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The Hardware Security Module exclusively for the Swiss Banking System

Primus HSM S500

- Designed, developed, and manufactured in Switzerland
- Exclusively tailored for the Swiss banking system SIC[4]
- In cooperation with Swiss authorities
- Market-leading encryption and authentication performance
- Highest availability
- Tamper protection during transport, storage, and operation
- Simple setup, easy commissioning, configuration, and maintenance
- Integrated two-factor authentication
- Restricted feature set for the Swiss Interbank Clearing SIC[4]

This is our flagship Primus HSM. It was exclusively tailored for SIX, the organisation that operates the Swiss Interbank Clearing System. S500 secures the Swiss interbank clearing and settlement, as well as SECOM, the Swiss stock exchange. It delivers market-leading performance for highest requirements in safety, availability, flexibility and tamper protection. Connecting the devices to existing systems is just as easy as their commissioning and setup.

Applications

The Primus HSM S500 perform a focused range of operations. Due to their industry-leading signature performance they are ideally suited to secure financial transactions. The S500 is mandated for access to SIC and eSIC transactions using the SASS application; it can also be used to secure SECOM transactions.

Functions

The Primus S500 generate encryption keys and store and manage their distribution. Besides key management, they also perform other authentication and encryption tasks. Multiple Primus HSM can be grouped together to support redundancy and load balancing. Primus supports symmetric (AES, Camellia), asymmetric encryption (RSA, Diffie-Hellman), and hash (SHA-2, SHA-3) algorithms. They can be seamlessly and easily integrated into any network environment.

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Security Features

Security architecture
- Military grade security architecture
- Multi-barrier software and hardware architecture with supervision mechanisms

Encryption/Authentication
- 128- and 256-bit AES with GCM-, CTR-, GCTR-, ECB-, CBC-, MAC-modes
- Camellia
- RSA 1024, 2048, 3072, 4096, 8192
- DSA 256-8192
- Diffie-Hellman 1024, 2048, 4096
- SHA-2 (256 - 512), SHA-3

Key Generation
- Two hardware true random number generators (TNRG)

Key Management
- Key capacity: up to 30 GB

Operation
- Number of client connections not restricted

Anti Tampering Mechanisms
- Several sensors to detect unauthorized access
- Active destruction of key material and sensitive data on tamper
- Transport and multi-year storage tamper protection by digital seal

Firmware
- Local firmware update

Identity based authentication
- Multiple security officers (2 out of *m*)
- Identification based on Smartcard and PIN

Networking Features

Software integration
- JCE/JCA Provider

Network Management
- IPv4/IPv6
- Enhanced test functions
- Event agent

Device Management
- Configuration, monitoring and logging (syslog, SNMP V2)
- Integrated logging
- Firmware update

Load balancing / Fail Over
- Multiple units may be connected to provide load balancing by application software

Technical Data

Performance (per second, concurrent)

RSA 4096	RSA 3072
200	400

Power
- Two redundant power supplies, hot pluggable 100 ... 240 V AC, 50 ... 60 Hz
- Power dissipation: 60 W (typ.), 80 (max.)
- Ultra capacitors for data retention
- Backup lithium battery

Interfaces
- 4 Ethernet RJ-45-ports with1 Gbit/s (rear)
- 1 RS-232 management port (front)
- 1 USB management port (front)
- 3 smart card slots
- Physical key to open case

Controls
- 3 slots for Securosys Security smart cards
- 4 LEDs for system and interface status (multicolored)
- 1 liquid crystal display for management information
- Panel for menu navigation and to trigger built in test equipment and emergency erasure

Environmental Test Specifications
- EMV/EMC: EN 55022, EN 55024, FCC Part 15 Class B
- Safety: IEC 60950

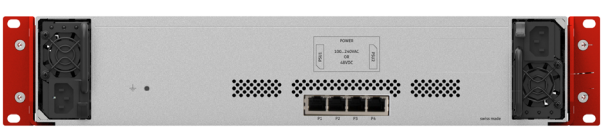
Specifications
- Temperature ranges (IEC 60068-2-1 Ad, IEC 60068-2-2 Bd): storage -25...+70 °C; operation 0...+40 °C
- Humidity (IEC 60068-2-78 Cab): 40 °C, 93% RH, non-condensing
- MTBF (RIAC-HDBU-217Plus) at t_{amb}=25 °C: 100 000 h
- Dimensions (w×h×d) 440 x 88 x 441 mm (fits 2U 19" EIA standard rack - see photo below)
- Weight 13.5 kg

Certification
- Reviewed by DDPS (Federal Department of Defence, Civil Protection and Sport)
- CE, FCC, UL

We strive to continuously improve our offerings and therefore reserve the right to change specifications without notice.
Designed and manufactured in Switzerland

EV2.0.

Front



Rear