18W AC-DC MEDICAL INTERCHANGEABLE PLUG ADAPTER TR18RDM Series APPLICATION NOTE

Approved By:

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TR18RDM Series

Application Note V12

Content

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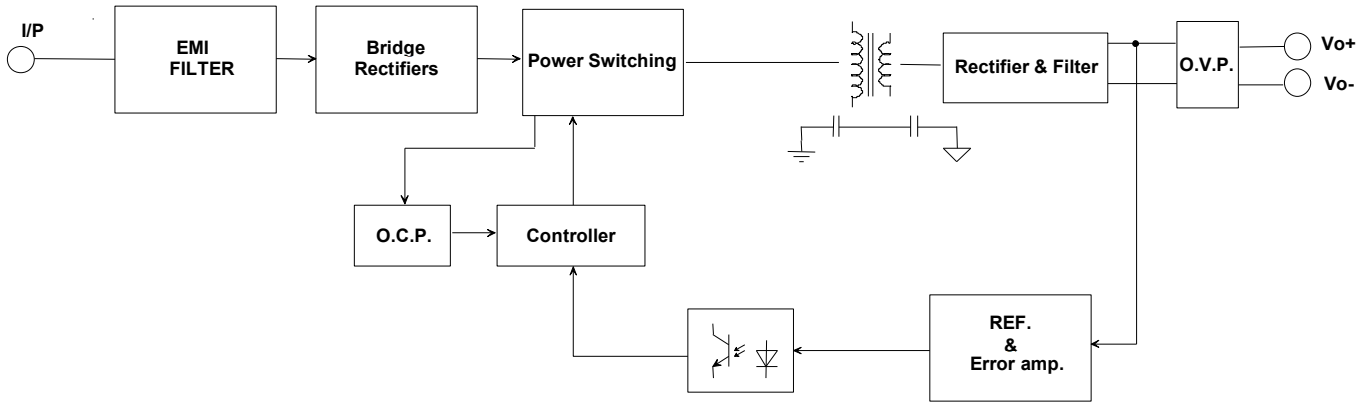
1. Introduction

This application note describes the features and functions of Cincon's TR18RDM series of adapter, switching AC-DC power. These are highly efficient, reliable, compact, high power density, single output AC/DC power. The power is fully protected against short circuit and over-voltage conditions. Cincon's world class automated manufacturing methods, together with an extensive testing and qualification program, ensure that the TR18RDM series power is extremely reliable.

2. Electrical Block Diagram



3. Main Features and Functions

3.1 Operating Temperature Range

The highly efficient design of Cincon's TR18RDM series power has resulted in their ability to operate within ambient temperature environments from -30℃ to 70℃. Due consideration must be given to the de-rating curves when ascertaining the maximum power that can be drawn from the power. The maximum power which can be drawn is influenced by a number of factors, such as:

- Input voltage range
- Permissible Output load (per derating curve)

3.2 Output Protection

All different voltage models have a full continuous short-circuit protection. The unit will auto recover once the short circuit is removed. To provide protection in a fault condition, the unit is equipped with internal over-current protection. The unit operates normally once the fault condition is removed. The power module will supply up to 110% - 160% of rated current. In the event of an over current converter will go into a hiccup mode protection.

4. Applications

4.1 Test Set-Up

The basic test set-up to measure parameters such as efficiency and load regulation is shown in Figure 1. When testing the Cincon's TR18RDM series under any transient conditions, please ensure that the transient response of the source is sufficient to power the equipment under test. We can calculate the

- Efficiency
- Load regulation and line regulation

The value of efficiency is defined as:

$$\eta = \frac{Vo \times Io}{Pin} \times 100\%$$

Where:

V_o is output voltage,
I_o is output current,
Pin is input power

The value of load regulation is defined as:

$$Load\ reg1. = \frac{V_{FL} - V_{NL}}{V_{NL}} \times 100\%$$

Where:

V_{FL} is the output voltage at 100% full load
V_{NL} is the output voltage at 60% full load

$$Load\ reg2. = \frac{V_{FL} - V_{NL}}{V_{NL}} \times 100\%$$

Where:

V_{FL} is the output voltage at 60% full load
V_{NL} is the output voltage at 20% full load

The value of line regulation is defined as:

$$Line\ reg. = \frac{V_{HL} - V_{LL}}{V_{LL}} \times 100\%$$

Where:

V_{HL} is the output voltage of maximum input voltage at 100% full load
V_{LL} is the output voltage of minimum input voltage at 100% full load

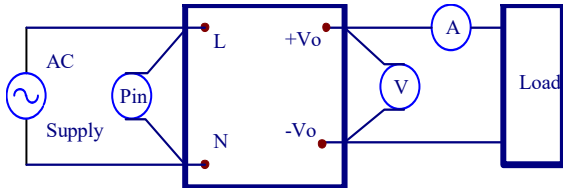


Figure 1. TR18RDM Series Test Setup

4.2 Output Ripple and Noise Measurement

The test set-up for noise and ripple measurements is shown in Figure 2 Measured method:

Add a C1: 10uF electrolytic capacitor and a C2: 0.1uF ceramic capacitor to output at 20 MHz band width.

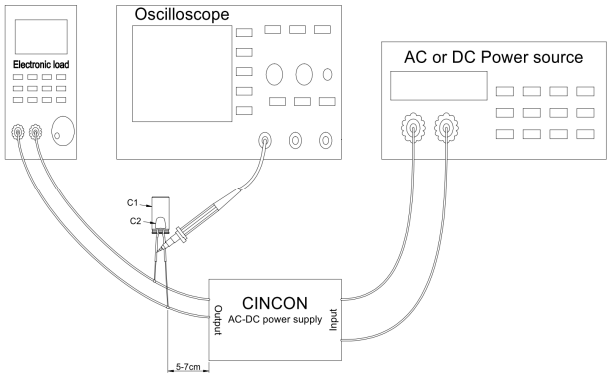
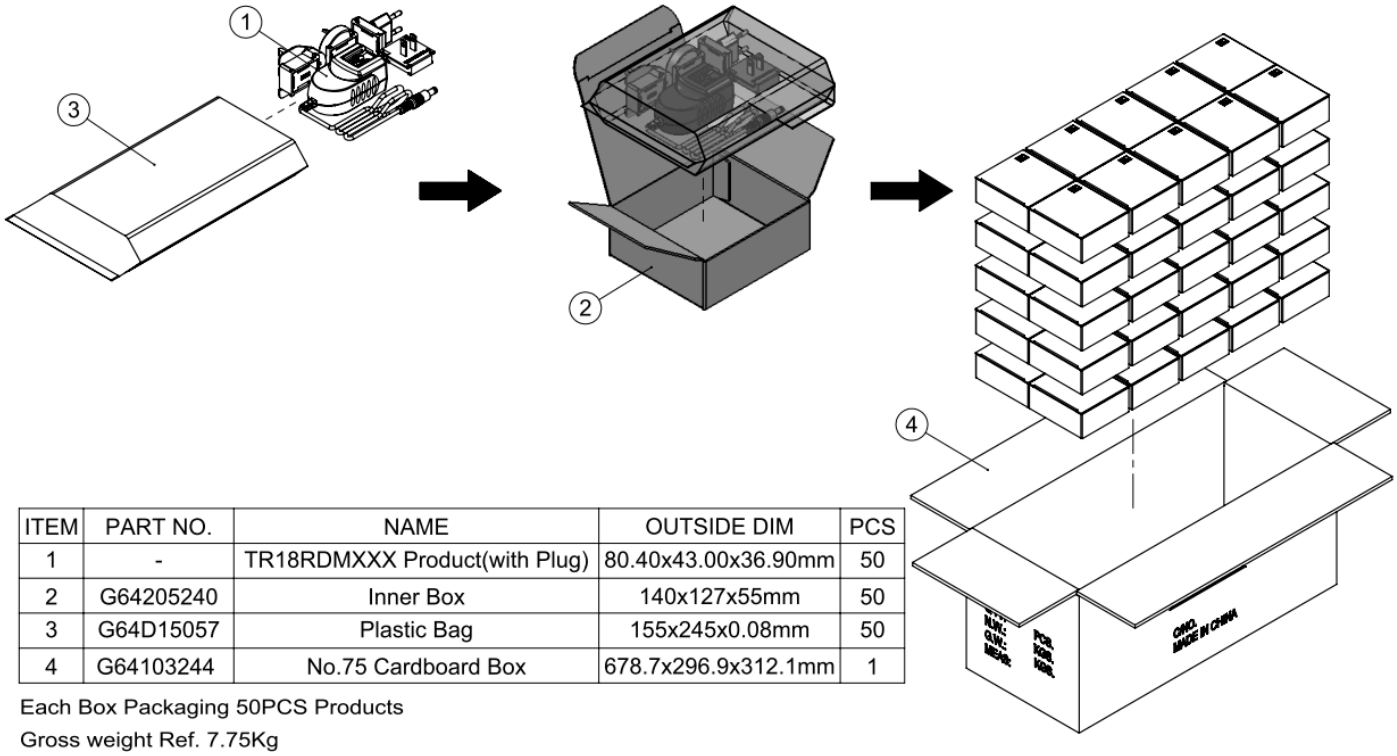


Figure 2. Output Voltage Ripple and Noise Measurement Set-Up

5. Packing Information

The packing information for TR18RDM series is showing as follows:



ITEM	PART NO.	NAME	OUTSIDE DIM	PCS
1	-	TR18RDMXXX Product(with Plug)	80.40x43.00x36.90mm	50
2	G64205240	Inner Box	140x127x55mm	50
3	G64D15057	Plastic Bag	155x245x0.08mm	50
4	G64103244	No.75 Cardboard Box	678.7x296.9x312.1mm	1

Each Box Packaging 50PCS Products

Gross weight Ref. 7.75Kg

TR18RDM 50pcs a box, including the total weight of package material about 7.75Kg

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