SmartXS

Firmware Ver. 3.9L

Model: SM212 Series

Release date: 01/11/2008

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WARNING & CAUTION

Ø **Do not open system or place it near other heavy electrical equipments. The system is sensitive to Electro Static Discharge (ESD)**

Ø **Please handle the equipment with care. Physical Damage to the system is not covered under warranty.**

Ø **Do not power on the system without reading this manual. Ensure proper power supply with Earthing.**

Ø **Note down the serial number and model no. of the device for future reference and quote in all support and service requests.**

Ø **To connect or interface the Card reader to the SmartXS unit please refer to the Hardware Installation Guide or Manual and carefully follow the instructions. A trained technician must make the connections.**
Any negligence on your part may damage the Card reader interface on the SmartXS terminal.

Ø **Mounting the unit in strong sunlight may affect user visibility of the LCD. Ensure that the LCD and LED's are clearly visible in all lighting conditions.**

Ø **The fingerprint sensor glass may periodically require cleaning - use suitable glass cleaner.**

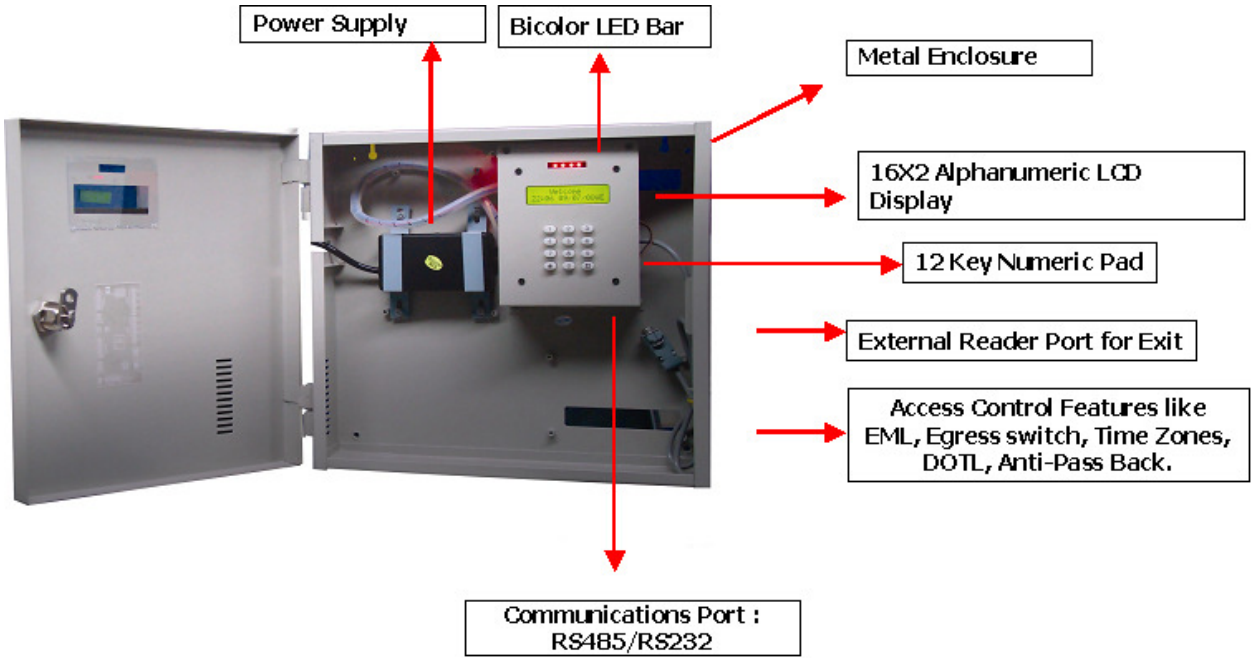
Ø **Do not use this unit near water.**

Ø **Never insert objects of any kind into the unit or through the cabinet slots as they may touch voltage points and/or short circuit parts possibly resulting in fire or electric shock. Never spill liquid of any kind on the unit.**

Ø **when connecting up the Biometric Access Controller ensure that the mains power supply is safely isolated. Power up the controller only when installation is complete.**

Important Instructions :

1. **Take the backup of the finger prints of all the users after enrollment, through the Template Upload/Download Option in the Download Engine (Refer User Manual of Download Engine for taking finger prints backup and uploading the backup finger prints back to the Biometric devices.)**
2. **Care should be taken identifying the wires. Improper wiring may render permanent damage to the device or personal injury.**
3. **In Single door controller do not connect lock on CH2 DOOR2.**
4. **Refer the color code on the Reader to connect the external weigand reader on the controller.**
5. **Check the earthing at the site before installing the controllers. Normally the earthing should be between 1V to 2V only. Earthing on the higher side may damage the controller or its various other components.**


Power Supply
Bicolor LED Bar
Metal Enclosure
16X2 Alphanumeric LCD Display
12 Key Numeric Pad
External Reader Port for Exit
Access Control Features like EML, Egress switch, Time Zones, DOTL, Anti-Pass Back.
Communications Port : RS485/RS232

1. Before you start with SmartXS

1.1. Included items

- A SmartXS unit
- Isolated Dual Power supply 12 V 1A & 12 V 1.2A
- This Installation Guide

Product	Image	Qty	Use
SmartXS		1	Access control or Attendance System
Power Supply		1	Supplying power for the Biometric Unit
Software CD		1	For Device Configuration/Management & For Data Downloading
User Manual & Test Report		1	For referring functions keys for programming the device by keypad

2 Power Supply Specification:

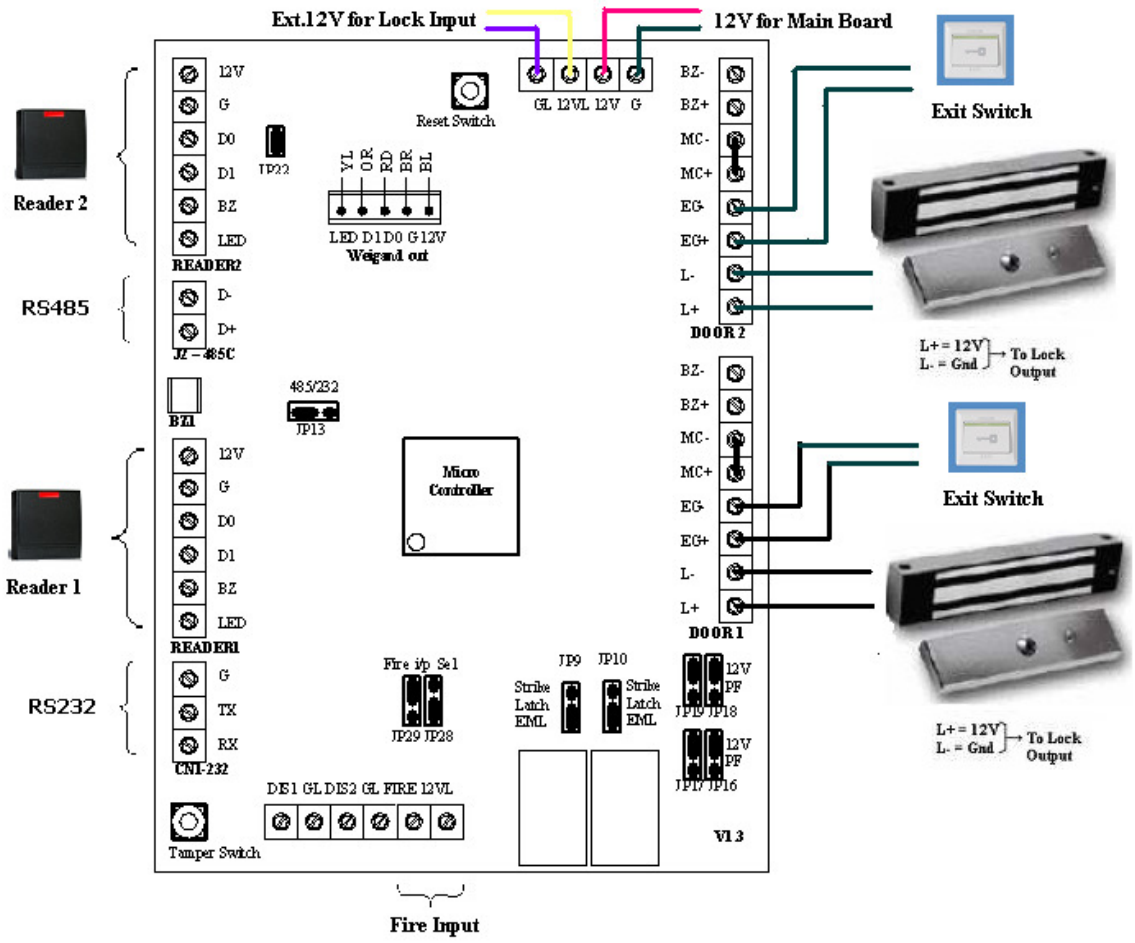
In case you do not have the required power supply included in the package and intend to buy your own power supply use these specifications. Below given specifications should be strictly adhered to.

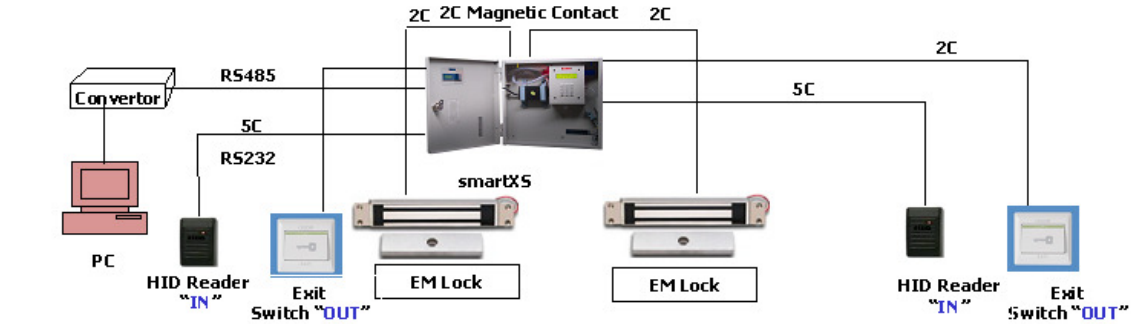
Device	***Application***	***Power Supply***	***Input***	***Output***
SmartXS	Attendance & Access (Lock Voltage)	Universal AC Adapter Isolated i/o	110 to 230 VAC	12 V DC/ 1A (Min) & 12 V DC/ 1.2A (Min)

3 Installing SmartXS

3.1 Wire Connection Diagram

Diagram 1> SmartXS Wire Connection Diagram PCB version 1.3
2 readers as IN with 2 locks for 2 doors



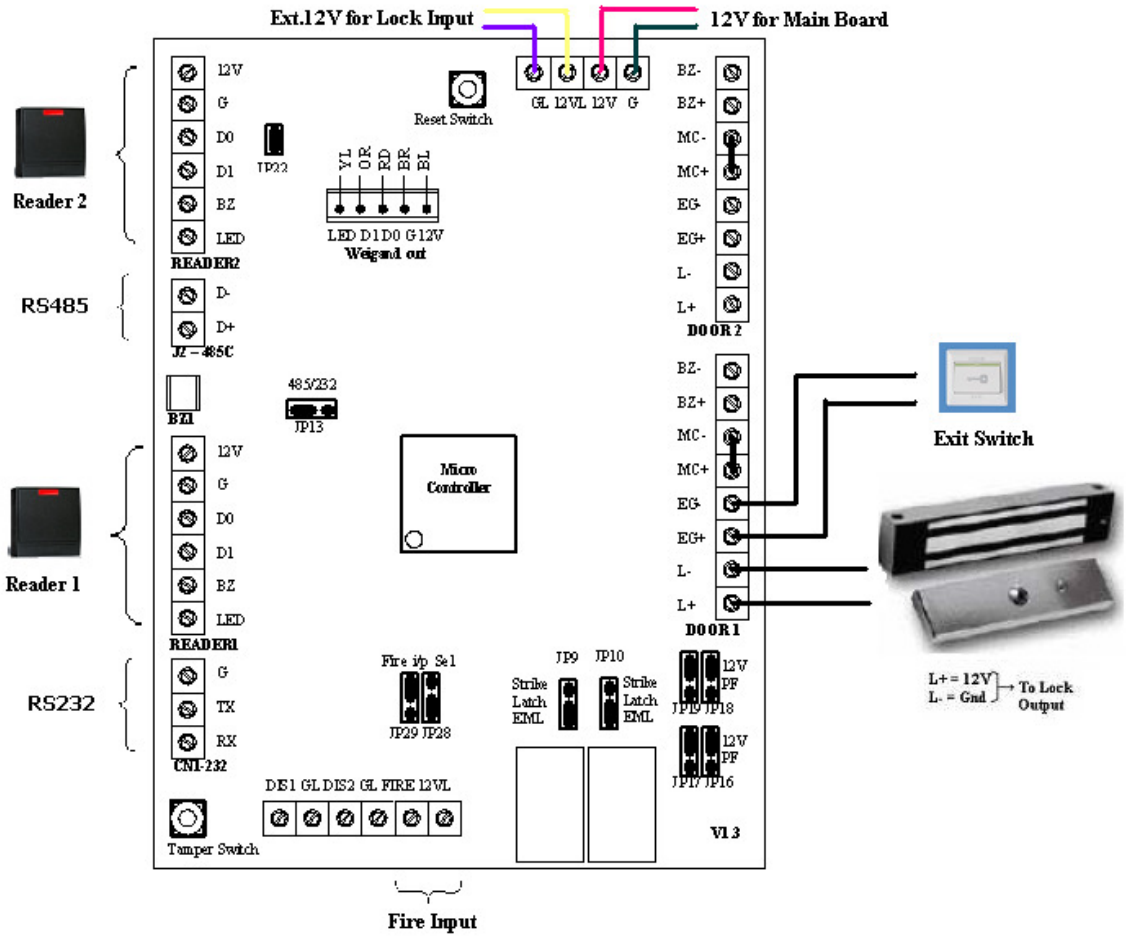


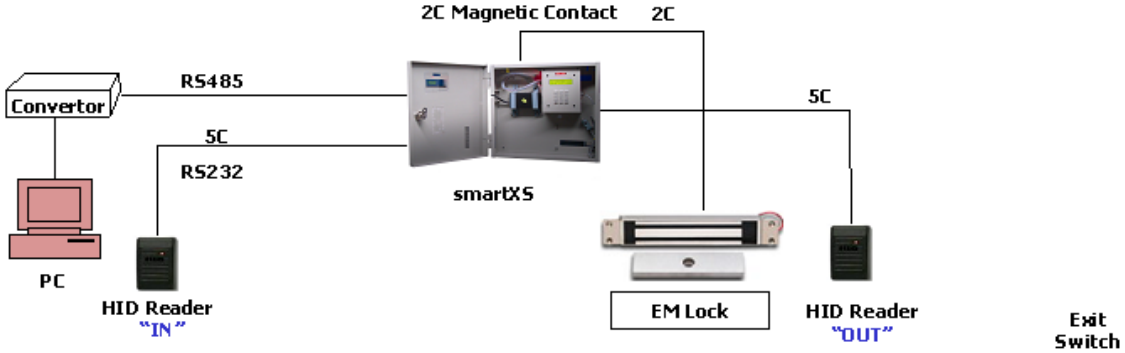
•2C-→2 core shielded
•5C-→5 core shielded

'smartXS' connected to 2 EM Locks (2 Doors) with 2 readers connected as IN & Egress Switch as 'OUT'

Diagram 2> SmartXS Wire Connection Diagram PCB version 1.3

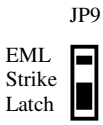
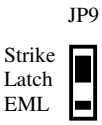
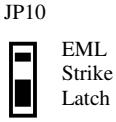
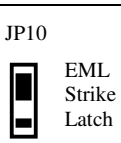
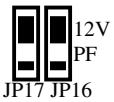
2 readers as IN & OUT with one locks for one doors





'smartXS' connected to One Lock (1 Door) with 2 readers connected as In & OUT

3.2 Jumper Settings:

232/485 selection		**PC Interface 485 Selection**	**Default**
		**PC Interface 232 Selection**	
EML/ Strike Latch selection for 1st Lock		**Strike Latch Selection**	
		**EML Selection**	**Default**
EML/ Strike Latch selection for 2nd Lock		**Strike Latch Selection**	
		**EML Selection**	**Default**
12V / Potential Free o/p selection for Lock 1		**12V output Selection**	**Default**
		**Potential Free output Selection**	
12V / Potential Free o/p selection for Lock 2		**12V output Selection**	**Default**
		**Potential Free output Selection**	

3.3 Power connection

Connect Red Wire (+ve) to **12+** and Black wire (Digital Ground) to **G** of the Power Adapter to connect SmartXS to a DC supply (Power Adapter Supplied with the unit rated at 12V, 1A). While using as an access controller, dual (10V-12V) power supply should be used. Connect the other pair of wires to **12L** and **GL** of dual power supply. The power cable should be as short as possible to minimize wire resistance and emissions. (Refer the Cable Specs)

For optimum ESD resistance and safety, please make proper connection of 'Earth GND'.

Cable Specs Recommended (14/36, 22 AWG): -

	Distance	Cable Specs
1. RS485 - Single unit to PC	1200m	14/36, 22AWG; 2 core shielded cable
2.RS232	15 m	14/36, 22AWG; 3 core shielded cable
3.Unit to Weigand Reader	80m	14/36, 22AWG; 6 Core Shielded Cable
4. Egress/Exit	10 ft. max	7/38, 26AWG; 2 Core Cable
5. Magnetic Contacts	10ft. max	7/38, 26AWG; 2 Core Cable
6. Unit to Magnetic Lock	10 ft. max	14/36, 22AWG; 2 Core Cable
7.Unit to Power supply	10 ft max	14/36
8. TCP/IP	100 m	CAT5 or CAT6 UTP

3.4 Connecting Wiegand compatible readers.

The SmartXS supports Wiegand compatible readers of various formats, viz 26/32/34/35 (HID corporate 1000 format)-bits.

Connect the external Weigand reader to **READER2** connector on the controller**. READER1 connector on the controller** is used for connecting the IN or 2nd Weigand reader.

Refer the color code of the Reader to connect the external weigand reader on the controller.

3.5 Connecting Electro Magnetic Lock/Strike Lock to SmartXS.

The SmartXS can be connected to Electro Magnetic Lock through DOOR1 connector pins. Connect 2 core-shielded cables on L+ and L- to Lock's 12V and GND respectively. (Refer connection Diagram) for connecting EML. The Strike Lock can also be connected to SmartXS by changing the jumper setting at JP9 and JP10 Refer Jumper Setting table. On page no. table no.

3.6 Connecting to the Host computer

The SmartXS provides various means to connect to the host computer such as:

1. Being a part of the RS-485 network,
2. Direct connection with RS-232 interface

3.6.1 Connecting via RS-232 interface

Connect 'RX', 'TX' and 'GND' wires **(LABELED CN1 232)** on the controller to 'TX', 'RX' and signal ground of PC's serial port through DB9 connector. PIN NO 2,3,5 respectively

3.6.2 Connecting via RS-485 interface 2 wires

SmartXS network system For RS485 network, a two core shielded cable is needed. For every devices, Connect 'D+' & D- to D+ & D- of the second device with which it is to be looped in a network of RS485. At each end of the network, i.e from the last device the two wires from D+ and D- will be connected to TX+ & TX- of the RS232/RS485 Converter. The RS232 cable of converter is connected to the serial port of the PC where the data is to be downloaded.

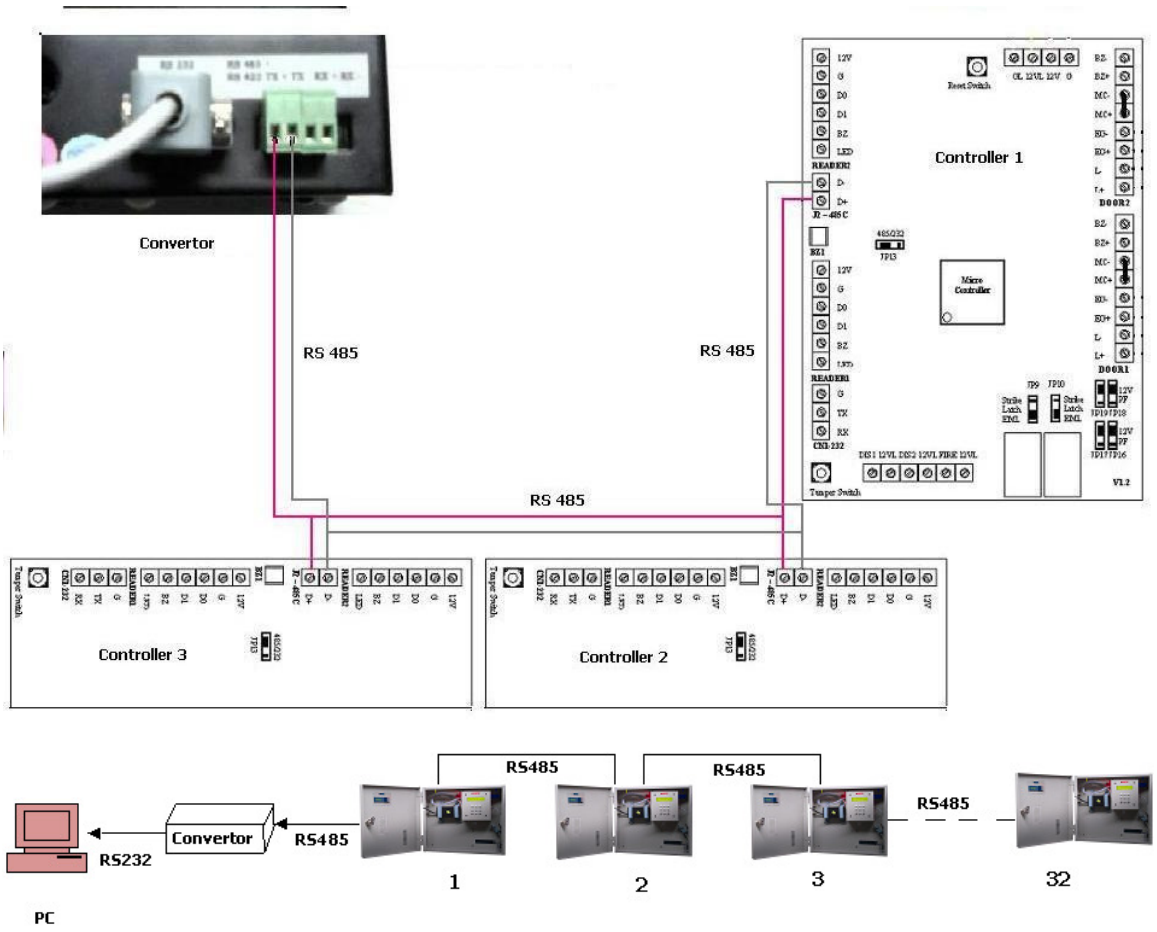


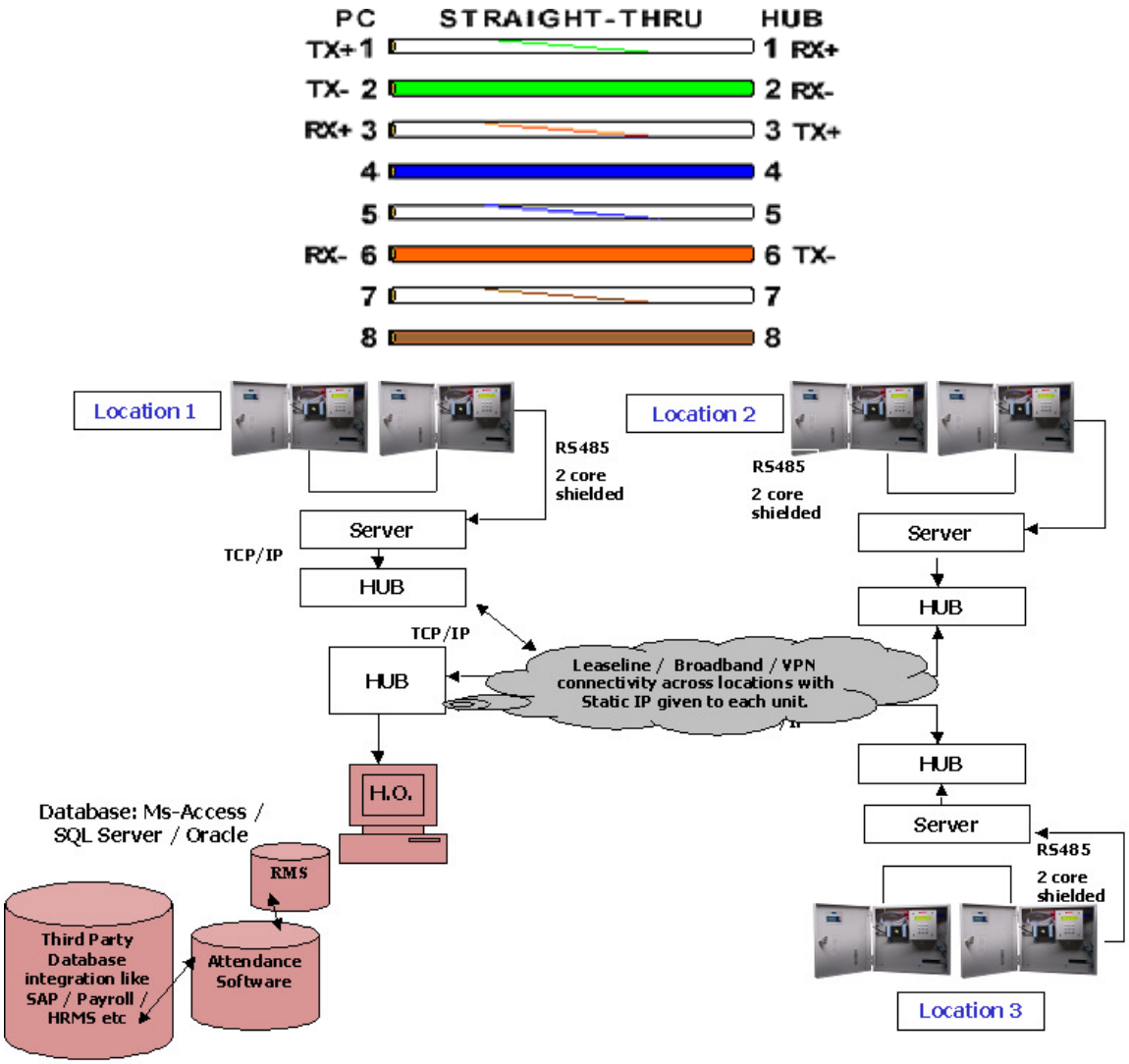
Figure 2> SmartXS RS485 Network

3.6.3 Connecting via TCP/IP Using smartSERVER (RS485 to TCP/IP Converter.)

The SmartXS series (SM212) can be connected on the LOCAL AREA NETWORK (LAN) using smartSERVER as under:

NOTE : Max numbers of controllers on smartSERVER that can be connected are 10 numbers.

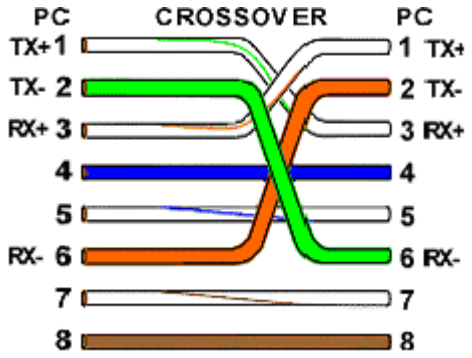
Straight network cable to connect from a hub or switch to the Biometric network port.



'smartSINGLE' looped in RS485 and connected to smartSERVER with TCP/IP o/p.
This will connect to PC at H.O. via Intranet Infrastructure.

Connecting Directly to a PC Using Crossover Network Cable

Step 1 Use the crossover network cable, with one end connected to the smartSERVER's TCP/IP port, and the other end to your PC network adapter.



Step 2 To check your PC's IP Address Settings, find out the IP address of the network. To do so, go to a PC in the network presently, press Start -> Run -> Type "command" and click on 'OK'.

Step 3 Type "ipconfig" and press 'Enter'.

Step 4 Note the IP Address displayed, following is an example.

```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\User-09>ipconfig

Windows IP Configuration


Ethernet adapter Local Area Connection:

        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . . : 192.168.0.26
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 192.168.0.11

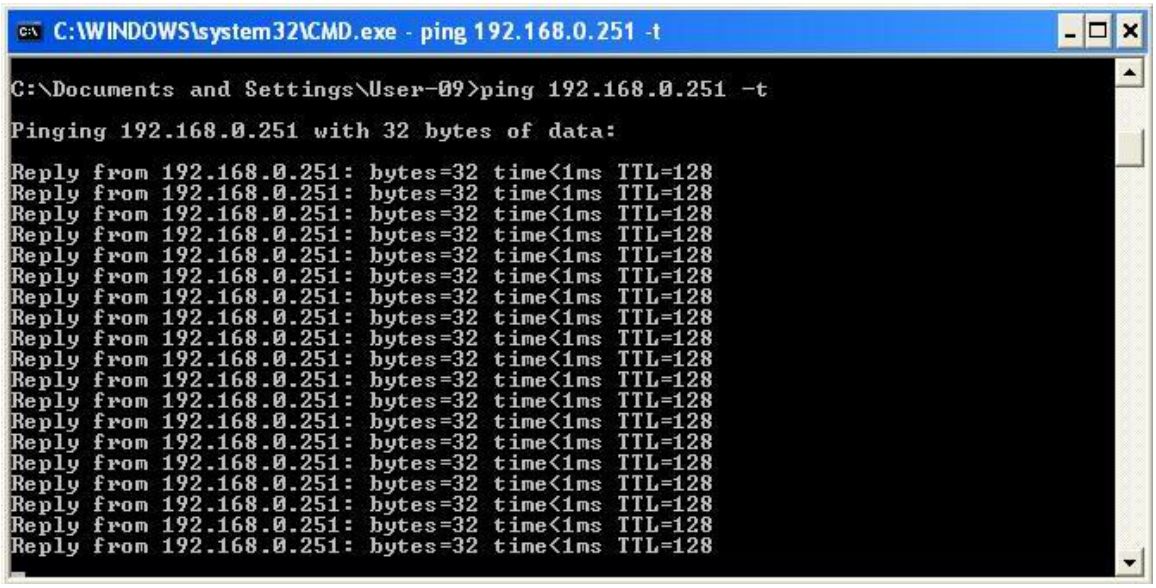
C:\Documents and Settings\User-09>
```

Step 5 To Check the IP Address of biometric press *2 enter user id (11111) then # Enter Password (12345) Key – # which will display the Current IP Address to Biometric, make a note of it. (Default IP of the controller is 192.168.000.200)

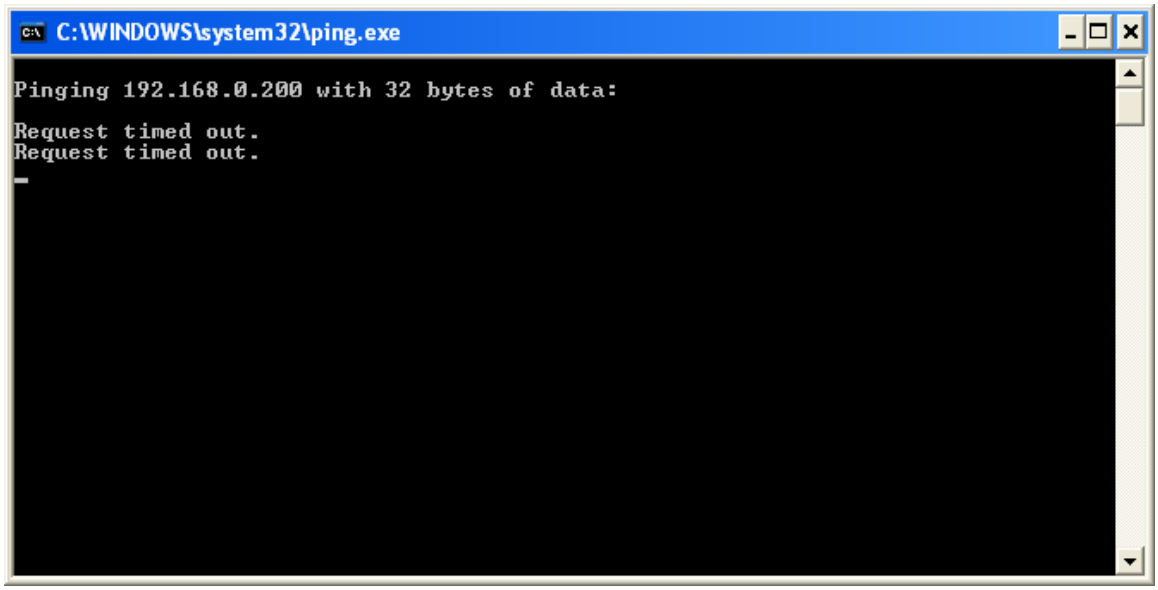
Step 6 To change the IP Address in Biometric unit. Refer Configuration of SmartXS (port is default 01234 no need to change)

Testing the Connection
Once the configuration is complete, it is recommended that the connection be tested.
To test the connection following is the under mentioned steps
Step 1 At the PC, Click Start -> Run -> Type "command" and press 'OK'.

Step 2 Type "Ping 192.168.0.251 -t" (The IP Address should reflect that of your SmartXS unit)
Note: - If unsuccessful, either "Destination Host Unreachable" or "Request Timed Out" will be displayed, please follow the above steps carefully and test the connection

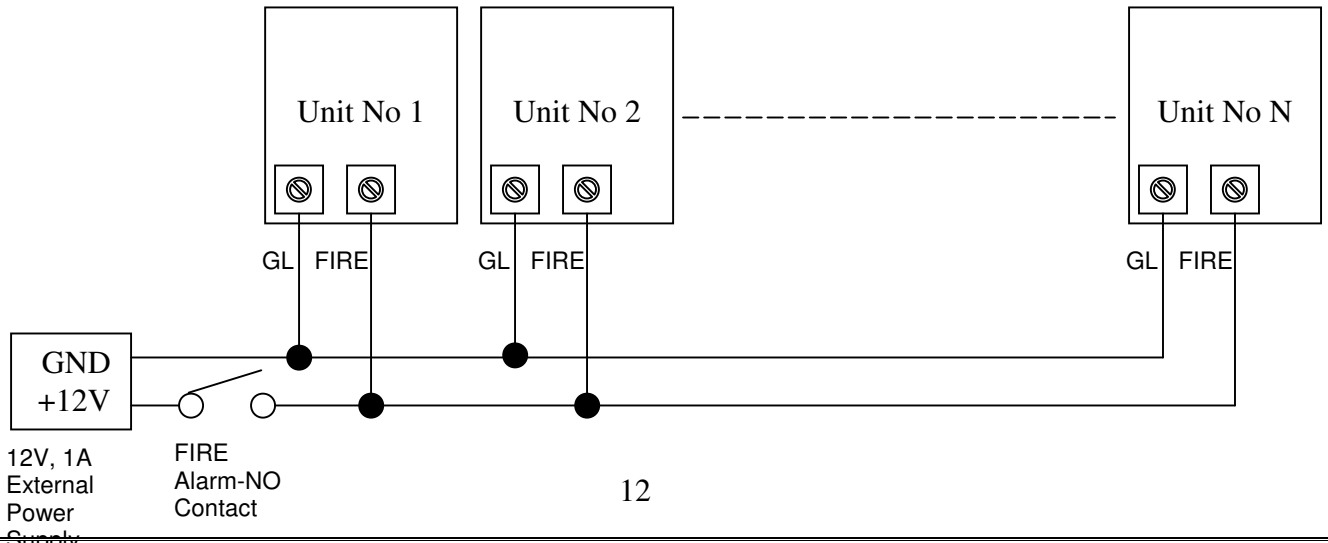


Successful Connectivity



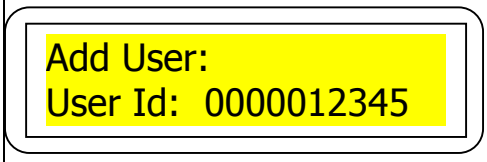
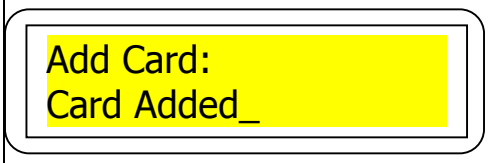
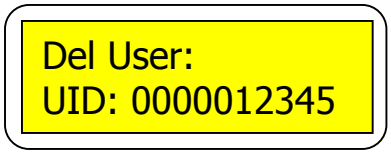
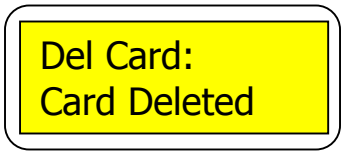
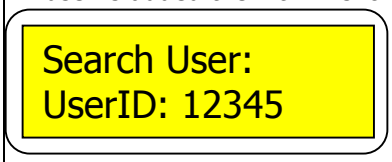
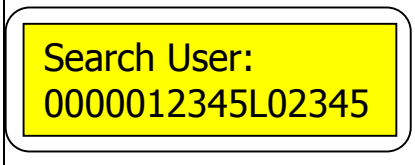
Unsuccessful connectivity

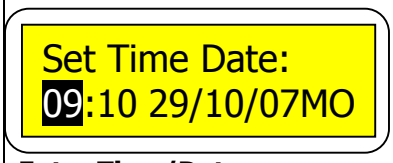
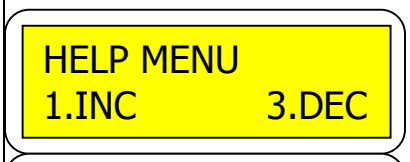
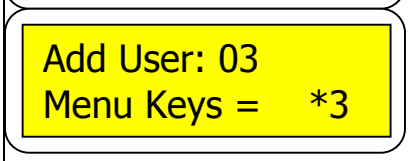
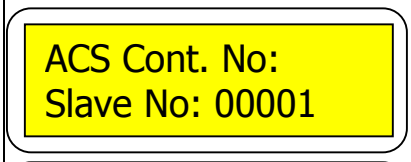
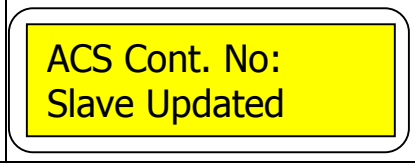
3.7 Fire Input Connection Details:

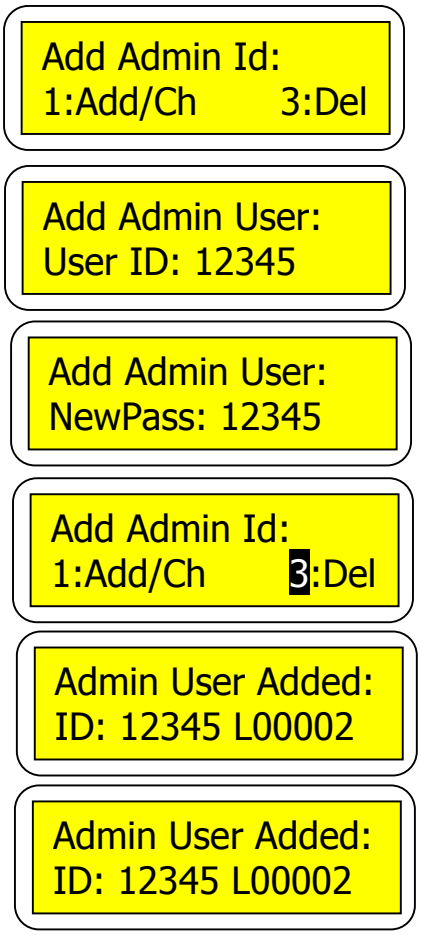
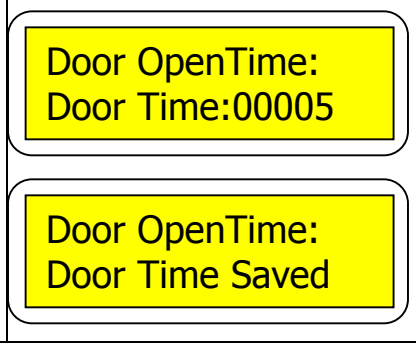


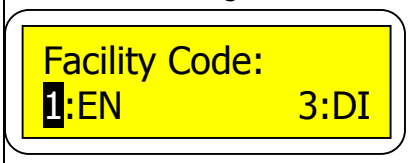
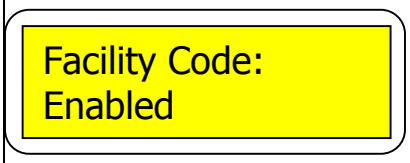
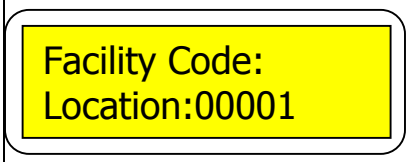
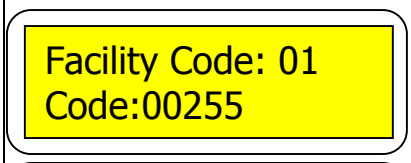
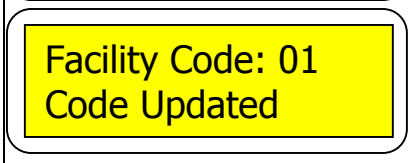
4 Configuring smartXS.

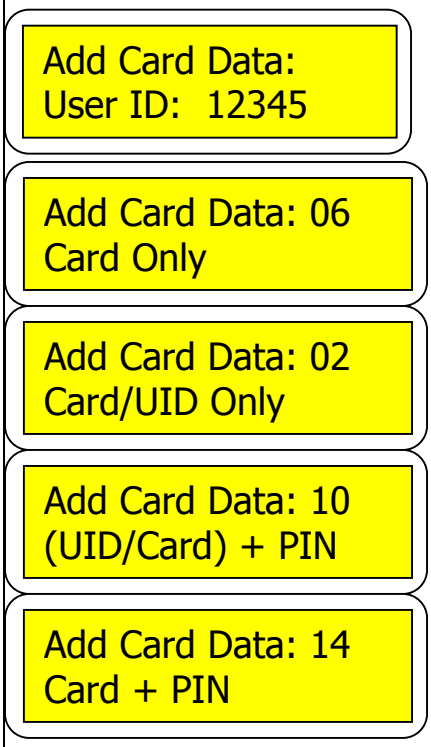
Sr. No.	Function	How to go?	Note & LCD Display
1.	**Normal mode**	**Key – *0** Welcome 17:23 27/10/07SA In this mode card is shown and finger is verified.	
2.	**Change PIN**	**Key - *1** **Enter card No. & press #** **Enter Old PIN & press #** **Enter New PIN & press #** If user added using *3 or *98 menu then last 4 digit number will be the Pin number for that user. Change Pin: User ID: 00000	
3.	**Admin Mode**	**Key – *2** **Enter User** Admin User: User Id: 11111 **Enter Password** Admin User: Password: 12345 Admin User: Admin Login OK To come out from Admin mode press **Key – *2** Enter to Log out (Auto logoff after 60sec)	**Then Press Key - #** **Then press Key – #** **Then press Key #**

4.	**Add User**	**Key – *3** **Show card/ Enter UID** **Key – #** **Place figure** After showing card to unit. Will appear directly granted.  
5.	**Delete User**	**Key – *4** **Show card**  **Key – #** After entering UID or showing card, Press #. Then that user gets deleted. 
6.	**Search User**	**Key – *5** **Show card** **Key – #** If user is added then it will show card no.  

7.	**Set Time & Date**	**Key – *6**  **Enter Time/Date** **Key – #** Enter correct Date & Time. 1 = Sunday,.. and 7 = Saturday
8.	**Help Menu**	**Key – *8** **Press – 1 for INC** **Press – 3 for DEC** **Press – # to enter** We can directly go in to any menu by pressing "#" key.  
9.	**Initialize system**	**Key – *90** **Press – 1 for Yes or** **Press – 3 for No** **Key – #** This will delete all cards & transactions stored in memory.
10.	**Controller ID**	**Key – *91** **Enter Controller ID** **Key – #** By default it is set to 1. We can assign controller ID from 1 to 64.  

11.	**Add / Change or Delete Admin Users**	**Key – *92** **Press – 1 for Add/Ch** **Press – 3 for Del** **Key – #** **Enter user id then #** **Enter password** **Key – #** We can add max 8 admin users including default user. 
12.	**Door open time**	**Key – *95** **Enter door open time** **Key – #** Door open time can be set → 1 to 99 secs. And DOTL sense time is equal to Door open time + 1 sec. 

13.	**Facility code**	**Key – *96** **Press – 1 for Enable** **Press – 3 for Disable** **Press – # #** **Enter Facility code location (0-7)** **Show card** **Key – #** After pressing 1, Enter facility code location & show card. Then facility code will come automatically for that card. Max 8 facility codes can be assigned.     

14.	**Add Card Data**	**Key - *98** **Assign access type to the card. Press Key-** **0 = Card Only** **2 = Card/UID Only** **4 = (UID/Card) + PIN** **6 = Card + PIN** **Key – #** It is required to Enable PIN for readers (using *997) otherwise 'UID/(Card+PIN)' type will work as 'Card/UID only' & 'Card+PIN' type will work as 'Card only' Also it is required to enable Keypad from Software to enable UID from keypad. **Users can be added by *98 menu also.** 
15.	**Weigand Bit**	**NA**

16.	**Reader Type**	**Key – *991** **Press Key – 0 to 6** **Key – #** **Controller type can be set by pressing-** **0** = Weigand access **1** = Weigand access 2 RD **2** = Weigand attendance **3** = Weigand attendance 2 RD **4** = Weigand attendance no check **5** = Weigand attendance no check for 2 RD **6** = Deny List Reader Type Wei Access Reader Type Wei Access 2 DR Reader Type Wei Att Reader Type Wei Att 2 DR Reader Type: Wei Att . NoChk Reader Type: Wei Att . NoChk 2D Reader Type: Deny List

17.	**Baud rate**	**Key – *992** **Key – #** Baud rates is, **9600b/s (Default)** Baud Rate: Baud Rate: 9600
18.	**Reader In-Out**	**Key – *993** **Press Key** **0 for Normal** **1 for IN** **2 for OUT** **Key – #** **Standalone Reader type can be set as,** You can toggle in between In & Out Entry by pressing 0 key. Reader In/Out: Reader Normal Reader In/Out: Reader In Reader In/Out: Reader Out
19.	**Set 5/10 Digit card no format**	**Key – *995** **Press – 5 for 5-Digit** **Key – #** 5 Digit Card **Press – Any Num Key except 5 for 10-Digit** **Key – #** 10 Digit Card

20.	**Enable PinProx**	**Key – *997** **Press Key** **Enter Key- 0, 1 or 3** **then Key – #** **Enable disable PinProx by using following** **0 = No PinProx** **1 = Reader 1 PinProx** **2 = Reader 2 PinProx** **3 = Reader 1 & 2 PinProx** Enable PinProx No PinProx Enable PinProx RDR 1 PinProx Enable PinProx RDR 2 PinProx Enable PinProx RDR 1 & 2 PinProx

5. Using smartXS.

The user enrollment process is performed in one of the SmartXS Unit OR through the administrator's computer, and the card data is distributed to other controllers over the SmartXS Network.

LED STATUS	BUZZER STATUS	DESCRIPTION
LED FLASHES RED	SHORT BEEP	USER NOT FOUND
LED FLASHSES GREEN	LONG BEEP	ACCESS GRANTED

If the LED lights up in green, the authentication is successful.



Trouble Shooting

 # 1. No Communication from smartXS Controller to PC

There are a few points that can be checked to fix it:

1) Make sure the network cable is functional; sometimes a damaged cable may be the cause of all problems. To check if it is functional, make sure there are no loose ends and the jack is properly attached to the cable.
2) Check that the IP Address Assignment matches the network settings of the corporate LAN or the PC being used.
3) Make sure no IP has clashed and that there are no two identical IP addresses in the network.

 # 2. LCD screen of the smartXS completely blank

i. Check whether the power supply is working or not
ii. The output vtg generated by the power supply is 12V DC Check this vtg using multimeter if possible.
iii. Check **12V-G-12L-GL**-power connector properly inserted into a socket.

 # 3. Is it possible to connect two locks or two readers on single connector?

Do not connect 2 locks or 2 readers together on a single connector. A single lock connector can safely drive 600mA current.
If load current increases beyond 1A, that may cause hardware problems.

 # 4. LCD backlight is on but characters are not display or light display

Check the output vtg by the power supply is 12V-GND connector.
Biometric is provided with blue color pot, which is easily accessible from backside window of the unit.
Rotate the pot slowly using small flat screw driver in clockwise/anticlockwise direction and keep on checking the intensity of the LCD backlight, you can keep the intensity according to your requirement.

 # 5. When the card is flashed in display its show "user not found"

To Enter into Admin Mode Refer **Configuring SmartXS Serial No.2**
Check for controller Key – *5
Show card
Key – #
If user is added then it will show card no enrolled.

 # 6. Continues Beep & Door Force Open

Check for lock magnetic contact (MC+/ MC-), it should be short if not in used.(Refer connection Diagram)

 # 7. Admin User: User/Password Fail

If the System/Unit is **initialize** then password will not match. In this case RESET the System i.e power off and then power on the system then enter Admin Id and password.

Annexure: 1
***90 Selective Initialization of System**

00 Delete all data	Every Info is deleted and set to default value
01 Delete Transaction	All transaction are deleted
02 Delete All Users	All users i.e. card buffer are deleted
03 Set All Default	Deletes all info and set it to default value, except cards buffer and transactions
04 Delete Sys. Info	Deletes current system parameter and set all with default system parameter
05 Delete Time Zone	Deletes all time zones and set default time zone
06 Delete Holiday	Deletes all holidays
07 Delete Facility Code	Facility codes are deleted and all are set to default Facility code
08 Delete Door info	Deletes door information and set to default Door information
09 Delete Admin IDs	Admin Id is deleted and set to default ID
10 Reset System	Resets the system
11 Delete Cards Only	Only card buffer is deleted

Annexure: 2

***991 System parameter**

Terminal ID	1-32 controller ID
IP Address	
Net Mask	
Gateway	
Server IP	
Port Number	
Global Message	0- Disable 1- Enable
Banner Message	0- Disable 1- Enable
Cont InOut	0- No inout selection 1- Reader in In mode (Toggle by 0 key) 2- Reader in out mode (Toggle by 0 key) 3- Reader in Mode and will go for out mode when zero key is pressed and will remain in out mode for 5 sec
IdentifyMode	NA
Controller Type	0 = Bio Access 1 = Bio Access 2 DR 2 = Bio Att. 3 = Bio Att. 2 DR 4 = Bio Att.NoChk 5 = Bio.Att.NoChk2DR
User Name Loc.	
Memory Mgmt	
Last Card Time	
Inout TimeZoneX	
IN Out For TZX	
InOut Toggle	
DummyMode	NA
Check Pin	
Freetimeenable	
Freetimedoor1	
Freetimedoor2	
Exshardotl	
APBENABLE	
FaclityCode_Chk	
Pineable_Door1	
Pineable_Door2	
Exdotl_dly1	
Exdotl_dly2	
Exdop_tim2	
Pc_door1_open	
Pc_door2_open	
Extdotl1_En	
Extdotl2_En	
Exdop_Tim1	
Exdop_Tim2	

Dummy Mode	
UDP IP Address	
UDP Port No.	
Push SRV IP 1	
Push SRV IP 2	
Input Enadis	
DummyMode	
User name location	0- No name display 1- Name displayed from Unit 2- Name displayed from Smart card
Memory Management	00- Do not display any memory data and allow memory to overwrite >100-(Less than 100 & not equal 0) Display memory data in % and Allow memory over write after 100% >=100-(greater than or equal) Do not allow memory over write and display memory data in %
Last card time	0 – Disable i.e. do not check same card Or Display Time set in seconds
Input EnaDis	0 Disable 1 Enable