* High Gain ORION™ for specialized applications (non-FCC).
Technical Advancements

1. **PATENTED FREQUENCY HOPPING FUNCTIONALITY** displays best response using multiple transmit frequencies across a wide operating band.

2. **ADVANCED DIGITAL SIGNAL PROCESSING ALGORITHMS** provides up to 18 dB increase in detection sensitivity.

3. **MANUAL OR AUTOMATIC POWER CONTROL** ranges from 30 milliwatts to 3 watts Effective Radiated Power (ERP) (High Gain model).

4. **SYNTHESIZED TRANSCEIVER** provides frequency stability and agility to automatically search for clean operating frequencies.

5. **CIRCULARLY POLARIZED TRANSMIT AND RECEIVE ANTENNA** removes risk of missing a threat due to incorrect antenna polarization.

6. **AUDIO DEMODULATION** includes AM and FM as well as tone identification modes.

Ergonomic Advancements

1. **ANTENNA MOUNTED DISPLAY** tilts putting response information in line-of-sight with the target.

2. **BALANCED, LIGHTWEIGHT DESIGN** with integrated transceiver, extension pole, antenna, and display.

3. **OPERATIONAL WEIGHT** is 3.7 lbs (1.7 kg). Carrying case is slightly larger than a briefcase.

4. **MINIMAL SETUP TIME** (approximately 25 seconds) including power-up and self test. Telescopic pole simply unfolds and extends; there are no pole sections or cables to connect.

5. **ALL TRANSMIT AND RECEIVE SIGNALS** are multiplexed onto a single concealed cable eliminating assembly and tangled cords.

6. **REMOVABLE RECHARGEABLE BATTERIES** are included with an external charger. (2 batteries; 3 hours typical run time per battery using SRCH mode).
OPERATIONAL MODES

Search 2 & 3 Mode
Provides evaluation of both 2nd and 3rd Harmonic returns. A Strong 2nd Harmonic (red) indicates electronic components while a Strong 3rd Harmonic (yellow) indicates corrosive (false) junctions.

- Search CW - continuous wave operation
- Search 2 & 3 - pulsing operation
- Search HOP - Frequency hopping operation (provides increased detection reliability)

Frequency Hopping (Srch-Hop) Mode
NLJD response for a specific target varies depending on NLJD transmit frequencies. The Frequency Hopping Mode hops across the ORION’s entire operational transmit frequency range (840-915 MHz) in less than 1.5 seconds, displaying the optimal response and transmit frequency.

- The Frequency Hopping Mode quickly shows the frequency that produced the greatest response for a particular target, optimizing discrimination and detection.

ID Mode
Provides detection of non-linear junctions using an audible tone with headphones. This mode is optimized for long-range detection of non-linear junctions.

- Produces 1 kHz FM modulated tone
- Provides listening of 2nd & 3rd Harmonics

Listen Mode
Provides detection and discrimination of non-linear junctions using demodulation for both 2nd and 3rd Harmonics.

- Demodulation:
  - AM
  - FM
  - 20 kHz Pulsing Mode

- Using the ORION’s audible tone to detect a junction takes advantage of the discrimination capability of the human ear.

- This mode provides excellent discrimination functions by relying on audio characteristic sounds associated with non-linear junctions or active devices.

Additional Control Functions
Control functions are easily adjusted using the ORION keypad.

- Volume
- Transmit Power
- Frequency Selection
- Signal Processing Gain
- Trip Point Warning Settings
ORION™ ADVANTAGES

LIGHTWEIGHT
BALANCED ERGONOMIC DESIGN FOR EASE OF USE

MINIMUM SETUP TIME
COVERT SETUP - QUICK, QUIET, EASY - NO CABLES, POLE SECTIONS, OR BULKY TRANSCEIVER TO ASSEMBLE OR CARRY

FREQUENCY-HOPPING FUNCTIONALITY
INCREASES DETECTION RELIABILITY

WIDE OPERATING BAND
MULTIPLE OPERATING FREQUENCIES MINIMIZES POTENTIAL INTERFERENCE ON SPECIFIC FREQUENCIES

DIGITAL SIGNAL PROCESSING
PROVIDES INCREASED SENSITIVITY

ANTENNA MOUNTED DISPLAY
FOR LINE-OF-SIGHT TARGET FOCUS

SENSITIVE RECEIVER
FOR RAPIDLY SEARCHING A LARGE AREA WITH GREATER SENSITIVITY

TECHNICAL SPECS

TRANSMITTER
Frequency Bands: 840–915 MHz in 200 kHz steps.
Transmit Power: 30 milliwatts minimum to approximately 3 watts Effective Radiated Power (ERP)
Power Control: Manual or auto control with 30 dB range.

RECEIVER
Frequency Bands: Second Harmonic (1680–1830 MHz) or Third Harmonic (2520–2745 MHz)
Sensitivity: -133 dBm for both harmonics
DSP S/W Integration: Programmable between 6 and 18 dB gain in sensitivity performance
Receiver Bandwidth: 3 kHz

DISPLAY
Tilting Antenna-mounted Display
Bar Graph Display for transmit power level, 2nd harmonic level, 3rd harmonic level, data field display, for other information (operation mode, low battery, volume, DSP gain, etc.)

MECHANICAL
Extension Lengths: 16–51 in (40.6–129.5 cm)
Case Dimensions: 6.25 in x 14.9 in x 18.5 in
(15.9 cm x 37.8 cm x 47.0 cm)
Weights:
ORION Weight: 3.3 lbs (1.5 kg)
Orion Weight With Battery: 3.7 lbs (1.7 kg)
Case Weight Including ORION & Accessories: 12.8 lbs (5.8 kg)
Setup Time (including power-up self-test): 25 seconds

BATTERY
Input AC: 100–240 V, 50–60 Hz
Run Time: 3 hours per battery (typical)
Charge Time: 1 hour per battery
Batteries: (2 incl.) 7.2 V NiMH

* This device is authorized for use only by agencies, persons, and entities not restricted by US FCC regulations.

Product specifications and descriptions subject to change without notice. © Copyright Research Electronics International 2012. Printed in U.S.A. PN: ORION HGO-4000 PDF 0612