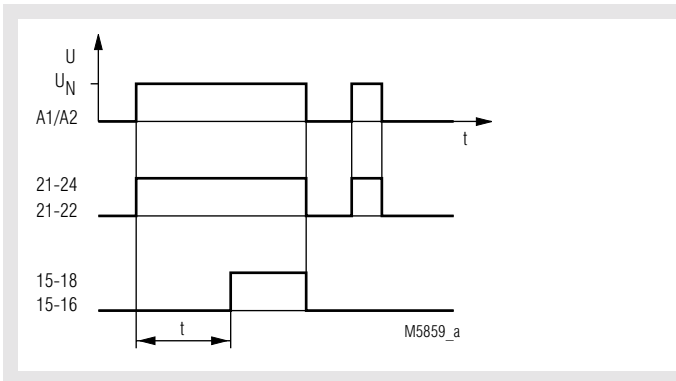


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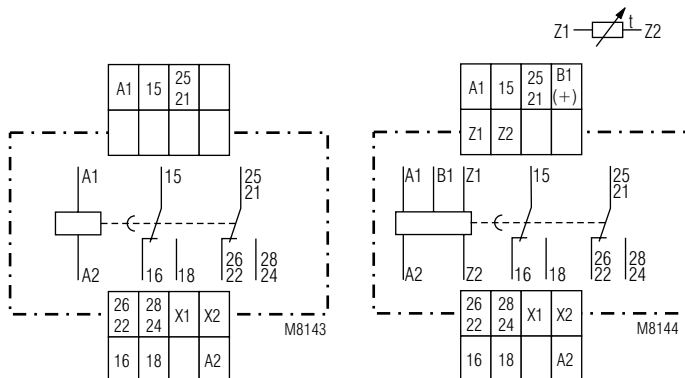


- According to DIN EN 61 812-1
- 8 time ranges from 0.05 s to 300 h selectable via rotational switches
- Voltage range AC/DC 12 ... 240 V
- Adjustment aid for quick setting of long time values
- Suitable for 2-wire proximity sensor control
- 2 changeover contacts, one programmable as instantaneous contact
- As option connection of a remote potentiometer
- As option with time interruption / time adding input
- LED indicators for operation, contact position and time delay
- 22,5 mm width

### Function diagram



### Circuit diagram



MK 9906N.82

MK 9906N.82/500

### Approvals and marking



### Application

Time-dependent controllers

### Indications

- green LED: on when voltage connected  
 yellow LED "R/t": shows status of output relay and time delay:
- Flashing (long on, short off) output relay not active; time delay
  - Continuously on: output relay active after time delay

### Notes

#### Adjustment assistance

The flashing period of the yellow LED is  $1 \text{ s} \pm 4\%$  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

With the model MK 9906N.82/500 the timing cycle can be interrupted by controlling input B1 (+) with control voltage. Removing the control signal will continue the timing cycle (time addition). When time is interrupted the yellow LED goes off.

#### Control input B1

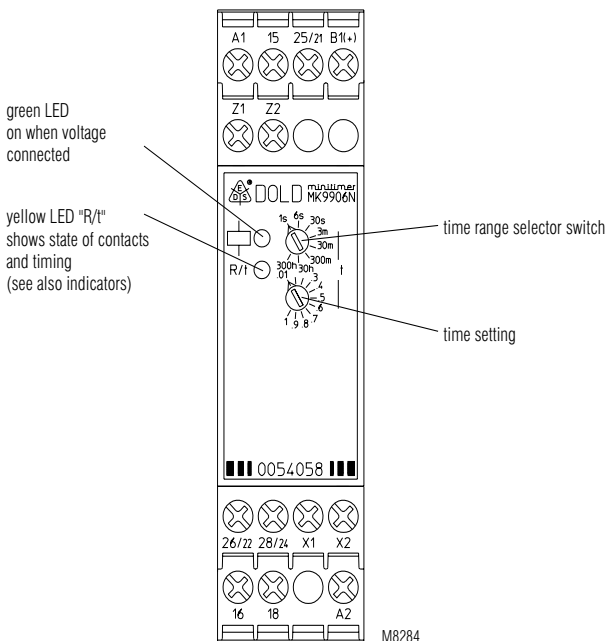
The control input B1 (+) has to be supplied with voltage against A2. The control signal could be the same as the auxiliary/control voltage of A1 or any other voltage between 12 and 240 V AC or DC. Operating a parallel load between B1 and A2 is also possible, which allows cost saving circuits.

#### Remote potentiometers

With the variant MK 9906N.82/500 the time setting can also be made via remote potentiometer of 10 kOhms. It is connected to the terminals Z1-Z2. The corresponding potentiometer on the relay has to be set to min. If no remote potentiometer is required the terminals Z1-Z2 have to be linked.

The wires to the remote potentiometers should be installed separately from the lines with mains voltage. If this is not possible, a screened cable is recommended where the shield is connected to Z2.

## Setting



## Technical data

### Time circuit

<b>Time ranges:</b>	8 time ranges settable via rotational switch:
	0,05 ... 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
	continuous 1:100 on relative scale
<b>Time setting t:</b>	
<b>Recovery time:</b>	
at DC 24 V:	approx. 15 ms
at DC 240 V:	approx. 50 ms
at AC 230 V:	approx. 80 ms
<b>Repeat accuracy:</b>	± 0,5 % of selected end of scale value + 20 ms
<b>Voltage and temperature influence:</b>	≤ 1 % with the complete operating range

### Input

<b>Nominal voltage U<sub>N</sub>:</b>	AC/DC 12 ... 240 V
<b>Voltage range:</b>	0,8 ... 1,1 U <sub>N</sub>
<b>Frequency range (AC):</b>	45 ... 400 Hz
<b>Nominal consumption</b>	
at AC 12 V:	approx. 1,5 VA
at AC 24 V:	approx. 2 VA
at AC 240 V:	approx. 3 VA
at DC 12 V:	approx. 1 W
at DC 24 V:	approx. 1 W
at DC 240 V:	approx. 1 W
<b>Release voltage (A1/A2)</b>	
	Delayed contact
AC 50 Hz:	approx. 7,5 V
DC:	approx. 7 V
	Instantaneous contact
AC 50 Hz:	approx. 3 V
DC:	approx 3,3 V
<b>Max. permitted residual current with 2-wire proximity sensor control (A1-A2)</b>	
up to AC/DC 150 V:	AC resp. DC 5 mA
up to AC/DC 264 V:	AC resp. DC 3 mA
<b>Control voltage (B1/A2)</b>	
MK 9906N.82/500:	AC/DC 12 ... 240 V
<b>Voltage range (B1/A2):</b>	0,8 ... 1,1 UN
<b>Control current (B1)</b>	
MK 9906N.82/500:	approx. 1 mA, over complete voltage range

## Technical data

<b>Release voltage (B1/A2)</b>	
MK 9906N.82/500	
AC 50 Hz:	approx. 3,5 V
DC:	approx. 3 V
<b>Output</b>	
<b>Contacts</b>	
MK 9906N.82:	2 changeover contacts, one programmable as instantaneous contact:
without bridge X1-X2:	25-26-28 delayed changeover contact
with bridge X1-X2:	21-22-24 instantaneous contact at U <sub>N</sub> on A1-A2
<b>Thermal current I<sub>th</sub>:</b>	2 x 4 A
<b>Switching capacity</b>	
to AC 15	
NO contact:	3 A / AC 230 V      EN 60 947-5-1
NC contact:	1 A / AC 230 V      EN 60 947-5-1
to DC 13:	1 A / DC 24 V
<b>Electrical life</b>	
to AC 15 at 1 A, AC 230 V:	1,5 x 10 <sup>5</sup> switching cycles EN 60 947-5-1
<b>Permissible switching frequency:</b>	36 000 switching cycles / h
<b>Short circuit strength</b>	
<b>max. fuse rating:</b>	4 A gL      EN 60 947-5-1
<b>Mechanical life:</b>	≥ 30 x 10 <sup>6</sup> switching cycles

### General data

<b>Operating mode:</b>	Continuous operation
<b>Temperature range:</b>	- 20 ... + 60°C
<b>Clearance and creepage distances</b>	
overvoltage category / contamination level:	4 kV / 2      IEC 60 664-1
<b>EMC</b>	
Electrostatic discharge:	8 kV (air)      EN 61 000-4-2
Fast transients:	2 kV      EN 61 000-4-4
Surge voltages	
between	
wires for power supply:	1 kV      EN 61 000-4-5
HF-wire guided:	10 V      EN 61 000-4-6
<b>Degree of protection</b>	
Housing:	IP 40      EN 60 529
Terminals:	IP 20      EN 60 529
<b>Housing:</b>	Thermoplastic with V0 behaviour according to UL subject 94
<b>Vibration resistance:</b>	Amplitude 0,35 mm, frequency 10 ... 55 Hz, EN 60 068-2-6
<b>Climate resistance:</b>	20 / 060 / 04      EN 60 068-1
<b>Terminal designation:</b>	EN 50 005
<b>Wire connection:</b>	1 x 4 mm <sup>2</sup> solid or 1 x 2,5 mm <sup>2</sup> stranded wire with sleeve or 2 x 1,5 mm <sup>2</sup> stranded wire with sleeve DIN 46 288-1/-2/-3/-4
<b>Wire fixing:</b>	Box terminal with wire protection
<b>Mounting:</b>	DIN rail      EN 50 022
<b>Weight:</b>	150 g

### Dimensions

<b>Width x height x depth:</b>	22,5 x 90 x 97 mm
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## Standard type

MK 9906N.82 AC/DC 12 ... 240 V 0,05 s ... 300 h

Article number:

0054056

- Output: 2 changeover contacts, one programmable as instantaneous contact
- Nominal voltage  $U_N$ : AC/DC 12 ... 240 V
- Time ranges: 0,05 s ... 300 h
- Width: 22,5 mm

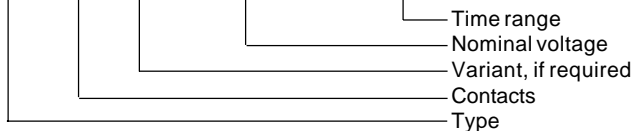
## Variants

MK 9906N.82/500:

- Connection facility for a remote potentiometer 10 kOhms to adjust the time
- Additional control input B1 for time interruption / time addition

## Ordering example for variants

MK 9906N .82 / \_ \_ AC/DC 12 ... 240 V 0.05 s ... 300 h

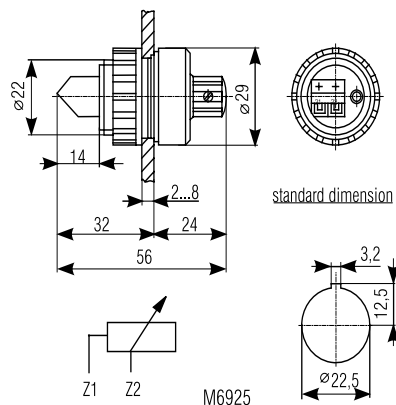


## Accessories

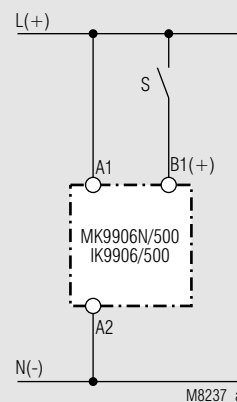
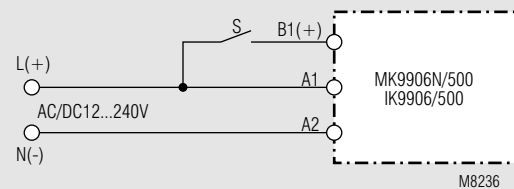
AD 3:

External potentiometer 10 kΩ

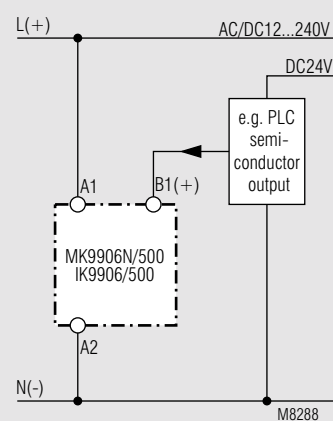
The external potentiometer is used for remote setting of the time delay. The internal potentiometer of the timer must be set to min. time delay.



## Connection diagrams



## Control with parallel connected load



## Connection with 2 different control voltages