

THE SYSTEM.



RELAYS & FUSES

VARIANTS · ACCESSORIES · SYSTEM SOLUTIONS



RELAYSPORTFOLIO · OVERVIEW

Relays are used in a wide range of cable harnesses and central power units in commercial and special vehicles as well as in mobile working machines. miunske® offers a wide range of different relays in various performance classes. Micro-, Mini- and Powerrelays are part of the standard portfolio. In addition to conventional coil technology we also offer electronic versions for specific switching functions. Our relays for commercial vehicles are available as plug-in and PCB-relays. With regard to the development of vehicle electronics we offer voltage relay-variants for use in hybrid systems in addition to low-voltage relays. We support you to implement modern electrical functionalities and safety functions in vehicles.

A

MICRORELAYS



B

MINIRELAYS



C

POWERRELAYS



MORE INFORMATION

The whole portfolio on the subjects of relays you can find in our product catalogue at miunske.com.

ELECTRONIC RELAYS

The portfolio of ELECTRONIC RELAYS includes timing relays, current- and voltage monitoring relays, switching and frequency relays as well as wiper-wash relays. New at our range is the MULTI-FUNCTIONAL-RELAY (MFR). With the support of the multifunctional relay different timing functions can be realized. Through the parameterisable switching characteristics at the output the relay is usable as switch-on or switch-off delayed timer relay or as impulse relay. Also, additional functions can be implemented that otherwise have to be handled by a separate control unit. This is made possible by combining two inputs with different signal forms via six different logic functions. Customers have the choice to order the MFR via online-configurator or to realize the parameterization of the logic functions themselves by using the parameterization adapter.

MFR-FEATURES

- **fast availability of new functions**
- **Increased economic efficiency**
one MFR can replace up to three function-specific relays
- **minimization of installation space and weight**
by reducing the number of components
- **higher energy efficiency**
- **increased safety**
due to lower risk of failure
- **multi voltage**
works for voltage ranges between 12 V and 24 V
- **no minimum purchase quantities**
production starts at 1 piece
- **robust hardware**
water and dustproof versions





RELAYS · CONNECTING VARIANTS



PLUG-IN DESIGN



CIRCUIT BOARD DESIGN



BOLT DESIGN

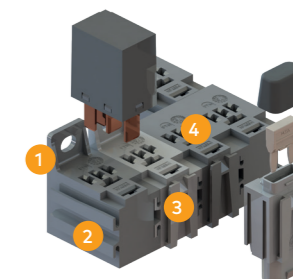
RELAY SOCKETS

Whether for PCB use or conventional wiring, miunske® offers a flexible socket system for all power classes. Latching systems of miunske relay sockets offer a variety of different features that facilitate integration into existing systems and combination with each other.

A

SOCKETS FOR MICRORELAYS

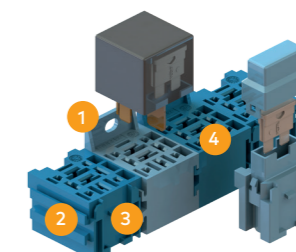
CONTACTS: 2 x 6.3 mm and 3 x 4.8 mm



B

SOCKETS FOR MINIRELAYS

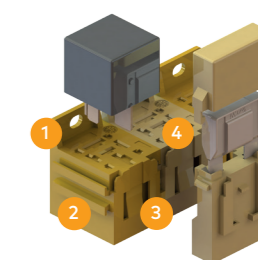
CONTACTS: 5 x 6.3 mm and 4 x 2.8 mm



C

SOCKETS FOR POWERRELAYS

CONTACTS: 2 x 9.5 mm and 2 x 6.3 mm 4 x 2,8 mm



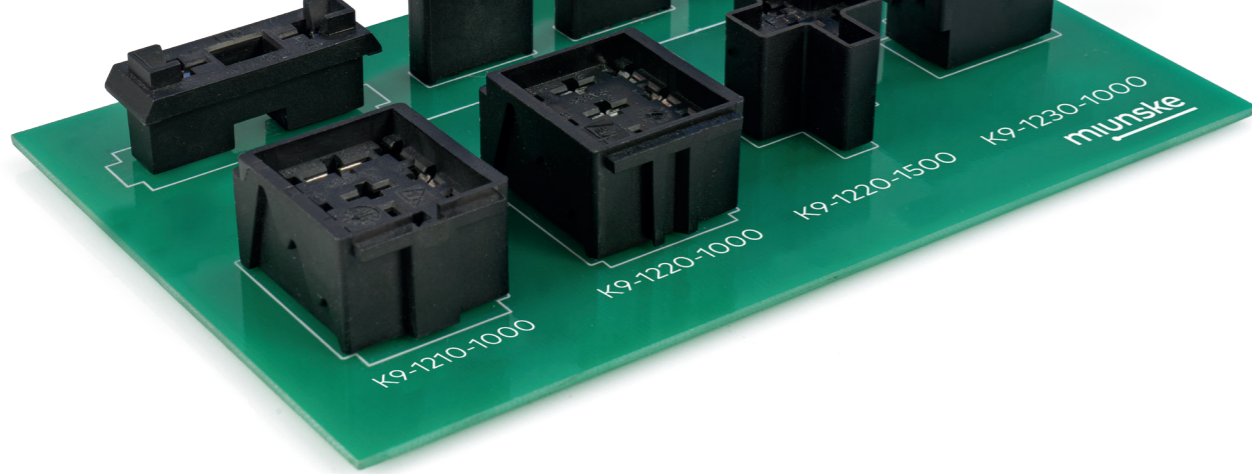
COLOR CODED RELAY SOCKETS



- meet customer-specific design requirements
- enable the optical differentiation of different control circuits and socket types
- avoid assembly errors
- simplifies the documentation
- optimize the production process

FEATURES

- 1 brackets and/or latching lug for stringing together other sockets or mounting sockets on a holder
 - 2 option to form a block
 - 3 extension receptacles for additional sockets and/or fuse holder
 - 4 black coloured or in other colour designs similar to RAL
- optimized for retrofitting vehicles
 - slimmer efficient design: narrowed variants possible



RELAY SOCKETS

PCB-SOCKETS FOR SOLDERING TECHNOLOGY

miunske® offers the perfect socket system for the assembly of printed circuit boards with micro, mini and power relays. The contacts elements of the sockets, specially developed for this area of application, allow loads up to 70 A (depending on load type and design). As standard, all PCB-sockets are equipped with power-timer-contacts. This contact design reduces the contact resistance and also the insertion- and withdrawal force and thus protects the PCB against extreme bending loads.

PCB-SOCKETS FOR PRESS-FIT-TECHNOLOGY

For micro & mini relays, miunske® has added relay sockets in PRESS-FIT-TECHNOLOGY to its portfolio of power products. These extremely stable and thermally outstanding components are particularly suitable for the implementation of PCB-based controls and power distributions with special power requirements. Those PCBs are often used in vehicles that drive under extreme or instable environmental conditions. A special advantage: miunske® is the manufacturer of this power components and offers additional development services for the implementation of individual electronic solutions.



FUSES

RELIABLE FUSES FOR EVERY APPLICATION

miunske® offers different fuses and circuit breakers. In addition to micro- and torpedo fuses we have a wide range of plug-in fuses like MINIVAL, UNIVAL und MAXIVAL. Larger protection challenges can be mastered with flat fuses like MIDI-/MEGA- or POWERVAL fuses as well as strip fuses. You will find the matching fuse holders and the appropriate accessories for your needs in our online-catalogue. We also provide you suitable components for the construction of complete systems and the configuration of power distribution units as well as modular central electrics. In addition to this we also support you while integration of these modules.



MORE INFORMATION

A large variety of fuses, fuse holders, circuit breakers & circuit protectors can be found in our PRODUCT CATALOGUE.

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Should you require further information on products of this or other types, please contact our product consultants in technical sales:

phone: +49 35938 9800-0

e-mail: info@miunske.com

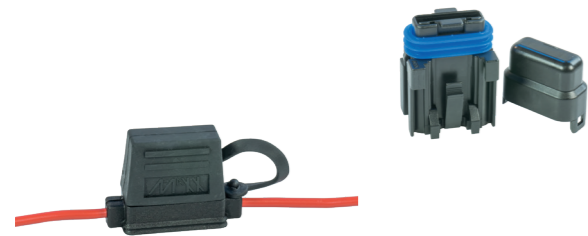


FUSE HOLDERS

FLEXIBLE IN INSTALLATION AND APPLICATION

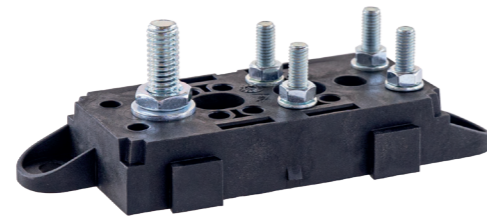
FOR PLUG-IN FUSES

The miunske® portfolio includes a wide range of fuse holders for blade fuses like MINIVAL, UNIVAL and MAXIVAL as well as circuit breakers. Regarding expansion and retrofitting, fuse holders with latching points and stringing options offer a special feature to get integrated into existing vehicle concepts. Matching accessories are also available.



FOR FLAT- AND STRIP FUSES

Universal fuse holders from miunske are used to hold MIDIVAL, MEGAVAL, POWERVAL fuses as well as strip fuses. Variable combination possibilities due to existing snap-on points, different designs regarding the number and length of the bolts, existing cover variants, bridges and mounting options make this series to a flexible product suitable for the desired application.



FUSE HOLDERS FOR PCB

miunske® offers a comprehensive assortment of different fuse holders for PCB in demand performance levels. You can choose between components for **soldering technology (THT)** or in **press-fit-technology (PFT)**.



ADAPTOR FOR FUSE HOLDERS

Some vehicle concepts require an adaptation of different fuse types. miunske® offers adaptors for fuse holders that enable the adaptation of MINIVAL to MIDIVAL and MEGAVAL. Adaptor for fuse holder are also available with failure indicator for a quick identification of occurring faults.



LATCHING · SCREWING · SOLDERING

We offer fuse holders for various mounting cases:



1 fuse holder for latching on wall bracket, retaining plate and relay socket

2 screw-on fuse holder

3 fuse holder for soldering (THT)

4 fuse holder for press-fit (PFT)



FUSEHOLDERS & MORE

MODULAR, FREE CONFIGURABLE & CUSTOMIZED

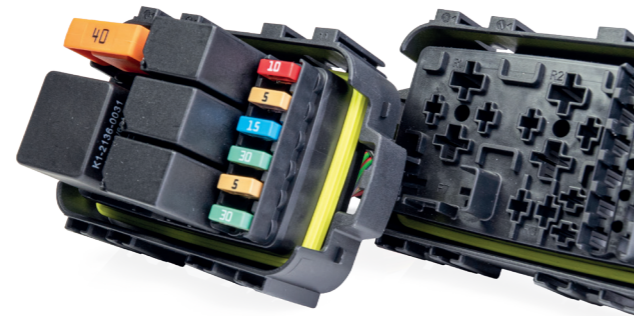
FUSE BOXES

Fuse boxes for flat fuses and circuit breakers are part of our standard portfolio. In conjunction with available bus bars electric potentials can be distributed and ensured individually. Additionally available accessories offer protection against mechanical impacts.



MODULES

Modular PDU boxes and MTA modules with special dust and splash water protection are suitable for protecting the main power supply through power distribution. A wide range of possible combinations of different modules equipped with fuses in different performance classes up to relays, offer maximum flexibility for the protection of electronic loads in the vehicle.



COMBINABLE FUSE BOXES

- flexibly expandable options
- wide range of different modules to combine relays, fuses, diode- and resistor modules as well as circuit breakers
- also WATERPROOF design variants available

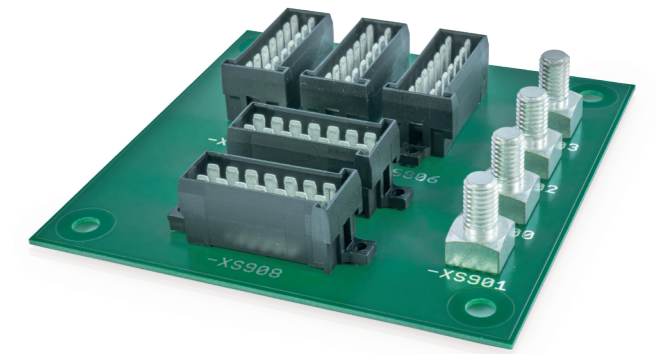
FREE CONFIGURABLE CENTRAL ELECTRICS

Different vehicle concepts require adapted concepts for power management. Whether relays, fuses or diodes, a wide selection of different modules that can be combined with each other, as well as a variety of brackets and frames, allow you to configure your powerful central electrical system according to the application.



POWER DISTRIBUTION UNITS

A diversity of connecting and feed-through bolts as well as ground distributors support you in the field of power-management. Whether standard products or customized solutions for your vehicle concept, we implement your requirements.



IN-HOUSE DEVELOPMENT & PRODUCTION

Numerous universal- and PCB- fuse holders in our portfolio, as well as adapters for fuse holders and customer-specific solutions, are developed and manufactured in-house at miunske®. They are implemented by our competent production team. Various products based on printed circuit boards are supported by a very well-equipped SMT production line consisting of automatic assembly machine, stencil printer, reflow soldering machine and THT. Product quality has a particularly high priority at miunske®. Faultless products are our claim. Our production team is supported by a quality assurance measures, e.g. by the AOI system.

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