

# TR60M

S E R I E S

## 60W SWITCHING ADAPTER



### Features

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

### Ordering information

TR60MXX	XX	X	XX
<b>Model No.</b>	<b>DC Plug Type</b> * Please see Page 243 for more detailed descriptions	<b>OVP</b> E: With OVP	<b>DC Cable Length and Type</b> 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 mVp-p	$\pm$ 4%	$\pm$ 1%	$\pm$ 6%	75%
TR60M12	12 V	5 A	120 mVp-p	$\pm$ 2%	$\pm$ 1%	$\pm$ 5%	85%
TR60M15	15 V	4 A	150 mVp-p	$\pm$ 2%	$\pm$ 1%	$\pm$ 3%	85%
TR60M18	18 V	3.33 A	180 mVp-p	$\pm$ 2%	$\pm$ 1%	$\pm$ 2%	86%
TR60M19	19 V	3.15 A	190 mVp-p	$\pm$ 2%	$\pm$ 1%	$\pm$ 2%	86%
TR60M24	24 V	2.5 A	240 mVp-p	$\pm$ 2%	$\pm$ 1%	$\pm$ 2%	87%
TR60M36	36 V	1.66 A	360 mVp-p	$\pm$ 2%	$\pm$ 1%	$\pm$ 2%	87%
TR60M48	48 V	1.25 A	480 mVp-p	$\pm$ 2%	$\pm$ 1%	$\pm$ 2%	87%

## Specifications

### INPUT SPECIFICATIONS:

Voltage .....90~264Vac  
 Frequency ..... 47 to 63Hz  
 Inrush Current ..... Cold start@25°C 80A max. @240Vac  
 Conducted EMI ..... CISPR/FCC Class B  
 Leakage Current ..... 0.1mA max.

### OUTPUT SPECIFICATIONS:

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

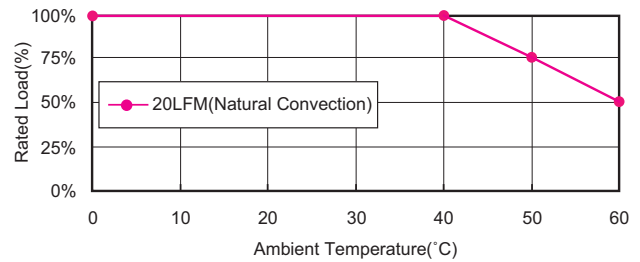
### GENERAL SPECIFICATIONS:

Isolation ..... Input to output = 5,656VDC  
 Operating Temperature .....0°C~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 .....200K hrs min.  
 Altitude .....3000m  
 Dimensions .....5.197x2.283x1.201 inches (132.00x58.00x30.50 mm)  
 Weight .....345g (0.76 Pounds)

### SAFETY AND EMC:

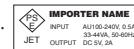
Emission and Immunity .....EN55011, EN60601-1-2, EN61000-3-2  
 EN61000-3-3  
 Safety ..... IEC60601-1, EN60601-1, UL ANSI/AAMI ES60601-1:2005

## TR60M Series Derating Curve



### NOTE:

1. Voltage accuracy at 60% full load.
2. Add a 0.1µF ceramic capacitor and a 10µF E.L. capacitor to output for Ripple & Noise measurement @20MHz BW.
3. Line regulation measured from 100Vac to 240Vac, full load.
4. Load regulation measured from 60% to 100% full load and from 60% to 20% load (60% +/- 40% full load).
5. Typical efficiency at 230 VAC 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 In Inches(mm)  
 Tolerance Inches: x.xxx= ±0.02  
 Millimeters: x.xx= ±0.5

