

POWER MANAGEMENT MODULE (PMM16)

1. GENERAL DESCRIPTION

Hardware

The PMM16 is designed to replace conventional relays, fuses and circuit breakers, simplifying wiring and reducing weight, while increasing reliability. The overall physical configuration of the PMM16 is shown in the photo below. The PMM16 comprises board mounted interface connectors, conformal coated board, encased in an aluminium billet machined case.



Software

The PMM Manager software is a Windows application which enables programming of the PMM16 to customise power management functionality for specific applications, monitoring the PMM's operation, and test outputs by manually turning them OFF and ON.

Part Number: M14106A

2. FUNCTIONAL DESCRIPTION

The MoTeC PMM16 provides electronically switched power to the various electrical systems in a vehicle, such as motors, lights and solenoids, and electronic devices such as ECUs and data acquisition systems. The PMM16 has fully programmable output control using complex conditions based on input switch states, output states, output diagnostics and CAN messages, including time qualification of conditions.

3. FUNCTIONAL SPECIFICATIONS

The PMM16 has 16 outputs, with each output having over-current protection, and can be controlled via a combination of switch inputs, CAN messages and logic functions. In addition to performing simple functions such as flashing indicator lights, the logic functions can be used to selectively turn off systems during low battery voltage or engine starting, to reduce drain on the battery. The PMM16 also provides full diagnostic information,

including output currents and error status that can be monitored on a PC or transmitted via CAN to a display or logging device.

Control Logic Operations

The PMM16 allows for up to 200 logic operations, with the following operation types:

- Flash
- Pulse
- Set/Reset
- Toggle
- AND, OR, XOR
- <, >
- NEQ, EQ

Outputs

The PMM16 outputs have the following overall configuration:

- 8 x 20 A outputs—20 A continuous, 115 A transient (typical)
- 8 x 8 A outputs—8 A continuous, 60 A transient (typical)
- Outputs may be paralleled for higher current, have programmable over-current shutdown with wire thermal modelling and allowance for in-rush current, short circuit protection, thermal overload protection, and programmable auto retry on fault and a master fault reset facility.

Switch Inputs

The PMM16 has 12 switch inputs, with programmable trigger levels and de-bounce times, and low current through switches.

Communications

- CAN Input from up to 4 sources
- CAN Output, including output currents, output voltages, diagnostic states and input states.

Diagnostic Information

- Output current, voltages and status
- Input voltages and status
- Error status

Protection

Protection includes reverse battery and load dump protection for the PMM and all connected devices.

Physical

The PMM16 is enclosed in an aluminium billet machined case, with rubber seal on the lid and connectors. Connectors are:

- 1 x 26 pin MIL SPEC / Autosport connector
- 1 x 1 pin MIL SPEC / Autosport connector
- 1 x 8 pin MIL SPEC / Autosport connector

4. TECHNICAL SPECIFICATION

Specifications			
General		Power Outputs	
Operating Temp.	Internal 110° max, (100° C recommended) for 12 V, for 24 V reduce specified temps. By 20°	20 Amp Outputs	Qty 8 x 20 A, max. Output 20 A continuous & 115 A Transient (Typical)
Storage Temp.	-30 ° C to 110 ° C	Inductive load clamp voltage	- 17 V (relative to Batt.)
Salt, Fog, Sand, Dust	Resistant – unit 100% enclosed & electronics board is conformal coated, rubber seal on lid & connectors	Maximum inductive load energy	1.5 J (junction temp. = 150°C, load current = 20 A)
Humidity	Circuit board conformal coated and inside sealed unit	8 Amp Outputs	Qty 8 x 8 A, max. Output 8 A continuous & 60 A Transient (Typical)
Shock	Ruggedised fully solid state – test to application	Inductive load clamp voltage	Output 9: -0.7 V (relative to Batt.) Other Outputs: – 42 V (relative to Batt.)
Vibration	Ruggedised fully solid state – test to application	Maximum inductive load energy	0.3 J (junction temp. = 150°C, load current = 20 A)
EMI/EMC	MIL-STD-461 Test to Application	Over-current Shutdown	Programmable in steps of 1 A
CAN Outputs-Channels Transmitted	Output Current, Output Load, Output Voltage, Output Status, Input Voltages, Input State, Battery Voltage, Internal Temp., Total Current	Protection	Short circuit and thermal overload protection Load Dump Transient Protection for PMM
Environmental	MIL-STD-810 Test to Application	Power Protection	Protection for PMM & all connected devices
Input / Output Interface	CAN Data BUS	Inputs	Qty 12
Connectors	MIL SPEC / Autosport	Power Input	6.5 to 30 volt DC
External PC Interface	MoTeC USB to CAN (UTC) connector	Power Consumption	35 mA typical operating, 5 mA typical standby
Enclosure	Aluminium machined billet, black anodised	Total Output Current	100 A continuous
Dimensions (WxHxD)	5.1 x 2.4 x 1.1 in (130 x 60 x 28 mm)		
Weight	0.72 lbs (330 g)		

All specifications are subject to change without notice.
For additional information contact MoTeC Pty Ltd.