Time Control Technique

MINITIMER Timer, Off-delay IK 9962, SK 9962

Translation of the original instructions





- 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:

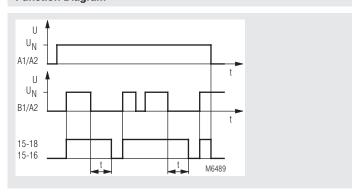
IK 9962: Depth 59 mm, with terminals at the bottom for installation systems and industrial distribution systems according

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



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;

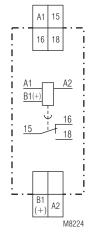
no time delay

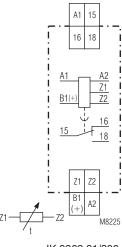
- LED continuously on Output relay active;

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		

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 \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 $0.03 \dots 3$ 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 $3 \dots 300$ 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.

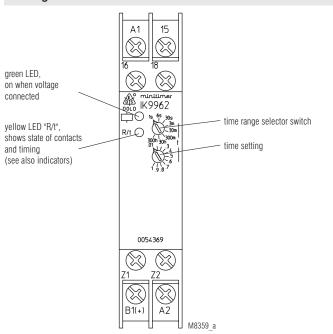
To terminals Z1 and Z2 no external voltage must be connected, as the unit might be damaged.

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.

Setting



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Control voltage (B1/A2): Control voltage (B	Technical Data		Technical Data		
Temperature range:	Time circuit		General Data		
Time setting: Continuous, 1100 on selative scale Relative air humidity: Affitude: 2000 m Clearance and creepage distances Affitude: 2000 m Clearance and creepage distances Affitude: 2000 m Clearance and creepage Air Oz 24 0V: Approx. 50 ms A Co 23 0V: Approx. 80 ms Clearance and creepage distances Air Oz 24 0V: Approx. 80 ms Clearance and creepage Air Oz 24 0V: Approx. 80 ms Clearance and creepage Air Oz 24 0V: Approx. 48 ms Co-verollage category: Division degree: Air Oz 24 0V: Approx. 40 ms Clearance and creepage Air Oz 24 0V: Approx. 40 ms Clearance and creepage Air Oz 24 0V: Approx. 40 ms Clearance and creepage Air Oz 24 0V: Approx. 40 ms Clearance and creepage Air Oz 24 0V: Approx. 40 ms Clearance and creepage Air Oz 24 0V: Approx. 40 ms Clearance and creepage Air Oz 24 0V: Approx. 40 ms Clearance and creepage Air Oz 24 0V: Approx. 40 ms Air Oz 24 0V: Approx. 45 0V: Approx. 47 0V: Ap	Time ranges:	switch: 0.05 1 s 0.3 30 min 0.06 6 s 3 300 min	Temperature range:	- 40 + 60 °C (higher temperature with limitations	
Recovery time:		0.03 3 min 3 300 h		- 40 + 70 °C	
A DC 24 V Approx. 15 ms Approx. 15 ms Approx. 15 ms Approx. 80 ms Al AC 230 V Approx. 80 ms Al AC 230 V Approx. 48 ms Approx. 48 ms Approx. 48 ms Approx. 40 ms Approx. 45 ms App	•	Continuous, 1:100 on relative scale			
AT DC 240 V: At AC 230 V: At AC 230 V: At AC 230 V: Approx. 90 ms Approx. 40 ms		Approx. 15 ms		≥ 2000 III	
Minimum on time (B1):	At DC 240 V:	Approx. 50 ms	. •		
A G 50 Hz A pprox. 48 ms Develotage category: III		Approx. 80 ms		414//0///	l-1'\ IEO 00004.4
DC:	` ,	Approx 48 ms		`	ilation) IEC 60664-1
Repeat accuracy:		• •		***	
Voltage and temperature influence:	Repeat accuracy:		type test:	2.5 kV; 1 min	
Emperature influence:	Valtage and	end of scale value + 20 ms	_	0.137 (11)	IEO/EN 04000 4 0
Input Imput Imp	•	< 1 % with the complete	Electrostatic discharge:	` ,	
Auxiliary voltage U Coltage (a) Ac / Coltage (b) Approx. 4,5 W Approx. 4,5 W Approx. 1,5 W Approx. 1,5 W Approx. 7,5 W Approx. 1,5 W Approx. 7,5 W Approx. 1,5 W Appr	tomperature illitacilee.	·	HF irradiation	o kv (aii)	1LO/LIN 01000-4-2
Fast translents:		, ,	80 MHz 1 GHz:		IEC/EN 61000-4-3
Auxiliary voltage Iu ₁ : AC/DC 12240 V A1/A2 and B1(+)/A2 4 kV IEC/EN 61000-Voltage range (AC): A0.8	Input			10 V / m	IEC/EN 61000-4-3
Voltage range (AC):	Auxiliary voltage II :	AC/DC 12 240 V		1 41/	IEC/EN 61000-4-4
Frequency Tange (AC): Approx. 2,5 VA Between Between	, оп		` '		IEC/EN 61000-4-4
A AC 12 V:	Frequency range (AC):				
At AC 24 V: Approx. 3 VA Between wire and ground: 4 kV IEC/EN 61000-A1 AC 240 V: Approx. 4,5 VA HF-wire guided: 10 V IEC/EN 61000-A1 AC 240 V: Approx. 1,5 W Interference suppression At DC 24 V: Approx. 1,5 W It 9962: Limit value class B EN 550 AC 15 O Hz: Approx. 7.5 V Approx. 7.5	•	A		2111	150/5110/000 / 5
At DC 240 V: Approx. 1,5 W Approx. 1,5 W IK 9962: Interference suppression At DC 240 V: Approx. 1,5 W IK 9962: II Message voltage (A1/A2) Approx. 1,5 W Approx. 1,5 W IK 9962/300: II mit value class B IN 560 Approx. 1,5 W IK 9962/300: II mit value class A*) Approx. 1,5 W IK 9962/300: II mit value class A*) Pelease voltage (A1/A2) Approx. 7,5 V Approx. 7,0 V EN 55011, When connected to a low volt public system (Class B, EN 55011) ra interference can be generated. To avoid the sum of the su		• •			
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Release voltage (A1/A2) Approx. 7.5 V Approx. 7.5 V Approx. 7.5 V EN 55011). When connected to a low voltage (B1/A2):		• •			
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In series with diode				this, appropriate measures have to be taken	
AC 50 Hz: Approx. 5 V Approx. 5 V Approx. 5 V Approx. 5 V Approx. 4 V Output Output Contacts Contacts Contact material: AgNi AC 250 V Approx. 4 A	Control Current (D1).		•		
DC:	Release voltage (B1/A2)		Š		IEC/EN 60529
Output Output		• •			
Contacts Climate resistance: 40 / 060 / 04 IEC/EN 60068- IK/SK 9962.81:	DC:	Approx. 4 V			
ContactsClimate resistance: $40 / 060 / 04$ IEC/EN 6006IK/SK 9962.81:1 changeover contactTerminal designation:EN 50005Contact material:AgNiWire connection:DIN 46228-1/-2/-3/-4Measured nominal voltage:AC 250 VCross section: $2 \times 2.5 \text{ mm}^2 \text{ solid or}$ Thermal current I_{th} :4 AStripping length:10 mmSwitching capacityStripping length:10 mmTo AC 15Stripping length:10 mmNO contact:3 A / AC 230 VIEC/EN 60947-5-1NC contact:1 A / AC 230 VIEC/EN 60947-5-1To DC 13:1 A / DC 24 VElectrical lifeIK 9962:Approx. 65 gTo AC 15 at 1 A, AC 230 V:1.5 x 105 switch. cycles IEC/EN 60947-5-1SK 9962:Approx. 84 gPermissible switching frequency:30000 switching cycles / hDimensionsShort circuit strength4 A gG / gLIEC/EN 60947-5-1Width x height x depth:Max. fuse rating:4 A gG / gLIEC/EN 60947-5-1IK 9962:17.5 x 90 x 59 mm	Output		Vibration resistance:		
Terminal designation: EN 50005 Stripping length: Stripping length: Stripping length: Stripping piece 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 Permissible switching frequency: Short circuit strength Max. fuse rating: Max. fuse rating: Mechanical life: Sq0 x 1.0° switching cycles IEC/EN 60947-5-1 MgNature fixed MgNi			Climata registance		
Contact material: AgNi AgNi Cross section: DIN 46228-1/-2/-3/-4 Cross section: $2 \times 2.5 \text{ mm}^2 \text{ solid or}$ Thermal current I_{in} : 4 A (see see quadratic total current limit curve) Switching capacity To AC 15 NO contact: $3 \text{ A / AC } 230 \text{ V}$ IEC/EN 60947-5-1 NC contact: $1 \text{ A / AC } 230 \text{ V}$ IEC/EN 60947-5-1 To DC 13: $1 \text{ A / DC } 24 \text{ V}$ Electrical life To AC 15 at 1 A, AC 230 V: $1.5 \times 10^5 \text{ switch. cycles IEC/EN } 60947-5-1$ Permissible switching frequency: $30000 \text{ switching cycles / h}$ Max. fuse rating: 4 A gG / gL IEC/EN 60947-5-1 Max. fuse rating fuse rati		1 change over contact			IEC/EIN 00000-1
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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 Fixing torque: 0.8 Nm Mounting: DIN rail IEC/EN 60948 Weight: IK 9962: Approx. 65 g SK 9962: SK 9962: Approx. 84 g Dimensions Dimensions Dimensions Width x height x depth: IK 9962: 17.5 x 90 x 59 mm			Cross section:		
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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 Max. fuse rating: 4 A gG / gL IEC/EN 60947-5-1 Mechanical life: ≥ 30 x 10 ⁶ switching cycles IEC/EN 60998 IEC/EN 60998 Mounting: 01N rail IEC/EN 60947-60	Switching conscitu	(see see quadratic total current limit curve)			self-lifting
NO contact: $3 \text{ A / AC } 230 \text{ V}$ IEC/EN $60947\text{-}5\text{-}1$ NC contact: $1 \text{ A / AC } 230 \text{ V}$ IEC/EN $60947\text{-}5\text{-}1$ Mounting: DIN rail IEC/EN $60^{\circ}1$ Weight: IK 962 : Approx. 65 g SK 9962 : Approx. 65 g SK 9962 : SK 9962 : Approx. 84 g Permissible switching frequency: $90000 \text{ switching } \text{ cycles / h}$ Short circuit strength Max. fuse rating: $90000 \text{ switching } \text{ Approx. } 90000 \text{ switching } \text{ Approx. } 90000 \text{ switching } 900000 \text{ switching } 900000000000000000000000000000000000$			•	clamping piece	IEC/EN 60999-1
To DC 13: $1 \text{ A / DC } 24 \text{ V}$ Weight: IK 9962: Approx. 65 g To AC 15 at 1 A, AC 230 V: 1.5×10^6 switch. cycles IEC/EN 60947-5-1 Permissible switching frequency: 30000 switching cycles / h Max. fuse rating: 4 A gG / gL IEC/EN 60947-5-1 Mechanical life: $\geq 30 \times 10^6$ switching cycles Weight: IK 9962: Approx. 65 g SK 9962: SK 9962: $1.5 \times 10^6 \times 10^6$		3 A / AC 230 V IEC/EN 60947-5-1			IEO/EN 2021
Electrical life To AC 15 at 1 A, AC 230 V: Permissible switching frequency: Short circuit strength Max. fuse rating: Mechanical life: Approx. 65 g Approx. 84 g Dimensions Bik 9962: SK 996			•	DIN rail	IEC/EN 60715
To AC 15 at 1 A, AC 230 V: Permissible switching frequency: Short circuit strength Max. fuse rating: Mechanical life: 1.5 x 10 ⁵ switch. cycles IEC/EN 60947-5-1 SK 9962: Sk 9962: Approx. 84 g Dimensions Width x height x depth: IK 9962: 17.5 x 90 x 59 mm		1 A / DC 24 V	•	Approx. 65 a	
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SK 9962: 17.5 x 90 x 98 mm	•	5 5	IK 9962:		
		5 - 7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	SK 9962:	17.5 x 90 x 98 mm	

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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

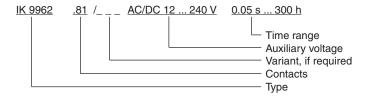
Output: 1 changeover contact
 Auxiliary voltage U_H: AC/DC 12 ... 240 V
 Time ranges: 0.05 ... 300 h
 Width: 17.5 mm

Variant

IK/SK 9962.81/300: Connection facility for a remote

potentiometer 10 $k\Omega$ to adjust the time

Ordering example for variant

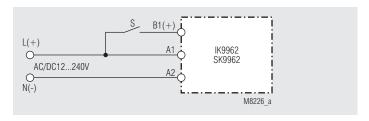


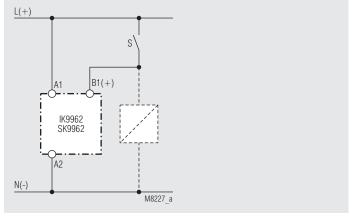
Characteristics $\Sigma \mid^2 (A^2)$ 16 14 12 10 4 T (° C) 0 10 20 40 50 60 70 M11658_a

device mounted without distance heated by devices with same load.

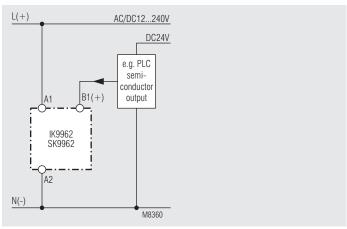
device mounted away from heat generation components.

Connection Examples





Control with parallel connected load



Connection with 2 different control voltages

Accessories

AD 3:

External potentiometer 10 k Ω 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

