

General Operation

The adaptor works by resistively dividing down the applied test voltage between the 'High Voltage' output and the 'guard' terminal. The test voltage is divided down by a factor of 100, reducing the 5kV to just 50 Volts.

The insulation resistance decade in the 3200 is then connected in series from this divided down voltage to the current input of the tester. As the voltage applied to the 3200 is 100 times smaller, the current to the tester is therefore a 100 times smaller which makes the displayed value of resistance on the tester 100 times the value of resistance set on the 3200.

This circuit provides a low cost solution to the calibration of high voltage, high ohm insulation tester at a number of points without the need for high voltage, high value resistances which are both expensive and difficult to obtain.

The disadvantages of this method are :

- 1: The tester must have an **active guard** terminal, which can be used for the low end of the voltage divider.
- 2: The tester must be able to supply the current required by the divider without collapsing. This can be checked by measuring the voltage between guard and output with an HV probe and check to insure it does not reduce when the divider is connected.
- 3: For linear multiplication of the resistance set on the 3200, the current flowing in the divider chain must be much greater than the current flowing into the tester input. This limits the lowest value that can be set.
- 4: The 'low' side of the 3200 decade is earthed which can give rise to earth loop problems if the tester is mains powered. It must be remembered that the testers input is working at nano-amp level and stray paths can easily be introduced.

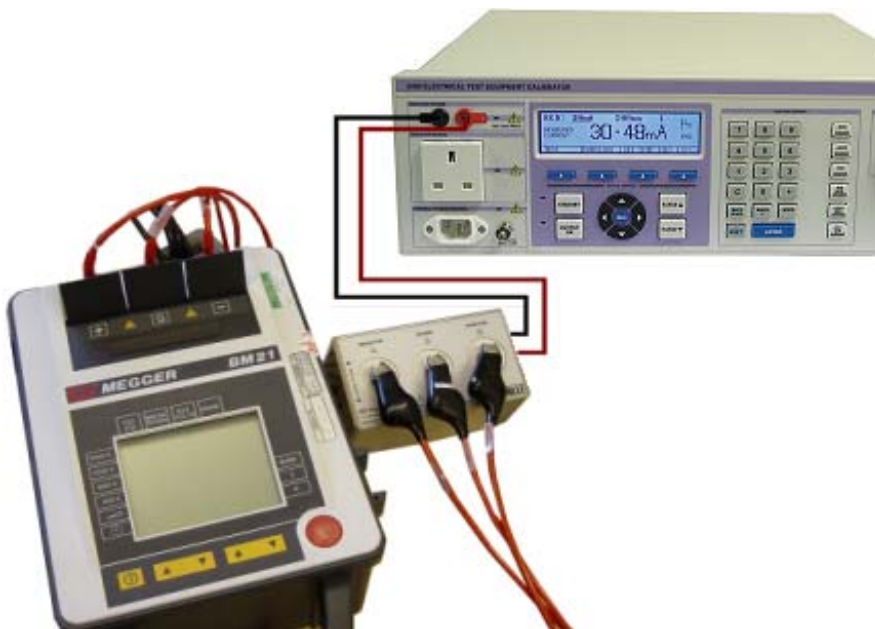


Fig 1 : Typical setup