

HERMETICALLY SEALED
RELAYS
FOR AUTOMOTIVE AND
RAILWAYS APPLICATIONS

INTRODUCTION

This document describes the main characteristics of the relays for railways applications and with the following common features :

- Hermetically sealed metal housing
- Integral non overlapping contact *

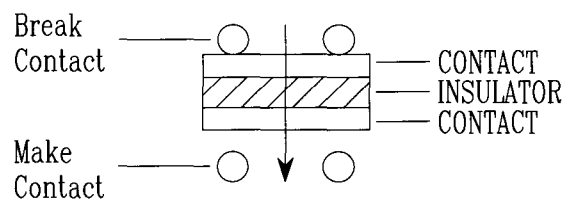
Relays in accordance with SNCF standards NF F62-002 are on pages 15, 19, 28, 32, 38, 42, 46, 57, 77, 78, 79

Characteristics other than the ones included in this document or referring to user specifications will be found in the relevant data sheets.

* " Integral non overlapping " : this characteristic ensures that it is impossible to simultaneously close any of the normally open contacts with any of the normally closed contacts. This applies if the relay is energized or not for all coil supply values.

NOTE :

TRANSLATOR INSULATED



RELAYS DPDT, 4 & 6 PDT

nominal contact rating : 1 A on supply - 72 Vdc **

DESIGNATION TYPE	DESCRIPTION	APPLICABLE STANDARD
ETP 2	DPDT	NFF 62002
ETP 4 ETP L 4 (Latching)	4 PDT	NFF 62002
ETP 6	6 PDT	NFF 62002

DOUBLE BREAK RELAY 1, 2 and 3 TRANSLATORS *

nominal contact rating : 3 A on supply 72 Vdc **

DESIGNATION TYPE	DESCRIPTION	APPLICABLE STANDARD
EDT 1	1 TRANSLATOR N/O 1 TRANSLATOR N/C	NFF 62002
EDT 2 EDT L 2 (Latching)	2 TRANSLATORS N/O 2 TRANSLATORS N/C	NFF 62002
EDT 3	3 TRANSLATORS N/O 3 TRANSLATORS N/C	NFF 62002

MIXED CONTACT ARRANGEMENTS (PDT + Translators *)

DESIGNATION TYPE	DESCRIPTION	APPLICABLE STANDARD
EDM 12 EDM L 12 (Latching)	1 TRANSLATOR N/O + DPDT 1 TRANSLATOR N/C	NFF 62002
EDM 14	1 TRANSLATOR N/O + 4 PDT 1 TRANSLATOR N/C	NFF 62002
EDM 22	2 TRANSLATORS N/O + DPDT 2 TRANSLATORS N/C	NFF 62002

MICROCONTACTOR 3 N/O + 1 AUXILIARY CONTACT

nominal contact rating : 3 A on supply 72 Vdc **

DESIGNATION TYPE	DESCRIPTION	APPLICABLE STANDARD
MCT MCT L (Latching)	3 N/O + SPDT	NFF 62002

* see NOTE page 2

** supply 50 - 90 Vdc as specified in railway standards

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SUMMARY

RELAYS	PAGES
ETP 2	6 7 8 9 10 11
ETP 4	6 7 8 12 13 14 15
ETP 6	6 7 8 16 17 18 19
EDT 1	6 20 21 22 23 24
EDT 2	6 20 21 25 26 27 28
EDT 3	6 20 21 29 30 31 32
EDM 12	6 33 34 35 36 37 38
EDM 14	6 33 34 39 40 41 42
EDM 22	6 33 34 43 44 45 46
MCT 300	6 47 48 49 50 51

RELAYS	PAGES
ETPL 2	
ETPL 4	6 52 53 54 55 56 57
EDTL 1	
EDTL 2	6 58 59 60 61 62
EDML 12	6 63 64 65 66 67
MCTL 300	6 68 69 70 71 72

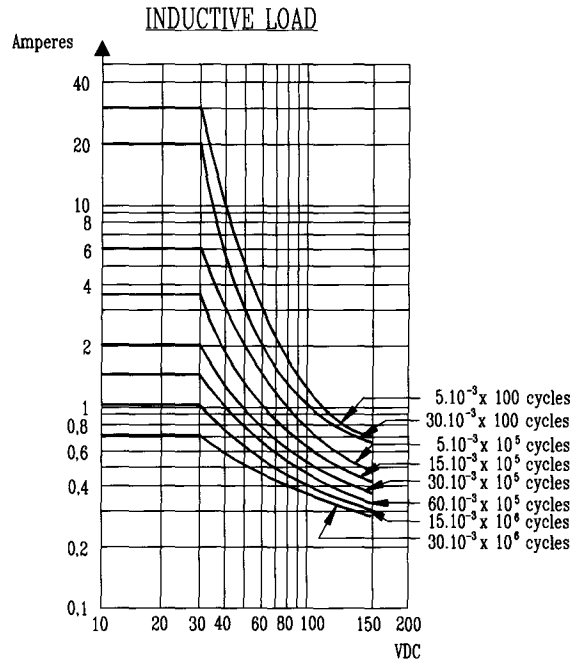
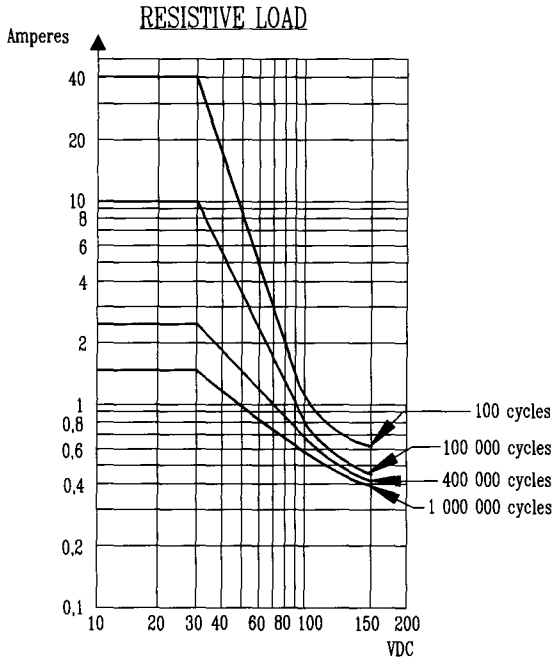
TIME RELAYS	PAGES
TERS	73 74 75 76
THLAO	77 78 79
THM	77 78 79
THLOR	77 78 79
TETP	80 81 82 83

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INTRODUCTION	2 3 4
MOUNTING PAD	84

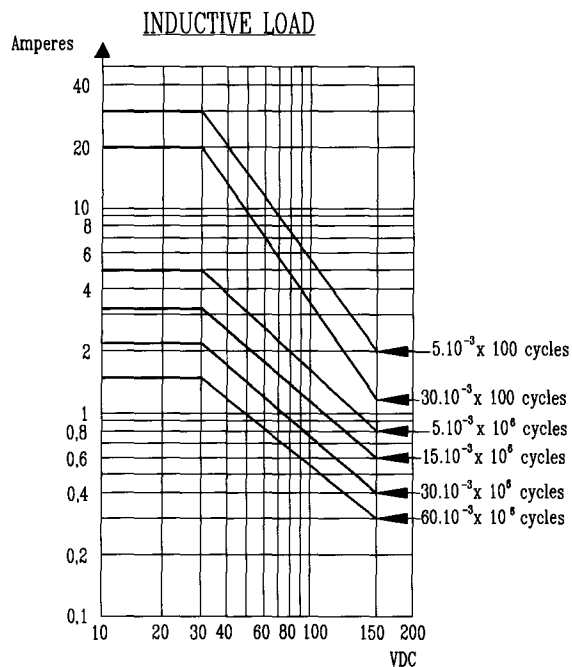
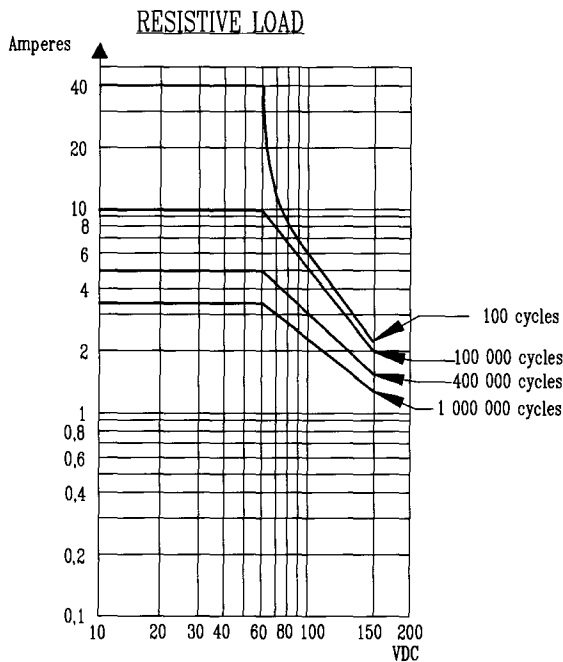
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SWITCHING CAPACITIES FOR DIFFERENT LIFE CYCLES AS A FUNCTION OF VOLTAGE

Relays ETP



Relays EDT and MCT



INDUCTIVE LOAD

In order to calculate switching capacity during an other number of cycles N or another L/R consider that $N \times L/R = \text{Constant}$

For example : the read value of 2 A under 80 V on the curve $L/R \ 5 \cdot 10^{-3}$ for 10^6 cycles can be interpreted by 2 A $L/R \ 50 \cdot 10^{-3}$ for 10^5 cycles

Or again 0,65 A 80 V $L/R \ 60 \cdot 10^{-3}$ for 10^6 cycles, equivalent to 0,65 A 80 V $L/R \ 30 \cdot 10^{-3}$ for $2 \cdot 10^6$ cycles

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GENERAL CHARACTERISTICS

MCT 300

n° of poles	3 main normally open contacts + SPDT auxiliary signal contact
Volume	17 cm ³
Mass	71 g

SWITCHING CHARACTERISTICS

Mechanical life	: 5 x 10 ⁶ operations		
Nominal contact rating on power supply 50-90V for 10 ⁶ operations *	: Main contacts	Resistive load 3 Amperes	Inductive load 1 Ampere ($\frac{L}{R} = 30 \text{ ms}$)
	: Auxiliary contact	1 Ampere	0,5 Ampere
Overload (100 operations) (Over and above guaranteed life cycle)	: Main contacts	10 Amperes	5 Amperes
	: Auxiliary contact	3 Amperes	1,5 Ampere

For other switching characteristics : see curves page 6

Operating time at 25° C	15 ms max
Release time at 25° C	8 ms max
Bounce time	1 ms max

* : The use of an external suppressor on the relay coil other than the one installed in our products can reduce the life. Please consult us.

ENVIRONMENTAL CHARACTERISTICS

Temperature range	: -40° C to +85° C
Vibration	: 20 g 2 000 Hz
Shock	: 200 g 6 ms
Leak rate	: $\leq 1 \times 10^{-8} \text{ atm} \cdot \text{cm}^3 / \text{s}$

ELECTRICAL CHARACTERISTICS

Contact resistance at nominal rating	
- Initial	: 15 m Ω
- After guaranteed life cycle	: 17,5 m Ω
Dielectrical strength	
Between contacts and case	: 1 500 V eff
Between 1 contact and all others	: 1 500 V eff
Insulation resistance	: 1 000 M Ω

PART NUMBERING SYSTEM

M C T * 300 1 E 2 B ***

RELAY TYPE

OPTION

S : with internal voltage suppressor

MODEL

300 : 3 normally open contacts
+ 1 PDT

IDENTIFICATION

1 : Standard

COIL CODE

K , A , ... (see page 49)

MOUNTING STYLES

1 , 2 , ... (see pages 50 , 51)

TERMINATION STYLES

A , B , ... (see page 49)

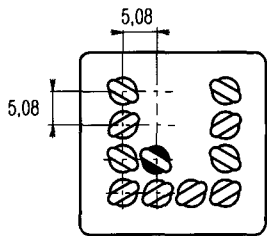
Special instructions or specifications

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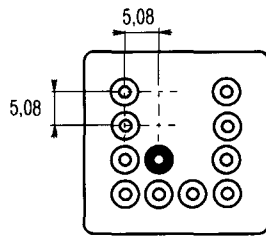
TERMINATION STYLES

DC Version

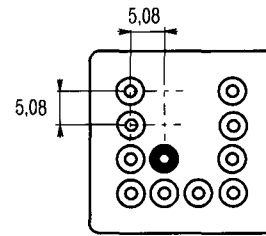
AC version
50-400 Hz



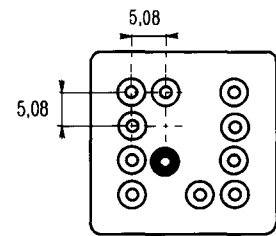
Type A
Tinned solder hooks



Type B
Gold plated pins
for sockets
Type E *



Type L *
Solderable
tinned pins
for PCB mounting



Type C
Gold plated pins
for sockets
Type H *
Solderable tinned pins
for PCB mounting

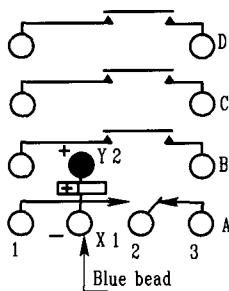
* Type E, L and H
diameter 1.57 ± 0.025

Solderable tinned pins
for PCB mounting

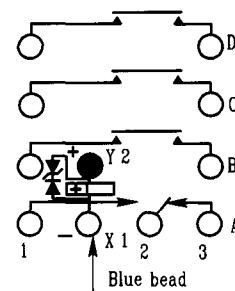
delivered without silicone gasket. Use 2 mounting pads 564 2204 see page 84

CONNECTION DIAGRAM (non energized coil)

Viewed from terminals side



Series MCT 300



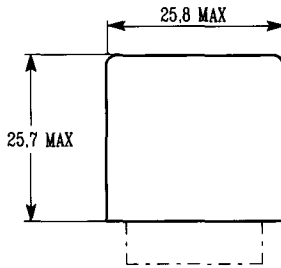
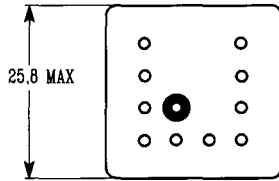
Series MCT S 300
with internal voltage
suppressor

COIL CHARACTERISTICS

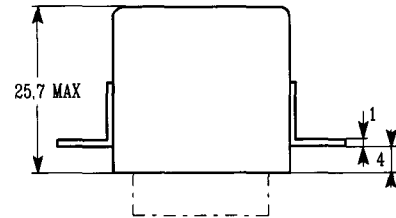
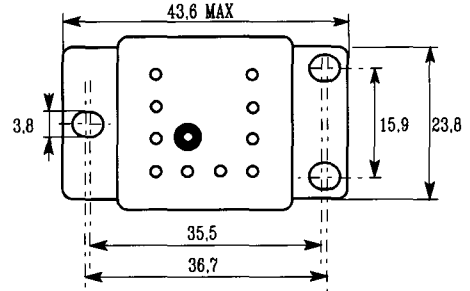
COIL CODE	DC									AC 50-400 Hz	
	K	A	B	C	D	E	F	H	L	M	P
Nominal coil Voltage	6	9	12	18	24	36	48	72	110	110	220
Max pull in voltage at 85° C	4	6	8	12	16	25	33,5	48	76	76	152
Min hold in voltage at 85° C	3,5	5,2	7	10,5	14	21	28,5	40,5	64	64	128
Min drop out voltage at -40° C	0,5	0,7	1	1,5	2	3	4	6	10,5	10,5	21
Coil resistance (ohms $\pm 8\%$ at 25° C)	18	38	70	155	210	550	955	1920	5000	-	-
Max exported spike	44	44	44	44	44	122	122	203	203		

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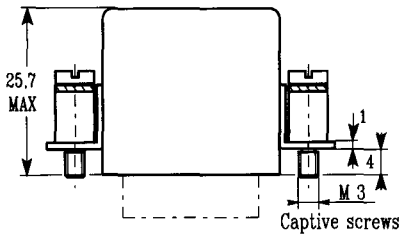
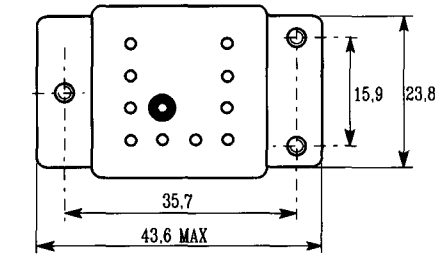
MOUNTING STYLES



Housing 1

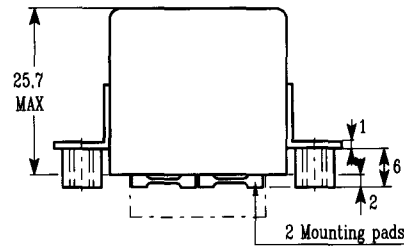
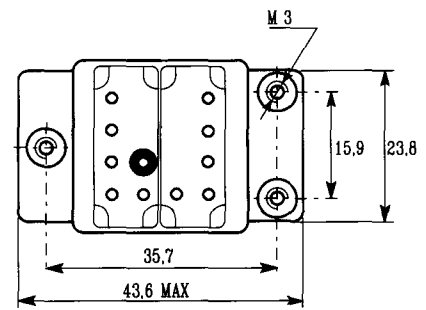


Housing 2



Housing 10

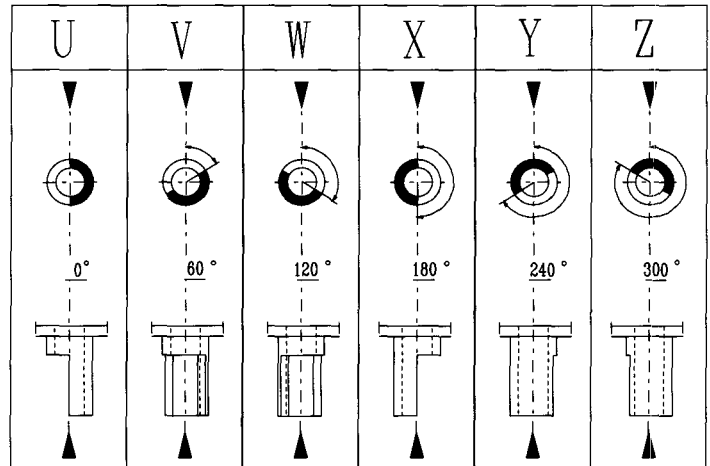
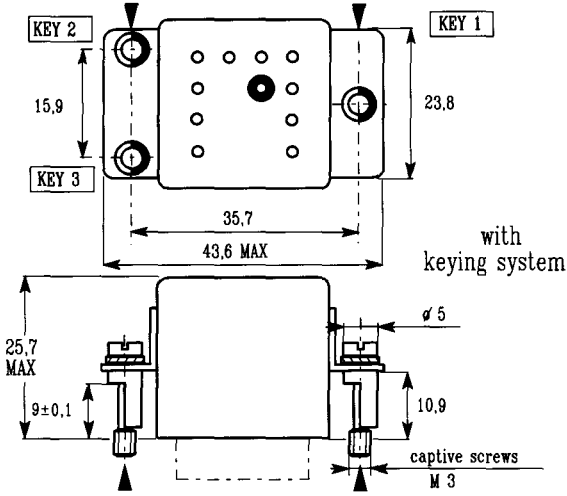
Coupling torque 0,45 m.N



Housing 19

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MOUNTING STYLES



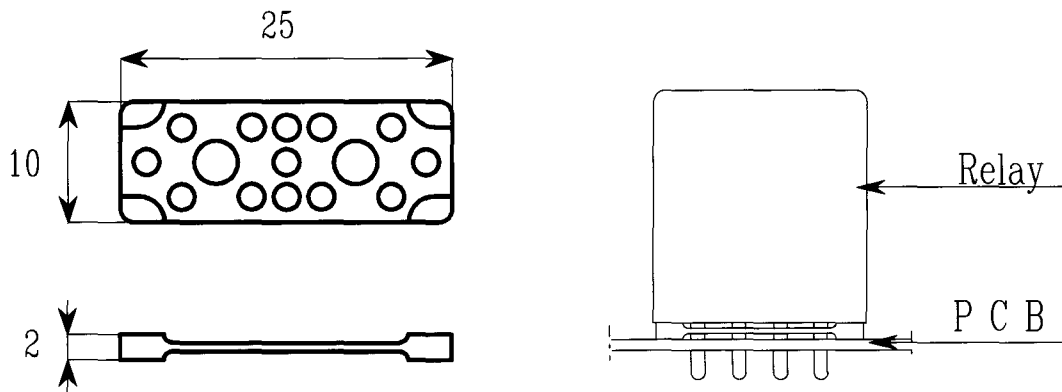
Housing **18** Coupling torque 0,45 m.N

Coil	Reference	key 1	key 2	key 3	Reference	key 1	key 2	key 3
6 Vdc	MCT 300 1K18 B	V	Z	V	MCT S 300 1K18 B	V	Z	X
9 Vdc	MCT 300 1A18 B	W	Z	V	MCT S 300 1A18 B	W	Z	X
12 Vdc	MCT 300 1B18 B	X	Z	V	MCT S 300 1B18 B	X	Z	X
18 Vdc	MCT 300 1C18 B	Z	Z	U	MCT S 300 1C18 B	Z	Z	W
24 Vdc	MCT 300 1D18 B	U	Z	U	MCT S 300 1D18 B	U	Z	W
36 Vdc	MCT 300 1E18 B	Y	Z	U	MCT S 300 1E18 B	Y	Z	W
48 Vdc	MCT 300 1F18 B	V	Z	U	MCT S 300 1F18 B	V	Z	W
72 Vdc	MCT 300 1H18 B	W	Z	U	MCT S 300 1H18 B	W	Z	W
110 Vdc	MCT 300 1L18 B	X	Z	U	MCT S 300 1L18 B	X	Z	W
110 Vac	MCT 300 1M18 C	U	Z	V				
220 Vac	MCT 300 1P18 C	Y	Z	V				

KEY CODE PROPOSAL

The preferred mounting styles are shown on pages 50 and 51
Other styles are available on request.

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This mounting pad is designed to assist cleaning and soldering relays mounted on PCB.

For use with terminal styles E , H, J or K

- 1 mounting pad for 2 pole relays
- 2 mounting pads for 4 pole relays
- 3 mounting pads for 6 pole relays

Temperature rating : continuous -65°C to $+125^{\circ}\text{C}$

 short term 270°C during 30 s