

Monitor Energy Usage and Power Quality with Advanced Metering for Airports



E-SINE
Engineering Solutions

Use Advanced Metering to Track Energy Usage and Measure Power Quality Airport-wide

- **Identify Areas For Saving Energy**
- **Track and Bill Tenants for Actual Energy Usage**
- **Insure Power Quality Needed for Critical Areas**
- **Respond to Energy Problems as They Arise**



Contact E-Sine at:
Email: info@e-sine.com Tel: 0208 242 4936

➤ Airports Have Unique Energy Needs

Airport lights are always “on,” no matter the time of day or the time of year. In blizzards, heat waves, and pouring rain, their energy needs must be met. With no downtime, an airport can consume as much energy as a medium-sized city. Using that energy efficiently is paramount.

Airports also have a critical need for highly reliable power. Since they can't afford to have blackouts, or even brownouts, they must protect themselves from the effects of voltage surges and sags, harmonics and transients, and other power quality problems. They must be made aware of these problems when they occur, so that they can respond before the problem escalates. And they need to be able to find out why the problem occurred, in order to avoid a repetition.

In addition, many airports must meet energy conservation guidelines. Even if not legally obligated to do so, airports are high-profile energy consumers that need to reduce their carbon footprint.

➤ Metering Can Help With That

The first step in getting a handle on energy costs, power quality, and energy usage, is installing meters in critical areas. E-Sine meters provide trending energy data that lets the airport facility manager see where energy is being used, and identify areas where energy can be saved. For instance, if older airport buildings are shown to be consumers of large amounts of energy, upgrades can be implemented to make them more energy efficient. If parking lots' energy usage is high, it can be reduced by installing LED lighting.

E-Sine meters also let you measure power quality and set limits to alert the facility manager via email when there are power quality problems, such as voltage sags. This lets the manager be proactive in addressing a problem before it escalates into an airport-wide problem. And the waveform records of voltage anomalies that the meter supplies let the manager pinpoint what went wrong, to avoid the same thing happening again.

By giving the facility manager the tools needed to identify areas for energy savings and insure the quality of the power being used, E-Sine meters help airports large and small meet energy guidelines and improve their impact on the environment.



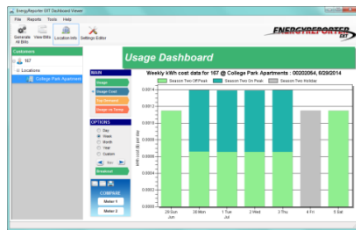
➤ Airports Have Multiple Energy Consumers

An airport houses many tenants, in addition to the offices, parking lots, restroom facilities, jetways, runways, and other areas run by the airport itself. Restaurants, car rental agencies, stores, airlines, and other tenants must reimburse the airport for their energy use. Since not all energy consumers are equal: a runway, which cannot take a chance on going dark, may pay a higher rate for its energy than a store or restaurant, the traditional method of billing tenants for their square footage doesn't lead to fair results or happy tenants! The airport needs a way to bill its tenants for their actual energy use.

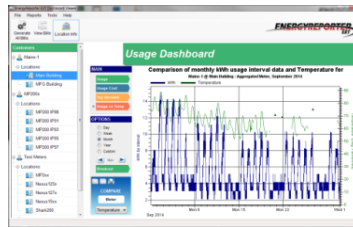


► Submetering Can Help Allocate Energy Fairly

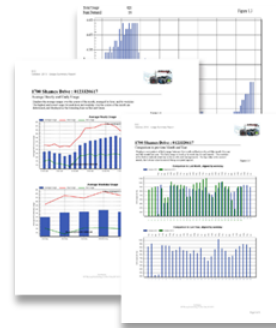
Allocating energy use fairly is as simple as installing submeters within the airport. Submetering lets you and the tenant see exactly how much energy is being used by them. When submeters are coupled with an automated energy reporting and billing software like E-Sine's EnergyReporter EXT™ software, the airport can supply tenants with automated bills and energy usage reports. When a tenant is billed for their actual usage, they have greater incentive to conserve energy which affects their budget directly. They have control over their spending. And once they see their costs go down, tenants have incentive to continue with energy saving efforts.



Real Energy Cost by Day

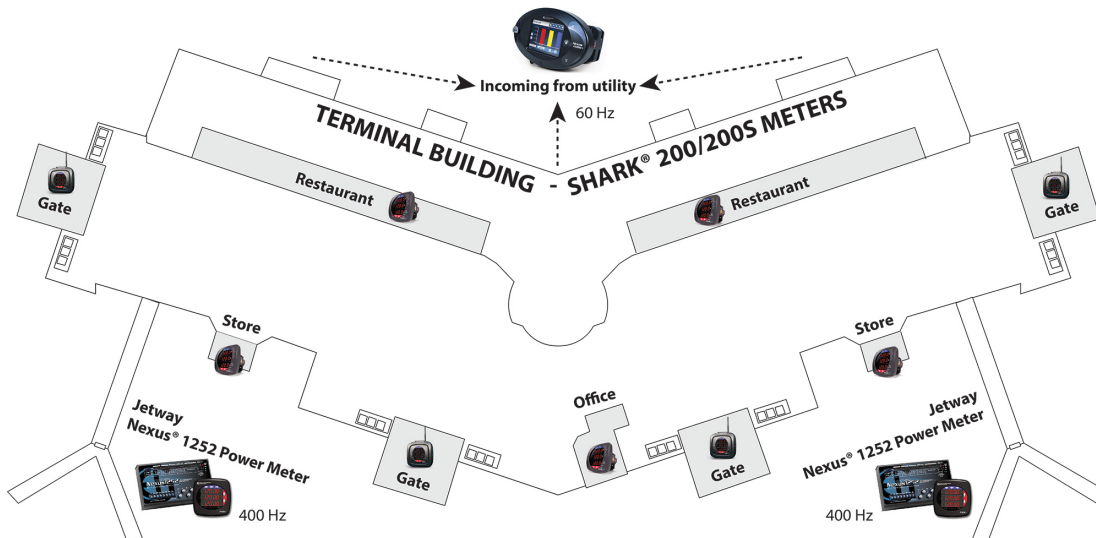


Energy Usage over Time



Executive Summary Energy Usage Reports

Typical Airport Metering Layout



TERMINAL BUILDING –

Shark® 200/200S meters measure basic energy usage for:

- Main Services
- Restaurants
- Tenants
- Gates

JETWAYS –

Nexus® 1252 meters measure usage of all electrical components on the jetway. The Nexus® 1252 meter is capable of 400 Hz measurements.

UTILITY ENTRY POINT –

Nexus® 1500+ meter monitors quality of power coming from the Utility and analyzes readings from other airport meters.

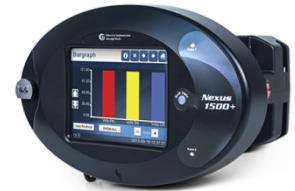
TYPICAL BILL OF MATERIALS:

Critical Load Point

Nexus® 1500+ - Advanced Power Quality Analyzer and Energy Meter

Example Installation: Utility Entry Points, Critical Loads, High Power Sensitivity Points

Ordering Part #: Nexus1500+-D2-60Hz-20-V3-X-X-X-X



Large Loads (400 Amps or more)

Shark® 200 - Data-Logging Energy Meter for Monitoring and Load Profiling

Example Installation: Typical Building Loads, Control Panels

Ordering Part #: Shark200-60-10-V2-D2-INP100S-X-X



Economical WiFi Submeter

Shark® 200S – Advanced Data-Logging WiFi Submeter

Example Installation: Administrative Offices, Gates

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



400 Hz Loads (400 Amps or more)

Nexus® 1252 - Power Quality Meter

Example Installation: Jetway Loads, Control Panels

Ordering Part #: Nexus1252-A-120- D2- V2-INP200



Base Data Collection Software

Communicator EXT™ 4.0 Software for configuring meters, automatically collecting data, and studying power quality

Ordering Part #: COMEXT4P

Energy Dashboard and Billing Software e

EnergyReporter EXT 4.0 Software for energy dashboarding, generating usage reports and automated submeter billing

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.

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Telephone: 0208 242 4936

Website: www.e-sine.com

