

# Picoprobe®

BY GGB INDUSTRIES INC.

## Model 120

## High Performance Microwave Probes



*Model 120 Picoprobe with bias T*

The Model 120 Picoprobe sets new standards in microwave probing performance. Benefiting from coaxial techniques, which have inherent low loss and low dispersion characteristics, the Model 120 Picoprobe achieves an insertion loss of less than 1.75 db and a return loss of greater than 15 db over its frequency range. ( see accompanying data)

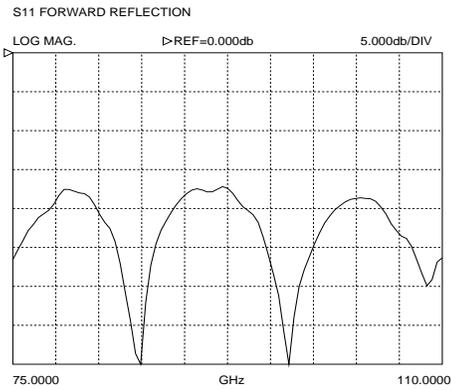
With its individually spring loaded, Beryllium-Copper tips, the Model 120 Picoprobe provides reliable contacts, even when probing non-planar structures. This reliable low resistance contact is one of the keys to providing highly repeatable measurements (-50 db) at W band frequencies. The Model 120 Picoprobe also provides direct viewing of the probe tips for accurate positioning.

Any pitch (tip spacing) from 50 to 450 microns may be specified. The probe can be configured with Ground-Signal-Ground (G,S,G), Ground-Signal (G,S), or Signal-Ground (S,G) tip footprints. We recommend smaller pitches with a G,S,G footprint for best performance.

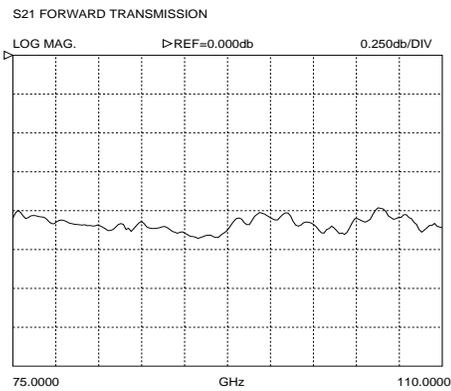
Covered by US patent # 4,871,964

### Features

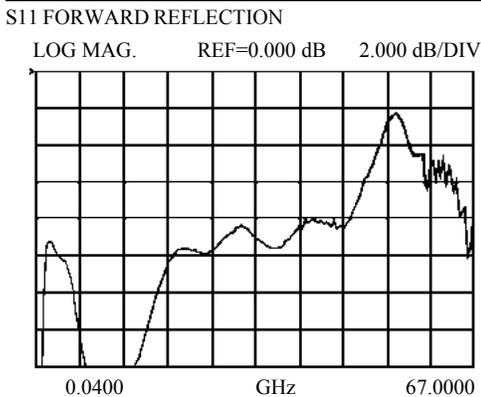
- Durable
- 75 GHz to 120 GHz
- Insertion loss 1.75 db max. (75 to 110 GHz)
- Return loss 15 db max. (75 to 110 GHz)
- Individually spring loaded contacts
- Measurement repeatability -50 db
- Bias T option available
- Patented coaxial design



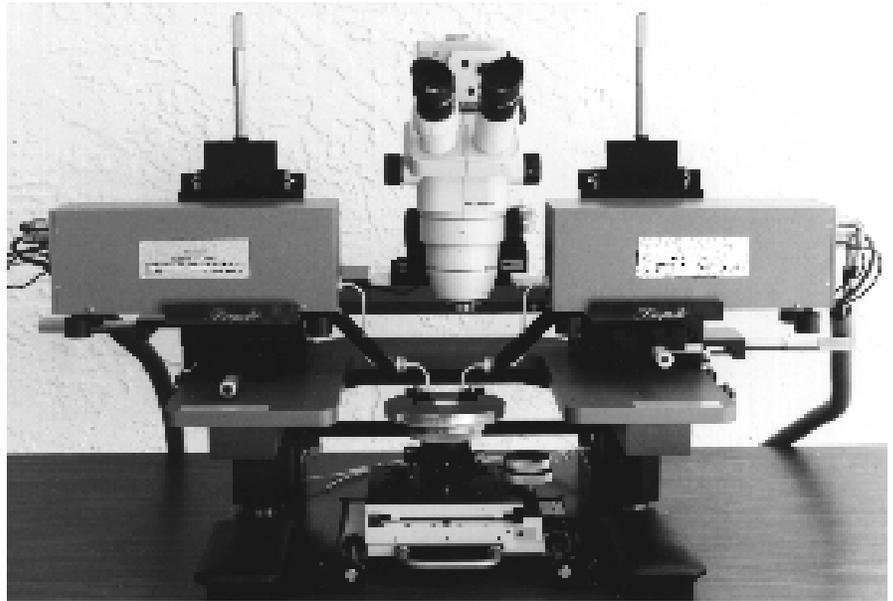
Typical uncalibrated performance of a Model 120-GSG-150-BT while touching a 50 ohm load on our CS-5 calibration substrate.



Typical insertion loss of a Model 120-GSG-150-BT



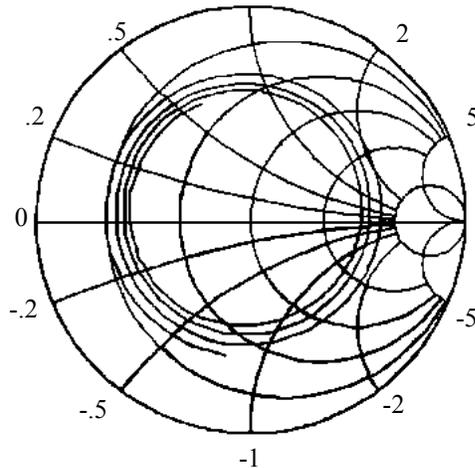
The Model 120 Picoprobe bias T provides a direct low resistance DC path for supplying up to 1.5 A to a device under test. The bias T also has special circuits which add loss at frequencies below the cut off frequency (59.05 GHz) of WR-10 waveguide. This data was taken by launching a, 40 MHz to 67 GHz, signal from the tips of a calibrated Model 67A into the tips of a Model 120-GSG-150-BT. Without this low frequency loss most active devices will oscillate.



Micropositioners are available to hold Wiltron W band modules so that the module and the probe are micropositioned as a unit. In this way, total ease of positioning can be achieved with minimum insertion loss.

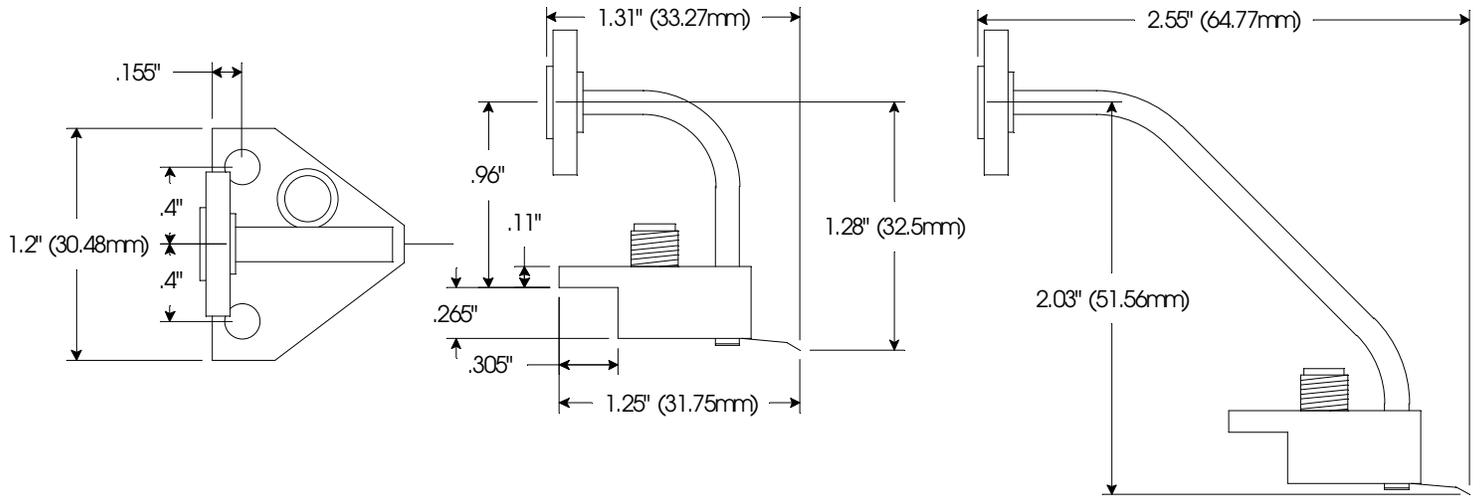
The probes also have a 3 hole mounting adaptor which will fit standard microwave probe stations. In this case, a longer section of waveguide between the probe and the W band module may be desired to add positioning flexibility.

S11 FORWARD REFLECTION IMPEDANCE



Forward reflection of a Model 120 into an open ended 50 ps coplanar line after an LRM calibration was performed using our CS-5 calibration substrate. The smooth inwardly spiraling line shows the increasing loss of the 50 ps coplanar line with frequency, coupled with a smoothly changing phase.

The CS-5 will also perform excellent LRL and SOLT W-band calibrations. More data available on request.



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