

## **ECE-18**

### **Portable Phase Measuring Device**

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### **Abstract**

We have designed and built two Portable Phase Measuring Devices (PPMD), each of which consists of a General Electric N60 Phasor Measurement Unit, an Arbiter Systems Global Positioning System (GPS) and a wireless transceiver. The PPMDs have the capability to simultaneously read real-time voltage and current waveforms at two different points within a power system. The GPS provides a time reference for each PPMD, which communicates wirelessly with the other, eliminating the need for a hardwired connection between the two devices.

The information can be compared and analyzed to aid in the identification of unmarked underground conductors in PECO Energy's three-phase distribution system, as well as its original two-phase system still in use today. Additionally, the PPMDs can be incorporated into Drexel University's Center for Electric Power Engineering (CEPE) facilities and curriculum, allowing for the capability to perform more advanced experiments.

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