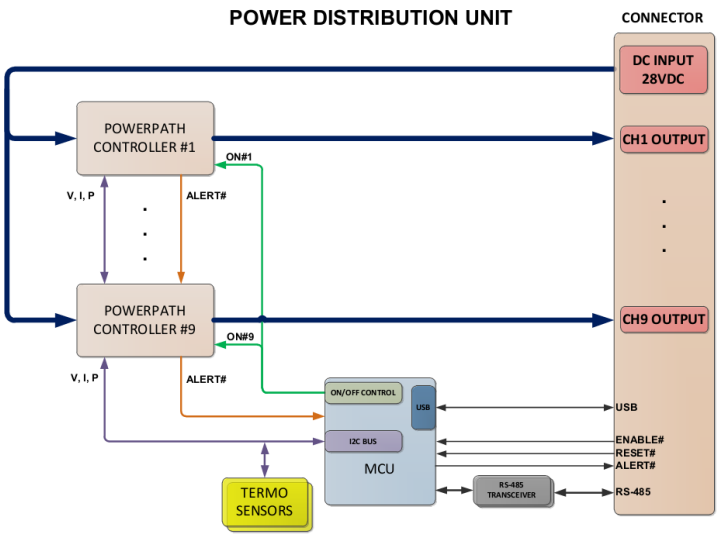
Datasheet

preliminary

POWER DISTRIBUTION UNIT



Key Features:

- 28VDC Continuous Input Voltage
- Nine independent channels
- ON/OFF capability for each channel
- Trip current capability for each channel
- Trip Reset capability
- Channel sequencing with user defined delays
- Dual RS485 interfaces for control
- Measurements of Input voltage, output voltage, output current for each channel
- 12-/16-Bit ADC with ± 0.7% Error
- On board temperature of the Unit
- Trip/Fault Status (if Over Current / Short Circuit)
- Friendly GUI to set up and monitor

28VDC POWER DISTRIBUTION UNIT

Power Distribution Unit (PDU) primarily receives 28VDC power as input from the airborne platform and distributes it as same 28VDC to the subsystems having different current loads. The power input to the individual subsystem is controlled remotely through a set of commands, sent via the RS 485 interface.
The PDU is **conduction cooled** and suitable for use in **mission critical rugged applications**.

There are nine independent channels. Each of them is independently programmed for power ON/OFF capability. Power monitors used in each channel performs measurements of Current, Voltage, Power and Energy with 12-/16-Bit ADC with ±0.7% of total error. Programmable current limit has 2% accuracy. PDU provides MOSFET power, limiting with current foldback, continuously monitors MOSFET health, stores Minimum and Maximum measurements, alerts when thresholds are exceeded, provides input Overvoltage/Undervoltage protection.

PDU provides Channel sequencing with user defined delays. All settings and configuration are stored into internal EEPROM for nonvolatile configuration.

Overview	
P/N	**PCI_800.915**
Size	**Custom with MIL connectors**
Temp. Range	**-40 +85 C**
Input (AC or DC)	**DC**
Input Range (VDC)	**20-36**
# of outputs	**9**
Weight	**<2.5kg**

FEATURES	
Over-current Protection	**YES**
Over-voltage Protection	**YES**
Over-temperature Protection	**YES**
Dual R485 interfaces	**YES**
Extended Control	**YES, PCI Systems**

INPUT CHARACTERISTICS					
Parameter	*Min.*	*Typ.*	*Max.*	*Units*	*Notes*
Absolute Maximum Ratings					
Input Voltage					
- Operating	**20**		**36**	V	
Operating Temperature	**-40**		**85**	C	
Storage Temperature	**-55**		**105**	C	
Electrical Characteristics					
Under-Voltage Lockout					
- Turn-On Input Voltage Threshold	**18.5**	**19**	**19.5**	V	
Over-Voltage Lockout					
- Turn-Off Input Voltage Threshold	**35**	**36**	**37**	V	

CHANNEL RATING, TRIP CURRENT, CHANNEL CONFIGURATION DETAILS					
Parameter	*Min.*	*Typ.*	*Max.*	*Units*	*Notes*
Absolute Maximum Ratings					
Channel Current					
Channel 1, 2, 3			**30**	A	
Channel 4, 5, 6			**15**	A	
Channel 7, 8, 9			**10**	A	
Trip Current	**0**		**100**	%	User Programmable
Programmable delay in Channel sequencing			**60**	sec	

ENVIRONMENTAL QUALIFICATION: Unit is designed but not tested to meet the following specifications:		
Test Name	***Method***	
Vibration Test	At 1.0kg from 5Hz to 500Hz, Equipment to be Off	
	Random, Duration 1Hr	
	0.5K / 1.0g from 5Hz to 500Hz, Equipment to be Off	
High Temperature Storage cum Operational Test	From 35ºC to 70ºC diurnal cycle, Duration 7 cycles, 24 Hrs each cycle	
Low Temperature Storage cum Operational Test	From 27ºC to -45ºC , 2 cycles	
Humidity	From 30ºC to 55ºC with RH:95 TO 85%, 24 Hrs each cycle , No.of cycles: 10	
Low Pressure (Altitude)	Test I : 37,500 ft ~ 11.2 Km Altitude, Rate of altitude change ≤ 2000 ft./min	
Shock	Functional	Crash Safety
Severity Pulse shape No. of shocks Total of shocks	15g, 11 m sec Half Sine Pulse 3 shocks on each of 6 directions 18	30g, 11 m sec Half Sine Pulse 2 shocks in each of 6 directions 12
Acceleration	(X-Axis or Roll axis) before and after : 2.5g (Y-Axis or Pitch axis) up and down : 3.0g Test Duration 1.0 (ONE) minute after the specified "g" level reached DUT to be POWER ON during this test and possible critical parameters like current Drawn etc. to be Monitored Structural test levels is 1.5 times the Functional test levels Units are OFF during the test	
Fungus	Temperature : 30ºC ±2ºC RH : Not less than 95% Duration : 28 days	
Salt Fog	Salt concentration : 5% ±1% of salt solution 24 hrs exposure & 24 hrs drying constitutes one cycle Temperature : Standard ambient No. of cycles : 2	
Sand / Dust	Temperature : 23ºC ±2ºC RH : < 30% ±5% Air velocity : 1.5 m/s to 8.9 m/s a).Duration: 6 hrs at 23ºC ±2ºC Dust concentration : 10.6 ±7 gms/m3 b).Duration: 6 hrs at 55ºC ±2ºC Dust concentration : 10.6 ±7 gms/m3	
Transit Drop	MIL-STD-810F, Method 516.5 Procedure -VI	
Bench Handling	MIL-STD-810F, Method 516.5 Procedure -IV Hieght of drop : As per table 516.6-VI No.of Drops : 26 (1drop on each face , edge and corner)	

ENVIRONMENTAL QUALIFICATION: Unit is designed but not tested to meet the following specifications:	
Arrestor landing	Severity: 21g , half sine, 39ms or 30g , half sine, 30ms or 50g , half sine, 18ms or 100g half sine, 9ms No. of cycles 15 shocks in each of vertical and longitudinal axis. Duration between two shocks is >10sec. BOARDS are energized during the test, After each of 5 the performance of the Boards are to be shocks, verified.
Fluid Contamination	Test Fluid : Fuel DERD 2494 Hydraulic Fluid MIL-H-5606E Lub. Oil OERD 2497/MIL-L-7808 Test Temp : + 65ºC ±3ºC Duration : 7 days / Test Fluid
Rain Drip / Driving Rain	Driving Rain Test is performed on external LRU's and rain drop tests are done on LRU's installed inside the fuselage

RELIABILITY CHARACTERISTICS

Calculated MTBF per MIL-HDBK-217F (GB) at 70 deg C.2.500.000 Hrs.
Calculated MTBF per MIL-HDBK-217F (GM) at 70 deg C. 480.000 Hrs.

Pinout: **TBD**
Mechanical Dimensions: **TBD**

ORDERING INFORMATION:

PCI_800.915	28VDC Power Distribution Unit
PCI_800.915_C	Version with Conformal Coating

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