BELDEN

# Remote Powering of Your Optical LAN

Remote power—the ability to supply all the necessary power for your network (including end devices) from one location—is becoming more commonplace. Technology advancements to increase available power, reduce required data speeds and allow widespread use of direct current (DC) equipment and devices are leading to new ways to efficiently and safely deliver DC power.

No longer are device and equipment installation limited by the distance from an AC outlet. Now equipment and devices can be placed wherever they're needed.

How do you know which type of DC power to use? That question can be answered by considering the 3Ds: data, distance and delivery.
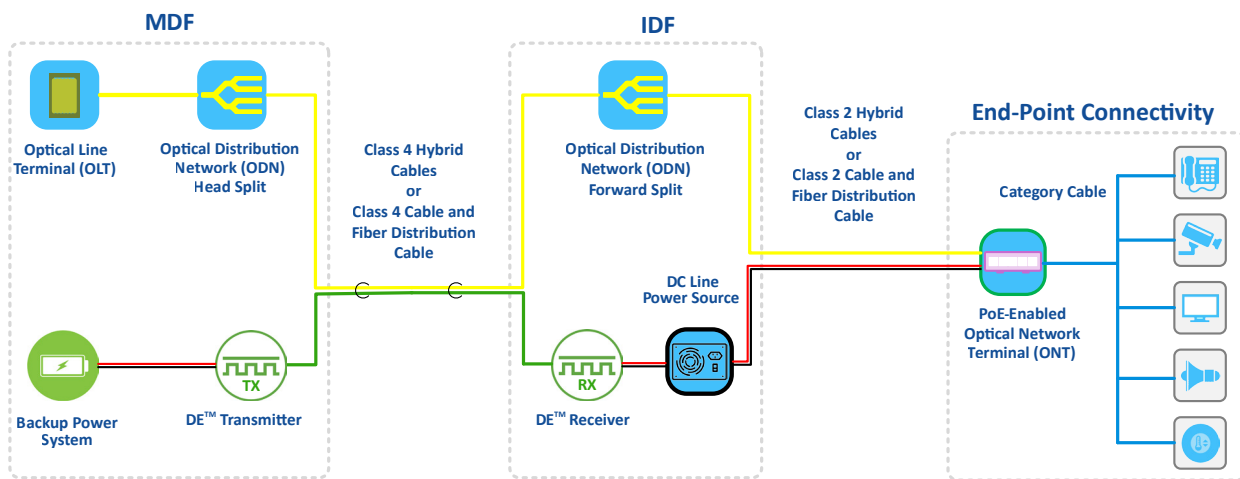
3 Areas to Consider

1. MDF (main distribution frame): the central point connecting the network to the outside service provider.
2. IDF (intermediate distribution frame): the many areas throughout a building that provide access of endpoint devices to the MDF.
3. Endpoint connectivity: the devices that must connect to the network.

3 Types of Remote Power to Consider

1. *Direct current (DC):* As defined in NEC as Class 2; carries 100W and has a "practical" reach of around 250 m.
2. *Power over Ethernet (PoE):* Also defined as Class 2; carries 100W and has a "practical" reach of a few hundred meters (up to 215 m).
3. *Fault-managed power (FMP):* Defined as Class 4; offers nearly 20 times the amount of power of PoE (1,000W or more) or distances of 1,000 m or longer.

How do you determine which remote-powering method to use? It comes down to the 3Ds:

1. *Data:* What is the data rate?
2. *Distance:* How far from the network connection?
3. *Delivery:* How much power needs to be delivered?

Remote Powering of Your Optional LAN

MDF

Fault-Managed Power

TX — RX

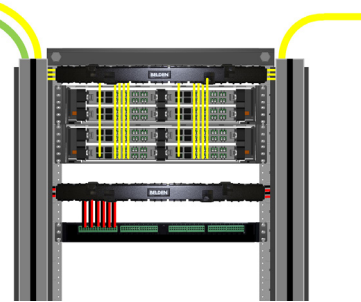|	Data	Distance	Delivery
FMP	Any	2,000 m	100W
	Any	1,220 m	600W

BOM Example

Description	Part Number
Indoor DE* Copper Cable, 2-18 AWG Pairs, Class 4, Plenum	DEIP182U
Indoor DE* Hybrid Cable, OS2, 6F, 2-18 AWG Pairs, Class 4, Plenum	DHIP182USD06J
FX Indoor OS2 Distribution 6F OFNR	FISD006R9
OptiTuff® Indoor OS2, 6F, OFNP	FISX006W0
FX Patch Cord OS2 SC/APC DX to SC/APC DX 3M OFNR	FPSSASA003M
FX Patch Cord OS2 LC/APC DX to SC/APC DX 3M OFNR	FPSLASA003M
FX ECX Patch Panel Housing 1U	ECX-01U
FX ECX Patch Panel Housing 4U	ECX-04U
FX ECX Splice Cassette, OS2, 6 Ports (12F), LC/APC DX	FCSX06LAFS
Horizontal Manager	BHH191UR
OLT	
DE* Transmitter	

IDF

DC Line Power

+ − DC

	Data	Distance	Delivery
DC Line	Any	123 m	80W
	Any	247 m	90W

*Digital Electricity™ (DE) is a trademark and technology developed by VoltServer

BOM Example

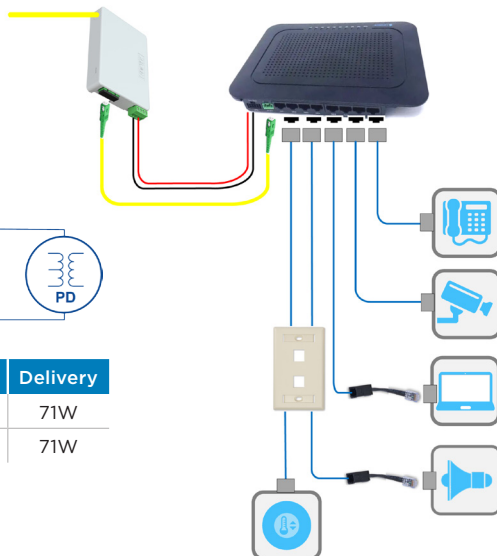| Description	Part Number
DuetConnect™ Hybrid Cable, Indoor OS2, 6F, 2-18 AWG Conductors, Plenum	HISD0060218PJ
Indoor DE* Hybrid Cable, OS2, 6F, 2-18 AWG Pairs, Class 4, Plenum	DHIP182USD06J
FX ECX Patch Panel Housing 1U	ECX-01U
FX ECX Patch Panel Housing 4U	ECX-04U
FX ECX Splitter Cassette, OS2, 1 x 4 SC/APC to LC/APC	SCSX1104SLF
FX ECX Splitter Cassette, OS2, 1 x 8 SC/APC to LC/APC	SCSX1108SLF
FX ECX Splitter Cassette, OS2, 2 x 16 SC/APC to LC/APC	SCSX2116SLF
Horizontal Manager	BHH191UR
Power Distribution Unit	

End-Point Connectivity

Power over Ethernet

PSE — PD

	Data	Distance	Delivery
PoE	10 Gb/s	100 m	71W
	10 Mb/s	215 m	71W

BOM Example

Description	Part Number
DuetConnect™ HTB 4C/2 F SC Duplex OS2 Pigtails, Adapters with Shutter	FWSHBS02SDW
FX Patch Cord OS2 SC/APC DX to SC/APC DX 3M OFNR	FPSLASA003M
2-18 AWG Stranded Bare Copper Conductors, Riser-CMR, PVC jacket	5300UE
2-18 AWG Stranded Bare Copper Conductors, Plenum-CMP	6300UE
REVConnect® CAT6+ Patch Cord, UTP, Bonded-Pair, 24 AWG Solid, CMR	C601106007
REVConnect 10GX Jack	RVAMJKUBK-S1
REVConnect 10GX UTP Plugs	RVAFPUBK-S1
KeyConnect Faceplate Electric White - 2 Port	AX102655
KeyConnect Modular Furniture Adapter Electric White - 4 Port	AX102900