Originally produced as an integral section of Monitoring Times magazine, October 1996 issue, this 16-page Grove product section is distributed separately on request, along with other sections featuring scanners, satellite reception equipment, books and software. The various sections will appear on a rotating basis as part of Monitoring Times.

Scanners

Grove Enterprises
7540 Hwy. 64 W.
Brasstown, N.C. 28902

(704) 837-9200
FAX (704) 837-2216
e-mail: order@grove.net

Please visit our web site at www.grove.net

Imagine: an affordable, compact, tabletop receiver with continuous 100 kHz-1999.99 MHz frequency coverage (less cellular) in precise 10 Hz steps—longwave, shortwave, VHF/ UHF, all services and modes (wide and narrow FM and AM, USB, LSB, CW). Add high sensitivity, IF shift, selectable AGC timing, audio peak filter to automatically enhance modes, built-in RS232C and Gl-V for direct computer control, 1000 memory channels in 20 banks, multiple scanning selections with priority function and selectable delay, S-meter settable squelch, noise blanker, and 12 VDC / 120 VAC operation.

This all-new receiver offers features previously found only on the premium R-9000—which sells to the government for $7,508—but the R-8500 retails for under $2,000. High stability crystal oscillators combine with automatic frequency control circuitry for outstanding stability. Multiple tuning speeds optimize signal hunting. Alphanumeric display aids in identifying memorized frequencies. Automatic memorizing of search-discovered active frequencies, skipping of unwanted channels, three antenna connectors for optional choices for frequency ranges, even voice scan to ignore noisy channels, and even optional voice synthesizer and remote control—an incredible array of advanced features!

Call today to reserve your premium ICOM R-8500. It should be in stock with pricing confirmed by the time you read this. Check our site on the World Wide Web for updates on pricing. See pp. 8-9 for detailed specifications.

ORDER SCN 1
$199995

Improve any Scanner with the Grove SP-200A!

Why pay over $400 for separate audio components for your listening post—such as a speaker, adjustable notch/peak filter, audio amplifier, bass and treble equalizers, audio squelch, recorder activator and noise limiter—when you can have them all in one attractively styled solid oak cabinet! This quality accessory is guaranteed to improve reception on any receiver, scanner or transceiver.

Peak desired signals while reducing or even eliminating interference. Ideal for voice, music, CW or data. Equipped with stereo-mono headphone jack for privacy. Heavy-duty AC power supply is included at no extra charge!

The cabinet is hand-crafted in the mountains of North Carolina. Textured metal front panel resists fingerprints.

ORDER SPK 13
$19995

The Biggest Performance Boost You Can Get for Under $200!
Not MIR-ely Great for Terrestrial Listening ...

Put your new Uniden BC9000XLT — our best selling desktop scanner — through its paces, monitoring frequencies as high as 1.3 GHz (including cellular when combined with the GRE Superconverter, on sale with this package)!

The Uniden BC9000XLT makes it easy to bridge the gap between terrestrial and orbital monitoring. This superb desktop scanner is for serious monitors of the 25-550, 760-1300 MHz (less cellular) spectrum — and the missing cellular frequencies can be restored by adding our discounted GRE Super Converter! The BC9000XLT features 500 memory channels, tuning knob, 16-digit alphanumeric display with adjustable brightness, powerful 2.2 watts of audio, tone control, and CTSS tone squelch option.

The intuitive layout of the panel makes operating a breeze! An illuminated keypad and rubber-padded tilt feet combine with the large tuning knob for additional comfort during periods of serious signal searching. Search lockout of up to 50 frequencies prevent unwanted interruptions. This scanner means business.

ORDER SCN30 and CVR 3
$389.95
$79.95

Reduced from $84.95 for this special package only.

The GRE Super Converter, reduced to $79.95 when purchased with the BC9000XLT, gives this unit no-gap coverage in the 800 MHz range (unlawful to monitor conversations!).

Purchase now and you will receive absolutely free Grove's new 1996 Grove FCC Database — a spectacular compendium of all the licensees in the FCC Master File! Public safety, railroad, business, industrial, broadcast, maritime, and many, many others. Sort by service, state, callsign, antenna height, output power, county, and many more!

Call now and order this incredible package now and we’ll have it on your doorstep in two days!

Get the 1996 Grove FCC Database CD FREE with your order!

Uniden BC3000XLT
A Great Full-Range Hand-Held Scanner at a Bargain Price!

Featuring continuous 25-550, 760-1300 MHz (less cellular) frequency range, 400 memory channels, 10 priority channels, 100-channel-per-second TurboScan, automatic storage of search-discovered frequencies, selectable-channel overload attenuator, mode and step selection, data skip, and reduced-intermod design.

Strong audio guarantees crisp reception in noisy environments; up to 50 frequencies may be locked out of the search function to eliminate unwanted interruptions; battery save circuit extends charge life during inactive reception periods; handsome, rugged styling makes this handheld scanner an outstanding choice. See detailed specifications on pp. 8-9.

ORDER SCN29
$369.95

Uniden BC-890XLT

This popular, low cost scanner features wide frequency coverage (29-54, 108-174, 216-512, 806-956 MHz — less cellular), 200 memory channels, 100-channel-per-second TurboScan, weather alert, CTSS (optional), channel activity counter, 10 channel priority, search autostore, tape recorder output, memory channel transfer, and much, much more!

See pp. 8-9 for detailed specifications.

ORDER SCN19
$269.95

ACCESSORIES
ORDER SCN29
$369.95

ACCESSORIES
ORDER SCN19
$269.95

Finish your collection with the Uniden BC3000XLT Deluxe Bundle:

ORDER BUN30
$699.95

Includes:

BC3000XLT
$369.95

BC9000XLT (with GRE Superconverter)
$799.95

Mounting bracket $15.95

Note: It is unlawful to listen to cellular telephone conversations

UPS Second Day Air at Ground Rates on ALL PRODUCTS!
**Uniden BCT 7**

**Tiny Scanner is Mobile Giant for Law Enforcement Scanning**

This tiny scanner has factory-programmed scan banks for law enforcement (state-selectable highway patrol!), firefighting, weather broadcasts, medical emergency teams, highway maintenance crews, and on-scene news reporters! You can even enter up to 100 of your own frequencies for private scanning anywhere from 26.9-27.4 (all 40 CB channels!), 29.7-54, 108-174, 406-512, and 806-956 MHz (less cellular).

**Special Feature:** The BCT-7 BearTracker flash-alerts you to radar speed patrols up to three miles away by intercepting their mobile extenders! Brightly-backlit LCD display has high visibility, while powerful three-watt audio blasts through the noisiest mobile environment!

Comes ready to go with AC adaptor, DC power cord, cigarette lighter cord, mobile mounting bracket, telescopic antenna, frequency guide, complete instructions, and even a mobile antenna! See detailed specifications on pp. 8-9.

ORDER SCN21

**SHIPPING**

$9 UPS

$16 US Priority Mail

$17.50 Canadian APP

$16.50 Canadian UPS

**ACCESSORIES**

ANT 4 Magnetic Mount Mobile Antenna $39.95

ANT 13 Windshield Mount Ant. $24.95

ANT 20 Re-Tenna $19.95

ANT 30 Stealth Mobile Antenna $29.95

**UNIDEN BC230XLT**

**Here's the update of the revered BC220XLT**

Uniden now includes a spare battery and charger with their popular hand-held scanner. Frequency coverage 29.5-54, 108-174, 406-512, and 806-956 MHz (less cellular). 200 memory channels in 10 banks include 10 priority channels for instant access to important transmissions regardless of monitoring status. TurboScan and TurboSearch provide 100 channels per second scanning and 500 channels per second searching! Preprogrammed service search affords single-key access to police, fire, emergency, aircraft, marine and weather frequencies! Data skip avoids noisy data transmissions, stopping only on valid communications! See pp. 8-9 for detailed specifications.

ORDER SCN24

**SHIPPING**

$8 UPS

$10 US Mail

$14 Canadian UPS

$12.50 Canadian APP

**ACCESSORIES**

BAT 8 BP 120 battery pack $19.95

DCC 7 Universal DC adapter $15.95

CAS 9 Leather case $19.95

**Modification/Trade-In Service**

Grove Enterprises can perform many of the equipment modifications that you may need to turn a good scanner or receiver into a great one. Or, if you're in need of a quality used piece of equipment, Grove may have what you need.

Modifications, excluding cellular mods, are available for new equipment at the time of purchase from Grove, as well as for used equipment. Before returning your scanner or receiver for modifications, or if you would like more information about our trade-in service, please call 704-837-7081.

Simply explain the type of modification or service you desire. If the requested service is available, Grove will issue you a service order number and advise you of the modification fee and the return shipping charges.

**UNIDEN Beartracker BCT 10**

**NEW!**

Tiny and inconspicuous, the new Beartracker BCT 10 easily snaps on your vehicle's sun visor; or may be conveniently set on your dashboard; simply touch the STATE button until the appropriate two-letter code (including Canadian provinces) is displayed, then listen for highway patrol communications, including radar traps. A visual and audible warning alarm may be selected to alert you to activity; unwanted channels may be locked out; an LED numerical signals strength meter gives you a relative indication of the distance of radio signals.

The BCT-10 automatically scans through 866 preprogrammed law enforcement frequencies in the 37-46, 138-172, and 423-508 MHz bands with an average sensitivity of 0.4 microvolts. Instant, pushbutton weather access is also provided for all U.S. NOAA and two Canadian Coast Guard channels.

Built-in speaker allows police communications monitoring, or an external speaker may be plugged in for vehicle-filling sound; may be muted for alarm-only function. Status lights identify types of communications being monitored.

Accessories include visor bracket, suction windshield mount, cigarette lighter power plug, DC power cord, stub and wire antenna.

ORDER SCN22

**SHIPPING**

$9 UPS

$16 US Mail

$16.50 Canadian UPS

$17.50 Canadian APP

**Improvements**

- Improved Headphone Audio
- Lightning Static Protection
- Improved Frequency Restoration
- Increased Scan/Search Speed
- Frequency Restoration
- Increased Scan/Search Speed
- Improved Frequency Restoration
- Increased Scan/Search Speed

**Ship your equipment to Grove enclosing a check for the modification and return shipping. A five to seven day turnaround time is possible for simple mods requiring no new parts.**

- **Scan/Search Speed Increase**
- **S-Meter Addition**
- **Frequency Restoration (800-900 MHz)**
- **Improved Headphone Audio**
- **Lightning Static Protection (Sony 2010)**
- **Factory Accessory Installation**
- **Memory Channel Increase**
- **Scout-40 Reactor Tune Modification**

Grove can perform mods on most models from: ICOM, AOR, REALISTIC, SONY (2010 only), AND UNIDEN; call for a complete list. See our site on the World Wide Web for an up-to-date list of trade-ins. Set your browser to www.grove.net
SCANNERS

The Renowned AR-8000

Full 800 MHz Restorable AOR Quality Scanners!

*After you purchase and receive your AR 8000, we can restore the missing 800MHz for only $40 plus return shipping.

With wide frequency coverage—500 kHz–1900 MHz (less cellular, restorable), 1000 memory channels, AM/FM/SSB reception, selectable tuning steps from 50 Hz–999.995 kHz. An oversized, edgelit LCD window holds 44 bold alphanumeric characters.

Autostore RS232 control, second-radio cloning, power saver, keyboard beep defeat, and selectable-channel display blanking. Dual tunes frequencies and channels. Dual VFOs and 30-channel-per-second scan/search speed.

Each channel may be programmed for frequency, mode, audio or carrier squelch with programmable 1–99 second delay, 10–dB attenuator, step size, channel offset, and channel designator. Any channel priority sampling, LCD, 8-meter/spectrum display unit!

Interchangeable NiCd/alkaline batteries (AA NiCds and charger included); a universal external power jack for mobile use; an internal ferrite antenna for medium-wave reception; illustrated 115-page owner's manual. See detailed specifications on pp. 8-9.

The most feature-packed handheld scanner on the market!

ORDER SCN27

SHIPPING
$9 UPS
$10 US Priority Mail
$14 Canadian UPS
$12.50 Canadian APP

ACCESSORIES

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Price</th>
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<tbody>
<tr>
<td>ACC157 Optolinx Universal Interface</td>
<td>$29.95</td>
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<td>ACC156 SAC-8000 Interface Cable</td>
<td>$34.95</td>
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<tr>
<td>BAT 1 AA Alkaline batteries</td>
<td>$7.95</td>
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<td>BAT 13 Extra AA NiCad batteries</td>
<td>$2.75 ea</td>
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<tr>
<td>CAS 2 Genuine Leather case for AR-8000</td>
<td>$29.95</td>
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<tr>
<td>GTR 6 Optoelectronics Scout 3.1</td>
<td>$59.95</td>
</tr>
<tr>
<td>PWR 2 Desktop Charger</td>
<td>$59.95</td>
</tr>
<tr>
<td>SFT 2 ScanCat Gold Software</td>
<td>$94.95</td>
</tr>
</tbody>
</table>

AR5000

Super Wide-Coverage Receiver!

AOR has scooped the market with their new AR5000 extended-frequency coverage receiver, tunable from 10 kHz through 2600 MHz (less cellular) and offering 650 memory channels in 65 10-channel banks. Imagine listening to 60 kHz time signals, VHF naval communications, international shortwave broadcasting, worldwide single-sideband communications, civilian and military aeronautical transmissions, as well as VHF/UFH public safety radio, ham repeaters, microwave earth satellites, and much, much more all on one receiver!

This triple-conversion luxury receiver offers outstanding sensitivity (0.15 microvolt SSB, 0.3 microvolt VHF/UHF, 0.6 microvolt AM), rapid 50-channel-per-second scan/search speed, programmable tuning steps from 1 Hz to 1 MHz; all mode reception (AM/FM/LSB/USB/CW), selectable IF bandwidths (3/6/15/40/110/220 kHz), superb frequency stability (+/-1 ppm, 0-50 deg. C), mobile or fixed power (12 VDC / 120 VAC), and much, much more. See specifications on pp. 8-9.

ORDER RCV 12

$1999.95

AR-3000A

Professional Desktop Scanner

Imagine: A fully-restorable, general coverage shortwave receiver and wide-frequency-coverage scanner, in one compact instrument!

The AOR AR3000A offers 100 kHz–2036 MHz (less cellular—restorable) frequency coverage, continuous tuning dial, AM/FM/SSB mode reception, 400 memory channels and 50 channel per second scan/search rate.

High sensitivity and sharp selectivity let you hear signals lesser scanners and shortwave receivers miss.

Operates on 120 VAC for compact mobile installations; 120 VAC adaptor included. See specifications on pp. 8-9.

From Radio Shack

PRO-26 Handheld Scanner

Wide Coverage—Scan up to 1.3 GHz!

Radio Shack's PRO-26 is feature-packed! Offering nearly continuous coverage, less cellular, from 25 to 1300 MHz, 200 memory channels, 300-channel-per-second search rate, triple up-conversion, high sensitivity, and powerful 250 mW audio, the new PRO-26 is making waves on the scanner scene! Belt clip, flex whip and manual included. See specifications on pp. 8-9.

ORDER SCN5

SHIPPING
$8 UPS
$10 US Priority Mail
$13 Canadian UPS
$13 Canadian APP

ACCESSORIES

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<td>BAT 1 AA cells (four required)</td>
<td>$.79 ea</td>
</tr>
<tr>
<td>PRO-26 PWR 5 AC adapter/charger</td>
<td>$6.95</td>
</tr>
<tr>
<td>DCC 6 Cigarette lighter UC cord</td>
<td>$12.95</td>
</tr>
<tr>
<td>ANT 8 Telescoping whip antenna</td>
<td>$16.95</td>
</tr>
<tr>
<td>ANT 14 Condor flex antenna</td>
<td>$29.95</td>
</tr>
</tbody>
</table>
The New Generation from Radio Shack!

PRO-2046 Mobile Scanner

Allows Instant Police, Fire, Emergency, etc. Search

Sporting wide frequency coverage (29-54, 108-174, 406-512, and 806-956 MHz), 100 memory channels in 10 banks, high sensitivity, and fast scan/search speed, this new mobile scanner allows instant Service Search (Police/Fire/Emergency, DOT, HWY, and Public Service), data channel skip, any-channel priority and delay, and instant weather broadcast access.

Tune up and down automatically from any displayed frequency, lock out up to 20 unwanted or busy frequencies in the search sequence, temporarily store up to 10 search-discovered frequencies for quick recall. Your new PRO-2046 comes with DC power cord, mobile mounting bracket and full instructions.

ORDER SCN 7
$239.95

Purchase the ICOM R100 with Full-Coverage
No-Gap, 100 kHz-1300 MHz Option*

ICOM R100 New Low Price!

For the full-spectrum listener, this compact scanner is hard to beat: tuning range from 100 kHz-799 MHz, 900-1856 MHz* with direct keypad entry or knob tuning, 100 channel memory, switchable preamp and attenuator, programmable 24-hour clock timer, 10 search ranges, LCD bargraph S meter, AM and wide/narrow FM mode detection (no SSB) just begin the list of features. Comes with VHF/UHF telescoping antenna, HF wire antenna, DC power cable, mounting bracket, fuses, speaker plug, cable ties, and screws. See detailed specifications on pp. 8-9. Prices subject to change due to yen fluctuations.

* After you purchase and receive, we can restore the missing 800-900 MHz for $40 plus $10 shipping.

NEW! Save $$$ on RAM Upgrades for PCs!

Through a special distributor-direct arrangement, we can offer you for a limited time high-quality RAM expansion at INCREDIBLE savings! Adding 4 more mb to your computer's 4 mb RAM will virtually double Windows speed! These 72 pin, double sided SIMMs feature gold contacts and offer 60-70 nanosecond access speed (check your computer specifications for speed and parity requirements). These are standard replacement units—at a great price which includes FREE first class shipping!

- 70 ns, non-parity ... RAM 04 ....... $25.95
- 72s, non-parity ... RAM 08 ....... $52.95
- 50 ns, non-parity ... RAM 16 ....... $119.95

Order SCN 14
Only $679.95

SDU 100
GROVE SPECTRUM DISPLAY UNIT

Exclusive, real-time spectrum display—This is the ultimate surveillance tool!

Enjoy the high-tech advantage of counter-surveillance professionals who depend upon spectrum analyzers to find eavesdropping transmitters ("bugs"). As the "spikes" appear on the screen you can tune them in quickly; no need to wait for the slow, hit-and-miss search of a scanner. A "freeze" function allows you to hold and examine all of the signals present at any moment in time!

Your receiver's tuned signal is the center of the screen, with up to 10 MHz (or as narrow as 100 kHz) of spectrum displayed simultaneously! Nail those unknowns as soon as they transmit! Ideal for locating jammers, identifying sources of radio interference, studying signal propagation, testing antennas, aligning receivers and transmitters, and much more!

Connect the SDU-100 to any TTL monochrome monitor, or order the matching VID-200 high contrast 9” CRT monitor. 12VDC powered for mobile or field environment; AC adaptor included (the VID-200 is AC powered).

The SDU-100 is configured to operate on receiver intermediate frequencies (IFs) of 8.8 and 10.7 MHz. The IF or receiver model must be specified at the time of order. Designed and manufactured by Grove in the USA!

SDU-100 Spectrum Display Unit $499.95
VID-200 9” CRT Monitor $149.95

Shipping charges for SDU-100 and monitor ordered together:
- $15 UPS
- $22.50 US Priority Mail
- $25 Canadian UPS
- $25 Canadian APP

The SDU-100 is compatible with the following receivers:
- ICOM R7000, ICOM R7100, ICOM R8000, ICOM R8500, AR5000.

1-800-438-8155: Product Support Info.: (704) 837-7081
**Software/Specialized Equipment**

Grove has great values on all the latest software for scanner enthusiasts, hams and shortwave listeners. See our special Buyer's Guide featuring Software, Books and Accessories for complete details (published as an insert to the November edition of Monitoring Times magazine and available separately from Grove by request). Our software stock includes, but is not limited to, the following. Please call for additional information or availability on items not shown here:

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>CODE</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCANCAT GOLD (Restores 800 MHz on AR8000 and more)</td>
<td>SFT 2</td>
<td>$94.95</td>
</tr>
<tr>
<td>SCAN MANAGER PRO v.1.1 (Computer Control Software for Hanna, SWLs)</td>
<td>SFT 13</td>
<td>$68.95</td>
</tr>
<tr>
<td>SCANSTAR FOR WINDOWS PLUS (Restores 800 MHz on AR8000—and more)</td>
<td>SFT 9</td>
<td>$159.95</td>
</tr>
<tr>
<td>SCANSTAR FOR WINDOWS SE (Supports fewer receivers than Plus version)</td>
<td>SFT 10</td>
<td>$99.95</td>
</tr>
<tr>
<td>SCANSTAR COMMERCIAL (Advanced multiple radio scanning, etc.)</td>
<td>SFT 7</td>
<td>$129.95</td>
</tr>
<tr>
<td>TUNE-IN SCANNER DATABASE (Organizes logged frequencies in database)</td>
<td>SFT 6</td>
<td>$24.95</td>
</tr>
<tr>
<td>MESSAGE TRACKER BASIC 3.0 (Record and recall pager messages)</td>
<td>SFT 11</td>
<td>$179.95</td>
</tr>
<tr>
<td>MESSAGE TRACKER PRO 3.0 (Advanced version of above)</td>
<td>SFT 12</td>
<td>$279.95</td>
</tr>
<tr>
<td>CD-ROM REPEATER MAP BOOK (Identifies call signs for all platforms)</td>
<td>BRK 101CD</td>
<td>$29.95</td>
</tr>
</tbody>
</table>

**Optoelectronics Scout Frequency Counter**

Ideal for calibrating signal generators and transmitters, for countermeasures applications, and for determining the unknown frequencies of transmitters, walkie-talkies, mobile radios, base stations, cordless phones, ham and CB radios, radio control units, and other signal emitters.

This precision instrument offers outstanding sensitivity and TXCO (temperature compensated crystal oscillator) accuracy of 1 part per million. Price includes rechargeable battery pack and AC wall charger/adapter, but not antenna (available from the list of accessories below). Operate for several hours on a fresh charge, or continuously with the wall adapter.

The **Frequency Scout** is an advanced pocket frequency counter with memory and an selectable, silent vibrator or audible beeper to alert you to signal presence. With continuous 10-2800 MHz frequency coverage and 13 millisecond intercept time, the Scout accurately displays frequencies on a 10-digit, backlit LCD. High sensitivity captures weak signals for hundreds of feet, depending upon conditions.

Connected to your ICOM R7000, R7100, or R9000 (ICOM CF-17 interface and audio cable, or Optoelectronics CX 12 required), or easily-modified AR8000, you can automatically receive any intercepted signal within its frequency range.

Relative signal strengths are displayed on a 16-segment bargraph, and up to 400 different intercepted signal frequencies may be automatically stored in memory for later recall. Continuous operation for at least 8 hours on a fast two-hour-rechargeable battery. Antenna sold separately.

**1996 Enhanced Grove FCC Database v6.0**

Available on both CD-ROM and High Density Diskette

The new Grove FCC Database is a spectacular compendium of all the licensees in the FCC Master File! Public safety, railroad, business, industrial, broadcast, maritime and many, many others. You can sort through fields like city, service, state, callsign, antenna height, output power, county, and many more! The program can also be custom-tailored to fit your specific searching needs using any available information you have. Simply choose from either CD-ROM or High Density Disk.

Grove FCC Database on CD-ROM offers a unique and useful mapping program. This program shows you on a map where your desired station is including major roadways, cities, state and county borders. To operate the mapping program you must have a VGA card, 386 or higher processor, 4 M RAM, 10 M free hard disk space, and a mouse is recommended.

**Shipping for both CD-ROM and High Density Disk: $4 First Class Mail**

**Send in your old version for trade-in and get a new FCC-CD (w/o mapping) for only $49.95**

**Diskette:**

- **FCC96 (Indicate State)-HD**
  - CA, TX, FL: $49.95
- Additional Data Disks: $39.95
- All Other States: $39.95

**Additional Data Disks:**

- $29.95

**CD-ROM:**

- FCC-CDM w/ Mapping: $169.95
- FCC-CD w/ Mapping: $99.95

**OPTOLINX UNIVERSAL INTERFACE**

This replacement for the popular CX12 computer interface connects your AR8000 or 2700 to a PC for full computer control; decode DCS and CTCSS tones and DTMF telephone digits with the DC440 decoder connected to your AR3000A receiver. It will control the Icom R7000, 7100 and 9000. You can even use the OPTOLINX to receive longitude and latitude coordinates from any GPS or IORAN receiver with NMEA 0183 output. Or connect it to the Opto Scout frequency recorder to download its memory, and use it with the M1 frequency counter and Optolog software for computer controlled data logging of intercepted frequencies.

**ORDER ACC 157**

- $129.95

**SHIPPING**

- $6 UPS
- $7 US Mail
- $10.50 Canadian UPS
- $11.50 Canadian APP

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Available on both CD-ROM and High Density Diskette

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- FCC-CDM w/ Mapping: $169.95
- FCC-CD w/ Mapping: $99.95

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This precision instrument offers outstanding sensitivity and TXCO (temperature compensated crystal oscillator) accuracy of 1 part per million. Price includes rechargeable battery pack and AC wall charger/adapter, but not antenna (available from the list of accessories below). Operate for several hours on a fresh charge, or continuously with the wall adapter.

The **Frequency Scout** is an advanced pocket frequency counter with memory and a selectable, silent vibrator or audible beeper to alert you to signal presence. With continuous 10-2800 MHz frequency coverage and 13 millisecond intercept time, the Scout accurately displays frequencies on a 10-digit, backlit LCD. High sensitivity captures weak signals for hundreds of feet, depending upon conditions.

Connected to your ICOM R7000, R7100, or R9000 (ICOM CF-17 interface and audio cable, or Optoelectronics CX 12 required), or easily-modified AR8000, you can automatically receive any intercepted signal within its frequency range.

Relative signal strengths are displayed on a 16-segment bargraph, and up to 400 different intercepted signal frequencies may be automatically stored in memory for later recall. Continuous operation for at least 8 hours on a fast two-hour-rechargeable battery. Antenna sold separately.

**ORDER CTR 8**

- $399.95

**SHIPPING FOR EACH**

- $7.50 UPS
- $9 US Priority Mail
- $12 Canadian UPS
- $10.50 Canadian APP

**ACCESSORIES**

- ANT 19 4'-16' telescoping whip
- ANT 8 7'-46' long-range tele whip
- ANT 27 Low profile 1/2" close-range antenna
- BRK 3 Universal Belt Clip
- CAS 8 Leather Case

**GROVE SCANNER PRODUCTS**

**UPS Second Day Air at Ground Rates on ALL**
M-400 Universal Decoder

Access an entire dimension of coded communications signals.

NEW VERSION 2! Now with Super POCSAG, 1200 baud, simple, pushbutton mode selection, this self-contained, compact, menu-driven decoder, when connected to your scanner's or VHF/UHF receiver's external speaker jack, will reveal CTSS (PL) sub-audible tones, DCS (DPL) squelch tones, POCSAG and GOLAY digital paging messages, DTMF (Touch Tone*) telephone numbers, even air-to-ground ACARS digital aircraft messages!

Connected to your shortwave receiver (SSB mode), you can read RTTY, SITOR, FEC-A, SWED-ARQ, and even FAX pictures when used with a printer! There is no Morse code or packet capability. A jack is included to attach an external speaker so that you can still listen if your internal speaker is disconnected when using the M-400.

Input jacks provided for either audio or discriminator interconnect. AC wall adaptor, full manual and pair of 1/8" (3.5 mm) plugs included. Your parallel printer will allow full page hardcopy.

ORDER DEM 9
$399.95
SHIPPING
$9 UPS
$18 US Priority Mail
$20.50 Canadian APP
$22 Canadian UPS

Add Screen Capture Interface!
Want to see a full-screen display of intercepted text messages? Connect the new CI-400 between the M400 and your IBM compatible computer (286, DOS 3.3 or better): requires 8 bit slot, 215 KB disk storage for program files, 5.25" floppy. Recommended: mouse, color monitor, hard drive. Includes interface card, cable, software, manual.

Features automated software installation, on line help, auto-save of incoming text, 80 character/25 line display, file print capability (no fax capability). Alerts/prints up to five user-defined search strings (SelCals); blocks two undesired messages (revers SelCals); visual and audio alerts for text matches which can be selectively routed to the printer.

SFT 14 Screen Capture Interface for M400
$109.95

Universal SCPC-200 Satellite Audio Receiver

Easily Receive Hundreds of SCPC Radio Channels
On Your Standard TVRO Home Dish Satellite System!

Replacing the ever-popular SCPC-100, this flexible, new, microprocessor controlled receiver has automatic LNB drift compensation and offers direct frequency tuning with frequency readout on a high contrast LCD, and direct transponder tuning as well. Its large memory bank of 50 channels, wide/narrow bandwidth selection and automatic tuning indicators add to the feature list which also includes digital frequency lock-on, service name readout, and standard 70 MHz baseband output (tunable 50-90 MHz).

High quality audio is available from either a line output or 8 ohm speaker jack; RF input is standard 950-1450 MHz from C and Ku band LNIs. Powered by either 120 VAC, 60 Hz, or 12 VDC @ 500 mA, the SCPC-200 measures 12"W x 1-3/4"H x 8"D and weighs 8 lbs.

ORDER RCV 28
$399.95
SHIPPING
$9 UPS
$18 US Priority Mail
$22 Canadian APP
$20.50 Canadian UPS

NEW! SCPC SPLITTER FOR YOUR SATELLITE DISH!
Now you can use your R7100 and R100 to listen to those single channel per carrier (SCPC) satellite radio broadcasts from major networks—news, music, interviews, sports, religion, international broadcasting, and more! Connects in seconds between your satellite cable and receiver, then to your R7100 and R100 antenna port, no modification necessary!

ADPK13 Cable, "F" Male
$2.50

ORDER SPL 2
$64.95
PLUS $5.50 UPS
$6.50 US Priority Mail
$11 Canadian UPS
$10 Canadian APP

Order CVR 3
ONLY $84.95
SHIPPING
$6 UPS
$7 US Priority Mail
$8.50 Canadian APP
$10 Canadian UPS

ACCESSORIES
ANT 22 High gain 800 MHz portable antenna
$9.95
PWR 13 Universal power supply
$29.95
BATTERY 4 Volt battery
$2.25

Order Line: 1-800-438-8155; Product Support Info.: (704) 837-7081
Grove's Scanner Specification Guide

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<th>Scanner</th>
<th>AR 300DA</th>
<th>AR 2000</th>
<th>AR 8000</th>
<th>ICOM R100</th>
<th>ICOM R5000</th>
<th>Radio Shack Pro</th>
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<tr>
<td>Catalog Page</td>
<td>4</td>
<td>4</td>
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<td>Groove Order #</td>
<td>SDN 26</td>
<td>RDC 12</td>
<td>SCN 27</td>
<td>SCN 14</td>
<td>SCN 1</td>
<td>SDN 5</td>
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<td>Groove Price</td>
<td>$1,022.95</td>
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<td>$559.95</td>
<td>$587.95</td>
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<td>Frequency Range</td>
<td>100 kHz-25 kHz</td>
<td>500 kHz-1 kHz</td>
<td>100 kHz-10 kHz</td>
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<td>26.5 MHz-50 MHz</td>
<td>250 kHz-1.2 GHz</td>
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<td>Keypad Entry</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Tuning Steps</td>
<td>Programmable</td>
<td>1 kHz-1 MHz</td>
<td>1 kHz-6 kHz</td>
<td>1 kHz-12 MHz</td>
<td>12 MHz-24 MHz</td>
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<td>R/F, Fine Tuning</td>
<td>Tuning Dia</td>
<td>Tuning Dia</td>
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<td>Display</td>
<td>Backlit LCD</td>
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<td>Backlit LCD</td>
<td>Backlit LCD</td>
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<td>Dimension</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Recommended Use</td>
<td>Serious wide - area monitoring</td>
<td>Wide area monitoring</td>
<td>General purpose wide - area monitoring</td>
<td>General purpose wide - area monitoring</td>
<td>General purpose wide - area monitoring</td>
<td>Serious wide - area monitoring</td>
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<tr>
<td>Receiving Modes</td>
<td>AM/NM, FM, WFM, LSB/USB, CW/DC</td>
<td>AM/NM, FM, WFM, LSB/USB, CW/DC</td>
<td>AM/NM, FM, WFM, LSB/USB, CW/DC</td>
<td>AM/NM, FM, WFM, LSB/USB, CW/DC</td>
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<td>1000 channels</td>
<td>1000 channels</td>
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<td>1000 channels</td>
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<td>Scans</td>
<td>50 channels/sec.</td>
<td>30 channels/sec.</td>
<td>20 channels/sec.</td>
<td>20 channels/sec.</td>
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<td>Banks</td>
<td>20 channels/sec.</td>
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<td>20 channels/sec.</td>
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<td>20 channels/sec.</td>
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<tr>
<td>Channel Lockout</td>
<td>Scan &amp; search</td>
<td>Scan &amp; search</td>
<td>Scan &amp; search</td>
<td>Scan &amp; search</td>
<td>Scan &amp; search</td>
<td>Scan &amp; search</td>
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<tr>
<td>Priority</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Search</td>
<td>30 channels/sec.</td>
<td>30 channels/sec.</td>
<td>30 channels/sec.</td>
<td>30 channels/sec.</td>
<td>30 channels/sec.</td>
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<td>Programmable</td>
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<td>Squelch</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Clock</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Audio Output Power</td>
<td>1.2 W @ 4 ohms</td>
<td>1 W @ 8 ohms</td>
<td>1 W @ 8 ohms</td>
<td>1 W @ 8 ohms</td>
<td>1 W @ 8 ohms</td>
<td>1 W @ 8 ohms</td>
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<tr>
<td>Record Audio Output</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Recorder Activator</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>Signal Strength Ind.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Computer Interface</td>
<td>RS232C</td>
<td>Yes, all functions</td>
<td>Yes, all functions</td>
<td>Yes, all functions</td>
<td>Yes, all functions</td>
<td>Yes, all functions</td>
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<td>Sensitivity</td>
<td>0.25-0.5 uV</td>
<td>0.15-1.0 uV</td>
<td>0.15-1.0 uV</td>
<td>0.15-1.0 uV</td>
<td>0.15-1.0 uV</td>
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<tr>
<td>Selectable Preamp.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>If Selectivity</td>
<td>4-60 dB</td>
<td>4-60 dB</td>
<td>4-60 dB</td>
<td>4-60 dB</td>
<td>4-60 dB</td>
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<tr>
<td>Noise Blanker/Limiter</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Antenna Connector</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Dimensions</td>
<td>5 x 3 x 7&quot; D</td>
<td>5 x 3 x 7&quot; D</td>
<td>5 x 3 x 7&quot; D</td>
<td>5 x 3 x 7&quot; D</td>
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<td>Weight</td>
<td>2 lbs.</td>
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<td>Warranty</td>
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<td>One year.</td>
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<td>One year.</td>
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<td>Accessories incl.</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The discane antenna is used by government and military agencies worldwide because of its wide bandwidth characteristics and non-directional coverage. Now Diamond offers this professional grade discane at a popular price.

Designed for use with wide-frequency coverage VHF/HF scanners and receivers, the Diamond D1100 discane consists of 16 rugged, stainless steel elements and is capable of transmitting up to 200 watts in the amateur 60, 144, 220, 432, 900, and 1200 MHz bands.

As a receiving antenna, the D1100 is omni-directional for continuous 25-1000 MHz (and above) coverage. A base-loaded, vertical top element is used as a low band (30-50 MHz) frequency extender. The elements are arranged on a 24-inch support pipe equipped with two strong mounting brackets to accommodate any standard mast-pipe (1" to 2-1/8" diameter).

Choose 50 or 100 feet of coax from page 10.

ORDER ANT 9  
$87.95

Best Discane on the Market for VHF/UHF Receivers and Transmitters

UPS Second Day Air at Ground Rates on ALL PRODUCTS!
## Prices and other Specifications Subject to Change without Notice

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Uniden BC-230XLT</th>
<th>Uniden BC-99XLT</th>
<th>Uniden BC-300XLT</th>
<th>Uniden BC-900XLT</th>
<th>Uniden BCT-7</th>
<th>Uniden BCT-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 MHz</td>
<td>$399.95</td>
<td>$399.95</td>
<td>$399.95</td>
<td>$399.95</td>
<td>$399.95</td>
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<td>250 MHz - 1246 MHz</td>
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<td>$399.95</td>
<td>$399.95</td>
<td>$399.95</td>
<td>$399.95</td>
<td>$399.95</td>
</tr>
<tr>
<td>250 MHz - 1246 MHz (less cell)</td>
<td>$399.95</td>
<td>$399.95</td>
<td>$399.95</td>
<td>$399.95</td>
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<td>250 MHz - 1246 MHz (less cell)</td>
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<td>$399.95</td>
<td>$399.95</td>
<td>$399.95</td>
<td>$399.95</td>
</tr>
</tbody>
</table>

### SPECIFICATIONS/ANTENNAS

#### Famous Grove Scanner Beam

**6-9 dB gain over other scanner antennas!**

Our world-renowned Scanner Beam provides unexcelled 30-50 MHz low band reception, 108-157 MHz aircraft, 157-174 MHz high band, 225-400 MHz military aircraft and satellites, 406-512 MHz UHF, and 806-960 MHz microwave mobile.

**HAMS NOTE**—can be used for transmitting up to 25 watts on 144, 220, and 420 MHz bands. 50/75 ohms nominal impedance. May be used with inexpensive TV antenna rotator (available on p. 12, or fixed in one direction as required for those elusive. distant stations. Local signals still come in loud and clear from all directions.

Balun transformer, offset pipe and all mounting hardware included (requires TV type F connector on your coax—available on p. 10). Approximate size 8" x 5".

**ORDER ANT 1**

**SHIPPING**

<table>
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<th>Price</th>
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<td>UPS 110V</td>
<td>$11</td>
</tr>
<tr>
<td>UPS 220V</td>
<td>$32</td>
</tr>
<tr>
<td>Priority Mail</td>
<td>$13</td>
</tr>
<tr>
<td>Canadian APP</td>
<td>$18</td>
</tr>
</tbody>
</table>

**Shipped only in US and Canada**

### AUSTIN FERRET BASE ANTENNA

**For transmitting and receiving!**

Whether you are a ham, scanner enthusiast, or two-way commercial or government radio user, nothing has the combined frequency coverage, bandwidth, gain, durability, and performance of the Austin Ferret! A professional antenna made to exacting standards and offering omni-directional reception from 25-1800 MHz with no gaps, the base model Ferret adds to base installations what the legend Condor adds to hand-held radios.

With frequency centers for lowest SWR ideally placed at 40, 100, 122, 146, 155, 315, 465, 865, and 1280 MHz, the Ferret easily handles transmit powers up to 100 watts for commercial, military and amateur applications. Only 8' long and rigidly enclosed in a sturdy plexiglas radome, the Ferret is easily mounted to your mastpipe (hardware not supplied). Terminated with a low loss N connector for maximum signal transfer to your coax.

**Order Line:** 1-800-438-8155; **Product Support Info.** (704) 837-7081

**GROVE SCANNER PRODUCTS • 9**
**THE SCANTENNA FROM ANTENNACRAFT**

This full-frequency, omnidirectional scanner antenna will equal or outperform any competitor on the market. Its dipole-cluster design utilizes broadband techniques to provide continuous frequency coverage from 25-1300 MHz, offering superb reception of public safety, civilian and military aircraft, hams, personal communication devices, maritime, CB — anything in its frequency range.

Requires TV type F connector on your coax — available below. Approximate size 7-1/2"H x 4-1/2"W.

**ORDER ANT 7**

$39.95

Shipping: $11 UPS

$8 US Priority Mail

$11.50 Canadian APP

$18 Canadian UPS

Shipped only in U.S. and Canada

---

**Grove PRE-5A VHF/UHF Signal Booster**

Now Grove has integrated its high-performance preamplifier and control box into one convenient unit, offering improved performance. The new PRE-5A offers wide dynamic range and low noise for weak signal boosting, and improved overload (intermod) reduction unmatched in other 5000 MHz preamplifiers.

Single knob operation offers continuous gain control from -10 dB attenuation to +18 dB amplification. Switched off, signals are automatically routed from the antenna directly to the receiver, bypassing the preamplifier.

Use the new PRE-5A with up to 100 feet of Grove low-loss coax to your antenna and enjoy improved VHF/UHF reception on scanners, TVS, FM stereos, and other receiving equipment (not to be used for transmitting). Powered by 12 VDC @500 mA; AC adaptor not included.

**ORDER PRE 5A**

$89.95

Shipping:

$6.50 UPS

$8.50 US Priority Mail

$11.50 Canadian APP

$10.50 Canadian UPS

**ACCESSORIES**

PWR 21 — 500mA Power Supply $9.95

ADPK 3 BNC/F $9.95

ADPK 6 Motorola/BNC $9.95

ADPK 9 N/F $12.95

---

**Premium Low-Loss RG6-U Cable and Adaptors**

Have you had trouble finding the right coaxial adaptors for linking your antenna and receiver? We can help! Simply tell us what adaptors you need, or what antenna and radio you will be using.

We will provide you with a cable which is ready to attach between your antenna and receiver!

**RG 59U**

(25 feet w/ adaptors)

**ORDER CBL 25**

$9.95

$5.50 UPS

$5.50 US Priority Mail

$7 Canadian APP

$12 Canadian UPS

**RG 6U**

(100 feet w/ adaptors)

**ORDER CBL 100**

$19.95

$7 UPS

$7.50 US Priority Mail

$9 Canadian APP

$17 Canadian UPS

**ADAPTORS AVAILABLE**

ADP 1 UHF Female to F male

ADP 2 F Female to PL259 Male

ADP 3 F Female to N Male

ADP 4 F Female to Male 1/8" Mini-Plug

ADP 5 N Female to BNC Male

ADP 6 UHF Female to Male 1/4" Mini-Plug

ADP 7 UHF Female to N Male

ADP 9 F Female to BNC Male

ADP 10 UHF female to BNC Male

ADP 11 F Female to RCA male

ADP 12 BNC female to N male

ADP 13 BNC/BNC (right angle elbow)

ADP 14 F Female to RCA male

ADP 15 N female to F male

ADP 16 BNC female to F male

ADP 17 F Female to 2 wires

ADP 18 Female to F barrell

ADP 19 Mfle to F Female barrell

ADP 20 Mono BNC female to BNC male

ADP 21 F Female to UHF female barrell—$1.50

ADP 22 BNC Female to PL259 male

ADP 23 BNC female to F male $2.50

ADP 24 F connector to RCA male

ADP 25 BNC female to N male $2.00

ADP 26 F Female to Male 1/8" Male $2.00

ADP 27 Banana Plug—$2.00

ADP 28 F Female to PAL, fem. Satellite $2.50

ADP 29 BNC Female to 2.5mm male $1.50

ADP 30 Dual BNC female to BNC male $2.50

ADP 31 Male to BNC male $2.50

ADP 32 BNC male to Female $2.50

ADP 33 259 PL female to BNC $2.50

ADP 34 3ft $2.50

ADP 35 Male to Female $2.50

ADP 36 6ft Female $2.50

---

**Genesys G-1 Transmitter/ Receiving VHF/UHF Antenna**

Extremely rugged for permanent base installations, this new antenna is designed for dual-band amateur 144-148/440-450 MHz transmitting and receiving, yet works well for scanning the aeronautical and land mobile bands from 118-960 MHz as well. The compact (4 x 7) G-1 increases gain by 3 dBd in the 144-147 MHz range, and 6 dBd from 406-470 MHz.

Accepts up to 120 watts transmit power at 50 ohms, fitted with SO-239 (UHF) female connector.

**ORDER ANT 11**

$89.95

Shipping:

$3 UPS

$12.50 US Priority Mail

$13.50 Canadian APP

$18 Canadian UPS

---

**Also perfect for use with the OMNI and Discone**

PRE-5 SPECIFICATIONS:

- **Gain:** Continuously adjustable — -10 dB to +16 dB
- **FREQUENCY RANGE:** 20-1000 MHz
- **NOISE FIGURE:** 1.5 dB
- **3RD ORDER INTERCEPT POINT:** +27 dBm
- **DIMENSIONS:** 4W x 2.71 x 2.53
- **WEIGHT:** 3 oz.
- **CONNECTORS:** Low-loss type F
- **POWER REQUIRED:** 12 VDC 500 MA (nom.); AC adaptor

---

**UPS Second Day Air at Ground Rates on ALL PRODUCTS!**
The Unique Grove HIDDEN ANTENNA

The Hidden Antenna may be used alone with your scanner for improved signal reception over your attachable whip, or may be connected to the powerful GRE PRE-1 or Grove PRE-5 for considerably increased signal strengths.

This five-foot, thin-profile, flexible wire antenna can be hung in a corner, behind a drape—just about anywhere out of sight. Comes fully assembled with 20 feet of coax and F male connector, with 3 adaptors for PL259 (UHF), Motorola and BNC connections.

ORDER ANT 6
$19.95

SHIPPING
$6.75 UPS
$4.50 US Priority Mail
$6.50 Canadian APP
$10 Canadian UPS

The Grove No-Tenna™

Turn Your Car into a Giant All-Band Antenna!

Imagine: strong, clear, continuous frequency coverage of shortwave and scanner signals without having to mount an antenna anywhere on your car! No invitation to theft, suspicion, breakage, low overhangs, hole drilling, scraped paint, or cables through doors or windows. No visible antenna whatsoever! The 8' cable mounts in seconds, using your entire car body as a giant, 1-1000 MHz, all-band antenna!

Ideal for city dwellers, travelers, reporters, investigators—anyone who doesn't want a visible receiving antenna on his vehicle (not for transmitting).

Full instructions and universal connectors for RCA, BNC and 1/8" (3.5mm) mini-plug included. If you own an ICOM R-100 be sure to specify a PL-259 adaptor.

ORDER ANT 20
$19.95

SHIPPING
$5 UPS
$5 US Priority Mail
$6 Canadian APP
$6.50 Canadian UPS

STEALTH Mobile Monitoring Antenna

A unique design optimizes coverage of the popular 30-50, 118-174, 406-512 and 806-960 MHz bands; this low-profile, magnetic-mount mobile antenna is only 18" high, yet offers performance comparable to much bulkier scanner antennas.

Rugged, stainless-steel whip and strong magnetic base are hermetically sealed for waterproof construction, sleek black finished for unobtrusive mounting. Includes 14 feet of small-diameter cable and BNC connector.

ORDER ANT 30
$29.95

SHIPPING
$7 UPS
$7 US Priority Mail
$10 Canadian APP
$15 Canadian UPS

Windshield Mount Scanner Antenna

No holes and no magnets, this 22" Valor Glus-Master is designed for today's wide-frequency-coverage mobile scanners, 30-1200 MHz (not for transmitting). Simply clean an area on your rear window (cleaning pad included) and stick the antenna base to the glass. A companion coupler on the inside of the window does the rest! 15' of cable with BNC and Motorola connectors included—no assembly required.

ORDER ANT 13
$29.95

SHIPPING
$7 US Priority Mail
$7 UPS
$10 Canadian APP
$15 Canadian UPS

MAGNETIC MOUNT MOBILE ANTENNA

This sleek, black, 24" fiberglass whip, mounted on a strong magnetic base, assures reception on 30-50 MHz low band, 88-108 MHz FM broadcast, 118-136 MHz aircraft, 136-174 MHz high band, 225-400 MHz military aircraft, 406-512 MHz UHF land mobile, and 806-960 MHz microwave mobile.

Equipped with 12 feet of coxial cable with Motorola and BNC connectors.

ORDER ANT 4
$39.95

SHIPPING
$7 UPS
$7 US Priority Mail
$10 Canadian APP
$15 Canadian UPS

(Also available ANT 4W is the whip antenna alone for your 3/8" x 24 TPI threaded mount, $12.95 plus $6.50 UPS shipping)

From Max Systems:

High Gain 800 MHz Portable Antenna

The Max Systems antenna will make a tremendous improvement in 806-960 MHz reception over the whip provided with your hand-held or desktop scanner! (Not usable in other frequency ranges.)

Equipped with standard BNC connector, rugged ground-plane construction for optimum performance. Only 7-1/2" tall. Ideal for use with GRE converters.

ORDER ANT 22
$29.95

With straight connector for handhelds

ORDER ANT 23
$34.95

With right-angle connector for desktop use

SHIPPING: $7 UPS, $8.50 US Priority Mail, $11.50 Canadian UPS, $15 Canadian APP

Universal Whip Antenna

Today's hand-held VHF/UHF scanners and handie-talkies from Bearcat, Regency, Cobra, Radio Shack, ICOM, Yaesu, and kenwood have excellent sensitivity and talk power, but their range is reduced by their short "rubber duck" antennas. Grove has the solution!

Just replace that inefficient flex antenna on your universal full-length whip—and stand back! Extendable from 7 to 46 inches, the ANT-8 is made of chrome-plated brass and equipped with a standard BNC base. Transmits on 45-960 MHz; receives 25-1300 MHz.

If your interest doesn't include 30-50 MHz low band, choose our new ANT-19 with its full adjustability from 4-18" (transmits and receives from 144-960 MHz).

Order ANT 8 (7"-46") ....... $16.95
Order ANT 19 (4"-18") ......... $14.95
Order ANT 8B .................. $21.95

(w/right-angle BNC adaptor)

ANT-8N ....................... $23.95

(w/right-angle N adaptor)

Order Line: 1-800-438-8155; Product Support Info.: (704) 837-7081
The Legendary "Condor" High Gain Flex Antenna

This "rubber duckie" really makes a difference on handheld scanners. The 12" Austin Condor is guaranteed to improve weak signal scanner reception—even on all frequency ranges—when compared to the original scanner antenna.

ORDER ANT 14 ........................................ $29.95
ORDER ANT 14B ...................................... $34.95
ORDER ANT 14N ..................................... $36.95

(shipping: $5.50 UPS; $5 US Priority Mail; $10 Canadian UPS; $6.50 Canadian APP)

Auto Antenna Multicoupler

Enjoy excellent 30-960 MHz mobile scanner reception using your existing AM/FM auto antenna! That’s right; no holes, no magnets, no scratched paint—no clumsy cables going through doors and windows!

The Para Dynamics PDC 63 Mobile Multicoupler takes only seconds to install and allows simultaneous use of your AM/FM car radio as well as your mobile scanner. Comes equipped with your choice of Motorola or BNC connector.

ORDER CPL-63 (Motorola) ...................... $14.95
ORDER CPL-638 (BNC) ......................... $16.95

(shipping: $5.50 UPS; $5 US Priority Mail; $10 Canadian UPS; $6.50 Canadian APP)

Heavy Duty Rotator

Ideal for the Grove Scanner Beam, amateur VHF/UHF antennas, TV and FM antennas, this rotator features a heavy-duty motor with high torque (tested through 70 MPH winds) with brake pads to protect the drive train. Two synchronized motors give precise station location, extra-strength machine gears overcome ice loads without binding. Mounts on masts up to 2" diameter. Requires 3 conductor cables (optional). Fast and easy installation.

ORDER ROT 1 .......................... $59.95

(shipping: $7.50 UPS; $11.50 US Priority Mail; $18 Canadian UPS; $14.50 Canadian APP

ACCESSORIES:
CBL 3 50 feet 3-conductor cable $5.95
CBL 5 100 feet 3-conductor cable $8.95

Dual Scanner Multicoupler

Connect two scanners (or one scanner with separate antenna jacks) to one antenna cable! Insertion loss only 3dB maximum; port isolation typically 25 dB; impedance 50-75 ohms. Package consists of a wide-frequency-coverage splitter (25-1500 MHz or more) and three output cables with adaptors for UHF (PL-259), Motorola, and BNC connectors (input and output).

ORDER CPL-SC .......................... $29.95

(shipping: $5.50 UPS; $5.50 US Priority Mail; $6.50 Canadian APP; $7 Canadian UPS)

GRE Super Amplifier

Boost the range of your hand-held scanner. GRE Super Amplifier has 20 dB (adjustable) gain from 100-1000 MHz! BNC connectors allow the Super Amplifier to be mounted between the scanner and antenna; a bypass switch permits the unit to be disabled without having to remove it. A 9 volt alkaline battery (not supplied) will provide up to 24 hours of continuous operation; a convenient external power jack permits the unit to be used continuously from a 9 V DC wall adaptor (not supplied).

ORDER PRE 1 .......................... $49.95

(shipping: $5.50 UPS; $6 US Priority Mail; $10 Canadian UPS; $7.50 Canadian APP

ACCESSORIES:
ANT 22 High gain 800 MHz antenna $29.95
PWR 13 Universal power supply $9.95
BAT 4 9 volt battery $2.25

Lightning/EMP Protector

While nothing can withstand a direct lightning hit, the Grove LAR-1 connects between your antenna cable and radio to prevent induced voltages from nearby lightning strokes and high-powered transmitters from burning out your equipment* .

*Uses state-of-the-art gas discharge technology. Extremely low signal loss—0.2 dB at 1500 MHz! Ideal for protecting scanners, shortwave receivers, CB and ham equipment, VCRs, TVs, satellite receivers, FM stereo systems, and more. May be used with transmitters up to 100 watts, and at frequencies up to 2000 MHz.

ORDER LAR1 (with F conn) ............... $19.95
ORDER LAR8 (with BNC conn) ......... $5.95

*Will not prevent AC power line surges. Appearance may vary.

Car Window Antenna Clip

Dramatically increase your mobile range with a hand-held scanner or two-way radio without resorting to a permanent or magnetic whip. Simply slip this unobtrusive, durable custom bracket on a side window and roll it up! Equipped with standard BNC connector to accommodate most compact whips.

ORDER BRK ................................ $28.95

(shipping: $5.50 UPS; $5.50 US Priority Mail; $6.50 Canadian APP; $7 Canadian UPS)

Pro Antenna Switch

Switch your scanner, shortwave receiver, ham transceiver, or any other radio device operating at frequencies as high as 1000 MHz with this superb, die-cast, waveguide-cavity antenna switch. Handles up to 2500 watts PEP for transmitting, VSWR under 1.1.2, insertion loss only 0.2 dB, and port-to-port isolation 60 dB. Automatically grounds unselected port. Standard UHF (SO-239) connects mate with PL-259 and other adaptors.

ORDER SWC 1 ................................ $25.95

(shipping: $5.50 UPS; $4.50 US Priority Mail; $10 Canadian UPS; $6.50 Canadian APP)

Grove Scanner Filter

Eliminate those aggravating FM and TV broadcasters from interfering with your favorite scanner frequencies!

Select any one additional source of interference in the 100-220 MHz range and reject it as well! Ideal for use with precouplers and outdoor scanner antennas!

An adjustable 100-220 MHz 30 dB notch filter allows you to reduce or eliminate single-frequency interference from aircraft, mobile telephone repeaters, paging signals, NOAA weather stations, nearby amateur, or other repeaters. Comes with standard F connectors and full instructions.

ORDER FTR 5 .......................... $44.95

(shipping: $5.50 UPS; $5 US Priority Mail; $8 Canadian UPS; $6.50 Canadian APP

Order UPS Second Day Air rates on ALL PRODUCTS!
**Interference Eliminators**

Ideal for suppressing overload interference from AM and shortwave broadcasters, CB, Aircraft and more. Reject unwanted signals by 40 dB or more; reduce internod interference by at least 120 dB! Filters can be combined for deeper rejection or multiple frequencies. Simply choose your filter(s) from the list below and specify your antenna connectors.

- **FTR 6**: 30-2000 MHz Bandpass Filter. Removes AM broadcast, CB and shortwave interference from scanners
- **FTR 8**: 118-137 MHz Band Reject Filter. Removes aircraft interference from scanners

**ORDER FTR 6 or 8**

**$29.95**

**Shipping**

- $5 US Priority Mail
- $6.50 Canadian APP
- $10 Canadian UPS

**ADAPTOR KITS**

- ADPK 1 PL-259 (UHF) **$9.95**
- ADPK 3 BNC/F **$9.95**
- ADPK 6 Motorola/BNC **$9.95**
- ADPK 9 N/F **$12.95**

**ORDER ACC 8**

**$69.95**

**Shipping**

- $5.50 US Priority Mail
- $6.50 UPS
- $7.00 Canadian APP
- $10 Canadian UPS

**Weather-Proof Flex-Tape!**

Ideal for securely wrapping coax couplings and splices without heat or mess. Forms a tight, flexible, waterproof seal for wiring, plumbing, automotive, marine, and other hostile environments. Easy to apply, remains pliable for years without leaving a sticky residue like putty sealants. Resists water immersion, sunlight, abrasion, impact, and most chemicals. 22-foot roll.

**ORDER ACC 168**

**$1.95**

**Shipping**

- $1.50 First Class
- $4 UPS
- $6 Canadian UPS
- $9.50 Canadian APP

**Variable Attenuator**

Receives Overload Interference!

Reduce scanner and shortwave internod and desensitization with this variable attenuator. Adjustable from 0 to 20 dB attenuation from 0-1000 MHz or higher! Can also be used to reduce distortion when connected between a radio's audio output and your tape recorder! Equipped with F connectors, adapters available from list below.

**ORDER ATT 1**

**$9.95**

**Shipping**

- $5.50 UPS or Priority Mail
- $6.50 Canadian APP
- $7 Canadian UPS

**Adaptor Kits**

- ADPK 1 PL-259 (UHF) **$9.95**
- ADPK 3 BNC/F **$9.95**
- ADPK 6 Motorola/BNC **$9.95**
- ADPK 9 N/F **$12.95**

**NIGHTLOGGER II**

**Tape Automatic Recorder Activator**

This respected product is now improved, offering manual-auto switch, line-spike protection, "record" indicator lamp, removable/replaceable cables, internal monitoring speaker, volume control, adjustable dropout time delay, and dry-contact relay switching. Ideal for unattended recording of scanner traffic, shortwave programs, events, and official communications record logging. AC adaptor, audio and control cables included.

**ORDER ACC 02**

**$69.95**

**Shipping**

- $5.50 US Priority Mail
- $6.50 UPS
- $7.00 Canadian APP
- $10 Canadian UPS

**Pro Power Supply**

Operating from 100-115 volts AC, this rugged, compact (5"W x 3"H x 5"D) lab power supply is ideal for powering those mobile and portable, battery-operated scanners, shortwave radios, CB rigs, and other equipment. Adjustable from 9 to 15 volts and provides up to 5 amps DC. Over-current protected. Includes binding posts as well as cigarette lighter jack for powering your accessories. Large meter shows voltage and current.

**ORDER PWR 3**

**$59.95**

**Shipping**

- $6.50 UPS Ground
- $5.50 US Priority Mail
- $7.50 Canadian APP
- $10.50 Canadian UPS

**Universal Power Converter**

Operate your AC operated equipment anywhere in the world when you travel. This handsome, compact power converter set comes with a heavy duty, 1600 watt transformer and five wall adaptors for any 50 or 60 Hz, 120 or 240 VAC outlet. A convenient, color coded, country selection chart is included.

**ORDER PWR 20**

**$34.95**

**Shipping**

- $7 UPS
- $9 US Priority Mail
- $12 Canadian APP
- $12 Canadian UPS

**Mobile DC Power Converter**

It's hard to find a DC operated accessory that won't work with the new Grove DCC 3 cigarette lighter adapter. Equipped with the six most popular power plugs and switchable among 1.5, 3, 4.5, 6, 7.5, 9, and 12 volts at up to 800 mA current, this mobile powerhouse is the most versatile we've ever seen!

**ORDER DCC 3**

**$12.95**

**Shipping**

- $5.50 UPS
- $4.50 US Priority Mail
- $7 Canadian APP
- $9 Canadian UPS

**Alkaline/NiCd Batteries**

<table>
<thead>
<tr>
<th>Battery Type</th>
<th>Price Per EA</th>
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<tr>
<td>AAA Batteries</td>
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<tr>
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<td>NiCd Batteries</td>
<td>$2.75 ea.</td>
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</tbody>
</table>

**FREE SHIPPING w/PURCHASE OF ANY OTHER BATTERIES!**

**shipping**

- $3 UPS or US Priority
- $5.50 Canadian APP
- $6.00 Canadian UPS
**GROVE'S SCANNER ACCESSORY MART**

**Portable Power Station**

A rugged, battery power source that can actually run your high-powered monitoring equipment and other accessories when needed, yet provide enough reserve power to start your car if that battery is dead! The Power Station is a compact powerhouse built around a 12 volt, 7 ampere-hour, rechargeable gel cell housed in a rugged MBS carrier. You can choose 3, 6, 9 or 12 volts output. Dimensions 7lbs, H8 x W7 x 4.5.

ORDER PWR 1

**$59.95**

**Shipping**

- $5 UPS
- $5.50 US Priority Mail
- $7.50 Canadian APP
- $10 Canadian UPS

**Universal Power Supply**

Our universal PWR 13 AC adaptor is especially rugged, capable of switching to your choice of 3, 4.5, 6, 7.5, 9 or 12 volts DC at a current of 500 millamps (1/2 amp)! Another switch lets you choose + or - polarity. An array of plugs on its interconnect cord assures proper mating to any electronic accessory. Plugs into standard house current (120 VAC, 60 Hz). Also available: PWR 12 light duty Universal Power Supply (same plugs and voltages as above, but reduced amperage and no polarity switch), and PWR 19 standard 12VDC at 200 mA with standard 2.1 mm plug (center +).

**PWR 13**

**$3.95**

**Shipping**

- $5.50 UPS
- $5.50 US Priority Mail
- $7 Canadian APP
- $7 Canadian UPS

**PWR 12**

**$4.95**

**PWR 19**

**$7.95**

**Shipping**

- $5.50 UPS
- $5.50 US Priority Mail
- $6.50 Canadian APP
- $7 Canadian UPS

**Mobile Cigarette Lighter Power Adaptor**

Simply plug the Grove DCC 4 into your vehicle’s cigarette lighter to charge the batteries or any other mobile accessory, including radar detectors, which use a 12 volts DC, center pin positive, 2.1 mm barrel connector. Has replaceable 3A fuse.

**Order DCC 4**

**Only $9.95**

**Free First Class Shipping**

**AC Surge Protectors**

Protect your delicate radio, computer, TV, stereo, test equipment, and other electronic equipment from devastating power-line voltage spikes and current surges. For all standard U.S. and Canada power lines (120 VAC, 1875 W, 60 Hz, 15 A).

**ORDER LAR 2**

**ORDER LAR 3**

**$3.95**

**Shipping**

- $1.50 First Class
- $2 First Class
- $4 UPS
- $5.50 Canadian APP
- $6 Canadian UPS

**Metro West Battery Packs**

The "Pro-Pack 1200" is a double-life battery pack for the popular Uniden BC200XLT, BC100XLT, BC205XLT, and Regency 4030 hand-held scanners with 1200 mAh charge capacity, twice that of the original equipment. The replacement look-alike slips right on the scanner to replace the original. Includes AC wall charger. **Order BAT 9.**

**Charge your high-capacity MetroWest battery like the pros with this drop-in charger (not for original Bearcat battery pack). Automatic circuit provides a full charge in just seven hours, yet prevents overcharging! Powered by your 12 VDC wall adaptor or the Grove DCC 4 cigarette lighter cord. Order PWR 15.**

**Original replacement Uniden BC200XLT battery pack (also fits BC100XLT, BC205XLT and Regency 4030. Order BAT 14.**

**BAT 9**

**$79.95**

**Shipping**

- $6 UPS
- $7 US Priority Mail
- $10 Canadian UPS
- $8.50 Canadian APP

**PWR 15**

**$49.95**

**Shipping**

- $6 UPS
- $7 US Priority Mail
- $8.50 Canadian APP

**BAT 14**

**$39.95**

**Shipping**

- $6 UPS
- $7 US Priority Mail
- $8.50 Canadian APP

**Universal Belt Clip**

A quick press firmly attaches this strong, plastic belt clip to your frequency counter, handie-talkie, cellular or cordless phone, camera, pager, test equipment, portable radio, or virtually any other flat surface!

**ORDER BRK 3**

**$4.95**

**Shipping**

- $2.50 First Class
- $4 UPS
- $5.50 Canadian APP
- $6 Canadian UPS

**Compact Scanner Mounts**

Get organized in your car! The BRK 1 (at right) holds one hand-held, while the BRK 7 holds two (or one scanner and a beverage container)—with a handy compartment in the middle for other accessories! Their sturdy jaws do an excellent job of supporting your radio—even with cables and antennas connected—on a desk or table top or even the bumpy environment of a vehicle, plane or boat.

**Need an even bigger mount? Order the BRK 10 Deluxe Mobile Organizer with room for two scanners, frequency organizer, cassettes and CDs, notepads—and more!**

**One final, smaller option is our hand-held radio caddy that attaches to the inside ledge or your car’s window for super convenient access! Order the BRK 11.**

**BRK 1**

**$9.95**

**BRK 7**

**$12.95**

**BRK 10**

**$14.95**

**BRK 11**

**$7.95**

**Shipping**

- $6 UPS
- $6 US Priority Mail
- $7 Canadian UPS
- $10 Canadian APP

**Color Radio Wall Map**

Ideal for hams, shortwave listeners and scanner hobbyists alike! Shows worldwide callsign prefixes, basic spectrum allocations from 300 kHz-3 GHz, phonetic alphabet, ham bands by license class, and Morse code symbols. Colorful, informative, accurate. Measures 37" x 25". Nationally advertised at $19.95.

**ORDER CHT 4**

**$14.95**

**Shipping**

- $6 UPS
- $2.50 Bookrate
- $6 Canadian APP
- $8.50 Canadian UPS

Also available: new 1996 30" x 40" official government Color Wall Chart of United States Radio Spectrum, 9 kHz-3 GHz.

**ORDER CHT 1**

**$9.95**

**Shipping**

- $4.50 UPS/US Priority Mail
- $2.50 Bookrate
- $12 Canadian UPS or APP

UPS Second Day Air at Ground Rates on ALL PRODUCTS!
New at Grove: Clarity Hearing Instruments

Why pay more than $1,000 for a hearing aid, when this top-quality unit can be yours for less than half the price?

Crystal-clear hearing enhancement, exclusively from Grove Enterprises!

An exclusive agreement between Grove Enterprises and a high-tech aerospace manufacturing firm allows us to bring you unex- celled, in-the-ear canal hearing enhancement at a dramatically low price! Clarity uses state-of-the-art flex-circuitry and advanced micro-technology, and is designed to aid the majority of people with hearing loss, from mild to moderately severe. The Clarity CL 2000 offers exceptional sound quality, reliability and comfort, and it comes with a carrying case, cleaning tool, four batteries, a 30- day money-back guarantee, and a one year warranty against manufacturing defects.

For an exceptional value buy 2 and save $63.00. See our site on the World Wide Web for additional information (http://www.grove.net/~clarity).

Clarity Hearing Instruments
Satisfaction Guaranteed!

Comes with batteries, pouch, cleaning tool and user guide.

ORDER CHI 2000 L (left ear) or CHI 2000 R (right ear) at a 30-day money-back guarantee, and a one year warranty against manufacturing defects.

ORDER TWO AND SAVE! CHI 2000 B (one left and one right) at a 30-day money-back guarantee, and a one year warranty against manufacturing defects.

ACCESSORY BAT 17 Replacement Batteries, call for price/ availability

NOTE: Your order for a Clarity Hearing Instrument will be processed and shipped immediately after we receive the signed and dated “Waiver to Medical Evaluation Requirements” contained on the order form of this section.

Naval Amplified Speaker/Recorder Activator

The HTS-3 is designed for handheld walkie talkies and scanners, this amplified speaker puts out a resounding one watt of audio in noisy locations!

Powered by AA nicads or alkalines (or 12V auto system via included cigarette lighter cord), battery saver automatically shuts off power when no sound is present. It activates a tape recorder whenever sound is present (1/8", 3/32" cables included)!

Cassette Audio Adaptor

Listen to your scanner over your car or home stereo!

Imagine—any electronic component that you own with an audio output jack (including your scanner or shortwave receiver) can be played directly through your home stereo system, portable "boom box," auto stereo or any other cassette player to provide full, rich sound! Shaped like a normal cassette, this adaptor slides into your cassette player. Your scanner or audio device then attaches to the adaptor with a 1/8" (3.5 mm) stereo or mono plug (included with flexible cord). Requires no power.

Noise-Cancelling Speaker

This low-cost mobile and base speaker is ideal for scanners, CBs, mini-portables, and other communications accessories that would benefit from an external speaker.

A pushbutton high-frequency roll-off switch reduces cracking, pulse noise. Measuring approximately 4" square, this compact accessory speaker is rated at 10 watts and comes with 10' cable and 1/8" (3.5 mm) miniplug. Hinged mobile mounting bracket included.

Clip-On Mini Speaker

Great for hand-holds, this tiny (2" square), lightweight (2-3/4 oz.) speaker plugs into any standard 1/8" (3.5 mm) headphone jack and provides excellent, concentrated sound when clipped to a lapel or collar. Ideal for crowded or noisy locations where you don’t want your scanner blaring and don’t want the confinement of an earphone.

Sun Visor Mobile Speaker

Clever, convenient, and barely noticeable 1-1/4" thin, simply slide this 5-1/2" x 3" dual speaker on your vehicle’s sun visor for high quality, concentrated sound. Ideal for noisy environments. Includes 6' cord with 1/8" (3.5 mm) miniplug.

NEW! Universal Headset

This lightweight headset with volume control is ideal for stereo music as well as communications applications. The adjustable headband with cushioned earpieces affords maximum comfort, while the 20-20,000 Hz frequency range assures brilliant highs and thundering bass. Six foot cord is terminated in a 3.5 mm (1/8") stereo plug, 1/4" stereo adaptor included.

Accessories

<table>
<thead>
<tr>
<th>SPK 11</th>
<th>AA Alkaline batteries</th>
<th>$7.95</th>
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<tbody>
<tr>
<td>PWR 13</td>
<td>AC wall power supply</td>
<td>$9.95</td>
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<tr>
<td>BAT 13</td>
<td>Nicad AA batteries (4 required)</td>
<td>$2.75/each</td>
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ACCESSORIES

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<tr>
<th>ACC 79</th>
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<tr>
<td>ACC 12</td>
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<td>ACC 14</td>
<td>$6 Canadian UPS</td>
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</table>

GROVE SCANNER PRODUCTS • 15
To Speed Your Order, Follow These Simple Steps:

Postal Orders: Include the product name or description, catalog number, price, shipping charge per item (overpayments for multiple items will be refunded), your name, shipping address (or billing address if different), shipping method, and payment method. Include a check, money order or credit card number (Mastercard, Visa, Discover Card), expiration date and issuing bank. C.O.D. is an additional $5.50 per package, available UPS ground rate only, payable upon delivery by cash, certified check or money order. Mail your order to Grove Enterprises, PO Box 98, Brasstown, NC 28902. Please send no cash or stamps.

E-Mail Orders: Be prepared with the information requested above and send it to order@grove.net.

Phone Orders: Be prepared with the information requested above and call toll-free: (800) 438-8155; outside the U.S. and Canada call (704) 837-9200 (no collect calls please).

Fax Orders: Prepare the information requested above and fax it to: (704) 837-2216.

U.S. Shipping and Delivery: Unless you are notified of a delay, all parcels are shipped within one working day upon receipt of your order to the 50 United States by UPS 2nd Day Air at normal ground rates. UPS Next Day Air is available at additional cost. Express and Priority Mail are also available; contact us for charges.

U.S. Postal Service delivery is typically within 10 days of shipment, although book rate delivery may take up to four weeks. If you do not receive your parcel by the end of these time frames, call us to put a tracer on your order.

Purchase Orders: Written purchase orders are accepted from city, state and federal agencies and institutions. Terms are net within 10 days, with an additional 1-1/2% per month service charge beyond 10 days.

Foreign Shipments: Place your order as described above, contacting us for shipping costs. Payment is expected by International Money Order or a bank draft drawn in U.S. currency drawn on a U.S. bank. Post Office insurance does not apply to some countries and we do not assume any responsibility for losses beyond proof of shipment. No CODs accepted from APOs, FPOs or addresses outside the U.S.A.

Order Blank

Is this an address change? ________Yes! ________No!

If this is your first order, where did you hear about Grove Enterprises?

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STREET ADDRESS: ___________________________________
CITY ______________________ STATE ______ ZIP _______
DAYTIME PHONE: (Area Code) _______________________

Billing Address
NAME: ____________________________________________
STREET ADDRESS: ___________________________________
CITY ______________________ STATE ______ ZIP _______
HOME PHONE: (Area Code) _______________________

Waiver To Medical Evaluation Requirements (Required for Purchase of Clarity Hearing Instruments Only)
I have been advised that the Food and Drug Administration has determined that my best interest would be served if I had a medical evaluation by a licensed physician, preferably a physician who specializes in diseases of the ear, before purchasing a hearing aid. I am 18 years old or older and voluntarily sign this waiver which indicates that I do not wish a medical evaluation before purchasing a hearing aid. I understand that if unsatisfied with my hearing aid(s), I may return it within 30 days of the shipping date, for a full refund.

Signature ________________________________________ Date ____________

Payment Method:
☑ CHECK ☑ MONEY ORDER ☑ COD ☑ MASTERCARD ☑ VISA ☑ DISCOVER CARD

Shipping Method:
☑ UPS 2ND DAY ☑ US PRIORITY/FIRST CLASS MAIL ☑ UPS NEXT DAY ☑ BOOKRATE (Book orders only)

Product Stock # Quantity Price Shipping TOTAL

Customer Service: If you are confused about what equipment to order, call Sue or Chanel at 704-837-7081, 8:00-5:00

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1 year* $23.95 (US) _____________

** NEW! 6-month subscription to MT magazine
6 months* $12.95 (US) _____________

** Satellite Times magazine subscription
1 year** $19.95 (US) _____________

* Two-year subscription to Monitoring Times, $45.95; Three years, $67.95. Foreign air mail, one year $85.95

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NC Residents add 6% Sales Tax $ ____________________________

Signature: ____________________________________________

TOTAL $$$ ___________ TOTAL ENCLOSED $ ___________

Mail order to: Grove Enterprises, P.O. Box 98, 7540 Hwy. 64 West, Brasstown, NC 28902; Phone: (800) 438-8155; (704) 837-9200; FAX (704) 837-2216; Online at www.grove.net

Based upon the Supreme Court rulings of McLeod vs. Dillworth (1944), Bellas Hess (1967) and the proposed Brooks legislation (H.R. 2230), effective September 1, 1990, Grove Enterprises will no longer collect sales or use taxes apparently invalidly levied by states against residents when they purchase from us in North Carolina. We have neither economic presence nor nexus in these states as established by the U.S. Supreme Court.
Order Line: (800) 438-8155 (M-F, 8am-5:30pm EDT)
Office Line: (704) 837-9200 (M-F, 9am-5pm EDT)
Technical Line: (704) 837-7081 (M-F, 8:30am-11:30am and 1pm-4:30pm EDT)
FAX Line: (704) 837-2216 (24 hours/day, 7 days/week)

Bulletin Board System:
The Grove System's BBS's hours are as follows:
Monday-Friday, 6:30pm-8am Eastern Daylight Time and 24 hours/day on weekends.
All phone numbers are active during the same time periods.
(704) 837-7081 - 9,600/14,400 BPS
(704) 837-9200 - 300/1200/2400 BPS
(704) 837-5957 - 300/1200/2400 BPS
Dear Friends:

As fall closes in, most of us become aware of our vulnerability and isolation during the winter months. This is also prime monitoring time; not only do we have the opportunity, but long-distance conditions are prime. Now is the best time to plan for the winter monitoring season!

First, check your subscription to Monitoring Times. The expiration date (your last issue) will be in the upper right hand corner of the mailing label. Renew before you forget! We never have enough back issues to satisfy all the requests.

Next, check your antenna system. Are any elements bent, corroded or loose? How about solder connections? Is the coax more than five years old? Has moisture intruded into any connectors? Are signals gradually growing weaker? Do you have any splices? It’s time for maintenance — maybe even some replacements!

And finally, give serious consideration to upgrading. We always want something better, and there always IS something better! Roam with me through these catalog pages and discover — or rediscover — tantalizing and useful equipment, accessories and books, many of which make marvelous gifts!

Bob

P.O. Box 98 • 140 Dog Branch Road • Brasstown, NC 28902-0098
Voice 704-837-9200 • Fax 704-837-2216
Grove’s
Customer Satisfaction Guarantee

RETURN AUTHORIZATIONS

"I THOUGHT I WOULD LIKE IT, BUT I DON’T" — Simply call our toll-free line (1-800-438-8155) within 30 days of shipping date and request a return authorization number. Place the RA number prominently on the outside of the shipping carton to expedite your return. Upon receipt of the product in original packaging and new condition (please be sure to double box items which were shipped to you in that form, wrap items so no scratching or rubbing occurs, and don’t put tape or write on the outside of display box); we will refund your money, less shipping, or give you credit toward another product—your choice. Any product returned in not-as-new condition will be assessed a fair refurbishing charge. Be sure to include the authorization number as a 10% restocking charge must be assessed for products returned without authorization. Special order items cannot be returned.

"I RECEIVED A DAMAGED PACKAGE" — If you see that the package is damaged when delivered, ask the UPS driver to wait while you open the box and inspect the contents. If it is damaged, refuse the package and call us on our toll-free line (1-800-438-8155) to advise of the problem. If the package is left on your doorstep and you discover that it is damaged, call your local UPS office and ask them to pick it up. Be sure to keep the packing box. Then call us and we will see that a replacement is shipped.

DEFECTIVE MERCHANDISE

If any merchandise proves to be defective within thirty days of shipping, call our toll-free line (1-800-438-8155) to receive a return authorization number. We will issue a call tag for UPS to pick up the package from your address at no cost to you. If you return via another method (e.g. UPS Red, Federal Express)—only UPS ground charges will be refunded. When we receive the unit here we will check it out, and if it is defective we will replace it with a new unit at no cost to you. If the unit is not defective, we will call to give you the choice of a refund or return of the equipment with an explanation as to why you may have thought it was defective. If merchandise becomes defective after thirty days, please see the individual warranties below.

CHANGES IN PRICES, SPECIFICATIONS AND AVAILABILITY

If there is a price increase over $10 from the amount you have shown on your order, you will be notified before shipment. If the increase is under $10, you will be sent a statement of amount due with your merchandise. If there is a price decrease you will be sent a refund check.

Specifications are subject to change without notice. Manufacturers frequently make minor changes during production to improve performance.

Due to demand and availability, we occasionally have to drop a product from our catalog. All available items on your order will be shipped and a refund will be sent for the item which is no longer available. If the discontinued item is tied in with other equipment you have ordered, we will contact you to be sure you want the order shipped.

ANY QUESTIONS?

If you require additional technical information on our products, call 704-837-7081 or send questions along with a self-addressed stamped envelope, and we will be happy to reply. Questions regarding shipping methods, accounts, etc., call 704-837-9200.

Manufacturers' Warranties

GROVE ENTERPRISES, INC.

All equipment manufactured by Grove Enterprises, Inc. is warranted against manufacturing defects for a period of one year under normal use by the purchaser, providing that no modifications or field repairs have been attempted.

If any equipment should fail after the initial thirty day warranty (above) Grove shall repair or replace that defective equipment upon its postpaid return. Please call our toll-free number (1-800-438-8155) to receive a return authorization number. The use of this number will expedite its repair and should appear in bold letters as (“RA 111”) on the outside of the package. The warranty does not cover hazard to person or associated equipment or property. Your warranty is considered to be in effect from the date of shipment to you. Violations of the warranty clause will automatically void the warranty and services or repairs will be charged to the owner.

Service outside of the one year warranty will be charged at the cost of parts, labor, and return shipping. Payment for repairs must be received before the repaired unit can be returned.

WARRANTIES BY ICOM, UNIDEN, KENWOOD, ETC.

If any equipment should fail after the initial thirty day warranty (above), check your service manual for the repair center nearest you or call our toll-free line (1-800-438-8155) for the name, address, and phone number of the service center nearest you.
Choosing a Shortwave Receiver

Choosing a shortwave receiver for your personal use is a lot like choosing a car. You must first decide what basic service you need, then shop for the best buy.

Looking for a good portable? The Sony ICF2010 is the best choice. Featuring keyboard entry of frequencies as well as a tuning dial, the radio offers sensitivity and a choice of wide or narrow selectivity. In addition to 150 kHz-30 MHz continuous coverage, the 2010 also offers 118-136 MHz aircraft and 88-108 MHz FM broadcast reception.

The 2010's synchronous detection enhances shortwave reception; single sideband signals are also quite satisfactory. Battery life is much improved over its predecessors and it comes with an AC adaptor. Additional features are found on the new upgraded model SW77, listed in this catalog.

For low cost at reasonable performance, try the Sangean ATS-803A. Continuous 150 kHz-30 MHz AM and SSB reception are offered along with FM broadcast and wide or narrow selectivity. An AC adaptor is included.

If you want pocket portability, forget high quality; the two don't mix. The characteristics of greatest importance to listeners are those which are most commonly compromised in low-cost radios; frequency stability, dial accuracy, selectivity and overload immunity.

The Grove TUN3 and TUN4 preselectors will reduce or eliminate overload interference on low cost receivers which suffer from poor dynamic range, and are equipped with connectors for an external antenna.

For the serious listener the new Grove SW-100, Drake R8, ICOM R71A, Kenwood R5000 and JRC NR-535 lead the list.

SHORTWAVE ANTENNAS AND ACCESSORIES

While it is true that any length of wire will pick up signals, a well planned antenna installation will pick them up better. The greatest efficiency of an antenna occurs when its electrical length matches that of the incoming radio wave (resonance). For a given length this only occurs at one frequency and related multiples. It is the job of the antenna designer to come up with the best combination of characteristics for wide frequency coverage.

The “bigger the better” concept has its limitations. Once an antenna is large enough to hear signals above the noise generated by the receiver’s own circuitry, further strength is unnecessary. For most applications 20-75 feet is plenty long enough; in fact, doubling the length of a matched antenna will improve signals by only 3 decibels—half an S unit and barely discernible.

Impedance matching (standing wave ratio—SWR) may be important for transmitting, but is of virtually no concern in receiving. While a perfect match between an antenna and receiver will deliver the greatest signal strength, the background atmospheric noise (hiss and static) will increase proportionately. The net result will be a high S-meter reading, but no better signal readability above the noise.

A wire antenna may be thick or thin, made of any metal, insulated or uninsulated, stranded or solid; it will hear all signals the same. Choose your wire for strength, solderability and corrosion resistance.

An antenna should be as high as possible and away from large metal surfaces and electrical power lines to avoid electrical noise pickup and shock hazard. Indoor antennas often pick up noise from household appliances, although loop antennas may be rotated for minimum interference.

RECOMMENDED ANTENNAS

For shortwave reception, it's hard to beat an elevated dipole. In actual field tests the low-cost Grove Skywire (ANT-2) repeatedly equalled or outperformed any other receiving antenna on the market including expensive trap dipoles.

Trap dipoles are designed to work best on certain ranges like the broadcast or ham bands, often compromising the remaining frequency ranges. Why buy a general coverage receiver, then reduce its capability with a frequency-restricting antenna?

For medium and longwave reception, the operator may wish to disconnect the ground side of the feedline, thus allowing the feedline to become part of the antenna for added length and improved low frequency signal strengths.

Directional antennas concentrate incoming signals (“gain”) from one direction while rejecting interfering signals from other directions. The large capture area (aperture) of a big antenna overcomes poor sensitivity in old receivers by providing stronger signals, but modern receivers have excellent sensitivity and require smaller antennas.

Active antennas are nothing more than short vertical elements attached to an amplifier to approximate the signal levels delivered by a full-size antenna. Tuned amplifiers are vulnerable to strong signal overload because of limited dynamic range. This produces gain compression (apparent lack of sensitivity) and intermodulation (“intermod”—the mixing of signal frequencies heard as spurious signals throughout the listening range).

Some active antennas, including the Grove Hidden Antenna system, overcome this shortcoming by including a preselector which selects the desired frequency and attenuates all others.

Because of their indoor location, complexity, vulnerabilities and cost, active antennas should be chosen only when adequate outdoor antennas are not possible.

If an antenna intercepts enough signal voltage to overcome losses and noise in the receiver, no amount of amplification will make the signal easier to copy, just louder—along with louder background noise.

FEEDLINE

A wire run from your receiver to a nearby tree may produce excellent reception, but it is susceptible to electrical noise pickup from nearby appliances; use coaxial cable for your antenna lead-in. For reception below 30 MHz, virtually any well-shielded coax like RG-58/U, RG-59/U, RG-6/U or RG-8/U is satisfactory for runs up to at least 100 feet.

PRESELECTORS

A passive (unamplified) preselector like the Grove TUN-3 MiniTuner can be thought of as a frequency-adjustable gate for radio signals; its purpose is to pass desired signal frequencies while rejecting all others. Installed between the antenna line and receiver, it eliminates intermodulation, image interference and desensitization caused by strong signals in economy receivers. It is not an impedance matching device nor preamplifier, so it won't make received signals stronger.

In contrast, an amplified preselector like the Grove TUN4 not only passes those desired signals, but amplifies them as well, often improving reception when the antenna is small or indoors.
GROUNDING

A connection to an earth ground rarely makes signals stronger, but will lessen the hazard of electrical shock and may reduce electrical line noise interference or AC hum on received signals.

An effective ground consists of a short length of heavy gauge wire (or coax cable shield) connected to a single metal pipe or rod driven at least eight feet into moist soil. Dry soil or sand is worthless as a ground. A metal (not PVC) cold water pipe may work, but hot water pipes are usually caulked at the water heater, electrically insulating them. As a last resort, connect your ground wire to the screw holding on the wall plate over the AC outlet.

Equipment chassis should be commonly tied together by a single ground wire to reduce common mode hum. Experiment with different grounding combinations for best results.

The old-fashioned gap-type lightning arresters so common during the vacuum tube era are no longer adequate; transistors burn out at voltages much lower than an air gap can protect. Offering much better protection are the new gas-charge types such as the Grove LA1 and Alpha Delta TransiTrap.

While nothing can guarantee protection from a direct lightning strike (always disconnect your antenna from your equipment during storm season), these devices will harmlessly short-circuit any voltages induced on the antenna by close strikes.

The Top 100 SW Frequencies

An introduction to shortwave listening from Grove Enterprises and Monitoring Times.

Nowhere in the radio spectrum is found as much intrigue as on shortwave. The following frequencies (in kHz) list voice utilities (two-way communications) using upper side-band (USB) and AM broadcasters best heard in the early evening hours.

<table>
<thead>
<tr>
<th>UTILITIES</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>U.S. Coast Guard</td>
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<td>Mississippi River Barges</td>
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<td>International airlines</td>
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<tr>
<td>Navy MARS</td>
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INTERNATIONAL BROADCASTERS

(Schedules subject to change)

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<td>Costa Rica</td>
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TIME SIGNALS

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<tr>
<td>15000</td>
<td>14670</td>
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</tbody>
</table>

Technical Question on catalog products? Call Sue 704-837-7081
New from Grove! Designed and manufactured in the USA!

The Grove SW-100

Full-Featured General Coverage Receiver

Built to exacting government surveillance standards, the SW100 professional grade receiver offers premium features at affordable cost.

Secured in a compact, all-metal enclosure, the lightweight SW100 tunes from 10 kHz through 32 MHz (1000 MHz with optional converter under development) and offers 1000 memory locations. Precise 10 Hz frequency readout on a large backlit LCD; receives all modes including AM, USB, LSB and narrowband FMI! Even RTTY, FAX, packet and other digital modes with external decoder.

Advanced synchronous detection reduces fading and distortion on distant AM stations while allowing the passband to be tuned for optimum reception. Up-conversion and wide dynamic range virtually eliminate images and intermod. Crystal and multielement piezofilters assure optimum reception under brutal interference conditions.

Enjoy unexcelled sound from a tone equalized, full-fidelity, 4" top-mounted speaker, while a sensitive, all-mode squelch removes irritating background noise between signals. Annoying tones and whistles are sliced out with a 40 dB notch filter, and a low-distortion pulse noise limiter suppresses electrical interference.

Read signal strengths accurately in S units and microvolts; a center tuning indicator assures precise frequency adjustment. Tape recorder control allows recording of your favorite programs; an RS232C computer interface is available.

Order GR1
Introductory price of only $799.95

SPECIFICATIONS
Frequency Range: 10 kHz-32 MHz
Memory: 1000 channels (10 banks of 100) store frequency, mode, selectivity, channel number, lockout
Scan: 20 channels per second (varies with mode and frequency) with 2 second delay; A/B VFO automatically follows dual-frequency communications
Frequency Readout Accuracy: 10 Hz (5 decimal places)
Center Frequency Tuning Indicator: LCD Frequency Accuracy: +/- 5 ppm
Sensitivity (10 dB SINAD SSB, 50 ohms): 0.5 microvolts (6 dB) or better
Dynamic Range: 80 dB min.
Intermodulation (3rd Order Intercept Point): +15 dBm min.
Image/IF Rejection: 90 dB min.
Selectivity (2:1 shape factor, -6/-60 dB): AM/SSB wide 6.0 kHz, medium 3.0 kHz, narrow 2.4 kHz, sharp 1.0 kHz (optional); FM narrow 15 kHz, sharp 6.0 kHz
Tuning Steps: AM 100/1000 Hz, AM synch/SSB 10/100 Hz, NFM 2.5/12.5 kHz, plus user defined 10 Hz-1000 kHz
Conversion Scheme: Up-converted double superhetrodyne (45 MHz, 455 kHz)
AGC: 10 mS attack, 10 mS AM/FM decay, 500 mS SSB decay
Receiving Modes: AM, AM synch, USB, LSB, NBFM
Noise Limiter: Low distortion pulse clipping
Overload Protection: Introduced lightning and signal overload
Tone control: Bass/treble adjust
S Meter: D'Arsenval movement registers S units and microvolts
Display: Backlit LCD
Notch Filter: Suppresses 450-5200 Hz tone interference 40 dB
Squelch: Signal activated, all modes
IF Output: 45 MHz for SDU
Power Requirement: 12 VDC @ 1 A; 120 VAC adaptor included
Recorder/Activator: Sinks 12 VDC @ 1 A
Record Output: 600 mV @ 1000 ohms
Audio: 4 watts @ less than 10% THD into 4 ohms
Internal speaker: Top mounted, 4" full fidelity
Earphone Jack: 1/4", 4-16 ohm, anti-blast protected
External speaker jack: 1/8" Dimenions: 4.5 x 10 x 8 D; rack mountable
Weight: 10 lbs.
Warranty: One year

Shipping $14 UPS
$27 UPS 2nd Day Air
$28 US Priority Mail
$24 UPS Canadian
$35 Canadian Air Parcel Post

Product Support for Catalog Items Only — 704-837-7081
Turn your Icom R7000, R7100 or Grove SW-100 into a powerful spectrum analyzer! Plugs into any receiver or transceiver that has an IF output jack!

Enjoy the high-tech advantage of countersurveillance professionals who depend upon spectrum analyzers to find eavesdropping transmitters ("bugs").

As the "spikes" appear on the screen you can tune them in quickly; no need to wait for the slow, hit-and-miss search of a scanner.

Your receiver's tuned signal is the center of the screen, with up to 10 MHz (or as narrow as 100 kHz) of spectrum displayed simultaneously! Nail those unknowns as soon as they transmit!

Ideal for locating jammers, identifying sources of radio interference, studying signal propagation, testing antennas, aligning receivers and transmitters, and much more!

Connect the SDU-100 to any TTL monochrome monitor, or order the matching VID-100 9" CRT monitor. 12 VDC powered for mobile or field environment; AC adaptor included (the VID-100 is AC powered).

The SDU-100 is configured to operate with a variety of receiver intermediate frequencies (IFs), including 8.8, 10.7, 21.4, 45 and 70 MHz. This must be specified at the time of order. An inexpensive plug-in module can be ordered later to change the IF if desired.

**SPECIFICATIONS**

- **SPAN:** 10, 5, 2, 1 MHz; 500, 200, 100, 0 (Time) kHz
- **DISPLAY ACCURACY:** +/-3% or +/- 3 dB, whichever is larger
- **RESOLUTION BANDWIDTH:** 5, 30 kHz
- **SWEEP TIME:** 0.1, 0.5, 2, 6 seconds
- **IF:** SDU-100A 8.83, 10.7, 21.4 MHz
- **SDU-100B 45, 70 MHz (others available)
- **VIDEO OUTPUT:** TTL to optional monochrome monitor
- **INPUT MINIMUM DETECTABLE SIGNAL (MDS):** Adjustable, -130 to -50 dBm
- **DISPLAY DYNAMIC RANGE:** 90 dB

**Order Today!**

- **SDU-100** Spectrum Display Unit $499.95
- **VID-100** 9" CRT Monitor $149.95
- **Order both for $599.95**

**NOTE:** Demand for this spectrum display system, due for release in December, is expected to be heavy. Reserve orders are being taken now.
# FULL SPECTRUM RECEIVER

**From R.L. Drake — The R8 Communications Receiver!**

It has been nearly a decade since this respected American company withdrew from manufacturing communications equipment; now they have returned better than ever!

The exciting new R8 general coverage communications receiver offers outstanding 100 kHz-30 MHz performance at a competitive cost. Four voice-bandwidth filters combined with excellent audio design make international broadcast listening as well as utilities monitoring a pleasure.

Synchronous detection reduces fading and distortion while passband tuning rejects adjacent frequency interference. Ideal for AM, SSB, RTTY, CW reception.

Optional converter allows AM/FM reception 35-55, 108-174 MHz, while a built-in microprocessor/controller offers RS232 computer control and multiple-function scanning.

Dual VFOs, switchable preamp/attenuator, dual-time-zone clock timer, switchable antenna inputs, universal power supply and more combine to make this new receiver an outstanding value.

<table>
<thead>
<tr>
<th>Order RCV1</th>
<th>Retail $879</th>
</tr>
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<tbody>
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**Grove discount price only**

$959.95

$14 UPS; $27 UPS 2nd day; $28 US Priority Mail

$24 UPS Canada; $35 Canadian air parcel post

**SPECIFICATIONS**

- Frequency range: 100 kHz-30 MHz (35-55/108-174 kHz with optional converter)
- Keypad frequency entry: Yes
- Tuning steps: 10/100 kHz (20/200 kHz for AM)
- RIT (fine tuning) not required
- Selectivity: 4 kHz
- Sensitivity: 0.5 uV
- Dynamic range: 90 dB
- Conversion scheme: Doubleside conversion
- Passband conformity: ±0.5 kHz
- Audio out power: 2.5 W at 4 ohms for 10 % THD
- Record audio output: Yes
- Recorder activator: No
- Selectable preamplifier: Yes
- Urban noise rejection: 40 dB
- Dual upconversion: Yes
- Image rejection: greater than 100 kHz-1.5 MHz

**ACCESSORIES:**

- ACC43 VHF Converter $199.95
- ACC49 External Speaker $48.95 plus $6 UPS
- ACC67 Service Manual $79.95
- ACC77 PC Software $58.95

Installation fee $20

---

Kenwood

**R-5000**

This extraordinary communications receiver has built-in modes for AM, FM, USB, LSB, CW, FM and FSK (RTTY). 100 memory channels store frequency, mode, and antenna selection (two inputs); 10 Hz tuning accuracy. Non-volatile memory retains functions even if long-life lithium battery fails.

Filters are provided for 6 kHz AM, 2.5 kHz SSB; you can add up to two more (one each: CW, SSB or AM). Excellent audio quality for broadcast monitoring.

<table>
<thead>
<tr>
<th>Order RCV7</th>
<th>Retail $1999.95</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

**Only**

$879.95

$25 UPS; $35 UPS 2nd day air; $39 US Priority Mail

$35.50 UPS to Canada; $45 air parcel post to Canada

**OPTIONAL ACCESSORIES**

- ACC50 VCO 118-174 VHF conv. $199.95
- ACC51 YK88A 6 kHz AM filter $64.95
- ACC52 YK88B 2.4 kHz SSB filter $64.95
- ACC53 YK89BN 1.8 kHz narrow SSB $64.95
- ACC54 YK85C5 500 Hz CW filter $64.95
- ACC55 YK85CN 270 Hz narrow CW $94.95
- ACC56 D252Deluxe $12.95
- ACC57 V51 voice synthesizer $59.95
- ACC58 IF223C translator control $94.95
- ACC59 IC-10 interface $94.95
- ACC60 Headphones HSS deluxe $64.95
- ACC61 Headphones HSS lightweight $44.95
- ACC62 SP23 external speaker $65.95
- ACC63 MB439 mobile mount bracket $34.95
- ACC64 Service manual $25

Installation of one or more accessories $20.

---

Product Support for Catalog Items Only — 704-837-7081 6

Headphones now available—see page 28
The top of the line has a new leader! Japan Radio Company, manufacturer of the coveted NRD series of professional communications receivers, has just introduced an advanced receiver design with superb performance features.

Offering continuous frequency coverage of 90 kHz through 30 MHz and reception modes for AM, USB, LSB, CW, RTTY, FAX and narrowband FM, frequency is displayed to 10 Hz accuracy on a giant, brightness-adjustable fluorescent display; tuning resolution is an incredible 1 Hz at a drift-free +/- 2 parts per million!

JRC's remarkable new continuously-variable passband filter allows the user to custom-select the exact filter bandwidth he wants, from 0.5-5.8 kHz, to reduce or eliminate adjacent channel interference with minimum impact on the fidelity of the desired signal. Exalted carrier selectable sideband (ECSS) permits additional clarity of reception on AM international broadcasters who are plagued by adjacent-frequency interference.

Four filter bandwidths may be selected for any mode (except NBFM which is 12 kHz). The dual noise blanker is extremely effective in reducing or eliminating aggravating impulse noise like ignition noise and the woodpecker.

Comfortable, effective listening is enhanced by the array of front panel controls like squelch, AF and RF gain controls, tone control, and AGC timing. A powerful 24-hour clock-timer can be pre-adjusted for frequency, mode and on/off time, and even includes a record activator so you can automatically listen to or record a transmission of interest. A built-in RS232 interface allows your computer to control virtually every function of this remarkable receiver for even greater listening power.

**SPECIFICATIONS**

**Conversion scheme:** Triple up-conversion (70.45 MHz/455/97 kHz)

**Frequency range:** 90 kHz-30 MHz

**Sensitivity:** 0.5 uV 1.5-30 MHz (SSB)

**Selectability:** 60 dB @ 12 kHz, continuously adjustable 0.5-5.8 kHz

**Image rejection:** >70 dB

**Frequency stability:** +/- 2 ppm after one hour warmup

**Passband tuning:** 1 kHz

**Noise blanker/to limiter:** Dual width

**Adjustable notch filter:** 30 dB

**Tone control:** Yes

**Antenna connector:** SO-239 (UHF)

**Dimensions:** 13.7" W x 5.7" H x 11" D

**Weight:** 20 lbs.

**Power requirements:** 120/240 VAC @ 50/60 Hz, 12 VDC 2.2A

**Warranty:** One year

**Accessories included:** None

---

**JRC NRD-525**

Eventually, a receiver is going to be discontinued. Now you can get this remarkable receiver at a greatly reduced price.

Two hundred memory channels store your choice of frequencies from the continuous 90 kHz-34 MHz tuning range, in any mode — AM, FM, USB, LSB, RTTY, CW, and FAX. Memory channels can be scanned or searched, each channel storing such information as frequency, mode, bandwidth, AGC timing, and attenuation setting.

Frequencies may be keyboard entered and dial selected. Factory selectivities are 12, 4, and 2 kHz; two more may be added in any mode. A double superheterodyne circuit (70.45 MHz/455 kHz) features up-conversion for minimum image response, and wide dynamic range (greater than 100 dB assures excellent intermod immunity). IF and image rejection are typically 70 dB or more. High sensitivity (0.5 uV SSB) catches the weakest signals.

Passband tuning and a notch filter allow precise targeting of signal interference while an effective noise blanker permits rejection of pulse noise. Tone control, BFO, RT, squelch, RF gain, step tuning, 24 hour clock timer with record activator and computer compatibility make this a remarkable receiver.

---

**Special closeout price from Grove while quantities last!**

**JRC NRD-525**

Order RCV 16 **$889.95**

Order Line — 1-800-438-8155
Let's go batty over this sale!
ICOM prices have increased over 18%, but, as a Grove customer, you can still purchase ICOM products at previously low prices while supplies last!

ICOM R-71A

This receiver is as professional as it looks. The brilliant fluorescent display provides frequency information down to tenths of a kilohertz and alerts the listener to other dial settings (mode, memory, channel, VFO). Signal resolution of 10 Hz eliminates the need for RIT, even on SSB or RTTY, and may be scanned or searched. An effective noise blanker has adjustable controls for optimum reduction of a wide variety of impulse noises, from power line hash to the Russian woodpecker. Filter selectivities of 6, 2.3 and 0.5 kHz are provided, you may add one more for use in any mode.

This latest version also reintroduces passband tuning.

Of interest to the visually impaired is the optional EX-310 speech synthesizer which announces the displayed frequency in English.

Specifications:
- Frequency range: 100 kHz-30MHz
- Keypad frequency entry: Yes, plus tuning knob
- Tuning steps: 10 Hz
- RIT (fine tuning): No
- Display: Fluorescent
- Dimmer: Yes
- Type of listening recommended: Domestic and international broadcasts, two-way communications
- Receiving modes: AM, USB, LSB, RTTY, CW, narrowband FM
- Memory: 32 channels plus 2 temporary VFO memories
- Scan: Yes
- Banks: Mode scan
- Lockout: No
- Priority: No
- Search: Yes
- Delay: Yes
- Squelch: Yes
- Clock: No
- Audio output power: 2 watts
- Record output: Yes
- Recorder preamplifier: Yes
- S meter: Analog
- Computer interface: Optional
- Conversion scheme: Quadrature up-conversion
- Sensitivity: 0.2 uV with precancel
- Selectable preamplifier: Yes
- Selectable attenuator: Yes
- Selectivity: 500 kHz wide 2.3/4.2 kHz; optional FM 1505 kHz
- Image rejection: 60 dB
- Frequency stability: 50 Hz
- Selectable AGC: Yes
- Dynamic range: 25 dB
- Preamp tuning: Yes
- Noise blanker/filter: Dual, adjustable
- Adjustable notch filter: Yes
- Antenna connector: SO-239 (UHF)
- Auxiliary connection: 70 MHz IF output
- Dimensions: 11-1/4" x 6-3/8" x 10-7/8"D
- Weight: 16 lbs
- Power requirements: 120/240 VAC, 12 VDC with optional EX299
- Warranty: One year
- Accessories Included: None

Order RCV6
Retail $999

Optional Accessories:
- ACC1 High Stability Crystal $79.95
- Installation Fee $20

ICOM R-72 GENERAL COVERAGE COMMUNICATIONS RECEIVER

For the serious shortwave enthusiast on a budget, the new R72 offers full 100 kHz-30 MHz frequency coverage and direct keypad entry with advanced features. A backlit LCD shows the receiver's 10 Hz frequency resolution, while 101 scannable memory channels store frequencies in AM, LSB, USB, RTTY, and CW. Dual-range search is included as well as an analog S meter and a recorder activator coupled to a 24 hour clock timer.

Retail $999
Order RCV8

Only $799.95

Optional Accessories:
- ACC4 High Stability Crystal $79.95
- Installation Fee $20

Specifications:
- Frequency range: 30 kHz-30 MHz
- Keypad frequency entry: Yes
- Tuning steps: 10/1kHz/10kHz
- RIT (fine tuning): unnecessary
- Display: Brilliant fluorescent; 10 Hz resolution
- Dimmer: Yes
- Type of listening recommended: Domestic and international broadcasts; two-way SSB/CW/RTTY
- Receiving modes: AM, SSB, CW, FM optional
- Memory: 101 channels
- Scan: Yes
- Banks: No
- Lockout: Yes
- Priority: No

Search: Dual range
Delay: Yes
Squelch: Yes
Clock: Yes with timer
Audio output power: 2 watts
Record Output: Yes
Recorder Activator: Yes
S meter: Yes, analog
Computer Interface: Optional
Conversion Scheme: Triple up-conversion, 70.4515 MHz, 9.015 MHz, 455 kHz
Sensitivity: 200 kHz-1.8 MHz 2uV SSB/12.6uV AM; 1.8-30 MHz (preamp on) 0.16 SSB/2uV AM; optional FM 0.5uV
Selective preamplifier: Yes
Selectable attenuator: 10/20/30 dB
Selectivity: 30/60/120; AM wide 8/20 kHz; AM narrow/SSB 2.3/8 kHz; optional FM 15/30 kHz
Image rejection: 70 dB
Frequency stability: +/- 30 Hz after 1 hour warmup
Selectable AGC: fast/slow
Dynamic range: 100 dB
Passband tuning: No
Noise blanker/filter: Dual
Adjustable notch filter: No
Tone Control: No
Antenna Connector: SO-239 (UHF) and push clip
Auxiliary Connector: No
Dimensions: 9.5"W x 3.7"H x 9"D
Weight: 10.5 lbs
Power Requirements: 120/240 VAC, built-in niacs; optional 13.8 VDC mobile kit
Warranty: One year
Accessories Included: None

Only $849.95
$15 UPS; $30 UPS 2nd day; $30 US Priority Mail
$39 Canadian Air Parcel Post; $25.50 UPS to Canada

Headphones now available—see page 28
Philips DC-777 Mobile AM/FM/Shortwave Radio

For those mobile shortwave listeners who want it all—FM stereo, local AM medium wave and international broadcasting, the DC777 even includes a stereo cassette player so you can hear your favorite tapes when listening conditions aren't the best. Twenty memory channels with autosearch, a brilliantly-backlighted LCD frequency display, crisp stereo FM, compact-in-dash mounting, digital frequency entry—just a few of the advanced features which are found on this high quality, multiband auto radio. DIN mounting bracket included for imported vehicles.

Order
RCV12
$389.95
$7 UPS; $12 UPS 2nd Day Air; $15.50 US Priority Mail; $12 Canadian UPS; $18 Canadian Air PP

ACCESSORIES:
ACC91 Pull-out security mount $59.95
ACC92 U.S. vehicle dashmount kit $19.95
ACC93 Wired remote control kit $79.95

The Sangean ATS-803A

Whether you are a beginner looking for a high performance portable at low cost, or a seasoned SWL planning on a second receiver, this is clearly the most feature-packed, high performance portable under $200!

Order RCV4
Only $169.95
$7 UPS; $12 UPS 2nd day; $15 US Priority Mail
$17 Canadian Air Parcel Post; $11 Canadian UPS

SPECIFICATIONS

Frequency: 150 kHz to 30 MHz, 87.5-108 MHz
Keypad frequency entry: Yes
Tuning steps: 1 kHz
BIT (Fine tuning): Tuning knob and BFO
Display: Illuminated LCD
Dimmer: Yes
Type of listening recommended: Domestic & Intl. broadcast, casual
Receiving modes: AM, SSB, weakband FM
Memory: 9 channels
Memory: Scan: Yes
Search: Yes
Priority: No
Delayed: No

Order RCV9
Retail $399
Only $249.95
$7 UPS; $14 UPS 2nd day; $15.50 US Priority Mail
$20 Canadian Air Parcel Post; $12.50 Canadian UPS

SPECIFICATIONS

Frequency range: 150 kHz to 30 MHz AM/SSB, 87.5-108 MHz FM
Audio output power: 800 mW
Record audio output: No
Recipient: Yes
Audio output power: 500 milliwatts
Record audio output: No
Recipient: No

Top-of-the-line With Built-In Cassette Recorder
Sangean ATS-818CS

Imagine—record your favorite programs automatically with the dual-zone clock timer on any frequency from 150 kHz through 30 MHz, 87.5-108 MHz FM as well! This impressive portable has SSB and CW reception, 45 memory channels, wide/narrow filter selectivity, signal strength indicator, AC wall adapter and more!

Order RCV9
Retail $399
Only $249.95
$7 UPS; $14 UPS 2nd day; $15.50 US Priority Mail
$20 Canadian Air Parcel Post; $12.50 Canadian UPS

SPECIFICATIONS

Frequency range: 150 kHz to 30 MHz AM/SSB, 87.5-108 MHz FM
Keypad frequency entry: Yes
Tuning steps: 1 kHz
BIT (Fine tuning): Tuning knob and BFO
Display: Illuminated LCD
Dimmer: Yes
Type of listening recommended: Domestic & Intl. broadcast, casual
Receiving modes: AM, SSB, weakband FM
Memory: 9 channels
Memory: Scan: Yes
Search: Yes
Priority: No
Delayed: No

Dynamic range: Not available
Passband tuning: No
Noise blanker/limiter: No
Adjustable notch filter: No
Tone control: Separate bass & treble
Antenna connector: RCA photo plug
Antenna connector: No
Dimensions: 11-1/2 x 6-1/4 x 2-1/2"D
Weight: 4 lbs.
Power requirements: 2 AA and 6 D cells or 120 VAC
Warranty: 1 year
Accessories included: AC adapter, stereo headphones, shoulder strap, SW handbook, external antenna adapter
The Sony ICF-SW77

For those who have been looking for the next step up, it's here! The new Sony ICF-SW77 has all of the features of the popular ICF-2010 (except air band), plus:

- Front panel tuning dial
- Separate bass and treble controls
- 162 non-volatile memory channels
- Stereo FM (headphones)
- Station name display
- 50 Hz fine tuning steps
- Broadcasting time display
- 24 hour/local time clock
- 5-event timer
- Worldwide power supply

Order RCV10 Retail $449
Only $465.95

Sony ICF-SW55

- Frequency range and modes: 150 kHz-30 MHz AM/SSB, 76-108 MHz FM
- Station name tuning with LCD display
- 125 Frequency Memory
- 1/1 kHz Tuning Steps
- EEPROM Memory (no battery backup required)
- FM Stereo (earphones only)
- World Time Clock
- Includes carrying case, soft pouch, world band guidebook, AC adaptor, AN-71 compact antenna, stereo earphones

Order RCV15 Retail $449
Only $369.95

SONY ICF-2010

The World’s Most Popular Radio!

This is the full-featured portable for the serious shortwave listener. Synchronous detection allows interference-free reception on many stations difficult to hear on other radios. Narrow/wide selectivity switching; clock/timer allows up to 4 automatic on/off cycles per day for frequencies and times of your choice; 10-step LED signal strength meter, audio tone selection for speech or music; and 10 station direct-access keyboard combine to make this Sony product a remarkable value for beginners or seasoned SWL’s.

Order RCV2 Retail $459
Only $349.95

SPECIFICATIONS

Frequency range: 150 kHz-30 MHz, 76-108 kHz-116-136 kHz
Kepted frequency entry: Yes, plus tuning knob
Tuning steps: 100 Hz
RIT (fine tuning): No
Display: Backlit LCD
Dimmer: No
Type of listening recommended: Domestic & International broadcasting, casual two-way SSB and aircraft
Receiving modes: AM, USB, LSB, wideband FM; synchronous detection
Memory: 100 channels
Scan: Yes
Bank: Yes
Lockout: No
Priority: No
Search: Yes
Delayed: Yes
Squelch: No
Clock: 12/24 hour with alarm and sleep timer
Audio output power: .380 milliwatts
Record output: Miniplug; .775 millivolts @ 1000 ohms; no activator
S meter: LED bargraph

Computer interface: No
Conversion scheme: Dual up-conversion
Sensitivity: 0.2 uV SSB
Selectable preamplifier: No
Selectable attenuator: DX/urban switch
Selectivity: Wide 18 kHz @ -50 dB; narrow 10 kHz @ -50 dB
Image rejection: Not available
Frequency stability: Quartz PLL
Selectable AGC: No
Dynamic range: Not available
Passband tuning: No
Passband selectivity: No
SA filter: No
Adjustable notch filter: No
Tone control: Yes
Antenna connector: 1/8" mini phone plug
Auxiliary connector: No
Dimensions: 11 3/8"W x 6 1/4"H x 2 3/4"D
Weight: 3.34 lbs.
Power requirements: 2 AA and 3 D cells or 120 VAC
Warranty: One year
Accessories included: AC adaptor, earphone, shoulder strap, wire antenna, external antenna adapter/plug, shortwave handbook.
**SPECIFICATIONS**

- **Frequency range**: 150-29995 kHz, 87.5 - 108 MHz
- **Keypad entry**: Yes
- **Tuning steps**: 5 kHz, fast/slow button
- **Batt. (voltage)**: 11/16V
- **Display**: Backlit LCD
- **Dimmer**: No
- **Type of listening recommended**: Domestic & International
- **Receiving modes**: AM, wide FM, SSB
- **Memory**: 10 channels
- **Scan**: Yes
- **Tuning**: +/-.
- **Dimmer**: No
- **Search**: Yes, with times delay
- **Lockout**: No
- **Squelch**: No
- **Audio output**: Yes
- **Squelch**: No
- **Antenna Jack**: Yes
- **Power requirements**: 4 AA cells or AC adaptor
- **Dimensions**: 7-1/2"W x 4-1/16"H x 1-1/4"D
- **Weight**: 1.14 lbs.
- **Power requirements**: 4 AA cells or AC adaptor
- **Warranty**: One year
- **Accessories included**: Stereo earplugs, carrying case, wire antenna, AC wall adaptor

The New SW7600 - A Potent Portable from Sony

It was inevitable. The early models ICF 2002 and 2003 have been replaced by a tiny marvel with AM, SSB, and even FM stereo coverage! Measuring just over 7 inches wide and weighing 22 ounces, the SW7600 is loaded with features! DX/local switch reduces "pumping" on strong SSB signals; power switch lock prevents accidental battery depletion during transport. Continuous 150 kHz-29.995 MHz frequency coverage plus 87.6-108 MHz FM headphone stereo (headphones included), pushbutton tuning, tone control, external antenna jack, clock timer, with sleep function, til/bracket, keyboard lock, direct-entry keypad and ten scannable memory channels keynote the high-tech features of this potent portable!

Manufacturer's suggested retail $249.95

Order RCV11 $219.95

$7 UPS; $10 UPS 2nd day; $13 US Priority Mail $11 Canadian UPS; $15 Canadian Air Parcel Post

Sony ICF-SW1S

James Bond fans will love it and so will discriminating worldband listeners who want compact convenience. The SW1S is hardly larger than a cassette tape and weighs a mere 7-1/2 ozs., yet it incredibly boasts a LCD digital frequency readout, 150 kHz-30 MHz AM frequency coverage in 5 kHz increments, 24 hour digital clock/timer, keypad tuning, and ten scannable memory channels!

But that's not all! It comes equipped with FM stereo reception (and teeny earphones to boot!), and a universal 100-240 volt automatically-adjusted AC power supply with worldwide adaptor plug.

Yet there's much more: Tucked into the compact carrying case is a sophisticated active antenna designed to provide worldwide reception anywhere without the need of a cumbersome outside antenna! And if you do have room for a wire antenna, simply reel it out of its retractable capsule accessory.

Order RCV13 Only $279.95

$7 UPS; $12 UPS 2nd day $15 US Priority Mail $17 Canadian Air Parcel Post $11 Canadian UPS

**SONY COMPARISON CHART**

<table>
<thead>
<tr>
<th>Received Band</th>
<th>ICF-SW55</th>
<th>ICF-SW77</th>
<th>ICF-2010</th>
<th>ICF-SW7600</th>
<th>ICF-SW1S</th>
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</thead>
<tbody>
<tr>
<td>FM Stereo</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Air Band</td>
<td>Yes</td>
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<td>Yes</td>
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<tr>
<td>Way of Tuning</td>
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<td>Tone Control</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Universal M8000 Multimode Decoder

Now, the most advanced data reader/decoder ever produced! Nothing could be simpler: plug the new M8000 into your receiver's or scanner's speaker or earphone jack, connect a printer or VGA color monitor, and copy Morse code, RTTY, ASCII, TOR (FEC and ARQ), packet, FDM, Russian Cyrillic, bit inversion, facsimile and even piccolo--all off the air! The M8000 will even automatically tune its filters!

Ideal for testing data transmissions--reads digital pager transmissions (GOLAY and POCSAG) when connected to any scanner (unlawful for unauthorized listening!). Print squelch prevents noise from generating garbled messages, while internal displays alert you to baud rates, control characters, tuning graphs and other information, all in 16 vibrant colors!

Operates on 120 or 240 VAC, 50/60 Hz, and measures 16-3/8"W x 3-1/2"H x 12-3/4"D. Truly a remarkable monitoring accessory for the serious utilities enthusiast.

Retail price $1999.95
Grove price only $1298.95

Order DEM6

OPTIONAL ACCESSORIES WITH M8000:
19-inch rack panel mounting kit $19.95

MFJ-1278
All-Mode Digital Decoder
For Your Computer!

If you have an IBM compatible computer (Mac and Commodore adaptors available) and a shortwave receiver or transceiver, you can now display radioteletype messages, bit inversion RTTY, packet communications (military, commercial and amateur), news and weather facsimile photos and maps, AMTOR and SITOR messages, Morse code, Navtex alerts, ASCII text, even amateur slow-scan television! Top-rated demodulator in independent tests!

Multi-grey level gives sharp newshumo and SSTV imaging! LED all-mode tuning meter makes perfect signal adjustment a snap, and an automatic signal identification circuit selects the mode for you! If you are a licensed amateur, the MFJ-1278 can be used for transmitting as well! Let us know what model transceiver you have, and we'll provide the interface cable (see list below)!

Hams can use the personal mailbox soft-partitioned memory for electronic messages.

Includes port for Epson or IBM compatible printer. Full-color SSTV is displayed on your color monitor with the optional MFJ-1289 terminal software. Comes with 32K RAM, host mode, KISS interface for TCP/IP/MSYS, independent transmit level for each port, random code generator, lithium battery backup, RS-232 and TTL serial ports, socketed lcs, tuneup command, peripheral I/O port, automatic serial numbering, programmable message memories, dual radio ports for HF and VHF, CW paddle jack, audio amplifier and monitor speaker for signals and sidetones, packet connect bell, full operation manual. As if this weren't enough, each 1278 is accompanied by a coupon entitling the owner to one free upgrade in the future!

The MFJ-1278 alone prints out SSTV and FAX, but requires the MFJ-1289 MultiCom enhancement package to display on screen. This powerful IBM-compatible software provides high-resolution FAX imaging, macro keys for instant mode changes without having to reset parameters, and an alarm for detecting key letters, words or phrases. For transmitting, many additional features are provided.

Measures only 9-1/2"W x 1-1/2"H x 9-1/2"D. Powered directly from 120 VAC/60 Hz, or 12 VDC.

Order DEM8

Only $249.95

$7 UPS
$13 UPS 2nd day
$15 US mail priority
$12 Canadian UPS
$18 Canadian Air Parcel Post

TNC cables, $13.95 each:
ACC41 Icom 8 pin (MFJ-5084)
ACC42 Yaesu 8 pin (MFJ-5080)
ACC46 Kenwood, Alinco 8 pin (MFJ-5086)
ACC44 Kenwood HT (MFJ-5026)
ACC45 Icom, Yaesu HT, Alinco DJ-560 (MFJ-5024)

ACCESSORIES:
ACC39 MFJ-1289B Commodore 64/128 adaptor $39.95
ACC40A MFJ-1289 Hi-res enhancer (5-1/4" disk) $59.95
ACC40B MFJ-1289 Hi-res enhancer (3-1/2" disk) $59.95
ACC61 MFJ-1290 Amiga adaptor $49.95
DEM4 MFJ-1278-T Turbo with 2400 baud modem $329.95

Product Support for Catalog Items Only — 704-837-7081

12
SHORTWAVE ANTENNA SYSTEMS

Grove's Indoor SWL Antenna System

Your key to exciting shortwave reception without an outside antenna!

Here's the apartment dweller's dream—a high performance, amplified indoor antenna system for general coverage shortwave and medium wave monitoring. This thin profile, flexible wire antenna can be inconspicuously run along molding, out a window to a tree, even under a rug. And when connected to the powerful TUN-4 signal booster, you have instant coverage from 100 kHz to 30 MHz!

Yes, global short wave reception will be at your fingertips, and you can operate two radios at one time!

The powerful new TUN-4 MiniTuner Plus can be used with any indoor or outdoor antenna to improve received signal strengths enormously. Just a few feet of wire or your present indoor shortwave antenna will give exciting new depth to your listening pleasure!

Easy to use and extremely flexible, the TUN-4 has a built-in, solid-state booster amplifier to give additional strength to all received signals from 100 kHz through 30 MHz, broadcasters and utilities stations. Wall adaptor (120VAC/12VDC) included.

WHAT YOU NEED TO ORDER:

- TUN-4 MiniTuner Plus $99.95 plus $5 UPS shipping
- ANT6 Hidden Antenna (see pg. 22) $19.95 plus $3.75 UPS shipping
- CKSW Accessory kit $12.95 plus $3 shipping

includes 20' antenna wire, banana plug plus 3 adaptors for all portable and tabletop multiband radios equipped for external antenna connections.

Shipping charges for system ordered together: $7 UPS, $11 UPS 2nd Day Air; $8 US Priority Mail, $15 Canadian UPS, $13 Canadian Air Parcel Post

Grove's Outdoor SWL Antenna System

A high performance, low cost shortwave/longwave dipole designed for total 100 kHz-30MHz coverage without the gaps found in more expensive trap antennas.

Modeled after the famous Grove all-band transmitting dipole, the 66-foot SKYWIRE is off-center fed, designed specifically for serious SWL's. Includes pre-measured stranded copper antenna wire, porcelain end insulators, custom center insulator for your PL-259 coax connection, and full instructions.

Then add the Grove MiniTuner to your outdoor shortwave antenna will allow signal peaking to perfection as well as eliminate intermodulation on your general coverage receiver. Comes equipped with standard UHF (PL-259) connectors.

WHAT YOU NEED TO ORDER:

- TUN-3 MiniTuner $49.95 plus $4 shipping
- ANT-2 Skywire antenna (See pg. 14 for specs) $29.95 plus $3.75 shipping
- CB 50 $19.95 or CB100 $29.95 (See page 26)
- CKSW Accessory Kit $12.95 plus $3 UPS shipping

(include 20' antenna wire, banana plug, 3 adaptors for all portable and multiband tabletop radios equipped for external antenna connections.)

Shipping charges for system ordered together: $8.00 UPS; $12 UPS 2nd Day Air; $8 US Priority Mail; $13.50 Canadian UPS; $16 Canadian Air Parcel Post

SPECIFICATIONS

Gain: Approximately 20 dB
Freq Range: 100 kHz-30MHz in 4 bands
Preselector Type: Series-tuned L-section filter
Power Required: 9 to 18 volts DC (12 VDC nom.) @ 30 mA
Connectors: SO239 (4) signal line, 2.1 mm DIN power
Cabinet: Custom formed aluminum, baked enamel finish
Dimensions: 9-1/4"W x 3"H x 4"D
Weight: 1-1/2 lbs.

SPECIFICATIONS

Frequency Range: 100 kHz-30MHz In 4 bands
Circuit: Series-tuned L-section filter
Tuner: 385 pF air variable capacitor, ball bearing drive
Input connector: SO-239 (UHF, female) with random wire provision
Output connector: PL-259 (UHF, male) on 24" coax cable
Enclosure: Custom formed aluminum
Dimensions: 4"W x 2"H x 3"D
Weight: 12 ounces

Order Line — 1-800-438-8155
Improve reception with this agile filter!

**MFJ 752C Signal Enhancer II**

Reduce interference and enhance sound with the latest all-mode, dual, tunable filter. Connect between your receiver's or scanner's external speaker jack and an external speaker or headset, then tune the two filters to peak or notch audio signals.

Remove annoying whistles with the 70 dB notch filter. Set audio bandwidths from a sharp 40 Hz to full range sound. Suppress static crashes and impulse noise with the ANL clipper.

External speaker, headphones and AC power supply required.

Order FTR1 $94.95

- $5 UPS Shipping; $8 UPS 2nd Day
- $7.50 US Priority Mail; $11 Canadian Air PP
- $10 Canadian UPS

ACCESSORY: ACC95 AC Power Supply $9.95

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Lightning/EMP Protector for Scanners and Shortwave Receivers

While nothing can withstand a direct lightning hit, the new Grove LA-1 connects between your antenna cable and radio to prevent induced voltages from nearby lightning strokes, high-powered transmitters, and other massive energy surges from burning out your equipment.

Not a flimsy spark gap or simple diode shunt, the Grove LA-1 uses state-of-the-art gas discharge technology, proven in government tests to be the best deterrent against lightning and electromagnetic pulse (EMP) surges.

Responds in one ten-millionth of a second to short-circuit bursts of 250,000 volts at currents of 5000 amps, while allowing normal signal voltages (and even control voltages up to 50 volts AC or DC) to pass undisturbed! Extremely low signal loss—0.2 dB at 1500 MHz! Ideal for protecting scanners, shortwave receivers, CB equipment, VCRs, TVs, satellite receivers, FM stereo systems and more.

The tiny protector measures only 3/4"D x 1-1/2"L and comes equipped with standard F connectors for home entertainment equipment and Grove accessories. Adaptors are available as shown below.

- LA1F (equipped with F connectors) $19.95
- LA1B (equipped with BNC connectors) $24.95
- LA1P (equipped with PL-259 UHF connectors) $24.95
- LA1M (equipped with Motorola connectors) $29.95

$3 UPS; $5.50 UPS 2nd Day; $6 Canadian APP; $8 Canadian UPS

*Will not prevent AC power line surges; such protectors are available from Radio Shack, computer stores, and most department stores.

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The Grove Skywire Antenna

Now with improved waterproof feedline connector at no extra charge!

**Skywire**

HAMS! Ideal for transmitting when used with a transmatch.

Outward dipole for worldwide shortwave reception

Highest performance and lowest cost—an unbeatable combination!

Why restrict your frequency coverage with the gaps found in expensive trap dipoles or unpredictable random wire when you can get unsurpassed full-frequency reception with the Grove Skywire?

- Comes assembled with SO-239 UHF female connector ready for your PL-259 (UHF male) equipped coaxial cable (50 or 75 ohm) see page 26; includes two professional porcelain end insulators and complete instructions.

Order ANT 2 $29.95

- Only $3.75 UPS; $6 UPS 2nd day
- $4.50 Priority Mail;
- $6 50 Canadian Air PP;
- $8 Canadian UPS

ACCESSORY: CH239 SW Dipole Connector only $9.95 plus $3 UPS shipping

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Portable Shortwave Reel Antenna

Have you ever been in a situation with your shortwave portable where you just know a few extra feet of antenna would bring in that weak station? This new reel antenna is the answer!

23 feet of insulated wire rolls up by a finger spool into a pocketable package for convenient storage; clip it to your whip antenna and reel out whatever length you need for signal improvement.

Order ANT 15 $8.95

- Only $3.75 UPS; $6.50 UPS 2nd Day Air; $3.50 US Parcel Post
- $6 Canadian Air Parcel Post; $8 Canadian UPS

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Product Support for Catalog Items Only — 704-837-7081 14
Choosing a Scanner

Caveat: ECPA ‘86

The Electronic Communications Privacy Act of 1986 forbids the monitoring of certain services receivable on scanners. Although there is no evidence at present that the new law is being enforced, violations are punishable by fine and/or imprisonment. The following list is included as a guide only and Grove Enterprises assumes no liability for its accuracy or interpretation.

The law forbids monitoring: 1. Encrypted or scrambled signals; 2. Paid subsidiary carrier authorization (SCA); 3. Mobile telephones or voice paging; 4. Remote broadcast or studio/transmitter links.

You may monitor any other transmission “readily accessible to the public” including public safety, federal and military, aircraft and maritime, amateur and CB, business and industrial, private land mobile, cordless telephones, and any interference-causing protected transmission long enough to identify its source.

The consumer electronics marketplace bulges with products competing for your dollar. By following a few simple rules you will make the right choice in buying that new scanner.

FREQUENCY RANGE

The most common frequency ranges monitored by scanner enthusiasts are: 30-50 MHz (VHF low band), 144-174 MHz (VHF high band) and 450-512 MHz (UHF). Most scanners now include the 406-420 MHz federal government land mobile and 420-450 MHz amateur band as well. These bands all utilize narrow band FM for communications.

The civilian VHF aircraft band (118-136 MHz, AM mode) provides another interesting target for monitoring as does the emerging 806-960 MHz band, sometimes called the cellular band or microwave mobile (806-960 MHz), now in use in all major metropolitan areas. Very few receivers include the military UHF aircraft band (225-400 MHz, AM mode).

The prospective scanner buyer should decide which of these aspects of listening are of greatest interest before purchasing a radio.

PROGRAMMABLE OR CRYSTAL?

Stay away from crystal type scanners unless you won’t be changing frequencies. For the majority of listeners, keyboard programmable scanners are the way to go—no question about it.

MOBILE, BASE, OR HAND HELD?

Scanners come in a variety of models to meet the particular needs of the listener. Do a lot of driving? Install a mobile unit. Constantly in and out of the car, office or home? You may prefer a hand-held. Do most of your listening in the office of home? A base unit would be more practical.

Many models are capable of more than one application, accepting power from AC mains as well as mobile battery supply. AC wall adaptors charge batteries in hand-holds and power the scanner when plugged in.

Most hand-held scanners have small speakers which do not compete well in a noisy environment; an earphone or external speaker will solve that problem.

TECHNICAL SPECIFICATIONS

The terminology used to rate a scanner’s performance may be explained simply.

Sensitivity refers to the weakest signal voltage that the radio will respond to readily; the lower the number, the better. Good sensitivity is about 0.5 microvolts.

Selectivity is the radio’s ability to reject adjacent frequency interference; the sharper, the better, especially in urban areas. Average selectivity for a scanner would be about 30 kHz (sometimes stated as +/- 15 kHz) at -50 dB.

Dynamic range is the ability of a scanner to handle extremely strong as well as extremely weak signals. Since none of them does it very well, this specification is never given.

Intermodulation (“intermod”) is an internally-generated interference produced when strong signals mix together, producing spurious signals. It is often recognizable because of its distorted contents from two or more signals. Intermod results from inadequate dynamic range.

Images are produced in every receiver. They are recognizable as a duplicate of the legitimate signal, offset by 21.4, 21.6 or 21.7 MHz (twice the intermediate frequency—1.F.) from the actual frequency, depending upon the scanner. With up-conversion design, image frequencies fall outside the tuning range and aren’t a problem.

WHICH SCANNER IS THE BEST?

Like answering “Which car is the best?”, we must list qualifications. At the present time, programmable scanners are available from Uniden, ICOM, AOR, Radio Shack, and Cobra. Additionally, the Yaesu FRG-9600, Kenwood RZ-1, and ICOM R-1, R-100, R-7000 and R-9000 offer VHF/UHF coverage and scannable memories.

Most popular scanners have excellent sensitivity and reasonable selectivity (reject adjacent channel interference), but suffer from intermodulation and image interference from strong signal overload, especially when used with an outdoor antenna.

The PRO-2006 is more immune to interference from intermodulation and images, making it an excellent choice for strong or weak signal areas like large cities.

In comparison, while the Bearcat BC760XLT and BC800XLT have superb sensitivity, they are easily overloaded by strong signals; use them in rural or deep suburban locations, or with their own attachable whip antennas in the city.

SCANNER ANTENNAS

HAND-HELD - The whip antenna included with your scanner is fine for local reception of strong signals, but if you are interesting in reaching out further, a larger external antenna is necessary. The Grove ANT-8 adjustable whip will increase range on any hand-held scanner or transceiver equipped with a BNC connector (not screwthread).

Hand-held radios may also be connected to mobile and rooftop base antennas as well, provided they are equipped with BNC connectors.

MOBILE - Inside a vehicle, a scanner’s
attachable whip is shielded by the vehicle body and an external antennas is recommended. A rooftop location is ideal, providing uniform response in all directions. Mounted elsewhere (fender, trunk, bumper), the pattern will favor the direction of the car body.

The short length and low height of mobile antennas limit their distance, and loading coils restrict their frequency range. 800 MHz coverage is more by accident than design. The mobile scanning enthusiast must be content with local listening.

Mobile scanner antennas like the popular Grove ANT4 come equipped with a Motorola plug or BNC connector and have strong magnetic bases which will not come loose at normal road speeds.

Amplified antennas like the Diamond D505 offer much greater range, but may overload and cause intermod in strong signal areas.

If an outside antennas is undesirable, the car’s existing AM/FM antenna may be used with a multicoupler like the Grove ANT-63 with some compromise in signal strengths. In weak signal areas, a preamplifier like the Grove PRE-4 will boost reception range.

**BASE -** Many discones advertise 25-1300 (or higher) MHz response. While it is true that any antenna will get some signals at virtually any frequency, most discones have poor response below 100 MHz and erratic response above that.

Several discones are extremely well constructed including the Diamond D-130. It is an excellent, omnidirectional, VHF/UHF transmitting antenna and performs well for local reception.

Most low-cost base antennas work well for local coverage (25-50 miles distance). Remember, the smaller the dimensions of the antenna, the poorer it will perform on low band (30-50 MHz).

The best nondirectional, all-band scanner antennas on the market are the AntennaCraft ANT-7 Scantenna, sold by Grove, and the Channel Master 5094A MoniTenna available from Channel Master.

An “omnidirectional” antenna mounted within a couple of feet of a metal mast or another antenna becomes directional due to signal reflection. In this case, turn the mast or antenna while listening to signals of interest to determine the best overall position, then tighten it down.

For extended range, a directional antenna like the new Grove Scanner Beam, used with an inexpensive TV rotator, offers gain in its forward direction while receiving local signals all around. VHF and UHF reception in excess of 100 miles under favorable conditions are possible.

**COAXIAL CABLE**

At VHF/UHF frequencies, common CB-type RG-58/U coax will actually absorb signals. We recommend low-loss RG-6/U like the Grove CB-50 and CB-100 cables with custom connectors. It offers 100% shielding, small diameter, flexibility and low cost.

For the lowest possible losses, especially in runs in excess of 100 feet, use Belden 9913 or RG-11/U mini. These cables and connectors are available from some electronics distributors and TV and video accessory outlets.

**PREAMPLIFIERS**

One of the most misunderstood accessories is the preamplifier. Its purpose is to boost weak signals which would remain unheard on a receiver without it. To do this it needs to have a very low noise figure, but very little gain.

Antenna-mounted preamplifiers are especially helpful in overcoming losses in long coaxial cables (over 100 feet and above 400 MHz).

Wideband (untuned) preamplifiers like the Grove PRE-4 work well in low-signal-strength environments, but when used with outside antennas in a metropolitan area they saturate easily, causing desensitization (signals are weaker than before) and generate intermodulation (spurious signals) as well.

**FILTERS AND ATTENUATORS**

One of the most common sources of interference is strong signal overload. An attenuator reduces all signals, regardless of frequency, by the same amount; band-reject (stop-band) filters and wave traps remove a specific swath of spectrum; low-pass filters cut off all signals above a certain frequency; high-pass filters cut off all frequencies below a certain frequency, and notch filters attempt to remove one specific frequency.

The Grove FTR-5 is a combination filter designed to reduce interference from shortwave, AM, TV and FM broadcast stations, a common problem, as well as any one user-selected signal in the 100-174 MHz range.

**A Scanner Sampler**

The spectrum above 30 MHz is saturated with two-way intrigue—air to ground, ship to shore, military and federal government, public safety, hams, businesses, trains—if you know where to look.
ICOM R7100

VHF/UHF Communications Receiver

ICOM has done it again! They took the most popular features of the legend R7000, added a few features that listeners wanted, and released this new, compact receiver.

The R7100 offers continuous frequency coverage (no gaps) from 25 to 2000 MHz on a brilliant LCD readout, selectable tuning steps, USB/LSB/AM/FM modes with wide and narrow selectivity switching.

900 scannable memory locations store frequency, channel number, mode and search steps; ten search banks with memory channel lockout, 5 or 12 channel-per-second scan speed and scan-resume delay are also found on this model.

High sensitivity and stable SSB reception are additional perks, as are sensitive, all-mode squelch and easy pushbutton function selection.

**SPECIFICATIONS**

- Frequency range: 25-2000 MHz
- Keypad frequency entry: Yes
- Tuning steps: 1/10/12.5/25/50/100 kHz; 5 MHz
- RIT (fine tuning): No
- Display: LCD
- Dimmer: Yes
- Type of listening recommended: Utility monitoring
- Receiving modes: AM, WAM, FM, WFM, NFM, USB, SSB
- Memory: 900 channels
- Scan: 5/12 ch/sec
- Banks: 9
- Lockout: Yes
- Priority: Yes
- Search: Yes
- Delay: 0/25/10 seconds; infinite
- Squelch: Yes
- Clock: Yes with 2 event timer
- Audio output power: 2 W @ 10% THD
- Record output: Yes
- Recorder activator: Yes
- S meter: analog
- Computer interface: Optional

**Conversion schemes:**

- Triple up-conversion under (778.7 or 266.7, 10.7 MHz, 455 kHz)
- Selectable AGC: No
- Dynamic range: Unknown
- Selectable attenuation: Yes
- Selectable preamplifier: No
- Preselector tuning: OFF
- Noise blanker/mixer: No
- Adjustable notch filter: No
- Tone Control: No

**Optional Accessories**

- Remote control
- Computer interface
- *Call for price and availability*

**Order SCN15**

$1139.95

$16.50 UPS; $33 UPS 2nd day air; $35 US Priority Mail; $27 Canadian UPS; $43 Canadian Air Parcel Post

**ICOM R7000**

Continuous Coverage VHF/UHF Receiver!

Used by government and military agencies worldwide, the ICOM R7000 provides total spectrum 25-1000 (triple conversion) and 1025-2000 (quadruple conversion) MHz frequency coverage with 100 Hz fluorescent readout accuracy! Add to this enormous tuning range 99 memory channels with priority function, keyboard entry or dial tuning, FM/AM/SSB modes, five tuning speeds, S-meter/center tuning meter, 2.8/9/15/150 kHz filter selection, noise blanker, internal speaker with 2.5 watts of audio power, spurious signal suppression greater than 60 dB, high sensitivity, and programmable scanning with auto-write memory, and you have the most advanced scanner receiver ever designed for the serious VHF/UHF listener.

**Order SCN4**

Retail $1199

$999.95

$16.50 UPS; $33 UPS 2nd day air; $35 US Priority Mail; $27 Canadian UPS; $43 Canadian Air Parcel Post

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17
ICOM R1 General Coverage Pocket Scanner

Imagine, a shortwave and VHF/UHF scanner with continuous 100 kHz-1300 MHz (no gaps!) frequency coverage that fits in your shirt pocket! You select the mode—AM, FM wide or narrow—and install up to 100 of your favorite shortwave and scanner frequencies into memory. An edge-lit LCD shows frequency, memory channel, and other settings as well. Less than 2" wide, the R1 scans, searches and autoloads, has knob tuning, a signal strength indicator, and even a 24-hour clock timer! This high-sensitivity scanner comes with flex whip, rechargeable battery, AC wall charger/adaptor and belt clip.

Order SCN13
Retail $599 Only $449.95
$6 UPS; $9 UPS 2nd Day Air; $11 US Priority Mail
$9 Canadian UPS; $12 Canadian Air Parcel Post

ACCESSORIES:
ANT8 Range extending telescoping whip $16.95
ACC19 R1 Carrying case (no battery pack) $19.95
ACC30 BP-90 Replaceable AA battery case $16.95
ACC33 BP-90 Carrying case $19.95
ACC32 BP-84 Triple-life battery pack $75.95
ACC34 BP-84 Carrying case $19.95
ACC31 CP-12 Cigarette power cord $18.95
ACC48 BC-72A Desk Charger $99.95
ACC76 Service Manual $25
ACC90 BA12 Battery Charger Adaptor $17
HDP1 Headphones $19.95
Uniden Bearcat BC200XLT

Unlike its competitors, the BC200XLT comes equipped with a detachable nicad battery pack, leatherette holster, AC wall charger/adaptor, and earplug.

Instant weather scan is pre-programmed. Audio has plenty of punch for noise locations. The rugged, rubberized keypad has excellent tactile feedback.

Order SCN9
Retail $399.95
Only $239.95

$6 UPS; $9 UPS 2nd Day Air; $9 US Priority Mail
$10 Canadian UPS; $12 Canadian Air Parcel Post

ACCESSORIES:
- ACC99 Extra Bearcat Battery pack
  (plus $4 UPS shipping if ordered separately) $39.95
- ACC16 Extra Metro West Long-life battery pack
  (see page 26 for more details) $65.95
- ACC70 Pro-Charge 7 (see page 26 for more details) $36.95
- HDP1 & Headphones (see page 31 for more details) $19.95
- ACC35 3/32" Adaptor for headphones $1.50

Uniden Bearcat BC760XLT

Measuring a tiny 2" high by 7" wide and deep, this scanner is ideal for mobile installations. Many agencies use CTCSS ("PL") sub-audible encoding to separate groups of users. With the optional ACC96 decoder and ACC97 switch installed in your BC760XLT, you can choose which channels you want to hear with normal squelch, and which will respond only to the proper tones all at the same time!

The 760 also has pre-programmed service search capability, just push a button to find active police, fire, aircraft, maritime, emergency, and weather channels!

Order SCN12
Retail $399.95
Only $269.95

$7 UPS; $12 UPS 2nd Day Air; $15 US Priority Mail
$11.50 Canadian UPS; $20 Canadian Air Parcel Post

OPTIONAL ACCESSORIES
- ACC96 CTCSS Squelch Decoder $59.95
- ACC97 ON/OFF plug-in switch
  (must use ACC66 and ACC97 together) $10.95
- ACC98 Preamplifier (plug-in)
  Installation of ACC96 and 97 $29.95

SPECIFICATIONS
- Frequency range: 29-94, 118-174, 406-512, 806-956 MHz (less cellular)
- Keypad frequency entry: Yes
- Tuning steps: 5/12.5 kHz determined by frequency range
- RIT (fine tuning): No
- Display: Edgelit LCD
- Dimmer: On/Off
- Type of listening recommended: VHF-UHF utilities
- Receiving modes: AM, narrow FM determined by frequency range
- Memory: 200 channels
- Scan: 16 channels per second
- Banks: 10
- Lockout: Yes
- Priority: Ten channels
- Search: Yes
- Delay: Individual channels
- Squelch: Yes
- Clock: No
- Audio output power: 450 milliwatts
- Record audio output: Earphone jack
- Recorder: No
- Recorder activator: No
- SMeter: No
- Computer interface: No
- Conversion scheme: Double conversion
- Sensitivity: 0.4 uV 29-94/118-174 MHz, 0.5 uV 406-512 MHz, 5.0 uV 118-136 MHz, 1.0 V 806-956 MHz
- Selectable preamplifier: No
- Selectable attenuator: No
- Selectivity: (55 dB) 50 kHz
- Image rejection: Unavailable
- Frequency stability: Unavailable
- Selectable ACC: No
- Dynamic range: Unavailable
- Pessband tuning: Yes
- Noise blanker:limiter: No
- Tone control: No
- Antenna connector: BNC
- Auxiliary connector: No
- Dimensions: 2-11/16" W x 7-1/2" H x 1-3/8" D
- Weight: 1-1/4 lbs.
- Power requirements: 12 VDC (internal nicads)
- Warranty: One year
- Accessories included: Earplug, AC wall adapter/charger, flex whip, leatherette case

SPECIFICATIONS
- Frequency range: 29-94, 118-174, 406-512, 806-956 MHz (less cellular)
- Keypad frequency entry: Yes
- Tuning steps: 5/12.5 kHz determined by frequency range
- RIT (fine tuning): No
- Display: Backlit LCD
- Dimmer: No
- Type of listening recommended: VHF-UHF utilities
- Receiving modes: AM, narrow FM determined by frequency range
- Memory: 200 channels plus pre-programmed police, fire, aircraft, maritime, emergency, weather frequencies
- Scan: 15 channels per second
- Banks: 5
- Lockout: Yes
- Priority: Channel one
- Search: Yes
- Delay: Yes
- Squelch: Yes
- Clock: No
- Audio output power: 3 watts
- Record audio output: External speaker jack, no activator
- S meter: No
- Computer interface: No
- Conversion scheme: Dual conversion
- Sensitivity: 0.4 uV 29-94/118-174 MHz, 0.5 uV 406-512 MHz, 5.0 uV 118-136 MHz, 1.0 V 806-956 MHz
- Selectable preamplifier: Optional accessory
- Selectable attenuator: No
- Selectivity: (55 dB) 50 kHz
- Image rejection: Unavailable
- Frequency stability: Unavailable
- Selectable ACC: No
- Dynamic range: Unavailable
- Pessband tuning: No
- Noise blanker/limiter: No
- Tone control: No
- Antenna connector: BNC
- Auxiliary connector: No
- Dimensions: 2-11/16" W x 7-1/4" H x 3-1/2" D
- Weight: 1-1/4 lbs.
- Power requirements: 12 VDC, 120 VAC wall adaptor included
- Warranty: One year
- Accessories included: Mobile mount, belt clip, attachable whip
Uniden Bearcat BC800XLT

Top of the Line — With Uninterrupted 800 MHz Coverage!

The BC800XLT features low, high, air, UHF and 800 MHz band coverage with 40 channels of memory and instant weather reception.

Other features include search capability, rapid scan (15 channels per second), powerful 1.5 watt audio amplifier, two telescoping antennas (one) for 800 MHz range, better than 1 microvolt sensitivity, 55dB selectivity @ +/- 25 kHz, instant weather reception, brilliant fluorescent display, AC/DC operation, direct channel access, individual channel delay, priority channel one, fully synthesized keyboard entry.

Order SCN11

Retail $499.95

Only $239.95

$7 UPS; $13.50 UPS 2nd Day Air;
$16 US Priority Mail
$12 Canadian UPS; $19 Canadian Air Parcel Post

**SPECIFICATIONS**

| Frequency range: 29-54, 108-174, 406-512, 806-956 MHz (less cellular) |
| Keypad frequency entry: Yes |
| Tuning steps: 5/12.5 kHz determined by frequency range |
| RIT (fine tuning): No |
| Display: Edgelit LCD |
| Dimmer: No |
| Type of listening recommended: VHF/UHF utilities |
| Receiving modes: AM, narrow FM determined by frequency range |
| Memory: 40 channels |
| Scan: 15 channels/second |
| Banks: 2 |
| Lockout: Yes |
| Priority: Yes |
| Search: Yes |
| Delay: Individual channel |
| Squelch: Yes |
| Clock: No |
| Audio output power: 1.3 watts |
| Record audio output: External speaker jack, no activator |
| S meter: No |
| Computer interface: No |
| Conversion scheme: Double conversion |
| Sensitivity: 0.5 uV or better 29-512 MHz FM, 0.8 uV 108-136 MHz, 1 uV 806-956 MHz |
| Selectable preamplifier: No |
| Selectable attenuator: No |
| Selectivity: 55 dB 50 kHz |
| Image rejection: Unavailable |
| Selectable AGC: No |
| Dynamic range: Unavailable |
| Passband tuning: No |
| Noise blanker/filter: No |
| Adjustable notch filter: No |
| Tone control: No |
| Antenna connector: BNC |
| Auxiliary connector: No |
| Dimensions: 9"W x 6-1/2"D x 2-1/4"H |
| Weight: 1 lb. 8 oz. |
| Power requirements: 12 VDC |
| Warranty: One year |
| Accessories included: 120 VAC wall adapter, whip |
Realistic® PRO-43 Handheld Scanner

Yes, Realistic is now leading the market with their new 200 channel, programmable, hand-held scanner with increased frequency range: 30-50, 118-174, 220-512 and 806-1000 MHz (less cellular).

Military and civilian aircraft, public safety, amateur, government, maritime, business—all VHF/UHF communications services in a compact 2-1/4" x 5-3/4" H x 1-1/2" D handheld weighing only 14-1/2 ounces, sturdy belt clip and BNC flex whip included.

Runs off 6 AA alkaline or nicad batteries (not included). With its fast 25 per second scan rate, this triple-conversion scanner is a winning companion!

Order SCN 17 Grove price only $299.95
Retail $349

ACCESSORIES:

ANT 8 Range extending antenna $16.95
ACC47 Nicad batteries (6 required) $1.95/each
ACC100 AC Wall Adaptor/Charger $6.95

The Most Popular High-Performance Scanner
Ever Made is Even Better
and At a Grove Discount Price!

The Realistic® PRO 2006

With no crystals needed, this exceptional unit delivers a wide range of frequencies not found on most scanners—including public service, broadcast FM, military bands and CB! Resists strong signal overload interference.

Rapid 26-channel per second scan and search complements this scanner's excellent interference immunity for metropolitan monitoring. Built-in speaker and telescoping antenna are included. Jacks provide for external speaker, tape recorder, and DC adapter.

Order SCN 6 Retail $399
$359.95

Plus $7 UPS, $12.50 2nd Day Air, $15.50 U.S. Priority Mail
Canadians: $12 UPS, $19 Air P.P.

Enhance your audio with an amplified speaker available on page 29!
**Realistic® PRO-2026 Mobile Scanner**

Made for Radio Shack by Uniden, the PRO-2026 has the major features of the popular BC760XLT, but is designed for mobile operation only (the Bearcat accessories will not work with the PRO-2026).

Frequency range is 29-54, 108-174, 406-512 and 806-956 MHz (less cellular). Any channel may be selected for priority, sampled every few seconds for activity. Factory-preset police, fire, ambulance, aircraft, marine and weather channels may be scanned by pressing the appropriate button when driving in new locations.

A great mobile scanner (mounting bracket included) at a great price, only $189.95!

**Order SCN 16**
$6 UPS; $9 UPS 2nd Day Air; $9 US Priority Mail
$10 Canadian UPS; $12 Canadian Air Parcel Post

**Grove price only**

**$189.95**

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**Austin Condor High-Performance Flex Antenna**

For years we have been looking for a replacement “rubber duckie” that really makes a difference on handheld scanners. It's here! The Austin “Condor” is guaranteed to improve weak signal scanner reception—on all frequency ranges—when compared to the original scanner antenna.

**Order ANT 14 Only**
$3.75 UPS; $6 UPS 2nd Day Air; $4 US Priority Mail; $5 Canadian UPS; $6 Canadian Air PP

**$29.95**

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**The Grove Hidden Antenna**

The Hidden Antenna may be used alone with your scanner for improved signal reception, over your attachable whip or may be connected to the powerful Grove PRE4 or TUN4 for considerably increase signal strength on scanners and shortwave receivers.

This five-foot, thin-profile, flexible wire antenna can be hung in a corner, behind a drape—just about anywhere out of sight. Comes fully assembled with 20 feet of coax and F male connector, with 3 adaptors for PL259 (UHF), Motorola and BNC connections.

**Order ANT 6 Only**
$3.75 UPS; $6.50 UPS 2nd day; $3.50 US Parcel Post
$6 Canadian Air Parcel Post; $8 Canadian UPS

**$19.95**

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**Specifications**

- **Frequency Range:** 29-54, 108-174, 406-512, 806-956 (less cellular)
- **Keypad frequency entry:** Yes
- **Tuning steps:** 5/12.5 kHz
- **RIT or fine tuning:** No
- **Display:** Fluorescent
- **Dimmer:** No
- **Recommended use:** Mobile
- **Receiving modes:** AM/NFM
- **Delay:** Individual channel
- **Clock:** No
- **Audio output power:** 1.1 watts
- **Record audio output:** No
- **Record activator:** No
- **Conversion scheme:** Dual conversion, 10.8 MHz/450 kHz
- **Sensitivity:** 0.7 microvolts average
- **Selectable preamplifier:** No
- **Selectable attenuator:** No
- **IF selectivity:** (-50 dB) 30 kHz
- **Selectable AGC:** No
- **Antenna connector:** BNC
- **Auxiliary connector:** No
- **Dimensions:** 6-5/8”W x 1-5/8”H x 7-3/8”D
- **Weight:** 2 lbs. 3 oz.
- **Warranty:** One year

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*Product Support for Catalog Items Only — 704-837-7081 22*
6-9 dB gain over other scanner antennas!

**Order ANT1 Only**

$59.95

$6 UPS; $9.50 UPS 2nd Day
$11 US Priority Mail
$13 Canadian Air PP
$10 Canadian UPS

Only shipped in U.S. and Canada

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**SCANNER BEAM**

The Best Scanner Antenna Money Can Buy!

Our world-renowned Scanner Beam has been improved to provide unexcelled 30-50 MHz low band reception, 108-136 MHz aircraft, 136-174 MHz high band, 225-400 MHz military aircraft and satellites, 406-512 MHz UHF, and 806-960 MHz microwave mobile.

HAMS NOTE—can be used for transmitting up to 25 watts on 144, 220, and 420 MHz bands, 50/75 ohms nominal impedance.

May be used with inexpensive TV antenna rotator for boresight accuracy, or fixed in one direction as required for those elusive, distant stations. Local signals still come in loud and clear from all directions.

Balun transformer, offset pipe and all mounting hardware included (requires TV type F connector on your coax—available on pg. 26).

Approximate size 8' H x 5' L.

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**THE SCANTENNA FROM ANTENNACRAFT!**

This new, full-frequency, omnidirectional scanner antenna will equal or outperform any competitor on the market. Its dipole-cluster design utilizes broadband techniques to provide continuous frequency coverage from 25-1300 MHz, offering superb reception of public safety, civilian and military aircraft, hams, personal communication devices, maritime, CB — anything in its frequency range! Requires TV type F connector on your coax—available on pg. 26. Approximate size 7-1/2'H x 4-1/2'W.

**Order ANT 7 Only**

$39.95

$5 UPS; $8 UPS 2nd Day Air; $7 US Priority Mail, $11 Canadian Air Parcel Post, $10 Canadian UPS

Only shipped in U.S. and Canada

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**Professional Wideband Discone**

Best Discone on the Market for VHF/UHF Receivers

The discone antenna is used by government and military agencies worldwide because of its recognized high performance, wide bandwidth characteristics. Now Diamond offers a professional grade discone at a popular price.

Designed for use with wide-frequency coverage VHF/UHF scanners and receivers, the Diamond D130J discone consists of 16 rugged, stainless steel elements and is capable of transmitting up to 200 watts in the amateur 50, 144, 220, 432, 900, and 1200 MHz bands.

**SPECIFICATIONS**

- Frequency coverage: 25-1300 MHz
- Impedance: 50 ohms nominal
- Power rating: 200 watts
- Connector: UHF
- Antenna style: Discone
- Vertical length: 66 inches
- Weight: 2.2 pounds

As a receiving antenna, the D130J is omnidirectional for continuous 25-1000 MHz (and above) coverage. A base-loaded, vertical top element is used as a low band (30-50 MHz) frequency extender.

The elements are arranged on a 24-inch support pipe equipped with two strong mounting brackets to accomodate any standard mast-pipe (1" to 2-1/8" diameter).

Choose 50 or 100 feet of coax from page 26.

**Order ANT 9 Only**

$79.95

$5 UPS; $7.50 UPS 2nd Day; $7 US Priority Mail
$10 Canadian Air Parcel Post, $9 Canadian UPS

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23 Order Line — 1-800-438-8155
Designed for Today’s Wide Frequency Coverage Mobile Scanners!

For years, mobile scanning enthusiasts have had to settle for compromised reception from antennas designed long ago for limited coverage scanners. Now, Grove offers the first high-performance mobile antenna designed in our labs for new, wide-frequency-coverage scanners.

Utilizing Grove's exclusive bifilar helix construction, this sleek, black, 24" fiberglass whip, mounted on a strong magnetic base, assures premium signal reception on 30-50 MHz low band, 88-108 MHz FM broadcast, 118-136 MHz aircraft, 136-174 MHz high band, 225-400 MHz military aircraft, 406-512 MHz UHF land mobile and 806-960 MHz microwave mobile.

Tested to withstand interstate highway speed and equipped with 12 feet of coaxial cable with Motorola and BNC connector, the ANT-4 will perform where others fail.

ANT-4 $49.95
(Magnetic mount antenna with Motorola and BNC connector)

$4 UPS; $7 UPS 2nd Day; $6 US Priority Mail
$9.50 Canadian Air Parcel Post; $8.50 Canadian UPS

$24.95
(Whip antenna alone for your 3/8" x 24 TPI threaded mount)

$3 UPS; $6 UPS 2nd Day; $4.50 US Priority Mail
$6 Canadian Air PP; $7.50 Canadian UPS

ACCESSORY: ACC94 Adhesive re-mount kit $4.95

Windshield Mount Scanner Antenna

No holes and no magnets, this 22" Valor Glass-Master is designed for today’s wide-frequency-coverage mobile scanners, 30-1200 MHz (not for transmitting). Simply clean an area on your rear window (cleaning pad included) and stick the antenna base to the glass. A companion coupler on the inside of the window does the rest!

$49.95 manufacturer’s retail

$39.95 Grove price only

Order ANT 13

$4 UPS; $7 UPS 2nd Day Air; $5 US Priority Mail
$8 Canadian UPS; $7.50 Canadian Air PP

Extend the Reception Range Of Your Handheld Radio!

Today's hand-held VHF/UHF scanners and handle-talkies from Bearcat, Regency, Cobra, Radio Shack, ICOM, Yaesu, and Kenwood have excellent sensitivity and talk power, but their range is reduced by their short "rubber ducky" antennas. Grove has the solution!

Just replace that inefficient flex antenna with our universal full-length whip—and stand back! Extendable from 7 to 46 inches, the ANT-8 is made of chrome-plated brass and equipped with a standard BNC base. Transmits on 45-960 MHz; receives 25-1300 MHz.

If your interest doesn't include 30-50 MHz low band, choose our new ANT-19 with its full adjustability from 4"-18" (transmits and receives from 144-960 MHz).

Order ANT-8 (7"-46") $16.95
ANT-19 (4"-18") $12.95
ANT-8B (w/right-angle BNC adaptor) $21.95
ANT-8N (w/right-angle N adaptor) $23.95

$3.50 UPS; $5.50 UPS 2nd Day Air
$4 First Class Mail; $4 Canadian small packet; $7.50 Canadian UPS
Grove's Outdoor Scanner Antenna System

Start with our Scantenna or Scanner Beam then add our PRE-4 Wideband Preamplifier

The PRE 4 Power Ant has taken all the best from its successful predecessors and combined them into one powerful signal booster for scanners, even TV and FM stereos!

Equipped with a high gain, low noise, solid state amplifier stage, the PRE-4's front panel control allows custom selection of up to 20 dB of amplification!

The weatherproof remote booster module may be attached at the antenna for maximum effectiveness to overcome coax cable losses, or may be mounted on the back of the control box for convenience. Power is supplied to the remote module through your coax.

Two output connectors are provided allowing you to use two scanners on one antenna at the same time! All connectors are type F for maximum signal transfer.

$120VAC/12VDC wall adaptor included.

WHAT YOU NEED TO ORDER:

ANT 7 Scantenna (see page 23) $39.95

or

ANT 1 Scanner Beam (see page 23) $59.95

plus

PRE 4 Preamplifier $59.95 plus $3.75 UPS shipping

CK-SC Scanner Interconnect Kit $12.95 plus $3.00 UPS shipping

(includes one 3' F/F cable with adaptors for most scanners)

Shipping charges for system ordered together: $10 UPS; $17 UPS 2nd Day Air; $15.50 US Priority Mail; $17 Canadian UPS; $20 Canadian Air Parcel Post

Connects to any scanner equipped with an external antenna jack

Grove's Indoor Scanner Antenna System

The Apartment Dweller's Dream

The Grove Hidden Antenna System is a high performance, amplified indoor antenna for scanner monitoring. The 66-inch flexible ANT6 can be tucked in a corner, hung behind a drape—just about anywhere out of sight. And when connected to the powerful PRE4 signal booster, you have instant coverage from 30 to over 1000 MHz.

Yes, wide area scanner coverage will be at your fingertips, and you can operate two scanners

WHAT YOU NEED TO ORDER:

ANT 6 Hidden Antenna (see page 22) $19.95

PRE 4 Preamplifier $59.95 plus $3.75 UPS shipping

CK-SC Scanner Interconnect Kit $12.95 plus $3.00 UPS shipping

(includes one 3' F/F cable with adaptors for most scanners)

Shipping charges for system ordered together: $7 UPS; $11 UPS 2nd day Air; $8 US Priority Mail; $15 Canadian UPS; $13 Canadian Air Parcel Post

"I wish to compliment you on the design of the PRE4. This is the best of three preamps that I have used for listening to the ATS-3 satellite. It beats the Radio Shack 15-1117 and the Ramsey 2 meter preamps in noise and amplification."

—Martin Toomajian, Jr. Watervliet, NY
**SCANNER ACCESSORIES**

Convert Your Car Antenna Into a Scanner Antenna!

**Mobile Antenna Multicoupler**

How would you like to enjoy excellent 30-960 MHz mobile scanner reception using your existing AM/FM auto antenna? That's right; no holes, no magnets, no scratched paint or clumsy cables going through doors and windows. Ideal for low-profile monitoring installations where a separate scanner antenna is desirable.

The Para Dynamics PDC 63 Mobile Multicoupler takes only seconds to install and allows simultaneous use of your AM/FM car radio as well as your mobile scanner. Comes equipped with your choice of Motorola or BNC connector.

- Order CPL-63M (Motorola) $16.95
- Order CPL-63B (BNC) $14.95

$3.50 UPS; $6.50 2nd Day Air; 4 US Priority Mail
$8 Canadian UPS; $6 Canadian Air PP

Dual Scanner Multicoupler

Would you like to connect two scanners (or one scanner with separate antenna jacks) to one antenna cable? The new Grove CPL-SC universal multicoupler is the answer! Insertion loss only 3 dB maximum; port isolation typically 25 dB; impedance 50-75 ohms.

Consisting of a wide-frequency-coverage splitter (25-1300 MHz or more) and two output cables with adapters for UHF (PL-259), Motorola, F, and BNC connectors (input and output), you'll be set for any combination.

- Order CPL-SC $29.95
  - ADP 15 adapter for ICOM
  - AH-7000 discone, $5.95

Premium Low-Loss RG-6U Cable with Connectors

Have you had trouble finding the right coaxial connectors for linking your antenna and receiver? We can help! Simply tell us what connectors you need, or what antenna and radio you will be using. We will provide you with a cable which is ready to attach between your antenna and receiver!

- CB50 (50 feet w/ connectors) $19.95
- CB100 (100 feet w/ connectors) $29.95

No other lengths available

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Adaptors may be ordered separately for $5.95 each. Free shipping if ordered with other products; $1.50 for one or more shipped alone.

If you are unsure which adaptor is needed call Sue at 704-837-7081 for assistance.
Metro West Long-Life Battery Pack for BC200XLT, BC205XLT, and BC100XLT

Over the years, MetroWest has introduced a number of innovative accessories for hand-held scanners, but none is more welcome than their new, double-life battery pack for the popular Uniden BC200XLT hand-held scanner.

The "Pro-Pack 1200" is numbered for its 1200 mAh charge capacity, twice that of the BP200 which comes with the BC200XLT from Uniden. The replacement look-alike slips right on the scanner to replace the original.

About 1/4" taller and slightly fatter than the Uniden pack, the Pro-Pack 1200 does not allow the top strap of the Uniden case to button over the top as it did before, but is still may wrap around the front or back securely.

Because the charger jack on the battery pack had to be relocated due to battery density, the scanner must be removed from its holster before it can be recharged. The user may wish to punch a second hole at the new location for plug-in convenience. An AC wall adaptor/charger is included.

Order ACC16 $65.95

Metro West Pro-Charge 7 Drop-In Charger for the Metrowest Battery!

Charge your high-capacity Metrowest battery like the pros with this drop-in charger (not for original Bearcat battery pack). Automatic circuit provides a full charge in just seven hours, yet prevents overcharging! Powered by your 12 VDC wall adaptor or from the Grove ACC23 cigarette lighter cord.

Lightweight (8 oz.) and compact (3-1/4" x 4-1/2" x 1-3/4"); two-color LED indicator shows charge status.

Order ACC 70 $36.95

Rechargeable AA Nicad Batteries (500 milliamp)

For use with the PRO-43 as well as other handheld scanners.

Grove Discount Price $1.95/ea

Order ACC 47 plus $1.50 shipping any quantity

Back by popular demand!

Universal Power Supply/Charger

Our universal AC adaptor is especially rugged, capable of switching to your choice of 3, 4.5, 6, 7.5, 9 or 12 volts DC at a current of 500 milliamps (1/2 amp)! Another switch lets you choose + or - polarity.

An array of plugs on its interconnect cord assures proper mating to any electronic accessory. Plugs into standard house current (120 VAC, 60 Hz).

Order ACC20 A $15 dollar value for Only $9.95 plus $3 UPS or Priority Mail
Communications Headphones

For All Listening Requirements

Imagine—an ear-cushioned headset with adjustable volume controls for each earpiece and a stereo/mono switch built in! These new phones have a power handling capacity of 0.5 watts, frequency response of 20-18,000 Hz, sensitivity of 105 dB and 32 ohm impedance to match all external speaker/earphone jacks. Perfect for any audio application—stereo systems, communications receivers and scanners. Coil cord with 1/4" plug included.

Order HDP 1 Only $19.95

Accessories:
ACC80 Universal Adaptor $12.95
ACC35 3/32" Adaptor (fits BC200XLT) $1.50

Mobile Cigarette Lighter Power Adaptor for Bearcat Scanners!

Simply plug the Grove ACC23 into your vehicle's cigarette lighter to charge the batteries and/or operate your Bearcat scanner or any other mobile accessory, including radar detectors and the Grove PRE4 Power Ant, which use a 12 volts DC, center pin positive, 2.1 mm barrel connector.

ACC23 Only $9.95

Clip-On Mini Speaker for Handheld Radios

Brand new! This tiny (2" square), lightweight (2-3/4 oz.) speaker plugs into any standard 1/8" (3.5 mm) earphone jack and provides excellent, concentrated sound when clipped to a lapel or collar. Ideal for crowded or noisy locations where you don't want your scanner blaring and don't want the confinement of an earphone.

Order SPK 9 Only $9.95

Recoton Smart Charge

Portable Power Station

Don't ever be caught in a power shortage again. This portable powerhouse from Recoton provides 3, 6, 9 and 12 VDC to your battery- or DC-operated equipment at currents of up to 10 amps (120 watts)!

Ideal for camping or emergency radio operation—ham, CB, scanners and shortwave receivers, other two-way radio equipment—camcorders, portable TVs and refrigerators during storm power outages, or even starting battery-dead vehicles and boats. Charges from convenient 120 VAC line or a vehicle cigarette lighter (plug included).

The internal safety-sealed, 6.5 ampere hour, lead-acid battery has an automatic shutoff to prevent overcharging; a built-in voltmeter alerts you at all times to output voltage and battery condition.

Lightweight (8 lbs) and compact (7" x 4" x 8"), this Recoton Smart Charge power station is UL listed for safety and quick-charges in only three hours from your cigarette lighter receptacle or eight hours from an AC wall receptacle.

Product Support for Catalog Items Only — 704-837-7081
NEW Naval HTS-2 Compact Amplified Speaker
Incorporates Tape Recorder Activator!

Designed for handheld walkie-talkies and scanners, this amplified speaker puts out a resounding one watt of audio in noisy locations!

Powered by AA nicads or alkalines, battery saver automatically shuts off power when no sound is present. It activates a tape recorder whenever sound is present (1/8", 3/32" cables included)!

Compact (2-3/4" W x 4-1/2" H x 2-1/4" D) and lightweight (10 ounces), this amplified speaker can be snugly placed on your radio desk or stuck by Velcro to your vehicle’s dashboard. LED signal light, audio level adjustment and amplifier bypass switch are included!

Accessories:
- ACC23 Cigarette lighter power adaptor $9.95
- ACC20 AC wall power supply $9.95
- ACC47 Nicad rechargeable batteries $1.95/each

Order SPK11
Only $29.95

Check the electromagnetic radiation levels in your environment!

ELF RADIATION DETECTOR
ONLY $99.95!

By special arrangement with the manufacturer, Grove brings you this sensitive, dependable ELF (extremely low frequency) exposure meter to arm you against the hazards of electromagnetic radiation.

Not limited to just 60 Hz like competitive narrow-frequency units, this meter measures from 30-300 Hz to detect harmonic radiation from power lines and other sources.

Simply switch this pocket instrument on and read instantly the radiation from computers, radios, home stereo and video systems, appliances, power lines, electric blankets and more. Standard 9-volt battery included.

Choose from low-level GSM2 (0.1-199.9 milligauss) or standard GSM3 (1-1999 milligauss), only $99.95 each including vinyl zipper pouch and informative instructions.

Order GSM2
Only $99.95

plus $3.75 UPS; $6 UPS 2nd Day Air; $4.50 US Priority Mail; $8 Canadian UPS; $6.75 Canadian Air Parcel Post

Order GSM3
Only $99.95

plus $3.75 UPS; $6 UPS 2nd Day Air; $4.50 US Priority Mail; $8 Canadian UPS; $6.75 Canadian Air Parcel Post

29 Order Line — 1-800-438-8155
Frequency Counter Facts

Frequency counters are among the most useful of all laboratory instruments, but their limitations as well as their advantages must be understood. Since they are broadband devices (untuned), they respond to all signals strong enough to be registered. If two or more signals are present at the same time, they will be measured at the same time—in a meaningless readout.

For this reason, in populated areas it is best to use a frequency counter with a short antenna located close to the source of signal to be measured; this way, only the desired signal frequency will be shown. A longer antenna may be used out in the country to measure a signal perhaps hundreds of feet away.

Now, use your Opto frequency counter to find the frequencies of public safety and business walkie talkies, cordless telephones, CB and ham transceivers, government and military transmitters, baby monitors, hidden bugs and wireless intercoms—anything radiating a steady signal in the frequency range of the frequency counter!

Optoelectronics Pocket Frequency Counters

We have added the necessary options and discounted the total for your best value!

Ideal for calibrating signal generators, transmitters, for countermeasures applications, and for determining the unknown frequencies of transmitters, walkie-talkies, mobile radios, base stations, cordless phones, ham and CB radios, radio control units and other signal emitters.

These tiny, precision instruments offer outstanding sensitivity and TCXO (temperature compensated crystal oscillator) accuracy of 1 part per million. All prices include rechargeable battery pack and AC wall charger/adaptor, but not antennas (available from the list of accessories below). Units operate for several hours on a fresh charge, or continuously with the wall adaptor.

The effective range of these frequency counters varies from about one foot (cordless phones) up to 75 feet or more for more powerful transmitters.

For casual applications such as reading the frequencies of nearby transmitters, select the new 2300. Measuring a scant 3-1/2"W x 3-3/4"H x 1"D and weighing about nine ounces, it offers 1-2400 MHz frequency range, 8 LED readout and VHF/UHF sensitivity of 3 millivolts (3 mV).

Or, look at the advanced features of the new, premium 3000: Ten-digit LCD readout, optional backlite for clear night-time viewing; total-spectrum 10 Hz-3000 MHz frequency range—from sub-audible through microwave! 1 mV typical sensitivity; 16-segment LCD signal-strength bargraph for tuning nearby transmitters or tracking hidden transmitters; even lab measurement capability of period, time interval and ratio are included at no extra cost.

For surveillance applications ("sweeping" rooms for hidden bugs), an optional audible tone alerts you to the presence of an unseen transmitter, changing its pitch as you approach its hidden location without having to see the bargraph! A powerful pocket package at its advertised $450, and an incredible value at Grove's price of only $359.95!

Accessories:

- ACC11 Zippered soft case (for 3000) $15.95
- ACC18 Zippered soft case with display window (for 2300) $12.95
- ANT19 4"-18" telescoping whip $12.95
- ANTB 7"-46" long-range telescoping whip $16.95
- ACC6 Test probe for circuit testing $20.95

Shipping for above units:
- $5 UPS, $8 UPS 2nd Day Air, $8 US Priority Mail
- $9 Canadian UPS, $10 Canadian Air PP
ORDER CVR3 for desktop or mobile scanners: $84.95
$4 UPS; $6.75 UPS 2nd Day; $6 US Priority Mail; $8 Canadian UPS
$9 Canadian Air Parcel Post; $8 Canadian UPS

ORDER CVR2 for hand-held scanners: $79.95

$4 UPS; $6.75 UPS 2nd Day; $6 US Priority Mail; $8 Canadian UPS

Factory price $94

RECEIVE CONTINUOUS 810-912 MHz ON YOUR PROGRAMMABLE SCANNER
GRE SUPER CONVERTERS

Looking for the best way to get uninterrupted 810-912 MHz coverage on your hand-held or desktop scanner? Whether your scanner doesn’t have that range now or is one of the models with certain 800 MHz frequencies factory-censored, these high-sensitivity converters from GRE will fill in the gap!

Simply install a nine-volt battery (not supplied); BNC connectors are provided to interconnect with your scanner. Use an 800 MHz-capable external antenna or attach a whip adjusted to about 4” (or 12” for gain) like the Grove ANT-19 ($12.95) or ANT-8 ($16.95).

When you tune 410-512 MHz on your scanner, you will be receiving 810-912 MHz! Just add 400 to the frequency displayed on your scanner, and you’ll know your receive frequency when the scanner is switched on. A handy bypass switch allows you to restore normal operation of your scanner without having to remove the converter.

Factory price $94
Seth Thomas

24-Hour Studio Clock
For the “Professional Touch”

Nothing lends an air of authority in a radio station like the clock on the studio wall. It is traditional, recognizable, functional, and now, with a modern precision quartz movement, accurate to 1/2 second per day.

This studio clock from Grove Enterprises is a professional 13” Seth Thomas, featuring a 24-hour movement with bold, black numerals and a red sweep-second hand.

A convenient set knob allows precise set-up at installation; add an inexpensive alkaline AA cell (not included) and you have at least a year of unattended, accurate time — even during power outages.

Order CLK1 Only $29.95

MFJ Dual Digital Clock

This compact digital timepiece features two large LCD quartz movements to provide accurate 24 hour UTC radio time as well as local time. Mounted in a rugged extruded aluminum frame with a handsome brushed accent, the clock features high-contrast, 5/8 inch numerals, easy to see anywhere in your radio room.

Powered by a long-life battery, the clock may be switched to show seconds as well. Measuring a scant 4-1/2” W x 2” H, the MFJ108B dual time clock can easily fit on any radio desk and provide valuable time information instantly.

Order CLK2 Only $19.95

MFJ World Map Clock

This new desk digital world map/clock adds a touch of golden elegance to your radio room. Time zones are available at the touch of a button, and the day of the week, date, and local 12 or 24 hour time with one second per day accuracy are also displayed in large LCD characters.

Key cities across the globe are highlighted to make identification easier and an alarm tone can be set to alert you to any particular time. The MFJ-112 measures 4” H x 3-1/2” W and battery is included.

Order CLK4 Only $24.95

Color Wall Chart of the Radio Spectrum

For years, our customers have asked us for a useful, informative, and accurate wall chart showing details of the radio spectrum. Now Grove offers this incredible 50” x 32”, full-color, fold-out wall chart of the United States radio spectrum!

Printed on heavy gloss paper, the chart of the spectrum shows both government and non-government frequency allocations from 3 kHz through 300,000 MHz (300 GHz)—the entire radio spectrum!

28 services are shown in separate colors: land mobile, aeronautical, maritime, space, fixed, amateur, radio and TV broadcasting and more. No other low-cost publication provides so much band allocation detail at a glance as this handsome, professional wall chart.

Order CHT 1 Only $9.95 plus $3 UPS $6 2nd Day Air, $1.50 Bookrate;
$8 Canadian UPS; $5.50 Canadian Air PP

Product Support for Catalog Items Only — 704-837-7081
Federal Frequency Assignment Master File

224 controversial pages provide the most comprehensive look at federal government frequencies in print. Over 100 agencies, from the Central Intelligence Agency to the National Security Agency are listed; scanner and shortwave as well.

No matter where you're located, you'll hear many of these frequencies in use. Alphabetized by department and agency and their locations, then listed in frequency order, this compendium is the most authoritative reference for armchair monitoring of "forbidden" frequencies we've ever seen!

BOK1 $24.95
Shipping Code B

Official Aeronautical Frequency Directory

By Robert A. Coburn

This second edition features 430 pages of listings of HF, VHF and UHF air-to-air, air-to-ground and ground utilities frequencies used by civilian, government and military agencies across the country FFA, GAP, military, aeronautical telephone, flight support, airport communications—they're all here!

Arranged alphabetically by state, lists include service, name, location, call sign, frequency and use. Tables include allocations, voice designators and more.

BOK5 $12.95
Shipping Code A

Scanner and Shortwave Answer Book

What is the best antenna for your requirements? When do you need a preselector rather than a preamp? What is the difference between "meter band," megahertz" and "kilohertz"? How can you determine the source of electrical interference and cure it?

These are samples of the hundreds of questions expertly answered by Bob Grove's guide to monitoring. If you have questions about listening and equipment, chances are you'll find the answers here!

Liberally illustrated and professionally printed. Affordably priced for hobbyists, new and experienced. Take advantage of this limited reference edition while supplies last!

BOK6 $24.95
Shipping Code B

Top Secret Registry

By Tom Kneitel

The book that made headline news when a copy was uncovered during an organized crime raid. This 7th Edition concentrates on VHF and UHF scanner frequency ranges, agencies include Secret Service, Customs, DEA, CIA, NSA, White House, Border Patrol, ATF, and dozens of other government bureaus who would prefer not to have the communications frequencies published.

BOK8 $19.95
Shipping Code B

Sports & Entertainment Frequency Directory

By Bob Grove

This second edition helps you listen to drivers and pit crews at the auto races, boat race communications, air show stunt coordination, gambling casino management and security, Disney attractions, parade floats, amusement parks, wireless mikes, sports reporters, and much more.

Over 2000 frequencies for sports events, tourist attractions, stadiums and arenas, and even fast food restaurant chains! Handy 4" x 5".

BOK12 $9.95
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