

Backfeed v210

145.2.4 PSE PI

A PSE device may provide power via one or both of the two valid four-conductor connections, named pairsets. A pairset consists of a pair at the positive V_{PSE} and a pair at the negative V_{PSE} . The two conductors associated with a pair each carry the same nominal current in both magnitude and polarity. Figure 145–12, in conjunction with Table 145–3, illustrates the pairsets, which for PSEs are named Alternative A and Alternative B.

PSE are required to switch the negative pairs, but are not required to switch the positive pairs as defined in 145.4.1.1.1. This may lead to both positive pairs providing current in 2-pair mode.

145.2.10 Power supply output

Add new item to Table 145–16 as follows:

Item	17a
Parameter	Unpowered pair current
Symbol	I_{rev}
Unit	A
Min	—
Max	0.0013
PSE Type	3,4
Additional information	See 145.2.10.3a

Insert new subclause after 145.2.10.3 as follows:

145.2.10.3a Reflected voltage

When a 4-pair capable PSE provides power in 2-pair mode, whereby two pairs are connected to the positive V_{PSE} , and one pair is connected to the negative V_{PSE} , the PD may reflect a voltage of up to V_{PSE} back onto the unpowered pairset. See 145.3.8.8. A PSE, operating in 2-pair mode, where the potential of the conductors of the unpowered negative pair are in the range of the potentials of the conductors of the powered pairset, shall not source a current higher than I_{rev} , as defined in Table 145–20, on the negative pair of the unpowered pairset.

Info (not part of baseline)

The text above isn't going to win a beauty contest, but it is accurate. I welcome better and equally accurate text...

145.3.2 PD PI

Change the note at the bottom of Table 145–20 as follows:

PSEs are required to switch the negative pairs, but **are** not required to switch the positive pairs as defined in 145.4.1.1.1. This may lead to both positive pairs providing current in 2-pair mode.

145.3.8 PD power

Change item 18 such that:

- **Parameter: Reflected voltage**
- **Symbol: V_{reff}**

145.3.8.8 ~~Backfeed~~ Reflected voltage

Replace the contents of 145.3.8.8 as follows:

For a single-signature PD, when any voltage in the range of 0 V to $V_{\text{Port.PD-2P max}}$ is applied per any of the valid 2-pair configurations, defined in Table 145–20, that have only a single pair connected to positive V_{PSE} , the voltage on the Mode not connected to the voltage source, with a 100 k Ω resistor connected across that Mode, shall not exceed V_{reff} as defined in Table 145–29.

For a single-signature PD, when any voltage in the range of 0 V to 10.1 V is applied per any of the valid 2-pair configurations, defined in Table 145–20, including those with two pairs connected to positive V_{PSE} , the voltage on the Mode with at least one pair not connected to the voltage source, with a 100 k Ω resistor connected across that Mode, shall not exceed V_{reff} as defined in Table 145–29.

For a dual-signature PD, when any voltage in the range of 0 V to $V_{\text{Port.PD-2P max}}$ is applied per any of the valid 2-pair configurations, defined in Table 145–20, including those with two pairs connected to positive V_{PSE} , the voltage on the Mode with at least one pair not connected to the voltage source, with a 100 k Ω resistor connected across that Mode, shall not exceed V_{reff} as defined in Table 145–29.

Info (not part of baseline)

For reference, below is the original backfeed text (with proposed modifications), of this baseline at version v201. Note, the below text refers to an “other Mode” that no longer makes sense.

When any voltage in the range of 0 V to $V_{\text{Port.PD-2P max}}$ is applied ~~across the PI at either polarity specified on the conductors of either Mode A or Mode B according to Table 145–20~~ per any of the valid 2-pair configurations, defined in Table 145–20, that have only a single pair connected to positive V_{PSE} , the voltage measured ~~across the PI for~~ on the other Mode with a 100 k Ω ~~load~~ resistor connected across that other Mode shall not exceed V_{bfd} as defined in Table 145–29.

When any voltage in the range of 0 V to 10.1 V is applied per any of the valid 2-pair configurations, defined in Table 145–20, the voltage measured on the other Mode with a 100 k Ω resistor connected across that other Mode shall not exceed V_{bfd} as defined in Table 145–29.

Update PICS to reflect changes.