



Signal Relays

Cradle Relay S V23054/V23062

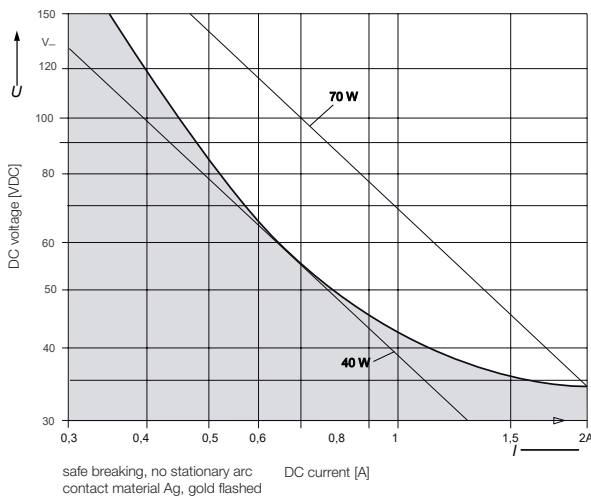
- Powerful magnetic system and wide voltage range
- Highly reliable
- Contacts for signal loads and currents up to 5 A
- Direct current coil, operating voltage 6 VDC to 220 VDC; Alternating current, locking and unlocking coils available on request
- Multi-purpose relay
- Large selection of contact arrangements and materials to meet specific applications
- Socket for easy and quick relay installation



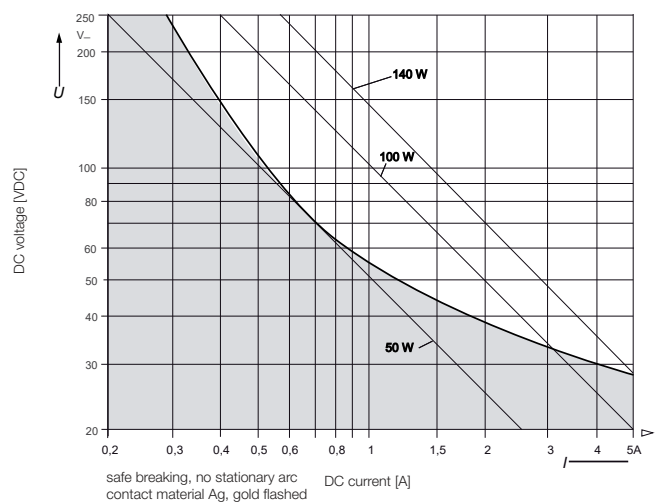
Typical applications include press controls with high safety requirements (forced guided springs), traffic and railway signaling, traffic controls for motor vehicles, controls for power plants and nuclear power plants.

Contact Data	B104/B110/B112/B133	B604/B610/B612/B633	C104/C110/C112/C133	C404/C410/C422/C433	F104/F107/F110
Product code block 3	B104/B110/B112/B133	B604/B610/B612/B633	C104/C110/C112/C133	C404/C410/C422/C433	F104/F107/F110
Contact arrangement	max. 4 form C (4 CO) contacts, 2 form B (2 NC) contacts or 6 form A (6 NO) contacts (see product code table)				
Maxswitching voltage	150VDC 125VAC	36VDC 30VAC	150VDC 125VAC	36VDC 30VAC	250VDC 250VAC
Rated current Limiting continuous	2A	0.2A	2A	0.2A	5A
at max. ambient temperatur	2A	2A	2A	2A	5A
Breaking capacity max. see DC load breaking capacity curve below	35 ... 70W 50VA	5W, 5VA -	35 ... 70W 50VA	5W, 5VA -	50 ... 140W 500VA
Contact material	silver, gold-flashed	gold F	silver, gold-flashed	gold F	silver, gold-flashed
Contact style	single contact	single contact	bifurcated contacts	bifurcated contacts	single contact
Frequency of operation, without load, max.	50 ops./s	50 ops./s	50 ops./s	50 ops./s	10 ops./s
Operate / release time typ.	7.5/3ms	7.5/3ms	7.5/3ms	7.5/3ms	7.5/3ms
Mechanical endurance	app. 10 ⁸ ops.	app. 10 ⁸ ops.	app. 10 ⁸ ops.	app. 10 ⁸ ops.	app. 10 ⁷ ops.

Max. DC breaking capacity, contact sets B1xx, C1xx



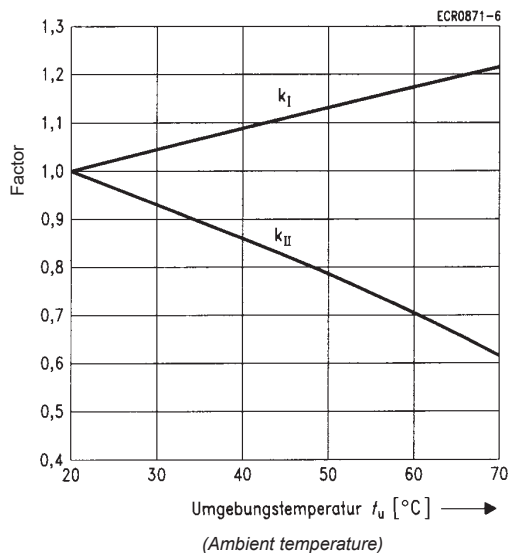
Max. DC breaking capacity, contact sets F1xx



Coil Data	
Magnetic system	neutral
Coil voltage range	6 to 220 VDC,
Max. coil temperature at 20°C	1 to 2 W
	100 °C
Maximum coil temperature, thermal resistance	< 40K/W

Coil versions, DC coil, monostable				
Coil code	Rated voltage	Operate/Limiting voltage ¹⁾	Coil resistance	Rated coil power
011	6	-	33	1091
012	8.4	-	70	1008
015	12	-	130	1108
016	12.5	-	185	845
017	16	-	270	948
019	20	-	390	1026
020	24	-	630	914
002	1.2	-	1.75	823
025	28	-	800	980
046	29	-	890	945
021	32	-	1050	975
022	45	-	1900	1066
026	60	-	3800	947
014	76	-	5800	996
004	110	-	9200	1315
013	125	-	15500	1008
003	220	-	25000	1936

¹⁾ refer to 'Part code table'
All figures are given for coil without pre-energization, at ambient temperature +23°C.



Coil data (continued)

Terminals:
coil with 1 winding: start 4, end 1
coil with 2 windings (upon request):
start 3, end 2 for winding I, start 4, end 1 for winding II

The minimum voltage U_I depends on the contact set and the ambient temperature, the maximum voltage U_{II} only depends on the ambient temperature.
Between minimum voltage $U_{I,tamb}$ and operating voltage U a safety margin of approx. 20% is recommended.

$$U_{I,tamb} (1.2) < U_I \leq U_{II,tamb}$$

$$U_{I,tamb} = U_I 20^\circ C \cdot k_{I,tamb}$$

$$U_{II,tamb} = U_{II} 20^\circ C \cdot k_{II,tamb}$$

t_{amb} Ambient temperature
 U Operating voltage
 $U_{I,tamb}$ Minimum voltage at ambient temperature, t_{amb}
 $U_{II,tamb}$ Maximum voltage at ambient temperature, t_{amb}
 k_I and k_{II} Factors

Insulation Data

Product code, block 3	B1xx, B6xx, C1xx, C4xx	F1xx
Initial dielectric strength		
between contact / contact	500V _{eff}	500V _{eff}
between contact / coil	500V _{eff}	1000V _{eff}
between contact / frame	500V _{eff}	1000V _{eff}
Initial insulation resistance, at 500VDC	> 10 ⁶ Ω	

Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH

Ambient temperature Category of environmental protection IEC 61810: -40 to +70°C
RT - I dust protected, RT V - hermetically sealed dust-protected IP 30, hermetically sealed IP 67

Degree of protection, IEC 60529

Terminal type	Weight	solder terminals
V23054- Size I		ca. 20g
V23054- Size II		ca. 25g
V23054- Size III		ca. 27g
V23062- Size I		ca. 30g
V23062- Size II		ca. 35g
Washing	Ultrasonic cleaning	not recommended
Packaging unit		5 pcs.

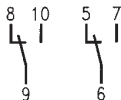
Accessories

For details see datasheet Cradle Relay, Accessories and Mounting

Anschlussbelegung
(Terminal assignment)

Größe I
(Size)

2 von C (2 CO)
V230xx-xxxxx-Bx04
V230xx-xxxxx-Cx04

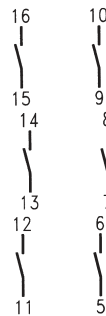


2 von A (2 NO)
V230xx-xxxxx-F105

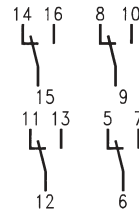


Größe II
(Size)

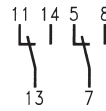
6 von A (6 NO)
V230xx-xxxxx-Bx12
V230xx-xxxxx-Cx12



4 von C (4 CO)
V230xx-xxxxx-Bx10
V230xx-xxxxx-Cx10

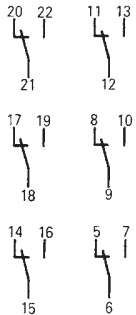


2 von C (2 CO)
V230xx-xxxxx-F104

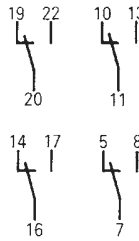


Größe III
(Size)

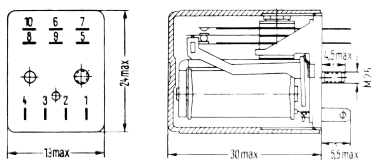
6 von C (6 CO)
V230xx-xxxxx-Bx33
V230xx-xxxxx-Cx33



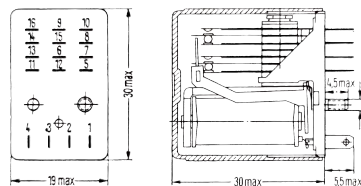
4 von C (4 CO)
V230xx-xxxxx-F110



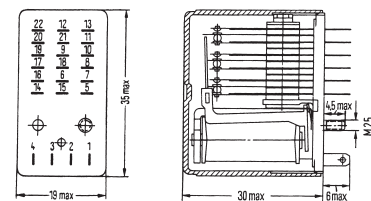
Abmessungen: V23054-Cxxx, Größe I typ
(Dimension) (Size)



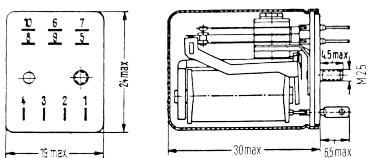
V23054-Dxxx, Größe II typ
(Size) (Size)



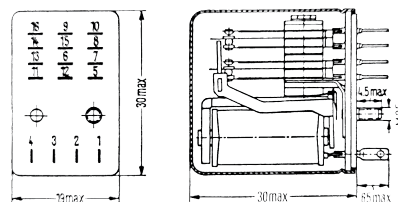
V23054-Exxx, Größe III typ
(Size) (Size)



V23062-Axxx, Größe I typ
(Size) (Size)



V23062-Bxxx, Größe II typ
(Size) (Size)



Instructions for Impulse Operation

The maximum voltage stated in the part code table can be increased for impulse operation as follows:

$U_{II \text{ Impuls}} = U_{II \text{ tamb}} \times q$
 $U_{II \text{ tamb}}$ Maximum continuous voltage at ambient temperature t_{amb}
 q Factor

The impulse voltage must not exceed 80% of the test voltage (winding/frame or winding/winding) or 2.3 times the value of the maximum voltage listed in the part code table.

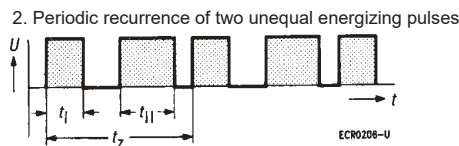
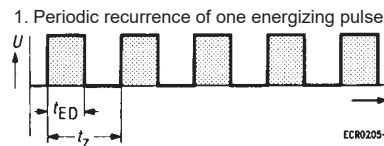
If $t_{ED} \leq 3s$ then $q = \sqrt{\frac{t_z}{t_{ED}}}$

If t_{ED} = Pulse width

t_z = Cycle time

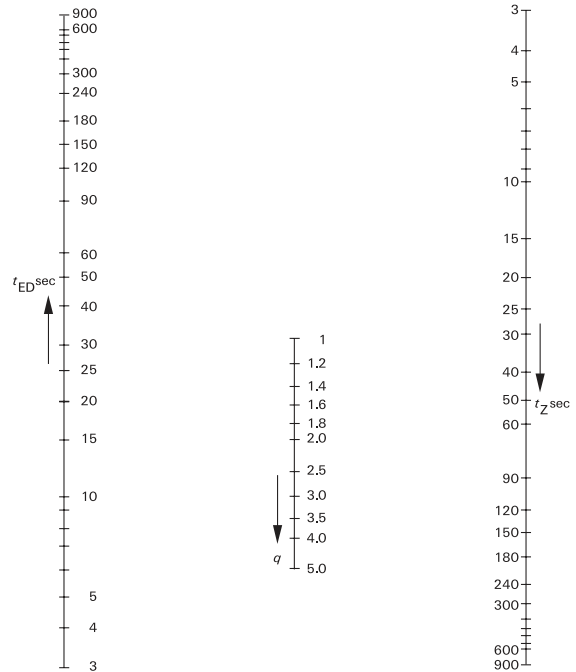
If $t_{ED} > 3s$ the value of q must be obtained from the nomograph.

Examples of various periodic pulse trains (energizing side)



$t_{ED} = t_I + t_{II}$
 $t_I + t_{II}$ = Pulse widths within one cycle

Nomogram for determining the factor q



Product code structure	Typical product code					
	V23054	-D	0	021	-B1	10
V23054	Cradle S Relay, dust protected					
V23062	Cradle S Relay, hermetically sealed					
Types of relays						
V23054 types						
C	Size I, dust-protected (V23054)					
D	Size II, dust-protected (V23054)					
E	Size III, dust-protected (V23054)					
V23062 types						
A	Size I, hermetically sealed (V23062)					
B	Size II, hermetically sealed (V23062)					
Version						
0	Standard version					
1	Fitted with contact pile-ups					
2	For higher test voltage of 2kV coil/frame					
3	Combination of 1 & 2 (contact pile-ups F and higher test voltage coil/frame)					
Coils						
Coil code: please refer to coil versions table						
Contact style	B1	Single contacts	B6	Bifurcated contacts	F1	Single contacts
	C1	Bifurcated contacts	C4	Single contacts		
Contact arrangement	04	2 von C, 2 CO	05	2 von A, 1 NO		
	10	4 von C, 2 CO	12	6 von A, 6 NO	12	6 von A, 6 NO

Other types on request

Alle Spezifikationen unterliegen Änderungen. Konsultieren Sie EBK Urban Production GmbH für die neuesten Spezifikationen.
 (All specifications subject to change. Consult EBK Urban Production GmbH for latest specifications)



Cradle Relay S / KAMMRELAIS® S V23054/V23062

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Nennspannung (nominal voltage) Unenn VDC	Betriebsspannungsbereich (operating voltage range)		Spulenleistung (coil power) mW	Spulenwiderstand (coil resistance) $\Omega \pm 15\%$	Relais Teilenummer (relay code)
	Min. Spannung (voltage) Umin VDC	Max. Spannung (voltage) Umax VDC			

Spulendaten (Werte bei 20 °C) coil data (values at 20°C)

V23054-CXXXX standard, Größe (size) I

125	59	190	1008	15500	V23054C0013B104
12	4.7	18	1108	130	V23054C0015B104
12.5	5.4	21.5	845	185	V23054C0016B104
20	10.5	31	1026	390	V23054C0019C104
220	98	240	1936	25000	V23054C2003C404
110	44	145	1315	9200	V23054C2004B104
125	59	190	1008	15500	V23054C2013B104
24	10.5	39	914	630	V23054C2020B104
60	36	94	947	3800	V23054C2026C104
24	10.5	39	914	630	V23054C0020B104
24	13	39	914	630	V23054C0020C104
32	14.5	50	975	1050	V23054C0021B104
32	17.5	50	975	1050	V23054C0021C104
32	17.5	50	975	1050	V23054C0021C404
45	19	66	1066	1900	V23054C0022B104
45	24	66	1066	1900	V23054C0022C104
60	29	94	947	3800	V23054C0026B104
60	36	94	947	3800	V23054C0026C104
60	36	94	947	3800	V23054C0026C404
220	79	240	1936	25000	V23054C0003B104
220	98	240	1936	25000	V23054C0003C104
110	44	145	1315	9200	V23054C0004B104
110	53.5	145	315	9200	V23054C0004C104

V23054-CXXXX 5A, Größe (size) I

32	14.5	50	975	1050	V23054C1021F106
45	19	66	1066	1900	V23054C1022F105
12	4.7	18	1108	130	V23054C3015F105
32	14.5	50	975	1050	V23054C3021F106

Nennspannung (nominal voltage) Unenn VDC	Betriebsspannungsbereich (operating voltage range)		Spulenleistung (coil power) mW	Spulenwiderstand (coil resistance) $\Omega \pm 15\%$	Relais Teilenummer (relay code)
	Min. Spannung (voltage) Umin VDC	Max. Spannung (voltage) Umax VDC			

Spulendaten (Werte bei 20 °C) coil data (values at 20°C)

V23054-DXXXX standard, Größe (size) II

125	59	190	1008	15500	V23054D0013B110
12	4.7	18	1108	130	V23054D0015B112
12.5	5.4	21.5	845	185	V23054D0016C110
16	7	25.5	948	270	V23054D0017B110
16	7	25.5	948	270	V23054D0017B110
20	10.5	31	1026	390	V23054D0019B110
20	10.5	31	1026	390	V23054D0019C110
20	10.5	31	1026	390	V23054D0019C410
220	79	240	1936	25000	V23054D2003B110
125	59	190	1008	15500	V23054D2013B110
24	10.5	39	914	630	V23054D2020B110
32	14.5	50	975	1050	V23054D2021B110
32	14.5	50	975	1050	V23054D2021B112
60	29	94	947	3800	V23054D2026B110
60	29	94	947	3800	V23054D2026B112
24	10.5	39	914	630	V23054D0020B110
24	10.5	39	914	630	V23054D0020B112
24	13	39	914	630	V23054D0020C110
24	13	39	914	630	V23054D0020C410
32	14.5	50	975	1050	V23054D0021B110
32	17.5	50	975	1050	V23054D0021C112
45	19	66	1066	1900	V23054D0022B110
45	24	66	1066	1900	V23054D0022C110
60	29	94	947	3800	V23054D0026B110
60	29	94	947	3800	V23054D0026B112
60	43	94	947	3800	V23054D0026C110
60	36	94	947	3800	V23054D0026C112
60	29	94	947	3800	V23054D0026C114
220	79	240	1936	25000	V23054D0003B110
110	44	145	1315	9200	V23054D0004C110

V23054-DXXXX 5A, Größe (size) II

220	98	240	1936	25000	V23054D1003F104
110	53.5	145	1315	9200	V23054D1004F104
6	2.9	9	1091	33	V23054D1011F104
8.4	4.4	13	1008	70	V23054D1012F104
12	5.8	18	1108	130	V23054D1015F104
16	8.7	25.5	948	270	V23054D1017F104
20	10.5	31	1026	390	V23054D1019F104
24	13	39	914	630	V23054D1020F104
32	17.5	50	975	1050	V23054D1021F104
45	24	66	1066	1900	V23054D1022F104
60	36	94	947	3800	V23054D1026F104
220	98	240	1936	25000	V23054D3003F104
110	53.5	145	1315	9200	V23054D3004F104
24	13	39	914	630	V23054D3020F104
60	36	94	947	3800	V23054D3026F104

Nennspannung (nominal voltage) Unenn VDC	Betriebsspannungsbereich (operating voltage range)		Spulenleistung (coil power) mW	Spulenwiderstand (coil resistance) $\Omega \pm 15\%$	Relais Teilenummer (relay code)
	Min. Spannung (voltage) Umin VDC	Max. Spannung (voltage) Umax VDC			

Spulendaten (Werte bei 20 °C) coil data (values at 20°C)

V23054-EXXXX standard, Größe (size) III

8.4	4.4	13	1008	70	V23054E0012B133
12	5.8	18	1108	130	V23054E0015B133
12	8.8	18	1108	130	V23054E0015C133
12.5	6.9	21.5	845	185	V23054E0016B133
12.5	10	21.5	845	185	V23054E0016C133
16	8.7	25.5	948	270	V23054E0017B133
16	13	25.5	948	270	V23054E0017C133
20	10.5	31	1026	390	V23054E0019B133
20	15.5	31	1026	390	V23054E0019C133
20	15.5	31	1026	390	V23054E0019C433
110	53.5	145	1315	9200	V23054E2004B133
125	73	190	1008	15500	V23054E2013B133
60	36	94	947	3800	V23054E2026B133
24	13	39	914	630	V23054E0020B133
24	13	39	914	630	V23054E0020B533
24	13	39	914	630	V23054E0020B633
24	20	39	914	630	V23054E0020C133
24	20	39	914	630	V23054E0020C433
32	17.5	50	975	1050	V23054E0021B133
45	24	66	1066	1900	V23054E0022B133
45	24	66	1066	1900	V23054E0022B633
45	35	66	1066	1900	V23054E0022C133
60	36	94	947	3800	V23054E0026B133
60	55	94	947	3800	V23054E0026C133
60	43	94	947	3800	V23054E0026C148

V23054-EXXXX 5A, Größe (size) III

220	118	240	1936	25000	V23054E1003F110
110	66	145	1315	9200	V23054E1004F110
6	3.5	9	1091	33	V23054E1011F110
8.4	5.3	13	1008	70	V23054E1012F110
12	7	18	1108	130	V23054E1015F110
12.5	8.1	21.5	845	185	V23054E1016F110
16	10.5	25.5	948	270	V23054E1017F110
20	13	31	1026	390	V23054E1019F110
24	15.5	39	914	630	V23054E1020F110
32	21	50	975	1050	V23054E1021F110
45	29	66	1066	1900	V23054E1022F110
60	43	94	947	3800	V23054E1026F110
24	15.5	39	914	630	V23054E3020F110

V23054-AXXXX standard, Größe (size) I

76	32	110	996	5800	V23062A0014C404
28	15	40	980	800	V23062A0025C104
29	13	43	945	890	V23062A0046C104

V23054-BXXXX standard, Größe (size) II

20	13	31	1026	390	V23062B0019C410
24	15.5	39	914	630	V23062B0020C110
45	29	66	1066	1900	V23062B0022C110
60	29	94	947	3800	V23062B0026B610

V23054-BXXXX 5A, Größe (size) II

110	53.5	145	1315	9200	V23062B1004F104
60	36	94	947	3800	V23062B1026F104

Weitere Typen auf Anfrage.
(More types available upon request)