POWER

LCC250

250 Watts Convection/Conduction Mounting

Data Sheet

Total Power: 250 W
# of Outputs: Single
Outputs: 12, 24, 48 V

RoHS

SPECIAL FEATURES

- 250 W full power at elevated temperatures
- Wide operating temperature range suited for outdoor application
- IP64 rated
- Conduction-cooled or convection
- Differential remote sense
- Output adjust
- Output On/Off (Positive or Negative logic user selectable)

COMPLIANCE

- EMI Class B
- EN61000 Immunity
- MIL-STD-461E: CE101; CE102; CS101; CS114

SAFETY

- UL + CSA: 60950-1 2nd Ed. ANSI ES60601-1 3rd Ed
- TUV: 60950-1 2nd Ed. 60601-1 3rd Ed. 61347-1; 2-13
- CB Scheme: IEC 60950-1 2nd Ed IEC 61347-1; 2-13 IEC 60601-1
- China CCC[5]
- CE Mark

Electrical Specifications

Input	
Input range	90 - 264 Vac (Operating) 115/230 Vac (Nominal)
Frequency	47 - 63 Hz
Input fusing	Internal fuse on both L and N lines
Inrush current	50 A
Power factor	> 0.92 Full load
Harmonics	Meets EN61000-3-2; MIL-STD-461E[6]; CE101; CE102; CS101; CS104
Input current	3.4 A @ 90 Vac full load
Hold up time	16 ms minimum at 115 Vac; 100% load
Efficiency	230 Vac; 100% load 12 V - 89% typical 24 V - 91% typical 48 V - 91.5% typical
Leakage current	< 275 µA at 230 Vac

ARTESYN™
EMBEDDED TECHNOLOGIES

Electrical Specifications

Output		
Output rating	12 V @ 20.8 A 24 V @ 10.4 A 48 V @ 5.2 A	
Set point	±0.2%	Factory set point
Total regulation range	±2%	Line/Load/Temperature
Rated load	250 W maximum	
Minimum load	0 A Load	No loss of regulation
Capacitive load	0 - 330 µF/Amp	
Output voltage overshoot		No overshoot/undershoot outside the regulation band during on or off cycle
Constant output voltage adjustment range	12 V: +10 / -10% 24 V: +14.6 / -15% 48 V: +15% / -15%	Adjust via VR2
Constant output current adjustment range	+0 / -50%	Adjust via VR1 CC mode supported from Vo nominal down to 80% Vo
Output ripple and noise	1%	0 to 330 µF/Amp
Transient response	±5% Vo max transient; recovery < 500 µs max	50% Load Step @ 1 A/µs Step Load verified at: 50% to 100% Load; 90 - 264 Vac input; Capacitive load from 0 to 330 µF/Amp
Remote sense	Capable of Stable Offset of ±0.5 Vdc at output cable termination	+SENSE (Red Wire); -SENSE (Black Wire)
Output On/Off	Remote On/Off referenced to secondary side. Positive or Negative logic user selectable via CN2. Factory default is Positive logic	On/Off (Orange Wire); On/Off Return (White Wire)
Overcurrent protection (OCP)	≤ 150% Io	Auto-recovery
Overvoltage protection (OVP)	110% to 135% Vo	Latching mode; Requires input AC recycle
Overtemperature Protection (OTP)		Auto-recovery; hiccup mode
Output isolation	4000 Vac Input to Output 1500 Vac Input to Ground 500 Vac Output to Ground	

Environmental Specifications

Operating temperature	Suffix 4P (Conduction): -40 °C to +85 °C Baseplate Temperature Suffix 7P (Convection): -40 °C to +85 °C Ambient Temperature
Storage temperature	-40 °C to +85 °C
Humidity	10% to 100% (Condensing & Non-Condensing)
Altitude	Operating: 13,000 feet Non-Operating: 50,000 feet
Shock	IEC68-2-27
Vibration	IEC68-2-6 / IEC721-3-2
Ingress Protection	IP64 Rated
MTBF (Calculated)	> 780,000 hours at 100% load; Low line; Telcordia SR-332

Ordering Information

Model Number	Output	Adjustment Range	Output Current		Output Ripple P/P[1]	Line/ Load Regulation
			Min	Max		
LCC250-12U-4P	12 V	±10%	0 A	20.8 A	1% [2]	±2%
LCC250-12U-4PE	12 V	±10%	0 A	20.8 A	1% [2]	±2%
LCC250-12U-7P	12 V	±10%	0 A	20.8 A	1% [2]	±2%
LCC250-12U-7PE	12 V	±10%	0 A	20.8 A	1% [2]	±2%
LCC250-24U-4P	24 V	+14.6 / -15%	0 A	10.4 A	1% [3]	±2%
LCC250-24U-4PE	24 V	+14.6 / -15%	0 A	10.4 A	1% [3]	±2%
LCC250-24U-7P	24 V	+14.6 / -15%	0 A	10.4 A	1% [3]	±2%
LCC250-24U-7PE	24 V	+14.6 / -15%	0 A	10.4 A	1% [3]	±2%
LCC250-48U-4P	48 V	±15%	0 A	5.2 A	1% [4]	±2%
LCC250-48U-4PE	48 V	±15%	0 A	5.2 A	1% [4]	±2%
LCC250-48U-7P	48 V	±15%	0 A	5.2 A	1% [4]	±2%
LCC250-48U-7PE	48 V	±15%	0 A	5.2 A	1% [4]	±2%

1. Output ripple measured at the end of the output cable terminated with 10 µF tantalum cap in parallel with 0.1 µF ceramic capacitor.

2. 12 V: 1% limit is achieved with 2X 820 uF/16 V external cap (e.g. PLG1C821MDO1 from Nichicon or equivalent). Otherwise, maximum limits are 1.5% at Ta ≥ 0 °C and 2.0% max at Ta < 0 °C.

3. 24 V: 1% limit is achieved with 2X 820 uF/35 V external cap (e.g. UPM1V821MHD1TO from Nichicon or equivalent). Otherwise, maximum limits are 1.5% at Ta ≥ -10 °C. 2.0% max ripple at Ta < -10 °C is met with below external capacitance:

Ambient Temperature (°C)	-20	-25	-30	-35	-40
Recommended External Capacitors (µF)	1000	2200	3300	12000	22000

4. 48 V: 1% limit is achieved with 3X 470 uF/63 V external cap. Otherwise, maximum limits are 1.5% max at Ta ≥ 0 °C and 2% max at Ta < 0 °C.

5. Safety Approvals: China CCC approval applies to part numbers with “-xxE” suffixes only.

6. 12 V unit requires external filtering for MIL-STD-461E compliance. Consult Artesyn Technical Support.

7. Warranty: 2 years

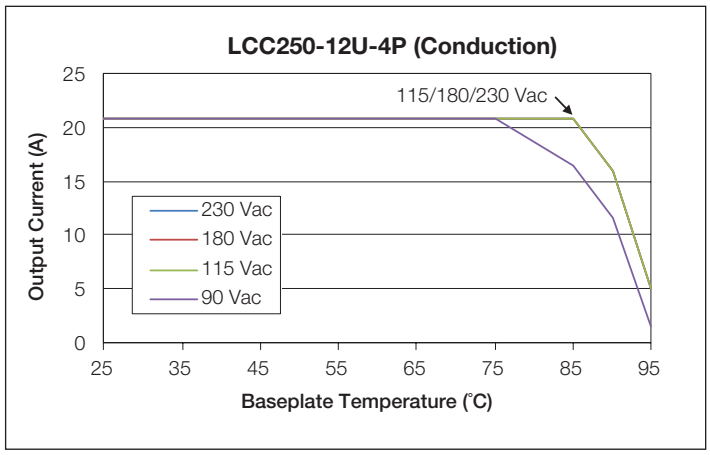


Fig 1. 12 V "4P" Suffix (Conduction) Output Current Derating

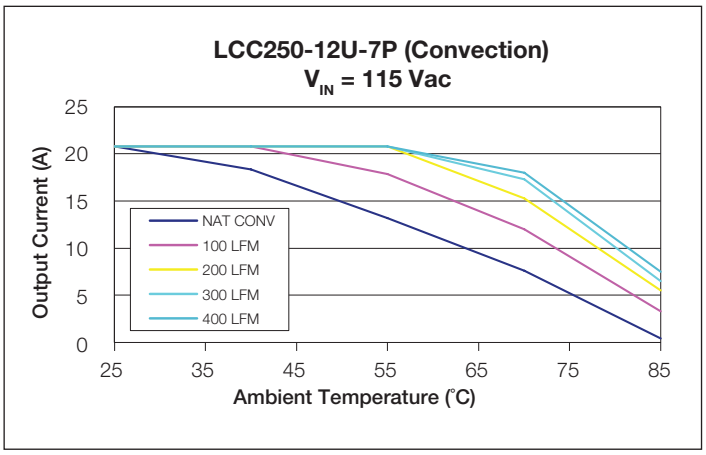


Fig 2. 12 V "7P" Suffix (Convection) Output Current Derating at 115 Vac

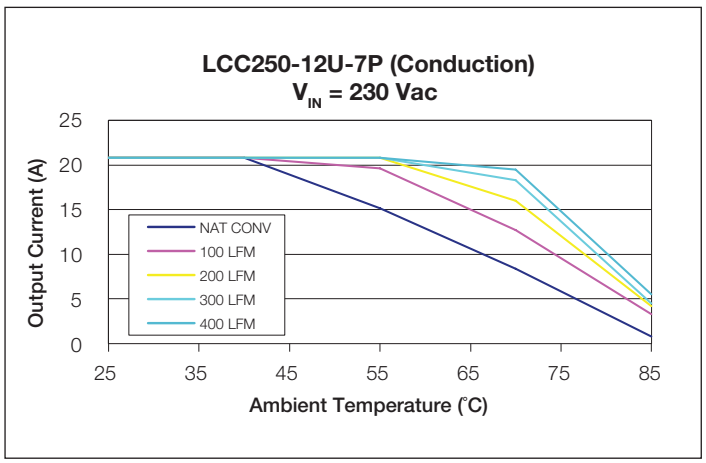


Fig 3. 12 V "7P" Suffix (Convection) Output Current Derating at 230 Vac

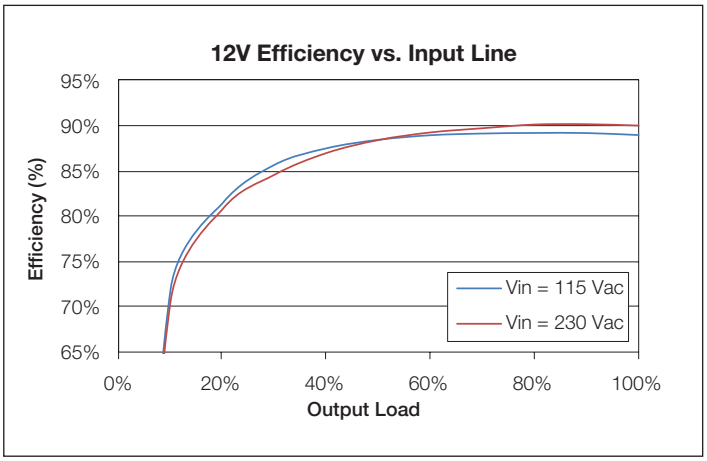


Fig 4. 12 V Efficiency Curve

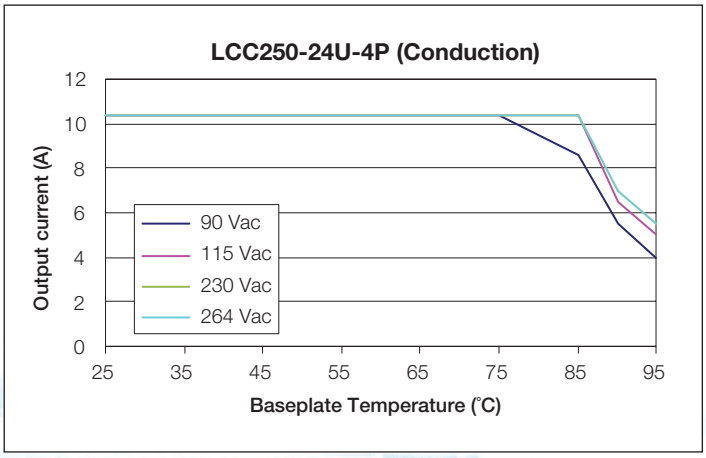


Fig 5. 24 V "4P" Suffix (Conduction) Output Current Derating

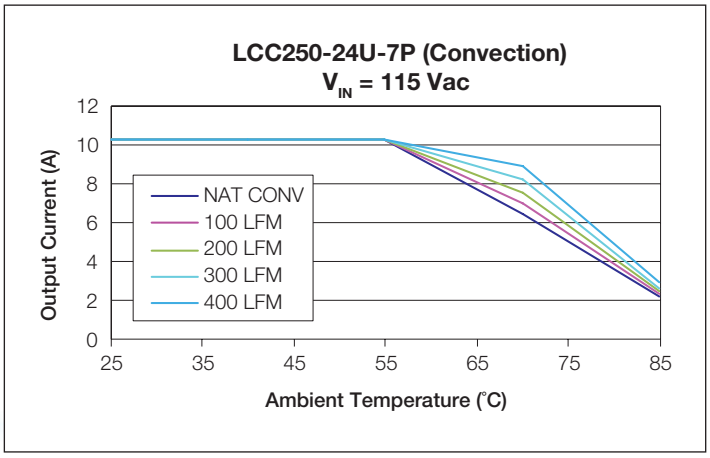


Fig 6. 24 V "7P" Suffix (Convection) Output Current Derating at 115 Vac

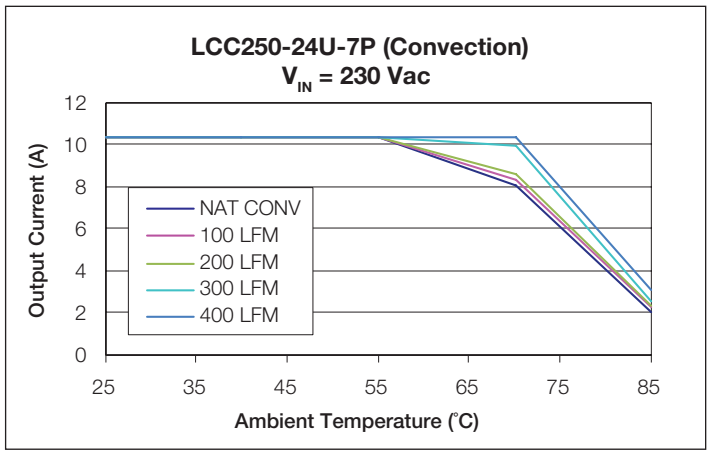


Fig 7. 24 V "7P" Suffix (Convection) Output Current Derating at 230 Vac

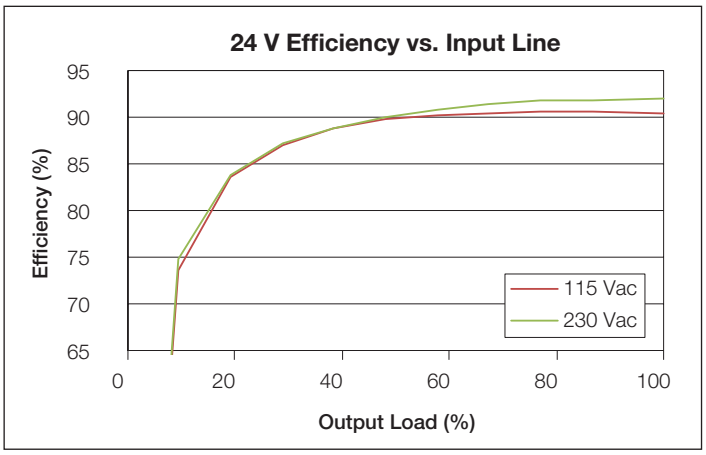


Fig 8. 24 V Efficiency Curve

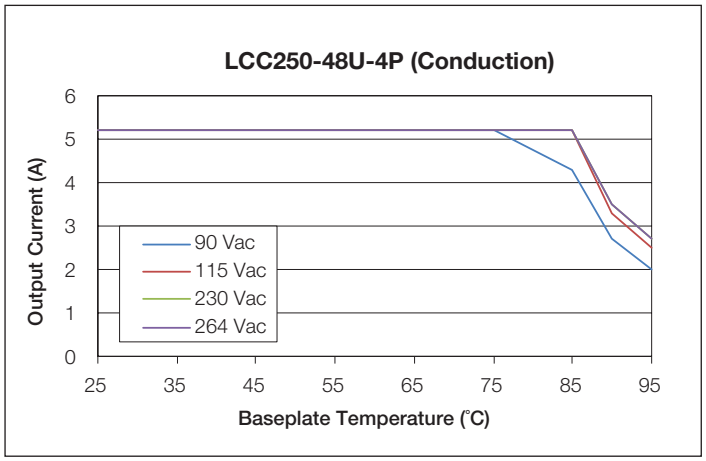


Fig 9. 48 V "4P" Suffix (Conduction) Output Current Derating

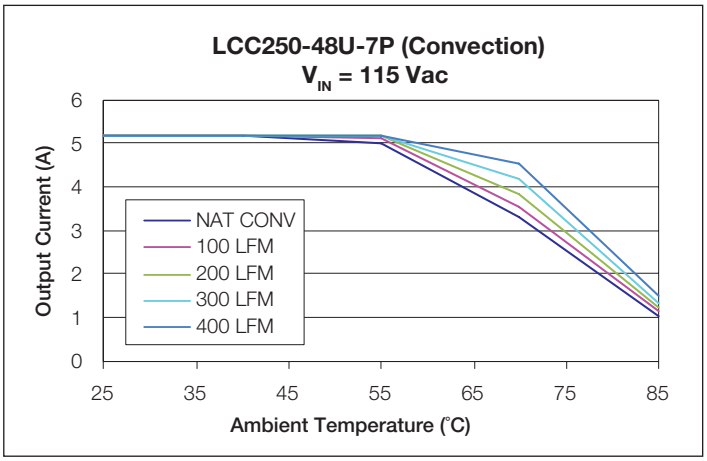


Fig 10. 48 V "7P" Suffix (Convection) Output

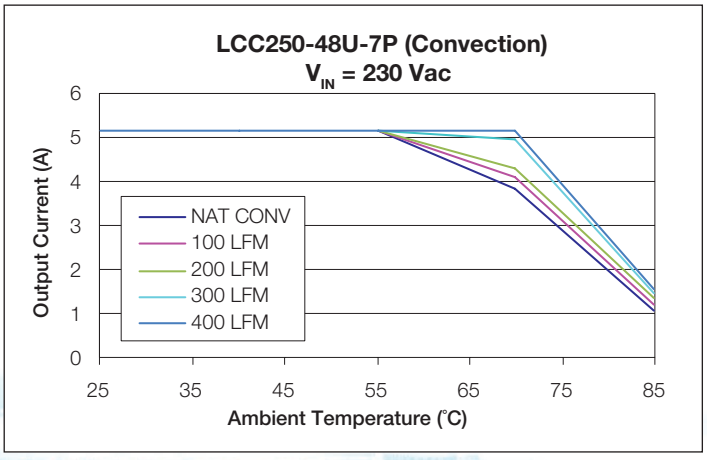


Fig 11. 48 V "7P" Suffix (Convection) Output Current Derating at 230 Vac

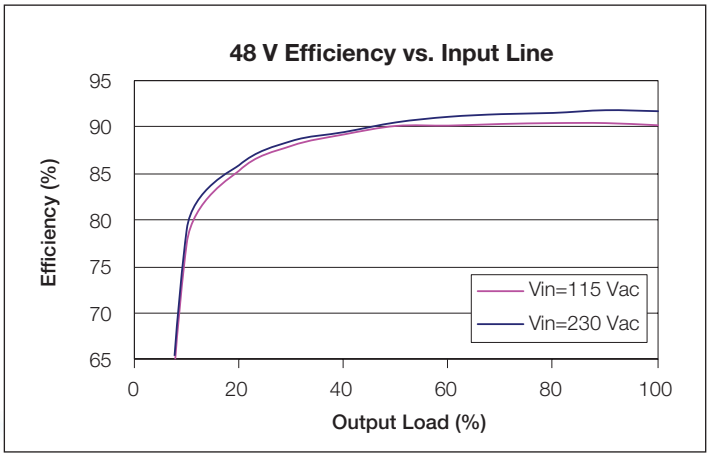
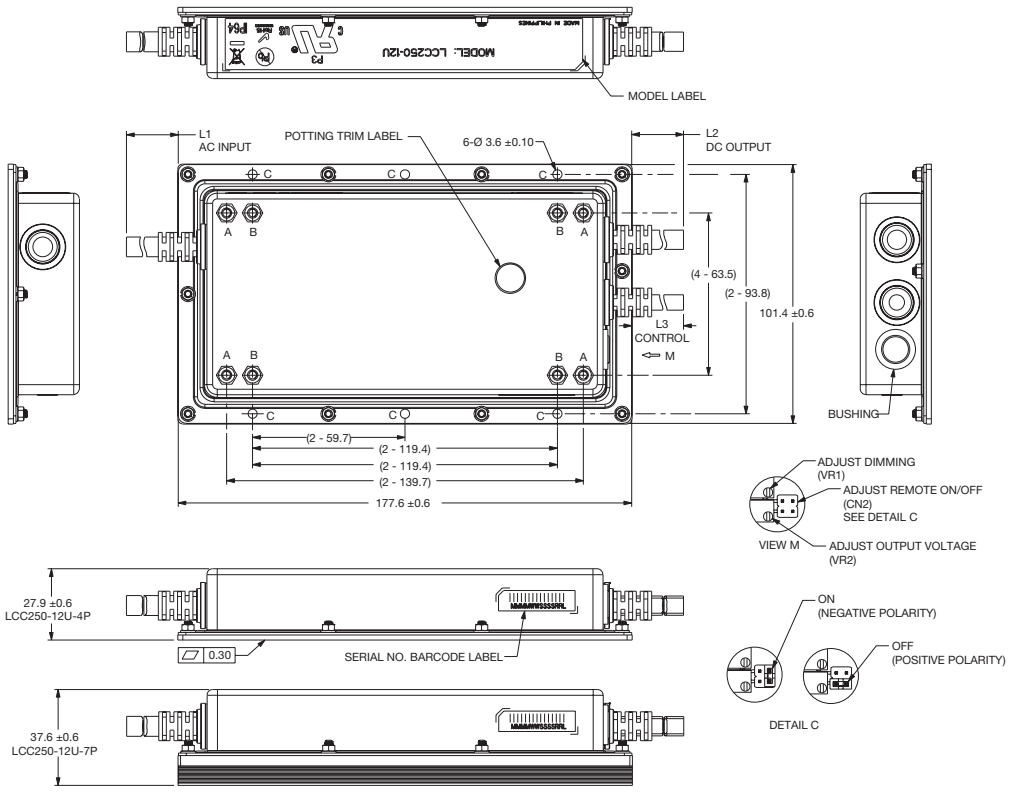


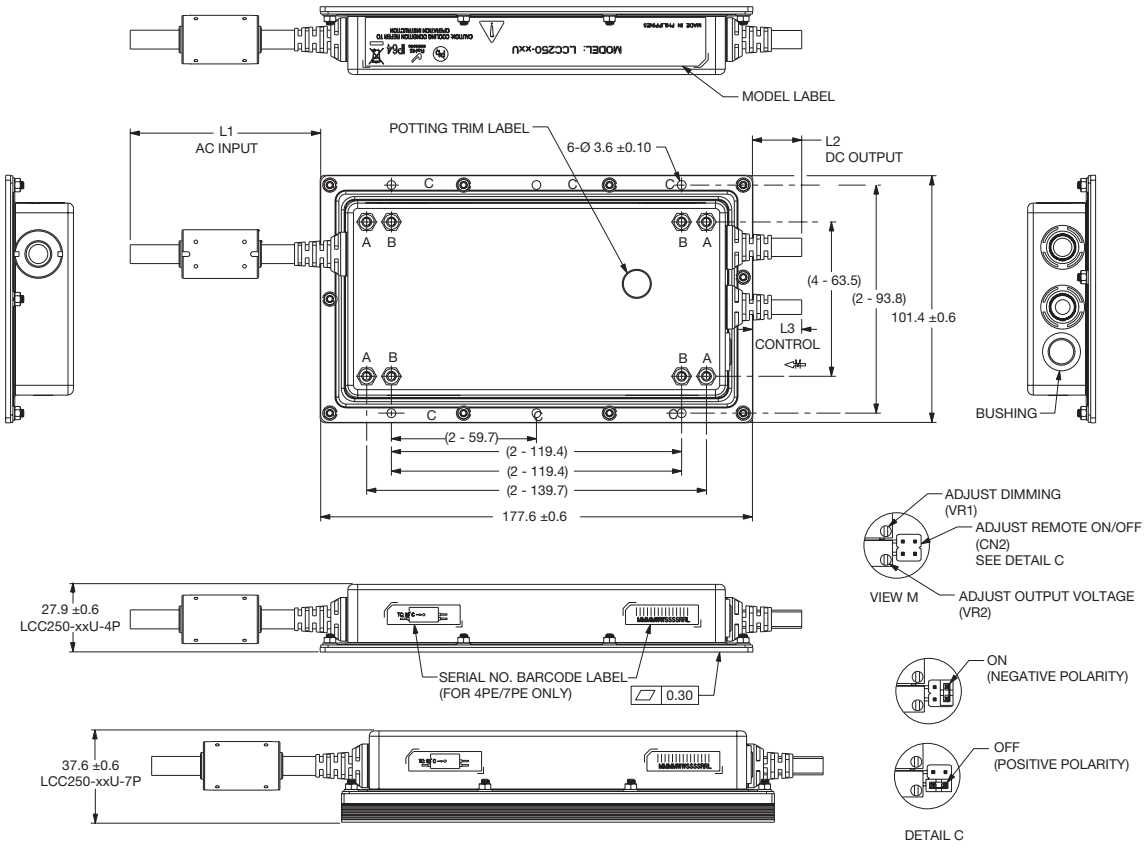
Fig 12. 48 V Efficiency Curve

Mechanical Drawings

12 V



24 V / 48 V



Cable	Length	Designation	Wire Color	Wire Gauge
AC Input Cable	L1 = 300 ±10 mm	L = Live	Brown	AWG#18
		N = Neutral	Blue	AWG#18
		PE = Primary Earth	Green/Yellow	AWG#18
DC Output Cable	L2 = 300 ±10 mm	+Output	Blue	AWG#14
		-Output	Gray	AWG#14
Control Cable	L3 = 300 ±10 mm	Dimming	Brown	AWG#26
		Dimming Return	Yellow	AWG#26
		ON/OFF	Orange	AWG#26
		ON/OFF Return	White	AWG#26
		Sense	Red	AWG#26
		Sense Return	Black	AWG#26

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