

## PN TRAY DATA SHEET

The ever increasing demands for greater process control, efficiency and continuity of supply has led to a massive increase in the amount of electrical plant that produces harmonic current. Where the load of a building contains a significant proportion of harmonic loading (the industry rule of thumb is 20% or more of installed capacity), the application of power factor correction needs careful consideration.

When capacitors are connected to a power system they form a tuned circuit with the system impedance, which in an LV system is dominated by the impedance of the transformer. This tuning is of no consequence where the load contains little or no harmonic producing plant. However, if there is a significant harmonic content to the load current and the natural tuning frequency of the system coincides with one of the major harmonics then significant magnification of the load current harmonics can occur resulting in extra stress being placed upon both the power factor correction and the supply transformer. The increase in harmonic voltage distortion caused by the harmonic magnification is imposed upon all connected load, potentially placing all load under greater stress.

In order to cater for this scenario, PFC Engineering can offer a power factor correction module incorporating detuning reactors that will allow connection of capacitors onto a harmonic rich environment without any detrimental effect to either the capacitors or the supply.

The standard PN tray (see Figure 1) can accommodate up to 50 kVAr of power factor correction and incorporates the appropriate control gear and protection.

All that is required for connection is 100 A rated conductors to be connected to the top of the fuse base and control cables to the contactor coil. Figure 2 shows the dimensions of a PN Tray incorporating 50 kVAr of power factor correction. The example shown is configured as 1 x 50 kVAr step but a 2 x 25 kVAr step configuration is also available.

In addition to the 50 kVAr PN tray, a 100 kVAr (2 x 50 kVAr) version is also available. Due to the weight of the reactors, this version is not often used but in applications where space is at a premium a high density of correction can be achieved. Due to the heat generated by the detuning reactors it is important that forced air ventilation is incorporated into any cubicle containing detuned PFC. We would recommend that a 150 mm fan is used per 100 kVAr of installed detuned power factor correction.

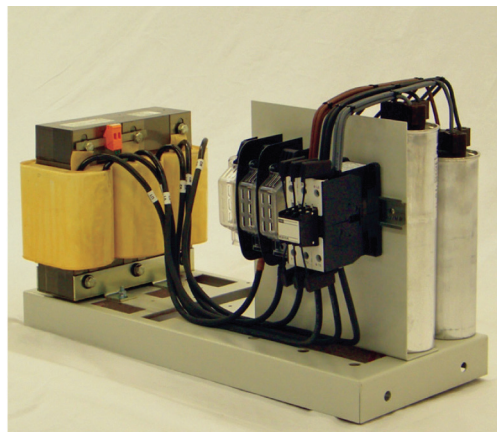


Figure 1: 50 kVAr PN power factor correction modules

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Layout drawing

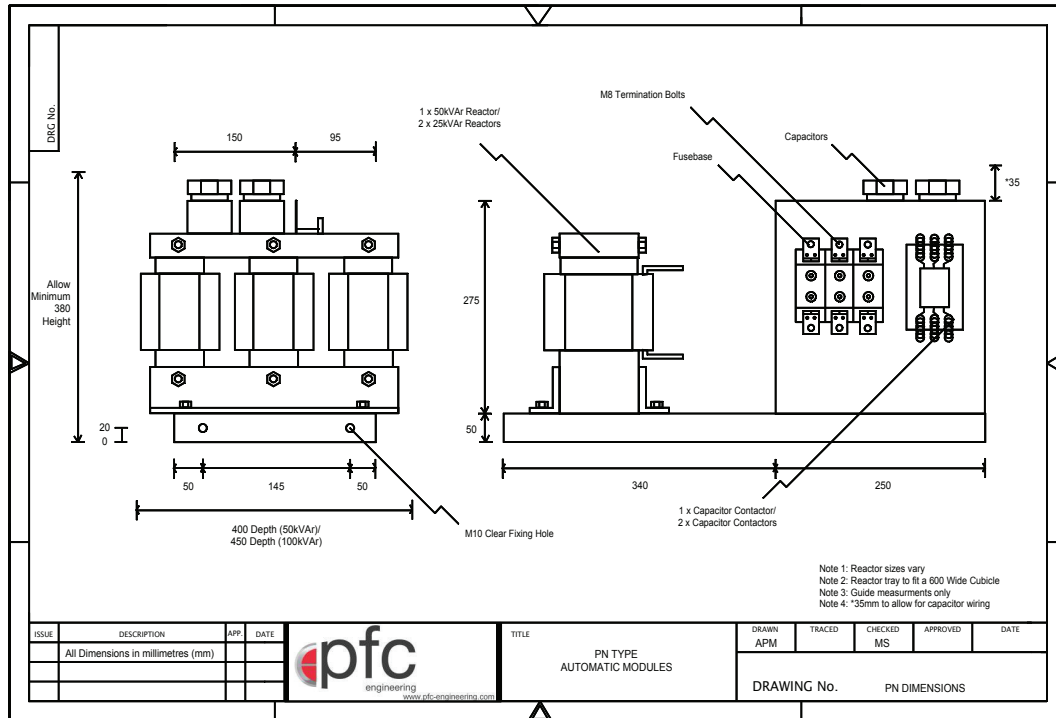


Figure 2: Dimensions of PN Tray incorporating 50 kVAr of power factor correction

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