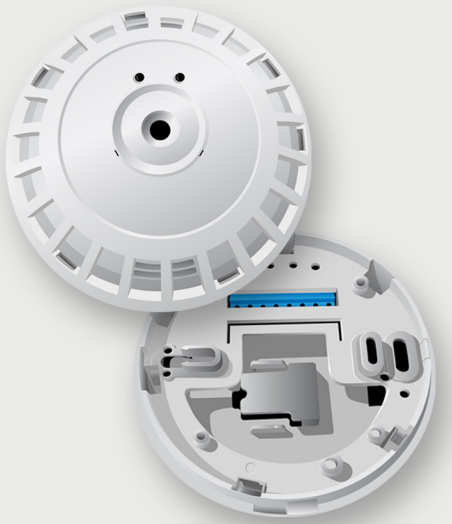
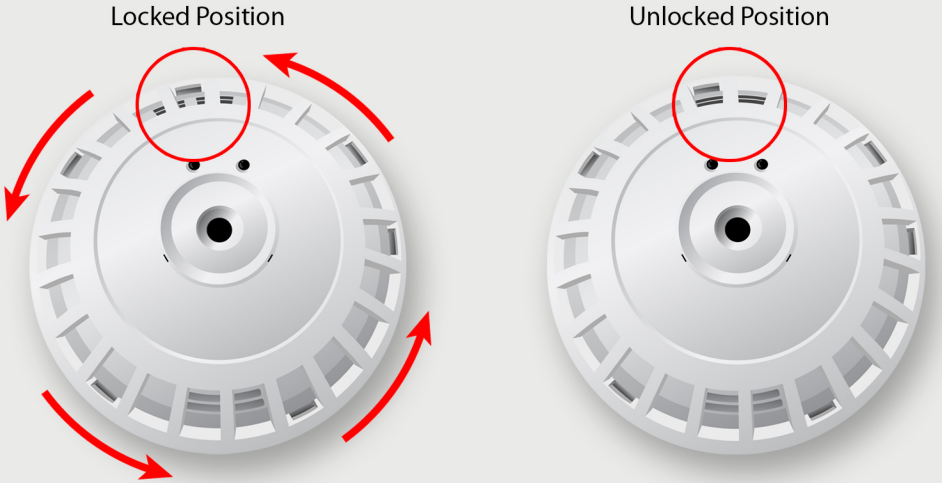
Instruction Guide – RTC 9000/Thermal

PEOPLE COUNTER IRC3020 RELAY



Disassembly and Mounting Guide

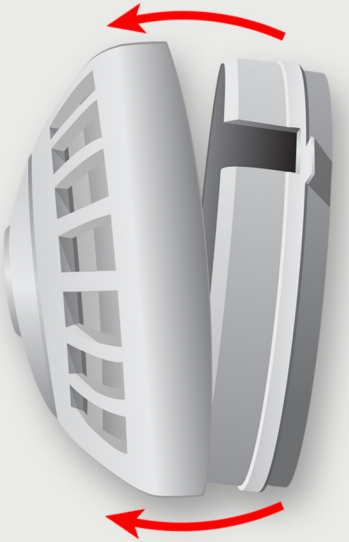
1. Unlocking the IRC3020 Relay



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

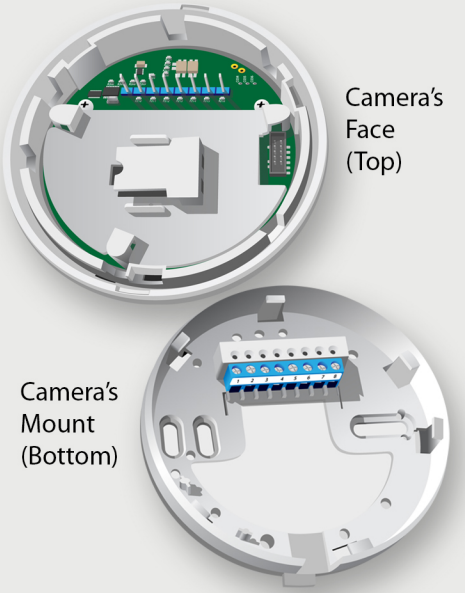
See circled part of the illustration for locked position and unlocked position.

2. Disassembly



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

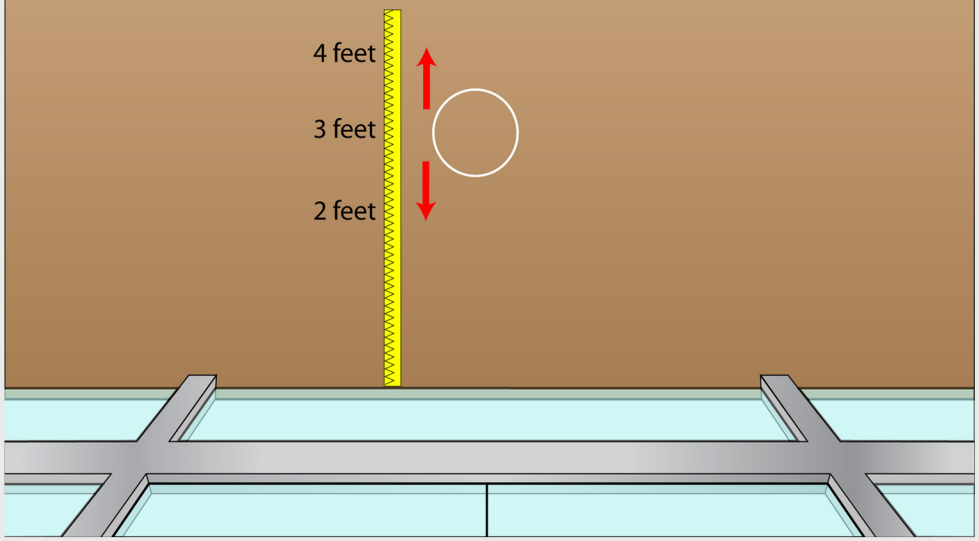
3. Disassembled Parts



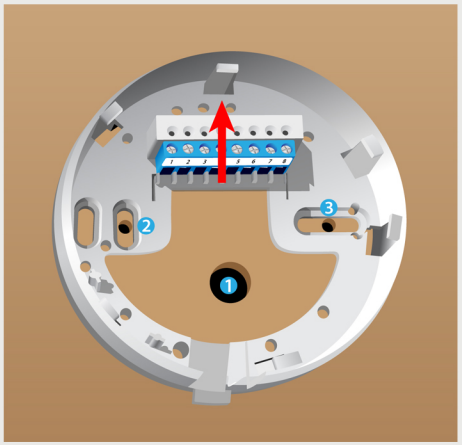
These are the disassembled parts of the IRC3020 Relay.

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.

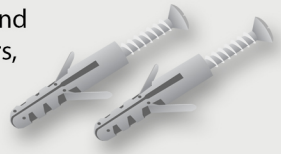


5. Drilling

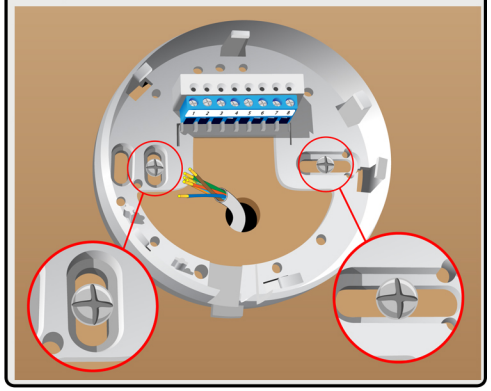


Once the position is determined, we can now drill all necessary holes. Hole #1 is inteded for Cat5, Holes #2 and #3 are intended to mount thermal to the ceiling. The arrow in this illustration goes inside the store, so make sure the device is properly positioned.

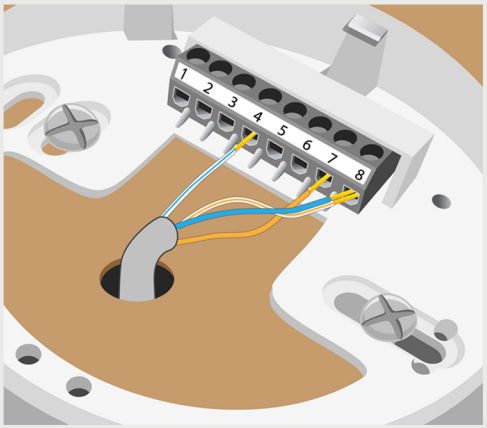
5. Mounting with Screws



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.

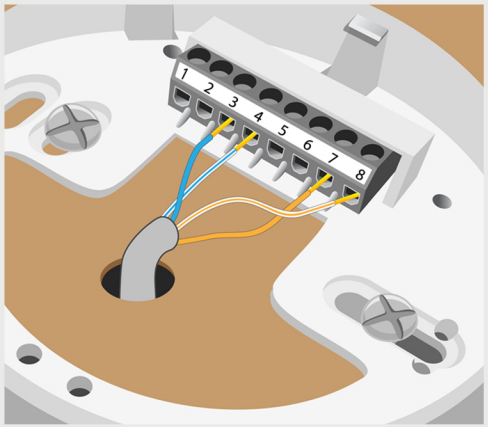


6. IRC3020 Relay Wiring Guide



Setting 1 and 3 wiring

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

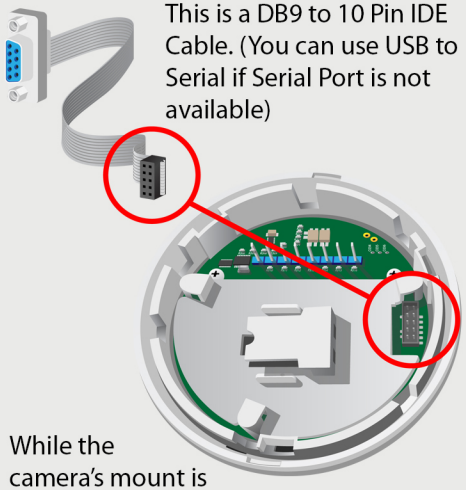


Setting 2 wiring

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.

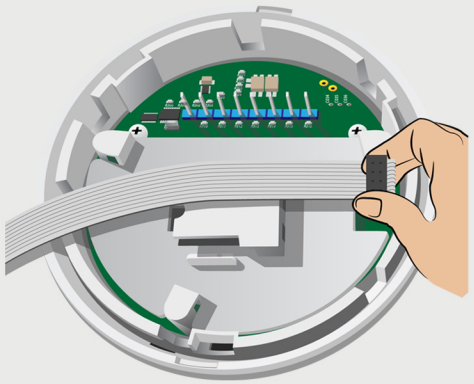
7. DB9 / 10 Pin IDE Cable



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.

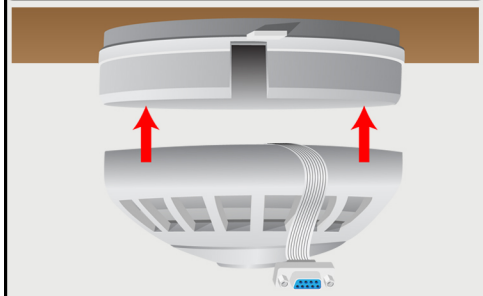
8. Plugging



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



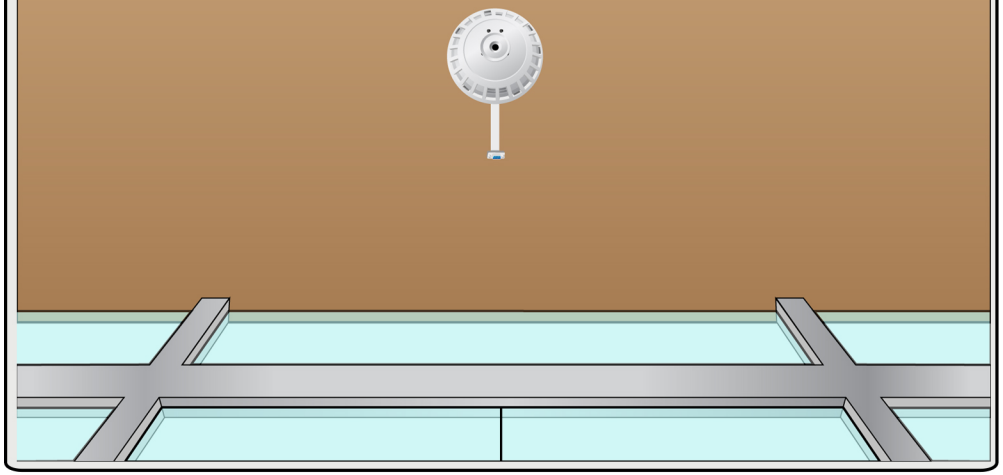
When the DB9 / 10 Pin IDE Cable was connected, mount the camera's face on camera's mount which is already mouted on the ceiling. Make sure the cable runs on the space provided on the camera's mount so that the cable will not be a obstruction when locking the thermal device.

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

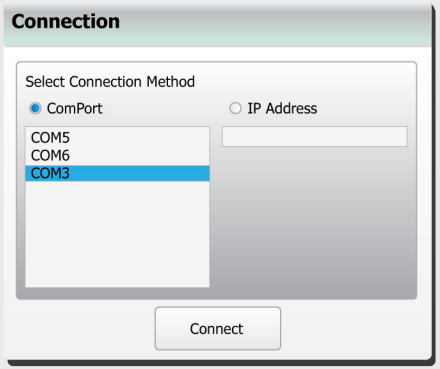
A new window will appear,
- Select Ports

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 PC

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

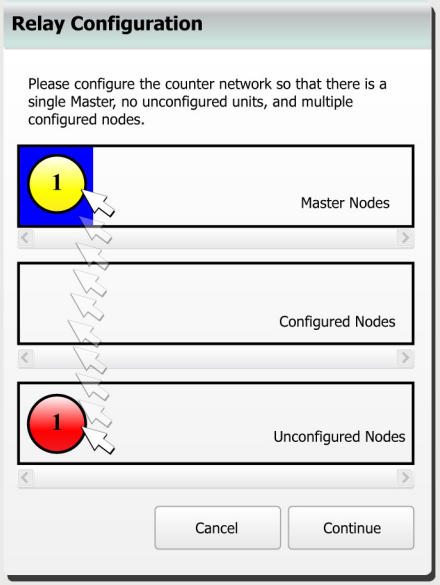
Then you will be asked for a Comms ID, the default number is 127, so you can put numbers 1-127 depending on how many thermal cameras you have.
Basically, Comms ID #1 for the first thermal camera, Comms ID #2 for the second one, and so on.
When finished setting up the Comms ID,
- Hit Next

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.

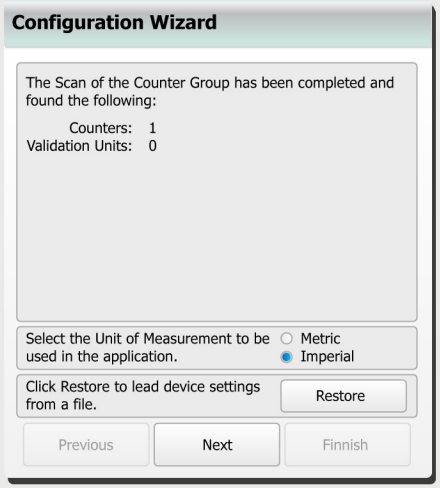
4. Configuring Nodes



- 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.



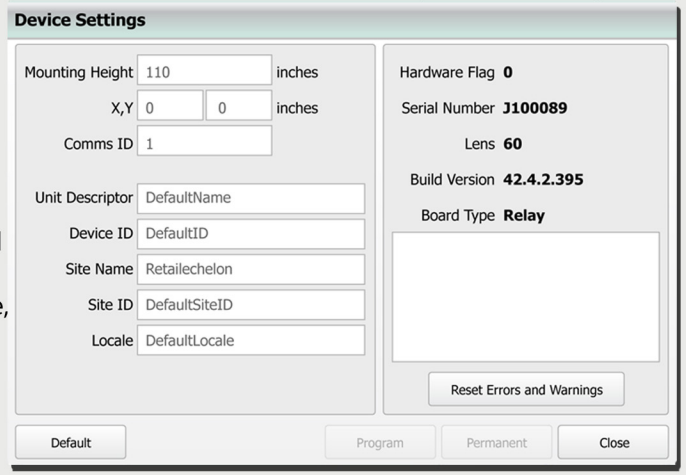
6. Height Programming

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.

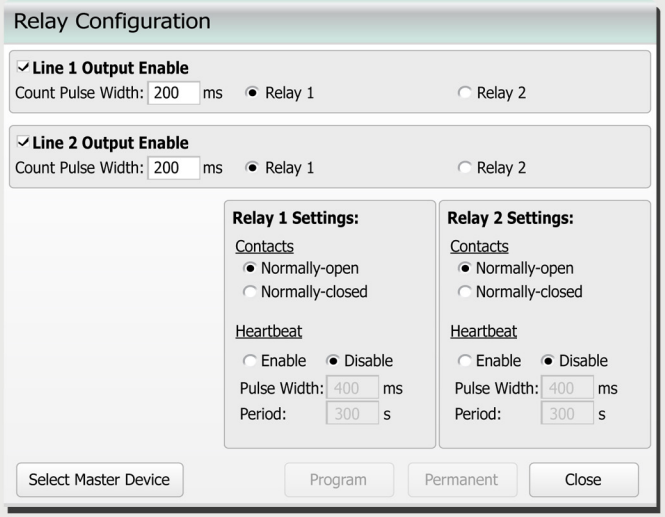


7. Relay Setting Configuration 1, 2 and 3

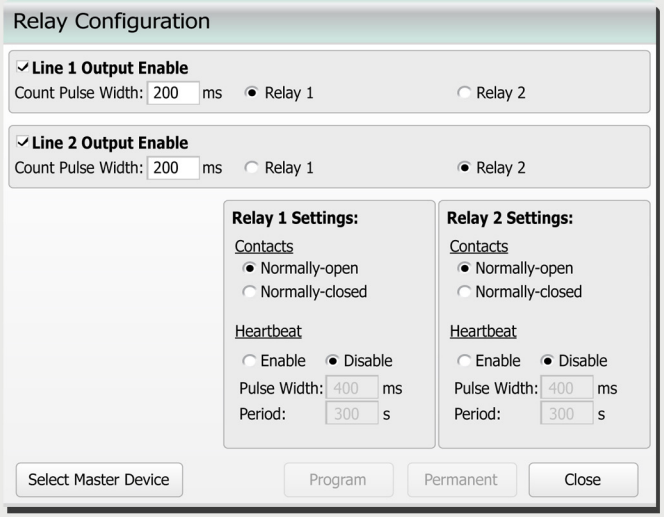
We'll now proceed in programming the relay settings.
- Click the Menu and a list of buttons will appear.
- Choose Relay Configuration

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.

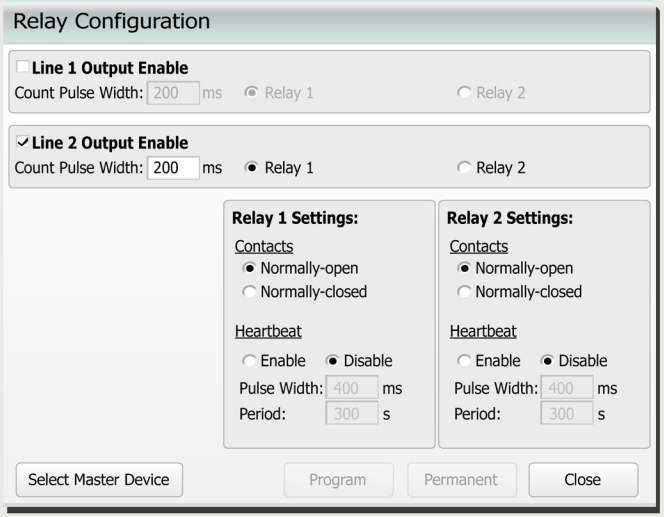
Once the correct relay setting is done,
- Click Program
- Click Permanent and you may now close the window.



Setting 1



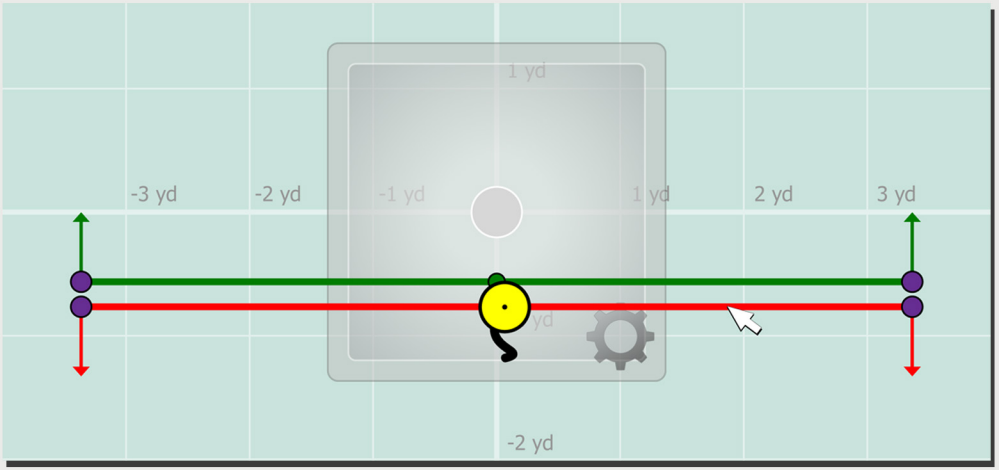
Setting 2



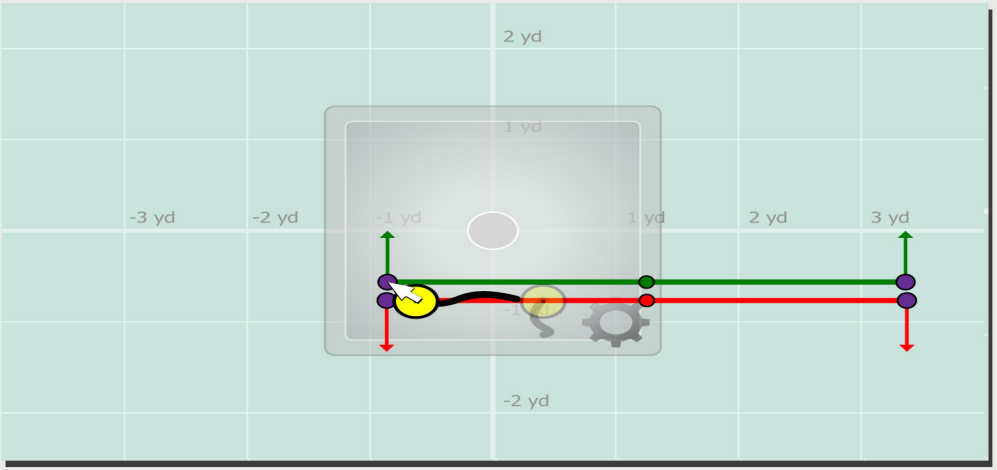
Setting 3

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.



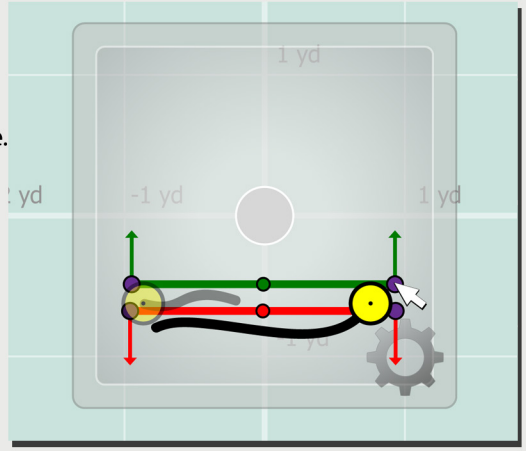
First, adjust the lines about a foot inside the store, to give it time to register people as they walk in and out. In adjusting the lines, do not click the center point as this will just create more points to work with, rather click the endpoints or the line itself. In this illustration, you walk 1 foot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

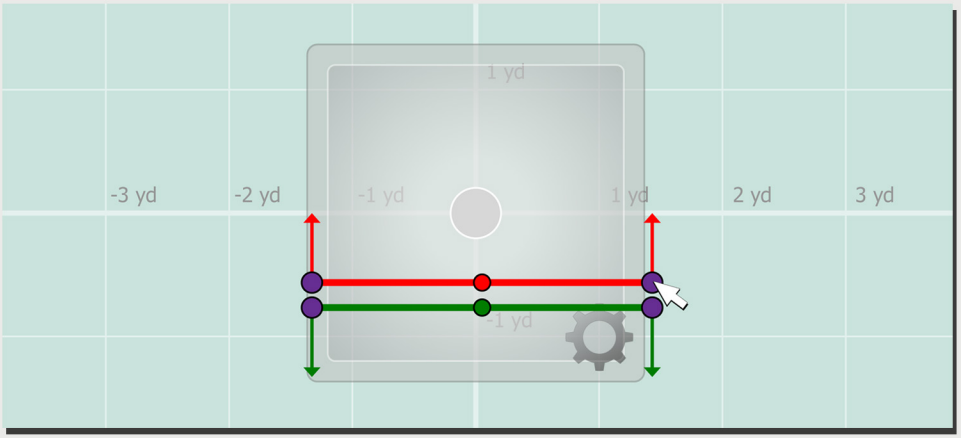


Now the lines are all set, perform test counts to ensure that all counts are coming through properly to the software. Once the lines are set properly and counts are coming through, take a screenshot of the lines and counts. They will be needed for deliverables.

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, the 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.

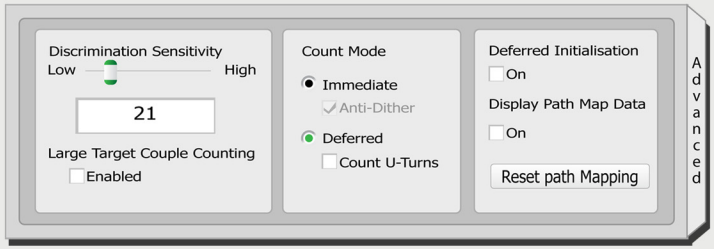
Count Modes:

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 settting. 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.

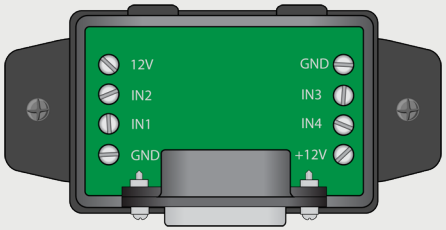


Deferred Initialization: This option helps to clean up problems associated with rapidly cooling and or heating flooring be detected as a target. When this is switched on, this ensures that ghosting images are not seen when an individual walks through the door, therefore they are not counted. THIS SHOULD 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.

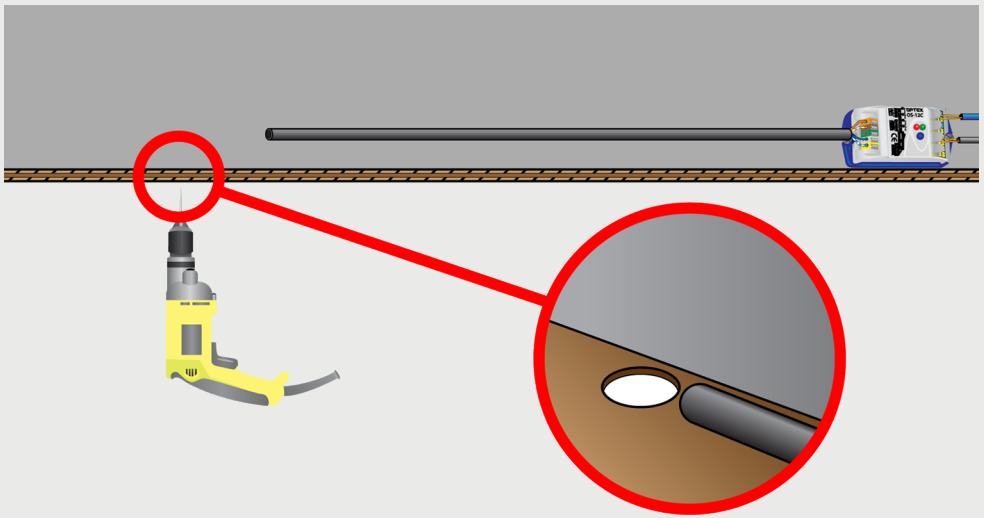
Reset Path Mapping: Removes all blue lines and starts over.

PRODCO Junction Box (JBOX)



Mounting and Installation Guide

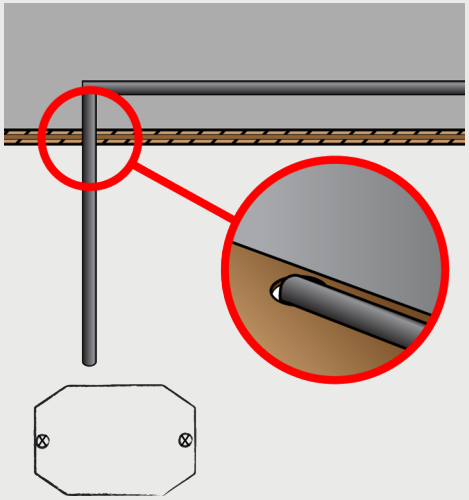
1. Determine Jbox Location



Confirm location of where JBox will be located with Tech Support, (usually near the network switch). Pass cable accordingly, along with other data cables or through conduit.

* Note that cable and room distances may vary and be longer than in the illustration

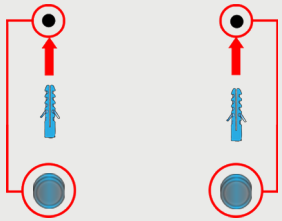
2. Drilling Mounting Holes



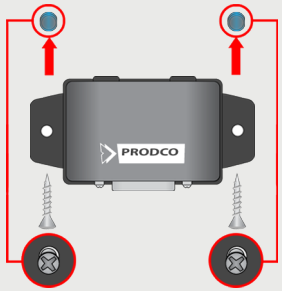
Determine where the jbox is to be mounted.

3. Mounting the JBOX

Insert the wall anchors.

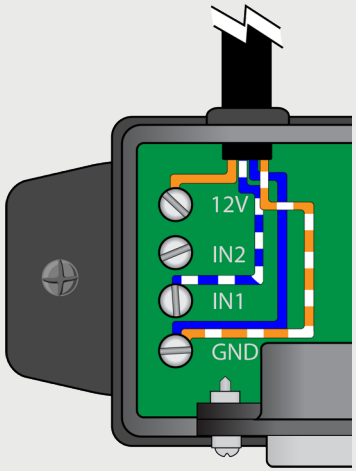


Insert the screws in the JBox's mounting holes, and mount the JBOX on the wall.

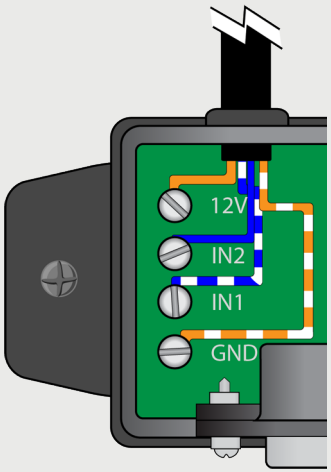


4. PRODCO JBOX Wiring Guide

Please call your Tech Support Representative for the setting number

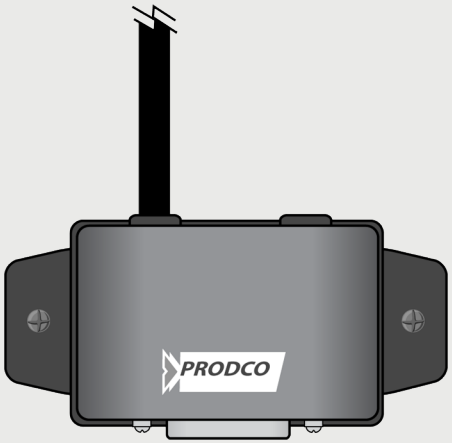


Setting #1 & #3 Wiring
12V = Solid Orange
IN2 = ----
IN1 = White/Blue
GND= Solid Blue + White/Orange (Twisted)



Setting #2 Wiring
12V = Solid Orange
IN2 = Solid Blue
IN1 = White/Blue
GND= White/Orange

5. Finishing

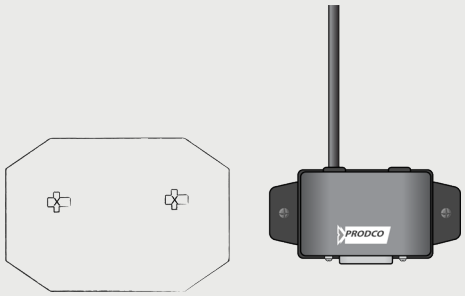


This illustration portrays a mounted and wired Jbox with cover.

PRODCO
RTC 9000

Mounting and Installation Guide

1. Drilling Positions

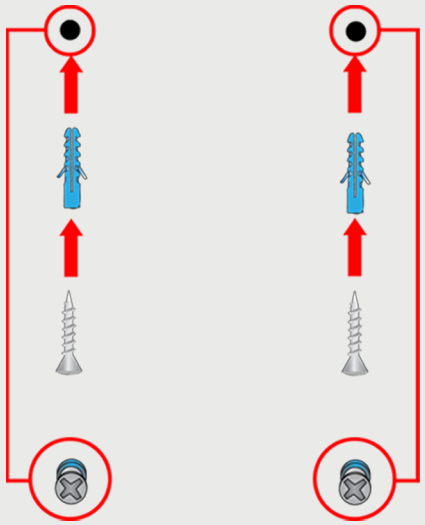


In the room where the JBox is located, mount and install the RTC9000 close to the Jbox.

(Should be located near network switch. Please confirm with Tech Support.)

Drill the part marked with an X for mounting process.

2. Screws and Wall Anchors



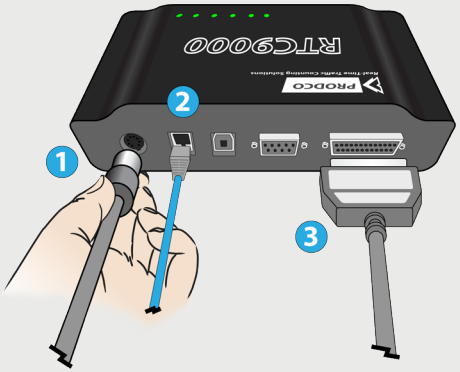
Once the holes are drilled for RTC9000, insert the wall anchors and screw in the first and second holes.

3. Mounting RTC9000

Mount the RTC 9000 on the wall with the use of the screws and wall anchors.

4. Cabling

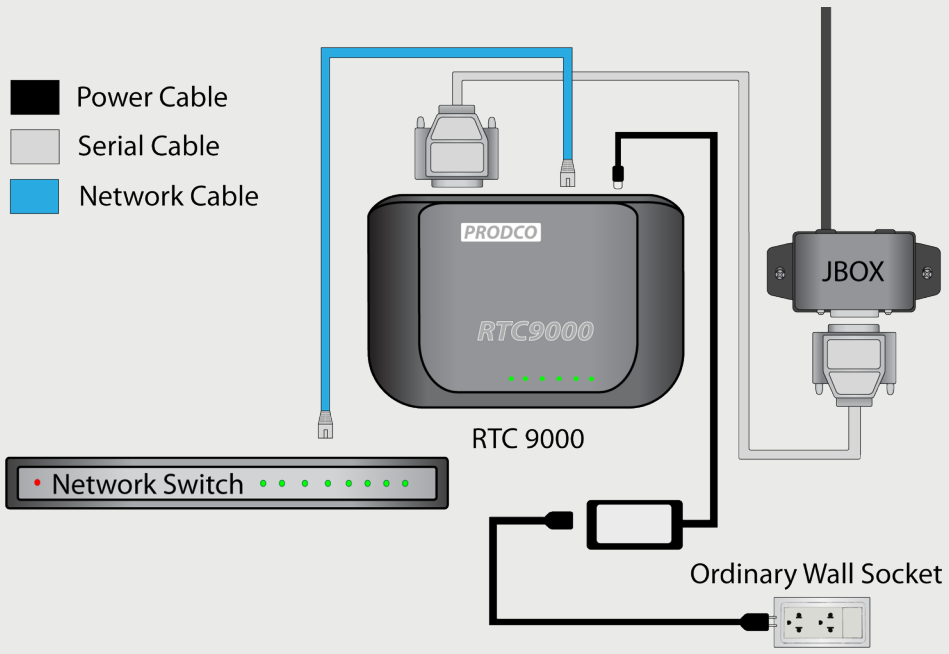
Plug all required cables in the corresponding ports.



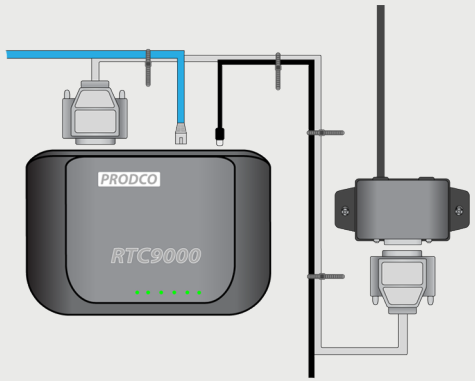
1. Plug the Power Cable into the power port.
2. Plug the Network Cable into the RJ45 port.
3. Plug the 25pin Serial cable into the Jbox port.

Console port is only used for programming

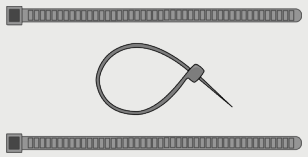
5. PRODCO RTC9000 Wiring Diagram



6. Finishing



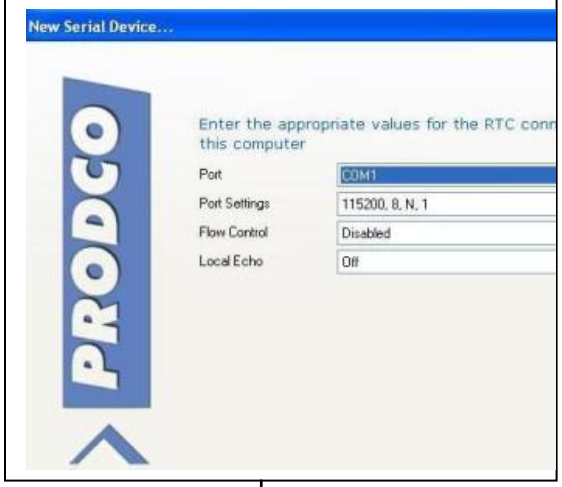
Using zip ties, neatly tie all cables.



Gaining Access To the 9000.

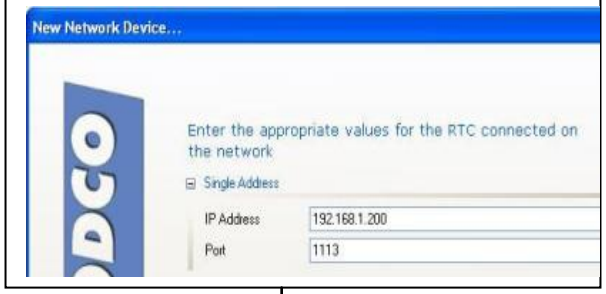
Using a Serial Connection

--To gain access through serial (console port),
--Plug a USB to serial or a straight through serial cable into the Console port of the 9000
--The other end will go into your USB port/ 9Pin serial port.
--Once the cable is plugged in you should see the console light on the RTC turn green.
--Once this is accomplished pull up RTCManager on your computer.
At the top left click New → New Serial Device → Select the correct port → Click next.



Using a Network Connection

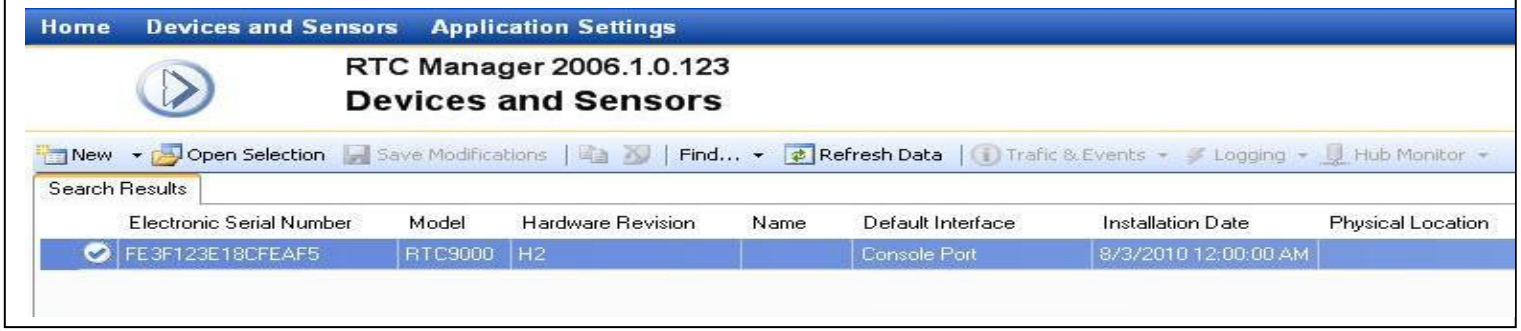
--To gain access via network cable, plug in a standard patch cable into the Ethernet port on the RTC to the Ethernet port on your laptop.
--You should get a green Ethernet light.
--You will need to know the IP address of the unit you are going to program.
--Check the paperwork that had came in the box, or call your REIG Tech specialist. Once you have the IP you will need to change the static IP of your computer, two numbers off the last set of digits.
For example: Unit IP = 192.168.1.200
Static IP = 192.168.1.198
Gateway leave at 255.0.0.0
--Once that is set, Apply the changes and close both the Internet Protocol window and the Local Area Connection Properties Window.
--Open RTC Manager.
--At the top left click New → New Network Device → Type in the IP address of the unit → Click next.

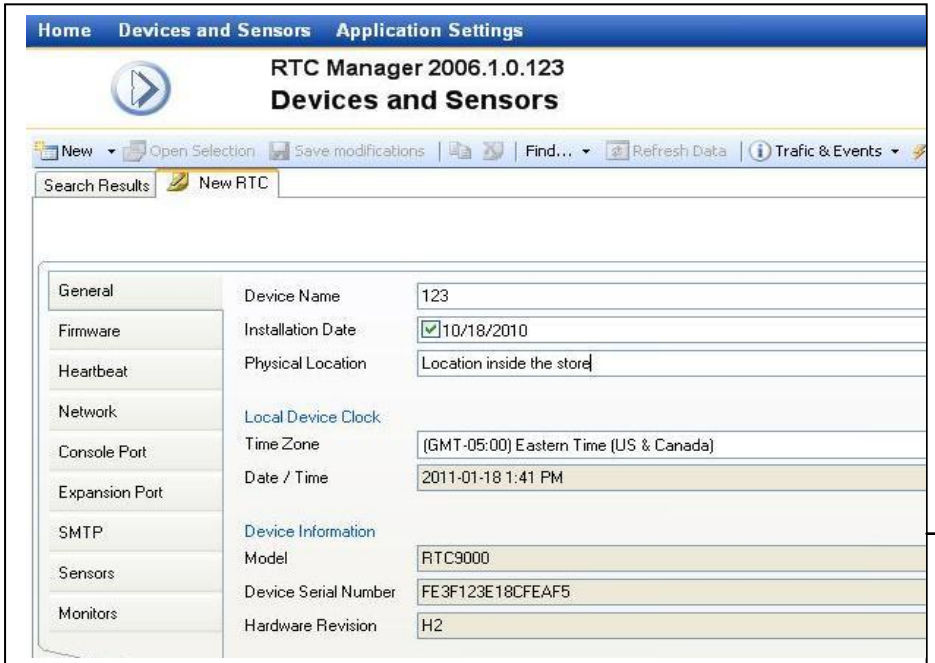


Trouble Shooting Techniques
If you are unable to get the serial number to the RTC to show up under electronic serial number please try the following steps.

- **Restart the RTC, and RTC manager.**
- **Make sure Vcredist, Netframework, and Reportviewer are all installed.**
- **Make sure the Console (If serial) or the Ethernet light is lit.**
- **Double check your serial port, to ensure that it is plugged into the right port.**
- **Make sure your static IP and the IP of the unit is what it is designated to be.**
- **Make sure RTC manager and the patch is up to date**
- **Try restarting the laptop.**
- **Click Refresh Data at the Top.**

The screen should disappear and a serial number will show up under electronic serial number with a check mark to the left. Write down the serial number as you will need this for your paperwork. Double click the serial number and proceed to the General Tab.

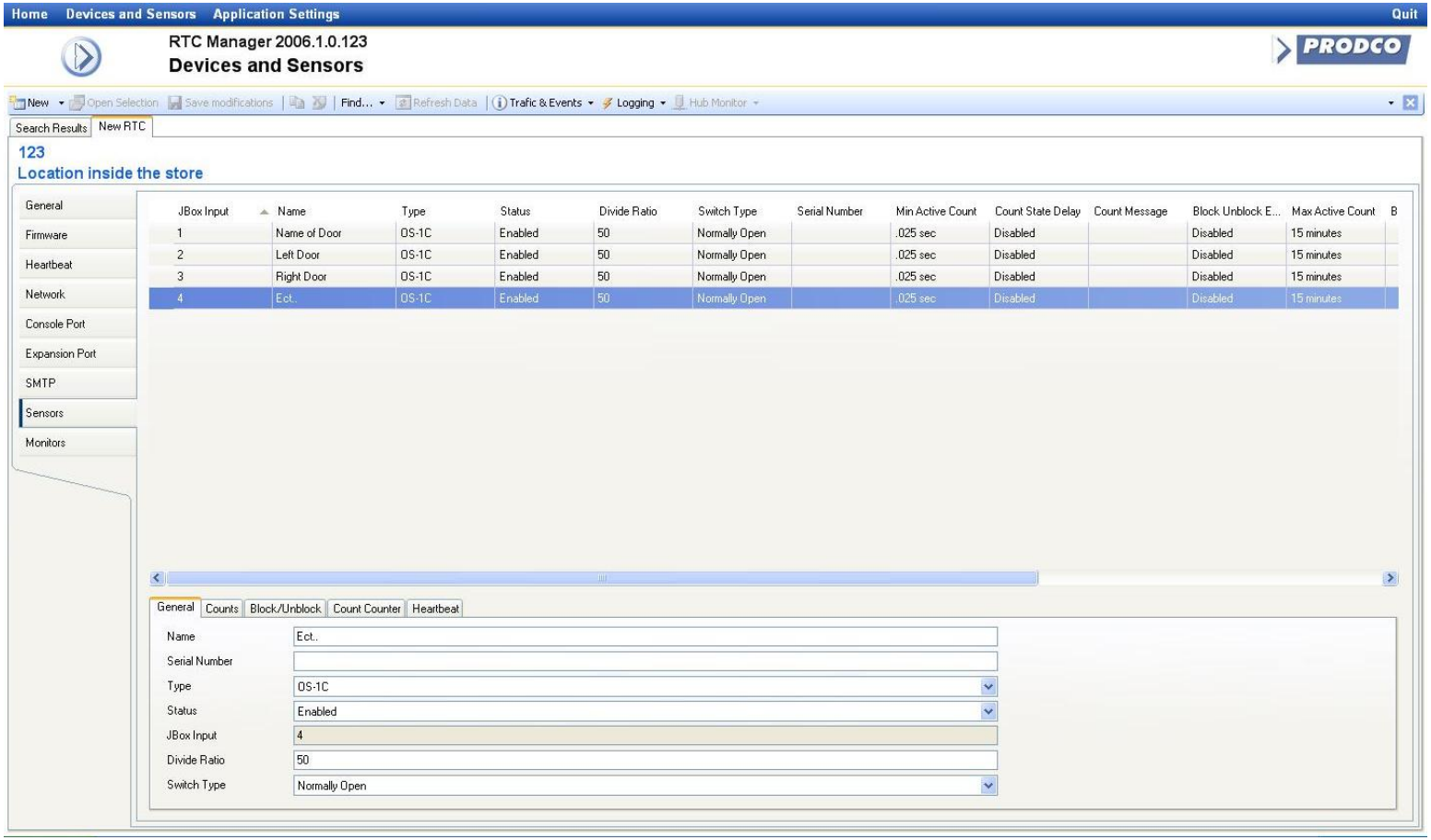




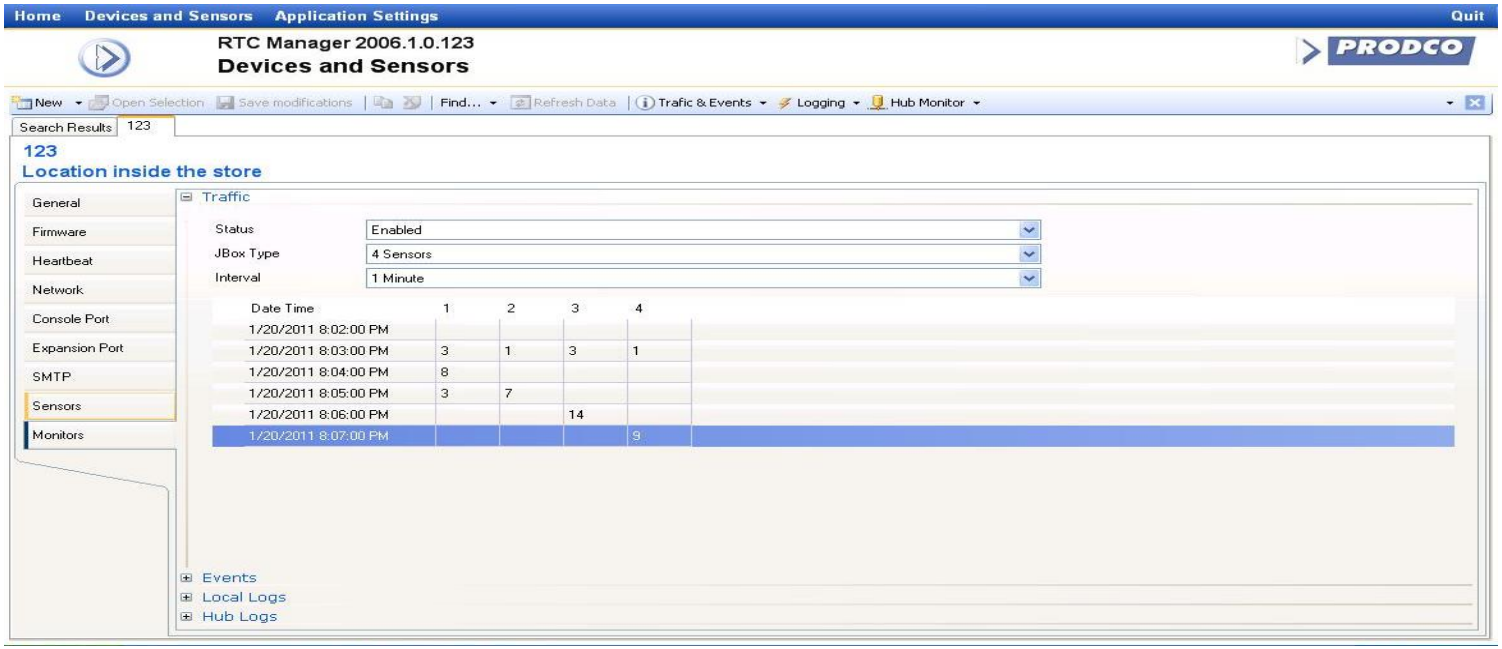
--Now you should be in the general tab. Set the device name as the store number.
--Set the install date.
--Set the Time Zone **(If you are running Vista or 7 skip this part)**
--Set physical location. This is where the RTC is installed in the store.

For Example: Network Rack, Cash-wrap, Stock Room, Managers Office.

-- Click the network tab
-- Make sure the IP, Subnet and Gateway are set to the stores preferences. Remember port is always set to 1113.
--Please call Tech Support to be sure that the IP, Subnet, and Gateway are correct.
--Document the IP address as you will need this for your paperwork.



--Click the sensors tab.
--Click JBox input 1 at the top to highlight the whole row.
--Down at the bottom, set the name of the sensor, Example: Main Entrance, (Left Door, Right Door, Front Door, if multiple entrances.)
--If a thermal, input the serial number of the thermal.
--Select the type of sensor installed on that door. (If it is a thermal please designate weather it is counting In, In and Out or Outbound only.) If you are unsure please call Tech Support.
-- Set Divide ratio to 50 or 100. This all depends on the type of set up. Thermals counting in and outbound on the same port will be 50, along with OS12C and TREX sensors. Thermals counting outbound only will be 100. Please call Tech Support for further information.



--Click the monitors tab.
--Change the interval from Hourly to One Minute.
--Right Click an empty space and click save device settings.
--Click traffic and events at the top and click start
--Click logging and then click start
--Make sure events local logs and hub logs are all collapsed to the bottom left with a + sign to the left of them.
--After a minute goes by you should see a grid start to form under interval. Time will appear on the left going from top to bottom and ports will appear right under interval going from left to right.
--Run a few test counts
--Come back and check to see if counts came through for the minute (as shown above), if this is the case please document with a screen shot and close the RTC program and disconnect from the RTC
--If you are only running one sensor, you should only see counts coming through on port 1.

--Call REIG to set up a communication test once you have completed this step

Trouble Shooting

If you are not getting counts or proper counts

- Ensure that the JBox is hooked in and you have a green JBox Light
- If counts are coming through the JBox light will turn amber if someone trips the sensor. If this is the case you might be dealing with a software issue
- Check all connections at the sensor to ensure all the circuits are solid for it to report to the JBox.
- Be sure programming is correct on the sensor.
- Proceed to sensor trouble shooting if more issues occur.

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 resisters. 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 resister in thermal (insert both wire and resister into terminal) - this is the cable between the master and node not the home run

6 - Solid brown twisted to other side of resister in thermal (insert both wire and resister 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 resister in thermal (insert both wire and resister into terminal) - Cable connecting to master

6 - Solid brown twisted to one side of resister in thermal (insert both wire and resister 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 to 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 and 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.

Undercounting

- Make sure no lights are pointing directly at the camera, this may cause the thermals 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 to short customers may walk past the lines with out getting counted.

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%

Overcounting on the RTC.

- Ensure the relays are programmed properly to the stores 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 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 establish 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.
- 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 you 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)