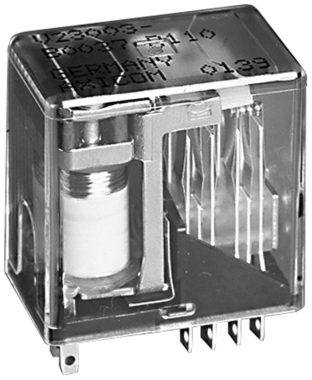
Cradle P Relay V23003

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

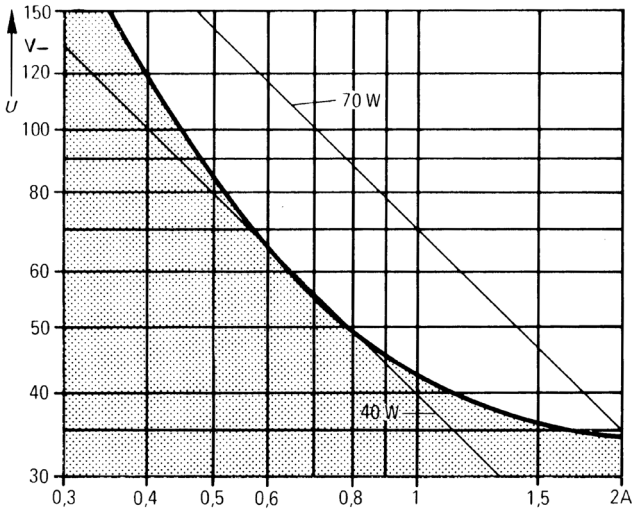


Typical applications
applications where the switching status must be maintained, measuring systems

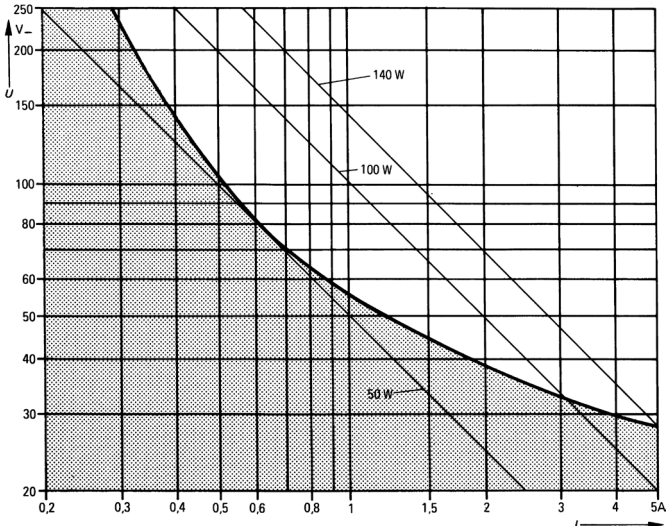
Contact Data

Product code block 3	B104/B110	B604/B610	C104/C110	C404/C410	F104 to F107
Contact arrangement	max. 4 form C (4 CO) contacts, 2 form C (2 CO), 2 form A (2 NO) or 2 form B (2 NC) contacts (see product code table)				
Max. switching voltage	150VDC 125VAC	36VDC 30VAC	150VDC 125VAC	36VDC 30VAC	250VDC 250VAC
Rated current	2A	0.2A	2A	0.2A	5A
Limiting continuous current at max. ambient temperature	2A	2A	2A	2A	5A
Breaking capacity see DC load breaking capacity curve below	35 to 70W 50VA	5W, 5VA -	35 to 70W 50VA	5W, 5VA -	50 to 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. 10^7 ops.	app. 10^7 ops.	app. 10^7 ops.	app. 10^7 ops.	app. 10^8 ops.

Max. DC breaking capacity, contact sets B1xx, C1xx



Max. DC breaking capacity, contact sets F1xx



Cradle P Relay V23003 (Continued)

Coil Data

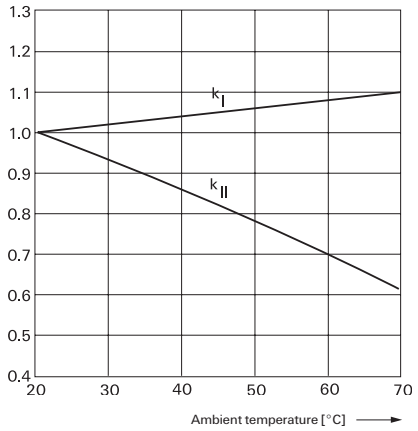
Magnetic system	polarized, bistable
Coil voltage range	6 to 60 VDC, typ. 1500 mW power consumption
Max. coil temperature	100°C
Thermal resistance	50K/W

Coil versions, bistable 2 coils

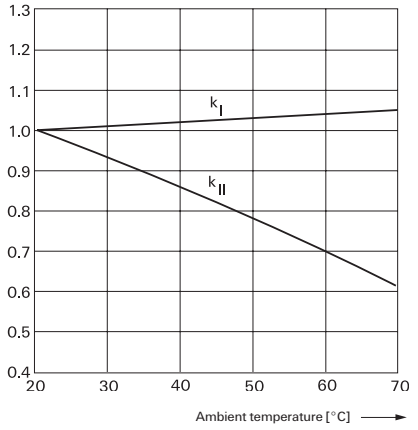
Coil code	Rated voltage VDC	Set voltage VDC	Reset voltage VDC	Limiting Set/Reset VDC	Coil resistance Ω±15%	Rated coil power W (set)
026	6	4.0	4.0	6.7/6.7	24.5/24.5	1.47
025	12	8.0	8.0	13.5/13.5	100/100	1.44
037	24	16.5	16.5	26.5/25.0	400/340	1.44
044	60	44.0	44.0	65.0/65.0	2400/2400	1.5
064	48	33.5	33.5	49.0/49.0	1400/1400	1.65

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

Set - negative potential at start of winding



Reset - plus potential at start of winding



Terminals:
coil with 2 windings:
winding I: start 3, end 2
winding II: start 4, end 1

Coil Data (continued)

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.

$U_{I\ tamb}$	$U_I \cdot U20\ °C \cdot k_{I\ tamb}$
$U_{II\ tamb}$	$U_{II}\ 20\ °C \cdot k_{II\ tamb}$
tamb	Ambient temperature
$U_{I\ tamb}$	Minimum voltage at ambient temperature, tamb
$U_{II\ tamb}$	Maximum voltage at ambient temperature, tamb
k_I and k_{II}	Factors

Insulation Data	B1xx,B6xx,C1xx,C4xx	F1xx
Initial dielectric strength		
between coil / frame	500 VAC_{rms}	500 VAC_{rms}
between contact / contact	500 VAC_{rms}	1000 VAC_{rms}
between contact / fame	500 VAC_{rms}	1000 VAC_{rms}
Initial insulation resistance, at 500 VDC	> 106Ω	

Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-40 to + 70°C
Category of environmental protection, IEC 61810	RT I - dust-protected
Degree of protection, IEC 60529	IP 30
Terminal type	hand solder terminals, plug-in
Weight	
V23003-A0xxx Size I	approx. 25g
V23003-B0xxx Size II	approx. 30g
Packaging unit	5 pcs.

Accessories

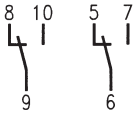
For details see datasheet	Cradle Relay, Accessories and Mounting

Cradle P Relay V23003 (Continued)

Terminal assignment

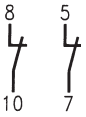
Size I

2 form C (2 CO)
V23003-xxxxx-Bx04
V23003-xxxxx-Cx04



2 form A (2 NO)
V23003-xxxxx-F105

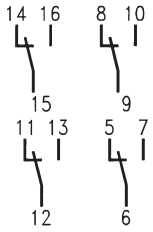
2 form B (2 NC)
V23003-xxxxx-F107



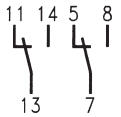
1 form A + 1 form B
(1 NO + 1 NC)
V23003-xxxxx-F106

Size II

4 form C (4 CO)
V23003-xxxxx-Bx10

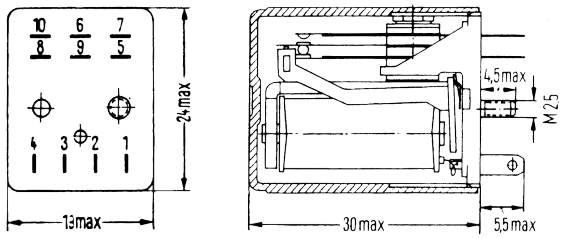


2 form C (2 CO)
V23003-xxxxx-F104

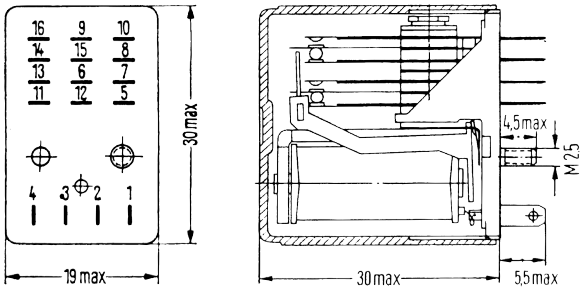


Dimensions

V23003-A0xx, size I type



V23003-B0xx, size II type



Cradle P Relay V23003 (Continued)

Instructions for Impulse Operation

Cradle relay P is primarily intended for impulse operation. The maximum voltage stated in the coil table can be increased for impulse operation as follows:

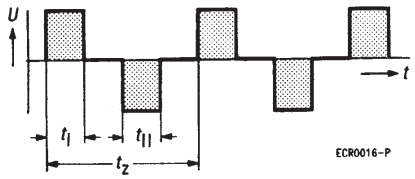
$U_{II\ Impuls}$ $U_{II\ tamb} \times q$
$U_{II\ tamb}$ Maximum continuous voltage at ambient temperature t_{amb}
q Factor

The impulse voltage must not exceed 80% of the test voltage (winding/frame or winding/winding) or 3.3 times at ambient temperature 20°C and 2.3 times at ambient temperature <20°C the value of the maximum voltage listed in the coil table.

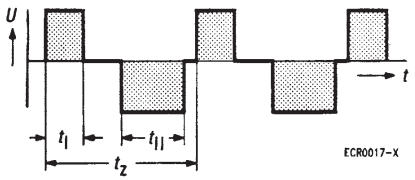
$lft_{ED} \leq 3s$ then $q = \sqrt{\frac{t_z}{t_{ED}}}$; lft_{ED} = Pulse width, t_2 = Cycle time.

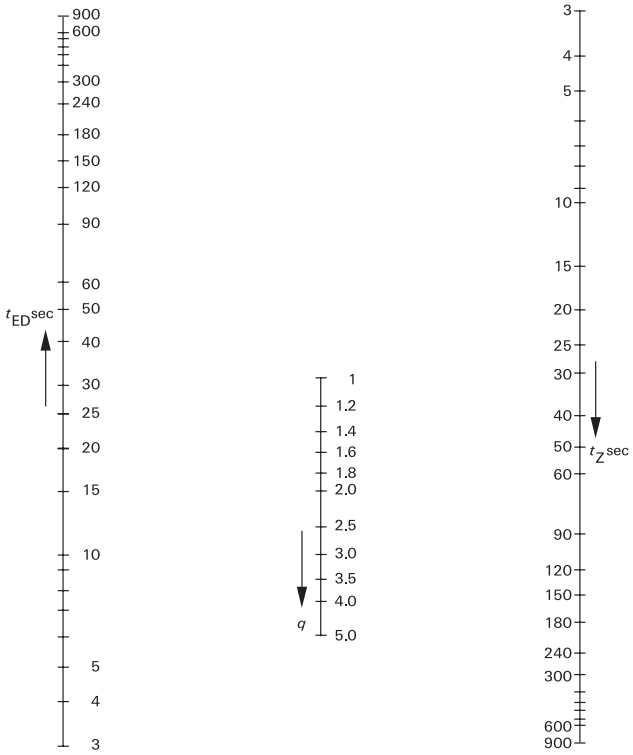
If $t_{ED} > 3s$ the value of q must be obtained from the nomograph.

Examples of various periodic pulse trains (energizing side)
1. Periodic recurrence of one energizing pulse



tED = tI + tII
tI = Pulse width of the positive pulse at the start of the winding
tII = Pulse width of the negative pulsee at the start of the winding
tI + tII = Pulse widths within one cycle
2. Periodic recurrence of two unequal energizing pulses





Product code structure

Typical product code: **V23003** | **-B0** | **037** | **-F1** | **04**

Type
V23003 Cradle P Relay, dust protected

Size
A0 Size I, dust-protected
B0 Size II, dust-protected

Coils
Coil code: please refer to coil versions table

Contact style

B1	Single contacts	**B6**	Single contacts	**F1**	Single contacts
C1	Bifurcated contacts	**C4**	Bifurcated contacts		

Contact arrangement

04	2 form C, 2 CO	**05**	2 form A, 1 NO	**06**	1 form A+ 1 form B, 1 NO+ 1 NC
10	4 form C, 4 CO				

Other types on request

Cradle P Relay V23003 (Continued)

Product code	Version	Coil	Arrangement	Contacts	Enclosure	Part number
V23003-AXXXX, standard, size I						
V23003-A0025-B104	Standard, size I	12VDC	2 form C (2 CO)	Single	Dust protected	1393817-4
V23003-A0025-C104	Standard, size I	12VDC	2 form C (2 CO)	Bifurcated	Dust protected	1393817-5
V23003-A0037-B104	Standard, size I	24VDC	2 form C (2 CO)	Single	Dust protected	1393817-7
V23003-A0037-B604	Standard, size I	24VDC	2 form C (2 CO)	Single	Dust protected	1393817-8
V23003-A0037-C104	Standard, size I	24VDC	2 form C (2 CO)	Bifurcated	Dust protected	1393817-9
V23003-A0044-B104	Standard, size I	60VDC	2 form C (2 CO)	Single	Dust protected	1-1393817-8
V23003-A0064-B104	Standard, size I	48VDC	2 form C (2 CO)	Single	Dust protected	2-1393817-0
V23003-A0064-B604	Standard, size I	48VDC	2 form C (2 CO)	Single	Dust protected	2-1393817-1
V23003-A0064-C104	5A size I	48VDC	2 form C (2 CO)	Single	Dust protected	2-1393817-2
V23003-AXXXX, 5A, size I						
V23003-A0026-F106	5A size I	6VDC	1A+1B (1NO+1NC)	Single	Dust protected	1393817-6
V23003-A0037-F105	5A size I	24VDC	2 form A (2 NO)	Single	Dust protected	1-1393817-1
V23003-A0037-F106	5A size I	24VDC	1A+1B (1NO+1NC)	Single	Dust protected	1-1393817-2
V23003-BXXXX, standard, size II						
V23003-B0025-B110	Standard, size II	12VDC	4 form C (4 CO)	Single	Dust protected	3-1393817-1
V23003-B0025-C110	Standard, size II	12VDC	4 form C (4 CO)	Bifurcated	Dust protected	3-1393817-2
V23003-B0026-B110	Standard, size II	6VDC	4 form C (4 CO)	Single	Dust protected	3-1393817-4
V23003-B0026-C110	Standard, size II	6VDC	4 form C (4 CO)	Bifurcated	Dust protected	3-1393817-5
V23003-B0037-B110	Standard, size II	24VDC	4 form C (4 CO)	Single	Dust protected	3-1393817-9
V23003-B0037-B610	Standard, size II	24VDC	4 form C (4 CO)	Single	Dust protected	4-1393817-0
V23003-B0037-C110	Standard, size II	24VDC	4 form C (4 CO)	Bifurcated	Dust protected	4-1393817-1
V23003-B0037-C410	Standard, size II	24VDC	4 form C (4 CO)	Bifurcated	Dust protected	4-1393817-4
V23003-B0044-B110	Standard, size II	60VDC	4 form C (4 CO)	Single	Dust protected	5-1393817-4
V23003-B0044-B610	Standard, size II	60VDC	4 form C (4 CO)	Single	Dust protected	1413004-1
V23003-B0044-B610	Standard, size II	60VDC	4 form C (4 CO)	Single	Dust protected	1-1419137-0
V23003-B0044-C110	Standard, size II	60VDC	4 form C (4 CO)	Bifurcated	Dust protected	5-1393817-6
V23003-B0064-B110	Standard, size II	48VDC	4 form C (4 CO)	Single	Dust protected	6-1393817-3
V23003-B0064-C110	Standard, size II	48VDC	4 form C (4 CO)	Bifurcated	Dust protected	6-1393817-4
V23003-BXXXX, 5A, size II						
V23003-B0025-F104	5A size II	12VDC	2 form C (2 CO)	Single	Dust protected	3-1393817-3
V23003-B0026-F104	5A size II	6VDC	2 form C (2 CO)	Single	Dust protected	3-1393817-6
V23003-B0037-F104	5A size II	24VDC	2 form C (2 CO)	Single	Dust protected	4-1393817-5
V23003-B0044-F104	5A size II	60VDC	2 form C (2 CO)	Single	Dust protected	5-1393817-7
V23003-B0064-F104	5A size II	48VDC	2 form C (2 CO)	Single	Dust protected	6-1393817-5

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