

Kane X1

Hardware Specifications

June 2016

Hardware specifications

Kane X1 is designed for easy handling and robust daily use for small retail businesses that are VAT registered. Its system encapsulates a CIS (Certified Invoicing System) and SDC (Sales Data Controller) in one single device. The device is designed as a handheld portable standalone transactional device that will help business owners to work in different locations.



1. Screen

This is a dot-matrix 20 character by 4 line display. It utilizes the extremely common HD44780 parallel interface chipset.



The screen should have the following features:

Features	Description
Status Bar	Network status as a bar symbol
	Network operator Name
	Battery status as a progress bar
	Date: DD/MM/YYYY Time: HH:MM:SS
Dimension	3.86 x 2.36 x 0.55"

Item	Symbol	Standard			Unit
Power voltage	$V_{DD}-V_{SS}$	0	-	7.0	V
Input voltage	V_{IN}	V_{SS}	-	V_{DD}	
Operating temperature range	Top	0	-	+50	°C
Storage temperature range	Tst	-10	-	+60	
Environmental Humidity	$RH \leq 70\%$				
Expected Life Time	≥ 50000				H

* **Date and Time:** The device should have a real-time clock set at the time of manufacturing the device and will not be changeable. The screen should display a real-time clock (including year, month, day, hour, minute, second) that shows date and time according to Rwanda time. Adjustment of the real-time clock accuracy shall be permitted via NTP server.

2. Thermal printer

The device should have a built-in printer with the following features:



Features	Description	
Performance parameter	Printing method	Thermal line printing
	Style	Black and White
	Resolution	203dpi
	Printing speed	50~80mm/s
Paper	Paper type	Thermal paper
	Paper form	Roll paper
	Paper diameter	$\leq 40\text{mm}$
	Paper width	$57.5 \pm 0.5 \text{ mm}$
	Printing paper width	$48\text{mm} \pm 0.5\text{mm}$
	Paper thickness	$0.05 \sim 0.10\text{mm}$
Physical parameter	Dimension	$76.8\text{W} \times 77.4\text{D} \times 47.6\text{H mm}$

	Installation dimension	72.8W*73.4D*34.6H mm
	Color	Clear black
	Weight	0.14KG
Environment	Operating temperature	(-10~50) °C
	Storage temperature	(-20~70) °C
	Operating humidity	20%~50%
	Storage humidity	5%~95%
Communications	TTL port and RS232 serial port	
Command Set	ESC/POS	
Printing content	Characters	ASCII, English
	Picture	-
	Curve	-
	Bar code	EAN13, EAN8, CODE39, CODE93, CODE128, ITF
	Two dimension code	QRCODE, PDF 417
Other functions	Paper drop-in method	Clamshell drop-in
	Paper out detect	-
	Power consumption	5~9V/12V 1.5A
Standard accessories	Data cable, paper roll	

3. Keyboard

The keyboard contains 24 keys with a menu navigation and intuitive functions keys to speed transactions.

Type of button/indicator	Description	Total number of keys
Power	Long press (2 seconds) to shut it down	1
Functions keys	<ul style="list-style-type: none"> - Settings - Payment mode - Message - Device information - Call 	5

Navigation arrows	- Up arrow - Down arrow	2
Alpha	Switch keyboard from numeric to letters	1
Tax	Tax configuration	1
Print	Printer button	1
Ok	To approve transaction	1
Clear	Clear error	1
Cancel	Cancel the transaction	1
T9 keypad	26 alphabetical characters on numeric keys (1-9)	9
Special characters	Basic arithmetic and decimal point (+, -, /, *, .)	1
Total number of keys		24

4. External ports

Kane X1 has the following external ports:

- 1 Power port
- 1 USB port (Type A)
- 1 Mini USB port (Micro-B)
- 1 USB port (Type B)

5. LED lights

Kane X1 has two incorporated diodes lights that emit different colors with the following features:

Features	Description
Device mode	Battery indicator led
	Transaction led status
Dimension	5mm
Forward voltage	2.0V

Maximum Current	20mA
Luminous Intensity	150-200mcd
Power dissipation	105 mW
Operation Temperature	-40 ~ 85 °C
Storage Temperature	-40 ~ 100 °C
Lead soldering temperature	Max. 260 °C for 3 sec. Max

The Transactional LED will be controlled by an SDK and will emit a different LED light.

6. Other features

Feature	Technical Specification	Importance
Processor	<ul style="list-style-type: none"> • Intel Quark™ Microcontroller D-2000 • 32MHz clock, 32-bit address bus • Intel Pentium® Processor-based x86 ISA compatible CPU, no FPU • Integrated local APIC and I/O APIC 	<ul style="list-style-type: none"> • Extends excellent Intel® security down to the device level with software and hardware-based features to help protect your data at every end point.
Memory	<ul style="list-style-type: none"> • 32kB of on-die NVM +8kB OTP on-die NVM • 8kB of on-die SRAM • 2-Ch DMA Controller 	<ul style="list-style-type: none"> • High performance
Storage	<ul style="list-style-type: none"> • 10 MB RAM and 10 MB Flash File System • 2 - 8 GB internal Memory 	<ul style="list-style-type: none"> • Enough storage for sales transactions • High performance
Battery	<ul style="list-style-type: none"> • Supply voltage range 3.1 - 4.5 V 	<ul style="list-style-type: none"> • Li-ion battery that can last for at least 12 hours in a working state. Highly optimized for minimal power consumption • Sleep time option

Security	<ul style="list-style-type: none"> • Secure data transmission with HTTPS/SSL • Java Security • Tamper proof 	<ul style="list-style-type: none"> • Secure data transfer • Data Encryption for secure storage • Circuit-based tamper-proofing and tamper-detection to complement and ultimately replace physical plastic seals. The flexibility afforded by circuit-based options enables different levels security on hardware and software level.
Connectivity options	<ul style="list-style-type: none"> • GPRS (2G/3G) Quad-band modem based on Intel Quark D2000 • Quad-Band GSM 	<ul style="list-style-type: none"> • supports four different GSM frequency bands (850MHz / 900MHz / 1800MHz / 1900MHz) which will enable the device to work on all the GSM networks in Rwanda • Location and Hardware tracking • Remote data transfer
SIM Cards supported	<ul style="list-style-type: none"> • 1- 2 SIMs Cards 	<ul style="list-style-type: none"> • To reduce downtime risk • To reduce communication failures
Java Open Platform	<ul style="list-style-type: none"> • Java™ ME 3.2 	<ul style="list-style-type: none"> • Ability to support value-add services • Ease of communication and integration with third parties • The Security and Trust Services API for J2ME (SATSA) extends the security features for the J2ME platform, through the addition of cryptographic APIs, digital signature service, and user credential management
Temperature range	<ul style="list-style-type: none"> • Operating temperature 	<ul style="list-style-type: none"> • Temperature range from +5°C to +40°C
	<ul style="list-style-type: none"> • Storage temperature 	<ul style="list-style-type: none"> • Temperature range from -10°C to +55°C
Humidity	<ul style="list-style-type: none"> • Operating humidity 	<ul style="list-style-type: none"> • Humidity range from 10% to 85%

7. Device dimension

