



Trans-Rupter II® Transformer Protector Provides Enhanced Secondary-Side Fault Protection

S&C Featured Solution: Substation Upgrade

Location: Mid-Atlantic, USA

Customer Challenge

A large mid-Atlantic utility had experienced two consecutive power fuse operations of the primary-side power fuses protecting a 69-kV transformer at one of their substations. The fuses operated in response to a surge arrester problem at a textile plant served by the substation. The problem with the customer's equipment was not discovered until the fuses were replaced after the first incident.

S&C Solution

Concerned that another arcing secondary-side fault might cause significant damage to the transformer, the utility decided to upgrade the primary-side protection. It wanted a device that would better coordinate with downstream protective devices. S&C's Trans-Rupter II Transformer Protector Model EX, a cost-effective choice for providing enhanced transformer-protection capabilities, met their requirements.

The transformer protector is activated by relays, providing close coordination with secondary-side devices, and it's resettable—advantages not offered by the power fuses. The Trans-Rupter II pole-unit also provides three-phase tripping, a high 31.5-kA fault-interrupting rating, and a three-cycle interrupting time.

Incoming lines are dead-ended at the base of a vertical-break disconnect mounted over the fuse mountings. The fuse mounting live parts were removed, and the cross beams supporting the fuse mounts were raised to provide additional clearance for the transformer protector. The conductors are now supported from leftover fuse-mounting insulators.

The installation crew was impressed with how easily the lightweight Trans-Rupter II pole-units can be maneuvered in tight spaces and how no unwieldy crane or bucket truck was needed to lift the pole-units. They used a hoist sling looped over the fuse-support structure to position the 175-pound pole-units onto the S&C mounting pedestals.

The Trans-Rupter II Transformer Protector was integrated into the substation's protective relay system, which includes three electromechanical overcurrent relays for the primary side and a fourth overcurrent relay on the secondary-side neutral. A separate battery cabinet provides power for the relays and the transformer protector.

Valued Outcome

The installation crew foreman commented that the Trans-Rupter II installation was "a piece of cake," a fact especially appreciated in an already full summer construction schedule. He liked that the conduit was prewired and clearly labeled and that the electrical connections were easy to make with few tools required. In a testimony to the Trans-Rupter II Transformer Protector, the utility recently reported that the device successfully cleared a secondary fault caused by another problem with the textile manufacturer's equipment. The utility is thoroughly pleased with the transformer protector in this installation.



The Trans-Rupter II Transformer Protector Model EX during installation.

S&C's transformer protector provided easy-to-install increased fault-interrupting capability.