



Signal Relays **Cradle Relay P V23003**

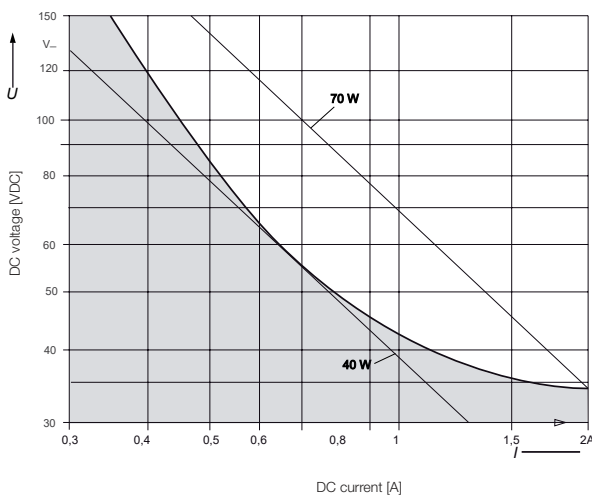
- **Highly reliable multi purpose relay**
- **Great variety of contact arrangements and materials to meet specific applications**
- **Contacts for signal loads and currents up to 5 A**
- **Primarily intended for impulse operation**
- **Sockets for easy and quick mounting of relays (see datasheet Accessories)**



Typical applications  
applications where the switching status must be maintained,  
measuring systems

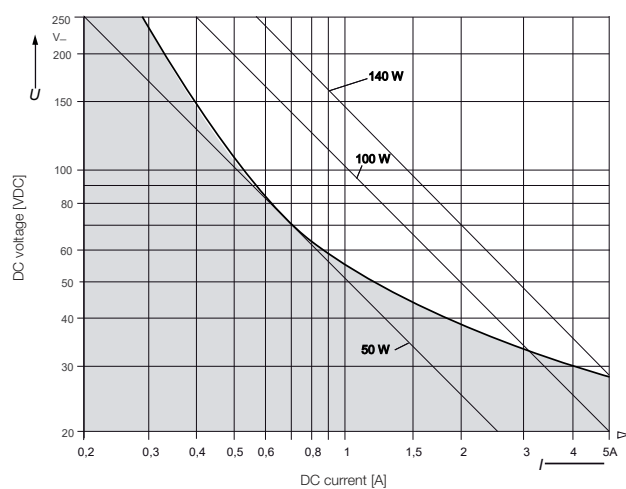
Contact Data					
Product code block 3	B104/B110	B604/B610	C104/C110	C404/C410	F104/F107
Contact arrangement		max.6 changeover contacts, 2 break contacts, 2 make contacts			
Maxswitching voltage	150VDC 125VAC	36VDC 30VAC	150VDC 125VAC	36VDC 30VAC	250VDC 250VAC
Rated current Limiting continuous	2A	0.2A	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.	20 ops./s	20 ops./s	20 ops./s	20 ops./s	20 ops./s
Mechanical endurance	app. 10 <sup>7</sup> ops.	app. 10 <sup>7</sup> ops.	app. 10 <sup>7</sup> ops.	app. 10 <sup>7</sup> ops.	app. 10 <sup>7</sup> ops.

Max. DC breaking capacity, contact sets B1xx, C1xx



safe breaking, no stationary arc  
contact material Ag, gold flashed

Max. DC breaking capacity, contact sets F1xx



safe breaking, no stationary arc  
contact material Ag, gold flashed

Coil Data	
Magnetic system	Coil polarized, bistable
voltage range	6 ... 60 VDC,
Rated power typical, at 20°C	1,5 W
Max. coil temperature	100 °C
Thermal resistance	< 40K/W

Coil data (continued)	
Terminals:	coil with 2 windings: winding I : start 3, end 2 winding II: start 4, end 1

**Coil versions, bistable 2 coils**

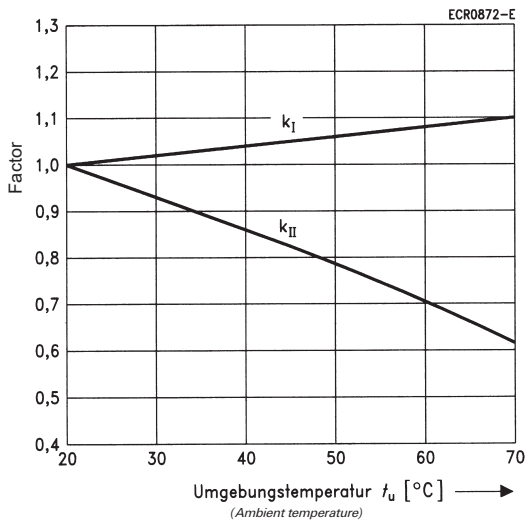
Coil code	Rated voltage VDC	Set voltage VDC	Reset voltage VDC	Limiting Set/Reset VDC	Coil resistance $\Omega \pm 15\%$	Rated coil power mW
026	6	4.0	4.0	6.7/6.7	24.5/24.5	1.47
025	12	8.0	8.0	13.5/13.5	100/100	1.44
037	24	16.5	16.5	26.5/25.0	400/400	1.44
044	60	44.0	44.0	65.0/65.0	2400/2400	1.5
064	48	33.5	33.5	49.0/49.0	1400/1400	1.65

All figures are given for coil without pre-energization, at ambient temperature +23°C.

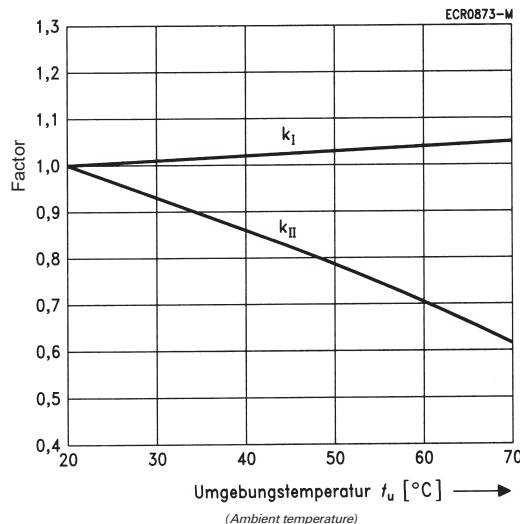
Note: with continuous operation only one winding to be energized within the specified voltage range at a time! The minimum voltage  $U_I$  and the maximum voltage  $U_{II}$  only depends on the ambient temperature.

$U_{I \text{ tamb}}$	$U_{I 20^\circ\text{C}} \cdot k_{I \text{ tamb}}$
$U_{II \text{ tamb}}$	$U_{II 20^\circ\text{C}} \cdot k_{II \text{ tamb}}$
tamb	Ambient temperature
$U_{I \text{ tamb}}$	Minimum voltage at ambient temperature, tamb
$U_{II \text{ tamb}}$	Maximum voltage at ambient temperature, tamb
$k_I$ and $k_{II}$	Factors

Set - negative potential at start of winding



Reset - positiv potential at start of winding



Insulation Data		
Product code, block 3	B1xx, B6xx, C1xx, C4xx	F1xx
Initial dielectric strength		
between coil / frame	500V <sub>eff</sub>	500V <sub>eff</sub>
between contact / contact	500V <sub>eff</sub>	1000V <sub>eff</sub>
between contact / frame	500V <sub>eff</sub>	1000V <sub>eff</sub>
Initial insulation resistance, at 500VDC	> 10 <sup>6</sup> 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 IP 30
Degree of protection, IEC 60529	
Terminal type	hand solder terminals, plug-in

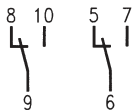
Weight	
V23003-A0xxx Size I	ca. 25g
V23003-A0xxx Size II	ca. 30g
V23003-J0xxx Size III	ca. 30g
Washing Ultrasonic cleaning	not recommended
Packaging unit	5 pcs.

**Accessories**  
For details see datasheet Cradle Relay, Accessories and Mounting

**Anschlussbelegung**  
(Terminal assignment)

**Größe I**  
(Size)

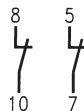
2 von C (2 CO)  
V23003-xxxx-Bx04  
V23003-xxxx-Cx04



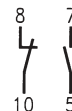
2 von A (2 NO)  
V23003-xxxx-F105



2 von B (2 NC)  
V23003-xxxx-F107

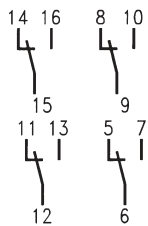


1 von A + 1 von B (1 NO + 1 NC)  
V23003-xxxx-F106



**Größe II**  
(Size)

4 von C (4 CO)  
V23003-xxxx-Bx10

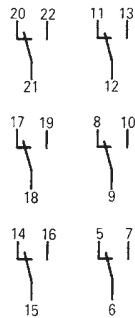


2 von C (2 CO)  
V23003-xxxx-F104



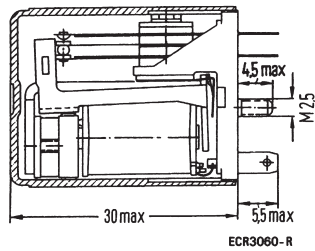
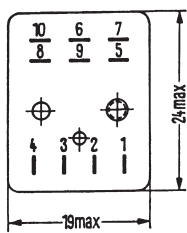
**Größe III**  
(Size)

6 von C (6 CO)  
V23003-xxxx-Bx33



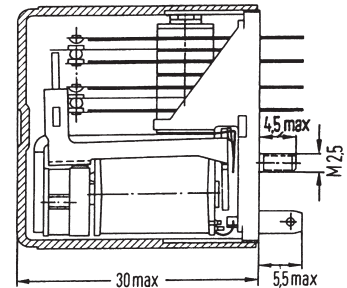
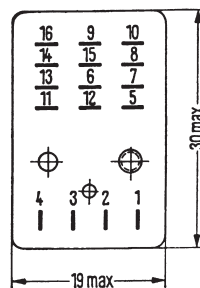
**Abmessungen:**  
(Dimensions)

V23003-A0xx, Größe I type  
(Size)



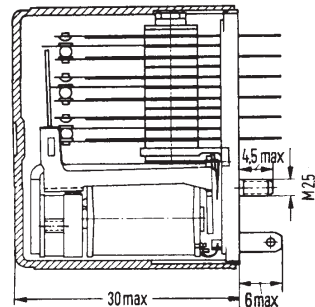
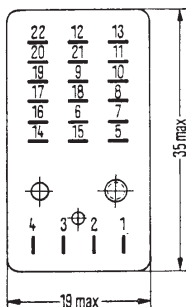
ECR3060-R

V23003-B0xx, Größe II type  
(Size)



ECR3061-Z

V23003-J0xx, Größe III type  
(Size)



ECR0009-7

**Instructions for Impulse Operation**

Cradle relay P is primary intended for impulse operation. The maximum voltage started in the coil 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 3.3 times at ambient temperature of 20°C and 2.3 times at ambient temperature below <20°C the value of the maximum voltage listed in the coil table.

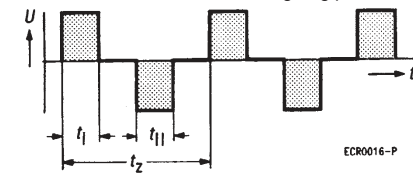
If  $t_{ED} \leq 3s$  then  $q = \sqrt{\frac{t_z}{t_{ED}}}$   
 $t_{ED}$  = Pulse width

$t_z$  = Cycle time

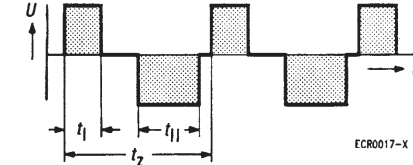
If  $t_{ED} > 3s$  the value of  $q$  must be obtained from the nomogram.

Examples of various periodic pulse trains (energizing side)

1. Periodic recurrence of one energizing pulse



2. Periodic recurrence of two unequal energizing pulses



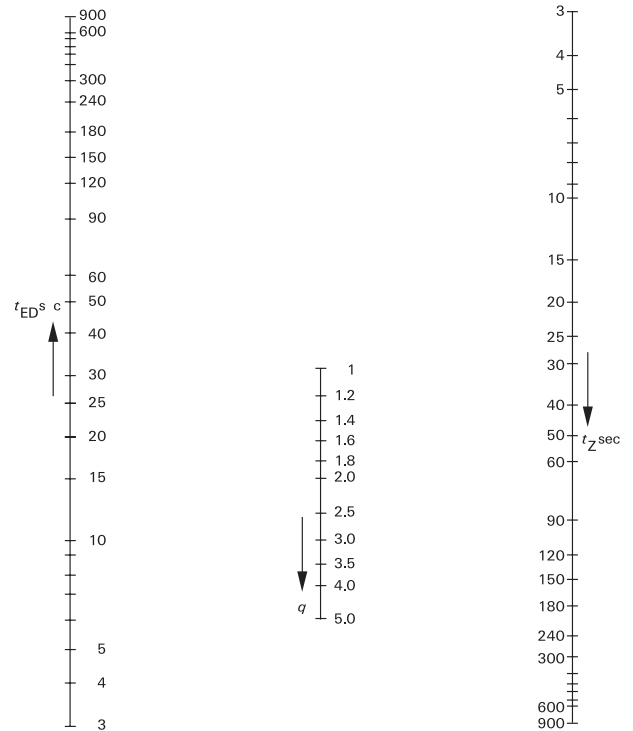
$t_{ED} = t_1 + t_{11}$

$t_1$  = Pulse width of the positive pulse at the start of the winding

$t_{11}$  = Pulse width of the negative pulse at the start of the winding

$t_1 + t_{11}$  = Pulse widths within one cycle

Nomogram for determining factor q



<b>Product code structure</b>	Typical product code		<b>V23003</b>	<b>-B0</b>	<b>037</b>	<b>-F1</b>	<b>-04</b>
<b>V23003</b> Cradle P Relay, dust protected							
<b>Version</b>	<b>A0</b> Size I, dust-protected <b>B0</b> Size II, dust-protected <b>J0</b> Size III, dust-protected						
<b>Coils</b>	Coil code: please refer to coil versions table						
<b>Contact style</b>	<b>B1</b> Single contacts	<b>B6</b> Single contacts	<b>F1</b> Single contacts				
	<b>C1</b> Bifurcated contacts	<b>C4</b> Bifurcated contacts					
<b>Contact arrangement</b>	<b>04</b> 2 von C, 2 CO	<b>05</b> 2 von A, 1 NO	<b>06</b> 1 von A+ 1 von B, 1 NO+ 1 NC				
	<b>10</b> 4 von C, 2 CO						

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 P / KAMMRELAIS® P V23003

[vertrieb-industrie@ebk-gruppe.com](mailto:vertrieb-industrie@ebk-gruppe.com)

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

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

### V23003-AXXXX standard, Größe (Size) I

12.00	8.00	13.50	1.440	I	3	2	100	V23003A0025B104
	8.00	13.50		II	4	1	100	
12.00	8.00	13.50	1.440	I	3	2	100	V23003A0025C104
	8.00	13.50		II	4	1	100	
24.00	16.50	26.50	1.440	I	3	2	400	V23003A0037B104
	16.50	25.00		II	4	1	340	
24.00	16.50	26.50	1.440	I	3	2	400	V23003A0037B604
	16.50	25.00		II	4	1	340	
24.00	16.50	26.50	1.440	I	3	2	400	V23003A0037C104
	16.50	25.00		II	4	1	340	
60.00	44.00	65.00	1.500	I	3	2	2400	V23003A0044B104
	44.00	65.00		II	4	1	2400	
48.00	33.50	49.00	1.646	I	3	2	1400	V23003A0064B104
	33.50	49.00		II	4	1	1400	
48.00	33.50	49.00	1.646	I	3	2	1400	V23003A0064B604
	33.50	49.00		II	4	1	1400	
48.00	33.50	49.00	1.646	I	3	2	1400	V23003A0064C104
	33.50	49.00		II	4	1	1400	

### V23003-AXXXX 5A, Größe (Size) I

6.00	4.00	6.70	1.469	I	3	2	24.5	V23003A0026F106
	4.00	6.70		II	4	1	24.5	
24.00	16.50	26.50	1.440	I	3	2	400	V23003A0037F101
	16.50	25.00		II	4	1	340	
24.00	16.50	26.50	1.440	I	3	2	400	V23003A0037F105
	16.50	25.00		II	4	1	340	
24.00	16.50	26.50	1.440	I	3	2	400	V23003A0037F106
	16.50	25.00		II	4	1	340	

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

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

V23003-BXXXX standard, Größe (Size) II

12.00	8.00	13.50	1.440	I	3	2	100	V23003B0025B110
	8.00	13.50		II	4	1	100	
12.00	8.00	13.50	1.440	I	3	2	100	V23003B0025C110
	8.00	13.50		II	4	1	100	
6.00	4.00	6.70	1.469	I	3	2	24.5	V23003B0026B110
	4.00	6.70		II	4	1	24.5	
6.00	4.00	6.70	1.469	I	3	2	24.5	V23003B0026C110
	4.00	6.70		II	4	1	24.5	
24.00	16.50	26.50	1.440	I	3	2	400	V23003B0037B110
	16.50	25.00		II	4	1	340	
24.00	16.50	26.50	1.440	I	3	2	400	V23003B0037B610
	16.50	25.00		II	4	1	340	
24.00	16.50	26.50	1.440	I	3	2	400	V23003B0037C110
	16.50	25.00		II	4	1	340	
24.00	16.50	26.50	1.440	I	3	2	400	V23003B0037C112
	16.50	25.00		II	4	1	340	
24.00	16.50	26.50	1.440	I	3	2	400	V23003B0037C116
	16.50	25.00		II	4	1	340	
24.00	16.50	26.50	1.440	I	3	2	400	V23003B0037C117
	16.50	25.00		II	4	1	340	
24.00	16.50	26.50	1.440	I	3	2	400	V23003B0037C410
	16.50	25.00		II	4	1	340	
60.00	44.00	65.00	1.500	I	3	2	2400	V23003B0044B110
	44.00	65.00		II	4	1	2400	
60.00	44.00	65.00	1.500	I	3	2	2400	V23003B0044B129
	44.00	65.00		II	4	1	2400	
60.00	44.00	65.00	1.500	I	3	2	2400	V23003B0044B610
	44.00	65.00		II	4	1	2400	
60.00	44.00	65.00	1.500	I	3	2	2400	V23003B0044B610
	44.00	65.00		II	4	1	2400	
60.00	44.00	65.00	1.500	I	3	2	2400	V23003B0044C110
	44.00	65.00		II	4	1	2400	
60.00	44.00	65.00	1.500	I	3	2	2400	V23003B0044W084
	44.00	65.00		II	4	1	2400	
48.00	33.50	49.00	1.646	I	3	2	1400	V23003B0064B110
	33.50	49.00		II	4	1	1400	
48.00	33.50	49.00	1.646	I	3	2	1400	V23003B0064C110
	33.50	49.00		II	4	1	1400	

V23003-BXXXX 5A, Größe (Size) II

12.00	8.00	13.50	1.440	I	3	2	100	V23003B0025F104
	8.00	13.50		II	4	1	100	
6.00	4.00	6.70	1.469	I	3	2	24.5	V23003B0026F104
	4.00	6.70		II	4	1	24.5	
24.00	16.50	26.50	1.440	I	3	2	400	V23003B0037F104
	16.50	25.00		II	4	1	340	
60.00	44.00	65.00	1.500	I	3	2	2400	V23003B0044F104
	44.00	65.00		II	4	1	2400	
48.00	33.50	49.00	1.646	I	3	2	1400	V23003B0064F104
	33.50	49.00		II	4	1	1400	

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