DEFENDER

HF Voice & Data Modem

- **Digital Voice rates – 600, 1200, 2400 bps**
- **Data rates – 600, 1200, 2400 bps**
- **Autobauding**
- **AES-256 Encryption Algorithm**
- **Automode (Secret/Non-secret)**
- **Speaker Microphone SM10 included**

The **Defender** is a low rate voice and data HF modem for secure communications. The **Defender** can be connected to most modern HF transceivers and VHF/UHF radios.

Secure Voice & Data communications are critical to protecting private information and confidential conversations from casual eavesdroppers, the public, business competitors, criminals, terrorists and enemies.

Add-on Voice & Data security units used to keep confidential information away from unwanted listeners to protect businesses, property and personnel.

A voice part *of* the **Defender** includes all elements of typical digital voice encryption system: a digital speech coder (vocoder) which transforms the speech into a digital bit stream, a digital encryption & decryption block to encode and decode the bit stream, and a modem to transmit and receive the encrypted digital information.

The user of the **Defender** can work with one of **3 (three! – 600, 1200 or 2400 bps)** Digital Voice rates of built-in vocoder selected by user in depending on the current propagating conditions.

The **Defender** will automatically detect and processes the incoming Digital Voice with different rates (Autobauding).

The **Defender** will automatically detect and processes the incoming clear or encrypted Digital Voice (Automode).

A data part *of* the **Defender** is a 3 rate HF modem – 600, 1200 and 2400 bps.

The **Defender** has an ability to be upgraded with any future improvements via upgrade file.

The programming and key loading is occurred via PC.

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Specifications of the Defender

General	
Operating Temperature	-30° to +60°C
Power Input	+8…+36 VDC
Operating Modes	Digital Voice, Analog Voice, Data Transmission
Supply current	0.5A max @ 12V DC
Dimension	144 mm X 37 mm X 85 mm
Speaker	1W of supplied SM10 Speaker Microphone
Technical	
Bandwidth	400 to 2600 Hz
Channel modulation	8PSK
Compensation of frequency drift	± 30 Hz, 1 Hz/sec
Compensation of symbol speed misiming	± $100*10^{-6}$
Compensation of multipath/fading	0…5 ms, 3…8 Hz
Receive – transmit delay DV	1.5 sec
Digital Voice rates	600/1200/2400 bps
Data rates	600/1200/2400 bps
Data interface	Serial port over USB, DTR as data PTT
Handshake	RTS & CTS / None
Data port baud rate	1200 bps – 38400 bps (default)
Security	
Encryption Algorithm	AES256
Length of key	256 bit, 1 key
Customer Encryption Option	Available
I/O Connectors	
Speaker Microphone	PLT circular 6 pin (m)
Radio	D-Sub 15 pin (f)
USB	USB-B type
Power DC IN	L712RA Barrel connector
Options	
Speaker Microphone	SM10, included
Cable-adaptor to a Radio	DF856-Axxx, depending on a type of Radio
PC interface cable	DF856-P001
DC power cable	DF856-P002

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