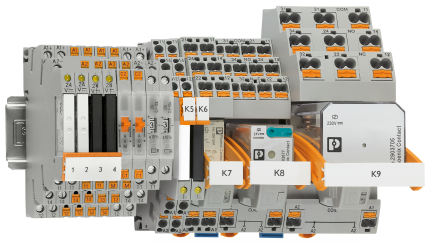
Installation directive for electro-mechanical and solid-state relay modules



Application note
110445_en_00

1 General notes

1.1 Scope of validity

This application note is exclusively valid for the products and product series listed below:

- PLC-INTERFACE – 6.2 mm or 14 mm wide with plug-in relays or solid-state relays, function modules without slot, technical accessories
- RIFLINE complete – plug-in relays and solid-state relays with plug-in input or interference suppression module
- EE – ESSENTIAL edition relays and relay bases
- DEK series – relay modules with terminal block design
- EMG series – modular relays and optocouplers
- ST series – relays and optocouplers that can be plugged on terminal blocks
- Special relay modules and solid-state relay modules

1.2 Intended use

The product may only be used in accordance with these instructions and the full instruction manual. Any other use and operation outside of the limit values may jeopardize safe use and will invalidate the warranty and guarantee.
Phoenix Contact GmbH & Co. KG is not liable for damage caused as a result of improper use.

The “exclamation mark” on the device labeling means that you need to:

Read the application note in its entirety.

Follow the application note to avoid impairing the intended protection.

For further information, visit phoenixcontact.net/product/net.

Make sure you always use the latest documentation.
It can be downloaded at phoenixcontact.net/product/net.
Always follow the instructions in the product-specific documentation.

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2 Safety notes for use in the low voltage range

2.1 Information on personnel

- Installation, operation, and maintenance may only be carried out by qualified electricians. Follow the installation instructions as described.
- When installing and operating the device, observe the applicable regulations and safety directives (including national safety directives), as well as the generally recognized technical regulations.
- Observe the safety information, conditions, and limits of use specified in the product documentation. Comply with them.

2.2 Power supply

NOTE: Risk of injury

Only use SELV or PELV power supply units or power supplies to supply the device.

No additional touch protection is required when using a SELV or PELV voltage (≤30 V AC or 60 V DC).

Only use power supply units that ensure double and reinforced insulation between the primary and secondary circuits.

- In DC operation, use only fuses that are approved for DC voltages.
- Replace defective fuses with fuses of the same type and with the same fuse values.

2.3 Installation and startup

Check the housing and the components used for exterior damage prior to installation.

If the device is defective, you must not use it.

CAUTION: Risk of injury

All work (installation, maintenance, cleaning, etc.) must be carried out with the power switched off. Observe the national standards and regulations.

Only operate relays, solid-state relays, bridges, or plug-in modules when there is no load/the power is switched off.

The product is designed for use in closed control cabinets or control boxes (junction boxes) with IP54 degree of protection or higher. The following safety attributes are provided by the control cabinet or control box:

– Access is restricted to authorized specialist personnel.
– The control cabinet can only be opened with tools.
– The required pollution degree in the space around the equipment is ensured, and sufficient protection against direct or indirect contact is provided.
– Sufficient protection against UV light is ensured.
– The spread of fire outside the control cabinet or control box is prevented.
– Resistance to mechanical strain over the entire operating temperature range is ensured.

- If the product description does not specify the products as „short-circuit-proof” or „conditionally short-circuit-proof”, they must be classified as “not short-circuit-proof”. For the dimensioning of the overload protection devices, take into account the connection cross-sections and the documented maximal continuous current (limiting continuous current).
- Any measures required to ensure an IP20 degree of protection lie within the responsibility of the system installer, such as the use of appropriate covers.
- The device must be disposed of in accordance with the applicable national regulations.
- When connecting signal lines directly to the AC supply network, appropriate EMC protection measures must be provided (e.g., suitable surge protection against transient overvoltage).

2.4 Installation

WARNING: Dangerous contact voltage

The products with IP00 and IP20 degree of protection (≥25 V AC/≥60 V DC) are intended for use in closed control cabinets or control boxes (junction boxes) with IP54 degree of protection or higher.

- If no secure separation or reinforced insulation is available between voltages dangerous to the touch and protective extra-low voltages, you must handle the protective extra-low voltage like a voltage dangerous to the touch.
- During installation, observe product-specific features such as the use of partition plates for certain voltage ranges, derating, mounting positions, minimum bending radius of the cables, and electrical safety, etc.
- At least one functional insulation is maintained against adjacent modules along the DIN rail. If the application has higher requirements for insulation (base or reinforced insulation), then you have to realize these by means of suitable measures (such as a partition plate).
- Please observe the ambient temperatures and any other special requirements (such as derating) specified in the packing slips and data sheets.
- Inside the control cabinet, observe the valid directives and regulations.

2.5 Electrostatic discharge

All items to be protected against ESD are supplied in an ESD bag.

Only qualified personnel may pack, unpack, mount, and remove an item while observing the ESD regulations.

NOTE: Electrostatic discharge!

The device contains components that can be damaged or destroyed by electrostatic discharge.

When handling the device, observe the necessary safety precautions against electrostatic discharge (ESD) in accordance with EN 61340-5-1 and IEC 61340-5-1.

2.6 Removing or changing components or device replacement

WARNING: Dangerous contact voltage

If live parts become freely accessible because components (e.g., fuses, connectors, etc.) have been removed, changed, or are missing, you must assume there is dangerous contact voltage if the voltage is (≥ protective extra-low voltage/ ≥25 V AC; ≥60 V DC).

WARNING: Risk of injury

Before removing, changing, or fitting components, disconnect the power to the application and ensure that it cannot be switched on again.

WARNING: Risk of injury

Only reconnect the power once the entire application has been reassembled.

Failure to observe these instructions can lead to damage to health or even life-threatening injury.

2.7 Overheating

WARNING: Risk of injury

Overheating can result in burns and destruction of the device.

- Observe the product-specific information (such as derating, mounting positions) during installation.
- Provide a fuse depending on the load.

2.8 Grounding

A distinction is made between functional ground (FE) and protective grounding (PE). Functional ground is only used to increase immunity to interference. It does not provide shock protection for people.

Protective grounding is a low-impedance current path that minimizes the risk to the user in the event of an error. This can also include high voltage and/or high current errors between an electrical circuit and ground. Protective ground is largely used outside the protective extra-low voltage area.

Protective grounding (PE)

Protective grounding protects people and machines against hazardous voltages.

To avoid these dangers to the greatest extent possible, correct grounding, taking the local conditions into account, is vital.

WARNING:

If a product has a PE connection terminal block, you must connect it.

Functional ground (FE)

Functional ground is used to increase immunity to interference by discharging the interference. It does not provide shock protection for people.