

ProfiShark SPE

Packet capture and link diagnostics for 10BASE-T1L Single-Pair Ethernet

Key benefits

- Capture 10BASE-T1L traffic for analysis in Wireshark or other packet analyzers
- Troubleshoot field-level communication issues on Single-Pair Ethernet links
- Support commissioning, validation, migration, and root-cause analysis workflows
- Bring the ProfiShark portable capture experience to SPE-based OT environments



Field capture and analysis for SPE

Get packet-level and link-level visibility directly on 10BASE-T1L Single-Pair Ethernet connections. ProfiShark SPE helps OT and automation engineers capture network communications, inspect SPE link conditions, and validate installations with a single portable workflow.

Features

- 10BASE-T1L Single-Pair Ethernet, 10 Mb/s
- Hardware-timestamped packet capture in both directions
- SQI and estimated SNR readings plus cable length or fault distance where applicable
- Configurable master/slave role and transmit level
- Per-port traffic and capture/drop information
- Two SPE ports for in-line monitoring or SPAN/aggregation
- Continuous link diagnostics for status, signal quality, resolved role, and open/short information
- On-demand TDR fault-location test
- Basic packet generation for controlled link validation
- Capture evidence with diagnostic context, ProfiShark Manager reporting, and Wireshark integration

In-line connection

Capture both directions of the 10BASE-T1L link.



Fail-safe access for live networks

In-line operation uses active bypass and fast failover, with PoDL passthrough, ensuring the network links stays up if ProfiShark SPE were to be unpowered.

ProfiShark SPE helps you

Capture accurately

Record both directions with hardware timestamps and per-port capture information. Save the trace as pcapng so an intermittent event can be reviewed after the engineer leaves the site.

Validate the connection

Check the role and transmit-level settings specific to 10BASE-T1L, then use the packet generator in a test setup to verify traffic transmission and reception.

Diagnose the link

Monitor signal quality, resolved master/slave role, and cable fault information. Consider these readings alongside traffic to narrow down configuration, connection, and communication issues.

Report the findings

Collect evidence and create reports where the device connects and share them with colleagues, automation vendors, and support teams.

Capture, diagnose, validate

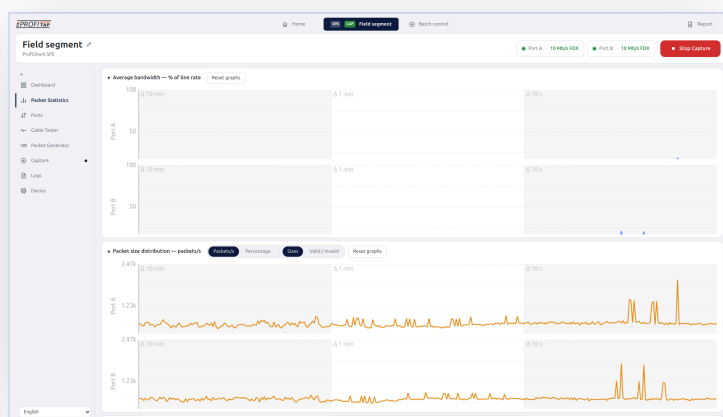
Capture 10BASE-T1L traffic with confidence

ProfiShark SPE captures traffic in both directions and timestamps it in hardware. Save the result in PCAPNG format for detailed packet analysis in Wireshark or any other analyzer that accepts PCAPNG.

ProfiShark adds per-port traffic and drop information to the trace. Engineers can check what the device received and whether packets were dropped during capture directly from the trace, helping them assess the evidence before drawing conclusions from a missing packet.

ProfiShark Manager also shows traffic rates, frame-size information, and the status of received packets. This way, engineers can see both the packets and the conditions under which those packets were captured.

A reliable packet trace supports troubleshooting and investigation: compare startup sequences, inspect an intermittent event, document a test, or give a supplier the packets needed to investigate a reported fault.



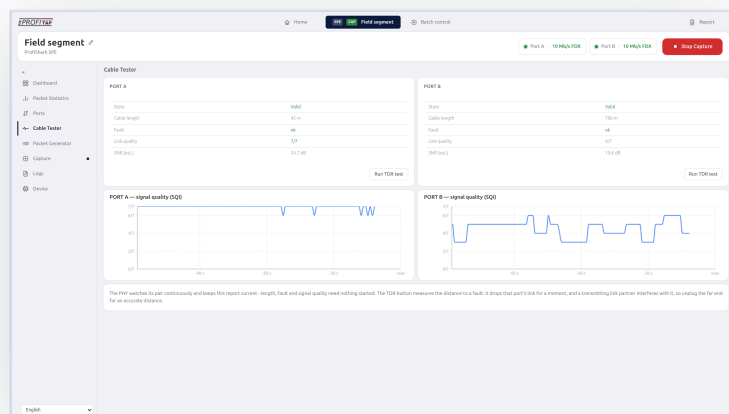
Understand Single-Pair Ethernet link health

A link-up indication gives only part of the picture. ProfiShark SPE continuously monitors the pair and exposes signal quality, link status, resolved master/slave role, and open- or short-circuit fault information.

The Cable Tester view in ProfiShark Manager shows per-port signal quality, estimated SNR, and cable or fault distance information, where applicable. Signal-quality history helps engineers see changes over time and compare them with intermittent communication symptoms.

This information, provided by ProfiShark, helps investigate deteriorating connections, check whether issues have been resolved, or determine whether a cable fault requires attention.

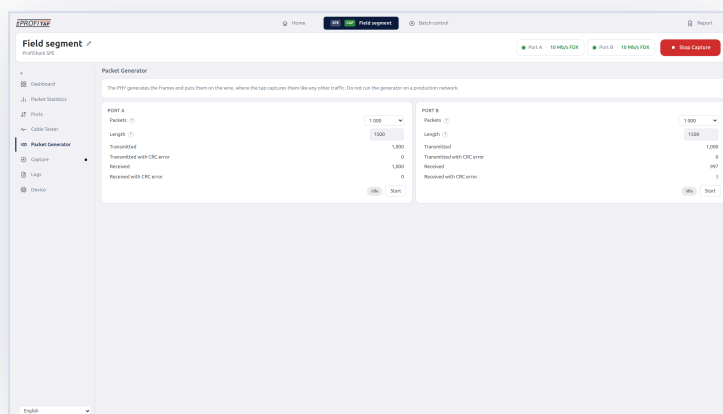
Continuous observation gives the engineer more to work with than a single link-up or link-down result.



Validate the link with packet generation

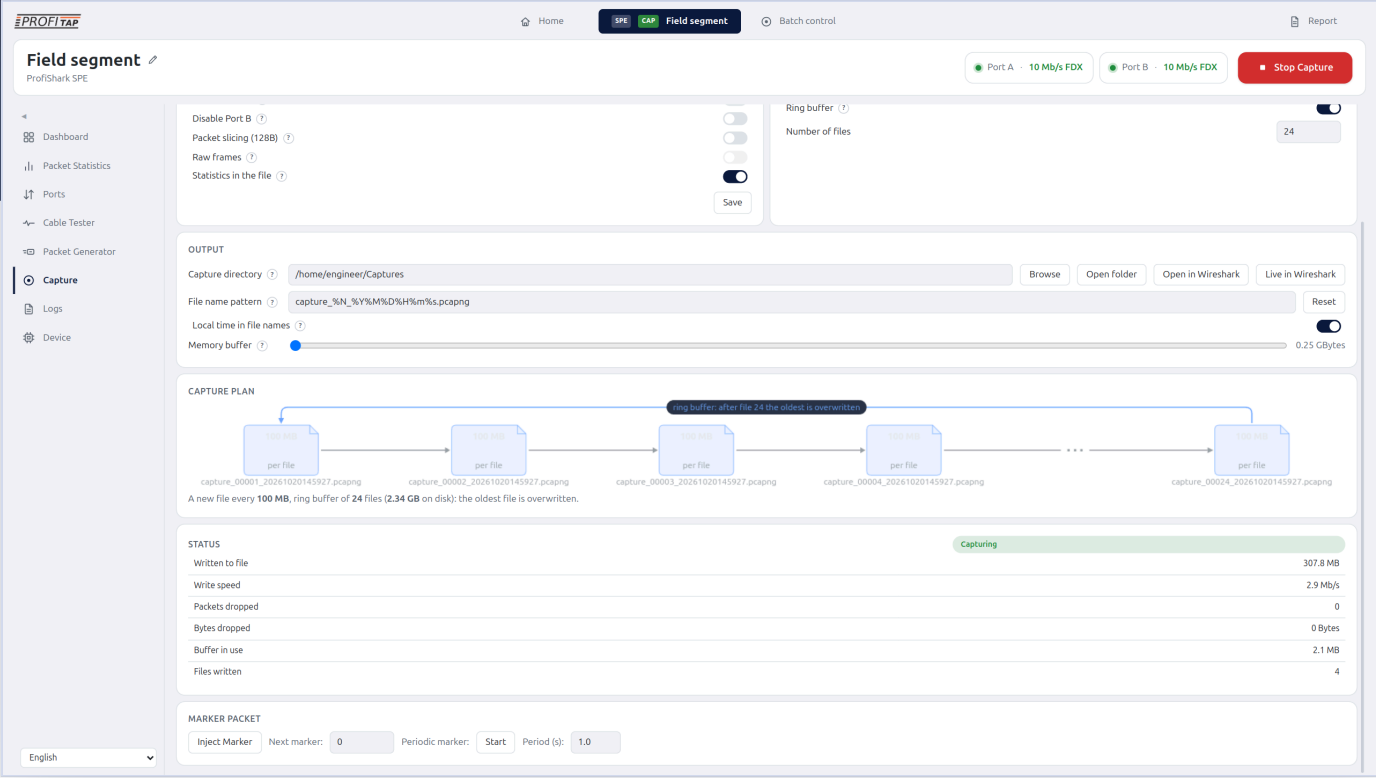
The ProfiShark SPE packet generator feature provides link testing before operational traffic, depending on the connection. Used during installation, bench testing, or device integration to verify transmission and reception under a controlled test setup.

It is possible to set packet count, continuous transmission, and packet length for each port. ProfiShark Manager reports on transmitted and received packets, including CRC error readouts, so engineers can quickly check the test results.



One workflow in ProfiShark Manager

Configure the SPE link, observe its state, capture its traffic, and investigate the results in a single workflow. ProfiShark Manager brings the hardware controls and measurements together, so engineers can move between port settings, cable diagnostics, capture, and statistics as an investigation develops.



Overview Dashboard

Link state, traffic, capture status, and device health at a glance.

Packet Statistics

Detailed recent measurements and longer history in the same view.

Capture

Build and visualize the capture plan before starting, including file size, duration, rotation, and retention behavior.

Physical Diagnostics

Link state, cable length, fault, link quality, SNR, signal quality.

Packet Generation

Configure packet generation for controlled link validation.

Reporting

Create a PDF or web report from an individual diagnostic page or from the complete investigation. Measurements, tables, and charts are rebuilt into a consistent report rather than captured as screenshots.

Technical specifications

Network technology	10BASE-T1L Single-Pair Ethernet, 10 Mb/s
Network ports	2 x SPE ports
Physical SPE connector	IP20 Socket
Monitoring mode	In-line and SPAN (out-of-band dual input)
Network behavior	Non-intrusive, invisible to the network, physical isolation from the management interface
Fail-safe	Active bypass and fast failover in in-line mode
PoDL	PoDL passthrough
Capture performance	Full-duplex 10 Mb/s
Capture format	pcapng
Capture modes	Live capture, direct capture to disk, long-term capture/ring buffer
Timestamping	8 ns hardware timestamp at ingress
Packet slicing	Yes, available as a capture option (128 bytes)
Port monitoring	Per-port packet-drop and CRC counters, real-time statistics, low-level error, and bandwidth monitoring
Continuous SPE diagnostics	Link status, signal quality, resolved role, and open/short fault information
Diagnostic readings	SQI 0–7, estimated SNR in dB, cable length or distance to fault
Fault-location test	On-demand TDR
Role configuration	Auto – prefer slave, Auto – prefer master, Forced slave, Forced master
Transmit levels	1.0 Vpp; 2.4 Vpp long reach, requiring support at both ends
Packet generation	Packet generation with configurable frame length, rate, and packet count; transmitted/received and CRC-error results
Host connection	USB 3.0
Optional power input*	1 x 5V/1.5A DC barrel jack input (center positive)
Dimensions (WxDxH)	69 x 124 x 24 mm — 2.72 x 4.88 x 0.94 in
Weight	176 g — 0.39 lb
Storage temperature	-40 to +80 °C — -40 to +176 °F
Operating temperature	0 to 50 °C — 32 to 122 °F
Relative humidity	10 to 95%, non-condensing
Software	ProfiShark Manager, Wireshark integration, CLI, reporting
Operating systems	Windows, Linux, macOS
System requirements	Dual Core processor, 4 GB memory, USB 3.0 port
Compliance	RoHS, CE, UKCA, EAC

* Can be used to prevent failover when disconnecting USB.