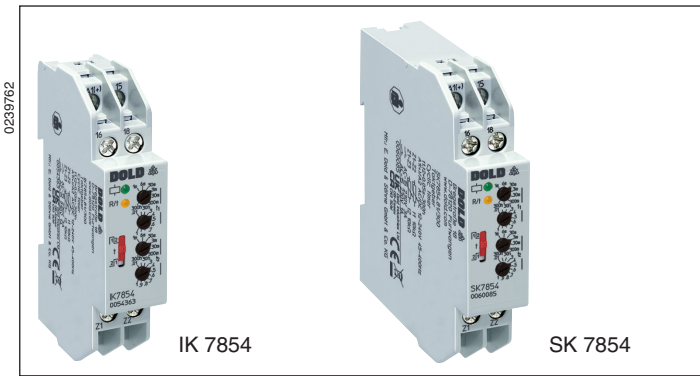


Time Control Technique

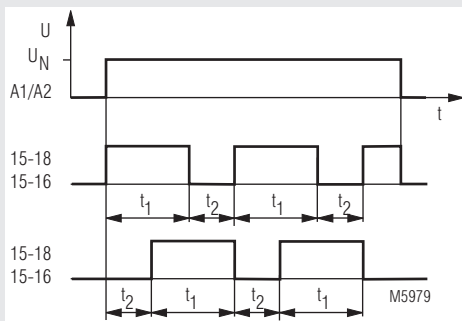
MINITIMER
Cyclic Timer
IK 7854, SK 7854

Translation
of the original instructions



- Asymmetrical flasher relay 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



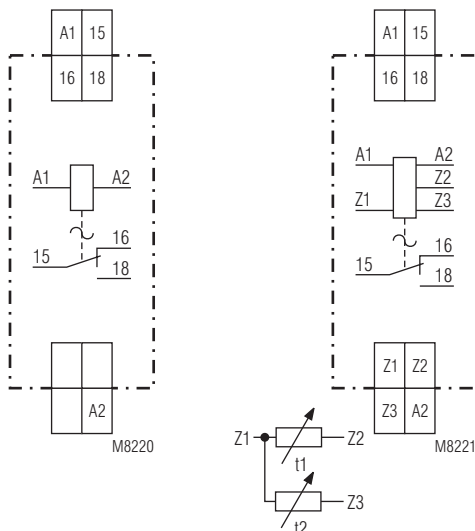
Application

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 recommended to reduce the inrush current. The dimension is as follows:

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

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 k Ω (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 $1 \text{ s} \pm 4\%$ 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.

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 (t_1)
- Terminals Z1-Z3: Potentiometer for break time (t_2)

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 recommended 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.

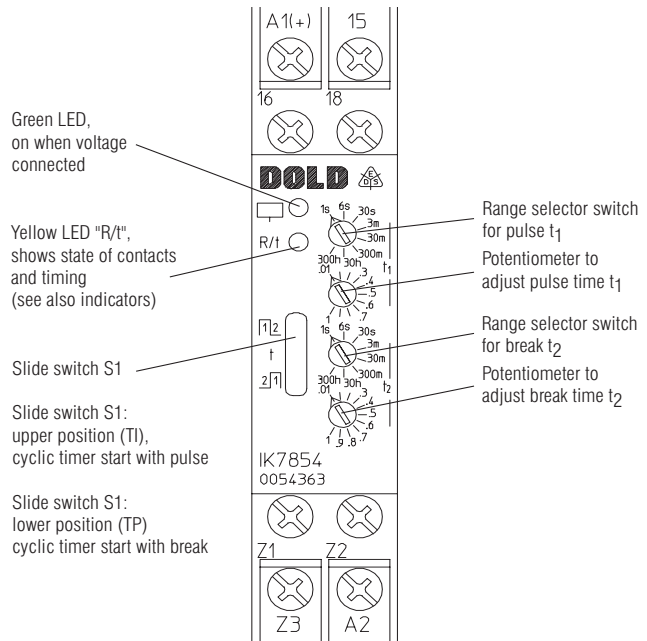
Terminals Z1, Z2 and Z3 do not have a galvanic separation to terminals A1/A2!



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

The inputs of the remote potentiometer terminals Z1, Z2, Z3 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 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
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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 10⁵ 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 10⁶ 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:

Overvoltage category:

Insulation test voltage, type test:

4 kV / 2 (basis insulation) IEC 60664-1 III

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, frequency 10 ... 55 Hz, IEC/EN 60068-2-6

40 / 060 / 04 IEC/EN 60068-1

Climate resistance: EN 50005

Terminal designation: DIN 46228-1/-2/-3/-4

Wire connection: 2 x 2.5 mm² solid or

2 x 1.5 mm² stranded wire with sleeve

10 mm

Stripping length: Flat terminals with self-lifting

Wire fixing: clamping piece IEC/EN 60999-1

0.8 Nm

Fixing torque: DIN rail IEC/EN 60715

Mounting:

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

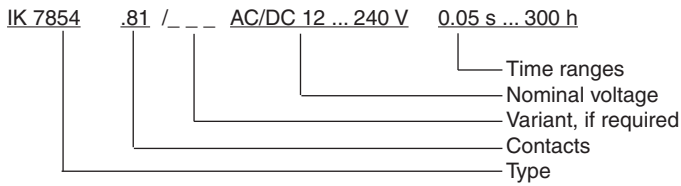
IK 7854.81 AC/DC 12 ... 240 V 0.05 s ... 300 h
 Article number: 0054362
 • Output: 1 changeover contact
 • Nominal voltage U_N : AC/DC 12 ... 240 V
 • Time ranges: 0.05 s ... 300 h
 • Width: 17.5 mm

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

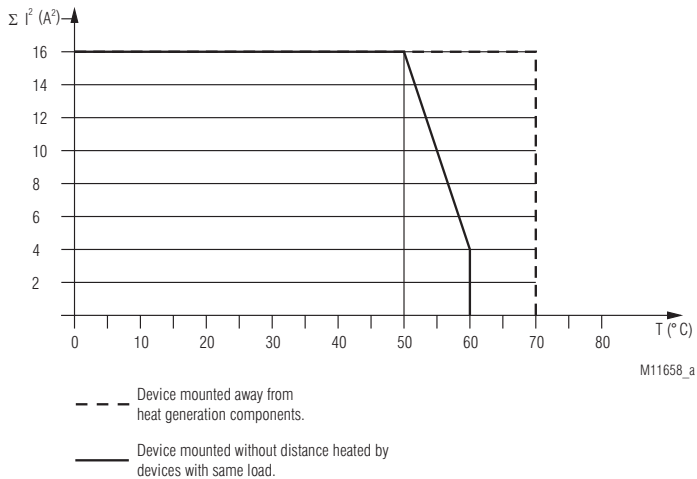
Variant

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

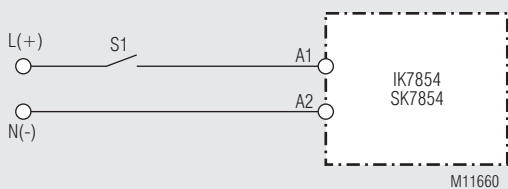
Ordering example for variant



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

