America, the Beautiful
ICOM PRICE BREAK

Grove is slashing prices on a limited number of ICOM R7100-2 scanners. If you have been waiting for a miracle, wait no longer — these are prices that we never believed we could offer! Hurry and take advantage of these rock bottom prices!

ICOM R7100 shown with GRE Super Converter (not included), permitting full 25-2000 MHz coverage — legally. See order information below.

ICOM R7100-2
ICOM's Best VHF/UHF Communications Receiver

Special Limited-Time Offer:
$1299.95*

Last Grove Price: $1499.95
Retail Price: $1942.50

Order SCN15-C
$16 UPS
$31 UPS 2nd Day Air
$36 US Priority Mail
$27.50 Canadian UPS
$43.50 Canadian APP

* For an additional $55, receive the GRE Super Converter (CVR3) and get full 25-2000 MHz coverage — a $94 value from the factory!

With the most popular features of the legendary R7000, plus a few features that listeners wanted, the R7100 is ICOM's best compact receiver.

The R7100 offers 25-800 and 900-2000 MHz frequency coverage 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. Prices subject to change due to yen fluctuation.

Call Now — Stock is Limited and Moving Rapidly!
Order With Confidence

Grove Enterprises prides itself on offering quality products at reasonable prices AND outstanding technical support. In the rare event you should experience some kind of problem with any of the products we manufacture or sell, or should you have a complaint, please call us first at 1-800-438-8155 and we'll do everything we can to keep you as a satisfied customer. **ALL PRICES ARE SUBJECT TO CHANGE!**

Occasionally a customer will order a product that turns out not to be what he wanted or, perhaps, expected. Simply call our toll-free number, 1-800-438-8155 within thirty (30) days of shipping, and we will gladly credit your future purchases, or we'll issue you a refund (less shipping charges)—your choice!

**ALL RETURNED ITEMS MUST HAVE A RETURN AUTHORIZATION NUMBER OR THE RETURN IS SUBJECT TO A RESTOCKING FEE BASED ON THE INVOICE VALUE: $0-$500 - 15%; $501-$1000 - 25%; $1000+ - 35%**

BE SURE TO REQUEST A RETURN AUTHORIZATION NUMBER FROM A CUSTOMER SERVICE REPRESENTATIVE!

Any product returned in not-as-new condition will be assessed a fair refurbishing charge. Be sure to include the authorization number as a restocking fee must be assessed (see above) for products returned without authorization. Special order items cannot be returned.

Shipping Damages:

Should you receive a damaged shipping carton, ask the driver to wait while you inspect the contents. If there is damage, refuse the package and immediately call us at 1-800-438-8155.

Canadian Shipments:

All Canadian shipments are subject to duties and GST tax. These charges are the responsibility of the purchaser and not Grove Enterprises.

Limited Warranty:

All equipment manufactured by Grove Enterprises is warranted to the original purchaser to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase as shown on the purchaser's receipt. Grove Enterprises may, under this warranty, either repair or replace (at our option) any part which proves defective in material or workmanship, provided the unit has not been modified in any manner or field repairs attempted. Please call us at 1-800-438-8155 for a return authorization number and shipping instructions before returning any item for warranty repair.

Grove Enterprises assumes no responsibility for damages or penalties incurred resulting from the use of this product in a manner or location other than that for which it is intended.

All customer-owned equipment repaired by Grove Enterprises is warranted for a period of 90 days from the date shown on the customer receipt. The warranty is non-transferable. Modifications to the equipment may void the original manufacturer's warranty.

Radio Shack® Equipment:

Should any equipment manufactured by Radio Shack® and sold to you through Grove Enterprises fail within a period of one year from the shipping date, the unit must be returned to Grove Enterprises for warranty repair. Please call us at 1-800-438-8155 for return instructions.

Other Warranties:

On items not manufactured by Grove Enterprises or Radio Shack®, (ICOM, Uniden, Sony, etc.), please check your service manual for instructions or call us at 1-800-438-8155 for the name, address or telephone number for the repair center nearest you.

Grove Phone Line Services:

**ORDER LINE ONLY**

**800-438-8155**

(M-F, 8:00am-6:00pm Eastern)

**TECHNICAL/REPAIR SERVICE**

**704-837-7081**

(M-F, 8:30am-4:30pm Eastern)

**BUSINESS OFFICE**

**704-837-9200**

(M-F, 8:00am-5:00pm Eastern)

**DATA LINE/FAX SERVICE**

**704-837-2216**

(24 hours/day, 7 days/week)

INTERNET SITE

www.grove.net

BULLETIN BOARD SYSTEM

Grove Enterprises has an advanced computer bulletin board system available **Monday-Friday from 5:30pm-8am (non-business hours), and 24 hours/day on weekends.**

The BBS is free and is available to all people. All phone numbers operate at 300-14,400 BPS.

- **704-837-9200**
- **704-837-5957**
- **704-837-7081**
- **704-837-5183**
**Explore the New Frontier—**

**Satellite Communications**

**ICOM 820H Dual-Band, All-Mode Transceiver**
for Satellite and Terrestrial Communications!

This new, all-mode, dual-band transceiver is both compact and lightweight, offering operating versatility other base stations just can't match. Automatic crossband repeater, normal and reverse satellite communications tracking, independent uplink/downlink doppler-shift compensation, 10 satellite up/downlink management memory channels and more! Frequency coverage is 144-148 MHz VHF/430-450 MHz UHF. For unsurpassed wide-coverage monitoring, request the optional frequency extension (136-174 MHz/420-460 MHz) available to MARS and CAP licensees at the time of order, to others after delivery (FCC type acceptance requirements). Satellite software available from AMSAT (210) 896-0336. Also, see pp. 46-47 for Grove’s great selection of satellite reference books.

---

**Reap big savings on Grove’s IC-820H Accessory Package!**

Order this special Grove Satellite Package and receive a free certificate for a $70 Instatrak (VGA) or Quik-Trak (CGA/EGA) control software package from AMSAT.

**Grove Satellite Package**

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</tr>
</tbody>
</table>

Retail price with AMSAT software $2893.00

**Grove Discount Price $2493.00**

**A $200 Savings!**

---

**Order XCVR 01**

<table>
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<th>Price</th>
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<td>Only $1649.95</td>
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</table>

**FEATURES AND SPECIFICATIONS:**

- Frequency coverage: 144-148/430-450 MHz
- SSB, FM, CW, 9000 baud packet
- 1 Hz tuning resolution plus RIT
- IF shift
- Normal/reverse satellite tracking memory
- Doppler compensation
- 10 crossband, 50 conventional memory channels
- Dual VFOs on both VHF and UHF
- Dual antenna jacks (SO-239 VHF/N UHF)
- Noise blanker
- Attenuator
- Programmable memory/mode select scan
- CW semi-break in and side tone
- Auto repeater function
- 45/6 watts power

**RECOMMENDED ACCESSORIES:**

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<tr>
<td>ROT 2</td>
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**License required to transmit: Technician, General, Advanced or Extra**

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**Product Support Catalog Items Only:**

704-837-7081
Choosing a Shortwave Receiver

WHEN YOU SELECT A SHORTWAVE RECEIVER, consider several factors:

1. Do you need portability? Small radios are convenient carry-alongs, but their performance is always inferior to the pricier desktop radios.
2. Is battery operation of paramount importance? If power outages are frequent, the battery option may be important.
3. Is price a serious consideration? Performance generally improves as price goes up, but it isn't proportional. Check the specifications.
4. Will you be using an external antenna? This is always the better choice, but the resultant stronger signals will cause problems in cheaper radios.
5. Do you intend to listen to hams and other communicators? Single sideband (SSB) mode is mandatory.
6. Is this to be a primary or a backup receiver? You may wish to relax on specifications slightly if you already have a high-performance receiver.
7. Are you located near a powerful broadcasting transmitter? Plastic cabinets and poorly-designed circuitry invite serious strong signal-interference problems.

Among portables, the Sony ICF-2010 still remains the top contender as the most cost-effective radio. Not only does it offer decent sensitivity, selectivity and loudspeaker audio, but it offers synchronous detection, very useful for weak-and-fading signal shortwave reception. It includes the FM broadcast band and even listenable aircraft band reception, an unusual bonus in portables.

Among the small shortwave portables, consider the Sony SW30 for broadcast-only reception (no SSB) at low cost, or the recently-released SW7600G with synchronous detection and SSB—a fast seller. For superb audio quality, the Grundig Satellit 700 is the pick.

For serious listening, the new Drake R8A offers improved performance over the former leader, their own R8! Or try their new SW8 with improved sensitivity, battery/desktop/portable operation, excellent SSB performance, synchronous detection, all at an attractive price between that of the low-cost portables and the more expensive desktops.

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 length 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 discernable.

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 (tiss 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 bear 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 (ATV-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. Untuned 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-8/U, RG-59/U, RG-6/U or RG-8/U is satisfactory for runs up to at least 100 feet.

Preselectors

A preselector 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.

An amplified preselector 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 insulting them. As a last resort, connect your ground wire to the screw holding 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 arrestors 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 L11 and Alpha Delta TranzTrap.

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

WATKINS-JOHNSON HF 1000

For the first time in recent history, a leading manufacturer of equipment for the federal government has made available the most advanced receiver on the consumer market.

Designed for a super-secret monitoring agency, the HF1000 offers unsurpassed features and performance, like 1 hertz tuning and display readout, +30 dBM third-order intercept, DSP filtering with 58 bandwidths, RS232 and QAM control ports, built-in self test, 5 kHz-30 MHz continuous tuning, ten step noise blanker, excellent filter shape factor, low-distortion AM synchronous detection, internal speaker and much, much more.

This is a receiver for the discriminating listener, the consummate DXer, the true professional who wants the best there is.

RCV 18 ............. Only $3799

ACCESSORIES:

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<td>ACC 85 Preselector</td>
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<td>ANT 2 Grove Skywire antenna</td>
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<td>SFT 2 ScanCat Gold software</td>
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<tr>
<td>SPK 13 Grove Sound Enhancer</td>
<td>$279.95</td>
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See Shortwave Product Comparisons and Specifications on pages 22-23!

The Tiny Titan

LOWE HF-150

"...at the Monitoring Times Convention...I (compared) the HF-150 with a Sony SW55, a Sony SW77, a Sony IC-F2010, and a Grundig Satellit 500...it blew away the competition." — James D. Strader, P.E.

This "tiny Titan" from Lowe of England offers enormous performance in a miniature package. Simplicity and specifications are the key elements of this little marvel. Ideal for the apartment dweller or traveler. Continuous 30 kHz-30 MHz coverage, all-mode (AM, AM synchronous, USB, LSB) reception, dual up-conversion circuitry, 1 kHz LCD readout, 8 Hz tuning steps, 60 non-volatile memory channels, internal battery power, and internal speaker.

A survivor, the HF-150 is built with all-metal panels, machined parts, alloy casings, and silk-smooth tuning. Choose fast or slow tuning, wide or narrow selectivity, internal batteries or external 12 VDC or 120 VAC power. All in a 7-1/4" x 3-1/2 x 6-1/4" D, 3 pound package!

RCV 25
Only $599.95

ACCESSORIES:

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<td>ACC 149 Key pad</td>
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<td>ANT 3 Grove Mini Skywire antenna</td>
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<td>ANT 24 Dymek active antenna</td>
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<tr>
<td>SPK 13 Grove Sound Enhancer</td>
<td>$279.95</td>
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</table>

THE GREAT WORLD BAND RECEIVER FROM R.L. DRAKE

Not only continuous coverage 500 kHz-30 MHz, but 87-108 MHz FM broadcast (stereo at headphone jack) and 116-136 MHz aircraft as well!

Standard and synchronous detection AM, upper and lower sideband on medium and short wave, direct frequency entry keypad, 0.5 microvolt sensitivity, dual 6/4 kHz selectivity on AM, sharp 2.3 kHz selectivity on SSB. Up-conversion eliminates images while +10 dB intercept point suppresses intermod.

A compact 11" wide by 5-1/4" high and weighing a scant 10 pounds, the SW8 runs on optional internal batteries or its supplied AC adaptor. High-contrast, backlit LCD display provides 100 Hz tuning accuracy. Dual-mode clock timer and 70 scannable memories round out the key features of this welcome receiver! See specifications on pp. 22-23.

Order RCV 19
Grove discount price only .......... $689.95

ACCESSORIES:

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<td>ANT 2 Grove Skywire antenna</td>
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$13.50 UPS
$27 UPS 2nd Day Air
$23.50 US Priority Mail
$20 Canadian UPS
$26 Canadian APP

UPS 2nd Day Air at Ground Rates on All Products
New!

R8-A Communications Receiver

The successor to the famous R8 is here—Why pay more when the best costs less?

The Drake R8 has been internationally respected for its excellent audio, frequency agility (100 kHz-30 MHz, expandable to 33-55 and 108-174 MHz with optional converter), friendly control panel, synchronous detection, noise blanker, passband tuning, preamp/attenuator selection, universal power supply, dual clock timers, giant display, five filter bandwidths and six receiving modes. Now Drake has added over a dozen important improvements to their legend R8 receiver, including:

- Single-keypress mode and bandwidth selection
- Alphanumeric display of station identification
- Improved overload immunity
- 440 memory records
- Rapid scanning
- Enhanced tone control
- Tighter frequency stability
- Strong metal tilt bai
- Expanded-function RS232 computer control
- Removable/replaceable line cord

Order RCV 3
Grove discount price only $1068.95

$16.50 UPS
$30 UPS 2nd Day Air
$29 US Priority Mail
$26 Canadian UPS
$35.50 Canadian APP

ACCESSORIES:

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<td>MAN 2 Service manual</td>
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<tr>
<td>WP 5 RDI White Paper®</td>
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FREE GIFT with every Pre-Registration received before 9-13-95!

Preliminary Schedule

FRIDAY, October 13, 1995
10-5 pm Exhibits open
12-4 pm Special interest groups
1-2 pm Scanning Atlanta
2-4 pm International Broadcaster’s Forum
5 pm Exhibits close
7-7:30 pm Opening Ceremony
7:30-8:30 pm MT Expert Panel w/Rachel Baughn host
8:45-9:45 pm ST Expert Panel w/Larry Van Horn host

SATURDAY, October 14, 1995
9-11:15 am Seminar
9 am Exhibits open
11:15-1 pm Lunch
3 pm Exhibits close
1-4:15 pm Seminars
4:30 pm Bug Hunt
5:15 pm Prize drawing
7 pm Banquet

SUNDAY, October 15, 1995
9:45-12:45 pm Seminars

Look for exhibits and thousands of dollars in prizes from:
- Computer Aided Technologies
- Ramsey Electronics
- Signal Intelligence
- AMSAT
- ICOM
- Universal Radio
- Sony
- R.L. Drake
- MFJ Enterprises
- Swagur

Don’t miss this year's Grove Communications EXPO (formerly the Monitoring Times Convention), now incorporating a full slate of satellite communications seminars and demonstrations!
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 mode 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. See detailed specifications on pp. 22-23. Prices subject to change due to yen fluctuations.

**OPTIONAL ACCESSORIES**

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<td>ACC 9 FL32A CW narrow filter</td>
<td>$86.95</td>
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<td>ACC 9* FL444 SSB filter</td>
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<td>ACC 10* FL63A CW narrow filter</td>
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<td>ACC 12 RC11 remote control</td>
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<td>ACC 13* UX14 Level converter</td>
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<td>ACC 7* CT-17 computer interface</td>
<td>$144.95</td>
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*Must use ACC73 & ACC74 together

**RCV 6**

Only $999.95

- $17.50 UPS
- $35 UPS 2nd Day
- $31 US Priority Mail
- $39.50 Canadian APP
- $30 Canadian UPS

**Super Value and Performance from SANGEAN**

**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 adaptor and more! See detailed specifications on pp. 22-23. Requires 4 D cells.
SONY ICF-SW100

Powerful Shirtocket Shortwave Radio

Order RCV 24
Only $349.95
$8.50 UPS
$21 UPS 2nd Day Air
$17 US Priority Mail
$18.50 Canadian APP
$21 Canadian UPS

Incredible! Imagine compressing the popular functions of the mighty Sony ICF2010 into a shirt-pocket radio! This tiny titan offers continuous 150 kHz-30 MHz and 76-108 MHz FM frequency ranges, Sony's famous synchronous detection, USB/LSB reception, 100 Hz tuning steps, 50 memory presets, 24 hour clock/timer, world time computer, stations name display, illuminated LCD, and much, much more.

AC adaptor, stereo earphones, active antenna, soft carrying case, station directory, and full instruction manual included at no extra charge! Two AA batteries required.

See detailed specifications on pp. 22-23.

ACCESSORIES:
ANT 17 amplified SW antenna ................... $24.95
ANT 21 Select-A-Tenna ........................ $65.95
BAT 1 AA alkaline batteries ...................... $7.99 ea
SPK 13 Grove Sound Enhancer .................. $279.95

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, and 5-event timer. It comes complete with an AC adaptor, stereo earphones, ear pads, carrying belt, compact antenna, external antenna adaptor, manual. See specifications on pp. 22-23. Requires 4 C cell batteries.

ACCESSORIES:
ANT 3 Grove Mini Skywire antenna .......... $29.95
ANT 17 Amplified SW antenna ................. $24.95
ANT 21 Select-A-Tenna ........................ $65.95
BAT 3 C cell alkaline batteries ................ $1.09 ea
SPK 13 Grove Sound Enhancer ................ $279.95

SONY ICF-SW7600G

It was inevitable. The early models ICF 2002 and 2003 have been replaced by a tiny marvel with synchronous AM detection, SSB, and even FM stereo coverage! Measuring just over 7 inches wide and weighing 22 ounces, the SW7600G 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, pushbutton tuning, tone control, external antenna jack, clock timer with sleep function, tilt bracket, keyboard lock, direct-entry keypad and 22 scannable memory channels keynote the high-tech features of this potent portable! See pp. 22-23 for more details. Requires 4 AA cell batteries.

ORDER RCV 11
Only $199.95
$8.50 UPS
$13 UPS 2nd Day Air
$14 US Priority Mail
$15 Canadian UPS

HIGH SENSITIVITY PLUS SYNCHRONOUS DETECTION!

ACCESSORIES:
ANT2 Select-A-Tenna ........................... $65.95
ANT 17 Amp. SW antenna ...................... $24.95
BAT 1 AA alkaline batteries .................... $7.99 ea
PWR 7 AC adaptor ............................. $19.95
SPK 11 Naval HTS speaker ..................... $34.95

SONY ICF-SW30

Looking for an uncomplicated, high-performance, low cost portable? It's the new Sony ICF-SW30! Replacing the popular ICF-SW7601, this broadcast-only (no SSB) radio features double conversion, high selectivity and excellent sensitivity to bring in distant stations.

Battery powered with level indicator, dual-zone 24-hour clock, temporary memory during battery change, 15 memory channels (5 for each band), signal seeking (autosearch in 1 kHz steps), and pushbutton tuning. Travel power lock prevents accidental turn-on. Offers FM stereo with earphones (not included). See specifications: pp. 22-23. Requires 3 AA cell batteries.

ORDER RCV 21
Only $112.95
$6 UPS
$9.50 UPS 2nd Day
$5.50 US Priority Mail
$8.50 Canadian APP
$12 Canadian UPS

ACCESSORIES:
ANT 17 Amplified SW antenna ............... $34.95
ANT 21 Select-A-Tenna ........................ $65.95
BAT 1 AA alkaline batteries .................... $7.99 ea
PWR 7 AC adaptor ............................. $19.95
SPK 11 Naval HTS speaker ..................... $34.95

UPS 2nd Day Air at Ground Rates on All Products
**SONY ICF-2010**

This is the world’s most popular shortwave radio, and it comes complete with AC adaptor, earphone, shoulder strap, wire antenna, external antenna adaptor/plug, and SW handbook.

**ACCESSORIES:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
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<tr>
<td>ANT 17</td>
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<td>279.95</td>
</tr>
<tr>
<td>ANT 3</td>
<td>29.95</td>
</tr>
</tbody>
</table>

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**GRUNDIG SATELLIT 700**

Grundig's decades of quality radio manufacturing culminate in the Sattelite 700, a high performance portable at an affordable price! Separate bass andtreble controls coupled with the large internal speaker produce the best audio we've heard in any contemporary shortwave portable!

Continuous frequency coverage 150-355 kHz longwave, 528-30,000 kHz medium and shortwave, 87.5-108 MHz FM broadcast. USB/LSB selection on utilities, with 100 Hz tuning steps and infinite-resolution BIT (clarifier) for fine tuning. Straightforward keyboard entry makes frequency selection a snap!

Wide and narrow filters provide excellent audio quality and adjacent channel interference rejection, while synchronous detection with automatic USB/LSB tracking improves single-signal response.

120 factory preset frequencies with station names on the giant LCD display allows instant selection of favorite stations. Automatic bandscanning searches for active frequencies. Requires 4 D cell batteries.

**ACCESSORIES:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
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<tr>
<td>ANT 21</td>
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<td>ANT 17 amp. SW antenna</td>
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<tr>
<td>BAT 2 D cell alkaline bat</td>
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<tr>
<td>ANT 3</td>
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</tbody>
</table>

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**YACHT BOY 400**

It's always a pleasure to introduce a really good, low-cost product—and that's just what Grundig's newest entry is. AM/FM stereo and continuous shortwave frequency coverage from 1.7 MHz to 46 MHz is an affordable price!

Yacht Boy 400 not only offers 400 channel coverage, but also has a built-in clock, battery condition, tuning memory, and simple pushbutton tuning.

This compact marvel is ideal for dependable backup during power outages and as a suit case companion during that next trip.

**ACCESSORIES:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
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<tr>
<td>ANT 17 amp. SW antenna</td>
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<td>65.95</td>
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<tr>
<td>BAT 1 AA alkaline batteries</td>
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<tr>
<td>PWR 8 AC adaptor</td>
<td>7.95</td>
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<tr>
<td>SKP 11 Naval HTS speaker</td>
<td>34.95</td>
</tr>
<tr>
<td>ANT 3 Grove Mini-Skywire</td>
<td>29.95</td>
</tr>
</tbody>
</table>
**M-400 UNIVERSAL DECODER**

**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 CTCSS (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. **Parallel printer allows full page hardcopy.**

**SPECIFICATIONS**

**MODES:** Baudot (45, 50, 57, 100 baud) ASCII (75, 110, 150 baud) SITOR A & B (Automatically selected) FEC-A (96 & 144 baud) SWED-ARQ (S, M and L lengths) Fax (1200 LPM//300 VDC to parallel printer port) Paging (GOLAY, POCSAG) ACARS Encoded squelch (CTCSS, all 41 frequencies; DCS, all 104 codes) 

**Order DEM9**

Only $399.95

$8.50 UPS
$24 UPS 2nd Day Air
$16 US Priority Mail
$20.50 Canadian APP
$22 Canadian UPS

**FILTER:** Low tone (mark) 1275 Hz Shifts: 170, 425, 850 Hz; plus 100-1000 Hz variable

**INPUT:** Speaker, 4-16 ohms @ 100 mW max. Discriminator: 10K ohms @ 0.2 V V max.

**OUTPUT:** ASCII 8 bit Centronics standard, DB25 connector

**DISPLAY:** Two-line, 20 characters each, 5/7 dot matrix LCD

**POWER REQUIRED:** 11-16 VDC @ 200 mA, AC adaptor included

**SIZE:** 8-3/4"W x 2-1/2"D x 6"D

**WEIGHT:** 2 lbs

---

**MPS Noise Canceller/Active Antenna**

Imagine, just connect this simple device between your receiving antenna and shortwave receiver or transceiver, and null out interference of virtually any kind! Computer hash, line noise, TV sync buzz—absolutely any RF interference goes away when the ANC is adjusted to your receive frequency.

Use the attachable whip (provided) or, even better, a second external antenna to sample local noise. A simple adjustment from the front panel reduces or even eliminates any electrical noise interference you are likely to encounter! The new ANC can even be used as a frequency-selective active antenna/signal booster! Whip, random wire antenna, DC plug and full instructions provided. Requires 12 VDC @ 300 mA power.

**Order ACC 21**

Only $174.95

**ACCESSORIES:**

PWR 13 Universal power supply .......... $9.95

**UNIVERSAL M8000 MULTIMODE DECODER**

**NEW VERSION 5 now includes three new modes: PACTOR, ARQ6-90 and ACARS.** 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.**

**Order DEM6**

$11 UPS
$21.50 UPS 2nd Day
$21 US Priority Mail
$35.50 Canadian APP
$25.50 Canadian UPS

**ACCESSORIES:**

ACC 153 Serial port adapter .......... $24.95
BRK 6 19" rack panel mount kit ......... $19.95
SFT 3 COPYCAT terminal software ....... $69.95

---

**Access an entire dimension of coded communication signals. Copy Morse Code, RTTY, ASCII, TOR (FEC and ARQ) and much more—right off the air!**
THE GROVE SKYWIRE SHORTWAVE ANTENNA
Outdoor dipole provides worldwide shortwave reception!

H igh performance and low 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 Budwig center connector ready for your PL-259 (UHF male) equipped coaxial cable (50 or 75 ohm, see page 31); includes two professional porcelain end insulators and complete instructions.

ATTENTION HOME EXPERIMENTS:
Build your own SW dipole! Order ACC101 (Budwig center connector) for only $9.95 and add your own wire to construct a SW dipole!

HAMS! Ideal for transmitting when used with a transmatch. (1.8-30 MHz at up to 250 watts)

A Shortwave Sampler
©Grove Enterprises, Inc. 1995
(Frequencies in kilohertz, upper sideband)

4066 Mississippi River barges
4080 Mississippi River barges
4145 Ship calling channel
4149 Mississippi River barges
4417 Ship working channel
4426 U.S. Coast Guard ships
4469 Civil Air Patrol
4517 U.S. Air Force MARS
4593.5 U.S. Air Force MARS
4637.5 Offshore petroleum platforms
4724 U.S. Air Force air to ground
5598 International airlines
5616 International airlines
5696 U.S. Coast Guard aircraft
6501 U.S. Coast Guard ships
6577 International airlines
6604 Flight weather broadcasts
6673 NOAA hurricane hunters
6739 U.S. Air Force air to ground
6754 Canadian Air Force
6840 Spy numbers transmissions
8294 Ship to shore
8297 Mississippi River barges
8740 Ship to shore
8803 Ship to shore
8806 Ship to shore
8825 International airlines
8846 International airlines
8865 NOAA hurricane hunters
8891 International airlines
8968 U.S. Air Force air to ground
8971 U.S. Navy, Atlantic
8983 U.S. Coast Guard air/ground
8992 U.S. Air Force
9023 U.S. Air Force
10780 NASA Cape Kennedy
11175 U.S. Air Force air to ground
11200 Royal Air Force flight

SPECIFICATIONS:
Length: 66 feet
Feedpoint impedance: 50 or 75 ohm (nominal)
Feedpoint location: 22 feet from end
Elements: 18 AWG (16 x 30) bare stranded copper
Connector housing: Heavy duty black phenolic

Order ANT 2
Only $39.95

Order ANT 3
Only $29.95

Short on yard space? The new Mini-Skywire is less than two-thirds of the length of the original Skywire and still offers great reception!

T his new, low-cost receiving antenna is an excellent choice for restricted space and portable shortwave radios. Its unique, 40-foot, dual-dipole design allows full 3-30 MHz frequency coverage and may be used in vertical, horizontal, sloper, or inverted V or L configurations.

Comes fully assembled, including high-quality Budwig center insulator for your PL-259 coax connector. See P. 31 for cable and adaptors.
**Grove TUN-5 MINITUNER**

The successor to the Grove TUN-4 is even better! Use as desktop active antenna or amplified pre-selector!

Yes, the popular TUN-4 MiniTuner has now been replaced by the compact, new TUN-5! Bring the weak signals up out of the mud with this valuable shortwave signal booster which can be used as a desktop active antenna or as an amplified preselector when connected to an external antenna. Features up to 20 dB gain, variable attenuation, razor-sharp selectivity, 250 kHz-30 MHz frequency coverage, dual-gate FET amplification, battery or AC operation, rugged SO-239 antenna connectors, and bypass switch. Attachable whip, AC wall adaptor and full instructions included.

**Order TUN 5**  
*Only $99.95*

**ACCESSORIES:**
- BAT 4 9V Alkaline Battery ........................................ $2.09 ea
- ADPK15 PL259 to PL259 ........................................... $5.95

---

**KIWA MW Air-Core Loop Antenna**

**High Performance**

Winner of the 93/94 World Radio Television Handbook Award

Are you looking for an antenna that will improve medium wave reception on your communications receiver? Then look no more — this unique 12-inch, circular air-core antenna provides improved weak signal reception of medium wave broadcast signals and it's electronically balanced circuitry minimizes pickup of electrical interference. Some of the other high performance features of the Kiwa loop include:

- Full 530-1705 kHz MW frequency coverage including the new expansion band from 1605 to 1705 kHz.
- May be precisely rotated and tilted for maximum signal pickup and nulling of interfering stations.
- Equipped with local/DX pre-amp switch, variable output attenuator, and dual output amplifiers.
- May be powered by a low-noise AC supply, included, or by battery.
- Stands 17 inches (43 cm) high and weighs 16 pounds (7.25 kg).

**Order ANT 31**  
*Only $349.95*

---

**Stoner-Dymek Shortwave/Longwave Active Antenna!**

**New Item!**

If a large, outside dipole is out of the question, choose the Dymek DA-100E, the best 50 kHz-30 MHz active receiving antenna available! High sensitivity, low noise, wide dynamic range, step-selectable attenuator, static-discharge-protected, weatherproof remote amplifier/whip assembly.

Includes AC power supply, indoor control unit, 50 feet RG-58/U coax, remote amplifier, 4' stainless-steel whip, receiver-interconnect cable and full instructions.

**Order ANT 24**  
*Only $179.95*

---

**Universal Reel Antenna for Shortwave Portables**

Whether you have a Sony, Sangean, Realistic®, Grundig or other whip-portable shortwave radio, this new, 23-foot, reel-out antenna can be firmly attached for better reception. When not in use it can be conveniently stored in a pouch or even your pocket!

Comes with whip clip and 1/8" (3.5 mm) standard antenna adaptor.

**Order ANT 16**  
*Only $14.95*

**Order ANT 16**  
*Only $14.95*
REALISTIC® Amplified Shortwave Antenna

"Ideal for apartment dwellers and travelers who can't erect a large outside antenna, and listeners who wish to prevent front-end receiver overload without sacrificing signal strength."
—Bob Grove, Monitoring Times, July 1993

It's an active antenna and amplified preselector all in one! Operated by an internal nine-volt battery (not supplied) or an optional AC wall adaptor, this new signal booster is ideal for virtually any 3-30 MHz shortwave receive, desktop or portable.

Order ANT 17 Only $24.95 New Low Price!
- 5.50 UPS
- 8.50 UPS 2nd Day Air
- 5.50 US Priority Mail
- 6.50 Canadian APP
- 10 Canadian UPS

ACCESSORIES:
- ANT 25 RCA & PL-259 (UHF) adaptors
- random wire antenna $7.95
- BAT 4 9 volt alkaline bat. $2.09 ea.
- PWR 13 AC wall adaptor $9.95

SELECT-A-TENNA
Medium Wave Antenna Booster

Apartments dwellers and mobile home owners, boost your 530-1700 kHz AM broadcast reception up to 30 dB with the famous Select-A-Tenna! Improves adjacent channel rejection, reduces signal fading. Tuning knob selects your listening frequency.

No batteries or power required; simply set the Select-A-Tenna next to your radio, peak the tuning knob, and listen to AM broadcast signals soar out of the background noise!

This 11", high-Q loop antenna directs its capture signals to your radio's internal ferrite loop without any physical connection! If your receiver requires an external antenna, a convenient 3.5 mm (1/8") jack and plug are provided. Connect an outside wire to the Select-A-Tenna and receive medium wave signals like you've never heard before!

Order ANT 21 Only $65.95
- 6.50 UPS
- 11.50 UPS 2nd Day
- 9.50 US Priority Mail
- 11.50 Canadian APP
- 15 Canadian UPS

"I was able to pull in stations that were absolutely inaudible without it."
—Stephen J. Price, Monitoring Times, April 1995

DX EDGE
Your "Edge" in Shortwave Monitoring

Plan your listening around the most productive times and frequencies using this valuable, simple-to-use shortwave tool. Share the secret of successful hams and professionals alike who know the advantages of "grayline propagation." Just line up the proper dateline on your location and it's ready to use. Sturdy map chart, perpetual monthly overlays and easy instructions included.

Order CHT 3 Only $24.95 Plus $5.00 UPS Shipping

INTERFERENCE ELIMINATORS
For scanners and shortwave receivers

Reduce or even eliminate strong signal overload from your scanner or general coverage receiver. Increase reception range with these new wavetaps, notch filters and bandpass filters designed exclusively by Grove Enterprises! Attach directly to your antenna cable, no modification required!

Ideal for suppressing overload interference from AM and shortwave broadcasters, CB, aircraft and more. Reject unwanted signals by 40 dB or more; reduce intermod 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. For other types of scanner interference, see the Grove Scanner Filter FTR5 on page 30!

FTR 30-2000 MHz Bandpass Filter $29.95
- Removes AM broadcast, CB and shortwave interference from scanners

FTR 5 540-1700 kHz Band Reject Filter $29.95
- Removes AM broadcast interference from shortwave/longer wave receivers

FTR 8 118-137 MHz Band Reject Filter $29.95
- Removes aircraft interference from scanners

FTR 9 30 Mhz Low Pass Filter $29.95
- Eliminates paging, FM and TV broadcast signals and other sources of VHF/UHF interference from shortwave receivers

Plus $6.00 UPS Shipping

Adaptor Kits:
- ADPK 1 PL-259 (UHF) $9.95
- ADPK 2 1/8" Miniplug $9.95
- ADPK 3 BNC $9.95
- ADPK 4 Motorola $12.95
- ADPK 5 RCA $9.95
- ADPK 6 Motorola/BNC $9.95
- ADPK 9 N $12.95

UPS 2nd Day Air at Ground Rates on All Products
Choosing a Scanner

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 VHF 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.

Mobile, Base, or Handheld?

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 or 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-helds and power the scanner when plugged in.

Most hand-held scanners have small speakers which do no 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; 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 50 kHz (+/- 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 and its appearance at numerous frequencies. 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—IF) from the actual frequency, depending upon the scanner. With up-conversion design, image frequencies fall outside the tuning range and aren't a problem.

Caveat: Listening Law

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:

- 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, and any interference-causing protected transmission long enough to identify its source.
- A new law makes it unlawful to manufacture or import a cellular-receiving scanner or converter but it is lawful to own one. It is, however, still illegal to listen to mobile telephone conversations.

If you have further questions regarding selecting a scanner, call our Technical office at 704-837-7081.

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, and Radio Shack.

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 BC-9000XLT, with its channel-programmable attenuator, is more immune to interference from intermodulation and images, making it an excellent choice for strong or weak signal areas like large cities.

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.

By convention, the VHF and UHF portion of the bands are divided into discrete segments (bands), names as follows: 50-50 MHz, VHF low band; 72-76 MHz, VHF mid band; 108-174 MHz, VHF high band; 225-512 MHz, UHF; and 806-960 MHz, microwave mobile or cellular band.

### Technical Specifications

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Channel</th>
<th>Description</th>
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<td>McDonal's order window</td>
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<td>40.50 MHz</td>
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<td>157.15</td>
<td>Coast Guard</td>
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<td>Army aircraft</td>
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<td>126.35 MHz</td>
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<td>Pilots air to air</td>
<td>255.4</td>
<td>MLB flight weather</td>
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<td>Itinerant walkie talks</td>
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<td>FAA Aerial SUPPORT</td>
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<td>Fire mutual aid</td>
<td>417.200</td>
<td>FAA Paramedics</td>
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<td>154.57 MHz</td>
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<td>McDonald's order window</td>
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<td>GMRS Paramedics</td>
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<td>154.600 MHz</td>
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<td>McDonald's order window</td>
<td>462.95</td>
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<tr>
<td>155.34 MHz</td>
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<td>Hospital/ambulance</td>
<td>463.175</td>
<td>NASCAR Racing</td>
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<tr>
<td>155.37 MHz</td>
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<td>Police/mutual aid</td>
<td>464.500</td>
<td>NASCAR Racing</td>
</tr>
<tr>
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<td>Boats call/distress</td>
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<td>NASCAR Racing</td>
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<td>157.05 MHz</td>
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<td>NASCAR Racing</td>
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UPS 2nd Day Air at Ground Rates on All Products
ICOM R7100-2

ICOM's Best VHF/UHF Communications Receiver

With the most popular features of the legendary R7000, plus a few features that listeners wanted, the R7100 is ICOM's best compact receiver.

The R7100 offers 25-800 and 900-2000 MHz frequency coverage on a brilliant LCD readout, selectable tuning steps, USB/LSB/AM/FM modes with wide and narrow selectivity switching. 900 scannable memory locations store 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.

MAJOR PRICE REDUCTION! Grove is slashing prices on a limited number of ICOM R7100-2 and R-1 scanners. If you have been waiting for a miracle, wait no longer—these are prices that we never believed we could offer! Hurry and take advantage of these rock bottom prices!

Order SCN15-C

Retail Price: $1942.50
Last Grove Price: $1499.95

ACCESSORIES:

ACC 36 UT36 Voice Synthesizer ............ $61.95
ACC 72 TVR7100 Video Adaptor ........... $125.95
ACC 74 CT17 computer interface .......... $144.95
BRK 5 MB23 carrying handle ............... $11.95
BRK 8 MB5 mounting bracket ............... $42.95
ANT R1 46 extendable whip antenna ...... $23.95
ANT R7100-1 available only to federal, state, county, city and local government agencies for an official purchase order.

NOTE: Cellular-capable, full-frequency-coverage model R7100-1 available only federal, state, county, city and local government agencies and cellular service providers who submit an official purchase order.

SN15-G R7100-1: .................................. $1539*

*For an additional $55, receive the GRE Super Converter (CVR3) and get full 25-2000 MHz coverage—a $94 value from the factory!

ICOM R1

Mobile Desktop Scanner

Imagine, a shortwave and VHF/UHF scanner with 100 kHz-800MHz and 900-1300 MHz 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-illuminated LCD shows frequency, memory channel, and other settings as well.

Less than 3" 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. See detailed specifications on pp. 24-25. Requires 6 AA batteries. Prices subject to change due to yen fluctuations.

Order SCN 13

Retail $599
Last Grove Price $499.95

Order SCN14

Only $799.95

ACCESSORIES:

CVR 3 GRE Super Converter .................. $84.95
PWR 16 AC Adaptor ......................... $24.95
SPL 2 SCPC Splitter ......................... $64.95
Universal SCPC-100 Satellite Audio Receiver

Years ago most radio networks—ABC, CBS, Mutual, NBC, NPR and others distributed their programming by telephone lines or microwave systems. Single Channel Per Carrier (SCPC) technology has allowed these networks to use satellite transmissions to their affiliates and users.

Now you can expand your home satellite system to receive all of these "hidden signals" and programs with the Universal SCPC-100 Satellite SCPC Audio Receiver.

The new SCPC-100 receiver is the first high quality unit that is affordable, rivaling many commercial SCPC receivers costing thousands of dollars. Features include:

- Stable microprocessor-controlled tuning with two buttons. No knobs; frequency agile.
- 50-channel program memory with instant one-button recall. Non-volatile; holds memory when power is off.
- Receives entire 950-1450 MHz LNBF frequency range from your satellite system.
- Easy-to-read 1/2" LCD's. 4 digits, 7 segment numbers.
- Receives high quality music from hundreds of stations; can be used with your HI-FI system.
- Simple 3-minute hook up; easy to use, no user fees or subscriptions required for reception.
- Receives all C- and Ku-band SCPC signals and programming.
- Unit made and assembled in the U.S.A.

Order RCV27 Only $39995 Plus $5 shipping and handling (UPS)

Now from Grove! AOR Quality Scanners!

AR-8000

The Most Remarkable Handheld Scanner Ever Offered. "Better than the Yupiteru MVT-7100" (EDCO)

With wide frequency coverage—500 kHz-1900 MHz (less cellular), 1000 memory channels and all-mode reception (AM, USB, LSB, CW, WFM, NFM), the new, handsomely-styled AR8000 offers selectable tuning steps from 50 Hz through 999,995 kHz. An oversized, edgelit LCD window holds 44 bold alphanumeric characters, 7 of which can be custom-written for convenient user identification! There are more features packed into this scanner than any other we've ever offered!

Auto store, RS232 control, second-radio cloning, power saver, keyboard beep defeat, and even selectable-channel display blanking for security! A top-panel rotary knob tunes frequencies and channels. Dual VFOs toggle between two-frequency simplex, 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 one channel may be selected for priority sampling. An LCD bargraph S-meter also serves as a narrow-span, spectrum display unit!

The feature list continues with strong, clear audio; interchangeable NiCd/alkaline batteries (4AA NiCds and charger included); a universal 9-16 volt external power jack for convenient mobile use; an internal ferrite antenna for medium-wave broadcast reception; and an illustrated 115-page owner's manual. See detailed specifications on pp. 24-25.

Order SCN27 Only $59995

$8.50 UPS
$11 UPS 2nd Day Air
$10 US Priority Mail
$14 Canadian UPS
$12.50 Canadian APP

ACCESSORIES:

ACC 154 Interface Kit .......................................$99.95
BAT 1 AA Alkaline batteries ...........................................$7.79
BAT 13 Extra AA Nicad batteries .................................$2.75 ea
CAS 2 Soft Case for AR-8000 ...................................$25.95
SFT 2 Scancat Gold Computer Software ......................$94.95

AR-3000A

Professional Desktop Scanner

Imagine: A quality, general coverage shortwave communications-quality receiver and continuous, wide-frequency-coversage scanner, all in one compact instrument—and at a cost savings besides!

Arguably the best desktop scanner ever designed, the AOR AR3000A offers 100 kHz-2036 MHz (less 824-849 and 869-894 MHz—restorable with optional CVR 3) frequency coverage, continuous tuning dial, all mode reception (AM, NFM, WFM, USB, LSB, CW), 400 memory channels and last 50 channel per second scan/search rate.

Unexcelled selectivity and sensitivity let you hear signals lesser scanners and shortwave receivers miss. 15 bandpass filters and low noise, wide dynamic range GaAsFET RF amplifiers combine to reject intermodulation and overload suffered by other scanners and receivers.

Operates on 13.6 VDC for compact mobile installations; 120 VAC adaptor included.

See detailed specifications on pp. 24-25.

Order SCN26 Only $102995

$10.50 UPS
$11 UPS 2nd Day Air
$18.50 US Priority Mail
$19.50 Canadian UPS
$21.50 Canadian APP

ACCESSORIES:

CVR 3 GRE Super Converter ...............$84.95
SFT 2 Scancat Gold software .............$94.95

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Uniden BC9000XLT Desktop Scanner

An impressive performer, this improved design scanner is for serious monitors of the 25-550, 760-1300 MHz (less cellular) spectrum. Featuring 500 memory channels, tuning knob, 16-digit alphanumeric display with adjustable brightness, powerful 2.2 watts of audio, treble-cut tone control, CTCSS tone squelch option. Just look at the specifications table for its advanced features!

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. See detailed specifications on p. 25.

Order SCN 30 Only $389.95

Accessories:
- DCC 2 Direct wire DC power cord $9.95
- ACC 130 CTCSS tone board $46.95
- BRK 2 Mounting bracket $15.95
- CVR 3 GRE Superconverter $84.95
- CVR 6 Shortwave Scanverter $99.95

Uniden BC3000XLT Hand-Held Scanner

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. This is the new leader in hand-held scanning.

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 p. 25.

Order SCN 29 Only $399.95

Accessories:
- CVR 6 Shortwave Scanverter $99.95
- DCC 7 DC power cord $15.95
- BAT 15 Replacement battery pack $31.95
- CAS 6 Carrying Case $19.95

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THE GROVE SPECTRUM DISPLAY UNIT

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!

Connect the SDU-100 to any TTL monochrome monitor, or order the matching VID-200 high contrast 9" CRT monitor. 12 VDC powered for mobile or field environment. AC adapter 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: $15.50 UPS; $26.25 US Priority Mail; $22 Canadian UPS; $25 Canadian APP

The SDU-100 is compatible with the following receivers:

ICOM R7000  ICOM R7100  ICOM R9000  Yaesu FT1000
Yaesu FRG-100*  Kenwood R5000*  Drake R8*  Mason A2  Uniden BC-890XLT*

*Requires receiver modification

Look for the SDU icon in this catalog for compatible receivers.

UNIDEN BC220XLT

Uniden's update of the revered BC200XLT

Now Uniden has replaced their revered BC200XLT scanner with this new, compact entry. Frequency coverage 29-54, 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.

TurboScan and TurboSearch provide 100 channel per second scanning and 300 channel 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!

Up to 10 priority channels switch you instantly to important transmissions regardless of monitoring status.

See detailed specifications on pp. 24-25.

Order SCN23
Only $194.95

ACCESSORIES:

<table>
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<td>CVR 4 Military Air Converter</td>
<td>$99.95</td>
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<tr>
<td>DCC 7 Universal DC adapter</td>
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Order SCN 24
Only $229.95

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<td>$15.95</td>
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</table>

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17
Radio Shack® Knows What You Want Most in a Scanner!

PRO-60

Wide Frequency coverage in a compact, handheld design!

Featuring continuous frequency coverage from 30-512 and 760-1000 MHz (less cellular), this new Radio Shack scanner allows selection of AM and narrow or wide FM, storage of up to 200 memory channels in ten banks, triple up-conversion, rechargeable or replaceable batteries (available accessories), battery saver circuit, 25/50 channel-per-second scan/search speed. Rubber ducky antenna, belt clip and full instructions included. See detailed specifications on pp. 24-25.

ACCESSORIES:
- ANT 8 Range extending antenna $16.95
- ANT 14 Flex antenna $29.95
- BAT 1 AA Alkaline batteries $7.79
- BAT 13 Nicad batteries $2.75/ea
- PWR 13 Univ. Power supply $9.95

Order SCN 32 Only $329.95

Order SCN 16 Only $219.95

Superb New Radio Shack® PRO-2035

This new top-of-the-line scanner offers wide frequency coverage (25-520, 760-1300 MHz, less cellular; unrestorable); 100 memory channels in ten 100-channel banks, 100 additional "scratchpad" (monitor) memory channels to temporarily store search-revealed frequencies; automatic memory storage of search-discovered frequencies; ten separate search ranges; selectable modes and tuning steps; room-filling 1.3 watts of audio from the internal 3" speaker; high sensitivity for weak signal reception; 10 dB attenuator to reduce strong-signal intermod; choice of sound- or carrier-activated squelch; 11 pre-programmed NOAA weather channels, front tilt feet with non-skid feet for optimum viewing, and a rotary knob for manual frequency tuning and memory channel selection.

Additional amenities like selectable-channel lockout and delay, any-channel priority, automatic mode/step default, blast-protected earphone jack, tape recorder audio output combine to make this an outstanding product at an outstanding Grove price. See detailed specifications on pp. 24-25.
**PRO-26 Wide Coverage Handheld Scanner**

**Scan up to 1.3 GHz!**

Radio Shack's latest is feature-packed! Offering nearly continuous coverage, less cellular, from 25 to 1500 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. 24-25.

**Order SCN 5 Only $34995**

**ACCESSORIES:**

- DAT 1 AA cells (four required) .................................................. $7.50 ea.
- PWR 5 AC adapter/charger .................................................. $10.50
- DCC 6 Cigarette lighter DC cord .................................................. $12.95
- ANT 8 Telescoping whip antenna .................................................. $16.95
- ANT 14 Condor flex antenna .................................................. $29.95

---

**New! The 1995 Enhanced Grove FCC Database V4.1**

Available on both CD-ROM and High Density Diskette

New Features for v4.1

- Updated records
- Faster Search speed
- Comprehensive service codes
- Pop-up window
- Dynamic prompts
- Improved accuracy

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.

**High Density Disk**

- CA, TX, FL......................... $49.95
- Additional Data Disks ........ $39.95
- All Other States ......... $39.95
- Additional Data Disks .... $29.95
- CD-ROM w/ Mapping .... $169.95
- CD-ROM w/o Mapping ... $99.95

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

Because software is easily copied, it is not refundable. Defective copies will be replaced at no charge.

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**SCANNERS**

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**OPTOSCAN® 456 and 535**

Optoscan 456 and Realistic® PRO-2006 shown

- Optoelectronics' Superb Computer Interfaces for the PRO-2005/2006 and PRO-2035 Scanners
- Now you can have high-speed (50 channels per second), automatic, computer-controlled scanning, search and logging for your Realistic PRO-2005, 2006 or 2035 (latter model requires the Optoscan 535). Select CTCSS or DCS scanning and auto-logging with time stamp and air time; decode and log DTMF with a time stamp.
- RS-232C level converter included, using CI-V multi-radio protocol. Optoscan requires software to operate (see packages on p. 20). No drilling or soldering required, but may take one or two hours to install. Easy-to-follow instruction manual and videotape included, but some component knowledge is helpful.
- NOTE: Installation voids equipment warranty on the radio.

**Order ACC 143 for PRO-2005/2006 Only $29995 plus $5.50 UPS ground shipping**

**Order ACC 163 for PRO-2035 Only $29995**

---

Order Line: 1-800-438-8155
Scancat-Gold

Use your 640k (or better) computer to control your AOR, Drake, Kenwood, ICOM, Yaesu, JRC, Lowe, WJ, and Radio Shack PRO-2005/6/35 with this all-new software program! Operates from the RS-232 port. Just check the features listed at right:

- Advanced Flex Scan engine lets you blend multiple search ranges and groups of channels and banks, with selectable scanning priority.
- Spectrum analysis with hardcopy on OS/456, R7100, R9000, AR3000 or NRD-535. Hardcopy support for most laser, dot matrix and ink jet printers.
- CTSS/DCS tone controlled scanning and logging with Optoelectronics OS456 or DC40.
- Monitoring assistant for easy logging while you explore the bands.
- Terminal window for TNC, modem or decoder.
- Seach and store mode finds active channels and builds new scan groups.
- Channels, banks and group size limited by computer memory. Logs hits, airtime and DMTF by channel and tone automatically.
- Comprehensive report printing, data logging and import and export features.
- Supports R7000, R7100, R9000, OS456, OS535, FRG9000, AR3000, NRD535, RS, MR8100 and DC40 models.
- Demo program available on Grove BBS.

Order SFT 1
Only $79.95

For listeners——
- Search between any two frequencies in any tuning step
- Autolog new active frequencies and create disk files
- Display spectrum analysis on screen or printer
- Scan frequencies from up to 15 disk files
- Import from text formats and virtually any database
- Link up to 15 search banks
- Output to any printer or disk file
- Automatic "birdie" lockout

For commercial users——
- Demographic search for frequency coordination and usage profiling
- ASCII file logging of date, time, signal strength, air time
- Unlimited file sizes
- Macro control for frequency of dwell, hang, resume, threshold, audible alarms
- Unattended on/off times for logging and searching

Because software is easily copied, it is not refundable. Defective copies will be replaced at no charge.

ScanStar
Professional Receiver Control Software

Scanstar is a high-performance, high end receiver control package designed to deliver a comprehensive monitoring environment to the radio listener. The program requires a 386 IBM PC with 4 Meg of RAM, hard disk, VGA,EGA display, serial ports, and DOS 5/6 with HIMEM and SMARTDRV (or equiv), or OS/2 3.0 (warp) to run this radio control program.

- Advanced Flex Scan engine lets you blend multiple search ranges and groups of channels and banks, with selectable scanning priority.
- Spectrum analysis with hardcopy on OS/456, R7100, R9000, AR3000 or NR-535. Hardcopy support for most laser, dot matrix and ink jet printers.
- CTSS/DCS tone controlled scanning and logging with Optoelectronics OS456 or DC40.
- Monitoring assistant for easy logging while you explore the bands.
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- Seach and store mode finds active channels and builds new scan groups.
- Channels, banks and group size limited by computer memory. Logs hits, airtime and DMTF by channel and tone automatically.
- Comprehensive report printing, data logging and import and export features.
- Supports R7000, R7100, R9000, OS456, OS535, FRG9000, AR3000, NRD535, RS, MR8100 and DC40 models.
- Demo program available on Grove BBS.

Order SFT 1
Only $79.95

New! ScanStar for Windows!

Fast speed and computer multitasking are yours with this advanced receiver control program! Supports AOR AR3000/3000/8000, Yaesu FRG9000, ICOM R7000/7100/9000, and Opto 456/535. Requires MS-DOS 386 or higher with Windows 3.1, Workgroups 3.11 or Windows 95, and 4 M RAM.

With new ScanStar for Windows, you can:
- Combine groups, banks and search ranges to scan
- Display the monitoring spectrum with excellent graphics
- Import and export various data formats
- Use your computer for other tasks while scanning

Order SFT 9
Only $159.95

Commercial Receiver Control Software

Scanstar Commercial offers all the features of the popular ScanStar Professional edition plus:
- Multi-radio scanning with search/save (handoff) and peer strategies.
- Use any combination of radio type or port, port sharing for CI-V devices.
- Graphical User Interface (GUI) command center shows activity, history and status of channels in real time.
- Quickly reconfigure as the action unfolds!
- Priority system with 256 levels and selectable preemption.
- High resolution VGA/SVGA/S3 graphics modes: 640x480, 800x600 & 1024x768.
- Mouse support in all screens (text and GUI) for fast, easy operation.
- Independent scan windows allow simultaneous scanning of two programs, four radios!
- Detailed event logging for special applications: repeater usage recording, frequency coordination, etc.
- Data format and sample C program included.
- 32 bit code for maximum performance on 386, 486 and 586 processors.

Order SFT 7
Only $129.95

For more information write:
Electronic's
265 Grove Street
Woburn, MA 01801
704-837-7081

Because software is easily copied, it is not refundable. Defective copies will be replaced at no charge.
**TUNE-IN!**
**Scanner Database**

This is a feature-packed scanner database developed with the listener in mind. Designed to complement today's high-tech scanners, TUNE-IN provides the user with the easiest way to keep track of the hundreds of frequencies in his scanner with the most organized, manageable and user-friendly interface available. TUNE-IN allows up to 100 channels to be stored in an infinite number of banks limited only by your computer’s hard disk. TUNE-IN allows the data to be printed as handy pocket-sized cards, or as a full-page report listing channel number, frequency, mode, location, description and comments.

Because software is easily copied, it is not refundable. Defective copies will be replaced at no charge.

**Order SFT 6**
Only $24.95

**NEW!**
**SATELLITE-PRO**
Professional satellite prediction for your computer!

Used extensively by scientific observatories, this easy-to-use program tracks up to 200 satellites simultaneously, yet manages a database of up to 20,000 separate satellites! Software includes more than 595 orbital element sets (elsets), with on-screen editing of NORAD 2-line elsets, as well as a list of free sources for additional elements. Displays ground tracks in either orthographic or equal-area formats; and alt-azimuth or equatorial sky maps with user-definable fields of view and star magnitudes to +7.0, indicating the positions of the major planets, sun and moon.

Displays and records in real time right ascension, declination, slant range, range rate, intersatellite range, radio and astronomical phase angles, velocities, altitudes, acquisition times and pass durations, even launch-generated parameters. Extensively documented; IBM compatible, EGA/VGA and printer support.

Because software is easily copied, it is not refundable. Defective copies will be replaced at no charge.

**Order SFT 4**
Only $149.95

**Terminal Control Program**

Finally, a computer control program for the Universal M-7000 and M-8000 data decoders. The M-7000 and M-8000 are notorious for their unfriendly “button pads”. Copycat will free you forever from remembering all those buttons and keys.

Simple pull-down menus control all functions. No more looking thorough complicated manuals or searching for which button does what function. All commands are in plain English. Copycat also has a fully editable test buffer, with cut, paste and print. Save or load your test buffer to files as well. Copycat has 20 programmable macros to fully automate complex functions and much, much more. Requires an IBM/PC compatible computer with at least 640K of RAM, 1 drive, minimum 1 serial port (2 required if you use a mouse). Please specify 3-1/2 or 5-1/4 disks.

Because software is easily copied, it is not refundable. Defective copies will be replaced at no charge.

**Order SFT 3**
Only $69.95

---

**The Super DX Edge®**
**Version 2**

The Super DX Edge is the computerized version of the popular DX Edge, the DX operating aid. It combines all the tools you need to improve your DX performance and make your amateur operating or shortwave listening more enjoyable.

Super DX Edge contains highly accurate graphic displays of sunrise and sunset times, daylight and darkness areas of the world, best times for long path and Gray Line DX, all for any time of the year and any time of day. This is the information you need to determine the best opportunities for long distance DX.

Also included in this version is a predictor of Maximum Usable Frequency (MUF) to determine the best frequency bands to use between two locations and a Great Circle Bearing calculator to provide you with distance and bearing between any two points in the world.

This program will run best on a computer running DOS with a 386 or 486 processor (will run more slowly on 286). EGA or VGA graphics may be used.

Because software is easily copied, it is not refundable. Defective copies will be replaced at no charge.

**Order SFT 5**
Only $29.95
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<th>Drake RBA</th>
<th>Drake SWB</th>
<th>Grundig Sar. 700</th>
<th>Grundig Yr. By. 400</th>
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<td>10/100kHz 1 kHz</td>
<td>50 kHz FM 100 kHz AM</td>
<td>1 kHz AM/1kHz SSB 25 kHz FM</td>
<td>1/5 kHz</td>
<td>1/Hz minimum</td>
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<td>Recommended Use</td>
<td>Int. Broadcast/Utilities</td>
<td>AM/SSB, aircraft/FM</td>
<td>Broadcast receipt.</td>
<td>Casual SW and FM</td>
<td>General SW/Utilities (general SW</td>
<td>LSB, USB, AM, CN, WFM</td>
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<td>Receiving Modes</td>
<td>AM, NFM, USB, LSB, CW, RTTY</td>
<td>AM, AM synch., LSB, NFM, AM, AM synch., LSB, WFM</td>
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<td>Memory</td>
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<td>70 channels</td>
<td>40 channels</td>
<td>32 channels/2 temp. VFO</td>
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<td>Yes</td>
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<td>Delay</td>
<td>Yes</td>
<td>5 sec. per step</td>
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<td>Clock</td>
<td>Dual time zone</td>
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<td>12/24 hr./sleep/prog. rec.</td>
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<td>Audio Output Power</td>
<td>2.5 W @ 4 ohms</td>
<td>2 W @ 4 ohms</td>
<td>3 W</td>
<td>700 mW</td>
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<td>Record Audio Output</td>
<td>300 mV into 4.7 ohms</td>
<td>300 mV into 4.7 ohms</td>
<td>stereo and mono</td>
<td>No</td>
<td>Yes</td>
<td>Appro. 200 mV</td>
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<td>Recorder Activator</td>
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<td>Analog 5-meter</td>
<td>Analog 5-meter</td>
<td>LCD bargraph</td>
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<td>Computer Interface</td>
<td>RS232C</td>
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<td>No</td>
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<td>Conversion Scheme</td>
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<td>Double up</td>
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<tr>
<td>Sensitivity</td>
<td>0.5 uV 1.5-30 MHz</td>
<td>0.5 uV or better (SSB)</td>
<td>500 kHz -30 MHz</td>
<td>30kHZ -30MHz</td>
<td>80 dB (in SSB)</td>
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<td>Selectable Preampl.</td>
<td>Yes</td>
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<td>Selectable Attenu.</td>
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<td>20 dB</td>
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<td>IF Selectivity</td>
<td>(-6/-50 dB): 6/4.2/3.1/8 kHz, 600 Hz</td>
<td>(-6/-50 dB): 6/3/2 1/8 kHz, 500 Hz</td>
<td>3.6/6.8 kHz</td>
<td>(6/-60 dB): wide 6/15 kHz narrow 2.3/4.2 kHz</td>
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<td>Image Rejection</td>
<td>80 dB or better</td>
<td>70 dB or better</td>
<td>60 dB</td>
<td>65 dB</td>
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<td>Selectable AGC</td>
<td>Off/slow/fast</td>
<td>Yes</td>
<td>w/ RF gain control</td>
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<td>Dynamic Range</td>
<td>100 dB @ 20 kHz spacing</td>
<td>95 dB or better</td>
<td>86 dB</td>
<td>100 dB @50kHz or better</td>
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<td>Passband Tuning</td>
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<td>Noise Blanker/Limiter</td>
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<td>Adjustable Notch Filter</td>
<td>500-5000 Hz, 40 dB</td>
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<td>Tone Control</td>
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<td>Step pass/tes</td>
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<td>Antenna Connector</td>
<td>Dual, switched PL 250</td>
<td>SD-239 (UHF), Push terminals, integral whip</td>
<td>DIN (supplied)</td>
<td>1/8&quot; mini whip</td>
<td>SD-239</td>
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<td>Dimensions</td>
<td>13.5&quot;W/25&quot;H/13'D</td>
<td>11.5&quot;W/25&quot;H/13'D</td>
<td>12&quot;W/7&quot;H/2.5'D</td>
<td>7.75&quot;W/4.62&quot;H/1.75&quot;D</td>
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<td>13 lbs.</td>
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<td>100/120/200/240VAC 11-16VDC @ 2A</td>
<td>6-9VDC/6 cells</td>
<td>120/240VAC/4D cells</td>
<td>6A cells/9VDC</td>
<td>120VAC/8AA cells</td>
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<td>Accessories Inc.</td>
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<td>Tele. whip/AC adaptor</td>
<td>Coax conn./AC adpt.</td>
<td>Real ant./Gar/ SW Guide</td>
<td>Spare fuses</td>
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* Prices (and all other specifications) are subject to change without notice.
### Product Support for Catalog Items Only: (704) 837-7081

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<th>Sony ICF-SW30</th>
<th>Sony ICF-SW77</th>
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<th>Watkins-Johnson HF1000</th>
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<td>11.25 kHz/7.37 kHz/2.75 kHz</td>
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<td>10.87 kHz/8.7 kHz/1.8 kHz</td>
<td>4.37 kHz/2.8 kHz/1 kHz</td>
<td>11.37 kHz/6.25 kHz/1.25 kHz</td>
<td>7.27 kHz/4.72 kHz/1.25 kHz</td>
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<td>3 lbs., 13 oz</td>
<td>1 lb., 2 oz.</td>
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<td>97-235 VAC, 47-440 Hz</td>
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<td>Antenna/Strap</td>
<td>Stereo earphones/AC adapter/Tele. ant./Carrying bnd/SW Guide</td>
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| UPS 2nd Day Air or Ground Rates on All Products | 23
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<td><strong>Frequency Range</strong></td>
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<td>500kHz-1000 MHz (less cellular)</td>
<td>100 kHz-800 MHz, 900-1350 Hz</td>
<td>100 kHz-800 MHz, 900-1350 Hz</td>
<td>25-800 MHz: 900-2000 MHz</td>
<td>25 Mhz: 1.3 GHz (less cellular)</td>
</tr>
<tr>
<td><strong>Keypad Entry?</strong></td>
<td>Yes, plus tuning dial</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes, plus tuning dial</td>
</tr>
<tr>
<td><strong>Tuning Steps</strong></td>
<td>Programmable</td>
<td>50 Hz-999.999 kHz</td>
<td>0.5/8/9/10/12.5/15/20</td>
<td>25/30/50 Hz</td>
<td>1/5/8/9/10/12.5/20/25 kHz</td>
<td>1/5/8/9/10/12.5/20/25/100 kHz; 1 kHz</td>
</tr>
<tr>
<td><strong>RT/View Tuning</strong></td>
<td>Tuning dial</td>
<td>Tuning dial</td>
<td>Tuning dial</td>
<td>Tuning dial</td>
<td>Tuning dial</td>
<td>Tuning dial</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>Backlit LCD</td>
<td>Edge LCD</td>
<td>Edge LCD</td>
<td>Backlit LCD</td>
<td>LCD</td>
<td>LCD</td>
</tr>
<tr>
<td><strong>Dimmer</strong></td>
<td>On/Off</td>
<td>Off/On</td>
<td>Off/On</td>
<td>Off/On</td>
<td>Off/On</td>
<td>No</td>
</tr>
<tr>
<td><strong>Receiving Modes</strong></td>
<td>AM/NFM/WFM/LSB/USB/CW</td>
<td>AM/NFM/WFM/LSB/CW</td>
<td>AM, NFM, WFM</td>
<td>AM, NFM, WFM</td>
<td>AM, NFM, WFM</td>
<td>AM, NFM, WFM</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>400 chan w/ backup</td>
<td>1000 channels</td>
<td>100 channels</td>
<td>100 channels</td>
<td>900 channels</td>
<td>Non-volatile 260 ch.</td>
</tr>
<tr>
<td><strong>Scan</strong></td>
<td>56 channels/sec.</td>
<td>30 channels/sec.</td>
<td>20 channels/sec.</td>
<td>3 modes/20 chan/sec.</td>
<td>5/12 channels/sec.</td>
<td>5/12 channels/sec.</td>
</tr>
<tr>
<td><strong>Banks</strong></td>
<td>4</td>
<td>20 (50 channels ea.)</td>
<td>No</td>
<td>Programmable</td>
<td>No</td>
<td>10 banks/20 chan. ea.</td>
</tr>
<tr>
<td><strong>Channel Lockout</strong></td>
<td>Scan &amp; search chan</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Priority</strong></td>
<td>4 channels</td>
<td>Any channel</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Any one channel</td>
</tr>
<tr>
<td><strong>Select</strong></td>
<td>50 channels/sec.</td>
<td>30 channels/sec.</td>
<td>10 ranges w/ autotrack</td>
<td>10 ranges</td>
<td>Yes</td>
<td>300 steps/sec.</td>
</tr>
<tr>
<td><strong>Delay</strong></td>
<td>Yes, variable</td>
<td>Programmable</td>
<td>2 sec/10 sec timed</td>
<td>3 progmdb. functions</td>
<td>0/2/5/10 sec.; infinite</td>
<td>Indiv. chan., 2-4 sec.</td>
</tr>
<tr>
<td><strong>Squelch</strong></td>
<td>Yes</td>
<td>Audio/Carrier activ.</td>
<td>Yes</td>
<td>All modes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Clock</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Audio Output Power</strong></td>
<td>1.2 W @ 4 ohms</td>
<td>180 mW</td>
<td>150 mW @ 8 ohms W</td>
<td>2.5 W</td>
<td>2 W</td>
<td>250 mW max</td>
</tr>
<tr>
<td><strong>Record Audio Output</strong></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Recorder Activator</strong></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Signal Strength Ind.</strong></td>
<td>Yes</td>
<td>LCD bargraph</td>
<td>LCD bargraph</td>
<td>LCD bargraph</td>
<td>Analog S-meter</td>
<td>No</td>
</tr>
<tr>
<td><strong>Computer Interface</strong></td>
<td>RS232C</td>
<td>RS232 Optional</td>
<td>No</td>
<td>No</td>
<td>Optional</td>
<td>No</td>
</tr>
<tr>
<td><strong>Conversion Scheme</strong></td>
<td>Triple conv.</td>
<td>Triple up/quad. on WFM</td>
<td>Triple conv.</td>
<td>Triple conv.</td>
<td>Triple conv.</td>
<td>Triple conv.</td>
</tr>
<tr>
<td><strong>Sensitivity</strong></td>
<td>0.25-0.35uV</td>
<td>0.025-3uV</td>
<td>0.4-3.2uV</td>
<td>0.4-10uV</td>
<td>0.35uV/NFM</td>
<td>0.8uV nom. (NFM)</td>
</tr>
<tr>
<td><strong>Selectable Preamp.</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Selectable Attenu.</strong></td>
<td>Yes, chan. selectable</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>IF Selectivity</strong></td>
<td>(-60 to 50) kHz; SSB 2/4/5 kHz; AM/NFM 12.5 kHz</td>
<td>SSB (40-50 kHz); AM/NFM 125 kHz</td>
<td>(-6 db) AM 15 kHz; Wide FM 15 kHz; Wide FM 15 kHz</td>
<td>(-6 db) AM 15 kHz; Narrow FM 15 kHz; Wide FM 15 kHz</td>
<td>(-6 db) AM 15 kHz; Wide FM 15 kHz; Wide FM 15 kHz</td>
<td>(-6 db) 3.4 kHz SSB; 6 Hz AM/NFM; 15 Hz AM/NFM; 150 kHz WFM</td>
</tr>
<tr>
<td><strong>Noise Blanker/Limiter</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Antenna Connector</strong></td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>5.5W X 3.5H X 8.75D</td>
<td>6H X 2.75W X 1.5D</td>
<td>1.875W X 4H X 1.5D</td>
<td>5.8W X 2.75H X 2D</td>
<td>9.5W X 3.75V H X 3.75D</td>
<td>2.62W X 1.1V X 1.825D</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>2 lbs.</td>
<td>13 oz.</td>
<td>9.8 oz</td>
<td>3.1 lbs.</td>
<td>3.1 lbs.</td>
<td>8.47 oz.</td>
</tr>
<tr>
<td><strong>Power Requirement(s)</strong></td>
<td>9-16 VDC</td>
<td>4AA cells (NiCd supplied)</td>
<td>Internal NiCd</td>
<td>12 VDC</td>
<td>13.8 VDC: 117/240VAC</td>
<td>9 VDC (4AA cells)</td>
</tr>
<tr>
<td><strong>Warranty</strong></td>
<td>One year</td>
<td>One year</td>
<td>One year</td>
<td>One year</td>
<td>One year</td>
<td>One year</td>
</tr>
<tr>
<td><strong>Accessories Included</strong></td>
<td>Tele whip/AC adapt/DC adapt/Mur</td>
<td></td>
<td>AC adapt/whip antenna/clip</td>
<td>Flex antenna/AC wall adapt/charger/belt clip</td>
<td>VHF/UHF tel antenn./HF wire antenn/DC power cable/strapping bracket/toggles/peeler plug/cable ties/screws</td>
<td>Plugs/Fuses/DC cord/screw/brackets</td>
</tr>
</tbody>
</table>

* All specifications, including prices, are subject to change without notice.
1 Plus pre-programmed police, fire, aircraft, maritime, emergency and weather
2 Unit must be returned to Grove Enterprises within the first year for any warranty repairs. See page 1 of catalog.
## Product Support for Catalog Items Only: (704) 837-7081

<table>
<thead>
<tr>
<th>Radio Shack Pro 206</th>
<th>Realistic Pro 2026</th>
<th>Radio Shack Pro 2035</th>
<th>Uniden BC-220XL T</th>
<th>Uniden BC-990XL T</th>
<th>Uniden BC-3000XL T</th>
<th>Uniden BC-6000XL T</th>
<th>Uniden SC150B</th>
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<tr>
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<td>SCN 32</td>
<td>SCN 16</td>
<td>SCN 28</td>
<td>SCN 24</td>
<td>SCN 19</td>
<td>SCN 20</td>
<td>SCN 30</td>
<td>SCN 23</td>
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<td>$329.95</td>
<td>$219.95</td>
<td>$399.95</td>
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<td>$399.95</td>
<td>$389.95</td>
<td>$194.95</td>
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<td>Yes</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Alphanumeric</td>
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<tr>
<td>LCD</td>
<td>Fluorescent</td>
<td>Backlit LCD</td>
<td>Backlit LCD</td>
<td>Backlit LCD</td>
<td>Edge LCD</td>
<td>Backlit LCD</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>VHF/SHF utilities</td>
<td>Mobile/base VHF/SHF utilities</td>
<td>General purpose VHF/SHF utilities</td>
<td>Wide coverage mobile and sports</td>
<td>Gen. purpose scanning</td>
<td>Serious scanning</td>
<td>General VHF/Low</td>
<td>No</td>
</tr>
<tr>
<td>AM, NFM, WFM</td>
<td>AM, NFM and narrow FM</td>
<td>AM, wide and FM det. by freq., range</td>
<td>AM, NFM, AM (aero) det. by freq., range</td>
<td>AM, NFM, AM (selectable)</td>
<td>WFM, NFM, AM</td>
<td>NFM/AM (aero)</td>
<td></td>
</tr>
<tr>
<td>200 ch./10 monitor ch.</td>
<td>100 channels</td>
<td>200 channels</td>
<td>200 channels</td>
<td>400 channels</td>
<td>500 channels</td>
<td>100 channels</td>
<td>100 channels/sec.</td>
</tr>
<tr>
<td>25 channels/sec.</td>
<td>14 channels/sec.</td>
<td>50 channels/sec.</td>
<td>100 channels/sec.</td>
<td>100 channels/sec.</td>
<td>100 channels/sec.</td>
<td>100 channels/sec.</td>
<td>100 channels/sec.</td>
</tr>
<tr>
<td>10 banks/20 chan. ea.</td>
<td>5 banks/20 chan. ea.</td>
<td>10</td>
<td>10</td>
<td>20</td>
<td>20</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
</tr>
<tr>
<td>-30 dB 30 kHz AM/FM</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
<td>BNC</td>
</tr>
<tr>
<td>8.8 oz.</td>
<td>2 lbs. 3 oz.</td>
<td>2 lbs.</td>
<td>3 lbs. 14 oz.</td>
<td>13 oz.</td>
<td>4lbs.</td>
<td>13 oz.</td>
<td>Battery</td>
</tr>
<tr>
<td>9 VDC (AA cells)</td>
<td>12 VDC</td>
<td>12 VDC</td>
<td>120VAC/12 VDC</td>
<td>12 VDC</td>
<td>12 VDC (AC adapt. incl.)</td>
<td>Battery</td>
<td></td>
</tr>
<tr>
<td>One year*</td>
<td>One year</td>
<td>One year</td>
<td>One year</td>
<td>One year</td>
<td>One year</td>
<td>One year</td>
<td>One year</td>
</tr>
</tbody>
</table>

*2 lbs. 3 oz. *3 lbs. *13 oz.
Get The Best Scanner Antenna Money Can Buy!

THE GROVE SCANNER BEAM

Our world-renowned Scanner Beam has been improved to provide unexcelled 30-50 MHz low band reception, 108-176 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 (available on p. 31) 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. 31).

Approximate size 8"H x 5"L

Order ANT 1
Only $59.95

$10.50 UPS
$17 UPS 2nd Day Air
$12.50 US Priority Mail
$13.50 Canadian APP
$18 Canadian UPS

Shipped only in U.S. and Canada

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 wide bandwidth characteristics and non-directional coverage. 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 DI30J 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.

As a receiving antenna, the DI30J 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 accomodate any standard mast-pipe (1" to 2-1/8" diameter).

Choose 50 or 100 feet of coax from page 31.

Order ANT 9
Only $87.95

$7.50 UPS
$12.50 UPS 2nd Day Air
$8 US Priority Mail
$10.50 Canadian APP
$15 Canadian UPS

Which Scanner Antenna?

HAND-HELD - The whip antenna included with your scanner is fine for local reception of strong signals, but if you are interested in reaching out further, a larger external antenna is necessary. The Grove ANT-8 adjustable whip and ANT-14 Condor Flex Antenna 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 and new, low-profile ANT-30 come equipped with a Motorola plug or BNC connector and have strong magnetic bases which will not come loose at normal road speeds.

You don't want a visible antenna on your car? Order the Grove ANT-20 "No-Tenna." It provides full-frequency coverage reception by connecting internally to the car body.

The car's existing AM/FM antenna may be used with a multicoupler like the Grove CPL-65 with some compromise in signal strengths. In weak signal areas, a preamplifier like the Grove PRE-5 will boost reception range.

BASE - Many discones advertise 25-1500 (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 DI30J. 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 mile 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 509A4 Momi/Tenna available from Channel Master dealers.

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 Grove Scanner Beam, used with an inexpensive TV rotator like the Grove ROT 1, 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.

26
The Grove PRE-5 Signal Booster

For years the popular Grove PRE-4 signal-boosting scanner preamplifier has provided thousands of scanners, TVs, and FM stereo systems improved VHF and UHF reception.

Now Grove offers a dramatically-improved preamplifier with lower noise figure, lower intermod, and better high frequency gain! Mount the weatherproof remote module at the antenna to overcome coax line loss, or right at the control box for convenience.

Use your new PRE-5 Power Ant with an indoor or outdoor antenna, and operate up to two scanners with its built-in splitter.

Continuous gain control from -10 dB attenuation to +18 dB amplification, and the unit is automatically bypassed when power is switched off!

PRE-5 SPECIFICATIONS:

GAIN: Continuously adjustable —10 dB to +18 dB
FREQUENCY RANGE:
30-1000+ MHz
NOISE FIGURE: 3.5 dB
3RD ORDER INTERCEPT POINT: ±27 dBm
DIMENSIONS: 4"W x 2"H x 3"D
WEIGHT: 10 oz.
CONNECTORS:
Low-loss type F
POWER REQUIRED: 12 VDC (nom.); AC adaptor included

ACCESSORIES:
ADAPTOR KITS:
ADPK 3 BNC.......................... $9.95
ADPK 4 Motorola.................. $12.95
ADPK 9 N............................ $12.95

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 25-1500 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. 31. Approximate size 7-1/2"H x 4-1/2"W.

Order ANT 7
Only $39.95

Order PRE 5
Only $89.95

Coaxial Cable

AT VHF/UHF FREQUENCIES, common CB-type RG-58/5 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.

Don’t be concerned with impedance; although your scanner is designed to work with 50 ohm cable, no antenna made maintains a constant impedance over the wide frequency range of modern scanners. What you want is low loss and 100% (or close to it) shielding.

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-5 work well in low-signal-strength environments, but when used with outside antennas in a metropolitan area can cause desensitization (signals are weaker than before) and generate intermodulation (spurious signals) as well.

Filters and Attenuators

THE MOST COMMON CAUSE 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.

Is your scanner plagued by AM broadcast, CB or shortwave stations? Try the FTR-6. Do local AM broadcasters disrupt your shortwave or longwave reception? The FTR-7 will take care of that. Are aircraft signals interfering with VHF public safety monitoring? Eliminate them with the FTR-8. Is a local FM or TV broadcast ruining your shortwave reception? You need the FTR-9.
From Max Systems:
High Gain 800 MHz Portable Antenna

New from Grove!
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 22
Only $29.95
With straight connector for handheld scanners

Order ANT 23
Only $34.95
With right-angle connector for desktop use

Order ANT 30
Only $29.95

Order ANT 4
Only $49.95

Order ANT 4W
Only $129.95
( Whip antenna alone for your 3/8" x 24 TPI threaded mount )

MAGNETIC MOUNT MOBILE ANTENNA

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

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.

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.

Order ANT 13
Only $29.95
Plus $7 UPS Shipping

Retail $49.95

ACCESSORY:
ACC 94 Adhesive re-mount kit...........$4.95

Windshield Mount Scanner Antenna

No holes and no magnets, this 22" Valor Glas-Master is designed for today's wide-frequency-coverage mobile scanners, 50-1200 MHz (not for transmitting). Simply clean an area on your rear window (cleansing 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
Only $29.95

Retail $49.95

UPS 2nd Day Air at Ground Rates on All Products
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 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 50-50 MHz low band, choose our new ANT-19 with its full adjustability from 4'-18' (transmits and receives from 144-960 MHz).

Austin Condor

High Performance Flex Antenna

FOR YEARS we have been looking for a replacement "rubber duckie" that really makes a difference here! The 12" Austin "Condor" is a replacement rubber duck on handheld scanners. It's guaranteed to improve weak signal reception—all frequency ranges—when compared to the original.

Order ANT 14
Only $29.95
Order ANT 14B (w/BNC right-angle conn.)
Only $34.95
Order ANT 14N (w/n right-angle conn.)
Only $36.95

GROVE HIDDEN ANTENNA

The Hidden Antenna may be used alone with your scanner for improved signal reception, or over your attachable whip or may be connected to the powerful GRE PRE1 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 $19.95

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' antenna mounts in seconds, using your entire car body as a giant, efficient, 1-1000 MHz all-band antenna!

The unique No-Tenna™ was developed exclusively in Grove's laboratory and extensively road tested under all signal conditions. Ideal for city dwellers, travelers, reporters, investigators—anyone who doesn't want a visible receiving antenna on his vehicle (not for transmitting).

Connected to a single upholstery screw already in the vehicle; use either the upper, right-hand moulding screw or the adjacent sun visor screw. Spring clip provided for temporary connections to motel or apartment metal window frames, curtain rods and other emergency; makeshift antennas. Full instructions and universal connectors for RCA, BNC and 1/8" (3.5mm) miniplug included. If you own an ICOM R-100 be sure to specify a PL-259 adaptor.

Order ANT 20
Only $19.95

ACCESSORIES:
ADPK 8 Motorola Adaptor Kit................. $5.95

Eliminate Unsightly Antennas...

With the Grove No-Tenna!

UPS 2nd Day Air at Ground Rates on All Products
Quality Scanner Accessories from Grove!

**SCANNER FILTER**

ELIMINATE THOSE AGRARRVATING 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 preamplifiers 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.

High-Q microstrip circuitry features custom-sound inductors for deep interference rejection. A rugged weatherproof enclosure allows masthead mounting. Standard F connectors are provided for convenient interconnection with other adaptors or accessories. Additional adaptor kits available below.

A diode shunt array protects your scanner from nearby lightning strikes and high-powered transmitters. A high-pass filter removes shortwave feedthrough, while band-reject filters remove FM and TV broadcast interference automatically.

Order FTR 5 Only $44.95

**SPECIFICATIONS:**

- **Passes:** 30-50, 118-174, 225-1500 MHz
- **Rejects:** 9-30, 50-118, 174-225 MHz
- **Frequency Range:** 30-2000 MHz (nom.)
- **Insertion Loss:** less than 3dB
- **Dimensions:** 6"L x 1-1/8"D
- **Weight:** 3 ounces

**ACCESSORIES:**

- **ADAPTOR KITS:**
  - ADP3 BNC ............................................. $9.95
  - ADP4 Motorola .................................... $12.95
  - ADP9 N .............................................. $12.95

**GRE SUPER CONVERTER**

RECEIVE CONTINUOUS 800-1000 MHz ON YOUR PROGRAMMABLE SCANNER!

LOOKING FOR THE BEST WAY to get uninterrupted 800-1000 MHz coverage on your 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 attack a whip adjusted to about 4" (or 12" for gain) like the Grove ANT-19 ($14.95) or ANT-8 ($16.95).

When you tune 410-512 MHz on your scanner, you will be receiving 800-1000 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.

**ACCESSORY:**

- **FACTORY**
  - Price $94
  - Order CVR 3 Only $84.95
  - $5.50 UPS
  - $9 UPS 2nd Day
  - $7 UPS Priority Mail

- **Retail**
  - $29.95
  - $2.09

**ACCESSORY**

- **BAT 22**
  - High gain 800 MHz portable antenna................. $29.95
- **BAT 4**
  - 9 Volt alkaline battery ................................ $2.09

**MILITARY AIRCRAFT SCANVERTER**

NOW, HEAR 225-400 MHZ military aircraft communications on your scanner’s 118-136 MHz bandwidth! Listen in on 216-225 MHz land mobile and ham as well! Ideal for monitoring Thunderbirds and Blue Angels air show stunt coordination, military flight training, strategic communications, air-to-ground flight service stations, air-to-air comms, nidaar refueling and more!

The Grove CVR-4 Scanverter uses a proprietary technique called "bandstacking" to reduce the 175-MHz-wide military aircraft band into an 18 MHz swath to be heard on any scanner with standard aircraft reception.

Assembled with surface mount devices and all-metal case, the CVR-4 offers excellent sensitivity (1 microvolt nom.) and out-of-band interference rejection. The on/off switch bypass function allows the unit to be left in line when not in use.

The CVR-4 Scanverter comes with a universal adaptor kit so that it can be connected directly to a handheld scanner for portability, or to the rear of a base or mobile scanner (BNC and Motorola adaptors included). Operates from standard 9-volt alkaline battery (not included).

Order CVR 4 Only $99.95

**SPECIFICATIONS:**

- **Frequency Range:** 216-406 MHz
- **Sensitivity:** 1 microvolt
- **Power Required:** Alkaline battery, 9 volt @ 13 mA
- **Connectors:** BNC
- **Dimensions:** 4"H x 1-1/2"W x 2"D
- **Weight:** 6 oz.
- **Bypass Loss:** 2 dB @ 400 MHz, 6 dB @ 800 MHz

**ACCESSORY:**

- **BAT 4**
  - 9 Volt alkaline battery ................................ $2.09

**GRE Super Amplifier for Handhelds**

WOULD YOU LIKE more range out of your hand-held scanner? Try the new GRE Super Amplifier with built-in battery and 20 dB (adjustable) gain from 100-1000 MHz!

BNC connectors allow the Super Amplifier to be mounted between the scanner and rubber ducky 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 VDC wall adaptor (not supplied).

Order PRE 1 Only $49.95

- **Factory**
  - Price $94
  - Order PRE 1 Only $84.95
  - $5.50 UPS
  - $9 UPS 2nd Day
  - $7 UPS Priority Mail

- **Retail**
  - $29.95
  - $2.09

**ACCESSORY:**

- **BAT 4**
  - 9 Volt alkaline battery ................................ $2.09

UPS 2nd Day Air at Ground Rates on All Products
Premium Low-loss RG6-U Cable with 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!

Order CBL 50 (50 feet w/ adaptors) Only $19.95
$6 UPS $10 UPS 2nd Day Air $6.50 US Priority Mail $8 Canadian APP $13 Canadian UPS

Order CBL 100 (100 feet w/ adaptors) Only $29.95
$6.50 UPS $11 UPS 2nd Day Air $7.50 US Priority Mail $9 Canadian APP $17 Canadian UPS

Cable loss per 100 ft:
1.6 dB @ 50 MHz
2.6 dB @ 170 MHz
4.6 dB @ 450 MHz

Heavy Duty Antenna Rotator

IDEAL FOR THE Grove Scanner Beam, amateur VHF/UHF antennas, TV and FM antennas, this new 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 break through ice loads without binding. Mounts on masts up to 2" diameter. Requires 3 conductor cable (optional). Fast and easy installation.

Order ROT 1 Only $59.95
$7 UPS $16.50 UPS 2nd Day Air $11.50 US Priority Mail $16 Canadian UPS $14.50 Canadian APP

Variable Attenuator Reduces Overload Interference!

Reduce scanner and shortwave intermod 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; adaptors available from list below.

Order ATT 1 Only $9.95 Plus $5 UPS Ground

Adaptor Kits:
ADPK 1 PL-259 (UHF) .................. $9.95
ADPK 2 1/8" Mini plug .................. $9.95
ADPK 3 BNC ............................... $9.95
ADPK 4 Motorola ......................... $12.95
ADPK 5 RCA ............................... $9.95
ADPK 6 Motorola/BNC ................ $9.95
ADPK 9 N ................................ $12.95
ACC 176 1/8" cable interconnect for tape recorder (2 provided) ................ $6.95

Lightning/EMP Protector

For Scanners and Shortwave Receivers

While nothing can withstand a direct lightning hit, the new Grove LAR-1 connects between your antenna cable and radio 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 LAR-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 and ham equipment, VCRs, TVs, satellite receivers, FM stereo systems and more. May be used with transmitters up to 100 watts.
- The tiny protector measures only 3/4" x 1-1/2" and comes equipped with standard F connectors for home entertainment equipment and Grove accessories. Adaptors are available as shown below.

ADP 1 UHF female to F male
ADP 2 F female to PL-259 Male
ADP 3 F female to N Male
ADP 4 F female to Mini-Plug
ADP 5 UHF female to BNC Male
ADP 6 UHF female to Male Mini-Plug
ADP 7 UHF female to N Male
ADP 9 F female to BNC Male
ADP 10 UHF/BNC
ADP 11 UHF female to RCA male
ADP 12 BNC/N
ADP 13 BNC/BNC (right angle elbow)
ADP 14 F female to RCA male
ADP 15 N female to F male
ADP 17 BNC female to F male
ADP 18 F/2 wires
ADP 19 UHF/2 wires
ADP 20 MOT/BNC
ADP 13 UHF female Barrel-1.50
ADP 24 BNC female to PL-259 male
ADP 26 F/F Barrel-52.00
ADP 27 Banas Plug-52.00
ADP 28 F to PAL/Satellite 700
ADP 29 F/F"/F" Adapter-1.50
ADP 30 T-adp. BNC fem./male/fem.-1.50
ADP 10 F female to Motorola male
ADP 12 F Cable 31V-2.50
ADP 14 F/Motorola cable, 31V-2.50
ADP 15 PL259/PD259 cable, 31V-2.50
ADP 16 BNC to BNC

Adaptors may be ordered separately for $5.95 each. Free shipping if ordered with other products; $2.00 for one or more shipped alone.

If you are unsure which adaptor is needed, call Channel or Sue at 704-837-7081 for assistance.

Order Line: 1-800-438-8155

UPS 2nd Day Air at Ground Rates on All Products
Use Your AM/FM Car Antenna for Scanner Reception Too!

**MOBILE ANTENNA MULTICOUPLER**

HOW WOULD YOU LIKE TO ENJOY excellent 30-960 MHz mobile scanner reception using your existing AM/FM car 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) .......................... Only $14.95
Order CPL-63B (BNC) ................................. Only $16.95

---

**Dual Scanner Multicoupler Kit**

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 3' output cables with adaptors for UHF (PL-259), Motorola, F, and BNC connectors (input and output), you'll be set for any combination.

Order CPL-SC Only $29.95

---

**Professional Power Supply**

Adjusts to the voltage you need for mobile & portable accessories!

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 accurately shows voltage and current. Regulated for less than 1% voltage fluctuation or 3 mV ripple. Weighs 5 pounds.

Order PWR 3 Only $59.95
Order PWR 11 Only $49.95
Order PWR 12 Only $49.95 plus $3.50 UPS or Priority Mail
Order PWR 12 Universal power supply plugs into 120V AC wall socket and provides 3, 4.5, 6, 7.5, 9 and 12 volts DC at up to several hundred mA (intermittent use). Has six different plugs for virtually every accessory. List price $12.95.

---

**Swing, with ease... Professional 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, port-to-port isolation 60 dB. Automatically grounds unselected port. Standard UHF (SO-239) connectors mate with PL-259 and other adaptors.

Order SWC 1 Only $25.95

---

**Save on Low-Current AC Wall Adaptors!**

GROVE'S PWR 12 Universal power supply plugs into 120V AC wall socket and provides 3, 4.5, 6, 7.5, 9 and 12 volts DC at up to several hundred mA (intermittent use). Has six different plugs for virtually every accessory. List price $12.95.

Order PWR 3 Only $59.95
Order PWR 11 Only $49.95 plus $3 UPS or Priority Mail
Order PWR 12 Only $49.95 plus $3.50 UPS or Priority Mail

THE PWR 11 provides 12VDC at 100 mA from standard 2.1 mm coax plug, UL and CSA approved.
Over the years, MetroWest has introduced a number of innovative accessories for handheld scanners, but none is more welcome than their new, double-life battery pack for the popular Uniden BC200XLT handheld 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.

**Professional 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.

---

**Radio Shack® Rechargeable AA NICAD Batteries**

650 Milliamp High capacity AA Nicads for use with the PRO-43 as well as other handheld scanners.

**Order BAT 13**

Only $2.75 ea.

plus $2.50 shipping any quantity

---

**Save $$$ on our 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 PWR 13**

Only $9.95

plus $5 UPS or Priority Mail

A $15 dollar value!

---

**Great Deals on High Quality Alkaline Batteries**

**Industrial ALKALINE AA, C, D, and 9V Batteries!**

These high-power, long-life, industrial quality Eveready Energizers™ are unavailable in stores. Ideal for radios, flashlights, clocks, cassette players, remote controls, electronic accessories, motorized tools and toys, and any other application requiring a high-current, long life battery. Choose from individually packed AA, C, D or single 9V batteries.

<table>
<thead>
<tr>
<th>BAT</th>
<th>Batteries</th>
<th>Price</th>
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<tbody>
<tr>
<td>01</td>
<td>AA</td>
<td>$0.79 ea.</td>
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<tr>
<td>02</td>
<td>D</td>
<td>$1.19 ea.</td>
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<tr>
<td>03</td>
<td>C</td>
<td>$1.09 ea.</td>
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<tr>
<td>04</td>
<td>9V</td>
<td>$2.09 ea.</td>
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plus $2.50 UPS Ground or US Priority Mail shipping

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**UPS 2nd Day Air at Ground Rates on All Products**
Lifetime Guarantee!

**ONE-HOUR RECHARGEABLE NICAD SYSTEM**

YOU CAN'T BUY BETTER, faster-charging Nicad batteries than the Gates Millenium. These 750 mAh AA cells will provide noticeably longer operation for scanners, portable radios, recorders, and accessories, and they come with a lifetime manufacturer's warranty! The Rapidcharger will recharge 2 or 4 Millenium AA cells at a time in just one hour.

**Order PWR 6 Rapidcharger Only $19.95**
**Order BAT 5-2 AA Cells Only $5.95 (2)**
**Order BAT 5-4 AA Cells Only $9.95 (4)**

**Order ACC 119 and ACC 120 at the same time and save!**
Rapidcharger and 4 AA cells only $24.95

---

**Mobile Cigarette Lighter Power Adapter For Bearcat Scanners!**

SIMPLY PLUG THE GROVE ACC23 into your vehicle's cigarette lighter to charge the batteries and/or operate the Bearcat scanners listed in this catalog (except BC2500XLT) or any other mobile accessory, including radar detectors, which use a 12 volts DC, center pin positive, 2.1 mm barrel connector.

This power adaptor has an internal, replaceable 3A fuse.

**Order DCC 4 Only $9.95**
Including First Class Mail Shipping

---

**Super Convenient Up-Right Mounts for Handheld Radios!**

How many times have you tried to set your hand-held scanner or handie-talkie on a table, ledge or car seat, just to have it fall over? That problem is solved with our handy holders. The BRK 1 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. The two outer compartments of the BRK 7 even adjust to provide a snug fit for any handheld unit.

Cushion pads are provided for an even better grip, especially on small handhelds like the ICOM R-1 and Realistic PRO-62.

**Double Holders (shown at left)**
**Order BRK 7 Only $12.95**

**BRK 7 holds two scanners, a frequency counter, whip and other accessories!**

**Single Holders (shown at right)**
**Order BRK 1 Only $9.95**
**Sub-Compact Extension Speaker**

MEASURING JUST 3-1/4" IN DIAMETER, this tiny extension speaker with its black textured styling and chrome accents is ideally suited for mobile mounting. A swivel base allows proper positioning, while its 7" extension cable with standard 1/8" (3.5 mm) miniplug will reach anywhere in the listening area.

Order SPK 14
Only $7.95

Free Shipping!
(for speaker 14 only)

**Communications Headphones—a Solid Value for the Listener!**

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 and 1/8" adaptor included.

Order HDP 1
Only $19.95

<table>
<thead>
<tr>
<th>ACCESSORIES:</th>
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<tbody>
<tr>
<td>ADP 29 3/32&quot; (2.5 mm) sub-mini adaptor</td>
<td>$1.50</td>
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</table>

**NAVAL HTS-3 COMPACT AMPLIFIED SPEAKER**

Includes Tape Recorder Activator and Cigarette Lighter Power Cord

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 snuggly 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!

Order SPK 11
Only $34.95

<table>
<thead>
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<th>ACCESSORIES:</th>
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<tbody>
<tr>
<td>BAT 1 AA Alkaline batteries</td>
<td>$0.79</td>
</tr>
<tr>
<td>PWR 13 AC wall power supply</td>
<td>$9.95</td>
</tr>
<tr>
<td>BAT 13 Nicad AA batteries</td>
<td>$2.75 (4 required)</td>
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**Clip-On Mini Speaker For Handheld Radios**

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 $10.95

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<tr>
<td>ADP 29 3/32&quot; (2.5 mm) adaptor (for BC200XLT, etc.)</td>
<td>$1.50</td>
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<td>ADP 11 Universal Adaptor</td>
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<tr>
<td>One or two 1/4&quot; headphone jacks to 3/32&quot; (2.5 mm) or 1/8&quot; (3.5 mm) plug</td>
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Order SPK 9
Only $10.95

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</table>
### Universal Belt Clip

A QUICK PRESS firmly attaches this strong, plastic belt clip to your frequency counter, walkie-talkie, cellular or cordless phone, camera, pager, test equipment, portable radio, or virtually any other flat surface! The polymer adhesive remains plant so that years later the clip may be removed without destroying the surface!

**Order BRK**

*Only $4.95*

**Accessories:**

- **Antenna**
  - 8-18” whip
  - $14.95
  - 7-46” whip
  - $16.95
- **Low Profile**
  - 1-1/2” close-range
  - $31.95

---

### Leatherman® Pocket Tool

YOU'VE SEEN THE LEGENDARY Swiss Army knife, but you've never seen a quality, multipurpose pocket tool like the Leatherman®.

Full-size needle nosed/reglar pliers, wire cutters, knife blade, ruler, can/bottle opener, large and small screwdrivers, Phillips screwdriver, metal/wood files/saw, awl/punch—all in a sturdy, 4”, stainless steel frame!

Comes with leather belt case and 25 year warranty! An incredible, American-made value.

**Order TOL**

*Only $39.95*

**Accessories:**

- **UPS**
  - $5.50
  - $9.50 2nd Day Air
  - $5 US Priority Mail
  - $10 Canadian UPS
  - $7 Canadian APP

**Made in the U.S.A.**

---

### Pocket Frequency Counters from Optoelectronics

**Ideal for calibrating signal generators and transmitters, for countermeasures transmitters, walkie-talkies, mobile radios, base stations, cordless phones, ham and 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 chart.

**Order CHT**

*Only $9.95*

**Accessories:**

- **USPS**
  - $5.50
  - $7.50 2nd Day Air
  - $2.50 Bookrate/$5.50 Priority Mail
  - $8.50 Canadian UPS
  - $6 Canadian APP

---

**Order CTR**

*Only $139.95*

**Accessories:**

- **USPS**
  - $7 UPS
  - $11 UPS 2nd Day Air
  - $9 US Priority Mail
  - $12 Canadian UPS
  - $10 Canadian APP

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**Catalog Items Only:**

- **UPS 2nd Day Air at Ground Rates on All Products**
**Modifications Performed by Grove Repair Service**

The new Repair Service at Grove Enterprises can perform many of the equipment modifications that you may need to turn a good scanner or receiver into a great one. Depending on the specific models, Grove’s modification services include:

- **Scan Speed Increase**
- **Frequency Range Expansion**
- **Unlocking of Blocked Frequencies**
- **Improved Headphone Audio**
- **Voltage and Spike Protection**
- **Factory Accessory Installation**
- **Memory Channel Increase**
- **Squelch Improvement**

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By Dr. Frank Baylin Direct broadcast satellite technology is hot and this new release by Baylin Publications covers all aspects of the DBS industry. Nine chapters delve into the DBS technology, corporations offering the service, programming, installation and more. The book is illustrated and written for the laymen. This is essential reading for anyone considering purchasing a DBS system. Use shipping code B.

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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 together 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.

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- **Power Required:** 12 to 14 VDC @500 mA; 120 VAC adaptor included
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- **Audio Selectivity:** Peak/notch 30 dB or greater, 0.3-6 kHz
- **Squelch Hold:** 0-10 seconds
- **Noise Limiter:** Adjustable-threshold pulse noise clamp
- **Tape Activator:** Audio activated (VOX), 3 second hold
- **Tape Output:** 500 mV P-P @ 600 ohms (nom.)
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This is a full-featured radio for the serious shortwave listener—with a reputation of distinction among the "powerful portables." 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 32 station direct-access keyboard combine to make this Sony product a remarkable value for beginners or seasoned SWL's.

Frequency range includes 150 kHz-30 MHz, 76-108, and 116-136 MHz. See pp. 6-7 for more detailed specifications. Requires 3D/2AA cell batteries.

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ACCESSORIES<br>ANT 3 Grove Mini-Skywire $29.95<br>ANT 21 Select-A-Tenna $65.95<br>ANT 32 Kiwa Pocket Loop Antenna $119.95<br>WP40 RDI WHITE PAPER® $5.95<br>BAT 1 AA cell alkaline bat. $7.99 ea<br>BAT 2 D cell alkaline bat. $1.19 ea<br>SPK 13 Grove Sound Enhancer $199.95<br>TUN 4A Grove TUN4A MinitrunerPlus $99.95

SONY ICF-SW77

Has all the features of the Sony ICF-2010 (except air band) plus many others. Compare specifications on pp. 6-7 of this booklet.

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SONY ICF-SW100

Incredible! Imagine compressing the popular functions of the mighty Sony ICF2010 into a shirt-pocket radio! This tiny titan offers continuous 150 kHz-30 MHz and 76-108 MHz FM frequency ranges, Sony's famous synchronous detection, USB/LSB reception, 100 Hz tuning steps, 50 memory presets, 24 hour clock/timer, world time computer, station name display, illuminated LCD, and much, much more. See specs. pp 6-7.

AC adapter, stereo earphones, active antenna, soft carrying case, station directory, and full instruction manual included at no extra charge! Two AA batteries required.

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Introducing the incredible 100 kHz - 1,999.99 MHz Receiver of Your Dreams. Call to reserve yours now!

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 CI-V for direct computer control, 1000 memory channels in 20 banks, multiple scanning selections with priority function and selectable delay, 5-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 will retail 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 optimal choices for frequency ranges, even voice scan to ignore noise channels, and even optional voice synthesizer and remote control—an incredible array of advanced features!

Call today to reserve your premium ICOM R-8500. See pp. 6-7 for detailed specifications (also available on the World Wide Web at www.grove.net). ICOM expects to begin delivery of units in August.

SONY ICF-SW7600G

It was inevitable. The early compact models have been replaced by a tiny marvel with synchronous AM detection, SSB, and even FM stereo coverage! Measuring just over 7 inches wide and weighing 22 ounces, the SW7600G 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, pushbutton tuning, tone control, external antenna jack, clock/timer with sleep function, tilt bracket, keyboard lock, direct-entry keypad and 22 scannable memory channels keynote the high-tech features of this potent portable! See pp. 6-7 for more details. Requires 4 AA cell batteries.

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ACCESSORIES<br>ANT 22 Select-A-Tenna $65.95<br>ANT 2 Grove Skywire Antenna $39.95<br>ANT 32 Kiwa Pocket Loop Antenna $119.95<br>BAT 1 AA alkaline bat. $7.99<br>PWR 9 AC adapter $19.95<br>SPK 11 Naval HTS speaker $29.95<br>TUN 4A Grove TUN4A MinitrunerPlus $99.95

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The successor to the famous R8 is here—why pay more when the best costs less?

The Drake R8 has been internationally respected for its excellent audio, frequency agility (100 kHz-30 MHz, expandable to 33-55 and 108-174 MHz with optional converter), friendly control panel, synchronous detection, noise blanker, passband tuning, preamp/attenuator selection, universal power supply, dual clock timers, giant display, five filter bandwidths, and six receiving modes. Now Drake has added over a dozen important improvements to their legendary R8 receiver (see bullet at right). See specifications on pp. 6-7.

ACCESSORIES
ACC-43 VHF converter $209.95 $20 install.
ACC-05 Metal tilt replacement $17.95
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ANTE24 Dymek active antenna $17.95
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ORDER RCV 3 $1059.95

For improved CW or sideband listening, use your R8-A with the Grove SP-200 speaker, sold separately.

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It's always a pleasure to offer a really good, low-cost product—and that's just what Grundig's YB-400 is. With AM/FM stereo and continuous shortwave frequency coverage from 1.7-50 MHz in 5 or 1 kHz tuning increments, SSB, infinite fine tuning, FM broadcast reception, and battery or AC power convenience, the 400 also offers 40 scanable memories and simple pushbutton tuning.

A giant, backlit LCD shows frequency, 24 hour clock, battery condition, even a bargraph for received signal strength! Dual bandwidth selectivity allows sharp rejection of adjacent frequency interference, while high sensitivity assures weak signal reception, even with the convenient telescoping whip. Requires 6 AA cell batteries.

This compact marvel is ideal for dependable backup during power outages and as a suitcase companion during that next trip. See specifications on pp. 6-7.

ORDER RCV 22 $199.95

SATELLIT 700

Grundig's decades of quality radio manufacturing culminate in the Satellit 700, a high performance portable at an affordable price! Separate bass and treble controls coupled with the large internal speaker produce the best audio we've heard in any contemporary shortwave portable!

Continuous frequency coverage 160-353 kHz longwave, 528-30,000 kHz medium and shortwave, 87.5-108 MHz FM broadcast. USB/LSB selection on utilities, with 100 Hz tuning steps and infinite-resolution RIT (clarifier) for fine tuning. Straightforward keyboard entry makes frequency selection a snap!

Wide and narrow filters provide excellent audio quality and adjacent channel interference rejection, while synchronous detection with automatic USB/LSB tracking improves single-signal response. 120 factory preset frequencies display station names on the giant LCD panel. Requires 4 D cell batteries. See specifications on pp. 6-7.

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A great low cost radio featuring 150 kHz-30 MHz continuous tuning, 87.5-108 MHz FM reception, frequency entry, continuous tuning dial, scan and search modes, 45 memory channels, 24 hour dual-zone clock/timer, and distance/local selectivity. See specifications on pp. 6-7.

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**ACCESSORIES**

| ANT 3 | Grove Mini Skywire Antenna | $29.95 |
| ANT 21 | Select-A-Tenna | $65.95 |
| ANT 32 | Kiwa Pocket Loop Antenna | $119.95 |
| BAT 1 | AA alkaline batteries | $7.95 |
| PWR 10 | AC adapter | $9.95 |
| TUN 4A | Grove TUN4A MinitunerPlus | $99.95 |

**NEW!**

**ATS909 Multiband Radio**

A great new challenger among full-featured SW portables!

This compact, new PLL-synthesized, portable receiver sets a new standard for Sangean. Features include continuous coverage longwave, mediumwave and shortwave reception plus FM (stereo with earphones), alphanumeric display for station identification, 306 channel memory, USB/LSB mode with 40 Hz step tuning, 29 memory banks with automatic search, world time for 42 cities, three independent timers, signal strength indicator, wide/narrow filter selection, RF gain and tone control. See specifications on pp. 6-7.

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**ACCESSORIES**

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| ANT 21 | Select-A-Tenna | $65.95 |
| ANT 32 | Kiwa Pocket Loop Antenna | $119.95 |
| BAT 2 | D cell alkaline bat. | $1.19 ea |
| SPK 11 | Naval HTS speaker | $29.95 |
| TUN 4A | Grove TUN4A MinitunerPlus | $99.95 |

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**ATS-818**

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Retractable

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w/cassette recorder  
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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! See detailed specifications on pp. 6-7. Requires 4 D cells.

 Receivers are the same, excluding the tape recorder specifications.

**ACCESSORIES**

| ANT 3 | Grove Mini Skywire Antenna | $29.95 |
| ANT 21 | Select-A-Tenna | $65.95 |
| ANT 32 | Kiwa Pocket Loop Antenna | $119.95 |
| BAT 2 | D cell alkaline bat. | $1.19 ea |
| SPK 11 | Naval HTS speaker | $29.95 |
| TUN 4A | Grove TUN4A MinitunerPlus | $99.95 |

**GE Superadio III**

ORDER RCV 5  
**$59.95**

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The GE Superadio series has been a popular receiver for AM/FM DXers for years. The smooth vernier dial features tuned RF on both AM and FM, while a ceramic IF filter and 7 tuned IF circuits provide outstanding selectivity. The two-way speaker system with separate bass, treble and loudness controls assures solid, clean sound, and the drift-cancelling, automatic frequency control (AFC) circuit can be switched out for weak-signal hunting. The internal AM loop and FM whip antennas provide convenient portability, while external antenna jacks accomodate your long-distance antennas.

Expertly designed and handsomely crafted, the GE Superadio III is powered by 120 VAC or six internal D cells (optional) with over 400 hours battery life!

**ACCESSORIES**

| ANT 3 | Grove Mini Skywire | $29.95 |
| ANT 21 | Select-A-Tenna | $65.95 |
| ANT 31 | Kiwa Loop Antenna | $349.95 |
| ANT 32 | Kiwa Pocket Loop Antenna | $119.95 |
| BAT 1 | AA cell alkaline bat. | $1.19 ea |
| BAT 2 | D cell alkaline bat. | $1.19 ea |
| SPK 13 | Groove Sound Enhancer | $199.95 |
| TUN 4A | Groove TUN4A MinitunerPlus | $99.95 |

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New!

Design your own dipole for optimum shortwave, medium wave, or longwave reception, and use this famous insulator/connector hardware for high performance, long life. Includes two super-strength end insulators, molded center assembly with standard SO-239 connector, and replaceable gas-discharge lightning arrestor. Full instructions and antenna design procedures included.

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Back by popular demand—and improved! Our indoor/outdoor shortwave antenna system!

GROVE TUN-4A MINITUNER PLUS

Here's the shortwave listener's dream—a high performance, amplified, frequency-tunable antenna system for general coverage shortwave and medium wave monitoring. For indoor use, connect a short length of wire or the popular Grove ANT-6 Hidden Antenna. Connected to an outdoor antenna like the Grove ANT-2 Skywire or ANT-3 Mini Skywire, the TUN-4A MiniTuner Plus provides knockout signal strength and allows frequency preselection as well.

Continuous 400 kHz-30 MHz coverage, -20 to +20 dB gain/attenuation control, dual antenna switch, dual receiver output, amplified/unamplified preselection, band switch, fine tuning, and built-in lightning protection. Full instructions included. Requires 12 VDC power (sold separately).

"I now have your TUN-4A in permanent line serving my Love HFI50 and Drake SWR and it out-performs any of my other "premium" preselectors. Ounce for ounce and inch for inch, the TUN-4A is the best bargain for signal improvement and receiver front end extension that I have encountered..."

—John L. Wagner
SWL'er

The Original Grove SKYWIRE Shortwave Antenna

High performance and low 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 Budwig center connector ready for your PL-259 (UHF male) equipped coaxial cable (50 or 75 ohm, see page 8); includes two professional porcelain end insulators and complete instructions.

ATTENTION HOME EXPERIMENTERS: Build your own SW dipole! Order ACC101 (Budwig center connector) for only $9.95 and add your own wire to construct a SW dipole!

HAMS! Ideal for transmitting when used with a transmatch. (1.8-30 MHz at up to 250 watts)

Limited Space? Try Grove's new Mini-Skywire

Similar to above, but 40-foot, dual-dipole design allows full 3-30 MHz frequency coverage and may be used in several configurations. Ready for P-259 coax connector. See cable and adaptors on p. 8.

ORDER ANT 2

$39.95

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GROVE SW PRODUCTS • 5
STONER-DYMEK

Shortwave/Longwave Active Antenna

If a large, outside dipole is out of the question, choose the Dynek DA-100E, the best 50 kHz-30 MHz active receiving antenna available! High sensitivity, low noise, wide dynamic range, step-selectable attenuator, static-discharge-protected, weatherproof remote amplifier/whips assembly.

Includes AC power supply, indoor control unit, 50 feet RG-58/U coax, remote amplifier, 1 stainless-steel whip, receiver-interconnect cable, and full instructions.

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Grove’s Shortwave Receiver Specification Guide

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</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>10 kHz-30 MHz (50 kHz)</td>
<td>30 kHz-10 MHz (50 kHz)</td>
<td>20 kHz-100 MHz (50 kHz)</td>
<td>60 kHz-10 MHz (50 kHz)</td>
<td>50 kHz-10 MHz (50 kHz)</td>
</tr>
<tr>
<td>Keypad Entry</td>
<td>Yes, plus tuning dial</td>
<td>Yes, plus tuning dial</td>
<td>Yes, plus tuning dial</td>
<td>Yes, plus tuning dial</td>
<td>Yes, plus tuning dial</td>
</tr>
<tr>
<td>Tuning Steps</td>
<td>10/1 kHz</td>
<td>Yes, plus tuning dial</td>
<td>Yes, plus tuning dial</td>
<td>Yes, plus tuning dial</td>
<td>Yes, plus tuning dial</td>
</tr>
<tr>
<td>Signal Sensitive</td>
<td>Yes, 50 kHz</td>
<td>Yes, 50 kHz</td>
<td>Yes, 50 kHz</td>
<td>Yes, 50 kHz</td>
<td>Yes, 50 kHz</td>
</tr>
<tr>
<td>Search</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Delay</td>
<td>Yes, 5 sec per step</td>
<td>Yes, 5 sec per step</td>
<td>Yes, 5 sec per step</td>
<td>Yes, 5 sec per step</td>
<td>Yes, 5 sec per step</td>
</tr>
<tr>
<td>Squelch</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Clock</td>
<td>Dual time zone</td>
<td>Dual time zone</td>
<td>Dual time zone</td>
<td>Dual time zone</td>
<td>Dual time zone</td>
</tr>
<tr>
<td>Audio Output Power</td>
<td>2.5 W @ 4 ohms</td>
<td>2.5 W @ 4 ohms</td>
<td>2.5 W @ 4 ohms</td>
<td>2.5 W @ 4 ohms</td>
<td>2.5 W @ 4 ohms</td>
</tr>
<tr>
<td>Record Audio Output</td>
<td>300 mV into 4.7 kHz</td>
<td>300 mV into 4.7 kHz</td>
<td>300 mV into 4.7 kHz</td>
<td>300 mV into 4.7 kHz</td>
<td>300 mV into 4.7 kHz</td>
</tr>
<tr>
<td>Recorder Activates</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Signal Strength Ind.</td>
<td>Analog 5 meter</td>
<td>Analog 5 meter</td>
<td>Analog 5 meter</td>
<td>Analog 5 meter</td>
<td>Analog 5 meter</td>
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<tr>
<td>Computer Interface</td>
<td>M822YC</td>
<td>M822YC</td>
<td>M822YC</td>
<td>M822YC</td>
<td>M822YC</td>
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<tr>
<td>Conversion Scheme</td>
<td>Double-up</td>
<td>Double-up</td>
<td>Double-up</td>
<td>Double-up</td>
<td>Double-up</td>
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<tr>
<td>Sensitivity</td>
<td>0.5 µV @ 1.5 MHz</td>
<td>0.5 µV @ 1.5 MHz</td>
<td>0.5 µV @ 1.5 MHz</td>
<td>0.5 µV @ 1.5 MHz</td>
<td>0.5 µV @ 1.5 MHz</td>
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<tr>
<td>Selectable Preamp</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Selectable Attenu.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>IF Selectivity</td>
<td>0/5-60dB (6/4/2.5 kHz)</td>
<td>0/5-60dB (6/4/2.5 kHz)</td>
<td>0/5-60dB (6/4/2.5 kHz)</td>
<td>0/5-60dB (6/4/2.5 kHz)</td>
<td>0/5-60dB (6/4/2.5 kHz)</td>
</tr>
<tr>
<td>Image Rejection</td>
<td>50 dB @ 5 kHz</td>
<td>50 dB @ 5 kHz</td>
<td>50 dB @ 5 kHz</td>
<td>50 dB @ 5 kHz</td>
<td>50 dB @ 5 kHz</td>
</tr>
<tr>
<td>Selectable AGC</td>
<td>Off/Slow/Fast</td>
<td>Off/Slow/Fast</td>
<td>Off/Slow/Fast</td>
<td>Off/Slow/Fast</td>
<td>Off/Slow/Fast</td>
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<tr>
<td>Dynamic Range</td>
<td>100 dB @ 20 kHz</td>
<td>100 dB @ 20 kHz</td>
<td>100 dB @ 20 kHz</td>
<td>100 dB @ 20 kHz</td>
<td>100 dB @ 20 kHz</td>
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<tr>
<td>Noise Blanker/Filter</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Adjustable Notch Filter</td>
<td>500-5000 Hz</td>
<td>500-5000 Hz</td>
<td>500-5000 Hz</td>
<td>500-5000 Hz</td>
<td>500-5000 Hz</td>
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<tr>
<td>Tone Control</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Antenna Connector</td>
<td>Dual, switched PL-529</td>
<td>Dual, switched PL-529</td>
<td>Dual, switched PL-529</td>
<td>Dual, switched PL-529</td>
<td>Dual, switched PL-529</td>
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<tr>
<td>Dimensions</td>
<td>12.5 W X 15 x 13/10</td>
<td>11.5 W X 15 x 13/10</td>
<td>11.5 W X 15 x 13/10</td>
<td>11.5 W X 15 x 13/10</td>
<td>11.5 W X 15 x 13/10</td>
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<tr>
<td>Weight</td>
<td>12 lbs</td>
<td>10 lbs</td>
<td>10 lbs</td>
<td>10 lbs</td>
<td>10 lbs</td>
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<tr>
<td>Power Requirement(s)</td>
<td>80/120/240VAC/2450VAC</td>
<td>80/120/240VAC/2450VAC</td>
<td>80/120/240VAC/2450VAC</td>
<td>80/120/240VAC/2450VAC</td>
<td>80/120/240VAC/2450VAC</td>
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<tr>
<td>Warranty</td>
<td>One year</td>
<td>One year</td>
<td>One year</td>
<td>One year</td>
<td>One year</td>
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<tr>
<td>Accessories Incld.</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Top-Rated, High Performance KIWA Loop Antennas

KIWA Medium Wave Air-Core Loop Antenna

Are you looking for an antenna that will improve medium wave reception on your communications receiver? Then look no more—this unique 12-inch, circular air-core antenna provides improved weak signal reception of medium wave broadcast signals and electronically balanced circuitry minimizes pickup of electrical interference. Some of the other high performance features of the Kiwa loop include:

- Full 530-1705 kHz MW frequency coverage
- May be precisely rotated and tilted for maximum signal pickup and nulling of interfering stations.
- Equipped with local/DX pre-amp switch, variable output attenuator, and dual amplifier outputs.
- May be powered by a low-noise AC supply, included, or by battery.
- Stands 17 inches (43 cm) high and weighs 16 pounds (7.25 kg).

ORDER ANT 51
$349.95

SHIPPING
$17 UPS
$29 US Priority Mail
$36 Canadian UPS
$35.50 Canadian APP

The New KIWA Pocket-Loop Antenna

This highly efficient signal grabber is 12" across when deployed, yet collapses to a tiny pocket size for transport! Designed to receive and amplify signals from 530 kHz through 20 MHz in four hands, no antenna jack on your portable radio is needed; it space-couples to your radio's existing whip and internal ferrite rod!

ORDER ANT 32
$119.95

SHIPPING
$15 UPS
$25 US Priority Mail
$30 Canadian APP
$23 Canadian UPS

UPS Second Day Air at Ground Rates on ALL PRODUCTS!
**JPS Noise Canceller/Active Antenna**

Enjoy Crystal Clear Sound!

Imagine, just connect this simple device between your receiving antenna and shortwave receiver or transceiver, and null out locally-generated interference of virtually any kind! Computer hash, line noise, TV synch buzz—they all go away when the ANC-4 is adjusted to your receiver to receive 100 kHz-80 MHz!

Use the attachable whip (provided) or, even better, a second external antenna to sample local noise. A simple adjustment from the front panel reduces or even eliminates virtually any electrical noise interference you are likely to encounter! The new ANC-4 can even be used as a frequency-selective active antenna/signal booster! Whip, random wire antenna, DC plug and full instructions provided. Requires 12 VDC @ 500 mA power.

**ACCESSORIES**
- PWR-13 Universal power supply $9.95
- Manual, carrying pouch, earphones, external antenna connection $6.50
- Stereo earphones/AC adapter, net/antenna guide
- Stereo earphones/AC adapter, net/antenna guide $9.95
- Carrying case/Reel Ant $6.50

**ORDER ANC 21**
- $174.95
- SHIPPING $6.50 UPS
- $55.00 US Priority Mail
- $7.00 Canadian APP
- $10 Canadian UPS

**ORDER ANT 16**
- $14.95
- SHIPPING $6.00 UPS
- $4.50 US Priority Mail
- $6.00 Canadian APP
- $10 Canadian UPS

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

---

**Select-A-Tenna**

"I was able to pull in stations that were absolutely inaudible without it."
—Stephen J Price Monitoring Times, April 1995

Apartment dwellers and mobile home owners, boost your $30-1700 kHz AM broadcast reception up to 50 dB with the famous Select-A-Tenna! Improves adjacent channel rejection, reduces signal fading. Tuning knob selects your listening frequency.

No batteries or power required; simply set the Select-A-Tenna next to your radio, peak the tuning knob, and listen to AM broadcast signals soar out of the background noise!

This 11", high-Q loop antenna directs its captive signals to your radio's internal ferrite loop without any physical connection! If your receiver requires an external antenna, a convenient 5.5 mm (1/8") jack and plug are provided. Connect an outside wire to the Select-A-Tenna and receive medium wave signals like you've never heard before!

**ORDER ANT 21**
- $65.95
- SHIPPING $7.00 UPS
- $38.50 US Priority Mail
- $11.50 Canadian APP
- $15 Canadian UPS

---

**Universal Reel Antenna for Shortwave Portables**

Whether you have a Sony, Sangean, Realistic®, Grundig, or other whip-portsable shortwave radio, this 23-foot, reel-out antenna can be firmly attached for better reception. When not in use it can be conveniently stored in a pouch or even your pocket.

Comes with whip clip and 1/8" (3.5 mm) standard antenna adaptor.

**ORDER ANT 16**
- $14.95
- SHIPPING $6.00 UPS
- $4.50 US Priority Mail
- $6.00 Canadian APP
- $10 Canadian UPS

---

**Prices and other Specifications Subject to Change without Notice**

<table>
<thead>
<tr>
<th>Antenna</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal Reel Antenna</td>
<td>$65.95</td>
<td>23-foot, reel-out antenna for better reception</td>
</tr>
<tr>
<td>Select-A-Tenna</td>
<td>$65.95</td>
<td>Increases adjacent channel rejection and reduces signal fading</td>
</tr>
<tr>
<td>JPS Noise Canceller/Active Antenna</td>
<td>$174.95</td>
<td>Connects between antenna and receiver to null out interference</td>
</tr>
</tbody>
</table>

**ACCESSORIES**
- PWR-13 Universal power supply $9.95
- Carrying case/Reel Ant $6.50
- Manual, carrying pouch, earphones, external antenna connection $6.50
- Stereo earphones/AC adapter, net/antenna guide $9.95
- Carry-on AC adapter, net/antenna guide/Reel Ant "$6.50

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

---

**GROVE SW PRODUCTS**
The Stealthy Grove HIDDEN ANTENNA

The Hidden Antenna may be used alone or in your scanner for improved signal reception, over your attachable whip or may be connected to the powerful GRE PRE1 for considerably increased signal strength on scanners and shortwave receivers.

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

ORDER ANT 6
$19.95

SHIPPING $6.75 UPS
$4.50 US Priority Mail
$5.50 Canadian APP
$10 Canadian UPS

M-400 Universal Decoder

Access an entire dimension of coded communications signals.

NEW VERSION 2! New with Super POC/MG, 1200 baud, simple, pushbutton mode selection, this self-contained, compact, menu-driven decoder, when connected to your scanner or VHF/UHF receiver's external speaker jack, will reveal CTCSS (PL) sub-audible tones, DCN (DPL) squelch tones, POC/MG 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, CTCSS, NIBER, 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 adapter, fully manual and plugs included. Parallel printer allows full page barcoding.

ORDER DFM 9
SHIPPING $9 UPS
$18 US Priority Mail
$20 Canadian APP
$22 Canadian UPS
$399.95

Add Screen Capture Interface!

Want to see a full-screen display of intercepted text messages? Connect the new CL-400 between the M-400 and your IBM compatible computer (886, DOS 3.3 or better), requires 8 bit slot, 256 KB disk storage, for program files, 5.25 floppy. Recommended: mouse, color monitor, hard drive. Includes interface card, cable, software, manual.

Premium Low-Loss RG6-U Cable with 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!

ORDER CBL 25
$9.95

RG 59U
(25 feet w/ adaptors)

ORDER CBL 50
$14.95

RG 6U
(50 feet w/ adaptors)

ORDER CBL 100
$19.95

ADAPTOR 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 Taiyo 1/4" Mini-Plug
ADP 7 UHF Female to N Male
ADP 8 F Female to BNC Male
ADP 10 UHF female to BNC Male
ADP 11 UHF 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 18 F female to 2 wires
ADP 19 UHF female to 2 wires
ADP 20 Motorola Female to BNC male
ADP 23 UHF female to UHF female barrel—$1.50
ADP 24 BNC female to PL259 male
ADP 26 F female to F female barrel—$2.00
ADP 27 Banana Plug—$2.00
ADP 28 F female to PAL fem. Satellite700
ADP 29 3.5mm female to 2.5mm male min. plug—$1.50
ADP 30 Dual BNC femea to BNC male T-adapter—$1.50
ADP 10 F female to Motorola male
ADP 13 F male to F male 3ft cable—$2.50
ADP 14 F/Motorola cable, 3ft—$2.50
ADP 15 PL259 male to PL259 male 3ft—$2.50
ADP 16 BNC male/ BNC male 3ft cable

Unless otherwise specified, adaptors may be ordered separately for $0.95 each. Free shipping if ordered with other products. $2.50 for one or more shipped alone.

If you are unsure which adaptor is needed, call Channel or Sue at 704-837-7081 tech@grove.net for assistance.

ORDER ANT 20
$19.95

SHIPPING $5 UPS
$5.75 US Priority Mail
$6 Canadian APP
$6.50 Canadian UPS
GROVE'S SHORTWAVE ACCESSORY MALL

Interference Eliminators
Ideal for suppressing overload interference from AM and shortwave broadcasters and more. Reject unwanted signals by 40 dB or more; reduce intermod interference by as much as 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 7: 540-1700 kHz Band Reject Filter. Removes AM broadcast interference from shortwave/longwave receivers

ORDER FTR 7 or 9

FTR 9: 30 MHz Low Pass Filter. Eliminates paging, FM and TV broadcast signals and other sources of VHF/UHF interference from shortwave receivers

ORDER FTR 7 or 9

$29.95

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

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) connectors mate with PL-259 and other adaptors.

ORDER SWC 1

$25.95

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 strikes 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.

ORDER LAR 1

$19.95

Variable Attenuator
Reduces Overload Interference!
Reduce scanner and shortwave intermod 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; adaptors available from list below.

ORDER ATT 1

$9.95

Alkaline/NiCd Batteries
BAT 01 AA Batteries 1.79 ea.
BAT 02 D Batteries 1.19 ea.
BAT 03 C Batteries 1.09 ea.
BAT 04 9V Batteries 2.25 ea.
BAT 13 AA NiCd rechargeable Batteries 2.75 ea.

$69.95

Order Line: 1-800-438-8155; Product Support Info.: (704) 837-7081
GROVE'S SHORTWAVE ACCESSORY MART

**Portable Power Station**
A rugged, battery power source that can actually run your high-powered monitoring equipment and a few other accessories when needed with 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 contained in a rugged ABS carrier. You can choose 3, 6, 9 or 12 volts output. Dimensions 7lbs, 18" x 7 x 4.5.

ORDER PWR 1
$59.95

**AC Surge Protectors**
Protect your delicate radio, computer, TV, stereo, test equipment, and other electronic equipment from devastating powerline 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 (single outlet)
$3.95

ORDER LAR 3 (6 outlets)
$4.95

**Cassette Audio Adaptor**
Listen to your scanner over your car or home stereo! Imagine—any electronic component that you own with an audio output jacked (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).

ORDER ACC79
$9.95

**Universal Power Supply**
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 milliamperes (1/2 amp)! Another switch lets you choose + or - polarity.

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

A $15 Value!
ORDER PWR 13
$9.95

**AC Wall Adaptors**
Grove’s PWR 12 Universal power supply plugs into 120V AC wall socket and provides 3, 4, 5, 6, 7.5, 9 and 12 volts DC switchable polarity, at up to several hundred ma (intermittent use). Has six different plugs for virtually every accessory. List price $12.95.

ORDER PWR 12
$4.95

ORDER PWR 19
$7.95

**Naval HTS-3 Compact Amplified Speaker**
Designed for handheld walkie talkies and scanners, this amplified speaker puts out a resounding 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", 3/52" cables included)!

ORDER SPK 11
$29.95

**DX Edge for Propagation**
Plan your listening around the most productive times and frequencies using this valuable, simple-to-use shortwave tool. Share the secret of successful hams and professionals alike who know the advantages of “grayline propagation.” Just line up the proper dateline on your location and it’s ready to use. Sturdy map chart, perpetual monthly overlays and easy instructions included.

ORDER CHT 3
$24.95

**Color Radio Wall Map**
Ideal for hams, shortwave listeners and scanner hobbyists alike! Shows worldwide callsign prefixes, basic spectrum allocations from 300 kHz - 5 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

ORDER CHT 1
$9.95

**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.

ORDER HPD 2
$19.95

**SHIPPING**
$6.50 UPS
$5.50 US Priority Mail
$7.50 Canadian APP
$10.50 Canadian UPS

ORDER LAR 2
$3.95

ORDER LAR 3
$4.95

ORDER ACC79
$9.95

ORDER PWR 13
$9.95

ORDER PWR 12
$4.95

ORDER PWR 19
$7.95

ORDER SPK 11
$29.95

ORDER CHT 3
$24.95

ORDER CHT 4
$14.95

ORDER CHT 1
$9.95

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 unexcelled in-the-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).

GROVE SW PRODUCTS • 11

Order Now, Save 35% on World Radio TV Handbook and Satellite Broadcasting Guide

Get huge pre-publication savings on these 1997 WRTH books

SATISFACTION GUARANTEED!

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

ORDER TWO AND SAVE!

CHI 2000 B (one left and one right)

$895.00

ACCESSORY

BATTERY 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.
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 9/96

Is this an address change? Yes! No!

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

Shipping Address:

BILLING ADDRESS:

NAME: ____________________________

STREET ADDRESS: ____________________________

CITY __________ STATE __________ ZIP __________

DAY/TIME PHONE: (Area Code) __________

Shipping Method:

UPS 2ND DAY

US PRIORITY/FIRST CLASS MAIL

UPS NEXT DAY

BOOKRATE (Book orders only)

Product

MONITORING TIMES magazine subscription

NEW! 6-month subscription to MT magazine

Satellite Times magazine subscription

Stock #

1 year*

6 months*

1 year**

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

Credit Card Orders:

Card Number: ____________________________

Exp Date: ____________________________

Signature: ____________________________

TOTAL $ ____________________________

NC Residents add 6% Sales Tax $ ____________________________

TOTAL ENCLOSURE $ ____________________________

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

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 ____________________________

Based upon the Supreme Court rulings of McLeod vs. Dilworth (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.