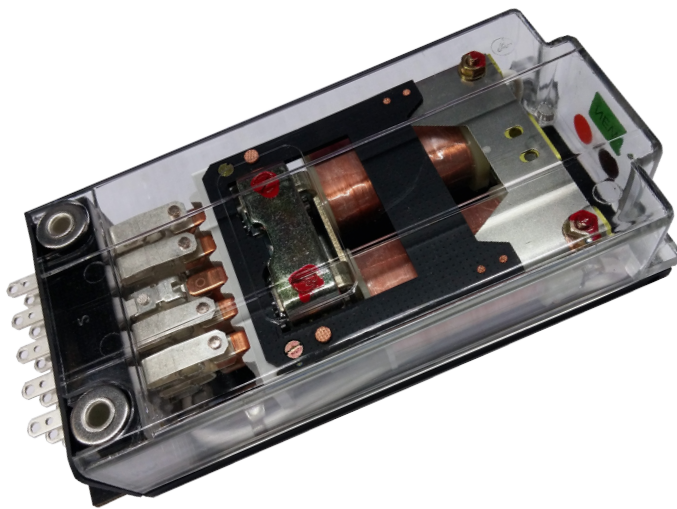


SC relay - Latching, 8 contacts

Datasheet



Description

The SC is a latching relay with 2 stable magnetically latched states. When 1 coil is energized, the relay actuates from magnetically latched position 1 to 2. When the other coil is energized, the relay actuates back from magnetically latched position 2 to 1. Relays have 8 double break contacts with different configurations.

The plug-in design offers secure locking feature for maximum ease of maintenance (no wires need to be disconnected or other hardware removed for relay inspection or replacement). The resistance to impact and vibration is conform to standards in force for Railway Transported Equipment.

Positive mechanical keying of relay to socket is built into relay and socket during manufacture and terminal identifications are clearly marked on identification plate that is permanently attached to the relay.

The SC relay is pluggable in the COR NJ socket.

Application

The SC latching relay allows the memory of the state of the circuit in case of power interruption.

Features

- Latching relay using 2 separate coils and magnetic rocker mechanism
- Double break in all N/O and N/C combinations
- Plug-in design with secure locking feature for maximum ease of maintenance
- Weld no transfer safety contacts standard
- Contact life (mechanical) of 50 million cycles
- -40 °C...+80 °C operating temperature

Benefits

- Proven reliable
- Long life cycle
- Easy to maintain and replace
- Low life cycle cost
- No maintenance

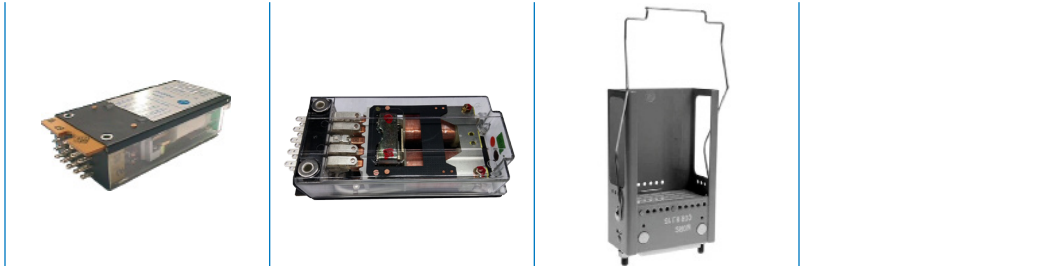
Railway compliancy

- N FF 62-002 Rolling stock - Instantaneous relays contacts and sockets
- NF F 16-101/102 Fire behaviour - Railway rolling stock

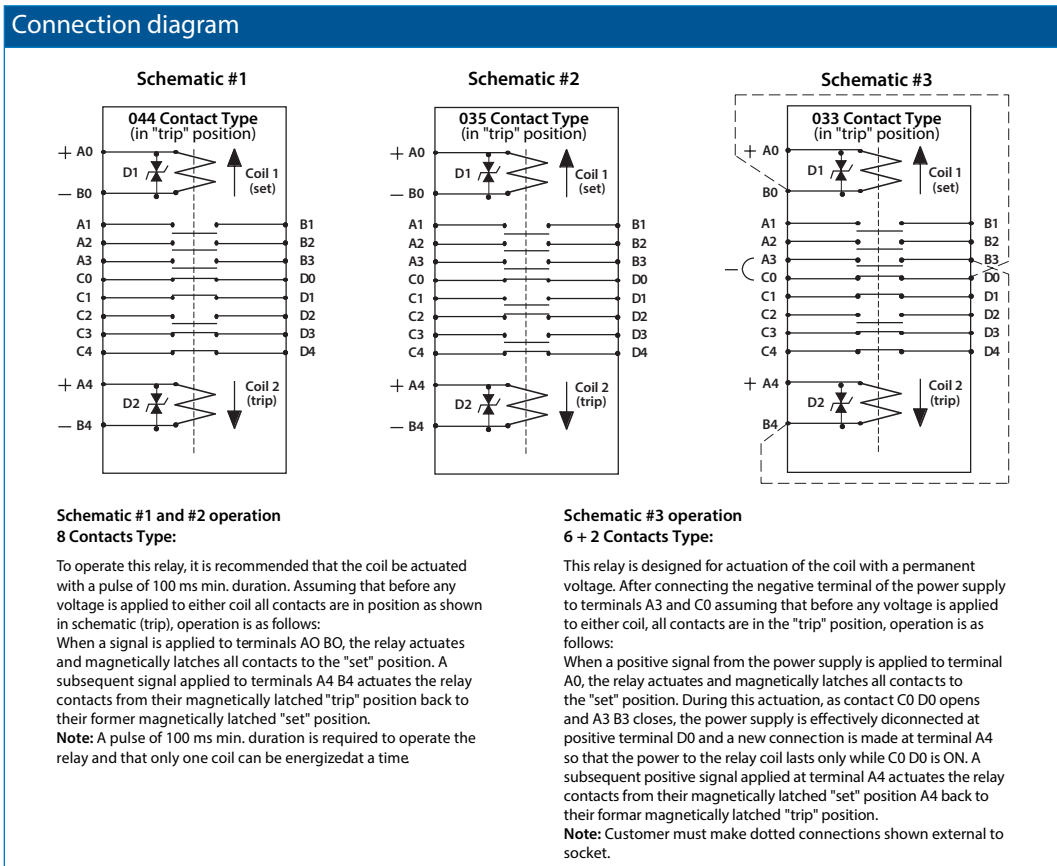
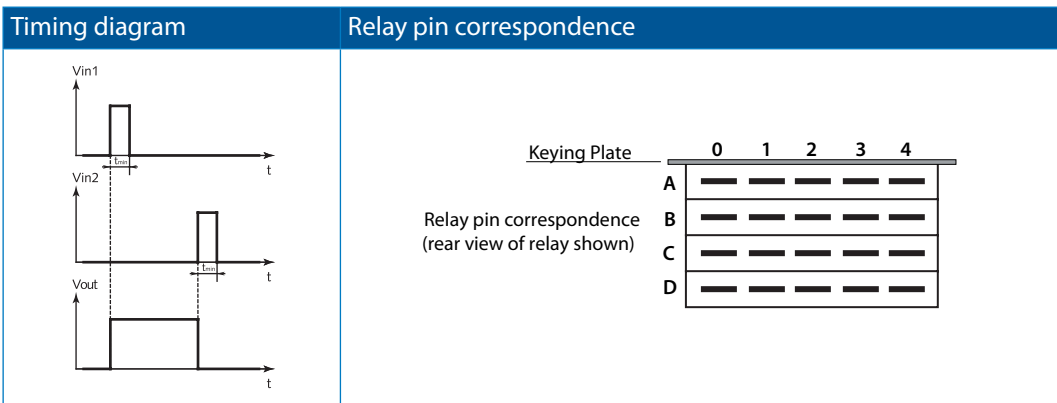


SC relay

Technical specifications



Functional and connection diagrams



SC Relay

Technical specifications

Coil data

| U _{nom} | U _{operating} | P _{nom} | R coil (Ω) ⁽¹⁾ | L/R (ms) ⁽²⁾ |
|------------------|------------------------|------------------|---------------------------|-------------------------|
| 24 VDC | 18 / 33 VDC | 4-5 W | 135 | 30 ms |
| 72 VDC | 50 / 90 VDC | 4-5 W | 1500 | 30 ms |
| 110 VDC | 77 / 138 VDC | 4-5 W | 3000 | 30 ms |

(1) Coil resistance tol.: ± 8% at 20 °C

(2) Valid for closed relay.

Contact data

| | |
|---------------------------------------|--|
| Nominal current | 8 A resistive |
| Nominal breaking capacity and life | 2.4 A at 72 VDC L/R : 0 ms Electrical life: 5x10 ⁶ op. 0.8 A at 72 VDC L/R: 30 ms Electrical life: 2x10 ⁶ op. 2.4 A at 220 VAC 50 Hz cosØ=1 Electrical life: 5x10 ⁶ op. Lamp filament circuit: 160 W at 72 VDC Electrical life: 5x10 ⁵ op. |
| Contact used for power supply control | For schematic 3 (page 2), must be limited to 15 W |
| Contact overload withstand | At 24 VDC: 160 A at L/R = 0 for 10 ms, (10 operations at the rate of 1 operation per minute) |
| Contact closure time | Pick-up time N/O < 45 ms Drop-out* time N/C < 45ms |
| Minimum contact continuity | 20 mA at 24 VDC |
| Number of contacts | Double make / double break contacts (form X and Y) |
| Contact material | Hard silver overlay laminated to copper |
| Contact resistance – initial | 10 mΩ max at 5 A |
| Contact resistance – end of life | 30 mΩ max at 5 A |

* Values without transil

Electrical characteristics

| | |
|--------------------------------------|--|
| Dielectric strength | 2550 VAC, 1 min between contacts, coil and frame |
| Dielectric strength for open contact | 1940 VAC / 50 Hz |
| Insulation resistance | ≥ 1000 MΩ at 500 VDC |

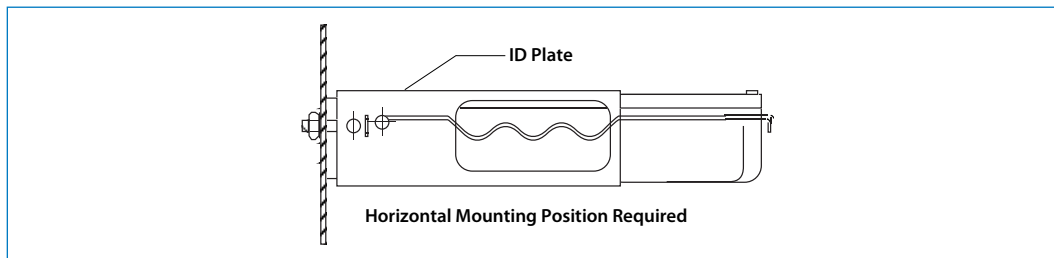


SC relay

Technical specifications

Environmental characteristics

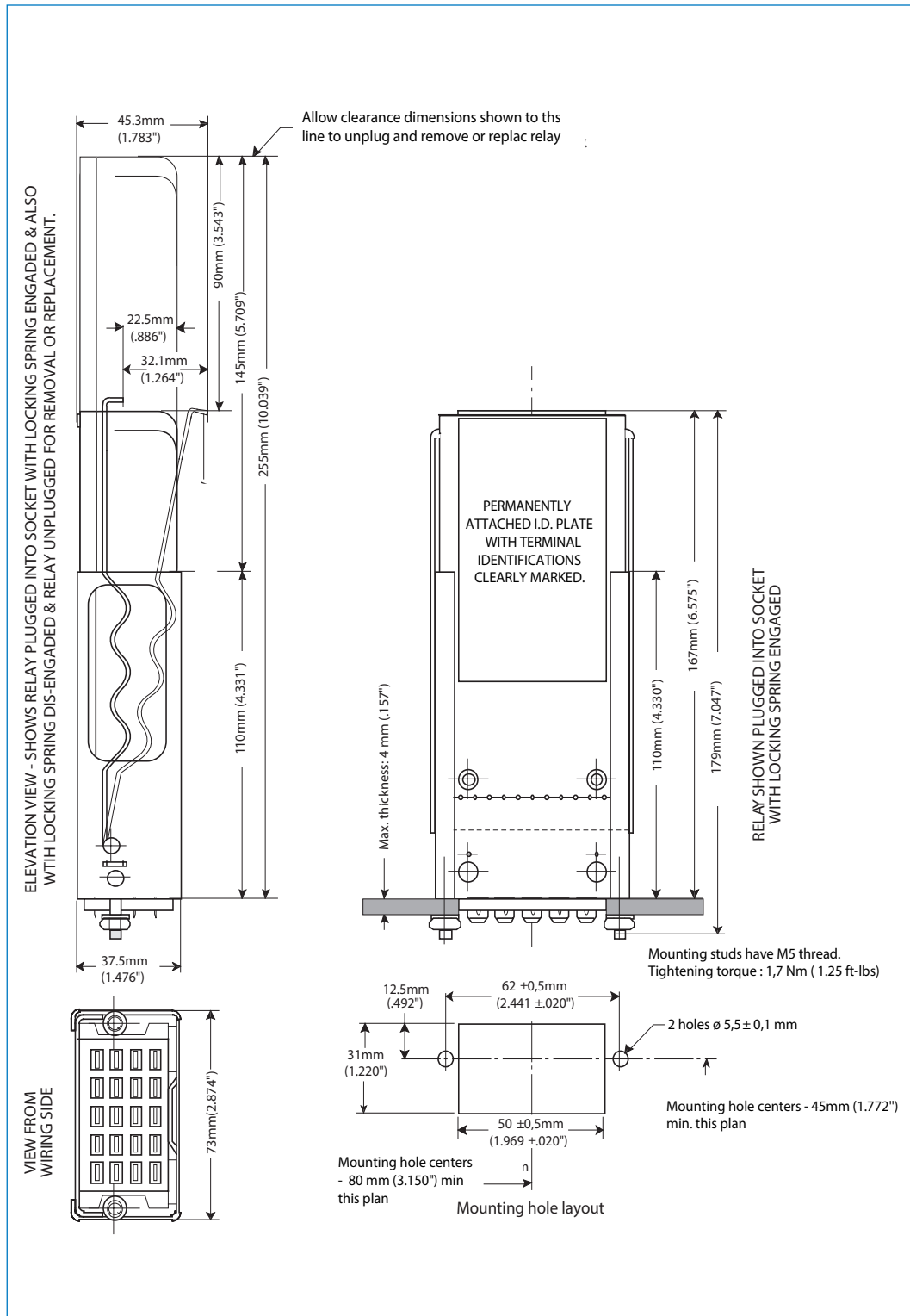
| | |
|-----------------|---|
| Vibration | NF F 62-002 The tests are conducted in the X, Y , Z planes at frequency between 5 & 50 cycles (sinusoidal) at 1 g |
| Shock | NF F 62-002 Tests are applied in both directions in the X, Y & Z planes. Then successive shocks are administered consisting of the positive component of sinusoidal with a value of 15 g, 18 ms Other vibration and shock tests can be performed on request |
| Mechanical life | > 50 x 10 ⁶ operations |
| Weight | 500 g (17.6 ounces) |
| Temperature | -40 °C...+80 °C |
| Humidity | 93% RH, 40° C for 4 days |
| Salt mist | 5% NaCl, 35° C for 4 days |
| Protection | IP40 (relay on socket) |
| Fire & smoke | Materials: Polycarbonate resin (cover) / phenolic compound (base) Note: These materials have been tested for fire propagation and smoke emission according standards NF F 16-101, NF F 16-102, and have been approved for use on the English/French train channel shuttle. |



SC relay

Technical specifications

Dimensions (mm)



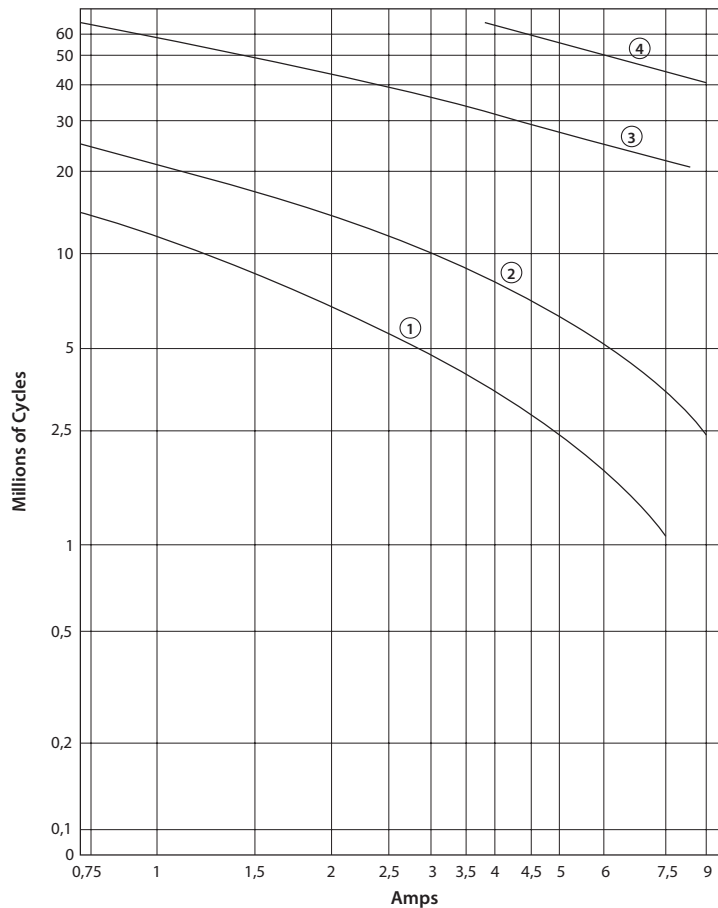
SC relay

Technical specifications

Dynamic relay selection curve No 1

AC Current breaking capacity versus life expectancy in millions of cycles.
 Rate of contacts opening and closing = 1200 operations per hour.
 Curves shown for resistive load (Power Factor = 1).

| Curve | 1 | 2 | 3 | 4 |
|-------|-----|-----|----|----|
| VAC | 220 | 125 | 48 | 24 |



SC relay

Technical specifications

Dynamic relay selection curve No 2

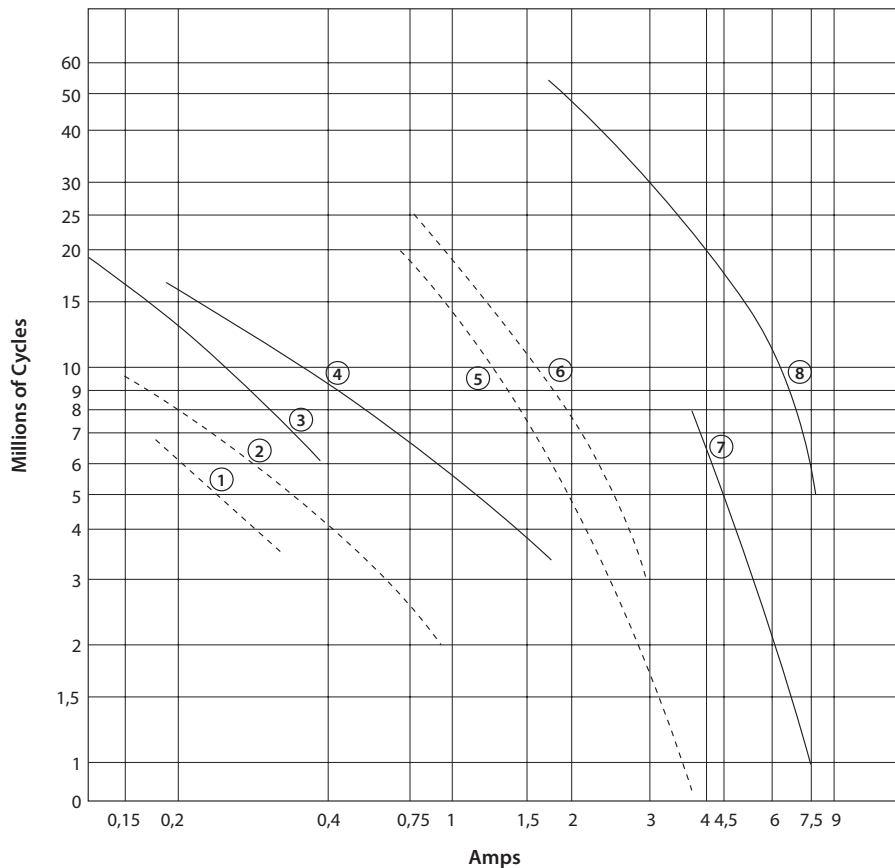
DC Current breaking capacity versus life expectancy in millions of cycles.

Rate of contacts opening and closing = 1200 operations per hour.

Curves shown for inductive load:

- L/R= 20 ms continuous current
- - - - L/R= 40 ms continuous current

| Curves | 1-3 | 2-4 | 5-7 | 6-8 |
|--------|-----|-----|-----|-----|
| VDC | 220 | 125 | 48 | 24 |



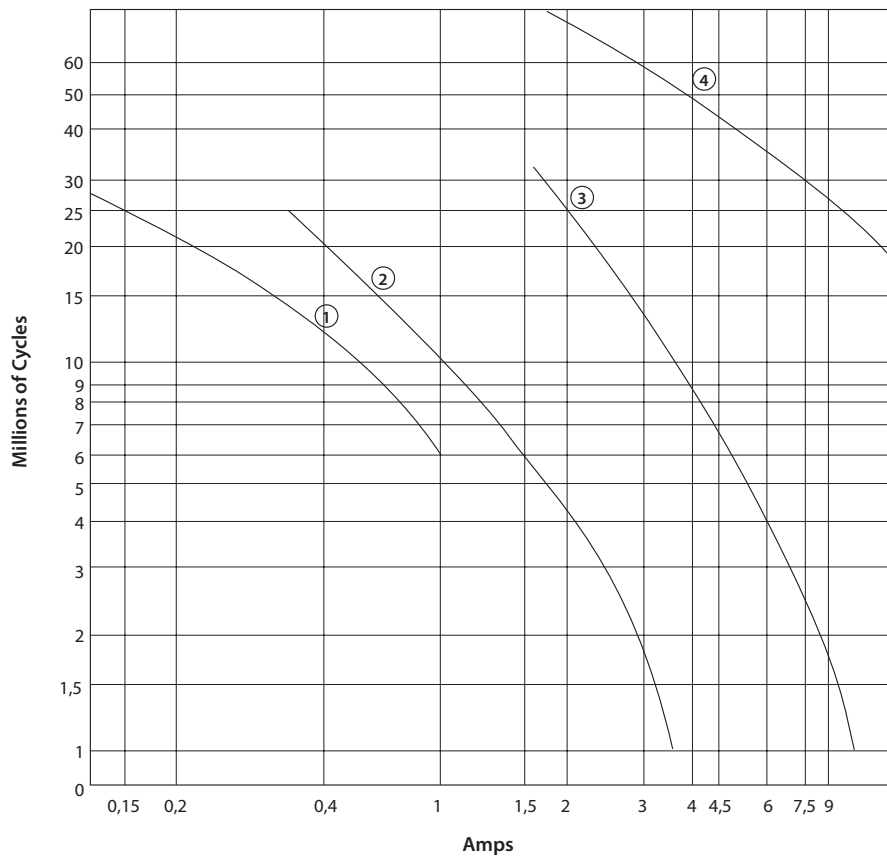
SC relay

Technical specifications

Dynamic relay selection curve No 3

DC Current breaking capacity versus life expectancy in millions of cycles.
 Rate of contacts opening and closing = 1200 operations per hour.
 Curves shown for resistive load (L/R = 0). Continuous current.

| Curve | 1 | 2 | 3 | 4 |
|-------|-----|-----|----|----|
| VDC | 220 | 125 | 48 | 24 |



SC relay

Technical specifications

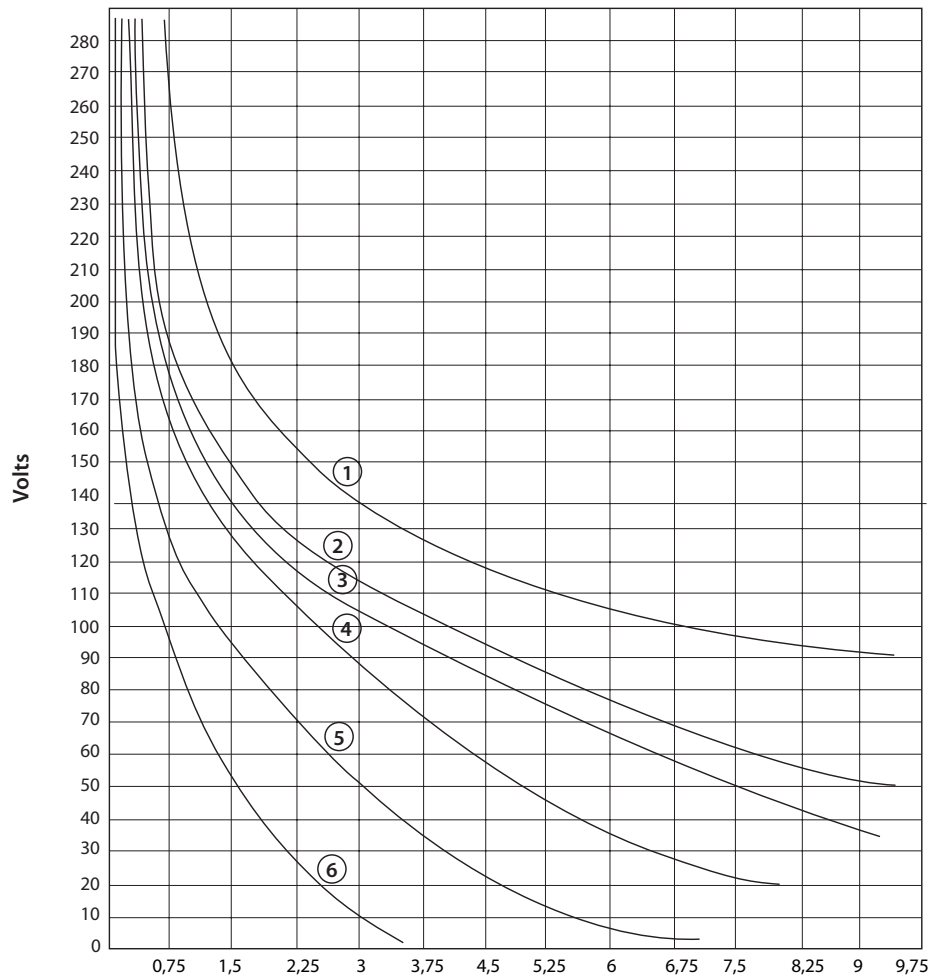
Dynamic relay selection curve No 4

Maximum contact breaking capacity versus voltage for a given L/R.

Rate of contacts opening and closing = 600 operations per hour.

Curves shown for resistive load (L/R=0) and inductive loads. Continuous current.

| Curve | 1 | 2 | 3 | 4 | 5 | 6 |
|-------|-----|------|------|------|------|-------|
| L/R= | 0ms | 15ms | 20ms | 40ms | 60ms | 100ms |



SC relay

Technical specifications

Dynamic relay selection curve No 5

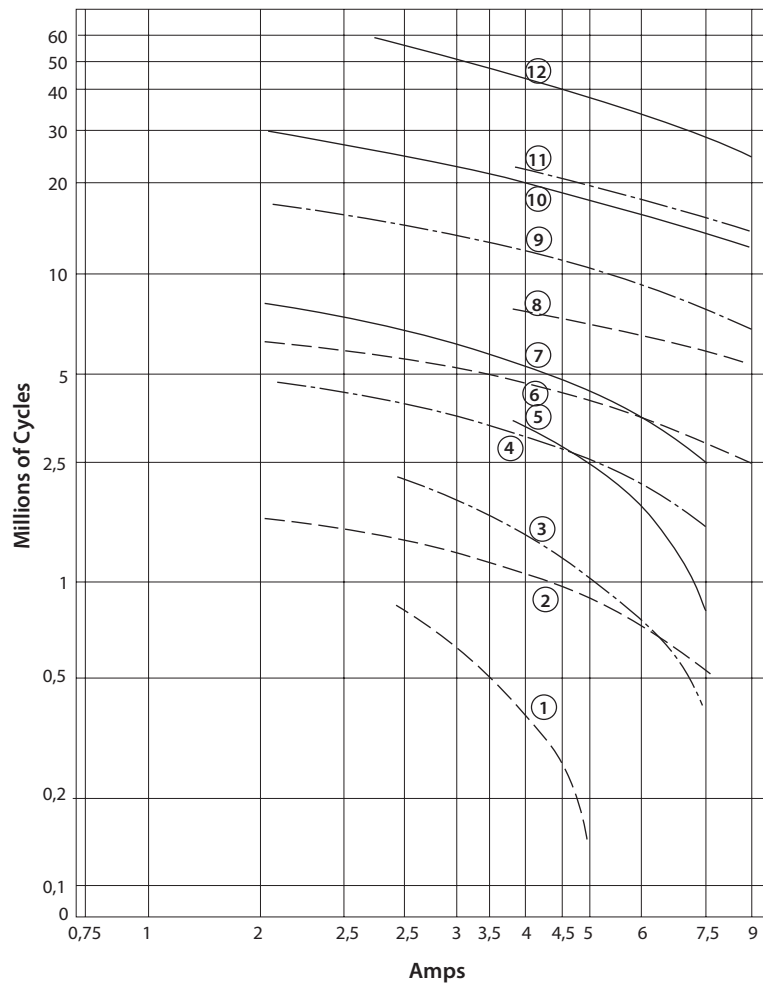
AC Current breaking capacity versus life expectancy in millions of cycles.

Rate of contacts opening and closing = 1200 operations per hour.

Values shown for inductive loads:

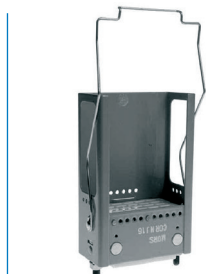
- Cos $\varnothing = 0.7$
- - - Cos $\varnothing = 0.5$
- - - - Cos $\varnothing = 0.3$

| Curves | 1,3 &4 | 2,5 &7 | 6,9 &10 | 8,11 &12 |
|--------|--------|--------|---------|----------|
| VAC | 220 | 125 | 48 | 24 |



SC relay

Mounting possibilities



COR NJ

Panel mounting

| | | |
|--------|-----------|--|
| 153879 | COR NJ X* | Socket (Alkyde compound) with locking spring |
|--------|-----------|--|

* X indicates keying code from relay table



SC relay

Instructions

Installation

Install socket and connect wiring correctly according identification to terminals. Plug relay into socket. Reverse installation into socket not possible due to mechanical blocking by snap-lock.

Don't reverse polarity of coil connection. Relays can be mounted tightly next to each other. This relay must be mounted horizontal with the identification label on top (see diagram page 4).

Warning! Never use silicon near by relays

Operation

Before operating always apply voltage to coil to check correct operation.

Long term storage may corrode the silver on the relay pins. Just by plugging the relay into the socket, the female bifurcated receivers will automatically clean the corrosion on the pins and guarantee a good connection.

Do not use the relay in places with flammable gas as the arc generated from switching could ignite gasses.

Maintenance

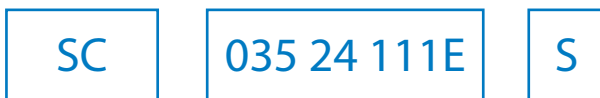
Correct operation of relay can easily be checked as transparent cover gives good visibility on the moving contacts. When the relay doesn't seem to operate correct, please check presence of coil voltage. Use a multimeter. If coil voltage is present, but the relay doesn't work, a short circuit of suppression diode is possible (The coil connection was reversed). If relay doesn't work after inspection, please replace relay unit by a similar model. Send defective relay back to manufacturer. Normal wear and tear excluded.



SC relay

Ordering scheme

Configuration:



1. Relay model 2. Basic part number 3. Coil OVP

This example represents a **SC 035 24 111E S**.

Description: SC relay, contact configuration 3 N/C + 5 N/O, Unom 24 VDC, keying 111E, transil coil protection,

1. Relay model



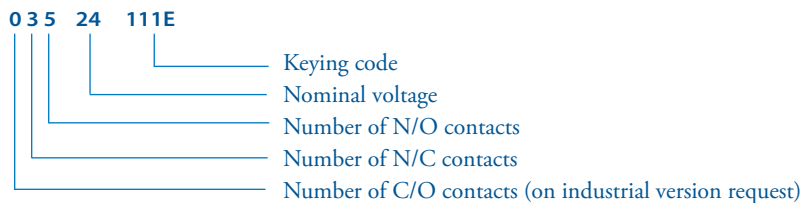
2. Relay basic part number*

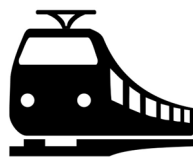
| | | | |
|--------------------|---------------|---------|--------|
| 044 110 5G | 4 N/C + 4 N/O | 110 VDC | Sch.#1 |
| 035 24 111E | 3 N/C + 5 N/O | 24 VDC | Sch.#2 |
| 035 72 2D | 3 N/C + 5 N/O | 72 VDC | Sch.#2 |
| 033 72 67 | 3 N/C + 3 N/O | 72 VDC | Sch.#3 |
| 033 110 7F | 3 N/C + 3 N/O | 110 VDC | Sch.#3 |

3. Coil overvoltage protection

| | |
|---|-------------------------|
| - | No coil protection |
| S | Transil coil protection |

* Description part number





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