RELAY PRODUCTS

Shortform Catalog

Index

Alternative Energy

General Purpose Page

Automotive

Automotive Page

Signal Page

Alternative Power Vehicle/Charging

Alternative Power Page

General Purpose Page

Building Equipment

General Purpose Page

Signal Page

Appliance

General Purpose Page

Signal Page

Industrial

General Purpose Page

Signal Page

Power Metering (ANSI[1)] Style)

General Purpose Page

Communication

General Purpose Page

Signal Page

PCB Relays

Power K (V23133/V23076)

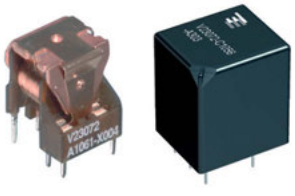
- **Limiting continuous current 45A (V23076/133)**
- **High current open version Power K-S (V23071): 70/50A at 23°/85°C, very low voltage drop[1] available**
- **Wide voltage range**
- **24VDC versions available**

Mini K (V23072-A/C)

- **Limiting continuous current 20A**
- **24VDC versions with special contact gap**
- **Various contact arrangements and materials**

DMR (V23084)

- **Limiting continuous current 30A**



Contact Data					
Contact arrangement	1 form A/C, 1 NO/CO	1 form A, 1 NO	1 form C, 1 CO	1 form U, 2 NO	2 form C, 2 CO
Rated voltage	12, (24)VDC[6]	12, (24)VDC[6]			12VDC
Limiting continuous current at 23/85°C	NO/NC 45/30A / 30/25A	15/10A	(NO/NC) 15/10A / 10/5A	2x10/2x6A	20/15A both systems
Limiting making current	100/30A	60A	60/12A	2x40A	35A
Limiting breaking current	60/30A	20A	20/10A	2x20A	35A
Limiting short-time current, overload current, ISO 8820-3; rated current[5]: 1.35x rated current, t 2.00x rated current, t 3.50x rated current, t 6.00x rated current, t					
Operate/release time max. (typ.)	5/3ms	3/1.5ms			3/1.3ms
Coil Data					
Rated coil voltage	12, 24VDC	12, 24VDC			12VDC
Rated coil power	1.6W	1.1W			0.56/0.81W
Other Data					
Ambient temperature	-40 to +85°C	-40 to +85°C			-40 to +85°C
Category of environmental protection	Open or sealed	Open or sealed			Sealed
Terminal type	PCB	PCB			PCB
Mounting					
Dimensions lwh	Open: 24x19.25x18.5mm Sealed: 26.5x21.5x21.5mm	Open: 16x13.2x18mm Sealed: 17.2x15x19.5mm			17.6x17x13.4mm
Accessories					

1) Please contact TE Connectivity application engineering support for details concerning Power Relay K-S. 2) Please contact TE Connectivity application engineering support for higher current (LCC). 3) QC=quick connect. 4) For products V23086-C1021-A502 / V23086-C1001-A602 lamp load/flasher. 5) Current and time are compatible with circuit protection by a typical automotive fuse. Relay will make, carry and break the specified current. 6) Given data only valid for 12VDC systems; for 24VDC versions please refer to datasheets.

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PCB Relays and Plug-in Relays

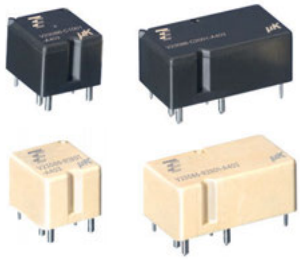
PK2 THT/THR (V23201-C/R)

- Wave and reflow solderable versions
- 60% volume reduced Power K at increased performance
- PCB area requirements minimized by 50% to 293mm²
- Limiting cont. current 40A[2)]
- High shock and vibration resistance
- For bistable version refer to PK2 Latching THT/THR (V23201-L/T)

1 form A, 1 NO
12VDC
40/33A
200A
40A
3/1.5ms
12VDC
0.8W
-40 to +105°C
Sealed/Vented
PCB
18.5x16.2x16.1mm

Micro K THT/THR (V23086-C1/R1/C2/R2)

- Wave (THT) and reflow (THR/pin-in-paste) solderable versions
- Single and twin versions
- Small power relay
- Limiting continuous current 30A
- Minimal weight
- Low noise operation



1 form A, 1 NO	1 form C, 1 CO	2 form C, 2 CO
12VDC		
30/20A	NO/NC 30/25A	NO/NC 20/15A
40A (100A)[4)]	40A	
30A	30A	
3/1.5ms		
12VDC		
0.55W	0.57W	
-40 to +105°C		
Sealed/Vented		
Single: 13.2x12.2x10.1 (10.4mm THR) Double: 23.8x13.2x10.1 (10.4mm THR)		

Mini ISO

- Pin assignment similar to ISO 7588 part 1
- Plug-in or PCB terminals
- Available for 42VDC applications
- Customized versions on request: 24VDC versions with 0.8mm contact gap, integrated components, customized marking/color, special covers, various contact arrangements and materials

1 form A, 1 NO 1 form A, 1 NO (2 x 87)	1 form C, 1 CO	1 form U, 2 NO
12, (24)VDC[6)]		
60/40A	NO/NC 60/45A / 40/30A	2x32/ 2x35A
120A	120/45A	2x100A
60A	60/40A	2x40A
40A 54A, 1800s 80A, 5s 140A, 0.5s 240A, 0.1s		
7/2ms		
12, 24VDC		
typ. 1.6W		
-40 to +125°C		
Dustproof		
Plug-in, QC[3)], PCB		
Bracket optional		
26.2x26.2x25.2mm 28.0x28.0x25.5mm 28.5x28.5x25.3mm		
Connectors for Mini ISO Relays		

Maxi ISO

- Latching version on request
- Pin assignment similar to ISO 7588 part 1
- Plug-in or PCB terminals
- Customized versions on request: 24VDC versions with 0.8mm contact gap, integrated components (e.g. resistor, diode), customized marking/color, special covers (e.g. notches, release features, brackets)

1 form A, 1 NO
12, (24)VDC[6)]
70/50A
240A
70A
50 A 67A, 1800s 100A, 5s 175A, 0.5s 300A, 0.1s
7/2ms
12, 24VDC
typ. 2.0W
-40 to +125°C
Dustproof
Plug-in, QC[3)], PCB
Bracket optional
26.2x26.2x25.2mm
Connectors for Maxi ISO Relays

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Plug-in Relays

Micro ISO

- **High current version with limiting cont. current 30A at 85°C**
- **ISO plug-in terminals, pin assignment according to ISO 7588 part 3**
- **Customized versions on request: 24VDC versions with special contact gap, integrated components, customer marking, special covers**

Micro Low Noise (V23145)

- **Noise level below 50dBA**
- **Pin assignment according to ISO 7588 part 3**
- **Plug-in terminals**
- **Customized versions on request: special marking, special covers (e.g. notches, release features)**

Mini/Maxi Shrouded Relays

- **Protection class IP67 to IEC 529 (EN 60 529) if used with special connector**
- **Plug-in terminals**
- **Pin assignment according to ISO 7588 part 1**
- **Bracket**
- **Customized versions on request: integrated components (e.g. diode), customized marking**

Contact Data								
Contact arrangement	1 form A, 1 NO	1 form C, 1 CO	High Current 1 form A, 1 NO	1 form A, 1 NO	1 form C, 1 CO	1 form A, 1 NO (Mini)	1 form C, 1 CO (Mini)	1 form A, 1 NO (Maxi)
Rated voltage	12, (24)VDC[6]			12VDC		12VDC		
Limiting continuous current at 23/85°C	30/25A	NO/NC 30/20A / 25/15A	35A/30A	20/15A	NO/NC 20/15A / 15/10A	60A/40A	NO/NC 60/45A / 40/30A	70/50A
Limiting making current	120A	120/40A	120A	100A	40A	120A	120/45A	240A
Limiting breaking current	30A	30/15A	30A	30A	30A	60A	60/40A	70A
Limiting short-time current, overload current, ISO 8820-3; rated current[5]:		25A	30A		20A		40A	50A
1.35x rated current, t		34A, 1800s	40A, 1800s		27A, 1800s		54A, 1800s	67A, 1800s
2.00x rated current, t		50A, 5s	60A, 5s		40A, 5s		80A, 5s	100A, 5s
3.50x rated current, t		87A, 0.5s	105A, 0.5s		70A, 0.5s		140A, 0.5s	175A, 0.5s
6.00x rated current, t		150A, 0.1s	180A, 0.1s		120A, 0.1s		240A, 0.1s	300A, 0.1s
Operate/release time max. (typ.)	5/3ms			3/2ms	3/4ms	8.5/4ms		
Coil Data								
Rated coil voltage	12, 24VDC		12VDC	12VDC		12VDC		
Rated coil power	1.4W		typ. 1.1W	0.9W	0.6W	1.5W	1.5W	1.8W
Other Data								
Ambient temperature	-40 to +125°C			-40 to +125°C		-40 to +125°C		
Category of environmental protection	Dustproof			Dustproof		Shrouded: protection class IP67 if used with special connector		
Terminal type	Plug-in, QC[3]			Plug-in, QC[3]		Plug-in, QC[3]		
Mounting						Bracket		
Dimensions lwh	23x15.5x25.4mm 23x15.5x26.0mm			23x15.5x25.4mm		32.7x35.5x54.2mm 32.0x32.0x39.0mm		
Accessories	Connectors for Micro ISO Relays			Connectors for Micro ISO Relays		Connectors for Mini ISO Relays		

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High Current Solutions

SPR (V23135)

- **Full, symmetric star-point disconnection of an electric power steering motor**
- **Limiting continuous current 90A**
- **Disconnection of high over-currents up to 200A in 12VDC and up to 60A in 36VDC power nets**
- **Optimized dimensions**

1 form 3, 3 NO
12, (24)VDC[6]
-/90A (60A at 125°C)
200A/>10 cycles
<20/<10ms
12, 24VDC
1.5W
-40 to +125°C
Sealed
Welding assembly
32.3x18.3x18.8mm

HCR 75 (V23232)

- **Limiting continuous current 75A**
- **Dustproof versions**

1 form A, 1 NO	1 form A, 1 NOBI (bifurcated contact)
12, (24)VDC[6]	
75/50A	75/50A
75A	150A
75A	100A
<15/<15ms	
12, 24VDC	12VDC
7.2, 4.4W	3.1W
-40 to +125°C	
Dustproof	
Plug-in, QC[3] (coil)/ Screw terminals (load)	
44x36x39mm	

HCR 150 (V23132)

- **Limiting continuous current 150A at 85°C**
- **Current switching ability up to 300A**
- **Suitable for voltage levels up to 42VDC**
- **Heat moisture and vibration resistant**
- **Minimal contact resistance**
- **Dustproof and sealed versions**

1 form A, 1 NO 1 form B, 1 NC 1 form C, 1 CO[7]	1 form X (NO-DM)
12, (24)VDC[6]	
180A with cable 25mm²/ 130A with cable 25mm²	170A with cable 25mm²/ 120A with cable 25mm²
300A	
300A	
<30/<15ms	
12VDC	24VDC
4.1W	4.1W
-40 to +125°C	
Dustproof/Sealed	
Plug-in, QC[3] (coil)/ Screw terminals (load)	
63x40x71mm	

HCR 200 (V23230)

- **Limiting continuous current 175A at 85°C**
- **Current switching ability up to 200A**
- **Heat moisture and vibration resistant**
- **Minimal contact resistance**
- **Protection class IP64**

1 form B, 1 NC
12VDC
255A with cable 50mm²/ 175A with cable 50mm²
200A
120A
<25/<20ms
12VDC
3.9W
-40 to +110°C
Sealed
Plug-in, QC[3] (coil)/ Screw terminals (load)
72x35.5x64.5mm

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Shortform and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section.

Shortform and product data is subject to the terms of the disclaimer and all chapters of the 'Definitions' section, available at http://relays.te.com/definitions

Shortform, product data, 'Definitions' section, application notes and all specifications are subject to change.

High Current and Latching*) Solutions

BDS-A (V23130)

- **Limiting continuous current 190A at 85°C**
- **Electrically settable and resettable ON/OFF bistable device**
- **Suitable for voltage levels up to 42VDC**
- **High peak current carrying capability up to 1500A**

Mini ISO Latching (V23141-L)

- **Magnetically latched Mini ISO plug-in relay**
- **70A (Maxi) version available on request**
- **Two coils with set and reset function**
- **Pin assignment similar to ISO 7588 part 1**
- **Customized versions on request: special marking, special covers (e.g. notches, release features, brackets)**

PK2 Latching THT/THR (V23201-L/T)

- **50A at 125°C, due to reduced coil power consumption (2 coil system)**
- **60% volume reduced Power K at increased performance**
- **PCB area requirements minimized by 50% to 293mm²**
- **High shock and vibration resistance**
- **No change of switching state version at breakdown of battery voltage**
- **For monostable version refer to PK2 THT/THR (V23201-C/R)**

Contact Data			
Contact arrangement	1 form X (NO-DM)	1 form A, 1 NO	1 form A, 1 NO
Rated voltage	12, (24)VDC[6]	12VDC	12VDC
Limiting continuous current at 23/85°C	260/190A	40/30A	50/40A
Limiting making current	1500A (>5ops.)	200A	200A
Limiting breaking current	1500A (>5ops.)	40A	40A
Operate/release time max. (typ.)	<15/<15ms	1.5/1.5ms	1.5ms
Coil Data			
Rated coil voltage	12, 24VDC	12VDC	12VDC
Rated coil power	(only impulse needed)	(only impulse needed)	(only impulse needed)
Other Data			
Ambient temperature	-40 to +120°C	-40 to +125°C	-40 to +125°C
Category of environmental protection	Dustproof/Weatherproof	Dustproof	Sealed/Vented
Terminal type	Plug-in, QC (coil)/ Screw terminals (load)	Plug-in, QC[3]	PCB
Mounting			
Dimensions lwh	36x33x60mm	30.1x30.1x31.1mm	18.5x16.2x16.1mm
Accessories		Connectors for Mini ISO Relays	

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High Voltage Precharge Relays

Mini K HV (V23700-C/F)

- **Compact high voltage relay for precharge applications up to 450V**
- **Precharge currents up to 20A**
- **Limiting break currents up to 20A**
- **Available with PCB and plug-in terminals**

1 form X (NO-DM)
400VDC
n/a[7)]
20A (make, >10^5ops.)
20A (break, >10ops.)[8)]
2.5/1ms
12VDC[7)]
2.9W[7)]
-40 to +85°C
Sealed
Plug-in, QC[3)], PCB
25.6x20.7x19.3mm (PCB version) 29.8x29.8x51.4mm (plug-in version)

Low Power PCB Relays

PE

- **Sensitive coil 200mW**
- **4kV coil-contact**
- **Low height 10.0mm**
- **Polarized bistable version available**

RE/REL

- **Sensitive coil 200mW**
- **4kV coil-contact (REL)**
- **PCB area 200mm²**

EJ

- **Slim outline**
- **Sensitive coil 200mW**
- **Ambient temperature 85°C**
- **Coil UL class F (155°C) insulation system**

	PE	RE/REL	EJ
Contact Data			
Contact arrangement	1 form C, 1 CO	1 form A, 1 NO	1 form A, 1 NO
Rated voltage	250VAC	250VAC	250VAC/30VDC
Rated current	5A	6/5A	3A/5A
Switching power	1250VA	1500/1250VA	1250VA/150W
Contact material	AgNi90/10, AgSnO	AgNi, AgNi0.15, AgCdO	AgNi
Min. recommended contact load			100mA at 5VDC
Coil Data			
Magnetic system	DC, bistable	DC	DC
Rated coil voltage	3 to 48VDC	5 to 48VDC	3 to 24VDC
Rated coil power	200mW	200/360mW	200mW
Insulation Data			
Initial dielectric strength			
between open contacts	1000Vrms	1000Vrms	750Vrms
between contact and coil	4000Vrms	4000/3000Vrms	4000Vrms
between adjacent contacts			
Clearance/creepage			
between contact and coil	3.2/4mm	4/4mm	5.5/8mm (WG type)
Other Data			
Ambient temperature (max.)	+85°C	+85/+70°C	+85°C (standard type) +105°C (WG type)
Category of environmental protection IEC 61810	RTII	RTIII (RE), RTII (REL)	RTII, RTIII
Terminal type	THT	THT	THT
Mounting	PCB	PCB	PCB
Dimensions lwh	20x10x10mm	20x10x10.6mm/20.7x10.7x12mm	20.4x6.9x15mm
Accessories			

1) Recommended minimum load indication for contact material: Au and gold plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCdO and $AgSnO_2$: 100mA at 12VDC.
Please contact technical support for detailed technical data.

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Low Power PCB Relays

PCJ

- **Slim outline**
- **Sensitive coil 200mW**
- **Meet 4kV dielectric between coil and contacts**
- **WG type available (IEC 60335-1)**
- **Ambient temperature up to 105°C**
- **Coil UL class F (155°C) insulation system**

1 form A, 1 NO
250VAC
3A/5A (WG type)
750VA/1250VA (WG type)
AgNi
100mA at 5VDC
DC
5 to 24VDC
200mW
750Vrms
4000Vrms
8/>8 mm
+85°C (standard type) +105°C (WG type)
RTII, RTIII
THT
PCB
20.4x7x15mm

OSA

- **Meet UL TV-3, CSA TV-4 ratings (DM5 type only)**
- **Meet 4kV dielectric voltage; 7kV surge voltage between coil and contacts**

2 form A, 2 NO
240VAC/30VDC
3A/5A
300VA/72W (DM3) 1100VA/150W (DM5)
AgSnO
100mA at 5VDC
DC
5 to 48VDC
540mW
1000Vrms
4000Vrms
2000Vrms
7/7mm
+60°C
RTII, RTIII
THT
PCB
24.4x12.9x25mm

PCH

- **Compact size**
- **Meet 8kV surge voltage between coil and contacts**
- **Cadmium-free contacts**
- **WG type available (IEC 60335-1)**
- **TV-3 ratings for NO contact**

1 form C, 1 CO 1 form A, 1 NO
277VAC/30VDC
3/5/10A
1400VA/150W (NO) 850VA/90W (NC)
100mA at 5VDC
DC, sensitive
3 to 48VDC
200/400mW
750Vrms
4000Vrms
1.6/3.2mm
+70°C (standard type) +85°C (WG type)
RTII, RTIII
THT
PCB
20x10x15.2mm

OJ/OJE/T77

- **Miniature size**
- **Meet 4kV dielectric between coil and contacts (OJ/OJT)**
- **Sensitive coil 200mW type available**
- **Meet UL TV-5 ratings (OJT)**

1 form A, 1 NO
250VAC/28VDC
3/5/8/10A
720 to 2500VA/ 90 to 240W
100mA at 5VDC
DC, sensitive
3 to 48VDC
200/250/450mW
750/1000Vrms
3000/4000Vrms
1.6/3.2mm and 3.2/6.4mm
up to 85°C
RTII, RTIII
THT
PCB
18.2x10.2x14.7mm

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Low Power PCB Relays

PCN

- **Only 5mm wide slim type, permitting high density spacing**
- **Sensitive coil 120mW**
- **Cadmium free contacts**
- **Reinforced insulation type available**
- **UL class F (155°C) available**

SNR

- **Only 5mm wide**
- **Cadmium-free contacts**
- **Sensitive coil 170mW**
- **4kV coil-contact**
- **6/8mm creepage/clearance**
- **Protection class II**

RYII

- **5kV/8mm coil-contact**
- **Reinforced insulation**
- **Low height 12.3mm**
- **Pinnings 3.2 and 5mm**
- **Reflow solderable version**

	PCN	SNR	RYII
Contact Data			
Contact arrangement	1 form A, 1 NO	1 form C, 1 CO 1 form A, 1 NO	1 form C, 1 CO 1 form A, 1 NO 1 form B, 1 NC
Rated voltage	250VAC/30VDC	250VAC	250VAC
Rated current	3A/5A	6A	8A
Switching power	750VA/1250VA	1500VA	2000VA
Contact material	AgNi gold plated bifurcated contact		AgNi0.15, AgSnO
Min. recommended contact load	1mA, 5VDC	1)	1)
Coil Data			
Magnetic system	DC	DC	DC
Rated coil voltage	3 to 24VDC	5 to 48VDC	5 to 60VDC
Rated coil power	120mW	170mW	220mW
Insulation Data			
Initial dielectric strength			
between open contacts	750Vrms	1000Vrms	1000Vrms
between contact and coil	3000Vrms	4000Vrms	5000Vrms
between adjacent contacts			
Clearance/creepage			
between contact and coil	min. 3.5/3.5mm	6/8mm	8/8mm
Other Data			
Ambient temperature (max.)	+70°C (+85°C under a specific condition)	+85°C	+70°C
Category of environmental protection IEC 61810	RTIII	RTIII	RTII, RTIII
Terminal type	THT	THT	THT, THR
Mounting	PCB	PCB or on socket	PCB or on socket
Dimensions lwh	20x5x12.5mm	28x5x15mm	28.5x10.1x12.3mm
Accessories		DIN rail sockets	PCB sockets

1) Recommended minimum load indication for contact material: Au and gold plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCd0 and $AgSnO_2$: 100mA at 12VDC.
Please contact technical support for detailed technical data.

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Shortform and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section.

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Low Power PCB Relays

MSR/T75

- **High inrush currents with AgSnO contacts**
- **4kV/8mm coil-contact**
- **Reinforced insulation**

1 form C, 1 CO 1 form A, 1 NO
250VAC
8/10A
2000VA
AgNi90/10, AgSnO 1)
DC
3 to 60VDC
220mW
1000Vrms
4000Vrms
8/8mm
+85°C
RTII, RTIII
THT
PCB
28.6x10x15mm

RZ

- **Sensitive coil 400mW**
- **5kV/10mm coil-contact**
- **Reinforced insulation**
- **Ambient temperature 85 or 105°C**
- **Height 15.7mm**
- **In acc. to IEC 60335-1**

1 form C, 1 CO 1 form A, 1 NO
250VAC
16A
4000VA
AgNi90/10, AgSnO
DC
5 to 48VDC
400mW
1000Vrms
5000Vrms
10/10mm
+85°C +105°C (HOT type) +70°C (transparent cover type)
RTII
THT
PCB
29x12.7x15.7mm

RT

- **Sensitive DC and AC coil**
- **Bistable version**
- **5kV/10mm coil-contact**
- **Reinforced insulation**
- **Ambient temperature 85°C**
- **THR (reflow) version**
- **WG version acc. to IEC 60335-1**

1 form C, 1 CO 1 form A, 1 NO 2 form C, 2 CO 2 form A, 2 NO
250VAC
8/16A
2000/4000VA
AgNi90/10, AgSnO
DC, AC, bistable
5 to 110VDC/24 to 230VAC
400mW/0.75VA
1000Vrms
5000Vrms
2500Vrms
10/10mm
+85°C +75°C (AC type)
RTII, RTIII
THT, THR (DC and AC type)
PCB or on socket
29x12.7x15.7mm
PCB and DIN rail sockets

RTX

- **1 pole 16A, 1 form A contact**
- **16A rated fluorescent load acc. EN60669-1**
- **Inrush peak currents up to 320A**
- **Bistable coil**
- **5kV/10mm coil-contact**
- **Reinforced insulation**

1 form A, 1 NO
250VAC
16A
4000VA
W (pre-make contact) + $AgSnO_2$
DC, polarized, bistable
5 to 48VDC
650/665mW
1250Vrms
5000Vrms
min. 6/6mm
+70°C
RTII
THT
PCB
29.1x12.7x16mm

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Low Power PCB Relays

RT specials

- **Versions:**
- **Sensitive coil 250mW**
- **Inrush peak currents up to 165A**
- **105°C ambient temperature**
- **Bifurcated contacts**
- **WG version acc. to IEC 60335-1**

OZ

- **UL TV-8 (OZT) available**
- **Meet 5kV dielectric voltage between coil and contacts**
- **Meet 10kV surge voltage between coil and contacts**

RP3SL

- **4kV/8 mm coil-contact for 120A/20ms inrush peak current**
- **Bistable version**

	RT specials	OZ	RP3SL
Contact Data			
Contact arrangement	1 form C, 1 CO 1 form A, 1 NO	1 fom A, 1 NO 1 form C, 1 CO	1 form A, 1 NO
Rated voltage	250VAC	240VAC/24VDC	250VAC
Rated current	12/16A	16A	16A
Switching power	4000VA	3840VA/380W	4000VA
Contact material	AgNi90/10, AgSnO, W	AgSnO	AgSnO
Min. recommended contact load		100mA at 5VDC	
Coil Data			
Magnetic system	DC, bistable	DC	DC
Rated coil voltage	5 to 110VDC	5 to 48VDC	6 to 110VDC
Rated coil power	200/250/400mW	540mW/720mW	500mW
Insulation Data			
Initial dielectric strength			
between open contacts	1000Vrms	1000Vrms	2000Vrms
between contact and coil	5000Vrms	5000Vrms	4000Vrms
between adjacent contacts			
Clearance/creepage			
between contact and coil	10/10mm	5.5/8mm	8/8mm
Other Data			
Ambient temperature (max.)	+85°C/+105°C	+60°C (standard type) +70°C (sensitive type)	+70°C
Category of environmental protection IEC 61810	RTII, RTIII (sensitive and bifurcated type)	RTII, RTIII	RTII, RTIII
Terminal type	THT	THT	THT
Mounting	PCB or on socket	PCB	PCB or on socket
Dimensions lwh	29x12.7x15.7mm	29.2x12.8x20.6mm	29x12.6x25.5mm
Accessories	PCB and DIN rail sockets		PCB and DIN rail sockets

1) Recommemded minimum load indication for contact material: Au and gold plated: 1mA at 6VDC; Ag, AgNi0.15and AgNi90/10: 10mA at 12VDC; AgCd0 and $AgSNO_2$: 100mA at 12VDC.
Please contact technical support for detailed technical data.

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Low Power PCB Relays

RP-2pole 1.5mm

- **2 pole 8A**
- **1.5mm contact gap per pole**
- **Creepage distance complies with IEC 60950**

2 form A, 2 NO
250VAC
8A
2000VA
AgSnO
DC
5 to 110VDC
780mW
1000Vrms
4000Vrms
2500Vrms
7/8mm
+40°C
RTII, RTIII
THT
PCB or on socket
29x12.6x25.5mm
PCB and DIN rail sockets

OMI/OMIH/OMIT

- **Meet 5kV dielectric voltage**
- **10kV surge voltage between coil and contacts**
- **Version with 1 form A, 1 NO contact TV-5 rating (OMIT)**

1 form C, 1 CO 1 form A, 1 NO
250VAC/30VDC
10A/16A
2500VA/300W 4000VA/480W
AgSnO
100mA at 5VDC
DC
5 to 48VDC
540/720mW
1000Vrms
5000Vrms
>8/>8mm
+60°C (standard type) +70°C (sensitive type)
RTII, RTIII
THT
PCB
29.2x12.8x20.6mm

SDT

- **Meet UL TV-5 and TV-8 ratings**
- **Immersion cleanable, sealed version available**
- **Applications: appliance, HVAC, FPD, monitor display**

1 form A, 1 NO
250VAC/30VDC
5A, 10A
1250VA, 150W (LMR) 2500VA, 300W (DMR)
100mA at 5VDC
DC
5 to 48VDC
250, 540mW
1000Vrms
4000Vrms
1.6/3.2mm
+70°C
RTII, RTIII
THT
PCB
24.4x10.4x25.0mm

RF

- **QC[2] terminals on load side**
- **Ambient temperature up to 125°C**
- **Switching capacity 4000VA**
- **Coil power 400mW**
- **Reinforced insulation**
- **WG version acc. to IEC 60335-1**

1 form A, 1 NO 1 form B, 1 NC
250VAC
16A
4000VA
AgNi90/10
DC
5 to 60VDC
400mW
1000Vrms
4000Vrms
8/8mm
+85°C +105°C (HOT type)
RTII
THT/QC[2] terminals
PCB
40.5x12.7x16mm

Low Power PCB Relays

410

- **Ambient temperature up to 125°C**
- **QC[2] terminals on load side**
- **Version with contact gap >3mm**
- **Insulation to VDE 0631 and VDE 0700**
- **WG version acc. to IEC 60335-1**

PB/PBH

- **Environmentally-friendly cadmium-free contacts**
- **Ambient temperatures up to 105°C (PBH)**
- **Compact and simple design gives high process security**

ORWH

- **Compact relay with 1 form A and 1 form C contact arrangement**
- **10A switching capacity**
- **Flux proof or sealed type available**

	410	PB/PBH	ORWH
Contact Data			
Contact arrangement	1 form A, 1 NO 1 form B, 1 NC	1 form C, 1 CO 1 form A, 1 NO	1 fom A, 1 NO 1 form C, 1 CO
Rated voltage	250VAC	250VAC	277VAC/28VDC
Rated current	16A	10A	10A
Switching power	4000VA	2500VA	2770VA/360W
Contact material	AgCdO, AgNi	AgNi90/10, AgSnO	AgZnO, AgCdO, AgNi
Min. recommended contact load			100mA at 5VDC
Coil Data			
Magnetic system	DC	DC	DC
Rated coil voltage	6 to 60VDC	5, 6, 12, 24VDC	3 to 48VDC
Rated coil power	360mW	360mW/500mW	360mW
Insulation Data			
Initial dielectric strength			
between open contacts	1000Vrms	1000Vrms	750Vrms
between contact and coil	4000Vrms	2500Vrms	1500Vrms
between adjacent contacts			
Clearance/creepage			
between contact and coil	8/8mm	3/4mm	1.6/3.2mm
Other Data			
Ambient temperature (max.)	+125°C (standard type) +85°C (3mm type)	+85°C/+105°C	+70°C/+105°C
Category of environmental protection IEC 61810	RTII	RTII	RTII, RTIII
Terminal type	THT/QC[2] terminals	THT	THT
Mounting	PCB	PCB	PCB
Dimensions lwh	40.5x12.5x28.5mm	15x15x20mm	19.0x15.5x15.8mm
Accessories			

1) Recommended minimum load indication for contact material: Au and gold plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCd0 and $AgSnO_2$: 100mA at 12VDC.
Please contact technical support for detailed technical data. 2) QC=quick connect.

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Low Power PCB Relays

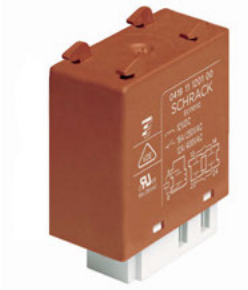
430

- **4kV/8mm coil-contact**
- **DC or AC coil**
- **PCB mounting or QC[2)]**
- **Mounting brackets or snap mounting**
- **1 or 2 pole versions**

1 or 2 form C, 2 CO 1 or 2 form A, 2 NO
250VAC
10A
2500/4000VA
1)
DC, AC
6 to 110VDC/6 to 240VAC
1W/1.8VA
1000Vrms
4000Vrms
8/8mm
+70°C
RTI
THT, QC[2)] terminals
PCB, panel mount
35.5x16.4x30.5mm

419

- **Contact gap >3mm**
- **Switching capacity 4000VA**
- **DC or AC coil**
- **Safety mains insulation**
- **4kV/8mm coil-contact**
- **QC[2)] terminals**
- **Snap or screw mount**



2 form A, 2 NO
250VAC
16A
4000VA
1)
DC, AC
6 to 24VDC/120 to 400VAC
1.3 W/2.0 to 2.5VA
2000Vrms
4000Vrms
6/8mm
+90°C
RTI
QC[2)] terminals, Rast 5
Panel mount
48x25.4x47.3mm

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Force Guided Relays

	SR2M	SR4 D/M	SR6
	■ 2 pole relay with force guided contacts according to EN 50205 ■ Reinforced insulation between poles	■ 4 pole relay with force guided contacts according to EN 50205 ■ Compact design, space efficient	■ 4/6 pole relay with force guided contacts according to EN 50205 ■ Reinforced insulation between all contacts
			
Contact Data			
Contact arrangement	1 form A + 1 form B, 1 NO + 1NC 2 form C, 2 CO	3 form A + 1 form B, 3 NO + 1 NC 2 form A + 2 form B, 2 NO + 2 NC	3 form A + 1 form B, 3 NO + 1 NC 2 form A + 2 form B, 2 NO + 2 NC 3 form A + 3 form B, 3 NO + 3 NC 4 form A + 2 form B, 4 NO + 2 NC 5 form A + 1 form B, 5 NO + 1 NC
Rated voltage	250VAC	250VAC	250VAC
Rated current	6A	8A	8A
Switching power			
Contact material	AgNi	$AgSnO_2$	$AgSnO_2$
Min. recommended contact load	5VDC/10mA	5VDC/10mA	5VDC/10mA
Coil Data			
Magnetic system	DC	DC	DC
Rated coil voltage	5 to 110VDC	5 to 110VDC	5 to 110VDC
Rated coil power	700mW	800mW	1200/800mW
Insulation Data			
Initial dielectric strength			
between open contacts	1500Vrms	1500Vrms	1500Vrms
between contact and coil	4000Vrms	4000Vrms	4000Vrms
between adjacent contacts	3000Vrms	2500Vrms	3000/4000Vrms
Clearance/creepage			
between contact and coil	8/8mm	10/10mm	5.5/5.5mm, 15/15mm
Other Data			
Ambient temperature (max.)	+70°C	+70°C	+70°C
Category of environmental protection IEC 61810	RTIII	RTIII	RTIII
Terminal type	THT	THT	THT
Mounting	PCB	PCB	PCB
Dimensions lwh	29x12.6x25.5mm	40x13x16.5mm	55x16.5x16.5mm
Accessories	Sockets and relay clips		PCB sockets

1) Recommended minimum load indication for contact material: Au and Au plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCd0 and $AgSnO_2$: 100mA at 12VDC.
Please contact technical support for detailed technical data. 2) QC=quick connect.

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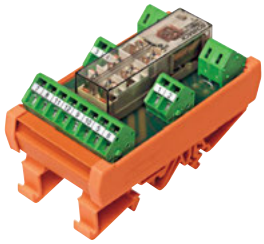
Force Guided Relays and Panel / Plug-In Relays

Relay Module SR2Z/SR6Z

- **2/6 pole relay with force guided contacts according to EN50205**
- **DIN rail mounting**

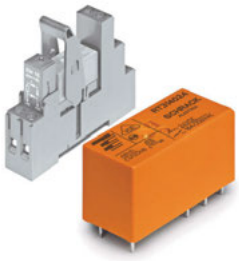


Slim Interface SNR

- **Sensitive coil 170mW**
- **Strong coil pins for DIN-rail socket**
- **4kV coil-contact, 6/8mm clearance/creepage**
- **Reinforced insulation**
- **Rereduced system width**

Interface Relay RT

- **Sensitive coil 400mW**
- **Cadmium-free contacts**
- **Reinforced insulation**
- **4kV/8mm coil-contact**



Interface Relay XT

- **Sensitive coil 400mW**
- **Cadmium-free contacts**
- **Reinforced insulation**
- **4kV/8mm coil-contact**
- **Manual test tab**
- **Mechanical and electrical indicator**

1 form A + 1 form B, 1 NO + 1NC 2 form C, 2 CO 3 form A + 3 form B, 3 NO + 3 NC 4 form A + 2 form B, 4 NO + 2 NC 5 form A + 1 form B, 5 NO + 1 NC	1 form C, 1 CO	1 form C, 1 CO 2 form C, 2 CO	1 form C, 1 CO 2 form C, 2 CO
250VAC	250VAC	240VAC	240VAC
6/8A	6A	8/16A	8/16A
	1500VA	2000/4000VA	2000/4000VA
AgNi/$AgSnO_2$	$AgSnO_2$, $AgSnO_2$ Au plated	$AgSnO_2$, AgNi90/10, AgNi90/10 Au plated	AgNi90/10
5VDC/10mA	[1]	[1]	12VDC/10mA
DC or AC/DC	DC	DC, AC	DC, AC
6 to 230VAC/VDC	5 to 60VDC	12 to 110VDC/24 to 230VAC	12 to 110VDC/24 to 230VAC
700mW/1200mW	170mW	400mW/0.75VA	400mW/0.75VA
1500/1000Vrms	1000Vrms	1000Vrms	1000Vrms
4000/3000Vrms	4000Vrms	4000/5000Vrms	4000/5000Vrms
2000Vrms		2500Vrms	2500Vrms
8/8mm, 5.5/5.5mm	≥6/8mm	≥8/8mm	≥8/8mm
+50°C	relay +85°C, in socket +55°C	+70/+85°C	+70/+85°C
	RTIII	RTII	RTII
Screwless	Plug-in	Plug-in	Plug-in
DIN rail	Socket	Socket	Socket
Module width 20/46mm	28x5x15mm	29x13x15.7mm	29x13x26.7mm
	DIN rail sockets, jumper bars	DIN rail and PCB sockets, clips, marking tags, modules, jumper bars	DIN rail and PCB sockets, clips, marking tags, modules, jumper bars

Panel / Plug-In Relays

R10

- **Broad range of coil options provide sensitivity ranging from 25 to 750mW**
- **Various contacts switch from dry circuit to 7.5A**
- **Many mounting and termination options**

PT/KH/PTH

- **Sensitive coil**
- **Low height 29/33mm**
- **Cadmium-free contacts**
- **Mechanical indicator**
- **Manual test tab, optionally lockable**
- **optional LED, protection diode**

	R10	PT/KH/PTH
Contact Data		
Contact arrangement	1, 2, 3, 4, 6, 8 form C (CO)	2 form C, 2 CO; 3 form C, 3 CO; 4 form C, 4 CO
Rated voltage	115VAC, 115VDC	240VAC
Rated current	0.5/2/3/7.5A	1/2/5/6/10/12A
Switching power	862VA max.	1500/2500/3000VA
Contact material	Ag, AgCdO, Ag w/ Au overlay	AgNi90/10, AgNi90/10 Au plated
Min. recommended contact load	Dry circuit to 12VDC/300mA	1) Bifurcated contacts for dry circuit available on KH
Coil Data		
Magnetic system	DC, AC	DC, AC
Rated coil voltage	3 to 115VDC/6 to 115VAC	6 to 220VDC/6 to 240VAC
Rated coil power	36mW to 1.6W/1.5VA	750 to 900mW/1 to 1.2VA
Insulation Data		
Initial dielectric strength		
between open contacts	500/1000Vrms	1200Vrms
between contact and coil	1000Vrms	2500Vrms
between adjacent contacts		2000/2500Vrms
Clearance/creepage		
between contact and coil		≥4/4mm
Other Data		
Ambient temperature (max.)	+75°C	+70°C
Category of environmental protection IEC 61810	RTI, RTIII	RTII
Terminal type	Solder/plug-in and PCB	THT, plug-in, QC2)
Mounting	Socket, panel mount and PCB	Socket, PCB
Dimensions lwh	29.6x18.7x30.2mm	28x22.5x29/30/36mm
Accessories	Solder/PCB sockets, clips, hold down strap, mounting strip	DIN rail and PCB sockets, clips, marking tags, modules, jumper bars

1) Recommended minimum load indication for contact material: Au and Au plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCd0 and $AgSnO_2$: 100mA at 12VDC. Please contact technical support for detailed technical data. 2) QC=quick connect.

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Panel / Plug-In Relays

PTF/K10

- **Mounting options include socket, PCB, top flange**
- **DC and AC coils**
- **LED versions available**

2 form C, 2 CO
120/240VAC
10/15A
1800/2500VA
AgCdO, AgNi90/10
[1]
DC, AC
6 to 220VDC/6 to 240VAC
750 to 900mW/1 to 1.2VA
1200/1000Vrms
2500/1500Vrms
2500/1500Vrms
≥3.1/3.1mm
+70°C
RTII
QC[2], solder, PCB
Socket and bracket mount
28x22.5x29/34.9mm
Screw, solder and PCB sockets and clips

KRPA/MT

- **Industry standard octal/undecal type termination for quick installation**
- **DC and AC coils**
- **Mechanical indicator, indicator lamp and push-to-test options**

1 form C, 1 CO (KRPA); 2 form C, 2 CO; 3 form C, 3 CO
240VAC
4/10A
500/2400/2500VA
AgCdO, AgNi90/10, AgNi90/10 Au plated
[1] Bifurcated contacts for dry circuit available on MT
DC, AC
6 to 220VDC/6 to 240VAC
760mW to 1.3W/0.74 to 2.3VA
1000/1500Vrms
1000/2500Vrms
1000/2500Vrms
≥2.8/4mm
DC +60/+70°C AC +50/+55°C
RTI
Plug-in
Socket
35.7x35.7x50.8/57mm
DIN rail and PCB sockets, clips, marking tags, modules

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Panel / Plug-In Relays

	RM2/3/7	KUP/KUMP/KUIP	RM8/C/D
	■ Wide selection of termination and mounting styles ■ PC terminals available ■ Push to test button and indicator lamps ■ Class B coil insulation	■ Wide selection of termination and mounting styles ■ Broad range of contact forms ■ PC terminals available ■ Push to test button and indicator lamps ■ Class B coil insulation	■ Power relay with push-on and solder terminals ■ Various mounting options ■ Class B coil insulation ■ Optional push to test button, indicator lamps and mechanical indicator
			
Contact Data			
Contact arrangement	2 form C, 2 CO 3 form C, 3 CO	1, 2, 3, 4 form C (CO); 1, 2, 3 form A (NO); 2, 3 form B (NC) 1 form X (NO-DM); 1 form Y (NC-DB); 1 form Z (CO-DM/DB)	1 form C, 1 CO 2 form C, 2 CO
Rated voltage	400VAC	240VAC	400VAC
Rated current	10/16A	10/15A	20/30A
Switching power	3800/6000VA	2400/4155VA	6000/7500VA
Contact material	AgCdO, AgNi90/10 in preparation	Ag, AgCdO, AgSnOInO	AgCdO, AgNi90/10 in preparation
Min. recommended contact load	1)	12VDC/100mA (Ag) 12VDC/300mA (AgCdO, AgSnOInO)	1)
Coil Data			
Magnetic system	DC, AC	DC, AC	DC, AC
Rated coil voltage	6 to 220VDC/6 to 400VAC	5 to 110VDC/6 to 240VAC	6 to 220VDC/6 to 400VAC
Rated coil power	1.2 to 1.8W/2 to 2.8VA	1.2 to 1.8W/2 to 2.7VA	1.2W/2.7VA
Insulation Data			
Initial dielectric strength			
between open contacts	1500Vrms	1200Vrms	1500/2000Vrms
between contact and coil	2500Vrms	2200/3750Vrms	2500Vrms
between adjacent contacts	2500Vrms	2200Vrms	4000Vrms
Clearance/creepage			
between contact and coil	≥4/14.9mm		≥4/14.9mm
Other Data			
Ambient temperature (max.)	+50/+70°C	DC +50/+70/+95°C AC +45/+55/+70°C	DC +60/+65°C AC +40°C
Category of environmental protection IEC 61810	RTI	RTI	RTI
Terminal type	THT, Plug-in, solder, QC[2)]	THT, Plug-in, solder, QC[2)]	Solder, QC[2)]
Mounting	Socket, PCB, bracket, flange mount and DIN-snap-on	Socket, PCB, bracket, flange, stud and tapped core	Bracket, top flange panel mount and DIN-snap-on
Dimensions lwh	38.5x35.5x48.5mm	38.9x35.7x48.4mm	38.5x35.5x48.5mm
Accessories	DIN rail and PCB sockets, clips	DIN rail, panel and PCB sockets, clips	No sockets

1) Recommended minimum load indication for contact material: Au and Au plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCd0 and $AgSnO_2$: 100mA at 12VDC. Please contact technical support for detailed technical data. 2) QC=quick connect.

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Panel / Plug-In Relays

KUHP

- **Power relay with push-on and solder terminals**
- **Various mounting options**
- **Designed to meet VDE space requirements**
- **Class B coil insulation**

1 form C, 1 CO 2 form C, 2 CO
240VAC, 50/60Hz; 28VDC
20/30A
4800/7200VA
AgCdO, AgSnOInO
12VDC/300mA
DC, AC
6 to 110VDC 50/60Hz. 6 to 277VAC
1.2W/2.7VA
1200Vrms
3750Vrms
3750Vrms
DC +45°C AC +75°C
RTI, RTO
Solder, PCB THT, QC[2)]
Bracket and top flange panel mount
38.9x35.7x48.4mm
No sockets

RM5/6/B 3mm

- **3mm contact gap**
- **DC or AC coil**
- **Push-to-test button**
- **Plug-in version, PCB terminals or chassis or DIN-rail mount**

2 form A, 2 NO 3 form A, 3NO
240/400VAC
10/16A
3800/6000VA
AgCdO, AgNi90/10 in preparation
[1)]
DC, AC
6 to 220VDC/6 to 400VAC
1.2W/2.7VA
2500Vrms
2500Vrms
2500Vrms
≥4/14.9mm
+50/+60°C
RTI
Plug-in, solder, QC[2)], PCB THT
Socket, PCB, bracket, flange mount and DIN-snap-on
38.5x35.5x48.5mm
DIN rail and PCB sockets, clips

KUGP

- **3mm contact gap**
- **DC or AC coil**
- **Plug-in version, PCB terminals or chassis mount**

1 form C, 1 CO 2 form A, 2 NO 2 form C, 2 CO 3 form C, 3 CO
240/400VAC
10A
2400VA
Ag, AgCdO
12VDC/100mA (Ag) 12VDC/300mA (AgCdO)
DC, AC
6-110VDC/6 to 240VAC
1.8W/2.7VA
3500Vrms
2200Vrms
2200Vrms
>8mm
DC +75°C AC +70°C
RTI
THT, Plug-in, solder, QC[2)], PCB
Socket, PCB, bracket and flange mount
38.9x35.7x48.4mm
DIN rail and PCB sockets, clips

KUL

- **Magnetic latching**
- **Single and dual coils**
- **Panel mounting**

1 form C, 1 CO 2 form C, 2 CO 3 form C, 3 CO
28/240VAC
10A
Ag, AgCdO
12VDC/100mA (Ag) 12VDC/300mA (AgCdO)
DC, AC
12 to 48VDC/24 to 120/240VAC
1.6W dual coil/1.2W single coil
500Vrms
1500Vrms
1500Vrms
DC +70°C AC +50/+70°C
RTI
.187" QC[2)]/solder
Socket, bracket
38.9x35.7x54.8mm
Screw, solder, PCB and QC sockets and clips

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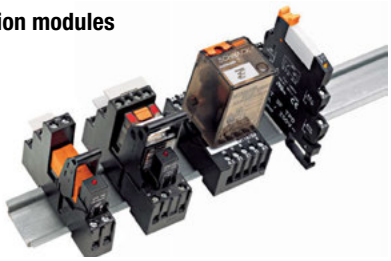
Panel / Plug-In Relays

KUEP

- **10A relay with various contact arrangements**
- **Magnetic blowout for 150VDC load switching**
- **Indicator lamp option**

Accessories

- **DIN rail and PCB sockets**
- **Screw and screwless fingersafe terminals**
- **Retaining and ejection clips**
- **Marking tags, jumper bars, jumper links**
- **LED and protection modules**



Sets

- **Relay package consisting of relay, DIN rail socket, plastic retaining clip, marking tag and module**

	KUEP	Accessories	Sets
Contact Data			
Contact arrangement	1 form X (NO-DM) 2 form A, 2 NO 2 form C, 2 CO	1 form C, 1 CO 2 form C, 2 CO 3 form C, 3 CO 4 form C, 4 CO	1 form C, 1 CO 2 form C, 2 CO 3 form C, 3 CO 4 form C, 4 CO
Rated voltage	150VDC/240VAC	240/250VAC	240/250VAC
Rated current	10A	6 to 16A	6 to 16A
Switching power	1500W/2400VA		1500 to 4000VA
Contact material	AgCdO, AgSnOInO		
Min. recommended contact load	12VDC/300mA		1)
Coil Data			
Magnetic system	DC, AC		DC, AC
Rated coil voltage	5 to 110VDC/6 to 240VAC		6 to 220VDC/6 to 230VAC
Rated coil power	1.2W to 1.8W/2 to 2.7VA		170 to 700mW/0.4 to 1VA
Insulation Data			
Initial dielectric strength			
between open contacts	1200Vrms		
between contact and coil	2200Vrms		
between adjacent contacts	2200Vrms		
Clearance/creepage			
between contact and coil			
Other Data			
Ambient temperature (max.)	AC +55/+70°C DC +50/+70°C		
Category of environmental protection IEC 61810	RTI	IP20	
Terminal type	QC2)/solder and PCB	Screw, screwless, plate mount, PCB	Screw, screwless
Mounting	Socket, PCB, bracket and top flange mount		
Dimensions lwh	38.9x35.7x48.4mm		
Accessories	DIN rail, track mount, chassis mount, and snap-in sockets, clips	PCB, panel mount and DIN rail	DIN, panel mount

1) Recommended minimum load indication for contact material: Au and Au plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCd0 and $AgSnO_2$: 100mA at 12VDC.
Please contact technical support for detailed technical data. 2) QC=quick connect.

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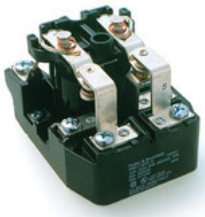
Power Relay

PRD

- **Contact ratings to 50A**
- **Magnetic blowout available for switching DC loads**
- **SPDT auxiliary switch available**
- **Class B insulation system**



1 form A, 1 NO 1 form C, 1 CO 1 form X (NO-DM) 2 form A, 2 NO 2 form C, 2 CO
600VAC, 28/125VDC
50A
12000VA
Ag, AgCdO
1A, 12VDC or VAC

DC, AC
6 to 110VDC/6 to 480VAC
2W/9.8VA

2000Vrms
2000Vrms
2000Vrms
>8mm

DC +80°C AC +45°C
RT 0/open
Screw, QC[2)]
Panel mount
85.7x63.8x63.5mm
Dust cover

PCB High Power, Metering and Solar Relays

T9A/T9E/T90

- **High breaking capacity**
- **PCB and QC[2] connections and chassis mount version**
- **UL-class F as standard**
- **Ambient temperature 85°C**
- **Open version available**

T9S

- **Specially designed to meet the requirements for the solar industry**
- **Contact gap >1.5mm**
- **350mW hold power,**
- **Product in accordance to IEC 60335-1**
- **EN 61095: AC7 at 85°C**

T92

- **Switching capacity 7500VA**
- **DC or AC coil**
- **4kV/8mm coil-contact**
- **PCB or QC[2] connections or chassis mount**

	T9A/T9E/T90	T9S	T92
Contact Data			
Contact arrangement	1 form C, 1 CO 1 form A, 1 NO	1 form A, 1 NO	2 form C, 2 CO 2 form A, 2 NO
Rated voltage	250VAC	277VAC	400VAC
Rated current	30A	35A	30A
Switching power	7500VA	8750VA	7500VA
Contact material	AgCdO, AgSnInO	AgNi	AgCdO, AgSnInO
Min. recommended contact load	1A at 5VDC or 12VAC		100mA at 6VAC/VDC
Coil Data			
Magnetic system	DC	DC	DC, AC
Rated coil voltage	6 to 48VDC	12VDC	6 to 110VDC/12 to 277VAC
Rated coil power	1W/900mW	2.25W/350mW hold power	1.7W/4.0VA
Insulation Data			
Initial dielectric strength			
between open contacts	1500Vrms	2500Vrms	1500Vrms
between contact and coil	2500Vrms	4000Vrms	4000Vrms
between adjacent contacts			2000Vrms
Clearance/creepage			
between contact and coil	3.1/6.3mm	3/4 mm	8/9.5mm
Other Data			
Ambient temperature (max.)	+85°C	+85°C	+65°C, +85°C
Category of environmental protection IEC 61810	RT0, RTI, RTII, RTIII	RTII	RTI, RTII, RTIII
Terminal type	THT, QC[2]	THT	THT, QC[2]
Mounting	PCB, panel mount	PCB	Panel mount, PCB
Dimensions lwh	32.3x27.4x20.4mm	32.5x27.4x20.4mm	52.3x34.6x30.8mm
Accessories			

1) Recommended minimum load indication for contact material: Au and gold plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCd0 and $AgSnO_2$: 100mA at 12VDC.
Please contact technical support for detailed technical data. 2) QC=quick connect.

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PCB High Power, Metering and Solar Relays

EF

- **Low profile max. 20.0mm**
- **QC[2] terminals for load**
- **Meet 4kV dielectric voltage between coil and contact**
- **Ambient temperature 85°C**

1 form A, 1 NO
250VAC
20A
5000VA
100mA at 5VDC
DC
5 to 48VDC
900mW
1000Vrms
4000Vrms
6.4/9.5mm
+85°C
RTII
THT/QC[2] (#250)
PCB
30.4x16.0x20mm

PCF

- **QC[2] terminal for load (PCF only)**
- **Height 26.5mm**
- **Meet 4kV dielectric voltage between coil and contact**
- **Ambient temperature 85°C**

1 form A, 1 NO
250VAC
25A
6370VA
100mA at 5VDC
DC
6 to 24VDC
900mW
1000Vrms
4000Vrms
6.7/>8mm
+85°C
RTII
THT/QC[2] (#250)
PCB
30.4x16x26.5mm

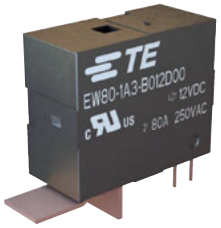
PCFN Solar

- **Specially designed to meet the requirements for the solar inverter industry**
- **Contact gap >1.5mm**
- **200mW hold power**

1 form A, 1 NO
277VAC
26A
7200VA
AgSnO
[1]
DC
12VDC
1.5W/200mW hold power
2500Vrms
4000Vrms
6.1/6.1mm
+85°C
RTII
THT
PCB
30.4x16x26.5mm

EW80

- **1 pole 80A, 1 form A (NO) contact**
- **Polarized bistable (latching), single coil version**
- **Shunt implementation optional**
- **Various terminal configurations**



1 form A, 1 NO
250VAC
80A
20000VA
$AgSnO_2$
[1]
Bistable
5 to 24VDC
1W
1500Vrms
4000Vrms
≥6/9mm
+70°C
RTI
QC[2]
36.8×17.2x30.4mm

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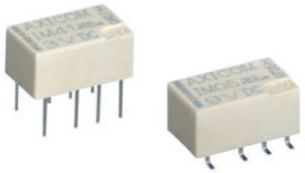
Signal Relays

IM

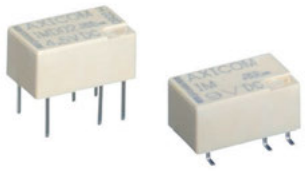
- **4G telecom/signal relay**
- **Slim line 10x6mm**
- **Low profile 5.65mm**
- **High dielectric version**
- **High current version**
- **High contact stability version**
- **2/5A UL rating**
- **Meets Telcordia Technologies Inc. requirements**



c UL us IEC 60950

IMD/E

- **4G telecom/signal relay**
- **2 pole make or break**
- **Slim line 10x6mm**
- **Low profile 5.65mm**
- **High dielectric version**
- **2A UL rating**
- **Meets Telcordia Technologies Inc. requirements**



c UL us IEC 60950

IMC

- **4G telecom/signal relay**
- **1 pole changeover**
- **Slim line 10x6mm**
- **Low profile 5.65mm**
- **High dielectric version**
- **3A UL rating**
- **Meets Telcordia Technologies Inc. requirements**

c UL us IEC 60950

	IM	IMD/E	IMC
Contact Data			
Contact arrangement	2 form C, 2 CO Bifurcated contacts	2 form B, 2 NC 2 form A, 2 NO Bifurcated contacts	1 form C, 1 CO Bifurcated contacts
Rated voltage	250VAC/220VDC	250VAC/220VDC	250VAC/220VDC
Rated current	2/5A	2A	2/3A
Switching power	60W/62.5VA	60W/62.5VA	60W/62.5VA
Min. recommended contact load	100µV/1µA	100µV/1µA	100µV/1µA
Initial contact resistance	<50mΩ	<50mΩ	<100mΩ
Coil Data			
Magnetic system	Polarized	Polarized	Polarized
Rated coil voltage	1.5 to 24VDC	1.5 to 24VDC	1.5 to 24VDC
Rated coil power			
DC coil/bistable 1 coil/2 coils	50 to 200mW-/-	140mW/-/-	140mW/-/-
Insulation Data			
Initial dielectric strength			
between open contacts	1000 to 1500Vrms	1000Vrms	1000Vrms
between contact and coil	1500 to 1800Vrms	1800Vrms	1800Vrms
between adjacent contacts	1000 to 1800Vrms	1000Vrms	
Initial surge withstand voltage			
between open contacts	1500 to 2500Vp	1500Vp	1500Vp
between contact and coil	2500Vp	2500Vp	2500Vp
between adjacent contacts	1500 to 2500Vp	1500Vp	
Isolation 100/900MHz	-37.0/-18.8dB	-37.0/-18.8dB	-37.0/-18.8dB
Insertion loss 100/900MHz	-0.03/-0.33dB	-0.03/-0.33dB	-0.03/-0.33dB
Volt. standing wave ratio 100/900MHz	1.06/1.49	1.6/1.49	1.6/1.49
Capacitance			
between open contacts	max. 1pF	max. 1pF	max. 1pF
Other Data			
Ambient temperature	-40 to +85°C (+125°C)	-40 to +85°C	-40 to +85°C
Category of environmental protection	IP67/RTV	IP67/RTV	IP67/RTV
Terminal type	THT, SMT	THT, SMT	THT, SMT
Dimensions lwh	10x6x5.65mm	10x6x5.65mm	10x6x5.65mm

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Signal Relays

IMF

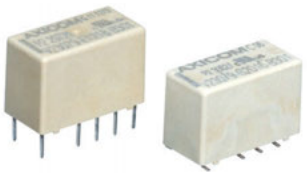
- **4G telecom/signal relay**
- **1 pole changeover and one pole break**
- **Slim line 10x6mm**
- **Low Profile 5.8mm**
- **2A UL rating**
- **Meets Telcordia Technologies Inc. requirements**

c US IEC 60950

1 form C, 1 CO and 1 form B, 1NC Bifurcated contacts
250VAC/220VDC
2A
60W/62.5VA
100µV/1µA
<50mΩ
Polarized
2.4 to 24VDC
80mW
1000Vrms
3000Vrms
3000Vrms
1500Vp
4500Vp
4500Vp
-18.8 dB/-
-0.33dB/-
1.49/-
max. 1pF
-40 to +85°C
IP67/RTV
SMT
10x6x5.8mm

P2

- **3G telecom/signal relay**
- **Slim line 15x7.5mm**
- **Switching current max. 5A**
- **High dielectric version**
- **Meets Telcordia Technologies Inc. requirements**



c US IEC 60950

2 form C, 2 CO Bifurcated contacts
250VAC/220VDC
2A
60W/62.5VA
100µV/1µA
<50mΩ
Polarized
2.4 to 24VDC
140mW/70mW/140mW
1000 to 1500Vrms
1500Vrms
1000 to 1500Vrms
2500Vp
2500Vp
2000Vp
-39.0/-20.7dB
-0.02/-0.27dB
1.4/1.40
max. 1pF
-40 to +85°C
IP67/RTIII
THT, SMT
14.5x7.2x10.4mm, stand. 14.5x7.2x9.9mm, overm.

FX2

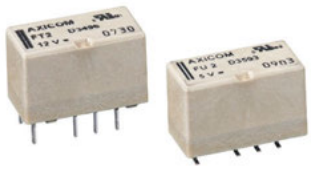
- **3G telecom/signal relay**
- **Slim line 15x7.5mm**
- **Standard and sensitive coil**
- **High mechanical shock resistance**
- **High dielectric version**
- **Meets Telcordia Technologies Inc. requirements**

c US IEC 60950

2 form C, 2 CO Bifurcated contacts
250VAC/220VDC
2A
60W/62.5VA
100µV/1µA
<70mΩ
Polarized
3 to 48VDC
80 to 300mW/-/-
1800 to 2100Vrms
1800 to 3500Vrms
1800 to 2100Vrms
2500 to 2900Vp
3500 to 5000Vp
2500 to 2900Vp
-34.0/-15.1dB
-0.03/-0.60dB
1.07/1.45
max.2pF
-55 to +85°C
IP67/RTV
THT
15x7.3x10.7mm

FT2/FU2

- **3G telecom/signal relay**
- **Slim line 15x7.5mm**
- **Standard and sensitive coil**
- **125°C ambient temperature**
- **Suitable for explosive environments**
- **High dielectric version**
- **Meets Telcordia Technologies Inc. requirements**



c US IEC 60950

2 form C, 2 CO Bifurcated contacts
250VAC/220VDC
2A
60W/62.5VA
100µV/10µA
<70mΩ
Non polarized
3 to 48VDC
200 to 300mW/-/-
1500 to 1800Vrms
1500 to 4000Vrms
1000 to 1500Vrms
1500 to 2500Vp
2500 to 6000Vp
1500 to 2500Vp
-30.6/-13.7dB
-0.02/-0.50dB
1.02/1.27
max. 1pF
-55 to +125°C
IP67/RTIII/RTV
THT, SMT
15x7.5x9.6mm

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Signal Relays

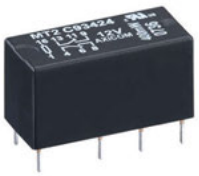
D2N V23105

- 2G telecom/signal relay
- 4 coil sensitivities
- 3A UL rating

c UL us

MT2

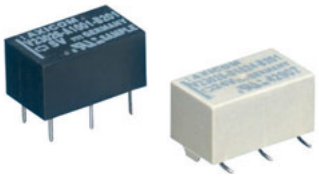
- 2G telecom/signal relay
- 5 coil sensitivities
- 2A UL rating



c UL us

P1 V23026

- Very high sensitive relay
- Low profile
- High vibration and shock resistance
- Version: symmetric pin layout
- Temperature range up to 85°C
- 1500Vrms across opened contacts



c UL us IEC 60950

Contact Data			
Contact arrangement	2 form C, 2 CO Single contacts	2 form C, 2 CO Bifurcated contacts	1 form C, 1 CO Bifurcated contacts
Rated voltage	250VAC/220VDC	250VAC/220VDC	150VAC/125VDC
Rated current	3A	2A	1A
Switching power	60W/125VA	60W/62.5VA	30W/60VA
Min. recommended contact load	100µV/10µA	100µV/1µA	100µV/1µA
Initial contact resistance	<100mΩ	<70mΩ	<50mΩ
Coil Data			
Magnetic system	Non polarized	Non polarized	Polarized
Rated coil voltage	3 to 48VDC	3 to 48VDC	3 to 24VDC
Rated coil power			
DC coil/bistable 1 coil/2 coils	150 to 700mW/-/-	150 to 550mW/-/-	65 to 130mW/30 to 130mW/70 to 200mW
Insulation Data			
Initial dielectric strength			
between open contacts	750Vrms	750Vrms	500Vrms
between contact and coil	1000Vrms	1000Vrms	1500Vrms
between adjacent contacts	750Vrms	750Vrms	
Initial surge withstand voltage			
between open contacts	1500Vp	1500Vp	
between contact and coil	1500Vp	1500Vp	2500Vp
between adjacent contacts	1500Vp	1500Vp	
Isolation 100/900MHz	-39.0/-20.7dB	-31.8/-14.2dB	-30.0/-18.0dB
Insertion loss 100/900MHz	-0.02/-0.27dB	-0.02/-0.97dB	-0.12/-1.90dB
Volt. standing wave ratio 100/900MHz	1.04/1.40	1.03/1.31	1.06/1.75
Capacitance			
between open contacts	max. 2pF	max. 2pF	max. 5pF
Other Data			
Ambient temperature	-25 to +85°C	-55 to +85°C	-40 to +85°C
Category of environmental protection	IP67/RTIII	IP67/RTIII	IP67/RTIII
Terminal type	THT	THT	THT, SMT
Dimensions lwh	20.2x10x11.4mm	20.2x10x11mm	13x7.6x6.9mm

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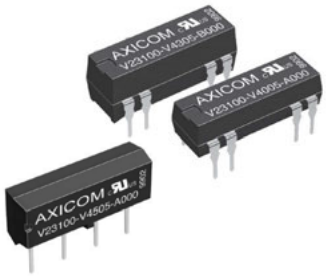
Signal Relays

Reed DIP/SIL

- Direct driving with TTL signals
- Ultrasonic cleanable
- High switching speed
- Clamping diode
- Electrostatic shield



Cradle

- Very high reliability
- Great variety of coils and contact sets
- Accessories for socket mounting

TSC

- Designed for thermostat, modem
- Computer peripherals, video recording and security applications
- Low coil power requirements
- IC compability

OUAZ/T81

- Gold overlay silver palladium alloy contact suitable for low loads
- High density available on PCB due to small size
- 2.54mm terminal pitch same as IC socket terminal pitch
- Sensitive and standard coils

Reed DIP/SIL	Cradle	TSC	OUAZ/T81
1 form A, 1 NO 2 form A, 2 NO 1 form C, 1 CO Reed contacts	Various	1 form C, 1 CO	1 form C, 1 CO 1 form A, 1 NO
175 to 200VAC/VDC	30 to 250VAC/VDC	120VAC, 30VDC	120VAC/24VDC
0.25 to 0.5A	0.2 to 5A	1A	1A
3 to 10W	5 W to 500VA	120VA, 24W	120VA, 30W
10µV/1µA	-	1mA at 1VDC	1mA at 1VDC
<150mΩ	on request	50mΩ at 100mA, 6VDC	
Non polarized	Non polarized/Polarized	DC, sensitive	DC, sensitive
5 to 24VDC	5 to 220VDC/6 to 230VAC	3 to 24VDC	5 to 24VDC
50 to 300mW/-/-			
	-/1450 to 1650mW/1450 to 1650mW	150, 300mW	200, 450mW
140 to 175Vrms	500 to 1000Vrms	400Vrms	500Vrms
1000Vrms	500 to 2000Vrms	1000Vrms	1000Vrms
	on request		
		1500Vp (10/160µs)	1500Vp (10/160µs)
max. 1pF	on request		
-20 to +70°C	-40 to +70°C	-40 to +80°C	-40 to +75°C (sensitive) -40 to +60°C (standard)
IP67/RTIII	IP30 or RTI or RTIII	RTIII/IP67	RTII, RTIII
THT	THT or plug-in	THT	THT
19.3x5.7x7.5mm/19.8x5.1x8mm	24 to 35x19x30mm	12.5x7.5x10mm	15.4x10.4x11.2mm

High Frequency Relays/Switches

HF3

- **High performance RF relay/ switch for up to 3GHz**
- **Low power consumption ≤70/140 mW**
- **50 and 75Ω version**
- **Very small design**

HF3S

- **High performance RF relay/ switch for up to 3GHz**
- **Low power consumption ≤70/140mW**
- **50 and 75Ω version**
- **RF power 100W at 2GHz**
- **Very small design**

HF6

- **High performance RF relay/ switch for up to 6GHz**
- **Low power consumption ≤70/ 140mW**
- **50Ω version**
- **Very small design**

	HF3	HF3S	HF6
Contact Data			
Contact arrangement	1 form C, 1 CO Bridge contacts	1 form C, 1 CO Bridge contacts	1 form C, 1 CO Bridge contacts
Rated voltage	250VAC/220VDC	250VAC/220VDC	250VAC/220VDC
Rated current	2A	2A	2A
Switching power	60W/62.5VA/50W (2.5GHz)	60W/62.5VA/50W (2.5GHz)	60W/62.5VA/50W (2.5GHz)
Min. recommended contact load	100µV/1µA	100µV/1µA	100µV/1µA
Initial contact resistance	<100mΩ	<100mΩ	<100mΩ
Coil Data			
Magnetic system	Polarized	Polarized	Polarized
Rated coil voltage	3 to 24VDC	3 to 24VDC	3 to 24VDC
Rated coil power			
DC coil/bistable 1 coil/2 coils	140mW/70mW/140mW	140mW/70mW/140mW	140mW/70mW/140mW
Insulation Data			
Initial dielectric strength			
between open contacts	600Vrms	600Vrms	600Vrms
between contact and coil	1000Vrms	1000Vrms	1000Vrms
between adjacent contacts			
Initial surge withstand voltage			
between open contacts	1000Vp	1000Vp	1000Vp
between contact and coil	1500Vp	1500Vp	1500Vp
between adjacent contacts			
Capacitance			
between open contacts	max. 1pF	max. 1pF	max. 1pF
RF Data	0.1/0.9/3GHz	0.1/0.9/3GHz	0.9/3/6GHz
Isolation	-80/-72/-45dB	-95/-80/-55dB	-80/-60/-30dB
Insertion loss	-0.03/0.12/-0.35dB	-0.03/-0.12/-0.30dB	-0.05/-0.15/-0.80dB
Voltage standing wave ratio (VSWR)	1.05/1.15/1.20	1.05/1.10/1.25	1.05 / 1.10 / 1.40
Other Data			
Ambient temperature	-55 to +85°C	-55 to +85°C	-55 to +85°C
Category of enviromental protection	IP67/RTIII	IP67/RTIII	IP67/RTIII
Terminal type	SMT	SMT	SMT
Dimensions lwh	14.6x7.2x10mm	15x7.6x10.6mm	15x7.6x10.6mm

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High Frequency Relays/Switches

HFP

- **High power HF relay/ switch for up to 3 GHz**
- **Low power consumption ≤70/140mW**
- **50Ω version**
- **RF power 300W carrying at 900MHz**
- **Very small design**

1 form C, 1 CO Bridge contacts
250VAC/220VDC
2A
60W/62.5VA/50W (2.5GHz)
100µV/1µA
<100mΩ

Polarized
3 to 24VDC
140mW/70mW/140mW

600Vrms
1500Vrms

1000Vp
1500Vp

max. 1pF

0.1/0.9/3GHz
-90/-78/-45dB
-0.03/0.12/-0.50dB
1.05/1.10/1.23

-55 to +85°C
IP67/RTIII
SMT
15x7.6x10.6mm

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