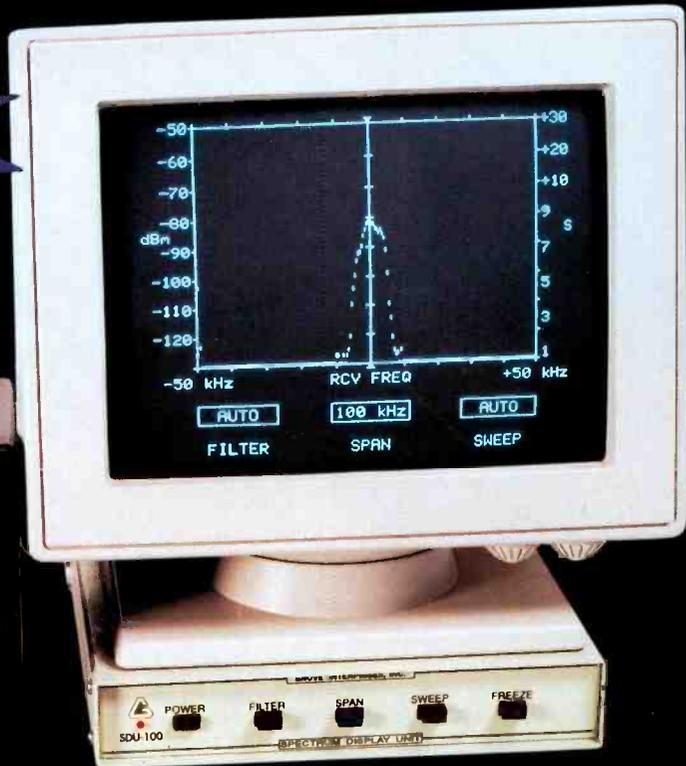


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(800) 438-8155

A KEYNOTE SPEAKER *from Grove!*

NEW!



Why pay over \$400 for these separate accessories:

- Speaker
- Adjustable Filter
- Recorder Activator
- Audio Amplifier
- Audio Activated Squelch
- Noise Limiter

When you can have it all in the new Grove

SP-200 SOUND ENHANCER

The Grove engineering team has created the most revolutionary audio accessory on the communication market: the **SP200 Sound Enhancer**.

Housed in a stylish, solid oak cabinet hand crafted in the mountains of North Carolina, the **SP200** is sure to enhance any room and radio receiver. The control panel, constructed of sturdy, black aluminum, has been designed for optimum ease and convenience when tuning and refining signals.

The **SP200** combines a powerful audio amplifier, top-of-the-line speaker, and an adjustable filter system in one to create the most versatile and precise listening environment ever available to radio enthusiasts. The keen peak/notch filter system and advanced noise limiter allow the listener to pull clear and distinct signals out of the haze of interference and background

noise, while the adjustable bass and treble provide the flexibility to create just the sound you want. FSK, RTTY, packet, FAX, CW and all other data systems are enhanced while interference and electrical noise are reduced or even eliminated by the analog audio processor.

The **SP200** also comes equipped with a stereo/mono headphone jack, for private listening, and an automatic tape activator so that you never have to miss anything.

Try the new Grove **SP200** Sound Enhancer with your receiver, scanner, or transceiver and enjoy the latest in speaker sophistication; you'll agree this is truly a keynote speaker!

SPECIFICATIONS:

Power Required: 12 to 14 VDC @500 mA; 120 VAC adaptor incl.
Audio Power Output: 2.5 W @ 10% THD (8 ohms)
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.)
Headphone Jack: Universal mono-wired stereo jack
Dimensions: 10-7/8"W x 6-7/8"H x 7-1/4"D

CALL NOW! (800) 438-8155
(704) 837-9200

Order SPK13
\$249⁹⁵*

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hear the world*

* Plus \$⁵⁰ UPS Ground Shipping



Grove Enterprises, Inc., P.O. Box 98,
300 S. Highway 64 West, Brasstown, NC 28902

September 1 - October 31, 1994

ORDER WITH ABSOLUTE CONFIDENCE

As we go to press, many of you are receiving the premier issue of *Satellite Times*, our new publishing venture. Just as *Monitoring Times* was the first full-spectrum listener's magazine, *ST* is the first full-spectrum satellite monitor's magazine. We are proud of the writing staff we have assembled, and were astounded when all of them--our first "draft" choices--accepted the invitation to share their considerable talents in our pages. They knew our reputation for quality, and we are happy to have them aboard.

It seems as if the well of cellular-capable and cellular-restorable scanners has finally dried up. We are down to our last few PRO-2006s, the only remaining cellular-restorable scanner in the catalog. And that will be it.

The Federal Communications Commission (FCC) is now looking with suspicion at several new scanner models which have been certified, but which can receive cellular phone calls by pressing a factory-test keyboard routine. The scanners may be prohibited from sale and their certification revoked.

So how are these different from the cellular telephones which can also be come cellular scanners from a simple keyboard routine? If the FCC bans the scanners, they should be banning the phones as well. Im sure this would bring a painful cry from the very industry that purchased your Congress's ban on scanners.

But on to pleasantries. Business has been good, so good in fact that we are now drawing plans to expand our new building--and we've been in it for barely one year! Several new staff members have been added to more efficiently handle your calls, and two new engineers are developing some really radical Grove products! I wish I could tell you about them (the products, not the engineers!), but it is too premature, and I've made that mistake before!

We are in the height of summer, but cooler weather is just ahead. Soon we will all be moving back indoors, concentrating on listening once again. Anticipate those cold winter days, and cruise through the new Grove catalog with breathless anticipation!

Bob and Judy Grove

Grove Enterprise 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--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 UPS 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 or modified 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.

REALISTIC® EQUIPMENT:

Should any equipment manufactured by Realistic® 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 Realistic®, (ICOM, Uniden, Kenwood, 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, 8am-5:30pm Eastern)

TECHNICAL HELP LINE

704-837-7081 (M-F, 8:30am-4:30pm Eastern)

BUSINESS OFFICE

704-837-9200 (M-F, 9am-5:00pm Eastern)

DATA LINE/FAX SERVICE

704-837-2216 (24 hours/day, 7 days/week)

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



See The Signals You're Missing With The...

GROVE SDU 100 **SPECTRUM DISPLAY UNIT**

Turn your ICOM R7000, R7100, or R9000 into a powerful spectrum analyzer! Plugs into any receiver or transceiver that has an IF output jack!

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

As the "spikes" appear on the screen you can tune them in quickly; no need to wait for the slow, hit-and-miss search of a scanner. A "freeze" function allows you to hold and examine all of the signals present at any moment in time!

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

Nail those unknowns as soon as they transmit!

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

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

The SDU-100 is configured to operate with a variety of receiver intermediate frequencies (IFs), including 8.8, 10.7, 21.4, 45 and 70 MHz. The IF or receiver model must be specified at the time of order.



 **Designed and manufactured by Grove in the USA!**

"I received my SDU-100, and I must say the performance far exceeds my expectations! I thought the peaks would be represented by occasional sweeps of only a few pixels. Instead the station is clearly visible. I applaud your product and its bargain price for the performance!"

Bruce Lindner
Milwaukie, Oregon

Order Today!

SDU-100 Spectrum Display Unit

\$499⁹⁵

VID-200 New! High Contrast! **9" CRT Monitor**

\$149⁹⁵

Shipping charges for SDU-100 and monitor ordered together:

- \$10.50 UPS
- \$18 2nd Day Air
- \$17.50 US Priority Mail
- \$18 Canadian UPS
- \$21.50 Canadian APP

SPECIFICATIONS

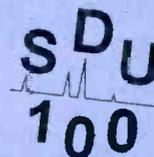
SPAN: 10, 5, 2, 1 MHz; 500, 200, 100, 0 (Time) kHz
DISPLAY ACCURACY: +/-3% or +/-3 dB, whichever is larger
RESOLUTION BANDWIDTH: 5, 30 kHz
SWEEP TIME: 0.1, 0.5, 2, 6 seconds
IF: 10.7 (others available by special order)
VIDEO OUTPUT: TTL to optional monochrome monitor
MINIMUM DETECTABLE SIGNAL (MDS):
 -130 dBm nom.
DISPLAY DYNAMIC RANGE: 80 dB

The SDU-100 is compatible with the following receivers:

- ICOM R7000
- ICOM R7100
- ICOM R9000
- Yaesu FT1000
- Yaesu FRG-100*
- Kenwood R5000*
- Drake R8*
- Drake TR-7*
- Mason A2
- Uniden BC-890XL*
- Uniden BC-8500XL*

*Requires receiver modification

Look for the SDU icon in this catalog for compatible receivers





Choosing a Shortwave Receiver

©Grove Enterprises, Inc. 1994

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

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

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

The Sony SW-100 is a hot performer—literally a shirt-pocket version of the popular ICF2010!

For tote-along, casual shortwave broadcast listening only, the new Sony SW-30 is the best under-\$100 portable we've ever seen! And the new SW8 combines Drake's reputation for high quality with low cost.

The Grundig Satellit 700 probably has the best single-sideband reception of any portable, and its AM/FM audio is rich and full; the Yacht Boy 400 was rated by *Monitoring Times* "The best compact shortwave portable we have tested." Need we say more?

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

Low cost and high quality don't mix. The characteristics of greatest importance to listeners are those which are most commonly compromised in low-cost radios; frequency stability, dial accuracy, selectivity and overload immunity.

The Grove TUN4 preselector will reduce or eliminate overload interference on low cost receivers which suffer from poor dynamic range, and is equipped with connectors for external antennas.

The Drake SW-8 is an excellent performer at a pleasing price between the low-cost portables and more expensive tabletops. For the serious listener the Drake R8, ICOM R71A, Kenwood R5000 and JRC NR535 head the list.

Shortwave Antennas and Accessories

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

combination of characteristics for wide frequency coverage.

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

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

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

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

Recommended Antennas

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

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

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

Directional antennas concentrate incoming signals ("gain") from one direction while rejecting interfering signals from other directions.

The large capture area (aperture) of a big antenna overcomes poor sensitivity in old receivers by providing stronger signals, but modern receivers have excellent sensitivity and require smaller antennas.

Active antennas are nothing more than short vertical elements attached to an amplifier to approximate the signal levels delivered by a full-size antenna. 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-58/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 like the Grove TUN4 not only passes those desired signals, but amplifies them as well, often improving reception when the antenna is small or indoors.

Grounding

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

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

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

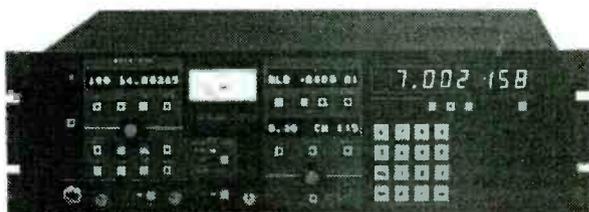
The old-fashioned gap-type lightning arrestors so common during the vacuum tube era are no longer adequate; transistors burn out at voltages much lower than an air gap can protect. Offering much better protection are the new gas-charge types such as the Grove LA1 and Alpha Delta TransiTrap.

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

Order Line — 1-800-438-8155



WATKINS-JOHNSON HF1000 LUXURY RECEIVER



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 CSMA 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.

Order RCV18
Today!
Only

\$3799

\$22.50 UPS
\$38 2nd Day Air
\$25 US Priority Mail
\$35 Canadian APP
\$35 Canadian UPS

ACCESSORIES:
ACC85 Preselector

\$589.95

SPECIFICATIONS

Frequency range: 5 kHz-30 MHz
Tuning steps: 1 Hz
RIT or fine tuning: BFO +/-8 kHz, 10 Hz resolution
Display: 4 separate LED panels
Recommended use: Serious monitoring
Receiving modes: Synchronous AM, FM, CW, USB, LSB, ISB
Memory: 100 channels, 100 lockouts
Scan: 3 modes
Banks: Programmable
Search: Multiple banks
Delay: Adjustable 0.5-20 seconds, and infinite
Squelch: Adjustable 0 to -135 dBm
Clock: No

S.D.U.
100

Audio output power: 1 watt, 8 ohms, 3% THD max.
Record audio output: 0 dBm, 600 ohms
Recorder activator: No
Signal strength indicator: Analog meter, calibrated dBm
Computer interface: RS232 and carrier sense multiple access
Conversion scheme: Triple up-conversion; 40.455 MHz, 455, 5 kHz
Sensitivity: 0.56 microvolts SSB, 0.5-30 MHz
Selectable preamplifier: 15 dB
Selectable attenuator: 10 dB
IF selectivity: DSP; 58 settings from 56 to 8000 Hz
Image rejection: 90 dB min.

Selectable AGC: 100 dB, 15 ms attack, 4 s / 25 ms decay
Dynamic range: 110 dB or better; +30 dBm 3rd order intercept point
Passband tuning: CW only
Noise blanker: 10 step
Notch filter: Tunable IF notch
Tone control: No
Antenna connector: BNC
Dimensions: 19"W x 5-1/4"H x 20"D, rack panel mount
Weight: 15 lbs
Power requirement(s): 97-235 VAC, 47-440 Hz, 35 W
Warranty: One year

Professional quality at a low consumer price!

NEW AND IMPROVED! AOR 3030 GENERAL COVERAGE COMMUNICATIONS RECEIVER



High sensitivity, 10 Hz DDS tuning, 50 kHz-30 MHz continuous frequency coverage, 100 dB dynamic range, multimode reception including synchronous AM detection, dual

VFOs, RS232 interface, compact size, recorder activator, direct keyboard entry, 100 programmable memories, and much, much more!

SPECIFICATIONS

Frequency range: 50 kHz-30 MHz
Tuning Steps: 10 Hz (DDS); dual VFOs
Receiving modes: AM, AM synch., LSB, USB, CW, FAX, FMN
Memory: 100 channels
Scan: Yes
Record audio output: Yes
Recorder activator: Yes

Signal strength indicator: Analog S-meter
Computers interface: RS232C
Image rejection: 70 dB or better
Dynamic range: 100 dB or better
Dimensions: 10"W x 3.5"H x 9.5"D
Weight: 4.8 lbs.
Power requirements: 12VDC or 8 optional AA cells
Warranty: One year

Order RCV20
Today!

Only

\$799⁹⁵

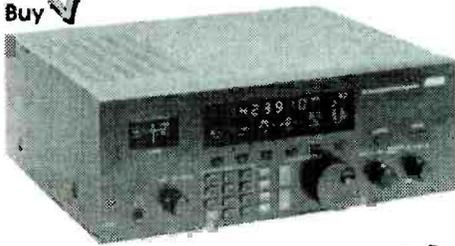
\$10.00 UPS
\$17 2nd Day Air
\$17 US Priority Mail
\$13 Canadian APP
\$20 Canadian UPS



R.L. Drake Company presents the...

R8 COMMUNICATIONS RECEIVER

Best Buy



SDU 100

SPECIFICATIONS

Frequency range: 100 kHz-30 MHz (35-55/108-174 MHz with optional converter)
 Tuning steps: 10/100 Hz (10/100/1000 FM/AM)
 Display: Backlit LCD
 Dimmer: Yes
 Type of listening recommended: International broadcast and utilities
 Receiving modes: AM, narrow FM, USB, LSB, RTTY, CW, synchronous AM
 Memory: 100 channels
 Banks: 10
 Search: No
 Squelch: Yes
 Audio output power: 2.5 W @ 4 ohms for 10 % THD
 Record audio output: Yes
 Recorder activator: No
 S meter: Analog
 Computer Interface: RS232
 Conversion scheme: Double up-conversion
 Sensitivity: 0.5 uV 1.5-30 MHz (0.25 uV 5-30 MHz with preamp), 1 uV 100 kHz-1.5 MHz
 Selectable preamplifier: Yes
 Selectable attenuator: Yes
 Selectivity: (-6/-60 dB, 2:1 shape factor) 8/4/2.3/1.8 kHz; 500 Hz (3:1)

Image rejection: greater than 800B 1.5-30 MHz, greater than 60 dB 100 kHz-1.5 MHz
 Frequency stability: +/- 10 ppm - 10° to 50° C
 Selectable AGC: Off/slow/fast
 Dynamic range: 90 dB @ 20 kHz spacing
 Passband tuning: +/- 3 kHz
 Noise blanker/limiter: Dual
 Adjustable notch filter: 500-5000 Hz, 40 dB
 Tone control: Yes
 Antenna connector: Dual, switched
 Dimensions: 13-1/2"W x 5-1/4"H x 13"D
 Weight: 13 lbs.
 Power requirements: 100V/120/200/240 VAC, 50/60 Hz; 11:16 VDC @ 2A
 Warranty: 1 year

It has been nearly a decade since this respected American company withdrew from manufacturing communications equipment; now they have returned better than ever!
 The exciting new R8 general coverage communications receiver offers outstanding 100 kHz-30 MHz performance at a competitive cost. Four voice-bandwidth filters combined with excellent audio design make international broadcast listening as well as utilities monitoring a pleasure.
 Synchronous detection reduces fading and distortion while passband tuning rejects adjacent frequency interference. Ideal for AM, SSB, RTTY, CW reception.
 Optional converter allows AM/FM reception 35-55, 108-174 MHz, while a builtin microprocessor/controller offers RS232 computer control and multiple-function switching.
 Dual VFOs, switchable preamp/attenuator, dual-time-zone clock timer, switchable antenna inputs, universal power supply and more combine to make this new receiver an outstanding value.

Order RCV1
 Grove discount price only
\$968⁹⁵
 Retail ~~\$978~~
 \$16 UPS
 \$29 UPS 2nd Day Air
 \$28.50 US Priority Mail
 \$26 Canadian UPS
 \$35.50 Canadian APP

ACCESSORIES:
 ACC43 VHF Converter \$209.95
 ACC49 External Speaker \$48.95
 plus \$6 UPS
 ACC67 Service Manual \$39.95
 ACC77 PC Software \$58.95
 WP05 RDI White Paper® \$5.95
 Installation fee \$20

New from R.L. Drake Company

SW8 WORLD BAND RECEIVER

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!



Order RCV19
 Grove discount price only
\$595⁹⁵
 \$10 UPS
 \$26 UPS 2nd Day Air
 \$23 US Priority Mail
 \$21 Canadian UPS
 \$28 Canadian APP

ACCESSORIES:
 WP10 RDI White Paper® \$5.95

SPECIFICATIONS

Frequency range: 500 kHz-30, 87-108, 116-136 MHz
 Tuning steps: Not specified
 RIT or fine tuning: No
 Display: Backlit LCD
 Dimmer: On/off
 Recommended use: General purpose AM/SSB, aircraft, FM broadcast
 Receiving modes: AM, AM Synchronous, LSB, USB, WFM
 Memory: 70 channels Scan: Yes
 Banks: 7 (10 channels each) Search: No
 Delay: 5 seconds per step Squelch: No
 Clock: Dual mode 2.4 hour with timer

Audio output power: 2 W @ 5% THD into 4 ohms
 Record audio output: 300 mV into 4700 ohms
 Recorder activator: No
 Signal strength indicator: Analog S meter
 Computer interface: No
 Conversion scheme: Double up-conversion; 55.845 MHz/455 kHz
 Sensitivity: 0.5 uV or better (SSB)
 Selectable preamplifier: No
 Selectable attenuator: 20 dB
 IF selectivity (-6/-50 dB): AM Wide 6/15 kHz; AM Narrow 4/10 kHz; SSB 2.3/4.5 kHz
 Image rejection: 70 dB or better
 Selectable AGC: Yes

Dynamic range: 95 dB or better
 Passband tuning: No
 Noise blanker or limiter: No
 Adjustable notch filter: No
 Tone control: Yes
 Antenna connector: SO-239 (UHF), push terminals, integral whip
 Dimensions: 11-1/2"W x 5-1/4"H x 13"D
 Weight: 10 lbs.
 Power requirement(s): 6-9 VDC (AC adaptor included), 6 D cells
 Warranty: One year
 Accessories included: Telescoping whip, AC adaptor



JRC NRD-535D

This top-of-the-line communication receiver Offers continuous frequency coverage of 90 kHz through 30 MHz and reception modes for AM, USB, LSB, CW, RTTY, FAX and narrowband FM.

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

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

Front panel controls include squelch, AF and RF gain controls, tone control, and AGC timing. A 24-hour clock-timer can be pre-adjusted for frequency, mode and on/off time, and includes a record activator. A built-in RS232 interface allows your computer to control virtually every function of this remarkable receiver for even greater listening power.



Order RCV3
\$1688⁹⁵
 \$17 UPS
 \$38 UPS 2nd Day
 \$35.50 US Priority Mail
 \$33 Canadian UPS
 \$45.50 Canadian APP

SPECIFICATIONS

Frequency range: 90 kHz-30MHz
 Keypad frequency entry: yes
 Tuning steps: 1 Hz minimum
 Display: Fluorescent
 Dimmer: 4 levels
 Type of listening recommended: Utility and foreign broadcasting
 Receiving modes: AM, CW, RTTY, FAX, NBFM, USB, LSB
 Memory: 200 channels
 Scan: Yes Banks: No
 Delay: Yes Search: Yes
 Squelch: Yes
 Clock: 24 hour clock/timer
 Audio output power: 1 watt @ 4 ohms
 Record audio output: 1 mW @ 600 ohms (mini phone plug)
 Recorder activator: yes
 S meter: Analog-emulation fluorescent
 Computer Interface: RS232 built-in
 Conversion scheme: Triple up-conversion (70.45 MHz/455/97 kHz)
 Sensitivity: 0.5 uV 1.5-30 MHz (SSB)

Selectable preamplifier: No
 Selectable attenuator: 20 dB
 Selectivity: (-6/-60 dB) AUX 12/24 kHz, WIDE 6/15 kHz, INTER 2/6 kHz, NARR 1/3 kHz, FM 12 kHz continuously adjustable 0.5-5.8 kHz
 Image rejection: -70 dB
 Frequency stability: +/- 2 PPM after one-hour warmup
 Selectable AGC: Fast/slow/off
 Dynamic range: 106 dB @ 300 Hz BW
 Passband tuning: +/- 1 kHz
 Noise blanker/limiter: Dual width
 Adjustable notch filter: - 30 dB
 Tone control: Yes
 Antenna connector: SO-239 (UHF)
 Dimensions: 13"W x 5"H x 11"D
 Weight: 20 lbs.
 Power requirements: 120/240 VAC @ 50/60 Hz; 12 VDC 2 A
 Warranty: One year
 Accessories included: None

OPTIONAL ACCESSORIES

ACC5	Upgrade Kit (0.5-5 kHz tunable filter for early models)	\$169.95
ACC24	6ZCJD00 serial cable for computer	\$59.95
ACC25	NVA-319 matching speaker with pushbutton audio filters	\$179.95
ACC26	CFL-218A 1.8 kHz extra sharp SSB/RTTY filter	\$139.95
ACC27	CFL-232 500 Hz sharp CW filter	\$139.95
ACC28	CFL-251 2.4 kHz sharp SSB/fax	\$139.95
ACC29	CGD-135 High stability (+/-0.5 PPM) crystal oscillator	\$79.95
ACC107	RTTY Demodulator	\$109.95
ACC17	Service Manual	\$25.00
	Upgrade and filter installation fee:	\$20

"...at the Monitoring Times Convention...! (compared) the HF-150 with a Sony SW55, a Sony SW77, a Sony ICF2010, and a Grundig Satellit 500...it blew away the competition." (James D. Strader, P.E.)

NEW CATALOG PRODUCT! LOWE HF-150 COMMUNICATIONS RECEIVER

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"W x 3"H x 6-1/4"D, 3 pound package!



SPECIFICATIONS

Frequency coverage: 30 kHz to 30 MHz continuous coverage
 Reception modes: LSB, USB, AM, Synchronous AM (USB, LSB, DSB)
 Receiver system: Microprocessor controlled PLL tuning, dual conversion superheterodyne receiver
 Intermediate Frequency: First IF 44,999 MHz to 45,000 MHz; second IF 45.5 kHz
 Display: 5 digit LCD showing frequency to nearest 1 kHz, receiver mode, and memory number
 Tuning: By spin-wheel, and direct entry keypad (option)
 Tuning steps: 8 Hz in LSB, USB, and AMS modes; 60 Hz in AM mode. Step size increases with rapid spin-wheel rotation. Keypad frequency entry is to 1 kHz resolution.
 Memories: 60 memories holding frequency and mode. Data held in EEPROM for > 10 years.
 Memory function: Preview, Recall, Store. Last tuned frequency is retained when receiver is switched off
 Aerial inputs: 50u input via SO-239 socket, 600u input and earth connection on press terminals. High impedance active aerial for whip via SO-239 socket

RF attenuator: 20 dB IF Filters: Wide: 7 kHz, Narrow: 2.5 kHz
 Audio outputs: Record output at approx. 200 mV (3.5mm jack). External loudspeaker (3.5mm jack). Headphone output (mono or stereo) (6.3mm jack). The internal loudspeaker is disconnected when headphones or an external loudspeaker are plugged in.
 Power supply: 12 Vdc supply @ 130 to 300 mA (2.1 mm power jack). 240Vac power unit supplied as standard (110V in some markets)
 Internal batteries: 8 AA size cells. Nicad charging system included in main receiver.
 Size: 185 x 80 x 175 mm (W x H x D, overall)
 Weight: Approx. 1.3 kg (1.5 kg inc. batteries)

Order RCV25 \$8 UPS
 Only \$16 UPS 2nd Day
\$599⁹⁵ \$16.50 US Priority Mail
 \$18.50 Canadian APP
 \$18 Canadian UPS



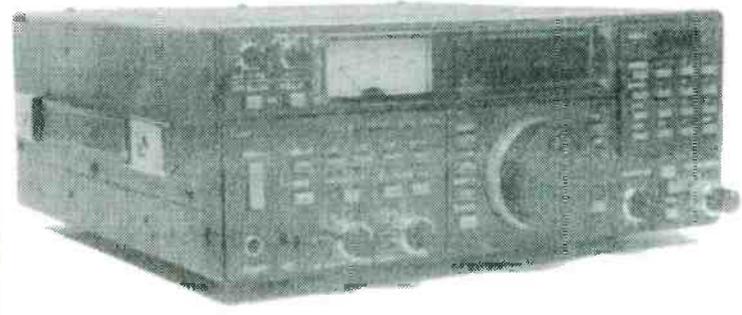
ICOM R-71A

This receiver is as professional as it looks. The brilliant fluorescent display provides frequency information down to tenths of a kilohertz and alerts the listener to other dial settings (mode, memory, channel, VRO).

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.



Order RCV6
Only
\$1037⁹⁵

\$17.00 UPS
\$32 UPS 2nd Day
\$30.50 US Priority Mail
\$39.50 Canadian APP
\$30 Canadian UPS

OPTIONAL ACCESSORIES

One or more accessories installed w/radio -- \$20

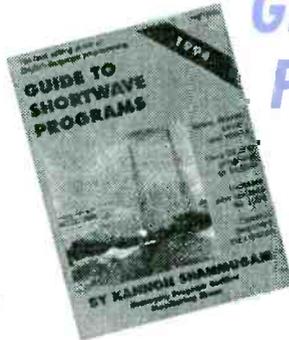
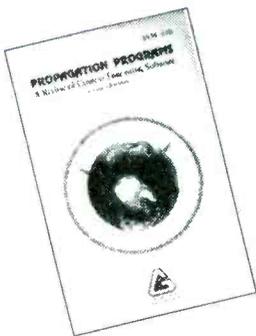
ACC1	EX257 FM mode detector	\$55.95
ACC2	SP3 speaker (plus \$7.50 UPS)	\$77.95
ACC3	DC Power kit EX299	\$19.95
ACC4	CR64 high stability crystal	\$79.95
ACC7*	UX14 Level converter	\$70.95
ACC74*	CT-17 computer interface	\$109.95
*Must use ACC73 & ACC74 together		
ACC7	EX310 voice synthesizer	\$69.95
ACC8	FL32A CW narrow filter	\$76.95
ACC9*	FL44A SSB filter	\$178.95
ACC10*	FL63A CW narrow filter	\$59.95
*Use only one filter		
ACC12	RC11 remote control	\$82.50
ACC13	MB12 mobile mount bracket	\$25.95
ACC14	Service manual	\$41.00
WP01	RDI White Paper®	\$5.95

SPECIFICATIONS

Frequency range: 100 kHz-30MHz
 Keypad frequency entry: Yes, plus tuning knob
 Tuning steps: 10 Hz
 RIT (fine tuning): No
 Display: Fluorescent
 Dimmer: Yes
 Type of listening recommended: Domestic and international broadcasting, two-way communications
 Receiving modes: AM, USB, LSB, RTTY, CW, narrowband FM
 Memory: 32 channels plus 2 temporary VFO memories
 Scan: yes
 Lockout: No
 Search: Yes
 Squelch: Yes
 Audio output power: 2 watts
 Record output: Yes
 S meter: Analog
 Conversion scheme: Quadruple up-conversion
 Sensitivity: 0.2 uV with preamplifier on

Selectable preamplifier: Yes
 Selectable attenuator: Yes
 Selectivity: (-6/60 dB) wide 6/15 kHz; narrow 2.3/4.2 kHz; optional FM 15/25 kHz
 Image rejection: 60 dB
 Frequency stability: 50 Hz
 Selectable AGC: Yes
 Dynamic range: 86 dB
 Passband tuning: Yes
 Noise blanker/limiter: Dual, adjustable
 Adjustable notch filter: Yes
 Antenna connector: SO-239 (UHF)
 Auxiliary connector: 70 MHz IF output
 Dimensions: 11-1/4"W x 4-3/8"H x 10-7/8"D
 Weight: 16-1/2 lbs.
 Power requirements: 120/240 VAC; 12 VDC with optional EX299
 Warranty: One year
 Accessories included: None

BUY ANY SHORTWAVE RECEIVER AND RECEIVE A FREE GROVE SHORTWAVE STARTER PACK!



Exclusively for Grove customers, we offer this special deal including two of Grove's top-selling books, Jacques d'Avignon's Propagation Programs and Kannon Shanmugam's 1994 Guide to Shortwave Programs.

That's \$22.90 worth of books FREE, just for buying a shortwave receiver from Grove! This offer is limited to book quantities, so call today!

ON SALE NOW! ICOM GP-22 SATELLITE POSITION LOCATOR

Use the same precision satellites that helped us win the Gulf War. This tiny (2-1/2" x 5-1/4", 11 oz) earth station fits in the palm of your hand! The easy-to-read digital display reveals bearing information from up to five earth-orbiting satellites, providing your latitude and longitude to within 300 feet (limited by the Department of Defense)—even your altitude!

Easy to use. Track your direction or return to a precise location. Create a route. Confirm your waypoints. Compute estimated time of arrival (ETA). Display heading, speed, bearing and range. Compute world and local time.

Powered by rechargeable battery pack or optional AA cells. Includes carrying case, cigarette lighter power cord, AC wall adaptor/charger, illustrated instruction book.



Order GP22
Special Sale Price
\$499⁹⁵

\$8 UPS
\$11.50 2nd Day Air
\$12.50 Priority Mail
\$15 Canadian UPS
\$16.50 Canadian APP

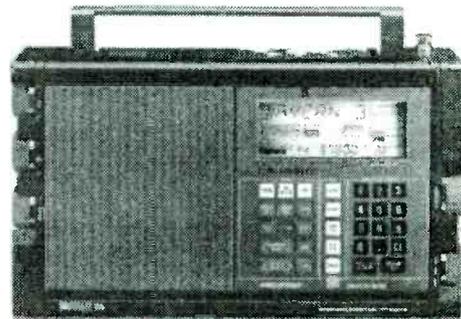


NOW FROM GROVE! **GRUNDIG** SHORTWAVE PORTABLES

SPECIFICATIONS

Frequency range: 150-353 kHz/528-30,000 kHz/87.5-108 MHz
 Tuning steps: 1 kHz AM/100 Hz SSB
 RIT or fine tuning: Yes
 Display: Backlit LCD
 Dimmer: on/off
 Recommended use: Broadcast reception
 Receiving modes: AM/AM synch/USB/LSB/FM broadcast
 Memory: 120 factory presets/ 64 programmable alphanumeric channels
 Scan: Yes
 Search: Yes
 Delay: 1 second
 Clock: 12/24 hour/timer/sleep switch/programmable record
 Audio output power: 3 watts
 Record audio output: Stereo and mono
 Recorder activator: Yes
 Signal strength Indicator: LCD bargraph
 Computer interface: No
 Conversion scheme: Double up-conversion, 54.5 MHz/450 kHz
 Sensitivity: Unavailable
 Selectable preamplifier: No
 Selectable attenuator: DX/local switch
 IF selectivity: 3.8/6.8 kHz
 Image rejection: Unavailable
 Selectable AGC: Yes, with RF gain control
 Dynamic range: Unavailable
 Passband tuning: No
 Noise blanker or limiter: No
 Adjustable notch filter: No
 Tone control: Separate bass/treble controls
 Antenna connector: DIN (supplied)
 Dimensions: 12"W x 7"H x 2-1/2"D
 Weight: 4 lbs 2 oz
 Power requirement(s): 120/240 VAC (adaptor Included)/ 4 D cells (alkaline or NiCd; charger included)
 Warranty: 1 year
 Accessories Included: Manuals, coax connector, AC adaptor

**GRUNDIG
 SATELLIT 700
 LUXURY PORTABLE**



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 150-353 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 with station names on the giant LCD display allows instant selection of favorite stations. Automatic bandscanning searches for active frequencies.

Order RCV23
 Retail ~~\$499⁹⁵~~

\$399⁹⁵

\$8 UPS
 \$16 2nd Day Air
 \$15.50 US Priority Mail
 \$18 Canadian APP
 \$11.50 Canadian UPS

"The best compact shortwave portable we have tested"... "The best sounding audio we have come across in a compact portable." (Monitoring Times, August 1993)

**GRUNDIG
 YACHT BOY 400
 PORTABLE**



SPECIFICATIONS

Frequency range: 150-30,000 kHz, 87.5-108 MHz
 Tuning steps: 1/5 kHz
 RIT or fine tuning: Yes
 Display: Backlit LCD
 Dimmer: On/off
 Recommended use: Casual shortwave and FM monitoring
 Receiving modes: AM/SSB; FM broadcast
 Memory: 40 channels
 Scan: Yes
 Clock: Dual 12/24 hour, sleep switch
 Record audio output: No
 Recorder activator: No
 Signal strength Indicator: LCD bargraph
 Computer interface: No
 Conversion scheme: Dual conversion
 Sensitivity: Unavailable
 Selectable attenuator: No
 IF selectivity: Unavailable
 Dynamic range: Unavailable
 Tone control: Yes
 Warranty: One year
 Accessories included: Batteries, reel antenna, carrying case, Shortwave guidebook

It's always a pleasure to introduce a really good, low-cost product—and that's just what Grundig's newest entry is. With AM/FM stereo and continuous shortwave frequency coverage from 1.7-30 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 scannable memories and simple pushbutton tuning.

A giant, backlit LCD shows frequency, dual-zone 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.

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

ACCESSORIES:
 ACC137 AC Adaptor \$7.99

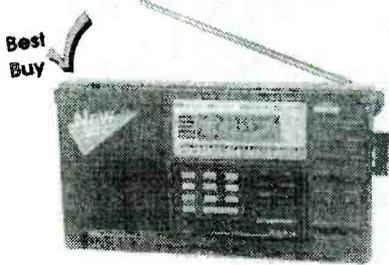
Order RCV22
 Retail ~~\$279⁹⁵~~

\$219⁹⁵

\$8 UPS
 \$16 2nd Day Air
 \$15.50 US Priority Mail
 \$18 Canadian APP
 \$11.50 Canadian UPS



SANGEAN ATS-803A



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

Order RCV4
\$149⁹⁵

\$8 UPS
\$16 2nd Day Air
\$15.50 US Priority Mail
\$18 Canadian APP
\$11.50 Canadian UPS

SPECIFICATIONS

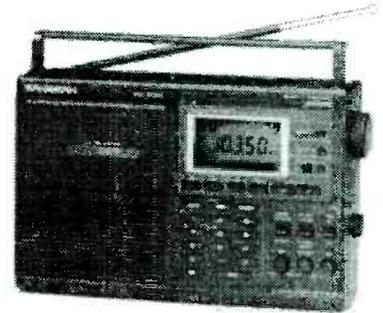
Frequency range: 150 kHz-30 MHz, 87.5-108 MHz
 Keypad frequency entry: Yes
 Tuning steps: 1 kHz
 RIT (fine tuning): Tuning knob and BFO
 Display: Illuminated LCD
 Dimmer: No
 Type of listening recommended: Domestic & intl broadcast, casual
 Receiving modes: AM, SSB, wideband FM
 Memory: 9 channels Scan: Yes
 Banks: No Lockout: No
 Priority: No Search: Yes
 Delay: Yes Squelch: No
 Clock: With alarm/sleep functions
 Audio output power: 900 milliwatts
 Record output: 5 pin DIN connector, 1 millivolt @ 1000 ohms
 S meter: LED light bar
 Computer interface: No
 Conversion scheme: Dual up-conversion; 55.845 MHz, 10.7 MHz, 450 kHz
 Sensitivity: Not available

Selectable preamplifier: No
 Selectable attenuator: RF gain control
 Selectivity: Wide/narrow AM/SSB (6.5 kHz AM)
 Image rejection: AM 50 dB; FM 60 dB
 Frequency stability: Quartz PLL
 Selectable AGC: No
 Dynamic range: Not available
 Passband tuning: No
 Noise blanker/limiter: No
 Adjustable notch filter: No
 Tone control: Separate bass & treble
 Antenna connector: RCA phono plug
 Auxiliary connector: No
 Dimensions: 11-1/2"W x 6-1/4"H x 2-1/2"D
 Weight: 4 lbs.
 Power requirements: 2 AA and 6 D cells or 120 VAC
 Warranty: 1 year
 Accessories included: AC adaptor, stereo headphones, shoulder strap, SW handbook, external antenna adaptor.

Top-of-the-line With Built-In Cassette Recorder

SANGEAN ATS-818CS

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



Order RCV9
Retail ~~\$359~~
Only

\$219⁹⁵
\$8 UPS
\$16 2nd Day Air
\$16 US Priority Mail
\$20.50 Canadian APP
\$18 Canadian UPS

SPECIFICATIONS

Frequency range: 150 kHz-30 MHz AM/SSB, 87.5-108 MHz FM
 Keypad frequency entry: Yes
 Display: Backlit LCD
 Dimmer: Yes
 Recommended use: Casual SW listening
 Receiving modes: AM, SSB, FM
 Memory: 45 presets Scan: Yes
 Banks: No Lockout: No
 Priority: No Search: Yes
 Delay: Yes Squelch: No
 Clock: Dual time display with record timer
 Audio output power: 800 mW
 Record audio output: No
 Recorder activator: Internal programmable cassette recorder/player
 Signal strength indicator: Yes
 Computer interface: No

Conversion scheme: Double conversion
 Sensitivity: Not available
 Selectable preamplifier: RF gain control
 Selectable attenuator: No
 IF selectivity: Wide/narrow switch
 Image rejection: Not available
 Frequency stability: Not available
 Selectable AGC: No Dynamic range: Not available
 Passband tuning: No Noise blanker/limiter: No
 Adjustable notch filter: No Tone control: Yes
 Antenna connector: Yes Auxiliary connector: No
 Dimensions: 11-1/4"W x 7-3/8"H x 2-3/4"D
 Weight: 3 lbs. 13 oz.
 Power requirements: AC, internal batteries
 Warranty: One year
 Accessories included: AC adaptor, external antenna adaptor, shortwave handbook

NEW! SONY ICF-SW100 SHIRT-POCKET SHORTWAVE RADIO!

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!



Order RCV 24
Grove's low price only
\$349⁹⁵

\$8 UPS
\$20 UPS 2nd Day Air
\$16.50 US Priority Mail
\$18.50 Canadian APP
\$21 Canadian UPS

SPECIFICATIONS

Frequency Range: 150 kHz-30 MHz, 76-108 MHz
 Tuning steps: 100 Hz/1/5 kHz; 9/10 kHz MW, 50 kHz FM
 Display: Backlit LCD Dimmer: On/Off
 Recommended use: Casual shortwave
 Receiving modes: AM/AM Synchronous, USB, LSB/CW, FM (76-108 MHz)
 Memory: 50 channels Scan: Yes Banks: 10
 Search: Yes Delay: Yes
 Clock: 24 hour, local and daylight savings time, sleep timer
 Audio output power: 250 mW into 8 ohms (1-5/8" speaker)
 Record audio output: 245 mV @ 10K ohms

Recorder activator: No
 Signal strength indicator: No
 Conversion scheme: Dual up-conversion, 55.845 MHz/455 kHz (10.7 MHz FM)
 Selectable attenuator: Yes
 Tone Control: Yes
 Antenna connector: 1/8" (3.5mm) mini
 Dimensions: 4-3/8"W x 2-7/8"H x 15/16"D Weight: 8 ounces
 Power requirement(s): 2 AA cells or 120 VAC
 Warranty: One year
 Accessories included: AC wall adaptor, active antenna, stereo earphones, soft-case, listener's guide, operating manual



SONY COMPARISON CHART

	ICF-SW55	ICF-SW77	ICF-2010	ICF-SW7600	ICF-SW30	ICF-SW100
Received Band	· FM Stereo Yes	Yes	No	Yes	Yes	Yes
	· Air Band No	No	No	No	No	No
Way of Tuning	· Station Name Tuning Yes	Yes	No	No	No	Yes
	· AM Tuning Step 100 Hz	50 Hz	100Hz	5kHz	1 kHz	100 Hz
	· Preset Memories 125	162	32	10	15	50
	· Broadcasting Time Display No	Yes	No	No	No	No
	· Auto Program Select No	Yes	No	No	No	No
Tuning Mode	· AM Wide/Narrow filters Yes	Yes	Yes	No	No	No
	· SSB Wide/Narrow filters Yes	Yes	No	No	No	No
	· USB/LSB Select Yes	Yes	Yes	Yes	No	Yes
	· Synchronous Detection No	Yes	Yes	No	No	Yes
Others	· Clock Yes	Yes	Yes	Yes	Yes	Yes
	· Timer Yes	Yes	Yes	Yes	Yes	Yes
	· Rec Out Jack Yes	Yes	Yes	Yes	No	Yes
	· Ext Antenna Jack Yes	Yes	Yes	Yes	No	Yes
	· Sleep Mode (min) Yes	Yes	Yes	Yes	Yes	Yes
	· Tone Control Yes	Yes	Yes	Yes	No	Yes

"Clearly the best in its price class!"

Larry Magne **SONY ICF-SW30**
Monitoring Times

Best Buy ✓



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 stations more expensive radios miss!

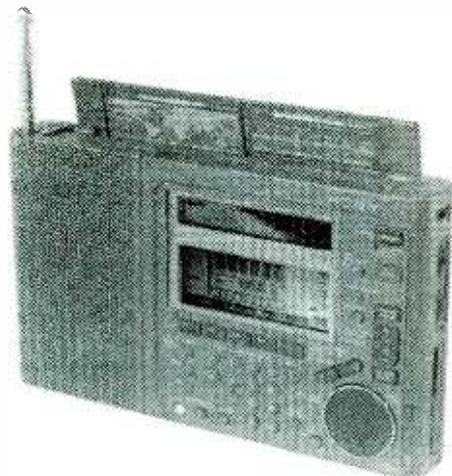
Battery powered with level indicator, dual-zone 24-hour clock, temporary memory during battery change, 15 memory channels (5 for each band), signal seeking (autosearch in 1 kHz steps), and pushbutton tuning. Travel power lock prevents accidental turn-on. Offers FM stereo with optional earphones.

Covers standard AM and FM broadcast, and the most popular shortwave ranges: 3700-4200, 4650-5150, 5800-6300, 6950-7450, 9375-1000, 11525-12150, 13375-14000, 14975-15600, 17475-18100 and 21320-21950 kHz.

Measuring only 4-1/2"H x 6-1/2"W x 1-1/2"D and weighing a mere 1 pound 2 ounces, the SW30 includes an integral tilt bracket for desktop viewing, sleep control, radio alarm clock, swivel telescopic antenna, and carrying strap.

Order RCV21
Retail ~~\$129⁹⁵~~
Grove Discount Price Only
\$99⁹⁵
\$5.50 UPS
\$8.50 UPS 2nd Day
\$5 US Priority Mail
\$8.50 Canadian APP
\$12 Canadian UPS

ACCESSORIES
ACC136 AC Adaptor \$19.95



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.

Order RCV10
Retail ~~\$549⁹⁵~~
Only
\$469⁹⁵
\$8 UPS
\$16 UPS 2nd Day
\$17.50 US Priority Mail
\$20.50 Canadian APP
\$18 Canadian UPS

SPECIFICATIONS

Frequency range: 150 kHz-29.9999 MHz AM/SSB, 87.5-108 MHz FM
Keypad frequency entry: yes
Tuning steps: 1 kHz/50 Hz
Display: LCD
Dimmer: No
Recommended use: General Purpose
Receiving modes: AM/SSB; FM 87.5-108 MHz
Memory: 162 channels, alphanumeric display
Scan: yes
Lockout: No
Search: Yes
Squelch: No
Audio output power: 400 milliwatts @ 10% THD
Record audio output: 138 millivolts @ 10 K ohms
Recorder activator: Yes
Signal strength indicator: LCD bargraph
Computer Interface: No
Conversion scheme: Dual 55.845 MHz/455 kHz (10.7 MHz FM)
Sensitivity: Unavailable
Selectable preamplifier: No
Selectable attenuator: Yes
Selectable AGC: No
Passband tuning: No
Noise blanker or limiter: No
Adjustable notch filter: No
Tone control: Bass and treble
Antenna connector: 1/8" miniplug
Auxiliary connector: None
Dimensions: 10-7/8"W x 6-7/8"H x 1-7/8"D
Weight: 3-1/4 lbs with batteries
Power requirement(s): 4 C cells, 6 VDC (AC adaptor inc.)
Warranty: One year
Accessories included: AC adaptor, stereo earphones, ear pads, carrying belt, compact antenna, external antenna adaptor, manual.

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 (headphones included!), 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!

ACCESSORIES:

ACC142 AC Adaptor \$29.95

NOW IMPROVED!



Order RCV11

Retail ~~\$249⁹⁵~~
\$199⁹⁵
 \$8 UPS
 \$12 UPS 2nd Day Air
 \$13.50 US Priority Mail
 \$16 Canadian UPS
 \$15.50 Canadian APP

SPECIFICATIONS

Frequency range: 150-29995 kHz. 87.6 - 108 MHz
 Keypad frequency entry: Yes
 Tuning steps: 5 kHz, fast/slow button
 RIT (fine tuning): +/- 10 kHz AM and SSB
 Display: Backlit LCD Dimmer: No
 Type of listening recommended: Domestic & international broadcasting, casual SSB
 Receiving modes: AM, wide FM, SSB
 Memory: 22 channels Scan: Yes
 Banks: No Lockout: No
 Priority: No
 Search: Yes, with times delay
 Delay: No Squelch: No
 Clock: With timer & sleep function
 Record audio output: yes Recorder activator: yes
 S meter: Single "tune" LED Computer interface: No
 Conversion scheme: Dual conversion
 Selectable preamplifier: No
 Selectable attenuator: DX/local switch
 Tone control: Music/news switch
 Antenna connector: No
 Dimensions: 7-9/32"W x 4-11/16"H x 1-1/4"D
 Weight: 1-1/4 lbs.
 Power requirements: 4 AA cells or AC adaptor
 Warranty: One year.
 Accessories included: Stereo earplugs, carrying case, reel antenna, AC wall adaptor.

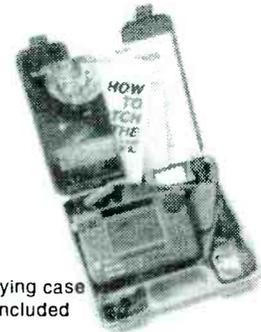
SPECIFICATIONS

Freq range: 150 kHz-30 MHz AM/SSB, 87.5-108 MHz FM
 Keypad frequency entry: yes
 Tuning steps: 0.1/1 kHz
 RIT or fine tuning: yes
 Display: LCD Dimmer: No
 Recommended use: Casual international broadcast listening
 Receiving modes: AM/SSB Memory: 125 channels
 Scan: Yes
 Banks: 25 (5 channels each)
 Lockout: No Priority: No
 Search: Yes Delay: Yes
 Squelch: No Clock: 12/24 hour
 Audio output power: 400 milliwatts at 10% THD
 Record audio output: 245 millivolts @ 10 K ohms
 Recorder activator: Yes
 Signal strength indicator: LCD bargraph
 Computer interface: No
 Conversion scheme: Dual 55.845 MHz/455 kHz (10.7 MHz FM)
 Selectable preamplifier: No
 Selectable attenuator: Yes Tone control: Yes
 Antenna connector: 1/8" miniplug
 Auxiliary connector: No
 Dimensions: 7-3/4"W x 5"H x 1-1/2"D
 Weight: Approx. 2 lbs
 Power requirement(s): 4 AA batteries; 6VDC (AC adaptor inc.)
 Warranty: One year
 Accessories included: Stereo earphones, AC adaptor, earpads, compact antenna, external antenna adaptor, books and manual

SONY ICF-SW55

For the traveler on the go, reliable shortwave coverage — AM and SSB — are at your fingertips with the popular SW55. Just check all the features found in this compact powerhouse:

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



Carrying case not included

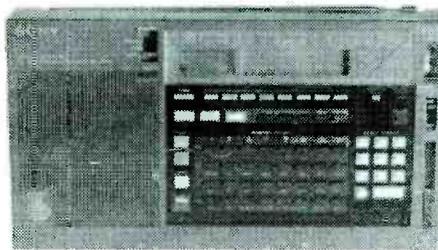
Order RCV15
 Retail ~~\$449⁹⁵~~

\$349⁹⁵
 \$8 UPS
 \$14.50 UPS 2nd Day Air
 \$17.50 US Priority Mail
 \$20.50 Canadian APP
 \$16 Canadian UPS

The World's Most Popular Radio!

SONY ICF-2010

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



Order RCV2
 Retail ~~\$439⁹⁵~~

Only \$349⁹⁵
 \$8 UPS
 \$16 UPS 2nd Day
 \$16.50 US Priority Mail
 \$18.50 Canadian APP
 \$18 Canadian UPS



ACCESSORIES

WP04 RDI WHITE PAPER® \$5.95

SPECIFICATIONS

Frequency range: 150 kHz-30MHz, 76-108, 116-136 MHz
 Keypad frequency entry: Yes, plus tuning knob
 Tuning steps: 100 Hz RIT (fine tuning): No
 Display: Backlit LCD Dimmer: No
 Type of listening recommended: Domestic & International broadcasting, casual two-way SSB and aircraft
 Receiving modes: AM, USB, LSB, wideband FM; synchronous detection
 Memory: 32 channels
 Scan: Yes Banks: No
 Lockout: No Priority: No
 Search: Yes Delay: Yes
 Squelch: No Clock: 12/24 hour w/alarm and sleep timer
 Audio output power: .380 milliwatts
 Record output: Miniplug, .775 millivolts @ 1000 ohms; no activator
 S meter: LED bargraph Computer interface: No
 Conversion scheme: Dual up-conversion
 Sensitivity: 0.2 uV SSB Selectable preamplifier: No
 Selectable attenuator: DX/local switch
 Selectivity: Wide 18 kHz @ -50 dB; narrow 10 kHz @ -50 dB
 Image rejection: Not available
 Frequency stability: Quartz PLL Tone control: Yes
 Antenna connector: 1/8" mini phone plug
 Auxiliary connector: No
 Dimensions: 11-3/8"W x 6-1/4"H x 2-1/16"D
 Weight: 3-3/4 lbs.
 Power requirements: 2 AA and 3 D cells or 120 VAC
 Warranty: One year
 Accessories included: AC adaptor, earphone, shoulder strap, wire antenna, external antenna adaptor/plug, SW handbook.



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!



SPECIFICATIONS

RECEPTION MODES:

- Morse (5-120 WPM)
- RTTY (45/50/57/75/100 baud and 20-250 baud non-standard)
- ASCII (75/110/150/300/600/1050/1200/1800 baud)
- SITOR (A/B/AMTOR A/AMTOR B/ARQTOR/FECTOR)
- FDM/VFT (8/12/16/24 channel)
- Piccolo
- TDM/ARQ (M2/M4/E/E3/S/SWED)
- FEC (A/S)
- Packet (300/1200 baud)
- Pager (Golay/POCSAG)
- Facsimile (60/90/120/240 LPM, AM/FM)
- Cyrillic (Russian third shift)
- **NEW VERSION 5 NOW INCLUDES PACTOR, ARQ6-90 AND ACARS!**

ACCESSORIES:

ACC140 19" rack panel mount kit \$19.95



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
Retail price ~~\$1399~~

Grove price only **\$1349**

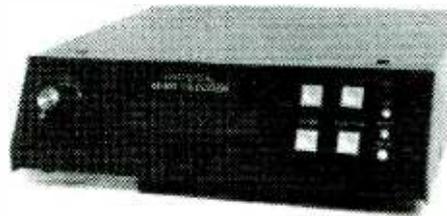
\$10.50 UPS
\$20.50 UPS 2nd Day
\$20.50 US Priority Mail
\$35.50 Canadian APP
\$25.50 Canadian UPS

M-400 UNIVERSAL DECODER

NEW VERSION 2! Now with Super POCSAG, 1200 baud, simple, pushbutton mode selection, this self-contained, compact, minidriver 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-go-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. *Printer required.*



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 (120 LPM/576 IOC, to parallel printer port)
Paging (GOLAY, POCSAG)
ACARS
Encoded squelch (CTCSS, all 41 frequencies; DCS, all 104 codes)
Tone dialing (DTMF, all 16 digits)
- FILTER:** Low tone (mark) 1275 Hz
Shifts: 170, 425, 850 Hz; plus 100-1000 Hz variable
- INPUTS:** Speaker, 4-16 ohms @ 100 mW max.
Discriminator, 10K ohms @ 0.25 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 8" D
WEIGHT: 2 lbs

Order DEM 9
Only **\$399⁹⁵**

\$8 UPS
\$23 UPS 2nd Day Air
\$17.50 US Priority Mail
\$20.50 Canadian APP
\$22 Canadian UPS

Shortwave Sampler

©Grove Enterprises, Inc. 1994
(Frequencies in kilohertz, upper sideband):

- 4066 Mississippi River barges
- 4080 Mississippi River barges
- 4146 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
- 4725 U.S. Air Force air to ground
- 5598 International airlines
- 5616 International airlines
- 5696 U.S. Coast Guard aircraft
- 5812 Spy numbers transmissions
- 6501 U.S. Coast Guard ships
- 6577 International airlines
- 6604 Flight weather broadcasts
- 6673 NOAA hurricane hunters
- 6697 U.S. Navy
- 6738 U.S. Air Force
- 6753 Canadian Air Force
- 8294 Ship to shore
- 8297 Mississippi River barges
- 8740 Ship to shore
- 8776 U.S. Navy Pacific
- 8803 Ship to shore
- 8806 Ship to shore
- 8825 International airlines
- 8846 International airlines
- 8876 NOAA hurricane hunters
- 8891 International airlines
- 8967 U.S. Air Force
- 8972 U.S. Navy, Atlantic
- 8984 U.S. Coast Guard air/ground
- 8993 U.S. Air Force
- 9023 U.S. Air Force
- 10780 NASA Cape Kennedy
- 11176 U.S. Air Force
- 11200 Royal Air Force flight weather
- 11233 Canadian Air Force
- 11234 Royal Air Force
- 11243 USAF STRATCOM
- 11282 International airlines
- 13201 U.S. Air Force
- 13270 Flying weather
- 13282 Flight weather
- 13306 International airlines
- 13354 NOAA Hurricane Hunters

INTERNATIONAL BROADCASTERS (Frequencies kilohertz, AM mode)

5960	Canada	9685	Sweden
5975	England	9755	Canada
6010	Cuba	9745	Ecuador
6040	Germany	12095	England
6165	Netherlands	13760	USA
6175	England	15155	Ecuador
7325	England	17795	Australia
7375	Costa Rica	21740	Australia
9540	Spain		

TIME SIGNALS

WWV:	2500	5000	10000	15000
	20000			
CHU:	3330	7335	14670	



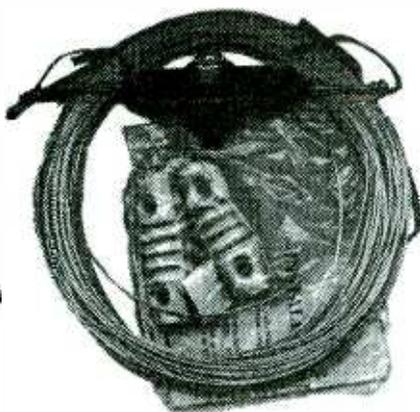
Outdoor dipole for worldwide shortwave reception



THE GROVE SKYWIRE ANTENNA

Highest performance and lowest cost—an unbeatable combination! Why restrict your frequency coverage with the gaps found in expensive trap dipoles or unpredictable random wire when you can get unsurpassed full-frequency reception with the Grove Skywire?

Comes assembled with SO-239 UHF female connector ready for your PL-259 (UHF male) equipped coaxial cable (50 or 75 ohm) see page 26; includes two professional porcelain end insulators and complete instructions. Now with improved waterproof feedline connector at no extra charge!



Best Buy

SPECIFICATIONS

- Length: 66 feet
- Feedpoint impedance: 50 or 75 ohm (nominal)
- Feedpoint location: 22 feet from end
- Elements: 18 AWG (16 x 3C) bare stranded copper
- Connector housing: Heavy duty black phenolic
- HAMS! Ideal for transmitting when used with a transmatch. (1.8-30 MHz at up to 250 watts)

ATTENTION HOME EXPERIMENTERS
Build your own SW dipole!
Order ACC101 (CH239 SW Dipole Connector) for only \$12.95 and add your own wire to construct a SW dipole!

Order ANT 2
Only
\$39⁹⁵
\$5.50 UPS
\$8.50 UPS 2nd Day
\$5 US Priority Mail
\$7 Canadian APP
\$10 Canadian UPS



GROVE'S INDOOR/OUTDOOR ANTENNA SYSTEM

Here's the shortwave monitor's dream—a high performance, amplified antenna system for general coverage shortwave and medium wave monitoring. For indoor use, the ANT-6 Hidden Antenna—a thin profile, flexible wire antenna—can be inconspicuously run along molding, out a window to a tree, even under a rug. For outdoor use, the ANT-2 Skywire Antenna—a 66-foot, off-center fed antenna—includes pre-measured stranded copper antenna wire, porcelain end insulators and custom center insulator for your PL-259 coax connection. And when connected to the powerful TUN-4 signal booster, you have instant coverage from 100 kHz to 30 MHz!

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



TUN-4 MiniTuner Plus

SPECIFICATIONS

- Gain: Approximately 20 dB
- Freq Range: 100 kHz-30MHz in 4 bands
- Preselector Type: Series-tuned L-section filter
- Power Required: 9 to 18 volts DC (12 VDC nom.) @ 30 mA.

- Connectors: SO239 (4) signal line, 2.1 mm DIN power
- Cabinet: Custom formed aluminum, baked enamel finish
- Dimensions: 9-1/4"W x 3"H x 4"D
- Weight: 1-1/2 lbs.

TUN-4 MiniTuner Plus

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

Easy to use and extremely flexible, the TUN-4 has a built-in, solid-state booster amplifier to give additional strength to all received signals from 100 kHz through 30 MHz, broadcasters and utilities stations. Wall adaptor (120VAC/12VDC) and 3' PL-259 interconnect cable included.

WHAT YOU NEED TO ORDER:

- ANT 2 Skywire Antenna (above) **\$39.95**
- or
- ANT6 Hidden Antenna (see pg. 27 for specs) **\$19.95**
- TUN-4 MiniTuner Plus **\$99.95**
- CKSW Accessory kit **\$12.95**

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

Shipping charges for system ordered together:

- \$7.50 UPS
- \$12.50 UPS 2nd Day Air
- \$8.50 US Priority Mail
- \$15.50 Canadian UPS
- \$13.50 Canadian APP



NEW! GROVE 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 wavetraps, 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 35!

SELECT-A-TENNA MEDIUM WAVE ANTENNA BOOSTER



Apartment 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 captive 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!

FTR6	30-2000 MHz Bandpass Filter	\$19⁹⁵
	Removes AM broadcast, CB and shortwave interference from scanners	
FTR7	540-1700 kHz Band Reject Filter	\$29⁹⁵
	Removes AM broadcast interference from shortwave/longer wave receivers	
FTR8	118-137 MHz Band Reject Filter	\$19⁹⁵
	Removes aircraft interference from scanners	

Plus \$5.50 UPS Shipping

Adaptor Kits:

ACC124 PL-259 (UHF)	\$9.95	ACC127 Motorola	\$12.95
ACC125 1/8" Miniplug	\$9.95	ACC128 RCA	\$9.95
ACC126 BNC	\$9.95	ACC132 Motorola/BNC	\$9.95
		ACC135 N	\$12.95

Order ANT 21

\$65⁹⁵

\$6 UPS
\$10.50 UPS 2nd Day
\$8 US Priority Mail
\$11.50 Canadian APP
\$15 Canadian UPS

REALISTIC® AMPLIFIED SHORTWAVE ANTENNA

Best Buy



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.

Offering a variable attenuator/gain control from 0-20 dB and razor-sharp tuning, the Realistic booster has its own 29" telescoping whip, or will accept an external antenna through its RCA phono-type antenna connector. Receiver antenna interconnect cable with 1/8" (3.5 mm) plug included for Sony and similar receivers (other adaptors available; see accessories below).

Take heart, apartment dwellers and suitcase travellers, strong signals can come in small packages!

Order ANT 17

Only

\$29⁹⁵

\$5 UPS
\$7.50 UPS 2nd Day Air
\$4 US Priority Mail
\$6.50 Canadian APP
\$10 Canadian UPS

ACCESSORIES

ACC20	AC wall adaptor	\$9.95
ACC108	RCA & PL-259 (UHF) adaptors, random wire antenna	\$9.95

UNIVERSAL REEL ANTENNA

Best Buy

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

\$12⁹⁵

\$5 UPS
\$7.50 UPS 2nd Day Air
\$4 US Priority Mail
\$6.50 Canadian APP
\$10 Canadian UPS



Caveat: ECPA '86

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

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

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

A new law makes it unlawful to manufacture or import a cellular-receiving scanner or converter but it is lawful to own one.

Choosing a Scanner

©Grove Enterprises, Inc. 1994

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

Frequency Range

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

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

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

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 not compete well in a noisy environment; an earphone or external speaker will solve that problem.

Technical Specifications

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

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

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

Dynamic range is the ability of a scanner to handle extremely strong as well as extremely weak signals. Since none of them does it very well, this

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

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—I.F.) from the actual frequency, depending upon the scanner. With up-conversion design, image frequencies fall outside the tuning range and aren't a problem.

Which Scanner is the Best?

Like answering "Which car is the best?", we must list qualifications. At the present time, programmable scanners are available from Uniden, ICOM, AOR, 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 PRO-2006 is more immune to interference from intermodulation and images, making it an excellent choice for strong or weak signal areas like large cities.



A Scanner Sampler

© Grove Enterprises, Inc. 1994

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: 30-50 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.

35.02	McDonald's order window
40.50	Army Search/Rescue
41.50	Army aircraft
46.61-4697	Cordless phones
46.75	Pres. Helicopter
47.42	Red Cross
49.83-49.89	Wireless baby monitors
121.5	Air emerg/calling
122.0	Flight weather
122.2	Flight service
122.75	Gov't air to air
122.8	Small airport UNICOM
122.9	Gov't aircraft
122.925	Natural resources air
123.1	Air search & rescue
123.45	Pilots air to air
126.2	Military air towers
135.575	ATS-3 satellite
-135.625	
143.625	Russian Mir cosmonauts
148.15	Civil Air Patrol
150.00	Russian satellite
151.625	Itinerant walkie talkies
154.37	Fire mutual aid
154.570	McDonald's order window
154.600	McDonald's order window
155.34	Hospital/ambulance
155.37	Police/mutual aid
156.8	Boats call/distress
157.05	Coast Guard
157.10	Coast Guard
157.15	Coast Guard
162.40	Weather service
-162.55	
163.200	U.S. Marshall
165.2875	ATF
165.375	Secret Service
165.950	IRS
167.050	FCC
167.5625	FBI
170.875	Federal Prisons
170.925	Federal Prisons
236.6	Air Force Towers
241.0	National Guard
243.0	Military aircraft calling/distress
255.4	Mil flight weather
257.8	Mil tower calling
259.7	Space Shuttle
311.0	SAC primary
321.0	SAC secondary
344.6	Mil flight weather
349.4	MAC primary
381.8	CG aircraft
415.200	Fed protection service
415.700	Air Force One
417.200	Fed Protection Service
462.675	GMRS
462.95	Paramedics
-463.175	
464.500	PGA tournament
469.500	NASCAR racing

5/94



Best Buy ✓

ICOM R7100-2

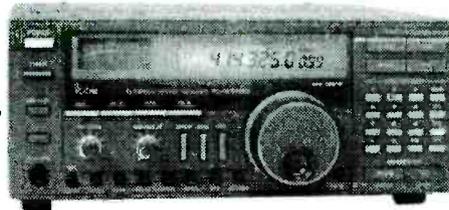
VHF/UHF Communications Receiver

With the most popular features of the legend 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.



Order **SCN15-C**
\$1349⁹⁵

\$15.50 UPS
\$30 UPS 2nd Day Air
\$35.50 US Priority Mail
\$27.50 Canadian UPS;
\$43.50 Canadian APP

ACCESSORIES

- ACC36 UT36 Voice Synthesizer \$55.95
- ACC71 SP20 Speaker \$164.95
- ACC72 TVR7100 Video Adaptor \$218.95
- ACC74 CT17 Computer Interface \$109.95
- ACC78 Service Manual \$40.95
- ACC83 MB5 Mounting Bracket \$39.95
- ACC138 MB23 Carrying Handle \$11.95
- ANT8N 46" Extendable Whip Antenna \$23.95
- Installation of one or more accessories \$20

SPECIFICATIONS

Frequency range: 25-800, 900-2000 MHz
Keypad frequency entry: Yes
Tuning steps: 100 Hz; 1/5/10/12.5/20/25/100 kHz; 1 MHz
RIT (fine tuning): No
Display: LCD
Dimmer: yes
Type of listening recommended: Utility monitoring
Receiving modes: AM, WAM, FM, WFM, NFM, USB, SSB
Memory: 900 channels
Scan: 5/12 ch/sec Banks: 9
Lockout: Yes Priority: Yes
Search: Yes
Delay: 0/2/5/10 seconds; infinite
Squelch: Yes
Clock: Yes with 2 event timer
Audio output power: 2 W @ 10% THD
Record output: Yes
Recorder activator: Yes
S meter: Analog
Computer interface: Optional
Conversion scheme: Triple up-conversion under (778.7 or 266.7, 10.7 MHz; 455 kHz)
Sensitivity: 0.35 uV NFM
Selectable preamplifier: No
Selectable attenuator: Yes
Selectivity: @-6dB: 2.4 kHz SSB, 6 kHz AM/NFM, 15 kHz AM/FM, 150 kHz WFM
Image rejection: 50 dB
Frequency stability: +/- 1.5 ppm 25-250 MHz, +/-5 ppm 25-1000, +/- 10 ppm 1300 MHz
Dynamic range: Unknown
Noise blanker/limiter: ANL
Antenna connector: N female
Auxiliary connector: 10.7 MHz IF Output
Dimensions: 9-1/2"W x 3-3/4"H x 9-1/2"D
Weight: 13 lbs.
Power requirements: 13.8 VDC, 117/240 VAC
Warranty: One year
Accessories included: Plugs, fuses, DC cord, spare screws

SDU
100

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

SCN15-G R7100-1: \$1349⁹⁵
(plus shipping)

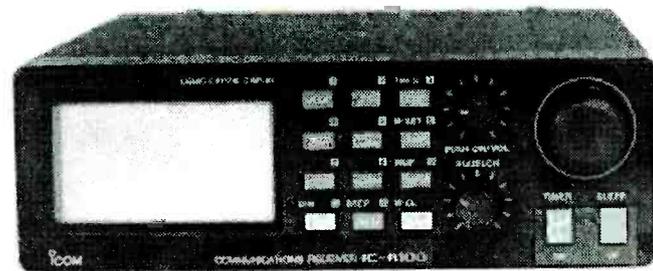
ICOM R100 MOBILE/DESKTOP SCANNER

For the full-spectrum listener, this compact scanner is hard to beat: tuning range from 100 kHz with direct keypad entry or knob tuning, 100 channel memory, switchable preamp and attenuator, programmable 24-hour clock timer, 10 search ranges, LCD bargraph S meter, AM and wide/narrow FM mode detection (no SSB) just begin the list of features.

ACCESSORIES:
ACC75 AC Adaptor \$24.95

Order **SCN14**
Grove discount price

\$657⁹⁵
\$9 UPS
\$15.50 UPS 2nd Day Air
\$16.50 US Priority Mail
\$18 Canadian UPS
\$19.50 Canadian APP



SPECIFICATIONS

Frequency range: 100 kHz-800MHz, 900-1856 MHz
Keypad frequency entry: Yes
Tuning steps: 1/5/8/9/10/12.5/20/25 kHz
RIT (fine tuning): Tuning knob
Display: Backlit LCD
Dimmer: On/Off
Type of listening recommended: Domestic and international broadcasting, including FM and TV audio; VHF/UHF scanning
Receiving modes: AM, narrow FM, wide FM
Memory: 100 channels
Scan: Three modes/20 channels per second
Banks: More with programmable characteristics
Lockout: Yes Priority: Yes
Search: 10 ranges
Delay: 3 programmable functions
Squelch: All modes
Clock: 24 hour with timer and sleep switch
Audio output power: 2.5 watts
S meter: LCD bargraph
Computer interface: No

Conversion scheme: Triple conversion
Sensitivity: 500 kHz-1.6 MHz 10 uV AM; 1.6-50 MHz 5.6 uV narrow FM/3.3 uV AM; 50-905 MHz 0.4 uV narrow FM/1. uV AM
Selectable preamplifier: 15 dB
Selectable attenuator: 20 dB
Selectivity: (-6 dB) narrow FM 15 kHz; 180 kHz wide FM; AM 6 kHz
Image rejection: Unknown
Frequency stability: Unknown
Dynamic range: Unknown
Noise blanker/limiter: Yes
Antenna connector: PL259/N
Auxiliary connector: No
Dimensions: 5.8"W x 2"H x 7.1"D
Weight: 3.1 lbs.
Power requirements: 12 VDC
Warranty: One year
Accessories included: VHF/UHF telescoping antenna, HF wire antenna, DC power cable, mounting bracket, fuses, speaker plug, cable tie and screws.



ICOM R1 GENERAL COVERAGE POCKET SCANNER

SPECIFICATIONS

Frequency range: 100 kHz-800MHz, 900-1300 MHz
 Keypad frequency entry: Yes
 Tuning steps: 0.5/5/9/10/12.5/15/20/25/30/50 kHz
 RIT (fine tuning): Tuning knob
 Display: Edge-lit LCD
 Dimmer: On/Off
 Type of listening recommended: Domestic & international broadcasting, including FM and TV audio; VHF/UHF scanning
 Receiving modes: AM, narrowband FM, wideband FM
 Memory: 100 channels
 Scan: 20 channels/second
 Banks: No
 Lockout: Yes
 Priority: Yes
 Search: 10 ranges with autoloading
 Delay: 2 second, 10 second timed
 Squelch: All modes
 Clock: With on/off timer
 Audio output power: 150 milliwatts @ 8 ohms
 Record audio output: Earphone jack
 S meter: LCD bargraph
 Conversion scheme: Trip conversion 266.7/10, 7 MHz/455 kHz
 Sensitivity: NFM, 0.4 uV; AM, 079 uV, WFM 3.2 uV
 Selectable attenuator: No
 Selectivity: (-6dB) AM 15 kHz; narrow FM 15 kHz; wide FM 150 kHz
 Noise blanker/limiter: No
 Antenna connector: BNC
 Dimensions: 1-7/8"W x 4"H x 1-1/2"D
 Weight: 9.9 ounces
 Power requirements: Internal nicads; 120 VAC wall charger/adaptor included; 6-16 VDC external
 Warranty: One year
 Accessories included: Flex antenna, AC wall adaptor/charger, belt clip

**Order SCN13**Retail ~~\$599~~

Only

\$479⁹⁵

\$7 UPS
 \$10 UPS 2nd Day Air
 \$11.50 US Priority Mail
 \$13 Canadian UPS
 \$12.50 Canadian APP

ACCESSORIES:

ANT8	Range extending telescoping whip	\$16.95
ACC19	R1 Carrying case (no battery pack)	\$21.95
ACC30	BP-90 Replaceable AA battery case	\$18.95
ACC33	BP-90 Carrying case	\$33.95
ACC32	BP-84 Triple-life battery pack	\$79.95
ACC34	BP-84 Carrying case	\$23.95
ACC31	CP-12 Cigarette power cord	\$20.95
ACC48	BC-72A Desk Charger	\$99.95
ACC76	Service Manual	\$36.50
ACC81	Owner's Manual	\$21.95
ACC90	BA12 Battery Charger Adaptor	\$21
HDP1	Headphones	\$19.95

"Better than the Yupiteru MVT-7100" (EDCO)

THE MOST REMARKABLE HAND-HELD SCANNER EVER OFFERED! THE NEW AR8000

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, hand-somely-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!

Autostore, 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 (rAA NiCds and charger included); a universal 9-16 volt external power jack for convenient mobile uses; an internal ferrite antenna for medium-wave broadcast reception; and an illustrated 115-page owner's manual.

Order SCN27

Only

\$649⁹⁵

Plus \$7 UPS Ground Shipping

SPECIFICATIONS

Frequency range: 500 kHz-1900 MHz (less cellular)
 Tuning steps: 50 Hz-999.995 kHz
 RIT or fine tuning: Tuning knob
 Display: Edgelit LCD
 Dimmer: On/off
 Recommended use: General purpose, wide frequency
 Receiving modes: AM, NFM, WFM, USB, LSB, CW
 Memory: 1000 channels
 Scan: 30 channels per second
 Banks: 20 (50 channels each)
 Search: 30 channels per second
 Delay: Programmable any channel, 1-99 seconds
 Squelch: Audio or carrier activated
 Audio output power: 180 mW
 Signal strength indicator: LCD bargraph
 Computer interface: RS232 (optional)
 Conversion scheme: Triple up-conversion (quadruple on WFM)
 Sensitivity (10 dB S/N AM/SSB, 12 dB SINAD FM): 2-30 MHz
 AM 3 uV, SSB 1 uV; 30-1000 MHz NFM 0.35 uV, SSB 0.25 uV, AM/WFM 1uV
 Selectable attenuator: 10 dB, channel-selectable
 IF selectivity: SSB (-6/-50 dB) 4/15 kHz; AM/NFM (-6/-60 dB) 12/25 kHz; WFM (-6/-50 dB) 180/600 kHz
 Antenna connector: BNC
 Dimensions: 6"H x 2-3/4"W x 1-1/2"D
 Weight: 13 oz.
 Power requirement(s): 4AA NiCds (supplied), or alkaline, or external 9-16 V (120 VAC wall adaptor supplied)
 Warranty: 1 year
 Accessories included: AC adaptor, whip, earphone, cigarette lighter cord, manual, carrying strap



NOW FROM GROVE!

AOR

SCANNERS

AR-3000A PROFESSIONAL DESKTOP SCANNER

Imagine: A quality, general coverage shortwave communications-quality receiver and continuous, wide-frequency-coverage 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-869MHz and 894-2036MHz frequency coverage, continuous tuning dial, all mode reception (AM, NFM, WFM, USB, LSB, CW), 400 memory channels and fast 50 channel per second scan rate.

Unexcelled sensitivity and selectivity 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.



Order SCN26
\$1028⁹⁵

\$10 UPS
\$18 UPS 2nd Day Air
\$18 US Priority Mail
\$19.50 Canadian UPS;
\$21.50 Canadian APP

SPECIFICATIONS

Frequency range: 100 kHz-869MHz, 894-2036 MHz
Tuning steps: Programmable 50 Hz-999.95 kHz; speed buttons
RIT or fine tuning: Tuning dial
Display: Backlit LCD
Dimmer: On/off
Recommended use: Serious wide-spectrum monitoring
Receiving modes: AM/NFM/WFM/LSB/USB/CW
Memory: 400 channels; internal lithium backup
Scan: 50 channels per second
Lockout: Yes, scan and search channels
Priority: 4 channels
Banks: 4
Search: 50 channels per second
Delay: Yes; variable
Clock: Yes
Audio output power: 1.2 watts @ 4 ohms (10% THD)
Record audio output: Yes
Recorder activator: Yes
Signal strength indicator: Yes
Computer interface: RS232
Conversion scheme: Triple conversion
Sensitivity: 0.25 microvolts SSB, 0.35 microvolts NFM (12 dB SINAD)
Selectable attenuator: Yes
IF selectivity: SSB (-6/-60 dB) 2.4/4.5 kHz; AM/NFM (-6/-70 dB) 12/25 kHz
Antenna connector: BNC
Auxiliary connector: 3.5 mm speaker jack
Dimensions: 5-1/2"W x 3"H x 7-7/8"D
Weight: 2-1/2 lbs.
Power requirement(s): 13.8 VDC @ 500 mA; AC adaptor included
Warranty: One year
Accessories included: Telescoping whip, AC adaptor, DC adaptor, operating manual

AR1500 HANDHELD SCANNER

All-Mode, Wide Frequency Coverage

Imagine: all-mode (AM/SSB/NFM/WFM), 500 kHz-869 MHz and 894-1300 MHz coverage in a hand-sized package! Then add 1000 memory channels in 10 banks, rechargeable or replaceable battery option, tuning dial, and you have the new AOR AR1500!

Features continue with selectable priority channel, triple conversion design, search lockout, sharp selectivity, BNC antenna connector, overload attenuator, impact-resistant case, programmable tuning steps, and much more.

Then add the accessories: rechargeable battery pack, AC and mobile chargers, replaceable battery pack (requires 4 AAA cells), 15' shortwave antenna, flex whip, earphone, belt clip, vinyl case, and easy-to-read manual—all included at no extra charge!



Order SCN25
\$458⁹⁵

\$8 UPS
\$10 UPS 2nd Day Air
\$9.50 US Priority Mail
\$14 Canadian UPS;
\$12.50 Canadian APP

SPECIFICATIONS

Frequency range: 500 kHz-869 MHz, 894-1300 MHz
Tuning steps: 5-995 kHz in 5/12.5 kHz multiples
RIT (fine tuning): BFO for SSB
Display: Backlit LCD
Dimmer: On/off
Recommended use: Casual all-band monitoring
Receiving modes: AM/NFM/WFM/SSB
Memory: 1000 channels
Scan: 20 channels per second
Banks: 10
Lockout: Individual channel(s)
Priority: Any one channel
Search: 20 channels per second
Delay: All channel, 2 seconds
Audio output power: 100 milliwatts @ 4 ohms (10% THD)
Signal strength indicator: No
Conversion scheme: Triple conversion (561.225/58.075 MHz/455 kHz)
Sensitivity: 1 microvolt AM shortwave, 0.35 microvolts NFM VHF/UHF
Selectable attenuator: Yes
IF selectivity: AM/NFM (-6/-70 dB) 12/25 kHz
Antenna connector: BNC
Auxiliary connector: 2.5 mm earphone
Dimensions: 5-7/8"H x 2"W x 1-1/2"D
Weight: 14 oz.
Power requirement(s): 12 VDC; rechargeable NiCd, charger supplied
Warranty: One year
Accessories included: Flex whip, earphone, mobile charger, replaceable battery holder, belt clip, vinyl case, indoor shortwave antenna, manual

ACCESSORIES

ACC141 AC ADAPTOR \$9.95



NEW! UNIDEN SC150B "SPORTCAT"!

Designed especially for the racing fan, the new "SportCat" has not only full land mobile and civilian aircraft coverage, but has 10 one-touch, direct-access keys for instant callup of active sports channels! Follow the exciting radio action at motor racing, air shows and special events!

Imagine: the SportCat's red-hot TurboScan zips along at 100 channels per second, allowing virtually instant access to up to 100 memorized frequencies in the 29-54, 108-174, 406-512 and 806-956 MHz bands (less cellular); or press any of the ten preprogrammed TurboSearch keys to allow band-edge-to-band-edge frequency hunting at a blurring 300 channels per second!

Unique data-skip function allows scanner to reject annoying data transmissions, stopping only on valid communications. One-step weather key selects autosearch of local NOAA channels for latest weather.

Supplied with rechargeable battery pack, AC wall adaptor/charger, flex antenna, belt clip, earphone and manual. Black model only.



SPECIFICATIONS

Frequency range: 29-54, 108-174, 406-512, 806-956 MHz (less cellular)
Tuning steps: 5/12.5 kHz
Display: Backlit LCD
Dimmer: On/off
Receiving modes: NFM/AM (aero)
Memory: 100 channels
Scan: 100 channels per second
Banks: 10
Lockout: Individual channel
Priority: First channel of each bank
Search: Preprogrammed in 10 banks
Delay: Individual channel, 2 seconds
Squelch: Yes
Audio output power: 180 milliwatts @ 8 ohms
Conversion scheme: Double conversion
Sensitivity: 0.5 microvolt nom. (NFM)
Selectable attenuator: No
IF selectivity: Unavailable
Image rejection: Unavailable
Antenna connector: BNC
Auxiliary connector: 3.5 mm stereo earphone jack (mono Audio)
Dimensions: 6"H x 2-1/2"W x 1.7"D
Weight: 13 oz.
Power requirement(s): 120 VAC AC adaptor/charger (provided)
Warranty: One year
Accessories included: AC adaptor, flex antenna, belt clip, earphone, manual

Order **SCN23**
Grove Discount Price Only

\$199⁹⁵

\$7 UPS
\$10 UPS 2nd Day Air
\$9.50 US Priority Mail
\$14 Canadian UPS;
\$12.50 Canadian APP

ACCESSORIES:
ACC144 BATTERY PACK

NEW! UNIDEN BC220XLT HANDHELD SCANNER!

SPECIFICATIONS

Frequency range: 29-54, 108-174, 406-512, 806-956 MHz (less cellular)
Tuning steps: 5/12.5 kHz
Display: Backlit LCD
Dimmer: On/off
Receiving modes: NFM/AM (aero)
Memory: 200 channels
Scan: 100 channels per second
Banks: 10 banks
Lockout: Individual channel
Priority: 10 channels
Search: 300 channels per second
Delay: 2 second, any channel
Squelch: Yes
Audio output power: 180 milliwatts @ 8 ohms
Conversion scheme: Double conversion
Sensitivity: 0.5 microvolts nom. (NFM)
Selectable attenuator: No
IF selectivity: Unavailable
Image rejection: Unavailable
Auxiliary connector: 3.5 mm stereo earphone jack (mono audio)
Dimensions: 6"H x 2-1/2"W x 1.7"D
Weight: 13 oz.
Power requirement(s): 120 VAC AC adaptor/charger (provided)
Warranty: One year
Accessories included: AC adaptor, flex antenna, belt clip, manual, earphone

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.

Order **SCN24**
Grove Discount Price Only

\$269⁹⁵

\$7 UPS
\$10 UPS 2nd Day Air
\$9.50 US Priority Mail
\$14 Canadian UPS;
\$12.50 Canadian APP



ACCESSORIES:
ACC144 BATTERY PACK



Wide coverage, high performance,
desktop/mobile scanner!

UNIDEN BC-890XLT

Uniden stuns the market with this low cost scanner which features wide frequency coverage (29-54, 108-174, 216-512, 806-956 MHz), 200 memory channels, 100-channel-per-second TurboScan, weather alert, CTCSS (optional), channel activity counter, 10 channel priority, search autostore, tape recorder output, memory channel transfer, and much, much more!



Order SCN19

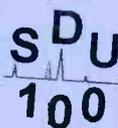
Only

\$269⁹⁵

\$8 UPS
\$14.50 2nd Day Air
\$15.50 US Priority Mail
\$17.50 Canadian APP
\$16.50 Canadian UPS

SPECIFICATIONS

Frequency range: 29-54, 108-174, 216-512, 806-956 MHz (less cellular)
Keypad frequency entry: Yes
Tuning steps: 5/12.5/25 kHz
RIT or fine tuning: Continuous tuning dial
Display: Backlit LCD
Dimmer: No
Recommended use: Wide coverage mobile
Receiving modes: AM, NFM
Memory: 200 channels
Scan: 100/20 channels per second
Banks: 10
Lockout: Any channel
Priority: 10 channels
Search: With memory autostore



Delay: 2 seconds, any channel
Squelch: Yes
Clock: No
Audio output power: 2.7 watts
Record audio output: Tape output
Sensitivity (12 dB SINAD): 0.75 uV NFM, 1.1 uV AM (nom.)
Antenna connector: BNC
Auxiliary connector: RCA jack
Dimensions: 10-1/2"W x 3-1/2"H x 7-1/2"D
Weight: 3 lbs. 14 oz.
Power requirement(s): 12 VDC
Warranty: One year
Accessories Inc: AC adaptor, telescoping whip, instructions

ACCESSORIES:

ACC96 CTCSS Squelch Decoder	\$59.95
Installation Fee	\$10.00
ACC23 Mobile Cig Lighter Adaptor	\$9.95
ACC109 DC Power Cord	\$9.95
ACC110 Mobile Mounting Bracket	\$15.95

UNIDEN BC-760XLT

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

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



Order SCN12

Retail ~~\$390⁰⁰~~
Only

\$269⁹⁵

\$8 UPS
\$14.50 UPS 2nd Day Air
\$15.50 US Priority Mail
\$16.50 Canadian APP
\$20.50 Canadian APP

SPECIFICATIONS

Frequency range: 29-54, 118-174, 406-512, 806-956 MHz (less cellular, restorable)
Keypad frequency entry: yes
Tuning steps: 5/12.5 kHz determined by frequency range
RIT (fine tuning): No
Display: Backlit LCD
Dimmer: No
Type of listening recommended: VHF/UHF utilities
Receiving modes: AM, narrow FM determined by frequency range
Memory: 100 channels plus pre-programmed police, fire, aircraft, maritime, emergency, weather frequencies
Scan: 15 channels per second
Banks: 5
Priority: Channel one
Delay: yes
Audio output power: 3 watts

Record audio output: External speaker jack; no activator
S meter: No
Computer interface: No
Conversion scheme: Dual conversion
Sensitivity: 0.4 uV 29054/136-174 MHz, 0.5 uV 406-512 MHz, 0.8 uV 118-136 MHz, 1uV 806-956 MHz
Selectable preamplifier: Optional accessory
Selectable attenuator: No
Selectivity: (-55 dB) 50 kHz
Noise blanker/limiter: No
Tone control: No
Antenna connector: BNC
Dimensions: 6-5/16"W x 1-5/8"H x 7-3/8"D
Weight: 1-1/4 lbs.
Power requirements: 12 VDC, 120 VAC wall adaptor included
Warranty: 1 year
Accessories Inc: Mobile mount kit, DC cord, attachable whip

OPTIONAL ACCESSORIES

ACC96 CTCSS Squelch Decoder	\$59.95
ACC97 ON/OFF plug-in switch	\$10.95
<i>(must use ACC96 and ACC97 together)</i>	
ACC98 Preamplifier (plug-in)	\$29.95
Installation of ACC96 and 97	\$10.00

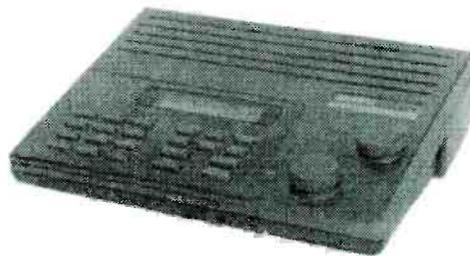


UNIDEN BC-855XLT

Don't be fooled by its low price. The BC855XLT is a low-profile, desktop scanner with outstanding performance. Offering a frequency range of 29-54, 108-174, 406-512 and 806-956 MHz (less cellular, restorable), this sleekly-designed scanner includes 50 memory channels, individual channel lockout and delay, automatic squelch,

priority, a non-volatile memory and powerful, crisp 1.3 watt audio!

All land mobile public service bands, civilian aircraft band, instant weather channel access are yours, and its BNC jack accommodates a snap-on whip (provided) or your external antenna. A 12-volt AC wall adaptor is included.



SPECIFICATIONS

Frequency range: 29-54, 108-174, 406-512, 806-956 MHz (less cellular, restorable)
Keypad frequency entry: Yes
Tuning steps: 5/12.5 kHz determined by frequency range
RIT (fine tuning): No
Display: Edgelit LCD
Dimmer: No
Type of listening recommended: VHF/UHF utilities
Receiving modes: AM/narrow FM determined by frequency range
Memory: 50 channels
Scan: 5/15 channels per second (selectable)
Banks: 5 **Lockout:** Yes
Priority: Channel one **Search:** Yes
Delay: Individual channel **Squelch:** Yes
Audio output power: 1.3 watts

Record audio output: Earphone jack
Recorder activator: No
S meter: No
Computer interface: No
Conversion scheme: Double conversion
Sensitivity: 0.5 uV or better 29-512 MHz FM, 0.8 uV 108-136 MHz, 1 uV 806-956 MHz
Selectable attenuator: No
Selectivity: (-55 dB) 50 kHz
Noise blanker/limiter: No
Tone control: No
Antenna connector: BNC
Dimensions: 9"W x 6-1/2"D x 2-1/4"H
Weight: 1 lb. 6 oz.
Power requirements: 12 VDC
Warranty: One year
Accessories included: 120 VAC wall adaptor, whip

Order SCN8
Retail ~~\$299⁹⁵~~
Only
\$169⁹⁵
\$7 UPS
\$9.50 2nd Day Air \$13 Canadian UPS
\$9.50 Priority Mail \$13 Canadian APP

REALISTIC® PRO-2027 DESKTOP SCANNER!

This new, sleek, low profile desktop scanner offers high quality performance at a very affordable price. With frequency coverage 30-54, 108-174, 406-512 and 806-960 MHz (less cellular), the new 2027's "Hyperscan" clips along at 25-50 channels per second, assuring rapid access to brief transmissions!

100 memory channels store your favorite frequencies in 10 banks, while automatic search allows you to store newly-discovered frequencies in up to 10 monitor channels. a powerful (1.2 watts) audio amplifier supplies excellent, room-filling sound from the 3" internal speaker, or an optional external speaker.



Best Buy

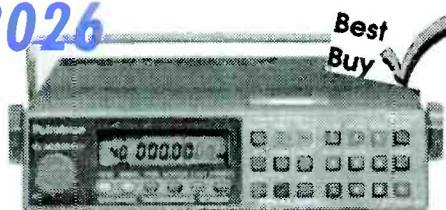
Order SCN 22
Grove price only
\$199⁹⁵
\$7 UPS
\$11.50 UPS 2nd Day Air
\$9.50 US Priority Mail
\$15 Canadian UPS
\$12.50 Canadian APP

SPECIFICATIONS

Frequency range: 30-54, 108-174, 380-512, 806-960 MHz (less cellular)
Tuning steps: 5 kHz VHF/12.5 kHz UHF/25 kHz aircraft
Display: Backlit LCD
Dimmer: On/off
Receiving modes: NFM, AM (aircraft)
Memory: 100 channels
Scan: 8/25-50 channels per second
Banks: 10
Lockout: Individual channel
Priority: Any one channel
Search: 25-50 channels per second
Delay: Any channel(s)
Audio output power: 1.2 watts @ 8 ohms
Record audio output: No
Recorder activator: No
Conversion scheme: Double conversion (10.7 MHz/455 kHz)
Sensitivity: 0.7 microvolts nom.
IF selectivity: -6/-50 dB @ 20/40 kHz
Antenna connector: BNC
Dimensions: 10"W x 2-1/2"H x 7"D
Weight: 2-1/2 lbs.
Power requirement(s): 120 VAC/60 Hz
Warranty: One year
Accessories included: Whip, manual

REALISTIC® PRO-2026 MOBILE SCANNER

Now with non-volatile memory!



Best Buy

Order SCN 16
Grove price only
\$219⁹⁵
\$7 UPS
\$11.50 UPS 2nd Day
\$9.50 US Priority Mail
\$15 Canadian UPS
\$12.50 Canadian APP

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

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

A great mobile scanner (mounting bracket included) at a great price, only \$219.95!

SPECIFICATIONS

Frequency Range: 29-54, 108-174, 406-512, 806-956 (less cellular)
Keypad frequency entry: Yes
Tuning steps: 5/12.5 kHz
RIT or fine tuning: No
Display: Fluorescent **Dimmer:** No
Recommended use: Mobile
Receiving modes: AM/NFM
Memory: 100 channels
Scan: 14 channels per second
Banks: 5 banks of 20 channels each
Lockout: Individual channel
Priority: Any one channel
Search: 19 steps per second
Delay: Individual channel **Squelch:** Yes
Audio output power: 1.1 watts
Record audio output: No
Recorder activator: No
Conversion scheme: Dual conversion, 10.8 MHz/450 kHz
Sensitivity: 0.7 microvolts average
Selectable attenuator: No
IF selectivity: (-50 dB) 30 kHz
Selectable AGC: No
Antenna connector: BNC
Dimensions: 6-5/8"W x 1-5/8"H x 7-3/8"D
Weight: 2 lbs. 3 oz.
Warranty: One year—unit must be returned to Grove Ent. within first year for warranty repair—see page 1.
Accessories included: Mobile mount kit



Best Buy ✓
REALISTIC®
PRO-43
HANDHELD SCANNER

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

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

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

SPECIFICATIONS

Frequency range: 30-50, 118-174, 220-512, 806-999.9875 MHz (less cellular)
 Keypad frequency entry: Yes
 Tuning steps: 5/12.5/25 kHz determined by frequency range
 RIT or fine tuning: No Display: Edgelit LCD
 Dimmer: On/off
 Recommended use: VHF/UHF utilities
 Receiving modes: AM/FM narrow
 Memory: 200 channels
 Scan: 25 channels per second
 Banks: 10 Lockout: Yes
 Priority: Channel one Search: 50 channels per second
 Delay: Individual channel, 2 seconds
 Squelch: Yes
 Audio output power: 250 milliwatts
 Record audio output: Earphone jack
 Conversion scheme: Triple conversion: 608/48.5 MHz/455 kHz
 Sensitivity: 1 microvolt or better
 Selectable attenuator: No
 IF selectivity: (-50 dB) 40 kHz
 Antenna connector: BNC
 Dimensions: 2-1/4" W x 5-3/4"H x 1-1/2"D
 Weight: 14.5 ounces
 Power requirements: 9 VDC (6 AA cells)
 Warranty: One year—unit must be returned to Grove Enterprises within first year for warranty repair—see page 1.
 Accessories inc: Belt clip, flex whip antenna

Order **SCN 17**
 Retail ~~\$349~~
 Grove price only
\$293⁹⁵
 \$7 UPS
 \$9.50 2nd Day Air
 \$9.50 US Priority Mail
 \$13 Canadian UPS
 \$13 Canadian APP

ACCESSORIES:

ANT 8	Range extending antenna	\$16.95
ACC38	DC Adaptor	\$12.95
ACC47	Nicad batteries (6 required)	\$2.25/each
ACC100	AC Wall Adaptor/Charger	\$6.95

Last Chance For Cellular Restorable Capability!

REALISTIC®
PRO-2006



Best Buy ✓

Order **SCN 6**
 Retail ~~\$399~~
 Grove price only
\$369⁹⁵
 \$8 UPS
 \$16 2nd Day Air
 \$16 US Priority Mail
 \$17.50 Canadian UPS
 \$19.50 APP

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

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

ACCESSORIES: ACC143 OPTOSCAN 456 \$279.95

SPECIFICATIONS

Frequency range: 25-520, 760-1300 MHz (less cellular, restorable)
 Keypad frequency entry: Yes
 Tuning steps: 5, 12.5, 30 (if cellular restored), 50 kHz
 RIT (fine tuning): No Display: Backlit LCD
 Dimmer: Yes
 Type of listening recommended: VHF/UHF communications; casual FM broadcast
 Receiving modes: AM, wide & narrow FM
 Memory: 400 channels; frequency and mode
 Scan: 26 channels per second
 Banks: 10 Lockout: Individual channel
 Priority: Any channel
 Search: 26 channels per second
 Delay: 2 seconds, individual channels
 Squelch: Yes
 Audio output power: 1.3 watts @ 8 ohms
 Record audio output: 600 mV @ 10K ohms
 Recorder activator: No
 Smeter: No Computer interface: No
 Conversion scheme: Triple up-conversion
 Sensitivity: 0.5 uV NFM 25-1100 MHz; 2 uV AM; 3 uV WFM
 Selectable attenuator: Yes, 10 dB
 Selectivity: (-6/-50 dB) 18/30 kHz NFM/AM; 300/800 kHz WFM
 Noise blanker/limiter: No Tone control: No
 Antenna connector: BNC
 Dimensions: 8-1/2"W x 4"H x 8"D
 Weight: 4-3/4 lbs.
 Power requirements: 120 VAC @ 60 Hz; 13.8 VDC (10 watts)
 Warranty: One year—unit must be returned to Grove Enterprises within first year for warranty repair—see page 1.
 Accessories included: Telescoping whip, manual

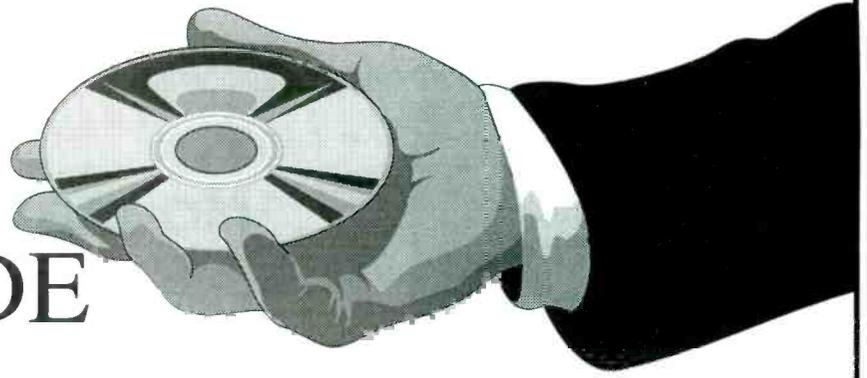
Mobile Mounting Bracket for PRO-2006
 Turn this desktop into a mobile unit for only **\$27.95!**

The heavy, rubberized steel clasps hug tightly around the PRO-2006 while the adjustable mounting bracket can be fastened firmly with hand-tightened thumbscrews. Take the best scanner on the road with you!

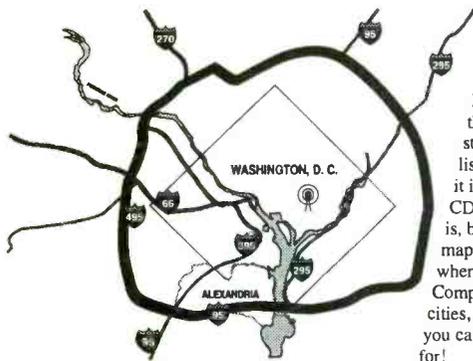
Order ACC102 \$27.95

plus \$4.50 UPS shipping if ordered separately

The **GROVE** NATIONWIDE FCC Database



on *CD-ROM with MAPPING!*



Actual program may differ in appearance.

Through cooperation of a leading computer programming company, Grove has now incorporated a mapping program into the CD-ROM. What this means for you is that when you are looking for a station, and you have found it listed, but you can't picture where it is, the Grove FCC Database on CD-ROM *SHOWS* you where it is, by bringing up an advanced mapping system and plotting where your requested station is! Complete with major roadways, cities, state and county borders, you can *SEE* what you're looking for!

- *FAST* accessing
- Full-function map program
- 11 choice fields
- Export to database files
- Print user-selected fields
- Add your own data
- Search by area (lat/long)

Imagine possessing EVERY LICENSEE on the FCC Master File, all on ONE DISK! You can sort through fields like: CITY, SERVICE, STATE, CALLSIGN, DOING BUSINESS AS, ANTENNA HEIGHT, OUTPUT POWER, COUNTY and MORE! Not only can you browse through all that data, but you can ask for specific searches, fitting YOUR needs. And the searches are FAST! Using a specialized cross-index, the program already knows where the information you are asking for is, so it just pulls it out and shows it to you in a matter of seconds!*

To take a step into the future of radio,
call Grove **TODAY.**

CD-ROM with mapping: **\$169.95****

CD-ROM w/o mapping: **\$99.95****

CALL NOW! **(800) 438-8155**

GROVE ENTERPRISES, INC.

PO Box 98

Brasstown, NC 28902

(704) 837-9200 (Outside Canada and US)

(704) 837-2216 (24 hour fax)

* Speed depends on computer, hard drive and RAM
** Plus shipping





No matter where you
are in the world,
Monitoring Times
has something for you!

From the latest news-breaking issues to the established broadcasters from years past, ***Monitoring Times*** keeps you up-to-date with the best frequencies and information you need to stay with this ever-changing world of radio.

Hot new equipment is reviewed every issue and our radio experts tell you what want to know about all aspects of radio listening. Whether you are a hobbyist or a professional, you need to subscribe to ***MT TODAY!***

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- ☆ New Product Reviews & Tests

US Subscription Rate:

1 year: \$21⁹⁵

Foreign Subscription Rate:

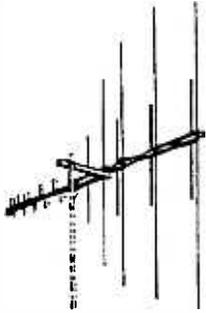
1 year: \$32⁰⁰ (US Funds)

Monitoring Times
(800) 438-8155

PO Box 98
Brasstown, NC 28902



The Best Scanner Antenna Money Can Buy!



6-9 dB gain over other scanner antennas!



THE GROVE SCANNER BEAM

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

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

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

Balun transformer, offset pipe and all mounting hardware included (requires TV type F connector on your coax—available on pg. 32). Approximate size 8'H x 5' L.

Order **ANT1**
Only **\$59⁹⁵**

\$10 UPS
\$16 UPS 2nd Day Air
\$11.50 US Priority Mail
\$13.50 Canadian APP
\$18 Canadian UPS

Shipped only in U.S. and Canada

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 Austin 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 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 excellent, 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 ANT-63 with some compromise in signal strengths. In weak signal areas, a preamplifier like the Grove PRE-4 or GRE Super Amplifier will boost reception range.

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

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

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

The best nondirectional, all-band scanner antennas on the market are the Antennacraft ANT-7 Scantenna, sold by Grove, and the Channel Master 5094A MoniTenna available from Channel Master 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 new Grove Scanner Beam, used with an inexpensive TV rotator, offers gain in its forward direction while receiving local signals all around. VHF and UHF reception in excess of 100 miles under favorable conditions are possible.

THE SCANTENNA FROM ANTENNACRAFT

This new, full-frequency, omnidirectional scanner antenna will equal or outperform any competitor on the market. Its dipole-cluster design utilizes broadband techniques to provide continuous frequency coverage from 25-1300 MHz, offering superb reception of public safety, civilian and military aircraft, hams, personal communication devices, maritime, CB — anything in its frequency range! Requires TV type F connector on your coax—available on pg. 32. Approximate size 7-1/2'H x 4-1/2'W.



Best Buy ✓

Order **ANT 7**
Only **\$39⁹⁵**

\$10 UPS
\$16 UPS 2nd Day Air
\$7.50 US Priority Mail
\$11.50 Canadian APP
\$18 Canadian UPS
Shipped only in U.S. and Canada

PROFESSIONAL WIDEBAND DISCONE

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

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

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

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

Choose 50 or 100 feet of coax from page 32.

Order **ANT 9**
Only **\$83⁹⁵**

\$7 UPS
\$11.50 UPS 2nd Day Air
\$7.50 US Priority Mail
\$10.50 Canadian APP
\$15 Canadian UPS

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

SCANNER ANTENNAS



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 ANT4 **\$49⁹⁵**

\$6.50 UPS \$10 Canadian APP
\$11.50 UPS 2nd Day Air \$15 Canadian UPS
\$6.50 US Priority Mail

Order ANT4W **\$24⁹⁵**

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

\$5.50 UPS \$6.50 Canadian APP
\$9 UPS 2nd Day Air \$14 Canadian UPS
\$5 US Priority Mail

WINDSHIELD MOUNT SCANNER ANTENNA



No holes and no magnets, this 22" Valor Glas-Master is designed for today's wide-frequency-coverage mobile scanners, 30-1200 MHz (not for transmitting). Simply clean an area on your rear window (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

Retail ~~\$49⁹⁵~~

\$29⁹⁵

\$5.50 UPS
\$11.50 UPS 2nd Day Air
\$5.50 US Priority Mail
\$14 Canadian UPS
\$8 Canadian APP

ACCESSORY:
ACC94 Adhesive re-mount kit \$4.95

Extend the reception of your handheld radio!

UNIVERSAL WHIP ANTENNA

Best Buy

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 30-50 MHz low band,



choose our new ANT-19 with its full adjustability from 4"-18" (transmits and receives from 144-960 MHz).

Order

ANT-8 (7"-46") **\$16⁹⁵**

ANT-19 (4"-18") **\$14⁹⁵**

ANT-8B **\$21⁹⁵**

(w/right-angle BNC adaptor)

ANT-8N **\$23⁹⁵**

(w/right-angle N adaptor)

\$4.50 UPS \$4.50 Canadian APP
\$7 UPS 2nd Day Air \$10 Canadian UPS
\$4.50 First Class Mail

Coaxial Cable

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

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

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. You want 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-4 and GRE Super Amplifier work well in low-signal-strength environments, but when used with outside antennas in a metropolitan area they saturate easily, causing desensitization (signals are weaker than before) and generate intermodulation (spurious signals) as well.

Filters and Attenuators

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.



Best Buy

AUSTIN CONDOR HIGH PERFORMANCE FLEX ANTENNA



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

Order	
ANT 14	\$29⁹⁵
ANT 14B	\$34⁹⁵
(w/BNC right-angle conn)	
ANT 14N	\$36⁹⁵
(w/N right-angle conn)	
\$5.50 UPS	\$10 Canadian UPS
\$7.50 UPS 2nd Day Air	\$6.50 Canadian APP
\$4.50 US Priority Mail	

GROVE HIDDEN ANTENNA



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

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

**For Technical Support
CALL SUE
704-837-7081**

**Order ANT 6
Only**

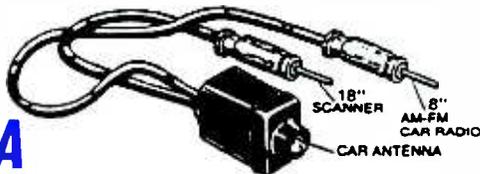
\$19⁹⁵

\$5.75 UPS
\$7.50 UPS 2nd Day Air
\$4 US Parcel Post
\$6.50 Canadian APP
\$10 Canadian UPS



Convert Your Car Antenna Into a Scanner Antenna!

MOBILE ANTENNA MULTICOUPLER



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

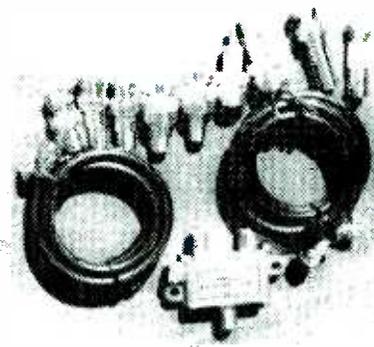
The Para Dynamics PDC 63 Mobile Multicoupler takes only seconds to install and allows simultaneous use of your AM/FM car radio as well as your mobile scanner. Comes equipped with your choice of Motorola or BNC connector.

Order CPL-63M (Motorola)	\$14⁹⁵
Order GPL-63B (BNC)	\$16⁹⁵
\$4.50 UPS	\$10 Canadian UPS
\$7.50 2nd Day Air	\$6.50 Canadian APP
\$4.50 US Priority Mail	

DUAL SCANNER MULTICOUPLER

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

Consisting of a wide-frequency-coverage splitter (25-1300 MHz or more) and two 3' output cables with adaptors for UHF (PL-259), Motorola, F, and BNC connectors (input and output), you'll be set for any combination.



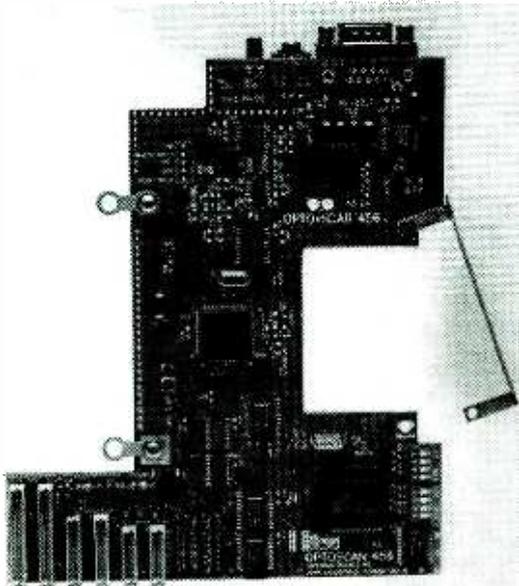
Order CPL-SC \$29⁹⁵

\$4.50 UPS
\$7.50 UPS 2nd Day Air
\$4.50 US Priority Mail
\$10 Canadian UPS
\$6.50 Canadian Air PP

ADP 15 adaptor for ICOM
AH-7000 discone, \$5.95



NEW CATALOG ITEM! OPTOSCAN456 COMPUTER INTERFACE FOR THE PRO-2005/2006 SCANNERS!



Now you can have high-speed (50 channels per second), automatic, computer-controlled scanning, search and logging for your Realistic PRO-2005 or 2006. 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. Special Scan-Star® software supplied to support Touch-Tone, tone and code character decoding. 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.

Order ACC143
Only
\$279⁹⁵
Plus \$5 UPS Ground shipping

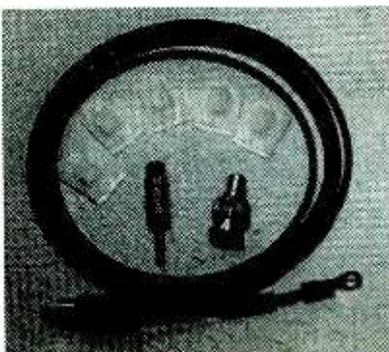
BUY BY BBS!



Follow these simple steps to place your **Grove Catalog** order or **Monitoring Times** subscription through the Grove BBS:

1. Go to Section 4 in conferences called GROVE AND MT ORDERS.
2. Address a message to LARRY VAN HORN or SYSOP.
3. Include your name, complete shipping and billing address, daytime phone number, what items you want to order, shipping method and Visa/Mastercard/Discover Card number and expiration date.
4. Messages are checked daily and your order (stock items) will be shipped within 24 hours. You will be notified of any backorders.

GROVE NO-TENNA



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.

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
\$19⁹⁵
Plus \$4 UPS
Ground
Shipping

ACCESSORIES:
ACC134 Motorola Adaptor Kit \$5.95



METRO WEST LONG LIFE BATTERY PACK

For BC200XLT, BC205XLT, and BC100XLT

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

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

About 1/4" taller and slightly fatter than the Uniden pack, the Pro-Pack 1200 does not allow

the top strap of the Uniden case to button over the top as it did before, but is still may wrap around the front or back securely.

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



Order ACC16
Only **\$69⁹⁵**

\$5 UPS
\$8 2nd Day Air
\$6.50 US Priority Mail
\$10 Canadian UPS
\$8.50 Canadian APP

METRO WEST PRO-CHARGE 7

Drop-In Charger for the Metrowest Battery!



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

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

Order ACC 70
Only **\$36⁹⁵**

\$5 UPS:
\$8 2nd Day Air
\$8.50 US Priority Mail
\$10 Canadian UPS
\$8.50 Canadian APP

UNIVERSAL POWER SUPPLY/CHARGER

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

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

Order ACC20
A \$15 dollar value for Only **\$9⁹⁵**

plus \$4.50 UPS or Priority Mail



Best Buy ✓

RECHARGEABLE AA NICAD BATTERIES

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

Order ACC 47

\$275/ea plus \$2 shipping any quantity

MOBILE CIGARETTE LIGHTER POWER ADAPTOR

For Bearcat Scanners!



Simply plug the Grove ACC23 into your vehicle's cigarette lighter to charge the batteries and/or operate the Bearcat scanners listed in this catalog (except BC2500XLT) or any other mobile accessory, including radar detectors and the Grove PRE4 Power Ant, which use a 12 volts DC, center pin positive, 2.1 mm barrel connector.

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

Order ACC23
Only **\$9⁹⁵**

INCLUDING FIRST CLASS MAIL SHIPPING



LIFETIME GUARANTEE! ONE-HOUR RECHARGEABLE NICAD SYSTEM

You can't buy better, faster-charging NiCd batteries than the Gates Millennium. These 750 mA/HR 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 Millennium AA cells at a time in just one hour.

ORDER TODAY:

- ACC119 Rapidcharger \$19⁹⁵
- ACC120 AA cells (2) \$5⁹⁵
- (4) \$9⁹⁵

\$\$ ORDER BOTH AND SAVE \$\$

- Rapidcharger plus 4 AA cells \$24⁹⁵
- \$5.50 UPS
- \$8 UPS 2nd Day Air
- \$6 US Priority Mail
- \$10 Canadian UPS
- \$8 Canadian APP

THE INNOVA POWERPAK

This rechargeable battery pack provides 12 volt DC at up to 10 amps maximum (fused) from its sealed, 6.5 ampere-hour, lead-acid battery. LED indicators signal recharge, low battery and system ready status. Handy grip and carrying strap included.

Ideal for campers, field day, cellular telephones, DC power tools, emergency lighting, boating, camcorders, scanner and shortwave receivers, ham and CB emergency power—anywhere battery operated equipment must be used for extended periods.

Includes cigarette lighter plug for recharging from a vehicle. Equipped with cigarette lighter socket for standard accessories.



Fast recharge—as little as one hour from a running vehicle, or 8-10 hours from the optional AC adaptor. Measures 7-1/4"W x 3-1/4"D x 10"H; weight 6.8 lbs.

Order **PWR2**
Only
\$49⁹⁵

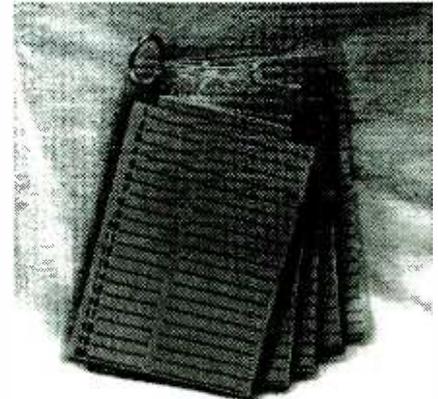
- \$7.00 UPS
- \$15.50 UPS 2nd Day Air
- \$11 US Priority Mail
- \$18 Canadian UPS
- \$17 Canadian APP

ACCESSORIES

- ACC113 AC wall charger \$12⁹⁵
- ACC114 6.8 W solar charger panel \$129⁹⁵
(special order)
- ACC115 AC inverter \$79⁹⁵
- ACC116 3-12 VDC @ 500 mA \$11⁹⁵
universal cigarette lighter adaptor
- ACC118 Storage pouch for cables, \$9⁹⁵
accessories

CHANNEL ORGANIZERS

Carry a complete list of your 100, 200 or 400 scanner channels, frequencies and agencies within this handy, shirt-pocket data management packet. These 3" x 4-1/2" professional forms are plastic protected, and bound with a durable ring for easy flip-access. Enter the data just as you have it programmed on your scanner for speedy reference. Extra replacement cards included.



ACC145 for the:
Uniden BC-100XLT
Uniden BC-120XLT
Uniden SC-150B/Y
Radio Shack PRO-35
Radio Shack PRO-46
Radio Shack PRO-2027

\$12⁹⁵

plus \$2⁹⁵ First Class Mail

ACC146 for the:
Uniden BC-590XLT
Uniden BC-760XLT
Radio Shack PRO-2025

\$7⁹⁵

plus \$2⁹⁵ First Class Mail

ACC147 for the:
Uniden BC200XLT
Uniden BC220XLT
Regency R4030
Radio Shack PRO-34
Radio Shack PRO-37
Radio Shack PRO-39
Radio Shack PRO-43
Radio Shack PRO-51
Radio Shack PRO-2022
Radio Shack PRO-2032
Shinwa SR001

\$12⁹⁵

plus \$2⁹⁵ First Class Mail

ACC148 for the:
Radio Shack PRO-2004
Radio Shack PRO-2005
Radio Shack PRO-2006

\$15⁹⁵

plus \$2⁹⁵ First Class Mail



NEW! NAVAL HTS-3 COMPACT AMPLIFIED SPEAKER

Includes Tape Recorder Activator!

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

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

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



Order SPK11
Only
\$29⁹⁵
\$5.50 UPS
\$8 UPS 2nd Day Air
\$6.50 US Priority Mail
\$10 Canadian UPS or APP

ACCESSORIES:

- ACC23 Cigarette lighter power adaptor \$9.95
- ACC20AC wall power supply \$9.95
- ACC47 Nicad AA batteries \$1.95/each (4 required)

GROVE SP-200 SOUND ENHANCER



Imagine! A high-fidelity speaker, adjustable notch/peak filter, powerful audio amplifier, bass and treble equalizers, audio squelch, recorder activator and noise limiter, all in one attractively-styled, solid oak cabinet! 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 included at no extra charge!

SPECIFICATIONS

- Power Required: 12 to 14 VDC @ 500 mA; 120 VAC adaptor included
- Audio Power Output: 2.5 W @ 10% THD (8 ohms)
- 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 @ 800 ohms (nom.)
- Headphone Jack: Universal mono-wired stereo jack
- Dimensions: 10-7/8"W x 6-7/8"H x 7-1/4"D

Order SPK13
Only
\$249⁹⁵
Plus \$7⁵⁰ UPS Ground Shipping

CLIP-ON MINI SPEAKER

For Handheld Radios

Best Buy



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
\$9⁹⁵
\$4.50 UPS
\$7 UPS 2nd Day Air
\$4 US Priority Mail
\$9 Canadian UPS
\$5.50 Canadian APP

ACCESSORIES:

- ACC35 3/32" (2.5 mm) adaptor \$1.50 (for BC200XL, etc).

OPTIMUS 7 SPEAKER

For more than a decade this design has been the audiophile's choice in a compact speaker. Housed in a handsome black, rugged, die-cast aluminum enclosure, two high-compliance speakers and a tuned port provide rich, full sound from below 100 to above 20,000 Hz. Power capacity of 50 watts and nominal impedance of 8 ohms.

Ideal for shortwave and scanning receivers alike, this hefty (4.6 lbs.), yet tiny (7-1/8"H x 4-1/2"W x 4-1/2"D), powerhouse of sound is guaranteed to provide substantially better music and voice reproduction than any communications speaker on the market!

Equipped with spring terminals and hanging bracket.

ACC133 Adaptor Kit \$5.95
Includes cable, 1/4" and 1/8" adaptors



Order SPK 12
Only
\$59⁹⁵
\$6.50 UPS
\$15.50 UPS 2nd Day Air
\$11 US Priority Mail
\$18 Canadian UPS
\$17 Canadian APP



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!



ADAPTORS AVAILABLE

- ADP1 UHF Female to F male
- ADP2 F Female to PL259 Male
- ADP3 F Female to N Male
- ADP4 F Female to Male Mini-Plug
- ADP5 N Female to BNC Male
- ADP6 UHF Female to Male Mini-Plug
- ADP7 UHF Female to N Male
- ADP9 F Female to BNC Male
- ADP10 UHF/BNC
- ADP11 UHF female to RCA male
- ADP12 BNC/N
- ADP13 BNC/BNC (right angle elbow)
- ADP14 F female to RCA male
- ADP15 N female to F male
- ADP17 BNC female to F male
- ADP18 F/2 wires
- ADP19 UHF/2 wires
- ADP22 MOT/BNC
- ADP24 BNC female to PL259 male
- ADP25 F female to Motorola male
- ADP26 F/F Barrel
- ADP27 Banana Plug

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

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

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

CB50
 (50 feet w/ adaptors)
\$19⁹⁵
 \$5.50 UPS
 \$9 UPS 2nd Day Air
 \$8 US Priority Mail
 \$8 Canadian APP
 \$13 Canadian UPS

CB100
 (100 feet w/ adaptors)
\$29⁹⁵
 \$6 UPS
 \$10 UPS 2nd Day Air
 \$7 US Priority Mail
 \$9 Canadian APP
 \$17 Canadian UPS

No other lengths available

COMMUNICATIONS HEADPHONES

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
\$19⁹⁵
 \$5.50 UPS
 \$8 UPS 2nd Day Air
 \$6 US Priority Mail
 \$10 Canadian UPS
 \$8 Canadian APP

- ACCESSORIES:**
- ACC80 Universal Adaptor \$12.95
 - One or two 1/4" headphone jacks to 3/32" (2.5 mm) or 1/8" (3.5 mm) plug — fits all model scanners
 - ACC35 3/32" Adaptor (fits BC200XLT) \$1.50

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.



- ACCESSORIES:**
- ACC121 50 feet 3-conductor cable \$5⁹⁵
 - ACC122 100 feet 3-conductor cable \$8⁹⁵

Order ROT1
 Only
\$59⁹⁵
 \$6.50 UPS
 \$15.50 UPS 2nd Day Air
 \$11 US Priority Mail
 \$18 Canadian UPS
 \$14.50 Canadian APP



TRIFIELD ENVIRONMENTAL MONITOR

Concerned about electromagnetic radiation and its effect on your body? The TriField Environmental Monitor takes readings of home appliances, computers, microwave ovens, TV sets, electric blankets, fluorescent

lights, power transformers, power lines, residential and industrial wiring, cellular and cordless telephones, VHF and UHF transceivers, and other sources of electromagnetic energy.

Operating for 10 or more hours from a standard 9-volt battery (supplied), the TriField meter will read up to 100 milligauss of magnetic field intensity from 60-100,000 Hz, up to 100 kilovolts per meter electric field intensity, and up to 1 milliwatt per square centimeter (as high as 3 GHz) radio/microwave power density.

An excellent explanatory guide and full instructions are included.

Order **GSM4** **\$119⁹⁵**

\$6.50 UPS
\$9.50 UPS 2nd Day Air
\$6.50 US Priority Mail
\$10 Canadian UPS
\$7.50 Canadian APP

LIGHTNING/EMP PROTECTOR

For Scanners and Shortwave Receivers

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



Appearance may vary

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

Responds in one ten-millionth of a second to short-circuit bursts of 250,000 volts at currents of 5000 amps, while allowing normal signal voltages (and even control voltages up to 50 volts AC or DC) to pass undisturbed! Extremely low signal loss—0.2 dB at 1500 MHz! Ideal for protecting scanners, shortwave receivers, CB 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"D x 1-1/2"L and comes equipped with standard F connectors for home entertainment equipment and Grove accessories. Adaptors are available as shown below.

LA1F (with F conn)	\$19.95	\$4 UPS
LA1B (with BNC conn)	\$24.95	\$7 UPS 2nd Day
LA1P (with PL-259 UHF conn)	\$24.95	\$4 US Priority Mail
LA1M (with Motorola conn)	\$29.95	\$6.50 Canadian UPS
		\$9.50 Canadian APP

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

POCKET FREQUENCY COUNTERS

stations, cordless phones, ham and CB radios, radio control units and other signal emitters.

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

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

From **Realistic®!**

Handsomely housed in a rugged wrap-around metal case with ergonomic side grips, this pocketable counter is ideal for measuring frequencies between 1 and 1300 MHz (2-20 mV sensitivity) from nearby transmitters and sports a large, 8-digit, edgelit LCD readout with a resolution of 100 hertz.



Powered by four (optional) AA alkaline rechargeable NiCd cells, or a 9-volt wall adaptor/recharger; 1.28 and 0.128 second sampling rates; 1 PPM accuracy; 19" telescopic whip included.

Closeout Special Only **Order CTR 5**

\$89⁹⁵

\$6.50 UPS
\$10 UPS 2nd Day Air
\$8.50 US Priority Mail
\$12 Canadian UPS
\$10.50 Canadian APP

From **Optoelectronics!**

Just look at the advanced features of the premium **3000A**:

Digital filtering and auto capture, ten-digit LCD readout, backlight for clear night-time viewing; total-spectrum 10 Hz-3000 MHz frequency range—from sub-audible through microwave! 1 mV typical sensitivity; 16-segment LCD signal-strength bargraph for tuning nearby transmitters or tracking hidden transmitters; even lab measurement capability of period, time interval and ratio are included at no extra cost.



Only **Order CTR 6L**

\$319⁹⁵

\$6.50 UPS
\$11 UPS 2nd Day Air
\$8.50 US Priority Mail
\$13 Canadian UPS
\$10.50 Canadian APP

- ACCESSORIES:**
- ACC11** Zippered soft case **\$17.95**
 - ANT19** 4"-18" telescoping whip **\$14.95**
 - ANT8** 7"-46" long-range telescoping whip **\$16.95**
 - ACC6** Test probe for circuit testing **\$20.95**

NEW! From Optoelectronics!

The **3300** Minicounter: pre-eminently portable!



If you are looking for a low cost, high performance, pocket frequency counter, look no further. OptoElectronics' new 300 is for you. Built-in rechargeable battery and AC adaptor included. Wide frequency coverage to 2.8 GHz, high sensitivity, precision frequency readout to 10 Hz on LCD display. Fast/slow gate sampling times for increased accuracy. Hold button preserves readings from brief transmissions. Great for catching those unknowns inconspicuously!

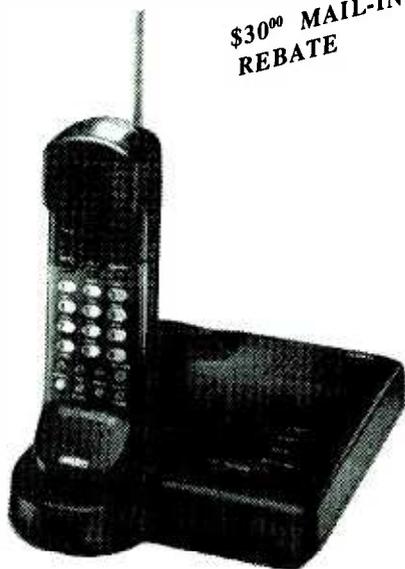
Only **Order CTR 7**

\$129⁹⁵

\$6.50 UPS
\$10 UPS 2nd Day Air
\$8.50 US Priority Mail
\$12 Canadian UPS
\$10.50 Canadian APP

- ACCESSORIES:**
- ANT19** 4"-18" telescoping whip **\$14.95**
 - ANT8** 7"-46" long-range telescoping whip **\$16.95**

*While supplies last.



\$30⁰⁰ MAIL-IN REBATE

UNIDEN THE SPREAD-SPECTRUM LEATHERMAN® TOOL CORDLESS PHONE

for clearest communications. Recharge assures operation during power outages, and includes fixture to charge optional backup battery.

Additional features include 20 number memory, tone/pulse dialing option, illuminated keypad, 3 one-touch memory buttons for frequent calls, handset and base ringer volume controls, AutoStandby (TM), AutoTalk (TM), programmable flash key with call waiting capability, three-way mounting, last-number redial, privacy mute.

New CT-2 (900 MHz) spread-spectrum technology brings you unprecedented clarity, range and privacy. Reaches up to five times the distance of conventional 46/49 MHz cordless phones. Works as a wireless room monitor or hands-free intercom. Digital processing assures voice security while providing crisp, noise-free sound. Multi-channel autoscans select the best frequency

ACCESSORIES: ACC139 Battery Pack \$19.95

Order PHN3
Only
\$299⁹⁵
\$8 UPS
\$16 2nd Day Air
\$17.50 US Priority Mail
\$15 Canadian UPS
\$20.50 Canadian APP



You've seen the legendary Swiss Army knife, but you've never seen a quality, multipurpose pocket tool like the Leatherman®.

Full-size needlenose/regular pliers, wire cutters, knife blade, ruler, can/bottle opener, large and small screwdrivers, Phillips screwdriver, metal/wood file/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.



Made in the U.S.A.

Order TOOL 1
Only
\$39⁹⁵
\$5 UPS
\$7.50 2nd Day Air
\$4.50 US Priority Mail
\$10 Canadian UPS
\$7 Canadian APP

UNIVERSAL BELT CLIP



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

Order ACC129
Only
\$4⁹⁵
Plus \$2 First Class Mail

LASER PEN POINTER



Now you can highlight your talk with a brilliant, red beam of laser light, the same beam used on night-viewing

weapons! This tiny (5.8") pocket penlight projects a tight spot of light for 200 yards, yet measures only 5.8" in length. Ideal for lectures, educators, sales presentations and more!

All-aluminum, black matte construction, GaAlAs solid-state laser with acrylic collimating lens, 3 milliwatts power at 670 nm wavelength! Requires only two AAA cells for long-life power! Attractive presentation case included at no additional cost. Registered with FDA for approved uses.

Special purchase! Lowest price in the country! Only \$69.95

Order LP1
Only
\$69⁹⁵
\$5 UPS
\$7 2nd Day Air
\$4.50 US Priority Mail
\$7 Canadian APP
\$10 Canadian UPS

Accessories:
ACC131 AAA Batteries \$1.00/each

HANDHELD RADIO MOUNT

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 this handy holder.



Its 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.

Cushion pads are provided for an even better grip, especially on small handhelds like the ICOM R-1 and Realistic® PRO-43.

Order ACC106
Only
\$9⁹⁵
\$5 UPS
\$7 2nd Day Air
\$4.50 US Priority Mail
\$7 Canadian APP
\$10 Canadian UPS



SCANNER FILTER

Eliminate those aggravating FM and TV broadcasters from interfering with your favorite scanner frequencies! Select any one additional source of interference in the 100-220 MHz range and reject it as well! Ideal for use with 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 microstripline circuitry features custom-wound 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 strokes and high-powered transmitters. A high-pass filter removes shortwave feedthrough, while band-reject filters remove FM and TV broadcast interference automatically.

Nothing has been overlooked in this state-of-the-art interference filter. Full instructions included.

SPECIFICATIONS

Passes: 30-50, 118-174, 225-1500 MHz
 Rejects: 0-30, 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

ADAPTOR KITS:

ACC124	PL-259 (UHF)	\$9.95
ACC125	1/8" Miniplug	\$9.95
ACC126	BNC	\$9.95
ACC127	Motorola	\$12.95
ACC128	RCA	\$9.95
ACC135	N	\$12.95

Order FTR5
 Only
\$44⁹⁵

\$4.50 UPS
 \$7 UPS 2nd Day Air
 \$4.50 US Priority Mail
 \$8 Canadian UPS
 \$6.50 Canadian APP

GRE SUPER AMPLIFIER

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 PRE1
 Retail for \$69
 Only
\$49⁹⁵

\$5.50 UPS
 \$7.50 UPS 2nd Day Air
 \$5.50 US Priority Mail
 \$10 Canadian UPS
 \$7.50 Canadian APP

GROVE MILITARY AIRCRAFT SCANVERTER

RECEIVE CONTINUOUS 810-912 MHZ ON YOUR PROGRAMMABLE SCANNER

GRE SUPER CONVERTERS

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



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



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

Factory price \$94

ORDER CVR2 for handheld scanners **\$79⁹⁵**

ORDER CVR3 for desktop/mobile scanners **\$84⁹⁵**

\$5 UPS
 \$8 UPS 2nd Day
 \$6.50 US Priority Mail

\$8.50 Canadian APP
 \$10 Canadian UPS

Now, hear 225-400 MHz military aircraft communications on your scanner's 118-136 MHz band! Listen in on 216-225 MHz land mobile and hams 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, midair 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).

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

Order CVR4
 Only
\$99⁹⁵

\$5.50 UPS
 \$9.50 UPS 2nd Day Air
 \$8 US Priority Mail
 \$12.50 Canadian UPS
 \$8 Canadian APP



24-HOUR STUDIO CLOCK



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

This studio clock from Grove Enterprises is a professional 13" Seth Thomas, featuring a 24-hour

movement with bold, black numerals and a red sweep-second hand.

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

Order CLK1

Only
\$24⁹⁵

\$6.50 UPS
\$18.50 UPS 2nd Day Air
\$6.50 US Priority Mail
\$10.50 Canadian APP
\$15 Canadian UPS

MFJ DUAL DIGITAL CLOCK

This compact digital timepiece features two large, accurate, LCD quartz movements, one to provide accurate 24 hour UTC radio time, the other for 12 hour local time. Mounted in a rugged extruded aluminum frame with a handsome brushed accent, the clock features high-contrast, 5/8 inch numerals,

easy to see anywhere in your radio room.

Powered by a long-life battery and measuring a scant 4-1/2"W x 2"H, the MFJ108B dual time clock can easily fit on any radio desk and provide valuable time information instantly.



Order CLK2

Only
\$19⁹⁵

\$4.50 UPS
\$7 2nd Day Air
\$4.50 US Priority Mail
\$10 Canadian UPS
\$7.50 Canadian APP

MFJ WORLD MAP CLOCK



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

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

Order CLK4

Only
\$24⁹⁵

\$5 UPS
\$7 2nd Day Air
\$4.50 US Priority Mail
\$10 Canadian UPS
\$7.50 Canadian APP

COLOR WALL CHART OF THE RADIO SPECTRUM

Now Grove offers this incredible 50" x 32", full color, fold-out wall chart of the United States radio spectrum!

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

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

Order CHT 1

Only **\$9⁹⁵**

\$5 UPS
\$6.50 2nd Day Air
\$2 Bookrate/\$5 Priority Mail
\$8.50 Canadian UPS
\$6 Canadian APP

WORLD TIME CONVERSION WHEEL



This colorful and accurate accessory reveals 24 hour time anywhere in the world at a glance. Polar projection features colored land masses with accurate 24 hour time zones on a glossy, durable, global map with metal axis hub. Select your time, and it's ready to use!

Order CHT 2

Only **\$8⁹⁵**

INCLUDES FIRST CLASS MAIL SHIPPING



FEDERAL FREQUENCY ASSIGNMENT MASTER FILE

This new 3rd edition, now with 350 controversial pages, it provides the most comprehensive look at federal government frequencies in print.

Over 100 agencies, from the Central Intelligence

Agency to the National Security Agency are listed; scanner and shortwave as well.

No matter where you're located, you'll hear many of these frequencies in use. Alphabetized by department

and agency and their locations, then listed in frequency order, this compendium is the most authoritative reference for armchair monitoring of "forbidden" frequencies we've ever seen!

BOK1

\$24⁹⁵

Shipping Code B



SCANNER AND SHORTWAVE ANSWER BOOK

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

electrical interference and cure it?

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

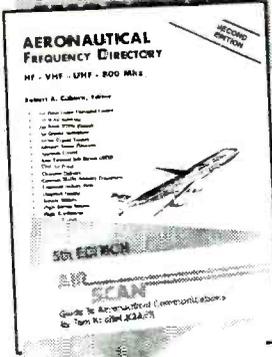
answers here!

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

BOK5

\$12⁹⁵

Shipping Code A



OFFICIAL AERONAUTICAL FREQUENCY DIRECTORY

By Robert A. Coburn This second edition features 430 pages of listings of HF, VHF and UHF air-to-air, air-to-ground and ground utilities frequencies used by civilian, govern-

ment and military agencies across the country. FAA, CAP, military, aeronautical telephone, flight support, airport communications—they're all here!

Arranged alphabetically

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

BOK6

\$24⁹⁵

Shipping Code B



AIR SCAN

By Tom Kneitel This fifth edition of the exhaustive frequency directory for aircraft monitoring enthusiasts includes 2-30 MHz shortwave SSB as well as

VHF-AM/FM and UHF-FM for all 50 states and Canada.

Military and federal tactical frequencies, flight service stations, NASA support frequencies, conservation agencies, even

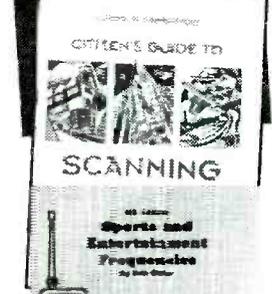
air show frequencies!

Public safety agencies employing air-to-air and air-to-ground communications are provided as well throughout the VHF low, high, and UHF bands.

BOK7

\$14⁹⁵

Shipping Code B



TOP SECRET REGISTRY

By Tom Kneitel This 8th edition continues the tradition of having the largest amount of federal frequency data ever compiled into a single

volume.

Concentrating on VHF and UHF scanner frequency ranges, agencies include Secret Service, Customs, DEA, CIA, NSA, White

House, Border Patrol, ATF, and dozens of other government bureaus who would prefer not to have their communications frequencies published.

BOK8

\$21⁹⁵

Shipping Code B



CITIZEN'S GUIDE TO SCANNING

By Laura Quarantiello Are you new to scanning? Would you like to know more about the hobby and how to get the most out of your scanner? Try this new guide to expanding your

radio horizons. Frequency lists for finding public safety, aircraft, boats, federal and military agencies, business communications, railroads, telephones, sports and

entertainment, spacecraft, emergency/disaster communications and more!

BOK9

\$19⁹⁵

Shipping Code B

SPORTS & ENTERTAINMENT FREQUENCY DIRECTORY

By Bob Grove This new fourth edition helps you listen to drivers and pit crews at the auto races,

boat race communications, air show stunt coordination, gambling casino management and security, Disney

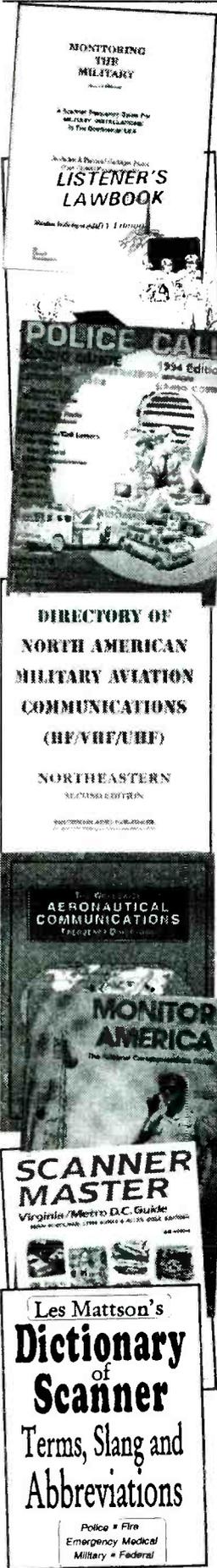
attractions, parade floats, amusement parks, wireless

BOK12

\$9⁹⁵

\$2.50 UPS or Bookrate

Order Line — 1-800-438-8155



MONITORING THE MILITARY

Second Edition by Darryl Symington Over 130,000 frequencies plus a tactical callsign index highlight this updated

military scanning guide. Hundreds of Air Force, Navy and Army bases as well as munitions and supply depots nationwide are listed

alphabetically, covering fire/crash, security, medical, command posts, military police, tactical, maintenance and security communications.

BOK15
\$16⁹⁵

Shipping Code B

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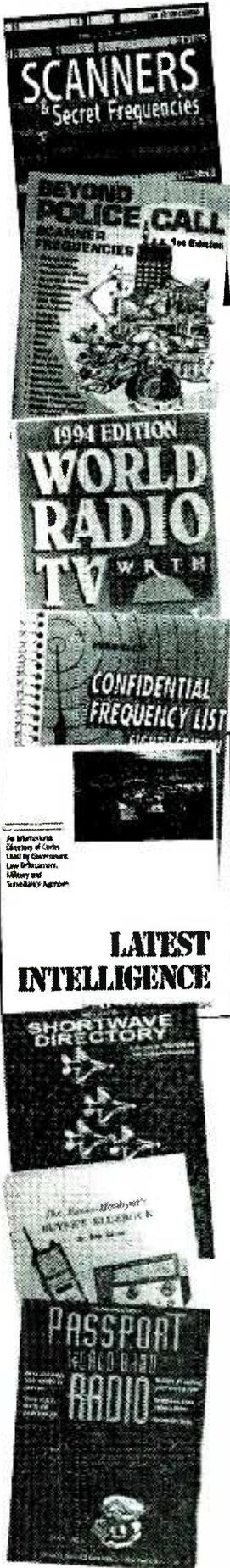
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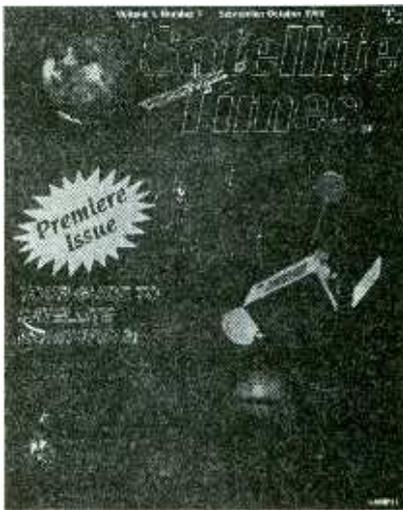
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