

DS1100SLPE

1100 Watts Distributed Power System

Data Sheet

Front-end Bulk Power Total Output Power: 1100 W continuous Wide Input Voltage: 90 to 264 Vac

SPECIAL FEATURES

- 1100 W output power
- High-power and short form factor
- 1U power supply
- High-density design: 26 W/in³
- Active Power Factor Correction
- EN61000-3-2 harmonic compliance
- Inrush current control
- 80plus Platinum Efficiency
- N+1 or N+N Redundant
- Hot-pluggable
- Active current sharing
- Full digital control
- PMBus compliant
- Accurate input power reporting
- Compatible with Artesyn's Universal PMBus GUI
- Reverse airflow option
- Two-year warranty

COMPLIANCE

- EMI Conducted/Radiated Class A Limits + 6 dB margin
- EN61000-4 Electromagnetic compatibility
- ROHS 6/6

SAFETY

- UL/cUL 60950 (UL Recognized)
- DEMKO+ CB Report EN60950
- CE Mark
- China CCC
- BSMI







Electrical Specification	Electrical Specifications			
Input				
Input range	90 - 264 Vac			
Frequency	47 Hz to 63 Hz			
Efficiency	94.0% peak			
Max input current	14.5 Arms			
Inrush current	55 Apk			
Conducted EMI	Class A +6 dB margin			
Radiated EMI	Class A +6 dB margin			
Power factor	> 0.9 beginning at 20% load			
ITHD	10%			
Leakage current	1.75 mA			
Hold-up time	16 ms at full load			

Output						
	Mair	DC Ou	tput	Stand	by DC O	utput
	MIN	NOM	MAX	MIN	NOM	MAX
Nominal setting	-1%	12	+1%	-1%	3.3	1%
Total output regulation range	11.64 V	12	12.36 V	3.14 V	3.3	3.46 V
Dynamic load regulation range	11.64 V		12.36 V	3.14 V		3.46 V
Output ripple			180 mVp-p			45 mVp-p
Output current	0.5 A ¹		90.0 A	0.1 A		3.0 A
Current sharing	Within ±5.625	5A of eac to 100%			N/A	
Capacitive loading	500 uF		11,000 uF	100 uF		680 uF
Start-up from AC to output			2200 ms			1700 ms
Output rise time	5 ms		50 ms	2 ms		60 ms

Note: Outputs shall be isolated from the chassis ground by at least 50 V.

'Minimum starting current for transient load response testing only. Unit is designed to operate and be within output regulation at zero load.



Electrical Specifications

Protections

Totaliona				
Main Output	MIN	NOM	MAX	
Overcurrent protection ²	107%		130%	
Overvoltage protection ¹	13.5 V		15.0 V	
Overtemperature protection	Yes, autorecovery			
Fan fault protection	Yes			
Standby Output				
Over-current protection ³ :	110%		150%	
Over-voltage protection ¹	3.6 V		3.9 V	

¹ Latch mode

Control and Status Signals

Input Signals

PSON_L

Active LOW signal which enables/disables the main output. Pulling this signal LOW will turn-on the main output. Recommended pull-up resistor to VSB is 5.1 kohms. A 100 pF decoupling capacitor is also recommended.

tp tp tp

		MIN	MAX
V _{IL}	Input logic level LOW		0.8 V
V _{IH}	Input logic level HIGH	2.0 V	3.6 V
SOURCE	Current that may be sourced by this pin		2 mA
I _{SINK}	Current that may be sunk by this pin at low state		0.5 mA

PSKILL_H

First break/last mate active LOW signal which enables/disables the main output. This signal will have to be pulled to ground at the system side with a 220 ohm resistor. A 100 pF decoupling capacitor is also recommended.

		MIN	MAX
V _{IL}	Input logic level LOW		0.8 V
V _{IH}	Input logic level HIGH	2.0 V	3.6 V
SOURCE	Current that may be sourced by this pin		2 mA
ISINK	Current that may be sunk by this pin at low state		0.5 mA

VSENSE+, VSENSE-

VSENSE+ and VSENSE- lines are the remote sense lines for regulation. Each line will compensate for a maximum of 100 mV

Ordering Information			
Model Number	Nominal Main Output	Standby Output	Airflow Direction
DS1100SLPE-3	12 V	3.3 V @ 3 A	Std (forward)
DS1100SLPE-3-001	12 V	3.3 V @ 3 A	Reverse ¹

¹ Derating may apply.

I2C Addressing]	
A1 Pin	A0 Pin	PMBus (w/r)
0	0	B0/B1
0	1	B2/B3
1	0	B4/B5
1	1	B6/B7

² No shutdown if the overcurrentis within the range and does notlast for more than 200 ms, otherwise latch will occur

³ Autorecovery

Control and Status Signals

Output Signals

ACOK

Signal used to indicate the presence of AC input to the power supply. A logic level HIGH will indicate that the AC input to the power supply is within the operating range while a logic level LOW will indicate that AC has been lost.

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This is an open collector/drain output. This pin is pulled high by a 10 kohm resistor connected to 3.3 V inside the power supply. It is recommended that this pin be onnected to a 100 pF decoupling capacitor and pulled down by a 100 kohm resistor.

		MIN	MAX
V _{IL}	Input logic level LOW		0.6 V
V _{IH}	Input logic level HIGH	2.0 V	3.6 V
SOURCE	Current that may be sourced by this pin		3.3 mA
I _{SINK}	Current that may be sunk by this pin at low state		0.7 mA

PWR_GOOD / PWOK

Signal used to indicate that main output voltage is within regulation range. The PWR_GOOD signal will be driven HIGH when the output voltage is valid and will be driven LOW when the output falls below the under-voltage threshold.

This signal also gives an advance warning when there is an impending power loss due to loss of AC input or system shutdown request. More details in the Timing Section.

This is an open collector/drain output. This pin is pulled high by a 10 kohm resistor connected to 3.3 V inside the power supply. It is recommended that this pin be connected to a 100 pF decoupling capacitor and pulled down by a 100 kohm resistor.

		MIN	MAX
V _{IL}	Input logic level LOW		0.8 V
V _{IH}	Input logic level HIGH	2.0 V	3.6 V
I _{SOURCE}	Current that may be sourced by this pin		3.3 mA
I _{SINK}	Current that may be sunk by this pin at low state		0.7 mA

Output Signals

PS_PRESENT

Signal used to indicate to the system that a power supply is inserted in the power bay. This pin is shorted to the standby return in the power supply. Recommended pull-up resistor to VSB is 5.1 kohms. A 100 pF decoupling capacitor is also recommended.

PS INTERRUPT

Active low signal used by the power supply to indicate to the system that a change in power supply status has occurred. This event can be triggered by faults such as OVP, OCP, OTP, and fan fault. This signal can be cleared by a CLEAR_FAULT command. Recommended pull-up resistor to VSB is 5.1 kohms. A 100 pF decoupling capacitor is also recommended.

		MIN	MAX
V _{IL}	Input logic level LOW		0.8 V
V _{IH}	Input logic level HIGH	2.0 V	3.6 V
SOURCE	Current that may be sourced by this pin		4 mA
I _{SINK}	Current that may be sunk by this pin at low state		4 mA

Control and Status Signals

BUS Signals

ISHARE

Bus signal used by the power supply for active current sharing. All power supplies con# gured in the system for n+n sharing will refer to this bus voltage inorder to load share.

tp tp tp

Voltage Range	The range of this signal for active sharing will be up to 8.0 V, which corresponds to the maximum output current.			
		MIN	MAX	
I _{SHARE} Voltage	Input logic level LOW	7.75	8.25	
	Voltage at 50% load, stand-alone unit	3.85	4.15	
	Voltage at 0% load, stand-alone unit	0	1.0	
Source	Current that may be sourced by this pin		160 mA	

SCL, SDA

Clock and data signals de# ned as per I2C requirements. It is recommended that these pins be pulled-up to a 2.2 kohm resistor to 3.3 V and a 100 pF decoupling capacitor at the system side.

VL	Input logic level LOW		0.8 V
VH	Input logic level HIGH	2.0 V	3.6 V

Note: All signal noise levels are below 400 mVpk-pk from 0 - 100 MHz.

Electrical Specifications

LED Indicators

A single bi-color LED is used to indicate the power supply status.

	Status LED	Fail LED	
Color	Green	Amber/Green	
No input to PSU	Off	Off	
Input present, STBY ON, main output OFF	On	Blinking Amber, at least 1 Hz	
Main output ON	On	green	
Power supply warning (hi-temp)	On	Blinking Amber/Green, at 2:1 ratio, at least 1 Hz	
Power supply warning (slow fan)	Off	Blinking Amber/Green, at 1:1 ratio, at least 1Hz	
Power supply failure (OVP, OTP, FAN FAULT)	On	Amber	

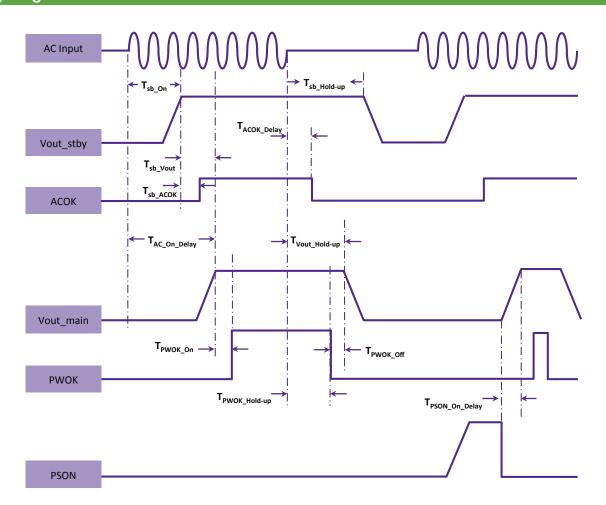
Firmware Reporting And Monitoring			
	Accuracy Range		
Output loading	<10%	10% to 20%	20% to 100%
Input voltage	±5%		
Input current	±1 A fixed error	±10%	±5%
Input power	30 W fixed error up to 120 W	±15%	±10%
Output voltage	±5%		±2%
Output current	0.8 A fixed error	±15%	±5%
Temperature	±5 °C		
Fan speed	Actual ±250 RPM		

PMBus	YES
Remote ON/OFF	YES

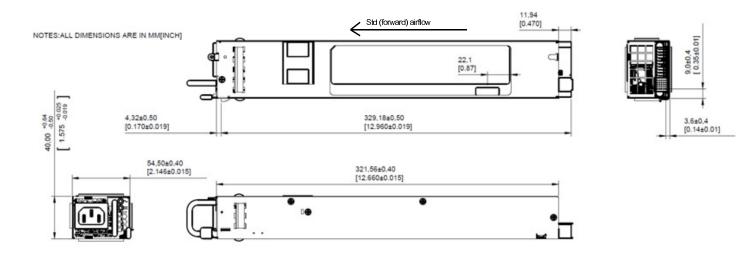
Electrical Specifications				
Timing Specific	Timing Specifications			
	Description	Min	Max	Unit
T _{sb_On}	Delay from AC being applied to standby output being within regulation		2500	ms
T _{sb_ACOK}	Delay from standby output to ACOK assertion		1500	ms
T _{sb_Vout}	Delay from standby output to main output voltage being within regulation		1000	ms
T _{AC_On_Delay}	Delay from AC being applied to main output being within regulation		3000	ms
T _{PWR_GOOD_On}	Delay from output voltages within regulation limits to PWOK asserted	100	1000	ms
T _{ACOK_Delay}	Delay from loss of AC to assertion of ACOK		20	ms
T _{PWR_GOOD_Hold-up}	Delay from loss of AC to deassertion of PWOK	5		ms
T _{Vout_Hold-up}	Delay from loss of AC to main output being within regulation	16		ms
T _{sb_Hold-up}	Delay from loss of AC to standby output being within regulation	25		ms
T _{PWR_GOOD_Off}	Delay from deassertion of PWOK to output falling out of regulation	1	700	ms
T _{PSON On Delay}	Delay from PSON assertion to output being within regulation		400	ms

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Timing Diagram

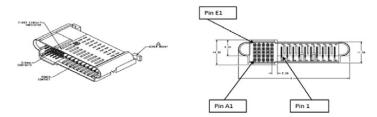


Mechanical Outline



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Output Connector	
Output Connector Part Number	TEI 2-1926736-2
Mating Connector Part Number	TEI 2-1926739-5, 1892787-6 or equivalent



Output Connector Pin Configuration			
A1	3.3 VSB	Standby Output	
B1	3.3 VSB	Standby Output	
C1	3.3 VSB	Standby Output	
D1	3.3 VSB	Standby Output	
E1	3.3 VSB	Standby Output	
A2	SGND	Signal Ground	
B2	SGND	Signal Ground	
C2	Reserved		
D2	Reserved		
E2	Reserved		
A3	A2/A_Select	Optional address line	
B3	A0	I ² C Address	
C3	SDA	I ² C Data	
D3	-Remote_Sense	Wire drop compensation	
E3	+Remote_Sense	Wire drop compensation	
A4	SCL	I ² C Clock	
B4	PSON_L	Enable/Inhibit	
C4	PS_INTERRUPT_L	Alert for failure	
D4	A1	I ² C Address	
E4	ACOK	Input indicator	
A5	PSKILL_L	First break/lastmate pin	
B5	ISHARE	Current share bus	
C5	PWOK	Output indicator	
D5	Reserved		
E5	PS_PRESENT_L	Power supply present	
P1-P5	+12 V Return	Main output return contact	
P6-P10	12 V	Main output power contact	

Environmental Specifications		
Operating temperature	DS1100SLPE-3 DS1100SLPE-3-001	Full power at -5 to 55 °C, can operate up to 65 °C at 660 W derated power Full power at -5 to 45 °C, can operate up to 55 °C at 660 W derated power
Operating altitude	up to 10,000 feet	
Operating relative humidity	20% to 90% non-condensing	
Non-operating temperature	-40 to +70 °C	
Non-operating relative humidity	10% to 95% non-condensing	
Non-operating altitude	up to 50,000 feet	
Vibration and shock	Standard operating/non-operating random shock and vibration	
ROHS compliance	Yes	
MTBF	>500,000 hours using Telcordia Issue 2, Method 1 Case 1 at 40 °C ambient at full load.	
Operating life	Minimum of 7 years at typical operating conditions	
Reliability	All electronic component derating analysis and capacitor life calculation is done at 40 degC ambient, 80% of maximum rated load, nominal input line voltage.	

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