How to calibrate MK2 diverter versus old type/analogue electric meter

1. When PV is not producing power – put clamp on neutral lead pointing arrow to from the house. Or live wire pointing arrow to the house
2. On the solar monitoring app or alternative point of power monitoring system, read the power being used with house (P).Aim to use 1000 Wh. Try to keep it constant.
3. Record Kh\* value of analogue meter, if not present on label, record revolutions per kWh (375 rev/kWh in my case) calculate Kh constant (1000/375=2.66)
4. Calculate time of disc one revolution by using the formula t = ( 3600 \* Kh) / 1kWh. Record time value
5. Check whether the meter calibration is accurate, measure time of the disc one rotation (record time value. Calculate actual Kh by using the formula Kh = ( 1kWh \* t) / 3600 per revelation
6. If value matches with Kh value stated on label, the meter is properly calibrated.

If not, follow new calculated Kh coefficient. The Kh value is a blink interval for Diverter calibration

1. Flash the **cal\_CT1\_v\_meter.ino** code to microcontroller
2. On the diverter board, while running the cal. code and having the LED connected to trigger point
3. While clamp is on power lead and 1 kWh power is being used by house, adjust the value for powerCal\_grid variable in code to get Kh pulse on led, stopwatch the blink interval, or use the scope to compare against earlier calculated Kh value.
4. If using stopwatch, record the pulse interval by recording three sets of the time value and calculate average to minimize human reaction error effect
5. If different, adjust the const float powerCal\_grid value, until timing match

Example:

Using formula *P = (3600 \* Kh) / t per revelation*

*\*Kh or Kh is referred to as the watt-hour constant and equals the number of watt-hours for one turn of a electromechanical meter, or one pulse period for electronic meters, like the WattNode® Pulse meter. For example, if the WattNode meter generates one pulse every 1.2 kilowatt hours, then Kh = 1200 watt-hours / pulse.*

Manipulate in regards to Kh *Kh = (P \* t) / 3600*

* plugging the values:
* t = time of one rotation of the disc at power being drawn by house
* P = power being drawn by house, try to keep it constants (do not turn an extra

Appliances/ loads in house

Analogue meter Kh or rev/kWh -> 375 revs per 1 000 Wh = 2.66

Kh= 2.66 // in my case

// The time result in seconds should match the flash interval of LED attached to trigger pin

* update the code, if result doesn’t match blink interval of the LED adjust the constant value and try again

const float powerCal\_grid = 0.0146;  // for CT1 in my case