

Fuse terminal blocks can be expanded with fuse carriers

A lot more than just surge protection for instrumentation technology

More and more companies demand space-saving components for the cable-connection cabinets of their widely branched measurement and control systems, which can often be found in process technology. With the Termitrab complete (TTC) product range, Phoenix Contact offers an extremely compact solution for the connection and distribution level, which now also offers a fine fuse function (Figure 1, lead image).



Figure 1, Lead Image - The Termitrab complete surge protection system for signal circuits is now also available with a directly attachable fuse carrier

On the distribution level of control cabinets in process technology, requirements that actually are contradictory collide. On the one hand, easy access and high maintenance convenience are required. On the other hand, costs are to be cut - by a compact, space-saving design. This space-saving design is also based on the large number of signals in the system.

Many functions in one module

Phoenix Contact designed the Termitrab complete system to, among other things, resolve this contradiction in an innovative manner. The narrow components are originally surge protection components for signals in the low-voltage range. They are designed as multi-level terminal blocks and offer two connection levels in through wiring. A third connection level can be used for a joint reference line or cable shielding. The components of the Termitrab complete product range also offer two additional, optional functions: knife disconnection and modular design.

The integrated knife disconnection for the two signal wires enables the user to disconnect signals from the field cables during startup or maintenance work. This way, measurements or test on the field side can be implemented easily without having to loosen the cables from their termination points.

Thanks to their two-part design, modular, pluggable protective devices also facilitate replacing overload voltage-limited components. This way, recurrent tests according to IEC 62305-3 can be carried out without affecting the running application. For this, the Termitrab complete plug is plugged into the Checkmaster 2 test device – and the function test is run. The system determines the current technical parameters in detail and compares them to the set points taking into account the permissible tolerance. Each single test is saved. The data of all tests can then be exported via a USB port to be processed. This way, test reports are created with low effort.

System terminal block offers new options

These functions have been extended – by the functions of a modular fuse carrier. Now, even more space can be saved during installation because the fuse carrier directly attaches to the surge protective terminal block as a “mounted module”. Installations for which a combination of fine fuse, surge

protection and knife disconnection is desired, used to consist of fuse terminal blocks, surge protection modules and knife disconnect terminal blocks connected in series, which had to be connected among one another using cables. The new, modular system now unites all properties in one extendable terminal block. This combination not only saves two thirds of the space the individual terminal blocks would require, but also a substantial part of the wiring (Figure 2).

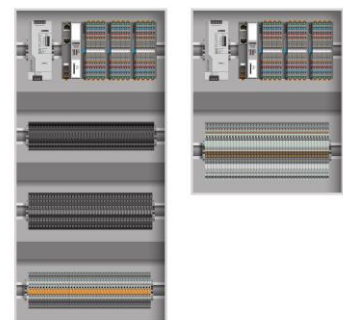


Figure 2 - Installation in the past (left): fuse terminal block, surge protective module and knife disconnect terminal block required a lot of space

Selective overcurrent protection for signal circuits

Fine fuses are used, e.g., for systems in which the signal circuit is connected to a 24 V DC power supply. This can be a connected actuator circuit in which a control valve is addressed. Such a design is also used for a power supply to sensors in the field. Usually, a circuit breaker with correspondingly high current switching capacity is installed directly downstream of the power supply system. In this main trunk, values of 10 A or 20 A are typical. To selectively provide the individual signal circuit branches with overcurrent protection elements, tuned fine fuses can be used. The nominal value of these fuses is correspondingly lower and depends on the operating currents of the field devices. In the event of a short circuit in a field cable, or an error in a device, the fuse in the branch will trip. All other signal circuits connected to the same main trunk remain unaffected by this error.



Figure 3 - New block of the Termitrab complete system: the fuse holder for cartridge fuses with 5 mm x 20 mm

The fine fuse also offers protection for the surge protective module itself. The rated current identified for the component must not be exceeded. Fine fuses for circuits with less power typically have a nominal current of some 100 mA. For comparison, the rated current of most 24 V components from the Termitrab complete series is 600 mA - which means that it is more than sufficient to cover numerous applications. The High Current (HC) variants in the Termitrab complete range even permit a current of up to 6 A. This value is also the maximum permissible

current for the fuse holder. Therefore, there is also a harmonised and suitable solution for actuator circuits with higher nominal or starting currents (Figure 3, Figure 4).



Figure 4 - The Termitrab complete fuse carrier directly attaches to the terminal block housing

Termitrab complete offers yet another advantage: the clever design of the fuse holder even enables the user to add a fuse holder to all terminal levels at the Termitrab complete housing that feature screw-connection technology. This way, several channels that are switched via the Termitrab complete module can be secured.

Summary

With the Termitrab complete product range, Phoenix Contact has launched the narrowest surge protective devices so far - a unique combination of terminal blocks, knife disconnection and impedance-neutral, pluggable and testable surge protection in an overall width of 6 mm. Now, this modular system also provides integral fine fuse carriers. The cable distributor level just cannot be designed any more functional and compact.

More information

www.phoenixcontact.net/webcode/#1521

If you are interested in publishing this article, please contact Becky Smith: marketing@phoenixcontact.co.uk or telephone 0845 881 2222.

Space-saving fine fuse



In systems manufacturing, cartridge fuses with 5 mm x 20 mm have been used for many years. They are used whenever reliable and accurate protection is required. Thanks to the large number of available fuse types - fast blow or slow blow, sand-filled, in glass or ceramics housing - cartridge fuses are available in almost any version and for any requirement. The format of the fuse-links is standardised globally and has hardly changed in the last 70 years since its first definition in DIN 41571.

Termitrab complete – the advantages at a glance:

With Termitrab complete, Phoenix Contact has launched a complete system of surge protective devices: from simple, single-stage surge protection to multi-stage, pluggable versions with knife disconnection, signalling, and remote signalling option. The advantages:

- Space saving, thanks to the world's narrowest surge protection starting from 3.5 mm
- Be kept informed at all times, thanks to the integrated status indicator and remote signalling option
- Ideal protection for your application, thanks to the tailored portfolio
- Easy maintenance, thanks to versions with integrated knife disconnection
- Quick testing without any wiring effort using pluggable versions and the Checkmaster 2 test program