LEONARDO ELECTRONICS

Multi-domain Encryptor CM117E

CM117E device is a multiprotocol data and voice encryptor for airborne, land and naval tactical applications. It operates in narrowband or wideband modes, interconnected to either HF, VHF/UHF radios or wired lines.

The CM117E can work in combination with HF/V/UHF/SATCOM radios and modem of other manufacturers and can be interconnected with a large set of applications, such as Message Handling Systems.

In voice applications, signal coming from either headset/handset or the on-board communication system is digitalized by a vocoder, encrypted and then sent to the transmission channel. A plain text analogue voice is also possible in this operating mode or when the device is turned off.

The Narrowband Data mode consists of synchronous data traffic at 300, 600, 1200 and 2400 bps. The ciphertext is modulated by the internal modem and transferred to the analogue interface.

The Narrowband Voice modes consist of 2400 bps MELP vocoders: the ciphertext is then modulated by the internal modem and transferred to the analogue interface.

A shortened and non-redundant synchronization for narrowband traffic over Line-of-Sight channels is accomplished on 2400 bps voice or 2400 bps data traffic. The ciphertext is then modulated by the internal modem and transferred to the analogue interface.

In Wideband mode, a digital interface is used at the black side. Line coding can be set to baseband, diphase or conditioned diphase.

In Data mode, the traffic is synchronous at 8, 12 or 16 kbps. The ciphertext is then transferred to the digital interface.

KEY FEATURES

- Data and Voice encryption
- Narrowband and Wideband modes
- Built-In Modem Capability
- Native Support of AES 256 crypto algorithm
- Keys Generation in association with KS119 system
- Keys Fill capabilities in association with FG103
- Custom Crypto Algorithm with dedicated tools
- Emergency Guard channel for voice alert
- Cryptographic Ignition Key (CIK), Anti-Tampering
- Control through CP117E ancillary panel
- Built-in diagnostics (BIT)
- Military Type Environmental/EMI/EMC

The Analogue Data mode consists of FSK tones that are encoded according to CVSDM, encrypted and sent to the digital interface.

In Voice mode, the CVSDM vocoder encodes the 8, 12 or 16 kbps traffic: the ciphertext is then transferred to the digital interface. Operations with external modems consist in synchronous data traffic from 75 bps to 16 Kbps or in 2400 bps voice: the ciphertext is transferred to an external modem through a digital interface.

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KS119 KEY GENERATOR

The KS119 is the Key Generation system for the mission setup of the CM117E encryptor. KS119 is composed of a Commercial-Off-The-Shelf Personal Computer (PC), a software application and a dedicated hardware extension that enables the autonomous production and storage of the mission keys for the CM117E. Generated keys can then be exported to the FG103 for being injected into the CM117E.

FG103 KEYFILL UNIT

FG103 is a portable KeyFill unit for storing red and black keys and transfer them into the CM117E crypto device.

The line interface complies with the EUROCOM D/1 crypto supplement. The used transfer protocol is the DS102. An embedded battery allows up to one year of permanent storage of the keys.

CP117E CONTROL PANEL

CP117E operates as a remote control panel for up to eight CM117E crypto devices. CP117E enables the operator to efficiently accomplish mission setup operations as programming/monitoring the single crypto device or simultaneously addressing, for example as emergency commands, a pool of CM117E encryptors.

TECHNICAL SPECIFICATION

NARROWBAND MODES
- Red side interface: unbalanced MIL-STD-188-114
- 300, 600, 1200, 2400 bps synchronous data traffic
- 2400 bps LPC10 or MELP vocoders
- Internal modem non-redundant synchronization according to FED-STD-1005

WIDEBAND MODES
- Black side interface: unbalanced MIL-STD-188-114
- Line coding: baseband, diphase or conditioned diphase
- Red side interface: unbalanced MIL-STD-188-114
- 8, 12 or 16 Kbps synchronous data traffic
- 8-12-16 Kbps CVSDM vocoders

EXTERNAL MODEM MODE
- Synchronous data traffic from 75bps to 16Kbps
- 8-12-16Kbps encoded voice data at 2400bps
- Encrypted signal sent to a digital interface

SECURITY
- Support of AES 256 crypto algorithm
- Default crypto algorithm replaceable with custom algorithm
- Cryptographic Ignition Key (CIK)
- Anti-tampering functions
- TEMPEST design
- Up to sixty storable keys
- Over-the-air rekeying functions

MANAGEMENT
- Auto-diagnostics: Power-on self-test, On-line BIT
- Keypad/display on the front panel
- Remotely controllable by CP117E (RS485 bus)

ELECTRICAL FEATURES
- Supply voltage: 28VDC nominal
- Power requirement: 25W

PHYSICAL DATA
- Dimensions (H x W x D): 120.5 x 126.8 x 120mm
- Weight: < 3kg
- Color: matte black

ENVIRONMENTAL DATA
- In compliance with MIL-STD-810F
- Operating temperature: -40 °C to +55 °C
- Max short term operating temperature: +71 °C
- Humidity: Up to 93% ± 5%

EMI/EMC
- According to MIL-STD-461E

FG103
- Up to eight red keys and up to four black keys
- Internal battery: BA1372/U 6.75V - BA5372/U 6V
- Dimensions (H x W x D): 75 x 150 x 45 mm
- Weight: < 0.6kg

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