FMP and Ethernet Cabling

IEEE 802.3

FMP Ethernet Interoperability Study Group

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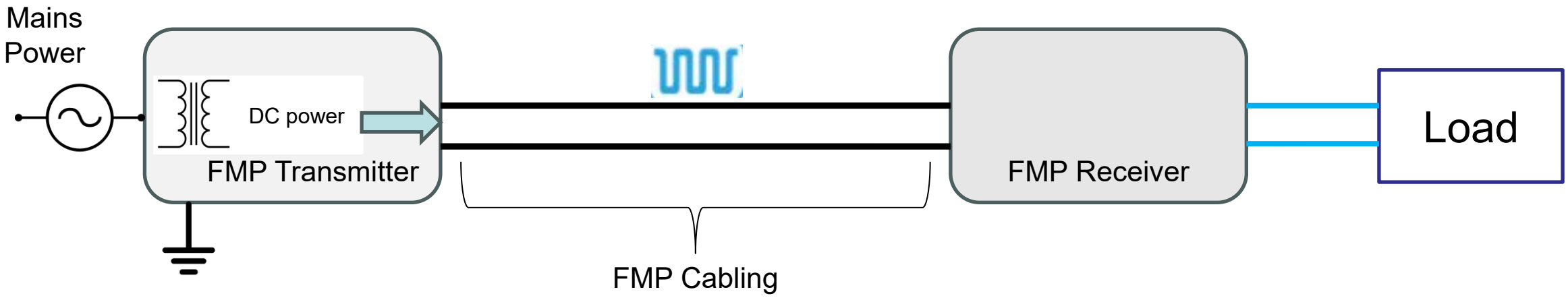
Background

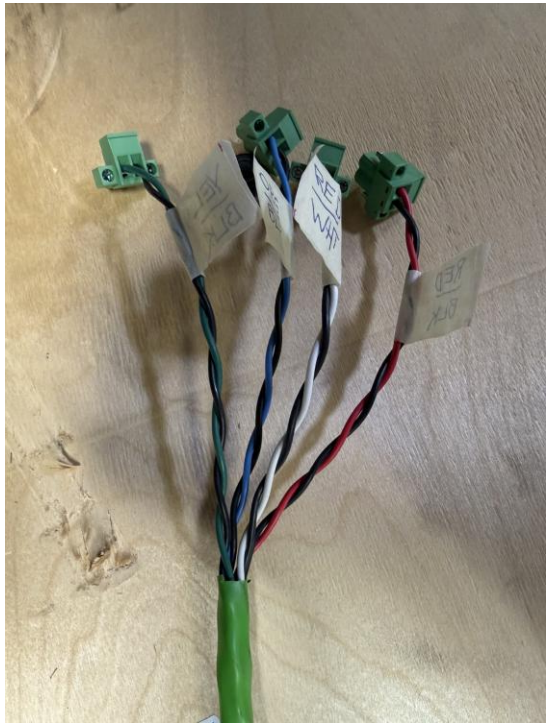
- CSD responses required to advance from study group to task force include Technical Feasibility
- Fault Managed Power systems consist of a transmitter and a receiver or receivers, connected by purpose-built cabling suited for forming FMP circuits
- This presentation offers relevant information about FMP cabling

FMP Power Circuit



FMP + Ethernet Cabling Types

- FMP Power
  - Paired copper cable designed for power distribution
  - Alternate configuration: power on paired conductors, Ethernet on other twisted-pair sets of conductors

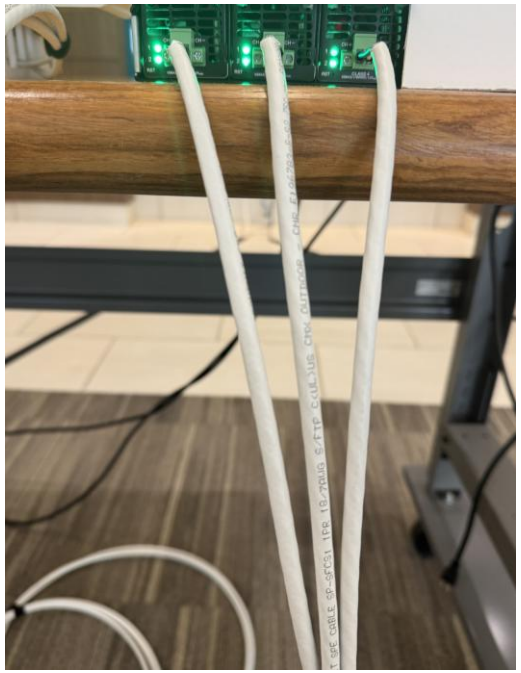


FMP Power Cable
Twisted pair copper cables
UL1400-2 is the benchmark

Image courtesy of Paul Vanderlaan

FMP + Ethernet Cabling Types

- FMP + Ethernet superimposed on the same twisted-pair conductors
  - Similar function to Power over Ethernet
  - SPoE and 4P PoE-like configurations may be considered

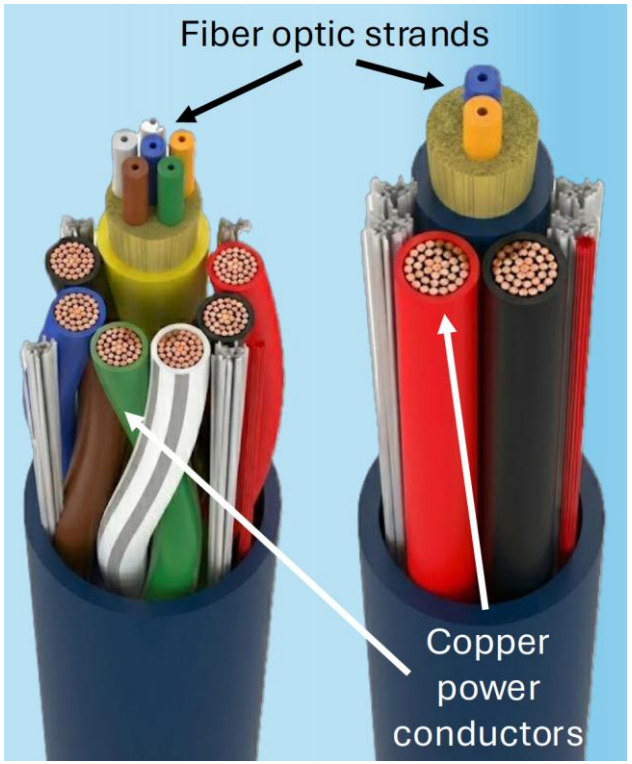


FMP Power + Ethernet
Twisted pair copper cables
Power & data together

Image courtesy of Paul Vanderlaan

FMP + Ethernet Cabling Types

- FMP + Fiber Optic cabling
  - Paired copper conductor cable carries power required by endpoint(s) while fiber optic cable carries Ethernet transmission to endpoint(s)



Hybrid FMP Cable
FMP copper + fiber optic

Image generated by AI Gemini

FMP: UL1400-1 and UL1400-2

- UL1400-1 compliance allows FMP systems to achieve UL Listing using 1400-2 listed cabling
- UL Listing is a requirement of the US National Electrical Code, NFPA-70, for Class 4 power deployment
- UL1400-1 requires FMP hardware and cabling to be tested as a system

FMP: UL1400-1 and UL1400-2 Cont.

- UL1400-2 specifies cabling for safety (not system performance)

- FMP industry must address requirement as it moves towards interoperability, acceptance and deployment

Summary

- FMP requires purpose-built cabling to function correctly and verified components to allow for installation
- Several cabling constructions have been identified addressing FMP + Ethernet applications
  - Contemporary examples presented here, more expected
- Industry must address UL1400-1 “list as a system” requirement as FMP Interoperability fully matures

Thank You!