

SAFEMASTER Interface Modules LG 3096, MK 3096N



Your Advantages

- Max. 6 contacts
- As option goldplated contacts to switch low loads

Features

- With **forcibly guided** contacts according to IEC 61810-3
- Wire connection: Also 2 x 1.5 mm² stranded ferruled, or
- 2 x 2.5 mm² solid DIN 46228-1/-2/-3/-4
- As option with pluggable terminal blocks for easy exchange of devices
 - with screw terminals
 - or with cage clamp terminals
- Width 22.5 mm

Product Description

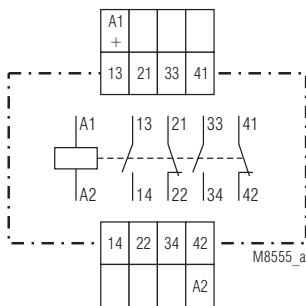
The coupling modules LG 3096 and MK 3096N with positively driven contacts are suitable for decoupling control and power levels as well as for contact multiplication also of safety switchgear. Monitoring is possible via a positively driven NC contact.

Approvals and Markings

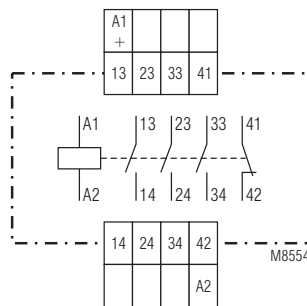


* see variants

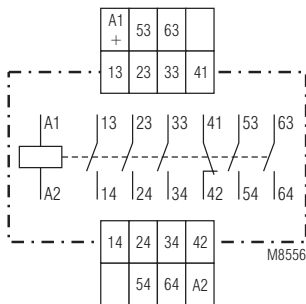
Circuit Diagrams



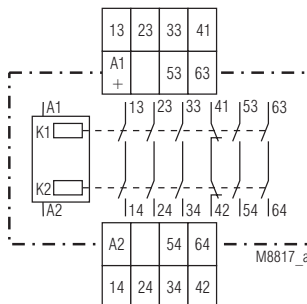
LG 3096.52
MK 3096N.52



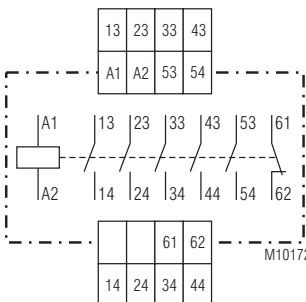
LG 3096.48
MK 3096N.48



LG 3096.60
MK 3096N.60



MK 3096N.60/100



LG 3096.60/300

Application

- Switching device with the possibility to monitor the contact status via forcibly guided NC contacts.

Connection Terminals

Terminal designation	Signal description
A1 / A2	Supply voltage
13, 14, 23, 24, 33, 34, 43, 44, 53, 54, 63, 64	Forcibly guided NO contacts
21, 22, 41, 42, 61, 62	Forcibly guided NC contacts

Technical Data

Input

Nominal voltage U_N :

LG 3096: DC 24, 48 V; AC 100, 230 V

MK 3096: DC 24, 48 V

Voltage range: 0.8... 1.1 U_N

Nominal consumption: 0.6 W

Output

Contacts:

MK 3096.52, LG 3096.52: 2 NO and 2 NC contacts

MK 3096.48, LG 3096.48: 3 NO and 1 NC contacts

MK 3096.60, LG 3096.60: 5 NO and 1 NC contacts

Contact type: Forcibly guided

Operate time: Typical 20 ms

Release time: Typical 15 ms

Nominal output voltage: AC 250 V

Thermal current I_{th} : See quadratic total current limit curve (max. 5 A per contact)

Switching capacity

to AC 15

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

NC contacts: 2 A / AC 230 V IEC/EN 60947-5-1

To DC 13

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

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

To DC 13

(switching frequency: 0.1 Hz): 0.5 A / DC 110 V

4 A / DC 24 V

2 contacts in series: 1 A / DC 110 V

MK 3096N/100: 1 A / DC 110 V

2 contacts in series: 4 A / DC 110 V

Electrical life IEC/EN 60947-5-1

NO contacts

to AC 15 at 3 A, AC 230 V: 1.5 x 10⁵ switching cycles

NO contacts

to AC 15 at 2 A, AC 230 V: 3 x 10⁵ switching cycles

NC contacts

to AC 15 at 2 A, AC 230 V: 1 x 10⁵ switching cycles

Permissible switching

frequency: 10 switching cycles / s

Switching voltage min./max.: AC/DC 10 V / DC 250 V, AC 400 V

Switching current min./max.: 10 mA / 5 A

Switching capacity min./max.: 3 VA / 1250 VA

3 W / 200 W

Short circuit strength

max. fuse rating:

LG 3096: 10 A gL IEC/EN 60947-5-1

MK 3096N: 10 A gL IEC/EN 60947-5-1

Mechanical life: ≥ 20 x 10⁶ switching cycles

General Data

Operating mode: Continuous operation

Temperature range:

Operation: - 20 ... + 60 °C

Storage: - 40 ... + 60 °C

Altitude: ≤ 2000 m

Clearance and creepage distances

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

EMC

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

HF irradiation: 10 V / m IEC/EN 61000-4-3

Fast transients: 4 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

Interference suppression: Limit value class B EN 55011

Degree of protection

Housing: IP 40 IEC/EN 60529

Terminals: IP 20 IEC/EN 60529

Housing: Thermoplastic

Vibration resistance: Amplitude 0.35 mm, frequency 10 ... 55 Hz, IEC/EN 60068-2-6

Technical Data

Climate resistance: 20 / 060 / 04 IEC/EN 60068-1

Terminal designation: EN 50005

Wire connection DIN 46228-1/-2/-3/-4

Screw terminals (integrated): 1 x 4 mm² solid or 1 x 2.5 mm² stranded ferruled (isolated) or 2 x 1.5 mm² stranded ferruled (isolated) or 2 x 2.5 mm² solid

Insulation of wires or sleeve length: 8 mm

Plug in with screw terminals

max. cross section for connection: 1 x 2.5 mm² solid or 1 x 2.5 mm² stranded ferruled (isolated)

Insulation of wires or sleeve length: 8 mm

Plug in with cage clamp terminals

max. cross section for connection: 1 x 4 mm² solid or 1 x 2.5 mm² stranded ferruled (isolated)

Min. cross section for connection: 0.5 mm²

Insulation of wires or sleeve length: 12 ±0.5 mm

Wire fixing: Plus-minus terminal screws M 3.5 box terminals with wire protection or cage clamp terminals

Fixing torque: 0.8 Nm

Mounting: DIN rail IEC/EN 60715

Weight: 160 g

Dimensions

Width x height x depth

LG 3096: 22.5 x 90 x 121 mm

LG 3096 PC: 22.5 x 111 x 121 mm

LG 3096 PS: 22.5 x 104 x 121 mm

MK 3096N: 22.5 x 90 x 102 mm

MK 3096N PC: 22.5 x 111 x 102 mm

MK 3096N PS: 22.5 x 104 x 102 mm

Classification to DIN EN 50155 for MK 3096N

Vibration and

shock resistance: Category 1, Class B IEC/EN 61373

Protective coating of the PCB: No

CSA-Data for LG 3096

Switching capacity: 3A 250Vac

Wire connection: 60°C / 75°C copper conductors only

Fixed screw terminal: AWG 20 - 12 Sol/Str Torque 0.8 Nm

Plug in screw terminal: AWG 20 - 14 Sol Torque 0.8 Nm
AWG 20 - 16 Str Torque 0.8 Nm

Plug in cage clamp terminal: AWG 20 - 12 Sol/Str Torque 0.8 Nm

 **Technical data that is not stated in the CSA-Data, can be found in the technical data section.**

CCC-Data for MK 3096N

Thermal current I_{th} : 4 A

Switching capacity

to AC 15: 1.5 A / AC 230 V IEC/EN 60947-5-1

To DC 13: 1 A / DC 24 V IEC/EN 60947-5-1

 **Technical data that is not stated in the CCC-Data, can be found in the technical data section.**

Standard Types

LG 3096.60 DC 24 V

Article number: 0056147
 • Output: 5 NO and 1 NC contacts
 • Width: 22.5 mm

MK 3096N.60 DC 24 V

Article number: 0055931
 • Output: 5 NO and 1 NC contacts
 • Width: 22.5 mm

Variants

LG 3096._._/004

MK 3096N._._/004: With gold plated contacts to switch low loads.
 Because of the gold plated contacts the MK 3096N._._/004, LG 3096._._/004 can be used to switch small loads 1 mVA ... 7 VA, 1 mW ... 7 W in the range of 0.1 ... 60 V, 1 ... 300 mA. The gold plated contacts allow also to switch the maximum current but the gold plating will be burnt off. After that the contacts cannot be used any more to switch the small loads.

LG 3096._._/300:

LG 3096._._/304:

LG 3096._._/___/60:

AC-units
 AC-units with gold plated contacts
 With CSA-approval (Canada/USA), on request

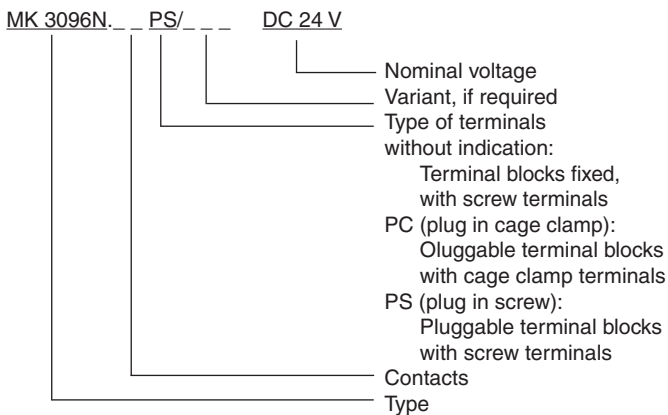
MK 3096N/100:

2 contacts switched internally in series.

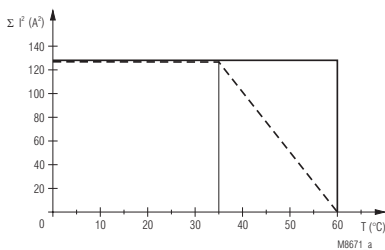
MK 3096N:

With CCC-approval on request

Ordering example for variants



Characteristic



— Device mounted on distance.
 - - - Device mounted without distances heated by devices with same load.

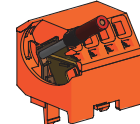
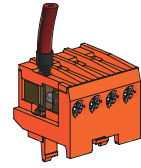
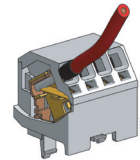
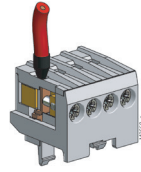
Quadratic total current

$$\Sigma I_{th}^2 = I_{th1}^2 + I_{th2}^2 + I_{th3}^2 + I_{th4}^2 + I_{th5}^2$$

$I_{th1}, I_{th2}, I_{th3}, I_{th4}, I_{th5}$: Thermal current I_{th} on contact rows

Quadratic total current limit curve

Options with Pluggable Terminal Blocks



Screw terminal
 (PS/plugin screw)

Cage clamp terminal
 (PC/plugin cage clamp)

Notes

Removing the terminal blocks with cage clamp terminals

1. The unit has to be disconnected.
2. Insert a screwdriver in the side recess of the front plate.
3. Turn the screwdriver to the right and left.
4. Please note that the terminal blocks have to be mounted on the belonging plug in terminations.

