

Innovation for the next generation

# PULSAR

## 4-Lane TDR

Time Domain Reflectometry | Return Loss | Skew



## Summary

In such a fast-paced and data-hungry industry, reducing test time provides a significant advantage to high-tech providers seeking to increase productivity. MultiLane is dedicated to revolutionizing large-scale production testing with advanced, automate, high-through-put solutions.

Our solutions are geared toward automating the testing process, ensuring our partners receive precise, dependable measurements, while minimizing time spent testing.

Pulsar is a TDR that supports medium impedance characterization, and skew evaluation. Pulsar enables simultaneous testing on four channels and serves various critical applications in PCB and switch characterization, medium fault detection, and other essential industrial tasks. Crucially, Pulsar was designed with high throughput testing in mind, providing one of the fastest test times in the industry to best serve high scale production.

# Pulsar-TDR

## Introduction

Pulsar is a high throughput Time domain reflectometer. The true-differential TDR can determine the impedance profile and reflection loss on 4 channels simultaneously. It is designed and suited both for characterization as well as manufacturing.

Multilane's Pulsar provides detailed SI insights allowing the detection of minor impedance mismatches and enabling proactive maintenance and optimization.

## Key Features

- High Resolution TDR
- Low cost quadruple 35/70 GHz Time Domain Reflectometry
- Return Loss measurement
- 4 ports per module expandable up to 32+
- 4x35/70 GHz analog bandwidth
- Low power dissipation

## TDR Applications

- DAC & high-density backplane cables and connectors Testing
- Switch Testing
- Semiconductor Testing
- PCB Testing and Probing
- Location of impedance discontinuities for Automotive Ethernet

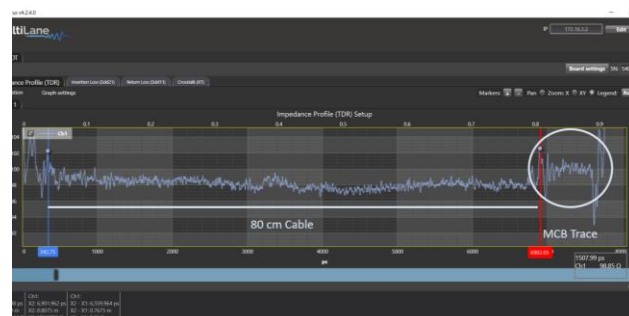


Figure 1 TDR Measurement on DAC + MCB.

## Software Features

Pulsar's software allows the characterization of the DUT's impedance profile and return loss. The available or custom masks come with a Pass/Fail indicator to ensure the DUT's reliability in a few seconds.

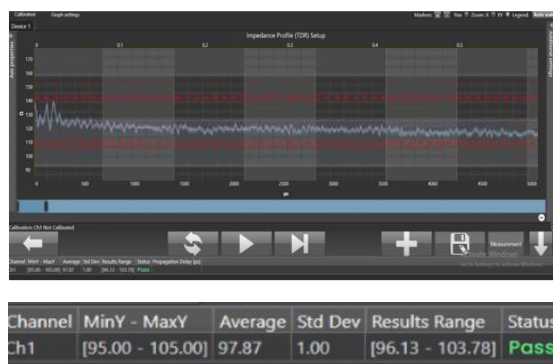


Figure 2 Impedance profile mask with pass verdict.



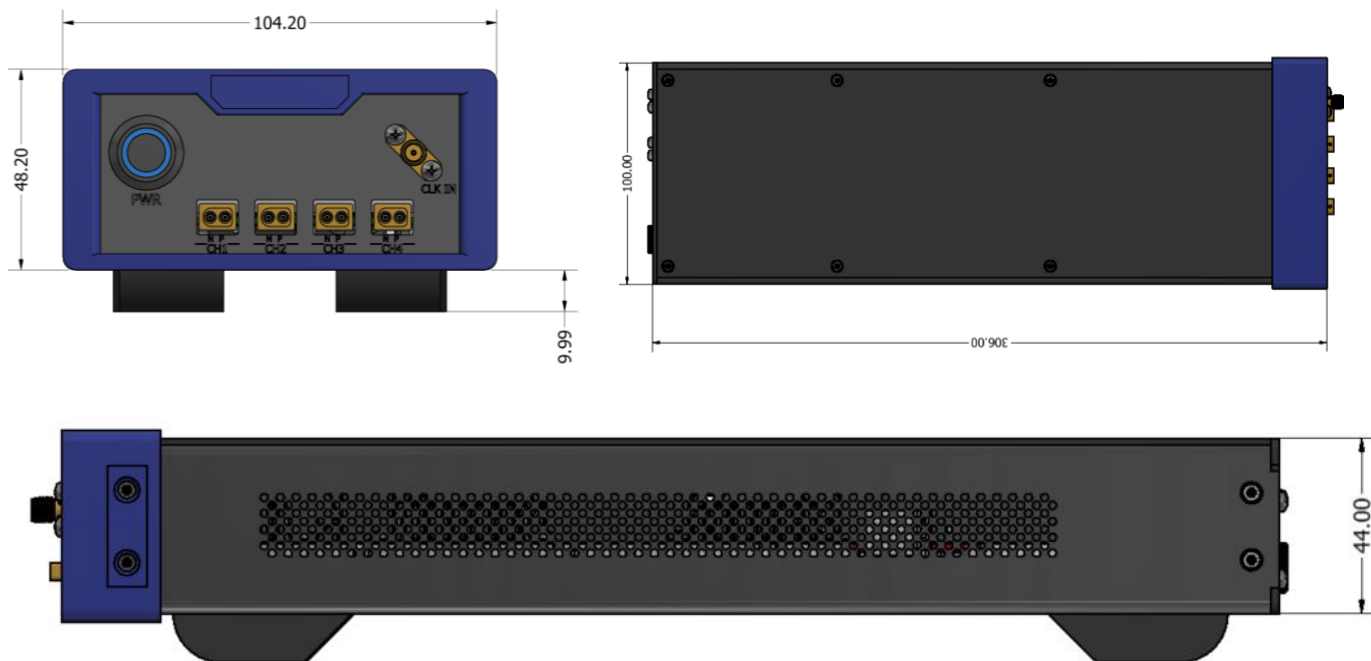
Figure 3 Switch Testing using 4 Pulsars.

## TDR Specifications

Parameter	Specifications 35 GHz
S&H Bandwidth	35GHz
S&H Gain Flatness	[-0,5 , 0.5] dB
Differential amplitude with 100 Ω DUT Termination	100 mVpp min 1000 mVpp max
Step response Rise/Fall Time (20%-80%)	12 ps
TDR resolution	1.5 mm
Random Aperture Jitter	60 fs simulated
Electrical channel connectors	(4X) 1X2 ML SMPM
Data Input	AC coupled
Pattern Capture	SSPRQ & Up to PRBS-16
Normal Operating Temperature	0 - 65 °C
Instrument Automatic Shutoff	65 °C (manual reboot is needed to turn it back on)
<b>Power Dissipation</b>	2.3 A @12V

Parameter	Specifications 70 GHz
S&H Bandwidth	70GHz
S&H Gain Flatness	[-0,5 , 0.5] dB
Differential amplitude with 100 Ω DUT Termination	70 mVpp min 700 mVpp max
Step response Rise/Fall Time (20%-80%)	7 ps
TDR resolution	1 mm
Random Aperture Jitter	30 fs simulated
Electrical channel connectors	(4X) 1X2 ML SMPM
Data Input	AC coupled
Pattern Capture	SSPRQ & Up to PRBS-16
Normal Operating Temperature	0 - 65 °C
Instrument Automatic Shutoff	65 °C (manual reboot is needed to turn it back on)
<b>Power Dissipation</b>	2.3 A @12V

## Mechanical Dimensions



## Ordering Information

Option	Description
ML4025E-PLS	12 ps rise time TDR
ML4025F-PLS	7 ps rise time TDR
3YW	Total 3-year warranty
CAL	Single calibration
3YWC	Total 3-year warranty with 3 annual calibrations

**Recommended Accessories**

Instrument	Recommended QSFPDD to SMPM Cable Assembly PN	Recommended OSFP to SMPM Cable Assembly PN
Pulsar	140-7046-516	142-7082-516

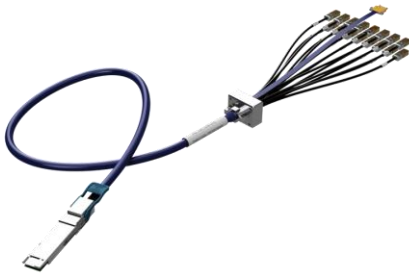


Figure 2 QSFP-DD to SMPM Cable Assembly



Figure 1 OSFP to SMPM Cable Assembly

This equipment contains ESD sensitive components and may become damaged when contacted with an electrostatic charge. To prevent equipment damage, please use proper grounding techniques.

