

ioLogik 2500 Series

Smart Ethernet remote I/O with Click&Go Plus logic



Features and Benefits

- Front-end intelligence with Click&Go Plus control logic, up to 48 rules
- Active communication with MX-AOPC UA Server
- Automatically complement disconnection period data with MX-AOPC UA Logger software
- 4-port unmanaged switch built in for linking to Ethernet devices
- I/O expansion port for daisy chaining up to 8 ioLogik E1200 units
- 3-in-1 serial port: RS-232, RS-422, or RS-485
- Supports SNMP v1/v2c/v3
- Simplifies I/O management with MXIO library for Windows or Linux
- Wide operating temperature models available for -40 to 75°C (-40 to 167°F) environments

Certifications



Introduction

ioLogik 2500 smart Ethernet remote I/O devices feature unique hardware and software designs, making them ideal solutions for a variety of industrial data acquisition applications. The ioLogik 2500's hardware design includes a 4-port unmanaged Ethernet switch and 2 serial ports, enabling it to seamlessly connect to a variety of field devices.

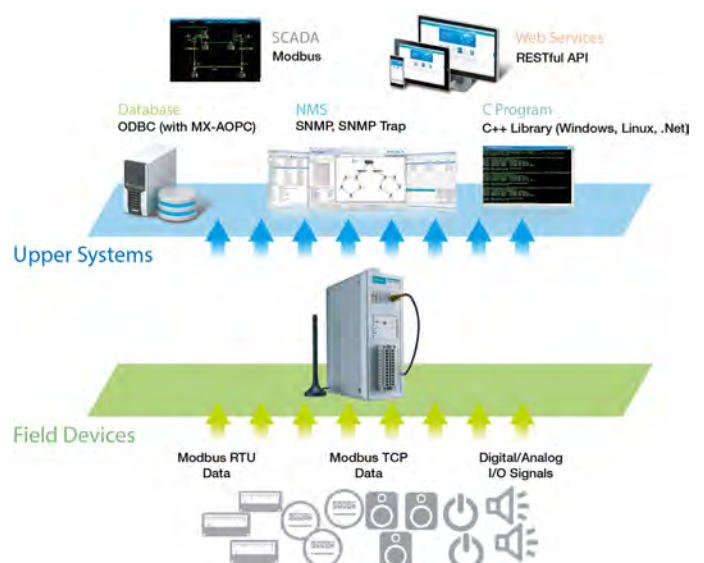
One of the Ethernet ports can be used to link to 8 daisy-chained ioLogik E1200 expansion modules to provide more than 100 channels. The ioLogik 2500 acts as the "head" unit, with Click&Go Plus logic used to control the entire I/O array. Most importantly, a single IP is all that is required to connect the entire I/O array to your network, providing the perfect solution for industrial field sites that have an insufficient number of IP addresses.

Programming-Free Click&Go Plus™ Logic

Click&Go Plus™ control logic supports up to 48 rules and 8 conditions/actions. In addition, its graphical user interface provides 3 logic gates and 3 multi-layers, helping you build more powerful and efficient IO solutions. Once you finish setting up your Click&Go Plus™ logic rules, IOexpress's easy-to-use simulation function can be used to find potential errors in your Click&Go Plus™ rules before uploading them to your online devices.

Multi-Protocol Data Concentrator

By supporting multiple protocols, the ioLogik 2500 improves the efficiency of collecting field-site data and then sending it to upper-level systems. For field-site data collection, an ioLogik 2500 can collect data from other third-party devices via both Modbus TCP and Modbus RTU, and also lets you link up to 8 ioLogik E1200 modules to create a versatile I/O array with over 100 different I/O channels, allowing all field-site data to be accessed by upper-level systems. For the upper-level systems, the ioLogik 2500 supports Modbus TCP, SNMP, SNMP Trap, RESTful API, Active OPC tag, and C++ library for easy integration with various IT/OT systems, making the ioLogik 2500 the perfect data concentrator for connecting field sites to your network.



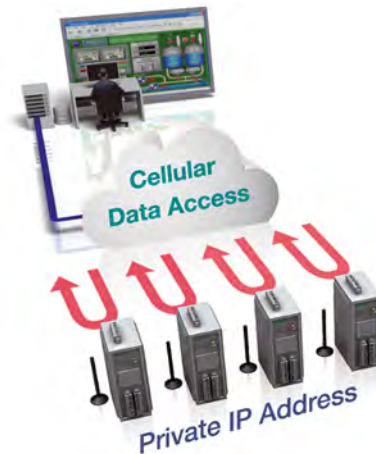
Data Completeness with Local Storage Data Logging

The ioLogik 2500 supports microSD cards, turning it into a powerful data logger for storing valuable data. Important data from field sites can be accessed remotely by different systems via an FTP, and the ioLogik's data completeness function enables real-time monitoring of data through MX-AOPC UA Suite when the network goes down unexpectedly.

Remote Access Cellular I/O via Cellular Network

Most carriers provide dynamic and private IP address SIM cards, and although private IP cards are cheaper, they cannot be used to provide direct access to the cloud. Moxa's Cellular Data Access software enables this type of connection by establishing a special data route between the cellular models and the cloud.

Only one public IP address is needed to use Moxa's Cellular Data Access software, allowing you to easily update internal register values, change output channel status, and modify the configurations of devices connected to the device, all through the cloud.



Specifications

Memory

microSD Slot	Up to 32 GB (SD 2.0 compatible) Note: For units operating in extreme temperatures, industrial-grade, wide-temperature microSD cards are required.
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Control Logic

Language	Click&Go Plus
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Input/Output Interface

Digital Input Channels	ioLogik 2512 Series: 8
Configurable DIO Channels (by software)	ioLogik 2512 Series: 8 ioLogik 2542 Series: 12
Analog Input Channels	ioLogik 2542 Series: 4
Buttons	Reset button
Isolation	3k VDC or 2k Vrms

Digital Inputs

Connector	Screw-fastened Euroblock terminal
Sensor Type	Dry contact Wet contact (NPN or PNP)
I/O Mode	DI or event counter
Dry Contact	On: short to GND Off: open
Wet Contact (DI to COM)	On: 10 to 30 VDC Off: 0 to 3 VDC
Counter Frequency	2.5 kHz
Digital Filtering Time Interval	Software configurable
Points per COM	ioLogik 2512 Series: 8 channels ioLogik 2542 Series: 6 channels

Digital Outputs

Connector	Screw-fastened Euroblock terminal
I/O Type	Sink
I/O Mode	DO or pulse output
Current Rating	500 mA per channel
Pulse Output Frequency	5 kHz (max.)
DIO Output Leakage Current	< 1 mA @ 30 VDC
Over-Current Protection	1.5 A per channel @ 25°C
Over-Temperature Shutdown	175°C (typical), 150°C (min.)
Over-Voltage Protection	45 VDC (typical)

Analog Inputs

Connector	Screw-fastened Euroblock terminal
I/O Mode	Voltage/Current
I/O Type	Differential
Resolution	16 bits
Input Range	±10 VDC 0 to 10 VDC 0 to 20 mA 4 to 20 mA 4 to 20 mA (with burn-out detection)
Accuracy	ioLogik 2542 Series (except -T models): ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C ioLogik 2542-T ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C ±0.5% FSR @ -40 to 75°C ioLogik 2542 HSPA-T/WL1-EU-T/WL1-JP-T/WL1-US-T: ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C ±0.5% FSR @ -30 to 70°C ±0.5% FSR @ -30 to 70°C
Sampling Rate	All channels: 400 samples/sec Per channel: 100 samples/sec
Built-in Resistor for Current Input	120 ohms
Input Impedance	1 mega-ohms (min.)
Over-Voltage Protection	-25 to +30 VDC (power on) -35 to +35 VDC (power off)

Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	4, 1 MAC address (Ethernet bypass)
Magnetic Isolation Protection	1.5 kV (built-in)

Ethernet Software Features

Configuration Options	Web Console (HTTP/HTTPS), Windows Utility (IOxpress)
Industrial Protocols	CGI commands, Modbus TCP Client (Master), Modbus TCP Server (Slave), Moxa AOPC (Active Tag), MXIO Library, RESTful API, SNMPv1/v2c/v3, SNMPv1/v2c Trap
Management	ioLogik 2500 Series -HSPA/Ethernet models: BOOTP, IPv4, SMTP, TCP/IP, DHCP Client ioLogik 2500 Series -WL1 models: BOOTP, IPv4, SMTP, TCP/IP
MIB	Device Settings MIB
Security	HTTPS/SSL
Time Management	SNTP

LED Interface

LED Indicators	ioLogik 2512/2542 Series: PWR, RDY, Serial port (P1, P2), Ethernet port (L1 to L4), I/O Channel Status (0 to 15) ioLogik 2500 Series -HSPA/-WL1 models: PWR, RDY, Serial port (P1, P2), Ethernet port (L1 to L4), I/O Channel Status (0 to 15), Wireless connection, Signal Status
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Serial Interface

Baudrate	300, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200 bps
Connector	8-pin RJ45
Data Bits	5, 6, 7, 8
Flow Control	None, RTS/CTS, XON/XOFF
No. of Ports	2
Parity	None, Even, Odd
Serial Standards	RS-232, RS-422, RS-485
Stop Bits	1, 2

Serial Signals

RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Data+, Data-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND

Serial Software Features

Industrial Protocols	Modbus RTU Master
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Cellular Interface

Cellular Standards	GSM, EDGE, GPRS, UMTS, HSPA
Band Options	ioLogik 2500 Series -HSPA models: UMTS/HSPA+ 800/850/900/1900/2100 MHz ioLogik 2500 Series -HSPA models: Universal quad-band GSM/GPRS/EDGE 850/900/1800/1900 MHz
SIM Control Voltage	1.8 V, 3 V
SIM Format	Mini SIM
Cellular Antenna Connectors	ioLogik 2500 Series -HSPA models: 1 SMA female

Security Functions

IPsec VPN	ioLogik 2500 Series -HSPA models: DES, 3DES, AES-128, AES-192, AES-256
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WLAN Interface

WLAN Standards	802.11b/g 802.11i Wireless Security
Modulation Type	DSSS OFDM
Frequency Band for US (20 MHz operating channels)	2.412 to 2.462 GHz (11 channels)
Frequency Band for EU (20 MHz operating channels)	2.412 to 2.472 GHz (13 channels)
Frequency Band for JP (20 MHz operating channels)	2.412 to 2.484 GHz (14 channels)
Wireless Security	WEP encryption (64-bit and 128-bit) WPA/WPA2-Personal
Transmission Rate	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
Transmitter Power for 802.11b	18±1.5 dBm @ 1 to 11 Mbps
Transmitter Power for 802.11g	18±1.5 dBm @ 6 to 24 Mbps 17±1.5 dBm @ 36 Mbps 16±1.5 dBm @ 48 Mbps 16±1.5 dBm @ 54 Mbps
Receiver Sensitivity for 802.11b (measured at 2.437 GHz)	Typ. -97 dBm @ 1 Mbps Typ. -94 dBm @ 2 Mbps Typ. -92 dBm @ 5.5 Mbps Typ. -90 dBm @ 11 Mbps
Receiver Sensitivity for 802.11g (measured at 2.437 GHz)	Typ. -88 dBm @ 6 to 24 Mbps Typ. -85 dBm @ 36 Mbps Typ. -75 dBm @ 48 Mbps Typ. -70 dBm @ 54 Mbps
WLAN Antenna Connector	ioLogik 2512-WL1/2542-WL1 Series: 1 RP-SMA male

Platform

Real-time Clock (RTC)	Real-time clock with capacitor backup
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Power Parameters

Power Connector	Screw-fastened Euroblock terminal
No. of Power Inputs	1
Input Voltage	12 to 48 VDC
Power Consumption	ioLogik 2512 Series: 254 mA @ 24 VDC, 529 mA @ 12 VDC, 133 mA @ 48VDC ioLogik 2512-HSPA Series: 352 mA @ 24 VDC, 728 mA @ 12 VDC, 187 mA @ 48 VDC ioLogik 2512-WL1 Series: 354 mA @ 24 VDC, 735 mA @ 12 VDC, 189 mA @ 48 VDC ioLogik 2542 Series: 281 mA @ 24 VDC, 589 mA @ 12 VDC, 144 mA @ 48 VDC ioLogik 2542-HSPA Series: 311 mA @ 24 VDC, 649 mA @ 12 VDC, 166 mA @ 48 VDC ioLogik 2542-WL1 Series: 380 mA @ 24 VDC, 797 mA @ 12 VDC, 203 mA @ 48 VDC

Physical Characteristics

Housing	Metal
IP Rating	IP30
Dimensions	61 x 157 x 115 mm (2.4 x 6.18 x 4.53 in)
Weight	1,265 g (2.79 lb)

Installation	DIN-rail mounting, Wall mounting (with optional kit)
Wiring	I/O cable, 16 to 26 AWG Power cable, 12 to 24 AWG
Environmental Limits	
Operating Temperature	Standard Models: -10 to 60°C (14 to 140°F) HSPA/WL1 -T models: -30 to 70°C (-22 to 158°F) ioLogik 2512-T/2542-T: -40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Altitude	2000 m
Standards and Certifications	
EMC	EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
EMS	All models: IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8 ioLogik 2500 Series: IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-5 Surge: Power: 1 kV ioLogik 2500 Series -HSPA/-WL1 models: IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-5 Surge: Power: 2 kV
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Hazardous Locations	ATEX, Class I Division 2
Safety	UL 508
Radio	EN 301 489-1/17, NCC (-WL models)
Radio Frequency	EN 301 908, EN 301 489-24, EN 301 511
WLAN Standards	EN 300328 EN 301893
Declaration	
Green Product	RoHS, CRoHS, WEEE
MTBF	
Time	ioLogik 2512 Series: 467,032 hrs ioLogik 2542 Series: 375,439 hrs ioLogik 2512-HSPA Series: 378,154 hrs ioLogik 2542-HSPA Series: 378,154 hrs ioLogik 2512-WL1 Series: 400,469 hrs ioLogik 2542-WL1 Series: 331,222 hrs
Standards	Telcordia SR332

Warranty

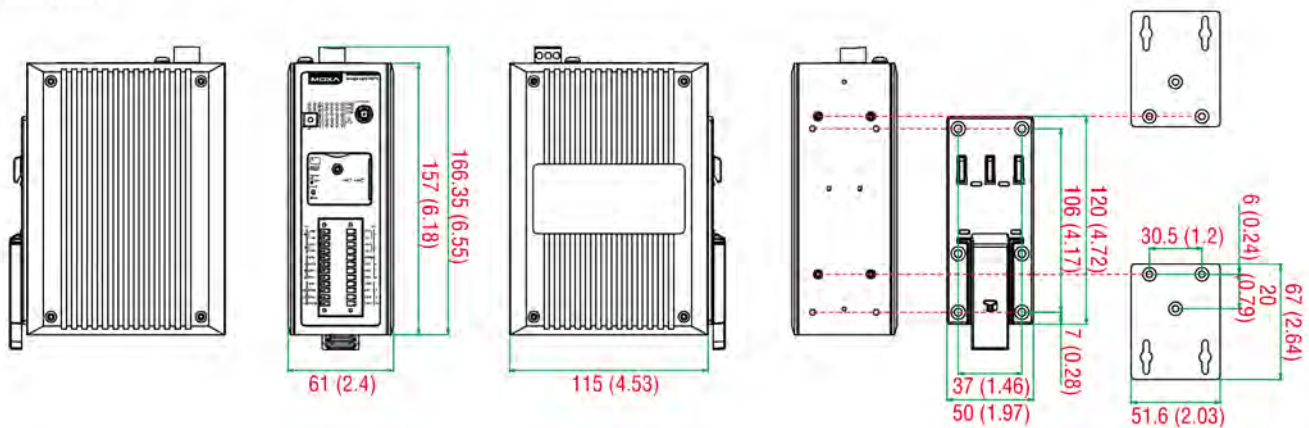
Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x ioLogik 2500 Series remote I/O
Cable	2 x RJ45-to-DB9 console cable
Installation Kit	1 x cable holder with screw 6 x cap, plastic, for RJ45 port
Antenna	1 x UMTS/HSPA (-HSPA models) 1 x Wi-Fi (-WL1 models)
Documentation	1 x quick installation guide 1 x warranty card

Dimensions

Unit: mm (inch)



Ordering Information

Model Name	Input/Output Interface	Wireless Standard	Operating Temp.
ioLogik 2512	8 x DI, 8 x DIO	-	-10 to 60°C
ioLogik 2512-T	8 x DI, 8 x DIO	-	-40 to 75°C
ioLogik 2512-HSPA	8 x DI, 8 x DIO	UMTS/HSPA+: five-band 800/850/900/1900/2100 MHz GSM/GPRS/EDGE: quad-band 850/900/1800/1900 MHz	-10 to 60°C
ioLogik 2512-HSPA-T	8 x DI, 8 x DIO	UMTS/HSPA+: five-band 800/850/900/1900/2100 MHz GSM/GPRS/EDGE: quad-band 850/900/1800/1900 MHz	-30 to 70°C
ioLogik 2512-WL1-EU	8 x DI, 8 x DIO	IEEE 802.11b/g for wireless LAN	-10 to 60°C
ioLogik 2512-WL1-EU-T	8 x DI, 8 x DIO	IEEE 802.11b/g for wireless LAN	-30 to 70°C
ioLogik 2512-WL1-US	8 x DI, 8 x DIO	IEEE 802.11b/g for wireless LAN	-10 to 60°C
ioLogik 2512-WL1-US-T	8 x DI, 8 x DIO	IEEE 802.11b/g for wireless LAN	-30 to 70°C
ioLogik 2512-WL1-JP	8 x DI, 8 x DIO	IEEE 802.11b/g for wireless LAN	-10 to 60°C
ioLogik 2512-WL1-JP-T	8 x DI, 8 x DIO	IEEE 802.11b/g for wireless LAN	-30 to 70°C
ioLogik 2542	4 x AI, 12 x DIO	-	-10 to 60°C

Model Name	Input/Output Interface	Wireless Standard	Operating Temp.
ioLogik 2542-T	4 x AI, 12 x DIO	–	-40 to 75°C
ioLogik 2542-HSPA	4 x AI, 12 x DIO	UMTS/HSPA+: five-band 800/850/ 900/1900/2100 MHz GSM/GPRS/EDGE: quad-band 850/ 900/1800/1900 MHz	-10 to 60°C
ioLogik 2542-HSPA-T	4 x AI, 12 x DIO	UMTS/HSPA+: five-band 800/850/ 900/1900/2100 MHz GSM/GPRS/EDGE: quad-band 850/ 900/1800/1900 MHz	-30 to 70°C
ioLogik 2542-WL1-EU	4 x AI, 12 x DIO	IEEE 802.11b/g for wireless LAN	-10 to 60°C
ioLogik 2542-WL1-EU-T	4 x AI, 12 x DIO	IEEE 802.11b/g for wireless LAN	-30 to 70°C
ioLogik 2542-WL1-US	4 x AI, 12 x DIO	IEEE 802.11b/g for wireless LAN	-10 to 60°C
ioLogik 2542-WL1-US-T	4 x AI, 12 x DIO	IEEE 802.11b/g for wireless LAN	-30 to 70°C
ioLogik 2542-WL1-JP	4 x AI, 12 x DIO	IEEE 802.11b/g for wireless LAN	-10 to 60°C
ioLogik 2542-WL1-JP-T	4 x AI, 12 x DIO	IEEE 802.11b/g for wireless LAN	-30 to 70°C

Accessories (sold separately)

Software

MX-AOPC UA Server	OPC UA Server software for converting fieldbus to the OPC UA standard
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Wall-Mounting Kits

WK-51-01	Wall mounting kit with 2 plates (51.6 x 67 x 2 mm) and 6 screws
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