LANDING PAGE FOR EES CAMPAIGN

TITLE SECTION

Secure. Synchronised. Simple

The Layer-2 switch for transparent, controllable automotive ethernet validation.

Unlock real time and lossless data validation for ADAS & autonomous driving

Capture, compress, and validate High -Speed sensor data—without bottlenecks, complexity or compromise.

Watch Webinar Now

Unlock real time & lossless data vali...

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MORE VIDEOS

0:00 / 2:46 ous driving will be a 5297 billion m   YouTube

Download "The modern In-vehicle network validation playbook (2026)"
OR
Register for the Webinar

We will have the EES product category image/animation video of EES

INTRO SECTION

Why validation teams need a controllable Layer-2 switch ?

Validation benches are getting harder: MACsec-encrypted links you can't inspect, mixed gPTP and PTPv2 domains, and test flows that need selective mirroring, routing or simulation—without disturbing the system under test. Technica's Enhanced Ethernet Switches (EES) bring together hardware MACsec with safe visibility, multi-partition timing control, and advanced traffic engineering—under a browser-based UI that's free to use.

Why data validation is harder than ever?

By 2030, autonomous vehicles are projected to generate over 4 terabytes of data per day. This explosion is driven by a rapidly growing array of high resolution cameras, LiDARs (Light Detection and Ranging), radars and ultrasonic sensors. Each sensor must transmit uncompressed latency sensitive data to Electronic Control Units (ECUs) in real time—making the vehicle's internal data network as critical as its engine. Here's what makes validation so complex?

Storage overload and increasing costs
Uncompressed sensor data quickly fills up storage, driving up costs and complicating long term data management.

Fragmented toolchains
Engineers often juggle separate devices for logging, testing and simulation — none of them talk to each other, leading to inefficiencies and data silos.

Latency and data corruption risks
Even a few milliseconds of delay or a single corrupted frame can undermine safety-critical functions like emergency braking or lane keeping.

Configuration and debugging nightmares
Proprietary protocols, complex sensor-ECU pairings and evolving standards mean every setup is unique and challenging to validate.

Sensor growth
Vehicles now feature up to 16 cameras and multiple other sensors, each demanding reliable high-speed data capture.

Challenges our products help to overcome

Fragmented time domains
Struggling with synchronizing ECUs across different time domains. Our switches bridge PTPv2 and gPTP seamlessly, ensuring unified timestamping across the network

Encrypted traffic validation
With MACsec becoming a standard, validating encrypted traffic is a challenge. Our switches support full MACsec integration with MKA handshake, enabling secure packet inspection without compromising performance

Complex configuration overhead
Competing switches require CLI or external tools for setup. Technica's intuitive web interface allows real-time configuration of VLANs, port roles, and time sync parameters—no scripting required

Scalability bottlenecks
As test benches grow, managing traffic shaping, ingress rate limiting, and port segmentation becomes critical. Our advanced feature set supports granular control over bandwidth and traffic flow

This content is from the live page: https://www.technica-engineering.com/switch-based/

OUTSIDE IN SECTION

Why today's IVN validation needs more than a just a simple switch?

The reality in today's IVN validation:

- Encrypted traffic you can't inspect
- Mixed PTPv2 and gPTP domains causing desync
- Test benches needing simulation, selective routing, or injection
- Engineers forced to choose between visibility OR security
- Tool lock-in slowing test teams

What teams are asking for:

- Security + Visibility together
- Timing control across domains
- Transparent test insertion without breaking master/slave roles
- Controlling the traffic during simulation
- Open source Web-based, automatable configuration
- A device that adapts to validation, not the other way around

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Sensor growth

Vehicles now feature up to 16 cameras and multiple other sensors, each demanding reliable high-speed data capture.

Here's how Technica' EES can solve your challenges

Built for high-performance automotive testing, our switches combine robust hardware with intelligent software features. They simplify configuration, enhance security, and support dynamic network topologies.

- Modular PHY board architecture
- PTPv2 to gPTP bridge
- Advanced filters including inspection of IPv6 and manipulation of VLAN
- MACsec encryption & MKA handshake
- Remote API & web GUI
- Traffic shaping

Here's how it helps:

In-vehicle data logging
Capture up to 4 cameras per module at 40Gbps throughput. Lossless JPEG compression with dynamic Huffman tables lets you save up to 50% on storage — without losing a single pixel, even if scenes and lighting conditions change.

Sensor testing
Validate sensors in lab or field setups. Real-time diagnostics and galvanic isolation ensure interference-free data, so you can trust every frame.

ECU simulation
Inject pre-recorded sensor data into ECUs for HIL (Hardware-in the-Loop) testing. The hardware loop architecture guarantees minimal latency and zero corruption, so your simulations are as close to reality as possible.

EXPLORE OUR PRODUCT PORTFOLIO

**ENHANCED ETHERNET SWITCH RJ-45**

Positioning:
- Enhanced Ethernet Switch RJ-45 allows for a managed, multi-directional exchange of Ethernet messages, thus providing the customer with a wide range of test solutions.

Key highlights:
- High-Bandwidth Connectivity
  - Up to 8× 10/100/1000BASE-T plus 2× 10G SFP+ uplinks for seamless aggregation and high-rate logging in lab and HIL setups.
- Automotive-Grade Time Sync
  - Built-in gPTP/802.1AS and PTPv2 compatibility, ensuring synchronized behaviour across mixed bench equipment.
- Advanced Traffic Control
  - VLANs (single & Q-in-Q), QoS, mirroring, rate limiting, and deep inspection rules for precise flow shaping and debugging.
- Simple Configuration & Automation
  - Intuitive open-source web interface plus remote API support—ideal for scripted setups, nightly regressions, and repeatable testing.

CTA: View full product specs [Datasheet or the product page] or link to
https://www.technica-engineering.com/enhanced-ethernet-switch-rj-45/
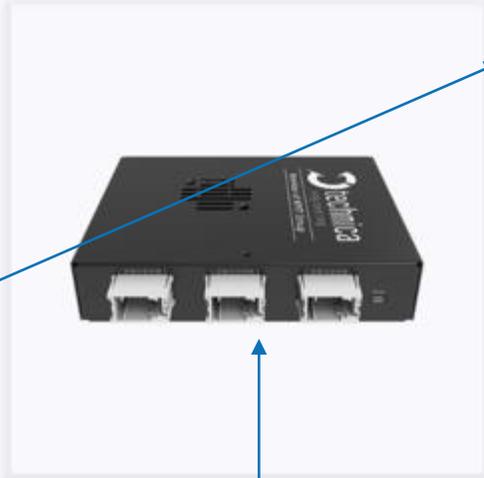
Capture Module 10BASE- T1S

Your All-In-One Solution For 10BASE-T1S Automotive Ethernet Testing And Monitoring.

Capture the traffic of the in-vehicle communication without losses

Easy and straight forward device configuration

Hardware timestamping and time synchronization support

Sleep and wake up capability to meet low power requirements

Explore more

EXPLORE OUR PRODUCT PORTFOLIO
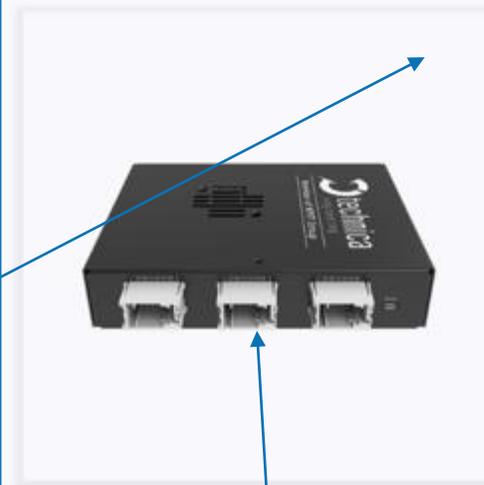
ENHANCED ETHERNET SWITCH MACSEC

Positioning:
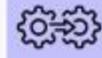- Secure, High-Performance Automotive Ethernet Switching With Full Hardware MACsec.

Key highlights:
- Full-Speed Hardware MACsec
    - Validate encrypted traffic with line-rate MACsec on all BASE-T1 ports, including full MKA key agreement implemented by Technica for secure IVN testing.
- High-Density Automotive Ethernet
    - Up to 8× 100/1000BASE-T1 plus 2× 10G SFP+ uplinks, making it ideal for ADAS rigs, sensor fusion benches, and high-traffic IVN validation setups.
- Advanced Layer-2 Control
    - Single & double VLANs (802.1Q / Q-in-Q), QoS, mirroring, traffic shaping, port segmentation, and deep TCAM filtering for precise test orchestration.
- Precision Time Synchronization
    - Robust gPTP/802.1AS support and PTPv2 compatibility enable synchronized multi-ECU environments and timing-critical validation workflows.

CTA: View full product specs [Datasheet or the product page] or link to
https://www.technica-engineering.com/enhanced-ethernet-switch-macsec/

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ENHANCED ETHERNET SWITCH MACSEC HYBRID

Positioning:
- Your All-in-One Solution for Mixed T1 + RJ-45 Automotive Ethernet Testing with Full-Speed Hardware MACsec.
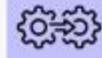
Key highlights:
- Hybrid Connectivity for Every Bench
  - Combine 4× 100/1000BASE-T1 and 4× 10/100/1000BASE-T (RJ-45) with 2× 10G SFP+ uplinks, enabling seamless bridging of automotive and standard Ethernet environments.
- Full Hardware MACsec + MKA Support
  - Secure traffic validation with line-rate MACsec encryption on T1 ports and MACsec Key Agreement (MKA) implemented by Technica—ideal for encrypted ADAS/IVN testing.
- Advanced Traffic Engineering
  - Use VLANs, QoS, mirroring, deep TCAM-based filtering, port segmentation, and shaping to create precise, repeatable validation scenarios across mixed domains.
- Automotive-Grade Time Sync
  - Supports gPTP/802.1AS, PTPv2, and mixed-domain bridging—perfect for synchronized multi-ECU setups, lab benches, gateway testing, and time-sensitive pipelines.

CTA: View full product specs [Datasheet or the product page] or the link:
https://www.technica-engineering.com/enhanced-ethernet-switch-macsec-hybrid/

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MEDIA GATEWAY

Positioning:
- Your Flexible Bridge Between Automotive Ethernet, Standard Ethernet & Legacy In-Vehicle Protocols.

Key highlights:
- Seamless Protocol Bridging
  - Connect Automotive Ethernet, Standard Ethernet, and legacy networks (CAN, LIN, etc.) with a single, robust gateway designed for development benches and HIL systems.
- Advanced Frame Manipulation
  - Filter, route, reshape, and forward traffic with precision using built-in deep packet inspection, VLAN handling, and customizable routing rules.
- Multi-Domain Time Synchronization
  - Supports gPTP/802.1AS and PTPv2 compatibility, enabling synchronized communication flows across heterogeneous networks.
- Simple Configuration & Automation
  - Configure via intuitive web interface or integrate into automated setups using the remote API, ensuring repeatable and scalable test workflows.

CTA: View full product specs [Datasheet or the product page] or link:
https://www.technica-engineering.com/media-gateway/
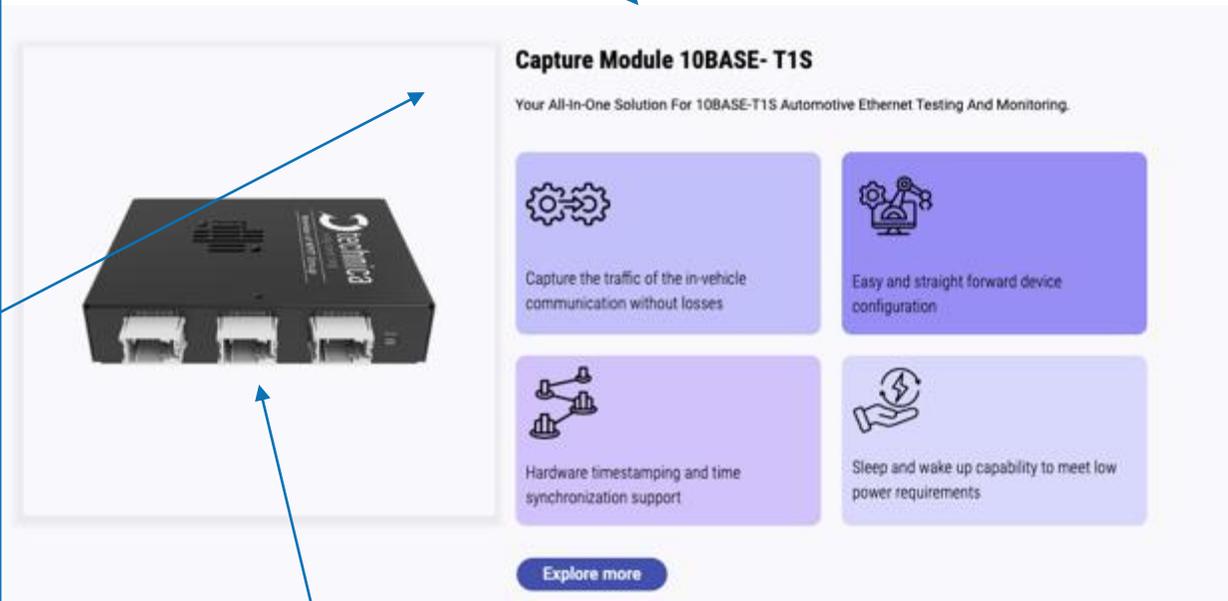
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LAST SECTION

CTA SECTION

Download: The modern in-vehicle network validation playbook (2026)

Join the live webinar

Title: Secure. Synchronised. Simple. Live Debugging of Encrypted Traffic & Mixed Timing Domains.

Speakers: Product engineering team (EES), Technical Sales & guest speakers.

What we'll show: Will fill up later

Register