



# WARRIOR

WIRELESS OVERHEAD CRANE CONTROL SYSTEMS





## TABLE OF CONTENTS:

### WARRIOR TRANSMITTERS

HH2S HANDHELDS.....	4
HHMS HANDHELD.....	6
MINI CONSOLE BOX.....	8
CONSOLE BOX.....	10
CONSOLE BOX XL.....	12

### WARRIOR RECEIVERS

MU-X9.....	14
MU-X15.....	16
MU-6E.....	18



Designed, Manufactured & Serviced  
in Warrendale, Pennsylvania.



## HH2S HANDHELD REMOTE

### FEATURES

- ✓ 900MHz Direct Sequence Spread Spectrum (DSSS) Technology
- ✓ Ten 2-Step Buttons
- ✓ Bridge, Trolley, Hoist control with A/B Select and AUX functions
- ✓ Tandem Crane and Tandem Hoist Control
- ✓ Protective Rubber Bumper
- ✓ Active STOP Switch
- ✓ Compact Weatherproof Design
- ✓ Rugged High-Impact Polymer Enclosure
- ✓ Four LED Indicators
- ✓ Powered by 2-AAA Battery



### SPECIFICATIONS

HH2S HANDHELD REMOTE	
<b>POWER</b>	
Vin	+2.0 to +3.0V
Batteries	Two (2) AAA
Auto-Shutdown	Configurable inactivity timeout
<b>ENVIRONMENT</b>	
Operating Temp	-20°C to 55°C (-4°F to 131°F)
Storage Temp	-20°C to 85°C (-4°F to 185°F)
Humidity	0-95% non-condensing
<b>MECHANICAL</b>	
Dimensions	5.37" x 2.68" x 0.92" (136 x 67.96 x 28.42mm)
Total Weight	7.2 oz / 299 gr.
Durability	High Impact Polymer Case Impact Absorbing Rubber
Switches	2-Step Mechanical >1m Operation Durable Switch Membrane
<b>LED INDICATORS</b>	
TX/RX	Transmit Receive
BATT	Battery Life
A	A Selection
B	B Selection
<b>RADIO</b>	
Frequency	904-926MHz, 100mW
Radio	IC/FCC Part 15, License Free
Antenna	Internal
Modulation	Channel Hopping DSSS





# HHMS HANDHELD REMOTE

## FEATURES

- ✓ 900MHz Direct Sequence Spread Spectrum (DSSS) Technology
- ✓ Eight Multi-Stage Pushbuttons w/ 2, 3 and ANY-STEP Configurations
- ✓ 2-Step Button is FULLY Redundant in Both 1st and 2nd Steps!!
- ✓ Graphic (OLED) Display Standard plus 8 LED indicators
- ✓ Display of Signal Strength, RF Link, Battery Life
- ✓ Positive ID of Receiver Under Control
- ✓ Rechargeable Lithium-Ion Battery; ~72-Hour Run Time
- ✓ Rugged High-Impact Polymer Enclosure
- ✓ GORE-Tex® Venting, suitable for use In and Outdoors



## SPECIFICATIONS

HHMS HANDHELD REMOTE	
<b>POWER</b>	
Vin Battery	+6 to +8.4V Lithium-Ion Battery Pack 72-hour continuous operation until low battery indication 2-hour run-time after low battery indication 2-4 hour charge to full from zero charge
<b>ENVIRONMENT</b>	
Operating Temp Storage Temp Humidity	-20°C to 70°C (-4°F to 158°F) -30°C to 80°C (-22°F to 176°F) 0-95% non-condensing
<b>INDICATOR LEDS (RED)</b>	
TX/RX BATT A B	Transmit Receive AX1 Battery Status AX2 A Selection AX3 B Selection AX4
<b>RADIO</b>	
Frequency RF Power Radio Modulation Antenna	904-926MHz, 100mW 100mW @ 900MHz IC/FCC Part 15, License Free DSSS, Channel Hopping Internal
<b>PUSHBUTTONS</b>	
Configurations Force to Operate Actuations	Eight 2-, 3-, or ANY-STEP 2.3 lbs (10.23 N) > Two Million (per button)
<b>ENCLOSURE</b>	
Dimensions Total Weight Durability	3.0" x 8.7" x 1.68" 76.2mm x 220.98mm x 42.67mm 1.43 lb (650g) High Impact Polymer Case





# MINI CONSOLE BOX

## FEATURES

- ✓ Up to Four Joysticks and Four Toggle switches/Pushbuttons
- ✓ 900MHz Direct Sequence Spread Spectrum (DSSS) Technology
- ✓ Four LED Indicators Standard
- ✓ Options for Additional 4 LEDs and/or LED 4 Character Display
- ✓ Powered by 4-AA Batteries
- ✓ Push/Pull Stop Switch
- ✓ Tilt Switch Option
- ✓ Compact Weatherproof Design
- ✓ Rugged High-Impact Glass-Filled Nylon Enclosure
- ✓ A durable compact console box design that can handheld or shoulder strap mounted



## SPECIFICATIONS

MINI CONSOLE BOX	
<b>POWER</b>	
Operating Voltage	1.6 to 3.2VDC
Batteries	Four (4) AA Alkaline
Auto-Shutdown	Tilt Switch Option
Inactivity Shutdown	Four Minutes Standard (Programmable)
<b>ENVIRONMENT</b>	
Operating Temp	-20°C to 55°C (-4°F to 131°F)
Storage Temp	-20°C to 55°C (-4°F to 131°F)
Humidity	0-100%
<b>ENCLOSURE</b>	
Dimensions	7.09" x 4.15" x 4.61" 180.3mm x 105.44mm x 117.04mm
Total Weight	≈2.50 lbs. (1.13kg)
Durability	Glass-Filled Nylon Case
Faceplate	Polycarbonate
Hardware	Stainless Steel
<b>LED INDICATORS</b>	
TX/RX	Transmit Receive
BATT	Battery Life
A	A Selection
B	B Selection
<b>RADIO</b>	
Frequency	904-926MHz, 100mW
License	IC/FCC Part 15, License Free
Antenna	Internal
Modulation	Channel Hopping DSSS





## CONSOLE BOX

### FEATURES

- ✓ Up to Seven Single-Axis, Bi-directional Stepless Levers
- ✓ Up to Four Single/Dual Axis Stepped or Stepless Joysticks
- ✓ Options for Toggles, Potentiometers, Pushbuttons, and Rotary Switches for AUX functions
- ✓ Standard Four System Status/Diagnostic LEDs
- ✓ Unsurpassed Durability and Environmental Sealing
- ✓ Shoulder Harness Standard, Optional Belt Mounting
- ✓ Operates Using Two C-Cell Batteries
- ✓ Optional 8-Character LED Display
- ✓ 900MHz Direct Sequence Spread Spectrum (DSSS) Technology
- ✓ Push/Pull Stop Switch
- ✓ TILT Switch Field Enable/Disable
- ✓ On/Off Key Switch for Security



### SPECIFICATIONS

CONSOLE BOX	
<b>POWER</b>	
Operating Voltage	1.9 to 3.2VDC
Batteries	Two (2) C-Type Alkaline (typical)
Low V Warning	2.1V
Auto-Shutdown	2.0V
Inactivity Shutdown	Four Minutes Standard (Programmable)
<b>ENVIRONMENT</b>	
Operating Temp	-20°C to 55°C (-4°F to 131°F)
Storage Temp	-20°C to 85°C (-4°F to 185°F)
Humidity	0-95% non-condensing
<b>LED INDICATORS</b>	
TX/RX	Transmit Receive
BATT	Battery Life
A	A Selection
B	B Selection
<b>ENCLOSURE</b>	
Dimensions	10.4" x 5.6" x 5.5" 263.5mm x 131.5mm x 139mm
Total Weight	3.95 lbs. (1.8kg)
Material	Glass-Filled Nylon
Faceplate	Aluminum or Acrylic
<b>RADIO</b>	
Frequency	904-926MHz, 100mW, 450MHz, FCC Part 90 option
License	FCC Part 15, License Free
Modulation	Channel Hopping DSSS



# WARRIOR





## CONSOLE BOX XL

### FEATURES

- ✓ Up to Six Single-Axis Stepped Levers
- ✓ Options for Toggles, Potentiometers, Pushbuttons, and Rotary Switches for AUX functions
- ✓ 900MHz Direct Sequence Spread Spectrum (DSSS) Technology
- ✓ Standard Four System Status/Diagnostic LEDs
- ✓ Push/Pull Stop Switch
- ✓ On/Off Key Switch for Security
- ✓ TILT Switch Field Enable/Disable
- ✓ Optional 8-Character LED Display
- ✓ Powered by Two C-Cell Batteries
- ✓ Rugged High-Impact Enclosure
- ✓ MILL Duty Design



### SPECIFICATIONS

CONSOLE BOX XL	
<b>POWER</b>	
Operating Voltage	1.9 to 3.2VDC
Batteries	Two C-Cell 1.5V Batteries
Auto-Shutdown	Tilt Switch Option
Inactivity Shutdown	Four Minutes Standard (Programmable)
<b>ENVIRONMENT</b>	
Operating Temp	-20°C to 55°C (-4°F to 131°F)
Storage Temp	-20°C to 85°C (-4°F to 185°F)
Humidity	0-100%
<b>ENCLOSURE</b>	
Dimensions	10.4" x 5.6" x 5.5" 263.5mm x 141.5mm x 139mm
Durability	Durable Polymer Case
Faceplate	High-Impact Polycarbonate or Aluminum
Hardware	Stainless Steel
Total Weight	6.2lbs (est)
<b>LED INDICATORS</b>	
TX/RX 	Transmit Receive
BATT 	Battery Life
	A Selection
	B Selection
<b>RADIO</b>	
Frequency	904-926MHz, 100mW, 450MHz, FCC Part 90 option*
License	FCC Part 15, License Free
Antenna	Internal
Modulation	Channel Hopping DSSS



# MU-X9 RECEIVER

## FEATURES

- ✓ Two Motion, Two-Speed Control
- ✓ Two Series MLC Stop Relays
- ✓ Dedicated Horn/Light and Start Relays
- ✓ Compact Designed to IP65/IP67 Standards
- ✓ Designed to ICS 8 NEMA Crane Specification
- ✓ 900MHz Direct Sequence Spread Spectrum (DSSS) Technology
- ✓ For Use on Mono-Rail or “Festoon-less” Crane Control Applications
- ✓ Tandem Control Options
- ✓ Clear LID with Internal Area Strobe Light



## SPECIFICATIONS

MU-X9 RECEIVER	
<b>POWER</b>	
Operating Voltage	110 to 220VAC @ 50-60Hz 7 to 36VDC
Operating Power	10 to 28VAC @ 50-60Hz 2.4W
<b>ENVIRONMENT</b>	
Operating Temp	-40°C to 70°C (-40°F to 158°F)
Storage Temp	-40°C to 80°C (-40°F to 176°F)
Humidity	0-95% non-condensing
<b>ENCLOSURE</b>	
Dimensions	4.50" x 2.44" x 5.75" 114.3mm x 61.89mm x 146.05mm
Durability	NEMA 4, 4X, 6, 6P IP65/IP67
<b>LED INDICATORS</b>	
Five (5)	Internal Diagnostics
One (1)	High-intensity Strobe
<b>RADIO</b>	
Frequency	904-926MHz
License	License Free
Antenna	External (RP - TNC)
<b>STOP CIRCUIT</b>	
Two (2)	Type Form A
Contact Rating	8A Max. @ 250VAC
<b>CONTROL RELAYS</b>	
Six (6)	Type Form A
Four (4)	Type Form A
Contact Rating	8A Max. @ 250VAC Fused @ 5A

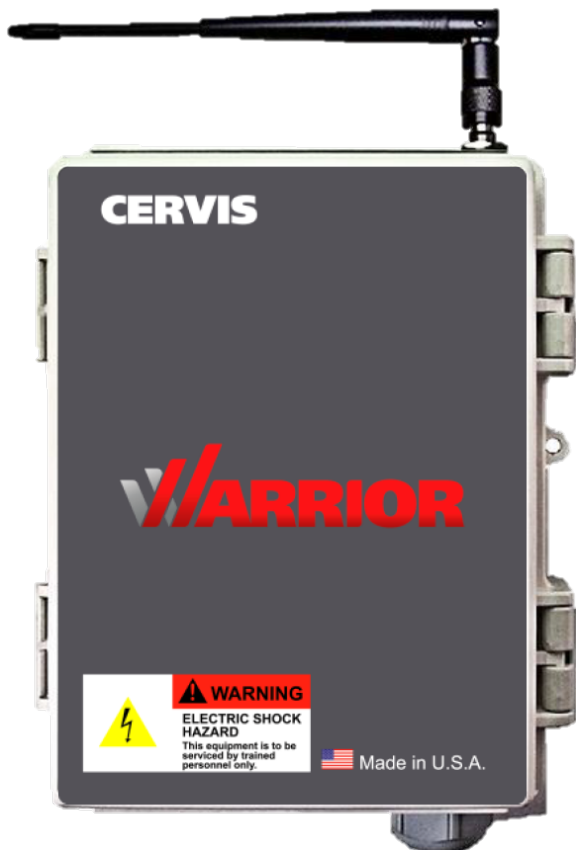




# MU-X15 RECEIVER

## FEATURES

- ✓ Compact Designed to IP65/IP67 Standards
- ✓ 900MHz Direct Sequence Spread Spectrum (DSSS) Technology
- ✓ Designed to ICS 8 NEMA Crane Specification
- ✓ Eight DIP Switches Allow for Application Configurability
- ✓ For Use in 3 to 5 Motion 2 Speed Crane Control Applications
- ✓ Tandem Control Options
- ✓ Clear LID with Internal Area Strobe Light
- ✓ Two Series MLC Stop Relays
- ✓ Dedicated Horn/Light and Start Relays



## SPECIFICATIONS

MU-X15 RECEIVER	
<b>POWER</b>	
Operating Voltage	110 to 220VAC @ 50-60Hz 7 to 36VDC
Operating Power	10 to 28VAC @ 50-60Hz 10W
<b>ENVIRONMENT</b>	
Operating Temp	-40°C to 70°C (-40°F to 158°F)
Storage Temp	-40°C to 80°C (-40°F to 176°F)
Humidity	0-95% non-condensing
<b>ENCLOSURE</b>	
Dimensions	8.327" x 6.358" x 3.937"
Durability	211.50mm x 161.50mm x 100mm NEMA 1, 2, 4, 4X IP65/IP67
<b>LED INDICATORS</b>	
Ten (10)	Internal Diagnostics
One (1)	High-intensity Strobe
<b>RADIO</b>	
Frequency	904-926MHz
License	License Free
Antenna	External (RP - TNC)
<b>STOP CIRCUIT</b>	
Two (2)	Type Form A
Contact Rating	8A Max. @ 250VAC
<b>CONTROL RELAYS</b>	
Sixteen (16)	Type Form A
Contact Rating	8A Max. @ 250VAC Fused @ 5A



# MU-6E RECEIVER

## FEATURES

- ✓ Designed to IP65/IP67 Standards
- ✓ 900MHz Direct Sequence Spread Spectrum (DSSS) Technology
- ✓ Designed to ICS 8 NEMA Crane Specification
- ✓ Stop Circuit Designed to ISO 13849 CAT 3 PLD
- ✓ Max 48 Configurable Output Relay Contacts
- ✓ FORM A and FORM C type Relay Card Options
- ✓ Analog Input/Output Options
- ✓ AC and DC Power Supply Options
- ✓ Modular Design
- ✓ Fully Configurable for Engineered Systems



## SPECIFICATIONS

MU-6E RECEIVER	
<b>POWER</b>	
Universal AC Module	110 to 220VAC @ 50-60Hz
Universal DC Module	12 to 48VDC
Power	20W max.
<b>ENVIRONMENT</b>	
Operating Temp	-40°C to 75°C (-40°F to 157°F)
Storage Temp	-40°C to 80°C (-40°F to 176°F)
Humidity	0-99% non-condensing
<b>ENCLOSURE</b>	
Dimensions	9.5" x 10.5" x 5.5" 241.3mm x 266.7mm x 139.7mm
Durability	NEMA 1, 2, 4, 4X IP65/IP67
<b>RADIO</b>	
Frequency	904-926MHz
License	License Free
Antenna	External (RP - TNC)
<b>SAFETY CIRCUIT DESIGNED TO ISO 13849 CAT 3 PLD</b>	
Contacts	Common, NO, NC, start contacts
Contact Rating	8A Max. @ 250VAC
<b>EXPANSION SLOTS</b>	
Six (6)	I/O
One (1)	Power
<b>EXPANSION CARDS</b>	
<b>Relay Card: Eight Form A Relays</b>	
Two independent banks of four, 5A per bank	
<b>Analog Card: 4-Independent AO Channels</b>	
0-10V mode, 40mA max current	
0-20mA mode, 12V max	
<b>Four AI Channels</b>	
0-10V mode, 1.5Hz cutoff	
0-20mA mode, 1.5Hz cutoff	



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