

ECTOCRYP® Steel

Transparent cryptography



The next step for platform wide key management of secure assets

ECTOCRYP® Steel is a single point fill cryptographic solution developed within EADS Defence & Security, the leading UK Crypto House. The Aircraft Crypto Variable Management Unit (ACVMU) variant of ECTOCRYP® Steel was selected and developed for the Eurofighter Typhoon aircraft. The benefits of single point fill technology are now available to the wider cryptographic market through ECTOCRYP® Steel.

The move towards an integrated and informed battle space has led to an increased number of communications systems and cryptographic devices in land-based and airborne systems. It is essential that key material necessary to secure these systems remains secure at all times and this typically requires erasure when platforms are "stood down" between missions. Key material must subsequently be reloaded on an individual basis prior to any mission resulting in a labour overhead.

Background

Modern military aircraft and ground installations require multiple communications systems to enable them to operate in a network centric environment; these systems include radio, IFF, GPS and data links. The high demands for security require multiple cryptographic protection devices, each of which have different requirements for key variables and fill devices. Key management has traditionally been a time consuming and labour intensive task, often requiring erasure and re-keying between missions when aircraft are powered down. Against a backdrop of reducing staff numbers and response times, there is a requirement to minimise the key management burden without compromising security.

ECTOCRYPT Steel's benefits

Faster secure mission preparation

ECTOCRYPT® Steel eliminates the time-consuming need for crypto equipment aboard an airborne platform to be manually re-keyed before every mission. This change results in significant labour savings and a reduction in mission preparation time.

ECTOCRYPT® Steel provides secure onboard management and storage for current and future key material associated with multiple cryptographic devices without the need for aircraft power. The ability to bulk load through a single port reduces the requirement for multiple fill devices

Exceptional through-life cost savings

ECTOCRYPT® Steel brings the opportunity to realise significant through-life cost savings due to the reduction in labour overheads. With improvements in responsiveness and reduced keying errors, ECTOCRYPT® Steel is a major enhancement for platform-wide management of secure assets.

Reduced keying errors

ECTOCRYPT® Steel improves mission responsiveness, reduces key filling errors and therefore improves mission effectiveness and minimises running costs.

Increased flexibility for out of area operations

The ACVMU variant of ECTOCRYPT® Steel brings EADS' single point fill technology to the Eurofighter Typhoon aircraft to meet the demands for a highly responsive, secure and flexible key management solution. By pre-loading and storing multiple mission scenarios, ECTOCRYPT® Steel improves flexibility for out-of-area operations and reduces the reliance on COMSEC custodial staff for aircraft and platform operation.

Technical Details

Key Management

- Loaded keys are held in a securely wrapped condition, enabling aircraft to be powered down
- All key transactions subject to accounting reports
- Control information defines key type, destination ECU and validity as a minimum
- Keys retained until expiry, replacement, erasure commanded or system generated erasure command

Interfaces

- DS-101 – Intelligent fill interface
- DS-102 – Common fill interface
- S354 – Bulk fill interface specification

Cryptography Support

- Other (e.g. customer specific/NATO releasable) cryptographic suites available on request

Capacity

- ECU capacity – up to 10 x DS-101, 5 x DS-102 (combined maximum of 12 in total)
- Expansion options available to manage greater numbers of ECUs

Physical Interfaces

- Control interface - avionics MIL-STD-1553 data bus (STANAG 3838)
- Power – host powered 24-29V DC @ 13W (typical)
- Battery – internal bespoke lithium battery pack

Safety

- Compliant with relevant EEC directives

Certification Features

- High grade COMSEC approved
- Tempest approved
- CE approved

Physical Specifications

- Size envelope – 216H x 57.2W x 380D (Max)
- Can be incorporated into a standard 19" rack assembly for ground operation
- Weight 4.2kg
- Operating temperature during flight Min -40°C (25000 ft) to +70°C (sea level) or +40°C (40000 ft)
- Ground soak temperature -31 to +70°C (operating), -39 to +90°C (non-operating)

Maintenance

- Scheduled maintenance - limited to 9-monthly battery change
- Reliability - > 30000 hrs

Security Features

- Tamper proof
- Full erase function

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