TURCK’s global support network consists of over 2,500 employees in 25 countries and 60 exclusive agencies worldwide that strive to meet customer expectations. Our sales, support and manufacturing facilities are strategically located across the world allowing us to respond to local market conditions and deliver customer specific solutions on a timely basis.

We are a world leader in automation technology with a diverse and broad product portfolio that provides customer specific applications with high performance, reliable and cost effective solutions. The synergy in our product portfolio and customization flexibility are key components of our value proposition.

Our expertise spans across two major industry categories: Industrial Automation and Process Automation. Each weighs in with its own unique requirements and methods of conducting business. This market centric approach ensures that we develop application specific solutions across a variety of vertical market segments.
# RELECO by TURCK RELAYS

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<td></td>
<td>CT3 11-Pin Plug-in Timer Module</td>
</tr>
<tr>
<td>Interface Module</td>
<td>RINT Interface Module</td>
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</table>
System Features & Benefits

Five Colors for Easy Identification of Coil Voltage

- **Red:** 120 VAC
- **Maroon:** AC other than 120 V
- **Grey:** VAC/DC
- **Dark Blue:** DC other than 24 V
- **Blue:** 24 VDC

If you do not want the lockable function, you can use the orange dead-man-push-button. S0-OP for MRC and S9-OP for QRC (5 piece bag).

- **Dead-man-push-button**
  A black blanking plug is available if you don't want a test button. S0-NP for MRC and S9-NP for QRC (5 piece bag).

- **Blanking Plug**

Comprehensive Technical Label

- Coil Power
- Wiring diagram with sequential and DIN numbers
- Electrical diagram showing all additions to the coil
- Maximum switching capacity according to EN 60947 (IEC 947)
- Approvals

<table>
<thead>
<tr>
<th>Country</th>
<th>Approval</th>
<th>Country</th>
<th>Approval</th>
</tr>
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<tr>
<td>Canada</td>
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</table>
Industrial Relays MRC, QRC, IRC Part Number Key

Part Number Keys are to assist in IDENTIFICATION ONLY. Consult factory for catalog items not identified.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C n(n) - T S y zz /...V Ref. nnnn</td>
<td>Normal Industrial Relay code</td>
</tr>
</tbody>
</table>

Relays with code R are used for railway series.

Basic type refers to the product line
Numbers between 2 and 12 are used.

Relay Type

- A = Standard (general-purpose) contact
- E = Sensitive drive with 500 mW coil power
- G = Refers to a NO contact
- H = Single-point contact + twin contact load to signal current circuit for switching state feedback. Mixed contact configuration
- M = Relay with highly effective neodium blow magnet for fast quenching of the arc. This relay is particularly suitable for high DC loads.
- N = Sensitive drive 800mW coil power
- R = Code for remanence relays, drive-specific ID
- S = Sensitive drive with 250 mW exciter input
- T = Twin contact for signal and control circuit
- W = With tungsten contact for maximum switch-on currents

Number of Contacts

- Ref. nnn
Relays with a reference number are versions with special (e.g., customised) features. These features may relate to special test criteria, tolerances or other properties.

Availability of such relays may be limited to certain customers or applications.

Nominal coil voltage or current

AC ... V, DC ... V, UC ... V (AC/DC), AC ... A

Relays are generally available for voltages of 6 V, DC 220 V/AC 240 V (AC 400 V) or UC 8 . . . 48 V.

Current relays available on request.

Options

- D = Integrated freewheeling diode
- F = Integrated freewheeling diode and series diode e.g. for common alarm circuits
- R = RC connection for the coil
- X = Electric position indicating device with LED
- B = Bridge rectifier

Definition of Contact Material

This code may differ depending on type.
Examples:
- 0 = in the standard range stands for AgNi
- 1-9 = see contact material for each type

Product range

Releco offers a wide range of relay types and versions and associated bases and accessories.

Standard (general-purpose) relay, MRC series
35 x 35 mm round plug-in relay, 8- or 11- terminals multipole connector according to IEC 67 with 2 or 3 contacts up to 10 A and different contact types and contact materials. Standard relay 35 x 35 mm with flat blade connectors with up to 4 contacts and up to 16 A with 3 contacts.

Miniature industrial relay, QRC series
22.5 mm series with up to 4 contacts and up to 10 A with 1 or 2 contacts

Interface relay, IRC series
Overall width 13 mm with up to 2 electromechanical contacts, or fully electronic switches.

Special relays, remanence relays
While "normal" relays are monostable, i.e. they return to the idle state when the excitation is switched off, remanence relays are bistable, i.e. the current switching state is retained irrespective of the excitation. Relays of this type are available in different versions.

Electronic relay, CSS
In the IRC series different electronic DC or AC relays up to 3 A are available. For AC relays a distinction is made between synchronously (zero crossing) and asynchronously switching versions. For switching transformer loads we recommended using asynchronously switching semiconductor switches. For incandescent lamp loads etc. synchronously switching switches are ideal for avoiding high switch-on currents.

Accessories

Suitable bases are available for the different relay series for DIN rail mounting or panel mounting. In addition, retaining clips are available for the relays, some of which are included in the scope of supply. Suitable bridges for cost-saving wiring in series are also available.
General Information

Terminology and Technical Information

Contact Materials
Silver-nickel (AgNi) and silver-tin oxide (AgSnO2) are used as standard contact materials for all models. Other contact materials are available on request.

Gold Flash
For relays that are intended to be stored or remain unoperated for any length of time, a 0.2µ layer of gold protects the contacts from oxidation.

Gold Plating
A 10µ plate of gold increases the operational reliability. It should be used for switching low level currents.

Contact Resistance
Contact resistance is dependent on contact material, contact pressure and contact contamination.

High contact resistance raises the temperature of the contacts, therefore reducing their working life. Typical contact resistance of the MR-C and QR-C relays is 50 mΩ.

Contacts Gap
Contact gap and opening speed of the contacts have an influence on the length and the duration of the arc.

In the case of AC, a gap of 0.5 mm is sufficient to quench the arc which occurs automatically at the “zero point” of the cycle.

In the case of DC, the arc only quenches when the contact gap is sufficient for the voltage and current applied. Please see tables of “Max. DC Current”.

Coil Materials
Coil bobbins are molded in polybutylene with fiberglass (130°C).
Enamelled wires of Class F specification are used (155°C).
They are wound on precision automation winding machines, with the number of turns and wire tension accurately regulated and monitored.

Tolerances
Coil resistance is measured at 20°C and is regulated within ±10% of specified value.

Standard Windings
The coil voltages indicated in the catalog refer to standard windings. Other coil voltages are available, including products for series connection and amperometric applications. Please consult your distributor for details.

Maximum Intensity
The “Max. switching current” indicated in every model, refers to the maximum stable current which should be possible in permanent conduction (ITH).

In the case of AC, the “Max. switching current” that the relay can support is the same for all the values of voltages ≤ of the “Max. switching voltage” specified in every model.

The product of the intensity and the voltage applied should not be higher than the values specified as “Max. AC load”.

In the case of DC, the “Max. switching current” must be less than the current that causes the continuous arcing.

The tables of “Max. DC current” show the possible values of intensity in relation to the applied voltage.

Maximum Voltage
The maximum voltage on the contacts depends on the insulation between each contact (pole-to-pole) and between all contacts and the coil.

The EN 60947 and VDE 0110 standards set out the maximum voltage values, taking into consideration the quality of the insulation materials, pollution degree as well as the shape and dimensions of the contact barriers (creepage distance).

Contacts in Series
The connection of two or more contacts in series is equivalent to multiplying the contact gap by that amount. By using this method, a greater break capacity is achieved for DC switching.

Minimum Working Voltage (pull in)
This is the minimum voltage that must be supplied to the coil to ensure that the relay energizes, the contacts change over and are positively held in place without any vibration.

The values of voltage specified are those at or below which the relay must pull in.

<table>
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<tr>
<th>Working at:</th>
<th>50 Hz</th>
<th>60 Hz</th>
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<td>0.8xU_n</td>
<td>0.85xU_n</td>
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<tr>
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<td>0.75xU_n</td>
<td>0.8xU_n</td>
</tr>
<tr>
<td>DC Relays</td>
<td>0.8 x U_n</td>
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</tr>
</tbody>
</table>

Maximum Release Voltage (drop out)
This is the voltage at which the relay de-energizes, the contacts change over and are positively held in place without any vibration.

The values of voltage specified are those at or above which the relay must drop out.

DC relays ≤10% U_n
AC relays ≤20% U_n

Contacts in Parallel
The connection of two or more contacts in parallel does not mean that it is possible to switch a greater load. However, the stable current and the operational reliability of the relay is increased.

Double Make Contacts
The double make contact arrangement is equivalent to two contacts connected in series.

The maximum intensity supported corresponds to only one contact. This system allows for higher DC operating voltages.

Bifurcated (Twin) Contacts
The contact blade is divided into two parts, each with its own contact. Both contacts press down on their own independent fixed contacts.

This system is particularly good for switching at very low levels of current.

Contact Protection
The electrical life of contacts can be prolonged by components which eliminate or reduce the back EMF transients. These voltages are generated by the reactive component of the load on disconnection, which increases the duration and the temperature of the arc.

For AC, RC suppressors or varistors can be connected in parallel with the load or the contacts.

For DC with an inductive load, the best method is to connect a diode in parallel with the load.

Ambient Temperature
The ambient temperature has an influence on the coil resistance and on its thermal dissipation capacity.

Curve 1 indicates the maximum values of the voltage applied (U_b) to the coil in relation with the nominal voltage (U_n) at the ambient temperature (T).

Curve 2 indicates the maximum values of U_b in relation with the ambient temperature (T).
### Relay Types Based on Applications

#### General Purpose Relays
These are used for most general applications, such as automation, pneumatic, heating appliances, signaling, as an input or output interface, etc.

- Change-over contacts. Isolation between N.O./N.C.: 1000 V<sub>rms</sub>
- Gap: 0.5 mm
- Ratings of up to:
  - 16 A @ 230 V AC1
  - 16 A @ 30 V DC1
  - 0.5 A @ 110 V DC1
  - 0.2 A @ 220 V DC1

#### Relays with Twin Contacts
These are used to switch low currents with high operational reliability.

- Change-over contacts. Isolation between contacts N.O./N.C.: 1000 V<sub>rms</sub>
- Gap: 0.5 mm
- Gold-flashed contact 0.2µ or plated with 10µ Au (optional).
- Maximum load: 6 A @ 230 V AC1
- Minimum load: 1 mA @ 5 V DC1

#### Sensitive Relays, 250 mW
One change-over contact

#### Sensitive Relays, 500 mW
Two change-over contacts

#### Sensitive Relays, 800 mW
Three change-over contacts

DC relays adjusted to work at lower power, available in both MR-C and QR-C versions. Gold-flashed contacts 0.2µ or plated 10µ Au (optional).

- Operational voltage range:
  - S relays: 0.8 - 2.5 U<sub>n</sub>
  - E relays: 0.8 - 1.7 U<sub>n</sub>
  - N relays: 0.8 - 1.4 U<sub>n</sub>

#### Relays with Open Contacts
An open contact arrangement allows an increase in the contact gap, increasing the DC “break capacity” without altering the AC performance.

- Gap: 1.5 mm (QR-C types);
- 1.7 mm (MR-C)
- Isolation of contacts NO: >2000 V<sub>rms</sub>
- Maximum load:
  - 16 A @ 230 V AC1
  - 1.2 A @ 110 V DC1
  - 0.4 A @ 220 V DC1

#### Remanence Relays
A high remanence magnetic circuit allows the relay to latch positively when the current applied flows through the coil in a direction and delatches if the current flows in the opposite direction.

- Electronic circuitry is added inside the relay to control this action and also protects against transient voltages.
- There is one winding for AC coils and two windings for DC coils.
- All coils withstand permanent connection.
- The relay can be operated with pulses of 50 ms, minimum, at nominal voltage.

#### Specifications
The data referred to in the specifications for each model refers to typical values of “new” relays at 20°C.

#### Tables
The tables of electrical life and the tables of maximum DC current show the typical result of exhaustive tests performed at an ambient temperature of 20°C, operating frequency of 1.200 operations/hour, and under permanent connection.

- The switching current ratings specified in the catalog refer to a minimum electrical life of 100,000 operations.

#### Margin of Over-Voltage
Coils withstand, on permanent connection, a maximum over-voltage of 110 percent U<sub>n</sub> with rated current through the contacts at an ambient temperature of 60°C.

#### Custom Relays
Relays with special specifications can be supplied after consultation with an official RELECO distributor.

---

**General Information**

- **A1** General Purpose Relays
- **G** Relays with Open Contacts
- **M** Relays with “Mag. Blow Out”
- **T** Relays with Twin Contacts
- **W** High Inrush Current Relay
- **X** Double Make Relays
- **R** Remanence Relays
- **S** Sensitive Relays, 250 mW
- **E** Sensitive Relays, 500 mW
- **N** Sensitive Relays, 800 mW
- **W** High Inrush Current Relay
- **X** Double Make Relays
- **R** Remanence Relays

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---
**General Information**

**Coil Accessories**

**MRC - QRC**

**Protection Against Transients**

When the coil is disconnected from an electromagnet, peaks of inverse voltage appear at the terminals which can reach very high values. These pulses can be transmitted down the line associated with the coil and could possibly affect other components.

In the case of a relay being operated by such devices as transistors, triacs, etc.; it may be necessary to protect against transients.

**Transients Carried in the Line**

High voltage surges can be carried in the supply line to the relay coil. These may appear in the form of peaks or bursts and are generated by the connection and disconnection of electric motors, transformers, capacitors, etc.

Normally a relay is unaffected by these pulses, but if a diode is connected in association with the coil, it must be capable of withstanding an inverse voltage higher than those of the incoming peaks.

**Protection Circuits**

A protection circuit must efficiently cope with pulses generated by the coil as well as incoming line surges (surges U1.2/50µs.).

RELECO relays are available with integrated protection circuits or with modules plugged into sockets S3-MP or S3-MS.

**IRC**

**LED and protection circuit connected to coil.**

**X** LED with no polarity. (standard)
- Coils ≤12 V CC and CA
- LED rectifier bridge in parallel

**X** LED with no polarity. (standard)
- Coils ≥24 V CC and CA
- LED rectifier bridge in series

**FX** LED with polarity A1+ (option)
- Every DC coil voltage
- Polarity and Free-wheeling diodes

**BX** LED with no polarity. (option)
- Only 24 V and 48 V AC/DC coils
- Rectifier bridge for AC/DC relays

**Protection Against Pulses**

When a relay coil is disconnected, reverse voltage peaks may arise and reach very high values. Said peaks can transmit to the coil associated line and other relays or semiconductors can be affected.

If triac, transistor, etc. controls a relay, appropriate steps must be taken to avoid or decrease peaks down to a non-risky level.

Both polarity and free-wheeling diodes (FX), must protect coils, to avoid malfunctions, provided DC relays in battery are installed.

Making or breaking engines, transformers or contactors in an industrial environmental, may generate high voltage pulses, either isolated or burst, through the main line.

The voltage level of those pulse may be high enough to affect the isolation of the coil.

**Note:** LED connected in series with the coil @ 220 VDC in QRC types.

- **DX** Free-wheeling diode + LED
- **DX** Dampens transients caused by the relay coil on de-energization.
- **DX** Surges of 2000 V up to 60 VDC
- **DX** Surges of 4000 V from 61 to 250 VDC

- **F** Polarity and free wheeling diodes.
- **FX** Polarity + free wheeling diode + LED
- **FX** A diode in series with the coil protects the relay from reverse connection.
- **FX** Surges of 1000 V up to 60 VDC
- **FX** Surges of 4000 V from 61 to 250 VDC

- **B** Bridge rectifier incorporated.
- **BX** Bridge rectifier + LED indication.
- **BX** Allows the relay to operate in both AC or DC without any polarity inconvenience. Available only in voltages up to 60 V
- **BX** Surges of 2000 V up to 60 VDC
- **BX** (* ) Surges of 4000 V from 61 to 250 VDC

- **R** Resistor and capacitor.
- **R** Suppressor for AC coils.
- **R** Available only in MRC types

**IRC**

**LED and protection circuit connected to coil.**

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- LED rectifier bridge in parallel

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- Coils ≥24 V CC and CA
- LED rectifier bridge in series

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- Every DC coil voltage
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**A1**

**A2**

**A1**

**A2**

**A1**

**A2**

**A1**

**A2**

**A1**

**A2**
## Interface Applications

### Total Interconnection, Bridge Bars for Coil and Power Lines

#### Bridge Bars Connection on S10-M and S12 Sockets

New S10-M and S12 sockets and new connection bridges B20, V10 and V40 permit quick and easy wiring for relays in battery, in groups or in any other combination of voltages, coils or contacts.

Every bridge allows mounting with a hybrid configuration of S10-M and S12 sockets. The immediate identification of the different circuits means a lower mounting cost, inspection or maintenance.

Available in grey (standard), red (AC) and blue (DC), following the same color coding adopted by RELECO in testing buttons to identify its relays.

---

### V40 Bridge Bars for Power Lines

V40 bridges allow joining common points in the power connection, usually the change-over contacts 11 or 21 on relays. They can be also used to bridge NC or NO terminals.

V40 bridges join four similar points in four adjacent sockets. They can join among themselves or to V10 units to bridge an unlimited number of sockets in any combination.

Made of copper with a current capacity of 40 A.

It is necessary that the total sum of loads in a relay group will not exceed the maximum intensity of 40 A, permitted by the power bridges. If exceeded, the essential power cables must be added, to share the current and avoid overheating the bridges. Every inlet terminal admit ferrule tips up to 4 sq. mm.

---

### V10 Bridge Bars for Power Lines

V10 bridges connect a single socket to the next socket, so can you bridge less or more than four sockets, as long as the total number of sockets is not a multiple of four.

They can join between themselves or to V40 units. If you need to bridge five sockets, you can either use a V40 + 1 V10 or four V10 bridges.

Made of copper with a current capacity of 40 A.

---

### B20 Bridge Bars for Coil Lines

Both sockets are accessible to point A2 from terminals 5 and 6, internally connected. Each element connects point 6 of the first socket to point 5 of the next one, always leaving free the point 5 of the first socket and the point 6 of the last one, to connect the common polarity cable. Coils control voltage connect to points A1.

Bridge B20 is composed by four units which can be divided in 1, 2 or 3 elements.
**IRC relays, E version**
Types C14... and C15...
Cover for flange panel mounting

**V40**
Power Bridge Bars for Sockets
S10-M and S12

V40 bridges join four similar points in four adjacent sockets. They can join among themselves or to V10 units to bridge an unlimited number of sockets S10-M and S12 in any combination.

V10 bridges connect a single socket to the next socket, so you bridge less or more then four sockets.
Made of copper with a current capacity of 40 A.
See more information on page 11.

**B20**
Coil Bridge Bars for Sockets
S10-M and S12

B20 bridges points A2, internally connected, of every adjacent socket S10-M or S12.
Each element connects point 6 of the first socket to point 5 of the next one, always leaving free the point 5 of the first socket and the point 6 of the last socket, to connect the common polarity cable.
See more information on page 11.

**Ordering code:**
Add “E” to the standard type code.
Example: C14-A10E or C15-A21E
Total Interconnection, Bridge Bars for Coil and Power Lines

I/O sockets, IRC relays and bridge bars allow more flexible, economical and aesthetic mounting in interface and general applications.

S10-M and S12 sockets of 1 and 2 contacts, with inlets in line and identical disposition of contacts set.

Identical sequence of coil and contacts on both sockets.

- **Coil terminal on level 1**: (A2, A2, A1)
- **Contact terminals on level 1**: (12, 11, 14)
- **Contact terminals on level 2**: (22, 21, 24)

Bridge bars between A2 coil terminals with 2 free inlets to connect a common polarity cable. Those bridge bars are isolated and divisible by hand, in single units.

Power bridges with current capacity of 40 A to be connected between contacts 11 or 21 in any combination: Groups or battery of relays, to supply the power current to the loads.

Inlet terminals admit ferrule tips up to 4 mm².

Bridges in grey color as standard.

**Options:**

Adopted colors by RELECO used in the testing buttons of relays:

- Blue, to identify DC circuits
- Red, to identify AC circuits
Total Interconnection, Solid State Relays

How to Mount Solid State Relays as Interface on PLC

**Input**
In every CSS relay, the input on terminals A1 and A2 is 5-32 VDC, with no polarity.

If bridges to joint points A2 are used, a single voltage can be applied on terminals A1, for every relay, or different voltages within the range 5-32 VDC.

**Output DC or AC (Independent Relays)**
When using a single relay of any model, load can be connected either on terminal 1 or terminal 2.

**Relays with Output on DC (CSS-DCP or CSS-DCN)**
Range of voltage applied to the load will be 5-50 VDC.

**Relays with Output on AC (CSS-AC, Inductive Loads, or CSS-AZ, Resistive Loads)**
Range of voltage applied to the load will be 24-250 VAC, 50/60 Hz.

**Output on DC (Relays in Battery)**
If power bridges are used with S10-M sockets in series of relays in line, it is necessary to attend the common polarity chosen to the loads connection.

Usually the point 2 (11 DIN) is the common point of the socket where positive tension is applied to the loads.

Then CSS-DCP relays must be connected where terminal 2 is common positive.

Said disposition complies Norm EN-60204-1-5,3,3 where “cutting every active element of its feeding” is suggested, that means to switch from the positive.

If point 2 of the socket is taken as negative, relays type CSS-DCN, where terminal 2 is negative must be connected.

For relays CSS-AC or CSS-AZ, only whether the load is inductive or resistive has to be considered, as they have no polarity.

---

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If bridges to joint points A2 are used, a single voltage can be applied on terminals A1, for every relay, or different voltages within the range 5-32 VDC.

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**Relays with Output on AC (CSS-AC, Inductive Loads, or CSS-AZ, Resistive Loads)**
Range of voltage applied to the load will be 24-250 VAC, 50/60 Hz.

---

**How to Mount Solid State Relays as Interface on PLC**

**SS-AC**
CSS-AZ
CSS-AC
CSS-AZ
C10-A10X
C10-A10X
C10-A10X
CSS-AC

**Input**
In every CSS relay, the input on terminals A1 and A2 is 5-32 VDC, with no polarity.

If bridges to joint points A2 are used, a single voltage can be applied on terminals A1, for every relay, or different voltages within the range 5-32 VDC.

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Range of voltage applied to the load will be 24-250 VAC, 50/60 Hz.

---

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In every CSS relay, the input on terminals A1 and A2 is 5-32 VDC, with no polarity.

If bridges to joint points A2 are used, a single voltage can be applied on terminals A1, for every relay, or different voltages within the range 5-32 VDC.

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**Relays with Output on AC (CSS-AC, Inductive Loads, or CSS-AZ, Resistive Loads)**
Range of voltage applied to the load will be 24-250 VAC, 50/60 Hz.
RELAYS
MRC 2-Pole, Standard 8-Pin Plug-In Relay

C2-A20
General purpose
Two pole, change-over contacts
10 A 250 V AC1 0.5 A 110 V DC1
10 A 30 V DC1 0.2 A 220 V DC1

Contacts
Materials: Standard, code 0 AgNi
Optional, code 8 AgNi + 10µ Au
Optional, code 9 AgNi + 0.2µ Au
Max. switching current 10 A
Max. peak inrush current (20 ms) 30 A
Max. switching voltage 250 V
Max. AC load (Table 1) 2.5 KVA
Max. DC load (Table 2)

Table 1 Electrical Life, ops. x 10^6

<table>
<thead>
<tr>
<th>KVA</th>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>24</td>
<td>67</td>
<td>92</td>
</tr>
<tr>
<td>1.0</td>
<td>48</td>
<td>296</td>
<td>46</td>
</tr>
<tr>
<td>1.5</td>
<td>115</td>
<td>1K7</td>
<td>19</td>
</tr>
<tr>
<td>2.0</td>
<td>230</td>
<td>7K1</td>
<td>9.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>24</td>
<td>433</td>
</tr>
<tr>
<td>48</td>
<td>48</td>
<td>1K8</td>
</tr>
<tr>
<td>115</td>
<td>110</td>
<td>9K2</td>
</tr>
<tr>
<td>230</td>
<td>220</td>
<td>36K1</td>
</tr>
</tbody>
</table>

Table 2 Max. DC Load

<table>
<thead>
<tr>
<th>Amps.</th>
<th>Volts</th>
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<tbody>
<tr>
<td>0.1</td>
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</tr>
<tr>
<td>0.1</td>
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<tr>
<td>0.1</td>
<td>150</td>
</tr>
<tr>
<td>0.1</td>
<td>200</td>
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</tbody>
</table>

Table 2 Max. DC Load

<table>
<thead>
<tr>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>24</td>
<td>433</td>
</tr>
<tr>
<td>48</td>
<td>48</td>
<td>1K8</td>
</tr>
<tr>
<td>115</td>
<td>110</td>
<td>9K2</td>
</tr>
<tr>
<td>230</td>
<td>220</td>
<td>36K1</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>VDC</th>
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<th>mA</th>
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<tbody>
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<td>24</td>
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<td>48</td>
<td>48</td>
<td>1K8</td>
</tr>
<tr>
<td>115</td>
<td>110</td>
<td>9K2</td>
</tr>
<tr>
<td>230</td>
<td>220</td>
<td>36K1</td>
</tr>
</tbody>
</table>

Insulation
Dielectric strength (1 minute): Open contacts 1,000 V
Between adjacent poles 2.5 KV
Between contacts and coil 2.5 KV
Isolation resistance at 500 V ≥1 GΩ
Isolation, IEC 61810-5: 2.5 KV/3

Specifications
Operate time + bounce time 16 ms
Release time + bounce time 8 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relay
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 90 g

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
X = LED (standard) C2-A20X........ VAC
RC suppressor C2-A20R........ VAC
DC 24, 48, 110, 220
X = LED, no polarity (standard) C2-A20X........ VDC
Free-wheeling diode C2-A20DX.... VDC
Polarity and free-wheeling diodes C2-A20FX..... VDC
AC/DC bridge rectifier (24, 48 or 60 V) C2-A20BX.... VDC
MRC

2-Pole, Twin Contacts 8-Pin Plug-In Relay

C2-T21

Low level
Two change-over bifurcated contacts

6 A 250 V AC1   6 A 30 V DC1
Min. contacts load: 1 mA / 5 V DC1

Contacts
Materials: Standard, code 1 AgNi + 0.3µAu
Optional, code 2 AgNi + 10µAu
Max. switching current 6 A
Max. peak inrush current (20 ms) 15 A
Max. switching voltage 250 V
Max. AC load (Table 1) 1.2 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage ≤0.8 x Un
Drop-out voltage ≥0.1 x Un
Nominal coil power 2.2 VA (AC)/1.3 W (DC)

Table 1
Electrical Life, ops. x 10^6

Table 2
Max. DC Load

Insulation
Dielectric strength (1 minute): Open contacts 1,000 V
Between adjacent poles 2.5 KV
Between contacts and coil 2.5 KV
Isolation resistance at 500 V ≥1 GΩ
Isolation, IEC 61810-5: 2.5 KV/3

Specifications
Operate time + bounce time 16 ms
Release time + bounce time 8 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relay
Electrical life at nominal load 100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 90 g

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
X = LED (standard) C2-T21X.........VAC
RC suppressor C2-T21R.........VAC

DC 24, 48, 110, 220
X = LED, no polarity (standard) C2-T21X ...... VDC
Free-wheeling diode C2-T21DX...... VDC
Polariy and free-wheeling diodes C2-T21FX...... VDC
AC/DC bridge rectifier (24, 48 or 60 V) C2-T21BX...... VDC

Dimensions - mm
C2-G20

General purpose, DC applications
Two pole open contacts

<table>
<thead>
<tr>
<th>10 A</th>
<th>250 V AC1</th>
<th>1.2 A</th>
<th>110 V DC1</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 A</td>
<td>30 V DC1</td>
<td>0.4 A</td>
<td>220 V DC1</td>
</tr>
</tbody>
</table>

Contacts

Materials: Standard, code 0 AgNi
Max. switching current 10 A
Max. peak inrush current (20 ms) 30 A
Max. switching voltage 250 V
Max. AC load (Table 1) 2.5 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)

<table>
<thead>
<tr>
<th>Pull-in voltage</th>
<th>≤0.8 x U_n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drop-out voltage</td>
<td>≥0.1 x U_n</td>
</tr>
<tr>
<td>Nominal coil power</td>
<td>2.4 VA (AC)/1.6 W (DC)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>65</td>
<td>100</td>
<td>24</td>
<td>360</td>
<td>66</td>
</tr>
<tr>
<td>48</td>
<td>286</td>
<td>50</td>
<td>48</td>
<td>1K4</td>
<td>34</td>
</tr>
<tr>
<td>115</td>
<td>1K7</td>
<td>21</td>
<td>110</td>
<td>7K6</td>
<td>15</td>
</tr>
<tr>
<td>230</td>
<td>6K8</td>
<td>10</td>
<td>220</td>
<td>30K3</td>
<td>7.5</td>
</tr>
</tbody>
</table>

Insulation

Dielectric strength (1 minute): Open contacts 2,000 V
Between adjacent poles 2.5 KV
Between contacts and coil 2.5 KV
Isolation resistance at 500 V ≥1 GΩ
Isolation, EN 61810-5: 2.5 KV / 3

Specifications

Operate time + bounce time 20 ms
Release time + bounce time 10 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 90 g

Standard Types

AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
X = LED (standard) C2-G20X........ VAC
RC suppressor C2-G20R........ VAC

DC 24, 48, 110, 220
X = LED, no polarity (standard) C2-G20X........ VDC
Free-wheeling diode C2-G20DX.... VDC
Polarity and free-wheeling diodes C2-G20FX .... VDC
AC/DC bridge rectifier (24, 48 or 60 V) C2-G20BX.... VDC

Dimensions - mm

[Diagram of Dimensions]
MRC 3-Pole, Standard 11-Pin Plug-In Relay

C3-A30
General purpose
Three pole, change-over contacts

10 A 250 V AC1 0.5 A 110 V DC1
10 A 30 V DC1 0.5 A 220 V DC1

Contacts
Materials: Standard, code 0 AgNi
Optional, code 8 AgNi + 10µ Au
Optional, code 9 AgNi + 0.2µ Au
Max. switching current 10 A
Max. peak inrush current (20 ms) 30 A
Max. switching voltage 250 V
Max. AC load (Table 1) 2.5 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage ≤0.8 x Un
Drop-out voltage ≥0.1 x Un
Nominal coil power 2.2 VA (AC)/1.3 W (DC)

Table 1
Electrical Life, ops. x 10^6

Table 2
Max. DC Load

Specifications
Operate time + bounce time 16 ms
Release time + bounce time 8 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load 100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 90 g

Standard Types
AC 50 Hz, (60 Hz); 24, 48, 115, (120), 230, (240)
X = LED (standard) C3-A30X.......VAC
RC suppressor C3-A30R.......VAC
DC 24, 48, 110, 220
X = LED, no polarity (standard) C3-A30X.......VDC
Free-wheeling diode C3-A30DX.....VDC
Polarity and free-wheeling diodes C3-A30FX.....VDC
AC/DC bridge rectifier (24, 48 or 60 V) C3-A30BX.....VDC
Relay compatible with sockets:
S3-B, S3-S, S3-MP, S3-MS, S3-L, S3-PO

Table 1
Electrical Life, ops. x 10^6

Table 2
Max. DC Load

Dimensions - mm

C3-T31
Low level
Three change-over bifurcated contacts
6 A  250 V AC1  6 A  30 V DC1
Min. contacts load: 1 mA / 5 V DC1

Contacts
Materials:
Standard, code 1  AgNi + 0.3µAu
Optional, code 2  AgNi + 10µAu
Max. switching current  6 A
Max. peak inrush current (15 ms)  15 A
Max. switching voltage  250 V
Max. AC load  (Table 1)  1.2 KVA
Max. DC load  (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage ≤0.8 x Un
Drop-out voltage ≥0.1 x Un
Nominal coil power  2.2 VA (AC)/1.3 W (DC)

Insulation
Dielectric strength (1 minute): Open contacts  1,000 V
Between adjacent poles  2.5 KV
Between contacts and coil  2.5 KV
Isolation resistance at 500 V ≥1 GΩ
Isolation, IEC 61810-5:  2.5 KV / 3

Specifications
Operate time + bounce time  16 ms
Release time + bounce time  8 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops.  10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load  1,200/hour
Protection degree  IP 40/RT1
Weight avg.  90 g

Table 1
Electrical Life, ops. x 10^6

Table 2
Max. DC Load

Dimensions - mm

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
X = LED (standard)  C3-T31X........VAC
RC suppressor  C3-T31R........VAC

DC 24, 48, 110, 220
X = LED, no polarity (standard)  C3-T31X.......VDC
Free-wheeling diode  C3-T31DX.....VDC
Polarity and free-wheeling diodes  C3-T31FX.....VDC
AC/DC bridge rectifier (24, 48 or 60 V)  C3-T31BX.....VDC
C3-G30

General purpose, DC applications
Three pole, open contacts

<table>
<thead>
<tr>
<th>Contact</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 A</td>
<td>250 V AC</td>
</tr>
<tr>
<td>1.2 A</td>
<td>110 V DC</td>
</tr>
<tr>
<td>10 A</td>
<td>30 V DC</td>
</tr>
<tr>
<td>0.4 A</td>
<td>220 V DC</td>
</tr>
</tbody>
</table>

Contacts
Materials: Standard, code 0 AgNi
Max. switching current: 10 A
Max. peak inrush current (20 ms): 30 A
Max. switching voltage: 250 V
Max. AC load (Table 1): 2.5 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage: ≤0.8 × Un
Drop-out voltage: ≥0.1 × Un
Nominal coil power: 2.4 VA (AC)/1.6 W (DC)

Table 1
Electrical Life, ops. x 10⁶

<table>
<thead>
<tr>
<th>KVA</th>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>24</td>
<td>65</td>
<td>100</td>
</tr>
<tr>
<td>0.5</td>
<td>48</td>
<td>286</td>
<td>50</td>
</tr>
<tr>
<td>1</td>
<td>115</td>
<td>1K7</td>
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</tr>
<tr>
<td>2</td>
<td>230</td>
<td>6K8</td>
<td>10</td>
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<table>
<thead>
<tr>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>360</td>
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<td>48</td>
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<td>34</td>
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<td>110</td>
<td>7K6</td>
<td>15</td>
</tr>
<tr>
<td>220</td>
<td>30K3</td>
<td>7.5</td>
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Table 2
Max. DC Load

<table>
<thead>
<tr>
<th>Volts</th>
<th>DC1</th>
<th>L/R 40ms</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>35</td>
<td>7</td>
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<tr>
<td>100</td>
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<tr>
<td>150</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td>200</td>
<td>35</td>
<td>9</td>
</tr>
</tbody>
</table>

Insulation
Dielectric strength (1 minute): Open contacts 2,000 V
Between adjacent poles 2.5 KV
Between contacts and coil 2.5 KV
Isolation resistance at 500 V ≥1 GΩ
Isolation, IEC 61810-5: 2.5 KV/3

Specifications
Operate time + bounce time 20 ms
Release time + bounce time 10 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 90 g

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
X = LED (standard) C3-G30X........ VAC
RC suppressor C3-G30R........ VAC

DC 24, 48, 110, 220
X = LED, no polarity (standard) C3-G30X........ VDC
Free-wheeling diode C3-G30DX..... VDC
Polarity and free-wheeling diodes C3-G30FX.... VDC
AC/DC bridge rectifier (24, 48 or 60 V) C3-G30BX.... VDC

Dimensions - mm
C3-M10
Power relay, DC
Single pole, magnetic blow out

10 A 250 V AC1
3.6 A 110 V DC1
10 A 220 V DC1
2 A 220 V DC1

Contacts
Materials: Standard, code 0 AgNi
Max. switching current 10 A
Max. peak inrush current (20 ms) 30 A
Max. switching voltage (pollution 3) 250 V
Max. switching voltage (pollution 2) 250 V
Max. AC load (Table 1) 2.5 KVA
Max. DC load (Table 2)

Table 1
Electrical Life, ops. x 10^6

Table 2
DC Voltage Endurance

Specifications
Nominal coil power 2.4 VA (AC)/1.3 W (DC)
Operate time 20 ms
Release time 10 ms
Isolation: EN60947 pollution 3, Gr C 250 V
Dielectric strength, contacts/coils 2.5 KV

Insulation
Dielectric strength (1 minute):
Open contacts 2.5 KV
Between contacts and coil 2.5 KV
Isolation resistance at 500 V ≥1 GΩ
Isolation, IEC 61810-5: 2.5 KV / 3

Standard Types (50/60 Hz and DC)
AC 24, 48, 115, (120), 230
X = LED (standard) C3-M10X .......VAC
RC suppressor C3-M10R .......VAC
DC 24, 48, 110, 220
X = LED, no polarity (standard) C3-M10X ...... VDC
Free-wheeling diode C3-M10DX .... VDC
Polarity and free-wheeling diodes C3-M10FX .... VDC
AC/DC bridge rectifier (24, 48 or 60 V) C3-X10BX .... VDC

Dimensions - mm
C3-X10

Power relay for DC applications
Single pole, N.O., double make

10 A  250 V  AC1  7 A  110 V  DC1
10 A  30 V  DC1  1.2 A  220 V  DC1

Contacts
Materials: Standard, code 0  AgNi
Max. switching current 10 A
Max. peak inrush current (20 ms) 30 A
Max. switching voltage 250 V
Max. AC load  (Table 1)  2.5 KVA
Max. DC load  (Table 2)

Table 1  Electrical Life, ops. x 10^6

<table>
<thead>
<tr>
<th>VA</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>65</td>
<td>100</td>
</tr>
<tr>
<td>48</td>
<td>286</td>
<td>50</td>
</tr>
<tr>
<td>115</td>
<td>1K7</td>
<td>21</td>
</tr>
<tr>
<td>230</td>
<td>6K8</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 2  Max. DC Load

<table>
<thead>
<tr>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>443</td>
<td>54</td>
</tr>
<tr>
<td>48</td>
<td>1K7</td>
<td>27</td>
</tr>
<tr>
<td>110</td>
<td>9K2</td>
<td>12</td>
</tr>
<tr>
<td>220</td>
<td>36K1</td>
<td>6</td>
</tr>
</tbody>
</table>

Specifications
Operate time + bounce time 20 ms
Release time + bounce time 10 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops.  10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree  IP40 / RT1
Weight avg.  90 g

Insulation
Dielectric strength (1 minute):
- Open contacts  2.5 KV
- Between contacts and coil  2.5 KV
Isolation resistance at 500 V ≥1 GΩ
Isolation, IEC 61810-5: 2.5 KV / 3

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
X = LED (standard)  C3-X10X........VAC
RC suppressor  C3-X10R........VAC
DC 24, 48, 110, 220
X = LED, no polarity (standard)  C3-X10X......VDC
Free-wheeling diode  C3-X10DX .... VDC
Polarity and free-wheeling diodes  C3-X10FX.....VDC
AC/DC bridge rectifier (24, 48 or 60 V)  C3-X10BX .... VDC

Dimensions - mm

[Dimensions diagram]
MRC 2-Pole, Latching 11-Pin Plug-In Relay

Relay compatible with sockets:
S3-B, S3-S, S3-MP, S3-MS, S3-L, S3-PO

Table 1  Electrical Life, ops. x 10^6

Table 2  Max. DC Load

Dimensions - mm

C3-R20
Magnetic latching
Two change-over contacts

<table>
<thead>
<tr>
<th>10 A</th>
<th>250 V AC</th>
<th>0.5 A</th>
<th>110 V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 A</td>
<td>30 V DC</td>
<td>0.2 A</td>
<td>220 V DC</td>
</tr>
</tbody>
</table>

Contacts
Materials:
- Standard, code 0 AgNi
- Optional, code 8 AgNi + 10µ Au
- Optional, code 9 AgNi + 0.2µ Au

Max. switching current
- 10 A

Max. peak inrush current (20 ms)
- 30 A

Max. switching voltage
- 250 V

Max. AC load (Table 1)
- 2.5 KVA

Max. DC load (Table 2)

Coils
ON pulse power
- 1.5 VA / W

OFF pulse power
- 0.5 VA / W

One winding for AC. Two winding for DC

Table 1  Electrical Life, ops. x 10^6

Table 2  Max. DC Load

Insulation
Dielectric strength (1 minute): Open contacts
- 1,000 V

Between adjacent poles
- 2.5 KV

Between contacts and coil
- 2.5 KV

Isolation resistance at 500 V
- ≥1 GΩ

Isolation, IEC 61810-5:
- 2.5 KV / 3

Specifications
Minimum pulse length for ON / OFF
- 50 ms

Ambient temperature
- -40°C (no ice) to +70°C

Mechanical life ops.
- 10 Mill. AC, 20 Mill. DC relays

Electrical life at nominal load
- ≥100,000 ops.

Operating frequency at nominal load
- 1,200/hour

Protection degree
- IP 40/RT1

Weight avg.
- 95 g

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
DC 12, 24, 48, 110

C3-R20.............VAC
C3-R20.............VDC
MRC 3-Pole, Standard 11-Pin Plug-In Relay

C3-E24
Sensible, 500 mW
Two change-over contacts, 6 A
Operating range: 0.8-1.7 x Un

| Contacts |
|-----------------|-----------------|
| Materials: | Standard, code 4 AgNi + 0.2µ Au |
| Optional, code 8 AgNi + 10µ Au |
| Max. switching current | 6 A |
| Max. peak inrush current (20 ms) | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load (Table 1) | 1.5 KVA |
| Max. DC load (Table 2) | |

<table>
<thead>
<tr>
<th>Coils (Ohms ±10% @ 20°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull-in voltage</td>
</tr>
<tr>
<td>Drop-out voltage</td>
</tr>
<tr>
<td>Nominal coil power</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Electrical Life, ops. x 10^6</th>
</tr>
</thead>
<tbody>
<tr>
<td>KVA</td>
<td>1</td>
</tr>
<tr>
<td>Ops.</td>
<td>10</td>
</tr>
<tr>
<td>AC1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Max. DC Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volts</td>
<td>50</td>
</tr>
<tr>
<td>Amps</td>
<td>10</td>
</tr>
<tr>
<td>DC1</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions - mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>59.5</td>
</tr>
<tr>
<td>35</td>
</tr>
<tr>
<td>35</td>
</tr>
</tbody>
</table>

Relay compatible with sockets:
S3-B, S3-S, S3-MP, S3-MS, S3-L, S3-PO

Insulation
Dielectric strength (1 minute): Open contacts 1,000 V
Between adjacent poles 2.5 KV
Between contacts and coil 2.5 KV
Isolation resistance at 500 V ≥1 GΩ
Isolation, IEC 61810-5: 2.5 KV/3

Specifications
Operate time + bounce time 18 ms
Release time + bounce time 10 ms
Ambient temperature -40°C (no ice) to +60°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 90 g

Standard Types
DC 12, 24, 48, 60, 110
C3-E24VDC
C3-E24D VDC
C3-E24F VDC

Connecting diodes to the coil will increase the release time.
LED available upon request.
MRC 3-Pole, Standard 11-Pin Plug-In Relay

C3-N34
Sensitive, 800 mW
Three change-over contacts, 6 A
Operating range: 0.8-1.4 x $U_N$

| Contacts |
|-------------------|-------------------|-------------------|
| Materials: Standard, code 4 AgNi + 0.2µ Au |
| Optional, code 8 AgNi + 10µ Au |
| Max. switching current | 6 A |
| Max. peak inrush current (20 ms) | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load (Table 1) | 1.5 KVA |
| Max. DC load (Table 2) |

<table>
<thead>
<tr>
<th>Coils (Ohms ±10% @ 20°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull-in voltage</td>
</tr>
<tr>
<td>Drop-out voltage</td>
</tr>
<tr>
<td>Nominal coil power</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>720</td>
<td>33</td>
</tr>
<tr>
<td>48</td>
<td>2K8</td>
<td>17</td>
</tr>
<tr>
<td>60</td>
<td>4K5</td>
<td>13</td>
</tr>
<tr>
<td>110</td>
<td>15K</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dielectric strength (1 minute): Open contacts</td>
</tr>
<tr>
<td>Between adjacent poles</td>
</tr>
<tr>
<td>Between contacts and coil</td>
</tr>
<tr>
<td>Isolation resistance at 500 V</td>
</tr>
<tr>
<td>Isolation, IEC 61810-5:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operate time + bounce time</td>
</tr>
<tr>
<td>Release time + bounce time</td>
</tr>
<tr>
<td>Ambient temperature</td>
</tr>
<tr>
<td>Mechanical life ops.</td>
</tr>
<tr>
<td>Electrical life at nominal load</td>
</tr>
<tr>
<td>Operating frequency at nominal load</td>
</tr>
<tr>
<td>Protection degree</td>
</tr>
<tr>
<td>Weight avg.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC 24, 48, 60, 110</td>
</tr>
<tr>
<td>C3-N34 ........ VAC</td>
</tr>
<tr>
<td>Free-wheeling diode</td>
</tr>
<tr>
<td>Polarity and free-wheeling diodes</td>
</tr>
<tr>
<td>C3-N34D ........ VDC</td>
</tr>
<tr>
<td>Connecting diodes to the coil will increase the release time.</td>
</tr>
<tr>
<td>LED available upon request.</td>
</tr>
</tbody>
</table>

Table 1 Electrical Life, ops. x 10^6

Table 2 Max. DC Load

Dimensions - mm

Standards and Approvals:
- IEC 61810
- EN 60947
R3-N30D
Railway Application Relay
According to EN 60077-1-2/99
EN 61373/99

6 A 250 V AC
6 A 30 V DC

Contacts
Materials: Standard, code 0 AgNi
Optional, code 4 AgNi + 0.2µ Au
Optional, code 8 AgNi + 10µ Au
Max. switching current 6 A
Max. peak inrush current (20 ms) 15 A
Max. switching voltage 250 V
Max. AC load (Table 1)
Max. DC load (Table 2)

Coils
Operation Range 0.7 Un @ 1.25 Un
Power Consumption 1.07 W
Generated transients V, include FWD

Isolation
Pollution grade PD3
With voltage (1.2/50µs) / Dielectric strength (1 minute):
Contact coil 4 KV/2220 V
Between different poles 4 KV/2220 V
Between contacts on same pole 1550 KV/850 V

Specifications
Max working temperature 40°C
Number of mechanical operations >10 million
Thermic Class B (130°C)
Vibration: Category/Class 1/B Body Mounted
Vibration 5-150 Hz (3 axes)
Shock 5 g (3 axes)
Operation (UN)/release time 18 ms/35 ms
Weight avg. 95 g
Weight avg. Relay + Socket 150 g
Relay Protection IP 40

Standard Types
DC 24, 48, 72, 110
X = LED
Free-wheeling diode R3-N30........ VDC
LED and free-wheeling diode R3-N30DX.... VDC
C4-A40

General purpose
Four change-over contacts

<table>
<thead>
<tr>
<th>10 A</th>
<th>250 V AC1</th>
<th>0.5 A</th>
<th>110 V DC1</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 A</td>
<td>30 V DC1</td>
<td>0.2 A</td>
<td>220 V DC1</td>
</tr>
</tbody>
</table>

Contacts

| Materials: | Standard, code 0 | AgNi |
| Optional, code 8 | AgNi + 10µ Au |
| Optional, code 9 | AgNi + 0.2µ Au |
| Max. switching current | 10 A |
| Max. peak inrush current (20 ms) | 30 A |
| Max. switching voltage | 250 V |
| Max. AC load (Table 1) | 2.5 KVA |
| Max. DC load (Table 2) |

Coils (Ohms ±10% @ 20°C)

| Pull-in voltage | ≤0.8 x Un |
| Drop-out voltage | ≥0.1 x Un |
| Nominal coil power | 2.4 VA (AC)/1.4 W (DC) |

Table 1  Electrical Life, ops. x 10^6

<table>
<thead>
<tr>
<th>KVA</th>
<th>0.5</th>
<th>1</th>
<th>1.5</th>
<th>2</th>
<th>2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAC</td>
<td>10</td>
<td>1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Table 2  Max. DC Load

<table>
<thead>
<tr>
<th>Volts</th>
<th>50</th>
<th>100</th>
<th>150</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amps.</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Specifications

| Operate time + bounce time | 20 ms |
| Release time + bounce time | 8 ms |
| Ambient temperature | -40°C (no ice) to +70°C |
| Mechanical life ops. | 10 Mill. AC, 20 Mill. DC relays |
| Electrical life at nominal load | ≥100,000 ops. |
| Operating frequency at nominal load | 1,200/hour |
| Protection degree | IP 40/RT1 |
| Weight avg. | 90 g |

Insulation

| Dielectric strength (1 minute): Open contacts | 1,000 V |
| Between adjacent poles | 2.5 KV |
| Between contacts and coil | 2.5 KV |
| Isolation resistance at 500 V | ≥1 GΩ |
| Isolation, IEC 61810-5: | 2.5 KV / 3 |

Standard Types

| AC 50 Hz, (60 Hz); 24, 48, 115, (120), 230, (240) |
| X = LED (standard) | C4-A40X........VAC |
| RC suppressor | C4-A40R........VAC |
| DC 24, 48, 110, 220 |
| X = LED no polarity (standard) | C4-A40X........VDC |
| Free-wheeling diode | C4-A40DX....VDC |
| Polarity and free-wheeling diodes | C4-A40FX.....VDC |
| AC/DC bridge rectifier (24, 48 or 60 V) | C4-A40BX....VDC |
C4-X20
Power relay, DC applications
Two pole, N.O., double make

- 10 A  250 V  AC1
- 7 A @ 110 V  DC1
- 10 A  30 V  DC1
- 1.2 A @ 220 V  DC1

Contacts
- Materials: Standard, code 0 AgNi
- Max. switching current: 10 A
- Max. peak inrush current (20 ms): 30 A
- Max. switching voltage: 250 V
- Max. AC load (Table 1): 0.5 KVA
- Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
- Pull-in voltage: ≤0.8 x Un
- Drop-out voltage: ≥0.1 x Un
- Nominal coil power: 2.4 VA (AC)/1.3 W (DC)

<table>
<thead>
<tr>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>65</td>
<td>100</td>
<td>24</td>
<td>443</td>
<td>54</td>
</tr>
<tr>
<td>48</td>
<td>286</td>
<td>50</td>
<td>48</td>
<td>1K8</td>
<td>27</td>
</tr>
<tr>
<td>115</td>
<td>1K7</td>
<td>21</td>
<td>110</td>
<td>9K2</td>
<td>12</td>
</tr>
<tr>
<td>230</td>
<td>6K8</td>
<td>10</td>
<td>220</td>
<td>36K1</td>
<td>6</td>
</tr>
</tbody>
</table>

Insulation
- Dielectric strength (1 minute): Open contacts 2,500 V
- Between adjacent poles: 2.5 KV
- Between contacts and coil: 2.5 KV
- Isolation resistance at 500 V: ≤1 GΩ
- Isolation, IEC 61810-5: 2.5 KV/3

Specifications
- Operate time + bounce time: 20 ms
- Release time + bounce time: 8 ms
- Ambient temperature: -40°C (no ice) to +70°C
- Mechanical life ops: 10 Mill. AC, 20 Mill. DC relays
- Electrical life at nominal load: ≥100,000 ops.
- Operating frequency at nominal load: 1,200/hour
- Protection degree: IP 40/RT1
- Weight avg.: 90 g

Standard Types
- AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
- X = LED (standard) C4-X20X ......... VAC
- RC suppressor C4-X20R ......... VAC
- DC 24, 48, 110, 220
- X = LED no polarity (standard) C4-X20X ......... VDC
- Free-wheeling diode C4-X20DX .... VDC
- Polarity and free-wheeling diodes C4-X20FX .... VDC
- AC/DC bridge rectifier (24, 48 or 60 V) C4-X20BX .... VDC

Dimensions - mm

Table 1  Electrical Life, ops. x 10⁶

Table 2  Max. DC Load

Dimensions - mm
MRC 3-Pole, Square Base, Plug-In Relay

C4-R30
Magnetic latching relay
Three change-over contacts, 10 A

<table>
<thead>
<tr>
<th>10 A</th>
<th>250 V</th>
<th>AC1</th>
<th>0.5 A</th>
<th>110 V</th>
<th>DC1</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 A</td>
<td>10 V</td>
<td>DC1</td>
<td>0.2 A</td>
<td>220 V</td>
<td>DC1</td>
</tr>
</tbody>
</table>

Contacts
Materials:
- Standard, code 0: AgNi
- Optional, code 8: AgNi + 10µAu
- Optional, code 9: AgNi + 0.2µAu

Max. switching current: 10 A
Max. peak inrush current (20 ms): 30 A
Max. switching voltage: 250 V
Max. AC load (Table 1): 2.5 KVA
Max. DC load (Table 2):

Table 1
Electrical Life, ops. x 10^6

Table 2
Max. DC Load

Specifications
Minimum pulse length for ON / OFF: 50 ms
Ambient temperature: -40°C (no ice) to +70°C
Mechanical life ops.: 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load: \( \geq 100,000 \) ops.
Operating frequency at nominal load: 1,200/hour
Protection degree: IP 40/RT1
Weight avg.: 95 g

Insulation
Dielectric strength (1 minute): Open contacts: 1,000 V
Between adjacent poles: 2.5 KV
Between contacts and coil: 2.5 KV
Isolation resistance at 500 V: \( \geq 1 \text{ GΩ} \)
Isolation, IEC 61810-5: 2.5 KV / 3

Coils
ON pulse power: 1.5 VA / W
OFF pulse power: 0.5 VA / W
One winding for AC, Two windings for DC

<table>
<thead>
<tr>
<th>VAC</th>
<th>ON mA</th>
<th>OFF mA</th>
<th>VDC</th>
<th>ON mA</th>
<th>OFF mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>75</td>
<td>12</td>
<td>12</td>
<td>125</td>
<td>41</td>
</tr>
<tr>
<td>48</td>
<td>38</td>
<td>6</td>
<td>24</td>
<td>63</td>
<td>21</td>
</tr>
<tr>
<td>115</td>
<td>16</td>
<td>2.5</td>
<td>48</td>
<td>31</td>
<td>10</td>
</tr>
<tr>
<td>230</td>
<td>8</td>
<td>1.3</td>
<td>110</td>
<td>14</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Dimensions - mm

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
DC 12, 24, 48, 110

IEC 61810
C5-A20
General purpose
Two change-over contacts

16 A  400 V  AC1  0.5 A  110 V  DC1
16 A  30 V  DC1  0.2 A  220 V  DC1

Contacts
Materials:  Standard, code 0  AgNi
Optional, code 8  AgNi + 10µAu
Optional, code 9  AgNi + 0.2µ Au
Max. switching current  16 A
Max. peak inrush current (20 ms)  40 A
Max. switching voltage  400 V
Max. AC load  (Table 1)  4 KVA
Max. DC load  (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage  ≤0.8 x U_n
Drop-out voltage  ≥0.1 x U_n
Nominal coil power  2.4 VA (AC)/1.4 W (DC)

<table>
<thead>
<tr>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>65</td>
<td>100</td>
</tr>
<tr>
<td>48</td>
<td>286</td>
<td>50</td>
</tr>
<tr>
<td>115</td>
<td>1K7</td>
<td>21</td>
</tr>
<tr>
<td>230</td>
<td>6K8</td>
<td>10</td>
</tr>
<tr>
<td>400</td>
<td>18K8</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>414</td>
<td>58</td>
</tr>
<tr>
<td>48</td>
<td>1K6</td>
<td>30</td>
</tr>
<tr>
<td>110</td>
<td>8K1</td>
<td>13</td>
</tr>
<tr>
<td>220</td>
<td>35K6</td>
<td>6</td>
</tr>
</tbody>
</table>

Insulation
Dielectric strength (1 minute): Open contacts  1,000 V
Between adjacent poles  4 KV
Between contacts and coil  4 KV
Isolation resistance at 500 V  ≥3 GΩ
Isolation, IEC 61810-5:  4 KV/3

Specifications
Operate time + bounce time  20 ms
Release time + bounce time  10 ms
Ambient temperature  -40°C (no ice) to +70°C
Mechanical life ops.  10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load  ≥100,000 ops.
Operating frequency at nominal load  1,200/hour
Protection degree  IP 40/RT1
Weight avg.  90 g

Standard Types
AC 50 Hz, (60 Hz):  24, 48, 115, (120), 230, (240), 400
X = LED (standard)  C5-A20X...........VAC
RC suppressor  C5-A20R...........VAC
DC 24, 48, 110, 220
X = LED, no polarity (standard)  C5-A20X...........VDC
Free-wheeling diode  C3-A20DX..... VDC
Polarity and free-wheeling diodes  C5-A20FX..... VDC
AC/DC bridge rectifier (24, 48 or 60 V)  C5-A20BX..... VDC
3-Pole, Square Base, Power Relay

C5-A30

General purpose
Three change-over contacts

16 A 400 V AC1 0.5 A 110 V DC1
16 A 30 V DC1 0.2 A 220 V DC1

Contacts
Materials: Standard, code 0 AgNi
Max. switching current 16 A
Max. peak inrush current (20 ms) 40 A
Max. switching voltage 400 V
Max. AC load (Table 1) 4 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage ≤0.8 x Un
Drop-out voltage ≥0.1 x Un
Nominal coil power 2.4 VA (AC)/1.4 W (DC)

Table 1  Electrical Life, ops. x 10^6

Table 2  Max. DC Load

Dimensions - mm

Table 1

<table>
<thead>
<tr>
<th>KVA</th>
<th>0.66</th>
<th>1.33</th>
<th>2.00</th>
<th>2.67</th>
<th>3.33</th>
<th>4.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ops. x 10^6</td>
<td>0.1</td>
<td>1.0</td>
<td>10.0</td>
<td>100.0</td>
<td>1000.0</td>
<td>10000.0</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>Volts</th>
<th>50</th>
<th>100</th>
<th>150</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amps.</td>
<td>0.1</td>
<td>1.0</td>
<td>16.0</td>
<td>16.0</td>
</tr>
<tr>
<td>KVA</td>
<td>25</td>
<td>25</td>
<td>115</td>
<td>230</td>
</tr>
<tr>
<td>VDC</td>
<td>24</td>
<td>414</td>
<td>48</td>
<td>8K1</td>
</tr>
<tr>
<td>mA</td>
<td>65</td>
<td>100</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>Ω</td>
<td>24</td>
<td>414</td>
<td>48</td>
<td>8K1</td>
</tr>
<tr>
<td>Ω</td>
<td>65</td>
<td>100</td>
<td>50</td>
<td>10</td>
</tr>
</tbody>
</table>

Insulation
Dielectric strength (1 minute): Open contacts 1,000 V
Between adjacent poles 4 KV
Between contacts and coil 4 KV
Isolation resistance at 500 V ≥3G Ω
Isolation, IEC 61810-5: 4 KV/3

Specifications
Operate time + bounce time 20 ms
Release time + bounce time 10 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 95 g

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
X = LED (standard) C5-A30X........VAC
RC suppressor C5-A30R........VAC
DC 24, 48, 110, 220
X = LED, no polarity (standard) C5-A30X........VDC
Free-wheeling diode C3-A30DX .... VDC
Polarity and free-wheeling diodes C5-A30FX..... VDC
AC/DC bridge rectifier (24, 48 or 60 V) C5-A30BX .... VDC
**3-Pole, Square Base, Power Relay**

**C5-G30**

General purpose, DC applications

Three open contacts

<table>
<thead>
<tr>
<th>AC</th>
<th>DC</th>
<th>AC</th>
<th>DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 A</td>
<td>400 V AC</td>
<td>1.2 A</td>
<td>110 V DC</td>
</tr>
<tr>
<td>16 A</td>
<td>30 V DC</td>
<td>0.4 A</td>
<td>220 V DC</td>
</tr>
</tbody>
</table>

**Contacts**

- Materials: Standard, code 0 AgNi
- Max. switching current: 16 A
- Max. peak inrush current (20 ms): 40 A
- Max. switching voltage: 400 V
- Max. AC load (Table 1): 4 KVA
- Max. DC load (Table 2)

**Coils** (Ohms ±10% @ 20°C)

- Pull-in voltage: \( \leq 0.8 \times U_n \)
- Drop-out voltage: \( \geq 0.1 \times U_n \)
- Nominal coil power: 2.4 VA (AC)/1.6 W (DC)

**Table 1**

<table>
<thead>
<tr>
<th>VAC</th>
<th>mA</th>
<th>VDC</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>65</td>
<td>100</td>
<td>12</td>
</tr>
<tr>
<td>48</td>
<td>286</td>
<td>50</td>
<td>24</td>
</tr>
<tr>
<td>115</td>
<td>1K7</td>
<td>21</td>
<td>48</td>
</tr>
<tr>
<td>230</td>
<td>6K8</td>
<td>10</td>
<td>110</td>
</tr>
<tr>
<td>400</td>
<td>18K8</td>
<td>6</td>
<td>220</td>
</tr>
</tbody>
</table>

**Table 2**

<table>
<thead>
<tr>
<th>DC</th>
<th>L/R 40ms</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**Insulation**

- Dielectric strength (1 minute): Open contacts: \( \geq 2,000 \) V
  - Between adjacent poles: 4 KV
  - Between contacts and coil: 4 KV
  - Isolation resistance at 500 V: \( \geq 3 \) GΩ
  - Isolation, IEC 61810-5: 4 KV/3

**Specifications**

- Operate time + bounce time: 20 ms
- Release time + bounce time: 10 ms
- Ambient temperature: -40°C (no ice) to +70°C
- Mechanical life ops.: 10 Mill. AC, 20 Mill. DC relays
- Electrical life at nominal load: \( \geq 100,000 \) ops.
- Operating frequency at nominal load: 1,200/hour
- Protection degree: IP 40/RT1
- Weight avg.: 95 g

**Standard Types**

- AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
- X = LED (standard) C5-G30X........VAC
- RC suppressor C5-G30R ........VAC
- DC 24, 48, 110, 220
- X = LED, no polarity (standard) C5-G30X........VDC
- Free-wheeling diode C3-G30DX....VDC
- Polarity and free-wheeling diodes C5-G30FX .... VDC
- AC/DC bridge rectifier (24, 48 or 60 V) C5-G30BX .... VDC

**Dimensions - mm**

[Image of relay and dimensions]
C5-X10
Power relay, DC applications
Single pole, N.O., double make

16 A 400 V AC1 7 A 110 V DC1
16 A 30 V DC1 1.2 A 220 V DC1

Contacts
Materials: Standard, code 0 AgNi
Max. switching current 16 A
Max. peak inrush current (20 ms) 40 A
Max. switching voltage 400 V
Max. AC load (Table 1) 4 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage ≤0.8 x Un
Drop-out voltage ≥0.1 x Un
Nominal coil power 2.4 VA (AC)/1.3 W (DC)

Insulation
Dielectric strength (1 minute):
Between adjacent poles 4 KV
Between contacts and coil 4 KV
Isolation resistance at 500 V ≥3 GΩ
Isolation, IEC 61810-5: 4 KV/3

Specifications
Operate time + bounce time 20 ms
Release time + bounce time 10 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 90 g

Table 1
Electrical Life, ops. x 10⁶

Table 2
Max. DC Load

Dimensions - mm

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
X = LED (standard) C5-X10X........VAC
RC suppressor C5-X10R........VAC
DC 24, 48, 110, 220
X = LED, no polarity (standard) C5-X10X........VDC
Free-wheeling diode C5-X10DX....VDC
Polarity and free-wheeling diodes C5-X10FX.....VDC
AC/DC bridge rectifier (24, 48 or 60 V) C5-X10BX....VDC
MRC 1-Pole, Square Base, Power Relay

C5-M10
DC power relay
One N.O. pole, magnetic blow out
16 A 400 V AC1 10 A 220 V DC1
3.6 A 110 V DC Ind 2 A 220 V DC Ind

Contacts
Materials: Standard, code 0 AgNi
Max. switching current 16 A
Max. peak inrush current (20 ms) 40 A
Max. switching voltage 400 V
Max. AC load (Table 1) 4 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage ≤0.8 x Un
Drop-out voltage ≥0.1 x Un
Nominal coil power 2.4 VA (AC)/1.3 W (DC)

Insulation
Dielectric strength (1 minute):
Open contacts 4,000 V
Between contacts and coil 4 KV
Isolation resistance at 500 V ≥3 GΩ
Isolation, EN 60947/IEC 61810-5: 4 KV/3

Specifications
Operate time + bounce time 20 ms
Release time + bounce time 10 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC relays, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 90 g

Standard Types (50 / 60 Hz and CC)
AC 24, 48, 115, (110 - 120), 230
X = LED (standard) C5-M10X ...... VAC
RC suppressor C5-M10R ...... VAC
DC 12, 24, 48, 110, 120/125,220
X = LED C5-M10X ...... VDC
Free-wheeling diodes C5-M10DX .... VDC
Polarity and free-wheeling diodes C5-M10FX .... VDC
AC/DC bridge rectifier (24, 48 or 60 V) C5-M10BX .... VDC

Table 1 Electrical Life, ops. x 10^6

Table 2 DC Voltage Endurance

Dimensions - mm

www.turck.us • 1-800-544-7769 • Fax: (763) 553-0708 • TURCK Inc. Minneapolis, MN 55441
C5-M20
Power relay, DC
Double pole, N.O., magnetic blow out

16 A  250 V AC1  7 A  110 V DC1
3 A  220 V DC1

Contacts
Materials:  Standard, code 0  AgNi
Max. switching current  16 A
Max. peak inrush current (20 ms)  40 A
Max. switching voltage  250 V
Max. AC load  (Table 1)  4 KVA
Max. DC load  (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage  0.8 x Un
Drop-out voltage  0.1 x Un
Nominal coil power  2.4 VA (CA) / 1.6 W (CC)

Insulation
Dielectric strength (1 minute):
- Open contacts  2 KV
- Between adjacent poles  4 KV
- Between contacts and coil  3 KV
Isolation resistance at 500 V  ≥3 GΩ
Isolation, EN 60947/IEC 61810-5:  4 KV/3

Specifications
Operate time + bounce time  20 ms
Release time + bounce time  10 ms
Ambient temperature  -40°C (no ice) to +70°C
Mechanical life ops.  10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load  ≥75,000 ops.
Operating frequency at nominal load  1,200/hour
Protection degree  IP 40/RT1
Weight avg.  90 g

Table 1  Electrical Life, ops. x 10^6

<table>
<thead>
<tr>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>65</td>
<td>100</td>
<td>12</td>
<td>90</td>
<td>133</td>
</tr>
<tr>
<td>48</td>
<td>286</td>
<td>50</td>
<td>24</td>
<td>373</td>
<td>66</td>
</tr>
<tr>
<td>115</td>
<td>1K7</td>
<td>21</td>
<td>48</td>
<td>1K4</td>
<td>33</td>
</tr>
<tr>
<td>230</td>
<td>6K8</td>
<td>10.4</td>
<td>110</td>
<td>7K6</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 2  Max. DC Load

<table>
<thead>
<tr>
<th>DC1</th>
<th>L/R 40ms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>50</td>
<td>1</td>
</tr>
<tr>
<td>100</td>
<td>1.6</td>
</tr>
<tr>
<td>150</td>
<td>2.2</td>
</tr>
<tr>
<td>200</td>
<td>2.8</td>
</tr>
<tr>
<td>250</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Dimensions - mm

| FASTON .187 |
| 35 |
| 35 |
| 3.75 |
C5-R20
Magnetic latching relay
Two Change-over contacts, 10 A

10 A 400 V AC1 10 A 30 V DC1
0.2 A 220 V DC1 0.5 A 110 V DC1

Contacts
Materials: Standard, code 0 AgNi
Max. switching current 10 A
Max. peak inrush current (20 ms) 30 A
Max. switching voltage 400 V
Max. AC load (Table 1) 4 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
ON pulse power 1.5 VA/W
OFF pulse power 0.5 VA/W
One winding for AC, two windings for DC

<table>
<thead>
<tr>
<th>VAC</th>
<th>ON mA</th>
<th>OFF mA</th>
<th>VDC</th>
<th>ON mA</th>
<th>OFF mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>75</td>
<td>12</td>
<td>12</td>
<td>125</td>
<td>41</td>
</tr>
<tr>
<td>48</td>
<td>38</td>
<td>6</td>
<td>24</td>
<td>63</td>
<td>21</td>
</tr>
<tr>
<td>115</td>
<td>16</td>
<td>2.5</td>
<td>48</td>
<td>31</td>
<td>10</td>
</tr>
<tr>
<td>230</td>
<td>8</td>
<td>1.3</td>
<td>110</td>
<td>14</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Insulation
Dielectric strength (1 minute):
- Open contacts 1,000 V
- Between adjacent poles 4 KV
- Between contacts and coil 4 KV
- Isolation resistance at 500 V ≥3 GΩ
- Isolation, EN 60947/IEC 61810-5: 4 KV/3

Specifications
Minimum, pulse length for ON / OFF 50 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 95 g

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (110-120), 230, (240)
C5-R20.........VAC
DC 12, 24, 48, 110
C5-R20.........VDC
1-Pole, Miniature Power Plug-In Relay

C7-A10

General purpose
One change-over contact, 16 A

<table>
<thead>
<tr>
<th>16 A</th>
<th>250 V AC1</th>
<th>0.5 A</th>
<th>110 V DC1</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 A</td>
<td>30 V DC1</td>
<td>0.2 A</td>
<td>220 V DC1</td>
</tr>
</tbody>
</table>

Contacts
Materials: Standard, code 0 AgNi
Max. switching current 16 A
Max. peak inrush current (20 ms) 40 A
Max. switching voltage 250 V
Max. AC load (Table 1) 4 KVA
Max. DC load (Table 2)
Only plug-in S7-16 socket

Coils (Ohms ±10% @ 20°C)
Pull-in voltage ≤0.8 x Un
Drop-out voltage ≥0.1 x Un
Nominal coil power 1.2 VA (AC)/1.3 W (DC)

<table>
<thead>
<tr>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>174</td>
<td>50</td>
<td>12</td>
<td>111</td>
<td>108</td>
</tr>
<tr>
<td>48</td>
<td>686</td>
<td>25</td>
<td>24</td>
<td>432</td>
<td>55</td>
</tr>
<tr>
<td>115</td>
<td>4K3</td>
<td>10.4</td>
<td>48</td>
<td>1K7</td>
<td>28</td>
</tr>
<tr>
<td>230</td>
<td>18K6</td>
<td>5.2</td>
<td>110</td>
<td>9K2</td>
<td>12</td>
</tr>
</tbody>
</table>

Insulation
Dielectric strength (1 minute): Open contacts 1,000 V
Between contacts and coil 2.5 KV
Isolation resistance at 500 V ≥1 GΩ
Isolation, IEC 61810-5: 2.5 KV/3

Specifications
Operate time + bounce time 16 ms
Release time + bounce time 8 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 43 g

Table 1
Electrical Life, ops. x 10⁶

Table 2
Max. DC Load

Dimensions - mm

Relay compatible with sockets:
S7-16

Contact positions:
1 4 7
A1(+)

5 8
A2

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
X = LED (standard) C7-A10X........ VAC

DC 12, 24, 48, 110,
X = LED, no polarity (standard) C7-A10X........ VDC
Free-wheeling diode C7-A10DX .... VDC
Polarity and free-wheeling diodes C7-A10FX..... VDC
AC/DC bridge rectifier (24, 48 or 60 V) C7-A10BX .... VDC

IEC 61810 EN 60947
C7-A20

General purpose
Two pole, change-over contacts

<table>
<thead>
<tr>
<th>Rating</th>
<th>10 A</th>
<th>250 V AC</th>
<th>0.5 A</th>
<th>110 V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 A</td>
<td>30 V DC</td>
<td>0.2 A</td>
<td>220 V DC</td>
</tr>
</tbody>
</table>

Contacts

Materials:
- Standard, code 0: AgNi
- Optional, code 8: AgNi + 10µ Au
- Optional, code 9: AgNi + 0.2µ Au

Max. switching current: 10 A
Max. peak inrush current (20 ms): 30 A
Max. switching voltage: 250 V
Max. AC load: 2.5 KVA (Table 1)
Max. DC load: 1.2 VA (AC)/1 W (DC) (Table 2)

Coils (Ohms ±10% @ 20°C)

Pull-in voltage: \( \leq 0.8 \times U_n \)
Drop-out voltage: \( \geq 0.1 \times U_n \)
Nominal coil power: 1.2 VA (AC)/1 W (DC)

Table 1: Electrical Life, ops. x 10^6

<table>
<thead>
<tr>
<th>VAC</th>
<th>( \Omega )</th>
<th>mA</th>
<th>VDC</th>
<th>( \Omega )</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>174</td>
<td>50</td>
<td>12</td>
<td>148</td>
<td>85</td>
</tr>
<tr>
<td>48</td>
<td>686</td>
<td>25</td>
<td>24</td>
<td>594</td>
<td>43</td>
</tr>
<tr>
<td>115</td>
<td>4K3</td>
<td>10.4</td>
<td>48</td>
<td>2K3</td>
<td>21</td>
</tr>
<tr>
<td>230</td>
<td>18K6</td>
<td>5.2</td>
<td>110</td>
<td>11K4</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 2: Max. DC Load

<table>
<thead>
<tr>
<th>Volts</th>
<th>Amps.</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>1</td>
</tr>
<tr>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>150</td>
<td>1</td>
</tr>
<tr>
<td>200</td>
<td>1</td>
</tr>
</tbody>
</table>

Specifications

Operate time + bounce time: 16 ms
Release time + bounce time: 8 ms
Ambient temperature: \(-40°C\) (no ice) to \(+70°C\)
Mechanical life ops.: 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load: \(\geq 100,000\) ops.
Operating frequency at nominal load: 1,200/hour
Protection degree: IP 40/RT1
Weight avg.: 43 g

Standard Types

AC 50 Hz, (60 Hz): 24, 48, 72, 115, (120), 230, (240)
X = LED (standard)  C7-A20X........VAC
DC 12, 24, 48, 72, 110,
X = LED, no polarity (standard)  C7-A20X......VDC
Free-wheeling diode  C7-A20DX .... VDC
Polarity and free-wheeling diodes  C7-A20FX..... VDC
AC/DC bridge rectifier (24, 48 or 60 V)  C7-A20BX .... VDC
C7-A20E

General purpose
Two pole

10 A 250 V AC1 0.5 A 110 V DC1
10 A 30 V DC1 0.2 A 220 V DC1

Contacts
Materials:
Standard, code 0  AgNi
Optional, code 8  AgNi + 10µ Au
Optional, code 9  AgNi + 0.2µ Au
Max. switching current 10 A
Max. peak inrush current (20 ms) 30 A
Max. switching voltage 250 V
Max. AC load (Table 1) 2.5 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage  ≤0.8 x \( U_n \)
Drop-out voltage  ≥0.1 x \( U_n \)
Nominal coil power  1.2 VA (AC)/1 W (DC)

<table>
<thead>
<tr>
<th>VAC</th>
<th>( \Omega )</th>
<th>mA</th>
<th>VDC</th>
<th>( \Omega )</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>174</td>
<td>50</td>
<td>12</td>
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<td>85</td>
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<td>48</td>
<td>686</td>
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<td>115</td>
<td>4K3</td>
<td>10.4</td>
<td>48</td>
<td>2K3</td>
<td>21</td>
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<tr>
<td>230</td>
<td>18K6</td>
<td>5.2</td>
<td>110</td>
<td>11K4</td>
<td>11</td>
</tr>
</tbody>
</table>

Insulation
Dielectric strength (1 minute): Open contacts 1,000 V
Between adjacent poles 2.5 KV
Between contacts and coil 2.5 KV
Isolation resistance at 500 V  ≥3 GΩ
Isolation, IEC 61810-5: 2.5 KV/3

Specifications
Operate time + bounce time 16 ms
Release time + bounce time 8 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 43 g

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
C7-A20E........VAC
DC 12, 24, 48, 110
C7-A20E........VDC

Table 1
Electrical Life, ops. x 10^6

Table 2
Max. DC Load

Dimensions - mm

Image: 2-Pole, Miniature Power Plug-In Relay
C7-T21
Low level
Two change-over bifurcated contacts
6 A  250 V Res  6 A  30 V DC1
Min. contacts load: 1 mA / 5 V DC1

Contacts
Materials:  Standard, code 1  AgNi + 0.3µ Au
Optional, code 2  AgNi + 10µ Au
Max. switching current  6 A
Max. peak inrush current (20 ms)  15 A
Max. switching voltage  250 V
Max. AC load  (Table 1)  1.2 KVA
Max. DC load  (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage  ≤0.8 x \( U_n \)
Drop-out voltage  ≥0.1 x \( U_n \)
Nominal coil power  1.2 VA (AC)/1 W (DC)

Insulation
Dielectric strength (1 minute): Open contacts  1,000 V
Between adjacent poles  2.5 KV
Between contacts and coil  2.5 KV
Isolation resistance at 500 V  ≥1 GΩ
Isolation, IEC 61810-5:  2.5 KV/3

Specifications
Operate time + bounce time  16 ms
Release time + bounce time  8 ms
Ambient temperature  -40°C (no ice) to +70°C
Mechanical life ops.  10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load  ≥100,000 ops.
Operating frequency at nominal load  1,200/hour
Protection degree  IP 40/RT1
Weight avg.  43 g

Table 1  Electrical Life, ops. x 10⁶

Table 2  Max. DC Load

Dimensions - mm

Relay compatible with sockets:
S7-M, S7-L, S7-P, S7-PO, S7-I/O

Table 1

Table 2

Dimensions - mm
2-Pole, Miniature Power Plug-In Relay

C7-G20
Power relay, DC application
Two open contacts, Gap 1.5 mm

10 A  250 V AC1  0.8 A  110 V DC1
10A  30 V DC1  0.4 A  220 V DC1

Contacts
Materials: Standard, code 0  AgNi
Max. switching current  10 A
Max. peak inrush current (20 ms)  30 A
Max. switching voltage  250 V
Max. AC load (Table 1)  2.5 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage  ≤0.8 x U_n
Drop-out voltage  ≥0.1 x U_n
Nominal coil power  1.5 VA (AC)/1.5 W (DC)

<table>
<thead>
<tr>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>153</td>
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<tr>
<td>48</td>
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<td>230</td>
<td>14K6</td>
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<table>
<thead>
<tr>
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<th>Ω</th>
<th>mA</th>
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</thead>
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<td>388</td>
<td>61</td>
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<td>32</td>
</tr>
<tr>
<td>110</td>
<td>8K</td>
<td>14</td>
</tr>
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</table>

Insulation
Dielectric strength (1 minute): Open contacts  2,000 V
Between adjacent poles  2.5 KV
Between contacts and coil  2.5 KV
Isolation resistance at 500 V  ≥1 GΩ
Isolation, IEC 61810-5:  2.5 KV/3

Specifications
Operate time + bounce time  20 ms
Release time + bounce time  10 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops.  10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load  ≥100,000 ops.
Operating frequency at nominal load  1,200/hour
Protection degree  IP 40/RT1
Weight avg.  43 g

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
X = LED (standard)  C7-G20X ....... VAC
DC 12, 24, 48, 110
X = LED, no polarity (standard)  C7-G20X ....... VDC
Free-wheeling diode  C7-G20DX ....... VDC
Polarity and free-wheeling diodes  C7-G20FX ....... VDC
AC/DC bridge rectifier (24, 48 or 60 V)  C7-G20BX ....... VDC

Dimensions - mm

Table 1  Electrical Life, ops. x 10^6

Table 2  Max. DC Load

Dimensions - mm
1-Pole, Miniature Power Plug-In Relay

**Relay compatible with sockets:**
S7-M, S7-L, S7-P, S7-PO, S7-I/O

**Table 1**  Electrical Life, ops. x 10^6

<table>
<thead>
<tr>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>153</td>
<td>62</td>
<td>12</td>
<td>111</td>
<td>108</td>
</tr>
<tr>
<td>48</td>
<td>611</td>
<td>31</td>
<td>24</td>
<td>432</td>
<td>55</td>
</tr>
<tr>
<td>115</td>
<td>3K6</td>
<td>13</td>
<td>48</td>
<td>1K7</td>
<td>27</td>
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<tr>
<td>230</td>
<td>14K6</td>
<td>6.5</td>
<td>110</td>
<td>9K2</td>
<td>12</td>
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**Table 2**  Max. DC Load

<table>
<thead>
<tr>
<th>Volts</th>
<th>Amps</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>1</td>
</tr>
<tr>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>150</td>
<td>1</td>
</tr>
<tr>
<td>200</td>
<td>1</td>
</tr>
</tbody>
</table>

**Specifications**
- Operate time + bounce time: 20 ms
- Release time + bounce time: 10 ms
- Ambient temperature: -40°C (no ice) to +70°C
- Mechanical life ops.: 10 Mill. AC, 20 Mill. DC relays
- Electrical life at nominal load: ≥100,000 ops.
- Operating frequency at nominal load: 1,200/hour
- Protection degree: IP 40/RT1
- Weight avg.: 43 g

**Standard Types**
- AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
- X = LED (standard) C7-X10X............ VAC
- DC 12, 24, 48, 110
- X = LED, no polarity (standard) C7-X10X............ VDC
- Free-wheeling diode C7-X10DX.... VDC
- Polarity and free-wheeling diodes C7-X10FX.... VDC
- AC/DC bridge rectifier (24, 48 or 60 V) C7-X10BX.... VDC
2-Pole, Miniature Power Plug-In Relay

C7-H23
Power contact 10 A and bifurcated contact for current level

<table>
<thead>
<tr>
<th>Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Contacts</td>
</tr>
<tr>
<td>Standard material</td>
</tr>
<tr>
<td>Max. switching current</td>
</tr>
<tr>
<td>Max. peak inrush current (20 ms)</td>
</tr>
<tr>
<td>Max. switching voltage</td>
</tr>
<tr>
<td>Max. AC load (Table 1)</td>
</tr>
<tr>
<td>Max. DC load (Table 2)</td>
</tr>
</tbody>
</table>

| Bifurcated Contacts |
| Standard material | AgNi + 0.3µ Au |
| Max. switching current | 6 A |
| Max. peak inrush current (20 ms) | 15 A |
| Max. switching voltage | 250 V |
| Minimum current | 1 mA 5 V |
| Max. DC load (Table 2) |

| Coils (Ohms ±10% @ 20°C) |
| Pull-in voltage | ≤0.8 x U_n |
| Drop-out voltage | ≥0.1 x U_n |
| Nominal coil power | 1.2 VA (AC)/1 W (DC) |

<table>
<thead>
<tr>
<th>VAC</th>
<th>Ω ± 10%</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>174</td>
<td>50</td>
</tr>
<tr>
<td>48</td>
<td>686</td>
<td>25</td>
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<tr>
<td>115</td>
<td>4K3</td>
<td>10.4</td>
</tr>
<tr>
<td>230</td>
<td>18K6</td>
<td>5.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VDC</th>
<th>Ω ± 10%</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>148</td>
<td>81</td>
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<td>24</td>
<td>594</td>
<td>40</td>
</tr>
<tr>
<td>48</td>
<td>2K3</td>
<td>21</td>
</tr>
<tr>
<td>110</td>
<td>11K4</td>
<td>11</td>
</tr>
</tbody>
</table>

| Insulation |
| Dielectric strength (1 minute): |
| Between adjacent poles | 2.5 KV |
| Between contacts and coil | 2.5 KV |
| Isolation, IEC 61810-5: | 2.5 KV/3 |

| Specifications |
| Max. working temperature | 60°C |
| Mechanical life ops. | ≥10 million |
| Protection degree | IP 40 |
| Weight avg. | 43 g |

| Standard Types |
| AC 24, 115, 230 |
| X = LED |
| C7-H23 .......... VAC |
| C7-H23X .......... VAC |

| DC 12, 24, 48, 110 |
| X = LED |
| Free-wheeling diode |
| C7-H23 .......... VDC |
| C7-H23X .......... VDC |
| C7-H23DX .......... VDC |
| Polarity and free-wheeling diodes |
| C7-H23FX .......... VDC |
| AC/DC bridge rectifier (24, 48 or 60 V) |
| C7-H23BX .......... VDC |

IEC 61810  EN 60947
C7-W10
High inrush current
Single pole, wolfram and silver contacts
10 A 250 V AC 250 V AC5a/b

Contacts
Materials: Standard, code 0 AgNi
Max. switching current 10 A
Max. peak inrush current (2.5 ms) 500 A
Max. switching voltage 250 V
Max. AC load (Table 1) 2.5 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage ≤0.8 x Un
Drop-out voltage ≥0.1 x Un
Nominal coil power 1.5 VA (AC)/1.5 W (DC)

Table 1  Electrical Life, ops. x 10^6

<table>
<thead>
<tr>
<th>KVA</th>
<th>Ops. 1</th>
<th>Ops. 10</th>
<th>Ops. 10^6</th>
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<td>2500</td>
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<tr>
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<table>
<thead>
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<th>VDC</th>
<th>Ω</th>
<th>mA</th>
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<td>4.5</td>
<td>110</td>
<td>8K</td>
<td>14</td>
</tr>
</tbody>
</table>

Insulation
Dielectric strength (1 minute):
- Open contacts 1,000 V
- Between contacts and coil 2.5 KV
- Isolation resistance at 500 V ≥1 GΩ
- Isolation, IEC 61810-5: 2.5 KV

Specifications
- Operate time + bounce time 20 ms
- Release time + bounce time 10 ms
- Ambient temperature -40°C (no ice) to +70°C
- Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
- Electrical life at nominal load ≥100,000 ops.
- Operating frequency at nominal load 1,200/hour
- Protection degree IP 40/RT1
- Weight avg. 43 g

Standard Types
- AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240) X = LED (standard)
- C7-W10X.......VAC
- DC 12, 24, 48, 110 X = LED, no polarity (standard)
- C7-W10X.......VDC
- Free-wheeling diode C7-W10DX.... VDC
- Polarity and free-wheeling diodes C7-W10FX.... VDC
- AC/DC bridge rectifier (24, 48 or 60 V) C7-W10BX.... VDC
R7-A20D
Railway Application Relay
According to EN 60077-1-2/99 - EN 61373/99

10 A  250 V  AC1  10 A  30 V  DC1

Contacts
Materials:  Standard, code 0  AgNi
Optional, code 4  AgNi + 0.2µ Au
Optional, code 8  AgNi + 10µ Au
Max. switching current  10 A
Max. peak inrush current (20 ms)  30 A
Max. switching voltage  250 V
Max. AC load (Table 1)
Max. DC load (Table 2)

Coils
Operation Range  0.7 Un @ 1.25 Un
Power Consumption  >0.1 Un
Power Consumption  1.07 W
Generated transients  OV, include FWD

Isolation
Pollution grade  PD3
With voltage (1.2/50µs) / Dielectric strength (1 minute)
  Contact coil  4 KV/2,220 V
  Between different poles  4 KV/2,220 V
  Between contacts on the same pole  1,550 V

Specifications
Ambient temperature  -25°C to +70°C
Number of mechanical operations  20 million
Thermic Class  B (130°C)
Vibration: Category/Class  1/B Body Mounted
Vibration  5-150 Hz (3 axes)
Shock  5 g (3 axes)
Operation (UN)/release time  10 ms/15 ms
Weight avg.  35 g
Weight avg. Relay + Socket  75 g
Relay Protection  IP 40

Standard Types
DC 24, 48, 72, 110
Free-wheeling diode  R7-A20D....... VDC
R7-T21D
Railway Application Relay
According to EN 60077-1-2/99 - EN 61373/99
6 A  250 V AC1  6 A  30 V DC1

Contacts
Materials:  Standard, code 1  AgNi + 0.2µ Au
Optional, code 2  AgNi + 10µ Au
Max. switching current  6 A
Max. peak inrush current (20 ms)  15 A
Max. switching voltage  250 V
Max. AC load  (Table 1)
Max. DC load  100,000 ops.

Coils
Operation Range  0.7 Un @ 1.25 Un
Power Consumption  >0.1 Un
Power Consumption  1.07 W
Generated transients  OV, include FWD

Isolation
Pollution grade  PD3
With voltage (1.2 / 50µs)/Dielectric strength (1 minute)
Contact coil  4 KV/2,220 V
Between different poles  4 KV/2,220 V
Between contacts on the same pole  1,550 V

Specifications
Ambient temperature  -25°C to +70°C
Number of mechanical operations  20 million
Thermic Class  B (130°C)
Vibration: Category/Class  1/B Body Mounted
Vibration  5-150 Hz (3 axes)
Shock  5 g (3 axes)
Operation (UN)/release time  10 ms/15 ms
Weight avg.  35 g
Weight avg. Relay + Socket  75 g
Relay Protection  IP 40

Standard Types
DC 24, 48, 72, 110
Free-wheeling diode  R7-T21D ....... VDC
C9-A41

General purpose
Four pole, change-over contacts

5 A 250 V AC1
5 A 30 V DC1
0.2 A 110 V DC1

Contacts
Materials: Standard, code 1 AgNi + 0.2µAu
Optional, code 2 AgNi + 10µAu
Max. switching current 5 A
Max. peak inrush current (2.5 ms) 15 A
Max. switching voltage 250 V
Max. AC load (Table 1) 1250 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage ≤0.8 x Un
Drop-out voltage ≥0.1 x Un
Nominal coil power 1.2 VA (AC)/1 W (DC)

Table 1  Electrical Life, ops. x 10^6

<table>
<thead>
<tr>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
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<td>48</td>
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<tr>
<td>115</td>
<td>4K3</td>
<td>10.4</td>
</tr>
<tr>
<td>230</td>
<td>18K6</td>
<td>5.2</td>
</tr>
</tbody>
</table>

Table 2  Max. DC Load

<table>
<thead>
<tr>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
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<td>24</td>
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<td>43</td>
</tr>
<tr>
<td>48</td>
<td>2K3</td>
<td>21</td>
</tr>
<tr>
<td>110</td>
<td>11K4</td>
<td>11</td>
</tr>
</tbody>
</table>

Insulation
Dielectric strength (1 minute): Open contacts 1,000 V
Between adjacent poles 2 KV
Between contacts and coil 2.5 KV
Isolation resistance at 500 V ≥1 GΩ
Isolation, IEC 61810-5: 2.5 KV

Specifications
Operate time + bounce time 10 ms
Release time + bounce time 6 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 43 g

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 72, 115, (120), 230, (240)
X = LED (standard) C9-A41X........VAC
DC 12, 24, 48, 72, 110
X = LED, no polarity (standard) C9-A41X........VDC
Free-wheeling diode C9-A41DX .... VDC
Polarity and free-wheeling diodes C9-A41FX..... VDC
AC/DC bridge rectifier (24, 48 or 60 V) C9-A41BX .... VDC
C9-R21
Magnetic latching relay
Two change-over contacts, 5 A
5 A 120 V AC1
5 A 30 V DC1

Contacts
Materials: Standard, code 1 AgNi + 0.2µAu
Max. switching current 5 A
Max. peak inrush current (10 ms) 15 A
Max. switching voltage 250 V
Max. AC load (Table 1) 1,200 KVA
Max. DC load (Table 2)

Table 1  Electrical Life, ops. x 10^6

<table>
<thead>
<tr>
<th>VA</th>
<th>VAC ON mA</th>
<th>OFF mA</th>
<th>VDC ON mA</th>
<th>OFF mA</th>
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Table 2  Max. DC Load

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<th>1Amps</th>
<th>2Amps</th>
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<td>1</td>
<td>2</td>
</tr>
<tr>
<td>75</td>
<td>5</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>125</td>
<td>2.5</td>
<td>0.25</td>
<td>0.5</td>
</tr>
<tr>
<td>175</td>
<td>1</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>200</td>
<td>0.5</td>
<td>0.05</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Insulation
Dielectric strength (1 minute): Open contacts 1,000 V
Between adjacent poles 2 KV
Between contacts and coil 2 KV
Isolation resistance at 500 V ≥1 GΩ
Isolation, IEC 61810-5: 2.5 KV/2

Specifications
Minimum, pulse length for ON/OFF 50 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection degree IP 40/RT1
Weight avg. 43 g

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240) C9-R21 ........... VAC
DC 12, 24, 48, 60 C9-R21 ........... VDC
Miniature 2-Pole Relay

C9-E21
General purpose. Sensitive 500 mW
Two pole, change-over contacts
DC operating range: 0.8–1.7 x Un

| Contacts |
|------------------|------------------|
| 5 A 250 V AC1 | 5 A 30 V DC1 |

<table>
<thead>
<tr>
<th>Coils (Ohms ±10% @ 20°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull-in voltage ≤0.8 x Un</td>
</tr>
<tr>
<td>Drop-out voltage ≥0.1 x Un</td>
</tr>
<tr>
<td>Nominal coil power 0.8 VA (AC)/0.5 W (DC)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Electrical Life, ops. x 10^6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Res</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Max. DC Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Res</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions - mm</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operate time + bounce time 10 ms</td>
</tr>
<tr>
<td>Release time + bounce time 6 ms</td>
</tr>
<tr>
<td>Ambient temperature -40°C (no ice) to +60°C</td>
</tr>
<tr>
<td>Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays</td>
</tr>
<tr>
<td>Electrical life at nominal load ≥100,000 ops.</td>
</tr>
<tr>
<td>Operating frequency at nominal load 1,200/hour</td>
</tr>
<tr>
<td>Protection degree IP 40/RT1</td>
</tr>
<tr>
<td>Weight avg. 40 g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)</td>
</tr>
<tr>
<td>X = LED (standard) C9-E21X ......... VAC</td>
</tr>
<tr>
<td>DC 12, 24, 48, 110</td>
</tr>
<tr>
<td>X = LED, no polarity (standard) C9-E21X ......... VDC</td>
</tr>
<tr>
<td>Free-wheeling diode C9-E21DX ....... VDC</td>
</tr>
<tr>
<td>Polarity and free-wheeling diodes C9-E21FX ...... VDC</td>
</tr>
<tr>
<td>AC/DC bridge rectifier (24, 48 or 60 V) C9-E21BX .... VDC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions - mm</th>
</tr>
</thead>
</table>

Relay compatible with sockets:
S9-M, S9-L, S9-P, S9-PO
C10-A10
One pole, change-over contact
10 A 250 V AC1 0.5 A 110 V DC1
10 A 30 V DC1 0.2 A 220 V DC1
13 A 250 V AC1

Contacts
Materials:  
Standard, code 0 AgNi
Optional, code 8 AgNi + 10µ Au
Optional, code 5 AgSnO2
Max. switching current 10 A
Max. peak inrush current (20 ms) 30 A
Max. switching voltage 250 V
Max. AC load (Table 1) 2.5 KVA
Max. DC load (Table 2)

Coils (Ohms ±10% @ 20°C)
Pull-in voltage ≤0.8 x U_n
Drop-out voltage ≥0.1 x U_n
Nominal coil power 1.1 VA (AC)/0.7 W (DC)

<table>
<thead>
<tr>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>290</td>
<td>45</td>
<td>12</td>
<td>224</td>
<td>53</td>
</tr>
<tr>
<td>48</td>
<td>1,200</td>
<td>23</td>
<td>24</td>
<td>742</td>
<td>32</td>
</tr>
<tr>
<td>115</td>
<td>7,300</td>
<td>9.5</td>
<td>48</td>
<td>3,500</td>
<td>13.7</td>
</tr>
<tr>
<td>230</td>
<td>28,800</td>
<td>4.7</td>
<td>110</td>
<td>19,900</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Insulation
Dielectric strength (1 minute):
Open contacts 1,000 V
Between contact and coil 5 KV
Isolation resistance at 500 V ≥1 GΩ
Isolation, IEC 61810-5: 4 KV/3

Specifications
Operate time + bounce time 10 ms
Release time + bounce time 5 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection grade IP 40/RT1
Weight avg. 21 g

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
X = LED (standard) C10-A10X......VAC
RC suppressor C10-A10R......VAC
DC 12, 24, 48, 110
X = LED, no polarity (standard) C10-A10X......VDC
Options (DC coils)
Polarity and free-wheeling diodes C10-A10FX... VDC
AC/DC bridge rectifier (24 or 48 V) C10-A10BX... VDC
C10-A10E
One pole, change-over contact

10 A 250 V AC1 0.5 A 110 V DC1
10 A 30 V DC1 0.5 A 220 V DC1
13 A 250 V AC1

Contacts
Materials: Standard, code 0 AgNi
Optional, code 8 AgNi + 10µ Au
Max. switching current 10 A
Max. peak inrush current (20 ms) 30 A
Max. switching voltage 250 V
Max. AC load (Table 1) 2.5 KVA
Max. DC load (Table 2)

Table 1  Electrical Life, ops. x 10⁶

<table>
<thead>
<tr>
<th>VA</th>
<th>Ops. x 10⁶</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>1</td>
</tr>
<tr>
<td>1,000</td>
<td>0.1</td>
</tr>
<tr>
<td>1,500</td>
<td>0.01</td>
</tr>
<tr>
<td>2,000</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Table 2  Max. DC Load

<table>
<thead>
<tr>
<th>Volts</th>
<th>Amps.</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>0.1</td>
</tr>
<tr>
<td>100</td>
<td>0.001</td>
</tr>
<tr>
<td>150</td>
<td>0.0001</td>
</tr>
<tr>
<td>200</td>
<td>0.00001</td>
</tr>
</tbody>
</table>

Table 2  Max. DC Load

<table>
<thead>
<tr>
<th>Volts</th>
<th>Amps.</th>
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<tr>
<td>100</td>
<td>0.001</td>
</tr>
<tr>
<td>150</td>
<td>0.0001</td>
</tr>
<tr>
<td>200</td>
<td>0.00001</td>
</tr>
</tbody>
</table>

Specifications
Operate time + bounce time 10 ms
Release time + bounce time 8 ms
Ambient temperature -40°C (no ice) to +70°C
Mechanical life ops. 10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load ≥100,000 ops.
Operating frequency at nominal load 1,200/hour
Protection grade IP 40/RT1
Weight avg. 21 g

Standard Types
AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
DC 12, 24, 48, 110

C10-A10E......VAC
C10-A10E......VDC
C10-G10
One pole, open contact

10 A  250 V  AC1  0.8 A  110 V  DC1
10 A  30 V  DC1  0.4 A  220 V  DC1

Contacts
Materials:  Standard, code 0  AgNi
Optional, code 8  AgNi + 10µ Au
Optional, code 5  AgSnO2
Max. switching current  10 A
Max. peak inrush current (20 ms)  30 A
Max. switching voltage  250 V
Max. AC load  (Table 1)  2.5 KVA
Max. DC load  (Table 2)

Table 1  Electrical Life, ops. x 10^6

Table 2  Max. DC Load

Specifications
Operate time + bounce time  10 ms
Release time + bounce time  8 ms
Ambient temperature  -40°C (no ice) to +70°C
Mechanical life ops.  10 Mill. AC, 20 Mill. DC relays
Electrical life at nominal load  ≥100,000 ops.
Operating frequency at nominal load  1,200/hour
Protection grade  IP 40/RT1
Weight avg.  21 g

Standard Types
AC 50 Hz, (60 Hz):  24, 48, 115, (120), 230, (240)
X = LED (standard)  C10-G10X.....VAC
RC suppressor  C10-G10R.... VAC
DC 12, 24, 48, 110
X = LED, no polarity (standard)  C10-G10X..... VDC
Options (DC coils)
Polarity and free-wheeling diodes  C10-G10FX.. VDC
AC/DC bridge rectifier (24 or 48 V)  C10-G10BX.. VDC

Dimensions - mm

www.turck.us  1-800-544-7769  Fax: (763) 553-0708  TURCK Inc. Minneapolis, MN 55441

B1201  53
C10-T13
One change-over twin contact

<table>
<thead>
<tr>
<th>Contacts</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials:</td>
<td>Standard, code 3</td>
<td>AgNi + 3µ Au</td>
</tr>
<tr>
<td></td>
<td>Optional, code 2</td>
<td>AgNi + 10µ Au</td>
</tr>
<tr>
<td>Max. switching current</td>
<td>6 A</td>
<td></td>
</tr>
<tr>
<td>Max. peak inrush current (20 ms)</td>
<td>15 A</td>
<td></td>
</tr>
<tr>
<td>Max. switching voltage</td>
<td>250 V</td>
<td></td>
</tr>
<tr>
<td>Max. AC load (Table 1)</td>
<td>1.5 KVA</td>
<td></td>
</tr>
<tr>
<td>Max. DC load (Table 2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coils (Ohms ±10% @ 20°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull-in voltage</td>
</tr>
<tr>
<td>Drop-out voltage</td>
</tr>
<tr>
<td>Nominal coil power</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Electrical Life, ops. x 106</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAC</td>
<td>Ω</td>
</tr>
<tr>
<td>24</td>
<td>290</td>
</tr>
<tr>
<td>48</td>
<td>1,200</td>
</tr>
<tr>
<td>115</td>
<td>7,300</td>
</tr>
<tr>
<td>230</td>
<td>28,800</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Max. DC Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>VDC</td>
<td>Ω</td>
</tr>
<tr>
<td>12</td>
<td>224</td>
</tr>
<tr>
<td>24</td>
<td>742</td>
</tr>
<tr>
<td>48</td>
<td>3,500</td>
</tr>
<tr>
<td>110</td>
<td>19,900</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dielectric strength (1 minute):</td>
</tr>
<tr>
<td>Open contacts</td>
</tr>
<tr>
<td>Between contact and coil</td>
</tr>
<tr>
<td>Isolation resistance at 500 V</td>
</tr>
<tr>
<td>Isolation, IEC 61810-5:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operate time + bounce time</td>
</tr>
<tr>
<td>Release time + bounce time</td>
</tr>
<tr>
<td>Ambient temperature</td>
</tr>
<tr>
<td>Mechanical life ops. 10 Mill. AC relays, 20 Mill. DC relays</td>
</tr>
<tr>
<td>Operating frequency at nominal load</td>
</tr>
<tr>
<td>Protection grade</td>
</tr>
<tr>
<td>Weight avg.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)</td>
</tr>
<tr>
<td>X = LED (standard)</td>
</tr>
<tr>
<td>RC suppressor</td>
</tr>
<tr>
<td>DC 12, 24, 48, 110</td>
</tr>
<tr>
<td>X = LED, no polarity (standard)</td>
</tr>
<tr>
<td>Options (DC coils)</td>
</tr>
<tr>
<td>Polarity and free-wheeling diodes</td>
</tr>
<tr>
<td>AC/DC bridge rectifier (24, 48 or 60 V)</td>
</tr>
</tbody>
</table>

Dimensions - mm

- FASTON .187
- 35.4 x 20 x 4.75
- 28.8 x 12.5
C10-GT13
One pole, twin open contact

<table>
<thead>
<tr>
<th>6 A</th>
<th>250 V AC1</th>
<th>0.8 A 110 V DC1</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 A</td>
<td>30 V DC1</td>
<td>0.4 A 220 V DC1</td>
</tr>
</tbody>
</table>

Contacts
- Materials: Standard, code 3 AgNi + 3µ Au
- Optional, code 2 AgNi + 10µ Au
- Max. switching current: 6 A
- Max. peak inrush current (20 ms): 15 A
- Max. switching voltage: 250 V
- Max. AC load (Table 1): 1.5 KVA
- Max. DC load (Table 1): 0.7 W (DC)

Coils (Ohms ±10% @ 20°C)
- Pull-in voltage: ≤0.8 x Un
- Drop-out voltage: ≥0.1 x Un
- Nominal coil power: 1.1 VA (AC)/0.7 W (DC)

Insulation
- Dielectric strength (1 minute):
  - Open contacts: 2,000 V
  - Between contact and coil: 5 KV
- Isolation resistance at 500 V: ≥3 GΩ
- Isolation, IEC 61810-5: 4 KV/3

Specifications
- Operate time + bounce time: 10 ms
- Release time + bounce time: 8 ms
- Ambient temperature: -40°C (no ice) to +70°C
- Mechanical life ops. 10 Mill. AC relays, 20 Mill. DC relays
- Electrical life at nominal load: ≥100,000 ops.
- Operating frequency at nominal load: 1,200/hour
- Protection grade: IP 40/RT1
- Weight avg.: 21 g

Standard Types
- AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
  - X = LED (standard) C10-GT13X ... VAC
  - RC suppressor C10-GT13R ... VAC
- DC 12, 24, 48, 110
  - X = LED, no polarity (standard) C10-GT13X ... VDC
  - Options (DC coils)
    - Polarity and free-wheeling diodes C10-GT13FX...VDC
    - AC/DC bridge rectifier (24 or 48 V) C10-GT13BX...VDC

Table 1: Electrical Life, ops. x 10⁶

<table>
<thead>
<tr>
<th>VA</th>
<th>Ops.</th>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>290</td>
<td>45</td>
<td>12</td>
<td>224</td>
</tr>
<tr>
<td>48</td>
<td>1,200</td>
<td>23</td>
<td>24</td>
<td>742</td>
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<td>115</td>
<td>7,300</td>
<td>9.5</td>
<td>48</td>
<td>3,500</td>
</tr>
<tr>
<td>230</td>
<td>28,800</td>
<td>4.7</td>
<td>110</td>
<td>19,900</td>
</tr>
</tbody>
</table>

Table 2: Max. DC Load

<table>
<thead>
<tr>
<th>Volts</th>
<th>Amps</th>
<th>DC1</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>0.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dimensions - mm

- 35.4 x 28.8 x 4.75
- FASTON .187
## Contacts

### Materials:
- **Standard, code 1**: AgNi + 0.2µ Au
- **Optional, code 2**: AgNi + 10µ Au

### Specifications:
- **Max. switching current**: 5 A
- **Max. peak inrush current (20 ms)**: 15 A
- **Max. switching voltage**: 250 V
- **Max. AC load (Table 1)**: 1.2 KVA
- **Max. DC load (Table 2)**

### Coils (Ohms ±10% @ 20°C)
- **Pull-in voltage**: ≤0.8 x Uₙ
- **Drop-out voltage**: ≥0.1 x Uₙ
- **Nominal coil power**: 1.1 VA (AC)/0.7 W (DC)

### insulation
- **Dielectric strength (1 minute):**
  - Open contacts: 1,000 V
  - Between adjacents poles: 3,000 V
  - Between contact and coil: 5 KV
- **Isolation resistance at 500 V**: ≥3 GΩ
- **Isolation, IEC 61810-5:** 4 KV/3

### Specifications
- **Operate time + bounce time**: 10 ms
- **Release time + bounce time**: 5 ms
- **Ambient temperature**: -40°C (no ice) to +70°C
- **Mechanical life ops.**: 10 Mill. AC relays, 20 Mill. DC relays
- **Electrical life at nominal load**: ≥100,000 ops.
- **Operating frequency at nominal load**: 1,200/hour
- **Protection degree**: IP 40/RT1
- **Weight avg.**: 21 g

### Standard Types
- **AC 50 Hz, (60 Hz):** 24, 48, 115, (120), 230, (240)
  - X = LED (standard) | C12-A21X.....VAC
  - RC suppressor | C12-A21R......VAC
- **DC 12, 24, 48, 110**
  - X = LED, no polarity (standard) | C12-A21X.....VDC
  - Options (DC coils): Polarity and free-wheeling diodes | C12-A21FX... VDC
  - AC/DC bridge rectifier (24, 48 or 60 V) | C12-A21BX.. VDC

### Dimensions - mm

![Dimensions Diagram]
C12-G21

Two poles, open contacts

5 A  250 V AC1  0.8 A  110 V DC1
5 A  30 V DC1  0.4 A  220 V DC1

Contacts

Materials:
- Standard, code 1: AgNi + 0.2µ Au
- Optional, code 2: AgNi + 10µ Au

Max. switching current: 5 A
Max. peak inrush current (20 ms): 15 A
Max. switching voltage: 250 V
Max. AC load (Table 1): 1.2 KVA
Max. DC load (Table 2):

Table 1
Electrical Life, ops. x 10^6

<table>
<thead>
<tr>
<th>VAC</th>
<th>Ω</th>
<th>mA</th>
<th>VDC</th>
<th>Ω</th>
<th>mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>290</td>
<td>45</td>
<td>12</td>
<td>224</td>
<td>53</td>
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<tr>
<td>115</td>
<td>7,300</td>
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<tr>
<td>230</td>
<td>28,800</td>
<td>4.7</td>
<td>110</td>
<td>19,900</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Specifications

- Operate time + bounce time: 10 ms
- Release time + bounce time: 5 ms
- Ambient temperature: -40°C (no ice) to +70°C
- Mechanical life ops.: 10 Mill. AC, 20 Mill. DC relays
- Electrical life at nominal load: ≥100,000 ops.
- Operating frequency at nominal load: 1,200/hour
- Protection grade: IP 40/RT1
- Weight avg.: 21 g

Table 2
Max. DC Load

<table>
<thead>
<tr>
<th>Vamp</th>
<th>DC1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>100</td>
</tr>
</tbody>
</table>

Dimensions

- mm

Standard Types

- AC 50 Hz, (60 Hz): 24, 48, 115, (120), 230, (240)
- X = LED (standard) C12-G21X.....VAC
- RC suppressor C12-G21R.....VAC
- DC 12, 24, 48, 110
- X = LED, no polarity (standard) C12-G21X.....VDC
- Options (DC coils)
  - Polarity and free-wheeling diodes C12-G21FX..VDC
  - AC/DC bridge rectifier (24, 48 or 60 V) C12-G21BX..VDC
**Specifications**

**Dielectric strength input / output** 4 KV/1 min.

**Operate time** 1 ms

**Release time, max.** 2 ms

**Working temperature, max.** 60°C

**Storage temperature** 80°C

**Weight avg.** 28 g

---

**Applications**

To switch up to 50 VDC, heating elements, electrovalves, motors, input/output signals on PLC’s, solenoids, incandescent and fluorescent lamps, etc.

**Inductive loads must be shunted with an antiparallel diode.**
**CSS-DCN**

**Solid state relay**

**DC inductive or resistive load switching**

**Negative common output**

One open contact

2 A @ 5-50 VDC

**Specifications**

- **Input, Polarity Protected**
  - Range of input voltage: 5-32 VDC
  - Drop-out voltage: <2.5 VDC
  - Input current: 3 ±1 mA
  - Current stabilizer: Yes
  - Peak inrush voltage protection: EC-1000-4-5 Level 1

- **Output, Positive Common**
  - Max. output current: 2 A
  - Max. output voltage: 50 VDC
  - Minimum output voltage: 5 VDC
  - Max. drop voltage: 1.3 VDC
  - Max. leakage current at 48 VDC: <100 µA
  - Max. overcurrent pulse: 5 A, 350 µs
  - Pulse protection: IEC-1000-4-5 Level 1
  - Max. current at inverse voltage: 1 A

**Applications**

To switch, up to 50 VDC, heating elements, electrovalves, motors, input/output signals on PLC's, solenoids, incandescent and fluorescent lamps, etc.

Inductive loads must be shunted with an antiparallel diode.
**CSS-AC**

Solid state relay

AC inductive loads switching

One open contact

3 A @ 24-250 V AC, 50/60 Hz

**Input, Polarity Protected**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range of input voltage</td>
<td>5-32 VDC</td>
</tr>
<tr>
<td>Drop-out voltage</td>
<td>&lt;2.5 VDC</td>
</tr>
<tr>
<td>Input current</td>
<td>5-15 mA</td>
</tr>
<tr>
<td>Current stabilizer</td>
<td>Yes</td>
</tr>
<tr>
<td>Peak inrush voltage protection</td>
<td>EC-1000-4-5 Level 1</td>
</tr>
</tbody>
</table>

**Output, Instantaneous**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. output current</td>
<td>3 A</td>
</tr>
<tr>
<td>Minimum output current</td>
<td>50 mA</td>
</tr>
<tr>
<td>Max. output voltage</td>
<td>250 VAC</td>
</tr>
<tr>
<td>Minimum output voltage</td>
<td>24 VAC</td>
</tr>
<tr>
<td>Max. drop voltage</td>
<td>&lt;1.5 VAC</td>
</tr>
<tr>
<td>Max. leakage current</td>
<td>0.55 mA</td>
</tr>
<tr>
<td>Max. Dv/dt</td>
<td>500 V/µs</td>
</tr>
<tr>
<td>I²t for 10 ms. fuse</td>
<td>50 A²/s</td>
</tr>
</tbody>
</table>

**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dielectric strength input/output</td>
<td>4 KV/1min.</td>
</tr>
<tr>
<td>Operate time</td>
<td>1/2 cycle</td>
</tr>
<tr>
<td>Release time</td>
<td>2 ms + 1/2 cycle</td>
</tr>
<tr>
<td>Working temperature, max.</td>
<td>60°C</td>
</tr>
<tr>
<td>Storage temperature, max.</td>
<td>80°C</td>
</tr>
<tr>
<td>Weight avg.</td>
<td>28 g</td>
</tr>
</tbody>
</table>

**Applications**

Suitable to switch inductive loads up to 3 A/250 V AC.

In switching loads with a high inrush or overcurrent (max. Di/dt 50 A/µs) such as transformers, motors or fluorescents, the maximum output current limit it 2 A.

**Dimensions - mm**

[Diagram showing dimensions]
Relay compatible with sockets: S10, S10-M, S10-P, S-10K

CSS-AZ AC, Synchronized to Zero

Max. DC Load vs. Ambient Temperature

Input, Polarity Protected
- Range of input voltage: 5-32 VDC
- Drop-out voltage: <2.5 VDC
- Input current: 5-15 mA
- Current stabilizer: Yes
- Peak inrush voltage protection: EC-1000-4-5 Level 1

Ouput, Synchronized to Zero
- Max. output current: 3 A
- Minimum output current: 50 mA
- Max. output voltage: 250 VAC
- Minimum output voltage: 24 VAC
- Max. drop voltage: <1.5 VAC
- Max. leakage current: 0.55 mA
- Max. Dv/dt: 500 V/µs
- I^2t for 10 ms. fuse: 50 A²/s

Specifications
- Dielectric strength input/output: 4 KV/1min.
- Operate time: 1/2 cycle
- Release time: 2 ms + 1/2 cycle
- Working temperature, max.: 60°C
- Storage temperature, max.: 80°C
- Weight avg.: 28 g

Applications
- Switches AC resistive loads up to 3 A/250 V AC in the zero point of the tension and avoids any overcurrent peak in the connection.
- Suitable to switch resistors, incandescent lamps, signalling, etc.
- Not suitable for inductive loads.
SOCKETS
MRC  Socket for Universal 8-Pin Relays

S2-B
Two pole, one level, coding ring
Integrated clip and marking label
10 A  300 V

Socket for MRC, 8-Pin Plug-In Relay Types
C2-A20, C2-G20, C2-T21

• Accepts the exclusive RELECO coding ring for coding both relay and socket
• DIN rail or panel mountable
• Removable label
• EN/DIN and sequential numbering

According to EN 60947-1 and IEC 61810-5

Specifications
Nominal Load: 10 A/300 V

Insulation:
- Dielectric strength, 1 minute
  Between contacts and coil 2.5 kV
  Between all terminals and rail DIN 2.5 kV
  Between adjacent poles 2.5 kV

Wire In-Lets Capacity:
- Solid wire 4 mm² or 2 x 2.25 mm²
- Multi-core 22-14 AWG
- Ferrule tip terminals 4 mm²
- Max. screw torque 1.2 Nm
- Screw dimensions M3, Pozi
- Integrated hold-down clip
- Removable marking label

Dimensions - mm

Lloyd’s
**S2-S**

Two pole, two level, coding ring
Integrated clip and marking label

**10 A  300 V**

Socket for MRC, 8-Pin Plug-In Relay Types
C2-A20, C2-G20, C2-T21

- Accepts the exclusive RELECO coding ring for coding both relay and socket
- DIN rail or panel mountable
- Removable label
- EN/DIN and sequencial numbering

According to EN 60947-1 and IEC 61810-5

---

**Specifications**

**Nominal Load:** 10 A/300 V

**Insulation:**
- Dielectric strength, 1 minute
  - Between contacts and coil: 2.5 KV
  - Between all terminals and rail DIN: 2.5 KV
  - Between adjacent poles: 2.5 KV

**Wire In-Lets Capacity:**
- Solid wire: 4 mm² or 2 x 2.25 mm²
- Multi-core: 22-14 AWG
- Ferrule tip terminals: 4 mm²
- Max. screw torque: 1.2 Nm
- Screw dimensions: M3, Pozi
- Integrated hold-down clip
- Removable marking label

---

**Dimensions - mm**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>Ø5.3</td>
</tr>
<tr>
<td>Height</td>
<td>25</td>
</tr>
<tr>
<td>Depth</td>
<td>30</td>
</tr>
</tbody>
</table>
MRC

PC Sockets for Relays C2- … and C3- …

**S2-L** 2-Pole Flange
Panel Mountable

**S2-PO** 2-Pole Printed Circuit
with Flange

**S3-L** 3-Pole Flange
Panel Mountable

**S3-PO** 3-Pole Printed Circuit
with Flange

---

### Specifications

**Nominal Load**: 10 A/300 V

**Dielectric Strength Adjacent Pin**: 2.5 KV

---

### Printed Circuit Lay-Out

---

### Dimensions - mm

---

---
S3-S
Three pole, two level, coding ring
Integrated clip and marking label
10 A  250 V

Socket for MRC, 11-Pin Plug-In Relay Types
C3-A30, C3-G30, C3-T31, C3-X10, C3-M10, C3-R20, C3-E24, C3-N34

- Accepts the exclusive RELECO coding ring for coding both relay and socket.
- DIN rail or panel mountable
- Removable label
- EN/DIN and sequential numbering

According to EN 60947-1 and IEC 61810-5

Specifications
Nominal Load: 10 A/250 V

Insulation:
- Dielectric strength, 1 minute
  - Between contacts and coil 2.5 KV
  - Between all terminals and rail DIN 2.5 KV
  - Between adjacent poles 2.5 KV

Wire In-Lets Capacity:
- Solid wire 4 mm² or 2 x 2.25 mm²
- Multi-core 22-14 AWG
- Ferrule tip terminals 4 mm²
- Max. screw torque 1.2 Nm
- Screw dimensions M3, Pozi

Dimensions - mm

Wiring Diagram

Dimensions - mm

Dimensions - mm
Socket for Universal 11-Pin Relays

**S3-B**

Three pole, one level, coding ring
Integrated clip and marking label

10 A  250 V

Socket for MRC, 11-Pin Plug-In Relays Types
C3-A30, C3-G30, C3-T31, C3-X10, C3-M10,
C3-R20, C3-E24, C3-N34

- Accepts the exclusive RELECO coding ring for coding both relay and socket.
- DIN rail or panel mountable
- Removable label
- EN/DIN and sequential numbering

According to EN 60947-1 and IEC 61810-5

**Specifications**

**Nominal Load:**  10 A/250 V

**Insulation:**
- Dielectric strength, 1 minute
  - Between contacts and coil: 2.5 KV
  - Between all terminals and rail DIN: 2.5 KV
  - Between adjacent poles: 2.5 KV

**Wire In-Lets Capacity:**
- Solid wire: 4 mm² or 2 x 2.25 mm²
- Multi-core: 22-14 AWG
- Ferrule tip terminals: 4 mm²
- Max. screw torque: 1.2 Nm
- Screw dimensions: M3, Pozi
- Integrated hold-down clip
- Removable marking label

Lloyd’s
S3-MP

Three pole, one level
Accepts plug-in modules M3P in parallel with the coil

10 A  250 V

Socket for MRC, 11-Pin Plug-In Relay Types C3-A30, C3-G30, C3-T31, C3-X10, C3-M10, C3-R20, C3-E24, C3-N34

- DIN rail or panel mountable
- Removable label
- EN/DIN and sequencial numbering

According to EN 60947-1 and IEC 61810-5

Specifications
Nominal Load: 10 A/250 V

Insulation:
- Dielectric strength, 1 minute
  Between contacts and coil 2.5 KV
  Between all terminals and rail DIN 2.5 KV
  Between adjacent poles 2.5 KV

Wire In-Lets Capacity:
- Solid wire 4 mm² or 2 x 2.25 mm²
- Multi-core 22-14 AWG
- Ferrule tip terminals 4 mm²
- Max. screw torque 1.2 Nm
- Screw dimensions M3, Pozi
- Integrated hold-down clip
- Removable marking label

Dimensions - mm

Wiring Diagram

Dimensions - mm

Socket for Universal 11-Pin Relays
**S4-J**

Four pole, two level, logic wiring
Integrated clip and marking label

**10 A  250 V**

**Socket for MRC, 14-Pin Plug-In Relay Types**
C4-A40, C4-X20, C4-T31, C4-R30

- DIN rail or panel mountable
- Removable label
- EN/DIN and sequential numbering

According to EN 60947

---

**Specifications**

**Nominal Load:** 10 A/250 V

**Insulation:**
- Dielectric strength, 1 minute: 2.5 kV
- Between contacts and coil: 2.5 kV
- Between all terminals and rail DIN: 2.5 kV
- Between adjacent poles: 2.5 kV

**Wire In-Lets Capacity:**
- Solid wire: 4 mm² or 2 x 2.25 mm²
- Multi-core: 24-14 AWG
- Ferrule tip terminals: 4 mm²
- Max. screw torque: 1.2 Nm
- Screw dimensions: M3, Pozi
- Integrated hold-down clip
- Removable marking label

---

**Dimensions - mm**

![Dimensions Diagram](image)
**PC Sockets for Relays C4-... and C5-...**

**S4-L**
4-Pole Flange Panel Mountable

**S4-PO**
4-Pole Printed Circuit with Flange

**S5-L**
3-Pole Flange Panel Mountable

**S5-P**
3-Pole Printed Circuit

**S5-PO**
3-Pole Printed Circuit with Flange

---

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Style</th>
<th>Dimensions</th>
<th>Load (A/V)</th>
<th>Dielectric Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>S4-L</td>
<td>S4-PO</td>
<td>- mm</td>
<td>10/250</td>
<td>2.5 KV</td>
</tr>
<tr>
<td>S5-L</td>
<td>S5-P</td>
<td>- mm</td>
<td>16/400</td>
<td>4 KV</td>
</tr>
</tbody>
</table>

**Printed Circuit Lay-Out**

**Dimensions - mm**

<table>
<thead>
<tr>
<th>Model</th>
<th>Style</th>
<th>Dimensions</th>
<th>Load (A/V)</th>
<th>Dielectric Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>S4-L</td>
<td>S4-PO</td>
<td>- mm</td>
<td>10/250</td>
<td>2.5 KV</td>
</tr>
<tr>
<td>S5-L</td>
<td>S5-P</td>
<td>- mm</td>
<td>16/400</td>
<td>4 KV</td>
</tr>
</tbody>
</table>

---

[Images of S4-L, S4-PO, S5-L, S5-P, S5-PO with specifications and dimensions]
S5-S

Three pole, two level, logic wiring
Integrated clip and marking label

16 A 400 V

Socket for MRC, 11-Pin Plug-In Relay Types
C5-A20, C5-A30, C5-G30, C5-X10, C5-M10, C5-M20, C5-R20

- DIN rail or panel mountable
- Removable label
- EN/DIN and sequential numbering

According to EN 60947-1 and IEC 61810-5

Specifications
Nominal Load: 16 A/400 V

Insulation:
- Dielectric strength, 1 minute
- Between contacts and coil 4 KV
- Between all terminals and rail DIN 4 KV
- Between adjacent poles 4 KV

Wire In-Lets Capacity:
- Solid wire 4 mm² or 2 x 2.25 mm²
- Multi-core 22-14 AWG
- Ferrule tip terminals 4 mm²
- Max. screw torque 1.2 Nm
- Screw dimensions M3, Pozi
- Integrated hold-down clip
- Removable marking label
Socket for Miniature Two Pole C7-…

S7-M

Two pole, one level
Integrated clip and marking label

10 A  250 V

Socket for QRC, 2-Pole Plug-In Relay Types
C7-A20, C7-T21, C7-G20, C7-X10, C7-W10

- DIN rail or panel mountable
- Removable label
- EN/DIN and sequential numbering

According to EN 60947-1 and IEC 61810-5

Specifications
Nominal Load: 10 A/250 V

Insulation:
- Dielectric strength, 1 minute
- Between contacts and coil 2.5 KV
- Between all terminals and rail DIN 2.5 KV
- Between adjacent poles 2.5 KV

Wire In-Lets Capacity:
- Solid wire 4 mm² or 2 x 2.25 mm²
- Multi-core 22-14 AWG
- Ferrule tip terminals 4 mm²
- Max. screw torque 1.2 Nm
- Screw dimensions M3, Pozi
- Integrated hold-down clip
- Removable marking label

Dimensions - mm

Wiring Diagram

Lloyd’s
Socket for Miniature C7-... Relays

**S7-I/O**

Two pole, one level
Integrated clip and marking label
10 A 250 V

Socket for QRC, 2-Pole Plug-In Relay Types C7-A10

- DIN rail or panel mountable
- Removable label
- EN/DIN and sequential numbering

According to EN 60947-1 and IEC 61810-5

**Specifications**

**Nominal Load:** 10 A/250 V

**Insulation:**
- Dielectric strength, 1 minute
  - Between contacts and coil: 2.5 KV
  - Between all terminals and rail DIN: 2.5 KV
  - Between adjacent poles: 2.5 KV

**Wire In-Lets Capacity:**
- Solid wire: 4 mm² or 2 x 2.25 mm²
- Multi-core: 22-14 AWG
- Ferrule tip terminals: 4 mm²
- Max. screw torque: 1.2 Nm
- Screw dimensions: M3, Pozi
- Integrated hold-down clip
- Removable marking label

**Dimensions - mm**

![Dimensions Diagram]

**Wiring Diagram**

![Wiring Diagram]
S7-16

One pole, one level
Integrated clip and marking label
16 A  250 V

Socket for MRC, 1-Pole Plug-In Relay Types C7-A10

- DIN rail or panel mountable
- Removable label
- EN/DIN and sequential numbering

According to EN 60947-1 and IEC 61810-5

Specifications
Nominal Load: 16 A/250 V

Insulation:
- Dielectric strength, 1 minute
  - Between contacts and coil 2.5 KV
  - Between all terminals and rail DIN 2.5 KV
  - Between adjacent poles 2.5 KV

Wire In-Lets Capacity:
- Solid wire 4 mm² or 2 x 2.25 mm²
- Multi-core 22-14 AWG
- Ferrule tip terminals 4 mm²
- Max. screw torque 1.2 Nm
- Screw dimensions M3, Pozi
- Integrated hold-down clip
- Removable marking label

Dimensions - mm

S7-16 for use with C7-A10 (16A)

[Diagram of wiring and dimensions]
PC Sockets for Relays C7-... and C9-...

S7-P 2-Pole Printed Circuit

S7-PO 2-Pole Printed Circuit with Flange

S9-P 4-Pole Printed Circuit

S9-PO 4-Pole Printed Circuit with Flange

Specifications
Nominal Load 10 A/250 V
Dielectric Strength Adjacent Pin 2.5 KV

Printed Circuit Lay-Out

Dimensions - mm

S7-PO

S9-PO
**S9-M**

Four pole, two level
Integrated clip and marking label

**6 A 250 V**

Socket for QRC, 4-Pole Plug-In Relay Types
C9-A41, C9-E21, C9-R21

- DIN rail or panel mountable
- Removable label
- EN/DIN and sequential numbering

According to EN 60947-1 and IEC 61810-5

**Specifications**

**Nominal Load:**

<table>
<thead>
<tr>
<th>Nominal Load</th>
<th>6 A/250 V</th>
</tr>
</thead>
</table>

**Insulation:**

- Dielectric strength, 1 minute
- Between contacts and coil: 2.5 KV
- Between all terminals and rail DIN: 2.5 KV
- Between adjacent poles: 2000 V

**Wire In-Lets Capacity:**

- Solid wire: 4 mm² or 2 x 2.25 mm²
- Multi-core: 22-14 AWG
- Ferrule tip terminals: 4 mm²
- Max. screw torque: 1.2 Nm
- Screw dimensions: M3, Pozi
- Integrated hold-down clip
- Removable marking label

**Dimensions - mm**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>46.5</td>
</tr>
<tr>
<td>Height</td>
<td>20.5</td>
</tr>
</tbody>
</table>

**Wiring Diagram**

![Wiring Diagram](image-url)
S10
Socket for C10-C14-CSS relays
DIN rail or panel mountable
10 A 250 V

Interface I/O socket, with terminals in-line for relays C10A, C10G, C10T, CSS

Specifications
- Poles: 1
- Nominal load: 10 A/250 V
- Dielectric strength:
  - Coil - contacts: 5 KV
  - Terminals - Rail: 5 KV
- Max. screw torque: 1.2 Nm
- Multi-core capacity: 22-14 AWG
- Solid wire capacity: 4 mm² or 2 x 2.25 mm²
- Weight average: 28 g

Other Aspects
- Hard brass tin-plated terminals
- Brass zinc-plated solid screws
- Integrated clip
- Removable marking label

Accessories
- Bridge bar for coil and movable contact (S10-BB)
- Integrated clip
- DIN rail or panel mounting
- Maximum current through bridge 10 A
- Maximum current input common cable 20 A

Dimensions - mm

Wiring Diagram

Bridge Bus Bar S10-BB
S10-M
New I/O socket for IRC relays one change-over contact

16 A  250 V


Both this socket and the S12 are designed to get a homogeneous set with identical terminal disposition, which allows the easy identification of the contacts set in each level and a simpler wiring.

Both A2 terminals allow a secure interconnection through external bridges among an unlimited number of these sockets or a mixture of S10-M and the S12.

The A2 terminal, free on both the first and last sockets, is used to connect the cable of common polarity.

Specifications
- Nominal load 16 A/250 V
- Insulation: Dielectric strength, 1 minute
  - Between coil and contacts 5 KV
  - Between all terminals and rail DIN 5 KV
- Max. screw torque 1.2 Nm
- Screw dimensions M3, Pozi
- Wire in-lets capacity:
  - Solid wire 4 mm² or 2 x 2.25 mm²
  - Multi-core 22-14 AWG
  - Ferrule tip terminals 4 mm²
- Integrated hold-down clip
- Removable marking label

IEC 61810  EN 60947

Dimensions - mm

5(A2)  6(A2)  4(A1)  3(12)  2(11)  1(14)

{wiring_diagram}

{diagram_1}

{diagram_2}

{diagram_3}

{diagram_4}

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B1201  79
# Interface and General Applications

**S10-P**

Printed circuit socket for 1 pole
IRC Relays

**S12-P**

Printed circuit socket for 2-pole
IRC Relays

## Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>S10-P</th>
<th>S12-P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal load</td>
<td>10 A/250 V</td>
<td>5 A/250 V</td>
</tr>
<tr>
<td>Dielectric strength, 1 min.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coil terminals to contacts</td>
<td>5KV</td>
<td>5KV</td>
</tr>
<tr>
<td>Hard brass tin-plated terminals</td>
<td>0.5 x 1 mm</td>
<td>0.5 x 1 mm</td>
</tr>
<tr>
<td>Integrated hold-down clip</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Image of S10-P](image1.png)

![Image of S12-P](image2.png)

---

IEC 61810    EN 60947
New I/O socket for IRC relays two pole, change-over contacts

5 A

New I/O socket with terminals in-line, for relays C12, C12G, C15 and C15G

Both this socket and the S10-M are designed to get a homogeneous set with identical terminal disposition, which allows easy identification of the contacts set in each level and simpler wiring.

Both A2 terminals allow a secure interconnection through external bridges among an unlimited number of these sockets or a mixture of S12 and the S10-M.

The A2 terminal, free on both the first and last sockets, is used to connect the cable of common polarity.

Specifications

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poles</td>
<td>Two change-over contacts</td>
</tr>
<tr>
<td>Nominal load</td>
<td>5 A/250V</td>
</tr>
<tr>
<td>Insulation:</td>
<td></td>
</tr>
<tr>
<td>Between coil and contacts</td>
<td>5 KV</td>
</tr>
<tr>
<td>Between every terminal and DIN rail</td>
<td>5 KV</td>
</tr>
<tr>
<td>Between adjacent contacts</td>
<td>3 KV</td>
</tr>
<tr>
<td>Max. screw torque</td>
<td>1.2 Nm</td>
</tr>
<tr>
<td>Wire in-lets multi-core capacity</td>
<td>22-14 AWG</td>
</tr>
<tr>
<td>Solid wire or ferrule tips capacity</td>
<td>4 mm²</td>
</tr>
<tr>
<td>Solid terminals of zinc-plated brass</td>
<td></td>
</tr>
<tr>
<td>Integrated hold-down clip</td>
<td></td>
</tr>
<tr>
<td>Removable marking label</td>
<td></td>
</tr>
</tbody>
</table>

Dimensions - mm

![Dimensions Diagram]
TIMERS
The modules CT 2 and CT 3 are electronic timers that are designed to be inserted between a standard plug-in relay and its socket, enabling the relay to be operated as a timer relay.

The CT modules are able to accept any standard 8 or 11-Pin RELECO series C2 or C3 as well as those from any other supplier. The relay coil voltage must be in the range shown for each model.

CT 2A  CT 3A
Off delay
The timing starts when S is switched off. The relay drops out at time (t).

Function A

CT 2-A30/S* ........9.5-18 V
CT 2-A30/L .........20-65 V
CT 2-A30/M ........90-150 V
CT 2-A30/U .......180-265 V
CT 3-A30/S* .......9.5-18 V
CT 3-A30/L ..........20-65 V
CT 3-A30/M .........90-150 V
CT 3-A30/U ........180-265 V

CT 2B  CT 3B
Blinker
The relay blinks ON/OFF at time (t) when switch S is closed. First pulse, ON.

Function B

CT 2-B30/S* ..........9.5-18 V
CT 2-B30/L ..........20-65 V
CT 2-B30/M ..........90-265 V
CT 3-B30/S* ........9.5-18 V
CT 3-B30/L ..........20-65 V
CT 3-B30/M ..........90-265 V

CT 2E  CT 3E
On delay
The timing starts when the switch S is closed. The relay pulls in at the time (t).

Function E

CT 2-E30/S* ..........9.5-18 V
CT 2-E30/L ..........20-65 V
CT 2-E30/H ..........90-265 V
CT 3-E30/S* ..........9.5-18 V
CT 3-E30/L ..........20-65 V
CT 3-E30/H ..........90-265 V

*All types are for AC/DC except "S" voltage range (only DC)

CT2... (8-Pin) and CT3... (11-Pin) types with time range from 0.2 seconds to 30 minutes (range 30)

Specifications
Time accuracy
Repetition  +0.5%/20 ms
Supply voltage  1 ms / volt.
Ambient temperature  -0.25% / K
Reset time (types E, W, B)  <150 ms
Reset time (types A, K)  <200 ms
Triggering time: AC, 80 ms; DC, 50 ms
Ambient temperature  -10°C to +60°C
Transient protection  IEC 255.4
Housing material  Noryl SE1 (UL94 V-1)
Protection class (DIN 40050)  IP 40
Weight avg.  35 g

Time Range Setting

<table>
<thead>
<tr>
<th>Range 30</th>
<th>Dip - Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2-3 s</td>
<td></td>
</tr>
<tr>
<td>2-30 s</td>
<td></td>
</tr>
<tr>
<td>0.2-3 min</td>
<td></td>
</tr>
<tr>
<td>2-30 min</td>
<td></td>
</tr>
</tbody>
</table>

Dimensions

CT2... (8-Pin) and CT3... (11-Pin) types with time range from 0.2 seconds to 30 minutes (range 30)
The modules CT 2 and CT 3 are electronic timers that are designed to be inserted between a standard plug-in relay and its socket, enabling the relay to be operated as a timer relay.

The CT modules are able to accept any standard 8 or 11-Pin RELECO series C2 or C3 as well as those from any other supplier.

The relay coil voltage must be in the range shown for each model.

**CT 2K** **CT 3K**
One shot, aux. pulse
The relay turns ON with a pulse on the switch S and turns OFF at the time (t).

**CT 2W** **CT 3W**
One shot
The relay turns ON as switch S is closed and turns OFF at the time (t).

---

**Specifications**

- **Time accuracy**
  - Repetition: +0.5% / 20 ms
  - Supply voltage: 1 ms / volt.
  - Ambient temperature: -0.25% / K
  - Reset time (types E, W, B): <150 ms
  - Reset time (types A, K): <200 ms
  - Triggering time: AC: 80 ms; DC: 50 ms
  - Ambient temperature: -10°C to +60°C
  - Transient protection: IEC 255.4
  - Housing material: Noryl SE1 (UL94 V-1)
  - Protection class (DIN 40050): IP 40
  - Weight avg.: 35 g

**Time Range Setting**

- **Range 30**
  - Dip - Sw
    - 0.2-3 s
    - 2-30 s
    - 0.2-3 min
    - 2-30 min

**Dimensions**

---

*All types are for AC/DC except ‘S’ voltage range (only DC)*
RINT
RINT Interface Modules

RINT Relay and Accessories Part Number Key

Part Number Keys are to assist in IDENTIFICATION ONLY. Consult factory for catalog items not identified.

RINT interface relays consist of two components:
- Relay
- Socket

Complete Relay Module (Relay and Socket 6.2 mm) Part Number Key

<table>
<thead>
<tr>
<th>RINT</th>
<th>X</th>
<th>X</th>
<th>/</th>
<th>UC</th>
<th>X</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay Interface Module</td>
<td>Nominal Voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socket Terminal Type</td>
<td>24 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>AgSnO₂</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>AgSnO₂ + min. 3µ Au</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal Voltage</td>
<td>230 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relay Contact Material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>AgSnO₂</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>AgSnO₂ + min. 3µ Au</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Solid State N.O. 2 A DC 24 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Solid State N.O. 2 A AC 250 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Relay Part Number Key

<table>
<thead>
<tr>
<th>RINT</th>
<th>R</th>
<th>X</th>
<th>/</th>
<th>UC</th>
<th>X</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay Interface Module</td>
<td>Nominal Voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relay Contact Material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>AgSnO₂</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>AgSnO₂ + min. 3µ Au</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Solid State N.O. 2 A DC 24 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Solid State N.O. 2 A AC 250 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60-240 V</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
# RINT Interface Modules

### RELAY + SOCKET

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RINT-11 / UC24V</td>
<td>Screw terminal AgSnO₂</td>
</tr>
<tr>
<td>RINT-21 / UC24V</td>
<td>Cage clamp AgSnO₂</td>
</tr>
<tr>
<td>RINT-11 / UC230V</td>
<td>Screw terminal AgSnO₂</td>
</tr>
<tr>
<td>RINT-21 / UC230V</td>
<td>Cage clamp AgSnO₂</td>
</tr>
<tr>
<td>RINT-12 / UC24V</td>
<td>Screw terminal AgSnO₂ +3µ Au</td>
</tr>
<tr>
<td>RINT-22 / UC24V</td>
<td>Cage clamp AgSnO₂ +3µ Au</td>
</tr>
<tr>
<td>RINT-12 / UC230V</td>
<td>Screw terminal AgSnO₂ +3µ Au</td>
</tr>
<tr>
<td>RINT-22 / UC230V</td>
<td>Cage clamp AgSnO₂ +3µ Au</td>
</tr>
<tr>
<td>RINT-15 / UC24V</td>
<td>Solid State screw terminal, DC loads</td>
</tr>
<tr>
<td>RINT-25 / UC24V</td>
<td>Solid State cage clamp, DC loads</td>
</tr>
<tr>
<td>RINT-18 / UC24V</td>
<td>Solid State screw terminal, AC loads</td>
</tr>
<tr>
<td>RINT-28 / UC24V</td>
<td>Solid State cage clamp, AC loads</td>
</tr>
</tbody>
</table>

### RELAY

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RINT-R1/UC24V</td>
<td>Relay module contacts AgSnO₂</td>
</tr>
<tr>
<td>RINT-R1/UC60-240V</td>
<td>Relay module contacts AgSnO₂ + 3µ Au</td>
</tr>
<tr>
<td>RINT-R2/UC60-240V</td>
<td>Relay module contacts AgSnO₂ + 3µ Au</td>
</tr>
<tr>
<td>RINT-R5/DC24V</td>
<td>Solid State relay module, DC loads</td>
</tr>
<tr>
<td>RINT-R8/DC24V</td>
<td>Solid State relay module, AC loads</td>
</tr>
</tbody>
</table>

### BRIDGES

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RINT-BR1-500B</td>
<td>Blue bridges (1 unit, 500 mm)</td>
</tr>
<tr>
<td>RINT-BR1-500G</td>
<td>Grey bridges (1 unit, 500 mm)</td>
</tr>
<tr>
<td>RINT-BR2-06G/10</td>
<td>Grey bridges (10 units)</td>
</tr>
<tr>
<td>RINT-BR2-06B/10</td>
<td>Blue bridges (10 units)</td>
</tr>
<tr>
<td>RINT-BR2-06R/10</td>
<td>Red bridges (10 units)</td>
</tr>
</tbody>
</table>

### LABELS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RINT-MA6-0/100</td>
<td>Labels (100 units)</td>
</tr>
</tbody>
</table>
RINT Interface Modules

- Relay module up to 6 A 250 V, different contact material
- Solid state modules DC, AC up to 2 A
- Coil UC = AC/DC, not polarised, integrated freewheeling circuit
- LED status display
- Screw terminals or spring cage terminals
- Optional coloured bridges for different connections
- Narrow mounting 6.2 mm

### Interface module
Complete with integrated LED and switching module

#### Technical data (Tamb 20°C)

<table>
<thead>
<tr>
<th>Contact type/material</th>
<th>Switching power AC1</th>
<th>Switching power DC1 24V/230V</th>
<th>Switching power AC15</th>
<th>Peak inrush current</th>
<th>Switching cycles: mech./elec.</th>
<th>Isolation EN 61810-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO/AgSnO2</td>
<td>1500 W</td>
<td>140 W / 40 W</td>
<td>NO 750 W / NC 375 W</td>
<td>10 A / 4 s</td>
<td>10 x 10⁶ / 10⁵</td>
<td>4 kV</td>
</tr>
</tbody>
</table>

#### Operation voltage AC50/60Hz/DC

<table>
<thead>
<tr>
<th>Power consumption Pmax. 24V/230V</th>
</tr>
</thead>
</table>

-20 to +100%  
170 / 217 mW  
5 ms / 2.5 ms  
-40°C to 80°C/-40°C to 85°C

#### Ordering-No.

- UC 50/60Hz/DC
- DC ≤10%

### RINT-11, RINT-21

- Interface module for PLC's and process control. High power contact gSnO₂. With screw terminals (RINT-11) or spring cage terminals (RINT-21). No external freewheeling circuit required. Bridges optional.

#### Technical data (Tamb 20°C)

<table>
<thead>
<tr>
<th>Contact type/material</th>
<th>Switching power AC1</th>
<th>Switching power DC1 24V/230V</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO/AgSnO₂</td>
<td>1500 W</td>
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</table>

#### Operation voltage AC50/60Hz/DC

<table>
<thead>
<tr>
<th>Power consumption Pmax. 24V/230V</th>
</tr>
</thead>
</table>

-20 to +100%  
170 / 217 mW  
5 ms / 2.5 ms  
-40°C to 80°C/-40°C to 85°C

### RINT-12, RINT-22

- Interface module specially for PLC, process controls with DC currents. Contact AgSnO₂+3µAu. With screw terminals (RINT-12) or spring cage (RINT-22). No external freewheeling circuit required. Recommended max. load 250V 6A resistive. Bridges optional.

#### Technical data (Tamb 20°C)

<table>
<thead>
<tr>
<th>Contact type/material</th>
<th>Switching power AC1</th>
<th>Switching power DC1 24V/230V</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO/AgSnO₂ + 3µAu</td>
<td>1500 W</td>
<td>140 W / 40 W</td>
</tr>
</tbody>
</table>

#### Operation voltage AC50/60Hz/DC

<table>
<thead>
<tr>
<th>Power consumption Pmax. 24V/230V</th>
</tr>
</thead>
</table>

-20 to +100%  
170 / 217 mW  
5 ms / 2.5 ms  
-40°C to 80°C/-40°C to 85°C

### Replacement Relay

<table>
<thead>
<tr>
<th>RINT-11/UC.....V</th>
</tr>
</thead>
<tbody>
<tr>
<td>RINT-21/UC.....V</td>
</tr>
</tbody>
</table>

### Preparation

<table>
<thead>
<tr>
<th>UC 50/60Hz/DC</th>
</tr>
</thead>
</table>

### Solid state modules

- DC, AC up to 2 A
- Coil UC = AC/DC, not polarised, integrated freewheeling circuit
- LED status display
- Screw terminals or spring cage terminals
- Optional coloured bridges for different connections
- Narrow mounting 6.2 mm

### Connector bridge

- With screw terminals (1x0.2-2.5mm²)
  - RINT-11, -12, -15, -18
- With spring clamp terminals (1x0.2-2.5mm²)
  - RINT-21, -22, -25, -28
RINT Interface Modules

RINT-15, RINT-25

Solid State Interface module
for PLC’s and process control. DC solid state switch, type NO. For fast and high frequently switching. With screw terminals (RINT-15) or spring cage terminals (RINT-25). Bridges optional.

2 A 24 V ~
0.05 mA / 12 V

NO / Solide-state DC
–
48 W
–
2.5 kV

-37 to +25%
185 mW
<60 µs / <600 µs
-30°C to 80°C/-40°C to100°C

RINT-15/DC.....V
RINT-25/DC.....V

RINT-18, RINT-28

Interface module
for PLC’s and process control. AC output interface 0 synchronous switching NO for resistive or similar load. (No transformer rec.) With screw terminals (RINT-18) or spring cage terminals (RINT-28). Bridges optional.

2 A 240V ==
25 mA / 12 V

NO / Solide-state AC (triac)
480 W
–
40 A / 20 ms
2.5 kV

-37 to +25%
185 mW
<60 µs / <600 µs
-30°C to 80°C/-40°C to100°C

RINT-18/DC.....V
RINT-28/DC.....V

Order Example:
Interface module
RINT-21/UC24V

Connector bridge
RINT-BR2-6B/10 (packing unit: 1x10 pieces)

Replacement relay
RINT-R1/UC24V

Accessories:
Label:
RINT-MA6-0/100 (100 pieces)

Bridges:
500mm blue: RINT-BR1-500B
1 piece
500mm grey: RINT-BR1-500G
1 piece
6mm blue: RINT-BR2-6B/10
10 pieces
6mm grey: RINT-BR2-6G/10
10 pieces
6mm red: RINT-BR2-6R/10
10 pieces

24, 230
RINT-15/DC.....V
RINT-25/DC.....V

RINT-R5/DC24V

RINT-R8/DC24V