
Addendum

Telecommunications Systems Bulletin TSB-184

Guidelines for Supporting Power Delivery

Over Balanced Twisted-Pair Cabling

Chris DiMinico MC Communications/Panduit
cdiminico@ieee.org

Background

- Power delivery over BASE-T PHYS with specified operation over TIA/ISO cabling
 - 802.3af, 802.3at, 802.3bt
- Coordination with TIA/ISO cabling committees on power delivery - 802.3af and 802.3at
 - TSB-184
Guidelines for Supporting Power Delivery Over Balanced Twisted-Pair Cabling

Telecommunications Systems Bulletin (TSB)-184-A

- Project Request – June 13, 2014
- Scope Summary:
 - Revise TIA TSB-184 to include considerations for 4-Pair PoE and higher current.
 - The update will focus on increased current levels (up to 1A per pair), specific use cases and installation condition considerations.
 - Examples of the installation conditions to be considered are delivery systems such as conduit, cable tray, and through fire stops.
 - Other areas will include expanding the recommendations on cable bundle sizes, bundling of patch cords, additional cable types and mixing of cable type bundles.

Telecommunications Systems Bulletin (TSB)-184-A

Scope

The purpose of this document is to provide guidelines that will enable the support of a wide variety of safety extra low voltage (SELV) limited power source (LPS) applications using remote power supplied over balanced twisted pair cabling. Examples of such applications include LAN devices, wireless access points, ANSI/TIA-862-B building automation and security devices like remote cameras, IP telephone and multimedia devices, all of which may be supported by standards such as IEEE Std 802.3™-2012 Clause 33 DTE Power via MDI or IEEE Std. 1394-2008.

The guidelines in this TSB are considered to be in addition to, and not in place of, the infrastructure specified in the ANSI/TIA-568-C series of Standards. The TSB covers the transmission and electrical parameters needed to support power over category 5e or higher performance twisted-pair cabling. The guidelines address various environmental conditions related to the installed cabling, bundled cabling, cabling in conduit, different cabling categories and cable types, and how these may impact the capability of balanced twisted-pair cabling to support remote powering. This TSB provides additional guidelines with respect to:

- a) parameters needed for remote powering;
- b) references to safety standards;
- c) different installation conditions that require special considerations;
- d) application considerations;
- e) mitigation considerations; and
- f) cabling configurations and related field test considerations

The cabling systems detailed in this TSB are designed to support SELV LPS power, as defined in IEC 133 60950-1. Safety and electromagnetic compatibility (EMC) requirements are outside the scope of this TSB

TSB-184-A Status

- April 2015 - second committee ballot circulated
- May 28, 2015 – ballot close

33.1.4.3 Four-pair operation channel requirement for pair-to-pair resistance unbalance

See Informative Annex 33A.

Editor's NOTE - The channel pair-to-pair resistance unbalance values are preliminary working numbers used for characterizing cabling while awaiting input from ISO/IEC SC25 (developing the second edition of ISO/IEC TR 29125) and TIA TR42 (developing a revision of TIA TSB-184). These groups have works in progress that are expected to include channel pair-to-pair resistance unbalance specifications suitable for reference.

TIA TSB-184A D2.0 - Channel DC resistance unbalance (pair to pair)

Category 5 - 7% or 0.1 Ohm TBD

Category 6 - 7% or 0.1 Ohm TBD

Category 6A - 7% or 0.1 Ohm TBD

Category 8 - 50mΩ (30 m)

Summary

- Review TIA-184 –A Status