

INT-DO16-R-1

16 channels - isolated discrete output with electromechanical or solid state relays

Description :

The **INT-DO16-R-1** interface unit is a remote termination panel that allows to connect up to 16 Discrete Outputs to a Distributed Control System (DCS), or a Programmable Logic Controller (PLC).

The control signals from the DCS or the PLC are connected to the **INT-DO16-R-1** by a SUBD 25 pins male connector.

The connection is done using a cable with a SUBD25F connector at one end, and labeled flying wires or a suitable connector matching with the system Discrete Output card used at the other end.

Each control signal command a 24Vdc relay in order to drive a load (motor, a valve, solenoid...)

Each relay is replaceable and SPDT contacts (NO/NC, only for electromechanical relay version) are available on TB1 terminal.

A yellow LED indicates the status of each channel.

Product options :

Option **ST**: *INT-DO16-R-1-ST*, Screw terminals for the process signals connection

Option **ST2.5**: *INT-DO16-R-1-ST2.5*, Screw terminals with a capacity of 24 to 14AWG (0.22 to 2.5mm²) for the process signals connection

Option **CCT** : *INT-DO32-Ra-CCT*, Cage clamp terminals for the process signals connection

Option **STD, COR, SLD, SLA** : *INT-DO16-R-1-ST-STD* or other relays option. Refer to page 2 and 3 to choose the right option.

Option **VSH** : *INT-DO16-R-1-ST-STD-VSH*, Conformal coating (Tropicalization)

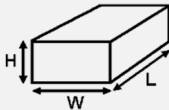
Technical specifications :

Dimensions :

Length : 125 mm

Width : 185 mm

Height : 70 mm



Weight :

450 g

Temperature range :

Operating : -10°C to 60°C

Storage : -20°C to 60°C

Humidity :

Up to 90% (no condensation)

Mounting :

Asymmetric or symmetric DIN rail

Connection to the DCS or to the PLC :

1 x Sub-D 25 pin male connector with UNC 4-40 female lock.

Conductor cross section :

TB1 : Outputs connections

ST : 26 to 14 AWG (0,14 to 1,5mm²)

ST2.5 : 24 to 12 AWG (0,2 to 2,5mm²)

CCT : 24 to 14 AWG (0,2 to 1,5mm²)

Shield connection :

1 x M3 screw

Insulation voltage :

1500 Vac between input (control

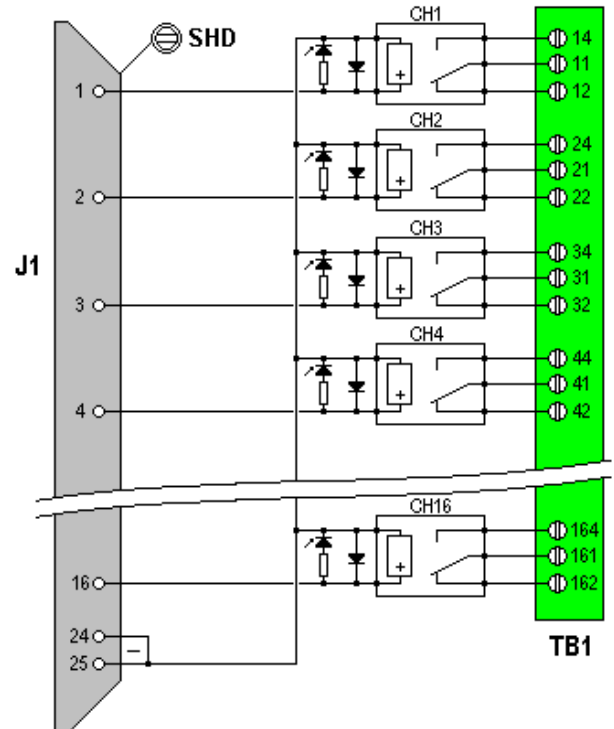
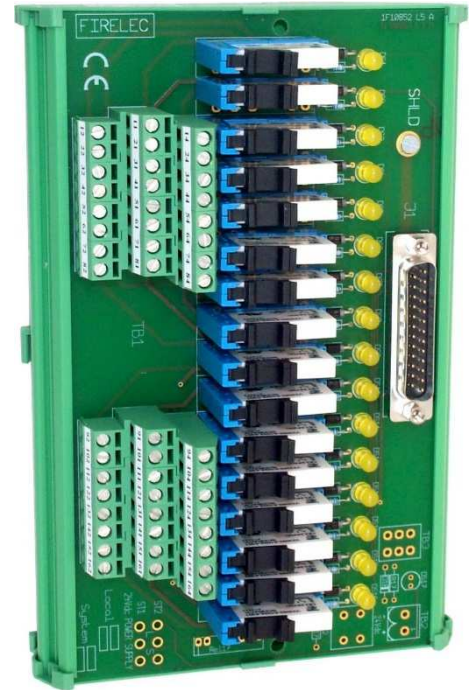
signals) and output (contacts)

1000Vac between NO & NC terminals

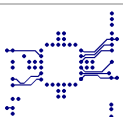
Maximum current:

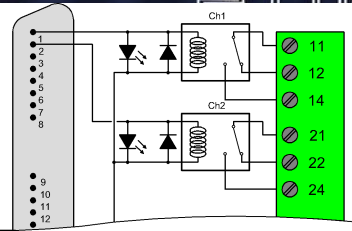
Electromechanical relays : 5A per channel

Static relays : 2A per channel



R10-2009





| <u>TYPE</u> | <u>ELECTROMECHANICAL RELAY</u> | <u>ELECTROMECHANICAL RELAY</u> |
|-------------|--------------------------------|--------------------------------|
|-------------|--------------------------------|--------------------------------|

| <u>REFERENCE</u> | <u>REL24-STD-945144</u> | <u>REL24-COR-945147 (Gold contacts)</u> |
|------------------|-------------------------|---|
|------------------|-------------------------|---|

General characteristics :

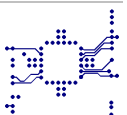
| | | |
|---|------------------------------------|------------------------------------|
| Mechanical expected life | 10 000 000 cycles | 10 000 000 cycles |
| Expected life at max load | 60 000 cycles | 60 000 cycles |
| Operate time / release time / debounce | 5ms / 3ms / 5ms | 5ms / 3ms / 5ms |
| Coil / contacts insulation | 6000 Vac | 6000 Vac |
| Dielectric strength between open contacts | 1000 Vac | 1000 Vac |
| Ambient temperature | -40°C to 85°C (Socket : -40 / +70) | -40°C to 85°C (Socket : -40 / +70) |
| Initial insulation resistance | 1000MΩ | 1000MΩ |
| Environmental protection | RT II | RT II |
| Dimensions | L : 28mm / W : 5mm / H : 15mm | L : 28mm / W : 5mm / H : 15mm |
| Weight | 6g | 6g |

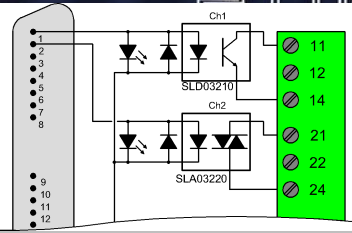
Coil characteristics :

| | | |
|---------------------------|---------------|---------------|
| Nominal voltage | 24Vcc | 24Vcc |
| Voltage operating range | 17 - 36Vdc | 17 - 36Vdc |
| Holding voltage | 9,6Vdc | 9,6Vdc |
| Must drop-out voltage | 1,2Vdc | 1,2Vdc |
| Nominal operating current | 7,1mA | 7,1mA |
| Coil resistance | 3300Ω +/-10% | 3300Ω +/-10% |
| Nominal power | 0,17W (24Vdc) | 0,17W (24Vdc) |

Contacts characteristics :

| | | |
|---------------------------------------|-----------------------------------|--|
| Contact material | AgNi (or AgSnO ₂) | AgNi (or AgSnO ₂) + Au (gold plated) |
| Arrangement | 1 contact (SPDT) | 1 contact (SPDT) |
| Rated current / Max peak current | 6A / 10A | 6A / 10A |
| Rated voltage / Max switching voltage | 250Vac / 400Vac | 250Vac / 400Vac |
| Minimum switching load | 500mW (12Vdc / 10mA) | 50mW (5Vdc / 2mA) |
| Breaking capacity in DC | 6A (30V). 0,5A (48V).0,12A (220V) | 6A (30V). 0,5A (48V).0,12A (220V) |
| Breaking capacity in AC | 6A (250V) | 6A (250V) |





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|---------------|-----------------------------|-----------------------------|
| TYPE : | DC SOLID STATE RELAY | AC SOLID STATE RELAY |
|---------------|-----------------------------|-----------------------------|

| | | |
|--------------------|------------------------|------------------------|
| REFERENCE : | SLD03210-945148 | SLA03220-945150 |
|--------------------|------------------------|------------------------|

| General characteristics : | | |
|---|-------------------------------|-------------------------------|
| Operating temperature range | -20 / +60°C | -20 / +60°C |
| Input-Output isolation | 2500Vac | 2500Vac |
| Dielectric strength between open contacts | 1000Vac | 1000Vac |
| Dimensions | L : 28mm / W : 5mm / H : 15mm | L : 28mm / W : 5mm / H : 15mm |
| Weight | 8g | 8g |
| Conformity | EN60947-5-1 | EN60947-5-1 |
| Environmental protection | | RT III |
| Approved | UL pending | UL pending VDE0805 (EN60950) |

| Control characteristics | | |
|--------------------------------|--------------------------------|-------------------------------|
| Control voltage | Min:18Vdc Nom:24Vdc Max:32Vdc | Min:18Vdc Nom:24Vdc Max:30Vdc |
| Control current @ 24V | Min:5.5mA Nom:7.7mA Max:10.2mA | Min:5.6mA Nom: 7mA Max:10.2mA |
| Max release voltage | 8.3Vdc | 10Vdc |
| Internal resistance | 3000Ω | 3100Ω +/-10% |
| Rated Power AC/DC | | 0.17W |

| Output characteristics | | |
|--|------------------|------------------------------------|
| Arrangement | 1 contact (SPDT) | 1 contact (SPDT) |
| Typical load voltage | 48Vdc | 230Vac |
| Voltage operating range | 0-60Vdc | 12-275Vac (Socket limit to 250Vac) |
| Rated current / Max peak current | 2.5A / 6A | 2A / 40A |
| Max. "ON state" voltage drop | 0.4Vdc @ 2A | 1.6Vdc |
| Max. "OFF State" leakage current | < 1mA | 1.5mA |
| Static output On resistance | 200 mΩ | |
| Minimum switching current | 1mA | 22mA |
| Turn On time | 50μs | 12ms |
| Turn Off time | 600μs | 12ms |
| Operating switching frequency | 100 Hz | 47 Hz to 400 Hz (range) |
| Transient voltage suppressor | Yes | |
| Peak power dissipation | 600W | |
| Repetitive Peak off-state voltage (clamping voltage) | 60Vdc | 600Vac |
| Latching voltage | | 5V |
| Off State Dv / Dt | | 500V / μs |
| Max non repetitive Di / Dt max | | 100A / μs |
| Snubber | | 10nF 100Ω |

