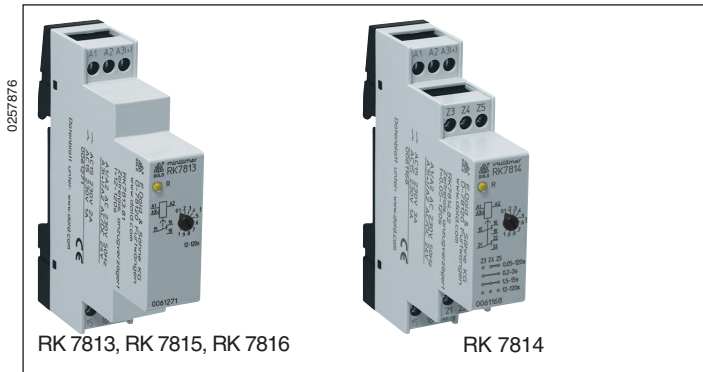


## MINITIMER

### Time Relay With Operate Delay

RK 7813, RK 7814, RK 7815, RK 7816



0257876

### Product Description

The timers of the RK series in compact stepped front enclosures fulfill all the demands to modern time control devices. With only a few variants this relay series covers all common timing functions, time ranges and voltage models. The single function modules are on delay range as well as fleeting on make or flasher timers. Besides the standard 1 c/o contact also a second c/o contact or an instantaneous c/o contact is available as option. Therefore these timers are suitable to realize most time depending controls in industry and building automation. As supplement also a multifunction timer with 8 functions is available in this series.

### Your Advantages

- Timers in compact design enclosures for consumer units
  - timer RK 7813 on delayed
  - timer RK 7814 on delayed
  - fleeting action relay RK 7815
  - flusher relay RK 7816

### Features

- According to IEC/EN 61 812-1
- RK 7813, RK 7815, RK 7816: Time ranges up to 10 h
- RK 7814: 4 time ranges up to 16 h
- LED indicator for state of contact
- Dual-voltage-version AC 230 V + AC/DC 24 V or AC 110 ... 127 V + AC/DC 24 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
- Start with impuls only for version RK 7816
- Start with space only for version RK 7816.\_ \_ / \_ 10
- 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



\* see variants

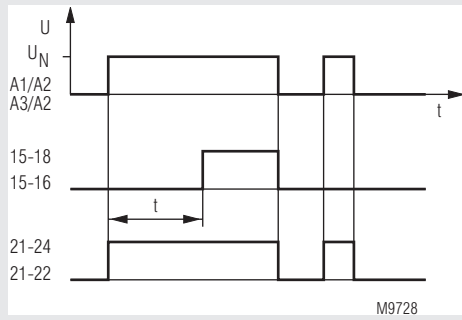
### Application

Time dependent controls

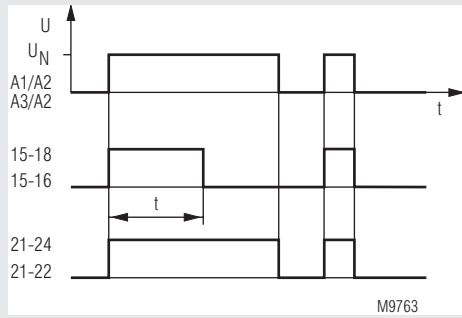
### Indicator

LED: on, when corresponding output relay is active (Contact 15 - 18 closed)

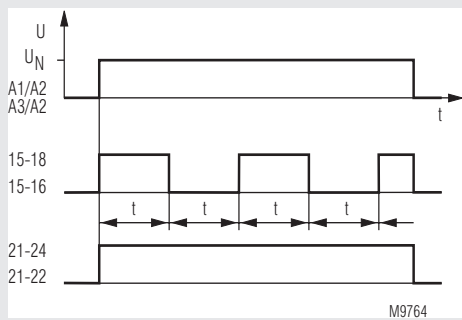
## Function Diagrams



### RK 7813, RK 7814

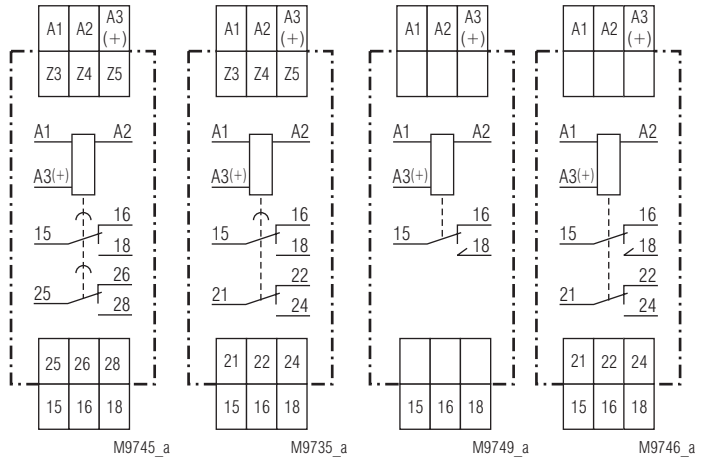


### RK 7815



### RK 7816

## Circuit Diagrams

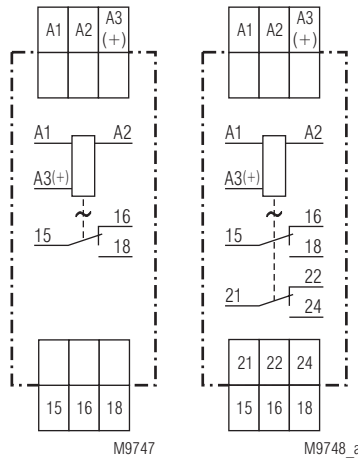


RK 7813.82  
without Z3, Z4, Z5  
RK 7814.82

RK 7813.32  
without Z3, Z4, Z5  
RK 7814.32

RK 7815.71

RK 7815.77



RK 7816.81

RK 7816.32

## Connection Terminals

Terminal designation	Signal designation
A1, A3(+), A2	Auxiliary voltage
Z3, Z4, Z5	Programming time ranges (RK7814)
15, 16, 18	1. changeover contact (delayed)
25, 26, 28 21, 22, 24	2. changeover contact (delayed) 2. changeover contact (instantaneous contact)

## Technical Data

### Time circuit

#### Time ranges

<b>RK 7813, RK 7815, RK 7816:</b>	0,1 ... 1 s	1,0 ... 10 min
	1,0 ... 10 s	10 ... 100 min
	10 ... 100 s	1 ... 10 h

#### Time ranges

RK 7814:

4 time ranges are settable via terminals Z3-Z4-Z5

Bridge Z3 Z4 Z5	Device with second ranges	Device with minute ranges (on request)
0 0—0	0.05 - 0.5 s	0.4 - 4 min
0—0—0	0.2 - 2 s	1.5 - 15 min
0—0—0	1.5 - 15 s	12 - 120 min
0 0 0	12 - 120 s	96 - 960 min

#### Time setting:

infinite, 1:10 on relative scale

#### Recovery time:

< 100 ms

#### Repeat accuracy:

≤ 0.5 % of set time delay + 10 ms

#### Voltage influence:

≤ 1 %

#### Temperature influence:

0.25 % / K

### Input

#### Nominal voltage $U_N$ :

AC/DC 24 V <sup>1)</sup> + AC 230 V <sup>2)</sup> or  
AC/DC 24 V <sup>1)</sup> + AC 110 ... 127 V <sup>2)</sup>

<sup>1)</sup> at terminals A3-A2

<sup>2)</sup> 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. 40 V

**Release voltage A3 - A2:** DC approx. 5 V

**Nom. consumption AC 24 V:** approx. 1 VA

**Nom. consumption AC 230 V:** approx. 6 VA

**Nom. consumption DC 24 V:** approx. 0.4 W

**Nominal frequency:** 50 Hz / 60 Hz

**Frequency range:** ± 5 %

### Output

#### Contacts

RK 7813.81, RK 7814.81,

RK 7815.71, RK 7816.81:

1 changeover contact delayed (15-16-18)

RK 7813.82, RK 7814.82:

2 changeover contact delayed

(15-16-18), (25-26-28)

RK 7813.32, RK 7814.32,

RK 7815.77, RK 7816.32:

1 changeover contact delayed (15-16-18)

1 changeover contact as instantaneous

contact (21-22-24)

4 A

#### Thermal current $I_{th}$ :

#### 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<sup>5</sup> switch. cycl. IEC/EN 60 947-5-1

**Mechanical life:** > 1 x 10<sup>7</sup> switching cycles

#### Permissible switching frequency

(without / at load): 7200 / 360 switching cycles / h

## Technical Data

### General Data

**Nominal operating mode:** continuous operation

**Temperature range:** - 40 ... + 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

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

40 / 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 mm<sup>2</sup> (AWG 22 - 14) solid or

0.34 ... 2.5 mm<sup>2</sup> (AWG 22 - 14)

stranded wire with and without ferrules

7 mm

**Wire fixing:** Captive slotted screw / M2.5

#### Plug-in screw terminals

Cross section: 0.2 ... 2.5 mm<sup>2</sup> (AWG 24 - 12) solid or

0.2 ... 2.5 mm<sup>2</sup> (AWG 24 - 12)

stranded wire with and without ferrules

7 mm

**Wire fixing:** Captive slotted screw / M2.5

#### Plug-in cage clamp terminals

Cross section: 0.2 ... 2.5 mm<sup>2</sup> (AWG 24 - 12) solid or

0.25 ... 2.5 mm<sup>2</sup> (AWG 24 - 12)

stranded wire with and without ferrules

10 mm

**Wire fixing:** Cage clamp terminal

**Fixing torque:** 0.5 Nm EN 60 999-1

**Mounting:** DIN-rail IEC/EN 60 715

**Weight:**

RK 7813: 60 g

RK 7814: 65 g

RK 7815: 60 g

RK 7816: 60 g

### Dimensions

#### Width x height x depth:

RK 781\_: 17.5 x 90 x 66 mm

RK 781\_ PC: 17.5 x 121 x 66 mm

RK 781\_ 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 Types

RK 7813.81/61 AC 230 V + AC/DC 24 V 1 ... 10 s

Article number: 0061585

- Time relay, operate delayed
- Output: 1 changeover contact
- Nominal voltage  $U_N$ : AC 230 V + AC/DC 24 V
- Width: 17.5 mm

RK 7814.81/61 AC 230 V + AC/DC 24 V 120 s

Article number: 0061169

- Time relay, operate delayed
- Output: 1 changeover contact
- Nominal voltage  $U_N$ : AC 230 V + AC/DC 24 V
- Width: 17.5 mm

RK 7815.71/61 AC 230 V + AC/DC 24 V 1 ... 10 s

Article number: 0061587

- Fleeting action relay
- Output: 1 changeover contact
- Nominal voltage  $U_N$ : AC 230 V + AC/DC 24 V
- Width: 17.5 mm

RK 7816.81/61 AC 230 V + AC/DC 24 V 1 ... 10 s

Article number: 0061593

- Flasher relay
- Output: 1 changeover contact
- Nominal voltage  $U_N$ : AC 230 V + AC/DC 24 V
- Width: 17.5 mm

## Variant

RK 7813.81/61, RK 7814.81/61,

RK 7815.71/61, RK 7816.81/61

RK 7817.81/61: with UL-approval

RK 7816.81/010/61:

same as RK 7816.\_\_\_\_ / \_\_\_\_  
but start with break

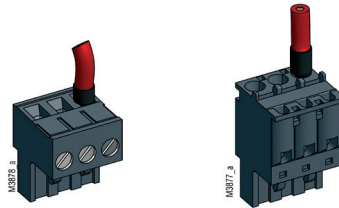
## Ordering example for variant

RK 781\_ .81 \_ \_ /010 /61 AC 230 V + AC/DC 24 V 120 s

- Set time delay
- Nominal voltage with UL-approval (1 changeover contact)
- Variant
- 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)