Telemetry advanced topics

If you have already created a temperature monitor and control module, your next project will be to create a power monitor, much like the ones we have at the elab.

You will be using a current transformer (CT) knowns as a Hawkeye 922 analog current sensor:

https://www.energycontrol.com/Veris-Hawkeye-H922

This device works with AC current on a single wire to convert AC current into a 0-5 Vdc voltage.

The Analog device you will use is one of these:

Download analog_um_v1.3.pdf (application/pdf, 2.9 MB)

Setup:

1. follow the same steps you did with the temperature module to give your device an IP address (see the manual if you need help)
2. connect the current sensor to the device, with (+) going to A0 (analog input 0) and (-) going to Agnd (analog ground)
3. go to the web page for the device and notice that it should read 0 for the value of A0
4. unclip the current sensor and clamp it around the single wire provided (we will be splitting a "pig tail" and connecting it to a hot water maker)
5. turn on the hot water maker, and notice the value on the web page
6. change the settings on the CT to the lowest value (0-30A) and notice the change
7. in the manual, there are steps to calibrate the device, begin with the easy method: connect a Kill-a-Watt device to your little system and calibrate the analog device using the values you see there for power or current
8. repeat with the harder method, using calculations in the manual, e.g. slope
9. the reason we need to learn the harder method, is we may know voltage of a circuit that is too large or connected to measure current directly (unless we use sophisticated meters, next step)
10. using a clamp-on current meter, calibrate the analog unit
11. what do you notice about the similarity between the clamp on meter and the 922 unit?

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