



TR60M SERIES

60W MEDICAL SWITCHING ADAPTER



Features

- * Universal Input Range 90~264Vac
- * Meets EN60601-1 and EN55011 Class B
- * Continuous Short Circuit Protection
- * Over Voltage Protection
- * Meets 2 MOPP
- * Meet CEC Level IV
(Output Cable Length $\leq 1800\text{mm}$)
(TR60M Series meets CEC IV except TR60M05 is Non-CEC Compliant)
(TR60M12: Output Cable Length $\leq 1220\text{mm}$ 16AWG)
- * Efficiency & Standby Power Meet Level V (Option)
(Output Cable Length $\leq 1800\text{mm}$)
(TR60M12 : Output Cable Length $\leq 720\text{mm}$ 16AWG)
(TR60M15 : Output Cable Length $\leq 1220\text{mm}$ 16AWG)
(TR60M18, TR60M19 : Output Cable Length $\leq 1500\text{mm}$ 18AWG)



Ordering information

TR60MXX-	XX	X	XX
Model No.	DC Plug Type	OVP	DC Cable Length and Type
		E: With OVP	01: 720mm 02: 1220mm 03: 1800mm 11: 720mm with Ferrite Core 12: 1220mm with Ferrite Core 13: 1800mm with Ferrite Core *18AWG/UL1185

MODEL	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE NOTE 2	VOLTAGE ACCURACY NOTE 1	LINE REGULATION NOTE 3	LOAD REGULATION NOTE 4	% EFF. (Typ) NOTE 5
TR60M05	5 V	6 A	50 mV	$\pm 4\%$	$\pm 1\%$	$\pm 6\%$	75%
TR60M12	12 V	5 A	120 mV	$\pm 2\%$	$\pm 1\%$	$\pm 5\%$	85%
TR60M15	15 V	4 A	150 mV	$\pm 2\%$	$\pm 1\%$	$\pm 3\%$	85%
TR60M18	18 V	3.33 A	180 mV	$\pm 2\%$	$\pm 1\%$	$\pm 2\%$	86%
TR60M19	19 V	3.15 A	190 mV	$\pm 2\%$	$\pm 1\%$	$\pm 2\%$	86%
TR60M24	24 V	2.5 A	240 mV	$\pm 2\%$	$\pm 1\%$	$\pm 2\%$	87%
TR60M36	36 V	1.66 A	360 mV	$\pm 2\%$	$\pm 1\%$	$\pm 2\%$	87%
TR60M48	48 V	1.25 A	480 mV	$\pm 2\%$	$\pm 1\%$	$\pm 2\%$	87%

Specifications

INPUT SPECIFICATIONS:

Voltage	90~264Vac
	120~370Vdc
Frequency	47 to 63Hz
Inrush Current	Cold Start @25°C 80A max. @240Vac
Conducted EMI	CISPR/FCC Class B
Leakage Current	100uA max.

OUTPUT SPECIFICATIONS:

Hold-up Time	8ms typ. @115Vac
Short Circuit Protection	Continuous
Over Voltage Protection	Yes
Temperature Coefficient	±0.05%/°C

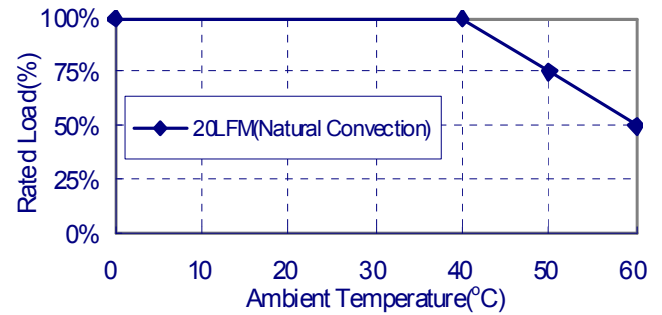
GENERAL SPECIFICATIONS:

Isolation	Input to output =4000VAC
Operating Temperature	0 ~ 60°C (see derating curve)
Storage Temperature	-20 ~ 85°C
Humidity	93% RH max. Non condensing
Cooling	Natural Convection
Switching Frequency	100KHz Typical
MTBF	MIL-HDBK-217F, GB, at 25°C/115VAC 200Khrs min.
Altitude	3000m
Dimensions	5.197x2.283x1.201 inches (132.00x58.00x30.50mm)
Weight	345g(0.76 Pounds)

SAFETY AND EMC:

Emission and Immunity (Ed. 4.0)	N55011, EN60601-1-2, EN61000-3-2
	EN61000-3-3
Safety (Ed. 3.1) ... Class II, IEC60601-1:2005+A1:2012, EN60601-1:2006/A1:2013	
	UL ANSI/AAMI ES60601-1:2005

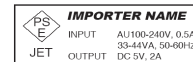
TR60M Series Derating Curve



NOTE:

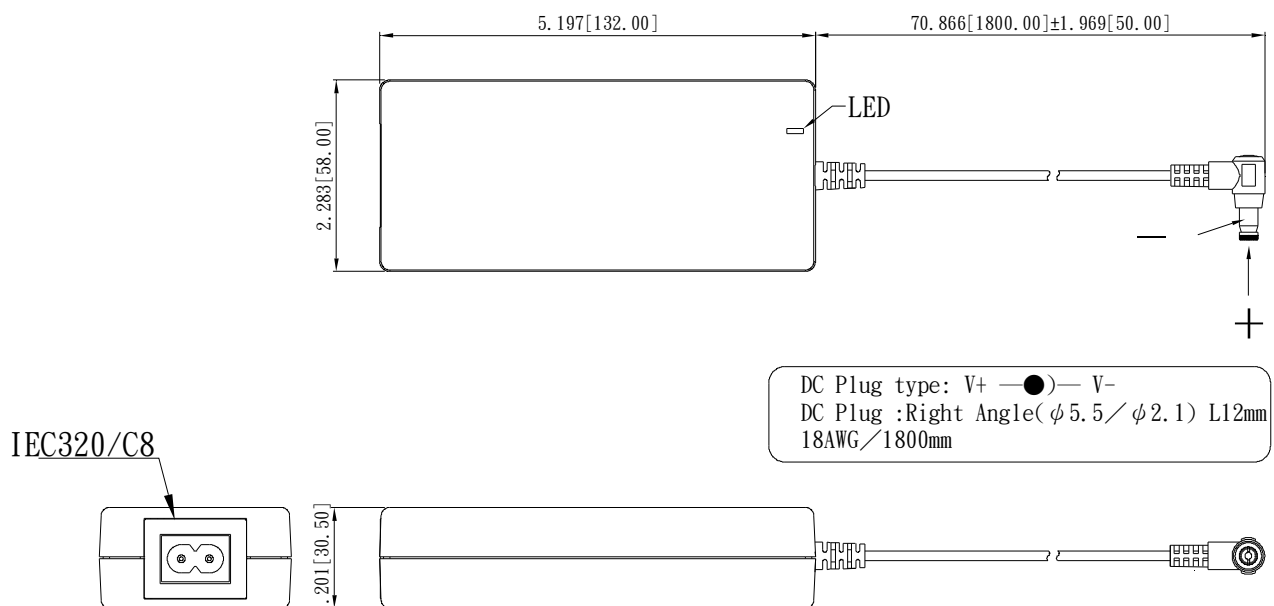
1. Voltage accuracy at 60% full load.
2. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple&noise measurement @20MHz BW.
3. Line regulation is measured from 100Vac to 240Vac full load.
4. Load regulation is measured from 60% to 100% full load and from 60% to 20% full load (60% +/- 40% full load).
5. Typical efficiency at 230VAC and full load at 25°C.
6. "Various TR Series adapters are PSE certified. PSE certification alone is not sufficient for importation into Japan. A valid PSE mark must contain the name of the importer as shown in the example below.

If PSE mark is required, the name of the registered importer must be supplied to Cincon on order placement. Product labels will not contain PSE mark if importer name is not supplied. Consult factory or local representative for details".



Mechanical Specification

All Dimensions are in inches(mm)
Tolerance: Inches: X.XXX±0.02
Millimeters: X.XX±0.5



Typical at 25°C, nominal line and 75% load, unless otherwise Specified

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Cincon:

[TR60M12-11E03](#) [TR60M15-11E03](#) [TR60M18-12E03](#) [TR60M18-11E03](#) [TR60M24-12E03](#) [TR60M19-11E03](#)
[TR60M24-35E03-Level-V](#) [TR60M24-36E03-Level-V](#) [TR60M24-39E03-Level-V](#) [TR60M24-40E03-Level-V](#) [TR60M24-48E03-Level-V](#) [TR60M24-49E03-Level-V](#) [TR60M19-12E03](#) [TR60M24-11E03](#) [TR60M15-12E03](#) [TR60M12-12E03](#)
[TR60M05-11E03](#) [TR60M05-12E03](#) [TR60M12-11E01-Level-V](#) [TR60M12-12E01-Level-V](#) [TR60M15-11E02-Level-V](#)
[TR60M15-12E02-Level-V](#) [TR60M18-11E02-Level-V](#) [TR60M18-12E02-Level-V](#) [TR60M19-11E02-Level-V](#) [TR60M19-12E02-Level-V](#) [TR60M24-11E03-Level-V](#) [TR60M24-12E03-Level-V](#) [TR60M36-11E03-Level-V](#) [TR60M36-12E03-Level-V](#) [TR60M48-11E03-Level-V](#) [TR60M48-12E03-Level-V](#) [TR60M15-11E11-LVLV](#) [TR60M24-01E03-Level-V](#) [TR60M24-02E03-Level-V](#) [TR60M36-01E03-Level-V](#) [TR60M36-02E03-Level-V](#) [TR60M48-01E03-Level-V](#) [TR60M48-02E03-Level-V](#) [TR60M12-24E12-Level-V](#) [TR60M12-24E11-Level-V](#) [TR60M19-01E11-Level-V](#) [TR60M12-02E01-Level-V](#)
[TR60M12-11E02-Level-V](#)