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

Table of Contents

Referenced Documents

MAN1002   Bluechiip System User Guide

Bluechiip Support

For Technical Support contact us at support@bluechiip.com

or visit us online at 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.

	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.

1. Safety

⚠️ WARNING	
Trained Persons Only Failure to review the owner's manual and to follow the safety warnings can result in serious injury or death. • Users who operation these products must read and understand the information in this document • Users must follow all applicable safety guidelines and instructions of their organization and other relevant international standards • Users must be aware of the relevant safety procedures and safety equipment • Users must be aware of the relevant safety information and hazards associated with related products (i.e. CryoVials) used in conjunction with these products	

Explanation of symbols and words to describe the level of hazard

⚠️ DANGER	Danger indicates a hazard which if not avoided **will result in serious injury or death.**
⚠️ WARNING	Warning indicates a hazard which if not avoided **could result in serious injury or death.**
⚠️ CAUTION	Caution indicates a hazard or unsafe action which if not avoided **could result in a minor to moderate injury.**
NOTICE	Hazard or unsafe action which if not avoided could result in damage to the equipment

Product Safety Labels

Found on the CryoBox Tracker™

> ⚠️ **CAUTION**
>
> Follow all applicable safety instructions when handling liquid nitrogen and dry ice ❄️
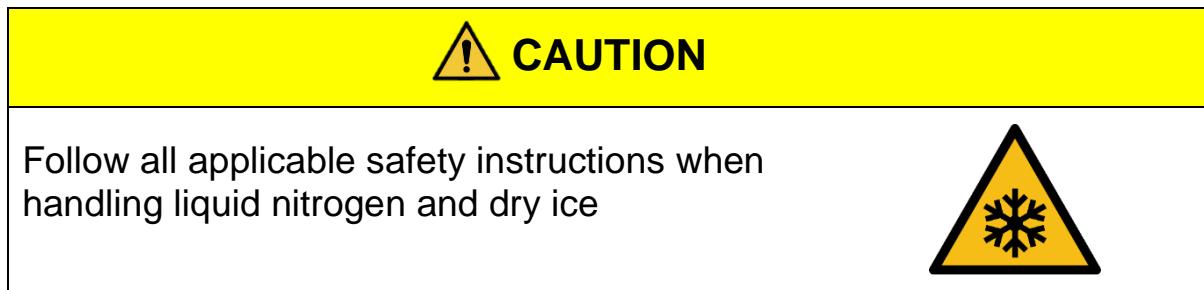
Figure 1 – Hazard label found on the CryoBox Tracker

General safety considerations

⚠️ CAUTION

Extreme temperature / Cold Burns
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. • Users must follow all applicable safety guidelines and instructions of their organization and other relevant international standards • Users must be aware of the relevant safety procedures and safety equipment, including Personal Protective Equipment

Damaged components
Using these products when parts appear damaged may cause personal injury or equipment malfunction. • Do not use if product or parts appear damaged • Prevent damage to the product by following the user guide and placing in a safe location • Do not bend or pull on instrument cables

Asphyxiation
Dry ice (CO_2) 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. • Always follow industry and organization guidelines for safe handling of liquid nitrogen and dry ice • Ensure workplaces are well ventilated

Unintended Use
Use of the product in ways other than intended may cause personal injury and equipment malfunction • Users who operation these products must read and understand the information in this document and follow instructions for use • Users must follow all applicable safety guidelines and instructions of their organization and other relevant international standards • Users must be aware of the relevant safety procedures and safety equipment

Radio frequency interference
Radio transmitters, broadcasting equipment and large electrical devices such as motors may interfere with the performance of the product and cause equipment malfunction. • Only use the product for its intended application

Electric shock
Damaged instruments, removed instrument covers or other damage to the instrument can cause personal injury or death • Do not use damaged electrical cables or power adapters • Do not operate in a wet environment • Do not remove instrument covers

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.

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

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

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

Wand tip reader for CryoTags and CryoBox tags.
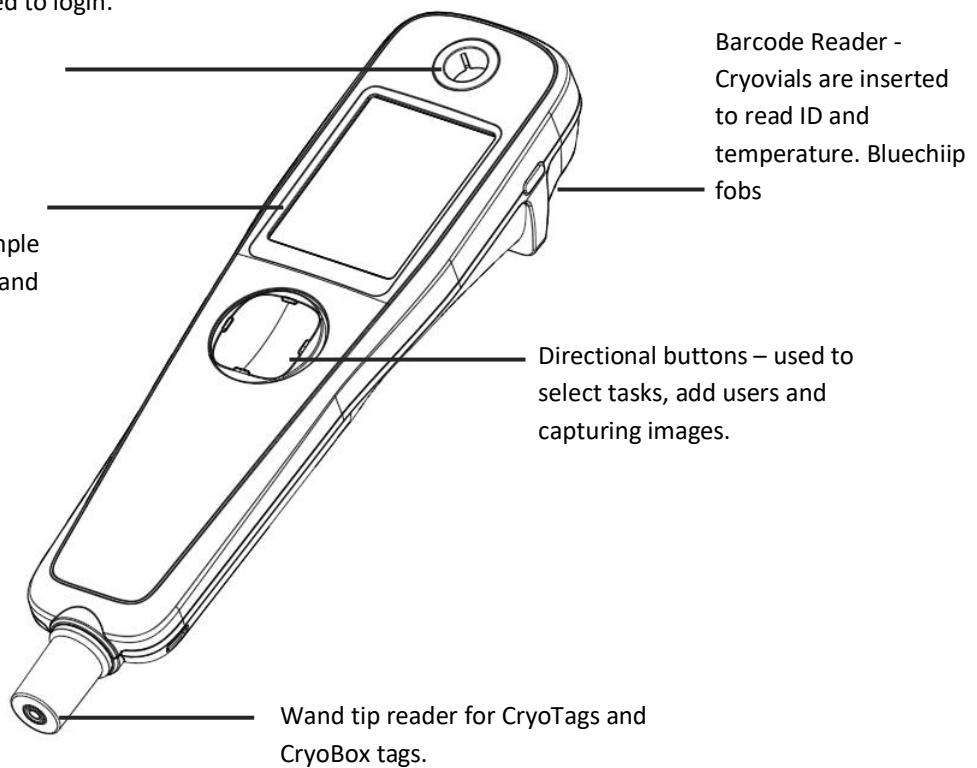
Figure 2 - The Bluechiip Handheld Reader

Power port   Service port
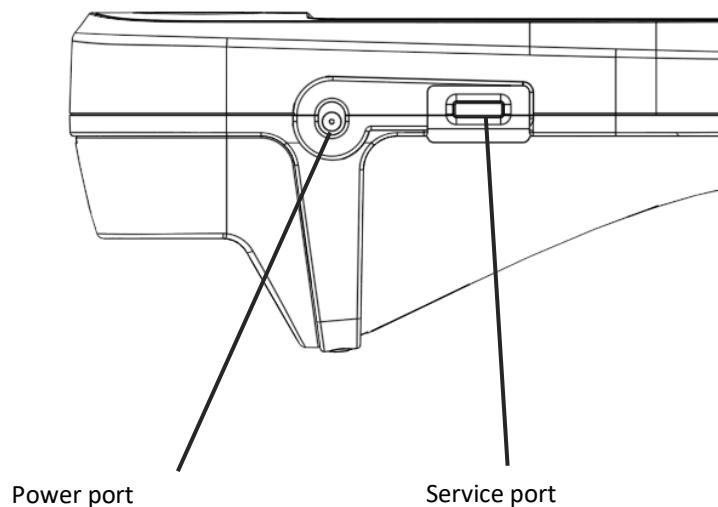
Figure 3 –Handheld Reader Connection panel

Bluechiip Enabled™ CryoBox Tracker™

Connector to attach to Bluechiip Handheld Reader

Attachment for Bluechiip Enabled Universal CryoBox

CryoBox Tag Reader for ID and monitoring Bluechiip Enabled CryoBoxes

CryoBox Tracker frame
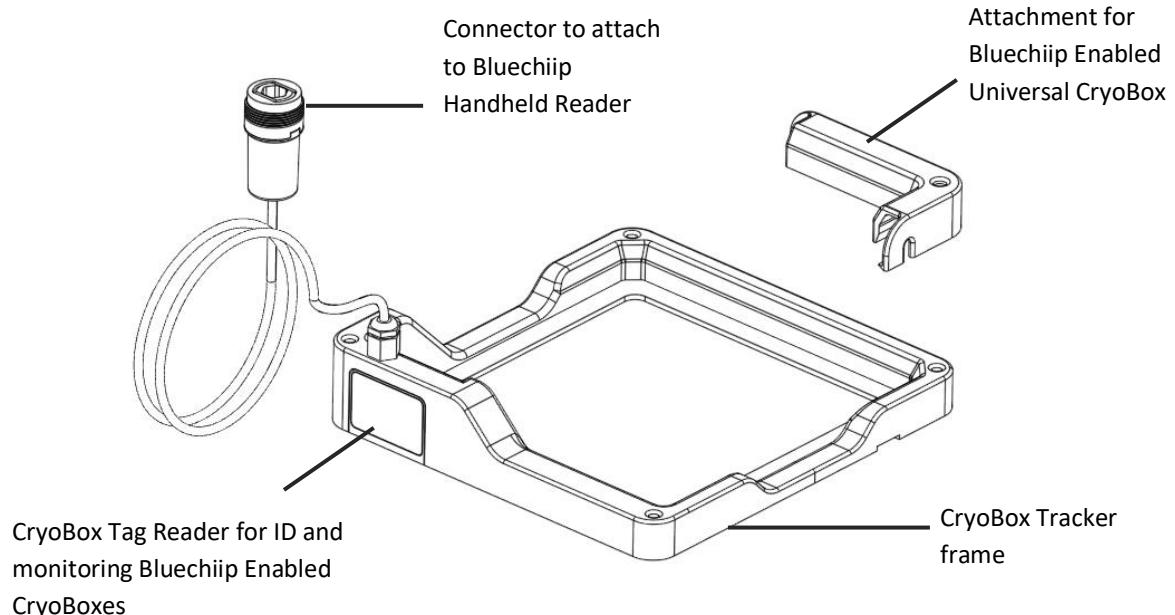
Figure 4 - The Bluechiip CryoBox Tracker™

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 b. 50/60 Hz c. Max Input 0.8 A
Power input	a. 12 V DC b. Max Input 2A
Internal Battery	a. 2x18650 Li-Ion battery with total capacity 23Wh 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_2) 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
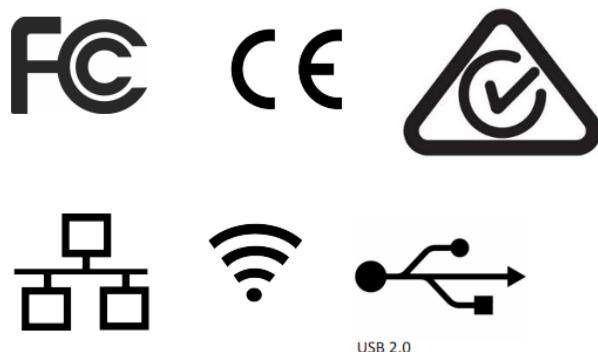
5. Operation

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	
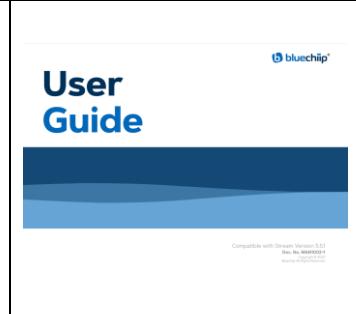
Logging in and reading Bluechiip Enabled Cryovials and

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. *Note: Refer to the MAN1002 Bluechiip System User Guide for instructions on how to add/manage users*	
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. Note: The read range for Bluechiip Enabled CryoTags may vary.	

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 LN₂

⚠ CAUTION
The CryoBox Tracker is designed to operate in vapor phase LN₂. 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	Place the CryoBox into the CryoBox Tracker™ frame. Ensure the box is oriented correctly and sits flat within the frame. *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.*	
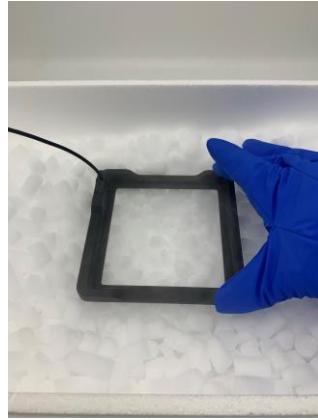
Using the CryoBox Tracker with dry ice and vapor phase LN₂

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.	
2	Place the CryoBox into the CryoBox Tracker™ frame. Ensure the box is oriented correctly and sits flat within the frame.	
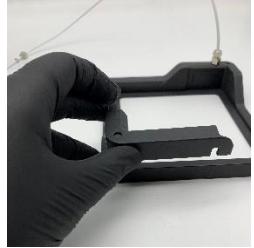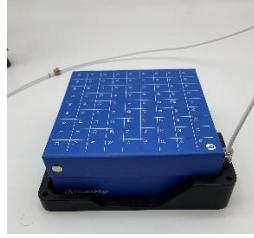
6. Maintenance

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. 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. 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

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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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

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 301 489-17 v3.1.1
- EN 300 330 v2.1.0
- EN 61010-1:2010
- ETSI EN 301 489-3 v2.1.1
- EN 61326-1:2013
- EN 62311:2008

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   8ʰ October 2021