



Technical Specifications

eH880 Secure Smart Card Terminal





1.0 Introduction



The new eH880 is a secure and feature-rich secure smart card terminal dedicated to the global electronic healthcare (eHealth) 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 embedded access rights, and 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.

Supporting Secure PIN Entry (SPE), every PIN code is entered securely on the PIN pad of the device and thus never exposed to the vulnerable PC or workstation. It can successfully eliminate the possibility that a Virus/Trojan or USB Sniffer gets hold of the PIN!

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

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 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
- ◆ Support Secure PIN Entry (SPE)
- ◆ Support PPS (Protocol And Parameters Selection) with 9,600—230,400 Bps In Reading and Writing Smart Cards
- ◆ (Optional) Built-in Fingerprint Sensor
- ◆ (Optional) Wifi
- ◆ (Optional) Color LCD
- ◆ (Optional) Internal Microphone





3.0 International Certifications/Compliances

- ◆ ISO 7816
- ◆ ISO 14443
- ◆ PC/SC
- ◆ USB Full Speed
- ◆ RoHS

Under preparation:

- ◆ CE
- ◆ FCC
- ◆ EMV 2000 v4.0 Level 1
- ◆ Microsoft® WHQL

4.0 Supported Card Types

MCU Cards

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

Memory Cards

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

Contactless Cards

- ◆ Comply with ISO-14443 Type A & B Standard, parts 1 – 4, T=CL protocol
- ◆ Mifare® Classics

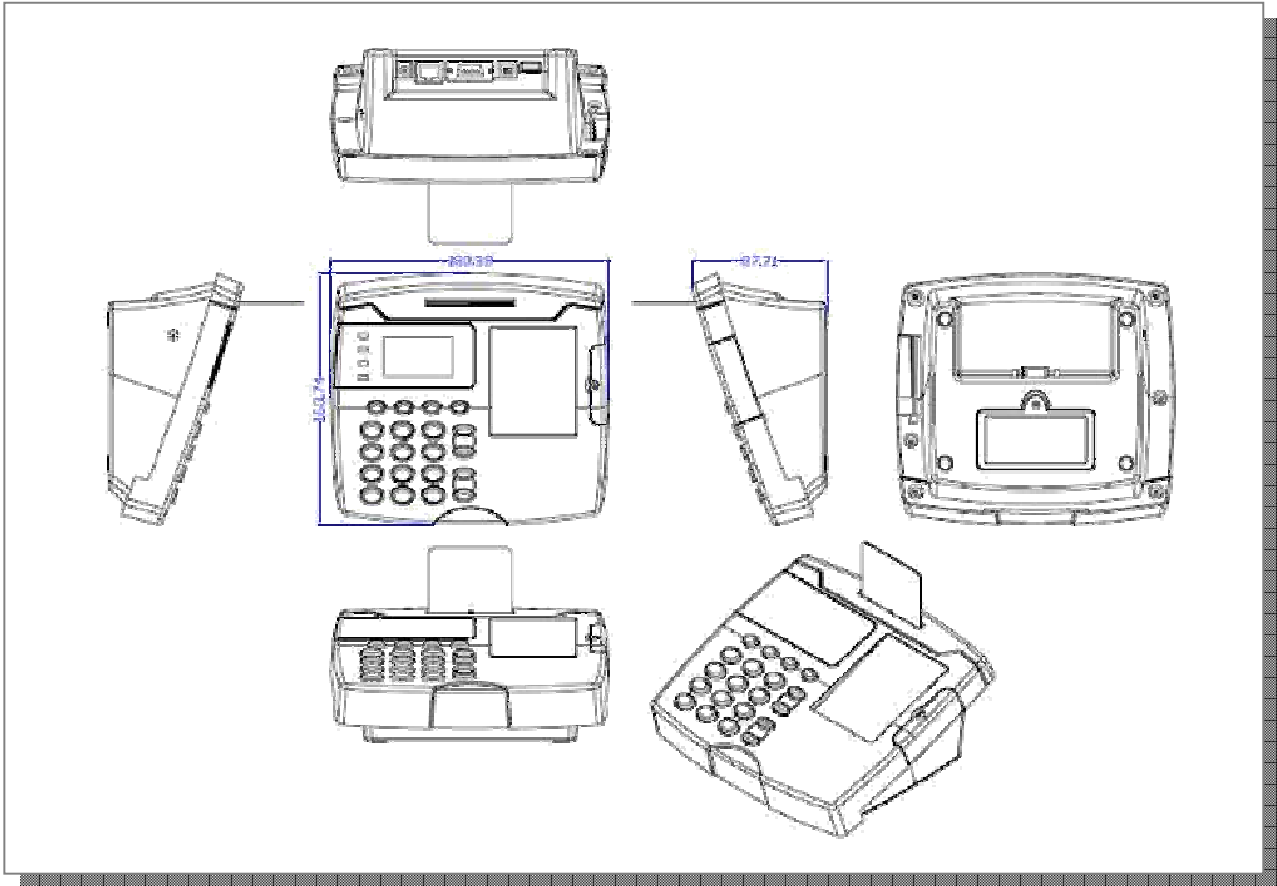
5.0 Typical Applications

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





6.0 Technical Specifications *(technical data may subject to change without notice)*



Processor

32-bit Arm processor running embedded Linux 2.6

Memory

Memory 32MB flash + 32MB SDRAM

Power

Operating voltage 12V maximum 1A from external power adapter

Operation mode PC-Linked and Standalone

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 Rx/D, Tx/D and GND

Ethernet 10/100 Mb Auto-negotiate

WiFi (optional)

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

CLK frequency 4 MHz

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
 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

Physical Specifications

Dimensions Device: 180mm (W) x 164mm (L) x 88mm (H)
 Case Color White and Silver
 Weight Device: ~1kg

Operating Conditions

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

Operation Systems

Windows Vista, XP, 2K, ME



Certifications/Compliances

EMV2000 v4.0 Level 1, ISO-7816, ISO-14443, PC/SC, USB Full Speed, RoHS Compliant
 Under preparation: CE, FCC, Microsoft® WHQL



Other Features

Real Time Clock

API

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

OEM

OEM-Logo possible, customer-specific colors, casing and card connector, multilingual fonts support