BIO TRACK

BioExterior

INSTALLATION GUIDE

www.BioTrackSoftware.com

Safety Precautions

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

- Do not install the device in an area subject to direct sunlight, humidity or dust

- Do not place a magnet near the product. Magnetic field from magnets, CRT, TV, monitor or speaker may damage the device.

- Do not place the device next to heating equipment.

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

- Clean the device often to remove dust on it

- Do not let children touch the device without supervision.

Safety Precautions

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

- Do not drop the device.

- Do not disassemble, repair or alter the device.

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

- Do not damage the device

- In cleaning, do not splash water on the device but wipe it out with smooth cloth or towel.

- Contact your nearest dealer in case of a trouble or problem.

Fingerprint readers will give optimal results for fingerprint matching if the following recommendations and suggestions are followed.

**Select a finger to enroll**
- It is recommended to use an index finger or a middle finger.
- Thumb, ring or little finger are relatively difficult to place in the correct position
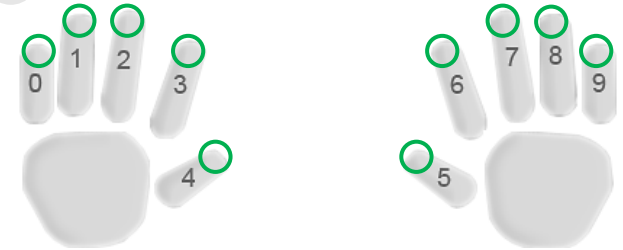
How to place a finger on a sensor
- Place a finger such that it completely covers the sensor area with maximum contact.
- Place core of the fingerprint at the center of the sensor. The core of a fingerprint is a center where the spiral of ridges is dense.
  - Usually core of fingerprint is the opposite side of the lower part of a nail.
  - Place a finger such that the bottom end of a nail is located at the center of a sensor.
- If a finger is placed as shown in the right, only a small area of a finger is captured. So it is recommended to place a finger as shown on the left.
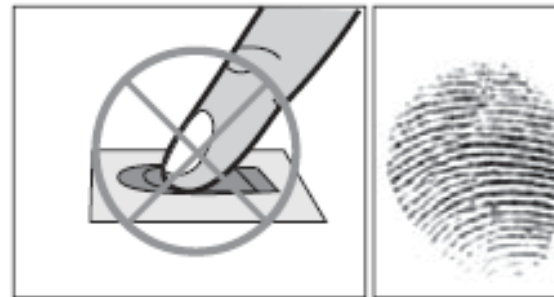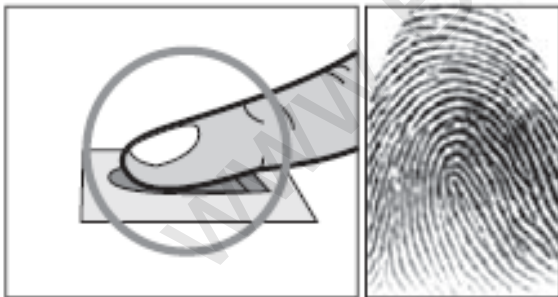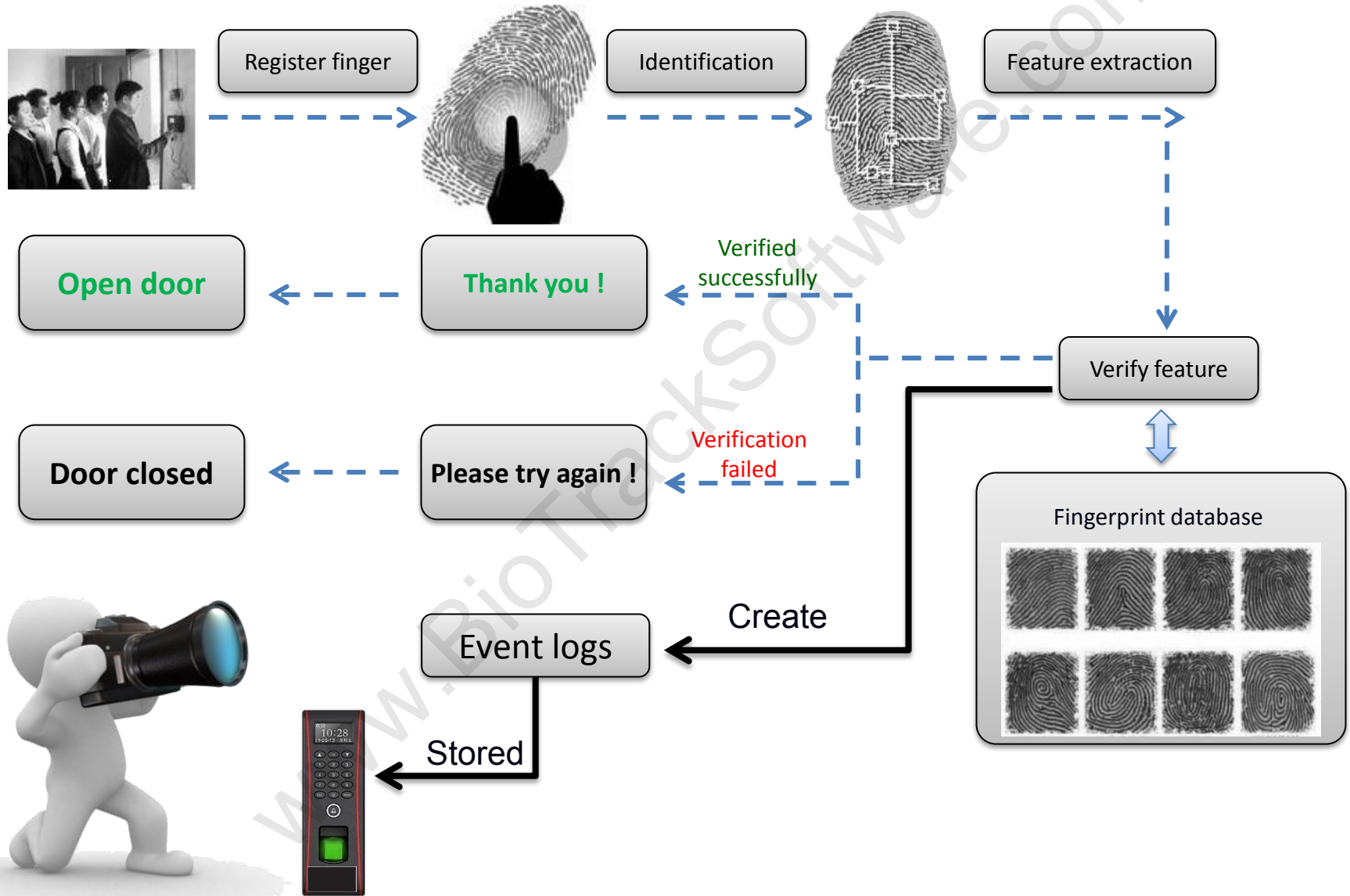
How to Place a Finger

- **Tips for different fingerprint conditions**
- Fingerprint products are designed to verify fingerprints with highest security irrespective of the conditions of the skin of the finger. However, in case a fingerprint is not read on the sensor, please refer to the followings tips.
  - If a finger is stained with sweat or water, scan after wiping moisture off.
  - If a finger is covered with dust or impurities, scan after wiping them off.
  - If a finger is way too dry, please blow some warm air from your mouth on the finger tip.

- **Tips for fingerprint enrollment**
- In fingerprint recognition, enrollment process is very important. When enrolling a fingerprint, please try to place the finger correctly with utmost care.
- In case of low acceptance ratio, the following actions are recommended.
  - Delete the enrolled fingerprint and re-enroll the finger.
  - Enroll the same fingerprint again.
  - Try another finger if a finger is not easy to enroll due to scar or cuts.
- In case of an enrolled fingerprint cannot be used due to injury or if the hand is full, it is recommended to enroll more than two fingers per user.
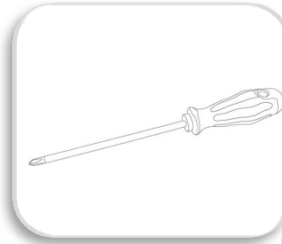
How Does Reader work

Register finger

Identification

Feature extraction

Open door

Thank you !

Verified successfully

Verify feature

Door closed

Please try again !

Verification failed

Fingerprint database

Create

Event logs

Stored

Basic Contents
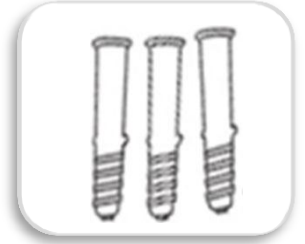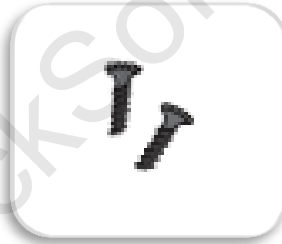
Metallic Back Plate   Rubber Gasket

Screw Driver – 1 pc.
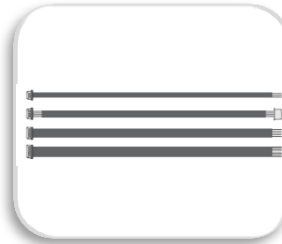
Wall Mounting Screws – 3 pcs.
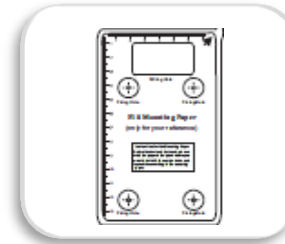
Wall Plugs– 3 pcs

Star-shape Screw for Mounting Plate -2 pcs

Mini-USB Cable -1 pc

Software CD

2 pin, 5 pin, 7 pin, 10 pin cables – each 1 pc

Mounting Paper

BioExterior Installation Guide

Optional accessories

Weigand Card Reader

Slave Fingerprint Reader

12VDC, 3A Power Adaptor

Exit Button

RS485 Convertor

Prox Card

Product PIN Diagram

■ Front View

OLED Screen

3 x 5 Keypads

Doorbell/LED

Fingerprint Reader

■ Side View

USB-host
Reset
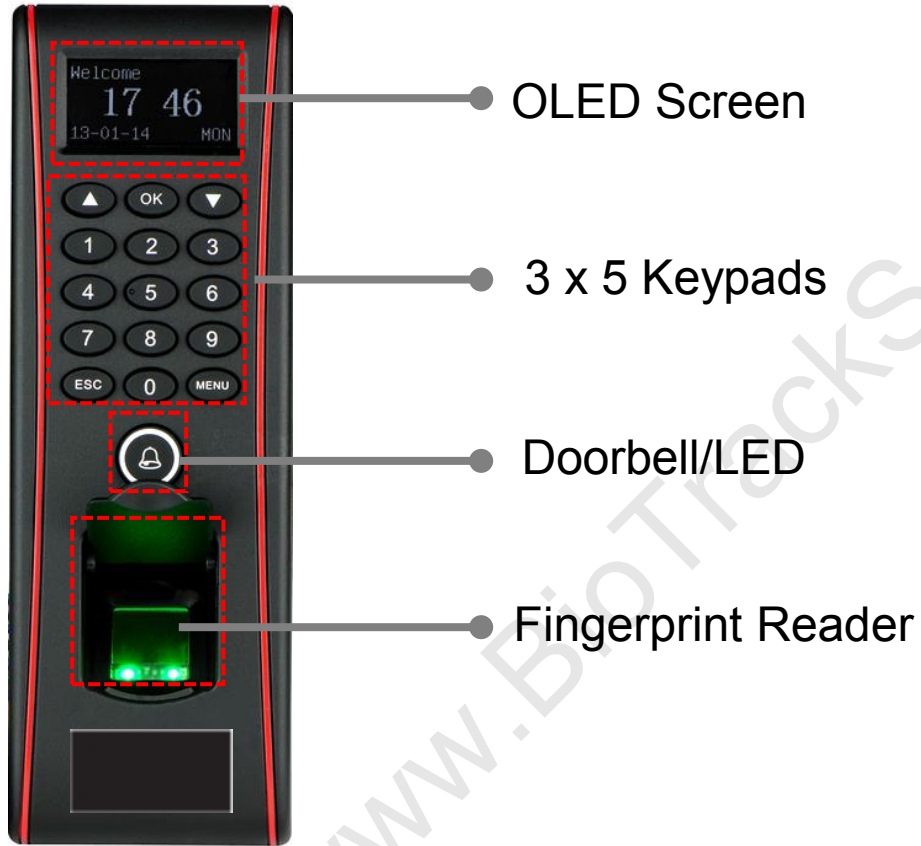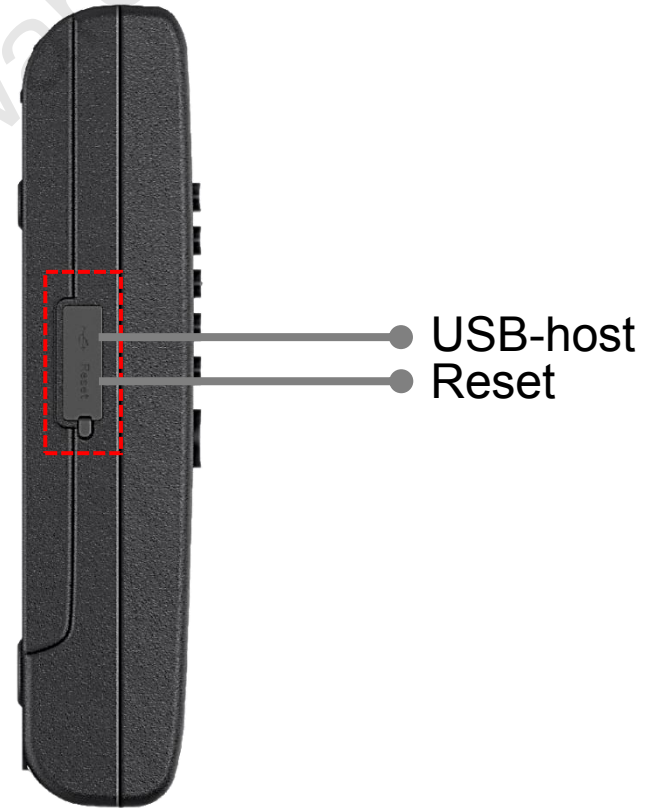
Product PIN Diagram

Bottom View

Star-shaped screw hole for fixing reader to the back plate

Back View
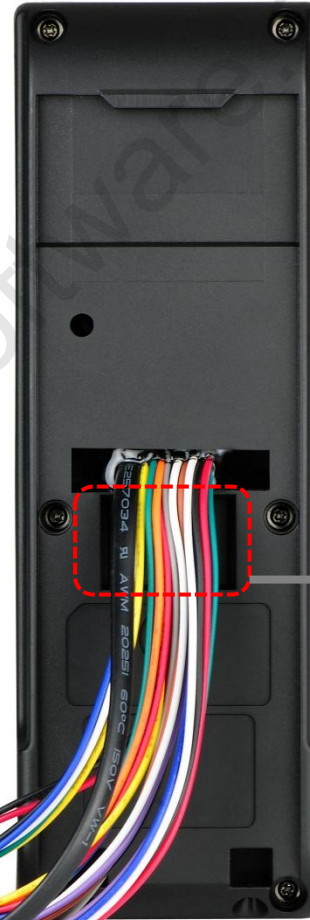
Tamper switch
(Magnetic Contact)

* TCP/IP
* RS485
* Wiegand Input and Output
* Access Control Interface for
  Electric Lock, Door Sensor,
  Exit Button, Alarm

Cables and Connectors

Product Dimension

Front View

62.5mm
(2.46in.)

185mm
(7.28in.)

Side View

185mm
(7.28in.)

41.5mm
(1.63in.)

Rubber Gasket

65mm
(2.56in.)

132mm
(5.20in.)

Cables and Connectors

Aux. input and Relay output
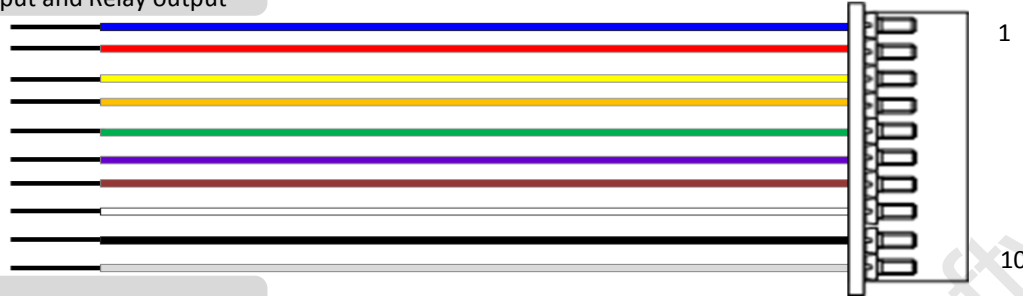
PIN	PIN DESCRIPTION	WIRE
1	NO1	BLUE
2	COM1	RED
3	NC1	YELLOW
4	NO2	ORANGE
5	COM2	GREEN
6	BELL-	PURPLE
7	BELL+	BROWN
8	SEN	WHITE
9	GND	BLACK
10	BUT	GRAY

Weigand input and Power out

PIN	PIN DESCRIPTION	WIRE
1	+12V	RED
2	GND	BLACK
3	IWD1	WHITE
4	IWD0	GREEN
5	RLED	BLUE
6	GLED	GRAY
7	BEEP	PURPLE

Weigand Output and RS485
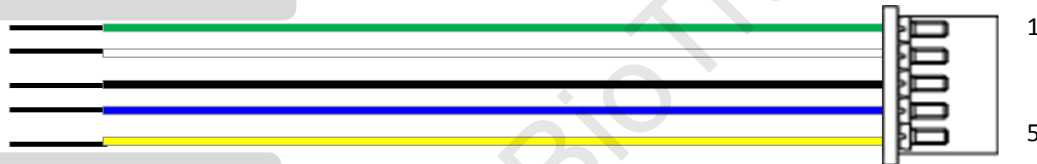
PIN	PIN DESCRIPTION	WIRE
1	WD0	GREEN
2	WD1	WHITE
3	GND	BLACK
4	485+	BLUE
5	485-	YELLOW

Ethernet

PIN	PIN DESCRIPTION	WIRE
1	RJ45-1	YELLOW
2	RJ45-2	GREEN
3	RJ45-3	RED
4	RJ45-6	BLACK

Power In

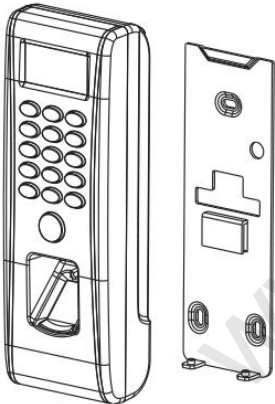| PIN	PIN DESCRIPTION	WIRE
1	+12V DC	RED
2	GND	BLACK

Mounting the reader on the Wall

- Stick the mounting template on the wall and make holes as per the markings.

1

- Mount the rubber gasket and the back plate on the wall with the help of the supplied screws.

2

- Mount terminal on the Back plate

3
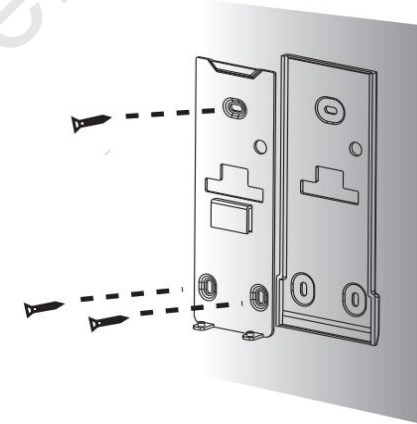
- Secure BioExterior by fixing two screws at the bottom.

4
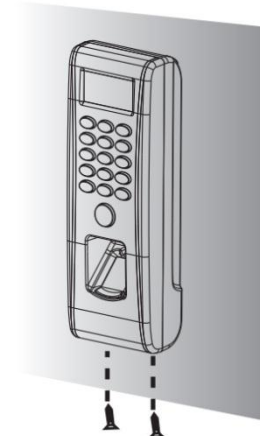
Power Connection

PIN	PIN DESCRIPTION	WIRE
1	+12V DC	RED
2	GND	BLACK

UPS
(Optional)

DC
Power Supply

12V DC (Red)

GND (Black)
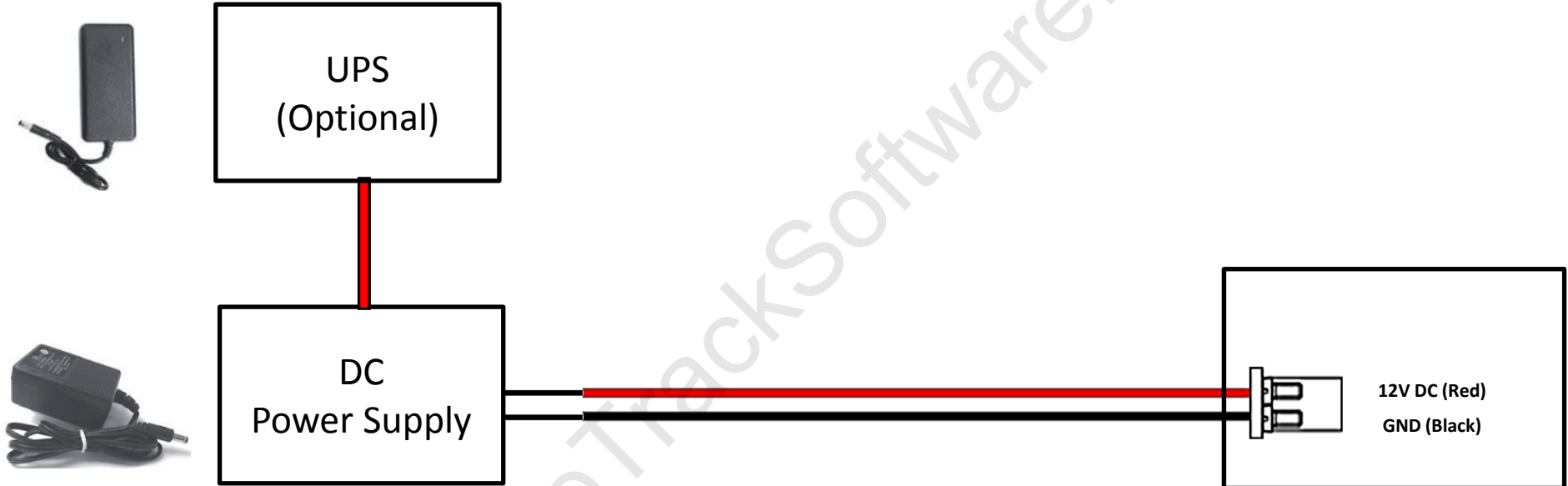
- Recommended power supply
- Regulated 12VDC, 1A
- Comply with standard IEC/EN 60950-1.
- To power other devices from the power supply of BioExterior, use a power supply with higher current rating.

Ethernet Connection

PIN	PIN DESCRIPTION	WIRE
1	RJ45-1	YELLOW
2	RJ45-2	GREEN
3	RJ45-3	RED
4	RJ45-6	BLACK

Switch

Server

TCP/IP

TCP/IP
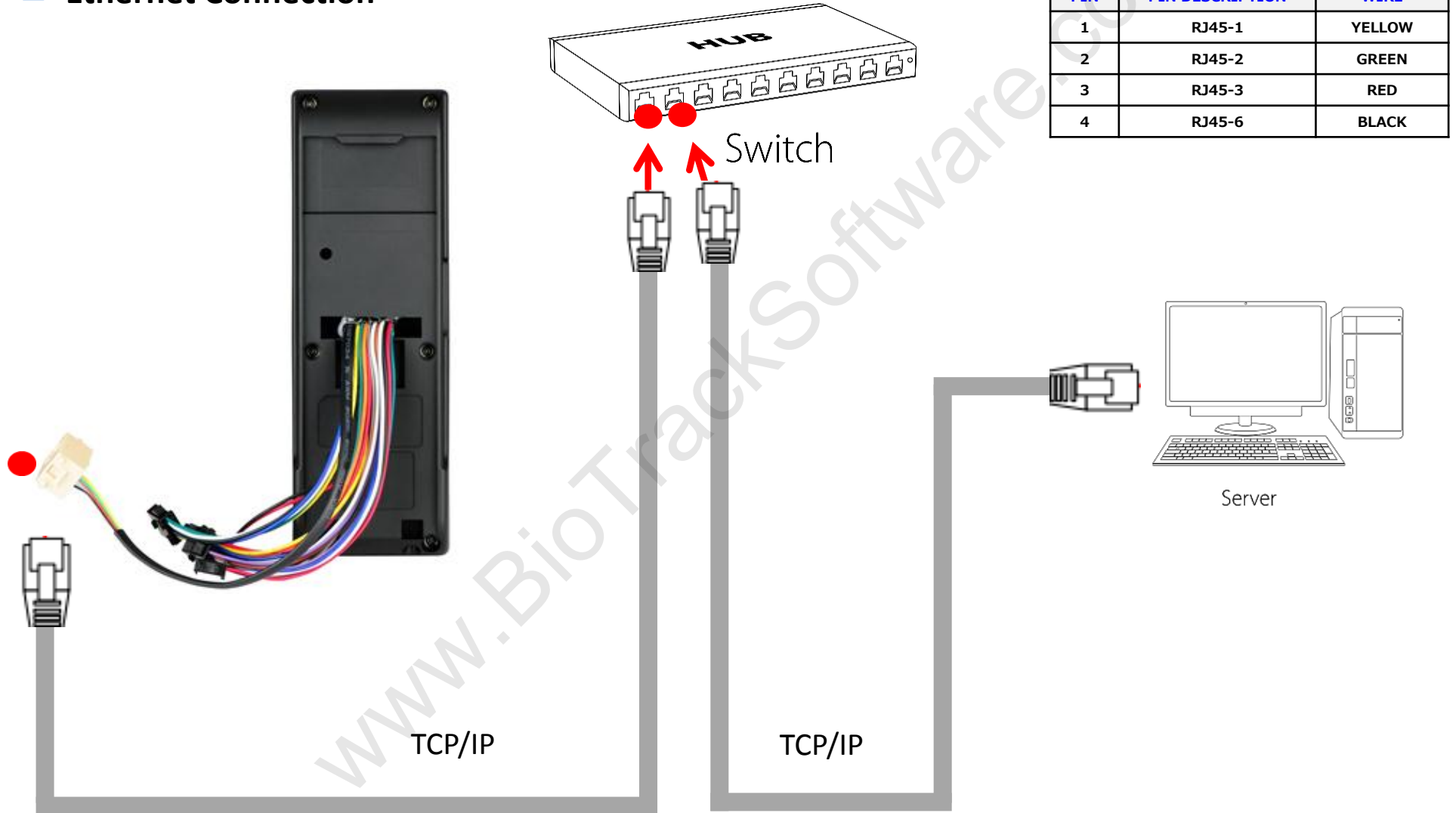
■ Direct connection with PC

● *To connect "　-　　 with a PC directly, connect both devices with a straight CAT-5 cable. As the "　-　　 supports auto MDI/MDIX feature, it is not necessary to use a crossover cable.*

PIN	PIN DESCRIPTION	WIRE
1	RJ45-1	YELLOW
2	RJ45-2	GREEN
3	RJ45-3	RED
4	RJ45-6	BLACK

Server

TCP/IP

PC RS485 Connection

PC RS485 Connection
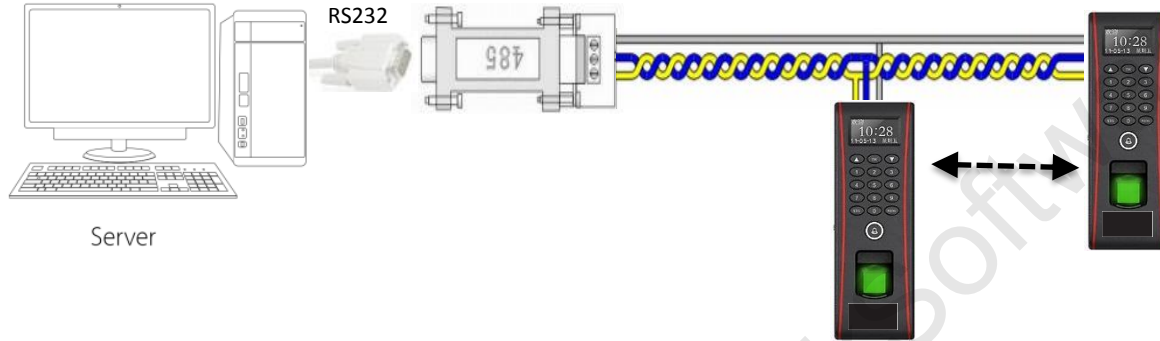
RS232

Server

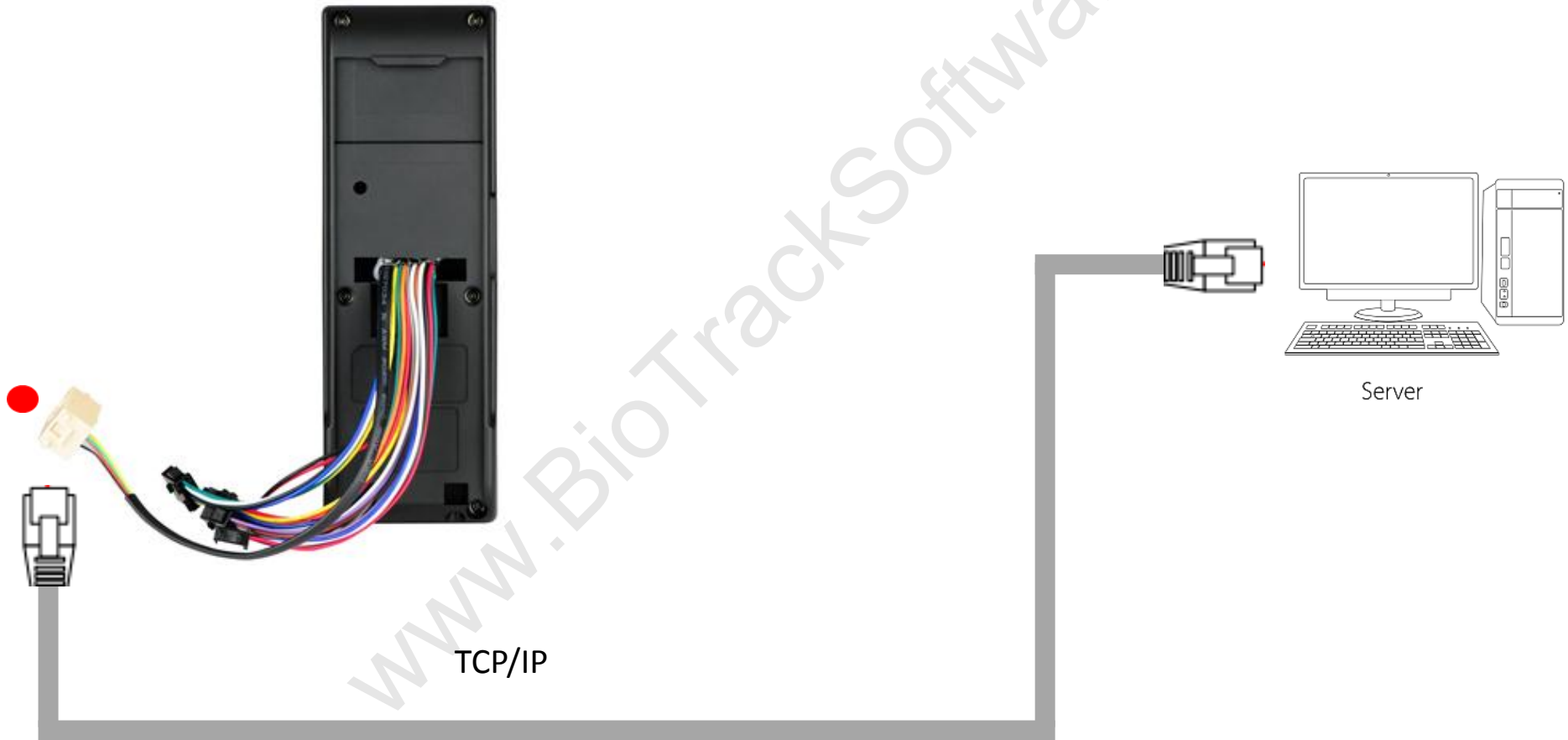| PIN	PIN DESCRIPTION	WIRE
1	WD0	GREEN
2	WD1	WHITE
3	GND	BLACK
4	485+	BLUE
5	485-	YELLOW

RS485-
RS485+
GND

Important Notes

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

2. Adjust the communication speed as needed , The signal quality vary depending on wiring conditions, and it maybe necessary to lower the baudrates.

3. The GND Signal may be omitted *if and only if* the GND potential difference is less than ±5V

Do's and Dont's for RS485 connection
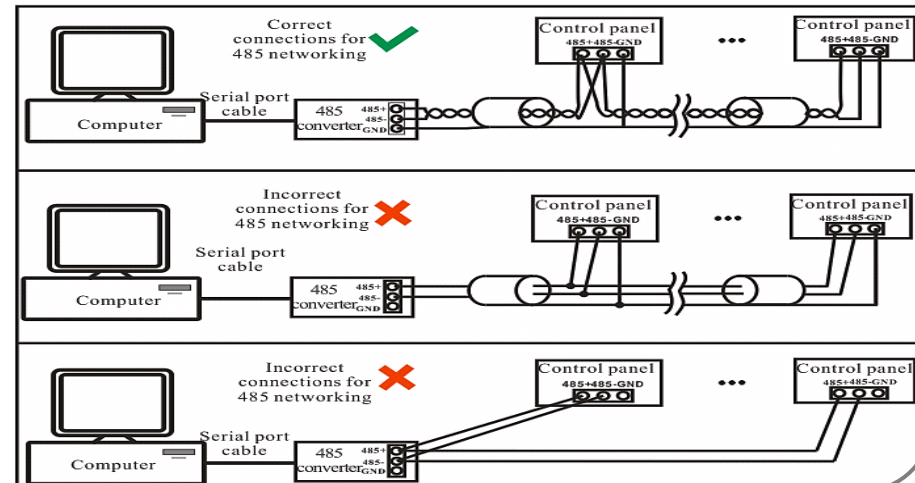
■ For Normally Open Lock

PIN	PIN DESCRIPTION	WIRE
1	NO1	BLUE
2	COM1	RED
3	NC1	YELLOW
4	NO2	ORANGE
5	COM2	GREEN
6	BELL-	PURPLE
7	BELL+	BROWN
8	SEN	WHITE
9	GND	BLACK
10	BUT	GARY

DC Power Supply

Electric Strike

BioExterior

(1) NO1 (BULE)
(2) COM1 (RED)

Aux. Input Connection

PIN	PIN DESCRIPTION	WIRE
1	NO1	BLUE
2	COM1	RED
3	NC1	YELLOW
4	NO2	ORANGE
5	COM2	GREEN
6	BELL-	PURPLE
7	BELL+	BROWN
8	SEN	WHITE
9	GND	BLACK
10	BUT	GARY

Exit Button

Door Sensor

BioExterior

(8) SEN (WHITE)

(9) GND (BLACK)

(10) BUT (GARY)

Aux. Output Connection

PIN	PIN DESCRIPTION	WIRE
1	NO1	BLUE
2	COM1	RED
3	NC1	YELLOW
4	NO2	ORANGE
5	COM2	GREEN
6	BELL-	PURPLE
7	BELL+	BROWN
8	SEN	WHITE
9	GND	BLACK
10	BUT	GARY

DC
Power Supply
-        +

Alarm

BioExterior

(4) NO2   (ORANGE)
(5) COM2 (GREEN)

Aux. Output Connection

PIN	PIN DESCRIPTION	WIRE
1	NO1	BLUE
2	COM1	RED
3	NC1	YELLOW
4	NO2	ORANGE
5	COM2	GREEN
6	BELL-	PURPLE
7	BELL+	BROWN
8	SEN	WHITE
9	GND	BLACK
10	BUT	GARY

DC Power Supply
-        +

Door Bell

BioExterior

(6) BELL-   (PURPLE)
(7) BELL+   (BROWN)

PIN	PIN DESCRIPTION	WIRE
1	+12V	RED
2	GND	BLACK
3	INWD1	WHITE
4	INWD0	GREEN
5	RLED	BLUE
6	GLED	GARY
7	BEEP	PURPLE

BioExterior

DC+(6-14V)

GND

WD1

WD0

Green LED

Beeper

RFID Reader

(1) +12V   (RED)

(2) GND   (BLACK)

(3) INWD1 (WHITE)

(4) INWD0 (GREEN)

(6) GLED   (GARY)

(7) BEEP   (PURPLE)
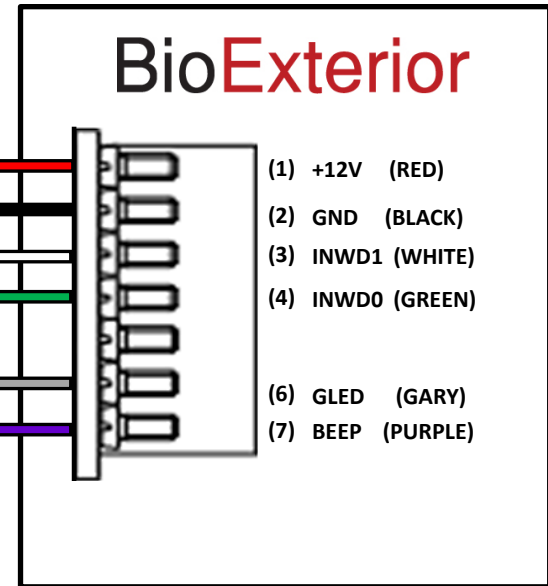
Weigand Output Connection

PIN	PIN DESCRIPTION	WIRE
1	WD0	GREEN
2	WD1	WHITE
3	GND	BLACK
4	485+	BLUE
5	485-	YELLOW

BEEP
GLED
READER1 WD 0
WD 1
GND
+12V

(1) WD0 (GREEN)
(2) WD1 (WHITE)
(3) GND (BLACK)
(4) 485+ (BLUE)
(5) 485- (YELLOW)

Access Control Panel
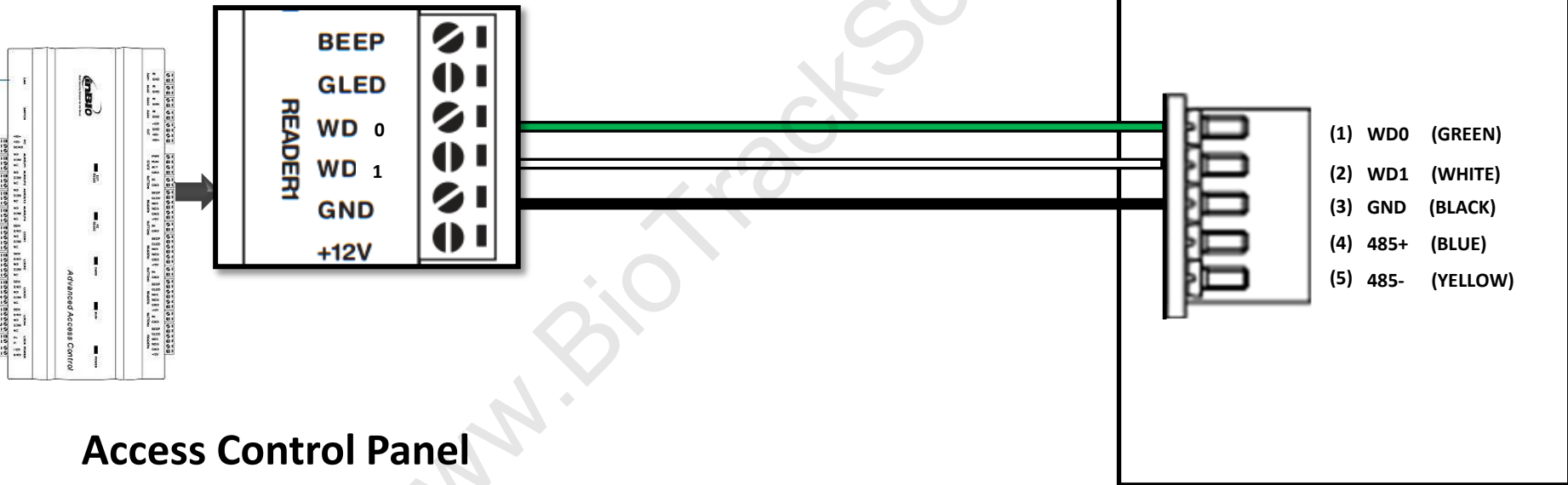
Standalone Reader Installation

Server

Switch

LOCK

Door Sensor   **Exit button**   **Alarm**

Door
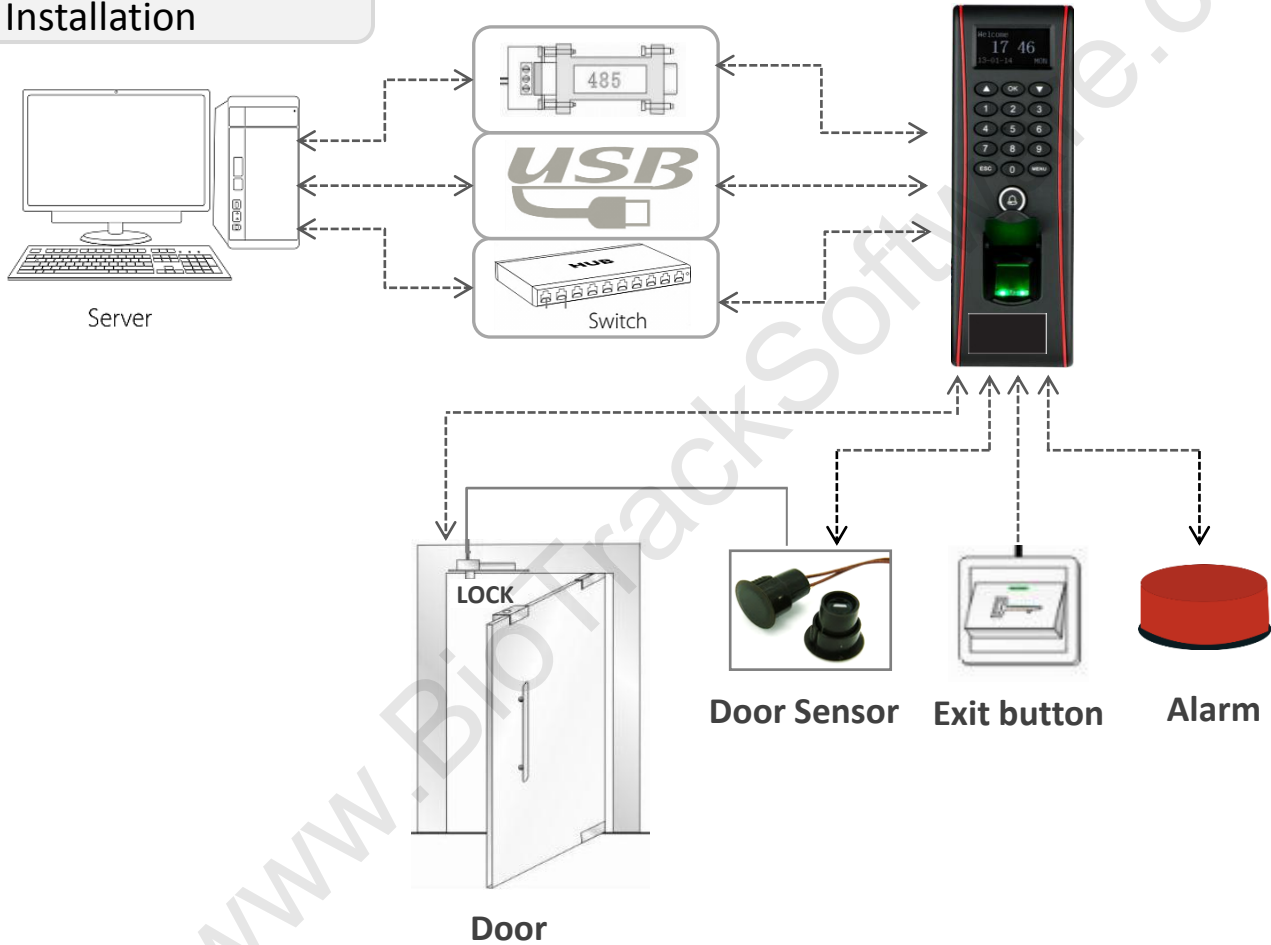
Specification

Item	Specification
Fingerprint capacity	3,000
Transaction capacity	100,000
Hardware Platform	ZEM720
CPU	6001, 400Mhz
Memory	128MB Flash, 32MB SDRAM
Fingerprint Sensor	Optical sensor
Display	128*64 OLED screen
LED Indicator	Red, Green
Communication	Ethernet（10/100M）, RS485, USB-HOST,
Weigand signal	Wiegand Input and Wiegand Output
Identification speed	≤1 sec
FAR	≤0.0001%
FRR	≤1%
Operating Temperature	-10°C~50°C（14°F~50°F）
Operating Humidity	20%-80%
Language	English, Spanish, Portuguese, French, Thai and many more
Power Supply	12V DC, 3A
Access control interfaces	Electric lock, alarm, exit button, wired door bell
Dimension	62.5*185*41.5mm (L*W*D)

Electrical Specification

	Min.	Typ.	Max.	Notes
Working power supply				
Voltage(V)	9.6	12	14.4	Use regulated DC power adaptor only
Current(A)			2	
Electronic lock relay output				
Switching voltage(V)			36V	Use regulated DC power adaptor only
Switching Current(A)			2	
Switch Aux. input				
V_{IH} (V)		TBD		
V_{IL} (V)		TBD		
Pull-up resistance (Ω)		4.7k		The input ports are pulled up with 4.7k resistors
WEIGAND Input				
Voltage(V)	10.8	12	13.5	
Current(mA)			500	
TTL/WEIGAND Output				
V_{OH} (V)		5		
V_{OL} (V)		0.8		
Pull-up resistance (Ω)		4.7K		The output ports are open drain type, pulled up with 4.7k resistors internally
Electronic lock				
Voltage(V)	10.8	12	13.2	
Current(mA)			500	

- Fingerprint can not be read or it takes too long.
    - Check whether a finger or fingerprint sensor is stained with sweat, water, or dust
    - Retry after wiping off finger and fingerprint sensor with dry paper tissue or a mildly wet cloth.
    - If a fingerprint is way too dry, blow on the finger and retry.

- Fingerprint is verified but authorization keeps failing.
    - Check whether the user is restricted by group or time zone.
    - Check with administrator whether the enrolled fingerprint has been deleted from the device for some reason.

- Authorized but door does not open.
    - Check whether the lock duration is set to appropriate minutes which opens the lock.
    - Check whether anti-passback mode is in use. In anti-passback mode, only the person who has entered through that door can exit.

- Why device display "system broken" and the alarm is ringing.
    - Check whether the device and back plate are securely connected to each other. If not, a tamper switch is activated which triggers the alarm and keeps it ringing.