FireClass

Addressable Fire Alarm Control Panels

From Software version 21

Service and Maintenance

FC-P-S

Doc. version 1
22. March 2012

Contents

1 Introduction

This section provides an introduction to the guide itself, and to the products covered.

1.1 About this Guide

1.1.1 Who this Guide is For

This guide is aimed at suitably qualified technicians who are experienced in the principles of fire detection and alarm systems, and who have received training in FireClass based systems.

1.1.2 What this Guide Covers

This guide covers the diagnostic and re-configuration functions of FireClass control panels, as accessed from menu options. The information is applicable to any member of the FireClass range of control panels.

The guide covers, for example, adding detectors to the system and changing zone descriptions.

The guide covers version 2 1 of the control panel firmware.

1.1.3 What this Guide does not Cover

This guide does not provide specific maintenance and servicing schedules, as these are expected to be covered by local site practices and/or regulations.

This guide does not provide detailed information where this is covered by another of the guides available for the FireClass range, such as the user guide or the installation guide.

2 Control Panel Functions

The control panel has "normal user" functions, such as setting the time and date, and viewing the event log. These functions are covered in the user guide.

The control panel also has "higher level" engineering functions, such as adding detectors to the system and changing point addresses. These functions are covered in this guide.

2.1 Logging On

You need to log on to the panel to access the control panel functions.

How to log on to the panel

1 Turn the Enable Keyswitch to the ON (I) position.

2 Press the **Passcode** key (F3).

3 Enter your user ID. You only need to press **Enter** (F5) if your ID has only one digit.

If you are already logged on, you see an "open" message. Press the **Back** (F1) key.

4 Enter your passcode. For the access levels User and Supervisor, the number of digits in the passcode must contain 4 digits. For the access level Engineer, the number of digits in the passcode must contain 6 digits.

You will need to press **Enter** (**F5**) for the login credentials to be accepted if the passcode is less than 6 digits. You will not need to press **Enter** (**F5**) for the login credentials to be accepted if the passcode is 6 digits.

If another user was logged on, this user is automatically logged off.

CAUTION

After use, do not forget to "log off" by switching the Enable Keyswitch to **OFF** (0), and removing the key. This will prevent unauthorised access to the panel.

This applies especially if you have an engineering access level, as there is a longer inactivity period before automatic log off.

Automatic Log off

You are automatically logged off after a period of inactivity.

2.2 Access Levels

After logging on you access the functions in the form of menu options displayed on the LCD.

The "access level" of your user ID will determine which of the menu options you have access to.

The access levels are as follows:

- Covered in this FireClass Service and Maintenance guide:
  - Engineer: Highest access level. Can access all the menu options that are not available for the user and supervisor levels.
- Covered in the FireClass User guide:
  - User
  - Supervisor

For each of the normal user menu options, details of the access level required are provided in the FireClass User guide (the required level will be User and Supervisor).

For the engineering menu options, the minimum access levels required are shown in Table 1 (some normal user options are included for clarity).

Function	See Page	Minimum Access Level
View Status menu	see User guide	No logon needed
■ Commis. O/View	11	Engineer
■ Loop Info	11	Engineer
Disablements	see User guide	User
■ Non-LED Outputs	13	Engineer
View/Print Data	see User guide	User

Table 1: Functions and required access levels

Function	See Page	Minimum Access Level
■ Forced Points	12	Engineer
Service menu	see User guide	Supervisor
■ Maintenance	13	Engineer
– Counters	13	Engineer
– Maintenance Request	14	Engineer
– Battery Test	14	Engineer
– S/W Init. Count	14	Engineer
– Project Numbers	14	Engineer
– Software Versions	14	Engineer
■ Diagnostics	15	Engineer
– Force Dev.O/P	15	Engineer
– Force Dev.I/P	15	Engineer
– Shutdown/Rstart	16	Engineer
– Single Dev.Poll	16	Engineer
– Change Address	16	Engineer
■ Calibrate DDM	20	Engineer
■ Restart System	17	Engineer
■ Switches	17	Engineer
– Fast Fault Mode	17	Engineer
– Rate of Rise	17	Engineer
– Noisy Device	17	Engineer
– Detect. Power Up	17	Engineer
– RSM Test Mode	18	Engineer
– Inhibit No Resp	18	Engineer
Configuration menu	18	Engineer
■ Change Text	18	Engineer
■ Insert Point	20	Engineer
■ Delete Point	20	Engineer
■ Modify Point	20	Engineer
■ Autoconfig.	21	Engineer

Table 1: Functions and required access levels (cont.)

2.3 Using the Menus

Enable Keyswitch to **ON**. Press **Passcode** key (F3). Enter the User ID and Passcode. Press **Enter** if the passcode contains only 4 digits. If the passcode contains 6 digits, the log in information screen automatically leads to the Main Menu screen.

You now see the Main Menu shown in Fig. 1. Note how the **Menu** key (F1) has been replaced with a **Back** key, for exiting menus.

Most of the menu options are only available once you have logged on. Fig. 1 shows all the options. If you have one of the lower access levels, you may not see all these options.

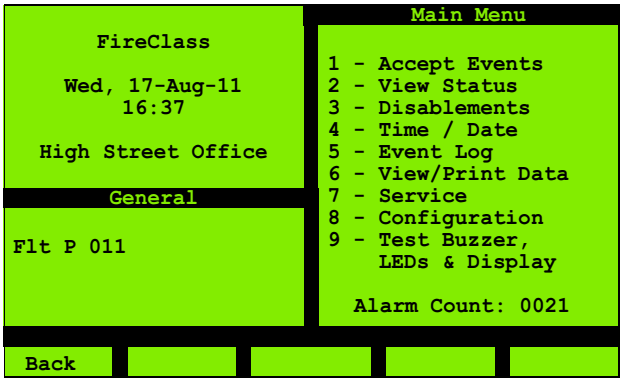

Fig. 1: Main Menu

Select the menu options by their number (press the appropriate number key). Each option leads to a further screen, which may present further options.

Details of the menu screens are provided in section 3 “Menu Details” on page 11.

In using the menus you always use combinations of the same basic methods – to navigate between the various settings in a screen for example. To avoid repetition this guide does not provide full step by step details for each screen. Instead, the illustration below serves as an example of how you use the basic methods. The illustration is based on discovering the status of a point.

How to discover the status of a point

1 Enter your passcode to display the Main Menu (this is not strictly necessary when viewing status, and is only included for the purposes of the illustration):

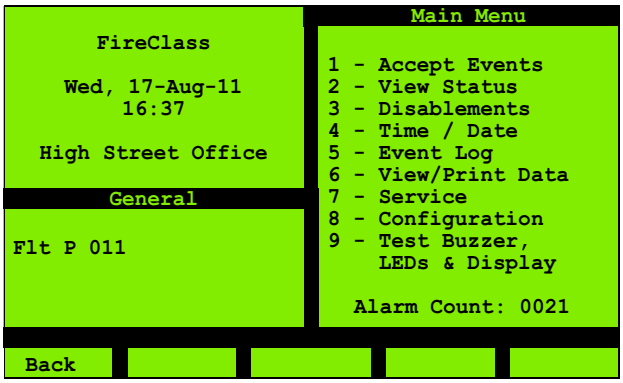

Fig. 2: Main Menu

2 Press the **2** key to display the View Status menu:

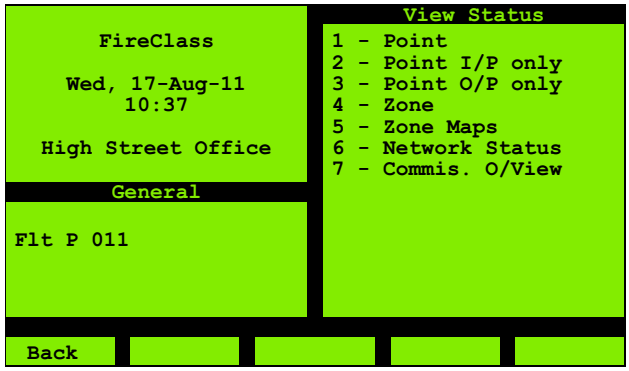

Fig. 3: View Status

3 Press the **1** key to display the next menu:

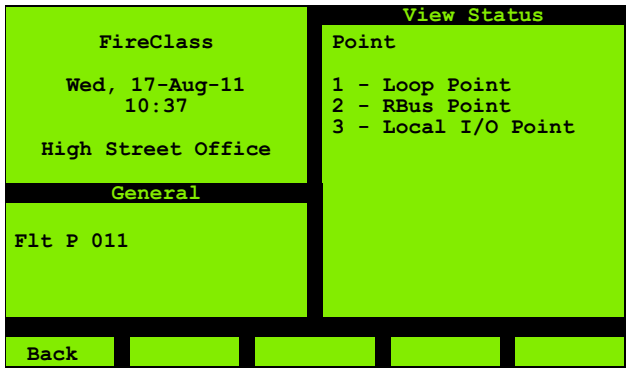

Fig. 4: View Status Point Selected

4 Press the **1** key to display the next screen:

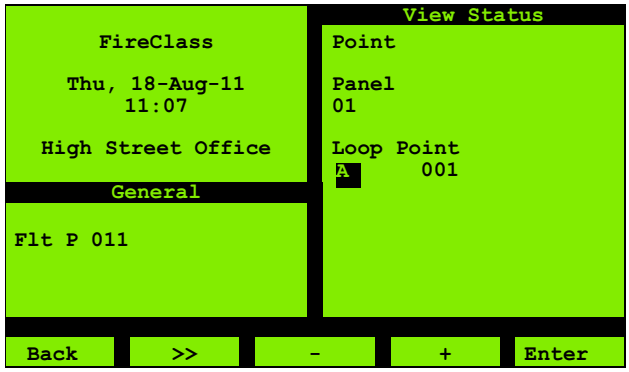

Fig. 5: View Status Loop Highlighted

5 In this scenario, the loop setting (**A**) does not need changing.

For a 2 or 4 loop configured panel, to change the loop, highlight the loop setting and press **+** key to increment it to the next loop or press **-** key to move to the previous loop.

You press the **>>** key (F2) to move the highlight to the point field:

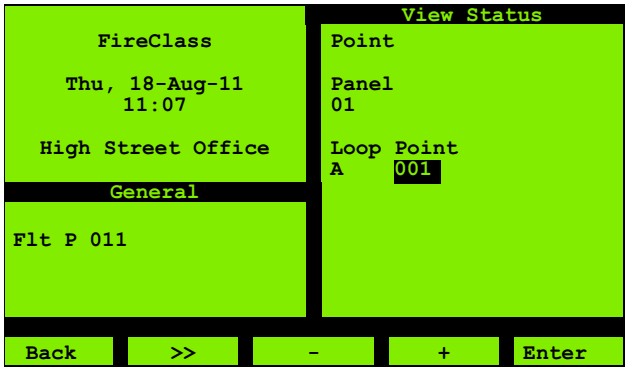

Fig. 6: View Status Point Highlighted

6 Press the + key (F4) to increment the point number (or press the **2** key):

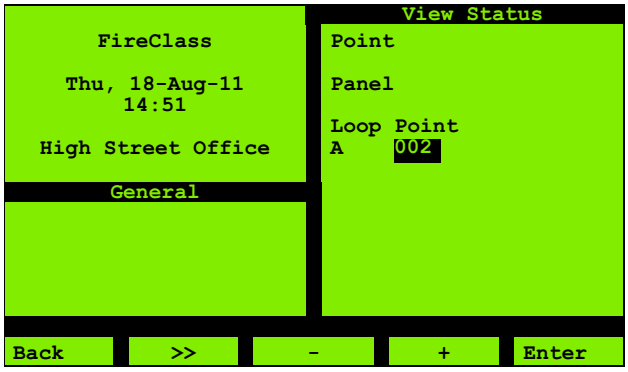

Fig. 7: View Status Point Highlighted

7 Press the **Enter** key (F5) to display the point status:

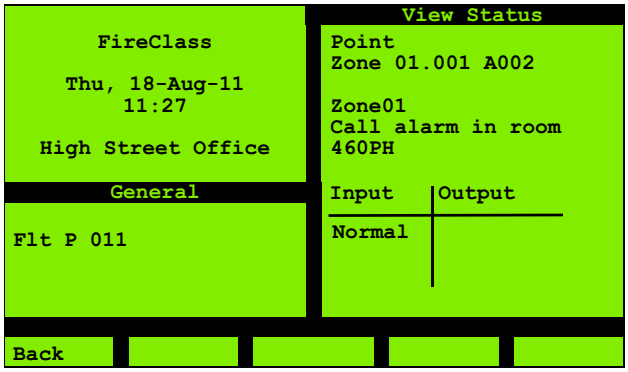

Fig. 8: View Status Point

For further options displayed on the View Status Menu, refer to the FireClass User guide.

2.3.1 Network and Non-Network Addresses

You will sometimes need to enter an address in the system.

For example, to view the status of a point you specify the point address, using the type of screen shown in Fig. 9.

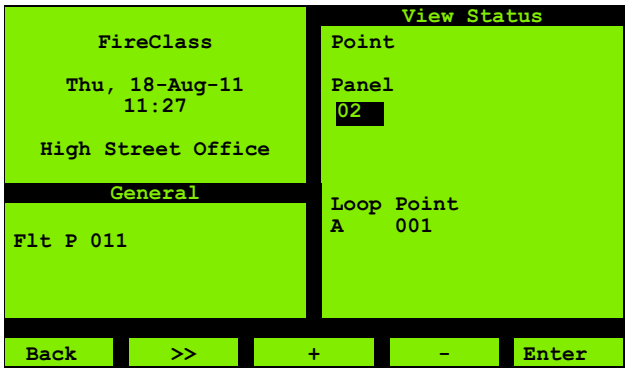

Fig. 9: View Status – Panel Number

In this screen, note the **Panel 02** item (panel selection option). This only applies to a networked system where each panel has been configured using a network card (TLI800EN).

In a non-networked system, you do not need to specify the panel number (as there is only one panel), so the item does not appear.

In some cases there is a separate screen for specifying the panel number – again this will not be shown in a non-networked system.

2.4 Clearing Panel Logs

CAUTION

Possible loss of important historical data.

Only use the resetting option below with care.

Clearing the control panel logs simultaneously effects the following:

- Clearing the Event Log.
- Resetting the Fire Cycle Count.
- Resetting the Software Initialisation Count (The Software Initialisation Count can also be reset independently – for details see 3.6.2 “Insert Point“ on page 20).
- Resetting the time and date.

In the procedure below, the bold items are identified with labels on the controller circuit boards.

How to reset registers

1 Open the front panel of the controller.
2 On the CPU board, fit a link to header **H2**.
3 Press and hold the switch **S1** until the **WDOG** LED flashes.
4 Release **S1**, remove the link from **H2**.
5 Press and hold switch **S1** until the **WDOG** LED flashes.
6 On the rear of the DCM Display Board mounted inside the door, press the reset button.

3 Menu Details

A typical Main Menu screen is shown in Fig. 10.

In this guide only the "engineering" menu options under the Service and Configuration options are covered. If any menu option is not described in this guide, the details of that option are covered in the FireClass User guide.

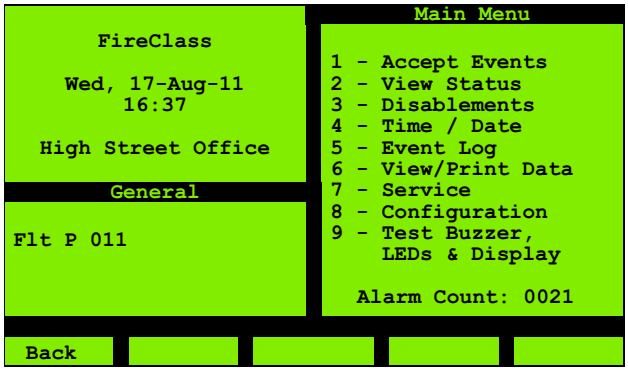

Fig. 10: Main Menu

The sections below detail the menu options.

3.1 View Status | Commis. Overview

Use this **Commis. O/View** option for a quick status overview of the commissioning facilities of the control panel. You see the type of screen shown in Fig. 11.

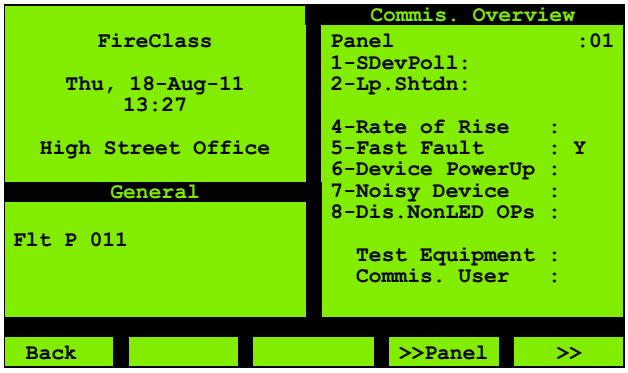

Fig. 11: Commis. O/View

Most of the items in the screen relate to the switches – for details of the options 1-7, see 3.5.4 "Switches" on page 17. For details on the option 8: Dis .NonLED Ops see 3.4 "Disablements | Non-LED Outputs" on page 13.

A "Y" indicates that the mode is enabled.

A "Y" against the "Test Equipment" item indicates that there is an external test equipment connected to the control panel. As an example, a PC running the FireClass Checker.

A "Y" against the "Commis. User" item indicates that the logged on user has the Commissioning access level.

3.2 View/Print Data | Loop Info

Use this Loop Information option to derive details about the various loop point counters and the status of various points. This option is accessible only by the Engineer.

3.2.1 Loop Point Counters

Use this **Loop Point Counters** option to check that the panel configuration matches the physical state of the loop, and to see the number of points on the loop.

This option appears abbreviated to **Loop Point Ctrs** in the menu.

After specifying the loop name, you see a "please wait" message until the count is complete.

Loop Versions

For a 2- loop panel version, you can make a choice between the configured loops **A** and **B**.

For a 4- loop panel version, you can make a choice between the configured loops **A**, **B**, **C** and **D**.

If no faults are found, the type of screen shown in Fig.12 is displayed.

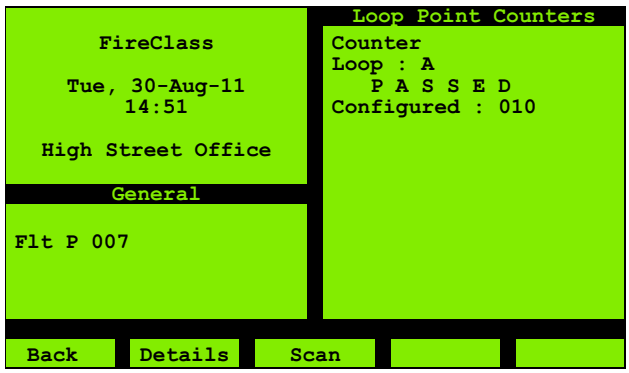

Fig. 12: Loop Point Counters, Loop

The conditions for "passed" are as follows:

- The number of configured points equals the number of detected points on the loop.
- Detected points from left, right and both sides are equal.

If not all conditions are met, you see the type of screen shown in Fig. 13.

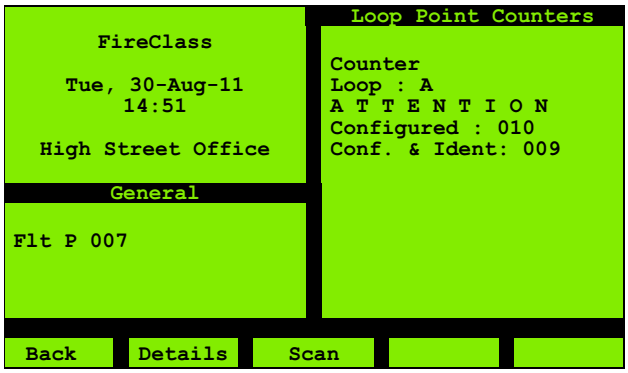

Fig. 13: View Loop Point Counters, Attention

As you can see, the problem in the screen example is a missing device.

Details screen

Press the **Details** key (F2) to see the type of screen in Fig. 14.

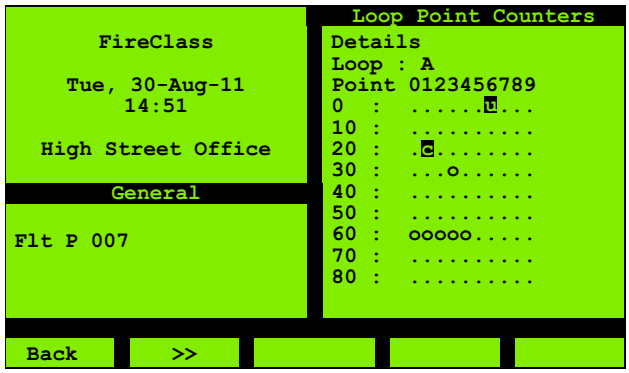

Fig. 14: Details

Press the **>>** key to see more point addresses.

The connection status of each point is indicated by the following symbols:

- o OK: point connected, configured and identified (applies to point 33 and points 60 to 64)
- c Point was configured but not connected or identified (applies to point 21)
- u Point was not configured but connected (applies to point 6)

Scan screen

Press the **Scan** key (F3) to see the type of screen shown in Fig. 15.

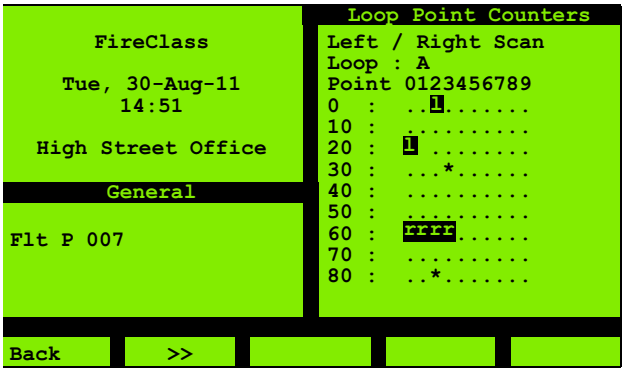

Fig. 15: Scan

Press the **>>** key to see more point addresses.

The points are shown which were detected from both sides (Left/Right).

They are displayed as follows:

- . Empty (not used)
- * OK: detected from both sides (applies to points 33 and 82)
- l Only detected from left side (applies to points 2and 20)
- r Only detected from right side (applies to points 60 to 63)

3.2.2 Loop Point Status

Use this option to print the statuses of all the points of different loops that are configured. The screen is displayed as shown in Fig 16.

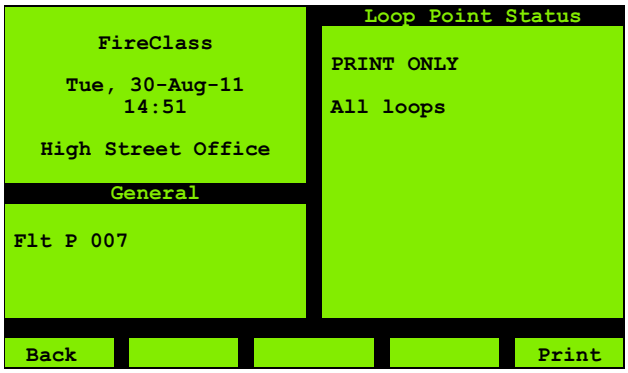

Fig. 16: Loop Point -Print Status

3.3 View/Print Data | Forced Points

Use this Forced Points option to view the number of loop points that are in the forced state.

Forced State

For information on how to place a loop point in the forced state refer to the option "Force Dev.O/P" and "Force Dev.I/P".

The screen appears as shown in Fig. 17.

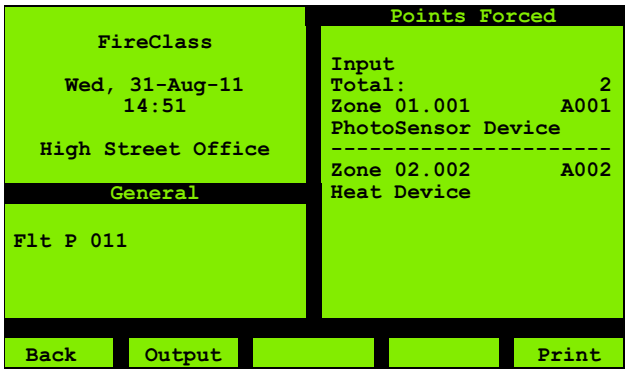

Fig. 17: Forced Points

3.4 Disablements | Non-LED Outputs

Selecting this option should disable the Non-LED Outputs such as the BackLight, Buzzers, Sounders, Alarm Relays etc.). The screen appears as shown in Fig 18.

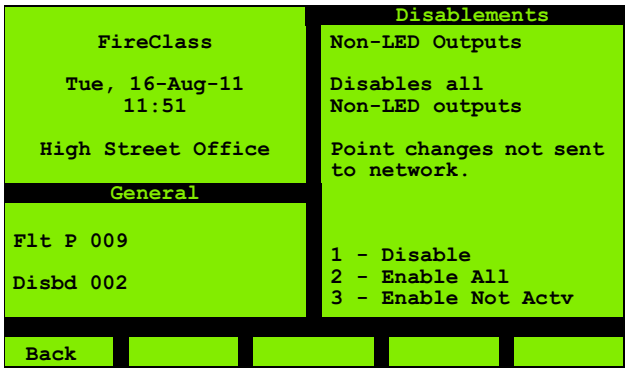

Fig. 18: Non-LED Outputs

The points that are enabled/disabled using this option remain in that state only in the panel configuration. The points that are configured on the network do not reflect this state.

- Disable: This option allows you to disable the Non-LED Outputs.
- Enable All: This option allows you to enable the forced, active and non-active points.
- Enable.Not.Actv: This option allows you to enable only the points that are not currently in the active state.

Disablements count

When disabling, you may see a Matches and a Successes number indicated.

For example you might use any of the 3 options (Disable, Enable All and Enable.Not.Act) and see:

Matches 24

Successes 23

Here Matches is the number of units (Non-LED Outputs) which were liable to be disabled, and Successes is the number of units that actually became disabled (the two numbers being different because a Non-LED Output was already disabled).

3.5 Service | Maintenance

Use this **Maintenance** option to see maintenance type information. Fig. 19 shows the type of screen that will be displayed.

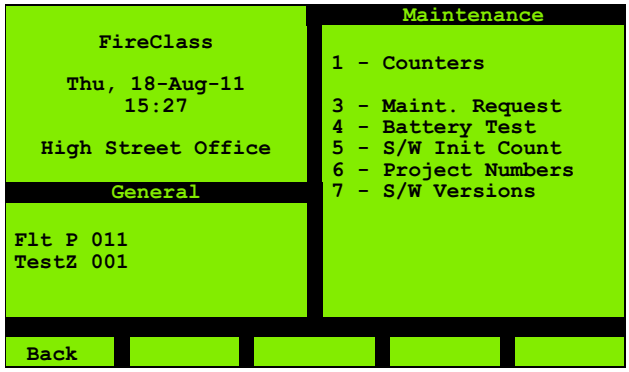

Fig. 19: Maintenance

Counters

Use this **Counters** option to see the number of times an alarm event has occurred (Fire Cycle). Fig. 20 shows the type of screen that will be displayed.

Resetting this count is not a user function. This count is not reset by a loss of power or system resets.

Site Test appears only when the panel is in a network.

- Local test counter counts the total number of devices which have been walk-tested since panel installation. When the count exceeds 64000, the count displays 64000+.
- Site test counter counts the total number of devices which have been walk-tested site-wide (all panels in the network). When the count exceeds 99999, the count displays 99999+.

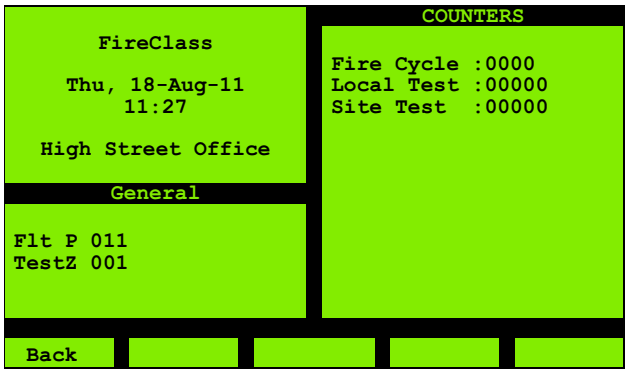

Fig. 20: View Fire Alarm Cycle Count

Maintenance Request

This option is abbreviated to **Maint. Request** in the menu. Use this option to see a list of detectors which are near the limit of their threshold compensation limit. Fig. 21 shows the type of screen that will be displayed.

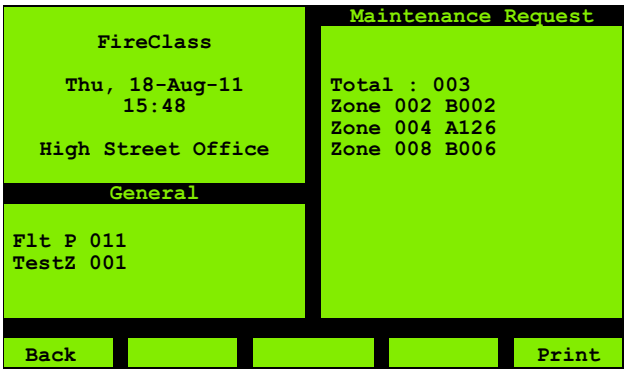

Fig. 21: Maintenance Request

Battery Test

Use this **Battery Test** option to see the state of the battery. Fig. 22 shows the type of screen that will be displayed.

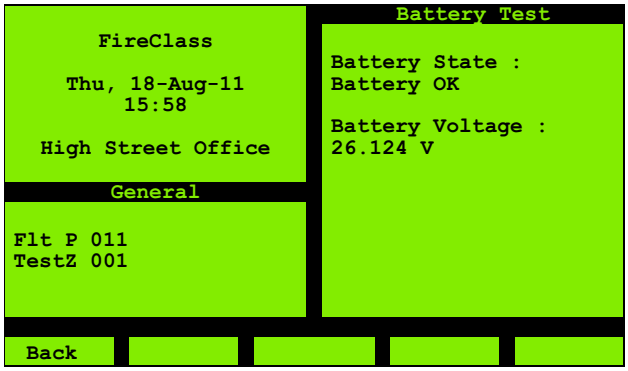

Fig. 22: Battery Test

S/W Init. Count

Use this **S/W Init. Count** (Software Initialisation Count) option to see a count of the operating program restarts, and to reset this count.

Press the **Reset** key (F5) key to set the count back to 1.

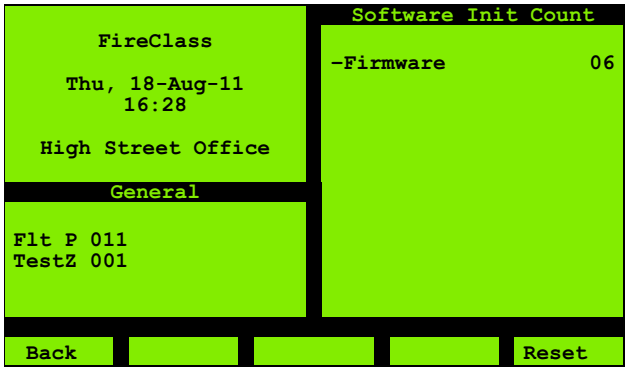

Fig. 23: S/W Init Count

Project Numbers

Use this **Project Numbers** option to see information relating to the configuration of the panel (the project information and FireClass Express information). Fig. 24 shows the type of screen that will be displayed.

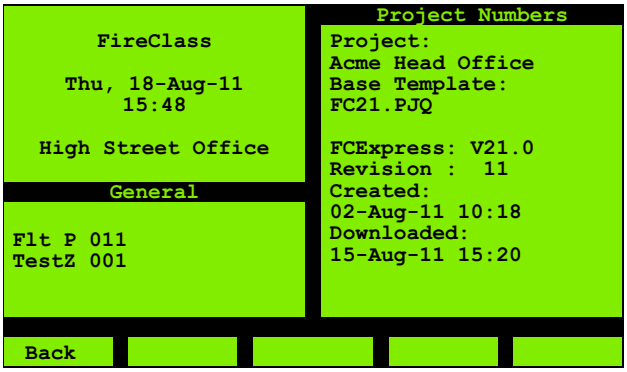

Fig. 24: Project Numbers

Software Versions

The option appears abbreviated to **S/W Versions** in the menu. Use this option to see the version number of various items, such as the firmware and bootrom.

A screen of the type shown in Fig. 25 is displayed (includes details on the network card, if fitted).

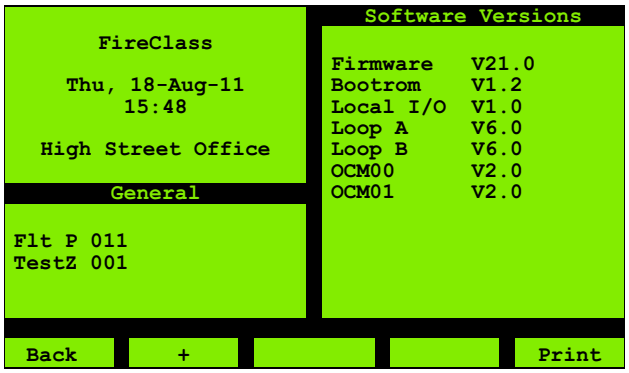

Fig. 25: Software Versions

Press + (F2) for additional details of the software versions.

3.5.1 Diagnostics

Fig. 26 shows the options in the Diagnostics menu.

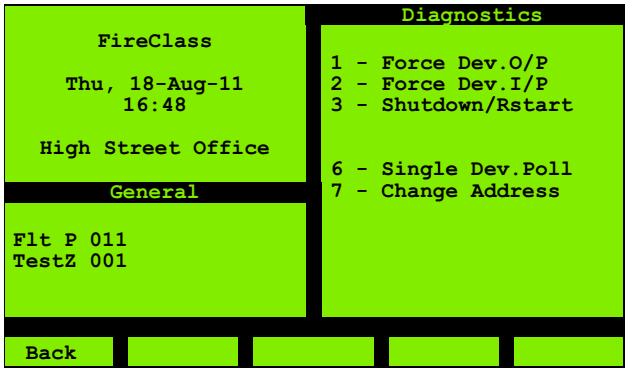

Fig. 26: Diagnostics Menu

Force Dev.O/P

Use the **Force Device Output** option to activate an output point, causing a sounder to sound, for example.

Choose the type of point and specify the address. You then see the type of screen shown in Fig. 27.

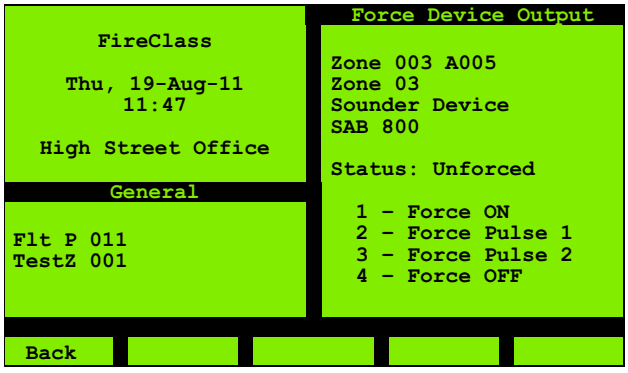

Fig. 27: Force Device Output

Press the number key (**1** to **4**) appropriate to your required operation. For example press **1** key to force the point **ON**.

The available operations now change.You will see a **9 - Unforce** option if the device is forced, for example.

CAUTION

When forcing points there is a possibility of raising a false alarm.

Take the appropriate steps to prepare for this, such as issuing a warning.

The **Force OFF** option prevents the device activating when it normally would. For example a forced off sounder would not sound when the panel went into alarm.

If you displayed the status screen for the point, it would show the forced status of the point (such as "Forced ON").

You can navigate away from the Force Device Output screen, and on navigating back it will still be in the same state. You could navigate to another point and also force this.

Resetting the control panel also unforces any forced points.

Disable Devices

The **Force OFF** option is not used to disable devices. To disable devices, see the option Disablements in FireClass User guide.

Force Dev.I/P

Use the **Force Device Input** option to simulate the activation of an input device, such as a detector.

Choose the type of point and specify the address. You then see the type of screen shown in Fig. 28.

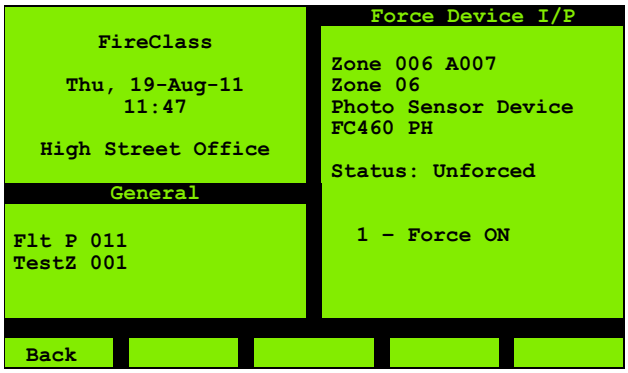

Fig. 28: Force Device Input

Press the **1** key to force the point.

The control panel will now respond as if the device at the point had activated. For example forcing a detector will probably put the control panel into an alarm state.

CAUTION

When forcing points there is a possibility of raising a false alarm.

Take the appropriate steps to prepare for this, such as issuing a warning, or disabling the signalling equipment.

The "View Status" screen for the point will now show **Forced ON**.

The Force Device Input screen will now show the **9 - Unforce** option for unforcing the device. (This also applies if you navigate away from this screen then navigate back. You could navigate to another point and the forced condition is still maintained).

Resetting the control panel also unforces any forced points.

Shutdown/Rstart

Use the **Shutdown/Rstart** option to close down complete loops. All power and signalling is shut down, allowing maintenance to be carried out on the loop without having to shut down the complete control panel, for example.

Also use the option to subsequently re-start the loops.

After navigating to the loop press the appropriate number key for **1 - Shutdown** or **2 - Restart**.

The status message is displayed as 'Successful'.

You can navigate away from the Shutdown/Restart screen and when you return it will be in the same state.

Single Dev.Poll

Single Device Polling is abbreviated as **S.Dev Poll** or **Single Dev.Poll**. Use this option to limit the polling of devices to one specified device.

This can be useful, for example, in identifying detectors. You would specify the detector you want to identify, and this detector will then be the only one that has a flashing LED. (All other detectors will have an inactive LED.)

DANGER

Using Single Device Poll may lead to a failure or delay in detecting fires leading to possible death, serious injury or damage to property.

This is because detectors will be disabled by using the option. Use with caution, and only for as short a time as possible.

After selecting this **Single Dev Poll** option, enter the address of the device you want to poll. Then press the **Start** key (F4).

To end the polling press the **End** key (F5).

You can navigate away from the Single Device Polling screen, then back again, before pressing the End key. The polling continues until you press the End key. You cannot select another device to poll until you have pressed the End key.

Change Address

You mainly use the **Change Address** option when replacing a faulty device, using the procedure below (for example).

To replace a faulty device

1 Remove the faulty device from its base, replacing it with a new one.

2 Use this **Change Address** option, to display the type of screen shown in Fig. 29.

3 For the Old Address, enter the address of the new device. For newly manufactured devices this will be the factory set default of "255".

4 For the **New Address**, enter the address of the replaced faulty device.

The new device will now have the address of the replaced device.

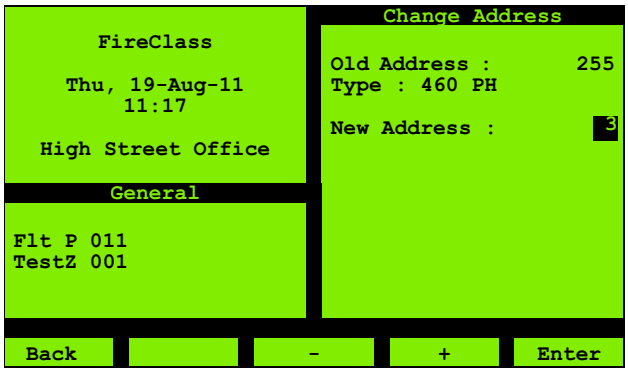

Fig. 29: Change Address

3.5.2 Calibrate DDM

This Calibrate DDM option is for use when a loop features a conventional detector circuit, and the conventional circuit uses diode bases and the conventional circuit is interfaced using a FC4 10DDM.

In such a configuration the removal of a detector can be sensed, through the resulting change in circuit parameters.

The calibrate option identifies the initial correct circuit parameters, against which the change can be detected.

CAUTION

Only use Calibrate DDM when the detector circuit is in its final, operating state. All the wiring must be in place, and all detectors fitted.

Use Calibrate DDM under the following circumstances:

- On initial commissioning.
- When changes have been made, such as changing detector types, adding detectors or changing the wiring.

After selecting Calibrate DDM, specify the **Panel, Loop** and **Point** address of the FC4 10DDM.

Alternatively, leave one or both of these set to **All**, to calibrate a range of FC4 10DDM devices as shown in Fig. 30.

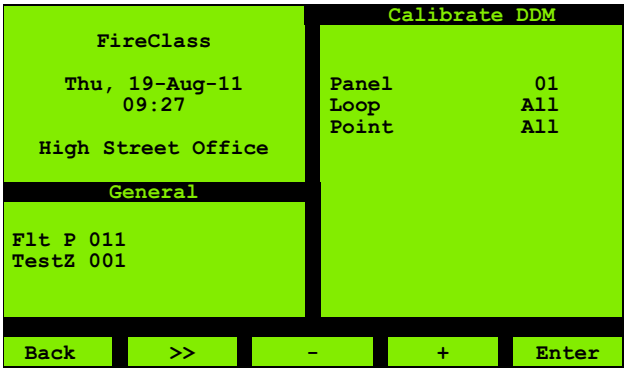

Fig. 30: Calibrate FC4 10DDM

Now press **Enter**.

3.5.3 Restart System

Use this **Restart System** option to restart the panel with the configured changes.

3.5.4 Switches

Use the **Switches** option to switch various modes off or on.

For each mode there is a screen for making the switch. On switching, the screen changes to show the prompt for switching back again.

You can navigate away from the screens, then back again, without changing the prompt (so your setting remains in force until you change it).

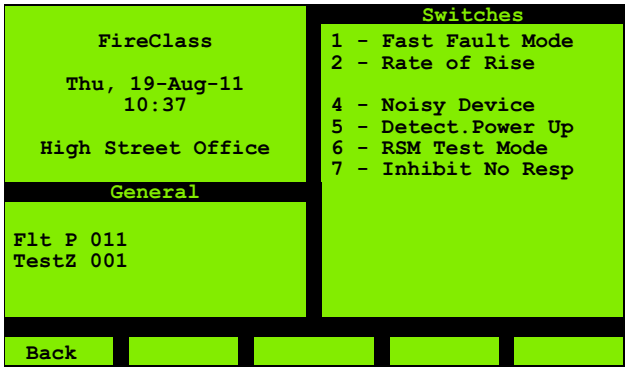

Fig. 31: Switches

Fast Fault Mode

Use **Fast Fault Mode** to reduce the delay between faults occurring and being reported. You could use this mode to speed up testing – you might be removing detectors and checking the panel registers this as a "no response" fault, for example.

Normally faults must be present for one minute before they are reported. This is to prevent spurious faults, caused by electrical noise on the addressable loop for example.

With the display showing **Status: Std Fault**, press the **1** key to switch to **Status: Fast Fault**. Press the **2** key to switch back.

In "Fast Fault" faults are reported immediately. That is on the first detector poll that discovers them (or within three polls for certain devices).

Rate of Rise

With the display showing **Status: ON**, press the **2** key to switch to **Status: OFF**. Press the **1** key to switch back again. It is used on certain types of fire detectors to detect the heat generated and not smoke.

Noisy Device

Detectors showing large variations in values can trigger a "noisy device" fault indication.

Enable this **Noisy Device** option to suppress these fault indications.

With the display showing **Status: DISABLED**, press the **2** key to switch to **Status: ENABLED**. Press the **2** key to switch back again.

Detector Power Up

Use **Detect. Power Up** (abbreviation for Detector Power Up) to enable or disable the monitoring of detector power up.

With Detector Power Up enabled, if a detector requires initialisation (not at power-up), **Detector Power Up** is

displayed. It is then automatically cleared after the device has been initialized and the event is then added to the log.

Any operation performed on the detector such as replacing, relocating, servicing, installing or commissioning is recorded as an event and is added to the event log.

During installation and commissioning there could be many device power ups, so as a commissioning feature, logging can be disabled by disabling **Detector Power Up**.

Detector PowerUp is not used to prevent false alarms during power up.

With the display showing **Status: ENABLED**, press the **2** key to switch to **Status: DISABLED**. Press the **1** key to switch back to "enabled".

RSM Test Mode

Note that this option may have been disabled in the configuration, and so may not be present.

Certain sounders feature Reflective Sound Monitoring. This involves a detection system that monitors the sounder output. If there is no detected output when the sounder is activated, this results in a fault being recorded.

You do not need to actively trigger an RSM test because RSM operates whenever the sounder is activated. This may be, for example, during a weekly sounder check, that you have triggered by operating a call point.

However for sounders set to lower volume settings, RSM testing is disabled. So to ensure that RSM testing operates on these sounders, use this **RSM Test Mode** switch. With the "Status" set to "Forced High", lower volume sounder settings are overridden. If you now test sounders, they will sound at a higher volume level, so that RSM can operate and report any faults present.

After your test, remember to switch back to "As Config", to return to normal sounder volumes.

With the display showing **Status: As Config**, press the **1** key to switch to **Status: Forced High**. Press the **2** key to switch back.

Note that for an RSM test to be valid, these conditions must be met:

- The sounder must sound continuously for at least 15 seconds.
- In the system configuration the sounder must be set to one of the "Continuous" modes.
- In the system configuration the sounder must not be pulsed.

Inhibit No Resp

Use this **Inhibit No Response** (Inhibit No Response) option to suppress unwanted "no response" faults.

For example, if you have added a new point, but not yet fitted a corresponding detector, and you want to avoid a fault condition.

With the display showing **Status: Standard**, press the **1** key to switch to **Status: Fault Inh**. Press the **2** key to switch back.

When "Inhibited", a non-responding detector will only result in a fault if it has previously produced a response. If a point has a non-responding detector, and this detector has never responded, this will not result in a fault.

A "Y" against the "Inhibit No Resp" item indicates that it is in the active condition. This is reflected in the **Commis. Overview** screen as shown in Fig. 11 (Press F5 to see this option).

3.6 Configuration

Use this **Configuration** option to change text, insert, delete, modify points. This option is accessible only by the Engineer. Fig. 32 shows the type of screen that will be displayed.

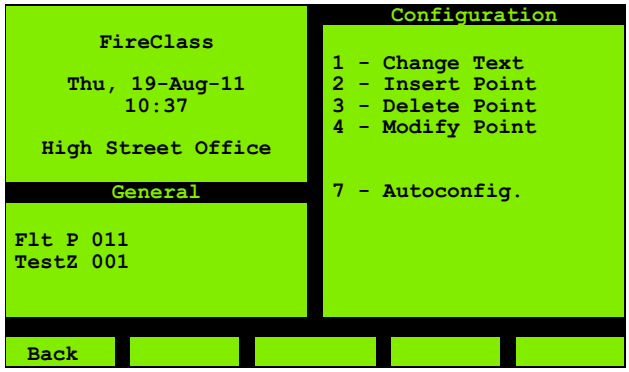

Fig. 32: Configuration

3.6.1 Change Text

Use this **Change Text** option to change text, such as zone descriptions. Fig. 33 shows the type of screen that will be displayed.

DANGER

Changing text may lead to a failure or delay in detecting fires leading to possible death, serious injuries or damage to property.

This is because Zone text (for example) provides key information for locating fires.

You should only change such text with caution.

CAUTION

When changing text there is a danger of unpredictable effects or system instability.

To avoid this, observe the following points:

- Avoid "inactivity" timeouts.
- Do not make text changes across a network to more than one panel within any one session.

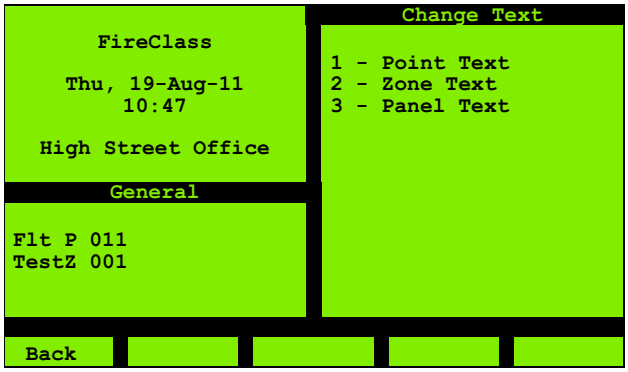

Fig. 33: Change Text

Choose the type of text you want to change. You may then need to specify a particular item (point address for example).

You see a screen of the type shown in Fig. 34.

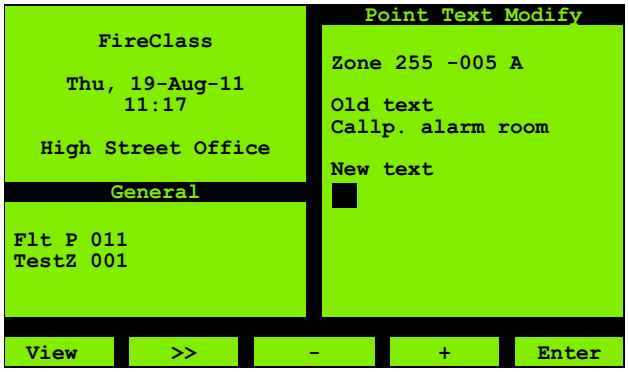

Fig. 34: Point Text Modify, loop selected

The screen is showing point information (top line), and the **Old text** (which is **Callp. alarm room**).

Start entering text using the alphanumeric keypad. This text appears under the **New text** line.

- >> copies the "Old text" to the "New text" position. You can then make small changes by editing the text, so you avoid a lot of re-typing.
- – moves the cursor back one position.
- + moves the cursor forward one position.

Step through the number and letter characters on a key with quick repeated presses. Pause after reaching the required character.

Press the scroll up key (▲) to switch to upper case text (capitals).

Press the scroll down key (▼) to switch to lower case text.

When finished press **Enter**. You will then see a **Save data?** prompt, with **Yes** (confirm) or **No** (cancel) options.

To abandon your changes, press the **Back** key (F1) and respond with "No" to "Save changes?".

If you save your changes. you briefly see a "please wait" message. You then see a screen similar to the "Change Text" screen above, but only allowing changes to the same type of text.

After making all your text changes, select **Back** (F1), to display the type of screen shown in Fig. 35:

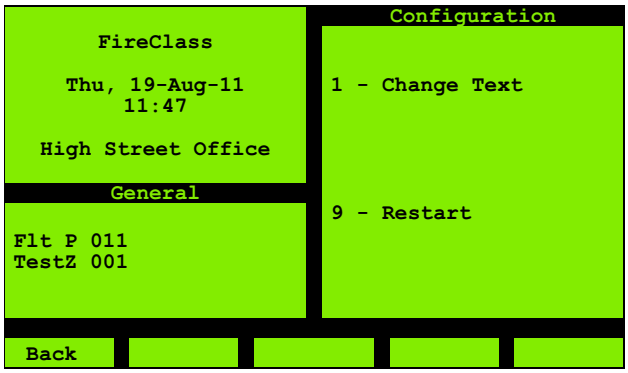

Fig. 35: Configuration, Back

The above procedure for making changes to the text is also applicable to the Zone and Panel respectively.

Select **9 - Restart** to restart the panel, allowing the changes to take effect.

CAUTION

Never use the **Back** option to avoid committing changes when the menu option **9 - Restart** is displayed. If you do not want to commit changes, turn the Enable Keyswitch to **OFF**.

Failure to comply with these restrictions may lead to unpredictable effects or system instability.

Point Text

Use this **Point Text** option to change the descriptive text for a point. Follow the steps above.

Zone Text

Use this **Zone Text** option to change the descriptive text for a zone. Follow the steps above.

Panel Text

Use this **Panel Text** option to change the text that appears as **High Street Office** in the screen examples above. Follow the steps above.

3.6.2 Insert Point

WARNING

Only suitably qualified personnel in intrinsically safe systems are allowed to insert intrinsically safe equipment.

The alterations to the system must be verified.

Use this **Insert Point** option to add and configure a new point address.

Start by navigating to an unused point address. You see the type of screen shown in Fig. 36.

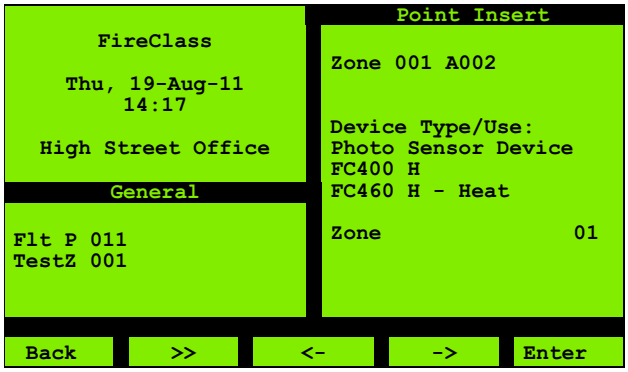

Fig. 36: Point Insert

The highlight is initially in the description field. Use the **–>** and **<–** keys to step to the required character position. Then to enter a character, on the keypad use quick repeated presses to step through the characters of a key. Pause after reaching the required character.

Once the description is complete move to the **Device Type/Use** field. Here use the **+** and **–** keys to step through the list of device types, until you reach the appropriate type to assign to the address. When you see "– –" you have reached the end of the list.

Once the required device type has been selected move to the Zone field and enter the appropriate Zone number.

Press **Enter** (F5) to confirm and insert the point address.

If fitting a detector at this point, you will probably need to change the detector address to match the point address. To do this follow the procedure in "Change Address" on page 16, with the exception you will be entering this newly created point address, rather than the existing point address of a faulty detector.

While inserting multichannel devices such as 410MIO, all channels of the device are inserted taking the corresponding number of point addresses(7 consecutive addresses). If the point addresses overlap with the occupied ones, then the message is displayed as `Address Conflict` and the insert operation is abandoned.

3.6.3 Delete Point

Use this **Delete Point** option to remove a point address.

First navigate to the address to be deleted and press **Enter**.

You now see a screen summarising the point details, with options to confirm or abandon the delete.

While deleting a multichannel device at any of its point addresses, all the device channels are deleted together i.e. you are not allowed to delete individual channel(s).

3.6.4 Modify Point

Use the **Modify Point** option to change the details of a point address.

First navigate to a point address and press **Enter**.

You now see a screen for changing the point Description, Device Type and Use, the Loop address and the Zone number. Use this screen in a similar way to the "Change Address" screen (Fig. 29 on page 16) and the "Point Insert" screen (Fig. 36 on page 20).

For multi-channel devices, you are allowed to modify either only the label/description or both, and zone of the channels. You are not allowed to change any device to a multi-channel one.

Synchronize Network

After you have performed the respective operations such as changed text, inserted, deleted or modified the points, you now need to use the Configuration menu, **Restart** option as shown in Fig 35.

Before the panel is to be restarted on a networked system, to include changes updated for the front panel configuration, the following message appears:

`After restart do a Fire Reset to synchronize the network`.

It serves as a reminder for the user to perform a fire reset to synchronize the changes.

Note that this message does not appear if the panel is restarted for a non-networked system.

3.6.5 Autoconfiguration

Using **Autoconfiguration** the panel can learn what devices are connected on the loops. Additionally, the system learns multi-point devices such as the sounders with beacons, or the multi-point ancillary devices that are connected on the loops (applicable to all FireClass devices).

Select **Configuration | Autoconfiguration** from the screen as shown in Fig. 32.

CAUTION

This option should be used with care. You can overwrite and loose the current panel configuration.

The screen appears as shown in Fig. 37.

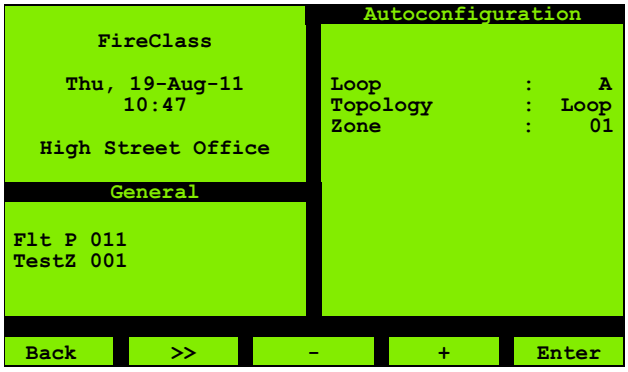

Fig. 37: Autoconfiguration

After specifying the Loop, Topology, Zone and pressing **Enter**, you see a **Please wait...** message.

The screen is displayed as shown in Fig. 38.

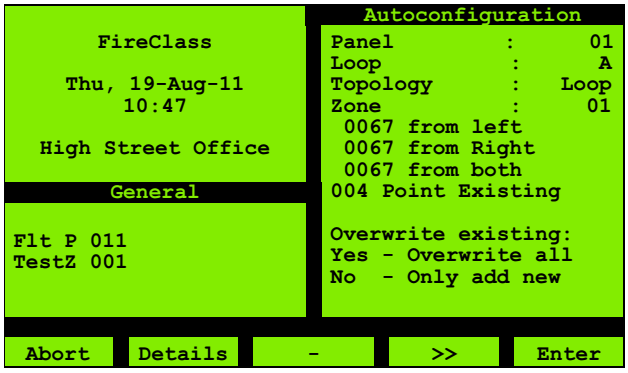

Fig. 38: Autoconfiguration Confirmation

The text displayed below the Zone number in the above screen refers to:

- The number of devices, the detector can see from the left- side of the loop.
- The number of devices, the detector can see from the right-side of the loop.
- The number of devices that are visible to the detector from both the right and left sides of the loop.

Number of Devices

The number of devices that are visible to the detector should be equal from both the left and right-sides of the loop, else there is a break in the loop wiring.

- The number of devices that are already present in the configuration.

To overwrite the loop details present in the configuration file with data derived from actual devices on the loop, choose 'Yes-overwrite all' and press **Enter** to accept the option. The screen appears as shown in Fig. 39.

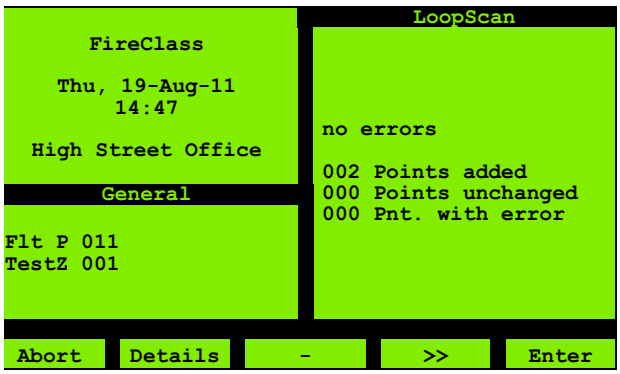

Fig. 39: Autoconfigure-OverwriteAll

Click 'Abort' to discard the process of overwriting the loop configuration file.

Click 'Yes' or 'No' for the overwriting to take effect or not.

If you would like to add new devices to the already existing devices in the configuration, choose 'No - Only add new' and press **Enter** to accept the option.

4 Default System Points

4.1 Point Type Explanations

Point Type	Explanation
Real point	A physical input/output point
Pseudo point	A software derived fault number, for example for a communications fault or RAM fault.
Timer	Timer points are used to automatically switch between day and night mode. The FireClass Express user sets the times at which changes should take place.

Table 2: Point Type Explanations

4.2 Local I/O (Field Interface Module/CPU)

Point	Detail
R01	SOUNDER 1
R02	SOUNDER 2
R03	ALARM RELAY
R04	FAULT RELAY
R05	PSU MONITOR I/P
R08	EMERGENCY ALARM I/P
R09	MP EARTH FAULT IP
R10	BATTERY FAULT I/P
R11	MAINS SUPPLY I/P
R12	CHARGER FAULT I/P
R14	I/O 2
R15	I/O 1
R16	24V RESET

Table 3: Local I/O Real Points

Point	Detail
P01	DATA PACKET ERROR
P02	FIFO FULL
P03	EA FIFO FULL
P04	LNET DATA PATH FLT
P05	LNET MODULE FLT
P06	CONFIGURATION STORE
P07	FIM COMMS FAILED
P08	LOOP A FAILED
P09	LOOP B FAILED
P10	LOOP C FAILED
P11	LOOP D FAILED
P12	LOOP E FAILED
P13	LOOP F FAILED
P14	LOOP G FAILED
P15	LOOP H FAILED
P16	BAD PACKET LOCAL I/O
P17	BAD PACKET CHAN A
P18	BAD PACKET CHAN B
P19	BAD PACKET CHAN C
P20	BAD PACKET CHAN D
P21	BAD PACKET CHAN E
P22	BAD PACKET CHAN F
P23	BAD PACKET CHAN G
P24	BAD PACKET CHAN H
P25	FIM BAD PACKET
P26	FIM FAULT
P27	MP ROM FAIL
P28	MP SYSTEM RAM
P29	MP CLOCK
P30	MONITOR POINT
P31	BATTERY LOW
P32	RBUS CIRCUIT FAULT
P33	STACK OVERFLOW
P34	SYSTEM HEAP ERROR
P35	UNSUPERVISED PANEL
P36	REMOTE CONNECTED

Table 4: Local I/O Pseudo Points

Point	Detail
P39	RBUS FIRMWARE
P40	LOCAL I/O F/W
P42	DELAY POOL FULL
P43	WALKTEST SOUNDERS
P44	INHIBIT SOUND LED
P45	COMMISSIONING
P46	DOWNLOAD REQUIRED
P47	TEST EQUIPMENT
P48	WALKTEST OUTPUTS
P54	FORCE DAY MODE
P56	DISABLEMENT FOR TEST
P60	INHIBIT NO RESPONSE

Table 4: Local I/O Pseudo Points (cont.)

4.3 Rbus

Point	Detail
RBxxR01	KEY SWITCH
RBxxR04	PSU MONITOR FAULT
RBxxR06	SILENCE BUZZ BUTTON
RBxxR07	SILENCE/RESOUND BUTTON
RBxxR08	RESET BUTTON
RBxxR09	DAY MODE BUTTON
RBxxR10	INVESTIGATE BUTTON
RBxxR12	EVACUATE BUTTON
RBxxR14	BUZZER
RBxxR15	FAULT LED
RBxxR16	BACKLIGHT INHIBIT

Table 5: RBus Real Points

Point	Detail
RBxxR01	MPIM DISPLAY FAIL
RBxxR02	MPIM ROM FAIL
RBxxR03	MPIM RAM FAIL
RBxxR06	BAD PACKET
RBxxR07	MULTICAST SEQ ERR
RBxxR08	CHAR CHIP CSUM ERR

Table 6: Rbus Psuedo Points

Point	Detail
RBxxX1 - 40	ZONAL x ALARM
RBxxX41 - 80	ZONAL x FAULT
RBxxX81	SIGNALLING ACTIVE
RBxxX82	SIGNALLING FAULT
RBxxX83	SIGNALLING DISABLED
RBxxX84	PROTECTION EQUIPMENT FAULTY
RBxxX85	SOUNDERS ACTIVE
RBxxX86	SOUNDERS FAULT
RBxxX87	SOUNDERS DISABLED
RBxxX88	PROTECTION EQUIPMENT DISABLED
RBxxX89	PROTECTION EQUIPMENT ACTIVE
RBxxX90	DAY MODE ACTIVE
RBxxX91	MAINS FAULT O/P
RBxxX92	LAMP TEST SPECIAL
RBxxX93	FIRE O/P
RBxxX94	FAULT O/P
RBxxX95	DISABLED O/P
RBxxX96	TEST O/P

Table 7: RBus XBus Points
xx = MPM800 address

4.4 Addressable Loop

Point	Detail
P01	LOOP FAULT

Table 8: Addressable Loop Pseudo Points

Reference

For Further information on Points, refer to 5.1 “Fault Finding Information” on page 25.

5 Appendix

5.1 Fault Finding Information

This chapter gives a list of the fault states possible from a FireClass panel using version 2 1.0 firmware. Faults are reported on the FireClass panel in two distinct ways.

- Using specific points used solely for fault reporting
- Setting a 'standard' point into a fault state

Point Definition

A point is a combination of device, functionality (cause and effect) and physical location (zone). Each point has a unique address, these include any input or output connected to an Addressable Loop, the FIM, the Field Interface Module's Expansion I/O Bus or the Remote Bus. The different categories of points that exist are Real, Pseudo, XBus, Timer and Menu.

5.2 Fault Reporting, Psuedo, Points

Within each point section there are 'pseudo' points, these points are activated when a monitored event occurs. Depending on the firmware driver they may be cleared after a predetermined time, or they may only clear when the monitored condition clears.

5.3 Placing Standard Points Into Fault

The system can also report faults on other points such as Psuedo, Local I/O, RBUS Node, Network Node in the system, this it does by placing that point into a special fault condition, this is different from standard point activation.

The software driver can place a point into different faults depending on the device being monitored.

Examples include 'NO RESPONSE' and 'RELAY STUCK'.

The processing for these faults is fixed and not alterable by the user.

5.4 Psuedo Points In FireClass

This section details the pseudo points in FireClass Version 2 1.

5.4.1 Point Section – Local I/O

When reported on the user interface or via printers, the output format used for Local I/O pseudo points is:

'Pn' where n is the point number.

Psuedo Points

Not all the Psuedo Points are not used in the FireClass version. The Psuedo Points that are used in the FireClass version are described below.

Field	Description
Address	Pseudo Point 2
Label	FIFO Full
Use	This fault is raised when the panel firmware reaches an internal limit and is unable to perform an 'action' required by the configuration.

Table 9: Psuedo Point 2 -Details

Field	Description
Address	Pseudo Point 6
Label	Configuration Store
Use	Panel configuration is stored in Flash chips, the data is covered by a checksum. The panel regularly calculates the checksum and compares it to that stored, if different this point is activated. The panel will also start a shutdown procedure which will result in it restarting and locking into a 'safe state'. It is considered unsafe to use a configuration that is known to be bad.

Table 10: Psuedo Point 6 -Details

Field	Description
Address	Pseudo Point 7
Label	FIM Comms Failed
Use	This fault is raised if the SPI channel is held busy by the slave processor (in this case the Local I/O) for more than a second. It is cleared when communication resumes.

Table 11: Psuedo Point 7 -Details

Field	Description
Address	Pseudo Point 8 to 15
Label	Loop A Failed..... Loop H Failed
Use	As pseudo point 7 above but used to monitor the loop SPI channels. This fault is also raised if the slave, loop card, is not fitted.

Table 12: Psuedo Point 8-15 -Details

Field	Description
Address	Pseudo Point 25
Label	FIM Bad Packet
Use	The main CPU communicates to the local I/O processor located on the FIM using data packets on an SPI link. If three consecutive bad packets are received corrupt this fault is raised. The fault is self clearing after 10 seconds.

Table 13: Psuedo Point 25 -Details

Field	Description
Address	Pseudo Point 26
Label	FIM Fault
Use	The Local IO chip regularly sends a health status regarding itself to the main processor. If this status indicates a fault has been detected this point is activated. It is cleared if the heath report indicates OK. The states monitored are the RAM and the firmware checksum.

Table 14: Psuedo Point 26 -Details

Field	Description
Address	Pseudo Point 27
Label	MP ROM Fail
Use	The firmware checks its own checksum regularly, if different to the values stored within the firmware chip this fault is raised. The firmware then proceeds to place itself into a 'safe state', this involves restarting in a 'locked' state. It is not deemed safe to use firmware known to be corrupt.

Table 15: Psuedo Point 27 -Details

Field	Description
Address	Pseudo Point 28
Label	MP System RAM
Use	The panel regularly checks each byte of RAM with fixed sequences to check each bit can be written to and read independently. If faults are detected this fault is raised and the system is placed into the 'safe state' as described above.

Table 16: Psuedo Point 28 -Details

Field	Description
Address	Pseudo Point 29
Label	MP Clock
Use	This point is not used for fault reporting it is used in the process of changing the current time within the panel.

Table 17: Psuedo Point 29 -Details

Field	Description
Address	Pseudo Point 31
Label	Battery Low
Use	If the battery is present but the reported voltage has dropped below a threshold value, this point is activated. The fault is cleared once the voltage is greater than the threshold.

Table 18: Psuedo Point 31 -Details

Field	Description
Address	Pseudo Point 32
Label	RBus Circuit Fault
Use	The Remote Bus (RBus) connections on the FIM are split between RBus 0 and non-zero nodes. If faults are detected on all nodes other than zero, a relay on the FIM is tripped to isolate (protect) RBus 0 communications. If this happens this point is activated. The relay is only put to its normal state on Fire Reset.

Table 19: Psuedo Point 32 -Details

Field	Description
Address	Pseudo Point 33
Label	Stack Overflow
Use	If the firmware monitoring process discovers that one or more of the task stacks is near the full condition the fault point is activated. This fault is not cleared.

Table 20: Psuedo Point 33 -Details

Field	Description
Address	Pseudo Point 34
Label	System Heap Error
Use	If the area of RAM within the panel used for system 'heap' is found to be corrupt, this point is activated. The point is not cleared.

Table 21: Psuedo Point 34 -Details

Field	Description
Address	Pseudo Point 40
Label	Local I/O F/W
Use	The compatibility between the firmware on the Local I/O chip and the main firmware is checked. If not compatible the fault is raised.

Table 22: Psuedo Point 40-Details

Field	Description
Address	Pseudo Point 43
Label	Walktest Sounders
Use	Sounders are walktested using standard point commands as directed from the User Interface. This point is set and cleared surrounding that walktest to place a record into the panel log.

Table 23: Psuedo Point 43-Details

Field	Description
Address	Pseudo Point 44
Label	Inhibit Sound LED
Use	The system monitors the isolate status of sounder devices. If all sounders are isolated this point is set, once one sounder is available the point is cleared. The activation of this point inhibits the activation of the sounder LED. The goal is not to indicate on the front panel that sounders are active, when the system knows they are all isolated.

Table 24: Psuedo Point 44-Details

Field	Description
Address	Pseudo Point 45
Label	Commissioning
Use	The system monitors the commissioning states. If any are active this point is raised.

Table 25: Psuedo Point 45-Details

Field	Description
Address	Pseudo Point 46
Label	Download Required
Use	In network configurations all panels broadcast issue details relating to their core functionality. If this differs between panels then the network will not operate as intended and full upload may not be possible

Table 26: Psuedo Point 46-Details

Field	Description
Address	Pseudo Point 47
Label	Test Equipment
Use	This point is activated when FireClass Checker is connected to the panel.

Table 27: Psuedo Point 47-Details

Field	Description
Address	Pseudo Point 48
Label	Walktest Outputs
Use	This point is activated when an output test is started from the panel user interface.

Table 28: Psuedo Point 48-Details

Field	Description
Address	Pseudo Point 54
Label	Force Day Mode
Use	If the panel was in day mode and a panel restart is performed. This point is activated to return to panel to day mode.

Table 29: Psuedo Point 54-Details

Field	Description
Address	Pseudo Point 56
Label	Isolation For Test
Use	This point is activated if the menu option to isolate non-LED outputs is selected.

Table 30: Psuedo Point 56-Details

5.4.2 Point Section – RBUS Node Faults

When reported on the user interface or via printers, the output format used for faults reported from an RBus node faults are:

'RBnn' : where nn is the node number 0 - 15.

Complete Nodes-Faults

This section refers to faults regarding presence or absence of complete nodes, It is NOT an indication of faults held by the node but the node itself.

This set of points are exceptions to the normal address where the first point address is 'One' instead here as the RBUS units can be addressed from 0-15 the first address is 'Zero'

Field	Description
Address	Pseudo Point 0 - 15
Label	RBUS Fault
Use	Used by RBUS / COMMS driver to indicate loss of configured nodes / presence of un-configured nodes-firmware incompatibility issues.

Table 31: Psuedo Point 0-15-Details

5.4.3 Point Section – Network Card Faults

When reported on the user interface or via printers, the output format used for faults reported from Network Card Fault points are:

'TLI Pnn'

where nn is the point number 01-11

Network Cards-Faults

This section refers to faults assigned to the network card. The configuration is controlled by the use of the options in the 'Network Card' dialog within FireClass Express.

Points 1 to 8 are used for TLI800 card

Field	Description
Address	Pseudo Point 1 – 99
Label	Network Node
Use	Used by supervisor panel to indicate which panels are not responding to supervision or if being supervised reporting lack of supervision.

Table 32: Psuedo Point 1-99-Details

5.4.4 Point Section – COM1 Faults

When reported on the user interface or via printers, the output format used for faults reported from COM1 are:

'COM1'

COM1-Faults

This section refers a fault regarding presence of absence of a printer connected to COM1.

Field	Description
Address	Pseudo Point 1
Label	Printer Comms
Use	If a printer is configured and is not connected to the panel then this monitor point will be activated.

5.4.5 Point Section – COM2 Faults

When reported on the user interface or via printers, the output format used for faults reported from COM2 are 'COM2'.

COM2-Faults

This section refers to faults regarding COM2 which is the configuration or FireClass Remote port.

Field	Description
Address	Pseudo Point 1
Label	Comms Fault
Use	Will give fault if packet Retries exceed maximum (100).

Table 34: COM2-Details

5.4.6 Point Section – COM3 Faults

When reported on the user interface or via printers, the output format used for faults reported from COM3 are 'COM3'.

COM3-Faults

This section refers to faults regarding COM3 which is used to connect to the network card.

Field	Description
Address	Pseudo Point 1
Label	Comms Fault
Use	Will give fault if packet Retries exceed maximum (100).

Table 35: COM3-Details

5.5 General Fault Overview

5.5.1 Fault Conditions On Devices

The table below lists the fault states possible for standard points within FireClass. These are noted in the description column. The group assignments are those assigned in the FireClass Version 2 1.0 template.

Fault State and Logged Description	Use within FireClass Version 21
Loop Shutdown LOOP FAULT SHUT-DOWN	This fault is raised on the loop pseudo point if the loop is shutdown.
No Response NO RESPONSE	This is a general fault state used by all the point drivers. It is raised if a configured device does not respond to a poll. The device could be on the loop, an RBus unit, or a panel not responding to network supervision.
Unconfigured Device UNCONFIGURED DEVICE	This is a general fault state used by all the point drivers. It is raised if a device responds to polls although it wasn't configured by FireClass Express or the panel configuration menu. The device could be on the loop, an RBus unit, or a panel responding to network supervision.
Multiple Devices MULTIPLE DEVICES	Used on the FireClass Digital loop driver to indicate more than one device is replying to the polled address. This fault is only detected during the 120 second loop initialization after a panel restart, it is not detected on a loop restart after a loop shutdown. The only way to clear the fault is a panel restart.
Device Fault DEVICE FAULT	The device is present and replying, but the reply indicates a device error. This is the catchall where a more meaningful fault can not be raised.

Table 36: Fault Conditions on Devices

Fault State and Logged Description	Use within FireClass Version 21
High Long Term Average HI T.TERM AVG FAULT	This fault is valid for FC460PH, FC460PC and FC460P devices and indicates the device is dirty and requires changing.
Loop Open Circuit LOOP O/C FAULT	Raised on the loop pseudo point if it is found to be 'Open Circuit' due to open loop polling.
Loop Short Circuit LOOP S/C FAULT	Raised on the loop pseudo point if the AVR processor detects higher than expected loop current.
Relay/Sounder Stuck RELAY OR SDR STUCK	Used on the FC410SNM, FC410SIO and FC410MIO devices. Relay cannot be switched to the state which is required by the firmware.
Power Open Circuit POWER WIRING OPEN	This fault is used for the FC410BDM and will be raised if the device detects a supply open circuit.
Power Short Circuit POWER WIRING SHORT	This fault is used for the FC410BDM and will be raised if the device detects a supply short circuit.
Contact Open Circuit CONTACT WIRING OPEN	Raised on the FC410MIM, and FC410SIO devices if the supervised input is open.
Contact Short Circuit CONTACT WIRING SHRT	Raised on the FC410MIM, and FC410SIO devices if the supervised input is shorted.

Table 36: Fault Conditions on Devices

Fault State and Logged Description	Use within FireClass Version 21
Sounder Fault SOUNDER FAULT	Used to report faults on the FC430LPSB LP Sounder Base, FC410SNM, FC410LPSYR LP Sounder Red, FC410LPAVR LP Sounder/Beacon Red/ White and with the sounder circuits on the FIM. A reason could be that the auxiliary voltage is not present for the loop device.
Sounder Open Circuit SOUNDER LINE OPEN	Used to report faults on the FC410SNM if the supervised output is open.
Sounder Short Circuit SOUNDER LINE SHORT	Used to report faults on the FC410SNM if the supervised output is shorted.
Relay Coil Fault RELAY COIL FAULT	Used for fault reporting on the two sounder circuits and the alarm relay on the FIM.
Wiring Fault - Short Circuit WIRING S/C FAULT	This fault applies to FC410CIM, FC410DIM, FC410SIO, FC410BDM, MIO800, FC410DDM and FC410SIO devices and indicates the supervised input is shorted.
Wiring Fault - Open Circuit WIRING O/C FAULT	As above, indicating the supervised input is open.
Detector Condition Low DET LTA LO WARNING	This fault is raised on and FC460PHdetectors. If Detector Condition Monitoring is enabled for the point the fault is triggered if the LTA falls below the warning threshold. At this threshold level the device is still working but should be replaced at the next service.

Table 36: Fault Conditions on Devices

Fault State and Logged Description	Use within FireClass Version 21
Wiring Fault - Short Circuit WIRING S/C FAULT	This fault applies to FC410CIM, FC410DIM, FC410BDM, FC410MIO, FC410DDM and FC410SIO devices and indicates the supervised input is shorted.
Wiring Fault - Open Circuit WIRING O/C FAULT	As above, indicating the supervised input is open.
Detector Condition Low DET LTA LO WARNING	This fault is raised on FC460PHdetectors. If Detector Condition Monitoring is enabled for the point the fault is triggered if the LTA falls below the warning threshold. At this threshold level the device is still working but should be replaced at the next service.
Wiring Fault - Short Circuit WIRING S/C FAULT	This fault applies to FC410CIM, FC410DIM, FC410BDM, FC410MIO, FC410DDM and FC410SIO devices and indicates the supervised input is shorted.
Wiring Fault - Open Circuit WIRING O/C FAULT	As above, indicating the supervised input is open.
Detector Condition Low DET LTA LO WARNING	This fault is raised on FC460PH detectors. If Detector Condition Monitoring is enabled for the point the fault is triggered if the LTA falls below the warning threshold. At this threshold level, the device is still working but should be replaced at the next service.
No response from Door Control DOOR CTRL NO RESPNS	This fault is raised by FC410RIM and FC410SNM units if configured as door control units and not responding to polls.

Table 36: Fault Conditions on Devices

Fault State and Logged Description	Use within FireClass Version 21
Fault in Door Control DOOR CTRL FAULT	Raised on an FC4 10SNM if configured as door control. The Auxiliary voltage is not present
Door Control Line Open DOOR CTRL OPEN CCT	Raised on an FC4 10SNM if configured as door control if the supervised output is open.
Short Circuit in Door Control line DOOR CTRL SHORT CCT	Raised on an FC4 10SNM if configured as door control if supervised output is shorted.
Door Control Stuck DOOR CTRL STUCK	If the monitored contact is stuck on a FC4 10RIM or FC4 10SNM. The relay cannot be switched in the state which is required by the firmware.
No Response from Extinguishing Control EXT. CTRL NO RESPNS	Raised on an FC4 10SNM if configured as Extinguishing control.
Fault in Extinguishing Control EXT. CTRL FAULT	Raised on the FC4 10SNM (if configured as an Extinguishing Control unit).
Extinguishing Control Line Open EXT. CTRL OPEN CCT	Raised on an FC4 10SNM if configured as Extinguishing control. If supervised output is open.
Short Circuit in Extinguisher Control line EXT. CTRL SHORT CCT	Raised on an FC4 10SNM if configured as Extinguishing control. The supervised output is shorted.
Extinguishing Control Stuck EXT. CTRL STUCK	Raised on an FC4 10SNM if configured as Extinguishing control. The relay cannot be switched in the state which is required by the firmware.
No response from Alarm Control ALARM CTRL NO RESP	FC4 10RIM and FC4 10SNM if configured as alarm control units.

Table 36: Fault Conditions on Devices

Fault State and Logged Description	Use within FireClass Version 21
Fault in Alarm Control ALARM CTRL FAULT	Raised on an FC4 10SNM if configured as Alarm Control The Auxiliary voltage is not present.
Alarm Control Line Open ALARM CTRL OPEN CCT	Raised on an FC4 10SNM if configured as Alarm Control and the supervised output is open.
Short Circuit in Alarm Control line ALARM CTRL SHRT CCT	Raised on an FC4 10SNM if configured as Alarm Control and the supervised output is shorted.
Alarm Control Stuck ALARM CTRL STUCK	Raised on FC4 10RIM and FC4 10SNM devices. It indicates the relay cannot be switched in the state which is required by the firmware.
Firmware Incompatible F/W INCOMPATIBLE	This fault is used to indicate an incompatibly between the main FireClass firmware and the firmware in a support chip. Compatibility requirements are given within the TIB relating to the FireClass firmware release.
Fault with supervised input DEVICE FAULT	If the supervised input on the FIM becomes faulty
Lost External Power Supply EXT PSU LOST	Reported by the FC4 10DIM and FC4 10DDM if it has problems with its external power source.
Detector Power Up DETECTOR POWER UP	Used on devices with a base: If one device was removed and re-inserted again. Fault will be cleared after initialization of the device.

Table 36: Fault Conditions on Devices

Fault State and Logged Description	Use within FireClass Version 21
Calibration Fault CALIBRATION FAULT	Raised on the FC460CH, FC460PH, FC460PC, FC410PS, FC410P and Symphoni devices if the calibration value, stored by the factory, is invalid. The device cannot be used.
Invalid character set WRONG CHAR SET CHIP	Raised by the panel if the DCM does not contain a character set chip which supports the codepage the panel wishes to use.
Late Poll LATE POLL	There is a background monitor of loop point polling. This process checks when a device is polled, how long it has been since its last poll. If that time is outside a tight time scale this fault is raised. This fault will clear when polling is within expected parameters. It is not expected this fault will ever be announced, it is a required background process for approvals.
Beam Fault BEAM FAULT	Beam Detector Module has detected the FIRERAY (Beam detector) has raised a fault
Overlapping Devices OVERLAPPING DEVICES	The 'overlapping device' fault is raised if a second physical device is located on the loop at an address covered by the multi-IO device.
Low Temperature Fault LOW TEMPERATURE FLT	Raised on FC460PC detectors when the temperature sensor part has a failure or in environmental conditions below -20° C. When the fault is raised, the evaluation algorithm uses the HPO mode for alarm detection.

Table 36: Fault Conditions on Devices

Fault State and Logged Description	Use within FireClass Version 21
CO Element Fault CO ELEMENT FAULT	Raised on FC460PC detectors when the CO sensor part has a failure. When the fault is raised, the evaluation algorithm uses the HPO mode for alarm detection.
Optical Element Fault OPTICAL ELEMENT FLT	Raised on FC460PC detectors when the optical sensor part has a failure. When the fault is raised, the evaluation algorithm uses the compensated CO mode for alarm detection.
Temperature Too Low For CO Fault TEMP TOO LOW FOR CO FLT	Raised on FC460PC detectors during short periods < 10 h of operation at low temperature (-10°C to −20°C). If the period of 10 h is exceeded, a Low Temperature Fault is produced and the evaluation algorithm uses the HPO mode for alarm detection.
CO Cell Age Warning CHANGE AT SERVICE	The CO cells have a life of 10 years. This warning is raised if the device is over 9 years old.
CO Cell Age Fault MONITORING DEGRADED	The CO cells have a life of 10 years. This fault is raised if the device is over 10 years old.
Single Point Poll SINGLE POINT POLL	If the user selects to single device poll, state is logged with the point address. The panel is also placed into Commissioning Mode.
Auxiliary Voltage Fault AUX. VOLTAGE FAULT	If the supply voltage of the FC410DDM drops below 21.2 V If configured for 'Low Voltage detectors only' the fault is raised if the supply voltage drops below 14.5 V

Table 36: Fault Conditions on Devices

Fault State and Logged Description	Use within FireClass Version 21
Isolator Fault ISOLATOR FAULT	This fault is raised by the FC410DDM units, it is not used for standard line isolators or isolator bases. If internal isolator is activated, it raises this fault.
Auto Test Failed AUTO TEST FAILED	Devices that offer a self-test feature are tested automatically on a regular basis. This fault is raised if one of these regular tests fails, in such circumstances the user should replace the device.
Detector Removed DETECTOR REMOVED	This fault will be used by the FC410DDM when configured to monitor circuits of conventional devices with diode base.
Performance Fault PERFORMANCE FAULT	This fault is used by the FC410DDM when monitoring a 4-20 mA device. The processing bands are configured in Express.
Beacon Fault BEACON FAULT	This fault if the monitoring of the beacon on an LPAV device indicates it is in fault.
Isolation of non-LED outputs ISOLATION FOR TEST	If the user isolates non-LED outputs, state is logged. The panel is also placed into Commissioning Mode.
High Current HIGH CURRENT	This fault is raised by the FC410DDM when operating in 4-20 mA mode if the current measured is higher than the expected range.
General Fault GENERAL FAULT	This fault is raised by the FC410DDM if the current measured is below the expected range.

Table 36: Fault Conditions on Devices

5.6 System Fault

Overview

Within the FireClass system there are both visible and audible indication for 'System Fault' which are required for compliance with the EN54 standard. This section outlines the functionality behind this visual indication.

The "System Fault" LED is part of the display PCB, the drive to the LED is a latching circuit which when triggered, turns on the LED and pulses the buzzer. The only mechanism for clearing the LED and silencing the buzzer is by resetting the latching circuit, using the push button on the back of the display PCB board.

Hardware

The drive to the latching circuit is effectively a wired OR'ed connection of all the FireClass system processors watchdog drives, it is arranged such that if any processor resets "System Fault" will be indicated.

The obvious limitation is that the "System Fault" LED cannot tell you which processor reset, just that one of the processors has reset. The panels LOG could tell if the CPU800 reset, but there is no mechanism to indicate which peripheral processor has reset.

Software Triggers

The panel firmware is designed so that under extreme circumstances it can generate "System Fault". This can be broken down into two levels:

- "Partial Operation" indication of "System Fault" but panel partially functioning.
- "Safe State" indication of "System Fault" panel halted.

These are described in the following sections.

Partial Operation

If the front cover DCM display test fails a fault is raised, additionally as required by EN54 the panel firmware detects this and triggers "System Fault". The system is still functioning albeit with a corrupt or non existent display (i.e. the primary fire display has been lost).

Safe State

The following fault conditions will place the system into "Safe State":

- FireClass Firmware Bootrom Checksum failure.
- FireClass Firmware RAM test failure.
- FireClass Firmware FLASH test failure.
- FireClass Configuration FLASH test failure.
- FireClass Configuration RAM test failure.

- If the firmware encounters any of these conditions the system is held in a “Safe State” (described as state of the panel in which it is not functional and is no longer monitoring for fires) by performing the following actions.
- Write to Non-Volatile memory a signature ndicating a “System Fault” has occurred.
- Reset the system via watchdog timeout, this will cause a “System Fault” indication.
- Upon restart the Non-Volatile memory is read, the signature id is found indicating a fault and the system halts.

Recovery from Safe State

To recover the system from “Safe State” (as described above) will require the non-volatile RAM to be cleared by performing the following actions:

- Fit header link H2 on the CPU card.
- Rebooting the system and wait at least 30 seconds
- Remove header link H2 and reboot system.

Italy
FIRECLASS
Via Gabbiano 22
Zona Industriale, S. Scolastica
64013 Corropoli (TE)
Italy
FireclassSales@tycoint.com
www.fireclass.co.uk

United Kingdom
FIRECLASS
Hillcrest Business Park
Cinder Bank
Dudley
West Midlands
DY2 9AP
United Kingdom
FireclassSales@tycoint.com
www.fireclass.co.uk

Further information about FIRECLASS can be found on the Internet at www.fireclass.co.uk

Company stamp

120.515.087_FC-P-S. doc. version 1. 22. Mar 2012. Subject to change without notice.

FIRECLASS