EKE

I/O bus

Switch Management Processing

PoE Switch ⇄ ↔ Switch

110 V | 4 x 100 Mbit/s with PoE | 4 x 100 Mbit/s | 3 x 1 Gbit/s

Ethernet Switching Unit with PoE (3U ESU POE)

EN 50155
EN 45545
IEC 61375-3-4

MODULE FUNCTIONS

The Trainnet® Ethernet Switching Unit with PoE (3U ESU POE) is an Ethernet switch used to build Ethernet Consist Networks (ECN). It can also be used to create an Ethernet train bus in the case of a fixed trainset with no need for automatic inauguration.

The Trainnet® 3U ESU POE module implements the ECN link layer function of the IEC 61375-3-4 Train Communications Network Standard. The Ethernet technology's large bandwidth (typically 100 Mb/s) is particularly suitable for data intensive systems like video surveillance or Passenger Information Systems.

KEY FEATURES

The Trainnet® 3U ESU POE has 11 Ethernet ports which can have different properties. The 3 categories are:

➜ 4 x 100 Mbit/s Full Duplex Ethernet port with auto MDI/MDIX M12 connectors and Power-over-Ethernet (PoE).
➜ 4 x 100 Mbit/s Full Duplex Ethernet port with auto MDI/MDIX M12 connectors.

➜ 3 x 1 Gbit/s Full Duplex Ethernet port with auto MDI/MDIX M12 connectors

The PoE functionality provides power to cameras, intercoms and other low-power equipment via the Ethernet cable, thus simplifying and reducing train cabling.

The Ethernet ports are located on module's front panel. Port mirroring can be used to copy packet data seen on a switch port to another port for diagnostics and monitoring purposes.

The car can also be equipped with two redundant Trainnet® 3U ESU POE modules to increase system reliability. If the principal module fails, the secondary module takes over the functionality.

The 3U ESU POE provides connectivity to the consist network switches in a ring configuration (allows redundancy), or by connecting ports directly to end devices. The 3U ESU POE supports the Ethernet Ring Protection Switching (ERPS) protocol. The switch provides services such as Dynamic Host Configuration Protocol (DHCP) in order to assign IP addresses to end devices automatically.
The management processor provides also VLAN configurations Layer 3 switching. It enables diagnostic functions such as the identification of faulty cables and PoE monitoring.
It features a non-blocking (QoS Layer 2) switching architecture.

TECHNICAL SPECIFICATIONS

Dimensions (W x H x D)
20 TE x 3 U x 160 mm

Weight
1 Kg

Input Power
5 V DC ± 5 % (4 A max., 1.5 to 2.5 A typ.)

Nominal PoE voltage
110 V DC

Temperature Range (operational)
-40 ºC...+70 ºC

MTBF (40 ºC ambient temperature)
880 000 h (ESU3712A)

Ethernet Interfaces
4 x 10/100 Mbit/s with PoE, M12
4 x 10/100 Mbit/s, M12
3 x 1 Gbit/s, M12

Switching Buffer Memory
2 x 2 Mbits

PoE Classification
IEEE802.3af/at with two-event classification

Total power for PoE
75 W

Management CPU
Cortex M4 MCU 168 MHz, 512kB Flash