



## Product Brief

# CIPURSE™ Security Controller

CIPURSE™T Profile compliant security controller supporting migration

The CIPURSE™ Security Controller is a ready-to-use cost optimized contactless security controller and offers secure storage of AES-128 keys in hardware for 3-pass mutual authentication and communication. It targets multi-applications and is available with 8 kByte user memory for application data storage of up to 8/16 custom applications.

CIPURSE™ is an Open Standard of the OSPT™ Alliance and provides interoperability and easy integration of CIPURSE™ certified products.

The CIPURSE™ Security Controller incorporates the CIPURSE™ security architecture using AES-128. Commands and data can be secured using the CIPURSE™ Cryptographic Protocol which is inherently resistant against physical attacks like Differential Power Analyses (DPA) and Differential Fault Analysis (DFA) and was honored in 2012 with the German IT Security Award. A typical CIPURSE™ secured transaction will take less than 100 ms.

It offers optional support of 1 kByte or 4 kByte Mifare compatible emulation.

The CIPURSE™ Security Controller is the ideal product to support the upgrade from existing nonsecure or systems using Mifare compatible technology towards a more advanced, state-of-the-art and future proven security architecture such as the Open Standard CIPURSE™.

### Applications

- > Public Transport Ticketing
- > Automatic Fare Collection (AFC) system
- > Account based Ticket
- > Event Ticket
- > Access management, hospitality
- > Loyalty and identification
- > Closed-loop payment
- > NFC

### Benefits

- > Ready-to-use for personalization
- > Future proven cost effective solution for multi-application
- > CIPURSE™ certified
- > CC EAL 5+ (high) for HW and SW

### Main features

- > CIPURSE™T Profile compliant
- > Consistent Transaction Mechanism
- > 8 kByte user memory
- > Up to 8/16 applications configurable
- > Up to 4/8 PxSE applications configurable
- > Optional support of 1 kByte or 4 kByte Mifare compatible emulation
- > Limited refund feature
- > NFC Forum Type 4 Tag support
- > ISO/IEC 14443 Type A contactless interface
- > 27 pF chip input capacitance
- > Data rates up to 848 kbit/s
- > Available as sawn, bumped wafer or contactless module MCC8

### Security features

- > Secure storage of AES-128 keys
- > Secured 3 pass mutual authentication using AES-128
- > Secured communication using AES-128 and session key derivation mechanism
- > Data exchange protocol inherently DPA and DFA resistant offering AES-MAC and AES-encryption and sequence integrity protection for APDUs



# CIPURSE™ Security Controller

## SLS 32TLC100(M)

### Contactless I/O management

- › ISO/IEC 14443-3 Type A Initialization and anticollision
- › ISO/IEC 14443-4 transmission protocol
- › 4/7/10-byte fixed UID, 4-byte random UID configurable

### Memory organization

- › ISO/IEC 7816-4 file system
- › Binary, linear record, cyclic record, linear value-record files
- › Up to 8/16 applications configurable
- › Up to 4/8 PxSE applications configurable
- › Up to 32 elementary files per CIPURSE™ application configurable

### Interface

- › Optional support of 1 kByte or 4 kByte Mifare compatible emulation

### NFC Forum Type 4 Tag

- › Technical specification version 2.0

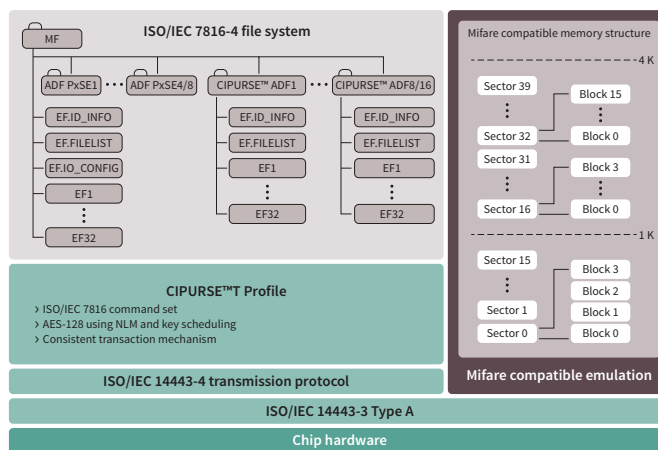
### Security

- › Security attack preventions for all critical operations using both hardware and software countermeasures
- › Mutual authentication (3-pass as per ISO/IEC 9798-2), using AES-128
- › Data exchange protocol inherently DPA and DFA resistant offering AES-MAC and AES-encryption and sequence integrity protection for APDUs
- › Flexible access rights and secure messaging rules configurable for each file
- › Up to eight 128-bit AES keys per CIPURSE™ application configurable

### Tools

- › CIPURSE™ evaluation & development kit
  - CIPURSE™ Explorer
  - Scripts for card personalization & operation
  - Scripts for CIPURSE™ SAM personalization & key distribution
  - Scripts for NFC Type 4 Tag configuration
  - Terminal application note
  - CIPURSE™ sample cards

### Memory & block diagram



### Ordering information

Sales name	Description
SLS 32TLC100(M)	NB (sawn wafer 75/150 μm, NiAu bump 20 μm)
SLS 32TLC100(M)	MCC8 (contactless module)

### CIPURSE™ product portfolio

CIPURSE™move	SLM 10TLC002L
CIPURSE™4move	SLS 32TLC004S(M)
CIPURSE™Security Controller	SLS 32TLC100(M)
CIPURSE™SAM	SLF 9630

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