POWER

LCC600

600 Watts Convection/Conduction Mounting

Data Sheet

Total Power: 600 W
# of Outputs: Single
Outputs: 12, 28, 36, 48 VDC

RoHS 6/6 COMPLIANT

SPECIAL FEATURES

- 600 W full power at elevated temperatures
- Wide operating temperature range (-40 °C to 85 °C Baseplate)
- Adjustable output
- Remote output On/Off
- AC_OK; DC_OK signals
- 5V standby voltage
- Active current share
- Conduction-cooled / Fanless
- I²C / PMBus™
- Medical and ITE Safety
- Suited for BF Type applications
- Active power factor correction
- Optional IP65 variant
- Optional 277 VAC input variant

COMPLIANCE

- EMI Class B
- EN61000 Immunity

SAFETY

- UL + CSA: 60950-1 2nd Ed. ANSI ES60601-1[3]
- TUV: 60950-1 2nd Ed. 60601-1 3rd Ed.[3]
- CB Scheme: IEC 60950-1 IEC 60601-1
- China CCC
- CE Mark

Electrical Specifications

Input	
Input range	U Suffix: 90 - 264 VAC (100-240 VAC Safety Rating) 127 - 374 VDC H Suffix: 180 - 305 VAC (200-277 VAC Safety Rating) 254 - 420 VDC
Frequency	47 - 63 / 440 Hz
Input fusing	Internal 12.5 A fuse on both L and N lines
EMI	FCC Class B, CISPR22/EN55022 Class B
MIL-STD-461F EMI	Compliance to CE101; CS101, 114, 115, 116 (with external filter[1])
Inrush current	≤ 25 A peak
Power factor	0.99 typical
Harmonics	Meets EN61000-3-2 Class A and Class C[2]
Input current	< 10 Arms @ 100 VAC
Hold up time	20 ms min for Main Output (230 VAC) @ 100% Load
Efficiency	93.3% typical @ 230 VAC; 100% Load; 28 VDC
Leakage current	< 200 µA @ 264 VAC / 60 Hz (U Suffix)
Isolation voltage	U Suffix / H Suffix PRI-SEC: 4,000 VAC (2X MOPP) / 3,000 VAC PRI-Chassis: 1,500 VAC (1X MOPP) / 2,000 VAC SEC-Chassis: 1,500 VAC (1X MOPP) / 1,500 VAC

1. Consult productsuport.ep@artesyn.com for external filter details
2. Meets Class C ≥ 50% load.
3. U suffix have both ITE and Medical Safeties. H suffix carries ITE approval only.

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Electrical Specifications

Output		
Output rating	See Ordering Information Table	
Standby output	5.0 VDC @ 1.5 A Max	
Set point	± 0.5%	Factory set point
Total regulation	Main Output: ± 2.0% 5 Vsb: ± 5%	Combined Line / Load / Temperature
Rated load	600 W maximum	600 W from -40 °C to 85 °C Baseplate Temp. Derate output to 28 W @ 95 °C Baseplate Temp
Minimum load	0 A	For both Main and 5 Vsb Outputs
Output voltage adjust range	See Ordering Information Table	Max power limited to 600 W
Output noise	Main Output: 1.0% max p-p 5 Vsb: 60 mV max p-p	Measured with 0.1 µF Ceramic and 10 µF Tantalum Cap, 20 MHz BW
Remote sense	Compensation up to 500 mV	Pin 10: +Vout_RS / Pin4: -Vout_RS
Over current protection	105 - 130% of full load current	Default is Shutdown mode with Auto-retry every 2~4 sec. Output latches after 20 sec of continuous OCP fault presence. Restart after latch possible through AC recycle, Inhibit toggle or through PMBus.
Over voltage protection	125 - 145% Vo, nom Main Output 125 - 130% 5 Vsb	Latching / AC Recyle or Inhibit toggle required for PSU restart
Over temperature protection	> 95 °C Baseplate Temp	Output Shutdown / Auto-recovery
AC_OK	Open Collector; 0.8 VDC max / 10 mA	Active low when AC is present
DC_OK	Open Collector; 0.8 VDC max / 10 mA	Active low when Main Output is within regulation
Remote inhibit	Contact Closure	Pin 19: Open/Float = ON; Close/Ground = OFF
# Units in parallel operation	Qualified up to 5 units in parallel. Consult factory if more than 5 are required.	Pin 5: IShare pin

Environmental Specifications

Operating temperature range	-40 °C to +85 °C Baseplate yemperature
Storage temperature	-40 °C to +85 °C
Humidity	10% to 95%
Altitude	16,402 ft (Operating) / 50,000 ft (Non-Operating)
Shock	MIL-STD-810F 516.5 Procedure I, VI
Vibration	MIL-STD-810F 514.5 Cat. 4, 10
Ingress protection	IP65 (for suffix “-4P”)
MTBF (calculated)	>2M Hrs, 25 °C per SR-332 Issue 3
Electromagnetic susceptibility	Designed to meet EN61000-4; -3, -4, -5, -8, -11 Level 3, Level 4 for -2
	For H suffix, Level 4 for -5

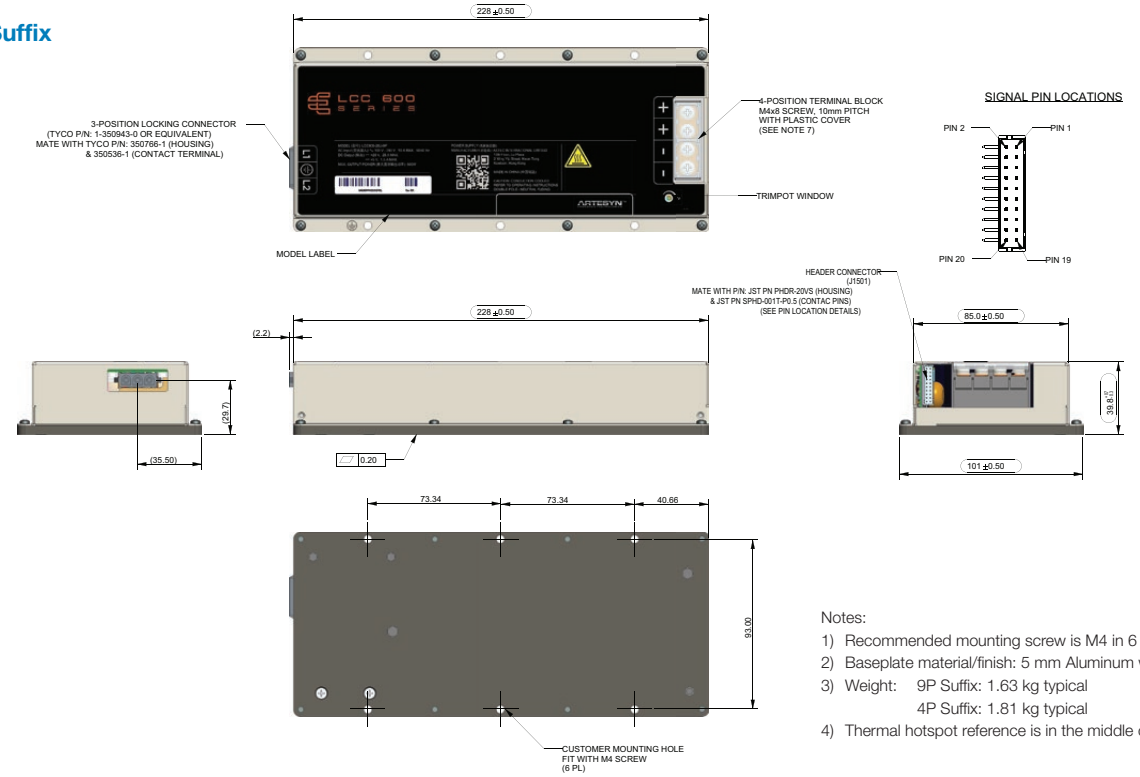
Ordering Information

Model Number*	AC Input	Output Setpoint	Setpoint Tolerance	Adjustment Range	Output Current [A]		Max O/P	Typical Efficiency**	Standby Output	Combined Line/Load Regulation	Output Ripple
					Min	Max	Power [W]				
LCC600-48U-9P	90 - 264	48 V	±0.5%	44 - 54	0	12.5	600	93.0%	5 VDC @ 1.5 A	2%	1%
LCC600-48H-9P	180 - 305										
LCC600-36U-9P	90 - 264	36 V	±0.5%	32 - 38	0	16.7	600	TBD		2%	1%
LCC600-36H-9P	180 - 305										
LCC600-28U-9P	90 - 264	28 V	±0.5%	24 - 30	0	25	600	93.5%		2%	1%
LCC600-28H-9P	180 - 305										
LCC600-12U-9P	90 - 264	12 V	±0.5%	12 - 15	0	50	600	TBD		2%	1%
LCC600-12H-9P	180 - 305										

*Change suffix "-9P" to "-4P" for IP65 rated enclosure with fly lead wires
*Change suffix "-4P" to "-4PR" for IP65 rated enclosure with right angle fly lead wires
*Contact factory for product availability
**Typical Efficiency at high line, factory default voltage and full load

Mechanical Drawings

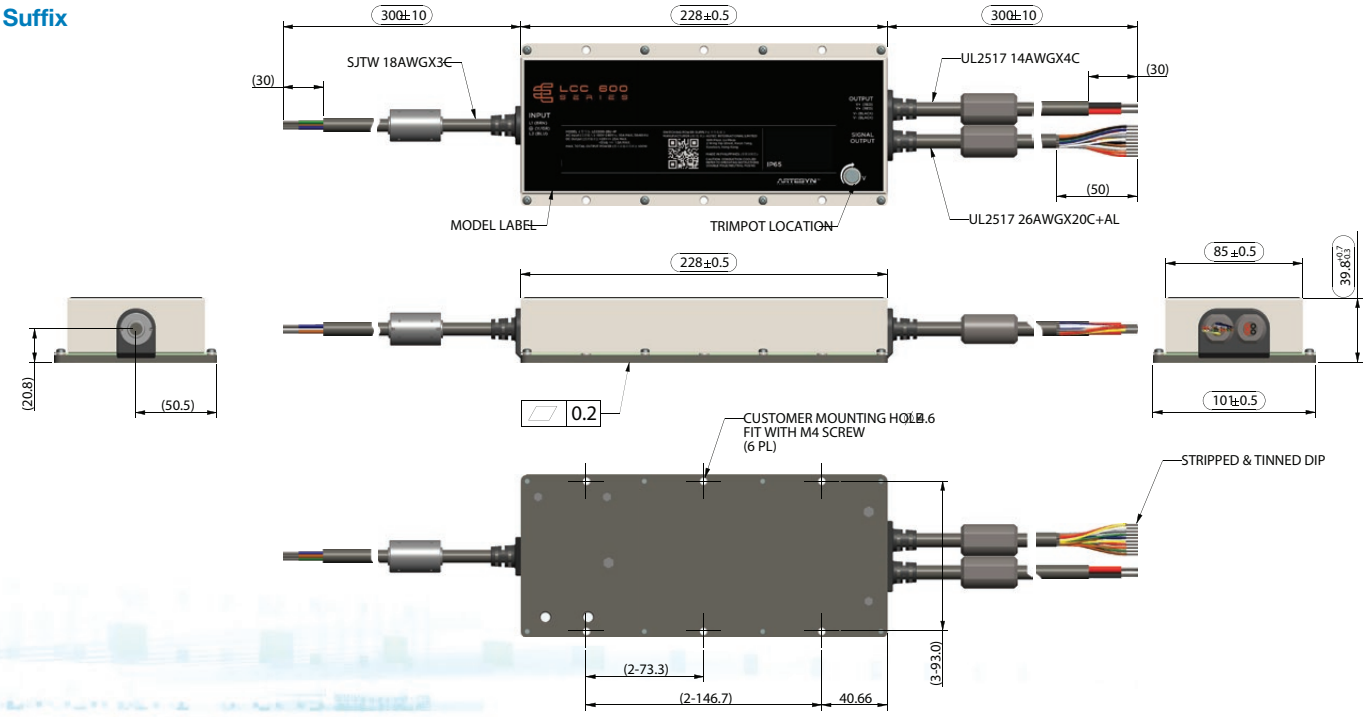
-9P Suffix



Notes:

1) Recommended mounting screw is M4 in 6 locations; 8-10 kgf-cm torque.
2) Baseplate material/finish: 5 mm Aluminum with Black Anodized.
3) Weight: 9P Suffix: 1.63 kg typical
   4P Suffix: 1.81 kg typical
4) Thermal hotspot reference is in the middle of the baseplate.

-4P Suffix



Pin Assignment (INPUT)

	-9Px Suffix		-4Px Suffix	
DESCRIPTION	DESIGNATION	NOTES	DESIGNATION	NOTES
Live	L1	Mating Connector: 350766-1 (Housing); 350536-1 (Contact Terminals)	Brown	SJTW 18AWGX3C; PVC jacket; 105 °C/300V
Neutral	L2		Blue	
Ground	G		Y/GR	

Pin Assignment (MAIN OUTPUT)

	-9Px Suffix		-4Px Suffix	
DESCRIPTION	DESIGNATION	NOTES	DESIGNATION	NOTES
Main Output	+Vout	4 Position Terminal Block: M4 Screw/10mm Pitch; 12kgf-cm Torque; Accepts 14-16AWG Ring Tongue - Spade Terminals MOLEX BB-124-08 (19141-0058) or EQUIVALENT	Red	14AWGX4C; PVC jacket; 105 °C/300V
	+Vout		Red	
Main Output Return GND	-Vout		Black	
	-Vout		Black	

Pin Assignment

J1501 - Signal & Control		-9Px Suffix		-4Px Suffix	
SIGNALS	DESCRIPTION	PIN #	NOTES	WIRE COLOR	NOTES
A2_OUT	EEPROM Address	1	J1501 Mating Connector: JST PN PHDR-20VS Contact Pins: JST PN SPHD-001T-P0.5	BLACK	26AWGX20C+AL; PVC jacket; 105 °C / 300V
GND	Ground	2		BROWN	
A1_OUT	EEPROM Address	3		RED	
-VOUT_RS	Remote Sense Return (Main O/P)	4		ORANGE	
ISHARE	Load Share Voltage	5		YELLOW	
A0_OUT	EEPROM Address	6		GREEN	
SDA	Serial Data Signal (I^2C)	7		BLUE	
SPARE_1	Spare/Unused Pin	8		VIOLET	
SCL	Serial clock Signal (I^2C)	9		GRAY	
+VOUT_RS	Remote Sense (Main O/P)	10		WHITE	
5VSB	5V Standby (1.5A Max)	11		PINK	
SGND	5V Standby Return	12		LIGHT BLUE	
SPARE_2	Spare/Unused Pin	13		WHITE/VIOLET	
G_DCOK_C	Global DC_OK Collector	14		WHITE/YELLOW	
WP	EEPROM Write Protect	15		WHITE/ORANGE	
G_DCOK_E	Global DC_OK Emitter (GND)	16		WHITE/BLACK	
GND	Return GND for O/P Signal and I^2C communication	17		WHITE/RED	
G_ACOK_C	Global AC_OK Collector	18		WHITE/BROWN	
INH_EN	Output Inhibit_Enable Pin (turns output off)	19		WHITE/GREEN	
G_ACOK_E	Global AC_OK Emitter (GND)	20		WHITE/BLUE	

Power Derating Curves

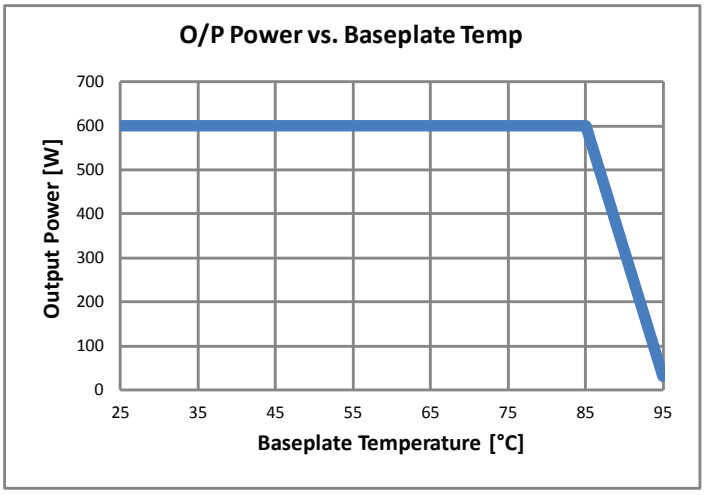


Figure 1. Output Power vs. Baseplate Temperature

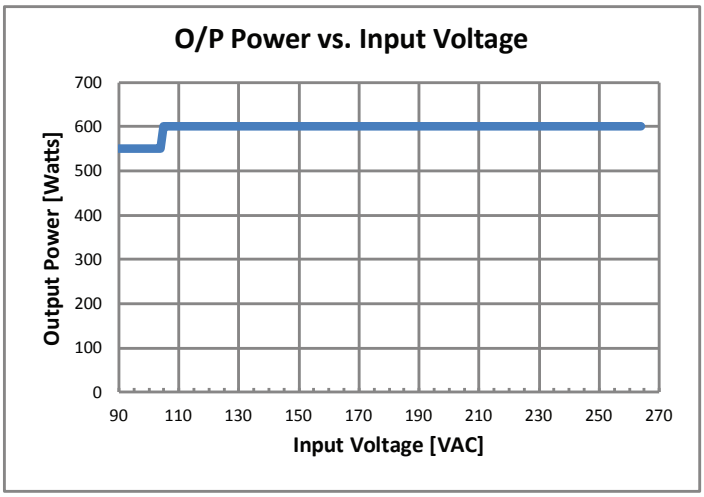


Figure 2. Output Power vs. Input Voltage

Efficiency Curves

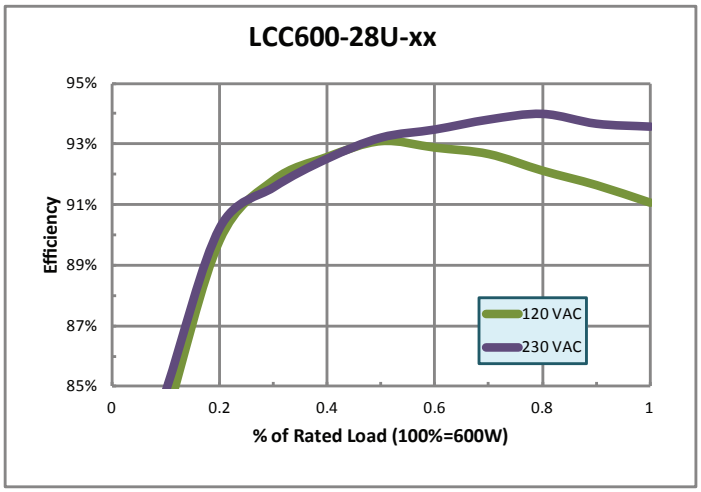


Figure 3. Typical Efficiency for 28V output

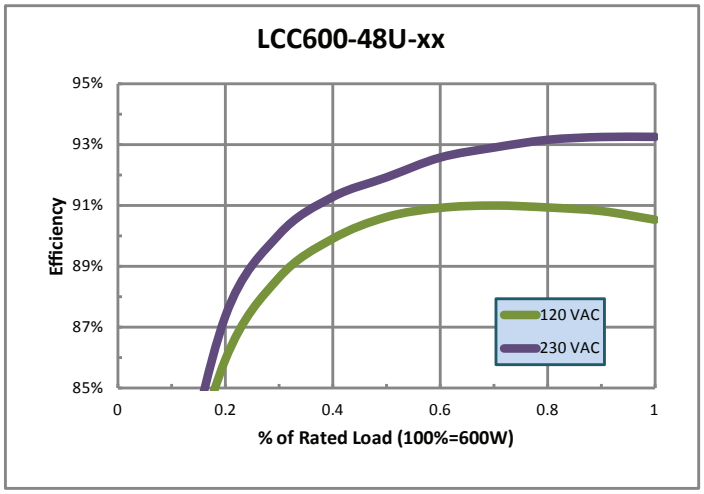


Figure 4. Typical Efficiency for 48V output

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