

ioLogik E1500 Series

Ethernet remote I/O for railway applications



- > User-definable Modbus/TCP Slave addressing
- > Active communications with MX-AOPC UA Server
- > Easy mass deployment and configuration with ioSearch utility
- > Friendly configuration via web browser
- > Simplify I/O management with MXIO library on either Windows or Linux platform
- > EN 50121-4 and EN 50155* approval for harsh railway environments
- > Wide operating temperature range: -40 to 85°C (-40 to 185°F)

*Complies with a portion of EN 50155 specifications



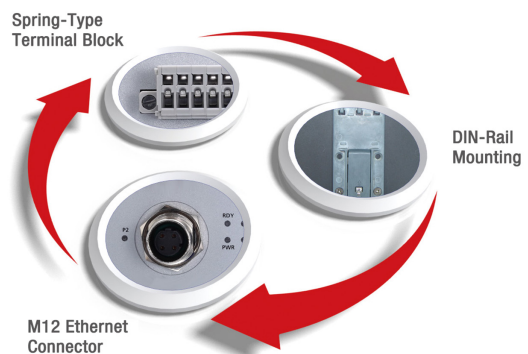
Introduction

The ioLogik E1500 series is designed to withstand the severe vibrations experienced in rolling stock and wayside applications. These products come with a threaded M12 Ethernet port to ensure wired connectivity, a spring-type terminal block for vibration-resistant cabling, and a convenient DIN-rail mounting assembly. Carefully engineered DI channel-to-channel isolation helps maintain stable data

communications by providing protection against cross-line power surges and crosstalk. In addition, this remote I/O product is compliant with EN 50121-4 and a portion of EN 50155 specifications, covering operating temperature, power input voltage, surge, ESD, and vibration, making the products suitable for a variety of industrial applications, including electronic equipment used on or around railway vehicles.

Ruggedly Designed for Monitoring Rolling Stock

The ioLogik E1500 Ethernet remote I/O devices have a durable aluminum housing and are compliant with EN 50121-4 and a portion of EN 50155 specifications, which are required for electronic equipment used in railway applications. The ioLogik E1500 design strictly conforms to EN standards, including not only EMC requirements but also with regards to shock, vibration, extended temperature range, humidity, and power supply variations.



Channel-to-Channel Isolation

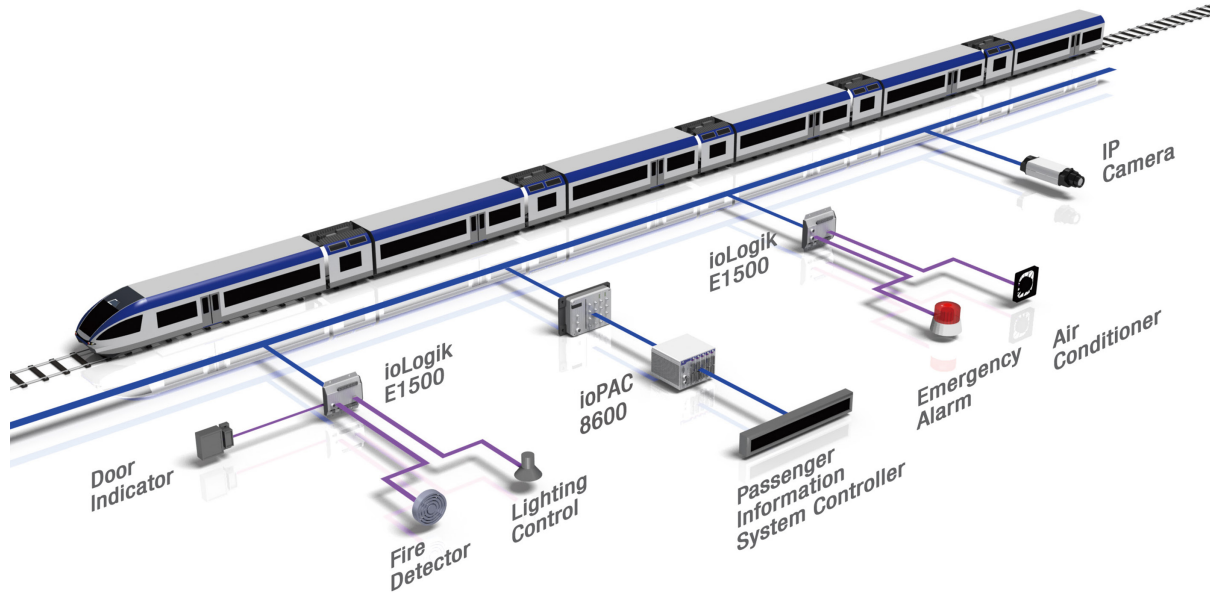
With this topology, I/O channels on the ioLogik E1500 are individually isolated from one another to ensure that data communication is highly

stable. For example, a lightning strike that affects one channel will not affect devices connected to other channels on the same ioLogik E1500.

Application: Enhanced Efficiency for Remote Monitoring on Rolling Stock

The ioLogik E1500 railway I/O module is an EN 50155/50121 compliant remote Ethernet I/O device for use on rolling stock. It features an anti-vibration design, channel isolation, and operates reliably in temperatures ranging from -40 to 85°C, making it the

ideal solution for data acquisition on rolling stock. Capable of both monitoring system status and triggering I/O events, the ioLogik E1500 is your best choice when you want to simultaneously enhance system reliability and maintenance efficiency in rolling stock environments.



ioLogik E1510-T Specifications

Inputs and Outputs

Digital Inputs: 12 channels (channel-to-channel isolation)
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 GND):

- On: 0 to 3 VDC
- Off: 10 to 30 VDC

Counter Frequency: 250 Hz

Digital Filtering Time Interval: Software configurable

MTBF (mean time between failures)

Time: 507,064 hrs

Standard: Telcordia SR332

ioLogik E1512-T Specifications

Inputs and Outputs

Digital Inputs: 4 channels (channel-to-channel isolation)

Configurable DI0s (by software): 4 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 GND):

- On: 0 to 3 VDC
- Off: 10 to 30 VDC

Common Type: 2 points per COM (Configurable DI0s)

Counter Frequency: 250 Hz

Digital Filtering Time Interval: Software configurable

Digital Output

Type: Sink

I/O Mode: DO or Pulse Output

Pulse Output Frequency: 500 Hz

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

MTBF (mean time between failures)

Time: 554,122 hrs

Standard: Telcordia SR332

Common Specifications

LAN

Ethernet: 1 10/100 Mbps, M12

Protection: 1.5 kV magnetic isolation

Protocols: Modbus/TCP (slave), TCP/IP, UDP, DHCP, BOOTP, HTTP

Power Requirements

Input Voltage: 12 to 48 VDC

Input Current: 150 mA @ 24 VDC

Note: Compliant with EN 50155 at 24 VDC

Physical Characteristics

Wiring: I/O cable max. 14 AWG

Dimensions: 144 x 124 x 30 mm (5.67 x 4.88 x 1.18 in)

Weight: Under 825 g (1.82 lb)

Mounting: DIN-rail (standard), wall (with optional kit)

Environmental Limits

Operating Temperature: -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.

Conformal Coating: Applies only to -CT models

Standards and Certifications

Safety: UL 508

EMC: EN 61000-6-2/6-4

EMI: FCC Part 15B Class A

EMS:

IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV

IEC 61000-4-3 RS:

80 MHz to 1 GHz: 10 V/m

1.4 GHz to 2 GHz: 3 V/m

2 GHz to 2.7 GHz: 1 V/m

IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV

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

IEC 61000-4-6 CS: 10 V

IEC 61000-4-8

Rail Traffic: EN 50155*, EN 50121-4

**Complies with a portion of EN 50155 specifications.*

Green Product: RoHS, CRoHS, WEEE

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

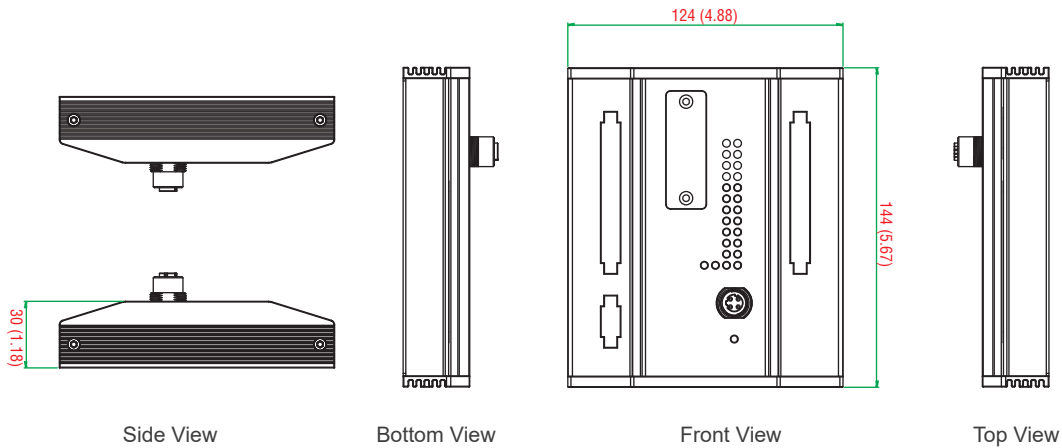
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

ioLogik E1510-M12-T: Ethernet remote I/O with M12 connector, 12 DIs, -40 to 85°C operating temperature

ioLogik E1510-M12-CT-T: Ethernet remote I/O with M12 connector, 12 DIs, coating, -40 to 85°C operating temperature

ioLogik E1512-M12-T: Ethernet remote I/O with M12 connector, 4 DIs, 4 DIOs, -40 to 85°C operating temperature

ioLogik E1512-M12-CT-T: Ethernet remote I/O with M12 connector, 4 DIs, 4 DIOs, coating, -40 to 85°C operating temperature

Optional Accessories (can be purchased separately)

WK-90-01: Wall-mounting kit, BKTx2 FMSx6 NI Nylok M3x6

Package Checklist

- ioLogik E1500
- Quick installation guide (printed)