

BNC cable instead of oscilloscope probe for fixed setup?

I'm developing a device, it will generate a signal that will be fed directly to an oscilloscope, and connected permanently.

I now have the circuitry set up on a breadboard, attached to the scope using a standard scope probe. In the final product, I'd like to use standard BNC-BNC coax cable, to make it "fool-proof", and to have a very stable connection. (scope probe with its hook and ground clip can fall off when the equipment is moved)

I'm planning to design a PCB for the product. So basically the probe will be replaced with a BNC-BNC coax cable, and a PCB-mounted BNC connector.

My question is, do I need any kind of extra circuitry on the PCB to compensate for this? The maximum bandwidth I need is not more than 1 MHz.

[oscilloscope](#)[bnc](#)

edited Apr 3 '14 at 15:32



JYelton

15k ● 26 ● 75 ● 156

asked Apr 3 '14 at 14:12



Peter

8 ● 2

2 "Extra circuitry" to what? Not knowing what circuitry you have already means nobody can guess what "extra" means. – [Andy aka](#) Apr 3 '14 at 14:25

It's the output of an INA193 current shunt monitor. – [Peter](#) Apr 3 '14 at 15:16

1 Answer

The main difference is that the BNC cable will look like a 1 M Ω (or 50 Ω , depending on how you set the scope) load to your circuit, rather than the higher impedance of the scope probe. This shouldn't make much difference at all as long as the INA193 has a low output impedance.

As long as the cable is short with respect to the wavelength of the highest frequency of interest, you won't need to think about transmission-line effects.

Also, you won't have the 10:1 attenuation of the probe, so adjust the vertical scale appropriately.

answered Apr 3 '14 at 15:39



Dave Tweed ♦

92.5k ● 9 ● 98 ● 188