



FEATURES

- High power density, 7.7W / in³
- Net Weight:< 2.2 KG
- Low profile : 40.8mm (fit 1U 19" shelf – R2250 series)
- Efficiency: 77% ~ 86 % typical
- Power factor correction (meet IEC1000-3-2 requirements)
- Overvoltage & overcurrent protection
- Overtemperature warning & protection
- Redundant parallel operation (up to 12 units)
- Remote On/Off and Remote sense
- Active load sharing
- Hot insertion/removal (Hot Swap)
- Power fail warning and fault alarm
- Low start-up temperature: - 30°C
- I²C for voltage, current, temperature report & Power Supply ID.
- Front panel LED indicators
- 400Hz input available (with wattage derating)
- Meet UL60950, EN60950 and CE mark requirements.

APPLICATIONS

- Advanced workstations
- Telecom / Datacom equipment
- Midrange computers
- Mainframes
- File servers
- LAN/WAN applications
- Mass storage



A0750

POWER SUPPLY DESIGN EXCELLENCE

The Powerstax A0750 series of front-ends power modules is specifically designed to operate as an integral part of a complete distributed power system, with or without battery backup.

A full complement of protection, alarm and control features has been incorporated into the power unit to provide the versatility of applications.

When up to 3 x A0750 are used with the 1U high R2250 19" rack, a total 2,250W (or 1,500W of N+1) of 24VDC or 28VDC output can provide a low profile, flexible and scalable solution.

The flexible feature set makes this front-end power module an excellent choice for applications requiring modular AC-to-DC power systems such as distributed power and DC UPS.



SPECIFICATIONS

INPUT	
Voltage Range	85-264Vac
Frequency	47-63Hz (400Hz available with safety approvals. Consult Powerstax for details.)
Inrush Current (peak)	50A @ ≥50% full load
Power Factor	>0.95 (aslo see opposite)
Leakage Current	≤1.7mA @ 264Vac, 50Hz
Lighting Surge & Transients (damage free operation)	EC1000-4-5 Level 3 IEC1000-4-4 Level 3
Hold Up Time	>20ms @24V. 600W
EMC (conducted)	CISPR22 Class B, EN55022 Class B, with 3dB margin
Line Harmonics	Active power factor correction circuitry ensures that this power supply meets requirements of IEC 1000-3-2

OUTPUT	
Voltage Setpoint	24Vdc or 28Vdc
Regulation	±2% (line, load, temperature & setpoint - measured at remote sense)
Remote-sense Drop	<0.5Vdc
Current, max.	31.25A @ 24Vdc 26.78A @ 28Vdc
Ripple	<150mV pk-pk (20MHz bandwidth)
Noise	<300mV pk-pk (20MHz bandwidth)
Transmission Noise	<45 dBrc (C message)
Rise Time	10-100 mS, Rise from 10% to 90% of final output level (resistive load)
Overvoltage Protection	29-32Vdc (Reset by cycling ac input, On/Off, or reinsertion)
Output Current Limit	40A (steady state)
Transient Response	<±2.0%, 25% step load transient with slew rate 0.1A/us within the range from 25% to 75% of full load.
Active Current Sharing Differential	±3.2A (Single-wire current share at full load)
Efficiency (also see opposite)	>80% @ 120Vac >83.5% @ 264Vac (At full load with Oring diode)
Reserve Output Current Protection	ORing diode
Start-Up delay	1.3s typical 2s max. (Measured from application of valid ac voltage)
Turn-On delay	<250ms (Measured from DC on/off)

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EFFICIENCY AND POWER FACTOR VS. INPUT VOLTAGE AT FULL LOAD		
INPUT VOLTAGE	EFFICIENCY (TYPICAL)	POWER FACTOR (TYPICAL)
90Vac	83%	0.99
100Vac	84%	0.99
120Vac	85%	0.98
160Vac	85%	0.98
190Vac	86%	0.98
220Vac	86%	0.98
240Vac	87%	0.98
264Vac	88%	0.98

ENVIRONMENTAL	
Storage Temperature	-40°C to 85°C
Operating Temperature	0°C to 60°C, derating linearly above 50°C
Acoustics	47dBA Typical 52dBA max. (ISO 7779 SPL)
Relative Humidity	5% to 95% (non-condensing)
Altitude	-200 to 13,000 Feet, Derated at 2°C/1000 ft. above 8000 ft.
ESD	IEC1000 -4-2 Level 3 stand-alone
Isolation Voltage	3,000Vac - Primary to Secondary 1,500Vac - Primary to chassis GND 500Vac - Secondary to chassis GND
MTBF	>4 x 10 ⁵ hrs @110V Input 80% load, T _A = 30°C
Vibration	Meets IEC68-2-6
Shock	Meet IEC68-2-36
Weight	2.2Kg typical

POWER MODULE INTERFACES

Input Voltage - The product can be used with any standard global line voltage; consult Powerstax for any particular regional application concerns.

Input / Output Connector - The input / output connector is PCB24W9M400A1 / Postronic, with 9 power pins and 15 signal pins. 3 out of the 9 power pins are for the AC input.

CONNECTOR PIN ASSIGNMENT - VIEW INTO REAR OF POWER UNIT

Please refer to "Definition of Terms" for detailed description for each pin.

1	3	5	7	10	13	16	19	23
V+	V+	V+	ON/OFF	RS-	CS	OTP	DC FAIL	LINE
			8	11	14	17	20	
			N.C.	SDA	Signal RTN	A2	A1	
2	4	6	9	12	15	18	21	22
V-	V-	V-	RS+	SCL	A3	A0	INT. BUS	FG
								24
								Neutral



SMBUS FUNCTION

FUNCTION	COMMAND CODE	PROTOCOL ¹			UNIT
Temperature	0x08	Read	Word	No PEC	K
Voltage	0x09	Read	Word	No PEC	mV
Current	0x0A	Read	Word	No PEC	mA
Manufacture Date ²	0x0B	Read	Word	No PEC	
Serial Number	0x22	Read	Word	No PEC	
Manufacturer Name	0x20	Read	Block ³	No PEC	
Device Name	0x21	Read	Block ³	No PEC	
Manufacture Data (version)	0x23	Read	Block ³	No PEC	

1. Reference: System management bus specification v1.1

2.The date is packed in the following fashion:

(Year - 1980) * 512 + Month * 32 + Day = data byte high: data byte low

FIELD	DATA BYTE	ALLOW VALUE
Day	Bit 0~4	1 - 31 (corresponds to date)
Month	Bit 5~8	1 - 12 (corresponds to month number)
Year	Bit 9~15	0 - 127 (corresponds to year biased by 1980)

Example: 2001/11/29 = 10101101111101 (bin) = 2B7D (hex)

Where 2B(hex) is data byte high, 7D(hex) is data byte low.

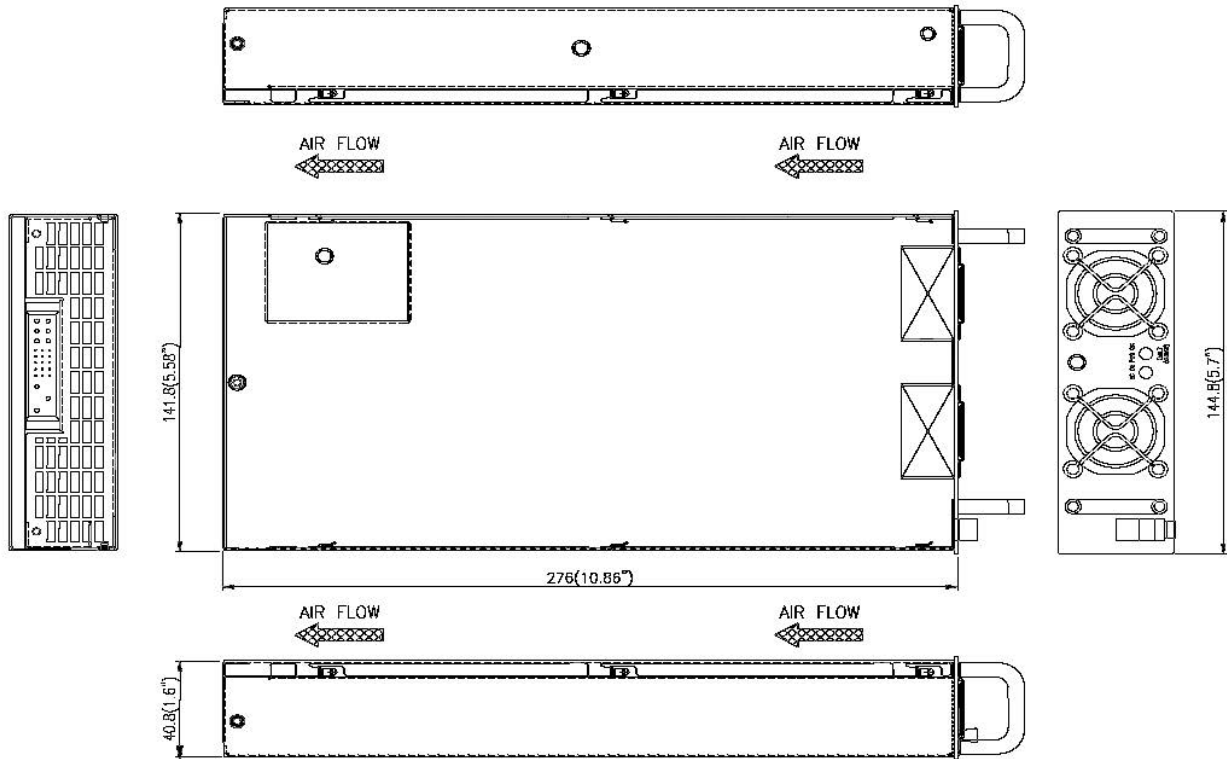
3.Read block data byte 1~N is in ASCII code, where N is the value of byte count.

Address Definition

RACK	SHELF	P.S. NO.	ADDRESS	A3	A2	A1	A0
	1	1	1	0x00	0	0	0
2		2	0x02	0	0	0	1
3		3	0x04	0	0	1	0
2	4	4	0x20	0	1	0	0
	5	5	0x22	0	1	0	1
	6	6	0x24	0	1	1	0
3	7	7	0x40	1	0	0	0
	8	8	0x42	1	0	0	1
	9	9	0x44	1	0	1	0
4	10	10	0x10	1	1	0	0
	11	11	0x12	1	1	0	1
	12	12	0x14	1	1	1	0

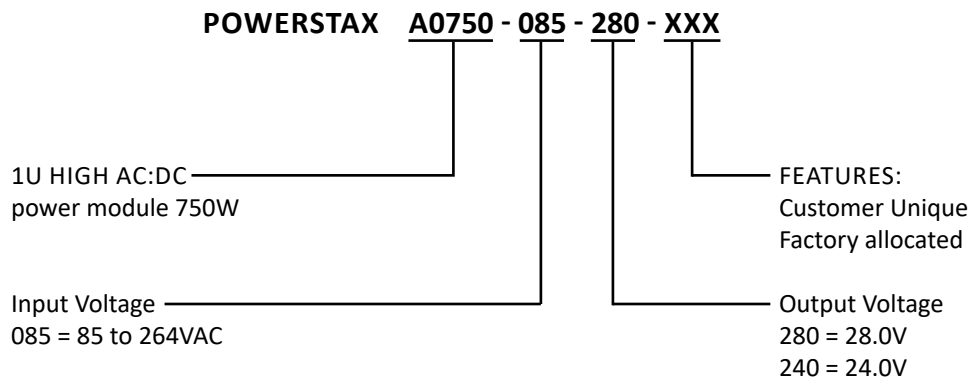


MECHANICALS



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MODEL REFERENCE GUIDE





DEFINITION OF TERMS

AC Line Discrimination

The unit senses the input line range at power up and shuts the unit down if the input drops below the line range for a specified period of time.

Current Monitor

The output current could be reported through the I2 bus.

Front Panel LEDs

LED 1 -- AC OK (green): Input voltage OK

LED 2 -- Output OK (green): The unit is powered up and operating normally

or

Output fail (amber): The unit has detected an internal fault.

Input Overcurrent Protection

An internal fuse is provided for input protection in compliance with safety agency requirements.

Current Share Bus (CS)

A single-wire interface between each of the power units forces them to share the load current equally.

Overcurrent Protection

In the event of an overload condition, the power supply limits the output current.

Overvoltage Protection

The power unit turns itself off before the output voltage reaches the OVP threshold.

I²C Serial Bus Interface support

The power unit provides I²C serial bus interface to receive/transmit data

SCL: Clock signal input for I²C functionality.

SDA: Data signal I/O for I²C functionality.

A0~A3: Address pin for I²C address Bit 0~3.

ORing Diode

A diode at the output of the power unit protects the DC bus during a power supply failure or hot plugging of the power unit.

Overtemperature Protection

In the event of an overtemperature condition, the power unit protects itself by shutting off, restarts automatically after cooling down.

Remote Sense (RS+, RS-)

These signals permit the power units to compensate for a voltage drop across the output distribution.

On/Off

This is an input signal referenced to the negative output. Shorting this signal to the negative output will turn on the power unit.

Status Signals

The following are the optically isolated open-collector signals:

DC FAIL: This signal indicates the output fail. It becomes low with a turn on delay of 100 to 500mS after the output voltage reaches in the regulation window. It will go to a high level at least 1mS before output voltage runs out of regulation window.

OTP: This signal indicates fan fail or over temperature. It becomes low with a turn on delay of 100 to 500mS after the output voltage reaches in the regulation window. It will go to a high level 200mS before the unit shuts down if a fan fail or over temperature is sensed. The logic low level is lower than 0.6V with the sink current of the photo-transistor less than 1mA.

INT. bus: Intermediate DC bus. It is a DC output from the power module for shelf internal usage. There is a reserved slot for a DC-DC converter on the back plane of the power shelf. The DC-DC may transfer DC bus voltage to a standby DC output that may be customized upon request.

Powerstax Europe

Units 5-6 Heron Avenue
Wickford
Essex
SS11 8DL, UK

Powerstax North America

9306 S. Longwood Drive
Granbury
Texas 76049
USA

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