

PoE PHY Protection

When plugging in an Ethernet cable that is using PoE, the Power Sourcing Equipment (PSE) does not apply power until a valid PoE signature has been detected.

But when unplugging the Ethernet cable, the power will remain present until the PSE senses the disconnection and removes power.

During the unplugging process you cannot guarantee that the break will be clean and that all the contacts are disconnected at the same time (especially if the contacts are not evenly formed or have contamination) .

The Powered Device (PD) should have no problem with this, especially if the input is protected (D1).

Even though the PHY is on the other side of the data transformer from the power. If the inputs are sensitive to transients, it may be possible to damage them.

The figure (right) shows a very simple method using two back to back 3.9V zener diodes (ZD1 to ZD4). These should be sufficient to protect the PHY inputs if they are susceptible.

