Donut Current Transformers

- ***Meets A.S.A C57.13 Standard***
- ***Manufactured to Meet UL Requirements UL 1244***
- ***Flexible Leads are UL105, 105°C CSA Approved***
- ***Molded From Impact and Abrasive Resistance Black Nylon for Rugged Construction***
- ***± 2% Accuracy***
- ***Frequency Response 50-400 Hz***

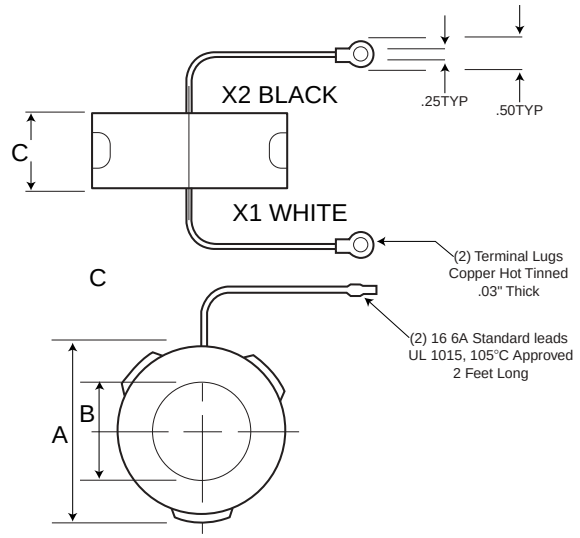
A donut transformer is commonly used when AC current levels to be monitored exceed 75 amperes. Current transformer rated 100:5 will provide a secondary current of 5 AC amperes when a single primary turn is passed through the donut with a 100 ampere load. The donut transformer provides additional isolation from the conductor. The secondary leads are 2 feet long and may be extended up to 10 feet using at least 12 gauge copper wire. If the distance is greater than ten feet, please consult the factory.

A 50:5 amp donut is the lowest rating that Simpson normally carries. A donut can be used for ratings below 50 amps by wrapping either the primary wire passing through the core, or by wrapping the secondary wires leading to the meter. This is shown on the next page. Other ratings are available on special order. Call the factory with your specifications.

Catalog Number	Turns Ratio	Accuracy For 2 VA Burden
01293	10:1	2%
01306	15:1	2%
01297	20:1	1%
01298	30:1	1%
01299	40:1	1%
01313	50:1	.8%
01300	60:1	.6%
01305	80:1	.5%
01301	100:1	.5%
02303	120:1	.5%
02459	150:1	.3%
02304	200:1	.3%

Dimensions and Ordering Information

Dimension Drawing



NOTE: Primary and Secondary Turn Ratio modifications are noted on Reverse Side of Page.

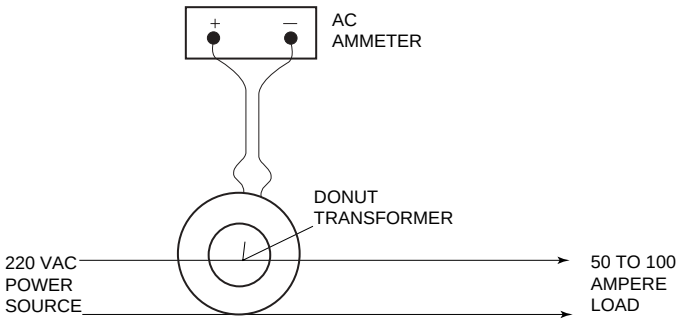
Ordering Information

Dimensions are in inches

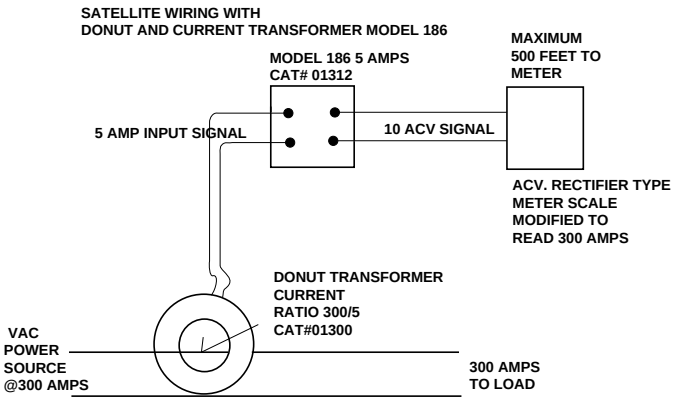
Ampere		Turns	Catalog	Dimensions		
Primary	Secondary	Ratio	Number	A	B	C
50	5	10.1	01293			
75	5	15.1	01306	3.56”	1.56”	1.10”
100	5	20.1	01297			
150	5	30.1	01298			
200	5	40.1	01299			
250	5	50.1	01313			
300	5	60.1	01300	3.56”	2.06”	1.10”
400	5	80.1	01305			
500	5	100.1	01301			
600	5	120.1	02303			
750	5	150.1	02459	4.50”	3.00”	1.09”
1000	5	200.1	02304			

Typical Application

Donut Current Transformer Wiring Diagram



Satellite Meter Wiring Diagram



Primary Turn Ratio Modification

Formula: Ka = Kn x Nn / Na

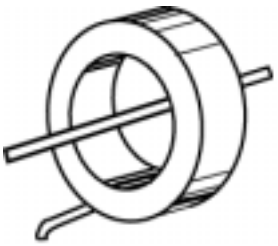
Where:
Ka = Actual Transformer Ratio
Kn = Nameplate Transformer Ratio
Na = Actual Number of Primary Turns
Nn = Nameplate Number of Primary Turns

The ratio of the current transformer can be modified by adding more primary turns to the transformer. By adding primary turns, the current required to maintain five amps on the secondary is reduced.

Example: A 100:5 current transformer designed for one primary turn.

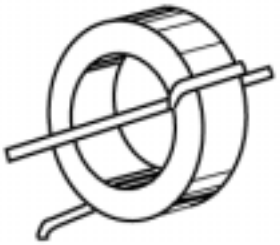
1 Primary Turn

Nameplate Ratio	Actual Ratio
100:5	100:5



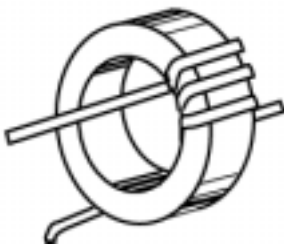
2 Primary Turns

Nameplate Ratio	Actual Ratio
100:5	50:5



4 Primary Turns

Nameplate Ratio	Actual Ratio
100:5	25:5



Secondary Turn Ratio Modification

Formula: $\frac{Ip}{Is} = \frac{Ns}{Np}$

Where:
Ip - Primary Current
Is - Secondary Current
NP - Number of Primary Turns
NS - Number of Secondary Turns

Example: A 300:5 Current Transformer.

$$\frac{300p}{5s} = \frac{60s}{1p}$$

(In practicality one turn is dropped from the secondary as a ratio correction factor.)

The ratio of the current transformer can be modified by altering the number of secondary turns by forward or backwinding the secondary lead through the window of the current transformer. By adding secondary turns, the same primary current will result in a decrease in secondary output. By subtracting turns, the same primary current will result in greater secondary output.

Again using the 300:5 example adding five secondary turns will require 325 amps on the primary to maintain the 5 amp secondary output or

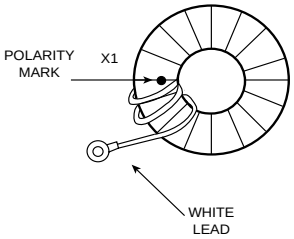
$$\frac{325p}{5s} = \frac{65s}{1p}$$

Deducting 5 secondary turns will only require 275 amps on the primary to maintain the 5 amp secondary output or

$$\frac{325p}{5s} = \frac{65s}{1p}$$

The above ratio modifications ar achieved in the following manner:

- To add secondary turns, the white lead should be wound through the CT from the side opposite the polarity mark.



- To subtract secondary turns, the white lead should be wound through the CT from the same as the polarity mark.