

# OPERATING MANUAL

## FTU-300

Field Test Unit

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## 1 TEST PRIMARY FUNCTION

The Senseca BTD-300 Field Test Unit (FTU) simulates lightning flashes, strong electric fields and charged precipitation. It is intended for checking the operation of Senseca BTD-300/BTD-350 thunderstorm warning systems and any connected accessories.



### NOTE:

Not for BTD-3XX calibration, validation of sensor siting requirements or confirming correct installation.

## 2 IMPORTANT SAFETY INSTRUCTIONS

### 2.1 Batteries



#### WARNING

This product is designed to use **ALKALINE 9V PP3** batteries only.

Use of other battery types or voltages may result in equipment damage, personal injury, or fire.

**DO NOT USE RECHARGABLE BATTERIES**

### 2.2 Inappropriate Use



#### WARNING

This equipment is intended for use only with the **Senseca BTD-3XX** Thunderstorm Detection Sensor **ONLY**

Connection to other equipment may result in personal injury or equipment damage.

Use of this product in a manner not described or specified in this manual may result in equipment damage or personal injury.

### 2.3 Environmental Conditions

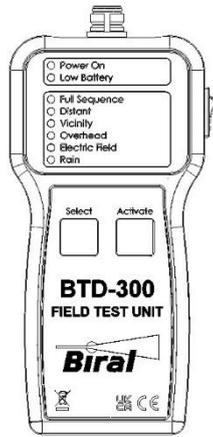


#### WARNING

Only for use in **DRY CONDITIONS**, with no local thunderstorm activity within **40Km (25Miles)**

### 3 BOX CONTENTS

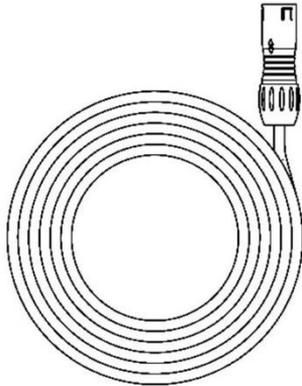
The following equipment is supplied in the BTD-300 FTU carton. Please check the contents carefully and immediately report any missing items to your supplier.



**1x FTU Handheld unit**



**1x PP3 9V Battery**

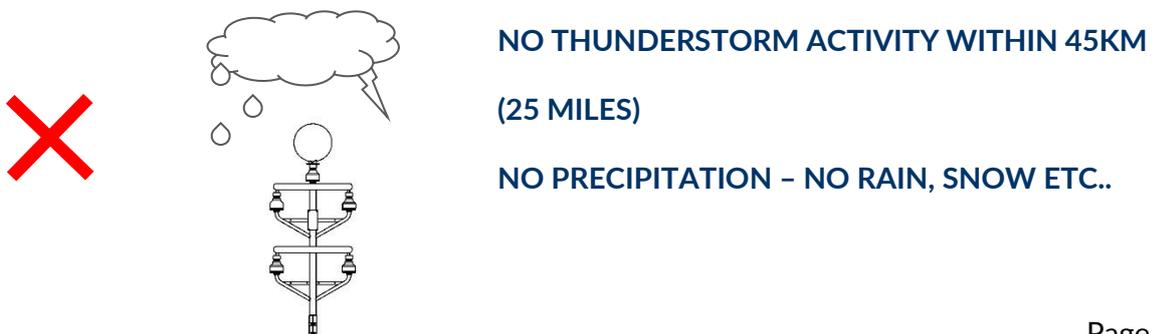
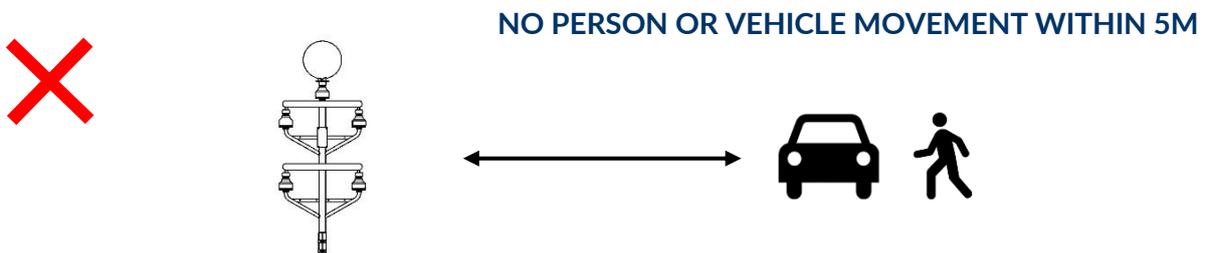
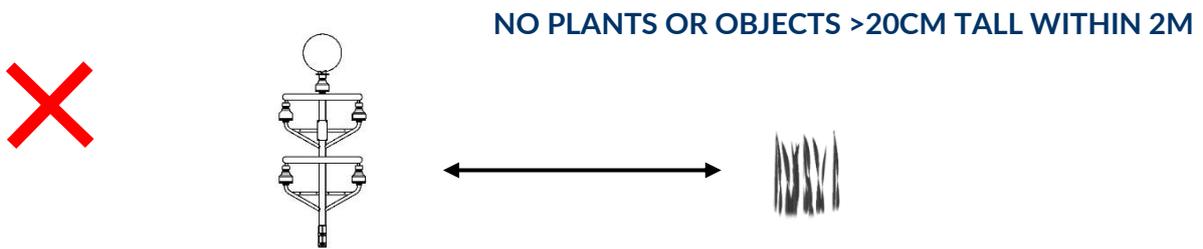


**1x FTU Cable assembly**

## 4 BTD-300/350 FIELD TEST UNIT OPERATING INSTRUCTIONS

### 4.1 Pre-test Preparation

#### 4.1.1 Test Environment



## 4.1.2 BTD Settings

The FTU is intended to operate with the default BTD calibration settings. This includes:

- Range Adjustments
- Site Correction Factor

This section details how to check the current settings and how to set them back to default if required. If any settings are changed, these **must** be changed back after the FTU has been utilised.

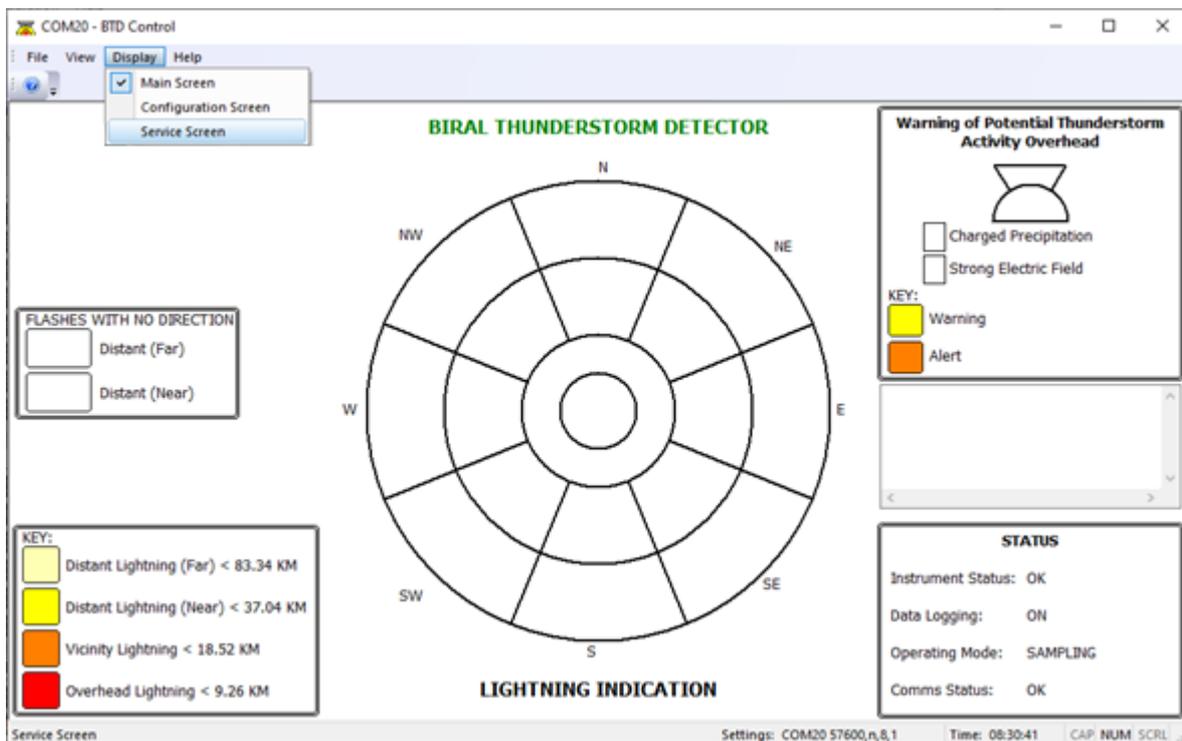
### 4.1.2.1 Range Adjustments

In order to give accurate results, the BTD should have the range set back to defaults. Use the following steps to first record the current settings, and then reset the range settings to defaults:

1. Open the BTD-300 Control Software. This should already be connected to the BTD, if not refer to the BTD Control Software Manual found on the BTD webpage.



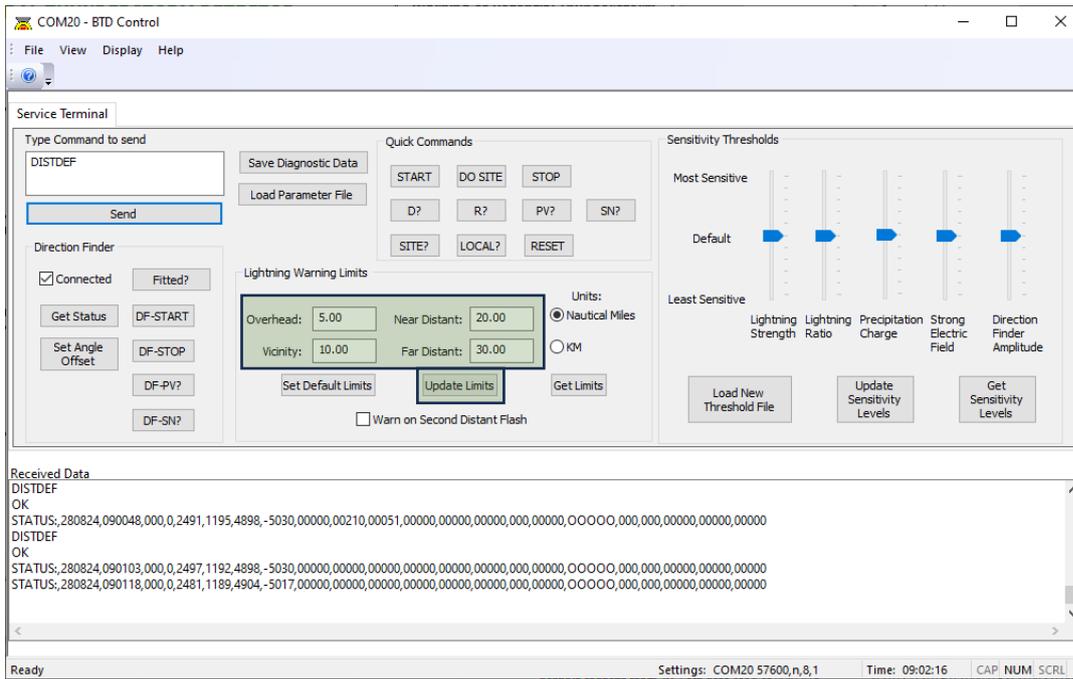
2. Navigate to the Service Menu under View>Service Menu.



3. Enter the username and password.  
Username: Service  
Password: BiralBTD

**CAUTION:** Changing settings should only be performed by a competent operator.

4. Record the default lightning ranges as shown:



5. Enter the default distances in the relative box. If already defaults this section can be skipped.

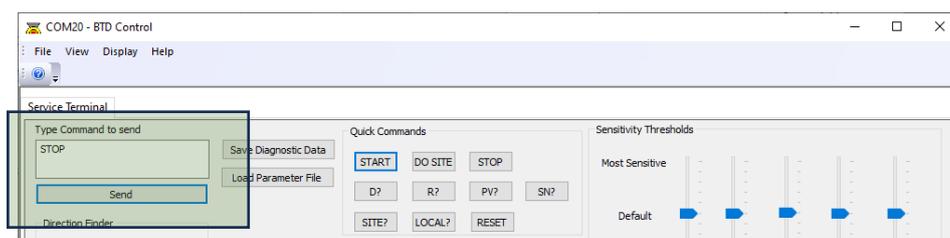
- Overhead: (Default 5 Nautical Miles)
- Vicinity: (Default 10 Nautical Miles)
- Near Distant: (Default 20 Nautical Miles)
- Far Distant: (Default 30 Nautical Miles)

6. Press the “Update Limits” button.

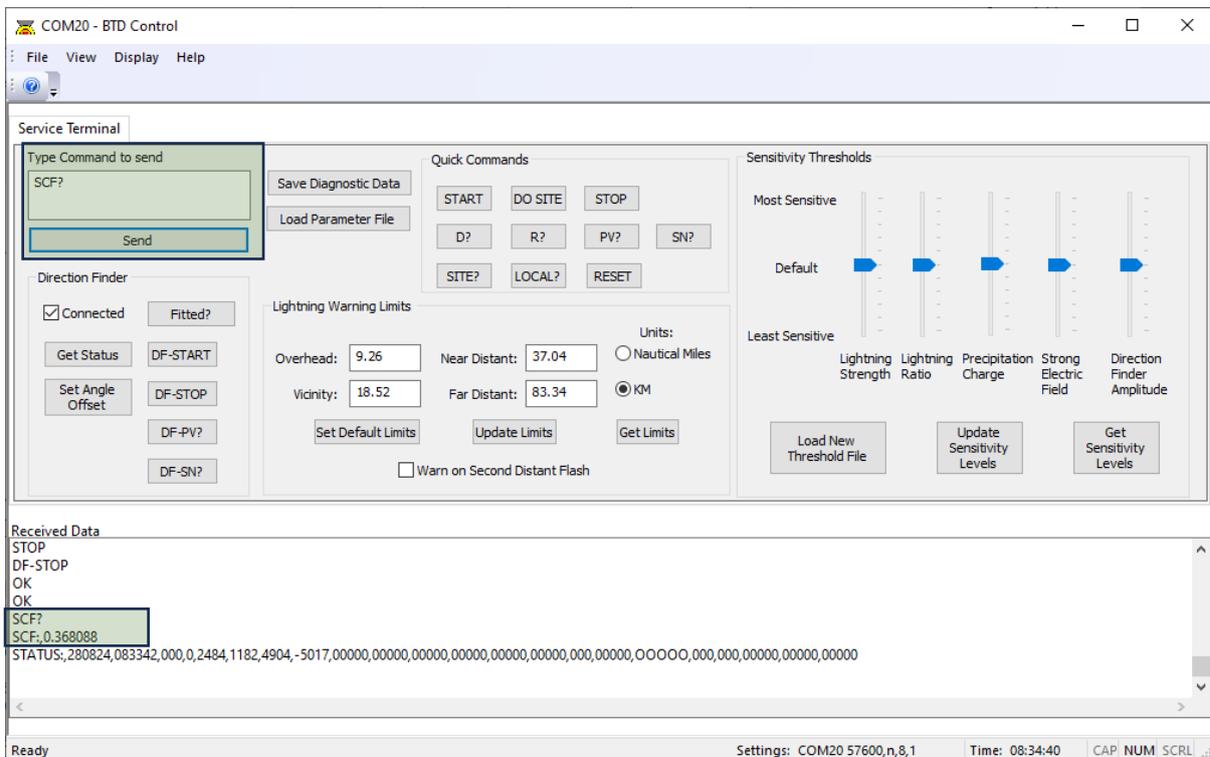
#### 4.1.2.2 Set Site Correction Factor

In order to give accurate results, the BTM should have the site correction factor set back to default. Use the following steps to first record the current settings, and then reset the site correction factor to default:

1. Navigate to the Service Menu as per the previous section
2. Stop the BTM from normal operation. This is done by using the “Type Command to send” feature. Enter the command STOP and press the send button.

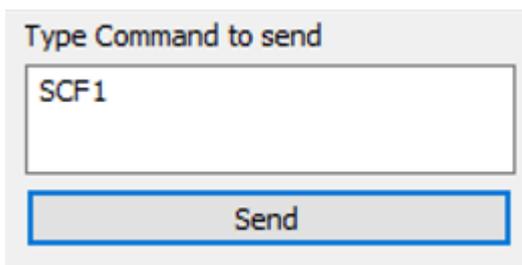


- Query the current Site Correction Factor by entering the command SCF? and observing the response in the “Received Data” box at the bottom. If the response is equal to 1 this section can be ignored. If different from 1 record the response for later.

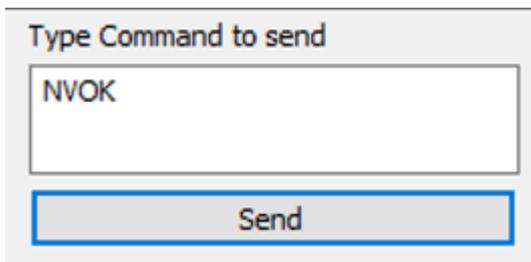


The image above shows an example of a non-default site correction factor.

- Set the Site Correction Factor to 1 by entering the command SCF1.



- Apply the new Site Correction Factor by entering the command NVOK.



6. Check the Site Correction Factor is equal to 1 by resending the command SCF? and observing the response.

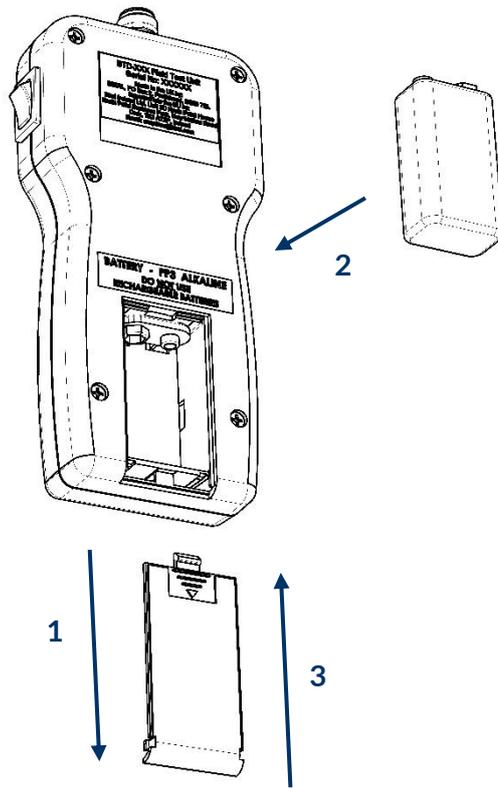
Type Command to send

7. Restart the normal operation of the BTM by sending the command START1

Type Command to send

### 4.1.3 FTU Battery installation



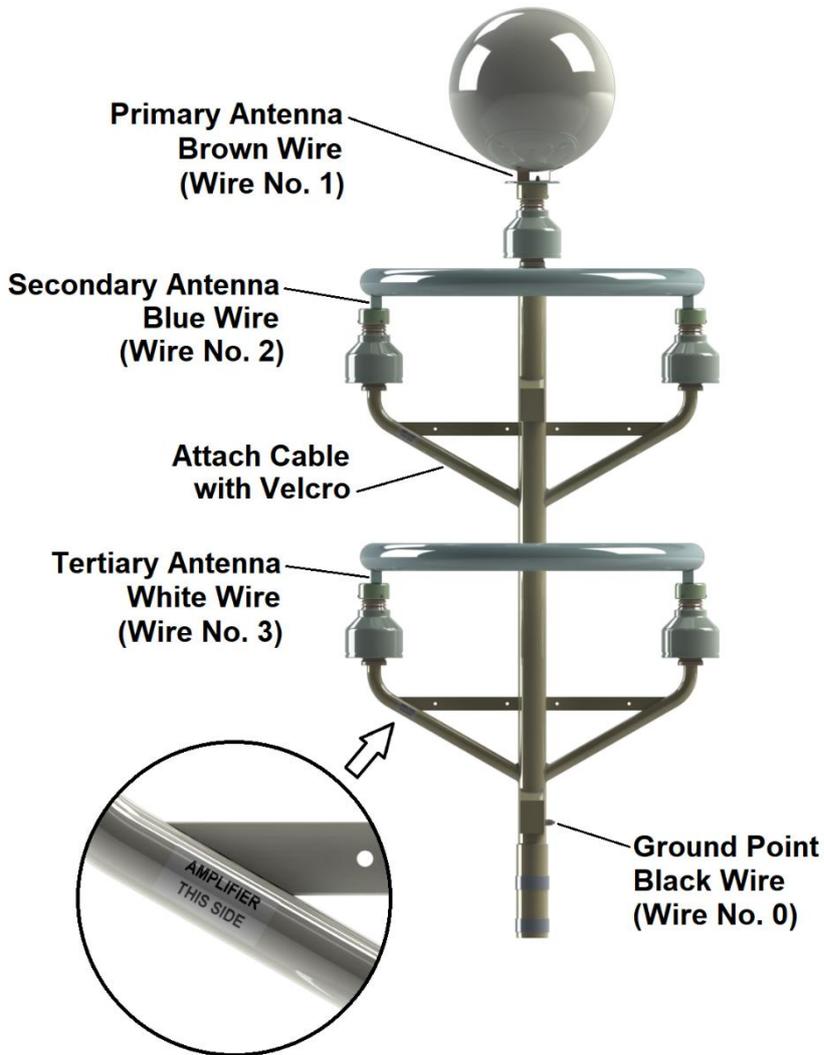
### 4.1.4 System Status

Ensure the system self-test status is healthy via the on-sensor indicator.

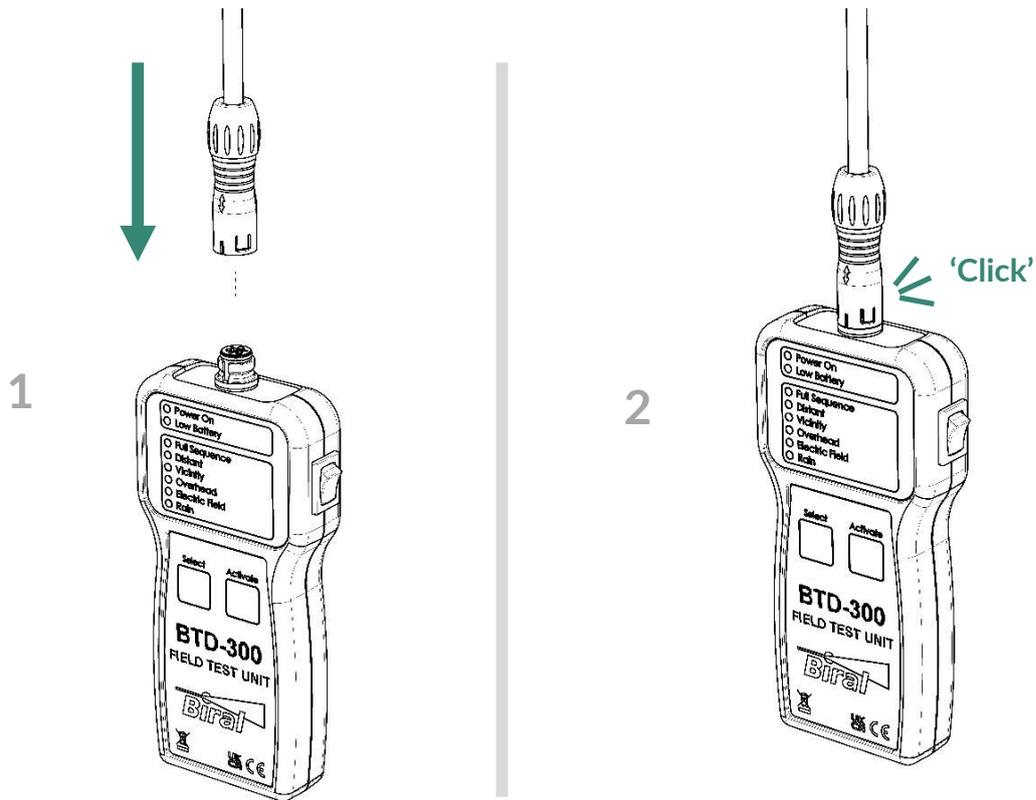


## 5 OPERATION

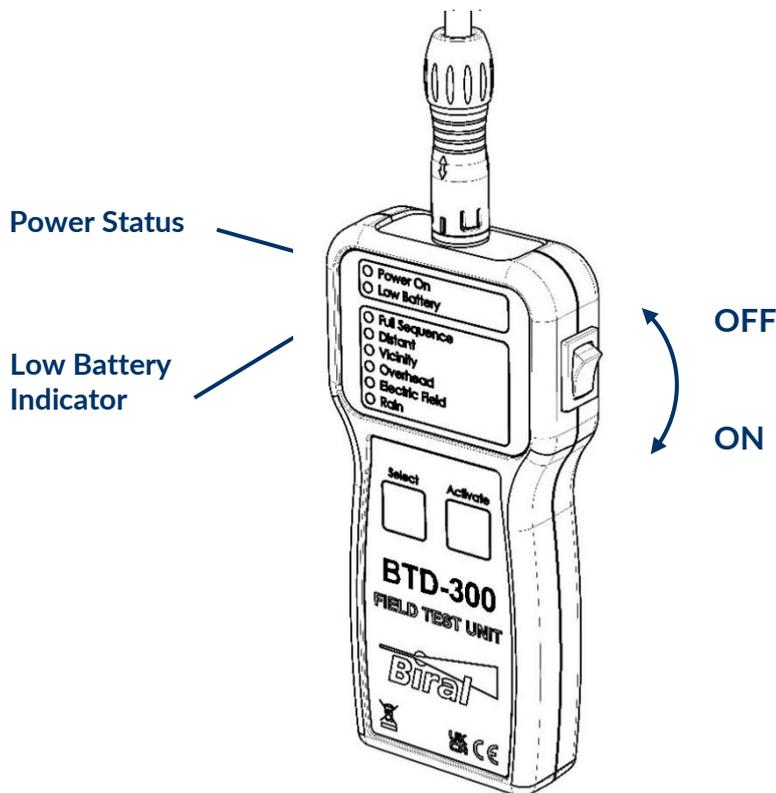
### 5.1 Antenna/Earth Reference Connections



### 5.1.1 Connect Antenna Assembly to FTU Handheld Unit



### 5.2 Power-On FTU Handheld Unit



**WARNING**

Field Test Unit will not execute tests if low battery is indicated. Both touch buttons will be deactivated

**NOTE**

Select and Activate buttons may not work correctly when wearing gloves.

### **5.3 Operator Location during Test**

Move away from the BTD-3XX to the maximum extent of the Cable. Do not pull the Cable tight.

Remain still for the duration of the tests.

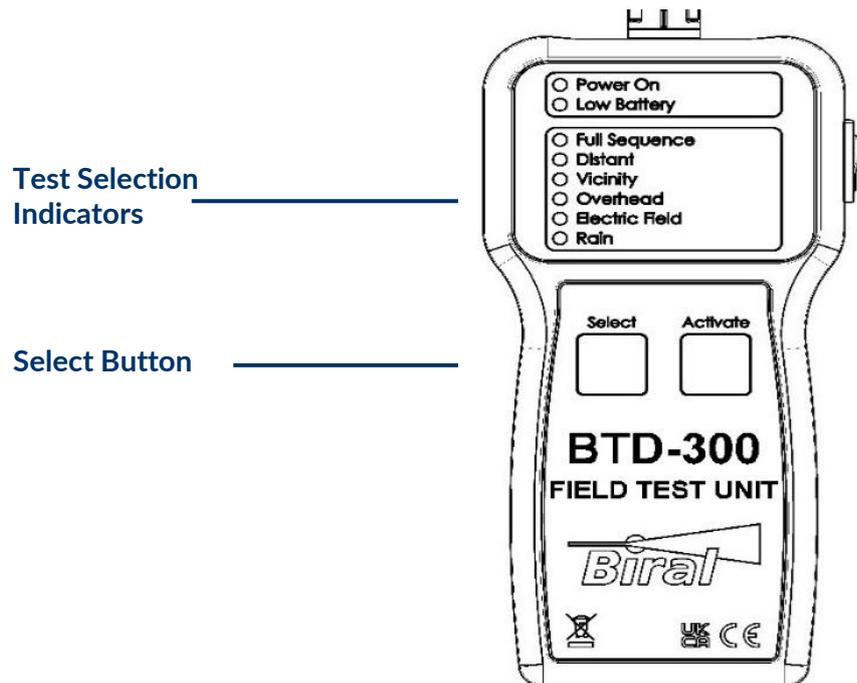
## 5.4 Conducting a Test

**⚠ WARNING**

Ensure pre-test criteria (section 4.1) conditions are met before commencing testing

### 5.4.1 Selecting a Test

Touch 'Select' Button to cycle through test options to desired test sequence.

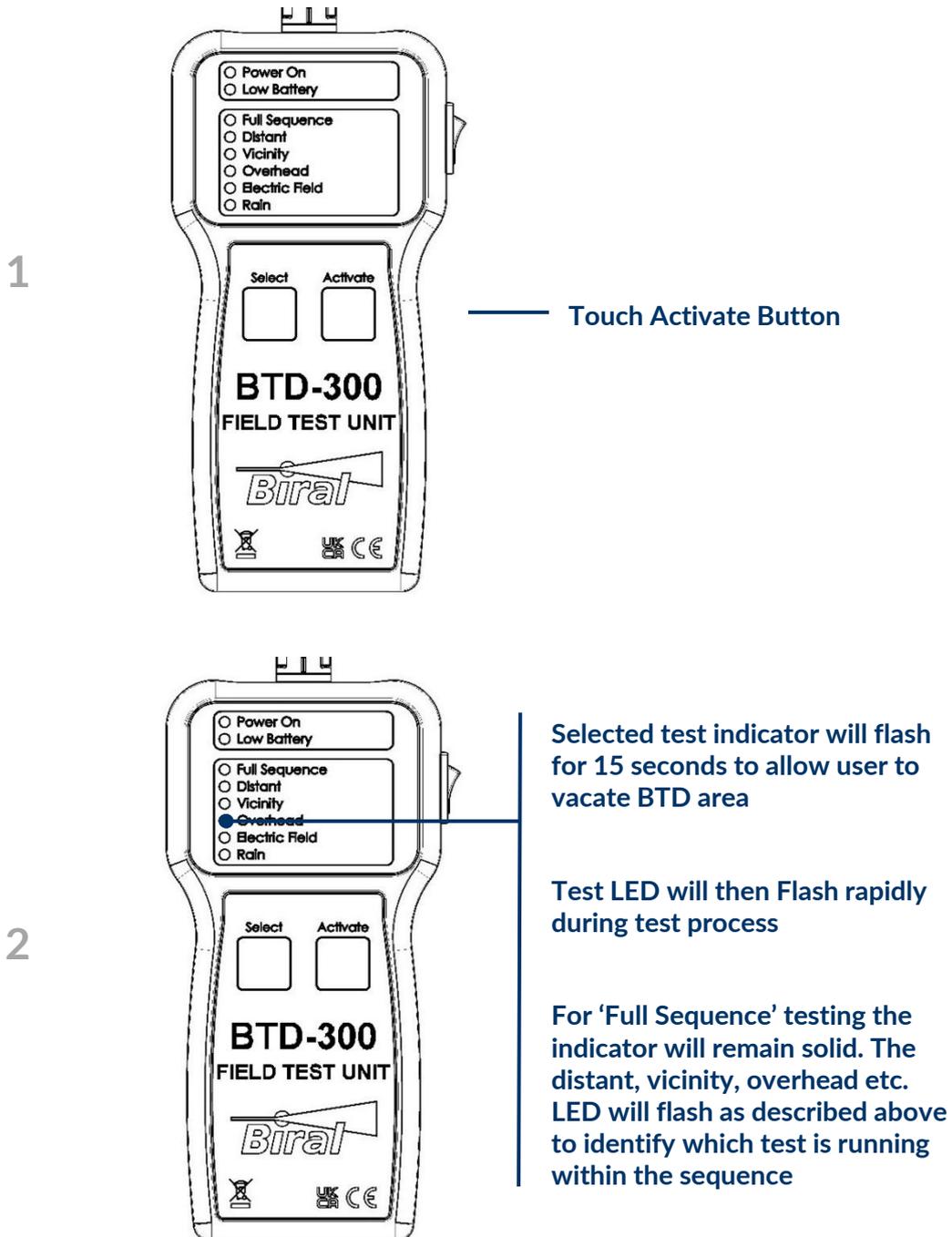


#### 5.4.1.1 Test Options

Test Name	Description	Range and Event Time
Electric Field	Simulation of strong atmospheric electric field	5 seconds
Rain	Simulation of Charged Precipitation	5 seconds
Overhead	Simulation of lightning activity	2 flashes, 3 seconds apart, Overhead
Vicinity	Simulation of lightning activity	2 flashes, 3 seconds apart, Vicinity
Distant	Simulation of lightning activity	4 flashes, 3 seconds apart, 2 x Far Distant, 2 x Near Distant
Full Sequence	Sequence of simulations	Sequence order: Distant - Vicinity - Overhead - Electric Field - Rain

## 5.4.2 Activating a Test

Touch 'Activate' button to start selected test

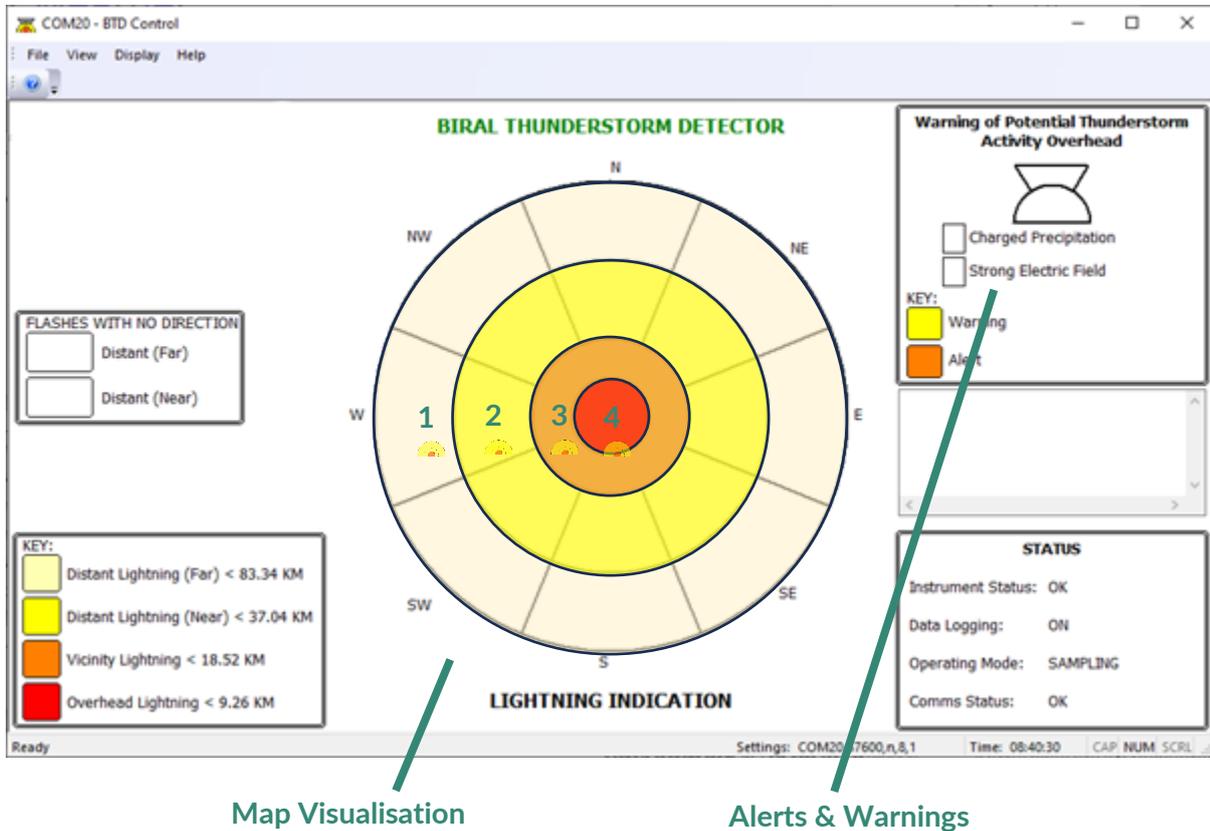


### WARNING

Field Test Unit will not execute tests if low battery is indicated. Both touch buttons will be deactivated.

## 5.5 Test Results/System Behaviour

### 5.5.1 BTD Control



#### 5.5.1.1 Map Visualisation & Flash Count Fields

Zone	Map Highlight	Flash count in last 60 minutes
Zone 1	Highlights pale yellow during 'Distant' test	2 flashes in 16-35Km field
Zone 2	Highlights yellow during 'Distant' test	2 flashes in 16-35Km field
Zone 3	Highlights yellow during 'Vicinity' test	2 flashes in 8-16Km field
Zone 4	Highlights red during 'Overhead' test	2 flashes in 0-8Km field

#### 5.5.1.2 Alert & Warning Lamps

Lamp Output	Activating Test(s)
Warning	Electric Field, Rain, Vicinity, Distant
Alert	Overhead
Warning & Alert	Full Sequence, either lamp will illuminate as above, dependent on current test in sequence

### 5.5.2 Relays

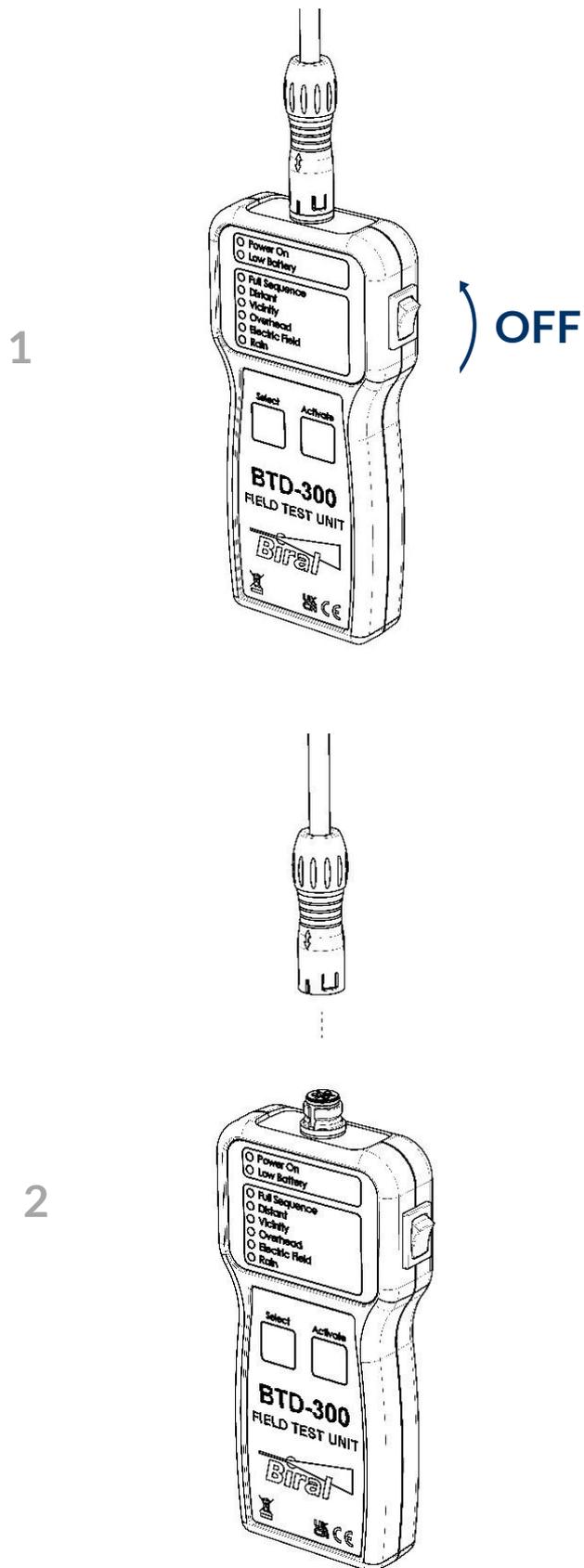
For systems utilising alarms or relay actuated accessories, the alarms and relay(s) will activate as they would with lightning flashes, rain or strong electric fields.



NOTE:

Relays will reset after 15 minutes, wait until relay reset before running additional tests.

## 5.6 Ending BTD-3XX Test Procedure



Remove the test leads from the BTU sensor and pack the FTU back into the carry case.

## 5.7 BTD Settings

After using the BTD FTU the settings must be reconfigured back to the original site settings. This includes:

- Range Adjustment
- Site Correction Factor

To do this, follow the steps set out in section 4.1.2 entering the original settings in place of the default settings.

*Note, failure to reset the original site settings will result in loss of performance.*

## 5.8 Storage

Disconnect and remove FTU Battery if not being used for a period of 3 weeks or more

## 6 CERTIFICATION AND COMPLIANCE

CE and UKCA marked
EMC: EN61326-1:2013 Industrial immunity, industrial emissions
RoHS and WEEE compliant

Senseca's BTD sensors and equipment comply with the requirements for CE and UKCA marking. Once installed, it is the user's responsibility to ensure that all connections made to the equipment comply with all Local and National safety requirements.

## 7 MAINTENANCE AND CALIBRATION

The BTD-300 FTU is used to check the operation of the BTD-300/350 sensor, it is not a calibration device.

The BTD-300 FTU does not require any periodic maintenance or calibration.

## 8 CONTACTING SENSECA

If you would like technical assistance, advice or you have any queries regarding the operation of the FTU please do not hesitate to contact us.

Contact us by telephone on:

+ 44 (0)1275 847787

Contact us by email at:

info.bristol@senseca.com

**NOTES**

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**NOTES**

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## WARRANTY

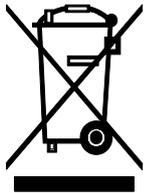
The manufacturer is required to respond to the "factory warranty" only in those cases provided by the Consumer Rights Act 2015. Each instrument is sold after rigorous inspections; if any manufacturing defect is found, it is necessary to contact the distributor where the instrument was purchased from. During the warranty period (12 months from the date of invoice) any manufacturing defects found will be repaired free of charge. Misuse, wear, neglect, lack or inefficient maintenance as well as theft and damage during transport are excluded. Warranty does not apply if changes, tampering or unauthorized repairs are made on the product.

The manufacturer repairs the products that show defects of construction in accordance with the terms and conditions of warranty included in the manual of the product.

## TECHNICAL INFORMATION

The quality level of our instruments is the result of the continuous product development. This may lead to differences between the information reported in the manual and the instrument you have purchased. We reserve the right to change technical specifications and dimensions to fit the product requirements without prior notice.

## DISPOSAL INFORMATION



Electrical and electronic equipment marked with specific symbol in compliance with 2012/19/EU Directive must be disposed of separately from household waste. European users can hand them over to the dealer or to the manufacturer when purchasing a new electrical and electronic equipment, or to a WEEE collection point designated by local authorities. Illegal disposal is punished by law.

Disposing of electrical and electronic equipment separately from normal waste helps to preserve natural resources and allows materials to be recycled in an environmentally friendly way without risks to human health.



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