

# Relay Shortform



**SIGNAL SWITCHING RELAYS**

TERMINALS						COIL				RELAY TYPE	CONTACTS		SWITCHING CURRENT (A)							
PCB - Through Hole	PCB - SMT	PCB - THR	Plug-In	Solder/Faston	DIN Rail Package	DC	AC	Bistable - 1 coil	Bistable - 2 coil		C/O Contacts	N/O Contacts	0	1	2	3	4	5	6	
										Reed	1 C/O									
										TSC	1 C/O									
										QUAZ	1 C/O									
										P1	1 C/O									
										D1	1 C/O									
										W11/1	1 C/O									
										IM	2 C/O									
										P2	2 C/O									
										FX2	2 C/O									
										FU2	2 C/O									
										FT2	2 C/O									
										FP2	2 C/O									
										MT2	2 C/O									
										D2n	2 C/O									
										Cradle	246 C/O									

**RF RELAYS**






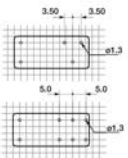
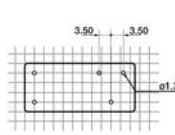
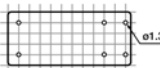
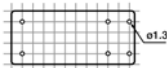
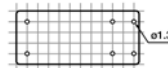
TERMINALS						COIL				RELAY TYPE	CONTACTS		SWITCHING CURRENT (A)							
PCB - Through Hole	PCB - SMT	PCB - THR	Plug-In	Solder/Faston	DIN Rail Package	DC	AC	Bistable - 1 coil	Bistable - 2 coil		C/O Contacts	N/O Contacts	0	1	2	3	4	5	6	
										HF3 - 3GHz	1 Pole	50W								
										HF3S - 3GHz	1 Pole	150W								
										HF6 - 6GHz	1 Pole	50W								






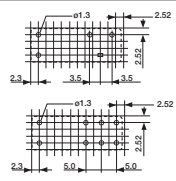
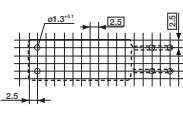
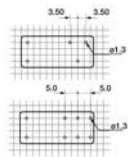
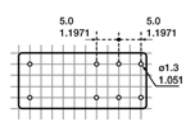
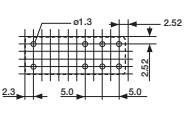
**AUTOMOTIVE RELAYS**

TERMINALS						COIL				RELAY TYPE	CONTACTS		SWITCHING CURRENT (A)							
PCB - Through Hole	PCB - SMT	PCB - THR	Plug-In	Solder/Faston	Screw Terminal	10Vdc	12Vdc	24Vdc	Bistable		C/O Contacts	N/O Contacts	0	50	100	150	200	250	300	
										Mini K	1 N/O									
										Micro A	1 N/O									
										Power K	1 N/O									
										PK2	1 N/O									
										F4	1 N/O									
										F7	1 N/O									
										HCR75	1 N/O									
										BDS-A	1 N/O									
										HCR150	1 N/O									
										EV200	1 N/O									
										Mini K	1 C/O									
										Micro K	1 C/O									
										Nano	1 C/O									
										Micro A	1 C/O									
										Power K	1 C/O									
										F4	1 C/O									
										HCR150	1 C/O									
										SPR	1 Triple									
										Micro K	2 C/O									
										Nano	2 C/O									
										DMR	2 C/O									

Relay Type	PE	RE	PCN	SNR (V23092)	OJ
RoHS Status	Compliant	Compliant	Compliant	Compliant	Compliant
IEC 60335-1 materials	Compliant versions	Compliant versions			Compliant versions
<b>Contacts</b>					
Configuration	1 C/O	1 N/O	1 N/O	1 C/O	1 N/O
Rated current	5 A	6 A	3 A	6 A	8 A
Rated voltage (VAC)	240/400 VAC	240/400 VAC	240/277 VAC	240/400 VAC	240/400 VAC
Maximum breaking capacity AC	1250 VA	1500 VA	750 VA	1500 VA	1920 VA
Contact material	AgNi90/10	AgCdO, AgNi90/10, AgNi0.15	AgNi90/10	AgSnO <sub>2</sub> , AgNi90/10	AgSnO <sub>2</sub>
<b>Coil</b>					
Coil voltage range (VDC/VAC)	5 - 48/-	5 - 48/-	5 - 24/-	5 - 60/-	3 - 24/-
Coil power	200 mW/-	200 mW/-	120 mW/-	170 mW/-	200 mW/-
Other coil versions	Bistable				
<b>General data</b>					
Dielectric strength coil - contacts	4000 VAC	4000 VAC	3000 VAC	4000 VAC	4000 VAC
Clearance/creepage coil - contacts	3.2/4 mm	4/4 mm	3.5/3.5 mm	6/8 mm	6/8 mm
Temperature range/°C	-40 to +85	-40 to +70	-30 to +70	-40 to +85	-30 to +85
Sealing	Flux tight, Washable	Washable	Washable	Washable	Flux tight
Termination method	PCB	PCB	PCB	PCB	PCB
Dimensions (l x w x h)/mm	20 x 10 x 10	20 x 10 x 10.6	20.0 x 5.0 x 12.5	28 x 5 x 15	18.2 x 10.2 x 14.7
Approvals (Technical data on approved types on request)	VDE, cULus	VDE, cULus	VDE, cULus	VDE, cULus	VDE, cULus

Relay Type	PCH	PCJ	RY	MSR (V23061)	Card E (V23057)
RoHS Status	Compliant	Compliant	Compliant	Compliant	Compliant
IEC 60335-1 materials	Compliant versions	Compliant versions	Compliant	Compliant	
<b>Contacts</b>					
Configuration	1 C/O, 1 N/O	1 N/O	1 N/O, 1 N/C, 1 C/O	1 N/O, 1 C/O	1 N/O, 1 C/O
Rated current	5 A	3/5 A	8 A	8/10 A	8/5 A
Rated voltage (VAC)	240/400 VAC	250/400 VAC	240/400 VAC	240/400 VAC	240/400 VAC
Maximum breaking capacity AC	1250 VA	750/1250 VA	2000 VA	2000 VA	2000/1250 VA
Contact material	AgSnO	AgNi	AgNi0.15, AgCdO, AgSnO <sub>2</sub>	AgNi0.15, AgCdO, AgSnO	AgNi 20, AgCdO, AgNi0.15
<b>Coil</b>					
Coil voltage range (VDC/VAC)	5 - 48/-	3 - 24/-	5 - 60/-	3 - 60/-	6 - 60/-
Coil power	400 mW	200 mW/-	220 mW/-	220 mW/-	450.500 mW/-
Other coil versions	200 mW (only N/O)				
<b>General data</b>					
Dielectric strength coil - contacts	4000 VAC	4000 VAC	5000 VAC	4000 VAC	4000 VAC
Clearance/creepage coil - contacts	4.5/9 mm	8/8 mm	8/8 mm	8/8 mm	4/4 mm
Temperature range/°C	-40 to +85	-40 to +105	-40 to +70	-40 to +85	-40 to +70
Sealing	Flux tight, Washable	Flux tight, Washable	Flux tight, Washable, THR	Flux tight, Washable	Washable
Termination method	PCB	PCB	PCB	PCB	PCB
Dimensions (l x w x h)/mm	19.8 x 9.9 x 15.2	20.4 x 7 x 15	28.5 x 10.1 x 12.3	30/28.6 x 10 x 15	28 x 10.4 x 25.1
Approvals (Technical data on approved types on request)	VDE, cULus	VDE, UL	VDE, cULus	VDE, cULus	VDE, cULus







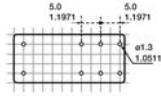
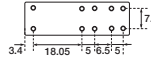
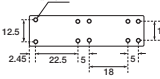
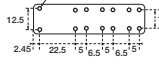
Relay Type	RT1	RT1 sensitive	RT1 Inrush	RT1 Inrush Power	RTH 105°C
					
					
RoHS Status	Compliant	Compliant	Compliant	Compliant	Compliant
IEC 60335-1 materials	Compliant Versions				Compliant versions
<b>Contacts</b>					
Configuration	1 N/O, 1 C/O	1 N/O, 1 C/O	1 N/O, 1 C/O	1 N/O	1 C/O, 1 N/O
Rated current	12/16 A	10 A	16 A (80 A Inrush)	16 A (800 A Inrush)	16 A
Rated voltage (VAC)	240/400 VAC	240/400 VAC	240/400 VAC	250/400 VAC	240/400 VAC
Maximum breaking capacity AC	3000/4000 VA	2500 VA	4000 VA	4000 VA	4000 VA
Contact material	AgNi90/10	AgNi90/10	AgSn <sub>2</sub> , AgNi90/10	W (pre-make), AgSnO	AgNi90/10
<b>Coil</b>					
Coil voltage range (VDC/VAC)	5 - 110/24 - 230	5 - 60/-	5 - 110/-	5 - 110/-	5 - 60/-
Coil power	400 mW/0.75 VA	250 mW	400 mW	400 mW/-	400 mW/-
Other coil versions	Bistable 1 or 2 coils		Bistable 1 or 2 coils	Bistable 1 or 2 coil	
<b>General data</b>					
Dielectric strength coil - contacts	5000 VAC	5000 VAC	5000 VAC	5000 VAC	5000 VAC
Clearance/creepage coil - contacts	10/10 mm	10/10 mm	10/10 mm	10/10 mm	10/10 mm
Temperature range/°C	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +105
Sealing	Flux tight, Washable	Flux tight, Washable	Flux tight	Flux tight	Flux tight
Termination method	PCB	PCB	PCB	PCB	PCB
Dimensions (l x w x h)/mm	29 x 12.7 x 15.7	29 x 12.7 x 15.7	29 x 12.7 x 15.7	29 x 12.7 x 15.7 (28.2)	29 x 12.7 x 15.7
Approvals (Technical data on approved types on request)	VDE, UL, CSA, BEAB	VDE, UL, CSA	VDE, UL, CSA	VDE, UL, CSA	VDE, UL, CSA

Relay Type	RX1	RF	RT1 Bifurcated	RT2	RX2
					
					
RoHS Status	Compliant	Compliant	Compliant	Compliant	Compliant
IEC 60335-1 materials		Compliant versions		Compliant versions	
<b>Contacts</b>					
Configuration	1 N/O, 1 C/O	1 N/O	1 N/O, 1 C/O	2 N/O, 2 C/O	2 C/O
Rated current	12/16 A	16 A	12/16 A	8 A (UL: 10 A)	8 A
Rated voltage (VAC)	240/400 VAC	240/400 VAC	250/400 VAC	240/400 VAC	240/400 VAC
Maximum breaking capacity AC	3000/4000 VA	4000 VA	3000/4000 VA	2000 VA	2000 VA
Contact material	AgNi90/10	AgNi90/10	AgNi90/10 gold plated	AgNi90/10, AgSnO <sub>2</sub>	AgNi90/10
<b>Coil</b>					
Coil voltage range (VDC/VAC)	5 - 110/24 - 230	5 - 60/-	5 - 110/-	5 - 110/24-230	5 - 110/24-230
Coil power	520 mW/0.75 VA	400 mW/-	200 mW, 400 mW/-	400 mW/0.75 VA	520 mW/0.75 VA
Other coil versions				Bistable 1 or 2 coils	
<b>General data</b>					
Dielectric strength coil - contacts	4000 VAC	4000 VAC	5000 VAC	5000 VAC	4000 VAC
Clearance/creepage coil - contacts	8/8 mm	8/8 mm	10/10 mm	10/10 mm	8/8 mm
Temperature range/°C	-40 to +85 (+70 AC coil)	-40 to +105	-40 to +85	-40 to +70	-40 to +70
Sealing	Flux tight	Flux tight	Flux tight, Washable	Flux tight, Washable	Flux tight
Termination method	PCB	PCB + Quick connect	PCB	PCB	PCB
Dimensions (l x w x h)/mm	29 x 12.7 x 15.7	40.5 x 13.2 x 16	29 x 12.7 x 15.7	29 x 12.7 x 15.7	29 x 12.7 x 15.7
Approvals (Technical data on approved types on request)	VDE, cULus	VDE, cULus	VDE, UL, CSA	VDE, UL, CSA, BEAB	VDE, cULus



Relay Type	T7N	LN/LNH	PB/PBH	RP3SL	PCD
RoHS Status	Compliant	Compliant	Compliant	Compliant	Compliant
IEC 60335-1 materials	Compliant versions	Compliant	Compliant versions		
<b>Contacts</b>					
Configuration	1 N/O, 1 C/O	1 N/O, 1 C/O	1 N/O, 1 C/O	1 N/O	1 N/O
Rated current	10 A	10 A/16 A	10 A (6A PBH)	16 A (120 A Inrush)	10 A
Rated voltage (VAC)	240/400 VAC	240/400 VAC	240/400 VAC	250/400 VAC	240/400 VAC
Maximum breaking capacity AC	2500 VA	2500 VA/4000 VA	2500 VA/1500 VA (PBH)	4000 VA/3000 VA	2500 VA
Contact material	AgCdO, AgSnO <sub>2</sub>	AgCdO, AgSnO <sub>2</sub>	AgSnO <sub>2</sub> , AgNi90/10	AgSnO	AgSnO <sub>2</sub> , AgCdO
<b>Coil</b>					
Coil voltage range (VDC/VAC)	3 - 48/-	6 - 48/-	5 - 48/-	5 - 110/-	3 - 48/-
Coil power	360 mW/-	400 mW/-	360 mW, 500 mW/-	520 mW/-	200 mW/ -
Other coil versions				Bistable 1 or 2 coils	
<b>General data</b>					
Dielectric strength coil - contacts	2500 VAC	2000 VAC	2500 VAC	4000 VAC	2500 VAC
Clearance/creepage coil - contacts	2.5/3.5 mm	2.5/2.5 mm	3.0/4.0 mm	8/8 mm	4/4 mm
Temperature range/°C	-40 to +85	-40 to +85/105	-40 to +85 (105 PBH)	-40 to +70	-30 to +70
Sealing	Flux tight, washable	Flux tight	Flux Proof	Flux tight, washable	Flux tight, washable
Termination method	PCB	PCB	PCB	PCB	PCB
Dimensions (l x w x h)/mm	22.5 x 16.5 x 16.9	20.2 x 16.5 x 20.2	15.0 x 15.0 x 20.0	29 x 12.6 x 25.3	23 x 15.9 x 10.2
Approvals (Technical data on approved types on request)	VDE, cULus	VDE, cULus	VDE, cULus	VDE (DC versions only), cULus	cULus

Relay Type	U (V23148)	OU DH	T9A	T9C	T92
RoHS Status	Compliant	Compliant	Compliant	Compliant	Compliant
<b>Contacts</b>					
Configuration	1 N/O, 1 N/C, 1 C/O	1 C/O	1 N/O, 1 C/O	1 N/O, 1 C/O	2 N/O, 2 C/O
Rated current	7 A/5 A	7 A	30 A/20 A	20 A/10 A	20 A (30 A)
Rated voltage (VAC)	240/400 VAC	250 V	240/400 VAC	250/400 VAC	400/600 VAC
Maximum breaking capacity AC	1750/1250 VA	1750 VA	7500 VA	5000 VA	12/1.2 kVA
Contact material	AgNi90/10	Ag alloy	AgCdO	AgSnInO	AgCdO
<b>Coil</b>					
Coil voltage range (VDC/VAC)	6 - 48/-	3 - 36 V/ -	5 - 48/-	-/12 -240	5 - 110/24 - 240
Coil power	330, 450 mW/-	330mW/-	1000 mW	-/1.2, 1.6 VA	1.7 W/4.0 VA
Other coil versions		Bistable			
<b>General data</b>					
Dielectric strength coil - contacts	4000, 2000 VAC	4000 VAC	2500 VAC	2500 VAC	4000 VAC
Clearance/creepage coil - contacts	3.5/3.5 mm		3.1/6.3 mm	3.1/6.3 mm	8/9.5 mm
Temperature range/°C	- 25 to + 70	-30 to +70	- 55 to +85	- 40 to + 70	-40 to +70 / 65
Sealing	Washable	Sealed, Flux tight	Washable, Dustproof	Dustproof	Dust proof, Washable
Termination method	PCB	PCB	PCB, Quick connect	Quick connect	PCB, Quick connect, Screw
Dimensions (l x w x h)/mm	21.2 x 16.2 x 14.9	21.8 x 17.1 x 15.3	32.3 x 27.4 x 20.4	50.3 x 27.4 x 27.9	52.3 x 34.6 x 30.8
Approvals (Technical data on approved types on request)	cULus	cULus	UL, CSA	VDE, cULus	VDE, UL, CSA

Relay Type	SR2M	SR2Z	SR4 D/M	SR6 D/M	SR6 (V23050)	SR6Z
						
						
RoHS Status	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
<b>Contacts</b>						
Configuration	1 N/O + 1 N/C, 2 C/O	2 C/O	2 N/O + 2 N/C 3 N/O + 1 N/C	2 N/O + 2 N/C 3 N/O + 1 N/C	4 N/O + 2 N/C, 3 N/O + 3 N/C 5 N/O + 1 N/C	4 N/O + 2 N/C, 3 N/O + 3 N/C 5 N/O + 1 N/C
Rated current	6 A	6 A	8 A	8 A	8 A	8 A
Rated voltage (VAC)	240/400 VAC	240/240 VAC	240/400 VAC	240/400 VAC	240/400 VAC	240/240 VAC
Maximum breaking capacity AC	1500 VA	1500 VA	2000 VA	2000 VA	2000 VA	2000 VA
Contact material	AgNi	AgNi	AgSnO <sub>2</sub>	AgSnO <sub>2</sub>	AgSnO <sub>2</sub>	AgSnO <sub>2</sub>
<b>Coil</b>						
Coil voltage range (VDC/VAC)	5 - 110 / -	24 V/-	5 - 110 / -	5 - 110 / -	5 - 110 / -	6 - 115/12 - 230
Coil power	700 mW/-	700mW/-	800 mW/-	1.2 W/-	1.2 W/-	1.2 W
Other coil versions				800 mW sensitive coil		
<b>General data</b>						
Dielectric strength coil - contacts	4000 VAC	4000 VAC	4000 VAC	3000 VAC	4000 VAC	3000 VAC
Clearance/creepage coil - contacts	8/8 mm	8/8mm	10/10 mm	5.5/5.5 mm	5.5/5.5 mm	5.5/5.5 mm
Temperature range/°C	- 25 to + 70	-25 to +50	-25 to +70	-25 to +70	- 25 to + 70	-25 to +50
Sealing	Washable	-	Washable	Washable	Washable	-
Termination method	PCB	Spring Clamp	PCB	PCB	PCB	Spring Clamp
Dimensions (l x w x h)/mm	29 x 12.6 x 25.5	87 x 20 x 64	40 x 13 x 16.5	55 x 16.5 x 16.5	55 x 16.5 x 16.5	87 x 46 x 54
Approvals (Technical data on approved types on request)	VDE, cULus, TUV	CE	VDE, cULus, TUV	VDE, cULus, TUV	VDE, cULus, TUV	CE




## CIRCUIT BREAKERS

Relay Type	W28	W54	W57	W51	W58	W6/9
						
<b>Type</b>	<b>Thermal</b>	<b>Thermal</b>	<b>Thermal</b>	<b>Thermal</b>	<b>Thermal</b>	<b>Magnetic</b>
<b>Electrical Data</b>						
Number of poles	1	1	1	1	1	1 through 4
Current rating	0.25 - 16 A	5 - 40 A	4 - 20 A	5 - 20 A	0.5 - 25 A	0.25 - 50 A
Max. operating voltage	32 VDC, 250 VAC	50 VDC, 250 VAC	50 VDC, 250 VAC	50 VDC, 250 VAC	50 Vdc, 250 VAC	277 VAC
Interrupt capacity	1000 A at 32 VDC or 250 VAC	1000 Amps	1000 Amps	1000 Amps	2000 A at 50 VDC 1000 A at 250 VAC	2000 A at 65 VDC, 5000 A at 277 VAC
<b>General data</b>						
Temperature range/°C	-20 to +60	0 to +60	0 to +60	0 to +60	-20 to +60	-40 to +85
Termination method	6.35 mm Quick connect	Quick connect or screw	Quick connect	Quick connect or PCB	6.35 mm Quick connect, Screw Terminal	Quick connect, studs
Dimensions (l x w x h)/mm	13.7 x 15.9 x 40	35 x 14.9 x 59	29.2 x 14.6 x 46	33.3 x 12.8 x 36.3	16.8 x 34.9 x 34.9	19.1 x 63.5 x 53.0
Approvals (Technical data on approved types on request)	VDE, UL, CSA, DEMKO, SEV	cULus	cULus	cULus	UL, CSA	VDE, UL, CSA






Relay Type	XT	PT	KHS	MT	KR-E
RoHS Status	Compliant	Compliant	Compliant	Compliant	Compliant
<b>Contacts</b>					
Configuration	1 or 2 C/O	2/3/4 C/O	4 C/O	2/3 C/O	2 C/O or 3 C/O
Rated current	16/8 A	12/10/6 A	1/3/5 A	10 A	10/6 A
Rated voltage (VAC)	240/400 VAC	240/400 VAC	240 V	240 / 400 VAC	120/240 V
Maximum breaking capacity AC	4000 VA or 2000 VA	3000/2500/1500 VA	240/720/1200 VA	2500 VA	1200 VA
Contact material	AgNi90/10	AgNi90/10	Ag, AuAgNi, AgCdO	AgNi90/10	AgCdO
<b>Coil</b>					
Coil voltage range (VDC/VAC)	6 - 110/24 - 230	6 - 220/6 - 230	12-110 / 24-120	6 - 220/6 - 230	12 - 125/24 - 120
Coil power	400 mW/0.75 VA	0.75 mW/1.0 VA	0.9 W/1.2 VA	1.2 W/2.3 VA	1.2W/2 VA
<b>General data</b>					
Dielectric strength coil - contacts	up to 5000 VAC	2500 VAC	1240 VAC	2500 VAC	1500 VAC
Clearance/creepage coil - contacts	8/8 mm	4/4 mm	2.8/4 mm	2.8/4 mm	2.8/4 mm
Temperature range/°C	- 40 to + 70	- 40 to + 70	- 40 to + 70	- 40 to + 50/60	- 40 to + 70 (55 ac coil)
Sealing	Flux tight	Flux tight	Hermetic	Dustproof	Hermetic
Termination method	Plug-in	Plug-in, PCB	Plug-in	Plug-in	Plug-in
Dimensions (l x w x h)/mm	29 x 13.7 x 26.7	28 x 22.5 x 29	29.36 x 23.11 x 32.54	35.5 x 35.5 x 57	42 x 36.5 x 54
Approvals (Technical data on approved types on request)	VDE, cULus	VDE, cULus, LLOYD's	UL, CSA, Class 1, Div 2 hazardous locations	VDE, cULus	UL, CSA, Class 1, Div 2 hazardous locations

Relay Type	PTF	RM 2/3/7	RM 5/6	RM 8	RMC/RMD
RoHS Status	Compliant	Compliant	Compliant	Compliant	Compliant
<b>Contacts</b>					
Configuration	2 C/O	2 C/O, 3 C/O	2 or 3 N/O 3 mm gap	2 C/O	1 N/O + 1 N/C, 1 N/O
Rated current	15/10 A	16/10 A	16/10 A	25 A	30 A
Rated voltage (VAC)	240/400 VAC	400/440 VAC	230/440 VAC	400 VAC	400/440 VAC
Maximum breaking capacity AC	1800/2500 VA	6000/3800 VA	6000/3800 VA	6000 VA	7500 VA
Contact material	AgNi90/10	AgNi90/10, AgCdO	AgNi90/10, AgCdO	AgNi90/10, AgCdO	AgNi90/10, AgCdO
<b>Coil</b>					
Coil voltage range (VDC/VAC)	6 - 220/6 - 230	6 - 220/6 - 400	6 - 220/6 - 400	6 - 220/6 - 400	6 - 220/6 - 400
Coil power	750 mW/1.0 VA	1.2 - 1.6 W/2.3 - 2.8 VA	1.6 W/2.8 VA	1.2W/2.8 VA	1.2W/2.8 VA
<b>General data</b>					
Dielectric strength coil - contacts	2500 VAC	2500 VAC	2500 VAC	2500 VAC	2500 VAC
Clearance/creepage coil - contacts	3.1/3.1 mm	4/14.9 mm	4/14.9 mm	4/14.9 mm	4/14.9 mm
Temperature range/°C	-40 to +70	- 45 to + 50 / 70	- 45 to + 50 / 60	- 45 to + 40 / 65	- 45 to + 40 / 60
Sealing	Flux tight	Dust proof	Dust proof	Dust proof	Dust proof
Termination method	Plug-in, PCB	Plug-in, DIN rail, PCB	Plug-in, DIN rail, PCB	Plug-in, DIN rail	Flange + Quick connect
Dimensions (l x w x h)/mm	28 x 22.5 x 29	38.5 x 35.5 x 48.5	38.5 x 35.5 x 48.5	38.5 x 35.5 x 48.5	38.5 x 35.5 x 48.5
Approvals (Technical data on approved types on request)	VDE, cULus	VDE, cULus	VDE, cULus	VDE, cULus	cULus



Relay Type	SNR Package	RT Package	PT Packages
			
RoHS Status	Compliant	Compliant	Compliant
<b>Contacts</b>			
Configuration	1 C/O	1 N/O or 1/2 C/O	2/3/4 C/O
Rated current	6 A	16/8 A	12/10/6 A
Rated voltage (VAC)	240/400 VAC	240/400 VAC	240/400 VAC
Maximum breaking capacity AC	1500 VA	4000 / 2000 VA	3000 / 2500 / 1500 VA
Contact material	AgSnO <sub>2</sub>	AgNi90/10, AgSnO <sub>2</sub>	AgNi90/10
<b>Coil</b>			
Coil voltage range (VDC/VAC)	12 - 230/115 - 230	24/24 - 230	12 - 24/24 - 230
Coil power	170 mW	400 mW/0.75 VA	0.75 mW/1.0 VA
<b>General data</b>			
Dielectric strength coil - contacts	4000 VAC	5000 VAC	2500 VAC
Clearance/creepage coil - contacts	6/8 mm	10/10 mm	4/4 mm
Temperature range/°C	- 20 to + 55	- 20 to + 70 / 85	- 40 to + 70
Termination method	DIN rail	DIN rail	DIN rail
	Screw, cage clamp	Screws	Screws
Dimensions (l x w x h)/mm	94 x 80 x 6.2	77 x 69 x 15.8	77 x 78.3 x 27.2
Approvals (Technical data on approved types on request)	VDE, cULus	VDE, cULus	VDE, cULus

## ACCESSORIES

Accessories	SNR accessories	RT accessories	XT accessories	PT/PTF accessories	MT accessories
					
RoHS Status	Compliant	Compliant	Compliant	Compliant	Compliant
<b>Technical data</b>					
Number of poles	1	1/2	1/2	2/4	2/3
Rated current	6 A	12 A	16/8 A	12/6 A	10 A
Rated voltage (VAC)	240/400 VAC	240/400 VAC	240/400 VAC	240/400 VAC	240/400 VAC
Dielectric strength coil - contacts	4000 VAC	4000 VAC	5000 VAC	2500 VAC	2500 VAC
Clearance/creepage coil - contacts	6/8 mm	10/10 mm	10/10 mm	1.8/3 mm	2.8/4 mm
Temperature range/°C	- 20 to + 55	- 20 to + 85	- 40 to + 70	- 40 to + 70	- 20 to + 80
Terminals	Screw, cage clamp	Screws	Screw, cage clamp	Screw, cage clamp	Screws
<b>Wire cross section</b>					
Single wire	0.14 - 2.5 mm <sup>2</sup>	2 x 0.75/1 mm <sup>2</sup>	2 x 0.75/1 mm <sup>2</sup>	1 x 4 mm <sup>2</sup>	2 x 2.5 mm <sup>2</sup>
Fine wire	0.14 - 2.5 mm <sup>2</sup>	2 x 0.75/1 mm <sup>2</sup>	2 x 0.75/1 mm <sup>2</sup>	2 x 2.5 mm <sup>2</sup>	2 x 2.5 mm <sup>2</sup>
Bootlace wire	0.14 - 2.5 mm <sup>2</sup>	1 x 1.5 mm <sup>2</sup>	1 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>
Terminal screw torque	0.5 Nm	0.5 Nm	0.5 Nm	0.5 Nm	0.8 Nm
max. screw torque	0.6 Nm	0.7 Nm	0.7 Nm	0.8 Nm	1.0 Nm
<b>Modules</b>					
LED	Yes	Yes	Yes	Yes	Yes
Diode	Yes	Yes	Yes	Yes	Yes
LED & doide	Yes	Yes	Yes	Yes	Yes
RC	Yes	Yes	Yes	Yes	Yes
Varistor	Yes	Yes	Yes	Yes	Yes
Timer	No	No	No	No	Yes






Relay Type	IM	P2 (V23079)	FX2	FU2 / FT2
RoHS Status	Compliant	Compliant	Compliant	Compliant
<b>Contacts</b>				
Configuration	2 C/O	2 C/O	2 C/O	2 C/O
Rated current	2 A	2 A	2 A	2 A
Rated voltage	220 VDC/250 VAC	220 VDC/250 VAC	220 VDC/250 VAC	220 VDC/250 VAC
Maximum switching capacity	60 W/62.5 VA	60 W/62.5 VA	60 W/62.5 VA	60 W/62.5 VA
Contact resistance (initial)	< 50 mΩ	< 50 mΩ	< 70 mΩ	< 70 mΩ
Contact material	PdRu + Au plated	AgNi + Au plated	PdRu + Au plated	PdRu + Au plated
<b>Coil</b>				
Coil type	polarized	polarized	polarized	non-polarized
Coil voltage range	1.5 - 24 VDC	2.4 - 24 VDC	3 - 48 VDC	3 - 48 VDC
Coil power	100/140/200 mW	70/140 mW	80 - 300 mW	200/240/300 mW
Other coil versions	latching 1 coil	latching 1 or 2 coils	latching 1 coil	
<b>General data</b>				
Dielectric strength coil - contacts	1800 VAC	1500 VAC	1800 VAC	1500/3500 VAC
Temperature range/°C	-40 to +85	-40 to +85	-55 to +85	-55 to +85
Sealing	Washable	Washable	Washable	Washable
Termination method	THT, SMT	THT, SMT	THT	THT, SMT
Dimensions (l x w x h)/mm	10 x 6 x 5.65	14.5 x 7.2 x 10.4 (9.9)	15 x 7.3 x 10.7	15 x 7.5 x 9.6 (10.0)
Approvals (Technical data on approved types on request)	cULus, IEC 60950, Bellcore, FCC68	cULus, IEC 60950, Bellcore, FCC68	cULus, IEC 60950, Bellcore, FCC68	cULus, IEC 60950, Bellcore, FCC68






Relay Type	FP2	HF3	HF3S (shielded)	HF6
RoHS Status	Compliant	Compliant	Compliant	Compliant
<b>Contacts</b>				
Configuration	2 C/O	1 C/O	1 C/O	1 C/O
Frequency range DC		up to 3 GHz	up to 3 GHz	up to 6 GHz
RF power carrying capability		50 W	150 W	50 W
Rated current	2 A	2 A	2 A	2 A
Rated voltage	220 VDC/250 VAC	220 VDC/250 VAC	220 VDC/250 VAC	220 VDC/250 VAC
Maximum switching capacity	60 W/62.5 VA	60 W/62.5 VA (50 W at 2.5 GHz)	60 W/62.5 VA (50 W at 2.5 GHz)	60 W/62.5 VA (50 W at 2.5 GHz)
Contact resistance (initial)	< 50 mΩ	< 100 mΩ	< 100 mΩ	< 100 mΩ
Contact material	AgNi + Au plated	Ag + Au plated	Ag + Au plated	Ag + Au plate
<b>Coil</b>				
Coil type	polarized	polarized	polarized	polarized
Coil voltage range	3 - 48 VDC	3 - 24 VDC (50 or 75Ω version)	5/24 VDC (50 Ω version)	3 - 24 VDC (50 Ω version)
Coil power	80 - 300 mW	70/140 mW	140 mW	70/140 mW
Other coil versions	latching 1 or 2 coils	latching 1 or 2 coils	latching 1 or 2 coils	latching 1 or 2 coils
<b>General data</b>				
Dielectric strength coil - contacts	1000 VAC	1000 VAC	1000 VAC	1000 VAC
Temperature range/°C	-55 to +85	-55 to +85	-55 to +85	-55 to +85
Sealing	Washable	Washable	Washable	Washable
Termination method	THT	SMT	SMT	SMT
Dimensions (l x w x h)/mm	14 x 9 x 5	14.6 x 7.2 x 10	15 x 7.6 x 10.6	15 x 7.6 x 10.6
Approvals (Technical data on approved types on request)	cULus, FCC68	cULus	cULus	cULus

Relay Type	D2n (V23105)	MT2	P1 (V23026)	TSC	OUAZ
RoHS Status	Compliant	Compliant	Compliant	Compliant	Compliant
<b>Contacts</b>					
Configuration	2 C/O	2 C/O	1 C/O	1 C/O	1 C/O
Rated current	3 A	2 A	1 A	1 A	1 A
Rated voltage	220 VDC/250 VAC	220 VDC/250 VAC	125 VDC/150 VAC	30 VDC/120 VAC	60 VDC/120 VAC
Maximum switching capacity	60 W/125 VA	60 W/62.5 VA	30 W/60 VA	24 W/120 VA	30 W/120 VA
Contact resistance (initial)	< 100 mΩ	< 70 mΩ	< 50 mΩ	< 100 mΩ	< 100 mΩ
Contact material	AgNi + Au plated	AgNi + Au plated	PdNi + AuRh plated	AgNi + Au plate	AgPd + Au clad
<b>Coil</b>					
Coil type	non-polarized	non-polarized	polarized	non-polarized	non-polarized
Coil voltage range	3 - 48 VDC	3 - 48 VDC	3 - 24 VDC	5 - 24 VDC	3 - 24 VDC
Coil power	150/200/400/> 500 mW	150 - 550 mW	32 - 128 mW	150 / 300 mW	200 / 450 mW
Other coil versions			latching 1 or 2 coils		
<b>General data</b>					
Dielectric strength coil - contacts	1050 VAC	1050 VAC	1500 VAC	1000 VAC	1000 VAC
Temperature range/°C	-25 to +60/85	-55 to +85	-40 to +70	- 40 to + 80	- 30 to + 60/75
Sealing	Washable	Washable	Washable	Flux tight / washable	Flux tight/ washable
Termination method	THT	THT	THT, SMT	PCB	PCB
Dimensions (l x w x h)/mm	20.2 x 10 x 11.4	20.2 x 10 x 11	13 x 7.6 x 6.9	12.3 x 7.4 x 9.9	15.4 x 10.4 x 11.2
Approvals (Technical data on approved types on request)	cULus	cULus	cULus	UL, CSA	UL, CSA

Relay Type	W11 (V23101)	D1 (V23040)	Cradle Relays	Reed DIP (V23100-V40/43)	Reed Mini SIL (V23100-V46)
			Cradle N (V23154/162) Cradle W (V23005) Cradle S (V23054) Cradle P (V23003)		
RoHS Status	Compliant	Compliant	Compliant	Compliant	Compliant
<b>Contacts</b>					
Configuration	1 C/O	1 C/O	up to 6 C/O	1 C/O, 1 N/O, 2 N/O	1 N/O
Rated current	1.25 / 3 A	2 A	0.2 - 5 A	0.25 - 1A	0.5/1 A
Rated voltage	120 VDC/125 VAC	125 VAC/150 VDC	36 - 250 VDC/30 - 250 VAC	200 VDC/200 VAC	200 VDC/200 VAC
Maximum switching capacity	up to 72 W/360 VA	35-60 W/60 VA	5 - 140 W/5 - 500 VA	3 -10 W/3 - 10 VA	10 W/10 VA
Contact resistance (initial)	< 100 mΩ		< 100 mΩ	< 150 mΩ	< 150 mΩ
Contact material	AgPd + Au plated/AgNi	PdNi, Au Rh coated	Ag + Au flash/ Au F	Au + Rh flash	Au + Rh flash
<b>Coil</b>					
Coil type	non-polarized	polarized	polarized/non-polarized	non-polarized	non-polarized
Coil voltage range	1.5 - 24 VDC	5-24 / -	1.5 - 125 VDC/VAC	5 - 24 VDC	5/12 VDC
Coil power	200/450 mW	65-130 mW / -	800 mW/1.15 VA	50 - 288 mW	50/205 mW
Other coil versions	2 different coil assignments	Bistable 1 or 2 coil	latching 1 coil	with diode	with diode
<b>General data</b>					
Dielectric strength coil - contacts	1000 VAC	1500 VAC RMS	500 - 1500 VAC	1500 VDC	1500 VDC
Temperature range/°C	- 40 to + 70/85	- 40 to + 70		- 40 to + 70/85	- 40 to + 70/85
Sealing	Washable	Fully sealed	Dust proof/hermetically sealed	Fully sealed	Fully sealed
Termination method	THT	PCB	THT, hand solder, plug-in	THT	THT
Dimensions (l x w x h)/mm	15.5 x 10.5 x 11.5	20 x 10 x 8.5	24 - 35 x 19 x 30	19.3 x 6.4/7 x 5.7/7.5	15.2 x 3.8 x 6.8
Approvals (Technical data on approved types on request)	cULus	UL, CSA		cULus	cULus





**SINGLE AND TWIN PCB RELAYS**

Relay Type	Power K (V23133/076)	Mini K (V23072-A/C)	DMR THT (V23084-C)	PK2 THT/THR (V23201-C/R)	PK2 Latching (V23201-L)
					
Special Feature	High current version Power K-S (V23071) available			THT and THR versions available	
ELV/RoHS/WEEE status	Compliant	Compliant	Compliant	Compliant	Compliant
<b>Contacts <sup>1)</sup></b>					
Configuration	1 Form A , 1 Form C	1 Form A/C/U/X	2 Form C	1 Form A	1 Form A
Max. switching current – ON	30 A N/C, 100 A N/O	12 A N/C, 60 A N/O	35 A	200 A	200 A
Max. switching current – OFF	30 A N/C, 60 A N/O	10 A N/C, 20 A N/O	35 A	40 A	40 A
Continuous current at 23°C	30 A N/C, 45 A N/O <sup>2)</sup>	10 A N/C, 15 A N/O <sup>2)</sup>	30 A <sup>3)</sup> motor reverse	40 A	50 A
Continuous current at 85°C	25 A N/C, 30 A N/O <sup>2)</sup>	5 A N/C, 10 A N/O <sup>2)</sup>	30 A <sup>3)</sup> motor reverse	33 A	40 A
Contact material options	Silver based	Silver based	Silver based	Silver based	Silver based
<b>Coil</b>					
Coil voltage range (V)	12, 24	12, 24	12	12	12
Nominal coil power (W)	1.6	1.1	0.56, 0.81	0.82	Pulsed driving
<b>General Data</b>					
Operate time (ms) - typ. <sup>4)</sup>	5	3	3	3	1.5
Release time (ms) - typ. <sup>4)</sup>	3	1.5	1.3	1.5	1.5
Temperature range (°C)	- 40 to + 85	- 40 to + 85	- 40 to + 85	- 40 to + 105	- 40 to + 125
Sealing <sup>5)</sup>	Open or sealed	Open or sealed	Sealed	Sealed/Open vent hole	Sealed
Termination method	PCB	PCB	PCB	PCB	PCB
Dimensions (mm) - L x W x H	Open - 24 x 19.25 x 18.5 Sealed - 26.5 x 21.5 x 21.5	Open - 16 x 13.2 x 18 Sealed - 17.5 x 15 x 19.5	17.6 x 17 x 13.4	18.5 x 16.2 x 16.1	18.5 x 16.2 x 16.1






Relay Type	Micro K (V23086-C1/C2)	Micro K SMD (V23086-M1/M2)	Micro K THR (V23086-R1/R2)	Micro K Latching (V23086-L)	Nano Relay (V23138-C/R1 and C/R2)
					
Special Feature			Through-Hole-Reflow (THR) versions of Micro K		THT and THR versions available
ELV/RoHS/WEEE status	Compliant	Compliant	Compliant	Compliant	Compliant
<b>Contacts <sup>1)</sup></b>					
Configuration	1 Form A/C   2 Form C	1 Form C   2 Form C	1 Form C   2 Form C	1 Form C	1 Form C   2 Form C
Max. switching current – ON	40 A (100 A Form A)	40 A	40 A	50 A on set contact 20 A on reset contact	30 A
Max. switching current – OFF	30 A	30 A	30 A   30 A	30 A on set contact 20 A on reset contact	30 A
Continuous current at 23°C	25 A N/C, 30 A N/O	25 A N/C, 30 A N/O	25 A N/C, 30 A N/O	35 A on set contact 20 A on reset contact	15 A N/C, 20 A N/O
Continuous current at 85°C	15 A N/C, 20 A N/O	15 A N/C, 20 A N/O	15 A N/C, 20 A N/O	30 A on set contact 15 A on reset contact	
Contact material options	Silver based	Silver based	Silver based	Silver based	Silver based
<b>Coil</b>					
Coil voltage range (V)	10, 12	10, 12   12	12	12	12
Nominal coil power (W)	0.55   0.57	0.64	0.55	Pulsed driving	0.72
<b>General Data</b>					
Operate time (ms) - typ. <sup>4)</sup>	3	3	3	1.5	3
Release time (ms) - typ. <sup>4)</sup>	1.5	1.5	1.5	1.5	1.5
Temperature range (°C)	-40 to + 105	-40 to + 105	-40 to + 105	-40 to + 125	-40 to + 125
Sealing <sup>5)</sup>	Sealed	Sealed	Open vent hole	Sealed	Sealed/Open vent hole
Termination method	PCB	PCB - SMD	PCB	PCB	PCB
Dimensions (mm) - L x W x H	Single - 13.2 x 12.2 x 10.1 Twin - 23.8 x 13.2 x 10.1	Single - 13.2 x 12.2 x 11.5 Twin - 23.8 x 13.2 x 11.5	Single - 13.2 x 12.2 x 10.4 Twin - 23.8 x 13.2 x 10.4	13.2 x 12.2 x 10.1	Single - 7.9 x 14.0 x 10.2 Twin - 15.6 x 10.2 x 14.2

1) Contact data: current values are for the 12 V versions.  
2) Valid for contacts with AgNi0.15 contact material.  
3) At 50% on period: max. make time 15 s.  
4) Operate and release time measured at nominal voltage without coil suppression circuit.  
5) Categories of protection: Sealed: tight washable; Open/Open vent hole: flux proof.

**PLUG-IN RELAYS**

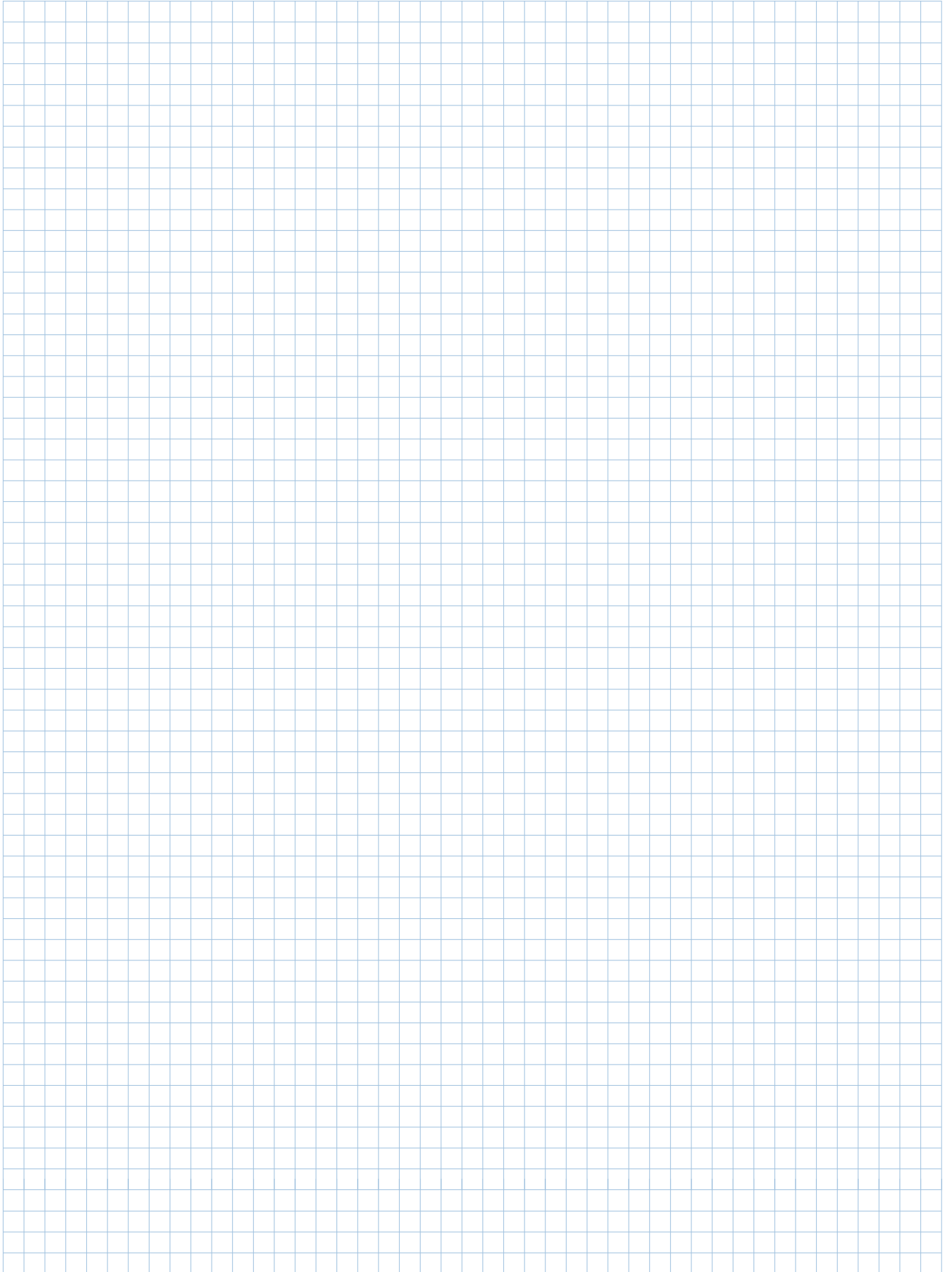
Relay Type	Power F4 (V23134)	Power F7 (V23134-J)	Micro A (V23074)	Power FA 4/7 (shrouded) (V23136)
				
Special Feature	Terminal dimensions and allocations similar to ISO 7588-1	Terminal dimensions and allocations similar to ISO 7588-1	Terminal dimensions and allocations similar to ISO 7588-3	Terminal dimensions and allocations similar to ISO 7588-1
ELV/RoHS/WEEE status	Compliant	Compliant	Compliant	Compliant
<b>Contacts <sup>1)</sup></b>				
Configuration	1 Form U/C/A/A with 2 pins 87	1 Form A	1 Form A, 1 Form C	1 Form A/C   1 Form A
Max. switching current – ON	45 A N/C, 120 A N/O	240 A	20 A N/C, 120 A N/O	45 A N/C, 120 A N/O   240 A
Max. switching current – OFF	40 A N/C, 60 A N/O	70 A	15 A N/C, 30 A N/O	40 A N/C, 60 A N/O   70 A
Continuous current at 23°C	40 A N/C, 60 A N/O	70 A	20 A N/C, 30 A N/O	40 A N/C, 60 A N/O   70 A
Continuous current at 85°C	30 A N/C, 40 A N/O	50 A	15 A N/C, 25 A N/O	30 A N/C, 40 A N/O   50 A
Contact material options	Silver based	Silver based	Silver based	Silver based
<b>Coil</b>				
Coil voltage range (V)	12, 24	12, 24	12, 24	12
Nominal coil power (W)	1.6	1.6	1.4, 1.6	1.5   1.9
<b>General Data</b>				
Operate time (ms) - typ. <sup>4)</sup>	7	7	5	8.5
Release time (ms) - typ. <sup>4)</sup>	2	2	2	4
Temperature range (°C)	-40 to +125	-40 to +125	-40 to +125	-40 to +85
Sealing <sup>5)</sup>	Dustproof	Dustproof	Dustproof	Sealed <sup>5)</sup>
Termination method	Quick connect, PCB	Quick connect, PCB	Quick connect	Quick connect
Dimensions (mm) - L x W x H	26.2 x 26.2 x 25.2	26.2 x 26.2 x 25.2	23 x 15.5 x 25.4	34.0 x 46.0 x 55.0

**HIGH CURRENT DEVICES**

Relay Type	HCR 150 (V23132)	HCR 75 (V23232)	BDS-A (V23130-C)	SPR (V23135)		EV200
						
Special Feature			Electrically settable and re-settable bistable device	Full, symmetric disconnection of the star-point of an EPS motor		
ELV/RoHS/WEEE status	Compliant	Compliant	Compliant	Compliant	Contact configuration	1 N/O
<b>Contacts <sup>1)</sup></b>					Rated voltage	12-900 VDC
Configuration	1 Form A/C/X	1 Form A	1 Form X	1 Triple contact	Carry current	500 A
Max. switching current – ON	300 A	100 A	190 A-50 k/100 A-100 k		Power switching	Yes
Max. switching current – OFF	300 A	100 A	190 A-50 k/100 A-100 k	200 A / > 10 cycles		
Max. switching current – ON/OFF/ON at 23°C			1000 A - 5 times			
Max. limiting current at 23°C	180 A with cable 25 mm <sup>2</sup>		1500 A for 200 ms, 1000 A for 1 s	120 A <sup>2)</sup>	Coil versions	9-36 VDC, 32-95 VDC 48-95 VDC
Continuous current at 23°C			Approx. 280 A		Temperature range °C	-40 to +85
Continuous current at 85°C	130 A with cable 25 mm <sup>2</sup>		190 A	90 A <sup>2)</sup> (60 A at 125°C) <sup>2)</sup>	Dielectric system	Nitrogen
Contact material options	Silver based	Silver based	Silver based	Silver based	Mounting	Panel
<b>Coil</b>						
Coil voltage range / V	12, 24	12, 24	12, 24, 42	10, 12, 24		
Nominal coil power (W)	4.1	3.1, 4.4	Excitation with pulses (15...100 ms)	1.48	Dimensions mm (L x W x H)	80.5 x 65.6 x 72.3
<b>General Data</b>						
Operate time (ms) - typ. <sup>4)</sup>	< 30	< 15	< 15	< 20		
Release time (ms) - typ. <sup>4)</sup>	< 15	< 15	< 15	< 10		
Temperature range (°C)	-40 to +125		-40 to +120	-40 to +135		
Sealing <sup>5)</sup>	Dustproof	Dustproof	Sealed	Sealed		
Termination method	M6 stud bolts + superseal	M5 screws + coil terminals	M8 screws + connector	Leadframe assembly		
Dimensions (mm) - L x W x H	63.0 x 40.0 x 71.0	44.0 x 36.0 x 39.0	35.0 x 35.0 x 60.0 <sup>6)</sup>	32.3 x 18.3 x 18.8 <sup>6)</sup>		

1) Contact data: current values are for the 12 V versions.  
2) Max. terminal temperatures up to 180°C are possible. Final temperatures depend on the leadframe layout.  
3) Using special sockets the relay is sealed according to protection class IP67.  
4) Operate and release time measured at nominal voltage without coil suppression circuit.  
5) According to IEC 529: IP54 (Dustproof); IP67 (Sealed).  
6) Dimensions without connector.





**Detailed Product Information is available at the following Tyco Electronics Companies:**
**Americas**

**Argentina** – Buenos Aires  
Phone: +54-11-4733-2200  
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