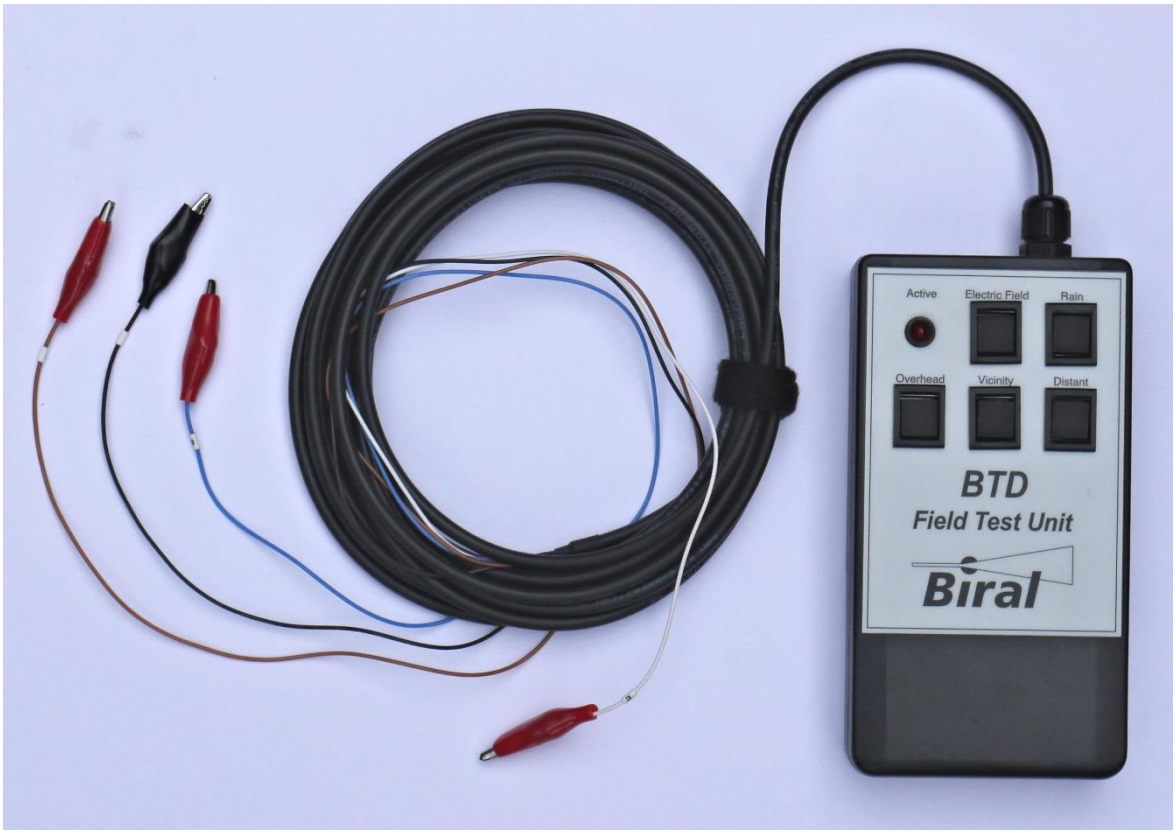
# BTD-300

## Thunderstorm Detector Field Test Unit

# USER MANUAL



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This manual describes the installation and operation of the Biral BTD-300 Field Test Unit and should be read **fully** before the instrument is used. If there are any questions about the equipment supplied or the instructions contained within this manual please consult Biral at the above address.

To assist Biral in the event of questions could you please indicate the equipment type (and serial number if applicable), nature of your question, approximate number of hours in use and your return contact details.

**Copyright Declaration**



All information contained in this manual is correct (to the best knowledge of Biral) at the time of publication. Biral reserves the right to revise this manual without notification.

The Equipment is UKCA and CE marked and as such is deemed safe for use under normal operating conditions. Failure to comply with these conditions may result in personal injury not covered by the CE classification.

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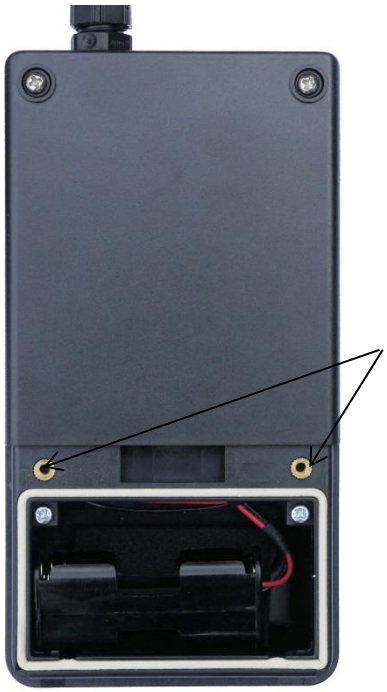
# 1 CONTENTS

## 2 INTRODUCTION

This document serves as instruction on how to use the BTD-300 Field Test Unit. The Field Test Unit is a battery operated device which requires 2 x AA alkaline batteries (batteries supplied). Unscrew the 2 lower countersunk screws on the back of the Field Test Unit to gain access to the battery compartment. No user maintenance is required other than replacing batteries.

**WARNING: This equipment is intended for use only with the BIRAL BTD-300 Thunderstorm Detector. Connection to other equipment may result in damage or personal injury.**

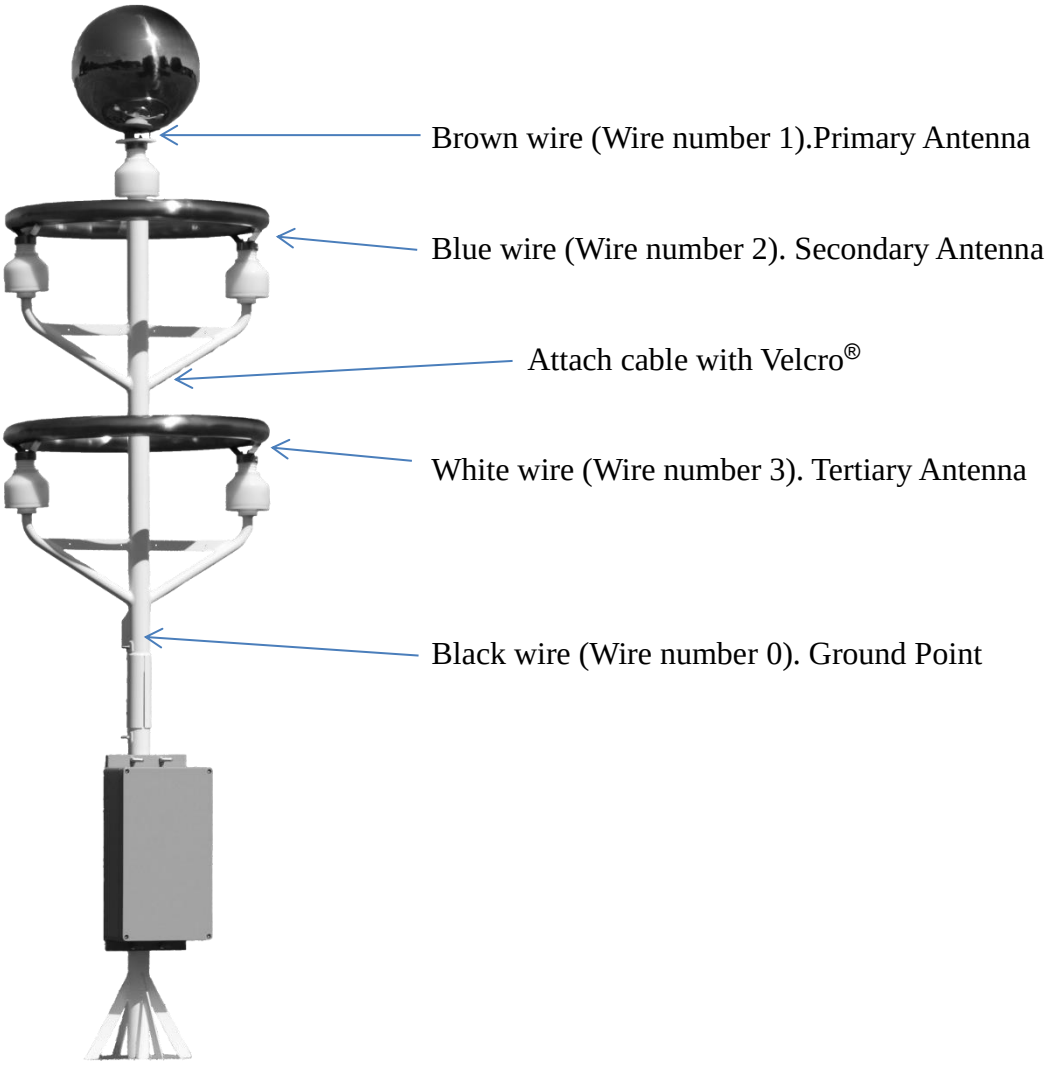
Access to 2 AA Batteries

**WARNING: Alkaline batteries only. DO NOT use rechargeable batteries.**

# 3 SETUP

It is intended that the BTD-300 is tested at its final installation position. If the unit is tested in a building prior to installation it must be recognised that local interfering signals may prevent the BTD-300 from detecting one or both of the expected test signals from each of the lightning tests. This does not indicate a fault with either the unit or the Field Test Unit. It is recommended that the antennas are not fitted if testing indoors as this will reduce the sensitivity to environmental noise.

Uncoil the 4 metre cable. Thread the cable through the tertiary antenna following the main shaft and attach to the secondary antenna arm using the Velcro® strap. Connect the individual wires from the cable to the points shown in the diagram below. Connect the crocodile clips to the antenna on the same side as the amplifiers are fitted. Labels on the antenna arms will identify the amplified side. It is important that the cable is attached securely and that the trailing cable movement is minimised throughout the testing. It is also important that any movement from people in the proximity is minimised.



# 4 OPERATION

Up to five separate tests are available using the BTD-300 Field Test Unit. Three of those are related to lightning tests and give a signal which simulates a lightning strike from various distances. These tests are single event tests and are triggered by a single long button press. It is recommended that the buttons are pressed for the duration indicated in each test mentioned below to enable the charge to fully dissipate into the BTD-300. The two remaining tests are to test the warning signals for Strong Electric Field and Charged Precipitation.

It is recommended that the BTD-300 is connected to a PC running the Biral BTD-300 Control Software (provided with the system). This will clearly display any detected signals, as specified below.

These tests require the BTD-300 to have the detection sensitivities, calibration ratios and range definitions set to their factory default values. If these have been changed, the display will vary accordingly, or it may not respond to the test signals as defined below.

## 4.1 OVERHEAD LIGHTNING

Press and hold the Overhead button for a minimum of 5 seconds. The test LED should illuminate for the duration of the test.
Two lightning strikes are expected between 7-9km

## 4.2 VICINITY LIGHTNING

Press and hold the Vicinity button for a minimum of 5 seconds. The test LED should illuminate for the duration of the test. Two lightning strikes are expected between 15-16km

## 4.3 DISTANT LIGHTNING

Press and hold the Distant button for a minimum of 5 seconds. The test LED should illuminate for the duration of the test.
Two lightning strikes are expected between 40-43km

## 4.4 CHARGED PRECIPITATION

Press and hold the ‘Rain’ button for a minimum of 10 seconds. The LED will illuminate while the test button is pressed. After approximately 5 seconds the charged precipitation box on the Biral Control software screen will show a tick.
Releasing the button will clear the charged precipitation warning tick after 5 seconds.

## 4.5 STRONG ELECTRIC FIELD

Press and hold the ‘Electric Field’ button for a minimum of 10 seconds. The LED will illuminate while the test button is pressed. After approximately 5 seconds the Strong Electric Field box on the Biral Control Software screen will show a tick.
Releasing the button will clear the Strong Electric Field warning tick after 5 seconds.
**Note**- Due to the way the Strong Electric Field test is performed it may detect a near distant lightning strike at the beginning of the test on the initial press of the test button. This is quite

normal and would not happen during naturally occurring strong electric fields. Removing the test probe from the Tertiary antenna will prevent this lightning detection indication.

## 4.6 AUTOMATIC RATIO CALIBRATION

It should be noted that the BTD-300 may automatically adjust the calibration ratios to suit local conditions if five or more suitable lightning flashes are detected within a period of fifteen minutes which indicate that a change would be beneficial for system performance.

If 5 or more flashes are simulated by this Field Test Unit, this may initiate the automatic ratio adjustment. If the system is tested prior to final installation, this will not affect the factory set default ratio values. If routine testing is carried out on installed BTD-300 systems using this Field Test Unit, it could reset the ratios to their default values. To prevent this happening, the distant and vicinity buttons should only be pressed once, producing only four suitable lightning events within a fifteen minute interval (overhead flashes are not utilised for this automatic calibration). This will not reset the optimised calibration ratios.

# 5 MAINTENANCE AND SERVICE

## 5.1 MAINTENANCE

User maintenance operations are limited to battery replacement. See section 3 for battery insertion instructions.

## 5.2 SERVICE

For equipment service please contact Biral stating the equipment model, serial number, and nature of the fault.


Address: Biral, Unit 8 Harbour Road, Portishead, Bristol, BS20 7BL, UK

Email: enquiries@biral.com

Telephone: +44 (0)1275 847787


# 6 SPECIFICATIONS

## 6.1 OPERATING ENVIRONMENT

### 6.1.1 OUTDOOR USE

The BTD-FTU is intended for use in an outdoor environment.
The BTD-FTU should not be exposed to rain, snow, or other precipitation.
Protect from liquid splashes and dust.

### 6.1.2 TEMPERATURE RANGE

| | |
|---|---|
| Maximum operating temperature | 35°C |
| Minimum operating temperature | -10°C |

### 6.1.3 RELATIVE HUMIDITY

| | |
|---|---|
| Operating and storage | 0% to 95% RH non-condensing |

### 6.1.4 ALTITUDE

No restrictions.

## 6.2 BATTERIES

Two AA Alkaline cells. 1.5V
Do not use rechargeable batteries.
Remove batteries if the equipment is not used for two months.