

SynQor[®]



VPX

MILITARY AC-DC & DC-DC POWER SUPPLIES

VITA 62 Compliant
High Efficiency

Field Proven



- ▶ **VITA 62 & 47 Compliant**
- ▶ **High efficiency: 91% at full load**
- ▶ **3U: Up to 750 W total output power**
- ▶ **6U: Up to 1000 W total output power**
- ▶ **Active current share through backplane**
- ▶ **MIL-STD-461F, MIL-STD-704F, MIL-STD-810G,
& MIL-STD-1275 (T version) Compliant**





MILITARY AC-DC & DC-DC POWER SUPPLIES



- ▶ **VITA 62 Compliant**
- ▶ **MIL-STD Compliant**
 - MIL-STD-461 – MIL-STD-704
 - MIL-STD-810 – MIL-STD-1275
- ▶ **Standard VITA 62 Controls**
- ▶ **Conformal Coating Options**
- ▶ **Input EMI Filtering**
- ▶ **Over-current, over-voltage and over-temperature protection**
- ▶ **Operating Temperature: -40°C to 85°C (at card edge)**
- ▶ **Remote Sense**
- ▶ **Optional I²C Function**
 - Supports IPMI / PMBus / VITA 46.11
 - Input Reverse Polarity Protection

VPX MODULE QUALIFICATION (VITA 47 COMPLIANT)

Test Name	Method
Random Vibration	MIL-STD-810, 514.6 - Procedure I, Class V3
Shock	MIL-STD-810, 516.6 - Procedure I, VI, Class OS2
Altitude	MIL-STD-810, 500.5 - Procedure I, II, III
Fungus Resistance	MIL-STD-810, 508.6
Corrosion Resistance	ASTM G85, Annex A4
Humidity	MIL-STD-810, 507.5 - Procedure II
High Temperature	MIL-STD-810, 501.5 - Procedure I, II
Low Temperature	MIL-STD-810, 502.5 - Procedure I, II
Temperature Cycling	MIL-STD-202, 107 - Class C4
ESD	EN61000-4-2, Level 4; 15 kV Air Discharge



3U & 6U VPX AC-DC & DC-DC

Model 28 Vin Transient Suppression EMI filtering	Total Output Power	Typical Outputs				Weight
		VS1	VS2	VS3	AUX	
VPX-6U-DC28T-001	800 W	+12 V @ 67 A		+5.0 V @ 30 A	+3.3 VAUX @ 15 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	3.8 lb
VPX-3U-DC28TH-001	500 W	+12 V @ 40 A	+3.3 V @ 20 A	+5.0 V @ 40 A	+3.3 VAUX @ 6 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	2.4 lb

Model 28 Vin Passive EMI filtering	Total Output Power	Typical Outputs				Weight
		VS1	VS2	VS3	AUX	
VPX-6U-DC28P-001	1000 W	+12 V @ 80 A		+5.0 V @ 30 A / 60 A (I ² C)	+3.3 VAUX @ 15 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	3.6 lb
VPX-3U-DC28P-001	500 W	+12 V @ 40 A	+3.3 V @ 20 A	+5.0 V @ 30 A	+3.3 VAUX @ 6 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	1.6 lb
VPX-3U-DC28P-002	500 W	+12 V @ 40 A	+3.3 V @ 25 A	+5.0 V @ 30 A	+3.3 VAUX @ 6 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	1.6 lb
VPX-3U-DC28P-003	500 W	+12 V @ 40 A	+3.45 V @ 20 A	+5.2 V @ 30 A	+3.3 VAUX @ 6 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	1.6 lb
VPX-3U-DC28P-004	500 W	+12 V @ 40 A	+3.3 V @ 20 A	+5.0 V @ 40 A	+3.3 VAUX @ 6 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	1.6 lb

Model 34-75 Vin Passive EMI filtering	Total Output Power	Typical Outputs				Weight
		VS1	VS2	VS3	AUX	
VPX-3U-DC48P-001	600 W	+12 V @ 50 A	+3.3 V @ 20 A	+5.0 V @ 30 A	+3.3 VAUX @ 6 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	1.6 lb

Model 270 Vin Passive EMI filtering	Total Output Power	Typical Outputs				Weight
		VS1	VS2	VS3	AUX	
VPX-6U-DC270P-001	730 W	+12 V @ 50 A		+5.0 V @ 30 A / 60 A (I ² C)	+3.3 VAUX @ 40 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	3.8 lb
VPX-3U-DC270P-001	400 W	+12 V @ 33 A	+3.3 V @ 20 A	+5.0 V @ 30 A	+3.3 VAUX @ 6 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	1.6 lb

Model 85-264 Vrms Single Phase	Total Output Power	Typical Outputs				Weight
		VS1	VS2	VS3	AUX	
VPX-6U-ACUNV-1-C-001	630 W	+12 V @ 52.5 A		+5.0 V @ 40 A	+3.3 VAUX @ 20 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	3.6 lb
VPX-3U-ACUNV-1-C-N01	300 W	+12 V @ 25 A	+3.3 V @ 20 A	+5.0 V @ 30 A	+3.3 VAUX @ 6 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	1.7 lb
VPX-3U-ACUNV-1-C-001	300 W	+12 V @ 25 A	+3.3 V @ 20 A	+5.0 V @ 30 A	+3.3 VAUX @ 6 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	1.7 lb
VPX-3U-ACUNV-1-CH-001	300 W	+12 V @ 25 A	+3.3 V @ 20 A	+5.0 V @ 30 A	+3.3 VAUX @ 6 A, +12 VAUX @ 1 A, -12 VAUX @ 1 A	2.0 lb

Model 100-140 Vrms 3-Phase	Total Output Power	Outputs		Weight	
		VS1	AUX		
VPX-3U-AC1153-C-001	750 W	28V @ 27 A		+3.3 VAUX @ 150 mA	1.7 lb

POWER SUPPLY FEATURES



Control Features

ENABLE*	Standard VITA 62 control signal, enables +3.3 V_AUX.
INHIBIT*	Standard VITA 62 control signal, disables all outputs other than +3.3 V_AUX.
FAIL*	FAIL* Output indicates if one of the outputs is outside the specified voltage range.
SYSRESET*	SYSRESET* Output indicates startup is completed and power outputs are ready.

Parallel Operation

+12 V_MAIN, +3.3 V_MAIN, +5 V_MAIN	All main outputs include active sharing. On the 28 V input VPX modules, sharing on the +12 V_MAIN requires that VPX cards operate from the same input source and sharing does not provide glitch-free redundancy.
+3.3 V_AUX	Active current sharing is implemented on the 6U 270 V and AC input VPX modules. On the 3U/6U 28 V input, 3U AC input & 3U 270 V modules, active sharing on +3.3 V_AUX is not provided, but an OR'ing MOSFET is implemented and modules can be paralleled.
+12 V_AUX, -12 V_AUX	Active current sharing is not supported on these two auxiliary outputs. However, both outputs have OR'ing MOSFETs or OR'ing diodes implemented, so that they can be operated in parallel.

For more information see the datasheets on our website. VPX-3U-ACUNV-1-N01 module does not support parallel operation.

Mil-COTS Converter and Filter Screening

Screening	Process Description	S-Grade	M-Grade
Baseplate Operating Temperature		-55 °C to +100 °C	-55 °C to +100 °C
Storage Temperature		-65 °C to +135 °C	-65 °C to +135 °C
Pre-Cap Inspection	IPC-A-610, Class III	Yes	Yes
Temperature Cycling	MIL-STD-883F, Method 1010, Condition B, 10 Cycles		Yes
Burn-In	100 °C Baseplate	12 Hours	96 Hours
Final Electrical Test	100%	25 °C	-55 °C, +25 °C, +100 °C
Final Visual Inspection	MIL-STD-883F, Method 2009	Yes	Yes

VITA 62 Control States

ENABLE*	INHIBIT*	+3.3 V_AUX	VS1, VS2, VS3, +12 V_AUX, -12 V_AUX
HIGH	HIGH	OFF	OFF
LOW	HIGH	ON	ON
HIGH	LOW	OFF	OFF
LOW	LOW	ON	OFF

Military VPX DC Power Supply

Series	Package Size (U)	Input Range	Mil Std Filtering	Output Voltage Combination Code	Packaging Options
VPX	3U 6U	DC28: 28 V	P: P - Passive filter	001	Y1: Screening S: S-Grade (MCOTS) M: M-Grade (MCOTS) Y2: Conformal Coating N: No Conformal Coating C: Conformal Coating Y3: I ² C Function []: No I ² C 2: I ² C
		DC48: 48 V	T: T - Transient filter	002	
		DC270: 270 V	TH: TH - Transient protection with holdup	003 004	

Example: VPX-3U-DC28P-001-MC2 For valid part numbers, refer to the website or contact your local sales representative.

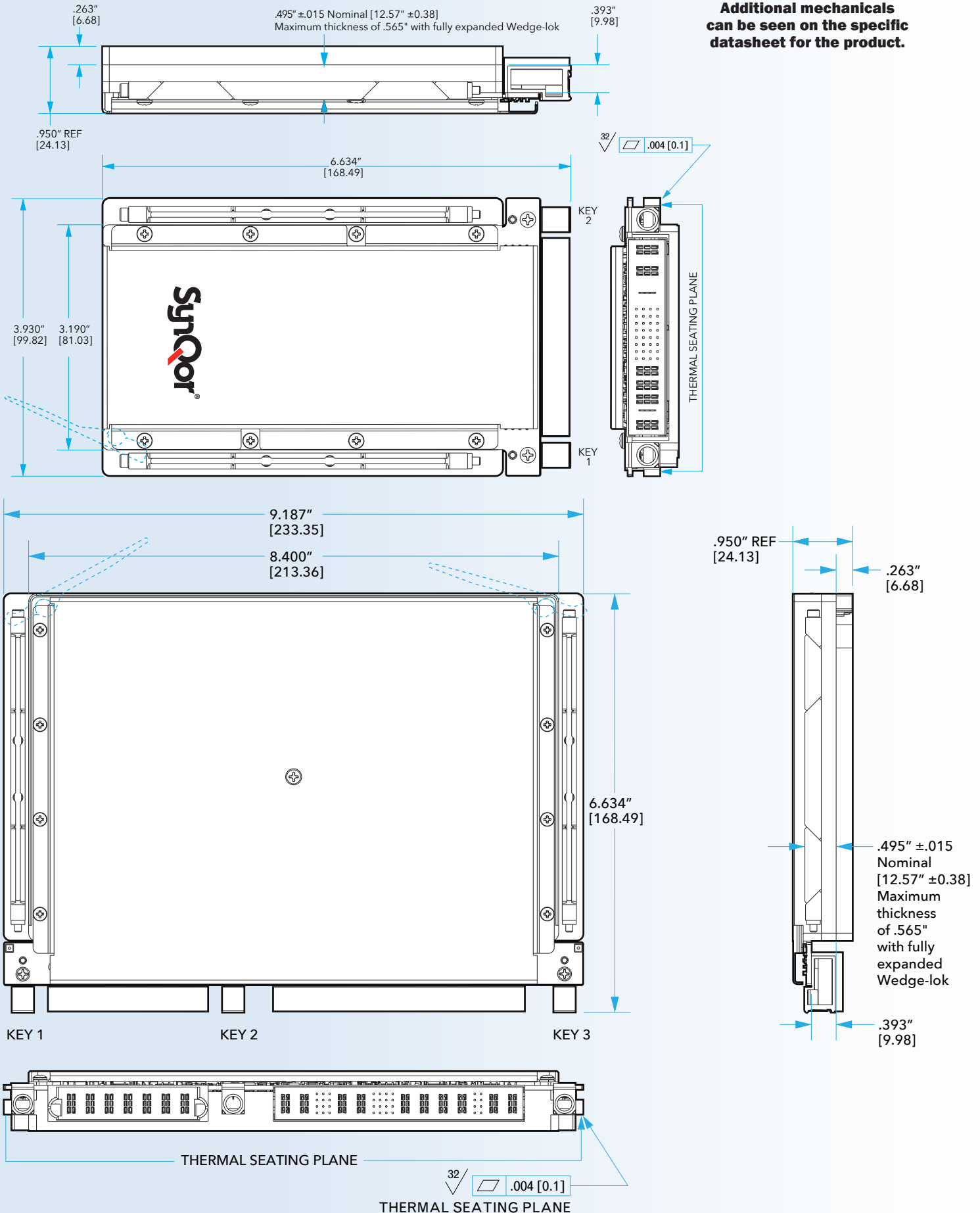
Military VPX AC Power Supply

Series	Package Size (U)	Input Range	Number of Phases	Mil Std Filtering	Output Voltage Combination Code	Packaging Options
VPX	3U 6U	ACUNV: AC Universal Input	1: Single Phase	C: Clamped Passive Filter	001 N01	Y1: Screening S: S-Grade (MCOTS) M: M-Grade (MCOTS) Y2: Conformal Coating N: No Conformal Coating C: Conformal Coating Y3: I ² C Function []: No I ² C 2: I ² C
		AC115: 100-140 Vrms _{L-N}	3: 3-Phase	CH: Clamped Passive Filter with Hold-up		

Example: VPX-3U-ACUNV-1-C-001-SN For valid part numbers, refer to the website or contact your local sales representative.

3U & 6U VPX AC-DC & DC-DC Power Supply Mechanicals

Additional mechanicals can be seen on the specific datasheet for the product.





VITA 62 COMPLIANT VPX MILITARY AC-DC & DC-DC POWER SUPPLIES



Headquartered in Boxborough, Massachusetts, at the location of its manufacturing operations, SynQor is a privately owned U.S. AS9100 and ISO9001 company. SynQor's converters feature a patented two-stage power topology that greatly improves efficiency and optimizes the power dissipated by the converter. With a design center in Dallas, Texas, and sales/marketing offices throughout the World, SynQor is the technology, quality and service leader for power conversion modules and systems.

SynQor's rugged DC-DC converters, AC-DC converters, filters and systems are designed for a wide range of industrial and military applications including those required to withstand harsh environments: railway and transportation systems, industrial motion control, information displays, factory automation, critical military and power generation systems.

The Military series of Rack Mount Power Supplies, VPX, Hi-Rel and Mil-COTS DC-DC converters and EMI filters brings SynQor's field proven high-efficiency synchronous-rectifier technology to the Military/Aerospace industry.

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