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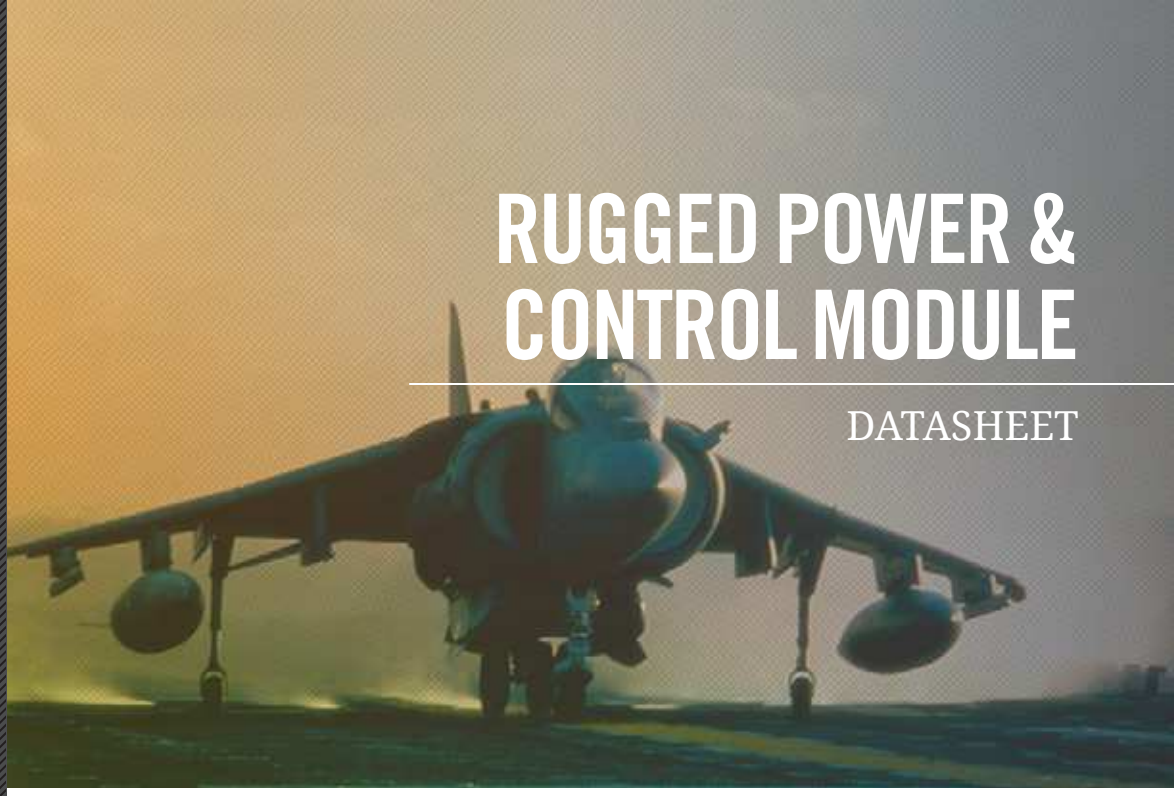
RUGGED POWER & CONTROL MODULE

DATASHEET



BENEFITS

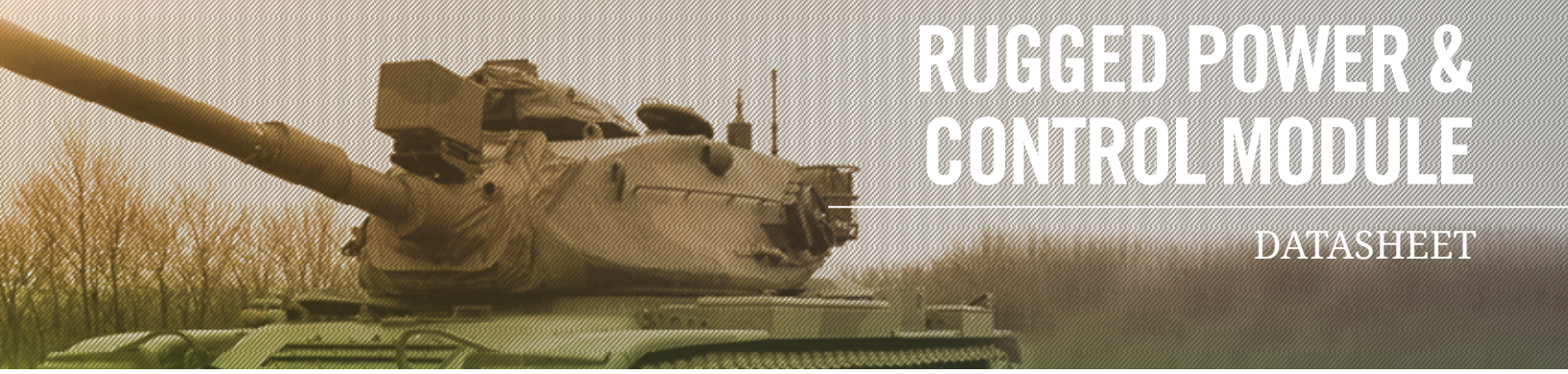
- Rugged extended temperature power & control module (-40° C to 85° C) for air-cooled and conduction-cooled applications
- Programmable management of power supplies, voltages, sensors, fans, digital inputs/outputs, reset, PWM outputs, real-time clock, status indicators, control switches
- Ethernet (IEEE 802.3), USB, RS-232, I²C, with provisions for CANbus, redundant
- RS-232 and SPI
- Battleshort override

OVERVIEW

The Atrenne Controls Defense Solutions Power and Control Module (PCM) board is a rugged intelligent system monitor board that provides high level control and bridging to a system host via multiple avenues: Ethernet (IEEE 802.3), USB, RS-232 and CANbus. The PCM contains onboard software and logic to autonomously manage a computing enclosure or platform. It can also serve as the chassis management system in a PMBus based chassis management system controlling fan controller boards (FCBs) and intelligent power supplies. The PCM is designed to monitor and control various chassis levels elements, including power supplies, fans, displays, front panel controls and indicators. It can also interactively enable/disable chassis payload power systems, direct external/internal connected devices, and issue controlled system resets with the communication or switch interfaces. With the rich management feature set, combined with FCB's, the PCM is modular and extensible to adapt to specific system requirements, and is suitable for military and commercial use.

FEATURES

- Rugged extended temperature power & control module (-40° C to 85° C) for air-cooled and conduction-cooled applications
- Programmable solutions for power supplies, thermal sensors, fans, humidity sensors and general purpose I/O
- User and administrative levels of configuration parameters
- User and administrative levels of password protection
- Ethernet (IEEE 802.3), USB, RS-232, I²C, with provisions for CANbus, redundant RS-232 and SPI
- DHCP, NTP, Telnet and PMBus protocols
- Wide operating range, -40 ° C - +85 ° C
- Wide input voltage range, 10VDC - 36VDC per MIL-STD-704E, MIL-STD-1275D; input voltage not isolated from logic ground
- Management of up to 4 Atrenne Controls Defense Solutions fan controller boards



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- Designed to meet MIL-STD-810G, MIL-STD-461F and MIL-STD-704E when incorporated into a chassis enclosure which meets these requirements
- Battleshort override
- External I/O over current protection
- The PCM can manage up to:
- 16 power supplies
- 16 independent voltages
- 16 temperature sensors
- 16 fans
- 1 humidity sensor
- 16 general purpose inputs
- 16 reset controls
- 8 general purpose outputs
- 3 PWM outputs
- 1 real time clock
- 20 status indicators
- 4 control switches

Note: some hardware resources are shared across multiple logical functions (see table 3).

Figure 1: The Power & Control Monitor Block Diagram

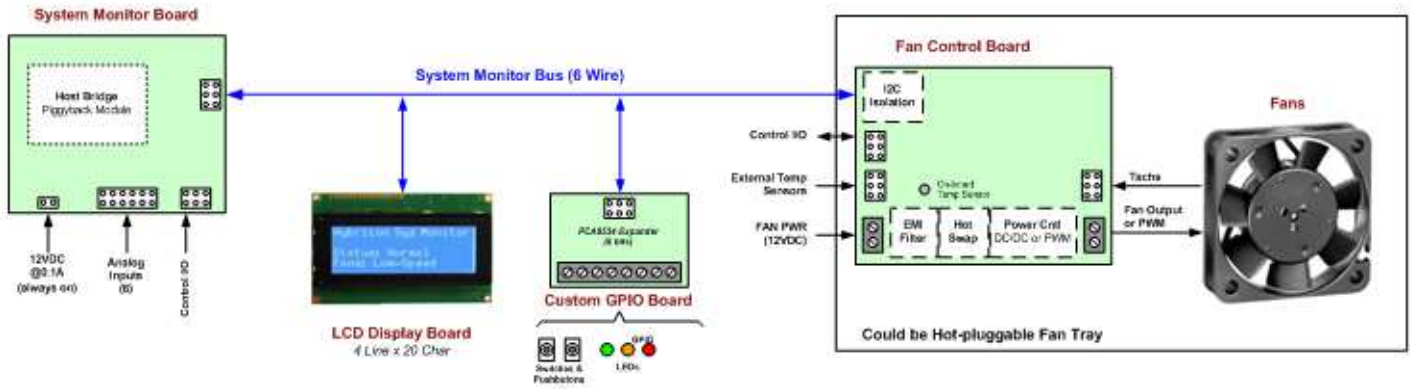

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TABLE 1: POWER & CONTROL MODULE SPECIFICATIONS

PHYSICAL	
Width	3.050 inches (77.47 mm)
Height	1.5 inches (38.1 mm)
Depth	6.35 inches (161.25 mm)
Power Input	10 – 36 VDC. Meets MIL-STD-704E, MIL-STD-1275D. Input voltage is not isolated from logic ground.
Total Power	3 Watts
Security	2 levels of password protection
Built In Self Test (BIST)	Built in self test to determine that the module is functional
Firmware Updates	In-system programmable
Fan Control	Controls up to (4) C-W fan controller boards – 16 fans
Auxiliary Voltage Output	Sources 5 VDC @ 500 mA for powering devices on SMBus

TABLE 2: ENVIRONMENTAL SPECIFICATIONS

ENVIRONMENTAL SPECIFICATIONS	
Operating Temp.	-40° C to 85° C
Storage Temp.	-55° C to 85° C
Altitude	MIL-STD-810G, Method 500.5, procedure II, Operation/Air Carriage
Humidity	MIL-STD-810G, Method 507.5, procedure II, aggravated RH 85% +60 degrees C (Note 1)
Fungus/Salt Fog	MIL-STD-810G, method 508.5, procedure I, fungus and MIL-STD-810G, method 509.5, procedure I, salt fog
Shock/Vibration	MIL-STD-810G, method 514.6, vibration and MIL-STD-810G method 516.6, shock
Explosive Atmosphere	MIL-STD-810G, method 511.5, procedure I
Safety	UL1950 (SELV) CSA22.2, EN60950
EMC	MIL-STD-461F, method CE102 (Note 2)

Notes:
1. Conformal coated board will meet relative humidity of 95%.
2. Assumes that the PCM is included within the confines of a chassis enclosure to meet a Faraday cage environment so all other emission requirements are met.

TABLE 3: POWER & CONTROL MODULE SPECIFICATIONS

PHYSICAL	
PART NUMBER	DESCRIPTION
L-APC00030	Rugged power & control module (PCM)

Notes:
1. These products are available for integration into Atrenne chassis level products and solutions. Contract factory for separate purchase of power & control modules; availability for separate purchase (not integrated into a chassis) is subject to minimum quantity orders and annual support contracts.
2. Contact factory for conformal coating versions.
3. Contact factory for conduction-cooled versions.

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TABLE 4: SYSTEM CONTROLLER RESOURCES

				RESOURCE QUANTITY (HARDWARE)	VOLTAGE	TEMPERATURE	HUMIDITY	GP INPUT MONITOR	FAN	EXTERNAL UNIT CONTROL (4)	PWM CONTROL (4)	POWER SUPPLY CONTROL (4)	RESET CONTROL	REAL TIME CLOCK	RUN TIME CLOCKS	ERROR LOG	BUILT IN TEST (BIT)	STORAGE OUTPUT	GLOBAL STATUS	SHOCK SENSOR (8)
RESOURCE QUANTITY (SOFTWARE)					16	16	1	16	16	8	3	16	16	1	1	1	1	21	1	1
INDICATORS & STATUS	ETHERNET	CONSOLE (USB/RS-232)	LOW ALERT		√	√	√	√	√								√			
			LOW WARN			√	√		√								√			
			READING/SETTING (SENSOR)/(CONTROL)		√	√	√	√	√	√	√	√	√	√	√	√	√			
			HIGH WARN			√	√										√			
			HIGH ALERT		√	√	√	√									√			
			SNMP TRAPS		√	√	√	√	√								√			
	INDIVIDUAL STATUS OUTPUT				√ (1)	√	√	√	√			√								
	GLOBAL STATUS OUTPUT				√	√	√	√	√											
CONNECTIVITY (6)	OUTPUT		FORM AB SWITCH (350V, 120MA)	8(5)						8		8	8					8	1	
			OPEN DRAIN TO GND (60V, 120MA)	8(5)						8		8	8					8	1	
			OPEN DRAIN TO GND (60V, 120MA, WITH 10K PULL-UP)	24						8	3	16	16					21	1	
			PROGRAMMABLE POLARITY							√		√	√					√	√	
	INPUT		DIGITAL INPUT (2KV ESD WITH 10K PULL-UP TO 5V)	20(7)				16				1(2)	1(2)							
			ANALOG TO DIGITAL CONVERTER (ADC)	16	16	16	1													
			SMBUS 5.0V (500MA SHORT CIRCUIT PROTECTION)	1		16											√ (3)			
			PC BUS 3.3V (500MA SHORT CIRCUIT PROTECTION)	1		16											√ (3)			
			SPI (8)	1																1

Notes:
1. One output per voltage monitored.
2. Input for external trigger (switch).
3. Over current protection included with BIT.
4. State persistent through power cycle.
5. Hardware population mutually exclusive, open Drain to GND requires special build.
6. Software resource quantity may not exceed hardware resource quantity.
7. Input comprised of 16 dedicated to input monitor and 4 for input switches.
8. Hardware provisions only.

WARRANTY

This product has a one year warranty.

CONTACT INFORMATION

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