

# AOR ARD9900 Multimode and Digital Voice Interface

## FOR PROFESSIONAL USE ONLY

**Use analog transceivers to send digital voice & image communications with encryption!**



**No transceiver modifications are necessary!**

**Use an analog transceiver to send encrypted digital voice, data or image communications in one easy step! Plus, maintain analog capabilities.**

*Encryption so powerful, it's designed for use by law enforcement and government professionals. The ARD9900 is a breakthrough in communications technology. By simply connecting the ARD9900 to a pair of analog transceivers, it is possible to send and receive clear, reliable digital communications with encryption.*

- **Digital voice communications using existing analog 2way radios.**

The ARD9900 uses the same audio frequencies (300 Hz ~ 2500 Hz) as microphone audio to modulate the voice signal. This allows you to use an analog radio as a digital voice radio with or without encryption.

- **Works on Single Side Band (SSB) mode.**

The Automatic frequency clarifier function adjusts frequency drift automatically in the SSB mode. (Approximately up to +/- 125 Hz). Utilizes the OFDM (Multi Carrier Modulation) circuit that is effective against Multi-path or Selective Fading.

- **Automatic digital receive**

Automatic voice signal detector recognizes the received signal as analog or digital, automatically switching to the appropriate mode.

- **Digital Slow Scan TV**

Built-in video capture function (NTSC). Compresses the signal into AOR's original adaptive JPEG. Send and receive images (similar to analog slow scan TV) in the digital mode. Built-in video output connector (NTSC) allows viewing the picture on an external monitor.

- **Built-in high grade Vocoder (AMBE)**

Utilizing high-grade digital voice compression delivers quality digital voice communications.

- **Built-in FEC error correction**

A powerful error correction circuit delivers stable and reliable communications.

- **High speed data communications on the HF band**

High-speed (3600bps) data communication is possible on the HF (High Frequency) bands. (Speed may be limited by regulations in certain jurisdictions.)

- **Small and compact unit. Easy to operate.**

Simply connect the ARD9900 to the microphone jack and speaker output. No complicated modifications necessary.

- **Wide range of operating voltages**

Operates on 10 to 16 V DC from an external power source. 6 V DC operation is also possible by changing an internal jumper setting. Low power consumption (Approximately 160 mA at 12 V DC)

- **Utilizes a uniquely designed high performance DSP engine**

*Available only to authorized users. Documentation required.*



# ARD9900 Multimode and Digital Voice Interface

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*Now law enforcement and government professionals can send and receive encrypted digital voice and image communications using analog transceivers. All it takes is the ARD 9900 Multimode and Digital Voice Interface.*

### SPECIFICATIONS

Modulation method	OFDM
Band width	300 Hz ~ 2500 Hz, 36 carriers
Symbol Rate	20 mS (50 baud)
Guard interval	4mS
Tone steps	62.5 Hz
Modulation method	36 carriers: DQPSK (3.6K)
AFC	+/- 125 Hz
Error correction	Voice: Golay + Hamming Video/Data: Covolution + Reed-Solomon
Header	1 Sec. 3 tones + BPSK training pattern for synchronization
Digital voice	AMBE2020 coder, decoder
Signal detection	Automatic Digital detect, Automatic switching between analog mode and digital mode
Video Compression	AOR original adaptive JPEG
Video	NTSC Input/Output
Power requirements	10 ~ 16 V DC, Approximately 200 mA Typ(@ 12 V DC) 6 V DC by internal jumper setting
Serial port	RS-232C, 9600 bps, Asynchronous
Dimensions (w, h, d)	100 x 32 x 158 (mm) or 3.94 x 1.26 x 6.14 (inches) (Projections excluded.)
Connectors	Radio: Microphone output (level adjustable), Speaker input (500 mV ~ 5 V p-p), PTT (Push To Talk), Video IN/OUT: NTSC 1 V p-p (75 ohm)
MIC	Microphone input, Speaker output, PTT input
Others:	Signal Encryption for commercial applications (where permitted; special commercial version required)
	Analog/Digital mode selector
	Video capture/transmit switch

**Encrypted digital voice and image communications using conventional analog transceivers.**

Crisp, clean audio and images at the touch of a button.

**Powerful digital encryption algorithm.**

Choose your own encryption/decryption keys.

**Automatic mode recognition.**

The ARD9900 automatically recognizes incoming signals and decodes digital immediately. No modifications necessary.

**Maintains Analog Capability.**

The ARD9900 allows conventional analog signals to be received while monitoring for digital signals. It is easy to shift operations between digital and analog modes.

**Digital image mode.**

Send photos or captured video images quickly and easily. Digital images can also be encrypted for added security. Images can be decrypted and displayed through any NTSC monitor with a video input. Similar in speed to SSTV.

**No Major Modifications needed.**

The ARD9900 is easy to connect. Simply use the supplied cables to connect the unit to your transceiver's microphone and speaker output ports. (Depending on your transceiver, you may need to prepare a connector for the microphone port.) It's a simple, easy process and there are no internal modifications or adjustments needed for your transceiver.

**Encrypted keyboard communications and file transfers**

make this especially useful for government or public safety government agencies.



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