

SS Southern States

The Relentless Pursuit of Innovation.

FROM THE DESK OF KARL FENDER:

The Power Switching Division is pleased to announce the availability of the new RLSwitcher® designed specifically for switching Tertiary Shunt Reactors. Bring us an opportunity and we will help turn it into an order!

Karl
Director National Sales, PSD

AVAILABLE SUPPORT TOOLS:

- Catalog Flyer
- Guide Specification
- Proposal Drawing
- Test Report
- Product Presentation

COMING SOON FROM PSD:

- CAP27M (watch your inbox)
- LLS-I 145-2000 (mid 2017)
- CapSwitcher® 245 (2018)

UPCOMING EVENTS:

DOBLE Conference
March 14 - 16, Boston MA

EAPA Electric Operations Committee
March 21, Grantville PA

Power Grid Resilience Summit
March 29 - 31, Chicago IL

NWPPA Conference
April 11 - 13, Reno NV

SEE - Southeast Electrical Exchange
June 28 - 29, Atlanta GA

News

Southern States Receives 1st order for New Tertiary RLSwitcher® Shunt Reactor Switcher.

The first order for the Power Switching Divisions' new Tertiary Reactor Switcher (RLS38T) was sent in by our representative in Minnesota, Electrotech, Inc. The RLS38T was first introduced to the market at the 2016 IEEE show in Dallas, Texas. Since the show, we have received numerous requests about ratings and availability.

We are proud to announce that the product is ready for the market and the TIME IS NOW to start quoting and taking orders for delivery starting in May!

The increase in Renewable Generation along with increased regulations applied to traditional power generation have created new challenges for utilities to control system voltage and the flow of power over existing and new transmission lines. This increasing need for Reactive Power is leading to new installations and increased switching frequency of shunt reactors.

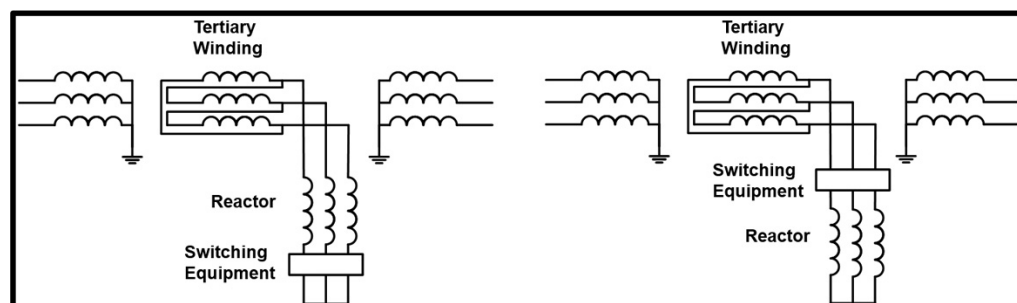
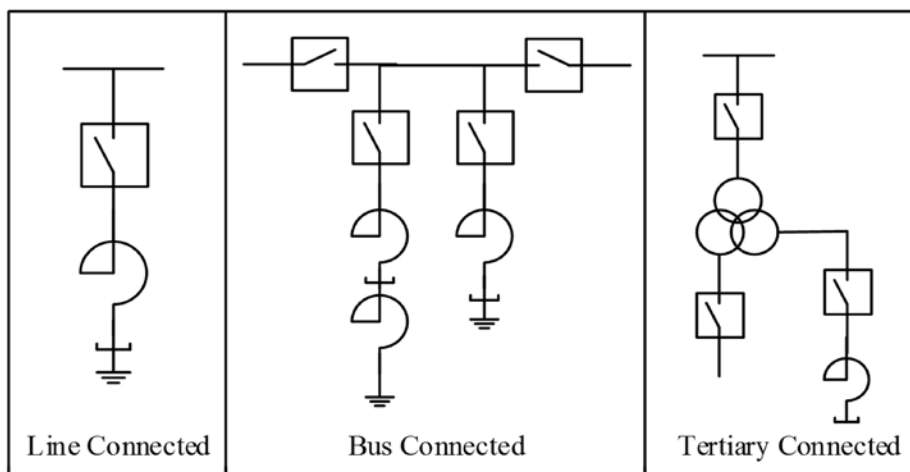
Southern States shipped the first RLSwitcher in 2010 and has successfully shipped over 200 RLSwitchers, for line connected shunt reactors, to satisfied customers. Their success has led customers to request that we develop an RLSwitcher designed specifically for transformer Tertiary connected shunt reactors rated 15.5 kV and 38 kV. The products most commonly used for this application today are dead tank vacuum circuit breakers. Reactor damage, attributed to



the switching device, has led to a search for new switching solutions.

The new RLS38T is ideally positioned to take the market lead for switching tertiary reactors at 15 kV and 38 kV. The high switching currents required, up to 3000A, at these lower voltages created a unique challenge since previous RLSwitchers were typically rated to 650A. To meet the requirements of the higher switching currents, while maintaining contact life, and minimizing re-ignitions, the RLS38T has a unique contact set that incorporates the proven and patented RLSwitcher interrupter design along with significantly enhanced contacts for high current and long life.

Power systems are predominately inductive in nature and it is common for capacitor banks to be used to support voltage as inductive loads increase. When a line is lightly loaded the line capacitance increases. To prevent the system voltage from rising, an inductive load is switched onto the line. The use of switched shunt reactors is the most common and cost effective way of adding inductance to the power system. Shunt reactors can be line connected, bus connected, or connected to the tertiary of a power transformer.



Tertiary winding connected reactors are usually limited to medium voltage applications (15 kV – 38 kV) and are typically air core reactors in a wye configuration. The switch can either be located on the neutral side or on the supply side between the power transformer tertiary windings and the tertiary reactor.

Turn-to-turn faults are the most common and challenging failure modes. While there is limited published documentation on the causes of turn-to-turn failures it is generally accepted that voltage transients resulting from switching the reactors is a leading cause. Overvoltages from current chopping, restrike, reignitions, and prestrike can be generated during these highly inductive switching operations. The RLSwitcher is an application specific product designed to minimize the transients that occur when switching the reactor.



FAQ's - Southern States RLSwitcher designed for switching Tertiary Reactors

- 1. What is different about the Tertiary Reactor Switcher (RLS38T) and the existing 38 kV RLSwitcher (RLS38)?**
The RLS38T utilizes an enhanced, patented nozzle and interrupter to minimize voltage transients and a separate continuous current carrying contact to provide increased life and reliability. It is capable of reactor switching up to 3000 A at 15.5 kV and 1600 A at 38 kV. The existing RLS38 is a more traditional contact design, with a top rating of 1600A at 15.5 kV and 38 kV.
- 2. Why does the RLS38 have a 25 kA fault interrupting rating and the RLS38T does not?**
To achieve an acceptable electrical endurance at 3000 A the contacts have to be enhanced. This increases the size of the contacts and nozzle and makes it difficult to achieve the required SF6 gas flow to interrupt fault currents.
- 3. Why is there a minimum interrupting rating?**
While the RLS38T will interrupt currents below the minimum value, the enhanced contacts and nozzle design are such that below the minimum current, there is a higher probability of reignitions resulting in voltage transients. The application of tertiary shunt reactors should not require switching below the minimum levels provided.