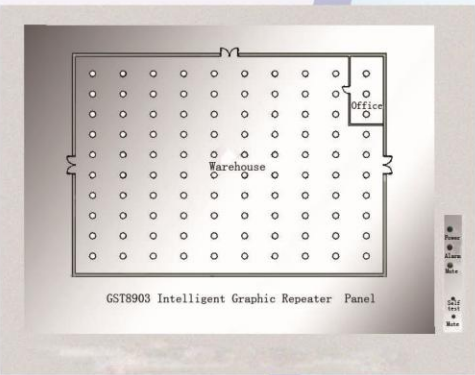
GST8903
Intelligent Graphic Repeater Panel



Installation and Operation Manual

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CONTENTS

1 General

GST8903 Intelligent Graphic Repeater Panel is a fire alarm indication unit located on each floor and in fire control center of a building. In case of fire, the host fire alarm control panel (FACP) in fire control center will give an alarm and transmit the alarm signal to the repeater panel where the fire breaks out. The repeater panel will display location of the alarming detector through an indicator and alert staff in the alarm area through audible alarm sound.

2 Features

- ✧ Small in size and convenient in installation and operation.
- ✧ Powerful, reliable and flexible in configuration.

3 Technical Specifications

- ✧ Display Range: Each main board can support Max. 100 points and allow parallel connection for multiple main boards. Wildcard character programming is available.
- ✧ Display Capacity: Up to100 pieces of fire information can be displayed on each main board.
- ✧ Wiring: Connected to fire alarm control panel through polarized two-wire; additional non-polarized two-wire for 24VDC power supply.
- ✧ Compatible control panels: GST200-2, GST-IFP8 Fire Alarm Control Panel.
- ✧ Material of chassis: high quality steel plate.
- ✧ Communication: RS485 loop
- ✧ Alarm indication: LED and alarm sound.
- ✧ Operating Current:
  Standby Current ≤25mA
  Alarm Current ≤100mA
- ✧ Operating Environment:
  Environment Temperature: 0℃~+40℃
  Relative Humidity: ≤95%, non-condensing
- ✧ Power: 18VDC-28VDC, quiescent power consumption≤0.7W,
  Maximum power consumption≤3W
- ✧ Dimension: 380mm×480mm×70mm (If there are more than 100 points, the dimension should be amended accordingly)
- ✧ Ingress Protection Rating: IP30
- ✧ Mounting Hole Distance: 260mm

4 Construction and Operation Principle

(1) Appearance of the repeater panel is shown in Fig. 1.

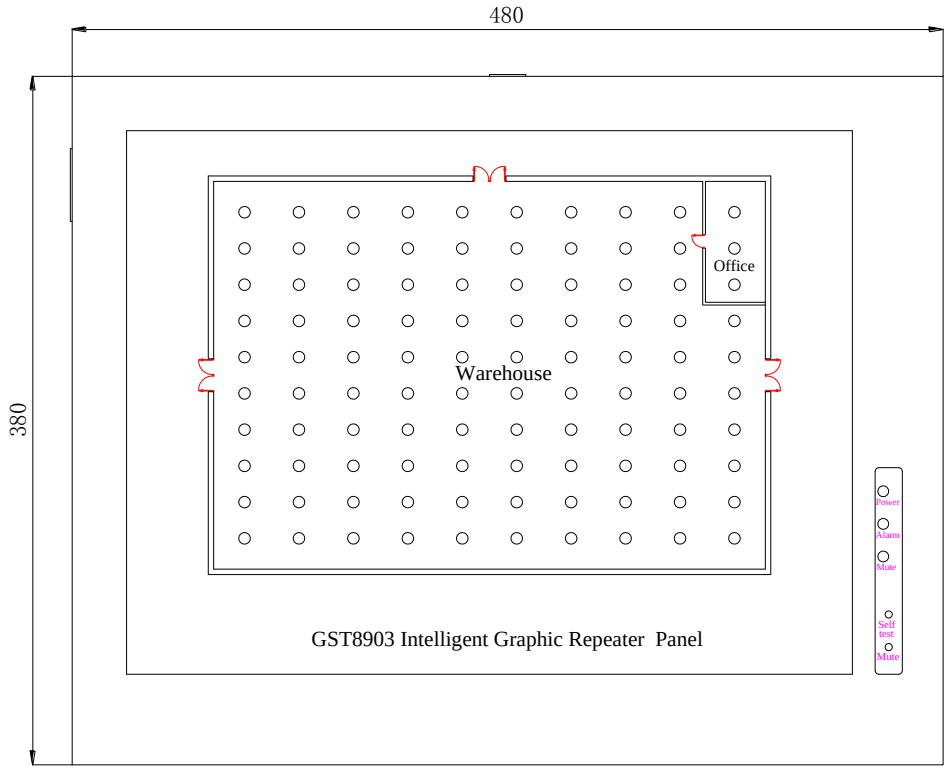


Fig. 1

(2) The front panel is shown in Fig. 2.

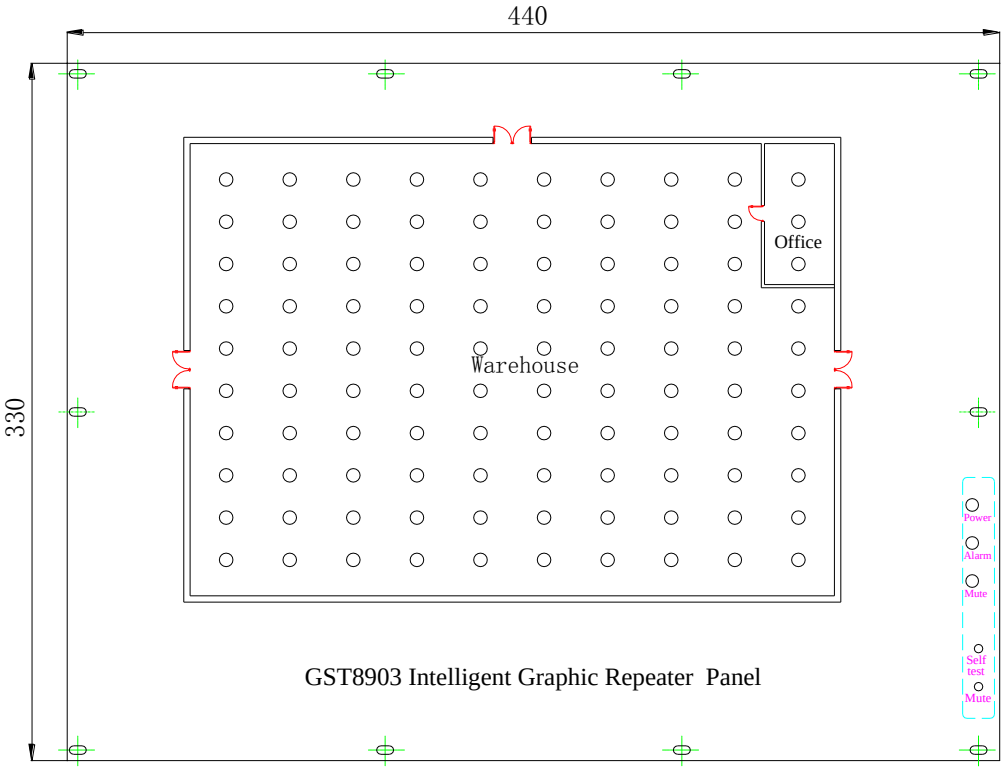


Fig. 2

Description of keys and indicators:

***Power* Indicator:** illuminates green when the repeater panel is operating.

***Alarm* Indicator:** illuminates red when a detector of any zone is activated.

***Mute* Indicator:** illuminates yellow when the repeater panel is in mute state.

***Self Test* Key:** In standby state, pressing this key the repeater panel will start self-test.

***Mute* Key:** In fire or fault condition, pressing this key, the repeater panel will silence the alarm sound. Pressing it again or new fire alarm occurs; the repeater panel will sound again.

(3) Operation Principle

The repeater panel uses microprocessor for displaying the location of alarming detectors and generating audible and visual alarm signals. It processes and displays data transmitted from the FACP through communication cables. If a FACP is used to monitor multiple floors or zones, a repeater panel can be installed on each floor.

5 Mounting and Commission

(1) Mounting of the Mainboard

Installation method is shown in Fig. 3. See Appendix 1 and 6 for more information.

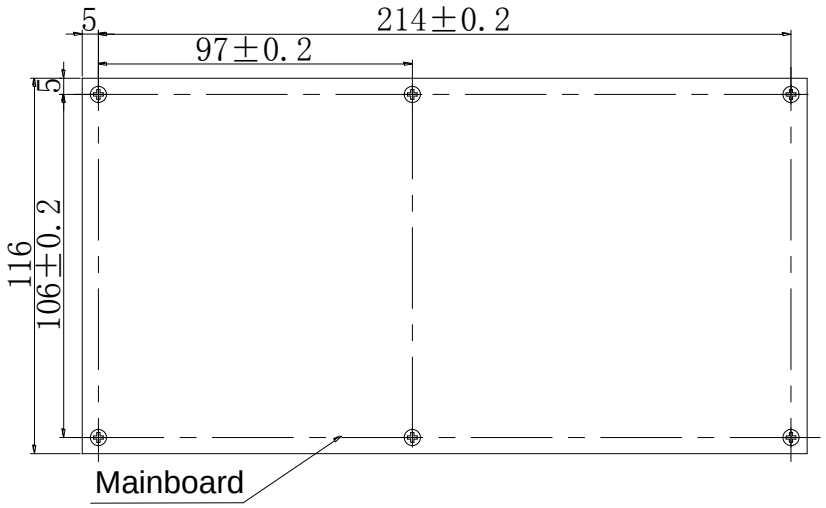


Fig. 3 Mainboard

(2) Mounting of the LED Board

Installation method is shown in Fig 4. See Appendix 2 and 6 for more information.

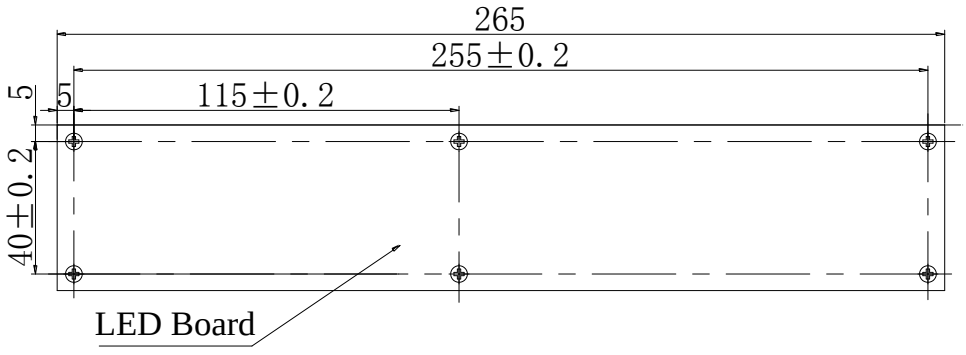


Fig. 4 LED board

(3) Mounting of the Membrane

Installation method is shown in Fig. 5. See Appendix 3 and 6 for more information.

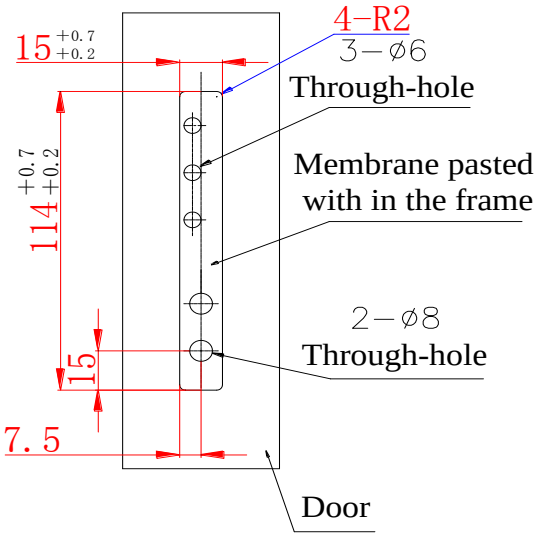


Fig. 5 Membrane

(4) Mounting of the Buzzer

Installation method is shown in Fig. 6. See Appendix 4 and 6 for more information.

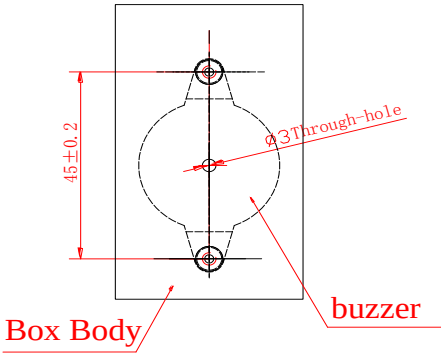


Fig. 6 Buzzer

(5) Mounting of the LED

Installation method is shown in Fig. 7. See Appendix 5 and 6 for more information.

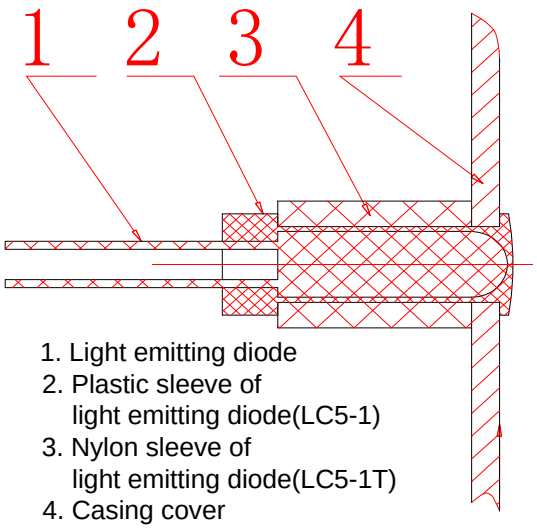


Fig. 7 the LED

(6) Mounting of the Repeater Panel

The repeater panel is wall-mounted. Drill two Φ5 holes on the wall. Horizontal distance between the centers of the two holes is 260mm. Insert one Φ5 sleeve into each hole. Fix the repeater panel securely with bolts before wiring. Installation method is shown in Fig. 8.

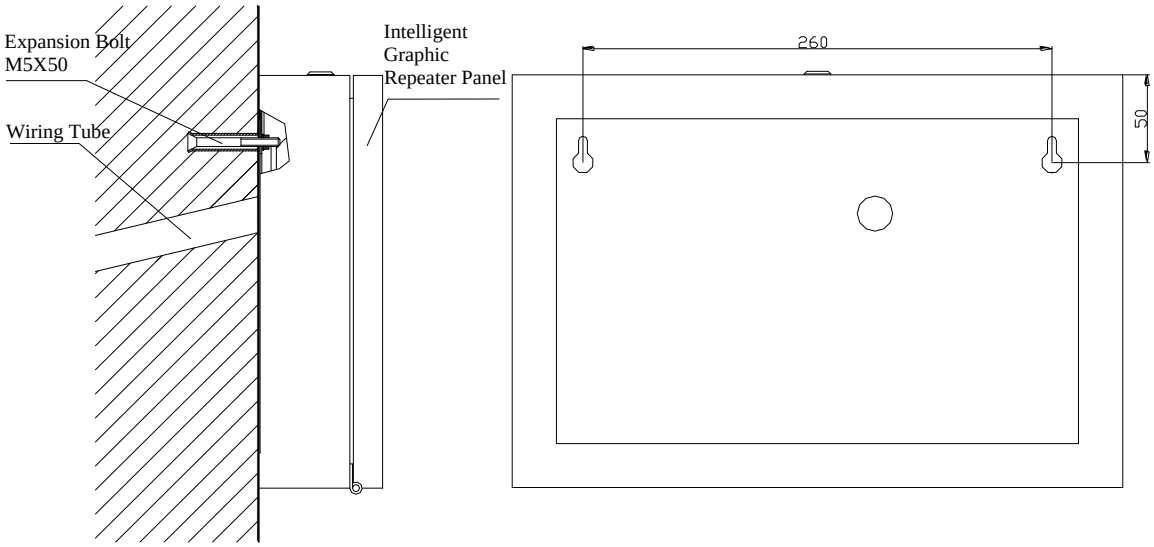


Fig. 8 Installation

(7) Terminals

Terminals are shown in Fig. 9.

Fig. 9 Terminals

A, B: The communication cable terminals connecting with the fire alarm control panel.

24V: 24VDC power supply wiring terminal, non polarized.

GNDG: Connecting with the ground.

Wiring: Communication cables connection with A and B should be shielded 1.0mm^2 cable, and the shield cover should be connected with GNDG on the main board. 24VDC power cable should be 4.0mm^2 cable.

(8) Wiring

Connection of boards is shown in Fig. 7.

(9) Commission

Program the device number and user code before power-up. The repeater panel should work normally.

6 Operation

Set up the system according to the project requirement.

1. The repeater panel is defaulted as full display style. When the repeater panel receives a fire alarm message whose user code corresponding to the LED code, it will light “Alarm” indicator and enter alarm fire states.
2. Each indicator of the repeater panel has a 6-digit code corresponding to the zone

number and device number on the fire alarm control panel.

3. Inputting the LED number and code:

Shut down power supply and take off the two jumpers on Pin X1. Plug P-9910B to the socket XS1.Write-in the indicator number and code. Re-plug the two jumpers to Pin X1. Switch on the power supply, the repeater panel will start self- test. The first is the sound test and all indictors will be lit. After the self-test, only the “Work” indicator will be lit in the normal situation. If all indicators twinkle every two seconds and the speaker gives a trouble signal, it means the EEROM data is wrong.

4. Operation

a Under the monitoring state, only the “Work” indicator is lit, it has polling function (When the host control panel is polling the repeater panel, the indicator will twinkle once). Pressing self-test key, the repeater panel will inspect the display components and the sound.

b In case of fire alarm, the indicator corresponding with the detector code will be lit. If it is the latest alarm, the indicator will twinkle (every 0.5 second) and give an alarm sound at the same time. Pressing the “Mute” key, it could mute the alarm sound. If there is fire alarm again, the mute state will be called off, and the repeater panel gives an alarm over again.

c In the EEROM trouble state, all the indicators will twinkle (in 2-second period). The speaker will give a trouble sound at the same time. You need to reprogram the EEROM, write-in the indicator number and code again.

5. Programming

5.1 Programming is done by P-9910B Hand Held Programmer.

5.2 Method for entering and exiting programming to the repeater panel:

Connect the programmer with the repeater panel, then input 2, 5, 8 and press the “Function” key to start programming to the repeater panel. After the above operation, input 2, 5, 8 again and press the “Function” key to exit programming.

5.3 Reading out and writing in the address code:

i Enter repeater panel programming mode, “0” is displayed on the screen.

ii Press the “Down” key, it displays the current address code.

iii To change the coded point, you can directly input the required code (1-64) and press the “Program” key. If the coding is successful, then it will display “P” on the screen.

iv Press *Clear* key, then other operations could be continued.

5.4 Programming of the LED number and its corresponding user code.

i Enter into the repeater panel programming mode, “0” is on the screen.

ii Input the required LED number, press the *Function* key, L and LED number (1-200) is shown on the screen. There are 100 LEDs at the most on the board. Any LED can be defined as fire, action or fault. LED number from 1 to 100 is for fire and action. LED number from 101 to 200 is for Fault.

Note: if LED number 1 indicates fire for device 001001，input LED number 1 and device code is 001001. If use this LED indicates fault for device 001001, input LED number 101 and device code is 001001；

iii There will be two cases:

a) Not to change the LED number: Press “Function” key, “0” is shown on the screen, then input the required user code. (6 digits in total, you can input the figure of 0-9 to each digit. The first three digits represent zone number where the detector locates and the last three digits represent the device number. If the device number is 255, all the devices with the same zone number can be displayed.) Press *Program*, if the programming succeeds, a “P” will be shown on the screen; if the programming fails, an “E” will be shown on the screen.

b) To change the LED number: You can directly input the required LED number. Pressing the function key, the screen shows “LED number L “. Pressing the *Function* key again, the screen shows “0”. Input the required user number, press *Program*. If the programming succeeds, P will be shown on the screen, if the programming fails, E will be shown on the screen.

Note:

(1) If the first input LED number is written in when changing the LED number, this operation will delete the original LED number and user code, and write in the new LED number and user code, so that this operation can be used to modify an incorrect LED number and user code. At most 100 LED numbers can be written in, the screen will show “PPPP” when all numbers have been finished.

(2) Every fire alarm signal can only light one LED of GST8903, even if all LED are defined the same. It cannot be defined to display by device and by zone at the same time.

(3) Reporting fire alarm and fault from a single device and a local, indicating action from a single device.

iv After programming LED number and user code are written successfully, the “L and the next light number” will be shown on the screen. If it is the same as the required LED number, you can start from section 5.4.3; if not, press the “Clear” key, you can enter repeater panel mode of the programmer again to write in new LED number and user code.

5.5 Read-out of the LEDs number and user code.

i Enter into repeater panel mode of the programmer, “0” is on the screen.

ii Input the serial number of LED; press the *Test* key, “E light number” will be shown on the screen.

iii Press *Up*. It will show the high of four digits and the low of two digits in turn of the user code.

iv Press *Test* repeatedly, then the LED numbers will be displayed in sequence: next LED number and user code …the last LED number and user code, H and total LED numbers, and then the first LED number and user code….

7 Troubleshooting

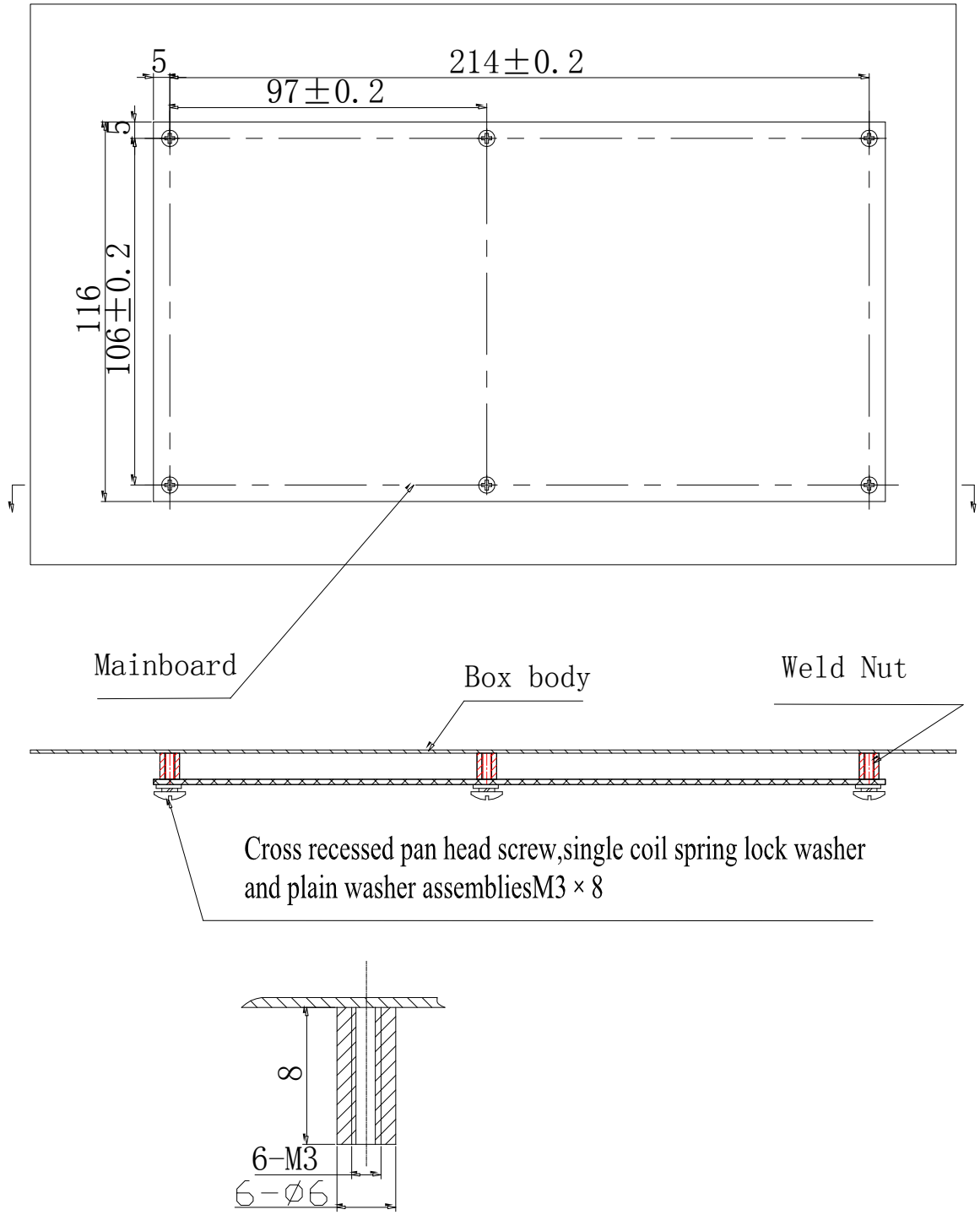
Common problems and solutions are shown in the table.

No.	Fault indication	Possible Cause	Solution
1	No indication on the panel or incorrect indication after power-up.	a Power supply is in bad condition. b Loose connection with the display board. c LED is in bad condition d The main CPU is damaged	a. Check the 24V power supply b. Check the cable c. Replace the LED d. Replace the main CPU
2	The machine can't start up.	a. No 5V	a. Check the 3M03 and its peripheral circuit.
3	Report memory fault after power-up	a Some 24LC04B data are wrong. b 24LC04B is damaged. c No jumper inserted into X1	a. Write the 24LC04B again. b. Replace the 24LC04B. c. Insert the jumper.
4	The fire alarm control panel can't register	a A, B communication cable is not well connected b The power supply is not well connected. c The transformer secondary coil is not well soldered. d 75176, optocoupler and other nearby components are damaged.	a. Connect it in a right way. b. Connect it in a right way. c. Solder again. d. Replace the damaged parts.
5	No sound	a Triode VT2 and its peripheral components are damaged. b Buzzer is damaged.	a. Replace the damaged components. b. Replace the buzzer.
6	Can't register all mainboards (with multi-mainboards)	a. Ribbon cable between Pin 1 of mainboards haven't been cut b. Consult No.4 item	a. Cut the Ribbon cables between Pin 1 of mainboards

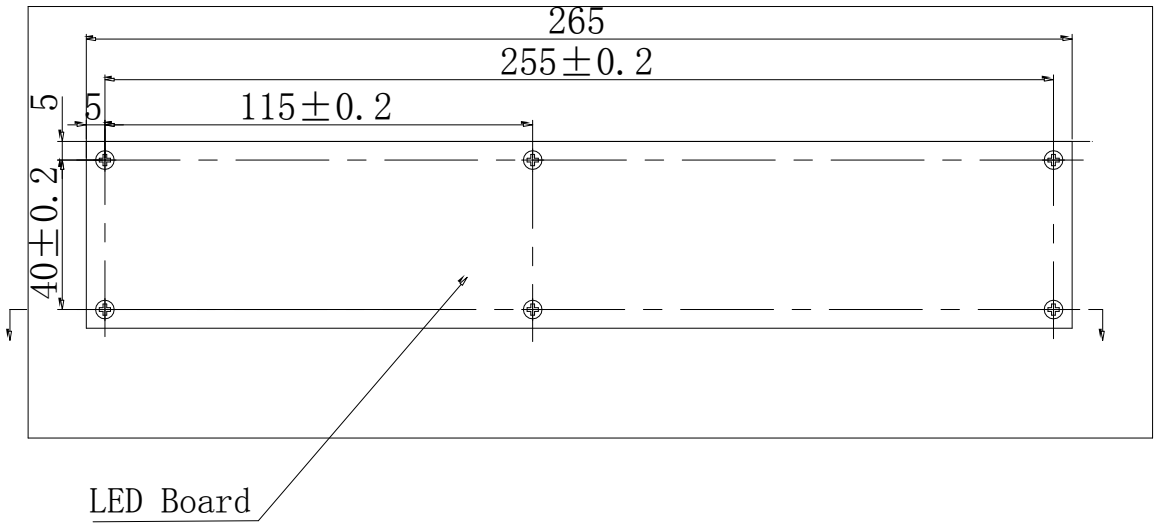
8 Cautions

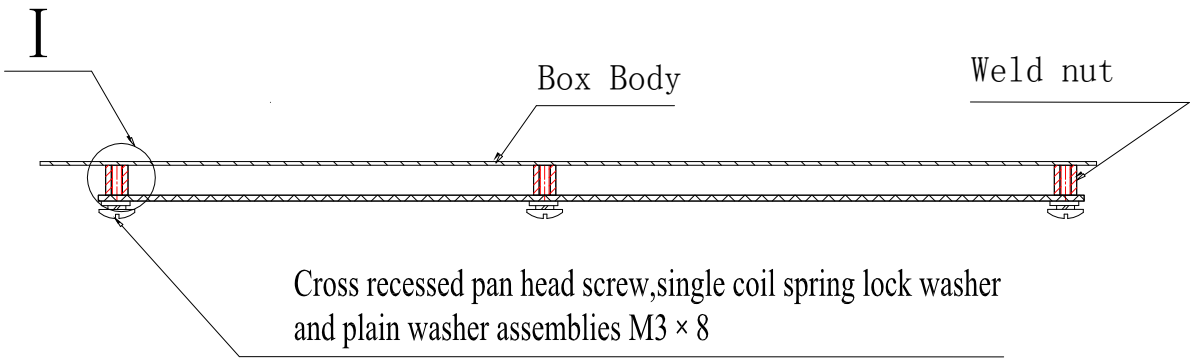
1. Before powering up, check all cable problems, such as short circuit, open circuit and wrong connections etc.
2. This panel is precise electronic product and must be maintained by specific personnel.
3. Make record on duty.
4. We take the responsibility of repairing the repeater. Any problem occurs, please contact us in time. The users will be responsible for any result they made by repairing themselves.

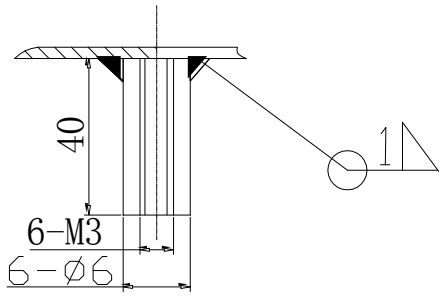
Appendix 1 Installation of the Mainboard



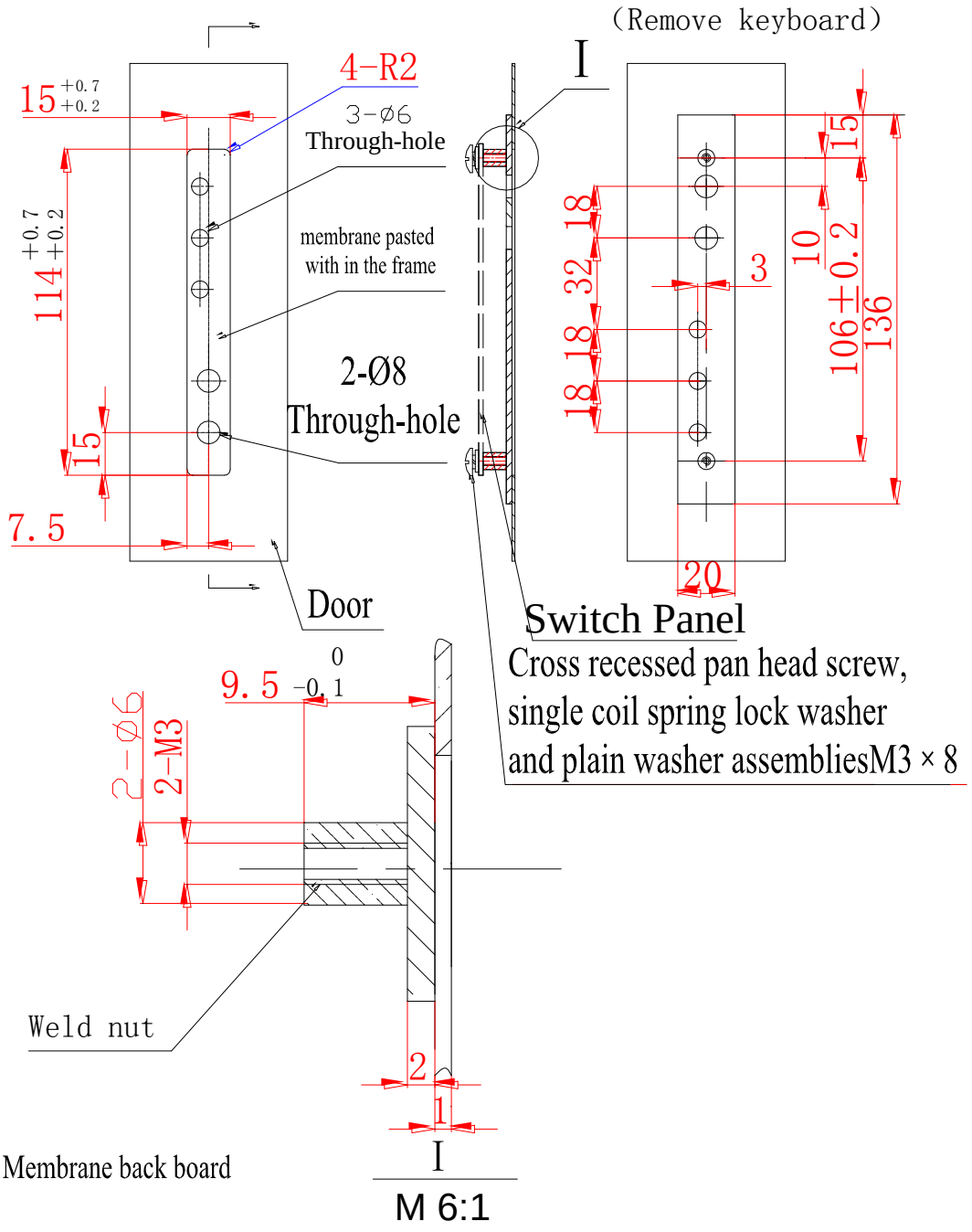
Appendix 2 Installation of the LED Board



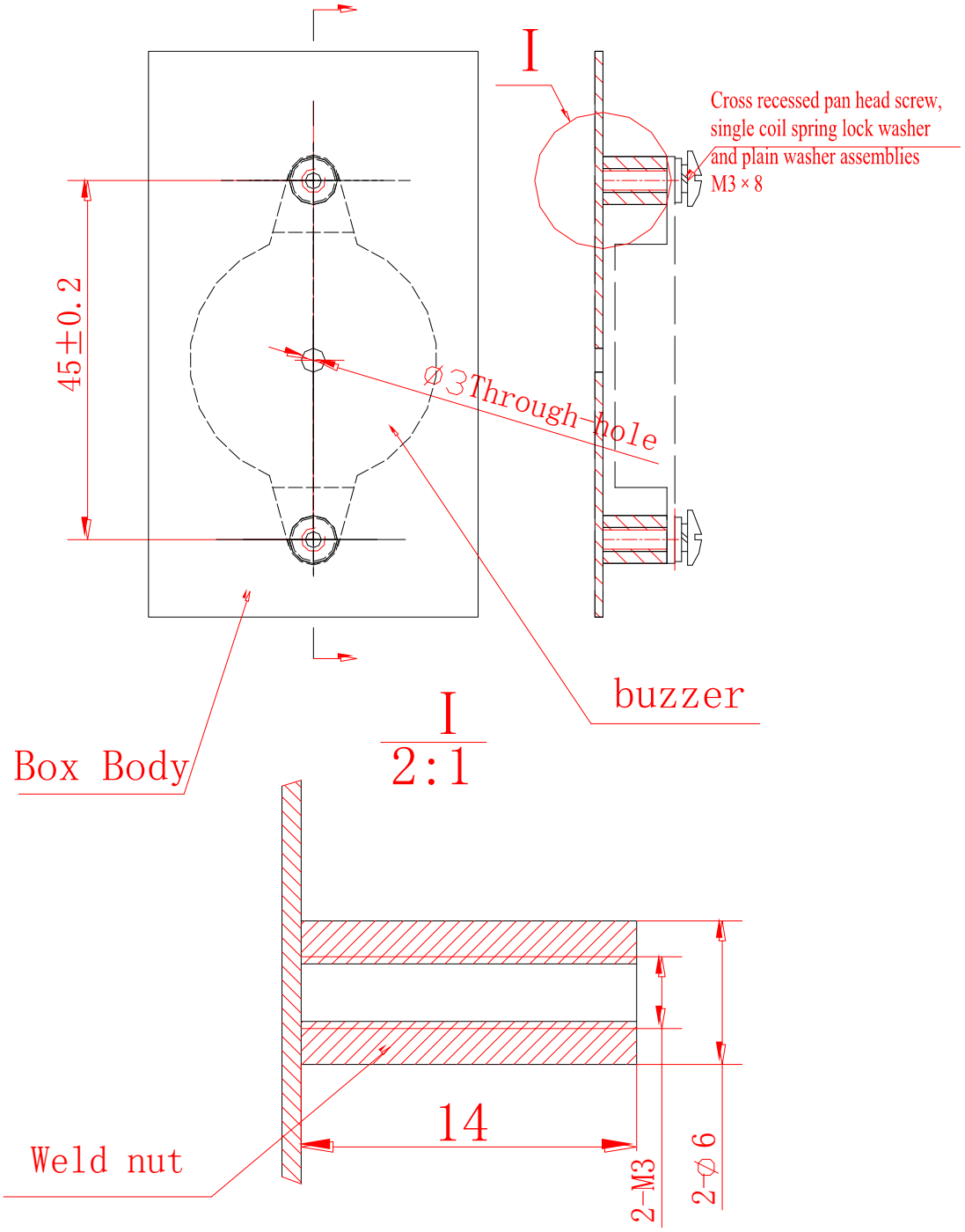




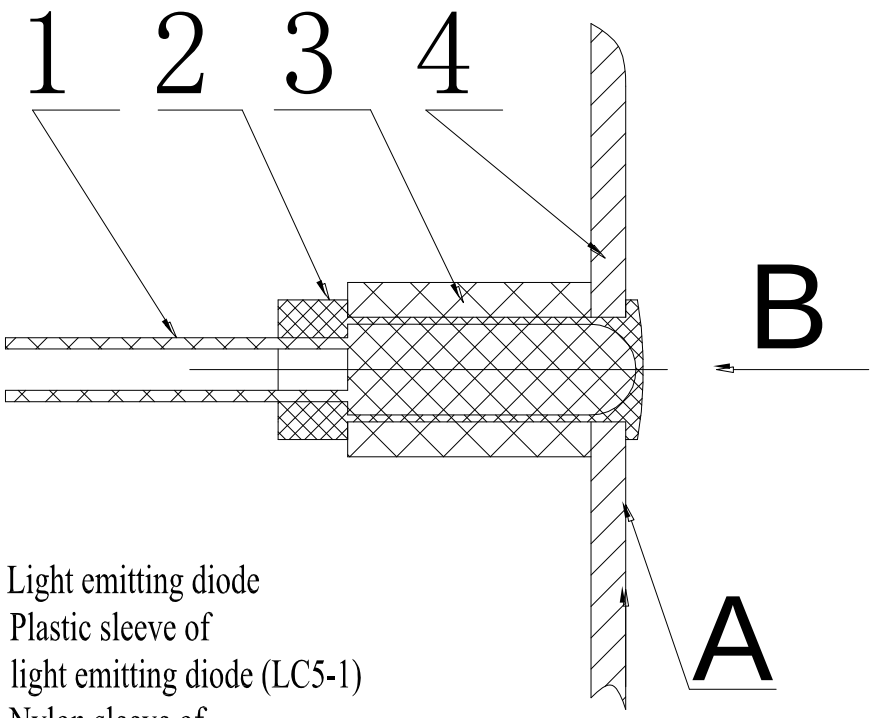
Appendix 3 Installation of the Membrane



Appendix 4 Installation of the Buzzer

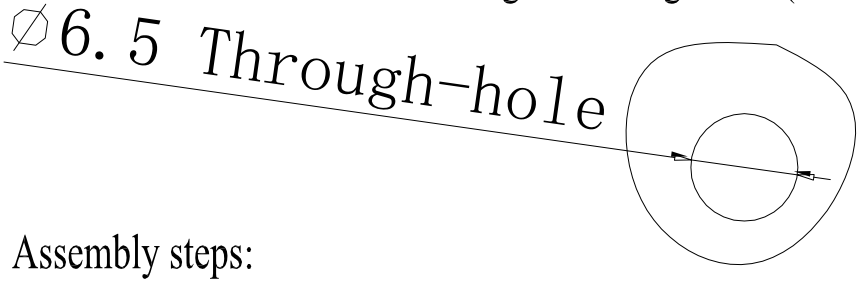


Appendix 5 Installation of the LED



1. Light emitting diode
2. Plastic sleeve of light emitting diode (LC5-1)
3. Nylon sleeve of light emitting diode (LC5-1T)
4. Casing cover

(Ø6.5 Through-hole on casing cover to fit the plastic shield of light emitting diode (LC5-1)



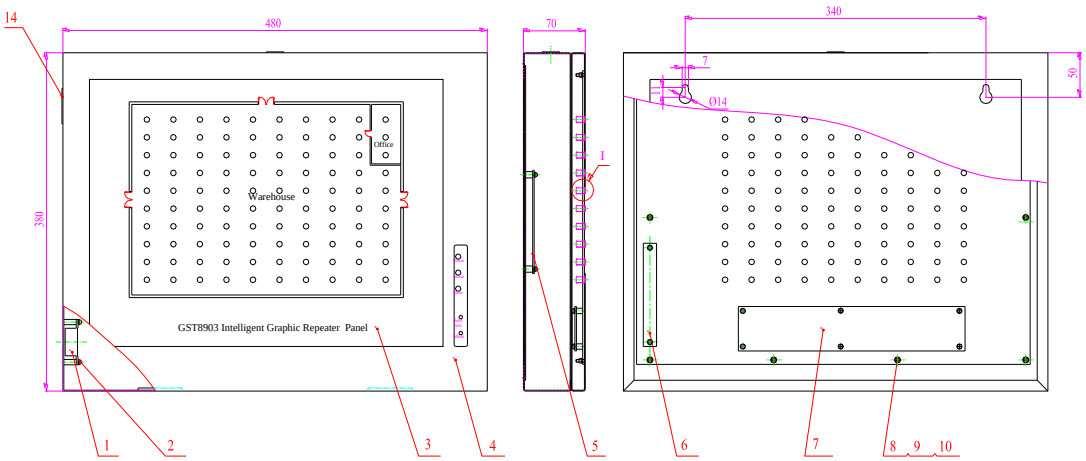
Assembly steps:

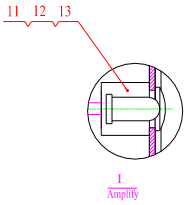
1.Insert plastic shield of light emitting diode (LC5-1) from A side.

2.Insert Light emitting diode to plastic sleeve of light emitting diode (LC5-1).

3.Insert Nylon sleeve of light emitting diode (LC5-1T) outside the plastic sleeve of light emitting diode (LC5-1).

Appendix 6 Configuration of the Whole

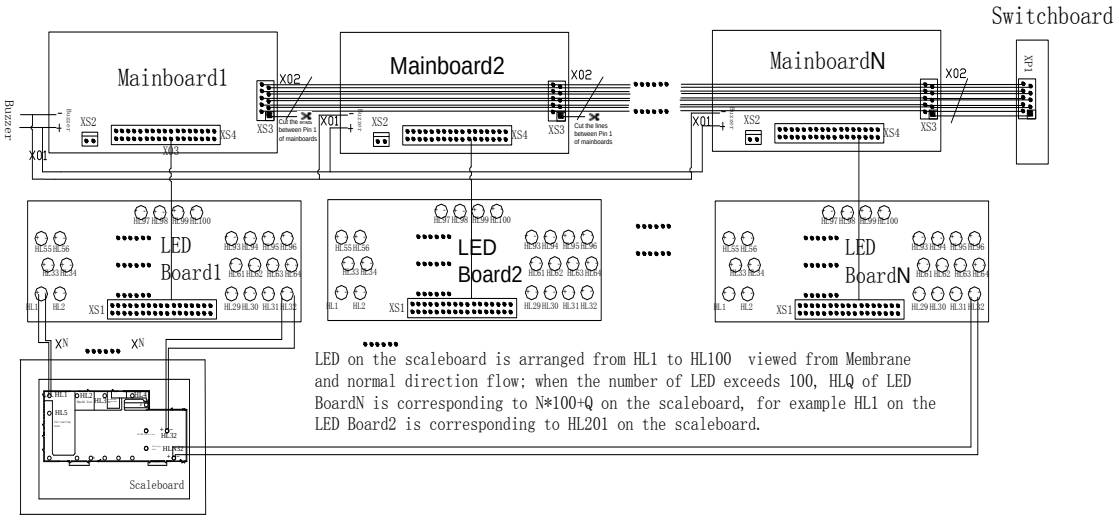




NOTE:
1. Linear plate should be fixed on cabinet cover with bolt.
2. Fix LED in the right place on the linear plate by plastic jacket and nylon base jacket.
3. Nameplate should be glued horizontal symmetric with cabinet center.

14	Nameplate
13	LED TL-50137T-4mm
12	LED nylon base jacket LC5-1T
11	LED plastic jacket LC5-1
10	1 type hexagon nutM3
9	Standard spring washer 3
8	Plain washer3
7	Indicator board
6	Switch board
5	Main board
4	Cabinet
3	Surface board
2	Cross recessed pan head screw,spring lock washer and plain washer M3X8
1	Buzzer 0B0-27C0

Appendix 7 Connection of Repeater Panel



Name	Cable No.	Model and Size	Length	Remarks
Buzzer Cable	X01			After Mainboard soldered
Ribbon Cable	X02	Flat Cable 10P	500mm	If multi-mainboards are connected , the lines between pin 1 of mainboards should be cut
Ribbon Cable	X03	Flat Cable 34P	500mm	
Lamp Cable	XN	Cable 0.3 red	500mm	Connecting anodes of indicators and anodes on LED board
		Cable 0.3 black	500mm	Connecting cathodes of indicators and cathodes on LED board

Instruction:

1. Numbers of indicator on back box increase in sequence from left to right and from top to bottom (HL1~HL100) viewing from membrane side.
2. Indicators on back board and on Lamp board should be soldered corresponding to each other. Make sure the anode and cathode are correctly connected.

Appendix 8 Membrane of Repeater Panel and Corresponding LED Number

Membrane of Repeater Panel and The
Corresponding LED Number
(Stick the relevant drawing according to the project requirement)

Gulf Security Technology Co., Ltd.

No. 80, Changjiang East Road, QETDZ, Qinhuangdao, Hebei,
P. R. China 066004
Tel: +86 (0) 335 8502434
Fax: +86 (0) 335 8502532
service.gst@fs.utc.com
www.gst.com.cn