



HERMETICALLY SEALED
RELAYS
FOR AUTOMOTIVE AND
RAILWAYS APPLICATIONS

HERMETICALLY SEALED TIME DELAY RELAYS ON OPERATE AND ON RELEASE

DESIGNATION TYPE	DESCRIPTION	APPLICABLE STANDARD
TERS	TIME DELAY RELAY	NF 62 003
THLАО	TIME DELAY RELAY	NF 62 003
THM	TIME DELAY RELAY	NF 62 003
THLОР	TIME DELAY RELAY	NF 62 003
TETP	TIME DELAY RELAY	

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SUMMARY

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

RELAYS	PAGES					
ETPL 2						
ETPL 4	6	52	53	54	55	56
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
THLАО	77	78	79	
THM	77	78	79	
THLOR	77	78	79	
TETP	80	81	82	83

	PAGES		
INTRODUCTION	2	3	4
MOUNTING PAD	84		

GENERALE CHARACTERISTICS

This range of time delay on operate and on release, enclosed in hermetically sealed package for severe environmental conditions, is particularly dedicated to railways applications according to CF 62 003 standard.

It includes 4 types of operation, time is adjustable by means of wiring.

Size (mm)	: 25,8 x 25,8 x 25,7 max
Mass	: 50 g max
Timing range	: see table page 74
Finish	: Tin plated
Mating socket	: SIREL 410 for mounting styles 2 and 10 STF 410 XXX for mounting style 18

OPERATING CONDITIONS

Input characteristics

Supply voltage	: see table page 74
Supply current	: < 20 mA
Control voltage	: V Power max during 100 ms mini
Recycle time	: 100 ms mini

Output characteristics

Current in the load	: 250 mA
Accuracy	: see table page 74

Protections

Undamaged by polarity reversal	
Protected against power loss	: < 2 ms
	recovery time > 100 ms
Protected against power transient:	600 V 10 μ s / 115 V 100 ms

For protected against upper power spikes use an external voltage suppressor circuit

ENVIRONMENTAL CONDITIONS

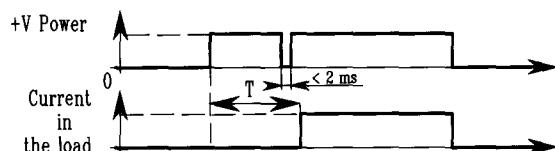
Temperature range	: see table folio 74
Dielectric strength	
between all contacts and case:	1 000 V eff
Insulation resistance	: > 1 000 M Ω 500 Vdc
Vibrations all axis	: 20 g 50 to 3 000 Hz
Shocks	: 100 g 11 ms
Seal test	: According to IEC 68 - 2 - 17 test Qc

FONCTIONNEMENT

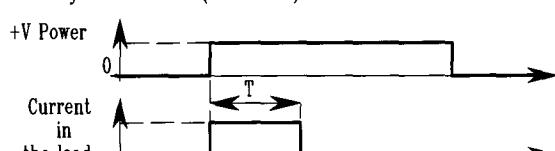
When the timer is wired as shown in wiring diagramm, it operates as shown in the timing diagram.

TIMING DIAGRAM

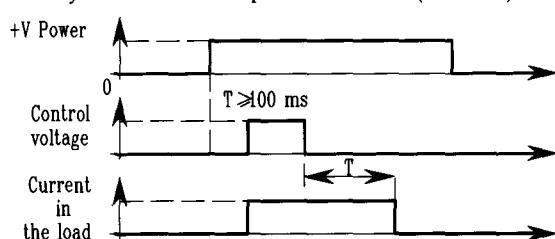
-Time delay on operate (code B)



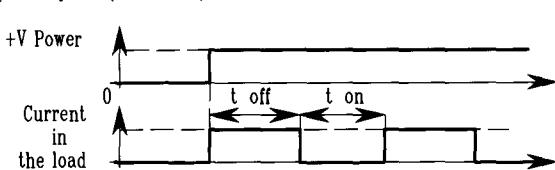
-Time delay on release (code E)



-Time delay on release with positive control (code L)

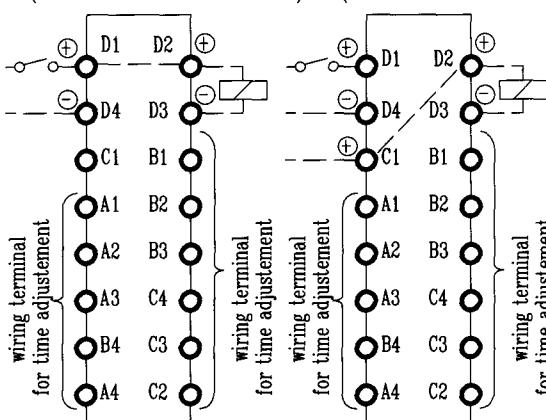


-Repeat cycle (code R)



WIRING DRAWINGS

Time delay on operate
on release or repeat cycle
(D1-D2 internal connexion) Time delay on release
with positive control
(C1-D2 internal connexion)



T E R S * * * *

Time delay



Output

OUTPUT	
3	Load connected to + Power and Output current in load Is = 250 mA Supply voltage 17 to 33 V
4	Load connected to + Power and Output current in load Is = 250 mA Supply voltage 33 to 60 V
5	Load connected to + Power and Output current in load Is = 250 mA Supply voltage 50 to 90 V
6	Load connected to + Power and Output current in load Is = 250 mA Supply voltage 77 to 137 V
7	Load connected to + Power and Output current in load Is = 250 mA Supply voltage 25 to 45 V

Type of operation

B : Time delay on operate réglable par straps.

E : Time delay on release réglable par straps.

L : Time delay on release with positive control adjustable by wirings

R : Repeat cycle , t on / t off = 1
adjustable by wirings

Time code

1 : Time code 1 (see table 1 page 75)

Two types of time delay :

- Short time from 0,25 s to 63,75 s
- Long time from 0,25 mn to 63,75 mn

Intermediate times are obtained by addition of times affected to each wired terminals.

Attention: Except repeat cycle with 16 times only

Example : In short time serie when A1 - B1 are connected together

10 s time is obtained by connections B3 - C3 (8 s) and B3 - B4 (2 s)

2 : Time code 2 (see table 1 page 75)

Two types of time delay :

- Short time from 0,5 s to 127,5 s
- Long time from 0,5 mn to 127,5 mn

Intermediate times are obtained by addition of times affected to each wired terminals.

Attention: Except repeat cycle with 16 times only

Example : In short time serie when A1 - B1 are connected together

20 s time is obtained by connections B3 - C3 (16 s) and B3 - B4 (4 s)

Key 1 Key 2 Key 3
only code T
see page 76

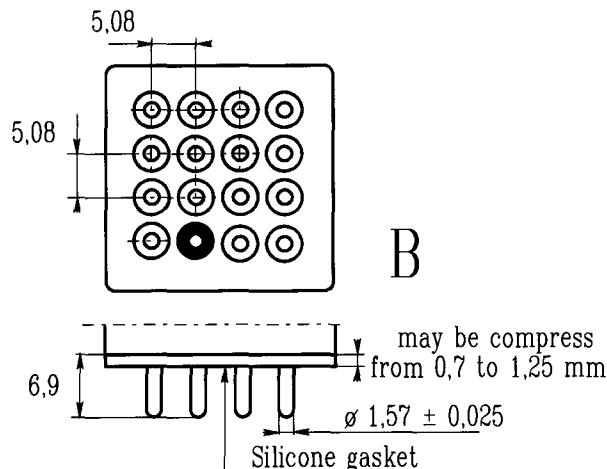
Mounting style and Header type
see page 75 and 76

CODE	MOUNTING	HEADER
A	1	E
B	2	B
K	10	B
T	18	B
R	19	E
V	1	K

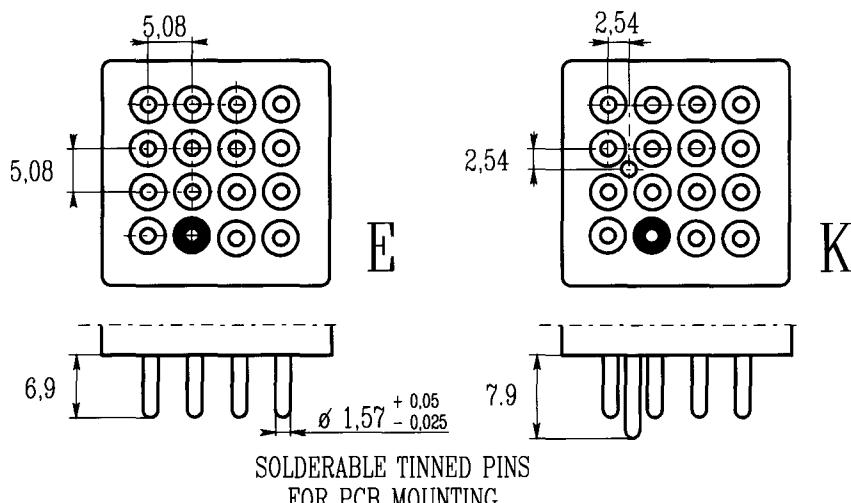
Accuracy and temperature range

CODE	ACCURACY	TEMPERATURE
A	$\pm 10\%$	- 25 °C à + 70 °C
B	$\pm 10\%$	- 40 °C à + 85 °C
D	$\pm 5\%$	- 20 °C à + 70 °C
E	$\pm 5\%$	- 40 °C à + 85 °C

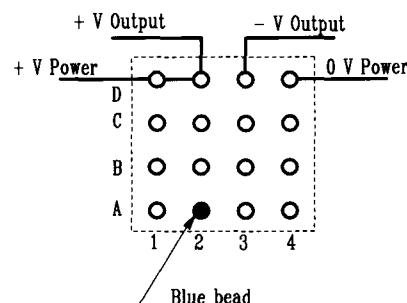
HEADER TERMINAL STYLES



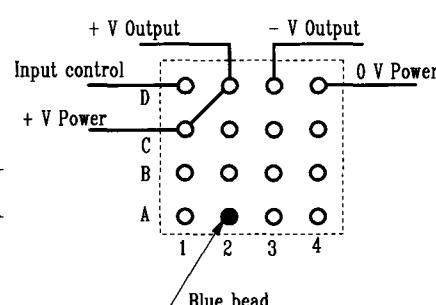
GOLD PLATED PINS
PLUG-IN SOCKET



CIRCUIT DIAGRAM



TIME DELAY ON OPERATE

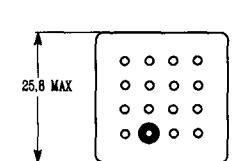


TIME DELAY ON RELEASE
WITH POSITIVE CONTROL

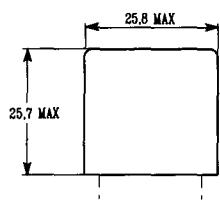
TABLE 1

Short timing range	Terminal to connect	Timing value		Long timing range	Terminal to connect	Timing value	
		Code 1	Code 2			Code 1	Code 2
A1 - B1 connected	B3 - A2	0,25 s	0,5 s	A1 - B1 not connected	B3 - A2	0,25 mn	0,5 mn
	B3 - A3	0,5 s	1 s		B3 - A3	0,5 mn	1 mn
	B3 - A4	1 s	2 s		B3 - A4	1 mn	2 mn
	B3 - B4	2 s	4 s		B3 - B4	2 mn	4 mn
	B3 - C4	4 s	8 s		B3 - C4	4 mn	8 mn
	B3 - C3	8 s	16 s		B3 - C3	8 mn	16 mn
	B3 - C2	16 s	32 s		B3 - C2	16 mn	32 mn
	B3 - B2	32 s	64 s		B3 - B2	32 mn	64 mn
	All to B3	63,75 s	127,5 s		All to B3	63,75 mn	127,5 mn

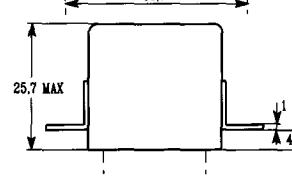
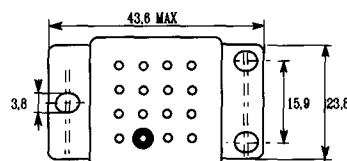
MOUNTING STYLES



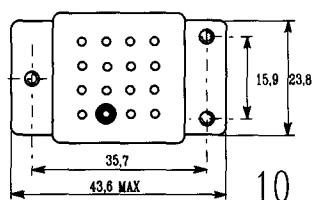
1



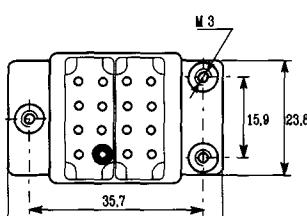
2



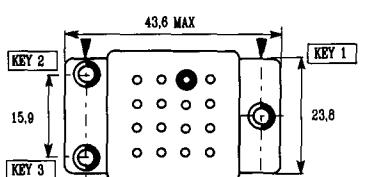
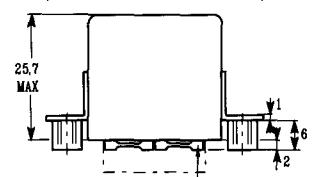
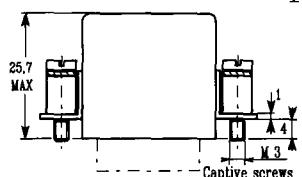
2



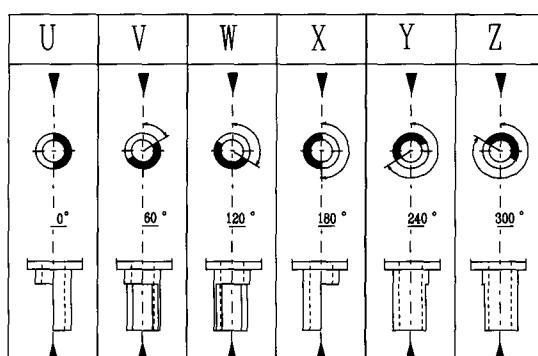
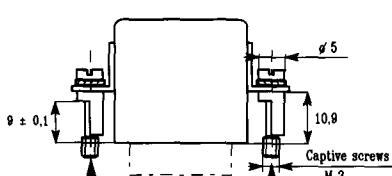
10



19



18



Coupling torque 0,45 m.N

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TIME DELAY ON OPERATE		ON RELEASE	ON RELEASE WITH POSITIVE CNTRL	REPEAT CYCLE
Power	DEUTSCH part number	DEUTSCH part number	DEUTSCH part number	DEUTSCH part number
24 Vdc	TERS 3B 1 AT Y U Y	TERS 3E 1 AT Y U Z	TERS 3L 1 AT Z U Y	TERS 3R 1 AT Y U X
48 Vdc	TERS 4B 1 AT Y V Y	TERS 4E 1 AT Y V Z	TERS 4L 1 AT Z V Y	TERS 4R 1 AT Y V X
72 Vdc	TERS 5B 1 AT Y W Y	TERS 5E 1 AT Y W Z	TERS 5L 1 AT Z W Y	TERS 5R 1 AT Y W X
110 Vdc	TERS 6B 1 AT Y X Y	TERS 6E 1 AT Y X Z	TERS 6L 1 AT Z X Y	TERS 6R 1 AT Y X X

GENERALE CHARACTERISTICS

This range of time delay on operate and on release, enclosed in hermetically sealed package for severe environmental conditions, is particularly dedicated to railways applications according to CF 62 003 standard.

It includes 3 types of operation:
time is adjustable by means of wiring.

Size (mm)	: 25,8 x 25,8 x 25,7 max
Mass	: 50 g max
Timing range	: see TABLE 1 page 79
Finish	: Tin plated
Mating socket	: STF 410 T 2 A

OPERATING CONDITIONS

Input characteristics

Supply voltage	: 24 Vdc	: 48 Vdc	: 72 Vdc	: 110 Vdc
Minimum voltage	: 17 Vdc	: 33 Vdc	: 50 Vdc	: 77 Vdc
Maximum voltage	: 33 Vdc	: 60 Vdc	: 90 Vdc	: 137 Vdc
Supply current	: < 20 mA without output load			
Control voltage	: V Power max during 20 ms mini			
Recycle time	: 100 ms mini			

Output characteristics

Current in the load	: 250 mA
Accuracy	: ± 10 %

Protections

Undamaged by polarity reversal	
Protected against power loss	: < 2 ms
recovery time	: > 100 ms
Protected against power transient	: 600 V 10 µs / 115 V 100 ms
For protected against upper power spikes use an external voltage suppressor circuit	

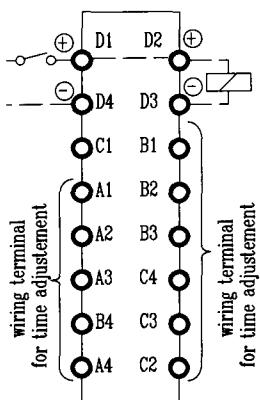
ENVIRONMENTAL CONDITIONS

Nominal temperature range	: - 25° C to + 70° C
Extreme temperature range	: - 40° C to + 80° C
Dielectric strength between all contacts and case	: 1000 V eff
Insulation resistance	: > 1 000 M Ω 500 Vdc
Vibrations all axis	: 2 g 10 to 120 Hz according to NFF 62 002
Shocks	: 100 g 11 ms according to NFC 20 727
Seal test	: According to NFC 20 717 Essai QC method 2

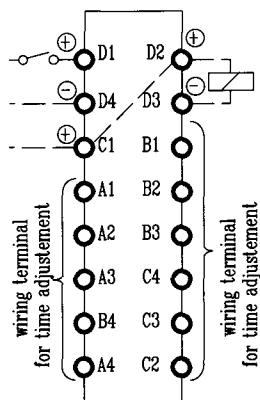
FONCTIONNEMENT

When the timer is wired as shown in wiring diagramm, it operates as shown in the timing diagram.

WIRING DRAWINGS



Time delay on operate
on release or repeat cycle



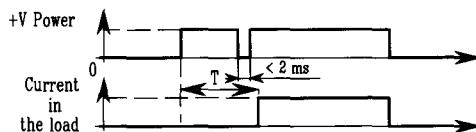
Time delay on release
with positive control

REFERENCES

TIMING DIAGRAM

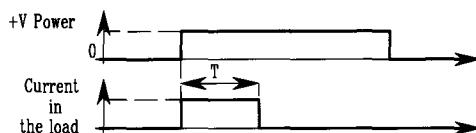
TIME DELAY ON OPERATE

SNCF PART NUMBER	RED PART NUMBER	NOMINAL VOLTAGE
THLAO 24 YUY	TERS 3B 1 AT YUY	24 Vdc
THLAO 48 YVY	TERS 4B 1 AT YVY	48 Vdc
THLAO 72 YWY	TERS 5B 1 AT YWY	72 Vdc
THLAO 110 YXY	TERS 6B 1 AT YXY	110 Vdc



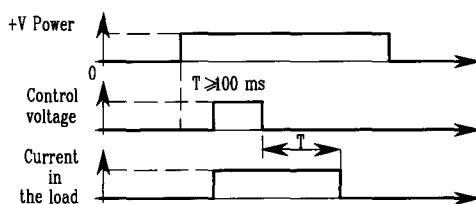
TIME DELAY ON RELEASE

THM PART NUMBER	TERS PART NUMBER	NOMINAL VOLTAGE
THM 24 YUZ	TERS 3E 1 AT YUZ	24 Vdc
THM 48 YVZ	TERS 4E 1 AT YVZ	48 Vdc
THM 72 YWZ	TERS 5E 1 AT YWZ	72 Vdc
THM 110 YXZ	TERS 6E 1 AT YXZ	110 Vdc



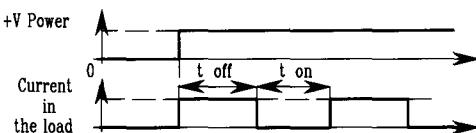
TIME DELAY ON RELEASE WITH POSITIVE CONTROL

THLOR PART NUMBER	TERS PART NUMBER	NOMINAL VOLTAGE
THLOR 24 ZUY	TERS 3L 1 AT ZUY	24 Vdc
THLOR 48 ZVY	TERS 4L 1 AT ZVY	48 Vdc
THLOR 72 ZWY	TERS 5L 1 AT ZWY	72 Vdc
THLOR 110 ZXZ	TERS 6L 1 AT ZXZ	110 Vdc



REPEAT CYCLE

	TERS 3R 1 AT YUX	24 Vdc
	TERS 4R 1 AT YVX	48 Vdc
	TERS 5R 1 AT YWX	72 Vdc
	TERS 6R 1 AT YXX	110 Vdc



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TIME CODING

Short timing range	Terminal to connect	Timing value	Long timing range	Terminal to connect	Timing value
A1 - B1 connected	B3 - A2	0,25 s	A1 - B1 not connected	B3 - A2	0,25 mn
	B3 - A3	0,5 s		B3 - A3	0,5 mn
	B3 - A4	1 s		B3 - A4	1 mn
	B3 - B4	2 s		B3 - B4	2 mn
	B3 - C4	4 s		B3 - C4	4 mn
	B3 - C3	8 s		B3 - C3	8 mn
	B3 - C2	16 s		B3 - C2	16 mn
	B3 - B2	32 s		B3 - B2	32 mn
	All to B3	63,75 s		All to B3	63,75 mn

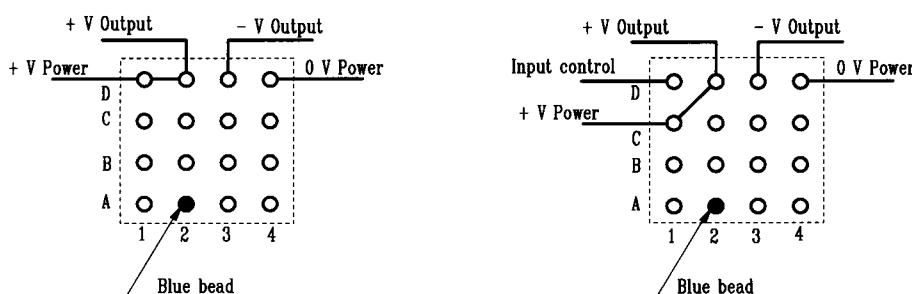
TABLE 1

The standard range includes 2 types of time delay: short time from 0,25 s to 63,75 s and long time from 0,25 mn to 63,75 mn. Intermediate times are obtained by addition of times affected to each wired terminals.

Attention: Except repeat cycle with 16 times only

Example: In short time serie when A1 - B1 are connected together
10 s time is obtained by connections B3 - C3 (8 s) and B3 - B4 (2 s)

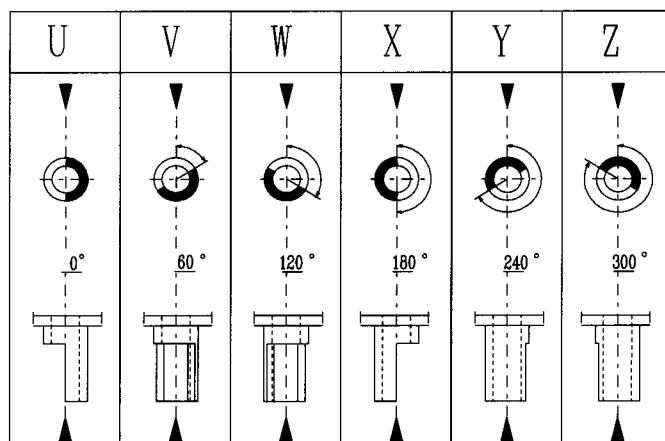
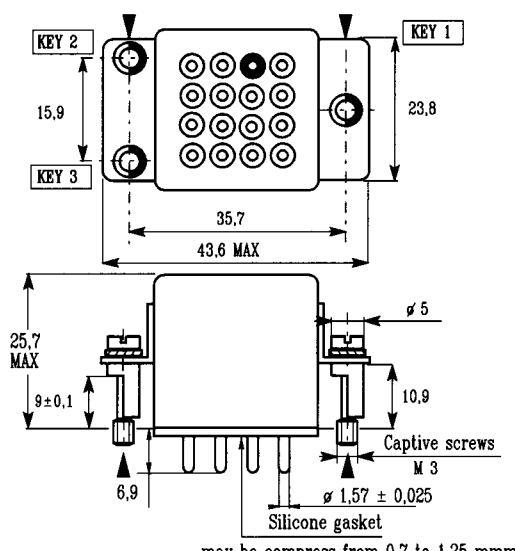
CIRCUIT DIAGRAM



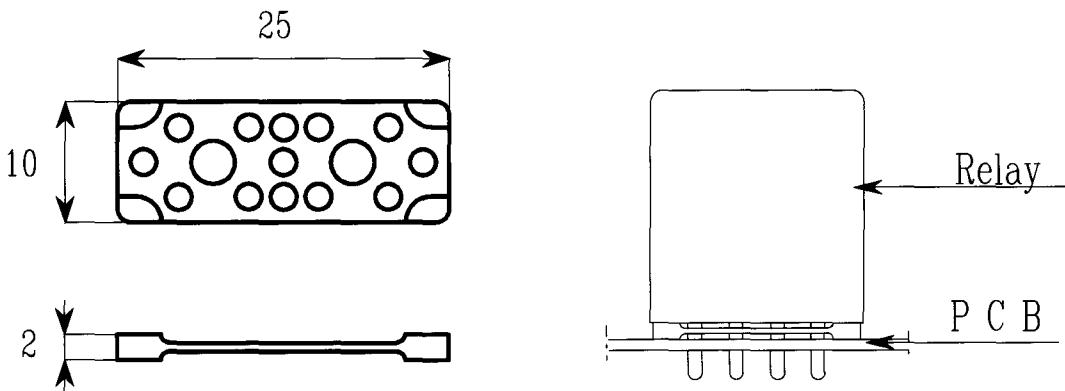
TIME DELAY ON OPERATE
ON RELEASE OR REPEAT CYCLE

TIME DELAY ON RELEASE
WITH POSITIVE CONTROL

MOUNTING STYLES



Coupling torque 0,45 m.N



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° C

short term 270° C during 30 s