

U-P2330

Rugged 3U SOSA™ Aligned Power Supply Card



*U-P2330 is an advanced, feature-rich 3U Power Supply aligned with the **Open Group SOSA™** technical standard. It's a perfect companion for building next-generation SOSA™ aligned systems and sensors.*

- 3U Conduction-Cooled 2LM Form Factor
- Aligned to SOSA™ Technical Standard Edition 1.0
- VITA 62 Compliant
- Up to 600W Output Power
- 88% Typical Efficiency
- Wide Input Range
- EMI/RFI Input Filter
- Two SOSA™ Standard Output Supplies
 - ▶ +12V
 - ▶ +3.3V_AUX
- Holdup Capacitor Bank & Backup Battery Options
- No Minimum Load Requirement
- Input/Output and Chassis Isolation
- Input Transient Protection per MIL-STD-704 and MIL-STD-1275
- Input Reverse Polarity Protection
- Output Over/Under-Voltage, Short Circuit and Over-Temperature Protections
- No Electrolytic Capacitors (except hold-up option)
- Standard Control Signals
 - ▶ FAIL# and SYSRESET# Outputs
 - ▶ ENABLE# and INHIBIT# Inputs (ON/OFF Control)
- IPMI and Internal BIT



PRELIMINARY



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The Aitech U-P2330 is a versatile and reliable 3U PSC (Power Supply Card) aligned with The Open Group Sensor Open System Architecture™ Technical Standard, Edition 1.0, and compliant with VITA 62. It was designed for harsh environment applications, with a wide input voltage range and a total power output capacity of up to 600W.

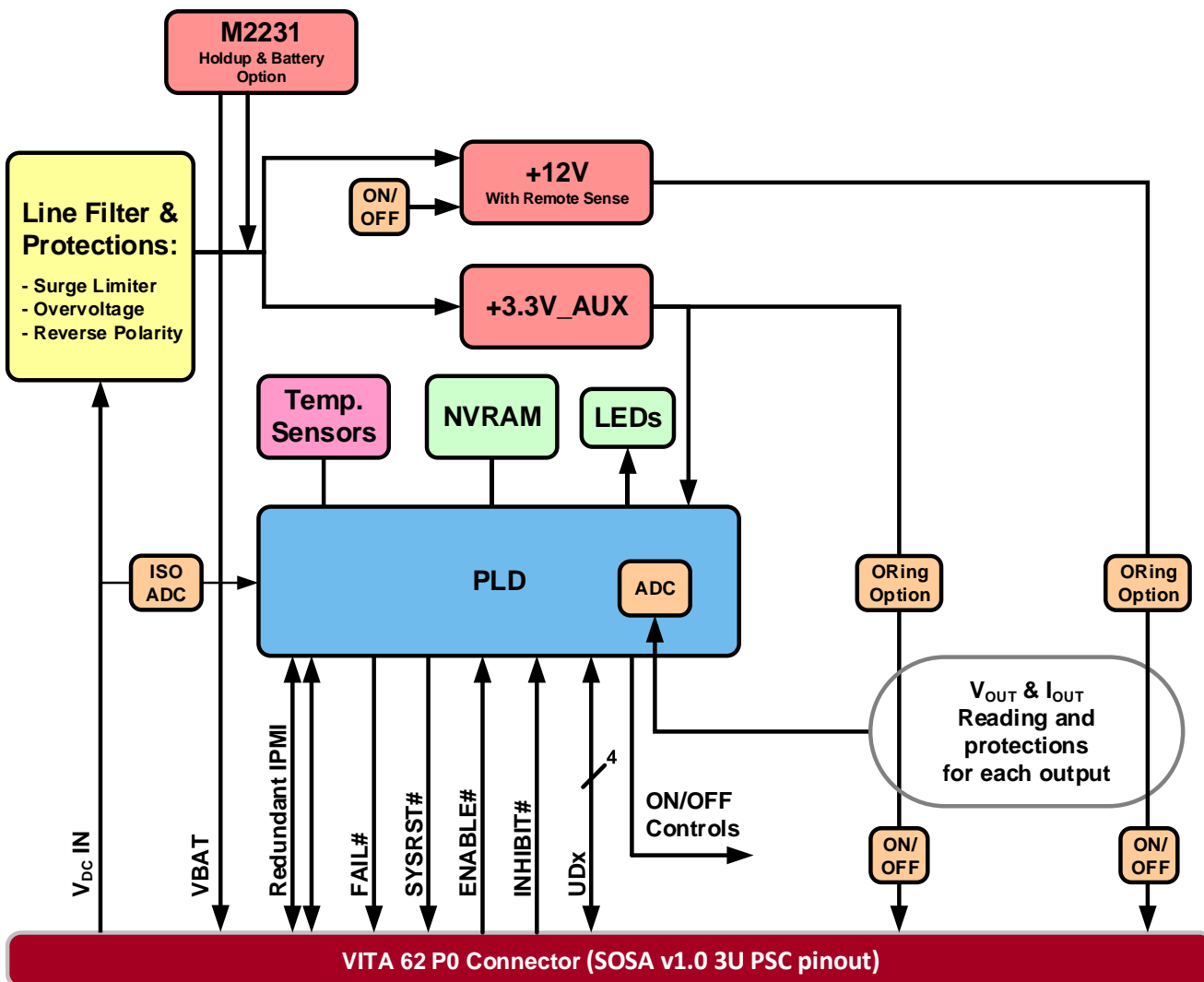
An optional sharing mechanism, per VITA 62 / SOSA™ Technical Standard, enables two U-P2330 power supplies to be operated in parallel in order to provide redundant operation (ORing), or to provide a maximum power output of up to 1200W.

Input to output isolation eliminates any possibility of ground loops, and the main output supply (+12V) has remote sense lines to ensure voltage stability for high current loads. The U-P2330 also includes numerous protection mechanisms both for input power and for output power supplies.

EMI/RFI protections include the U-P2330 heatsink, which provides enhanced EMI/RFI shielding of on-board components, and the on-board second stage EMI/RFI filter for input power (designed to be used along with a system level first stage filter).

On-board logic, control functions, user defined pins are managed by an FPGA that can be field customized (contact an Aitech representative for more information).

An optional capacitor bank provides holdup time to enable orderly system shutdown in the event of power failure. The capacitor bank also includes a backup battery to provide VBAT per VITA 62 / SOSA™ Technical Standard in order power a system real time clock when the system is powered off.



PRELIMINARY

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Board Architecture

| | |
|-------------------------|--|
| General Features | <ul style="list-style-type: none">• 88% efficiency (depending on load and distribution)• +12V & +3.3V_AUX output voltages, per SOSA™ Technical Standard, Edition 1.0• Power monitor• Independent current limiting for each output• Over-temperature protection |
| IPMI | Redundant Intelligent Platform Management Interface per VITA 46.11 / SOSA™ Technical Standard |
| Built-In Tests | BIT monitors output voltages, and provides test status via the front panel indicator LED and FAIL# output signal |
| Isolation | <ul style="list-style-type: none">• >10MΩ at 100 V Input to Chassis• >10MΩ at 50 V Output to Chassis• >10MΩ at 500 V Input to Output |

Input Power

| | | |
|-------------------------------------|------------|---|
| Steady State Operation Input | Up to 500W | 18 – 32 Vdc continuous |
| | 500 - 600W | 22 – 32 Vdc continuous, 18 V for 3 seconds. |
| Turn-on Threshold Input | | 18 Vdc minimum |
| Overvoltage Protection | | Up to 60 Vdc (100 ms) |
| Reverse Polarity Protection | | Up to 50 Vdc |
| EMC | | Designed to meet MIL-STD-461F (with 5 μH LISNs) |
| Transient Suppression | | Per MIL-STD-704D/E and MIL-STD-1275 |

Output Power

| | | +12V | +3.3V_AUX |
|---|---------|--------|-----------|
| Total Combined Output Capacity | 600 W * | 50 A * | 4 A |
| Remote Sense | | ✓ | N/A |
| Short Circuit, Overcurrent, and Over/Under-Voltage Protections | | ✓ | ✓ |

* Maximum power of 600W available only when all power is delivered from +12V output

Control Signals

| | | | | |
|-----------------------------|---|-----------------|------------------|--------------------|
| ENABLE# and INHIBIT# | ON/OFF control input signals. Outputs are turned ON/OFF according to ENABLE# and INHIBIT# as listed below. | | | |
| | ENABLE# | INHIBIT# | +3.3V_AUX | +12V Output |
| | 1 | 1 | OFF | OFF |
| | 1 | 0 | OFF | OFF |
| | 0 | 1 | ON | ON |
| | 0 | 0 | ON | OFF |
| FAIL# | Output signal, asserted during power up events until the U-P2330 reaches fully operational mode, or if one of the output voltages is out of range | | | |
| SYSRESET# | Output signal, asserted during power up, remains asserted until 200ms after all outputs are within range | | | |

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Pinout

| Pin | Function | Pin | Function | Pin | Function | Pin | Function |
|-----|-----------------|-----|---------------|-----|-----------|-----|------------------|
| P1 | POWER_IN_RETURN | D2 | ENABLE# | B5 | GA1# | D7 | SIGNAL_RETURN |
| P2 | POWER_IN | A3 | UD0 / SYNC_IN | C5 | I2C_SCL0 | A8 | +12V_SENSE |
| LP1 | CHASSIS | B3 | Reserved | D5 | I2C_SDA0 | B8 | +3.3V_AUX_SENSE |
| A1 | UD1 / SYNC_OUT | C3 | NED | A6 | I2C_SCL1 | C8 | +12V_SENSE |
| B1 | UD2 / NVMRO | D3 | NED_RETURN | B6 | I2C_SDA1 | D8 | SENSE_RETURN |
| C1 | UD3 / GA2# | A4 | Reserved | C6 | Reserved | P3 | +12V |
| D1 | UD4 / Reserved | B4 | Reserved | D6 | SYSRESET# | P4 | POWER_OUT_RETURN |
| A2 | VBAT | C4 | Reserved | A7 | SHARE_1 | P5 | POWER_OUT_RETURN |
| B2 | FAIL# | D4 | Reserved | B7 | SHARE_2 | LP2 | +3.3V_AUX |
| C2 | INHIBIT# | A5 | GA0# | C7 | SHARE_3 | P6 | +12V |

Mechanical

| | Without Holdup Capacitor Bank | With Holdup Capacitor Bank |
|-----------------------------|---------------------------------------|--|
| Cooling | Conduction-cooled | Conduction-cooled |
| Form Factor & Dimensions | 3U per VITA 62 / SOSA™ Tech. Standard | 3U per VITA 62 / SOSA™ Tech. Standard (except thickness - see Pitch) |
| Two Level Maintenance (2LM) | Yes | Yes |
| Weight | <750 g (1.65 lbs) | <1150 g (2.53 lbs) |
| Pitch | 1" | 2" |
| Keying | Key 1 = 0°, Key 2 = 135° | Key 1 = 0°, Key 2 = 135° |

Environmental

| Specs per VITA 47 | Conduction-Cooled | |
|----------------------------------|------------------------------------|--------------------------------------|
| | Rugged | Military |
| Operating Temp. | CC3 (-40 to +70 °C) ⁽²⁾ | CC4 (-40 to +85 °C) ^(1,2) |
| Non-Operating Temp. | C3 (-50 to +100 °C) | C4 (-55 to +125 °C) |
| Vibration | V3 | |
| Operating Shock | OS2 | |
| Altitude | 35,000 ft. | 60,000 ft. |
| Relative Humidity ⁽³⁾ | 0 - 95% with Acrylic (Standard), | |
| Conformal Coating | 0 - 100% with Urethane (Optional) | |

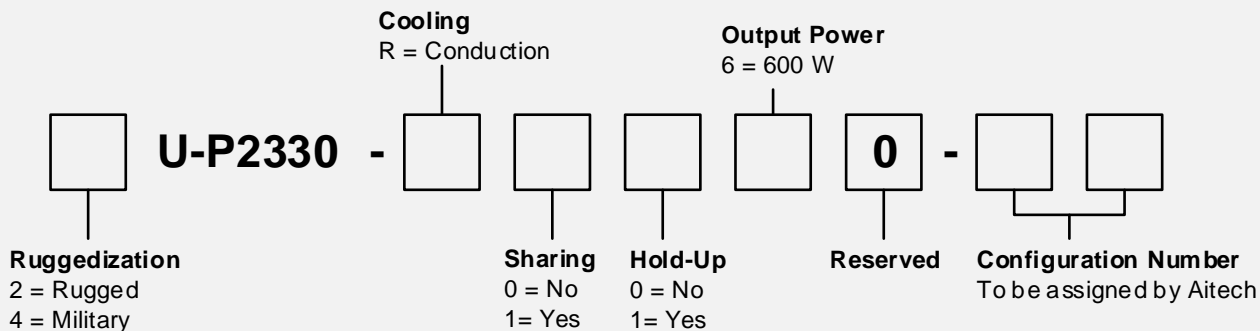
- Notes:
- (1) -55 °C available, contact an Aitech representative for more information
 - (2) Operating card edge temperature
 - (3) Non-condensing

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Ordering Information



Example: 4U-P2330-R0060-00

Optional Accessories

| | |
|---------------------|---|
| 2B047-R00-00 | Dual Slot SOSA™ Aligned Backplane with Sharing |
| M1010-00 | Fan control unit |
| M2231-00 | Hold-up and battery module to support 704 and VBAT (see ordering information) |



Contact Aitech

Contact your Aitech sales representative for additional product information and for inquiries regarding customized configurations of the U-P2330.



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