TELEDYNE TEST TOOLS
Everywhereyoulook™

T3HVD Voltage Probe Data Sheet

High Voltage Differential Probes

Debug with Confidence

7000 Volts, 200 MHz



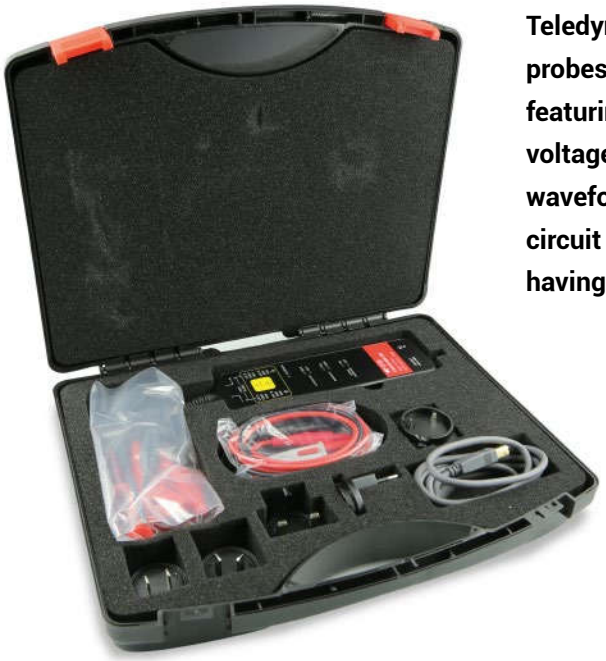
Tools for Improved Debugging

± 7000 V Differential signal input (DC + Peak AC).	Large measurement voltage range gives wide application coverage.
Input impedance up to 40 MΩ / ≤ 2.5 pF depending on model.	Low DUT loading for accurate measurements.
Wide DC to 200 MHz bandwidth.	Wide bandwidth enhances measurement capability and application coverage.
Combined single ended and differential measurement capability.	Make measurements on single ended and differential circuits without the need to change probes.
Use with any scope with a 1 MΩ input and BNC connector.	Compatible with all your Oscilloscopes.
High Common Mode Rejection Ratio of > 50 dB at 1 MHz, > 80 dB at DC.	Good CMRR figures for accurate measurements.
Includes wall socket 5 V / 1 A power supply.	All accessories included to enable immediate use.

Key Specifications

Maximum Differential Voltage	± 7000 V (DC + Peak AC)
3 Models Available	T3HVD1500-70, T3HVD1500-200, T3HVD7000-100
Bandwidth (-3 dB)	Up to 200 MHz
Rise Time	Up to < 1.75 ns
Differential Mode Input Impedance	Up to 40 MΩ / < 2.5 pF
Connectivity	BNC cable to Oscilloscope 1 MΩ input
Warranty	1 Year

T3HVD1500-70: 1500 V peak, 70 MHz
T3HVD1500-200: 1500 V peak, 200 MHz
T3HVD7000-100: 7000 V peak, 100 MHz



Teledyne Test Tools new T3HVD range of high voltage differential probes are wide bandwidth active differential voltage probes, featuring models with bandwidths up to 200 MHz bandwidth, voltages up to ± 7000 V (DC + Peak AC), fast and accurate waveform capture, measurement accuracy of ± 2 % and low test circuit loading. These probes can be used with any oscilloscope having a 1 MΩ BNC input.

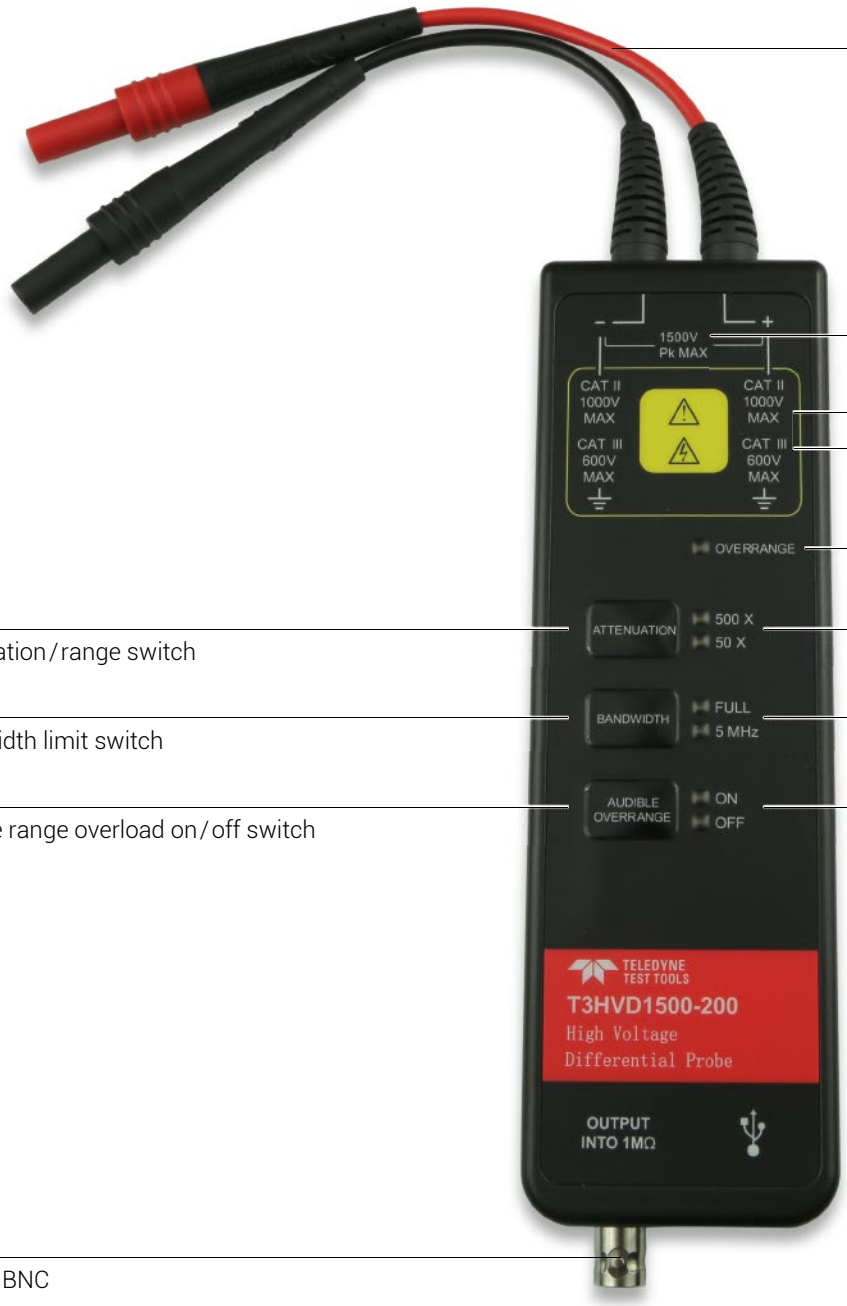
Key Features

- Accurate and easy voltage measurements.
- Wide 200 MHz bandwidth.
- Differential signal input of up to ± 7000 V (DC + Peak AC) depending on model.
- High differential input impedance of up to 40 MΩ / < 2.5 pF depending on model.
- Maximum common mode voltage of ± 7000 V.
- Combined single ended and differential measurement capability.
- Use with any scope with a 1 MΩ input and BNC connector.
- Over-Voltage alarm with dual indicators.
- Switchable bandwidth limit to reduce noise.

Applications

- Power electronics.
- Multi-phase motor drives (electric vehicles, etc).
- Inverters and power conversion.
- Domestic and industrial photo-voltaic (PV) system design.
- General vehicle electronics.
- Power supply design.
- Floating voltage measurements.
- Domestic appliances (washing machines, induction hobs, etc).
- Research and development.
- Universities, general electronics and education.

T3HVD PRODUCT DESCRIPTION



Measurement voltage input leads

Maximum measurable differential voltage

Maximum input voltage to earth

Overload indicator

Attenuation / range switch

Attenuation / range Indicator

Bandwidth limit switch

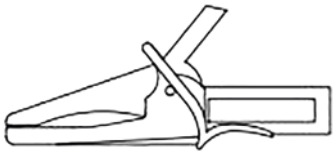
Bandwidth indicator

Audible range overload on / off switch

Audible range overload indicator

Output BNC

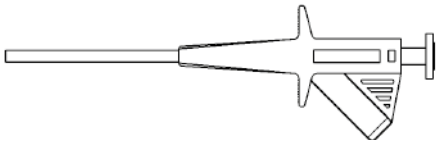
SUPPLIED ACCESSORIES



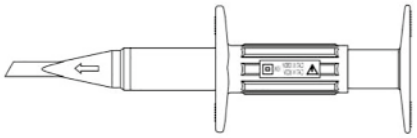
T3HVD1500-70 and T3HVD1500-200 Alligator Clips x 2



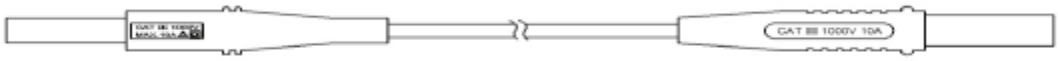
T3HVD7000-100 Alligator Clips x 2



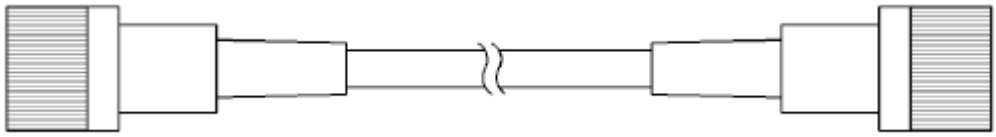
T3HVD Pincer Clips x 2



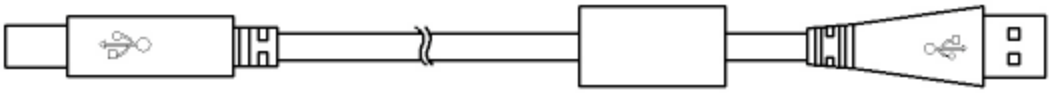
T3HVD Hook Clips x 2



1 m T3HVD Extender Leads x 2



1 m T3HVD BNC to BNC Cable x 1



1.5 m T3HVD USB A to B Power Cable x 1

- The T3HVD probe kit also includes a USB power supply (not pictured) that the T3HVD USB A to B Power Cable can connect to.
- The T3HVD Extender Leads and the T3HVD BNC to BNC Cable are 1 m long each.
- The T3HVD USB A to B Power Cable is 1.5 m long.

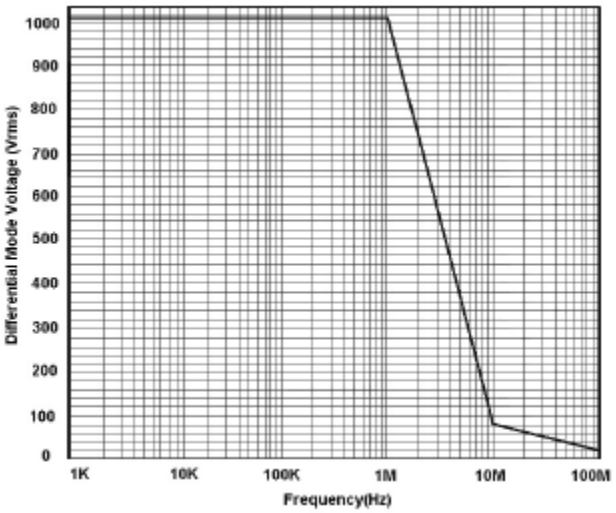
Item		T3HVD1500-70	T3HVD1500-200	T3HVD7000-100
Alligator Clips[1)]	x 2	CAT III 1000 V / CAT IV 600 V		
Pincer Clips	x 2	CAT III 1000 V		
Hook Clips	x 2	CAT III 1000 V		
Extender Leads	x 2	1 m, CAT III 1000 V		
BNC to BNC Cable	x 1	1 m		
USB Power Cable	x 1	1.5 m		
Power Adapter	x 1	USB 5 V / 1 A		
Probe Dimensions		195 mm x 65 mm x 28 mm		
Probe Weight		216 g		
Input Lead Length		28 cm	17 cm	28 cm

[1)] Alligator Clip type depends on probe model, see accessory diagrams on page 4.

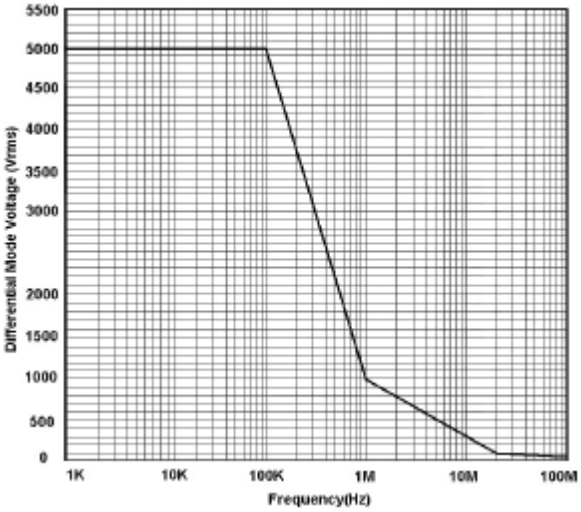
SPECIFICATIONS

Specification		T3HVD1500-70 & T3HVD1500-200		T3HVD7000-100	
Bandwidth (-3 dB)		T3HVD1500-70	70 MHz	100 MHz	
		T3HVD1500-200	200 MHz		
Rise Time		T3HVD1500-70	≤ 5 ns	≤ 3.5 ns	
		T3HVD1500-200	≤ 1.75 ns		
Accuracy		± 2 %		± 2 %	
Attenuation / Range Selection		50 x / 500 x		100 x / 1000 x	
Maximum Differential Voltage (DC + Peak AC)		50 x	± 150 V	100 x	± 700 V
		500 x	± 1500 V	1000 x	± 7000 V
Common Mode Voltage (DC + Peak AC)		± 1500 V		± 7000 V	
Maximum Input Voltage To Earth (V rms)		CAT II 1000 V / CAT III 600 V		CAT I 2300 V / CAT III 1000 V	
Input Impedance	Single Ended To Ground	5 MΩ, < 4 pF		20 MΩ, 5 pF	
	Between Inputs	10 MΩ, < 2 pF		40 MΩ, 2.5 pF	
CMRR	DC	> 80 dB		> 80 dB	
	100 kHz	> 60 dB		> 60 dB	
	1 MHz	> 50 dB		> 50 dB	
Noise (Vrms)		50 x	< 50 mV	100 x	< 200 mV
		500 x	< 300 mV	1000 x	< 1.2 V
Differential Overvoltage Detection Level		50 x	≥ 150 V	100 x	≥ 700 V
		500 x	≥ 1500 V	1000 x	≥ 7000 V
Propagation Delay	Probe	Approximately 9 ns			
	1 m BNC to BNC Cable	Approximately 5 ns			
Bandwidth Limit Filter		≥ -3 dB at 5 MHz			
Probe Termination Load		≥ 100 kΩ			
Power Supply		USB 5 V / 1 A Wall Socket Adapter			
Safety Standard		EN61010-1: 2010			
EMC Standard		EN61326-1: 2013, EN61000-3-2: 2006 + A1: 2009 + A2: 2009, EN61000-3-3: 2013			

SPECIFICATIONS



T3HVD1500-70 and T3HVD1500-200
Maximum Differential Mode Voltage Verses Frequency



T3HVD7000-100
Maximum Differential Mode Voltage Verses Frequency

Environmental	T3HVD1500-70	T3HVD1500-200	T3HVD7000-100
Operating Temperature	0 °C – 50 °C		
Storage Temperature	-30 °C – 70 °C		
Operating Humidity	≤ 85 % Relative Humidity		
Storage Humidity	≤ 90 % Relative Humidity		
Operating Altitude	3000 m		
Storage Altitude	12000 m		

Ordering information

Description	± 1500 V, DC to 70 MHz Differential Probe		**T3HVD1500-70**
	± 1500 V, DC to 200 MHz Differential Probe		**T3HVD1500-200**
	± 7000 V, DC to 100 MHz Differential Probe		**T3HVD7000-100**
Supplied Accessories	Alligator Clips	x 2	
	Pincer Clips	x 2	
	Hook clips	x 2	
	Extender Leads	x 2	
	BNC Output Cable	x 1	
	USB Power Cable	x 1	
	Wall Socket USB Power Supply	x 1	
	Instruction Manual	x 1	
	Calibration Report	x 1	

ABOUT TELEDYNE TEST TOOLS

TELEDYNE TEST TOOLS
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Company Profile

Teledyne LeCroy is a leading provider of oscilloscopes, protocol analyzers and related test and measurement solutions that enable companies across a wide range of industries to design and test electronic devices of all types. Since our founding in 1964, we have focused on creating products that improve productivity by helping engineers resolve design issues faster and more effectively. Oscilloscopes are tools used by designers and engineers to measure and analyze complex electronic signals in order to develop high-performance systems and to validate electronic designs in order to improve time to market.

The Teledyne Test Tools brand extends the Teledyne LeCroy product portfolio with a comprehensive range of test equipment solutions. This new range of products delivers a broad range of quality test solutions that enable engineers to rapidly validate product and design and reduce time-to-market. Designers, engineers and educators rely on Teledyne Test Tools solutions to meet their most challenging needs for testing, education and electronics validation.

Location and Facilities

Headquartered in Chestnut Ridge, New York, Teledyne Test Tools and Teledyne LeCroy has sales, service and development subsidiaries in the US and throughout Europe and Asia. Teledyne Test Tools and Teledyne LeCroy products are employed across a wide variety of industries, including semiconductor, computer, consumer electronics, education, military/aerospace, automotive/industrial, and telecommunications.

Distributed by:

Teledyne LeCroy (US Headquarters)

700 Chestnut Ridge Road
Chestnut Ridge, NY. USA 10977-6499

Phone:	800-553-2769 or 845-425-2000
Fax Sales:	845-578-5985
Phone Support:	1-800-553-2769
Email Sales:	contact.corp@teledynelecroy.com
Email Support:	support@teledynelecroy.com
Web Site:	http://teledynelecroy.com/

Teledyne LeCroy (European Headquarters)

Teledyne GmbH
Im Breitspiel 11c
D-69126 Heidelberg, Germany

Phone:	+49 6221 82700
Fax:	+49 6221 834655
Phone Service:	+49 6221 8270 85
Phone Support:	+49 6221 8270 28
Email Sales:	contact.gmbh@teledynelecroy.com
Email Service:	service.gmbh@teledynelecroy.com
Email Support:	tlc.t3.appsupport.eu@teledyne.com
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T3 stands for Teledyne Test Tools.

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