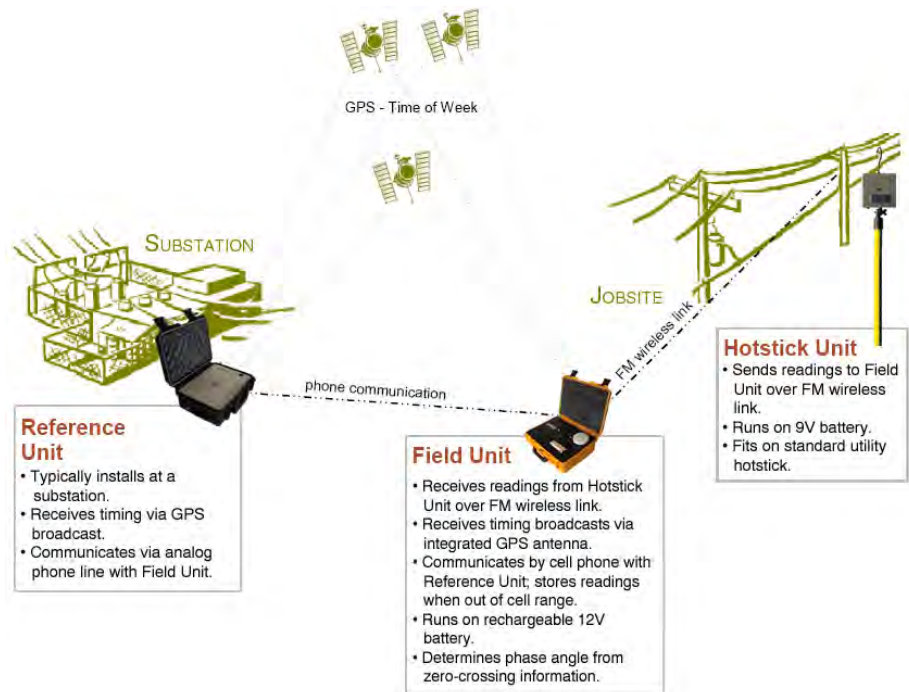


Principles of Operation

The AP-20 includes three different devices: the Field Unit, the Reference Unit and the Hotstick Unit.



The three devices interact in the following way:

- The Reference Unit typically sits at a substation, but can also be set up in a communication office or similar. It continuously measures the delay of the phase with respect to timing information received via GPS broadcasts, and stores the resulting measurements.
- Meanwhile, at the job site, the Field Unit receives zero-crossing data from the Hotstick Unit, which the operator touches to energized parts to measure their phases. The Field Unit continuously compares the zero-crossings with those of the Reference Unit, and displays the results in the form of a phase designation (e.g. A, B, or C) and phase angle in degrees.
- The Field Unit and Reference Unit communicate by phone: a cell modem built into the Field Unit and a land line for the Reference Unit. When the Field Unit (at the job site) is outside of cell service range, it can store 100 records for as long as 4 days to allow the user to drive to within cell range, at which point the Field Unit automatically calls the Reference Unit to complete the phase calculations.

If your company owns multiple Field Units and Hotstick Units, we recommend that you keep the pairings consistent once you've configured them. That is, use the same Hotstick Unit with the same Field Unit.

Additional functionality comes via the AP Utility software, which:

- provides the interface through which you configure both AP-10 and AP-20 Field Units and Reference Units to work on your power system
- retrieves phase readings from the AP-20 Field Unit

AP-20 User Guide > Principles of Operation

- formats retrieved phase readings according to their circuit or single-mode status, and outputs them in standard .csv file format for use in other applications
- saves (on request) the phase readings to disk for reference and archival.