



ACE3600 SCADA Solutions

For The Water/Wastewater Industry



Whether monitoring and controlling remote pump operations or handling in-plant processes, Supervisory Control and Data Acquisition (SCADA) systems offer substantial benefits.

ACE3600 is a product born of Motorola's 75-year commitment to cutting edge technology. This quest for communications of the future is what makes ACE3600 the expandable, flexible solution for the growing and changing needs of Water and Wastewater.



The ACE3600 Remote Terminal Unit (RTU) provides a turnkey data collection and processing unit with the intelligence required to operate in sophisticated SCADA systems.

PROVEN PERFORMANCE

For over thirty-five years, Motorola has delivered SCADA solutions to the water/wastewater industry. From small rural water operations to large, complex systems with remote wells, storage reservoirs and treatment plants; our customers benefit from Motorola's commitment to their success. Today, the majority of the top utilities in the nation utilize one or more of our wireless communication systems and thousands of our SCADA systems are used in water/wastewater applications. Over 120,000 RTUs have been delivered worldwide.

ADVANTAGES FOR THE WATER/WASTEWATER INDUSTRY

Motorola's broad-based design, manufacturing and engineering capabilities give ACE3600 the distinct advantage of having the radio, CPU, I/O modules and power system all under the single Motorola label with the accompanying world class quality control and tested, factory integrated performance.

DISTRIBUTION SYSTEMS

Continuous monitoring and control, both local and from a central site allows immediate problem detection and resolution. Pump station activity can be automatically adjusted using measured water quality parameters. Tank volumes and system pressure can be regulated to maximize efficiency of the water system. Data can be used for water modeling and to schedule maintenance operations. ACE3600 can alert to line breaks, overflow situations or possible unauthorized water use.

COLLECTION SYSTEMS

ACE3600 RTUs can implement sophisticated pump sequencing functions to ensure the appropriate, most cost effective pump is operating. Routines for single speed pumps or VFDs (variable frequency drives) are available. Adjustments for wet weather flows or seasonal changes can be made automatically. Remote site operation can be optimized for run time equalization, chemical and energy use. Overflow and possible contamination situations requiring regulatory reports can be minimized with SCADA system alarming.

COMBINED SEWER OVERFLOW MONITORING

ACE3600 can interface directly (analog and serial) to flow and level instrumentation to record accurate site information. Large amounts of time tagged data can be stored so that critical overflow information is not lost, regardless of possible communication problems. In fact, ACE3600 with up to 17 Mbytes of user memory can be used as a data logger where no communication channels are available. ACE3600 is the flexible, expandable solution for the growing and changing needs of any water management solution.

TREATMENT PLANT PROCESSES

The high performance hardware and software of ACE3600 allows for accurate management of treatment plant processes. ACE3600 can address thousands of I/O points and its graphical PID routines allow easy configuration of control loops for water and wastewater plant processes. Hot swap I/O modules, redundant communication links and 500 MIPS (million instructions per second) capability out perform many more expensive PLCs or dedicated controllers. Multiple communication ports allow the most economical choice of wired, wireless Ethernet or other broadband links.



Flexible communications regardless of media by Motorola, THE COMMUNICATION EXPERTS

A FLEXIBLE, EXPANDABLE, INTEGRATED SOLUTION

Motorola's ACE3600 puts industry expertise to work. Its superior communications, connectivity and programmability make ACE3600 the solution for today...and tomorrow. ACE3600 RTUs, in combination with third party software such as Wonderware™, create a powerful SCADA system that can monitor and control virtually every water or wastewater management function, improving productivity and maintaining employee safety. Its high performance processor and real time operating system allow complex operations to be configured via advanced ladder logic, as well as 'C' programming languages. A new SCADA development software package utilizing extensive graphics and advanced tools such as automatic I/O recognition, power management, and time synchronization shortens development time.

UNPARALLELED COMMUNICATIONS

- Motorola MDLC protocol provides seamless integration of multiple communication systems no matter how complex or widely scattered. ACE3600 SCADA systems can operate over analog or digital radio, cellular, microwave, fiber optic, dedicated or switched wirelines, RS232/RS485 serial links, Local Area Networks or a versatile data network combining these media. RTU to RTU communications can be used to control system levels, pressures or flow with minimal reliance upon a central station.

- ACE3600 SCADA design permits system intelligence to be distributed among all equipment sites allowing for remote site report-by-exception and minimizing the need for continuous polled communication. ACE3600 protocol allows distant sites to communicate through store-and-forward technology without need for expensive radio repeaters or antennas. Priority ratings and full redundancy can be assigned to high-risk sites. MDLC efficiently transmits programs, databases and parameters at high speeds; yet its structure is transparent to system operators.
- In addition to the seven-layer Open Systems Interconnection (OSI) based Motorola Data Link Communication (MDLC) protocol, support is available for third party protocols such as Modbus master/slave, DF-1, DNP-3.0 and IEC60870-5-101.

MAXIMUM CONNECTIVITY

- ACE3600 will accept information from a variety of manufacturers' products, including many primary sensors and intelligent electronic devices.
- Multiple communication ports are available for Ethernet, serial - RS232, RS485, or radio modems which allow numerous external data devices to be connected at speeds from 1200bps to 100MB.

ACE3600 provides the features of a Remote Terminal Unit, a Programmable Logic Controller (PLC) or a Process Automation Controller (PAC) in one "off the shelf" package



USER PROGRAMMABILITY

- ACE3600 is completely user configurable to meet your specific needs.
- Algorithms are available for flow splitting, chemical addition/flocculation and clarification as well as filter backwashing, chlorination and local totalization.
- ACE3600 can be used in wastewater plants to control activated sludge, dissolved oxygen, return sludge and sludge wasting as well as solids digestion and effluent disinfection.

IMPROVED SECURITY

- Leverage your ACE3600 SCADA system to improve site and operations security - interface with intrusion sensors, keypad entry devices and manage video monitoring.
- ACE3600 features include configurable firewalls for all IP ports and an optional encryption package. This encryption feature enables secure, wireless communication over any ACE3600 distributed system. A time based authentication system with clock synchronization incorporated into the user application further enhances the security of the encrypted data.

INTERNATIONAL REGULATORY STANDARDS

- ACE3600 is rigorously tested to multiple regulatory standards for areas of: Safety, Emissions and Immunity. ACE3600 satisfies difficult UL, CSA, IEC and S/NZ standards. Some models have FM (Factory Mutual) approval for operation in C1 D2 hazardous areas.

READY FOR CHANGE AND GROWTH

- ACE3600 is modular and designed to integrate with existing equipment and to expand when growth is needed.
- ACE3600 has all the Input/Output (I/O) capacity, local control capability and communications needed for both remote and in-plant operations.
- With ACE3600's scalability, upgrades and expansions can be made in an incremental manner depending on the utility's requirements.
- ACE3600 allows for remote diagnostic, configuration and application program upload/download from anywhere in the system. Additionally, a remote update of the operating system firmware is available with a safe download feature.

For more information, call +1 847 576 4116 or visit us at www.motorola.com/ace3600.



www.motorola.com

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