
SIMPLICITY CO

CARBON MONOXIDE DETECTION & VENTILATION PANEL



INSTALLATION MANUAL

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1 SAFETY INFORMATION

WARNING: Read this section completely before commencing installation.

1.1 INSTALLATION INFORMATION

THIS DETECTION AND VENTILATION CONTROL PANEL IS CLASS 1 EQUIPMENT AND MUST BE EARTHED

This equipment must be installed and maintained by a qualified and technically experienced person.

This C.I.E. must be wired to a fused spur rated at 3A. It must **NOT** be connected via a removable plug, or be connected through an RCD device.

Prior to commencing installation of the control panel, ensure that adequate precautions are taken to prevent damage to the sensitive electronic components on the control board due to electrostatic discharge. You should discharge any static electricity you may have accumulated by touching a convenient earthed object such as an unpainted copper radiator pipe. You should repeat the process at regular intervals during the installation process, especially if you are required to walk over carpets.

The panel must be located in a clean, dry position, which is not subject to excessive shock or vibration and at least 2 meters away from pager systems or any other radio transmitting equipment. The operating temperature range is 0°C to 40°C; maximum humidity is 95%.

1.2 HANDLING THE PCB

If the PCB is to be removed to ease fitting the enclosure and cables, care must be taken to avoid damage by static.

The best method is to wear an earth strap, but touching any earth point (e.g. building plumbing) will help to discharge any static. Always hold the PCB by its sides and avoid touching the legs of any components. Keep the PCB away from damp dirty areas, e.g. in a small cardboard box.

1.3 SAFETY PRECAUTIONS DURING NORMAL OPERATION OF PANEL

NOTE: When the SIMPLICITY CO panel is operating normally, i.e. not being tended by service personnel, the front cover should be screwed closed with the hex screws provided.

1.3 BATTERY INFORMATION

This C.I.E. uses 2 x 12V Sealed Lead Acid (SLA) batteries up to 7.2 Ah.

CAUTION:

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.

DISPOSE OF USED BATTERIES ACCORDING TO BATTERY MANUFACTURERS INSTRUCTIONS

IMPORTANT NOTES ON BATTERIES:

DANGER: Batteries are electrically live at all times. **NEVER short circuit the battery terminals.**

WARNING: Batteries are often heavy; take great care when lifting and transporting batteries. For weights above 24 kilos, lifting aids should be used.

DANGER: Do NOT attempt to remove the battery lid or tamper with the internal workings of the battery. Electrolyte is a highly corrosive substance, and presents significant danger to yourself and to anything else it touches. In case of accidental skin or eye contact, flush the affected area with plenty of clean, fresh water and seek immediate medical attention.

Valve Regulated Lead Acid (VRLA) batteries are “low maintenance”, requiring no electrolyte top-up or measurement of specific gravity.

1.4 PRODUCT DISPOSAL AT THE END OF ITS WORKING LIFE

Like all electronic equipment, at the end of its working life this unit should not be disposed of in a refuse bin. It should be taken to a local reprocessing site as per the guidelines of the WEEE directive, for correct disposal.

2 DESCRIPTION OF THE SYSTEM

The Simplicity CO carbon monoxide detection panel is a 1 to 8 zone analogue addressable system, using the Standard Zeta Addressable protocol.

The devices can be connected as a single loop, or as separate radially connected circuits.

The system uses global thresholds that apply to all zones. There are thresholds for first ventilation, second ventilation and alarm. these 3 thresholds can be individually adjusted.

Any zone can be disabled through the menus if required.

The system can run with either individual ventilation relays for running systems with several ventilation fans, or with a single set of ventilation relays, configured as common acting.

3 INSTALLING THE SYSTEM

3.1 MOUNTING THE CONTROL PANEL

The control panel should be installed in accordance with the following recommendations:-

- The panel should be close to the main entrance of the building, so that it can be viewed by any relevant personnel entering the building.
- It should be fitted to a sturdy wall that will not flex unnecessarily.
- It should be mounted at eye level, in order for it to be viewed without need of a ladder.
- It should be installed in a dry, weatherproof place, away from direct sunlight.
- It should be easily accessible, so that the responsible person can perform their regular fire alarm checks.

3.2 RECOMMENDED CABLE TYPES AND THEIR LIMITATIONS

Screened cables should be used throughout the installation to help shield the Panel from outside interference and ensure EMC compatibility.

All cables should be at least 1mm² cross section

On the Simplicity CO the general recommendation would be to use standard fire resistant cable, such as Firetuff[∞], FP200 or any equivalent. These cables are screened, and will provide good EMC shielding when properly grounded at the panel. Certain system specifications may demand the use of a particular type of cable and due regard should be paid to this fact.

Depending on the environment, the cables may need mechanical protection (such as a conduit).

3.3 MAINS WIRING RECOMMENDATIONS

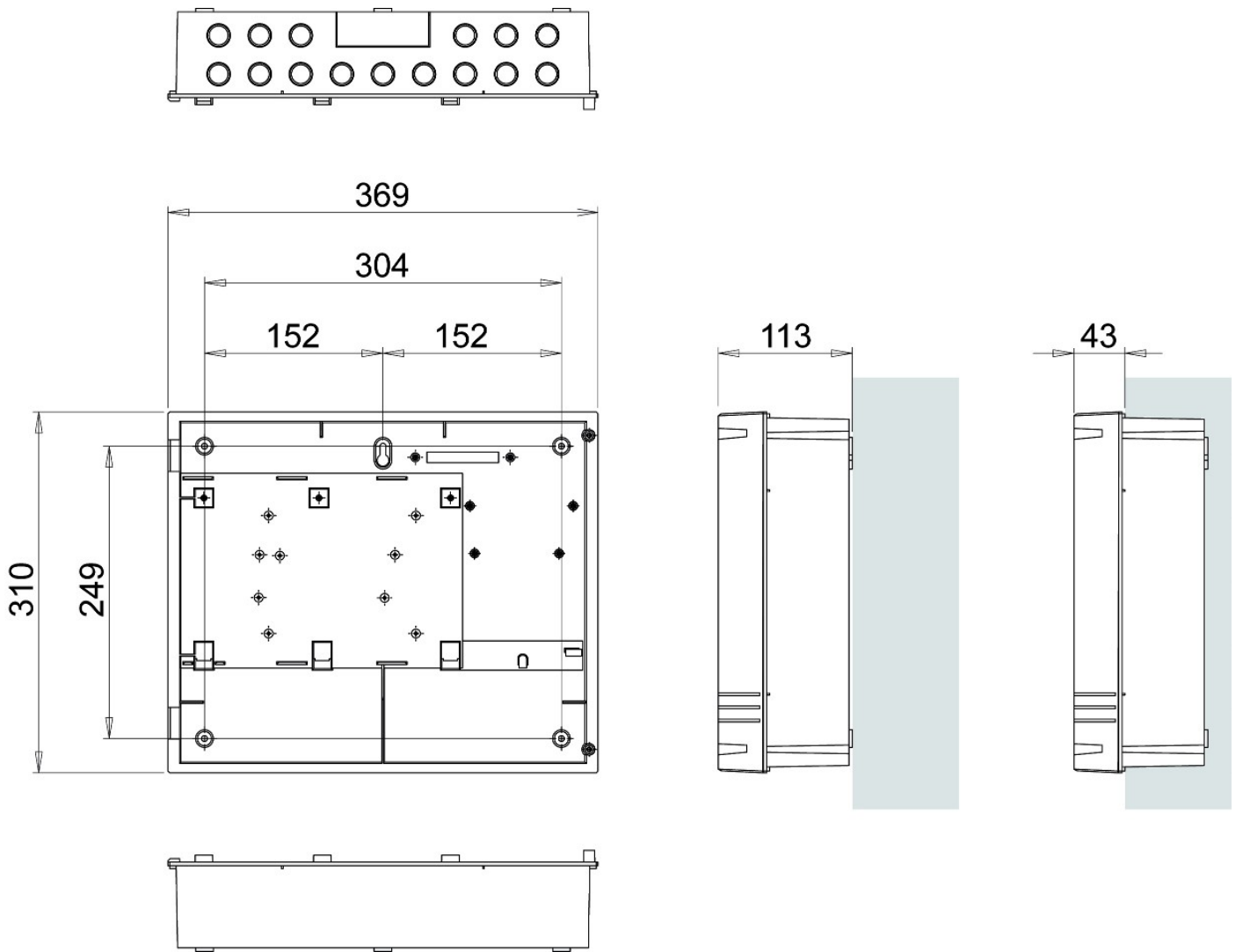
The Mains supply to the control panel is fixed wiring, using 3-core cable (Between 1 mm² and 2.5mm²) or a suitable 3-conductor system, fed from an isolating double pole switch fused spur, fused at 3A. **IT SHOULD NOT BE CONNECTED THROUGH AN RCD.** This should be secure from unauthorised operation and be marked 'CO DETECTION AND VENTILATION: DO NOT SWITCH OFF'. The supply must be exclusive to the control panel. **MAKE SURE ANY SPARE ENTRY HOLES ARE COVERED**

Also refer to rating information on the mains cover inside the control panel.

3.3.1 MOUNTING THE CO DETECTION AND VENTILATION PANEL

The SIMPLICITY CO comes with many cable entry holes. If another entry hole is required, it is strongly recommended that the, the termination PCBs should be removed and stored in a safe place. This would also help while fixing the back box to the wall.

3.3.2 FIXING THE BACK BOX TO THE WALL



Plan view inside the enclosure without PCBs. Side view for surface installation.

Fix the enclosure to the wall using the three mounting holes provided.

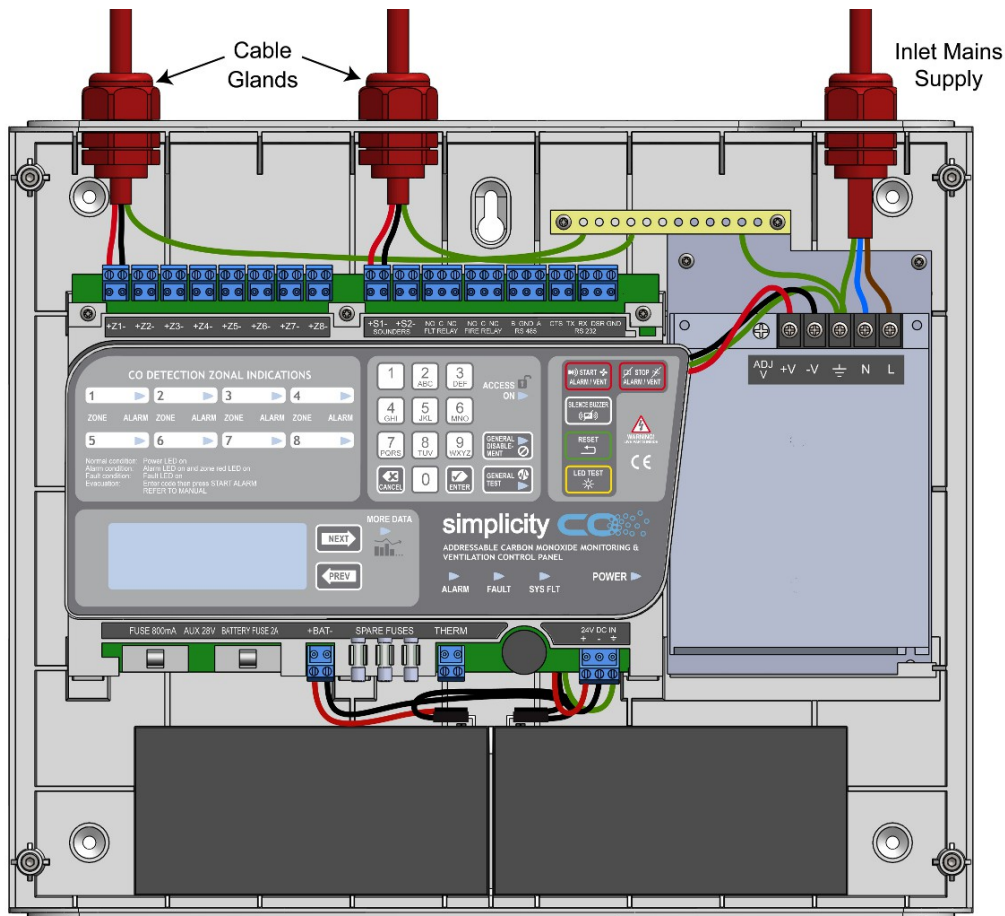
Check the build & condition of the wall to decide a suitable screw fixing.

The mounting holes are designed for No 8 round-head or countersunk wood-screws (or similar).

Remove any debris from the enclosure.

Take care not to damage the control panel during installation.

3.3.3 PLANNING CABLE ENTRY



The 230Va.c. Mains cable must be fed into the enclosure via one of the cable entries at the top right corner of the back box. (Refer to “Connecting the Mains” on Following Page).

Appropriate cable glands should be used at all cable-entry points for mechanical stability and to maintain the panels ingress protection (IP) rating.

Unused cable entry holes should be closed off with an appropriate grommet.

3.3.4 CONNECTING THE MAINS POWER

The panel should be connected to 220-240V AC by a 3A rated spur to the fuse box with 1mm² to 2.5mm² 3-core cable. Nothing else should be connected to this supply.

Having entered the panel via the cable gland, the mains cable should be passed twice through the provided ferrite. This is made easier by removing the outer insulation. The cable is then connected to the Live, Earth and Neutral connections marked on the power supply cage. The Mains is protected by an INTERNAL fuse on the PSU cage. (This fuse is not user replaceable)

The incoming mains cable should be kept separate from the zone cables to help minimise mains interference.

It is advisable to apply power to the panel before connecting any devices, to check for correct operation, and to familiarise yourself with the fire alarm panels controls.

4 ZONE WIRING

The SIMPLICITY CO can be wired with up to 8 separate radial circuits each with 15 devices per circuit. It may also be wired as a single loop.

When Wired as a Loop, Zone 1 is used as Loop OUT (Side A), and Zone 2 is used as Loop IN (Side B)

Each termination is identified on the terminal labels. The Earthing of the cable screens should be connected to the earth bar, which should in turn be connected to mains earth as shown below.

In single-loop mode, zones are allocated by the device address:

Address	Zone
1-16	1
17-32	2
33-48	3
49-64	4
65-80	5
81-96	6
97-112	7
113-128	8

In radial mode, up to 16 devices can be connected to each circuit and must have an address in the range 1-15.

4.1 CONNECTING THE DETECTORS & RELAYS

The CO detectors, ventilation relays and alarm sounders are connected to a single addressable loop.

The devices (detectors, interfaces and sounders) have a unique address set via a dip switch on the device. The address is binary, using switches 1 to 7. Valid addresses are 1 to 126.

*** NOTE: THE SWITCH SETTINGS FOR THE CO DETECTORS ARE DIFFERENT TO THE SWITCH SETTINGS FOR THE RELAY MODULES & THE SOUNDERS. SEE BELOW***

Although not essential, it may be desirable to fit loop isolators between zones. This will protect the loop from total shut-down in the event of a short circuit appearing on the loop.

4.1.1 SETTING DEVICE ADDRESSES

Zeta device addresses are generally set with either an 8-way dip switch or 3 decimal rotary switches



To set the address of devices with rotary switches, the address leads from left-to-right as hundreds, tens and units. For example if the first switch is set to 0, the second to 3 and the last to 5 the address will be set to 035.



For devices with dip-switches, the addresses are set in binary notation.

In general the **OFF** position represents binary 1, and the **ON** position represents binary 0, although certain devices may have this reversed (where OFF represents 0 and ON represents 1) so it is best to check the device documentation for further clarification.

Setting a switch to the binary 1 position adds a value to the address based on its position

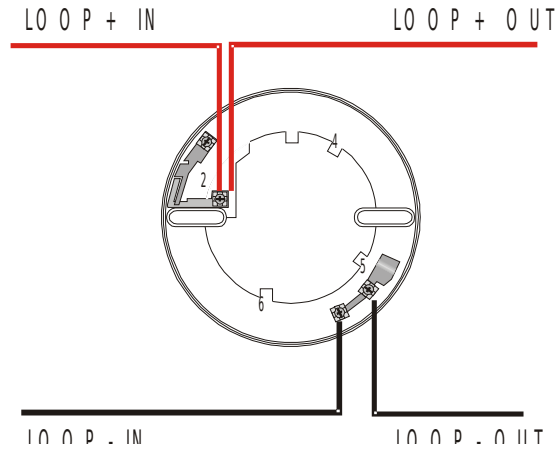
Switch	Value
1	+1
2	+2
3	+4
4	+8
5	+16
6	+32
7	+64
8	Not used or special function (refer to device documentation)

For example, a detector with switches 1,3 and 6 set to OFF (binary 1) and the rest set to ON (binary 0) will have an address of $1 + 4 + 32 = 37$.

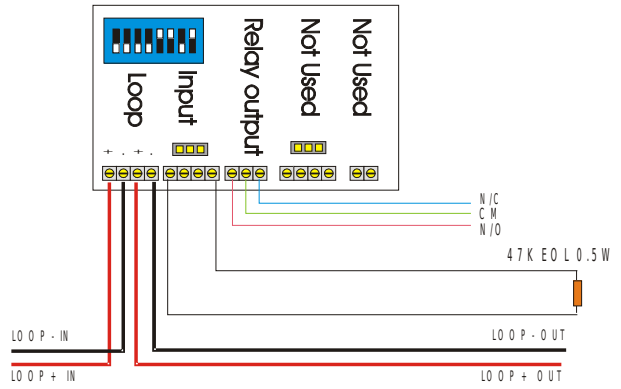
Once the device addresses have been set, the panel should be re-configured to the new device addresses.

4.2 CONNECTION DIAGRAMS

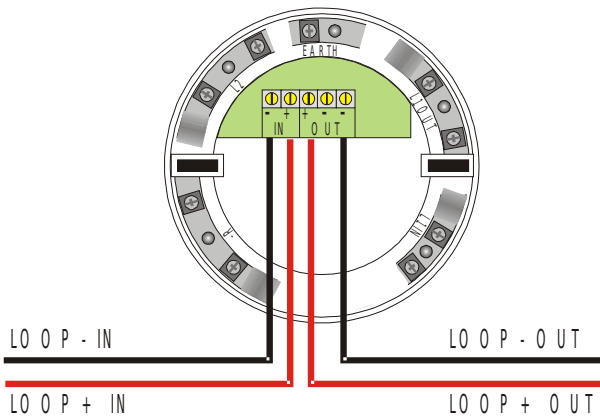
**Zeta Addressable CO Detector
CO800
47-015**



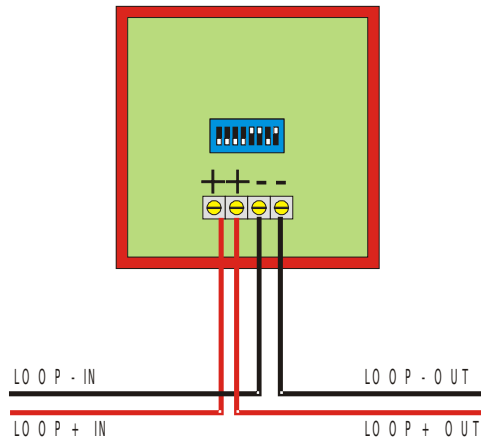
**Zeta Input Output Unit
ZIOU
48-105**



**Fyreye Loop Isolator
FEA-ISO
80-091**



**Zeta Addressable Maxitone Sounder
ZAMT/R
42-007**



5 AUXILIARY OUTPUTS

5.1 ALARM OUTPUT WIRING

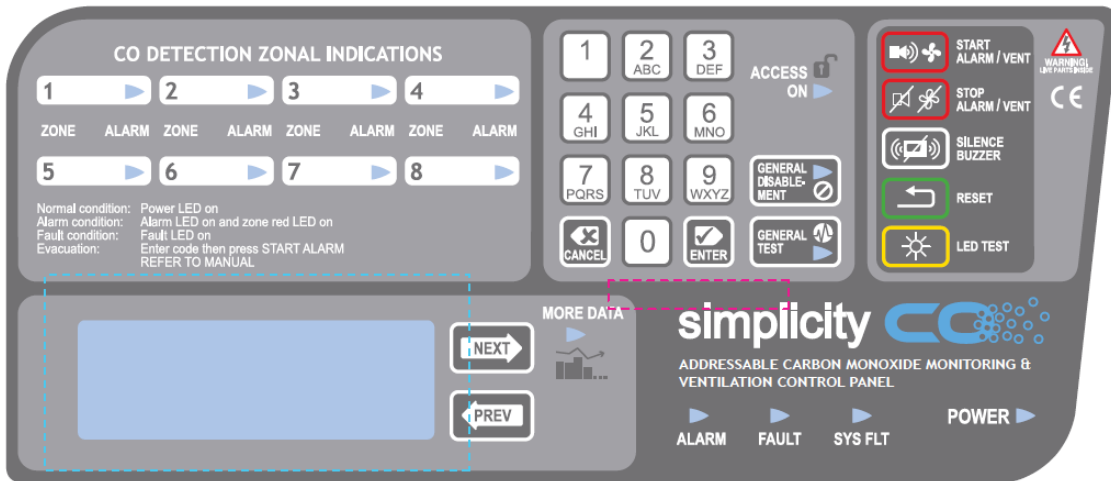
This is a SELV volt free relay, the operation is configurable to operate in either the Alarm, Vent 1 or Vent 2 conditions. Extra alarm relays can be achieved by fitting extra I/O relays to the detector circuits. It can be connected to various devices which are activated upon detection of rising carbon monoxide levels, such as ventilation, automatic door control or alarm systems.

5.2 FAULT OUTPUT RELAY

Fault Output (FAULT): This is a SELV volt free relay that operates in the Fault condition. It is Normally energised, which ensures it can give a fault signal, even in the event of total power loss.

The fault relay is used to connect to a remote indication device

6 PANEL CONTROLS & INDICATIONS



6.1 INDICATIONS

Name	Colour/State	Indicates...
Zones (1-8)	Red	Alarm condition
Power	Green (On)	Normal power
	Green (Flashing)	A fault has occurred on either the mains or battery backup system
Alarm	Red	General alarm condition. Refer to the individual zone indicators and LCD readout for further information.
Fault	Yellow	General fault condition with the panel. Refer to the LCD readout for further information.
Sys FLT	Yellow	Indicates a serious fault that has stopped the panel from operating correctly.
Access On	Yellow	User or engineer level access to the panel controls.
General disablement	Yellow	Disabling present
General Test	Yellow	Zones in test mode
More Data	Yellow	More data is available on the LCD readout. Press [NEXT] and <PREV] to navigate through the panel events.

6.2 CONTROLS

Button	Description
START ALARM/VENT	Manually starts the alarm and ventilation
STOP ALARM/VENT	Manually stops the alarm and ventilation
SILENCE BUZZER	Silences the panels internal buzzer
RESET	Resets the panel from an alarm
LED test	Tests the functionality of the panel indicators. Additional panel information is displayed on the LCD allowing testing of the membrane keyboard and displaying electrical current usage.

6.3 SILENCING ACOUSTIC SIGNALS

The Simplicity CO panel will not give an audible signal for ventilation events. This is part of its normal operation, so it does not need to give an audible warning signal. It will make an audible signal for a fault condition, or for an alarm condition.

To silence a fault signal, enter the access code 123 and press the silence tone button.

To silence an alarm condition, enter the access code 123 and press stop/start sounders. This will turn off any sounders which are connected to the system. Then Press the Silence tone to turn off the panel's buzzer. Press the reset button after the CO has cleared.

7 CONFIGURING THE SIMPLICITY CO PANEL

7.1 ACCESSING THE MENUS



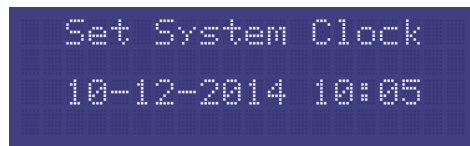
Main Menu
1: Clock 4: Devices
2: Zone 5: Levels
3: Loss 6: Engineer

The user level menu can be accessed using the access code '248'
Full engineers level access can be obtained using the code '368'

7.2 SETTING TIME AND DATE

To set the time & date, enter the Main menu by typing in the access code and select Clock (Option 1).

The Clock Menu is now displayed.



Set System Clock
10-12-2014 10:05

Enter the Day, Month, Year, Hour & Minutes as prompted, and press enter to save, or Cancel at any time to exit.

7.3 CONFIGURING THE ZONES

The simplicity CO panel automatically detects newly installed devices, simply press [ENTER] to allow the panel to auto-configure the devices



Devices Found
Press ENTER to
Configure Panel

7.4 CONFIGURING FROM A BLANK SIMPLICITY CO PANEL

1. After the system has been installed, and the cabling checked and the addresses of each device set, connect the loop cable to the CIE termination PCB (connection 1-8 as shown in Section 21.1), and power up the system(mains & batteries). The LCD should say “System Normal” and only the green Power LED will be lit. After a few seconds, the panel will find all the new devices & report them unconfigured

2. Press the enter button to configure the zones. The panel will show Configuration in progress,



```
Configuration in
Progress
30%
ENTER to Label Zone
```

while the system is configuring you have the option to enter zone labels

it will then return to the system normal screen. The zones are now configured.

7.5 LABELLING THE PANEL AND ZONES

To add a Zone label, go to engineer menu 1 (Option 6 from the main menu) and select option 2 Panel / Zone Text.



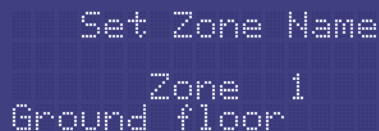
```
Engineer Menu 1
1: Configure Zones
2: Panel/Zone Text
3: ID Device
```

Select option 1 to enter the panel name or customer name

Select option 2 to enter the zone text (i.e. ground floor)



```
Panel/Zone Text
1: Panel
2: Zones
```



```
Set Zone Name
Zone 1
Ground floor
```

Press enter when the label has been entered. Press Next to edit the next zone.
(For entering a panel name, the text is entered as line 1 & line 2, so enter is pressed

NOTE: For many installations, only these configuration steps are required.

7.6 LABELLING THE DEVICES

To add a Device label, go to engineer menu 1 and select option 3 <ID DEVICE>

Press [ENTER] to bring up the cursor. Type in the device label as required (0 = space, Cancel = delete. There are no cursors to edit the middle of a string)



```
Zeta CO
000 PFM      Normal
Floor 3 room 303
Z1 Ad:007
```

2. Press enter when the label has been entered. Press Next to edit the next device, or Press cancel to return to normal.

7.7 VENTILATION LEVELS

On the Simplicity CO Analogue Addressable CO panel, there are 3 levels of ventilation. They are First Ventilation Level, Second Ventilation Level (for use with equipment with 2 speed fans), and alarm. The ventilation level programmed will apply to all 8 zones

The default threshold values are :-

first ventilation level	50ppm,
second ventilation level	75ppm,
alarm level	100ppm,

7.7.1 DISPLAYING THE THRESHOLD LEVELS

The various threshold levels can be displayed from option 5: Levels of the main menu



```
Thresholds
Vent 1      40 FPM
Vent 2      80 FPM
Alarm      100 FPM
```

7.7.2 CHANGING THE VENTILATION (AND ALARM) LEVELS

To set the and alarm thresholds and enter the engineer menu 2, select option 4. (vent config)



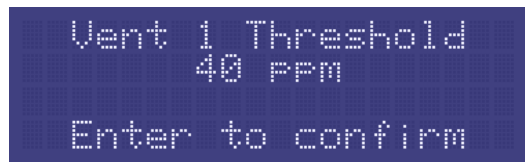
```
Vent Config
1: Set Threshold
2: Alarm Relay
```

Select option 1. to set the threshold levels.



```
Thresholds
1: Vent 1
2: Vent 2
3: Alarm
```

Select the threshold you wish to change.



```
Vent 1 Threshold
40 FPM
Enter to confirm
```

Use the <PREV] and [NEXT> buttons to adjust the threshold level. When you are satisfied with the level press [ENTER] to save the setting or [CANCEL] to discard the adjustment.

7.7.3 VENTILATION MODES

The Simplicity CO Panel has the following operation modes for ventilation:-

- Automatic ventilation mode: This is the normal operating mode of the panel. Ventilation is controlled by the CO detector readings
- Manual ventilation mode-first speed: Manual ventilation is selected by pressing the [START ALARM/VENT] button. The panel will activate the first ventilation level relay for all zones. When a Manual start is performed, the relay will stay energised for the programmed ventilation latch time.
- Manual ventilation mode-second speed: Second speed Manual ventilation is selected by pressing the [START ALARM/VENT] button a second time. the panel will activate the second ventilation level relay for all zones.
- Disablement mode: pressing general disablement button brings p a menu to disable any zone. While a zone is disabled. the zone will be turned off, and will not react to any signals from detectors. The LCD will show the zone as disabled

7.8 ALARM RELAY OPERATION

The alarm relay can be configured to fire on either the Vent1, Vent2 or the Alarm conditions. To adjust its operation, enter the engineer menu 2, select 4. vent config and 2 Alarm Relay.



Use the <PREV] and [NEXT> buttons to set the event at which the alarm relay operates, and press enter to confirm the setting, or cancel to discard it.

7.9 RESPONSE TIME

enter the engineers 2 menu, select 5 response time

From here you can adjust the panel response time for various conditions:

Vent	10s increments up to 2 minutes
Alarm	10s increments up to 2 minutes
Fault	10s increments up to 5 minutes
Vent off	30s increments up to 10 minutes



Use the <PREV] and [NEXT> buttons to set the event at which the alarm relay operates, and press enter to confirm the setting, or cancel to discard it.

7.10 I/O UNIT OPERATION

7.10.1 SETTING INDIVIDUAL I/O UNIT OPERATION - RELAY

To alter the operation mode of an individual I/O unit, go to the Engineers menu and 3) ID device



```
I/O Zn-D
Normal
Plant Room
Z2 Ad# 031
```

Scroll to the required Address

Press button 8 (V) to cycle through the different Variations of I/O configuration

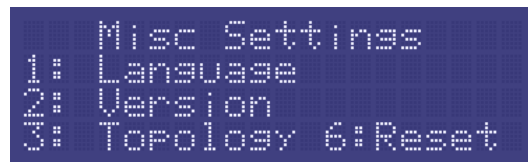
7.11 SETTING THE LCD LANGUAGE



```
Engineer Menu 2
4: Vent Config
5: Response Time
6: Misc
```

From Engineer menu 2, Select Misc (option 6)

Then from the Misc Settings menu, select option 1 (Language)



```
Misc Settings
1: Language
2: Version
3: Topology 6:Reset
```

Pressing Prev / Next will scroll through the available languages.

The panel will have one of 2 language banks:-

English
Spanish
Portuguese
French
Italian

OR

English
Hungarian
Serbian
Lithuanian

Other languages are available on request.

7.12 SOFTWARE VERSIONS

From Engineer menu 2, select Misc (option 6)

Then from the Misc Settings menu, select option 2 (Version)



The panel will display the software versions in its two Micro-controllers, one for the main functions and one for the Loop Driver. This information may be useful for technical support in the Event of any problems occurring with the Control Panel.

(Note that the revision number is an internal reference number. It does not mean that there have been 8600+ software revisions)

7.13 RESTORING THE PANELS DEFAULT SETTINGS

Because the Simplicity CO allows several configuration changes, we have also included an option to reset the panel back to its default operation. From Engineer Menu 2, Select Option 6 (Misc).



Then from the System Menu, Select option 6 (Reset). This brings up the screen to select to reset :-



The panel can be reset as follows:-

Option	Item	Function
1	Logs	Clears event log (Note that the Event counter is not reset) (Code 159 to reset)
2	Factory	Sets the panel back to factory default (Code 159 to reset)

NOTE: The factory reset option does not delete any panel name that has been programmed into the panel. To clear any programmed name, follow the steps in section 12.3, and use the cancel button to delete all text.

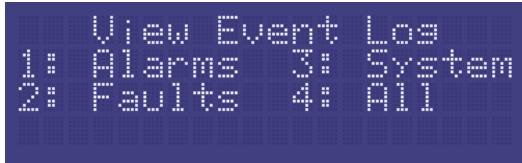
8 VIEWING PANEL INFORMATION

8.1 MENU STRUCTURE

To help locate the different features available, the menu structure of the Simplicity CO panel is shown here.

Main Menu		Description
1:	Clock	Adjust Date/Time
2:	Zone	Display Zone Information
3:	Logs	Display event logs
	1: Alarms	Display Alarm events
	2: Faults	Display Fault events
	3: System	Display System events
	4: All	Display All events
4:	Devices	Shows Device information
5:	Levels	Display threshold levels
6:	Engineer Menu 1	Engineers menu
	1: Configure Zones	Configure zones
	2: Panel/Zone Text	Adjust panel or zone labels
	3: ID Device	Show information on device * Edit device label (Press ENTER) * Turn on alarm LED / Flasher (Press 4) * Ring sounder(Press GENERAL TEST) * Select alarm verification(Press 8) * Configure Sandwich Sounder Base (Press 7) * Disable this device.(Press General Disable) * Configure I/O OUTPUT(Press 8) * Configure I/O INPUT (Press 6)
	-> Engineer Menu 2	Press [NEXT> to access the 2nd engineers menu
4:	Vent Config	Configure vent thresholds
5:	Response Time	Configure response times of events
	1: Vent	Configure vent response time
	2: Fault	Configure fault response time
	3: Alarm	Configure alarm response time
	4: Vent Off	Configure vent off response time
6:	Misc	Miscellaneous menu
	1: Language	Change language
	2: Version	Display version information
	3: Topology	Change loop topology
	6: Reset	Reset
	1: Event Logs	Reset (clear) event logs
	2: Factory Reset	Reset panel configuration

9 USING THE EVENT LOG



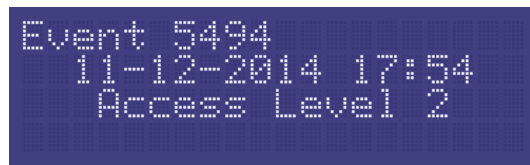
The SIMPLICITY CO has a 1000 entry event log. In the event of the log being full, it will wrap around, and overwrite the earliest entries. The event log can be viewed through Configuration Menu 1 by selecting Option 3 - View Event Log. The screen prompts for which events to display: Alarms, Faults, System or All.



If the alarm option is shown, only alarms will be displayed. The screen will show the event number, the date, the time, the type of event (in this case, a DEVICE ALARM), and the Zone, and address. Next & Previous buttons will cycle through the list.



Selecting this option will display all the faults recorded on the system, both device faults and general faults. The screen will show the event number, the date, the time, the type of event (in this case, a DEVICE CHANGED fault), and the Zone, and address, if appropriate. <PREV] & [NEXT> buttons will cycle through the list.



The Simplicity CO also records other non critical items, such as User access, clock change, configuration changed, event log erased etc. These can be used to help determine the chain of actions before or after an event.

The types of events recorded are: -

- | | | | |
|------------------|-------------------|-----------------|-----------------|
| Power On/Startup | Panel Reset | Evacuate | Access Level 2 |
| Access Level 1 | Sounders Silenced | Configure Loops | Time & Date Set |
| Zone Disabled | Zone Enabled | Device Disabled | |

9.1 RESETTING THE EVENT LOGS

During installation and commissioning, it is possible to create a large number of events, especially if a configured Zone is disconnected. This is normal, and is not a case for concern. These events can be cleared, using Engineer Menu 2.

To reset the event logs enter the engineering 2 menu and select option 6: Reset.

```
Reset Settings
1: Event Logs
2: Factory Reset
```

Select option 1: Event Logs

```
Clear Event Log

ENTER to Confirm
```

The screen warns that this cannot be undone. Press ENTER to clear the event log, or any other button to cancel this screen. It will also prompt for the access code (159)

```
WARNING
This action
cannot be undone
ENTER to Confirm
```

Note that when the event log is cleared, the EVENT NUMBER remains the same. This is so that a visiting engineer will have an idea of the activity on a panel, even if the event log has been cleared. The counter has a maximum value of 524287, and will return to 0 after this. Enter Access Code

10 VIEWING INDIVIDUAL DETECTORS

10.1 VIEWING DEVICE STATUS

On the Simplicity CO, all Zone devices can be viewed from the Main Menu, or viewed & edited from Engineer Menu 1.

Enter Engineer menu 1 as described above, and select option 3: ID Device.

```
I/O Zn-D
Normal
Plant Room
Z2 Ad:031
```

The screen is divided into the following sections:-

```
<Device type>
Analog:<Val><Status>
<User defined label>
<Zone><Address>
```

<Device Type> This shows the Device that was at this address during the last loop configuration.

<Val> Shows the analogue value the device is reporting

<Status> Shows the status of the device (eg. Normal, Fault or Alarm)

<User define label> Shows the label that the device can be set with

<Zone> Shows the zone the device is configured on

<Address> Shows the address of the device.

10.1.1 FAULTS

If the device is in a fault condition, a description of the fault will appear in the <status>. It will show one of the following messages:-

FAULT	MEANING
Changed	The device had been changed with one of a different type since last configuration. The message will flash between Changed, and the new type of device seen (eg. Ion).
Missing	The device is not communicating (ie removed , damaged or Address setting changed)
DetRmvd	A Detector has been removed
Side A Only	There is a break in the cable, and the device is only seen from Side A - Loop Mode Only
Side B Only	There is a break in the cable, and the device is only seen from Side B - Loop Mode Only
2-ADDR	Two devices have the same ID switch setting
No message	This device is signalling an internal fault by returning a value of less than 8.

10.2 LOCATING A DEVICE

From the ID device screen, it is possible to send commands to individual devices to start their sounder, or to turn on their alarm LED / Flasher.

Select the Zone and ID for the device to be checked.

If the device has an LED, its LED can be turned on by pressing Button 4. A star will appear in the top right hand corner to show that the LED has been lit on this device. Press again to turn off.

If the device is a sounder or I/O with a relay, the sounder or relay can be started by pressing the GENERAL TEST button. The Outline Optical sounder Symbol turns solid to show that the Sounder is active. Press again to turn off.

Similarly their Flasher can be started by pressing button 4. Press 4 again to turn off.

The sounder and flasher can both be activated if required. (Press General test, then 4)

Scrolling to another device or exiting the menu will automatically turn the LED or sounder/flasher off.

11 THE VENT AND ALARM CONDITIONS

11.1 VIEWING A VENT OR ALARM EVENT

When a detector reports an increase in carbon monoxide levels above the threshold levels, the panel will report the zone as well as the levels in that zone.

Multiple events may be displayed and these can be cycled through with the <PREV] and [NEXT> buttons.

11.2 VIEWING FAULTS DURING A FIRE ALARM CONDITION

In the event of multiple alarms, and multiple faults on the system at the same time, the LCD screen will give priority to alarm events. The screen will show the first alarm, and the Prev/Next scroll buttons will cycle through alarm events only.

The LEDs will show general fault information. To show fault event details on the LCD screen, press the CANCEL button. <PREV] and [NEXT> will now scroll through the faults. Press cancel to return to viewing the alarm information. (If the panel is left viewing a fault, after a short period of inactivity, the panel will revert to the alarm display)

A sounder fault is classed as an Indication that should not be suppressed, to the panel reserved part of the bottom line of the LCD to indicate sounder faults.

11.3 VIEWING ZONE DISABLEMENTS DURING AN ALARM CONDITION

If zones are disabled, then by pressing the GENERAL DISABLEMENT button, information about disabled zones can be displayed on the LCD.

11.4 VIEWING ZONES IN TEST MODE DURING AN ALARM CONDITION

To view details of a zone in test during a general alarm (caused by an alarm from a zone not in test), Press the general test button. The panel will display details of the zone in test. The panel will time out to display the general alarm screen within 20 seconds of the last button press.

12 DISABLEMENT

On the Simplicity CO, a whole zone of devices can be disabled.

Note that when there is any type of disablement present, the Simplicity CO displays the zone as 'OFF' from the main screen. The [General Disablement] indicator will also be lit.

12.1 ZONE DISABLEMENT

To aid commissioning and assist routine maintenance checks, any of the zones or the loop sounders can be disabled.



When a zone is disabled, the panel will not respond to any fault or fire signals it receives from any device in that zone.

This might be used if the system requires routine maintenance, and the customer needs the system to continue running, but doesn't want spurious false alarms.

The panel will respond in the usual manner to any events in any non-disabled zones.

The Simplicity CO also allows the sounders to be disabled. If they are disabled, the panel will not start any sounders in an alarm condition.

12.2 TO PROGRAMME ZONE (OR SOUNDERS) AS DISABLED

Any number of zones (or the sounders) can be disabled, but it is good practice to only disable one zone at a time.

1. Press GENERAL DISABLEMENT button and the screen will first prompt for a code(248): The screen will then the zone and the status.



Press the <PREV] or [NEXT> buttons to cycle through the zones.

Press [ENTER] to toggle the zone disablement.

13 TEST MODE

13.1 WHY USE TEST MODE

To aid commissioning and assist routine maintenance check, a silent, non-latching 'one man test' facility is available.

When a detector or I/O unit is triggered on any zone in Test, the Device will light it's LED without triggering a general alarm, When the unit comes out of alarm it will reset.

Should an Alarm occur on a zone that is not programmed to test, the Fire Alarm Panel will go into full alarm. The Zone test LED will continue to be lit. When the alarm has been reset, test mode will resume

13.2 TO PROGRAMME ZONE IN TEST MODE

NOTE: Only one zone can be programmed in test at any one time.

1. Press TEST Button. The screen will prompt for the test code
2. Enter the test-mode password 248



3. The screen will now invite you to select the zone to be tested, use the <PREV] and [NEXT> buttons to cycle through the zones.
4. Once the desired zone is selected, press the [ENTER] button to put the zone into test mode.
5. Detectors in this zone can now be tested with a test gas. The Detector will light it's LED until the gas clears, then it will reset. The sounders & the fire relay are not operated during test mode.
6. Once testing of that zone is completed, press [ENTER] to bring the zone out of test mode.

14 TESTING THE DETECTOR WITH GAS

The Zeta Addressable CO detector can be tested with a standard smoke detector test pole fitted with a canister of Carbon Monoxide gas. The detector is an electrolytic cell type, so the chamber is constantly monitored.

15 FAULT INDICATORS AND MESSAGES DISPLAYED

On the Simplicity CO panel, Faults are divided into 2 types, “Faults” and “Device Faults”. Device Faults are any fault associated with a particular Device on the system. Faults are everything else, EG, power supply etc. In the event of multiple faults, the Faults are grouped together first, followed by the device faults. Next button will scroll to next fault.

15.1 GENERAL FAULTS

15.1.1 CABLE (LOOP) FAULT

This means that the panel has detected a fault (either open circuit or short circuit) in the cable loop. Check the cable systematically to locate the problem.

15.1.2 SUPPLY FAULT

Either mains power or battery backup power has been lost. Check the supply is present, and the relevant fuses are intact.

15.1.3 EARTH FAULT

This indicates that a short-circuit has occurred between part of the system wiring and earth. This usually means there is a short between the one of the cables in the detection loop and the cable screen.



(Note: connecting other equipment, eg an oscilloscope or a PC, to the panel can give an earth fault)

The Screen will indicate if it is a Positive or Negative voltage shorting to earth (Earth Fault Pos or Earth Fault Neg).

DO NOT DISCONNECT THE MAINS EARTH CONNECTION. THIS WILL CAUSE A PROBLEM WITH THE PANELS OPERATION

15.1.4 SUPPLY FAULTS

Supply faults will be indicated if the mains supply voltage drops too low or there are a problem with the battery backup.

If a battery fault is indicated, check that the battery fuse is intact.

Old batteries with a high impedance will generate a battery fault and will require replacing.

For mains faults, check that the mains wiring is secure and any mains fuse fitted is intact.

15.1.5 SYSTEM FAULT (SYS FLT)

A system fault is an abnormal microprocessor running condition due to various unexpected phenomena.

This will result in the panel attempting to correct itself. Should this fault occur, the System Fault LED, General Fault LED, General Fault relay and fault internal buzzer will be constantly active until the control panel is reset. This should cause the system fault condition to clear. If not, consult your supplier.

15.1.6 COMMON FAULT (FAULT)

This is a general indicator which lights whenever a fault is present. It doesn't refer to a specific fault.

15.2 ZONE FAULTS

This means that one of the devices in that zone has stopped communicating with the panel, or has detected an internal fault and is reporting this to the panel. Check that the device has not been removed, and that the device is communicating with the panel (check the detector in the device status menu- see next section)

15.2.1 ZONE CONTENTS FAULT FINDING

If the Zone contents are different to what was expected, then the probable causes are:-

1. Two or more devices may have the same address setting. This is referred to as a double address fault. If this occurs all devices with the same address will answer at the same time. The panel will not be able to understand the answer it receives. NOTE: If a panel detects a double address, it will light the LEDs of the devices with the problem. (NOTE: only detectors will light their LED. Sounders & interface modules will not be indicated).
2. There may be some reversed connections to devices (they are polarity sensitive). The Fyreye detectors should be connected Zone + to L2, Zone - to L1IN. Other devices will have their polarity marked by their connections.

If the panel reports any double addresses present, investigate these first as they are the easiest to find. The panel will turn on the LED of any incorrectly addressed detector. (See 19.6 DOUBLE ADDRESS)

If there are still less devices than expected, check the missing addresses for correct wiring polarity. If in doubt, contact your supplier.

If the wiring polarity is correct, check that there is no cable break on the loop. (If there is a break, the panel will report the break after 60 seconds or so, and the break can be verified by measuring one side of the loop with a DVM. The loop will be on for approx 20 sec, and then will power just one side for 5 sec, then power both for 20 sec, then power just the other side for 5 seconds. (So the voltage should be monitored for approx 50 sec for a full cycle to confirm a cable break)

Some devices take a few seconds to power up, so may show as missing during the repeated Power Down / Power Up cycle that occurs during a line break.

15.3 DEVICE FAULTS

15.3.1 DOUBLE ADDRESS

This indicates that a double address has been detected. This usually happens during initial setup, where 2 detectors are given the same address, or if a head is replaced during maintenance and its address has been wrongly set. In the second scenario, the panel will report 2 fault addresses, one will be the double address, and the other will be a missing device. As a further aid to finding the fault, the panel will light the LEDs of any detectors with a double address (Sounders & I/O units will not be indicated as they have no panel controlled LED to light up)

1. Make a list of the double addresses reported (there may be more than one).
2. Go to view device screen in Configuration menu 1. Scroll through the devices, and make a list of any that are missing (Note: the panel skips over empty addresses when scrolling)
3. Go to the location of the missing device, and check if it has its LED on (Detector), or check the dip switch setting.
4. If this does not cure all double addresses, go to the known location, and temporarily remove the device. The panel will now report the type of device that was also configured to this address from the view device screen. This will help narrow down the search for the device. (eg if extra device is call point, check the address settings of all the call points)

15.3.2 MISSING DEVICE

This means that the panel can not see the reported detector. This could be caused by the detector being removed, or by a device that has malfunctioned and is no longer responding

16 GENERAL RECOMMENDATIONS

Do not connect the detectors to their bases until the whole building work has been carried out and remember that once installed, power should be provided as soon as possible.

To carry out the installation, use an individual duct and avoid installing the detector close to sources that generate electromagnetic disturbances (fluorescent lights, engines, counters, etc.) If you cannot avoid installing them close to these disturbances, we recommend you use shielded cable (hose)

Do not use the detector base as a junction box to make connections to more than one detector, use the terminals supplied for the cabling of the detector base.

If extra holes must be drilled in the control unit cabinet, take care to clean the cabinet of all swarf, as the conductive coating could irreversibly damage the electronics.

5.- In compliance with the STANDARD EN 6.1010-1, 1.5mm² monopole cable should be used for the 220 AC connection to the control unit, protecting the input with a 5A contactor or circuit breaker and installing it as close as possible to the control unit.

6.- The minimum voltage needed for a detector to be able to function is 17V. If long cable runs are used, check the voltage of the first, middle and last detector on the loop.

7.- When the installation is 5 years old the detectors should be replaced and system recommissioned.

8.- REMEMBER that the detectors should not be left in the installation when:

- The control unit is disconnected
- There is no voltage or when there is only temporary power supply for the building work
- The building work has not been completely finished
- When maintenance work is being carried out, such as painting, changes to structure, when floors are being degreased, etc.

When any of the above circumstances cannot be avoided, remove the detectors, store them in their boxes and keep them in a clean and dry place.

17 STANDBY BATTERY REQUIREMENTS

17.1 STANDBY BATTERY CALCULATION

In order to calculate the standby battery size required, the following formula can be used:-

$$\text{Battery Size (Standby time in Amp Hours)} = 1.25 \times [(Df \times TALM \times IALM) + (TSBY \times IQ)]$$

(DF is a de-rating factor (typically = 2) used when a battery has to supply a high current load)

Where:

- TALM = Maximum time in hours required for the alarm [$\frac{1}{2}$ hour is most common time]
- IALM = Total Alarm Current in amps for all alarm devices connected to the alarm circuits
- TSBY = Standby time in hours for the system after mains failure [normally 24, 48 or 72 hr]
- IQP = Quiescent current in amps of control panel in fault condition [because of mains failure]
- IQZ = Quiescent current in amps of all detection zones.

17.2 TYPICAL DEVICE VALUES FOR BATTERY CALCULATION

Device	Quiescent	Alarm	Comment
Simplicity CO Panel	50mA	102mA	This is the current used during mains failure
CO Detector	0.5mA		
ZIOU	1.3mA	2.9mA	

17.3 EXAMPLE BATTERY CALCULATION

A system comprises of a 4 zone Simplicity CO panel, with 10 CO detectors and 2 ZIOU.

Calculate the battery size required.

TALM = 0.5 Hr
TSBY = 24 Hr

IQP = 0.050A (Quiescent current for panel)
IQD = (10 x 0.0005) + 2 x (0.0013) = 0.0076 A

IAP = 0.102A
IAD = (10 x 0.0012) + (2 x 0.0029) = 0.0178 A

Therefore using the equation:

Battery Size (Standby time in Amp Hours) = 1.25 x [(Df x TALM x (IAP + IAD))+ (TSBY x (IQP + IQD))]

Battery Size (Standby time in Amp Hours) = 1.25 x [(2 x 0.5 x (0.102 + 0.0178)) + (24 x (0.050 + 0.0076))]

Battery Size (Standby time in Amp Hours) = 1.25 x [0.1198 + 1.3824]

Battery Size (Standby time in Amp Hours) = 1.25 x 1.5022

Battery Size (Standby time in Amp Hours) = 1.87775 Amp Hours

This system would require a minimum of 1.87775 Ah batteries, so we would recommend using 2Ah Batteries or higher.

18 21. PCB TERMINATION CONNECTIONS.

Connection No	Description	Use
1- 8	Zone 1- 8	Connection for zone wiring
9	Sounder circuit 1	Connection of conventional sounders
10	Sounder circuit 2	Connection of conventional sounders
11	Fault Relay	Volt free relay. normally energised. Operates on any fault
12	Fire Relay	Volt free relay - Operates on a fire condition
13	RS485	Connection for Repeater panel
14 &15	RS232	NOT ACTIVE
16	Aux Power Supply	Power External Equipment, such as a repeater panel.
17	Battery Connections	Connects batteries to the PCB
18	Thermistor	Monitors battery temperature
19	24VDC Input	Connection from power supply

19 SPECIFICATIONS

19.1 ENCLOSURE SPECIFICATIONS

DESCRIPTION	VALUE
ENCLOSURE SIZE	364 x 302 x 90 mm
TOP CABLE ENTRIES	15 x 19mm DIA ENTRIES

19.2 ELECTRICAL SPECIFICATIONS

ELECTRICAL DESCRIPTION	VALUE
MAINS VOLTAGE	230V AC +10% /- 15% @ 50/60 Hz
BATTERY VOLTAGE	24V DC (2 X 12V SLA BATTERY)
SYSTEM VOLTAGE	29V DC NOMINAL (19 - 30 V)
CHARGER SIZE	300mA
ZONE VOLTAGE	28V DC NOMINAL (+9V data) (19.5 - 29.5V DC)
TOTAL ZONE RATING	500mA Max (in Radial or loop mode)
SOUNDER ALARM OUTPUTS	LOOP POWERED SOUNDERS 2 x Conventional sounder circuits 28V nominal,150mA (20-30V DC)
AUXILIARY FAULT OUTPUT	1 x FAULT RELAY SELV@1A (NORM. ENERG)
AUXILIARY VENT/ALARM OUTPUT	1 x FIRE RELAY SELV@1A
MAXIMUM NUMBER OF ZONES	8 ZONES
MAXIMUM ZONE CAPACITY	15 DEVICES PER ZONE
MAX NUMBER OF DETECTION CIRCUITS	Radial mode - 8 Radial Circuits Loop mode - 1 loop Circuit
MAXIMUM LOOP SOUNDER QUANTITY	64 SOUNDERS
AUX POWER OUTPUT	28V Nominal (20 - 30V DC)
AUX POWER RATING	100mA
CHARGER VOLTAGE	27.6V @ 22-24oC (NO BATTERY CONNECTED)
BATTERY DEEP DISCHARGE PROTECTION	Batteries less than 21V DC
TOTAL PSU OUTPUT	2.5 Amp

19.3 Maximum loop cable lengths

Maximum Loop Current (in Alarm)	500 mA	400 mA	300 mA	200 mA
1mm CSA cable	500 m	625 m	830 m	1250 m
1.5mm CSA cable	750 m	930 m	1250 m	1870 m
2.5mm CSA cable	1000 m	1250 m	1660 m	2500 m

20 SYSTEM DESCRIPTION CHART

This must be fully recorded by an authorised Engineer before system handover.
 INSTALLATION LOCATION:

ADDR	ZONE	TYPE	LABEL	ADDR	ZONE	TYPE	LABEL	ADDR	ZONE	TYPE	LABEL
1	1			43	3			85	6		
2	1			44	3			86	6		
3	1			45	3			87	6		
4	1			46	3			88	6		
5	1			47	3			89	6		
6	1			48	3			90	6		
7	1			49	4			91	6		
8	1			50	4			92	6		
9	1			51	4			93	6		
10	1			52	4			94	6		
11	1			53	4			95	6		
12	1			54	4			96	6		
13	1			55	4			97	7		
14	1			56	4			98	7		
15	1			57	4			99	7		
16	1			58	4			100	7		
17	2			59	4			101	7		
18	2			60	4			102	7		
19	2			61	4			103	7		
20	2			62	4			104	7		
21	2			63	4			105	7		
22	2			64	4			106	7		
23	2			65	5			107	7		
24	2			66	5			108	7		
25	2			67	5			109	7		
26	2			68	5			110	7		
27	2			69	5			111	7		
28	2			70	5			112	7		
29	2			71	5			113	8		
30	2			72	5			114	8		
31	2			73	5			115	8		
32	2			74	5			116	8		
33	3			75	5			117	8		
34	3			76	5			118	8		
35	3			77	5			119	8		
36	3			78	5			120	8		
37	3			79	5			121	8		
38	3			80	5			122	8		
39	3			81	6			123	8		
40	3			82	6			124	8		
41	3			83	6			125	8		
42	3			84	6			126	8		

Pre-Commissioning Cable Checks:

- +ve in to +ve out less than 24 ohms _____
- +ve to -ve greater than 500k ohm _____
- ve to Earth greater than 1M ohm. _____
- +ve to -ve less than 50 mV pickup (AC & DC) _____
- ve in to -ve out less than 24 ohms _____
- +ve to Earth greater than 1M ohm. _____