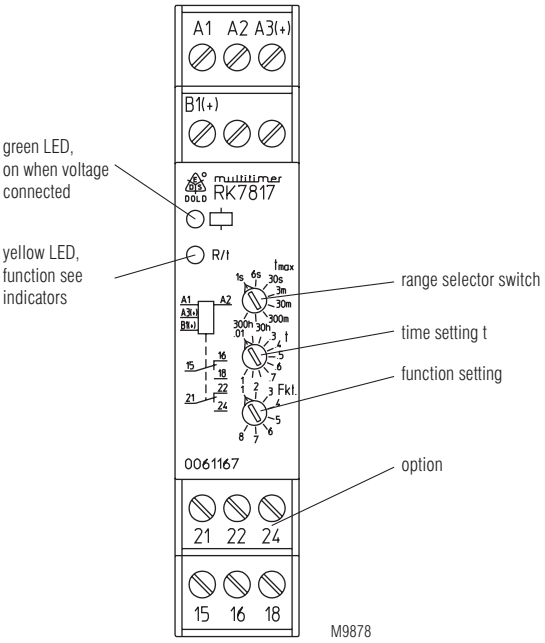
Function Diagramms



① ... ⑧ = Position of function switch

①	AV	=	Delay on energisation	⑤	RV	=	Delay on de-energisation
②	EW	=	Fleeting on make	⑥	IF	=	Pulse-forming function
③	IE	=	Delayed pulse	⑦	AW	=	Fleeting on break
④	BI	=	Flasher, start with pusle	⑧	AV/RV	=	Delay on energisation and de-energisation

Setting RK 7817



Notes for setting of the RK 7817

Function- and time range setting
The function and time setting via rotary switches are enabled only when the auxiliary voltage is connected. Changing of these rotary switches while during operation does not take an effect

Adjustment assistance
The flashing period of the yellow LED is 1 s ± 4% and can be used to adjust the time. Especially on the lower end of scale and for long times it is suitable as the multiplication factors between the different time ranges are exact without tolerance.
Example:
The required time is 40 min. It has to be adjusted within the range 3 ... 300 min. The time check takes too long as several timing cycles would be necessary for a precise value.

For faster adjustment the setting is made to 0.03 ... 3 min. On this range the potentiometer should be set to 0.4 min (= 24 sec). With the right potentiometer setting the LED must show 24 flashing cycles. After that the time range is switched over to 3 ... 300 min and the setting is complete.

Time interruption / Time adding
The timing cycle can be interrupted by controlling input B1 (+) with control voltage. Removing the control signal will continue the timing cycle (time addition).

Control input B1
The control input B1 (+) has to be supplied with voltage against A2 with the functions RV, IF, AW, AV / RV. The control signal could be the same as the auxiliary/control voltage of A1 and A3 or any other voltage between 12 and 240 V AC or DC. Operating a parallel load between B1 and A2 is also possible.

If with function IF the inputs A1 and B1 are controlled simultaneously a pulse with the adjusted length is started.

Technical Data

Time circuit

Time ranges: 8 time ranges in one unit, settable via rotational switch.

0.02*) ... 1 s	0.3 ... 30 min
0.06*) ... 6 s	3 ... 300 min
0.3 ... 30 s	0.3 ... 30 h
0.03 ... 3 min	3 ... 300 h

*) 0.08 s bei Funktion AV und IE

Time setting: infinite, 1:100 on relative scale
Recovery time: < 100 ms
Repeat accuracy: ≤ 0.8 % of set time delay + 20 ms
Voltage influence: ≤ 1 %
Temperature influence: ≤ 2 % at range 0 ... +60°C
≤ 5 % at range -20 ... 0°C

Input

Nominal voltage U_N: AC/DC 24 V [1] + AC 230 V [2] or
AC/DC 24 V [1] + AC 110 ... 127 V [2] or
AC/DC 24 V [1] or
DC 12 V [1]

[1] at terminals A3-A2
[2] at terminals A1-A2

Voltage range
AC: 0.8 ... 1.1 U_N
DC: 0.9 ... 1.25 U_N
Release voltage A1 - A2: AC 50 Hz approx. 30 V
Release voltage A3 - A2: DC approx. 4 V
Control current B1: Input resistance approx. 150 kΩ in series with diode

Min. operate / off time of the control contact B1(+)
AC 50 Hz: approx. 25 ms / approx. 60 ms
DC: approx. 15 ms / approx. 60 ms
Release voltage (B1-A2)
AC 50 Hz: approx. 5 V
DC: approx. 4 V
Nom. consumption AC 24 V: approx. 1 VA
Nom. consumption AC 230 V: approx. 7.5 VA
Nom. consumption DC 24 V: approx. 0.5 W
Nominal frequency: 50 Hz / 60 Hz
Frequency range: ± 5 %

Output

Contacts
RK 7817.81: 1 changeover contact delayed (15-16-18)
RK 7817.82: 2 changeover contact delayed (15-16-18), (25-26-28)
RK 7817.32: 1 changeover contact delayed (15-16-18)
1 changeover contact as instantaneous contact (21-22-24)
Thermal current I_{th}: 4 A
Switching capacity
according to AC 15
NO contact: 2 A / AC 230 V IEC/EN 60 947-5-1
NC contact: 1 A / AC 230 V IEC/EN 60 947-5-1
Electrical life: > 1 x 10^5 switch. cycl. IEC/EN 60 947-5-1
Mechanical life: > 1 x 10^7 switching cycles
Permissible switching frequency
(without / at load): 7200 / 360 switching cycles / h

Technical Data

General Data

Nominal operating mode: continuous operation
Temperature range: - 20 ... + 60°C
Clearance and creepage distance
rated impulse voltage / pollution degree: 4 kV / 2 IEC 60 664-1
EMC
Electrostatic discharge (ESD): 8 kV (air) IEC/EN 61 000-4-2
HF irradiation: 10 V/m IEC/EN 61 000-4-3
Fast transients: 4 kV IEC/EN 61 000-4-4
Surge voltage
between
wires for power supply: 2 kV IEC/EN 61 000-4-5
between wire and ground: 4 kV IEC/EN 61 000-4-5
HF-wire guided: 10 V IEC/EN 61 000-4-6
Interference suppression: Limit value class B EN 55 011
Degree of protection
Housing: IP 40 IEC/EN 60 529
Terminals: IP 20 IEC/EN 60 529
Enclosure: thermoplastic with VO behaviour according to UL Subject 94
Vibration resistance: Amplitude 0.35 mm
Frequency 10 ... 55 Hz, IEC/EN 60 068-2-6
Climate resistance: 20 / 060 / 04 IEC/EN 60 068-1
Terminal designation: EN 50 005
Wire connection: DIN 46 228-1/-2/-3/-4
Fixed screw terminals
Cross section: 0.34 ... 2.5 mm² (AWG 22 - 14) solid or
0.34 ... 2.5 mm² (AWG 22 - 14) stranded wire with and without ferrules
Stripping length: 7 mm
Wire fixing: Captive slotted screw / M2.5
Plug-in screw terminals
Cross section: 0.2 ... 2.5 mm² (AWG 24 - 12) solid or
0.2 ... 2.5 mm² (AWG 24 - 12) stranded wire with and without ferrules
Stripping length: 7 mm
Wire fixing: Captive slotted screw / M2.5
Plug-in cage clamp terminals
Cross section: 0.2 ... 2.5 mm² (AWG 24 - 12) solid or
0.25 ... 2.5 mm² (AWG 24 - 12) stranded wire with and without ferrules
Stripping length: 10 mm
Wire fixing: Cage clamp terminal
Fixing torque: 0.5 Nm EN 60 999-1
Mounting: DIN-rail IEC/EN 60 715
Weight: 70 g

Dimensions

Width x height x depth:
RK 7817: 17.5 x 90 x 66 mm
RK 7817 PC: 17.5 x 121 x 66 mm
RK 7817 PS: 17.5 x 107 x 66 mm

UL-Data

Switching capacity:
Ambient temperature 60°C: Pilot duty B300
4A 240Vac G.P.
4A 30Vdc G.P.

Wire connection: 60°C / 75°C copper conductors only
AWG 22 - 14 Sol/Str Torque 0.5 Nm

Technical data that is not stated in the UL-Data, can be found in the technical data section.

Standard Type

RK 7817.81/61 AC 230 V + AC/DC 24 V 0.02 s ... 300 h
Article number: 0061137
- Multifunction relay
- Output: 1 changeover contact
- Nominal voltage U_N: AC 230 V + AC/DC 24 V
- Width: 17.5 mm

Variant

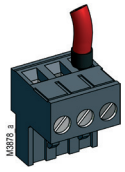
RK 7817.81/61: with UL-approval

Ordering example for variant

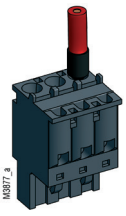
RK 7817 .81 _ _ /61 AC 230 V + AC/DC 24 V 50 Hz 0,02 s - 300 h

- Time range
- Nominal frequency
- Nominal voltage
- with UL-approval (1 changeover contact)
- Type of terminals
  - without indication: terminal blocks fixed, with screw terminals
  - PC (plug in cage clamp): pluggable terminal blocks with cage clamp terminals
  - PS (plug in screw): pluggable terminal blocks with screw terminals
- Contact
- Type

Options with Pluggable Terminal Blocks

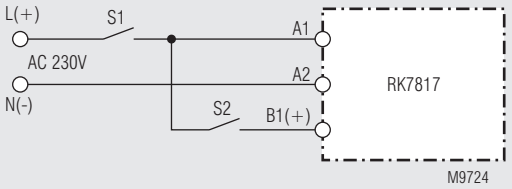


Screw terminal
(PS/plugin screw)

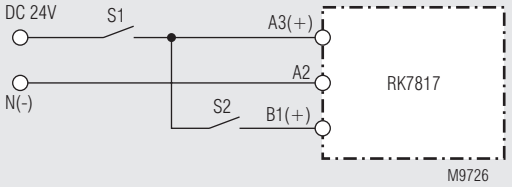


Cage clamp terminal
(PC/plugin cage clamp)

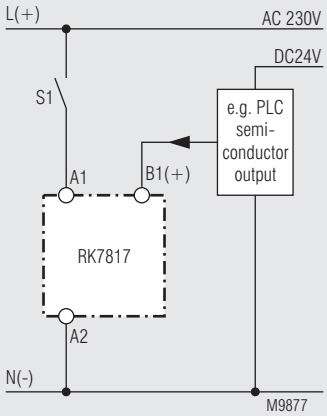
Connection Example



Control with AC 230 V



Control with DC 24 V



Controlled via A1 and B1 with different voltages.