

# ***HIGH PERFORMANCE MONITORING & CONTROL***

ACE3600 Remote Terminal Unit







## ***EMPOWER YOUR SCADA NETWORK***

Utilities, now more than ever, are facing newer and greater hurdles. Multiple wired and wireless communication technologies are challenges to seamless networking. Heightened security concerns amplify the need for secure connections. Operating flaws, system breakdowns and security failures are unacceptable. Versatile network interoperability, powerful data management and an intuitive user interface are mandatory.

As the lead component in a SCADA system's remote monitoring and control capabilities, Remote Terminal Units (RTU) must face these challenges head on.

Operating within a wide variety of SCADA infrastructures and protocol requirements, RTU's must:

- Be versatile enough to support different communication media
- Adapt to existing and changing system requirements and platforms
- Encrypt information to protect against cyber-attacks and false signals
- Be cost-efficient to maintain and operate for future growth
- Possess the robust processing to manage large amounts of data accurately

A SCADA network equipped to meet these demands requires the next generation of RTU from a communications leader, Motorola.

# ***THE COMBINATION OF ACE3600'S FLEXIBILITY AND STRAIGHT FORWARD OPERATION MAKES IT THE PERFECT UPGRADE WITH MINIMAL COST AND EFFORT.***



## **Wireless Communication Versatility**

ACE3600 is an all-in-one package that includes the RTU, radio and software for quick installation. The ACE3600 features a graphical user interface (GUI) that minimizes training time by allowing system configurations and network operations to be managed through simple, user-friendly applications. The GUI includes program and system self-maintenance software tools.

ACE3600 operates with multiple industry protocols and across a wide band of communication media, including:

- Fiber-optic links
- Telephone and leased lines
- VHF/UHF/800/900 MHz conventional systems
- UHF/800/900 MHz analog or digital trunked systems
- Multiple Address Systems (MAS)
- Broadband data over Internet Protocol (IP)
- Spread Spectrum communication
- Microwave
- Satellite
- Narrowband and broadband at speeds from 1200 bps to 100 MB

This flexible communications capability enables the ACE3600 to connect with several local devices, analyze the data and send that information via different media to various other locations.

ACE3600 also accommodates a host of devices, sensors and display elements and has hot-swappable input/output (I/O) modules with Sequence of Event Recording (SER).

Available on-board ports can feature up to:

- Three 10/100Base-T ports
- Four serial ports
- Two radio modem ports



## Robust Transmission Processing

The ACE3600's processing power provides accurate data analysis for the most critical, real-time monitoring and control applications.

- ACE3600's Optimized Wireless Protocol works in concert with its flexible communication capabilities to gather and analyze data from multiple sensors or other intelligent electronic devices (IED), at any number of remote sites.
- Transmissions from sensors and IED's can be sent accurately and dependably to any number of locations or any computer that has access to an Internet/Intranet connection and a standard Web browser.
- The RTU acts as a communication node or Store-and-Forward repeater, allowing for coverage extension or data transfer between RTU's in the event of a disruption in service. This enables redundant data transfer for an even higher level of security, dead-spot elimination and additional reliability.
- The ACE3600 eliminates the need to make a choice between an RTU and PLC, by incorporating the best features of mid-sized PLC functions to provide local programming for control with intelligent RTUs' protocol and communication capability.



## The Latest in Security

Maintaining the integrity of SCADA systems requires an RTU network that sends and receives data securely. Providing security through reliable operation and automated disruption protection, the ACE3600 provides increased data security through multiple layers of encryption and time-based data authentication.

- ACE3600 can be used as a secure router with data sent to the RTU from various non-secure sources and held for secure forwarding.
- ACE3600's ability to diagnose, calibrate, program and update other RTU's alleviates technicians spending time canvassing remote sites, provides immediate assessment of a failure, and reduces service downtime.
- Over-the-air uploads and downloads of data and programs are performed between RTU's or the control center for diagnostics in the event of an accidental or malicious disruption. ACE3600 allows for the remote download of new firmware.
- Rigid password security protects the system from unauthorized access.
- Motorola's secure SCADA and Motorola Data Link Communication (MDLC) protocol is the trusted solution used by numerous Federal agencies and military bases across the globe.

# Versatile Platform for Multiple Applications

## Wastewater Control

- Implement pump sequencing to minimize power costs and equalize runtime.
- Support one or more variable speed pumps.
- Flexible to handle the smallest lift station tasks or the most complicated treatment plant process.
- Makes an ideal intelligent data logger for mandated combined sewer overflow (CSO).

## Potable Water

- Monitors well parameters for sophisticated pump sequencing control and alerts.
- Maintains water levels at the reservoir/water tower, and optimize flow and pressure in the distribution grid.
- Provides critical response system fault detection for leaks or unauthorized water use.

## Public Warning Systems

- Provides secure communication between the sirens and the control center.
- Provides back-up communications, silent test and download of recorded public warning messages, and siren activation.
- Expands communication capabilities through a select combination of tones and pre-recorded voice messages.

## Oil and Gas Safety

- Continuously monitors, measures and controls different aspects of the production, refining, transportation, storage and distribution of oil and gas.
- Measures oil and gas flow rates per American Gas Association (AGA) standards, accumulated flows, line and wellhead pressures.
- Analyzes, coordinates and controls with enhanced system monitoring to manage oil spills, leakage and fire detection and emergency shut down procedures.

## Fire Station Alerting Solution

- Alerts specific bunkroom(s), waking only the appropriate response team(s) reducing work, stress and fatigue.
- Protects the fire station from theft by closing the doors after the engines have left.
- Guards against a fire in the fire station by shutting down designated high-risk areas within the station, such as the kitchen, which are quickly left unattended during an emergency.

## Electrical Distribution

- Monitors and controls transformers, substation protection relays and circuit-breaker reclosers utilizing detection technology to register which feeder sections experience a fault current.
- Uses advanced communication capabilities for fault isolation and system restoration to remotely isolate a damaged MV power grid section and restore power to customers.
- Regulates voltage and the power factor through remote control of capacitor banks along the grid providing more accurate billing and a reduction in energy losses along the network.
- Helps power generation stations to effectively meet the growing demand for electricity through power quality monitoring.



## Reliable Control Systems From a Vendor Who Understands Wireless Communications.

Only Motorola's 75 years of experience designing and manufacturing secure, mission critical communications systems can provide the most versatile, secure and accurate SCADA operating system for your business. For 35 years, over 120,000 Motorola RTUs have been installed all over the world in a variety of applications.

For more information about ACE3600 and Motorola's commitment to the SCADA industry, please contact us or visit our web site at [www.motorola.com/ace3600](http://www.motorola.com/ace3600).



**MOTOROLA**

**Motorola, Inc.**

1301 E. Algonquin Road  
Schaumburg, Illinois 60196 U.S.A.  
1-847-576-4116

Visit [www.motorola.com/ace3600](http://www.motorola.com/ace3600)

Europe, Middle East and Africa  
Tel: +972 3 565 8127

Latin America  
Tel: +1 954 723 8289

Asia-Pacific  
Tel: +61 3 9847 7593

MOTOROLA and the Stylized M Logo are registered in the U.S. Patent and Trademark Office.  
All other product or service names are the property of their registered owners. © Motorola, Inc. 2009