COGENT SYSTEMS

Smart Gate

Installation Guide

FCC ID : TLDSPS-TS

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 INTERFERENCE AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED , INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

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FCC Compliance and Advisory Statement

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 interference, 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 B digital device, according to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. 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 equipment off and on, the user is encouraged to try correct the interference by one or more of the following measures:

1.Reorient the receiving antenna.

2.Increase the separation between the equipment and receiver.

3.Connect the equipment into and outlet on a circuit different from that to which the receiver is connected.

4.Consult the dealer or an experienced radio/TV technician for help.

Any special accessories needed for compliance must be specified in the instruction manual.

Warning: A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used. Use only shielded cables to connect I/O devices to this equipment.

CAUSION: Any changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

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1, Product Description

Plastic Housing

Standard Features

Standard features of Smart Gate are:

- 500 DPI silicon fingerprint sensor
- Magnetic stripe card reader
- Standalone or networked operation
- Configurable security levels
- Remote configuration through network connection or local configuration through RS232
- 10/100 Base-T Ethernet connections for communication with a central database and/or administrative software
- 1:1 authentication or 1:N identification
- Wiegand output
- Relay drive output

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Optional Features

The following configurations and optional features are available from the Smart Gate range of terminals:

- Central administration and database software
- Contact (ISO 7816)
- Contact less (MiFare™ 14443A) smart card
- Match-On-Card
- Memory upgrade for storage of up to 6,000+ fingerprints
- Server matching using Ethernet connection

2, Accessories:

1.	DB15 Cable		1Ea
2.	USB Cable		1Ea
3.	Screws, Security		4Ea
	For Plastic Housing	FM3X12	
	For Aluminum Housing	FM4X14	
4.	Screw Driver		1Ea
	For Plastic Housing	T10	
5.	Installation Guide		1Ea
6.	Warranty Card		1Ea

3, Installation

3.1 Follow Fig. 1 to drill mounting hole on the wall which the device will install (no need the mounting hole if mounting on the standard electrical box). Open the back panel from the device (follow instruction 3.3).
Another option can be used in the plastic housing(Fig. 2).

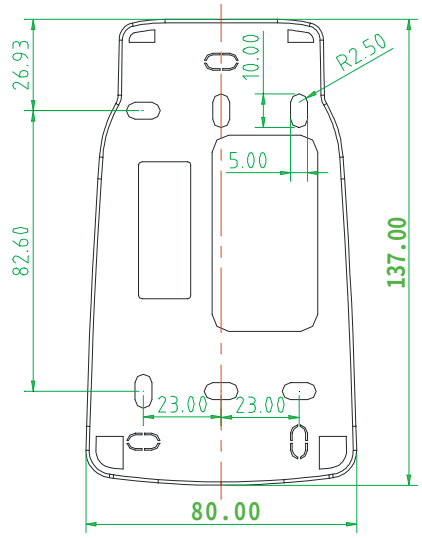


Fig. 1

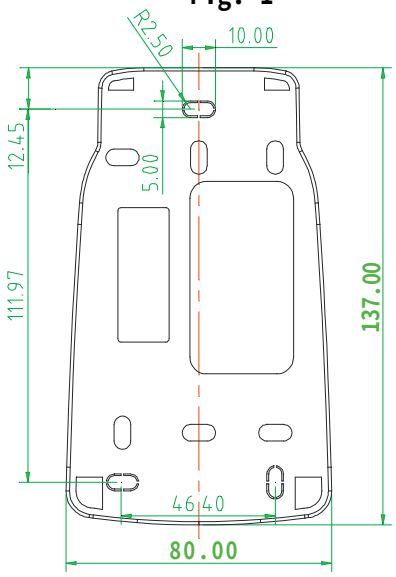
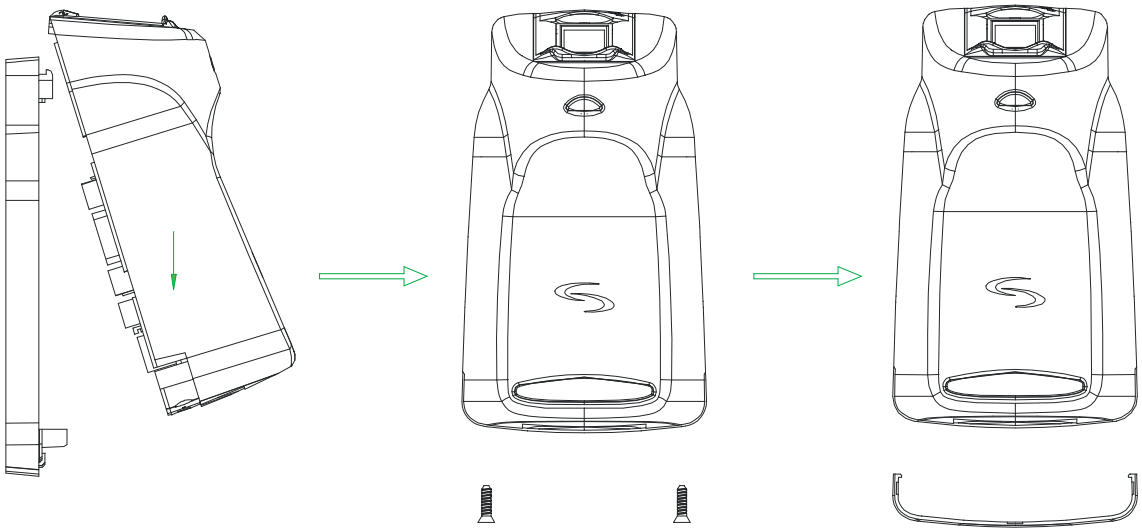


Fig. 2

3.2 Mount the back panel on the wall outlet first.

3.3 Plug all the necessary connectors (like DB15, Net cable) on the main device first, then mount this main device on the back panel by following the below procedures.



Tips for Plastic Housing:

1. Plug the main device all the way in from above the back panel 5 cm height, then push down make sure well contact with back panel and lock.
2. Lock the Device by using the security screws provided from factory.
3. Assembly covered plate.

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4. Smart-Gate User Manual

1 Preparation:

1.1 Make sure the S2 switch is on “Card Management Mode” (Default setting).

1.2 Connect the Smart Gate with Category 5 network cable to network switch. Please use POE switch if try to use POE features.

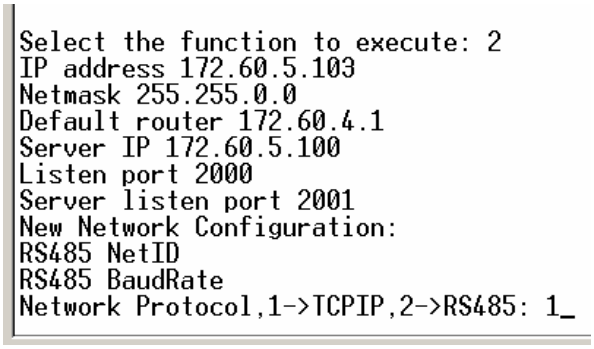
1.3 Connect the Smart Gate with the COM1 of PC by using special serial cable (come with Smart Gate)

1.4 Connect the power (12V DC power supply to pin 13, 11 of DB15 socket if not using POE).

2 How to use:

2.1 Network Setting:

2.1.1 Follow the instruction of Appendix A to complete the setting of Hyper Terminal first, then open Hyper Terminal, choose function 2 ”Configure Network”, default network setting as Picture 1 (Server IP is the PC is using for communicating).



2.2 Enroll / Matching:

2.2.1Create Admin Card: The first contactless card had been read will be the Admin card if there were no templates stored in the Smart Gate.

There are three working mode 1. Enroll Mode, 2. Delete Mode, 3. Verify Mode and can be changed by presenting the Admin Card.

a. The Yellow LED will start to be flashing after power on 15 seconds later, and at this moment the Smart Gate is waiting for setting Admin card.

b. Choose a smart contactless card and present it to the front of the Smart Gate, then remove it away, the Smart Gate will beep and enter enroll work mode, please mark the card as Admin card.

2.2.2Enroll Fingerprint / Enroll Mode: the LED indication is Green LED on, Yellow LED flashing.

a. present a smart contactless card near to the front of the Smart Gate, the Green LED will flash once then goes off and leave the yellow LED flashing if the Smart Gate read the card successfully. And please make sure the card is near the front of the Smart Gate when continue to enroll fingerprint.

b, Place the finger of enroller on the sensor for at least 1 second, the Smart Gate capture the fingerprint image successfully when the Smart Gate beep once and green LED flash twice. Leave the finger on the sensor for one more second if the yellow LED keep flashing.

C, Writing the fingerprint minutia into card successfully if the device beeps twice and green LED flash for three times. (the card must be within reading range).

d, Writing the fingerprint minutia into card successfully again if the device beeps twice and green LED flash for three times again. (the card must be within reading range).

e, the device is back to enroll work mode when remove card away from front of the device,

yellow LED is on and green LED flash.

f, the device will be in delete work mode if present Admin card in the front of the device again, and keeping enroll the new card if present another blank card.

2.2.3 Matching fingerprint: in verify work mode match the fingerprint with minutia in the card, the yellow LED of device will flash and the device request the card.

a, Present the card of user near to the front of the device, the yellow LED will flash slower than a while ago if the card had been read successfully by the device. (card can remove away from the front now)

b, Place the finger on the sensor for 1 second, the device will beep when it captures the image of the fingerprint.

c, Matching is completed and granted when the device beep twice and green LED flash. Matching is denied if the device beep once and red LED flash.

2.2.4 Delete fingerprint: in delete work mode to delete fingerprint only. The red LED is on and yellow LED flash.

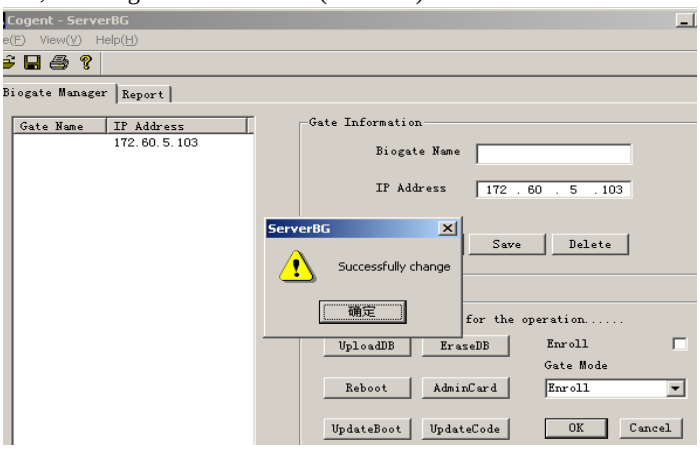
a, Present the card you wish to delete in the front of the device then the device will remove the minutia from card.

b, completed after the green LED of device flash for four times. Failed when the device beep once and red LED flash for four times.

P.S. The status of LED: Yellow LED is meaning for "waiting for card or finger", green LED is meaning for successfully, red LED is meaning failed to do something.

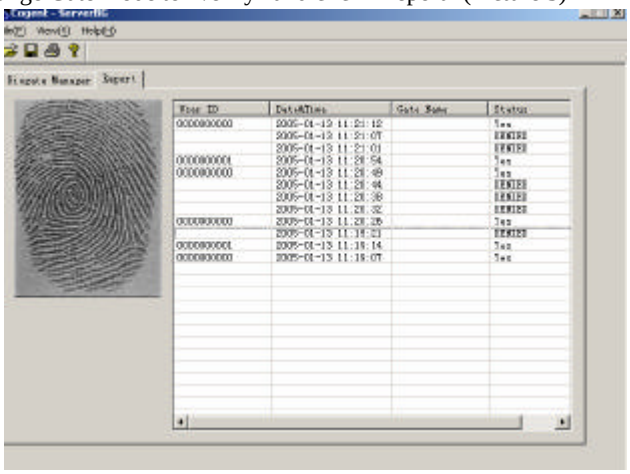
2.2.5 Image transferring through the network while in verify work mode:

a, Run Cogent-ServerBG.exe (Picture 2)



b, Assign IP address for the device(Default setting: 172.60.5.103）, click “Save”

c, Change Gate mode to “verify” and click “Report” (Picture 3)



d, Read card and matching with captured fingerprint image, Granted if the fingerprint had been enrolled into the card or denied if the fingerprint is not the one enrolled into the card. All the access log will be send to data bank through network.

2.2.6 Delete templates in the device

After running Hyper Terminal, Function 5 in Admin functions is delete all template in the device flash memory. (don’t select this function unless you want to remove everything from flash memory of the device)

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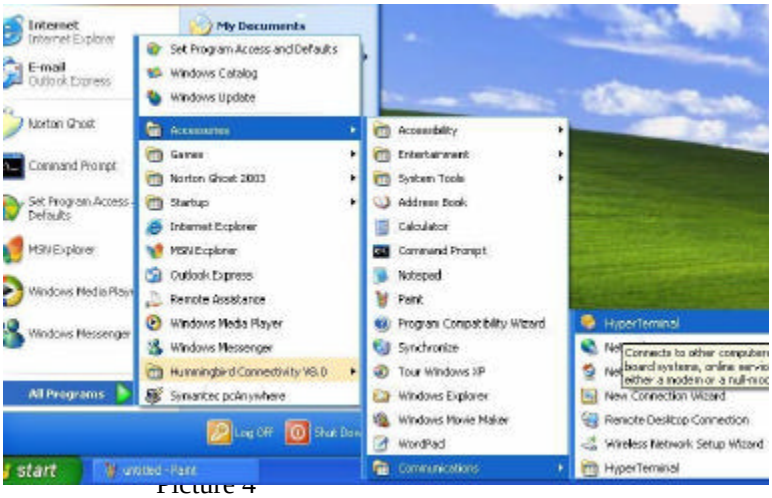
Appendix A: Hyper Terminal (admin functions):

1, Open: \Start\AllPrograms\Accessories\Communications\HyperTerminal. (see picture 4)



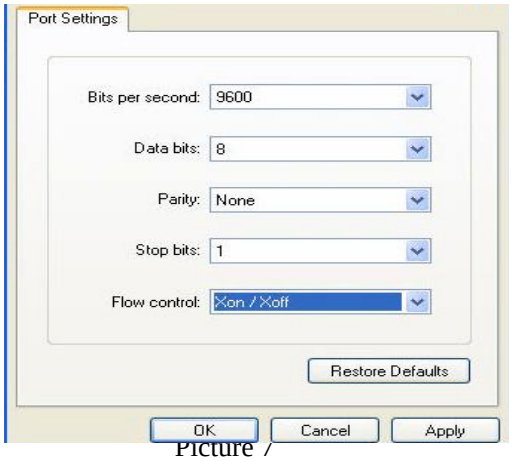
Picture 4

2, Typing in any “Name” in “Connection Description” windows (for example: test), then click “OK” (picture 5).

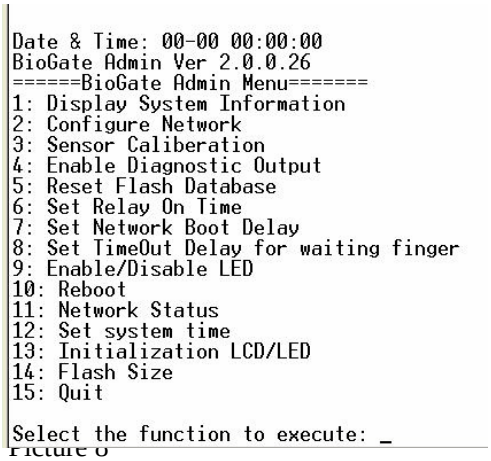
Picture

3, Choosing ”COM1” in “Connect using” of “Connect To” windows (make sure the serial cable is connect to the same port) (picture 6).

4, In “Port Setting” windows, choosing “9600” for Bits per second and “Xon / Xoff” for “Flow control”. (picture 7)



Picture 7



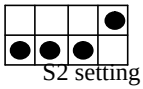
Picture 8

5, Then click “OK” to complete the setting, hit the “Enter” key again and should display picture 8.

Appendix B: Jumper S2 setting

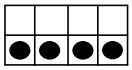
I. Card Mode:

1. Admin mode: Default Setting (Enroll, Verify & Delete)



S2 setting

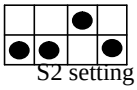
2. Verify mode only：



S2 setting

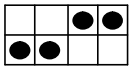
II. Fingerprint only (No card needed)

1. Enroll Mode：



S2 setting

2. Verify Mode:



S2setting

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5. Specification

Smart-Gate Technical Specifications:

Fingerprint sensor:	Silicon sensor (500DPI)
Enrolment method:	Single finger ,multiple enrollments
Extraction &Identification time:	~ 1.5 seconds
FRR:	FRR 0.1%-0.001%
FAR:	FAR 0.01%-0.0001%
Allowable finger rotation:	+/- 15
Template Size:	784bytes
I/O interface:	RS232, RS485
Baud Rate:	9600-115kbps programmable
Ethernet:	10/100 w/P.O.E. Fully 802.3af compliant
Mifare Card	14443 A
Weigand:	User programmable up to 64 bits
Power:	6-12V DC Standard input (12-48V DC jumper setup)
Current	210 ma @ 12v Standby: 290 ma@ 12V Operational
Non 802.2af standard	12-60VDC(jumper setting)
Operating Temperature:	0 to 55 C
Physical Dimensions:	W 3.14” x H5.42”x D2.28”
Weight:	9 ounces

POE

The Ext Board Supplies the main power to the Smart Gate device . The main power comes from POE or DB15 socket.
In order to use the nonstandard and standard POE device ,Jumper J5,J6 are used. Details see below.

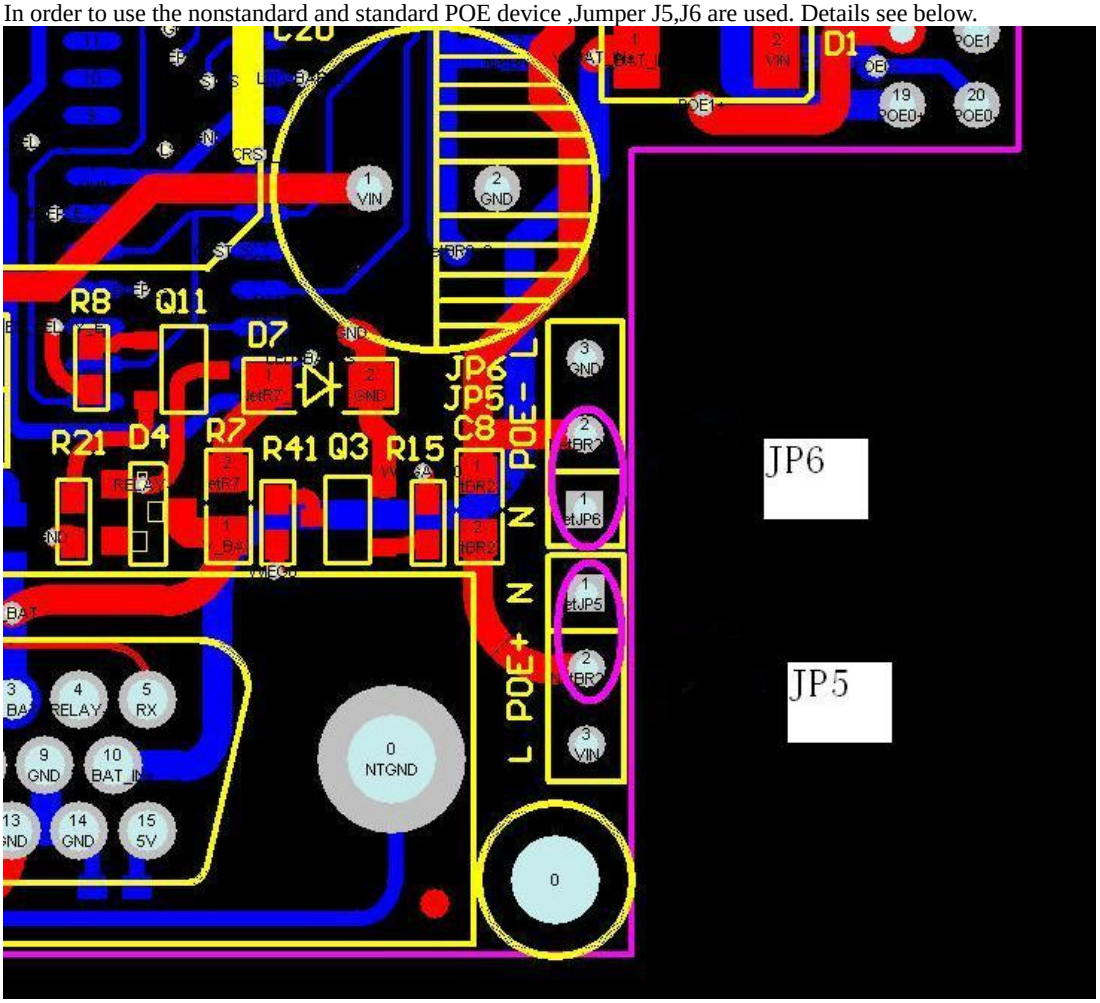

Figure 1.1 Standard POE Device Supply

Standard POE Device Power Supply

If the POE device that supply power to the Smart Gate device meets the standard POE specification, that is to say, the voltage of POE device is 48V, The pin1 and pin2 of the jumper 5 (JP5) and jumper 6 (JP6) are connected together .Illustrated as Figure 1.1 .
In this application, the input voltage range of the Smart Gate device that the POE device supply is 40V~60V.

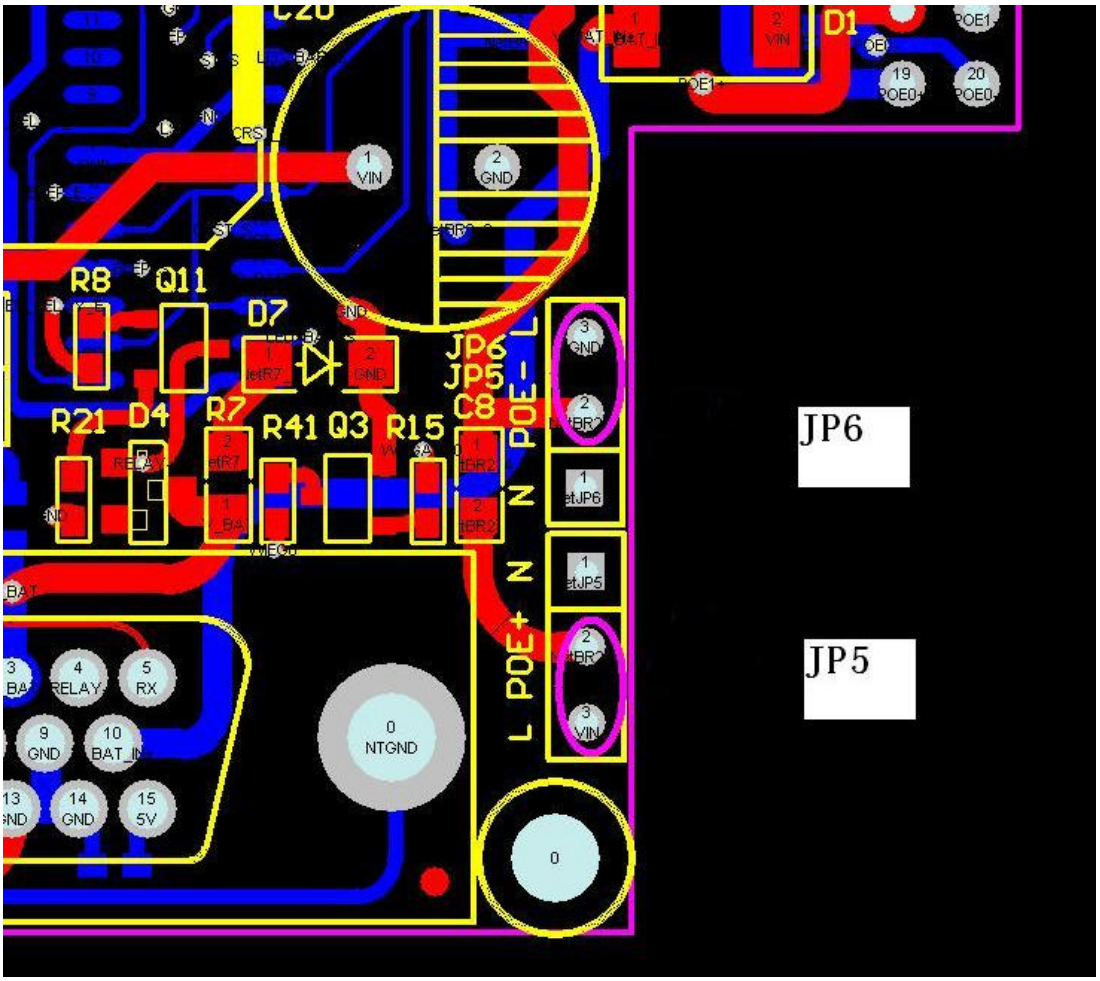

Figure 1.2 Nonstandard POE Device Supply

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NonStandard POE Device Power Supply

If the POE device that supply power to the Smart Gate device **does not** meets the standard POE specification, that is to say, the voltage of the POE device is below 48V, The pin2 and pin3 of the jumper 5 (J5) and jumper 6 (J6) are connected together . Illustrated as Figure 1.2 .
In this application, the input voltage range of the Smart Gate device that the POE device supply is 12V~40V.

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DB15_Socket

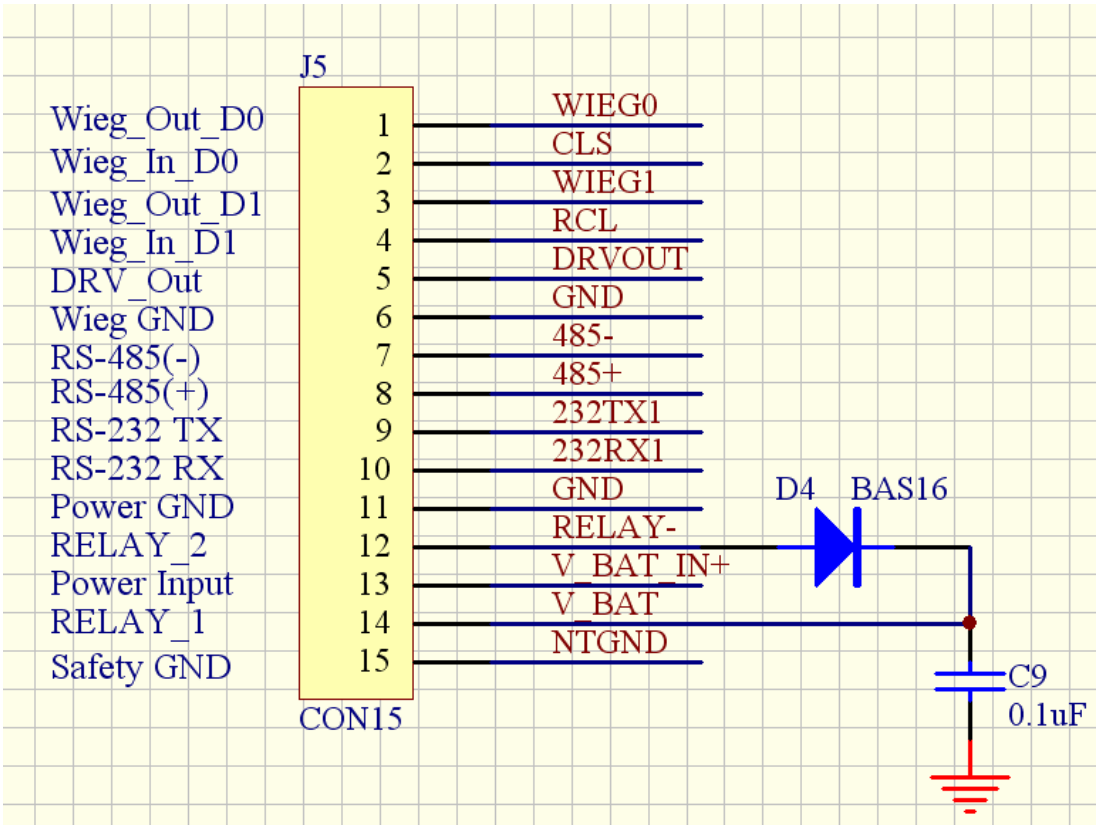
The User can use DB15 socket to get various output signals of Cogent's Smart Gate device . In the meantime, the user can input some signals to Cogent's Smart Gate device by using the DB15 socket.

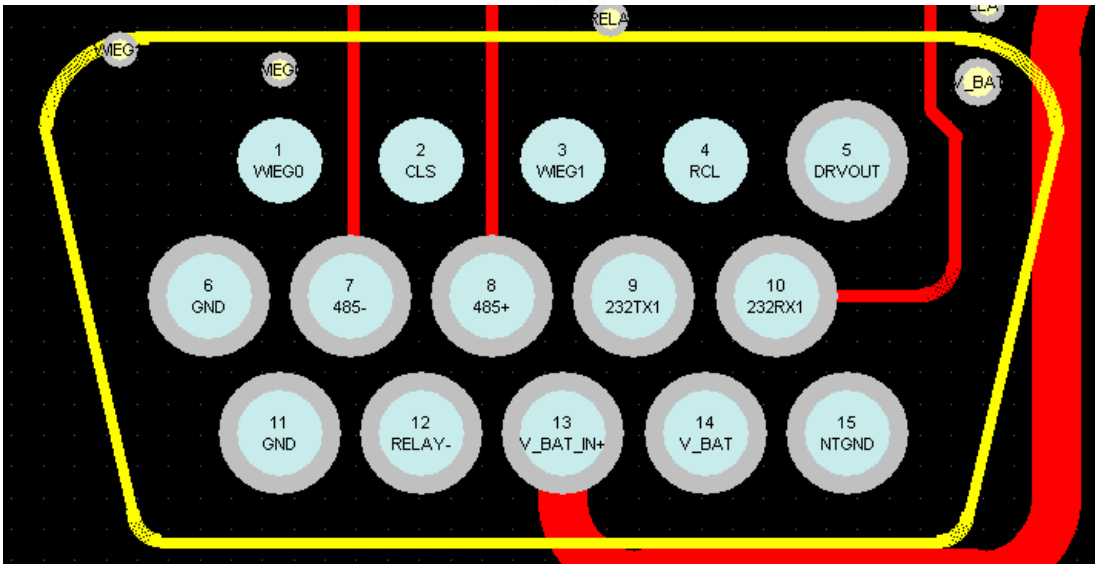
DB15 Definition

Table 2.1 DB15 Definition

1	2	3	4	5	6	7	8
WIEG0_OUT	WIEG0_IN	WIEG1_OUT	WIEG1_IN	DRVOUT	WIEG0 GND	485-	485+
9	10	11	12	13	14	15	
232TX	232RX	Power GND	RELAY-2	Power input	RELAY-1	Safety GND	

Figure 2.1 DB15 Definition





Signals Defination

Pin1 & Pin3 (Wiegand Out Data 0, Wiegand Out Data 1) — **WIEGAND output signals.**
Pin2 & Pin4 (Wiegand Out Data 0, Wiegand Out Data 1) — **WIEGAND input signals.**
Pin5 (Drvout) — **Output signals, solenoid is connected to this and GND(pin11).**

Pin6 (Wiegand GND) — **Wiegand Ground.**
Pin7 & Pin8(RS485-,RS485+) — RS485 connected to them.

Note: About RS485 Terminal Resistor.

Illustrated as figure 2.3, when pin1 & pin2 of JP4 are connected, a 120 **Ω terminal** resistor is connected on the RS485 BUS.

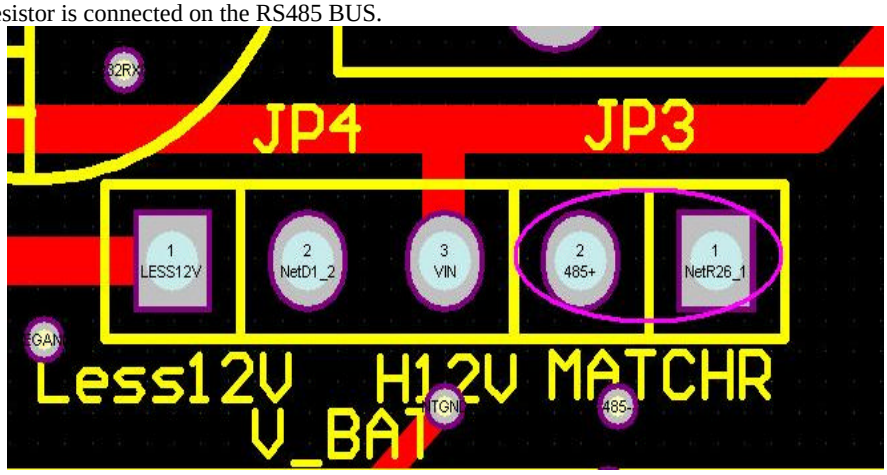


Figure 2.3 RS485 Terminal Resistor Is connected

Pin9 & Pin10(RS232-TX,RS232-RX) — RS232 connected to them.

Pin11 & Pin13 (GND, Power Input) — The user power supply.
When POE is not used, Use these pins to supply power to Bigate Device.

The User can use the power range is DC 6V~48V.

Option 1:
If using DC power supply output from 6 ~ 12 voltage, the Pin 1 & Pin 2 of JP4 are connected (on) (factory default setting); illustrated as Figure 2.4.

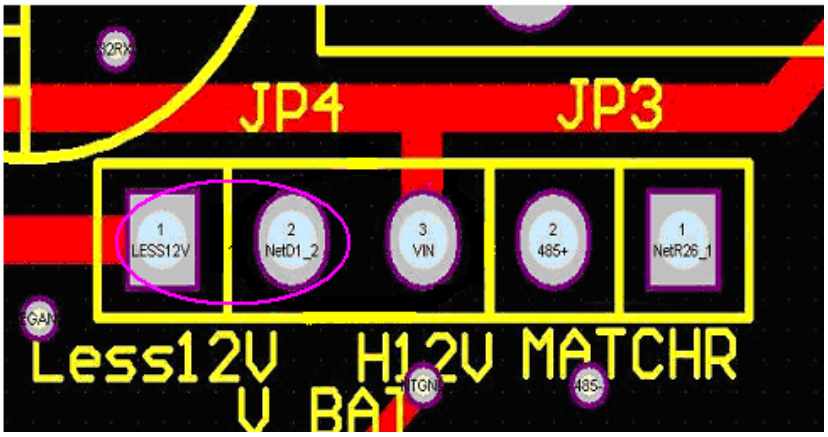


*Figure 2.4 Power Supply 12*V>Vin> 6V

Option 2:
If using DC power supply output from higher than 12 voltage to 48 voltage, the Pin 2 & Pin 3 of JP4 are connected (on); illustrated as Figure 2.5.

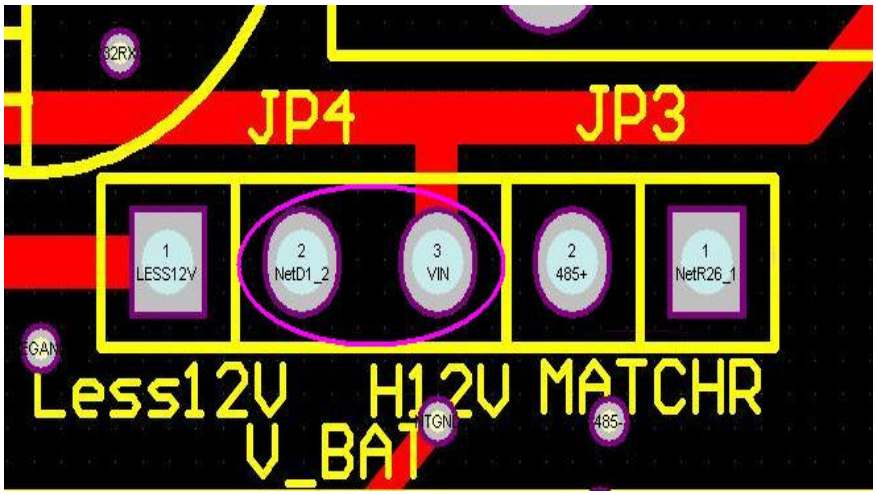


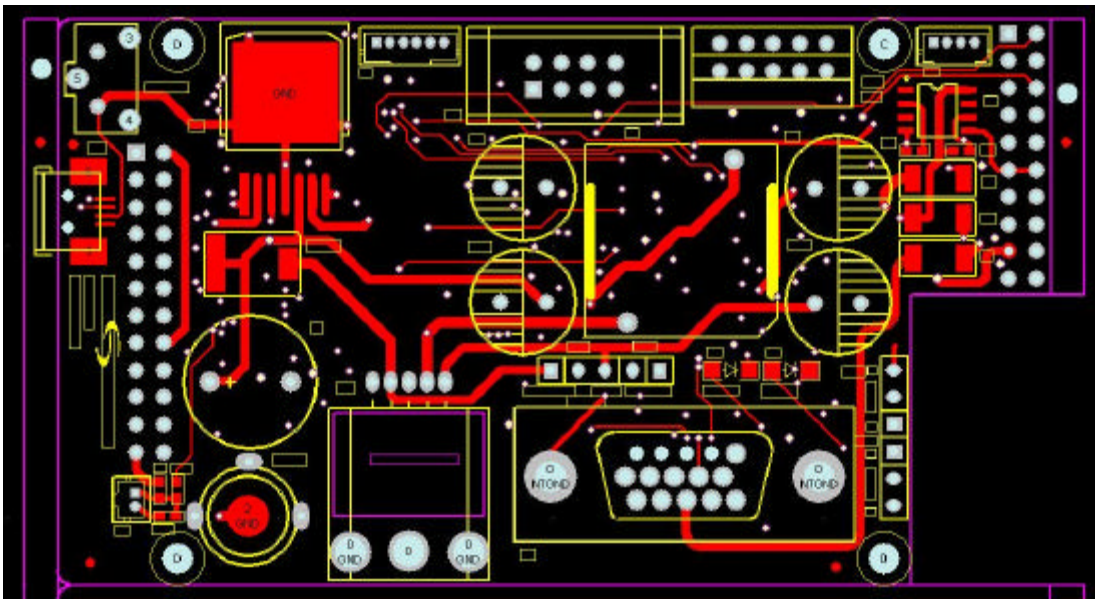
Figure 2.5 Power Supply 48V>Vin>12V

Note: The POE and This Power Supply (DB15 Pin11&Pin13) can not be Used at the same time

Pin12 & Pin14 (RELAY_1,RELAY_2) — **Outside relay is connected to them(12V Output).**

Pin15 (Safety GND) — **Safety Ground.**

Ext. Board PCB Layout



APPENDIX RJ45 Connection

If POE is used , The connection of RJ45 is illustrated as below:

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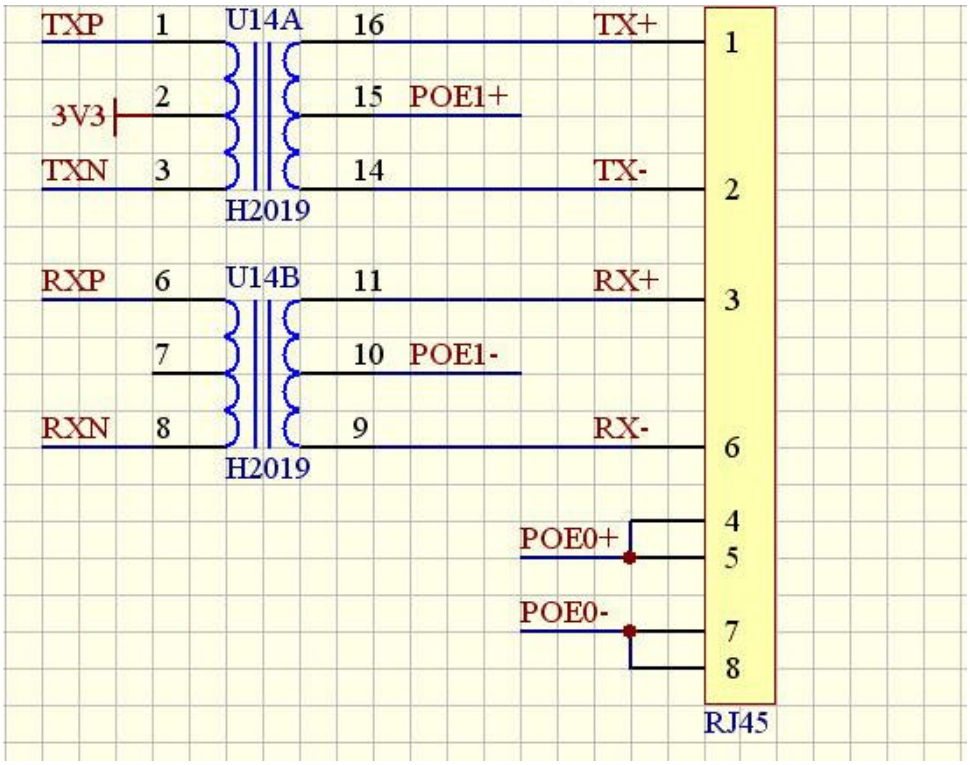

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