

second readings in any test provides the information for power factor determination.

The above operation is performed by connecting the Unit to the mains and tapping off a controlled amount of current by means of a variable resistance, the current being fed to the rectifier in the meter. Since the phase of the neutralising current may be such that it causes a rise instead of a fall in the pointer indication when the control is moved from its "START" position, a reversing switch has been incorporated to save altering the lead connections. To cope with all voltages likely to be encountered a voltage selector switch marked with limits for each setting has been provided. When operating the resistance control, the object is always to obtain a minimum pointer indication, but since over-compensation causes the pointer to rise again, there is no difficulty in obtaining the minimum. If, however, operation of the resistance control causes a rise in pointer indication whichever side the reversing switch may be placed, the pointer must already be at its minimum indication, i.e., it is either a single phase zero power factor load, or a three phase unity power factor load.

It will be apparent that in single phase working the neutralising current must be in phase with the voltage which supplies the load, and can be used to cancel out its power component. It follows that with substantially resistive loads there will be a considerable difference in the pointer indication and with reactive loads there will be little change.

In 2 or 3 phase working, the current is measured in one phase and the neutralising voltage is derived from across the other phase or phases. This neutralising voltage is, therefore, in quadrature with that which would be used in the single phase test and consequently it neutralises the reactive component. Any residual indication shown on the meter is in this case the power component and it will be relatively large with resistive loads and small with reactive loads.

*Should the characteristics of the circuit under test be such that upon switching off, a voltage much in excess of the mains voltage is likely to be generated across the load, it is advisable to disconnect the neutralising voltage leads before switching off.*