FC-Protector
Fault current limiter for indoor and outdoor standard applications
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The vast global increase in energy demand requires additional power generation and reliable, efficient complex meshed power distribution. A trend towards growing decentralized power production is likely to considerably alter today’s grid structure. One of the key challenges for both private and public enterprises is the reliable and economic protection against increasing fault current levels.

The short-circuit withstand capability of electrical systems may be exceeded in case generators or transformers are added, existing power sources are operated in parallel or the system topology is modified. A potential short-circuit fault in the electrical equipment downstream of the circuit-breaker is fed with the combined increased short-circuit current \( i_{\text{total}} \) (Fig. 1).

The electrical equipment is stressed with the maximum fault current which exceeds the short-circuit withstand capability of the system (Fig. 3). A conventional circuit-breaker requires multiple cycles to clear the fault and is therefore not sufficient to effectively protect the system (Fig. 2).

The replacement of existing switchgear and cable connections with new equipment of higher short-circuit withstand capability is in most cases technically and economically not viable. ABB’s new fault current limiter FC-Protector is the solution for short-circuit current problems in newly installed and existing electrical networks.

The FC-Protector continuously monitors the instantaneous current. In case the total fault current \( i_{\text{total}} \), with its respective partial contribution flowing through the FC-Protector \( i_2 \), exceeds the application specific current tripping value, the main current path opens. The current will be interrupted by means of the fuses in parallel to the main current path.

The very fast current limitation allows the fault current contribution through the FC-Protector to be fully interrupted before the peak short-circuit current is reached (Fig. 6). With the FC-Protector the systems can be operated with a normally closed coupling without affecting each separate system in terms of short-circuit fault level.
The wide range of customer segments are:
- High power industries such as paper mills, refineries, chemical industries, steel or aluminium mills
- Utilities such as energy suppliers
- “Green Energy” such as waste heat recovery generation, combined heat production, hydro power, biomass or wind power production

Share your short-circuit problems with us. We will support you to solve your short-circuit challenge with the FC-Protector.
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