1J1037
10A Bias Adaptor Unit

The 1037 Adaptor unit is designed to provide interface connectivity between the 6500 Impedance Analyzer and 6565 bias unit to a remote test head, such as would be used in an SMD taping machine. The 1037 is supplied with a flanged base allowing for screw fixing.

Fig. 1 1037 showing connection outlets to test head.

The 1037 can be ordered with the options listed below:

Option 0

2 × Lemo plugs type FFA.1S.250.CTAC52 unconnected for use with the adaptor module
2 × SMA plugs (unconnected for use with the adaptor module)
2 × 51 Ω series resistors for terminations

In this case the user would be expected to provide their own 50 Ω terminations at the test point and arrange their own cabling. Instructions to do this are in Fig. 5.

Options 1-3

2 × 50 Ω series terminations (made by Wayne Kerr Electronics)
2 × SMA jack connectors (provided unconnected for use with the fixture)
2 × Lemo ERN.1S.250CT jack connectors (provided unconnected sockets for use with the fixture)

A four-lead cableform (according to length 500mm, 1m, 2m) composed of:
2 × RG174 sense cables with SMA plugs attached to each end.
2 × URM43 drive/bias cables with Lemo plugs type FFA.1S.250.CTAC52 attached at each end.

Option 1 = 500mm cable, Option 2 = 1m cable and Option 3 = 1.5m cable.
The 1037 adaptor is specified for use up to 10A with the supplied cables.

Fig. 2 Rear connections to 1037 adaptor

The rear connections of the 1037 unit should be connected to the 6565 bias unit with the supplied cables and the tailbox to the 6500 Impedance Analyzer. (Longer cables for connection to the 6565 bias unit can be supplied to order. See section 4)

1.0 Using the 1037 with cables (options 1-3)

Normal use of the 1037 unit would be in 2-terminal mode. Each bias + drive connection should be mated up with its respective sense terminal at the fixture end (please see the appropriate colour coding). Hence, the brown URM43 high current cable should be paired with the red RG174 cable fitted with an SMA plug. Similarly, the yellow URM43 cable should be paired with the orange RG174 cable fitted with an SMA plug.

Firstly, the brown cable inner connection should be made to one of the fixture jaws. Screw connect a 50 Ω SMA series termination (as supplied) to the red cable. To the other end of this termination make a connection to the same fixture jaw. Very short connections (less than 30mm may use plain wire, but for longer runs than this RG174 coaxial cable should be used. Note that it is vital that the supplied coaxial 50 Ω series terminations be connected as closely as possible to the point of test. Failure to do this will result in unwanted reflections and give poor trimming performance. The yellow and orange cables should be connected together in similar manner to that of the first jaw using the other supplied 50 Ω coaxial series termination. The yellow cable inner should connect directly to the fixture jaw and the orange sense lead should be connected to it via the 50 Ω termination. Finally, all 4 of the coaxial outer connections should be connected together at the fixture end and then connected (if appropriate) to the fixture case. Please see the diagram in figure 5 for details of this.

1.1 Using the 1037 with option 0

With this option no cables are supplied except a kit of plugs and other parts in order that the user can produce their own fixture connections to suit individual setups. Within the kit are also supplied two 50 ohm sense resistors. It is vital that these are connected as close as possible to the jaws in the fixture. Please see the diagram in figure 5 for details. For applications where the distance from the adaptor to the point of test is very short (<100mm) then the 50 Ω sense resistors may be omitted and the two internal shorting links within adaptor box used instead. This is done by removing the two shorting links on the 1037 board.

Fig. 3 1037 adaptor with option 0 accessories.

Fig. 4 Option 1-3 accessories as supplied. (1037 and 6565 cables not shown)

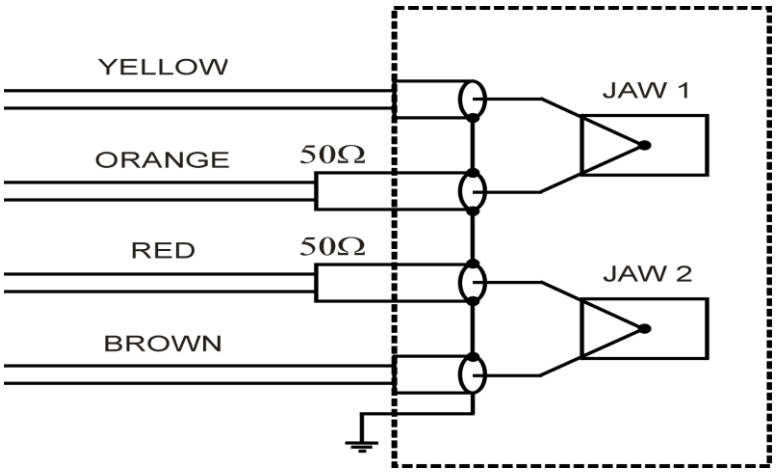

Fig. 5 Showing typical connection method at fixture head

NOTE! The 50 Ω terminations are for series connection between the signal lead inner and jaw.

2. SAFETY WARNING!

It is the responsibility of the engineer responsible for the installation of this equipment to ensure that the 6500 / 6565 combination and its interlock system be installed correctly. The normal method of doing this is to provide a hinged insulating guard screen covering exposed metal parts and wires associated with the test head. This is typically protected by a microswitch mechanically connected to the screen hinge and electrically connected to the interlock circuit. Should an attempt be made to gain access to the component under test while the bias current is energised, then the action of lifting this insulating screen will cause the microswitch contact to open and remove the bias current immediately. The user should be aware that if suitable safety measures are not taken then stored energy in the inductor under test can generate dangerous back-emf's when the bias current is interrupted in an uncontrolled manner. The device under test, exposed wiring and metal surfaces of the test head can then become hazardous live.

3. Specifications

Maximum operating bias current when used with URM43 cables supplied = 10A (Options 1-3)
Absolute maximum operating current of 1037 unit alone = 15A

500 mm cables (Option 1) **Order part number: HC1037-500**
Typical maximum operating frequency = 25 MHz
Typical short circuit trim error bias off = 6 mΩ @ 25MHz
Typical short circuit trim error at 10A bias = 12 mΩ @ 25MHz

1m cables (Option 2) **Order part number: HC1037-1000**
Typical maximum operating frequency = 20 MHz
Typical short circuit trim error bias off = 5.5 mΩ @ 20MHz
Typical short circuit trim error at 10A bias = 16 mΩ @ 20 MHz

1.5 m cables (Option 3) **Order part number: HC1037-1500**
Typical maximum operating frequency = 15 MHz
Typical short circuit trim error bias off = 4 mΩ @ 15 MHz
Typical short circuit trim error at 10A bias = 11 mΩ @ 15MHz

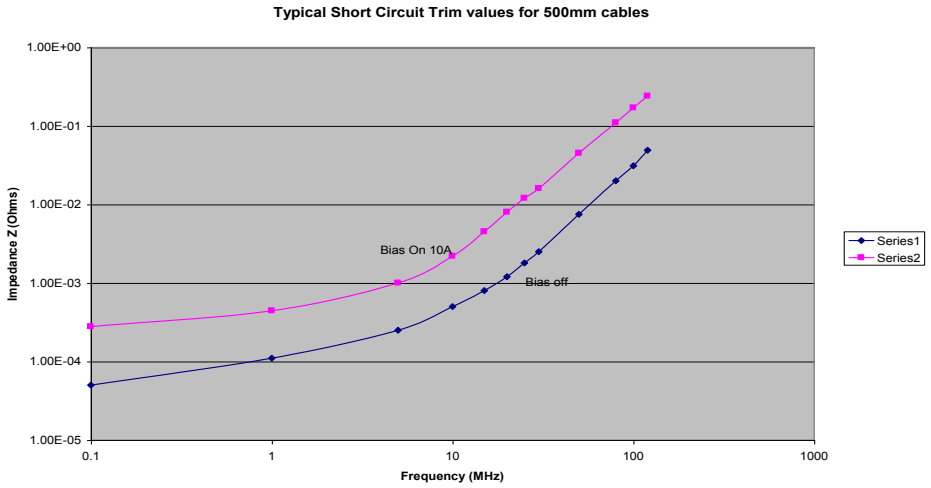

Fig. 6-1 Typical short circuit trim error using 500mm cables (Option 1).

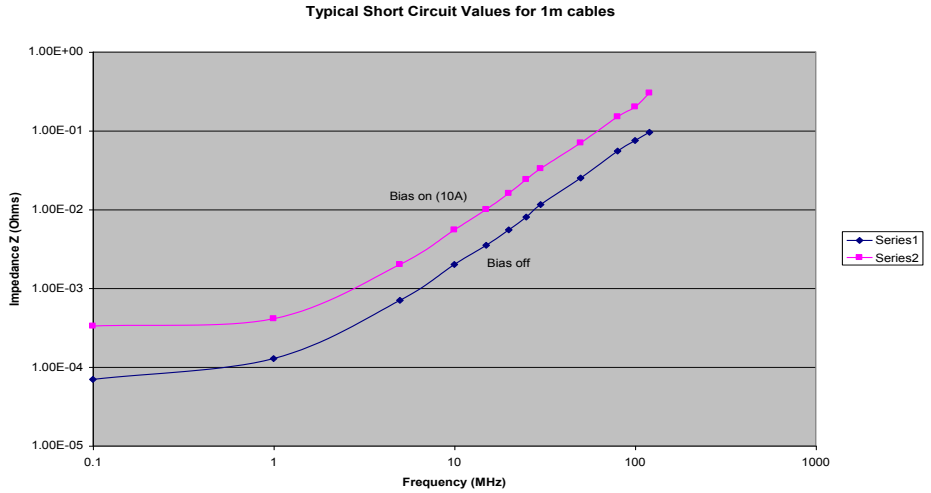

Fig. 6-2 Typical short circuit trim error using 1m cables (Option 2).

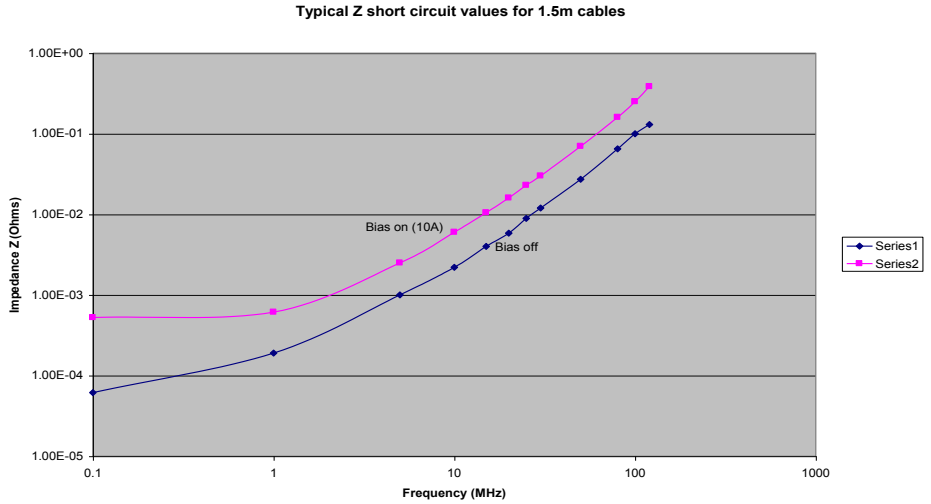

Fig. 6-3 Typical short circuit trim error using 1.5m cables (Option 3).

4. Ordering Information

Order as follows:

- **1J1037** + Option 0 (**HC1037-0**) parts kit including two Lemo plugs type FFA.1S.250.CTAC52, two SMA plugs and Two 51 Ω resistors for the series terminations.
- **1J1037** + Option 1 (**HC1037-500**) for a 500mm lead set to test head
- **1J1037** + Option 2 (**HC1037-1000**) for a 1m lead set to test head
- **1J1037** + Option 3 (**HC1037-1500**) for a 1.5m lead set to test head.

The 6565 is normally supplied with 360mm high current output cables. These cables are available in other lengths to order:

- Option A for 550mm cable pair (**5-656-2013D**)
- Option B for 600mm cable pair (**5-656-2013A**)
- Option C for 700mm cable pair (**5-656-2013B**)
- Option D for 1m cable pair. (**5-656-2013C**)

Example: **1J1037** + Option 2 (**HC1037-1000**) + Option D (**5-656-2013C**) will give a 1037 unit with a 1 metre test lead set and 1 pair of 1m high current cables for the 6565.

5. Support and Service

In the event of difficulty, or apparent circuit malfunction, it is advisable to contact the service department or your local sales engineer or agent (if overseas) for advice before attempting repairs.

For repairs and re-calibration it is recommended that the complete instrument be returned to one of the following:

USA

Wayne Kerr Electronics Inc.
165L New Boston Street
Woburn MA 01801-1744

Tel: +781 938 8390
Fax: +781 933 9523
Email: sales@waynekerr.com
service@waynekerr.com

UK

Wayne Kerr Electronics
Unit 1A
Durban Road
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West Sussex PO22 9QT
Tel: +44 (0)1243 846555
Fax: +44 (0)1243 846551
Email: sales@wayne-kerr.co.uk
service@wayne-kerr.co.uk

Europe

Wayne Kerr Europe
Märkische Str. 38-40
58675 Hemer
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Fax: +49 (0) 2372 557 8790
Email: info@waynekerr.de
service@waynekerr.de

Asia

Wayne Kerr Asia
A604 Pengdu Building,
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Nanshan District,
Shenzhen, Guangdong
China
Tel: +86 130 66830676
Fax: +86 755 26523875
Email: sales@waynekerr.com
service@waynekerr.com

When returning the instrument please ensure adequate care is taken with packing and arrange insurance cover against transit damage or loss. If possible re-use the original packing.