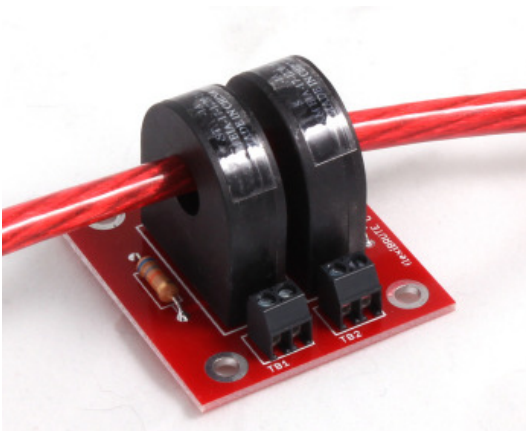




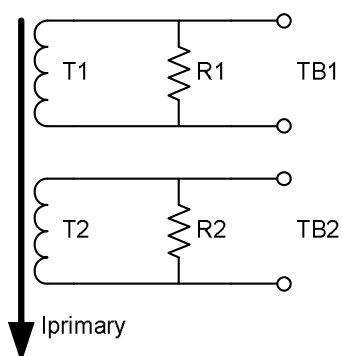
Current Transformer Board 2.0

Introduction

The Current Transformer Board 2.0 features dual 500A wideband current transformers. This is one of our most popular current transformer boards which is perfect for low-to-mid power DRSSTCs. It provides both the current feedback signal as well as current monitoring signal, for current limiting circuits, for DRSSTC systems. There are also two onboard burden resistors, R1 and R2, which can be used if required by the end user. Screw terminal blocks are provided for both current transformer outputs.

Typical Applications:

- DRSSTC Feedback Transformers
- Current Sense Circuits
- Pulse Current Monitor
- Low-to-Mid Power DRSSTCs



Schematic Diagram

Electrical Properties

Electrical Properties	
Bandwidth	20kHz – 200kHz
Max. Current (peak)	> 500A
Max. Current (RMS)	> 110A
Number Turns	100
Inductance	14mH
R1, Max. Power	2W
R2, Max. Power	2W

Selecting Burden Resistor, R1 and R2

Selection of the R1 or R2, burden resistor should be done using the following formula:

$$\text{Volts/Amp} = R1 / \text{Number of Turns}$$

For example, if we used a burden resistor of 1 ohm, then our calculated Volts / Amp would be:

$$\text{Volts/Amp} = 1 / 100 = 0.01\text{V/A}$$

So with a DRSSTC that operates with a peak current of 500A, the output of this current transformer would be:

$$V_{\text{output}} = (I_{\text{pulse}} \times R1) / \text{Number of Turns}$$

$$= (500\text{A} \times 1) / 100 = 5\text{V}$$

Burden Resistor Power Dissipation

Power dissipation of the burden resistor, R1 or R2, can be approximated with the following equation:

$$P_{\text{diss}} = (V_{\text{output}}^2 / R1) \times \text{DC}$$

(where DC = duty cycle of DRSSTC system)

Generally, DRSSTCs operate at very low duty cycles, typically 5-10% maximum duty cycle. So, if we have a DRSSTC that operates with a peak output current of 500A and the maximum operational duty cycle is 5%, the maximum power dissipation of the burden resistor, R1 would be:

$$P_{\text{diss}} = (5\text{V}^2 / 1) \times 0.05$$

$$P_{\text{diss}} = 1.25 \text{ watts}$$

The maximum power dissipation of the onboard burden resistor, R1 is 2 watts so this value of burden resistance is acceptable.