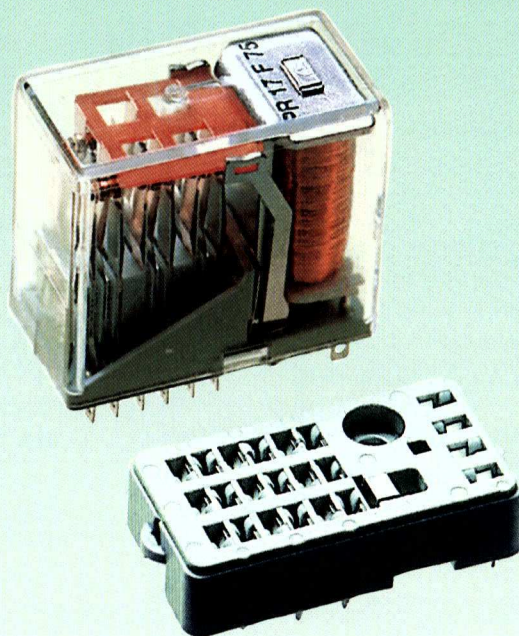




Miniature relay

PR 15, 16, 17



Contact sets with different contact configurations

Single or bifurcated contacts

Solder pins, plug-in versions or PCB versions

Accessories / sockets

The relays comply with the IEC 61810-1

Application

PR 15, PR 16 and PR 17 are neutral, monostable miniature DC relays. Their high operating reliability, perfect electrical and mechanical characteristics and standard dimensions enable widely and efficiently use in signalling equipment, telephony, in digital and measuring equipment, in automation, and many other fields. Two of their best features are the small consumption and an extremely wide voltage and temperature range of operation.

Design

The PR 15, PR 16 and PR 17 miniature relays are electromagnetic units using an identical magnet system with different contact sets.

The PR 15, PR 16 and PR 17 differ in size but the height and the width of this types are equal. The relays have transparent plastic dust cover providing easy inspection. The contacts can be operated manually by inserting a needle through the aperture in the base and pressing the armature against the magnet core.

The relays comply with the IEC 61810-1.

Installation

The types PR 15, PR 16 and PR 17 miniature relays, fitted with flat contact legs may be positioned directly on either metal or insulation surfaces through earthing screws M2.3, 4.5 mm long, projecting from the base. The normal way of installation is by using a special socket in which the relays are kept reliable by locking springs. Printed wiring types (T) of this relays can be soldered directly to printed circuits (PCB). The contact pins are arranged in a 2.5 mm standard pattern as shown in the printed wiring sockets drawings.

Versions of relays

The size of a relay is established by the type of contact set. As for the technical details, please refer to the tables herein, including the main electrical and mechanical characteristics of the individual version of miniature relays as well as the winding details. The individual rated values (such as attraction time, mechanical life, etc.) were measured at a standard voltage.

Versions of relays (P, R, S, T, K) with double contact rivets enable reliable switching operation also at very small contact load.

Sockets and installation parts

The relay PR 15, PR 16 and PR 17 may use two types of sockets, a printed wiring type and a soldering type. Printed wiring sockets are directly soldered to the boards with the contact pins arranged in a 2.5 mm standard pattern (see drawing).

The relays are kept in position by stainless steel locking springs.

Type designations

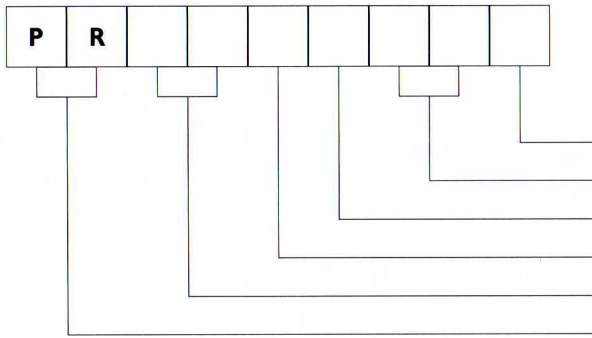
Relay types	Soldering sockets	Printed wiring sockets	Locking springs
PR 15	TLK 1115	TLK 1215	421-505-404
PR 16	TLK 1116	TLK 1216	421-506-434
PR 17	TLK 1117	TLK 1217	421-507-256

Ordering details

When ordering, please specify the relay type designation and winding designation from the tables.

Ordering example: (e. g. PR15-TE07)

Key:



special information
winding designation
contact set version
terminals designation { without – plug-in types or soldering types
 V – PCB types not in raster 2,5
 T – PCB types in raster 2,5
overall size
general designation

Technical data

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	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. energising to operate relay	80	120	120	120	120	130	100	120	110	120	155	125	150	155	145	180	
	Min. energising at which attracted armature drops ¹⁾	15	15	15	15	30	35	10	10	15	15	35	15	25	20	25	25	
	Min. operating power for different windings ¹⁾	100–140	210–310	210–310	210–310	220–320	290–410	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⁾	0.5	0.65	0.65	0.65	0.65	0.80	0.90	0.55	0.65	0.60	0.65	1.0	0.65	0.75	0.80	1.1	
	Max. operating power	2																
Contact data	Energising voltage range for different windings	0.64–110	0.6–110	0.6–110	0.6–110	0.4–110	0.75–145	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 material	0.2 µm – gold coated silver																
	Contact version	single				single				single				double				
	Max. operating voltage	100				220				100				100				
	Max. allowed cont. current	2				5				2				30				
General details	Break power ³⁾	to 30 V : 100; 30 V–50 V : 80; 50 V–220 V : 50																
	Min. load	1 mA, 100 mV																
	Contact resistance (measured at terminals)	50 to 100 depending on the contact version																
	Max. ambient temperature	80	70	70	70	70	70	70	80	70	70	70	60	60	50	50	50	40
	Max. allowed winding temperature	130																
Test voltage between two contacts	V _{rms} 50 Hz	500				1000				500				500				
	contact and core	500				1000				500				500				
	winding and core	500				500				500				500				
	Mechanical life	approx. 10 ⁷																
	two contacts	more than 10 ⁹																
Insulation between resist.	contact and core	more than 10 ⁹																
	winding and core	more than 10 ⁹																
	Max. operating frequency of relay (min load)	50																
	Make time, including contact rebound, at ref. voltage, approx.		13	10	10	10	10	18	10	10	10	10	10	10	10	10	10	10
		Break time approx.	8	8	8	8	8	15	15	8	8	8	8	8	8	8	8	8
Weight, approx.		20	25	25	25	25	30	30	20	20	20	25	30	20	25	25	25	

¹⁾ applies to min. operate voltage

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

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

Coil and contact details for PR15, PR16

Type of relay			PR 15						PR 16								
Contact set version			A	B	D	E	P	C	G	H	K	L	R	S	T	U	
Contact current			5A	5A	5A	2A	2A	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)
			77	95	86	61	99		95	122	128	133	150	190			
00	20900±3140	32700															
01	7600±1140	20700	43	53	47	34	55			53	68	71	66	86	110		
02	3200±480	13400	29	36	32	23	37			36	45	48	44	56	70		
03	1700±255	9900	21	26	23	16	26			26	32	35	32	40	50		
04	890±89	7300	13.5	17	15	11	18			17	22	22	21	27	38		
05	530±53	5800	10.5	13	11.5	8.2	13			13	16	17.5	16	20	30		
06	325±33	4450	8.4	10	9.3	6.6	10.5			10	13	14	13	16	23		
07	220±22	3700	6.8	8.5	7.5	5.3	8.7			8.5	10.5	11.5	10.5	13	20		
08	150±15	3100	5.5	7	6.1	4.4	7.1			7	8.6	9.1	8.4	10.5	16		
09	110±11	2700	4.6	5.6	5.1	3.7	5.8			5.6	7.2	7.6	7.0	8.9	13		
10	58±5.8	1900	3.5	4.3	3.8	2.7	4.4			4.3	5.5	5.8	5.4	6.7	10		
11	28±2.8	1350	2.3	3	2.6	1.8	3			3	3.7	3.8	3.5	4.6	7		
12	18±1.8	1100	1.9	2.4	2.1	1.5	2.4			2.4	2.9	3.2	2.9	3.6	5.5		
13	15±1.5	1020	1.67	2	1.85	1.3	2.1			2	2.6	2.8	2.6	3.2	5.2		
14	9.5±0.95	840	1.26	1.6	1.4	1	1.62			1.6	2.0	2.1	1.93	2.5	4.2		
15	6.8±0.68	720	1.08	1.4	1.19	0.9	1.37			1.4	1.65	1.8	1.65	2.0	3.5		
16	5.1±0.51	640	0.9	1.1	0.99	0.7	1.14			1.1	1.40	1.5	1.38	1.7	3.1		
17	1.5±0.15	340	0.5	0.6	0.55	0.4	0.64			0.6	0.78	0.83	0.77	0.94	1.7		
Contact designation ⁵⁾			1	1	2	2	2	21	21	21	21	21	21	21	21	21	
Contact symbol																	
Numbers correspond sockets designation																	

Type of relay			PR 17			
Contact set version			F	M	Z	
Contact current			2 A	5 A	2 A	
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 with sockets designations						

$$U_{\max, (t)} = K_2 \times U_{\max, (20^{\circ} \text{C})}$$

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

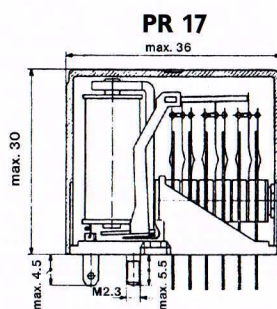
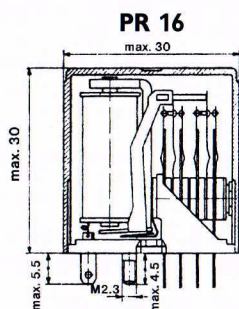
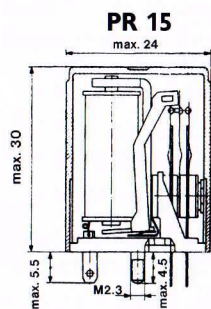
$U_{\max.}$ = max. voltage at ambient temperature t

21 = change-over contact

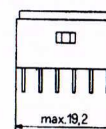
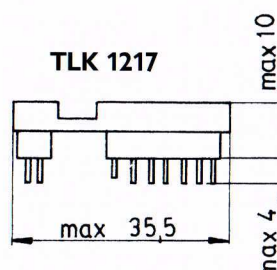
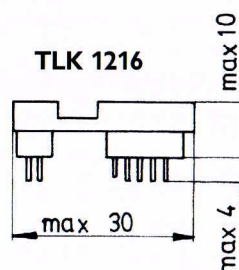
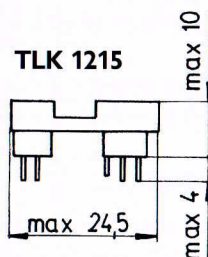


Mechanical dimensions

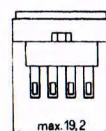
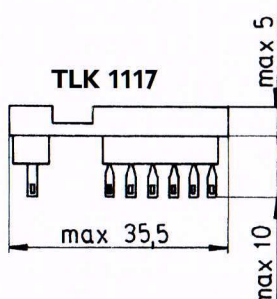
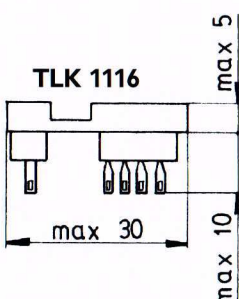
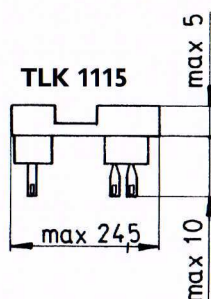
(max. width of relay 19 mm)



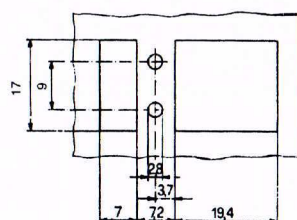
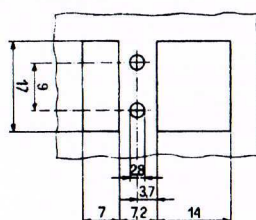
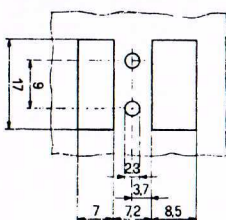
Printed wiring sockets:



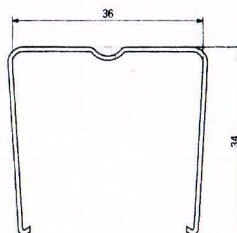
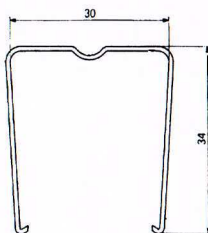
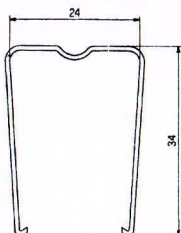
Soldering sockets:



Apertures for relay sockets:



Relay fastening springs:



Agent:

IREL 20 A 0902