ioLogik W5300 Series

Smart cellular remote I/O with Click&Go Logic

> Using Active OPC's push communications, SCADA can directly communicate with cellular devices hidden behind private IP addresses

> Active communication with patented MX-AOPC UA Server and Active OPC Server

> Automatically complement disconnection period data with DA-Center software

> Patented Click&Go logic provides strong, intelligent front-end programming options, up to 24 rules

> Smart alarm management with SMS, email, SNMP traps, TCP, UDP

> 3-in-1 RS-232/422/485 serial port for connecting to serial devices in the field

> Up to 32 GB SDHC data logging memory

> Simplify I/O management with the MXIO library for Windows or Linux

CLICK&GO LOGIC

RoHS · c UL us LISTED · CE · FC

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Remote I/O > ioLogik W5300 Series

: Introduction

ioLogik W5300 series remote I/O modules are hardy, metal-encased remote I/O units that combine a cellular modem, a remote I/O module, and a data logger with cellular communications (GPRS/HSPA) suitable for use in a wide variety of innovative I/O applications. ioLogik W5300 devices also provide Moxa's patented Click&Go programming interface, giving engineers a powerful, simple tool that streamlines installation and setup into a nearly effortless process.

The ioLogik W5300 also delivers local data logging in a storage space expandable up to 32 GB. Thee ioLogik W5300 further comes with Moxa's innovative, patented MX-AOPC UA Server software, that transforms network communications from centralized polling by the control system to event-based notifications that originate at the edge. By eliminating constant polling, communications may be brought up to real time speeds while reducing hardware costs and overall network overhead.

ioLogik W5300 devices provide benefits beyond mere cellular connectivity and remote input/output management; they are ideal solutions for any number of industrial applications, including:

- Pipeline monitoring for water, oil, and gas facilities
- Pump station and lift station monitoring
- Environmental monitoring
- Security and surveillance

Automatic Data Updates from SD Cards Following Network Failures

When the MX-AOPC UA Server is used in combination with the MX-AOPC Logger, then following any network failure an ioLogik W5300 remote client will, upon reconnecting, restore to the central database any data that was accumulated during the downtime. Following a network failure, the MX-AOPC UA Logger will, compare received data stored in the database with the historical data stored locally on the W5300. If there are any gaps in the database record, the MX-AOPC Logger will restore the missing data by requesting re-transmission from the remote ioLogik client.
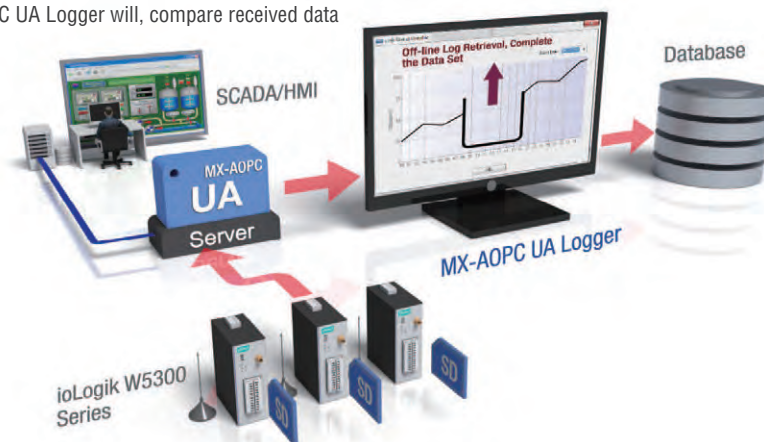
Dynamic IP Assignments

For most cellular solutions, each remote modem is assigned a static public IP when it first associates with a network, and this often causes big headaches when automating devices over cellular connections. Yet cellular network carriers charge higher monthly fees for static, public IPs than they do for dynamic, private ones. Moxa's ioLogik W5300 series and patented MX-AOPC UA Server allow users to implement

dynamic IP assignments for the ioLogik W5300. The ioLogik W5300 can automatically establish communications with the MX-AOPC UA Server using a fixed IP, and the MX-AOPC UA Server will receive and register the ioLogik W5300's IP address and receive or record tag updates accordingly.
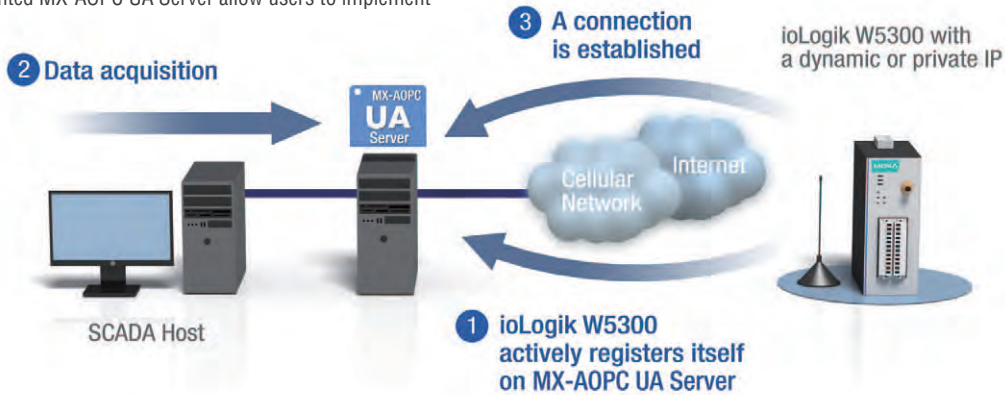
Faster, More Accurate Serial Data Collection than Traditional Polling Architectures

ioLogik W5300 devices are equipped with a 3-in-1 serial port that supports RS-232, RS-422, and RS-485, making it more convenient than ever (and saving users money) when connecting field serial devices. ioLogik W5300 remote I/O units can also create user-defined Modbus tags for conveniently ordering and storing data from remote meters and flow sensors, and then take the initiative to actively update

the central MX-AOPC UA Server with the latest tagged data. This results in faster I/O response times and more accurate data collection. Finally, ioLogik W5300 remote I/O can build transparent serial tunnels for Modbus RTU communications over TCP/IP, allowing for direct connectivity between field devices and central control systems over either cellular wireless or wired Ethernet interfaces.
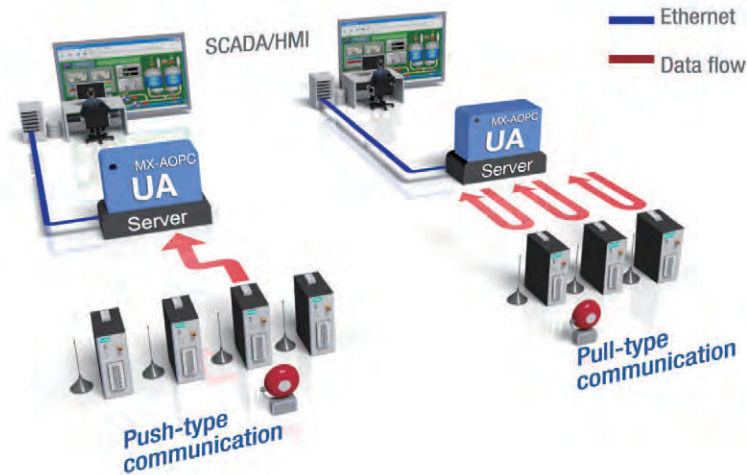
I/O Expandability

The ioLogik W5300 comes with a single RJ45 Ethernet port so that it may be linked together with other Moxa remote I/O units (such as the ioLogik E1200) in a daisy-chain network, giving engineers a simple, cost-effective means of extending their I/O capabilities with full peer-to-peer communications. The ioLogik W5300 can support up to three more ioLogik E1200 series I/O devices, which may then be installed to whatever positions are most convenient and effective for the needs of the local station.

: ioLogik W5312 Specifications

Inputs and Outputs
Digital Inputs: 8 channels
Digital Outputs: 8 channels
Configurable DI/Os: 4 channels
Isolation: 3k VDC or 2k Vrms

Digital Input
Sensor Type: Wet Contact (NPN or PNP) and Dry Contact
I/O Mode: DI or Event Counter
Dry Contact:
• On: short to GND
• Off: open
Wet Contact (DI to GND):
• On: 0 to 3 VDC
• Off: 10 to 30 VDC
Common Type: 6 points per COM
Counter Frequency: 900 Hz
Digital Filtering Time Interval: Software Configurable

Digital Output
Type: Sink
I/O Mode: DO or Pulse Output
Pulse Output Frequency: 1 kHz
Over-voltage Protection: 45 VDC
Over-current Protection: 2.6 A (4 channels @ 650 mA)
Over-temperature Shutdown: 160°C (min.)
Current Rating: 200 mA per channel
DIO Output Leakage Current: 3.6 mA @ 24 VDC

Power Requirements
Power Consumption:
• Always on: 156 mA @ 24 VDC
• On demand: 138 mA @ 24 VDC

MTBF (mean time between failures)
Time: 407,406 hrs
Database: Telcordia (Bellcore)

: ioLogik W5340 Specifications

Inputs and Outputs
Analog Inputs: 4 channels
Configurable DI/Os: 8 channels
Relay Outputs: 2 channels
Isolation: 3k VDC or 2k Vrms

Analog Input
Type: Differential input
Resolution: 16 bits
I/O Mode: Voltage / Current
Input Range: 0 to 10 V, ±10 V, ±5 V, 0 to 20 mA, 4 to 20 mA
Accuracy:
• ±0.1% FSR @ 25°C
• ±0.3% FSR @ -30 and 70°C
Sampling Rate:
All channels: 32 samples/sec
Per channel: 8 samples/sec
Single channel: 100 samples/sec
Input Impedance: 200k ohms (min.)
Built-in Resistor for Current Input: 120 ohms

Digital Input
Sensor Type: Wet Contact (NPN or PNP) and Dry Contact
I/O Mode: DI or Event Counter
Dry Contact:
• On: short to GND
• Off: open
Wet Contact (DI to GND):
• On: 0 to 3 VDC
• Off: 10 to 30 VDC
Common Type: 4 points per COM
Counter Frequency: 900 Hz, power off storage
Digital Filtering Time Interval: Software Configurable

Digital Output
Type: Sink
I/O Mode: DO or Pulse Output
Pulse Output Frequency: 1 kHz
Over-voltage Protection: 45 VDC
Over-current Protection: 2.6 A (4 channels @ 650 mA)
Over-temperature Shutdown: 160°C (min.)
Current Rating: 200 mA per channel
DIO Output Leakage Current: 3.6 mA @ 24 VDC

Relay Output
Type: Form A (N.O.) power relay
Contact Current Rating:
Resistive Load: 1 A @ 30 VDC, 250 VAC, 110 VAC
Initial Insulation Resistance: 1000 m ohms (min.) @ 500 VDC
Mechanical endurance: 5,000,000 operations
Electrical endurance: 600,000 operations @ 1 A resistive load
Contact Resistance: 100 m ohms (max.)
Pulse Output: 0.3 Hz at rated load

Power Requirements
Power Consumption:
ioLogik W5340:
• Always on: 195 mA @ 24 VDC
• On demand: 178 mA @ 24 VDC
ioLogik W5340-HSPA:
• Always on: 196 mA @ 24 VDC
• On demand: 189 mA @ 24 VDC

MTBF (mean time between failures)
Time:
ioLogik W5340: 196,561 hrs
ioLogik W5340-HSPA: 280,739 hrs
Database: Telcordia (Bellcore)

: Common Specifications

Computer
CPU: ARM9 based CPU, 32-bit/160 MHz
SDRAM/Flash:
• ioLogik W5312: 4 MB
• ioLogik W5340: 2 MB

Storage
Expansion Slot: Up to 32 GB SD™ memory card (SD 2.0 compatible)
Note: For units operating in extreme temperatures, industrial grade, wide-temperature SD cards are required.

Cellular
Network:
ioLogik W5312/W5340: Quad-band GSM/GPRS/EDGE 850/900/1800/1900 MHz
ioLogik W5340-HSPA: Five band UMTS/HSPA+ 800/850/AWS/1900/2100 MHz
Internet:
HSPA+:
• Up to 5.76 Mbps upload speed.
• Up to 14.4 Mbps download speed.

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UMTS: Up to 384k bps upload/download speed.
GPRS/EDGE:
• Multi-slot class: Class 12
• Coding schemes: CS1 to CS4
• Terminal device class: Class B
SMS: Point-to-Point Text/PDU mode
SIM Control Voltage: 3 V / 1.8 V

LAN
Ethernet: 1 10/100 Mbps RJ45 port
Protection: 1.5 kV magnetic isolation
Protocols: Modbus/TCP, TCP/IP, UDP, DHCP, BOOTP, SNMP, SNTP

Serial Communication
Interface: 1 x RS-232/422/485, software selectable
(9-pin D-Sub male, or 5-contact terminal block)
Baudrate:
300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps

Power Requirements
Power Input: 24 VDC nominal, 12 to 36 VDC

Physical Characteristics
Dimensions: 46.8 x 135 x 105 mm (1.84 x 5.31 x 4.13 in)
Weight: 495 g
Mounting: DIN rail (standard), wall (optional)

Environmental Limits
Operating Temperature:
Standard Models: -10 to 55°C (14 to 131°F)
Wide Temp. Models: -30 to 70°C (-22 to 158°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)
Altitude: Up to 2000 m
Note: Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

Standards and Certifications
Safety: UL 508, EN 60950-1, NCC
EMI:
EN 55022; EN 61000-3-2; EN 61000-3-3;
FCC Part 15, Subpart B, Class A
EMS: EN 55024, EN 61000-4-2, EN 61000-4-3,
EN 61000-4-4, EN 61000-4-5, EN 61000-4-6,
EN 61000-4-8, EN 61000-4-11, EN 61000-6-2
Shock: IEC 60068-2-27
Freefall: IEC 60068-2-32
Vibration: IEC 60068-2-6
Green Product: RoHS, CRoHS, WEEE
Note: Please check Moxa's website for the most up-to-date certification status.
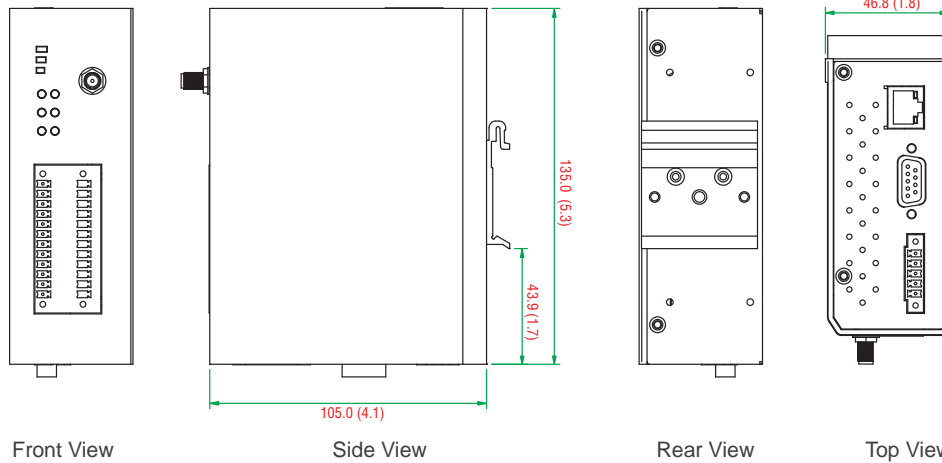
Warranty
Warranty Period:
ioLogik W5312: 5 years
ioLogik W5340/W5340-HSPA: 2 years*
*Because of the limited lifetime of power relays, products that use that component are covered by a 2-year warranty.
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)

135.0 (5.3)   43.9 (1.7)   105.0 (4.1)   46.8 (1.8)

Front View   Side View   Rear View   Top View

⁞ Ordering Information

Available Models
ioLogik W5312: GPRS Remote I/O with 8 DIs, 4 DI/Os, 8 DOs, -10 to 55°C operating temperature
ioLogik W5312-T: GPRS Remote I/O with 8 DIs, 4 DI/Os, 8 DOs, -30 to 70°C operating temperature
ioLogik W5340: GPRS Remote I/O with 4 AIs, 8 DI/Os, 2 relays, -10 to 55°C operating temperature
ioLogik W5340-T: GPRS Remote I/O with 4 AIs, 8 DI/Os, 2 relays, -30 to 70°C operating temperature
ioLogik W5340-HSPA: HSPA Remote I/O with 4 AIs, 8 DI/Os, 2 relays, -10 to 55°C operating temperature
ioLogik W5340-HSPA-T: HSPA Remote I/O with 4 AIs, 8 DI/Os, 2 relays, -30 to 70°C operating temperature

Optional Accessories (can be purchased separately)
WK-46: Wall mount kit

Package Checklist
- ioLogik W5300 series device
- Quad-band omnidirectional antenna for GSM/GPRS, 0 dBi, magnetic SMA, 3M (W5312/W5340 only)
- Five-band omnidirectional antenna for GSM/GPRS/UMTS/ HSPA/HSPA+, 4 dBi, magnetic SMA, 2.5M (W5340-HSPA only)
- Documentation and software CD