



Value through Innovation

80088507-001-A

SmartPIN B100

User Manual

SmartPIN B100 User Manual

Revision history

Revision	Description	Date	By
A	Initial Release	1/17/13	Candy H

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1 Scope

This document is to provide general information about SmartPIN B100.

2 General Description

The primary usage of SmartPIN B100 is to provide secure PIN entry function for the user. SmartPIN B100 meets PCI 3.x requirements, other industry & government requirements, and applicable standards.

The product is fully capable of outdoor and unattended operations. The housing, PED are designed for vandal resistance, rugged use, and waterproof operation.

The key pad is a metal PIN Entry Device with color coded graphics on the Control keys. The graphics and raised “dot” on the #5 key provide key recognition & ADA compatibility.

3 Applicable Documents

IEC 529 for IP environmental rating

IEC 950 for Product Safety

ADA – Americans with Disabilities Act

Meets PCI 3.1 requirements and is certified by PCI.

Meets ANSI X9.8 and X9.24 key management standards

Meets ISO 13491 requirements for temper-evident devices

PCI certification – PCI 3.1 Derived Test Requirements for Online PIN Entry Devices

4 Abbreviations

Not all of the acronyms in this table are used in this document.

ANSI American National Standard Institute

APACS Association for Payment Clearing Service

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API	Application Programming Interface
CPU	Central Processing Unit
CTS	Clear to Send
DC	Direct Current
DES	Data Encryption Standard
	Derived Unique Key Per Transaction, Key
DUKPT	management
EMI	Electromagnetic Interference
EMV	Europay, MasterCard, Visa
ESD	Electrostatic Discharge
GND	Signal Ground
Host	A PC or like w/ local Application Software for controlling connected SmartPAY terminals
IEC	International Electrical Congress
ISO	International Organization for Standardization
JPOS	Java for Retail Point-of-Sale
LCD	Liquid Crystal Display
mA	MilliAmperes
MAC	Message Authentication Code
MK/SK	Master Key/Secession Key, Key management
MTBF	Mean Time Between Failures
mV	MilliVolts
OPOS	OLE for Retail Point-of-Sale
PC	Personal Computer or similar hardware device
PCB	Printed circuit board
PCI	Payment Card Industry
PED	PIN Entry Device
PIN	Personal Identification Number
RS 232	Serial Interface Standard
RTS	Request to Send

TDES Triple Data Encryption Standard

5 General Operation

The SmartPIN B100 is operated through a POS application command & response (API message) structure. In order to make SmartPIN B100 work with an application, the command (API message) needs to be sent to SmartPIN B100, and the device will response to the POS application.

The SmartPIN B100 supports the Encrypt PIN entry and Non-PIN numeric entry (e.g.clear text numerical entry). The SmartPIN B100 can be put into an operational mode where the numerical keys can be used for applications other than PIN entry. The application must provide an indication that the entry is not for PIN entry so that the PIN pad user does not reveal his PIN during this unsecured operation. This option must be in compliance with PCI 3.0.

6 Specifications

6.1 *Keys & Keypad Layout*

The keypad layout is a 4 by 4 matrix. There is a raised dot in number 5 key (raise in relief for ADA compliance). Keys must be rugged for extended customer operation, vandal, and tamper resistant. The keypad is waterproof and does not allow water to enter the housing. The key layout meets ADA, ANSI and APACS Standards. The Operation keys must have universal legends, have color symbols like shown in the figure. Raised legend symbols are required for operation by the blind. The designation of the “operation keys” is variable as needed by the customer/country application.

Key Dimensions

Numerical keys: 17mm (W) by 15mm (H)

Operation keys: 31mm (W) by 15mm (H)

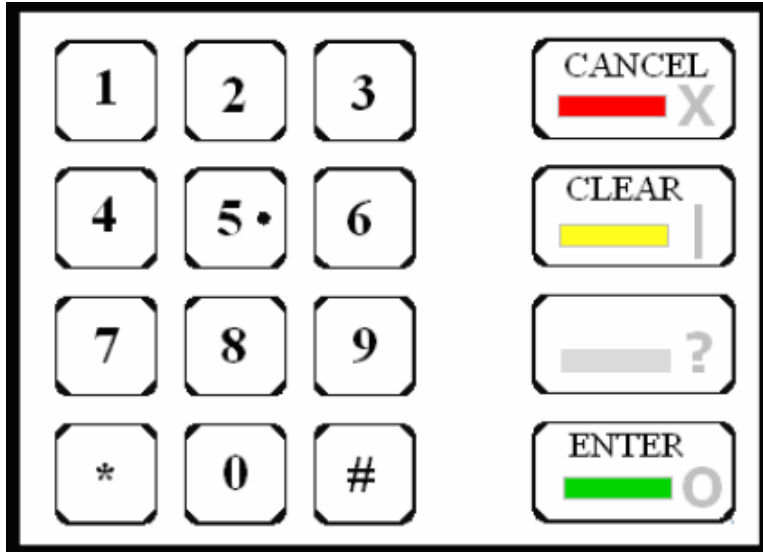
Numerical key separation: 5mm (approx)

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Numeric/Operation separation: 20mm (approx)

Perimeter width: 8mm (approx)

Keys are centered in the vertical position. Please refer to the figure below for the key layout:



6.2 *Mechanical Dimensions*

SmartPIN B100 Envelope dimensions:

Height: 122 mm

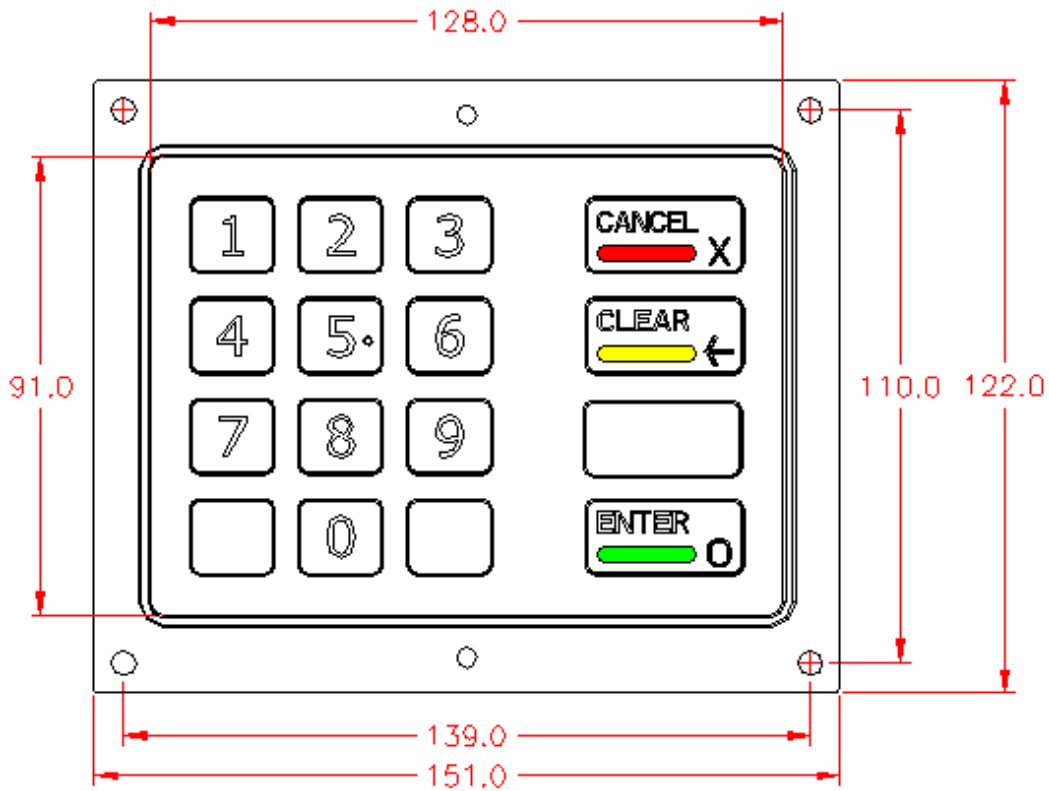
Width: 151 mm

Depth: 35mm max

Keypad dimensions:

Height: 91 mm

Width: 128 mm



6.3 **Operating Environment**

Minimum Temperature Range

Operating: -25 to 70 °C

Non-operating: -30 to 65 °C

Shipping: -30 to 70 °C

Relative Humidity range is 8 to 95 % with Wet bulb at 23°C (73.4 °F) non-condensing

Dust or continuous sprayed water shall not enter the housing, IEC 529 rating IP65

6.4 **Electrical**

Power is supplied to the unit in the following manner:

RS232C interface - A/C power adapter, 5VDC +/- 10%

Optional or Standard internal regulator for 12VDC input

USB interface – Hub/PC supplied power

Operation current: <100mA

6.5 **Output Connections**

The RS-232 Output should comply with the standard RS-232 Pin-out as listed below:

Pin number RS-232

Pin number	RS-232
1	-
2	RD
3	TD
4	-
5	GND
6	-
7	RTS
8	CTS
9	-

6.6 **Operation LED**

The Op-LED is a surface mount, tri-color, LED, which is visible from the back of the SmartPIN B100 housing (using a light pipe). It is molded into the housing. The LED provides operating information for the SmartPIN B100. It is a selling feature to the integrators for easy maintenance and troubleshooting indications. The following chart gives operation status meanings. The blink rate is about 2 times per second with an LED on period about 0.25 second. The host should have the option of turning off the indicator.

LED State	Operating Condition
Off	No power
Steady Green	Powered on, with keys injected, communication established
Blinking Green	Powered on, with Keys injected, no communication
Steady Yellow	Powered on, no keys, communication established
Blinking Yellow	Powered on, no keys, no communication established
Steady Red	Powered on & SmartPIN B100 is not functional
Blinking Red	Powered on, Tampering detected, keys erased

6.7 **Reliability**

ESD: 4KV contact & 8KV over the air from back of the unit (CE Standard).

Drop Test: Withstands 3 ft drop to concrete, 6 surfaces & 4 corners, no functional damage.

MTBF: Minimum calculated MTBF value of 120,000 power on hours Cable pull force requirement is 5kg straight pull.

Key Stroke: The Key operational life is greater than 2,000,000 key stroke operations any one key.

6.8 **Encryption & Key Management**

The SmartPIN B100 supports TDES encryption standards for PIN encryption. The key management operations supported are Derived Unique Key Per Transaction (DUKPT) and Master/Session (MS/SK).