

INSTALLATION MANUAL



LED ELECTRONIC DISPLAY

Revision: 1.0

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• CATALOG

I. SAFETY	2
1.1 Safety guide	2
1.2 Important Safety Precaution	3
1.3 Important warning.....	4
II. CABINET ASSEMBLED	5
III. MOUNTING INTRODUCTION.....	8
3.1 Overview.....	8
3.2 Familiar mounting method.....	9
3.2 Mounting process of an LED moving sign	11
3.2.1 Hanging mounting method	11
3.2.2 Wall mounting method.....	13
IV. POWER INSTALLATION.....	19
V. FANS INSTALLING.....	21
VI. APPENDIX.....	22
Appendix A: File Log	22

I. SAFETY

1.1 Safety guide

Personal protection

- ☺ Ensure you understand and follow all the safety guidelines, safety instructions, warnings and notes mentioned in this manual.
- ☺ Wear a hard hat to reduce the risk of personal injury.
- ☺ Be careful while working with heavy loads.
- ☺ Mind your fingers while working with heavy loads.

Installation personnel

The installation must be performed by authorized and qualified technical personnel only.

Accredited safety officers must ensure the safety of the site, construction, assembly, connection, use, dismantling, transport etc. of such safety critical systems.

Notes

Installation should be performed only after you are thoroughly familiar with all of the proper safety checks and installation instructions.

Do not modify and/or replace any component. We uses specific materials and manufacturing processes in order to achieve part strength. Consult us for assistance with custom applications.

Always follow our installation manual. Contact us if you should have any question regarding the safety of an application.

Product care

Structural and mounting components should be kept dry, clean and otherwise maintained in a manner consistent with part design. Our products must be used in a manner consistent with their design and inspected on a routine basis for security, wear, deformation, corrosion and any other circumstances that may affect the load handling capability of the part.

This product should be operated from the type of power source indicated on the marking label. If you are not sure of power available, consult your dealer or local power company.

We recommends inspections at regular intervals for all installations and increasing in frequency for more critical installations. If a part is found to have damage, which may cause a decrease in load capability, the part must be removed for service or replaced immediately.

1.2 Important Safety Precaution

- Read and understand these instructions.
- Heed all warnings.
- Follow all instructions.
- Personnel must be professional to installing and maintenance.
- Unplug this product from the electrical outlet before cleaning. Clean only with materials or chemicals that are inert, nonabrasive, noncorrosive and non-marking. Consult the manufacturer for further advice should any doubts exist regarding any cleaning procedure.
- Do not block ventilation openings.
- Avoid locations that are subject to direct sunlight (except outdoor models), excessive heat, moisture and dust such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Don't defeat the safety purpose of the polarized or grounding type plugs/sockets. If the provided sockets/plugs are damaged then replacement of the defective parts must be undertaken immediately.
- Protect the power/data cables from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus. Replace damaged power/data cables immediately.
- Only use accessories specified by the manufacturer.
- Disconnect the power to this apparatus during lightning storms or provide suitable additional lightning protection. Unplug this apparatus when unused for long period of time.
- Refer all servicing to qualified service technicians/personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cable or plug is damaged, the apparatus does not working normally, or has been dropped.
- Use only with systems or peripherals specified by the manufacturer. Use caution during lifting/moving or transporting to avoid damage by possible tipping.
- Please check truss installation when you mounting the moving sign.
- Must know the weight for this system before mounting.

1.3 Important warning

Important warning:

1. Danger of electric shock

Don't open or touch! To reduce the danger of electric shock, don't remove cover.



The lightning flash with an arrowhead is intended to tell the user that parts inside the product may cause a danger of electrical shock to persons.

2. Danger of fire

To protect against danger of fire by overloading of power cables. Power cable may be connected in parallel. Each power source cable supplying for moving sign should be protected by a circuit breaker or fuses rated.

3. Working environment

Temperature: -10 to +40 (Indoor product); -20°C to +60°C(Outdoor product).

Humidity: 15%~95% RH.

4. Electro-Static protect

LED components used in moving sign are Electro-Static discharge sensitive. To prevent the possibility of destroying LED components do not touch either in operation or while switched off. Servicing or maintaining must be with anti-static instrument(such as ESD hand/heel straps).

5. The equipment must be earthed

In order to protect against danger of electric shock, the installation should be properly grounded. We recommend a resistance to ground less than 10 ohms.

6. Power cables

The power cables delivered with this system have special properties for safety. They are not user serviceable. If the power cables are damaged, replace only with new ones. Never try to repair a power cable.

7. Data cables

The data cables provided with this system have special properties for safety. They are not user serviceable. If the data cables are damaged, replace only with new ones. Never try to repair a data cable.

8. Aeration

A lot of heat emanated from sign while working. Proper ventilation must be provided. And keep flammable materials away from the equipment (such as curtains).

II. CABINET ASSEMBLED

A LED moving sign is made up of one or many cabinets. A cabinet is also composed of small module elements, such as LED cluster module, power supply etc. Each cabinet has an exclusive label. All cabinets make up of the whole sign according as an arrangement rule. Following fig shows the arrangement rule.

Single face Moving Sign:

An	.....	A2	A1
Bn	.....	B2	B1
⋮	⋮	⋮
Xn	.....	X2	X1

Front View

Double-face Moving Sign:

MAn	.....	MA2	MA1	SAn	.....	SA2	SA1
MBn	.....	MB2	MB1	SBn	.....	SB2	SB1
⋮	⋮	⋮	⋮	⋮	⋮
MXn	.....	MX2	MX1	SXn	.....	SX2	SX1

(Master Sign)

Front View

(Slave Sign)

Front View



Fig2.1 Cabinet arrangement

Note: “X” denote a discretional letter.

➤ **LED modules assembling**

The LED cluster module is a single functional unit and need to be fixed on frame. All modules constitute a display wall for Sign. Installing LED cluster module needs two personnel necessary. One personnel holds the module to frame in front of display. It must ensure the socket and the hole on frame in one line. Then another one tweak screws to the socket for fixed the module at back of frame. When installing modules must take note of following two points:

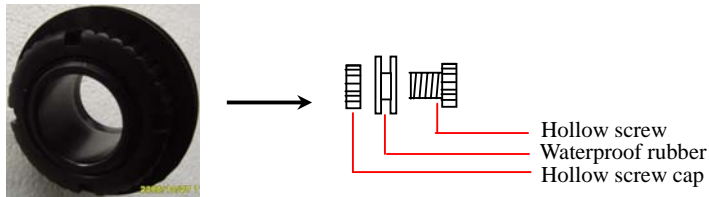
1. The louvers on LED cluster modules must be upwards. There is a ‘↑’ on modules that means upwards.
2. The module should be firmly seated against the display.

➤ **Cabinet assembled**

Assemble all cabinets according as the arrangement rule that fig2.1 shows.

➤ **Waterproof connector installing**

If the sign is for outdoor use, it needs to install waterproof connector between cabinets. Waterproof connector is made of 3 parts: waterproof rubber, hollow screw, and hollow screw cap.



There are 4 steps for installing waterproof connector:

Step1: installing waterproof rubber. Plug the waterproof rubber into the connection hole of cabinet as following fig shows.

Step2: installing hollow screw. Plug the hollow screw into the hole that has covered with waterproof as following fig shows.

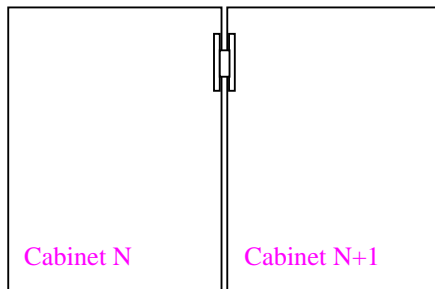


Fig2.2 Step1

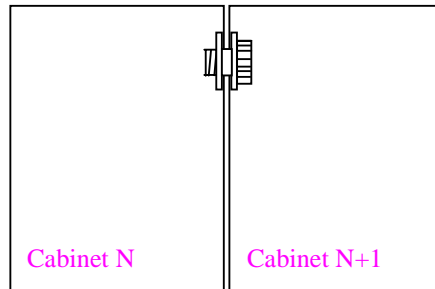


Fig2.3 Step2

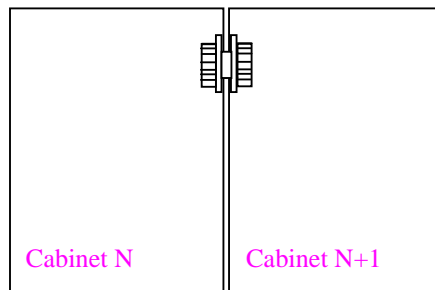


Fig2.4 Step3

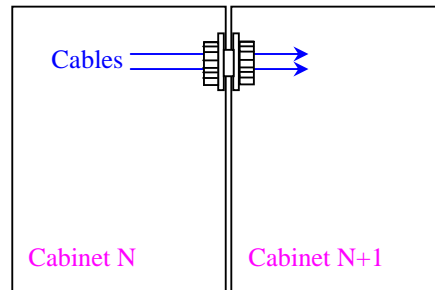


Fig2.5 Step4

Step3: installing hollow screw cap. Twist the hollow screw cap to the hollow screw as following fig shows.

Step4: the cable need connect to other cabinet through the hole as fig shows.

After the four steps, the waterproof connector has installed. And the installing of other waterproof connector is as same as above description.

III. MOUNTING INTRODUCTION

3.1 Overview

Because every mounting site is unique, there is no standard method of mounting. As manufacture of LED moving sign, we don't supply support structure, we can only provide recommending for the support structure design. It is customer's responsibility to ensure that the structure and mounting hardware are able of supporting the sign, and according with local laws.

Support structure design depends on the mounting methods, LED moving sign's size and its weight. The structure design is critical and should be done only by a qualified individual and organization.

The following must be considered first before installation:

- Design support structure and groundwork; calculate carefully the needed strength according to local codes; especially note the wind load and the issue of Seismic Zone.
- For the reason of heat dissipation, the waterproof of the back of LED module is IP54; consider if any added shield needed for more protection. If LED Screen is enclosed in an enclosure or casing, air-conditions are needed for cooling when the environment temperature reach 30°C.
- Keep enough space for maintains.
- Prepare for routing power lines and fiber connection. It is doubtless to route power lines and fiber cables in two separate conduits.
- Grounding consideration, we recommend grounding resistance must be less than 10 ohms.
- The relations of the screen body size with the distance of mounting. The screen body size and the viewing distance should have the suitable proportion relations. The ordinary circumstances viewing distance may take the screen body opposite angle line length 2~20 double, and the effect is better when the viewing distance is in 6~10 doubles.
- The angle of mounting: When the screen body installs, should pay attention to the direction of LED element's light. When the screen body installs at highly, should make the screen body to maintain the certain inclination angle, that in order to causes the direction of shines direct to best viewing position.

- When the screen body installed, we should pay attention to the influence of outside electromagnetic radiation to sign.

3.2 Familiar mounting method

The shape and size of LED moving sign are different; the use of them is diverse and the method of mounting is most changeful. There isn't the unification standard of the mounting.

Following we introduced several familiar mounting method.

1) Hang type

Hang type include two types. One is hanging up at the ceiling or other truss (fig3.1a shows). The LED moving sign is hanging up at ceiling or truss by the bracket. Another is hanging on wall (fig3.1b shows). The LED moving sign is mounting on wall by the bracket.

2) Swing type

Swing type is an especial of hang type. This method is hanging moving sign at wall by a bracket too. But the bracket have a suspend arm for Swing. Fig3.4 shows it.

3) Desktop installation

This method must design a pedestal to support the LED moving sign. And the LED moving sign is installed on the pedestal. Fig3.2 shows it.

4) Movable structure

This method is base on desktop installation. It is different form desktop installation there are some wheels on the pedestal. So it can move easily. Fig3.3 shows it.

5) Insert type

Insert type is a method that the moving sign is inserted in wall or other object. Fig3.5 shows it.

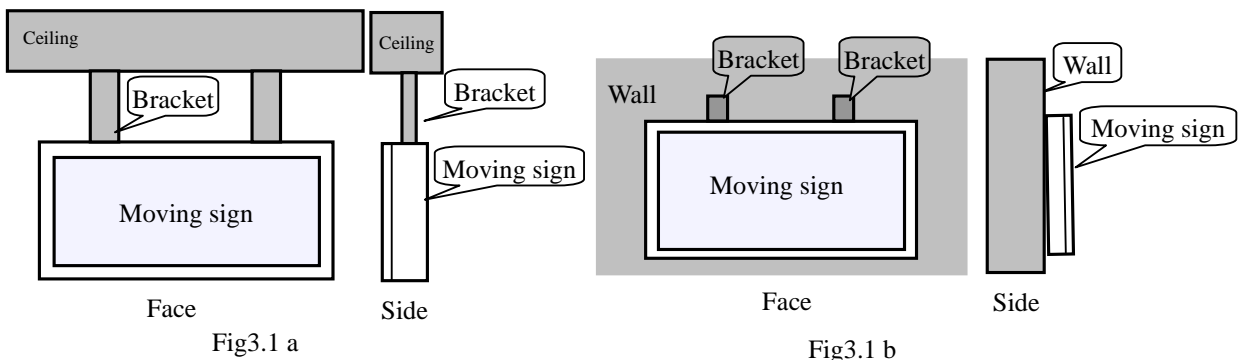


Fig3.1 Hang type

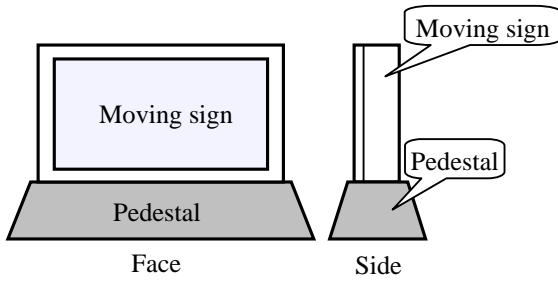


Fig 3.2 Desktop installation

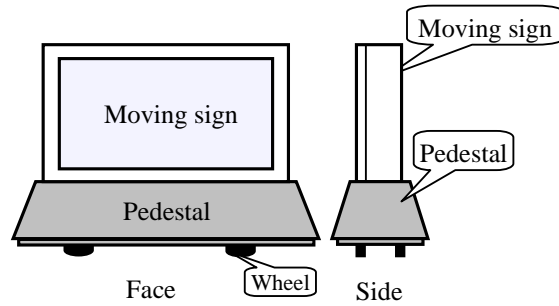


Fig 3.3 Movable structure

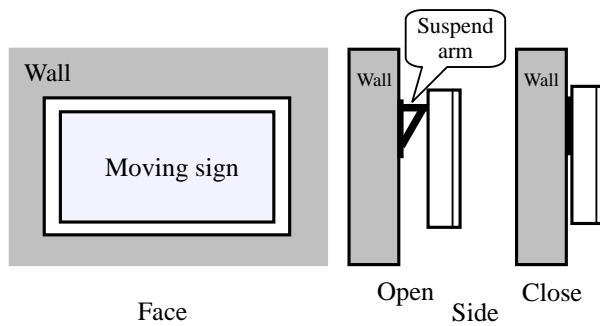


Fig 3.4 Swing type

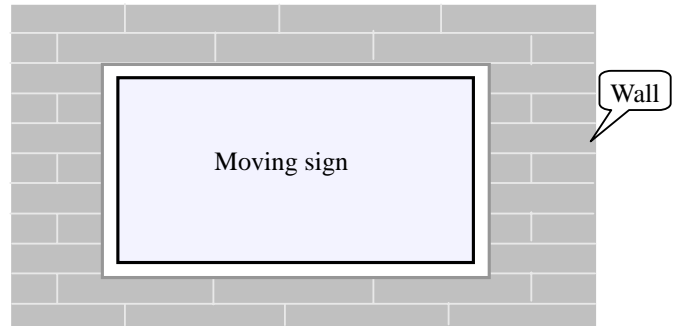


Fig 3.5 Insert type

Above mentioned methods is several commonly used method of mounting. About the small LED moving sign, we commonly use hang type or swing type. About the large LED moving sign, we commonly use desktop installation or insert type. If the LED moving sign needs move frequently should use movable structure. Certainly, there are many other methods of mounting. We impossibility introduce all methods. User can choose an appropriate method of mounting according as your idiographic circs. And you can give your idea about installation to us.

Remark: All the install methods must be examined the backstop at first. And know the weight of whole sign and accessory. User must sure the backstop can support the weight while mounting moving sign.

3.2 Mounting process of an LED moving sign

Above content described some common mounting method simply. In general, we only supply hanging mounting and(or) wall mounting if consumer doesn't have any especial requirement. Following content will introduce the two method.

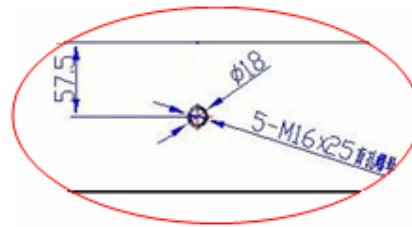
3.2.1 Hanging mounting method



Pothook



Stationary rings



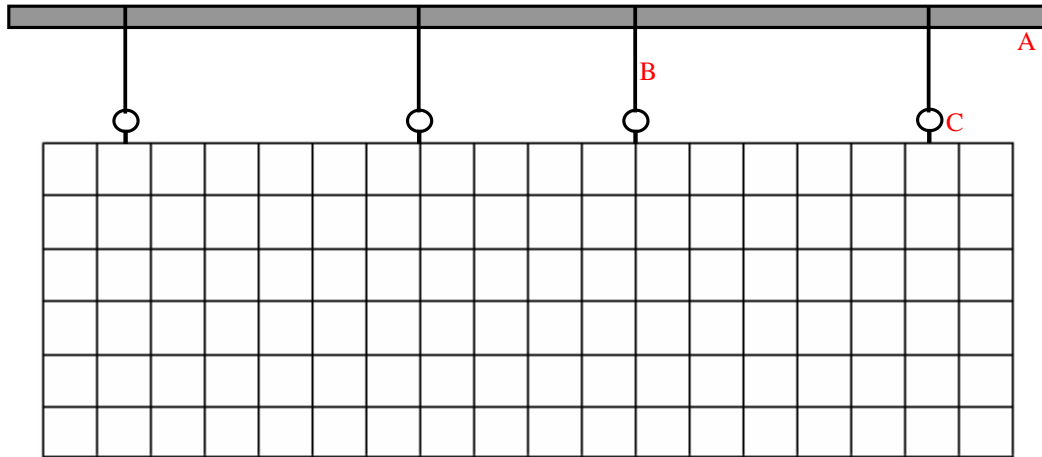
Top of cabinet

This mounting method is hanged the Sign on beam(ceiling) or truss. The general mounting process is as following example described. It may has some different of the factual operation.

Mounting process:

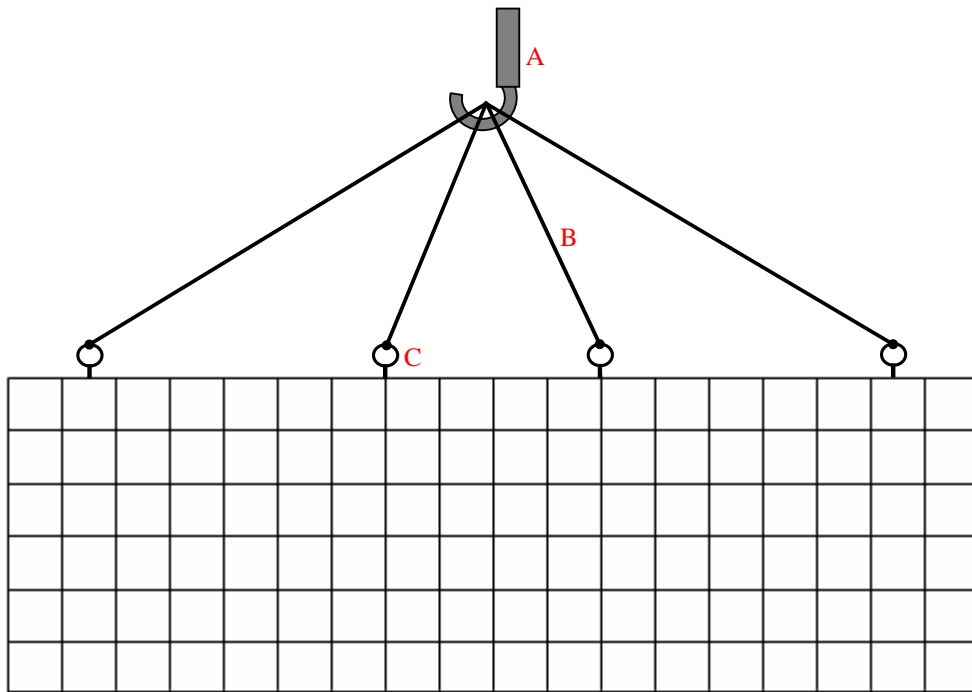
1. Build up the truss installation or installing pothook.
Warning: Be sure that the truss installation complies with the local regulations regarding such installations and that the truss installation(or pothook) will be able to support the complete load of the moving sign.
2. Assemble cabinets into a whole moving sign.
3. Set up stationary rings on the top of cabinet.
 The stationary ring is an eyebolt. User only tweaks the stationary ring into the screw on top of cabinet.
4. Lift up the Sign to the desired height.
5. Place a hoist steel cable or chain around the truss installation or pothook above the sign, and through the stationary rings on the truss beam. Use one hoist steel cable or chain per stationary rings.

Following fig shows the view of this mounting method.



A: Truss installation B: Hoist steel cable C: Stationary rings

Fig3.6 Hang mounting I



A: Pothook B: Hoist steel cable C: Stationary rings

Fig3.7 Hang mounting II

3.2.2 Wall mounting method

This mounting method is mount moving sign on wall. There are three kinds bracket for mounting sign on wall so that it has three mounting method.

➤ Wall mounting I

This mounting method used semicircular bracket to hang moving sign on wall. In general, it applies to light moving sign that made up of aluminium cabinets for indoor used. Following we will introduce the general mounting process of this method by an example. It may has some different of the factual operation.

- 1) Build up the truss installation for fixing semicircular bracket onto wall.

Warning: Be sure that the truss installation complies with the local regulations regarding such installations and that the truss installation will be able to support the complete load of the Moving-Sign.

- 2) Assemble cabinets into a whole sign.
- 3) Installing the bracket on the cabinet(fig3.8 shows).

Use bolts to fix the semicircular bracket on the moving sign with semicircle side facing.

- 4) Lift up the moving sign to the appointed height.
- 5) Use bolt to fix the bracket onto wall with rectangle side facing wall so that the moving sign is fixed on the wall.

Warning: User must confirm the distance between each bolt before fixed moving sign onto wall.

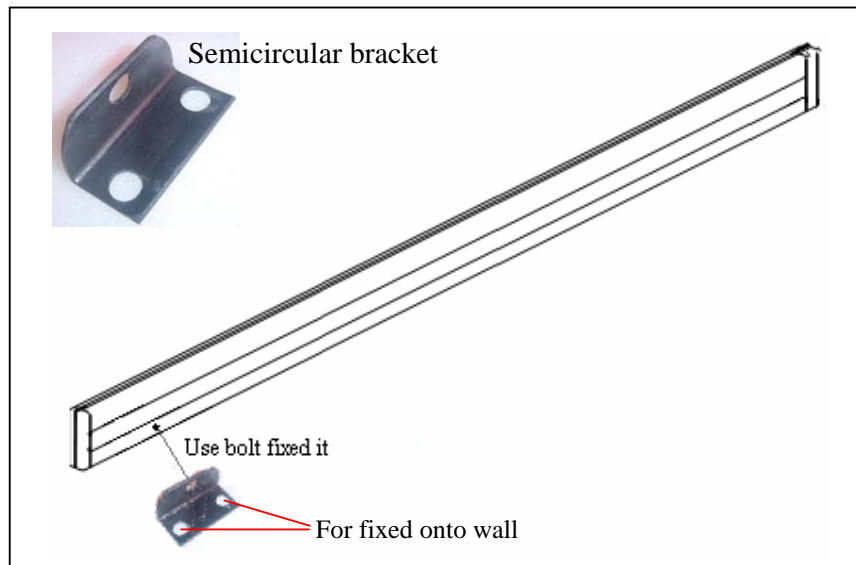


Fig3.8

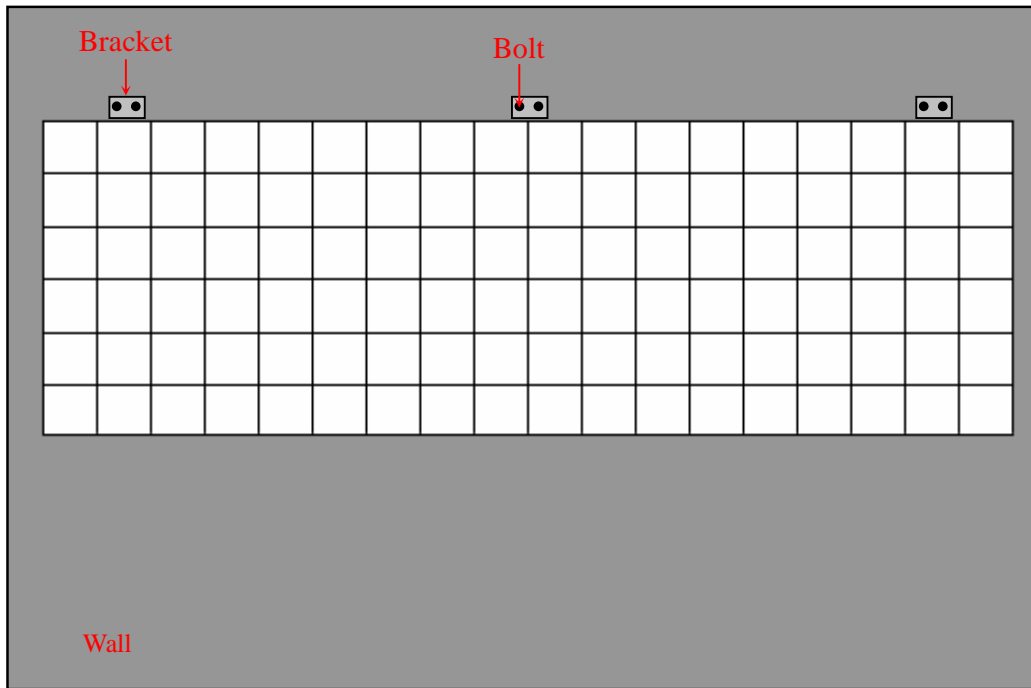


Fig3.9 Wall mounting I

➤ **Wall mounting II**

This mounting method used rectangular bracket to hang moving sign on wall. Following fig shows the bracket for this mounting method.

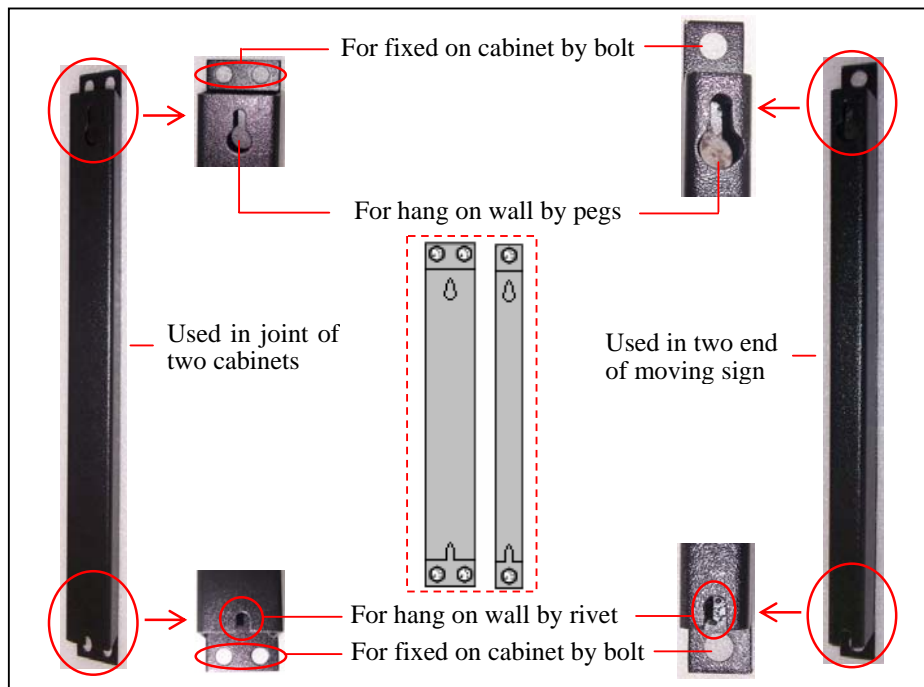


Fig3.10 Rectangular bracket

Following we will introduce the general mounting process of this method by an example. It may has some different of the factual operation.

Mounting process:

- 1) Set up the truss installation(pegs) onto wall for hanging moving sign.

Warning: Be sure that the truss installation complies with the local regulations regarding such installations and that the truss installation will be able to support the complete load of the Moving-Sign.

Note: User must confirm the distance between each peg and the height before fixed it onto wall.

- 2) Assemble cabinets into a whole sign.
- 3) Installing the bracket on back of cabinet by bolts.

On back of cabinet has designed screw for mounting as fig3.11 shows. User only need use bolts to fix the bracket on moving sign as fig3.12 shows.

- 4) Lift up the moving sign to the appointed height.
- 5) Hanging moving sign onto wall by pegs as fig3.13 shows.

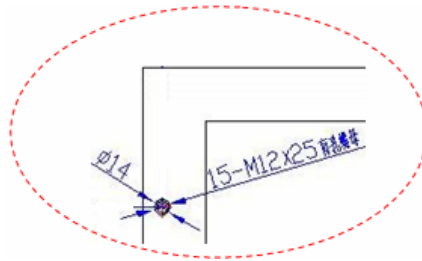


Fig3.11 Back of cabinet

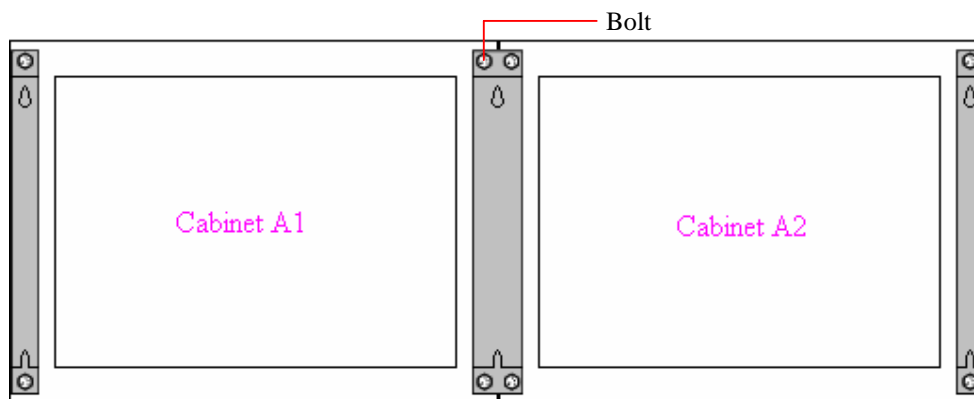


Fig3.12 Fixed bracket

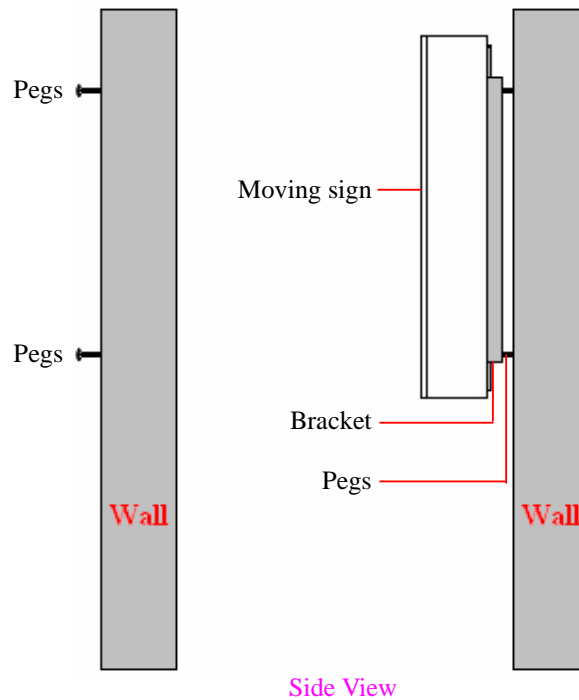


Fig3.13 Wall mounting II

➤ Wall mounting III

This mounting method used right-angle bracket to hang moving sign on wall. Fig3.14 shows the bracket. Following we will introduce the general mounting process of this method by an example. It may has some different of the factual operation.

- 1) Build up the truss installation.

Set up hole that used for fixing bracket(wall part) on wall. Then use bolt fixed bracket onto wall as fig3.17 shows.

Note: User must confirm the distance between each bolt and the height before fixed bracket onto wall.

Warning: Be sure that the truss installation complies with the local regulations regarding such installations and that the truss installation will be able to support the complete load of the LED moving sign.

- 2) Assemble cabinets into a whole display according as arrangement rule.
- 3) Installing bracket(cabinet part) on cabinet.

Use bolt fixed the cabinet part brackets onto cabinet as fig3.16 shows.

- 4) Lift up the display to the appointed height.
- 5) Use bolt to fix the two parts bracket in together so that the moving sign is fixed on wall. Fig3.18 shows it.

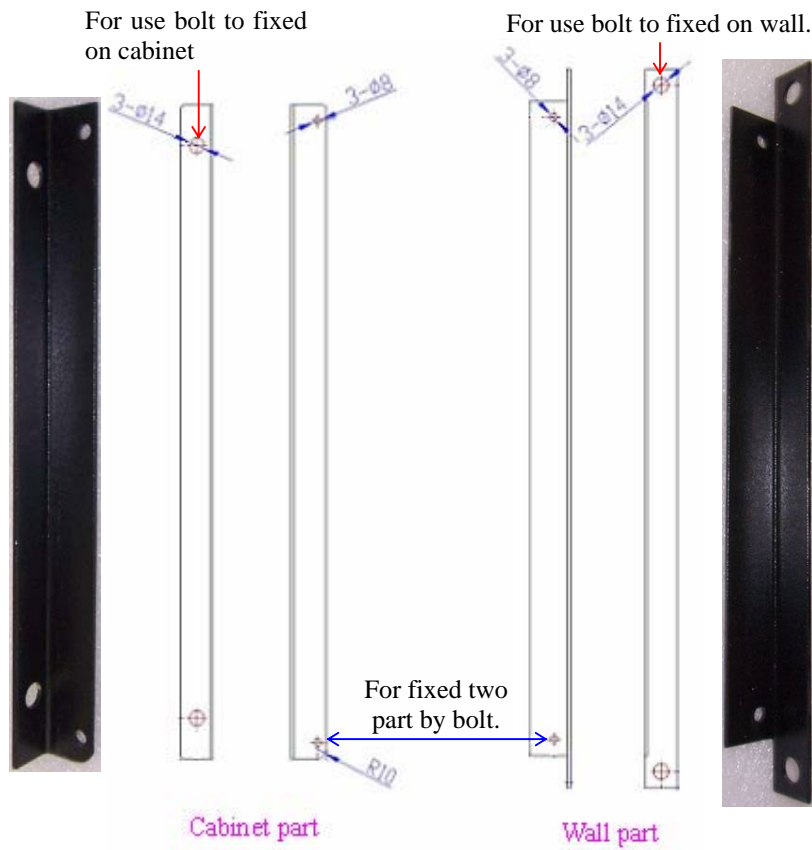


Fig3.14 Right-angle bracket

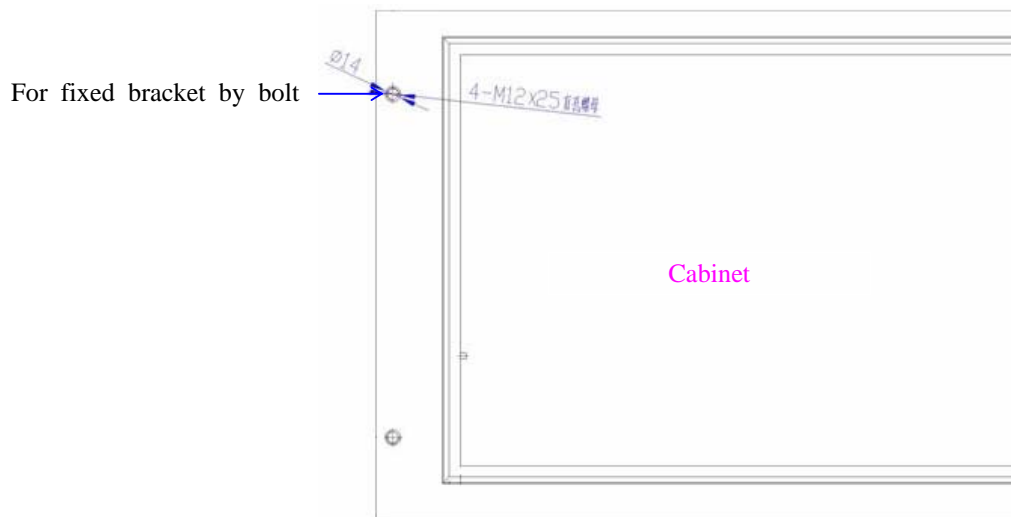


Fig3.15 Back of cabinet

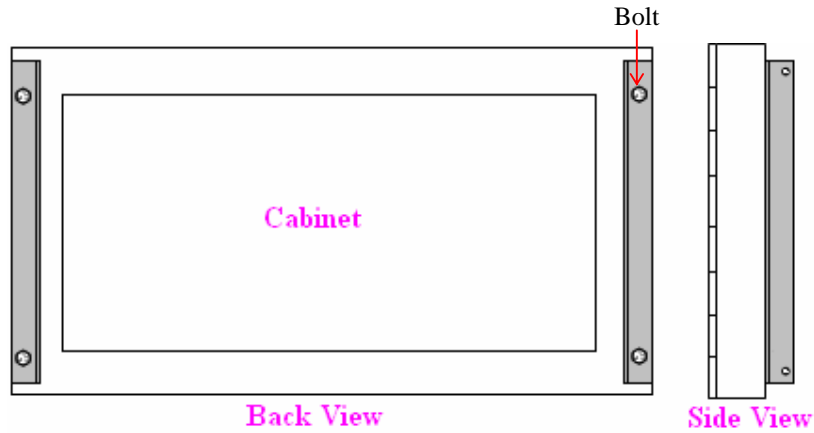


Fig3.16 Cabinet part installing

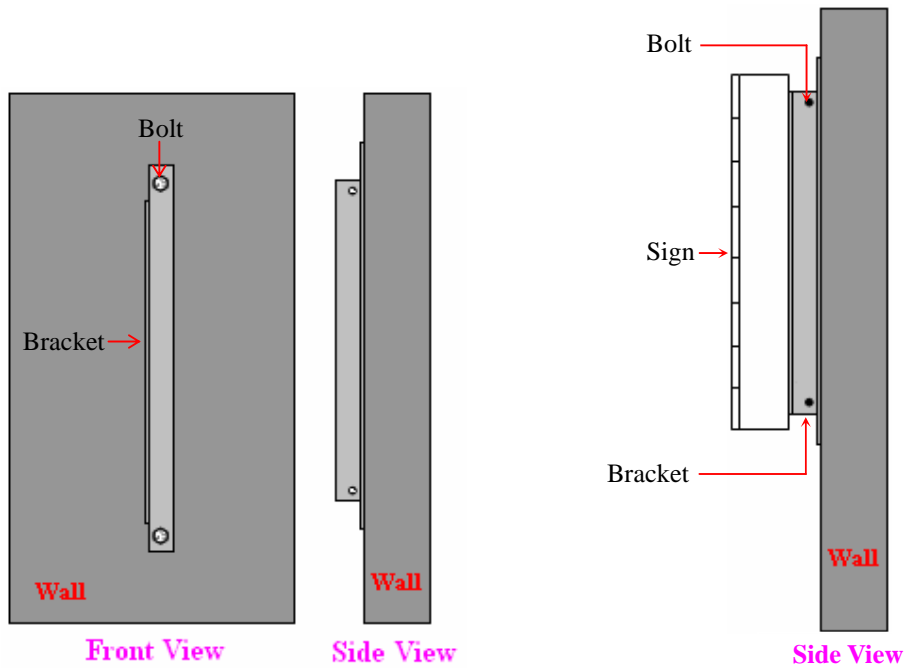


Fig3.17 Wall part installing

Fig3.18 Wall mounting III

➤ **Note:**

Before mounting, user must know the weight of whole moving sign and accessory. User must sure the backstop can support the weight of moving sign while mounting it.

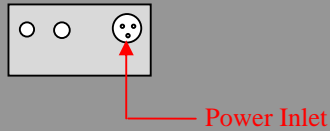
In fact, the number and size of bracket may be different with every moving sign. So fig of example may has some different of actual situation. But the operating process is as similar as it.

The wall mounting may not apply for double-face moving sign.

IV. POWER INSTALLATION

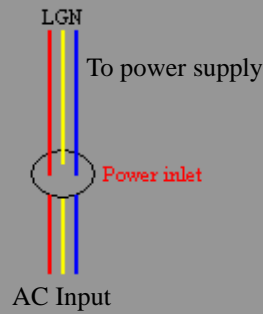
- Power input guide

Power inlet on cabinet:

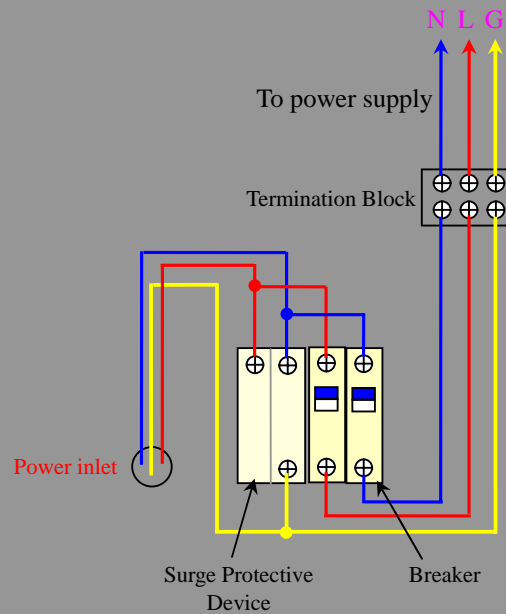


Power input cabinet includes two states as following figs show.

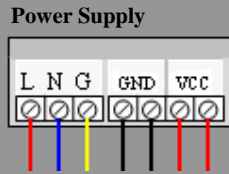
- No Surge Protective Device:



- Include Surge Protective Device:

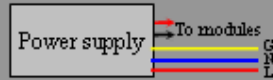


● Power supplies connection guide

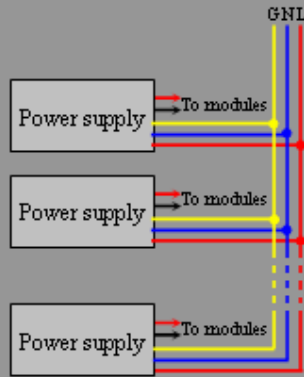


There are three states may be encountered.

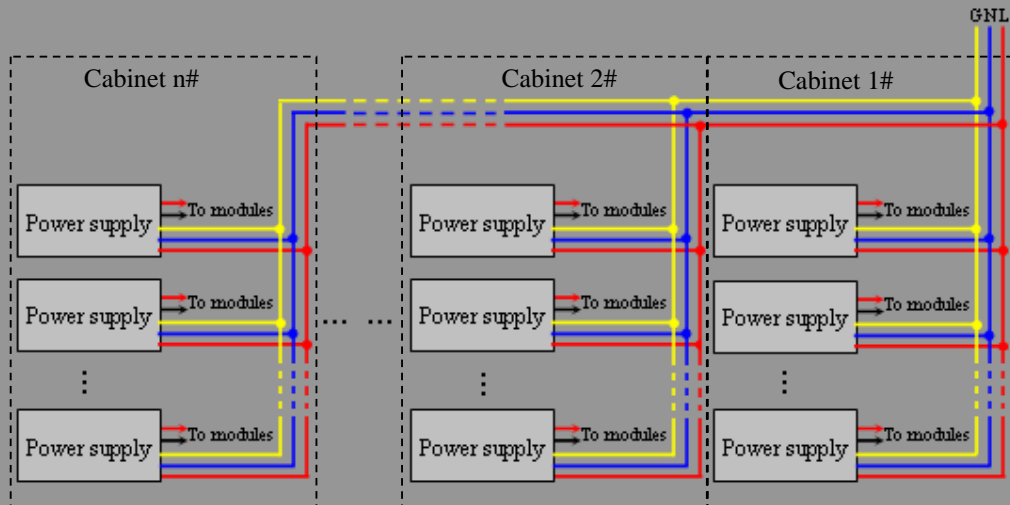
➤ Only a power supply connection guide



➤ More than one power supply connection guide



➤ More than one cabinet connection guide



NOTE: Number of power supply for each sign are different, but their connection is similar to one state of above described.
The color of cable may be different from fact.

● **Power connection guide for outside**

The power cable connection for outside is very simply. There need have electrical outlet (a Plug AC female) near the moving sign installed. User only need plug the plug male onto the plug AC female. The plug male is connected with LED moving sign by a power cable from the power input port on cabinet. The plug AC female is form power source. Following fig shows the power cable connection.

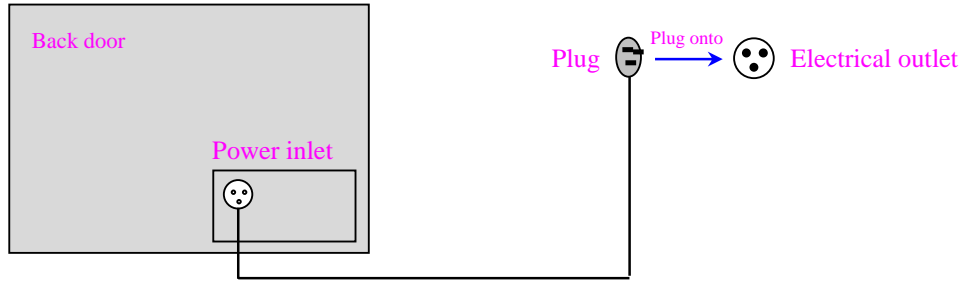


Fig4.1 Power connection of outside

V. FANS INSTALLING

The back door of cabinet has designed a space for installing fan. User only needs fixed the fan on that space by bolt. Then connect it with a thermal switch (KSD301) by power cable. The Temperature controller is installing on the plate that has installed power supply. Following fig shows the diagram.

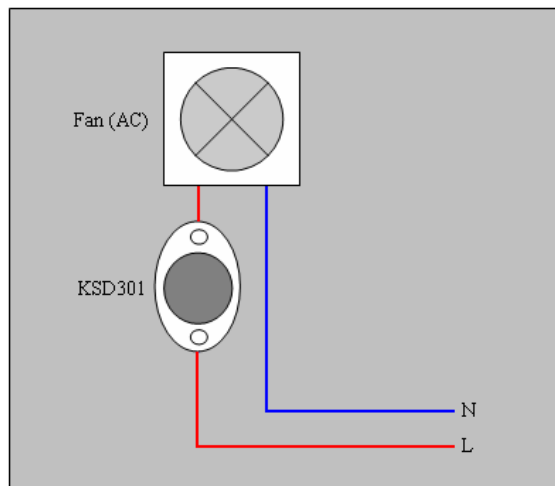


Fig5.1 Fans connection diagram

KSD301--- Thermal switch that control fans turn on/off. When temperature is more than a defined temperature, fans will work automatically.

VI. APPENDIX

Appendix A: File Log

File No.	Descriptions