

irVest User Manual

Thank you for your purchase of the iCOMBAT system. This highly realistic law enforcement training tool has been developed to meet the needs of training programs world wide. The system is very dependable and can be used for a variety of exercises suiting the user. The irVest is the receiving component of the system and is designed to communicate with the irM4 and Central Command Module (CCM). The irVest is constructed of extremely durable materials and utilizes the standard MOLLE design used all around the world. Now you'll be able to train cheaper, faster, and anywhere.

Safety



WARNING

The iCOMBAT system is designed to be very realistic in order to meet the needs of law enforcement training programs. Users must take care in keeping the irM4 separate from real firearms at all times. Training with the iCOMBAT system must never occur in areas where real firearms and other hazardous equipment are being used. Serious injury or even death may occur. Prior to using the irVest, please ensure that it visibly appears to be in good shape. If something seems loose or odd, contact iCOMBAT.



CAUTION

The developers at iCOMBAT have taken great care in designing a product that can be used safely. The irM4 is unable to fire a projectile and cannot be made to fire a projectile in any way. Instead, an infrared laser is emitted to 'simulate' a projectile. This beam of infrared light is completely invisible and eye safe. The irM4 is designed to emit this infrared light at safe levels that do not constitute a health hazard. However, as with any light source, we recommend that the user take precautions to avoid any unnecessary exposure such as intentionally aiming the rifle at someone's eyes or staring down the barrel at close range for extended periods of time.



CAUTION

Always pay attention to the training organizer and safety briefings when instructed. Be aware of any signs or special hazards in area. iCOMBAT doesn't provide any training.



CAUTION

Never modify your irVest or iCOMBAT gear in any way at any time for any reason. Repairing the irVest or replacing parts may only be done by a certified iCOMBAT technician or with their permission. Disassembly of the irVest might damage sensitive electronics or internal components and immediately voids the factory warranty.

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FCC NOTICE

This product contains FCC ID: UYI24

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 and
- (2) this device must accept any interference received,
including interference that may cause undesired
operation.

Instruction to user:

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- * Reorient or relocate the receiving antenna (on radio, TV, or other device).
- * Increase the separation between the equipment and receiver.
- * Consult the dealer or an experienced radio/TV technician for help.

In order to maintain compliance with FCC regulations, shielded cables are used with this equipment or product. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment or product without the approval of manufacturer could void the user's authority to operate this equipment as well as the factory warranty.

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Liability Statement

This product is surrendered by iCOMBAT with the understanding that the purchaser and or user assumes all liability resulting from unsafe handling or any action that constitutes a violation of any applicable laws or regulations. iCOMBAT shall not be liable for personal injury, loss of property or life resulting from the use of this product under any circumstances. All information contained in this manual is subject to change without notice. iCOMBAT reserves the right to make changes and improvements to products and manuals without incurring any obligation to incorporate such improvements in products previously sold.

Warranty

iCOMBAT warrants that this product is found free from defects in materials and workmanship for a period of one year from the original date of purchase by the initial owner/purchaser. This warranty does not apply to a) defects discovered after purchase which were caused by the unauthorized modifications, alterations or misuse of the purchased product; b) consumable parts such as batteries, o-rings, or other components designed to diminish or may wear out over time; c) cosmetic damage, including but not limited to, scratches, dents, rips, tears, or broken plastics and metals; d) damage caused by accident, abuse, misuse, liquid contact, fire, flood, or other external cause; e) damage occurring from operating product outside of iCOMBAT's published guidelines found in this manual or otherwise; f) damage caused by service such as upgrades and expansions performed by anyone who is not a representative of iCOMBAT; g) iCOMBAT products that have been functionally or capability modified without written permission from iCOMBAT; h) defects caused by normal wear and tear or otherwise due to normal aging of the iCOMBAT product; i) an iCOMBAT product in which the serial number has been removed or defaced, or is otherwise illegible. Determining a product's warranty status is solely the responsibility of iCOMBAT. iCOMBAT will repair or replace, without charge, any of its products that have failed through defect in material or workmanship.

IMPORTANT: Do not open or otherwise disassemble your iCOMBAT product without express written permission from an authorized iCOMBAT representative. Opening or disassembling the product may cause damage that is not covered under warranty.

EXCEPT AS EXPRESSLY STATED HERIN, THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, OF THE PRODUCTS OR SERVICES FURNISHED BY iCOMBAT. iCOMBAT SPECIFICALLY DISCLAIMS AND EXCLUDES ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ARISING FROM A COURSE OF DEALING OR USAGE OF TRADE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. iCOMBAT SHALL NOT BE LIABLE FOR, NOR DOES iCOMBAT AUTHORIZE ANY PERSON TO ASSUME FOR iCOMBAT, ANY LIABILITY IN CONNECTION WITH THE PRODUCTS OR SERVICES FURNISHED BY iCOMBAT INCLUDING, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, LIABILITY FOR LOSS OF PRODUCTION, PRODUCT, EQUIPMENT OR PROFITS OR LIABILITY FOR DIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES TO PERSONS OR PROPERTY. PURCHASER AGREES THAT PURCHASER'S SOLE REMEDY FOR LIABILITY OF ANY KIND, INCLUDING NEGLIGENCE WITH RESPECT TO THE PRODUCTS AND SERVICES FURNISHED BY iCOMBAT SHALL BE LIMITED TO THE REMEDIES PROVIDED IN THIS LIMITED WARRANTY.

Service

If you begin to notice odd performance with any of your iCOMBAT gear, please contact iCOMBAT Customer Service at 888-950-1221 right away. You may also email iCOMBAT Service at support@iCOMBAT.com.

All iCOMBAT products are covered under a 1 year limited warranty from the time of purchase. If your iCOMBAT product must be serviced, contact iCOMBAT Customer Service at support@iCOMBAT.com to receive return instructions. If your product is found to be outside of warranty, iCOMBAT will contact you with any charges before proceeding to repair your product. You are responsible for all shipping charges to and from iCOMBAT for both warranty and non-warranty repairs. In most cases, iCOMBAT can simply send you the parts you require for repair if a technician has approved.

AS STATED ABOVE, YOU ARE RESPONSIBLE FOR ALL SHIPPING CHARGES TO AND FROM iCOMBAT FOR ANY/ ALL SERVICES BOTH UNDER WARRANTY AND NOT UNDER WARRANTY.

iCOMBAT is a division of Universal Electronics, Inc.

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The irVest

Take a few minutes and orientate yourself with the irVest. Become familiar with its functions and design. Your standard gear can attach to the MOLLE material as normal. On the back of the irVest is the Control Box. The Control Box pouch cannot be removed. Two beepers and multiple sensors are placed throughout and connect to the control box. These provide visual and audio feedback to both the wearer and viewers. The irVest's size can be adjusted to fit a wide variety of body types. There are three modes pre-programmed into the Control Box for quick setup.



- 1. 1 Piezo Speaker On Each Shoulder
- 2. Multiple Sensors Throughout
- 3. Control Box

- 4. Adjustable Sizing Straps
- 5. MOLLE Bands



Battery Power

The irVest is sold with a minimal but uncertain charge in the lithium ion rechargeable batteries. It may require charging before use. Connect the supplied USB charger to the USB hole on the Control Box and plug it into the supplied 5 V 1 Amp wall outlet. A completely dead battery will take approximately 7 hours to fully charge. The LED indicator light will blink if the batteries are low (when not being charged) and also blink while charging. The irVest also beeps once every minute when the batteries are low. Charging is complete with the LED light is solid.



CAUTION

DO NOT YANK USB CORD OUT OF GUN. GENTLY GRAB IT AND REMOVE.

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Step 1

To power on the irVest, press the Power button. The red LED light on the Power button will illuminate to show that the Control Box is on. After a moment, the sensors on the irVest will also light up one by one before beeping once to signify its On status. This light will blink if the irVest has a low battery or is charging. To power the irVest off, press and hold the Power button for 2 seconds.

Step 2

Sync your weapons to the irVest. This is suggested, but not required, for a number of reasons. First, it prevents the user from shooting his or her self at close range if the infrared beam reflects off a nearby surface. Second, it disables users weapons when hit to prevent cheating. Third, it allows the Control Box to collect data such as accuracy and timing, and report it to the CCM. To do this, briefly press the Gun button so that the red LED light on it begins blinking. Then, take your weapon and shoot once at any sensor. After a quick moment, the irVest will beep and the Gun button will turn solid red to confirm the sync. You must make sure your weapon is “on” or set to Fire or Auto. You can sync up to two more weapons to the irVest for a total of three by briefly pressing the Mode button and then the Gun button so it blinks again and repeating the process.

Note: If the irVest gets hit while in Mode 1 or hit the second time in Mode 2, any synced weapons will be disabled for a period of 30 seconds. The irVest will also send a signal to re-enable the weapon after 30 seconds from being hit.

Step 3

The irVest has three modes pre-programmed into the Control Box. These cannot be changed or deleted. More modes are possible through the CCM (see CCM Manual). To select the desired mode, press the mode button to cycle through them. The red LED light will light up under the mode number.

Mode 1: One life. When the user is hit, all sensors will light up solid while the hit sensor blinks for 5 seconds. The speakers on the irVest will also beep for 5 seconds. The users weapon(s) will be disabled for a period of 30 seconds and the irVest will not receive any other hits during this time. After 30 seconds, the irVest will blink and beep 4 times to signify resuming. The users weapon(s) will be usable again at this time.

Mode 2: Two lives. The first time the user is hit, the hit sensor and beepers will blink and beep 5 times. Nothing else will happen. The second time the user is hit, the irVest will act the same as it does in mode 1.

Mode 3: Unlimited lives. Each time the user is hit, the hit sensor will blink and the irVest will beep for 5 seconds. Nothing else happens.

It is possible to cycle through the modes at any time. If synced to the CCM, all of the data will be collected and stored for review. Each user's mode can be different, even when being used together.

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Step 4

If you desire to use ICE for exercise control and stat recording, the irVest of every user must be synced to iCE one at a time. To sync a user, simply press the CCM button on the control box. The vest will appear under unassigned operators in iCE. If the vest is on and unsynced, pressing the Find Devices / AutoSync button in iCE will also sync the device. *See the CCM Manual for more detailed instruction.*

Using the irVest

Control Box Buttons

There are 5 buttons on the irVest Control Box. Four of them have red LED lights on them, while the fifth button, Mode, has 3 separate lights to the right side of it.

Power: Turns the irVest on and off. Press briefly to turn on. The red light will turn solidly on to signify on status. Press and hold the button again for 2-3 seconds to power the irVest off. The red light will then turn off.

Gun: The Gun button is used to sync ir weapons to the irVest. *Up to 3 weapons can be synced to an irVest at any time.* To sync a weapon, briefly press the Gun button until it starts blinking. Take your ir weapon and shoot any sensor on the irVest. After a moment, the irVest will beep and the Gun button light will turn solid to confirm the Sync. Repeat the process to sync a second and third weapon. Pressing the Gun button will display how many guns are synced. Holding the Gun button until it blinks will unsync all weapons.

CCM: The CCM button is used to sync the irVest to the CCM server. With iCE running and the CCM server plugged in, pressing this button will sync the vest to the iCE software and place it under unassigned operators. *See CCM Manual for more detail.*

Helmet: The Helmet button is used for connecting additional peripherals / sensors to the irVest such as a headband. To sync, briefly press the Helmet button so that it begins blinking and then press the Sync button on the peripheral. The Helmet button light will turn solid to confirm sync. Press and hold the Helmet button until the light turns off to clear the sync and erase data. Use this to sync the irHeadband and StressX devices.

Mode: The irVest comes pre-programmed with 3 modes, as described in Step 2. To the right of the Mode button are 3 numbers that light up to signify which mode is active. To cycle through the modes, tap the Mode button until the desired number is illuminated. You can switch modes at any time. *Modes become unusable while the irVest is synced to iCE.*

LED Indicator and Programming

As mentioned previously, there are a number of red LED lights on the Control Box buttons. The LED indicator lights offer a quick look at the irVest's status.

Power Button LED

Off - irVest is powered off or has a dead battery

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Solid On - When not plugged in and powered on

Blinking - When not plugged in signifies low power. irVest will also beep every minute

Blinking - Plugged in and charging. Will turn solidly on when charging has finished

Blinking - Plugged in and being programmed

Gun Button LED

Off - Not synced to any weapons

Solid On - Synced to 1, 2, or 3 weapons

Blinking - Syncing initiated. Will turn solidly on when weapon has been synced

Helmet Button LED

Off - Not synced to a peripheral

Solid On - Synced to a peripheral

Blinking - Syncing initiated. Will turn solidly on when a peripheral has been synced

CCM Button LED

Off - Not synced to a CCM

Solid On - Synced to a CCM

Blinking - Syncing initiated. Will turn solidly on when synced to a CCM

Mode Button LEDs

Off - Mode not selected

Solid On - Mode is selected

The USB port is used for charging the irVest and updating the software. New software updates are released periodically and are free of charge. Updating the irVest is done through the iCE software. To update the software on the irVest, open iCE and plug the USB cable into your computer and then the irVest. *Gently insert and remove the USB cable to prevent damage.* After a moment the device will appear and any possible updates shown. The irVest Power LED light will blink during programming. *Please see the CCM Manual for full instructions on how to update your irVest.*

Resetting the irVest

From time to time you may wish to sync different weapons to the irVest, or disconnect it from the CCM. To erase the memory and wipe out any sync data, press and hold the Control Box button of the function you wish to clear. For example, to un-sync any weapons, press and hold the Gun button for 2-3 seconds until light on the button turns off. To disconnect from the CCM, press and hold the CCM button until the light turns off. The Mode button cannot be reset.

Charging the irVest

To charge the irVest, plug the supplied 5 volt 1 amp wall charger into an outlet and then into the irVest's USB port. The Power button LED light will blink while charging and become solid when the irVest is fully charged. A completely dead battery will take approximately 9 hours to fully charge. It is acceptable to recharge the battery at any time. *Take care to gently insert and remove the charging cable to prevent damage.*

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Maintenance

The irVest is an extremely durable piece of equipment and will last for years of regular use. However, there are several things to keep in mind to ensure long life of the system. Do not soak the irVest completely under water during washing as you may damage the electronic components. Use a wet, rugged wash cloth to wipe down the irVest instead. If a complete wash must be done, contact

Performance Specifications

RF Range

The irVest is equipped with several radios for communicating with the rest of the iCOMBAT system. A short range radio establishes communication / syncing with the irM4. The maximum operating range between the irM4 and irVest is 10 feet. The irVest is also equipped with a long range radio for communicating with the CCM server up to 1 mile away. RF range varies with different terrain and obstacles. It is recommended that users keep a clear line of site between the irM4 and irVest, and also between the irVest and CCM when possible.

Battery Life

The irVest is powered by rechargeable lithium ion batteries inside the Control Box. Fully charged batteries will provide up to approximately 48 hours of on time depending on activity and the number of items synced.



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Environmental Conditions

The irVest's design and durability allow it to be used in a variety of environments without issue. The irVest can be used in temperatures ranging from 32 - 110 degrees Fahrenheit (0 - 43 degrees Celsius). Colder weather may begin to degrade performance. The electronics are all coated to provide moisture resistance. Damp or dry playing areas will not affect the irVest. Using the irVest in light rain is fine, but be sure to let it completely dry out before using again.