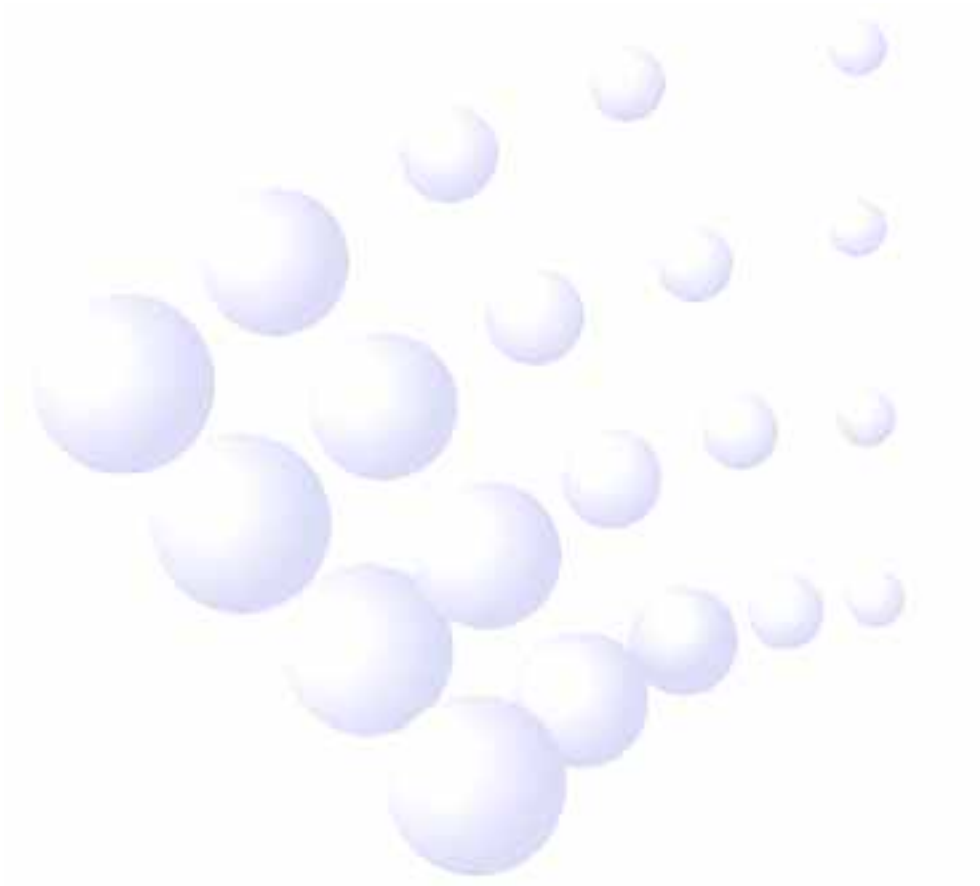


GST8903
Intelligent Graphic Repeater Panel
Installation and Operation Manual
(Issue 1.03, June 2006)



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I General

GST8903 Intelligent Graphic Repeater Panel (hereafter called the repeater panel) is a fire alarm display unit used in buildings and fire control center. The host control panel in fire control center will give an alarm in case of fire taking place in the building; at the same time it will transmit the alarm signals to the repeater panel, which locates in fire alarm area. The repeater panel will show the position of the alarming detector through indicators. The personnel will be alerted and evacuated out of the fire area.

II Features

1. Small size and convenience in installation and operation.
2. Good performance, high-reliability, and flexible configuration.

III Technical Specifications

1. Display Range: Each main board can support Max. 100 groups of coded point and allow parallel connection of multi-mainboard. The code supports the mode of wildcard character.
2. Display Capacity: Up to 100 pieces of fire information can be displayed by each mainboard.
3. Wiring: Connected with fire alarm control panel with two polarized wires; connected with power supply with two 24VDC power lines, non-polarized.
4. Operating Current:
Monitoring Current 25mA
Alarming Current 100mA
5. Operating Environment:
Environment Temperature: 0 ~ +40
Relative Humidity: ≤95%, non condensing
6. Power: Centralized power supply by 18VDC-28VDC, quiescent power consumption 0.7W, maximum power consumption 3W
7. Dimension: 380mm × 480mm × 70mm (If there are more than 100 coded points, the dimension should be amended according to the project requirement)
8. Installation Hole Distance: 260mm

IV Operation Principle

The repeater panel is a graphic panel developed from the microprocessor. It displays the position of detectors and gives alarm signal at the same time. The repeater panel connects with the fire control panel through the communication BUS, disposes and displays the data from the control panel. Each floor can be placed with one repeater panel in case one fire alarm control panel monitors couples of floors or zones.

V Mounting and Commission

1. Mounting of the Mainboard

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

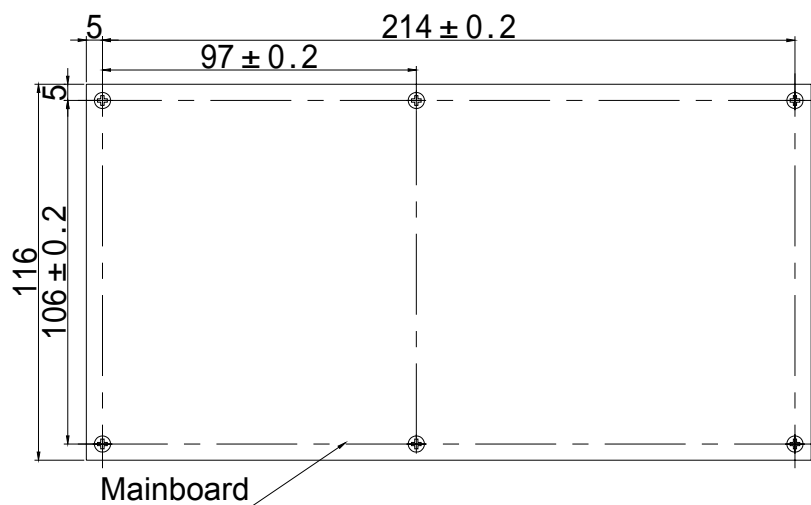


Fig. 1 Mainboard

2. Mounting of the LED Board

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

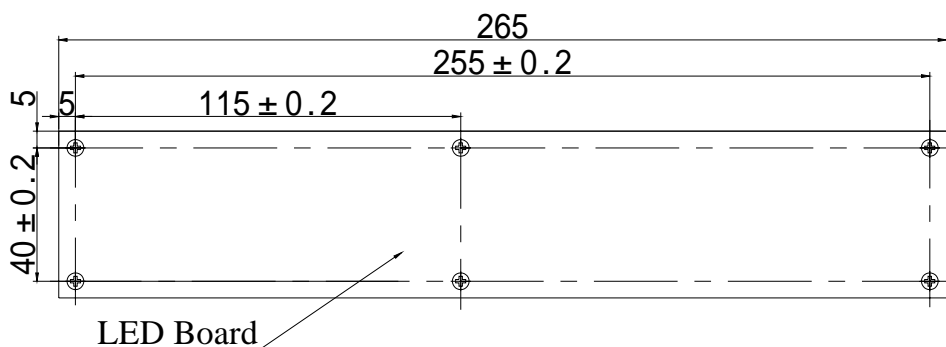


Fig. 2 LED board

3. Mounting of the Membrane

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

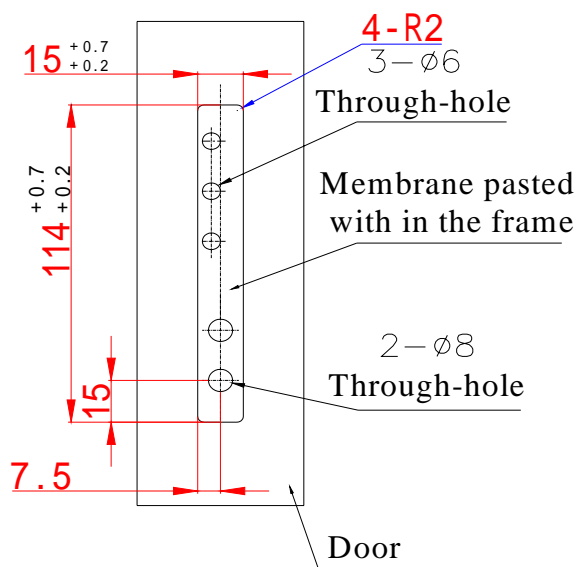


Fig. 3 Membrane

Front panel of the repeater panel is shown in Fig. 4.

Description of keys and indicators:

Work: Lit when the repeater panel is working.

Alarm: Red, Lit when detectors of any zone alarming fire.

Mute: Yellow, Lit when the repeater panel is in mute state.

Self Test: In monitoring state, press this key down, the repeater panel will start self-test.

Mute: In fire or fault condition, press this key, the repeater panel will mute the alarm sound. Press this key again or fire alarm recurs, the repeater panel will sound again.



Fig. 4

4. Mounting of the Buzzer

Installation method is shown in Fig. 5. See Appendix 4 and 6 for more information.

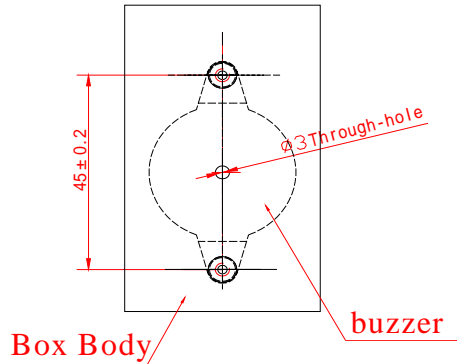


Fig. 5 Buzzer

5. Mounting of the LED

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

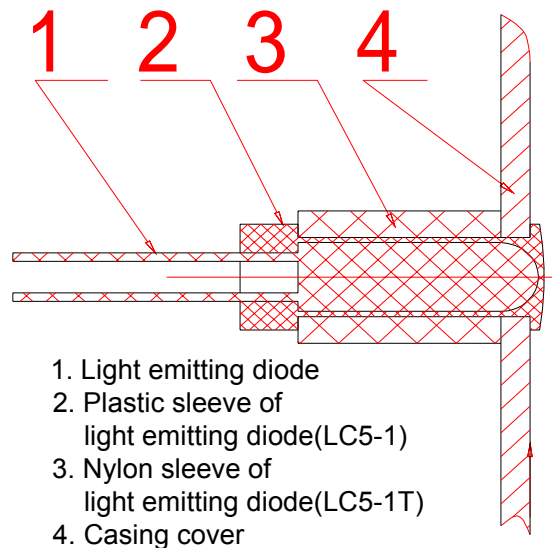


Fig. 6 the LED

6. Mounting of the Repeater Panel

The repeater panel is wall-mounted. Drill two $\Phi 5$ holes on the wall. Horizontal distance between the centers of the two holes is 260mm. Insert one $\Phi 5$ sleeve into each hole.

Fix the repeater panel securely with bolts before wiring. Installation method is shown in Fig. 7.

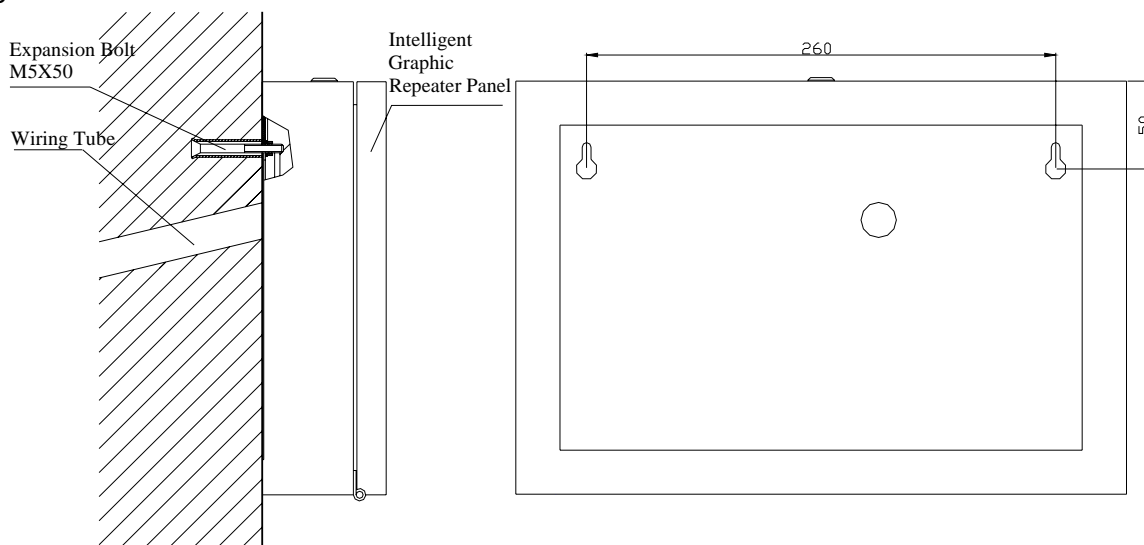


Fig. 7 Installation

7. Terminals

Terminals are shown in Fig. 8.

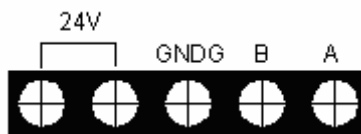


Fig. 8 Terminals

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 1.0mm² cable, and the shield cover should be connected with GNDG on the main board. 24VDC power cable should be 4.0mm² 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.

VI 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 indicators 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

4.1 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.

4.2 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.

4.3 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:

5.3.1 Enter repeater panel programming mode, "0" is displayed on the screen.

5.3.2 Press the "Down" key, it displays the current address code.

5.3.3 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.

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

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

5.4.1 Enter into the repeater panel programming mode, "0" is on the screen.

5.4.2 Input the required LED number, press the *Function* key, L and LED number (1-256) is on the screen.

5.4.3 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. Pressing "Down", "-" will be shown which means the user code could represent any figures. For the old control panel of GST200 (The new GST200 can display software version

on the LCD, but the old GST200 can't), the first digit can represent the network number, the second and third digits represent zone number where the detector is, the last three digits represent detector number. As for the other control panels, the first three digits represent zone number where the detector locates and the last three digits represent the detector number. Input number 255, all the detectors with the same zone code 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: If the first input LED number is written in when changing the LED number, the step will delete the original LED number and user code, and write in the new LED number and user code to modify a wrong LED number and user code. At most a hundred LED numbers can be written in, the screen will show "PPPP" when all numbers having been finished.

5.4.4 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.

5.5.1 Enter into repeater panel mode of the programmer, "0" is on the screen.

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

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

5.5.4 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....

VII Troubleshooting

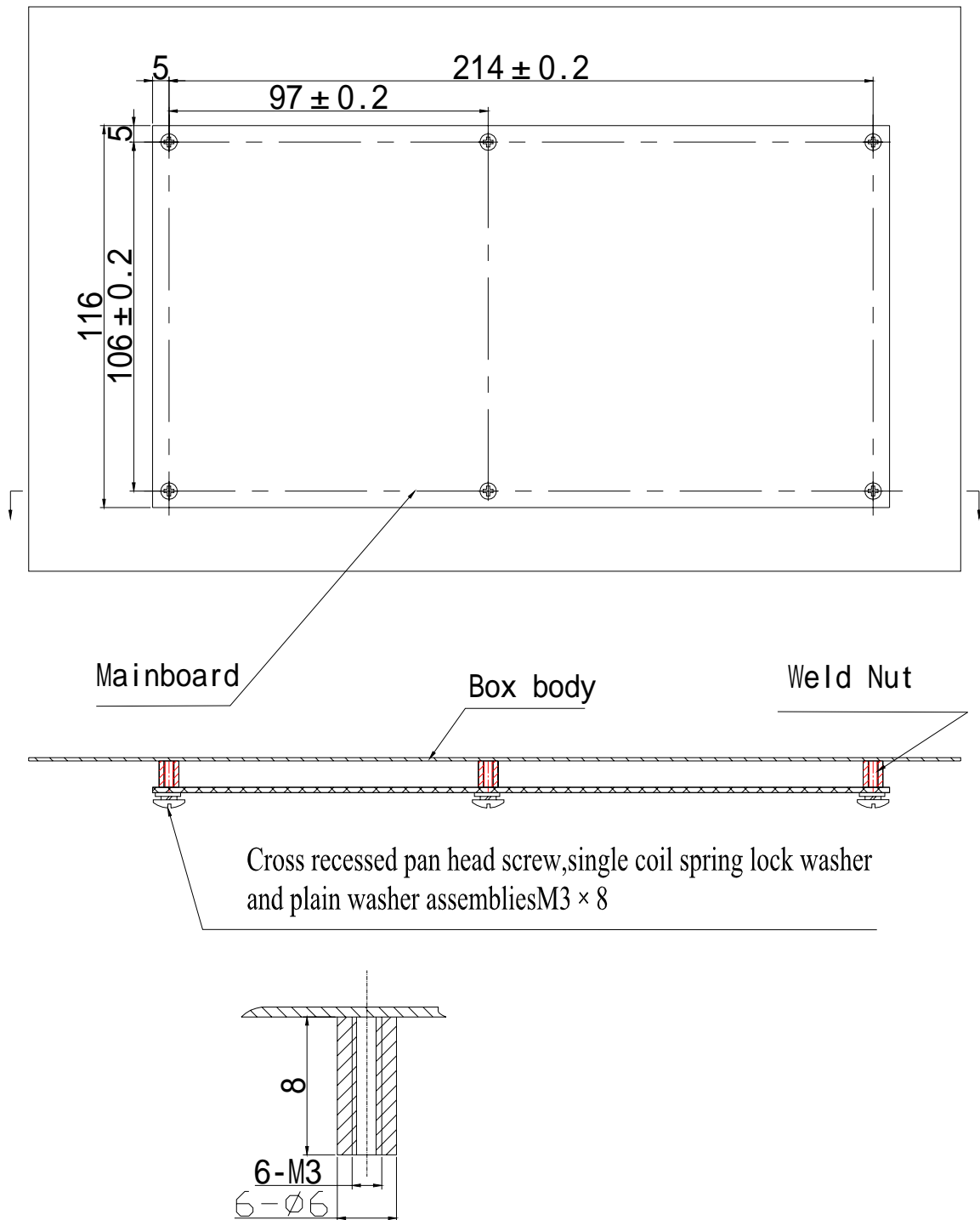
Common problems and solutions are shown in the table.

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

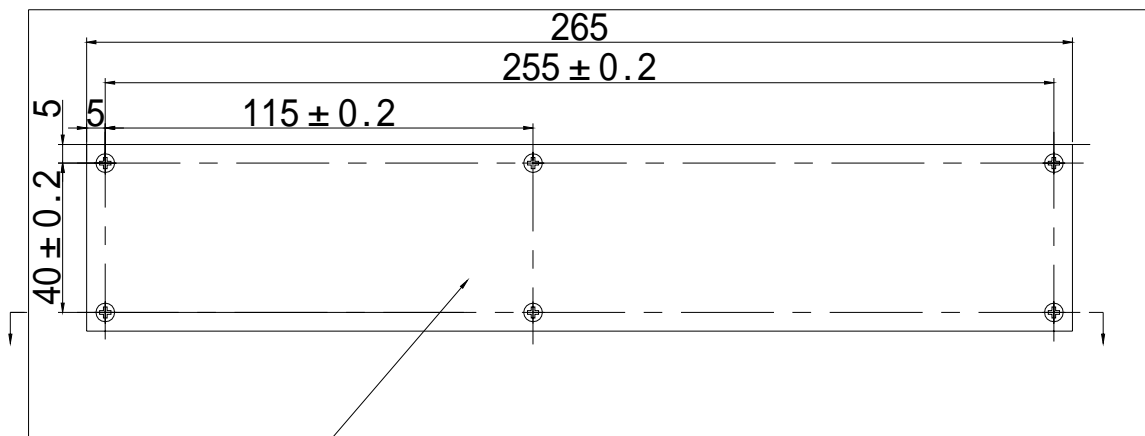
VIII Cautions

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.

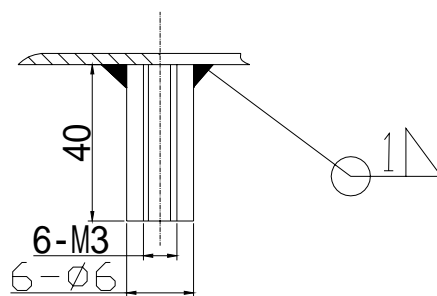
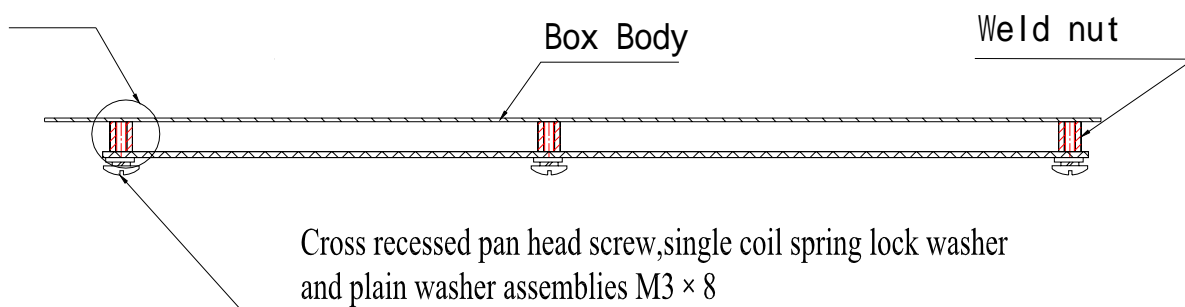
Appendix 1 Installation of the Mainboard



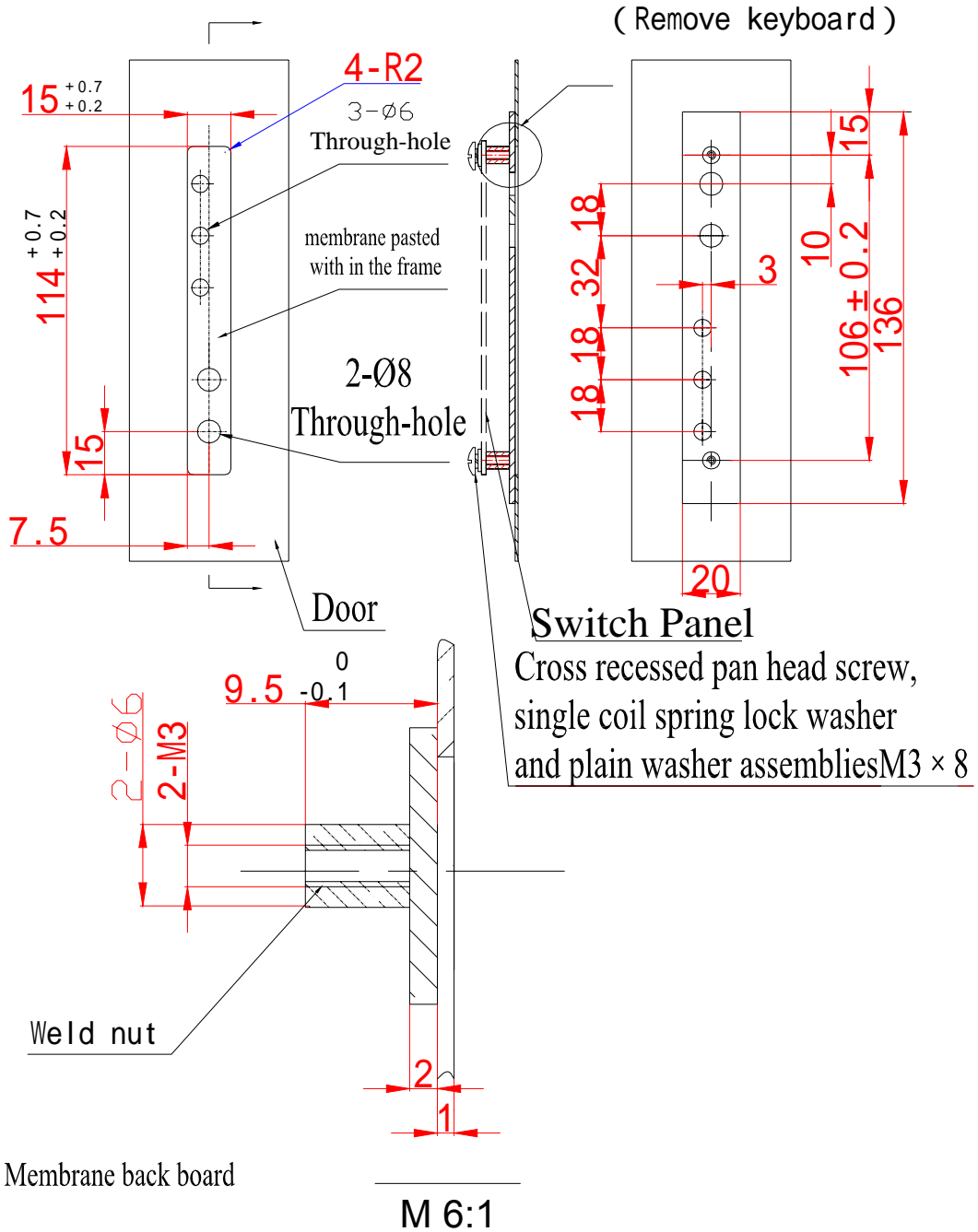
Appendix 2 Installation of the LED Board



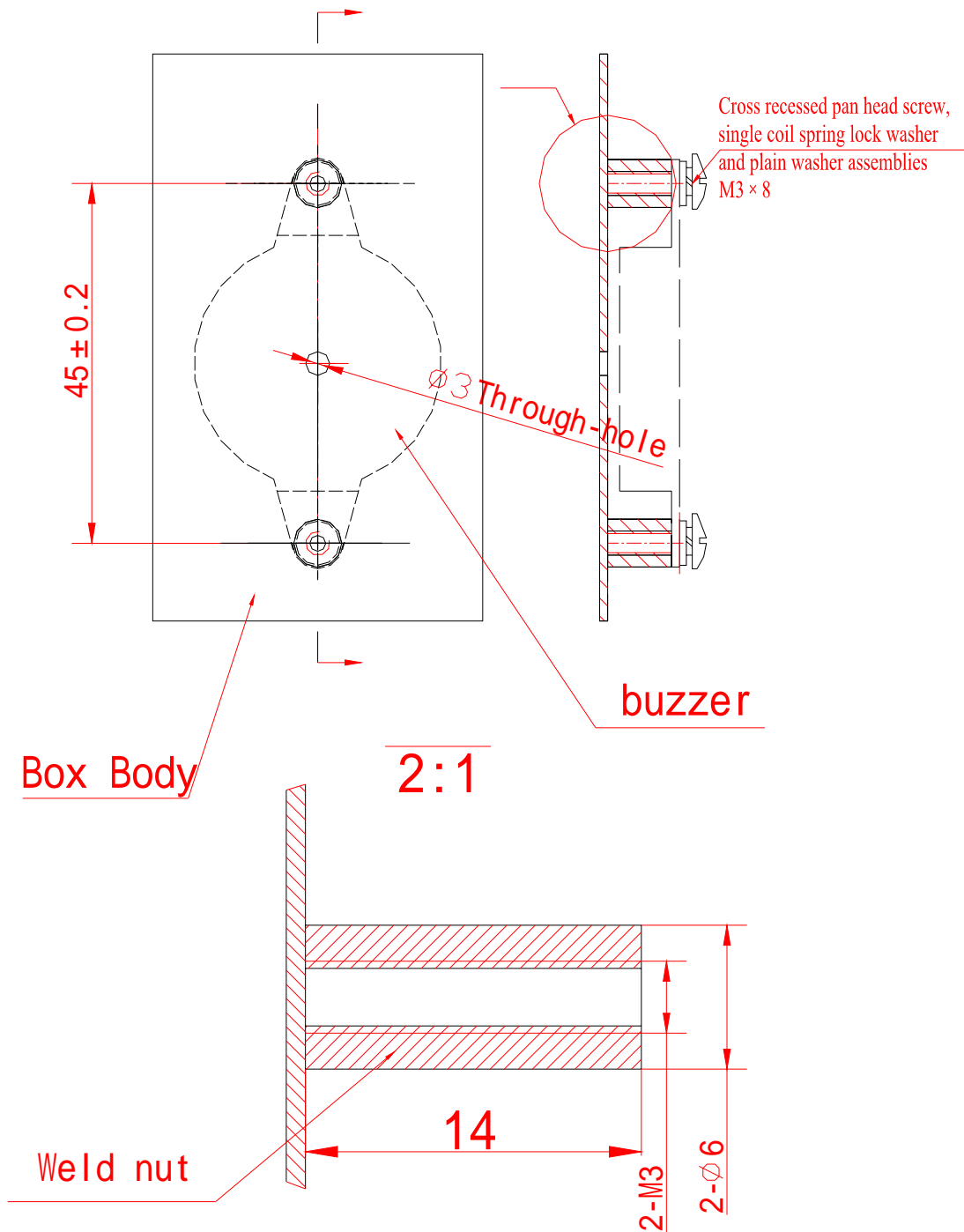
LED Board



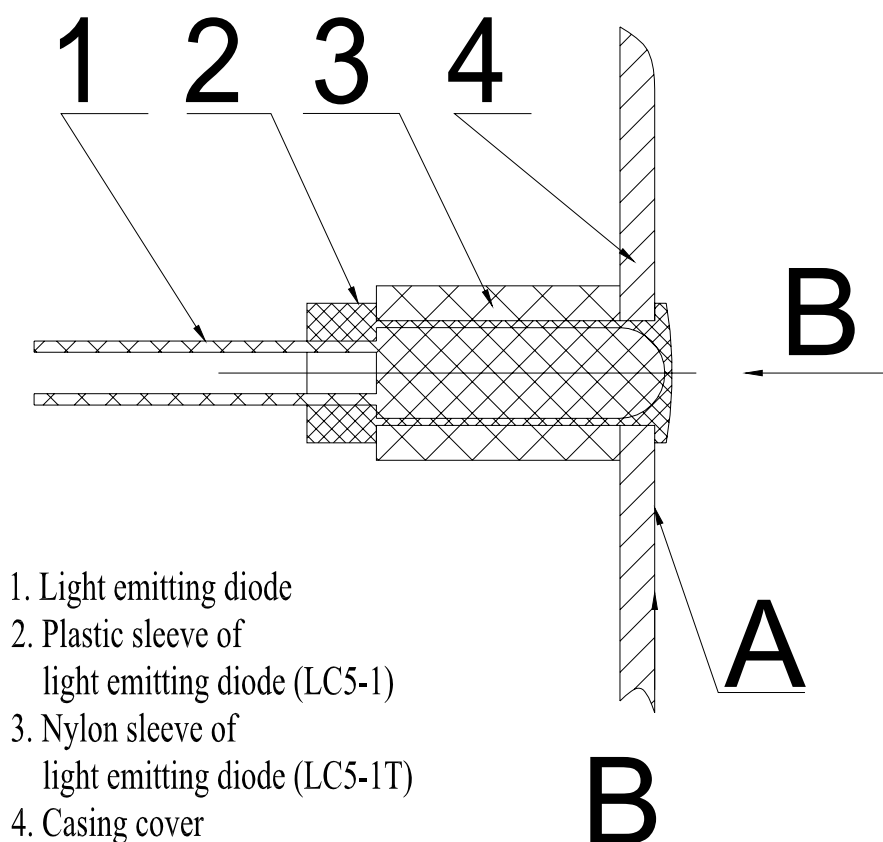
Appendix 3 Installation of the Membrane



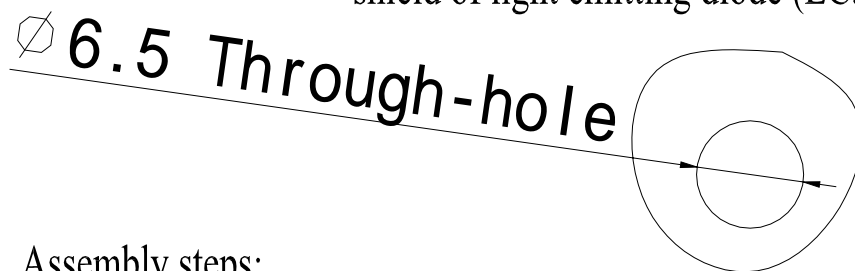
Appendix 4 Installation of the Buzzer



Appendix 5 Installation of the LED



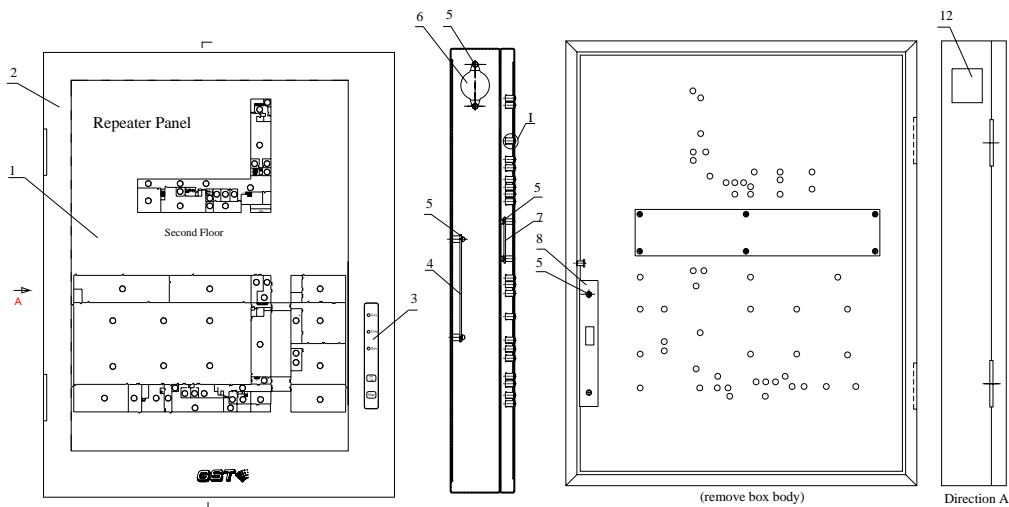
($\varnothing 6.5$ Through-hole on casing cover to fit the plastic shield of light emitting diode (LC5-1))



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

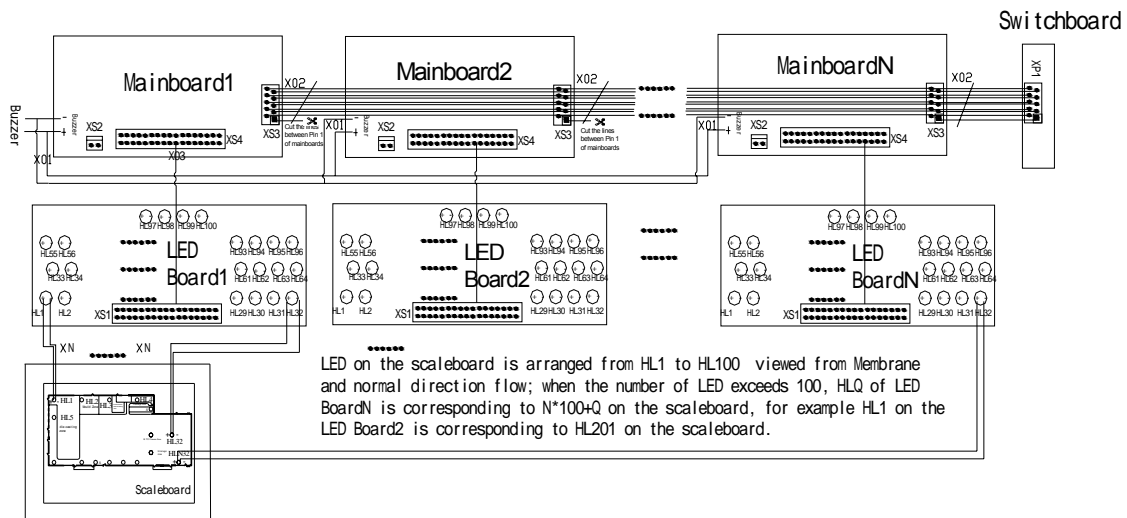


Notes :

Make membrane according to plan of the floor , Make enclosure according to membrane , and fix light emitting diode at corresponding positions with plastic sleeve and nylon sleeve.

- 12 Nameplate
- 11 $\phi 5$ red transparent light emitting diode
- 10 Nylon sleeve of light emitting diode (LC5-1T)
- 9 Plastic sleeve of light emitting diode (LC5-1)
- 8 Switch Board
- 7 LED Board
- 6 Buzzer OBO-27CO
- 5 Cross recessed pan head screw, single coil spring lock washer and plain washer assemblies M3 \times 8
- 4 Mainboard
- 3 Membrane 2
- 2 Enclosure
- 1 Membrane 1

Appendix 7 Connection of Repeater Panel



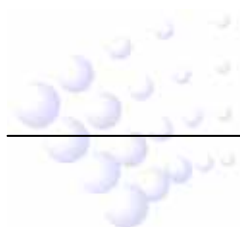
Name	Cable No.	Model and Size	Length	Remarks
Buzzer Cable	X01			After Mainboard soldered
Ribbon Cable	X02	Flat Cable 10P	500mm	If multi-mainboards are connected , the lines between pin 1 of mainboards should be cut
Ribbon Cable	X03	Flat Cable 34P	500mm	
Lamp Cable	XN	Cable 0.3 red	500mm	Connecting anodes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

Instruction:

- Numbers of indicator on back box increase in sequence from left to right and from top to bottom (HL1~HL100) viewing from membrane side.
- 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)





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