Cable Limiters & Applications

Introduction:
In today’s commercial/industrial and residential installations, service continuity is an absolute must. In addition, unprotected service conductors have been a fire safety concern for some years. Cable limiters can provide a vital role to improve service continuity and service conductor protection.

Cable Limiters:
A cable limiter can be defined as a low voltage device that provides short-circuit protection as well as isolation of faulted cables. Cable limiters are typically of silver-sand construction, offering a high degree of current-limitation to minimize equipment damage. These devices should NOT be considered the same as a fuse. Typically, cable limiters are selected based on conductor size. They are available in a wide range of types to accommodate the many conductor sizes, copper or aluminum conductors, and a variety of termination methods. There are many different cable limiters available for cables from #12 AWG to 1,000 kcmil.

There are two broad categories of cable limiters:

- **600V or less rated** - for large commercial, institutional and industrial applications.
- **250V or less rated** - for residential and light commercial applications.

Commercial/Industrial Service Entrance:
In institutional, commercial, and industrial systems, cable limiters are used at both ends of each cable on applications with three or more cables per phase, between the transformer and switchboard, as illustrated in the diagram below.
Residential Service Entrance:

In residential systems, the cable limiters are normally installed on a single cable per phase basis at the source end of the lateral feeder for each residence.
Applications:
Cable limiters may be located on the supply-side of the service disconnecting means per NEC® 230-82 (1) and are required in secondary "tie circuits" per NEC® 450-6(a)(3). The advantages of using cable limiters on the supply-side of the service disconnect are multi-fold:

- Isolation of one or more faulted cables. Only the affected cable(s) are removed from service by the opening of cable limiters (applied at each end, assuming three or more cables per phase).
- The isolation of a faulted cable permits the convenient scheduling of repair service.
- The hazard of equipment burndown due to a fault on the line-side of the main overcurrent protective device is greatly reduced. Typically, without cable limiters, a fault between the transformer and main service switchboard is given little or no protection.
- Their current-limiting feature can be used to minimize arc flash hazards by reducing the magnitude of the arc flash current and the time of the arc flash exposure.

Conclusion:
Proper application of cable limiters can minimize unnecessary power loss, protect service equipment and cable, and reduce arc flash exposure.

For more information, LINK TO BIF DOC 1042

If you have any questions, contact Bussmann Application Engineering at (636) 527-1270, (636) 527-1607 (fax), or e-mail (fusetech@buss.com).