

CASELLA

# USER MANUAL

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## Social Distancing Tag

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# Safety and warnings

The Orbi-Trace does not present a safety risk when used as instructed in this User Manual. However, it is possible that the environment where you use the instrument may present a safety risk. For this reason, always follow correct, safe working practices.



## CAUTION

The Orbi-Trace units are designed to be robust, however please use the tag as follows:

- Do not drop the tag or subject it to mechanical shock.
- Avoid letting the tag come into contact with water, solid materials or highly saturated or corrosive gases as this may cause damage and will invalidate the warranty.
- The Orbi-Trace contains no user serviceable parts. If a fault is suspected, return the tag to Casella or a Casella approved service centre.



## CAUTION

If the equipment is likely to come into contact with aggressive substances, take precautions to prevent the instrument from being adversely affected, so that the type of protection is not compromised. (Aggressive substances such as solvents may affect polymeric materials.) Suitable precautions include regular checks as part of routine inspections and

establishing from the material's data sheet that the tag is resistant to specific chemicals.



**CAUTION**

Repair of this equipment shall only be carried out by the manufacturer or an authorised representative in accordance with the applicable code of practice.



**CAUTION**

This product uses Bluetooth®, care must be taken to avoid interference with sensitive equipment such as in medical, aviation or safety critical environments

# Disclaimer

Do not use the Orbi-Trace™ system until you have thoroughly read this manual or have been instructed by a Casella engineer.

At the time of writing, this manual was up to date but due to continual improvements the final operating procedures may differ slightly from those in the manual. If there are any questions, please contact Casella for clarification.

Casella makes continual advancements in its products and services. We therefore reserve the right to make changes and improvements to any information contained within this manual.

Whilst every care is taken to ensure that the information in this manual is correct, Casella will assume no responsibility for loss, damage or injury caused by any errors in, or omissions from, the information given.

# Introduction

Thank you for purchasing the Orbi-Trace™ social distancing kit. This user manual will provide all the information required to use the Orbi-Trace™ tag, as well as setting up the infrastructure required for contact tracing.

The Orbi-Trace™ tag will allow individual employees to be immediately notified when safe distances are breached. With the Anchor installed, the full capabilities of the Infection Insights App can be used to analyse the connections, track risk of virus transmission and ensure teams of people maintain safe distances. If measures in your workplace aren't being adhered to, it allows intervention and adjustment to working practices.

# System overview

The Orbi-Trace™ system consists of the following key components to provide an easy to use social distancing and contact tracing solution.

- Orbi-Trace™ Ultra-wideband (UWB) Tags
- An Anchor
- Ethernet Gateway
- Power-over-Ethernet (POE) Injector
- Associated cables and mains supplies



## Orbi-Trace™ Tags

The UWB tags are the heart of the system. They provide a highly accurate social distancing and contact tracing solution. The tags alert the user every time the safe distance is breached. The tags also keep a real-time based log of all interactions and connections.



## Anchor

The Anchors are the receiver of the UWB signals from the Orbi-Trace™ tags. The anchors can be easily mounted on the wall, ceiling or any other structure by the help of provided brackets. When placing the tags near the anchor at the end of a working day, the tags download the contact information from the tags.



**Note:** The tag does NOT need to be in range of the anchor to measure and store contact history.

## Gateway

The Gateway connects to the Anchor and collects the data from the Orbi-Trace™ tags and stores it securely. The Gateway has an embedded firmware and Casella's software for contact tracing and connection mapping. Connect the Gateway using any (preferably CAT6e) Ethernet cable to your company network to use the software.



## POE Injector

The Power Over Ethernet (POE) Injector connects the Gateway to the Anchor and provides power to the Anchor over the Ethernet cable. The Injector helps maintain a smooth network of power and information. Connect the mains adaptor to a mains supply and connect the Anchor and Gateway accordingly using the Ethernet cables provided.



# Installation

## Anchor

The Anchor should be installed at the main entrance/exit of your facility and near the charging facility. At the end of a working day an employee should return their Orbi-Trace™ tag to be charged, with the charging location to be within 15m line of sight of the anchor to enable the data to be downloaded.

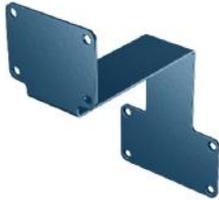
Use the mounting brackets provided and:

- Place the anchors high Placing the anchor high (on the ceiling or on the walls) increases the chance of receiving a good signal because there are less obstructions.
- Place anchors vertically, with the connectors at the top. This keeps the inbuilt antenna at the bottom.
- If possible, materials like metal, water and wires should stay away from the anchors, especially the inbuilt antenna (bottom of the anchor).
- It is recommended to have a separation of 20 cm between the anchor and walls. Extra mounting equipment can be used to achieve this.





**Ceiling Mount**



**Wall Mount**



**Pole Mount**



**IP20 Cover**



**IP66/67 Cover**

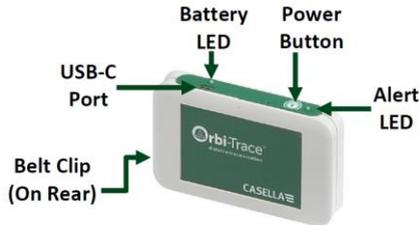
## Gateway and POE Injector

The Gateway is provided with the wall-mount bracket but can also be placed at any safe location near your network connection.



The POE Injector can be placed next to the Gateway it can also be affixed on the wall if required. Mains power is supplied to both the Gateway the POE Injector using the mains supplies provided.

# Tag setup



## Tag Charging

The tags offload the stored connection data to the Gateway when they are charging and have at least 15% battery remaining. When the charging process begins the data offload will start, if the charging process is disrupted the data offload will continue. As the data offload is completed using a Bluetooth connection to the Anchor it is recommended that a charging station is created close to the Anchor (<15m). Any firmware updates available for the tags will also be installed during the data offload process.

## Power Up

Long press the power button to on/off the tags. A solid green LED will appear on powering up. A Solid red LED will appear just before shut-off. On start-up the tags will be in the last used alert mode either buzzer or vibration. Under normal operation, the LED will be blinking green.

## Alert Setup

Double press the power button to switch between alert modes. As you switch between modes, the LED will:

- 1 green LED blink - silent mode (only vibration, no buzzer)
- 2 green LED blinks - medium volume mode (vibration + buzzer)
- 3 green LED blinks - high volume mode (vibration + buzzer)

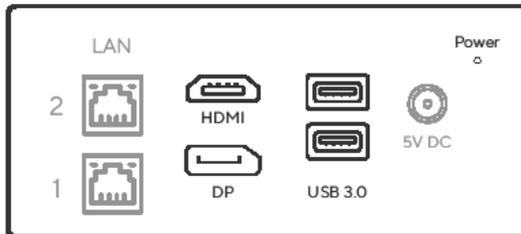
The tag will remember its volume mode when you turn it off. The tag comes pre-programmed for a 2m safe distance. The safe distance can be changed by logging on to Casella Infection Insights App. If you have not purchased the complete Orbi-Trace kit, then please consult Casella or an authorised Distributor to change the safe distance.

## LED Status

LED Status	Description
<b>Alert LED</b>	
LED off	Device off, Bluetooth is enabled
Solid green	Power on
Flashing green	Normal operation
Solid red	Alert mode, safe distance breach
Flashing red	Battery low
Flashing blue	Bluetooth connected
<b>Battery LED</b>	
Solid orange	Battery charging
Solid green	Battery charged

# Infrastructure setup

## Gateway and Anchor Setup



1. Connect the 5V power adapter to the gateway, the blue Power LED will illuminate.
2. Connect the gateway to your company network using an ethernet cable connected to LAN Port 2, ensure the LEDs on the port illuminate.

**Note:** The gateway will obtain an IP address on your company network. Your IT Department should be consulted to ensure that the gateway will be accepted on the network and given a suitable IP address.

3. Connect a PC to the gateway using an ethernet cable connected to LAN port 1, ensure the LEDs on the port illuminate. The PC you use to setup the system should be the same one you will want to ultimately access Infection Insights.
4. Open your internet browser and type IP address 10.0.0.254 into the search bar, once loaded press Get Started.



5. Download the Microsoft Excel template.



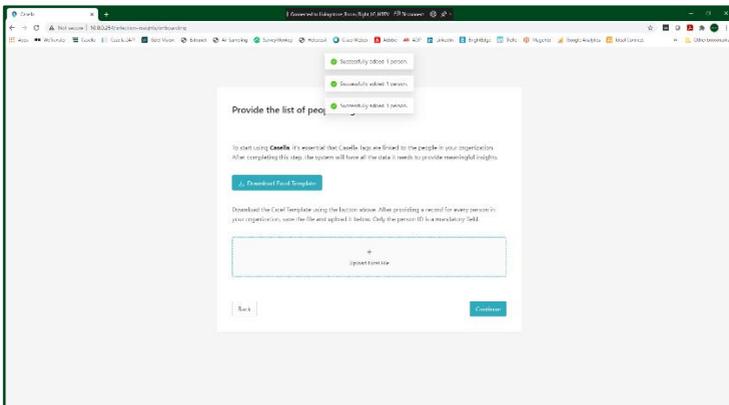
6. Open the downloaded file and for each Person add a new row with the following information:
  - a. Person ID - A unique identifier for each person.
  - b. Person Name
  - c. Person Group – A group identifier e.g. department.

**Note:** The persons group is important as this is how Orbi-Trace will colour code connection maps. So if you have multiple production teams you wish to keep socially distant, then group them separately.

- d. Tag ID – On the back of the unit allocated to this person you will find the UWB-ID.

Person ID	Person name	Person group	Tag ID
123456	John Smith	Manufacturing	1922

- 7. Save and upload the Microsoft Excel file into the Infection Insights application and press Continue. You will receive confirmation that users have been added successfully.



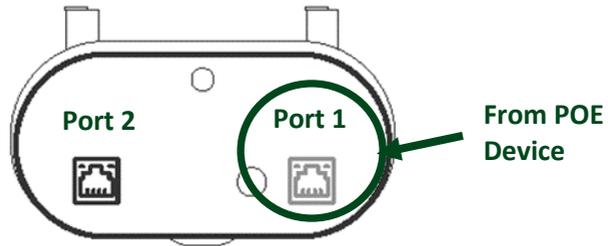
**Note:** You can go back to the onboarding process by visiting the Infection Insights application and adding /onboarding to the URL.

- 8. Find the IP address of the gateway at the bottom of the Infection Insights homepage.



**Note:** The above example of IP address location is in Google Chrome browser, the IP address can be faint and in small text so check carefully.

9. Close your browser and disconnect the PC from the gateway LAN port 1.
10. Connect the 48V power adapter to the POE injector, the green Power LED will illuminate.
11. Connect the anchor to the POE injector using an ethernet cable connected to port 1 on the anchor and port labelled Power Data Out on the POE injector.
12. Connect the POE injector to the gateway using an ethernet cable connected to the part labelled LAN In on the POE injector and LAN port 1 on the gateway, ensure the LEDs on the gateway port illuminate.

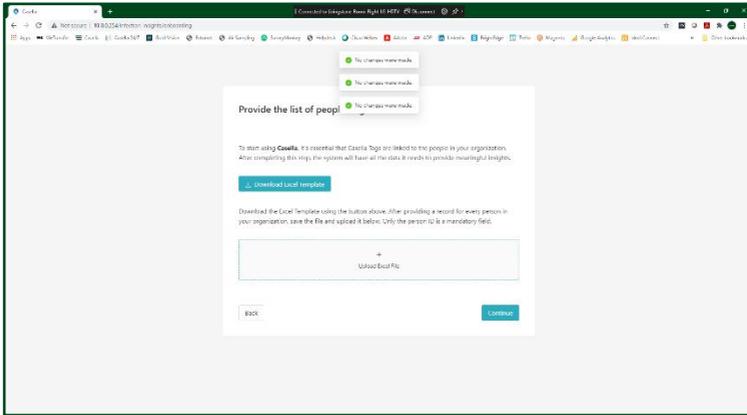


**Note:** When the anchor is installed, powered, and connected to the Gateway, its LED will turn solid green.

13. On the same PC used to go through the onboarding process for Infection Insights, open your browser and type the IP address obtained in Step 8 into the search bar.



14. Upload the Microsoft Excel file from Step 7 into the Infection Insights application and press Continue. You will receive a confirmation that no changes were made to the users.



15. The Infection Insights application is now ready to be used.

## LED Status

Gateway LED Status	Description
LED off	Powered off
Solid blue	Powered on

Anchor LED Status	Description
LED off	Powered off
Flashing red	General malfunction
Solid blue	Start-up or maintenance mode
Solid red	No ethernet link
Flashing orange	Linked to Gateway established
Solid orange	IP address obtained

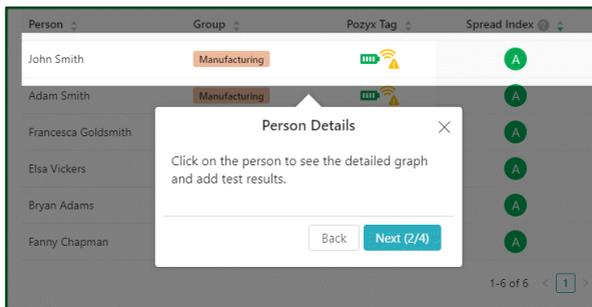
Flashing green	Anchor operational, no UWB activity
Solid green	Normal operation

# Infections Insight App

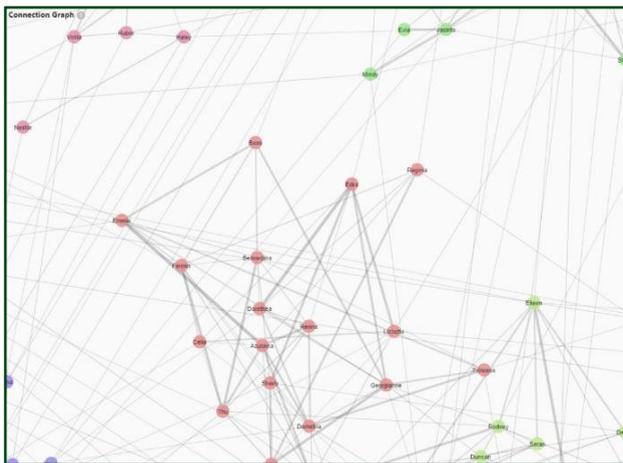
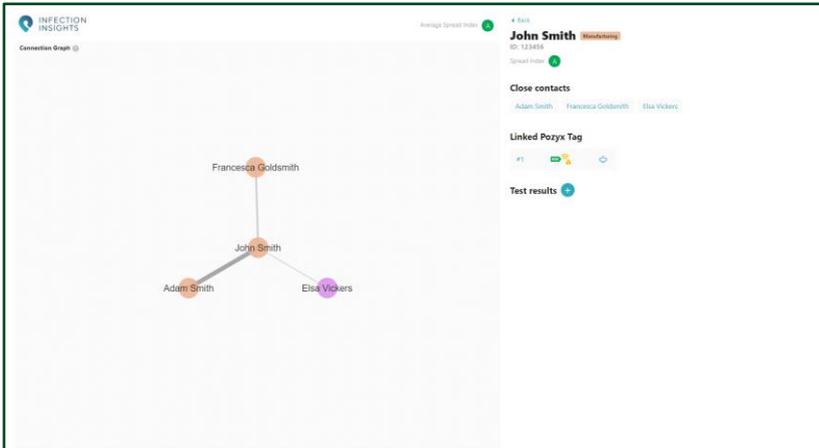
The Infection Insights Web Application is the dashboard of your system, it allows you configure and manage your tags and control every part of your setup. The App is embedded on the Gateway and once you have connected a PC and setup the system the App will be available to use.

## Connection Maps

The App provides connection maps for your the entire organisation and individual users can be selected to display their personal connections.



Connections and interactions are timestamped to the microsecond and stored for 7 days. The thickness of connecting lines on the map show the probability of virus transmission.



## Risk Index

The App automatically assigns a Spread Index to everyone wearing an Orbi-Trace tag. The Spread Index ranges from A to E depending on the connections and their duration. The index can be used to remind people of the safety guidelines and working practices.

**Reanna Sawayn** Logistics

ID: 123475

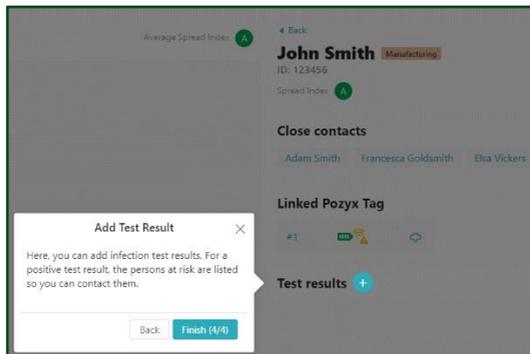
Spread Index A

Assuming the person was infected the grading from A-E represents how many people they could have infected:

- A = 1 or 2
- B = 3 or 4
- C = 5 or 6
- D = 7 or 8
- E = 9 or more

## Test Results

Any positive COVID-19 test results can be recorded in the App. The App automatically identifies other people who might be at risk due to this result.



Test result for Rebecca

Result **Positive**

Test date 22-10-2020

Start of infection 08-10-2020 ~ 15-10-2020

Person At Risk	Infection Risk
Roseline	59%
Jacinto	41%
Sherice	29%
Shera	23%
Evia	16%
Doreatha	16%
Lou	13%
Agripina	12%

## Alarm distance

By default, the alarm on the tags will trigger when another tag gets within 2m range. You can configure this distance by going to the Settings  section in the Infection Insights application

Alarm configuration

Settings to configure the alarm on the tags.

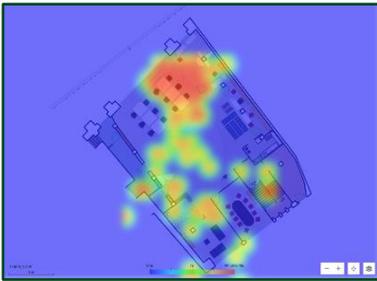
Social distancing range  meter

**Save**

## Upgrading to RTLS

By simply adding additional anchors it is possible to upgrade the Orbi-trace tag system to a Real-Time Location System. The benefits are:

- Disinfection regime
- Floor planning
- Remodeling of facility layout



**Heat Mapping**



**Routes Used**

For further information, please get in touch with us directly and we will arrange a consultation call to determine the level of infrastructure required for your facility. Contact our sales team today for more information.

# Technical specifications

Anchor	
UWB channels	Channel 5, Channel 2 (for licensed customer in Europe)
Bluetooth	Bluetooth Low energy V5.0
Power supply	POE/POE+ or DC: 5 to 53V, 4.5W max
Dimensions	157 x 98 x 53 mm
Weight	170 g
Ingress protection	IP20 (IP66/67 with add-on cover)
Operating conditions	-25°C to +55°C
Storage conditions	-40°C to +70°C

# Declarations



## **CE DECLARATION OF CONFORMITY**

Casella declares that this product is in compliance with the essential requirements and other relevant provisions of applicable EC directives. A copy of the EU Declaration of Conformity for this product may be obtained by clicking on the product compliance documentation link at [www.casellasolutions.com](http://www.casellasolutions.com).



## **WEEE - INFORMATION FOR EU MEMBER STATES ONLY**

The use of the WEEE symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact your local waste disposal service or contact the agent where you purchased the product.

# Support

For support, please go to [casellasolutions.com](https://casellasolutions.com). Within the ‘Support’ section of the website, there are links to useful information such as documents and videos which may help in your query or familiarisation with this product.

Alternatively contact us on:

E: [info@casellasolutions.com](mailto:info@casellasolutions.com)

T: +44 (0)1234 844100

For technical support issues with the product please raise a ticket on our online helpdesk:

<https://helpdesk.casellasolutions.com/>

For full contact details of our international offices and distributors please visit our website.