



PBX System Flexible Telephone System



Fast
Prototyping



Small Size,
Low Profile



PCDM

The Customer's Challenge

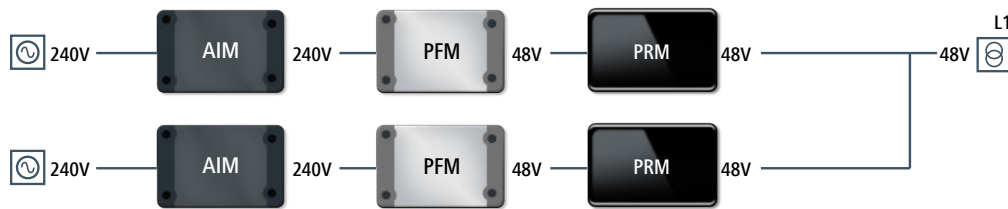
We worked with a customer to upgrade their existing PBX system, designed to work from the typical 48V_{DC} telecom voltage, to meet customers' requests for a redundant dual AC input version. An upgraded version of the existing DC-DC converter would not fit into the available space and a new design was needed. The challenge was to offer the AC option within a very short time frame without the risk and long design-in cycles of a custom solution.



The Solution

Time was one of the critical factors as the customer wanted to have a solution quickly, without going through a long design cycle. By using the Power Component Design Methodology the customer was able to design and analyze a solution based on PFM isolated AC-DC converters and PRM DC-DC regulators very quickly. All critical factors like efficiency, size and losses could be checked immediately and with the fast prototyping service from Vicor the customer was able to physically build the first prototype a few days later.

[Link to Whiteboard »](#)



The Results

Due to the extremely low profile of the PRM (just 9.4mm high) it was possible to design a redundant dual AC line input version that fitted into the limited space used for the previous DC version. The high efficiency of the PFMs and the PRMs kept the overall losses below the losses of the previous DC input only solution. No change in the thermal management was needed and temperatures in the system remained within the previous ranges.

Product Family Key Specifications

PFM™ Isolated AC-DC Converters with PFC

Input Voltages	Universal rectified: 85 – 264V _{RMS}
Output Voltages	24V and 48V isolated and regulated outputs
Output Power	400W
Efficiency	Up to 92%
Power Density	≥127W/in ³
Dimensions	PFM 4414: 111 x 36 x 9.4mm PFM 4914: 125 x 36 x 9.4mm

PRM™ Regulator Module

Input Voltages	48V, (36 – 75V)
Output Voltage	48V
Output Power	Up to 600W
Efficiency	Up to 97%
Dimensions	32.5 x 22.0 x 6.73mm