BRB Systems USA Co.

Instruction Manual – WT-101

Wireless Trap Voice Release System - Upgrade Kit

IMPORTANT: Read and understand this manual before assembling, installing or

using this system. Improper use of this system can cause serious injury.

Table of Contents

(1) <u>Safety Information</u>

<u>CAUTION:</u>

This system is powered by electricity. To reduce the risk of electric shock, do not tamper with any part of the apparatus. There are no user serviceable parts of this equipment.   Refer servicing to BRB Systems USA Co.

Make certain that any person assembling or installing this system has read and fully understood this Instruction Manual. It is your guide to safe and proper operation of this system.

- WT-TRX-101 Button Controllers are 6V dc, powered by 4 AA batteries. AA batteries are small, but powerful and must be treated with respect. Never short the ends of the battery together. Never burn the battery, even when you think it is fully discharged.

- RX-101 Receivers sold as 12V, are to be powered with 12V dc power sources only.
  The 12V dc power sources that may be used with the receivers are; 12V lead acid batteries, 12V regulated ac to dc power supplies and 12V dc power directly from the trap.
  12V lead acid batteries (such as car type batteries) contain acid and so extreme care must be taken when handing them.
  12V car batteries are capable of supplying large amounts of current and care must be taken not to connect the + (red) and − (black) terminals together.

- RX-101 Receivers sold as 120V, are to be powered with 120V ac power sources only.
  Do not defeat the safety purpose of the polarized, or grounding type, plug fitted to this apparatus. If the provided plug does not fit into your outlet consult a qualified electrician.   Exterior 120V outlets should be GFCI protected for your safety. If the outlet is not GFCI protected then contact a qualified electrician for rectification.

- Protect any power cord from being walked on, pinched or damaged in any way.

- Disconnect this apparatus from its power source during lightning storms.

- Use only the attachment parts/accessories supplied by BRB Systems USA Co.

- Do not allow liquid entry into the system components. System components are water resistant, not waterproof.

- Ensure that the traps are disconnected from their power sources and unloaded before connection of the Receiver, Voice Boxes, or the setup of the Button Controller.   Failure to do so could result in the unexpected operation of the trap, causing serious injury.

- Ensure that the trap is disconnected from its power source and unloaded and that it is completely disconnected from the receiver before attempting loading, maintenance or repair of the trap. Failure to do so could result in the unexpected operation of the trap, causing serious injury.

- Extreme caution must be taken when a manually loaded trap is in use. This system is not able to determine whether a loader is ready for a target to be launched. Inadvertent operation of the system may cause serious injury to the loader.

(2) <u>Assembly</u>

Each full BRB Wireless Trap Voice Release System is supplied with the following components:

5 x WT-VB-101 Voice Boxes
5 x Voice Box chargers
1 x WT-TRX-101 Button controller
1 x RX-101 Receiver

WT-VB-101 Voice Box
Each Voice Box is mounted to one of your stands.

Remove the wing nuts, lock washers, flat washers and grey plastic spacers from the Voice Box studs. Fit one grey plastic spacer onto the shaft of your stand against the top of the lower cable hook. Fit the second grey plastic spacer above the first, at the distance between the Voice Box studs.

Slide the studs through the 4 holes in the grey plastic spacers. Refit the flat washers, lock washers and wing nuts. Screw hand tight.

Screw the 2 pin plug into the microphone socket. Zip tie the cable to the shaft of the stand in a way that makes a large loose cable bend at the microphone, so that if the microphone is turned downwards it does not pull the plug connection.

(3) <u>Installation</u>

Using the cabling as supplied, each RX-101 Receiver should be mounted vertically and within 10ft of the power and release connections of the trap. To lengthen the power/release cabling use a connector that is rated for outdoor use and meets current electrical standards. Ideally the Receiver antenna should have an unobstructed line of sight to the Button Controller and Voice Box antennae.

To make the Receiver connections at your trap, use the appropriate plug for the trap. These parts can be purchased from your trap manufacturer or dealer. Release plug and socket wiring diagrams for your trap can be obtained from your trap manufacturer or dealer.

<u>Receiver Connections</u>

<u>12Vdc Power From Trap</u>
10ft 4 core cable = Receiver power and trap release connections.
Red = 12V +ve.
Black = 12V –ve.
White and Green = trap release connections.
Orientation of the white and green wires is not important.

<u>Power From 120Vac Wall Outlet</u>
10ft 120V ac power cord = Receiver power.
Plug into GFCI protected 120V outlet.
10ft 2 core cable = trap release connections.
Orientation of the wires is not important.

(4) <u>Set Up</u>

This equipment has been designed for ultimate versatility, which is achieved by offering a large number of user options. Each user option needs to be set. Unless specified otherwise when ordered, each piece of this equipment will be preset to factory settings before shipping. For most customers no changes will be necessary. Should you need to make any changes from the factory settings a comprehensive description of how to do so follows.

<u>FACTORY SETTINGS</u>

Radio Frequency = Channel unique
Radio Encoding = Code unique
Release delay = None
Must use with counter = No
Equipment type = Wireless Trap VRS
Game = Trap Singles
Receiver relay closed time = 0.25 seconds
Microphone sensitivity = Center of range
Inactivity power down = 10 minutes
Unwanted noise rejection = Minimum

If you require settings any different than the factory settings, these can be changed by following the instructions in the following tables and descriptions.

(4.1) WT-TRX-101 Button Controller Set Up

Button Controller Dipswitch Settings
Switch numbers are printed on the body of the dipswitch.

UPPER

1	2	3	4	5	6	7	8	
CODE	CHN	CHN	CHN	CHN	CHN	CHN	CHN	CHN sets receiver ID frequency - TX, RX &VB must all match

MIDDLE

1	2	3	4	5	6	7	8	
CODE	CODE	CODE	CODE	OFF	OFF	DELAY	DELAY	CODE sets receiver ID encoding – TX, RX &VB must all match DELAY sets the target release delay time

LOWER

1	2	3	4	5	6	7	8	
CTR	CTR	CTR	CTR	OFF	GAME	OFF	OFF	CTR switches same as Upper switches 1,2,3 & 4 = Use without counter Any CTR switch different from Upper 1,2,3 & 4 = Only with counter GAME sets Trap Singles or Trap Doubles

(4.2) RX-101 Receiver Set Up

Receiver Dipswitch Settings
Switch numbers are printed on the body of the dipswitch.

SW3

1	2	3	4	5	6	7	8	
CODE	CHN	CHN	CHN	CHN	CHN	CHN	CHN	CHN sets receiver ID frequency - TX, RX &VB must all match

SW2

1	2	3	4	5	6	7	8	
CODE	CODE	CODE	CODE	REL1 FUNC	REL1 FUNC	REL2 FUNC	REL2 FUNC	CODE sets receiver ID encoding – TX, RX &VB must all match RELAY FUNC sets each relay for use in Trap Singles or Trap Doubles

SW1

1	2	3	4	5	6	7	8	
REL PRIME CLOSE	REL SEC. CLOSE	OFF	OFF	OFF	OFF	RX FUNC	RX FUNC	REL PRIME and REL SEC. CLOSE set relay contact closed times RX FUNC sets which equipment model a receiver is used with – Wireless Trap, Wireless Skeet or TX-101

(4.3) WT-VB-101 Voice Box Set Up

Voice Box Dipswitch Settings

Power off the Voice Box to change dipswitch settings, or the changes will not be recognized by the equipment.

SW1

1	2	3	4	5	6	7	8	
CODE	CHN	CHN	CHN	CHN	CHN	CHN	CHN	CHN sets receiver ID frequency - TX, RX &VB must all match

SW2

1	2	3	4	5	6	7	8	
CODE	CODE	CODE	CODE	MIC	MIC	MIC	MIC	CODE sets receiver ID encoding – TX, RX &VB must all match MIC sets the microphone sensitivity

SW3

1	2	3	4	5	6	7	8	
SLEEP	SLEEP	SLEEP	NOISE REJECT	NOISE REJECT	NO BC	OFF	OFF	SLEEP sets the time until power down after inactivity NOISE REJECT sets the level of noise rejection NO BC when using without a Button Controller – sets counter/non-counter mode

CHN Signal Frequency – Set in Button Controller, Receiver & Voice Box
The seven CHN dipswitches are the primary method of system identification. These dipswitches must match on the Receiver, Button Controller and Voice Box for the system to operate. They set the frequency of the transmission signal and give 128 possible frequency variations. Using these settings for identification eliminates cross calls between adjacent fields because each field can have a different working frequency.

CODE Signal Encoding - Set in Button Controller, Receiver & Voice Box
The five CODE switches are the secondary method of system identification. These dipswitches must match on the Receiver, Button Controller and Voice Box for the system to operate. They set the encoding, do not affect the transmission frequency and expand the possible number of individual system identities to 4096.

DELAY Target Release Delay Time – <u>Set in Button Controller</u>
The two DELAY dipswitches (7 & 8 on the Middle dipswitch) are used to set any required delay between the shooters call and the target release.

The possible Delay dipswitch settings are:

MIDDLE

7	8	Delay Type
OFF	OFF	No delay
OFF	**ON**	1/6th second delay
ON	OFF	Random 0-1.4 seconds delay
ON	**ON**	Random 0-3 seconds delay

CTR Counter Use – <u>Set in Button Controller</u>
The four CTR dipswitches (1, 2, 3 & 4 on the Lower dipswitches of a Button Controller) allow the club to use the equipment with or without a counter.

To use the equipment without a counter, switches 1, 2, 3 & 4 of the lower dipswitch must match those of switches 1, 2, 3 & 4 of the upper dipswitch. If there is any difference between these, the equipment will only operate with a counter. This allows the customer to switch between the counter and non-counter use by changing only 1 dipswitch in the Button Controller.

GAME Trap Singles or Trap Doubles – <u>Set in Button Controller</u>
The GAME dipswitch (6 on the Lower Button Controller dipswitches) set the equipment for use as Trap Singles or Trap Doubles. This dipswitch allows changing from 1 game to the other without unplugging 1 and plugging in another trap or receiver.

The possible dipswitch settings are:

LOWER

6	Game
OFF	Trap Singles
ON	Trap Doubles

REL1 FUNC & REL2 FUNC Receiver Relay Game - <u>Set in Receiver</u>
Setting the four dipswitches, REL1 FUNC (5 & 6 on SW2) & REL2 FUNC (7 & 8 on SW2) of a receiver allow a user to change game from Trap Singles to Trap Doubles using only the Button Controller.   Each relay in the RX-101 Receiver needs to be set to operate in both Singles-and-Doubles or Doubles-only. If not set correctly when changed from Singles to Doubles the correct targets will not be released.

A standard Receiver is supplied with only Relay1 fitted. Relay2 is not fitted unless requested by the customer when ordering.

If using a single relay receiver, or if using only 1 relay of a 2 relay receiver, the dipswitches for the unused relay <u>must</u> be the same as for the used relay.

The possible dipswitch settings for REL1 are:

SW2

5	6	Relay used in Doubles-only or Singles-and Doubles	
OFF	OFF	Relay 1 operates in Trap Singles and Trap Doubles	(Primary relay)
ON	**ON**	Relay 1 only operates in Trap Doubles	(Secondary relay)

The possible dipswitch settings for REL2 (if fitted) are:

SW2

7	8	Relay used in Doubles-only or Singles-and Doubles	
OFF	OFF	Relay 2 operates in Trap Singles and Trap Doubles	(Primary relay)
ON	**ON**	Relay 2 only operates in Trap Doubles	(Secondary relay)

For Trap Doubles it may be possible to connect 2 individual traps to REL1. To ensure that doing so does not cause trap damage, confirm if this is possible with your trap manufacturer before attempting.

REL PRIME CLOSE & REL SEC. CLOSE Relay Closed Time – <u>Set in Receiver</u>
The REL PRIME CLOSE (1 on SW1) & REL SEC. CLOSE (2 on SW1) dipswitches set the time that a receiver relay stays closed. Some traps require a longer receiver relay closed time than others. If set too short the trap may start to move, but not release a target. If set too long a fast re-cocking trap may release more than 1 target for 1 relay closure.

To set each relay closed time, decide if each relay is a 'primary relay' or a 'secondary relay' by using the description in the previous section (REL1 FUNC & REL2 FUNC).

The possible dipswitch settings for REL1 CLOSE are:

SW1

1	Primary Relay Closed Time
OFF	Sets a Primary relay closed time to 0.25 sec.
ON	Sets a Primary relay closed time to 0.80 sec.

The possible dipswitch settings for REL2 CLOSE are:

SW1

2	Secondary Relay Closed Time
OFF	Sets a Secondary relay closed time to 0.25 sec.
ON	Sets a Secondary relay closed time to 0.80 sec.

RX FUNC Equipment Use Type - <u>Set in Receiver</u>
The two RX FUNC dipswitches (7 & 8 on SW1) of a receiver, set the model of equipment the receiver is to be used with. The 3 choices are Wireless Trap, Wireless Skeet and TX-101 Wireless Button Release.

The possible dipswitch settings are:

SW1

7	8	Equipment Model
OFF	OFF	TX-101 Wireless Button Release
ON	OFF	Wireless Trap VRS
ON	**ON**	Wireless Skeet VRS

MIC Microphone Sensitivity - <u>Set in each Voice Box</u>
The four MIC dipswitches (5, 6, 7 & 8 on SW2 of a Voice Box) are used to set the microphone sensitivity. The sensitivity can be changed up or down using the sixteen possible settings in the chart below. The range of possible sensitivity adjustment is high enough that it may be possible to use microphones that were previously discarded as 'deaf' with this equipment.

The possible dipswitch settings are:

SW2

5	6	7	8	Sensitivity
OFF	OFF	OFF	OFF	**LEAST SENSITIVE**
OFF	OFF	OFF	**ON**	
OFF	OFF	**ON**	OFF	
OFF	OFF	**ON**	**ON**	
OFF	**ON**	OFF	OFF	
OFF	**ON**	OFF	**ON**	
OFF	**ON**	**ON**	OFF	
OFF	**ON**	**ON**	**ON**	**STANDARD PRESET SENSITIVITY**
ON	OFF	OFF	OFF	
ON	OFF	OFF	**ON**	
ON	OFF	**ON**	OFF	
ON	OFF	**ON**	**ON**	
ON	**ON**	OFF	OFF	
ON	**ON**	OFF	**ON**	
ON	**ON**	**ON**	OFF	
ON	**ON**	**ON**	**ON**	**MOST SENSITIVE**

SLEEP Inactivity Power Down - Set in each Voice Box
The three SLEEP dipswitches (1, 2 & 3 on SW3 of a Voice Box) are used to set the time to automatically power down, after the last shooter call is heard.

The possible dipswitch settings are:

SW3

1	2	3	**Minutes**
OFF	OFF	OFF	10
OFF	OFF	**ON**	15
OFF	**ON**	OFF	20
OFF	**ON**	**ON**	30
ON	OFF	OFF	45
ON	OFF	**ON**	60
ON	**ON**	OFF	90
ON	**ON**	**ON**	120

NOISE REJECT Voice Box Noise Rejection - <u>Set in each Voice Box</u>

The two NOISE REJECT dipswitches (4 & 5 on SW3 of a Voice Box) are used to set the four possible noise rejection settings. These settings are used when problems such as echoes or gun shots from adjacent fields cause unwanted release of targets. The recommended noise rejection setting is the lowest that can be set to remove a noise problem.

The possible dipswitch settings are:

SW3

4	5	Noise Rejection Level
OFF	OFF	Level 1 - Minimum noise rejection
OFF	**ON**	Level 2
ON	OFF	Level 3
ON	**ON**	Level 4 - Maximum noise rejection

NO BC No Button Controller Counter Mode – <u>Set in each Voice Box</u>

Each Voice Box can be operated with or without a Button Controller (see WT-VB-101 Voice Box Operation for instructions). The NO BC dipswitch (6 on SW3 of a Voice Box) is used to set a Voice Box for Counter or Non-Counter use, when using without a Button Controller.

The possible dipswitch settings are:

SW3

6	No Button Controller mode
OFF	When using without a Button Controller – release targets without a Counter
ON	When using without a Button Controller – release targets only with a Counter

(5) <u>Operation</u>

<u>RX-101 Receiver Operation</u>

When connected to its power source, the green 'PWR' LED will light on the receiver and will stay lit as long as a good power level is maintained.

If the power supply voltage drops below 10.5V the 'PWR' LED will flash continuously to signify low power.

When the receiver relay closes the corresponding relay LED will light for the time that the relay is closed. When the relay opens, the LED will flash rapidly during the trap reload time.

Radio Signal Strength Indication (RSSI)

Optimum location of the receiver can be ensured with the help of the RSSI feature of this equipment. When a message is received from the Button Controller or Voice Box, the yellow 'SIG' LED will flash to show the strength of signal received.

1 flash = weakest signal that can release a target.

5 flashes = strongest signal.

Note – If a strong signal is received, but its message is corrupted (by radio frequency interference etc.) the LED will not flash.

Note - To avoid confusion between signals, if a signal is received within1 second of completion of the last sequence of flashes it will be ignored.

WT-TRX-101 Button Controller Operation

The WT-TRX-101 has no power on switch. Simply press any button and the unit will react immediately.

Low battery

If a low battery voltage is detected the red 'Low Batt' LED lights for 10 seconds when a button is pressed.

Manual Operation

A target can be released manually by pressing the 'Trap' button. When 'Trap' is pressed, the WT-TRX-101 sends the instruction directly to the RX-101 Receiver and a target is immediately released.

Voice Release Operation

With the Voice Boxes powered on, the referee can open and close the microphones by pressing the 'Mic On' and 'Mic Off' buttons.

Before a target can be released by voice, the microphones must be opened by pressing the 'Mic On' button, or by powering on the Voice Box in Mic Open mode.

WT-VB-101 Voice Box Operation

There are 2 ways to power on a Voice Box, depending upon whether you want to use the equipment with or without the Button Controller.

Mic Closed Mode - With Button Controller
To power on a Voice Box, press and release the power button on the top of the unit. When the power button is pressed, an indicator LED will illuminate around the power on button and an audible 'beep' will sound. The LED will flash to show that the unit is powered on and to show that the microphone is closed. When the Voice Box has been powered on and the referee has opened the microphone, the Voice Box LED will light continuously. A target can now be released by the shooters call.

Mic Open Mode -Without Button Controller
To power on a Voice Box, press and hold the power button on the top of the unit for 3 seconds.   When the power button is pressed, an indicator LED will illuminate around the power on button and an audible 'beep' will sound. After 3 seconds a second 'beep' will sound and the Voice Box LED will light continuously to show that the microphone is open. A target can now be released by the shooters call.

When powered on the color of the LED indicates the unit battery charge level.

Green = Fully charged – 50%.
Amber = 50% - 15%.

To protect the battery, when the battery charge level drops below 15%, the amber LED will flash rapidly and a 10 minute automatic shutoff timer will begin. After 10 minutes the LED will extinguish and an audible 'beep' will sound as the unit powers off.

With the microphones installed approximately 3ft from the shooter, the shooter should be able to call for a target in the same way as he would if the trap was being released by a person. There is no need to turn and call toward the microphone or call excessively loudly.

When a call is detected, the indicator LED will extinguish for 2 seconds and a target will be released.

Once a call is detected the Voice Box will not operate again until 2 seconds after the target has been released, in order to allow the trap time to reload.

When ready to accept another call the indicator LED will light.

When shooting is finished a Voice Box can be powered off by pressing the power button. The indicator LED will extinguish and an audible 'beep' will sound.

If any Voice Box in the system does not detect a call, for the duration of the set inactivity time, it will automatically power off.

(6) <u>Charging</u>

Only charge a Voice Box with the equipment supplied by BRB Systems USA Co.
Use of any unauthorized chargers may damage the equipment and cause a fire.
Use of unauthorized chargers will invalidate your warranty.

Do not store or charge a Voice Box below 0 degrees F. Extremely cold temperatures will damage the battery and drastically shorten its lifespan.

The simplest way to ensure that a Voice Box unit does not shut off, due to low battery charge level, is to keep each unit fully charged. **When shooting is finished plug each Voice Box into its charger.**

When a charger is connected to a Voice Box the power button LED will show the battery charge status by lighting amber and green in proportion to the charge level. As the battery charges, less amber and more green is shown until only the green LED makes a short flash. When only a short green LED flash shows, the unit is fully charged.

The Voice Box circuitry acts as both a battery charger and maintainer.   **The Voice Box cannot be overcharged. To prolong battery lifespan it is recommended that each Voice Box be continuously connected to its charger when not in use.** The maximum time between Voice Box charges should never be longer than 3 weeks. Any longer period between charges will reduce the battery capacity and lifespan.

A totally discharged Voice Box should recharge in approximately 7.5 hours.

When disconnecting a Voice Box from its charger always remove the charger cord from the Voice Box unit. If the charger cord is left plugged into the Voice Box and the charger disconnected from the wall, the Voice Box battery will discharge into the charger unit.

(7) **Maintenance**

The rugged manufacturing of this Wireless Voice Release System should ensure many years of trouble free use if it is not abused and given simple maintenance.

- Do not allow any component to be immersed in water.

- Keep the Voice Boxes fully charged.

- Do not leave the equipment outside, in the weather, for indefinite periods of time. Store in a cool dry place.

- Regularly inspect the equipment for wear or damage. If any wear or damage is found seek service from BRB Systems USA Co.

Should difficulty be found with the system operation, do not dismantle any part of the system. This will void the warranty and may result in an electric shock or fire.

Refer servicing to BRB Systems USA Co.

(8) <u>BRB Systems USA Co. - Limited Warranty</u>

This BRB Systems USA Co. product, supplied in the original packaging to the original purchaser, is warranted against manufacturing defects in materials and workmanship for a limited warranty period of:

<p align="center">One (1) Year Parts and Labor.</p>

This limited warranty begins on the original date of purchase and is valid only on products purchased and used in the USA.
This warranty will terminate automatically prior to its stated expiration if the original purchaser sells or transfers the product to any other party.

BRB Systems USA Co. will repair or replace this product, at our option and at no charge as stipulated herein, with new or reconditioned parts or products if found to be defective during the limited warranty period specified above.
All replaced parts and products become the property of BRB Systems USA Co. and must be returned to BRB Systems USA Co.
Replacement parts and products assume the remaining original warranty or ninety (90) days, whichever is longer.

This limited warranty covers defects in materials and workmanship encountered in normal use of this product and shall not apply to defects or injuries caused by the following, including, but not limited to: damage which occurs in shipment; delivery and installation; applications and uses for which this product was not intended; product alterations not authorized by BRB Systems USA Co.; cosmetic damage or exterior finish; accidents; neglect; fire; water damage; vermin or insect infestation; lightning or other acts of nature; use of products, equipment systems, utilities, services, supplies, accessories, applications, installations, repairs, external wiring or connectors not supplied or authorized by BRB Systems USA Co. which damage this product or result in service problems; incorrect electrical line voltage; fluctuations and surges; customer adjustments and failure to follow operating instructions, cleaning, maintenance and environmental instructions that are covered and prescribed in the Instruction Manual.
BRB Systems USA Co. does not warrant uninterrupted or error-free operation of the product.

BRB Systems USA Co. shall not be liable for loss of revenue or profits, failure to realize savings or other benefits, or any other special, incidental or consequential damages caused by the use, misuse or inability to use this product, regardless of the legal theory on which the claim is based, even if BRB Systems USA Co. has been advised of the possibility of such damages. Nor shall recovery of any kind against BRB Systems USA Co. be greater in amount than the purchase price of the product sold by BRB Systems USA Co. Without limiting the foregoing, the purchaser assumes all risk and liability for loss, damage or injury to purchaser and purchaser's property and to others and their property arising out of the use, misuse or inability to use this product sold by BRB Systems USA Co. not caused directly by the negligence of BRB Systems USA Co.

To receive warranty service contact BRB Systems USA Co. for problem determination and service procedure. If it is determined that the product requires warranty service, ship the product, in its original packaging or its equivalent, together with proof of purchase, prepaid insured to BRB Systems USA Co.

Products repaired or replaced under warranty will be returned to you, within a reasonable time, freight prepaid.

To obtain warranty service contact BRB Systems USA Co. at:

<p align="center">brbsystemsusa@yahoo.com   or call: 412 773-2128.</p>