



# MODULAR POWER-CONVERSION SYSTEM

## Solution 1 - Diode-based architecture

### Technological advantages

#### Simple/modular

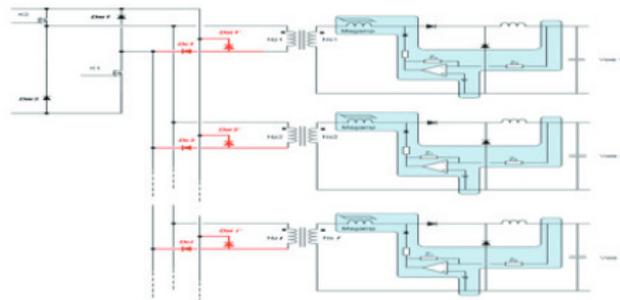
Simplification of DC-DC converters.  
 Modular system.  
 Two stages: primary then post-regulator.  
 Requires fewer parts.  
 Easy to integrate in complex specifications.

#### Robust

Very robust, better guarantee against wear.  
 Stable power supply for all output.

#### Optimisation of power supply

Minimum loss of power.  
 Attractive modular electrical power conversion system for very low voltages.  
 A single primary stage followed by simplified post-regulator stages.  
 Independent galvanic insulation for each output (between primary and secondary and also between the different secondaries).



Diode-based architecture

Modular power conversion system from an asymmetrical bridge power converter.

### Summary of the invention

Linking transformers in parallel is incompatible with an asymmetric bridge system (saturation of transformer, losses, malfunctions).  
 The aim of this invention is to make a simple electrical power conversion and distribution system which overcomes this difficulty. It consists of the simplest possible multi-output power-conditioning system with galvanic insulation of the primary and secondary parts. It is extremely robust in the event of short-circuits and is very easy to implement. The invention is built using a diode-based architecture.

### Potential applications

Space applications, avionics, automotive, train, scientific instrumentation and equipment.

### Complementary inventions

Leaflet B 1126 - Modular power conversion system - Solution 2: Architecture with independent switches.

### Commercial advantages

#### Simplified development

Solution for creating partitioned computers at the least cost while avoiding complete, complex and costly recompiling of middleware when porting to a new hardware platform  
 The impact of evolution of the hardware platform input-output is concentrated at the level of the input-output drivers  
 Accelerates the maturity curve for client application partitions

#### A universal solution

Simplified portability  
 No space field-type specifications

TRL : 4-5

Patented invention available under licence