

# Oscilloscope Probes and Probe Accessories



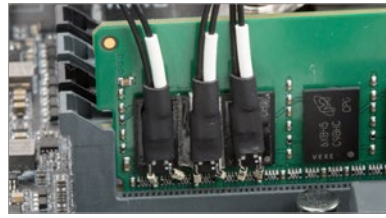
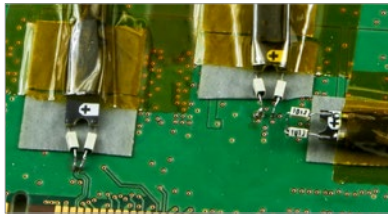
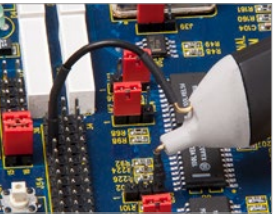
# PROBE SELECTION

Teledyne LeCroy has a wide variety of world class probes and amplifiers to compliment its product line. From the ZS high impedance active probes to the DH Series Differential High-bandwidth Probes which offers bandwidths up to 30 GHz, Teledyne LeCroy probes and probe accessories provide optimum mechanical connections for signal measurement.



Front Cover:  
DH Series Differential High-bandwidth Probes

	WaveSurfer 3000z Oscilloscopes	HDO4000A High Definition Oscilloscopes	WaveSurfer 4000HD High Definition Oscilloscopes	HDO6000B High Definition Oscilloscopes	WaveRunner 9000 Oscilloscopes	WaveRunner 8000HD High Definition Oscilloscopes/ MDA8000HD Motor Drive Analysers	WavePro HD High Definition Oscilloscopes	WaveMaster/SDA 8 Zi-B Oscilloscopes	LabMaster 10 Zi-A Oscilloscopes
<b>60 V Common Mode Differential Probes - p. 4 - 5</b>									
DL05-HCM	✓	✓	✓	✓	✓	✓	✓	✓	✓
DL10-HCM	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Active Voltage Rail Probes - p. 6 - 7</b>									
RP4030	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Active Voltage Probes - p. 8 - 9</b>									
ZS1000	✓	✓	✓	✓	✓	✓	✓	✓	
ZS1500	✓	✓	✓	✓	✓	✓	✓	✓	
ZS2500					✓		✓	✓	✓
ZS4000					✓		✓	✓	✓
<b>Current Probes - p. 10 - 11</b>									
CP030	✓	✓	✓	✓	✓	✓	✓	✓	
CP030A	✓	✓	✓	✓	✓	✓	✓	✓	
CP031	✓	✓	✓	✓	✓	✓	✓	✓	
CP031A	✓	✓	✓	✓	✓	✓	✓	✓	
CP150	✓	✓	✓	✓	✓	✓	✓	✓	
CP500	✓	✓	✓	✓	✓	✓	✓	✓	
CA10		✓		✓	✓	✓	✓	✓	
<b>Differential Probes - p. 12 -19</b>									
ZD200	✓	✓	✓	✓	✓	✓	✓	✓	✓
ZD500	✓	✓	✓	✓	✓	✓	✓	✓	✓
ZD1000	✓	✓	✓	✓	✓	✓	✓	✓	✓
ZD1500	✓	✓	✓	✓	✓	✓	✓	✓	✓
AP033	✓	✓	✓	✓	✓	✓	✓	✓	
D410-A-PB2					✓		✓	✓	✓
D420-A-PB2					✓		✓	✓	✓
D400A-AT-PB2					✓		✓	✓	✓
D610-A-PB2							✓	✓	✓
D610-A-PL								✓	✓
D620-A-PB2							✓	✓	✓
D620-A-PL								✓	✓
D600A-AT-PB2							✓	✓	✓
D600A-AT-PL								✓	✓
DH08-PB2								✓	✓
DH08-PL								✓	✓
DH13-PL								✓	✓
DH16-PL								✓	✓
DH20-PL								✓	✓
DH25-2.92MM								✓	✓
DH30-2.92MM								✓	✓



	WaveSurfer 3000z Oscilloscopes	HDO4000A High Definition Oscilloscopes	WaveSurfer 4000HD High Definition Oscilloscopes	HDO6000B High Definition Oscilloscopes	WaveRunner 9000 Oscilloscopes	WaveRunner 8000HD High Definition Oscilloscopes/ MDA8000HD Motor Drive Analysers	WavePro HD High Definition Oscilloscopes	WaveMaster/SDA 8 Zi-B Oscilloscopes	LabMaster 10 Zi-A Oscilloscopes
High Voltage Differential Probes - p. 20 - 21									
HVD3102A	✓	✓	✓	✓	✓	✓	✓	✓	✓
HVD3106A	✓	✓	✓	✓	✓	✓	✓	✓	✓
HVD3106A-6M	✓	✓	✓	✓	✓	✓	✓	✓	✓
HVD3206A	✓	✓	✓	✓	✓	✓	✓	✓	✓
HVD3206A-6M	✓	✓	✓	✓	✓	✓	✓	✓	✓
HVD3220	✓	✓	✓	✓	✓	✓	✓	✓	✓
HVD3605A	✓	✓	✓	✓	✓	✓	✓	✓	✓
AP031	✓	✓	✓	✓	✓	✓	✓	✓	✓
High Voltage Probes - p. 22 - 23									
HVP120	✓	✓	✓	✓	✓	✓	✓	✓	✓
PPE6KV-A	✓	✓	✓	✓	✓	✓	✓	✓	✓
High Voltage Fiber Optically-isolated Probes - p. 24 - 25									
HVFO108	✓	✓	✓	✓	✓	✓	✓	✓	✓
Optical-To-Electrical Converters - p. 26 - 27									
OE6250G-M									
OE695G								✓	✓
Passive Probes - p. 28 - 29									
PP016									
PP018		✓							
PP019	✓		✓						
PP020	✓								
PP021						✓			✓
PP022					✓				
PP023				✓			✓		
PP024					✓				
PP025						✓			✓
PP026		✓	✓	✓			✓		✓
Probe Adapters - p. 30 - 351									
CA10		✓		✓	✓	✓	✓	✓	✓
TPA10	✓		✓	✓	✓	✓	✓	✓	✓
Transmission Line Probes - p. 32 - 33									
PP066							✓	✓	✓

Learn More:  
[teledynelecroy.com/probes/](http://teledynelecroy.com/probes/)



# 60 V COMMON MODE DIFFERENTIAL PROBES

Teledyne LeCroy  
60 V Common Mode  
Differential Probe Model  
Numbers:  
DL05-HCM  
DL10-HCM

## Key Applications

- 48 V motors and drives
- High-power DC-DC converters
- GaN-based PDNs
- AC-DC switch-mode power supplies
- Wireless charging systems
- Gate-drive measurements

## Key Features

Ideal probe for 48 V Power Conversion

- 500 MHz and 1 GHz bandwidth
- 80 V dynamic range
- 60 V common mode

Highest accuracy

- 0.5% gain accuracy
- Precision gain calibration
- Best LF flatness (0.1 dB)

Lowest noise and highest rejection

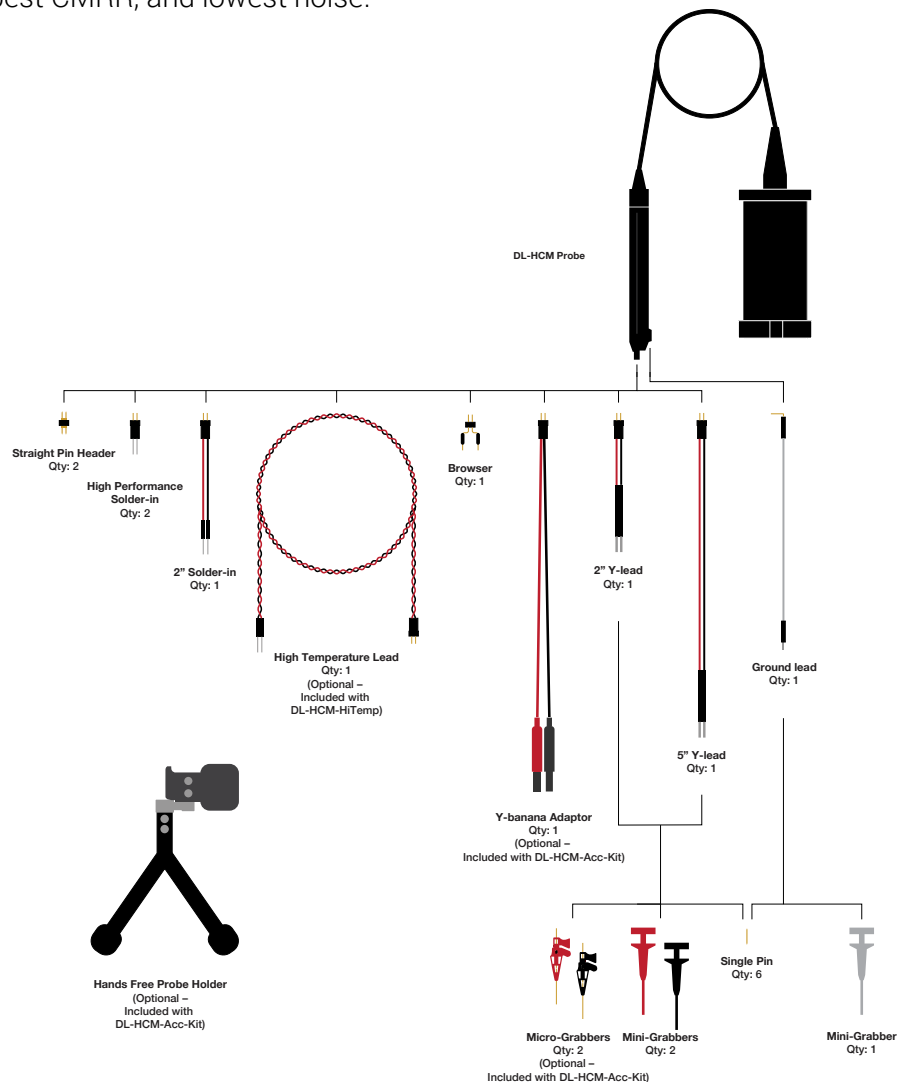
Wide variety of tips

- High performance solder-in
- Browser
- Single pins and header
- Mini and micro grabbers
- Socketed connections
- High temp solder-in
- Y-banana adaptor

ProBus active probe interface



The 60 V Common Mode Differential Probes are the ideal probes for low voltage GaN power conversion measurement with the highest accuracy, best CMRR, and lowest noise.



# 60 V COMMON MODE DIFFERENTIAL PROBES

	DL05-HCM	DL10-HCM
<b>Bandwidth*</b>	500 MHz (guaranteed, without leads) 500 MHz (High performance solder-in and browser) 500 MHz (2" Y-lead/solder-in) 500 MHz (5" Y-lead) 30 MHz (Hi-Temp lead)	1 GHz (guaranteed, without leads) 1 GHz (High performance solder-in and browser) 800 MHz (2" Y-lead) 700 MHz (solder-in) 500 MHz (5" Y-lead) 30 MHz (Hi-Temp lead)
<b>Rise Time (10-90%)*</b>	700 ps	350 ps
<b>Differential Voltage Range</b>	80 V (DC + peak AC) from 200 mV/div to 20 V/div	
<b>Common Mode Voltage Range</b>	±60 V (DC + peak AC)	
<b>Maximum Input Voltage to Earth</b>	80 V (DC + peak AC), max 60 V DC (either input to ground)	
<b>Maximum Safe Input Voltage Sensitivity</b>	For Hand-held use: 28.28 Vrms or 60 V DC (referenced to ground) per IEC/EN 61010-031:2015	
	200 mV/div to 1 V/div (7.8x) 1.02 V/div to 2.5 V/div (17.5x) 2.55 V/div to 20 V/div (70x)	
<b>DC Gain Accuracy</b>	±0.5% (guaranteed)	
<b>DC Gain Drift</b>	≤ 0.075%/°C, can be calibrated out with precision gain cal	
<b>Frequency Response Flatness</b>	DC to 100MHz: 0.1 dB	
<b>Offset Range</b>	±60V	
<b>Attenuation</b>	7.8x / 17.5x / 70x	
<b>Input Impedance</b>	200 kΩ    0.6 pF (between inputs), 100 kΩ    1 pF (either input to ground)	
<b>Input/Output Coupling</b>	DC	
<b>Output Termination</b>	50 Ω	
<b>Interface</b>	ProBus	
<b>Cable Length</b>	1.42 m from probe sockets to oscilloscope connection	
<b>Noise and Rejection</b>		
<b>CMRR</b>	DC - 10 kHz: 80 dB 100 kHz: 70 dB 1 MHz: 55 dB 100 MHz: 50 dB 500 MHz: 35 dB	DC - 10 kHz: 80 dB 100 kHz: 70 dB 1 MHz: 55 dB 100 MHz: 50 dB 1 GHz: 30 dB
<b>Noise (Probe)</b>	200 mV/div to 1 V/div: 3.25mV <sub>rms</sub> 1.02 V/div to 2.5 V/div: 4.5mV <sub>rms</sub> 2.55 V/div to 20 V/div: 14.5mV <sub>rms</sub>	200 mV/div to 1 V/div: 4.3mV <sub>rms</sub> 1.02 V/div to 2.5 V/div: 6mV <sub>rms</sub> 2.55 V/div to 20 V/div: 20mV <sub>rms</sub>
<b>Environmental</b>		
<b>Temperature</b>	0°C to 50°C (Operating), -40°C to 70°C (Non-Operating)	
<b>Humidity (Operating)</b>	5% to 90% RH (Non-Condensing) up to 30°C, decreasing linearly to 45% RH at 50°C	
<b>Humidity (Non-Operating)</b>	5% to 95% RH (Non-Condensing), 75% RH above 40°C, 45% RH above 50°C	
<b>Altitude (Operating)</b>	Up to 3000 m (9842 ft)	
<b>Certifications</b>		
<b>CE Declaration of Conformity</b>	Conforms to EN61010-031:2015, EN61326-1:2013, and EN50581:2012	

\* All Bandwidth and Rise Time measurements are made without leads and an oscilloscope bandwidth greater than the probe bandwidth.

## Ordering Information

Product Description	Product Code
500 MHz 60V Common Mode Differential Probe. Includes standard set of leads and tips.	DL05-HCM
1 GHz 60V Common Mode Differential Probe. Includes standard set of leads and tips.	DL10-HCM
DL-HCM series high-temperature solder-in tip, 30 MHz bandwidth, 1 meter length.	DL-HCM-HiTemp
DL-HCM series accessories kit with probe holder, micro IC grabbers (Qty 2.), and Y-banana adaptor.	DL-HCM-Acc-Kit

### Standard leads and tips

High performance solder-in tips (Qty. 2)	Mini grabbers (Qty. 3)
2" solder-in tip	Ground lead
Browser	Single pin (Qty. 6)
Y-lead socket (2" and 5")	Straight pin header (Qty. 2)

Learn More:  
[teledynelecroy.com/probes/  
 60v-common-mode-differential-probes](http://teledynelecroy.com/probes/60v-common-mode-differential-probes)



# ACTIVE VOLTAGE RAIL PROBE

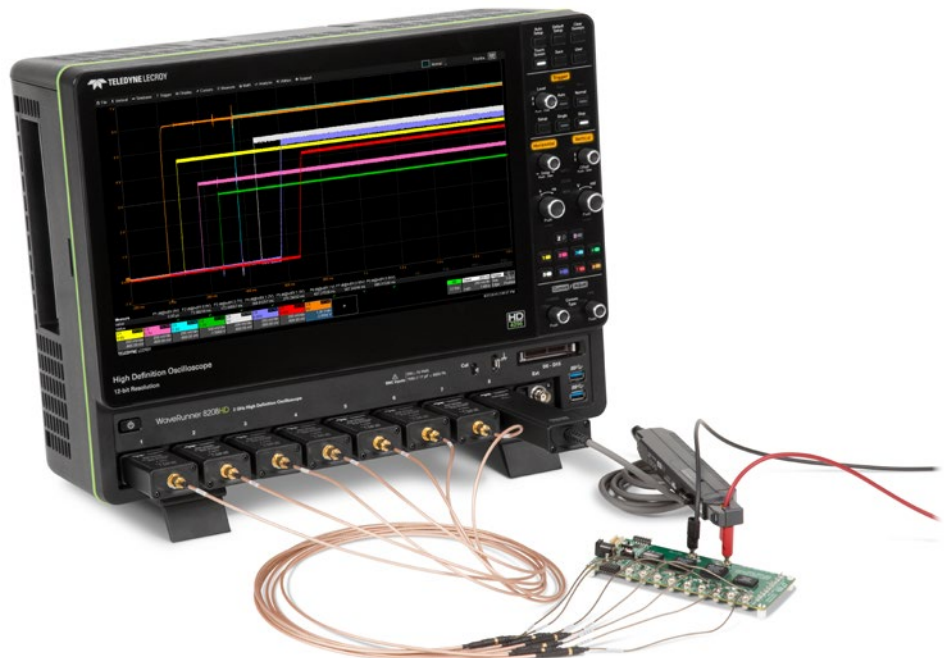
Teledyne LeCroy  
Active Voltage Rail Probe  
Model Number:  
RP4030

## Key Features

- 4 GHz Bandwidth
- $\pm 30\text{V}$  Offset Capability
- $\pm 800\text{mV}$  Dynamic Range
- 50 k $\Omega$  DC Input Impedance
- 1.2x Attenuation (Low Additive Noise,  $\sim 5\%$ )
- MCX terminated cable with wide variety of connections:
  - Solder-in (4 GHz)
  - Coaxial Cable to U.FL receptacle (3 GHz)
  - MCX PCB Mount (4 GHz)
  - Browser (350 MHz)
- ProBus Interface



The RP4030 is designed specifically to probe a 50 $\Omega$  DC power/voltage rail. The probe has large built-in offset, low attenuation (noise), and high DC input impedance. Built-in offset and low attenuation permit the power/voltage rail to be offset in the oscilloscope by its mean DC voltage with high oscilloscope gain (sensitivity) to achieve a noise-free view of small signal variations. The high DC input impedance eliminates loading of the DC rail.



## Specifications

### Electrical Characteristics

Bandwidth	4 GHz (guaranteed, MCX receptacle) 4 GHz (typical, solder-in lead) 3 GHz (typical, U.FL cable + receptacle) 350 MHz (typical, browser)
Rise Time (10-90%)	110 ps (typical, MCX receptacle or solder-in lead)
Input Capacitance	0.1 uF (in series with 50Ω)
DC Input Resistance	50 kΩ
Offset Range	±30V
Attenuation	1.2x
Input Dynamic Range	±800 mV
Non-destruct Voltage	±50V
Noise	~5% additive to oscilloscope noise
Oscilloscope Termination	DC 50Ω

### Environmental

Operating Temperature Range	0 to 50 °C
Non-operating Temperature Range	-40 to +70 °C
Humidity	5% to 80% RH (non-condensing) up to 30 °C, decreasing linearly to 45% RH at 50 °C
Operating Altitude	3000 meters maximum

### Physical

RP4030	<b>Probe:</b> 38.1 mm W x 15.9mm H x 73mm L (1-1/2" x 5/8" x 2-7/8") <b>SMA to MCX Cable:</b> 914mm L (36") <b>MCX to Solder-in Lead:</b> 191mm (7-1/2") usable length <b>MCX to U.FL Plug Coaxial Cable:</b> 102mm (4") usable length
RP4000-BROWSER	11.9mm W x 9.5mm H x 38mm L (15/32" x 3/8" x 1-1/2") <b>SMA to SMA Cable:</b> 1m (39-3/8") usable length

### Other

Oscilloscope Interface	Teledyne LeCroy ProBus
Software Requirements	Teledyne LeCroy MAUI 8.2.1.1 or higher
Weight	119 g (0.26 lb)

## Ordering Information

### Product Description

Power/Voltage Rail Probe  
4 GHz, 1.2x, ±30V offset, ±800mV dynamic range

Includes Qty. 1 ProBus compatible probe offset amplifier with 50 kΩ DC input impedance and SMA input connection for provided 0.9m SMA to MCX extension cable. Also supplied are Qty. 3 MCX solder-in leads, Qty. 3 MCX PCB Mounts, Qty. 3 MCX to U.FL coaxial cables, Qty. 5 U.FL PCB Mounts, Qty. 1 MCX to SMA adapter, and soft carrying case. Browser tip sold separately.

350 MHz Browser Tip Accessory  
Includes 0 Ω (1x), 450 Ω (10x) and 950 Ω (20x) tips.

### Product Code

RP4030

RP4000-BROWSER



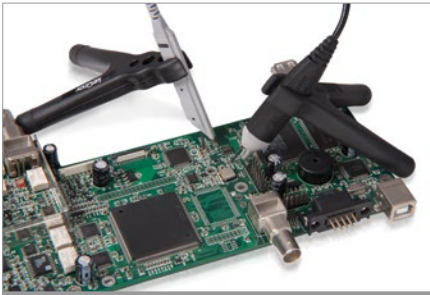
### Accessories and Consumables

Qty. 3 MCX 4 GHz solder-in leads	RP4000-MCX-LEAD-SI
Qty. 10 MCX PCB mount receptacle	RP4000-MCX-PCBMOUNT
Qty. 3 MCX to U.FL 3 GHz ultra-mini coax cable	RP4000-MCX-CABLE-UFL
Qty. 10 U.FL PCB mount receptacles	RP4000-UFL-PCBMOUNT

Learn More:  
[teledynelecroy.com/probes/  
active-voltage-rail-probe](https://teledynelecroy.com/probes/active-voltage-rail-probe)



# ZS SERIES ACTIVE PROBES



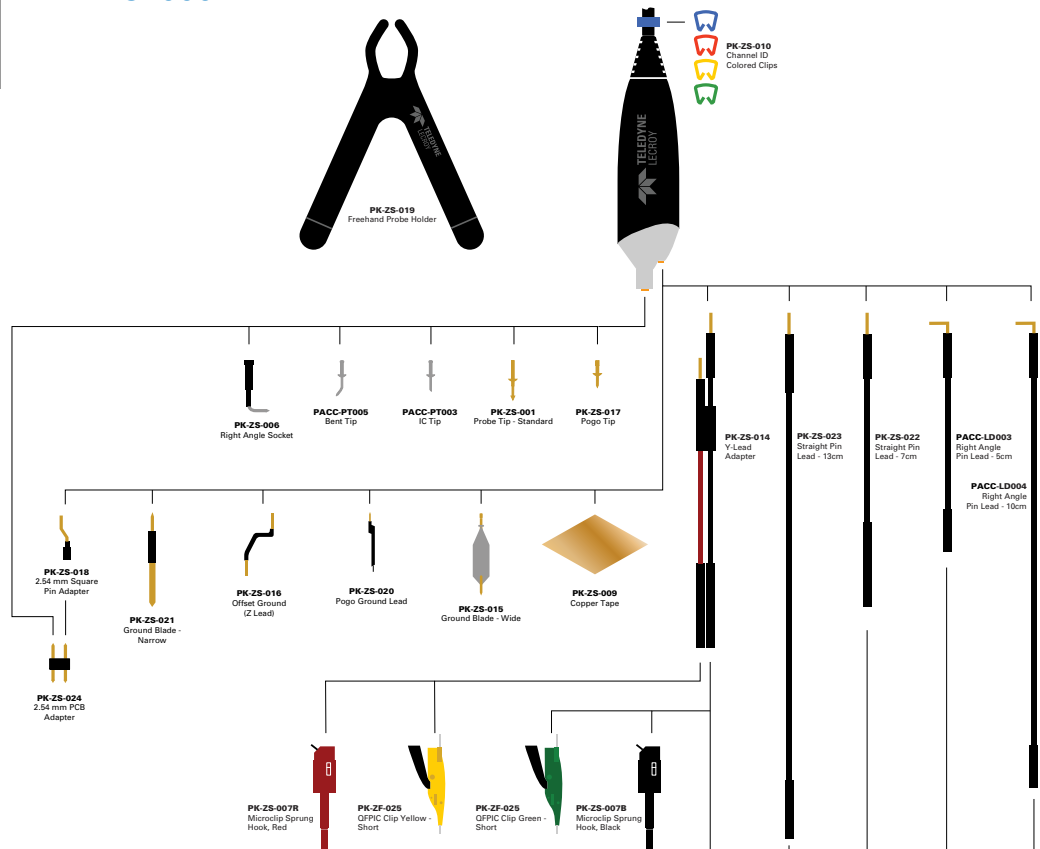
Teledyne LeCroy  
Active Voltage Probe  
Model Numbers:

**ZS1000**  
**ZS1500**  
**ZS2500**  
**ZS4000**

The ZS Series probes are high impedance, low capacitance active probes that maintain high signal fidelity through 4 GHz. A small form factor and a wide variety of accessories ensures the ZS probe meets every difficult probing challenge.

Engineers must commonly probe high frequency signals with high signal fidelity. Typical passive probes with high input R and C provide good response at lower frequencies but inappropriately load the circuit and distort signals at higher frequencies. The ZS Series features both high input R (1 M $\Omega$ ) and low input C (0.6 pF and 0.9 pF) to reduce circuit loading across the entire probe/oscilloscope bandwidth. The ZS1000 is ideal for 200–600 MHz oscilloscopes. The ZS1500 is ideal for 1 GHz oscilloscopes, the ZS2500 is ideal for 2 GHz oscilloscopes, and the ZS4000 is ideal for 2.5 GHz and 4 GHz oscilloscopes.

## ZS4000

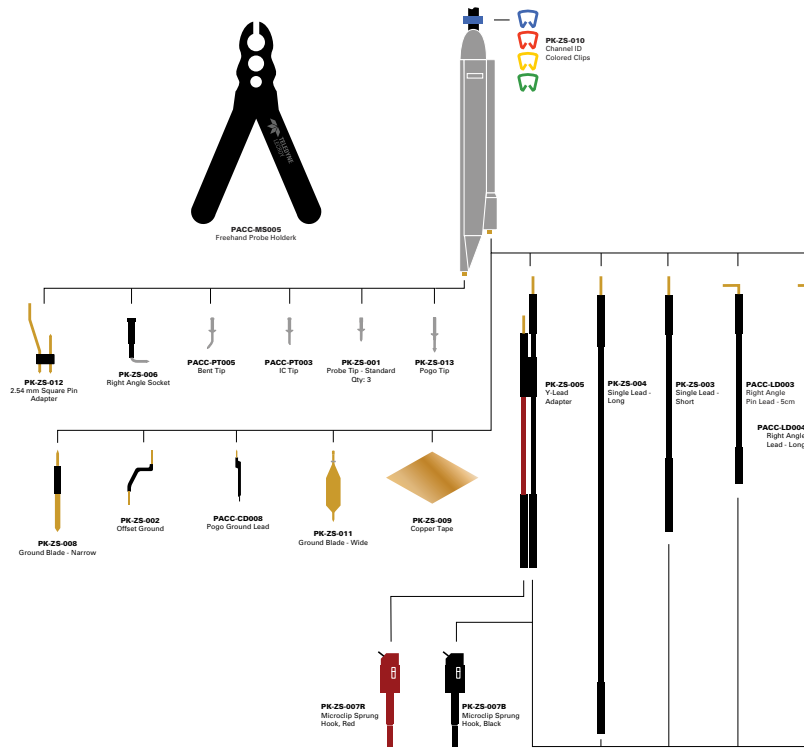


Learn More:  
[teledynelecroy.com/probes/  
active-voltage-probes](https://teledynelecroy.com/probes/active-voltage-probes)



# ZS SERIES ACTIVE PROBES

ZS1000  
ZS1500  
ZS2500



## Ordering Information

### Product Description

Product Description	Product Code
4 GHz, 0.6 pF, 1 MΩ High Impedance Active Probe	ZS4000
2.5 GHz, 0.9 pF, 1 MΩ High Impedance Active Probe	ZS2500
1.5 GHz, 0.9 pF, 1 MΩ High Impedance Active Probe	ZS1500
1 GHz, 0.9 pF, 1 MΩ High Impedance Active Probe	ZS1000
Set of 4 ZS2500, 2.5 GHz, 0.9 pF, 1 MΩ High Impedance Active Probes	ZS2500-QUADPAK
Set of 4 ZS1500, 1.5 GHz, 0.9 pF, 1 MΩ High Impedance Active Probes	ZS1500-QUADPAK
Set of 4 ZS1000, 1 GHz, 0.9 pF, 1 MΩ High Impedance Active Probes	ZS1000-QUADPAK

### Standard Accessory/Quantity

Accessory Description	Replacement Part Number	ZS1000	
		ZS1500	ZS4000
2.54 mm PCB Adaptor	PK-ZS-024		5
2.54mm Square Pin Adapter	PK-ZS-012	1	
2.54mm Square Pin Adaptor	PK-ZS-018		1
IC Tip	PACC-PT003	1	1
Bent Tip	PACC-PT005	1	1
Channel ID Clips (Set of 4 colors)	PK-ZS-010	4	1
Copper Tape Pad	PK-ZS-009	2	2
Freehand Probe Holder	PK-ZS-019		1
Freehand Probe Holder	PACC-MS005	1	
Ground Blade – Narrow	PK-ZS-008	1	
Ground Blade – Wide	PK-ZS-011	1	
Ground Blade, Narrow	PK-ZS-021		1
Ground Blade, Wide	PK-ZS-015		2
Micro-Grabber Pair	PK-ZS-007R and PK-ZS-007B	1	2
Offset Ground	PK-ZS-016		2

## Specifications ZS1000 ZS1500 ZS2500 ZS4000

### Electrical Characteristics

Electrical Characteristic	ZS1000	ZS1500	ZS2500	ZS4000
Probe Bandwidth	1 GHz	1.5 GHz	2.5 GHz	4 GHz
Input Capacitance	0.9 pF			0.6 pF
DC Input Resistance	1 MΩ			
Probe Offset Range	N/A	±12 V		
Attenuation	÷10			
Input Dynamic Range	±8 V			
Non-destruct Voltage	20 V			

### General Characteristics

Cable Length	1.3 m
--------------	-------

# CURRENT PROBES



Teledyne LeCroy  
Current Probe  
and Adapter  
Model Numbers:

CP030  
CP030A  
CP031  
CP031A  
CP150  
CP500  
DCS025  
CA10

## Key Features

- ProBus active probe interface with automatic scaling in A/div
- Autozero and degauss capabilities built into instrument's user interface
- Wide range of input currents and bandwidth capabilities



### CP030

- 30 A<sub>rms</sub> continuous current
- 50 A<sub>peak</sub> current
- 50 MHz bandwidth



### CP030A

- 30 A<sub>rms</sub> continuous current
- 50 A<sub>peak</sub> current
- 50 MHz bandwidth
- 1 mA/div sensitivity



### CP031

- 30 A<sub>rms</sub> continuous current
- 50 A<sub>peak</sub> current
- 100 MHz bandwidth



### CP031A

- 30 A<sub>rms</sub> continuous current
- 50 A<sub>peak</sub> current
- 100 MHz bandwidth
- 1 mA/div sensitivity



### CP150

- 150 A<sub>rms</sub> continuous current
- 500 A<sub>peak</sub> current
- 10 MHz bandwidth



### CP500

- 500 A<sub>rms</sub> continuous current
- 700 A<sub>peak</sub> current
- 2 MHz bandwidth



### DCS025

- Precise deskew of voltage and current probes.
- Compatible with the CP030, CP030A, CP031, CP031A, AP015, CP150, and CP500



Learn More:  
[teledynelecroy.com/probes/  
current-probes](https://teledynelecroy.com/probes/current-probes)



## CA10 Current Sensor Adapter

The CA10 enables a third-party current measurement device to operate like a Teledyne LeCroy probe. The CA10 is programmable and customizable to work with third-party current measurement devices that output voltage or current signals proportional to measured current. (See page 50 for more information and specifications).

### Specifications

#### Electrical Characteristics\*

	CP030 (CP030-3M)	CP030A	CP031	CP031A	CP150 (CP150-6M)	CP500
Max. Continuous Input Current	30 A <sub>rms</sub>				150 A <sub>rms</sub>	500 A <sub>rms</sub>
Bandwidth	50 MHz (10 MHz)		100 MHz		10 MHz (5 MHz)	2 MHz
Rise Time (typical)	≤ 7 ns (≤ 35 ns)		≤ 3.5 ns		≤ 35 ns (≤ 70 ns)	≤ 175 ns
Max. Peak Current	50 A <sub>peak</sub> (non-continuous)				300 A <sub>peak</sub> (non-continuous); 500 A <sub>peak</sub> ≤ 30 μs	700 A <sub>peak</sub> (non-continuous)
Output Voltage	0.1 V/A	0.1 V/A & 1 V/A	0.1 V/A	0.1 V/A & 1 V/A	0.01 V/A	
Max Continuous Input Current at 1 V/A (100mA/div or less)	–	5 A	–	5 A	–	
Offset Range at 1V/A (100mA/div or less)	–	±5 A	–	±5 A	–	
Minimum Sensitivity	10 mA/div	1 mA/div	10 mA/div	1 mA/div	100 mA/div	
Low-Frequency Accuracy	1%					
AC Noise at 20 MHz BWL	≤ 2.5 mA	≤ 150 μA	≤ 2.5 mA	≤ 150 μA	≤ 6.0 mA	≤ 8.0 mA
Coupling	AC, DC, GND					

### General Characteristics

Cable Length	1.5 m (3 m)		1.5 m		2 m (6 m)	6 m
Weight	240 g (290 g)	260 g	240 g	260 g	500 g (600 g)	630 g
Max. Conductor Size (Diameter)	5 mm				20 mm	
Interface	ProBus, 1 MΩ only					
Usage Environment	Indoor					
Operating Temperature	0° C to 40° C					
Max. Relative Humidity	80%					
Max. Altitude	2000 m					
Measurement Category	No rated measurement category**				No rated measurement category**	

\* Electrical Characteristics Guaranteed at 23 °C ±3 °C. Values are based on oscilloscopes with 1 mV/div sensitivity. Numbers will be higher on instruments with lower sensitivity.

\*\* Not intended for measurements on circuits directly connected to Mains supply or within Measurement Categories II, III, or IV.

CP03x, CP150, and CP500 probes (and long cable versions of these) are compatible with any Teledyne LeCroy oscilloscope with a ProBus interface running firmware version 4.3.1.1 or greater. CP03xA probes are compatible with most Teledyne LeCroy oscilloscopes with a ProBus interface running X-Stream™ firmware version 7.8.x.x or later.

## Ordering Information

### Product Description

Product Description	Product Code
ProBus Current Sensor Adapter	CA10
Set of 4 CA10, ProBus Current Sensor Adapters	CA10-QUADPAK
30 A; 50 MHz Current Probe – AC/DC; 30 A <sub>rms</sub> ; 50 A Peak Pulse, 1.5 meter cable	CP030
30A; 10 MHz Current Probe - AC/DC, 30 Arms; 50 A Peak Pulse, 3 meter cable (not EMC compliant)	CP030-3M
30 A; 50 MHz High Sensitivity Current Probe – AC/DC; 30 A <sub>rms</sub> ; 50 A Peak Pulse, 1.5 meter cable	CP030A
30 A; 100 MHz Current Probe – AC/DC; 30 A <sub>rms</sub> ; 50 A Peak Pulse, 1.5 meter cable	CP031
30 A; 100 MHz High Sensitivity Current Probe – AC/DC; 30 A <sub>rms</sub> ; 50 A Peak Pulse, 1.5 meter cable	CP031A
150 A; 10 MHz Current Probe – AC/DC; 150 A <sub>rms</sub> ; 500 A Peak Pulse, 2 meter cable	CP150
150 A; 5 MHz Current Probe – AC/DC; 150 Arms; 500 A Peak Pulse, 6 meter cable (not EMC compliant)	CP150-6M
500 A; 2 MHz Current Probe – AC/DC; 500 A <sub>rms</sub> ; 700 A Peak Pulse, 6 meter cable	CP500
Deskew Calibration Source for CP030, CP030A, CP031, CP031A, AP015, CP150, CP500	DSC025

# ≤ 1.5 GHz DIFFERENTIAL PROBES



Teledyne LeCroy  
≤1.5 GHz  
Differential Probe  
Model Numbers:

ZD200  
ZD500  
ZD1000  
ZD1500  
AP033

The ZD Series probes provide wide dynamic range, excellent noise and loading performance and an extensive set of probe tips, leads, and ground accessories to handle a wide range of probing scenarios. The low 1 pF capacitance means this probe is ideal for all frequencies. The ZD Series differential probes provide full system bandwidth for all Teledyne LeCroy Oscilloscopes 1.5 GHz and lower.

## Fully Integrated

With the ProBus interface, the ZD500, 1000, and 1500 become an integral part of the oscilloscope. All probe gain and offset controls are transparent to the user, making it easier to probe the circuit without concern for which gain setting to choose. When used with a Teledyne LeCroy digital oscilloscope, no external power supply is required.

## Wide Dynamic Range

The ZD500, 1000, 1500 probes provide transparent probe attenuation so signals are always optimized for the display. The differential range is 18 V<sub>p-p</sub> with a differential offset of ±8V and common mode range of ±10 V, making these probes versatile for every probing application.

## Wide Applications

The wide dynamic range of 16 V<sub>p-p</sub> and offset range of ±8V suit this probe to a wide range of applications and signal types. The ZD differential probes are ideally suited for Automotive, Serial Data, power, and general purpose use.

## Specifications

### Electrical Characteristics

	ZD200	ZD500	ZD1000	ZD1500
Bandwidth (Warranted)	200 MHz	500 MHz	1000 MHz	1500 MHz
Bandwidth (Typical)	-	650 MHz	1200 MHz	1700 MHz
Risetime 10–90% (Typical)	1.75 ns	650 ps	375 ps	270 ps
Risetime 20–80% (Typical)	-	500 ps	280 ps	200 ps
LF Attenuation Accuracy (Warranted)	1%	2%		
Zero Offset (Typical) (within 15 minutes after autozero)	-	5 mV		
System Noise (Typical)	-	1.3 mV <sub>rms</sub>	1.75 mV <sub>rms</sub>	
Probe Noise Density (Typical)	3 mV <sub>rms</sub>	38 nV/rt (Hz)		
Input Differential Range (Nominal)	± 20 V	±8 V (16 V <sub>p-p</sub> )		
Differential Offset Range (Nominal)	-	±18 V		
Offset Gain Accuracy (Typical)	-	2%		
Common Mode Range (Nominal)	± 60 V	±10 V		
Maximum Non-destruct Voltage (Nominal)	-	30 V		
CMRR (Typical)	80 dB @ 60 Hz 50 dB @ 10 MHz	60 dB 50/60 Hz 30 dB 20 MHz 25 dB 500 MHz	60 dB 50/60 Hz 30 dB 20 MHz 25 dB @ 1000 MHz	60 dB 50/60 Hz 30 dB 20 MHz 25 dB @ 1500 MHz
DC Input Resistance (Nominal)	250 kΩ (Common Mode) 1 MΩ (Differential Mode)	50 kΩ (Common Mode) 120 kΩ (Differential Mode)		
Differential Input Capacitance (Typical)	3.5 pF	< 1.0 pF		

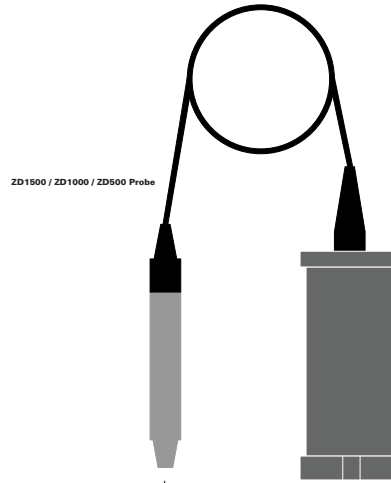


Learn More:  
[teledynelecroy.com/probes/  
differential-probes-1500-mhz](https://teledynelecroy.com/probes/differential-probes-1500-mhz)

## Ordering Information

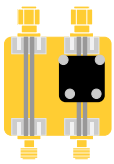
### Product Description

Product Description	Product Code
200 MHz, 3.5 pF, 1 MΩ Active Differential Probe	ZD200
500 MHz, 1.0 pF Active Differential Probe, ±8 V	ZD500
1 GHz, 1.0 pF Active Differential Probe, ±8 V	ZD1000
1.5 GHz, 1.0 pF Active Differential Probe, ±8 V	ZD1500

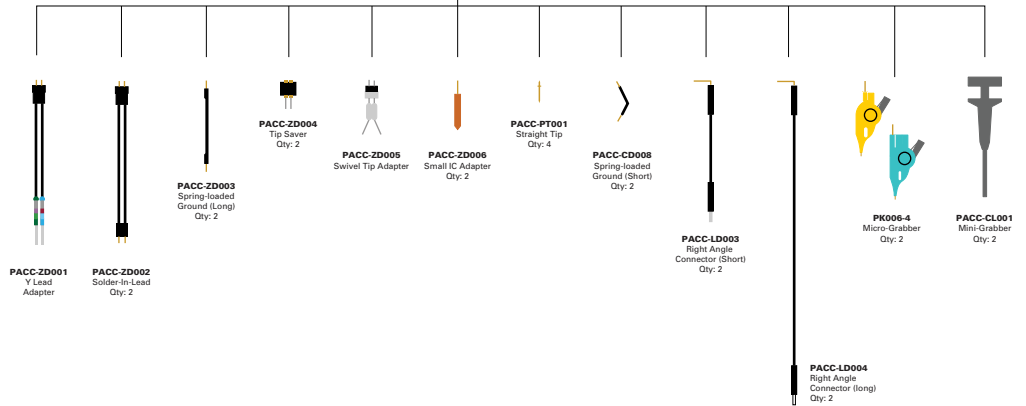
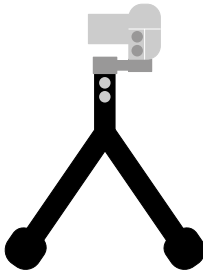


ZD1500 / ZD1000 / ZD500 Probe

PCF200  
Probe Calibration Fixture



PACC-MS001  
Hands Free Probe Holder



## AP033

High bandwidth, excellent common-mode rejection ratio (CMRR) and low noise make these active differential probes ideal for applications such as disk drive design and failure analysis, as well as wireless and data communication design.



## Specifications

Bandwidth	500 MHz
Gain	x10, x1, ÷10 (÷100 with plug-on ÷10 attenuator)
DC Accuracy	1% in x1 without external attenuator
Input Resistance	1 MΩ each input to ground 2 MΩ differential between inputs
Differential Mode Range	±400 mV (x1) ±40 mV (x10) ±4 V (÷10) ±40 V (÷100)
Offset Range	±400 mV (x1, x10) ±4 V (±10) ±40 V (±100)
Common-Mode Range	±42 V peak (±10) +4.2 V peak (±100)
CMRR	70 Hz 10,000:1 (80 dB) 100 kHz 10,000:1 (80 dB) 1 MHz 1000:1 (60 dB) 10 MHz 100:1 (40 dB) 250 MHz 5:1 (14 dB)

## Ordering Information

### Product Description

500 MHz Differential Probe

### Product Code

AP033

# 4 GHz - 6 GHz DIFFERENTIAL PROBES



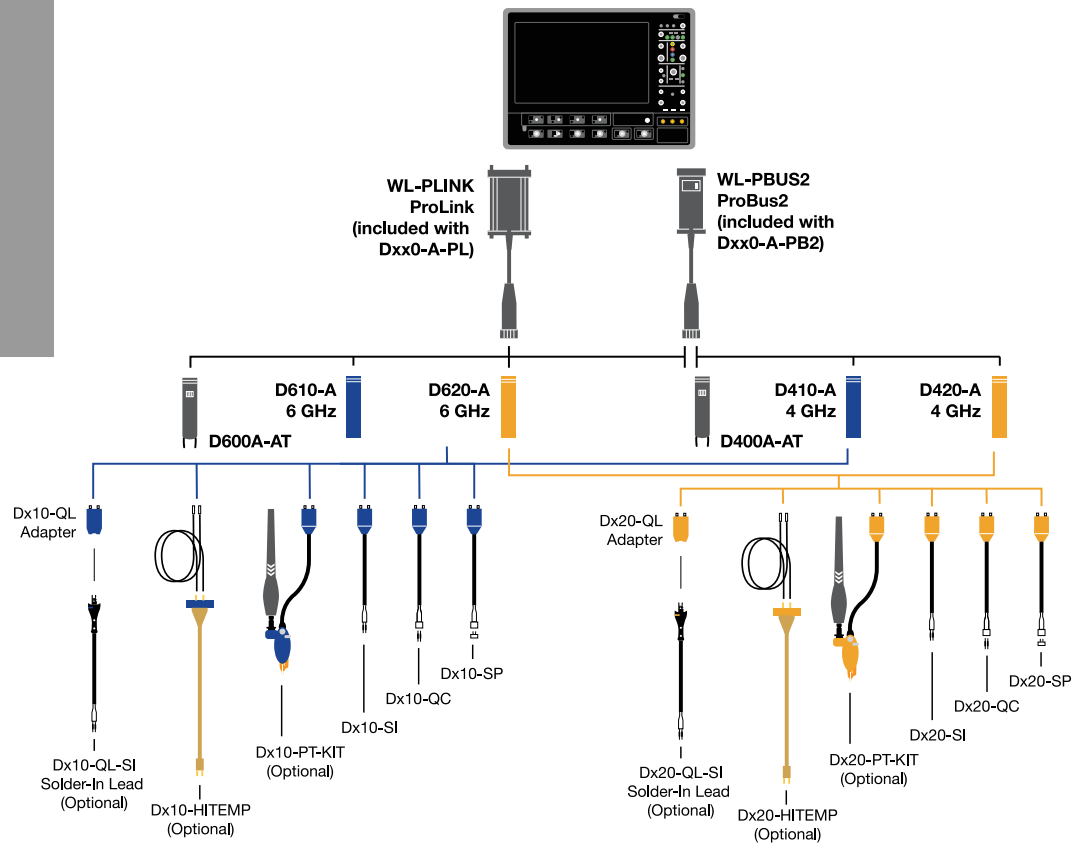
Teledyne LeCroy  
4 GHz - 6 GHz  
Differential Probe  
Model Numbers:

D410-A-PB2  
D420-A-PB2  
D400A-AT-PB2  
D610-A-PB2  
D610-A-PL  
D620-A-PB2  
D620-A-PL  
D600A-AT-PB2  
D600A-AT-PL

Teledyne LeCroy's WaveLink 4-6 GHz Differential Probes are a general purpose probing solution with high-input dynamic range and offset range capability. The range of capabilities is ideal for a variety of high-speed DDR signals where high dynamic range and large offset requirements are common.

## Key Features

- 4 GHz or 6 GHz models
- Up to 5 Vpk-pk dynamic range with low noise
- $\pm 3$  V offset range
- Ideal for DDR2, LPDDR2, DDR3
- Innovative QuickLink architecture
- Wide variety of tips and leads
  - Solder-In Lead
  - Quick Connect Lead
  - Positioner (Browser) Tip
  - Adjustable (Browser) Tip
  - Quick Connect Lead
  - Square Pin Lead
  - Hi-Temp Solder-In Lead
- Low loading and high impedance for minimal signal disturbance
- Deluxe soft carrying case



Learn More:  
[teledynelecroy.com/probes/  
differential-probes-4-6-ghz](https://teledynelecroy.com/probes/differential-probes-4-6-ghz)

# 4 GHz - 6 GHz DIFFERENTIAL PROBES

	D610-A-PB2, D610-A-PL	D620-A-PB2, D620-A-PL	D410-A-PB2	D420-A-PB2	D600A-AT-PB2, D600A-AT-PL	D400A-AT-PB2
<b>Bandwidth*</b> (Probe only, guaranteed) (System bandwidth, typical)	Dx10-SI, Dx10-QL-SI and Dx10-PT Tips 6 GHz  Dx10-HiTemp 5 GHz  Dx10-QC Tip 4 GHz  Dx10-SP Tip 3 GHz	Dx20-SI, Dx20-QL-SI and Dx20-PT Tips 6 GHz  Dx20-HiTemp 5 GHz  Dx20-QC Tip 4 GHz  Dx20-SP Tip 3 GHz	Dx10-SI, Dx10-QL-SI, Dx10-HiTemp, Dx10-QC and Dx10-PT Tips 4 GHz  Dx10-SP Tip 3 GHz	Dx20-SI, Dx20-QL-SI, Dx20-HiTemp, Dx20-QC and Dx20-PT Tips 4 GHz  Dx20-SP Tip 3 GHz	6 GHz	4 GHz
<b>Rise Time*</b> (10–90%)	Dx10-SI, Dx10-QL-SI and Dx10-PT Tips 75 ps (typical)  Dx10-HiTemp 90 ps (typical)  Dx10-QC Tip 122.5 ps (typical)  Dx10-SP Tip 150 ps (typical)	Dx20-SI, Dx20-QL-SI and Dx20-PT Tips 75 ps (typical)  Dx20-HiTemp 90 ps (typical)  Dx20-QC Tip 122.5 ps (typical)  Dx20-SP Tip 150 ps (typical)	Dx10-SI, Dx10-QL-SI, Dx10-HiTemp, and Dx10-PT Tips 112 ps (typical)  Dx10-QC Tip 122.5 ps (typical)  Dx10-SP Tip 150 ps (typical)	Dx20-SI, Dx20-QL-SI, Dx20-HiTemp, and Dx20-PT Tips 112 ps (typical)  Dx20-QC Tip 122.5 ps (typical)  Dx20-SP Tip 150 ps (typical)	<75 ps (typical)	<112 ps (typical)
<b>Rise Time*</b> (20–80%)	Dx10-SI, Dx10-QL-SI and Dx10-PT Tips 56 ps (typical)  Dx10-HiTemp 67.5 ps (typical)  Dx10-QC Tip 92 ps (typical)  Dx10-SP Tip 113 ps (typical)	Dx20-SI, Dx20-QL-SI and Dx20-PT Tips 56 ps (typical)  Dx20-HiTemp 67.5 ps (typical)  Dx20-QC Tip 92 ps (typical)  Dx20-SP Tip 113 ps (typical)	Dx10-SI, Dx10-QL-SI, Dx10-HiTemp, and Dx10-PT Tips 84 ps (typical)  Dx10-QC Tip 92 ps (typical)  Dx10-SP Tip 113 ps (typical)	Dx20-SI, Dx20-QL-SI, Dx20-HiTemp, and Dx20-PT Tips 84 ps (typical)  Dx20-QC Tip 92 ps (typical)  Dx20-SP Tip 113 ps (typical)	56 ps (typical)	84 ps (typical)
<b>Noise (System)</b>	<36 nV/√Hz (2.8 mV <sub>rms</sub> ) (typical) Referred to input, 6 GHz bandwidth	<61 nV/√Hz (4.8 mV <sub>rms</sub> ) (typical) Referred to input, 6 GHz bandwidth	<36 nV/√Hz (2.3 mV <sub>rms</sub> ) (typical) Referred to input, 4 GHz bandwidth	<67 nV/√Hz (4.3 mV <sub>rms</sub> ) (typical) Referred to input, 4 GHz bandwidth	<74 nV/√Hz (5.8 mV <sub>rms</sub> ) (typical) Referred to input, 6 GHz bandwidth	<74 nV/√Hz (4.7 mV <sub>rms</sub> ) (typical) Referred to input, 4 GHz bandwidth
<b>Input</b>						
<b>Input Dynamic Range (Nominal)</b>	2.5V <sub>pk-pk</sub> , ±1.25V	5V <sub>pk-pk</sub> , ±2.5V	2.5V <sub>pk-pk</sub> , ±1.25V	5V <sub>pk-pk</sub> , ±2.5V	4.8V <sub>pk-pk</sub> , ±2.4V	
<b>Input Common Mode Voltage Range (Nominal)</b>	±4 V				±2.4 V <sub>max</sub>	
<b>Input Offset Voltage Range</b>	±3 V Differential (nominal)				n/a	
<b>Non-destructive Input Range (Nominal)</b>	±20 V				±18 V	
<b>Attenuation</b>	1.7X / 1.0X (nominal)	3.2X / 1.9X (nominal)	1.7X / 1.0X (nominal)	3.2X / 1.9X (nominal)	2.5X	
<b>DC Input Resistance (Nominal)</b>	200 kΩ Differential 50 kΩ Common Mode				4 kΩ Differential 1 kΩ Common Mode	

\* All Bandwidth and Rise Time measurements are made with an oscilloscope bandwidth greater or equal to the probe bandwidth  
† Through entire frequency range

## Product Description

### Complete Differential Probes

Product Description	Product Code
4 GHz ProBus2 Differential Probe with Dx10-SI Solder-In Tip (Qty. 1), Dx10-SP Square Pin (Qty. 1), and Dx10-QC Quick Connect (Qty. 1)	D410-A-PB2
4 GHz ProLink Differential Probe with Dx10-SI Solder-In Tip (Qty. 1), Dx10-SP Square Pin (Qty. 1), and Dx10-QC Quick Connect (Qty. 1)	D410-A-PL
4 GHz ProBus2 Differential Probe with Dx20-SI Solder-In Tip (Qty. 1), Dx20-SP Square Pin (Qty. 1), and Dx20-QC Quick Connect (Qty. 1)	D420-A-PB2
4 GHz ProLink Differential Probe with Dx20-SI Solder-In Tip (Qty. 1), Dx20-SP Square Pin (Qty. 1), and Dx20-QC Quick Connect (Qty. 1)	D420-A-PL
6 GHz ProBus2 Differential Probe with Dx10-SI Solder-In Tip (Qty. 1), Dx10-SP Square Pin (Qty. 1), and Dx10-QC Quick Connect (Qty. 1)	D610-A-PB2
6 GHz ProLink Differential Probe with Dx10-SI Solder-In Tip (Qty. 1), Dx10-SP Square Pin (Qty. 1), and Dx10-QC Quick Connect (Qty. 1)	D610-A-PL
6 GHz ProBus2 Differential Probe with Dx20-SI Solder-In Tip (Qty. 1), Dx20-SP Square Pin (Qty. 1), and Dx20-QC Quick Connect (Qty. 1)	D620-A-PB2
6 GHz ProLink Differential Probe with Dx20-SI Solder-In Tip (Qty. 1), Dx20-SP Square Pin (Qty. 1), and Dx20-QC Quick Connect (Qty. 1)	D620-A-PL
4 GHz ProBus2 Differential Probe with Adjustable Tip	D400A-AT-PB2
6 GHz ProBus2 Differential Probe with Adjustable Tip	D600A-AT-PB2
6 GHz ProLink Differential Probe with Adjustable Tip	D600A-AT-PL

### Positioner Tip (Browser) Kits

Product Description	Product Code
WaveLink Dx10-PT Adjustable Positioner Tip Kit. For use with Dx10 amplifiers.	Dx10-PT-KIT
WaveLink Dx20-PT Adjustable Positioner Tip Kit. For use with Dx20 amplifiers.	Dx20-PT-KIT

### QuickLink Solder-In Tip Set

Product Description	Product Code
QuickLink Solder-In starter pack for use with Dx10 amplifier. Includes one QuickLink adapter and three QL-SI tips.	Dx10-QL-3SI
QuickLink Solder-In starter pack for use with Dx20 amplifier. Includes one QuickLink adapter and three QL-SI tips.	Dx20-QL-3SI

## Product Code

## Product Description

### Accessories

Product Description	Product Code
Probe Deskew and Calibration Test Fixture	TF-DSQ

### Calibration Options

Product Description	Product Code
NIST Calibration for D410-A. Includes test data.	D410-A-CCNIST
NIST Calibration for D420-A. Includes test data.	D420-A-CCNIST
NIST Calibration for D610-A. Includes test data.	D610-A-CCNIST
NIST Calibration for D620-A. Includes test data.	D620-A-CCNIST
NIST Calibration for D400A-AT. Includes test data.	D400A-AT-CCNIST
NIST Calibration for D600A-AT. Includes test data.	D600A-AT-CCNIST

### Replacement Parts

Product Description	Product Code
Single replacement QuickLink Solder-In Tip	QL-SI-1Pack
9-pack of replacement QuickLink Solder-In Tip	QL-SI-9Pack
Replacement Dx10-SI 4 & 6 GHz Solder-In Lead with Qty. 5 Spare Resistors.	Dx10-SI
Replacement Dx20-SI 4 & 6 GHz Solder-In Lead with Qty. 5 Spare Resistors.	Dx20-SI
Replacement Dx10-QC 4 & 6 GHz Quick Connect Lead	Dx10-QC
Replacement Dx20-QC 4 & 6 GHz Quick Connect Lead	Dx20-QC
Replacement Dx10-SP 4 & 6 GHz Square Pin Lead	Dx10-SP
Replacement Dx20-SP 4 & 6 GHz Square Pin Lead	Dx20-SP
Replacement SI Resistor Kit for Dx10/Dx20 - Kit of 20	PKxx0-SI
Replacement QC Resistor Kit for Dx10/Dx20 - 2 kits of 20	PKxx0-QC
Qty. 4 Replacement Pogo Pin Tips and Qty. 2 Replacement Sockets for Dx10-PT and Dx20-PT Adjustable Positioner Tips.	Dxx0-PT-TIPS
Replacement Probe Tip Holder Kit	PK600ST-3
Replacement Platform/Cable Assembly Mounting Kit	PK600ST-4
Quantity 1 Package of Black Adhesive Pads (10/pkg) and Quantity 1 Package of White Adhesive Pads (10/pkg)	Dxx0-PT-TAPE
Quantity 1 Package of Adhesive Probe Connection Guides (200 individual guides/package)	Dxx0-PT-GUIDES

# 8 GHz - 30 GHz DIFFERENTIAL PROBES

The DH series of 8 to 30 GHz active differential probes provides high input dynamic range, large offset capability, low loading and excellent signal fidelity with a range of connection options.

## Key Features

- **Bandwidth models from 8 GHz to 30 GHz**
- **Low loading and high impedance for minimal signal disturbance**
- **Wide variety of tips:**
  - Standard and high-sensitivity 30 GHz solder-in tips
  - High-temperature solder-in tip with 1-meter lead
  - QuickLink adapter for mixed-signal probing
  - Handheld browser tip
  - Tips for direct connection to CrossSync PHY™ protocol analyzer interposers
- **Built-in tip identification for simple setup and precise signal reproduction**
- **Ideal for debug and validation of:**
  - DDR3/LPDDR3
  - DDR4/LPDDR4
  - DDR5/LPDDR5
  - Other high-speed serial interfaces

Teledyne LeCroy  
8 GHz - 30 GHz  
Differential Probe  
Model Numbers:

DH08-PB2

DH08-PL

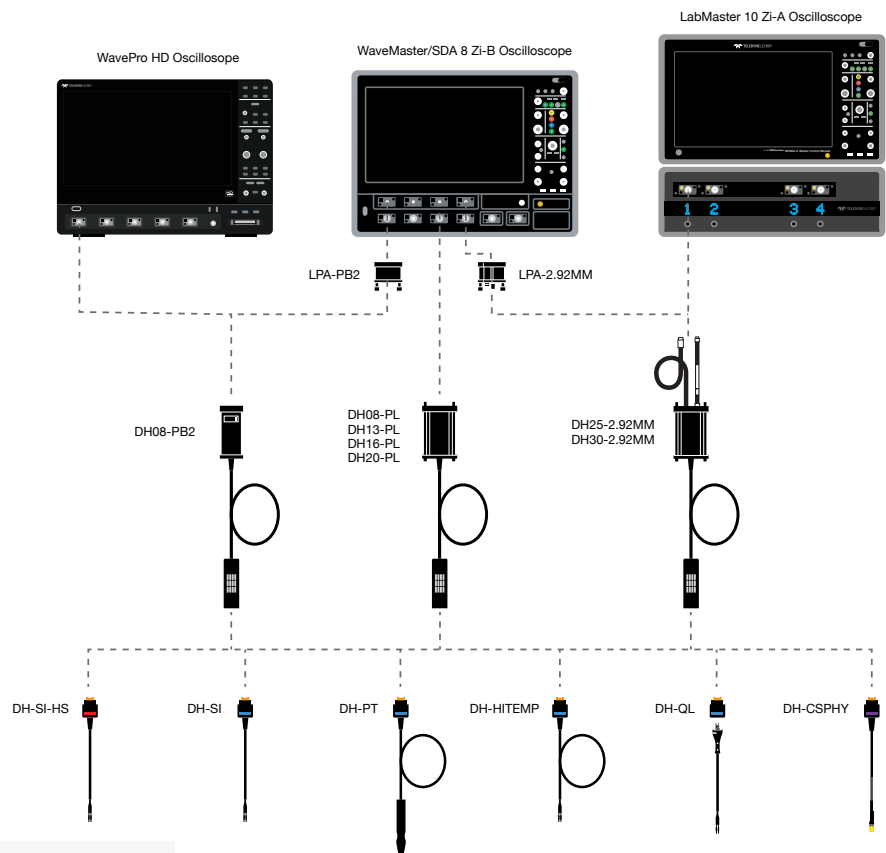
DH13-PL

DH16-PL

DH20-PL

DH25-2.92MM

DH30-2.92MM



Learn More:  
[teledynelecroy.com/probes/  
dh-series-differential-probes](https://teledynelecroy.com/probes/dh-series-differential-probes)



# 8 GHz - 30 GHz DIFFERENTIAL PROBES

	DH08	DH13	DH16	DH20	DH25	DH30
<b>Bandwidth</b>						
Bandwidth (probe only)	8 GHz	13 GHz	16 GHz	20 GHz	25 GHz	30 GHz
Bandwidth with DH-SI or DH-SI-HS tip	8 GHz	13 GHz	16 GHz	20 GHz	25 GHz	30 GHz
Bandwidth with DH-HITEMP tip	8 GHz	13 GHz	16 GHz	16 GHz	16 GHz	16 GHz
Bandwidth with DH-PT browser	8 GHz	13 GHz	16 GHz	16 GHz	16 GHz	16 GHz
Bandwidth with DH-QL adapter and QL-SI tip	8 GHz	8 GHz	8 GHz	8 GHz	8 GHz	8 GHz
<b>Rise Time*</b>						
Rise Time (10-90%)	56 ps	34.5 ps	28 ps	22.5 ps	18 ps	15 ps
Rise Time (20-80%)	37.5 ps	23 ps	19 ps	15 ps	12 ps	10 ps
<b>Probe noise (referred to input)*</b>						
With DH-SI-HS tip	2.1 mV <sub>rms</sub>	2.2 mV <sub>rms</sub>	2.3 mV <sub>rms</sub>	2.6 mV <sub>rms</sub>	2.9 mV <sub>rms</sub>	3.2 mV <sub>rms</sub>
With all other tips	3.5 mV <sub>rms</sub>	3.8 mV <sub>rms</sub>	4.2 mV <sub>rms</sub>	4.6 mV <sub>rms</sub>	4.8 mV <sub>rms</sub>	5.0 mV <sub>rms</sub>
<b>Probe noise density (referred to input)</b>						
With DH-SI-HS tip	18 nV/rt(Hz)					
With all other tips	30 nV/rt(Hz)					
<b>Input</b>						
<b>Input Dynamic Range</b>						
With DH-SI-HS tip	2.0 V <sub>pp</sub> (±1.0 V)					
With all other tips	3.5 V <sub>pp</sub> (±1.75 V)					
<b>Input Common Mode Voltage Range</b>						
±5.0 V						
<b>Input Offset Voltage Range</b>						
±4.0 V						
<b>Non-destructive Input Range</b>						
±16 V						
<b>Attenuation</b>						
With DH-SI-HS tip	1.8x / 3.2x (selected automatically by oscilloscope software)					
With all other tips	3.2x / 5.8x (selected automatically by oscilloscope software)					
<b>Attenuation Accuracy</b>						
±2%						
<b>DC Input Resistance (nominal)</b>						
Differential	200 kΩ differential					
Common mode	50 kΩ differential					
<b>Input Resistance &gt; 10 kHz (typical)</b>						
With DH-SI-HS tip	1100 Ω differential					
With all other tips	2100 Ω differential					
<b>Environmental</b>						
<b>Temperature</b>						
Non-operating	-40 °C to 70 °C					
Operating (DH-HITEMP tip)	-40 °C to 125 °C					

\* All Rise Time and Probe noise measurements are made using a full-bandwidth solder-in tip, and with an oscilloscope bandwidth greater than or equal to the probe bandwidth. When using other tips, rise time and noise measurements correspond to those of the equivalent-bandwidth probe model with a DH-SI tip.

Product Description	Product Code
<b>Differential Probes (tips not included)</b>	
8 GHz differential probe with ProBus2 interface	DH08-PB2
8 GHz differential probe with ProLink interface	DH08-PL
13 GHz differential probe with ProLink interface	DH13-PL
16 GHz differential probe with ProLink interface	DH16-PL
20 GHz differential probe with ProLink interface	DH20-PL
25 GHz differential probe with 2.92 mm interface	DH25-2.92MM
30 GHz differential probe with 2.92 mm interface	DH30-2.92MM
<b>Solder-in Tips</b>	
DH series solder-in tip, 30 GHz BW, 3.5 V <sub>pp</sub> range	DH-SI
DH series high-sensitivity solder-in tip, 30 GHz BW, 2.0 V <sub>pp</sub> range	DH-SI-HS
<b>Positioner (Browser) Tips</b>	
DH series PT browser tip, 16 GHz BW, 3.5 V <sub>pp</sub> range	DH-PT
<b>High-temperature Tips</b>	
DH series high-temperature solder-in tip, 16 GHz BW, 3.5 V <sub>pp</sub> range	DH-HITEMP
<b>QuickLink Adapters and Kits</b>	
DH series QuickLink adapter, 8 GHz BW	DH-QL
DH series QuickLink adapter kit with 3 x QL-SI tips	DH-QL-3SI
<b>CrossSync PHY Tips</b>	
DH series tip for PCIe 5.0 CEM interposer - connects to PE120ACA-X interposer accessory	DH-CSPHY-PCIE5-CEMX16
<b>Accessories</b>	
ProLink to 2.92 mm adapter with probe power and communication pass through	LPA-2.92
2.92 mm to ProLink adapter with probe power and communication pass through	L2.92A-PLINK

Product Description	Product Code
<b>Calibration Options</b>	
3-year warranty	DH08-W3, DH13-W3, DH16-W3, DH20-W3, DH25-W3, DH30-W3
5-year warranty	DH08-W5, DH13-W5, DH16-W5, DH20-W5, DH25-W5, DH30-W5
3-year annual NIST calibration	DH08-C3, DH13-C3, DH16-C3, DH20-C3, DH25-C3, DH30-C3
5-year annual NIST calibration	DH08-C5, DH13-C5, DH16-C5, DH20-C5, DH25-C5, DH30-C5
3-year warranty with annual NIST calibration	DH08-T3, DH13-T3, DH16-T3, DH20-T3, DH25-T3, DH30-T3
5-year warranty with annual NIST calibration	DH08-T5, DH13-T5, DH16-T5, DH20-T5, DH25-T5, DH30-T5
NIST traceable calibration with test data	DH08-CCNIST, DH13-CCNIST, DH16-CCNIST, DH20-CCNIST, DH25-CCNIST, DH30-CCNIST
<b>Replacement Parts</b>	
Replacement SI resistor kit for DH-SI and DH-SI-HS solder-in tips	DH-SI-RESISTORS

# HIGH VOLTAGE DIFFERENTIAL PROBES

Teledyne LeCroy  
High Voltage  
Differential Probe  
Model Numbers:

HVD3102A  
HVD3106A  
HVD3106A-6M  
HVD3206A  
HVD3206A-6M  
HVD3220  
HVD3605A  
AP031



The HVD3000A series high voltage differential probes provide high CMRR over a broad frequency range to simplify the measurement challenges found in noisy, high common-mode power electronics environments. The probe's design is easy-to-use and enables safe, precise high voltage floating measurements.

## Key Features

- 1 kV, 2 kV, 6 kV CAT safety rated models
- Widest differential voltage ranges available
- Exceptional common-mode rejection ratio (CMRR) across a broad frequency range
- 1% gain accuracy
- High offset capability at both high and low attenuation
- AC and DC coupling
- ProBus active probe interface with automatic scaling
- AutoZero with auto disconnect switch
- Wide oscilloscope compatibility

## Product Description

Product Description	Product Code
1 kV, 25 MHz High Voltage Differential Probe with 2 m cable	HVD3102A
1 kV, 120 MHz High Voltage Differential Probe with 2 m cable	HVD3106A
1 kV, 80 MHz High Voltage Differential Probe with 6 m cable	HVD3106A-6M
1 kV, 25 MHz High Voltage Differential Probe with 2 m cable without tip Accessories	HVD3102A-NOACC
1 kV, 120 MHz High Voltage Differential Probe with 2 m cable without tip Accessories	HVD3106A-NOACC
2 kV, 120 MHz High Voltage Differential Probe with 2 m cable	HVD3206A
2 kV, 80 MHz High Voltage Differential Probe with 6 m cable	HVD3206A-6M
2 kV, 400 MHz High Voltage Differential Probe with 2 m cable	HVD3220
6 kV, 100 MHz High Voltage Differential Probe with 6 m cable	HVD3605A
High Voltage Replacement Accessories Kit (Includes 2 each): High Bandwidth 4 mm Probe Tip Adapters, Safety Alligator Clips, Plunger Pincer Clips, Plunger Hook Clips, Plunger Alligator Clips, Spade Terminals	PK-HV-001
700 V, 25 MHz High Voltage Differential Probe ( $\pm 10$ , $\pm 100$ )	AP031

## AP031



## Key Features

- Safe floating measurements
- 15 MHz bandwidth
- 700 V maximum input voltage
- Works with any 1 M $\Omega$  input oscilloscope

## Specifications

Attenuation	$\pm 10$ / $\pm 100$
Bandwidth	15 MHz
Input R	4 M $\Omega$
Differential Mode Range	$\pm 70$ V / $\pm 700$ V DC + Peak AC
Common Mode Range	$\pm 700$ V DC + Peak AC
CMRR	86 dB @ 50 Hz
	56 dB @ 200 kHz

Power Requirements: four AA batteries



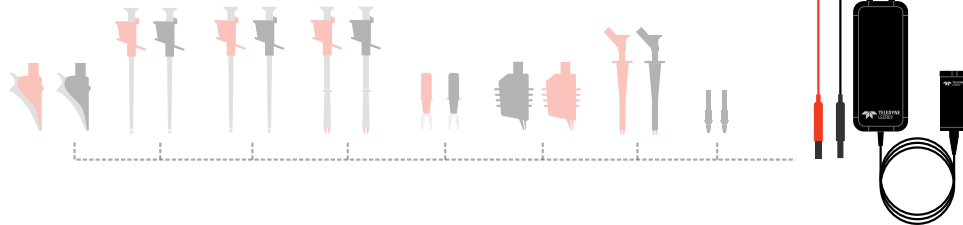
Learn More:  
[teledynelecroy.com/probes/  
high-voltage-differential-probes](https://teledynelecroy.com/probes/high-voltage-differential-probes)

# HIGH VOLTAGE DIFFERENTIAL PROBES

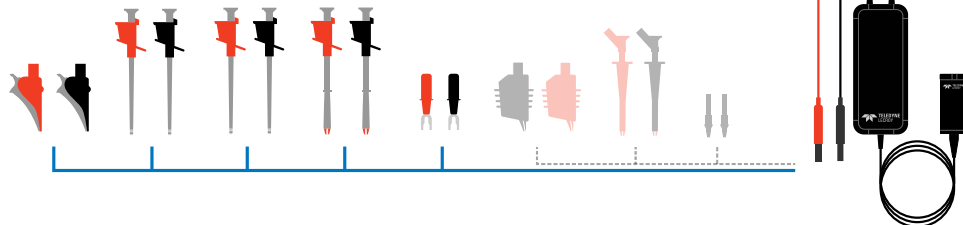
	HVD3102A	HVD3106A/ HVD3106A-6M	HVD3206A/ HVD3206A-6M	HVD3220	HVD3605A
<b>Bandwidth</b>	25 MHz	120 MHz/ 80 MHz	120 MHz/ 80 MHz	400 MHz	100 MHz
<b>Differential Voltage Range</b>	1500 V (DC + peak AC) (1750V maximum typical measurable before saturation)	1500 V (DC + peak AC) (2000V maximum typical measurable before saturation)	2000 V (DC + peak AC)		7000 V (DC + peak AC) (7600 V maximum typical measurable before saturation)
<b>Max Safe Input Voltage</b>	1000 Vrms CAT III		2000 V (DC + peak AC) CAT I 1500 Vdc CAT III 1000 Vrms CAT III		8485 V (DC + peak AC) CAT I 6000 Vrms CAT I 1000 Vrms CAT III 1000 Vdc CAT III
<b>Gain Accuracy</b>	1%*				
<b>Cable Length</b>	2.25 meters	2.25 meters/ 6.8 meters	2.25 meters/ 6.8 meters	2 meters	6.8 meters
<b>Included Tip Accessories</b>	Yes				

\*Up to 0.35% on HVD3220

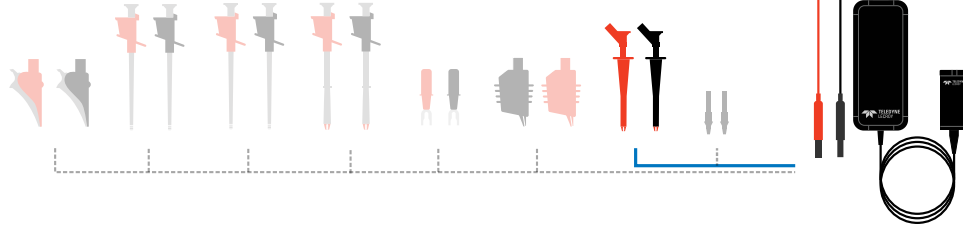
## HVD310xA-NOACC



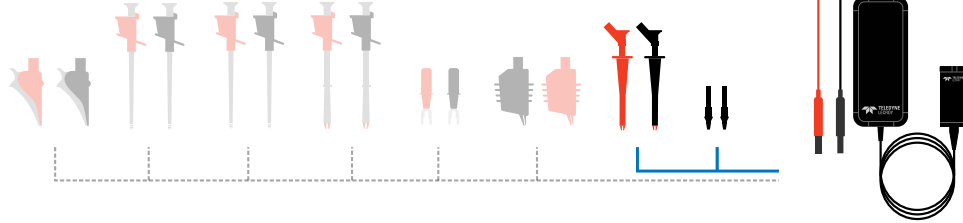
## HVD310xA / 310xA-6M



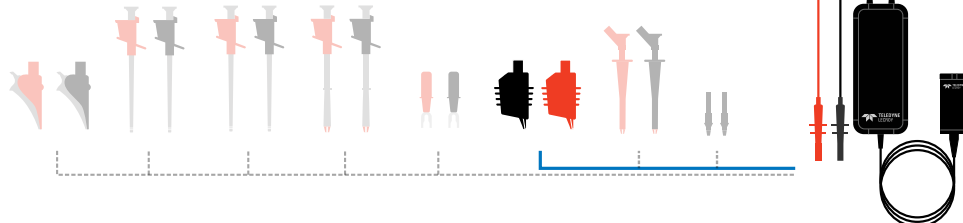
## HVD3206A / 3206A-6M



## HVD3220



## HVD3605A



# HIGH VOLTAGE PASSIVE PROBES



Teledyne LeCroy  
High Voltage  
Passive Probe  
Model Numbers:  
**PPE6KV-A**  
**HVP120**



The PPE6KV-A and HVP120 can handle up to 6000 V<sub>peak</sub> transient overvoltages and are designed for probing up to 2000 V<sub>rms</sub> and 1000 V<sub>rms</sub> respectively. Fast rise times, excellent frequency response, and a variety of standard accessories make these probes safe and ideal for high voltage measurement applications.

## Key Features

- 2000 V<sub>rms</sub> input
- 6000 V<sub>peak</sub> transients
- Up to 500 MHz bandwidth
- Ideal for Surge/EFT testing

### Electrical Characteristics

	PPE6KV-A	HVP120
Bandwidth	500 MHz	400 MHz
Risetime (10% - 90%)	800 ps (typical)	900 ps (typical)
Maximum Input Voltage		
Measurement Category II*	1000 V <sub>rms</sub> 1500 V <sub>dc</sub>	1000 V <sub>rms</sub>
Measurement Category I**	6 kV transient at 0 V <sub>rms</sub> 4 kV transient at 2000 V <sub>rms</sub>	6 kV transient at 0 V <sub>rms</sub> 4 kV transient at 1000 V <sub>rms</sub>
Pollution Degree*	2	
Input Capacitance	2.8 pF (typical)	7.5 pF (typical)
Compensation Range	10 pF - 30 pF (typical)	10 pF - 50 pF (typical)
Attenuation Ratio	100:1 ± 2%	

### Environmental

Temperature (Operating)	0°C to 50°C
Temperature (Non-Operating)	-40°C to 70°C
Humidity (Operating)	90% RH (non-condensing) up to 31°C, decreasing linearly to 50% RH at 50°C
Altitude (Operating)	up to 2,000 m
Altitude (Non-Operating)	up to 15,000 m

### General Characteristics

Weight (probe)	80 g (2.8 oz)	68 g (2.4 oz)
Cable Length	2 m (6.56 ft)	
Probe Tip Diameter	8.6 mm (0.34 inches)	5 mm (0.20 inches)

\* As defined in IEC 61010-031:2015

\*\* Category I as defined in IEC 61010-031:2008. No Rated Measurement Category as defined in IEC 61010-031:2015.

# HIGH VOLTAGE PASSIVE PROBES

## Product Description

2 kV HV Probe, 6 kV overvoltage capability  
 1 kV HV Probe, 6 kV overvoltage capability  
 PPE6KV-A Replacement Accessories Kit  
 HVP120 Replacement Accessories Kit

## Product Code

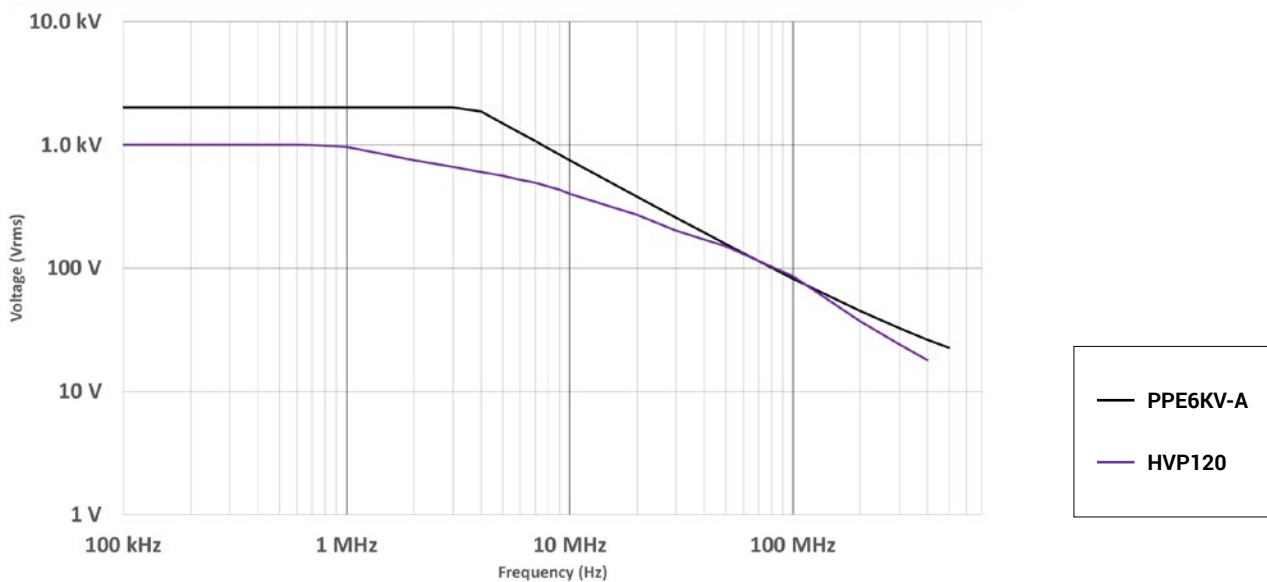
PPE6KV-A  
 HVP120  
 PK-112  
 PK-HV-002

## Standard Accessories

PPE6KV-A and HVP120 are sold with the following standard accessories. No extra purchase necessary.

	PPE6KV-A	HVP120
Trimming Tool	✓	✓
Color Coding Rings	✓	✓
Ground Lead (22 cm)	✓	✓
Security Ground Lead	✓	✓
Crocodile Clips	✓	✓
Flexible Security Adapter	✓	✓
Sprung Hook	✓	✓
BNC Adapter	✓	✓
Insulating Tip	✓	✓
Swivel Ground Lead and Lead Adapter	✓	✗
Solid and Spring Tips	✗	✓

## PPE6KV-A and HVP120 Voltage Derating



Learn More:  
[teledynelecroy.com/probes/  
 high-voltage-passive-probes](https://teledynelecroy.com/probes/high-voltage-passive-probes)

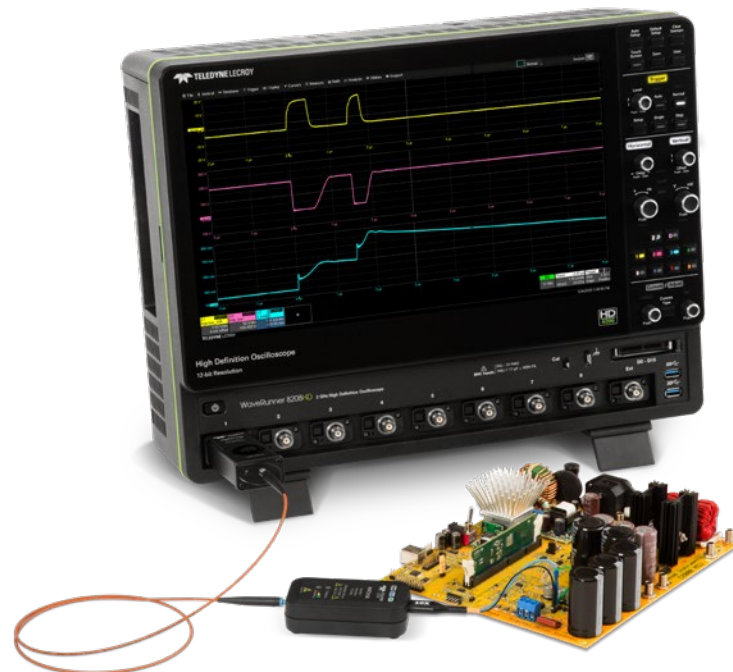


# HIGH VOLTAGE FIBER OPTICALLY-ISOLATED PROBES

The HVFO is an affordable, optimally designed probe for measurement of small signals floating on an HV bus in power electronics designs or for EMC, EFT, ESD, and RF immunity testing sensor monitoring. It far surpasses the measurement capabilities and signal fidelity of both conventional HV differential probes and acquisition systems that rely on galvanic high voltage isolation. Furthermore, it mitigates the need to rely on dangerous test setups that require floating the oscilloscope and probe.

## Key Features

- **150 MHz bandwidth**
- **35 kV common-mode voltage rating (fiber optic isolation)**
- **Superior Noise and Rejection**
  - 140 dB CMRR
  - Low loop inductance
  - Low attenuation
- **Optical isolation reduces adverse loading of DUT**
- **Selectable tips from  $\pm 1V$  to  $\pm 40V$**
- **Applications**
  - Upper-side gate drive signal measurements
  - Floating control signal or sensor voltage measurements
  - EMC, EFT, ESD, and RF immunity testing and system optimization
  - Any small signal measurements with high common-mode voltage



Teledyne LeCroy  
High Voltage Fiber  
Optically-isolated Probe  
Model Number:  
**HVFO108**



Learn More:  
[https://teledynelecroy.com/probes/  
high-voltage-fiber-optically-isolated-probes](https://teledynelecroy.com/probes/high-voltage-fiber-optically-isolated-probes)

# HIGH VOLTAGE FIBER OPTICALLY-ISOLATED PROBES

## Electrical

<b>Bandwidth</b>	150 MHz (typical, with tip attached)
<b>Rise Time (10-90%)</b>	3.3 ns (typical)
<b>Input Dynamic Range</b>	±1V, ±5V, ±10V, ±20V, ±40V (DC+peak AC) respectively with 1X, 5X, 10X, 20X or 40X attenuating tips. All tips are purchased as accessories (none are included with HVFO108 probe).
<b>Maximum Non-destruct Voltage</b>	5 times the operating voltage rating (tip dependent)
<b>Common Mode Voltage Range</b>	±35 kV (DC+Peak AC) (not for hand-held use, with adequate spacing between probe components and earth ground)
<b>Maximum Input Voltage to Earth</b>	±35 kV (DC+Peak AC) (not for hand-held use, with adequate spacing between probe components and earth ground)
<b>Maximum Safe Input Voltage</b>	For hand-held use, 30 Vrms / 60 Vdc per IEC/EN 61010-031:2015
<b>Offset</b>	Offset capability determined by oscilloscope offset available in a given gain (V/div) setting after accounting for total probe attenuation (total probe attenuation is twice the tip attenuation).
<b>Sensitivity</b>	10 mV/div to 1 V/div (1X tip), 50 mV/div to 5 V/div (5X tip), 100 mV/div to 10 V/div (10X tip), 200 mV/div to 20 V/div (20X tip), 400 mV/div to 40 V/div (40X tip)
<b>Gain Accuracy</b>	2.5% (typical), 4% (guaranteed)
<b>Input Impedance</b>	1 MΩ    34 pF (1X tip); 5 MΩ    26 pF (5X tip); 8 MΩ    23 pF (10X tip); 10 MΩ    22 pF (20X tip); 10 MΩ    22 pF (40X tip)
<b>Input/Output Coupling</b>	DC only
<b>Interface</b>	ProBus
<b>Cable Length</b>	1.25 m (4.1 feet) from input lead to oscilloscope connection (using included 1 meter fiber optic cable)
<b>Battery</b>	6 hour battery life (typical). 2.5 hour re-charge time (typical, with user-supplied dedicated USB charger). 5 hour re-charge time (typical) using supplied USB charging cable connected to oscilloscope USB port

## Noise, Rejection, and Electromagnetic Compatibility (EMC)

<b>CMRR (typical)</b>	140 dB (100 Hz), 120 dB (to 1 MHz), 85 dB (to 10 MHz), 60 dB (to 60 MHz), 35 dB (to 150 MHz)
<b>Noise (Probe only)</b>	7 mVrms (1X tip), 35 mVrms (5X tip), 70 mVrms (10X tip), 140 mVrms (20X tip), 280 mVrms (40X tip)
<b>Noise Density (Probe only)</b>	570 nV/√Hz
<b>Electrostatic Discharge (ESD) Immunity</b>	8 kV contact discharge and 10 kV air discharge per IEC61000-4-2, criteria A
<b>Radiated RF Electromagnetic Field Immunity</b>	25 V/m (80 MHz to 2.7 GHz) per IEC61000-4-3, criteria A
<b>Immunity to Conducted Disturbance Induced by RF Fields</b>	10 V/m (150 kHz to 80 MHz) per IEC61000-4-6, criteria A

## Environmental

<b>Temperature</b>	10°C to 40°C (operating), -20°C to 70°C (non-operating)
<b>Humidity</b>	5% to 80% RH (non-condensing) up to 30°C, decreasing linearly to 45% RH at 50°C (operating) 5% to 95% RH (non-condensing), 80% RH above 30°C, 45% RH above 50°C (non-operating)
<b>Altitude</b>	Up to 3000 m (operating), 10,000 m (non-operating)
<b>Pollution Degree</b>	2, Indoor Use Only

## Certifications

<b>CE Declaration of Conformity</b>	Low Voltage Directive 2014/35/EU (IEC/EN 61010-031:2015) EMC Directive 2014/30/EU (IEC/EN 61326-1:2013) RoHS2 Directive 2011/65/EU
-------------------------------------	--

## Ordering Information

### Product Description

### Product Code

### High Voltage Fiber Optically-isolated Probe Models and Accessories

High Voltage Fiber Optic Probe, 150 MHz Bandwidth. Includes soft-carrying case, Qty. 1 Amplifier/Modulating Transmitter, Qty. 1 Demodulating Receiver, Qty. 1 1m Fiber Optic Cable, Qty. 1 USB Charging Cable, Qty. 1 Micro-gripper set.	HVFO108
--	---------

### Attenuating Tips must be ordered separately.

HVFO10X +/-1V (1x Attenuation) Universal Tip Accessory	HVFO100-1X-TIP-U
HVFO10X +/-5V (5x Attenuation) Universal Tip Accessory	HVFO100-5X-TIP-U
HVFO10X +/-10V (10x Attenuation) Universal Tip Accessory	HVFO100-10X-TIP-U
HVFO10X +/-20V (20x Attenuation) Universal Tip Accessory	HVFO100-20X-TIP-U
HVFO10X +/-40V (40x Attenuation) Universal Tip Accessory	HVFO100-40X-TIP-U
1m Spare Fiber Optic Cable Accessory	HVFO-1M-FIBER
6m Fiber Optic Cable Accessory	HVFO-6M-FIBER
NIST Traceable Calibration Certificate	HVFO108-CCNIST

# OPTICAL-TO-ELECTRICAL CONVERTERS



Teledyne LeCroy  
Optical Probe  
Model Numbers:

**OE6250G-M**  
**OE695G**



## OE6250G-M

The OE6250G optical-to-electrical converter enables optical signal measurement of intensity-modulated signals up to 28 Gbaud and beyond on LabMaster or WaveMaster series real-time oscilloscopes. As a fully calibrated module, the OE6250G-M integrates seamlessly into the oscilloscope software to give optical intensity measurement straight out of the box. Teledyne LeCroy's extensive tool-set includes powerful analysis tools for NRZ, PAM4, and other signal types, and enables custom signal processing and reference receiver implementation.

## Key Features

- **Optical-to-electrical converter for intensity-modulated signals to 28 Gbaud and higher**
  - Up to 25 GHz bandwidth with a 4th-order Bessel-Thomson frequency response
  - Up to 36 GHz bandwidth with a flat frequency response
- **DC-coupled detector for accurate signal reproduction with a real-time oscilloscope**
- **Fully calibrated and integrated**
- **50/125  $\mu\text{m}$  multi-mode fiber input**
- **Ideal for Eye Mask, Extinction Ratio, and Optical Modulation Amplitude (OMA) testing**

## OE6250G-M Specifications

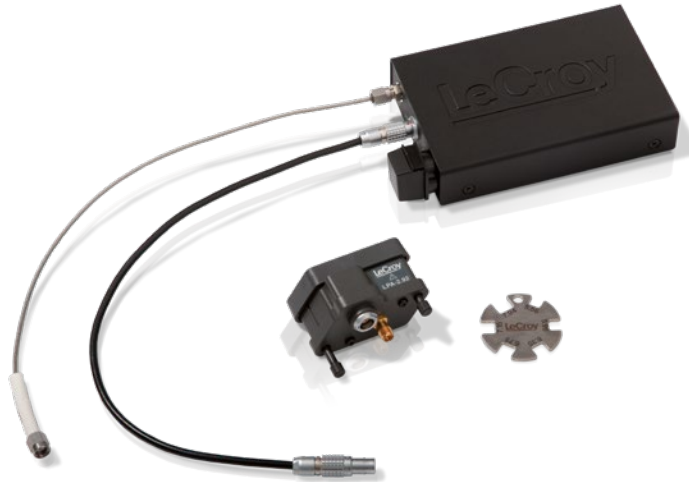
	Typical
Analog Bandwidth	25 GHz (Bessel-Thomson response mode), 36 GHz (Flatness response mode)
Wavelength Range	830nm - 1600nm
Calibration Wavelengths	850nm, 1310nm, 1550nm
Conversion gain at 850nm	-80 V/W
Conversion gain at 1310nm	-125 V/W
Conversion gain at 1550nm	-125 V/W
Electrical output coupling	DC coupled
5% compression point at 1550nm	4 mW (minimum)
Noise measured up to 50GHz	500 $\mu\text{V}$ RMS
Optical Return Loss	19 dB
Polarization dependent loss at 1550 nm	0.1 dB
RF impedance	50 $\Omega$
Fiber (core/cladding)	50/125 $\mu\text{m}$
RF connector	2.92 mm
Optical Connector	FC/PC or SC/PC

Note: All specifications subject to change without notice.



## Key Features

- Compatible with LabMaster 10 Zi oscilloscopes
- Frequency range DC to 9.5 GHz (electrical, -3 dB)
- Reference receiver support from 8GFC to 10GFC FEC, or Custom (<12.5Gb/s)
- Full bandwidth mode (no reference receiver applied)
- 62.5/125  $\mu\text{m}$  multi-mode or single-mode fiber input
- Broad wavelength range (750 to 1650 nm)
- +7 dBm (5 mW) max peak optical power
- Low noise (as low as 25 pW/ $\sqrt{\text{Hz}}$ )
- Ideal for Eye Mask, Extinction Ratio, and Optical Modulation Amplitude (OMA) testing



## OE695G

The OE695G wide-band optical-to-electrical converter is ideal for measuring optical datacom and telecom signals with data rates from 622 Mb/s to 12.5+ Gb/s. Connection to a real-time Teledyne LeCroy oscilloscope is through the 2.92 mm interface, with a provided adapter to connect to ProLink interfaces.

## Ordering Information

### Product Description

Optical-to-Electrical Converter, DC to 36 GHz, 830 to 1600nm  
Optical-to-Electrical Converter, 785 to 1550 nm, 2.92 mm connector with ProLink adapter

### Product Code

OE6250G-M  
OE695G

Learn More:  
[teledynelecroy.com/probes/  
optical-to-electrical-converters](https://teledynelecroy.com/probes/optical-to-electrical-converters)



# PASSIVE PROBES

Each passive probe is recommended for a certain oscilloscope, using the right passive probe with the right oscilloscope means that the probe can be properly compensated across the entire bandwidth. Using probes with a different oscilloscope will only let you compensate for low frequencies.

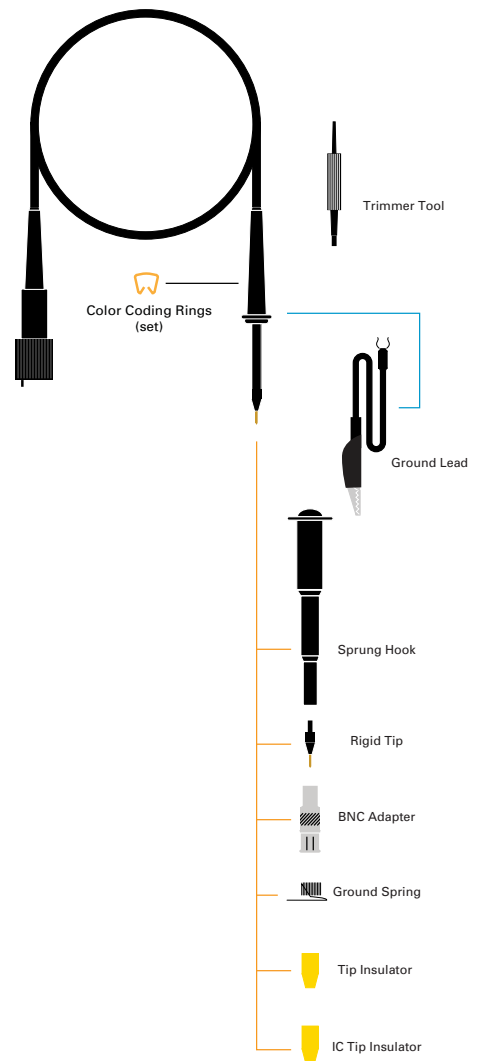
## Specifications

Types	Bandwidth	Input R	Input C	Attenuation	Maximum Voltage	Diameter
PP016	300 MHz/ 10 MHz	10 MΩ/ 1 MΩ	12 pF/ 46 pF	÷10/ ÷1	600 V	5 mm
PP018	500 MHz	10 MΩ	10 pF	÷10	350 V	5 mm
PP019	200 MHz	10 MΩ	12 pF	÷10	500 V	5 mm
PP020	500 MHz	10 MΩ	11 pF	÷10	500 V	5 mm
PP021	500 MHz	10 MΩ	11 pF	÷10	500 V	2.5 mm
PP022	500 MHz	10 MΩ	10 pF	÷10	500 V	2.5 mm
PP023	500 MHz	10 MΩ	10 pF	÷10	500 V	2.5 mm
PP024	500 MHz	10 MΩ	10 pF	÷10	500 V	5 mm
PP025	500 MHz	10 MΩ	10 pF	÷10	500 V	5 mm
PP026	500 MHz	10 MΩ	10 pF	÷10	500 V	5 mm

Teledyne LeCroy  
Passive Probe  
Model Numbers:

PP016  
PP018  
PP019  
PP020  
PP021  
PP022  
PP023  
PP024  
PP026

*Passive Probe Accessories for PP016*  
Replacement Part Kit: PKIT3-5MM-101



Learn More:  
[teledynelecroy.com/probes/  
passive-probes](https://teledynelecroy.com/probes/passive-probes)

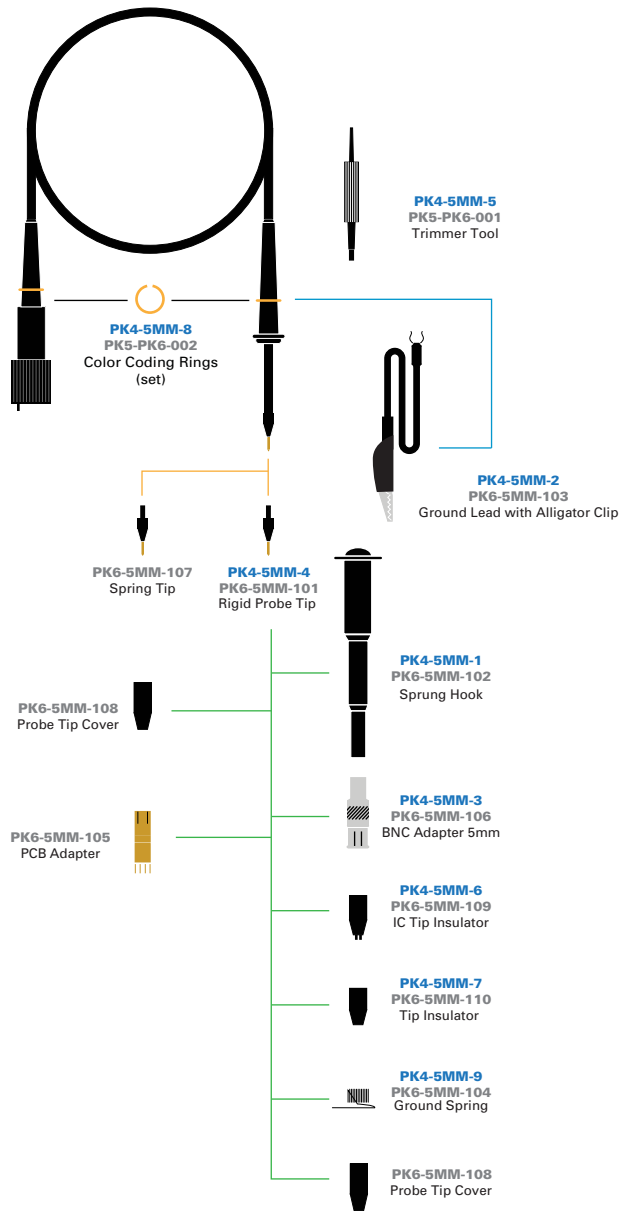
## Passive Probe Accessories for

PP019 and PP020 – Part numbers in blue

Replacement Part Kit: PKIT4-5MM-101

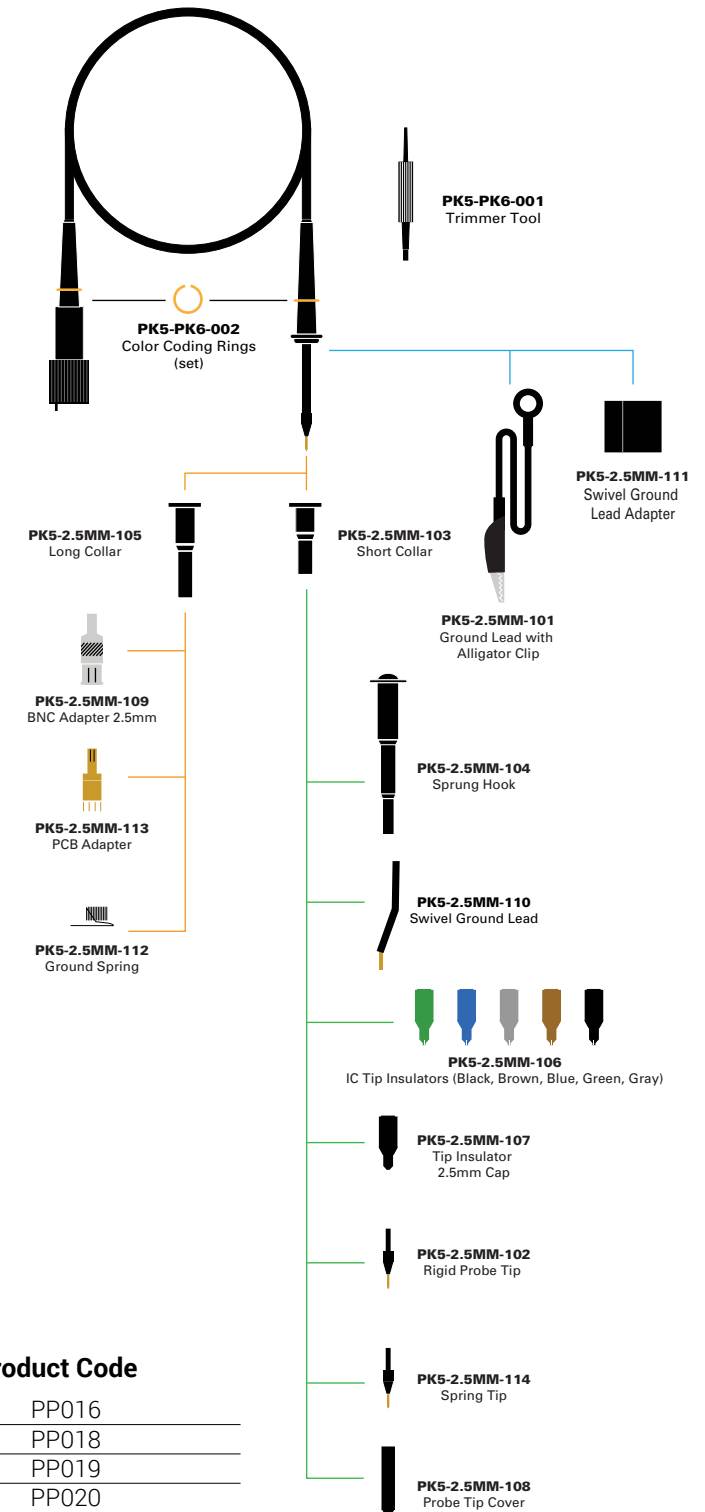
PP024, PP025, and PP026 – Part numbers in gray

Replacement Part Kit: PKIT6-5MM-101



## Passive Probe Accessories for PP021, PP022, and PP023

Replacement Part Kit: PKIT5-2.5MM-101



## Ordering Information

### Product Description

10:1, 10 MΩ, 300 MHz Passive Probe

500 MHz Passive Probe, 10:1, 10 MΩ

250 MHz Passive Probe, 10:1, 10 MΩ

500 MHz Passive Probe, 10:1, 10 MΩ

500 MHz Passive Probe, 2.5mm, 10:1, 10 MΩ

500 MHz Passive Probe, 2.5mm, 10:1, 10 MΩ

500 MHz Passive Probe, 2.5mm, 10:1, 10 MΩ

500 MHz Passive Probe, 5mm, 10:1, 10 MΩ

500 MHz Passive Probe, 5mm, 10:1, 10 MΩ

500 MHz Passive Probe, 5mm, 10:1, 10 MΩ

### Product Code

PP016

PP018

PP019

PP020

PP021

PP022

PP023

PP024

PP025

PP026

# PROBE ADAPTERS



Teledyne LeCroy  
Probe Adapter  
Model Numbers:  
**CA10**  
**TPA10**

Probe adapters provide simple and easy interface of third-party probes as well as change between the different Teledyne LeCroy Oscilloscope input and cable types (ProBus, ProLink, K/2.92 mm, BNC and SMA). Depending on the adapters, changing between the Teledyne LeCroy Oscilloscope's input type may have an effect on the overall performance of the channel.

## CA10

The CA10 is a programmable and customizable interface device that seamlessly incorporates third party current transducers/transformers with Teledyne LeCroy oscilloscopes or motor drive analyzers. The easy to use interface provides the ability for the CA10 to be programmed to contain the specifications of the current sensor allowing it to automatically correct for the gain or attenuation and display results in Ampere units. This allows the third party device to be recognized and operate as if it were a Teledyne LeCroy probe.



## Key Features

- Provides ability for third party current sensor to operate like a Teledyne LeCroy probe
- Programmable EEPROM for saving third party current sensor parameters
- Allows for addition of shunt resistor and RLC filter components
- ProBus Active interface with automatic scaling in A/div
- Easy to use, saves time and possible errors

## Specifications

Input Coupling	DC, AC, Both
Input Termination	1MΩ or 50Ω
Programmable Bandwidth Filters	Full, 200 MHz, 20 MHz
Transformer/Transducer Interface	BNC
Scaling Factors	Programmable
Resistive Termination (if required)	Customizable (See Operator's Manual for details)
Oscilloscope Interface	Teledyne LeCroy ProBus

*Note: Some third party devices will require a separate power supply or batteries. The CA10 does not have the ability to supply the power to these devices.*

## Ordering Information

Product Description	Product Code
ProBus Current Sensor Adapter	CA10

### Included with Standard Configuration CA10

Description	Qty
CA10 ProBus Current Adapter	1
Heat-Shrink tubing (6" length)	1
Removable Labels (sheet of 20)	1



Learn More:  
[teledynelecroy.com/probes/  
probe-adapters](http://teledynelecroy.com/probes/probe-adapters)



## TPA10

The TPA10 ProBus™ Probe Adapter enables you to connect select TekProbe interface level II probes to any ProBus-equipped Teledyne LeCroy instrument. The TPA10 supplies all necessary power and offset control to the probe and automatically detects which probe is attached.

## Specifications

### Electrical Characteristics

Bandwidth	4 GHz (adapter only)
Power Supplies	+15V, -15V, +5V, -5V (each 2%)
Offset Voltage	±1V (1%)
Max. Input Voltage	47 V <sub>pk</sub> , 33 V <sub>rms</sub>

### Environmental

Operating Temperature Range	0 to 50 °C
Non-operating Temperature Range	-40 to +70 °C
Humidity	5% to 95% RH (10 to 40 °C); 5% to 75% (above 40 °C); RH not controlled below 10 °C
Operating Altitude	3000 meters maximum

### Physical

Dimensions (WxHxD)	39 mm x 31.1 mm x 88.6 mm (1.54" x 1.22" x 3.49")
Weight	119 g (0.26 lb)

The TPA10 requires the Teledyne LeCroy oscilloscope to be running firmware version 7.8.0.0 or greater.

## Ordering Information

**Product Description**  
TPA10 ProBus Adapter

**Product Code**  
TPA10

## Key Features

- Allows TekProbe™ interface level II probes to work with any ProBus-equipped Teledyne LeCroy oscilloscope
- Automatic probe detection
- Provides all necessary power and offset control to the attached probe
- Supports probes up to 4 GHz
- Easy firmware updates
- Wide variety of probes supported including:
  - Preamplifiers
  - Current Probes
  - Single-Ended Active Probes
  - Differential Active Probes

## Supported Probes

The following TekProbe devices are supported for use with TPA10:

### Preamplifiers

1 MHz Differential Preamplifier	ADA400A
---------------------------------	---------

### Current Probes

50 MHz AC/DC Current Probe	TCP202/TCP202A
----------------------------	----------------

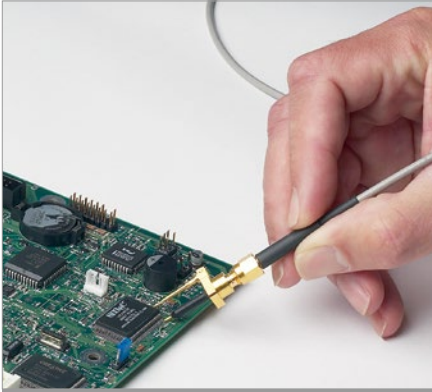
### Single-ended Active Probes

750 MHz Single-ended Active Probe	P6205
1 GHz Single-ended Active Probe	P6243
1.5 GHz Single-ended Active Probe	P6245
4 GHz Single-ended Active Probe	P6241
4 GHz Single-ended Active Probe	P6249

### Differential Active Probes

100 MHz Differential Probe	P5205/P5205A
50 MHz Differential Probe	P5210/P5210A
400 MHz Differential Probe	P6246
1 GHz Differential Probe	P6247
1.5 GHz Differential Probe	P6248
500 MHz Differential Probe	P6250
1 GHz Differential Probe	P6251

# TRANSMISSION LINE PROBES



Teledyne LeCroy  
Transmission Line Probe  
Model Number:  
PP066

Transmission line probes are a special type of passive probe designed for use at very high frequencies. They replace the high impedance probe cable found in a traditional passive probe with a precision transmission line, with a characteristic impedance that matches the oscilloscope input ( $50 \Omega$ ). This greatly reduces the input capacitance to a fraction of a picofarad, minimizing the loading of high frequency signals. A matching network at the tip increases the DC input resistance. While they have lower DC input resistance than a traditional passive probe (usually  $500 \Omega$  to  $5 \text{ k}\Omega$ ), the input impedance of these probes remains nearly constant over their entire frequency range. A traditional  $\div 10$  passive probe will have a  $10 \text{ M}\Omega$  input impedance at DC, however this impedance drops rapidly with frequency, passing below the input impedance of a transmission line probe at less than 100 MHz.

In some applications, transmission line probes offer advantages over active probes. In addition to being less expensive, their passive design is more robust to over voltage and ESD exposure. They are useful in applications producing fast rising, narrow pulses with amplitudes which exceed the dynamic range of active probes. They also tend to have less parasitic effects on frequency response.



Learn More:  
[teledynelecroy.com/probes/  
transmission-line-probes](https://teledynelecroy.com/probes/transmission-line-probes)

## PP066

The PP066 is a high-bandwidth passive probe designed for use with the WaveMaster and other high-bandwidth oscilloscopes with 50  $\Omega$  input termination. This very low capacitance probe provides an excellent solution for higher frequency applications, especially the probing of transmission lines with 20–100  $\Omega$  impedance. The PP066 accommodates a wide range of applications, including probing of analog and digital ICs commonly found in computer, communications, data storage, and other high-speed designs.

### Key Features:

- Interchangeable attenuator tips
- Signal integrity at high bandwidth
- Standard SMA cable connection
- Ultra low capacitance

## PP066 Specifications

### Electrical Characteristics

Bandwidth	DC to 7.5 GHz
Risetime	< 47 ps
Input Capacitance	< 0.20 pF
Input Resistance	500 $\Omega$ ( $\div 10$ cartridge) 1000 $\Omega$ ( $\div 20$ cartridge)
Maximum Voltage	15 V rms
Cable Length	1 m

## Ordering Information

### Product Description

7.5 GHz Low Capacitance Passive Probe  
( $\div 10$ , 1 k $\Omega$ ;  $\div 20$ , 500  $\Omega$ )

### Product Code

PP066

### Included with PP066

PACC-AD001, SMA to BNC Adapter



Learn More:  
[teledynelecroy.com/probes/](https://teledynelecroy.com/probes/)



1-800-5-LeCroy  
[teledynelecroy.com](https://teledynelecroy.com)

**Local sales offices are located throughout the world.  
Visit our website to find the most convenient location.**