

POS-MASTER II

Universal EFTPOS



The Chip and Pin based Pos-Master II terminal by NanoGlobes, is a user programmable versatile smart and magnetic card transaction Terminal specifically designed for the retail environment.

Pos-Master can be programmed to run multiple applications involving the use of smart and magnetic cards simultaneously. It can process a debit or credit card as well as cards for any specific loyalty or private schemes.

Pos-Master is user friendly to the customers and vendors alike due to having a large graphic LCD display and colourful keys. In areas where customers are required to type in their pin number, there is an optional pin pad unit which connects to the Pos-Master by means of a coiled cable. The pin pad has it's own keyboard and a graphic LCD display.

The graphic LCD display on the Pos-Master is capable of displaying various shapes and alphabets allowing customisation of the Pos-Masters for the countries in which they are to be deployed. Pos-Master can be interfaced to the existing point of sales equipment through it's inbuilt communication ports. The internal V.22 bis modem can be

used to obtain real time transaction authorization from the bank or upload transaction journals on demand or at a pre set time. Pos-Master is able to receive and execute commands or a new application from the remote host, hence reducing the maintenance cost.

The Pos-Master fast thermal printer with 60mm wide paper and quick change paper roll mechanism allows receipt and any other transaction records to be printed at high speed.

Pos-Master has been designed for the sales counter operation, but due to it's small compact size and inbuilt rechargeable batteries, it can be used as a mobile on-line transaction terminal by the addition of an optional Blue Tooth or GSM modules.

Pos-Master accepts two full size smart cards as well as up to 6 SIM cards. Off-line transactions can be recorded on to the retailer's card as well as being kept in the battery backed SRAM or optional NAND Flash for uploading to a central site at a later time.

...Another Quality Product from NGL



Features:

- 128 x 64 pixel graphic display with optional Backlight
- Keypad with 24 keys
- Two full size smart card connectors
- Three SIM Module connectors (optional 6)
- Rechargeable batteries
- Power Management
- RS232 Serial Communication Port
- RS422 Serial Communication Port
- Thermal Graphics Printer
- V22, V22 bis Dial Up Modem
- Optional Pin Pad with keyboard and graphic display.
- CMOS components on a multilayer PCB

Technical Specifications	
Processor	Samsung 32 bits ARM920T Core Processor, 16K Instruction and data cache
Memory	2 to 8 Mbyte of Flash EEPROM, 4 to 8 Mbyte of NAND Flash (Data Storage) 512K of SRAM (battery backed up for Data), 16 Mbyte of SDRAM (for program)
Display	128 x 64 pixel graphic LCD display with 8 x 16 character font, manual contrast control and optional LCD backlight
Keyboard	20 keys including 4 programmable function keys and one ON key
Card Module	Smart or memory card reader ISO 7816-1-2-3, T=0 & T=1 Two full size smart card receptors EMV 1 Three SIM Module receptors standard. Option for up to 6 SIMs Option of factory fitted Magnetic Strip Reader ISO 1 / 2 or ISO 2 / 3 or external stand alone version
Printer	60mm paper wide fast thermal graphics printer, 33mm/s speed with fast paper change facilities
Communication Ports	1 x RS232 serial port with RJ45 connector. Surge protected Baud Rate RxD, TxD, RTS, CTS, DSR, DTR, DCD, Gnd signal 300, 600, 1200, 1800, 2400, 3600, 4800, 9600, 19200, 38400, 57600, 76800, 115200 Parity None, Odd, Even Data Bits 7 and 8 Stop Bits 1 and 2 1 x RS422/485 port (Not accessible when the Pin Pad is in use)
Modem	V22, V22 bis modem with RJ11 connector, Options of V32 or V34 or V90
Real Time Clock	Battery Backed Real Time Clock
Functionality	On-line and off-line with battery backed up transaction storage facility
Operating System	Multi Tasking protected.
Power	Sealed 5 x AA size Nickel Metal Hydride (NiMH) re-chargeable cells Inbuilt fast charger. External 9V D.C. @ 2000mA Mains Adapter (100~250 VAC)
Size	255mm x 120mm x 85mm



Information for Developers and OEMs

POS-Master II Software Development Kit (SDK)

Nanoglobes Ltd is able to supply an SDK for the Pos-Master II terminal to companies that are interested in developing application software for the Pos-Master EFT Point of Sale terminal.

The NGL Pos-Master SDK consists of, object libraries, sample source code written in C and documentation showing how to use the APIs to access various functions of the Pos-Master software library. This SDK does not include any compiler or debugger which may be sourced from other companies.

The Pos-Master software was developed using the Metroworks Codewarrior ARM Developer Suite C/C++ Compiler. For more information on this compiler please contact NanoGlobes technical department. The ARM developer suite includes support for certain JTAG based debuggers, such as BDI, which allow source level debugging of the application software. Alternatively the GNU ARM compilers can be used for application development. The GNU ARM compiler is a shareware and free product.

The SDK assumes the use of the NGL Software Library embedded within the Pos-Master terminal at manufacturing time. The embedded NGL Software Library provides operating system (OS) functions such as Pre-emptive Multi tasking, Task Creation, Inter-task Messaging, Event Handling, and Timing functions. In addition to the OS provisions the library also offers a high level hardware independent interface to the Pos-Master peripherals, such as LCD display, Keypad, Smart Card Reader/Writer, Printer, Modem, Magnetic Card reader and Serial ports.

Applications may be developed on a PC, using

the developers chosen text editor. Once the source files have been written they should be compiled using one of the NGL approved ARM compilers. With all the application modules compiled successfully, the resulting object modules may then be linked with the NGL Library Interface module. The NGL library interface module is a small file which provides access to the embedded library functions of the Pos-Master terminal from the user's application codes.

The resulting binary image may then be downloaded from the PC to the Pos-Master terminal via a RS232 serial link. Once downloaded the application is stored in Flash memory. The downloaded application may then be selected for execution from the Pos-Master system menu. Multiple applications can be downloaded into the Pos-Master terminal to handle different schemes.

Special model of the Pos-Master terminal is available for software development. This special model has a built in JTAG connector which can be used with JTAG debuggers to give full software debugging capabilities. This allows the developer to directly load application modules into the Pos - Master terminal and debug their application using breakpoints, and single stepping through the code, with full source code compatibility. A limited debugging facility is available through the serial ports without a need for JTAG.

NanoGlobes Ltd is also in a position to supply and support a comprehensive set of back office software for remotely supporting and reprogramming the Pos-Master in the field.



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NanoGlobes Ltd

POS-MASTER II
Robust Point of Sales Smartcard Terminal