

# EKI-9512E-4GETB

# EKI-9512G-4GETB

## EN 50155 12-port Ethernet Train Backbone Node (ETBN)



### Features

- Designed for rolling stock Ethernet Train Backbone (ETB)
- Complies with EN50155, EN50121-3-2 and EN4554 5-2 electronic equipment standards
- Provides 4 x M12 Giga Ethernet connectors with dual bypass relay
- Provides M12 connectors with IP67 protection
- Wide operating temperature support (-40 ~ 75 °C/-40 ~ 167 °F)
- Compatible with IEC 61375-2-3/2-5 standards
- TTDP function enables automatic IP address configuration
- Isolated power with wide nominal power input range (24 ~ 110V<sub>DC</sub>)
- Operating power input range: 16.8 ~ 137.5V<sub>DC</sub>

### Introduction

Advantech's EKI-9500 series comprises two switches — the EKI-9512E-4GETB and EKI-9512G-4GETB. This series of switches delivers high EMC performance to railway applications. Indeed, the EKI-9500 series are excellent, rugged networking solutions for rolling stock and wayside applications. They ensure robust connectivity while providing M12/M23 connectors for Ethernet, console, relay, and power-input connections. They also comply with IEC61373 vibration and shock standards for on-board applications. The EKI-9512E-4GETB provides 8 x fast Ethernet ports and 4 x Giga Ethernet bypass ports while the EKI-9512G-4GETB provides total 12 x Giga Ethernet with 4 x bypass ports. In addition, the Advantech Ethernet Train Backbone Node (ETBN) supports dual bypass relay — delivering additional protection to train networks. ETBN is designed for rolling stock applications that follow IEC61375-2-5 standards for open train data communication system based on Ethernet technology. Its Train Topology Discovery Protocol (TTDP) ensures interoperability between local consist subnets of every type. The communication profile (IEC61375-2-3) defines the mechanism of message exchange between train network devices. It includes a Train Real-time Data Protocols (TRDP) that establish a message exchanging system for critical information and related application services.

### Specifications

#### Interface

- **Ethernet Port**
  - M12 4pin D-coded Female for Fast Ethernet (10/100BASE-T)
  - M12 8pin X-coded Female for Gigabit Ethernet (10/100/1000BASE-T)
- **Console Port** M12 5pin A-coded Female
- **Alarm Port** M12 5pin A-coded Female
- **USB Port** M12 5pin A-coded Female
- **Power Connector** M23 6 pin

#### Physical Characteristics

- **Enclosure** Aluminum Die-casting
- **Protection Class** IP67
- **Installation** Wall Mount
- **Dimensions (W x D x H)** 254 x 174 x 64.5 mm/10 x 6.85 x 2.53 in
- **Weight** 3.5 kg (7.71 lb)

#### LED Display

- **System LEDs** PWR1, PWR2, SYS, R.M, ALM, T.I. (TTDP Inaugurated)
- **Port LED** Data (Link/Act)

#### Environment

- **Operating Temperature** -40 ~ 75 °C (-40 ~ 167 °F)
- **Storage Temperature** -40 ~ 85 °C (-40 ~ 185 °F)
- **Ambient Relative Humidity** 5 ~ 95% (non-condensing)

#### Power

- **Power Consumption** 28 Watts (System)
- **Power Input** 24/36/48/72/96/110 V<sub>DC</sub> dual inputs  
Supports Overload Current Protection  
Supports Reverse Polarity Protection

#### Certifications

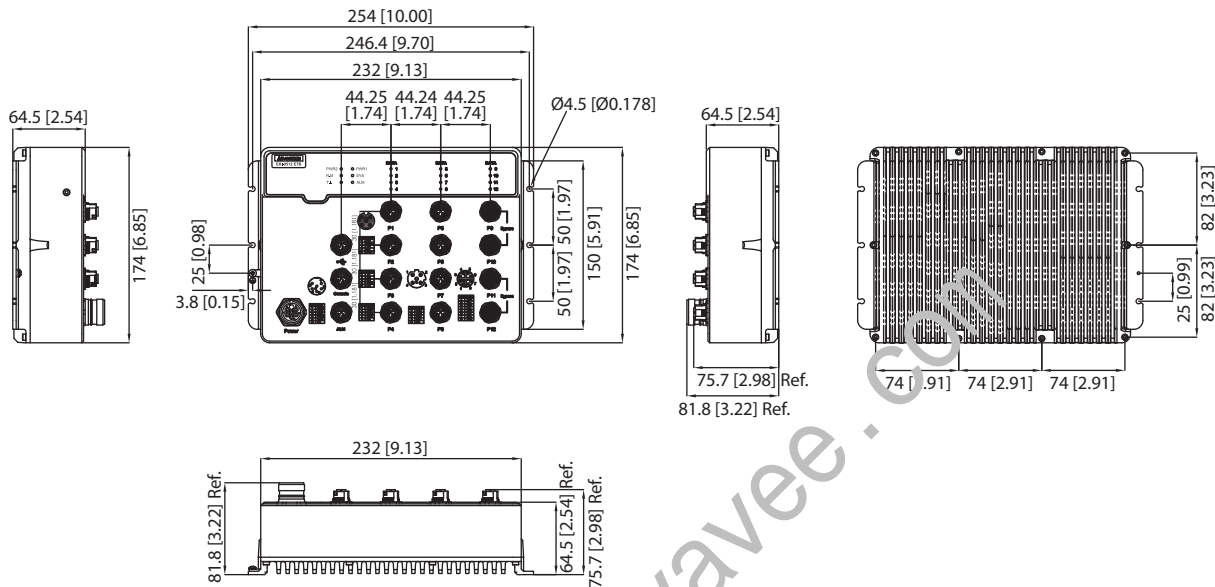
- **EMI** FCC Part 15 Subpart B Class A  
CE EN55022 (CISPR)  
EN55024 Class A
- **EMS** EN61000-4-2 (ESD); EN61000-4-3 (RS);  
EN61000-4-4 (EFT); EN61000-4-5 (Surge);  
EN61000-4-6 (CS)
- **Shock** IEC 61373
- **Freefall** IEC 60068-2-31
- **Vibration** IEC 61373
- **Rail Traffic** EN 50155; EN50121-3-2

#### L2 Features

- **L2 MAC Address** 8K
- **Jumbo Frame** 9.6KB
- **VLAN Group** 256 (VLAN ID 1~4093)
- **VLAN** 802.1Q
- **Storm Control** Broadcast, Multicast, Unknown unicast

## Dimensions

Unit: mm [inch]



### L3 Features

- **Routing Functions** TTDP (Train Topology Discovery Protocol), R NAT
- **Redundant Functions** VRRP
- **Rolling Stock Application** TRDP (Train Real-time Data Protocol)

### QoS

- **Priority Queue** Scheduling WRR (Weighted Round Robin), SP (Strict Priority)
- **Class of Service** IEEE 802.1p based CoS, IP ToS, DSCP based CoS
- **Rate Limiting** Egress Rate limit
- **Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

### Management

- **DHCP** Client, Server
- **Access** SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- **Security Access** SSH 2.0, SSL
- **Software Upgrade** TFTP, HTTP
- **NTP** NTP client

## Ordering Information

- **EKI-9512E-4GETB-A** ETB Router with 8 x Fast Ethernet + 4 x Giga Ethernet enables bypass function and dual wide voltage power input
- **EKI-9512G-4GETB-A** ETB Router with 8 x Gigabit Ethernet + 4 x Giga Ethernet enables bypass function, and dual wide voltage power input

## Accessories

Photo	PN	Description
	OPT1-M12-CRP-4MD	Phoenix Contact M12 D-code 4 pin Male crimp type connector
	OPT1-M12-CRP-8MX	Phoenix Contact M12 X-code 8 pin Male crimp type connector
	OPT1-M12-CRP-5MA	Phoenix Contact M12 A-code 5 pin Male crimp type connector
	OPT1-M12-CRP-4FA	Phoenix Contact M12 A-code 4 pin Female crimp type connector
	OPT1-M12C-4MD-150R	M12 D-code 4 pin Male to RJ45, cable length: 1.5m
	OPT1-M12C-8MX-150R	M12 X-code 8 pin Male to RJ45, cable length: 1.5 m/4.9 ft
	OPT1-M12C-5MA-DB9	M12 A-code 5 pin Male to DB9 console, cable length: 1.5 m/4.9 ft
	OPT1-M23C-6FH-100	M23 Female to 1 m (3.2 ft) cable