





**TELEDYNE LECROY**  
Everywhere you look™

700 Chestnut Ridge Road  
Chestnut Ridge, NY, 10977-6499  
Tel: (845) 425-2000, Fax: (845) 578 5985  
teledynelecroy.com

ManualsPlus.com

## PP017 and PP018 Passive Probes Operator's Manual

© 2015 Teledyne LeCroy, Inc. All rights reserved.

Unauthorized duplication of Teledyne LeCroy documentation materials other than for internal sales and distribution purposes is strictly prohibited. However, clients are encouraged to duplicate and distribute Teledyne LeCroy documentation for internal educational purposes.

Teledyne LeCroy is a registered trademark of Teledyne LeCroy, Inc.. Other product or brand names are trademarks or requested trademarks of their respective holders. Information in this publication supersedes all earlier versions. Specifications subject to change without notice.



This electronic product is subject to disposal and recycling regulations that vary by country and region. Many countries prohibit the disposal of waste electronic equipment in standard waste receptacles. For more information about proper disposal and recycling of your Teledyne LeCroy product, visit [teledynelecroy.com/recycle](http://teledynelecroy.com/recycle).

925571-00  
March, 2015

## Terms and Symbols

The following symbols appear on the product or in its documentation:



---

**DANGER** High Voltage

---



---

**WARNING** Refer to Manual. Condition or practice could result in injury or loss of life.

---



---

**DOUBLE INSULATION**

---



---

**PROTECTIVE (EARTH) TERMINAL**

---

## Introduction

The Teledyne LeCroy PP017 and PP018 are passive high impedance voltage oscilloscope probes designed and calibrated for use with general purpose oscilloscopes having an input impedance of 1 M $\Omega$  shunted by 16 pF. However, they may be compensated for use with instruments having an input capacitance between 10 to 30 pF. They are 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.

---

## Specifications

Model	Attn.	Input Imped.		B/W	Rise Time	Length	Compensation Range
		R (M $\Omega$ )	C (pF)	(MHz)	(ns)	(m)	(pF)
PP017	10x	10	12	250	1.4	1.3	10 - 30
PP018	10x	10	10	500	0.7	1.3	6 - 22

Attenuation Ratio ..... 10x (10:1) 10:1  $\pm$ 1%

Max. Input Voltage..... Measurement Category I <sup>1</sup>: 350 Vrms  
700V transient overvoltage  
(see derating curve on p.6)

..... Measurement Category II <sup>2</sup>: 300 Vrms

Pollution Degree ..... Pollution Degree 2 <sup>3</sup>

Operating Temperature..... 0° to +50 C°

Humidity..... 85% RH or less (at 35° C)

Operating Altitude ..... 3000 meters maximum




---

To reduce risk of fire or electric shock, do not exceed the voltage or category ratings of the probe.

---

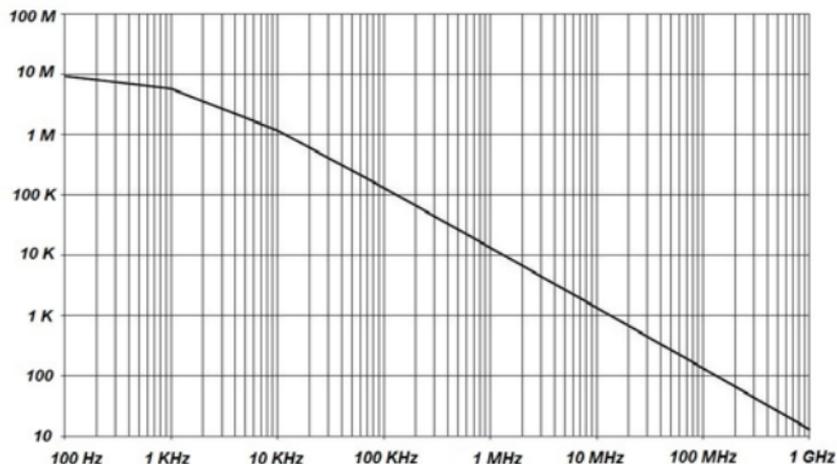
### Definitions (per EN 61010-031)

1) Measurement Category I (CAT I) refers to measurements performed on circuits not directly connected to mains.

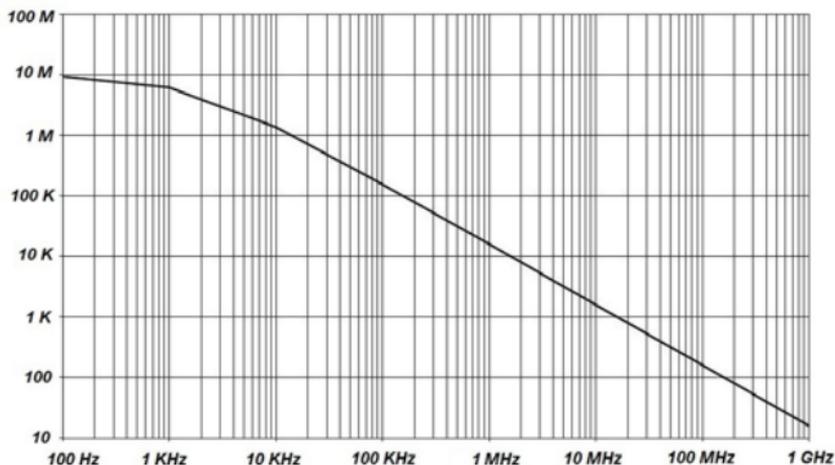
2) Measurement Category II (CAT II) refers to measurements performed on circuits directly connected to the low voltage installation, such as household appliances, portable tools, and similar equipment.

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

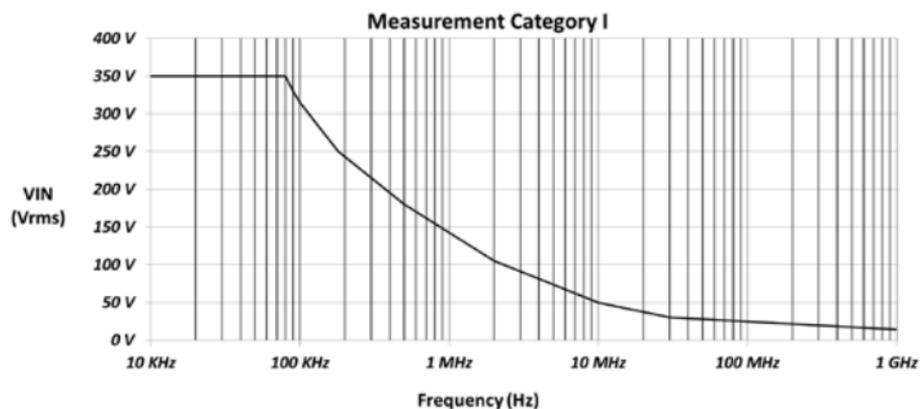
## PP017 Input Impedance Profile



## PP018 Input Impedance Profile



## Voltage vs. Frequency Derating Curve



## EC Declaration of Conformity



The probe is marked with this symbol to show compliance was demonstrated to the specifications listed in the Official Journal of the European Communities: Low Voltage Directive 2006/95/EC:

EN 61010-031/A1:2008 Safety requirements for electrical equipment for measurement, control and laboratory use – Part 031: Safety requirements for handheld probe assemblies for electrical measurement and test.

## EU RoHS Compliance

The probe and its accessories conform to the 2011/65/EU RoHS2 Directive, as they have been classified as Industrial Monitoring and Control Equipment (per Article 3, Paragraph 24) and are exempt from RoHS compliance until 22 July 2017 (per Article 4, Paragraph 3).

### General Safety Information



To avoid personal injury and to prevent fire or damage to the probe or any product connected to it, review and comply with the following safety precautions.

**Using the probe and/or the test instrument it is connected to in a manner not specified by the manufacturer may impair the protection mechanisms.**

**Connect to properly grounded instruments.** Use only with test instruments having their BNC input connected to earth ground. Do not connect the probe ground terminal to any point which is at a potential other than earth ground.

**Do not disconnect the probe from instrument during measurement.** Connect the probe to the measurement instrument before connecting the probe to the test circuit.

**Do not apply to the input any potential that exceeds the maximum rating of the probe.** Use only the accessories provided with the probe.

**Comply with voltage derating curve.** When measuring higher frequency signals, be sure to comply with the Voltage vs. Frequency Derating Curve.

**Do not remove probe casing.** Removal of the probe's casing may expose you to electric shock.

**Do not use if any part is damaged.** All maintenance should be referred to qualified service personnel only.

**Do not use in wet or explosive atmospheres.**

**Avoid physical injury.** The probe tip is extremely sharp. Use care when handling to prevent injury, including accidental skin puncture.

**For indoor use only.**

## Cleaning

Follow these guidelines:

- 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.

## Service

Refer all service to qualified personnel.

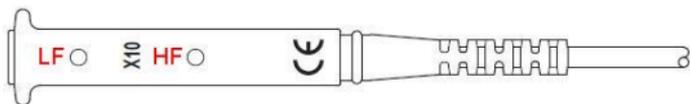
For the most complete and up-to-date list of sales and service centers by country, visit [teledynelecroy.com/support/contact](http://teledynelecroy.com/support/contact).

## Probe Compensation

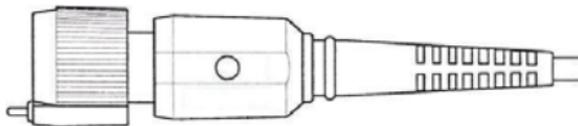
Proper compensation of the probe is required to assure amplitude accuracy of the waveform being measured by matching the probe to the oscilloscope's input capacitance. Compensation should be adjusted whenever the probe is connected to or transferred between oscilloscopes.

### **Low Frequency (LF)**

1. Apply a 1 kHz square wave to the probe or connect to the oscilloscope's calibrator output.
2. Adjust the left trimmer (LF) located on the PP017 probe body:



or the trimmer located on the PP018 BNC Box:



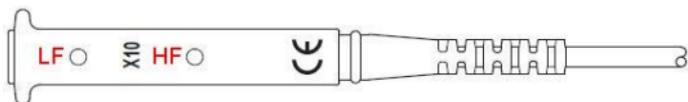
until you achieve a flat-topped square wave per the center illustration in the figure below.



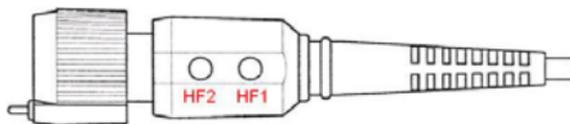
## High Frequency (HF)

High frequency should rarely require adjustment. However, if adjustment is required:

1. Apply a 1 MHz square wave to the probe (< 0.7 ns rise-time).
2. Adjust the right trimmer (HF) located on the PP017 probe body:



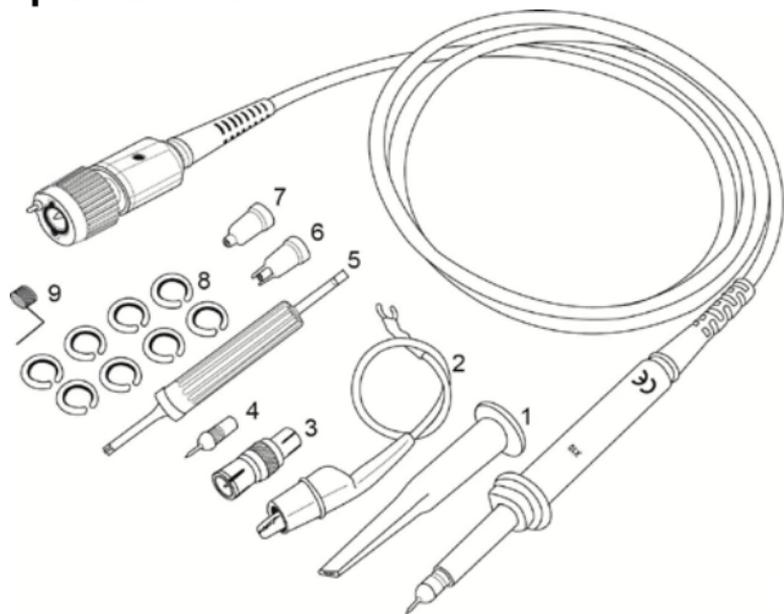
or both trimmers on the PP018 BNC Box (HF2 or HF1):



until you achieve a flat-topped square wave per the center illustration in the figure below.



## Replaceable Parts



Item	Description	Quantity
1	Sprung Hook, 5 mm, Black	1
2	GND Lead w/Alligator Clip	1
3	BNC Adapter, 5 mm	1
4	Replacement Tip, Black	1
5	Deluxe Trimmer Tool	1
6	IC Tip Insulator, 5 mm, Black	1
7	Tip Insulator, 5 mm, Black	1
8	Identifier Rings	1
9	Probe Tip GND	1

Standard Accessory Replacement Kit part number is **PKIT4-5MM-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.

925571-00

March, 2015