

# SERIES E

## Miniature Relays for Printed Circuit Boards



All-or-Nothing relays ideally suited for all electronic appliances demanding compact design and reduced power consumption. Design includes a protective dust cover and, on request, a sealed version. Cover being provided with a special device to avoid ozone formation.

Different types are available, with up to 16A ratings and a complete range of AC and DC coil supply voltages. Terminals are for printed circuit board mounting, either directly, or by appropriate sockets, for any application requiring "plug-in" serviceability or maintenance.

### DIELECTRIC STRENGTH

Coil spring set to contacts :	<b>5000 V RMS</b>
Between adjacent contacts :	<b>4000 V RMS</b>
Between open contacts :	<b>1000 V RMS</b>
Ground / live parts :	<b>750 V RMS</b>

### OPERATING TIMES (At Rated Voltage)

Operate (excluding bounces) :	<b>max 10</b>	milliseconds
Release (excluding bounces) :	<b>max 5</b>	milliseconds
Bounces :	<b>max 5</b>	milliseconds

### SPECIFICATION

Min. insulation resistance	10 <sup>6</sup> MΩ @ 500 VDC (all circuits)
Insulation group (VDE 110)	1° Gr. C 250 VAC
Enclosure classification	IP 40 (IP67 sealed version) (IEC 144)
Type of duty	Continuous
Mechanical life expectancy	50x10 <sup>6</sup> operations (AC / DC)
Max ops./hour @ no load	18000 (AC / DC)
Max ops./hour @ rated load	3600 (AC / DC)
Temperature range	-40 to +70° C
Storage temperature	-40 to +80° C
Vibration	10 g
Impulse voltage class	0
Operating class (CEI 41-1)	C
Weight	17 grams
Min. creepage dist. / air gap	8 mm between coil / contacts (VDE 0730)

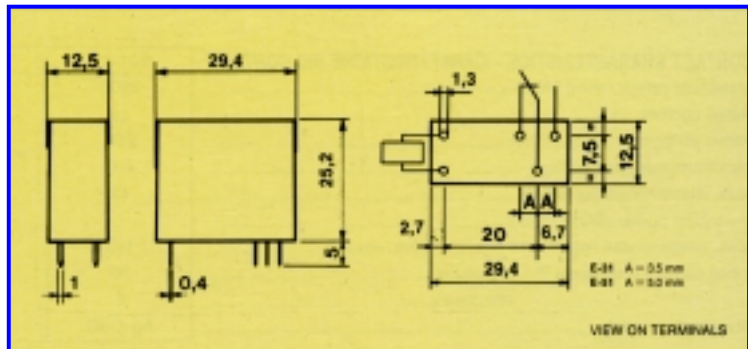
### AVAILABLE TYPES

**E31** - 3.5 mm pin-spacing **10A-250V AC**

**E51** - 5 mm pin-spacing **10A-250V AC**

1 pole changeover or normally open.  
Printed circuit terminations.

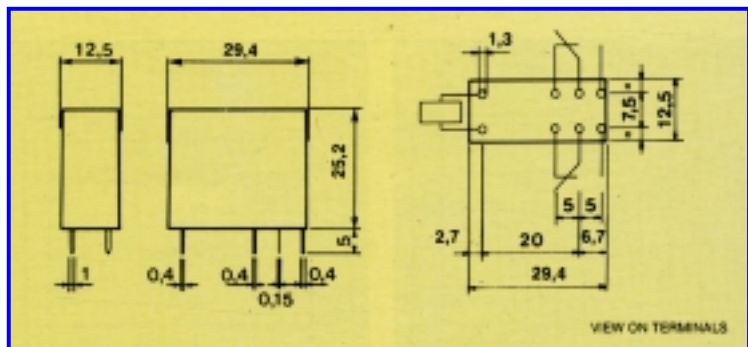
Standard contact material Ag-CdO 10%.  
Alternative materials available.  
Hermetically sealed and gold-plated contact versions available on request for agreed quantities.



**E52** - 5 mm pin-spacing **5A-250V AC**

2 pole changeover or normally open.  
Printed circuit terminations.

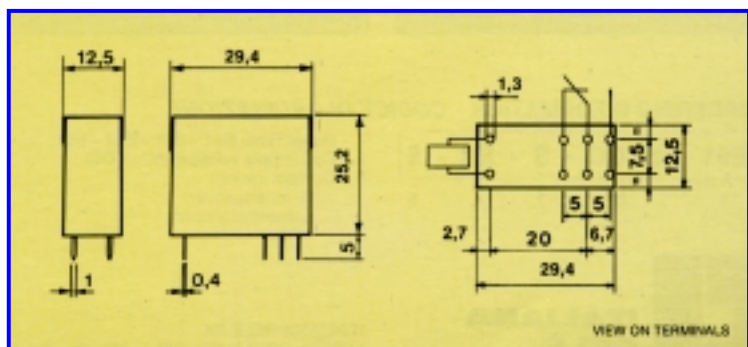
Standard contact material Ag-CdO 10%.  
Alternative materials available.  
Hermetically sealed and gold-plated contact versions available on request for agreed quantities.



**E61** - 5 mm pin-spacing **16A-250V AC**

1 pole changeover or normally open.  
Printed circuit terminations.

Standard contact material Ag-CdO 10%.  
Alternative materials available.  
Hermetically sealed and gold-plated contact versions available on request for agreed quantities.



### APPROVALS



## COIL CHARACTERISTICS

Rated Voltage V	DC			AC		
	Rated Current mA	Resistance R Ω	Rated Current mA	Resistance R Ω	Reactance X Ω	Impedance Z Ω
6	109	55	270	12	18.7	22.2
12	43	280	119	56	84	101
24	20.9	1150	57	230	353	421
48	11.2	4300	30.5	870	1312	1574
110	6.9	16200	12.3	5300	7203	8943
230	-	-	5.7	25000	31672	40350

Resistance values at 20°C ambient temp.

Tolerance on R, X and Z: ± 10%  
(15% for 48V and over)

Power supply voltages:

6-12-24-48-110 VDC

6-12-24-48-110-230 VAC

Rated power: 0.65W (DC);

1.3 to 1.6 VA (AC)

Operating range:

-15% to +35% of nominal (DC)

-20% to +10% of nominal (AC)

Minimum hold voltage:

60% of nominal (DC)

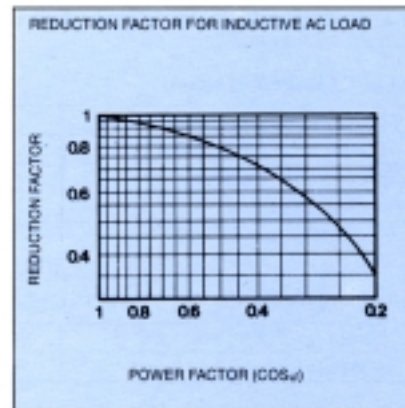
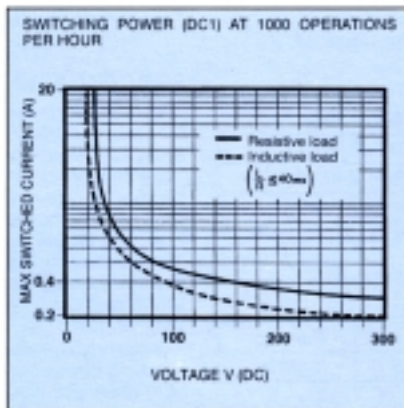
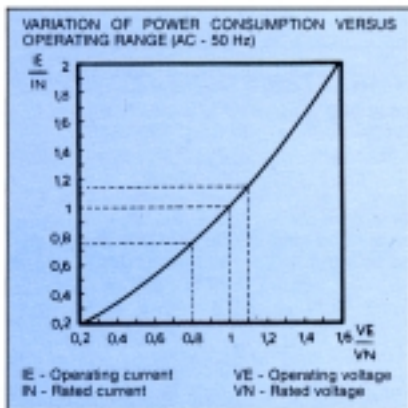
80% of nominal (AC)

Must release voltage:

5% of nominal (DC)

10% of nominal (AC)

Thermic insulation class of winding  
(IEC 317): F (155°C)

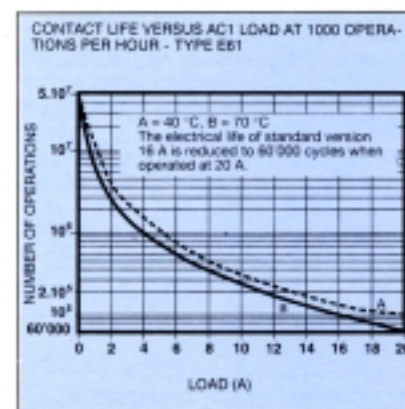
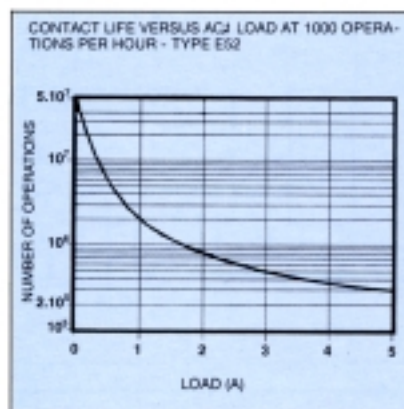
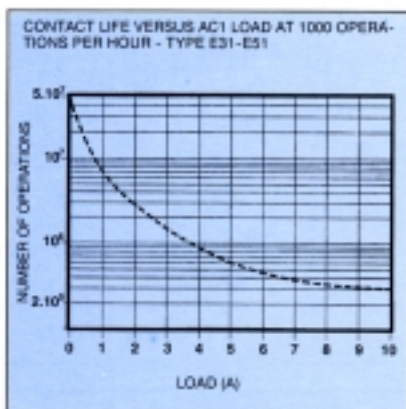


## CONTACT CHARACTERISTICS

	E31-E51	E52	E61	
Maximum power rating (AC1):	2500	1250	4000	VA
Rated current:	10	5	16	A
Rated voltage:	250	250	250	VAC
Maximum switched voltage:	400	400	400	VAC
Maximum instantaneous current <sup>(1)</sup> :	15	7	25	A
Switching power (DC1):	see diagram			
Maximum single-phase motor load (cos φ 0.7 - 250VAC max.):	1/3	1/6	1/2	HP
Initial contact resistance <sup>(2)</sup> : maximum	30	50	15	mΩ
Standard	8	10	5	mΩ
Standard material	Ag-CdO	Ag-CdO	Ag-CdO	90%-10%

<sup>(1)</sup> Make & maintaining only - max. 0.5 sec.

<sup>(2)</sup> Category of application (EN 60255): 3



## ORDERING INFORMATION

**E51 - 24 DC - S - ER - 5**

1 2 3 4 5

- Relay type: E31 - E51 - E52 - E61
- Coil supply voltage: AC or DC
- Contact configuration:  
S = changeover (standard)  
L = normally open (on request)
- Version: ER (hermetically sealed)

- Alternative contact material:  
None = standard material  
5 = Gold plated silver (Ag-Ni + 3μ Au)

Groups 4 & 5 of code are normally omitted, concerning special types available only on request for agreed quantities.