HHMS-9XW08
LOGOS Transmitter

2 Pushbuttons, 8-Stepped Buttons with Display

Industrial wireless remote control solutions with customer service that is always within reach.

MADE IN PENNSYLVANIA SINCE 1992

FCC Statements

15.19 – Two-Part Warning

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

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

15.21 – Unauthorized Modification

NOTICE: The manufacturer is not responsible for any unauthorized modifications to this equipment made by the user. Such modifications could void the user's authority to operate the equipment.

15.105(b) – Note:

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.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Industry Canada Statement

This device complies with Industry Canada RSS-210.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation/safety-code-6-health-canada-radiofrequency-exposure-guidelines-environmental-workplace-health-health-canada.html.

Le présent appareil est conforme à la norme CNR-210 d'Industrie Canada.

Le programme d'installation de cet équipement radio doit s'assurer que l'antenne est située ou fait telle qu'elle n'émet pas de champ RF dépassant les limites de Santé Canada pour la population générale ; consulter le Code de sécurité 6, disponible auprès de Santé Canada site Web https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation/safety-code-6-health-canada- radiofrequency-exposure-guidelines-environmental-workplace-health-health-canada.html.

Industry Canada Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Industry Canada Unlicensed Devices EIRP Statements for Removable Antennas

Part 1: Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Part 2: This radio transmitter (LOBSRF-310) has been approved by Industry Canada to operate with the antenna type listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (LOBSRF-310) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

RoHS Compliance Statement

Cervis, Inc. complies with the requirements of Restriction of Hazardous Substances (RoHS/WEEE) Specification based on in-house practice and declaration of compliance from our vendors. For additional information concerning RoHS compliance, please contact Cervis, Inc. at:

170 Thorn Hill Road ▪ Warrendale, PA 15086
Phone: 724.741.9000 ▪ Fax: 724.741.9001

This product may contain material that may be hazardous to human health and the environment. In compliance with EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE):

- Do not dispose of the product as unsorted municipal waste.
- This product should be recycled in accordance with local regulations. Contact local authorities for detailed information.
- This product may be returnable to the distributor for recycling. Contact your distributor for details.

Contents

CAUTION

Cautions are used to warn of serious consequences of actions or inactions that may result in injury, death, or serious damage to the equipment.

NOTE

Notes are used to indicate points of interest or pertinent information.

RESOURCES

Resources will link to more information online, such as product pages, applications tools, etc.

Cervis, Inc. Safety Precautions

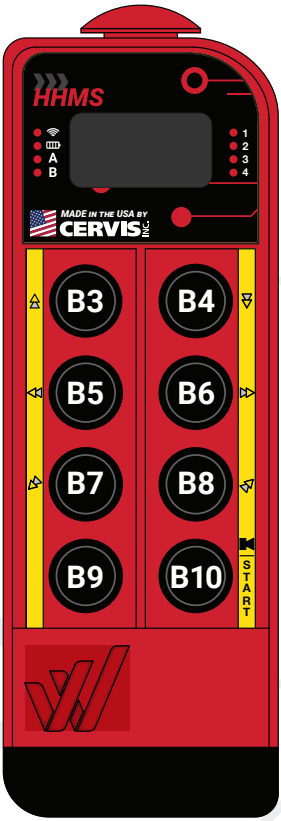
- Read and follow all instructions.
- Failure to abide by Safety Precautions may cause equipment failure, loss of authority to operate the equipment, and personal injury.
- Use and maintain proper wiring. Follow equipment manufacturer instructions. Improper, loose, and frayed wiring can cause system failure, equipment damage, and intermittent operation.
- Changes or modifications made to equipment not expressly approved by the manufacturer will void the warranty.
- Equipment owner/operators must abide by all applicable Federal, State, and Local laws concerning equipment installation and operation. Failure to comply could result in penalties and could void user authority to operate the equipment.
- Make sure that the machinery and surrounding area is clear before operating. Do not activate the remote control system until certain that it is safe to do so.
- Turn off the transmitter and disconnect power from the receiver before attempting any maintenance. This will prevent accidental operation of the controlled machinery.
- Use a damp cloth to keep units clean. Remove mud, concrete, dirt, etc. after use to prevent obstructing or clogging the buttons, levers, wiring, and switches.
- Do not allow liquid to enter the transmitter or receiver enclosures. Do not use high-pressure equipment to clean the transmitter or receiver.
- Disconnect the receiver before welding on the machine. Failure to disconnect the receiver may cause destruction of or damage to the receiver.
- Operate and store units only within the specified operation and storage temperatures defined in this document's specifications.
- Keep high-energy radio frequency (RF) devices away from transmitters. For instance, activating high-power communication radios close to transmitters might cause interference and "false" circuit activation.
- Do not key two-way radios while using the transmitter.

1.0 Warrior HHMS-9XW08 Transmitter Introduction

The Warrior HHMS-9XW08 transmitter is a compact transmitter that interfaces with all Warrior receivers. The HHMS-9XW08 has two standard green pushbuttons on the unit's back side and eight multi-step actuators on its front. These eight actuators are performance-rated at 2.3 lbf (10.23 N) for more than two million operations and available in three different configurations:

- **2-Step:** a single detent switch which provides a tactile sense between steps 1 and 2.
- **3-Step:** a two-detent switch indicating three distinct steps.
- **Any-Step:** a six-detent switch which can be used for analog output and applications with greater than three steps.

The transmitter's vented enclosure is made of a high-impact polymer, designed to meet an ingress protection rating of "IP50" according to International Electromechanical Commission (IEC) standard 60529.



The unit has four diagnostic LEDs that indicate radio frequency (RF) communication, battery status, A selection, and B selection, as well as four numbered auxiliary function LEDs (which require configuration at the factory). It also features an organic LED (OLED) display that indicates battery life, RF signal strength and RF link status.

Channel Hopping Direct Sequence Spread Spectrum (DSSS) wireless technology (transmitting on 904 to 926MHz @ 100mW) allows HHMS-9XW08 transmitters to create a robust link with Warrior receivers in congested radio environments. The Warrior system features seamless association between transmitters and receivers without having to physically access the receiver unless the receiver is specifically "locked out" by the user (see Section 6.1 Associate a Transmitter with a Receiver for more details).

NOTE

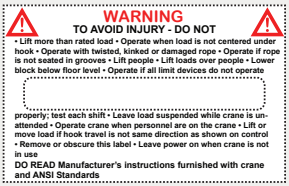
Refer to the Warrior receiver manual being used or specific project documentation for relay operation details.

CAUTION

This manual only references information for most standard systems. Refer to project drawings for system-specific information and configurations.

NOTE

Material handling warning label. Cervis Part Number 15205403.



A warning label (left) geared toward material handling is permanently attached to the back of the unit. This label describes warnings and precautions that must be followed when using the transmitter to operate a crane. If this label is missing, stop using the transmitter and call Cervis at 724-741-9000 for a replacement label. Reference Cervis Part Number **15205403**.

WARNING! TO AVOID INJURY – DO NOT:

- Lift more than rated load
- Operate when load is not centered under hook
- Operate with twisted, kinked or damaged rope
- Operate if rope is not seated in grooves
- Lift people
- Lift loads over people
- Lower block below floor level
- Operate if all limit devices do not operate properly; test each shift
- Leave load suspended while crane is unattended
- Operate crane when personnel are on the crane
- Lift or move load if hook travel is not same direction as shown on control
- Remove or obscure this label
- Leave power on when crane is not in use
- Operate equipment if you have not been properly trained

ALWAYS:

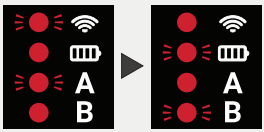
- Read manufacturer's instructions furnished with crane and ANSI Standards.

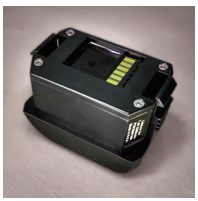
NOTE

If the STOP switch is already pushed down, all of the LEDs will flash briefly one time when a battery is inserted, and the unit will power down. The transmitter is then ready for the normal startup procedure (see Section 3.0 System Startup).

NOTE

If the STOP switch is already pulled up, the LED sequence indicated below will flash when a battery is inserted (you must cycle the STOP switch to reset).





2.0 HHMS Battery Installation

A rechargeable Lithium Polymer (LiPO) battery pack powers HHMS-9XW08 transmitters. When installed and fully charged, the battery supplies power to the transmitter for 80 continuous operating hours. When installing the battery, be sure that the metallic battery contacts properly align with those inside the unit.

To install the battery pack in the transmitter body:

1. Pinch the clamps on each side of the battery in.
2. Slide the battery pack into the transmitter body until you hear a click.

3.0 System Startup and Shutdown

LOGOS SYSTEM STARTUP

ACTION 1

Pull the STOP switch up.

OBSERVE

Display briefly flashing the Warrior logo and transmitter serial number (right)

LED B lights solid for 1.5 seconds indicating the time period to enter Maintenance Mode (see Section 6.0).

Rapid blinking of the RF signal LED (if already linked). For Tandem systems, go to Section 7.0.

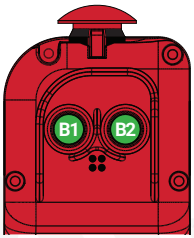
ACTION 2

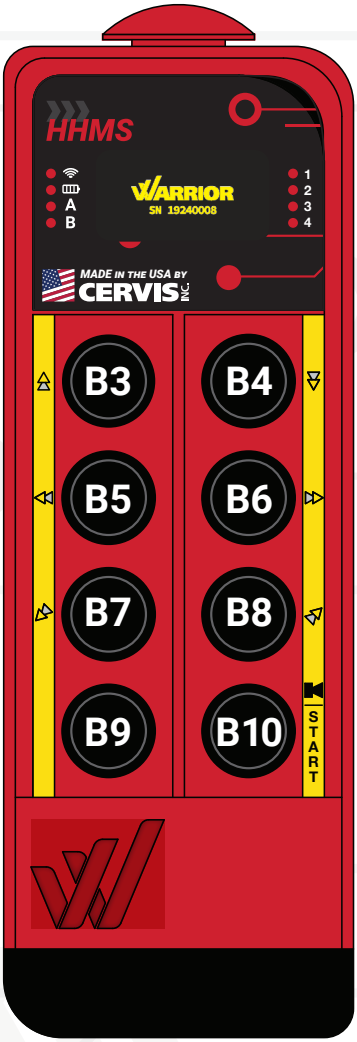
Observe OLED display for communication with the receiver, including its serial number.

OBSERVE

Press **B2** (on transmitter's back side) to energize the receiver by pulling in the MLC relays.

Observe receiver to see activation of MLC relay and Horn/Light relay while **B2** is pressed.





NOTE

If the RF signal LED is on solid when the STOP switch is pulled up, the handheld may not be associated to a receiver or the receiver it is associated to may not have power.

NOTE

If the transmitter does not have an associated receiver in its memory, it will automatically shut down shortly after startup. See Sections 6.0 – 6.1 for details on how to associate a transmitter to a receiver.

LOGOS SYSTEM SHUTDOWN

ACTION 1

Push the STOP switch down **OR** Allow the transmitter to timeout. (10 minute standard default).

OBSERVE

Observe display for Stop indication.

Observe transmitter shutdown.

Note that the receiver will retain power but all receiver relay outputs will return to their inactive state.

OR

ACTION 2

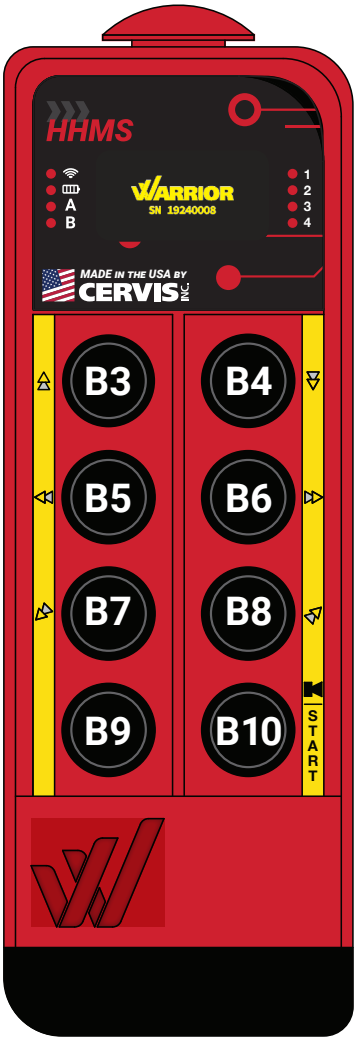
Auto shutdown due to depleted battery

OBSERVE

Observe Battery LED briefly on solid.

Observe transmitter shutdown.

Note that the receiver will retain power but all receiver relay outputs will return to their inactive state.



NOTE

There will be warnings issued prior to Auto-Shutdown. Please see Section 3.2 for more information.

3.1 HHMS-9XW08 Battery Warning and Shutdown

The HHMS-9XW08 will alert you if the remaining battery life is getting low or is too low for normal operation.

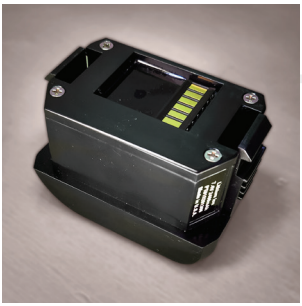
LOW BATTERY WARNING

The BATTERY LED **flashes once per second**, indicating a LOW BATTERY situation is present. The low battery warning is issued when there is approximately 1 hour of battery life remaining. It is recommended to charge the battery when the low battery warning is issued. The LED continues to flash either until the battery pack is charged or until the voltage level drops to 6.1V, when Auto-Shutdown occurs.

AUTO-SHUTDOWN

At 6.1V, the BATTERY LED **lights solid** for approximately 1.25 seconds before the transmitter automatically shuts down. **Recharge the battery pack before using the transmitter again.**

4.0 Charging the Battery Pack



There are two battery chargers available, an AC (100 – 240VAC, 50/60Hz) charger and a DC (10 – 32VDC) charger. The DC charger is fitted with a plug that fits an automotive power outlet (“cigarette lighter” socket). Each has a charging cradle which is similar to the battery well in the HHMS-9XW08 transmitter. The battery is inserted into the charging cradle in the same way as inserting the battery into the transmitter.

1. Pinch the clamps on each side of the battery in.
2. Slide the battery pack into the battery charging cradle until you hear a click.

4.1 Important Charging Notes

The DC Battery Charger will have a plug which fits a standard Automotive Power Port (“cigarette lighter socket”). The plug can be removed for connecting the charger directly to a DC power source.

1. The battery should be charged in an environment with an ambient temperature between +32 °F (0 °C) and +104°F (+40 °C). Care should be taken to not charge the battery outside of this temperature range, as damage to the cells can occur.
2. The battery and charger can become warm to the touch during normal charging. This does not indicate an issue with the battery.

NOTE

Unlike the AC charging adapter, the charging circuit of the DC charger is integrated with the charging cradle.

NOTE

There are two charging modes: Constant Current and Constant Voltage. Initially, the charger goes into Constant Current mode for the majority of the charge cycle, then, when the battery is almost charged, Constant Voltage mode takes over for a shorter duration. Both cycles must complete before the battery is fully charged.

NOTE

The AC wall-mount adapter is the charging device. It is not a simple power supply. The charging cradle, by itself, will not charge the battery. Do not attach any other power supply or charging device to the charging cradle even if it has a similar connector—doing so may risk damaging the battery and/or overheating the power supply.

Ensure that any foreign materials, such as metal shavings or shards, are not present when attempting to charge the battery. Foreign materials can prevent successful charging of the battery.

4.2 Charging with the AC Charging Adapter:

1. Plug the charger into a nearby wall socket or power strip.
2. The LED on the back of the charger indicates charging status.
   - Solid Red = charging
   - Solid Green = charged
   - Maximum charging time = Five hours

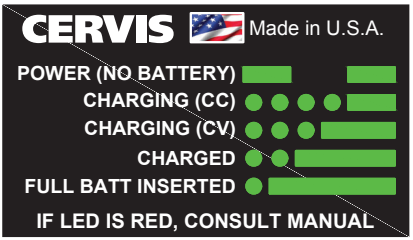
CAUTION

The battery should be charged in an environment with an ambient temperature between +32 °F (0 °C) and +104°F (+40 °C). Care should be taken to not charge the battery outside of this temperature range, as damage to the cells can occur.

4.3 Charging with the DC Charger:

The DC Battery Charger will have a plug which fits a standard Automotive Power Port (“cigarette lighter socket”). The plug can be removed for connecting the charger directly to a DC power source.

1. Connect charger to a 10-32 VDC power source.
2. Observe the Status LED. The LED on the Battery Charger enclosure (below the cradle) indicates charging status. The LED on the DC charger is much more sophisticated than that of the AC charger. The side label indicating the various charging states under normal charging conditions provides a quick reference.



GREEN LED indicates proper operation status:

- (2) Long Blinks = Power is applied without a battery inserted
- (1) Short Blink, (1) Very Long Blink = Full Battery Inserted
  Please avoid placing charged batteries in the charger; this could shorten the cycle life of the battery. Remove the battery if this indication shows.
- (4) Short Blinks, (1) Long Blink = Charging, Constant Current
- (3) Short Blinks, (1) Long Blink = Charging, Constant Voltage
- **(2) Short Blinks, (1) Very Long Blink = Charging Complete**

RED LED indicates an error status. The following three conditions can be rectified by correcting the error:

- (1) Short Blink, (1) Long Blink = Supply Voltage Less than 9.0 VDC

  Use a different power supply. Or, if the charger is being used in a mobile situation, the vehicle's battery is low and should be charged either by an external charger or by running the engine.

The following errors require removal and re-insertion of the battery:

- (4) Short Blinks, (1) Long Blink = High Output Voltage (>9.0 VDC)
- (8) Short Blinks, (1) Long Blink = Loss of Current During Charge
- (9) Short Blinks, (1) Long Blink = Loss of Voltage During Charge

The following errors may indicate a damaged battery:

Remove the battery from the charger, wait a minimum of one hour and reinsert the battery. If the condition persists, the battery is damaged and should be removed from service.

- (5) Short Blinks, (1) Long Blink = High Output Current (>800 mA)
- (6) Short Blinks, (1) Long Blink = Constant Current Time Out (>6 hrs.)
- (7) Short Blinks, (1) Long Blink = Constant Voltage Time Out (>2 hrs.)

3. When the battery has finished charging, remove the battery from the charging cradle. The battery is now ready for use in the transmitter. It is recommended that power be removed from the charging base when the charger is not in service.

5.0 HHMS-9XW08 LEDs

The HHMS-9XW08 has eight red light-emitting diodes (LEDs) that indicate transmitter status and are also used for troubleshooting. The table below describes each LED.

LED	INDICATION	EXPLANATION
RADIO FREQUNCY (RF) COMMUNICATION	Solid	Searching for Receiver or Button Pressed
	Flashing	Transmitting and Receiving Signals
BATTERY	Off	Battery Strength Normal
	Flashing	Low Battery
	Solid	Auto Shutdown
A SELECTION	Off	Hoist A Not Active
	Solid	Hoist A Active
B SELECTION	Off	Hoist B Not Active
	Solid	Hoist B Active
LEDs 1-4	Off	Factory Configurable Auxiliary Functions
	Solid	

5.1 HHMS-9XW08 OLED Display On-Screen Icons

SIGNAL STRENGTH INDICATOR
Four bars indicate the signal strength between the transmitter and the receiver.

RECEIVER ID LINK
Indicates the ID of the receiver that the transmitter is linked to.

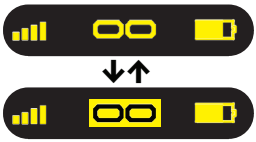
BATTERY LIFE INDICATOR
Indicates the amount of power remaining in the rechargeable LiPO battery.

TRANSMITTER ID NUMBER

START UP MESSAGE
Displays the programmed transmitter identity (ID) number.

NO RECEIVER (OPEN LINK)
No receiver ID is stored in the transmitter's memory. Transmitter will power down in five seconds.

FLASHING: OPEN LINK
Transmitter is establishing a link with the receiver or no receiver ID is stored in the transmitter's memory.



SOLID: CLOSED LINK CHAIN
The radio frequency (RF) link is established with the receiver. (Press Start to pull in the MLC relays.)

MAINTENANCE MODE
The transmitter is in Maintenance Mode. Press Start to exit Maintenance Mode.

ASSOCIATE MODE
The transmitter is in Association Mode. Use actuators **B9** and **B10** to select/initialize.

A SELECT
Indicates that the A Select relay is on, or in a Tandem system, Receiver A has been selected.

B SELECT
Indicates that the B Select relay is on, or in a Tandem system, Receiver B has been selected.

TRANSMITTER RESET MODE
While in Maintenance Mode, this icon displays when resetting the transmitter to factory default settings

STOP SWITCH PROMPT: PUSH DOWN
Prompts the operator to push the Stop switch down because a battery has been inserted.

STOP SWITCH PROMPT: PULL UP
Prompts the operator to pull the Stop switch up to restart transmitter.

COMMANDED SHUTDOWN
The Stop Switch has been pressed after the transmitter has been started. The transmitter is shutting down. If the transmitter is linked to a receiver, the MLC relays are open and System shutdown is imminent.

6.0 Maintenance Mode

Entering Maintenance Mode provides access to the following system features:

- Association (Section 6.1)
- Clear Receiver IDs (Section 6.2)
- Change the transmitter's inactivity time-out (Section 6.3)

To enter MAINTENANCE Mode:

ACTION 1

Follow start up procedure from Section 3.0.

OBSERVE

LED B light solid.

Note that LED B will only remain active for 1.5 seconds, indicating the time period available to enter Maintenance Mode.
(Repeat start up procedure if necessary)

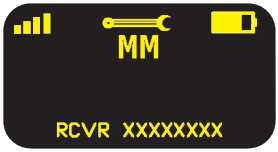
ACTION 2

Immediately press and release buttons B9 and B10.
(LED B must be active when buttons 9 and 10 are pressed.)

OBSERVE

The LEDs begin to scroll from bottom to top, indicating that the transmitter is in Maintenance Mode.

Observe display for indication of Maintenance Mode.

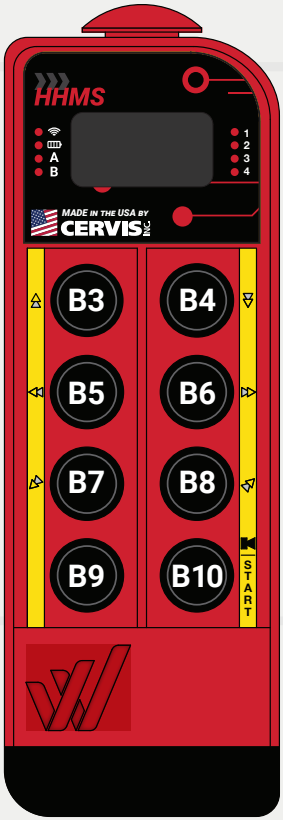


6.1 Associating a Transmitter with a Receiver

A receiver will only communicate with the transmitters it is associated with.

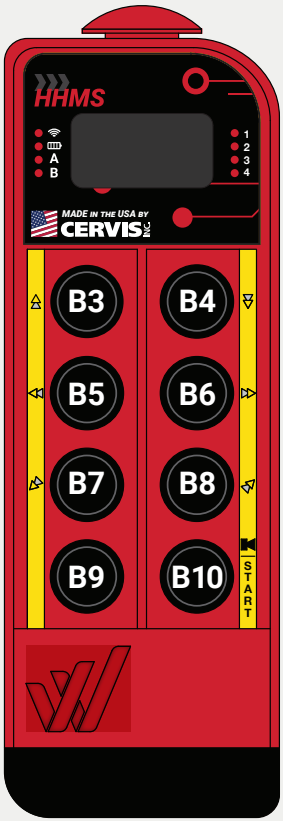
Warrior systems use First-Come-First-Served (FCFS) protocol. FCFS protocol is a process by which the first associated transmitter to link with a receiver is the ONLY transmitter that can control the receiver until the receiver is deactivated.

Association is required:

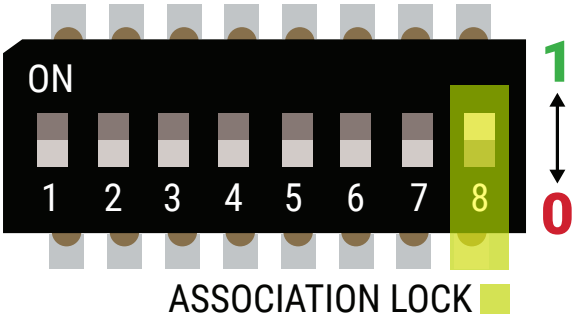


NOTE

Press button B5 or STOP switch to exit Maintenance Mode at any point.



- When a transmitter is purchased new to be a spare or replacement for an existing transmitter.
- When a previously-associated transmitter is associated to a different receiver to replace a damaged or lost transmitter, or to troubleshoot that system, its association to the original receiver is lost. If it is to be returned to service with the original receiver, the transmitter must be re-associated to it.
- When a repaired transmitter is returned to service. Repaired transmitters are tested after the repair with a known-good receiver, thus overwriting its original association.
- When a transmitter is reverted to Factory Reset condition (see Section 6.2), it must be associated to a receiver when put back in service.



Follow these steps to associate a transmitter with the receiver:

ACTION 1

Follow start up procedure from Section 3.0.

OBSERVE

LED B light solid.

Note that LED B will only remain active for 1.5 seconds, indicating the time period available to enter Maintenance Mode.
(Repeat start up procedure if necessary)

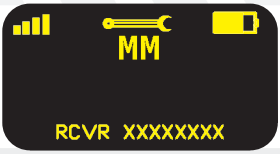
ACTION 2

Immediately press and release buttons B9 and B10.
(LED B must be active when buttons 9 and 10 are pressed.)

OBSERVE

The LEDs begin to scroll from bottom to top, indicating that the transmitter is in Maintenance Mode.

Observe display for indication of Maintenance Mode.



NOTE

Find specific Warrior receiver details in the following receiver manuals:

U104.x.x Warrior MU-X15 Receiver Manual

U107.x.x Warrior MU-6E Receiver Manual

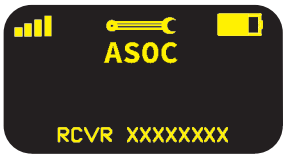
U108.x.x Warrior MU-X9 Receiver Manual

ACTION 3

Press and hold buttons B3 and B4 for five seconds.

OBSERVE

Observe LED A blinking and the display for indication of Association Mode.

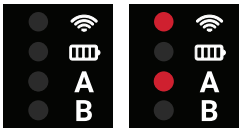


ACTION 4

Release buttons B3 and B4.
The transmitter now searches for nearby unlocked Warrior receivers to associate with. A list of available receivers is generated and temporarily stored in the transmitter's memory.

OBSERVE

Observe LEDs for 1-2 seconds while transmitter searches for receivers, then notice LEDs indicating that transmitter has built a table of available receivers.



Also observe the strobe light of the first receiver that the transmitter has found begin to flash.

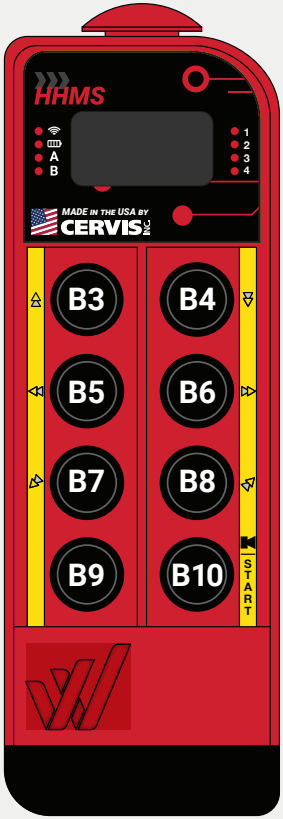
(MU-6E model receivers flash a green LED)

ACTION 5

If the desired receiver does not respond, press button B9 to move to the next receiver in the list.

OBSERVE

Observe receiver strobe light (or green LED for MU-6E) flashing to identify target receiver.



NOTE

In a Tandem system, both receivers must be associated for the system to operate.

ACTION 6

When the desired receiver does respond, press button B10 to select and confirm the target receiver.

OBSERVE

Observe rapid blinking of the RF signal LED to confirm RF link with the target receiver.

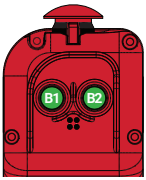
For TANDEM systems, return to Step 5 to link 2nd target receiver OR skip to Section 7.0 for receiver selection after the 2nd receiver has been linked.

Observe display for link indication.

ACTION 7

Press B2 to energize the receiver by pulling in the MLC relays.

WARNING: ALL FUNCTIONS—INCLUDING STOP— MUST BE TESTED AFTER ASSOCIATION



OBSERVE

Observe receiver to see activation of MLC relay and Horn/Light relay while B2 is pressed.

For TANDEM systems, the association process is the same as noted above. Following association of the transmitter to the first receiver (RX A), tandem software will automatically search for the second receiver (RX B).

Tandem Association Summary:

- Association to RX B will occur in the same manner as RX A. (Refer to Steps 4-6 above).
- Press button B9 to cycle through receivers, and press B10 to select and confirm the target RX B receiver. The RF signal LED will begin flashing rapidly to confirm RF link with target receiver.
- You may now select which receiver you wish to control with B9 and press button B2 to energize the receiver(s) by pulling in the MLC relay(s) and begin normal operation. See Section 7.0 for details regarding receiver selection in tandem systems.

6.2 Clearing HHMS-9XW08 Stored Receiver ID (Factory Reset)

The HHMS-9XW08 transmitter stores its associated receiver ID in its internal memory. During instances of severe interference—or perhaps when troubleshooting—it may become necessary to break the established communications link between the transmitter and the system receiver. This is called "clearing the stored ID" or "Factory Reset."

ACTION 1

Follow start up procedure from Section 3.0.

OBSERVE

LED B light solid.

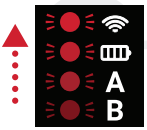
Note that LED B will only remain active for 1.5 seconds, indicating the time period available to enter Maintenance Mode.
(Repeat start up procedure if necessary)

ACTION 2

Enter maintenance Mode (see Section 6.0).

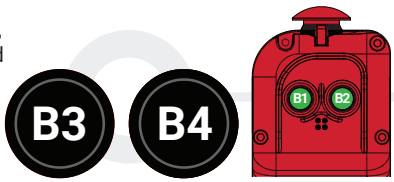
OBSERVE

LEDs should be scrolling bottom to top.



ACTION 3

Press and hold buttons B3 and B4, and then press and hold button B2.



OBSERVE

Display for indication of ID Reset then LED A and LED B on solid, indicating that the reset is complete.

NOTE

Factory Reset will not reset the inactivity timeout. See Section 6.3 to adjust the inactivity timeout if you desire a different setting.

NOTE

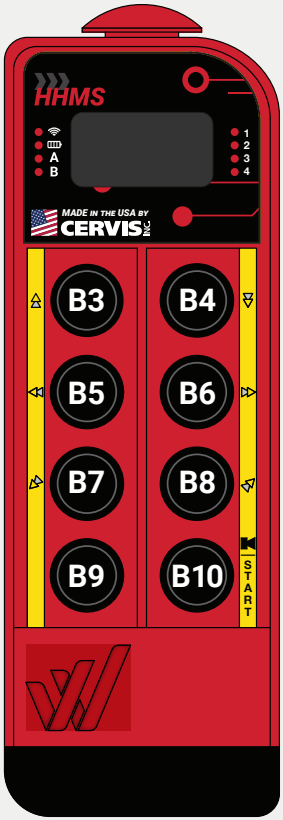
For additional diagnostic information, observe the Receiver LEDs as noted:

LED A: flashing strobe once per second during communication

LED B: slow flash indicating normal Health

LED C: fast flashing TX indicator

LED D: fast flashing RX indicator



CAUTION

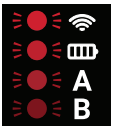
Time out feature should only be changed by trained individuals.

ACTION 4

Release all buttons. The transmitter clears its memory of all linked receivers and returns to Maintenance Mode.

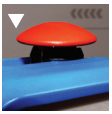
OBSERVE

LEDs should be scrolling bottom to top. Display indication of Maintenance Mode.



ACTION 5

Push the STOP switch down.



OBSERVE

Observe display for Stop indication, followed by transmitter shutdown.

Note that the receiver will retain power but all receiver relay outputs will return to their inactive state (de-energized).

6.3 HHMS-9XW08 Inactivity Timeout Configuration

The HHMS-9XW08 is shipped from the factory with a 10-minute inactivity timeout period. If no buttons are pressed within this time period the transmitter will shut itself down to conserve battery life. The timeout period can be reconfigured by the user to a period of 4 minutes, 10 minutes (default), 20 minutes, or infinite (no timeout). The following procedure can be performed to change the timeout period.

ACTION 1

Follow start up procedure from Section 3.0.

OBSERVE

LED B solid.

Note that LED B will only remain active for 1.5 seconds, indicating the time period available to enter Maintenance Mode.
(Repeat start up procedure if necessary)

ACTION 2

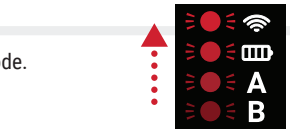
Enter maintenance Mode (see Section 6.0).

OBSERVE

OBSERVE

The LEDs begin to scroll from bottom to top, indicating that the transmitter is in Maintenance Mode.

Observe display for indication of Maintenance Mode.



ACTION 3

Press and hold button B6, then release once LEDS A & B light solid.

OBSERVE

Observe LEDs A & B solid.

ACTION 4

Press button B9 to cycle through the LEDs.

OBSERVE

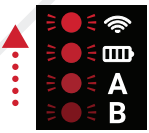
The LED indicates the current timeout period. LEDs should light top to bottom during selection process.

ACTION 5

Press button B10 to confirm selection. The device will return to Maintenance Mode.

OBSERVE

LEDs indicate transmitter has returned to Maintenance Mode



CAUTION

Be sure to observe crane/ machine to ensure that the target receiver(s) have been selected.

NOTE

- **Receiver outputs are disabled during Receiver Select Mode.**
- **For Tandem systems, pressing button B9 at any point will initiate Receiver Select Mode.**
- **Observe blinking LEDs (A and B) to determine Receiver selection.**
- **Pressing button B10 (Horn/ Start) will confirm receiver(s) selection.**
- **Observe solid LEDs (A and B) to confirm Receiver selection.**

NOTE

Tandem operation is an optional feature and is only included with systems that are ordered this way.

NOTE

Both receivers in a Tandem system must be associated to the transmitter for the system to operate. See Section 6.1 for details.

7.0 HHMS-9XW08 Tandem Operation Receiver Select

Tandem operation allows a transmitter to control two receivers (RX A or RX B) individually simultaneously. Receiver selection is done by cycling through three options using button B9: RX A, RX B or BOTH (which repeats with subsequent presses of B9). When the desired receiver selection is verified by response from the receiver(s) and indications on the LEDs, pressing button B10 links the transmitter to the selected receiver(s). Follow the instructions for Receiver Select Mode as described below to link the transmitter to the desired receiver(s); if more than one transmitter is to be used at one time, follow the same procedure for each, making sure that each transmitter is linked to a separate receiver.

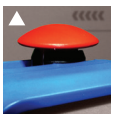
Just like a standard, single-receiver system, the Tandem system follows First-Come, First-Served (FCFS) protocol. Link must be released by one transmitter (by shutting down or changing its receiver selection) before the second transmitter can gain access and link to that receiver. If two transmitters are in play, one transmitter can operate one receiver while the other transmitter operates the second receiver. However, only one transmitter can operate both at a time.

To change the target receiver(s) at any time for tandem systems, press button B9 and return to the process above.

ACTION 1

Pull the STOP switch up. The transmitter must already be associated to both target receivers.

(Defaults to RX A)



OBSERVE

Note that all receiver outputs are disabled at this time. Observe the RF signal LED on solid and LED A blinking and display indicating Receiver Select mode. The display will show the link icon and "A" flashing at this time.

ACTION 2A

To select RX A only, push button B10.

OBSERVE

LED A solid and display indicating Receiver A selected.

OR

ACTION 2B

To select RX B only, push button B9 once.

OBSERVE

RF signal LED solid and LED B blinking, as well as display indicating Receiver Select mode. The display will show the link icon and "B" flashing at this time.

ACTION 2C

Push button B10 to confirm selection.

OBSERVE

LED A solid and display indicating Receiver B selected.

OR

ACTION 2D

To select RX A AND RX B, push button B9 twice.

OBSERVE

RF signal LED solid and LEDs A & B blinking, as well as display indicating Receiver Select mode. The display will show the link icon, “A” and “B” flashing at this time.

ACTION 2E

Push button B10 to confirm, **OR** press button B9 to scroll through Receiver options again.

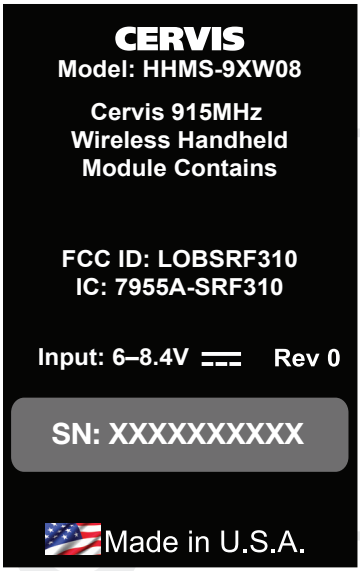
OBSERVE

LED A and LED B solid as well as display for indication of RX A AND RX B being selected. Note that following receiver selection confirmation, the target receiver(s) MLC relays will be energized. All receiver outputs are enabled at this time.

8.0 HHMS-9XW08 Accessories

Accessory	CERVIS Part Number
Battery	15201306
AC Battery charging cradle	15201501
AC Battery charging adapter	15201600
AC Battery charger kit (includes battery, cradle and charging adapter)	15201500
DC Battery charger with Automotive Power Plug	15201503
HHMS Top Label (standard)	15205421
HHMS Top Label (tandem)	15205423
HHMS Rail Labels (standard)	15205422
Carrying Strap	2101004
Boot	15205135
Strap Kit (Includes carrying strap and boot)	15205398

Appendix: Agency Identification Label Locations



NOTE

The Agency ID label for all Warrior HHMS-9XW08 base units can be found in the position shown (right).

HHMS-9XW08 LOGOS

900MHz @ 100mW

WARRIOR TRANSMITTER

Channel-Hopping DSSS ■ FCC & Industry Canada License-Free ■ Internal Antenna

POWER

BATTERIES
RECHARGEABLE LITHIUM ION BATTERY PACK

AUTO SHUTDOWN
10 MIN. OF BUTTON INACTIVITY (USER ADJUSTABLE)
OR LOW BATTERY

CONTROLS

STEPPED BUTTONS
EIGHT TWO-STEP

PUSHBUTTONS
TWO

LEDs

(SEE TABLE ON PAGE 11 FOR INDICATIONS)

- RADIO FREQUENCY
- BATTERY
- A
- B
- 1 - 4 FACTORY CONFIGURABLE AUXILIARY FUNCTION

ENVIRONMENT

OPERATING TEMPERATURE*
-4°F TO 140°F (-20°C TO 60°C)

STORAGE TEMPERATURE
-22°F TO 158°F (-20°C TO 70°C)

HUMIDITY
0 TO 95% NON-CONDENSING

ENCLOSURE

DURABILITY
HIGH IMPACT POLYMER CASE WITH
POLYCARBONATE FACEPLATE
OPTIONAL PROTECTIVE RUBBER BOOT

DIMENSIONS
MM: L 220.98 x W 76.2 x D 42.67
INCHES: L 8.7 x W 3.0 x D 1.68

WEIGHT
1.42 LB. / 650 G.

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