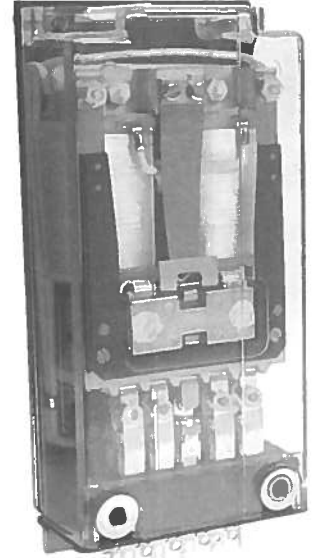


MORS SMITT RELAIS

LATCHING RELAYS - SC

FEATURES:

- Conforms with French Railway Standards.
- Plug-in design with secure locking feature for maximum ease of maintenance - i. e. - no wires need to be disconnected or hardware removed for relay inspection or replacement.
- Resistance to impact and vibration conform to standards in force for Railway Transported Equipment.
- Terminal identifications are clearly marked on identification plate that is permanently attached to the relay.
- Weld no transfer safety contacts are standard.



INSULATION MATERIALS

COVER _____ Makrolon polycarbonate
BASE _____ Bakelite

Note: These materials have been tested for fire propagation and smoke emission according to Standards NFF16101 and NFF16102 and have been approved to go on the English/French Train Channel Shuttle.

GENERAL SPECIFICATIONS - ELECTRICAL

DESCRIPTION _____ SC Latching Relays have 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 weld no transfer double break contacts.

ACTION _____ Nominal load current: 8 Amps. Latching contact, 4 NC contacts and 4 NO contacts or 3 NC contacts and 3 NO contacts or other configuration on request.

CONTACT MATERIAL _____ Hard silver overlay laminated to copper.

CONTACT RESISTANCE _____ Initial: 10 milliohms max. at 8 Amps.
 End of life: 40 milliohms max. at 8 Amps.

DIELECTRIC STRENGTH _____ 2200 VAC 50 Hz for 1 minute (between contacts, coil and frame).

INSULATION RESISTANCE _____ ≥ 1000 Megohms @ 500VDC

CONTACT OVERLOAD WITHSTAND _____ At 24 VDC contacts will withstand 160 Amps at L/R = 0 for 10 ms duration for 10 operations at the rate of 1 operation per minute.

COIL OVERVOLTAGE PROTECTION _____ To reduce or eliminate spurious EMI interference, an optional double zener diode (Transil) can be supplied connected to the coils.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

MORS SMITT RELAIS

LATCHING RELAYS - SC

GENERAL SPECIFICATIONS -- MECHANICAL & ENVIRONMENTAL

OPERATING TEMPERATURE RANGE — -40°C TO 80°C.

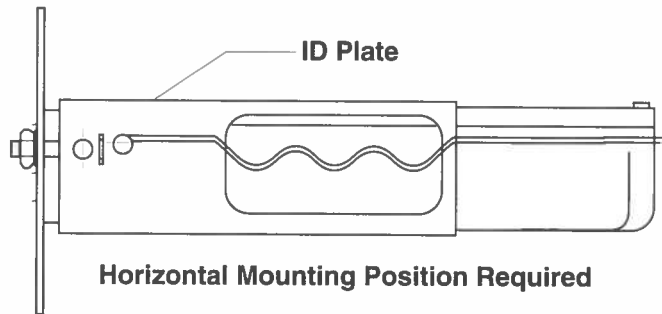
OPERATING POSITION _____ This relay requires to be mounted horizontally with the identification label on top. (see diagram below)

CONTACT LIFE (MECHANICAL) _____ 50 million cycles.

WEIGHT _____ Relay: 500 grams (17.6 ounces)

VIBRATION _____ Relays are tested to European Railway Standard. The tests are conducted in the X, Y & Z planes at resonant frequency between 5 & 50 cycles at 1 g, or if indeterminate at 10 HZ (sinusoidal).

HUMIDITY _____ 93% RH, 40° C for 4 days.



MECHANICAL OUTLINE & MOUNTING HOLE LAYOUTS

REFERENCE "LC"

DYNAMIC RELAY SELECTION CURVES

REFERENCE "CC"

COIL DATA & CONTACT DATA

COIL DATA	NOMINAL VOLTAGE	24 VDC	72 VDC	110 VDC
	OP. VOLTAGE RANGE	18/33 VDC	50/90 VDC	77/138 VDC
	NOMINAL POWER	3 Watts	3 Watts	3 Watts
	RESISTANCE (OHMS)†	200 ± 8%	1800 ± 8%	4000 ± 8%
	TIME CONSTANT (L/R)‡	30 ms	30 ms	30 ms
CONTACT DATA	NOMINAL CURRENT	8 Amps (Resistive)		
	SPECIFIED BREAKING CAPACITY & LIFE	2.4 Amps at 72 VDC	Time constant: 0 ms	Electrical life: 5,000,000 operations
		0.8 Amps at 72 VDC	Time constant: 30 ms	Electrical life: 2,000,000 operations
		2.4 Amps at 220 VAC, 50 Hz. Power factor = 1	Electrical life: 2,500,000 operations	
		Lamp filament circuit: 160 watts at 72 VDC	Electrical life: 500,000 operations	
CONTACT CLOSURE PICKUP TIME	NO: less than 45 ms.	NC: less than 30 ms	(values without Transil)	
CONTACT OPENING DROPOUT TIME	NO: less than 8 ms.	NC: less than 35 ms	(values without Transil)	
MINIMUM CONTACT CONTINUITY	20 milliamps at 24 VDC			
NO. OF CONTACTS	4 NC and 4 NO or other configuration on request			
CONTACT MATERIAL	Hard Silver Overlay Support CU			

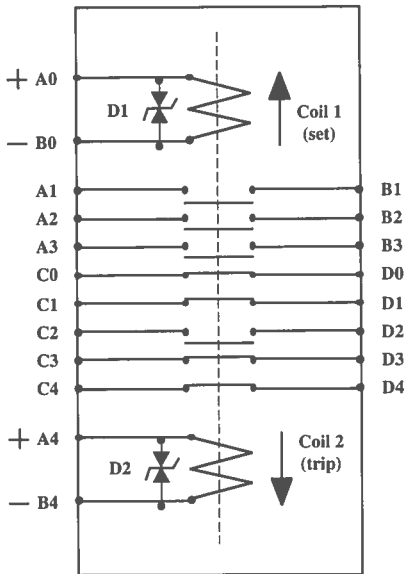
* - = min. assured value ** - = max. assured value † - Coil resistance tol.: ± 8% at 20° C ‡ - valid for closed relay

MORS SMITT RELAIS

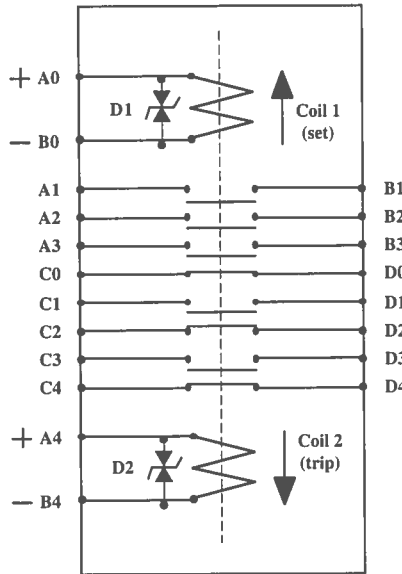
LATCHING RELAYS - SC

SCHEMATICS AND RELAY PIN CORRESPONDENCE

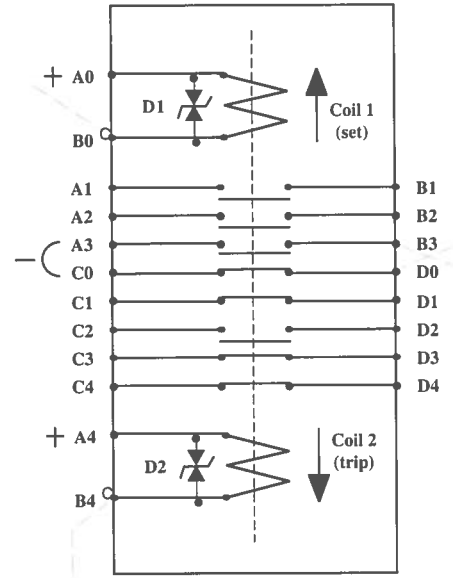
Schematic #1
044 Contact Type
(in "trip" position)



Schematic #2
035 Contact Type
(in "trip" position)



Schematic #3
033 Contact Type
(in "trip" position)



Schematic #1 and #2 operation
8 Contacts Type:

To operate this relay, it is recommended that the coil be actuated with a pulse of 50 ms min. duration. Assuming that before any voltage is applied to either coil all contacts are in position as shown in schematic (trip), operation is as follows:

When a signal is applied to terminals A0 B0, the relay actuates and magnetically latches all contacts to the "set" position. A subsequent signal applied to terminals A4 B4 actuates the relay contacts from their magnetically latched "trip" position back to their former magnetically latched "set" position.

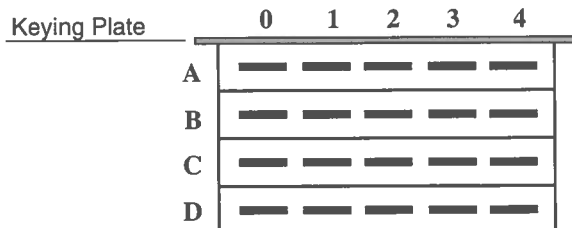
Note: A pulse of 50 ms min. duration is required to operate the relay and that only one coil can be energized at a time.

Schematic #3 operation
6 + 2 Contacts Type:

This relay is designed for actuation of the coil with a permanent voltage. After connecting the negative terminal of the power supply to terminals A3 and C0 assuming that before any voltage is applied to either coil, all contacts are in the "trip" position, operation is as follows:

When a positive signal from the power supply is applied to terminal A0, the relay actuates and magnetically latches all contacts to the "set" position. During this actuation, as contact C0 D0 opens and A3 B3 closes, the power supply is effectively disconnected at positive terminal D0 and a new connection is made at terminal A4 so that the power to the relay coil lasts only while C0 D0 is ON. A subsequent positive signal applied at terminal A4 actuates the relay contacts from their magnetically latched "set" position A4 back to their former magnetically latched "trip" position.

Note: Customer must make dotted connections shown external to socket.



Relay pin correspondence
(rear view of relay shown)

MORS SMITT RELAIS

LATCHING RELAYS - SC

MODEL SC - RELAY ORDER GUIDE

To specify a relay, a complete part number must first be determined.

The boxes below have brief descriptions of the options above and allowable option suffixes beneath. Complete descriptions of the options are listed below.

Simply fill in all boxes with selected option suffixes for the complete part number.

Relay Model	# of Changeover Contacts	# of NC Contacts	# of NO Contacts	Nominal Voltage	Keying	Coil Overvoltage Protection	Language on labels & Test Report
SC	0						○
	4	4		110	5G	-	-
	3	5		24	111E	S	1
				72	2D		2
	3	3		72	67		
				110	7F		

NC/NO in trip position.

- Relay Type: **SC** Specify for all part numbers.
- # of Changeover Contacts:

0	0	0
---	---	---

 Specify for all part numbers.
- # of NC Contacts:

4	or	3	or	3
---	----	---	----	---

 Specify for all part numbers.
- # of NO Contacts:

4	5	3
---	---	---

 Specify for all part numbers.
- Nominal Voltage = Keying:

(044 configuration):	110VDC =	5G
(035 configuration):	24VDC =	111E
	72VDC =	2D
(033 configuration):	72VDC =	67
	110VDC =	7F

 (Select one from above and specify)
- Coil Overvoltage protection:

-	Indicates no coil protection.
S	Indicates Transil coil protection.

 (Select one from above and specify)
- Language used on Test Report:

-	French
1	English
2	Spanish

 (Select one from above & specify)

Relay basic part number: Note - table shows standard part no's. - others available on request.

SOCKETS ORDER GUIDE & PACKAGING
REFERENCE "SC"

Example of complete relay part numbers:
SC 044 110 5G
SC 033 72 67 S