

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

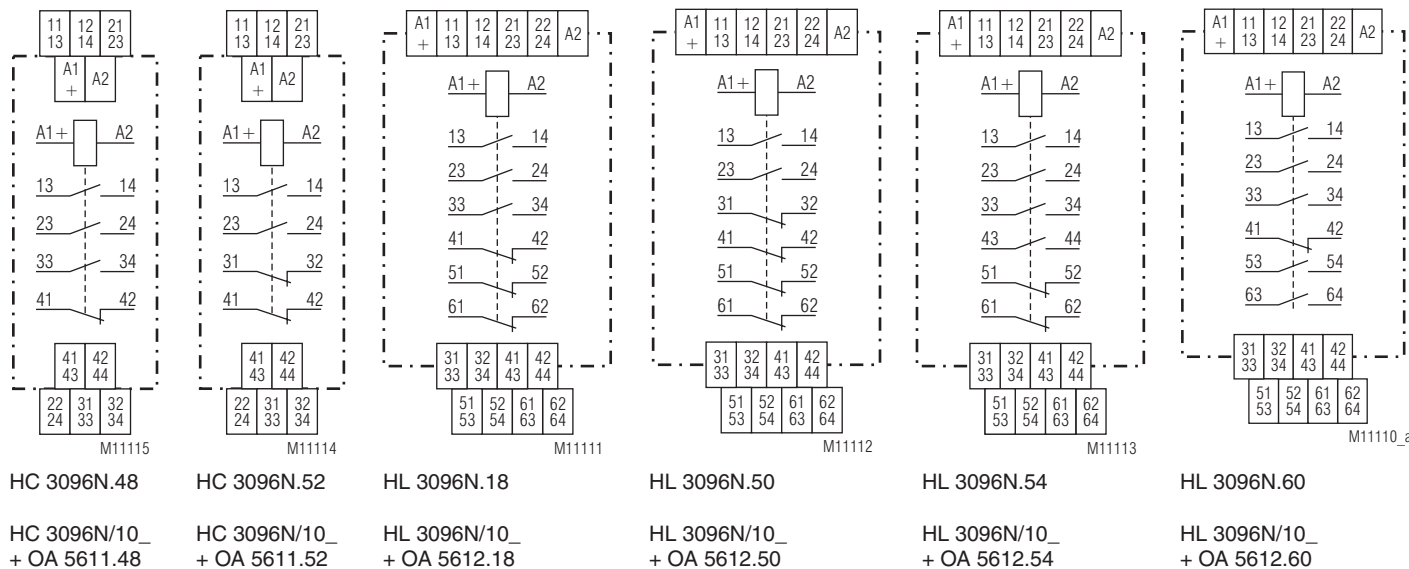
Features

- 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 + 0,2µm Au, AgNi + 5µm 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 cosφ = 1:	≥ 2 x 10 ⁵ switching cycles	
HL 3096N		
at DC 24 V / 5 A ohmic:	≥ 2 x 10 ⁵ switching cycles	
Permissible switching frequency:	10 switching cycles / s	
Short circuit strength		
max. fuse rating:	6 A gG / gL	IEC/EN 60 947-5-1
Mechanical life:	≥ 50 x 10 ⁶ switching cycles	
General Data		
Operating mode:	Continuous operation	
Temperature range:		
Operation:	- 40 ... + 55 °C	
Storage:	- 25 ... + 70 °C	
Relative air humidity:	93 % at 40 °C	
Altitude:	< 2.000 m	
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	
Insulation test voltage, type test:	2,5 kV; 1 min	
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
Terminals:	IP 20	IEC/EN 60 529
Housing:	Thermoplastic	
Vibration resistance:	Amplitude 0.35 mm Frequency 10 ... 55 Hz, IEC/EN 60 068-2-6	
Climate resistance:	Humid heat IEC/EN 60 068-2-30	
Terminal designation:	EN 50 005	
Wire connection:	0.5 ... 2,5 mm ² solid 0.5 ... 2,5 mm ² flexible Captive slotted screw 0,5 Nm	
Wire fixing:	DIN rail IEC/EN 60 715	
Fixing torque:		
Mounting:		
Weight		
HC 3096N:	approx. 71 g	
HL 3096N:	approx. 90 g	
Dimensions		
Width x height x depth		
HC 3096N:	18 x 106 x 65 mm	
HL 3096N:	36 x 106 x 65 mm	
UL Data		
Nominal voltage U_N:	DC 6 ... 110 V	
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	
Info	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
Ambient temperature:	T1, T2, T3 and TX compliant	
Voltage range:	0.7 ... 1.25 U _N with operational limitations	
Protective coating of the PCB:	No	
Standard Types		
HC 3096N.48/400 DC 24 V		
Article number:	0066000	
• 3 NO, 1 NC contact		
• AgNi + 0.2 µm Au		
• Width:	18 mm	
HL 3096N.54/400 DC 24 V		
Artikelnummer:	0066040	
• 4 NO, 2 NC contact		
• AgNi + 0.2 µm Au		
• Width:	36 mm	
Ordering Example		
H_ 3096N. _ _ / _ _ /61 DC 24 V		
	Nominal voltage	
	with UL approval	
	0: Ag Ni	
	1: AgNi + 5 µm Au	
	0: Standard	
	4: with LED	
	9: with free-wheeling diode and LED	
	Contacts	
	C: 4 Contacts; width: 18 mm	
	L: 6 Contacts; width: 36 mm	

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

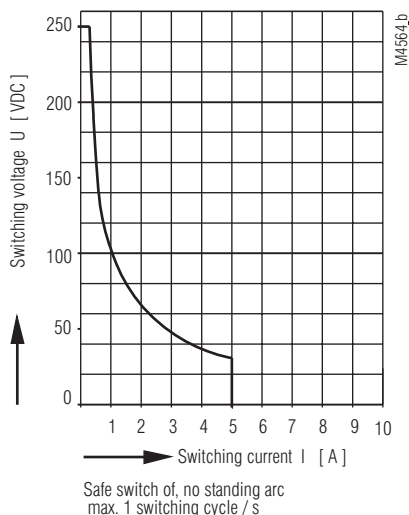
0: Standard

1: Plug in socket

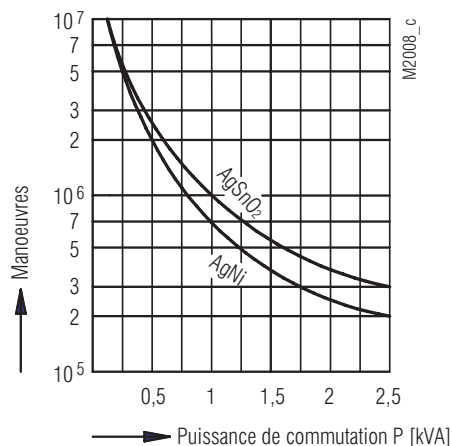
C: 4 Contacts; width: 18 mm

L: 6 Contacts; width: 36 mm

Characteristic



Arc limit curve under resistive load



Contact service life

Connection example for HC 3096N/10_/61

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

	Contact	Contact-type	Connection
1		NO contact	13, 14
2		NO contact	23, 24
3		NC contact	31, 32
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 $\approx$ 3 NO contacts and 3 NC contacts (Standard)

	Contact	Contact-type	Connection
1		NO contact	13, 14
2		NO contact	23, 24
3		NO contact	33, 34
4		NC contact	41, 42
5		NC contact	51, 52
6		NC contact	61, 62

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



Safety Notes



Dangerous voltage.

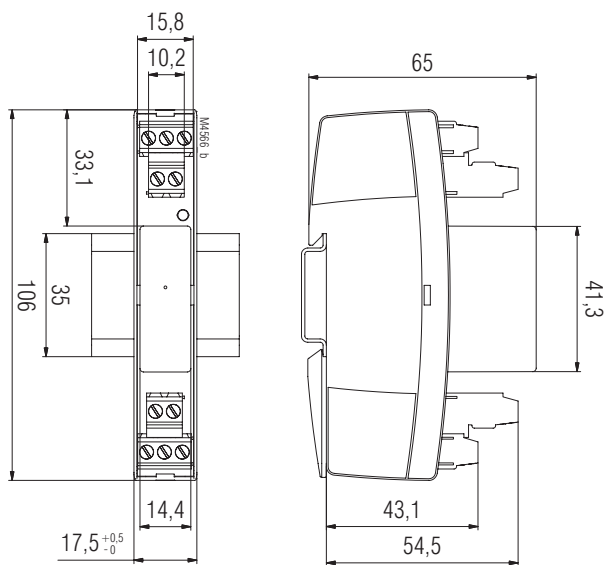
Electric shock will result in death or serious injury.



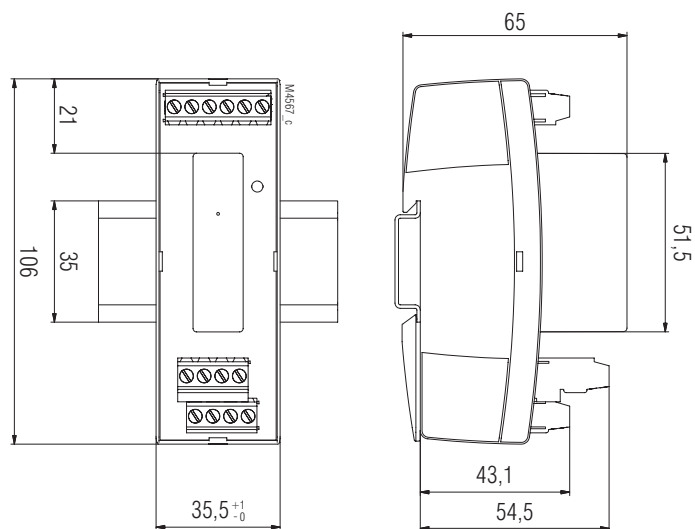
Disconnect all power supplies before servicing equipment.

- 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

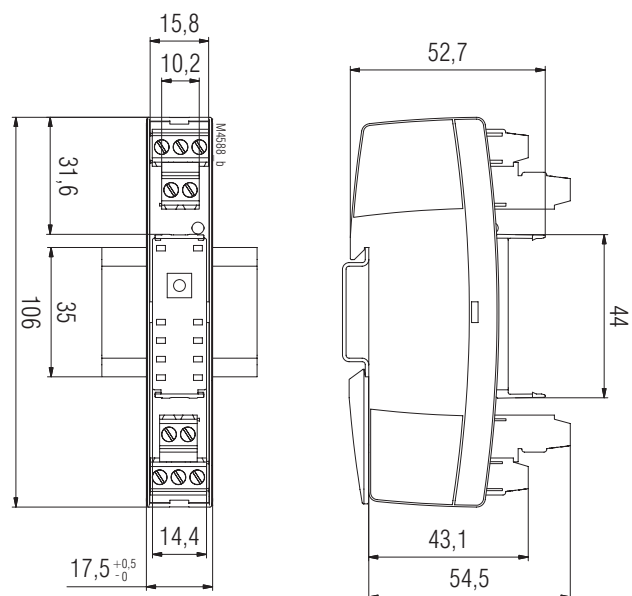


HC 3096N

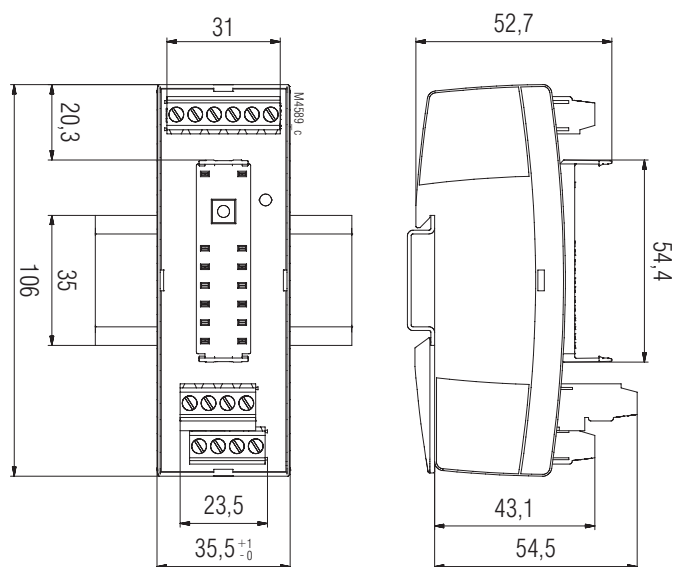


HL 3096N

Dimensions with plug in socket



HC 3096N



HL 3096N