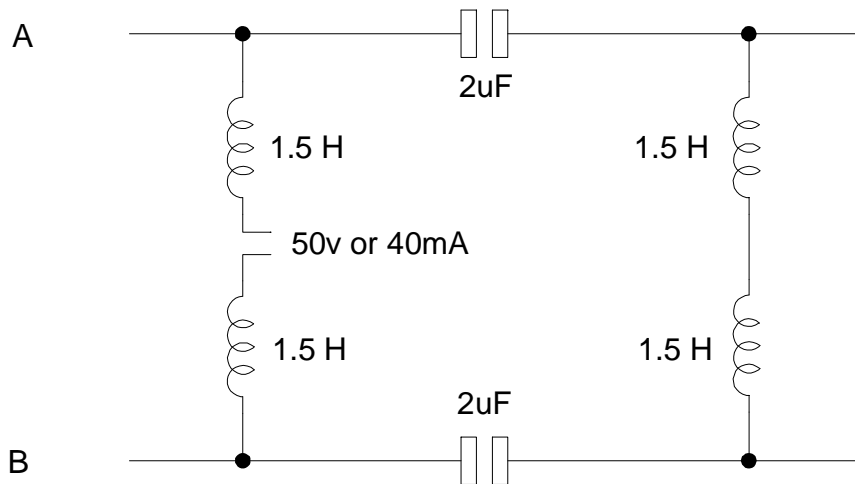


Specification For The MSB Design Feeding Bridge FB-1

Introduction

When testing apparatus designed for connection to the telephone system, provision must be made to supply power to that equipment. This power supply not only has to be at a certain voltage, and be capable of supplying the necessary current, but it also must be noise-free and of a relatively high impedance to ac, to prevent loading, and therefore attenuation, of the applied ac signals during test procedures.

BS6317 gives details of a Feeding Bridge, in Figure 15, with an associated diagram in Figure 17 :-



This circuit is the basis for the Feeding Bridge FB-1 from MSB Design. The text of BS6317, and others, details the various tests using the FB-1, and it is required that as well as a voltage of 50 volts to be applied to the coils a fixed constant current of 40mA is also needed, and this is built in to the FB-1 along with the 50 volt source. In addition, both a 600 ohm terminating resistor is switchable, and also a 600 ohm series resistor, providing enough variation to satisfy most of the configurations required for the given tests.

Features

The unit is largely self explanatory in both features and operation, so an outline of the unit will explain all there is to know.

Referring to the circuit above you will see that the basic bridge consists of two double-coil inductors, one of which is connected as a series pair, and the other with a pair of open-circuit terminals to allow the connection of current and voltage sources to the circuit. The only other items are a padding resistor in series with one of the windings and two non-polarised capacitors of 2uF, the whole being connected in a standard bridge configuration.

The FB-1 reproduces this circuit faithfully and contains both a 50 volt dc source and a 40mA constant current source, either of which can be switched into circuit via a front panel toggle switch.

In addition to this standard circuit, there are provided a 600ohm resistor which can be switched in across the terminals marked A and B in the Figure, and another 600 ohm resistor which can be switched in series with the A terminal.

Lastly, there is provision for reversing the terminals at the left hand side of the circuit, where the apparatus under test would be connected, so that the apparatus can be tested for compliance with polarity tolerance.

All of these options give the FB-1 the ability to satisfy most of the circuit configurations detailed in the relevant BS specs. and others that apply.

Please note that, due to the large capacitors used to provide a smooth dc supply, the power LED remains illuminated for some time after switch-off, until the capacitors have discharged; this does serve the additional purpose of indicating that there is still a voltage present at the terminals until the LED is extinguished.

Uses

The uses that the unit can be put to will depend on the requirements of the user, but there follow a few suggestions :-

- a) BS6317 test B.11 Instability test
- b) BS6317 test B.1 Sending sensitivity test
- c) BS6317 test B.2 Receiving sensitivity test
- d) BS6317 tests B.3,4,5,6,7,8
- e) BS6450 test A.1 Instability test
- f) BS6450 test A.4 Instability test
- g) general tests requiring power to the apparatus

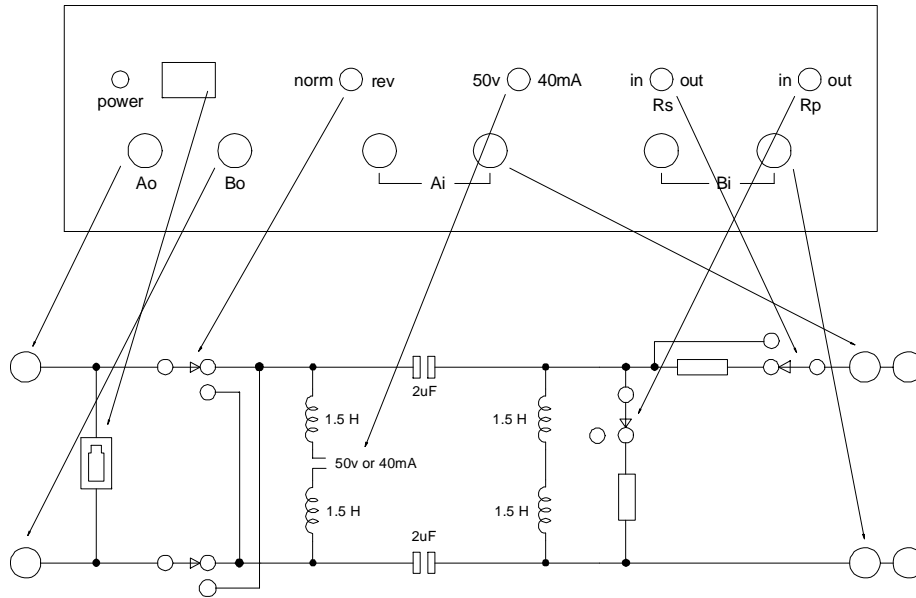
etc.

Specification

Capacitors	2.0 uF
Resistors	600 ohm
Power supply	50v constant voltage source
Current source	40mA constant current source
Inductors	as specified in BS6317 Fig.15
Tolerances	voltage +/- 5%
	current +/- 5%
	resistance +/- 5%
	capacitance +/- 2%

General Arrangement

The diagram below shows the relationship between the front panel functions and the circuit elements :-



The unit is housed in a steel / aluminium enclosure, with all switches and connectors on the front and rear panels. It is mains powered, via an IEC connector on the rear panel. Enclosure dimensions are 220mm x 220mm x 70mm.