

Operation Manual

Proximity / PIN Single Door Access Controller

Model SMX-513, SMX-513Aux
(Ver. 1.3)



SmaxID®

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1. Important Safety Instructions

When using your Single Door Controller, basic safety precautions should always be followed to reduce the risk of fire, electrical shock, and injury to persons. In addition, the following should also be followed:

1. Read and understand all instructions.
2. Follow all warnings and instructions marked on the product.
3. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning. If necessary, use mild soap.
4. Do not use this product near water, such as bath-tub, wash bowl, kitchen sink, laundry tub, in a wet basement, or swimming pool.
5. This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your installation site, consult your dealer or local power company.
6. Never push objects of any kind into this product or through the cabinet slots as they may touch voltage points or short out parts that could result in fire or electric shock. Never spill liquid of any kind on the product.
7. To reduce the risk of electric shock, do not disassemble this product by yourself, but take it to qualified service whenever service or repair is required. Opening or removing the covers may expose you to dangerous voltages or other risks. Also, incorrect reassembly can cause electric shock when the unit is subsequently used.
8. Unplug this product from the Direct Current (DC) power source and refer to qualified service personnel under these conditions:
 - i. When the power supply cord or plug is damaged or frayed.
 - ii. If liquid has been spilled on the product.
 - iii. If the product does not operate normally after following the operating instructions in this manual.
 - iv. Adjust only those controls that are covered by the operating instructions in this manual.
 - v. Improper adjustment of other controls that are not covered by this manual may damage the unit and will often require extensive work by a qualified technician to restore normal operation.
 - vi. If the product exhibits a distinct change in performance.

2. Introduction

2.1. Overview

A properly configured **SMX-513 Proximity Single Door Access Controller** and **SMX-513Aux Auxiliary Reader** is an intelligent single door controller that combines the convenience of easy entry with the security of an alarm system. Also, the **SMX-513, SMX-513Aux** system will give you field proven reliability and cost-effective solution anywhere access controls and high security are required. Each standard unit can store up to 4000 users or card IDs along with 4000 transaction record. The task of assigning cards and managing a user's database is so simple, user friendly, and can be accomplished as simple as presenting each card to the unit.

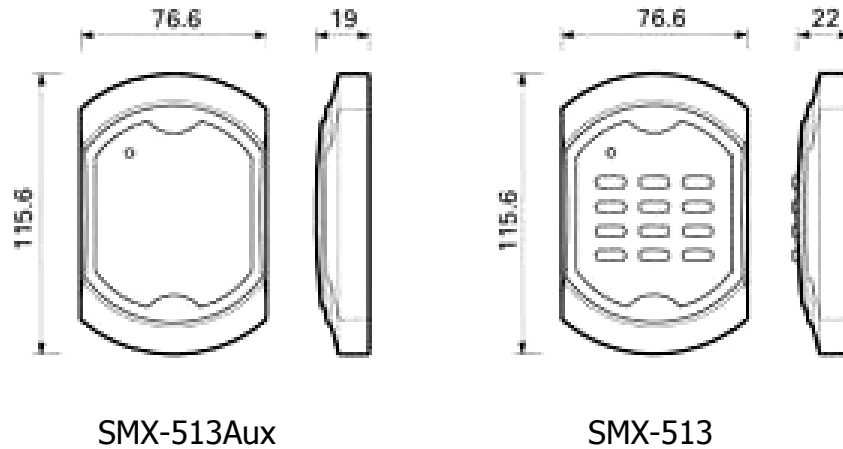
The **SMX-513, SMX-513Aux** can interface and operate with Request for EXIT button and Door-Contact sensor via its 2 independent input ports. Also, output ports which include 2 Relays can be used to control the operation of other accessories such as Electric/Magnetic Door Lock and Alarm. Furthermore, every time stamped event or transaction can be read by any application software via the provided RS-232 wires.

2.2. Features

- Stand-alone single door access controller
- **Prox/Prox+PIN/PIN** operation Mode
- Built-in Proximity Reader with up to 4" of read range
- External Reader up to 4" of read range
- **4000** Users or Card IDs including the Master Card
- **4000** Transaction History
- 2 independent input ports
- 2 independent output relays port
- Programmable Door Lock and Unlock Time
- Programmable Door sensor time
- Formatted Printer Output
- Internal Real-Time Date & Time
- RS-232 communication port for interfacing with the 100R / PIN-120 application software
- Bicolor LED (red, green) for system operation status

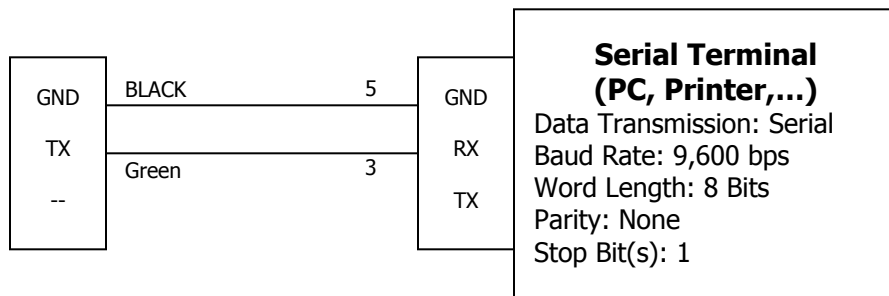
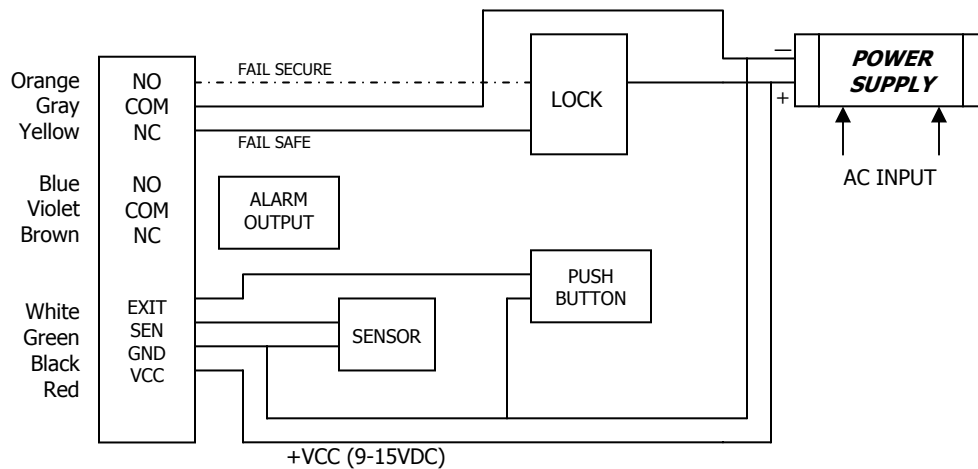
2.3. Specification

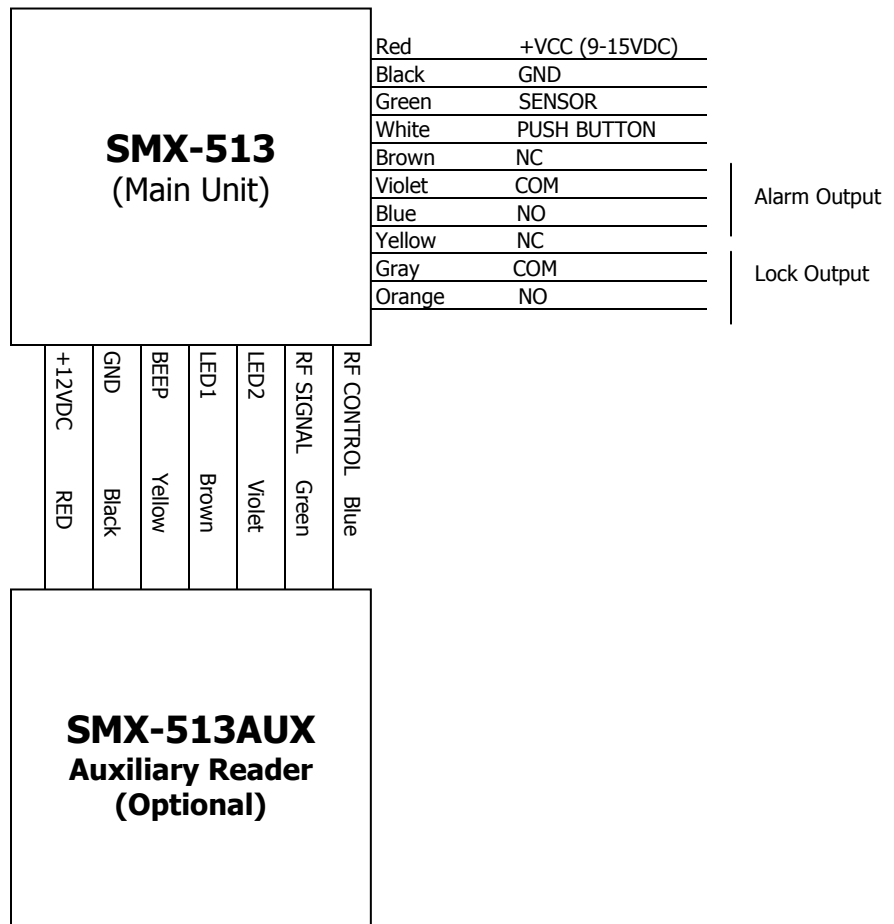
	SMX-513	SMX-513Aux
CPU	8 Bit	8 Bit
RF Read Range	Proximity Card : 4" (10cm) Proximity Tag : 2" (5cm)	Proximity Card : 4" (10cm) Proximity Tag : 2" (5cm)
RF Frequency	125KHZ	125KHZ
Card Reading Time	70 ms	70 ms
User capacity	4000	-
Input/Output	2 Inputs max. rating at DC12V/20mA	-
Reader Port	One external reader port	-
Communication	RS232	-
Keypad	12 Key	-
Self-diagnostic	Yes	Yes
Power	DC 12V/ 200mA max.	DC 12V/ 200mA max.
Reset	Watch-dog timer & power on reset	Watch-dog timer & power on reset
Mounting	Wall mounted	Wall mounted
Environment	Operating : -35°C / +65°C, 10% / 90% Humidity Storage : -40°C / +70°C, 10% / 90% Humidity	-35°C / +65°C, 10% / 90% Humidity -40°C / +70°C, 10% / 90% Humidity
Color	Black	Black
Dimensions	115.6 * 76.6 * 22	115.6 * 76.6 * 19
Material	Polycarbonate	Polycarbonate



3. Installation

Drill two 6-32 holes and one 1/2" hole on the proper location of the wall to mount the system. Remove the protecting cover by pushing it slightly up and forth over the areas close to screw hole. Route the cable of the unit through the center hole. If using SMX513Aux along with the main unit connect all the connections of main and auxiliary units together and screw them to wall to secure them then put the protecting cover back.





*** CAUTIONS ***

Before putting back the cover, operational testing of the unit(s) should be completed, as the locking pins will lock the cover and removing it after they have been installed may cause damages to the Casing and render its effectiveness.

3.1. Color Code & Wiring Table

Power and I/O Interface

Port Name	Signal Name	Wire Color Code
Power		
Main Power (+)	+12VDC	Red
Power Ground	0V	Black
Output		
Alarm output Relay	NC-Alarm	Brown
Alarm output Relay	COM-Alarm	Purple
Alarm output Relay	NO-Alarm	Blue
Lock output Relay	NC-Lock	Yellow
Lock output Relay	COM-Lock	Gray
Lock output Relay	NO-Lock	Orange
Input		
Sensor	IN1	Green
Push Button	IN2	White

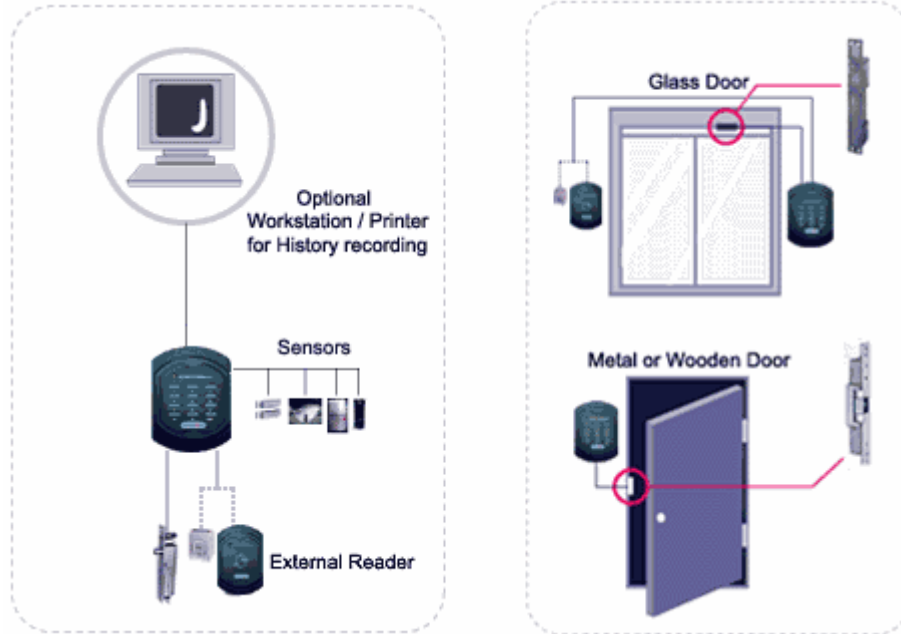
Auxiliary Reader Interface (SMX-513, SMX513Aux)

Port Name	Signal Name	Wire Color Code
Power		
Main Power (+)	+12VDC	Red
Power Ground	0V	Black
I/O		
Beep	O1	Yellow
LED1	O2	Brown
LED2	O3	Purple
RF Signal	IO1	Green
RF Control	IO2	Blue

Communication Interface (RS232)

Port Name	Signal Name	Wire Color Code
TX	TX	Green
GND	GND	Black

3.2. System Wiring & Typical Application



Typical Application of SMX-513 Single Door Controller

3.2.1. Power Connection

Connect (+) wire of DC +12V power to Red wire.
Connect Power GND (-) wire of DC +12V to Black wire.

3.2.2. Door Lock Connection

A. Connection of POWER FAIL SAFE: Door Lock

Connect Door RELAY (COM), Grey wire to DC +12V (be sure that the existing power supply has enough capacity to support this accessory or upgrade to a sufficient one.)
Connect (+) wire of Door Lock to Door RELAY (NC), Yellow wire.
Connect (-) wire of Door Lock to Power GND (-) wire.

B. Connection of POWER FAIL SECURE: Door Lock

Connect Door RELAY (COM), Grey wire to DC +12V (be sure that the existing power supply has enough capacity to support this accessory or upgrade to a sufficient one.)
Connect (+) wire of Door Lock to Door RELAY (NO), Orange wire.
Connect (-) wire of Door Lock to Power GND (-) wire.

3.2.3. Alarm Device Connection

Connect Alarm RELAY (COM), Purple wire to DC +12V (be sure that the existing power supply has enough capacity to support this accessory or upgrade to a sufficient one.)
Connect (+) wire of Alarm Device to Alarm RELAY (NO), Blue wire.
Connect (-) wire of Alarm Device to Power GND (-) wire.

3.2.4. Exit Button Connection

Connect one of the wires of Exit Button to Exit Button Input, White wire.
Connect the other wire of Exit Button to Power GND (-) wire.

3.2.5. Door Contact Sensor Connection

Connect Door Contact sensor (COM) wire to Door Contact Input, Green wire.
Connect Door Contact sensor (NO) wire to Power GND (-) wire.

3.2.6. RS-232 Communication Port Connection

9-pin connector (COM Port, female) is required to connect serial communication RS-232 between Main Unit and Personal Computer.
Connect RS-232-TX, Green wire of Main Unit to PIN Code 2 of 9-pin connector.
Connect RS-232-GND, Black wire of Main Unit to PIN Code 5 of 9-pin connector.
Plug in 9-pin connector to COM1 or COM2 Port of Personal Computer.

3.2.7 External Reader connection

Connect all the wires of external reader to its same color wire of main system respectively.
External reader Power supply is provided through main system and there is no need for a separate power supply for this unit.

4. System Setup

The **SMX-513** contains a minimum set of Default values in the flash memory, but it does not have any other preprogrammed values or user's data in it, therefore, Initial Setup is required upon the first time the unit is powered-up in order to operate the unit properly.

Definitions

Master Code: Password or Card use for operating the system.

Master Card: The card that you can define and use as master code card.

Master Password: Five digit number that you can define and use as master code password.

ID Number: An index number from 1 to 3999 for each defined card.

PIN (Personal Identification Number): Five digit number for using as a password code for each defined card.

4.1 Registering and Deleting Master Card and Master Password

4.1.1 Registering a Master Card

- 1- Press <★> + <0> + <ENTER> on the keypad.
- 2- Present one RF Card to define as a **Master Card**.
- 3- Press<Enter>

4.1.2 Registering a Master Password

- 1- Press <★> + <0> + <ENTER> on the keypad.
- 2- Key in the **Master Password**.(Five Digit Number)
- 3- Press<Enter>

4.1.3 Registering a Master Card and Master Password

1. Press <★> + <0> + <ENTER> on the keypad.
2. Present one RF Card to define as a **Master Card**.
3. Key in the **Master Password**.(Five Digit Number)
4. Press<Enter>

4.1.4 Deleting the Master Card and Master Password

1. Press <★>
2. Key in five-digit **Master Password** or present **Master Card** to the system.
3. Press <Enter>
4. Press <1> + <ENTER>

Note: Master Card and Master Setup is for advancing your security level and protecting system configuration against unauthorized users. Once you have registered your Master Card or Master Password, These are required for any further system setup and changes. Please keep your Master Card and a copy of your master password in a safe place for further references.

4.2 Registering and Deleting User's Cards

4.2.1 Registering a Card

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <2> + <ENTER>
4. Key in **User-ID-Number** + <ENTER>
5. Present one RF Card to reader as a **User Card** + <ENTER>
6. Press< ENTER >

4.2.2 Registering more than one Card successively

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <2> + <ENTER>
4. Key in **User-ID-Number** + <ENTER>
5. Present one RF Card to reader as a **User Card**. + <ENTER>
6. Repeat steps 4 and 5 until reaching the end of cards.
7. Press< ENTER >

4.2.3 Deleting a Card

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <3> + <ENTER>
4. Key in **User-ID-Number** + <ENTER>
5. Press< ENTER >

4.2.4 Deleting all Cards

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <6> + <ENTER>

4.3 Card and PIN Registration

A unique PIN can be assigned to each card to improve the level of security. This feature allows you to assign an exclusive "Personal Identification Number" to each card so that the user needs both PIN and Card to access to the door. Important difference between this feature in this product and the similar products in the market is that they assign a same PIN for all cards but here you can assign a unique PIN for each card. This PIN is different from User ID Number.

4.3.1 Registering a Card and PIN

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <2> + <ENTER>
4. Key in **User-ID-Number** + <ENTER>
5. Present one RF Card to reader as a **User Card**.
6. Key in **PIN** (5 digit number)
7. Press< ENTER > to finish User Card registration.

4.3.2 Registering more than a Card successively with PIN

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <2> + <ENTER>
4. Key in **User-ID-Number** + <ENTER>
5. Present one RF Card to reader as a **User Card**.
6. Key in **PIN** (5 digit number) + <ENTER>
7. Repeat steps 5 and 6 until reaching the end of cards.
8. Press< ENTER > to finish User Card registration.

4.4 PIN Registration (Entrance Password)

Besides the PIN and card you assigned for each user, you can also define a unique entrance password for accessing the door. Password can be 1 to 5 digits and once you set the entrance password either with this password or with the card and PIN users can access the door. You can delete or change this password at any time.

4.4.1 Setting the Entrance Password

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <4> + <ENTER>
4. Key in **PASSWORD** (1-5 digit number)
5. Press< ENTER > to finish User Card registration.

4.4.2 Deleting Entrance Password

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <5> + <ENTER>

4.4.3 Opening the door with Password

1. Key in **Password**
2. Press <ENTER>

4.5 Door Mode Setting

4.5.1 Unlock Mode

This is to unlock a door always without presenting RF card or entering PIN codes and to disable this. (The default is set to 'Active Mode')

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <7> + <ENTER>

4.5.2 Lock Mode

This is to keep the door locked. The door can be only opened by changing the mode to Active or Unlock modes.

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <8> + <ENTER>

4.5.3 Active Mode

Card or PIN verification is required to access the door. This is the default Door Mode setting.

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <9> + <ENTER>

4.6 Date and Time Setting

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <10> + <ENTER>
4. Key in "YYMMDDhhmmss"
5. Press <ENTER>

e.g.) 14:20:30, June, 30, 2003 => "030630142030"

4.7 Door Open Time Setting

This is for setting door open time. The output relay will be energized for the Time set by this command.

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <15> + <ENTER>
4. Key in Time (1-99)
5. Press <ENTER>

Time is a number from 1 to 99 respectively to the time in second.

4.8 Door Sensor

This is for door sensor setting and its operating time.

4.8.1 Door Sensor Enable

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <18> + <ENTER>

4.8.2 Door Sensor Time

Door sensor activating time is set here. It defines the time that the system waits after ending door open time to generate alarm if the door is still open.

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <17> + <ENTER>
4. Key in Time (1-99)
5. Press <ENTER>

Time is a number from 1 to 99 respectively to the time in second.

4.8.3 Door Sensor Disable

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <19> + <ENTER>

4.9 Serial Data Output

Up to 4000 entry events are recorded in the system, which can be printed out through a serial printer or be retrieved by a PC using any serial communication program like Hyper Link. Before using this option you need to setup system parameters.

Serial Output Specification:

- Baud Rate: 9600
- Stop Bit: 1 Bit
- Parity: No Parity
- Data Format: 8 Bit

Data Output Format:

ID No.	Card No.	Date and Time (YY/MM/DD/hh:mm:ss)	
↓	↓	↓	
0001	00155402	03/04/08/13:55:12	← Accessed by Card
0002	00155412	03/04/08/14:12:32	
NO//	123	03/04/08/15:22:01	← Accessed by Password
0011	00154803	03/04/08/16:33:08	

4.9.1 Instant Output Mode

In this mode data will be transmitted to serial output whenever a new entry event is detected. Serial data output contains ID Number, Card Number, Date and Time in ASCII format.

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <11> + <ENTER>

4.9.2 Disable Serial Out

This command disables transmitting data from internal buffer to serial output. This is the default serial output mode.

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <12> + <ENTER>

4.9.3 Accumulated Data Output

Recorded Data will be transmitted to serial output from the latest printed data to the last data record.

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <13> + <ENTER>

4.9.4 List of ID and Card Numbers

This command sends the list of all defined ID and Card Numbers to serial output.

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <14> + <ENTER>

4.9.5 Set number of Outputs

Through this command you can determine the number of records you want on serial output from the last recorded event. This command set the record index to "Last Index – Number". For example if you set the value to 10 then the record index will be set on 10th record from the end of the event list and after using "Accumulated Data Output" command you will have the last ten records of event buffer on the output.

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <20> + <ENTER>
4. Key in **Number of Records** (1-2999)
5. Press <ENTER>

4.9.4 Clear Event Buffer

This command clears all records from the event buffer and set the index to 1.

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <21> + <ENTER>

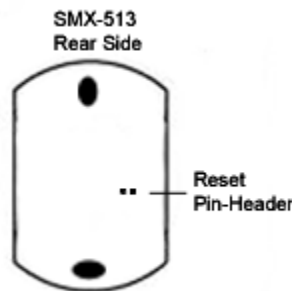
Note: By using this command all current records in event buffer will be lost.

4.10 Reset Master Card and Master Password to Initial State

In case you lost your master card or forget master password you can reset the system to its initial state by applying following instructions:

1. Power off the SMX-513.
2. Make a short circuit or put a jumper on “Reset Pin-Header” located on the back of the system (as below diagram).
3. Power on the system.
4. After hearing a single beep remove the short circuit or jumper from the “Reset Pin-Header” while the power is on.
5. After the system beeps twice it is ready for reprogramming.

Note: This feature only initialize the system so that you can reassign a new master card and master password and all other settings such as registered cards and recorded events remain unchanged.



Command Summary

Command	Description
0	Master Code Registration
1	Master Code Deletion
2	Card Registration
3	Card Deletion
4	Set Entrance Password
5	Delete Entrance Password
6	Deletion of All Registered Cards
7	Door Mode Setting – Unlock Mode
8	Door Mode Setting – Lock Mode
9	Door Mode Setting – Normal Mode
10	Date Setting
11	Data Printout – Instant Output Mode
12	Data Printout – Disable Serial Output
13	Data Printout – Accumulated Data to Serial Output
14	Data Printout – ID and Card Numbers to Serial Output
15	Door Open Time
16	Reserved
17	Door Sensor Time
18	Door Sensor Enable
19	Door Sensor Disable
20	Reserved
21	Reserved
22	Reserved
23	Reserved
24	Reserved

Command Entrance Sequence

1. Press <★>
2. Enter **Master Password** or present **Master Card** to the reader.
3. Press <ENTER> + <Command #> + <ENTER>
4. Key in **Command Parameter**
5. Press <ENTER>
6. Repeat steps 4 and 5 until reaching the end of parameters.

5. Operation

5.1. Normal Operation Mode (Safe Mode)



When the Main Unit operates in normal mode, the Status LED remains Red.

5.2. Open the Door



**Registered
Card (or PIN)**

When a registered Card (or PIN) is read, the beeper sounds once, the Status LED changes to green and remain in this state until the lock time ends.

5.3. Exit (Open the Door)



To request for exit from the inside, an Exit Button can be used to open the door for the same duration as a card or code.

5.4. Action and Alarm Caused by Unregistered Card (or PIN)



**Unregistered
Card (or PIN)**

When an unregistered Card (or PIN) is read, access is denied, The beeper sounds three times and the Red LED starts blinking.

6. FCC Registration Information

FCC REQUIREMENTS PART 15

Caution: Any changes or modifications in construction of this device which are not expressly approved by the manufacturer for compliance could void the user's authority to operate the equipment.

NOTE: This device complies with **Part 15 of the FCC Rules**.

Operation is subject to the following two conditions;

1. This device may not cause harmful interface, and
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a **Class A Digital Device**, pursuant to **Part 15 of the FCC Rules**. These limits are designed to this equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the radio or television off and on, the user is encouraged to try to correct interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on another circuit.
4. Consult the dealer or an experienced radio/TV technician for help.

7. Warranty

We warrant that all products manufactured and sold by us are free from defects in material and workmanship and those products of our design are fit for the purpose intended by us when properly installed and wired according to instructions and national, state and local codes and kept free of dirt and rust.

All products manufactured and sold by are warranted for a period of twelve (12) months after the product is first in put in to use, or not more than fourteen (14) months after date of shipment, whichever shall expire first, Provided that written notice has been given us within thirty (30) days after first discovery of any defects.

The extend of our liability for breach of such warranty, when such is shown to our satisfaction, and the product has become impaired for the use for which it was intended by us, shall be limited to the replacement or repair of such product or part thereof, F.O.B Toronto, Canada.

SmaxID assumes no liability for inconvenience or labor cost incurred. Goods returned without our authorization will not be accepted.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES OF FITNESS AND MERCHANTABILITY.