

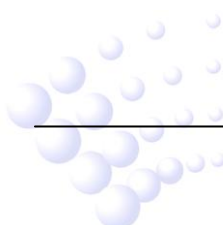


# GstDef2.1 Defining Tool



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## 1 Overview

The newly developed GST Intelligent Fire Alarm System Defining Tool software is used for system commissioning. It is designed with friendly user interface and powerful functions. The fire alarm control panel (FACP) that can use this software include GST200 series (GST200 and GST200-2), GST5000 series (GST5000, GST5000W and GST5000F) and GST-IFP8 FACPs. The main features of this highly intelligent package are:

- ✧ By dividing control panels into logical zones and with descriptions of each zone, the control functions of the panels are made clearer:
- ✧ Providing the network definition of up to 32 FACPs of any model of GST200 and GST5000 series.
- ✧ Communicating with FACP through RS232 interface at a rate of 2400bps.
- ✧ Devices are distinguished with different icons.
- ✧ Zones are easily distinguished with different colors.
- ✧ Dropdown lists are used to save time. Manual input is also available with memory ability from the software that makes it simpler for similar inputs. Definitions can be edited in dialogue boxes.
- ✧ C&E equation definition with clear relationship, easily selecting exact device or group devices by fuzzy logic.
- ✧ In addition to normal text display, the system also supports upload or download of bi-direction text (a mixture of left-to-right and right-to-left horizontal text) for some special languages, and the screen displays accordingly.
- ✧ For GST200-2 and GST-IFP8, name of device type is user-definable and running record can be uploaded to computer and saved as an Excel file.
- ✧ Supporting multi-languages. The default language is English. The language package can be downloaded from <http://www.gst.com.cn/english/products/GST-def.html>.

## 2 System Requirement

### 2.1 Hardware

CPU: Pentium III 1G or above

Free Hard disk: 2GB or above

Memory: 512MB or above

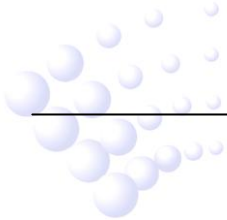
### 2.2 Software

Windows 2000 or Windows XP Professional

## 3 Installation

The software setup file is named GstDef2.1\_setup.exe. Double clicking the file and following the wizards will install the software into your computer.

To uninstall the software, you can either go to <Control Panel> -- <Add/Remove Software> or run the GstDef2.1\_setup.exe again.



## 4 Download Card

The software can work offline for defining in the office, only connecting to the panel for downloading the definition. The definition download needs an RS232 communication card.

P-9930 download card is for GST200. Connect the download card to the extend port on the main board with a ribbon cable. Enter the commission password 24220011 and press the button SK1 on the main board, as shown in Fig. 1.

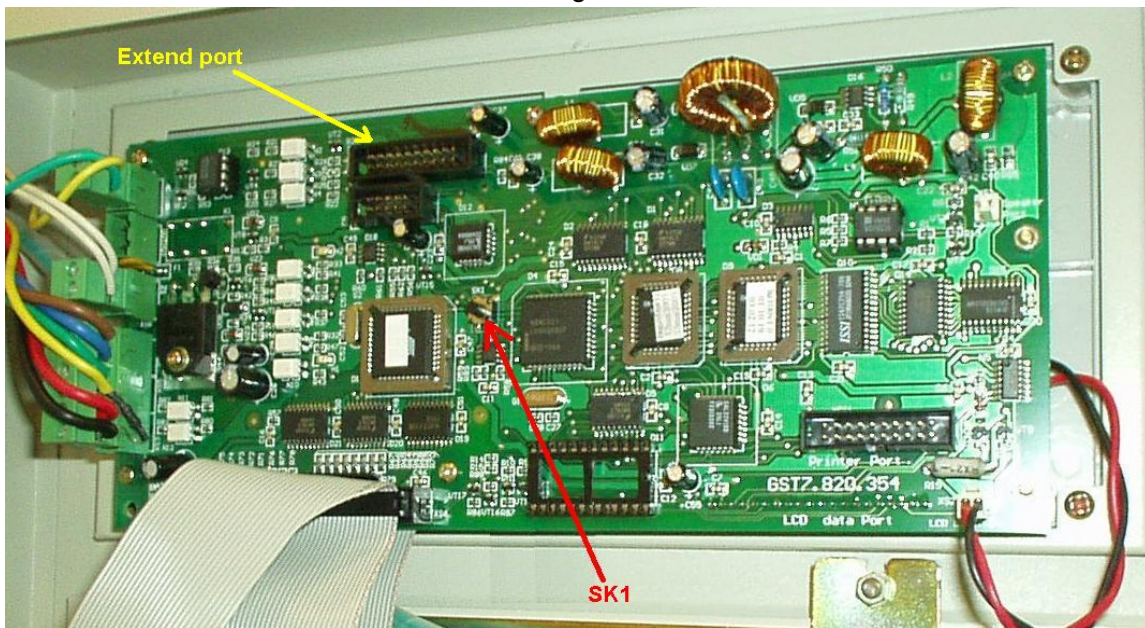


Fig. 1

If the RED LED on the download card flashes, the download/upload operation can be done. Otherwise please repeat the above operation.

For GST5000 series panels, choose any unused slot to insert the download card. Set the card code to next of the last card. For example, there are 3 loop cards in the panel which takes codes 01 02 & 03, then the download card should be set as 04. Make the panel work in commission state (the panel will show "Installer" on top of the screen) and restart the panel. Then press *BROWSE* button on the keypad. If <CRT INSTALLED> appears, it succeeds. Otherwise check the card code and repeat the operation. The code setting is shown as in Fig. 2.

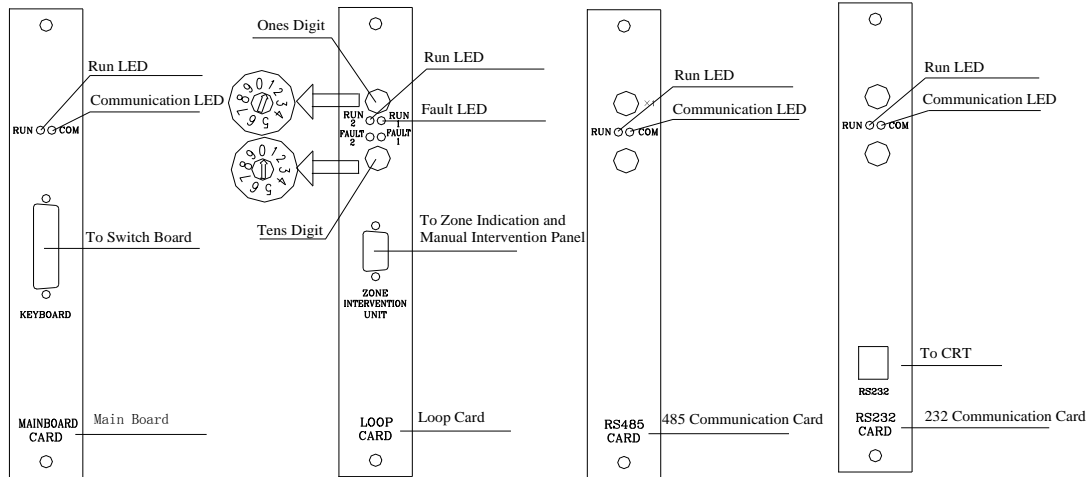


Fig. 2

For GST-IFP panel, choose COMMUNICATION BOARD slot to insert the download card. There is code set switch on the communication board. Set the card code to next of the last card. For example, there are 2 loop cards in the panel which takes codes 01 & 02, then the download card should be set as 03. Make the panel work in commission state (the panel will show “X” on right-top corner of the screen) and restart the panel. Then enter <USER SETUP>--<1 BROWSE>--<1 BROWSE DEVICES> to ensure that CRT CARD is registered. If unregistered, check the card code and repeat the operation.

There is one more setting for download if all the panels are to be connected into network. In this case, there must be an individual address for each panel. This address should match the address in the software.

For GST200, go to <SYSTEM> -- <COM SETTING> -- <Local ADD>, input the correct address.

For GST5000 series, go to <SYSTEM> -- <Communication Setup> -- <CRT Setup>, input local address.

For IFP8 panel, go to <SYSTEM SETUP>--<1 PROGRAMMING>--<3 COMMUNICATION SETUP>--<1 MONITOR INTERFACE>, input local address.

There are 2 LED indicators on the download cards. The RED is showing communicating with panel main processor. The GREEN is showing communicating with computer.

## 5 User's Guide

### 5.1 Function Tools

The toolbar is shown in Fig. 3, clicking the corresponding button, you can reach the relevant window.

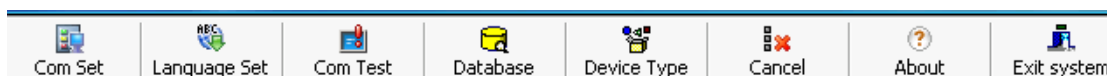


Fig. 3



### 5.1.1 Com Set

Choose the serial port communicating with fire alarm control panel, as shown in Fig. 4.

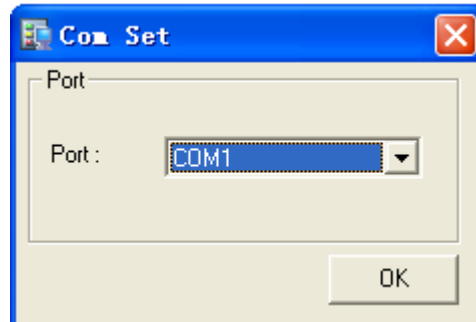


Fig. 4

### 5.1.2 Setting Language

Define system language, as shown in Fig. 5. The software supports multi-languages. The default language is English. The language package can be downloaded from <http://www.gst.com.cn/english/products/GST-def.html>.



Fig. 5

### 5.1.3 Com Test

Test the communication, as shown in Fig. 6.

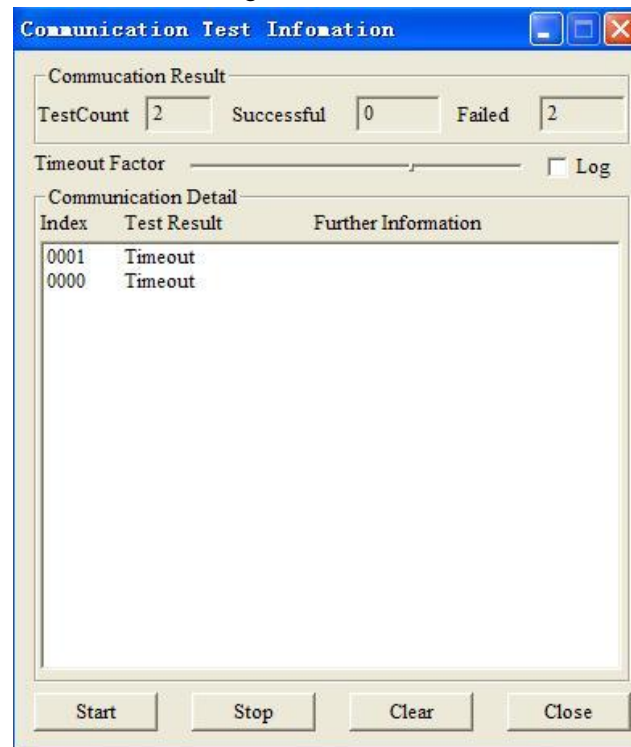
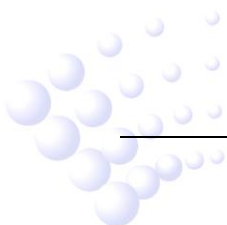


Fig. 6



### 5.1.4 Database

Database tools, for backup and restoring the database. The default folder is \\...\Gst Software\GstGMC 2.0\Backup, as shown in Fig. 7.

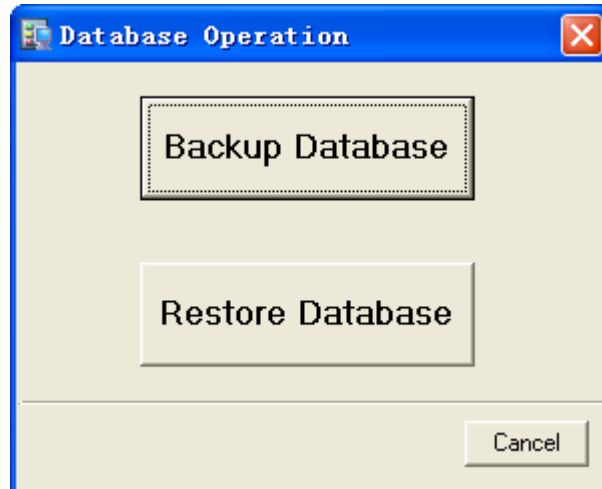


Fig. 7

### 5.1.5 Device type

Add device types and look at the related symbol, as shown in Fig. 8.











Device Pattern									
         									
No.	DeviceTypeName	No.	DeviceTypeName	No.	DeviceTypeName	No.	DeviceTypeName	No.	DeviceTypeName
01	MULTISENSOR	21	USER DEFINED	41	ZONE VALVE	61	USER DEFINED	81	F.P.E.A
02	HEAT DETECTOR	22	USER DEFINED	42	FLOW SWITCH	62	USER DEFINED	82	SounderA
03	OPTICAL SMOKE	23	USER DEFINED	43	PRESSURE SWITCH	63	USER DEFINED	83	ALARM ROUTINGA
04	USER DEFINED	24	USER DEFINED	44	USER DEFINED	64	USER DEFINED	84	Loop Flash Data
05	GAS DETECTOR	25	USER DEFINED	45	USER DEFINED	65	USER DEFINED	85	USER DEFINED
06	BEAM DETECTOR	26	USER DEFINED	46	USER DEFINED	66	USER DEFINED	86	Panel charger
07	FLAME DETECTOR	27	USER DEFINED	47	USER DEFINED	67	Loop SW	87	BAT Resistance
08	CONVENTIONAL P	28	USER DEFINED	48	USER DEFINED	68	Loop Board	88	USER DEFINED
09	USER DEFINED	29	USER DEFINED	49	USER DEFINED	69	CONTROL Panel	89	USER DEFINED
10	FLOW SWITCH	30	USER DEFINED	50	USER DEFINED	70	ZoneDir Board	90	USER DEFINED
11	MCP (BG)	31	TROUBLE MONITOR	51	USER DEFINED	71	AC Power	91	USER DEFINED
12	SOUNDER STOBE	32	PSU	52	USER DEFINED	72	Battery	92	USER DEFINED
13	SOUNDER	33	USER DEFINED	53	USER DEFINED	73	Keypad Board	93	USER DEFINED
14	FLASHER	34	USER DEFINED	54	USER DEFINED	74	Ground.F	94	USER DEFINED
15	LIFT	35	USER DEFINED	55	USER DEFINED	75	USER DEFINED	95	USER DEFINED
16	FIRE DAMPER	36	USER DEFINED	56	USER DEFINED	76	Loop Short	96	USER DEFINED
17	FIRE DOOR	37	USER DEFINED	57	USER DEFINED	77	Loop Board	97	USER DEFINED
18	AHU	38	USER DEFINED	58	USER DEFINED	78	Delay Mode	98	USER DEFINED
19	EXTRACT FAN	39	Net Unit	59	USER DEFINED	79	Power Board	99	USER DEFINED
20	BMS	40	Repeater	60	USER DEFINED	80	CRT Board	00	USER DEFINED

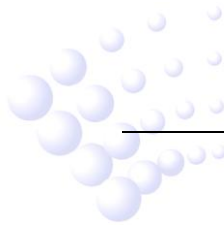
Fig. 8

### 5.1.6 Cancel

Cancel current operation. It is used to stop downloading or uploading communications.

### 5.1.7 About

About the copyright.



### 5.1.8 Exit system

## 5.2 General Operation

The system map provides a quick method to define FACP's, loops, devices, manual keys and zones and etc, as shown in Fig. 9.

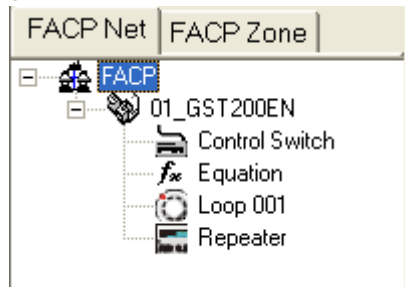


Fig. 9

### 5.2.1 Panel Operation

#### 5.2.1.1 Add New FACP

Right-click on <FACP>, click on <Add FACP>. The dialogue box is shown in Fig. 10.

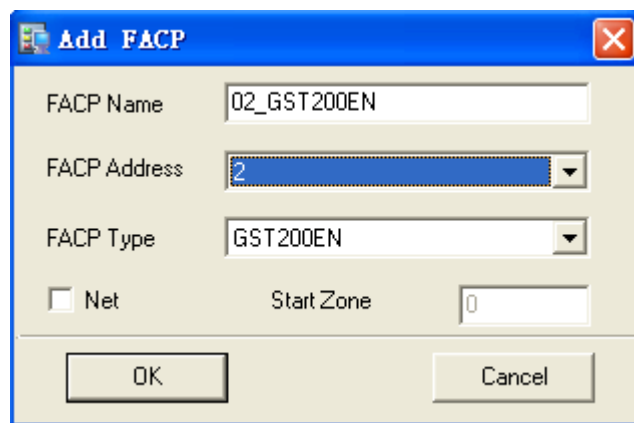


Fig. 10

- ✧ **FACP Name:** Any description of the FACP, which can be blank.
- ✧ **FACP Address:** The FACP Address must be unique for each control panel.
- ✧ **FACP Type:** The FACP Type must be correct, otherwise GstDef Tools cannot communicate with the panel. This setting cannot be changed once it is saved.
- ✧ **Net:** If < Net> is selected, the devices in this panel can be used into equations on other panels.
- ✧ **Start Zone:** The Start Zone is for network use, only for GST200. When the panel is connected to network, the information will be displayed on main panel as <Zone = Local zone + Start Zone>. The setting can be modified later.

#### 5.2.1.2 Delete FACP

Right-click the name of the panel, select <Delete FACP>, all configurations with this panel will be completely deleted.

#### 5.2.1.3 Export Devices

Right-click the name of the panel, select <Export Devices>, all the defined devices in this panel can be exported to a text file (.txt), which can be easily converted to Excel file or other



format.

#### 5.2.1.4 Export Equations

This operation can export C&E equations to a text file by double clicking.

#### 5.2.1.5 Upload and Download

When a panel is selected, the upload or download operation will cover all definitions relating to that panel, including zones, devices, control switches and equations, as shown in Fig. 11.

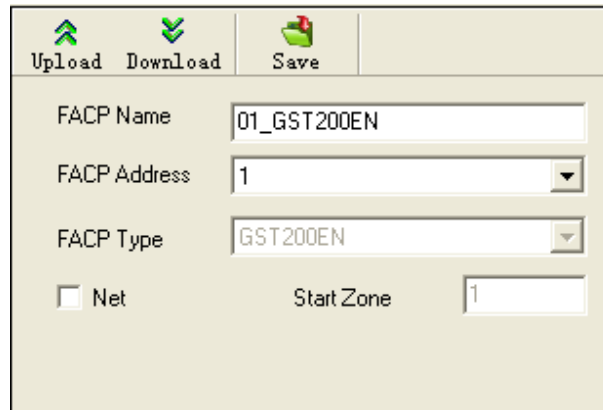


Fig. 11

**Upload** means taking pre-record information from the panel.

**Download** means sending the definitions to the panel.

#### 5.2.1.6 Save

The "Save" operation is for completing definition. Each time it will save all changes comparing with previously saved data.

### 5.2.2 Zone Operation

Clicking <FACP Zone> will go to zone operation. Here you can add, delete or modify the zones.

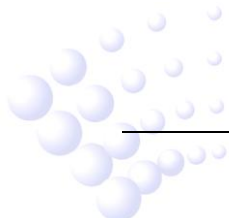
## 5.3 System Definition

### 5.3.1 Define zones

The protected area can be divided into several zones, which, in case of emergency situation in a zone, a general location information can be shown on the FACP to give people the "First Aid". The zones should be divided according to building structure. A major consideration is to make people easily access the area. By BS standard, each detection zone should be no more than 2000m<sup>2</sup> to 3000 m<sup>2</sup> for L1 or L2.

The zone definitions are shared by all devices connected to the FACP. Each zone may contain devices from different loops, and devices from the same loop may be set to different zones.


Click <FACP Zone> and select a panel, all zones defined in this panel will be displayed. And click a zone number, you can check all devices in that zone, as shown in Fig. 12.



Zone ID	ForeColor	BackColor	Description	Example
1	0	8421631	Zone 1	Zone 1
2	0	8454143	Zone 2	Zone 2
3	0	16777088	Zone 3	Zone 3
4	0	8454016	Zone 4	Zone 4

Fig. 12

**5.3.1.1 Add New Zone**

Click <New> , there will be a new zone shown at the bottom.

There can be maximum 30 zones for GST200, 60 for GST200-2, 255 zones for GST5000 series panels, and 999 for GST-IFP8 panel.

Description of the information will be shown on panel screen, the name of the zone, Maximum 8-characters (40 for GST-IFP8 panel) including letters, number and some symbols.

<ForeColor> and <BackColor>: When a device is defined into a zone, the text <ForeColor> and background <BackColor> will easily spot it. The default color is black on white, as shown in Fig.13.

Address	Device Number	Loop	Zone	Device Type	Properties	Location
1	001001	1	001-Zone 1	11-MCP	1	
2	001002	1	001-Zone 1	11-MCP	1	
3	001003	1	001-Zone 1	11-MCP	1	
4	001004	1	001-Zone 1	11-MCP	1	
5	002005	1	002-Zone 2	11-MCP	1	
6	002006	1	002-Zone 2	03-Optical	6	
7	002007	1	002-Zone 2	06-Beam Det	6	
8	003008	1	003-Zone 3	06-Beam Det	6	
9	003009	1	003-Zone 3	06-Beam Det	6	
10	003010	1	003-Zone 3	06-Beam Det	6	
11	004011	1	004-Zone 4	06-Beam Det	6	
12	004012	1	004-Zone 4	06-Beam Det	6	
13	004013	1	004-Zone 4	03-Optical	6	


Fig. 13

Zone ID	Zone Mode	Zone Sounder Mode	Zone Resound Mode	Zone Led	ForeColor	BackColor	Description
1	0-off	1-on E&C	0-no resound	1	0	8421631	Zone 1
2	0-off	1-on E&C	0-no resound	2	0	8454143	Zone 2
3	0-off	1-on E&C	0-no resound	3	0	8454016	Zone 3
4	1-Type A	0-sound by zone fire	1-resound by new fire	4	0	33523	Zone 4
5	1-Type A	0-sound by zone fire	1-resound by new fire	5	0	16744703	Zone 5
6	2-Type B	0-sound by zone fire	1-resound by new fire	6	0	16777088	Zone 6
7	2-Type B	0-sound by zone fire	1-resound by new fire	7	0	16744576	Zone 7

Fig. 14

As shown in Fig. 14, GST-IFP8 panel has additional < Zone Mode >, < Zone Sounder Mode >, < Zone Resound Mode > and < Zone Led > options.

### 5.3.1.2 Delete zone


Select a zone (highlighted) and click <Delete>  button.

### 5.3.1.3 Download & Upload

By <Upload All> or <Download All> , the operation will be done to all zones.

Select one or several zones and press <Upload> or <Download> , the operation is done to the selected zone(s).

### 5.3.1.4 Save

Press <Save>  button to save all the modifications.

### 5.3.1.5 Reload

This operation will restore the definition from the last <Save> operation. All modifications not saved will be lost.

## 5.3.2 Define devices

### 5.3.2.1 General




Address	Device Number	Loop	Zone	Device Type	Properties	Location
1	001001	1	001-Zone 1	 11-MCP	1	
2	001002	1	001-Zone 1	 11-MCP	1	
3	001003	1	001-Zone 1	 11-MCP	1	

Fig. 15

The items include:

<Address>: The physical address of the device.

<Device Number>: Each device has a 6-digit number, normally arranged as zone number + address. This number must not be repeated in the whole system (including network devices). Although the zone number on GST5000 series can be manually modified, it's recommended not modifying it to avoid any incorrect display.

<Loop>: Showing the loop of the devices.

<Zone>: Dropdown list to select zone.

<Device Type>: Select device type by dropdown list. For detectors or MCP, this type should be selected according to the real device type. For modules, the type is decided by equipment connecting to the module. For example, there is a Fire Door connecting to a module addressed 17, so address 17 should be defined as 28-FireDoor. To view the complete type list, please refer to the appendix.

<Properties> Device properties, which is only useful for output devices like sounder or output modules. Refer to Fig.16.

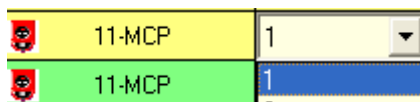


Fig. 16

1-Level output, means the output will be continuous until the device is stopped manually or the system is reset.

0-Pulse output, means the output will only last for 10 seconds (a pulse) after started.

<Location>: Detailed location of the device, maximum 32 characters including letters, numbers and some symbols.

<Panel Loop> <Panel Number> and <Switch Key>: Definition to ZCP which will be described later.

For GST200-2 and GST-IFP8, the uploaded device definition information also include if the device is successfully registered. See Fig. 17.

Address	Device Number	Loop	Zone	Device Type	Properties	Location	Registered
1	001001	1	001-Zone 1	01-IDN	6	GST200-C01-TWO-LOOP01-DEVICE-001	False
2	001002	1	001-Zone 1	01-IDN	6	GST200-C01-TWO-LOOP01-DEVICE-002	False

Fig. 17

### 5.3.2.2 Special Definitions

Loop capacity of GST200 is 242 devices, including all types of addressable devices. Loop capacity of GST200-2 is 484 devices, including all types of addressable devices. In each loop, there are some addresses reserved for the system.

There are 5 addresses reserved in the 1<sup>st</sup> loop.

238: Fault output. Active when any fault occurs in the system.

239: Loop monitor. Active if the panel cannot detect testing voltage in Loop-IN terminal of Loop 1.

240: Sounder Circuit output. Active when receiving any fire signal. This terminal is designed for connecting with conventional alarm devices for general alarm purpose, which can be stopped by silence key.

241: F.P.E. (Fire Protection Equipment) output. Active on receiving any fire signal. It is designed for connecting controlled equipment like AHU, which cannot be stopped by silence switch.

242: Fire alarm output. Active on receiving any fire signal. This terminal is designed for repeating fire signal remotely, such as at the Civil Defense or Fire Brigade. It can be stopped by silence key on GST5000 series, but not on GST200.

These definitions are fixed in GST200 (from 236 to 242) that cannot be modified. In GST5000 series, the last 3 addresses can be modified to other types for different functions, as shown in Fig. 18.





238	001238	1	001-Zone 1		56-SounderF	1	
239	001239	1	001-Zone 1		57-Loop SW	1	
240	001240	1	001-Zone 1		55-SounderA	1	
241	001241	1	001-Zone 1		65-F.P.E	1	
242	001242	1	001-Zone 1		55-SounderA	1	

Fig. 18

In multi-loop panel (GST5000 series), Loop1 and other loops have only the last address (242) reserved, which is defined as 57-Loop SW for monitoring the corresponding loop. Refer to Fig. 19.



241	202241	2	000-Undefined		03-Optical	6		0	0	0
242	202242	2	000-Undefined		57-Loop SW	1		0	0	0

Fig. 19

### 5.3.2.3 Loop Operation

For GST200, there is only ONE loop. When the panel is created, the loop is configured as default.

For GST200-2, there are TWO loops. When the panel is created, two loops are configured as default.

For GST5000 series and GST-IFP8, there is no default loop. Right-click on the panel under <FACP Net> command and select <Add Loop>, as shown in Fig. 20.

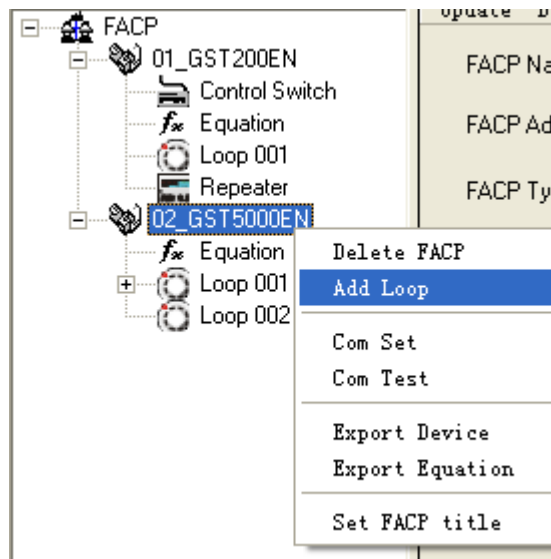
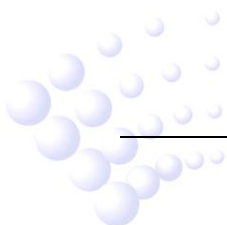


Fig. 20



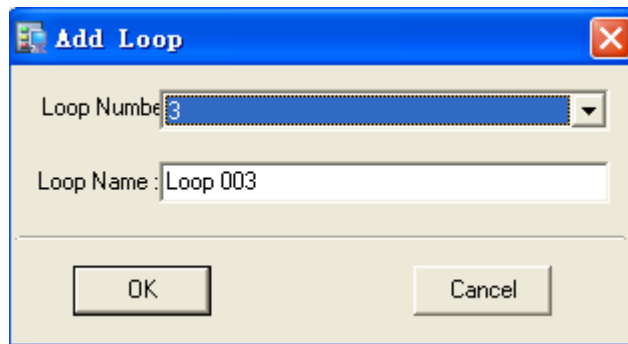



Fig. 21

The <Loop Number> is default as next to the previous, which can be changed manually. But for the system, the loop number must be continuous, as shown in Fig. 21. **(Note: Loop 0 is for repeater panel, refer to 5.3.4 Define Repeaters for details.)**

The <Loop Name> can only be described in the software only, but cannot be downloaded to the panel.

Both Loop Number and Name can be modified later. Clicking  button can save the changes. Refer to Fig. 22.

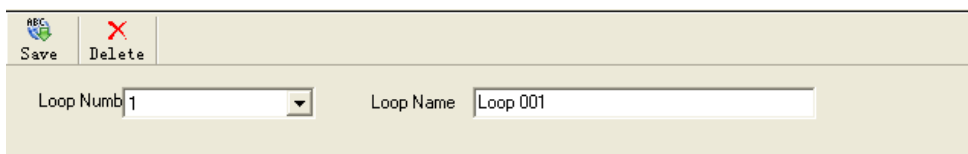



Fig. 22

### 5.3.2.4 Upload and Download

Same as for zones, the upload or download can be done to one or a group of or all the devices in the current loop.

### 5.3.2.5 Device Check

Click on button , the software will check the definitions of the current panel. As mentioned in <Device Number>, in the whole system, the device number cannot be duplicated. This operation will check all devices and give out the information.

If there are the same addresses from different loops installed into the same zone, the duplicated condition may occur. In this case, please manually modify the 4<sup>th</sup> to 6<sup>th</sup> digits of <device Number>.

### 5.3.2.6 Reload

This operation will restore the definition from last <Save> operation. All modifications not saved will be lost.

## 5.3.3 Define Control Keys

### 5.3.3.1 General

The panels (except for GST-IFP8) are configured with one or more Zone Indication and Manual Intervention Panels (ZCP).

For GST200 and GST200-2, there are 32 buttons.

For GST5000 series, the default configuration is 1 (one) ZCP, which has 64 buttons. The



ZCP can be expandable on order.

The key/indicators can be defined to one of the three types: Zone Indication, Start One Device or Silence. A key/indicator can only be set with one of the three types. In GST5000 series, the keys can be used for evacuation.

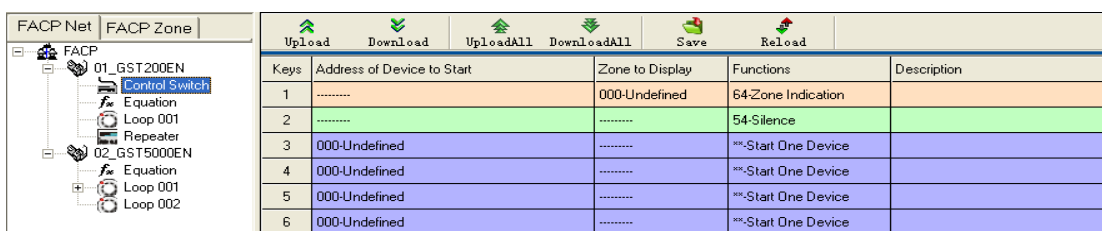
**Zone Indication:** The indicators will show Fire (Red lit), Fault (Yellow lit) or Disable (Yellow flash) of the related zone. Pressing the button can start all sounders in that zone. This definition must be done to every zone.

**Start One Device:** This option is only available for output devices. The button will reverse the condition of the related device. When it is started, pressing this button will stop it. This is optional that can be defined or not.

**Silence:** This must be defined, normally at the right-bottom corner so that it is easy to reach. Pressing this button will stop all started (by fire signal) sounders and the sounder output on the panel. When the next fire signal comes, the related sounders will be started again.

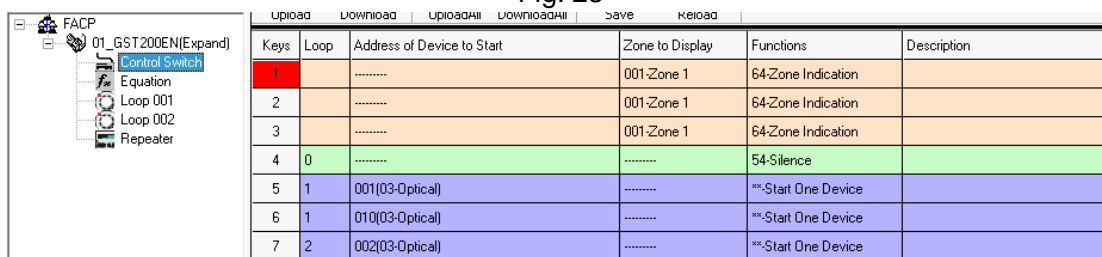
**All Evacuation:** This function only available for GST5000 series. Pressing the button will start all sounders and sounder outputs to evacuate the building manually. The started sounders cannot be stopped by the SILENCE button. They can only be stopped by RESET.

### 5.3.3.2 Control Switches of GST200 and GST200-2



Keys	Address of Device to Start	Zone to Display	Functions	Description
1	.....	000-Undefined	64-Zone Indication	
2	.....	.....	54-Silence	
3	000-Undefined	.....	**-Start One Device	
4	000-Undefined	.....	**-Start One Device	
5	000-Undefined	.....	**-Start One Device	
6	000-Undefined	.....	**-Start One Device	

Fig. 23



Keys	Loop	Address of Device to Start	Zone to Display	Functions	Description
1		.....	001-Zone 1	64-Zone Indication	
2		.....	001-Zone 1	64-Zone Indication	
3		.....	001-Zone 1	64-Zone Indication	
4	0	.....	.....	54-Silence	
5	1	001(03-Optical)	.....	**-Start One Device	
6	1	010(03-Optical)	.....	**-Start One Device	
7	2	002(03-Optical)	.....	**-Start One Device	

Fig. 24

Choose the wanted zone or device address, the related Function line will automatically change to Zone indication or Start One Device. To define a silence button, choose Silence in the Function Line, as shown in Fig. 23 and Fig. 24 for GST200-2 with additional "Loop" column.

This definition is uploaded/downloaded separately.

### 5.3.3.3 Control Keys for GST5000 Series

In GST5000 series panels, the ZCP(s) is (are) connected to loop(s). By default, it is connected to loop 1. To each loop, Maximum 4 ZCPs can be connected. When creating loops, there is one ZCP automatically added into Loop 1, shown as <Control Switch 1>. If more control switches are needed, right-click on the loop and click <Add Control Switch>.

Refer to Fig. 25.

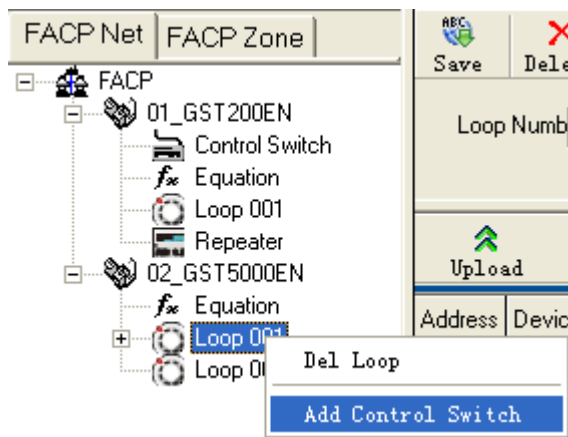


Fig. 25

The definition is done with the loop devices. Normally the loop capacity will not be fully used. Choose a group of unused addresses for defining the control switches, as shown in Fig. 26.

Address	Device Number	Loop	Zone	Device Type	Properties	Location	Panel Loop	Panel Number	Switch Key
1	201001	1	000-Undefined	03-Optical	6		1	1	1
2	201002	1	000-Undefined	03-Optical	6		1	1	2
3	201003	1	000-Undefined	03-Optical	6		1	1	3

Fig. 26

**(1) Define “Zone Indication”**

Select the 64-Zone under <device Type>. Set the addresses into individual zones. Set a <Switch Key> number to each zone. When a <Switch Key> is decided, the <Panel Loop> and <Panel Number> will be automatically changed to 1 & 1. That means this ZCP is the 1<sup>st</sup> one connecting to the 1<sup>st</sup> loop. If the panel number and connected loop are different, please modify them to the same manually.

**(2) Define “Start One Device”**

Address	Device Number	Loop	Zone	Device Type	Properties	Location	Panel Loop	Panel Number	Switch Key
1	201001	1	000-Undefined	03-Optical	6		1	1	1
2	201002	1	000-Undefined	03-Optical	6		1	1	2
3	201003	1	000-Undefined	03-Optical	6		1	1	3

Fig. 27

Set the switches to be related with corresponding devices directly, as shown in Fig. 27.

**(3) Define “Silence” Switch**

Select one unused address. Set <Device Type> at 56-Silence and the wanted switch.

**(4) Checking**

After saving the above definitions, by clicking the <Control Switch 1> on the left, the complete definition list will be shown as in Fig. 28.

SN	Panel Loop	Panel Number	Switch Key	Device Type	Device information	Description
1	1	1	1	03-Optical	001001	
2	1	1	2	03-Optical	001002	
3	1	1	3	03-Optical	000000	
4	1	1	4	03-Optical	000000	
5	1	1	5	03-Optical	000000	
6	1	1	6	03-Optical	000000	

Fig. 28

**(5) Upload and Download**

The definition will be downloaded/uploaded together with loop devices definition.

**5.3.4 Define Repeater Panels**

**5.3.4.1 Repeater Panel of GST200 and GST200-2**

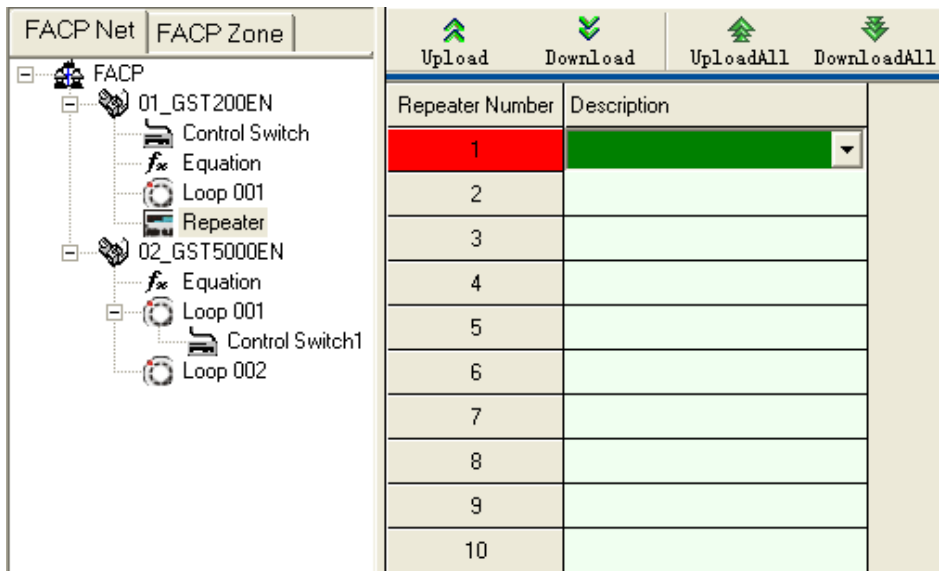


Fig. 29

As shown in Fig. 29, GST200 and GST200-2 can drive up to 10 repeater panels. The description (8 characters) can be downloaded to the fire alarm panel. In case there is fault with the repeater panel, the description will be displayed on the FACP. But even if the repeater panel is not defined, it will still work normally.

**5.3.4.2 Define Repeater Panel of GST5000 Series**

Select the FACP, and add Loop 0 ( Loop 0 is defaulted as repeater panel loop), as shown in Fig. 30.

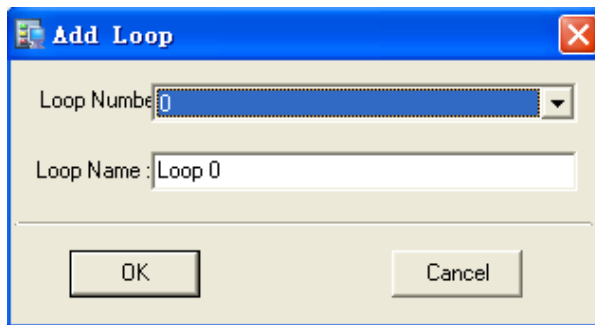
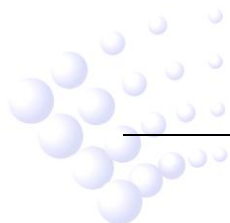


Fig. 30

After adding the loop, the devices of repeater panel are shown in Fig. 31. Its operation is the same as other device definition of GST5000 series.



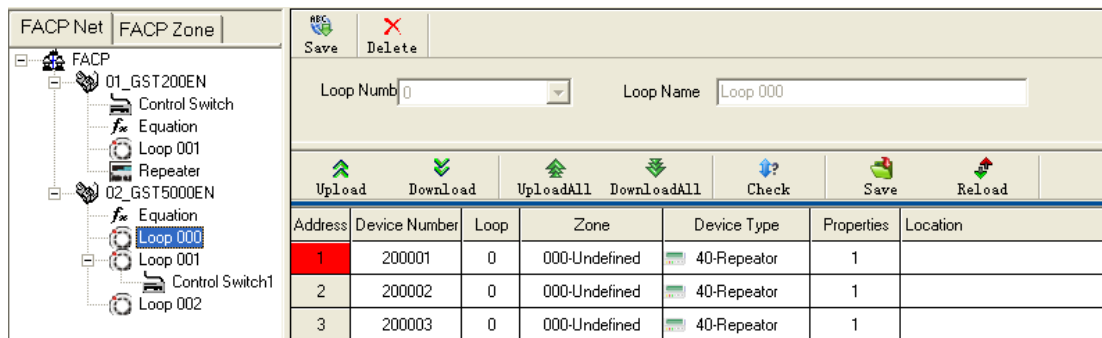


Fig. 31

### 5.3.5 Define Equations

#### 5.3.5.1 General

In case of fire, the FACP's (GST200 and GST5000 series) will act according to the pre-programmed equation. There are TWO default actions that do not need to be defined:

- (1) In case of fire in a zone, the zonal sounders will be started immediately.
- (2) In case of fire in a zone, the panel outputs (Sounder circuit output, fire alarm output & F.P.E.) will be started immediately.

Clicking <Equations> under <FACP Net> will get into equation definition, as shown in Fig. 32 and Fig. 33.



Fig. 32

- <New>: Add a new equation.
- <Insert Dev>: Add a device into the condition or result.
- <Delete Dev>: Delete a device from the condition or result.
- <Save Modify>: Save the current equation temporarily.
- <Save New>: Easily add a similar equation into the temporary database.

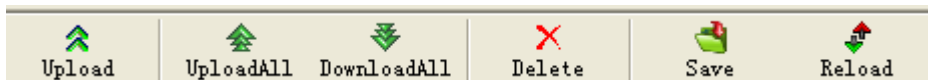


Fig. 33

- <Upload>: Upload this piece of equation from panel.
- <Upload All>: Upload all equations from panel.
- <Download All>: Download all equations to the panel. The equations can be only downloaded together, rather than piece by piece.
- <Delete>: Delete the selected equation.
- <Save>: Save all equations to the database. Note: this operation must be done after defining all equations.
- <Reload>: Restore equation from the last <Save> operation.

The number of devices (both in condition and result) shall not exceed 10. If more than 10 devices are to be used, please split them into two equations..

#### 5.3.5.2 Equations in GST200 and GST200-2

##### (1) Define a new equation

Click the device cell under the <Condition Devices>, the cell becomes editable. The device number can be input manually. An easier way is double-clicking the cell again, a defined

devices list will pop out. Choose the device and double-click or click <OK> button, the device will be selected and input to the cell, as shown in Fig. 34.

If more than one device are required in the condition, click <Insert Dev> to add another device. The relationship between the devices should be manually set. “+” means “OR” logic. “X” means “AND” logic.

The operation is the same for adding multiple devices to the result.

If the current panel is in network, both condition devices and result devices can be selected from devices under other networked panels, as long as their zone numbers are not greater than 100.

The delay time can be set individually to each output device. The delay time is in second multiplied by 10, Maximum 10 minutes (600 seconds). For example, 6 means delaying 1 minute (6X10=60s).

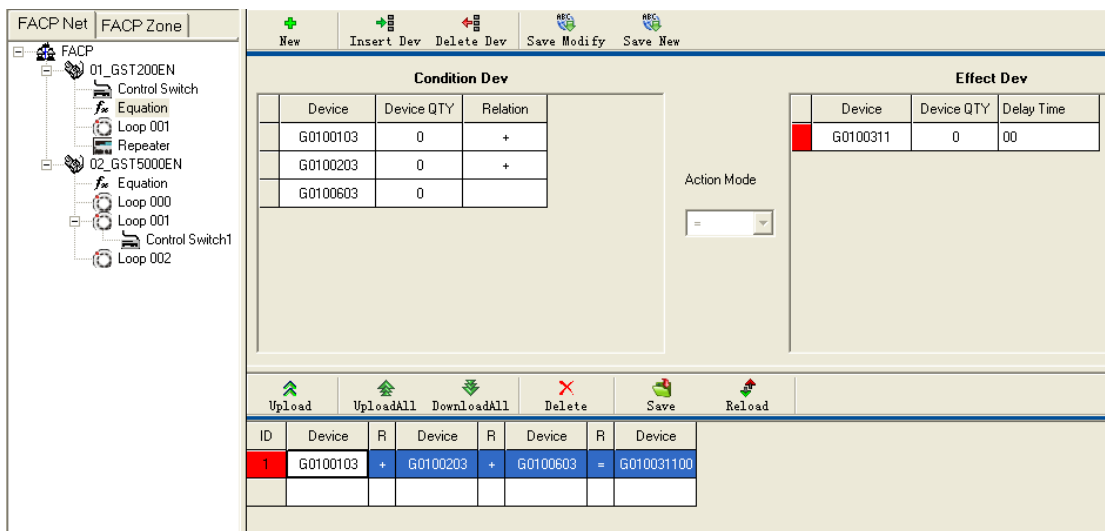



Fig. 34

After clicking , the equation will be added to the list at the bottom. Then add the next equation.

## (2) Fuzzy Device

For similar devices, we can use Fuzzy Logic to save our work. It means for these similar devices, we use only one Fuzzy Device instead of inputting them one by one.

Tick <Fuzzy Devices> to start the function, as shown in Fig. 35.

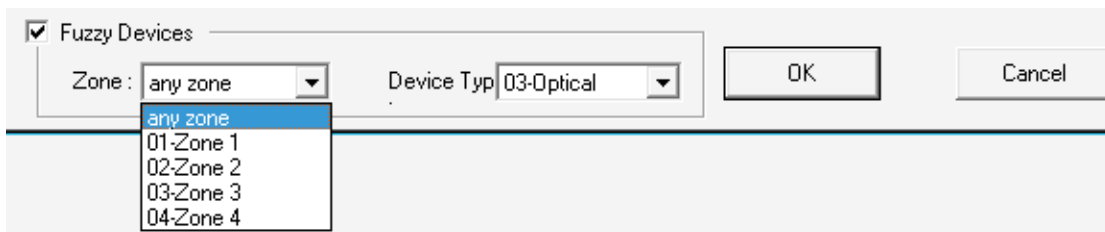


Fig. 35

For example, <Zone>=01 & <Dev Type>=03 means any Optical detector in Zone 1. If <Zone>=02, <Dev Type>= Any Type, means any device in zone 2. Refer to Fig. 36.

Also the quantity can be set. Between all these devices, the logic is AND.

Condition Devices:			
	Device	Device QTY	Relation
	S0100203	02	

Fig. 36

If  $\langle \text{Device QTY} \rangle = 2$ , means this condition is only getting true if any 2 of these devices alarm together.

### (3) Rules for display

Exact device:

- ✧ Led by G
- ✧ Digit 2&3 for zone number
- ✧ Digit 4 to 6 for address
- ✧ Digit 7&8 for device type

For example, G0207503 means an optical detector in zone 2, address at 075

Fuzzy device:

- ✧ Led by S
- ✧ Digit 2&3 for zone number, \*\* means any zone.
- ✧ Digit 4 to 6 for device quantity, shown under  $\langle \text{Device QTY} \rangle$
- ✧ Digit 7&8 for device type, \*\* means any type of devices
- ✧ For example, S0100203 means any two optical detectors in zone 1
- ✧ The output can also be Fuzzy device. The  $\langle \text{Device QTY} \rangle = 1$  will start all devices complying with the setting.

### (4) Edit equation

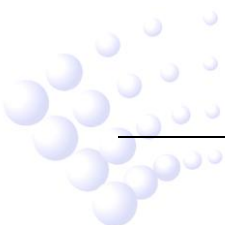
An existing equation can be edited by clicking the lower part of Fig. 34.

#### 5.3.5.3 Equations in GST5000 Series

##### (1) Define a new equation

The operations for adding a new equation is the similar to GST200. Besides, if the current panel is in network, both condition devices and result devices can be selected from all devices under other networked panels, not restricted by their zone numbers, as shown in Fig. 37.

The delay time is in second multiplied by 6.





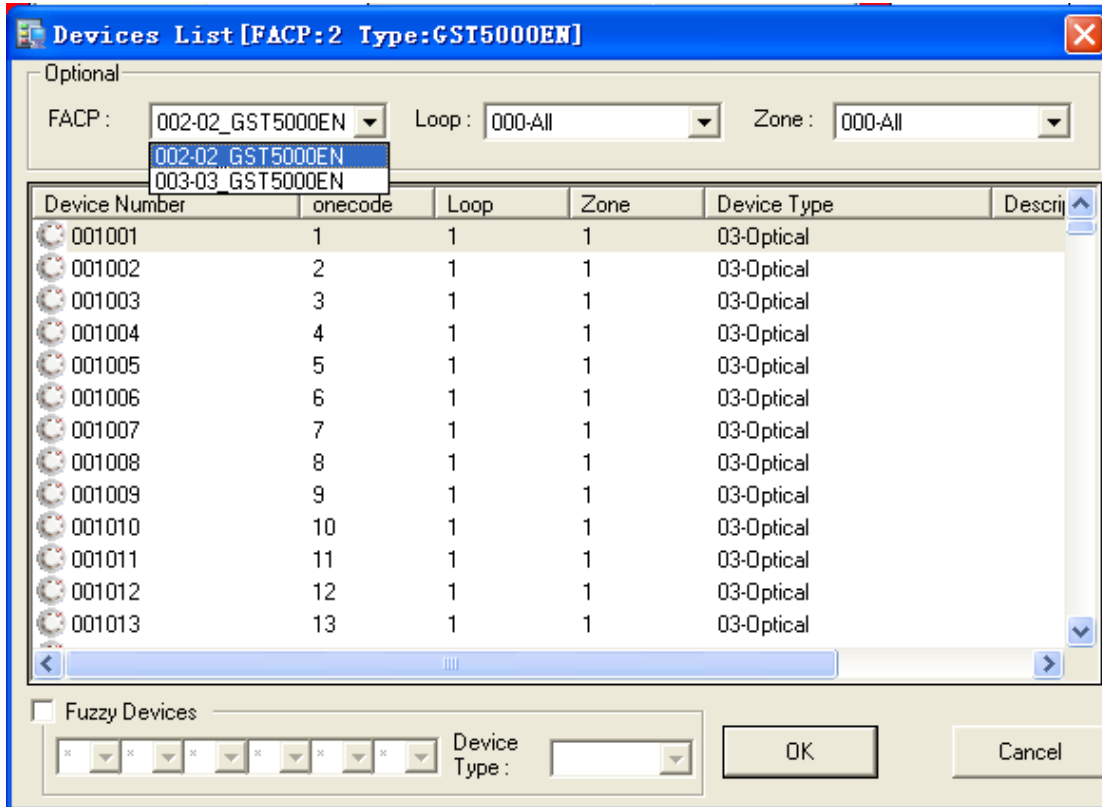


Fig. 37

**(2) Fuzzy Device**

The Fuzzy Devices for GST5000 series is defined in a different way comparing with GST200, as shown in Fig. 38 and Fig. 39.

ID	Device	R	Device	R	Device
1	001***03	x	001***03	=	001***1300

Fig. 38

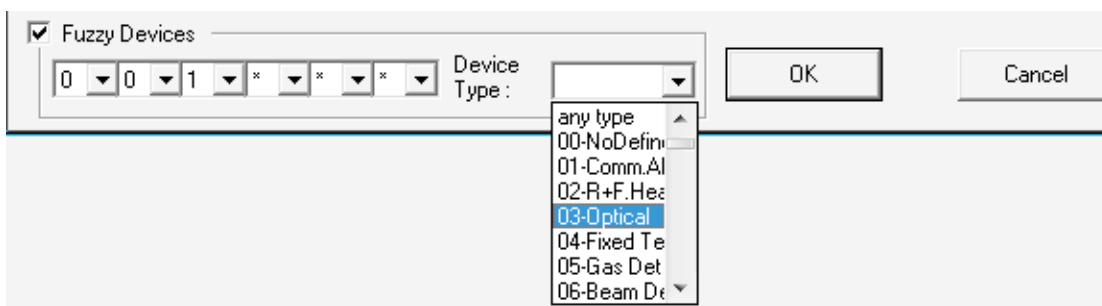


Fig. 39

It is using the 6-digit device number plus 2-digit device type code. Any digit replaced by \* will represent any of the numbers from 0 to 9. For example, 01\*\*\*11 represents any MCP in zone 001. \*\*\*\*\*02 means any R&F heat detector of the whole system.

**(3) Gas equation**

The gas extinguishing control equation requires to first confirm if gas extinguishing is permitted on the FACP, as shown in Fig. 40.

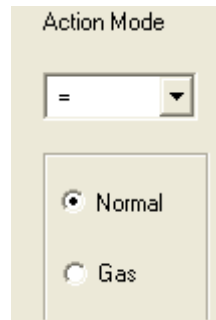


Fig. 40

**(4) Edit equation**

Refer to (4) Edit equation in 5.3.5.2 Equations in GST200.

**5.3.5.4 Equations in GST-IFP8**

The definition and edition of equations for GST-IFP8 is the same as GST5000. Please refer to the description for editing GST5000 equations.

**5.3.6 Customize Device Type**

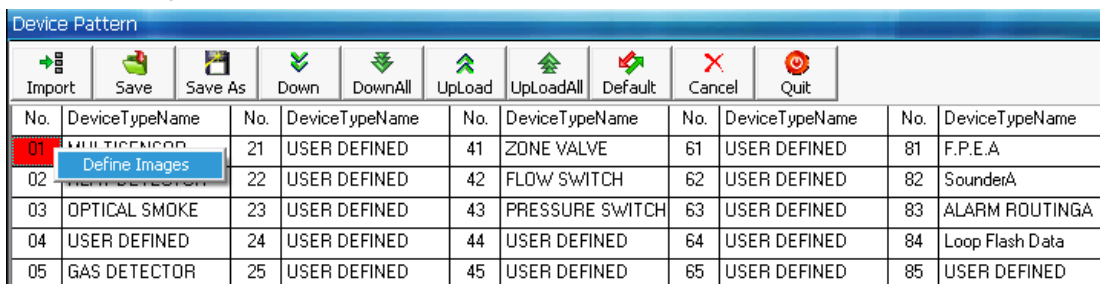
Device Pattern									
No.	DeviceTypeName	No.	DeviceTypeName	No.	DeviceTypeName	No.	DeviceTypeName	No.	DeviceTypeName
01	MULTISENSOR	21	USER DEFINED	41	ZONE VALVE	61	USER DEFINED	81	F.P.E.A
02	HEAT DETECTOR	22	USER DEFINED	42	FLOW SWITCH	62	USER DEFINED	82	SounderA
03	OPTICAL SMOKE	23	USER DEFINED	43	PRESSURE SWITCH	63	USER DEFINED	83	ALARM ROUTINGA
04	USER DEFINED	24	USER DEFINED	44	USER DEFINED	64	USER DEFINED	84	Loop Flash Data
05	GAS DETECTOR	25	USER DEFINED	45	USER DEFINED	65	USER DEFINED	85	USER DEFINED
06	BEAM DETECTOR	26	USER DEFINED	46	USER DEFINED	66	USER DEFINED	86	Panel charger
07	FLAME DETECTOR	27	USER DEFINED	47	USER DEFINED	67	Loop SW	87	BAT Resistance
08	CONVENTIONAL P	28	USER DEFINED	48	USER DEFINED	68	Loop Board	88	USER DEFINED
09	USER DEFINED	29	USER DEFINED	49	USER DEFINED	69	CONTROL Panel	89	USER DEFINED
10	FLOW SWITCH	30	USER DEFINED	50	USER DEFINED	70	ZoneDir Board	90	USER DEFINED
11	MCP (BG)	31	TROUBLE MONITOR	51	USER DEFINED	71	AC Power	91	USER DEFINED
12	SOUNDER STOBE	32	PSU	52	USER DEFINED	72	Battery	92	USER DEFINED
13	SOUNDER	33	USER DEFINED	53	USER DEFINED	73	Keypad Board	93	USER DEFINED
14	FLASHER	34	USER DEFINED	54	USER DEFINED	74	Ground.F	94	USER DEFINED
15	LIFT	35	USER DEFINED	55	USER DEFINED	75	USER DEFINED	95	USER DEFINED
16	FIRE DAMPER	36	USER DEFINED	56	USER DEFINED	76	Loop Short	96	USER DEFINED
17	FIRE DOOR	37	USER DEFINED	57	USER DEFINED	77	Loop Board	97	USER DEFINED
18	AHU	38	USER DEFINED	58	USER DEFINED	78	Delay Mode	98	USER DEFINED
19	EXTRACT FAN	39	Net Unit	59	USER DEFINED	79	Power Board	99	USER DEFINED
20	BMS	40	Repeater	60	USER DEFINED	80	CRT Board	00	USER DEFINED

Fig. 41

Choose the node of the tree structure at the left of the main screen and click <Device Type> button, the screen in Fig. 41 will pop up. For GST200-2 and GST-IFP8, the name of device type is user-definable. Function of tool bar buttons are as follows:

- <Import>: Importing .ini file with saved device type.
- <Save>: Saving the current device type into current database so that the device type doesn't change when running the software next time.
- <Save As>: Saving the current device type as an .ini file.
- <Down>: Downloading the selected device type to the FACP.
- <DownAll>: Downloading all currently defined device types to the FACP.

- <UpLoad>: Uploading device type to the computer.
- <UpLoadAll>: Uploading all device types to the computer.
- <Default>: Restoring the default device type.
- <Cancel>: Canceling the current operation.
- <Quit>: Closing the current window.



No.	DeviceTypeName	No.	DeviceTypeName	No.	DeviceTypeName	No.	DeviceTypeName	No.	DeviceTypeName
01	MULTISENSOR	21	USER DEFINED	41	ZONE VALVE	61	USER DEFINED	81	F.P.E.A
02	MEMBER DETECTOR	22	USER DEFINED	42	FLOW SWITCH	62	USER DEFINED	82	SounderA
03	OPTICAL SMOKE	23	USER DEFINED	43	PRESSURE SWITCH	63	USER DEFINED	83	ALARM ROUTINGA
04	USER DEFINED	24	USER DEFINED	44	USER DEFINED	64	USER DEFINED	84	Loop Flash Data
05	GAS DETECTOR	25	USER DEFINED	45	USER DEFINED	65	USER DEFINED	85	USER DEFINED

Fig. 42

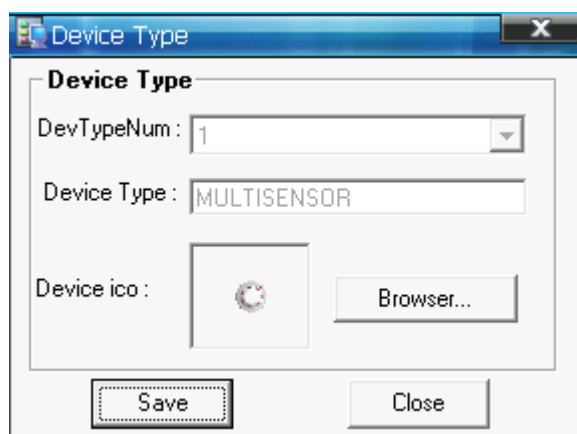


Fig. 43

The device type icon is also customer-definable. Right-clicking the device type number in Fig. 41, <Define Images> menu will pop up as in Fig. 42 and Fig. 43, and then clicking <Browser> can choose and save an icon.

### 5.3.7 Upload Running Record

Right-clicking the FACP node at the left of the main screen as in Fig. 44, a menu will pop up. Choosing <History Record >, the window as in Fig. 45 will pop up.

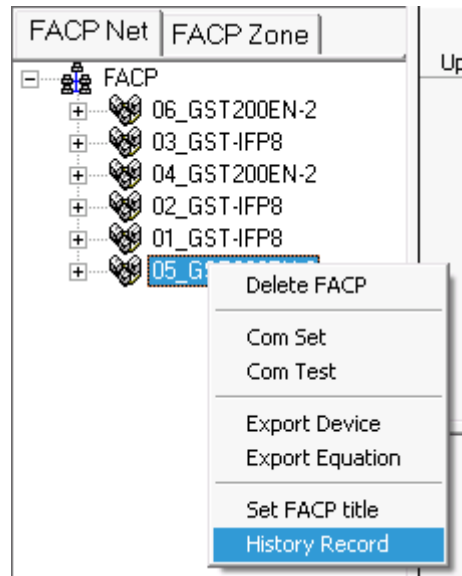


Fig. 44

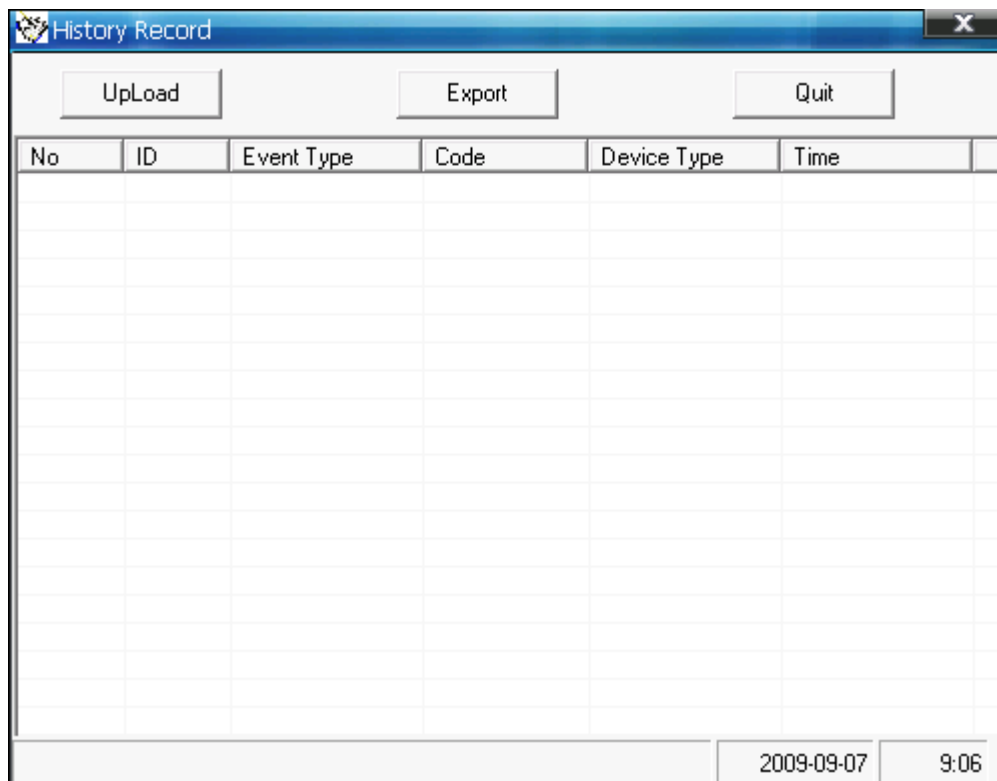
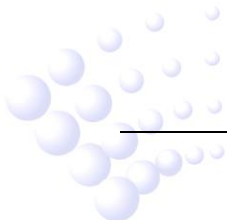


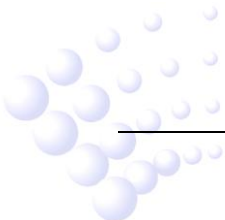
Fig. 45

For GST200-2 and GST-IFP8, the user can upload the running record in the FACP to the computer by clicking <Upload> in the screen of Fig. 45. After uploading, clicking <Export> will save the current records in the form of an Excel file (the user shall have the Excel program in the computer).



## 6 Caution

- ✧ After completing all above definitions, please make a backup of the database for future checking and modification.
- ✧ The copyright of this software is reserved by the manufacturer, and protected by law. Any copy or modification without the permission of the manufacturer is prohibited.
- ✧ This operation manual may be updated according to product upgrading without notification.



## Appendix Device Type List

Device No.	Abridge	Description
1	ION	Ionization Smoke Detector
2	R+F.Heat	Rate of Rise & Fixed Temperature Detector
3	Optical	Optical Smoke Detector
4	Fix Temp	Fixed Temperature Detector
5	Gas Det	Combustible Gas Detector
6	Beam Det	Infrared Beam Detector
7	FlameDet	Ultraviolet Flame Detector
8	Cable	Linear Cable Heat Detector
9	A.Heat	Advanced Heat Detector
10	Detector	Normal Detector
11	MCP	Manual Call Point
12	VA.Module	Voice Alarm Module
13	Sounder	Sounder (special for all types of alarming devices)
14	FTModule	Fire Telephone Module
15	HR MCP	Hydrant Manual Call Point
16	HR Pump	Hydrant Pump
17	SPKR Pmp	Sprinkler Pump
18	PS.SW	Jockey Pump
19	Extract	Smoke Extract
20	Presuriz	Pressurize
21	FreshAir	Fresh Air
22	Damper	Fire Damper
23	SM Vent	Smoke Vent
24	Air Inlet	Air Inlet
25	Sol Valve	Solenoid Valve
26	SM CURT	Smoke Curtain, Middle Position
27	RSD Close	Smoke Curtain, Closed
28	FireDoor	Fire Door
29	PS.DIFF	Pressure Switch
30	Flow SW	Flow Switch
31	Elevator	Elevator
32	AHU	Air Handling Unit
33	GENI	Generator
34	Light.DB	Power DB for lighting
35	Power.DB	Power DB for equipment
36	WTR.CURT	Water Curtain Solenoid Valve
37	Gas Dump	Gas Extinguishing Start
38	GasAbort	Gas Extinguishing Abort
39	Net Unit	Network Panel (for panel indication only)
40	Repeater	Repeater (for panel indication only)
41	Gen I/P	General Input
42	DryPower	Dry-Powder Cylinder
43	FoamPump	Foam Pump
44	Field PSU	Power Supply Unit
45	EM Light	Emergency Light
46	EscapeLT	Exit Light
47	GasActiv	Gas Extinguishing Warn Indicator
48	Security	Security Interface module
49	ZoneValv	Zonal Valve
50	Cylinder	Cylinder
51	DelugePM	Deluge pump



52	Undefine	Undefined
53	Stop Mod	Device stop
54	Silence	Silence Button (for definition only)
55	SounderA	Sounder Circuit Output
56	SounderF	Fault output
57	Loop SW	Loop Monitor
58	CRT Fault	CRT Fault (for panel indication only)
59	Loop	Loop (for panel indication only)
60	PSU.Bat	Remote PSU Battery Fault (for panel indication only)
61	PSU.AC	Remote PSU AC Fault (for panel indication only)
62	Lock	Function Control Lock
63	PART	Part of devices (for panel indication only)
64	Zone	Zone Indication (for definition only)
65	F.P.E	Fire protection equipment output
66	All evac	Start all sounders (for definition only)
67	Ground.f	Ground fault (for panel indication only)



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