



## Benefits

- **High power density**
  - Up to 130 W/in.<sup>3</sup>
- **Rapid product development**
  - AC-DC, DC-DC or DC-AC
  - Bi-directional functionality
  - Current or voltage source
- **Scalable design**
  - Series and/or parallel operation
  - Fiber optic communication
  - Standard building blocks
- **Flexible architecture**
  - Rapid software and parameter configuration
  - Serial and CAN protocols
  - Expandable
- **Programmable**
  - Software application modules
  - One unit does multi-functions
  - Remote programmability
- **Self-supportive**
  - Powered from DC bus
  - Integrated protection
  - Fault annunciation
- **Grid interconnectivity**
  - 50/60 Hz
  - Grid disturbances ride-through
- **Easy to use**
  - Graphical User Interface (GUI)
  - Remote communication
  - Self-protected
  - Connect-and-Go

# PowerModule™ PM1000 System Developer Kit

*The New Standard in Power Conversion Technology*

## What is the PM1000 System Developer Kit?

The PM1000 PowerModule™ System Developer Kit (SDK) allows OEMs, VARs, system integrators and end-users to quickly develop hundreds of custom applications. The SDK allows you to communicate with multiple PM1000 converters, program and modify any of the four standard software applications loaded in the PM1000 converters through a PowerModule graphical user interface (GUI).



The PM1000 SDK combines one or more PM1000 PowerModule power converters with application software and a graphical user interface for rapid development of power conversion systems.

As a result, a system of multiple PM1000 converters can be quickly and easily programmed and configured to address a wide range of applications and provide a platform for rapid development of high power converters and systems giving you the ability to rapidly develop new products of your own.

## Operational Description

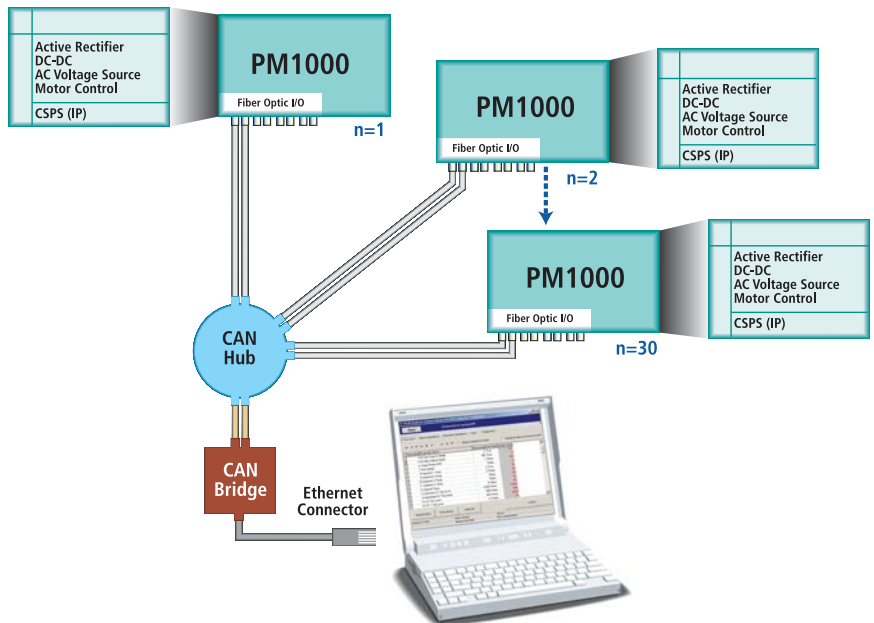
The PM1000 converters can be programmed and configured to support any of the following power conversion types: AC-DC, DC-DC, DC-AC or AC-AC. The PM1000 converters can be loaded with one of four standard software applications (Active Rectifier, DC-DC, AC Voltage Source or Motor Control).

The GUI software provides a human machine interface on a user's computer for communicating with one or more PM1000 converters. Programming, setting up the PM1000 parameters, passing parameters back to the user interface for display and/or calculations and control of the system by the operator are performed through the GUI. Set points can be input by either the keyboard or by a mouse using click-and-drag controls. These user-settable parameters allow quick customization of performance parameters and can be changed in real time. Metered parameters can be viewed in real time on the parameters list screen.

Communications between one or more PM1000 converters and the GUI is coordinated through high speed controlled area network (CAN) communications and handled through fiber optic links that provide high noise immunity. Communication with PM1000 converters is possible without DC bus power using the PM1000 controller auxiliary power supply.

Integration of customer specific proprietary software (CSPS) into the PM1000 power converters is achieved through AMSC's PowerModule Advanced Configuration Tools (P-ACT™). The P-ACT tool set provides an application programming interface (API) that allows engineers access to PM1000 parameters and communication objects. The P-ACT tool set development framework allows automatic linking of customer code with AMSC's core software and real-time control of standard software applications at a 4 kHz rate.

Software and hardware warnings are provided in real time to the user through the GUI. A fault log screen provides a detailed fault history with each recorded fault time stamped.



### Each PowerModule PM1000 Converter System Developer Kit includes the following:

- One or more PM1000 power converters
  - Air or liquid cooled
  - 3-pole or 6-pole
- Application software
  - Active Rectifier
  - DC-DC
  - AC Voltage Source
  - Motor Control
- Graphical User Interface (GUI)
- Communication hardware
  - CAN Hub with fiber-optic cable
  - CAN bridge cable
  - Ethernet to CAN interface
- Auxiliary Control-Power interface (ACP)



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