



# Handheld Reader and Attachments

## OWNER'S MANUAL



**Handheld Reader**

Cat No:BRHR-BB-001



**CryoBox Tracker™**

Cat No:BRAB-T1-001

Bluechiip's advanced sample management solution is the only one that provides sample level temperature with ID in cryogenic environments. The Bluechiip Enabled Handheld Reader and related attachments are a key component of the Bluechiip system designed to drive productivity and redefine quality to deliver confidence in every sample.



## Revision History

| Revision | Date       | Description of change(s)      |
|----------|------------|-------------------------------|
| 1        | 08/10/2021 | First release of the document |

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## Referenced Documents

MAN1002      Bluechiip System User Guide

## Bluechiip Support

**For Technical Support** contact us at [support@bluechiip.com](mailto:support@bluechiip.com)

or visit us online at [www.bluechiip.com](http://www.bluechiip.com)



This document provides an overview of how to operate the Handheld Reader and associated accessories and includes technical specifications, safety and regulatory information.

|                                                                                   |                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Please refer to MAN1002 Bluechiip System User Guide for more information on how to configure your new reader to the Bluechiip system and for detailed workflow instructions.</p> |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 1. Safety

|  <b>WARNING</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <p style="text-align: center;"><b>Trained Persons Only</b></p> <p>Failure to review the owner's manual and to follow the safety warnings can result in serious injury or death.</p> <ul style="list-style-type: none"> <li>• Users who operation these products must read and understand the information in this document</li> <li>• Users must follow all applicable safety guidelines and instructions of their organization and other relevant international standards</li> <li>• Users must be aware of the relevant safety procedures and safety equipment</li> <li>• Users must be aware of the relevant safety information and hazards associated with related products (i.e. CryoVials) used in conjunction with these products</li> </ul> |  |

### Explanation of symbols and words to describe the level of hazard

|                                                                                                    |                                                                                                                            |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
|  <b>DANGER</b>  | <p>Danger indicates a hazard which if not avoided <b>will result in serious injury or death.</b></p>                       |
|  <b>WARNING</b> | <p>Warning indicates a hazard which if not avoided <b>could result in serious injury or death.</b></p>                     |
|  <b>CAUTION</b> | <p>Caution indicates a hazard or unsafe action which if not avoided <b>could result in a minor to moderate injury.</b></p> |
| <b>NOTICE</b>                                                                                      | <p>Hazard or unsafe action which if not avoided could result in damage to the equipment</p>                                |



## Product Safety Labels

### *Found on the CryoBox Tracker™*

|                                                                                                  |                                                                                     |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  <b>CAUTION</b> |                                                                                     |
| <p>Follow all applicable safety instructions when handling liquid nitrogen and dry ice</p>       |  |



**Figure 1 – Hazard label found on the CryoBox Tracker**



## General safety considerations

|  <b>CAUTION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Extreme temperature / Cold Burns</b></p> <p>These products are designed to operate in and around extremely cold environments. Liquid nitrogen and dry ice used with these products can cause it to lower its temperature and may result in serious injury.</p> <ul style="list-style-type: none"> <li>Users must follow all applicable safety guidelines and instructions of their organization and other relevant international standards</li> <li>Users must be aware of the relevant safety procedures and safety equipment, including Personal Protective Equipment</li> </ul> |   |
| <p><b>Damaged components</b></p> <p>Using these products when parts appear damaged may cause personal injury or equipment malfunction.</p> <ul style="list-style-type: none"> <li>Do not use if product or parts appear damaged</li> <li>Prevent damage to the product by following the user guide and placing in a safe location</li> <li>Do not bend or pull on instrument cables</li> </ul>                                                                                                                                                                                           |                                                                                                                                                                         |
| <p><b>Asphyxiation</b></p> <p>Dry ice (CO<sub>2</sub>) and liquid nitrogen gasses are colourless, odourless and non-flammable however can cause death or serious injury due to asphyxiation if inhaled in large concentrations.</p> <ul style="list-style-type: none"> <li>Always follow industry and organization guidelines for safe handling of liquid nitrogen and dry ice</li> <li>Ensure workplaces are well ventilated</li> </ul>                                                                                                                                                 |                                                                                                                                                                         |
| <p><b>Unintended Use</b></p> <p>Use of the product in ways other than intended may cause personal injury and equipment malfunction</p> <ul style="list-style-type: none"> <li>Users who operation these products must read and understand the information in this document and follow instructions for use</li> <li>Users must follow all applicable safety guidelines and instructions of their organization and other relevant international standards</li> <li>Users must be aware of the relevant safety procedures and safety equipment</li> </ul>                                  |                                                                                                                                                                         |
| <p><b>Radio frequency interference</b></p> <p>Radio transmitters, broadcasting equipment and large electrical devices such as motors may interfere with the performance of the product and cause equipment malfunction.</p> <ul style="list-style-type: none"> <li>Only use the product for its intended application</li> </ul>                                                                                                                                                                                                                                                          |                                                                                                                                                                         |
| <p><b>Electric shock</b></p> <p>Damaged instruments, removed instrument covers or other damage to the instrument can cause personal injury or death</p> <ul style="list-style-type: none"> <li>Do not use damaged electrical cables or power adapters</li> <li>Do not operate in a wet environment</li> <li>Do not remove instrument covers</li> </ul>                                                                                                                                                                                                                                   |                                                                                                                                                                         |
| Notice                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                         |
| Do no operate the reader in a wet or damp environment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                         |
| Do no operate the instrument with wet hands                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                         |
| Ensure the mains plug and switch are easily accessible                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                         |
| Do not move the instruments whilst the mains lead is connected                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                         |



## 2. Product Overview

The Bluechiip Enabled™ Handheld Reader records the ID and temperature of Bluechiip Sample Storage containers and other CryoTags. An in-built Barcode scanner provides users with the flexibility and security of multiple tracking technologies. The reader links to Bluechiip's Stream™ Sample Manager software for sample level traceability and reporting. The Handheld Reader supports the Bluechiip Enabled CryoBox Tracker™, an optional reader attachment that enables tracking of Bluechiip CryoBoxes in cryogenic environments.

### System Components

#### Bluechiip Enabled™ Handheld Reader

Vial reader – Cryovials are inserted to read ID and temperature.

Bluechiip fobs are also used to login.

LCD screen – displays information regarding sample ID, temperature, location and tasks.

Barcode Reader - Cryovials are inserted to read ID and temperature. Bluechiip fobs

Directional buttons – used to select tasks, add users and capturing images.

Wand tip reader for CryoTags and CryoBox tags.

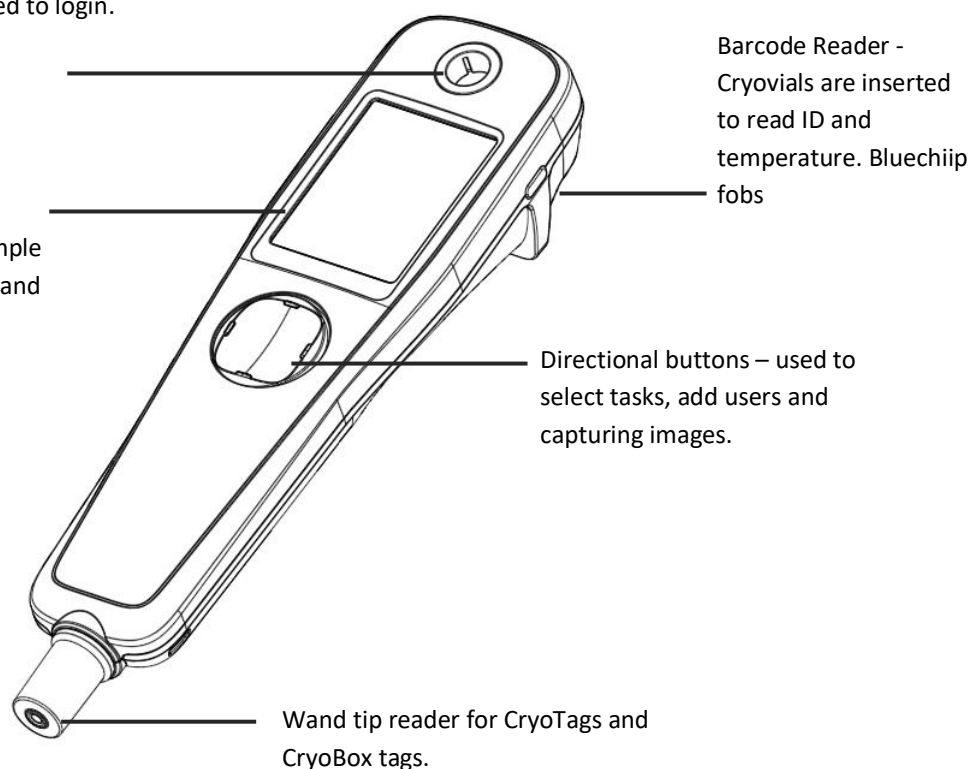
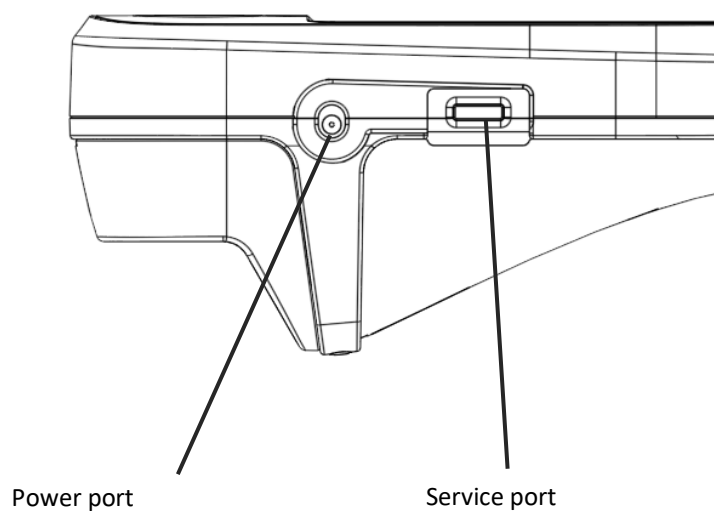


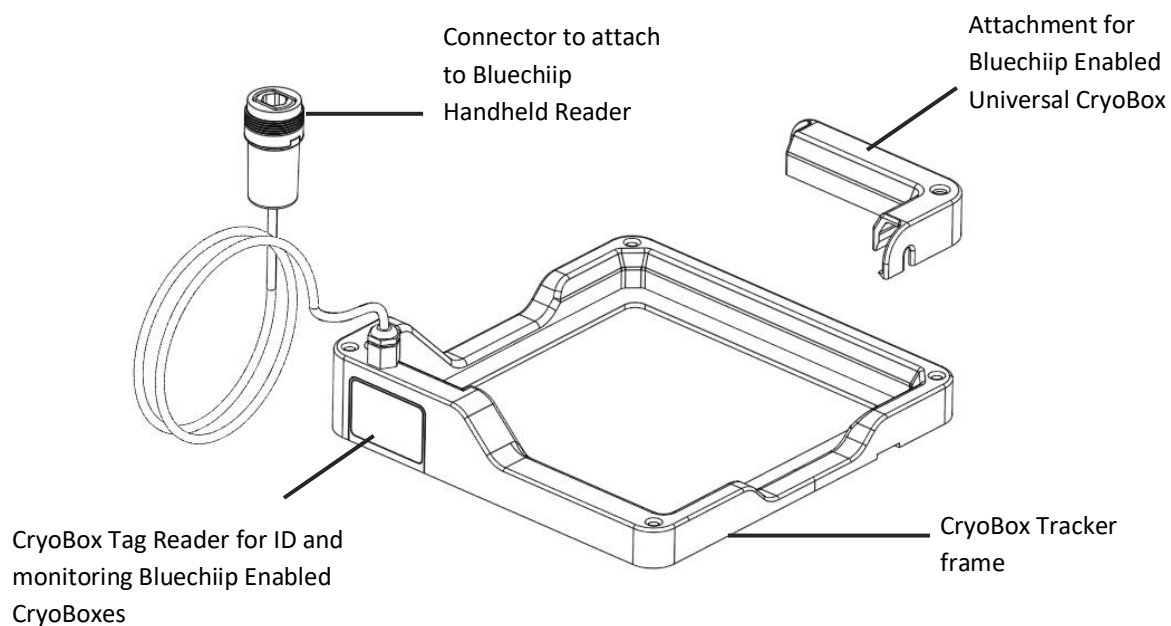
Figure 2 - The Bluechiip Handheld Reader





**Figure 3 –Handheld Reader Connection panel**

### **Bluechiip Enabled™ CryoBox Tracker™**



**Figure 4 - The Bluechiip CryoBox Tracker™**



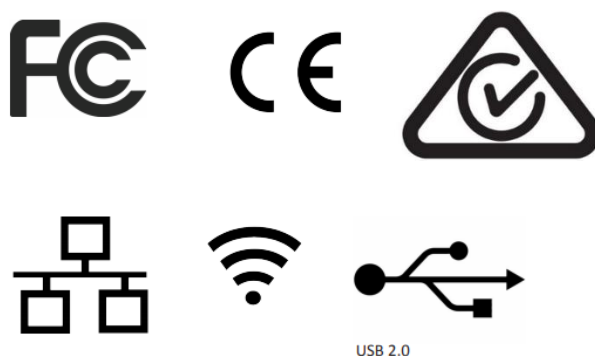
### 3. Specifications

| Handheld Reader                                                                  |                                                                                                           |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Physical Characteristics                                                         |                                                                                                           |
| Dimensions                                                                       | 27cm x 7cm x 5cm                                                                                          |
| Weight                                                                           | 0.4kg (0.6kg with charger)                                                                                |
| Display                                                                          | Display VGA color with touchscreen input                                                                  |
| Performance Characteristics                                                      |                                                                                                           |
| Memory (RAM/ROM)                                                                 | 512MB/512MB                                                                                               |
| Storage                                                                          | 32GB                                                                                                      |
| User Environment                                                                 |                                                                                                           |
| Reader operating temperature                                                     | 0°C to 60°C                                                                                               |
| Reader storage temperature                                                       | -40°C to 60°C                                                                                             |
| Humidity                                                                         | 5% to 95% non-condensing                                                                                  |
| Bluechiip® Radio Frequency Identification                                        |                                                                                                           |
| Chip Technology                                                                  | Microelectromechanical Systems (MEMS)                                                                     |
| Protocol                                                                         | Proprietary Bluechiip (FCC compliant part 15.209)                                                         |
| Antenna                                                                          | Integrated, inductive coupled                                                                             |
| Electrical                                                                       |                                                                                                           |
| Power adapter ratings                                                            | a. 100-240 V AC<br>b. 50/60 Hz<br>c. Max Input 0.8 A                                                      |
| Power input                                                                      | a. 12 V DC<br>b. Max Input 2A                                                                             |
| Internal Battery                                                                 | a. 2x18650 Li-Ion battery with total capacity 23Wh<br>b. Run time with typical usage between 4 to 8 hours |
| Wireless Data Communications                                                     |                                                                                                           |
| WLAN                                                                             | 802.11 b/g                                                                                                |
| Output Power                                                                     | 15dBm for both 802.11b and g                                                                              |
| Data Range                                                                       | 802.11b: up to 11 Mbps; 802.11g: up to 54 Mbps                                                            |
| Antenna                                                                          | Integrated                                                                                                |
| Frequency range                                                                  | 802.11b – 2.4 GHz; 802.11g – 2.4 GHz                                                                      |
| Peripherals                                                                      |                                                                                                           |
| AC Plug pack charger                                                             | Note: Only those supplied by and which meet Bluechiip specifications should be used.                      |
| CryoBox Tracker™                                                                 |                                                                                                           |
| Physical Characteristics                                                         |                                                                                                           |
| Dimensions                                                                       | 15.5cm x 16cm x 3cm                                                                                       |
| Weight                                                                           | 0.2kg                                                                                                     |
| Performance Characteristics                                                      |                                                                                                           |
| Compatibility                                                                    | Bluechiip Enabled CryoBoxes (various)                                                                     |
| User Environment                                                                 |                                                                                                           |
| Reader attachment operating temperature                                          | -196°C (vapor phase LN <sub>2</sub> ) to 60°C                                                             |
| Reader storage temperature                                                       | -40° C to 60° C                                                                                           |
| Peripherals                                                                      |                                                                                                           |
| Bluechiip supplied attachment to support Universal CryoBox (CAT No. BSPR-AD-001) | Note: Only those supplied by and which meet Bluechiip specifications should be used.                      |



## 4. Regulatory

1. General approval for use in the United States, Canada, Europe, Australia, New Zealand
2. This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
3. Electrical Safety Certified. Complies with EN/IEC61010-1:2010
4. EMI/RFI Radio Versions US: FCC Part 15, RSS210 5. The Handheld reader system complies with the FCC Radiated emission limits in the frequency range 9 kHz to 30 MHz as detailed in FCC section 15.209 of Subpart C.
5. Refer to Appendix A for relevant FCC Class Notice and EU Declaration of Conformity



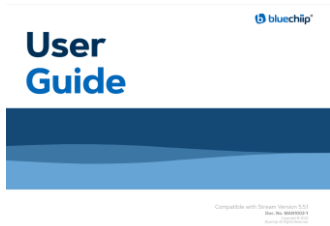
## 5. Operation

### Using the Handheld Reader

#### Install and Setup

| Step | Instruction                                                    |                                                                                       |
|------|----------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1    | Press and hold the power button to turn on the Handheld Reader |  |
| 2    | Plug in the charger. Remove when the reader is charged.        |  |

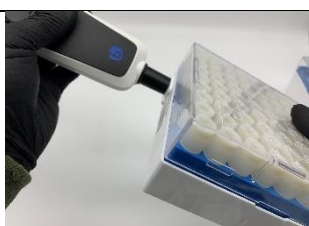


|   |                                                                                                                                                                                                                    |                                                                                     |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 3 | Refer to the MAN1002 Bluechiip System User Guide for instructions to configure the network connection on the Handheld Reader and to add the device to the system using Bluechiip's Stream™ Sample Manager software |  |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|

## Logging in and reading Bluechiip Enabled Cryovials and

| Step | Instruction                                                                                                                                                                                                                    |                                                                                      |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1    | Log in to the reader using the provided Fob ID. Read the Fob ID using the vial reader on the Handheld Reader.<br><br><i>Note: Refer to the MAN1002 Bluechiip System User Guide for instructions on how to add/manage users</i> |   |
| 2    | If Two-Factor Authentication (2FA) is enabled, the user must enter their PIN to login. If 2FA is not enabled, users will not be prompted to use their PIN.                                                                     |  |

## Reading Bluechiip Enabled items

| Step | Instruction                                                                                                                                                                                                              |                                                                                       |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1    | The Handheld Reader has three options for reading items. Users can toggle between the Bluechiip read heads by pressing up/down on the key pad, using the touchscreen or use the barcode scanner by pressing the trigger. |                                                                                       |
| 2    | To read a Bluechiip Enabled CryoVial, select the vial read head and place the vial into the vial reader cup.                                                                                                             |  |
| 3    | To read other Bluechiip Enabled CryoTags, including CryoBoxes, select the tag reader touch the tag of interest.<br><br><i>Note: The read range for Bluechiip Enabled CryoTags may vary.</i>                              |  |



|   |                                                                                                                                                                                        |                                                                                                                                                                         |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 | Barcode scanning is enabled by pressing the trigger on the underside of the Handheld Reader. To scan a barcode, point the barcode scanner directly at the barcode scanner and barcode. |   |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Using the CryoBox Tracker™

### Installing the CryoBox Tracker attachment

| Step | Instruction                                                                                              |                                                                                       |
|------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1    | To attach the CryoBox Tracker users must remove the tag reader. To do so, simply unscrew the tag reader. |  |
| 2    | Install the female insert by screwing it into the bottom of the Handheld Reader                          |  |
| 3    | Push the male connector into the female insert until it is securely held in place.                       |  |

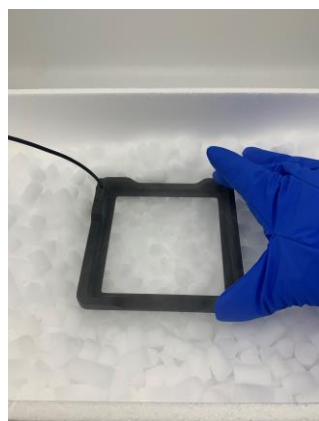


## Using the CryoBox Tracker with dry ice and vapor phase LN<sub>2</sub>

### CAUTION

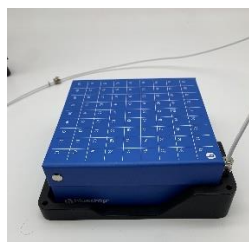
The CryoBox Tracker is designed to operate in vapor phase LN<sub>2</sub>. Follow applicable user guidelines when using CryoBoxes and Cryogenic Vials.



| Step | Instruction                                                                                                                                                                                                                                                                                                                  |                                                                                       |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1    | The CryoBox Tracker™ can be placed directly onto and surrounded by dry ice or in an environment filled with vapor phase liquid nitrogen.                                                                                                                                                                                     |   |
| 2    | <p>Place the CryoBox into the CryoBox Tracker™ frame. Ensure the box is oriented correctly and sits flat within the frame.</p> <p><i>Note: The CryoBox Tracker™ has an open bottom. For reliable tracking of CryoBoxes it is recommended that users ensure that CryoBoxes are flat and do not lift during transport.</i></p> |  |



## Adapter for Bluechiip Enabled Universal CryoBoxes

| Step | Instruction                                                                                                               |                                                                                                                                                                                                                                                                    |
|------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Clip the Universal CryoBox bumper onto the CryoBox Tracker frame on the opposite corner of the of the CryoBox Tag reader. | <br><br> |
| 2    | Place the CryoBox into the CryoBox Tracker™ frame. Ensure the box is oriented correctly and sits flat within the frame.   |                                                                                                                                                                                                                                                                    |



## 6. Maintenance

Do not remove covers. No user serviceable parts.

## 7. Troubleshooting

| Issue                                                                                                     | Troubleshooting steps                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Low or no network connection. Wifi symbol grey and/or Handheld Reader showing "Reconnecting to Bluecube". | Network coverage can vary from laboratory to laboratory. In some scenarios, the Handheld reader may lose connection to the network. To resolve the issue move to within network range.                                                                                                                                                 |
| Handheld Reader will not power on                                                                         | Check the Handheld Reader for any signs of physical damage. Do not attempt to charge if damaged.<br><br>Otherwise, plug the charger in. Leave for 10 mins and power on.                                                                                                                                                                |
| Unresponsive screen                                                                                       | If the Handheld Reader screen is unresponsive, the reader may be frozen. Try powering off the Handheld Reader and powering on again.<br><br>If the behaviour is reproducible, note down the steps taken up to the point in which the reader is unresponsive and contact Bluechiip technical support for further troubleshooting steps. |

If problems persist, contact Bluechiip Technical Support for further troubleshooting.



## 8. License Agreement

For product and software licensing agreements, please refer to the bluechiip website, [www.bluechiip.com](http://www.bluechiip.com)

## 9. Further Information

Bluechiip Ltd and the Bluechiip Ltd logo are trademarks or registered trademarks of Bluechiip Ltd in various countries. All other product or service names are the property of their respective owners.

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[www.bluechiip.com](http://www.bluechiip.com)



## Appendix A – Regulatory

### FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

**Note:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

**Modifications:** Any modifications made to this device that are not approved by Bluechiip Ltd. may void the authority granted to the user by the FCC to operate this equipment.

Contains FCC ID : Z64-WL18SBMOD



## EU Declaration of Conformity

### EU DECLARATION OF CONFORMITY



#### 1. Applicable products :

| Name                   | Model No.          | Cat No.                                                 | Version    |
|------------------------|--------------------|---------------------------------------------------------|------------|
| Handheld reader        | BLU-668            | BRHR-BB-001                                             | Series 1   |
| Multivial reader 10x10 | BLU-1200           | BRMV-10-001                                             | Series 2   |
| Multivial reader 9x9   | BLU-1300, BLU-1400 | BRMC-81-001, BRMV-81-001                                | Series 2   |
| Matchbox reader        | BLU-667            | Reader sold with BRMV-10-001, BRMV-81-001 & BRMC-81-001 | Series 3.5 |

#### 2. Manufacturer :

Name : Bluechiip Limited  
 Address : 1 Dalmore Drive, Scoresby, Victoria, Australia  
 Email : [bluechiip.info@bluechiip.com](mailto:bluechiip.info@bluechiip.com)

3. This declaration of conformity is issued under the sole responsibility of the manufacturer.

4. Objects of the declaration, per the name and model numbers listed above.



Handheld Reader



Matchbox Reader



Multivial readers

5. The objects of the declaration described above are in conformity with the following relevant Union harmonisation legislation:

- Directive 2014/30/EU (EMC)
- Directive 2014/35/EU (LVD)
- Directive 2012/19/EU (WEEE)
- Directive 2014/53/EU (RED)
- Directive 2011/65/EU (RoHS)

6. References to the relevant harmonised standards used, or references to the specifications in relation to which conformity is declared:

- ETSI EN 301 489-1 v2.1.1
- ETSI EN 301 489-3 v2.1.1
- EN 61326-1:2013
- EN 62311:2008
- EN 300 330 v2.1.0
- EN 61010-1:2010

7. The products described are covered by this declaration only when operated as intended according to the user instructions, and with accessories and software provided by the manufacturer.

8. Signed for and on behalf of the Manufacturer : Bluechiip Limited

Name : Scott Turner

Function : Engineering Manager



Place and date of issue : Scoresby, Victoria, Australia 8<sup>th</sup> October 2021

