

USING THE PHASEID SYSTEM

This is a short list of the more important information required to get you familiar with using the PhaseID System.

1. Read the instruction manuals and white papers posted at www.origocorp.com under "**White Papers**". No one likes to read the instructions, but there is no faster way to get a complete insight into how and why the PhaseID System works as it does.
2. The three "**AAA**" batteries should drop into the holder. Never force them in if they don't drop in by their own weight. If you force them, you will not be able to remove them. The holder diameter is larger than the specified diameter of "**AAA**" cells. However, old or non-standard cells can be oversized and not fit correctly.
3. As the probe powers up, always hold it so the box front panel is flat and pointing up. Also, make sure you are in an area with as a complete view of the sky as possible. This will allow the probe to achieve GPS lock (**HI displayed**) in about 1 minute. Otherwise, GPS lock will take many minutes or not lock at all. Once lock is achieved, probe orientation and sky view is not as critical.
4. The only time "**HI**" is used is when you are probing a voltage greater than 1000V **while using the ground cable**. The "**LO**" setting is used for all other measurements, with or without the ground cable.
5. Always **use the ground cable** when probing secondary voltages. When using the secondary adapter, make sure its ground wire is plugged into the probe ground terminal block and that the **screw is securely tightened**.
6. The "**Primary**" base station connection is only selected when probing a primary voltage while using the ground cable.
7. The "**Capacitive**" base station connection is selected whenever the ground cable is not used or when probing elbow test points using the ground cable.
8. The "**Secondary**" base station connection is selected when probing secondary voltages. Note that one of the 12 possible phase attributes (instead of the 3 possible phase attributes of "Primary" or "Capacitive") will be indicated.
9. Don't use the ground cable on any voltages over 20 KV phase-to-ground.

10. For 3-phase service over 69 KV, don't use the ground cable and **don't touch the voltage with the probe tip**. Instead, move the probe as close to the wire as required (**proximity** measurement) to get a good solid **"Yellow"** light. Make sure **"LO"** is selected on the probe and **"Capacitive"** is selected on the base station.

11. When taking a probe measurement, the **"Green"** light **blinks 3 times** as it makes a phase measurement on the first and 3rd blinks (makes two instantaneous phase measurements 2 seconds apart). If the difference between the two phase measurements is small, the **"Green"** light remains on after the 3rd blink indicating the phase measurement is complete. Otherwise, the 3 blink process is repeated a 2nd time. If it also fails, the process is repeated a 3rd time and the measurement is accepted no matter what the phase difference.

The purpose of this is to reject a measurement if the probe contact is intermittent or if a glitch occurs on the line. However, if the line frequency is off from 60 Hz, a large phase difference between the two measurements is correct. Therefore, the measurement is always retained on the 3rd try.

If you fail to get a solid **"Green"** light on either the 1st or 2nd group of 3 light blinks, you should remove the probe from the line for a couple of seconds to extinguish the **"Yellow"** light and try again. Breaking contact resets the entire measurement process. If after a few more tries you still cannot get a solid **"Green"** light by the 2nd group of 3 light blinks, accept the measurement on the 3rd try as the line frequency might really be off from 60 Hz.

12. A few second time delay is provided between the **"Yellow"** contact light and the start of the phase measurement (**"Green"** light blinks). This time delay is implemented to allow time for the operator to make secure probe contact to the line. That is, as the probe approaches the line, the **"Yellow"** lamp may light before actually touching the line (proximity effect).

If you intend to make a **contact measurement**, don't hesitate between the time the **"Yellow"** lamp lights and the time line contact is actually made. If you intend to make a **proximity measurement**, settle at a probe position slightly closer to the line than the point at which the **"Yellow"** lamp first lit and hold it there until a solid **"Green"** light is obtained.

13. When setting up the base station for the first time, measure what you know to be phase **"A"** at a substation. Be sure to use the ground cable. However, select the **"Secondary"** connection at the base station for this measurement. Follow the instructions in the base station **Help** file to set up the base station.

14. When setting up the base attribute for **"Transmission Line Voltages"** where the ground cable cannot be used (**proximity** measurement), set both the base station **"Secondary"** and **"Capacitive"** offsets to **90**. Measure what you know to be phase **"A"** on the transmission line. However, select the **"Secondary"** connection at the base station for this measurement. Follow the instructions in the base station **Help** file to set up the base station. For subsequent measurements after setup, select the **"Capacitive"** connection.