

## Time curves for RIDI and RIDSI

The time scale is graduated in conformity with BS 142. The operating time is set in the same way as on RI and RIS, but the scale is not graduated in seconds; instead it has a scale constant  $k$ . The set time in this case is the constant times the value indicated by the curve given on the plate. The scale range is 0.15–1.3 for 50 Hz and 0.15–1.0 for 60 Hz. When  $k=1.0$ , the set time is 3 seconds when the current is  $10 \times$  the set value. Dispersion of the operating time complies with the requirements of BS 142. The time curves are shown in Fig. 20 below.

The time scales available are given in the ordering tables on pages 14 and 15.

## Choosing time scales

RI relays are chiefly used in selective short-circuit protections for the medium voltage networks of industrial installations, sub-stations etc. Time settings over 10 seconds (i.e. short-circuit time 3.5 s) need hardly occur in such cases. In view of the importance of selective discrimination between the relay and existing short-circuit protections in the primary or secondary networks and also in view of the short-circuit strength of the cables, the time settings are generally 4–5 seconds (short-circuit time 1–1.5 s) or less. This indicates that, in installations of the kind described, time scales 1–6 and 2–10 seconds are suitable (1–5 and 2–8 s at 60 Hz).

For over-current protection of generators, transformers and main outgoing lines in power stations considerably higher time settings are usually required. The time-lag scale of 3–20 seconds may be regarded as normal when RI relays are used in such installations.

## Harmonics

Unlike many other time-lag over-current relays of induction type, RI relays have a very low sensitivity to harmonics. For an RI relay with a rated frequency of 50 Hz, the operating current decreases by 5–7% and the operating time increases by 4–5% when the harmonic content is about 35% for the third harmonic and, at the same time, about 15% for the fifth harmonic, with a saw-tooth waveform.

## Effect of temperature and frequency variations

See page 9.

## Overshoot

If the over-current drops below the resetting value (85%) after the relay has begun to operate, the relay will reset without actuating the contacts, even if the relay is within 35 ms of operating.

When choosing relay settings for selective over-current protections, the overshoot can therefore generally be neglected, and it is only necessary to take into consideration the operating times of the circuit-breakers and allow a margin for relay dispersion.

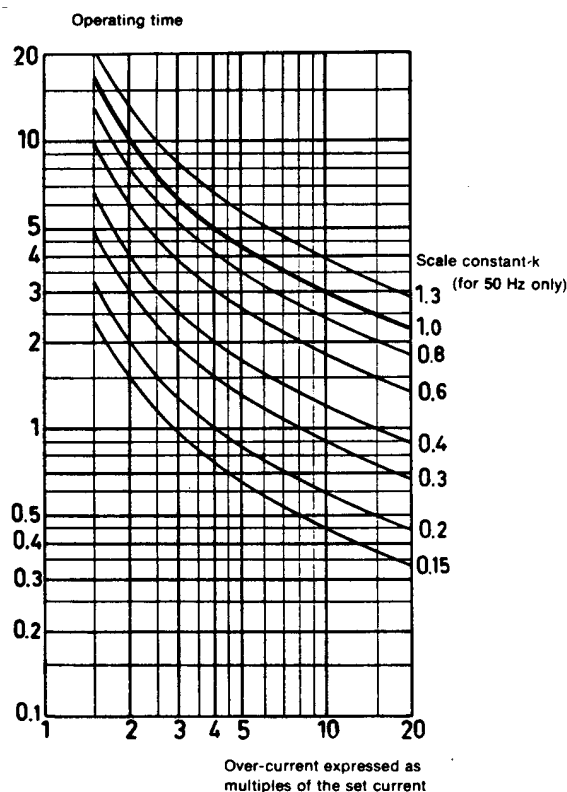
## Contacts

Data for the contacts will be found in the tables on pages 11, 13, 14 and 15. If series tripping is adopted, the relay must be fitted with a break contact. This contact can interrupt about 100 A if the impedance of the tripping coil does not exceed 4 ohms. If the product of current  $\times$  impedance exceeds 400 V, a non-linear protective resistor type MXAA 1001 should be connected in parallel with the relay contact as shown in Fig. 23. The resistor, which is shown in Fig. 25 is designed for separate mounting and should be connected to the relay contact with a lead resistance of less than 0.1 ohms. See the ordering table on page 16.

## Insulation

The relays are voltage tested at 2000 V between current-carrying parts and the base. Exceptions to this are the auxiliary windings of RIS and RIDSI relays, since these, like the cover and other non-current-carrying parts, are connected to one of the fixing screws and can thus be earthed through this.

Fig. 20. Time curves for RIDI and RIDSI. (5621 143)



## Accuracy and other data

### Operating current

RI, RIS:  $100 \pm 2\%$  of set current  
 RIDI, RIDSI: 100–105% of set current

### Resetting current

Approx. 85% of set current  
 before the contacts have switched  
 Approx. 55% of set current  
 after the contacts have switched

### Overshoot

Max. 35 ms

### Effect of harmonics

with a saw-tooth waveform,  
 35% third harmonic and 15%  
 fifth harmonic content:  
 Operating current decreases 5–7%  
 Operating time increases 4–5%

### Effect of frequency

at  $\pm 5\%$  frequency change:  
 Operating current changes max.  $\pm 3\%$   
 Operating time changes max.  $\pm 3\%$

### Effect of temperature

with a temperature variation  
 of  $\pm 10^\circ\text{C}$  from the ambient temperature:  
 Operating current changes approx.  $\pm 2\%$   
 Operating time for time scales  
 2–10 seconds or 3–20 seconds changes  
 approx.  $\pm 1\%$   
 Operating time for time scales  
 0.5–3 s or 1–6 s changes approx.  $\pm 2\%$   
 Operating time for RIDI and RIDSI changes  
 approx.  $\pm 1\%$

### Instantaneous operation

Operating current, correction for different  
 current setting and dispersion see p. 6  
 "Instantaneous Operating time including  
 dispersion see Fig. 14.

### Weight

Approx. 3.5 kg

## Calculation of power consumption

The ordering tables state the power consumption  $S$  of the relay at the set operating current  $i_r$ . The power consumption  $S_n$  at the rated secondary current  $i_n$  of the current transformer is calculated using the formula

$$S_n = \left(\frac{i_n}{i_r}\right)^2 \cdot S \cdot \frac{p}{100}$$

The value  $p$  is obtained from Fig. 21, where  $n = i_n / i_r$ . The impedance  $Z_r$  of the relay coil at a given current  $i$  is

$$Z_r = \frac{S}{i_r^2} \cdot \frac{p}{100}$$

where  $p$  is obtained from Fig. 21 and where  $n = i / i_r$ .

The values of  $S_n$  and  $Z_r$  are required when calculating the burden and over-current factor of the current transformers.

Example: RI for 50 Hz with time-scale 1–6 has  $S=11$  VA (see the table on p. 10). If the current rating is 5 A and the setting 10 A,  $n=0.5$  and thus  $p=108$ .

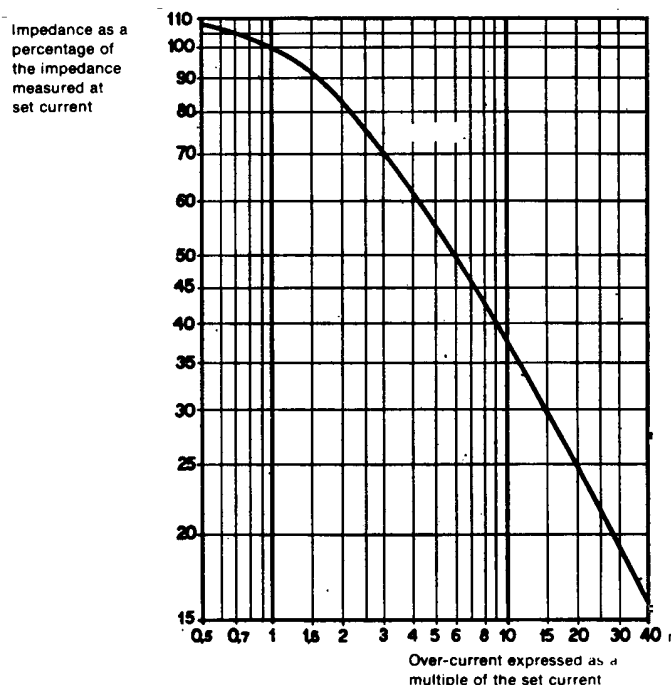
The power consumption at the rated current will then be

$$S_n = 0.5^2 \cdot \frac{11 \cdot 108}{100} = 3 \text{ VA}$$

The impedance of the coil of the relay at, for example,  $6 \times$  the rated current, i.e. 30 A, is calculated from the fact that  $n=30/10=3$  and therefore  $p=70$  and

$$Z_r = \frac{11}{10^2} \cdot \frac{70}{100} = 0.077 \text{ ohm}$$

Fig. 21. Non-linearity of the impedance. (1223 901)



## RI, RIS 50 Hz • Data and catalogue numbers

Rated current A	Current scale A	Time-lag scale s	Power consumption at operating current VA	P.F.	Type RI								Type RIS			
					Symbols for de-energised relays								Symbols for de-energised relays			
					Type designations and Cat. Nos								Type designations and Cat. Nos			
					RI	RK 478	RI	RK 478	RI	RK 478	RI	RK 478	RIS	RK 478	RIS	RK 478
1	0.5-2	0.5-3	11	0.4	5011	0001	5012	0061	5013	0121	5014	0181	5011	0241	5012	0301
		1-6	11		5021	0002	5022	0062	5023	0122	5024	0182	5021	0242	5022	0302
		2-10	9.5		5031	0003	5032	0063	5033	0123	5034	0183	5031	0243	5032	0303
		3-20	9.5		5041	0004	5042	0064	5043	0124	5044	0184	5041	0244	5042	0304
2	0.8-2	0.5-3	11	0.4	5111	0005	5112	0065	5113	0125	5114	0185	5111	0245	5112	0305
		1-6	11		5121	0006	5122	0066	5123	0126	5124	0186	5121	0246	5122	0306
		2-10	9.5		5131	0007	5132	0067	5133	0127	5134	0187	5131	0247	5132	0307
		3-20	9.5		5141	0008	5142	0068	5143	0128	5144	0188	5141	0248	5142	0308
5	1.6-4	0.5-3	11	0.4	5711	0009	5712	0069	5713	0129	5714	0189	5711	0249	5712	0309
		1-6	11		5721	0010	5722	0070	5723	0130	5724	0190	5721	0250	5722	0310
		2-10	9.5		5731	0011	5732	0071	5733	0131	5734	0191	5731	0251	5732	0311
		3-20	9.5		5741	0012	5742	0072	5743	0132	5744	0192	5741	0252	5742	0312
5	2-5	0.5-3	11	0.4	5611	0013	5612	0073	5613	0133	5614	0193	5611	0253	5612	0313
		1-6	11		5621	0014	5622	0074	5623	0134	5624	0194	5621	0254	5622	0314
		2-10	9.5		5631	0015	5632	0075	5633	0135	5634	0195	5631	0255	5632	0315
		3-20	9.5		5641	0016	5642	0076	5643	0136	5644	0196	5641	0256	5642	0316
5	2.5-10	0.5-3	11	0.4	5211	0017	5212	0077	5213	0137	5214	0197	5211	0257	5212	0317
		1-6	11		5221	0018	5222	0078	5223	0138	5224	0198	5221	0258	5222	0318
		2-10	9.5		5231	0019	5232	0079	5233	0139	5234	0199	5231	0259	5232	0319
		3-20	9.5		5241	0020	5242	0080	5243	0140	5244	0200	5241	0260	5242	0320
5	4-10	0.5-3	11	0.4	5311	0021	5312	0081	5313	0141	5314	0201	5311	0261	5312	0321
		1-6	11		5321	0022	5322	0082	5323	0142	5324	0202	5321	0262	5322	0322
		2-10	9.5		5331	0023	5332	0083	5333	0143	5334	0203	5331	0263	5332	0323
		3-20	9.5		5341	0024	5342	0084	5343	0144	5344	0204	5341	0264	5342	0324
1 (or 5)	4-15	0.5-3	11	0.4	5411	0025	5412	0085	5413	0145	5414	0205	5411	0265	5412	0325
		1-6	11		5421	0026	5422	0086	5423	0146	5424	0206	5421	0266	5422	0326
		2-10	9.5		5431	0027	5432	0087	5433	0147	5434	0207	5431	0267	5432	0327
		3-20	9.5		5441	0028	5442	0088	5443	0148	5444	0208	5441	0268	5442	0328
1 (or 5)	1-5	0.5-3	11	0.4	5811	0029	5812	0089	5813	0149	5814	0209	5811	0269	5812	0329
		1-6	11		5821	0030	5822	0090	5823	0150	5824	0210	5821	0270	5822	0330
		2-10	9.5		5831	0031	5832	0091	5833	0151	5834	0211	5831	0271	5832	0331
		3-20	9.5		5841	0032	5842	0092	5843	0152	5844	0212	5841	0272	5842	0332

## Symbols and contact data

Settings on the current scale A	Time-lag scale			
	Permissible current in coil		0.5–3 s 1–6 s	2–10 s 3–20 s
	contin- uous A	for 1 second A	Power consumption at rated current <sup>1)</sup> VA	
0.5	1.2	30	37	32
0.6	1.4	40	28	24
0.8	1.8	40	17	14
1	2.2	65	11	9.5
1.2	2.6	65	8	6.8
1.5	3.3	90	5.2	4.5
2	4.2	125	3	2.6

0.8	2.2	90	17	14
1	2.6	90	11	9.5
1.2	3	90	8	6.8
1.4	3.4	90	6	5.1
1.6	3.8	125	4.5	3.9
1.8	4.2	125	3.6	3.1
2	4.5	150	3	2.6

1.6  
1.8  
2  
2.5  
3  
3.5  
4

2	5.5	275	11	9.5
2.5	6.3	275	7.3	6.3
3	7.3	275	5.2	4.5
3.5	8	275	3.9	3.3
4	8.5	275	3	2.6
4.5	9	275	2.4	2.1
5	10	275	2	1.8

2.5	6	275	37	32
3	7	275	28	24
4	9	275	17	14
5	10	300	11	9.5
6	12	300	8	6.8
8	14	400	4.6	4
10	17	400	3	2.6

4	10	500		
5	12	500		
6	13	500		
7	15	500		
8	16	500		
9	17	500		
10	19	500		

4		500		
5		500		
6		500		
8		500		
10		650		
12		650		
15		650		

1	75	11 (150)	9.5 (130)
1.5	95	5.2 ( 83)	4.5 ( 72)
2	120	3 ( 52)	2.6 ( 45)
2.5	140	2 (37)	1.8 ( 32)
3	200	1.4 ( 28)	1.2 ( 24)
4	260	0.8 ( 17)	0.7 ( 14)
5	260	0.5 ( 11)	0.4 (9.5)

Type	Sym- bol No.	Con- tact	Max. voltage between lines		Contin- uous current carrying capacity A <sup>2)</sup>	Mak- ing ca- pacity A	Breaking capacity A <sup>3)</sup>			
			d.c. V	a.c. V			a.c., P.F ≥0.1 max. 220 V	d.c. L/R ≤40 ms		
								55 V	110 V	220 V
RI			600	500	10	20	15	5	1.2	0.45
	3	K1–K2	600	500	10	20	15	5	1.2	0.45
	4	K3–K4			3	6	6	6	4	1.5
RIS			600	500	10	20	15	5	1.2	0.45

<sup>1)</sup> The values in brackets are for a rated current of 5 A.

<sup>2)</sup> Contact K1–K2 for breaking can carry 300 A for series tripping for up to 0.15 s and 120 A for up to 1 s.

<sup>3)</sup> The values given for the breaking capacity are only for isolated operations, e.g. a few times per hour. For series tripping K1–K2 will break max. 100 A; see pages 8 and 17.

## Special rated frequencies

Rated frequency Hz	Rated current A	Current scale	Time-lag scale	Current settings	Power consumption	Cat. No.
16 <sup>2</sup> / <sub>3</sub>	1	0.8–2	2–10 3–20	Same as for 50 Hz relays	Partic- ulars on request	RI RK 478 0350
	5	2.5–10	1–6 2–10 3–20			
		4–10	2–10 3–20			
		4–15	2–10 3–20			RIS RK 478 0351

## Ordering particulars

- Catalogue number
- Type designation.
- For relays with rated frequencies of 16 <sup>2</sup>/<sub>3</sub> Hz state the current scale and time-lag scale.
- Front terminals; see page 16.
- Flush-mounting frames, catalogue number RK 935 0055–0059, listed in Catalogue RK 93 E.
- Special indicating devices, see page 16.
- Protective resistor; see page 16.

# RI, RIS 60 Hz ● Data and catalogue numbers

Rated current A	Current scale A	Time-lag scale s	Power consumption at operating current VA	P.F.	Type RI Symbols for de-energised relays								Type RIS Symbols for de-energised relays			
					Type designations and catalogue numbers											
					RI	RK 478	RI	RK 478	RI	RK 478	RI	RK 478	RIS	RK 478	RIS	RK 478
1	0.5-2	0.5-2.5	13	0.4	6011	0401	6012	0461	6013	0521	6014	0581	6011	0641	6012	0701
		1-5	13		6021	0402	6022	0462	6023	0522	6024	0582	6021	0642	6022	0702
		2-8	11		6031	0403	6032	0463	6033	0523	6034	0583	6031	0643	6032	0703
		3-16	11		6041	0404	6042	0464	6043	0524	6044	0584	6041	0644	6042	0704
	0.8-2	0.5-2.5	13	0.4	6111	0405	6112	0465	6113	0525	6114	0585	6111	0645	6112	0705
		1-5	13		6121	0406	6122	0466	6123	0526	6124	0586	6121	0646	6122	0706
		2-8	11		6131	0407	6132	0467	6133	0527	6134	0587	6131	0647	6132	0707
		3-16	11		6141	0408	6142	0468	6143	0528	6144	0588	6141	0648	6142	0708
	1.6-4	0.5-2.5	13	0.4	6711	0409	6712	0469	6713	0529	6714	0589	6711	0649	6712	0709
		1-5	13		6721	0410	6722	0470	6723	0530	6724	0590	6721	0650	6722	0710
		2-8	11		6731	0411	6732	0471	6733	0531	6734	0591	6731	0651	6732	0711
		3-16	11		6741	0412	6742	0472	6743	0532	6744	0592	6741	0652	6742	0712
2	2-5	0.5-2.5	13	0.4	6611	0413	6612	0473	6613	0533	6614	0593	6611	0653	6612	0713
		1-5	13		6621	0414	6622	0474	6623	0534	6624	0594	6621	0654	6622	0714
		2-8	11		6631	0415	6632	0475	6633	0535	6634	0595	6631	0655	6632	0715
		3-16	11		6641	0416	6642	0476	6643	0536	6644	0596	6641	0656	6642	0716
	2.5-10	0.5-2.5	13	0.4	6211	0417	6212	0477	6213	0537	6214	0597	6211	0657	6212	0717
		1-5	13		6221	0418	6222	0478	6223	0538	6224	0598	6221	0658	6222	0718
		2-8	11		6231	0419	6232	0479	6233	0539	6234	0599	6231	0659	6232	0719
		3-16	11		6241	0420	6242	0480	6243	0540	6244	0600	6241	0660	6242	0720
	4-10	0.5-2.5	13	0.4	6311	0421	6312	0481	6313	0541	6314	0601	6311	0661	6312	0721
		1-5	13		6321	0422	6322	0482	6323	0542	6324	0602	6321	0662	6322	0722
		2-8	11		6331	0423	6332	0483	6333	0543	6334	0603	6331	0663	6332	0723
		3-16	11		6341	0424	6342	0484	6343	0544	6344	0604	6341	0664	6342	0724
5 (or 5)	4-15	0.5-2.5	13	0.4	6411	0425	6412	0485	6413	0545	6414	0605	6411	0665	6412	0725
		1-5	13		6421	0426	6422	0486	6423	0546	6424	0606	6421	0666	6422	0726
		2-8	11		6431	0427	6432	0487	6433	0547	6434	0607	6431	0667	6432	0727
		3-16	11		6441	0428	6442	0488	6443	0548	6444	0608	6441	0668	6442	0728
	1-5	0.5-2.5	13	0.4	6811	0429	6812	0489	6813	0549	6814	0609	6811	0669	6812	0729
		1-5	13		6821	0430	6822	0490	6823	0550	6824	0610	6821	0670	6822	0730
		2-8	11		6831	0431	6832	0491	6833	0551	6834	0611	6831	0671	6832	0731
		3-16	11		6841	0432	6842	0492	6843	0552	6844	0612	6841	0672	6842	0732

## Symbols and contact data

Settings on the current scale A	Permissible current in coil		Time-lag scale	
	continuous A	for 1 second A	0.5–2.5 s 1–5 s	2–8 s 3–16 s
0.5	1.2	30	44	37
0.6	1.4	40	33	28
0.8	1.8	40	20	17
1	2.2	65	13	11
1.2	2.6	65	9.5	8
1.5	3.3	90	6.2	5.2
2	4.2	125	3.5	3

Type	Sym- bol No.	Con- tact	Max. voltage between lines		Contin- uous current carrying capacity A <sup>2)</sup>	Mak- ing ca- pacity A	Breaking capacity A <sup>3)</sup>			
			d.c. V	a.c. V			d.c. $L/R \leq 40$ ms			
							a.c., P.F. $\geq 0.1$ max. 220 V	55 V	110 V	220 V
RI			600	500	10	20	15	5	2	0.45
	3	K1–K2			10	20	15	5	1.2	0.45
	4	K3–K4	600	500	3	6	6	6	4	1.5
RIS	1		600	500	10	20	15	5	1.2	0.45
	2									

<sup>1)</sup> The values in brackets are for a rated current of 5 A.

<sup>2)</sup> Contact K1–K2 for breaking can carry 300 A for series tripping for up to 0.15 s and 120 A for up to 1 s.

<sup>3)</sup> The values given for the breaking capacity are only for isolated operations, e.g. a few times per hour. For series tripping K1–K2 will break max. 100 A; see pages 8 and 17.

## Special rated frequencies

Rated frequency Hz	Rated current A	Current scale	Time-lag scale	Current settings	Power consumption	Cat. No.
	1	0.8–2	2–10 3–20			
16 <sup>2</sup> / <sub>3</sub>		2.5–10	1–6 2–10 3–20	Same as for 50 Hz relays	Partic- ulars on request	<b>RI</b> RK 478 0350
	5	4–10	2–10 3–20			<b>RIS</b> RK 478 0351
		4–15	2–10 3–20			

## Ordering particulars

- Catalogue number
- Type designation.
- For relays with rated frequencies of 16 <sup>2</sup>/<sub>3</sub> Hz state the current scale and time-lag scale.
- Front terminals; see page 16.
- Flush-mounting frames, catalogue number RK 935 0055–0059, listed in Catalogue RK 93 E.
- Special indicating devices, see page 16.
- Protective resistor; see page 16.

1.6  
1.8  
2  
2.5  
3  
3.5  
4

2	5.5	275	13	11
2.5	6.3	275	8.6	7.3
3	7.3	275	6.2	5.2
3.5	8	275	4.6	3.9
4	8.5	275	3.5	3
4.5	9	275	2.8	2.4
5	10	275	2.4	2

2.5  
3  
4  
5  
6  
8  
10

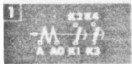

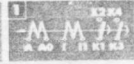
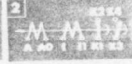
4	10	500	20	17
5	12	500	13	11
6	13	500	9.5	8
7	15	500	7	5.9
8	16	500	5.5	4.6
9	17	500	4.3	3.6
10	19	500	3.5	3

4	11	500	20	17
5	13	500	13	11
6	14	500	9.5	8
8	17	500	5.5	4.6
10	20	650	3.5	3
12	23	650	2.5	2.1
15	26	650	1.7	1.4

1		13 (180)	11 (150)
1.5		6.2 (100)	5.2 (83)
2		3.5 (62)	3 (52)
2.5		2.4 (44)	2 (37)
3		1.7 (33)	1.4 (28)
4		1 (20)	0.8 (17)
5		0.6 (13)	0.5 (11)



# **RIDI, RIDSI 50 Hz ● Data and catalogue numbers**

					Type RIDI				Type RIDSI									
					Symbols for de-energised relays				Symbols for de-energised relays									
																		
					Type designations and catalogue numbers								Settings on the current scale		Permissible current in coil		Power consumption at rated current <sup>1)</sup> VA	
Rated current A	Current scale A	Time-lag scale 2×I <sub>s</sub> s	Power consumption at operating current VA	P.F.	RIDI	RK 476	RIDI	RK 476	RIDSi	RK 476	RIDSi	RK 476	A	continuous A	for 1 second A			
1		1.5–13	8	0.4	501	0001	502	0021	501	0081	502	0101	0.5	1.3	30	27		
													0.6	1.5	40	20		
													0.8	2	40	12		
													1	2.4	65	8		
													1.2	2.9	65	5.7		
													1.5	3.6	90	3.8		
													2	4.6	150	2.2		
													0.8	2.4	90	12		
													1	2.9	90	8		
													1.2	3.3	90	5.7		
	0.8–2	1.5–13	8	0.4	511	0002	512	0022	511	0082	512	0102	1.4	3.7	90	4.3		
													1.6	4.2	125	3.3		
													1.8	4.6	125	2.7		
													2	4.9	150	2.2		
													1.6	4.8	170	12		
													1.8	5.2	170	9.7		
													2	5.6	170	8		
													2.5	6.6	200	5.3		
													3	7.5	200	3.8		
													3.5	8.2	230	2.8		
	1.6–4	1.5–13	8	0.4	531	0003	532	0023	531	0083	532	0103	4	9	230	2.2		
													2	6	275			
													2.5	6.9	275			
													3	8	275			
													3.5	8.8	275			
													4	9.3	275			
													4.5	10	275			
													5	11	275			
													2.5		275			
													3		275			
	2.5–10	1.5–13	8	0.4	551	0005	552	0025	551	0085	552	0105	4		275			
													5		300			
													6		300			
													8		400			
													10		500			
													4	11	500			
													5	13	500	8		
													6	14	500	5.7		
													7	16	500	4.3		
													8	18	500	3.3		
5	4–10	1.5–13	8	0.4	561	0006	562	0026	561	0086	562	0106	9	19	500	2.7		
													10	21	500	2.2		
													4		500			
													5		500			
													6		500			
													8		500			
													10		650			
													12		650			
													15		650			
													1		95	110)		
	1–5	1.5–13	8	0.4	521	0008	522	0028	521	0088	522	0108	1.5		95	60)		
													2		125	38)		
													2.5		150	27)		
													3		200	20)		
													4		275	12)		
													5		275	8)		
													1		95			
													1.5		95			
													2		125			
													2.5		150			
(or 5)													3		200			
													4		275			
													5		275			
													1		95			
													1.5		95			
													2		125			

<sup>1)</sup> The values in brackets are for a rated current of 5 A.

## **Symbols and contact data**

Type	Symbol No.	Contact	Max. voltage between lines		Continuous current carrying capacity A <sup>2)</sup>	Making capacity A	Breaking capacity A <sup>3)</sup>			
			d.c. V	a.c. V			a.c., P.F. ≥ 0.1 max. 220 V	d.c. L/R ≤ 40 ms		
								55 V	110 V	220 V
RIDI			600	500	10	20	15	5	1.2	0.45
			600	500	10 3	20 6	15 6	5 6	1.2 4	0.45 1.5
RIDS1			600	500	10	20	15	5	1.2	0.45

<sup>2)</sup> Contact K1 - K2 for breaking can carry 300 A for series tripping for up to 0.15 s and 120 A for up to 1 s.

<sup>3)</sup> The values given for the breaking capacity are only for isolated operations, e.g. a few times per hour. For series tripping K1 - K2 will break max. 100 A; see pages 8 and 17.

## **Ordering particulars**