

T3SP15D Fact Sheet

Time Domain Reflectometer (TDR)

Calibrated True-Differential TDR

Rapid and Accurate Single-ended and Differential Impedance Profile Measurements

Two different mainframes available: T3SP15D, High-Resolution TDR
T3SP15D-XR, High Resolution, Extended range, optimized for cable manufacturing



Key Specifications

Model	T3SP15D	T3SP15D-XR
Impedance Profile	Yes, True Differential TDR and Single-Ended TDR	
Rise Time (20 % to 80 %)	35 ps	35 ps
Step Amplitude	150 mV @ 50 Ω	
Pulse Repetition Rate	1 MHz to 10 MHz	500 KHz to 10 MHz
Sampling Interval	10 ps	10 ps, 20 ps, 40 ps @optimized for acquisition time
Max Range Cable Length	30 m @ 1 MHz	50 m @ 500 KHz
Inter-Pair Skew	Yes, for Single-Ended and Differential Transmission Lines	
Intra-Pair Skew	Yes, for Differential Transmission Lines	
Impedance Profile Memory Trace	up to 50,000 points	
Battery Operated (B-models)	Yes	
Dimensions	220 x 210 x 82,5 mm	

Affordable Tools for Precision Debugging

- True Differential TDR and Single-ended TDR** – Best for cables, differential design and twisted pair.
 - ✓ Accurate Impedance measurements, no ground connection required for differential.
- 30 ps typ. Rise Time** – Less than 3 mm impedance measurement spatial resolution.
 - ✓ Precisely locate and detect geometry dimensions and dielectric variation of cables and transmission lines.
- Instant Cable and Connector Testing** – Verify the quality of your cables and connectors.
 - ✓ Detect even on your premium cables any imperfection that might be the root cause of measurement artifacts.
- Small Form Factor and Battery Powered** – Measure and analyze in the lab, factory floor or in the field.
 - ✓ Measure and analyze everywhere you go without an AC requirement.
- Inter-pair and intra-pair skew Measurements** – Automatically calculated from Impedance profile traces.
 - ✓ Inter-Pair skew is calculated when two single-ended or two differential measurements are selected. Intra-Pair skew is calculated when one differential measurement is selected.
- Up to 50,000 points long memory** – Long TDR response capture with high resolution.
 - ✓ Characterize up to 40 m long cables with more detailed measurement data.

For more information, please contact:



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Ordering information

Product Description	Product Code
Mainframes (T3SP15D)	
Differential High-Resolution TDR, 35 ps Rise Time, ESD protection, 2 phase matched 3.5 mm cables, 3.5 mm Cal. Kit, Aluminum Case, Sdd11 and S11, S21, S12 and S22	T3SP15D-BUNDLE
Differential High-Resolution TDR, 35 ps Rise Time, ESD protection, Internal Battery, 2 phase matched 3.5 mm cables, 3.5 mm Cal. Kit, Aluminum Case, Sdd11 and S11, S21, S12 and S22	T3SP15D-B-BUNDLE
Mainframes (T3SP15D-XR)	
Differential Extended Range, High-Resolution TDR, 35 ps Rise Time, ESD protection, 2 phase matched 3.5 mm cables, 3.5 mm Cal. Kit, Aluminum Case, Sdd11 and S11, S21, S12 and S22	T3SP15D-XR-BUNDLE
Differential Extended Range, High-Resolution TDR, 35 ps Rise Time, ESD protection, Internal Battery, 2 phase matched 3.5 mm cables, 3.5 mm Cal. Kit, Aluminum Case, Sdd11 and S11, S21, S12 and S22	T3SP15D-B-XR-BUNDLE
TDR probes (all mainframes)	
Differential TDR-Probe (high precision, 18 GHz, 0.5 – 5.0 mm variable pitch)	T3SP-DPROBE
Differential TDR-Probe (economic, 5 GHz, 2.5 or 5 mm fixed pitch)	T3SP-DPROBE-F
Single-ended TDR-Probe (fixed pitch 2.54 mm)	T3SP-SEPROBE-F
Single-ended TDR-Probe (high precision, 10 GHz, variable pitch)	T3SP-SEP
Accessories	
OSLT Calibration Kit 3.5MM with torque wrench, female*	T3SP-CALKIT-3.5MM
Phase Matched 3.5 mm cables (50 ± 1 Ohm, <1 ps skew)*	T3SP-CABLE-3.5MM
Storage and Travel Case (aluminum suitcase for TDRs and accessories)**	T3SP-CASE
Demo and Verification Board	T3SP-BOARD

* included with T3SP15D and T3SP15D-XR BUNDLE configurations

** included with all BUNDLE configurations

Standard warranty is one year (for warranty extension please contact Teledyne LeCroy Service)

Platform selection guide

Product Code	Max Cables Length	Main-frame and Phase Matched Cables	Calibration Kit and Torque wrench	Internal Battery	PCBs line impedance	MDI Auto-motive Ethernet	Inter-pair and intra-pair Skew	S-par (Sdd11 and S11, S21, S12 and S22)
T3SP15D-BUNDLE	30 m	Yes, 3.5 mm cables	Yes, 3.5 mm OSLT	No	Yes	Yes	Yes	Yes
T3SP15D-B-BUNDLE	30 m	Yes, 3.5 mm cables	Yes, 3.5 mm OSLT	Yes	Yes	Yes	Yes	Yes
T3SP15D-XR-BUNDLE	50 m	Yes, 3.5 mm cables	Yes, 3.5 mm OSLT	No	Yes	Yes	Yes	Yes
T3SP15D-B-XR-BUNDLE	50 m	Yes, 3.5 mm cables	Yes, 3.5 mm OSLT	Yes	Yes	Yes	Yes	Yes

T3SP15D-XR includes new time bases optimized for cable manufacturing

Pulse Repetition Rate	Sampling Interval	Acquisition Time (s)	Comments	T3SP15D	T3SP15D-XR
10 MHz	10 ps			Yes	Yes
5 MHz	10 ps			Yes	Yes
2 MHz	10 ps			Yes	Yes
1 MHz	10 ps	6.4 s		Yes	Yes
1 MHz	20 ps	0.8 s	@optimized for manufacturing	No	Yes
1 MHz	40 ps	0.4 s	@optimized for manufacturing	No	Yes
500 KHz	20 ps	3.2 s	@extended range (50 m) @optimized for manufacturing	No	Yes
500 KHz	40 ps	1.6 s	@extended range (50 m) @optimized for manufacturing	No	Yes