

**Accurately Measure Usage Automatically,
Generate Reports and Billing**



E-SINE
Engineering Solutions

Metering for Telecommunication Companies

- **Accurately Measure Energy Usage at Cellular Sites**
- **Get Automated Energy Usage - Remove Dependency on Manual Readings**
- **Generate Usage Reports Automatically**
- **WiFi/Ethernet Communication for Remote Read**
- **Read Data Easily from Hard-to-Access Sites**
- **Be Alerted to Power Problems**
- **Monitor Usage**
- **Automatically Generate Usage Bills**
- **Perform Preventive Maintenance by Monitoring Usage and Alarms**

For More Information

Contact E-Sine at:

Email: info@e-sine.com Tel: 0208 242 4936

► Requirements for Cellphone Companies



Telecommunication industry sources say there are over 200,000 cell sites in the United States. Most of these sites are located on private property that is leased from the owner. When cell sites are located on leased properties, the telecommunications company needs to place meters to monitor their energy consumption and demand, in order to reimburse the property owner for their share of the utility bill. A number of challenges can arise in this situation.

When non-communicating energy meters are used to monitor the electricity used by the cell site, there is the question of less accurate measurements as well as the need to manually read the meters on a regular basis. The manual read can be performed by either the telecommunications company's personnel or by the property owner. Both of these situations can present problems. On the one-hand, access to the meters and time for the meter reading may be difficult for the telecommunications company to arrange, and it is much more costly for them to manually read the

meters. And when the telecommunications company needs to rely on the property owner to perform the reading, there is both the possibility of a less experienced person misreading the meters and of the meter reading not taking place in a timely manner. The end result can be confusion in billing, delay in processing the reimbursement to the property owner, and the real possibility of mistakes in allocating the costs, leading to payment discrepancies.

In addition to all of these problems, with non-communicating energy meters there is no way for the telecommunications company to remotely monitor real time operating conditions and identify sites operating out of the normal expected ranges. This is not a good situation for a telecommunications company to be in!



A Better Way

The problems noted previously are addressed by implementing a better metering solution with digital communication capability:

- With a simple upgrade to an electronic meter with WiFi or Ethernet communication, the necessity of arranging for manual reads is eliminated. No more need for you to go to the time and expense of sending out personnel to read meters at the cell site, or waiting for a property owner to read the meter.
- Automatic meter reads and the higher accuracy that the electronic meter offers solves the problem of erroneous measurements and subsequent payment discrepancies. Electronic meters are much more accurate than the older, mechanical meters, and since the usage information is communicated directly from the meter, the risk of inexperience leading to misread usage information is eliminated. You can now feel certain that you are paying only for the energy you are actually using.
- When you add energy management software, you gain control over your usage. You can set up limits that will trigger an alarm if there are power quality issues, such as voltage sags. You can view real time readings and log energy usage to later analyze costs and manage demand. You can be proactive in responding to energy problems before they escalate, avoiding downtime of equipment.
- When automated costing and usage reporting software is added, you gain the ability to automate data retrieval and to generate bills and detailed reports. An Energy Dashboard will let you compare usage between comparable sites, pointing out inefficiencies and problematic equipment; analyze the effect of temperature and humidity on your usage; and track usage over time. Detailed reports for all of your sites can be created both to aid in telemetric analysis and cost savings, and to provide executive level summaries explaining details of usage.

►What Should I Use?

E-Sine's Shark® 200S submeter or Shark® 270 socket form meter are perfect meters to use at cellular sites. They provide highly accurate revenue certifiable metering, with an accuracy rating of 0.2%, meeting both ANSI C12.20 and IEC 62053-22 0.2% accuracy classes, and a Frequency accuracy of 0.001%. The meters measure all aspects of power and energy, and provide Block or Rolling Window Demand for demand averaging.

The Shark® 200S submeter offers digital communication, providing IEEE 802.11 WiFi with WEP, WPA or WPA2 security, for remote communication back to central software, such as E-Sine's EnergyReporter EXT™ application. The Shark® 200S submeter also has an RJ45 Ethernet option for communication.

In addition, the Shark® 200S meter has onboard memory for data logging, giving you the information you need for telemetric analysis. Up to three historical, trending logs are available for storing usage information, as well as a Limits/Alarm log that will list any deviations from configured limits, e.g., any times the voltage dropped below a set level. The meter also has an anti-tampering System Events log that records all actions within the meter, such as resets, power on/off, password logon attempts, etc.; and password protection to avoid unauthorized access.

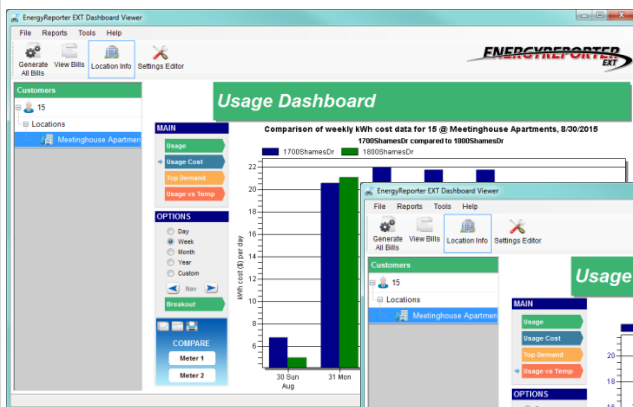
For socket meter installations, the Shark® 270 meter can be a perfect retrofit. It fits standard 9S forms, so you can easily replace a non-communicating socket meter with the Shark® 270 meter. Its Ethernet communication offers advanced features, such as enhanced security; and it has the capability of sending emails on configured alarm conditions, and the ability to send periodic notifications of meter readings, to keep you alerted to energy usage at the cellular site. The Shark® 270 meter also has onboard memory for logging, and offers up to eight historical, trending logs.

Communicator EXT™ 4.0 energy management software gives you the tools to manage your meters, as well as to view real time readings and power quality analysis. Use this software to set up limits for alarm conditions, to configure trending logs, and to poll meters to see real time energy usage.

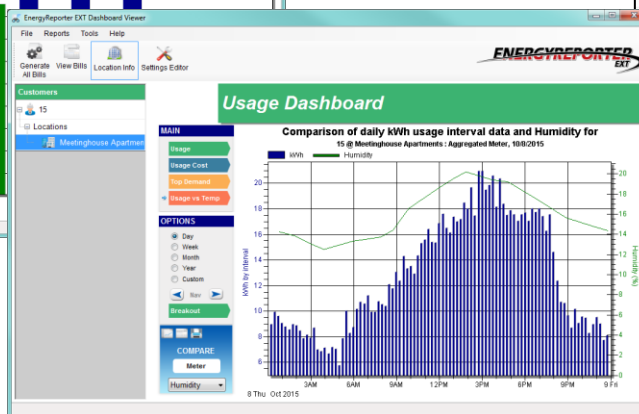
EnergyReporter EXT™ software lets you set up automatic retrieval of meter data to generate bills and detailed reports. The application offers an Energy Dashboard that will let you compare usage between sites, analyze the effect of temperature and humidity on your usage, and track usage over time. Detailed reports for all of your sites can be created both to aid in telemetric analysis and cost savings, and to provide executive level summaries of usage.

➤ Conclusion

Metering cellular sites on leased property presents many challenges to the telecommunications industry. E-Sine's meters and software give you the solutions to successfully address your metering challenges and to collect energy usage information.



Energy Cost Comparison



Plot Temperature, Humidity, and Load



Automated Bill Generation and Custom Reports

TYPICAL BILL OF MATERIALS:

Communicating Revenue Energy Meter.

Shark® 270 – Advanced Socket Form Revenue Meter

Ordering Part #: Shark270-9S-60-20-V5-S-INP100S-X

Economical WiFi or RJ45 Ethernet Submeter.

Shark® 200S – Advanced Data-Logging WiFi or RJ45 Ethernet Submeter

Ordering Part #: Shark200S-60-10-V33-WIFI



Base Data Collection Software

Communicator EXT™ 4.0 software for configuring meters, automatically collecting data, and creating databases.

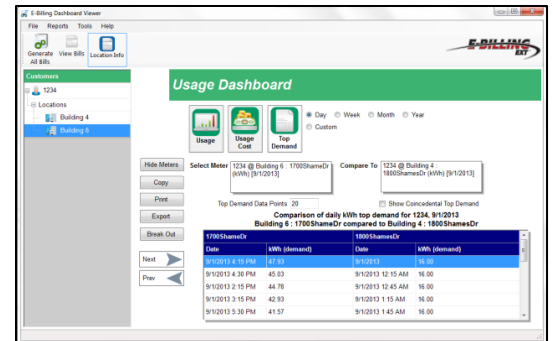
Ordering Part #: COMEXT4P



Energy Dashboard and Billing Software.

EnergyReporter EXT™ 4.0 software, energy management add-on for energy dashboarding, generating usage reports, and automated submeter billing based on the Communicator EXT™ software's collected databases.

Ordering Part #: EREXT4



ENGINEERING ASSISTANCE:

Contact us for conformance specifications and engineering design assistance. E-Sine has on-staff dedicated application engineers to provide comprehensive support and make your project a success.

Contact E-Sine at:

Email: info@e-sine.com

Telephone: 0208 242 4936

Website: www.e-sine.com

