

## Cradle Relay P v23003



## **Cradle Relay P V23003**

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The dimensions in this datasheet are for reference purpose only and are subject to change without notice. Specifications are subject to change without notice.

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## **Cradle Relay P V23003**

Hand solder and plug-in relays, for DC operation, polarized, latching

ROHS compliant (Directive 2002/95/EC) as per product date code 0501.

#### **Features**

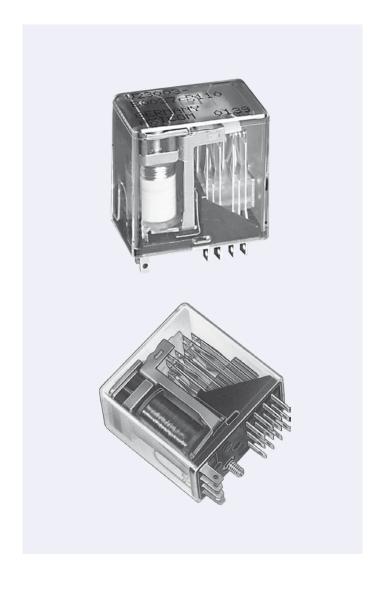
- · Primarily intended for impulse operation
- · Highly reliable
- Multi purpose relay
- Great variety of contact arrangements and materials to meet specific applications
- Sockets for easy and quick mounting of relays (see datasheet Accessories)
- · Contacts for signal loads and currents up to 5 A

#### **Typical applications**

- For applications where the switching status must be maintained
- Measuring systems

#### Relay types

- Size I or II, depending on contact set
- Standard contact sets with max. 4 changeover,
   2 break contacts, special configurations on request
- · Single or bifurcated contacts
- Hand solder terminals also for plug-in connection with screw fixing
- Dust-protected



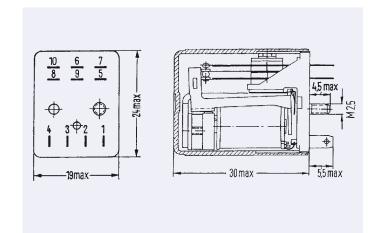
## **Cradle Relay P V23003**

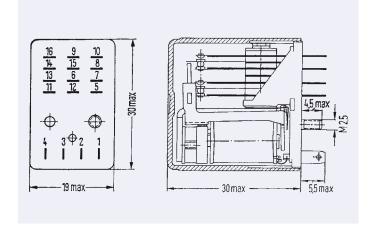
**Dimensions**Dimensions in mm

#### Type V23003-A0xxx Size I

Type V23003-B0xxx Size II

Hand solder terminals, silver-plated Also for plug-in connection and screw fixing With earth terminal Dust-protected





For sockets and hold-down springs see data sheet Accessories

## **Cradle Relay P V23003**

## Coil Data and operating range

Nominal voltage	from 6 Vdc to 60 Vdc
Typical nominal power consumption, at 20 °C	1.5 W
Class of the operative range acc to EN 61810-1 / IEC 61810-1 and VDE 0435 Part 201	1
Operating voltage (according to the coil type)	max. 73% of the nominal voltage

With continuous operation only one winding at a time may be energized within the specific voltage range.

The minimum voltage  $U_I$  and the maximum voltage  $U_{II}$  depends on the ambient temperature.

 $U_{\text{I tamb}} = U_{\text{I 20 °C}} \cdot k_{\text{I tamb}}$ 

 $U_{\text{II tamb}} = U_{\text{II 20 °C}} \cdot k_{\text{II tamb}}$ 

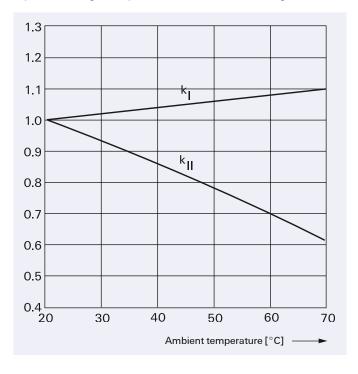
 $t_{amb}$  = Ambient temperature

 $U_{l tamb}$  = Minimum voltage at ambient temperature,  $t_{amb}$ 

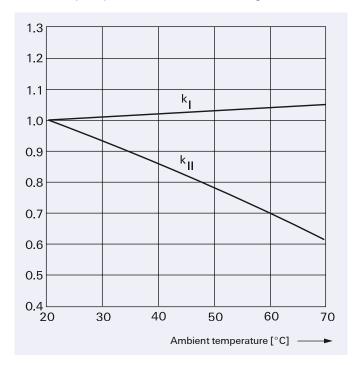
 $U_{\text{II tamb}}$  = Maximum voltage at ambient temperature,  $t_{\text{amb}}$ 

 $k_{I \text{ and }} k_{II} = \text{Factors}$ 

#### Operate - negative potential at start of winding



#### Release - plus potential at start of winding



## **AXICOM**

Telecom-, Signal and RF Relays

## **Cradle Relay P V23003**

Relay Code		
Basic type number of cradle relay P  Relay type	V23003	
B0 = Size II,		
Coil number Versions see page 7/8		
Contact set / type of contact see page 11		

Ordering example: V23003-B0037-F104

Cradle relay P, size II, dust-protected, coil 24 Vdc, 2 changeover contact set, single contacts, contact material silver, gold-flashed

#### Note:

The ordering scheme enables a multitude of variations. However, not all variations are defined as construction specifications (ordering code) and thus in the current delivery program.

Special design can be carried out to customer specifications. Please contact your local representative.

## **AXICOM**

Telecom-, Signal and RF Relays

## **Cradle Relay P V23003**

Coil D	ata (va	lues at	23 °C	)				Ordering In	formation
Nominal voltage Unom		et voltage nge	Coil power	Winding	Terminals		Coil Resistance	Relay code	Tyco part number
	Minimum voltage Umin	Maximum voltage Umax							
Vdc	Vdc	Vdc	mW		Start	End	Ω / ± 15 %		
V23003-A	XXXX standa	ard, size I							
12.00	8.00	13.50	1'440	I	3	2	100	V23003A25B104	1393817-4
	8.00	13.50		II	4	1	100		
12.00	8.00	13.50	1'440	I	3	2	100	V23003A25C104	1393817-5
	8.00	13.50		II	4	1	100		
24.00	16.50	26.50	1'440	I	3	2	400	V23003A37B104	1393817-7
	16.50	25.00		II	4	1	340		
24.00	16.50	26.50	1'440	I	3	2	400	V23003A37B604	1393817-8
	16.50	25.00		II	4	1	340		
24.00	16.50	26.50	1'440	I	3	2	400	V23003A37C104	1393817-9
	16.50	25.00		II	4	1	340		
60.00	44.00	65.00	1'500	I	3	2	2400	V23003A44B104	1-1393817-8
	44.00	65.00		II	4	1	2400		
48.00	33.50	49.00	1'646	I	3	2	1400	V23003A64B104	2-1393817-0
	33.50	49.00		II	4	1	1400		
48.00	33.50	49.00	1'646	I	3	2	1400	V23003A64B604	2-1393817-1
	33.50	49.00		II	4	1	1400		
48.00	33.50	49.00	1'646	I	3	2	1400	V23003A64C104	2-1393817-2
	33.50	49.00		II	4	1	1400		
V23003-AX	XXXX 5A, s	ize I							
6.00	4.00	6.70	1'469	I	3	2	24.5	V23003A26F106	1393817-6
	4.00	6.70		II	4	1	24.5		
24.00	16.50	26.50	1'440	I	3	2	400	V23003A37F101	1-1393817-0
	16.50	25.00		II	4	1	340		
24.00	16.50	26.50	1'440	I	3	2	400	V23003A37F105	1-1393817-1
	16.50	25.00		II	4	1	340		
24.00	16.50	26.50	1'440	I	3	2	400	V23003A37F106	1-1393817-2
	16.50	25.00		II	4	1	340		

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## **Cradle Relay P V23003**

	Coil D	ata (va	lues at	23 °C	)				Ordering In	formation
Votage   Voltage   Voltage   Votage   Votage	voltage		- 1		Winding	Term	ninals			
V23003BXXXX standard, size   I		voltage	voltage							
12.00	Vdc	Vdc	Vdc	mW		Start	End	Ω / ± 15 %		
12.00		XXXX standa								
12.00	12.00			1'440	I				V23003B25B110	3-1393817-1
8.00	10.00			4/4.40	ll .		-		\/000000D050440	0.4000047.0
6.00	12.00			1'440	l I				V23003B25C110	3-1393817-2
A00	6.00			1'460	II I				V/23003B26B110	3_1303817_/
6.00	0.00			1 409	II II				V23003B20B110	3-1393017-4
4.00	6.00			1'469	i i				V23003B26C110	3-1393817-5
24.00	0.00			1 100	il i				1200000200110	0 1000011 0
24.00	24.00			1'440	I				V23003B37B110	3-1393817-9
16.50					II					
24.00	24.00	16.50	26.50	1'440	I	3	2	400	V23003B37B610	4-1393817-0
16.50			25.00		II	4				
24.00	24.00			1'440	I				V23003B37C110	4-1393817-1
16.50					II					
24.00	24.00			1'440	I				V23003B37C112	4-1393817-2
16.50					ll .					
24.00	24.00			1'440	I				V23003B37C116	1413004-2
16.50	21.22			4/4.4	ll .				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
24.00	24.00			1'440	I				V23003B37C117	4-1393817-3
16.50	04.00			44440	II I				V00000D070440	4.4000047.4
60.00	24.00			1 440	I II				V23003B37C410	4-1393817-4
	60.00			1,500					\/23003B44B110	5 1202917 /
60.00         44.00         65.00         1'500         I         3         2         2400         V23003B44B129         5-1393817-5           44.00         65.00         II         4         1         2400         V23003B44B610         1413004-1           60.00         44.00         65.00         III         4         1         2400           48.00         33.50         49.00         III         4         1         2400           48.00         33.50         49.00         III         4         1         1400           48.00         33.50         49.	00.00			1 300					V23003B44B110	5-1393617-4
	60.00			1'500	1			<u> </u>	V23003B44B129	5-1393817-5
60.00         44.00         65.00         1'500         I         3         2         2400         V23003B44B610         1413004-1           60.00         44.00         65.00         III         4         1         2400         V23003B44B610         1-1419137-0           60.00         44.00         65.00         III         4         1         2400         V23003B44C110         5-1393817-6           60.00         44.00         65.00         III         4         1         2400         V23003B44C110         5-1393817-8           60.00         44.00         65.00         III         4         1         2400         V23003B44W84         5-1393817-8           60.00         44.00         65.00         III         4         1         2400         V23003B44W84         5-1393817-8           48.00         33.50         49.00         I'646         I         3         2         1400         V23003B64B110         6-1393817-3           48.00         33.50         49.00         I'646         I         3         2         1400         V23003B64C110         6-1393817-3           V23003-BXXXX 5A, size II         12.00         8.00         13.50         I'440 <td< td=""><td>00.00</td><td></td><td></td><td>1 000</td><td>ll ll</td><td></td><td></td><td></td><td>V20000D44D123</td><td>0 1000017 0</td></td<>	00.00			1 000	ll ll				V20000D44D123	0 1000017 0
	60.00			1'500					V23003B44B610	1413004-1
60.00         44.00         65.00         1'500         I         3         2         2400         V23003B44B610         1-1419137-0           60.00         44.00         65.00         III         4         1         2400         V23003B44C110         5-1393817-6           60.00         44.00         65.00         III         4         1         2400         V23003B44W84         5-1393817-8           60.00         44.00         65.00         II         4         1         2400         V23003B44W84         5-1393817-8           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64B110         6-1393817-3           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64C110         6-1393817-4           42.00         33.50         49.00         1'646         I         3         2         1400         V23003B64C110         6-1393817-4           42.00         8.00         13.50         1'440         I         3         2         100         V23003B25F104         3-1393817-3           5         8.00         13.50         1'440         I <td>00100</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>120000</td> <td></td>	00100								120000	
60.00         44.00         65.00         1'500         I         3         2         2400         V23003B44C110         5-1393817-6           60.00         44.00         65.00         II         4         1         2400         V23003B44W84         5-1393817-8           44.00         65.00         II         4         1         2400         V23003B44W84         5-1393817-8           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64B110         6-1393817-3           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64C110         6-1393817-4           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64C110         6-1393817-4           40.00         8.00         13.50         1'440         I         3         2         100         V23003B26F104         3-1393817-3           40.00         8.00         13.50         II         4         1         100         V23003B26F104         3-1393817-3           40.00         6.70         III         4         1         24.5	60.00	44.00		1'500	I	3	2	2400	V23003B44B610	1-1419137-0
A4.00		44.00	65.00		II	4	1	2400		
60.00         44.00         65.00         1'500         I         3         2         2400         V23003B44W84         5-1393817-8           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64B110         6-1393817-3           33.50         49.00         II         4         1         1400         V23003B64C110         6-1393817-4           48.00         33.50         49.00         II         4         1         1400         V23003B64C110         6-1393817-4           V23003-BXXXX         5A, size II         3         2         100         V23003B25F104         3-1393817-3           8.00         13.50         1'440         I         3         2         100         V23003B25F104         3-1393817-3           6.00         4.00         6.70         1'469         I         3         2         24.5         V23003B26F104         3-1393817-6           24.00         16.50         26.50         1'440         I         3         2         24.5         V23003B26F104         4-1393817-5           16.50         25.00         II         4         1         340         V23003B37F104         4-1393817-7	60.00	44.00	65.00	1'500	I	3	2	2400	V23003B44C110	5-1393817-6
44.00         65.00         II         4         1         2400           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64B110         6-1393817-3           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64C110         6-1393817-4           V23003-BXXXX 5A, size II           12.00         8.00         13.50         1'440         I         3         2         100         V23003B25F104         3-1393817-3           8.00         13.50         II         4         1         100         V23003B25F104         3-1393817-3           6.00         4.00         6.70         1'469         I         3         2         24.5         V23003B26F104         3-1393817-6           24.00         16.50         26.50         1'440         I         3         2         24.5         V23003B26F104         3-1393817-5           16.50         25.00         II         4         1         340         2         400         V23003B37F104         4-1393817-5           60.00         44.00         65.00         1'500         I         3<		44.00	65.00		II	4		2400		
48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64B110         6-1393817-3           33.50         49.00         II         4         1         1400         V23003B64C110         6-1393817-4           48.00         33.50         49.00         II         4         1         1400         V23003B64C110         6-1393817-4           V23003-BXXXX 5A, size II           12.00         8.00         13.50         II         4         1         100         V23003B25F104         3-1393817-3           8.00         13.50         II         4         1         100         V23003B25F104         3-1393817-3           6.00         4.00         6.70         1'469         I         3         2         24.5         V23003B26F104         3-1393817-6           24.00         16.50         26.50         1'440         I         3         2         24.5         V23003B37F104         4-1393817-5           16.50         25.00         II         4         1         340         V23003B44F104         5-1393817-7           44.00         65.00         1'500         I         3         2         2400	60.00			1'500	I				V23003B44W84	5-1393817-8
33.50					II					
48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64C110         6-1393817-4           V23003-BXXXX         5A, size II           12.00         8.00         13.50         1'440         I         3         2         100         V23003B25F104         3-1393817-3           8.00         13.50         II         4         1         100	48.00			1'646	- 1				V23003B64B110	6-1393817-3
V23003-BXXXX 5A, size II           12.00         8.00         13.50         1'440         I         3         2         100         V23003B25F104         3-1393817-3           8.00         13.50         II         4         1         100           6.00         4.00         6.70         1'469         I         3         2         24.5         V23003B26F104         3-1393817-6           4.00         6.70         II         4         1         24.5         V23003B26F104         3-1393817-6           24.00         16.50         26.50         1'440         I         3         2         400         V23003B37F104         4-1393817-5           16.50         25.00         II         4         1         340         V23003B44F104         5-1393817-7           44.00         65.00         I'500         I         3         2         2400         V23003B44F104         5-1393817-7           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64F104         6-1393817-5	10.00			1/2.12	ll .				1/22222222	2 /2222/= /
V23003-BXXXX 5A, size II           12.00         8.00         13.50         1'440         I         3         2         100         V23003B25F104         3-1393817-3           8.00         13.50         II         4         1         100           6.00         4.00         6.70         1'469         I         3         2         24.5         V23003B26F104         3-1393817-6           24.00         6.70         II         4         1         24.5         V23003B26F104         3-1393817-6           24.00         16.50         26.50         1'440         I         3         2         400         V23003B37F104         4-1393817-5           16.50         25.00         II         4         1         340         V23003B44F104         5-1393817-7           44.00         65.00         I'500         I         3         2         2400         V23003B44F104         5-1393817-7           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64F104         6-1393817-5	48.00			1'646	l l				V23003B64C110	6-1393817-4
12.00         8.00         13.50         1'440         I         3         2         100         V23003B25F104         3-1393817-3           8.00         13.50         II         4         1         100		33.50	49.00		II	4	1	1400		
12.00         8.00         13.50         1'440         I         3         2         100         V23003B25F104         3-1393817-3           8.00         13.50         II         4         1         100	V/23003-B)	XXXX 5A s	ize II							
8.00         13.50         II         4         1         100           6.00         4.00         6.70         1'469         I         3         2         24.5         V23003B26F104         3-1393817-6           24.00         16.50         26.50         1'440         I         3         2         400         V23003B37F104         4-1393817-5           16.50         25.00         II         4         1         340         340           60.00         44.00         65.00         1'500         I         3         2         2400         V23003B44F104         5-1393817-7           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64F104         6-1393817-5				1'440	1	3	2	100	V23003B25F104	3-1393817-3
6.00         4.00         6.70         1'469         I         3         2         24.5         V23003B26F104         3-1393817-6           24.00         16.50         26.50         1'440         I         3         2         400         V23003B37F104         4-1393817-5           16.50         25.00         II         4         1         340         340           60.00         44.00         65.00         1'500         I         3         2         2400         V23003B44F104         5-1393817-7           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64F104         6-1393817-5	.2.00			1 170	II				72000B201 10-F	0 .000017 0
4.00         6.70         II         4         1         24.5         24.5         24.00         V23003B37F104         4-1393817-5         4-1393817-5         4-1393817-5         4-1393817-5         4-1393817-5         4-1393817-5         4-1393817-5         4-1393817-7	6.00			1'469					V23003B26F104	3-1393817-6
24.00         16.50         26.50         1'440         I         3         2         400         V23003B37F104         4-1393817-5           16.50         25.00         II         4         1         340           60.00         44.00         65.00         1'500         I         3         2         2400         V23003B44F104         5-1393817-7           44.00         65.00         II         4         1         2400         2400           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64F104         6-1393817-5					-					
16.50     25.00     II     4     1     340       60.00     44.00     65.00     1'500     I     3     2     2400     V23003B44F104     5-1393817-7       44.00     65.00     II     4     1     2400       48.00     33.50     49.00     1'646     I     3     2     1400     V23003B64F104     6-1393817-5	24.00			1'440	I				V23003B37F104	4-1393817-5
60.00         44.00         65.00         1'500         I         3         2         2400         V23003B44F104         5-1393817-7           44.00         65.00         II         4         1         2400           48.00         33.50         49.00         1'646         I         3         2         1400         V23003B64F104         6-1393817-5					II					
44.00     65.00     II     4     1     2400       48.00     33.50     49.00     1'646     I     3     2     1400     V23003B64F104     6-1393817-5	60.00	44.00	65.00	1'500	I		2		V23003B44F104	5-1393817-7
		44.00	65.00		II	4		2400		
1 00 50 40 00 11 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	48.00		49.00	1'646	I	3	2	1400	V23003B64F104	6-1393817-5
33.50   49.00   II   4   1   1400		33.50	49.00		II	4	1	1400		

## **Cradle Relay P V23003**

## **Instructions for Impulse Operation**

Cradle relay P is primarily intended for impulse operation. The maximum voltage stated in the table (page 2) can be increased for impulse operation as follows:

 $U_{II \text{ Impuls}} = U_{II \text{ tamb}} \cdot q$ 

U<sub>II tamb</sub> = Maximum continuous voltage at ambient temperature t <sub>amb</sub>

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 table (page 2).

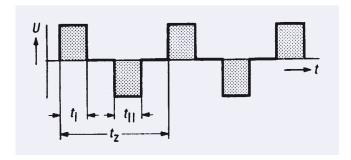
If  $t_{ED} \le 3$  s then  $q = \sqrt{\frac{t_z}{t_{ED}}}$ 

 $\begin{array}{lll} & \text{If } t_{\text{ED}} & = & \text{Pulse width} \\ t_2 & = & \text{Cycle time} \end{array}$ 

If tED = > 3 s the value of q must be obtained from the nomograph (cradle relay N datasheet page 103).

Examples of various periodic pulse trains (energizing side)

#### 1. Periodic recurrence of one energizing pulse

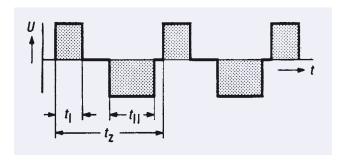


 $t_{\text{ED}} = t_{\text{I}} + t_{\text{II}}$ 

 $t_l$  = Pulse width of the positive pulse at the start of the winding  $t_l + t_{ll}$  = Pulse width of the negative pulse at the start of the winding

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

#### 2. Periodic recurrence of two unequal energizing pulses



## **Cradle Relay P V23003**

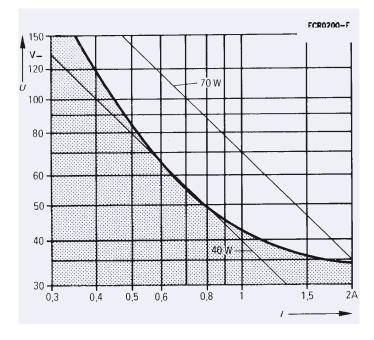
## **Contact Data**

Ordering code block 3	B104/B110	B604/B610	C104/C110	C404/C410	F104 F107		
Number of contacts and Type	ma	x. 4 changeover co	ntacts, 2 break conta	icts or 2 make conta	icts		
Contact assembly	single c	ontacts	bifurcated	contacts	single contacts		
Contact material	silver, gold-flashed	gold F	silver, gold-flashed	gold F	silver, gold-flashed		
Max. switching voltage	150 Vdc 36 Vdc		150 Vdc	150 Vdc 36 Vdc			
	125 Vac 30 Vac		125 Vac	30 Vac	250 Vac		
Max. switching current	2 A	0.2 A	2 A	0.2 A	5 A		
Max. switching capacity	35 to 70 W see load limit curve page 10 50 VA	5 W 5 VA	35 to 70 W see load limit curve page 10 50 VA	5 W 5 VA	50 to 140 W see load limit curve page 10 500 VA		
Max. continuous current at max. ambient temperature		2 A					

## Max. DC Load Breaking Capacity

#### for contact sets B1xx and C1 xx

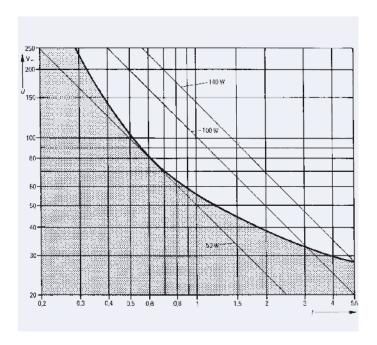
Safe breaking, no stationary arc Contact material silver, gold-flashed



d = switching currentU = switching voltage

#### for contact sets F1xx

Safe breaking, no stationary arc Contact material silver, gold-flashed



I = switching currentU = switching voltage

## **Cradle Relay P V23003**

## Contact sets

### Size I

Number of contacts and type	2 changeov	ver contacts	2 make contacts	1 break 1 make contact		
Symbols with base connections  coil I  coil II  3 - + 2 4 - 1  Contacts in release condition, coil polarity to set the relay	8 10 5 7 4 1 4 1 9 6		10 7         	8 5 1 7 10 7	8 7 1 10 5	
Contact assembly	single contacts	bifurcated contacts	single contacts			
Contact material silver, gold-flashed Ordering code block 3	B104	C104	F105	F107	F106	
Contact material gold F Ordering code block 3	B604	C404				

### Size II

Number of contacts and type	4 changov	er contacts	2 changover contacts
Symbols with base connections  coil I  coil II  4  Contacts in release condition, coil polarity to set the relay	14 16 L. 1 15 11 13 L. 1	8 10 9 5 7 6	11 14 5 8 L I I I
Contact assembly	single contacts	bifurcated contacts	single contacts
Contact material silver, gold-flashed Ordering code block 3	B110	C110	F104
Contact material gold F Ordering code block 3	B610	C410	

## AXICOM

Telecom-, Signal and RF Relays

## **Cradle Relay P V23003**

## Insulation

Ordering code block 3	B1xx	B6xx	C1xx	C4xx	F1xx
Test voltage (1 min) winding / frame contact / contact contact / frame		500 \	/ac <sub>rms</sub> /ac <sub>rms</sub> /ac <sub>rms</sub>		500 Vac <sub>rms</sub> 1000 Vac <sub>rms</sub> 1000 Vac <sub>rms</sub>

## **General Data**

Ordering code block 3	B1xx	B6xx	C1xx	C4xx	F1xx		
Operate time at U <sub>nom</sub> and 20 °C, typical	4 ms						
Reset time typical			4 ms				
Maximum switching rate without load			20 operations/s				
Ambient temperature range acc. to EN 61810-1 / IEC 61810-1 and VDE 0435 part 201			-40 °C +70 °C	;			
Thermal resistance	50 K/W						
Maximum temperature	100 °C						
Continuous thermal load			1.6 W				
Degree of protection acc. to EN 60529 / IEC 60529 / VDE 0470 part 1		d	ust-protected IP	30			
Mechanical endurance	approx. 107 operations						
Mounting position	any						
Weight V23003-A0xxx Size I V23003-B0xxx Size II	approx. 25 g approx. 30 g						

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## **Cradle Relay P V23003**

#### **IM Relays**

4th generation slim line – low profile polarized 2 c/o telecom signal relay with bifurcated contacts, available as non latching or latching relay with 1 coil. Nominal voltage range from 1.5 ... 24 V, coil power consumption of 50 ... 200 mW, latching relays with 1 coil 100 mW. The IM relay is available as through hole and surface mount type (J-Legs and Gull Wings) and capable to switch loads up to 60 W/62,5 VA. It is currently the only 2 A rated 4G relay on the market. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV – 2 / 10  $\mu$ s) and FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). The IM relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950.

Dimensions approx. 10 x 6 mm board space and 5.65 mm height.

#### P2 Relays

3rd generation polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 or 2 coils. Nominal voltage range from 3 ... 24 V, coil power consumption 140 mW, latching relays with 1 coil 70 mW. The P2 Relay is available as through hole or surface mount type and capable to switch currents up to 5 A. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV - 2 / 10  $\mu$ s) and FCC part 68 (1,5 kV - 10 / 160  $\mu$ s). The P2 relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950. Dimensions approx. 15 x 7,5 mm board space and 10 mm height.

#### FX2 Relays

3rd generation polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 coil. Nominal voltage range from 3 ... 48 V, coil power consumption of 80 ... 260 mW for the high sensitive version, 140... 300 mW for the standard version, latching relays with 1 coil 100 mW. The FX2 relay is available as through hole type and capable to switch loads up to 60 W/62,5 VA. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV - 2 / 10  $\mu$ s) and FCC part 68 (1,5 kV - 10 / 160  $\mu$ s). The FX2 relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950. Dimensions approx. 15 x 7,5 mm board space and 10,7 mm height.

#### FT2 / FU2 Relays

3rd generation non polarized, non latching 2 c/o telecom relay with bifurcated contacts. Nominal voltage range from 3 ... 48 V, coil power consumption 200 ... 300 mW. Most sensitive 48 V relay. Available as through hole and surface mount type. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV - 2 / 10  $\mu s$ ) and FCC part 68 (1,5 kV - 10 / 160  $\mu s$ ). The FT2/FU2 relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950.

Dimensions approx. 15 x 7,5 mm board space and 10 mm height.

#### FP2 Relays

3rd generation polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 or 2 coils. Nominal voltage range from 3 ... 48 V, coil power consumption of 80 ... 260 mW for the high sensitive version, 140... 300 mW for the standard version, latching relays with 1 coil 100 mW.. The FP2 Relay is available as through hole type and capable to switch loads up to 60 W/62,5 VA. Dielectric strength fulfills FCC part 68 (1,5 kV - 10 / 160  $\mu s$ ). The FP2 is tested according CECC/IECQ approved.

Dimensions approx. 14 x 9 mm board space and 5 mm height.

#### MT2

2nd generation non polarized, non latching 2 c/o telecom and signal relay with bifurcated contacts. Nominal voltage range from 3 ... 48 V, coil power consumption 150/200/300/400 and 550 mW. Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV - 10 / 160  $\mu s$ ).

Dimensions approx. 20 x 10 mm board space and 11 mm height.

#### D2n Relays

2nd generation non polarized 2 c/o relay for telecom and various other applications. Nominal voltage range from 3 ... 48 V, coil power consumption from 150 .... 500 mW. The D2n relay is capable to switch currents up to 3 A. Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV - 10 / 160  $\mu s$ ). Dimensions approx. 20 x10 mm board space and 11 mm height.

#### P1 Relays

Extremely sensitive, polarized 1 c/o relay with bifurcated contacts for a wide range of applications, available as non latching or latching relay with 1 or 2 coils. Nominal voltage range from 3 ... 24 V, coil power consumption 65 mW, latching relays with 1 coil 30 mW. The P1 relay is available as through hole or surface mount type and capable to switch currents up to 1 A. Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV - 10 / 160  $\mu$ s). Dimensions approx. 13 x 7,6 mm board space and 7 mm height for THT or 8 mm height for SMT version.

#### W11 Relays

Low cost, non polarized 1 c/o relay for various applications. Nominal voltage range from 3  $\dots$  24 V, coil power consumption 450 mW, sensitive versions 200 mW. The W11 relay is capable to switch currents up to 3 A. Dielectric strength 1000 Vrms.

Dimensions approx. 15,6 x 10,6 mm board space and 11,5 mm height.

#### Reed Relays

High sensitive, non polarized relay for telecom and various other applications, available with 1 n/o, 2 n/o or 1c/o contacts. Nominal voltage range from 5 ... 24 V, coil power consumption 50...280 mW for 1 n/o and 125 ... 280 mW for 2 n/o or 1 c/o versions. Reedrelays are available in DIP or SIL housing and capable to switch currents up to 0,5 A. Integrated diode and/or electrostatic shield optional. Dielectric strength 1500 Vdc. Dimensions approx. 19,3 x 7 mm board space and 5 ... 7,5 mm height for DIP or 19,8 x 5 mm board space and 7,8 mm height for SIL version.

#### Cradle Relays

Extremely reliable and mature relay family of 1st generation for various signal switching applications. Available as non polarized, polarized / latching and relay with AC coil. The benefit is the possibility of combining various contact sets from 1 up to 6 poles, single and bifurcated contacts, different contact materials with a coil voltage range from 1,5 Vdc to 220 Vac. Cradle relays are available as dust protected and hermetically sealed versions, with plug in or solder terminals and are capable to switch currents up to 5 A. Forcibly guided (linked) contact sets optional. Dielectric strength 500 Vrms. Dimensions from approx. 19 x 24 to 19x35 mm board space and 30 mm height.

#### Other Relays

We offer a variety of different relay families for maintenance and replacement purposes. These relays are up to 60 years old now, such as Card Relay SN (V23030 series), Small General Purpose Relay (V23006 series), Small Polarized Relay (V23063 ... V23067 and V23163 ... V23167 series). Accessories like sockets, hold down springs, etc. optional.

#### **High Frequency Relays**

HF3 / HF3S / HF6 series RF relays offering excellent RF characteristics in a small package. All HF series relays are suitable for SMD soldering processes. Available as non latching or latching versions with 1 or 2 coils and a nominal coil voltage range from 3 ... 24 V, a coil power consumption of 140 mW or 70 mW (single coil latching types).

**HF3:** Low cost RF relay suitable up to 3 GHz. Impedance 50 and 75 Ohm. 50 W hot switching and 50 W RF power carry capability. Dimensions  $14.6 \times 7.3 \times 10.3$  mm.

**HF3S:** High performance, high power RF relay suitable up to 3 GHz, 50 W hot switching and 150 W RF power carry capability. Dimensions  $15 \times 7.6 \times 10.6$  mm.

**HF6:** High performance, high power RF relay suitable up to 6 GHz, 50 W hot switching and 50 W RF power carry capability. Dimensions  $15 \times 7.6 \times 10.6 \text{ mm}$ .



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