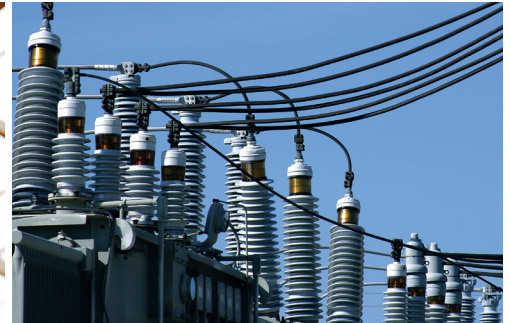


Supplementary Protection or Branch Circuit Overcurrent Device



A new definition covering supplementary overcurrent protective devices was added to the 2005 National Electrical Code® (NEC®). This article outlines the differences in the UL evaluation of these products, and explains the appropriate applications for supplementary protectors.

The new definition in the 2005 NEC (unchanged in the 2008 NEC) indicates that a supplementary overcurrent protective device is intended to provide limited overcurrent protection for specific applications and utilization equipment, such as luminaires and appliances. It also indicates that this limited protection is in addition to the protection provided in the required branch circuit overcurrent protective device. Section 240.10 further clarifies that where supplementary overcurrent protection is used for luminaires, appliances, and other equipment, or for internal circuits and components of equipment, it cannot be used as a substitute for required branch-circuit overcurrent devices, or in place of the required branch-circuit protection. In addition, Section 240.10 does not require supplementary overcurrent devices to be readily accessible.

Because of these new NEC requirements, it is important to clearly distinguish

supplementary protectors and branch circuit overcurrent devices. Branch circuit overcurrent protective devices are always Listed devices. Circuit breakers and fuses are intended for branch circuit protection, and are designed to be installed in panelboards, switchboards, fusible switches and similar equipment.

In contrast to Listed circuit breakers, supplementary protectors are Recognized Components. They have only been investigated for factory installation in Listed products where UL has investigated the suitability of the combination. Supplemental fuses may be Listed or Component Recognized by UL; however, dimensional limitations apply to these fuses to prevent their insertion into branch circuit-type fuse holders.

The testing for fuses, circuit breakers and supplementary protectors involves another major difference between devices intended for branch circuit protection and supplemen-

tary overcurrent protective devices intended only for equipment protection.

Any Listed circuit breaker having an interrupting rating other than 5,000 amperes is required to have its interrupting rating marked on the circuit breaker. A branch, feeder or service fuse that has an interrupting rating other than 10,000 amperes must be plainly marked to indicate its interrupting rating. Circuit breakers and fuses are required to comply with UL 489, the Standard for Safety for Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures, or UL 248, the Standard for Safety for Low-Voltage Fuses, respectively.

For the short circuit testing conducted on the different types of overcurrent protection, Listed breakers and fuses are tested individually, and must open the circuit without damage to themselves. Breakers must also function afterwards. Recognized

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Supplementary Protection or Branch Circuit Overcurrent Device (continued)



Component supplementary protectors are generally short circuit tested with upstream branch circuit protection, and in addition, do not need to function at the end of the test.

Branch circuit overcurrent protective devices are rated for at least 5,000 amperes interrupting rating and are often rated at a much higher level. In contrast, supplementary protectors typically have only been tested at 5,000 amperes or less, unless a manufacturer requests evaluation at a higher value.

For the thermal overload testing of the different overcurrent devices, Listed circuit breakers and fuses are required to comply with standardized trip times for branch circuit protection. Recognized Component supplementary protectors, in contrast, are only evaluated to verify the protectors will trip in accordance with the manufacturer's trip curve — which may be vastly different than standardized trip curves for branch circuit protection and may further be altered by thermal and other conditions in the end-use equipment.

The differences between branch circuit protection and supplementary protection and the appropriate code application for each of these are important distinctions. See Page 33 of the 2007 UL White Book for further explanation of the difference between UL Listing Service and Component Recognition Service.