GreenEye Monitor

CT & PT Settings

Ver 1.1

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CT SETTINGS

The GEM has two CT parameters for each channel which need to be configured: CT "Type" and CT "Range. These are variables used to scale the CT output to properly represent the sensed current. When setting up the GEM, there is a drop-down menu to select the CT model being used on any particular channel. This selection will automatically select the CT type and range for the selected model.

CT "Type"

The CT "type" is a number between 1 and 255 which scales the measured CT signal proportionally. It is advisable to use a variable between 127 and 255 for the "type". If the desired scaling cannot be obtained, this is where the "range" comes into play.

CT "Range"

The CT "range" is typically between 2 and 4. This number is the number of time the CT measurement is divided by two. For example, if a connected CT with the CT range set to "3" is measuring a load displaying 400 watts, reducing the range from "3" to "2" will cause the wattage to double: 800 watts. Similarly, increasing the range from "3" to "4" will scale the signal by half: 200 watts.

Types of CT Output Signal

Other than the fact that CTs come in various styles (donut, split-core, clamp-on) the signal it generates may be voltage signal (Type A) or current signal (Type B). Both CT types sense the load current! It's only the signal that represents the sensed current that differs. Because of this the GEM terminals that the CT will be connected to will differ. Each GEM CT input has a terminal block with four terminals. Terminal #1 is located towards the bottom of the GEM while #4 is towards the top. The CT chart below indicates which terminals to use based on the CT model.

CT Model	Style: D(donut) S (split-core)	All GEMs CT Type	All GEMs CT Range	CT Output Type	One CT Terminal	Two CTs Terminal	
Micro-40	Donut	211	4	B	2 & 3	2 & 3 / 2 & 3	
Micro-50	Donut	210	4	B	2 & 3	2 & 3 / 2 & 3	
Micro-80 Micro-80-I	Donut	210	4	B	2 & 3	2 & 3 / 2 & 3	
Micro-100	Donut	212	3	B	2 & 3	2 & 3 / 2 & 3	
SPLIT-30	Split-core	205	4	A	2 & 3	2 & 3 / 2 & 3	Optional capacitor across terminal 1 & 4
SPLIT-60	Split-core	180	4	A	1 & 2	1 & 2 / 3 & 4	
SPLIT-100 SPLIT-100-I	Split-core	146	3	A	1 & 2	1 & 2 / 3 & 4	
SPLIT-200 SPLIT-200-I	Split-core	144	2	A	1 & 2	1 & 2 / 3 & 4	
SPLIT-400/600	Split-core	231	2	A	1 & 2	1 & 2 / 3 & 4	
Other							
SPLIT-170	Split-core	137	2	B	2 & 3	2 & 3 / 2 & 3	No resistor. CAUTION High Voltage
SPLIT-170	Split-core	245	3	A	1 & 2	1 & 2 / 3 & 4	With resistor
TT-100	Split-core						

PT SETTINGS

The Potential Transformer (PT) is connected to the power line (120V or 240V, etc) and reduces the voltage to a low voltage proportional to that of the line voltage. It also provides galvanic isolation from the power line for safety purposes. The PT "type" and "range" works on the sample principle as that described for the CT "type" and "range".

Tweaking the voltage measurement

If you have a True RMS DMM (and some electrical and safety knowledge) you can fine tune the GEM so that it displays the same as your DMM does. This is done by increasing or decreasing the PT "type" by increments of one at a time to get the closest voltage match.

PT Model	GEM with black PCB (with PT gain jumper) PT Type/Range	GEM with blue PCB (no PT gain jumper) PT Type/Range	Connection Method	Remarks
Newest 12Vac 400mA PTs (2017) 60Hz	205/3	253/4	3.5mm mono phone plug	
Previous "Brultech" labeled 12Vac 500mA 60Hz	194/4	238/4	3.5mm mono phone plug	
Early "CUI Stack" brand 12VAC 300mA 60Hz	186/3	-	3.5mm mono phone plug	
European style PT 240V/12Vac 50Hz	160/2 GEM set to 50Hz	196/3 GEM set to 50Hz	3.5mm mono phone plug	
Brultech PT-480 Brown & Blue leads (Line voltage input) Black and White leads (Low voltage output) 50Hz or 60Hz	**60Hz:** 208/3 remove PT gain jumper! **50Hz:** 210/3 remove PT gain jumper!	**60Hz**: 209/3 **60Hz:** 210/2	3.5mm Stereo phone plug. Low voltage from PT connected to "ring" and "sleeve" of stereo plug. Tip not connected! OR Mini USB	