Murata Power Solutions

S1U-3X

1U 19 inch Power Shelf for D1U Power Supplies

FEATURES

- RoHS compliant
- 1U height, 18.3" width, 16" depth powershelf
- Holds 3 D1U series power supplies
- Hot insertion / removal
- Blind-docking connection
- Lug DC output connection for 2 AWG cables
- I²C interface
- Signal connector
- Optional shelf to shelf signal connector (up to 2 shelves in parallel)

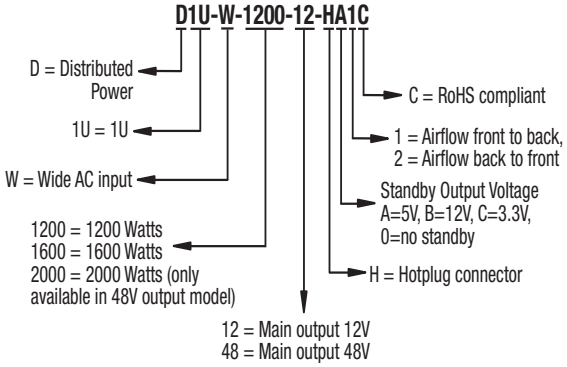
DESCRIPTION

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 I²C 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
Discontinued	S1U-3X-16-A-12-RC	Power shelf for 12V D1U
Available	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 **www.murata-ps.com** 12V 1200W: CPS_D1U-W-1200-12.pdf 12V 1600W: CPS_D1U-W-1600-12.pdf 48V 1200W: CPS_D1U-W-1200-48.pdf 48V 1600W: CPS_D1U-W-1600-48.pdf 48V 2000W: CPS_D1U-W-2000-48.pdf
	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



EMISSIONS & IMMUNITY (with power supplies inserted)[1]		
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

RoHS COMPLIANT

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For full details go to www.murata-ps.com/rohs

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1 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			$x10^5$ hrs
	Demonstrated	200			$x10^5$ 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[1]	Input AC Voltage 'OK' signal output for the shelf	open drain < 0.7V	- 2 mA + 4 mA
2	P_Good1[2]	Power good signal output for the shelf	open drain < 0.7V	- 2 mA + 4 mA
3	PS_On1[3]	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[1]	Input AC Voltage "OK" signal output for the shelf	open drain < 0.7V	- 2 mA + 4 mA
6	P_Good0[2]	Power good signal output for the shelf	open drain < 0.7V	- 2 mA + 4 mA
7	PS_On0[3]	Power enable for the shelf	> 2.1V (open, or Vsb) < 0.7V (active, PS:On)	- 1 mA - 4 mA
8	NOT USED			
9	I^2C Adr2	Address input 2	> 2.1V, < Vsb < 0.8V	± 1 mA
10	I^2C Clock[4]	I^2C serial clock bus	Vsb	
11	I^2C Data[4]	I^2C serial data bus	Vsb	
12	I_SHARE			
13	SENSE +[5]			
14	SENSE -[5]			
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.

[1] Signal goes low when any one of the three power supplies loses AC
[2] Signal goes low when any one of the three power supplies fail
[3] Pull this pin to GND to turn on three power supplies at the same time. Use I^2C to turn on one power supply at a time.
[4] Recomended 10KOhm pull up resistor to host 3.3 or 5V rail
[5] 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_OK1[1]	Input AC Voltage 'OK' signal output for the shelf	open drain < 0.7V	- 2 mA + 4 mA
2	P_Good1[2]	Power good signal output for the shelf	open drain < 0.7V	- 2 mA + 4 mA
3	PS_On1[3]	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^2C Clock[4]	I^2C serial clock bus	Vsb	
7	I^2C Data[4]	I^2C serial data bus	Vsb	
8	I_SHARE			
9	SENSE +[5]			
10	SENSE -[5]			
11	Vsb	Standby voltage output		
12	Vsb	Standby voltage output		
13	Vsb	Standby voltage output		
14	GND	GROUND		
15	GND	GROUND		
16	GND	GROUND		

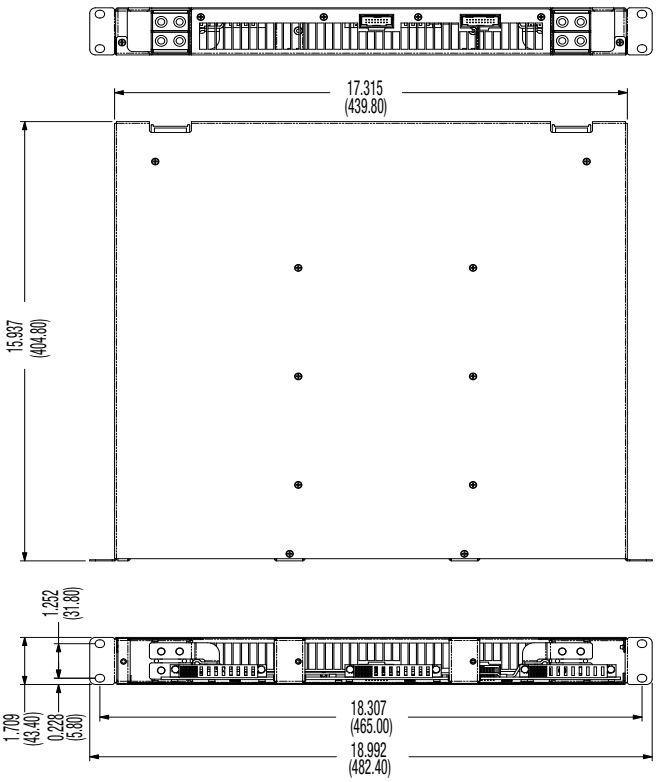
All control signals are with respect to Ground. Negative currents exit the power supply.

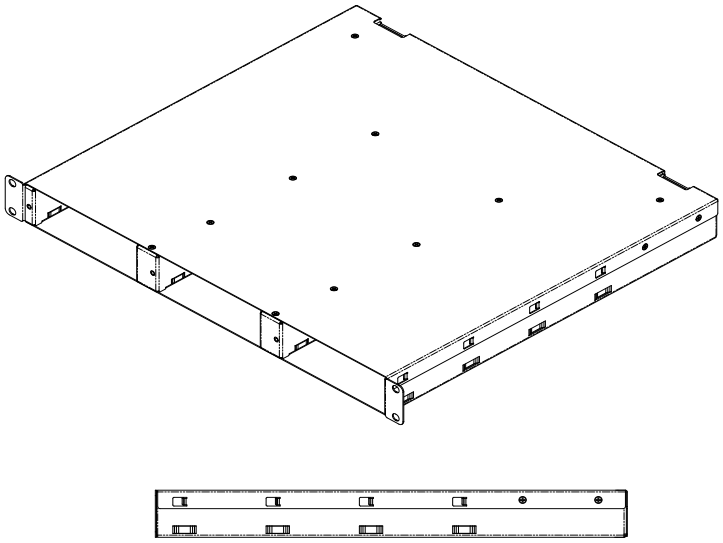
[1] Signal goes low when any one of the three power supplies loses AC
[2] Signal goes low when any one of the three power supplies fail
[3] Pull this pin to GND to turn on three power supplies at the same time. Use I^2C to turn on one power supply at a time.
[4] Recomended 10KOhm pull up resistor to host 3.3 or 5V rail
[5] 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

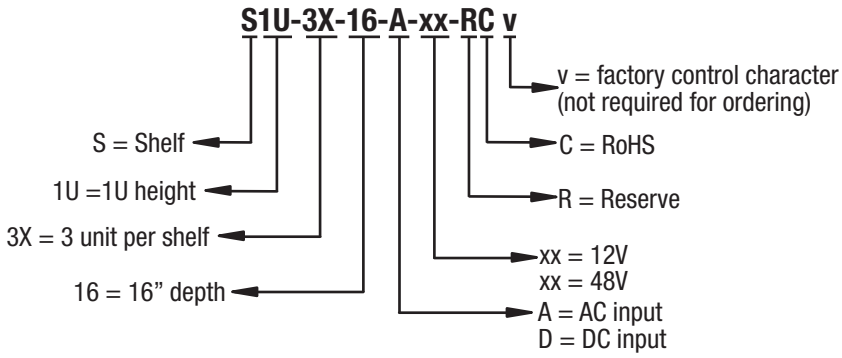
MECHANICAL DIMENSIONS





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



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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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