

SAFEMASTER
Interface Module
HC 3096N, HL 3096N



Your Advantages

- Simple contact extension and re-inforcement also of safety modules
- Cost and space saving alternative compared to contactors
- Simple contact monitoring via forcibly guided NC contact
- large wire cross section 0.5 - 2.5 mm² (12-24 AWG) reduces thermal load on wires

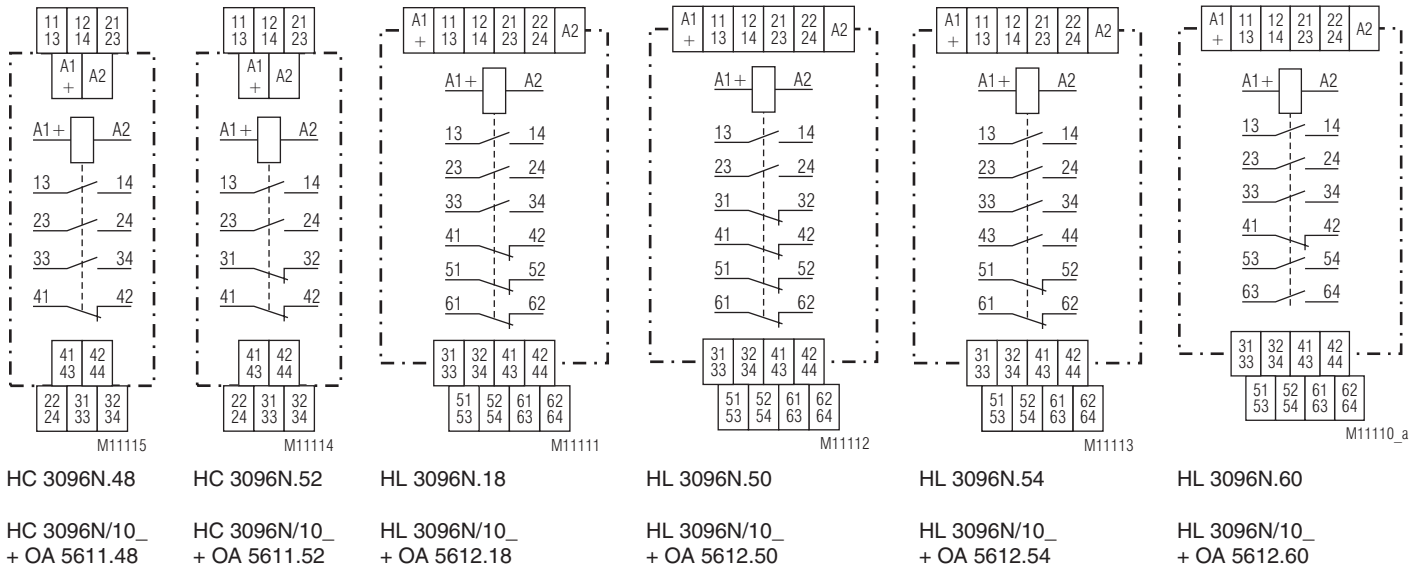
Features

- According to DIN EN 61810-1, IEC 60664-1, IEC/EN 60 947-5-1
- With forcibly guided contacts according to IEC 61810-3
- Models with soldered in or plug-in PCB safety relay consisting of:
 - plug in socket HC 3096N and safety relay OA 5611
 - plug in socket HL 3096N and safety relay OA 5612
- With polarity protected diode
- Optionally with free-wheeling diode across A1+ and A2
- Optionally AgNi + 0,2 µm Au or AgNi + 5 µm Au
- For DIN rail mounting according IEC/EN 60715
- HC 3096N:width 18 mm
- HL 3096N:width 36 mm

Approvals and Markings



Circuit Diagrams



Connection Terminals

Terminal designation	Signal designation
A1+	L / +
A2	N / -
41, 42 / 61, 62	NC contact
All other contacts see relevant circuit diagram	NC contacts / or NO contacts

Technical Data

Input

Nominal voltage U_N:	DC 24, 60, 110 V other voltages on request
Voltage range:	0.8 ... 1.1 U_N
Nominal consumption	
HC 3096N:	0.6 W
HL 3096N:	0.8 W
HL 3096N.50:	1.0 W

Output

Contacts:	
HC 3096N.52, OA 5611.52:	2 NO and 2 NC contacts
HC 3096N.48, OA 5611.48:	3 NO and 1 NC contacts
HL 3096N.18, OA 5612.18:	3 NO and 3 NC contacts
HL 3096N.50, OA 5612.50:	2 NO and 4 NC contacts
HL 3096N.54, OA 5612.54:	4 NO and 2 NC contacts
HL 3096N.60, OA 5612.60:	5 NO and 1 NC contacts
Contact material:	AgNi + 0,2 μ m Au, AgNi + 5 μ m Au other on request

Contact type:	spring contact
Operate time:	typical 20 ms
Release time:	typical 6 ms
Measured nominal voltage:	AC 250 V

Thermal current I_{th}

HC 3096N:	3 x 5 A
HL 3096N:	4 x 5 A

Switching capacity

to AC 15		
NO contact:	3 A / AC 230 V	IEC/EN 60 947-5-1
NC contact:	2 A / AC 230 V	IEC/EN 60 947-5-1
to DC 13		
NO contact:	2 A / DC 24 V	IEC/EN 60 947-5-1
NC contact:	2 A / DC 24 V	IEC/EN 60 947-5-1
according to DC 13		
NO contact:	4 A / 24 V at 0.1 Hz	
NC contact:	4 A / 24 V at 0.1 Hz	

Electrical life

HC 3096N	
to AC 230 V / 5 A $\cos\phi = 1$:	$\geq 2 \times 10^5$ switching cycles
HL 3096N	
at DC 24 V / 5 A ohmic:	$\geq 2 \times 10^5$ switching cycles

Permissible switching

frequency:	10 switching cycles / s
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Short circuit strength

max. fuse rating:	6 A gG / gL	IEC/EN 60 947-5-1
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Mechanical life:	$\geq 50 \times 10^5$ switching cycles
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General Data

Operating mode:	Continuous operation
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Temperature range:

Operation:	- 40 ... + 55 °C
Storage:	- 25 ... + 70 °C

Relative air humidity:	93 % at 40 °C
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Altitude:	< 2.000 m
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Clearance and creepage distances

rated impulse voltage /
pollution degree

Input / output		
HC devices:	6 kV / 2	IEC 60 664-1
HL devices:	4 kV / 2	IEC 60 664-1
output / output:	4 kV / 2	IEC 60 664-1

Overvoltage category:	III
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Insulation test voltage, type test:	2,5 kV; 1 min
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EMC		
Electrostatic discharge:	8 kV (air)	IEC/EN 61 000-4-2

HF-irradiation		
80 MHz ... 1 GHz:	20 V / m	IEC/EN 61 000-4-3
1 GHz ... 2,7 GHz:	10 V / m	IEC/EN 61 000-4-3
Fast transient:	4 kV	IEC/EN 61 000-4-4

Surge voltages		
between		
wires for power supply:	1 kV	IEC/EN 61 000-4-5
between wire and ground:	2 kV	IEC/EN 61 000-4-5
HF-wire guided:	10 V	IEC/EN 61 000-4-6
Interference suppression:	Limit value class B	EN 55 011

Technical Data

Degree of protection

Housing:	IP 40	IEC/EN 60 529
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Terminals:	IP 20	IEC/EN 60 529
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Housing:	Thermoplastic
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Vibration resistance:	Amplitude 0.35 mm
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	Frequency 10 ... 55 Hz, IEC/EN 60 068-2-6
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Climate resistance:	Humid heat	IEC/EN 60 068-2-30
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Terminal designation:	EN 50 005
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Wire connection:	0.5 ... 2,5 mm ² solid
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	0.5 ... 2,5 mm ² flexible
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Wire fixing:	Captive slotted screw
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Fixing torque:	0,5 Nm
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Mounting:	DIN rail	IEC/EN 60 715
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Weight	
HC 3096N:	approx. 71 g
HL 3096N:	approx. 90 g

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Dimensions

Width x height x depth

HC 3096N:	18 x 106 x 65 mm
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HL 3096N:	36 x 106 x 65 mm
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UL Data

Nominal voltage U_N:	DC 6 ... 110 V
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Switching capacity:

Ambient temperature 60 °C:	Pilot duty B300
	5 A 250Vac G. P.
	5 A 24Vdc
	0.4 A 250Vac resistive

Wire connection:	60°C / 75°C copper conductors only AWG 24 - 12 torque value 4.4 lb-in
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Technical data that is not stated in the UL-Data, can be found in the technical data section.

Classification to DIN EN 50155

Vibration and

shock resistance:	Category 1, Class B	IEC/EN 61 373
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Ambient temperature:	T1, T2, T3 and TX compliant
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Voltage range:	0.7 ... 1.25 U_N with operational limitations
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Protective coating of the PCB:	No
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Standard Types

HC 3096N.48/400 DC 24 V	
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Article number:	0066000
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- 3 NO, 1 NC contact
- AgNi + 0.2 μ m Au
- Width: 18 mm

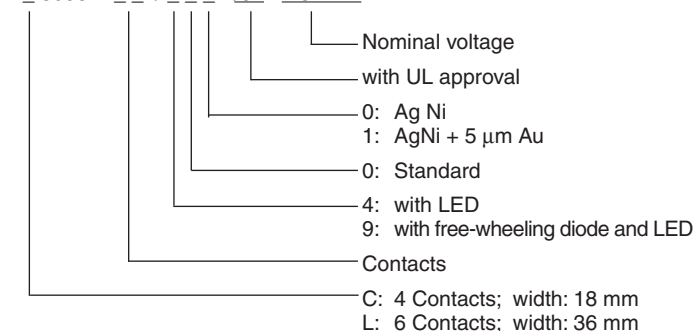
HL 3096N.54/400 DC 24 V	
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Artikelnummer:	0066040
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- 4 NO, 2 NC contact
- AgNi + 0.2 μ m Au
- Width: 36 mm

Ordering Example

H_3096N._._ / _._ /61 DC 24 V



Variants

Plug in socket
H_ 3096N /102:

Plug in socket with
free-wheeling diode and LED
Plug in socket with LED

H_ 3096N /103:

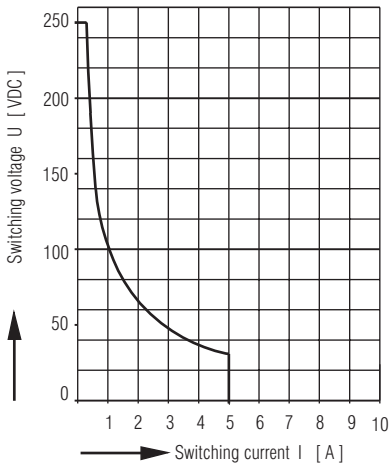
further variants on request

Ordering example for variants

H_ 3096N / 10 _ /61 DC 24 V

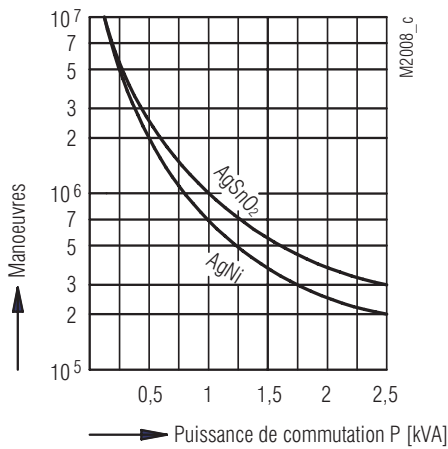
- Nominal voltage
- with UL-approval
- 2: Plug in socket with
free-wheeling diode and LED
- 3: Plug in socket with LED
- 0: Standard
- 1: Plug in socket
- C: 4 Contacts; width: 18 mm
- L: 6 Contacts; width: 36 mm

Characteristic



Safe switch of, no standing arc
max. 1 switching cycle / s

Arc limit curve under resistive load



Contact service life

Connection example for HC 3096N/10_/61

Relay: OA 5611.52 \cong 2 NO contacts and 2 NC contacts (Standard)

Terminal	Contact	Contact-type	Connection
11, 13, 12, 14	1	NO contact	13, 14
21, 23, 22, 24	2	NO contact	23, 24
41, 43, 42, 44	3	NC contact	31, 32
31, 33, 32, 34	4	NC contact	41, 42

The terminal assignment is according to the diagram on the installed relay

Connection example for HC 3096N/10_/61

Relay: OA 5612.18 \cong 3 NO contacts and 3 NC contacts (Standard)

Terminal	Contact	Contact-type	Connection
11, 13, 12, 14	1	NO contact	13, 14
21, 23, 22, 24	2	NO contact	23, 24
41, 43, 42, 44	3	NO contact	33, 34
31, 33, 32, 34	4	NC contact	41, 42
51, 53, 52, 54	5	NC contact	51, 52
61, 63, 62, 64	6	NC contact	61, 62

The terminal assignment is according to the diagram on the installed relay



Safety Notes



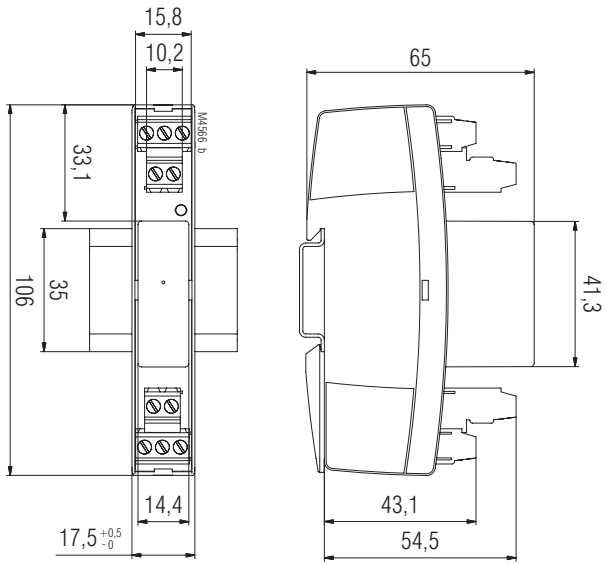
Dangerous voltage.
Electric shock will result in death or serious injury.



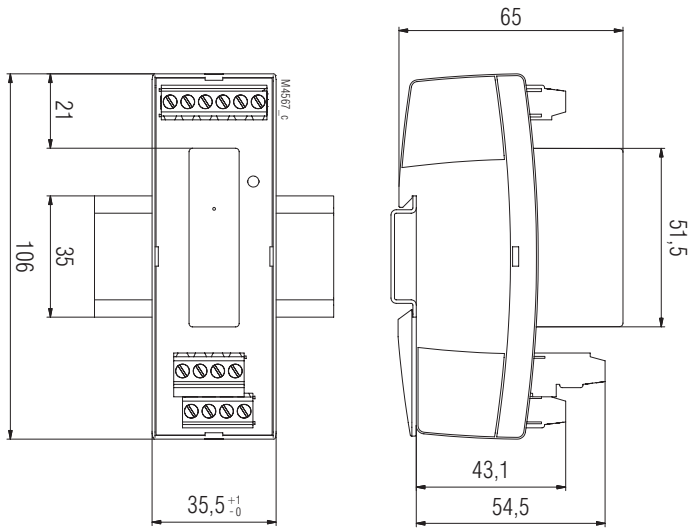
Disconnect all power supplies before servicing equipment.

- Faults must only be removed when the relay is disconnected
- The user has to make sure that the device and corresponding components are installed and wired according to the local rules and law (TUEV, VDE, Health and safety).
- Installation work must only be done when power is disconnected.

Dimensions with safety relay

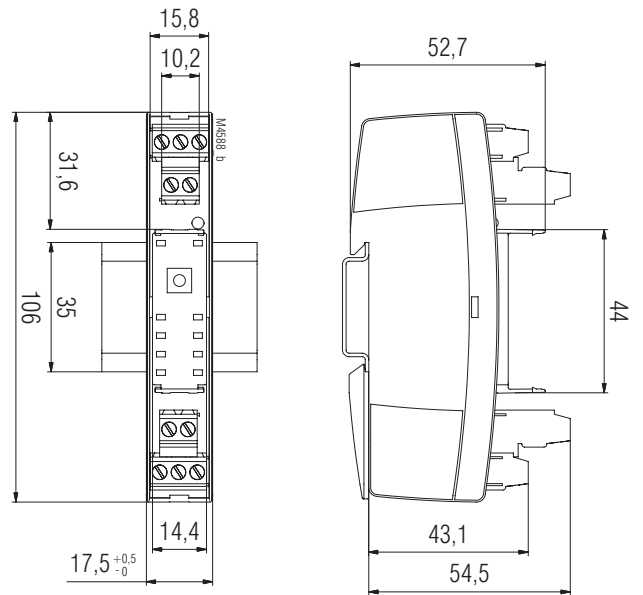


HC 3096N

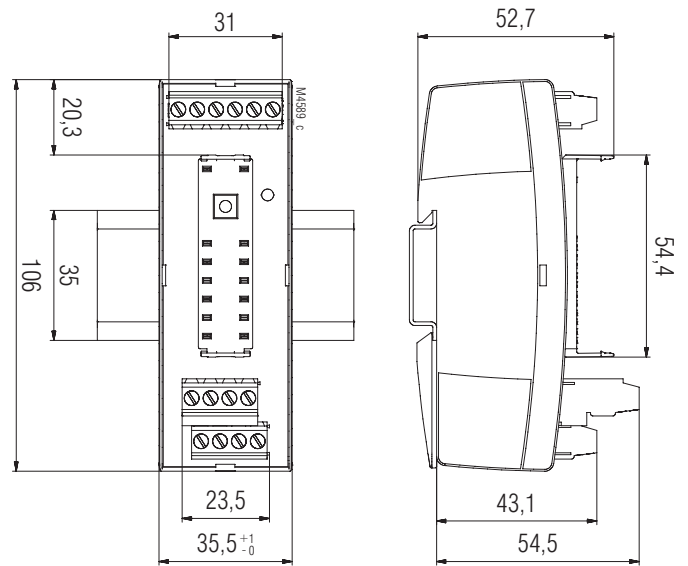


HL 3096N

Dimensions with plug in socket



HC 3096N



HL 3096N