Advanced Card Systems Ltd.
Card & Reader Technologies

eH880

Technical Specifications

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1.0. Introduction

The new eH880 is a secure and feature-rich secure smart card terminal dedicated to the global electronic healthcare (e-Health) and other markets. This innovative device is capable of facilitating secure mutual authentication (e.g. between a doctor's and patient's card), displaying detailed multi-layered information from one or both cards based on the embedded access rights, and the facilitating transactions through both private and public network infrastructures.

The industry defining eH880 specifications include a dual smart card interface, contactless card reader module, USB and RS232 connectivity, integrated TCP/IP networking support, multiple SAM slots, a 128x64 high resolution 2.3 inch black and white graphical LCD, a durable user friendly 20-button keypad, multiple bi-colored status LEDs, a highly effective audible speaker, and a real-time onboard clock.

Since eH880 supports the Secure PIN Entry (SPE), every PIN code is entered securely on the PIN pad of the device hence it is never exposed to the vulnerable PC or workstation. This method successfully eliminates the possibility of a Virus/Trojan or USB Sniffer getting hold of the PIN!

This highly efficient tool can also host additional features like high speed WiFi access and optional biometric fingerprint sensor simultaneously. This integration provides unmatched usability and compatibility within any current or future system. Most importantly, eH880 firmware can easily be updated, hence making it a virtually future proof tool.

2.0. Features

- 32-Bit ARM 9 Processor running Embedded Linux
- 32MB Flash and 32MB SDRAM Memory
- Dual Operation Modes (PC-Linked/Standalone)
- Dual Interface Reader (Contact and Contactless)
- USB Host & Client Full Speed/Serial/Ethernet Interface
- 2 Full-Size Contact Card Slots (Landing Connector)
- 2 SAM-Size Card Slots (Contact Connector)
- Firmware Upgradeable
- Easy-to-Read, High Resolution Backlit LCD
- Highly Durable Chemical Resistant 20-Button Keypad
- 4 LED Status Indicators
- Built-in Speaker
- Tamper Detection Switch to Protect Against Unauthorized Intrusion
- Real-Time Clock (RTC) with Independent Backup Battery
- Supports Secure PIN Entry (SPE)
- Supports PPS (Protocol And Parameters Selection) with 9,600—230,400 Bps In Reading and Writing Smart Cards
- (Optional) Built-in Fingerprint Sensor
- (On Request) Wifi
- (On Request) Color LCD
- (On Request) Internal Microphone
- ISO 7816
- ISO 14443
- PC/SC
- USB Full Speed
- CE
- FCC
- EMV 2000 v4.0 Level 1
- RoHS

3.0. Supported Card Types

3.1. MCU Cards

The eH880 operates with an MCU card following

- ISO 7816 Class A, B, C (5V, 3V, 1.8V)
- T=0 or T=1 protocol

3.2. Memory-based Smart Cards (Synchronous Interface)

The eH880 supports the following memory cards:

- Cards following the I2C bus protocol (free memory cards) such as:
    - Atmel: AT24C01 / 02 / 04 / 08 / 16
- SLE4432/5542 intelligent 256 bytes EEPROM with write protect function:
    - SLE4432, SLE5542
- SLE4418/5528 intelligent 1K bytes EEPROM with write-protect function:
    - SLE4418, SLE5528

3.3. Contactless Cards

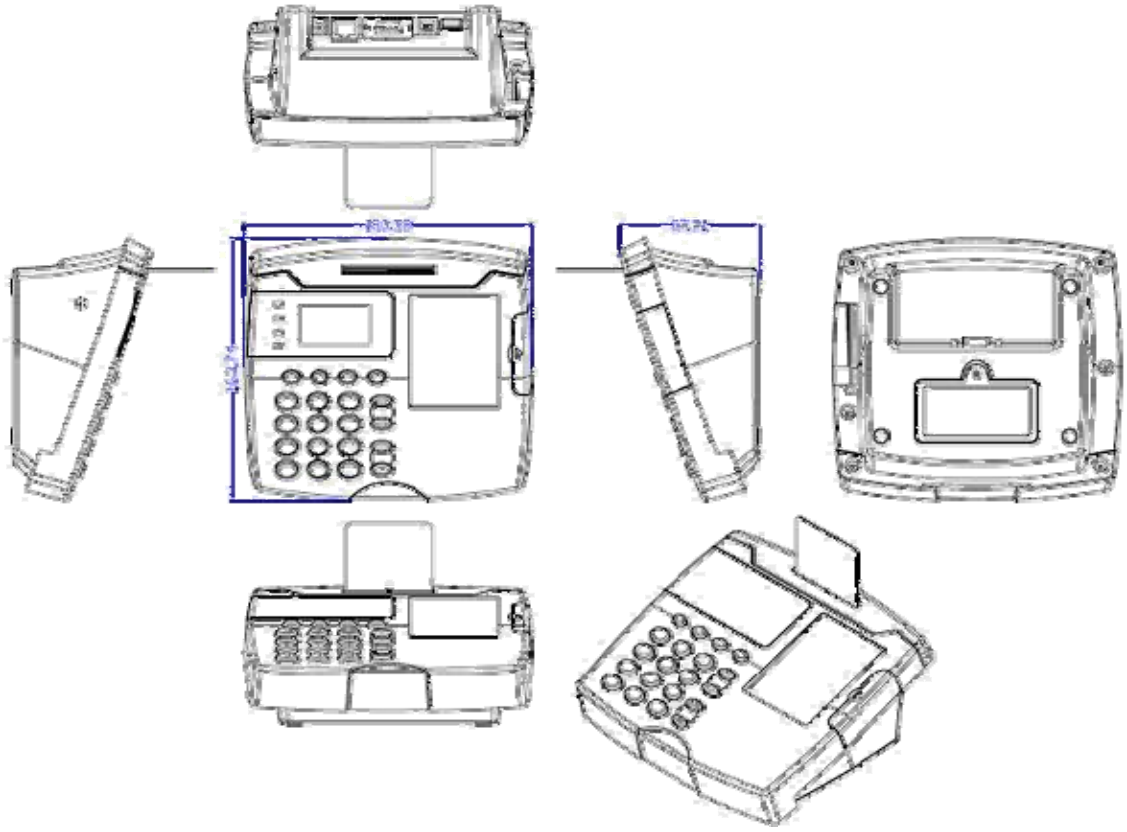
The eH880 supports the following contactless cards:

- ISO 14443 Type A & B Standard, parts 1 to 4, T=CL protocol
- Mifare® Classics

4.0. Typical Applications

- Electronic Healthcare – medical identification, digital signatures, digital prescriptions, patient history, billing
- Electronic Government
- Secure Electronic Payment
- Customer Loyalty
- Secure Home-banking
- Time and Attendance

5.0. Technical Specifications



Processor

32-bit Arm 9 processor

Device Operating System

Embedded Linux 2.6

Device Memory

Memory ..... 32MB flash + 32MB SDRAM

Power

Supply Voltage……..12V DC
Supply Current……..max. 1A
Backup battery ..... Independent backup battery (1 x CR2032) for internal Real Time Clock and 240-byte Tamper protected storage

Connectivity

USB ..... USB 1.1 Full Speed, 12 Mbps
RS232 ..... 3 lines RxD, TxD and GND
Ethernet ..... 10/100 Mb Auto-negotiate
WiFi (on request)

Smart Card Interface

Contact – standard

Smart card slots ..... 2 ID-1 slots
Card Connector type ..... Landing
Standard ..... ISO-7816 Class A, B, C (5V, 3V, 1.8V), T=0 and T=1,
Supply current ..... max. 50mA
Smart card read / write speed ..... 1,743-250,000 bps
Card insertion cycles ..... 200,000 (minimum)
Short circuit protection ..... +5V / GND on all pins

Contact - SAM

SAM card slots	Two ID-000 slots
Card connector type	Contact
Standard	ISO-7816 Class A, B, C (5V, 3V, 1.8V), T=0 and T=1
Smart card read / write speed	1,743-250,000 bps

Contactless

Standard	ISO-14443 A & B part 1-4
Protocol	Mifare® Classics protocols, T=CL
Smart card read / write speed	106, 212, 424, 848 kbps
Operating distance	up to 40 mm at 106kbps
Operating Frequency	13.56 MHz

Fingerprint Scanner Interface (Optional)

Active sensor size	12.8 x 18 mm
Array size	256 x 360 pixels
Array pitch	50 microns
Image resolution	508 DPI

Firmware Upgrade Interface

Firmware Upgradeable

Human Interfaces

Keypad	20 keys (4 Function keys, 4x4 Keypad)
LCD Display	128 x 64 dot matrix black and white graphic LCD with backlighting Window size: 49mm x 29mm; Active area size: 46mm x 28mm Number of characters on LCD: user definable (Max: 21 characters x 8 rows)
Audio Speaker	20 – 20 kHz audio
LED Status indicators	4 LEDs for indicating status (LED1 &2: Red/Green; LED 3: Red; LED4: Green)
Tamper switch	internal anti-intrusion detection and protection

Additional Features

Real Time Clock

Physical Specifications

Dimensions	Device: 164.00mm (L) x 180.00mm (W) x 88.00mm (H)
Case Color	White and Metallic Blue
Weight	766g (without power supply)

Operating Conditions

Temperature	0°C to 50°C
Humidity	40% to 80%, non-condensing

Application Programming Interface

PC/SC, CT-API, OCF, ACS API for peripheral monitoring and control

Certifications/Compliance

EMV 2000 v4.0 Level 1, CE, FCC, RoHS Compliant