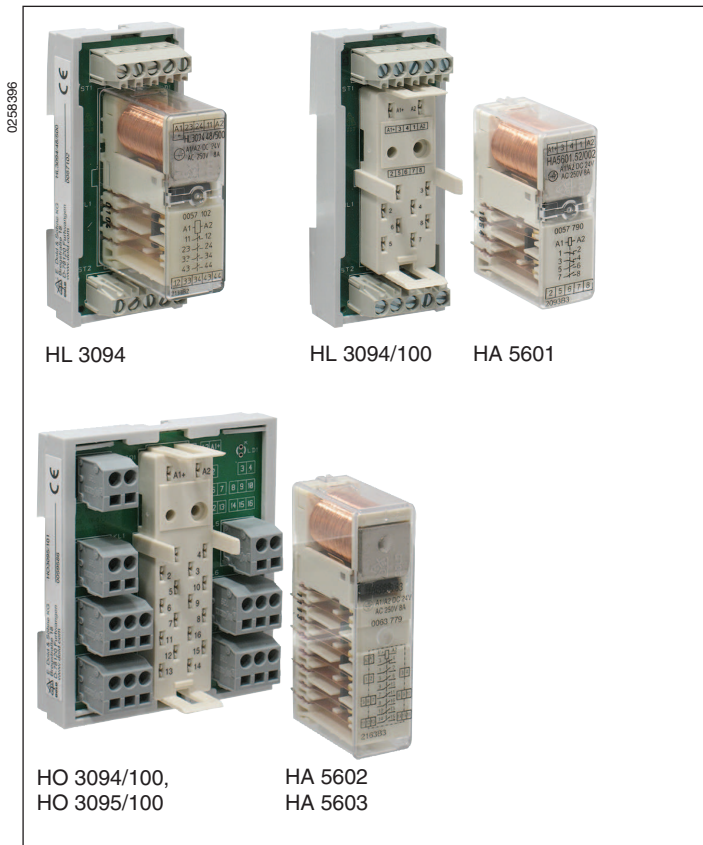


SAFEMASTER
Interface Module
HL 3094, HO 3094, HO 3095

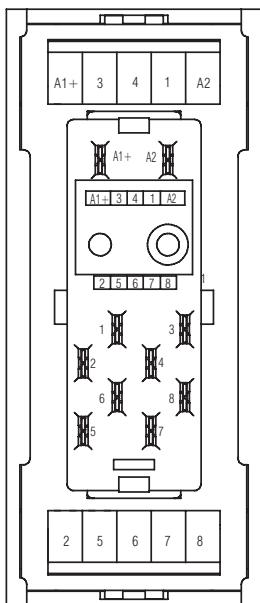


- According to IEC/EN 60255-1, IEC/EN 61810-1
- With forcibly guided contacts according to IEC 61810-3
- Low nominal consumption: 0.75 W / 1 W / 1.25 W
- Max. 8 output contacts
- Contact material AgNi + 0.2 μm Au
- High thermal current $I_{th} = 8$ A
- Large temperature range: -25 ... +55°C
- Safety 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

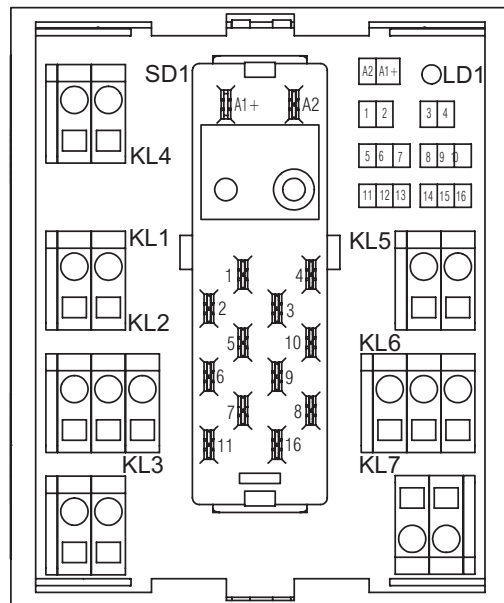


Socket Labeling



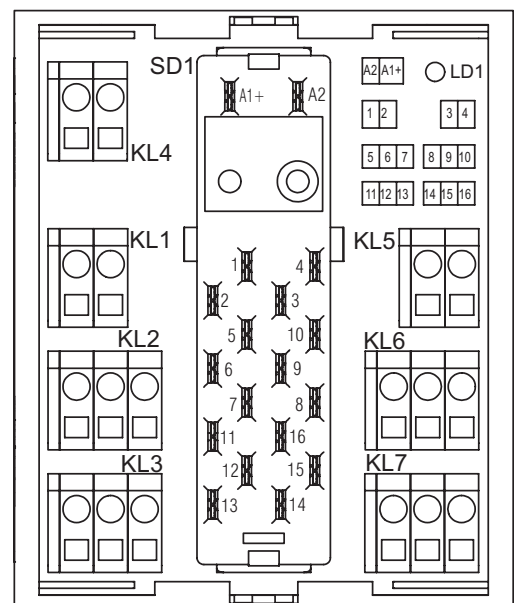
HL 3094/100, HL 3094/101

M2404_c



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

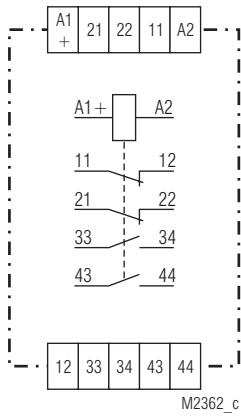
M3993_a



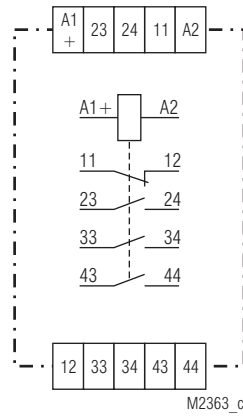
HO 3095/100, HO 3095/101
HO 3095/102, HO 3095/103

M3992_a

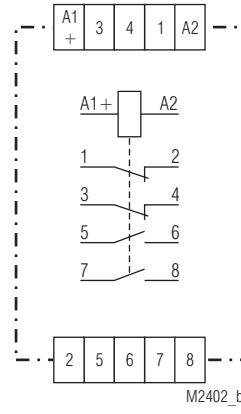
Circuit Diagrams



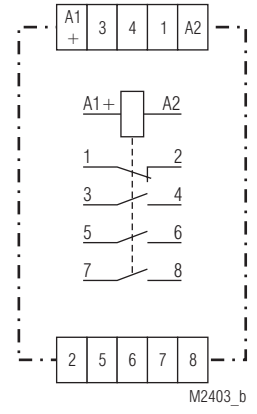
HL 3094.52



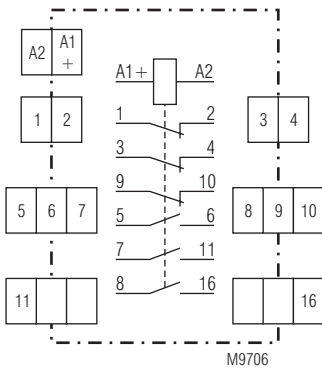
HL 3094.48



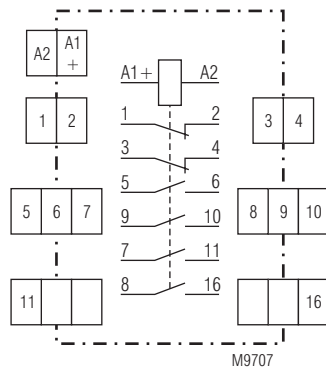
HA 5601.52



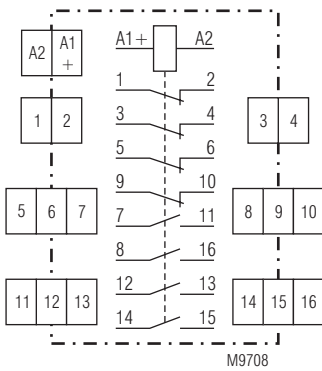
HA 5601.48



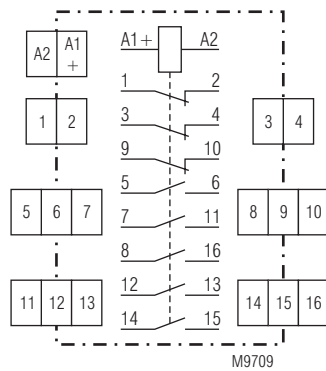
HA 5602.18



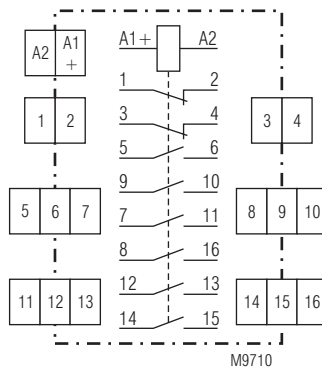
HA 5602.54



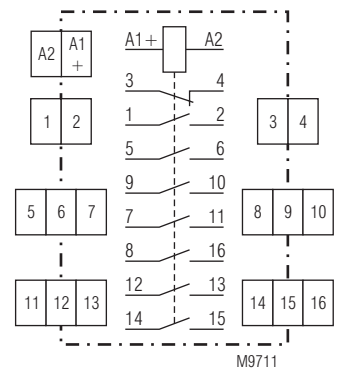
HA 5603.57



HA 5603.58



HA 5603.59



HA 5603.63

Connection Terminals

| Terminal designation | Signal designation |
|---|------------------------------|
| A1+ | L / + |
| A2 | N / - |
| 11, 12 / 1, 2 | NC contact |
| All other 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: | 5 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 | |
| at 1 s x On, 1 s Off | |
| at AC 230 V 5 A $\cos \varphi = 1$: | > 7 x 10 ⁵ switching cycles / AgSnO > 5 x 10 ⁵ switching cycles / AgNi |
| at AC 230 V 8 A $\cos \varphi = 1$: | > 3 x 10 ⁵ switching cycles / AgSnO > 2 x 10 ⁵ switching cycles / AgNi |
| to AC 15 at 1 A, AC 230 V: | |
| 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 gL / gG IEC/EN 60 947-5-1 |
| Mechanical life: | > 30 x 10 ⁶ switching cycles |
| General Data | |
| Operating mode: | Continuous operation |
| Temperature range: | |
| Operation: | - 25 ... + 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: | 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 50 005 |
| 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 Type

HL 3094.52 DC 24 V

Article number: 0047426

• 2 NO, 2 NC contacts

• Contact material: AgNi + 0.2 µm Au

• Nominal voltage U_N : DC 24 V

• Width: 38 mm

Variants

Interface module:

H_ 309_ /100: Socket

H_ 309_ /101: Socket with free-wheeling diode

H_ 309_ /102: Socket with free-wheeling diode + LED

H_ 309_ /103: Socket with LED

Safety relay

HA 5601.__, HA 5602.__,

HA 5603.__: Contact material AgNi + 0.2 µm Au

HA 5601.__/001,

HA 5602.__/001

HA 5603.__/001: Contact material AgNi + 5 µm Au

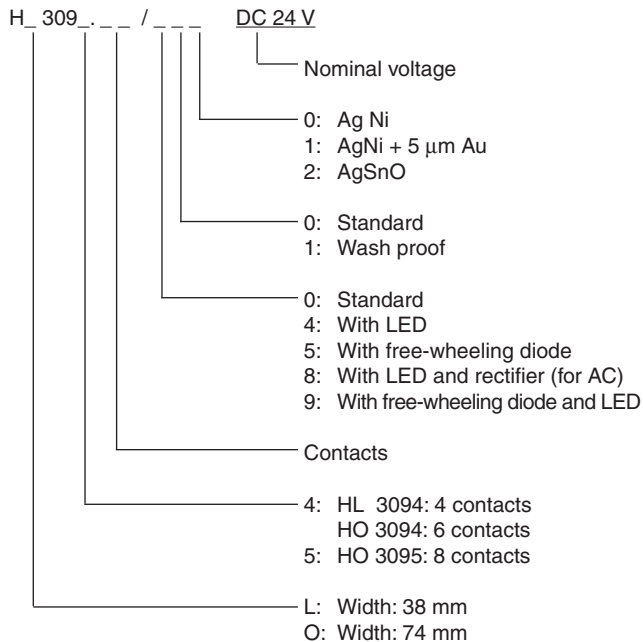
HA 5601.__/002,

HA 5602.__/002,

HA 5603.__/002: Contact material AgSnO + 0.2 µm Au

other variants on request

Ordering example for variants



Accessories

ET 4086-0-2: Additional clip for screw mounting
Article number: 0046578