HARRIS®

**Strategic Radio Products**

# RF-5710A-MD001

## 9600/12,800 BPS HF/LF MODEM

**JITC CERTIFIED**

***provides data communications at rates up to 19,200 bits per second over HF circuits and up to 300 bits per second over LF circuits***

The RF-5710A-MD001 is the most advanced high-speed HF data modem offered from Harris Corporation. It possesses the processing power and memory to accommodate the new generation of19,200 bps adaptively-equalized HF waveforms and the ability to auto-detect between the MIL-STD-188-110B QAM waveforms and the MIL-STD-188-110A serial tone waveforms. This allows fully adaptive data rates from 75 bps to 9600 bps. It also supports higher speed LF/MF transmissions using the STANAG 5065 MSK waveform.

The RF-5710A-MD001 is compliant with the waveform and performance requirements of MIL-STD-188-110B, STANAG 4539, MIL-STD-188-110A, STANAG 4285, STANAG 4481, STANAG 4529, STANAG 4415, STANAG 5065, and FSK. A powerful adaptive equalizer eliminates the effects of intersymbol interference due to HF multipath. The performance is further enhanced by convolutional error correction coding (FEC) and Viterbi soft decision decoding at all data rates from 75 to 9600 bps.

Considerable protection against co-channel interference is provided by adaptive excision filtering which can automatically remove up to four simultaneous interfering signals.

The state-of-the-art hardware is designed to support new NATO interoperable waveforms. It is field software upgradeable and is "IP ready" with a built-in Ethernet interface for future networking applications.

The waveform, data rate, and other modem parameters are selectable from the front panel keys and LCD display or via the remote control interface. The RF-5710A-MD001 is provided with a "multi-drop" remote control bus that can address multiple modems on the same bus. The remote control commands comply with the requirements of STANAG 5066 Annex E. The RF-5710A-MD001 also provides flexible electrical interfaces that ensure compatibility with a wide range of radio, cryptographic, and terminal equipment.

## Installation

| | |
|---|---|
| **Size** | 1.75H x 8.375W x 12.D inches (4.5H x 21.3W x 30.5D cm) |
| **Weight** | 4 lbs (1.8 kg) |
| **Primary Power** | 85 to 260 VAC, 47 to 440 Hz, less than 15 watts |
| **Mounting** | Desktop or rack mountable |

## Environment

| | |
|---|---|
| **Temperature** | 0˚C to +50˚C (operating); –40˚C to +80˚C (storage) |
| **Humidity** | 0 to 90%, non-condensing |
| **Shock** | MIL-STD-810E Method 516.4, Procedure 1, Functional (40G, 11 mS duration) |
| **Vibration** | MIL-STD-810E Method 514.4, Category 9, Shipboard |

## Interfaces

| | |
|---|---|
| **Data** | EIA RS-422 balanced, EIA RS-423/RS-232D unbalanced, MIL-STD-188-114 unbalanced<br>*Synchronous:* selectable polarity, internal or external data clock, 75 to 12,800 bps<br>*Asynchronous:* selectable polarity, 50 to 19200 bps, 1 or 2 stop bits,<br>5/6/7/8 bit character lengths |
| **Input Audio** | 600 ohm balanced, –35 to +10 dBm without adjustment |
| **Output Audio** | Balanced, –40 to +10 dBm adjustable into 600 ohm load |
| **Radio Keyline** | Open collector to ground (45 volts, 50 mA) and non-polarized contact closure (45 V, 200 mA) |
| **Remote Control** | EIA RS-485, EIA RS-422 balanced, EIA RS-423/RS-232D unbalanced ASCII format in accordance with STANAG 5066 Annex E, Selectable from 50 to 115,200 bps |
| **Presets** | 200 Waveform Presets |

| Waveform | Mode | Data Rates |
|---|---|---|
| MIL-STD-188-110B,APP. C,<br>STANAG 4539 | Coded PSK/QAM<br>Uncoded QAM | 3200,4800, 6400, 8000, 9600 bps<br>12800 bps |
| MIL-STD-188-110B, APP. F | Coded PSK/QAM | 9600, 12800, 16000, 19200 bps |
| MIL-STD-188-110B, APP. B | Coded 39 Tone QDPSK | 75, 150, 200, 600, 1200, 2400 bps |
| STANAG 5066, Annex G | Coded PSK/QAM<br>Uncoded QAM | 3200, 4800, 6400, 8000, and 9600 bps<br>12,800 bps |
| STANAG 4285 | Coded PSK<br>Uncoded PSK | 75, 150, 300, 600, 1200, 2400 bps<br>1200, 2400, 3600 bps |
| MIL-STD-188-110A<br>Serial Tone | Coded PSK<br>Uncoded PSK | 75, 150, 300, 600, 1200, 2400 bps<br>4800 bps |
| STANAG 4529 | Coded PSK<br>Uncoded PSK | 75, 150, 300, 600 1200 bps<br>600, 1200, 1800 bps |
| STANAG 4415 | Coded PSK | 75 bps (NATO Robust Waveform) |
| STANAG 4481 | Coded PSK<br>FSK | 300 bps<br>75 bps |
| FSK | FSK | 50 to 600 bps (variable shift) |
| STANAG 5065 | MSK (LF)<br>FSK (LF) | 300 bps<br>75 bps |

### FSK Mode Specifications

The FSK mode transmits one of two tones during each symbol period. The RF-5710A implements the modulation and demodulation digitally, allowing programmable 1 Hz steps for the center and shift frequencies. The front-panel display provides a tuning meter for frequency tuning in narrow shift applications.

| | |
|---|---|
| Data Rates (bps) | 50, 75, 100, 150, 300, 600 |
| Bandwidth Selections | FSK-NS: Center=2805 Hz, Shift ±42.5 Hz;<br>FSK-WS: Center=2000 Hz, Shift ±42.5 Hz;<br>FSK-A: Center=2000 Hz, Shift ±85 Hz;<br>FSK-V: Programmable Mark/Space Frequency Range (50-2999 Hz) |

Specifications are subject to change without notice.

HARRIS®
RF Communications Division | 1680 University Avenue | Rochester, NY USA 14610
**www.harris.com** 1-585-244-5830