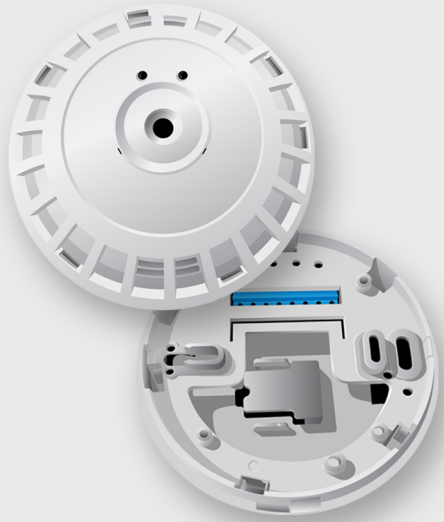


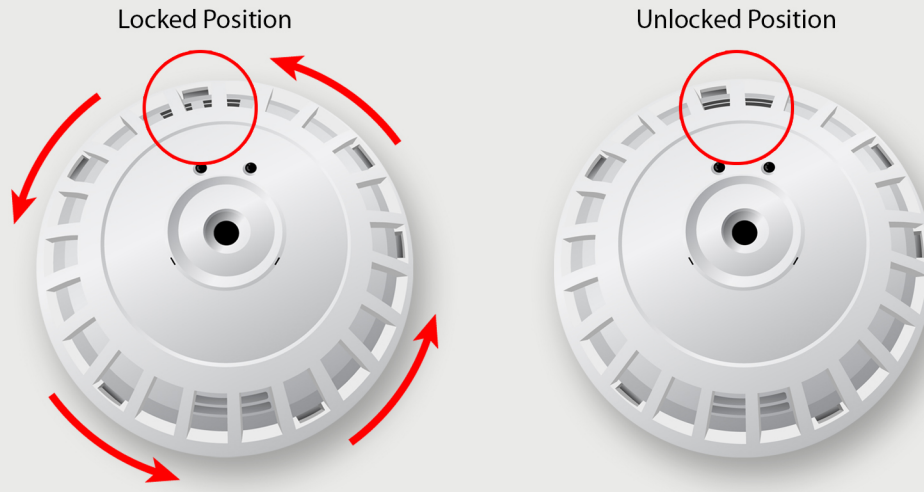
# *Instruction Guide – RTC 402/Thermal*

# PEOPLE COUNTER IRC3020 RELAY



Disassembly and Mounting Guide

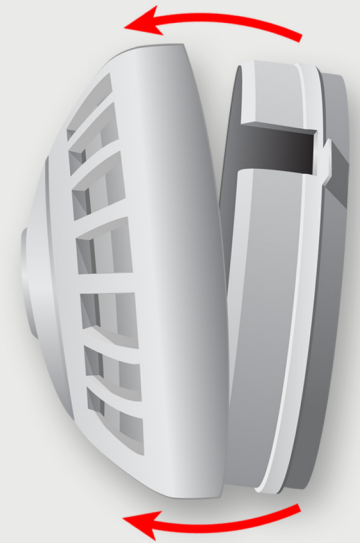
## 1. Unlocking the IRC3020 Relay



To unlock the IRC3020 Relay, rotate the camera's face (top) counter-clockwise while holding the camera's mount (bottom).

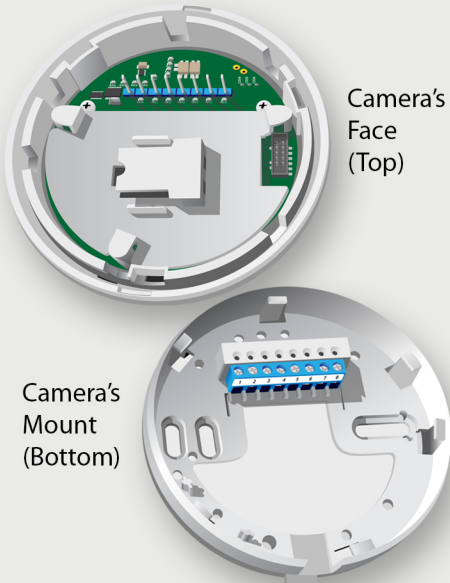
See circled part of the illustration for locked position and unlocked position.

## 2. Disassembly



Once the IRC3020 Relay is in unlocked position, pull the camera's face (top) from the camera's mount (bottom)

## 3. Disassembled Parts



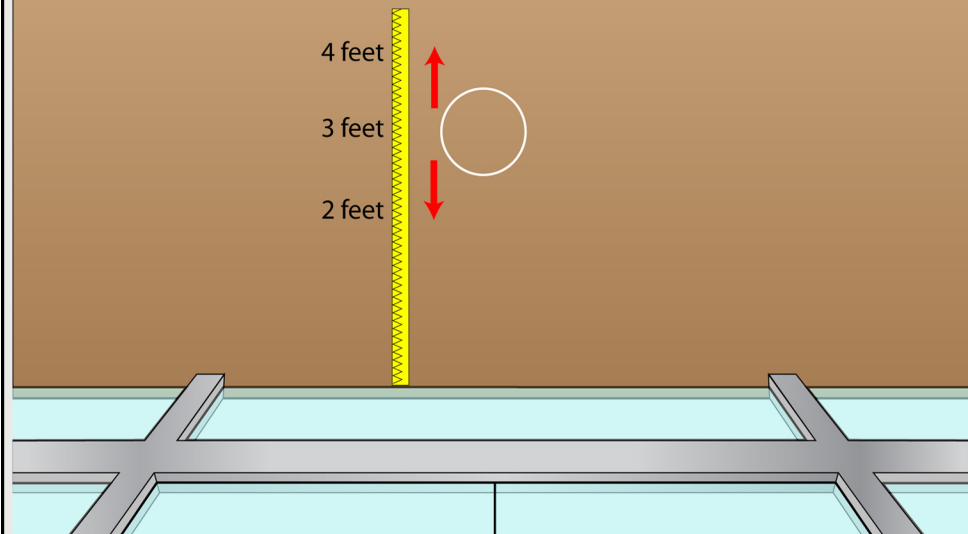
Camera's Face (Top)

Camera's Mount (Bottom)

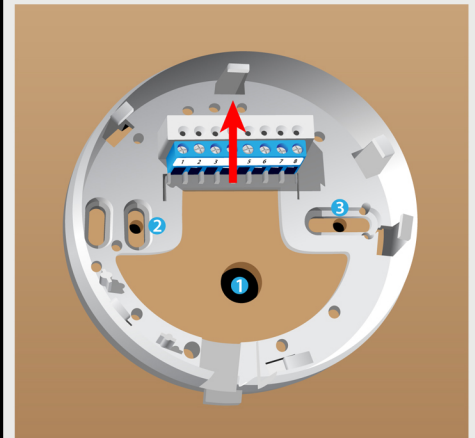
These are the disassembled parts of the IRC3020 Relay.

## 4. Mounting the IRC3020 Relay

From the center of the door, measure 1 to 3 feet inside the store. The IRC3020 Relay will be mounted at the designated position on the ceiling.



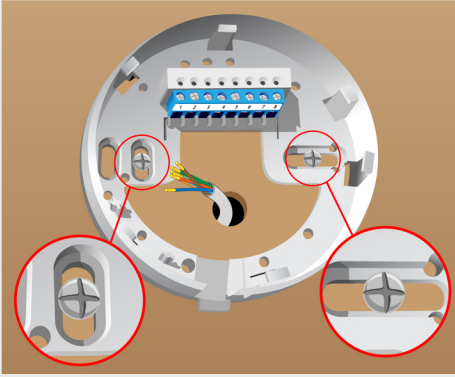
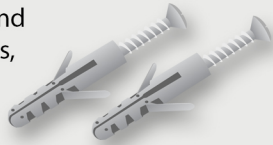
## 5. Drilling



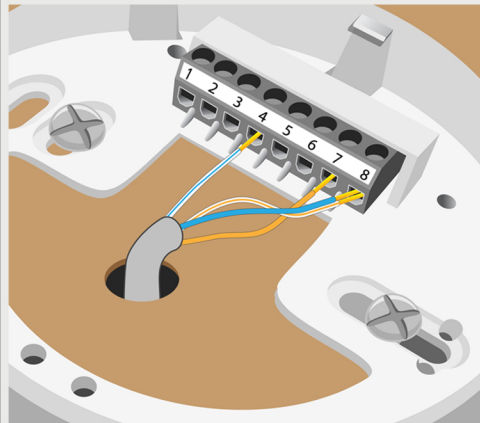
Once the position is determined, we can now drill all necessary holes. Hole #1 is intended for Cat5, Holes #2 and #3 are intended to mount thermal to the ceiling. The arrow in this illustration goes inside the store, so make sure the device is properly positioned.

## 5. Mounting with Screws

Using screws and drywall anchors, mount the IRC3020 Relay on the ceiling. Also run the CAT5e cable in its corresponding hole and ready it for wiring for the proceeding steps.

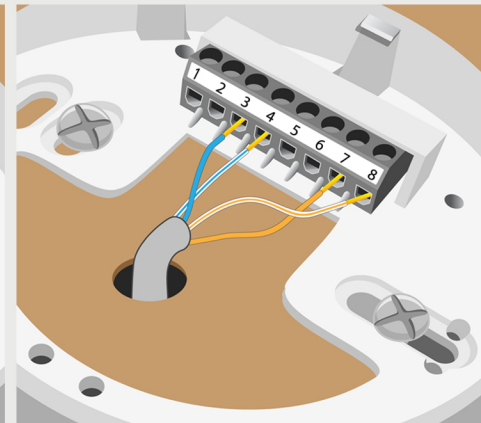


## 6. IRC3020 Relay Wiring Guide



Setting 1 and 3 wiring

Terminal #4 - White/Blue  
Terminal #7 - Orange  
Terminal #8 - Blue and White/Orange



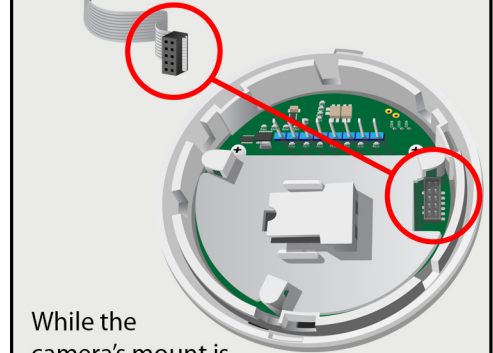
Setting 2 wiring

Terminal #3 - Blue  
Terminal #4 - White/Blue  
Terminal #7 - Orange  
Terminal #8 - White/Orange

Strip 1/4 inch of CAT5e cable to bare copper, and insert each wires to its corresponding terminal using a precision screw driver. Contact Tech Support for the correct setting.

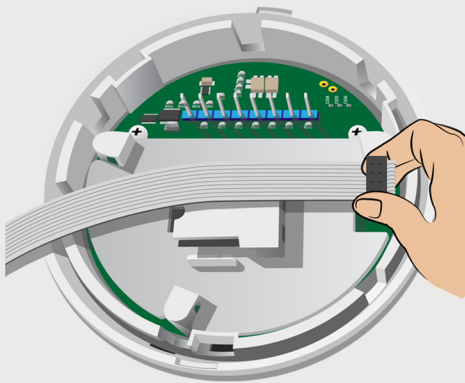
## 7. DB9 / 10 Pin IDE Cable

This is a DB9 to 10 Pin IDE Cable. (You can use USB to Serial if Serial Port is not available)



While the camera's mount is on the ceiling, we need to connect a Female 10 Pin IDE Cable with Female DB9 Port on the other end before programming the device with the use of a laptop or computer.

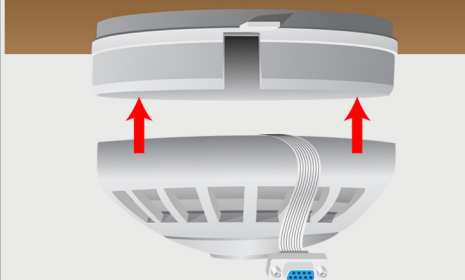
## 8. Plugging



Plug the DB9 / 10 Pin IDE Cable to the specified port.

In this procedure, the camera's mount is already mounted and wired on the ceiling.

## 9. Locking



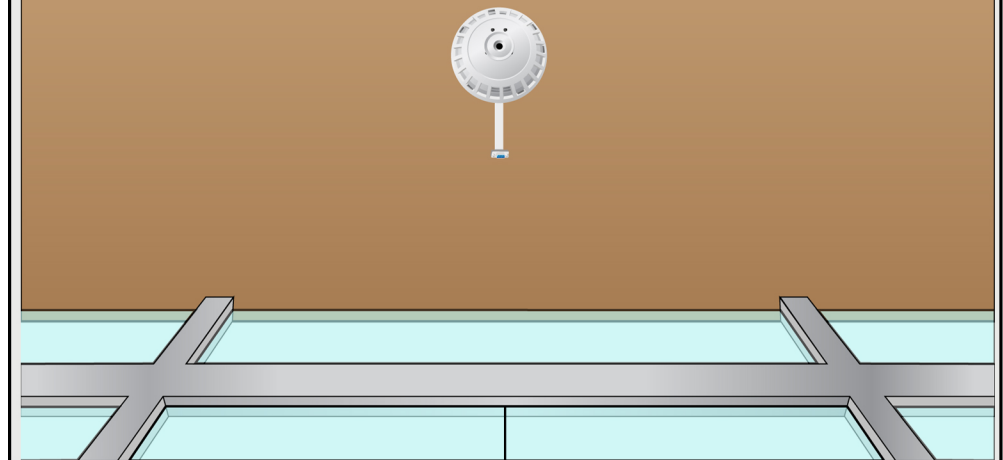
When the DB9 / 10 Pin IDE Cable was connected, mount the camera's face on camera's mount which is already mounted on the ceiling. Make sure the cable runs on the space provided on the camera's mount so that the cable will not be a obstruction when locking the thermal device.

See Step 1 for Locked and Unlocked Position of the thermal device when locking by rotating to opposite direction.

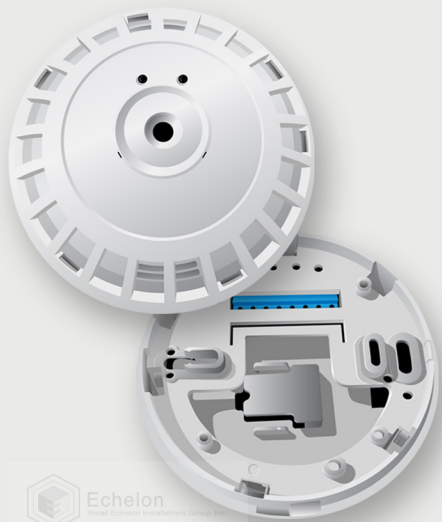
## 10. Finish

This is an illustration that portrays a mounted People Counter IRC 3020 Relay and Thermal Tool, ready for programming.

\*Thermal Tool must be removed once programming is completed\*



# PEOPLE COUNTER IRC3020 RELAY



## Setup and Programming Guide

### 1. Determining Port


Before linking into the camera, Make sure NETFRAMEWORK4 and People Counter setup tool is installed. Also the IRC3020 Thermal Camera must be already mounted on the ceiling.

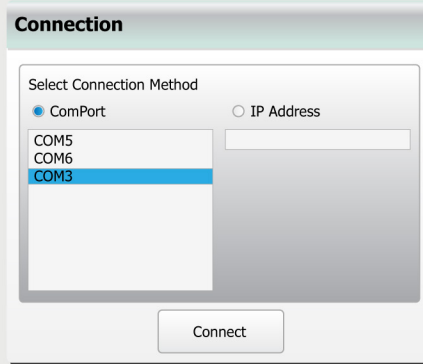
Connect the DB9 Cable to the serial port of the computer. Once connected,

- Go to [Start \(Windows Menu Button\)](#)
  - Right click [My Computer](#)
  - Select [Properties](#)
  - Select [Device Manager](#)
- A new window will appear,
- Select [Ports](#)

A dropdown list of devices will appear showing which port number your USB to Serial cable is connected to.

### 2. Setting the Connection

- Open [People Counter Setup Tool](#) 
- A new window will appear,



- Select [ComPort](#)
  - Select [COM3](#)
  - Click [Connect](#)
- Please note that the ComPort Number (COM3) is just an example, you have to used the COM# that appeared in the Step 1 of this programming guide.

### 3. CommsID and Nodes

When finished setting up the Connection,  
- Hit [Next](#)  
Then you will be asked for a Comms ID, the default number is 127, so you can put numbers 1-127 depending on how many thermal cameras you have. Basically, Comms ID #1 for the first thermal camera, Comms ID #2 for the second one, and so on.  
When finished setting up the Comms ID,  
- Hit [Next](#)  
You will now see 3 rectangular boxes,

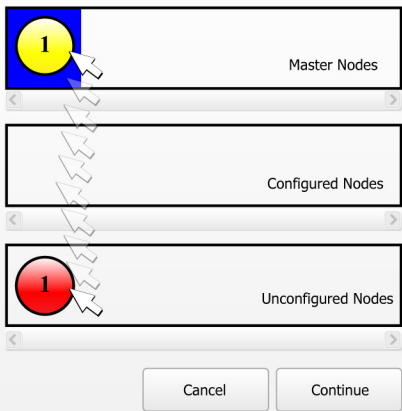
Master Nodes,  
Configured Nodes  
Unconfigured Nodes.

In the Unconfigured Nodes' box, you will see a red circle, you have to drag the red circle and place it inside the Master Nodes' box.

### 4. Configuring Nodes

#### Relay Configuration

Please configure the counter network so that there is a single Master, no unconfigured units, and multiple configured nodes.



- Drag the [red circle](#) going inside of Master Nodes' box making it a Master Node and click [Continue](#).

### 5. Setting Imperial Unit

After the Master Node is configured, a new window will appear asking for a Unit of Measurement and Restoring device settings from a file.

- Choose [Imperial](#) and hit [Next](#) then [Finish](#).

#### Configuration Wizard

The Scan of the Counter Group has been completed and found the following:

Counters: 1  
Validation Units: 0

Select the Unit of Measurement to be used in the application.  Metric  Imperial

Click Restore to lead device settings from a file.

Restore


Previous

Next

Finish

### 6. Height Programming

We'll now continue in programming the height. On the main screen, find a cog or a gear symbol located near center.

- Click the  [gear symbol](#) on the near center of the window.  
Upon clicking, a new window will appear.

Set the mounting height of the thermal camera in inches. Example is 110 inches, this may vary depending on the mounting height of the thermal camera. Also, write the serial number and other details for your documentation, your REIG Representative will ask the serial number and other details.

- Once all settings are done,  
- Click [Program](#) and  
- Hit [Permanent](#)  
then you may close the window.

#### Device Settings

Mounting Height  inches  
X,Y   inches  
Comms ID   
Unit Descriptor   
Device ID   
Site Name   
Site ID   
Locale

Hardware Flag   
Serial Number   
Lens   
Build Version   
Board Type

Reset Errors and Warnings

Default


Program

Permanent

Close

## 7. Relay Setting Configuration 1, 2 and 3

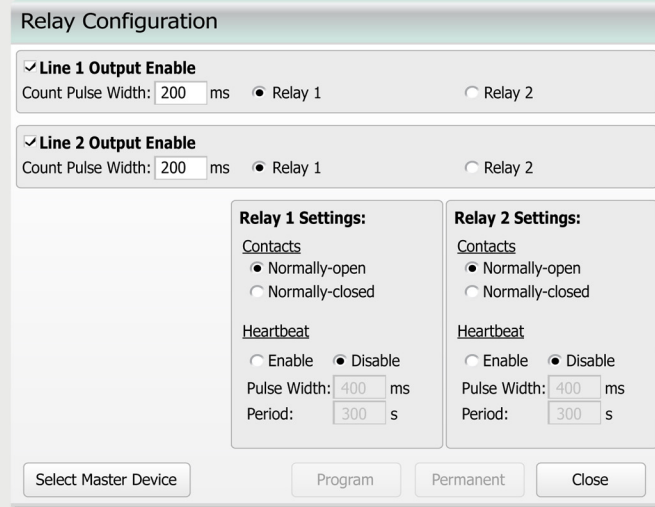
We'll now proceed in programming the relay settings.

- Click the  **Menu** and a list of buttons will appear.
- Choose **Relay Configuration**

There are 3 settings to choose from in programming the Relay Setting of the thermal camera, we will choose setting 2 as this is the standard setting.

Once the correct relay setting is done,

- Click **Program**
- Click **Permanent** and you may now close the window.



Relay Configuration

Line 1 Output Enable  
Count Pulse Width: 200 ms  Relay 1  Relay 2

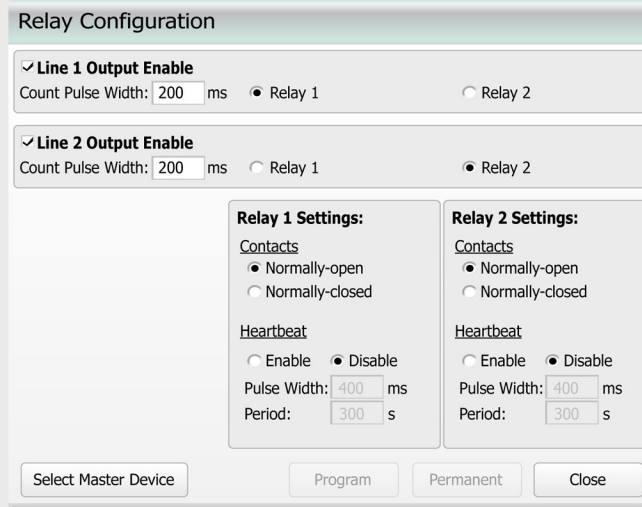
Line 2 Output Enable  
Count Pulse Width: 200 ms  Relay 1  Relay 2

**Relay 1 Settings:**  
Contacts  
 Normally-open  
 Normally-closed  
Heartbeat  
 Enable  Disable  
Pulse Width: 400 ms  
Period: 300 s

**Relay 2 Settings:**  
Contacts  
 Normally-open  
 Normally-closed  
Heartbeat  
 Enable  Disable  
Pulse Width: 400 ms  
Period: 300 s

Select Master Device Program Permanent Close

Setting 1



Relay Configuration

Line 1 Output Enable  
Count Pulse Width: 200 ms  Relay 1  Relay 2

Line 2 Output Enable  
Count Pulse Width: 200 ms  Relay 1  Relay 2

**Relay 1 Settings:**  
Contacts  
 Normally-open  
 Normally-closed  
Heartbeat  
 Enable  Disable  
Pulse Width: 400 ms  
Period: 300 s

**Relay 2 Settings:**  
Contacts  
 Normally-open  
 Normally-closed  
Heartbeat  
 Enable  Disable  
Pulse Width: 400 ms  
Period: 300 s

Select Master Device Program Permanent Close

Setting 2



Relay Configuration

Line 1 Output Enable  
Count Pulse Width: 200 ms  Relay 1  Relay 2

Line 2 Output Enable  
Count Pulse Width: 200 ms  Relay 1  Relay 2

**Relay 1 Settings:**  
Contacts  
 Normally-open  
 Normally-closed  
Heartbeat  
 Enable  Disable  
Pulse Width: 400 ms  
Period: 300 s

**Relay 2 Settings:**  
Contacts  
 Normally-open  
 Normally-closed  
Heartbeat  
 Enable  Disable  
Pulse Width: 400 ms  
Period: 300 s

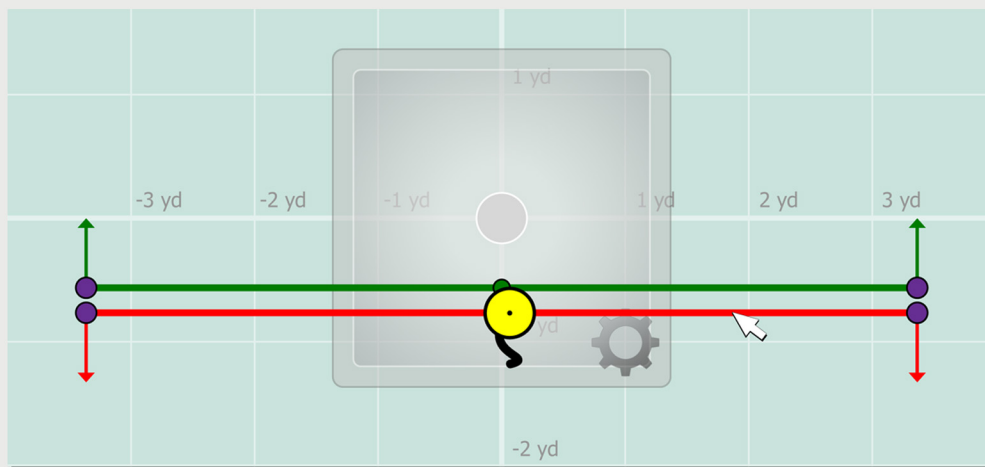
Select Master Device Program Permanent Close

Setting 3

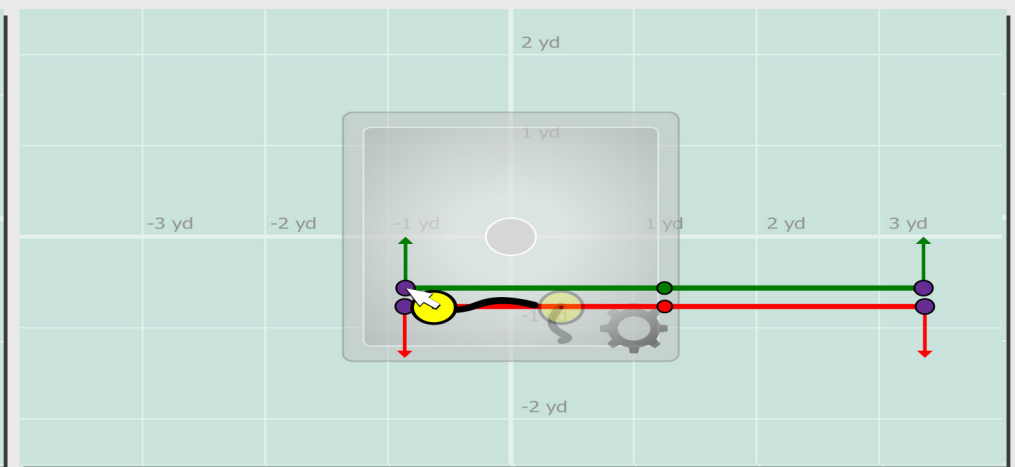


## 8. Setting up the lines

As you move underneath the camera you will see a yellow circle appear, this yellow circle will be the guide on programming the lines appropriately to the door. We will need to ensure the lines are not adjusted past the door frames hinges and the lines them self do not exceed 2 feet inside the store.



First, adjust the lines about a foot inside the store, to give it time to register people as they walk in and out. In adjusting the lines, do not click the center point as this will just create more points to work with, rather click the endpoints or the line itself. In this illustration, you walk 1 foot inside of the store as the yellow circle also moves.



Second, adjust the left lines. You will walk to the left end of the doorframe. The yellow circle will represent you as you view your computer screen. Adjust the lines by clicking the endpoints to where the yellow circle stops, as this will be the hinge of the left hinge of the door frame. The line should not exceed this point.

## 9. Right Lines Adjustments & Backup/Restore Function

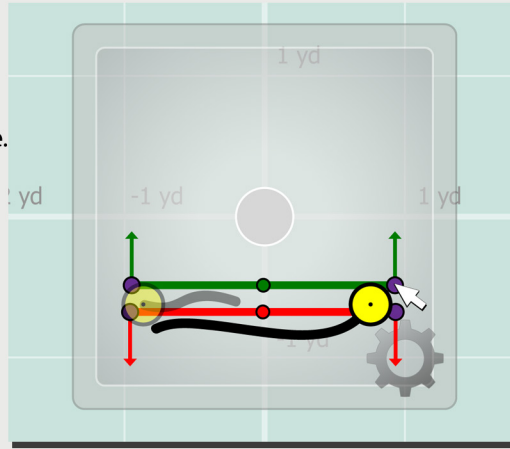
Adjusting the right side of the lines, we will basically be repeating the same steps as in adjusting the left side. Again ensure that the horizontal adjustment of the lines do not exceed the door frame.

Now the lines are all set, perform test counts to ensure that all counts are coming through properly to the software. Once the lines are set properly and counts are coming through, take a screenshot of the lines and counts. They will be needed for deliverables.

Once all lines and configurations are set properly, you have to Backup the configuration settings.

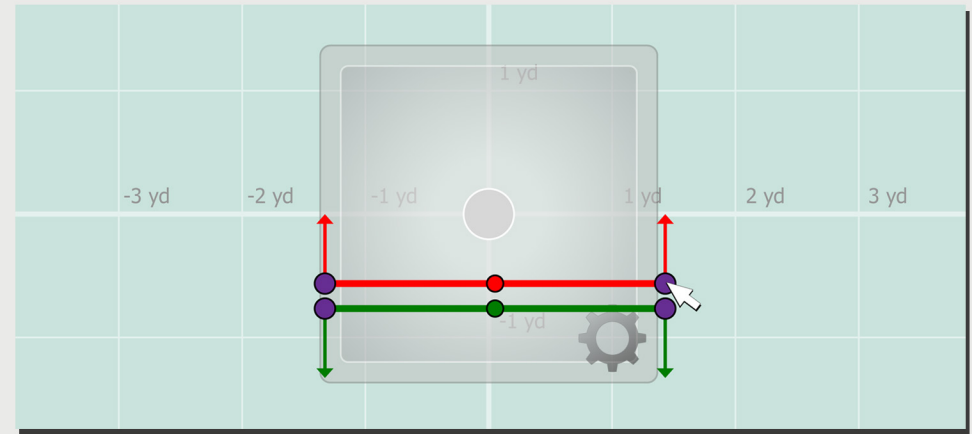
- Click the  **Menu** button and hit **Permanent All**.


- Then Click **Backup/Restore**, then click **back up**. Save the file as the store name then number. Ex. Storename12345. Take Screen shots of the lines, and the Relay Config. Run test counts to be sure counts are coming in on both lines. Also ensure that the lines cover the whole door frame and that no customers can sneak past the lines.



## 10. Flipping Lines (Added Feature)

This part of the programming guide is optional and only needed if the lines are to be flipped. You can skip this part if lines don't need to be flipped.



First is to go in the  **Menu** by clicking it. A list of menu will appear, then select **Lines**. A new dropdown list will appear, click **Flip Lines**, then hit **Flip Line 1** or **Flip Line 2**. Make sure the Green line is the inbound line and the Red line is the Outbound Line. Also, when lines are flipped, the positions of the lines may have changed. To make sure, repeat Step 8 and 9 then perform test counts again.

## 11. Advanced Tab Demystified (Added Feature)

This part of the programming guide is for advanced options only. It is located on the lower left side of the window.

**Discrimination Sensitivity:** This Effects how the camera groups thermal images together. Raising the sensitivity will more than likely count 2 people separately. But will also in some cases count 1 person as two objects depending on the size of the individual and the height of the thermal.

**Large Target Couple Counting:** Works almost the same as the discrimination sensitivity. When enabled this keeps close targets separate. Also larger individuals or individual limbs (Arms, Legs) may be seen as multiple thermal images when enabled. If double counting is an issue try disabling this function to merge the close thermal images together as 1 count.

### Count Modes:

**Immediate:** When this function is set the count will apply as soon as the individual crossing the count line.

**Anti Dither:** Prevents counting when the individual walks out and then walks back in, in the same setting. As long as they did not leave the screen they will not be counted twice.

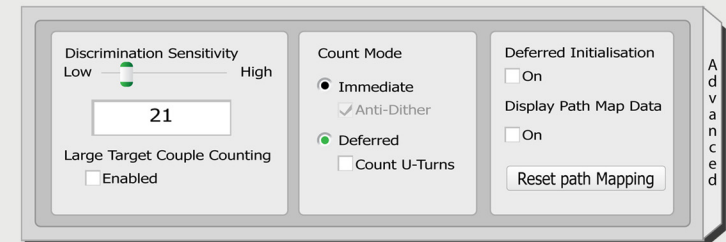
**Deferred:** When this function is set, the count will apply when the individual crosses the line and then leaves the view of the camera.

**Count U Turns:** If the individual walks out and then walks back in they will be counted on the in and outbound line.

**Deferred Initialization:** This option helps to clean up problems associated with rapidly cooling and or heating flooring be detected as a target. When this is switched on, this ensures that ghosting images are not seen when an individual walks through the door, therefore they are not counted. THIS SHOULD NOT BE ENABLED UNLESS THE PROBLEM IS OBSERVED. When it is enabled this sets the initialization of the target occurs much later in the process of counting, and could mean the valid targets have already crossed the count lines before recognized. This could lead to severe undercounting.

**Display Path Map Data:** This basically shows where most of the traffic is coming from on the software. A blue line is made for every path that is taken. The heavier the traffic in that area the darker the blue line will be. This can be used to see which part of the door gets the heaviest traffic.

**Reset Path Mapping:** Removes all blue lines and starts over.

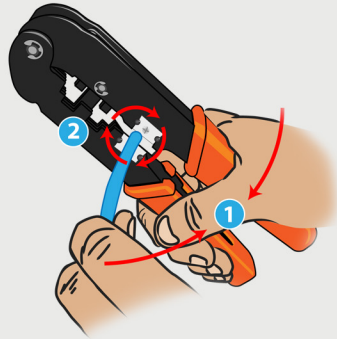


# Registered Jack 22 (RJ22)



## Wiring and Crimping Guide

### 1. Cutting Wires

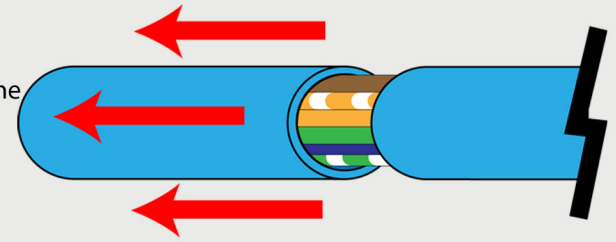


Using the Wire Cutter of the Crimper,  
1. Gently press both handle. Make sure  
not to cut the wires inside the cable.

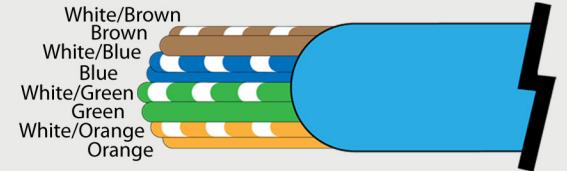
2. Rotate the Crimping Tool to  
completely cut the outer covering of the  
cable.

### 2. Unshielded Twisted Pair (Cat5 Cable)

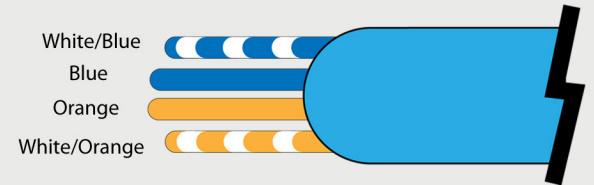
Remove the outer casing  
of the Cat5 cable to show the  
smaller wires inside.



It has 8 wires.  
(See second illustration)

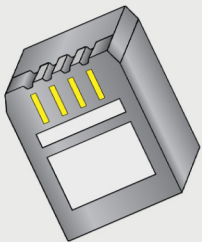


For the Sensor, we will only  
use 4 wires, so we will cut  
all unnecessary wires.  
(See third illustration)



### 3. RJ22 Handset Plug

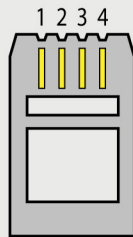
Registered Jack 22 or simply RJ22  
is a standard telephonehandset  
plug for flat stranded 4  
conductor phone cable.  
\*\* THIS IS NOT A RJ11!\*\*



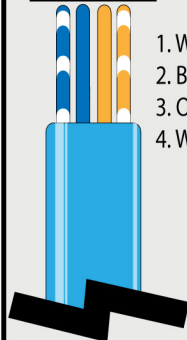
Insert the wires of the cable on the  
RJ22 Handset Plug. See RJ22 Wiring  
Guide for reference. Make sure no  
copper is exposed when crimping!

### 4. RJ22 Wiring Guide

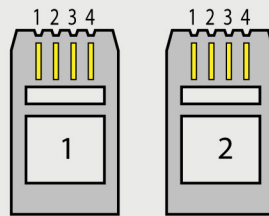
Setting 1 & 3



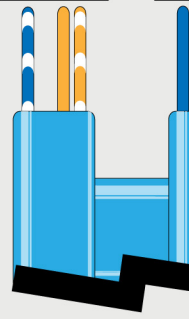
1. White Blue
2. Blue
3. Orange
4. White Orange



Setting 2



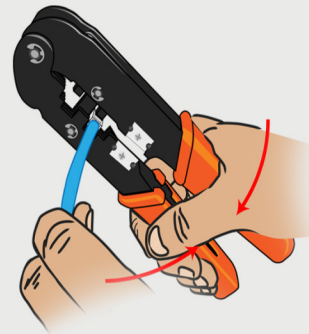
- Crimp 1
1. White Blue
  - 2.
  3. Orange
  4. White Orange
- Crimp 2
1. Blue
  - 2.
  - 3.
  - 4.



\*Please call your REIG Tech Support Representative for the setting number

### 5. Crimping

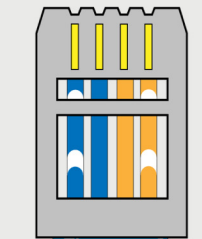
With the Cat5 Cable and RJ22 Plug  
Handset ready, we can now crimp them  
using the Crimper.



Insert the RJ22 Handset Plug to the  
RJ22 crimping slot and squeeze the  
crimper carefully and tightly.

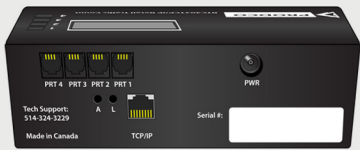
### 6. Finishing

This illustration portrays a crimped  
Cat5 Cable with RJ22 Handset Plug.



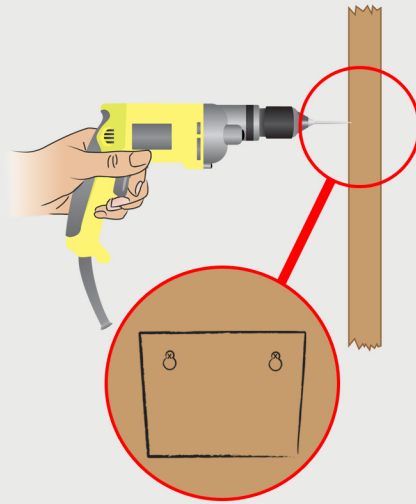
\*Setting 1 \*

# 7 PRODCO RTC 402



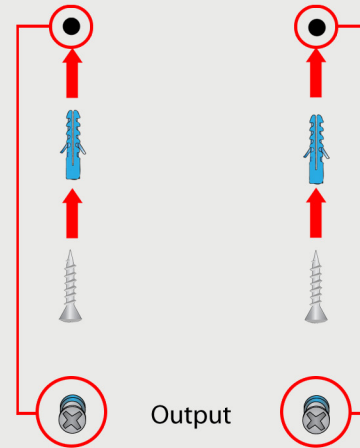
## Mounting and Installation Guide

### 1. Drilling Position



Using a drill, create 2 holes on the wall to mount the RTC402 to the wall securely

### 2. Screw and Wall Plugs



Once the holes are drilled, insert the wall anchors and screw in each hole.

### 3. RTC402 Mounting

Mount the RTC402 on the fixed screws

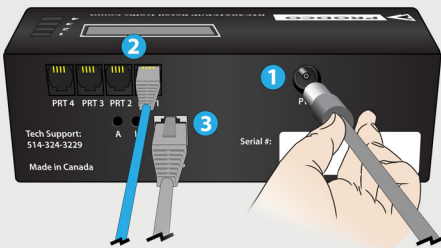


This illustration portrays that the RTC402 was mounted properly.



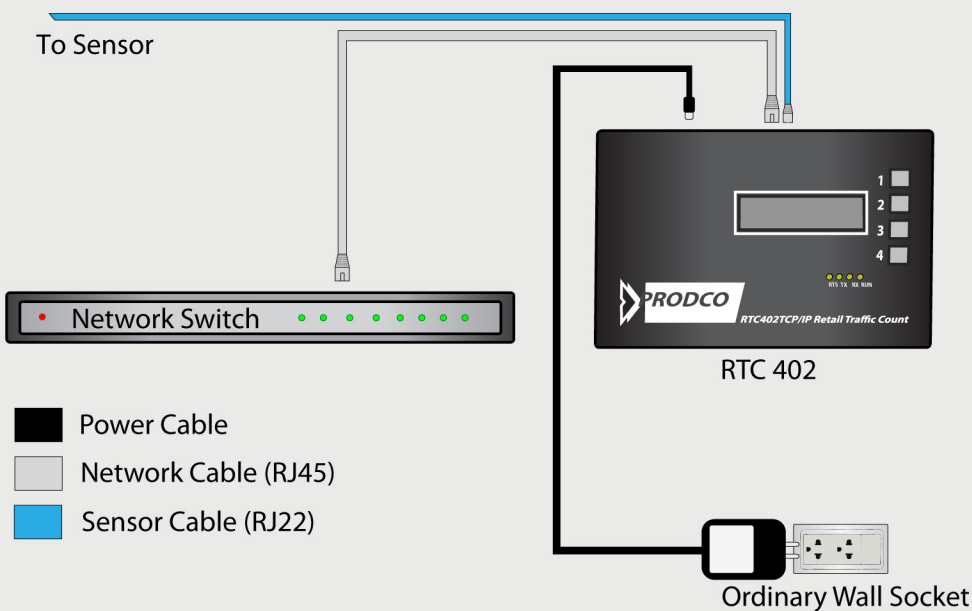
### 4. Cabling

Plug all the needed cables on the corresponding ports.



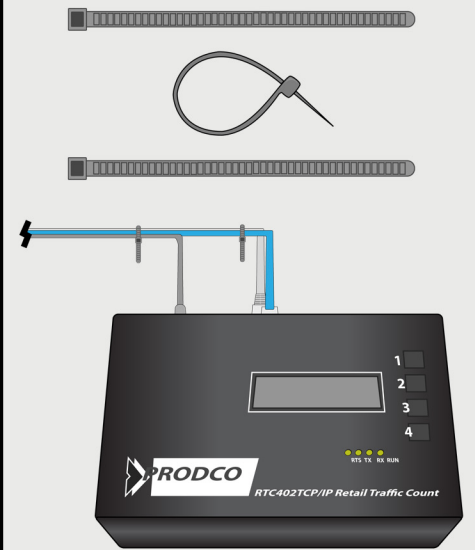
1. Plug the Power Cable on the power port.
2. Plug the Sensor Cable on the first RJ22 port (PRT1). PRT 2,3 and 4 will be used for extra sensors.
3. Plug the Network Cable on the RJ45 port.

### 5. PRODCO RTC 402 Wiring Diagram



### 6. Finishing

Using zip ties, neatly tie all cables.



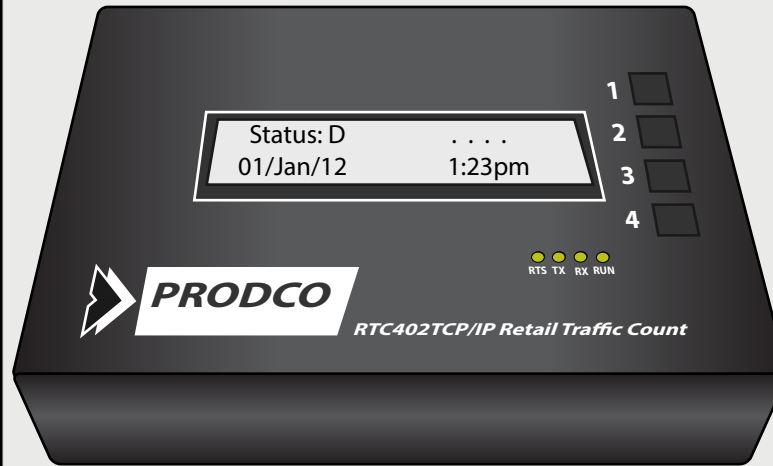


# PRODCO RTC 402



## Programming Guide

## 1. Button Function



Date Format: = Day / Month / Year

\*RTC PASSWORD = 3314\* (Whenever Prompted)

1. Scrolls Options Up
2. Scrolls Options Down
3. Navigates cursor when cursor is available in other screens, while shifting through options it also acts as an enter button.
4. Acts as a return button. While in a screen you can hit this button to return to the previous window. Hit 4 twice to return to the main screen. Once all changes are made within the screen you are viewing hitting 4 will save changes.

## 2. Changing Date & Time

Ensure the time and date is set properly before running test counts or checking counts.

To change the time, from the main screen hit 1 (2 times) until you see "Set Time"

Press 3 to confirm

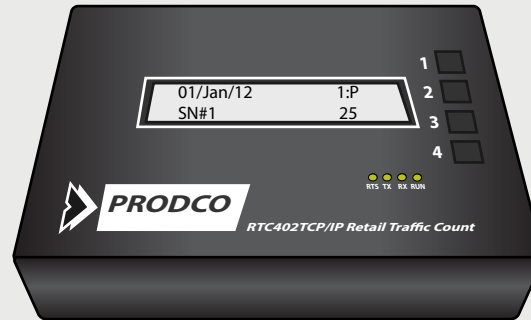
Enter the password (See Step 1)

Press 3 to navigate the cursor to the designated value you wish to change, press 1 to go up in value, press 2 to go down in value.

Once changes are complete hit 4 (2 times) to confirm.

Make sure the RTC is set to local time

## 3. Checking Counts



To check counts press 1,3,3.

This screen will show the current hour, date and will automatically be set on sensor #1 (SN#1) or, PRT1. Your current count will be on the bottom right.

You can navigate through date, hour and sensors by using 3 to navigate the cursor, once the cursor is on the desired value press 1 to scroll up and 2 to scroll down.

From this screen you will run test counts to ensure accuracy of the sensors. First you will access this screen and check the current count for all sensors. Before heading to the entrance press 4 to exit back to the main screen.

Run a few Inbound and Outbound counts through the door and return to the RTC to check the counts for accuracy. If the counts are too high or too low, double check the divide ratio (Step 4)

If problems persist, check all sensor settings and wiring.

## 4. Divide Ratio

To change the divide ratio, from the main screen hit 1 (7 times) until you see "Divide Ratio".

Hit 3 to confirm.

Enter the password (See Step 1)

Press 1 or 2 to change the value.  
Press 3 to Navigate  
Press 4 to Confirm

Divide ratio = /1111 if sensor setting is 2 & 3  
Divide ratio = /2222 if sensor setting is 1

Note the first number in the divide ratio is acting as port one's divide ratio, the second number is acting as port two's divide ratio, ect.

\*Please check with your Tech Support Rep to confirm the correct divide ratio\*

# Guide to Canning Thermal Sensors

Please contact tech support if you have more than one Thermal Sensor on site to determine if they must be canned together. This is evident when a store has two sensors but only one home run from the front of store to the location the RTC unit will be located. Canning requires the use of resistors. You will program both Thermals by logging into the Master only; do not connect to the node. Below you will find the wiring pin out for the Master and the Node, as well as the steps for programming.

## **Wiring pin out for master:**

4 - White blue

5 - White brown twisted to one side of resistor in thermal (insert both wire and resistor into terminal) - this is the cable between the master and node not the home run

6 - Solid brown twisted to other side of resistor in thermal (insert both wire and resistor into terminal) - this is the cable between the master and node not the home run

7 - Solid orange and solid orange to node

8 - Solid blue, white orange, and white orange to node

## **Wiring pin out for node:**

5 - White brown twisted to one side of resistor in thermal (insert both wire and resistor into terminal) - Cable connecting to master

6 - Solid brown twisted to one side of resistor in thermal (insert both wire and resistor into terminal) - cable connecting to master

7 - Solid orange chained to 7 on master

8 - White orange chained to 8 on master

### Overcounting

- Make sure lines are programmed properly to the door frame. If lines are too far inside the store, customers may be counted twice.
- If there is double counting (More than one indicator on the thermal passing through the lines) Lower the height on the thermal slightly. If you are using an IRC3020 camera try lowering the sensitivity level in the advanced tab.
- Make sure lines are not programmed near any displays, that may cause customers to be counted while they are looking at local merchandise.
- Make sure lines are not adjusted past the door frame's threshold. This will ensure that customers walking around in the store will not trip the beam unless they walk through the door.
- Pulse width should be set to 200ms.

### Overcounting on the RTC.

- Ensure the relays are programmed properly to the store specs. Ex: If store is counting in and out (setting 1) on the same port of the Jbox, at a divide ratio of 100%, they will have double counts. The Divide ratio will need to be changed to 50%.
- Check all wiring for loose or damaged wires, this may cause the circuit to ground and produce false counts.
- Ensure heartbeat functions are disabled on all relays

### Undercounting

- Make sure no lights are pointing directly at the camera, this may cause the thermal vision to heat up and mask people walking through the door.
- Give the count lines a bit of room from the door frame. The thermal will need some time to recognize that there is someone walking through the door. If the lines are programmed directly on the door it may miss a few people through the initialize process.
- Direct Heat will mask counts. Sunlight, heated door mats, and heat curtains/vents, may cause an issue. Pay close attention to the surroundings
- Make sure pulse width is set to 200ms.
- Make sure lines cover the whole width of the door frame. If the lines are too short customers may walk past the lines without getting counted.

### Undercounting on the RTC.

- Wire Connection may be loose or wired incorrectly. Please double check the wiring guide if all counts are coming through properly on the thermal.
- Insufficient power or no power at all. See power trouble shooting.

### Issues logging into the thermal.

- Make sure power is established to the thermal before hooking in the thermal tool.
- If loss of power while plugged in with thermal tool attached, be sure you have the correct thermal tool. There are 2 different types. REIG Tech support will be able to inform you on which one you may be using.
- Thermal will need power to program, while programming the thermal will need to be plugged into its base.

### Incorrect Counting

- Wires maybe wired to the wrong port. Ensure inbound counting is counting on Odd Port numbers such as 1 and 3. Outbound counting will be counting on Even Numbers like 2 and 4.
- Make sure line one is counting inbound traffic, this line should be pointing inside the store.
- Make sure line two is counting outbound traffic, this line should be pointing outside the store.
- Line 1 programming operates on terminal 4 on the wiring block of the thermal, be sure this line goes to ports 1 or 3 on the RTC/Jbox. (If only 1 door it will go to port 1)
- Line 2 programming operates on terminal 3 on the wiring block of the thermal. Be sure this line goes to ports 2 or 4 on the Jbox. (If only 1 door it will go to port 2)
- Please check with REIG to make sure the thermal set up is correct. There are 3 Settings. Setting 1 counts in and out on 1 port of the RTC/Jbox at 50%. Setting 2 counts in and out on separate ports (Ex: Inbound counts on port 1 and Outbound on port 2) at 100%. Setting 3 counts outbound only on 1 port at 100%

- Ensure that you are using the proper software. Once again there are two different types
- Make sure you are using the correct Com port, Check your device manager on your laptop.
- Double check all connections
- Restart laptop if issues are still occurring
- If the program has a windows error once logging in. Try running the program as an administrator, even if you are the administrator of your computer this is necessary. (Mainly for Vista Users)