

Industrial relays

SHORT FORM

10 μ A ... 16 A

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Established in 1970 COMAT is renowned as a manufacturer of quality equipment and systems for industrial automation.

The manufacturing range comprises:

- Industrial relays
- Solid-state relays
- Time delay relays
- Monitoring relays



This issue replaces all previous issues.
Availability, errors and specifications subject to change without notice.

Plug-in Industrial Relays



	Type	Type
	C10	
	C7	C21 C2
	CR31	C31 C3 C5
	C9	C4



C10

C7, C9

Terminal marking

Consecutive terminal no.

| | | |

Mark according to
DIN/EN 50011

Consecutive terminal no.

| | | |

 μ = contact opening
< 3mm

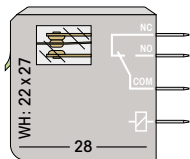
Prospectus CR2								
MIN/MAX		500A peak						
10A					10 μ Au			
6A								
3A								
10mA								
5mA								
1mA								
100 μ A								
I	1	C7-W10	C10-A10	C10-T13	C10-T12			
	2		C7-A20	C7-T21	C7-T22	C9-R21		KR13
	4					C9-A41	C9-A42	
	2x 1							KR23
	3x 1							KR33



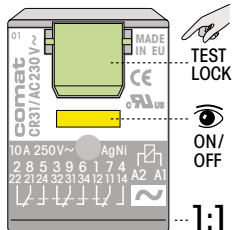
Double contacts



Remanence relays



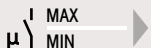
NEW



3-pole miniature industrial relays

- lockable manual operation
- mechanical indication of output status

Lloyd's
Reg.



CR31

Universal power relay 10A

with 3 power changeover contacts this is a robust relay for AC and DC circuits ranging from 10 mA 12V.

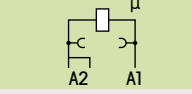
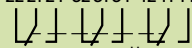
10 A 250 V ~

10 mA 12V

Ordering example CR31

- Industrial relay CR31/DC24V
- Socket CS-30 (clip incl.)
- LED-Module CMX1/UC24-60V

2 8 5 3 9 6 1 7 4
22 21 24 32 31 34 12 11 14



CR31 with socket CS-30

Standard  **AC ~**
50/60Hz

Standard  **AC ~**
50/60Hz



Stand./D  **DC ==**
≤10%

 = Type "D" (option)

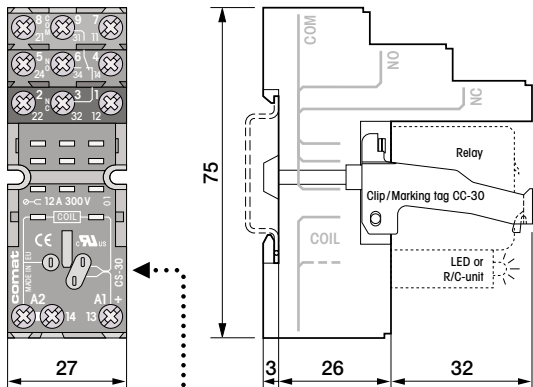
115, 230
CR31 / AC ... V

24
CR31 / AC ... V

24
CR31 D / DC ... V

Option  = with 

CS-30



Plug-in coil voltages (modules)

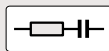
LED



CMX1/UC110-240V

CMX1/UC 24-60V

R/C-unit

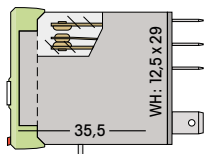


CMR1/UC110-240V

(4k7/0,01μF)

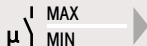
CMR1/UC 24-60V

(470E/0,22μF)



1-pole miniature industrial relay

- lockable manual operation
- mechanical indication of output status



Ordering example C10

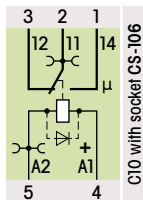
- Relay C10 -A10X/DC24V
- Socket CS-106 (clip incl.)
- Connector S10-B (option)

C10-A10

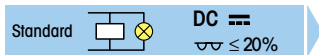
**Universal-
power relay 10A**
for AC and DC circuits
ranging from 10mA 10V.

10A 250V~

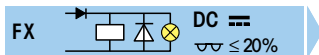
10mA 10V



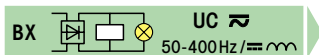
115, 230
C10-A10X / AC ... V



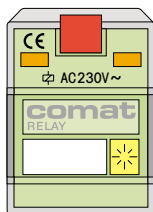
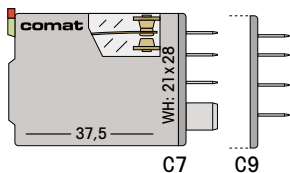
12, 24, 48, 110
C10-A10X / DC ... V



12, 110
C10-A10FX / DC ... V



24, 48
C10-A10BX / UC ... V



2-/4-pole miniature industrial relay

- lockable manual operation
- mechanical indication of output status



C7-A20

Universal power relay 10A

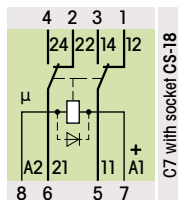
with 2 power changeover-contacts this is a robust relay for AC and DC circuits ranging from 10mA 10V.

10A 250V~

10mA 10V

Ordering example C7

- Relay C7-A20X/AC230V
- Socket CS-18
- Retaining-Clip RC-G (option)



Standard **AC ~**
50/60Hz

Standard **DC ==**
 $\leq 10\%$

D, DX **DC ==**
 $\leq 10\%$

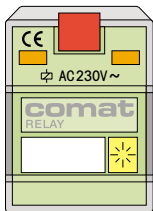
⊗ = Type "X" (option)

24, 48, 115, 230
C7-A20 **X** / AC ... V

12, 24, 48, 110, 125
C7-A20 / DC ... V

12, 24, 48, 110, 125
C7-A20D **X** / DC ... V

Option **X** = with ⊗

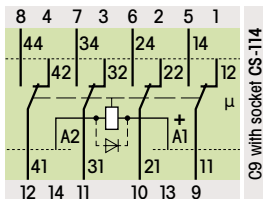


C9-A41

Universal control relay
with 4 changeover contacts
for AC and DC circuits ranging
from 10 mA 10 V.

3 A 250 V ~

10 mA 10 V



24, 48, 115, 230

C9-A41 X / AC V

12, 24, 48, 110, 125

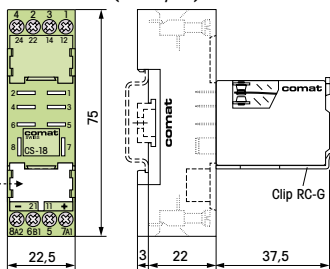
C9-A41 / DC V

12, 24, 48, 110, 125

C9-A41 D X / DC V

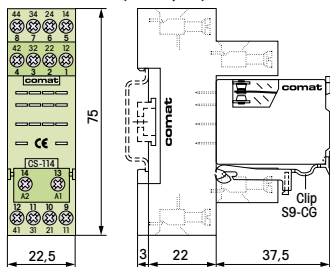
Option X = with ⊗

Socket CS-18 (for relay C7)

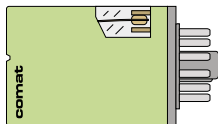


Plug-in R/C-unit
RC0047-100/AC250V

Socket CS-114 (for relay C9)



Industrial relays

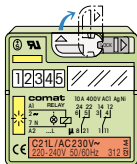


The tables show the most popular Comat Industrial Relays (**C...-...** green) and other relays (**C...-...** grey).

Technical data for other relay groups is available. The prospectus groups CR2, CR5 and CR7 include also solid-state relays of the same type.

LONG LIFE ••

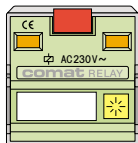
- 100 Mio mechanical cycles
- 700 000 cycles at full load



C21, C31

Prospectus		CR5	
MIN/MAX			
10A			
6/5A			
10mA			
5mA			
1mA			
I	2	C21	C22
	3	C31	C32
	2x 1	C33	C34
	3x 1		C39

STANDARD



Terminal marking

Consecutive terminal no.

 Mark according to
 DIN/EN 50011

Consecutive terminal no.

 μ = contact opening
 < 3mm

C2, C3, C4, C5

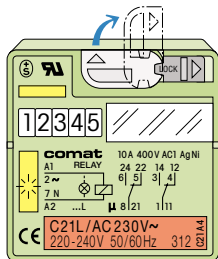
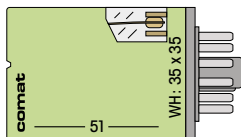
Prospectus CR4							
MIN/MAX							
16A	@ 220V \approx						
10A							
6A					10 μ Au		
10mA							
5mA							
1mA							
I	1	C5-M10					
	2			C2-A20	C3-R20	C2-T21	
	3		C5-A30	C3-A30		C3-T31	C3-T32
	4			C4-A40			



Double contacts



Remanence relays



LONG LIFE ••

- 100 Mio mechanical cycles
- 700 000 cycles at full load



Ordering example C31

- Relay C31/AC230V
- Socket EC-11 or C11A
- Retaining-clip HF-32 (option)



⊗ = Type "L" (option)

C21

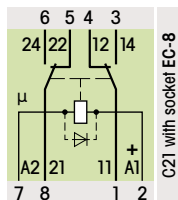
Universal

power relay 10A

with 2 power changeover-contacts this is a robust relay for AC and DC circuits ranging from 10mA 10V.

10A 400V ~

10mA 10V



24, 48, 115, 230

C21 **L** / AC ... V

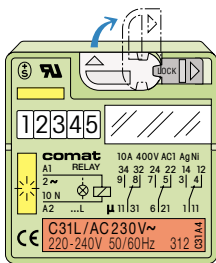
12, 24, 48, 110, 220

C21 / DC ... V

12, 24, 48, 110, 220

C21D **L** / DC ... V

Option **L** = with ⊗



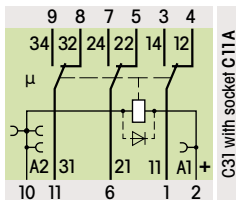
C31

Universal power relay 10A

with 3 power changeover-contacts this is a robust relay for AC and DC circuits ranging from 10mA 10V.

10A 400V~

10mA 10V



24, 48, 115, 230

C31 **L** / AC V

12, 24, 48, 110, 220

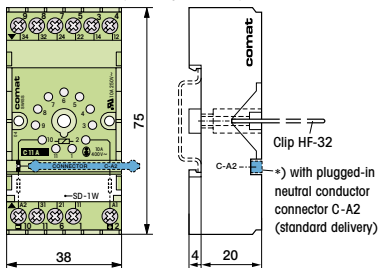
C31 / DC V

12, 24, 48, 110, 220

C31D **L** / DC V

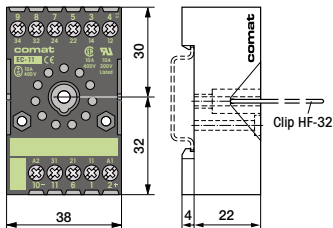
Option **L** = with

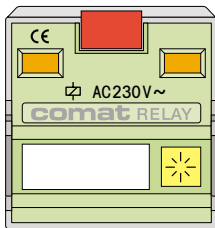
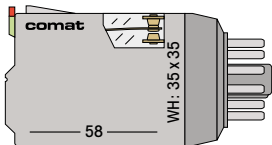
Socket C11A*) (for relays C3, C31)



Socket EC-8 (for relays C2, C21)

Socket EC-11 (for relays C3, C31)

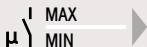




STANDARD

2- and 3-pole industrial relays

- lockable manual operation
- mechanical indication of output status



Ordering example C3

- Relay C3-A30X/AC230V
- Socket EC-11 or C11A
- Retaining-Clip S3-C (option)

Standard  **AC ~**
50/60Hz

Standard  **DC ==**
☹ ≤10%

D, DX  **DC ==**
☹ ≤10%

⊗ = Type "X" (option)

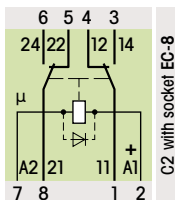
C2-A20

Universal power relay 10A

with 2 power changeover-contacts this is a robust relay for AC and DC circuits ranging from 10mA 10V.

10A 250V~

10mA 10V

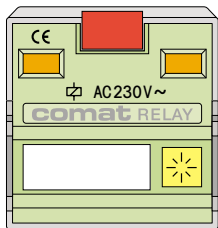


24, 48, 115, 230
C2-A20 **X** / AC ... V

12, 24, 48, 110, 125, 220
C2-A20 / DC ... V

12, 24, 48, 110, 125, 220
C2-A20D **X** / DC ... V

Option **X** = with ⊗

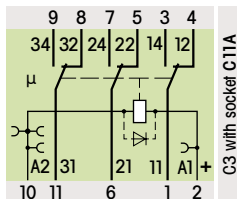


C3-A30

Universal power relay 10A
with 3 power changeover-contacts this is a robust relay for AC and DC circuits ranging from 10mA 10V.

10A 250V~

10mA 10V



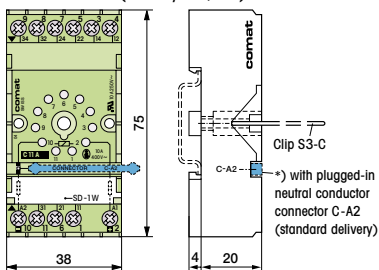
24, 48, 115, 230
C3-A30 **X** / AC V

12, 24, 48, 110, 125, 220
C3-A30 / DC V

12, 24, 48, 110, 125, 220
C3-A30D **X** / DC V

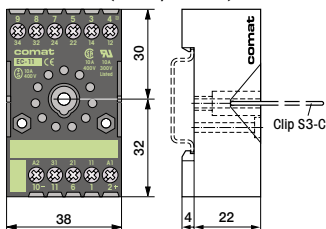
Option **X** = with **⊗**

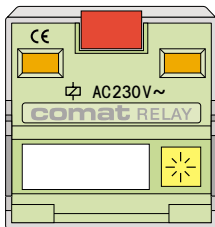
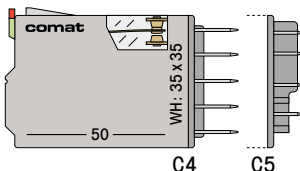
Socket C11A*) (for relays C3, C31)



Socket EC-8 (for relays C2, C21)

Socket EC-11 (for relays C3, C31)

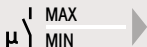




STANDARD

3- and 4-pole industrial relays

- lockable manual operation
- mechanical indication of output status



Ordering example C4

- Relay C4-A40X/AC230V
- Socket CS-14 (clip incl.)

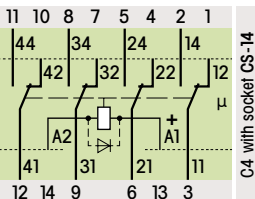
C4-A40

Universal power relay 10A

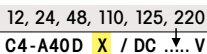
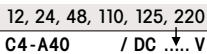
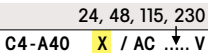
With 4 power changeover-contacts this is a robust relay for AC and DC circuits ranging from 10mA 10V.

10A 250V~

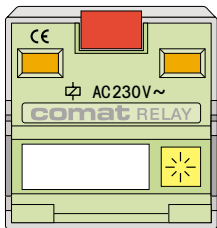
10mA 10V



⊗ = Type "X" (option)



Option **X** = with ⊗



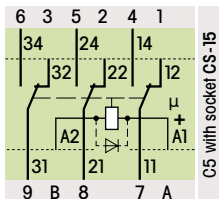
C5-A30

Universal power relay 16A

With 3 power changeover-contacts this is a robust relay for AC and DC circuits ranging from 10 mA 10V.

16A 400V~ / 6A AC15

10mA 10V



24, 48, 115, 230, 400

C5-A30 **X** / AC V

12, 24, 48, 110, 125, 220

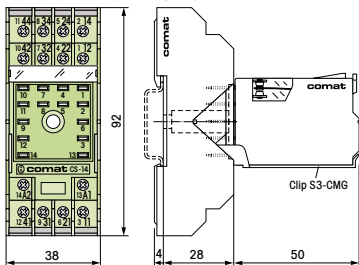
C5-A30 / DC V

12, 24, 48, 110, 125, 220

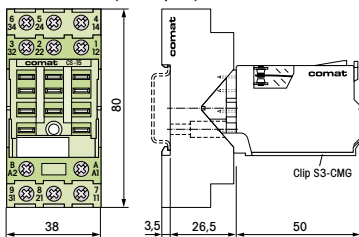
C5-A30D **X** / DC V

Option **X** = with **⊗**

Socket CS-14 (for relay C4)



Socket CS-15 (for relay C5)



Miniature Industrial Relays

Prospectus

CR1



Prospectus

CR2

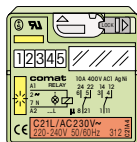


Tamb = 20°C (standard coil)

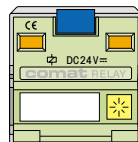
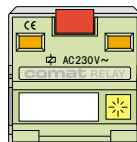
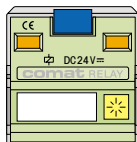
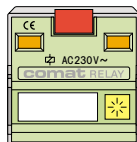
	CR31	C10-A10	C7-A20	C9-A41	
Switching current/voltage	10A 250V~	10A 250V~	10A 250V~	3A 250V~	
Switching capacity AC1/DC1	2500VA/..250W	2500VA/..240W	2500VA/..250W	700VA/...75W	
Recommended minimum load	10mA 12V	10mA 10V	10mA 10V	10mA 10V	
Contact material	AgNi 90/10	AgNi 90/10	AgNi 90/10	AgNi+0,2µAu	
Peak inrush power	20A(20ms)	30A(10ms)	30A(20ms)	15A(10ms)	
Switching cycles mech./electr. (AC1)	>20x10 ⁶ / >10 ⁵	20x10 ⁶ / ≥10 ⁵	20x10 ⁶ / ≥3x10 ⁵	20x10 ⁶ / ≥10 ⁵	
Operation voltage AC(50Hz)	0,8-1,6Un	0,8...1,2Un	0,8...1,2Un	0,8...1,2Un	
DC	0,75-1,7Un	0,8...1,3Un	0,8...1,3Un	0,8...1,3Un	
Power consumption AC/DC	1,0VA/0,75W	1,1 VA/0,6W	1,5VA/1W	1,5VA/1W	
Trigg.delay/Release time AC	20/10ms	11/8ms	16/10ms	16/10ms	
DC	15/10ms	10/5ms	15/6ms	15/6ms	
DC →†	15/25ms	10/10ms	15/20ms	15/20ms	
Test voltage $\square \rightarrow \} \rightarrow \}$	2500V / 2500V	5000V (8mm)	2500V / 2500V	2500V / 1000V	
Ambient temperature Operation	-40..+60°C	-20..+60°C	-20..+60°C	-20..+60°C	
Storage	-40..+80°C	-20..+100°C	-40..+85°C	-40..+85°C	

Industrial Relays

Prospectus
CR5



Prospectus
CR4



Tamb = 20°C (standard coil)

	C21, C31	C2-A20	C3-A30	C4-A40	C5-A30
Switching current/voltage	10A 400V~	10A 250V~	10A 250V~	10A 250V~	16A 500V~
Switching capacity AC1/DC1	2500VA/..300W	2200VA/..250W	2200VA/..250W	2000VA/..250W	4000VA/..400W
Recommended minimum load	10mA 10V	10mA 10V	10mA 10V	10mA 10V	10mA 10V
Contact material	Ag (AgCuNi)	AgNi 90/10	AgNi 90/10	AgNi 90/10	AgNi 90/10
Peak inrush power	40A(20ms)	30A(10ms)	30A(10ms)	30A(20ms)	40A(20ms)
Switching cycles mech./electr. (AC1)	100x10 ⁶ /≥7x10 ⁵	30x10 ⁶ /≥2x10 ⁵	20x10 ⁶ /≥2x10 ⁵	20x10 ⁶ /≥5x10 ⁵	20x10 ⁶ /≥3x10 ⁵
Operation voltage AC(50Hz)	0,8...1,3Un	0,8...1,2Un	0,8...1,2Un	0,8...1,2Un	0,8...1,2Un
DC	0,8...1,6Un	0,8...1,3Un	0,8...1,3Un	0,8...1,3Un	0,8...1,3Un
Power consumption AC/DC	2,5VA/1,2W	2,2VA/1,3W	2,2VA/1,3W	2,4VA/1,4W	2,4VA/1,4W
Trigg.delay/Release time AC	15/15ms	16/8ms	16/8ms	20/8ms	20/8ms
DC	12/8ms	15/8ms	15/8ms	18/8ms	18/8ms
DC →†	12/25ms	15/25ms	15/25ms	18/25ms	18/25ms
Test voltage → →	2500V / 2500V	2500V / 2500V	2500V / 2500V	2500V / 2500V	4000V / 4000V
Ambient temperature Operation	-40..+70°C	-40..+60°C	-40..+60°C	-40..+60°C	-40..+60°C
Storage	-40..+85°C	-40..+85°C	-40..+85°C	-40..+85°C	-40..+85°C

Plug-in coil wirings for 3-pole industrial relays C3, C31 with socket C11A

Relay modules display the switching status and / or provide limitation of cutoff voltage peaks in control circuits using a diode or R/C-unit. R-Modules are simply plugged in the socket C11A.

Ordering example

- Module RCL1/UC48V
- Socket C11A
- Relay C31 or C3
- Clip HF-32 or S3-C (option)

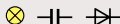
Illuminated displays

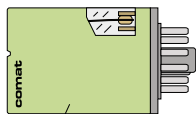


Suppressing units



Suppressing units with illuminated displays

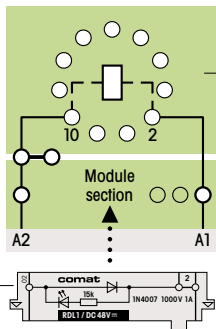




Industrial relay



R-Module

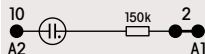


Socket C11A

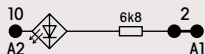
Relay coil →



RL1/AC 110-240V ~



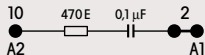
RL1/UC12-24V ~



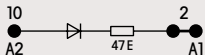
see RL1/UC... V

see RC1/UC... V

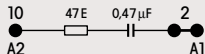
RC1/UC 110-240V ~



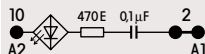
RD1/DC12-220V ==



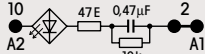
RC1/UC 12-48V ~



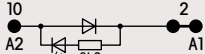
RCL1/AC 110-240V ~



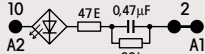
RCL1/UC 24V ~



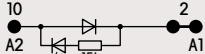
RDL1/DC12-24V ==



RCL1/UC 48V ~



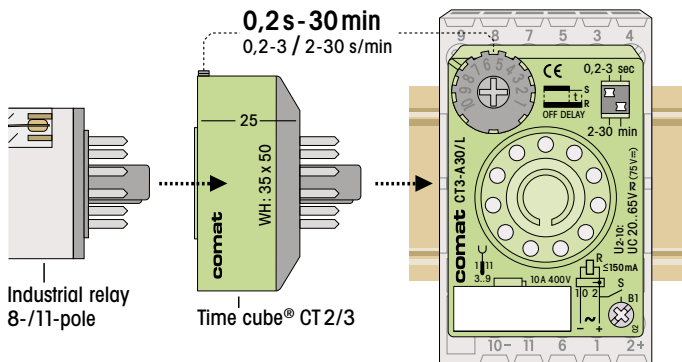
RDL1/DC48V ==



Plug-in Time cubes®

The original time cubes® are simply plugged-in between socket and relay without rewiring.

The relays contact connections remain through-connected to the socket.

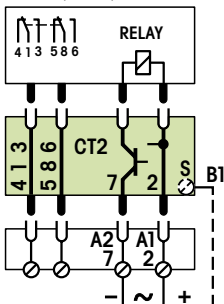


Industrial relay
8-/11-pole

Time cube® CT 2/3

CT2 (8-pin)

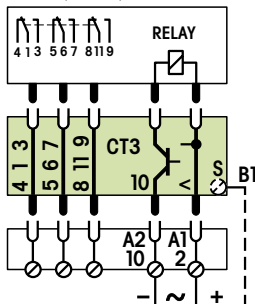
Industrial relay ...

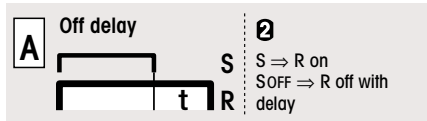
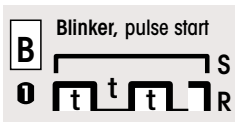
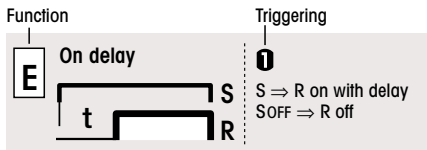


Time cube®

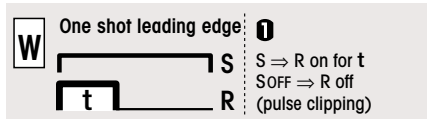
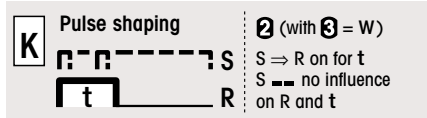
Socket

CT3 (11-pin)

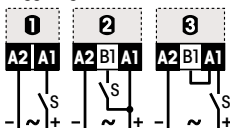




S = Triggering
R = Output circuit
⇒ = switches...



Triggering



Function	Order no.	UC180-265V	UC90-150V	UC90-265V	UC20-65V	DC9,5-18V
E	CT..-E30/...			H	L	S
A	CT..-A30/...	U	M		L	S
K W	CT..-K30/...	U	M		L	S
W	CT..-W30/...			H	L	S
B	CT..-B30/...			H	L	S

2 = 8-pin
3 = 11-pin



Ordering example

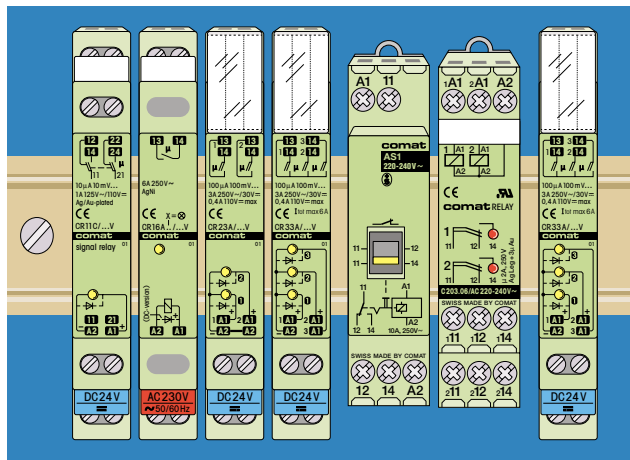
- Time cube CT3-E30/H
- Options:
- Clip HF-33 for C21, C31
- Clip S3-CT for C2, C3

DIN-Relays

Prospectus

CR7

 Stepping relays



Prospectus

CR7

MIN/MAX

6/5 A

3A

2A

1A

10mA

1mA

100µA

10 mV

10 µA

1 CR16...

2 CR11C

2x 1 CR23A

3x 1 CR33A

1 **CRS1C**

C103.01

C133.01

C203.01

C203.04

C301.04

C103.06

C133.01

C203.01

C203.04

C301.04

And also...

comat



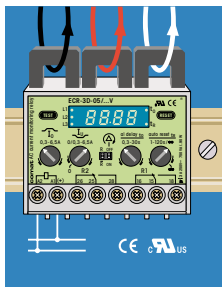
Established in 1970 COMAT is renowned as a manufacturer of quality equipment and systems for industrial automation.

The manufacturing range comprises:

- Industrial relays
- Solid-state relays
- Time delay relays
- Monitoring relays

Prospectus

UR

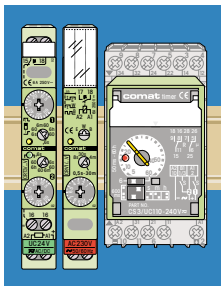


Monitoring relays



Prospectus

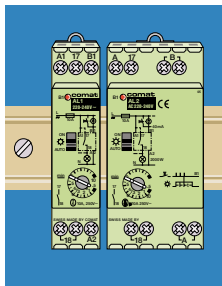
ZR



Time delay relays
Repeat cycle timers
Pulse shapers

Prospectus

CR 8



Installation Relays
Stair case lighting timers
Power stepping relays

FAX ANSWER

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Industrial relays SHORT FORM

D F E

Prospectuses

CR1 **CR2**

Miniature
Industrial relays

Prospectus

CR8

Installation relays
Power stepping relays

Prospectuses

CR4 **CR5**

Industrial relays
8-/11-pole

Prospectus

ZR

Time delay relays
Repeat cycle timers

Prospectus

CR7

DIN-Relays
17,5mm/13mm

Prospectus

UR

Monitoring relays
Current transformers

Sender:

Company

Branch

Name

Department

Street

Country, Zip code, City

Phone

E-Mail

Kühn Controls S.L., Gräfenhäuser Str. 14, D- 75305 Neuenbürg, Tel:+49-7082-940000