ZKTeco

INSTALLATION GUIDE

InBio Pro Series Access Control Panels

Date: Dec., 2015
Version: 1.1

Green
Label

What's in the Box

CONTENT

ZKBioSecurity Software

2 Screws & Anchors   2 Screwdriver   4 Diode

Optional accessories

Safety Precautions

The following precautions are to keep user's safe and prevent any damage. Please read carefully before installation.

Wiegand Card Reader

Prox Card

Do not install the device in a place subject to direct sun light, humidity, dust or soot.

Do not place a magnet near the product. Magnetic objects such as magnet, CRT, TV, monitor or speaker may damage the device.

RS485 Convertor

K2 Exit Button

Do not place the device next to heating equipment.

Be careful not to let liquid like water, drinks or chemicals leak inside the device.

Do not let children touch the device without supervision.

ZK4500 Enrollment reader

CR20E Card Enroller

Do not drop or damage the device.

Do not disassemble, repair or alter the device.

Do not use the device for any other purpose than specified.

Clean the device often to remove dust on it. In cleaning, do not splash water on the device but wipe it out with smooth cloth or towel.

RS485 Fingerprint Reader

InBio Pro Cabinet

Contact your supplier in case of a problem.

Product PIN Diagram

4 Aux Inputs

RS485 Fingerprint Reader

State Indicator

#1 Door Exit Button

#1 Door Card Reader

#2 Door Exit Button

#2 Door Card Reader

#3 Door Exit Button

#3 Door Card Reader

#4 Door Exit Button

#4 Door Card Reader

SD Card Slot

LINK LED

Ethernet Port

ACT LED

DIP Switches

RS485 Communication

4 Aux Output

4 Lock & Door Sensor

Lock Power

InBio Pro Power
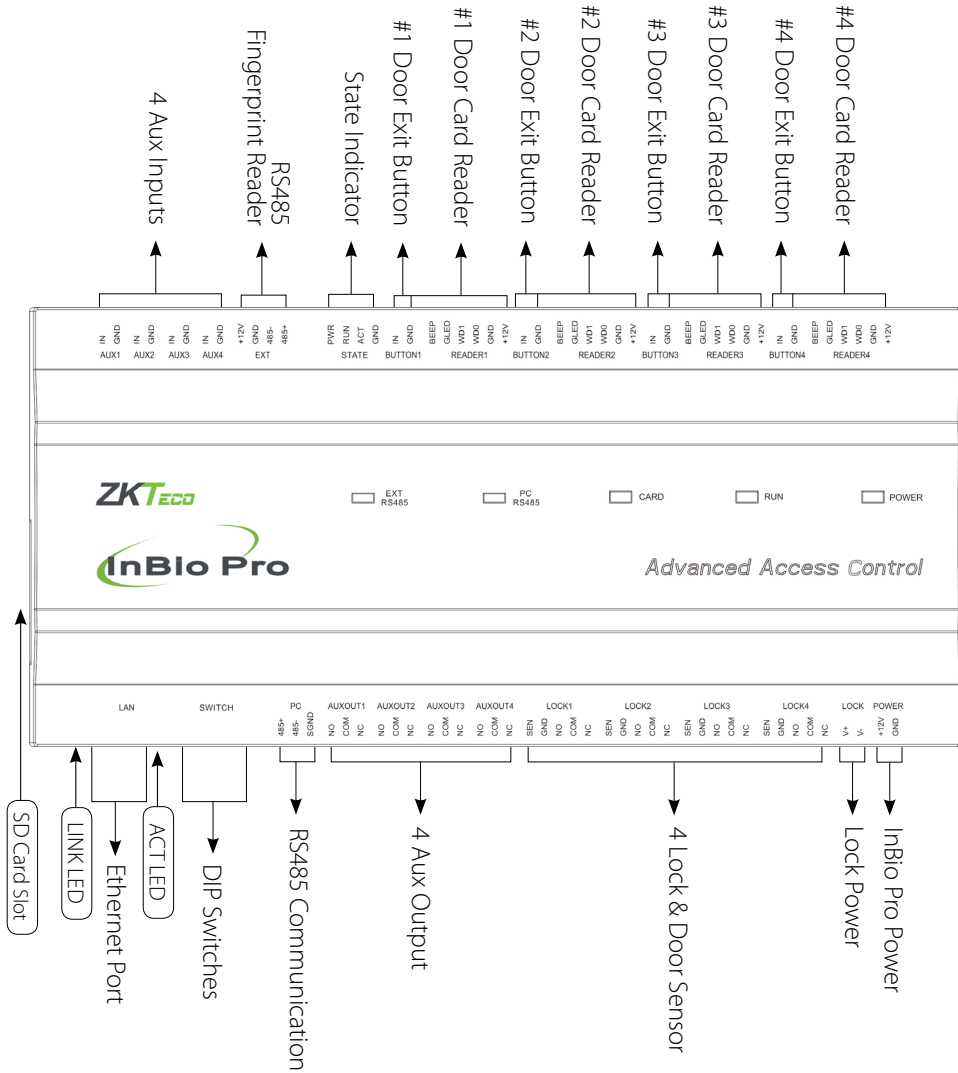
Figure 1
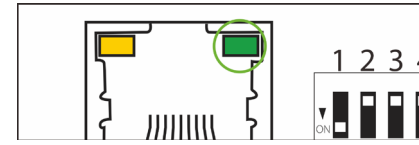
LED Indicators

Figure 2

■■ **LINK Solid Green LED** indicates TCP/IP communication is normal.
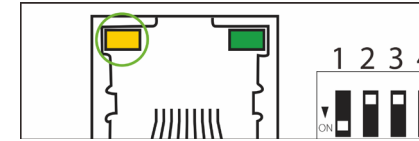
Figure 3

■■ **Flashing (ACT)Yellow LED** indicates data communication is in progress.

Figure 4

■■ ■■ **EXT RS485 (TX/RX) Flashing Yellow & Green LED** indicates communication is in progress.
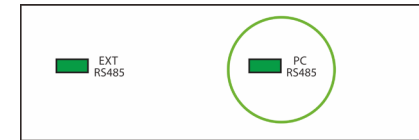
Figure 5

■■ ■■ **PC RS485 (TX/RX) Flashing Yellow & Green LED** indicates communication is in progress.

Figure 6

■■ **Flashing (POWER) Red LED** indicates the panel is powered on.

Figure 7

■■ **Flashing (RUN) Green LED** indicates that panel is in normal working state.
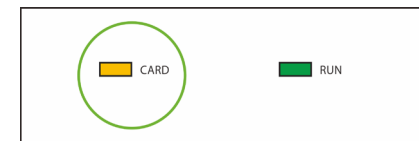
Figure 8

■■ **Flashing (CARD) Yellow LED** indicates that the card is read by the panel.

Product Dimension

Installation of Panel & Cabinet

InBio160Pro   InBio260Pro   InBio460Pro

7.125 in (181 mm)

8.89 in (226 mm)

4.17 in (106 mm)   4.17 in (106 mm)   4.17 in (106 mm)   1.42 in (36 mm)
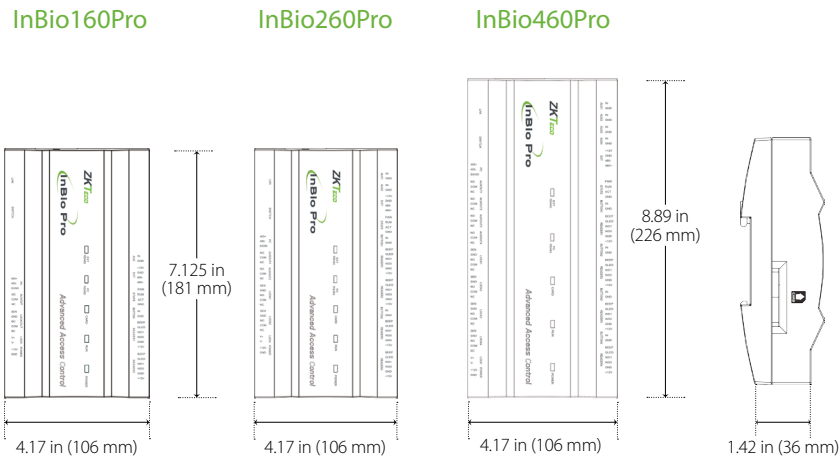
Figure 9

InBio Pro- Metal Cabinet

13 in (330 mm)

15.7 in (400 mm)

3.56 in (90.5 mm)

Figure 10

Cable Conduit
(Punch Hole for cables)

Temper Switch

InBio Pro Panel

Heat Dissipation Grill

Power Supply

Backup Battery
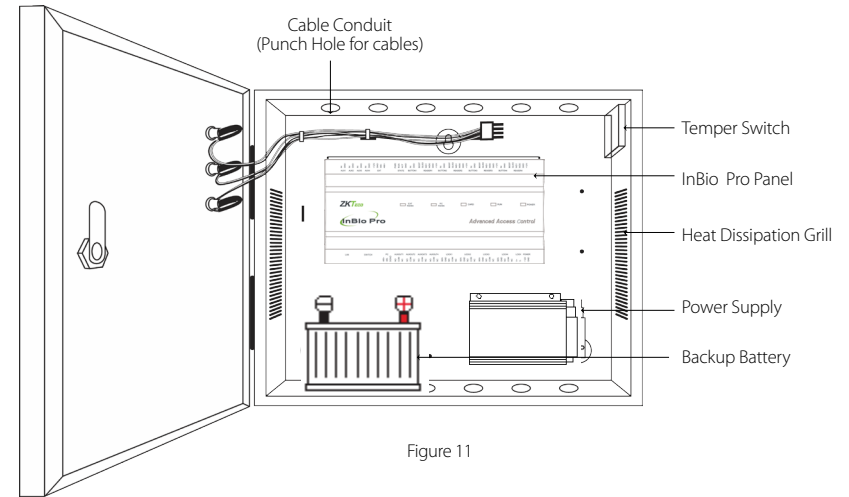
Figure 11

Step 1
Pass the cable through holes

Step 2
Mount the Metal Cabinet

Step 3
Insert the InBio Pro Panel as it shown

State Indicators   Mounting Holes   Inserting Panel to Rail

1

2

Mounting Rail
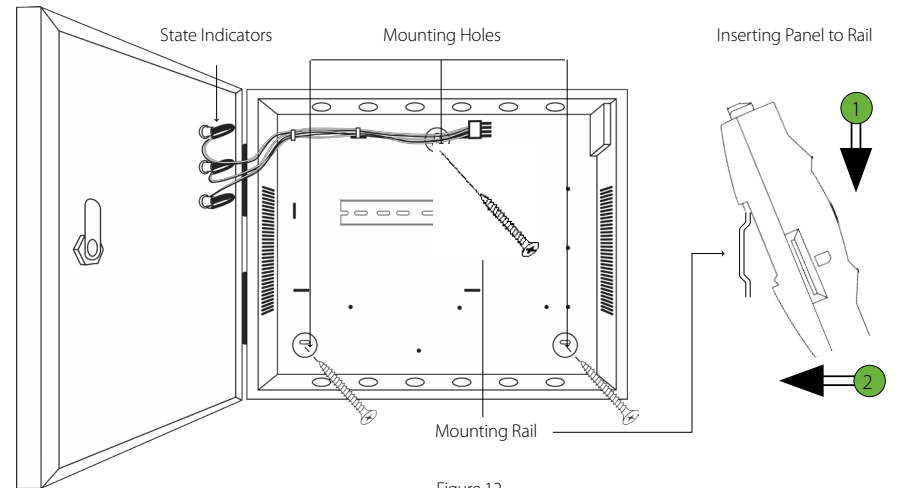
Figure 12

We recommend drilling the mounting plate screws into solid wood (i.e. stud/beam). If a stud/beam cannot be found, then use the supplied drywall plastic mollies (anchors).

Wiring Legend

Power Wiring Diagram

Detector
IR Sensor
Exit Button
Wiegand Card Reader
Exit Button
Wiegand Card Reader

ZKTeco
InBio Pro
Advanced Access Control

EXT RS485   PC RS485   CARD   RUN   POWER

AUX1 AUX2 AUX3 AUX4 EXT STATE BUTTON1 READER1 BUTTON2 READER2 BUTTON3 READER3 BUTTON4 READER4

LAN   SWITCH   PC   AUXOUT1 AUXOUT2 AUXOUT3 AUXOUT4 LOCK1 LOCK2 LOCK3 LOCK4 LOCK POWER

ALARM
485

Ethernet Cable
485 Convertor
Floodlight
Normally Open Lock
Normally Close Lock
12V DC Power Supply
12V DC Power

Figure 13

Without Backup Battery

V+ V- +12V GND

AC 24V AC
N L + − BT+ BT-

Ground

Switching Power Supply

Figure 14

With Backup Battery

V+ V- +12V GND

AC 24V AC
N L + − BT+ BT-

Ground

Switching Power Supply
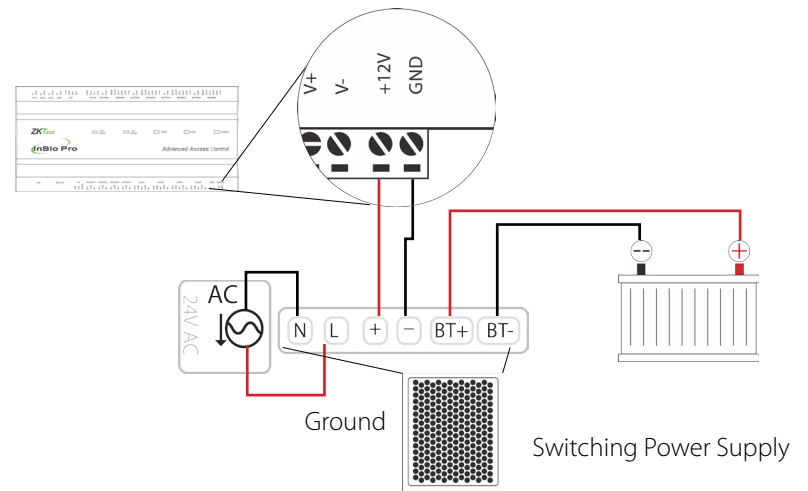
Figure 15

RS485 Fingerprint Reader Connection
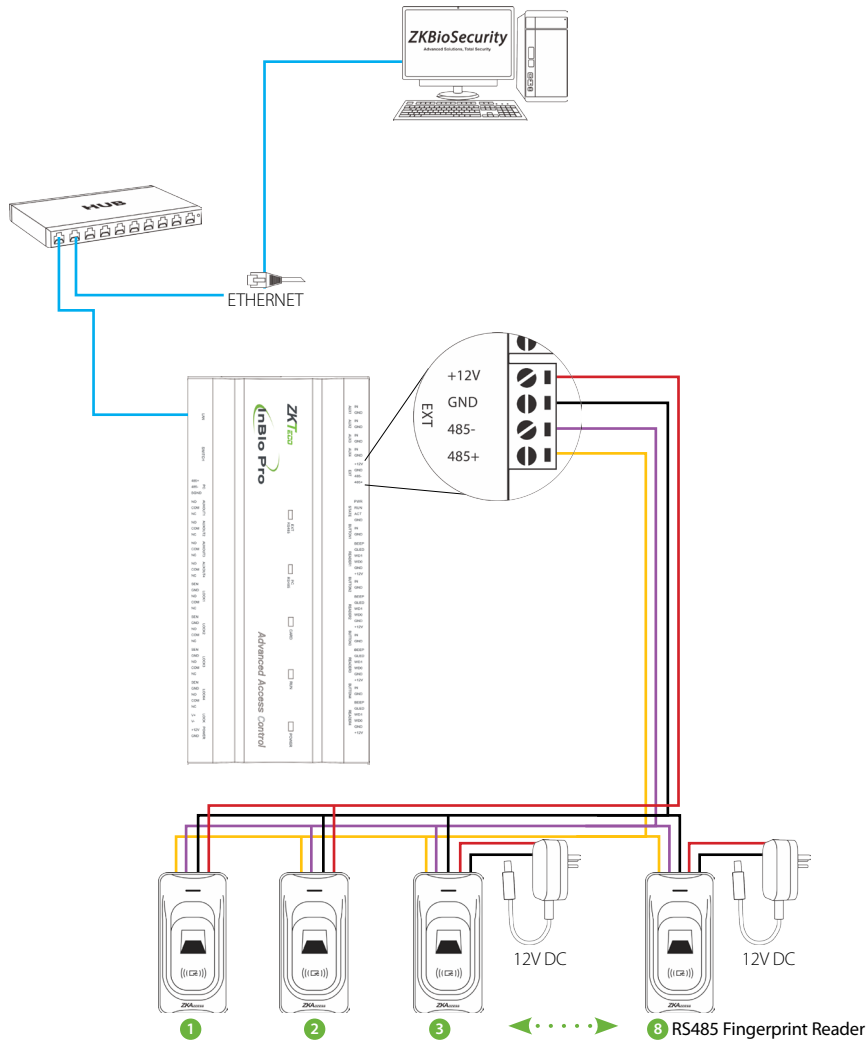
DIP Switch Setting for RS485 Reader

Figure 16

RS485 Terminal Resistance

8
4
2
1
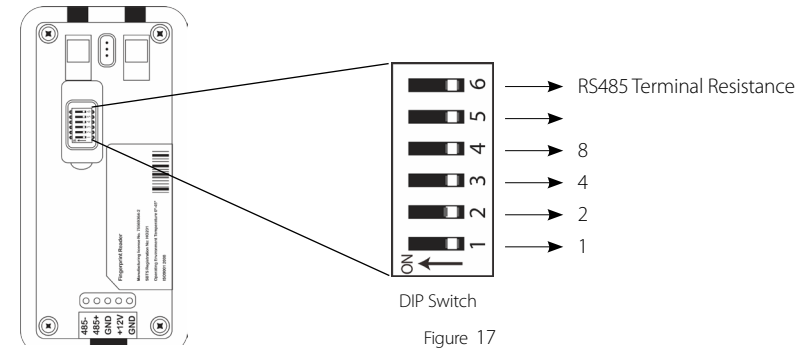
DIP Switch

Figure 17

Address	Switch Settings	Address	Switch Settings
1		5	
2		6	
3		7	
4		8	

Important Notes

1. There are six DIP switches on the back of RS485 fingerprint reader, Switches 1-4 is for RS485 address, switch 5 is reserved, switch 6 is for reducing noise on long RS485 cable.

2. Set the odd number for IN reader, and the even number for OUT reader (for eg. For two readers for one door- the RS485 address 1 is for IN reader, RS485 address 2 is for OUT reader)

3. If RS485 fingerprint reader is pow-

ered from InBio460Pro panel ,the length of wire should be less than 100 meters or 330 ft.

4. The External RS485 interface can supply maximum 500mA current, The RS485 fingerprint reader's startup current is 240mA. So InBio-460Pro only can power two RS485 fingerprint readers.

5. If the cable length is more than 200 meters or 600 ft , the number 6 switch should be ON as below:

Distance: More than 200 meters

Wiegand Connection

DC+(6-14V)
GND
Wiegand D0
Wiegand D1
Green LED
Beeper

Wiegand Card Reader

BEEP GLED WD1 WD0 GND +12V
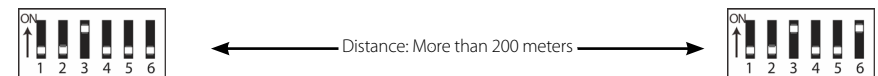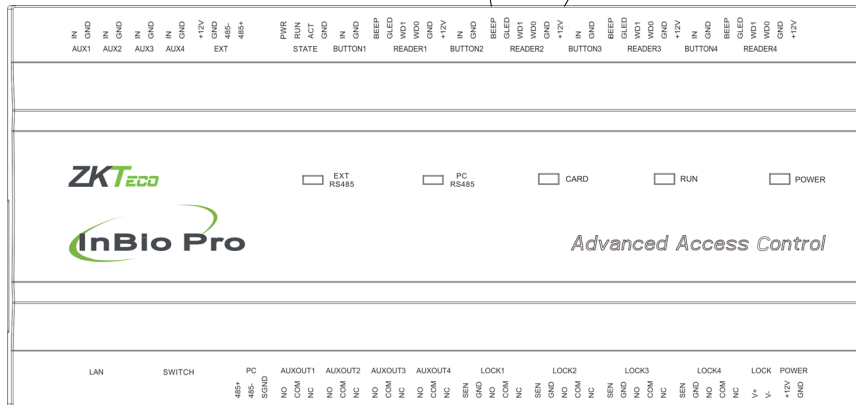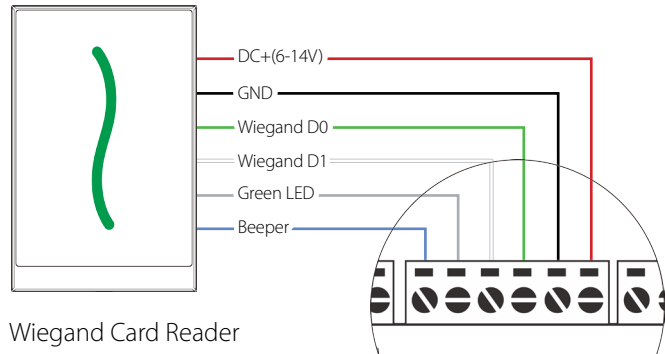
Figure 18

REX Connections

Separate Power Supply

12V DC(+)
12V DC(•)
Unused
COM
NO

No Touch

EXIT

K2 Exit Switch

BUTTON
GND

PUSH

ZK ABK Exit Button

GND IN GND BEEP

+12V IN GND BEEP
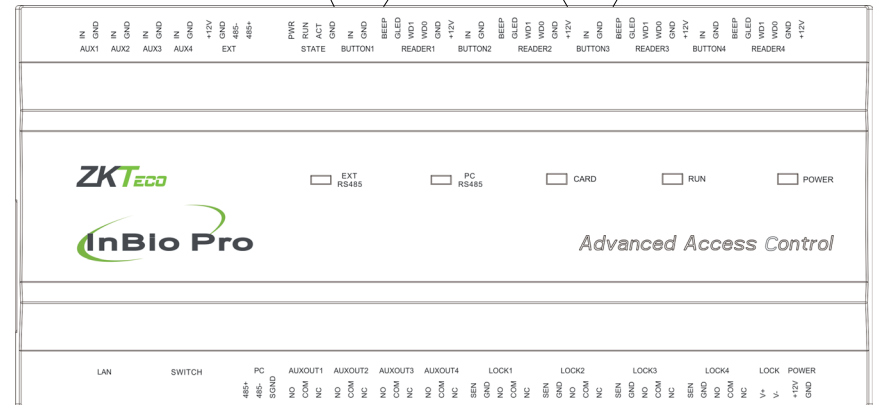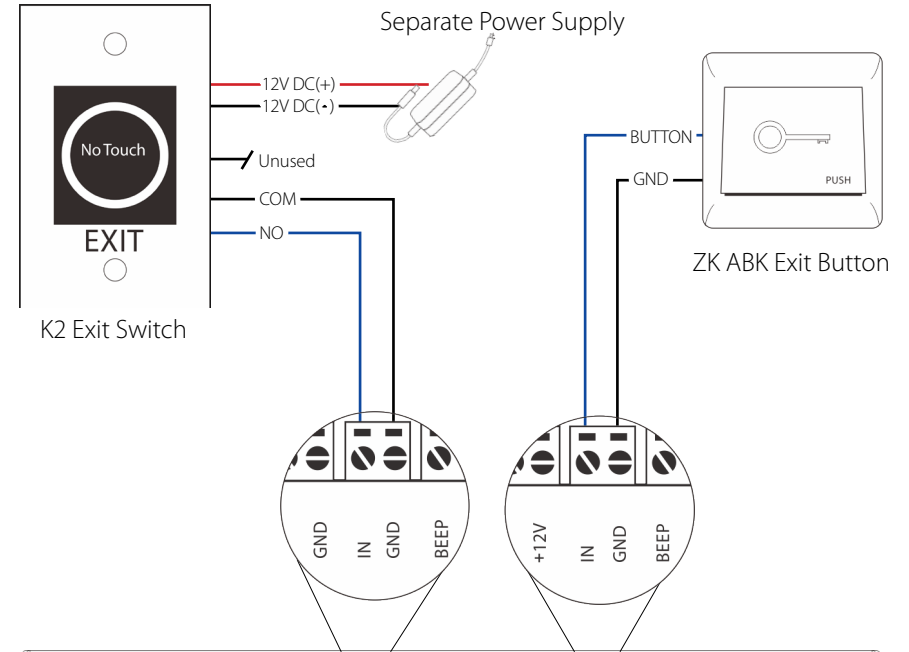
Figure 19

Lock Connection

Connecting a Lock with External to Power Supply (Dry Contact)

LOCK3

NC SEN GND NO COM NC SEN

ETHERNET

GND

Door Contact

Sensor
Sensor

GND

12V DC

FR107
Diode

ZKBioSecurity
Advanced Solutions, Total Security
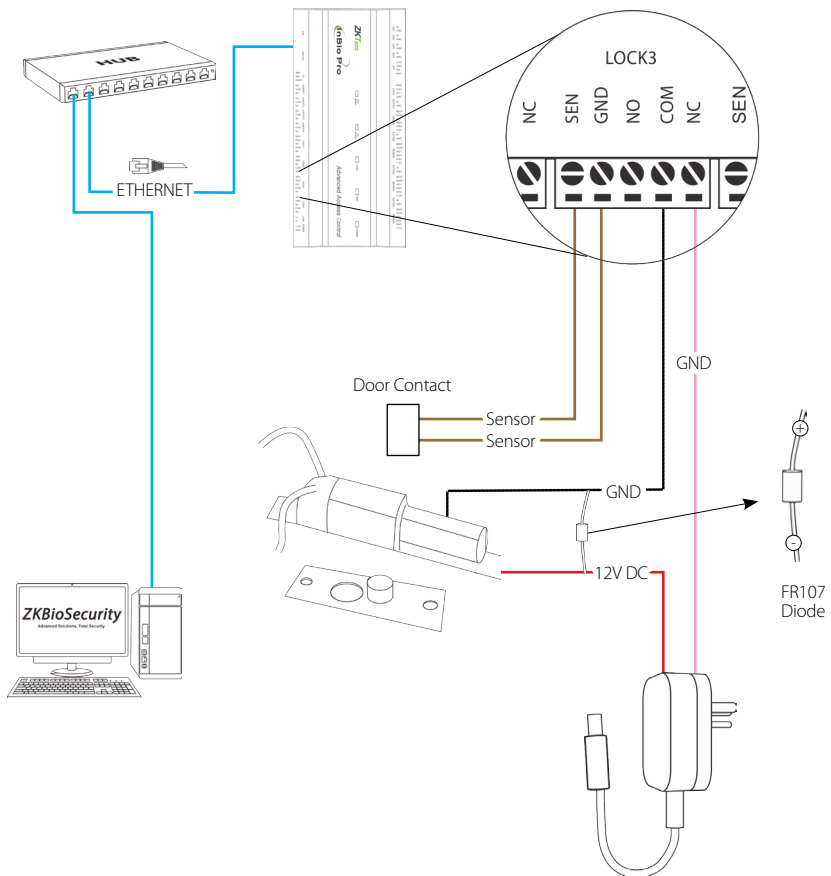
Figure 20

Switching Dry Contact to Wet Contact

Important Notes:

The factory default jumper setting is set as dry mode. If you want to power the lock from the panel, you must take the following steps:

1. Take apart the cover of InBio460Pro. Push the tab inward (see figure 21)

2. Select the appropriate lock relay and find its jumpers

3. Take off the jumpers and change [jumper] to [jumper]

4. Connect the lock as show in the diagram, (see figure 23 and 24)

Back of InBio460Pro

Select one Relay

Figure 21

5 4 3 2 1
Default setting
1, 2 - 3, 4

5 4 3 2 1
Take off jumpers

Jumpers

5 4 3 2 1
Plug Jumpers
2, 3 - 4, 5
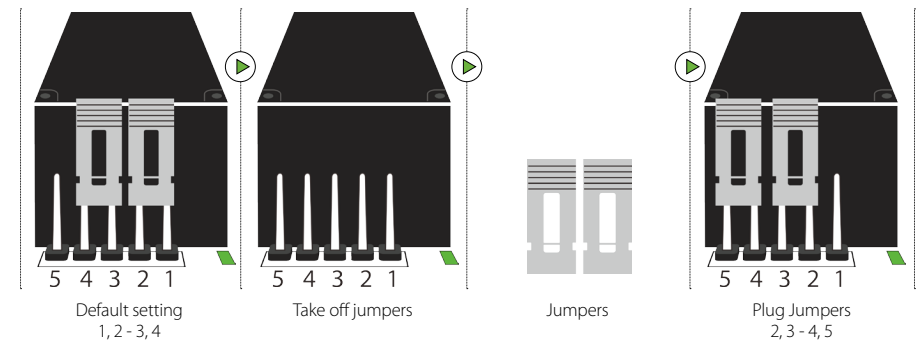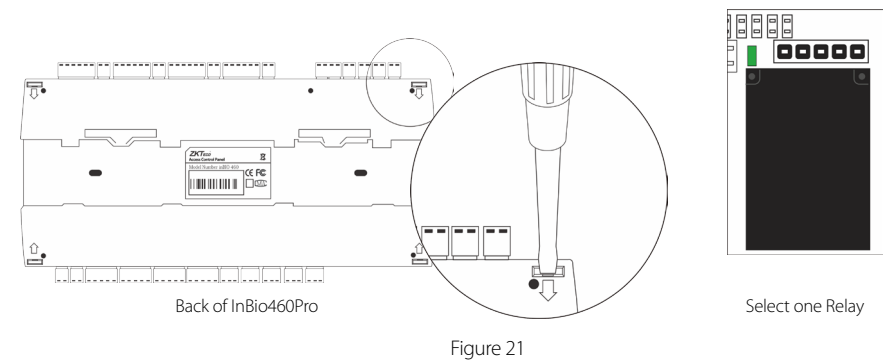
Figure 22

Lock Connection

Aux. I/O Connection

Normally Open Lock Powered From Lock Terminal (Wet Contact)

ETHERNET

LOCK1

SEN GND NO COM NC

12V DC

GND

FR107 Diode

NC V+ V- +12V

16 or 18 AWG shielded cable recommended

GND

12V DC

Figure 23
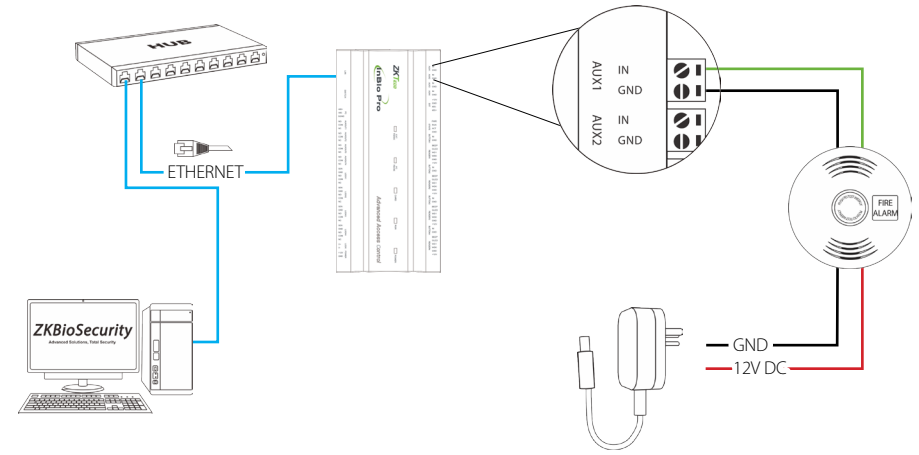
Normally Closed Lock Powered From Lock Terminal (Wet Contact)

ETHERNET

LOCK1

SEN GND NO COM NC

12V DC

GND

FR107 Diode

NC V+ V- +12V

GND

12V DC

Figure 24

Aux. Input Connection

ETHERNET

AUX1 IN GND

AUX2 IN GND

FIRE ALARM

GND

12V DC

Figure 25
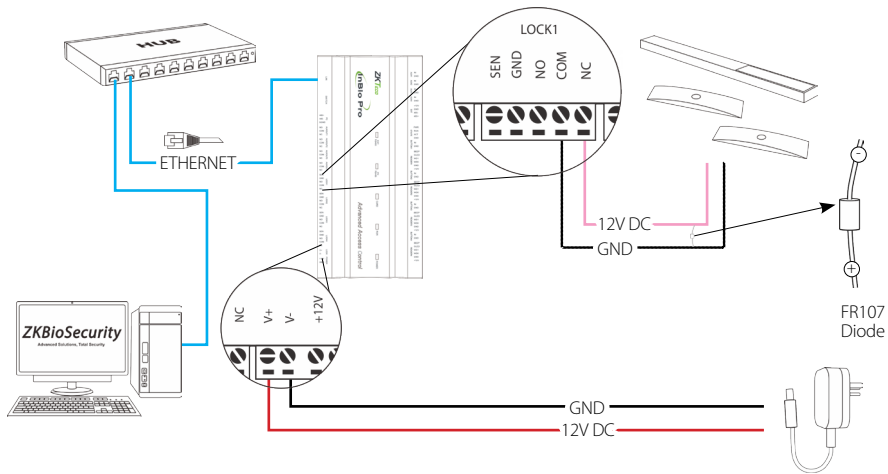
Aux. Output Connection

ETHERNET

AUXOUT3

COM NC NO COM NC NO

ALARM

GND

12V DC
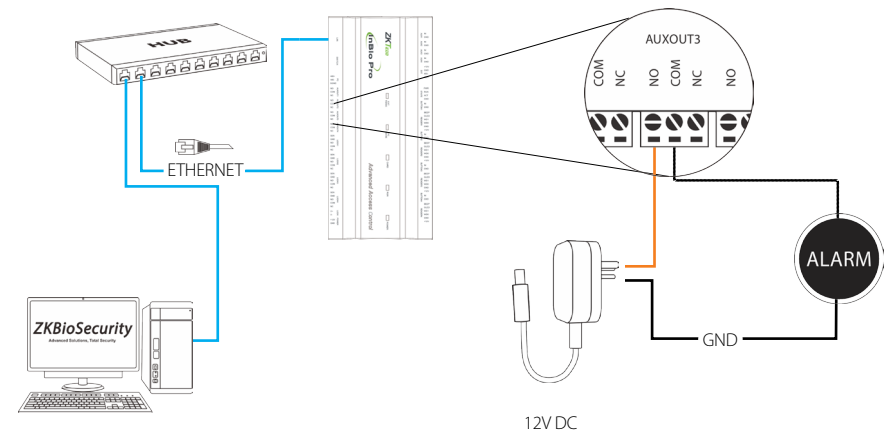
Figure 26

Ethernet Connection

LAN Connection

Important Notes:

1. Both 10Base-T and 100Base-T are supported

2. This cable distance must be less than 330 ft. (100m)

3. For cable length of more than 330 ft. (100m). use HUB to amplify the signal.

USB

USB

ETHERNET

CR20E Card Issuer   ZK4500 Enrollment reader

CAT5e or CAT6 ethernet cable recommended
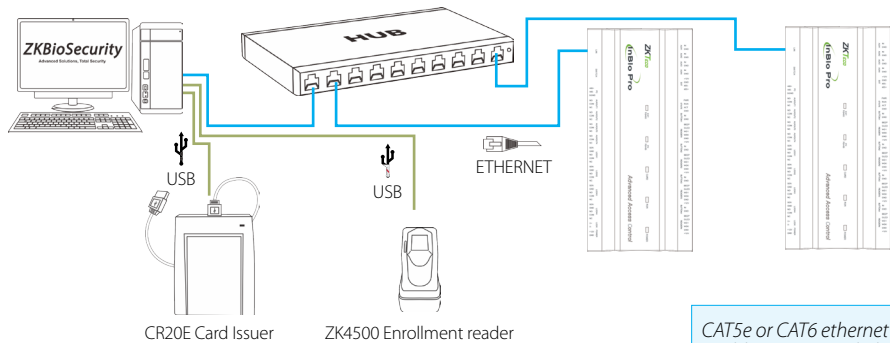
Figure 27

Direct connection

To connect InBio Pro Panel with a PC directly, connect both devices with a straight network cable. As the InBio Pro Panel supports auto MDI/MDIX, it is not necessary to use a crossover type cable.

ETHERNET

USB

USB

CR20E Card Issuer   ZK4500 Enrollment reader
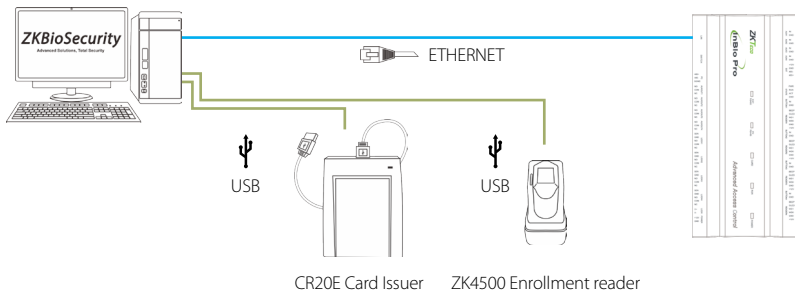
Figure 28

RS485 Connection

RS485 −
RS485 +
GND

#1 InBio Pro Panel   #2 InBio Pro Panel   #63 InBio Pro Panel
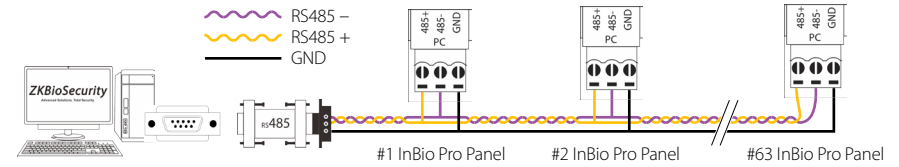
Figure 29

Important Notes:

1. RS485 communication wires should be a shielded twisted pair cable. RS485 communication wires should be connected in a bus cascade topology instead of a star topology, to achieve a better shielding effect by reducing signal reflection during communications.

2. A single RS485 bus can connect up to 63 access control panels, but preferably 32 is recommended maximum.

3. To eliminate signal attenuation in communication cables and suppress inter-ference, if the bus is longer than 200 meters, set the number 8 DIP switch to the ON position. This is equivalent to a parallel connection of one 120 ohm resistance between the 485+ and 485- lines.

ON

1 2 3 4 5 6 7 8

SINGLE InBio Pro Panel

Distance: More than 200 meters

ON

1 2 3 4 5 6 7 8

MULTI InBio Pro Panels
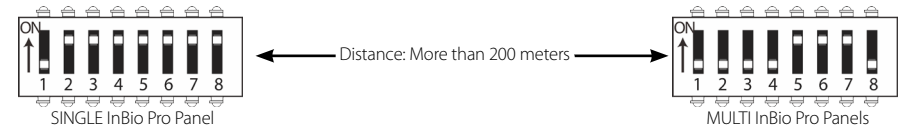
Figure 30

Incorrect RS485 connections

X

RS485 −
RS485 +
GND

#1 InBio Pro Panel   #2 InBio Pro Panel   #63 InBio Pro Panel

X

RS485 −
RS485 +
GND

#1 InBio Pro Panel   #2 InBio Pro Panel   #63 InBio Pro Panel
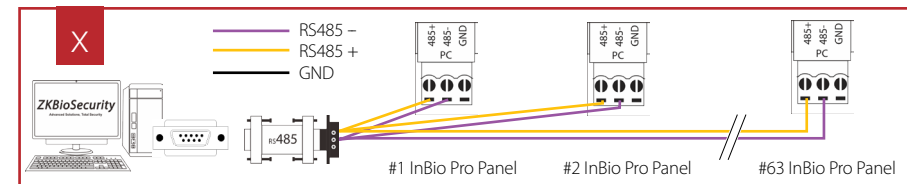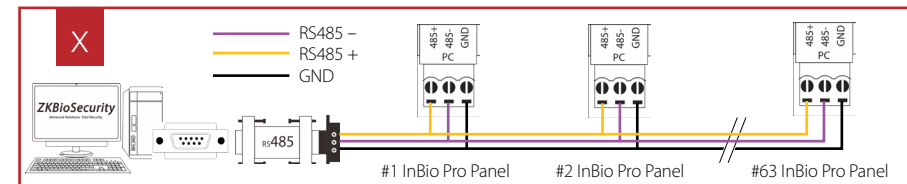
Figure 31

RS485 Connection
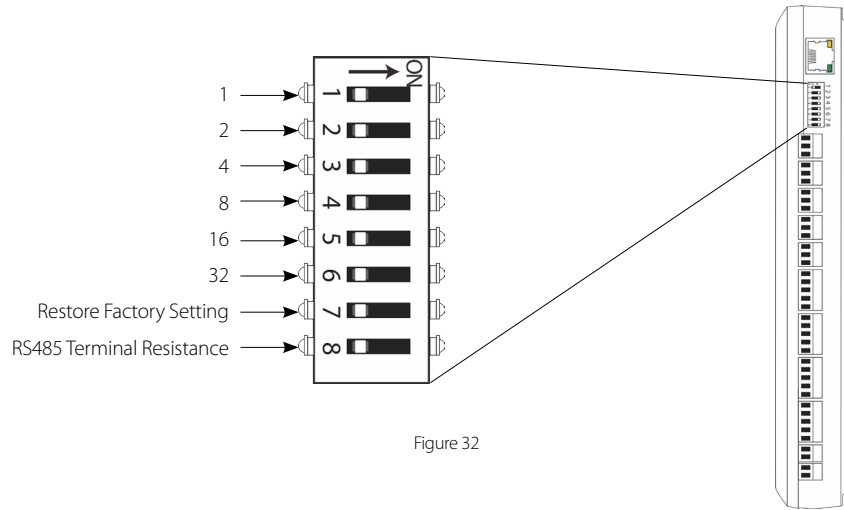
<div align="center">Figure 32</div>

Restore factory setting

1. If you forget the IP address of the InBio Pro panel or the device does not work normally, you can use the number 7 DIP switch to restore InBio Pro Panel to factory default settings. The parameters which gets reset are device IP address, communication password, gateway, and subnet mask.

2. The switch is OFF by default. When it is moved up and down for three times within 10 seconds and finally returned to OFF position, the factory settings will be restored after the access control panel is restarted.
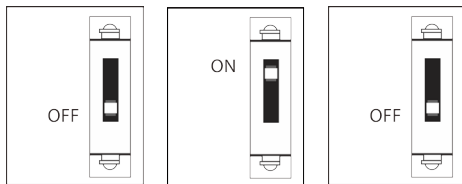
To reset factory settings
Turn #7 switch ON and OFF

Repeat process 3 times

<div align="center">Figure 33</div>

DIP Switch Setting

RS485 Address

1. Number 1-6 are reserved to set the device number for RS485 communication. The code is binary, and the numbering starts from left to right. When the switch is set to ON position, it indicates 1 (on); when the switch is set downwards, it indicates 0 (off). For example, to set a device number 39=1+2+4+32, which corresponds to the binary code 111001, put number 1, 2, 3, and 6 to ON position, as illustrated below.
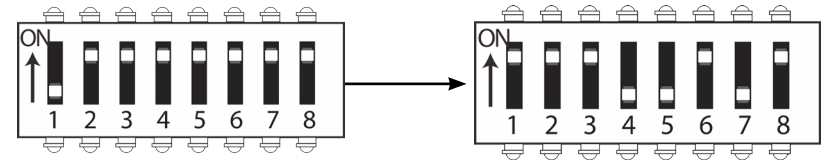
<div align="center">Figure 34</div>

For more details, please check the table at the end of this document.

Terminal Resistance

1. Number 8 is for setting the RS485 termination resistance. Putting the switch to ON position is equivalent to parallel connection of a 120 ohm termination resistance between 485+ and 485- lines.

120 ohm
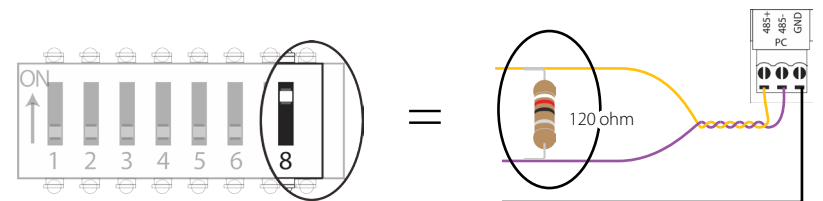
#63 InBio Pro Panel

<div align="center">Figure 35</div>

Installation Diagram

Ethernet Communication wire
RS485 Network Communication wire
220/110 V Input

InBio Pro Access Control Bundle

CEILING

Sensor

Electric Lock

OUTDOOR   INDOOR

Exit Button

Outdoor Wiegand card reader   Indoor Wiegand card reader
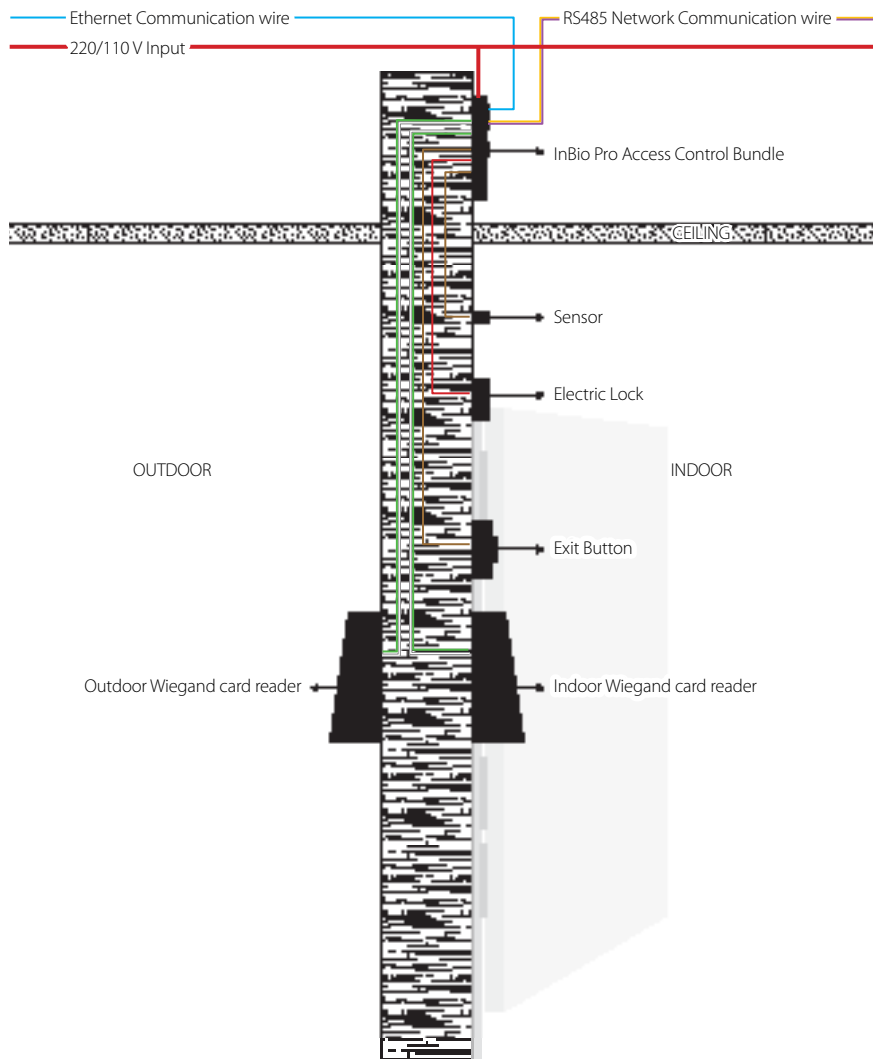
Figure 36

Troubleshooting

1. How to switch four door one way to two door two way?
› Connect four readers from reader 1 to reader 4.
› Connect two door locks, one connected to LOCK1, another connected to LOCK3.
› In the software configure reader 1-Indoor, and reader 2-Outdoor.

Access Control Panel Type:
- One-Door Access Control Panel
- Two-Door Access Control Panel
- Four- Door Access Cotrol Panel
- Access Control Devices

Add

Switch to Two-Door Two way:
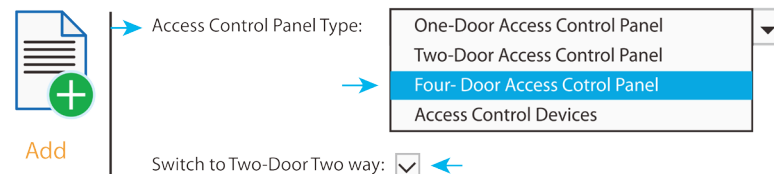
Figure 34

2. Can we integrate IP Camera and NVR?
› Currently ZKBiosecurity software supports ZKTeco's IP Cameras and NVR
› You can associate a camera to the door and setup a linkage for the same.

3. What does it mean when I get a "Wiegand Format Error"?
› Your WD0 and WD1 wiring is reversed.

4. How do I connect a third party reader or a stand-alone reader to a InBio Pro panel?
› Connect the wiegand output to the WD0 and WD1 of the stand-alone readers on the panel's reader port.

Note: The board can only supply 12 V DC, 300mA power so an external power supply may be required.

5. What is the SD card slot used for?
› SD card, stores transactions from the panel and creates a back up in additional to internal memory.

6. What kind of wire is recommended for the panel?
› 16 or 18 AWG twisted shielded wire is recommended.

7. What is the default IP of the panel?
› 192.168.1.201

8. How long is the device under warranty?
› 1 Year from original purchase date, replacement/repair of hardware under ZK standard warranty requires an evaluation of the failed system by a ZK Technical Support specialist, and the issuance of a Technical Support RMA number.

PC 485 Setting Table

Address No.	Switch Setting					
	1	2	3	4	5	6
	1	2	4	8	16	32
01	ON	OFF	OFF	OFF	OFF	OFF
02	OFF	ON	OFF	OFF	OFF	OFF
03	ON	ON	OFF	OFF	OFF	OFF
04	OFF	OFF	ON	OFF	OFF	OFF
05	ON	OFF	ON	OFF	OFF	OFF
06	OFF	ON	ON	OFF	OFF	OFF
07	ON	ON	ON	OFF	OFF	OFF
08	OFF	OFF	OFF	ON	OFF	OFF
09	ON	OFF	OFF	ON	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF
17	ON	OFF	OFF	OFF	ON	OFF
18	OFF	ON	OFF	OFF	ON	OFF
19	ON	ON	OFF	OFF	ON	OFF
20	OFF	OFF	ON	OFF	ON	OFF
21	ON	OFF	ON	OFF	ON	OFF
22	OFF	ON	ON	OFF	ON	OFF
23	ON	ON	ON	OFF	ON	OFF
24	OFF	OFF	OFF	ON	ON	OFF
25	ON	OFF	OFF	ON	ON	OFF
26	OFF	ON	OFF	ON	ON	OFF
27	ON	ON	OFF	ON	ON	OFF
28	OFF	OFF	ON	ON	ON	OFF
29	ON	OFF	ON	ON	ON	OFF
30	OFF	ON	ON	ON	ON	OFF
31	ON	ON	ON	ON	ON	OFF
32	OFF	OFF	OFF	OFF	OFF	ON

Address No.	Switch Setting					
	1	2	3	4	5	6
	1	2	4	8	16	32
33	ON	OFF	OFF	OFF	OFF	ON
34	OFF	ON	OFF	OFF	OFF	ON
35	ON	ON	OFF	OFF	OFF	ON
36	OFF	OFF	ON	OFF	OFF	ON
37	ON	OFF	ON	OFF	OFF	ON
38	OFF	ON	ON	OFF	OFF	ON
39	ON	ON	ON	OFF	OFF	ON
40	OFF	OFF	OFF	ON	OFF	ON
41	ON	OFF	OFF	ON	OFF	ON
42	OFF	ON	OFF	ON	OFF	ON
43	ON	ON	OFF	ON	OFF	ON
44	OFF	OFF	ON	ON	OFF	ON
45	ON	OFF	ON	ON	OFF	ON
46	OFF	ON	ON	ON	OFF	ON
47	ON	ON	ON	ON	OFF	ON
48	OFF	OFF	OFF	OFF	ON	ON
49	ON	OFF	OFF	OFF	ON	ON
50	OFF	ON	OFF	OFF	ON	ON
51	ON	ON	OFF	OFF	ON	ON
52	OFF	OFF	ON	OFF	ON	ON
53	ON	OFF	ON	OFF	ON	ON
54	OFF	ON	ON	OFF	ON	ON
55	ON	ON	ON	OFF	ON	ON
56	OFF	OFF	OFF	ON	ON	ON
57	ON	OFF	OFF	ON	ON	ON
58	OFF	ON	OFF	ON	ON	ON
59	ON	ON	OFF	ON	ON	ON
60	OFF	OFF	ON	ON	ON	ON
61	ON	OFF	ON	ON	ON	ON
62	OFF	ON	ON	ON	ON	ON
63	ON	ON	ON	ON	ON	ON

Electrical Specifications

	Minimum	Typical	Maximum	Notes
WORKING POWER SUPPLY				
Voltage (V) DC	9.6	12	14.4	Use regulated DC power adaptor only
Current (A)			2	
ELECTRONIC LOCK RELAY OUTPUT				
Switching voltage (V)			12V	Use regulated DC power adaptor only
Switching Current (A)			2	
Auxiliary relay output				
Switching voltage (V)			12V	Use regulated DC power adaptor only
Switching Current (A)			1.25	
SWITCH AUX. INPUT				
VIH (V)				
VIL (V)				
Pull-up resistance (Ω)		4.7k		The input ports are pulled up with 4.7k resistors
WIEGAND INPUT				
Voltage (V)	10.8	12	13.5	
Current (mA)			500	
ZK ELECTRIC LOCK				
Voltage (V) DC	10.8	12	13.2	
Current (mA)			500	

Specifications

Communication	RS485, TCP/IP
Baud Rate for RS485	9600-15200
Power Supply	12V DC, 2A
Card Holders Capacity	30,000
Log Events Capacity	100,000
LED Indicator	Indicator for communication, power, status and prox card
Environment	32-113 °F (0-45°C)
Operating Humidity	20% to 80%
Number of doors controlled	Four Door (four door one way and two door two way)
Number of readers supported	4
Types of readers supported	26-bits WIEGAND, others upon request
Number of Inputs	12 (4 Exit Device, 4 Door Status, 4 AUX)
Number of Outputs	8 (4- Form C relay for lock and 4- Form C relay for Aux output)
Weight	7.8lbs (3.55kg)
Enclosure	Metal Cabinet
Mounting	Wall Mount
Dimensions (Bundle Only)	15.7in. x 3.56in. x 13.0in 400mm(L) x 90.5mm(W) x 330mm(H)
Dimensions (Board Only)	8.0in. x 4.17in. 203.2mm(L) x 106mm(W)
CPU	32 bit 400MHz
RAM	32MB
Flash	128MB
Certified	CE FC RoHS ETL

Green
Label

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