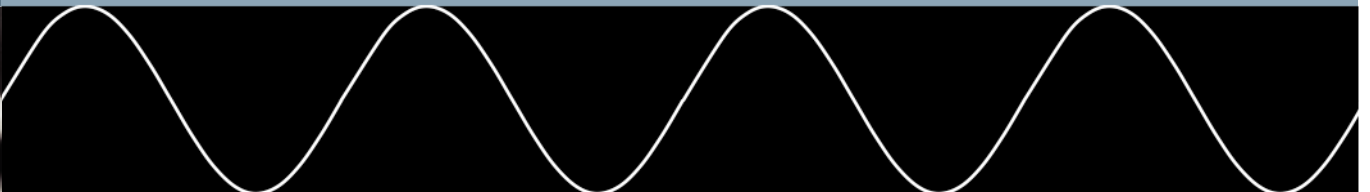# Interoperability

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Will My PD Work With That Other Kind of PSE?

- There has been extended debate about the merits and/ or drawbacks of various PSE architecture choices

- I believe the positions heretofore taken are mostly based on confirmation bias*

- Both PSE types will power all known compliant PDs – and the spec can easily be written to accommodate both

* Wikipedia: Confirmation bias… is the tendency to search for, remember, or interpret information in a way that confirms one's beliefs or hypotheses.

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1ch PD with 4P Cable (also T1/T2)

- 1ch PSE:
  - Detect/class normally
  - Provides 4P power
  - Provides Green Mode power to T1/T2
- 2ch PSE:
  - Detect/class sequentially
  - Provides 4P power
  - Optionally provides Green Mode power to T1/T2

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2ch PD with 4P Cable

- 1ch PSE:
    - Detect/class in parallel
    - Provides 4P power
    - Limits total power to sum of 2 class signatures
- 2ch PSE:
    - Detect/class normally
    - Provides 4P power
    - Can limit each pair independently

1ch + 1ch PD with 4P Cable (Dual PD or Y-cable)

- 1ch PSE:

  - Detect/class in parallel

  - Provides 4P power

  - Disconnects both when one PD removed

- 2ch PSE:

  - Detect/class normally

  - Provides 2x2P power

  - Can disconnect pairs independently

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PD with 2P Cable

- 1ch PSE:

  - Sees open pair at detect

  - Denies power

  - Can provide power in legacy mode

- 2ch PSE:

  - Detect/class normally

  - Provides 2P power

  - 4P Dual PD has partial functionality

Y-cable with 1PD, 1 floating leg

- 1ch PSE:
  - Sees open pair at detect
  - Denies power
  - Can provide power in legacy mode
- 2ch PSE:
  - Detect/class normally
  - Provides 2P power

PD with 2P Midspan in Series

- 1ch PSE:
  - Sees open pair at detect (Midspan input)
  - Denies power
  - Can provide power in legacy mode

- 2ch PSE:
  - Detect/class normally
  - Provides 2P power
  - SELV risk with single wiring fault

Summary

PD Type	1ch PSE	2ch PSE
1ch (also T1/T2)	OK	OK
2ch	OK	OK
1ch+1ch	OK	OK
PD through 2P cable	No power (can power in legacy mode)	Provides 2P power, 4P PD partial functionality
Y-cable with PD + floating leg	No power (can power in legacy mode)	Provides 2P power, 4P PD partial functionality
PD with 2P Midspan	No power (can power in legacy mode)	Provides 2P power, SELV risk with wiring fault

Conclusion

- Both PSE types have similar compatibility with 4P cables

- 2ch PSE has advantage with 2P cable configurations (1ch PSE requires user intervention to provide power)

- 2ch PSE has SELV risk with Midspan configurations that 1ch does not have

- **Both configurations should be allowed**

- **We should stop trying to sneak wording into the spec that favors one or the other option**

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