

PEM1200 Dual Supply using with High Power PoE PSE

This application note explains about connecting two PEM 1200 modules simultaneously to a single High Power PSE (Power Sourcing Equipment conforming to IEEE802.3at standards)

Certain high power PSE's are designed to supply using both data pair and spare pair. For example, Microsemi PSE's like PowerDsine 8000 midspan can supply 55.5V@350mA using two rails (data and spare pair).

And certain other PSE's are designed to supply only either through data pair or through spare pair. For example, Phihong's PSEs like POE36U-1AT can supply 56V@600mA using only data pair, and Microsemi PSE's like PowerDsine 7000 midspan can supply 55V@570mA using spare pair.

In all these cases, two PEM1200 modules can be connected to extract power from the same PSE.

Microsemi PSE (PD8000) connected to two PEM1200:

Microsemi PSE PowerDsine 8000 is a high power PSE which delivers 55.5V@350mA each on data pair and spare pair. It has got separate PD Signature verification over both of these pairs.

The below figure shows the connections to two PEM 1200 modules.

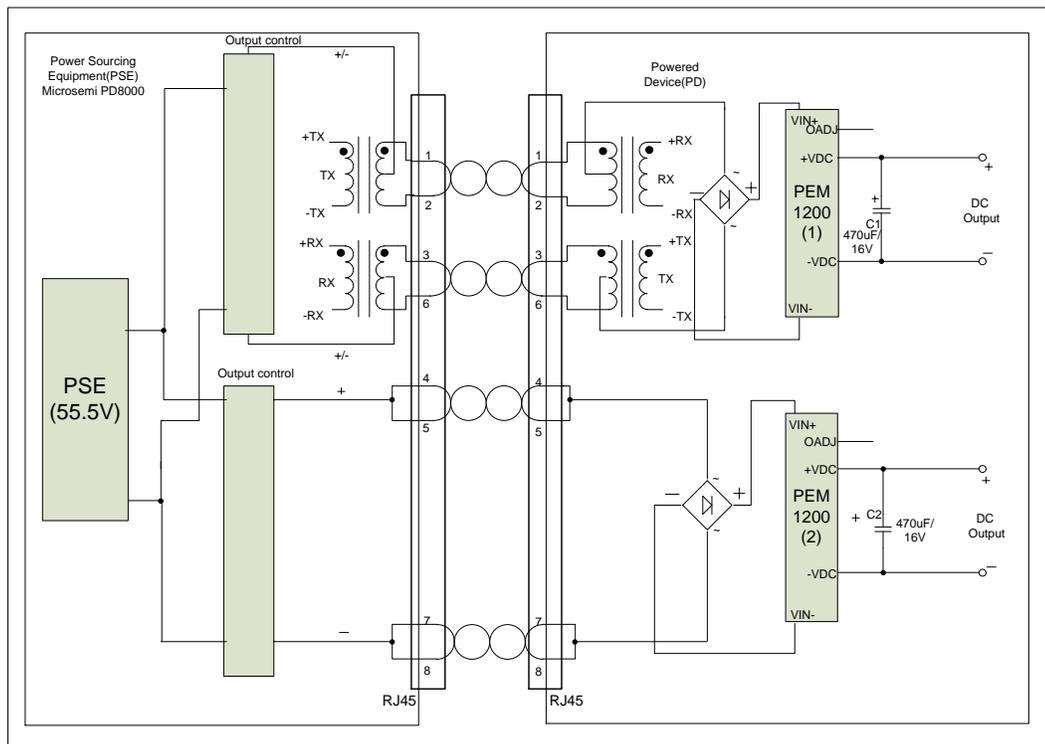


Figure.1 PD with Microsemi PSE equipment

Microsemi PSE (PD7000) connected to two PEM1200:

Microsemi PSE PowerDsine 7000 is a high power PSE which delivers 55V@570mA, but only on the spare pair. It has got POE PD Signature verification over only the spare pair.

Hence, two PEM1200 cannot be just connected parallel to the spare and data pairs respectively. The two modules can be connected by connecting a relay at the output of PEM 1200(1).

The signature verification occurs for first module and it gets switched on. After a short delay the second module gets switched on, which does not require signature verification.

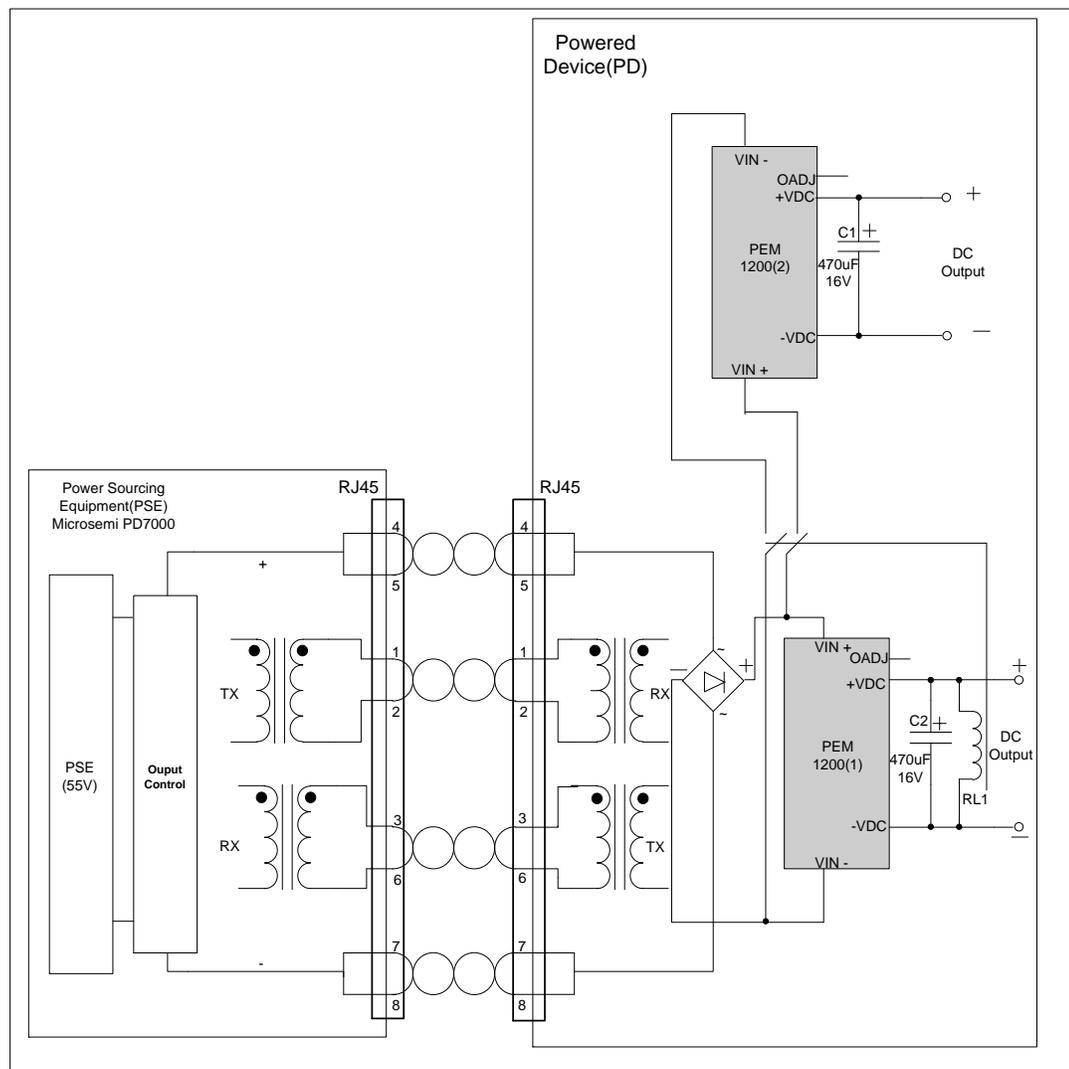


Figure.2 PD with Microsemi PSE equipment

Phihong PSE connected to two PEM1200:

Phihong POE36U-1AT is another high power PSE which delivers 56V@600mA, but only on the data pair. It has got POE PD Signature verification over only the data pair.

Hence, two PEM1200 cannot be just connected parallel to the spare and data pairs respectively. The two modules can be connected by connecting a relay at the output of PEM 1200(1).

The signature verification occurs for first module and it gets switched on. After a short delay the second module gets switched on, which does not require signature verification.

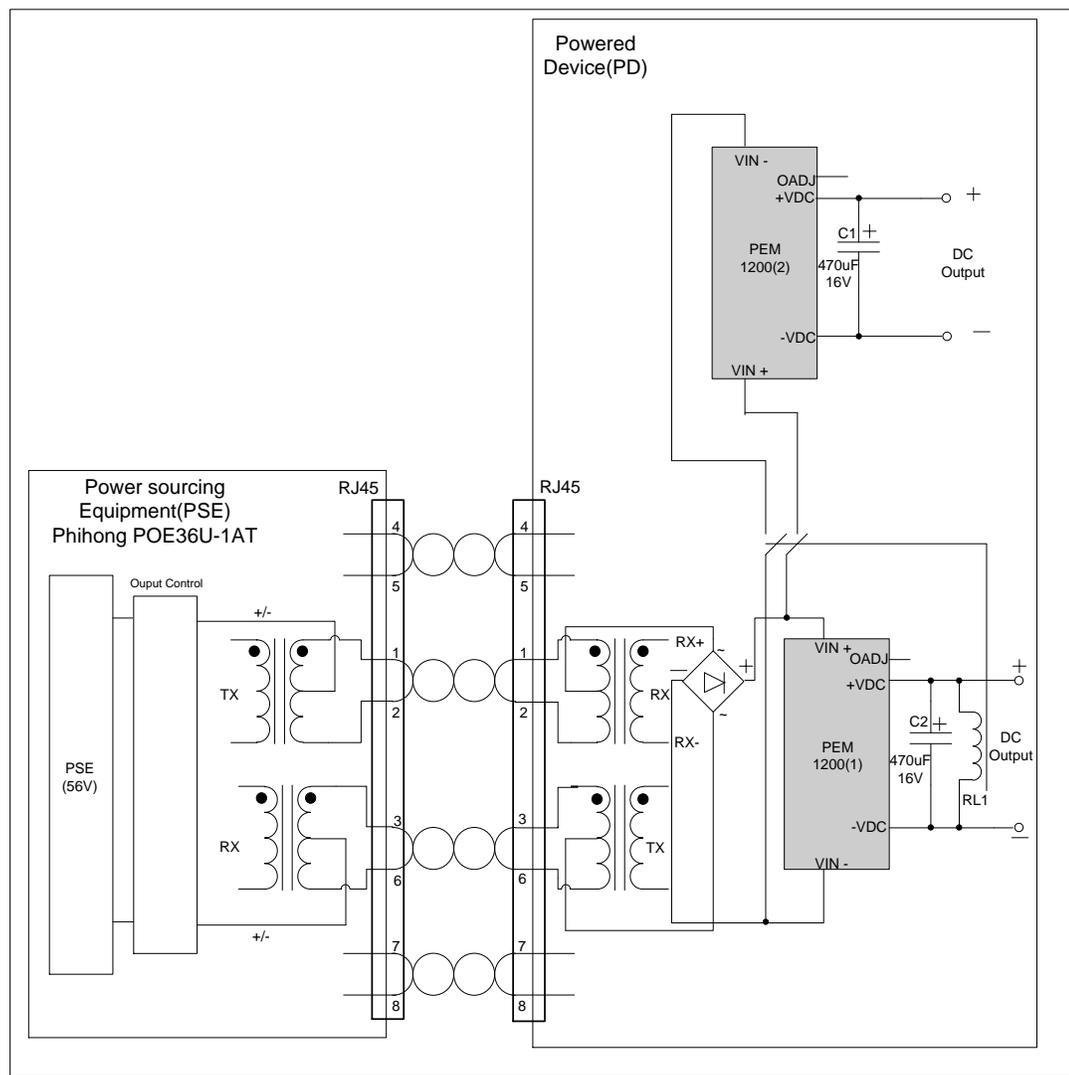


Figure.3 PD with Phi Hong PSE Equipment

Time Delay Curve

The relay causes delay of approximately 5ms and the PEM 1200(2) takes about 7 ms time to power up. So that totally the delay time would be about 12ms after PEM 1200(1) is powered up.

The below Fig 3 gives an idea of delay.

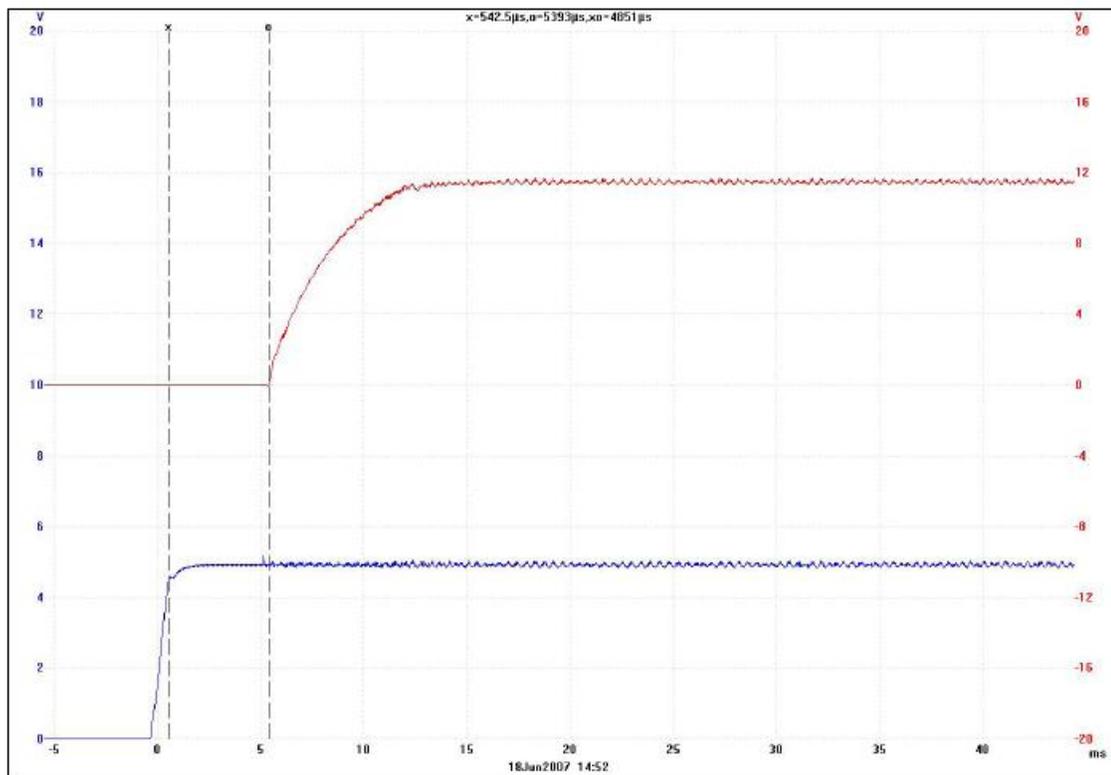


Figure.4 Time delay curve

Provision for both Microsemi and Phihong type PSE connections

The target device designs can have provision for dual module connection to use either with Microsemi or with Phihong PSEs.

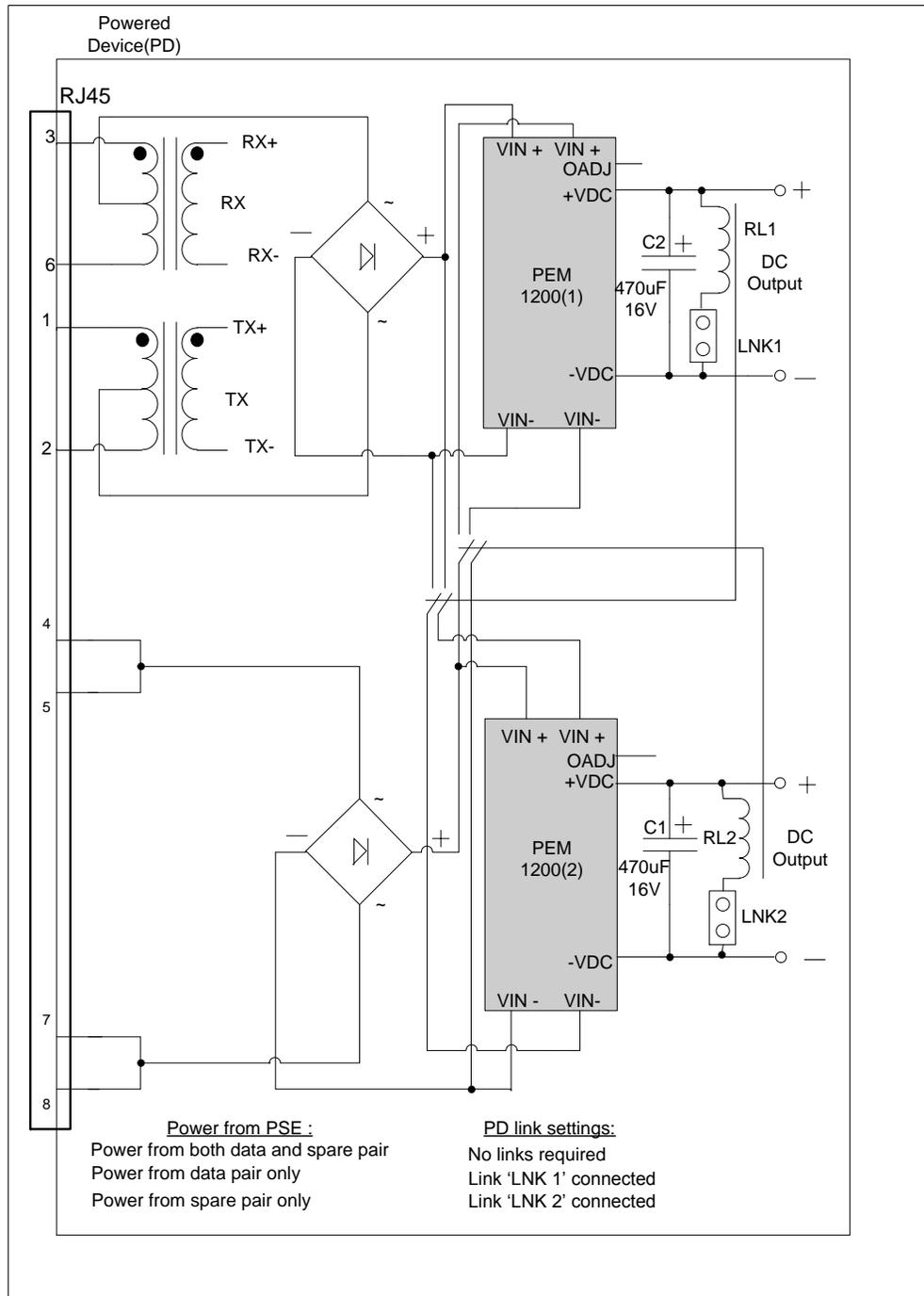


Figure.5 Combination of two PD's for Dual Supply

PEM1200 in Series or Parallel connection

The PEM 1200 can either be connected independently as shown in the above figure 1, 2 and 3, or connected together in series and parallel as shown in the below diagram.

In case of parallel connection, it is not recommended for high current applications due the unequal sharing of current between the two modules.

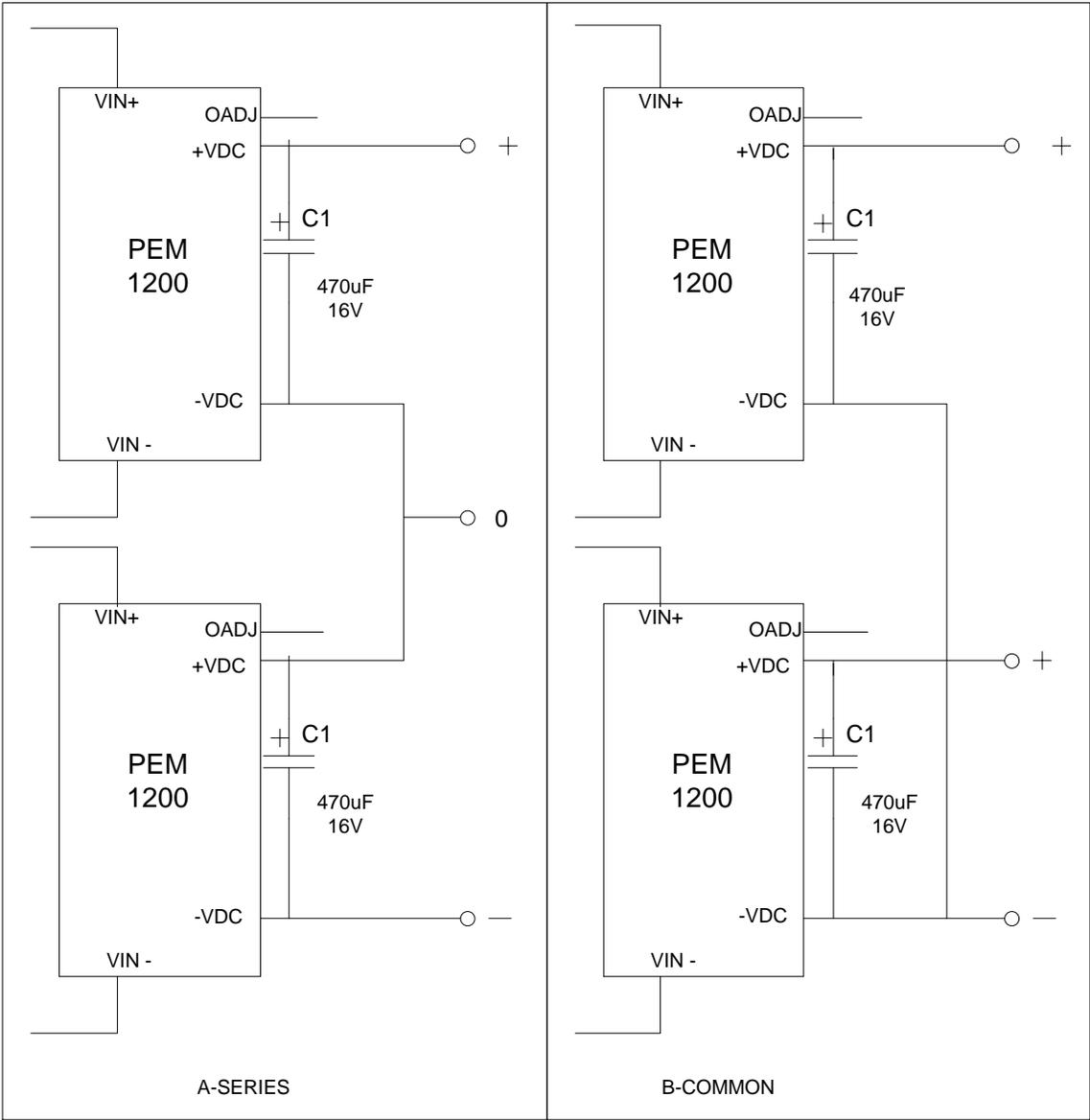


Figure.6