



VEHICLE-MOUNTED

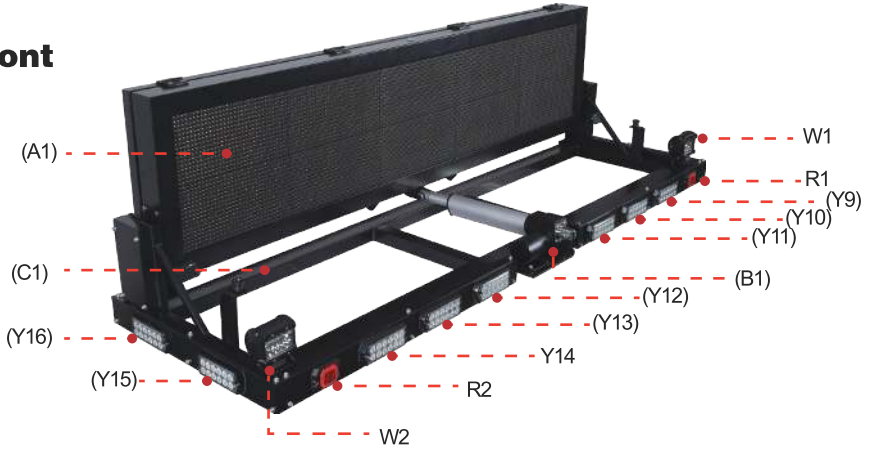
VMS Guardian Pro

User Manual

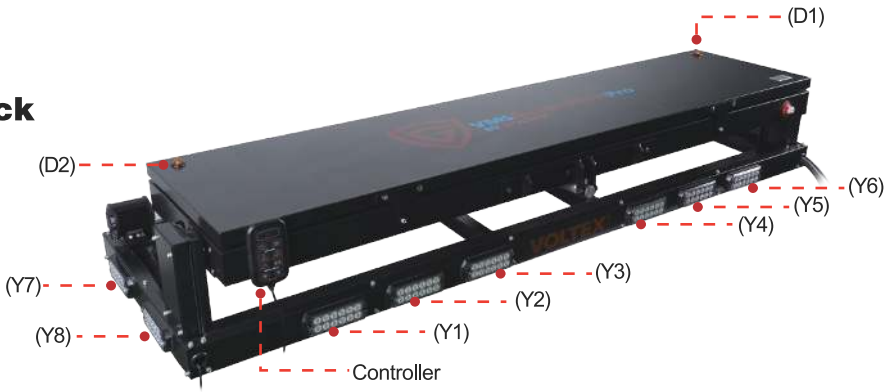


System Guidance

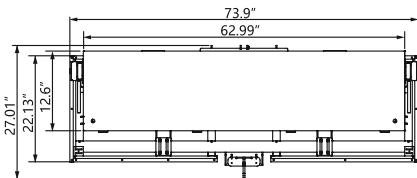
Front



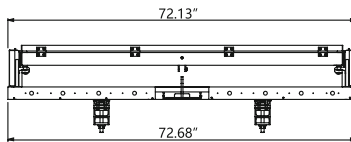
Back



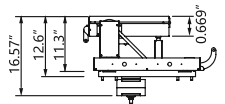
Dimensional Drawings



Front



Back



Side

Product list

Picture	Srl No	Item No	Product Des.	Function	Quantity
	A1	V-NTVMS-CMT-AA-01	VMS	Display Screen	x 1
	B1		Motor	Rise And Fall	x 1
	C1		Frame	Fixed	x 1
	Y1-Y16		Lightbar	Six Flashes	x 16
	W1, W2		LED Working Light	Direct Lighting	x 2
	R1, R2		Brake Light	Full Bright/half Bright	x 2
	D1, D2		Breathing Light	Fade In/ Fade Out	x 2
	/		Wireless Controller	Controller For Functions	x 1
	/		Wire Controller	Controller For Functions	x 1
	/		Bracket	Holder For Controller	x 1
	/		Cable For Brake Light	Connect For Brake Light	x 1
	/		Yangbang Sending Card: 6E1XP	/	x 1
	/		Brightness Sensor	/	x 1
	/		Power Supply	/	x 1
	/		Fuse and Holder	/	x 1
	/		Butterfly Clip Ribbon Cable	/	x 1
	/		2x1.5 mm ² Power Cable	/	x 1
	/		40 cm Three-Core Power Cable	/	x 1

Product Specification

Input Voltage	DC 12V
Operable voltage	DC9-15V
Power consumption	300W
Wireless communication frequency	433MHZ
Max control distance	20Meters
Max unfold angle of display	135degree
IP Rating	IP66
Temperature Range	-20°C-+50°C
Certificates	FCC/SAE/IP65
Weight	161 lbs

VMS Specification

Recommended operating temperature	-29.2°F to +165.2°F
Visible at	4,000'
Legible at	1,000'
	18" T characters -4 or 5 words
	17' wiring harness

Remote Controller Instruction

**Step 1 : How to wake up the remote controller,
First press any buttons to wake up the functions.**



Wireless

Wire

Instruction For Panel Icon



Real time display
of flashing pattern

●●●●● Battery indicator

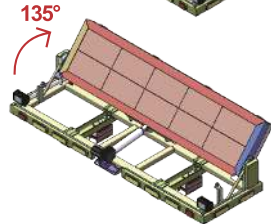
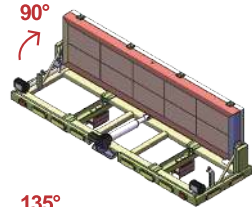
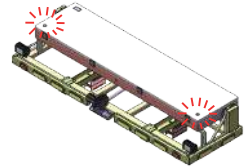
- 1 Turn on/Turn off the display, D1 and D2 flash while the display is unfolding
- 2 Turn on/Turn off W1 and W2
- 3 Unfold the display 90Degree
- 4 Unfold the display 135Degree
- 5 Turn on/Turn off the Y1 to Y16
- 6 Dynamic Indicator function, From center to side
Left Dynamic indicator Y11-Y9
Right Dynamic indicator Y12-Y14
- 7 Left Dynamic indicator Y9-Y14
- 8 Right Dynamic indicator Y14-Y9

Remote Controller Instruction



1 3 4 VMS Control

- 1 Turn on/Turn off the display, D1 and D2 flash while the display is unfolding
- 3 Unfold the display 90Degree
- 4 Unfold the display 135Degree



2 LED Work Light Control

Turn on/Turn off W1 and W2



Remote Controller Instruction

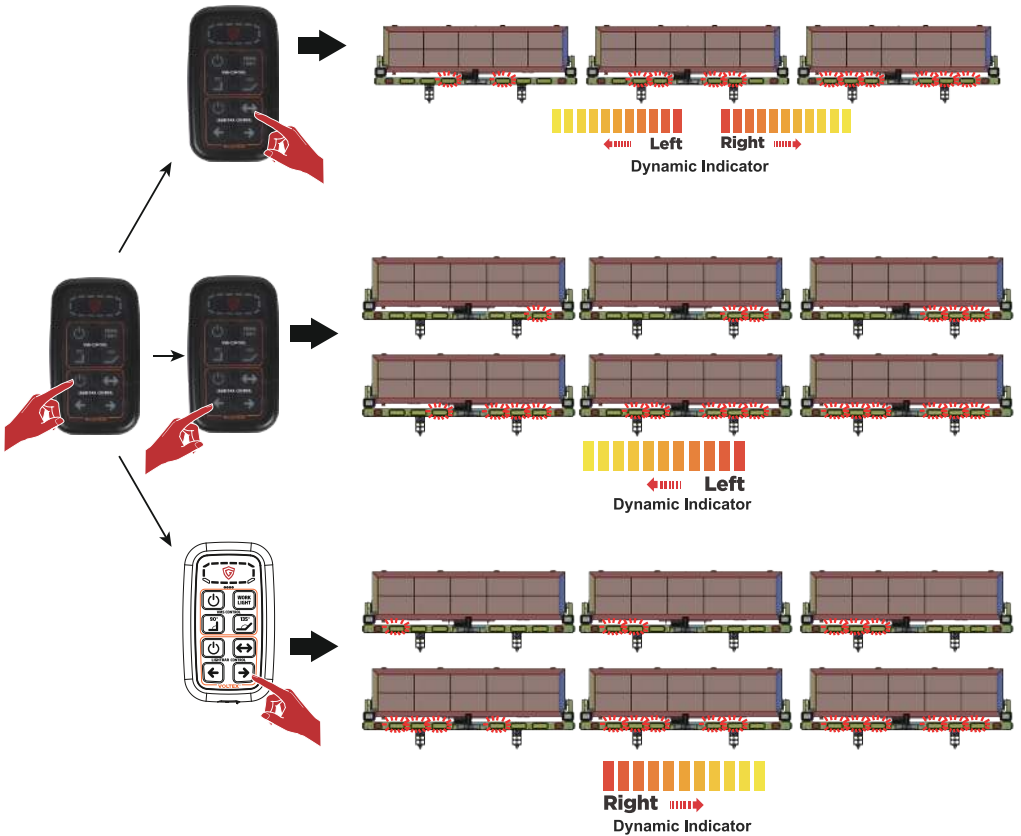


5 6 7 8 Lightbar Control

6 Dynamic Indicator function, From center to side
 Left Dynamic indicator Y11-Y9
 Right Dynamic indicator Y12-Y14

7 Left Dynamic indicator Y9-Y14

8 Right Dynamic indicator Y14-Y9



Wireless Remote Controller Matching Process

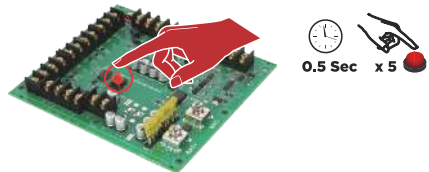


- Low Battery Warning (<25%) : The red indicator blinks.
- Charging Status : The current battery level indicators flash rapidly.

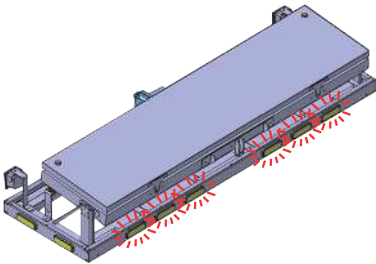
Once you want to replace the remote by a new one , the code match process must be executed

Remote Control Pairing Operation:
 A maximum of 2 remotes can be paired.
 The pairing method is as follows:

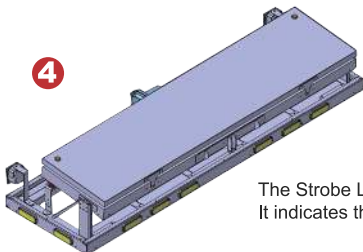
1 Press main power switch 5 times continuously within 2.5 seconds



2 While the strobe light (Y9 to Y14) all light up, it indicates that the whole light system is ready for code match, if there is no operation within 30seconds, the system will quite the code match process

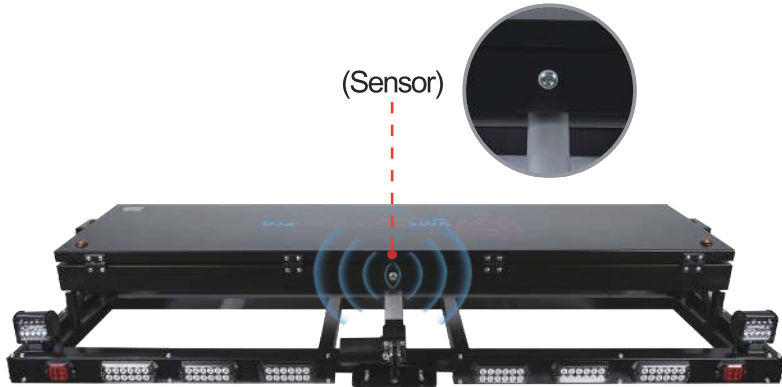


Press the on/off switch once



The Strobe Light (Y9 to Y14) will turn off, It indicates the matching process completed

LED Display Brightness Sensor



1. Product Overview

The LED display brightness sensor is an intelligent accessory designed to monitor ambient light levels in real time and automatically adjust the brightness of the LED display. By dynamically adapting to different lighting conditions, it ensures optimal visual performance, energy savings, and comfortable viewing.

2. Main Functions

1. Automatic Brightness Adjustment:

Adjusts screen brightness according to ambient light intensity.

2. Energy Saving:

Reduces brightness in low-light environments, lowering power consumption.

3. Extended Lifespan:

Prevents excessive brightness operation, reducing stress on LEDs and power supply.

4. Improved User Experience:

Ensures visibility in strong sunlight and avoids glare in dark environments.

LED Display Brightness Sensor

3. Features

High Sensitivity Detection:

Uses high-precision light sensors for fast response.

Easy Installation:

Compact size, can be fixed on the screen or near the control system.

Strong Compatibility:

Works with most common LED display control systems, plug and play.

Durable Design:

Waterproof and dustproof, suitable for outdoor use.

4. How to Use

1. Connect the sensor to the control system via the designated interface.
2. Configure the automatic adjustment mode if required by the control software.
3. Install the sensor in a location without obstructions, preferably in front of or above the screen, avoiding direct artificial light interference.
4. Once powered on, the sensor will continuously detect ambient brightness and adjust the LED display brightness automatically.

5. Precautions

Avoid installation in areas with direct strong light or shadows that may affect accuracy.

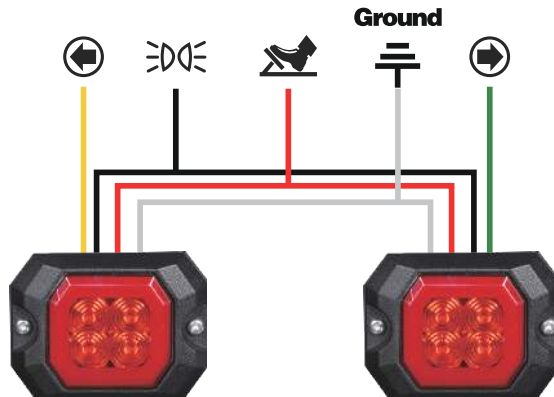
Do not disassemble the sensor to prevent damage.

Ensure proper sealing when used in humid or high-temperature environments.

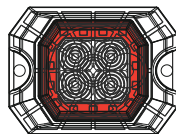
If manual brightness is preferred, the automatic sensing function can be disabled via software.

Brake Light Function

Brake Light (R1/R2) Function :



Brake / Direction Indicator



Rear Position Light

VMS Installation



Tools: Cordless drill

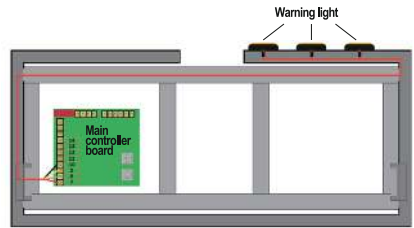
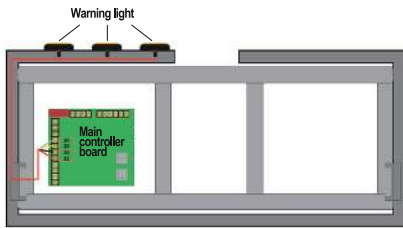
Installation Steps:

1. Arrange the module boards neatly, following the horizontal and vertical arrow directions on their backs; ensure all arrows align precisely in the same direction.
2. Use the cordless drill to fasten screws, securing the module boards onto the cabinet.
3. Visually inspect and adjust the gaps between the module boards and the frame to achieve optimal alignment.
4. Connect the ribbon cables sequentially, maintaining consistent orientation, with the red end facing upward.
5. Connect the power cables (VCC+ as positive, GND- as negative).
Note: One standard power cable set should not connect more than four module boards to avoid cable overheating, voltage drop, and resulting color distortion.
6. According to the positions of the power supply, sending card, and fuse, fasten them in sequence using self-tapping screws. Ensure all cable ends are sufficiently long to reach the power supply.
7. Power connection for the module boards:
Connect the black wires to the three negative terminals and the red wires to the three positive terminals.
8. Connect the 12V DC input (use high-voltage insulated cables to connect power supplies in parallel).
9. Connect the control card. The control card's power supply must be wired directly from the switching power supply; it must not be routed through the power distribution board before connecting to the control card. Ensure correct polarity—reversing positive and negative terminals will damage the control card. (The control card must not contact metal directly; insulate it by placing it on a wooden board or another insulating material.)
10. Connect the ribbon cable. When viewing the control card from the back of the LED screen, position the module boards facing upward at the far left side of the screen. Connect one ribbon cable from each horizontal row to the control card.
11. Carefully check whether the power cables are reversed or loose. Use a multimeter to measure each power output terminal for short circuits between the positive and negative poles. If a short circuit is detected, it may indicate that the positive and negative power cables are reversed. After confirming there are no issues, insert the power connector. If all power indicator lights illuminate, this confirms that the power cables are correctly connected. If the power indicator lights fail to illuminate or if smoke or fire occurs, immediately disconnect the power cables and inspect the power supply and wiring.
12. Upon completing all checks without issues, assembly is considered complete. Proceed to commissioning.

Wiring

RED 10AWG X 2

BLACK 10AWG X 2



1 SET:

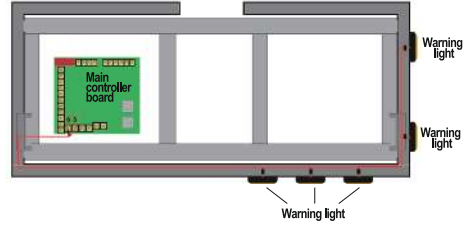
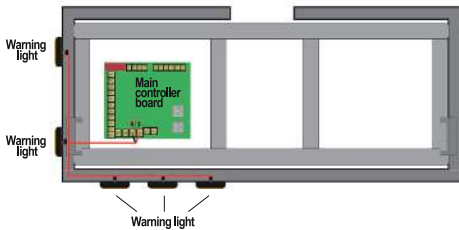
Wiring and function of assembling 3 warning lights:
Marquee flash to the right, controlled by the main control board.

(Internal wiring for 5-wire group of warning lights),
M8 waterproof plug (wire head numbers:
11 red wire, 12 black wire, 13 yellow wire, 14 white wire).

1 SET:

Wiring and function of assembling 3 warning lights:
Marquee flash to the left, controlled by the main control board.

(Internal wiring for 4-wire group of warning lights),
M8 waterproof plug (wire head numbers: 7 red wire,
8 white wire, 9 yellow wire, 10 black wire).



1 SET :

Wiring and function of assembling 5 warning lights:
Frequency flash, controlled by the main control board.

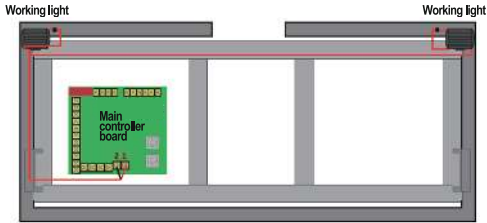
(Internal wiring for 2-wire group of warning lights),
M8 waterproof plug (wire head numbers: 3 red wire, 4 black wire).

1 SET :

Wiring and function of assembling 5 warning lights:
Frequency flash, controlled by the main control board.

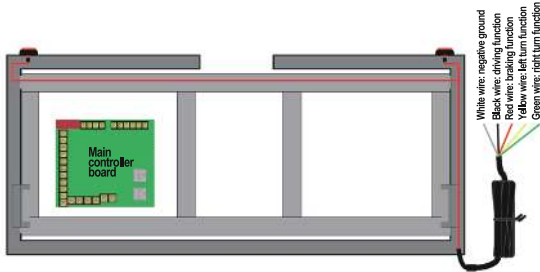
(Internal wiring for 3-wire group of warning lights),
M8 waterproof plug (wire head numbers: 5 red wire, 6 black wire).

Wiring



Wiring and function of assembling working lights:
Frequency flash, controlled by the main control board.

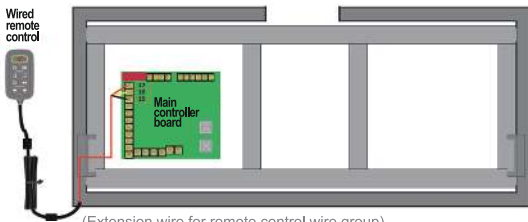
(Internal wiring for 1-wire group of working lights),
M12 waterproof plug
(wire head numbers: 1 red wire, 2 black wire).



Assembly and functions of tail lights:
Driving, braking, left turn, right turn,
with separate 12-meter outgoing wires for tail lights.

(Internal wiring for 9-wire group of tail lights),
M8+M12 waterproof plugs.

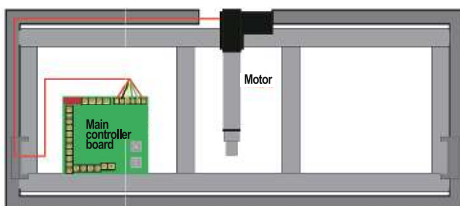
(Outgoing wiring for 10-wire group of tail lights) 12 meters,
M12 waterproof plug (red, black, yellow, white, green wires).



Assembly wiring and functions of wired remote control:
(Opens 90-135 degrees/dual switch/left and
right arrow indicators, and light status display)
50CM sheath wire with waterproof terminal/extended
6-meter sheath wire with waterproof terminal.

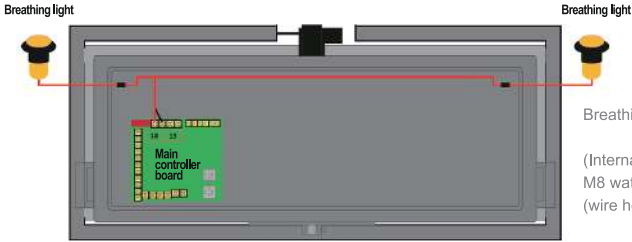
(Extension wire for remote control wire group)
6 meters, M8 waterproof plug.

(Internal wiring for 6-wire group of remote control),
M8 waterproof plug (wire head numbers: 15 black wire,
16 yellow wire, 17 red wire).



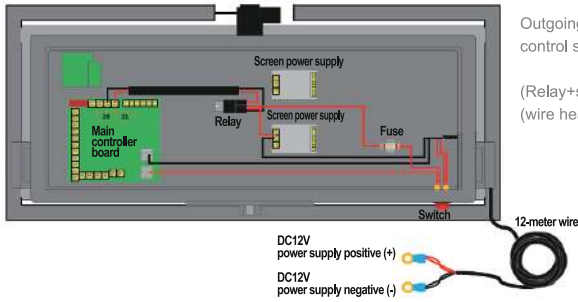
Electric push rod, assembly wiring and function:
telescopic rod.

Wiring



Breathing light assembly wiring.

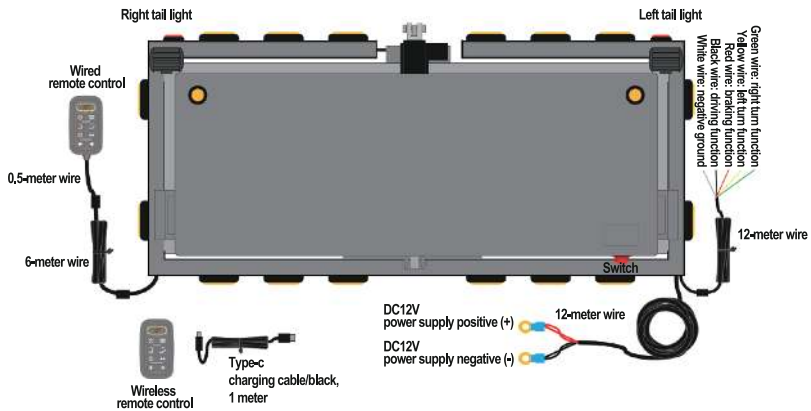
(Internal wiring for 7-wire group of breathing light),
M8 waterproof plug
(wire head numbers: 18 red wire, 19 black wire).



Outgoing wire and relay assembly wiring and function:
control screen on/off.

(Relay+socket 8 internal wiring),
(wire head numbers: 21 red wire, 20 black wire).

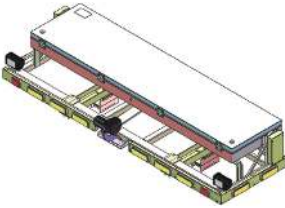
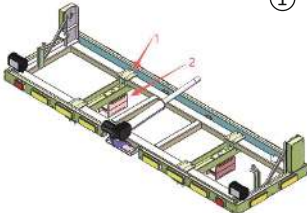
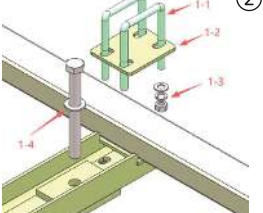
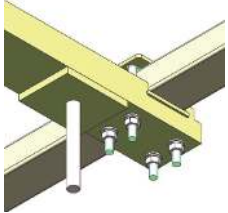
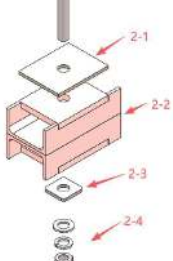
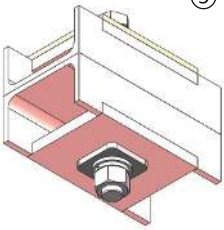
Assembly complete.



Green wire: right turn function
Yellow wire: left turn function
Red wire: steering function
Black wire: drive function
White wire: negative ground

DC12V power supply positive (+)
DC12V power supply negative (-)

LED Bracket Installation

<p>General assembly drawing</p>	<p>The installation parts are assembled by two processes, 1 and 2. The No.1 part is adjusted to the specified position.</p> <p>2 The number of parts may not be installed according to the actual situation.</p>	<p>1 Part number: 1-1 = 2/PCS, 1-2 = 1/PCS 1-3 = 4/ PCS 1-4 = 2/PCS 8.3 inches: 1 piece 4.3 inches: 1 piece</p>
	<p>①</p> 	<p>②</p> 
<p>1-3 Tightening nuts</p>	<p>2 Part number :</p> <p>2-1 = 1 PCS , 2-2 = 1 PCS 2-3 = 1 PCS , 2-4 = 1 PCS</p>	<p>2-4 Tighten the nut and complete the final installation.</p>
<p>③</p> 	<p>④</p> 	<p>⑤</p> 

Other details:

(1) No.1 part = 4 pieces/set, repeated 4 times.

(2) Part 2 = 2 pieces per set, repeated twice.

Service and Maintenance

NOTE: Before performing any maintenance on the system, please read and follow all instructions in the Important Safety Information section.

For additional help regarding service and maintenance, contact your dealer.

Items that require maintenance

The table below lists items in the system which need periodic maintenance as well as the recommended maintenance interval. A more detailed maintenance procedure for each item follows the table.

Message Display	Check Bi-Weekly	Keep the display free of dirt, dust, snow, or any other contaminants. Remove dust and other items with a soft cloth or sponge and water. A mild non-abrasive detergent may be used on persistent contaminants.
Pivot Brackets	Monthly	Inspect sign pivot bolts and actuator mounting hardware. Ensure fasteners are tightened.
Battery Wiring	Monthly	Loose or corroded connections cause high resistance, potentially causing the battery to overcharge or discharge, with damage to the battery bank and/or vehicle. Clean and lightly grease all battery connections and tighten as required. Commercial corrosion inhibitors are available at most automotive supply stores.
System Wiring	Monthly	Check wiring for cracked or frayed insulation and moisture damage. Inspect entry and exit points from all junction boxes and look for breaks or cracks in the insulation. Tighten or replace, as necessary.

Warranty

If you encounter a problem believed to be covered by your warranty statement for the product, you can make a claim under this warranty by contacting your supplier, providing a description of the product, and requesting a Return Materials Authorization (RMA) number.

After receipt of the RMA number, please return the product—freight prepaid—to **MEGA**. If found to be defective, and if all return freight charges have been paid, or authorization to return “freight collect” is received, **MEGA** will repair or replace the product, at our discretion, and return it to the buyer.

In emergency cases where it becomes impractical to wait for warranty consideration by **MEGA**, parts will be shipped on account of the buyer pending warranty evaluation. Buyers without an established account with **MEGA** will be shipped parts C.O.D. Upon completion of the warranty evaluation, the buyer will be reimbursed for the charges if the warranty covers such parts.

Warranty Statement

MEGA warrants that products will be free from defects in material and workmanship for a period of 1 year and 6 months from the date of shipment, subject to the conditions and restrictions contained herein.

MEGA further warrants all parts furnished with and installed on the new product covered by this warranty for the same period. All parts furnished outside of this warranty are warranted for a period of thirty (30) days from the date of shipment.




The above warranty is contingent upon the proper use of the products and does not apply to products on which the original identification marks have been removed or altered. In addition, this warranty shall not apply to defects or failure due to: (a) accident, neglect, abuse or misuse; (b) the use of items not provided by **MEGA**; (c) unusual stress; (d) any party other than **MEGA** or an authorized **MEGA** representative installing, modifying, adjusting, repairing or servicing the product; (e) storage, use or operation of products in an environment or application not intended or recommended by **MEGA**; (f) the failure to provide normal maintenance to the pay for transportation charges, or any incidental or consequential damages connected with removal of a product deemed to be defective, or with installation or replacement of repaired product.

Important Safety Information

Notice: Do not attempt to operate the VMS Guardian Pro until you have thoroughly read all safety, operation and service instructions in this manual. Failure to comply may result in personal injury and/or property damage. Please keep this manual available and review it often to ensure safe operation.

Safety Notices

Important safety information is used throughout this section to warn of hazards to you and the **MEGA** VMS Guardian Pro. A safety notice identifies a hazard and then explains what may happen if the hazard is not avoided. The safety notices are flagged by use of the triangular safety icon. A description of each safety notice follows:

Caution! 	A Caution notice describes situations that may cause minor personal injury or damage to equipment or data, and it explains how to avoid such situations
Warning! 	A Warning notice describes situations that may cause serious personal injury or damage to equipment or data, and it explains how to avoid such situations
Danger! 	A Danger notice describes situations that will cause serious personal injury or death or severe damage to equipment and it explains how to avoid such situations

How to use this Manual

- Notes have tips and hints that help you to work with the **MEGA** VMS Guardian Pro.

Note: A good understanding of the contents of this manual will be helpful to you.

Important Safety Information

Warning! 

Hazard of personal injury, and/or equipment damage.
Attempting to operate the VMS Guardian Pro without understanding all safety, operation, service, and maintenance instructions in this manual can result in personal injury or damage to equipment.

Before trying to operate the equipment, read thoroughly and understand the contents of this manual. Keep this manual available and review often to ensure safe operation and to instruct third-party users.

Safe Operation

Note: This section provides you with important safety information on the operation of the VMS Guardian Pro. Read the entire manual and familiarize yourself with the safety information before continuing with any work on the VMS Guardian Pro.

The safety operation of the **MEGA** VMS Guardian Pro is grouped into three categories:

- 12V DC power source
- Movable parts and protruding edges
- Operating environment

Important Safety Information

12V DC Power Source

Danger 

DC Voltage – To prevent severe personal injury, death or substantial property damage when working around 12V DC, be extremely careful. Always use insulated tools and disconnect the power source before installation or servicing.

There are standards that deal with the safety aspects of electrical equipment. These standards aim to ensure that products are designed, manufactured and installed to eliminate hazards such as electrical shock, fire, dangerous temperatures and mechanical instability. All electrical installations shall meet the National Electric Code (NEC).

Moving Parts and Protruding Edges

Danger 

To prevent severe personal injury, death or substantial property damage, when working around the **MEGA VMS Guardian Pro**, be extremely careful. Always be aware that there may be moving parts and protruding edges associated with the system.

When setting up or adjusting the sign message display, see the following:

- Ensure no one or object is in the path of the message display when it is raised or lowered.
- Be aware of items such as the lower edges of the message sign, supporting mounts, open covers, etc., related to the system.

Operating Environment

Additional safety precautions that should be followed while working on the **MEGA VMS Guardian Pro** include:

- Never work on the system when the ground is covered with water.
- Never work on the system during a thunderstorm.
- Always wear approved clothing.
- Always be aware of traffic flow and maintain a reasonable distance from it.

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www.voltexlights.com