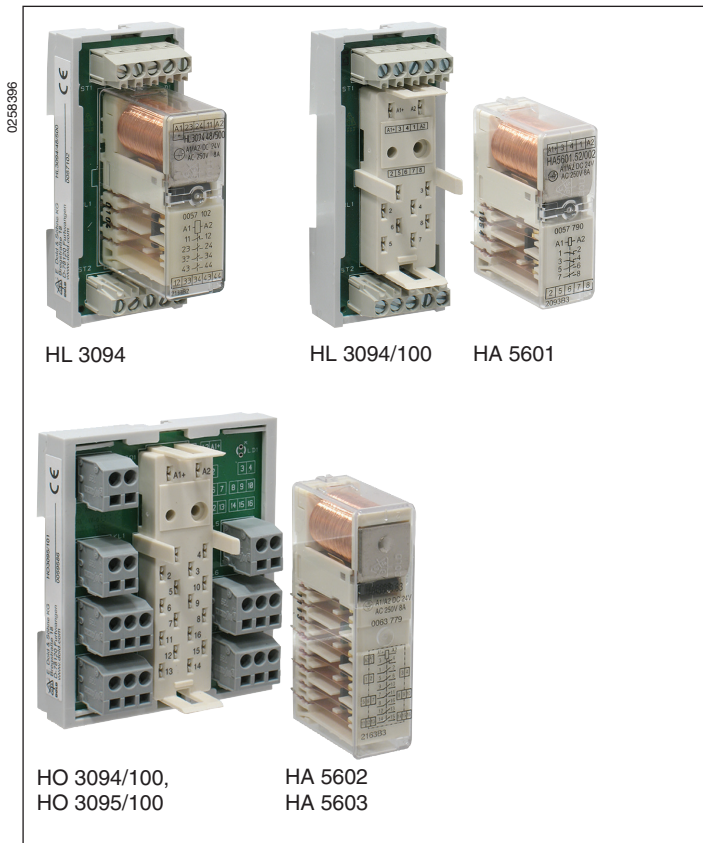


SAFEMASTER
Interface Module
HL 3094, HO 3094, HO 3095

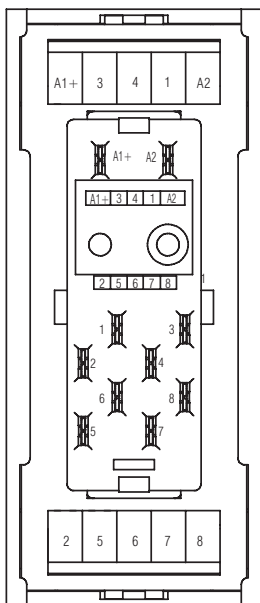


- According to DIN EN 61810-1, IEC 60664-1, IEC/EN 60947-5-1
- With forcibly guided contacts according to IEC 61810-3
- Low nominal consumption: 0.75 W / 1 W / 1.25 W
- Max. 8 output contacts
- Contact material AgNi + 0.2 μm Au
- High thermal current $I_{th} = 8$ A
- Large temperature range: - 40 ... + 55°C
- Safety relay soldered on PCB
- Optional AgNi + 5 μm Au or AgSnO + 0.2 μm Au
- Optional with free-wheeling diode across A1/A2
- Plug in relay option
HA 5601 on socket HL 3094/10_
HA 5602 on socket HO 3094/10_
HA 5603 on socket HO 3095/10_
- DIN rail or screw mounting
- HL: 38 mm width
HO: 73.3 mm width

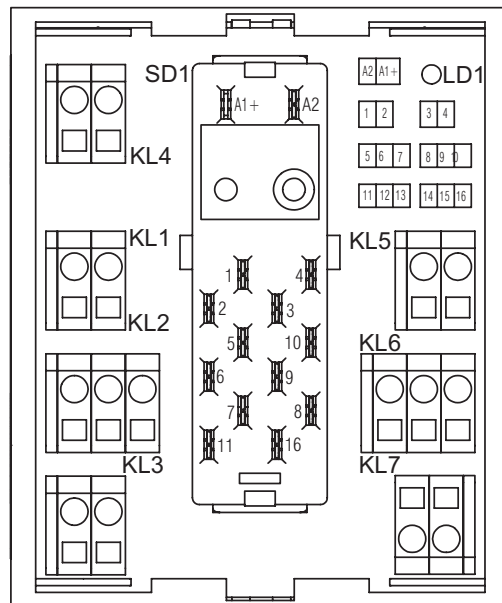
Approvals and Markings



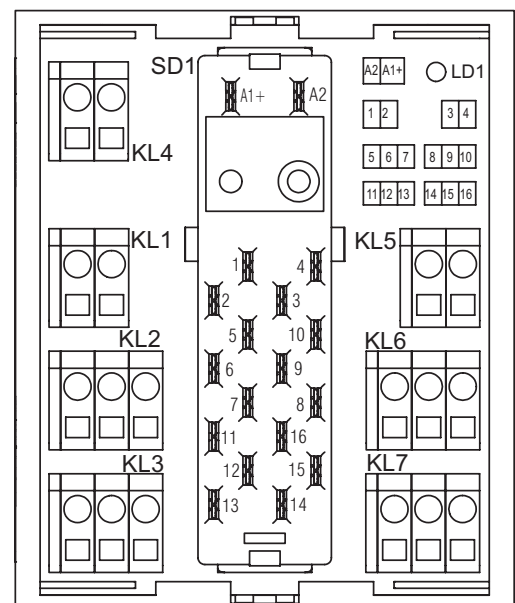
Socket Labeling



HL 3094/100, HL 3094/101

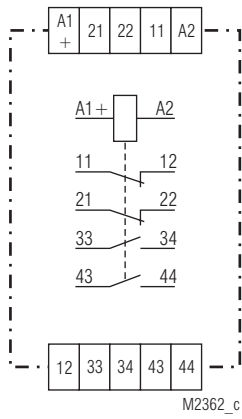


HO 3094/100, HO 3094/101
HO 3094/102, HO 3094/103

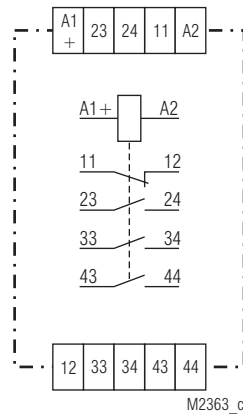


HO 3095/100, HO 3095/101
HO 3095/102, HO 3095/103

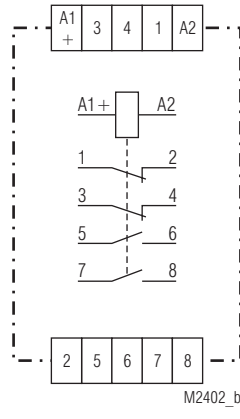
Circuit Diagrams



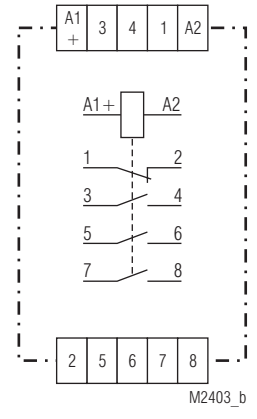
HL 3094.52



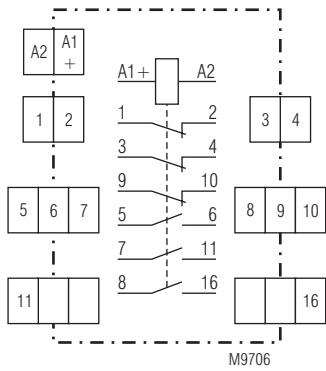
HL 3094.48



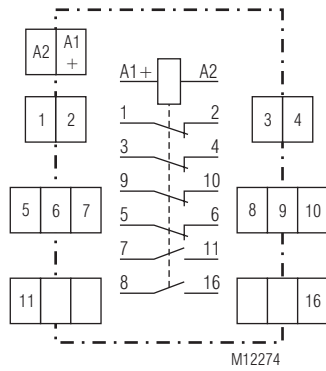
HA 5601.52



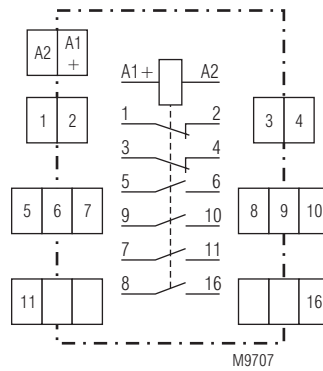
HA 5601.48



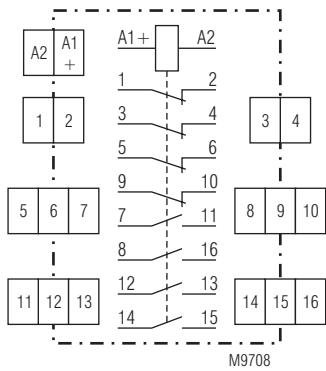
HA 5602.18



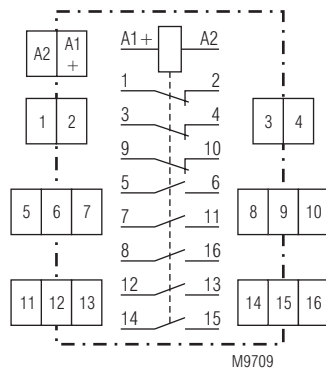
HA 5602.50



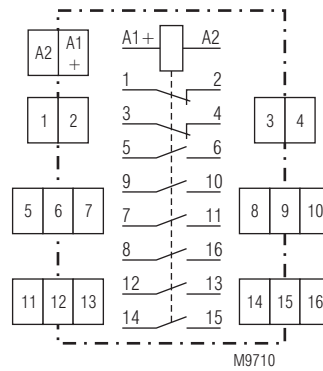
HA 5602.54



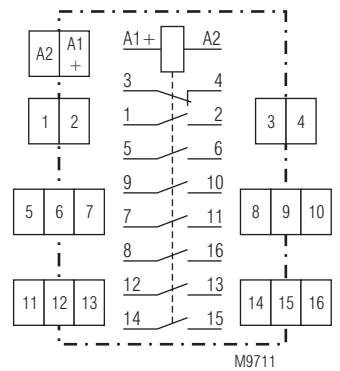
HA 5603.57



HA 5603.58



HA 5603.59



HA 5603.63

Connection Terminals

Terminal designation	Signal description
A1+	L / +
A2	N / -
11, 12 / 1, 2	NC contact
Contacts see relevant circuit diagram	NC contacts / or NO contacts

Technical Data	
Input	
Nominal voltage U_N:	DC 6, 12, 24, 48, 60, 110 V other voltages on request
Voltage range:	0.8 ... 1.1 U_N
Nominal consumption:	
HL 3094:	0.75 W
HO 3094:	1 W
HO 3095:	1.25 W
Output	
Contacts	
HL 3094.52, HA 5601.52:	2 NO, 2 NC contacts
HL 3094.48, HA 5601.48:	3 NO, 1 NC contacts
HO 3094.18, HA 5602.18:	3 NO, 3 NC contacts
HO 3094.54, HA 5602.54:	4 NO, 2 NC contacts
HO 3095.57, HA 5603.57:	4 NO, 4 NC contacts
HO 3095.58, HA 5603.58:	5 NO, 3 NC contacts
HO 3095.59, HA 5603.59:	6 NO, 2 NC contacts
HO 3095.63, HA 5603.63:	7 NO, 1 NC contacts
Contact material:	AgNi + 0.2 μ m Au
Measured nominal voltage:	AC 250 V
Contact type:	spring contact
Operate time:	\leq 40; typical 27 ms
Release time:	\leq 10; typical 5 ms
Thermal current I_{th}:	3 x 8 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
Electrical life	IEC/EN 60 947-5-1
at 1 s x On, 1 s Off	
at AC 230 V 5 A $\cos \varphi = 1$:	$> 7 \times 10^5$ switching cycles / AgSnO $> 5 \times 10^5$ switching cycles / AgNi
at AC 230 V 8 A $\cos \varphi = 1$:	$> 3 \times 10^5$ switching cycles / AgSnO $> 2 \times 10^5$ switching cycles / AgNi
to AC 15 at 1 A, AC 230 V:	1.5×10^6 switching cycles
Permissible switching frequency:	10 switching cycles / s
Switching voltage min./max.:	AC/DC 10 V / DC 250 V, AC 400 V (100 mV / AC/DC 60 V for AgNi-contacts + 5 μ m Au)
Switching current min./max.:	10 mA / 8 A (2 mA / 0.3 A for AgNi-contacts + 5 μ m Au)
Switching power min./max.:	0.1 VA / 2000 VA (10 mVA / 7 VA for AgNi-contacts + 5 μ m Au) 0,1 W / 240 W (10 mW / 7 W for AgNi-contacts + 5 μ m Au)
Short circuit strength max. fuse rating:	6 A gG / gL IEC/EN 60 947-5-1
Mechanical life:	$> 30 \times 10^6$ switching cycles

General Data	
Operating mode:	Continuous operation
Temperature range:	
Operation:	- 40 ... + 55 °C
Storage:	- 40 ... + 70 °C
Relative air humidity:	93 % at 40 °C
Altitude:	< 2.000 m
Clearance and creepage distances	
rated impulse voltage / pollution degree:	
Input / Output:	4 kV / 2 (basis insulation) IEC 60 664-1
Output / Output:	4 kV / 2 (basis insulation) IEC 60 664-1
Overvoltage category:	III
Insulation test voltage, type test:	2.5 kV; 1 min

Technical Data	
EMC	
Electrostatic discharge:	8 kV (air) IEC/EN 61 000-4-2
HF-irradiation	
80 MHz ... 1 GHz:	10 V / m IEC/EN 61 000-4-3
1 GHz ... 2,7 GHz:	10 V / m IEC/EN 61 000-4-3
Fast transients:	4 kV IEC/EN 61 000-4-4
Surge voltages between wires for power supply:	2 kV IEC/EN 61 000-4-5
between wire and ground:	4 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
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 IEC/EN 60 068-2-6 frequency 10 ... 55 Hz
Climate resistance:	Humid heat IEC/EN 60 068-2-30
Terminal designation:	EN 60 947-1
Wire connection:	0.14 ... 4 mm ² solide 0.14 ... 2.5 mm ² flexible
Wire fixing	
HL 3094:	box terminals
HO 3094, HO 3095:	cage clamp terminals
Fixing torque:	0.4 Nm
Mounting:	DIN rail mounting (IEC/EN 60715) or screw mounting M4, 90 mm hole pattern, with additional clip available as accessory
Weight:	
HL 3094 (incl. relay):	approx. 120 g
HL 3094/100:	approx. 58 g
HO 3094 (incl. relay):	approx. 173 g
HO 3095 (incl. relay):	approx. 183 g
HO 3094/100, HO 3095/100:	approx. 93 g
HA 5601:	approx. 78 g
HA 5602:	approx. 85 g
HA 5603:	approx. 95 g
Dimensions	
Width x height x depth	
Interface module HL 3094:	37.8 x 88 x 55.2 mm
Interface module HO 3094:	73.8 x 88 x 51.9 mm
Interface module HO 3095:	73.8 x 88 x 51.9 mm
Socket HL 3094 with safety relay HA 5601:	
	37.8 x 88 x 65.5 mm
Socket HO 3094 with safety relay HA 5602:	
	73.8 x 88 x 59.9 mm
Socket HO 3095 with safety relay HA 5603:	
	73.8 x 88 x 59.9 mm

Classification to DIN EN 50155	
Vibration and shock resistance:	Category 1, Class B IEC/EN 61 373
Ambient temperature:	T1 compliant T2, T3 and TX with operational limitations
Voltage range:	0.7 ... 1.25 U_N with operational limitations
Protective coating of the PCB:	No

Standard Types with Soldered Relay

HL 3094.52 DC 24 V

Article number:: 0047426

- 2 NO, 2 NC contact
- Contact material: AgNi + 0,2 µm Au
- Nominal voltage U_N : DC 24 V
- Width: 38 mm

Ordering Example

H_309_ / _ / _ DC 24 V

Nominal voltage

- 0: Ag Ni
1: AgNi + 5 µm Au
2: AgSnO

- 0: Standard
1: Wash proof

- 0: Standard
4: With LED
5: With free-wheeling diode
8: With LED and rectifier (for AC)
9: With free-wheeling diode and LED

Contacts

- 4: HL 3094: 4 contacts
HO 3094: 6 contacts
5: HO 3095: 8 contacts

- L: Width: 38 mm
O: Width: 74 mm

Standard Types for Plug In Relay

Plug in socket

HL 3094/102 DC 24 V:

With free-wheeling diode and LED
Article number: 0059750

Suitable relay:

HA 5601.48 DC 24V
3 NO, 1 NC contact
Contact material: AgNi + 0,2 µm Au
Article number: 0052286
or
HA 5601.52 DC 24 V
2 NO, 2 NC contact
Contact material: AgNi
Article number: 0051359

Plug in socket

HO 3094/102 DC 24 V:

With free-wheeling diode and LED
Article number: 0060806

Suitable relay:

HA 5602.18 DC 24 V
3 NO, 3 NC contact
Contact material: AgNi + 0,2 µm Au
Article number: 0063130

Further variantes on request

Ordering Example

H_309_ / 10_ DC 24 V

Nominal voltage

- 0: Plug in socket
1: Plug in socket
with free-wheeling diode
2: Plug in socket
with free-wheeling diode and LED
3: Plug in socket with LED

0: Standard

1: Plug in socket

- 4: HL 3094: 4 contacts
HO 3094: 6 contacts
5: HO 3095: 8 contacts

- L: Width: 38 mm
O: Width: 74 mm

HA 560_ / 00_ DC 24 V

Nominal voltage

- 0: Ag Ni
1: AgNi + 5 µm Au
2: AgSnO

Contacts

- 1: 4 contacts
2: 6 contacts
3: 8 contacts

Accessories

ET 4086-0-2:

Additional clip for screw mounting
Article number: 0046578