

## 1.2 Miniature Industrial Relays – QRC



Application	Types	Pins	Contacts	AC ratings	DC ratings	Socket
<b>C7 Series</b>						
Miniature power relay	C7-A1x			16 A / 250 V	0.5 A / 110 V	S7
General purpose	C7-A2x			10 A / 250 V	0.5 A / 110 V	S7
Low switching load	C7-T2x			6 A / 250 V	6 A / 30 V	S7
DC load switching	C7-G2x			10 A / 250 V	0.8 A / 110 V	S7
DC load switching double make	C7-X1x			10 A / 250 V	6 A / 110 V	S7
1 power and 1 signal contact	C7-H23			10 A / 250 V	6 A / 30 V	S7
Power relay for high inrush current	C7-W1x			10 A / 250 V 500 A / 2.5 ms inrush		S7
Railway application	R7-A2x			10 A / 250 V	10 A / 30 V	S7
Railway application	R7-T2x			6 A / 250 V	6 A / 30 V	S7
<b>C9 Series</b>						
Miniature relay	C9-A4x			5 A / 250 V	5 A / 30 V	S9
Sensitive Coil 500mW ... 800mW	C9-E2x			5 A / 250 V	5 mA / 30 V	S9
Latching relay	C9-R2x			5 A / 120 V	5 A / 30 V	S9

<b>Type</b>	<b>C7-A1x/ ... V</b> Standard relay 1 change-over contact		
<b>Maximum contact load</b>	<b>16 A/250 V AC-1</b> <b>16 A/30 V DC-1</b>	<b>0,5 A/110 V DC-1</b> <b>0,2 A/220 V DC-1</b>	
<b>Contacts</b>	Material Standard Code 0	AgNi	
	Rated current	16 A	
	Switch-on current max. (20 ms)	40 A	
	Switching voltage max.	250 V	
	AC load (Fig 1)	4 kVA	
	DC load	see Fig. 2	
	Relay compatible with socket S7-16		

<b>Coil</b>		
Coil resistance	see table; tolerance $\pm 10\%$	
Pick-up voltage	$\leq 0,8 \times U_N$	
Release voltage	$\geq 0,1 \times U_N$	
Nominal power	1,2 VA (AC)/1,3 W (DC)	

<b>Coil table</b>						
	<b>VAC</b>	<b><math>\Omega</math></b>	<b>mA</b>	<b>VDC</b>	<b><math>\Omega</math></b>	<b>mA</b>
	24	174	50	12	111	108
	48	686	25	24	432	55
	115	4K3	10,4	48	1K7	28
	230	18K6	5,2	110	9K2	12

<b>Insulation</b>	Volt rms, 1 min
Contact open	1000 V
Contact/coil	2,5 kV
Insulation resistance at 500 V	$\geq 1 \text{ G}\Omega$
Insulation, IEC 61810-1	2,5 kV/3

<b>Specifications</b>	
Ambient temperature operation/storage	-40 (no ice)...60 °C / -40 ... 80 °C
Pick-up time/bounce time	16 ms/ $\leq 3$ ms
Release time/bounce time	8 ms/ $\leq 1$ ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100000$ switching cycles
Switching frequency at rated load	$\leq 1200$ /h
Protection class	IP40
Weight	43 g

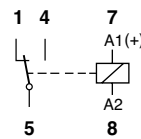
<b>Standard types</b>	
<b>VAC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240) LED</b>	<b>C7-A10/AC ... V</b> <b>C7-A10X/AC ... V</b>
<b>VDC 12, 24, 48, 110 LED</b>	<b>C7-A10/DC ... V</b> <b>C7-A10X/DC ... V</b>
<b>Free wheeling diode</b>	<b>C7-A10DX/DC ... V</b> <b>C7-A10FX/DC ... V</b>
<b>Polarity and free wheeling diode</b>	
<b>AC/DC bridge rectifier 24 V, 48 V, 60 V</b>	<b>C7-A10BX/UC ... V</b>

"..." Enter the voltage for full type designation

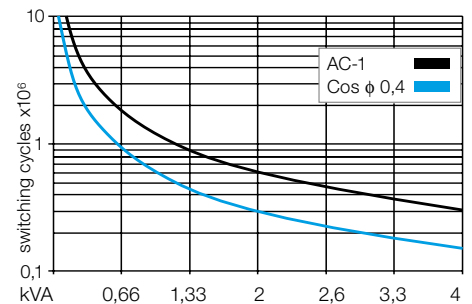
<b>Accessories</b>	
Socket:	<b>S7-16</b>



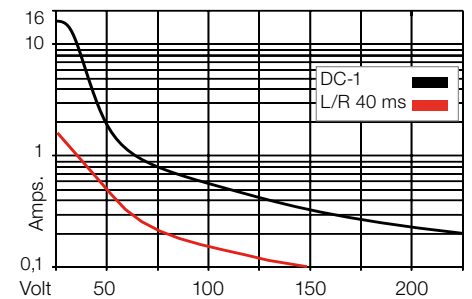
**Connection diagram**



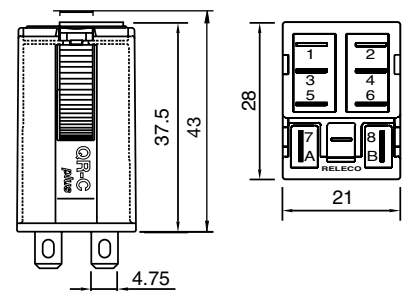
**Fig. 1 AC voltage endurance**



**Fig. 2 DC load limit curve**



**Dimensions [mm]**



**Technical approvals, conformities**



IEC 61810; EN 60947



<b>Type</b>	<b>C7-A2x/ ... V</b> Standard relay 2 change-over contact		
<b>Maximum contact load</b>	<b>10 A/250 V AC-1</b>	<b>0,5 A/110 V DC-1</b>	
	<b>10 A/30 V DC-1</b>	<b>0,2 A/220 V DC-1</b>	
<b>Recommended minimum contact load</b>	<b>10 mA/10 V Code 0, 9</b>		
	<b>5 mA/5 V Code 8</b>		

<b>Contacts</b>			
Material	Standard	Code 0	AgNi
	Optional	Code 8	AgNi + 10 μ Au
	Optional	Code 9	AgNi + 0,2 μ Au
Rated current	10 A		
Switch-on current max. (20 ms)	30 A		
Switching voltage max.	250 V		
AC load (Fig 1)	2,5 kVA		
DC load	see Fig. 2		

<b>Coil</b>			
Coil resistance	see table; tolerance ± 10 %		
Pick-up voltage	≤ 0,8 x U <sub>N</sub>		
Release voltage	≥ 0,1 x U <sub>N</sub>		
Nominal power	1,2 VA (AC)/1 W (DC)		

<b>Coil table</b>					
VAC	Ω	mA	VDC	Ω	mA
24	174	50	12	148	85
48	686	25	24	594	43
115	4K3	10,4	48	2K3	21
230	18K6	5,2	110	11K4	10

<b>Insulation</b>	Volt rms, 1 min
Contact open	1000 V
Contact/contact	2,5 kV
Contact/coil	2,5 kV
Insulation resistance at 500 V	≥ 1 G.Ω
Insulation, IEC 61810-1	2,5 kV/3

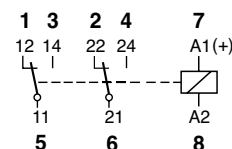
<b>Specifications</b>	
Ambient temperature operation/storage	-40 (no ice)...60 °C /-40 ... 80 °C
Pick-up time/bounce time	16 ms/≤ 3 ms
Release time/bounce time	8 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100000 switching cycles
Switching frequency at rated load	≤ 1200/h
Protection class	IP40
Weight	43 g

<b>Standard types</b>			
<b>VAC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)</b>	<b>C7-A20/AC ... V</b>	<b>C7-A28/AC ... V</b>	<b>C7-A29/AC ... V</b>
<b>LED</b>	<b>C7-A20X/AC ... V</b>	<b>C7-A28X/AC ... V</b>	<b>C7-A29X/AC ... V</b>
<b>VDC 12, 24, 48, 110</b>	<b>C7-A20/DC ... V</b>	<b>C7-A28/DC ... V</b>	<b>C7-A29/DC ... V</b>
<b>LED</b>	<b>C7-A20X/DC ... V</b>	<b>C7-A28X/DC ... V</b>	<b>C7-A29X/DC ... V</b>
<b>Free wheeling diode</b>	<b>C7-A20DX/DC ... V</b>	<b>C7-A28DX/DC ... V</b>	<b>C7-A29DX/DC ... V</b>
<b>Polarity and free wheeling diode</b>	<b>C7-A20FX/DC ... V</b>	<b>C7-A28FX/DC ... V</b>	<b>C7-A29FX/DC ... V</b>
<b>AC/DC bridge rectifier 24 V, 48 V, 60 V</b>	<b>C7-A20BX/UC ... V</b>	<b>C7-A28BX/UC ... V</b>	<b>C7-A29BX/UC ... V</b>

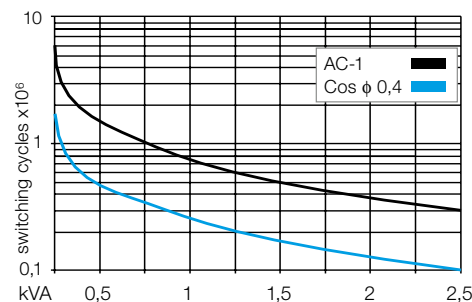
"..." Enter the voltage for full type designation

<b>Accessories</b>	
Socket:	<b>S7-C, S7-I/O, S7-L, S7-P, S7-P0</b>

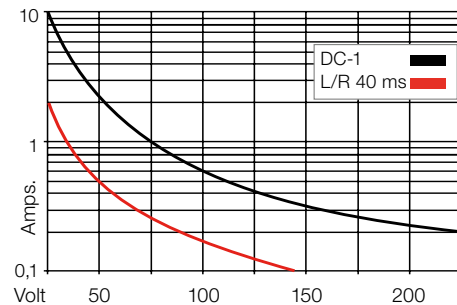
**Connection diagram**



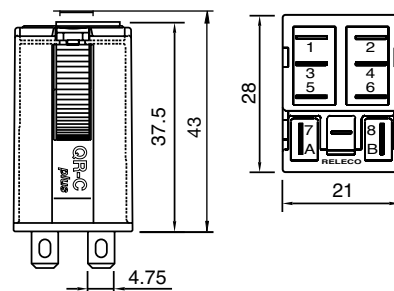
**Fig. 1 AC voltage endurance**



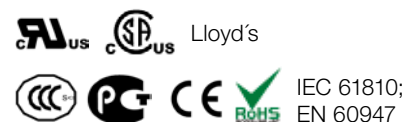
**Fig. 2 DC load limit curve**



**Dimensions [mm]**



**Technical approvals, conformities**



# C7-T2x

## 8-pin, miniature relay, 2-poles, twin contact, faston

<b>Type</b>	<b>C7-T2x/ ... V</b> Standard relays for low level 2 change-over bifurcated contacts			
<b>Maximum contact load</b>	<b>6 A/250 V</b>	<b>AC-1</b>	<b>6 A/30 V</b>	<b>DC-1</b>
<b>Recommended minimum contact load</b>	<b>5 mA/5 V</b>	<b>Code 1</b>		
	<b>1 mA/5 V</b>	<b>Code 2</b>		

<b>Contacts</b>			
Material	Standard	Code 1	AgNi + 0,2 μ Au
	Optional	Code 2	AgNi + 10 μ Au
Rated current	6 A		
Switch-on current max. (20 ms)	15 A		
Switching voltage max.	250 V		
AC load (Fig 1)	1,2 kVA		
DC load	see fig. 2		

<b>Coil</b>			
Coil resistance	see table; tolerance ± 10 %		
Pick-up voltage	≤ 0,8 × U <sub>N</sub>		
Release voltage	≥ 0,1 × U <sub>N</sub>		
Nominal power	1,2 VA (AC)/1 W (DC)		

<b>Coil table</b>					
VAC	Ω	mA	VDC	Ω	mA
24	174	50	12	148	85
48	686	25	24	594	43
115	4K3	10,4	48	2K3	21
230	18K6	5,2	110	11K4	10

<b>Insulation</b>		Volt rms, 1 min
Contact open	1000 V	
Contact/contact	2,5 kV	
Contact/coil	2,5 kV	
Insulation resistance at 500 V	≥ 1 GΩ	
Insulation, IEC 61810-1	2,5 kV/3	

<b>Specifications</b>	
Ambient temperature operation/storage	-40 (no ice)...60 °C / -40 ... 80 °C
Pick-up time/bounce time	16 ms/≤ 3 ms
Release time/bounce time	8 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100000 switching cycles
Switching frequency at rated load	≤ 1200/h
Protection class	IP40
Weight	43 g

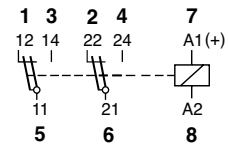
<b>Standard types</b>		
<b>VAC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240) LED</b>	<b>C7-T21/AC ... V</b> <b>C7-T21X/AC ... V</b>	<b>C7-T22/AC ... V</b> <b>C7-T22X/AC ... V</b>
<b>VDC 12, 24, 48, 110 LED</b>	<b>C7-T21/DC ... V</b> <b>C7-T21X/DC ... V</b>	<b>C7-T22/DC ... V</b> <b>C7-T22X/DC ... V</b>
<b>Free wheeling diode</b>	<b>C7-T21DX/DC ... V</b>	<b>C7-T22DX/DC ... V</b>
<b>Polarity and free wheeling diode</b>	<b>C7-T21FX/DC ... V</b>	<b>C7-T22FX/DC ... V</b>
<b>AC/DC bridge rectifier 24 V, 48 V, 60 V</b>	<b>C7-T21BX/UC ... V</b>	<b>C7-T22BX/UC ... V</b>

"..." Enter the voltage for full type designation

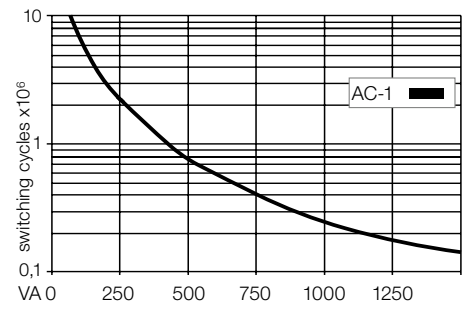
<b>Accessories</b>	
Socket:	<b>S7-C, S7-I/O, S7-L, S7-P, S7-P0</b>



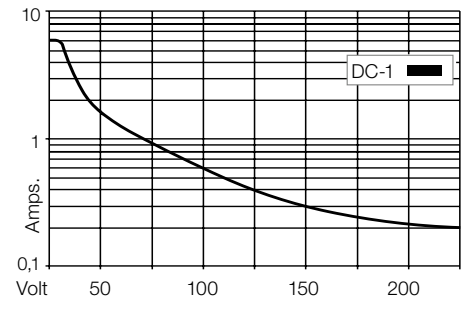
### Connection diagram



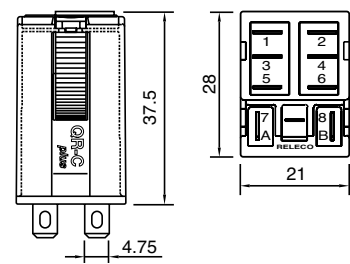
**Fig. 1 AC voltage endurance**



**Fig. 2 DC load limit curve**



### Dimensions [mm]



### Technical approvals, conformities



IEC 61810; EN 60947



<b>Type</b>	<b>C7-G2x/ ... V</b> Power relay, DC application 2 open contacts, gap 1,5mm		
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<b>Maximum contact load</b>	<b>10 A/250 V AC-1</b>	<b>0,8 A/110 V DC-1</b>
	<b>10 A/30 V DC-1</b>	<b>0,4 A/220 V DC-1</b>

<b>Contacts</b>			
Material	Standard	Code 0	AgNi
Rated current			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max			250 V
AC load (Fig 1)			2,5 kVA
DC load			see fig. 2

<b>Coil</b>	
Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0,8 \times U_N$
Release voltage	$\geq 0,1 \times U_N$
Nominal power	1,5 VA (AC)/1,5 W (DC)

<b>Coil table</b>					
VAC	$\Omega$	mA	VDC	$\Omega$	mA
24	153	62	12	99	121
48	611	31	24	388	61
115	3K6	13	48	1K5	32
230	14K6	6,5	110	8K	14

<b>Insulation</b>	
	Volt rms, 1 min
Contact open	2000 V
Contact/contact	2,5 kV
Contact/coil	2,5 kV
Insulation resistance at 500 V	$\geq 1 \text{ G}\Omega$
Insulation, IEC 61810-1	2,5 kV/3

<b>Specifications</b>	
Ambient temperature operation/storage	-40 (no ice)...60 °C / -40 ... 80 °C
Pick-up time/bounce time	20 ms/ $\leq 3$ ms
Release time/bounce time	10 ms/ $\leq 1$ ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100000$ switching cycles
Switching frequency at rated load	$\leq 1200$ /h
Protection class	IP40
Weight	43 g

<b>Standard types</b>	<b>C7-G20/AC ... V</b>
<b>VAC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240) LED</b>	<b>C7-G20X/AC ... V</b>

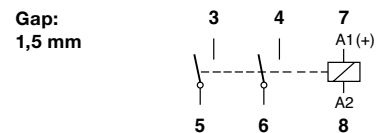
<b>VDC 12, 24, 48, 110 LED</b>	<b>C7-G20/DC ... V</b>
<b>Free wheeling diode</b>	<b>C7-G20X/DC ... V</b>
<b>Polarity and free wheeling diode</b>	<b>C7-G20DX/DC ... V</b>
	<b>C7-G20FX/DC ... V</b>

<b>AC/DC bridge rectifier 24 V, 48 V, 60 V</b>	<b>C7-G20BX/UC ... V</b>
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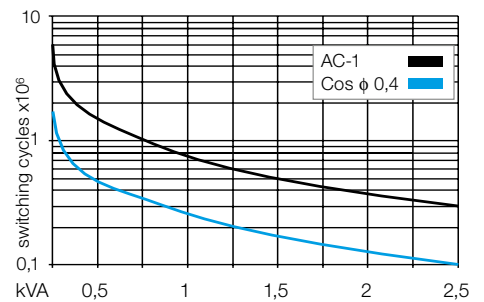
"..." Enter the voltage for full type designation

<b>Accessories</b>	
Socket:	<b>S7-C, S7-I/O, S7-L, S7-P, S7-P0</b>

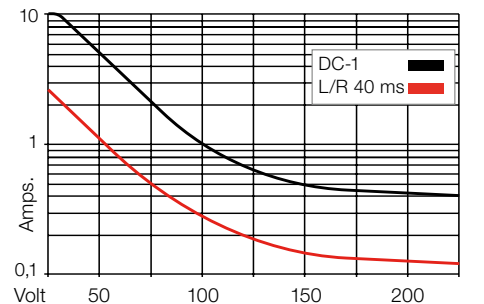
**Connection diagram**



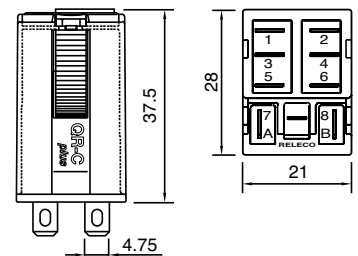
**Fig. 1 AC voltage endurance**



**Fig. 2 DC load limit curve**



**Dimensions [mm]**



**Technical approvals, conformities**



IEC 61810; EN 60947

# C7-X1x

## 4-pin, miniature power relay, 1-pole, double make contact, faston

<b>Type</b>	<b>C7-X1x/ ... V</b> Power relay, DC application 1 pole, NO, double make		
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<b>Maximum contact load</b>	<b>10 A/250 V AC-1</b>	<b>6 A/110 V DC-1</b>
	<b>10 A/30 V DC-1</b>	<b>1 A/220 V DC-1</b>

**Contacts**

Material	Standard	Code 0	AgNi
Rated current			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max.			250 V
AC load			2,5 kVA
DC load			see Fig. 2

**Coil**

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0,8 x U <sub>N</sub>
Release voltage	≥ 0,1 x U <sub>N</sub>
Nominal power	1,5 VA (AC)/1,3 W (DC)

**Coil table**

VAC	Ω	mA	VDC	Ω	mA
24	153	62	12	111	108
48	611	31	24	432	55
115	3K6	13	48	1K7	27
230	14K6	6,5	110	9K2	12

**Insulation**

	Volt rms, 1 min
Contact open	2,5 kV
Contact/coil	2,5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, IEC 61810-1	2,5 kV/3

**Specifications**

Ambient temperature operation/storage	-40 (no ice)...60 °C / -40 ... 80 °C
Pick-up time/bounce time	20 ms/≤ 3 ms
Release time/bounce time	10 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100000 switching cycles
Switching frequency at rated load	≤ 1200/h
Protection class	IP40
Weight	43 g

**Standard types**

VAC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)  
LED

VDC 12, 24, 48, 110

LED

Free wheeling diode

Polarity and free wheeling diode

AC/DC bridge rectifier 24 V, 48 V, 60 V

C7-X10/AC ... V  
C7-X10X/AC ... V

C7-X10/DC ... V  
C7-X10X/DC ... V  
C7-X10DX/DC ... V  
C7-X10FX/DC ... V

C7-X10BX/UC ... V

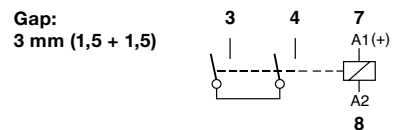
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**Accessories**

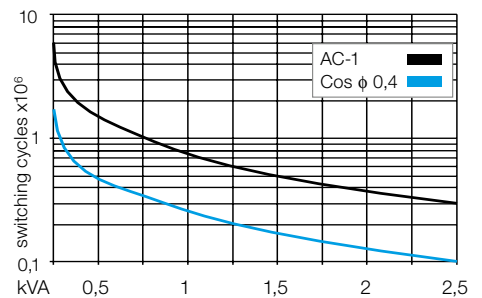
Socket: **S7-C, S7-I/O, S7-L, S7-P, S7-P0**



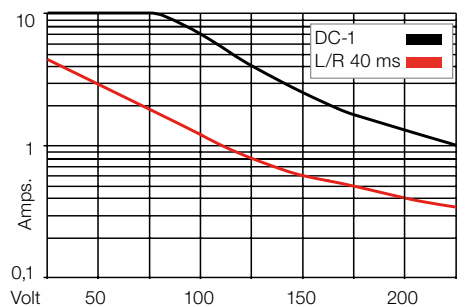
**Connection diagram**



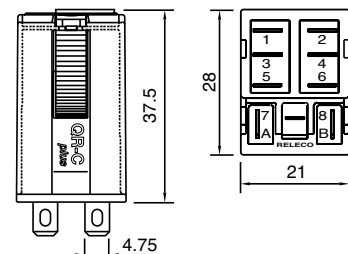
**Fig. 1 AC voltage endurance**



**Fig. 2 DC load limit curve**



**Dimensions [mm]**



**Technical approvals, conformities**



IEC 61810; EN 60947



<b>Type</b>	<b>C7-H23/ ... V</b> Special relays 1 x CO power contact 1 x CO twin contact		
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<b>Maximum contact load</b>	<b>10 A / 250 V AC-1</b>	<b>6 A / 250 V AC-1</b>	<b>6 A / 30 V DC-1</b>
<b>Recommended minimum contact load</b>	<b>10 mA/10 V (Power contacts)</b> <b>5 mA/5V (twin contacts)</b>		

**Contacts**

**Power contact**

Standard material	AgNi
Rated current	10 A
Switch-on current max. (20 ms)	30 A
Switching voltage max.	2,5 kV
AC load (Fig 1)	2,5 VA
DC load	see fig. 2

\*Power contact only

**Twin contact**

Standard material	AgNi + 0,2 μ Au
Rated current	6 A
Switch-on current max. (20 ms)	15 A
Switching voltage max.	250 V

**Coil**

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0,8 x U <sub>N</sub>
Release voltage	≥ 0,1 x U <sub>N</sub>
Nominal power	1,2 VA (AC) / 1 W (DC)

**Coil table**

VAC	Ω ± 10%	mA	VDC	Ω ± 10%	mA
24	174	50	12	148	81
48	686	25	24	594	40
115	4K3	10.4	48	2K3	21
230	18K6	5.2	110	11K4	10

**Insulation**

	Volt rms, 1 min
Contact open	1000 V
Contact/contact	2,5 kV
Contact/coil	2,5 kV
Insulation, IEC 61810-1:	2,5 kV/3

**Specifications**

Ambient temperature operation/storage	40 (no ice)...60 °C / -40 ... 80 °C
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
Protection class	IP40
Weight	43 g

**Standard types**

**VAC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240) LED**

**C7-H23/AC ... V**  
**C7-H23X/AC ... V**

**VDC 12,24, 48, 110**

**LED**

**C7-H23/DC ... V**  
**C7-H23X/DC ... V**  
**C7-H23DX/DC ... V**  
**C7-H23FX/DC ... V**

**Free wheeling diode**

**Polarity and free wheeling diode**

**UC 24 V, 48 V, 60 V**

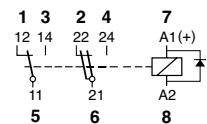
**C7-H23BX/UC ... V**

"..." Enter the voltage for full type designation

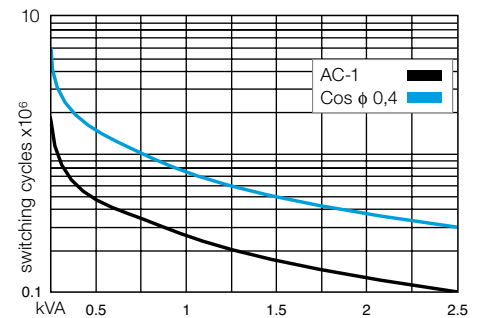
**Accessories**

Socket: **S7-C, S7-I/O, S7-L, S7-P, S7-PO**

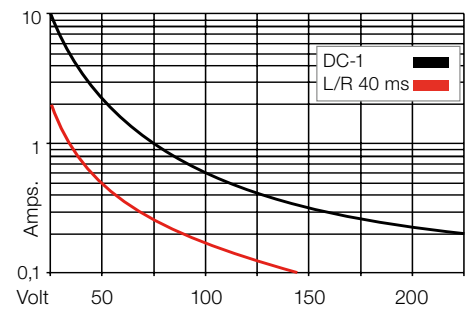
**Connection diagram**



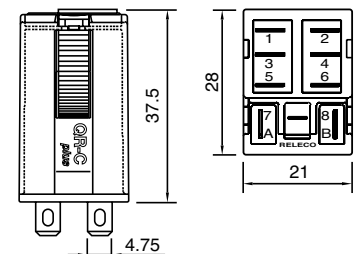
**\*Fig. 1 AC voltage endurance**



**\*Fig. 2 DC load limit curve**



**Dimensions [mm]**



**Technical approvals, conformities**



IEC 61810; EN 60947

# C7-W1x

## 4-pin, miniature relay, 1-pole, tungsten contact, faston

**Type:** **C7-W1x/ ... V**  
 Power relay for high inrush current  
 1 pole normally open

**Maximum contact load:** **10 A/250 V AC-1**      **6 A/250 V AC-5a/b**  
**Recommended minimum contact load:** **10 mA/10 V**

**Contacts**

Material	Standard	Code 0	AgNi/W
Rated current			10 A
Switch-on current max. (2,5 ms)			500 A
Switching voltage max.			250 V
AC load (Fig 1)			2,5 kVA
DC load			see fig. 2

**Coil**

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0,8 × U <sub>N</sub>
Release voltage	≥ 0,1 × U <sub>N</sub>
Nominal power	1,5 VA (AC)/1,5 W (DC)

**Coil table**

VAC	Ω	mA	VDC	Ω	mA
24	153	62	12	99	121
48	611	31	24	388	61
115	3K6	13	48	1K5	32
230	14K5	6,5	110	8K	14

**Insulation**

	Volt rms, 1 min
Contact open	1000 V
Contact/coil	2,5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, IEC 61810-1	2,5 kV

**Specifications**

Ambient temperature operation/storage	-40 (no ice)...60 °C / -40 ... 80 °C
Pick-up time/bounce time	20 ms/≤ 3 ms
Release time/bounce time	10 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100000 switching cycles
Switching frequency at rated load	≤ 1200/h
Protection class	IP40
Weight	43 g

**Standard types**

**VAC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240) LED**

**VDC 12, 24, 48, 110 LED**

**Free wheeling diode**

**Polarity and free wheeling diode**

**AC/DC bridge rectifier 24 V, 48 V, 60 V**

**C7-W10/AC ... V**  
**C7-W10X/AC ... V**

**C7-W10/DC ... V**  
**C7-W10X/DC ... V**  
**C7-W10DX/DC ... V**  
**C7-W10FX/DC ... V**

**C7-W10BX/UC ... V**

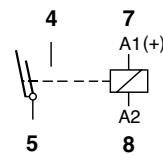
"..." Enter the voltage for full type designation

**Accessories**

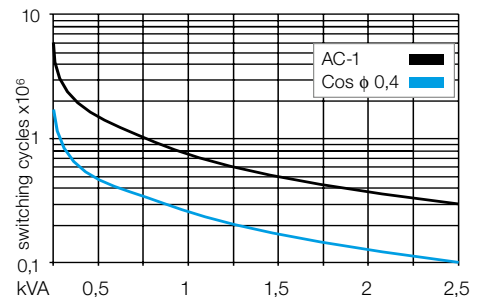
Socket: **S7-C, S7-I/O, S7-L, S7-P, S7-P0**  
 Optional accessories (blanking plug): **S9-NP, S9-OP**



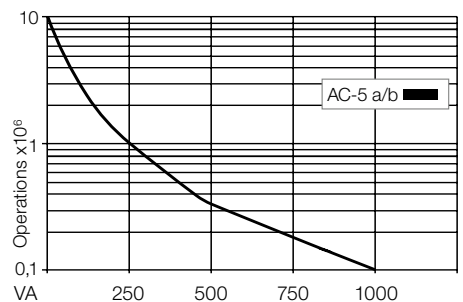
**Connection diagram**



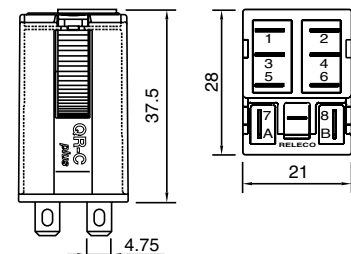
**Fig. 1 AC voltage endurance**



**Fig. 2 AC voltage endurance**



**Dimensions [mm]**



**Technical approvals, conformities**



IEC 61810; EN 60947



# R7-A2x

## 8-pin, miniature standard relay, 2-pole, plug-in

Relay approval: EN 60077-1-2/99 - EN 61373/99 for Railway application

<b>Type</b>	<b>R7-A2x/DC ... V</b> Railway application Sensitive, 2 change-over contacts
-------------	--

<b>Maximum contact load:</b>	<b>10 A/250 V AC-1 10A/30V DC-1</b>
<b>Recommended minimum contact load</b>	<b>10 mA/10 V Code 0, 4 5 mA/5 V Code 8</b>

### Contacts

Material	Standard	Code 0	AgNi
	Optional	Code 4	AgNi + 0,2µ Au
	Optional	Code 8	AgNi + 10µ Au
Rated current	10 A		
Switch-on current max. (20 ms)	30 A		
Switching voltage max.	250 V		
AC load	see fig. 1		
DC load	see fig. 2		

### Coil

Coil resistance	see table; tolerance ± 10 %
Release voltage	0,7 U <sub>N</sub> ... 1,25 U <sub>N</sub>
Pick-up voltage	≥ 0,1 x U <sub>N</sub>
Nominal power	1,07 W

### Coil table

Voltage	Ω ± 10%	mA
24	535	45
48	2004	24
72	4750	15
110	11337	10

### Insulation

	Volt rms, 1 min
Pollution grade	PD3
Pulse (1,2 /50µs) Dielectric strenght (1Minute/V rms)	
Contact/coil	4KV / 2200V
Between different poles	4KV / 2200V
Between contact and the same pole	1550 / 850V

### Specifications

Ambient temperature operation/storage	-25 (no ice)...70 °C / -40 ... 80 °C
Number of mechanical operations	>20millions
Thermic class	B (130° C)
Vibration : category / class	1 / B Body mounted
Vibration	5-150Hz (3 axes)
Shock	5g (3 axes)
Operation (UN) / release time	10 ms/ 15 ms
Weight	35 g
Weight avg. Relay + Socket (S7-M)	75g
Protection class	IP40

### Standard types

<b>VDC 24, 48, 72, 110</b>	<b>R7-A20/DC ... V</b>	<b>R7-A24/DC ... V</b>	<b>R7-A28/DC ... V</b>
<b>LED</b>	<b>R7-A20X/DC ... V</b>	<b>R7-A24X/DC ... V</b>	<b>R7-A28X/DC ... V</b>
<b>Free wheeling diode</b>	<b>R7-A20D/DC ... V</b>	<b>R7-A24D/DC ... V</b>	<b>R7-A28D/DC ... V</b>
<b>LED + free wheeling diode</b>	<b>R7-A20DX/DC ... V</b>	<b>R7-A24DX/DC ... V</b>	<b>R7-A28DX/DC ... V</b>

"..." Enter the voltage for full type designation

### Accessories

Socket:	<b>S7-C, S7-I/O, S7-L, S7-P, S7-P0</b>
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### Connection diagram

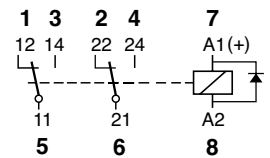


Fig. 1 AC voltage endurance

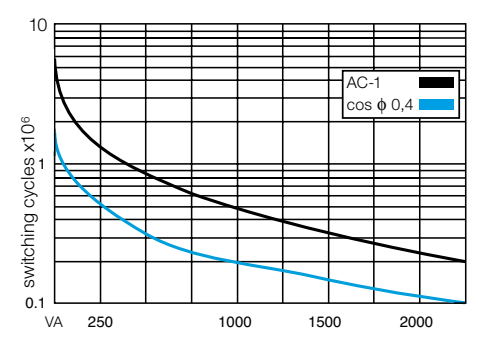
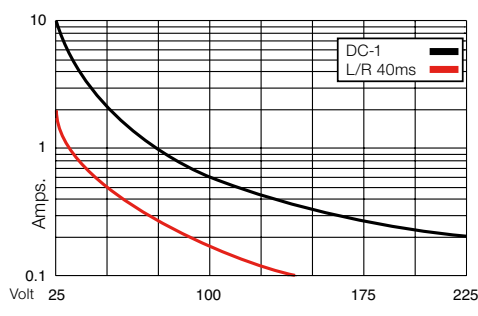
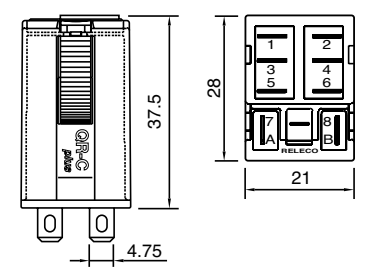


Fig. 2 DC load limit curve



### Dimensions [mm]



### Technical approvals, conformities



EN 60077-1-2/99; EN 61373/99

# R7-T2x

**8-pin, miniature industrial relay, 2-pole, change-over contact, faston**  
**Relay approval: EN 60077-1-2/99 - EN 61373/99 for Railway application**



<b>Type</b>	<b>R7-T2x/DC ... V</b> Railway application Sensitive, 2 change-over contact		
<b>Maximum contact load</b>	<b>6 A/250 V AC-1</b>		<b>6 A/30 V DC-1</b>
<b>Recommended minimum contact load</b>	<b>5 mA/5 V Code 1</b> <b>1 mA/5 V Code 2</b>		

<b>Contacts</b>			
Material	Standard	Code 1	AgNi + 0,2μ Au
	Optional	Code 2	AgNi + 10μ Au
Rated current	6 A		
Switch-on current max. (20 ms)	15 A		
Switching voltage max.	250 V		
AC load	see fig. 1		
DC load	see fig. 2		

<b>Coil</b>	
Coil resistance	see table; tolerance ± 10 %
Operation range	0,7 U <sub>N</sub> ... 1,25 U <sub>N</sub>
Contact open	≥ 0,1 x U <sub>N</sub>
Nominal power	1,07 W

<b>Coil table</b>	Voltage	Ω ± 10%	mA
	24	535	45
	48	2004	24
	72	4750	15
	110	11337	10

<b>Insulation</b>	Volt rms, 1 min
Pollution grade	PD3
Pulse (1,2 / 50μs) Dielectric strenght (1Minute/V rms)	
Contact/coil	4KV / 2200V
Between different poles	4KV / 2200V
Between contact and the same pole	1550 / 850V

<b>Specifications</b>	
Ambient temperature operation/storage	-25 (no ice)...70 °C / -40 ... 80 °C
Number of mechanical operations	≥ 20 millions
Thermic class	B (130° C)
Vibration : category / class	1 / B Body mounted
Vibration	5-150Hz (3 axes)
Shock	5g (3 axes)
Operation (UN) / release time	10 ms/ 15 ms
Weight	35 g
Weight avg. Relay + Socket (S7-M)	75g
Protection class	IP40

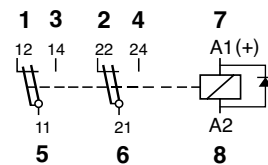
<b>Standard types</b>		
<b>VDC 24, 48, 72, 110</b>	<b>R7-T21/DC ... V</b>	<b>R7-T22/DC ... V</b>
<b>LED</b>	<b>R7-T21X/DC ... V</b>	<b>R7-T22X/DC ... V</b>
<b>Free wheeling diode</b>	<b>R7-T21D/DC ... V</b>	<b>R7-T22D/DC ... V</b>
<b>LED + free wheeling diode</b>	<b>R7-T21DX/DC ... V</b>	<b>R7-T22DX/DC ... V</b>

"..." Enter the voltage for full type designation

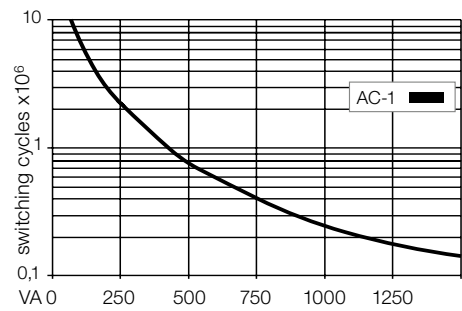
<b>Accessories</b>	
Socket:	<b>S7-C, S7-I/O, S7-L, S7-P, S7-P0</b>



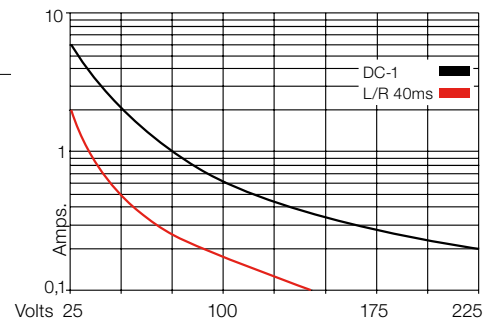
**Connection diagram**



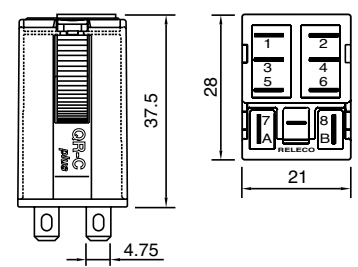
**Fig. 1 AC voltage endurance**



**Fig. 2 DC load limit curve**



**Dimensions [mm]**



**Technical approvals, conformities**



IEC 60077; EN 60077-1-2/99; EN 61373/99



<b>Type</b>	<b>C9-A4x/ ... V</b> Standard relays 4 change-over contacts			
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<b>Maximum contact load</b>	<b>5 A/250 V AC-1</b>	<b>5 A/30 V DC-1</b>		
<b>Recommended minimum contact load</b>	<b>10 mA/10 V Code 1</b>			
	<b>5 mA/5 V Code 2</b>			

<b>Contacts</b>				
Material	Standard	Code 1	AgNi + 0,2 μ Au	
	Optional	Code 2	AgNi + 10 μ Au	
Rated current	5 A			
Switch-on current max. (20 ms)	15 A			
Switching voltage max (same polarity)	250 V			
AC load (Fig 1)	1,250 kVA			
DC load	see Fig. 2			

<b>Coil</b>				
Coil resistance	see table; tolerance ± 10 %			
Pick-up voltage	≤ 0,8 × U <sub>N</sub>			
Release voltage	≥ 0,1 × U <sub>N</sub>			
Nominal power	1,2 VA (AC)/1 W (DC)			

<b>Coil table</b>					
VAC	Ω	mA	VDC	Ω	mA
24	174	50	12	148	81
48	686	25	24	594	40
115	4K3	10,4	48	2K3	21
230	18K6	5,2	110	11K4	11

<b>Insulation</b>		Volt rms, 1 min
Contact open		1000 V
Contact/contact		2 kV
Contact/coil		2,5 kV
Insulation resistance at 500 V		≥ 1 GΩ
Insulation, IEC 61810-1		2,5 kV/3

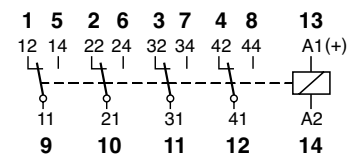
<b>Specifications</b>	
Ambient temperature operation/storage	-40 (no ice)...60 °C /-40 ... 80 °C
Pick-up time/bounce time	10 ms/≤ 3 ms
Release time/bounce time	6 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100000 switching cycles
Switching frequency at rated load	≤ 1200/h
Protection class	IP40
Weight	43 g

<b>Standard types</b>		
<b>VAC 50 Hz/60 Hz: 24, 48, 115, 230 (240) LED</b>	<b>C9-A41/AC ... V</b> <b>C9-A41X/AC ... V</b>	<b>C9-A42/AC ... V</b> <b>C9-A42X/AC ... V</b>
<b>VDC 12, 24, 48, 110 LED</b>	<b>C9-A41/DC ... V</b> <b>C9-A41X/DC ... V</b>	<b>C9-A42/DC ... V</b> <b>C9-A42X/DC ... V</b>
<b>Free wheeling diode</b>	<b>C9-A41DX/DC ... V</b>	<b>C9-A42DX/DC ... V</b>
<b>Polarity and free wheeling diode</b>	<b>C9-A41FX/DC ... V</b>	<b>C9-A42FX/DC ... V</b>
<b>AC/DC bridge rectifier 24 V, 48 V, 60 V</b>	<b>C9-A41BX/UC ... V</b>	<b>C9-A42BX/UC ... V</b>

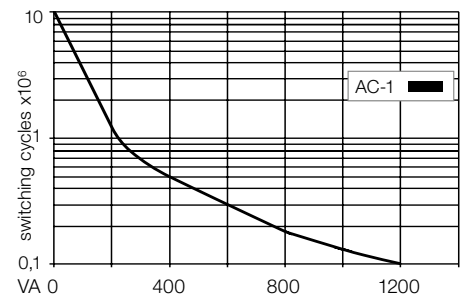
"..." Enter the voltage for full type designation

<b>Accessories</b>	
Socket:	<b>S9-M, S9-L, S9-P, S9-P0</b>
Optional accessories (blanking plug):	<b>S9-NP, S9-OP</b>

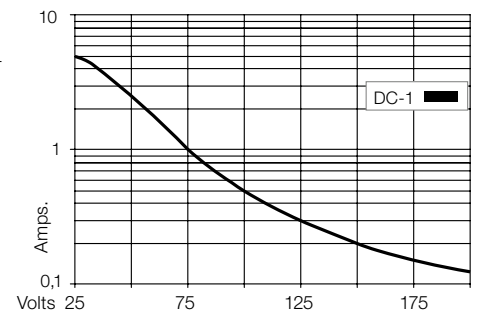
**Connection diagram**



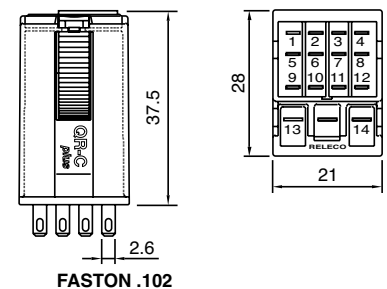
**Fig. 1 AC voltage endurance**



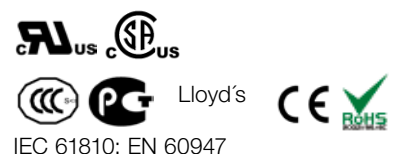
**Fig. 2 DC load limit curve**



**Dimensions [mm]**



**Technical approvals, conformities**



IEC 61810; EN 60947

# C9-E2x

## 8-pin, miniature relay, 2-pole, plug-in, faston

<b>Type</b>	<b>C9-E2x/ ... V</b> Sensitive relay, 500 mW 2 change-over contacts			
<b>DC operating range</b>	<b>0,8 ...1,7 x U<sub>N</sub></b>			
<b>Maximum contact load</b>	<b>5 A/250 V</b>	<b>AC-1</b>	<b>5 A/30 V</b>	<b>DC-1</b>
<b>Recommended minimum contact load</b>	<b>10 mA/10 V</b>	<b>Code 1</b>	<b>5 mA/5 V</b>	<b>Code 2</b>

<b>Contacts</b>			
Material	Standard	Code 1	AgNi + 0,2 μ Au
	Optional,	Code 2	AgNi + 10 μ Au
Rated current	5 A		
Switch-on current max. (20 ms)	15 A		
Switching voltage max.	250 V		
AC load (Fig 1)	1200 VA		
DC load	see fig. 2		

<b>Coil</b>			
Coil resistance	see table; tolerance ± 10 %		
Pick-up voltage	≤ 0,8 x U <sub>N</sub>		
Release voltage	≥ 0,1 x U <sub>N</sub>		
Nominal power	0,8 VA (AC)/0,5 W (DC)		

<b>Coil table</b>					
VAC	Ω	mA	VDC	Ω	mA
24	238	33	12	288	42
48	1K	17	24	1K1	21
115	5K9	7	48	4K6	10
230	23K9	3,5	110	24K2	4,5

<b>Insulation</b>	Volt rms, 1 min
Contact open	1000 V
Contact/contact	2,5 kV
Contact/coil	2,5 kV
Insulation resistance at 500 V	≥1 GΩ
Insulation, IEC 61810-1	2,5 kV/3

<b>Specifications</b>	
Ambient temperature operation/storage	-40 (no ice)...60 °C /-40 ... 80 °C
Pick-up time/bounce time	10 ms/≤ 3 ms
Release time/bounce time	6 ms/≤ 1 ms
Mechanical life	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥100000 switching cycles
Switching frequency at rated load	≤ 1200/h
Protection class	IP40
Weight	40 g

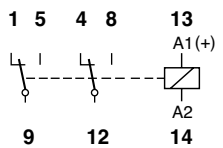
<b>Standard types</b>		
<b>VAC 50 Hz/60 Hz: 24, 48, 115, 230 (240) LED</b>	<b>C9-E21/AC ... V</b> <b>C9-E21X/AC ... V</b>	<b>C9-E22/AC ... V</b> <b>C9-E22X/AC ... V</b>
<b>VDC 12, 24, 48, 110, 220 LED</b>	<b>C9-E21/DC ... V</b> <b>C9-E21X/DC ... V</b>	<b>C9-E22/DC ... V</b> <b>C9-E22X/DC ... V</b>
<b>Free wheeling diode</b>	<b>C9-E21DX/DC ... V</b>	<b>C9-E22DX/DC ... V</b>
<b>Polarity and free wheeling diode</b>	<b>C9-E21FX/DC ... V</b>	<b>C9-E22FX/DC ... V</b>
<b>AC/DC bridge rectifier 24 V, 48 V, 60 V</b>	<b>C9-E21BX/UC ... V</b>	<b>C9-E22BX/UC ... V</b>

"..." Enter the voltage for full type designation

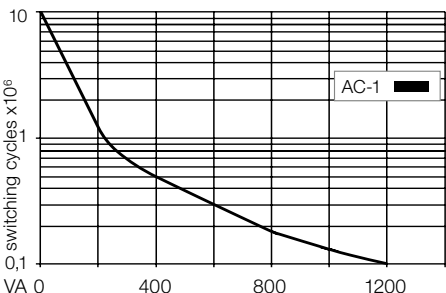
<b>Accessories</b>	
Socket:	<b>S9-M, S9-L, S9-P, S9-P0</b>
Optional accessories (blanking plug):	<b>S9-NP, S9-OP</b>



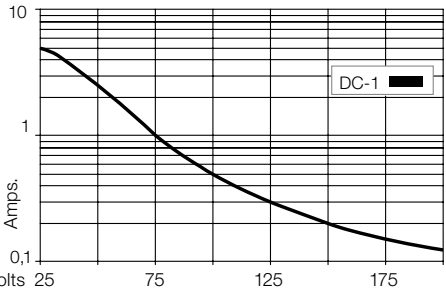
### Connection diagram



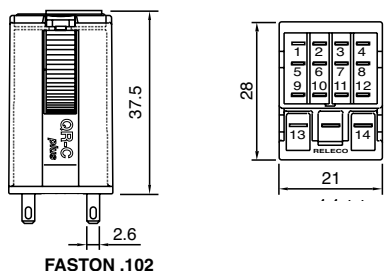
**Fig. 1 AC voltage endurance**



**Fig. 2 DC load limit curve**



### Dimensions [mm]



### Technical approvals, conformities





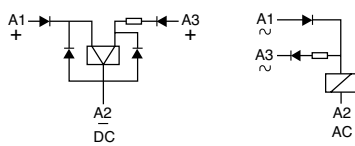
<b>Type</b>	<b>C9-R2x/ ... V</b> Magnetic latching relay 2 change-over contacts		
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<b>Maximum contact load</b>	<b>5 A/120V AC-1</b>	<b>5 A/30 V DC-1</b>
<b>Recommended minimum contact load</b>	<b>10 mA/10 V</b>	

<b>Contacts</b>			
Material	Standard	Code 1	AgNi + 0,2 μ Au
Rated current			5 A
Switch-on current max. (20 ms)			15 A
Switching voltage max.			120V
AC load			600 VA
DC load			see Fig. 2

<b>Coil</b>	
Coil resistance	see table; tolerance ± 10 %
ON pulse power	1,2 VA/W
OFF pulse power	0,3 VA/W
1 winding for AC, 2 winding for DC	

**Internal Diagram:**



**Coil table**

VAC	mA ON	mA OFF	VDC	mA ON	mA OFF
24	50	8	12	100	25
48	25	4	24	50	12
115	10	2	48	25	6
230	5	1	60	20	5

<b>Insulation</b>		Volt rms, 1 min
Contact open		1000 V
Contact/contact		2 kV
Contact/coil		2 kV
Insulation resistance at 500 V		≥1 G.Ω
Insulation, IEC 61810-1		2,5 kV/2

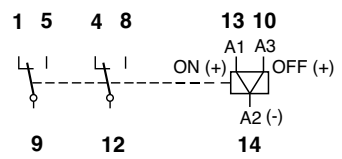
<b>Specifications</b>	
Ambient temperature operation/storage	-40 (no ice)...60 °C / -40 ... 80 °C
Minimum pulse ON/OFF	50 ms
Mechanical life	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥100000 switching cycles
Switching frequency at rated load	≤ 1200/h
Protection class	IP40
Weight	43 g

<b>Standard types</b>	<b>C9-R21/AC ... V</b>
<b>AC 50 Hz/60 Hz: 24, 48, 115, 230</b>	
<b>DC 12, 24, 48, 60</b>	<b>C9-R21/DC ... V</b>

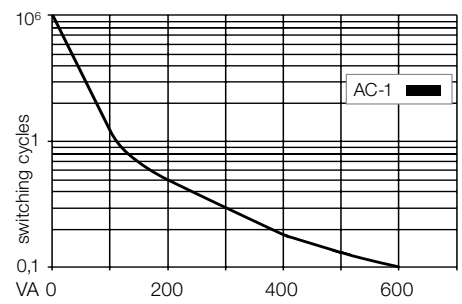
"..." Enter the voltage for full type designation

<b>Accessories</b>	
Socket:	<b>S9-M, S9-L, S9-P, S9-P0</b>
Optional accessories (blanking plug):	<b>S9-NP, S9-OP</b>

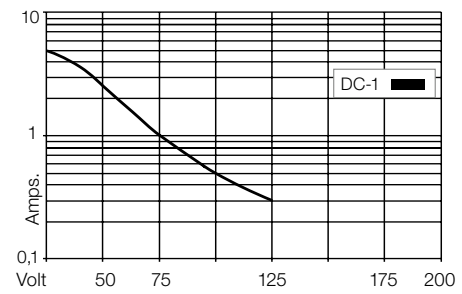
**Connection diagram**



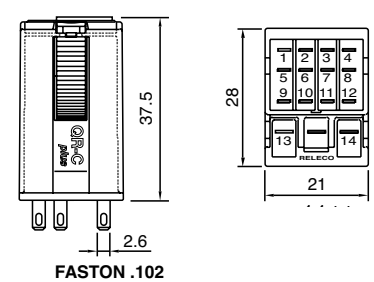
**Fig. 1 AC voltage endurance**



**Fig. 2 DC load limit curve**



**Dimensions [mm]**



**Technical approvals, conformities**

