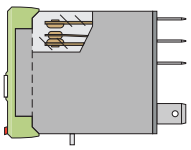
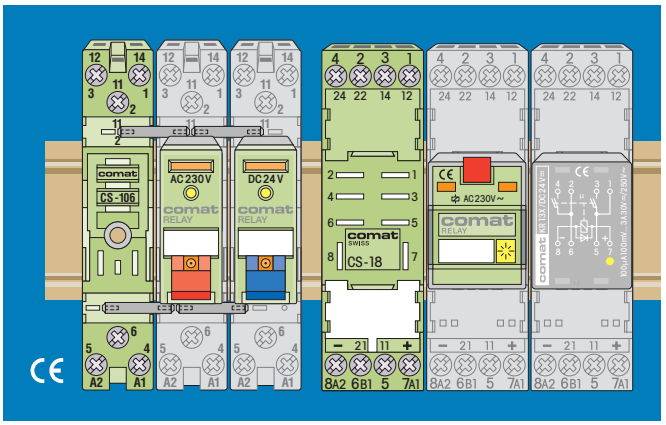
comat

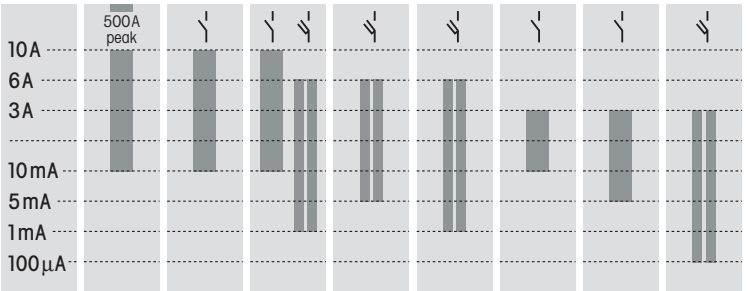




- Miniature
  Industrial relays
- Solid-state relays

CR 2 01

CR 2 Recommended application



1	C7-W10	C10-A10		C10-T13	C10-T12			
2		C7-A20		C7-T21	C7-T22	C9-R21		KR13
4						C9-A41	C9-A42	
1+1			C7-H23					
2x 1								KR23
3x 1								KR33

Twin contacts; C9-R21: Remanence relay

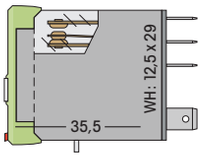
COMAT AG BERNSTR. 4 CH-3076 WORB TEL +41(0)31 838 55 77 FAX +41(0)31 838 55 99 info@comat.ch www.comat.ch

comat
C10

Power relays
3µAu

Control relays
3µAu

Signal relays
10µAu



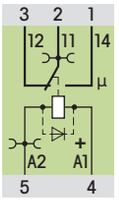
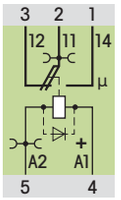
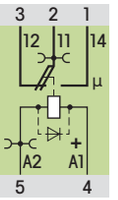
Miniature industrial relays

1-pole miniature industrial relays
- lockable manual operation
- mechanical flag indicator

Test voltage: 5000 V

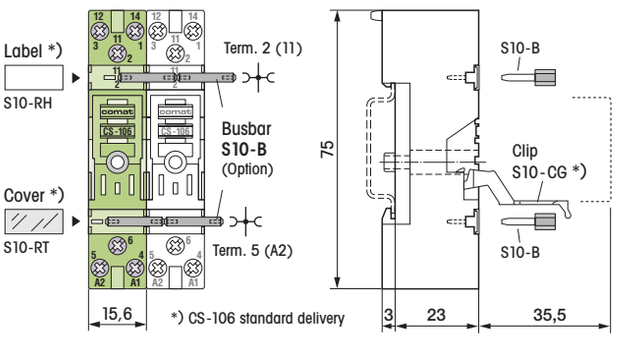
$T_{amb.}$ operation/ storage: -20..+60/-20..+100°C

Interfacer™

	C10-A10	C10-T13	C10-T12
	Universal-power relays 10A for AC- and DC-circuits ranging from 10mA 10V.	**Relay like ..A10, but with double contacts 6A** the control relay with highest switching reliability for control and signal circuits ranging from 5mA 5V.	**Relay like ..T13, but with 10µ gold plated contacts** the double-contact relay with highest switching reliability for signal circuits ranging from 1mA 5V. Recommended upto 0,2A 30V.
	10A 250V~	**6A** 250V~	**6A** 250V~
µ MAX / MIN	10mA 10V	5mA 5V	1mA 5V
Connection No. on socket →			
Designation according to DIN/EN 50011 →			
Connection with interface socket **CS-106**			
µ = contact opening < 3mm			
Data at $T_{amb.}$ = 20°C (standard coil)			
Contact material	AgNi	AgNi+3µAu	AgNi+10µAu
Switching load AC1/DC1	2500VA/...240W//3A 30V⎓	1500VA/...150W//3A 30V⎓	1500VA/...150W
Peak inrush power	30A(10ms)	15A(5ms)	15A(5ms)
Switching cycles mech./electr.(AC1)	$20x10^6/\geq10^5$	$20x10^6/\geq10^5$	$20x10^6/\geq10^5$
Operation voltage AC50Hz/DC	0,8...1,2U_N	0,8...1,2U_N	0,8...1,2U_N
Power consumption AC/DC	1,1VA/650mW	1,1VA/650mW	1,1VA/650mW
Triggering delay / release time	11/8ms	11/8ms	11/8ms
Standard AC ~ 50/60Hz	115, 230 **C10-A10X / AC ..... V**	115, 230 **C10-T13X / AC ..... V**	115, 230 **C10-T12X / AC ..... V**
Standard DC ⎓ ≤20%	12, 24, 48, 110 **C10-A10X / DC ..... V**	12, 24, 48, 110 **C10-T13X / DC ..... V**	12, 24, 48, 110 **C10-T12X / DC ..... V**
FX DC ⎓ ≤20%	12, 110 **C10-A10FX / DC ..... V**	12, 110 **C10-T13FX / DC ..... V**	12, 110 **C10-T12FX / DC ..... V**
BX UC ⎓~ 50-400Hz/⎓	24, 48 **C10-A10BX / UC ..... V**	24, 48 **C10-T13BX / UC ..... V**	24, 48 **C10-T12BX / UC ..... V**

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

Interface socket CS-106



comat

C7

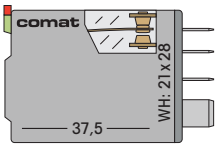
Power relays

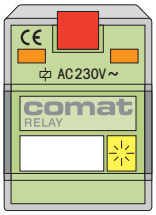
Control relays 0,2µAu

Signal relays 10µAu

Power relays Signal relays

High power Relays





NEW

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.

C7-T21

Relay like ..A20, but with twin contacts 6A
the control relay with highest switching reliability for control and signal circuits ranging from 5mA 5V.

C7-T22

Relay like ..T21, but 10µ gold plated contacts
the twin contact relay with highest switching r eliability for signal circuits ranging from 1mA 5V. Recommended upto 0,2A 30V.

C7-H23

Power relay 10A
with supplementary twin contact 6A (3µAu) for a secondary circuit switch, i.e. to ensure reliable signal of relay switch position to the central control, SPC, distribution system.

C7-W10

High performance relay for 500A switching
with Wolfram special early make contact.
Specially suitable for filament and halogen lamps, transformers, etc.
No mecanical flag indicator.

2-pole miniature industrial relays
- lockable manual operation
- mechanical flag indicator

Test voltage: 2500V / 2500V

$T_{amb.}$ operation / storage: -20..+60/-40..+85°C

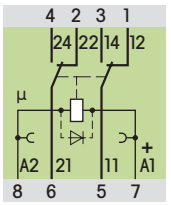
	C7-A20	C7-T21	C7-T22	C7-H23	C7-W10
	10A 250V~	**6A 250V~**	**6A 250V~**	**10/6A 250V~**	**10A 250V~**
	10mA 10V	5mA 5V	1mA 5V	10mA 10V // 1mA 5V	10mA 10V

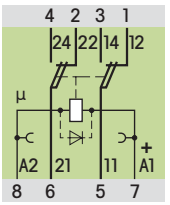
CE, µ MAX MIN

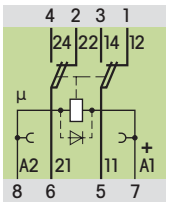
Connection No. on socket →
Designation according to DIN/EN 50011 →

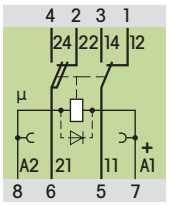
Connection with socket CS-18

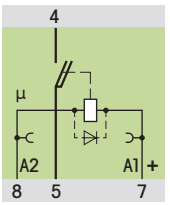
µ = contact opening < 3mm



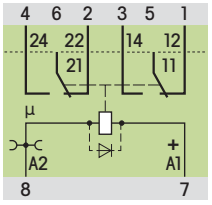


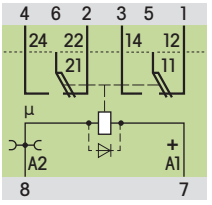


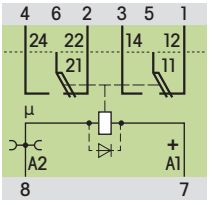


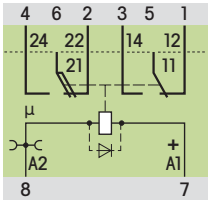


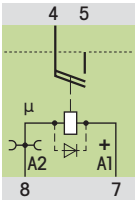
Connection with socket CS-109











Data at $T_{amb.}$ = 20°C (standard coil)

	C7-A20	C7-T21	C7-T22	C7-H23	C7-W10
Contact material	AgNi	AgNi+0,2µAu	AgNi+10µAu	AgNi // AgNi+3µAu	W/Ag
Switching power AC1	2500VA	1200VA	1200VA	2500VA // 1500VA	2500VA
Switching power DC1	...250W	...150W	...150W	...250W // ...180W	...250W
Peak inrush power	30A(20ms)	15A(20ms)	15A(20ms)	30A // 15A(20ms)	500A(2,5ms)
Switch. cycles mech./electr.(AC1)	$20x10^6/\geq 3x10^5$	$20x10^6/\geq 2x10^5$	$20x10^6/\geq 2x10^5$	$20x10^6/\geq 2x10^5$	$20x10^6/\geq 3x10^5$
Operation voltage AC 50Hz/DC	0,8...1,2 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
Power consumption AC/DC	1,5VA/1W	1,5VA/1W	1,5VA/1W	1,4VA/1,1W	1,8VA/1,5W
Triggering delay / release time	16/8ms	16/8ms	16/8ms	15/8ms (30ms "DX")	20/10ms

	C7-A20	C7-T21	C7-T22	C7-H23	C7-W10
Standard AC ~ 50/60Hz	24, 48, 115, 230	24, 48, 115, 230	24, 48, 115, 230	230	24, 48, 115, 230
	C7-A20 X / AC ...V	C7-T21 X / AC ...V	C7-T22 X / AC ...V	C7-H23X / AC ...V	C7-W10 X / AC ...V
Standard DC ≤10%	12, 24, 48, 110, 125	12, 24, 48, 110, 125	12, 24, 48, 110, 125		12, 24, 48, 110, 125
	C7-A20 / DC ...V	C7-T21 / DC ...V	C7-T22 / DC ...V		C7-W10 / DC ...V
D, DX DC ≤10%	12, 24, 48, 110, 125	12, 24, 48, 110, 125	12, 24, 48, 110, 125	24	12, 24, 48, 110, 125
	C7-A20D X / DC ...V	C7-T21D X / DC ...V	C7-T22D X / DC ...V	C7-H23DX / DC ...V	C7-W10D X / DC ...V

⊗ = Type X (option)

Option X = with ⊗

Ordering example

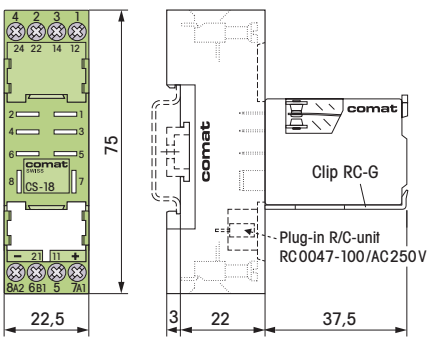
- Relay C7-A20X/AC230V

- Socket CS-18
- Retaining clip RC-G (option)

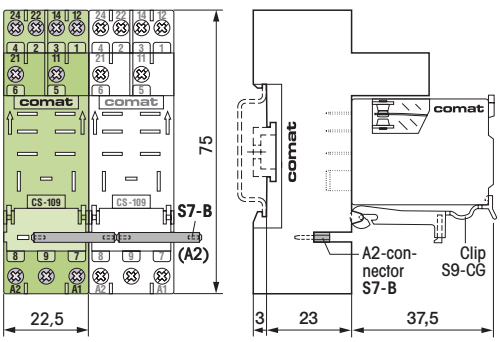
- Socket CS-109 (clip incl.)
- A2-connector S7-B (option)

- Socket S7-P (page 5*)
- Retaining clip RC-G (option)

System socket CS-18 (connections 5 and 6 on bottom)



Interface socket CS-109 (all connections on top)



comat

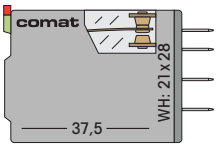
C9

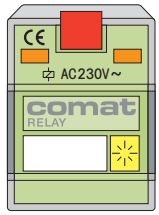
Control relay

Signal relay

10 µ Au

Remanence relay





4-pole miniature industrial relays
- lockable manual operation
- mechanical indication

Test voltage: 2500 V / 1000 V

$T_{amb.}$ operation/
storage: -20..+60/-40..+85 °C

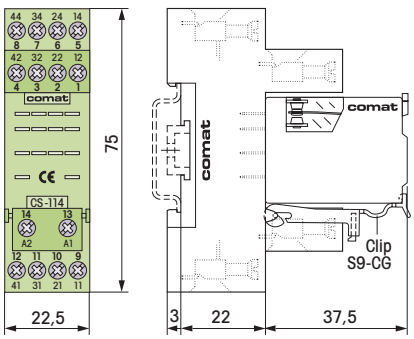
	C9-A41	C9-A42	C9-R21
	Universal control relay with 4 changeover contacts for AC and DC circuits ranging from 10 mA 10 V.	**Relay like ..A41, but with 10 µ gold plated contacts** for control and signal circuits ranging from 5 mA 5 V. Recommend. upto 0,2 A 30 V.	**Remanence relay with AC or DC coil** A1 (13) = ON; A3 (10) = OFF. Minim. triggering time 50 ms, permanent triggering admissible. Test voltage 2500 V. Without option X.
CE / µ MAX MIN	**3 A 250 V ~** 10 mA 10 V	**3 A 250 V ~** 5 mA 5 V	**3 A 250 V ~** 10 mA 10 V
Connection No. on socket →	8 4 7 3 6 2 5 1	8 4 7 3 6 2 5 1	8 4 5 1
Designation according to DIN/EN 50011 →	44 34 24 14 / 42 32 22 12 / A2 A1 / 41 31 21 11 / 12 14 11 10 13 9	44 34 24 14 / 42 32 22 12 / A2 A1 / 41 31 21 11 / 12 14 11 10 13 9	24 14 / 22 12 / ON OFF / A2 A1 A3 / 21 11 / 12 14 10 13 9
Connection with socket CS-114			
µ = contact opening < 3 mm			
Data at $T_{amb.}$ = 20 °C (standard coil)			
Contact material	AgNi + 0,2 µ Au	AgNi + 10 µ Au	AgNi + 0,2 µ Au
Switching power AC1/DC1	700 VA/...75 W	700 VA/...75 W	700 VA/...75 W
Peak inrush power	15 A (10 ms)	15 A (10 ms)	15 A (10 ms)
Switching cycles mech./electr. (AC1)	$20 \times 10^6 / \geq 10^5$	$20 \times 10^6 / \geq 10^5$	$20 \times 10^6 / \geq 10^5$
Operation voltage AC 50 Hz/DC	0,8...1,2 U_N	0,8...1,2 U_N	0,8...1,2 U_N
Power consumption AC/DC	1,5 VA/1 W	1,5 VA/1 W	ON: 1,2 VA/W; OFF: 0,3 VA/W
Triggering delay / release time	10/6 ms	10/6 ms	10/8 ms (⎍ >50 ms)
Standard AC ~ 50/60 Hz	24, 48, 115, 230	24, 48, 115, 230	24, 48, 115, 230
	C9-A41 X / AC ...V	C9-A42 X / AC ...V	C9-R21 / AC ...V
Standard DC ⎓ ≤10%	12, 24, 48, 110, 125	12, 24, 48, 110, 125	12, 24, 48
	C9-A41 / DC ...V	C9-A42 / DC ...V	C9-R21 / DC ...V
D, DX DC ⎓ ≤10%	12, 24, 48, 110, 125	12, 24, 48, 110, 125	
	C9-A41 D X / DC ...V	C9-A42 D X / DC ...V	

⊗ = Type X (Option)

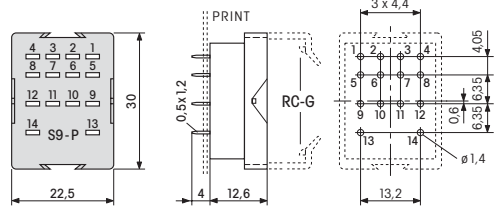
Option X = with ⊗

Ordering example
- Relay C9-A41 X/AC 230 V
- Socket CS-114 (clip incl.)
- Socket S9-P
- Retaining clip RC-G (option)

System socket CS-114



Socket for print mounting S9-P



View on solder side

CR 2.01/9.03 E

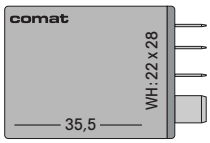
comat

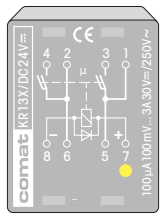
KR

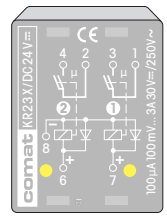
Control and signal relays (Au)

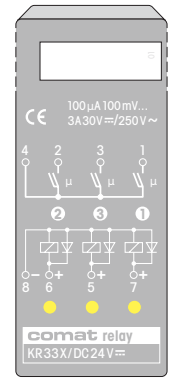
2x

3x





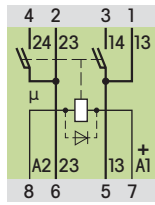
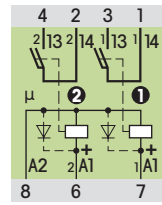
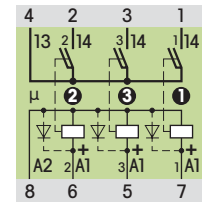




Miniature industrial relays

- 1- to 3-channel
- for control and signal circuits
- only 250 mW per channel

Test voltage: 2000 V / 1000 V /
$T_{amb.}$ operation/
storage: -20..+60/-40..+85°C

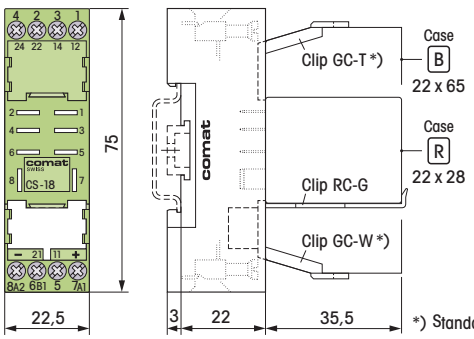
	KR13	KR23	KR33
	Universal gold plated twin contact relay 1-channel, totaly incapsulated. For highest switching reliability in control and signal circuits ranging from 100 µA 100 mV.	**Relay like KR13, but 2-channel** with a width of 11 mm per channel this relay is especially space-saving and cost-effective.	**Relay like KR13, but 3-channel** with a width of 7,3 mm per channel this relay is especially space-saving and cost-effective.
CE / µ MAX MIN	**3 A 250 V~ // 110 V=** 100 µA 100 mV	**3 A 250 V~ // 110 V=** 100 µA 100 mV	**3 A 250 V~ // 110 V=** 100 µA 100 mV
Connection No. on socket → Designation according to DIN/EN 50011 →			
Connectio with socket CS-18			
µ = contact opening < 3 mm			
Data at $T_{amb.}$ = 20°C (standard coil)			
Contact material Switching load AC1/DC1 Peak inrush power Switching cycles mech./electr. (AC1)	Ag-alloy + 3..5 µ Au 750 VA/...90 W//3 A 30 V= 6 A (20 ms) $20 \times 10^6 / \geq 10^5$	Ag-alloy + 3..5 µ Au 750 VA/...90 W//3 A 30 V= 6 A (20 ms) $20 \times 10^6 / \geq 10^5$	Ag-alloy + 3..5 µ Au 750 VA/...90 W//3 A 30 V= 6 A (20 ms) $20 \times 10^6 / \geq 10^5$
Operation voltage Power consumption per channel Triggering delay / release time	$0,8...1,2\,U_N$ 350 mW 6/4 ms (X: 6 ms)	$0,8...1,2\,U_N$ 250 mW 6/4 ms (X: 6 ms)	$0,8...1,2\,U_N$ 250 mW 6/4 ms (X: 6 ms)
A — DC = ≤ 20%	12, 24, 48 KR13A / DC ...,.. V	12, 24, 48 KR23A / DC ...,.. V	12, 24 KR33A / DC ...,.. V
X — DC = ≤ 20%	12, 24, 48 KR13X / DC ...,.. V	12, 24, 48 KR23X / DC ...,.. V	12, 24, 48 KR33X / DC ...,.. V

Ordering example

- Relay KR23X/DC24V
- Socket CS-18 or S7-P
- Retaining clip RC-G (option)

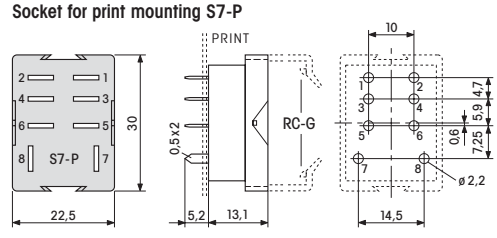
Solid-state relays KA, KD

System socket CS-18



*) Standard delivery with relay (Case B)

Socket for print mounting S7-P



View on solder side

CR 2.01/9.03 E

comat

KA

AC ~ Solid-state relays

Case R

KA108

Universal AC solid-state
1-channel, 0,8A/AC240V. Triac output with RC wiring protection.

0,8A 20...265V~

30mA

Case B

KA115

Universal AC solid-state
1-channel, 1,5A/AC240V. Triac output with RC wiring protection.

1,5A 20...265V~

30mA

2x Case B

KA208

Universal AC solid-state
2-channel, 0,8A/AC240V (2x0,5A). Triac outputs RC wiring protection. Width per channel: 11mm.

0,8A 20...265V~

30mA

AC Solid-state relays
- 1- and 2-channel
- galvanically separated triggering (2kV)
- crossover switching
- each channel indicated by LED

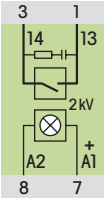
$T_{amb.}$ operation/ storage: -25..+60/-40..+85°C

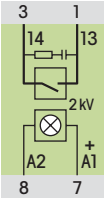
CE

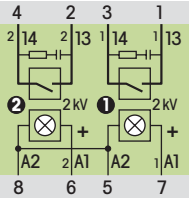
μ MAX MIN

Connection No. on socket →
Designation according to DIN/EN 50011 →

Connection with socket CS-18







Data at $T_{amb.}$ = 20°C

Peak inrush power	8A (20ms)	20A (20ms)	8A (20ms)
Residual current	3mA	3mA	3mA
Frequency range	50/60Hz	50/60Hz	50/60Hz
Voltage drop	≤1,5V	≤1,5V	≤1,5V
Control voltage	DC10...30V⎓	UC10...30V≈	DC10...30V⎓
Triggering OFF	U_{A1}: ≤6V	U_{A1}: ≤6V	U_{A1}: ≤6V
Switching delay	12ms	12ms	12ms
Control current	10mA (24V)	10mA (24V)	10mA (24V)

DC ⎓ ≤20% — KA108 / DC12-24V — KA208 / DC12-24V

UC ≈ ~40-400Hz/⎓ — KA115 / UC12-24V

KD

DC ⎓ Solid-state relays

Case R

KD125

Universal DC solid-state
1-channel. 2,5A/DC24V.

2,5A 10...32V⎓

2x Case R

KD215

Solid-state relay like KD125, but 2-channel
2,5A/2x1,5A/DC24V. Width per channel: 11mm.

1,5A 10...32V⎓

3x Case B

KD315

Solid-state relay like KD125, but 3-channel
2,5A/3x1,5A/DC24V. Width per channel: 7,3mm.

1,5A 10...32V⎓

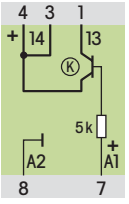
AC Solid-state relays
- 1- and 3-channel
- overload/short-circuit proof Ⓚ
- limiting inductive voltage
- each channel indicated by LED

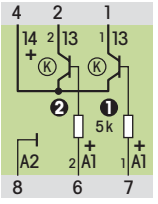
$T_{amb.}$ operation/ storage: -25..+60/-40..+85°C

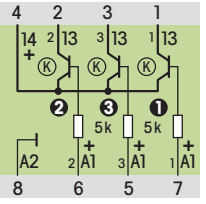
CE

Connection No. on socket →
Designation according to DIN/EN 50011 →

Connection with socket CS-18







Data at $T_{amb.}$ = 20°C

Output	1 PNP (noc)	2x1 PNP (noc)	3x1 PNP (noc)
Current peak	15A (20ms)	15A (20ms)	15A (20ms)
Residual current	<100μA	<100μA	<100μA
ON-resistance	50mΩ	50mΩ	50mΩ
Control voltage	DC 5...18V/10...32V⎓	DC 10...32V⎓	DC 10...32V⎓
Triggering OFF	U_{A1-2}: ≤3V/≤6V	U_{A1-2}: ≤3V/≤6V	U_{A1-2}: ≤3V/≤6V
ON-OFF-switching delay	2,5ms	2,5ms	2,5ms
Control current	4mA (24V)	4mA (24V)	4mA (24V)

DC ⎓ ≤20% — 6-12, 12-24 — KD125 / DC ....V — KD215 / DC12-24V — KD315 / DC12-24V

Ordering example
- Relay KD215/DC12-24V
- Socket CS-18 or S7-P
- Retaining clip RC-G (option)