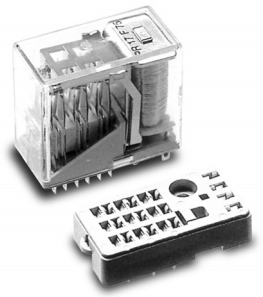
PR 15 - 16 - 17
Miniature relay



- Contact sets with different contact configurations
- Single or bifurcated contacts
- Solder pins, plug-in version or PCB version
- Accessories / sockets
- The relays comply with the IEC 61810-1

Technical data

Characteristics

Type of relay		PR 15-E PR 15-TE	PR 16-G PR 16-TG	PR 16-H PR 16-TH	PR 16-K PR 16-TK	PR 16-L PR 16-TL	PR 17-F	PR 17-Z
Coil data at 20°C								
Min. energizing to operate relay	amp. turns	80	120	120	120	120	130	130
Min. energizing at which attracted armature drops[1)]	amp. turns	15	15	15	15	30	35	35
Min. operating power for different windings[1)]	mW	100-140	210-310	210-310	210-310	220-320	290-410	290-410
Rated power for different windings[2)]	W	0.5	0.65	0.65	0.65	0.65	0.80	0.90
Max. operating power	W	2						
Energizing voltage range for different windings	V	0.64-110	0.6-110	0.6-110	0.6-110	0.4-110	0.75-145	0.75-145
Contact data								
Contact material		0.2 γm - gold coated silver						
Contact version		Single						
Max. operating voltage	V	100						
Max. allowed contact current	A	2						
Break power[3)]	W	30						
Min. load		1 mA 100 mV						
Contact resistance (measured at terminals)	mΩ	50 to 100 depending on the contact version						
General details								
Max. ambient temperature	°C	80	70	70	70	70	70	70
Max. allowed winding temperature	°C	130						
Test voltage between								
Two contacts	V_{rms}	500						
Contact and core	50 Hz	500						
Winding and core		500						
Machanical life	operations	Approx. 10^7						
Insulation resist. between								
Two contacts	Ω	More than 10^9						
Contact and core	Ω	More than 10^9						
Winding and core	Ω	More than 10^9						
Max. operating frequency of relay (min. load)	operat. sec.	50						
Make time, including contact rebounce, ar ref. voltage, approx.	msec.	13	10	10	10	10	18	18
Break time approx.	msec.	8	8	8	8	8	15	15
Weight approx.	g	20	25	25	25	25	30	30

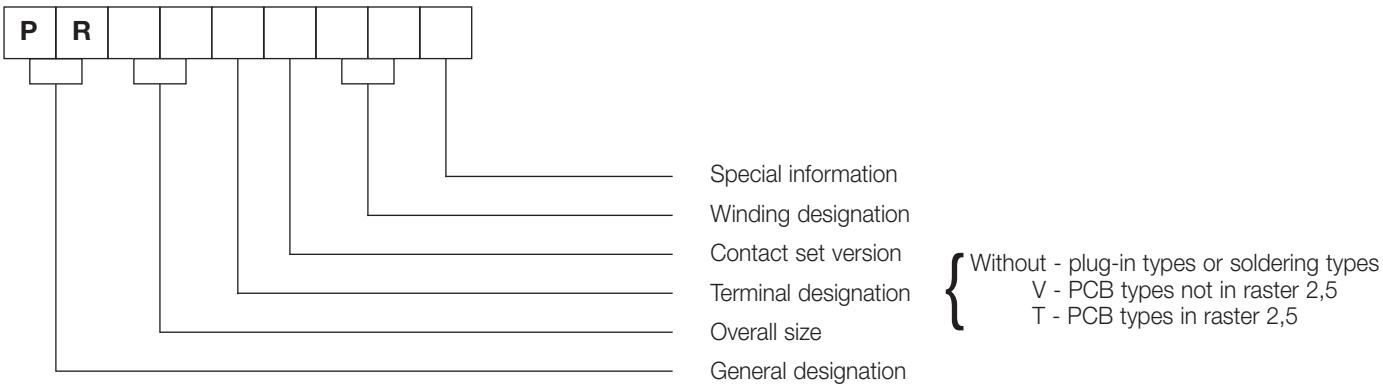
Type of relay		PR 15-A PR 15-TA	PR 15-B PR 15-TB	PR 15-D PR 15-TD	PR 16-C PR 16-TC	PR 15-M	PR 15-P PR 15-TP	PR 16-R PR 16-TR	PR 16-S PR 16-TS	PR 16-T PR 16-TT	PR 16-U PR 16-TU
Coil data at 20°C											
Min. energizing to operate relay	amp. turns	100	120	110	120	155	125	150	155	145	180
Min. energizing at which attracted armature drops[1]	amp. turns	10	10	15	15	35	15	25	20	25	25
Min. operating power for different windings[1]	mW	150-210	210-310	175-250	210-310	440-620	250-360	345-490	420-570	330-460	510-730
Rated power for different windings[2]	W	0.55	0.65	0.60	0.65	1.0	0.65	0.75	0.80	0.80	1.1
Max. operating power	W	2									
Energizing voltage range for different windings	V	0.5-110	0.6-110	0.55-110	0.6-110	0.92-145	0.64-110	0.78-110	0.83-110	0.77-110	0.94-110
Contact data											
Contact material		0.2 γm - gold coated silver									
Contact version		Single					Double				
Max. operating voltage	V	220					100				
Max. allowed contact current	A	5					2				
Break power[3]	W	to 30V: 100 - 30V-50V: 80 - 50V-220V: 50					30				
Min. load		1 mA 100 mV									
Contact resistance (measured at terminals)	mΩ	50 to 100 depending on the contact version									
General details											
Max. ambient temperature	°C	80	70	70	70	60	60	50	50	50	40
Max. allowed winding temperature	°C	130									
Test voltage between											
Two contacts	V_{rms}	1000					500				
Contact and core	50 Hz	1000					500				
Winding and core		500					500				
Machanical life	operations	Approx. 10^7									
Insulation resist. between											
Two contacts	Ω	More than 10^9									
Contact and core		More than 10^9									
Winding and core		More than 10^9									
Max. operating frequency of relay (min. load)	operat. sec.	50					10				
Make time, including contact rebounce, ar ref. voltage, approx.	msec.	10	10	10	10	10	10	10	10	10	10
Break time approx.	msec.	8	8	8	8	8	8	8	8	8	8
Weight approx.	g	20	20	20	25	30	20	25	25	25	25

[1] applies to min. operate voltage

[2] applies to ref. voltage Uref = $\frac{U_{min} + U_{max}}{2}$

[3] applies to the ohmic and inductance load only if the contact arc is quenched

Ordering information



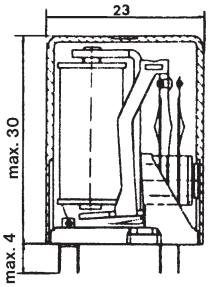
Coil data at 20 °C

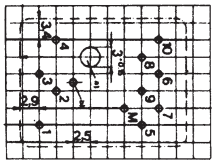
Type of relay PR 15

Contact set version			A	B	D	E	P	
Contact current			5A	5A	5A	2A	2A	
Winding details			Voltage operating range at 20°C					
Designation	Resistance (Ω)	No. of turns	Min. Voltage $U_{min.}$[4] (V_{DC})					Max. Voltage $U_{max.}$[4] (V_{DC})
00	20900±3140	32700	77	95	86	61	99	190
01	7600±1140	20700	43	53	47	34	55	110
02	3200±480	13400	29	36	32	23	37	70
03	1700±255	9900	21	26	23	16	26	50
04	890±89	7300	13.5	17	15	11	18	38
05	530±53	5800	10.5	13	11.5	8.2	13	30
06	325±33	4450	8.4	10	9.3	6.6	10.5	23
07	220±22	3700	6.8	8.5	7.5	5.3	8.7	20
08	150±15	3100	5.5	7	6.1	4.4	7.1	16
09	110±11	2700	4.6	5.6	5.1	3.7	5.8	13
10	58±5.8	1900	3.5	4.3	3.8	2.7	4.4	10
11	28±2.8	1350	2.3	3	2.6	1.8	3	7
12	18±1.8	1100	1.9	2.4	2.1	1.5	2.4	5.5
13	15±1.5	1020	1.67	2	1.85	1.3	2.1	5.2
14	9.5±0.95	840	1.26	1.6	1.4	1	1.62	4.2
15	6.8±0.68	720	1.08	1.4	1.19	0.9	1.37	3.5
16	5.1±0.51	640	0.9	1.1	0.99	0.7	1.14	3.1
17	1.5±0.15	340	0.5	0.6	0.55	0.4	0.64	1.7
Contact designation[5]			1 1	2 2	2 1	21 21	21 21	
Contact symbol Numbers correspond sockets designation								

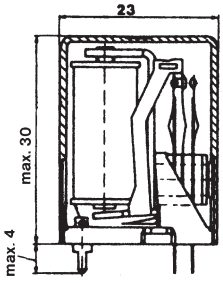
Dimensions and Terminals Layout in mm

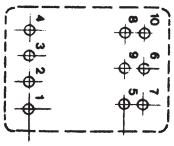
PR 15T





PR 15V

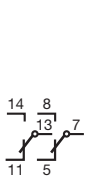
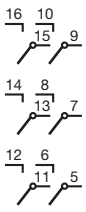
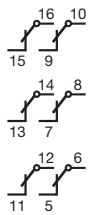
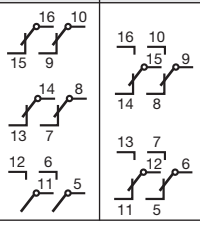
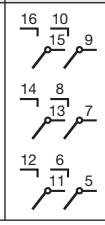
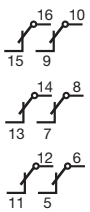
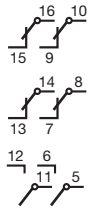
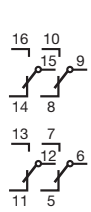




Coil terminals at the relays and sockets
Single winding coils: start 4, end 1
Double winding coils: start 3, end 2 (winding I)
start 4, end 1 (winding II)

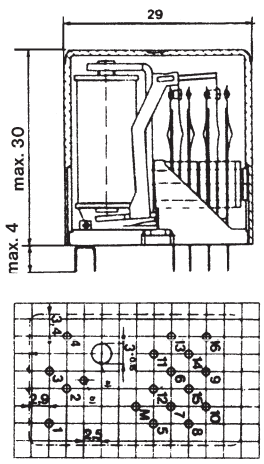
Coil data at 20 °C

Type of relay PR 16

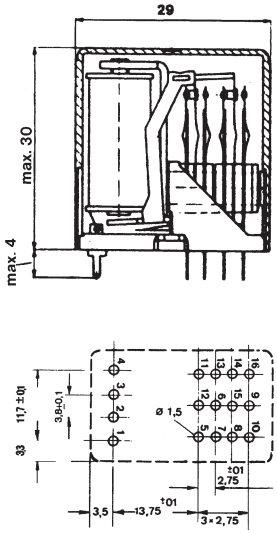
Contact set version			C	G	H	K	L	R	S	T	U	
Contact current			5A	2A	2A	2A	2A	2A	2A	2A	2A	
Winding details			Voltage operating range at 20°C									
Designation	Resistance (Ω)	No. of turns	Min. Voltage $U_{min.}$[4] (V_{DC})									Max. Voltage $U_{max.}$[4] (V_{DC})
00	20900±3140	32700	95					122	128	133	150	190
01	7600±1140	20700	53					68	71	66	86	110
02	3200±480	13400	36					45	48	44	56	70
03	1700±255	9900	26					32	35	32	40	50
04	890±89	7300	17					22	22	21	27	38
05	530±53	5800	13					16	17.5	16	20	30
06	325±33	4450	10					13	14	13	16	23
07	220±22	3700	8.5					10.5	11.5	10.5	13	20
08	150±15	3100	7					8.6	9.1	8.4	10.5	16
09	110±11	2700	5.6					7.2	7.6	7.0	8.9	13
10	58±5.8	1900	4.3					5.5	5.8	5.4	6.7	10
11	28±2.8	1350	3					3.7	3.8	3.5	4.6	7
12	18±1.8	1100	2.4					2.9	3.2	2.9	3.6	5.5
13	15±1.5	1020	2					2.6	2.8	2.6	3.2	5.2
14	9.5±0.95	840	1.6					2.0	2.1	1.93	2.5	4.2
15	6.8±0.68	720	1.4					1.65	1.8	1.65	2.0	3.5
16	5.1±0.51	640	1.1					1.40	1.5	1.38	1.7	3.1
17	1.5±0.15	340	0.6					0.78	0.83	0.77	0.94	1.7
Contact designation[5]			21 21	1 - 1 - 1 1 - 1 - 1	2 - 2 - 2 2 - 2 - 2	2 - 2 - 1 2 - 2 - 1	21 - 21 21 - 21	1 - 1 - 1 1 - 1 - 1	2 - 2 - 2 2 - 2 - 2	2 - 2 - 1 2 - 2 - 1	21 - 21 21 - 21	
Contact symbol Numbers correspond sockets designation												

Dimensions and Terminals Layout in mm

PR 16T



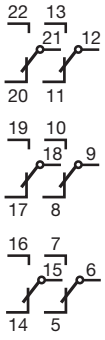
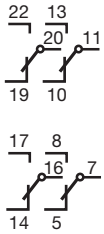
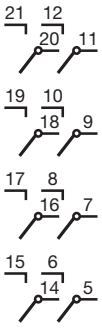
PR 16V



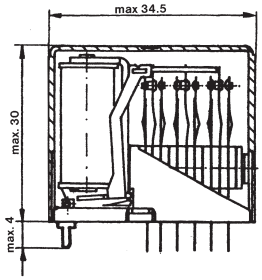
Coil terminals at the relays and sockets
Single winding coils: start 4, end 1
Double winding coils: start 3, end 2 (winding I)
start 4, end 1 (winding II)

Coil data at 20 °C

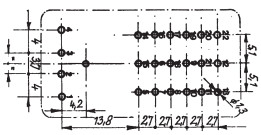
Type of relay PR 17

Contact set version			F	M	Z	
Contact current			2A	5A	2A	
Winding details			Voltage operating range at 20°C			
Designation	Resistance (Ω)	No. of turns	Min. Voltage $U_{min.}$[4] (V_{DC})			Max. Voltage $U_{max.}$[4] (V_{DC})
70	25000±3750	34000	118	145	118	240
71	9200±1380	22000	66	81	66	145
72	3800±570	14100	43	52	43	94
73	1900±285	10400	29	35	29	66
74	1050±105	7600	21	26	21	50
75	630±63	6100	15.5	19	15.5	39
76	390±39	4650	13	20	13	31
77	270±27	3900	10.5	13	10.5	25.5
78	185±18.5	3300	8.1	10	8.1	21.5
79	130±13	2800	7.0	8.5	7.0	18
80	94±9.4	2300	6.2	7.5	6.2	15
81	70±7.0	2000	5.3	6.4	5.3	13
82	33±3.3	1400	3.5	4.3	3.5	9.0
83	22±2.2	1130	4.5	4.0	3.3	7.3
84	18±1.8	1050	2.6	3.2	2.6	6.6
85	10.5±1.05	816	1.9	2.4	1.9	5.1
86	6.6±0.66	635	1.55	1.9	1.55	4.0
87	5.4±0.54	590	1.35	1.65	1.35	3.6
88	1.75±0.18	348	0.75	0.95	0.75	2.1
Contact designation[5]			21 - 21 - 21 21 - 21 - 21	21 - 21 21 - 21	1 - 1 - 1 - 1 1 - 1 - 1 - 1	
Contact symbol Numbers correspond sockets designation						

Dimensions and Terminals Layout in mm



PR 17V



Coil terminals at the relays and sockets
Single winding coils: start 4, end 1

Double winding coils: start 3, end 2 (winding I)
start 4, end 1 (winding II)

[4] The operating voltage limits $U_{min.}$ and $U_{max.}$ depend on the ambient temperature in accordance with:

$U_{min.\,(t)} = K_1 \times U_{min.\,(20°C)}$ $\quad$ $U_{max.\,(t)} = K_2 \times U_{max.\,(20°C)}$

Coeff. \ t	20°C	30°C	40°C	50°C	60°C	70°C	80°C
K_1	1.0	1.05	1.09	1.13	1.17	1.215	1.255
K_2	1.0	0.93	0.86	0.79	0.705	0.615	0.5

t = Ambient temperature
K_1 K_2 = Factors
$U_{min.}$ = Min. voltage at ambient temperature t
$U_{max.}$ = Max. voltage at ambient temperature t

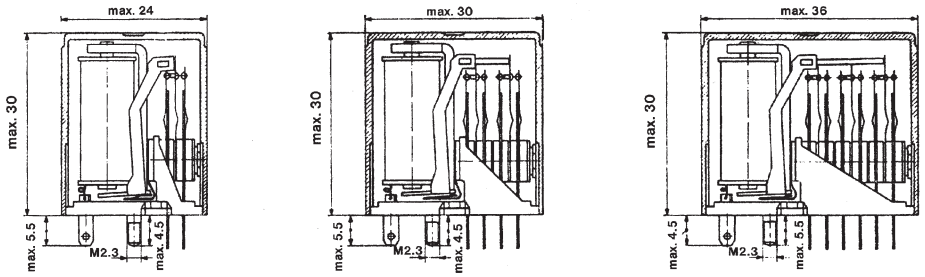
[5] Where: 1 = Make contact 2 = Break contact 21 = Change-over contact

Mechanical dimensions in mm

(max. width of relay 19 mm)

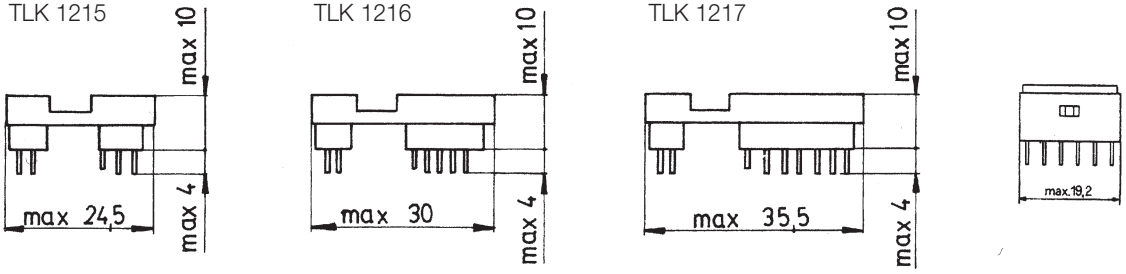
Relay types	Soldering sockets	Printed wiring sockets	Locking springs
PR15	TLK 1115	TLK1215	421-505-404
PR 16	TLK 1116	TLK 1216	421-506-434
PR17	TLK 1117	TLK 1217	421-507-256

PR 15 PR 16 PR 17



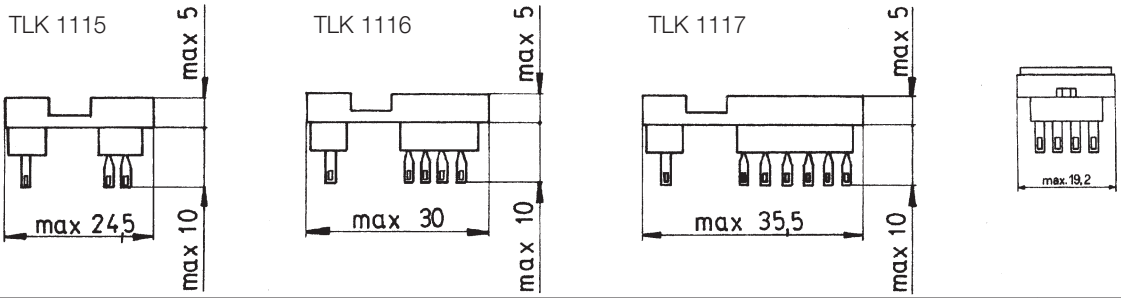
Printed Wiring Sockets

TLK 1215 TLK 1216 TLK 1217

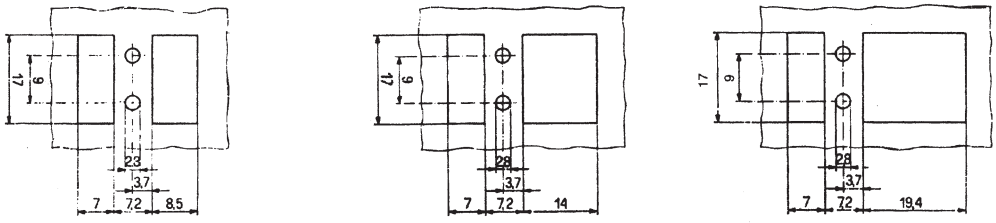


Soldering Sockets

TLK 1115 TLK 1116 TLK 1117



Apertures for relay Sockets



Relay Fastening Springs