

# Type 3 & Type 4 Compared v100

**Lennart Yseboodt, Matthias Wendt**

Philips Research

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# Introduction

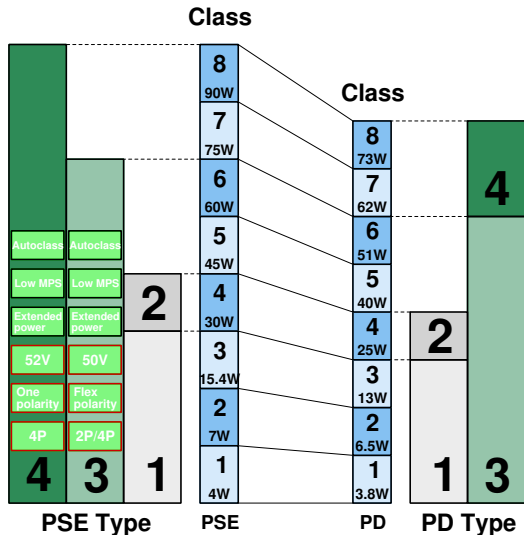
**Table 33–3—Allowed PSE variable definition permutations**

PSE Type	class_num_events
Type 4	1, 2, 4, 5
Type 3	1, 2, 4
Type 2	1, 2
Type 1	0, 1

In July we adopted the change above which allows a Type 4 PSE to be restricted to a maximum power any Class 1 through 8. See presentation [yuseboodt\\_3\\_0715\\_v103.pdf](#)

The perception may now exist that Type 3 has become redundant. This presentation explains why this is untrue.

# PSE/PD Type overview



# Effect on System Type

Class	PSE Type		PD Type		System Type	Class
8 90W	4	&	4	=	4	8 90W
7 75W						7 75W
6 60W	3,4	&	3	=	3	6 60W
5 45W						5 45W
4 30W	2,3,4	&	2,3	=	2,3	4 30W
3 15W						3 15W
2 7W	1,2 3,4	&	1,2,3	=	1,2,3	2 7W
1 4W						1 4W
0 15W	1,2	&	1,2	=	1,2	0 15W

## Why have Type 4 for Class 1-8 ?

Capability	Type 1+2	Type 3	Type 4
Low MPS	✗	✓	✓
Autoclass	✗	✓	✓
Extended Power	✗	✓	✓
4P capable	✗	Optional <sup>1</sup>	Mandatory
Polarity		Flexible	Fixed
V <sub>PSE</sub> (min)	44V/50V	50V	52V

Type 4 PSEs have several properties not shared with Type 3 PSEs. None of these properties require a PD to distinguish a Type 3 from a Type 4 PSE, the benefits/differences are 'passive' and do not put any additional requirement on mutual ID.

<sup>1</sup>Optional for Class 0-4, mandatory for Class 5-6.

# Benefits of each Type

Type 3	Type 4
<b>4-Pair capability</b>	
Type 3 PSEs restricted to Class 4 or lower are not required to implement 4-pair capability. This results in a significant cost-saving (BOM) compared to 4-pair PSEs.	Type 4 PSEs are required to support 4-pair capability. As such, even at low power levels, the transmission efficiency will be higher compared to a 2-pair system.
<b>Polarity</b>	
Type 3 PSEs may choose any of the 4 possible polarity configurations. This makes it possible to support pre-standard PDs, of which a significant number is still in the field (VoIP phones).	Type 4 PSEs are restricted to a single polarity configuration. In (semi) engineered systems this allows PDs to optimize for one of the polarity configurations.
<b>Minimum PSE voltage <math>V_{Port\_PSE}</math></b>	
A voltage range of 50V to 57V puts less stringent demands on the power supply and results in cheaper power supplies. In addition the extra margin facilitates boxes with a large number of ports.	A voltage range of 52V to 57V is tighter on the power supply and system, but also results in higher transmission efficiency for Class 6 and below, as well as enable power delivery above 60W.

# Conclusion

- ▶ Type 4 **PSEs** exist for Class 0 through 8
- ▶ Type 4 **PDs** only exist for Class 7 and 8
- ▶ Type 3 and Type 4 are *distinct* and provide different pro's and con's each
- ▶ It provides a convenient way to refer to a set of requirements
- ▶ The system type and cable requirements track the actual maximum current of any PSE/PD system
- ▶ It does not introduce an interoperability issue as Type 3 requirements are a subset of Type 4 requirements
  
- ▶ Provides more choice for customers

