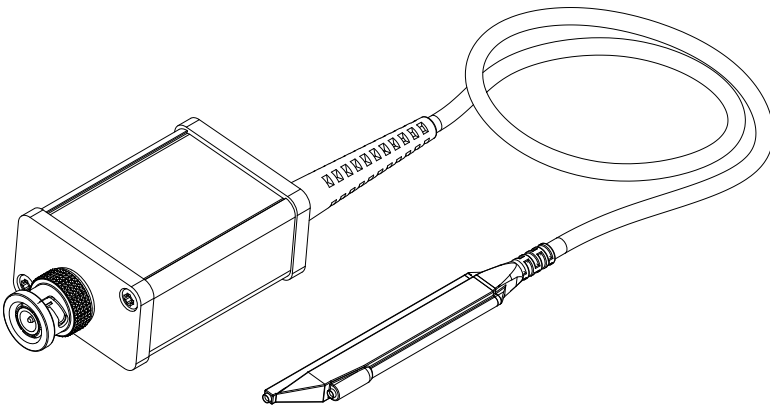


TETRIS[®] 1500

High Impedance Active Probe

User's Guide



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Warranty

Pico Technology warrants this oscilloscope accessory for normal use and operation within specifications for a period of two years from date of shipment and will repair or replace any defective product which was not damaged by negligence, misuse, improper installation, accident or unauthorized repair or modification by the buyer. This warranty is applicable only to defects due to material or workmanship. Pico Technology disclaims any other implied warranties of merchantability or fitness for a particular purpose. Pico Technology will not be liable for any indirect, special, incidental, or consequential damages (including damages for loss of profits, loss of business, loss of use or data, interruption of business and the like), even if Pico Technology has been advised of the possibility of such damages arising from any defect or error in this manual or product.

Declaration of Conformity



(EC conformity marking)

The manufacturer declares the conformity of this product with the actual required safety standards in accordance with the Low Voltage Directive (LVD) 2006/95/EC:

IEC 61010-031:2002

Safety requirements for electrical equipment
for measurement, control and laboratory use -

Part 031:

Safety requirements for hand-held probe
assemblies for electrical measurement and test

WEEE/RoHS Directives



(EC conformity marking)

This electronic product is classified within the WEEE/RoHS* category list as monitoring and control equipment (category 9). Category 9 products are exempted from the restrictions under the scope of the RoHS directive.

Your help and efforts are required to protect and keep clean our environment. Therefore return this electronic product at the end of its life either to the manufacturer or take care of separate WEEE collection and professional WEEE treatment yourself.
Do not dispose as unsorted municipal waste!

* EC Directives:

WEEE Directive 2002/96/EC

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RoHS Directive 2002/95/EC

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Waste Electrical and Electronic Equipment
Restriction of the use of certain Hazardous
Substances in Electrical and Electronic
Equipment.

Safety

General Safety

Please review the following safety precautions to avoid personal injury and prevent fire or damage to this product or products connected to it. Be aware that if you use this probe assembly in a manner not specified the protection this product provides may be impaired. Review and comply with the following safety precautions:

- Only qualified personnel should use this probe assembly.
- DO connect and disconnect properly.
Connect the probe output to the measurement instrument and connect the ground lead to earth ground before connecting the probe to the circuit under test.
Disconnect the probe input and the probe ground lead from the circuit under test before disconnecting the probe from the measurement instrument.
- DO observe probe ratings.
Do not apply any electrical potential to the probe input which exceeds the maximum ratings of the probe.
Make sure to comply with the voltage versus frequency derating curve on page 7.
- DO keep away from live circuits.
Avoid open circuitry. Do not touch connections or components when power is present.
- DO NOT connect the probe ground lead to a potential other than earth ground
Use only grounded instruments. Always make sure the probe and the measurement instrument are grounded properly.
- DO NOT operate with suspected failures.
Refer to qualified service personnel.
- DO NOT use outdoors.
This product is for indoor use only. Do not operate in wet/damp environment.
Keep product surfaces dry and clean.
- DO NOT operate this product in an explosive atmosphere.

Symbols

The following symbols may appear on the product or in this instruction manual:



Caution, risk of danger. Refer to manual



Caution, risk of electric shock



Earth (ground) terminal

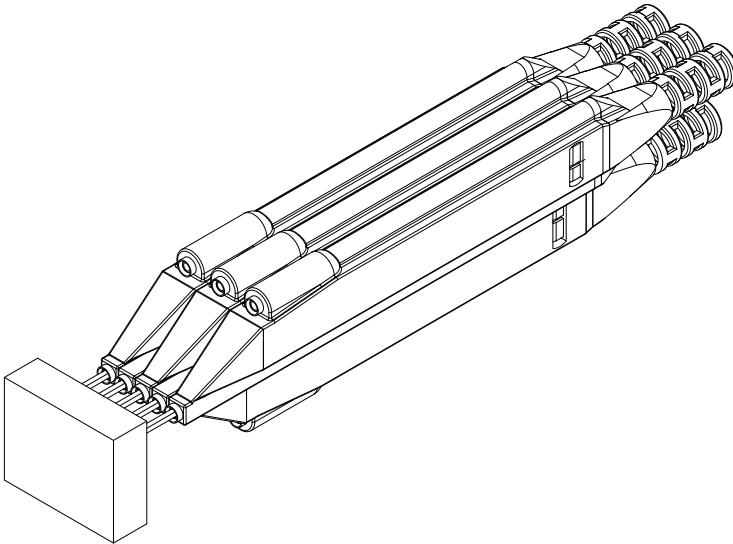
1. About the Tetris Active Probe System

Pico Technology presents a unique Inline Probing System – the TETRIS[®] active probe. The unique design of the TETRIS active probe allows for contact to adjacent square pins in 2.54 mm pitch simultaneously. This is possible due to the probe's housing being T-shaped and allowing many probes to be positioned next to each other, permitting multiple measurements to be taken at the same time.

The TETRIS is independent of any particular system, and with its standard BNC connector it can be plugged onto any measuring instrument with a 50 Ω input.

With an input resistance of 1 M Ω and an input capacitance of 0.9 pF the TETRIS probe is suitable for measurements in all frequency ranges. Compared to passive probes the TETRIS active probe offers a high input impedance into the GHz-range. Passive probes with their relative high input capacitance load the signal source already at frequencies above 100 kHz.

This is why the TETRIS active probe with its high input resistance and its low input capacitance is the ideal probe for most of your daily measurements.



TETRIS[®] 1500 testing adjacent pins in 2.54 mm Pitch

2. Operating Basics

When using this active probe device make sure the measuring instrument is set to 50 Ω input coupling and the probe is connected to the power supply.

Note: If the measuring instrument does not have 50 Ω coupling, an external 50 Ω terminator can be used (such as a TA051) however, the system bandwidth may be reduced.

3. Handling



The probe cable is a sensitive part of the probe. Do not risk damage through excessive bending or pulling of the cable. Avoid mechanical shock to this product in general to guarantee accurate performance and protection.

4. Maintenance

Cleaning

To clean the exterior of the probe use a soft cloth moistened with either distilled water or isopropyl alcohol.



Allow the probe to dry completely before use.

5. Specifications

Specifications that are not defined as "guaranteed" are typical and are published as general information for the user. The instrument should have warmed up for at least 20 minutes prior to use, and the environmental conditions should not exceed the probe's specified limits.

Electrical Specifications

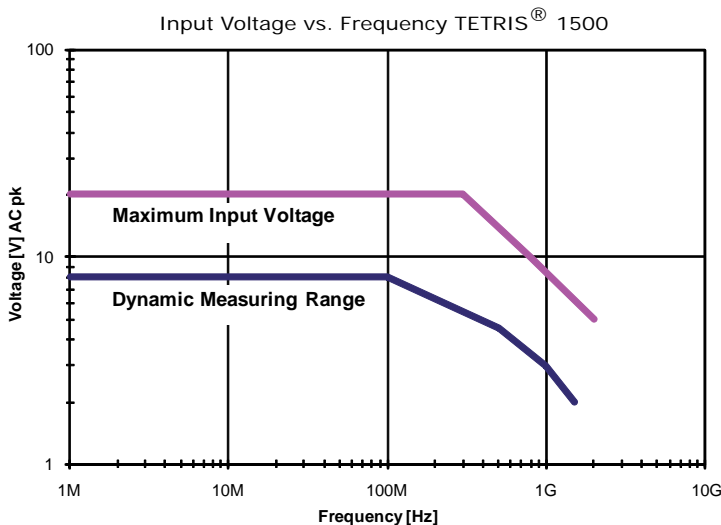
Attenuation Ratio	10:1	± 0.5 % at DC
Dynamic Measuring Range	± 8 V	
System Bandwidth ⁽¹⁾	1 GHz	(-3 dB)
Bandwidth (Probe only)	1.5 GHz	
Maximum Rated Input Voltage	20 V	

Max. Input Voltage and Dynamic Measuring Range

The TETRIS active probe is protected against electrostatic discharge (ESD). Applying input-voltages outside the specified limits can result in destruction of the probe's amplifier.



Make sure you comply with the input voltage vs. frequency chart below to avoid input linearity errors and damage to the probe. Note that the max input voltage rating of the probe decreases as the frequency of the applied signal increases.

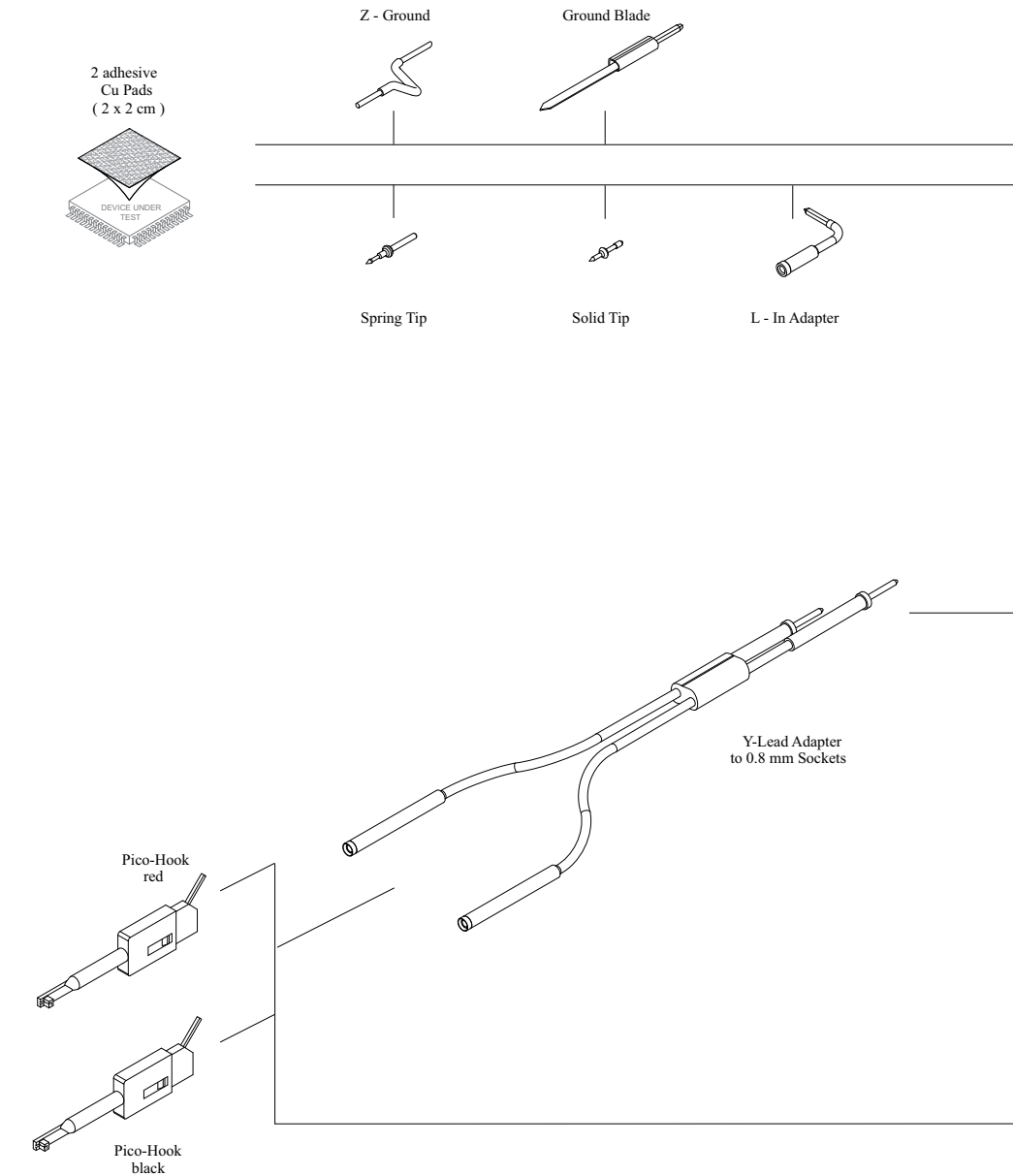


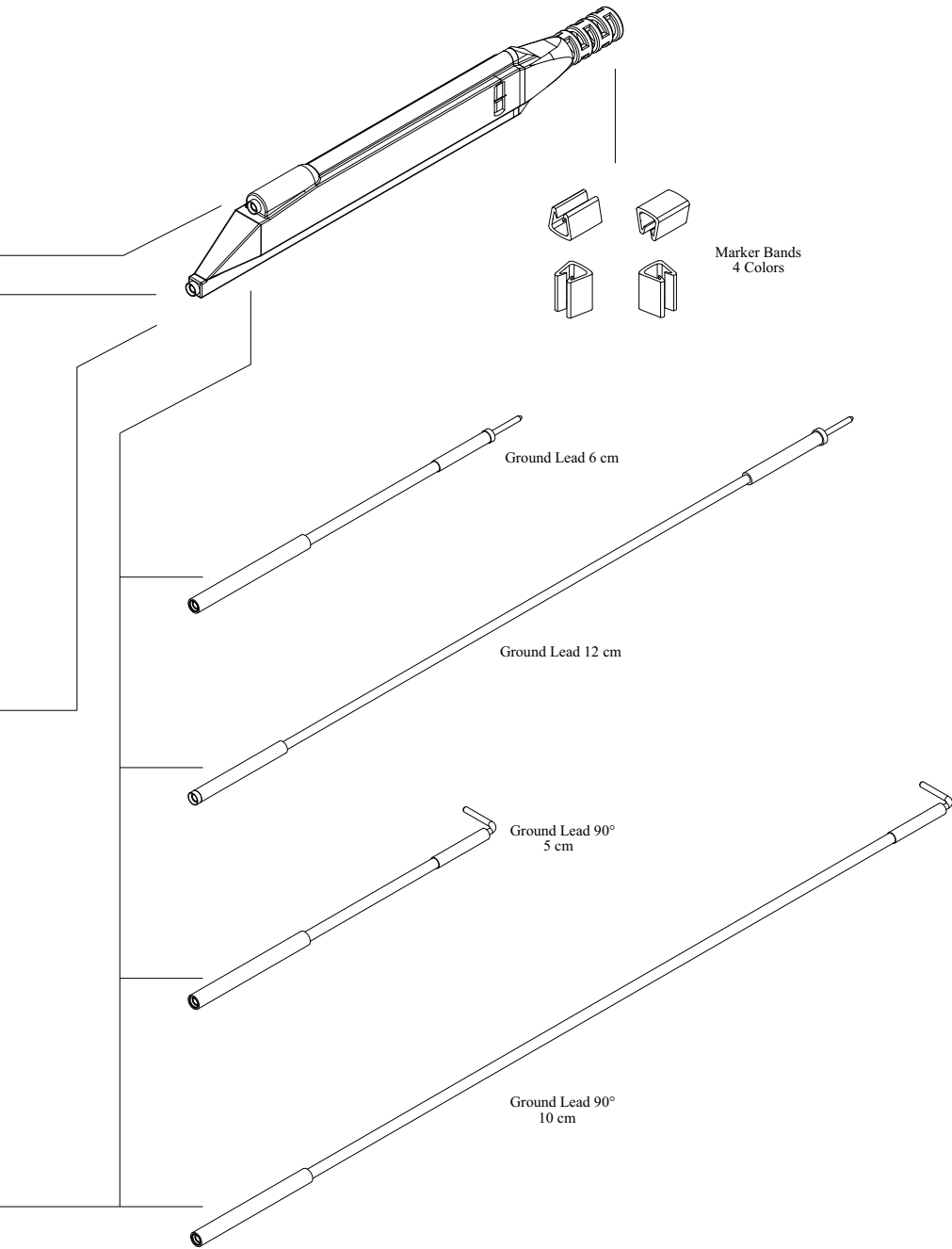
Electrical Characteristics

Input Resistance (System)	> 1 MΩ	
Input Capacitance (System)	0.9 pF	(typical)
Oscilloscope Input Coupling	50 Ω AC / DC	

(1) connected to oscilloscope >1 GHz with built in 50 Ω termination.

6. Accessories Included



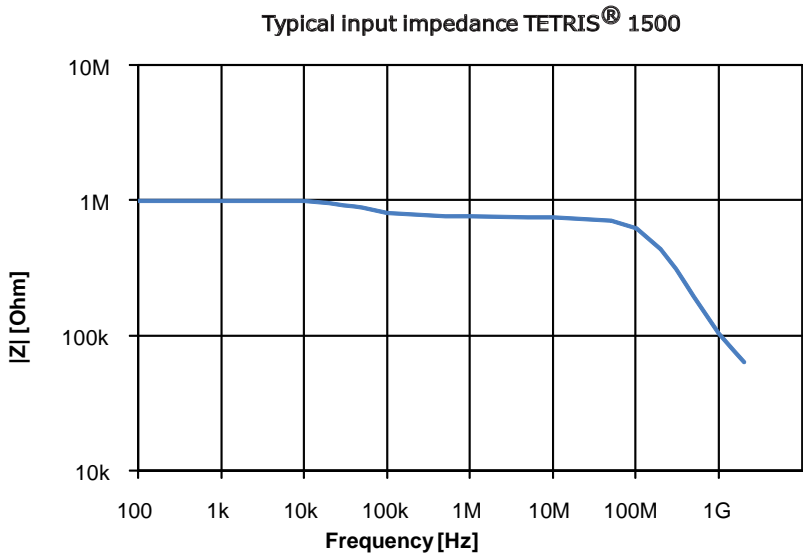


7. Specifications

Input Impedance



Note that the input impedance of the probe decreases as the frequency of the applied signal increases.



Mechanical Characteristics

Weight (probe only)	96 g
Cable Length	1.3 m

Environmental Specifications

Altitude	Operating	up to 2000 m
	Non-operating	up to 15000 m
Temperature Range	Operating	0° C to +45° C
	Non-operating	-40° C to +71° C
Maximum Relative Humidity	Operating	80 % relative humidity for temperatures up to +31°C, decreasing linearly to 40 % at +50° C

8. Scope of Delivery

The following items are included in the scope of delivery. Please check the delivery for completeness. If any item is missing, send a message to our help desk and we will send you this item immediately.

Item	Qty
Ground Blade	1
Ground Lead 6 cm	1
Ground Lead 12 cm	1
Ground Lead 90° 5 cm	1
Ground Lead 90° 10 cm	1
Instruction Manual	1
L-In Adapter	1
Marker Bands 4 colors	1
Pico-Hook black	1
Pico-Hook red	1
Power Supply	1
Probe	1
Protection Cap 2.5	1
Self adhesive Cu Pad (2 x 2 cm)	2
Solid Tip 0.5 mm	1
Spring Tip 0.5 mm	1
Y-Lead Adapter to 0.8mm sockets	1
Z-Ground	1



Use ground lead only for connections to earth ground.



*The accessories provided with the probe have been safety tested. Do not use any other accessories than those **originally** provided.*

Revision History

<i>Revision#</i>	<i>Date</i>	<i>Reason</i>
1	July 2010	First issue

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