



### FEATURES

- RoHS compliant
- 1U height, 18.3" width, 16" depth powershell
- Holds 3 D1U series power supplies
- Hot insertion / removal
- Blind-docking connection
- Lug DC output connection for 2 AWG cables
- I<sup>2</sup>C interface
- Signal connector
- Optional shelf to shelf signal connector (up to 2 shelves in parallel)

### DESCRIPTION

The S1U-X3 is a 1U x 19" EIA Rack Mount Power Shelf designed for holding three 12V or 48V D1U Front End Power Supplies in current sharing applications. It is intended for distributed power architecture applications in the Servers, Storage Networking and Data Communications markets. There are two lug terminal connections for #2 AWG cabling for the DC output. System connection through the I<sup>2</sup>C bus reports the performance status of the power supplies within the power shelf. Two Power Shelves can operate in parallel by an optional Shelf-to-Shelf cable, doubling the power output to the maximum capability of 9.6kW for two 12V power shelves or 12kW for two 48V power shelves.

SELECTION GUIDE		
	Part Number	Description
<b>Discontinued</b>	S1U-3X-16-A-12-RC	Power shelf for 12V D1U
<b>Available</b>	S1U-3X-16-A-48-RC	Power shelf for 48V D1U

OUTPUT AND PROTECTION CHARACTERISTICS		
Parameter		
Main output set point	Output total regulation	Please Refer to Appropriate D1U Datasheet on <a href="http://www.murata-ps.com">www.murata-ps.com</a>
	Output ripple voltage & noise	
	Output current operating range	
Standby output set point	Output total regulation	
	Output ripple voltage & noise	
	Output current operating range	
Efficiency		
Start-up time		
Transient response main output		
Transient response standby output		
Current sharing accuracy (up to 3 in parallel with 5A total minimum current)		
Hold-up time		
Over-temperature (Auto-restart)		
Over voltage main output (Latching)		
Over voltage standby output (Latching)		
Over current main output (Latching)		
Over current standby output (Latching)		

**D1U Family Part Numbering**

**D1U-W-1200-12-HA1C**

D = Distributed Power

1U = 1U

W = Wide AC input

1200 = 1200 Watts  
1600 = 1600 Watts  
2000 = 2000 Watts (only available in 48V output model)

C = RoHS compliant

1 = Airflow front to back,  
2 = Airflow back to front

Standby Output Voltage  
A=5V, B=12V, C=3.3V,  
0=no standby

H = Hotplug connector

12 = Main output 12V  
48 = Main output 48V

EMISSIONS & IMMUNITY (with power supplies inserted) <sup>1</sup>		
Conditions	Description	Criteria
Harmonics	IEC/EN 61000-3-2	
Voltage fluctuation & flicker	IEC/EN 61000-3-3	
Emission conducted	FCC 47 CFR Parts 15 / CISPR 22 / EN 55022	Class A, 6dB margin
Emission radiated	FCC 47 CFR Parts 15 / CISPR 22 / EN 55022	Class A, 6dB margin
ESD	IEC/EN 61000-4-2	4kV contact discharge
		8kV operational air discharge
		15kV non-operational air discharge
Electromagnetic field	IEC/EN 61000-4-3	
Electrical fast transients/burst	IEC/EN 61000-4-4	
Surge	IEC/EN 61000-4-5	1kV/2kV, performance criteria B
RF Conducted immunity	IEC/EN 61000-4-6	3 Vac, 80% AM, 1kHz, Performance criteria A
Magnetic immunity	IEC/EN 61000-4-8	3A/m
Voltage dips, interruptions	IEC/EN 61000-4-11	

SAFETY	
Parameter	Condition
Agency approvals	c-CSA-us (CSA 60950-1-03/UL 60950-1, first edition)
Material flammability	UL 94V-0

<sup>1</sup> Product is designed to meet the referenced standards.



GENERAL CHARACTERISTICS					
Parameter	Conditions	Min.	Typ.	Max.	Units
Storage Temperature Range	Non-condensing	-40		70	°C
Operating Temperature Range		0		50	
Operating Humidity	Non-condensing	10		90	%
Storage Humidity		5		90	
Shock	30G non operating				
Sinusoidal Vibration	0.5G, 5 – 500 Hz				
MTBF	Calculated per Bellcore at Ta=30°C	200			x10 <sup>5</sup> hrs
	Demonstrated	200			x10 <sup>5</sup> hrs

CONNECTOR TO CUSTOMER SYSTEM				
Signal Connector: MOLEX # 39-28-5204 OR TYCO # 281282-1				
Pin Assignment	Signal Name	Description	High Level Low Level	I Max
1	AC_OK1 <sup>1</sup>	Input AC Voltage 'OK' signal output for the shelf	open drain < 0.7V	- 2 mA + 4 mA
2	P_Good1 <sup>2</sup>	Power good signal output for the shelf	open drain < 0.7V	- 2 mA + 4 mA
3	PS_On1 <sup>3</sup>	Power enable for the shelf	> 2.1V (open, or Vsb) < 0.7V (active, PS:On)	- 1 mA - 4 mA
4	NOT USED			
5	AC_OK0 <sup>1</sup>	Input AC Voltage "OK" signal output for the shelf	open drain < 0.7V	- 2 mA + 4 mA
6	P_Good0 <sup>2</sup>	Power good signal output for the shelf	open drain < 0.7V	- 2 mA + 4 mA
7	PS_On0 <sup>3</sup>	Power enable for the shelf	> 2.1V (open, or Vsb) < 0.7V (active, PS:On)	- 1 mA - 4 mA
8	NOT USED			
9	I <sup>2</sup> C Adr2	Address input 2	> 2.1V, < Vsb < 0.8V	± 1 mA
10	I <sup>2</sup> C Clock <sup>4</sup>	I <sup>2</sup> C serial clock bus	Vsb	
11	I <sup>2</sup> C Data <sup>4</sup>	I <sup>2</sup> C serial data bus	Vsb	
12	I_SHARE			
13	SENSE + <sup>5</sup>			
14	SENSE - <sup>5</sup>			
15	Vsb	Standby voltage output		
16	Vsb	Standby voltage output		
17	Vsb	Standby voltage output		
18	GND	GROUND		
19	GND	GROUND		
20	GND	GROUND		

All control signals are with respect to Ground. Negative currents exit the power supply.

<sup>1</sup> Signal goes low when any one of the three power supplies loses AC

<sup>2</sup> Signal goes low when any one of the three power supplies fail

<sup>3</sup> Pull this pin to GND to turn on three power supplies at the same time. Use I<sup>2</sup>C to turn on one power supply at a time.

<sup>4</sup> Recommended 10KOhm pull up resistor to host 3.3 or 5V rail

<sup>5</sup> Short Sense+ to +Vout and Sens- to GND at the point of load

### SHELF TO SHELF CONNECTION

Signal Connector: MOLEX # 39-28-5164 OR TYCO # 281281-1

Pin Assignment	Signal Name	Description	High Level Low Level	I Max
1	AC_OK <sup>1</sup>	Input AC Voltage 'OK' signal output for the shelf	open drain < 0.7V	- 2 mA + 4 mA
2	P_Good <sup>1</sup> <sup>2</sup>	Power good signal output for the shelf	open drain < 0.7V	- 2 mA + 4 mA
3	PS_On <sup>1</sup> <sup>3</sup>	Power enable for the shelf	> 2.1V (open, or Vsb) < 0.7V (active, PS:On)	- 1 mA - 4 mA
4	NOT USED			
5	NOT USED			
6	I <sup>2</sup> C Clock <sup>4</sup>	I <sup>2</sup> C serial clock bus	Vsb	
7	I <sup>2</sup> C Data <sup>4</sup>	I <sup>2</sup> C serial data bus	Vsb	
8	I_SHARE			
9	SENSE + <sup>5</sup>			
10	SENSE - <sup>5</sup>			
11	Vsb	Standby voltage output		
12	Vsb	Standby voltage output		
13	Vsb	Standby voltage output		
14	GND	GROUND		
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16	GND	GROUND		

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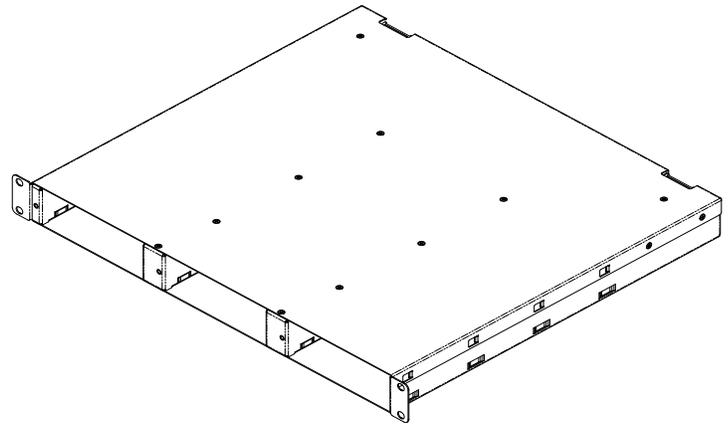
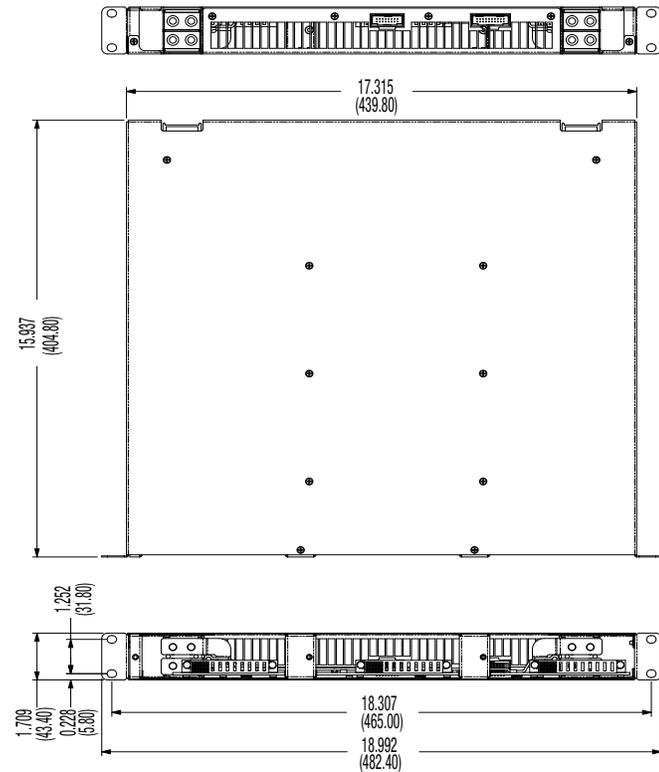
<sup>4</sup> Recommended 10KOhm pull up resistor to host 3.3 or 5V rail

<sup>5</sup> Short Sense+ to +Vout and Sens- to GND at the point of load

### OPTIONAL ACCESSORIES

Description	Murata-PS Part Number
Shelf to Shelf Cable	535-413-1537-1

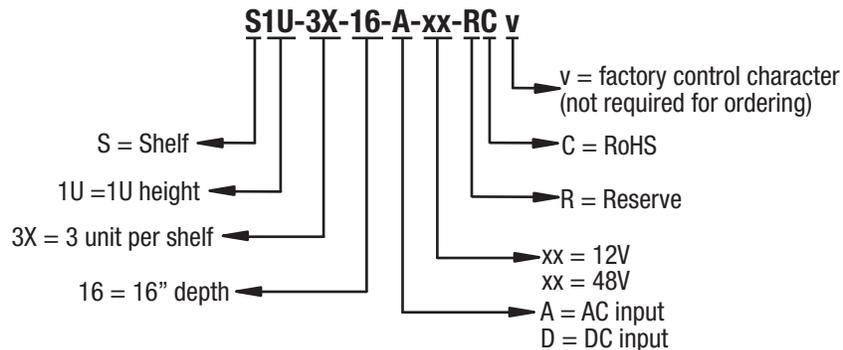
### MECHANICAL DIMENSIONS



**NOTES:**

1. The DC output terminals are of terminal block style that will allow connection using crimp type right-angle lugs accepting up to AWG#2 wire, Panduit lug LCC2-14AWF-Q or equivalent is recommended.
2. Two M6 studs at 15.88 mm centre spacing are provided for connection to each pole. Hardware is provided for fastening the lugs/wires as well as terminal block covers

### PRODUCT LABEL INFORMATION



Murata Power Solutions, Inc.  
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 ISO 9001 and 14001 REGISTERED



**This product is subject to the following operating requirements and the Life and Safety Critical Application Sales Policy:**  
 Refer to: <http://www.murata-ps.com/requirements/>

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