Calibration Recommendations

Overview

To preserve specified accuracy, you should either verify the WattNode® accuracy in-circuit, or send the WattNode back to the factory periodically for recalibration. Under normal conditions, our current transformers should not require recalibration.

WattNode Recalibration

The WattNode can either be recalibrated by the factory or the calibration can be verified in the field using a portable power meter. Currently, there is no way to adjust the meter calibration in the field.

To return the WattNode for recalibration, follow these steps:

1) Contact CCS to schedule the calibration and get an RMA number
2) Remove AC power from the WattNode
3) Unplug the three pluggable screw terminals
4) Unscrew or unmount the WattNode (you can leave the CTs and wiring installed)
5) Be sure the label the WattNode so that you will know where to re-install it after calibration
6) Return the WattNode to CCS for calibration
7) See the appropriate WattNode manual for instructions on reinstalling the WattNode

Optionally, you may want to purchase one or more extra WattNodes to use as temporary units during the recalibration, so that you don't lose data. Depending on the type of WattNode you are using, you may need to correctly configure the temporary WattNode. For example: for our WattNode Plus for LonWorks® networks, you will need to perform a network "replace" and be sure that the following variables are updated:

- nciCtAmps
- nciDemPerMins
- nciDemSubints
- nciLogMinutes (for WattNode Logger models)
- nviTimeSet

Field Verification

Field verification will generally require a meter with the same number of phases as the WattNode is monitoring, so if you are monitoring a three-phase circuit, you will need a calibrated three-phase power analyzer for verification, such as a Fluke® 435B. Contact CCS for field verification instructions.

Recommended Recalibration Intervals

Mild Environment: 8 years

A mild environment is defined as an indoor climate controlled location (with heat and air conditioning) that is generally between 60°F (15°C) and 95°F (35°C) and less than 60% relative humidity.

Severe Environment: 4 years

A severe environment is anything more extreme than the mild environment and generally includes locations that are not climate controlled, outdoor locations, and locations that may be exposed to high humidity.

CT Recalibration

Current transformers are extremely stable. Standard models should never require recalibration, while revenue grade CTs have a 16 year recalibration interval.

In rare cases, it is possible for a CT to be degraded and fail to meet specified accuracy. This can happen for the following reasons:

- Internal damage, possibly due to vibration or temperature extremes.
- Magnetized core, due to sustained DC current or strong external magnetic field.
- Mechanical damage, such that the opening part of the CT doesn't close properly.

If desired, CCS can verify the CT calibration at the same time we calibrate the WattNode. Alternatively, you can use a power analyzer to verify correct CT operation in circuit.

Recommended Intervals

For standard (non-revenue) CT models, CCS has no recommended intervals for calibration or verification of current transformers, but if you wish to verify your CTs, you should use the same intervals that are recommended for the WattNode.

For revenue grade CT models (Opt C0.6), the recalibration interval is 16 years. You may also choose to recalibrate revenue grade CTs at the same time that you recalibrate the meter used with the CTs.

Lithium Battery Replacement

WattNode Logger for LonWorks models contain a lithium battery to maintain the date and time during power failures. If the battery fails, the WattNode will not lose the date and time, but will use the last value from before the power failure. In other words, with the battery, the WattNode will maintain accurate time with or without AC power. If the battery dies, then the clock will not run whenever AC power is off, so if power fails for an hour, the WattNode time will be an hour slow. Everything else will function normally.

WattNode MODBUS Logger models can indicate if the battery is low, allowing you to wait until the battery is low before replacement. WattNode Logger for LonWorks models cannot detect a low or dead battery, so the only indication of a low battery occurs when the WattNode indicates the real-time clock stopped during a power outage. Therefore, CCS recommends periodically replacing the battery in the WattNode Logger for LonWorks.

WattNode Logger models manufactured before March 2009 have the lithium battery soldered in and must be returned to the factory for replacement. Models manufactured after March 2009 have a battery clip, allowing field replacement (see manual for directions). When CCS replaces soldered batteries, we install a battery clip to allow for future field replacement.

Recommended Battery Replacement Intervals

The following intervals are recommended for preventative battery replacement. If a battery failure won't cause problems in your application, you can wait until the battery fails before replacing it.

Mild Environment / Continuously Powered: 10 years

A mild environment is defined as an indoor climate controlled location that is generally between 60°F (15°C) and 95°F (35°C) and less than 60% relative humidity.

Continuously powered means that AC power is applied to the WattNode more than 95% of the time or that AC power isn't off for more than 18 days per year.

Mild Environment / Not Continuously Powered: 5 years

Not continuously powered means that AC power may be absent for prolonged periods of time, as would be the case if the WattNode were downstream of a power switch, or if the WattNode is installed temporarily for monitoring projects, then left unpowered for extended periods.

Severe Environment / Continuously Powered: 5 years

A severe environment is anything more extreme than the mild environment and generally includes locations that are not climate controlled, outdoor locations, and locations that may be exposed to high humidity.

In general, the battery life is highly dependent on the ambient temperature, where high temperatures shorten the life, so if possible, locate the WattNode in a location that generally stays below 95°F (35°C) if possible.

Severe Environment / Not Continuously Powered: 3 years

This is the worst case, because the battery is being drained whenever the WattNode isn't powered and the severe environment is likely to further shorten the battery life.

3131 Indian Rd.
Boulder, CO 80301
Phone: (303) 444-7422
FAX: (303) 444-2903