

M4162 SERIES

DC/DC HOLDUP UNIT



PRODUCT HIGHLIGHTS

- VITA 62 COMPLIANT
- 3U FORM FACTOR
- WIDE INPUT RANGE
- IPMI / 46.11
COMMUNICATION
- UP to 48J

M4162 SERIES VPX DC/DC HOLDUP UNIT

Electrical Specifications

DC Input

Up to 100V_{DC} Continuous work during MIL-STD-704 transients

Communication

IPMI / 46.11 protocol available for voltages

DC Output

VS1: Power
VS2: Power return
Normally: Input Follower
During Power loss: Output is Up to 85V

Efficiency

Typical 98%

Isolation

Over 20 MΩ at test voltage: 200V between Input & output to case

EMC

Complies with MIL-STD-461F (5μH LISN): CE101, CE102, CS101

Environmental

Design to Meet MIL-STD-810G

Temperature

Operating: -55°C to +85°C at unit edge
Storage: -55°C to +125°C

Altitude

Method 500.5, Procedure I & II
Storage/Air Transport: 40 kft
Operation/Air carriage: 70 kft

Salt Fog:

Method 509.5

Fungus

Does not support fungus growth, in accordance with the guidelines of MIL-STD-454, Requirement 4.

Humidity

Method 507.5, Up to 95% RH

Shock

Method 516.6
40g, 11msec saw-tooth (all directions)

Vibration

Shock: Saw-tooth, 20g peak, 11mS.
Vibration: Figure 514.6E-1. General minimum integrity exposure. (1 hour per axis.)

Reliability

239,210 Hours, calculated IAW, MIL-HDBK-217F Notice 2 at +85 °C, GF (Max Holdup).

Note: **Environmental Stress Screening (ESS)** Including random vibration and thermal cycles is also available.

Please consult factory for details.

Protections

Input

- **Inrush Current Limiter**
Peak value of 5 x I_{IN} for initial inrush currents lasting more than 50μSec.

• **Under Voltage**

Unit shuts down when input voltage drops below 11± 0.5V_{DC}.
Automatic restart when input voltage returns to 12V Line.

General

- **Over Temperature Protection**
Automatic shutdown at internal temperature of 95 ± 5°C.
Automatic recovery when temperature drops below 90 ±5°C.

Note: Thresholds and protections can be modified/removed (please consult factory)

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Normal Operation: During Normal Operation, the M4162 works as an Input follower. Small Voltage drop, of less than 1V is expected

Hold Up Operation: When Voltage at the input of the unit, drops below 18V, the Holdup will discharge it's internal capacitance into the DC Bus. During this time the M4162 output voltage will rise up to 85V and will decrease as the capacitor bank energy will be discharging. Recharging of the capacitor bank will start before Input voltage goes back to steady state line.

The M4162 charging time is less than 0.5Sec per Mil-STD-704, during this time, the average charging current taken from the source can be calculated as follow

$$E = \frac{C * Vc^2}{2}$$

$$I = \frac{E}{Vin * t * Eff}$$

Where **E** is Holdup Energy, **Vc** and **C** are the Holdup capacitance and charging voltage, **Vin** is input voltage and **Eff** is the charging circuit efficiency.

For specific details contact Factory.

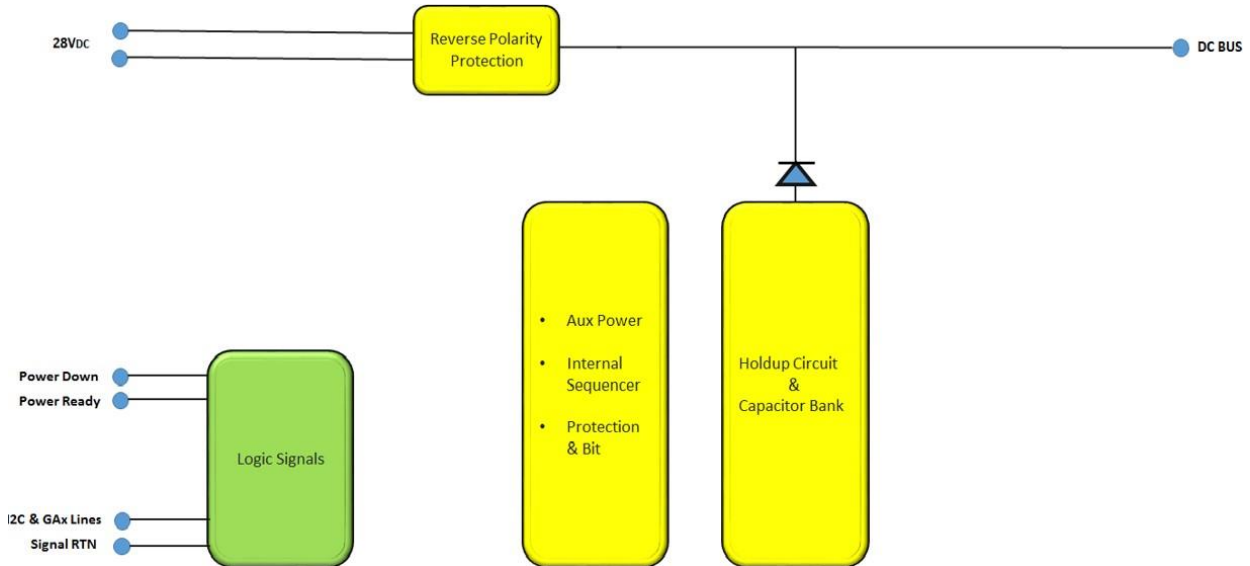
Reducing Charging current and increasing charge time is optional.

Functions and Signals - According to VITA 62

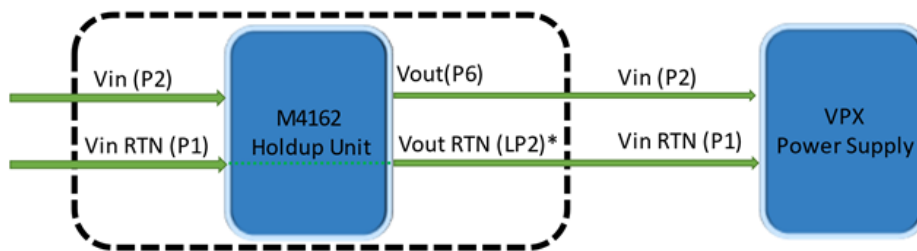
Signal No.	Signal Name	Type	Description	Pin No'
1	Power Down	Output	Indicates that Holdup event has occurred. Open Drain. Normally Open, goes low during Holdup time.	A3
2	Power Ready	Input	Indicates to other modules that Holdup capacitor bank is Fully charged. Open Drain. Normally Open, goes low when Holdup energy under 90%.	D1
5	GA0, GA1	Input	Used for geographical addressing. GA1 is the most significant bit and GA0 is the least significant bit.	A5,B5
6	SCL, SDA	Bidirectional	I2C bus Clock and Data respectively. Through this bus the voltage and temperature readouts can be shared.	C5,D5

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Simplified Block Diagram



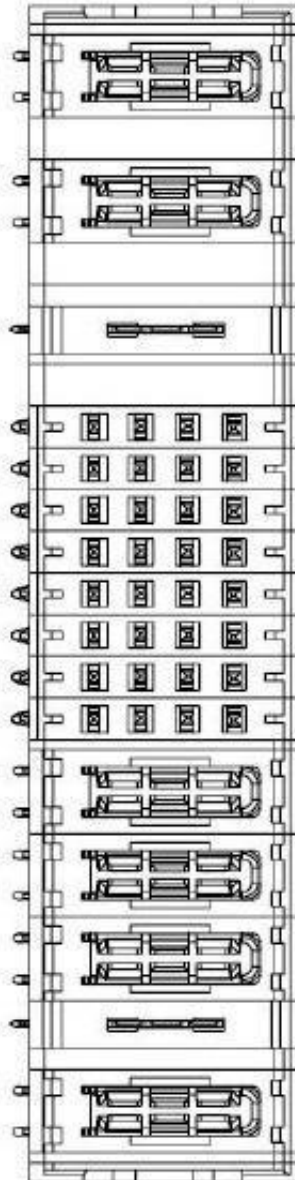
Typical Application



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- Vin RTN & Vout RTN are internally shorted
- When Input Current exceed 20A, P5 should be added as Vout RTN line
- Since Hold-up event generate ground noise, it is important to keep Power Supply Input to Output grounds isolation
- All signals are floating and can be referred to Power Supply Signal ground

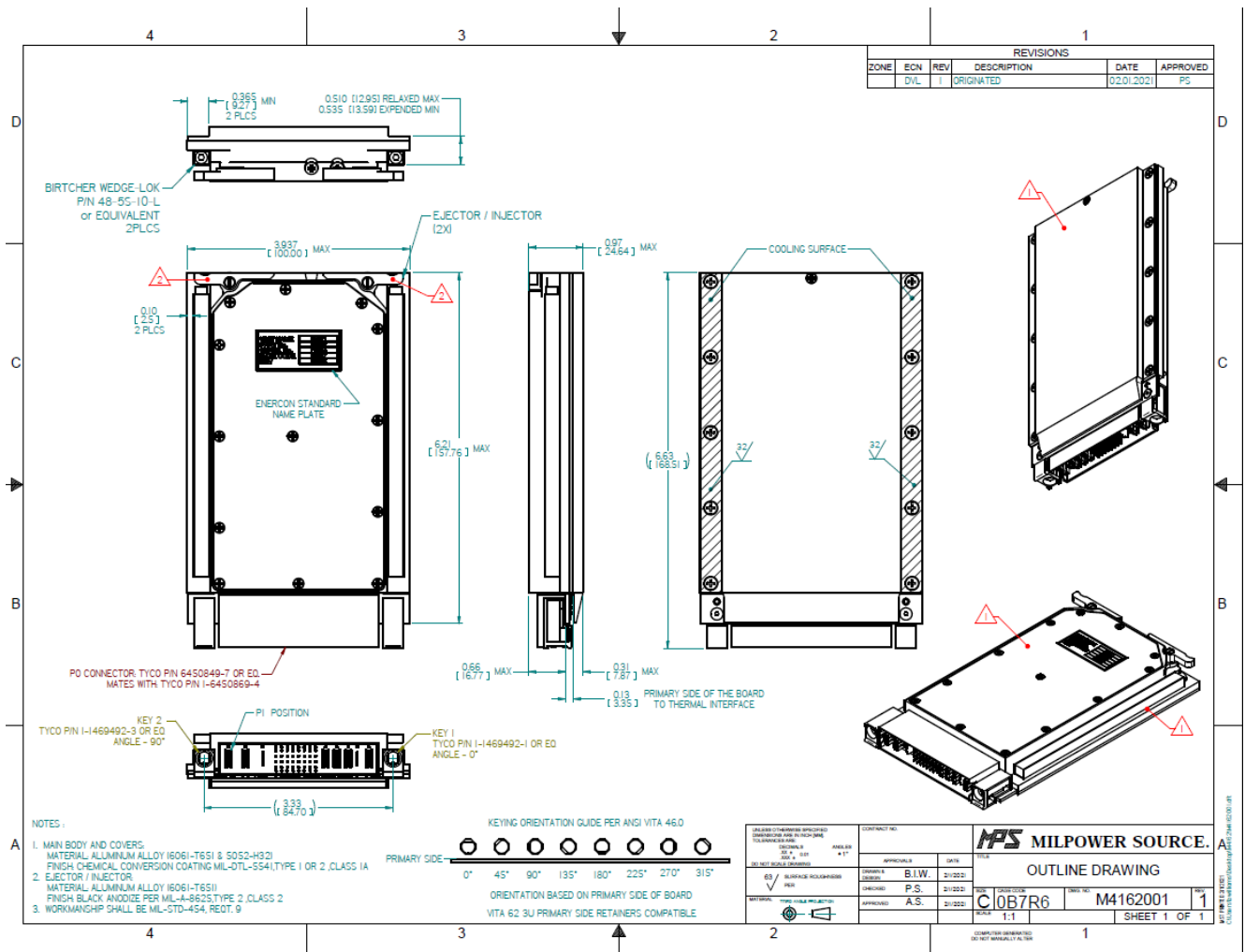
Pin Assignment



PART NUMBER	ROWS	POWER						SIGNAL								POWER					
		P1	P2	LP1	LP2	P3	P4	1	2	3	4	5	6	7	8	P3	P4	P5	LP2	P6	
6450849-7	D							Z5	Z5	Z5	Z5	Z5	Z5	Z5	Z5	Z5	Z5	Z5	Z5	Z5	Z5
	C							Y5	Y5	Y5	Y5	Y5	Y5	Y5	Y5	Y5	Y5	Y5	Y5	Y5	Y5
	B	TT	TT	LT				R5	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5	R5
	A							O5	O5	O5	O5	O5	O5	O5	O5	O5	O5	O5	O5	O5	O5
2ACP+1LP+32S+3HDP+1LP+1HDP																					

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Outline Drawing



Notes:

1. Dimensions are in inches [mm]
2. Tolerance is:
 .XX ± 0.02 IN
 .XXX ± 0.008 IN
3. Weight: Approx. TBD
4. 3D model available

Note: Specifications are subject to change without prior notice by the manufacturer.