C-ZAM SMASH Portable

Product Guide

banksys

end-to-end transactions

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Introduction

C-ZAM/SMASH-BASE UNIT

Designed with a full range of payment applications in mind, the C-ZAM/SMASH PORTABLE features a modular design for ultimate versatility and a totally open architecture for integration into any existing payment system.

General description

The C-ZAM/SMASH introduces a new generation of payment terminals combining security, open architecture and modularity in a single unit.

An ever increasing number of businesses require mobility. Communicating has become absolutely vital, and must transcend time and place. Banksys brings true mobility to the world of card payment terminals using proven technologies such as GSM/GPRS and Blue tooth.

The C-ZAM/SMASH PORTABLE brings a new kind of applications which will be very useful in Express delivery, events, field repairs and other mobile businesses but also for other applications like restaurants, small retail configurations, large retail and petrol sector when you can use a portable solution with a limited radius;

C-ZAM/SMASH PORTABLE 's offer include a GSM/GPRS version and a local wireless version :

- **The C-ZAM/SMASH/GSM-GPRS** is an ideal payment terminal for people constantly on the move. This compact, lightweight, and robust device creates a whole new level of convenience and added value for many professionals just like :
    - Door-to-door suppliers of everything from fuel to furniture and home appliances can offer their customers the ease of paying by card
    - Taxi drivers benefit from having to carry less cash which improves their security

Furthermore, the additional SMS feature enables the terminal to be used for messaging and GPRS function makes the C-ZAM/SMASH GSM a valuable tool for transferring data or simply because GPRS will be cheaper than GSM .

- **The C-ZAM/SMASH local wireless** with blue tooth communication card provides unconstrained freedom within a range of 328 to 492 feet (100 to 150 meters). Peripherals equipped with Bluetooth communication card are connected to an access point through radio waves. A frequency-hopping scheme minimizes radio interference. As a result, Bluetooth

guarantees an extremely reliable transmission of data packets.

The Banksys C-ZAM/SMASH LOCAL WIRELESS with a Blue tooth communication card is an important addition to the growing range of mobile payment methods. The hassle-free and completely secure Blue tooth technology is ideal for restaurants or small retail outlets. With C-ZAM/SMASH local wireles payments no longer need to be made at the cash register.

Multi applications

The C-ZAM/SMASH and the C-ZAM/SMASH PORTABLE are designed to perform the full range of terminal applications from card reading to chip programming; As the potential range of applications for smart card expands, so the C-ZAM/SMASH offers total control over the card and its uses, allowing the easy integration of specialised functions

C-ZAM/SMASH applications include

- ELECTRONIC PAYMENT :
  - Credit cards (Visa, Eurocard, American express,)
  - Debit cards
  - Stored value
- Loyalty cards
- Closed user group applications

Modular design

The modularity of the C-ZAM/SMASH is one of its big assets.
From its conception different components can be customised such as the keypad, the memory or the communication card. Several options such as printer or the charging station can be also added later.

Open Architecture

The C-ZAM/SMASH is equipped with a Chorus operating system posix compliant. Any operators can therefore use the standard programming languages Java and C to develop and update new payment and third party applications in different environments including the all-important TCP/IP Internet protocol. A special toolbox provides a range of system facilities an applications programmer required .

Thanks to the Remote Teleload Server applications can be loaded from a central server into the different payment terminals

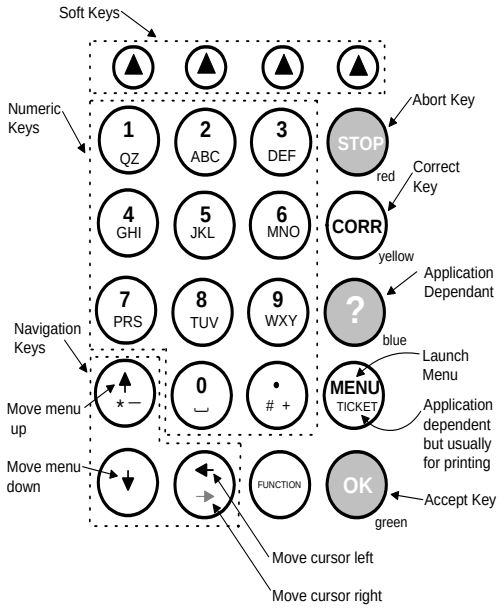
The Technology of Security

The C-ZAM/SMASH was designed from the ground-up with security in mind.
Its double Processor architecture guarantees a high security level.
The main board contains the application processor that e.g. controls the communication with external interfaces (authorisation network, electronic cash register, the secure keyboard,)
The secure keyboard keeps information encrypted and removes data when tampering is detected. The 4 Security Application Modules (4 IDE000) welcome each application in a secure environment and protect them to each other when modifications occur to one of these applications.
The internal security processor can be adapted according to local security requirements.
The C-ZAM/SMASH is tamper resistant, tamper responsive and tamper evident. Different privacy shield are available .

Technical Specifications

Keypad

Below keypad is offered as standard. Other languages and layout can be considered depending on the volume of terminals.
The keypad is made of Silicone and plastic. 6 X 4 alphanumeric keys, which contain: Numeric keys
Navigation keys
Predefined function keys distinguished by colour (Stop, Corr, Menu,
OK, Ticket…)
4 programmable function keys (soft keys)
A single raised dot is present on the “5” key.
A beeper offers audible feedback to the customer.



Display

LCD backlit graphic display: 122 X 32 dots. Up to 20 characters on 4 lines
Viewing angle: 45 degrees
Display, backlight and contrast are controlled by Software

Interfaces

Two card readers are available:

- A magnetic stripe card interfaces conforming to ISO 2 / ISO 1-2 / ISO 2-3 standard.
-A vertical Chip card reader, EMV 3.1.1 and ISO7816 compliant, reading asynchronous and synchronous protocols (T=1 or T=0)

Processors

2 X 32 bits processors
The main board: Intel processor 386EX 14.7 Mhz. Real-time clock (RTC)
The secure keyboard (SKBD):
- ARM processor 7tdmi 14.7 Mhz
- Tamper responsiveness logic (detection and clearing)
- Real-time clock (RTC)

Memory

The memory of the C-ZAM/SMASH PORTABLE is based on three types of memory:
RAM, data flash, code flash.
The standard configuration contains:4 Mbytes of code flash
8 Mbytes of data flash
8 Mbytes of RAM
On the data flash, there is a file system (it is the hard drive of the terminal).
The code flash is a memory space where the code can be executed in place.
The operating system and the necessary low-level software modules occupy some of the memory.
The available memory for applications and data depends on the choice of adding the C or Java platform on the terminal.

Communication cards

The C-ZAM/SMAH PORTABLE exists in 2 configurations:

- The C-ZAM/SMASH GSM WITH GSM - GPRS communication card
- The C-ZAM/SMASH LOCAL WIRELESS with a Bluetooth communication card

1. GSM/GPRS Card

Dual-band: 900 Mhz / 1800 Mhz Internal GSM modem 9.6 kbaud max.
850 Mhz / 1900 Mhz Internal GSM modem 9.6 kbaud max.

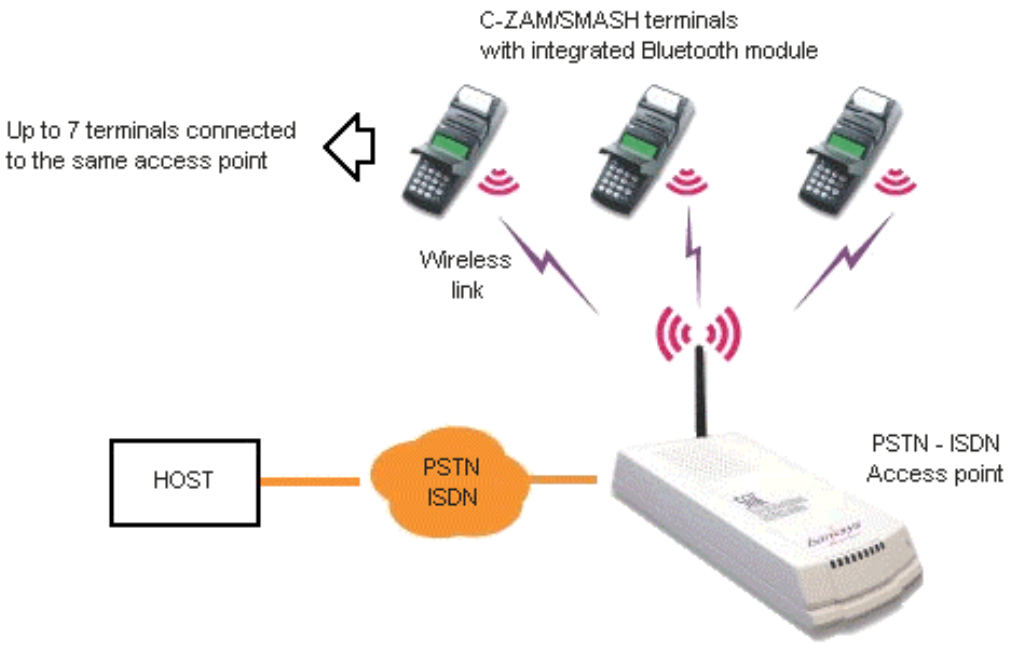
The GSM /GPRS communication card has also the SMS functionality, extending the number of applications and use with the portable terminal. Thanks to the different frequencies and its GPRS functionality the C ZAM/SMASH GSM/GPRS can be used anywhere in the world…

2. Local wireless

2.1 Concept

The C-ZAM/SMASH LOCAL WIRELESS configuration consists of:

- a C-ZAM/SMASH equipped with a Blue tooth communication card
- a charging station
- an access point which is linked to a PSTN or ISDN line and will communicate with the C-ZAM/SMASH



The C-ZAM/SMASH LOCAL WIRELESS is equipped with a Blue tooth communication card. Communications can be operated from a maximum distance of 492 feet (150 meters) between the terminal and the access point. Up to seven terminals can be connected to a single access point and the transactions are processed one after another if several terminals call the access point at the same time. Communication between the access point and the host happens over a PSTN or ISDN line.

Technical specifications of the Bluetooth communication card

- Frequency band: F = 2402 + k [MHz] where k = 0, …, 78

- Power class: Class 1 power level which allows a radius of: 492 feet (150 m) in a perturbed environment.
- Receiver sensitivity: min. – 70 dBm
- Communication bus: UART, hardware flow control

2.2 Access point

The access point is a stand-alone device with external antenna;
It is possible to connect 7 different terminals to the access points which will communicate in a sequential way
These access points allow the communication with the HOST and are linked via a PSTN or a ISDN line :

- Dial-Up (PSTN) CTR21 Modem

CTR21 standard V32bis (**14.4 kbps** = max speed), V32, V22bis, V22A/B, V23, B103, B212, V42 error correction.
V42 bis and MNP 5 data compression based on pan-European ETS TBR21 specifications. FCC C8 approved

- ISDN adapter

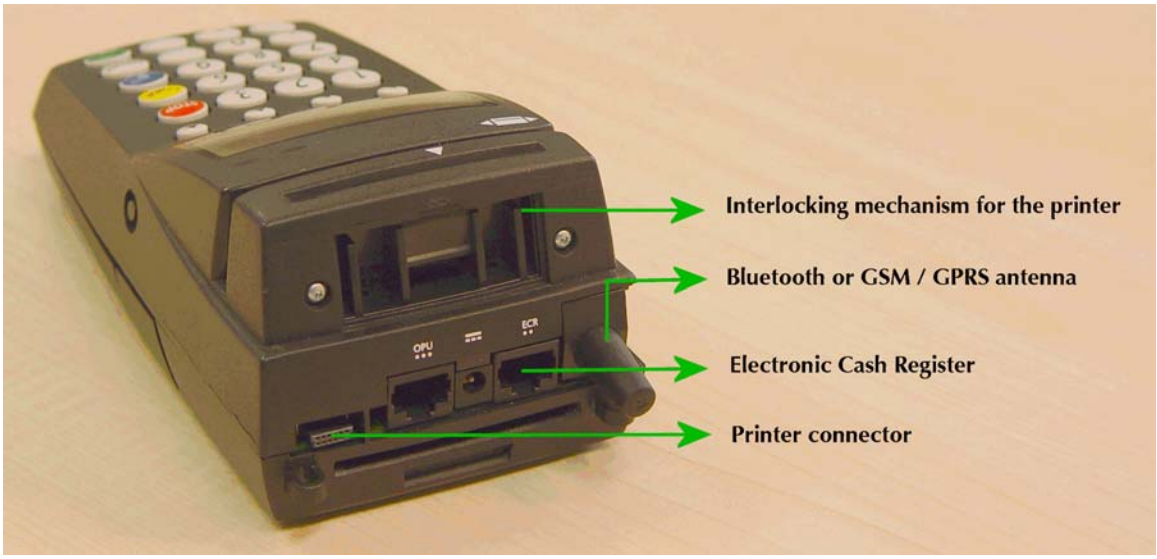
TCP/IP protocol (ppp) over B-channel
X.25 protocol over B-channel and D-channel
Compliant with: Net 3/ CTR3 – Euro ISDN
Net 2/ CTR2 X 25
64 kbps maximum transfer

External Interfaces

Various interfaces are available for C-ZAM/SMASH PORTABLE (GSM/GPRS and local wireless) to connect easily the different units and cables :

- An interlocking mechanism and a connector to plug the Banksys printer.
- A communication card connection to access your communication network.

- A RS 232 connection to usually connect an Electronic Cash Connector or other devices such a palm or a barcode reader for example.



Power

Three types of power adaptors are available to connect your access point and or your charging station. See further in option the specification of these items.

Europe: Adaptor 110-230 VAC 6.5 VDC / 3.2A 50-60 Hz. EUR 5.5-2.1-9.5

Europe: ADAPTOR 100-240VAC 6.5 VDC EUR 5.5-2.1-9.5 / 3A / 50-60HZ / TABLE.

U.S.A./Canada: ADAPTOR 100-240VAC 6.5VDC CONNECTOR C7 DI1.7XDE4.75L9.5 INT+
EXT- 3.2A / 50-60HZ NO INPUT CABLE

Dimensions (without printer)

Length: 6.77 in (172 mm)
Width: 3.43 in (87 mm)
Depth: 2.64 in (67 mm)

Weight (without printer)

15.20 oz (431 g) with battery
13.22 oz (375 g) without battery

Environmental specifications

Operating temperature range: 32 ° F / 122° F (0°C / 50°C)
Storage temperature range: -20°C / 70°C
Relative humidity range: 20% / 85%

Approvals

The C-ZAM/SMASH PORTABLE(GSM /GPRS and local wireless) are compliant with the following:

- ESD Immunity: IEC 801-2, IEC 801-3, IEC 801-4.
- EMC Emission: EN 55022 Class A, IEC 950, EN61000-3-2
- FCC 15
- Meet the requirements specified in Low Voltage (Electrical Safety) Directive (Directive 73/23/EC – EN 60950)
- Meet the emissions and immunity protection requirements under the Electromagnetic Compatibility Directive (Directives 1989/336/EC – 1995/5/EC)
- Complies with the R&TTE Directive.
- EMV 3.1.1.

IP 41 (Protection against intrusion of objects larger than 1 mm and vertical water drops)

- EMV Application Kernel: EMVCo level 2 approved Kernel for payment application development.

Options

Printer

Fast and silent, the graphic thermal printer can be clipped on the
C-ZAM/SMASH portable.
The paper can be changed easily by opening the cover and inserting a new roll.

Technical specifications

Length: 97 mm Thickness: 57 mm
Width: 87 mm Weight (with full paper roll): 9.98 oz (283 g)

Climatic specifications: Operating temperature range: 0°C / 50°C
Storage temperature range: -20°C / 70°C
Relative humidity range: 20% / 85%

Details: Graphical thermal printer
Paper roll (WxL): 2.28 in x 32.81 feet (58mm x 10 m)
Maximum printing speed 25 mm/s
Characters per line: the printer head has 384 pixels, which offers the possibility to print for either 24, 32 or 48 alphanumeric characters per line (8 pixels / mm).
1 to 31 lines height multiplier.

Approvals:

CE approvals:
IEC 801-2, IEC 801-3, IEC 801-4, EMC : EN55022 Class A,
IEC 950
EN61000-3-2, EMV 3.1.1.
FCC 15

Battery pack

The C-ZAM/SMASH PORTABLE is powered by a rechargeable battery pack. 75 transactions with a printed receipt can be executed without the need for a recharge.

Technical specifications

Type: Rechargeable Nickel Metal Hybrid
Voltage: 6V Nominal
Number of cells: 5 X AAA
Cell Voltage: 1.2V Nominal
Capacity: 720mAh typical
Battery life: > 500 Cycles
Dimensions (w/h/d): 3.31 x 3.35 x 0.59 in (84 X 85 X 15 mm)
Weight: 3.25 oz (92 g)

Charging Station

The charging station can charge two packs. The first battery pack in the terminal can be placed at the top of the charging station and the second one can be placed in the slot at the front side of the charging station. The complete charging cycle is 3 hours (2X3 hours in case of 2 batteries).
An adapter has to be ordered separately to power the charging station.

Technical specification

Nominal input: 6.5 VDC
Charge current: 250mA nominal
Charge terminates on –dV / dt or maximum voltage per cell or time out (> 3hrs)
Discharge curent: 400 mA
Maximum charge time: 180 Min
Discharge voltage: 0.95 V/cell Nominal
Dimensions (WxHxD): 5.37 x 2.01 x 7.76 in (136.5 x 51 x 197 mm)
Colour: Colour RAL 7021 (Standard)

Battery rating: 750 mAh-5 XAAA cells
Weight: 10.05 oz (285 g)

Cradle

This compact battery charger for the C-ZAM/SMASH can be fixed in a car.
The battery pack can be fully charged within 3 hours.
The cradle can be powered either by a fused standard power cord (delivered as standard) or by a lighter adapter (option).

C-ZAM/SMASH Cradle Standard power cord Cigarette lighter plug

Technical specifications

Nominal input: 6.5 VDC adapter jacket
12 to 24 VDC micro fit single row
Battery rating: 750 mAh – 5 x AAA cells
Charge curent: 320 mA nominal
Colour RAL 7021
Dimension (WxHxD): 3.62 x 1.34 x 7.44 in (92 x 34 x 189 mm)
Weight: 5.86 oz (166 g)

Fused cigarette lighter plug power cord: helicoidal double isolated cable of 600 mm
Fused standard power cord: double isolated cable of 2000 mm

C-ZAM/SMASH ACCESS POINT

The access point is a stand-alone device with external antenna. It communicates with the C-ZAM/SMASH local wireless and is linked to a PSTN or a ISDN line so the communication with the HOST is established;

Technical specifications

- Nominal input :12V
- Interface RJ 11
- Connector SMA FOR EXTERNAL ANTENNA 2.4 ghZ
- 3 LEDS:
  - on/off
  - Blue tooth connection
  - Network connection
  - Class 1 allowing a radius of 492 feet (150 m) in a perturbed environment
- Power 80 d Bm

- Communications: V22, V 22 BIS , V32 ,V 32 bis, ISDN
- Can connect up to 7 terminals in a consecutive way

Protection Shield

A protection shield allows the customer to enter their PIN code safely from prying eyes.
Two choices are available

Portable PIN Cover

Portable PIN Shield

Technical specifications

Colour: RAL 7021

Protection Bag

The protection bag allows you to carry easily a C-ZAM/SMASH-GSM/GPRS and its printer + an extra battery and two rolls of paper.
A small flap fixed at the back of the bag or a length adjustable allows you to carry your terminal.

Technical specifications

Dimensions: 4.33 x 11.02 x 3.14 in (11 X 28 X 8 cm) (w/h/d)

Glossary

SKBD: Secured Keyboard. This is an internal abbreviation for the combination of the keypad, the security ASIC (internal name = 'Bonny'), the secured memory,... The SKBD deals with all the security aspects of a payment transaction: PIN verification, encryption, MAC-ing,...
ARM: Advanced Risc Machines = commercial company that sells "softcores" (RISC processors) and peripherals (UART's, data buses, chipcard controllers, softmodems, memory,...). With these 'building blocks' you can define/ manufacture your own specific chip: an ASIC. (for more info on ARM: see www.arm.com)

Abbreviation	**Explanation**
ASIC	Application Specific Integrated Circuit
BGA	Ball Grid Array
bps	Bits per second
BRA	Basic Rate Access
CA	Certification Authority
CSM	Chip Security Module
ECR	Electronic Cash Register
EMV	Europay, MasterCard, VISA standard
GSM	Global System for Mobile communication
GPRS	Global Packet Radio Services
ISDN	Integrated Services Digital Network
LAN	Local Area Network
LCD	Liquid Crystal Display
MCR:	Magnetic Card Reader
PC	Personal Computer
PIN	Personal Identification Number
PSTN	Public Switched Telephone Network
ROM	Read Only Memory
RTL	Remote Terminal Load
SAM	Secured Application Module
TCP/IP	Transmission Control Protocol / Internet Protocol

C-ZAM/SMASH

The Leading edge in secure Payment terminals

sa Banksys nv
Chaussée de Haecht 1442 – Haachtsesteenweg
B-1130 Brussels
Belgium

www.banksys.com