

## SMART POWER MANAGEMENT UNIT (SPMU)



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The SPMU is a multi-channel 28VDC power controller that is capable of power management and diagnostics. The SPMU is conduction cooled, microcontroller-based, Solid State Power Controller (SSPC), designed with Line Replaceable Module (LRM) characteristics for military and commercial applications. Each of the 32 channels of the SPMU has software-programmable current ratings and can operate in groups. The design has integrated current, temperature and voltage sensing and no derating over temperature. Parameter measurements, system status information, and control commands are implemented over CAN and Ethernet bus interfaces.

**Current Protection** - Similarly to the traditional electromechanical circuit breakers, the SPMU protects electrical circuits by closely controlling the I<sup>2</sup>t factor.

**Channel Paralleling** - Multiple individual channels can be paralleled in order to handle large current loads. The current rating is calculated as the sum of the individual channel ratings.

**Health Monitoring** - The SPMU provides current, voltage (input and all outputs) and temperature measurements. This data can be used to monitor electrical loads and perform tasks such as diagnostics, prognostics and condition-based maintenance.

**Smart Management and Distribution** - The SPMU provides “smart” functionality such as alternate channel control, additional I/O control, alarm/fault reporting, on-board diagnostics, loss-of-com states, load shedding, reprogrammability, plug and play swapping, configurable in the field, and other higher-level power management functions.



SPMU

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## FEATURES

- 32 Electrically-Protected Channels: 32 – 10A Rated Channels
- Total Switching Capacity 160A (220A peak)
- Programmable ratings from 1.0A to 50A
- Grouping of channels: 1 to 5 of 10A channels up to 50A
- Configurable embedded diagnostics
- Max power dissipation less than 40W
- True I2t and thermal memory protection
- Trip-Free Reset Circuit
- Current, Temperature, Voltage Readings
- 10% Accuracy of Programmed Rating
- Factory Calibration (no User Calibration)
- Controlled Turn-On/Off to Reduce EMC
- Trip Disable and Maintenance modes
- Power-up and continuous Built-in-Test
- Isolated Electrical Control Circuit
- Output Transient Protection and NED
- On-Board, Non-Volatile Memory
- Data Storing and Integrity
- Re-Programming via CAN bus or Ethernet

## APPLICATION AREAS

The SPMU is ideal for use in Power Management and Distribution applications in the following markets:

- Military Ground Vehicles
- Unmanned Aerial Vehicles
- Marine Vessels
- Test & Industrial Equipment
- Communication and Command Centers
- Energy Exploration Equipment
- Off Highway and Heavy Duty Vehicles
- Medical Emergency Vehicles

## INPUT POWER

- Normal Mode operation compliant with provisions for starting disturbances
- Reverse polarity protection
- Line-to-case isolation greater than 1.0 Megohm DC resistance
- Power startup time less than 5 seconds
- Nuclear Event Detector
- MIL-STD-1275D 28VDC Input

## INPUTS/OUTPUTS

CAN Interfaces	One J1939 complaint
Ethernet Bus	IEEE 802.3
Discrete I/O	<ul style="list-style-type: none"><li>• 4 Channel Control Inputs (Op/Gnd)</li><li>• 10 Vehicle ID Inputs (Op/Gnd)</li><li>• 4 Open/Gnd Outputs</li><li>• 2 28V/Open Outputs</li><li>• 4 Configurable Inputs (Op/Gnd or 28V/Op)</li></ul>

## ENVIRONMENTAL

Temperature, operating	-40°C to +71°C; Combinational Operating
Temperature, storage	-51°C to +85°C
Vibration	Random and Loose Cargo
Shock	Functional, Transit Drop, and Bench Handling
Humidity	0 to 95% RH for 10 cycles
Water Tightness	Immersion and Jet Spray
EMI	CE-102, CS-114, RE-102, CS-115, CS-101, RS-103

## PHYSICAL

Weight	19.0 Pounds
Dimensions	14.2W x 4.3H x 10.2L (inches)

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