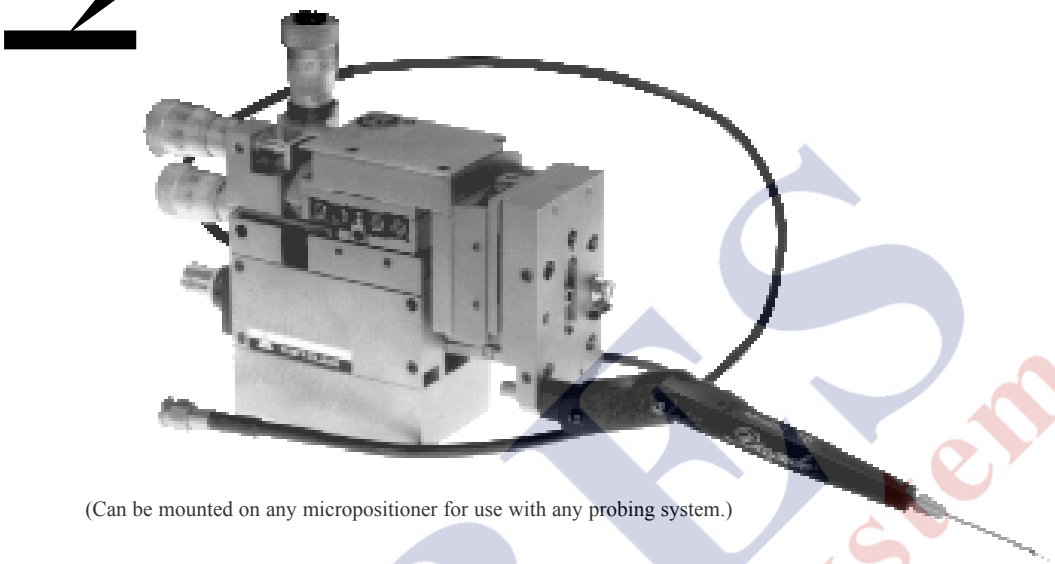
Picoprobe®

BY GGB INDUSTRIES INC.



(Can be mounted on any micropositioner for use with any probing system.)

Picoprobe® Model 10 is a multipurpose, high speed, passive probe which can be used for driving as well as receiving signals. The Model 10 consists of a one meter length of flexible 50 Ω coaxial cable terminated by a carefully trimmed SMA connector on one end and by a miniature, high speed 50 Ω connector specially developed to receive Model 10 replaceable coaxial probe tips on the other. The 50 Ω coaxial cable was custom designed for the Model 10 to accommodate high speed signals, yet remain very flexible, so that moving the cable would not disturb the probe points.

Adaptable for a wide range of applications, the Model 10 uses a variety of special purpose, easily replaceable probe tips. Each probe tip consists of a 1.5 inch long 50 Ω semi-rigid coaxial line, a retaining nut, one or two probe points, and a variety of electrical components tailored to achieve the desired performance characteristics.

To drive or receive signals on 50 Ω circuit points, we recommend the Picoprobe® Model 10 be fitted with a probe tip that has two probe points, one for the ground and one for the signal. Probe points which extend 0.120 inches beyond the 50 Ω coaxial probe tip have been designed for dc to 3.5 GHz response and probe points which extend 0.030 inches beyond the probe tip have been designed for dc to 7 GHz response. The longer 0.120 inch tips are more flexible, making them more durable and easier to use than the shorter 0.030 inch style. To receive signals from high impedance circuit points, Model 10 probe tips with a 250 Ω, 500 Ω, or 5 k Ω input resistance should be used. The 250 Ω tip should be used with 0.180 inch long dual probe points to achieve dc to 10 GHz response. The signal will be attenuated by 5:1. The 500 Ω tip should be used either with 0.180 inch long dual probe points to achieve dc to 11 GHz response or with a 2 inch long ground strap to achieve dc to 4 GHz response. The signal will be attenuated by 10:1. The 5k Ω tip should be used either with 0.180 inch long dual probe points to achieve dc to 5 GHz response, a 2 inch ground strap to achieve dc to 4 GHz response, or a 6 inch ground strap to achieve dc to 2 GHz response. The signal will be attenuated by 100:1. To drive high impedance circuit points, Model 10 probe tips with a 50Ω terminating resistor should be used. See chart below.

All Model 10 probe tips manufactured by GGB Industries, Inc. have been trimmed to compensate for cable loss and minimize the need for a short ground. Grounding methods would depend upon the desired frequency response and range from dual probe points to a 6 inch long flexible ground strap. In applications where many circuit points must be accessed and a ground is not conveniently located, a flexible ground strap can be substituted for the ground point.

50 Ω Input Impedance Mode

	0.120"	0.030"
frequency response -	dc to 3.5 GHz	dc to 7 GHz
insertion loss -	3dB	3db
return loss -	>10 dB	>10 dB
attenuation -	1:1	1:1

250 Ω Input Impedance Mode

frequency response - dc to 10 GHz (-3 dB)
attenuation - 5:1

500 Ω Input Impedance Mode

frequency response - dc to 11 GHz (-3 dB)
attenuation - 10:1

5 KΩ Input Impedance Mode

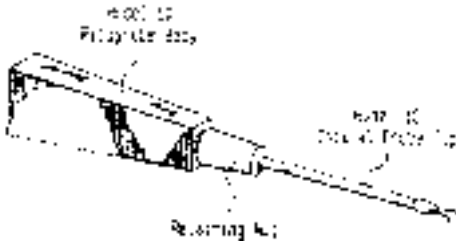
frequency response - dc to 5 GHz (+3 dB)
attenuation - 100:1

Model 10 Picoprobe® Replacement Tips Part Number System

Model 10 tip part numbers can be determined by filling in the spaces above each column in this chart.

10 —	____	— ____	— ____	— ___	— ___	— ___
Model Number	Added Resistance to 50 Ω Coaxial Tip	Outside diameter of probing wire	Probing wire material	No. of probing wires	Ground R / L	Space Between Points
	50/30 = No added resistance (50 Ω coax to 0.030" long probe tips) 50/120 = No added resistance(50 Ω coax to 0.120" long probe tips) 50T= 50 Ω resistor placed between center conductor and shield just before probe tips. 50C = a capacitor placed between center conductor and shield just before probe tips. (specify value) 250 = 250 Ω input resistance attenuates 5:1 500 = 500 Ω input resistance attenuates 10:1 1K = 1000 Ω input resistance attenuates 20:1 2.5K = 2500 Ω input resistance attenuates 50:1 5K = 5000 Ω input resistance attenuates 100:1	125 = 125 micron wire sharpened to approx. 5 microns for tungsten and 25 microns for Pd or BeCu 60 = 60 micron wire sharpened to approx. 3 microns for tungsten and 10 microns for Pd or BeCu 35 = 35 micron wire sharpened to approx. 2microns (tungsten only) 22 = 22 micron wire sharpened to approx. 1 micron (tungsten only) 10 = 10 micron wire sharpened to approx. 0.2 micron (tungsten only)	W = Tungsten Pd = Palladium BeCu = Beryllium Copper	1 = one signal wire only 2 = one signal wire and one ground wire Note: If "1" is entered end part number here	R= Right L= Left Ground on Right or Left side of signal point as seen looking from front to back of Model 10	Spacing between signal and ground points (indicate distance in either inches or microns)

Example: 10-500-60-W-2-R-120 micron - Denotes a Model 10 probe tip with 500 Ω input resistance, 60 micron probing wires, one signal and one ground wire made of tungsten, the ground is on the right side of the signal wire, and the space between probe points is 120 microns.



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