



Advanced Card Systems Ltd.
Card & Reader Technologies

AET65 Smart Card Reader with Fingerprint Sensor



Technical Specifications V1.02



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1.0. Introduction



AET65 combines the core of ACS' ACR38-SAM contact smart card reader and Digital Persona UPEK's swipe fingerprint sensor, guaranteeing security and convenience.

Merging smart card and fingerprint technologies enables multi-factor authentication, making way for high-level security. The AET65 verifies something "you have" (smart card), something "you are" (fingerprint) and something "you know" (PIN/password). Smart card users' fingerprint templates are stored in their cards and during authentication, the fingerprint verified is for the smart card user only. These neutralize the privacy concerns and security risks posed by dummy fingerprints or stolen cards.

Moreover, AET65's default fingerprint algorithm performs fingerprint template extraction and matching within the device itself – not in the PC – for maximum security. The secure access module (SAM) further elevates the level of security delivered by AET65.

The AET65 is compliant with the BioAPI specification, which enables interoperability among software applications and biometric technologies from different vendors. In addition, the integration of the widely supported UPEK swipe sensor enables easy adoption of various third party fingerprint enrollment and matching solutions. This allows a simple and cost-effective hardware maintenance or expansion of existing systems.



2.0. Features

- Integrated Fingerprint Scanner and Smart Card Reader
- Full Speed USB Interface
- Encrypted fingerprint template stored inside smart card
- AET65 Smart Card Reader:
 - Compliant with PC/SC specification
 - Read/Write speed up to 250 Kbps
 - Supports all MCU cards with T=0 or T=1 protocols
 - Supports ISO 7816 Class A, B and C (5 V, 3 V and 1.8 V) cards
 - ISO 7816 compliant SAM slot
- Fingerprint scanner:
 - Match-on reader: Template extraction and matching algorithms run within the device itself, not in the PC (using default fingerprint algorithm)
 - Digital Persona's UPEK TCS4-TCD50 swipe fingerprint sensor
 - Swipe speed of up to 40 cm/s (15 in/s)
 - Active sensor size – 9.6 mm x 0.2 mm
 - High-resolution 508 DPI imaging, array size of 192 pixels x 4 pixels
 - Supports image optimization and filtering
 - Utilizes CMOS active capacitive pixel-sensing technology, resulting to high-quality fingerprint images in any environment
 - Compliant with BioAPI 1.1 specification and Windows® Biometric Framework
 - Supports third party fingerprint algorithms

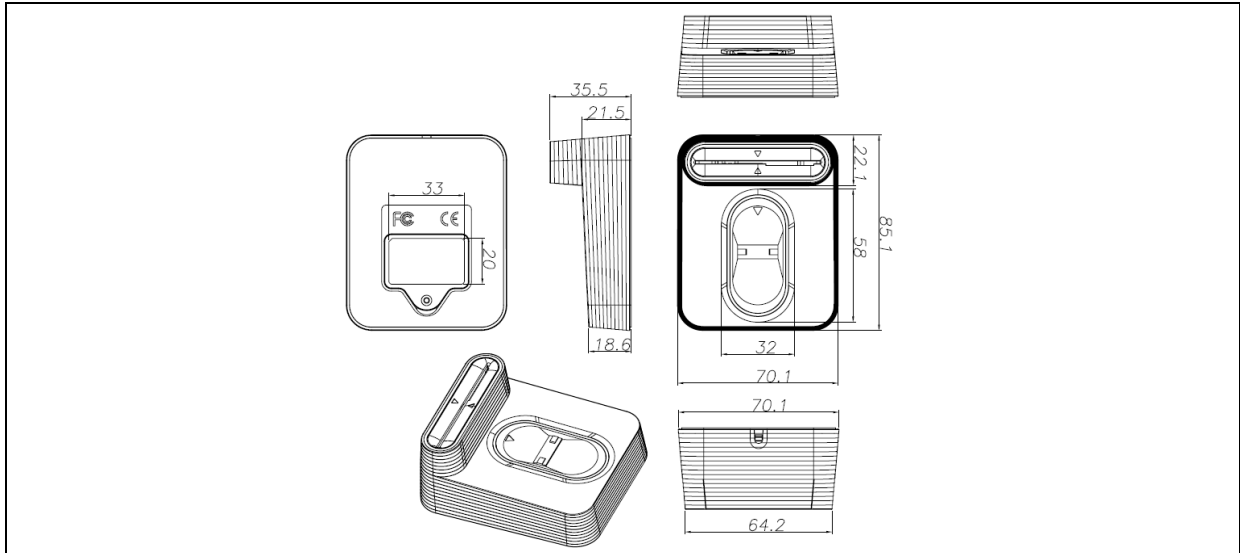


3.0. Typical Applications

- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Public Key Infrastructure
- Network and Security
- Access Control



4.0. Technical Specifications



Universal Serial Bus Interface

Power Source..... From USB
 Speed..... 12 Mbps (Full Speed)
 Connector Type..... Type A
 Supply Voltage..... Regulated 5 V DC
 Supply Current Max. 50 mA

Contact Smart Card Interface

Standard ISO 7816, T=0 and T=1
 Supported Card type..... ISO 7816 Class A, B and C (5V, 3V, 1.8V) cards and all MCU cards following T=0 or T=1 protocol
 Smart Card Read/Write Speed..... 9600 BPS – 250,000 BPS
 CLK Frequency 4 MHz
 Card Insertion Cycles..... Min. 100,000

SAM Card Interface

Standard ISO 7816, T=0 and T=1
 Supported Card Type..... ISO 7816 Class A, B and C (5 V, 3 V, 1.8 V) cards
 Supply Current Max. 50 mA

Fingerprint Scanner Interface

Sensor..... UPEK TCS4-TCD50 swipe fingerprint sensor
 Active Sensor Size 9.6 mm x 0.2 mm
 Width..... 12.4 mm
 Array Size 192 pixels x 4 pixels
 Array Pitch 50 microns
 Image Resolution 508 DPI
 Maximum Swipe Speed 40 cm/s

Physical Specifications

Dimensions 85.1 mm (L) x 70.1 mm (W) x 35.5 mm (H)
 Weight..... 194 g
 Color Black

Built-in Peripherals

LED Color Green
 LED Status Indicators 2 LEDs

Operating Condition

Operating Temperature..... 0 °C – 50 °C

Application Programming Interface

PC/SC

Certifications/Compliance

CE, FCC, RoHS, PC/SC, CCID, BioAPI 1.1, Windows Biometric Framework, USB Full Speed, Microsoft® WHQL



Device Driver Operating System Support

Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2
Linux® (Upon Request)

