

TC4-LP

IC-F8101

SECURE DIGITAL VOICE & MESSAGING FOR THE ICOM IC-F8101 #61

DATASHEET



FEATURES & BENEFITS:

- Secure Digital Voice
- AES-256 Encryption
- Vocoder 600 – 2400 bps TWELP* or MELPe**
- Email over HF radio
- Chat Messaging
- File Transfer
- Beyond Line of Sight (BLOS)
- No satellite infrastructure required
- Free to air (no data transfer cost)
- Data compression improves throughput
- Internal modem solution for radio
- Desktop and mobile deployment

SECURE DIGITAL VOICE & DATA MESSAGING

The **TC4-LP** is an HF modem module with exceptional performance and reliability. The **TC4-LP** plugs into the Icom IC-F8101 #61 Transceiver's internal provisioned connector. The **TC4-LP** installed in the IC-F8101 is suitable for governmental, paramilitary, industrial and commercial users requiring Beyond Line of Sight (BLOS) Secure Digital Voice and Data Messaging without fixed infrastructure.

RapidM's **EF-256** Embedded Functions for Secure Voice and Data is hosted on the **TC4-LP** module. The internal Vocoder digitizes the voice. The digital voice data is encrypted and converted to an in-band signal by the built-in high performance modem.

Built-in AES encryption means that all digital voice and data communications are secured by a trusted algorithm.

MESSAGEPOINT SOFTWARE

MESSAGEPOINT is a Microsoft® Windows® application which connects to the TC4-LP data modem. The software allows users to easily communicate by using threaded Chat Messaging and File Transfer from within the application.

Email is supported via the POP3 & SMTP interfaces. Users can compose emails using well known email clients such as Microsoft® Outlook® and Lotus Notes™. **MESSAGEPOINT** ensures that emails get delivered to other users on the radio network.

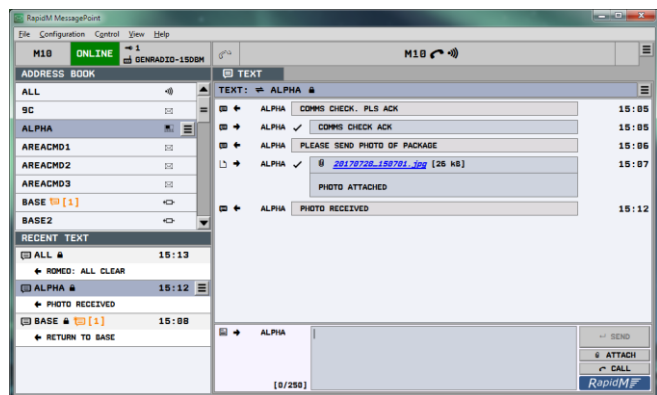
Package Contents:

TC4-LP Module (including EF-256)
MessagePoint Software
Installation Guide
Type-AB USB Cable

Not Included:

Icom IC-F8101 #61 HF Transceiver
Icom CS-F8101 #11 Cloning Software
Icom CFU-F8100 Cooling Fan Unit (Recommended)
Windows PC
Email client (such as MS Outlook™)

- * TWELP voice coding by DSP Innovations Inc.(www.dspini.com)
** MELPe for US customers only



SECURE VOICE AND DATA MESSAGING

RapidM

Copyright © 2019 Rapid Mobile (Pty) Ltd

KEY FILL AND KEY SELECTION

Encryption keys are loaded onto the **TC4-LP** modem module by using Icom's CS-F8101 #11 Cloning Software (not provided by RapidM). Up to 256 different keys can be loaded at one time. Once keys are loaded, encryption can be activated and the active key index can be selected from the IC-F8101 front panel menu.



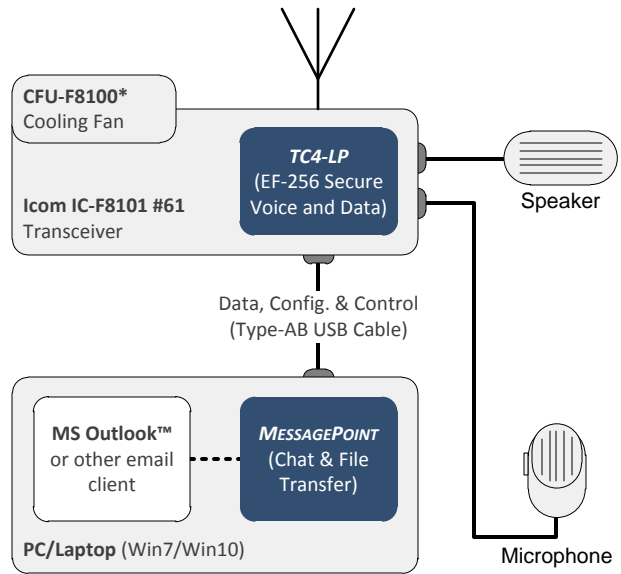
SYSTEM CONFIGURATION SOFTWARE

The **TC4-LP** modem module is configured by using the RapidM **SYSTEM CONFIGURATION SOFTWARE** (SCS). The configuration, including the configured Address Book, is automatically transferred from the modem to **MESSAGEPOINT**, requiring very little configuration from the operator.

Encryption								
Algorithm		Advanced Encryption Standard (AES), 256-bit key length.						
Digital Voice								
Vocoder		TWELP: Tri-Wave Excited Linear Prediction. (TWELP voice coding by DSP Innovations Inc. www.dspini.com) MELPe: Mixed Excitation Linear Prediction enhanced (US & NATO end-users, subject to approval)						
Modem		High performance serial tone BLOS modem featuring adaptive equalization and selective calling. The modem is able to deal with in-band interference and multipath/fading (up to 10 ms, 30 Hz).						
Performance	Vocoder Rate [bps]	End-to-End Latency [s]	PESQ	Channel Use	Speech Quality		Understand-Ability Limit SNR [dB]	
					Intelligibility	Speaker Recognition	CCIR Poor	AWGN
	2 400	1.6	3.1	Ground Wave	Very Good	Good	6.5	0.5
	1 200	2.2	3.0	Sky Wave	Good	Acceptable	4.0	-0.5
	600	2.2	2.4	Sky Wave	Acceptable	Fair	0.5	-3.0

MESSAGEPOINT SOFTWARE	
MESSAGING	Chat messaging (broadcast and point-to-point), File Transfer, Email with attachments. Recipient selectable via Address Book
USER INTERFACE	Address Book, Chat client, Recent chats, Modem status, Network status, Email Inbox & Outbox status
EMAIL CLIENT INTERFACES	POP3 (RFC 1939, excluding APOP), SMTP (RFC 2821, excluding authentication)
MINIMUM SYSTEM REQUIREMENTS	32 GB Storage, 2GB RAM, USB Port, 1024x768 Screen Resolution, Keyboard and Pointer
OPERATING SYSTEM	Windows® 7, Windows® 8.1, Windows® 10 32-bit and 64-bit

TC4-LP HARDWARE	
SIZE	33 x 55 x 6mm (w x d x h)
WEIGHT	9.1 g
POWER	3.3 V (DC), < 650 mW (typ.)
TEMPERATURE	-40°C to +85°C (operating); -40°C to +90°C (storage)

INSTALLATION	SETUP
<p>Note: Detailed instructions for installing the TC4-LP in the IC-F8101 are included with the package.</p> <div>  <p>Figure 1: IC-F8101 internal TC4-LP connector</p> </div> <div>  <p>Figure 1: IC-F8101 with TC4-LP installed</p> </div>	
<p>* Note on Cooling: It is recommended that the Icom CFU-F8101 Cooling Fan Unit is installed on the IC-F8101 Transceiver for data operation. The CFU-F8101 Cooling Fan Unit can be obtained from your Icom dealer.</p>	

ORDERING INFORMATION	STOCK NUMBER	DESCRIPTION
EF-256 SDV ON TC4-LP & MESSAGEPOINT	TC4-CF-LVMPCAES	EMB FUNC: AES-256 Low-Rate Voc, MsgPoint
SYSTEM CONFIGURATION SOFTWARE (SCS) - ONE PER NETWORK	RAP-BU-CFASCVE4	Bundle: SEC SCS, 256b EN V4

Distributed by:

Rapid Mobile Pty (Ltd)
Tel: +27 12 349 0000
Fax: +27 12 349 0010
Email: info@rapidm.com
Web: www.rapidm.com

Apex Corporate Park
Quintin Brand Street
Perseuor Park
Pretoria, South Africa
0020



Copyright © 2019 Rapid Mobile (Pty) Ltd
Revision: EF256_F8101_EN_01C