

ioLogik R1200 Series

RS-485 remote I/O



- > Dual RS-485 remote I/O with built-in repeater
- > Supports the installation of multidrop communications parameters
- > Install communications parameters and upgrade firmware via USB
- > Upgrade firmware through an RS-485 connection
- > Wide operating temperature range: -40 to 85°C (-40 to 185°F)



Introduction

The ioLogik R1200 RS-485 serial remote I/O devices are perfect for establishing a cost-effective, dependable, and easy-to-maintain remote process control I/O system. Remote serial I/O products offer process engineers the benefit of simple wiring, as they only require two wires to communicate with the controller and other RS-485 devices while adopting the EIA/TIA RS-485 communication protocol to transmit and receive data at high speed over long distances. In addition to

communication configuration by software or USB and dual RS-485 port design, Moxa's remote I/O devices eliminate the nightmare of extensive labor associated with the setup and maintenance of data acquisition and automation systems. Moxa also offers different I/O combinations, which provide greater flexibility and are compatible with many different applications.

ioLogik R1200 Series Selection Table

Models	I/O Combinations				
	Digital Inputs	Configurable DIOs	Relays	Analog Inputs	Analog Outputs
ioLogik R1210	16	–	–	–	–
ioLogik R1212	8	8	–	–	–
ioLogik R1214	6	–	6	–	–
ioLogik R1240	–	–	–	8	–
ioLogik R1241	–	–	–	–	4

ioLogik R1210 Specifications

Inputs and Outputs

Digital Inputs: 16 channels
Isolation: 3k VDC or 2k Vrms

Digital Input

Sensor Type: Wet Contact (NPN or PNP), Dry Contact

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

Common Type: 8 points per COM

Counter Frequency: 2.5 kHz

Digital Filtering Time Interval: Software Configurable

Power Requirements

Input Voltage: 12 to 48 VDC

Input Current: 154 mA @ 24 VDC

ioLogik R1212 Specifications

Inputs and Outputs

Digital Inputs: 8 channels
Configurable DIOs (by jumper): 8 channels
Isolation: 3k VDC or 2k Vrms

Digital Input

Sensor Type: Wet Contact (NPN or PNP), Dry Contact

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

Common Type: 8 points per COM

Counter Frequency: 2.5 kHz

Digital Filtering Time Interval: Software Configurable

Digital Output

Type: Sink

I/O Mode: DO or Pulse Output

Pulse Output Frequency: 5 kHz

Over-Voltage Protection: 45 VDC

Over-Current Protection: 2.6 A (4 channels @ 650 mA)

Over-Temperature Shutdown: 175°C (typical), 150°C (min.)

Current Rating: 200 mA per channel

Power Requirements

Input Voltage: 12 to 48 VDC

Input Current: 187 mA @ 24 VDC

ioLogik R1214 Specifications

Inputs and Outputs

Digital Inputs: 6 channels

Relays: 6 channels

Isolation: 3k VDC or 2k Vrms

Digital Input

Sensor Type: Wet Contact (NPN or PNP), Dry Contact

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

Common Type: 6 points per COM

Counter Frequency: 2.5 kHz

Digital Filtering Time Interval: Software Configurable

Relay

Type: Form A (N.O.) power relay

Contact Current Rating: Resistive load: 5 A @ 30 VDC, 250 VAC, 110 VAC

Breakdown Voltage: 500 VAC

Relay On/Off Time: 1500 ms (max.)

Initial Insulation Resistance: 1000 mega-ohms (min.) @ 500 VDC

Mechanical Endurance: 5,000,000 operations

Electrical Endurance: 100,000 operations @ 5 A resistive load

Contact Resistance: 100 milli-ohms (max.)

Pulse Output: 0.3 Hz at rated load

Note: Ambient humidity must be non-condensing and remain between 5 and 95%. The relays of the ioLogik R1214 may malfunction when operating in high condensation environments below 0°C.

Power Requirements

Input Voltage: 12 to 48 VDC

Input Current: 207 mA @ 24 VDC

ioLogik R1240 Specifications

Inputs and Outputs

Analog Inputs: 8 channels

Isolation: 3k VDC or 2k Vrms

Analog Input

Type: Differential input

Resolution: 16 bits

I/O Mode: Voltage / Current (jumper selectable)

Input Range: 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA, 4 to 20 mA (burn-out mode)

Accuracy:

±0.1% FSR @ 25°C

±0.3% FSR @ -10 and 60°C

±0.5% FSR @ -40 and 75°C

Sampling Rate:

- All channels: 12 samples/sec
- Per channel: 1.5 samples/sec
- Only one channel enabled: 12 samples/sec

Input Impedance: 10 mega-ohms (min.)

Built-in Resistor for Current Input: 120 ohms

Power Requirements

Input Voltage: 12 to 48 VDC

Input Current: 216 mA @ 24 VDC

ioLogik R1241 Specifications

Inputs and Outputs

Analog Outputs: 4 channels

Isolation: 3k VDC or 2k Vrms

Analog Output

Resolution: 12 bits

Output Range: 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA

Voltage Output: 10 mA (max.)

Accuracy:

±0.1% FSR @ 25°C

±0.3% FSR @ -40 and 75°C

Load Resistor: Internal register: 400 ohms

Note: 24 V of external power required when loading exceeds 1000 ohms.

Power Requirements

Input Voltage: 12 to 48 VDC

Input Current: 343 ma @ 24 VDC

Common Specifications

Serial

Interface: 2 RS-485-2w terminal block ports

Serial Line Protection:

- ESD Protection: 15 kV
- Surge Protection: 1 kV
- High/Low Resistor for RS-485: 1 kΩ, 150 kΩ

Parity: None, Even, Odd

Data Bits: 8

Stop Bits: 1, 2

Baudrate: 1200 to 921600 bps

Protocols: Modbus RTU (slave)

Physical Characteristics

Wiring: I/O cable max. 16 AWG

Dimensions: 27.8 x 124 x 84 mm (1.09 x 4.88 x 3.31 in)

Weight: Under 200 g (0.44 lb)

Mounting: DIN-rail or wall

Environmental Limits

Operating Temperature:

Standard Models: -10 to 75°C (14 to 167°F)

Wide Temp. Models: -40 to 85°C (-40 to 185°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Shock: IEC 60068-2-27

Vibration: IEC 60068-2-6

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

EMC: EN 55022/24

EMI: CISPR 22, FCC Part 15B Class A

EMS:

IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV

IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m

IEC 61000-4-4 EFT: Power: 0.5 kV

IEC 61000-4-5 Surge: Power: 2 kV

IEC 61000-4-6 CS: 3 V

IEC 61000-4-8

Green Product: RoHS, CRoHS, WEEE

Please check Moxa's website for the most up-to-date certification status.

MTBF (mean time between failures)

Time: 1,239,293 hrs

Standard: Telcordia SR332

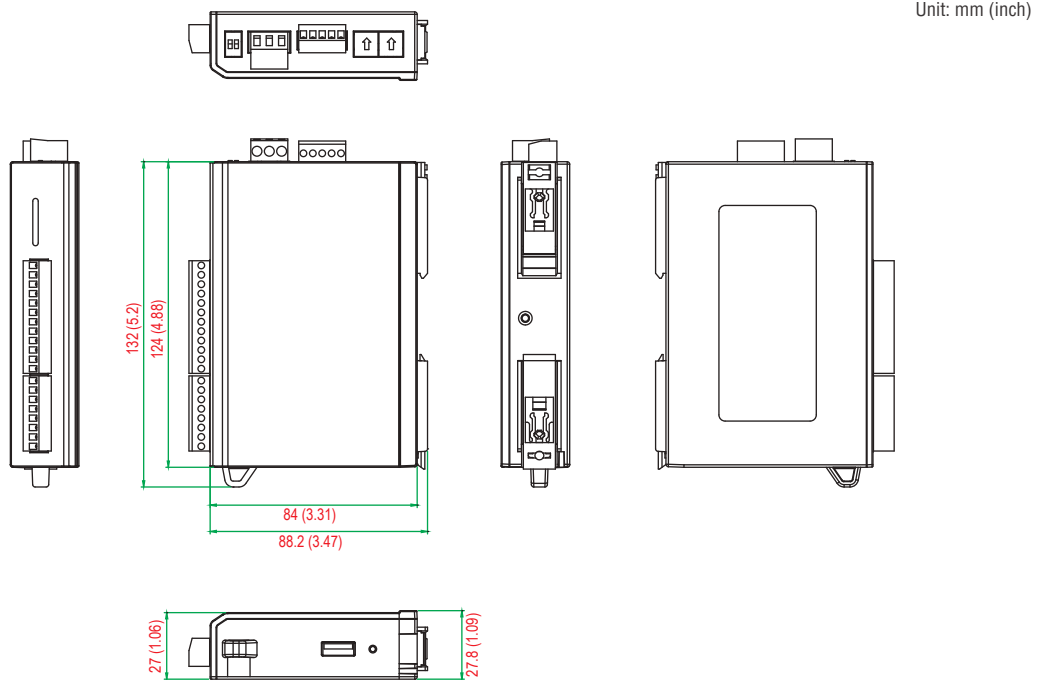
Warranty

Warranty Period: 5 years (excluding the ioLogik R1214)

Details: See www.moxa.com/warranty

Note: Because of the limited lifetime of power relays, products that use this component are covered by a 2-year warranty.

Dimensions



: Ordering Information

Available Models

- ioLogik R1210:** RS-485 remote I/O with 16 DIs, -10 to 75°C operating temperature
- ioLogik R1210-T:** RS-485 remote I/O with 16 DIs, -40 to 85°C operating temperature
- ioLogik R1212:** RS-485 remote I/O with 8 DIs, 8 DI0s, -10 to 75°C operating temperature
- ioLogik R1212-T:** RS-485 remote I/O with 8 DIs, 8 DI0s, -40 to 85°C operating temperature
- ioLogik R1214:** RS-485 remote I/O with 6 DIs, 6 relays, -10 to 75°C operating temperature
- ioLogik R1214-T:** RS-485 remote I/O with 6 DIs, 6 relays, -40 to 85°C operating temperature
- ioLogik R1240:** RS-485 remote I/O with 8 AIs, -10 to 75°C operating temperature
- ioLogik R1240-T:** RS-485 remote I/O with 8 AIs, -40 to 85°C operating temperature
- ioLogik R1241:** RS-485 remote I/O with 4 AOs, -10 to 75°C operating temperature
- ioLogik R1241-T:** RS-485 remote I/O with 4 AOs, -40 to 85°C operating temperature

Package Checklist

- ioLogik R1200
- Quick installation guide (printed)