



LOUDSPEAKER CABLE TESTER E450

INSTRUCTIONS FOR USE

CAUTION: UNDER NO CIRCUMSTANCES SHOULD THE UNIT BE CONNECTED TO ANY EQUIPMENT WHICH IS IN OPERATION OR CONNECTED TO MAINS POWER.

Models

- EMO LOUDSPEAKER CABLE TESTER E450 (25-450)

Description

The cable tester is designed mainly to test loudspeaker cables as used in the professional audio industry. It will test cables fitted with 8-pole and 4-pole speakon connectors, 3-pole XLR type connectors and 6.35mm jack connectors. Optional EP connectors can be added.

Power

The cable tester is powered by a 9V battery, type 4022, MN1604, 6LR61 or equivalent. (Old PP3 style.) A battery is fitted at manufacture. It can be replaced by removing the two sets of three fixing screws on the sides of the tester base, then by removing the battery bracket. If when testing cables the LEDs fail to light or are dull then the battery should be replaced. It is recommended that the battery should be replaced annually to prevent any possible leakage.

Connections

The relationship between the test buttons and the various connectors is shown below:

Button	XLR	JACK	EP(option)
1+	Pin 1	Sleeve	Pin 1
1-			Pin 2
2+	Pin 2	Tip	Pin 3
2-			Pin 4
3+	Pin 3	Ring	Pin 5
3-			Pin 6
4+			Pin 7
4-			Pin 8

The buttons are marked with the designations used in the 'Speakon' connector.

Cable Testing

To test a cable assembly insert each connector into the socket on the tester. Press each button, in turn, observing the LED indicators. If the LED in the button pressed illuminates then there is continuity between similar pins. If another LED lights then there is a cross connection. If more than one LED lights then there is a short in the cable assembly.

The principle of operation is that the push-button routes a signal from the indicated pin. The LEDs indicate the path taken by the signal as it travels through the cable assembly.

Faults

With an 8-pole connector and connecting cable the number of possible faults runs to many thousands, so it is not feasible to list them all. Overleaf are a few examples of results together with an explanation.

Care should be taken in interpreting the results of testing cable assemblies with dissimilar connectors on each end. 2-pole (mono) jack plugs will short the sleeve and ring terminals.

The tester cannot determine where any faults actually lie, only that they exist. In the case of a lead shown to have an open circuit, the actual fault could lie in either of the connectors or in the cable itself. The actual position of the fault can only be determined by visual inspection.

Wired Correctly

Button Pressed	LED Response	Button Pressed	LED Response
1+	1+ 1- 2+ 2- 3+ 3- 4+ 4- ● ○ ○ ○ ○ ○ ○ ○ Continuity 1+/1+	3+	1+ 1- 2+ 2- 3+ 3- 4+ 4- ○ ○ ○ ○ ● ○ ○ ○ Continuity 3+/3+
1-	1+ 1- 2+ 2- 3+ 3- 4+ 4- ○ ● ○ ○ ○ ○ ○ ○ Continuity 1-/1-	3-	1+ 1- 2+ 2- 3+ 3- 4+ 4- ○ ○ ○ ○ ○ ● ○ ○ Continuity 3-/3-
2+	1+ 1- 2+ 2- 3+ 3- 4+ 4- ○ ○ ● ○ ○ ○ ○ ○ Continuity 2+/2+	4+	1+ 1- 2+ 2- 3+ 3- 4+ 4- ○ ○ ○ ○ ○ ○ ● ○ Continuity 4+/4+
2-	1+ 1- 2+ 2- 3+ 3- 4+ 4- ○ ○ ○ ● ○ ○ ○ ○ Continuity 2-/2-	4-	1+ 1- 2+ 2- 3+ 3- 4+ 4- ○ ○ ○ ○ ○ ○ ○ ● Continuity 4-/4-

This table shows a correctly wired 8-pole cable.

Fault examples

3+	1+ 1- 2+ 2- 3+ 3- 4+ 4- ● ○ ○ ○ ○ ○ ○ ○ Cross Connection 3+/1+	3+	1+ 1- 2+ 2- 3+ 3- 4+ 4- ○ ○ ○ ● ● ○ ● ○ Short 2-/3+/4-
1+	1+ 1- 2+ 2- 3+ 3- 4+ 4- ○ ● ○ ○ ○ ○ ○ ○ Cross Connection 1+/1-	4+	1+ 1- 2+ 2- 3+ 3- 4+ 4- ○ ○ ○ ○ ○ ○ ○ ● Cross Connection 4+/4-
1+	1+ 1- 2+ 2- 3+ 3- 4+ 4- ● ● ○ ○ ○ ○ ○ ○ Short 1+/1-	4+	1+ 1- 2+ 2- 3+ 3- 4+ 4- ○ ○ ○ ○ ○ ○ ○ ○ Open Circuit 4+

This table shows a correctly wired 8-pole cable.

Note

A 'fault' may in fact be the way that the cable has been designed and so may not be faulty. Short faults may hide cross connection problems, so all cables should be checked following repair or modification.

This tester has been designed with XLR pin 2 'hot.' This may cause confusion when checking pin 3 'hot' XLR to jack cables. This will result in a cross connection showing 2+/3+, when in fact this cable is correctly wired. It is recommended that any non-standard cables are checked visually and the cable tester results noted.

For further information or servicing please contact your local E.M.O. Dealer.