MINITIMER
Timer, Off-delay
IK 9962, SK 9962

Translation of the original instructions

DOLD

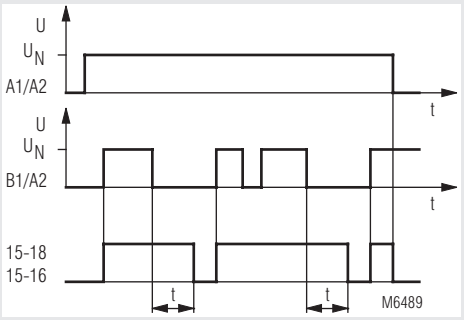
0239764


IK 9962


SK 9962

- OFF-delay relay with control signal according to EN 61812-1
- 8 time ranges from 0.05 s to 300 h selectable via rotational switch
- Voltage range AC/DC 12 ... 240 V for auxiliary supply and control input
- No voltfree control contact necessary
- Adjustment aid for quick setting of long time values
- LED indicators for operation, contact position and time delay
- 1 changeover contact
- As option connnection of remote potentiometer 10 kΩ
- Devices available in 2 enclosure versions:
  IK 9962: Depth 59 mm, with terminals at the bottom for installation systems and industrial distribution systems according to DIN 43880
  SK 9962: Depth 98 mm, with terminals at the top for cabinets with mounting plate and cable duct
- 17.5 mm width

Function Diagram



Approvals and Markings

CE UKCA

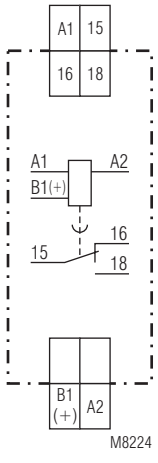
Application

Time dependent controllers

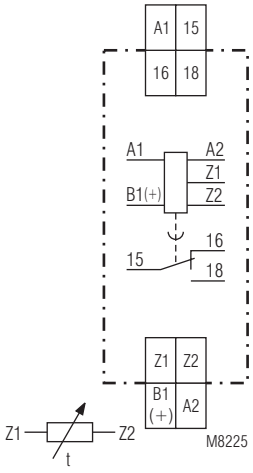
Indicators

Green LED:	On when auxiliary voltage connected
Yellow LED "R/t":	Shows status of output relay and time delay:
- LED off	Output relay not active; no time delay
- LED continuously on	Output relay active; no time delay (^= B1 input active)
- Flashing (long on, short off)	Output relay active; time delay

Circuit Diagrams



IK 9962.81
SK 9962.81



IK 9962.81/300
SK 9962.81/300

Connection Terminals

Terminal designation	Signal description
A1	L / +
A2	N / -
15, 16, 18	Changeover contact
B1(+)	Control input (control of time delay) Control with reference to A2
Z1, Z2 (only at variant /300)	Input to connect a remote potentiometer for time setting

All technical data in this list relate to the state at the moment of edition. We reserve the right for technical imporvements at any time.

Notes

Setting
A change of the settings for time range and time will be valid immediately. Please note, that a change of time range or time setting during elapse of time can lead to unintended switching of the output contacts.

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.

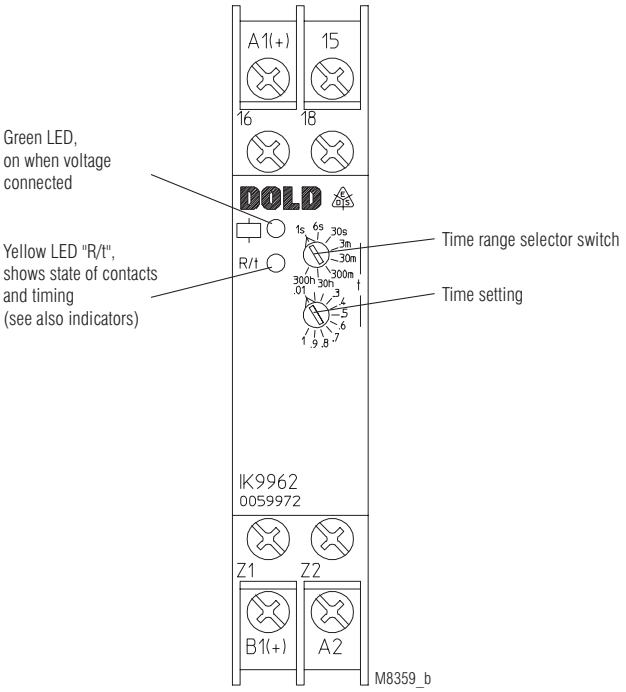
Remote potentiometer
With the variant IK/SK 9962.81/300 the time setting can also be made via remote potentiometer of 10 kOhms. It is connected to the terminals Z1-Z2. The corresponding potentiometer on the relay has to be set to min. If no remote potentiometer is required the terminals Z1-Z2 have to be linked.
The wires to the remote potentiometer should be installed separately from the lines with mains voltage. If this is not possible, a screened cable is recommendet where the shield is connected to Z1.
To terminals Z1 and Z2 no external voltage must be connected, as the unit might be damaged.
Terminals Z1-Z2 do not have a galvanic separation to terminals A1/A2!

Control input B1
The unit needs a continuously connected auxiliary supply on A1-A2. The timing is controlled via input B1. The control unit B1 (+ with DC) 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 (e. g. contactor) between B1 and A2 is allowed.

Danger due to electric shock!
Danger to life or serious injury.

The control input B1 as well as the inputs of the remote potentiometer terminals Z1, Z2 are galvanically connected to the auxiliary voltage A1/A2. Connected lines and elements must have appropriate isolation insulation!

Setting



Technical Data

Time circuit

Time ranges:	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
Time setting:	Continuous, 1:100 on relative scale
Recovery time:	
At DC 24 V:	Approx. 15 ms
At DC 240 V:	Approx. 50 ms
At AC 230 V:	Approx. 80 ms
Minimum on time (B1):	
AC 50 Hz:	Approx. 48 ms
DC:	Approx. 40 ms
Repeat accuracy:	± 0.5 % of selected end of scale value + 20 ms
Voltage and temperature influence:	≤ 1 % with the complete operating range

Input

Auxiliary voltage U_H:	AC/DC 12 ... 240 V
Voltage range:	0.8 ... 1.1 U_N
Frequency range (AC):	45 ... 400 Hz
Nominal consumption	
At AC 12 V:	Approx. 2,5 VA
At AC 24 V:	Approx. 3 VA
At AC 240 V:	Approx. 4,5 VA
At DC 12 V:	Approx. 1,5 W
At DC 24 V:	Approx. 1,5 W
At DC 240 V:	Approx. 1,5 W
Release voltage (A1/A2)	
AC 50 Hz:	Approx. 7.5 V
DC:	Approx. 7 V
Control voltage (B1/A2):	AC/DC 12 ... 240 V
Voltage range (B1/A2):	0.8 ... 1.1 U_N
Control current (B1):	Input resistance approx. 220 kΩ in series with diode
Release voltage (B1/A2)	
AC 50 Hz:	Approx. 5 V
DC:	Approx. 4 V

Output

Contacts		
IK/SK 9962.81:	1 changeover contact	
Contact material:	AgNi	
Measured nominal voltage:	AC 250 V	
Thermal current I_{th}:	4 A (see see quadratic total current limit curve)	
Switching capacity		
To AC 15		
NO contact:	3 A / AC 230 V	IEC/EN 60947-5-1
NC contact:	1 A / AC 230 V	IEC/EN 60947-5-1
To DC 13:	1 A / DC 24 V	
Electrical life		
To AC 15 at 1 A, AC 230 V:	1.5 x 10^5 switch. cycles	IEC/EN 60947-5-1
Permissible switching frequency:	30000 switching cycles / h	
Short circuit strength		
Max. fuse rating:	4 A gG / gL	IEC/EN 60947-5-1
Mechanical life:	≥ 30 x 10^6 switching cycles	

Technical Data

General Data

Operating mode:	Continuous operation	
Temperature range:		
Operation:	- 40 ... + 60 °C (higher temperature with limitations see quadratic total current limit curve)	
Storage:	- 40 ... + 70 °C	
Relative air humidity:	93 % at 40 °C	
Altitude:	≤ 2000 m	
Clearance and creepage distances		
Rated impulse voltage / pollution degree		
Auxiliary voltage A1/A2 and Control input B1 and Remote Potentiometer inputs Z1, Z2 to contact 15, 16, 18:	4 kV / 2 (basis insulation)	IEC 60664-1
Overvoltage category:	III	
Insulation test voltage, type test:	2.5 kV; 1 min	
EMC		
Electrostatic discharge:	6 kV (contact)	IEC/EN 61000-4-2
	8 kV (air)	IEC/EN 61000-4-2
HF irradiation		
80 MHz ... 1 GHz:	20 V / m	IEC/EN 61000-4-3
1 GHz ... 2.7 GHz:	10 V / m	IEC/EN 61000-4-3
Fast transients:		
A1/A2 and B1(+)/A2	4 kV	IEC/EN 61000-4-4
Z1/Z2:	2 kV	IEC/EN 61000-4-4
Surge voltages Between		
wires for power supply:	2 kV	IEC/EN 61000-4-5
Between wire and ground:	4 kV	IEC/EN 61000-4-5
HF-wire guided:	10 V	IEC/EN 61000-4-6
Interference suppression		
IK 9962:	Limit value class B	EN 55011
IK 9962/300:	Limit value class A*) *) The device is designed for the usage under industrial conditions (Class A, EN 55011). When connected to a low voltage public system (Class B, EN 55011) radio interference can be generated. To avoid this, appropriate measures have to be taken	
Degree of protection		
Housing:	IP 40	IEC/EN 60529
Terminals:	IP 20	IEC/EN 60529
Housing:	Thermoplastic with V0 behaviour according to UL subject 94	
Vibration resistance:	Amplitude 0.35 mm, frequency 10 ... 55 Hz,	IEC/EN 60068-2-6
Climate resistance:	40 / 060 / 04	IEC/EN 60068-1
Terminal designation:	EN 50005	
Wire connection:	DIN 46228-1/-2/-3/-4	
Cross section:	2 x 2.5 mm² solid or 2 x 1.5 mm² stranded wire with sleeve	
Stripping length:	10 mm	
Wire fixing:	Flat terminals with self-lifting clamping piece	IEC/EN 60999-1
Fixing torque:	0.8 Nm	
Mounting:	DIN rail	IEC/EN 60715
Weight:		
IK 9962:	Approx. 65 g	
SK 9962:	Approx. 84 g	

Dimensions

Width x height x depth:	
IK 9962:	17.5 x 90 x 59 mm
SK 9962:	17.5 x 90 x 98 mm

Standard Types

IK 9962.81 AC/DC 12 ... 240 V 0.05 ... 300 h

Article number:	0054368
• Output:	1 changeover contact
• Auxiliary voltage U_H:	AC/DC 12 ... 240 V
• Time ranges:	0.05 ... 300 h
• Width:	17.5 mm

SK 9962.81 AC/DC 12 ... 240 V 0.05 ... 300 h

Article number:	0056040
• Output:	1 changeover contact
• Auxiliary voltage U_H:	AC/DC 12 ... 240 V
• Time ranges:	0.05 ... 300 h
• Width:	17.5 mm

Variant

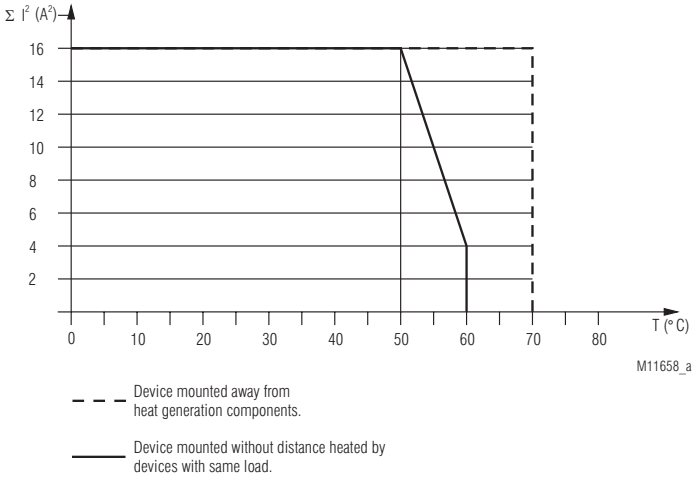
IK/SK 9962.81/300: Connection facility for a remote potentiometer 10 kΩ to adjust the time

Ordering example for variant

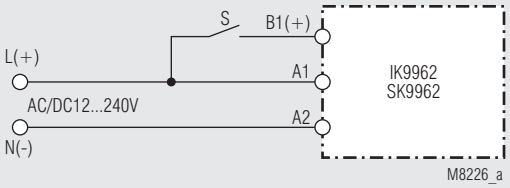
IK 9962 .81 /_ _ _ AC/DC 12 ... 240 V 0.05 s ... 300 h

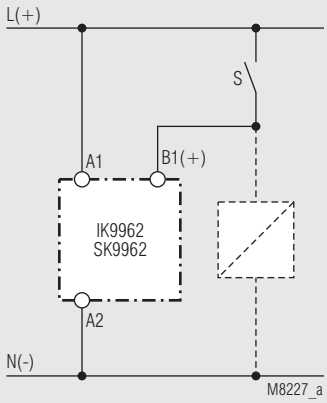
- Time range
- Auxiliary voltage
- Variant, if required
- Contacts
- Type

Characteristics

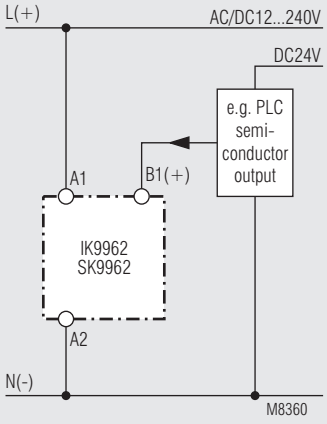


Connection Examples





Control with parallel connected load



Connection with 2 different control voltages

Accessories

AD 3: External potentiometer 10 kΩ
Artikelnummer: 0028962

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.

Degree of protection front side: IP 40