

Annex XX

(normative)

Optional Power Distribution

Annex x.1 Overview

This Annex defines the functional and electrical characteristics of two optional power entities, a xxx Powered Device (PD) and xxx Power Sourcing Equipment (PSE), for use with supported single balanced twisted-pair Ethernet Physical Layers. When used in this clause, the term PSE always means xxx PSE, and the term PD always means xxx PD. These entities allow devices to supply/draw power using the same cabling that may be used for data transmission. xxx is intended to provide a single balanced twisted-pair Ethernet Physical Layer device with a single interface to both the data it requires and the power to process this data.

This Annex specifies the following:

- a. The characteristics of a power source to add power to the 100 Ω single balanced twisted-pair cabling system.
- b. The characteristics of a PD's load on the power source and the cabling.
- c. Certain electrical parameters of each MDI/PI that may be different from that specified in the PHYclause when power is simultaneously transmitted with data.
- d. Physical Layer protocols allowing the detection of a device that requests power from a PSE and classification of the device based on its power needs.
- e. A method for Powered Devices and Power Sourcing Equipment to negotiate and allocate power.
- f. A method for scaling supplied voltage back to the sleep level when full operating voltage is no longer requested or required.

Annex x.2 Network topologies and link segments

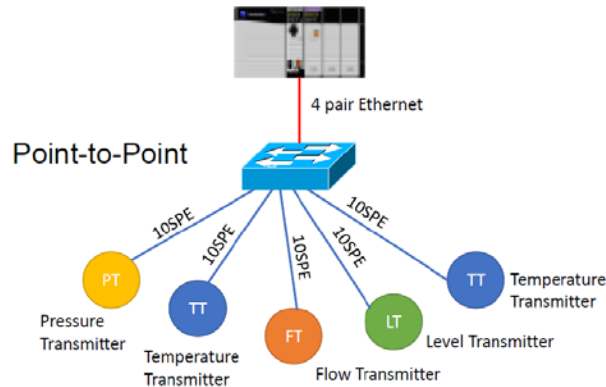
- Reference to 147.6 Link segment characteristics
- Topologies Point-to-Point
 - DCR
- Trunk
 - DCR

AWG	Resistance per meter (ohm)	Length @ IL limit (m)	Conductor resistance @ IL limit (ohm)	Loop resistance @ IL limit (ohm)	10 connector DCR	Link segment resistance @ IL limit (ohm)
14	0.0092	1589	14.67	29.33	4.00	33.33
15	0.0116	1415	16.47	32.94	4.00	36.94
16	0.0147	1261	18.50	37.00	4.00	41.00
17	0.0185	1123	20.78	41.55	4.00	45.55
18	0.0233	1000	23.33	46.66	4.00	50.66
19	0.0294	891	26.20	52.40	4.00	56.40
20	0.0371	793	29.42	58.84	4.00	62.84
21	0.0468	706	33.04	66.07	4.00	70.07
22	0.0590	629	37.10	74.19	4.00	78.19
23	0.0744	560	41.66	83.31	4.00	87.31
24	0.0938	499	46.78	93.55	4.00	97.55

Table 1 Link Segment DCR characteristics

Annex x.3 Class power requirements

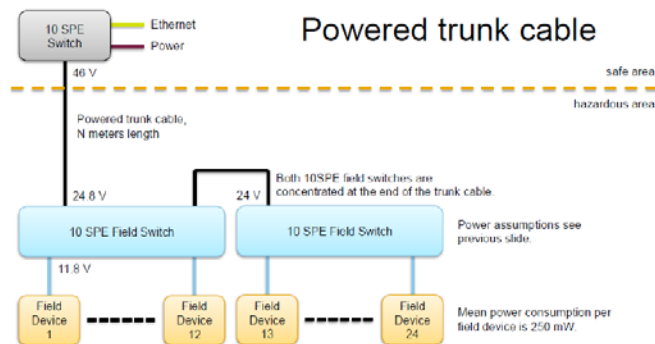
- Point-to-Point Topologies



Class	Vpse, min V	Ipi, max (A)	Rloop (60C) ohm	Ppd (1000m) W
new 1	20	.102	59	1.4
new 2	20	.155	39	2.2
new 3	50	.255	59	8.9
new 4	50	.388	39	13.6

Table 2 Class power requirements

- Trunk topologies



Annex x.4 Power Sourcing Equipment (PSE)

Annex x.5 Powered Device (PD)

Annex x.5 Additional electrical specifications

Annex x.6 Communication classification protocol (xxx)

Annex x.7 Environmental

Annex x.8 Protocol implementation conformance statement (PICS) proforma