Fault-limiting Interrupter with immediate recovery for cost-effective connection of 1.5MW industrial generators

GridON
Protecting the Grid. Wisely.

A novel power-electronics based Fault Current Limiting Interrupter (FCLi) enables mass deployment of distributed generation, specifically combined heat and power (CHP) 1.5MW generators, and the sale of excess generation capacity to the grid.

The electricity market is going through a global revolution in an effort to connect thousands of Independent Power Producers and industrial/commercial cogeneration sources. The growing need to connect new generation sources, and to increase network connectivity, result in increased fault current levels - often beyond the network equipment ratings. Exceeding fault currents result in supply disruptions, equipment damage and severe power outages - impacting network availability and power quality. Therefore, network operators are not able to manage an increasing amount of connections of distributed generation, and increased network connectivity, without reliable means for fault current management. GridON's FCLi offers a cost-effective solution for eliminating fault current contribution from such new 1.5MW generator-sets.

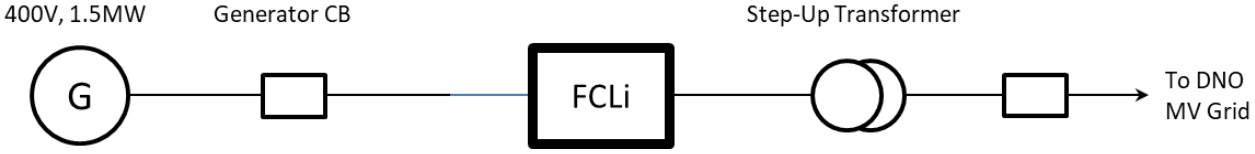
GridON introduced a novel power-electronics based FCLi product family for low-to-medium voltage networks. These series-connected, 3-phase solid-state devices instantaneously interrupt the AC current upon detection of short circuit conditions. The ultra-fast FCLi limits and interrupts excessive fault currents from the generation source to the grid - before the first current peak. It also limits short circuit currents from the grid to the generator. Following the isolation of the faulted network section by the network's switchgear, the FCLi is immediately switched back on to resume normal operation. The compact 1.5MW FCLi is designed to connect 1.5MW industrial generator-sets operating at 400V. The measurement of this cost-effective unit is 1.6x0.8x2.2 meter (WxDxH).

By controlling excessive fault currents, the FCLi enables the deployment of distributed generation such as biogas, solar, and wind, and connectivity of distribution grid sections - improving the availability and power quality of distribution networks. GridON's products improve grid resiliency and reliability, and significantly lower capital expenditures and operating costs, while eliminating switchgear upgrades and early retirement of fit-for use equipment.

The ability to connect industrial and commercial generator-sets and to sell excess generation capacity, along with a rapid return on investment of less than one year – makes the FCLi an attractive solution that is easy to adopt.

Connection example

The 1.5MW FCLi enables connection of a 400V generator with nominal current 2520A. The following figure shows a typical connection of a generator to a DNO's Medium Voltage distribution grid.



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1.5MW FCLi Specifications

Term	Value
Rated voltage	400V
Rated frequency	50Hz
Rated normal current	2520A RMS
Rated prospective short circuit current (with the FCLi not in circuit)	56kA RMS
Rated prospective peak short circuit current (with the FCLi not in circuit)	130kA peak
Current interruption settings	Configurable
Typical current interruption time	Less than 0.5 milliseconds
Recovery to normal conduction after fault current interruption operation	Immediate, by remote command (e.g. SCADA). No need for site presence. No need for part replacement.
Cooling method	Water cooled
Dimensions (WxDxH)	1.6x0.8x2.2 meters
Installation type	Indoor
Auxiliary Supply	3-phase 400V AC, 16A

About GridON Ltd

GridON is a leading provider of Fault Current Limiting solutions - for increased connectivity of electricity networks, and for cost-effective deployment of distributed generation and renewable energy sources, allowing sale of excess generation capacity.

Fault currents in electricity grids keep rising with new generation sources added to meshed networks, often exceeding existing switchgear ratings. GridON offers to utility network operators, independent power producers, and industrial and commercial customers, a cost-effective solution which eliminates fault current contribution from such new generation sources. The products enable deployment of massive distribution generation, and the connection of utility grid sections - improving the availability and power quality of distribution networks.

GridON is offering a scalable product line, from low to very high voltage and power ratings.

GridON's solid-state Fault Current Limiting Interrupters (FCLi) enable connection of Independent Power Producers (such as natural gas, biogas, solar, and wind) and private cogeneration to low-to-medium voltage networks. Designed with compact footprint and low price tag, the FCLi is a cost-effective solution.

GridON's Fault Current Limiter Diverter (FCLd) is designed for medium-to-high voltage networks. This power-electronics based product enables connection of grid and substation sections, as well as connection of distributed generation to high voltage networks.

GridON's legacy saturated-core Fault Current Limiters (FCL) product line is offered for high to very-high voltage networks. This scalable solution is well suited for distribution and transmission networks.

GridON's products improve grid resilience and reliability and significantly lower capital expenditures and operating costs, while eliminating network upgrades and early retirement of fit-for use equipment.

For further information, please visit www.GridON.com or email sales@GridON.com or call +972.3.711.1183