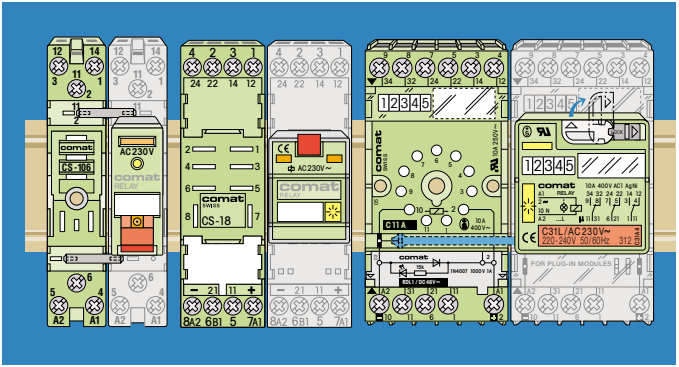
comat



Industrial relays

SHORT FORM

10 µA ... 16 A

COMAT AG BERNSTR.4 CH-3076 WORB TEL +41(0)31 839 38 11
FAX +41(0)31 839 73 96 E-MAIL info@comat.ch www.comat.ch

comat

Certified Management System
Nr. 12485
ISO 9001

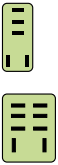
Established in 1970 COMAT is renowned as a manufacturer of quality equipment and systems for industrial automation.

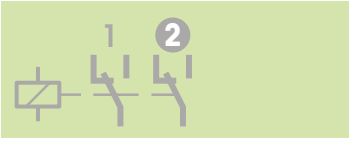
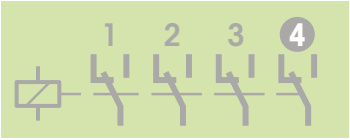
The manufacturing range comprises:

- 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.

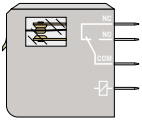
Plug-in
Industrial Relays



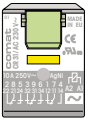
	Type	Type
	C10	
	C7	C21 C2
	CR31	C31 C3 C5
	C9	C4

comat

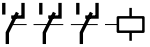
Miniature
Industrial relays



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.

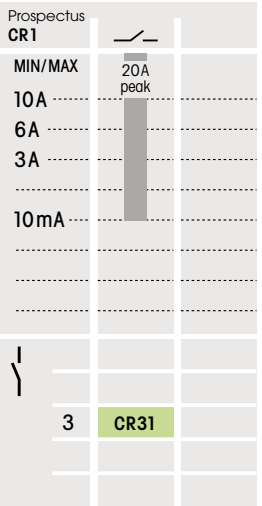


NEW



10 A

CR31



C10 **C7, C9**

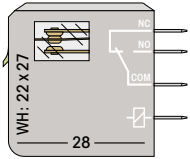
Terminal marking

Consecutive terminal no.
Mark according to
DIN/EN 50011
Consecutive terminal no.

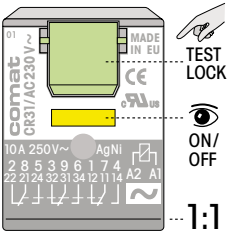
µ = contact opening
< 3 mm

Prospectus CR2							
MIN/MAX	500 A peak						
10 A							
6 A				10µ Au			
3 A							
10 mA							
5 mA							
1 mA							
100 µA							
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 C ..-... Remanence relays



NEW



CR31

3-pole miniature industrial relays

- lockable manual operation
- mechanical indication of ouput status

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

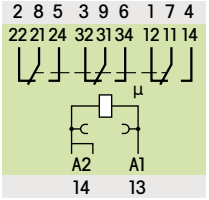
10 A 250 V ~

10 mA 12 V

Lloyd's Reg. VDE

CE c UL us

μ MAX MIN



Ordering example CR31

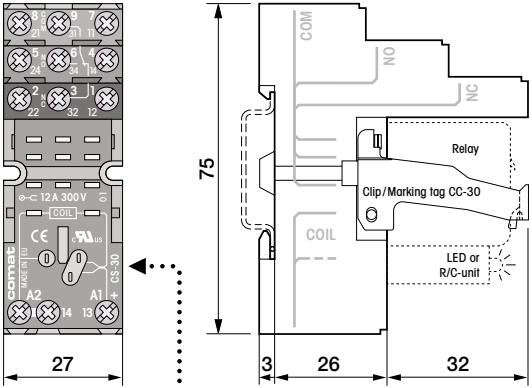
- Industrial relay CR31/DC24 V
- Socket CS-30 (clip incl.)
- LED-Module CMX1/UC24-60 V

Standard	AC ~ 50/60 Hz	115, 230	CR31 / AC V
Standard	AC ~ 50/60 Hz	24	CR31 / AC V
Stand./D	DC ⎓ ∽ ≤10%	24	CR31 D / DC V

= Type "D" (option)

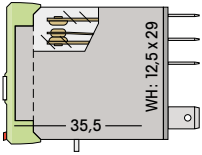
Option D = with

CS-30



Plug-in coil voltages (modules)

LED	R/C-unit
CMX1/UC110-240 V	CMR1/UC110-240 V (4k7/0,01 µF)
CMX1/UC24-60 V	CMR1/UC24-60 V (470 E/0,22 µF)



C10-A10

1-pole miniature industrial relay

- lockable manual operation
- mechanical indication of output status

Universal-power relay 10 A

for AC and DC circuits ranging from 10 mA 10 V.

CE

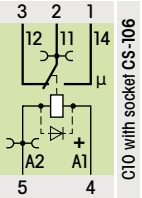
μ MAX MIN

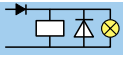
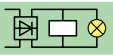
10 A 250 V ~

10 mA 10 V

Ordering example C10

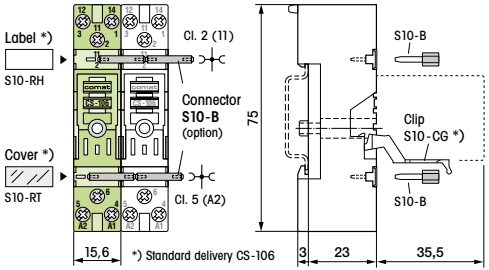
- Relay C10-A10X/DC24V
- Socket CS-106 (clip incl.)
- Connector S10-B (option)

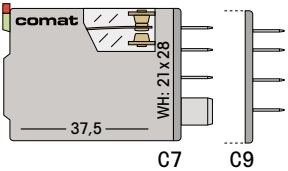


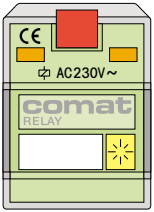
Standard		AC ~ 50/60 Hz	115, 230 C10-A10X / AC V
Standard		DC ⎓ ∿ ≤ 20%	12, 24, 48, 110 C10-A10X / DC V
FX		DC ⎓ ∿ ≤ 20%	12, 110 C10-A10FX / DC V
BX		UC ∿ 50-400 Hz / ⎓ ∿	24, 48 C10-A10BX / UC V

The series C10 are continuously being developed.
The Comat product specialists will be pleased to help you with information about the actual state of development.

Socket CS-106 (for relay C10)







C7-A20

2-/4-pole miniature industrial relay

- lockable manual operation
- mechanical indication of output status

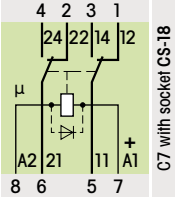
Universal power relay 10 A
with 2 power changeover-contacts this is a robust relay for AC and DC circuits ranging from 10 mA 10 V.

10 A 250 V ~

10 mA 10 V

CE

μ MAX MIN



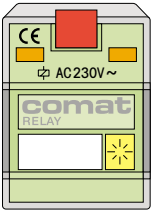
Ordering example C7

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

Standard	AC ~ 50/60 Hz	24, 48, 115, 230	C7-A20 X / AC V
Standard	DC ⎓ ∿ ≤10%	12, 24, 48, 110, 125	C7-A20 / DC V
D, DX	DC ⎓ ∿ ≤10%	12, 24, 48, 110, 125	C7-A20D X / DC V

⊗ = Type "X" (option)

Option X = with ⊗

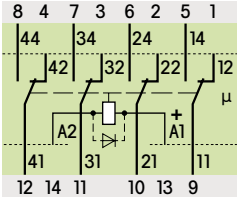


C9-A41

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



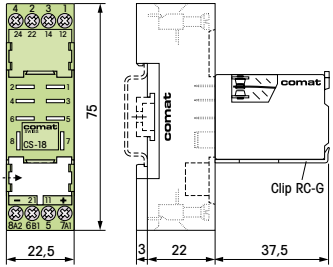
24, 48, 115, 230
C9-A41 X / AC V

12, 24, 48, 110, 125
C9-A41 / DC V

12, 24, 48, 110, 125
C9-A41 D X / DC V

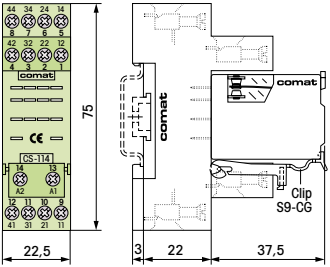
Option X = with ⊗

Socket CS-18 (for relay C7)



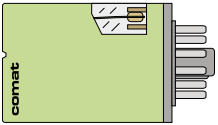
Plug-in R/C-unit
RC0047-100/AC250V

Socket CS-114 (for relay C9)



comat

Industrial relays

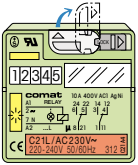


The tables show the most popular Comat Industrial Relays (C..-... green) and other relays (C..-... grey).
Technical data for other relay groups is available.
The prospectus groups CR2, CR5 and CR7 include also solid-state relays of the same type.

Prospectus
CR5

LONG LIFE ••

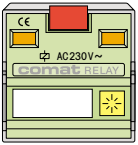
- 100 Mio mechanical cycles
- 700 000 cycles at full load



C21, C31

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

STANDARD



Terminal marking

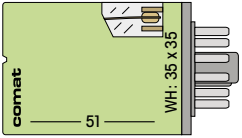
Consecutive terminal no.
Mark according to
DIN/EN 50011
Consecutive terminal no.

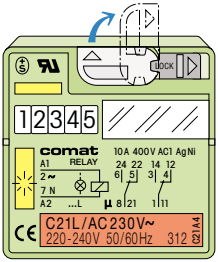
µ = contact opening
< 3 mm

C2, C3, C4, C5

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

Double contacts C..-... Remanence relays





LONG LIFE ••

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

CE

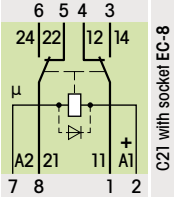
µ MAX MIN

C21

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

10 A 400 V ~

10 mA 10 V



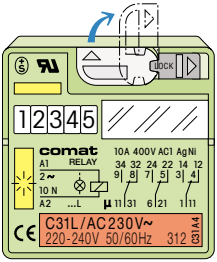
Ordering example C31

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

Standard		AC ~ 50/60 Hz	24, 48, 115, 230 C21 L / AC V
Standard		DC ⎓ ∿∿ ≤10%	12, 24, 48, 110, 220 C21 / DC V
D, DL		DC ⎓ ∿∿ ≤10%	12, 24, 48, 110, 220 C21D L / DC V

⊗ = Type "L" (option)

Option L = with ⊗



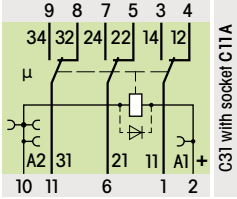
C31

Universal power relay 10 A

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

10 A 400 V ~

10 mA 10 V



24, 48, 115, 230

C31 L / AC V

12, 24, 48, 110, 220

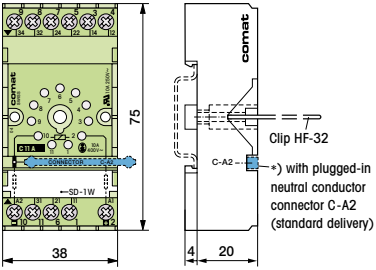
C31 / DC V

12, 24, 48, 110, 220

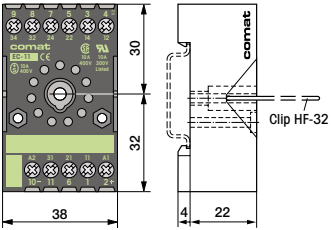
C31D L / DC V

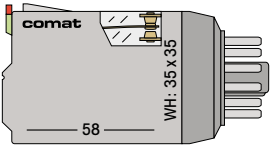
Option L = with ⊗

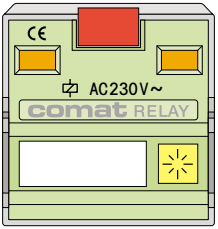
Socket C11A*) (for relays C3, C31)



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

CE

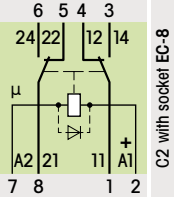
μ MAX MIN

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



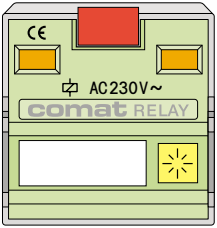
Ordering example C3

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

Standard		AC ~ 50/60Hz	24, 48, 115, 230 C2-A20 X / AC V
Standard		DC ⎓ ∿∿ ≤10%	12, 24, 48, 110, 125, 220 C2-A20 / DC V
D, DX		DC ⎓ ∿∿ ≤10%	12, 24, 48, 110, 125, 220 C2-A20D X / DC V

⊗ = Type "X" (option)

Option X = with ⊗

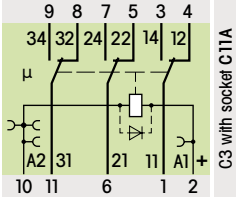


C3-A30

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

10 A 250 V~

10 mA 10 V



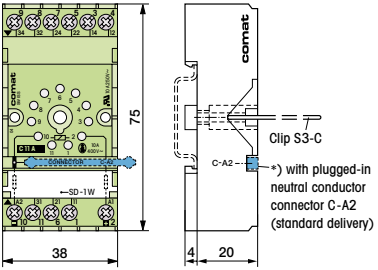
		24, 48, 115, 230	
C3-A30	X	/ AC V	

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

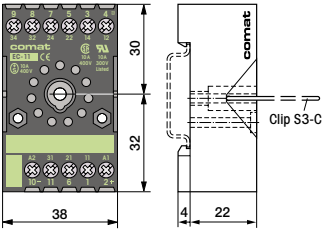
12, 24, 48, 110, 125, 220			
C3-A30 D	X	/ DC V	

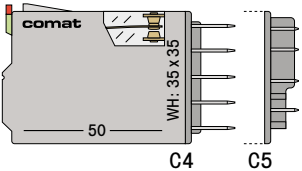
Option X = with ⊗

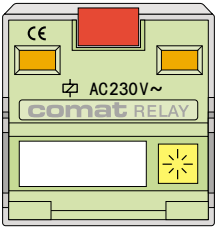
Socket C11A*) (for relays C3, C31)



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

CE

μ MAX MIN

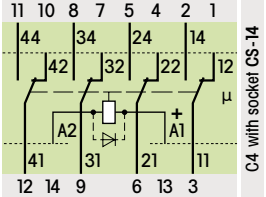
C4-A40

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



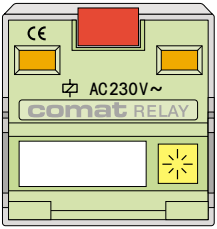
Ordering example C4

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

Standard		AC ~ 50/60Hz	24, 48, 115, 230 C4-A40 X / AC V
Standard		DC ⎓ ∿ ≤10%	12, 24, 48, 110, 125, 220 C4-A40 / DC V
D, DX		DC ⎓ ∿ ≤10%	12, 24, 48, 110, 125, 220 C4-A40D X / DC V

⊗ = Type "X" (option)

Option X = with ⊗



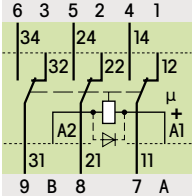
C5-A30

Universal power relay 16A

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

16A 400V~/6A AC15

10mA 10V



24, 48, 115, 230, 400

C5-A30 X / AC V

12, 24, 48, 110, 125, 220

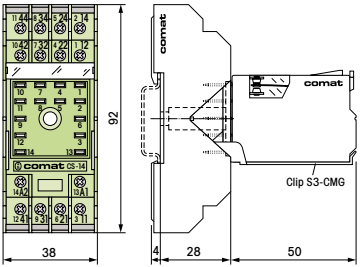
C5-A30 / DC V

12, 24, 48, 110, 125, 220

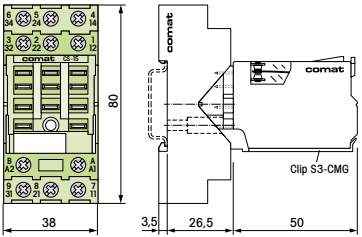
C5-A30D X / DC V

Option X = with ⊗

Socket CS-14 (for relay C4)



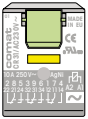
Socket CS-15 (for relay C5)



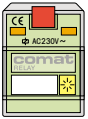
comat

Miniature Industrial Relays

Prospectus **CR1**



Prospectus **CR2**



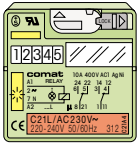
Tamb = 20°C (standard coil)	CR31	C10-A10	C7-A20	C9-A41
Switching current/voltage	10A 250V~	10A 250V~	10A 250V~	3A 250V~
Switching capacity AC1/DC1	2500VA/..250W	2500VA/..240W	2500VA/..250W	700VA/...75W
Recommended minimum load	10mA 12V	10mA 10V	10mA 10V	10mA 10V
Contact material	AgNi 90/10	AgNi 90/10	AgNi 90/10	AgNi+0,2µAu
Peak inrush power	20A(20ms)	30A(10ms)	30A(20ms)	15A(10ms)
Switching cycles mech./electr. (AC1)	$>20x10^6$ / $>10^5$	$20x10^6$ / $\geq 10^5$	$20x10^6$ / $\geq 3x10^5$	$20x10^6$ / $\geq 10^5$
Operation voltage AC(50Hz)	0,8-1,6 U_N	0,8...1,2 U_N	0,8...1,2 U_N	0,8...1,2 U_N
DC	0,75-1,7 U_N	0,8...1,3 U_N	0,8...1,3 U_N	0,8...1,3 U_N
Power consumption AC/DC	1,0VA/0,75W	1,1VA/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 ⊡ → ⚡ → ⚡	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

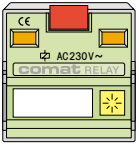
comat

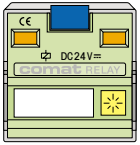
Industrial Relays

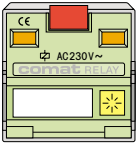
Prospectus CR5

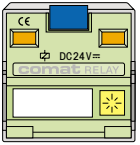
Prospectus CR4











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)	$100x10^6/\geq 7x10^5$	$30x10^6/\geq 2x10^5$	$20x10^6/\geq 2x10^5$	$20x10^6/\geq 5x10^5$	$20x10^6/\geq 3x10^5$
Operation voltage AC(50Hz)	0,8...1,3 U_N	0,8...1,2 U_N	0,8...1,2 U_N	0,8...1,2 U_N	0,8...1,2 U_N
DC	0,8...1,6 U_N	0,8...1,3 U_N	0,8...1,3 U_N	0,8...1,3 U_N	0,8...1,3 U_N
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

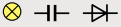
Plug-in coil wirings for 3-pole industrial relays C3, C31 with socket C11A

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.

Illuminated displays

Suppressing units

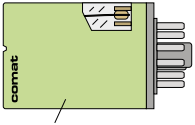
Suppressing units with illuminated displays



Ordering example

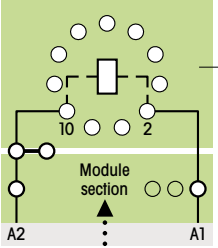
- Module RCL1/UC48V
- Socket C11A

- Relay C31 or C3
- Clip HF-32 or S3-C (option)

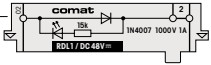


Industrial relay

R-Module

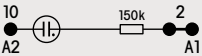


Socket C11A

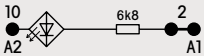


Relay coil →

RL1/AC 110-240 V ~



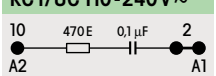
RL1/UC 12-24 V ≂



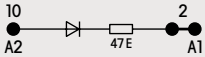
see RL1/UC…V

see RC1/UC…V

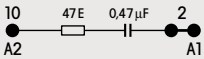
RC1/UC 110-240 V ≂



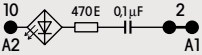
RD1/DC 12-220 V ⎓



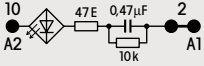
RC1/UC 12-48 V ≂



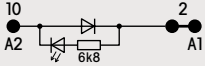
RCL1/AC 110-240 V ~



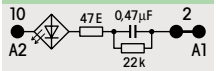
RCL1/UC 24 V ≂



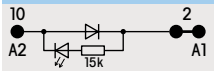
RDL1/DC 12-24 V ⎓



RCL1/UC 48 V ≂

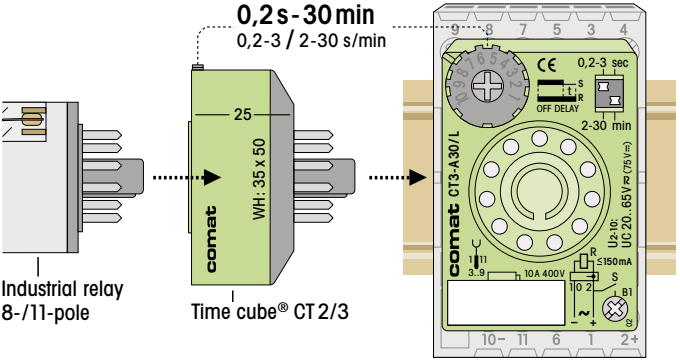


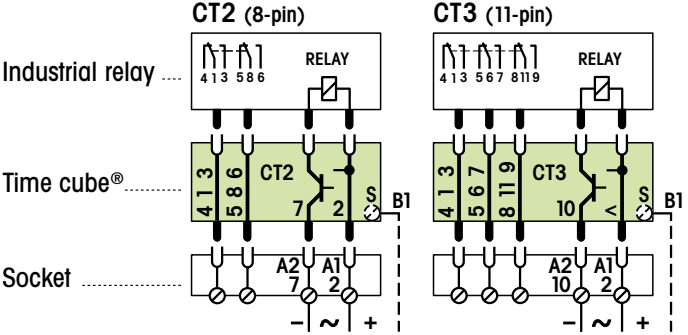
RDL1/DC 48 V ⎓



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.





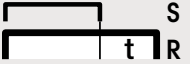
Function | Triggering

E On delay

❶
S ⇒ R on with delay
SOFF ⇒ R off

B Blinker, pulse start

A Off delay



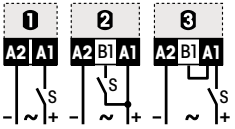
❷
S ⇒ R on
SOFF ⇒ R off with delay

S = Triggering
R = Output circuit
⇒ = switches…

K Pulse shaping

❷ (with ❸ = W)
S ⇒ R on for t
S ▬ no influence on R and t

Triggering



W One shot leading edge

❶
S ⇒ R on for t
SOFF ⇒ R off (pulse clipping)

Order no.		UC180-265V	UC90-150V	UC90-265V	UC20-65V	DC9,5-18V
Function	2 = 8-pin 3 = 11-pin					
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

≂	⎓
UC	DC
AC/DC	∿∿ 10%

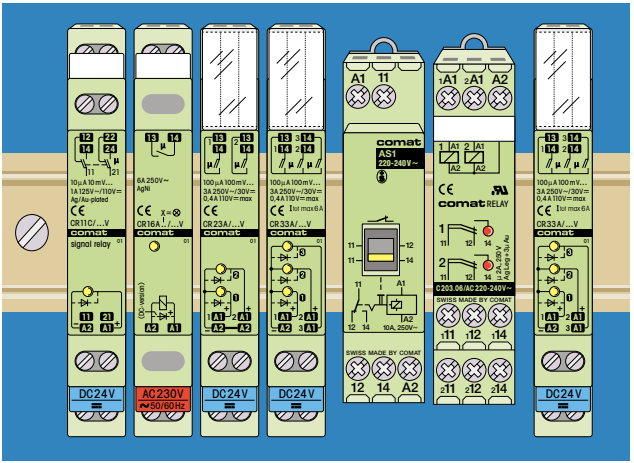
Ordering example

- Time cube CT3-E30/H

Options:
- Clip HF-33 for C21, C31
- Clip S3-CT for C2, C3

DIN-Relays

Stepping relays



Prospectus CR7							
MIN/MAX							
6/5 A							
3 A							
2 A							
1 A							
10 mA							
1 mA				10 mV			
100 µA							10 µA
1	1	CR 16...			C103.01			C103.06
	2			CR11C	C133.01			
2x	1		CR23A		C203.01	C203.04		C203.06
3x	1		CR33A				C301.04	
	1	CRS1C						

And also...

comat

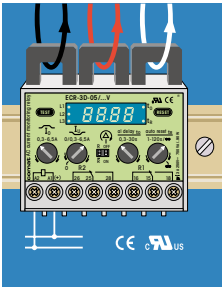
Certified Management System
ISO 9001
Nr. 12485

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

The manufacturing range comprises:

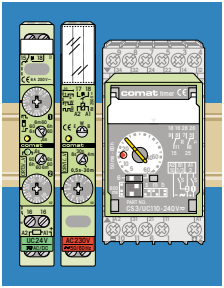
- Industrial relays
- Solid-state relays
- Time delay relays
- Monitoring relays

Prospectus
UR



Monitoring relays

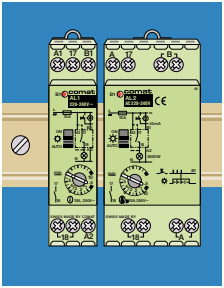
Prospectus
ZR



Time delay relays

Repeat cycle timers
Pulse shapers

Prospectus
CR 8



Installation Relays

Stair case lighting timers
Power stepping relays

FAX ANSWER

Please send me / us to address below:

Other copies of the leaflet
Industrial relays SHORT FORM D ..... F ..... E .....

Prospectuses CR1 CR2 ☐ Miniature **Industrial relays**

Prospectuses CR4 CR5 ☐ **Industrial relays** 8-/11-pole

Prospectus CR7 ☐ **DIN-Relays** 17,5 mm / 13 mm

Prospectus CR8 ☐ **Installation relays** Power stepping relays

Prospectus ZR ☐ **Time delay relays** Repeat cycle timers

Prospectus UR ☐ **Monitoring relays** Current transformers

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Representative / Distributor: