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# **CHECKBOX 16**

(295A910 / 295A911)

## **Instruction Manual**

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## **READ INSTRUCTIONS BEFORE USE**

Due to the potential hazards associated with any electrical circuit it is important that a user is fully familiar with the instructions covering the capabilities, applications and operations of the instrument.

The user should ensure that all reasonable safety procedures are followed and if any doubt exists should seek advice before proceeding.

## **INTRODUCTION**

The Check Box 16 is a versatile compact instrument that is designed to provide a convenient checkpoint for installation test instruments including Phase Earth Loop Testers, Insulation Continuity Testers and RCD Testers.

Unless a user has confidence in his instrumentation they are of little value and the results generated are of little use. Under laboratory conditions it is often possible to cross-reference between instruments and confirm readings, however installation and contracting instruments are often used in the field and this option is rarely available.

The Check Box 16 is not designed to be the basis of a complete calibration system but it does offer precision test points for a wide variety of instruments and enables the user to confirm the accuracy of his equipment whenever required. By returning the Check Box 16 at regular intervals for calibration ([calibration@seaward.co.uk](mailto:calibration@seaward.co.uk)) one can avoid the need to return instruments for calibration at unnecessarily frequent intervals, thus saving cost and increasing their availability.

## **LAYOUT**

The Check Box provides six test functions including resistance, insulation, AC Voltage, phase earth loop resistance and RCD testing.

A fuse socket is located at the lower end of the Check Box 16 and the instrument should be connected to a suitable 230V supply for RCD, Phase Earth Loop and voltage tests.

A 13A 3pin socket outlet is located at the lower end of the display panel for RCD testing and Phase Earth Loop testing.

Resistance check points for continuity are located at the top of the display panel and precision 1 Ohm and 10 Ohm test points are provided. Insulation resistance of 1M ohm and AC voltage are also provided on the instrument facia.

Two green 4mm sockets are marked LOOP and LOOP+5R for phase earth loop linearity tests.

## **OPERATION**

Note: Connection to 230V mains supply is not necessary for insulation and continuity checking.

### **Resistance/Continuity Check**

Connect the ohm meter/continuity tester to the 1 ohm and 10 ohm test points in turn, note the readings obtained. Short the instrument test leads together and note the resistance reading. Deduct the lead resistance from the 1 ohm and 10 ohm reading and compare to the calibrated value on the Check Box 16 Certificate of Test.

### **Insulation Resistance Check**

The terminals marked 1 M are designed for testing insulation testers at a maximum of 500V DC. Connect the insulation tester to the 1 M insulation test terminals and compare the reading obtained to the calibrated value recorded on the Check Box 16 Certificate of Test.

### **Connecting to Mains Supply**

The following tests require the Check Box 16 to be connected to a suitable 230V 50Hz supply. If the RCD indicator continuously flashes, verify the supply earth and check for reversed L/N connections.

### **AC Voltage Measurement**

The red terminals marked AC V provide an output voltage that is limited by resistance for safety reasons. This resistance may produce some variation in readings between instrument types depending upon the individual methods of measurement.

**Note:** Do not touch or insert noninsulated items into the voltage test point. Care should be exercised when using this test facility to avoid risk of electrical shock.

Connect the test instrument to the Check Box 16 test terminals and compare the voltage being displayed to the value indicated on the Check Box 16 Certificate of Test.

**Note:** A variation in supply voltage will result in a variation in test voltage.

### **Phase Earth Loop Linearity Test**

Connect the phase earth loop tester to the 13A socket on the front panel of the Check Box 16. Connect the instruments bonded metal probe set to the instrument under test and note test reading with the probe applied to the green socket marked LOOP, repeat the test with a probe applied to the LOOP+5R socket. Compare the difference in the two readings to the value indicated on the Check Box 16 Certificate of Test.

### **RCD Test**

Check Box 16 provides a calibration facility for both the current setting and time measurement of an RCD tester.

Connect the Check Box 16 to a suitable 230V 50Hz supply. Plug the RCD test unit under test into the 13A socket on the front panel of the Check Box. - verify the RCD indicator flashes briefly.

- a) Select the 30mA test position on the test instrument and apply the test current. The Check Box 16 should operate in a time detailed on the Check Box 16 Certificate of Test and the RCD indicator should flash briefly on detection.  
The circuit will automatically reset after 10 seconds and re-apply power to the test socket.
- b) Select test current of 25mA or less and repeat the test. The instrument should now indicate a failure to trip or an operating time over range symbol (depending on instrument type). The RCD indicator should not illuminate.
- c) Select test current over 30mA (not less than 35mA) and repeat the test. The instrument display should once again display a failure to trip or over range indication. The RCD indicator lamp should now illuminate during the test period to indicate a current flow in excess of 30mA. Provided that the correct light and test sequence are obtained in tests (a) to (c) the instruments 30mA test position is within 30mA  $\pm$  5mA.

### **Calibration**

All reputable instrument manufacturers will supply upon request information relating to the accuracy on each measuring scale. Provided any variation between the Check Box 16 Certificate of Test and the measurements obtained from the Check Box 16 are within the accuracy stated by the manufacturer the user may be confident that his instrument is measuring correctly in that area of the measuring range.

Most instruments will state the accuracy at a particular temperature (e.g. 20° C). It is recommended that when using the Check Box 16 care is given to avoiding excessive temperature variation and extremes of temperature.

### **General Care and Maintenance**

Check Box 16 is a precision instrument and should be treated as such.

#### **Always:**

- 1) Ensure that the mains lead and the terminals are in good condition.
- 2) Keep the instrument clean and dry.
- 3) Avoid excessive temperature variations.
- 4) Storage under high temperature, high humidity conditions should be kept to a minimum.

### **CLEANING**

Cleaning of the case may be carried out using a damp lint free cloth while the Check Box 16 is disconnected from the mains supply. Ensure that the test sockets and mains socket are not wetted.

### **FUSE REPLACEMENT**

The Check Box 16 is protected by a HRC Fuse Link that is located in the socket positioned at the base of the instrument. Should the fuse need replacing always use one of the same type and rating (20mm, HBC, T5A, 250V).

### **WARRANTY AND REPAIR**

Should the Check Box 16 require repair or calibration within the UK it should be returned to:

Seaward Electronic Limited  
Bracken Hill  
South West Industrial Estate  
Peterlee  
Co. Durham  
SR8 2SW  
England.

Telephone: +44 (0)191 586 3511 Fax: +44 (0)191 586 0227.

[www.seaward.co.uk](http://www.seaward.co.uk)

[sales@seaward.co.uk](mailto:sales@seaward.co.uk)

[calibration@seaward.co.uk](mailto:calibration@seaward.co.uk)

### **OVERSEAS**

If the instrument owner resides outside the UK, they may either return the instrument directly to Seaward at Peterlee, or to their local sales agent, a list of whom can be obtained from Seaward. It is important that a copy of the invoice and packing note are sent by airmail to clear the product through customs.

Estimated repair charges (where appropriate) and freight charges will be advised to the owner before work is commenced.