Conditions to Apply MPSE Operating Voltage

Dayin Xu

Rockwell Automation

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- "successfully discover a voltage-compatible MPD" in *Paul_da_04_2023_08_30.pdf (ieee802.org) as shown below is the condition to apply the operating voltage to the mixing segment for MPSE, but it is not clear what "voltage-compatible MPD" means. No clear descriptions on MPSE system types while having clear descriptions on MPD System Types

- Provide clarifications on MPSE Types and the meaning of "voltage-compatible MPD"

169.4.1 MPSE types

An MPSE shall comply with the voltage and power requirements listed in Table 169–1 for the relevant type.

169.4.4 MPSE overview

Prior to application of full operating voltage, the MPSE determines the presence of at least one valid MPD (see Table 169-3). An MPSE may apply full operating voltage if it is able to successfully discover a voltage-compatible MPD and shall not apply full operating voltage if an invalid discovery signature is measured (see Table 169-4).

169.5.1 PD system types

PDs can be characterized as Type 0, Type 1, or Type Mixed.

Type 0 MPDs receive power from Type 0 MPSEs only. Type 1 MPDs receive power from Type 1 MPSEs only. Type Mixed MPDs receive power from either Type 0 MPSEs or Type 1 MPSEs

Type 0 MPSE

- "voltage-compatible MPD" cases highlighted in red

Type 0 MPSE (24V DC)	Discovered MPD
Apply 24V	Type 0 only
Don't apply full operating voltage	Type 1 only
Apply 24V	Mixed only
Don't apply full operating voltage	Type 0 + Type 1
Apply 24V	Type 0 + Mixed
Don't apply full operating voltage	Type 1 + Mixed
Don't apply full operating voltage	Type 0 + Type 1 + Mixed

Type 1 MPSE

- "voltage-compatible MPD" cases highlighted in red

Type 1 MPSE (50V DC)	Discovered MPD
Don't apply full operation voltage	Type 0 only
Apply 50V	Type 1 only
Apply 50V	Mixed only
Don't apply full operation voltage	Type 0 + Type 1
Don't apply full operation voltage	Type 0 + Mixed
Apply 50V	Type 1 + Mixed
Don't apply full operation voltage	Type 0 + Type 1 + Mixed

Type Mixed MPSE

- Is Type Mixed MPSE allowed?
- How to determine the output voltage if it is allowed? According to the discovered MPD types?

Type Mixed MPSE (24V/50V DC)	Discovered MPD
Apply 24V	Type 0 only
Apply 50V	Type 1 only
Apply 50V	Mixed only
Don't apply full operation voltage	Type 0 + Type 1
Apply 24V	Type 0 + Mixed
Apply 50V	Type 1 + Mixed
Don't apply full operation voltage	Type 0 + Type 1 + Mixed

Recommendation

- Adding some text for MPSE Type description in 169.4.1 MPSE types

MPSE can be Type 0, Type 1 or Type Mixed

Type 0 MPSE applies operating power to the mixing segment only when the Type 0 or Type Mixed MPD or Type 0 and Type Mixed MPD are discovered.

Type 1 MPSE applies operating power to the mixing segment only when the Type 1 or Type Mixed MPD or Type 1 and Type Mixed MPD are discovered.

Type Mixed MPSE applies Type 0 operating power to the mixing segment only when the Type 0 or Type 0 and Type Mixed MPD are discovered.

Type Mixed MPSE applies Type 1 operating power to the mixing segment only when the Type 1 or Type Mixed or Type 1 and Type Mixed MPD are discovered.

Thank you