

COMMANDER Control Desk






OP076

User manual

IM19H17-E

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Symbol Definition	
	WARNING: Indicates information that a potentially hazardous situation which, if not avoided, could result in serious injury or death.
	RISK OF ELECTRICAL SHOCK: Indicates information that Potential shock hazard where HAZARDOUS LIVE voltages greater than 30V RMS, 42.4V peak, or 60V DC may be accessible.
	ESD HAZARD: Indicates information that Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices
	ATTENTION: Identifies information that requires special consideration.
	TIP: Identifies advice or hints for the user.

Security& Caution Symbols

The following table lists Security& Caution symbols used on equipments.














No.	Symbol	Description
1		Direct current (DC)
2		Alternating current (AC)
3		Ground (Earth) terminal
4		Protective earth (ground) terminal
5		Reference ground (Earth) terminal
6		Frame or chassis
7		Equipotentiality
8		On (power)
9		Off (power)
10		Caution, risk of electric shock
11		Caution, hot surface
12		Caution, risk of danger
13		Electrostatic sensitive devices (ESD)

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COMMANDER Control Desk OP076

Section 1 Description

OP076 control desk is a combined operation desk assembled with working unit modules, auxiliary unit modules, cabinet unit modules and other modules. Users can install the hardware equipments and accessory devices of several operators in the application.

The combination types for modules of the operation desk include:

- Linear type
- Outer arc type
- Inner arc type

Users can select one type in application.

1.1 Function Features

- The modularized system is easy for transportation, installation and modification.
- The powerful modularized structure can be uninstalled to parts, and compressed and packed, which largely decreases the transportation cost.
- The component can be replaced separately.
- It has the design of useful ventilation opening.
- It has enough space for the two hosts.
- It has proper and neat wiring management.
- The double-layer desk top provides easy height adjustment for the monitor.
- The solid framework secures the reliability, durability and stability of the product.

1.2 Composition of Operation Desk

1.2.1 Working Unit Module

The working unit module is a necessary component of OP076 and contains the main devices of operation station. Structure of single operation desk is shown as Figure 1-1.

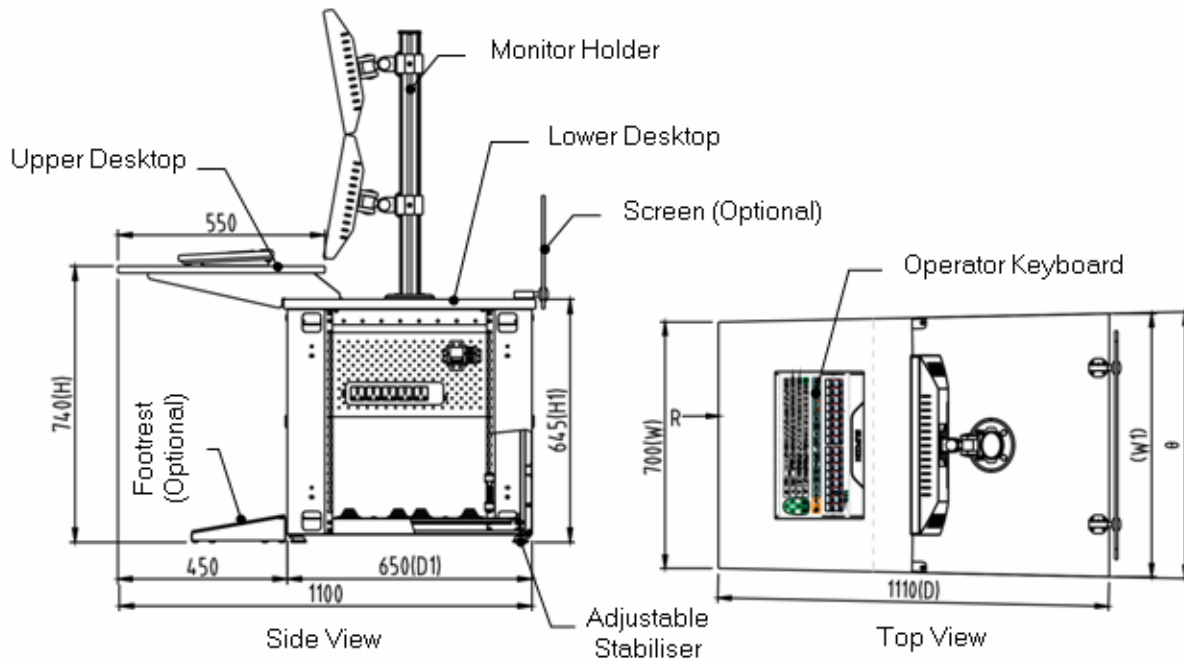


Figure 1-1 Structure and size of operation desk

- **Upper Desktop (Main Operation Desktop):** Used to place the industrial keyboard, general keyboard and mouse, etc., and is the main operation platform on the operation desk.
- **Lower Desktop:** Used to place the LCD and the button box of auxiliary operation desk.
- **Main Body:** Comprised of framework, front and back doors, etc., and there are structures like power distribution unit, wiring terminal unit, grounding copper bar, wiring rack and stick, etc. In the main body, host computer of two operation stations (standing type) can be placed.
- **Power Distribution Unit:** Comprised of terminal (or air switch), power socket and the rack board for power distribution, etc., and the power switcher can be installed on the inner side of operation desk. When two groups of independent power supply are provided from the outside, enter the power socket through the switcher, and when the single group of power supply is provided from the outside, enter the power supply socket through the terminal (or air switch).
- **Wiring Unit:** Comprised of wiring terminal and the holder board for the terminal, and is fixed on the block boards on the right and the left respectively in the operation table, used to connect the operation buttons and the field control equipments.
- **Grounding Copper Bar:** There is one grounding copper bar on the left and the right respectively in the operation desk, used to connect the protective earth in the control system.
- **Adjustable Stabiliser:** used to adjust the height of operation desk, to make sure the various operation desktops are in the same level, and to stabilize the operation desk.

1.2.2 Auxiliary Unit Module

The outer structure and size are shown in figure below, which are unit modules with the turn

angles of 5°, 15°, 45° and 90° from left to right. They are mainly used between two working unit modules to adjust the arc of the whole operation desk.

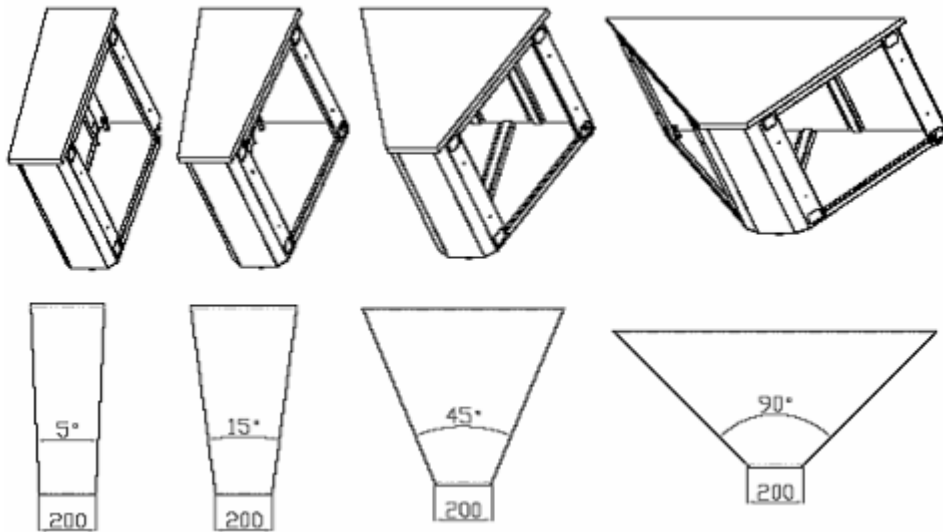


Figure 1-2 Structure and size of auxiliary unit module

1.2.3 Cabinet Unit Module

The structure and size of cabinet unit module are shown in the figure below, which are linear cabinet, arc cabinet, ¼ circle cabinet and dissimilar cabinet unit module from left to right. The cabinet unit module both has the storage function and can coordinate the layout.

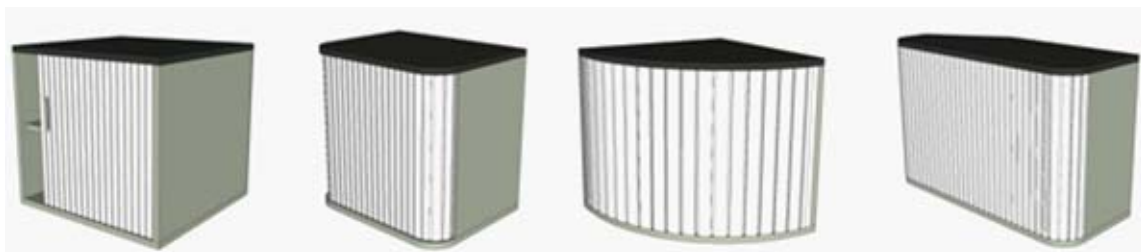


Figure 1-3 Cabinet unit module

1.2.4 Other module

Side Board Unit Module

The side board is often installed on the two sides of a group or a row of operation desks, and can coordinate the layout.



Figure 1-4 Side board unit module

Main Operation Desktop

There are only little and slight juncture on the desktop (2~3 stations for a desktop) and it needs to be customized according to the specialized layout of operation desk.

1.3 Models Selection

The COMMANDER control desk has the assembled structure, and except the working unit modules, users can choose proper auxiliary unit modules and cabinet unit modules in allocation, which is shown in the table below.

Table 1-1 Selection list for modules

Type	Degree of Turn Angle θ	Name	Model	Dimension (mm)
Working Unit Module (Refer to Figure 1-1)	0°	0° Working Unit Module	Fireproof Plate OP076-GZ000-F	H/H1=740/645 D/D1=1110/650 W/W1=700/700
		Compact Board	OP076-GZ000-K	
	0.5°	0.5° Working Unit Module	Fireproof Plate OP076-GZ005-F	H/H1=740/645 D/D1=1110/650 W/W1=700/709.7 R=80m
		Compact Board	OP076-GZ005-K	
	1°	1° Working Unit Module	Fireproof Plate OP076-GZ010-F	H/H1=740/645 D/D1=1110/650 W/W1=700/719.3 R=40m
		Compact Board	OP076-GZ010-K	
	1.5°	1.5° Working Unit Module	Fireproof Plate OP076-GZ015-F	H/H1=740/645 D/D1=1110/650 W/W1=700/729 R=26.7m
		Compact Board	OP076-GZ015-K	
	2.5°	2.5° Working Unit Module	Fireproof Plate OP076-GZ025-F	H/H1=740/645 D/D1=1110/650 W/W1=700/748.4 R=16m
		Compact Board	OP076-GZ025-K	
Auxiliary Unit Module (Refer to Figure 1-2)	5°	5° Turn Angle Unit Module	OP076-ZJ050-F	H645 D650 W200/256.6
	15°	15° Turn Angle Unit Module	OP076-ZJ150-F	H645 D650 W200/369.6
	45°	45° Turn Angle Unit Module	OP076-ZJ450-F	H645 D650 W200/697.4
	90°	90° Turn Angle Unit Module	OP076-ZJ900-F	H645 D650 W200/1119
Cabinet Unit Module	-	Linear Cabinet Unit Module	OP076-GT-Z-F	H645 D670 W670
	-	Arc Cabinet Unit Module	OP076-GT-H-F	H645 D670 W500
	-	¼ Circle Cabinet Unit Module	OP076-GT-S-F	H645 D670 W670
	-	Dissimilar Cabinet Unit Module	OP076-GT-Y-F	H645 D670/1000 W200/400
Other	-	Side Plate Unit A	OP076-CB-G-F	H740/645 D1100/670
	-	Side Plate Unit B	OP076-CB-D-F	H740/645 D670

Type		Degree of Turn Angle θ	Name	Model	Dimension (mm)
Optional Module	Monitor Holder	-	Single Screen Display Holder	OP076-DPZJ	H400
		-	Dual-Screen Display Holder (Up and Down)	OP076-SPZJ-1	H700
		-	Dual-Screen Display Holder (Left and Right)	OP076-SPZJ-2	H700
		-	Four-Screen Display Holder	OP076-SPZJ	H700
	Button Box	-	Display Button Box	OP076-ANX-XSQ	W511 H332 D100
		-	Integrated Floor Button Box	OP076-ANX-LDS	W511 H770 D230
	Other	-	Telescopic Host Tray	OP076-TP	-
		-	Foot Rest	OP076-GJB	-
		-	Screen Baffle	OP076-PF	-
		-	Common Keyboard Drawer	OP076-JPC	-
		-	KVM Mounting Plate	OP076-KVM-AZB	-

1.4 Appearance

The operation desk consists of work unit module, cabinet unit module, auxiliary unit module and main operation desktop.

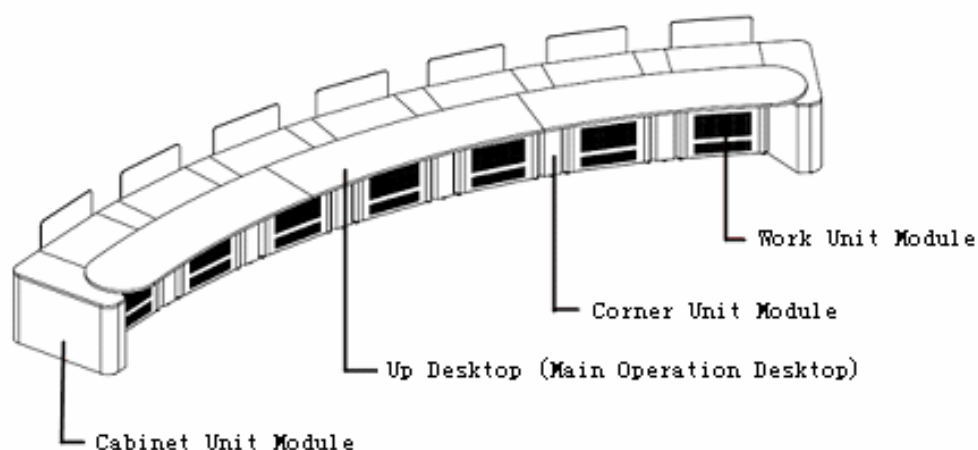


Figure 1-5 Outline dimension of operation desk

Section 2 Technical Specifications

- **Fabrication Material:** Materials for up and down desktops are fireproof board or compact board, and the basic material is the cold-rolled steel plate.
- **Standard Color:** Desktop is in irony grey suede or fashion grey suede. Down desktop are in matte black or silver grey. For the base, the frame is in dark grey RAL7010. The front and back doors are in dust grey RAL7037. Other color can be applied as requested by client.
- **Storage Environment:** Temperature: (-40~70)°C; Relative Humidity: (5~95)%; No condensation.
- **Transportation Environment:** Temperature: (-40~70)°C; Relative Humidity: (5~95)%; No condensation.
- **Work Environment:** Temperature: (5~40)°C; Relative Humidity: (5~85)%; No condensation. Temperature Change Rate: 0.5°C/min.
- **Design Standards**

GB/T 7269-1987 Layout, Types and Dimension for Electronic Equipment Console

GB/T 10217-1988 Model and Design Principle for Electrotechnics Control

DLT 575.1-1999 Design Principle for Man-machine Project in Control Center

Section 3 Installation Preparation

Tools

- **Transportation Tools:** Forklift or manual plane board trailer.
- **Opening Box Tools:** Steel prier, and hammer with prier.
- **Installation Tools:** screwdriver, 10" wrench and internal hexagonal wrench of 5mm, 6mm and 8mm.

Requirements for Ground

Ground should be plane and clean, without requirement for reinforcement.

Section 4 Safety Notes

Electric Safety

- It is forbidden to execute the installation operation with the power
- Avoid from directly contacting the component with the electricity
- When system is operating, it is strictly forbidden to touch the wiring terminal for naked power distribution unit.
- It is strictly forbidden to directly use the lead to distribute power from the socket in the power distribution unit.

When Transporting

- Gradient<10°
- Handle with care, avoid rolling and upside down
- Avoid intensive collision or vibration
- Avoid from using the rolling wheel to transport
- When the forklift lifts, pay special attention, and at this time, it is strictly forbidden to move the articles.

Protection

- It is strictly forbidden to firstly disassemble the package and then transport the article, i.e. the article should be moved to the installation field and then disassemble the package.
- Please wear the labor protection article, such as the glove, etc, to avoid from being injured.

Section 5 Installation

5.1 Open Box and Check

Steps to open the box are shown below:

1. Make sure personnel from two parties of supply and demand and the package box all have arrived at the installation field.
2. Disassemble the metal packages on four corners on the package box.
3. Pry up the cover of the package box.
4. Disassemble the side boards of the package box.
5. Take out the encasement list, and check the goods quantity and quality as the list.
6. Both parties for supply and demand sign and confirm the result for opening the case.
7. Clean up the package material, and clean the installation field.

5.2 Install Operation Desk

1. Arrange the unit modules according to the layout of diagram of the operation desk in central control room.
2. Adjust the positions of the operation desks, to make the left and right sides of the adjacent operation desks be closely matched.
3. Adjust the stabilisers of the operation desks to make all the surfaces of operation desks on the same level.
4. Use M5 screw to link the adjacent operation desks via the holes on the frame stand column. Link the work unit modules via the 2 holes up and down on the frame stand column. Link the work unit module and other unit modules (such as corner unit module and cabinet unit module, etc.) via the central 2 holes on the frame stand column. Tighten the screw M5 by screwdriver to link the adjacent operation desks closely. The holes are shown in Figure 5-1.

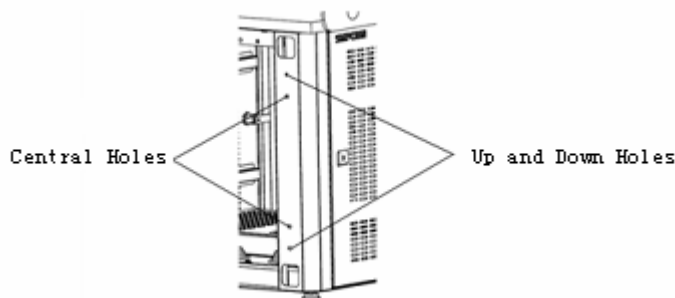


Figure 5-1 Holes

5. Install the bracket arm on the work unit module pre-tightly by the screw M6.

6. Install the up desktop. Put the desktop on the bracket arm, and match the adjacent up desktops side by side closely via their accessories. Pre-tighten the up desktops via M6.
7. After installing the up desktop, tighten the M6 screws of bracket arm and desktop, as shown in Figure 5-2.

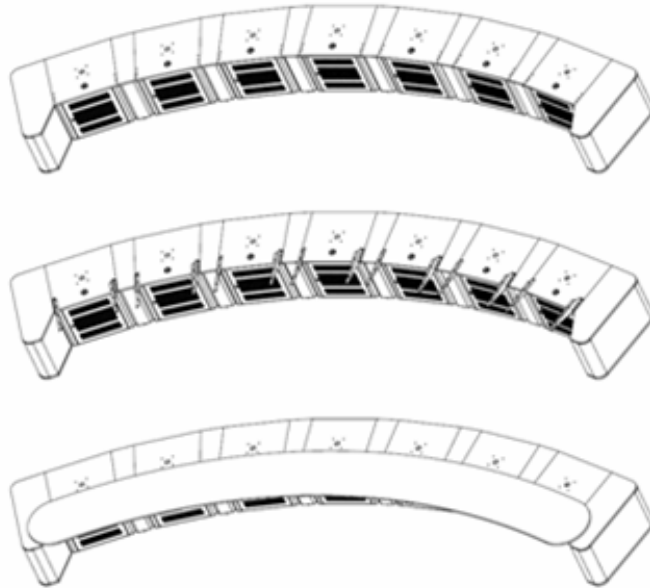


Figure 5-2 Install up desktop

5.3 Install External Devices

1. Install the display holder on the operation desk according to the project design requirements (take dual-screen display holder (up and down) as an example). Link and tighten with the down desktop via the screws of display holder. In Figure 5-3, the left figure shows the holes planar graph, and the right figure shows the display holder installation graph.

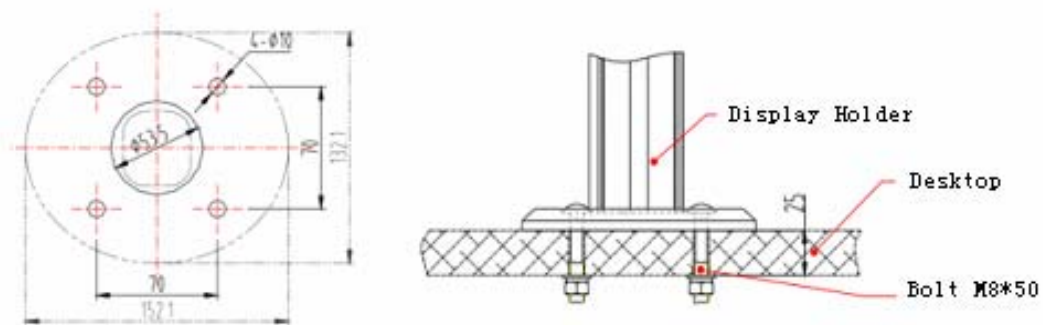


Figure 5-3 Holes planar graph and display holder installation graph

2. Install the display and the display auxiliary operation desk button box on the display holder. The tapped hole of display and button box should conform to the standard of “**VESA Interface: MIS-D-75/100mm**”. The display installation is shown in Figure 5-4.

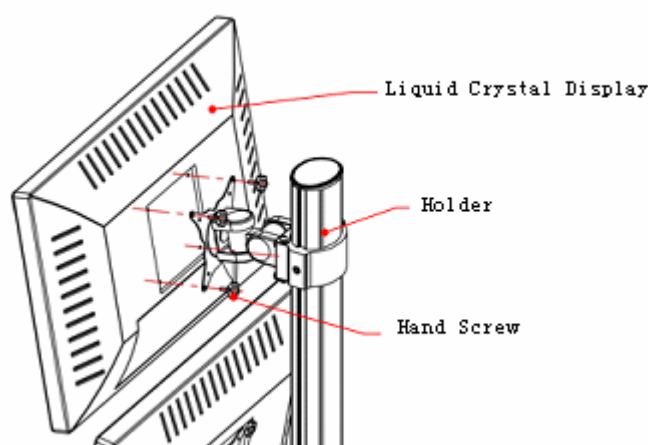


Figure 5-4 Install display

- The display can be adjusted to several directions on the holder (see Table 5-1) to turn to the required angle.

Table 5-1 Display adjusting directions

Up and Down	Incline	Swag	Rotate
—	$\pm 90^\circ$	$\pm 90^\circ$	$\pm 180^\circ$

- Up and Down:** loose the up and down screws on the both sides of slide base via the internal hexagon wrench to adjust the display up or down. Tighten the screw on the position required.
- Incline:** the display is fixed on the holder with damping and user can incline it to the required angle. If it is hard to adjust or lock the display because of over large or small damping, user can adjust the inclining nut after removing the cover.
- Swag:** generally, the display the display is fixed on the holder with damping and user can swag it to the required angle. If it is hard to adjust or lock the display because of over large or small damping, user can adjust the swaging nut after removing the cover.
- Rotate:** the display has preset damping for rotate and user can rotate it to the required angle.

The display adjustment is shown in Figure 5-5.



Attention:

User should hold the display when loosening and adjusting the inclining nut or up and down screw to avoid unexpected slide and damage people or device.

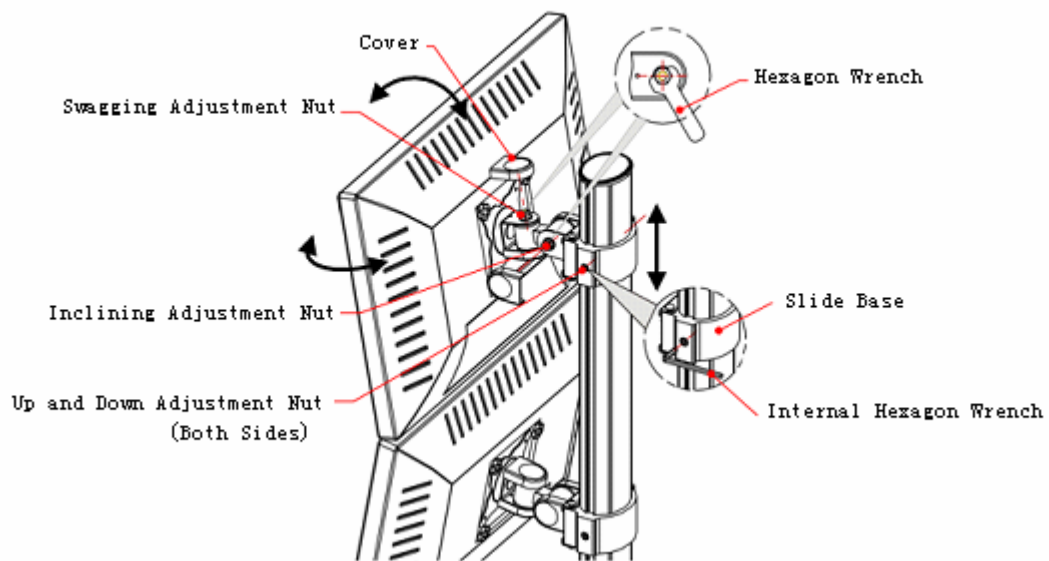


Figure 5-5 Display adjustment

4. Put the operation station host in the operation desk from the back door. Each desk can have 2 hosts.
5. Put the industry keyboard, common keyboard and mouse on the desktop.
6. Wires of display and the display auxiliary operation desk button box are connected into the operation desk along the opening trunking (see Figure 5-6) on the display holder.

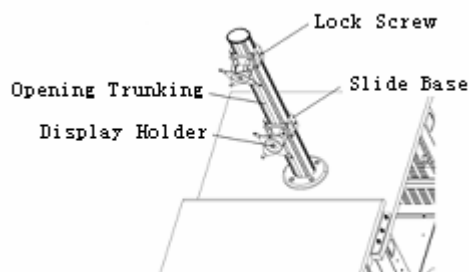


Figure 5-6 Opening trunking

7. When installing the integrated floor auxiliary operation desk button box, link the down desktop via the screw according to the project design requirements, and wiring through the bottom hole of the button box into the operation desk.

The auxiliary operation desk button box is shown in Figure 5-7. The left figure shows the integrated floor auxiliary operation desk button box, and the right figure shows the display auxiliary operation desk button box.



Figure 5-7 Installation of auxiliary operation desk button box

5.4 Wiring

1. Connect the power wire, ground wire and communication network wire through the wire holes of the left and right sides of the operation desk bottom cover plate into the operation desk. There is a wire stick near the wire holes to tie and fix the wires. As shown in Figure 5-8.

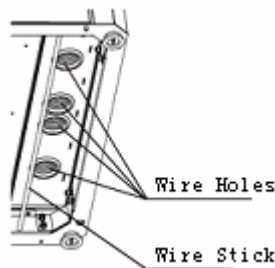


Figure 5-8 Wire Stick

2. There are wire racks and wire holes in the operation desk, as shown in Figure 5-9.

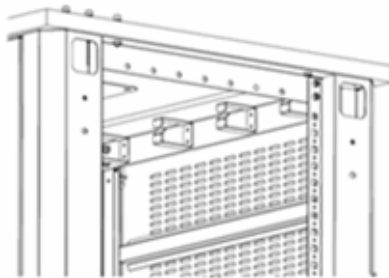


Figure 5-9 Wire racks and wire holes

3. When the wiring power is in one group, connect the wiring power with the input terminal of terminal (or air switch). When the wiring power is in 2 groups, connect them with the 2 groups of input terminals. The wiring of terminal (or air switch) with power socket and switcher is completed before leaving the factory.
4. Connect the control wire with the terminal row according to the project design requirements, as shown in Figure 5-10.



Figure 5-10 Wiring

5. Fix the grounding wires from the collected grounding plate by the big wire frame of the grounding copper bar, as shown in Figure 5-11.

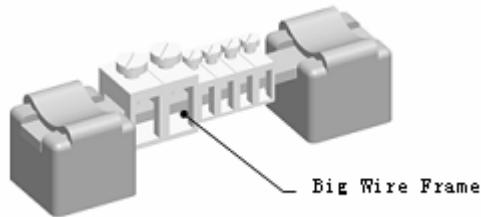


Figure 5-11 Grounding copper bar

5.5 Grounding

1. Connect the grounding points of the input terminals in power socket and switcher with the grounding copper bar. The connection has been completed before leaving the factory.
2. Connect the grounding points of front and back doors with the grounding copper bar. The connection has been completed before leaving the factory.
3. Fix the grounding wires from the collected grounding plate by the bug wire frame of the grounding copper bar, as shown in Figure 5-11.

Section 6 Disassembly



Attention:

Before disassembling the operation desk, the power switch should be cut off.

The disassembly steps are shown below:

1. Disassemble the equipment wires in the operation station.
2. Remove the equipments in the operation station (host, monitor, keyboard and mouse, etc).
3. Disassemble the wire-in cables on the operation desk.
4. Disassemble the up desktop.
5. Disassemble the bracket arm of the operation desk.
6. Loosen and remove the screws between all unit modules.
7. Remove the operation desk (all unit modules including the work unit module, auxiliary corner unit module and cabinet unit module, etc.)

Section 7 Revision

Table 7-1 Retrofit list of the version

Document Version	Applicable Product Version	Remarks
V1.0		
V1.1		Modified the section 1.2 and chapter 2
V1.2(20131019)		Change the installation steps and so on. Delete Air pressure
V1.3(20161116)		Add code