3G Cellular RTU Solutions
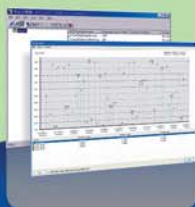
Activate Your Remote Monitoring Application

Cellular RTU Controller   Active OPC Server   Data Gateway Utility

Active OPC

▶ Seamless Historical Data Logging

▶ Reliable 3G Connection

▶ AI, DIO, Serial Device Connection

MOXA®

All-in-One Compact Device

Moxa's ioLogik 5300 series is a next generation cellular RTU that combines the cellular modem, I/O controller and data logger into a compact box design that reduces deployment time and cost, and simplifies operation and maintenance. The ioLogik W5300 series comes with a 3G GPRS/HSDPA interface that supports tri-band HSDPA/UMTS and quad-band GSM/GPRS/EDGE frequencies, offering a full spectrum of 3G mobile communication services. The cellular RTU is a rugged, wide-temperature remote terminal unit well suited for hard-to-wire remote monitoring and alarm applications.

Cutting-edge 3G Cellular RTU Solution

Fast, Bandwidth Saving SCADA Database Communications

For uplink communication, Moxa's patented Active OPC Server helps the ioLogik W5300 RTU build seamless connectivity with SCADA master systems. Compared with other 3rd party OPC servers, Moxa's Active OPC Server offers event-driven push communications between ioLogik W5300 RTU products and HMI/SCADA systems, with instant I/O status at a speed that is 7 times faster and saves 80% on bandwidth. Moxa's DA-Center forms a ready-to-run data gateway between RTU controllers and databases for easy accessibility. In addition, the open standard OPC interface and Active OPC Server ensure real-time data collection.

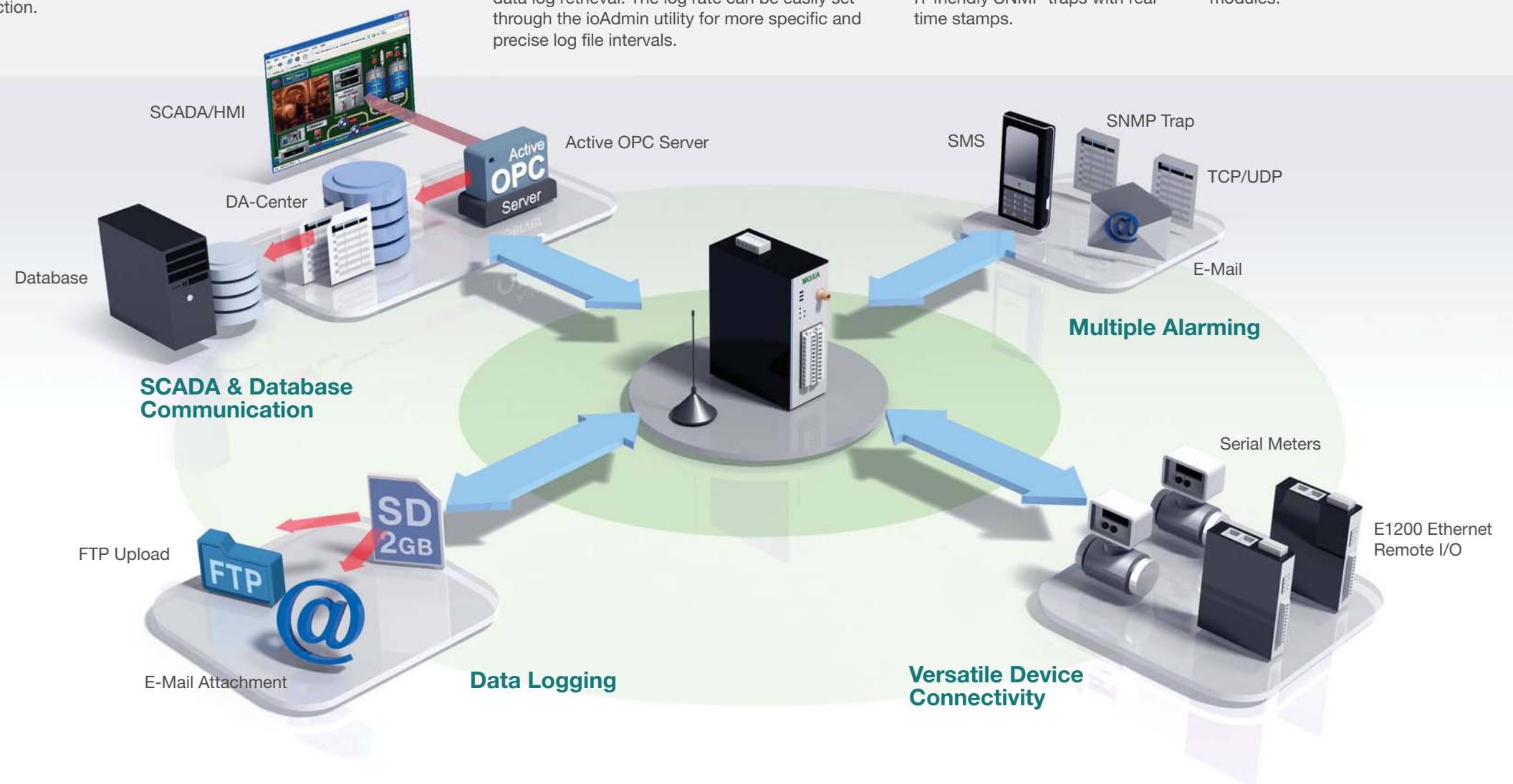## Up to 2GB High Capacity Logging with FTP/e-mail Uploads

In addition to remote data collection, the ioLogik W5300 RTU supports stand-alone data logging with one expandable SD card slot that can provide up to 2GB of storage space. The standard, high-capacity memory allows months or even years of time-stamped data to be saved and provides additional flexibility for operation staff. This cellular RTU also has a built-in FTP client and e-mail attachment to support remote data log retrieval. The log rate can be easily set through the ioAdmin utility for more specific and precise log file intervals.

Multiple Alarm Options for More Flexibility

Embedded with the simple yet powerful Click&Go™ control logic, the W5300 RTU is able to execute alarm alerts with the simple "IF-THEN-ELSE" control logic. When a pre-defined event is triggered, various alarms can be actively sent out by SMS, e-mail, TCP/UDP packets, or IT-friendly SNMP traps with real-time stamps.

Versatile Device Connectivity for a Variety of Applications

The ioLogik W5300 RTU is equipped with one 3-in-1 serial port that supports RS-232/422/485, making it more convenient to connect field serial devices. In addition, the ioLogik W5300 RTU can externally expand the local network to more wired clients through the daisy-chainable ioLogik E1200 remote Ethernet I/O modules.

SCADA/HMI

DA-Center

Active OPC Server

Database

SCADA & Database Communication

SMS

SNMP Trap

TCP/UDP

E-Mail

Multiple Alarming

FTP Upload

SD 2GB

E-Mail Attachment

Data Logging

Serial Meters

E1200 Ethernet Remote I/O

Versatile Device Connectivity

Why W5300 Series Cellular RTUs Are Your Best Choice

Solve the Dynamic/Private IP Issue over Cellular Networks

An ioLogik W5300 can be easily deployed and managed in a dynamic IP environment with full support for Moxa's Active OPC Server, which performs as a cellular device gateway for mobile IP management. The remote ioLogik W5300 units will automatically establish communications with an Active OPC Server using a fixed IP. The Active OPC Server will receive and register the ioLogik W5300's IP address, and receive and record tag updates accordingly.

A Ready-to-Run Data Gateway Linking Remote Devices and Databases

Moxa's DA-Center software seamlessly interacts with Active OPC Server using the standard and open OPC protocol and enables any ODBC-compliant IT database, such as SQL or Oracle, to exchange data with the Active OPC Server. Users can now log data from Active OPC to their database without any additional time wasted in developing a socket program. For small-scale customers without a database, the data can also be converted to a Microsoft Excel or Access file. This IT-friendly software also includes a trend-chart utility that animates real-time and historical data from the log file for prediction and analysis.
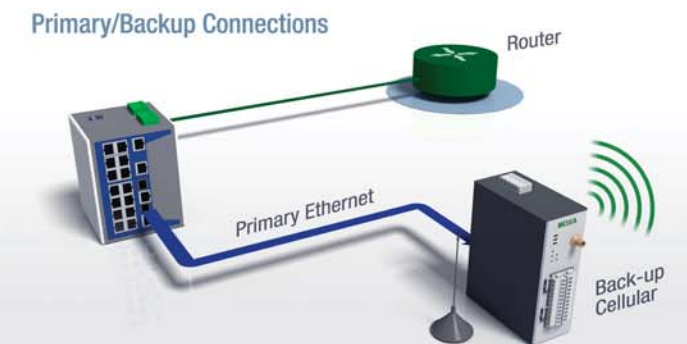

Smart SMS Alarms and Commands Enhance Event Management Efficiency

By leveraging mobile SMS, the ioLogik W5300 RTU introduces alarm escalation technology to ensure that alarm notifications and responses are simple and fast. The escalation process can be configured in the Click&Go™ interface. Using the cellular ioLogik W5300 RTU's bidirectional SMS communications, recipients can acknowledge alarms by sending a simple SMS from their mobile phones to the ioLogik W5300 cellular RTU. The acknowledgment may terminate the alarm notification escalation process to ensure proper event management. Moreover, an SMS command set allows users to monitor and control the I/O remotely via cellphones.

Network Redundancy

The ioLogik W5300 RTU uses network redundancy to keep services running over an IP network. When the Ethernet connection is the primary interface to connect to the Internet via the local router, once the primary interface fails, the ioLogik W5300 RTU controller will switch to the backup cellular interface automatically, and then will switch back to the primary Ethernet interface when it becomes available.

Enable WAN-to-LAN Communications with Port Redirections

Using the 3G antenna and the RJ45 connector, the cellular W5300 RTU supports port forwarding technology that enables WAN-to-LAN communication with port redirection settings. Through port forwarding, the ioLogik W5300 allows external WAN hosts such as SCADA/HMI systems to connect to specific field devices within the LAN by linking with the ioLogik W5300.

Friendly Serial Communications

The ioLogik W5300 RTU is equipped with a 3-in-one serial port that supports RS-232/422/485 for connecting to different types of field devices. The ioLogik W5300 comes with a transparent serial tunnel that brings legacy serial devices to 3G wireless networks. In addition, the ioLogik W5300 supports Modbus RTU communications for establishing direct and active connectivity between field devices, Moxa's Active OPC and SCADA systems. With ioAdmin, the ioLogik W5300 can create user-defined Modbus serial tags to drive and translate serial data from remote serial meters or flow sensors into OPC tags for use with a master SCADA system.

Programming-Free Click&Go Control Logic

It is easy to unlock the full functionality of the ioLogik W5300 with a few mouse clicks thanks to the patented Click&Go™ control logic, which makes local I/O control and alarm configuration extremely simple. With the built-in "IF-THEN-ELSE" Click&Go™ logic, the ioLogik W5300 RTU has front-end intelligence for event response and alarm messaging.

Simple "IF-THEN-ELSE" Configuration

The intuitive "IF-THEN-ELSE" control logic allows users to complete an I/O configuration in less than 5 minutes.
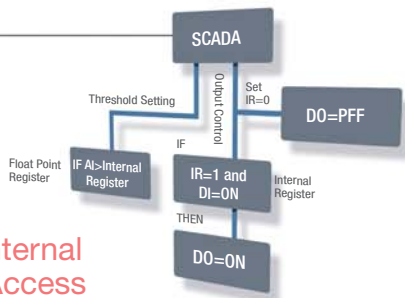
Customer Definable Schedule

The W5300 cellular RTU provides a schedule function to help users with their tasks. Users can quickly and easily use the schedule function to define a periodic control scheme.

Remote Internal Register Access

Users can cascade different control rules with internal register and use SCADA/custom software to change it through Modbus/TCP or OPC tags. The integer or float format registers can also be used to remotely control the predefined output or to dynamically adjust the comparison threshold to an analog input.

C Industrial-oriented Programming Capability

(ioLogik W5348-HSDPA-C Model Only)

The ioLogik W5348-HSDPA-C delivers the flexibility needed for users to create imaginative user-defined programs that can be uploaded to the product. The embedded platform with toolchain developing tools not only supports the most standard C programming, but also makes I/O access and control easier and more precise compared to other embedded systems. In addition to the toolchain APIs for system status (e g , Real Time Clock, RTC) networking, serial port access, SD storage/ file systems, and I/O control, you can also make use of daemons for fast installation and configuration. For example, users can configure multiple routes to form a redundant or backup path using the configuration utility instead of batches or configuration text files.

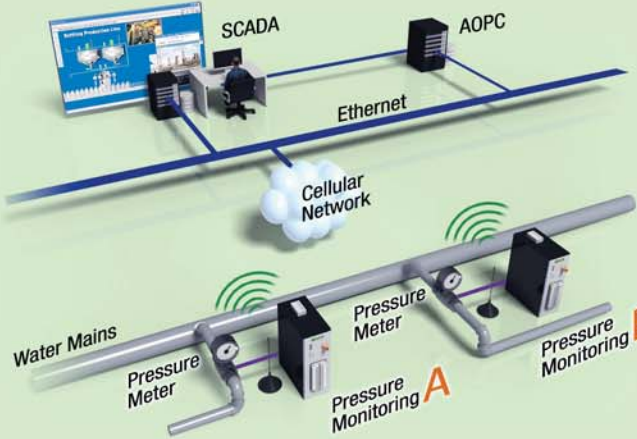# Why Did They Choose Moxa's Solution?

Water Pipeline Remote Monitoring System

Application Description

Water pipeline pressure needs to be kept at 0.3 Mpa in order to deliver a reliable stream of tap water to homes, businesses, and factories. Water companies use real-time monitoring systems in order to achieve consistent water pressure management that can quickly respond to any sudden drops of water pressure.

Requirements

- Monitor all the distributed pressure points of a widely distributed water pipeline network
- Monitor and display in real-time data from every pressure value on the central SCADA system HMI
- Stable cellular communications network

Why Moxa?

- All-in-one cellular solution
- Real-time data acquisition with active report technology
- Easy to implement and maintain
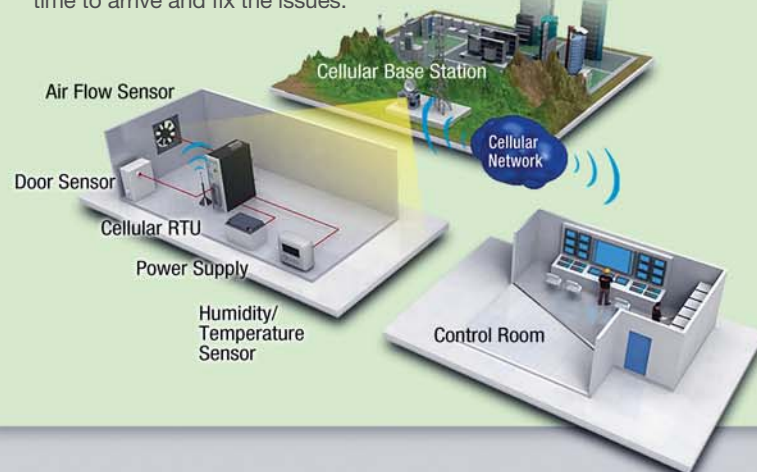- Seamless connection to SCADA via Active OPC server

Cellular-based Station Monitoring

Application Description

To maintain consistent, uninterrupted operations on these base stations and prevent station failures, the base station owner must monitor a number of key environmental and operational indicators. These indicators include factors such as facility intrusion, fan failure, commercial power failure, temperature, and UPS back up level. In addition, some control logic is needed to turn off the high-power radio transmitter during power failures to reduce the power drain on the UPS. This might sacrifice base station service coverage, but gives maintenance engineers valuable extra time to arrive and fix the issues.

Requirements

- SNMP trap for base station failure alarm
- SNMP support for system management
- Local control logic for local alarm and control
- Analog and digital sensor connectivity in one box

Why Moxa?

- Supports SNMP V1/V2c/V3 for easy system integration
- Supports multiple analog and digital sensor contacts, optimal for single remote base station monitoring
- Built-in relays for AC power cut off
- Intuitive control logic that's easy to learn—no programming required!

Moxa's Cellular Remote Monitoring Solutions

Cellular RTU Controller: ioLogik W5300 Series

- 3-in-One Design (cellular modem+ I/O controller+ data logger)
- Push-based Active OPC to SCADA communication
- Multiple alarming for added flexibility

Models	Operating Temperature	DIs	DOs	AIs	Relay	Configurable DIOs	Serial Port
ioLogik W5312 (-T)	-10 to 55°C (-30 to 70°C)	8	8	-	-	4	1
ioLogik W5340 (-T)	-10 to 55°C (-30 to 70°C)	-	-	4	2	8	1
ioLogik W5340-HSDPA (-T)	-10 to 55°C (-20 to 70°C)	-	-	4	2	8	1
ioLogik W5348-HSDPA-C (-T)	-10 to 55°C (-20 to 70°C)	-	-	4	2	8	2

Ethernet Remote I/O: ioLogik E1200 Series

- Built-in 2-port Ethernet switches for daisy-chain topology
- User-definable Modbus/TCP addressing
- I/O peer-to-peer function
- Wide temperature (-40 to 75°C) models available

Models	I/O Combinations							
	DIs	DOs	AIs	AOs	RTD	TC	Relay	Configurable DIOs
ioLogik E1210	16	–	–	–	–	–	–	–
ioLogik E1211	–	16	–	–	–	–	–	–
ioLogik E1212	8	–	–	–	–	–	–	8
ioLogik E1214	6	–	–	–	–	–	6	–
ioLogik E1240	–	–	8	–	–	–	–	–
ioLogik E1241	–	–	–	4	–	–	–	–
ioLogik E1242	4	–	4	–	–	–	–	4
ioLogik E1260	–	–	–	–	6	–	–	–
ioLogik E1262	–	–	–	–	–	8	–	–

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