

EFFICIENCY REQUIREMENTS

External Power Supplies (EPS) / AC Adapters

POSTER

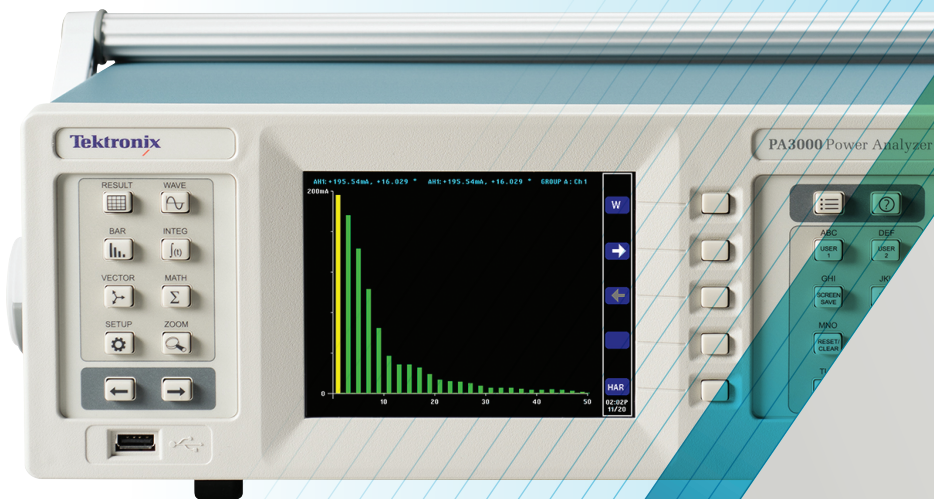


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EFFICIENCY REQUIREMENTS: External Power Supplies (EPS) / AC Adapters



				MINIMUM EFFICIENCY % DECIMAL EQUIVALENT¹					MAXIMUM NO-LOAD CONSUMPTION (WATTS)						TEST INPUT VOLTAGE	START DATE ²	EPS SCOPE ³	TEST METHOD	
		JURISDICTION	SUBCATEGORY	0 ≤ P _O ≤ 1	1 < P _O ≤ 49	49 < P _O ≤ 51	51 < P _O ≤ 250	> 250	0 ≤ P _O < 10	10 ≤ P _O ≤ 49	49 < P _O < 50	50 ≤ P _O ≤ 51	51 < P _O ≤ 250	> 250					
INTERNATIONAL EFFICIENCY LEVEL III			AUSTRALIA / NEW ZEALAND Minimum Limit		0.49 • P _O	0.09 • ln(P _O) + 0.49	0.84			0.5 (AC-DC only)	0.75 (AC-DC only)					230V / 50Hz; or at 240V if exclusively so rated	01 Dec 2008 (AUS) 01 Dec 2009 (NZ)	AC-AC and AC-DC	AS/NZS 4665.1-2005 +A1-2009
INTERNATIONAL EFFICIENCY LEVEL IV			AUSTRALIA / NEW ZEALAND Optional High Limit	State-regulated EPS units	0.5 • P _O	0.09 • ln(P _O) + 0.5		0.85		0.5 (AC-DC only)					230V / 50Hz; or at 240V if exclusively so rated	01 Dec 2008 (AUS) 01 Dec 2009 (NZ)	AC-AC and AC-DC	AS/NZS 4665.1-2005 +A1-2009	
			0.5							115V / 60Hz	01 Jul 2009	AC-AC and AC-DC	<i>Test Method for Calculating the Energy Efficiency of Single-Voltage External AC-DC and AC-AC Power Supplies</i> (Published by the EPA: August 11, 2004.)						
			0.5							115V / 60Hz	12 Apr 2012	AC-AC and AC-DC	CSA-C381.1-083: Upd.No1 <i>Test Method for Calculating the Energy Efficiency of Single-Voltage External AC-DC and AC-AC Power Supplies</i>						
			0.5 (AC-DC only)							115V / 60Hz and 230V / 50 Hz or 220V / 50 Hz if single-rated	01 Sep 2014	AC-AC and AC-DC with output ≤ 36V	- GB 20943-2013 - CQC31-461236-2014						
INTERNATIONAL EFFICIENCY LEVEL V			INTERNATIONAL LEVEL V	AUSTRALIA / NEW ZEALAND Optional High Efficiency Mark V	Low Voltage ⁴	0.497 • P _O + 0.067	0.0750 • ln(P _O) + 0.561	0.860			0.3 (AC-DC only)		0.5 (AC-DC only)			230V / 50Hz; or at 240V if exclusively so rated	01 Dec 2008 (AUS) 01 Dec 2009 (NZ)	AC-AC and AC-DC	AS/NZS 4665.1-2005 +A1-2009
				Other than Low Voltage ⁴	0.480 • P _O + 0.140	0.0626 • ln(P _O) + 0.622	0.870		0.3 (AC-DC) 0.5 (AC-AC)										
			EUROPE / SWISS PHASE 2	EUROPEAN ErP Directive / SWISS ENERGY Ordinance / TURKEY	Low Voltage ⁴	0.497 • P _O + 0.067	0.0750 • ln(P _O) + 0.561		0.860		0.3			0.5		230V / 50Hz	27 Apr 2011 (EUR) 01 May 2011 (CHE) 27 Aug 2011 (TUR)	Specified home / office products	- EN 50563:2011 - Commission Regulation (EC) NO 278/2009 of 06 Apr 2009: ANNEX I
				Other than Low Voltage ⁴	0.480 • P _O + 0.140	0.063 • ln(P _O) + 0.622		0.870	0.30 (AC-DC) 0.50 (AC-AC)										
INTERNATIONAL EFFICIENCY LEVEL VI			INTERNATIONAL EFFICIENCY LEVEL VI	Single Voltage	Low Voltage ⁴	0.517 • P _O + 0.087	0.0834 • ln(P _O) - 0.0014 • P _O + 0.609	0.87		0.875	0.100 (AC-DC) 0.210 (AC-AC)		0.21		0.500	115V / 60Hz	10 Feb 2016	AC-AC and AC-DC	Title 10 of the U.S. Code of Federal Regulations, Appendix Z to Subpart B of Part 430.
				Other than Low Voltage ⁴	0.5 • P _O + 0.16	0.071 • ln(P _O) - 0.0014 • P _O + 0.67	0.88		0.875										
				INTERNATIONAL EFFICIENCY LEVEL VI Multiple Voltage		0.497 • P _O + 0.067	0.075 • ln(P _O) + 0.561	0.86			0.30								

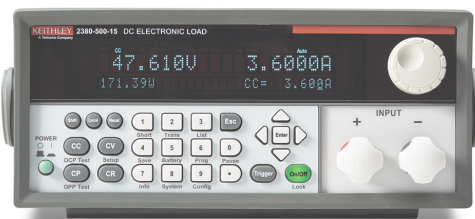
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1. "ln" refers to the natural logarithm in the efficiency calculations below.
2. Effective Date: Non-compliant external power supplies provided as an identical replacement service part for associated products that were manufactured prior to the mandatory date may in some cases be offered for a limited time (e.g. 5 - 7 years).
3. Scope definitions are not fully harmonized across the various jurisdictions and specific exemption cases need to be examined.
4. Low voltage external power supply¹ means an external power supply with a nameplate output voltage of less than 6 volts and a nameplate output current greater than or equal to 550 milliamperes.

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