MINITIMER
Cyclic Timer
IK 7854, SK 7854

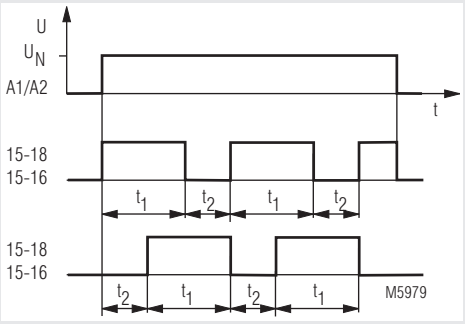
Translation of the original instructions

DOLD

0239762

- According to IEC/EN 61812-1
- 8 time ranges from 0.05 s to 300 h selectable via rotational switches
- Impulse and break time separately adjustable
- Selectable start with impulse or break
- Voltage range AC/DC 12 ... 240 V
- Adjustment aid for quick setting of long time values
- Suitable for 2-wire proximity sensor control
- LED indicators for operation, contact position and time delay
- 1 changeover contact
- As option connection of 2 remote potentiometers 10 kΩ
- Devices available in 2 enclosure versions:
  - IK 7854: Depth 59 mm, with terminals at the bottom for installation systems and industrial distribution systems according to DIN 43880
  - SK 7854: 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

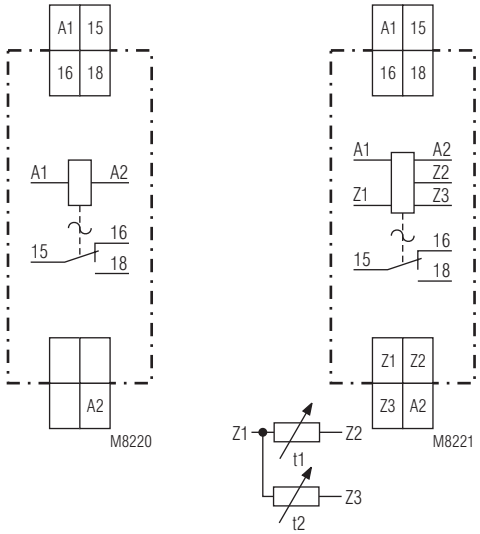
Application

Time-dependent controllers

Indicators

Green LED:	On when voltage connected
Yellow LED "R/t":	Shows status of output relay and time delay:
-Flashing (short on, long off)	Output relay not active; time delay t2 (break time)
-Flashing (long on, short off)	Output relay active; time delay t1 (pulse time)

Circuit Diagrams



IK 7854.81
SK 7854.81

IK 7854.81/300
SK 7854.81/300

Connection Terminals

Terminal designation	Signal description
A1	L / +
A2	N / -
15, 16, 18	Changeover contact
Z1, Z2, Z3 (only at /300)	Input to connect two remote potentiometer for time setting t1 and t2

Notes

Control of A1-A2 with proximity sensors
The input can be controlled by DC 3 wire or AC/DC 2 wire proximity sensors. For operating voltage > 24 V and usage of sensors without built-in short circuit protection a protection resistor on A1 is recommendend to reduce the inrush current. The dimension is as follows:

$R_v \approx$ operating voltage / max. switching current of sensor

The series resistor must not be selected higher than necessary.
Max. values are:

Operating voltage:	48 V	60 V	110 V	230 V	
Series resistor R_v max:	270 Ω	390 Ω	680 Ω	1.8 kΩ	(1 W)

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.

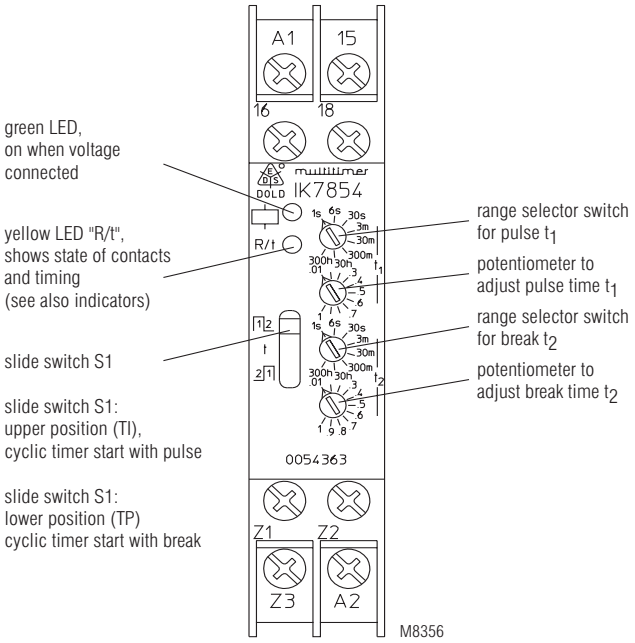
Remote potentiometers
With the variant IK/SK 7854.81/300 both time settings can also be made via remote potentiometers of 10 kOhms:
- Terminals Z1-Z2: Potentiometer for pulse time (t1)
- Terminals Z1-Z3: Potentiometer for break time (t2)

When connecting a remote potentiometer, the corresponding potentiometer has to be set to min. If no remote potentiometers are required the terminals Z1-Z2 resp. Z2-Z3 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 recommendet where the shield is connected to Z1.

To terminals Z1, Z2 and Z3 no external voltage must be connected, as the unit might be damaged.
Terminals Z1, Z2 and Z3 do not have a galvanic separation to terminals A1/A2!

Setting



Technical Data

Time circuit

Time ranges:	8 time ranges for pulse and break time, 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 t1, t2:	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
Repeat accuracy:	± 0.5 % of selected end scale value
Voltage and Temperature influence:	< 1 % with the complete operating range

Input

Nominal voltage U_N:	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 230 V:	Approx. 4,5 VA
At DC 12 V:	Approx. 1,5 W
At DC 24 V:	Approx. 1,5 W
At DC 230 V:	Approx. 1,5 W
Release voltage (A1/A2)	
AC 50 Hz:	Approx. 7.5 V
DC:	Approx. 7 V
Max. permitted residual current with 2-wire proximity sensor control (A1-A2)	
Up to AC/DC 150 V:	AC resp. DC 5 mA
Up to AC/DC 264 V:	AC resp. DC 3 mA

Output

Contacts:		
IK/SK 7854.81:	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		
At AC 15 to 1 A, AC 230 V:	1.5 x 10^5 switching cycles	IEC/EN 60947-5-1
Permissible switching frequency:	36000 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:	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:	4 kV	IEC/EN 61000-4-4
Z1/Z2/Z3:	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:	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, frequency10 ... 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 mm^2 solid or 2 x 1.5 mm^2 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 7854:	Approx. 65 g	
SK 7854:	Approx. 84 g	

Dimensions

Width x height x depth:	
IK 7854:	17.5 x 90 x 59 mm
SK 7854:	17.5 x 90 x 98 mm

Standard Type

IK 7854.81 AC/DC 12 ... 240 V 0.05 s ... 300 h
Article number: 0054362
- Output: 1 changeover contact
- Nominal voltage U_N: AC/DC 12 ... 240 V
- Time ranges: 0.05 s ... 300 h
- Width: 17.5 mm

SK 7854.81 AC/DC 12 ... 240 V 0.05 s ... 300 h
Article number: 0059557
- Output: 1 changeover contact
- Nominal voltage U_N: AC/DC 12 ... 240 V
- Time ranges: 0.05 s ... 300 h
- Width: 17.5 mm

Variant

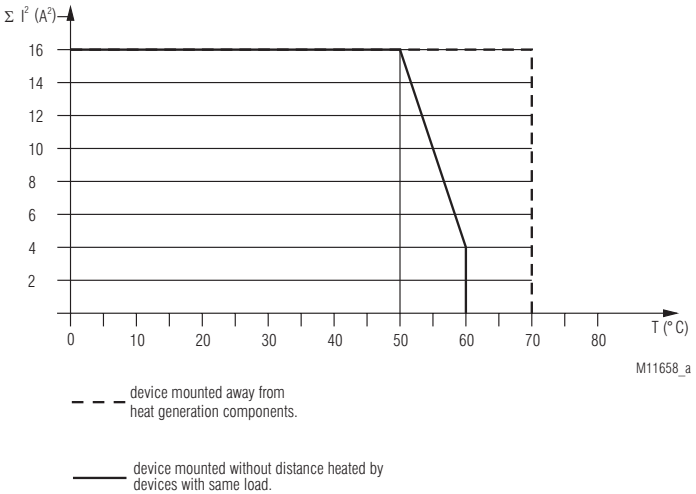
IK 7854.81/300: - Connection facility for 2 remote potentiometers 10 kOhms to adjust pulse and break time

Ordering example for variant

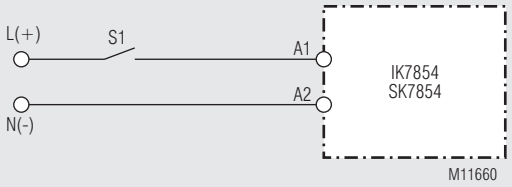
IK 7854 .81 /_ _ _ AC/DC 12 ... 240 V 0.05 s ... 300 h

- Time ranges
- Nominal voltage
- Variant, if required
- Contacts
- Type

Characteristics



Connection Example



Accessories

AD 3: External potentiometer 10 kΩ
Article number: 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