



# TRG30RA V Series

## Application Note V10

**30W AC-DC INTERCHANGEABLE PLUG  
SWITCHING ADAPTER  
TRG30RA V Series  
APPLICATION NOTE**



**Approved By:**

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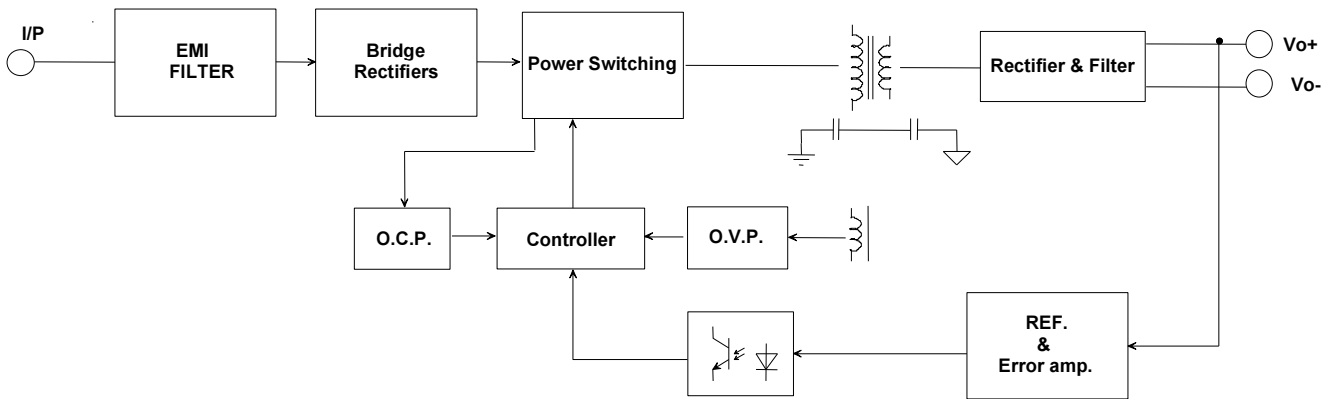
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### 1. Introduction

This application note describes the features and functions of Cincon's TRG30RA V 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 TRG30RA V series power is extremely reliable.

### 2. Electrical Block Diagram





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### 3. Main Features and Functions

#### 3.1 Operating Temperature Range

The highly efficient design of Cincon's TRG30RA V series power has resulted in their ability to operate within ambient temperature environments from -20°C to 60°C. 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 TRG30RA V 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:

$$\eta = \frac{V_o \times I_o}{P_{in}} \times 100\%$$

Where:

- Vo is output voltage,
- Io is output current,
- Pin is input power

The value of load regulation is defined as:

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

Where:

$V_{FL}$  is the output voltage at full load

$V_{NL}$  is the output voltage at 10% 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 full load.  $V_{LL}$  is the output voltage of minimum input voltage at full load.

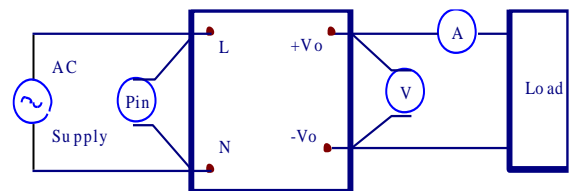


Figure 1. TRG30RA V Series Test Setup

#### 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.

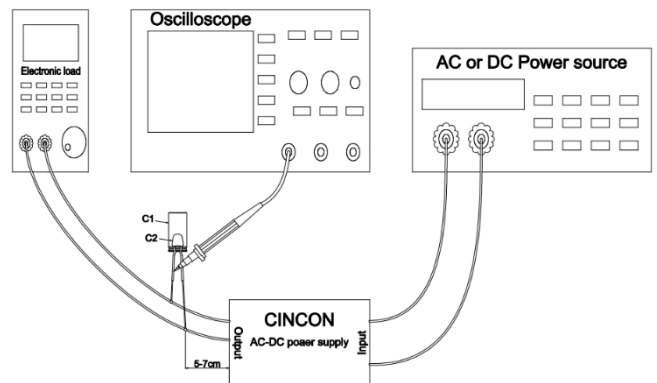


Figure 2. Output Voltage Ripple and Noise Measurement Set-Up

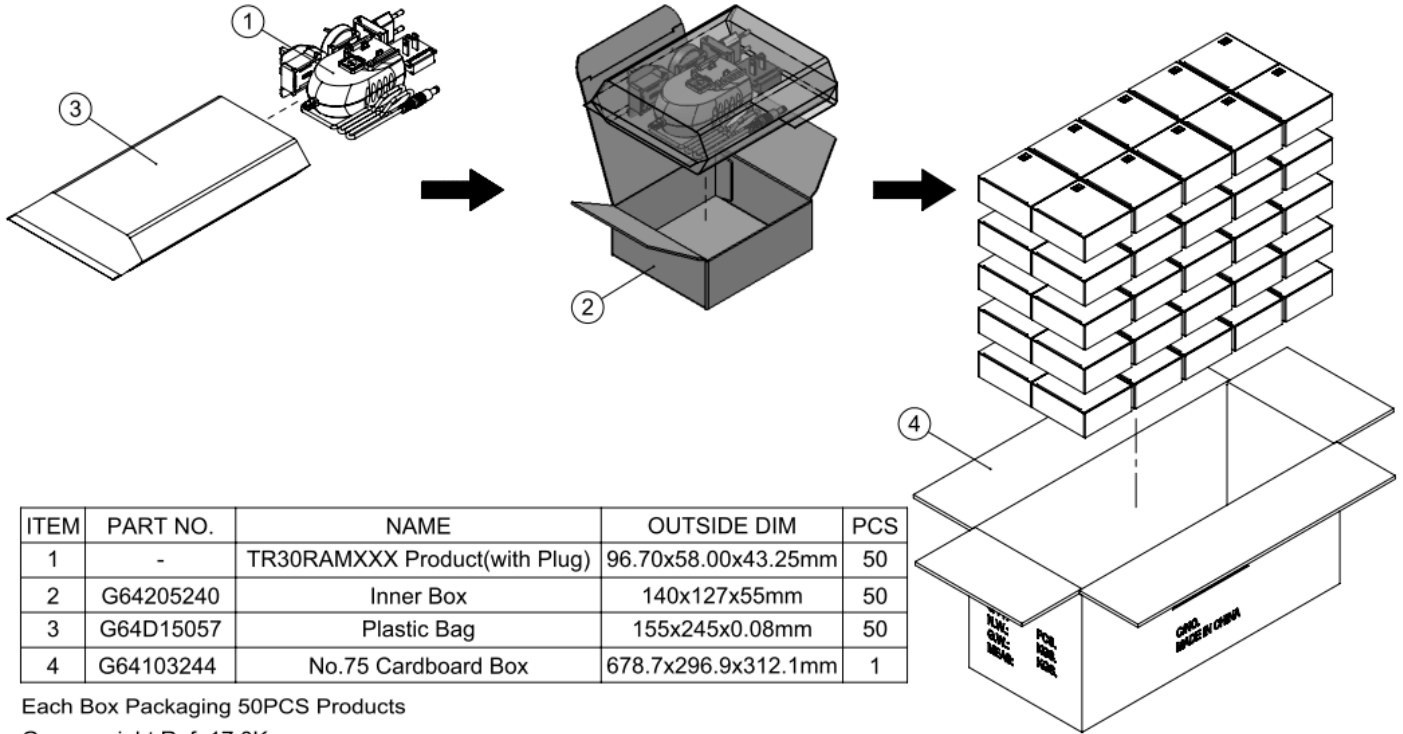


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### 5. Packing Information

The packing information for TRG30RA V series is showing as follows:



ITEM	PART NO.	NAME	OUTSIDE DIM	PCS
1	-	TR30RAMXXX Product(with Plug)	96.70x58.00x43.25mm	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. 17.0Kg

TRG30RA V 50pcs a box, including the total weight of package material about 17.0Kg

#### Headquarters:

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