DATASHEET

Enhanced Ethernet Switch MACsec Hybrid

General description

The Enhanced Ethernet Switch (EES) MACsec Hybrid of Technica Engineering is an Automotive Ethernet switch with AVB/TSN capabilities that allows up to 4x 100/1000BASE-T1, 4x 10/100/1000BASE-T and 2x SFP+ slots supporting up to 10 GBits. It supports the MACsec technology on the BASE-T1 ports implemented in hardware, allowing MACsec to run at full speed, up to 1Gpbs. In addition, it supports the MKA (MACsec Key Agreement) protocol, implemented by Technica Engineering.

Layer 2 Switch

The Enhanced Ethernet Switch MACsec can establish virtual point-to-point connections, using single-tagged VLANs (802.1q) or double-tagged VLANs (802.1q-in-q), thus enabling filter and control over data streams. Each port provides 8-levels of Quality of Services (QoS) classes and advanced traffic filtering capabilities with ingress and egress rules. This ensures the prioritization, resource reservation, and control mechanisms over the data received.

The Enhanced Ethernet Switch is capable of additional TSN functionalities which are not implemented yet: 802.1Qbv and 802.1Qbu. Customer-specific use cases can be supported, if needed.

Contact technicalsales@technica-engineering.de for additional information.

Application Areas

Enhanced Ethernet Switches of Technica Engineering can be used on the development desk and even in harsh environments. These devices are adapted for continuous operation in Testbenches, which also corresponds temperature range in which they can work and robust casing.

Configuration

Through an internal configuration website, the user can easily configure the device for their use cases, abstracting the complex underlying switch hardware. This includes MACsec and MKA, VLANs, port mirroring, forwarding or filtering, deep packet inspection through TCAM rules, port segmentation, and many other features offered by Layer 2 switches.

Time Synchronization

The EES MACsec H-MTD provides a reliable gPTP/802.1AS-2011 automotive profile stack which is also compatible with 802.1AS-2020. In addition, the stack partially includes the IEEE 1588-2008 standard for time synchronization that allows various customization possibilities to adapt to many customer use cases.

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Technical Data

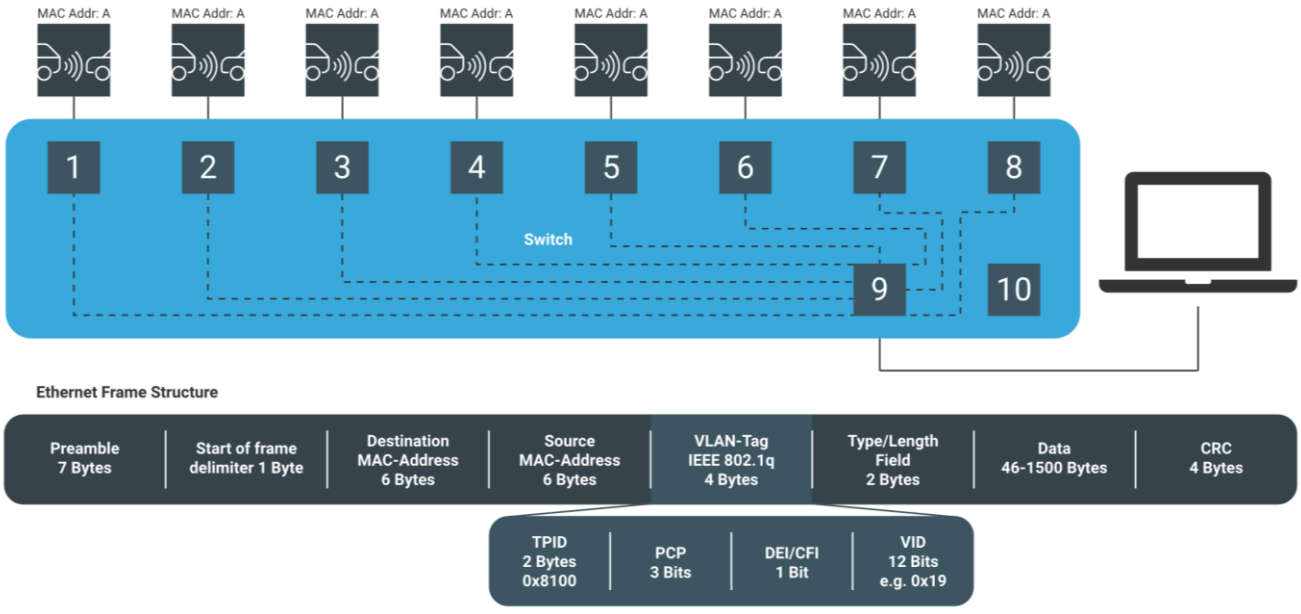
Operating Temperature	-40 °C to +85 °C
Supply Voltage	6.5 V to 32 V DC (typ. 12 V)
Power consumption	6 to 13 Watt
IP Protection Class	IP 20
Housing Dimensions	198 mm (W), 141 mm (L), 39 mm (H)
Weight	0.77 kilograms
Interfaces	4x 100/1000BASE-T1 (MATEnet/H-MTD) 4x 10/100/1000BASE-T 2x SFP+ 2x PPS (In/Out) 1x 100BASE-TX (Host Port) 1x Service Port 2x Wake-Up Line
Transceiver	Marvell 88Q2221M Marvell 88EA1512

Features of the EES MACsec Hybrid

Device Features	Configuration Webpage
	Wake-/Sleep
	Import-/Export of Configurations
	Status LEDs
	Port Statistic Dashboard
Switch Features	Port Segmentation
	Single / Double VLAN Mode
	Mirroring
	ARP Table
Core Feature Package	Single Partition Time Synchronization
	Advanced Filter
	Remote API
Advanced Feature Package*	Multi Partition Time Synchronization
	PTPv2togPTP Bridge
	Traffic Shaping
	Ingress Rate Limiter
MACsec Feature Package*	MACsec + MKA

* Needs to be ordered separately

Use case



Order Information

Name	Article Number	Cable set number*	Adv. Feature Package*	MACsec Feature Package*
Enhanced Ethernet Switch MACsec Hybrid	TE-2005	KS-2005	TE-2005-AF	TE-2005_MACsec

* Needs to be ordered separately