



DTE Power via MDI: System Requirements

Arlan Anderson

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Network Edge T

Strict Requirements

A solution for DTE Powering via DTE must satisfy the following conditions:

- It will meet all applicable safety standards and regulations.
- It will meet all of the requirements of existing 802.3 Ethernet standards.
- Its operation will not degrade in any way the performance of Ethernet data transmission.
- It will not damage, or be damaged by, or have its operation degraded, or be degraded by, any other RJ-45 or RJ-11 interconnected equipment to which it may be incidentally connected.
- It will not cause any anomalous behavior or change the operation for any connected LAN equipment (e.g. link status indicators).

Desirable Requirements

A DTE Powering solution should satisfy the following conditions:

- It should be able to provide sufficient power to support a range of single IP terminal devices (e.g. IP telephones, LAN base-stations, cameras, hubs, power controls, the etc.)
- The powering topology should allow for the easy insertion of power at any point along the span.
- The power source equipment should support a MIB for system management (including any backup power system)

Power Source Attributes

To satisfy the previous conditions the following power source characteristics are proposed:

- An isolated DC voltage source meeting all applicable regulatory safety requirements;
- Metallic power feed on Pins 4-5, one of the idle pairs of BASE-T LAN loop;
- Each loop power feed isolated to withstand ± 2250 Volts 1500 Volts AC for 60 sec. (IEC 60950:1991 “Hipot”);
- The power source to each loop must be independently limited to a level to be determined above the level of the rated output.
- All protection circuitry for the loop power feed must react automatically without any operator intervention once the power has been removed.

Power Source Attributes (continued)

To satisfy the previous conditions the following power source characteristics are proposed:

- The loop supply must be "smart," using a discovery mechanism to insure that power is only provided to authorized terminations.
- The source must provide a maintenance capability to maintain the loop supply power only as long as the loop connection remains intact.
- The source must limit the power to any non-authenticated devices or loads to protect against damage;
- At the point of power insertion, appropriate termination must be presented to the network side of the LAN connection.

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