

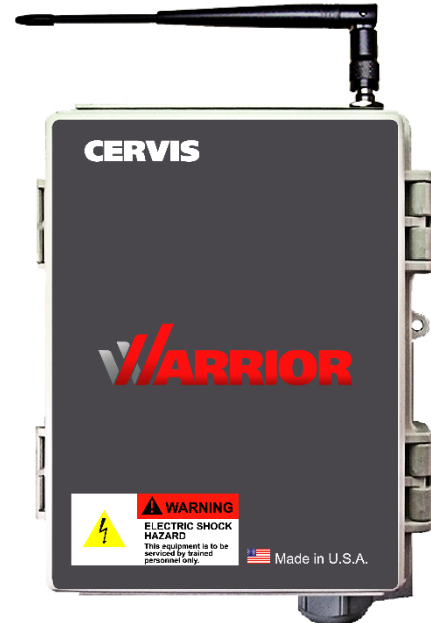
## MU Machine Unit

### Features

- ✓ Compact Designed to IP65/IP67 Standards
- ✓ 900MHz Operation
- ✓ Designed to ICS 8 NEMA Crane Specification
- ✓ 8 DIP Switches Allow for Configurability

The MU Machine Unit is a low cost machine-mounted unit intended for use on industrial systems. The MU is self-contained and prefigured providing a no-touch solution. The unit is available in 900MHz for maximum flexibility. The MU will accept control commands from HH2S and MCB varieties in the product family.

The MU can be mounted by utilizing the included mounting feet or a 2-bolt mounting plate. The sturdy enclosure allows the MU to operate worry free in harsh weather conditions. A single pre-wired number-keyed 25-wire-fed cable is integral to the unit that allows easy connection to the controlled devices. **CSA** inspected versions available.



### Specifications

#### Power

**Operating Voltage** 110 to 230VAC @ 50–60Hz  
9 to 36VDC  
10 to 28VAC @ 50–60Hz

**Operating Power** 6w max.

#### Environment

**Operating Temp** -25°C to 70°C (-13°F to 158°F)  
**Storage Temp** -40°C to 80°C (-40°F to 176°F)  
**Humidity** 0–95% non-condensing

#### Enclosure

**Dimensions** 8.327" x 6.358" x 3.937"  
(211.50mm x 161.50mm x 100mm)

**Durability** NEMA 1, 2, 4, 4X  
IP65/IP67

**Mounting** Four wall mounting brackets and  
Four M4 x 10mm LG. self-tapping  
screws

#### Indicator (LED)

**White** Used during Association

#### Radio

**Frequency (MHz)** 904–926  
**Power** 100mW  
**License** Free, none required  
**Antenna** External (RP – TNC)

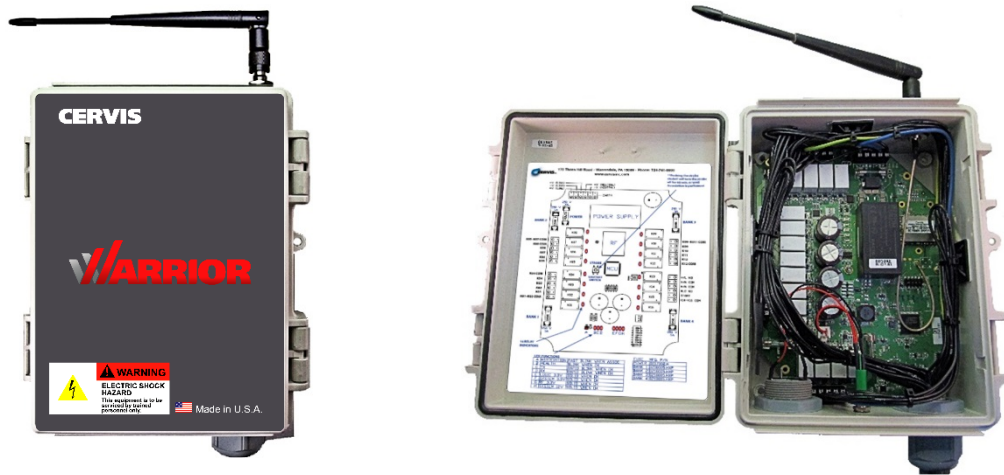
#### Safety Circuit

**Two (Series)** Type Form A  
**Contact Rating** 8A Max. @ 250VAC

#### Control Relays

**Sixteen** Type Form A  
**Contact Rating** 8A Max. @ 250VAC  
**Banked Relays** Four banks of three, each  
bank fused at 5A @ 250VAC

## MU Machine Unit



### 25-Lead Wiring Harness Individual Wire Assignments

Wire	Function
1	+V (LINE)
2	-V (NEUTRAL)
3	MLC NO
4	K12 NO
5	K12 C
6	K01
7	K02

Wire	Function
8	K03
9	K10
10	K09
11	K11
12	H/L C
13	K05
14	K06

Wire	Name
15	K07
16	K08 C
17	K08 NO
18	K04 NO
19	K01 - K03 C
20	K05 - K07 C
21	K09 - K11 C

Wire	Name
22	H/L NO
23	START
24	K04 C
Y/G	EARTH

### 16-System Relays Schematic Diagram

The sixteen system relays are divided into four groups of four relays each; K1 through K4, K5 through K8, K9 through K12, and K13 through K16. Groups 1 through 3 perform related functions, group 4 contains the MLC Safety Circuit, and each group has a shared independent fused bus.

#### Unfused Independent Relays Rated 8A @ 250VAC



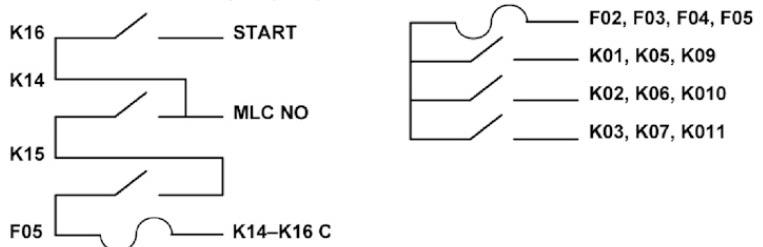
#### Line Fuse Rated 2A @ 250VAC

F01 = Littlefuse 0477002.MXP



#### 8A @ 250VAC Rated Relays Fused at 5A @ 250VAC

F02, F03, F04, and F05 = Littlefuse 0477005.MXP



## DIP Switch Configurations

The MU-9X15 uses eight DIP switches to allow for relay configuration of A/B cycling sequences, configuring relays for 3 or 4-wire hoist control systems, configuration of Aux Relay A, and configuration of Aux Relay B for momentary or latching control.

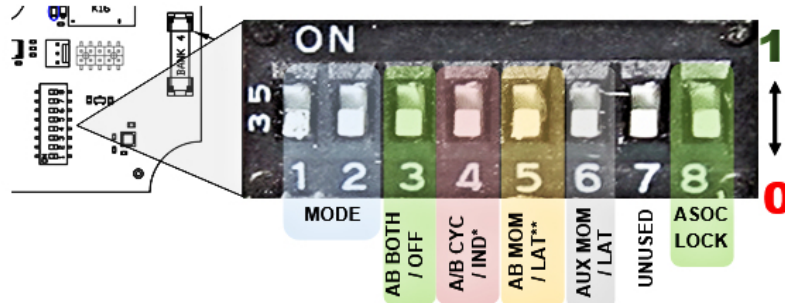


Figure 1. MU-9X15 SW01 DIP Switch Assignments

## MU-9X15 Mode Definitions

Table 1. Switches 1 and 2 Mode Configurations

Mode	Definition
00	3-Motion. Bridge, Trolley, and Hoist 3 relays. A, B, and AUX functions available.
01	3-Motion. Bridge, Trolley 3 relays, Hoist 4 relays. A and B functions available, AUX unavailable.
10	3-Motion. Bridge, Trolley, Hoist 4 relays. A, B, and AUX functions unavailable.
11	4-Motion. Bridge, Trolley, Hoist, 4 <sup>th</sup> axis 3 relays. A, B, and AUX functions unavailable.

Table 2. DIP Switch 3: Applies to All Modes and All Transmitters

Name	Set	Definition
AB BOTH/OFF	0	HH: Cycle pattern is A, B, Both. MCB: middle position of A/B switch is BOTH.
	1	HH: Cycle pattern is A, B, Off. MCB: Middle position of A/B switch is OFF.

Table 3. DIP Switch 4: Applies to HH, Only Applies to Mode 00 or 01

Name	Set	Definition
AB CYC/IND	0	HH: Button 9 cycles A/B (See AB BOTH/OFF). MCB: No effect.
	1	HH: Button 9 activates A, button 10 activates B, NO AUX (see AB MOM/LAT) MCB: No effect.

**Table 4. DIP Switch 5: Only Applies to HH AND Only Applies to HH in Mode 00 or 01 AND Only Applies if AB CYC/IND = 1**


Name	Set	Definition
<b>AB MOM/LAT</b>	<b>0</b>	HH: A and B are momentary outputs. MCB: No effect.
	<b>1</b>	HH: A and B are latching outputs. MCB: No effect.

**Table 5. DIP Switch 6: Only Applies in Mode 00 (HH: AB CYC/IND Needs Set to 0)**

Name	Set	Definition
<b>AUX MOM/LAT</b>	<b>0</b>	HH: AUX is momentary. MCB: AUX is momentary.
	<b>1</b>	HH: AUX is latching. MCB: AUX is latching.

**Table 6. DIP Switch 8: Applies to HH, Only Applies in Mode 00 or 01**

Name	Set	Definition
<b>ASOC LOCK</b>	<b>0</b>	Association NOT permitted.
	<b>1</b>	Association permitted.

 **Note:** DIP switches may be changed at any time. However, changes will only be applied when there is no active RF connection.

