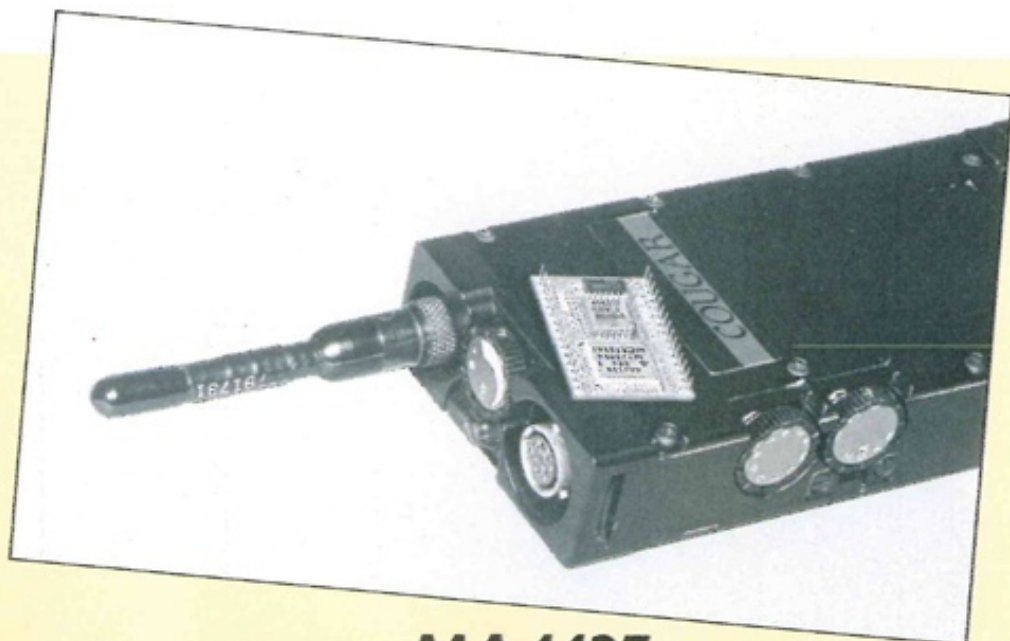


# COUGARNET



## MA 4437 DIGITAL VOICE ENCRYPTION MODULE

The MA 4437 Digital Voice Encryption Module mounted inside the Cougarnet personal radio provides a high level of speech security. The module is capable of encrypting a digital signal at the standard data rate of 16kb/s or any rate between 12 and 16kb/s. On receive the MA 4437 recovers the original data from the encrypted data stream and inserts the necessary sync information for decryption.

The cypher stream is generated using a custom LSI keystream generator. This requires a message and a base key which are combined to produce the cypher stream. The base key is loaded into the module via the host radio using the programmer unit MA 4073C or fill gun MA 4083C.

A sync code is appended to a message key transmission which is encoded to provide error detection and correction. Repeating this information during a message permits late entry into an already active net.

Having received a valid sync code and message key the unit employs a flywheeling technique to enable reliable operation to be maintained even if further sync codes and message keys are not detected owing to high bit error rates. However, a timeout facility is incorporated so that the system does not 'lock-up' indefinitely in the absence of valid syncs.

At the start of transmission a self-test routine is carried out which ensures the keystream generator is working correctly and the base keys have not been corrupted. If an error is detected then an alarm is activated and data transmission ceases.

### MAIN TECHNICAL PARAMETERS

Process:	Digital encryption standard 16kb/s (Adjustable 12–16kb/s)
Technique:	Stream cipher i.e. modulo-2 addition of sequence generator output.
Key Settings:	$3.2 \times 10^{32}$
Stored Keys:	Up to 4 keys may be stored
Message Key Sequence:	252 days
Recovered Signal Delay: (16kb/s)	16mS
First Syllable Blocking: (16kb/s)	72mS (can be reduced to 40mS min)
Late Entry:	<1.54 seconds
Synchronisation Performance:	>98.9% confidence in 10% mean BER
Operating Temperature Range:	-30°C to +85°C
Interface:	Dual in-line PCB mounting
Dimensions:	Height: 39.1 mm Width: 25.65mm Depth: 4.91mm Weight: 5gm
Power Requirements:	3 supplies with common 0 volts a) 5V, 14mA (max) <4mA (typical) b) 5V, 20µA c) 3 to 5V, 80µA