EPO Technik

EPOTECHNIK Fuse Switch Disconnector

The fuse switch disconnectors are a low-voltage switching device for switching / disconnection of electrical loads and load feeders.
Through the use of NH-fuse cartridges, the overload and short circuit protection of the consumer load is ensured. The fuse switch disconnector enables safe operation even under nominal load.

The EPOTECHNIK NH-fuse switch disconnector is characterized by its robust and stable construction. The base frame and the swinging bracket are made from sheet steel, the contact base of torsion resistant epoxy resin, the fittings inside of high-quality, heat-resistant plastics and the lid out of a cast aluminum alloy with a ratchet thereby giving it resistance to mechanical and thermal stresses.
In order to combat and make it more resistance to soiling a long creepage distance has been inserted.

Preferred applications are industrial plants and distributions with increased demands such seen in the Steel, Mining and Chemical Industries.

All devices are climate-resistant, for three-phase and direct current and suitable for being installed in switchboards, castings, sheet metal and molded insulation.

The fuse switch disconnectors, can be equipped with a factory-wired fuse monitoring to protect the connected loads against phase failure. The NLS version monitoring is realized by a bimetallic circuit breaker and it's realized in the NLE version with an electronic fuse monitoring.
In both versions, the failure can be signaled externally via potential-free contacts.

In addition, auxiliary switches can be attached to the fuse switch disconnectors to monitor the change of the NH-isolator. Herewith the interlocking can, for example be integrated into a drive controller to ensure load-free switching.

The NH-fuse switch disconnectors are low-voltage switch gear in accordance with the standards VDE0660, Part 107 / DIN EN60947-3. The insulating properties are in accordance with the VDE0110-1/3 / DIN EN60664-1/3.
The protection of the equipment is IP00.

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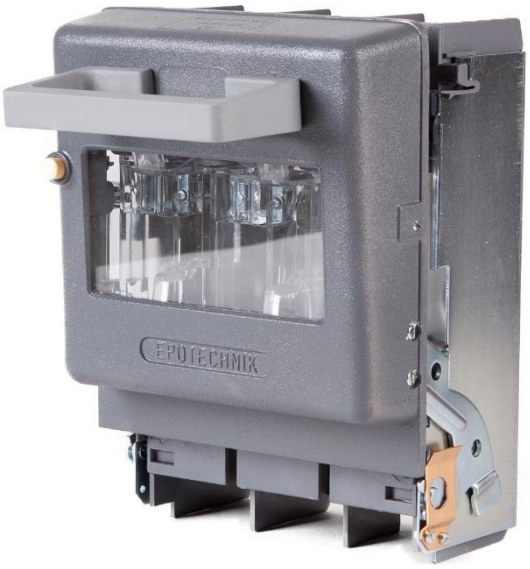
Essential characteristics of the EPOTECHNIK NH-fuse switch disconnectors

Fuse Switch Disconnector NL

High mechanical strength due to steel sheet base frame and a pivoting cover out of aluminum casting alloy.
High deformation and torsional rigidity by using in the base frame fixed screwed Epoxy Resin Socket Contacts.
With 8 microns silver-plated, spring-loaded contacts.
High short-circuit current.
Shockproof even with the hinged lid open.
Separate touch-proof contact protection for the upper and lower contacts, easily removable, thereby making the fixed contacts easily accessible. The electric arc extinguishing chambers are integrated in the upper electric shock protection. Further protection, in accordance with the German Trade Association Regulations (BGV), can be inserted in additional slots, top and bottom.



No losable screws.
Fitted on the hinged lid is a ratchet with a pushbutton operation which prevents the device from accidentally opening. The ratchet snaps into place.
Large window on the hinged lid to view the fuse indicator and the fuse specification engraving.
Orange safety locks, lock the fuses after inserting. Inserting or removing the fuse cartridge requires slight force.
Large solid grip on the hinged lid enables secure gripping also when operating with gloves.
The maximum allowable size of the fuse cartridges is engraved on the hinged lid and is externally visible.
The auxiliary switch, right or left of the disconnector, can each be fitted with a maximum of 1 S and 1 NC, which is operated by the hinged lid.

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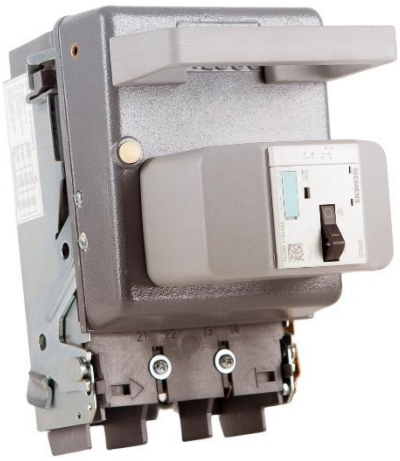
Fuse Switch Disconnectors NLS, NLE

It is possible to switch from NL to NLS or NLE at any time without removing the disconnector base.
It's carried out by changing the hinged lid and the lower touch-proof contact protection of the disconnector base.



A touch-proof fuse monitoring device which is electrically isolated from the mains and the auxiliary circuit when opening the hinged lid replaces the viewing window in the hinged lid. Therefore, there is no parasitic voltage infeed possible when the Fuse Switch Disconnectors is open.

The mains voltage tap for the fuse monitoring device is realized via spring clips on the fuse blades, whereby all NH-fuse links, which are manufactured in accordance with DIN 43620, also with insulated holding flags, are possible. In the absence of fuse links, the fuse monitor is disconnected from the mains.

The pickup of auxiliary or control voltage is realized via spring pressure contacts in the lower touch-proof contact protection and allows a fixed wiring at the disconnector base.
The wiring inside the hinged lid between the fuse monitoring and voltage taps is designed for an insulation voltage of 3kV.
There is no influence by the high internal resistance on the characteristics of the fuse link.
Safety alarm message even with larger EMF motors.
The fuse monitor is independent from the mains voltage and short circuit protection due to its intrinsic resistance.
All other properties of the standard fuse switch disconnector NL apply also for the type with safety monitoring.

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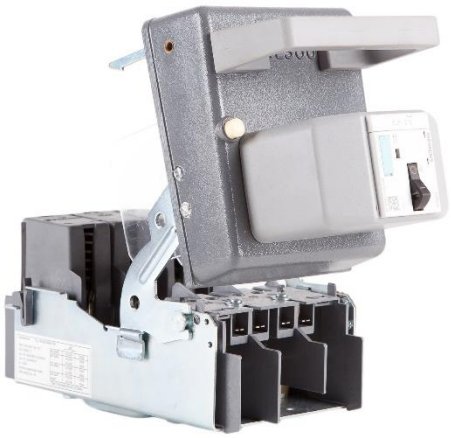
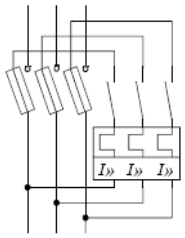
NH-Fuse Switch Disconnectors with Circuit Breaker Fuse Monitoring **NLS**

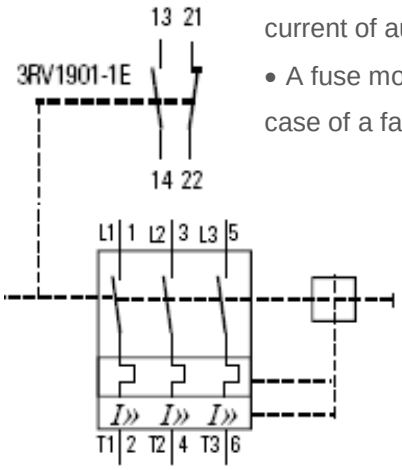


- NH-Fuse switch disconnectors NLS consist of two main components, the disconnector base with a lower touch-proof contact protection with spring pressure contacts and removable hinged lid, on which a circuit breaker is constructed for fuse monitoring.

- The circuit breaker has three main circuits for the three phases which have 1S, spring contact 13-14 and 1NC, spring contact 21-22. These are guided out from the touch-proof contact protection on the bottom of the disconnector base.



- When a fuse trips thereby initiating a bimetal trip. Its intrinsic resistance has no effect on the characteristic of that fuse.
- The circuit breaker must be manually switched on again, after being tripped by a defective NH-fuse.
- The circuit breaker is shockproof encapsulated under a plastic cover.



- The voltage range of the circuit breaker goes up to AC 690V or to DC 150V, maximum current of auxiliary contacts being 10A.
- A fuse monitoring is not permissible in circuits with electric energy converter, where in the case of a failure, a power feedback with a voltage of above 300V DC may occur.

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NH-Fuse Switch Disconnectors with electronic fuse monitoring **NLE**

- Fuse switch disconnectors NLE consist of two main components, the disconnector base with lower contact protection with spring pressure contact and a removable hinged lid in which the electronic fuse monitoring is integrated, encapsulated and safe to touch.
- The electronic fuse monitoring consists of three power supplies connected parallel to the fuse cartridges which drive via optocouplers the actual electronics. The supply voltage of the electronic draws its power from the mains L1 and L3, safeguarded. Thereby, the supply of the fuse breaker must always be carried out from above.
- The electronics includes a signaling relay which is equipped with 1S and 1NC.
- 3 red LED indicator lights for each of the three phases which is a visual alarm for a tripped circuit breaker cartridge and 1 green operating LED indicator light.
- The voltage range of the electronic fuse monitoring is between AC 300V and 690V between L1 and L3. The alarm relay contacts could be connected with an AC 400V and maximum 8A.
- The electronic fuse monitoring is available in two variations:
- Version NLE..-1 as monostable electronics. In normal operation, the signaling relay retracts and trips in the case of a fuse failure. The relay also trips in the event of power failure.
- Version NLE..-3 as bistable electronics. In the case of a power failure, the alarm relay remains in its position and only the green LED light goes out. If a fuse has a failure fault the relay switches and the fault can as such be signaled. Visually, the fault is reported here by three red LEDs. In addition, the -3 version is equipped with an outer operated slide switch, with which the relay can be manually operated to failure position. Through appropriate wiring, for example, in a drive control the movement out can be switched unencumbered.
- In both versions, the electronics switches back to normal operation after replacing the defect fuse and inserting the hinged lid.
- All models are tested with AC 2,5kV for isolation.
- On request, electronic fuse monitoring with external voltage supply for AC 230V or AC / DC 20-30V can be supplied.

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