One PSE Polarity v150

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Why have a fixed polarity?

Presentation by Christian Beia in the May 2014 meeting:

http://www.ieee802.org/3/bt/public/may14/beia_2_0514.pdf

Straw poll results:
I support a modification of clause 33.2.3 in order to define a fixed polarity at the PSE PI for PSEs capable of sourcing more than 30W.
Yes: 18 No: 1 Abstain: 13

I support a modification of clause 33.2.3 in order to define a fixed polarity at the PSE PI for PSEs capable of sourcing more than 60W.
Yes: 14 No: 0 Abstain: 19

Reference

http://www.ieee802.org/3/bt/public/may14/minutes_0514.pdf

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Polarity table

Combining Alt A/MDI-X with Alt B minimizes the amount of adjacent pins with V_{PSE} voltage difference at the 8P8C connector. This also simplifies PCB layout.

Conductor	Alt A (MDI-X)	Alt A (MDI)	Alt B	Alt A (MDI-X) + Alt B	Alt A (MDI) + Alt B
1	Negative V_{PSE}	Positive V_{PSE}		Negative V_{PSE}	Positive V_{PSE}
2	Negative V_{PSE}	Positive V_{PSE}		Negative V_{PSE}	Positive V_{PSE}
3	Positive V_{PSE}	Negative V_{PSE}		Positive V_{PSE}	Negative V_{PSE}
4			Positive V_{PSE}	Positive V_{PSE}	Positive V_{PSE}
5			Positive V_{PSE}	Positive V_{PSE}	Positive V_{PSE}
6	Positive V_{PSE}	Negative V_{PSE}		Positive V_{PSE}	Negative V_{PSE}
7			Negative V_{PSE}	Negative V_{PSE}	Negative V_{PSE}
8			Negative V_{PSE}	Negative V_{PSE}	Negative V_{PSE}

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Summary

- Type 3 PSEs will use one pinout alternative (Alt A/MDIX + Alt B) in 4P mode
- Type 3 PDs are polarity insensitive - full functionality with any polarity configuration
- Type 3 PDs can reduce rectification cost
- Other benefits of known polarity can be exploited in the future
- No interoperability issues

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Motion 1-1

Move to,
Change the Table 33-2 in section 33.2.3

Conductor	Alt A (MDI-X)	Alt A (MDI)	Alt B	**Alt A (MDI-X) and Alt B**
1	Negative V_{PSE}	Positive V_{PSE}		**Negative V_{PSE}**
2	Negative V_{PSE}	Positive V_{PSE}		**Negative V_{PSE}**
3	Positive V_{PSE}	Negative V_{PSE}		**Positive V_{PSE}**
4			Positive V_{PSE}	**Positive V_{PSE}**
5			Positive V_{PSE}	**Positive V_{PSE}**
6	Positive V_{PSE}	Negative V_{PSE}		**Positive V_{PSE}**
7			Negative V_{PSE}	**Negative V_{PSE}**
8			Negative V_{PSE}	**Negative V_{PSE}**

(Continued on next slide)

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Motion 1-2

Change the following in section 33.2.3

PSEs that use automatically-configuring MDI/MDI-X (“Auto MDI-X”) ports may choose either polarity choice associated with Alternative A configurations.

To read:

Type 1 and type 2 PSEs that use automatically-configuring MDI/MDI-X (“Auto MDI-X”) ports may choose either polarity choice associated with Alternative A configurations.

(Continued on next slide)

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Motion 1-3

Change the following in section 33.2.3

A PSE shall implement Alternative A, Alternative B, or both.

To read:

A Type 1 or Type 2 PSE shall implement Alternative A, Alternative B, or both.
A type 3(TBD) PSE shall use Alternative A MDI-X and Alternative B when operating four pairs simultaneously. A type 3(TBD) PSE shall use Alternative A MDI-X or Alternative B when operating two pairs. Type 3(TBD) PSEs implementing Alternative A (MDI) are specifically disallowed.

Mover: Lennart Yseboodt Seconder: Christian Beia

Yes: Abstain: No:

Multipage motion: 1-1 to 1-3 on slides 6 - 8

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