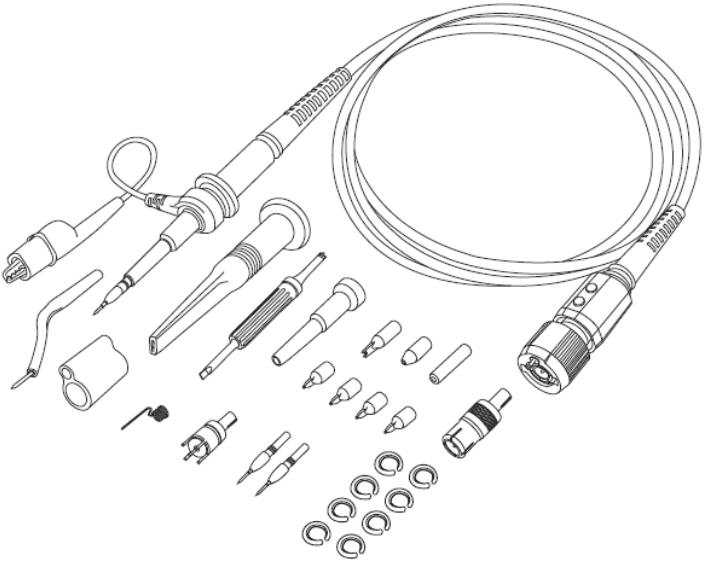
TELEDYNE LECROY
Everywhereyoulook™



User Manual

PP022
Passive Probe

TELEDYNE LECROY
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PP022 Passive Probe Instruction Manual

937458-00 Rev A
pp022-user-manual.pdf
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Introduction

Teledyne LeCroy PP022 is a passive high impedance voltage oscilloscope probe designed and calibrated for use with general purpose oscilloscopes having an input impedance of 1 MΩ and can be compensated for use with instruments having an input capacitance between 10 and 20 pF. It is compatible with oscilloscopes that automatically detect probe attenuation and adjust their readout accordingly.

To avoid electric shock, keep fingers behind the probe's finger guard during use.

Rated for indoor use only. Do not operate where conductive pollutants may be present.

The probe meets the intent of the European Council Directives 2014/35/EU and is compliant with EN IEC 61010-031:2023, Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 031: Safety requirements for hand-held and hand-manipulated probe assemblies for electrical test and measurement. Unless otherwise specified, all materials and processes are compliant with European Council RoHS Directive 2011/65/EU in its entirety, inclusive of any further amendments or modifications of said Directive.

The probe conforms to all applicable United Kingdom standards.

Unless otherwise specified, all materials and processes are compliant with the latest requirements of China RoHS 2.

Specifications

To reduce risk of fire or electric shock, do not exceed the voltage or category ratings of the probe. See voltage derating curve on p.3.

Model	Attn.	Input Imped.		B/W	Rise Time	Length	Compensation Range
		R (MΩ)	C (pF)	(MHz)	(ps)	(m)	(pF)
PP022	10x	10	10	500	700	1.3	10 - 20

Attenuation Ratio..... 10:1 ± 1%

Max. Input Voltage ..... Circuits not directly connected to Mains: 500 Vrms,
..... 1500 V transient overvoltage

..... Measurement Category II*: 400 Vrms

Pollution Degree ..... Pollution Degree 2*

Operating Altitude..... Up to 3000 meters

Max. Operating Temp.. 0° C to +50° C

Humidity..... 5% to 95% RH (10 to 30 °C)
..... 5% to 75% RH (30 to 40 °C)
..... 5% to 50% RH (above 40 °C)
..... RH not controlled below 10 °C

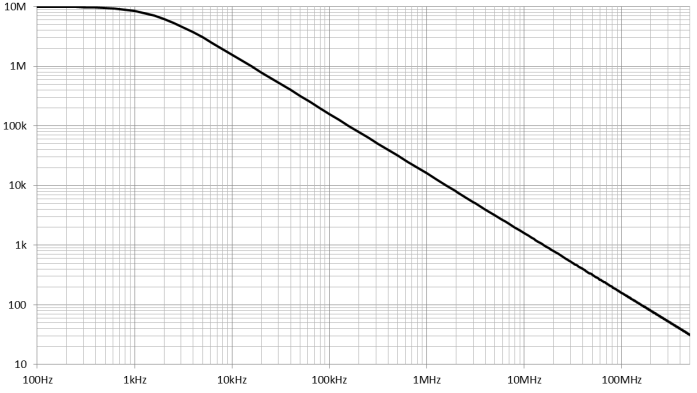
* Per EN IEC 61010-031:2023. See definitions below.

Definitions

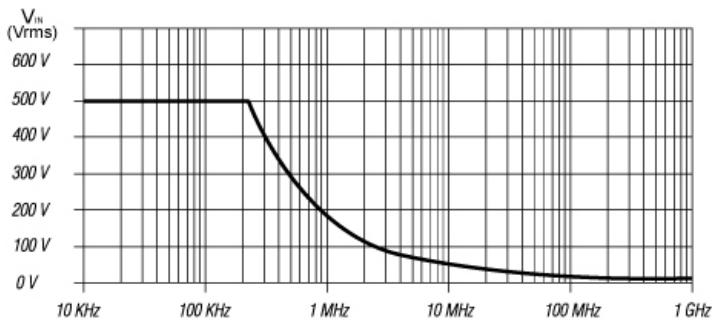
Measurement Category II (CAT II) refers to measurements performed on circuits directly connected to utilization points (socket outlets and similar) of the low-voltage mains installation.

Pollution Degree 2 refers to an operation environment where normally only dry non-conductive pollution occurs. Temporary conductivity caused by condensation should be expected.

PP022 Input Impedance Profile



Voltage vs. Frequency Derating Curve



General Safety Information

Observe generally accepted safety procedures in addition to those listed here to avoid personal injury or damage to equipment. The overall safety of any system incorporating this accessory is the responsibility of the assembler of the system.

Use only with compatible Teledyne LeCroy instruments with BNC frame connected to earth ground.

Use only with compatible accessories.

Do not connect to or disconnect from a live voltage source.

Do not overload. Do not apply any potential that exceeds the maximum rating of the probe.

Comply with the voltage derating curve in the probe manual.

Observe all terminal ratings marked on the body of the oscilloscope.

Use indoors only. Comply with safe operating conditions listed above. Do not use in wet or explosive atmospheres.

Handle with care. Probe tips may be sharp and can cause injury.

When present, keep fingers behind probe finger guard.

Keep probe surfaces clean and dry. Clean only with a soft cloth and water or weak isopropyl alcohol solution. Do not use harsh or abrasive cleansers. Do not submerge probe or allow moisture to penetrate it.

Except for adjustments (when available), do not remove the probe casing. Consult the probe manual for proper adjustment procedures.

Do not use with suspected failures. Inspect the probe, cable and leads before use and if any part appears worn or damaged, cease operation immediately and secure the probe from inadvertent use.

Cleaning

- Clean only the exterior of the probe, cables, and accessories. Use a soft cotton cloth moistened with a mild detergent and water solution. Do not allow any portion of the probe to be submerged at any time.
- Dry the probe and accessory thoroughly before attempting to make any voltage measurement.
- Do not subject the probe to solvents or solvent fumes as these can cause deterioration of the probe body, cables, and accessories.

Disposal

The probe complies with the applicable European Union requirements to Directives 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE). For information about proper disposal, see: teledynelecroy.com/recycle.

Service

Refer all repairs to qualified service personnel. Contact Teledyne LeCroy at the following address to arrange to return the probe for service:

Teledyne LeCroy, Inc.
700 Chestnut Ridge Road
Chestnut Ridge, NY, 10977-6499
Ph: 800-553-2769 or 845-425-2000
Fax: 845-578-5985
contact.corp@teledynelecroy.com

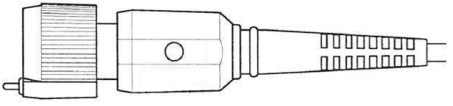
For the most complete and up-to-date list of sales and service centers by country, visit teledynelecroy.com/support/contact.

Probe Compensation

Proper compensation of the probe is required to assure amplitude accuracy of the waveform being measured by matching the probe to the oscilloscope's input capacitance. Compensation should be adjusted whenever the probe is connected to or transferred between oscilloscopes.

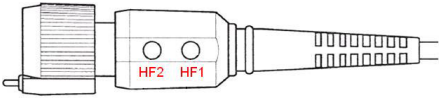
Low Frequency

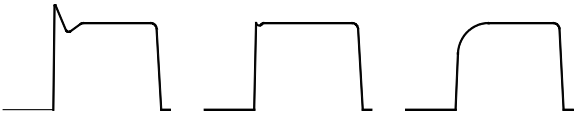
1. Apply a 1 kHz square wave to the probe or connect to the oscilloscope's calibrator output.
2. Adjust the single LF trimmer located on the PP022 BNC Compensation Box until you achieve a flat-topped square wave.



High Frequency

1. Apply a 1 MHz square wave to the probe (< 0.7 ns rise-time).
2. Remove the plastic caps from the two, HF trimmers on the PP022 BNC Compensation Box.
3. Adjust HF2 then HF1 until you achieve a flat-topped square wave.





Over-compensated, correct, and under-compensated waveforms

Probe Accessories

Probe Tips

Both the rigid probe tip and the spring tip can be screwed on to the probe body by hand.

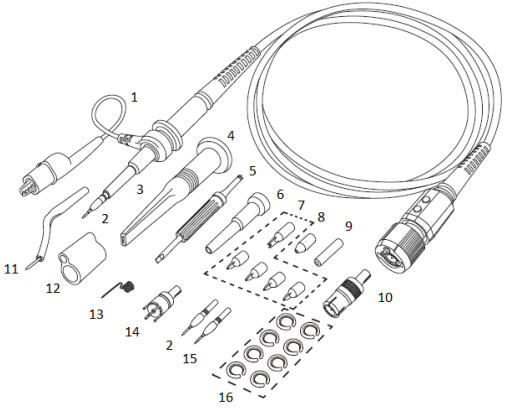
Be sure not to overtighten the tips to avoid damaging the threads.

Ground Accessories

The ground lead and the short collar are attached to the probe at the time of shipping. To replace the ground lead with the swivel lead adapter, unscrew the short collar from the probe and remove the ground lead. Replace the short collar to hold the swivel lead adapter in place.

Alternatively, the long collar can be pushed onto the probe body and used in conjunction with the ground spring, BNC adapter or PCB adapter.

Replaceable Parts



Item	Part Number	Description	QTY
1	PK5-2.5MM-101	Ground Lead with Alligator Clip	1
2	PK5-2.5MM-102	Rigid Probe Tip (1 installed standard)	2
3	PK5-2.5MM-103	Short Collar (installed standard)	1
4	PK5-2.5MM-104	Sprung Hook	1
5	PK5-PK6-001	Trimmer Tool	1
6	PK5-2.5MM-105	Long Collar	1
7	PK5-2.5MM-106	IC Tip Insulators (Black, Brown, Blue, Green, Gray)	5
8	PK5-2.5MM-107	Tip Insulator 2.5mm	1
9	PK5-2.5MM-108	Probe Tip Cover	1
10	PK5-2.5MM-109	BNC Adapter 2.5mm	1
11	PK5-2.5MM-110	Swivel Ground Lead	1
12	PK5-2.5MM-111	Swivel Ground Lead Adapter	1
13	PK5-2.5MM-112	Ground Spring	1
14	PK5-2.5MM-113	PCB Adapter	1
15	PK5-2.5MM-114	Spring Tip	1
16	PK5-PK6-002	Color Coding Rings (2 ea. yellow, red, green, blue)	8

Standard Accessory Replacement Kit part number is PKIT5-2.5MM-101.

Warranty

NOTE: THE WARRANTY BELOW REPLACES ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS, OR ADEQUACY FOR ANY PARTICULAR PURPOSE OR USE. TELEDYNE LECROY SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER IN CONTRACT OR OTHERWISE. THE CUSTOMER IS RESPONSIBLE FOR THE TRANSPORTATION AND INSURANCE CHARGES FOR THE RETURN OF PRODUCTS TO THE SERVICE FACILITY. TELEDYNE LECROY WILL RETURN ALL PRODUCTS UNDER WARRANTY WITH TRANSPORT PREPAID.

Teledyne LeCroy warrants this oscilloscope accessory for normal use and operation within specification for a period of one year from the date of shipment. Spare parts, replacement parts and repairs are warranted for 90 days.

In exercising its warranty, Teledyne LeCroy, at its option, will either repair or replace any assembly returned within the warranty period to the Customer Service Department of an authorized service center. However, this will be done only if the product is determined by Teledyne LeCroy's examination to be defective because of workmanship or materials, and the defect is not caused by misuse, neglect, accident, abnormal conditions of operation; or, damaged by attempted repair or modifications by a non-authorized service facility.

The customer will be responsible for the transportation and insurance charges for the return of products to the service facility. Teledyne LeCroy will return all products under warranty with transportation charges prepaid.

This warranty replaces all other warranties, expressed or implied, including, but not limited to, any implied warranty of merchantability, fitness, or adequacy for any particular purposes or use. Teledyne LeCroy shall not be liable for any special, incidental, or consequential damages, whether in contract or otherwise.

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Mouser Electronics

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Teledyne LeCroy:

PK5-2.5MM-102