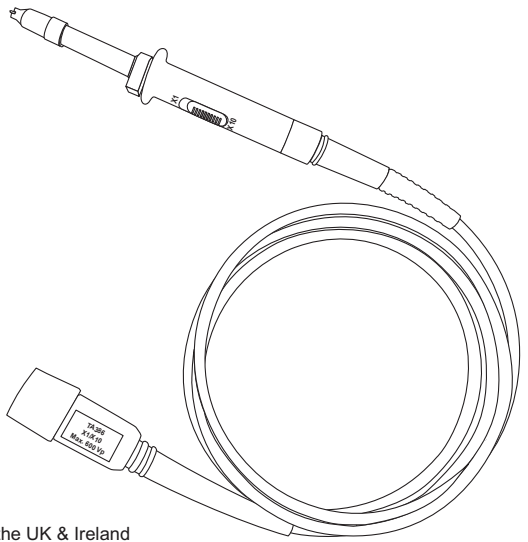
pico®
Technology

☐ TA375 100 MHz oscilloscope probe
☐ TA386 200 MHz oscilloscope probe

User's Guide



Distribution in the UK & Ireland

Introduction

This passive high-impedance oscilloscope probe is suitable for most oscilloscopes with a 1 MΩ input impedance. The probe incorporates a two-position slide switch in the head that selects attenuation of 1:1 or 10:1.

Warranty

Pico Technology Ltd. ("Pico") warrants this oscilloscope accessory for normal use and operation within specifications for a period of one year 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 disclaims any other implied warranties of merchantability or fitness for a particular purpose. Pico 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 has been advised of the possibility of such damages arising from any defect or error in this manual or product.

Disposal

Your help and efforts are required to protect and keep our environment clean. Therefore either return this product at the end of life to the manufacturer or ensure WEEE compliant collection and treatment yourself.

Safety information

To prevent possible electrical shock, fire, personal injury, or damage to the product, carefully read this safety information before attempting to install or use the product. In addition, follow all generally accepted safety practices and procedures for working with and near electricity.

The product has been designed and tested in accordance with the European standard publication EN 61010-031:2015 *(Hand-held probe assemblies)* and left the factory in a safe condition.

The following safety descriptions are found throughout this guide:

A **WARNING** identifies conditions or practices that could result in injury or death.

A **CAUTION** identifies conditions or practices that could result in damage to the product or equipment to which it is connected.

Symbols

These safety and electrical symbols may appear on the product or in this guide:

Symbol	Description
	Direct current
	Earth (ground) terminal
	Possibility of electric shock
	Caution
	Do not dispose of this product as unsorted municipal waste.

Terminal can be used to make a measurement ground connection. The terminal is NOT a safety or protective earth.

Appearance on the product indicates a need to read these safety and operation instructions.

WARNING

To prevent injury or death, use the product only as instructed and use only accessories that have been supplied or recommended. Protection provided by the product may be impaired if used in a manner not specified by the manufacturer.

Maximum input ratings

The table and frequency derating plot below indicate the full-scale measurement range and overvoltage protection range for these probes. The full-scale measurement ranges are the maximum voltages that can be accurately measured by the probe. The overvoltage protection ranges are the maximum voltages that will not damage the probe.

WARNING

To prevent electric shock, do not attempt to measure voltages outside of the specified full-scale measurement range.

Attenuation switch position	Full-scale measurement range	Overvoltage protection range
X10	600 V (DC + peak AC)	600 V (DC + peak AC)
X1	42.4 V (DC + peak AC)	200 V (DC + peak AC)

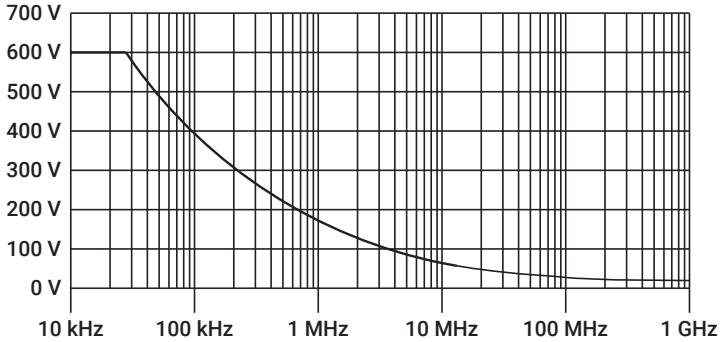
WARNING

Signals exceeding the voltage limits in the table below are defined as "hazardous live" by EN 61010.

Signal voltage limits of EN 61010-031:2015		
± 60 V DC	30 V AC RMS	± 42.4 V peak max.

To prevent electric shock, take all necessary safety precautions when working on equipment where hazardous live voltages may be present.

WARNING
To avoid overloading the probe, note that its maximum input voltage rating decreases as the frequency of the applied signal increases.



Voltage rating (V peak max.) v frequency curve

CAUTION
Do not exceed the voltage rating marked on any accessory. If an accessory is not marked with a voltage rating on either the connector, cable or body, or if a protective finger guard is removed, do not exceed the EN 61010 “hazardous live” limits above.

WARNING
To prevent injury or death, do not connect the probe directly to the mains (line power).

WARNING
To prevent injury or death, do not use the probe or an accessory if it appears to be damaged in any way, and stop use immediately if you are concerned by any abnormal operations.

CAUTION
Exceeding the voltage rating of any cable, connector or accessory can cause permanent damage to the probe and other connected equipment.

Grounding

WARNING
The probe's ground connection through the BNC connector is for measurement purposes only. The probe does not have a protective safety ground.

Never connect the ground input to any electrical power source. To prevent personal injury or death, use a voltmeter to check that there is no significant AC or DC voltage between the probe ground and the point to which you intend to connect it.

CAUTION
Applying a voltage to the ground input is likely to cause permanent damage to the probe and other connected equipment.

It is good practice to connect the probe output to the measurement instrument and 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.

External connections

CAUTION
Take care to avoid mechanical stress or tight bend radii for all connected leads, including all coaxial leads and connectors. Mishandling will cause deformation and will degrade performance and measurement accuracy.

Environment

WARNING
To prevent injury or death, do not use in wet or damp conditions, or near explosive gas or vapor.

CAUTION
To prevent damage, always use and store your probe in appropriate environments.

	Storage	Operating
Temperature	−20 to +60 °C	0 to +50 °C
Max. humidity (non-condensing)	0 to 90 %RH	0 to 80 %RH
Max. altitude	15 000 m	2 000 m
Pollution degree (IEC 61010-031)	2 (Non-conductive pollution with occasional temporary conductivity due to condensation.)	

Care of the product

The probe contains no user-serviceable parts. Repair, servicing and calibration require specialized test equipment and must only be performed by Pico or an approved service provider. There may be a charge for these services unless covered by the Pico one-year warranty.

Inspect the probe and all connectors, cables and accessories before use for signs of damage.

WARNING
To prevent electric shock do not tamper with or disassemble the probe, case parts, connectors or accessories.

CAUTION
When cleaning the product, use a soft cloth and a solution of mild soap or detergent in water. To prevent electric shock, do not allow liquids to enter the probe casing, as this will compromise the electronics or insulation inside.

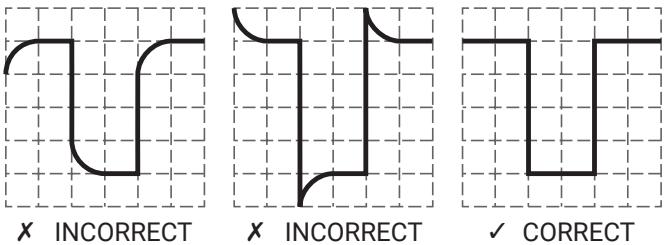
Avoid mechanical shock to the probe in general to guarantee accurate performance and protection.

To avoid injury from the sharp tip, handle with care.

Frequency compensation

Before taking any measurements using the probe, first check its compensation and adjust it to match the channel inputs.

Connect the probe to a 2 V pk-pk, 1 kHz square wave source. Most PicoScope oscilloscopes have a signal generator output marked GEN or AWG, or a probe CAL pin, which you can configure to generate such a signal. Set the switch on the probe to the X10 position. Adjust the trimmer until you see a flat-top square wave on the display:



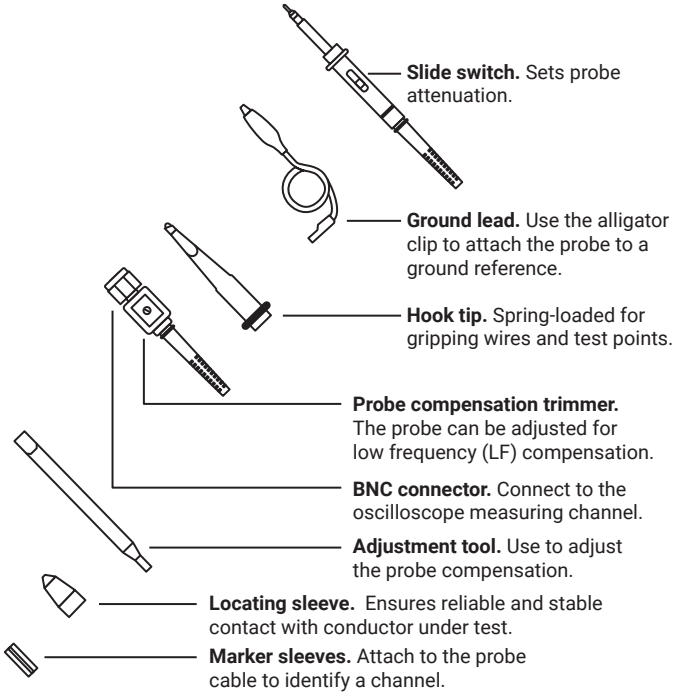
Accessories and features

The probe is provided with several accessories designed to make probing and measurement simpler. Please take a moment to familiarize yourself with these accessories and their uses.

Accessories included	TA375	TA386
Retractable hook tip	1	1
Ground lead	1	1
Adjustment tool	1	1
Tip insulating sleeve	1	1
Cable marker	2	8

Optional accessories

Order code	Description
TA384	Replacement rigid probe tips for TA375 and TA386, pack of 5
TA385	Replacement spring probe tips for TA375 and TA386, pack of 5



WARNING
All accessories are safety-tested. Replace only with Pico accessories.

Specifications

Probe characteristics	TA375		TA386	
Slide switch position	X1	X10	X1	X10
Attenuation ratio	1:1	10:1	1:1	10:1
Attenuation accuracy	±2%			
Bandwidth	10 MHz	100 MHz	10 MHz	200 MHz
Rise time (calculated)	35 ns	3.5 ns	35 ns	1.75 ns
Input resistance	1 MΩ*	10 MΩ ± 2%	1 MΩ*	10 MΩ ± 2%
Input capacitance	57 pF + C_S**	15 pF	57 pF + C_S**	15 pF
Max. working voltage	42.4 V pk	600 V pk	42.4 V pk	600 V pk
Compensation as shipped		15 pF		15 pF
Compensation range		10 to 35 pF		10 to 35 pF
Total length	1.2 m nominal			
Weight	About 55 g			

* equal to input resistance of oscilloscope

** scope capacitance

Distribution in the UK & Ireland

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