



**Advanced Card Systems Ltd.**  
Card & Reader Technologies



# ACOS3X

ACOS3 eXpress Microprocessor Card

## A Product Presentation



# Rundown

1. Product Overview
2. Product Features
3. Comparison Charts
4. Product Applications
5. Q & A

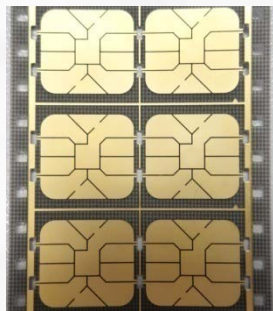
A red globe with a grid pattern is positioned in the top right corner of the slide. It is partially cut off by the edge of the frame. The globe is set against a white background with a subtle grid pattern.

# Product Overview

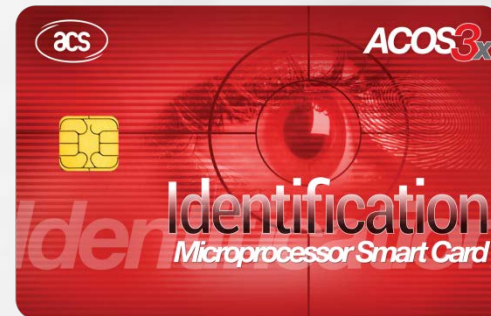
# Product Overview

## ACOS3X Series (256 KB EEPROM)

Versatile Smart Card Operating System from ACS



**Module**



**Full-sized Card**

A red globe with a grid pattern is positioned in the top right corner of the slide. It is partially cut off by the edge of the frame. The globe is set against a white background with a subtle pattern of white, rounded rectangular shapes that resemble a honeycomb or a textured surface.

# Product Features

# What are the Key Features of ACOS3X?

## eXpress Microprocessor Card

- Based on ACOS3 platform but with faster processing time and larger EEPROM memory size
- Maximum support of 128 user files
- Can also be paired with ACOS6-SAM to provide utmost security for its wide range of supported applications

## Security Features

- DES/3DES hardware crypto-engine
- 5 secret codes + issuer code
- Session key based on FIPS 140-2 compliant true random numbers
- PIN code that can be updated by card holder
- Key pair for mutual authentication


## Compliance to Standards

- ISO 7816 Parts 1, 2, 3 supporting the T=0 direct protocol
- ISO 7816 Part 4 file structures – Transparent, Linear fixed

## Storage and other Features

- 256 KB EEPROM Size
- High Baud rate of up to 223.2 Kbps with modifiable ATR
- Account data structure for highly secure payment applications as an optional feature



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# Comparison Charts

# Comparison Chart



Category		ACOS3	ACOS3 Combi*	ACOS3X
Product Code		ACOS3-B/D	ACOS3-G	ACOS3X-E
<b>Communication Speed</b>				
<b>Contact</b>	9,600 BPS - 223,100 BPS	✓	✓	✓
<b>Contactless</b>	106,000 BPS - 848,000 BPS		✓	
<b>EEPROM Size</b>				
<b>User Memory</b>		32 KB/72 KB	8 KB	256 KB
<b>Protocol</b>				
<b>Contact</b>	T = 0	✓	✓	✓
<b>Contactless</b>	T = CL		✓	

*\*ACOS3 Contactless card has the same contactless features of ACOS3 Combi card.*





# Comparison Chart

Category		ACOS3	ACOS3 Combi*	ACOS3X
<b>ISO Standards</b>				
<b>Contact</b>	ISO 7816 – 1/2/3	✓	✓	✓
<b>Contactless</b>	ISO 14443-1/2/3/4		✓	
	ISO 14443 Type A		✓	
<b>File Systems</b>				
<b>Transparent (Binary File)</b>		✓	✓	✓
<b>Linear Fixed Record</b>		✓	✓	✓
<b>Security Keys</b>				
<b>Configurable User, Admin and Application PIN</b>		✓	✓	✓
<b>Cryptographic Capabilities</b>				
<b>DES/3DES</b>		✓	✓	✓
<b>Secure Messaging</b>		✓	✓	✓
<b>Mutual Authentication</b>		✓	✓	✓

\*ACOS3 Contactless card has the same contactless features of ACOS3 Combi card.

# Comparison Chart

Category	ACOS3	ACOS3 Combi*	ACOS3X
<b>EEPROM Endurance</b>			
<b>100,000 write/erase cycles</b>	✓		✓
<b>500,000 write/erase cycles</b>		✓	
<b>Applications</b>			
<b>e-Government and e-Healthcare</b> (e.g., Identification, Healthcare ID, Social Security ID, etc.)	Identification, Healthcare ID, Social Security ID	Identification, Healthcare ID, Social Security ID	Identification, Healthcare ID, Social Security ID
<b>Logical and Physical Access Control</b> (e.g., Enterprise Security, Corporate ID, Time and Attendance, etc.)	Corporate ID, Door Access ID, Network Security	Corporate ID, Door Access ID, Network Security	Corporate ID, Door Access ID, Network Security
<b>Loyalty and Retail</b> (e.g., Cashless Retail Payment, Customer Loyalty, etc.)	e-Payment, Customer Loyalty	e-Payment, Customer Loyalty	e-Payment, Customer Loyalty

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# Product Applications

# In what applications can we use ACOS3X?



Network Security



Loyalty



Payment system /  
e-Purse



Corporate Security



Physical Access Control



# How to Use ACOS3X - Overview

## Sample Scenario: Student Card Application

### Student ID (ACOS3X Card)



#### Information stored

e.g.:

1. Student Name
2. Gender
3. Biometric Data  
(Fingerprint)
4. e-Purse amount
5. Library record

SAM cards are stored inside the device for mutual authentication

- Authenticate the data received from the student card inserted, and prove to the cards the authenticity of the terminal.



Smart Card Reader  
(e.g., AET65)



Classroom

- Classroom door access
- Records the attendance in the school database



Computer Center

- Printing services payment
- Computer Login

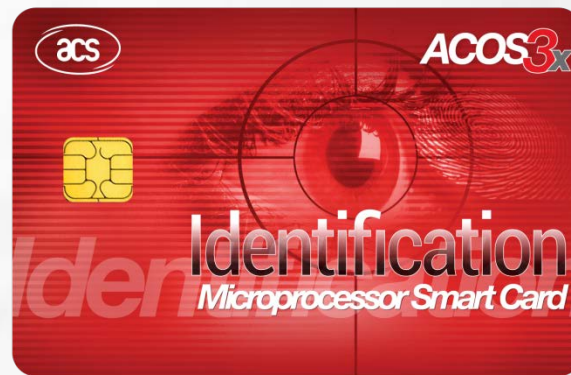


Library

- Borrow books
- Transactions are transferred to library database



# Thank You!



**For more information, visit:**

**<http://www.acs.com.hk/en/products/116/acos3x-express-microprocessor-card/>**