

# SRS Tech Note

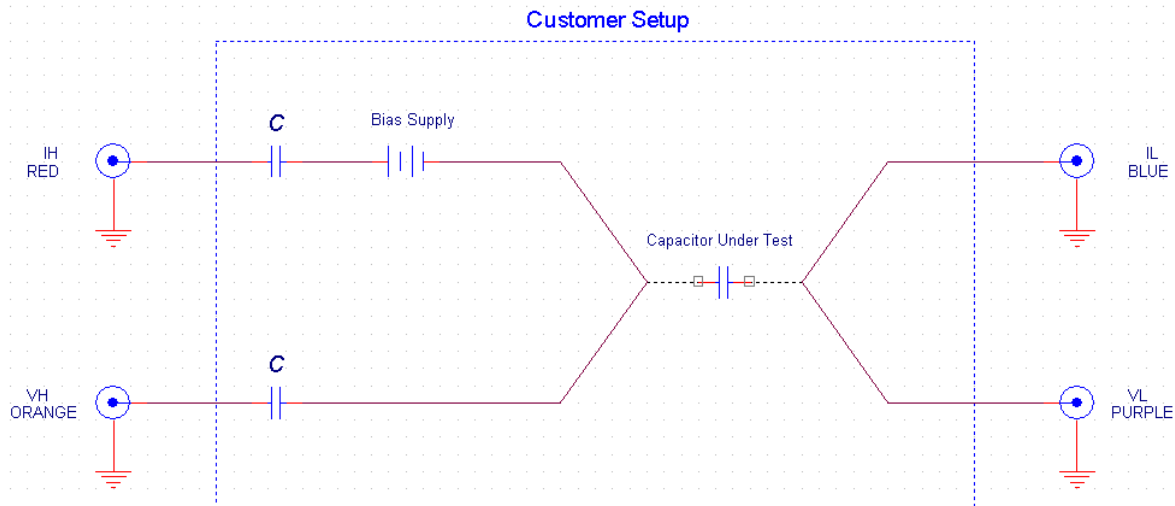
## Applying External Bias Voltage to a Capacitor

Occasionally users need to apply a bias voltage to a capacitor that can't be done using the SR715/720 external bias voltage input. Typically this is because a negative bias is required. This Tech Note shows a schematic that can be used for this.

If the stored energy ( $\frac{1}{2}CV^2$ ) in the users capacitor is greater than 1 joule care must be taken when connecting or disconnecting it to damaging the LCR meter. For large voltages ( $>300 V_{DC}$ ) this may involve ramping the power supply up before making measurements and ramping it down after the measurement is completed.

Capacitors  $C$  in the schematic should be  $\sim 10x$  larger than the capacitor being measured. The bias voltage power supply must be floating and well bypassed. Linear supplies are preferred to switching supplies as they are generally lower noise.

The schematic shows connections from the SR728 BNC Adapter.



Measurements should be with the LCR Bias Voltage off. Allow the measurements to settle after the bias voltage is applied or changed.