

Technote 02 – Basic Meter Install

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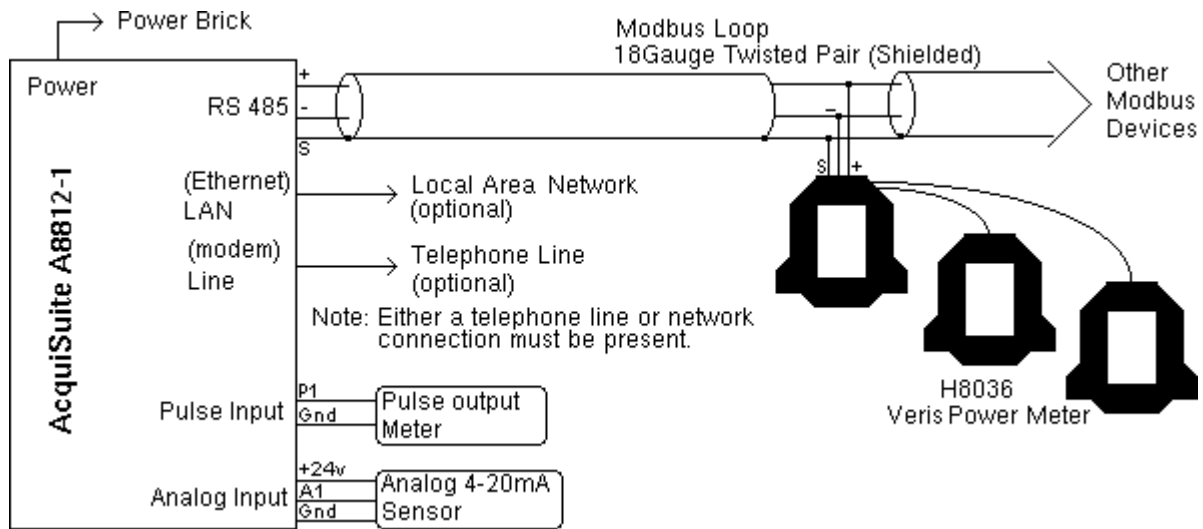
Attaching meters or other devices to the AcquiSuite involves several steps depending on the type of the meter used. For basic pulse output meters, simply connect the pulse output terminals on the meter to the pulse input terminals on the AcquiSuite. More information about pulse output meters is available from www.obvius.com. Technote 1 and Technote 17 are among several useful technical notes available on that link from the homepage. These provide more complete descriptions of how to configure Pulse meters. For Modbus meters, the process has several steps. Please read through the following section.

- Always begin by thoroughly reading the power meter manufacturer installation methods and become familiar with them before proceeding. You must review these and be a licensed and qualified electrician to install this type of equipment.
- The power meter current sensors or 'donuts' can be clamped around the conductors you are monitoring. This can be any three-phase or single-phase system. Again, verify that the meter you are installing has the capabilities for the type voltage service and equipment you plan to monitor.
- The voltage taps will need to be connected in such a way that they adhere to NEC and as required by local electrical codes.
- Once the meter is installed, note that the RS485 plug on the meter has (+) and (-) and shield connections. Please observe polarity, and make certain the shield is connected as well.
- Simple tools are needed for this installation including a small flat screwdriver, a pair of wire strippers, and some type of shielded communication wire.
- Once all meters have been connected, make certain all of them have unique addresses.
- Connect to the RS485 terminals on the AcquiSuite. Belden 1120A is a recommended type of communication wire to use. If you are planning to install more than one meter, the next meter(s) will be "daisy-chained" together.

- At this point there are two options for connecting to the AcquiSuite; Phone line or Ethernet. If you are installing this on a LAN, and the IT department has made provisions for DHCP addressing, then enable this on the AcquiSuite. Do this before connecting the CAT 5e network cable to the RJ45 port on the AcquiSuite. Power the unit up and use the pushbuttons to enable DHCP. Connect the CAT 5e Ethernet cable, and then power down the unit from the LCD selection screen. When it boots back up, you will have a unique IP address for the AcquiSuite. Refer to the AcquiSuite installation manual.

Review of Installation Tips

- Make certain that work being carried out is being done by a licensed and qualified electrician.
- Review and fully understand the power meter manufacturer installation instructions.
- Always follow NEC or local electrical codes and guidelines for any wiring or connection requirements.
- Observe polarity when connecting the communication line to the RS-485, and make certain not to reverse the RS485 plug connector into the meter.
- Use shielded twisted pair for the communications. Belden 1120A is a good choice.
- Set the Modbus address on each device. This is usually a number between 1 and 64 although it may be as high as 247. Each device MUST have a unique address.
- Wire the Modbus devices together in a daisy-chain manner.
- Attach the Modbus communication loop to the AcquiSuite.
- Power up the AcquiSuite and wait about 3 minutes for the AcquiSuite to locate all the devices on the Modbus loop. Please review the following diagram for an overview of a typical wiring installation.



The above illustration depicts a simple power meter installation. A Veris H8036 Full Data Stream meter is shown attached to an AcquiSuite. Note that the illustration only shows one meter, though additional meters can be attached in a daisy-chain manner. Up to 32 devices can be attached on the RS-485 Modbus loop without any additional adapters. A terminating resistor may be required. See FAQ's for additional details and related topics.