

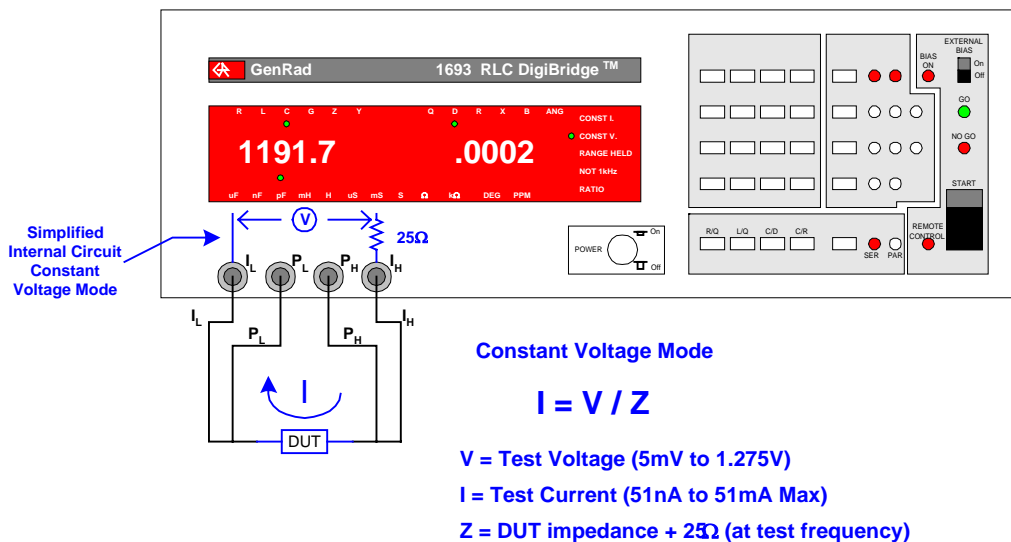
## Constant Current with the 1693 RLC DigiBridge

The Constant CURRENT Mode of the 1693 DigiBridge allows the user to set the SHORT CIRCUIT current. With this mode, the current will always be less than the selected current when impedance is measured. This feature is especially useful when it is desired to limit the current through a DUT. Table 1 lists the value of the Source Resistor ( $R_s$ ) for the particular Current Range selected. To calculate the actual current through the DUT,  $I = V / (R_s + Z_{DUT})$ .

**Table 1: Current Range and Source Resistance ( $R_s$ )**

(1693) Range	1	2	3	4
Current Range	51nA – 13.1µA	13.2µA – 198µA	200µA – 3.195mA	3.2mA – 51mA
Source Resistor	97.4kΩ	5.6kΩ	400Ω	25Ω

For cases where a particular current is desired it is more useful to select a constant TEST VOLTAGE that will provide the required current through the Device Under Test and the 1693 Series Range Resistor. If Constant Voltage is selected, the series source resistor is always 25Ω. Figure 1 illustrates the simplified circuit used in calculation of the constant current.



**Figure 1: Simplified Circuit 1693 Constant Voltage Mode**