Synchronization

Synchronization can occur in one of two ways for UPS systems:

- Actively based on some form of external control system
- Passively by the management of the static switch inputs to the given modules or via active systems specific to the UPS manufacturer, depending upon the chosen UPS topology.

The active systems offer excellent synchronization functionality, especially when the UPS system uses batteries.

The passive system is important as vital system transfers are assured to be coordinated when the static inputs are managed and considered in the design. A lack of input or output synchronization could result in a failure of ASTS operation or an out-of-phase transfer, thereby resulting in a dropped load and possible equipment damage.

UPS systems shall be synchronized in one of two ways:

- Line-side (source) synchronization
- Load-side (output) synchronization

In either event, synchronization is vital and shall be required for a high-reliability system at the Class F3 and Class F4 levels. Since Class F0, Class F1, and sometimes Class F2 systems are single module/single plant systems, no external synchronization is required.

When system-level synchronization is not possible, static switching at the loads or critical power buses may be required.

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