HALO II
Hook-On Ammeter

Operating Instructions

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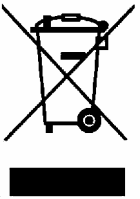

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Operating Instructions
HALO II Hook - On Ammeter

The Seaward HALO II hook-on ammeter provides a means of measuring current flow on overhead power line systems. By attachment of standard operating rods the HALO II can be hooked onto overhead lines to enable safe load surveys and load balance investigations on systems up to 36kV.

The HALO II hook-on ammeter was designed by the Electricity Council Research Centre.

Contents

1.0 User Notes

These operating instructions are intended for the use of competent personnel.

The HALO II hook on ammeter has been designed to make measurements in a dry environment.

The following symbols are used in these operating instructions and on the HALO II.

Warning of electrical danger!
Indicates instructions must be followed to avoid danger to persons.

Important, follow the documentation!
This symbol indicates that the operating instructions must be adhered to in order to avoid danger.

2.0 Safety Notes

The HALO II hook on ammeter has left the factory in a perfectly safe state. To maintain this state and ensure safe operation of the unit, all notes and warnings in these instructions must be observed at all times.

Always hold the HALO II by the insulated handle section of the operating rods.

The HALO II must be checked for signs of damage before the equipment is operated.

Where safe operation of the HALO II hook on ammeter is no longer possible it should be immediately shutdown and secured to prevent accidental operation.

It must be assumed that safe operation is no longer possible:

- if the HALO II shows visible signs of damage, or
- the HALO II does not function, or
- after long periods of storage under adverse environmental conditions.

3.0 Description

The HALO II instrument is comprised of the following features:-

3.1 An open core current transformer sensing unit for accurately measuring high voltage conductor current flow, in the range 0 – 2000 amps, is moulded into a special plastic housing.

3.2 A gap in the current transformer plastic housing is large enough to accept all conductor sizes up to 58mm in diameter.

3.3 The housing has been designed in such a way as to ensure the conductor always lies at the point from which the HALO II is hung thus minimising errors due to varying conductor position.

3.4 The output from the sensing circuit supplies inputs to solid state circuitry housed in a high quality PVC grade 7 tube that conforms to BS3506.

3.5 Current readings between 0 and 2000 amps are indicated on a 3.5” LCD display module.

3.6 A membrane type tactile response control panel allows an operator to switch the HALO II **On / Off** and select between **Hold** and **Track** modes.

3.7 **Hold Mode** allows the display to store the peak reading of the R.M.S. current monitored in a conductor over any given time.

3.8 **Track Mode** allows the display to continuously display the measured current.

3.9 The HALO II power supply is generated from a replaceable internal 9VDC battery.

4.0 Electrical Specifications

Display	3.5 digit LCD 10mm high characters
Measurement range	0 – 2000 Amps
Accuracy	± 3% ±1 digits
Operating temperature	-18 ºC to +50 ºC (0 ºf to +122 ºf)
Maximum Voltage	36 kV (Phase to Phase)
Battery	9VDC Alkaline MN1604 6LR61

5.0 Operation

5.1 Press and release the On / Off button on the HALO II control panel. If a battery symbol appears on the LCD display then the battery within the unit must be replaced (see section 6).

5.2 Assemble the operating rods to the required height for the overhead line conductor to be monitored before attaching the HALO II to the end of the operating rods.

⚠ **The HALO II is designed for direct attachment to standard operating rods with splines.**

⚠ **The HALO II must not be used as a hook for general engineering purposes. The load on the hook should not exceed 10kg longitudinal or 5kg in any other direction.**

5.3 The operator can select Track mode by pressing and releasing the Track / Hold button until the ~ symbol is indicated in the lower left corner of the LCD display. Select Hold mode by pressing and releasing the Track / Hold button again. The symbol ~ in the bottom left corner of the LCD display now disappears.

5.4 The operator can reset a held current measurement on a HALO II by pressing the Track / Hold button twice. This re-selects the Hold mode ready for the next test.

5.5 Hoist the equipment up and hook the HALO II over the conductor to be monitored. The HALO II should be kept

in place for a minimum of 30 seconds to enable an accurate reading to be recorded.

Using a new battery the HALO II can monitor a conductor current for approximately 30 hours before the battery needs replacing.

5.6 For best results the hook of the HALO II should be positioned such that it faces away from any other energised line conductor.

5.7 On completion of the monitoring period the operator should unhook the HALO II from the line conductor and carefully lower the equipment to view the current reading on the LCD display.

If the battery symbol is visible on the LCD display then the current reading must be assumed to be incorrect since the battery requires replacing.

5.8 Once testing is complete press the On / Off button to switch the HALO II off.

The HALO II is internally screened to guard against the affect of electrostatic fields. However it is recommended that the use of the HALO II within high density electromagnetic or electrostatic fields be avoided.

6.0 Battery Installation and Replacement

A battery symbol on the LCD display of the HALO II denotes that the battery requires charging.

6.1 Access to the battery compartment in a HALO II is by removing the two screws at the end of the tube that fasten the spline adaptor to the tube.

6.2 With the two screws removed slide the spline adaptor out of the tube. The adaptor has a machined recess that holds the battery in position.

6.3 Disconnect the battery contact and remove the flat battery. Attach a new battery to the battery contact.

Insert the battery into the recess and slide the spline adaptor back into the tube.

6.4 Line up the holes in the tube with the screw threads in the spline adaptor and insert screws and fasten.

7.0 Maintenance

7.1 The HALO II is extremely robust but should always be kept free from dust and any excessive temperature variations avoided.

7.2 Ensure the HALO II is kept dry with no surface moisture on either the body or the housing of the LCD display.

7.3 The body of the HALO II should be regularly inspected to ensure no deep scratches or physical damage.

7.4 If any of the above conditions have been observed then the HALO II must be appropriately secured to prevent any further use.

8.0 Cleaning

8.1 Clean the external case of the HALO II with a clean dry cloth.

8.2 Avoid using solvents and abrasive scouring agents to clean the external case of the HALO II.

8.3 Check the battery contacts and mounting compartment within the HALO II are free of electrolytic contamination.

8.4 Any contamination of the battery contacts or compartment should be cleaned with a dry cloth.