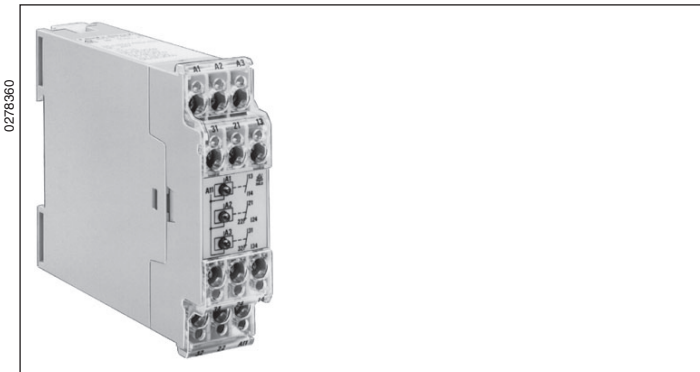


## Interface Relay MK 3047

Translation  
of the original instructions



- According to IEC/EN 60947-5-1
- As option with 2 NO contacts or 2 NC contacts or 1 NO contact and 1 NC contact or 1 changeover contact
- With LED indication
- With free-wheel diode to protect the contacts
- Width 22.5 mm

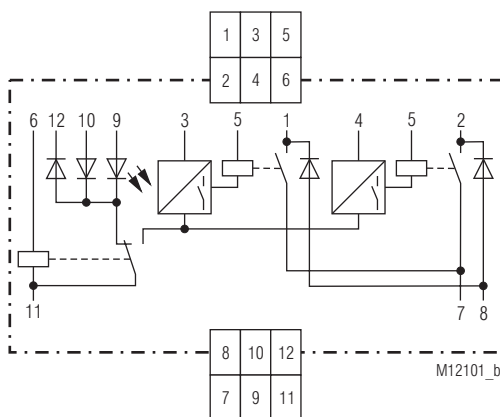
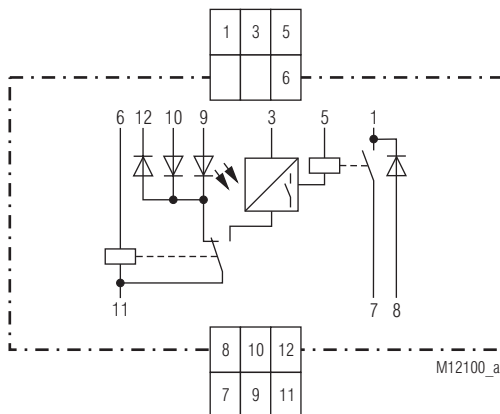
### Product Description

The MK 3047 is an electromechanical relay with 1 or 2 volt free contacts. It is used to interface between control circuits and load circuits (e.g. contactors or valves). When the relay is energized this is indicated by an LED.

### Approvals and Markings



### Circuit Diagrams



### Indicators

- Red LED: Fault signal
- Green LED: On, when the corresponding output relay is energized
- Terminal 10: Display option for external signal lamp

### Connection Terminals

Terminal designation	Signal description
3, 4, 11	Control input
5	Enable
6	Fault signal input
9	Indicator voltage
12	External fault signal input
1, 2, 7	Contact output
8	External fault signal input arc suppression
10	Indicator output

Technical Data		
<b>Control input (3, 4, 11)</b>	$U_{Ein} =$ 11.2 ... 65 V DC	
Nominal consumption DC 48 V:	1.3 mA approx. 70 mW	
Nominal consumption DC 24 V:	1.3 mA approx. 50 mW	
<b>Enable (5)</b>	$U_{Ein} =$ + 48 V DC $\pm$ 20 %	$U_{Ein} =$ + 24 V DC $\pm$ 20 %
(3) operated	$I_E =$ approx. 10 mA	
(3) and (4) operated	$I_E =$ approx. 20 mA	
<b>Fault signal (6)</b>	$U_{Ein} =$ + 48 V DC $\pm$ 20 %	$U_{Ein} =$ + 24 V DC $\pm$ 20 %
(indication with disconnection)	$I_E =$ approx. 10 mA	$I_E =$ approx. 20 mA
<b>External fault signal input (12)</b>	$U_{Ein} =$ + 48 V DC $\pm$ 20 %	$U_{Ein} =$ + 24 V DC $\pm$ 20 %
(indication with disconnection)	$I_E =$ - 8 mA	$I_E =$ - 8 mA
<b>Signal voltage (9)</b>	$U_{Ein} =$ + 48 V DC $\pm$ 20 %	$U_{Ein} =$ + 24 V DC $\pm$ 20 %
(indication with disconnection)	$I_E =$ approx. 8 mA (red LED)	$I_E =$ approx. 20 mA (red LED)

**Ext. lamp (max. 48 V / 0.6 A):** Minus-switching

#### Input

**Nom. voltage  $U_N$ :** DC 24, 48, 60 V  
**Voltage range:** 0.8 ... 1.1  $U_N$   
**Nominal consumption:** approx. 2 W

#### Output

##### Contacts

MK 3047/112: 2 x 2 NO contact  
 MK 3047/010: 1 x 1 NO contact

**Operate time:** 5 ms

**Release time:** 7 ms

**Thermal current  $I_{th}$ :** 6 A

##### Switching capacity

To AC 15

NO contacts: 3 A / AC 230 V IEC/EN 60947-5-1

NC contacts: 1 A / AC 230 V IEC/EN 60947-5-1

To DC 13

NO contacts: 1 A / DC 24V IEC/EN 60947-5-1

NC contacts: 1 A / DC 24V IEC/EN 60947-5-1

##### Electrical life

At AC 230 V, 6 A,  $\cos \varphi = 1$ : 4 x 10<sup>5</sup> switch. cycles IEC/EN 60947-5-1

##### Permissible switching frequency:

7200 switching cycles / h

##### Short circuit strength

**max. fuse rating:** 4 A gG / gL IEC/EN 60947-5-1

**Mechanical life:** 30 x 10<sup>6</sup> switching cycles

#### General Data

**Operating mode:** Continuous operation

##### Temperature range:

Operation: - 20 ... + 55 °C

Stockage: - 20 ... + 60 °C

**Altitude:** < 2000 m

##### Clearance and creepage distances

Rated impulse voltage / pollution degree: 4 kV / 2 IEC 60664-1

##### EMC

Electrostatic discharge (ESD): 8 kV (air) IEC/EN 61000-4-2

HF irradiation: 80 MHz ... 2.7 GHz: 10 V/m IEC/EN 61000-4-3

Fast transients: 2 kV IEC/EN 61000-4-4

Surge voltages

between

Wires for power supply: 1 kV IEC/EN 61000-4-5

Between wire and ground: 2 kV IEC/EN 61000-4-5

HF-wire guided: 10 V / m IEC/EN 61000-4-6

Interference suppression: Limit value class B EN 55011

Technical Data		
<b>Degree of protection</b>		
Housing:	IP 40	IEC/EN 60529
Terminals:	IP 20	IEC/EN 60529
<b>Housing:</b>	Thermoplastic with V0 behaviour according to UL Subject 94	
<b>Vibration resistance:</b>	Amplitude 0.35 mm frequency: 10 ... 55 Hz IEC/EN 60068-2-6	
<b>Climate resistance:</b>	20 / 060 / 04 IEC/EN 60068-1	
<b>Terminal designation:</b>	EN 50005	
<b>Wire connection:</b>	2 x 1.5 mm <sup>2</sup> solid or 2 x 1.0 mm <sup>2</sup> stranded ferruled DIN 46228-1/-2/-3/-4	
<b>Wire fixing:</b>	Flat terminals with self-lifting clamping piece IEC/EN 60999-1	
<b>Fixing torque:</b>	0.4 Nm	
<b>Mounting:</b>	DIN rail	IEC/EN 60715
<b>Weight:</b>	140 g	
<b>Dimensions</b>		
<b>Width x height x depth:</b>	22.5 x 82 x 99 mm	

#### Standard Type

MK 3047/112 DC 24V

Article number: 0040523

- Output: 2 x 2 NO contacts
- Nominal voltage  $U_N$ : DC 24 V
- With display option for external signal lamp, without diode at output 12
- Width: 22,5 mm

#### Variants

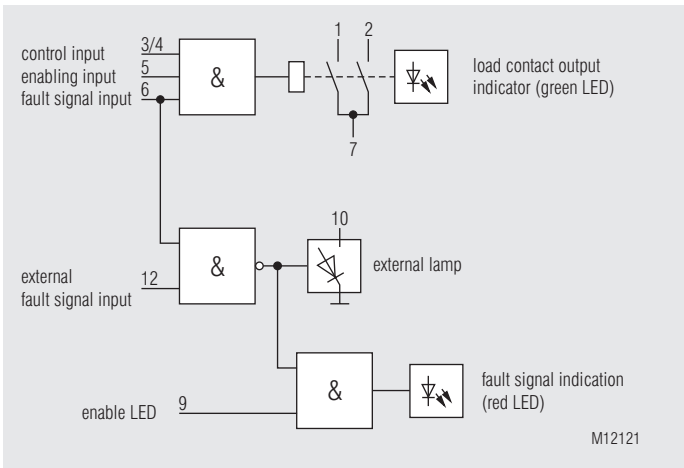
MK 3047/002: Article number: 0028302  
 Output: 1 x 1 NO contact  
 Nominal voltage  $U_N$ : DC 24 V  
 With diode at output 12

MK 3047/012: Article number: 0028303  
 Output: 2 x 2 NO contacts  
 Nominal voltage  $U_N$ : DC 24 V  
 With diode at output 12

MK 3047/102: Article number: 0040522  
 Output: 1 x 1 NO contact  
 Nominal voltage  $U_N$ : DC 24 V  
 Without diode at output 12

Other variants on request

## Functional Notes



The short circuit protection of the output (10) is provided by a PTC. In the case of a short circuit on the output (10) a current of 0.6 A flows for a short period at 48V DC. after approximately 1 to 2 seconds the resistance rises to 24 times the nominal resistance of the PTC, i. e. the current drops to 25 mA.

Due to the slow reaction of the PTC the inrush current of a glow lamp has no influence on the current.

The contact outputs are protected internally against transients when switching DC and AC voltage. When switching DC voltage with inductive load the plus potential has to be connected to (7). Terminal 8 allows to connect recovery diodes for arc suppression.

## Application Examples

