EKI-8510G-2FI

8G + 2G SFP Industrial Managed Ethernet TSN Switch

Features

- CC-Link IE TSN Class A/B certified
- 8 x Gigabit ports + 2 x Gigabit SFP ports
- IEEE 1588v2 PTP Precision Time Protocol
- Features IEEE 802.1AS Time Synchronization, IEEE 802.1Qbu Frame Preemption, IEEE 802.1Qbv Time Aware Shaper and IEEE 802.1CB Seamless Redundancy
- SFP socket for easy and flexible fiber expansion
- Management: SNMP v1/v2c/v3, WEB, Telnet, standard MIB
- NEMA TS2 for traffic control and EN 50121-4 approval for railway track sides
- Dual 12~48 V_{DC} power input and 1 x relay output

Introduction

The EKI-8510G-2FI is the next generation of industrial switch which supports real-time communication through Time Sensitive Networking (TSN) technology. Providing a means for determinism over Ethernet-based networks and guarantee the delivery for those critical real-time applications that require determinism.

The key features of EKI-8510G-2FI TSN switch are: Supports IEEE 1588v2 Precision Time Protocol (PTP) with time synchronization, it is possible for all devices to operate in unison and execute the operation at exactly the required point in time. With IEEE 802.1Qbu for Frame Preemption, it allows for a reduction of transmission latency for express traffic, which can preempt low priority packets. The Time Aware Shaper (TAS) which from IEEE 802.1Qbv, separates communication into fixed lengths and repeating time cycles. This requires transmission guarantees cannot be interrupted. Based on IEEE 802.1CB for Seamless Redundancy, Frame Replication and Elimination for Reliability sends duplicate copies of each frame over multiple paths which control applications that cannot tolerate packet losses.

Specifications

Communications

- **Standard**
  IEEE 802.3 10BASE-T(X)
  IEEE 802.3u 100BASE-T(X)
  IEEE 802.3ab 1000BASE-T(X)
  IEEE 802.3z 1000BASE-LX
  IEEE 802.3x Flow Control
- **LAN**
  10/100/1000Base-T(X), 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance**
  Ethernet: Up to 100m
  SFP: Up to 110km (depends on SFP)
- **Transmission Speed**
  Gigabit Copper: 10/100/1000 Mbps, auto-negotiation
  Gigabit Fiber: Up to 1000Mbps
- **Switch Capacity** 20 Gbps
- **Transmission Rate** 14.8 Mpps

Interface

- **I/O Port**
  8 x 10/100/1000BASE-T/TX RJ-45
  2 x SFP (mini-GBIC) port
- **Management Port** 1 x 10/100/1000BASE-T/TX RJ-45
- **Console Port** RS-232 (RJ45)
- **Power Connector** 6-pin screw Terminal Block (including relay)

Mechanism

- **Enclosure** Metal Shell
- **Protection Class** IP 30
- **Installation** Din-Rail, Wall mount
- **Dimensions (W x H x D)** 58 x 140 x 95 mm (2.28" x 5.51" x 3.74" in.)
- **Weight** 1.4kg

LED Indicators

- **System LED** PWR1, PWR2, SYS, P-Fail , P9, P10
- **Port LED** Link / Speed / Activity

Environment

- **Operating Temperature** -40 ~ 65°C (-40 ~ 149°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- **Humidity** 10 ~ 95% (non-condensing)
- **MTBF** TBC

Power

- **Power Consumption** 16.6W @ 48V_{DC} (System)
- **Power Input** 12 to 48V_{DC}
- **Fault Output** 1 Relay Output
- **Overload Current Protection** Present
- **Revise Polarity Protection** Present

Certification

- **Safety** UL 62368-1
- **EMI** CE, FCC Class A
- **EMS**
  EN 61000-4-2
  EN 61000-4-3
  EN 61000-4-4
  EN 61000-4-5
  EN 61000-4-6
  EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6
- **Traffic control** NEMA TS2
- **Railway Track Side** EN 50121-4
- **Patent** http://www.advantech.com/legal/patent

Last updated: 22-Feb-2023

Dimensions

Unit: mm [inch]
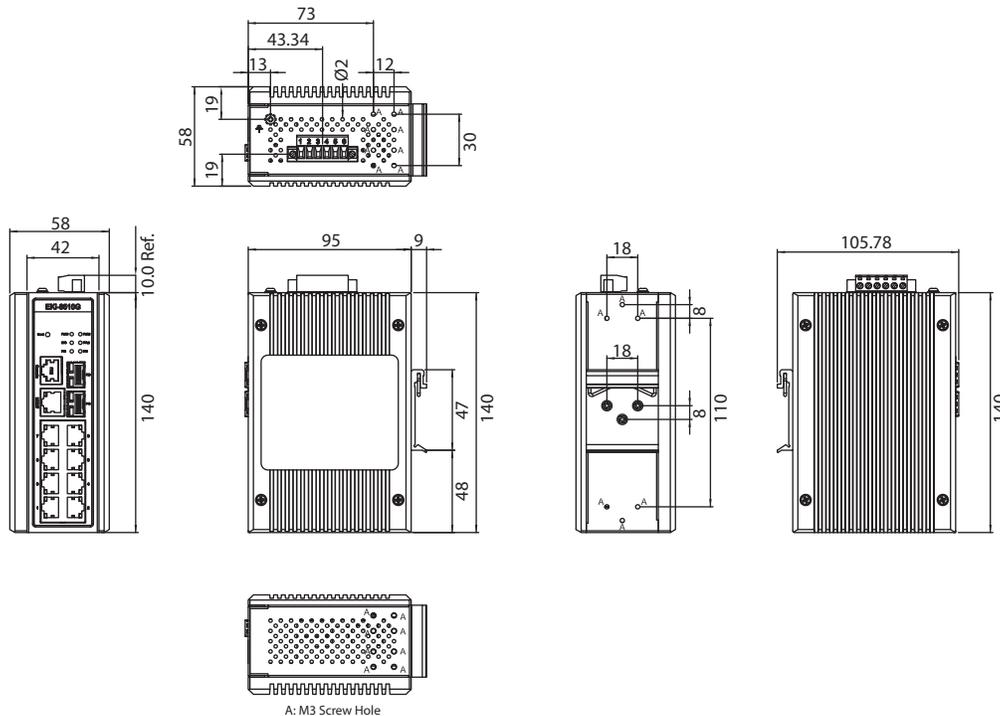
Panel Cut-out Dimensions (W x H x D): 58 x 140 x 95 mm (2.28" x 5.51" x 3.74" inch)

A: M3 Screw Hole

L2 Features

- **L2 MAC Address** — 32K
- **Jumbo Frame** — 10K
- **VLAN Group** — 256 (VLAN ID 1 ~ 4094)
- **Packet Buffer** — 32 Mbit
- **VLAN Arrange** — 801.1ad Q-in-Q VLAN Stacking, 802.1Q Tag-based VLAN, 802.1v Protocol-based VLAN, MAC-based VLAN, IP Subnet-based VLAN, Private VLAN, Voice VLAN
- **Port Mirroring** — 1 to 1, N to 1 Mirroring
  Max Mirror Sessions: 5
- **Link Aggregation** — IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking, Load Balance
- **GARP** — GVRP, GMRP
- **IP Multicast** — IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- **Storm Control** — Broadcast, Multicast, Unknown unicast
- **Redundancy** — IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP
- **Standardized Real-Time Ethernet** — Time Sensitive Networks (TSN), IEEE 802.1AS, IEEE 802.1Qci, IEEE 802.1CB, IEEE 802.1Qbv, IEEE 802.1Qbu
- **Time Synchronization** — IEEE 802.1AS gPTP
  Time Precision: 1 ns
  IEEE 1588v2 PTP

QoS

- **Priority Queue Scheduling** — WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- **Class of Service** — IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- **Rate Limiting** — Ingress Rate limit, Egress Rate limit

Security

- **Port Security** — Static, Dynamic IP Source Guard, ARP Spoofing Prevention, Access Control List, DHCP Snooping,
- **Authentication** — 802.1x (Port-Based, MD5 Encryption), TACACS+

Management

- **DHCP** — DHCP Client / Server, DHCP Relay, Option 82
- **Access** — SNMP v1/v2c/v3, HTTP, HTTPS, Telnet, Standard MIB
- **Configuration Upload / Download** — HTTP, TFTP, SFTP
- **Security Access** — SSH2.0, SSL
- **Software Upgrade** — Configuration Backup / Restore, Dual Image
- **NTP** — SNTP client, NTP Client

Ordering Information

- **EKI-8510G-2FI-A** — 8G + 2G SFP Managed TSN Switch w/Wide Temp.