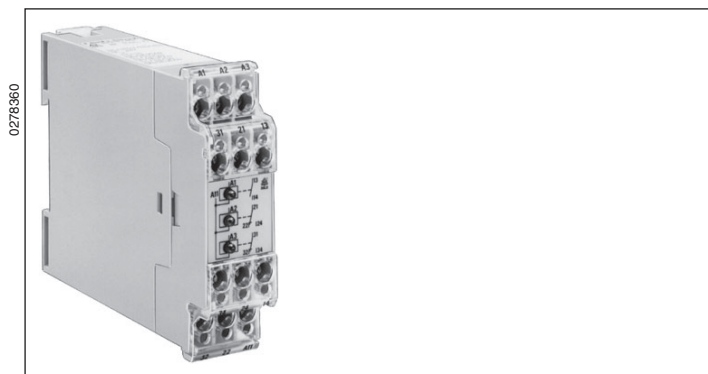


Interface Relay MK 3047



- 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

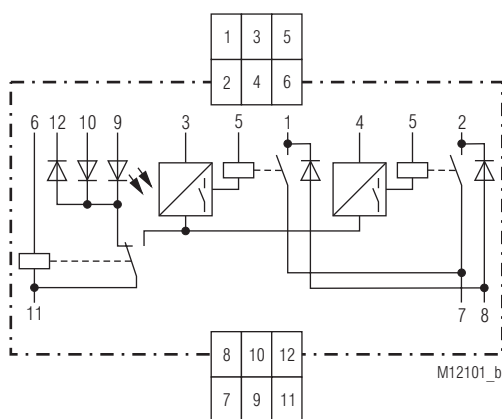
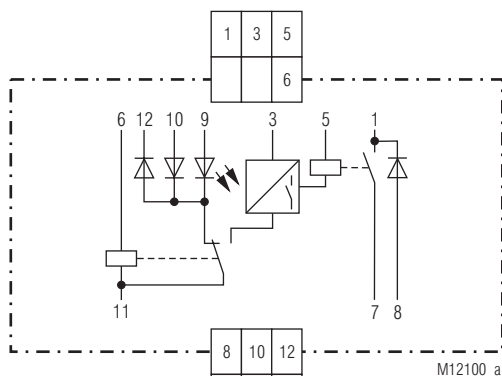
Product Description

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 energised this is indicated by an LED.

Approvals and Markings



Circuit Diagrams



Indicators

- Red LED: Fault signal on, when the corresponding output relay is energized
- Green LED: Display option for external signal lamp
- 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		
Control input (3, 4, 11)	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	
Enable (5)	U _{Ein} = + 48 V DC ± 20 %	U _{Ein} = + 24 V DC ± 20 %
(3) operated	I _E = approx. 10 mA	
(3) and (4) operated	I _E = approx. 20 mA	
Fault signal (6)	U _{Ein} = + 48 V DC ± 20 %	U _{Ein} = + 24 V DC ± 20 %
(indication with disconnection)	I _E = approx. 10 mA	I _E = approx. 20 mA
External fault signal input (12)	U _{Ein} = + 48 V DC ± 20 %	U _{Ein} = + 24 V DC ± 20 %
(indication with disconnection)	I _E = - 8 mA	I _E = - 8 mA
Signal voltage (9)	U _{Ein} = + 48 V DC ± 20 %	U _{Ein} = + 24 V DC ± 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 φ = 1: 4 x 10⁵ 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 10⁶ 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		
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:	20 / 060 / 04 IEC/EN 60068-1	
Terminal designation:	EN 50005	
Wire connection:	2 x 1.5 mm ² solid or 2 x 1.0 mm ² stranded ferruled DIN 46228-1/-2/-3/-4	
Wire fixing:	Flat terminals with self-lifting clamping piece IEC/EN 60999-1	
Fixing torque:	0.4 Nm	
Mounting:	DIN rail IEC/EN 60715	
Weight:	140 g	
Dimensions		
Width x height x depth:	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

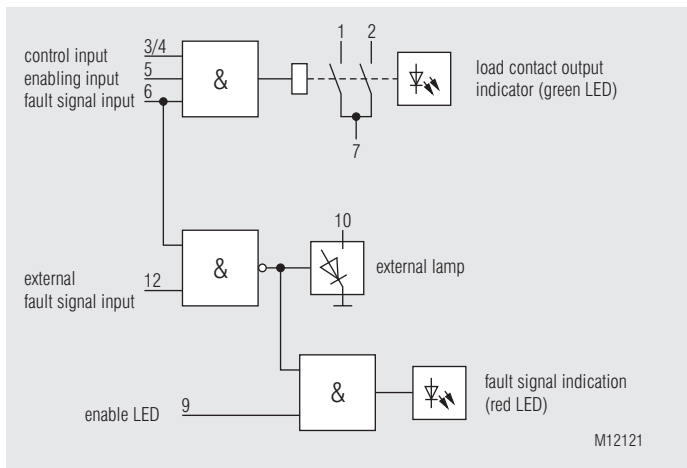
MK 3047/002: Article number: 0028302
Output: 1 x 1 NO contact
Nominal voltage U_N: DC 24 V
With diode at output 12

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

