GST-MNA2C
GST-MNA2F
Network Annunciator

Installation and Operation Manual

Issue 1.03

ERP: 30311299

CONTENTS

Installation Precautions

Adherence to the following will aid in problem-free installation with long-term reliability:

- ✧ Do not attempt to install, service, or operate this unit until this manual is read and understood.
- ✧ This equipment must be installed in accordance with these instructions and the appropriate national, regional and local regulations specific to the country and location of the installation. Consult with the appropriate Authority Having Jurisdiction (AHJ) for confirmation of the requirements.
- ✧ It shall only be installed and serviced by trained specialist.
- ✧ Disconnect all sources of power before servicing.

1 Product Introduction

GST-MNA2C/ GST-MNA2F Network Annunciator is an Intelligent fire annunciator for use with the GST-IFP4M. It complies to UL 864 standard with features of easy installation, operation, and maintenance. The annunciator integrates an ARM7-Cotex CPU with inbuilt Linux OS. Its friendly and graphical screen can be touchable in operation.

1.1 Inventory

The annunciator is delivered with all components installed. When the shipment is received, check to make certain that all accessories have been included:

- ✧ Cabinet key
- ✧ Manual

1.2 Standard Features

The annunciator provides the following:

- ✧ Receive message from FACP through network.
- ✧ Send command (Reset, Silence, Ack etc.) to other FACP through network.
- ✧ Network interface: CAN for MNA2C and Fiber for MNA2F.
- ✧ LCD display unit of 800×480，7.0 inch color TFT LCD.
- ✧ Capacitive Touch screen.
- ✧ History file 100,000 events capacity.
- ✧ Advanced history filters allow sorting by event, time, date, address etc.
- ✧ Network operation.
- ✧ Ground fault detection.
- ✧ Password and key-protected nonvolatile memory.
- ✧ User programmable password.
- ✧ Field-programmable on annunciator, or by external computer with GstNDef Defining Tool and connected via Ethernet / USB port on SD-400 LCD Drive Board.

2 Technical Specifications

2.1 Electrical Specifications

- ✧ Voltage: 20VDC～28VDC
- ✧ Current is less than 200mA in standby mode and less than 400mA in fire alarm condition.
- ✧ Standby power consumption does not exceed 6W and maximum power consumption does not exceed 12W.

2.2 Communication Loop Parameters

- ✧ Interface type: CAN for MNA2C and Fiber for MNA2F.
- ✧ Maximum 250 nodes for Network
- ✧ GST-MNA2C CAN interface:
  - ◆ Class A.
  - ◆ Maximum distance between two neighbor nodes is 2500m with 18AWG or 3000m with 16AWG.
- ✧ GST-MNA2F Fiber interface:
  - ◆ LC monomode fiber.
  - ◆ Maximum distance between two neighbor nodes is 20000m.

2.3 Dimensions

The dimensions of the annunciator is 420mm×350mm×100mm (L x H x W) as shown in Fig. 2-1.

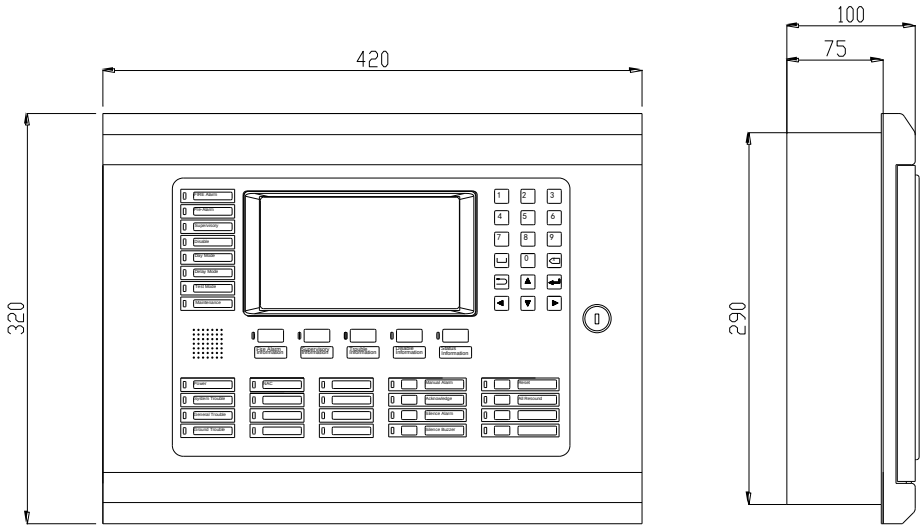


Fig. 2-1

3 Installation

The steps below are guidance for installation of the annunciator.

1 Check if you have received all items ordered.

2 Install the cabinet.

3 Power up the annunciator and check if it can be normally started.

4 Wiring and check the lines.

5 Setup annunciator and define by using GstNDef Defining Tool on a PC and download them to the annunciator.

3.1 Component Inspection

Before installation, check the following items:

✧ **Check Engineering Requirement**

Check the packing list according to engineering requirement. The main items to be examined are: installation and operation manual, key to the annunciator and etc.

✧ **Check Internal Components and Interconnection inside the** annunciator

All internal parts have been connected (including LCD drive board, main board, indicator board and main front panel) before the annunciator leaves the factory. Therefore, you can mainly check the connection among parts, including the connection between LCD drive board and indicator board, indicator board and main board, etc. Please refer to Appendix A for the internal connection diagram.

3.2 Install the Cabinet

The cabinet mounts using four 12mm-diameter holes located in the back box. Carefully unpack the system and check for shipping damage. Mount the cabinet in a clean, dry, vibration-free area where extreme temperatures are not encountered. The area should be readily accessible with sufficient room to easily install and maintain the annunciator. Locate the cabinet at a proper height above the floor with the hinge mounting on the right.

The annunciator can be flush-mounted or wall-mounted. The dimensions for wall-mounting are shown in following Fig.3-1. The dimensions for flush-mounted are shown in following Fig.3-2.

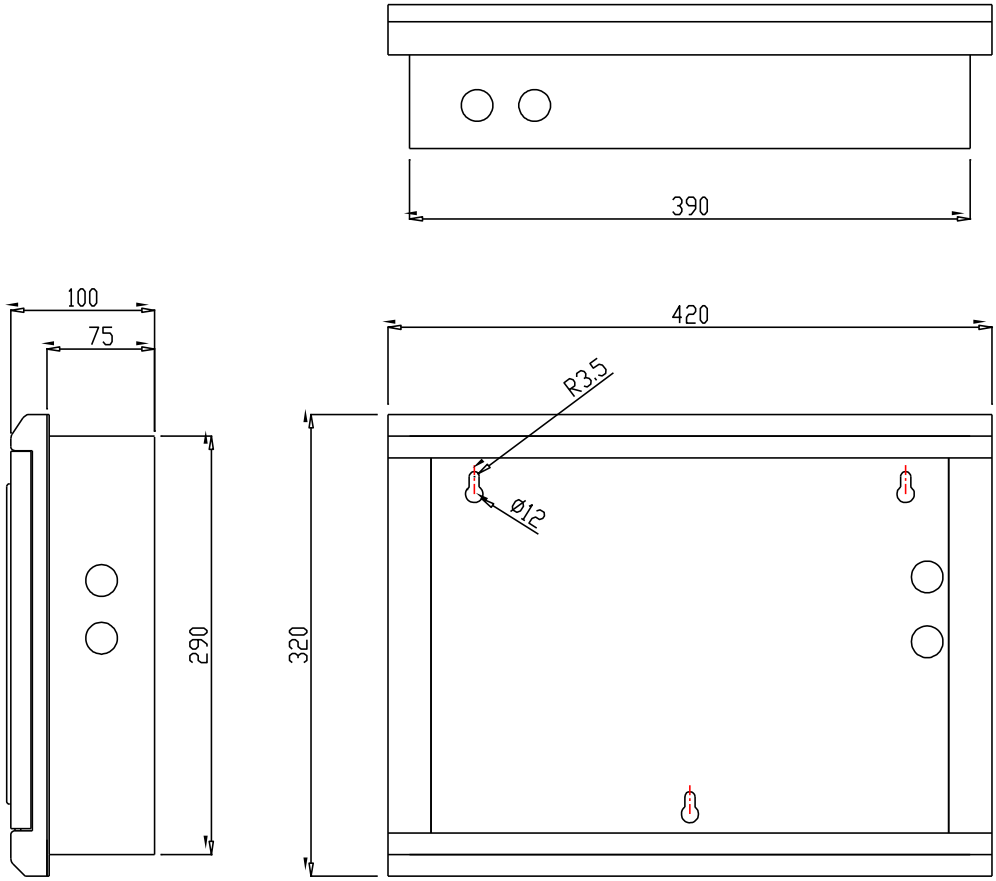


Fig.3-1

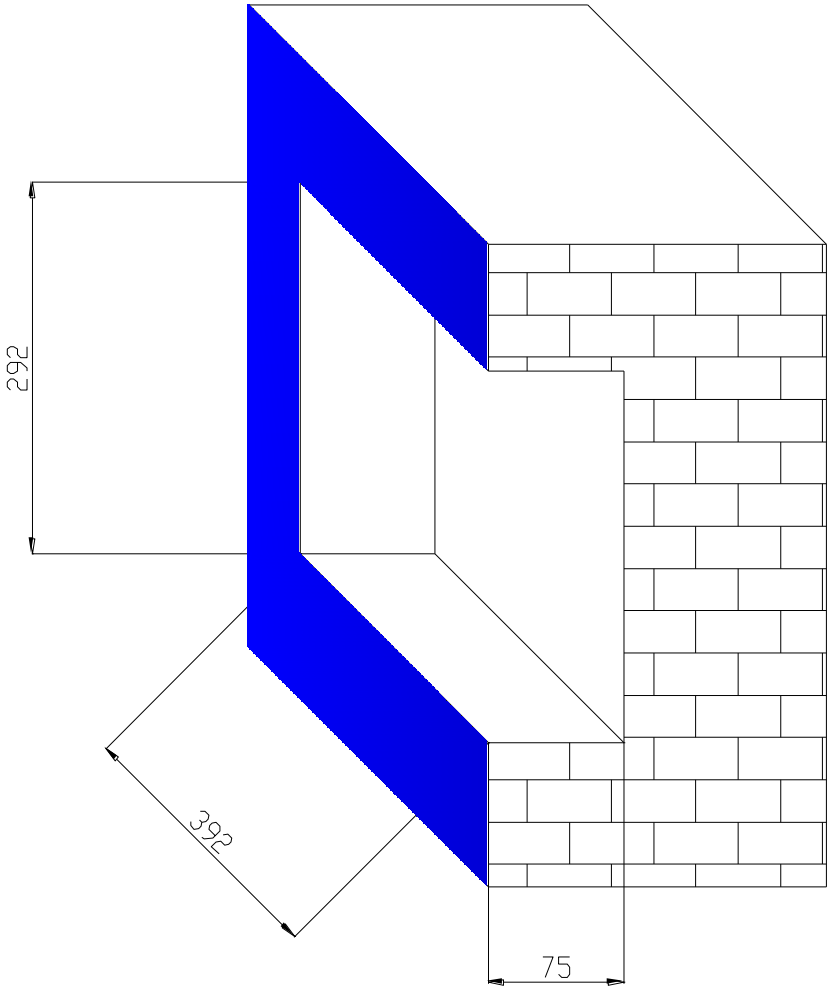


Fig.3-2

3.3 Start-up Check

After installation, apply power to the annunciator and check if the annunciator can self-test. The procedures are as follows.

- ✧ Powering on the annunciator, LCD doesn't light and all LEDs are illuminated for 5s.
- ✧ As All LED go out, LCD displays ***Data Loading……*** and GST logo. Initiation of the system takes about 85s~90s.
- ✧ Self-test of LEDs on the front panel.
- ✧ Self-test of internal cards.
- ✧ Reset of the system.

Start-up check is done if the annunciator switches on normally after undertaking above steps.

Note: After power on, the annunciator will display some fault messages because the external wiring is not connected.

3.4 External Connection

3.4.1 Power Connection-Class B

Use 16AWG or larger wire. Power supply wires should be connected to the terminal as shown in Fig.3-3 below.

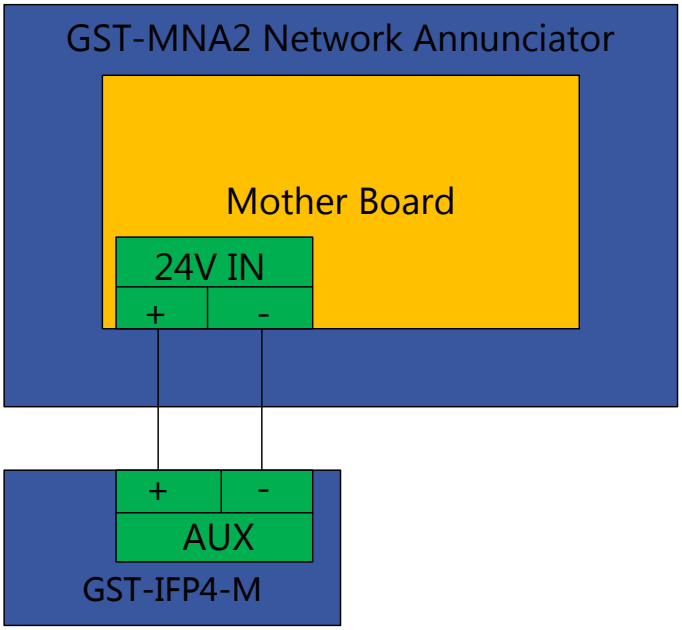


Fig.3-3

3.4.2 Network Connection-Class A

The GST-MNA2C has a CAN type interface: Fig.3-4 is for CAN network connection .and the GST-MNA2 F has a FIB type interface: Fig.3-5 is for Fiber connection.

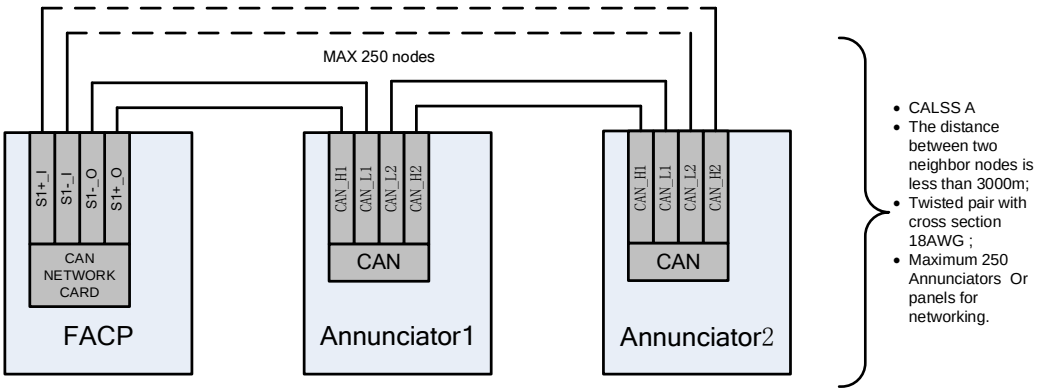


Fig. 3-4

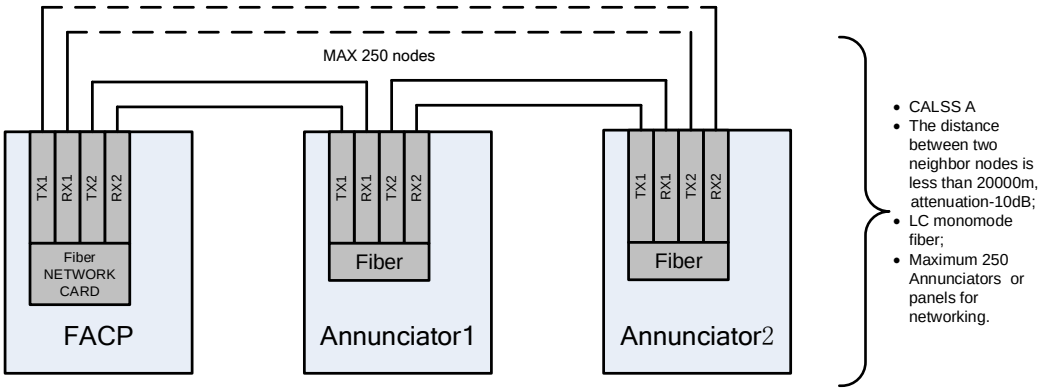


Fig. 3-5

4 Indication & Control

The keys and LED indicators of annunciator are shown below Fig.4-1.

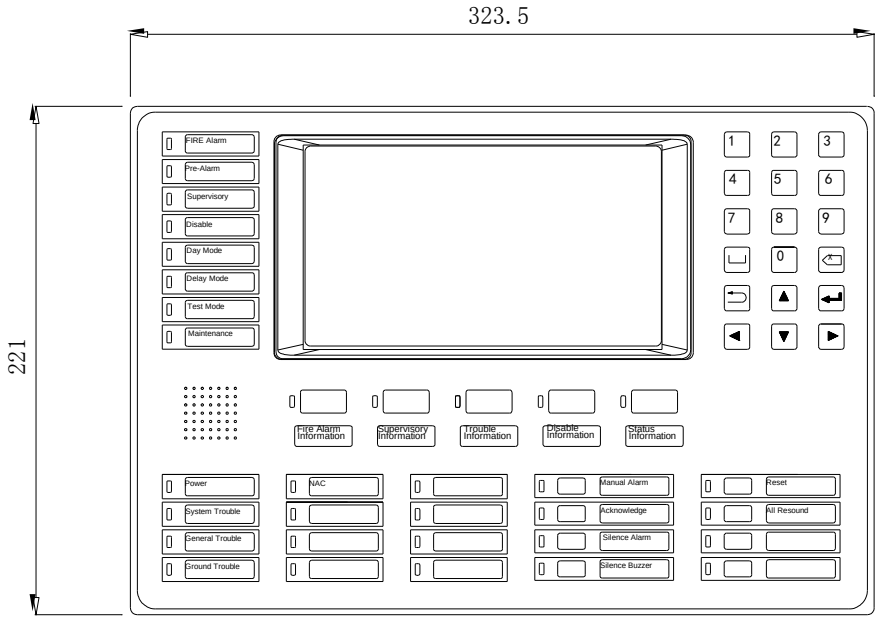


Fig.4-1

4.1 LED Indicators

Note:

Unless otherwise specified, all LEDs are yellow.

Except for POWER LED, all LEDs go out when the FACP is reset.

✧ **FIRE Alarm**: Red. It lights when there is an alarm message.

✧ **Pre-Alarm**: Red. It lights when any device is in PAS delay period; it goes out as the PAS message disappears.

✧ **Supervisory**: It lights when any supervisory message exists.

- **Disable**: It lights when any disabled messages exists; It doesn't light without disabled messages.
- **Day Mode**: It lights when the ANNUNCIATOR is in Day mode; it goes out in Night mode.
- **Delay Mode**: It lights when the ANNUNCIATOR enters delay mode; it goes out as the ANNUNCIATOR exits delay mode.

  Warning: The Delay Mode shall NOT be applied to required output fire signaling in UL864. It may only be used for supplementary process controls. Consult with AHJs for permissible applications.
- **Test Mode**: It lights when the ANNUNCIATOR enters test mode; it goes out as the ANNUNCIATOR exits test mode. ANNUNCIATOR enters and exits test mode by command sent by GST-IFP4M.
- **Maintenance**: It lights when the ANNUNCIATOR enters panel setup menu or system update; it goes out when the maintenance exits panel setup menu or complete system update.
- **Power**: Green. It lights steadily when the ANNUNCIATOR is powered up.
- **System Trouble**: It lights when any card is fault or definition of devices/linkage equation is incorrect; it goes out as the fault is removed.
- **General Trouble**: It lights when there is fault message; it goes out as the fault is removed.
- **Ground Trouble**: It lights when there is ground trouble; it goes out as the trouble is removed.
- **Manual Alarm**: It lights when the **Manual Alarm** key is pressed.
- **Acknowledge**: It lights when all real messages have been confirmed. It goes out as a new message occurs.
- **Silence Alarm**: The LED lights when any NAC is silenced. It goes out when all silenced NACs are reactivated.
- **Silence Buzzer**: It lights when the buzzer of the ANNUNCIATOR is silenced. It goes out as the buzzer sounds again.
- **All Resound**: It lights when ***ALL RESOUND*** key is pressed. It goes out when any NAC is silenced again.
- **RESET**: It lights when the ANNUNCIATOR is being reset; It goes out when the ANNUNCIATOR completes reset.
- **Fire Alarm Information**: Red. It flashes when an alarm message is not confirmed. It goes steady when all alarm messages have been confirmed.
- **Supervisory Information**: It flashes when a supervisory message is not confirmed; it goes steady when all supervisory messages has been confirmed.

- **Trouble Information**: If flashes when a fault message is not confirmed. It goes steady when all fault messages have been confirmed; it goes out as all fault messages are cleared.
- **Disable Information**: It lights when a disabled message exists; it goes out when all disabled conditions are cleared.
- **Status Information**: It lights when any message exists; it goes out as all messages are cleared.
- **NAC**: It lights when there is notification appliance circuit (NAC) activated. It goes out when there is any notification appliance circuit (NAC) silenced.

4.2 Functional Keys

- **Fire Alarm Information**: Fire alarm information screen is displayed when there is fire alarm information and this key is pressed.
- **Supervisory Information:** Supervisory signal may be programmed as latching or non-latching. For latching supervisory, cancellation of the signal is the indication of restoration to normal condition. For non-latching supervisory, the signal will be locked-in until manually reset. Supervisory information screen is displayed when there is supervisory information and this key is pressed.
- **Trouble Information**: Fault information screen is displayed when there is fault information as this key is pressed.
- **Disable Information**: Disable information screen is displayed when there is disable information as this key is pressed.
- **Status Information**: Status information screen is displayed when there is status information as this key is pressed.
- **Manual Alarm**: Pressing the key shall activate alarm process, referred to section 6.1.4
- **Acknowledge**: Pressing the key will acknowledge the selected message.
- **Silence Alarm**: All activated NACs can be silenced when this key is pressed.
- **Silence Buzzer**: Buzzer can be silenced when this key is pressed.
- **All Resound**: All deactivated NACs can be resound when this key is pressed.
- **RESET**: The system will be reset as this key is pressed.

4.3 Service / Program Keys:

Key	Description
Number Key of 0~9	Press number keys to input numbers.

▲	UP cursor. Press this key to move the cursor to previous or scroll up lists in a continuous loop.
▼	DOWN cursor. Press this key to move the cursor to next or scroll down lists in a continuous loop.
▶	RIGHT cursor. Press this key to switch the cursor to next box or select options to the right.
◀	LEFT cursor. Press this key to switch the cursor to previous box or select options to the left.
⮌	CANCEL key. Press this key to cancel an operation or exit a menu.
↵	ENTER key. Press this key to select a displayed item or confirm an operation.
⌫	BACKSPACE key. Press this key to delete an input number or letter.
␣	SPACE key. Press this key to input a space character.

4.4 User Interface

The annunciator has a touch screen with graphical icons. The annunciator enters System Normal screen as Fig.4-2 below after correct installation and wiring.

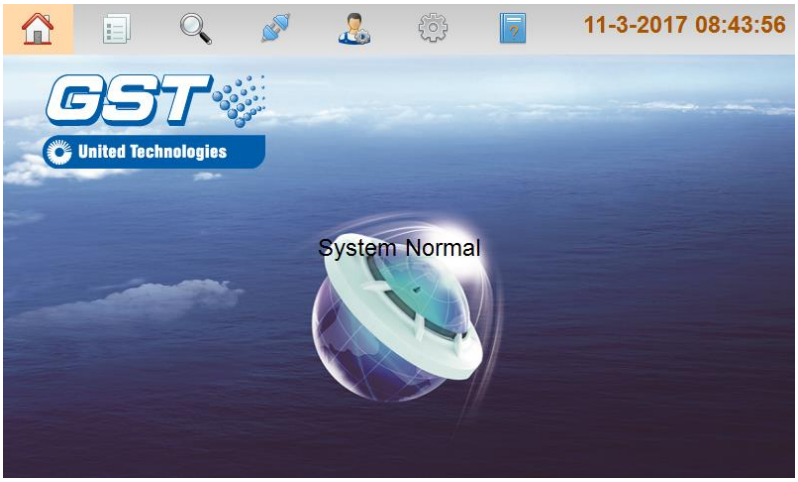


Fig.4-2

ALARM: when fire alarm signal is on the screen, the annunciator will pop up fire alarm (first alarm) message with white words in red background, including alarm time, device address, device type and related description and so on. Alarm message taking the highest priority is displayed on the main screen and other messages are displayed the quantity on related tabs on the screen. Clicking each tab can check details. Refer to the figure below Fig.4-3.

Fig.4-3

The quantity of alarm messages will be displayed if there are many such messages. Clicking ALARM tab can view details as shown the figure below Fig.4-4.

Fig.4-4

SUPERVISORY: supervisory messages take lower priority than Alarm messages. The supervisory messages will be displayed if there is no alarm. Clicking SUPERVISORY tab can view details.

TROUBLE: trouble messages take lower priority than supervisory messages. The trouble messages will be displayed if there is no Alarm or supervisory messages. Clicking TROUBLE tab can view details.

Trouble messages have many types such as internal fault and loop device fault. Clicking on the related types can view the details.

DISABLED: there are disabled messages if some devices are disabled. Clicking DISABLE tab can view the details as shown in the figure below Fig3.6.

STATUS: clicking STATUS tab can view other status messages of the annunciator.

5 Operations

5.1 Setup on the annunciator

Clicking the button  inputs engineering password to enter **Panel Setup** menu (tree diagram) as shown below Fig.5-1.

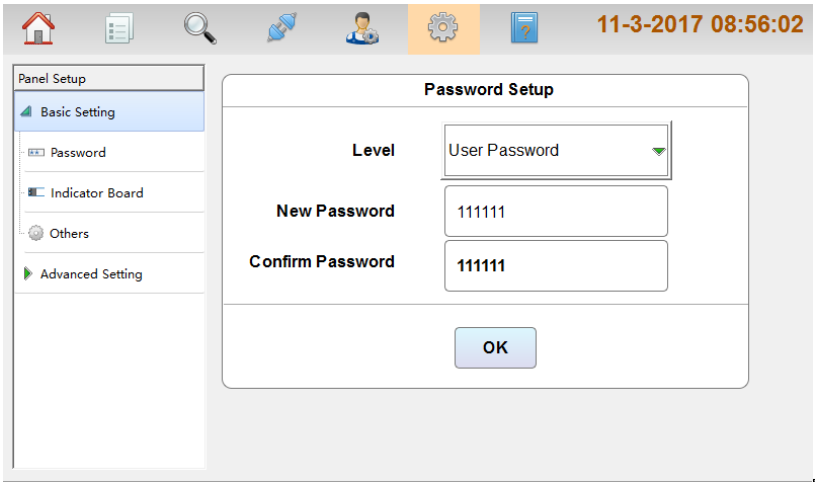


Fig.5-1

5.1.1 Basic Setting

- Password: clicking **Password** in **Basic Setting** menu enters the screen for setting passwords as shown in the figure below Fig.5-2. There are two types of passwords including **User Password** and **Engineering Password**. After setting, pressing **OK** can save the settings.

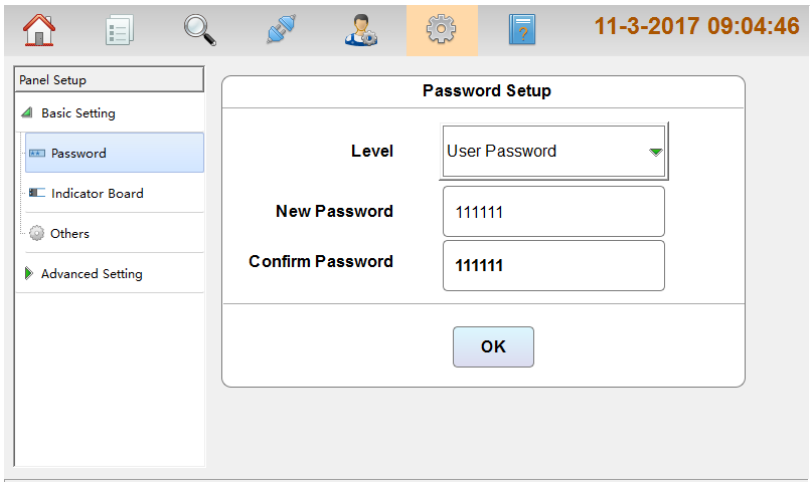


Fig.5-2

- Indicator Board: Clicking ***Indicator Board***, Indicator Info can be displayed on the right of the screen, including Defined Led Qty. and Defined LedKey Qty. Refer to Fig.5-3 for details.

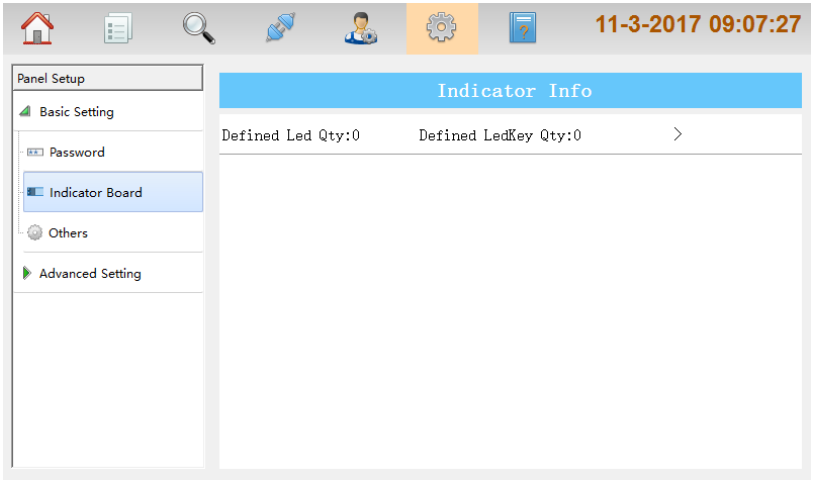


Fig.5-3

Clicking the message in Indicator Info can enter the screen to define Fascia Button/LED Definition as shown in Fig.5-4.

Fig.5-4

Clicking ***Undefined*** can define LEDs and buttons as shown in Fig.5-5.

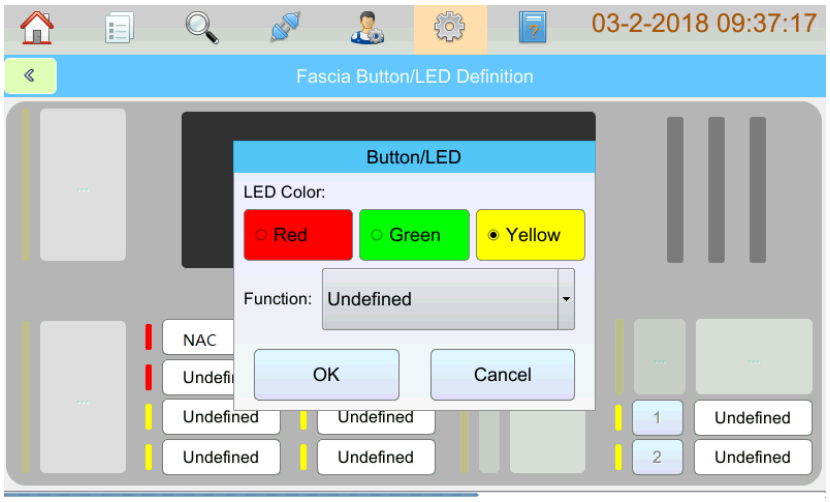


Fig.5-5

5.1.2 Advanced Setting

Clicking **Advanced Setting** in **Panel Setup** menu enters the screen for senior setting.

- Network Setup: clicking **Network Setup** in **Advanced Setting** menu pops up the screen for setting the network on the right. Users can set up based on actual situation. Refer to the figure below Fig.5-6.

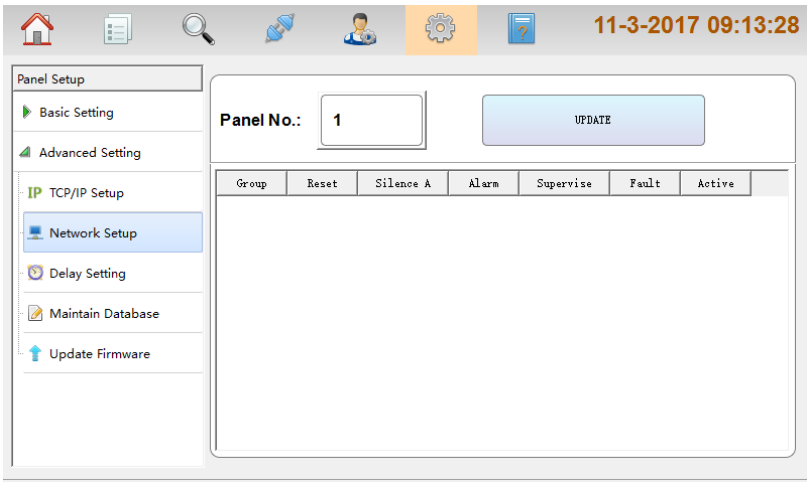


Fig.5-6

Panel No.: input the number of the annunciator here.

- Delay Setting: Users can set delay based on the actual situation by clicking **Delay Setting** in **Advanced Setting** menu as shown in Fig.5-7. Delay for Alarm Silence, Delay for Buzzer Silence and PAS Verification Time can be set.

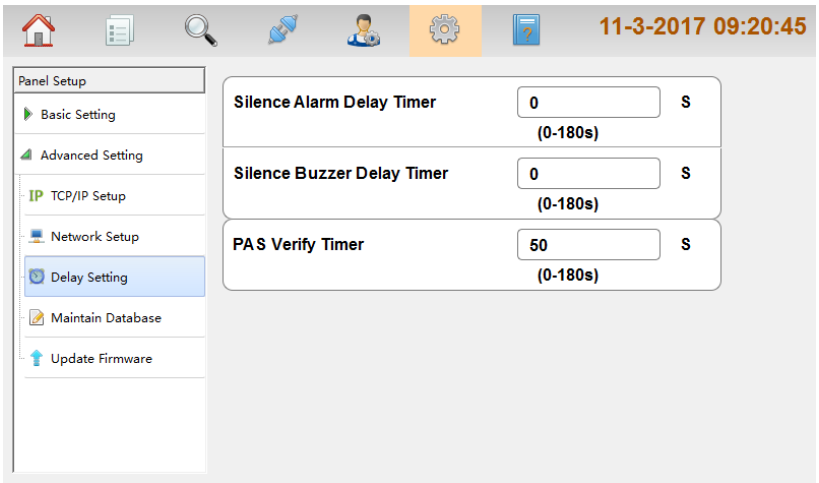


Fig.5-7

- Update Firmware: Clicking **Update Firmware** in **Advanced Setting** menu and entering the super password (obtained from the maintenance service supplier), users can update firmware as shown in Fig.5-8, then insert U-Key into the LCD drive board and click **OK** to update firmware.

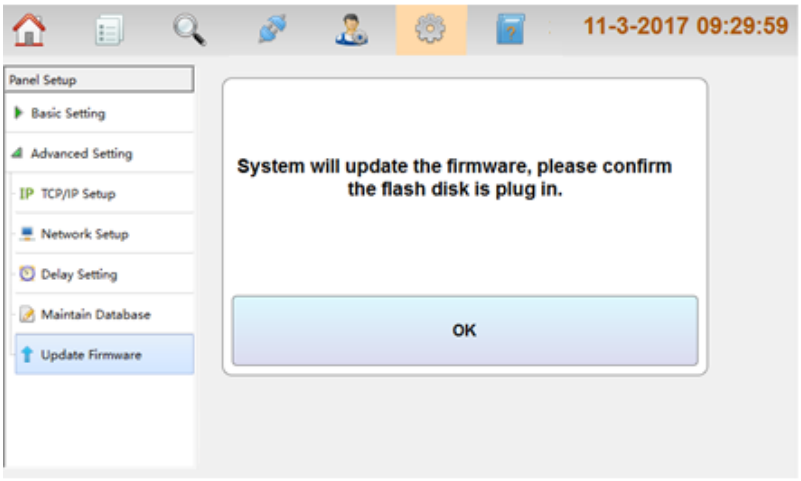


Fig.5-8

5.2 Programming the annunciator Through GstNDef Defining Tool

Configurations and definitions can be downloaded to the annunciator through USB or Ethernet interfaces after they are programmed by using GstNDef (version 1.0 or above) Defining Tool.

5.2.1 Download thru USB interface

After programming the annunciator using GstNDef Defining Tool, save the configuration and definition to a USB stick, and then insert the USB stick into the USB port on the SD-400 LCD Drive Board of the annunciator.

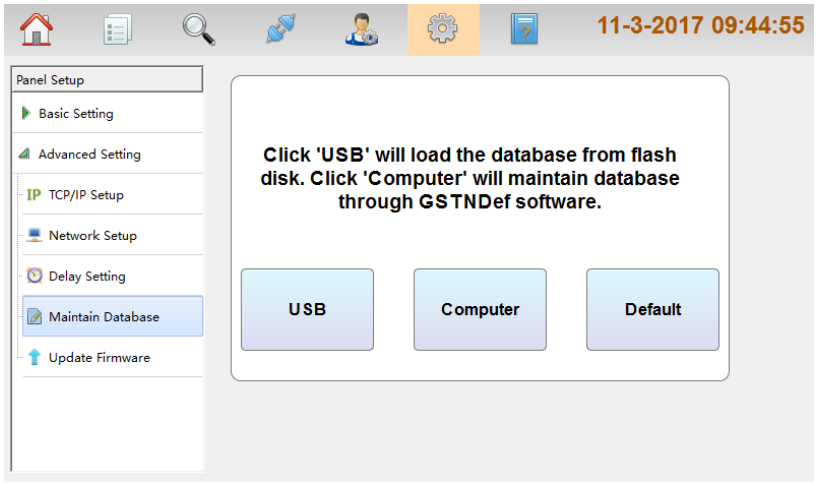


Fig.5-9

Clicking ***Maintain Database*** in ***Advanced Setting*** menu enters the screen as shown in Fig.5-9. After clicking the ***USB,*** the annunciator can automatically update according to data from U-disk.

5.2.2 Download thru Ethernet interface

After programming the annunciator using GstNDef Defining Tool, connect Ethernet port of the programming computer to the Ethernet interface on annunciator's SD-400 LCD Driver Board through a switch, a router or a cross-over Ethernet cable. In ***Advanced***

Setting menu, select ***TCP/IP Setup*** as shown in the figure below Fig.5-10. On the programming window to the right, key in IP Address, Subnet Mask and Gateway address. Note that annunciator's IP address shall be in the same subnet as the programming computer.

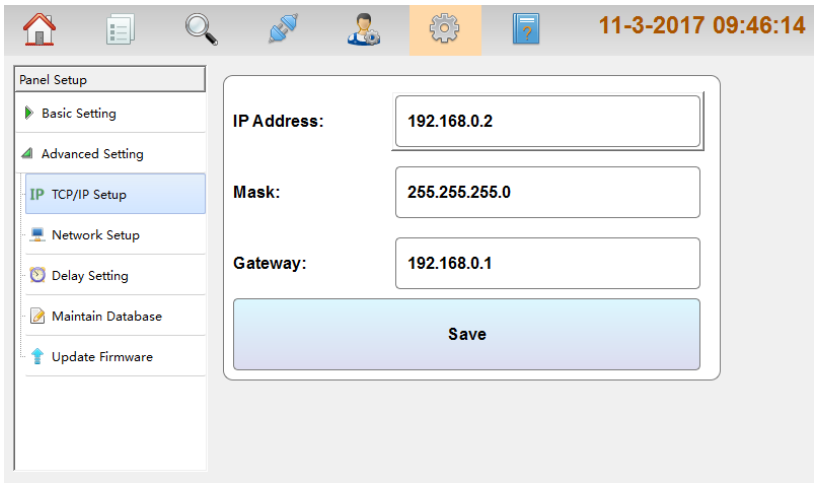


Fig.5-10

Clicking ***Computer*** in Fig.5-9 pops up the screen as shown in Fig.5-11. At this time, the configurations and definitions can be downloaded to the annunciator from GstNDef Defining Tool.

Fig.5-11

5.3 User Setup

Clicking  button enters ***User Setup*** menu by inputting user password. Messages about soft keyboard, display, PAS, clock, printer, day/night mode, language, project name, and so can be set in this screen. Refer to the figure below Fig.5-12.

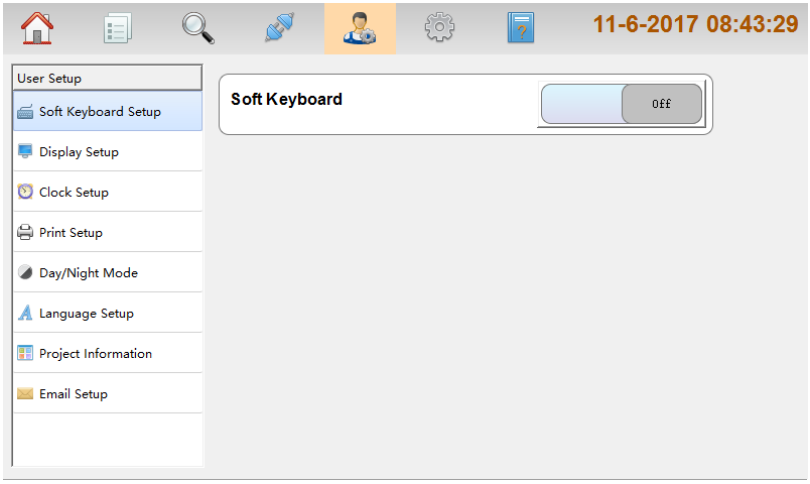


Fig.5-12

5.3.1 Soft keyboard Setup

Clicking Soft keyboard Setup can set ***On*** or ***Off*** the soft keyboard through this option, refer to the figure above Fig.5-12.

5.3.2 Display Setup

Clicking ***Display Setup*** in ***User Setup*** menu enters the screen for setting font size, LCD backlight time and so on. Refer to the figure below Fig.5-13.

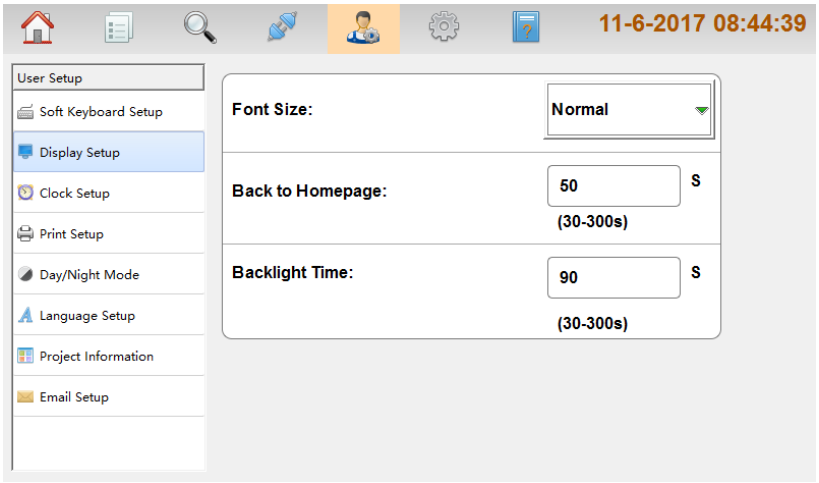


Fig.5-13

5.3.3 Clock Setup

In user setup screen, users can set Data Format and Modify System Clock as required by clicking ***Clock Setup*** in ***User Setup*** menu. Refer to the figure below Fig.5-14.

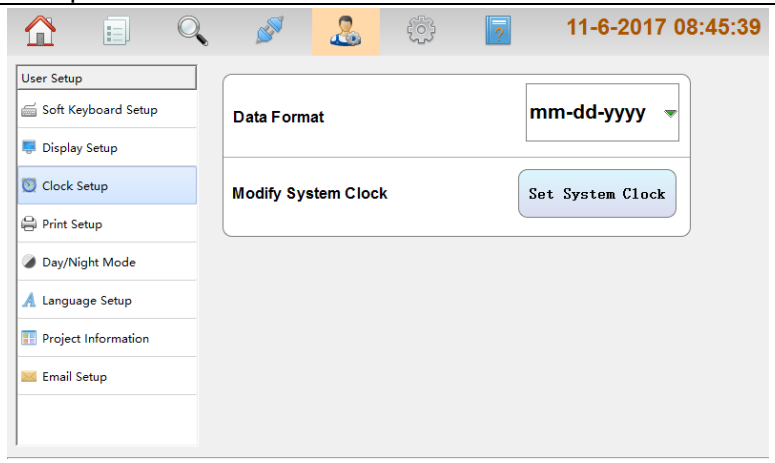


Fig.5-14

Clicking ***Set System Clock*** button behind ***Modify System Clock*** can modify the system time as shown in the figure below Fig.5-15.

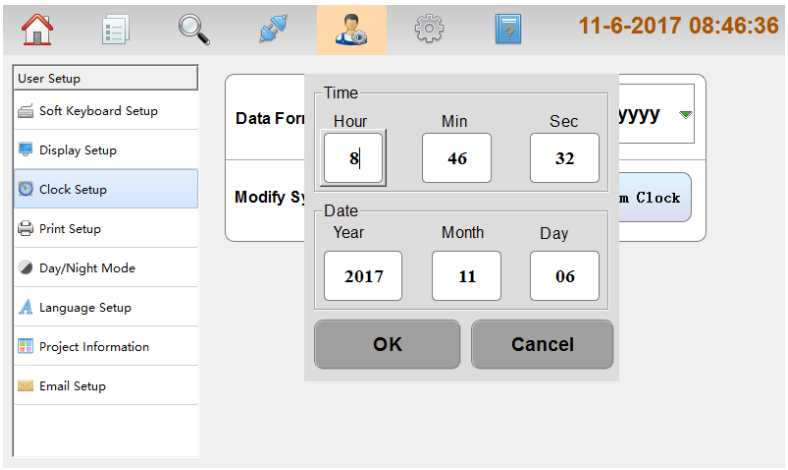


Fig.5-15

5.3.4 Print Setup

Printing is a supplementary function. The external printer shall be UL ITE listed equipment, which connects to annunciator internal USB port. The interconnecting USB cable between annunciator and printer shall not be more than 3 meters. Both the printer and annunciator shall be in the same room.

Clicking ***Print Setup*** in ***User Setup*** menu enters the screen for setting the printer. Real-time print and printing types can be set. Refer to the figure below Fig.5-16.

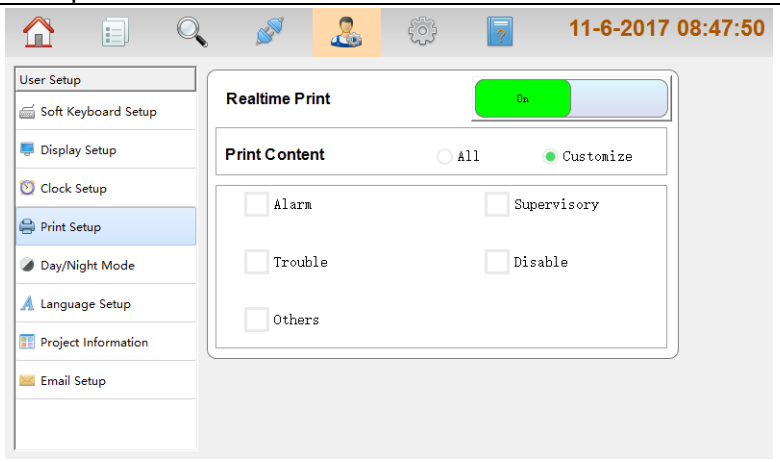


Fig.5-16

5.3.5 Day/Night Mode

Clicking ***Day/Night Mode*** in ***User Setup*** menu, Day/Night mode can be set. Refer to the following figure Fig.5-17.

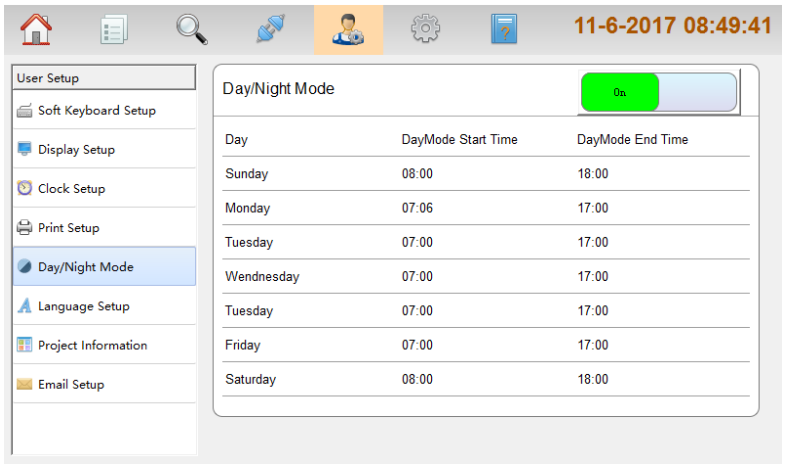


Fig.5-17

In this mode, starting and ending time for the day can be set. Refer to the following figure Fig.5-18.

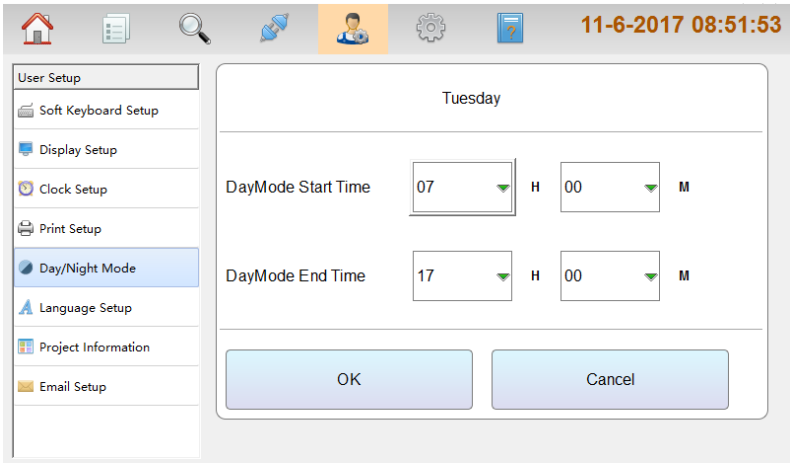


Fig.5-18

5.3.6 Language Setup

Clicking ***Language Setup*** in ***User Setup*** menu enters the screen for setting the language. Refer to the figure below Fig.5-19.

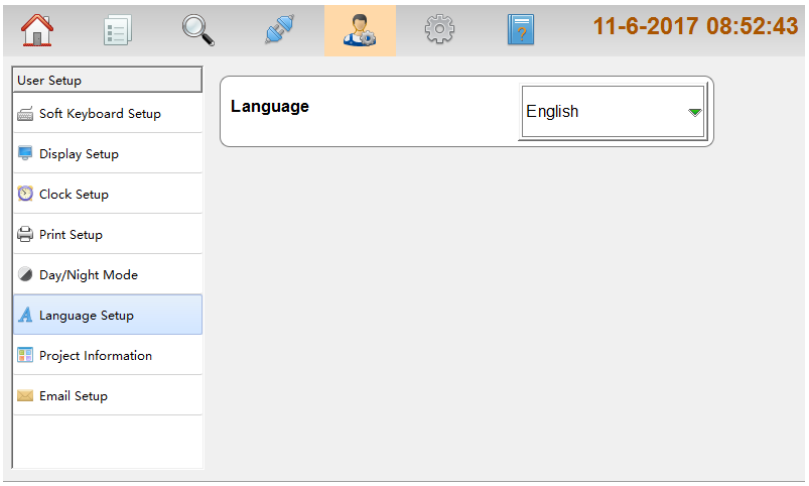


Fig.5-19

5.3.7 Project Information

Clicking ***Project Information*** in ***User Setup*** menu enters the screen for setting the project information. Refer to the figure below Fig.5-20.

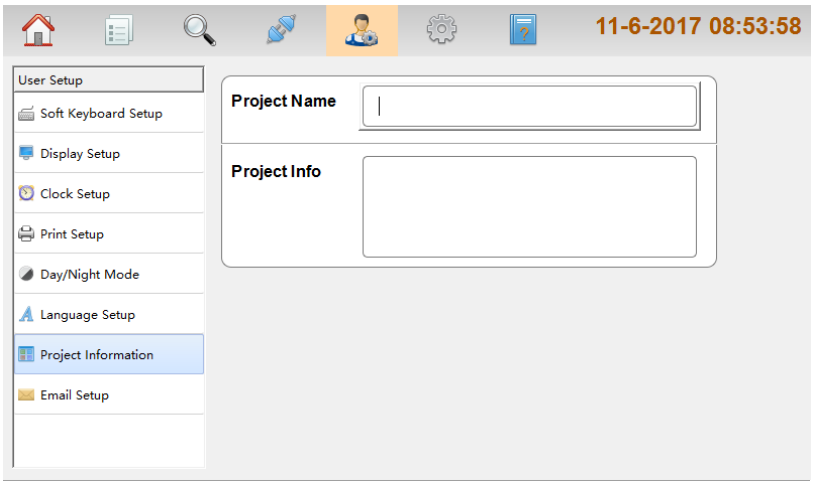


Fig.5-20

6 Operating Instructions

6.1 Panel Control Keys

6.1.1 *MANUAL ALARM* (User password)

When the ***MANUAL ALARM*** key is pressed, the following actions will be produced:

- ✧ Displaying a manual alarm message in LCD.
- ✧ Lighting the ***FIRE ALARM*** LED and ***MANUAL ALARM*** LED.
- ✧ Extinguishing the ***SILENCE ALARM*** LED if it illuminates.
- ✧ Turning on the buzzer.
- ✧ Writing manual alarm record in ***FIRE ALARM INFORMATION*** and history file.

6.1.2 ACKNOWLEDGE (User password)

Pressing ***ACKNOWLEDGE*** key will acknowledge a new fire, fault, or supervisory event. Pressing ***ACKNOWLEDGE*** key will result in the following actions:

- ✧ Lighting the ***ACKNOWLEDGE*** LED.
- ✧ Marking an acknowledgement to the event displayed.
- ✧ Writing acknowledgement record in history file.
- ✧ Information of higher level will be displayed if there is more information. Pressing ***ACKNOWLEDGE*** repeatedly can toggle between different types of information and pressing up and down key can view them.

6.1.3 SILENCE *ALARM* (User password)

SILENCE ALARM key is used to silence the notification appliances. When this key is pressed, the following actions will be produced:

- ✧ Silencing the notification appliances.
- ✧ Lighting *the* ***SILENCE ALARM*** LED.
- ✧ Writing silence alarm records in history file.
- ✧ If new alarm occurs, the silenced notification appliances will resound, and ***SILENCE ALARM*** LED turns off.

6.1.4 *SILENCE BUZZER* (User password)

When the ***SILENCE BUZZER*** key is pressed, the following actions will be produced:

- ✧ Silencing the buzzer of the Annunciator.
- ✧ Lighting the ***SILENCE BUZZER*** LED.
- ✧ Writing silence buzzer records in history file.
- ✧ If new event occurs, the silenced buzzer will resound, and ***SILENCE BUZZER***

LED turns off.

6.1.5 *All RESOUND* (User password)

All RESOUND key is used to resound the deactivated notification appliances. When this key is pressed, the following actions will be produced:

- ✧ Resound the deactivated notification appliances.
- ✧ Lighting *the* ***All RESOUND*** LED.
- ✧ Writing resound records in history file.

6.1.6 *RESET (User password)*

Pressing the ***Reset*** key, the following actions will be produced:

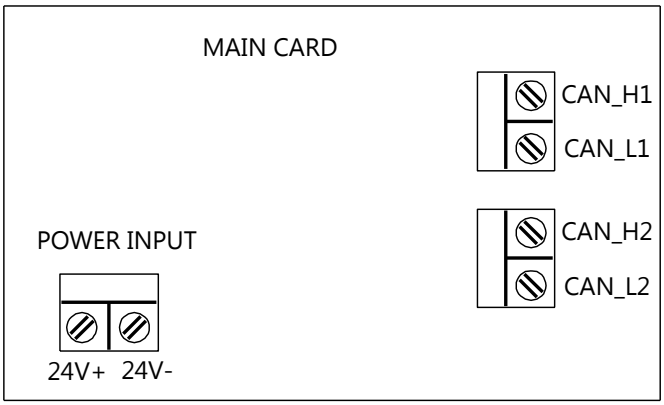
- ✧ Extinguishing all LEDs except of ***POWER*** LED and turning off the buzzer.
- ✧ Turning off all notification appliances.
- ✧ Resetting all loop devices.
- ✧ Writing system resetting record in history file.

7 Default Programming

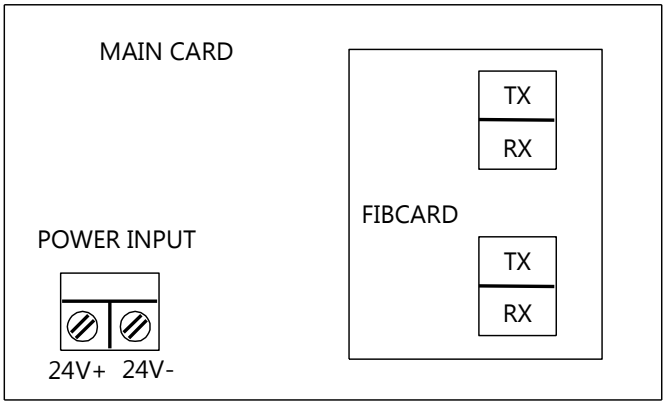
Program Option	Factory Default
BANNER	GST CO., LTD.
Maintenance Password	Empty
User Password	111111
PAS Timer	0
Userwords	Undefined
Userdefine	Userdefine01-15
E&C	Undefined
Device address（1-242）	Zone: 001 Type: 0 Undefined PAS: off Silenceable: on Autosilence: off

Appendix A Basic System Connection

GST-MNA2C



GST-MNA2F



Appendix B Electrical Specifications

B.1 Electrical Specifications

B.1.1 Input Power

- Class B.
- Rated voltage: 24VDC
- Voltage range: 20VDC~28VDC
- Standby current：200mA
- Max current：400mA
- Wire size: minimum 16AWG, maximum 550 m per line.

B.1.2 CAN Network

- Class A.
- Maximum distance between two neighbor nodes is 2500m with 18AWG or 3000m with 16AWG.
- Maximum 250 nodes for combination of CAN and Fiber-Optical Network.

B.1.3 Fiber-Optical Network

- Class A.
- LC monomode fiber.
- Maximum distance between two neighbor nodes is 20000m，attenuation -10dB.
- Maximum 250 nodes for combination of CAN and Fiber-Optical Network.

Limited Warranty

The manufacturer warrants its products to be free from defects in materials and workmanship for 2 years from the date of manufacture, under normal use and service. Products are date-stamped at time of manufacture. The sole and exclusive obligation of the manufacturer is to repair or replace, at its option, free of charge for parts and labor, any part which is defective in materials or workmanship under normal use and service. For products not under the manufacturer's date-stamp control, the warranty is 2 years from date of original purchase by the manufacturer's distributor unless the installation instructions or catalog sets forth a shorter period, in which case the shorter period shall apply. This warranty is void if the product is altered, repaired, or serviced by anyone other than the manufacturer or its authorized distributors, or if there is a failure to maintain the products and systems in which they operate in a proper and workable manner. In case of defect, secure a Return Material Authorization form from our customer service department. Return product, transportation prepaid, to the manufacturer.

This writing constitutes the only warranty made by this manufacturer with respect to its products. The manufacturer does not represent that its products will prevent any loss by fire or otherwise, or that its products will in all cases provide the protection for which they are installed or intended. Buyer acknowledges that the manufacturer is not an insurer and assumes no risk for loss or damages or the cost of any inconvenience, transportation, damage, misuse, abuse, accident, or similar incident.

THE MANUFACTURER GIVES NO WARRANTY, EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR OTHERWISE WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. UNDER NO CIRCUMSTANCES SHALL THE MANUFACTURER BE LIABLE FOR ANY LOSS OF OR DAMAGE TO PROPERTY, DIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF THE USE OF, OR INABILITY TO USE THE MANUFACTURER'S PRODUCTS. FURTHERMORE, THE MANUFACTURER SHALL NOT BE LIABLE FOR ANY PERSONAL INJURY OR DEATH WHICH MAY ARISE IN THE COURSE OF, OR AS A RESULT OF, PERSONAL, COMMERCIAL, OR INDUSTRIAL USE OF ITS PRODUCTS.

This warranty replaces all previous warranties and is the only warranty made by the manufacturer. No increase or alteration, written or verbal, of the obligation of this warranty is authorized.

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