

# Rosenberger

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802.3da MDI Connector

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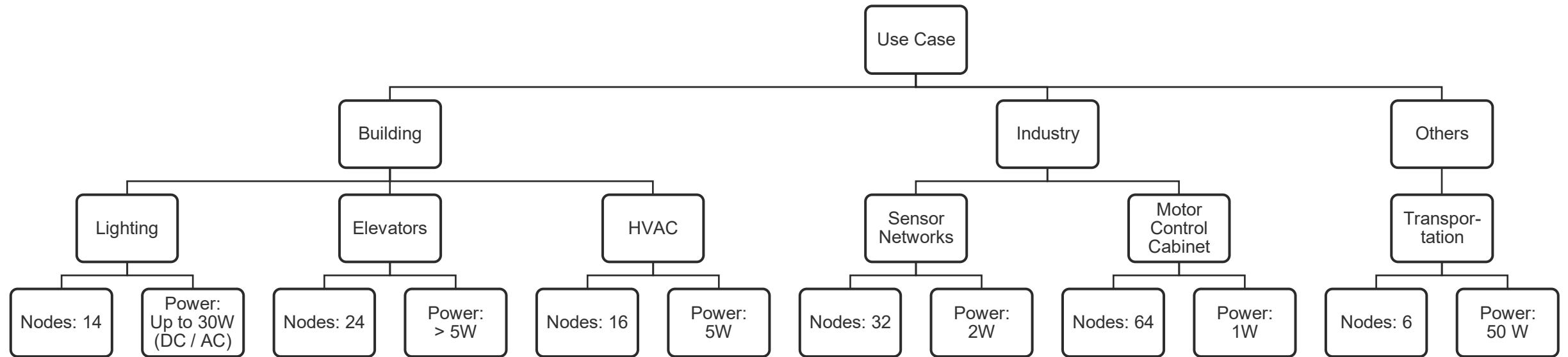
# Purpose

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Proposes a way to move forward with the MDI connector objective

# Use Cases

Use cases picked from [https://www.ieee802.org/3/SPMD/usecase/SPMD\\_Usecase\\_Library.pdf](https://www.ieee802.org/3/SPMD/usecase/SPMD_Usecase_Library.pdf)



- Use case requirements are heterogeneous
  - Not only for node count and power
  - Temperature, humidity, ease of field assembly, size constraints, EMC, ...

# IEC 63171(-x) – Connectors for electrical and electronic equipment

Shielded or unshielded free and fixed connectors for balanced single pair data transmission with current-carrying capacity – General requirements and tests

Properties / Standard	IEC 63171-1	IEC 63171-2	IEC 63171-3	IEC 63171-4	IEC 63171-5	IEC 63171-6	IEC 63171-7
Initiator	CommScope	R&M	SIEMON	BKS	PxC	HARTING & TE	TE & PxC
Style	LC	MSP	CANCELED	MMC	MSP (M8 / M12)	T1 (M8 / M12 / M8 Hybrid)	M12 Hybrid
Status	ED2 CDV expected 2022-12	Published	CANCELED	Published	Published	ED1+ ED2 published	FDIS expected 2022-11
MICE	M <sub>1</sub> I <sub>1</sub> C <sub>1</sub> E <sub>1</sub>	M <sub>1</sub> I <sub>1</sub> C <sub>1</sub> E <sub>1</sub>	CANCELED	M <sub>1</sub> I <sub>1</sub> C <sub>1</sub> E <sub>1/3</sub>	M <sub>3</sub> I <sub>3</sub> C <sub>3</sub> E <sub>3</sub>	M <sub>1</sub> I <sub>1</sub> C <sub>1</sub> E <sub>1</sub> / M <sub>3</sub> I <sub>3</sub> C <sub>3</sub> E <sub>3</sub>	M <sub>3</sub> I <sub>3</sub> C <sub>3</sub> E <sub>3</sub>
Application Field	Building	Building / Industry	CANCELED	Building	Industry	Industry	Industry

Minimum electrical characteristics of all IEC63171-x are aligned within IEC63171

# Further Figure of Merit

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- All types are mainly based on the same electrical specifications
- In order to choose one type, various metrics beside electrical specification should be taken into account to choose the best suited type
  - Power
  - Switched Power
  - Shock and Vibration
  - Insertion Cycles
  - Temperature Range
  - In-Cabinet Density
  - On-Machine Density
  - Field Assembly
- There would be no type which is superior in all categories -> thus a weighting of the subjects would be required

# Moving Forward

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- Weighting of metrics might be depending on the different use cases and fields of application
  - Some fields of application might have different key aspects
  - We do not want to limit the fields of application without a very good reason
- Choosing one connector to fit all use cases might be very hard
- The transmission requirements from IEC 63171 ensure a functional link for all IEC 63171-x
- Proposal regarding the MDI Objective
  - Refer to IEC 63171-x as might be used, to allow the whole subset of interfaces, which are designed for SPE
  - Standardization of additional hybrid connectors (Power and Data) with different power classes on auxiliary wires is worked on and shall be standardized in IEC 63171-7
    - This new interface will be included automatically, when standard is released
  - Refer IEC 63171 on places where electrical parameters of the connectors are required (if there are any)
  - Use IEC 63171 limits of connectors to derive channel specification

Thank you for your attention!  
Questions?