

# 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



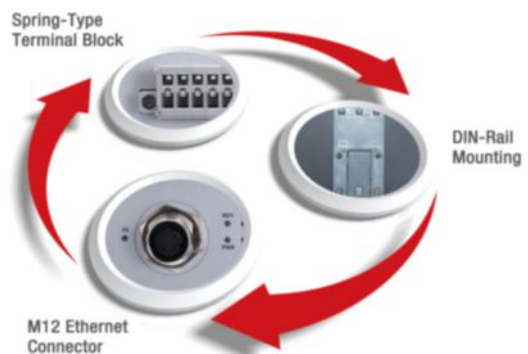
## Introduction

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

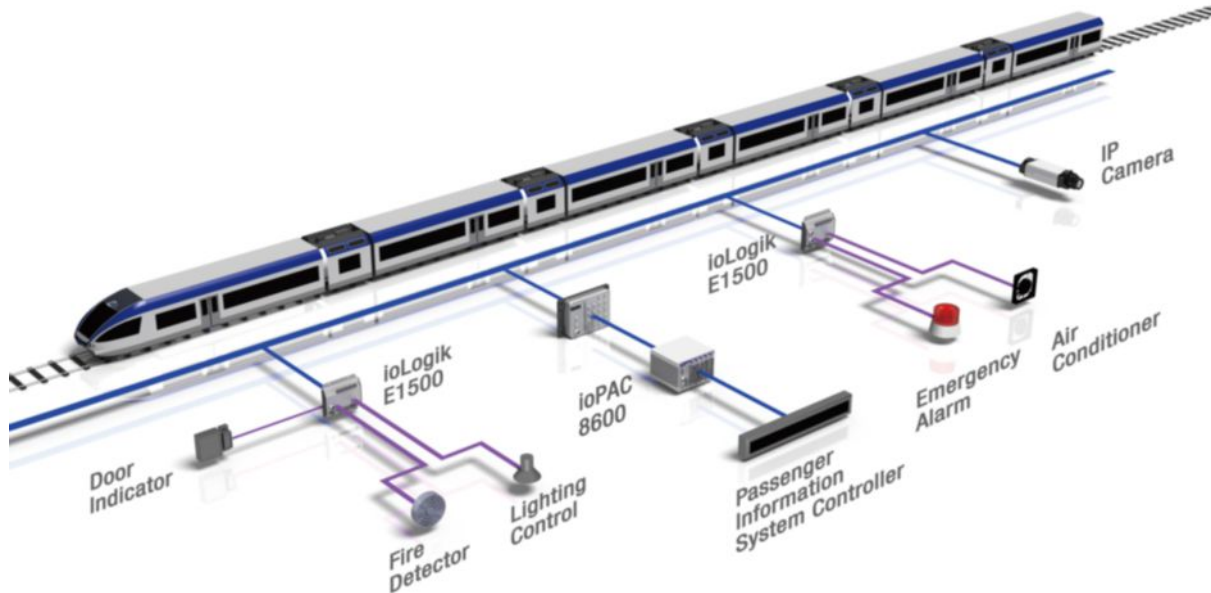
With this topology, I/O channels on the ioLogik E1500 are individually isolated from one another to ensure that data communication is highly

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 DIOs (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 DIOs)

**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.

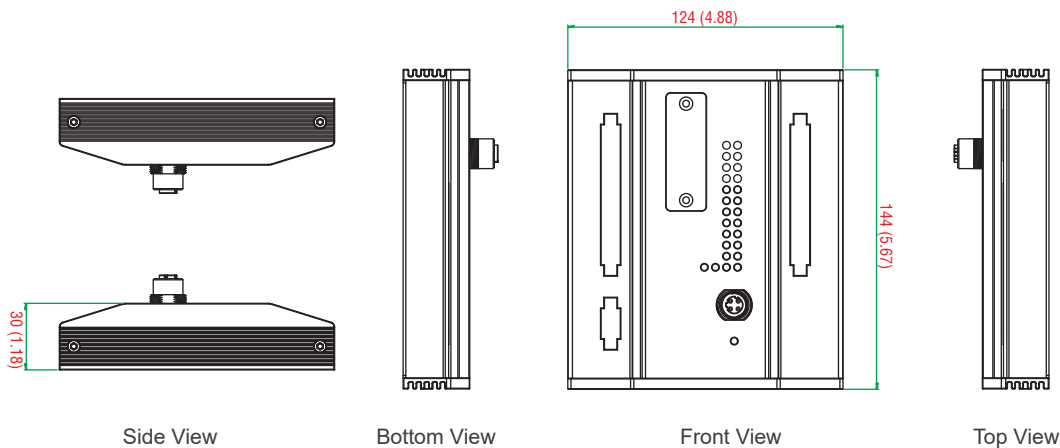
### Warranty

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://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)