

# High Frequency Single Sideband Communications Systems

## 921 HF email system

Utilizing Wavemail / Wavenet software and Barrett 921 Pactor II modems.

The 921 Wavemail software package is a complete email system optimised for use over HF radio links using the 921 Pactor II modem. It operates as a standard e-mail system that has an extremely easy to use software interface.

921 Wavemail provides all the functions needed to create, send, read, forward, reply and manage messages. Files of any type (e.g. spreadsheets, graphics, text...) can easily be attached using a filedialogue or drag-and-drop function. Messages can be addressed to several recipients and delivery notifications can be requested.

921 Wavemail is not overloaded with complex functions that are more confusing than useful.

921 Wavemail allows on-line person-to-person dialog (chatting) between two stations.

921 resumes the transfer at the point where the connection was lost in the event of a temporary link failure. This prevents repeating the same data transfer.

921 Wavemail allows Messages to be addressed to individual persons on a station. The users at a station can send and receive messages from their workstation on a LAN or directly on the PC connected to the 921 modem.

The 921 system is GLPLUS / RLPLUS compatible

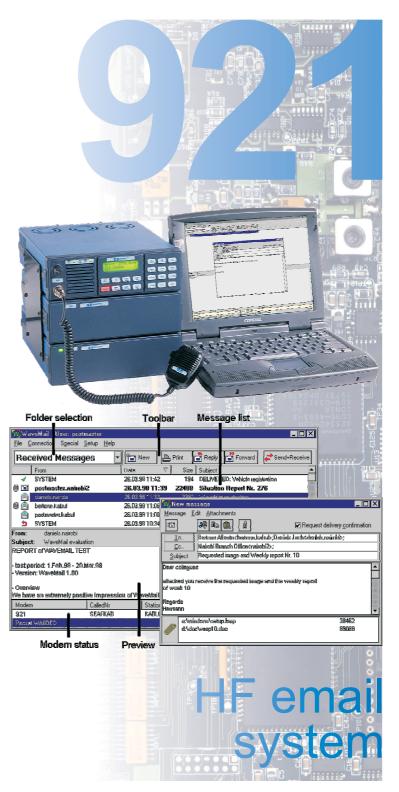
921 networks can use VHF/UHF links and Packet modems, Inmarsat and telephone lines to extend an HF network.

921 Wavemail handles up to seven different types of modems on one PC. For example a station can have a Barrett 921 HF modem, a Packet-Radio modem for a VHF/UHF link and an AT-Hayes compatible telephone modem, all on the same PC.

921 Wavenet, a separate software package, added to a one station in the HF network provides a gateway from the HF network to the Internet via a SMTP / POP3 interface. This also allows easy integration of WaveMail with many other e-mail systems, as most e-mail systems offer an Internet gateway. WaveNet provides scheduled dial-up or permanent TCP/IP connections with the Internet, it also handles RFC822 and MIME, address translation, and individual send/receive rights.

The 921 Pactor II modem is a state-of-the-art DSP based HF-modem designed for professional applications. The modem uses advanced modulation and coding methods resulting in extremely reliable data transfer even during poor HF-propagation conditions. 921 Pactor II modem outperforms most other HF-modems under typical HF-propagation conditions and continues to transfer error-free data when other modems give up.







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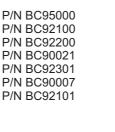
### **Barrett 921 Modem specifications**

Data throughput	589 Bit/sec uncompressed data, equivalent to 1000 Bit/sec plain text using the automatic data compression.	
Required S/N ratio	Maintains reliable communication c	lown to a S/N ratio of minus 18dB (@ B = 4KHz).
Required bandwidth	450 Hz (at -50dB)	
Modulation Channel coding	Staggered 2-tone Differential Phase Shift Keying using 2-16 phase differences -Raised cosine shaped pulses resulting in a crest factor of 1,45 Convolutional code (k-9) combined with full frame interleaving, Viterbi decoding with soft decision. Code rate adapted to applicable mode, between 1/2 and 7/8.	
Compression	Huffman or Pseudo-Markow plus run-length encoding, selfadaptive (optimizing)	
Protocol and adaptivity	Advanced half-duplex hybrid ARQ with memory. The modem parameters (code rate, number of DPSK levels etc.) continuously adapt to the varying link conditions	
Frequency tracking	Initial offset: up to +/-80Hz Drift: up to 10Hz/min	
Compatibility	Fully compatible to CCIR-476/625 SITOR and PACTOR I systems with automatic switching - Public/Non-Public same as PACTOR I	
Selective call	3 to 8-digits alphanumeric addressing,	
Dimensions	950 local control transceiver 921 modem 922 Power Supply	245mm x 330mm x 75mm 245mm x 310mm x 75mm 245mm x 310mm x 75mm

### **Station requirements**

Barrett 950 HF transceiver Barrett 921 Pactor II HF modem Barrett 922 mains powers supply Interconnection cable modem to transceiver Interconnection cable modem to computer 2 x fan units fitted to 950 transceiver and 922 power supply 921 E-mail system Wavemail - operating software

PC or notebook with Windows 3.1, 3.11, Win95, Win NT 4.0 80486 processor or better 8 MB RAM or more recommended A suitable antenna system.





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