Selex ES
A Finmeccanica Company

Avionics

CM107E
DATA/VOICE CRYPTO DEVICE

The CM107E is a multiprotocol digital voice/data crypto device for airborne, naval and land tactical applications. It can work in narrowband or wideband modes, interconnected to radio vectors (HF or V/UHF) or wired lines.

For voice applications, signal coming from a headset/handset or from on-board Communication System is digitalized by a VOCODER, encrypted and transferred to transmission channel.

Analogue voice plain text Tx/Rx is possible when this mode is selected or when device is switched off.

MAIN FEATURES

- Data and voice encryption
- NATO and National approved algorithms
- Security: CIK, Anti tampering functionality
- Local or Remote control by CP107E
- Built-in diagnostics (BIT)
- Environmental/EMC/TEMPEST according to military standards
- Guard channel to ensure reception of emergency incoming voice alert

NARROWBAND APPLICATIONS

Voice mode
2400 bps LPC10 VOCODER; ciphertext is modulated in accordance with STANAG 4197 by internal modem (voice mode) and transferred to an analogue interface.

Data mode
Synchronous data traffic at 300, 600, 1200, 2400 bps (red side unbalanced electrical interface i.a.w MIL-STD-188-114). Ciphertext is modulated in accordance with STANAG 4197 by internal modem (data mode) and transferred to an analogue interface.

LOS mode
2400 bps LPC10 voice or 2400 bps data traffic; ciphertext is modulated by internal MODEM and transferred to an analogue interface.

BDM (Black Digital Mode)
2400 bps LPC10 voice or synchronous data traffic at 300, 600, 1200, 2400 bps; ciphertext is transferred to an external MODEM (fixed black side rate 2400 bps) through a digital interface (balanced, MIL-STD-188-114).

Low Rate BDM

Synchronous data traffic at 75, 150, 300, 600, 1200, 2400 bps, transferred to an external MODEM.

WIDEBAND APPLICATIONS

At black side a digital interface is used; unbalanced electrical interface in accordance with MIL-STD-188-114). Line coding can be selected among Baseband, Diphase or Conditioned Diphase.

Voice mode

8, 12 or 16 kbps CVSDM VOCODER; ciphertext is transferred to the digital interface.

Data mode

Synchronous data traffic at 8, 12 or 16 kbps (red side unbalanced electrical interface in accordance with MIL-STD-188-114). Ciphertext transferred to the digital interface.

• Analogue Data mode: red data consist in analogue tones (FSK) that are CVSDM encoded, encrypted and transferred to the digital interface.

MAIN FEATURES

- Data and voice encryption
- NATO and National approved algorithms
- Security: CIK, Anti tampering functionality
- Local or Remote control by CP107E
- Built-in diagnostics (BIT)
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TECHNICAL SPECIFICATION

General
Data and voice secure communications on NB and WB transmission channels
Standard Over The Air Rekeying functions
Remotely controllable by CP107E RCU
NVIS Compatible display and front panel lighting
Interoperability: KY-100 crypto device

Narrowband mode	
VOCODER	2400 bps LPC10, i.a.w. STANAG 4198
Synchronous data traffic	300, 600, 1200, 2400 bps
MODEM	i.a.w. STANAG 4197
Other modes	LOS, BDM, BDM Low Rate
Interoperability	ANDVT family crypto devices.

Wideband mode	
VOCODER	CVSDM 8-12-16 Kbps
Synchronous data traffic	8,12 or 16 kbps
Analogue Data mode	
Digital Black Interface line coding	baseband, Diphase or conditioned Diphase
Interoperability	VINSON family crypto devices (e.g. KY-58)

Security
NATO and National (Italy) approved algorithms
Equipment enabling by CIK; declassified to CCI when CIK is removed
Number of storable key variables: 60
Anti-tampering functions
TEMPEST tested

Management	
Auto-diagnostics	Power-on self-test On-line BIT
Local control	Keypad/display use on the front panel
Remote control Unit CP107E (RS485 bus)	

Electrical features	
Supply voltage	28VDC nominal
Power requirement	25W

Physical data	
Dimensions	120.5 x 126.8 x 120 mm (H x W x D)
Weight	<3kg
Color	Matt black (FS 37038) i.a.w. FED-STD-595 (A)

Environmental data	
In compliance with MIL-STD-810F	
Operating temperature	40°C to +55°C
Max short term operating temp.	+71°C
Humidity	up to 93%±5%

EMI/EMC
According to MIL-STD-461E

ANCILLARIES

CP107E Remote Control Unit

CP107E acts as a remote Control Panel for up to a maximum of 8 CM107E crypto devices; this easies avionic installations, since crypto devices can be installed in the bay, saving place on the console.

It allows the operator to manage, control and monitor the single Crypto Device, or to address all of them at the same time, especially for emergency commands.

The operational use of the on-board secure radio channels is facilitated by the “PROGRAMS”, pre-loaded settings for all the controlled crypto devices, easily recallable at mission time by dedicated switch.

FG101

FG101 is a portable device used to store a maximum of 8 red keys or a maximum of 4 encrypted keys, and to transfer them to crypto device. It is endowed with a battery that allows storage of the keys for up to one year.

Line interface in compliance with EUROCOM D/1 Crypto Supplement	
Transfer protocol	DS102
Internal battery	BA1372/U 6.75V -BA5372/U 6V.
Dimensions	75 x 150 x 45 mm (H x L x D)
Weight	0.6kg

TR101

TR101 is a portable punched tape reader for the transfer of the keys on tape. It is endowed with an internal battery that has duration of one year.

Line interface in compliance with EUROCOM D/1 Crypto Supplement	
Transfer protocol	DS102
Internal battery	BA1372/U 6.75V-BA5372/U 6V.
Dimensions	60 x 150 x 45 mm (H x L x D)
Weight	0.7kg

For more information please email **infomarketing@selex-es.com**
Selex ES S.p.A. - A Finmeccanica Company
Via Tiburtina, Km 12.400 - 00131 Rome - Italy - Tel: +39 06 41501 - Fax: +39 06 4131133