

279-717

To

279-780

269-621

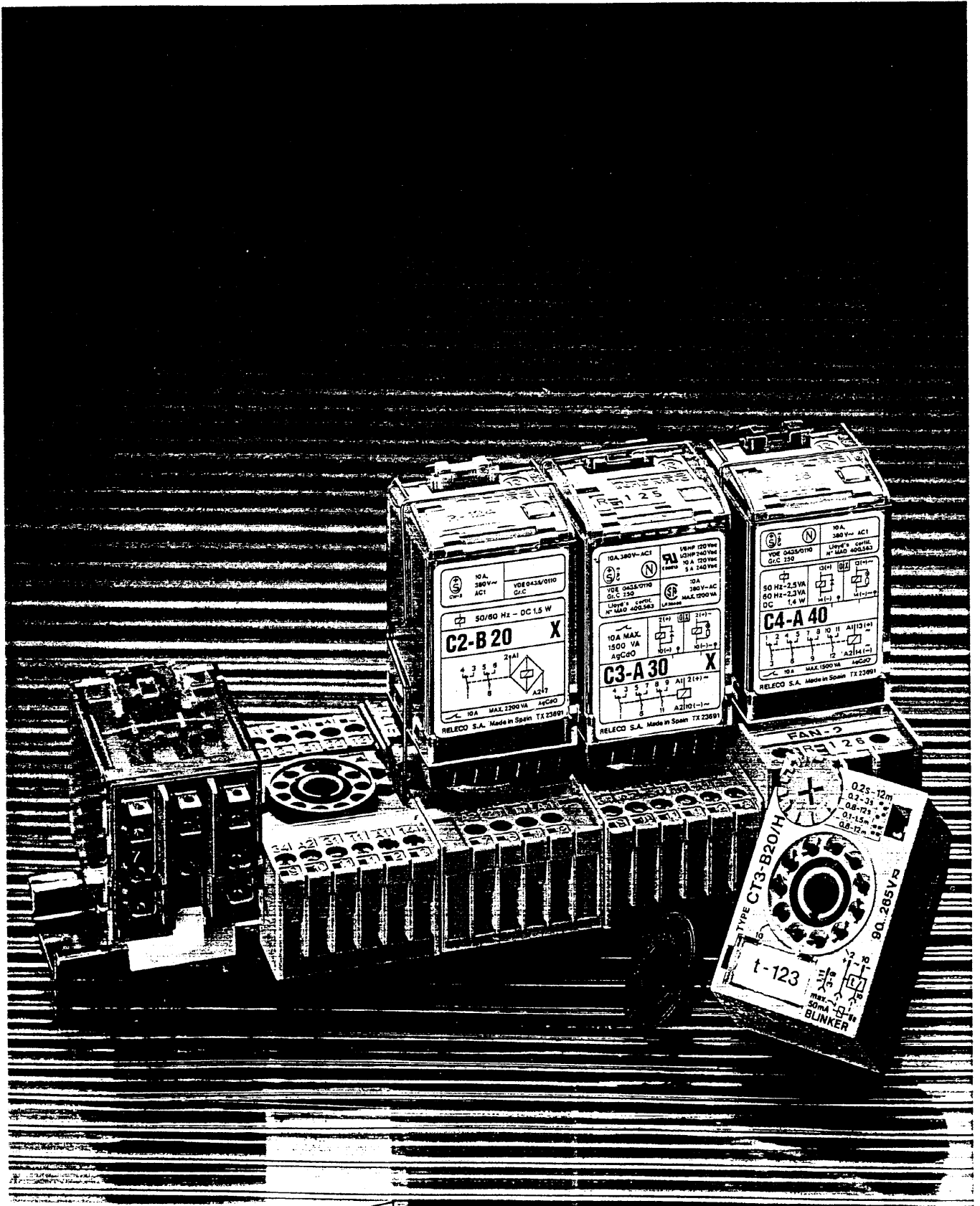
To

269-773

RELECO

Industrial Relays

MR-C Series



Full Featured

Releco Industrial Relays

Plug In Relays

- Octal and 11-pin plug-in
- 2 and 3 pole

Sensitive Relays

- 1, 2 and 3 pole
- 250, 500 and 800 mW coil

Magnetic Latching Relays

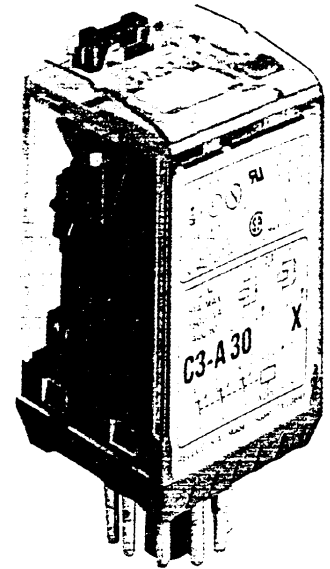
- 11-pin plug-in
- 2 pole

4 pole General Purpose Relays

- Flat Blade 2,8 x 0,5 mm
- 10 Amp

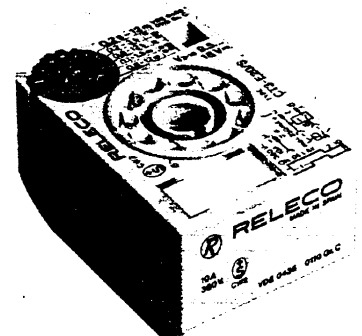
Power Relays

- Flat Blade 4,8 x 0,5 mm
- 15 Amp



Time Cube ®

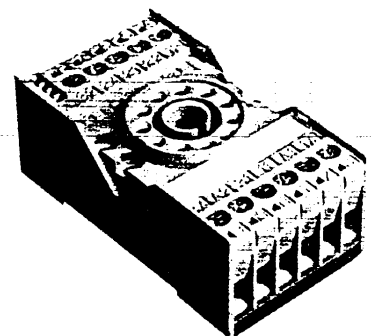
- adds timer function to relays
- plugged in between relay and socket
- for octal and 11-pin plug in versions
- Functions:
 - On delay
 - Off delay
 - One shot leading edge (2 types)
 - Blinker
- Multi time range
- Patented Coding system



if The Time Cube has been awarded by the *German Industrie Form* for its outstanding Industrial Design.

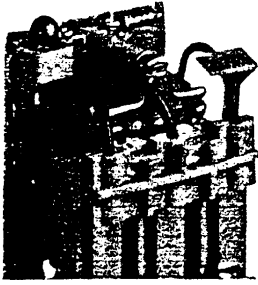
Releco Relay sockets

- for Plug In Relays
- for Flat Blade Relays
- for Power Relays
- Universal mounting
- Integrated labels
- Patented Coding system

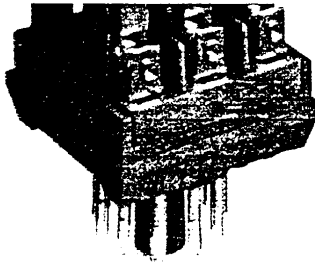


MR-C

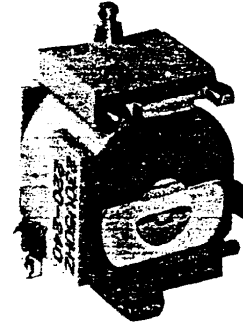
The IDM®-Concept



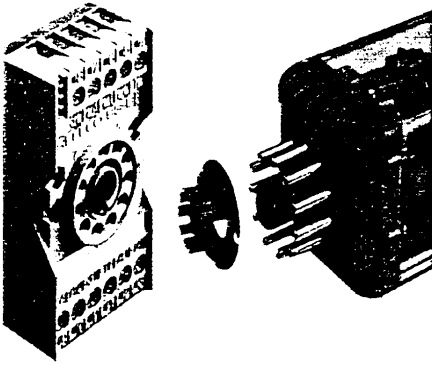
The connection cables are welded to the contact blades and then are moulded into the armature assembly.



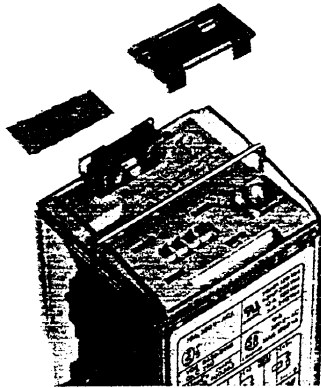
Barriers and channels between contacts as standard give optimum creepage distance and good arc protection.



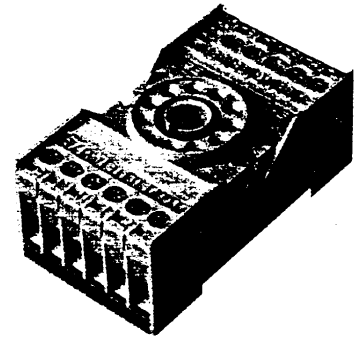
The relay coil is encapsulated.



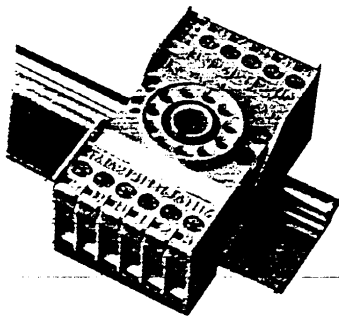
The patented coding ring ensures only installation of correct unit takes place.



The relay top features; a colour coded and protected Push To Test button, electrical and mechanical status indicators, labelling possibilities and retaining clip which doubles as a "Hold On" clip for test purposes.



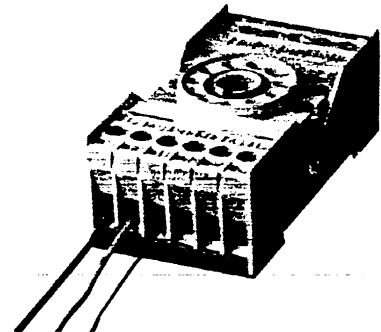
Patented base series: S2-B, S3-B
European patent No.: EP0 093 628 B1



Multiple mounting options on either DIN rail or by screws.



The solid internal conductors are routed for optimum creepage distances and are produced in a one piece, no soldering - no welding method.



The wire inlets are large and in line.

Fast - easy - safe - convenient - economical - Full Featured for more profit!

Models	Item	Description	Version/function	Supply voltage	Page
C2-A2...	Relay	Octal Tube Base	2 pole 10 A	AC and DC	10...11
C2-B2...	Relay	Octal Tube Base	2 pole 10 A	AC/DC	10...11
C3-A3...	Relay	11-pin Tube Base	3 pole 10 A	AC and DC	12...13
C3-B3...	Relay	11-pin Tube Base	3 pole 10 A	AC/DC	12...13
C3-E1...	Relay	11-pin Tube Base	1 pole 4 A	DC	14...15
C3-N1...	Relay	11-pin Tube Base	1 pole 4 A	DC	14...15
C3-N2...	Relay	11-pin Tube Base	2 pole 4 A	DC	14...15
C3-R2...	Relay	11-pin Tube Base	2 pole 10 A	AC	16...17
C3-S2...	Relay	11-pin Tube Base	2 pole 4 A	DC	14...15
C3-S3...	Relay	11-pin Tube Base	3 pole 4 A	DC	14...15
C4-A4...	Relay	14-pin Square Base	4 pole 10 A	AC and DC	18...19
C4-B4...	Relay	14-pin Square Base	4 pole 10 A	AC/DC	18...19
C5-A3...	Relay	11-pin Square Base	3 pole 15 A	AC and DC	20...21
C5-B3...	Relay	11-pin Square Base	3 pole 15 A	AC and DC	20...21
CT2-A...	Time Cube	Octal Tube Base	Off-Delay	AC/DC	22...23
CT2-B...	Time Cube	Octal Tube Base	Blinker	AC/DC	22...23
CT2-E...	Time Cube	Octal Tube Base	On-Delay	AC/DC	22...23
CT2-K...	Time Cube	Octal Tube Base	One-shot	AC/DC	22...23
CT2-W...	Time Cube	Octal Tube Base	One-shot	AC/DC	22...23
CT3-A...	Time Cube	11-pin Tube Base	Off-Delay	AC/DC	24...25
CT3-B...	Time Cube	11-pin Tube Base	Blinker	AC/DC	24...25
CT3-E...	Time Cube	11-pin Tube Base	On-Delay	AC/DC	24...25
CT3-K...	Time Cube	11-pin Tube Base	One-shot	AC/DC	24...25
CT3-W...	Time Cube	11-pin Tube Base	One-shot	AC/DC	24...25
S2-B	Socket	Octal Tube Base			26...27
S2-S	Socket	Octal Tube Base			26...27
S3-B	Socket	11-pin Tube Base			26...27
S3-S	Socket	11-pin Tube Base			26...27
S4-B	Socket	14-pin Square Base			28...29
S5-S	Socket	11-pin Square Base			28...29

Relay Part Numbering Key

C4 - A 4 0 F P X / 24 VDC

Type of relay

- C2 = Octal Tube Base
- C3 = 11-pin Tube Base
- C4 = 14-pin Square Base (2,8 x 0,6mm)
- C5 = 11-pin Square Base (4,8 x 0,6mm)

Coil type

- A = Standard, AC or DC
- B = AC/DC coil with bridge rectifier
- E = Sensitive, 500 mW
- N = Sensitive, 800 mW
- R = Latching
- S = Sensitive, 250 mW

Number and form of contacts

- 1 = 1 pole (SPDT)
- 2 = 2 pole (DPDT)
- 3 = 3 pole (3PDT)
- 4 = 4 pole (4PDT)

Nominal voltage (U_N)

X = LED/Neon Indicator

Mounting Option

P = Pins for PCB

Coil features (additions to the coil)

- D = Free Wheeling Diode
- F = Polarity- and Free Wheeling Diode

Contact materials

- 0 = AgCdO10 (standard on C2-A/C3-A)
 - 3 = Ag + 5μ Au (GP)
 - 4 = Ag + 0,2μ Au (GF, "E"/"N"/"S" only)
 - 5 = Ag + 10μ Au (GP)
 - 7 = AgCdO10 + 5μ Au (GP)
 - 8 = AgCdO10 + 10μ Au (GP)
 - 9 = AgCdO10 + 0,2μ Au (GF)
- GP = Gold plated (5 or 10μ)
GF = Gold flashed (0,2μ)

General information

Ambient temperatures

Operating temperature: -20°C...+60°C
Storage temperature: -20°C...+100°C

Dielectric Strength

Values measured in accordance with IEC norms:

	C2/3/4	C5	
Coil/contact	≥ 2 500	2 500	V _{rms}
Coil/frame	≥ 2 500	2 500	V _{rms}
Contact/contact	≥ 2 500	2 500	V _{rms}
NO/NC	≥ 1 000	1 000	V _{rms}

Insulation resistance

Higher than 1 500 MΩ,
measured with 1 000 V DC between all live parts and the frame.

Materials

All materials being used are self extinguishing, such as: Polycarbonate (Lexan®), Polyphenyloxide (Noryl®) and Polybutylene terephthalate (Valox®). These are high performance materials for electrical equipment and withstand temperatures up to +130°C without deformation.

Coil data

Coil resistance

The tolerance of the coil resistance will be within ±10% of the specified value at +20°C.

Coil "A"-version

Standard voltage
VAC: 24, 48, 115*, 230*
VDC: 12, 24, 48, 110
Other voltage upon request.

Table 1: C2/C3-"A" coils at 20°C ±10%

U _N Vac	R Ω	I mA	U _N Vdc	R Ω	I mA
6	5	370	6	28	216
12	18	183	12	110	108
24	70	92	24	440	54
48	290	46	48	1770	27
60	430	37	60	2770	22
115*	1700	19	110	9300	12
230*	7400	10			

Table 2: C4/C5- "A" coils at 20°C ±10%

U _N Vac	R Ω	I mA	U _N Vdc	R Ω	I mA
6	4	383	6	24	250
12	16	192	12	96	125
24	66	96	24	384	63
48	280	48	48	1530	31
60	410	38	60	2400	25
115*	1650	20	110	8070	14
230*	7200	10			

*115 VAC-Eurostandard 110 ... 120 VAC

*230 VAC-Eurostandard 220 ... 240 VAC

Coil "B"-version

Standard voltage
VAC/DC: 6, 12, 24, 48
Other voltage upon request.

Coil "E"/"N"/"S"-version

Standard voltage
"E": 6, 12, 24, 48, 60 VDC
"N": 6, 12, 24, 48, 60, 110 VDC
"S": 6, 12, 24, 48 VDC
Other voltage upon request.

Coil "R"-version

Standard voltage
VAC/DC: 6, 12, 24, 48
The DC-coils are designed for pulse-operation with a maximum pulse length of 300 seconds. AC-coils are for permanent operation.
Other voltage upon request.

Coil temperature

The coils are designed to be permanently energized.

The temperature rise in the coil when permanently energized at nominal voltage is:

At AC: $\Delta T_{ac} = +45^\circ C$

At DC: $\Delta T_{dc} = +35^\circ C$

The actual coil temperature (T_{coil}) at ambient temperature (T_A) is:

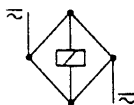
$$T_{coil} = T_A + \Delta T_{ac} \text{ or } T_A + \Delta T_{dc}$$

All coils, except the DC-versions of "R" coils, are designed to withstand a permanent connection at a maximum ambient temperature of +60°C and 1,10 x U_N.

Coil features

Coil B

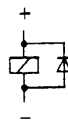
Built-in rectifier bridge allows the coil to be energized in both AC and DC circuits. Acts also as a Free Wheeling Diode with no polarity inconvenience. Increases release time approximately 3 times. Available for voltage up to 48 V.



e.g. Relay C2-B20/24VAC/DC

Code D (DC only)

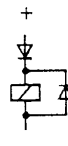
Free Wheeling Diode. Connected in parallel with the coil. It is used when the relay is energized through semi-conductors in order to dampen the peaks of inverse polarity, generated in the coil when being switched-off. The release time increases approximately 4 times.



e.g. Relay C4-A40D/24VDC

Code F (DC only)

Polarity and Free Wheeling Diodes. A second diode in series with the coil, protects against short-circuit in case of wrong polarity of power. The voltage applied to the coil decreases by 0,7 volts.



e.g. Relay C3-A30F/48VDC

Contact Materials

Ag - Fine/Hard Silver

Due to its superior electrical conductivity, fine silver is well suited for switching moderate to high loads. Silver contacts become easily tarnished from corrosive elements in the air. Adverse effects can be avoided, however, by switching relatively high voltage and by selecting a switching frequency that is not too low.

AgCdO10 - Silver Cadmium Oxide

The alloying of CdO to silver, provides a higher resistance to contact burning and

welding than fine silver alone. AgCdO10 is well suited for switching high loads with inductive or capacitive components.

0,2μ Au - Gold-flashed

The gold-flash only extends shelf life and does not improve the contact performance.

5μ/10μ Au - Gold-plated

Gold plating improves contact conductivity corrosive influences. Arcing must be avoided in order to conserve the gold layer.

The gold layer is not influenced by low and medium loads, but when switching high loads the gold layer can be destroyed. If the gold layer is destroyed, however, the contact will still retain the switching characteristics of the underlying material (see above). The use of gold-plated contacts is correct when the switching loads can vary over a wide range. Very low-load and no-load (dry contact) switching should be avoided.

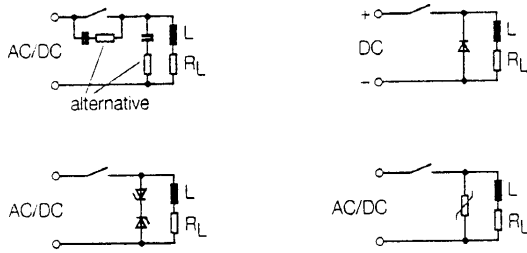
Table 3: Contact materials

Material	Application	Atmospheric reaction		Characteristics
		Oxidation	Sulphurous	
AgCdO10 Option Code 0	Universal contact with good performance on inductive loads.	resistant	tarnished	Silver Cadmium Oxide contacts have low tendency to weld. Good wear off resistance with high loads. Arc extinguishing properties. Recommended at: > 50 mA / 24 V AC / DC < 10 A / 230 V AC
Ag + 5μ Au (GP) Option Code 3	Low current and voltage e.g. for PLC-signals	resistant	resistant	Almost constant contact resistance, high reliability at low switching levels. Recommended at: > 10 mA / 24 VAC / DC < 5 A / 230 VAC
Ag + 0,2μ Au (GF) Option Code 4	Low current and voltage e.g. for PLC-signals	resistant	resistant	Almost constant contact resistance, high reliability at low switching levels. The gold-flash only extends shelf life and does not improve the contact performance. Recommended at: > 10 mA / 24 VAC / DC < 5 A / 230 VAC
Ag + 10μ Au (GP) Option Code 5	Low current and voltage e.g. for PLC-signals	resistant	resistant	Almost constant contact resistance, high reliability at low switching levels. Recommended at: > 10 mA / 24 VAC / DC < 5 A / 230 VAC
AgCdO10 + 5μ Au (GP) Option Code 7	Universal contact for low signal to high current and voltage switching including inductive loads.	resistant	resistant	Almost constant contact resistance, high reliability at low switching levels Recommended at: > 10 mA / 24 VAC / DC < 10 A / 230 VAC
AgCdO10 + 10μ Au (GP) Option Code 8	Universal contact for low signal to high current and voltage switching including inductive loads.	resistant	resistant	Silver Cadmium Oxide Gold Plated has almost constant contact resistance and high reliability at low switching level. Recommended at: > 10 mA / 24 VAC / DC < 10 A / 230 VAC
AgCdO10 + 0,2μ Au (GF) Option Code 9	Universal contact with gold flashed protection.	resistant	resistant	Almost constant contact resistance, good arc extinguishing capability on AC, security against contact welding, resistance against erosion. The gold-flash only extends shelf life and does not improve the contact performance. Recommended at: > 50 mA / 24 VAC / DC < 10 A / 230 VAC

MR-C

Contact protection

Contact protection is recommended when switching reactive load. Here are four different principles of protection:



The values of R and C can be calculated with following:

$$C [\mu F] = \frac{(I_{max})^2 [A]}{10}$$

$$R [\Omega] > \frac{U [V]}{I_{max} \cdot \frac{U [V]}{R_L [\Omega]}}$$

I_{max} as per table 4

Table 4: Maximum breaking capacity, DC (voltage vs, current) in Amp. 1, 2 or 3 contacts in series.

C2/3/4	Resistive load			Inductive load L/R=30ms		
	Vdc	1C	2C	3C	1C	2C
24	10,0	10,0	10,0	7,0	7,0	7,0
48	2,0	7,0	10,0	0,9	6,0	7,0
60	1,3	5,0	10,0	0,7	3,5	7,0
110	0,5	1,9	4,0	0,3	1,0	2,6
220	0,2	0,6	0,8	0,12	0,3	0,6

C5	Resistive load			Inductive load L/R=30ms		
	Vdc	1C	2C	3C	1C	2C
24	15,0	15,0	15,0	10,0	10,0	10,0
48	2,0	8,0	15,0	1,5	7,0	12,0
60	1,3	5,0	15,0	1,0	4,0	12,0
110	0,6	1,9	4,0	0,3	1,0	2,6
220	0,2	0,6	0,8	0,12	0,3	0,6

Table 5: Electrical life, AC

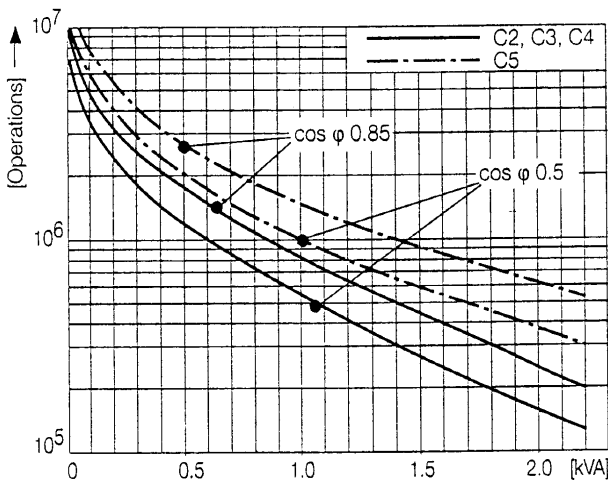


Table 6: Electrical life, DC

Values valid for relays without diodes in parallel with the coil.

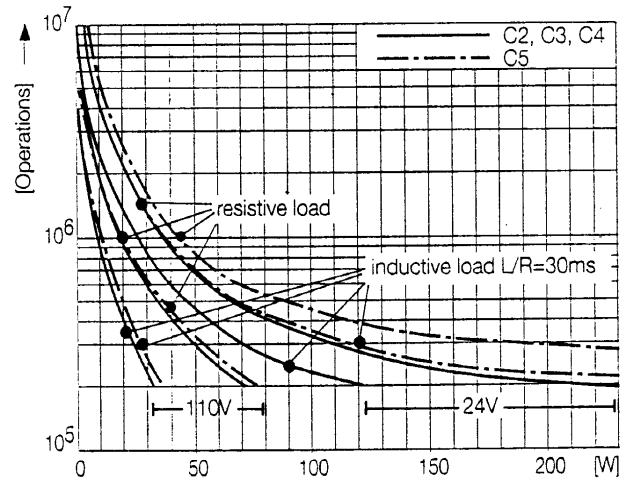


Table 7: Breaking capacity, DC - resistive load

Contacts in series, values valid for relays without diodes in parallel with the coil.

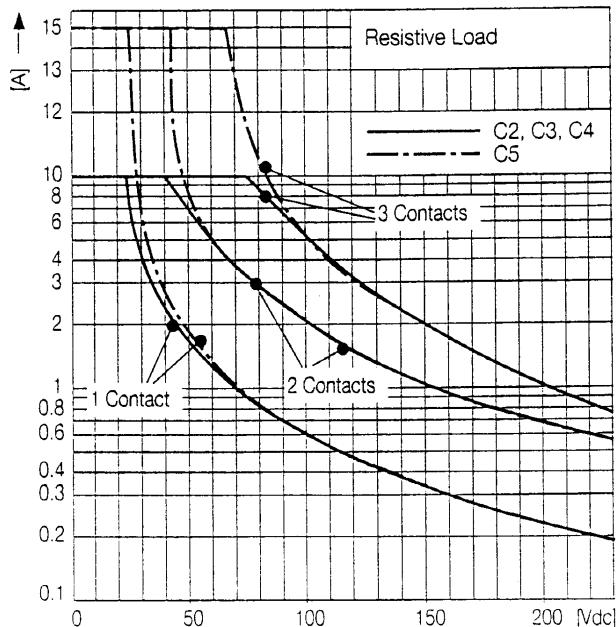
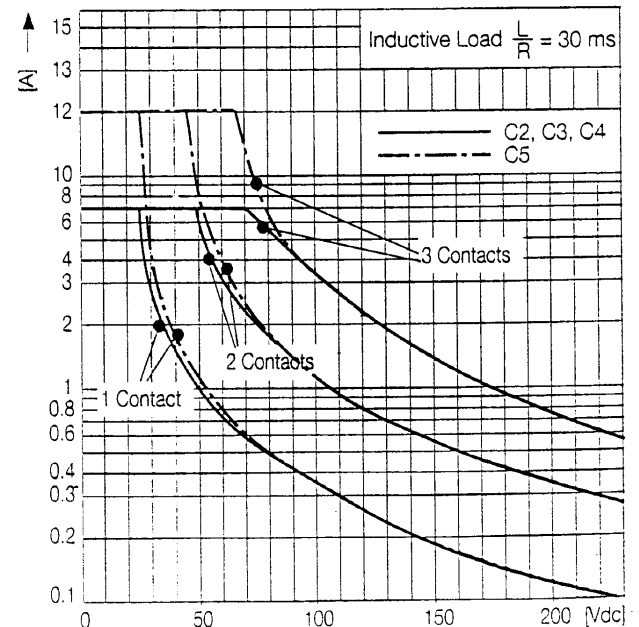


Table 8: Breaking capacity, DC - inductive load

Contacts in series, values valid for relays without diodes in parallel with the coil.



Standard Specifications

The products covered by this catalogue are produced within the specifications of VDE 0435 and VDE 0110.

Primary consideration has been given to the minimum creepage distances, according to VDE 0110, Isolation Class C, which complies with VDE 0113.

All sockets with screw terminals, have "Prevention against accidental contact" according to DIN 57 470.

Norms

VDE 0110

This norm defines the minimum creepage distances for equipment, to prevent hazard through electrical current and voltage for persons and objects.

Isolation Class C includes equipment mainly designed for industrial and agricultural applications, in warehouses without heating, in workshops and on machine tools. For example, electrical control systems for production and processing machines (VDE 0113)

VDE 0435a

Relays used in High Voltage controls according to VDE 0435a/9.72 have to be selected with a corresponding Isolation Class according to VDE 0110.

VDE 0113

Isolation Class VDE 0113 is valid for production- and processing machines with a nominal voltage up to 1000 V.







Thereafter the Class must at least comply with Class C according to VDE 0110.

VBG 4 §5, part 4

The VBG Specification is dealing with rules for the prevention of accidents. The VBG is valid for electrical installations and equipment.

Preventing accidental contact is defined in VDE 0106 Part 100, for design of electrical equipment and its location in electrical installations.

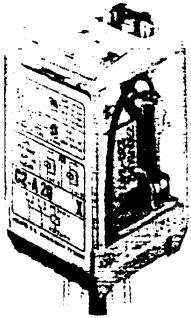
Table 9: Approvals

Country	Approval	Relay	Socket	Time Cube
Austria	 Authority: ÖVE File Number: 5602-000-00 Specification: ÖVE-R255	C2-A20 C3-A30 C4-A40 C5-A .0	S2-B S3-B S4-B	
Canada	 Authority: CSA File Number: LR 38486 and LR 69757 Specification: C22.2	C2-A20 C3-A30 C5-A .0	S2-B S3-B	CT2 CT3
Finland	 Authority: SETI File Number: 073866-01, 083932-01, 093055-01, 113600-01 Specification: 83932-83933	C3-A. C4-A. C4-R.	S3-B S4-B	
Norway	 Authority: NEMKO File Number: M58515/01,03 M 59242/01-14 Specification: 21. /66 und 22. /52	C3-A30 C4-A40	S3-B S4-B	
Switzerland	 Authority: SEV File Number: F.191/187, 107a / 89,5 50478,01 Specification: 1002, 1025	C2-.. C3-.. C4-.. C5-..	S2-B S3-B S4-B	CT2 CT3
United Kingdom	Lloyd's Authority: Lloyd's Register of Shipping File Number: MAD 400.563/2596 Specification: CSA C22.2	C2-A20 C3-A30 C4-A40	S3-B S4-B	
USA	 Authority: UL File Number: E86015, E-92191 Specification: UL 508	C2-A2. C3-A3. C5-A .0	S2-B S3-B	CT2 CT3

MR-C

General Purpose Relay,
Octal plug-in,
2 pole

Series C2-...



Type	C2-A20/24VAC	C2-A20X/24VAC	C2-A20/115VAC	C2-A20X/115VAC	C2-A20/230VAC	C2-A20X/230VAC	C2-A29/...VAC	C2-A29X/...VAC
Nominal voltage	24 VAC		115 VAC		230 VAC		see page 6	
Contact	AgCdO10		AgCdO10		AgCdO10		AgCdO10 + 0,2μ Au	
	DPDT		DPDT		DPDT		DPDT	
Wiring diagram								
	<p style="text-align: center;">Bottom view</p>							

DIN pin numbering
IEC pin numbering

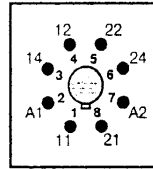
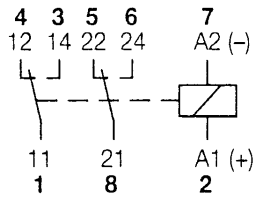
Function		standard	standard	standard	standard
LED/Neon Indicator		-	✓	-	✓
Free Wheeling Diode		-	-	-	-
Polarity- and Free Wheeling Diode		-	-	-	-
Coil					
Coil operating voltage	[V]	0,8 ... 1,1 U _N		0,8 ... 1,1 U _N	
Nominal power consumption	[VA/W]	2,2		2,2	
Nominal current	[mA]	92	97	19	24
Pull-in voltage	[V]	19,2		92	
Drop-out voltage	[V]	6		29	
Coil resistance (± 10 % tolerance)	[Ω]	70		1700	
				7400	
				see page 6, table 1	
				0,80 x U _N	
				0,25 x U _N	
				see page 6, table 1	
Contacts					
Max. switching current (resistive)	[A]	10		10	
Peak inrush current (resist. 10ms)	[A]	30		30	
Max. switching voltage	[VAC]	380		380	
Max. switching load AC per contact at 50Hz	[VA]	2200		2200	
Max. switching load DC per contact at 24V	[W]	240		240	

General data	
Operate time	≤ 18 msec
Release time (without Free Wheeling Diode)	≤ 10 msec
Bounce time	2...6 msec
Contact pressure (NO/NC)	30...35 / 25...30 g
Contact gap	0,5 mm
Insulation class in accordance with VDE 0110	Group C250
Test voltage 50 Hz 1 min	2500 V _{rms}
Insulation resistance	1500 MΩ
Maximum switching with 100 % load	1200 ops/h
Maximum switching with 50 % load	2000 ops/h
Minimum mechanical life	≥ 30 x 10 ⁶ ops
Ambient temperature	-20...+60°C
Dimensions	35 x 35 x 71 mm
Protection class (DIN 40 050)	IP40
Weight, avg.	95 g

Contact materials	Code
AgCdO10	Standard 0
Ag + 5μ Au	3
Ag + 10μ Au	5
AgCdO10 + 5μ Au	7
AgCdO10 + 10μ Au	8
AgCdO10 + 0,2μ Au	9

Approvals	
CSA-Canada	Lloyd's UK
SEV-Switzerland	ÖVE-Austria
UL-USA	

C2-A20/12VDC	C2-A20DX/12VDC	C2-A20FX/12VDC	C2-A20X/12VDC	C2-A20/24VDC	C2-A20DX/24VDC	C2-A20FX/24VDC	C2-A20X/24VDC	C2-A20/48VDC	C2-A20DX/48VDC	C2-A20FX/48VDC	C2-A20X/48VDC	C2-A20/110VDC	C2-A20DX/110VDC	C2-A20FX/110VDC	C2-A20X/110VDC	C2-A29/...VDC	C2-A29DX/...VDC	C2-A29FX/...VDC	C2-A29X/...VDC
12 VDC				24 VDC				48 VDC				110 VDC				see page 6			
AgCdO10				AgCdO10				AgCdO10				AgCdO10				AgCdO10 + 0,2μ Au			
DPDT				DPDT				DPDT				DPDT				DPDT			



Bottom view

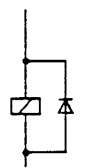
standard	standard	standard	standard	standard
- ✓ ✓ ✓	- ✓ ✓ ✓	- ✓ ✓ ✓	- ✓ ✓ ✓	- ✓ ✓ ✓
- ✓ - -	- ✓ - -	- ✓ - -	- ✓ - -	- ✓ - -
- - ✓ -	- - ✓ -	- - ✓ -	- - ✓ -	- - ✓ -
0,75...1,1 U _N	0,75...1,1 U _N	0,75...1,1 U _N	0,75...1,1 U _N	0,75...1,1 U _N
1,3	1,3	1,3	1,3	1,3
108 113 113 113	54 59 59 59	27 32 32 32	12 13 13 13	see page 6, table 1
9	18	36	83	0,75 x U _N
2,4	4,8	9,6	22	0,20 x U _N
110	440	1770	9300	see page 6, table 1
10	10	10	10	10
30	30	30	30	30
380	380	380	380	380
2200	2200	2200	2200	2200
240	240	240	240	240

Coil features

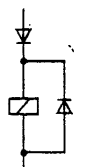
Coil type B



Code D

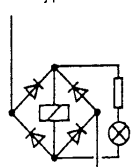


Code F

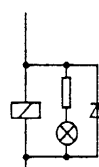


Coils with LED/Neon Indicator

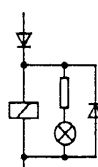
Coil type B...X



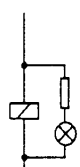
Code DX



Code FX

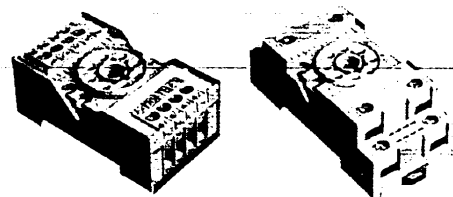


Code X



Socket

Recommended type:



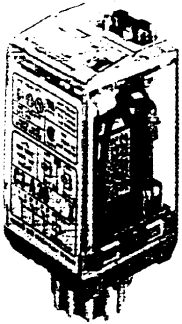
S2-B and S2-S

Further information, see page 26...27

MR-C

General Purpose Relay,
11-pin plug-in
3 pole

Series C3-...



Type	C3-A30/24VAC	C3-A30X/24VAC	C3-A30/115VAC	C3-A30X/115VAC	C3-A30/230VAC	C3-A30X/230VAC	C3-A39/...VAC	C3-A39X/...VAC
Nominal voltage	24 VAC		115 VAC		230 VAC		see page 6	
Contact	AgCdO10		AgCdO10		AgCdO10		AgCdO10 + 0,2µ Au	
	3PDT		3PDT		3PDT		3PDT	
Wiring diagram								
	DIN pin numbering IEC pin numbering				Bottom view			

Function		standard	standard	standard	standard
LED/Neon Indicator		-	✓	-	✓
Free Wheeling Diode		-	-	-	-
Polarity- and Free Wheeling Diode		-	-	-	-
Coil					
Coil operating voltage	[V]	0,8 ... 1,1 U _N		0,8 ... 1,1 U _N	
Nominal power consumption	[VA/W]	2,2		2,2	
Nominal current	[mA]	92	97	19	24
Pull-in voltage	[V]	19,2		92	
Drop-out voltage	[V]	6		29	
Coil resistance (± 10 % tolerance)	[Ω]	70		1700	
				7400	
					see page 6, table 1
					0,80 x U _N
					0,25 x U _N
					see page 6, table 1
Contacts					
Max. switching current (resistive)	[A]	10		10	
Peak inrush current (resist. 10ms)	[A]	30		30	
Max. switching voltage	[VAC]	250		250	
Max. switching load AC per contact at 50Hz	[VA]	2200		2200	
Max. switching load DC per contact at 24V	[W]	240		240	

General data	
Operate time	≤ 18 msec
Release time (without Free Wheeling Diode)	≤ 10 msec
Bounce time	2...6 msec
Contact pressure (NO/NC)	30...35 / 25...30 g
Contact gap	0,5 mm
Insulation class in accordance with VDE 0110	Group C250
Test voltage 50 Hz 1 min	2500 V _{rms}
Insulation resistance	1500 MΩ
Maximum switching with 100 % load	1200 ops/h
Maximum switching with 50 % load	2000 ops/h
Minimum mechanical life	≥ 30 x 10 ⁶ ops
Ambient temperature	-20...+60°C
Dimensions	35 x 35 x 71 mm
Protection class (DIN 40 050)	IP40
Weight, avg.	95 g

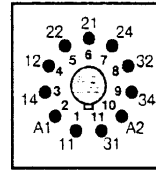
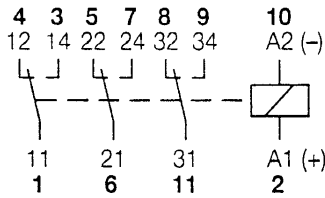
Contact materials	Code
AgCdO10	Standard 0
Ag + 5µ Au	3
Ag + 10µ Au	5
AgCdO10 + 5µ Au	7
AgCdO10 + 10µ Au	8
AgCdO10 + 0,2µ Au	9

Approvals

UL-USA	ÖVE-Austria
CSA-Canada	Nemko-Norway
SEV-Switzerland	SETI-Finland

Lloyd's UK

C3-A30/12VDC	C3-A30DX/12VDC	C3-A30FX/12VDC	C3-A30X/12VDC	C3-A30/24VDC	C3-A30DX/24VDC	C3-A30FX/24VDC	C3-A30X/24VDC	C3-A30/48VDC	C3-A30DX/48VDC	C3-A30FX/48VDC	C3-A30X/48VDC	C3-A30/110VDC	C3-A30DX/110VDC	C3-A30FX/110VDC	C3-A30X/110VDC	C3-A39/...VDC	C3-A39DX/...VDC	C3-A39FX/...VDC	C3-A39X/...VDC
12 VDC				24 VDC				48 VDC				110 VDC				see page 6			
AgCdO10				AgCdO10				AgCdO10				AgCdO10				AgCdO10 + 0,2μ Au			
3PDT				3PDT				3PDT				3PDT				3PDT			

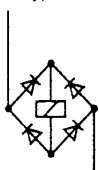


Bottom view

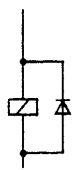
standard	standard	standard	standard	standard
- ✓ ✓ ✓	- ✓ ✓ ✓	- ✓ ✓ ✓	- ✓ ✓ ✓	- ✓ ✓ ✓
- ✓ - -	- ✓ - -	- ✓ - -	- ✓ - -	- ✓ - -
- - ✓ -	- - ✓ -	- - ✓ -	- - ✓ -	- - ✓ -
0,75...1,1 U _N	0,75...1,1 U _N	0,75...1,1 U _N	0,75...1,1 U _N	0,75...1,1 U _N
1,3	1,3	1,3	1,3	1,3
108 113 113 113	54 59 59 59	27 32 32 32	12 13 13 13	see page 6, table 1
9	18	36	83	0,75 x U _N
2,4	4,8	9,6	22	0,20 x U _N
110	440	1770	9300	see page 6, table 1
10	10	10	10	10
30	30	30	30	30
250	250	250	250	250
2200	2200	2200	2200	2200
240	240	240	240	240

Coil features

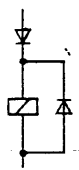
Coil type B



Code D

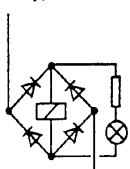


Code F

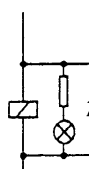


Coils with LED/Neon Indicator

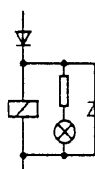
Coil type B...X



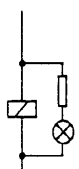
Code DX



Code FX

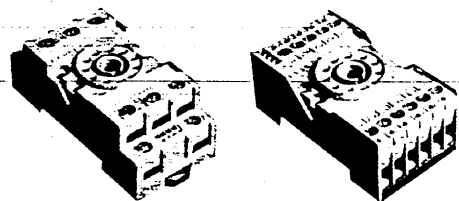


Code X



Socket

Recommended type:



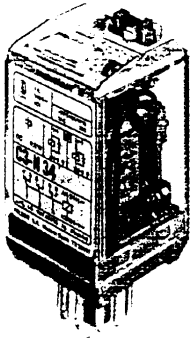
S3-B and S3-S

Further information, see page 26...27

MR-C

High Sensitive
General Purpose Relay,
11-pin plug-in,
1/2/3 pole

Series C3-E/-N/-S...



Type	C3-S16/6VDC		C3-S16/12VDC		C3-S16/24VDC		C3-S16/48VDC		C3-E16/6VDC		C3-E16/12VDC		C3-E16/24VDC		C3-E16/48VDC	
Nominal voltage	6 VDC	12 VDC	24 VDC	48 VDC	6 VDC	12 VDC	24 VDC	48 VDC	6 VDC	12 VDC	24 VDC	48 VDC	6 VDC	12 VDC	24 VDC	48 VDC
Coil	250 mW								500 mW							
Contact	SPDT (Ag + 0,2μ Au)								SPDT (Ag + 0,2μ Au)							
Wiring diagram																

DIN pin numbering
IEC pin numbering

Function	standard		standard		standard		standard	
LED/Neon Indicator	-	-	-	-	-	-	-	-
Free Wheeling Diode	-	-	-	-	-	-	-	-
Polarity- and Free Wheeling Diode	-	-	-	-	-	-	-	-
Coil								
Coil operating voltage [V]	0,75 ... 2,1 U _N		0,75 ... 2,1 U _N		0,75 ... 1,5 U _N		0,75 ... 1,5 U _N	
Nominal power consumption [W]	0,25		0,25		0,5		0,5	
Nominal current [mA]	42	21	10	5	83	42	21	11
Pull-in voltage [V]	4,5	9,0	18	36	4,5	9,0	18	36
Drop-out voltage [V]	0,6	1,2	2,4	4,8	0,6	1,2	2,4	4,8
Coil resistance (± 10 % tolerance) [Ω]	145	575	2300	9215	72	288	1150	4610
Contacts								
Max. switching current (resistive) [A]	4		4		4		4	
Peak inrush current (resist. 10ms) [A]	12		12		12		12	
Max. switching voltage [VAC]	250		250		250		250	
Max. switching load AC per contact at 50Hz [VA]	800		800		800		800	
Max. switching load DC per contact at 24V [W]	120		120		120		120	

General data	
Operate time	≤ 20 msec
Release time (without Free Wheeling Diode)	≤ 10 msec
Bounce time	2...6 msec
Contact pressure (NO/NC)	18...20 / 15...18 g
Contact gap	0,45 mm
Insulation class in accordance with VDE 0110	Group C250
Test voltage 50 Hz 1 min	2500 V _{rms}
Insulation resistance	1500 MΩ
Maximum switching with 100 % load	1200 ops/h
Maximum switching with 50 % load	2000 ops/h
Minimum mechanical life	≥ 30 x 10 ⁶ ops
Ambient temperature	-20...+60°C
Dimensions	35 x 35 x 71 mm
Protection class (DIN 40 050)	IP40
Weight, avg.	95 g

Optional contact material	Code
Ag + 0,2μ Au Standard	4
Ag + 5μ Au	7
Ag + 10μ Au	8

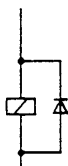
Approvals	
UL-USA	ÖVE-Austria
CSA-Canada	Nemko-Norway
SEV-Switzerland	SETI-Finland

Lloyds UK

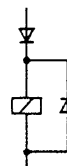
C3-E26/6VDC		C3-E26/12VDC		C3-E26/24VDC		C3-E26/48VDC		C3-N26/12VDC		C3-N26/24VDC		C3-N26/48VDC		C3-N26/110VDC		C3-N36/12VDC		C3-N36/24VDC		C3-N36/48VDC		C3-N36/110VDC		
6 VDC	12 VDC	24 VDC	48 VDC	12 VDC	24 VDC	48 VDC	110 VDC	12 VDC	24 VDC	48 VDC	110 VDC	12 VDC	24 VDC	48 VDC	110 VDC									
500 mW						800 mW						800 mW												
DPDT (Ag + 0,2μ Au)						DPDT (Ag + 0,2μ Au)						3PDT (Ag + 0,2μ Au)												
						<p style="text-align: center;">Bottom view</p>																		
standard		standard		standard		standard		standard		standard		standard		standard		standard		standard		standard		standard		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0,75 ... 1,5 U _N	0,5	0,75 ... 1,5 U _N	0,5	0,75 ... 1,2 U _N	0,8	0,75 ... 1,2 U _N	0,8	0,75 ... 1,2 U _N	0,8	0,75 ... 1,2 U _N	0,8	0,75 ... 1,2 U _N	0,8	0,75 ... 1,2 U _N	0,8	0,75 ... 1,2 U _N	0,8	0,75 ... 1,2 U _N	0,8	0,75 ... 1,2 U _N	0,8	0,75 ... 1,2 U _N		
83	42	21	11	67	33	17	7	67	33	17	7	67	33	17	7	67	33	17	7	67	33	17	7	
4,5	9,0	18	36	9	18	36	83	9	18	36	83	9	18	36	83	9	18	36	83	9	18	36	83	
0,6	1,2	2,4	4,8	1,2	2,4	4,8	11	1,2	2,4	4,8	11	1,2	2,4	4,8	11	1,2	2,4	4,8	11	1,2	2,4	4,8	11	
72	288	1150	4610	180	720	2880	15125	180	720	2880	15125	180	720	2880	15125	180	720	2880	15125	180	720	2880	15125	
4	12	250	800	120	4	12	250	800	120	4	12	250	800	120	4	12	250	800	120	4	12	250	800	120

Coil features

Code D



Code F

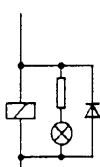


Warning

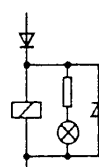
Connecting diodes and Led's within the coil, could affect the operate, aperture and close established values.

Coils with LED/Neon Indicator

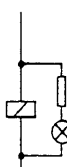
Code DX



Code FX

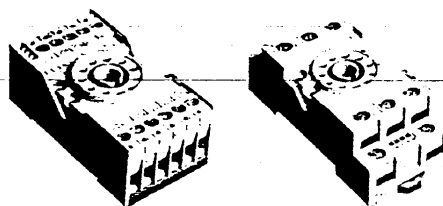


Code X



Socket

Recommended type:



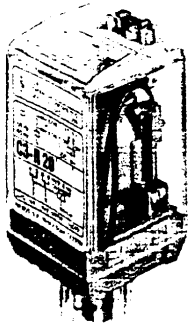
S3-B and S3-S

Further information, see page 26...27

MR-C

Latching
General Purpose Relay,
11-pin plug-in,
2 pole

Series C3-R...



Type	C3-R20/24VAC	C3-R20/115VAC	C3-R20/230VAC	C3-R28/...
Nominal voltage	24 VAC	115 VAC	230 VAC	see page 6
Coil	AgCdO10	AgCdO10	AgCdO10	AgCdO10 + 10μ Au
Contact	DPDT	DPDT	DPDT	DPDT
Wiring diagram				

DIN pin numbering
IEC pin numbering

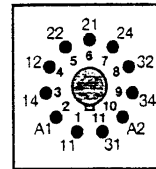
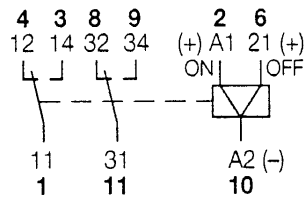
Function	C3-R20/24VAC	C3-R20/115VAC	C3-R20/230VAC	C3-R28/...
LED/Neon Indicator	-	-	-	-
Free Wheeling Diode	-	-	-	-
Polarity- and Free Wheeling Diode	-	-	-	-
Coil				
Coil operating voltage [V]	0,8 ... 1,1 U _N	0,8 ... 1,1 U _N	0,8 ... 1,1 U _N	0,8 ... 1,1 U _N
Nominal power consumption [VA/W]	On pulse 2,0 / Off pulse 0,4	On pulse 2,0 / Off pulse 0,4	On pulse 2,0 / Off pulse 0,4	On pulse 2,0 / Off pulse 0,4
Nominal current [mA]	-	-	-	-
Pull-in voltage [V]	19	96	184	see page 6
Drop-out voltage [V]	-	-	-	-
Coil resistance (± 10 % tolerance) [Ω]	-	-	-	-
Contacts				
Max. switching current (resistive) [A]	10	10	10	10
Peak inrush current (resist. 10ms) [A]	30	30	30	30
Max. switching voltage [VAC]	250	250	250	250
Max. switching load AC per contact at 50Hz [VA]	2200	2200	2200	220
Max. switching load DC per contact at 24V [W]	200	200	200	200

General data	
Operate time	< 25 msec
Release time (without Free Wheeling Diode)	< 20 msec
Bounce time	2...6 msec
Contact pressure (NO/NC)	25...30 / 20...25 g
Contact gap	0,5 mm
Insulation class in accordance with VDE 0110	Group C
Test voltage 50 Hz 1 min	2500 V _{rms}
Insulation resistance	1500 MΩ
Maximum switching with 100 % load	1200 ops/h
Maximum switching with 50 % load	2000 ops/h
Minimum mechanical life	≥ 30 x 10 ⁶ ops
Ambient temperature	-20...+60°C
Dimensions	35 x 35 x 71 mm
Protection class (DIN 40 050)	IP40
Weight, avg.	95 g

Optional contact material	Code
AgCdO10 Standard	0
Ag + 5μ Au	3
Ag + 10μ Au	5
AgCdO10 + 5μ Au	7
AgCdO10 + 10μ Au	8
AgCdO10 + 0,2μ Au	9

Approvals
SEV-Switzerland

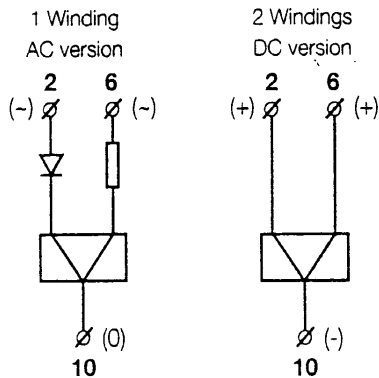
C3-R20/12VDC	C3-R20/24VDC	C3-R20/48VDC	C3-R20/110VDC	C3-R28/...
12 VDC	24 VDC	48 VDC	110 VDC	see page 6
AgCdO10	AgCdO10	AgCdO10	AgCdO10	AgCdO10 + 10 μ Au
DPDT	DPDT	DPDT	DPDT	DPDT



Bottom view

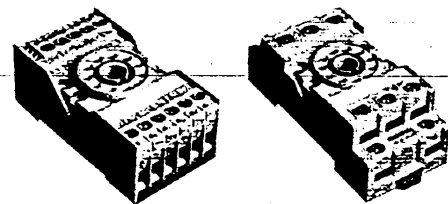
latching	latching	latching	latching	latching
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
0,75 ... 1,1 U _N On pulse 2,2 / Off pulse 0,5	0,75 ... 1,1 U _N On pulse 2,2 / Off pulse 0,5	0,75 ... 1,1 U _N On pulse 2,2 / Off pulse 0,5	0,75 ... 1,1 U _N On pulse 2,2 / Off pulse 0,5	0,75 ... 1,1 U _N On pulse 2,2 / Off pulse 0,5
-	-	-	-	-
9	18	36	83	0,80 x U _N
-	-	-	-	-
-	-	-	-	-
10	10	10	10	10
30	30	30	30	30
250	250	250	250	250
2200	2200	2200	2200	2200
200	200	200	200	200

Extended wiring diagram - coils:



Socket

Recommended type:



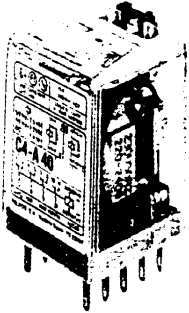
S3-B and S3-S

Further information, see page 26...27

MR-C

General Purpose Relay,
Square Base, plug-in,
flat blade 2,8 x 0,5mm,
4 pole

Series C4-...



Type	C4-A40/24VAC	C4-A40X/24VAC	C4-A40/115VAC	C4-A40X/115VAC	C4-A40/230VAC	C4-A40X/230VAC	C4-A49/...VAC	C4-A49X/...VAC
Nominal voltage	24 VAC		115 VAC		230 VAC		see page 6	
Contact	AgCdO10		AgCdO10		AgCdO10		AgCdO10 + 0,2μ Au	
	4PDT		4PDT		4PDT		4PDT	
Wiring diagram								
	<small>DIN pin numbering IEC pin numbering</small>							

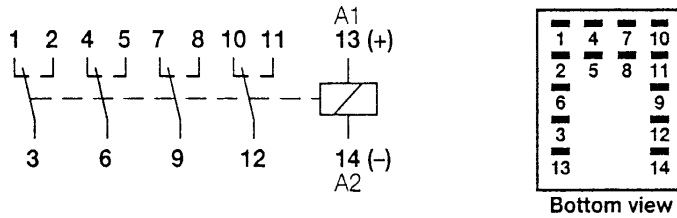
Function		standard	standard	standard	standard
LED/Neon Indicator		-	✓	-	✓
Free Wheeling Diode		-	-	-	-
Polarity- and Free Wheeling Diode		-	-	-	-
Coil					
Coil operating voltage	[V]	0,8 ... 1,1 U _N	0,8 ... 1,1 U _N	0,8 ... 1,1 U _N	0,8 ... 1,1 U _N
Nominal power consumption	[VA/W]	2,3	2,3	2,3	2,3
Nominal current	[mA]	96 101	20 25	10 11	see page 6, table 2
Pull-in voltage	[V]	19,2	92	184	0,80 x U _N
Drop-out voltage	[V]	7,2	35	69	0,30 x U _N
Coil resistance (± 10 % tolerance)	[Ω]	66	1650	7200	see page 6, table 2
Contacts					
Max. switching current (resistive)	[A]	10	10	10	10
Peak inrush current (resist. 10ms)	[A]	30	30	30	30
Max. switching voltage	[VAC]	250	250	250	250
Max. switching load AC per contact at 50Hz	[VA]	1800	1800	1800	1800
Max. switching load DC per contact at 24V	[W]	240	240	240	240

General data	
Operate time	≤ 20 msec
Release time (without Free Wheeling Diode)	≤ 10 msec
Bounce time	2...6 msec
Contact pressure (NO/NC)	30...35 / 25...30 g
Contact gap	0,5 mm
Insulation class in accordance with VDE 0110	Group C250
Test voltage 50 Hz 1 min	2500 V _{rms}
Insulation resistance	1500 MΩ
Maximum switching with 100 % load	1200 ops/h
Maximum switching with 50 % load	2000 ops/h
Minimum mechanical life	≥ 30 x 10 ⁸ ops
Ambient temperature	-20...+60°C
Dimensions	35 x 35 x 61 mm
Protection class (DIN 40 050)	IP40
Weight, avg.	95 g

Contact materials	Code
AgCdO10	Standard 0
Ag + 5μ Au	3
Ag + 10μ Au	5
AgCdO10 + 5μ Au	7
AgCdO10 + 10μ Au	8
AgCdO10 + 0,2μ Au	9

Approvals	
(FI) SETI-Finland	Lloyd's UK
(N) Nemko-Norway	(S) SEV-Switzerland
(ÖVE) ÖVE-Austria	

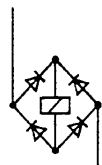
C4-A40/12VDC	C4-A40DX/12VDC	C4-A40FX/12VDC	C4-A40X/12VDC	C4-A40/24VDC	C4-A40DX/24VDC	C4-A40FX/24VDC	C4-A40X/24VDC	C4-A40/48VDC	C4-A40DX/48VDC	C4-A40FX/48VDC	C4-A40X/48VDC	C4-A40/110VDC	C4-A40DX/110VDC	C4-A40FX/110VDC	C4-A40X/110VDC	C4-A49/...VDC	C4-A49DX/...VDC	C4-A49FX/...VDC	C4-A49X/...VDC
12 VDC				24 VDC				48 VDC				110 VDC				see page 6			
AgCdO10				AgCdO10				AgCdO10				AgCdO10				AgCdO10 + 0,2μ Au			
4PDT				4PDT				4PDT				4PDT				4PDT			



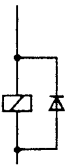
standard	standard	standard	standard	standard
- ✓ ✓ ✓	- ✓ ✓ ✓	- ✓ ✓ ✓	- ✓ ✓ ✓	- ✓ ✓ ✓
- ✓ - -	- ✓ - -	- ✓ - -	- ✓ - -	- ✓ - -
- - ✓ -	- - ✓ -	- - ✓ -	- - ✓ -	- - ✓ -
0,75...1,1 U _N	0,75...1,1 U _N	0,75...1,1 U _N	0,75...1,1 U _N	0,75...1,1 U _N
1,5	1,5	1,5	1,5	1,5
125 130 130 130	63 68 68 68	31 36 36 36	14 15 36 15	see page 6, table 2
9	18	36	83	0,75 x U _N
2,4	4,8	9,6	22	0,20 x U _N
96	384	1530	8070	see page 6, table 2
10	10	10	10	10
30	30	30	30	30
250	250	250	250	250
1800	1800	1800	1800	1800
240	240	240	240	240

Coil features

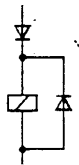
Coil type B



Code D

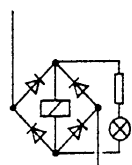


Code F

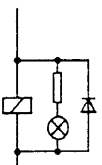


Coils with LED/Neon Indicator

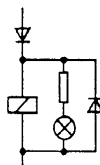
Coil type B...X



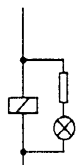
Code DX



Code FX

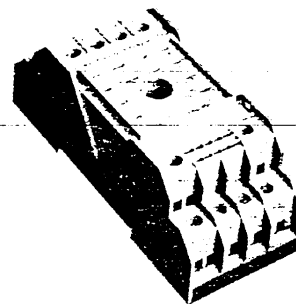


Code X



Socket

Recommended type:



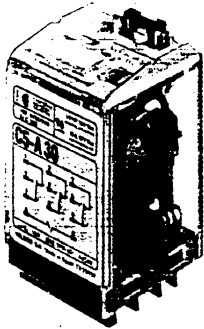
S4-B

Further information, see page 28...29

MR-C

Power Relay, 15 Amp
Square Base, plug-in,
flat blade 4,8 x 0,5mm,
3 pole

Series C5-...



Type	C5-A30/24VAC	C5-A30X/24VAC	C5-A30/115VAC	C5-A30X/115VAC	C5-A30/230VAC	C5-A30X/230VAC	C5-A39/...VAC	C5-A39X/...VAC
Nominal voltage	24 VAC		115 VAC		230 VAC		see page 6	
Contact	AgCdO10		AgCdO10		AgCdO10		AgCdO10 + 0,2µ Au	
	3PDT		3PDT		3PDT		3PDT	
Wiring diagram	<p style="text-align: center;">Bottom view</p>							

DIN pin numbering
IEC pin numbering

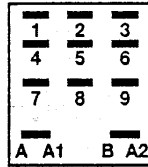
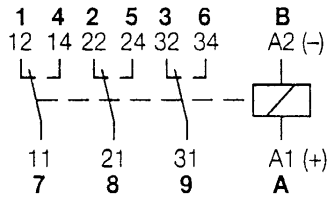
Function	standard	standard	standard	standard
LED/Neon Indicator	- ✓	- ✓	- ✓	- ✓
Free Wheeling Diode	- -	- -	- -	- -
Polarity- and Free Wheeling Diode	- -	- -	- -	- -
Coil				
Coil operating voltage [V]	0,8 ... 1,1 U _N	0,8 ... 1,1 U _N	0,8 ... 1,1 U _N	0,8 ... 1,1 U _N
Nominal power consumption [VA/W]	2,3	2,3	2,3	2,3
Nominal current [mA]	96 101	20 25	10 11	see page 6, table 2
Pull-in voltage [V]	19,2	92	184	0,80 x U _N
Drop-out voltage [V]	6	29	58	0,25 x U _N
Coil resistance (± 10 % tolerance) [Ω]	66	1650	7200	see page 6, table 2
Contacts				
Max. switching current (resistive) [A]	15	15	15	15
Peak inrush current (resist. 10ms) [A]	45	45	45	45
Max. switching voltage [VAC]	380	380	380	380
Max. switching load AC per contact at 50Hz [VA]	2800	2800	2800	2800
Max. switching load DC per contact at 24V [W]	360	360	360	360

General data	
Operate time	≤ 20 msec
Release time (without Free Wheeling Diode)	≤ 10 msec
Bounce time	2...6 msec
Contact pressure (NO/NC)	35...40 / 30...35 g
Contact gap	0,5 mm
Insulation class in accordance with VDE 0110	Group C250
Test voltage 50 Hz 1 min	2500 V _{rms}
Insulation resistance	1500 MΩ
Maximum switching with 100 % load	1200 ops/h
Maximum switching with 50 % load	2000 ops/h
Minimum mechanical life	≥ 30 x 10 ⁶ ops
Ambient temperature	-20...+60°C
Dimensions	35 x 35 x 61 mm
Protection class (DIN 40 050)	IP40
Weight, avg.	95 g

Contact materials	Code
AgCdO10	Standard 0
Ag + 5µ Au	3
Ag + 10µ Au	5
AgCdO10 + 5µ Au	7
AgCdO10 + 10µ Au	8
AgCdO10 + 0,2µ Au	9

Approvals	
CSA-Canada	SEV-Switzerland
UL-USA	ÖVE-Austria

C5-A30/12VDC	C5-A30DX/12VDC	C5-A30FX/12VDC	C5-A30X/12VDC	C5-A30/24VDC	C5-A30DX/24VDC	C5-A30FX/24VDC	C5-A30X/24VDC	C5-A30/48VDC	C5-A30DX/48VDC	C5-A30FX/48VDC	C5-A30X/48VDC	C5-A30/110VDC	C5-A30DX/110VDC	C5-A30FX/110VDC	C5-A30X/110VDC	C5-A39/...VDC	C5-A39DX/...VDC	C5-A39FX/...VDC	C5-A39X/...VDC
12 VDC				24 VDC				48 VDC				110 VDC				see page 6			
AgCdO10				AgCdO10				AgCdO10				AgCdO10				AgCdO10 + 0,2μ Au			
3PDT				3PDT				3PDT				3PDT				3PDT			

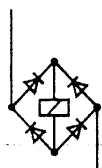


Bottom view

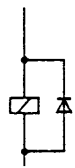
standard	standard	standard	standard	standard
- ✓ ✓ ✓	- ✓ ✓ ✓	- ✓ ✓ ✓	- ✓ ✓ ✓	- ✓ ✓ ✓
- ✓ - -	- ✓ - -	- ✓ - -	- ✓ - -	- ✓ - -
- - ✓ -	- - ✓ -	- - ✓ -	- - ✓ -	- - ✓ -
0,75...1,1 U _N	0,75...1,1 U _N	0,75...1,1 U _N	0,75...1,1 U _N	0,75...1,1 U _N
1,5	1,5	1,5	1,5	1,5
125 130 130 130	63 68 68 68	31 36 36 36	14 15 15 15	see page 6, table 2
9	18	36	83	0,75 x U _N
2,4	4,8	9,6	22	0,20 x U _N
96	384	1530	8070	see page 6, table 2
15	15	15	15	15
45	45	45	45	45
380	380	380	380	380
2800	2800	2800	2800	2800
360	360	360	360	360

Coil features

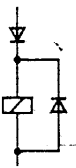
Coil type B



Code D

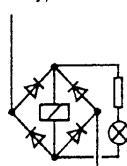


Code F

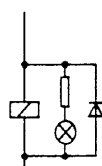


Coils with LED/Neon Indicator

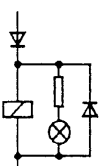
Coil type B...X



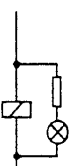
Code DX



Code FX

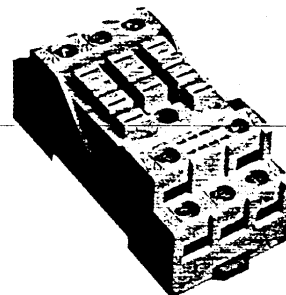


Code X



Socket

Recommended type:



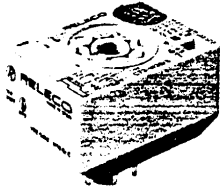
S5-S

Further information, see page 28...29

MR-C

TIME CUBE™ Octal plug-in

Series CT2-..



Type	CT2-A20/S (9,5-18 V)				CT2-A20/L (20-65 V)				CT2-A20/M (90-150 V)				CT2-A20/U (180-265 V)			
Operating voltage	S	L	M	U	S	L	M	U	S	L	M	U	S	L	M	U
Function	Off-Delay								Blinker							
Time Range	0,2sec...12min				0,8sec...30min				0,2sec...12min				0,2sec...3sec			
Operating Voltage	S = 9,5...18 VDC L = 20...65 VAC/DC (75VDC) M = 90...150 VAC/DC H = 90...265 VAC/DC U = 180...265 VAC/DC															
Data	Reset Time [msec] ≤ 200 Output Current, maximum (Relay coil) [mA] 250 150 50 50 Max. Output Contact Ratings [VAC / A] 380 / 10 Output Inductance [H] 5 5 48 48 Voltage Drop [V] 0,8 2,5 3 3 Nominal Frequency [Hz] 48...62 Input Current [mA] 0,5...3 No Load Current [mA] 16 2...6															

General data

Time Accuracy:	
Repetition	0,5 % / ≤ 20 msec
Supply voltage	0,05 % / V / 1 msec/V
Ambient temperature	- 0,25 % / K
Control Circuit, Triggering time	AC: 80 msec / DC: 50 msec
Supply Voltage drop-out	10 msec
Test voltage 50 Hz 1 min	5 kV
Working conditions:	
Ambient temperature	-10° C...+60° C
Climatic category DIN 40 040	JUF
Transient protection	IEC 255.4 (E), KL.III (II)
Shock- and vibration resistance	IEC 571 / >> 20 g
Housing Material	Noryl SE1 (UL 94V-I)
Dimensions	35 x 50 x 25 mm
Protection class (DIN 40 050)	IP40
Weight	35 g

Time range setting

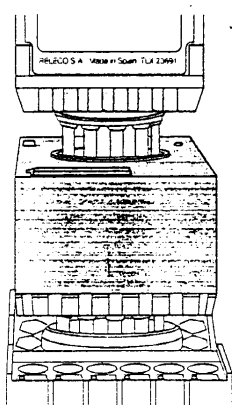
Time Range 20	Time Range 25	Dip-Sw.
0,2 - 3 s	0,8 - 8 s	
0,8 - 12 s	3 - 30 s	
0,1 - 1,5 min	0,4 - 4 min	
0,8 - 12 min	3 - 30 min	

Approvals

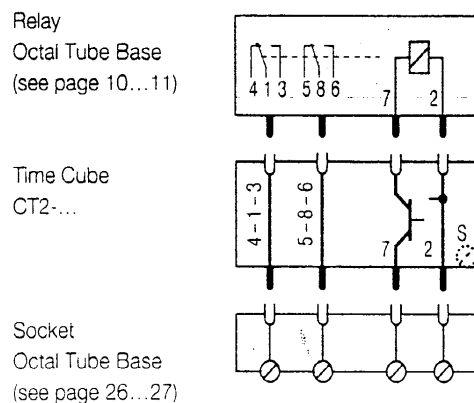


CT2-E20/S (9,5-18 V) CT2-E20/L (20-65 V)		CT2-E20/H (90-265 V) CT2-E25/S (9,5-18 V) CT2-E25/L (20-65 V)		CT2-E25/H (90-265 V)		CT2-K20/S (9,5-18 V) CT2-K20/L (20-65 V) CT2-K20/M (90-150 V) CT2-K20/U (180-265 V)				CT2-K25/S (9,5-18 V) CT2-K25/L (20-65 V) CT2-K25/M (90-150 V) CT2-K25/U (180-265 V)				CT2-W20/S (9,5-18 V) CT2-W20/L (20-65 V)		CT2-W20/H (90-265 V) CT2-W25/S (9,5-18 V) CT2-W25/L (20-65 V)		CT2-W25/H (90-265 V)						
S	L		H	S	L		H	S	L	M	U	S	L	M	U	S	L		H	S	L		H	
On-Delay						One-shot leading edge, aux. supply						One-shot leading edge												
0,2sec...12min			0,8sec...30min			0,2sec...12min			0,8sec...30min			0,2sec...12min			0,8sec...30min									
✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	
-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	-	✓	-	-
-	-	-	✓	-	-	-	✓	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-
-	-	-	-	-	-	-	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-
≤ 150			≤ 150			≤ 200			≤ 200			≤ 150			≤ 150									
250	150	-	50	250	150	-	50	250	150	50	50	250	150	50	50	250	150	-	50	250	150	-	50	
380/10			380/10			380/10			380/10			380/10			380/10									
5	5	-	48	5	5	-	48	5	5	48	48	5	5	48	48	5	5	-	48	5	5	-	48	
0,8	2,5	-	3	0,8	2,5	-	3	0,8	2,5	3	3	0,8	2,5	3	3	0,8	2,5	-	3	0,8	2,5	-	3	
48...62			48...62			48...62			48...62			48...62			48...62									
-	-	-	-	-	-	-	-	0,5...3			0,5...3			-			-							
16	2...6			16	2...6			16	2...6			16	2...6			16	2...6			16	2...6			

Time Cube Concept, Mounting Principle



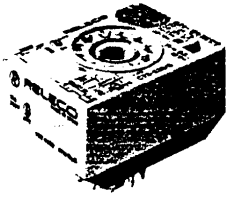
Time Cube Concept, Wiring Principle



MR-C

TIME CUBE™ 11-pin plug-in

Series CT3-..



Type	CT3-A20/S (9,5-18 V)				CT3-A20/L (20-65 V)				CT3-A20/M (90-150 V)				CT3-A20/U (180-265 V)			
Operating voltage	S	L	M	U	S	L	M	U	S	L	M	U	S	L	M	U
Function	Off-Delay								Blinker							
Time Range	0,2sec...12min				0,8sec...30min				0,2sec...12min				0,2sec...3sec			
Operating Voltage																
S = 9,5...18 VDC	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-
L = 20...65 VAC/DC (75VDC)	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-
M = 90...150 VAC/DC	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-
H = 90...265 VAC/DC	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓
U = 180...265 VAC/DC	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓
Data																
Reset Time [msec]	≤ 200								≤ 200							
Output Current, maximum (Relay coil) [mA]	250 150 50 50				250 150 50 50				250 150 - 50				250 150 - 50			
Max. Output Contact Ratings [VAC / A]	380 / 10				380 / 10				380 / 10				380 / 10			
Output Inductance [H]	5 5 48 48				5 5 48 48				5 5 - 48				5 5 - 48			
Voltage Drop [V]	0,8 2,5 3 3				0,8 2,5 3 3				0,8 2,5 - 3				0,8 2,5 - 3			
Nominal Frequency [Hz]	48...62				48...62				48...62				48...62			
Input Current [mA]	0,5...3				0,5...3				- - - -				- - - -			
No Load Current [mA]	16 2...6				16 2...6				16 2...6				16 2...6			

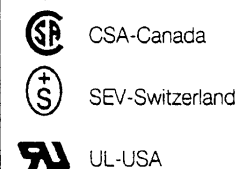
General data

Time Accuracy:	
Repetition	0,5 % / ≤ 20 msec
Supply voltage	0,05 % / V / 1 msec/V
Ambient temperature	- 0,25 % / K
Control Circuit, Triggering time	AC: 80 msec / DC: 50 msec
Supply Voltage drop-out	10 msec
Test voltage 50 Hz 1 min	5 kV
Working conditions:	
Ambient temperature	-10° C...+60° C
Climatic category DIN 40 040	JUF
Transient protection	IEC 255.4 (E), KL.III (II)
Shock- and vibration resistance	IEC 571 / >> 20 g
Housing Material	Noryl SE1 (UL 94V-I)
Dimensions	35 x 50 x 25 mm
Protection class (DIN 40 050)	IP40
Weight	35 g

Time range setting

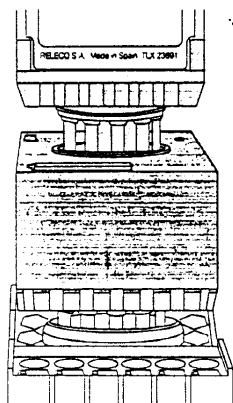
Time Range 20	Time Range 25	Dip-Sw.
0,2 - 3 s	0,8 - 8 s	
0,8 - 12 s	3 - 30 s	
0,1 - 1,5 min	0,4 - 4 min	
0,8 - 12 min	3 - 30 min	

Approvals



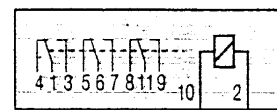
CT3-E20/S (9,5-18 V) CT3-E20/L (20-65 V)		CT3-E20/H (90-265 V) CT3-E25/S (9,5-18 V) CT3-E25/L (20-65 V)		CT3-E25/H (90-265 V)		CT3-K20/S (9,5-18 V) CT3-K20/L (20-65 V) CT3-K20/M (90-150 V) CT3-K20/U (180-265 V)				CT3-K25/S (9,5-18 V) CT3-K25/L (20-65 V) CT3-K25/M (90-150 V) CT3-K25/U (180-265 V)				CT3-W20/S (9,5-18 V) CT3-W20/L (20-65 V)		CT3-W20/H (90-265 V) CT3-W25/S (9,5-18 V) CT3-W25/L (20-65 V)		CT3-W25/H (90-265 V)	
S	L	H	S	L	H	S	L	M	U	S	L	M	U	S	L	H	S	L	H
On-Delay						One-shot leading edge, aux. supply						One-shot leading edge							
0,2sec...12min			0,8sec...30min			0,2sec...12min			0,8sec...30min			0,2sec...12min			0,8sec...30min				
✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-
-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	-	✓	-
-	-	✓	-	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	-
-	-	-	✓	-	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-
-	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-	✓	-	-	-
≤ 150	≤ 150	≤ 200	≤ 200	≤ 150	≤ 150														
250 150 - 50	250 150 - 50	250 150 50 50	250 150 50 50	250 150 - 50	250 150 - 50														
380 / 10	380 / 10	380 / 10	380 / 10	380 / 10	380 / 10														
5 5 - 48	5 5 - 48	5 5 48 48	5 5 48 48	5 5 - 48	5 5 - 48														
0,8 2,5 - 3	0,8 2,5 - 3	0,8 2,5 3 3	0,8 2,5 3 3	0,8 2,5 - 3	0,8 2,5 - 3														
48...62	48...62	48...62	48...62	48...62	48...62														
- - - -	- - - -	0,5...3	0,5...3	- - - -	- - - -														
16 2...6	16 2...6	16 2...6	16 2...6	16 2...6	16 2...6														

Time Cube Concept, Mounting Principle

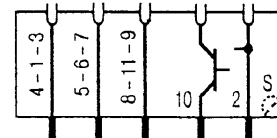


Time Cube Concept, Wiring Principle

Relay
11-pin Tube Base
(see page 12...13)



Time Cube
CT3...



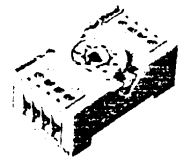
Socket
11-pin Tube Base
(see page 26...27)

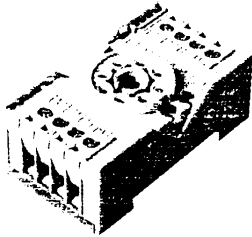
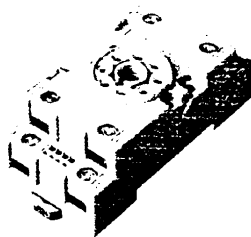
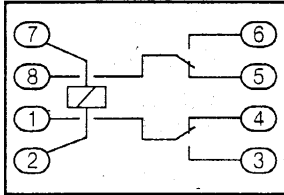
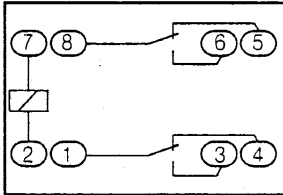


MR-C

Sockets
for Tube Base Relays,
octal and 11-pin

Series S2 / S3



Type	S2-B	S2-S
Pin-out	Octal base	Octal base
Terminal	Screws, 1 level	Screws, 2 levels
		
Circuit diagram		
Data		
Wire inlets capacity:		
Solid wire	[n x mm ²]	2 x 2,5
Multi core	[n x mm ²]	2 X 2,25
Wire end ferrule	[n x mm ²]	2 x 1,5
Nominal Current	[A]	10
Max. Voltage	[V]	380
Dimensions:		
Width	[mm]	38
Length	[mm]	68
Height	[mm]	24








General data

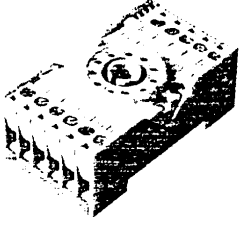
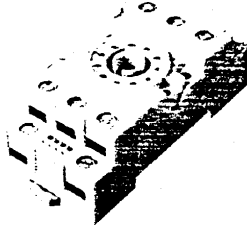
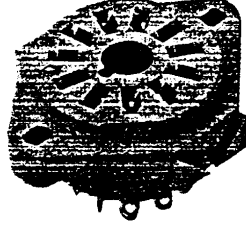
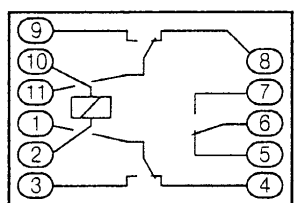
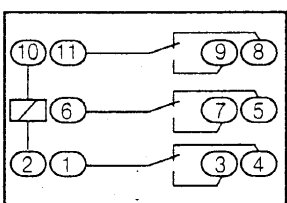
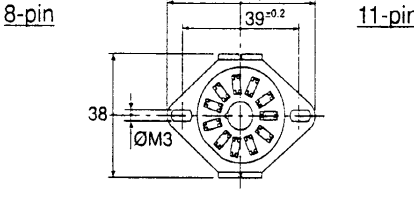
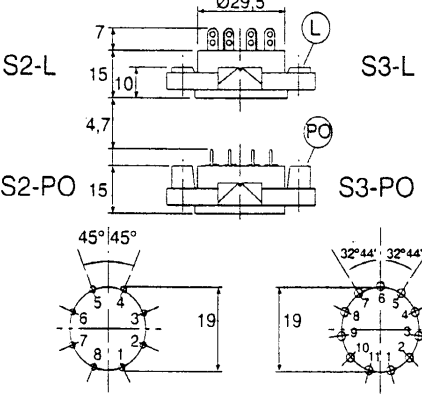
Screw dimension, wire in-lets	M3
Fixing torque, wire in-lets screws	1,2 ... 1,5 Nm
Operating temperature max., at rated load.	+60 °C
Housing Material	Polyphenyloxide (Noryl®)
Housing Colour	Blue
Female Contact Material	Hard brass, nickel plated
Mounting:	
Rail 35 x 7,5 (DIN 50 022)	✓
Rail 35 x 15 (DIN 50 022)	✓
Centre hole	-
Centre line holes	✓
Weight	57 g

Accessories

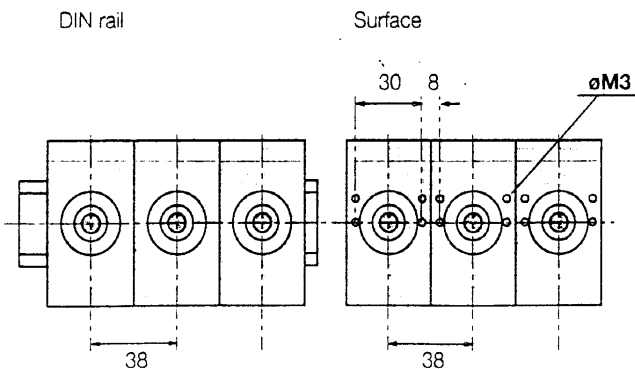
Coding Ring blue (for Octal)	S2-BC
Coding Ring, red (for 11-pin)	S3-BC
Retaining Clip (for relay)	S3-C
Retaining Clip (for relay plus Time Cube)	S3-CT
Set of labels for socket	S0-BE
C-Rail Adapter for socket	S3-BM

Approvals*

 CSA-Canada	 SETI-Finland
 Lloyd's UK	 Nemko-Norway
 SEV-Switzerland	 UL-USA
 ÖVE-Austria	*valid for B-versions only!

S3-B	S3-S	S2-P	S3-P
11 pin base	11 pin base	8/11 pin base	
Screws, 1 level	Screws, 2 levels	Pins, PC Board/Panel mounting	
			
			
<p>2 x 2,5 2 x 2,25 2 x 1,5 10 380</p> <p>38 68 24</p>	<p>2 x 2,5 2 x 2,25 2 x 1,5 10 380</p> <p>38 78 25</p>	 <p>Measures in mm.</p>	

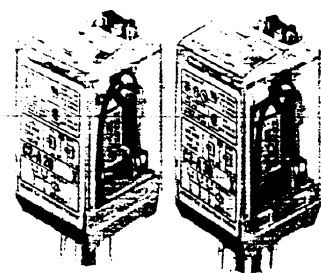
Mounting instructions for S2-B/S2-S and S3-B/S3-S



All dimensions in mm

Relays

Recommended types:



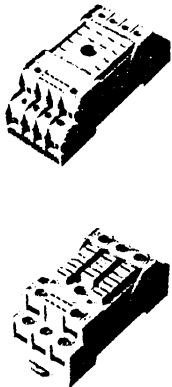
Series C2/C3

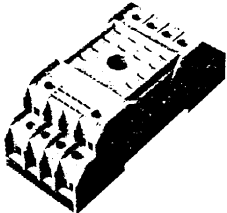
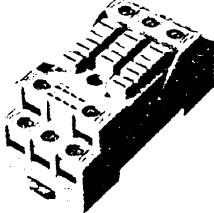
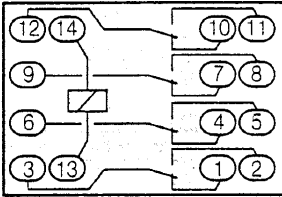
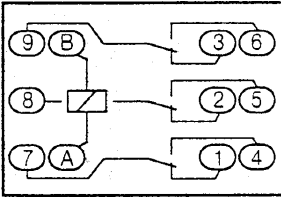
Further information, see page 10...17

MR-C

Sockets
for Square Base Relays,
14-pin, 2,6 x 0,5mm,
11-pin, 4,8 x 0,5mm

Series S4 / S5



Type	S4-B	S5-S
Pin-out	14-pin, flat blade 2,6 x 0,5 mm	11-pin, flat blade 4,8 x 0,5 mm
Terminal	Screws, 2 levels	Screws, 2 levels
		
Circuit diagram		
Data		
Wire inlets capacity:		
Solid wire	[n x mm ²] 2 x 2,5	2 x 2,5
Multi core	[n x mm ²] 2 x 2,25	2 x 2,25
Wire end ferrule	[n x mm ²] 2 x 1,5	2 x 1,5
Nominal Current	[A] 10	16
Max. Voltage	[V] 380	380
Dimensions:		
Width	[mm] 38	38
Length	[mm] 92	80
Height	[mm] 31	30

General data

Screw dimension, wire in-lets	M3
Fixing torque, wire in-lets screws	1,2 ... 1,5 Nm
Operating temperature max., at rated load.	+60 °C
Housing Material	Noryl®
Housing Colour	Blue
Female Contact Material	Hard brass, nickel plated
Mounting:	
Rail 35 x 7,5 (DIN 50 022)	✓
Rail 35 x 15 (DIN 50 022)	✓
Centre hole	✓
Centre line holes	-
Weight	65 g





Accessories

Retaining Spring for C4-relay	S3-C
Retaining Spring for C5-relay	S5-C
Set of labels for socket	S0-BE
C-Rail Adapter for socket	S3-RM

Approvals*

*Valid for S4-B only!

Lloyd's UK

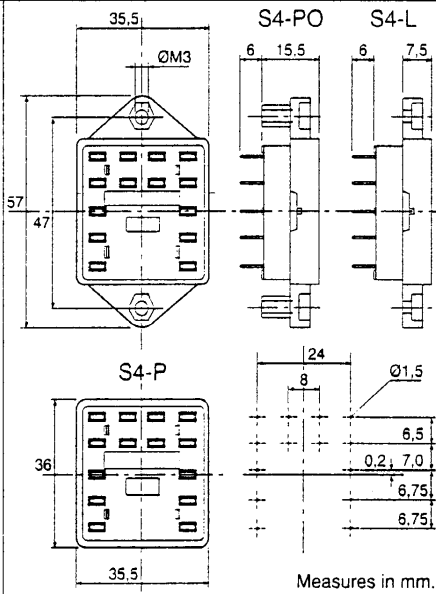
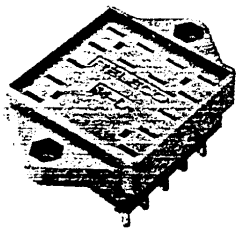
 SETI-Finland	 Nemko-Norway
 SEV-Switzerland	 ÖVE-Austria

"UL" recognition and "CSA" listing requested for S5-S!

S4-P

14-pin, flat blade 2,6 x 0,5 mm

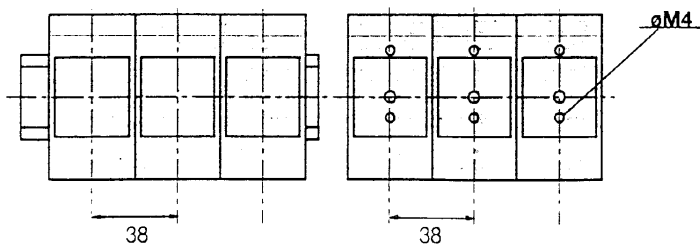
Pins, PC Board/Panel mounting



Mounting instructions for S4-B and S5-S

DIN rail

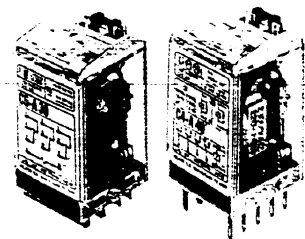
Surface



All dimensions in mm

Relays

Recommended types:

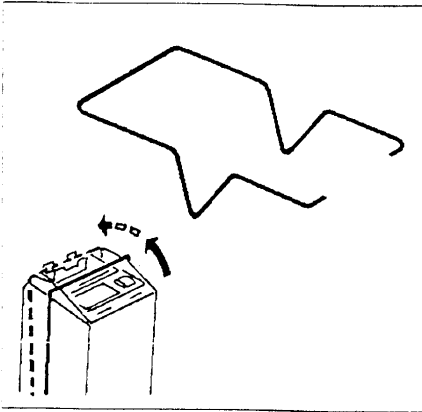


Series C4/C5

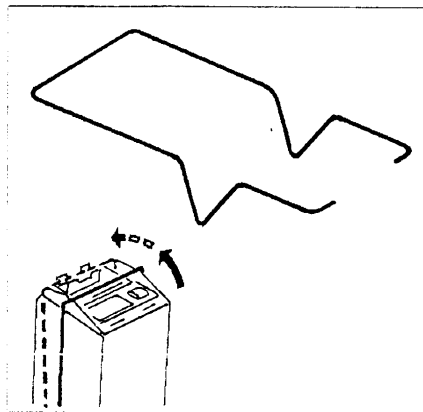
Further information, see page 18...21

MR-C

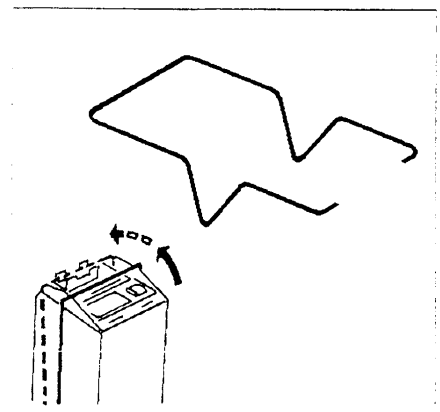
IDM[®] Accessories



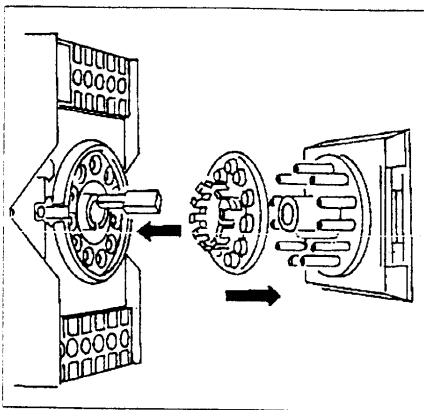
Retaining Clip for
C2 / C3 / C4 - relay
Pcs per unit: 10
Type: S3-C
Ident-No. : 5900



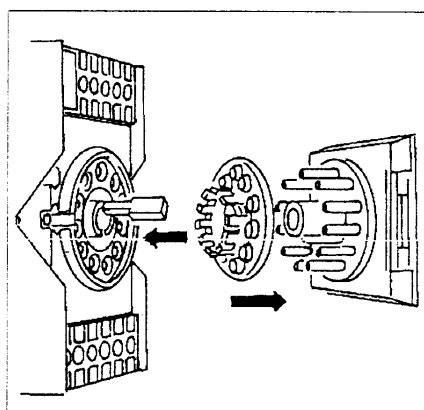
Retaining Clip for
C2/C3-relay plus Time Cube
cs per unit: 10
Type: S3-CT
Ident-No. : 2922099



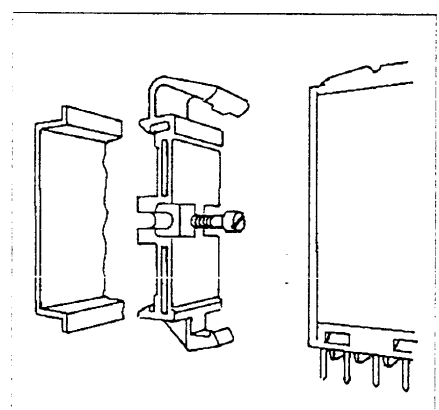
Retaining Clip for
C5-relay
Pcs per unit: 10
Type: S5-C
Ident-No. : 5942



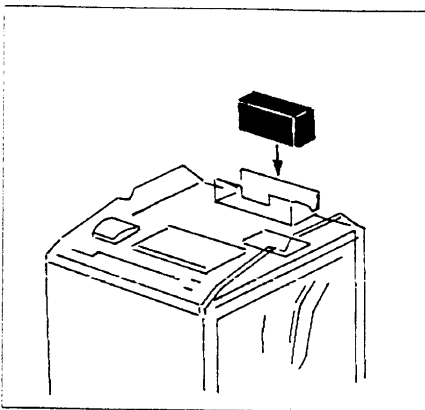
Octal Socket Coding Ring Set, blue
Pcs per unit: 5
Type: S2-BC
Ident-No. : 2992099



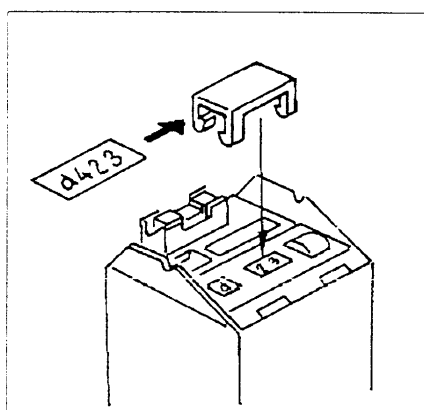
11-pin Socket Coding Ring Set, red
Pcs per unit: 5
Type: S3-BC
Ident-No. : 2991099



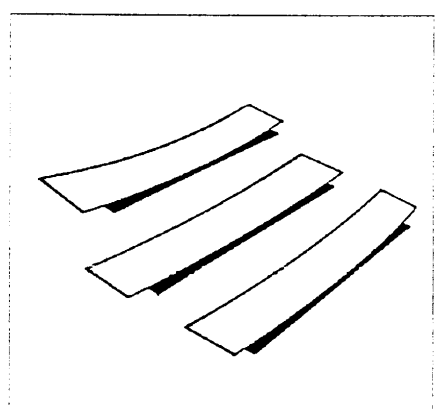
DIN Mounting Bracket for C4/C5 relays
Type: S4-R
Ident-No. : 5943



Push-button Defeat Plug, black
Pcs per unit: 5
Type: S0-N
Ident-No. : 5901



Labels for relay
Pcs per unit: 160
Type: S0-E
Ident-No. : 5902



Set of labels for socket
Pcs per unit: 116
Type: S0-BE
Ident-No. : 5903