

Innovation for the next generation

# Pulsar Family

**ML8004-35-PLS | ML8004-70-PLS**  
**MW8004-35-PLS | MW8004-70-PLS**

4-Differential Channel TDR per module | Up to 4 Modules per MultiWave Test Platform (MWTP) - Testing 16 & more channels | Time Domain Reflectometry | Return Loss | Skew | Impedance



## Summary

Pulsar is a modular TDR that focuses on physical media impedance, continuity and skew measurements. In measurements of high-speed serial data systems, such as switches and routers, cables and backplanes Pulsar offers outstanding flexibility: it can be used for measurement with only a few channels, as is commonly done in the industry; but it also supports very high throughput measurements with many channels simultaneously. This is due to its modularity, high acquisition speed, and low cost per channel.

Pulsar is offered with two TDR edge speeds to address different needs for resolution. Pulsar excels in datacenter physical layer test of PCB and other media in verification, characterization and fault detection.



Figure 1: Testing OSFP/QSFP module slots on up-to 1.6T switch with multiple Pulsar units

# Pulsar-TDR

## Introduction

Pulsar is a high throughput Time Domain Reflectometer (TDR). It's true-differential signal can determine the impedance profile and reflection loss on 4 channels per module 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
- True differential square-wave signal tests the DUT with same wave-shape as the mission mode
- Low-cost quad-channel with fast rise-time domain reflectometry
- Return Loss measurement
- 4 ports per module expandable up to 32+
- Low power dissipation

## TDR Applications

In 100Gb/s/lane and 200Gb/s/lane systems, including 1.6T systems, Pulsar support measurements of:

- DAC, ACC and other high-density cables, backplanes, connectors and modules
- Ethernet, NVLink, InfiniBand, FC devices
- Semiconductor Testing, wafer test, substrate test and fault detection/identification
- PCB Testing and Probing
- Industrial applications needing impedance characterization and failure analysis, such as Automotive and Industrial Ethernet, Aerospace, and factory automation.

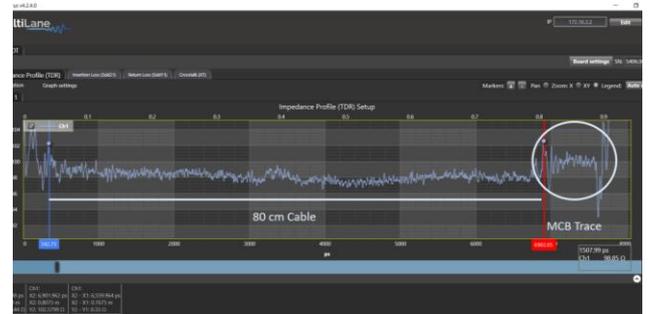


Figure 2: TDR Measurement on DAC + MCB

## Software Features

Pulsar's software allows the characterization of the DUT's impedance profile and return loss and a compare against built-in or custom masks. This comes with a Pass/Fail indicator to ensure the DUT's reliability in a few seconds. Calibration and embedding with SOL/SOLT

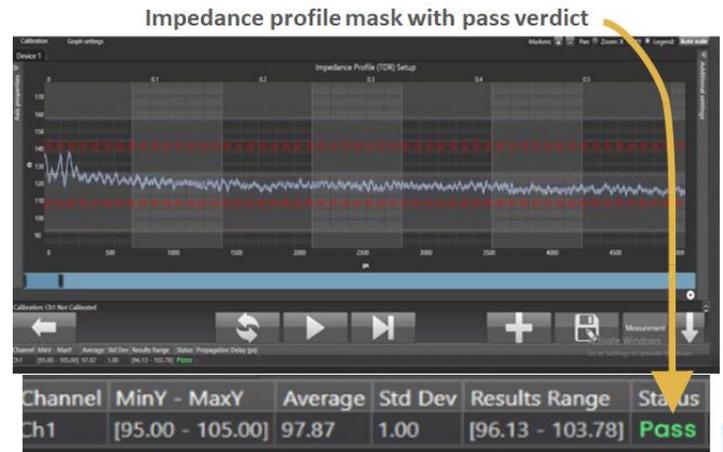


Figure 3: Impedance profile mask

## TDR Specifications

Parameter	ML8004-35-PLS	MW8004-35-PLS	ML8004-70-PLS	MW8004-70-PLS
S&H Bandwidth	35Ghz		70Ghz	
S&H Gain Flatness	[-0,5, 0.5] dB		[-0.5, 0.5] dB	
Step response Rise/Fall Time (20%-80%)	10 ps		7 ps	
TDR resolution	1.5 mm		1 mm	
Electrical channel connectors	(4X) 1X2 ML SMPM		(2X) 1X4 ML SMPX	
Data Input	AC coupled		AC coupled	
Normal Operating Temperature	0 - 65 °C		0 - 65 °C	
Instrument Automatic Shutoff	65 °C (manual reboot is needed to turn it back on)		65 °C (manual reboot is needed to turn it back on)	
Power Dissipation	2.4 A @12V	2 A @12V	2.65 A @12V	2.25 A @12V

## Mechanical Dimensions



Figure 4: ML8004-35-PLS / ML8004-70-PLS Dimensions

MW8004-xx-PLS is compatible with the MultiWave Test Platform (MWTP) chassis; the user can choose any configuration to fit up to 4x MW modules in 1x MultiWave Test Platform (MWTP).



Figure 5: MW8004-35-PLS Module



Figure 6: MW8004-70-PLS Module

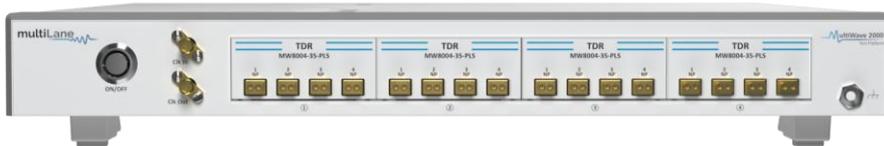


Figure 7: 4xMW8004-35-PLS in the MultiWave Test Platform (MWTP)



Figure 8: 4xMW8004-70-PLS in the MultiWave Test Platform (MWTP)

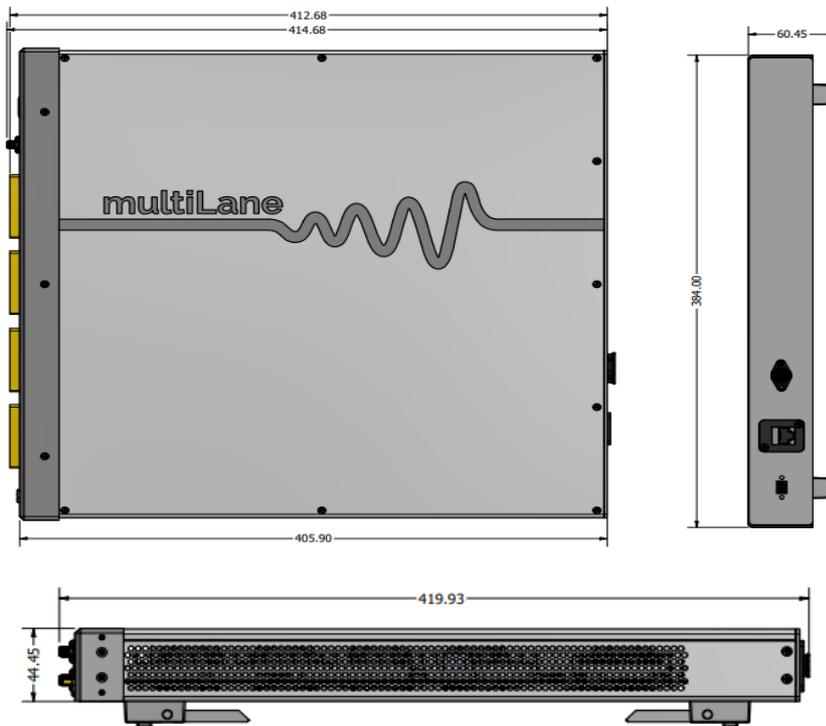


Figure 9: MultiWave Test Platform (MWTP) Outline

## Ordering Information

Option	Description
ML8004-35-PLS MW8004-35-PLS	10 ps incident rise- and fall-time TDR
ML8004-70-PLS MW8004-70-PLS	7 ps incident rise- and fall-time TDR
3YW	Total 3-year warranty

## Recommended Accessories

Instrument	Recommended QSFPDD to SMPM / SMPX Cable Assembly PN	Recommended OSFP to SMPM / SMPX Cable Assembly PN
ML8004-35-PLS MW8004-35-PLS	142-7046-516	142-7082-516
ML8004-70-PLS MW8004-70-PLS	142-7316-500	142-7316-000

Please contact us at [sales@multilaneinc.com](mailto:sales@multilaneinc.com)



OSFP to SMPM Cable Assembly



QSFP-DD to SMPM Cable Assembly



QSFP-DD to SMPS Cable Assembly



OSFP to SMPS 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.

