Dave's Notes

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Do You Wanna Talk To Your Electric Meter?

It wasn't that long ago that the only way you could access information from your electric meter was to walk up to it and copy down the reading on a sheet of paper. This probably provided an exercise benefit to the meter readers but had some negatives like dog bites and a good soaking in inclement weather. But now, thanks to electronics, electric meters can talk - and you don't necessarily have to go to them to have a conversation.

The neat part of communicating with today's lineup of E-Mon D-Mon meters is that you can do it in lotsa different ways. So, you ask, what do you mean when you say different ways? I don't mean Spanish, English, or Portuguese, but I'll explain all the different possible ways of getting your metering data delivered right to your door...or wherever you want it.

The classic two ways of talking to E-Mon's Class 3000 and 5000 meters is through E-Mon Energy software and our proprietary EZ-7 protocols or through a pulse output into an energy management system. The software resides in your PC and the two basic methods of communication are through a "hard-wired" system or a phone modem. (See? No Portuguese!)
The hard-wired system works through dedicated RS-485 cabling or through an Ethernet connection that uses an existing network. Ethernet communication does require an optional module and an IP address. Using the RS-485 approach allows up to 4,000 feet of cabling to be run in the building. The software is happy to use all of these methods simultaneously and is easily set up to do this. One important thing ya gotta remember is that the Class 1000 and 2000 meters have to be used with an IDR (Interval Data Recorder) to provide communication.

If you like the phone modem approach, the meters and IDRs can be "daisy-chained" with the RS-485 cabling then converted to RS-232 to connect to a phone modem. This gives you access to the whole system with only one modem. Literally hundreds of meters at a location can be read from a single modem, through IDRs and Class 3000 and 5000 meters.

One of the cool things about the Ethernet communication method is that it's good on both intranet and internet systems. When tied into the internet, meters anywhere in the world (including Portugal!) can be read without bearing long distance charges, such as you would through a phone modem. And, access time is very quick, which is especially good if you want to look at the meter data in "real-time."

Now that you're educated on one language and your three options of communicating with it, lets see what we can do with some additional languages to explore other ways we can talk with those meters.

~ Por favor vira a página (That means please turn the page in Portuguese!) ~

Do You Wanna Talk To Your Electric Meter?

Modbus is another language E-Mon makes available and it's used a lot in the controls industry. With our Class 3000 and 5000 meters, 38+ data points are available for use with Building Automation Systems (BAS) or industrial controls. These include delivered power, received power, volts, amps, power factor, frequency, kW, kVAR, kVA, etc. With Modbus, the meters act as "slave" units to the BAS master. Data is exported from the meter on request and the automation or control system processes the raw data for its use. If the IDR is used through Modbus, the data is limited to kW h and kW.

With the modbus version of the meters, we give ya the choice of two forms of communication, Modbus RTU, which communicates through RS-485 cabling, and Modbus TCP, which is used when Ethernet is the form of communication called for by the user. The IDR is also available with Modbus.

BACnet is still another language that's offered for talking with E-Mon's meters. The HVAC industry seems to dig BACnet as its language of choice for use with data and controls. (personally, I'm into Portuguese, I'm takin a course dont'cha know!) Anyhoo, E-Mon's Class 3000 and 5000 meters will provide the same data points in BACnet as those supplied through their Modbus applications.

As with Modbus, the BACnet meters communicate over an RS-485 cable system or they utilize Ethernet cabling. When used with RS-485, the BACnet MS/TP protocol is utilized. When Ethernet is the choice of communication, BACnet IP is the protocol.

And the newest member of the communication family is LONworks. LONworks is available on the Class 3000 & 5000 meters and provides the user with 40 data points of energy information. This particular open protocol also has its own specialized form of communication and does not use either RS-485 or Ethernet cabling. Lon TP (twisted pair) is used with this meter and communicates over a twisted-pair of wires, making it somewhat unique in its application and installation.

Finally, we will consider our wireless offering. This is a true mesh network where the data is transferred to a host Wireless Data Collector (WDC) by hopping from meter-to-meter wirelessly and then being received by the collector. The collector stores and communicates the pulse (kWh, kW) data that is received from the Class 2100 & 4100 meters. External wireless modules can be used to collect data from pulse output water, gas and BTU meters. They can even be plugged into existing E-Mon D-Mon meters up to 10 years old to integrate existing units into the wireless system. (Cool, huh?) The final transmission from the WDC to a computer is through its Ethernet connection, using either the internet or a local intranet system.

Well, we're about out of space here in this issue of Dave's notes, I need to get back to studying for my Portuguese exam. Obrigado pela leitura, estaremos de volta no próximo trimestre. (Thank's for reading, we'll be back next quarter!)

~ Dave

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