C1U-W-1200-48-Tx Series

AC/DC Front End Power Supply

Murata Power Solutions

Discontinued

PRODUCT OVERVIEW

The C1U-W-1200 is a 1200 Watt universal AC input, power-factor-corrected (PFC) front-end power supply for general applications. The main output is 48V with a standby output of either 5V, 3.3V, or 12V. Packaged in a 1U low profile chassis, it is designed to deliver reliable bulk power to servers, workstations, storage systems or any 48V distributed power architecture systems requiring high power density. The highly efficient electrical and thermal design with internal cooling fans supports reliable operation conditions. The C1U-W-1200 is designed to autorecover from overtemperature faults.

FEATURES

- 1200W (110/220Vac) Output power
- 48V Main output, 3.3V, 5V or 12V standby output
- Dimensions: 5.5" x 14.2" x 1.67"
- 9.2 Watts per cubic inch density
- N+1 redundancy capable (up to 3 in parallel)
- Active current sharing on main output
- Overvoltage, overcurrent, overtemperature protection
- Internal cooling fans
- RoHS compliant

SELECTION GUIDE

Part Number	Power Output Universal Line	Main Output	Standby Output	Airflow
C1U-W-1200-48-TA1C	1200W	48V	5V	Front to back
C1U-W-1200-48-TC1C	1200W	48V	3.3V	Front to back
C1U-W-1200-48-TA2C	1200W	48V	5V	Back to front
C1U-W-1200-48-TC2C	1200W	48V	3.3V	Back to front
C1U-W-1200-48-TB1C	1200W	48V	12V	Front to back
C1U-W-1200-48-TB2C	1200W	48V	12V	Back to front

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Operating Range		90	115/230	264	Vac
Input Frequency		47	55	63	Hz
Turn-on Input Voltage	Ramp up	78.5		86.5	Vac
Turn-off Input Voltage	Ramp down	70.5		78	
Maximum Input Current				15	Arms
Inrush Current				90	Apk
Power Factor	Output load >90%	95%			
	Output load >50%	75%			

OUTPUT VOLTAGE CHARACTERISTICS

Output Voltage	Parameter	Conditions	Min.	Typ.	Max.	Units
48V	Voltage Set Point Accuracy			48		Vdc
	Line and Load Regulation		46.54		49.44	
	Ripple Voltage & Noise[1]	20MHz Bandwidth			480	mV p-p
	Output Current		2		24.6	A
	Load Capacitance				10000	µF
3.3Vsb	Voltage Set Point Accuracy			3.3		Vdc
	Line and Load Regulation		3.2		3.4	
	Ripple Voltage & Noise[1]	20MHz Bandwidth			50	mV p-p
	Operating Range		0		4.5	A
	Load Capacitance				1530	µF
5Vsb	Voltage Set Point Accuracy			5		Vdc
	Line and Load Regulation		4.85		5.15	
	Ripple Voltage & Noise[1]	20MHz Bandwidth			50	mV p-p
	Operating Range		0		4	A
	Load Capacitance				1530	µF
12Vsb	Voltage Set Point Accuracy			12		Vdc
	Line and Load Regulation		11.2		12.4	
	Ripple Voltage & Noise[1]	20MHz Bandwidth			120	mV p-p
	Operating Range		0		1.7	A
	Load Capacitance				1530	µF

[1] Ripple and noise are measured with 0.1 uF of ceramic capacitance and 10 uF of tantalum capacitance on each of the power supply outputs. A short coaxial cable with 50ohm scope termination is used.

RoHS COMPLIANT

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

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Remote Sense	Compensates for up to 0.12V of lead drop with or without remote sense connected		120		mV
Efficiency	220Vac		90.6		%
Output Rise Monotonicity	Overshoot less than 10% for all outputs, no voltage negative between 10% to 95% during ramp up				
Startup Time	AC ramp up		1.5		s
	PS_On activated		150		ms
Transient Response	48V Ramp 1A/µs			±600	mV
	3.3Vsb Ramp 1A/µs			±165	
	5Vsb Ramp 1A/µs			±250	
	12Vsb Ramp 1A/µs				
Current sharing accuracy (up to 3 in parallel)	At 100% load			±10	%
Holdup Time		20			ms

ENVIRONMENTAL 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	Telcordia SR-332 @ 30°C	200K			hrs
	Demonstrated	200K			hrs
Safety Approvals	CAN/CSA C22.2 No. 60950-1-07, 2nd Ed. UL 60950-1, 2nd Ed. IEC 60950-1:2005 (2nd Edition); EN 60950-1:2006 +A11				
Input Fuse	Power Supply has internal 20A/250V fast blow fuse on the AC line input				
Material Flammability	UL 94V-0				
Switching Frequency	90KHz for Boost PFC Converter 165KHz for Main Output Converter 200KHz for Standby Output Converter				
Weight	5.7 lbs (2.6kg)				

PROTECTION CHARACTERISTICS

Output Voltage	Parameter	Conditions	Min.	Typ.	Max.	Units
	Overtemperature	Autorestart	55		65	°C
48V	Overvoltage	Latching	54		59	V
	Overcurrent	Latching	26		35	A
3.3Vsb	Overvoltage	Latching	3.57		4.02	V
	Overcurrent	Latching	6.5		8	A
5Vsb	Overvoltage	Latching	5.6		6	V
	Overcurrent	Latching	5		7	A
12Vsb	Overvoltage	Latching	13		14	V
	Overcurrent	Latching	2.5		3	A

ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Insulation Safety Rating / Test Voltage	Input to Output - Reinforced	3000			Vrms
	Input to Chassis - Basic	1500			Vrms
Isolation	Output to Chassis				
	Output to Output				
Grounding	Main Output Return and Standby Output Return are connected internally. 100kΩ resistor parallel with 100nF capacitor is connected between Return and power supply chassis. Main Output Return should be connected to the System Chassis.				

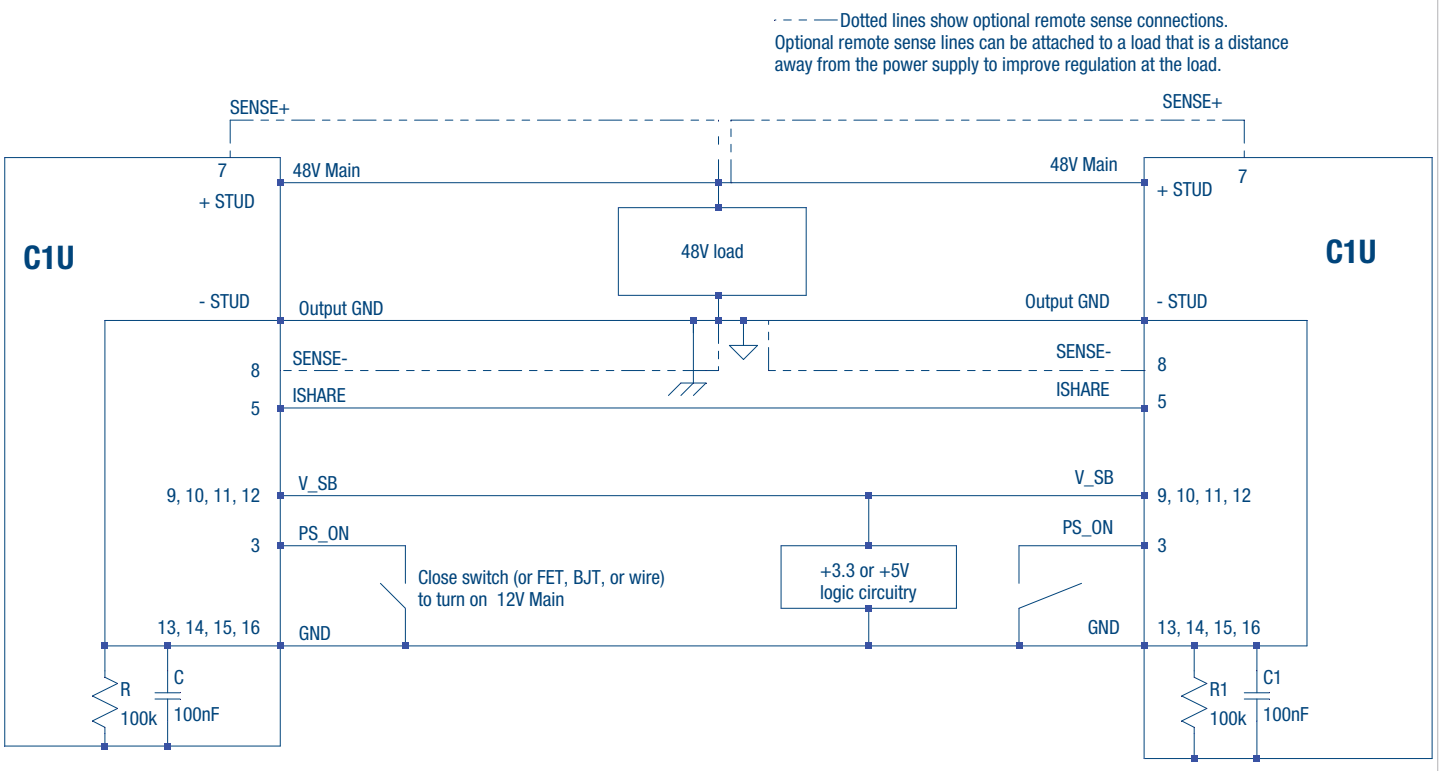
STATUS INDICATORS AND CONTROL SIGNALS

Status	Conditions	Description
LED	Off	No AC input to all PS
	Flashing Yellow	Power Supply Failure
	Flashing Green	Main Output Absent
	Green	Power Supply Good
PS_ON	To enable main output	Short PS_ON to GND (required)
		Short SENSE+ to 48 main at point of load (optional for better regulation)
		Short SENSE- to Output GND at point of load (optional for better regulation)

EMISSIONS AND IMMUNITY

Characteristic	Standard	Compliance
Input Current Harmonics	IEC/EN 61000-3-2	Complies
Voltage Fluctuation and Flicker	IEC/EN 61000-3-3	Complies
Conducted Emissions	FCC 47 CFR Part 15/CISPR 22/EN55022	Class A, 6dB margin
Radiated Emissions	FCC 47 CFR Part 15/CISPR 22/EN55022	Class A, 6dB margin
ESD Immunity	IEC/EN 61000-4-2	4kV contact discharge
		8kV operational air discharge
		15kV non-operational air discharge
Radiated Field Immunity	IEC/EN 61000-4-3	Complies
Electrical Fast Transients/Burst Immunity	IEC/EN 61000-4-4	Complies
Surge Immunity	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 Field Immunity	IEC/EN 61000-4-8	3 A/m
Voltage Dips, Interruptions	IEC/EN 61000-4-11	Complies

WIRING DIAGRAM FOR OUTPUT



CURRENT SHARING NOTES

Main Output: Current sharing is achieved using the active current share method. (See wiring diagram for connection details.)

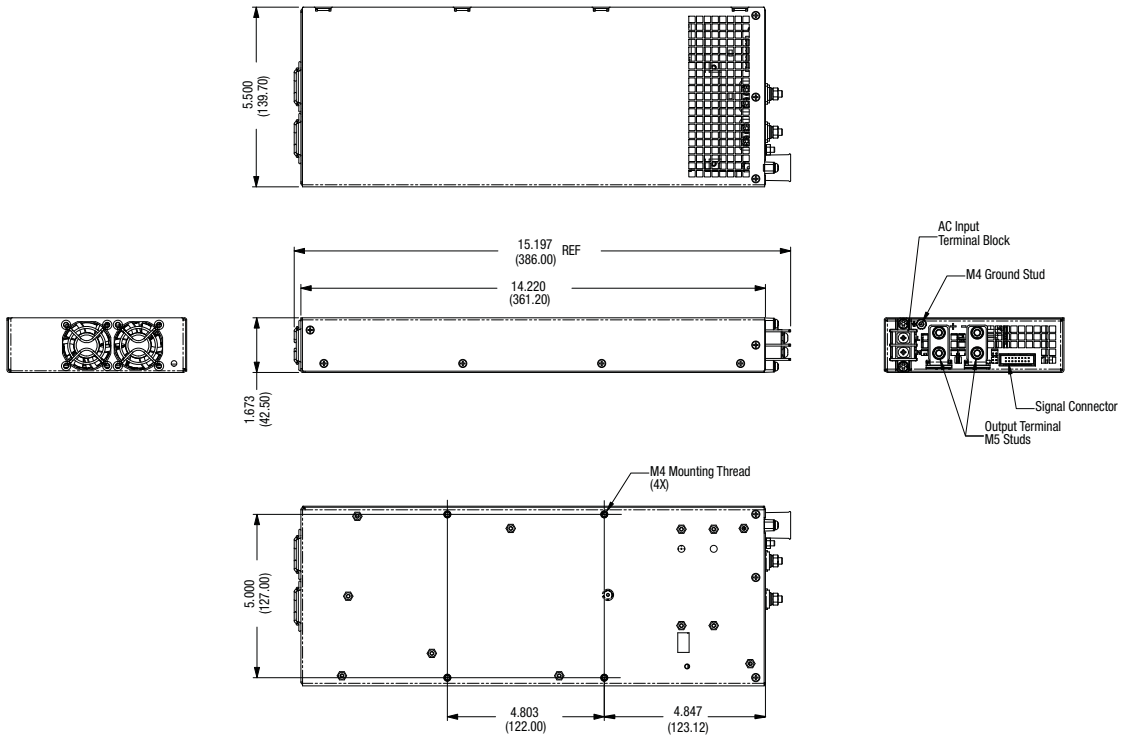
The total combined load must be below 1200W at startup. Current sharing can be achieved with or without remote sense connected to the common load.

V_SB outputs can be tied together for redundancy but total combined output power must not exceed 20W. The V_SB output has internal ORing MOSFET for additional redundancy / internal short protection.

The current share pin 5 is a connection between the two units. It is input and/or output as the voltage on the line controls the current share. A power supply will respond to a change in this voltage but a power supply can also change the voltage depending on the load drawn from it. On a single unit this would read 8V at 100% load. For two units sharing load then this should read 4V for perfect current sharing.

Up to 3 units can be paralleled together. Please consult your Murata sales representative if operation with more than three units in parallel is needed.

MECHANICAL DIMENSIONS

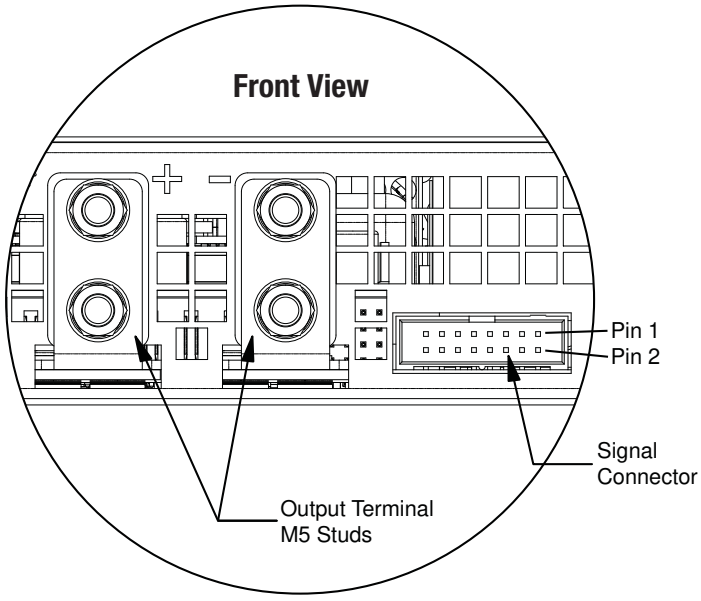


Dimensions: 5.5 " x 14.2" x 1.67" [139.7mm x 361.2mm x 42.5mm]

CONNECTORS

Signal 16 pin connector details, Type: TE Connectivity (Tyco) 281281-1 Mating part 1658622-3

Pin	Signal
1	AC_OK
2	P_GOOD
3	PS_ON
4	BLANK
5	I_SHARE
6	BLANK
7	SENSE+
8	SENSE-
9	V_SB
10	V_SB
11	V_SB
12	V_SB
13	GND
14	GND
15	GND
16	GND
2-Pole terminal Block for AC Line and Neutral	
Stud on Chassis for earth	
+	48V Main
-	Output GND



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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/