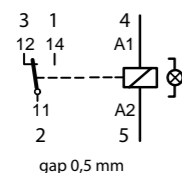
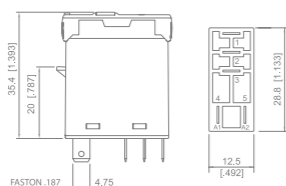


RF1010

**1 CHANGE-OVER CONTACT,
5 FASTON, SPDT**



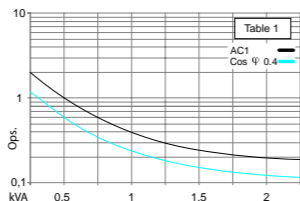
Dimensions mm [in]



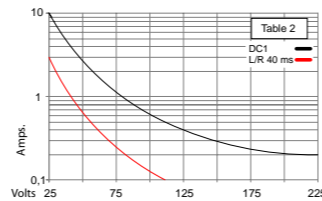
gap 0,5 mm

General application 10 A 250 V AC-1 0,5 A 110 V DC-1
10 A 30 V DC-1 0,2 A 220 V DC-1
13 A 250 V AC-1 (UL)

Electric life, ops x 10⁶



Maxim load in VDC



Standard types

AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
RF1010NN, RF1010LN, RF1010NR
DC: 12, 24, 48, 110
RF1010NN, RF1010LN, RF1010LE
AC/DC: RQ1010LU
Sockets: SFB10D, SFR10D, SFP10X

Contacts

Max. switching current 10 A
Max. peak inrush current, 20ms 30 A (120A AgSnO₂)
Max. Switching voltage 250 V
Max. VAC load (table 1) 2,5 kVA
Max. VDC load see (table 2)
Contact material AgNi (std), std + 10 μ Au, AgSnO₂

Insulation

Contact
Open contact 1000 V
Contact/coil 5 kV
Insulation resistance at 500 V >3G Ω
Insulation, EN 61810-1 4 kV / 3



Specifications

Pick-up time/bounce time 10 ms / ≤ 1 ms
Release time/bounce time 5 ms / ≤ 3 ms
Ambient temperature, operation/storage -40°C (no ice) 70°C/80°C
Mechanical life ops. VAC: 10 Mill./VDC: 20 Mill
VDC voltage endurance at rated load >100.000 ops.
Switching frequency at rated load 1200/h.
Protection class IP40 / RT1
Weight 21 g.

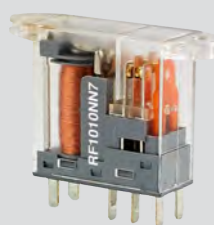
Coils

Pick-up voltage < 0,8 x Un
Release voltage > 0,1 x Un
Nominal power 1,1 VA (VAC) / 0,7 W (VDC)

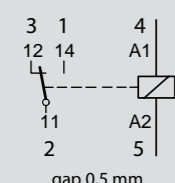
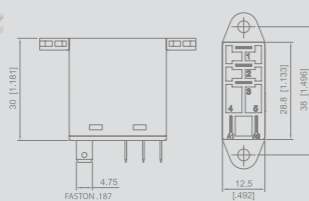
VAC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1.200	23	24	742	32
115	7.300	9,5	48	3.500	13,7
230	28.800	4,7	110	19.900	5,5

RF1010N
N7

**1 CHANGE-OVER CONTACT,
PANEL MOUNTING, 5 FASTON,
SPDT**



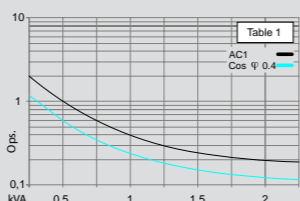
Dimensions mm [in]



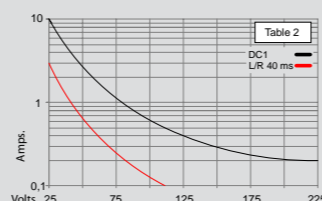
gap 0,5 mm

General application 10 A 250 V AC-1 0,5 A 110 V DC-1
10 A 30 V DC-1 0,2 A 220 V DC-1

Electric life, ops x 10⁶



Maxim load in VDC



Standard types

AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
RF1010NN7
DC: RF1010NN7

Contacts

Max. switching current 10 A
Max. peak inrush current, 20ms 30 A
Max. Switching voltage 250 V
Max. VAC load (table 1) 2,5 kVA
Max. VDC load see (table 2)

Insulation

Contact
Open contact 1000 V
Contact/coil 5 kV
Insulation resistance at 500 V >3G Ω
Insulation, EN 61810-1 4 kV / 3



Specifications

Pick-up time/bounce time 10 ms. / ≤ 1 ms
Release time/bounce time 5 ms. / ≤ 3 ms
Ambient temperature, operation/storage -40°C (no ice) 70°C/80°C
Mechanical life ops. VAC: 10 Mill./VDC: 20 Mill
VDC voltage endurance at rated load >100.000 ops.
Switching frequency at rated load 1200/h.
Protection class IP40 / RT1
Weight 21 g.

Coils

Pick-up voltage < 0,8 x Un
Release voltage > 0,1 x Un
Nominal power 1,1 VA (VAC) / 0,7 W (VDC)

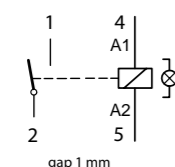
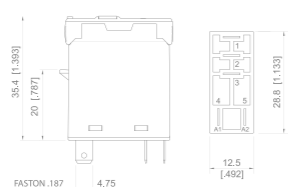
VAC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1.200	23	24	742	32
115	7.300	9,5	48	3.500	13,7
230	28.800	4,7	110	19.900	5,5

RF1014

**1 OPEN CONTACT, (NO)
4 FASTON, SPST**



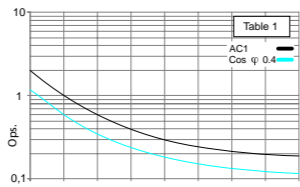
Dimensions mm [in]



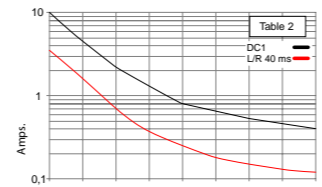
gap 1 mm

Application for VDC 10 A 250 V AC-1 0,8 A 110 V DC-1
10 A 30 V DC-1 0,4 A 220 V DC-1

Electric life, ops x 10⁶



Maxim load in VDC



Standard types

AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
RF1014NN, RF1014LN, RF1014NR
DC: 12, 24, 48, 110
RF1014NN, RF1014LN, RF1014LE
AC/DC: RF1014LU
Sockets: SFB10D, SFR10D, SFP10X

Contacts

Max. switching current 10 A
Max. peak inrush current, 20ms 30 A (120A AgSnO₂)
Max. Switching voltage 250 V
Max. VAC load (table 1) 2,5 kVA
Max. VDC load see (table 2)
Contact material AgNi (std), std + 10 μ Au, AgSnO₂

Insulation

Contact
Open contact 2000 V
Contact/coil 5 kV
Insulation resistance at 500 V >3G Ω
Insulation, EN 61810-1 4 kV / 3



Specifications

Pick-up time/bounce time 10 ms / ≤ 1 ms
Release time/bounce time 8 ms / ≤ 3 ms
Ambient temperature, operation/storage -40°C (no ice) 70°C/80°C
Mechanical life ops. VAC: 10 Mill./VDC: 20 Mill
VDC voltage endurance at rated load >100.000 ops.
Switching frequency at rated load 1200/h.
Protection class IP40 / RT1
Weight 21 g.

Coils

Pick-up voltage < 0,8 x Un
Release voltage > 0,1 x Un
Nominal power 1,1 W / 0,7 W (VDC)

VAC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1.200	23	24	742	32
115	7.300	9,5	48	3.500	13,7
230	28.800	4,7	110	19.900	5,5

RF/RS interface relays and solid state relays

RF1217

RF1222

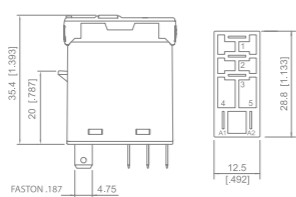
RS1614

RF1217

1 TWIN CHANGE-OVER CONTACT, 5 FASTON, SPDT

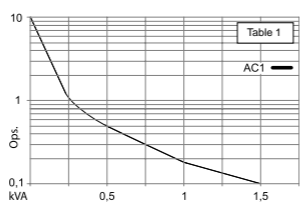


Dimensions mm [in]

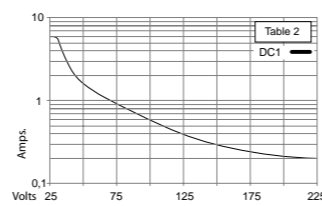


Low signal 6 A 250 V AC-1 0,5 A 110 V DC-1
 6 A 30 V DC-1 0,2 A 220 V DC-1

Electric life, ops x 10⁶

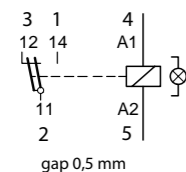


Maxim load in VDC



Standard types

AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
 RF1217NN, RF1217LN, RF1217NR
 DC: 12, 24, 48, 110
 RF1217NN, RF1217LN, RF1217LE
 AC/DC:RF1217LU
 Sockets: SFB10D, SFR10D, SFP10X



Contacts

Max. switching current 6 A
 Max. peak inrush current, 20ms 15 A
 Max. Switching voltage 250 V
 Max. VAC load (table 1) 1,5 kVA
 Max. VDC load see (table 2)
 Contact material AgNi + 3 μ Au (std), AgNi + 10 μ Au

Insulation

Contact
 Open contact 1000 V
 Contact/coil 5 kV
 Insulation resistance at 500 V >3G Ω
 Insulation, EN 61810-1 4 kV / 3



Specifications

Pick-up time/bounce time 10 ms / 1 ms
 Release time/bounce time 5 ms / ≤ 3 ms
 Ambient temperature, operation/storage ... -40°C (no ice) 70°C/80°C
 Mechanical life ops. VAC:10 Mill./VDC:20 Mill
 VDC voltage endurance at rated load >100.000 ops.
 Switching frequency at rated load 1200/h.
 Protection class IP40 / RT1
 Weight 21 g.

Coils

Pick-up voltage < 0,8 x Un
 Release voltage > 0,1 x Un
 Nominal power 1,1 VA (VAC) / 0,7 W (VDC)

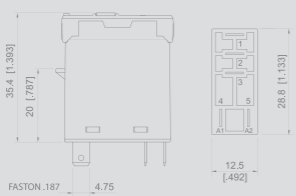
VAC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1.200	23	24	742	32
115	7.300	9,5	48	3.500	13,7
230	28.800	4,7	110	19.900	5,5

RF1222

1 TWIN CHANGE-OVER CONTACT, NO, 4 FASTON, SPST

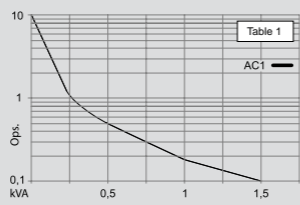


Dimensions mm [in]

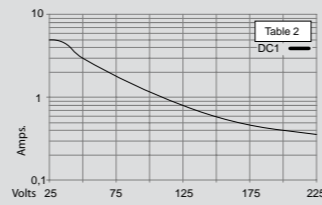


Application for VDC 6 A 250 V AC-1 0,8 A 110 V DC-1
 6 A 30 V DC-1 0,4 A 220 V DC-1

Electric life, ops x 10⁶

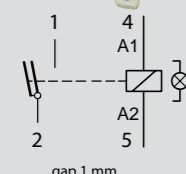


Maxim load in VDC



Standard types

AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
 RF1222NN, RF1222LN, RF1222NR
 DC: 12, 24, 48, 110
 RF1222NN, RF1222LN, RF1222LE
 AC/DC:RF1222LU
 Sockets: SFB10D, SFR10D, SFP10X



Contacts

Max. switching current 6 A
 Max. peak inrush current, 20ms 15 A
 Max. Switching voltage 250 V
 Max. VAC load (table 1) 1,5 kVA
 Max. VDC load see (table 2)
 Contact material AgNi + 3 μ Au (std), AgNi + 10 μ Au

Insulation

Contact
 Open contact 2000 V
 Contact/coil 5 kV
 Insulation resistance at 500 V >3G Ω
 Insulation, EN 61810-1 4 kV / 3



Specifications

Pick-up time/bounce time 10 ms / 1 ms
 Release time/bounce time 5 ms / ≤ 3 ms
 Ambient temperature, operation/storage ... -40°C (no ice) 70°C/80°C
 Mechanical life ops. VAC:10 Mill./VDC:20 Mill
 VDC voltage endurance at rated load >100.000 ops.
 Switching frequency at rated load 1200/h.
 Protection class IP40 / RT1
 Weight 21 g.

Coils

Pick-up voltage < 0,8 x Un
 Release voltage > 0,1 x Un
 Nominal power 1,1 W / 0,7 W (VDC)

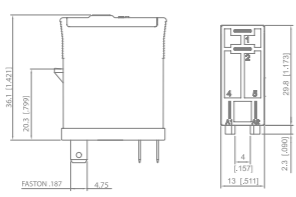
VAC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1.200	23	24	742	32
115	7.300	9,5	48	3.500	13,7
230	28.800	4,7	110	19.900	5,5

RS1614

SOLID STATE RELAY, VDC

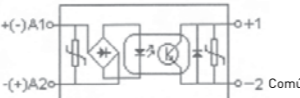


Dimensions mm [in]

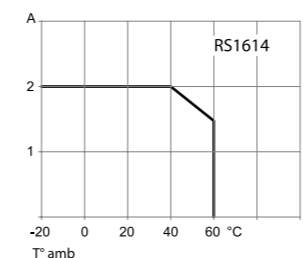


Connection of inductive and resistive loads in VDC,
 negative common 2 A 5 ... 50 VDC

Output



Maxim load



Standard types

Sockets: SFB10D, SFR10D, SFP10X

Entrance without polarity

Turn-on voltage 5...32 Vdc
 Release voltage < 2,5 Vdc
 Input current 3+-1 mA
 Stabilised current regulator Yes
 Input voltage protection IEC-1000-4-5 level 1

Specifications

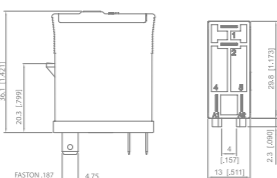
Test voltage between input/output 4 kV / 1 min
 Turn-on delay 1 ms
 Release delay max. 2 ms
 Ambient temperature operation 60°C
 Ambient temperature storage 100°C
 Weight 28 g.



RS1714 - SOLID STATE RELAY, VDC

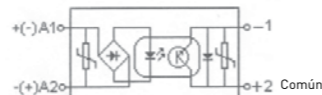


Dimensions mm [in]

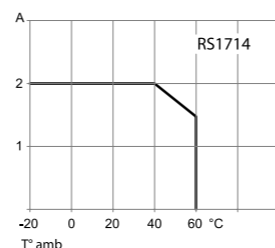


Connection of inductive and resistive loads in VDC, positive common
2 A 5 ... 50 VDC

Output



Maxim load



Standard types

Sockets: SFB10D, SFR10D, SFP10X

Entrance without polarity

Input voltage 5...32 Vdc
Release voltage < 2,5 Vdc
Input current 3+-1 mA
Stabilised current regulator Yes
Input voltage protection IEC-1000-4-5 level 1

Specifications

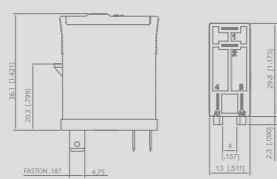
Test voltage between input/output 4 KV / 1 min
Turn-on delay 1 ms
Release delay max. 2 ms
Ambient temperature operation 60°C
Ambient temperature storage 100°C
Weight 28 g.



RS1814 - SOLID STATE RELAY, VAC

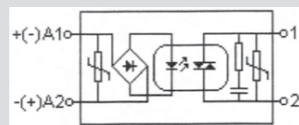


Dimensions mm [in]

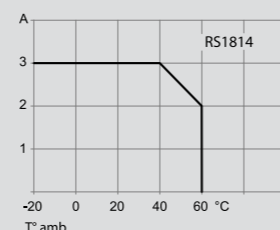


Connection of inductive loads in VAC, one open contact
3 A 24 ... 250 V AC, 50/60

Hz Output



Maxim load



Standard types

Sockets: SFB10D, SFR10D, SFP10X

Entrance without polarity

Input voltage 5...32 Vdc
Release voltage < 2,5 Vdc
Input current 5...15 mA
Stabilised current regulator Yes
Input voltage protection IEC-1000-4-5 level 1

Specifications

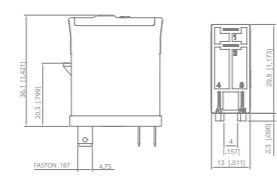
Test voltage between input/output 4 KV / 1 min
Turn-on delay 1/2 cycle
Release delay 2 ms+1/2 cycle
Ambient temperature operation 60°C
Ambient temperature storage 100°C
Weight 28 g.



RS1914 - SOLID STATE RELAY, VAC

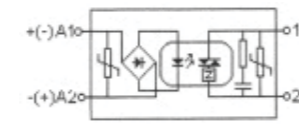


Dimensions mm [in]

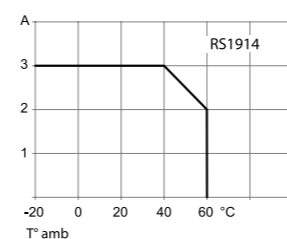


Connection of resistive and lamp loads in VAC, zero crossing, one open contact
3 A 24 ... 250 V AC, 50/60 Hz

Output



Maxim load



Tipos estándar

Sockets: SFB10D, SFR10D, SFP10X

Entrance without polarity

Input voltage 5...32 Vdc
Release voltage < 2,5 Vdc
Input current 5...15 mA
Stabilised current regulator Yes
Input voltage protection IEC-1000-4-5 level 1

Specifications

Test voltage between input/output 4 KV / 1 min
Turn-on delay 1/2 cycle
Release delay 2 ms+1/2 cycle
Ambient temperature operation 60°C
Ambient temperature storage 100°C
Weight 28 g.

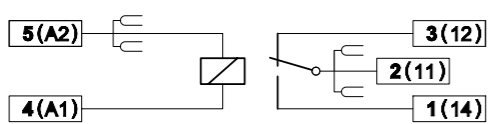


SF interface relays sockets

SFB10 - 1 POLE, RAIL DIN

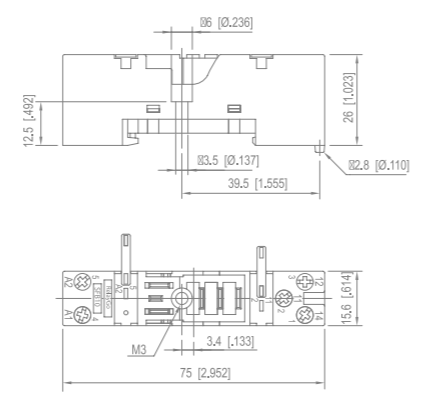


Connection diagram



Sockets for RF relays of a change-over pole.
Rail Din or panel mounting

Dimensions mm [in]

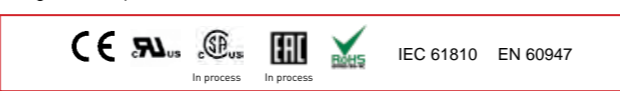


Specifications

Rated load	10 A / 250 V
Insulation	
Test voltage, (Vrms/ 1 min.)	
Contacts/coils	5 kV
All terminals/DIN rail	5 kV
Maxim strength of pressing in bornes	1,2 Nm
Cable multi-thread capacity	22 - 14 AWG
Capacity of the solid or pointers thread	4 mm ² or 2 x 2,25 mm ²
Approximate weight	28 g
Fastening clip integrated	
Identification label	

Other aspects

Tinned hard brass terminals
Zinc screws
Integrated clip. It allows to remove the label



Socket for RF relays

In/out socket of borns "in line" for relays RF1010, RF1010NN7, RF1014, RF1410, RF1514, RF1217, RF1222, RS1614, RS1714, RS1814, RS1914

Accessories

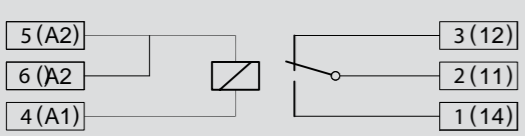
Coil bridge BF14
Integrated clip
Mounting in rail din
Maxim current through the bridge



SFR10 - 1 POLE, RAIL DIN, REINFORCED, IN/OUT FOR INTERFACE

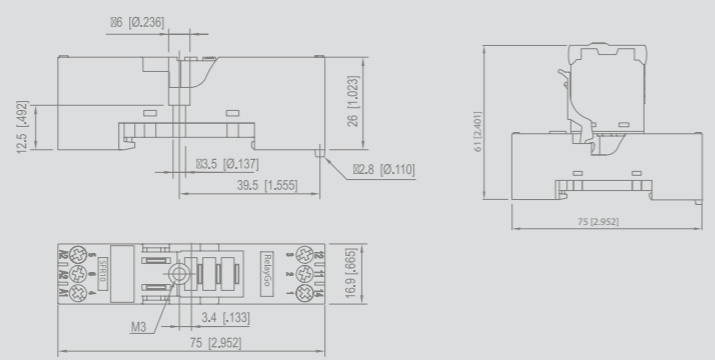


Connection diagram



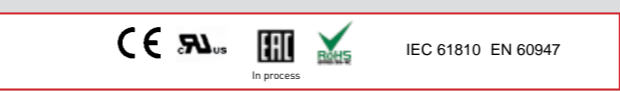
Socket in/out for RF relays of a change-over pole

Dimensions mm [in]



Specifications

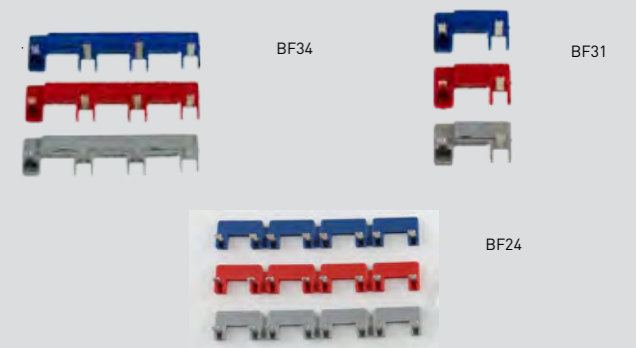
Rated load	16 A / 250 V
Insulation	
Test voltage, (Vrms/ 1 min.)	
Contacts/coils	5 kV
All terminals/DIN rail	5 kV
Máxima fuerza de apriete en bornas	1,2 Nm
Screw dimensions	M3, Pozi
Cable multi-thread capacity	22 - 14 AWG
Capacity of the solid or pointers thread	4 mm ² or 2 x 2,25 mm ²
Terminals of extrahard brass, processed	4 mm ²
Fastening clip integrated	
Identification label	



Socket for RF relays

In/out socket of borns "in line" for relays RF1010, RF1010NN7, RF1014, RF1410, RF1514, RF1217, RF1222, RS1614, RS1714, RS1814, RS1914

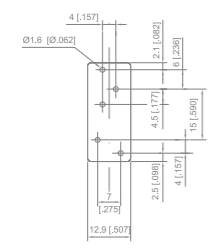
BF bridges are suitable to use in sockets SF1. These bridges allow to join in a secure and quick way the contacts saving cabling and reducing the time of the mounting.



SFP10X - 1 POLE, PRINTED CIRCUIT

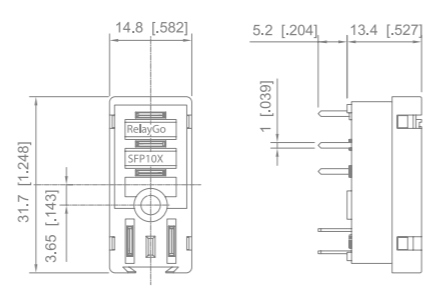


Connection diagram



Sockets for RF relays in printed circuit

Dimensions mm [in]



Specifications

Rated load	10 A / 250 V
Insulation	
Test voltage, (Vrms/ 1 min.)	
Contacts/coils	5 kV
Hard brass tin-plated terminals	0.5 x 1 mm
Retaining clip plastic integrated	



Socket for RF relays

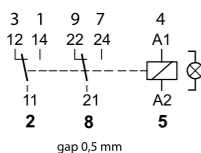
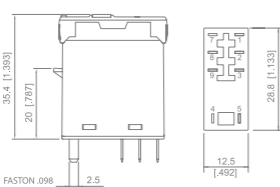
In/out interface socket with terminals for RF1010, RF1010NN7, RF1014, RF1410, RF1514, RF1217, RF1222, RS1614, RS1714, RS1814, RS1914

RF2110

**2 CHANGE-OVER CONTACTS,
8 FASTON, DPDT**

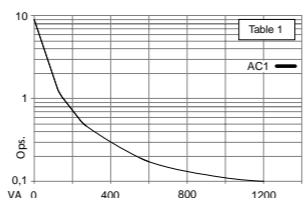


Dimensions mm [in]

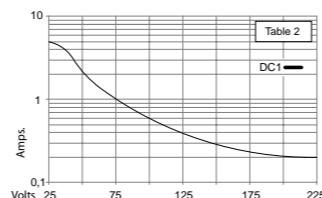


General application 5 A 250 V AC-1 0,5 A 110 V DC-1
5 A 30 V DC-1 0,2 A 220 V DC-1

Electric life, ops x 10⁶



Maxim load in VDC



Standard types

AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
RF2110NN, RF2110LN, RF2110NR
DC: 12, 24, 48, 110
RF2110NN, RF2110LN, RF2110LE
AC/DC: RF2110LU
Sockets: SFB20D, SFP20X

Contacts

Max. switching current 5 A
Max. peak inrush current, 20ms 15 A
Max. Switching voltage 250 V
Max. VAC load (table 1) 1,2 kVA
Max. VDC load see (table 2)
Contact material AgNi + 0,2 μ Au (std), 10 μ Au

Insulation

Contact
Open contact 1000 V
Contact/contact 3 kV
Contact/coil 5 kV
Insulation resistance at 500 V >3G Ω
Insulation, EN 61810-1 4 kV / 3



Specifications

Pick-up time/bounce time 10 ms / 1 ms
Release time/bounce time 5 ms / ≤ 3 ms
Ambient temperature, operation/storage -40°C (no ice) 70°C/80°C
Mechanical life ops. VAC: 10 Mill./VDC: 20 Mill
VDC voltage endurance at rated load >100.000 ops.
Switching frequency at rated load 1200/h.
Protection class IP40 / RT1
Weight 21 g.

Coils

Pick-up voltage < 0,8 x Un
Release voltage > 0,1 x Un
Nominal power 1,1 VA (VAC) / 0,7 W (VDC)

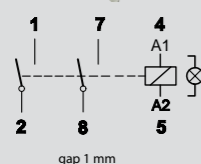
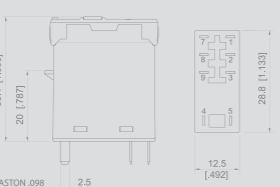
VAC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1.200	23	24	742	32
115	7.300	9,5	48	3.500	13,7
230	28.800	4,7	110	19.900	5,5

RF2114

**2 OPEN CONTACTS,
6 FASTON, DPST**

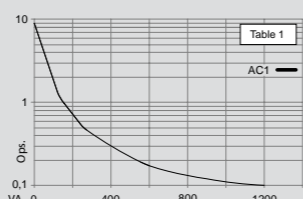


Dimensions mm [in]

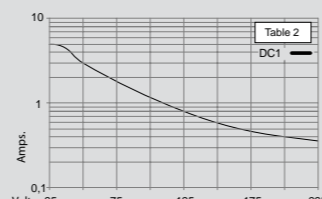


Application for VDC 5 A 250 V AC-1 0,5 A 110 V DC-1
5 A 30 V DC-1 0,2 A 220 V DC-1

Electric life, ops x 10⁶



Maxim load in VDC



Standard types

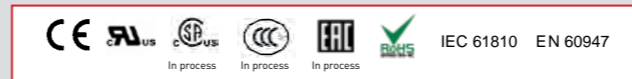
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
RF2114NN, RF2114LN, RF2114NR
DC: 12, 24, 48, 110
RF2114NN, RF2114LN, RF2114LE
AC/DC: RF2114LU
Sockets: SFB20D, SFP20X

Contacts

Max. switching current 5 A
Max. peak inrush current, 20ms 15 A
Max. Switching voltage 250 V
Max. VAC load (table 1) 1,2 kVA
Max. VDC load see (table 2)
Contact material AgNi + 0,2 μ Au (std), 10 μ Au

Insulation

Contact
Open contact 2000 V
Contact/contact 3 kV
Contact/coil 5 kV
Insulation resistance at 500 V >3G Ω
Insulation, EN 61810-1 4 kV / 3



Specifications

Pick-up time/bounce time 10 ms / ≤ 1 ms
Release time/bounce time 8 ms / ≤ 3 ms
Ambient temperature, operation/storage -40°C (no ice) 70°C/80°C
Mechanical life ops. VAC: 10 Mill./VDC: 20 Mill
VDC voltage endurance at rated load >100.000 ops.
Switching frequency at rated load 1200/h.
Protection class IP40 / RT1
Weight 21 g.

Coils

Pick-up voltage < 0,8 x Un
Release voltage > 0,1 x Un
Nominal power 1,1 W / 0,7 W (VDC)

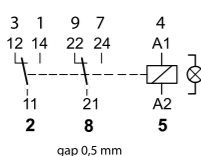
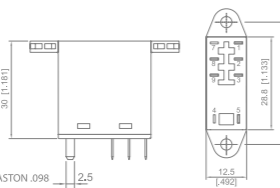
VAC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1.200	23	24	742	32
115	7.300	9,5	48	3.500	13,7
230	28.800	4,7	110	19.900	5,5

RF2110N
N7

**2 CHANGE-OVER CONTACTS,
PANEL MOUNTING, 8 FASTON,
DPDT**

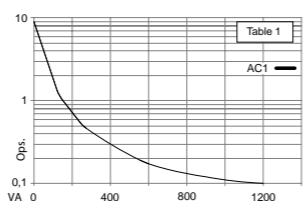


Dimensiones mm [in]

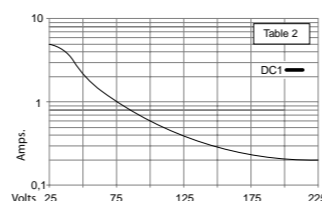


General application 5 A 250 V AC-1 0,5 A 110 V DC-1
5 A 30 V DC-1 0,2 A 220 V DC-1

Electric life, ops x 10⁶



Maxim load in VDC



Standard types

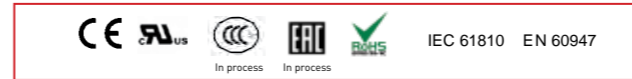
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
RF2110NN, RF2110LN, RF2110NR
DC: 12, 24, 48, 110
RF2110NN, RF2110LN, RF2110LE
AC/DC: RF2110LU
Sockets: SFB20D, SFP20X

Contacts

Max. switching current 5 A
Max. peak inrush current, 20ms 15 A
Max. Switching voltage 250 V
Max. VAC load (table 1) 1,2 kVA
Max. VDC load see (table 2)
Contact material AgNi + 0,2 μ Au (std), 10 μ Au

Insulation

Contact
Open contact 1000 V
Contact/contact 3 kV
Contact/coil 5 kV
Insulation resistance at 500 V >3G Ω
Insulation, EN 61810-1 4 kV / 3



Specifications

Pick-up time/bounce time 10 ms. / ≤ 1 ms
Release time/bounce time 5 ms / ≤ 3 ms
Ambient temperature, operation/storage -40°C (no ice)
Mechanical life ops. VAC: 10 Mill./VDC: 20 Mill
VDC voltage endurance at rated load >100.000 ops.
Switching frequency at rated load 1200/h.
Protection class IP40 / RT1
Weight 21 g.

Coils

Pick-up voltage < 0,8 x Un
Release voltage > 0,1 x Un
Nominal power 1,1 VA (VAC) / 0,7 W (VDC)

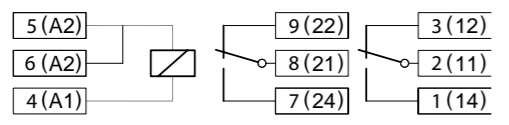
VAC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1.200	23	24	742	32
115	7.300	9,5	48	3.500	13,7
230	28.800	4,7	110	19.900	5,5

SFB20

2 POLES IN/OUT FOR INTERFACE

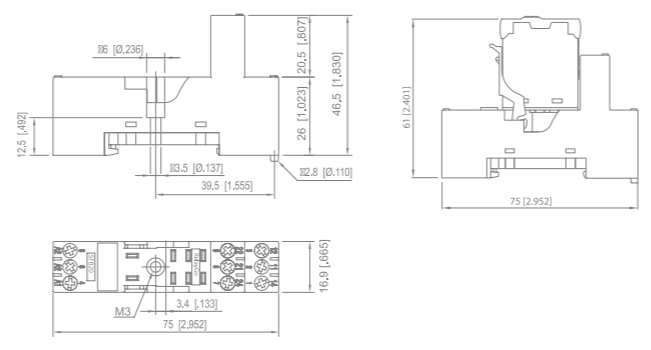


Connection diagram



Socket in/out RF relays of two change-over poles

Dimensions mm [in]



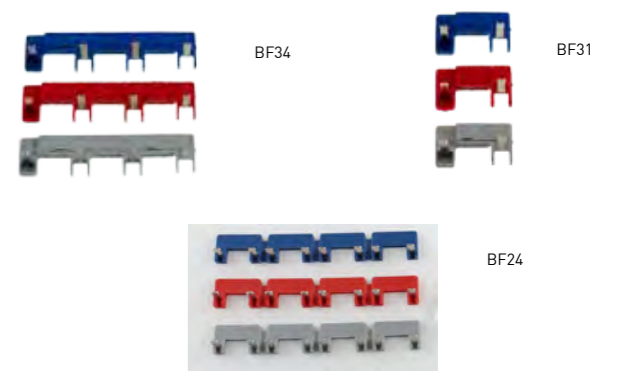
Specifications

- Rated load5 A / 250 V
- Insulation
 - Test voltage, (Vrms/ 1 min.)
 - Contacts/coils5 kV
 - All terminals/DIN rail5 kV
 - Terminal/terminal3 kV
 - Max screw torque1,2 Nm
 - Max cross section multi-wire22 - 14 AWG
 - Max cross section single-wire (or tip)4 mm²
 - Terminal box iron zinc plated
 - Retaining clip and marking label integrated



Socket for RF relays

Socket interface with terminals in line for relays RF2100, RF2114, RF2110NN7
The bridges BF allow to connect securely and quickly the terminals of sockets SFB, saving material and time.

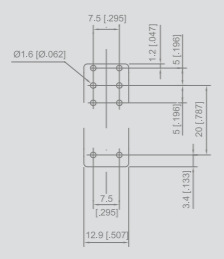


SFP20X

2 POLES, PRINTED CIRCUIT

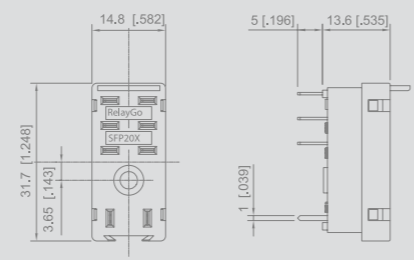


Connection diagram



Socket of printed circuit for RF relays in two poles

Dimensions mm [in]



Specifications

- Rated load5 A / 250 V
- Insulation
 - Test voltage, (Vrms/ 1 min.)
 - Contacts/coils5 kV
 - Hard brass tin-plated terminals0,5 x 1 mm
 - Retaining clip plastic integrated



Socket for RF relays

Socket interface with terminals in line for relays RF2110, RF2114, RF2110NN7



Kühn Controls AG

Notes:

You want more information about this product, please call us: tel: +49 (0)7082-940000 or send us a fax: +49 (0)7082-940001,
or email: sales@kuehn-controls.de or visit our Website: www.kuehn-controls.de