Honeywell
GENT

Generic Commissioning Instructions
Vigilon Plus panel, Vigilon Compact Plus panel & Vigilon Plus Nodes based fire Detection and Alarm system



ISSUE 11

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PREFACE

This is the eleventh issue of the Commissioning instructions for the Vigilon Plus panel based fire alarm system, with Master Control Card / Master Control Board at version 4.61 or higher. It covers information relating to S4M and S4T Self test devices. The manual also covers EN54 Part 13 Type B and SAFE System functionalities for Alarm management and also changes relating to the introduction of the Single Mode Fibre Network card.
It also covers changes relating to configuration file transfer using micro SD card, introduction of hybrid network card which allows satellite of networked EN and BS systems to temporarily coexist.

ASSOCIATED DOCUMENTS

The Vigilon Plus control panels and network nodes are supplied with respective copies of the operating and installation instruction manuals:
EN54 Vigilon Plus 4/6-loop panel based system - Installation instructions
EN54 Vigilon Compact Plus panel based system - Installation instructions
EN54 Vigilon Plus and Compact Plus panel based system - Operating instructions
Vigilon Compact Plus Network node - Installation instructions
Vigilon Plus Network Node - Installation instructions
Commissioning tool - User guide

CONVENTIONS

This is a note to highlight important text that is normally hidden in the main text.

This is either a caution to prevent damage to the equipment or a warning to inform of dangerous conditions that may result in injury or death.

ABBREVIATIONS

ACC	Audio Control Card
ADC	Analogue to digital converter
C	Common
CH	Channel
CO	Carbon monoxide
DAU	Distributed Amplifier Unit
Dev	Device
DIL	Dual in line
DKC	Display keyboard card
EEPROM	Electrically Erasable Programmable ROM
FARE	Fire alarm routing equipment
FPE	Fire protection equipment
EOL	End of line
FAB	First action byte
IO or I/O	Input Output channels
IP	Ingress protection
LED	Light emitting diode
LRT	Loop Radio Transceiver
LPC	Loop processor card
LPCB	Loss prevention council certification board
MCB	Master control board (CARD 0)
MCC	Main control card or Main controller card (CARD 0)
MCP	Manual call point
N/C or NC	Normally closed
N/O or NO	Normally open
NVM	Non Volatile Memory (CARD14)
O/C or OC	Open circuit
PA	Public Address
PCB	Printed circuit board
PIN	Personal identification number (usercode, password, access code)
PSU	Power supply unit
PVC	Polyvinyl chloride
QB	Quick blow (fuse)
S4	Current S-Quad range
S4T	New S-Quad with Self Test ‘T’ range
S4M	New S-Quad ‘M’ Miria range
S/C or SC	Short circuit
SAB	Second action byte
SAFE	Software addressed firmware encoded
SPCO	Single pole change over relay contacts
SPL	Sound pressure level
T	Anti-surge (fuse)
USB	Universal serial bus
VA	Voice Alarm

PRELIMINARY INFORMATION

SAFETY INFORMATION

1. Do not remove or replace boards, fuses or attempt to wire the control panel with the panel powered up. Always power-down the mains supply at the fused spur unit and disconnect the battery supply to the panel.

2. When powering-up always power-up the mains supply first before the battery supply. The power-down should be done in reverse order.

3. When installing the cards into the master control board or backplane always use anti-static work procedures.

4. Do not use anti-static procedures on live equipment.

PRE-VISIT CHECKS

- Ensure there are accurate as ***fitted wiring drawings*** available, 2 copies are required
- Any damaged equipment has been noted for replacement
- Ensure access will be provided to system equipment installed in the protected premises
- The installer (electrical contractor) will be in attendance until the installation is proved
- Site contact or representative will be available during the visit
- Ensure the commissioning tool along with the associated cables, printer and instructions are available
- Ensure spare parts are available, such as:
  - MCP glasses
  - MCP test key
  - Printer paper roll
  - Equipment door keys.

PRE-COMMISSIONING

- Check the installation of fire alarm equipment with reference to the most recent *as fitted wiring drawings*.
- Get the feel of the operating condition of areas on the site:
  - action the installer to carry out any rectification work plus
  - report discrepancies for administration purposes.
- Where the operating condition of an area is not right for the equipment installed, then the appropriate replacement action must be taken.
- Ensure the fire system equipment is installed in accordance with the appropriate standards and project specification.

POINTS TO REMEMBER

Earth leads

- All *earth leads* supplied with the system equipment must be securely fitted to maintain earth continuity.

Parts for later installation

- All unused parts should be retained in their respective container for safe keeping until required.

Loop wiring

- The loop cable should have been connected to the appropriate terminals at each device, as shown in the installation manual in locations identified on the *as fitted wiring drawings*.

Enclosure

- Access into equipment enclosure is usually by means of opening an outer door/ cover. A panel may also have an inner door which will also need opening.

Unattended equipment

- Where the equipment is to be left unattended, then it is important to close the door / cover for safety.

Copper fingers

- Copper fingers are conductive spring like strips fitted to metal assemblies. They are fitted to shield against electromagnetic and radio frequency interferences. Ensure the copper finger strips are intact and no damage has occurred. Damaged fingers will reintroduce the gap to let in/out interferences.

Static precaution

- The discharge of static electricity can damage or degrade sensitive electronic components on printed circuit boards. Anti-static procedures should be followed when handling static sensitive boards.



It is important that anti-static procedures are NOT carried out on live equipment.

Removal and disconnection

- Any disconnection of cables or removal of parts from an assembly must be restored or replaced.

Battery

- To prevent damage to batteries and equipment, the terminals of the battery must not simultaneously touch any conductive part of the equipment enclosure.
- Sealed lead acid battery can have a useful life of up to 5 years from the date of manufacture, it is strongly recommended that batteries are replaced after 4 years. The batteries must be disposed of correctly by following national or local legislation and battery manufacturers recommendations.

Powering up

- When equipment is being powered up always connect the mains supply before the battery supply. Power-down should be done in reverse order.



Arcing may occur when the battery circuit is connected to mains powered equipment.

Panel Buzzer

- It may be necessary during commissioning to switch Off the panel buzzer. It is possible to selectively switch the disablement, fault, fire, supervisory and command build buzzer sound to Off or On. It is important to ensure that the buzzer is switched On for normal operation after commissioning.

Fire plan

- The system should be tested in accordance with the project specification.

Sensor cover

- Each fire sensor installed in the system should have been fitted with a dust cover during installation. The dust covers must be removed from all the fire sensors after the panel loops have been satisfactorily powered-up and with addresses allocated to each device ready for further checks and tests.

Site specific installation

- Plant equipment interfaced to the system should be tested to recommendations made in the project specification.

Test mode (EN)

- During commissioning of the system you will need to switch *On* the Test mode. It is important to switch *Off* the Test mode after the work is over, to ensure the system operates normally.

Informing responsible persons

- **It is important to inform the person(s) responsible for the fire alarm system that the system is being commissioned.**

A typical commissioning process

Always power-down the panel when working on the system, for example when wiring or replacing parts.

Pre visit checks
Ensure you have:
– As-fitted-drawings that shows installed system equipment
– Access will be available to protected areas having system equipment
– Installer will be present to rectify wiring faults
– Tools and spare parts are available.

Inform responsible person(s)
Inform responsible person(s) that the fire alarm system is being commissioned and occupants in the protected premises will hear test alarms.
Ensure occupants are made aware of alternative site procedures should there be a fire event while the system is commissioned.

Survey the installation
Refer to the most recent as fitted drawings and ensure that all the fire system equipment has been installed in accordance with the installation instructions, respective standards and project specification.

Before powering up the Panel
Open the outer cover and inner cover of the panel and:
– Check all the internal cables within the enclosure are securely fitted
– Fit the loop card(s) into the required location(s)
– Ensure no external circuits are connected at this stage, except for the mains supply which must be connected but not switched ON
– Fit the end of line resistors to the master alarm circuits.
– Connect the external printer to the RS232 port, if required.
– Ensure the input - output lines of interface units on the loop are not connected.

Power up
– Fit the batteries inside the panel enclosure and connect the battery leads and then switch ON the mains supply.

Initial tests and set ups
– Carry out a display test and ensure DISPLAY and LEDs are working
– Set the system clock time and date
– Configure the RS232 printer port, if an external printer is installed.

Loop Devices
– Configure the links on all LV 4-channel interface units connected to the loop. Ensure links are set for either Input or Output application.

Ensure all interface Input/Output external wiring remains disconnected at this stage, unless otherwise instructed. This action will prevent inadvertent operation of output/plant while the system is being commissioned.

– Power up the mains powered interface units including ASD interfaces on the loop.

Loop device address allocation
– Connect only End 1 of a loop circuit and power-up the loop
– Allow address allocation to finish. Any fault(s) on the loop during allocation must be rectified. Power-down the loop when correcting loop wiring faults and the power-up to continue address allocation
– Connect only End 2 of the loop circuit and power cycle the loop and ensure address allocation is complete from End 2.
– Connect both End 1 and End 2 of the loop and check the loop allocation is complete with both ends of the loop connected.
– 'Starting Loop n' displayed after successful allocation of addresses.
– Check all the devices on the loop circuit are installed in their correct location using the 'Find Device' function at the panel and by referring to the 'as fitted wiring drawings'
– Check to ensure correct devices are installed by viewing the 'Device status'
– Repeat the allocation process on other loop circuits.

Pre-allocate the wireless devices
– If the system has wireless devices then pre-allocate the wireless devices and bind them to the respective LRT. Then allocate loop again to allow panel to see the devices.

Radio Devices

Continue on next page

From previous page

Backup
Back-up the system loop address allocation data to the memory.
Regularly back-up the configuration data during commissioning, do this every 15 minutes to ensure the changes made to the configuration is not lost.

Loop wiring tests
Carry out tests on each loop wiring by introducing open circuit wiring fault. Ensure the panel provides an indication of the fault.
Run the 'Repair' function at the panel after each wiring fault removal.
If necessary use the Loop Diagnostic Tool to locate abnormal resistance on loop circuit from partial short and high cable resistance.

Retrieve the system data to Commissioning tool

Micro SD Card method
Export the system data at the panel to the micro SD card.
Mount the micro SD Card at the Laptop and Import the data to the Commissioning tool, see Commissioning tool manual. On completion Eject the micro SD card.

USB cable method
Connect the commissioning tool to the panel and retrieve the system configuration data, see Commissioning tool manual.

Configure the system using the Commissioning Tool
Configure the system to site specific requirement using this tool.

Transmit the configured system to the panel
Connect the commissioning tool to the panel and transmit the system configuration.

Transmit the system configuration data to the Panel

Micro SD Card method
Export the configured system data to the micro SD card.
Mount the micro SD card in the MCC located at the top of panel and recover the system configuration, see also Commissioning tool manual.

USB cable method
Connect the commissioning tool to the panel and transmit the system configuration data from Commissioning tool to the panel, see Commissioning tool manual.

Beam Sensor alignment
If there are beam sensors on the loop then commission the beam sensor pair using the alignment and autogain function at the panel.

Installed system test
Put the panel in test mode and then carry out tests in accordance with the recommendations of BS5839:Part 1 and also in accordance with project requirements:
– Interface units
Prior to carrying out functional test on external equipment connected to the I/O circuits, ensure the I/O circuits remain isolated.
After functional tests, reconnect the I/O circuits and where appropriate test the I/O circuits to project recommendations, including SAFE switches.
– Fire sensors
Ensure a device fire causes alarms in the system to sound in accordance with site specific requirement.
– S-Cubed - The output volume of an S-Cubed can be adjusted using: [Set up] ->[Setup]-> [Device]-> [Loop]->[S-Cubed]->[Volume] and then enter a value between 16 min. to 100 max. command at the panel.
– Repeat and Mimic panels
Check events are displayed and indicated
– Connect Master alarm and Monitored input circuits and move the end-of-line resistor to the end of each circuit.
– Sounders - Conduct sound level tests to ensure the levels do not fall below the requirements.
– VAD / Strobe - Check the appropriate S-Quad and S-Cubed devices provide the visual alarm.
– Messages - Check the correct messages are announced from the Speakers, S-Cubed and S-Quad devices where installed.
– Remove the Test mode and ensure any disablements are re-enabled.
- Use Service Mode to test Self Test devices.

PIN Codes
Change the user PIN code(s) and inform the new codes to the respective users.

FARE and FPE
Ensure FARE and FPE if used are installed, configured and tested to project and system requirements.

Final changes to configuration
Use the panel menu options to make minor adjustments if required to the system configuration and then back up the work. All major changes to the configuration must be done using the Commissioning tool.

Cause and Effect tests
Test the system fire detection and alarm cause and effect to ensure the system behaviours is to site and customer requirements

Configuration data file
Ensure system configuration data file held at the Commissioning tool is the same as the one held at the panel.

Product Approval and Standards

FIRE DETECTION AND ALARM CONTROL PANEL

The following fire detection and alarm control panels are LPCB approved.

Product number	Description	Standard
VIGPLUS-24 VIGPLUS-72 COMPACT-PLUS	EN Vigilon Plus 4-loop panel EN Vigilon Plus 4/6-loop panel EN Vigilon Compact Plus 2-loop panel	EN54 Parts 2 : 1997 + A1:2006 EN54 Part 4 : 1997 + A1:2002 and A2:2006

INTERFACE UNITS

The following interface units are LPCB approved.

Product number	Description	Standard
S4-34410 S4-34450 S4-34420 S4-34415 S4-34411 S4-34401 S4-34404	1 Input interface module (loop powered) 4 Input / output Interface module (loop powered) 1 Output & 1 input (confirmation) interface module (loop powered) 1 Output Interface Single output interface (loop powered) Single Channel Mains Switching Interface Four Channel mains Switching Interface	EN54-17:2005 and EN54-18:2005
S4-34440-02 and S4-34440-12	Mains Powered Interface Units	EN54-17: 2005 EN54-18: 2005 & EN54-4:1997 + A1: 2002 + A2: 2006

MANUAL CALL POINTS

The following manual call points are LPCB approved.

Product number	Description	Standard
S4-34842 S4-34805 S4-34485 S4-34800	Manual Call Points	EN54 Part 11: 2001 EN54 Part 17: 2005

S-CUBED MARK 3

The following S-Cubed Mark 3 devices are LPCB approved.

Product number	Description	Standard
Type A Devices		
S3-S-R	S3 Sounder/Red Body	EN54-3 : 2001, A1:2002, A2:2006 (for Sounder)
S3-V-R	S3 Voice Sounder/Red Body	EN54-23 : 2010 (for Visual Alarm Device VAD)
S3-S-W	S3 Sounder/White Body	EN54-17 : 2005 (for Short circuit isolator)
S3-V-W	S3 Voice Sounder/White Body	
S3-VAD-HPW-R	S3 VAD/High Perf. White VAD/Red body	
S3-VAD-HPR-R	S3 High Perf. Red VAD/Red Body	
S3-S-VAD-HPW-R	S3 Sounder/High Perf. White VAD/Red Body	
S3-S-VAD-HPR-R	S3 Sounder/High Perf. Red VAD/Red Body	
S3-S-VAD-HPW-W	S3 Sounder/High Perf. White VAD/White Body	
S3-S-VAD-HPR-W	S3 Sounder/High Perf. Red VAD/White Body	
S3-S-VAD-LPR-R	S3 Sounder/Standard Perf. Red VAD/Red Body	
S3-S-VAD-LPW-R	S3 Sounder/Standard Perf. White VAD/Red Body	
S3-V-VAD-HPW-R	S3 Voice Sounder/High Perf. White VAD/Red Body	
S3-V-VAD-HPR-R	S3 Voice Sounder/High Perf. Red VAD/Red Body	
Environmentally protected Devices		
S3EP-S-R	S3 Sounder/Red Body/EP	EN54-3 : 2001, A1:2002, A2:2006 (for Sounder)
S3EP-VAD-HPW-R	S3 VAD/High perform. White VAD/Red Body/EP	EN54-23 : 2010 (for Visual Alarm Device VAD)
S3EP-VAD-HPR-R	S3 VAD/High perform. Red VAD/Red Body/EP	EN54-17 : 2005 (for Short circuit isolator)
S3EP-V-VAD-HPW-R	S3 Voice Sounder/High perform. White VAD/Red Body/EP	
S3EP-V-VAD-HPR-R	S3 Voice Sounder/High perform. Red VAD/Red Body/EP	

S-QUAD SENSORS WITH VISUAL ALARM DEVICE (VAD) - INTRODUCED POST APRIL 2014

The following S-Quad with VAD sensors when operating in the approved STATES are LPCB approved to the respective standard.

Product number	Description	Standard
S4-711-VAD-HPR	S4 Dual Optical & Heat Sensors / Red VAD (HP)	EN54-5 : 2000, A1 : 2002 (heat) EN54-7 : 2000, A1 : 2002, A2 : 2006 (optical) EN54-3 : 2001, A1 : 2002, A2 : 2006 (sounder) EN54-23 : 2010 (visual alarm device VAD) EN54-17 : 2005 (short circuit isolator) EN54-18 : 2005 (input output devices)
S4-720-V-VAD-HPR	S4 Heat sensor / Voice Sensor Sounder / Red VAD (HP)	
S4-711-V-VAD-HPR & S4BK-711-V-VAD-HPR	S4 Dual Optical & Heat Sensors / Voice Sounder / Red VAD (HP)	
S4-911-V-VAD-HPR	S4 Dual Optical & Heat & CO Sensors / Voice Sounder / Red VAD (HP)	
S4-711-VAD-LPW	S4 Dual Optical & Heat Sensors / White VAD (Std)	
S4-711-VAD-HPW	S4 Dual Optical & Heat Sensors / White VAD (HP)	
S4-711-V-VAD-LPW	S4 Dual Optical & Heat Sensors / Voice Sounder / White VAD (Std)	
S4-711-V-VAD-HPW	S4 Dual Optical & Heat Sensors / Voice Sounder / White VAD (HP)	
S4-720-V-VAD-HPW	S4 Heat / Voice Sounder / White VAD (HP)	
S4-911-V-VAD-HPW	S4 Dual Optical & Heat & CO Sensors / Voice Sounder / White VAD HP	

Non VAD devices		
S4-720	Heat sensor	EN54 : Part 5 :2002* - (heat)
S4-715	Optical sensor	EN54 : Part 7 : 2000* - (optical smoke)
S4-710	Optical Heat sensors	EN54 : Part 7 : 2000* - (optical smoke) EN54 : Part 5 : 2000* - (heat) CEA 4021 : 2003-07 Class P heat multi-sensor detector
S4-711 & S4BK-711	Dual Optical & Heat Sensors	
S4-711-V & S4BK-711-V	S4 Dual Optical & Heat Sensors / Voice Sounder	EN54-5 : 2000, A1 : 2002 (heat) EN54-7 : 2000, A1 : 2002, A2 : 2006 (optical) EN54-3 : 2001, A1 : 2002, A2 : 2006 (sounder) EN54-17 : 2005 (short circuit isolator) EN54-18: 2005 (input output devices)
S4-770-S	S4 Optical & Heat Sensors / Sounder	
S4-771-S	S4 Dual Optical & Heat Sensors / Sounder	
S4-780-S	S4 Heat Sensor Sounder	
S4-901	S4 Dual Optical & Heat & CO Sensors	

* - these standards are met when the sensor is operating LPCB approved STATES, see STATES table below.

If an S-Quad sensor is configured to operate a non LPCB STATE, then this will contravene the LPCB approval. The required STATE is configured during commissioning and can be also configured using controls at the main panel. The approved Sensor STATES are shown on the following pages.

LPCB APPROVED S-QUAD SENSOR WITH VAD DEVICE STATES (POST MARCH 2016)

The STATE in which an S-Quad sensor operate can be changed from the default factory set STATE to another STATE during commissioning using the Vigilon Commissioning tool. The environment in which an S-Quad device is installed will determine what STATE is suitable for use.

Device	LPCB approved STATE	Meets ~ EN54-7 : 2000, A1:2002, A2:2006 * EN54-5 : 2000, A1:2002
Dual Optical & Heat sensor variant -		
S4-711 and S4BK-711	State 0 #	Normal sensitivity optical smoke ~ / Class A1 heat *
	State 2	***Low sensitivity optical smoke*** ◈ / Class A1 heat *
(With VAD)	State 3	High sensitivity optical smoke ~ / Class A1 heat *
S4-711-VAD-HPR	State 4	Normal sensitivity (no spike) optical smoke ~ / Class A1 heat *
S4-711-VAD-HPW	State 5	Normal sensitivity optical smoke ~ / Class B heat *
S4-711-V-VAD-LPW	State 6	***Low sensitivity optical smoke*** ◈ / Class BS heat *
S4-711-V-VAD-LPR	State 7	Normal sensitivity optical smoke ~ / Class A2S heat *
	State 8	Delayed normal sensitivity optical smoke ~ / Class A1 heat*
(With Speech)	State 11	***Low sensitivity optical smoke*** ◈ / Class B heat *
S4-711-V and S4BK-711-V	State 12	Class A1 heat *
(With VAD & Speech)		
S4-711-V-VAD-HPR and S4BK-711-V-VAD-HPR		
S4-711-V-VAD-HPW		
(With Sounder)		
S4-771-S		

- Factory default settings. ◈ Low sensitivity optical smoke sensing is not approved but may still be useful in certain applications.

Device	LPCB approved STATE	Meets ~ EN54-7 : 2000, A1:2002, A2:2006 * EN54-5 : 2000, A1:2002
Dual Optical, Heat & CO sensor variant-		
S4-901	State 0 #	Normal sensitivity optical smoke ~ / Class A1 heat * / Normal sensitivity gas (CO)
	State 1	High sensitivity optical smoke ~ / Class A1 heat * / High sensitivity gas (CO)
(With Speech & VAD)	State 2	Medium sensitivity optical smoke ~ / Class A1 heat * / Low sensitivity gas (CO)
S4-911-V-VAD-HPR	State 4	Normal sensitivity (no spike) optical smoke ~ / Class A1 heat * / Normal sensitivity gas (CO)
S4-911-V-VAD-HPW	State 6	*Low sensitivity optical smoke* ◈ / Class A1 heat * / Normal sensitivity gas (CO)
	State 7	Normal sensitivity (no spike) optical smoke ~ / Class A2S heat * / Normal sensitivity gas (CO)
	State 9	Class A1 heat * Normal sensitivity gas (CO)
	State 11	Normal sensitivity (no spike) optical smoke ~ / Class B heat *
	State 12	Class A1 heat *

Optical & Heat sensor variant - (With Sounder) (With Sounder) S4-710 S4-770-S	State 0 #	Normal sensitivity optical smoke ~ / Class A1 heat*
	State 2	***Low sensitivity optical smoke*** ◈ / Class A1 heat*
	State 3	High sensitivity optical smoke ~ / Class A1 heat*
	State 4	Normal sensitivity (no spike) optical smoke ~ / Class A1 heat*
	State 5	Normal sensitivity optical smoke ~ / Class B heat*
	State 6	***Low sensitivity optical smoke*** ◈ / Class BS heat*
	State 7	Normal sensitivity optical smoke ~ / Class A2S heat*
	State 8	Normal sensitivity (delayed) optical smoke ~ / Class A1 heat*
	State 11	***Low sensitivity optical smoke*** ◈/ Class B heat*
	State 12	Class A1 heat*

- Factory default settings. ◈ Low sensitivity optical smoke sensing is not approved but may still be useful in certain applications.

Device	**LPCB approved STATE**	**Meets ~ EN54-7 : 2000, A1:2002, A2:2006 * EN54-5 : 2000, A1:2002**
Heat sensor variant - S4-720 (With Speech & VAD) S4-720-V-VAD-HPR S4-720-V-VAD-HPW (With Sounder) S4-780-S	State 0 #	Class A1 heat *
	STATE 5	Class B heat *
	STATE 6	Class BS heat *
	STATE 7	Class A2S heat *
	STATE 13	Class A2 heat *
Optical sensor variant - S4-715	State 0 #	Normal sensitivity optical smoke
	STATE 3	High sensitivity optical smoke
	STATE 4	Normal sensitivity (no spike) optical smoke
	STATE 8	Medium sensitivity delayed optical smoke

Note sensor STATES are not applicable for wireless sensors.

LPCB APPROVED S-QUAD SELF TEST SENSOR WITH VAD DEVICE STATES (POST Q3 2023)

The STATE in which an S-Quad SELF TEST sensor operate can be changed from the default factory set STATE to another STATE configured during commissioning using the Vigilon Commissioning tool. The environment in which an S-Quad SELF TEST device is installed will determine what STATE is used.

Device	LPCB approved STATES	Meets ~ EN54-7 : 2018 * EN54-5 : 2017 + A1 : 2018
S4 SELF TEST **Dual Optical & Heat sensor variant -** S4T-711 (With VAD) S4T-711-VAD-HPR (With Speech) S4T-711-V (With VAD & Speech) S4T-711-V-VAD-HPR S4TB-711-V-VAD-HPR (With Sounder) S4T-771-S	STATE 0 #	Normal sensitivity optical smoke ~ / CategoryA1 heat *
	STATE 2	*Low sensitivity optical smoke* ◈ Category A1 heat *
	STATE 3	High sensitivity optical smoke ~ / Category A1 heat *
	STATE 4	Normal sensitivity (no spike) optical smoke ~ / CategoryA1 heat *
	STATE 5	Normal sensitivity optical smoke ~ / Category B heat *
	STATE 6	*Low sensitivity optical smoke* ◈ / Category BS heat *
	STATE 7	Normal sensitivity optical smoke ~ / Category A2S heat *
	STATE 8	Delayed normal sensitivity optical smoke ~ / Category A1 heat*
	STATE 11	*Low sensitivity optical smoke* ◈ Category B heat *
	STATE 12	Category A1 heat *
S4 SELF TEST **Optical & Heat sensor variant -** S4T-710 (With Sounder) S4T-770-S	STATE 0 #	Normal sensitivity optical smoke ~ / Category A1 heat*
	STATE 2	*Low sensitivity optical smoke* ◈ Category A1 heat*
	STATE 3	High sensitivity optical smoke ~ / Category A1 heat*
	STATE 4	Normal sensitivity (no spike) optical smoke ~ / Category A1 heat*
	STATE 5	Normal sensitivity optical smoke ~ / Category B heat*
	STATE 6	*Low sensitivity optical smoke* ◈ Category BS heat*
	STATE 7	Normal sensitivity optical smoke ~ / Category A2S heat*
	STATE 8	Normal sensitivity (delayed) optical smoke ~ / Category A1 heat*
	STATE 11	*Low sensitivity optical smoke* ◈ Category B heat*
	STATE 12	Category A1 heat*

S4 SELF TEST **Heat sensor variant -** S4T-720 (With Speech & VAD) S4T-720-V-VAD-HPR (With Sounder) S4T-780-S	STATE 0 #	Category A1 heat *
	STATE 5	Category B heat *
	STATE 6	Category BS heat *
	STATE 7	Category A2S heat *
	STATE 13	Category A2 heat *

- factory default STATE. ◈ Low sensitivity optical smoke sensing is not approved but may still be useful in certain applications.

LPCB APPROVED S-QUAD M SENSOR WITH VAD DEVICE STATES (POST Q3 2023)

The STATE in which an S-Quad S4M sensor operate can be changed from the default factory set STATE to another STATE configured during commissioning using the Vigilon Commissioning tool. The environment in which an S-Quad S4M device is installed will determine what STATE is used.

Device	LPCB approved STATES	Meets ~ EN54-7 : 2018 * EN54-5 : 2017 + A1 : 2018
Dual Optical & Heat sensor variant - (With VAD) S4M-711-VAD-HPR & S4M-711-V-VAD-LPR (With Speech) S4M-711-V and S4MB-711-V (With VAD & Speech) S4M-711-V-VAD-HPR and S4MB-711-V-VAD-HPR	STATE 0 #	Normal sensitivity optical smoke ~ / Category A1 heat *
	STATE 2	*Low sensitivity optical smoke* ◈ Category A1 heat *
	STATE 3	High sensitivity optical smoke ~ / Category A1 heat *
	STATE 4	Normal sensitivity (no spike) optical smoke ~ / Category A1 heat *
	STATE 5	Normal sensitivity optical smoke ~ / Category B heat *
	STATE 6	*Low sensitivity optical smoke* ◈ / Category BS heat *
	STATE 7	Normal sensitivity optical smoke ~ / Category A2S heat *
	STATE 8	Delayed normal sensitivity optical smoke ~ / Category A1 heat*
	STATE 11	*Low sensitivity optical smoke* ◈ Category B heat *
	STATE 12	Category A1 heat *
Heat sensor variant - (With Speech & VAD) S4M-720-V-VAD-HPR	STATE 0 #	Category A1 heat *
	STATE 5	Category B heat *
	STATE 6	Category BS heat *
	STATE 7	Category A2S heat *
	STATE 13	Category A2 heat *

- factory default settings. ◈ Low sensitivity optical smoke sensing is not approved but may still be useful in certain applications.

S-QUAD SENSORS (LEGACY PRODUCT RANGE)

The following S-Quad sensors when operating in the STATES shown in table below are LPCB approved to the respective standard.

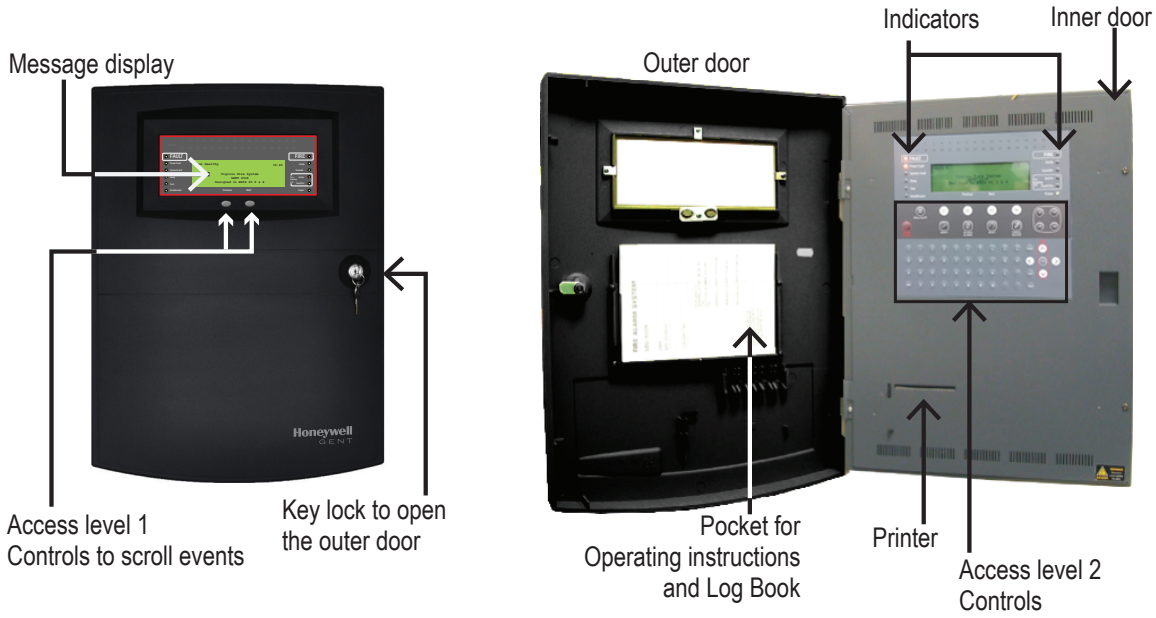
Product number	Description	Standard
S4-720-ST-VO	Heat sensor Strobe and Speech (Speech and Strobe - no approval)	EN54 : Part 5 :2002* - (heat)
S4-780 S4-780-ST	Heat Sensor plus Sounder Heat Sensor plus Sounder & Strobe (Strobe - no approval)	EN54 : Part 5 : 2002* - (heat) EN54 : Part 3 : 2001 - (sounder)
S4-711-ST	Dual Optical & Heat Sensors Strobe (Strobe - no approval)	EN54 : Part 7 : 2000* (optical smoke) EN54 : Part 5 : 2002* (heat) CEA 4021 : 2003-07 Class P heat multi-sensor detector
S4-911	Dual Optical, Heat & CO Sensors (CO - no approval)	
S4-711-ST-VO	Dual Optical & Heat Sensors, Speech & strobe (Speech and Strobe - no approval)	EN54 : Part 7 : 2000* (optical smoke) EN54 : Part 5 : 2002* (heat) EN54 : Part 3 2001 - (sounder tone) CEA 4021 : 2003-07 Class P heat multi-sensor detector
S4-711-VO	Dual Optical & Heat Sensors, Speech (Speech - no approval)	
S4-771	Dual Optical & Heat Sensors & Sounder	
S4-911-ST-VO	Dual Optical, Heat & CO Sensors, Speech & Strobe (Speech, Strobe & CO - no approval)	
S4-770	Optical & Heat sensors and Sounder	

* - these standards are met when the sensor is operating LPCB approved STATES, see STATES table below.

If an S-Quad sensor is configured to operate a non LPCB STATE, then this will contravene the LPCB approval. The required STATE is configured during commissioning and can be also configured using controls at the main panel.

Fire Panels

VIGILON PLUS 4/6 LOOP PANELS (EN)



VIGILON COMPACT PLUS PANEL (EN)



CONTROLS AND INDICATIONS





Panel buzzer

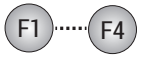
Vigilon Plus 4/6-loop Panel
Vigilon Compact Plus Panel
Vigilon Plus Node
Vigilon Compact Plus Node





Indications and Controls applicable for all Vigilon Plus panels and Nodes

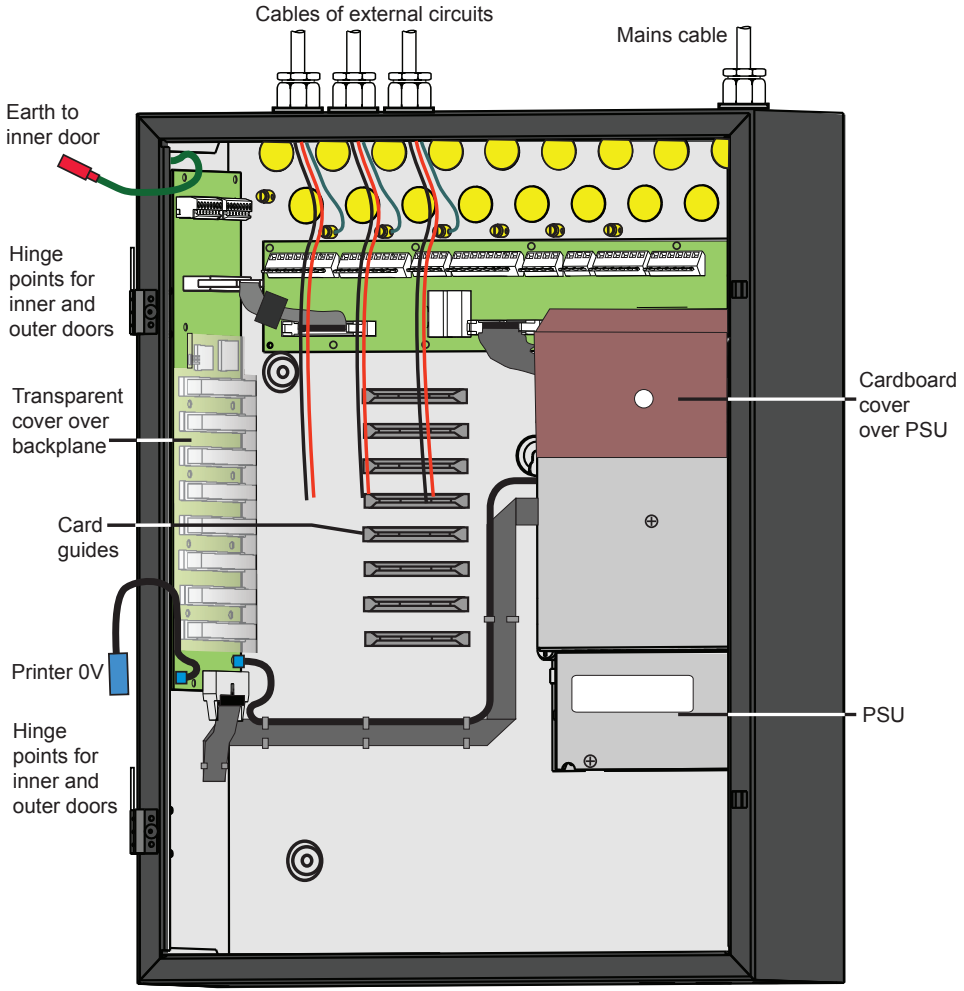
Indicator	*Description*
Display	The Display provides messages of the system status / events by means of 8 lines by 40 characters per line display.
Zones  (red)	Secret-until-lit fire zone indicators. When the “Zones” text and number(s) are illuminated it indicates that a FIRE has been detected in the indicated zone(s). NA The Zone indicators are not applicable for a Network node.
Power  (green)	When illuminated it indicates that a supply to the panel is present.
Fire  (red)	When illuminated it indicates that a FIRE has been detected in the protected premises.
Verify  (amber)	When illuminated it indicates that the Verify button has been pressed and the alarm sounders in the system are delayed from sounding.
Fault  (amber)	When illuminated it indicates that a FAULT has been detected in the fire detection and alarm system.
System Fault  (amber)	When illuminated it indicates that a fault has occurred with the system processor. It is important to investigate this fault because the fire system may not be able to detect fires.
Disablement  (amber)	When illuminated it indicates that a part of the system has been disabled.
Fire routing O/P Active  (red)	Applicable for EN panels only from mid 2015 onwards. When illuminated it indicates the Output to the Fire Alarm Routing Equipment is active. Prior to mid 2015 this LED was CB253 (amber) and it operate with Command Build 253.
Fire routing O/P Fault/Dis  (amber)	Applicable for EN panels only from mid 2015 onwards. When illuminated steady (always with the DISABLEMENT light) it indicates the Output to Fire Alarm Routing Equipment is disabled. When illuminated flashing (always with the FAULT light) it indicates that there is a fault at the Fire Alarm Routing Equipment. Prior to mid 2015 this LED was ‘CB254’ (amber) and it operated with Command Build 254.
Power Fault  (amber)	When illuminated it indicates the battery or mains supply to the panel has failed.
Sounder  (amber)	When illuminated (always with either the FAULT light or the DISABLEMENT light) it indicates that there is a sounder fault (flashing indication) or sounder disablement (steady indication).
Delay  (amber)	When illuminated it indicates that one or more delay blocks are setup on the panel.
Test  (amber)	When illuminated it indicates one or more zones are in Test mode. The Test LED will give a flashing indication when in Service Mode.

Control	*Description*
 MENU ON/OFF	Pressing the ***Menu On/Off*** will enable/disable the on screen menu facility, which gives access to the system menus.
	The '***Fn***' buttons are used to select a function and sub functions at the panel menus that appear on the display. Each option in the menus corresponds to one of the function buttons and pressing a button will select the option which appears above it on the display.
 CANCEL BUZZER	The ***Cancel Buzzer*** button when pressed will stop the internal panel buzzer from sounding.
 SOUND ALARMS	Pressing the ***Sound Alarms*** button will sound all the system alarms. This button is only pressed in an emergency or at other agreed times, for example when conducting a sounder test or practice evacuation.
 SILENCE ALARMS	Pressing the ***Silence Alarms*** button will silence the system alarms.
 RESET	Pressing the ***Reset*** button will clear any fires and return the panel to its normal condition. If a fire condition occurs immediately after reset then the indicated device should be investigated.
 VERIFY	If the ***Verify*** facility has been set up, then pressing the Verify button in the event of a fire condition increases the time delay before the sounders are activated. This gives the user time to investigate the cause of the alarm and the option of cancelling the alarm within the delay time period.
	These '***Ux***' buttons can be configured during commissioning to action user-defined tasks, such as the disablement of devices in areas where smoke may be generated due to maintenance work or where plant shut-down is required.
	The two 'fire events' scroll buttons on the keyboard operate in exactly the same way as the two first level access fire scroll buttons on the front door. These buttons are active when the door is open. Normally the Up, Down, left and right button may be used to scroll text.
Qwerty keypad	Allows the entry of alphanumeric data at the panel, such as a label given to a zone or device.
	This button is pressed to acknowledge an entry of data such as a label.

Vigilon Plus 4/6 loop Panels and Plus Network node

COMMISSIONING INSTALLATION

These procedures assume the respective 1st fix assembly of the Vigilon Plus 4-loop (VIGPLUS-24), Vigilon Plus 6-loop (VIGPLUS-72) panel or Plus Network node (VIGPLUS-NODE) is already installed. The 1st fix backbox assembly may be surface or flush mounted.



SECOND FIX PARTS

- The second fix parts must now be installed before powering up the control panel/Network node.
- Check to ensure all the required second fix parts are available:

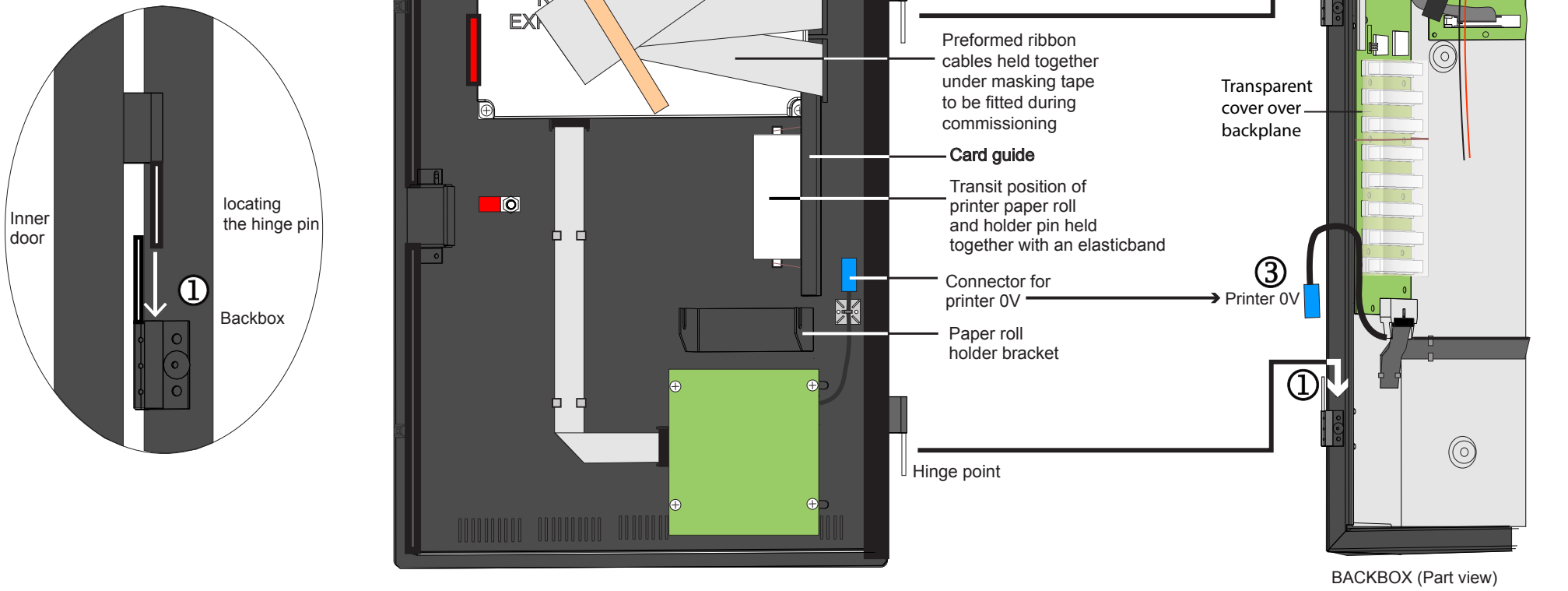
Parts	EN Vigilon Plus 4 loop Control panel (VIGPLUS-24) Vigilon Plus Network Node (VIGPLUS-NODE)	EN Vigilon Plus 6 loop Control panel (VIGPLUS-72)
Inner door assembly	1	1
Battery Pack (2 x 12V 21Ah)	1	2
Battery box		1
Outer door assembly	1	1
Main Control Card	1	1
Loop Card	(Option of up to 4 maximum) for VIGPLUS-24 only	1 (option of up to 6 maximum)
Network Card	1 for VIGPLUS-NODE only	-
IO Card	1 for VIGPLUS-NODE only	
Spares pack (see installation manual for pack content)	1 pack	1 pack

REMOVE THE PROTECTIVE COVERS

- Remove the cardboard protection cover fitted over the PSU. The cover is held in by a retaining clip.
- Remove the transparent protection cover fitted over the backplane held together by an elastic band.

FITTING THE INNER DOOR

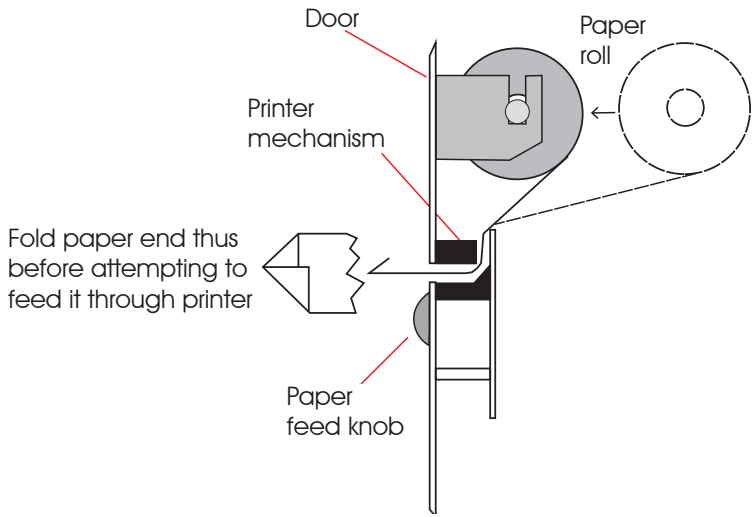
- Locate the hinge pins on the inner door assembly into the two hinge pin holes ① on the backbox outer face.
- Fit the earth lead from the backbox to the inner door spade connector ②.
- Fit together the two blue connectors of the printer 0V leads ③, the leads are located at the inner door and backbox intersection.



PRINTER PAPER ROLL

The printer paper roll is secured with an elastic band to the card guide on the inner door.

- Remove the paper roll from the card guide and install paper into the printer mechanism. Ensure the paper roll enters the printer mechanism as shown.

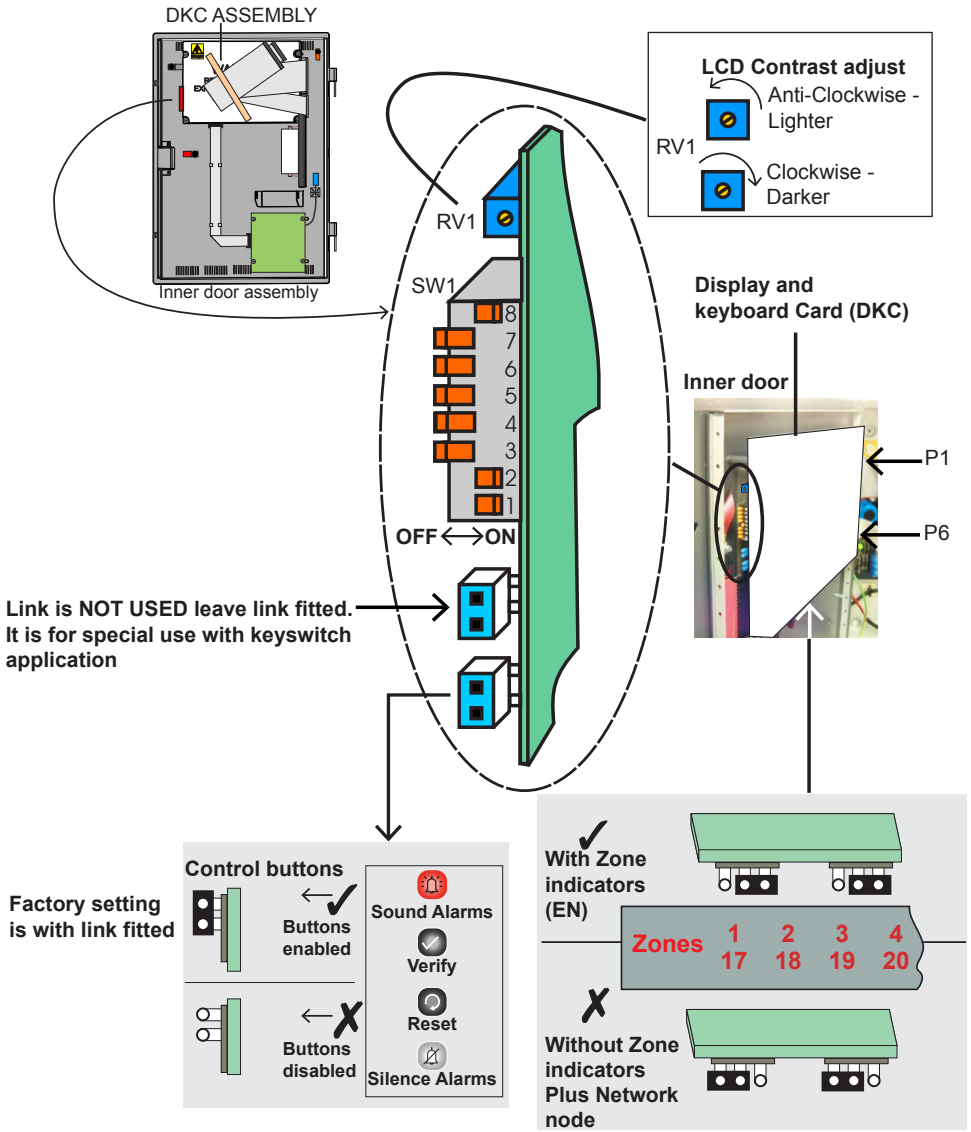


On the outside of the inner door there is a paper feed knob, DO NOT turn the knob in an upward direction as this may damage the integral printer.

- Upon completion of all commissioning work a new paper roll should be fitted.

SETTING THE DKC CARD

The links, pot and switch on the DKC are factory configured as shown below.



Control buttons

> The emergency control buttons must always be left in an enabled state, with the 'control buttons' link fitted.
>
> There is no indication given at the panel when the link is set for inactive controls.

Display Contrast

- The display contrast is set using the Pot RV1 on the DKC, which is factory adjusted for optimum contrast. You can also adjust the contrast using the menu option under [Test/Eng], see Appendix A menu maps.

> The contrast adjustment function using the menu options may not be applicable for some older builds.

Domain Address and baud rate settings

Typically the Baud rate set using these switches should be the same as the setting made using the [Test/Eng] menu for baud rate setting. A set baud rate using the [Test/Eng] menu must be backed up to the NVM.

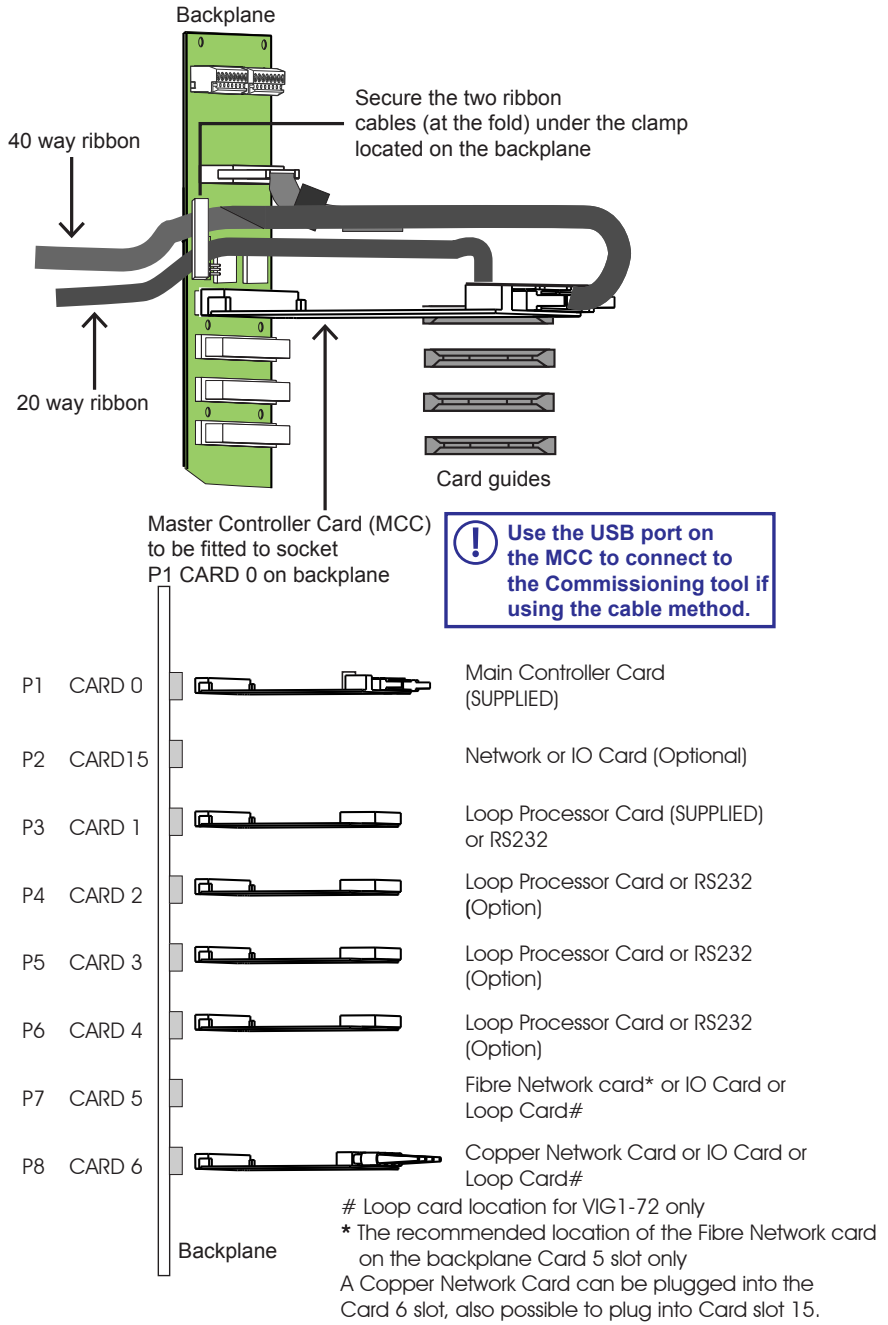
Baud Rate			Domain address						
1	2	Baud	3	4	5	6	7	8	Address
Off	Off	1200	Off	Off	Off	Off	Off	Off	64
Off	On	2400	Off	Off	Off	Off	Off	On	1
On	Off	9600	Off	Off	Off	Off	On	Off	2
On	On	19200	etc						
			On	On	On	On	On	Off	62
			On	On	On	On	On	On	63

Factory set domain address - 1 with 19200 baud (see SHADED cells)

Zone indicators

The Zone indicators are enabled for normal operation at an EN control panel and must not be disabled.

CARD INSTALLATION



When installing cards into the backplane always use anti-static work procedures. DO NOT use anti-static procedures on live equipment.

An IO Card is not required for connection to DKC and neither is it required to connect to the Commissioning tool. The DKC now connects directly to the MCC card. The Commissioning tool connects directly to the USB port on the MCC for wired method.

The two ribbon cables held together under a masking tape on the DKC assembly must be routed into the backbox to connect to the Main Controller Card.

Ensure the two ribbon cables from DKC are secured under a clamp on the backplane. Fit the Main Controller Card (MCC) into the backplane before the ribbon cables are connected to the MCC.

Always ensure the panel is completely powered down before removal or fitting of cards into the backplane. Power down the battery supply before the mains supply. The power up should be done in reverse order.

Ensure all the cards are installed in their correct location into the backplane and are firmly seated into their respective slots.

When replacing/upgrading the Backplane or Network cards it is recommended that the same card locations are used to reduce changes of cable wiring and extensions.

TERMINALS ON TERMINAL CARD

Terminals and markings on Backplane

NETWORK CARD IN SLOT P8
0V1 | +VE1 | -VE1 | 0V2 | N/C | +VE2 | -VE2 | N/C

LOOP CARD IN SLOT P8 (Loop 6)
L1 | 0V | L2 | 0V

IO CARD IN SLOT P8
A | 5V | B | 0V | CTS | Rx | RTS | TX

PB1

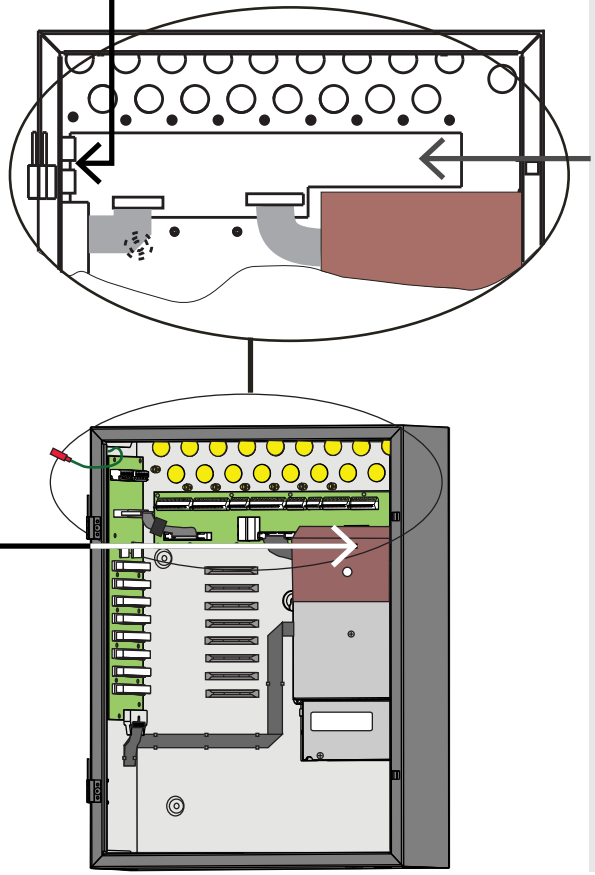
IO (RS232) CARD IN SLOT P7
⏚ | N/C | ⏚ | 0V | CTS | RX | RTS | TX

LOOP CARD IN SLOT P7 (Loop 5)
L1 | 0V | L2 | 0V

PB2

PSU board (located behind the cardboard cover)

L N P2



Terminals and markings on Network node

CARD 4 - RS232 | CARD 3 - RS232 | CARD 2 - RS232 | CARD 1 - RS232
CTS RX RTS TX | CTS RX RTS TX | CTS RX RTS TX | CTS RX RTS TX

Terminals markings on Control panel

CARD 4 LOOP 4 | CARD 3 LOOP 3 | CARD 2 LOOP 2 | CARD 1 LOOP 1
L1 0V L2 0V | L1 0V L2 0V | L1 0V L2 0V | L1 0V L2 0V

P2 P3

Terminals and markings on Control panel and Network Node

Master alarm
MA1+ MA1- MA2+ MA2-

Clean C
NC C NO

P5 P6

0V1 +VE1 -VE1 0V2 | N/C N/C +VE2 -VE2 (WITH NETWORK CARD IN SLOT P2 OF BACKPLANE)

RS485
A 5V B 0V

RS232
Tx CTS Rx RTS

(WITH IO CARD IN SLOT P2 OF BACKPLANE)

P4

Auxiliary Relay 1
NC C NO NC C NO

Auxiliary Relay 2
NC C NO NC C NO

P7 P8

RS232 0V
0V 0V 0V 0V

P12

These RS232 0V terminals are for use with the RS232 wiring associated with IOC fitted in Card slots 1 to 4, primarily on Network node.



Quick release terminals

PRE POWER-UP CHECKS

The mains cable is the only external cable that is required to be connected at this initial stage. Other external circuit cables are left disconnected, but are connected and tested later, they include:

- all loop circuits (not applicable for Vigilon Plus Network node)
- clean contacts
- auxiliary circuits
- master alarm circuits, has the end-of-line resistors (22K Ohm) fitted to the terminals on the terminal card to inhibit a master alarm circuit fault indication.
- and RS232/RS485

A networked system is commissioned after all the individual standalone systems are fully commissioned.

- Ensure all cards are securely fitted into their appropriate slots on the backplane.
- Ensure all ribbon cables are securely fitted into their respective sockets.

MAINS SUPPLY WIRING

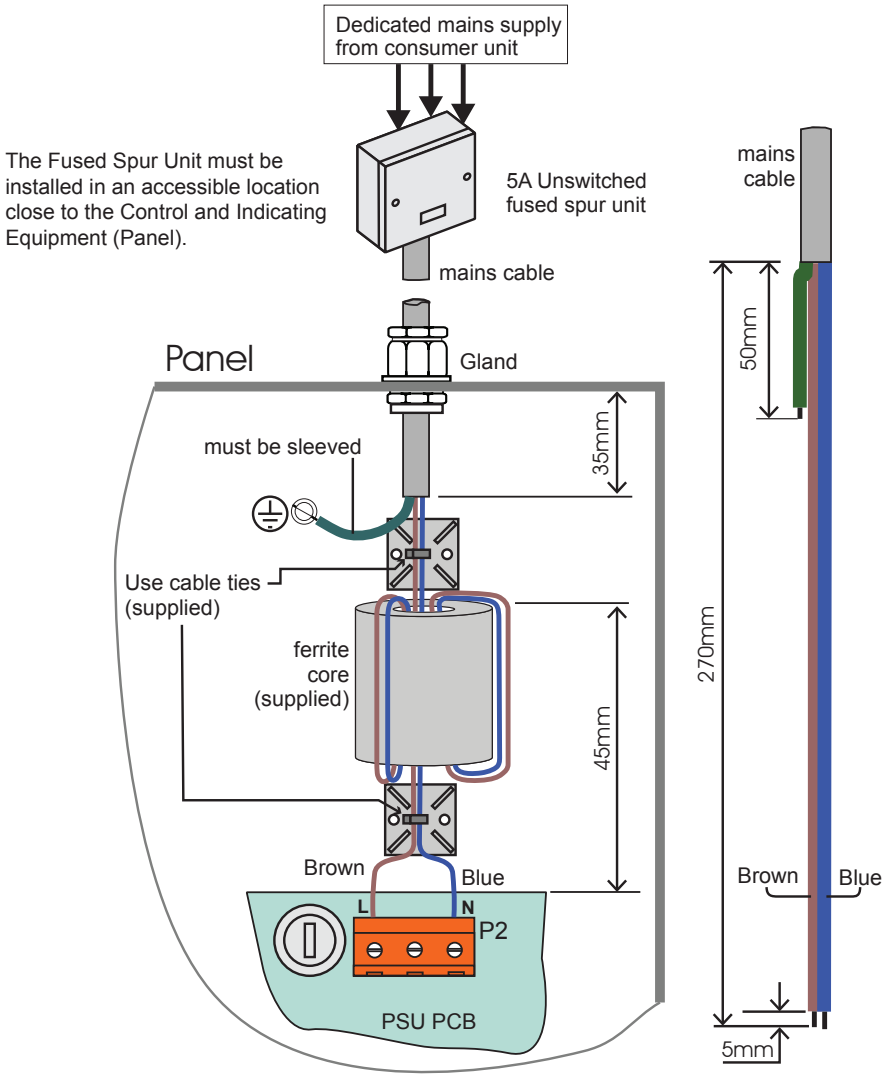
1. The fire alarm system products are NOT designed to be powered from IT Power systems.
2. All mains powered equipment must be earthed.

Ensure the mains supply cable enters the equipment via a dedicated cable entry point, which is located adjacent to the mains terminal block and is also segregated from other loop wiring.

- Mains supply to any fire alarm control and indicating equipment must be via an unswitched 5A fused spur unit. A disconnect device must be provided to disconnect both poles and must have a minimum gap of 3mm. The 'disconnect device' should be available as part of the building installation and must be easily accessible after installation is complete.

- The fused spur isolator unit cover should be marked:
  FIRE ALARM - DO NOT SWITCH OFF

- The Mains power is switched on after battery is installed and connected.



The mains cable must be stripped back to the length shown to allow live and neutral wires to be wound twice through the ferrite core.

Hazardous voltage remains after operation of a protection fuse. Take appropriate action to guard against the risk of equipment having exposed live mains supply.

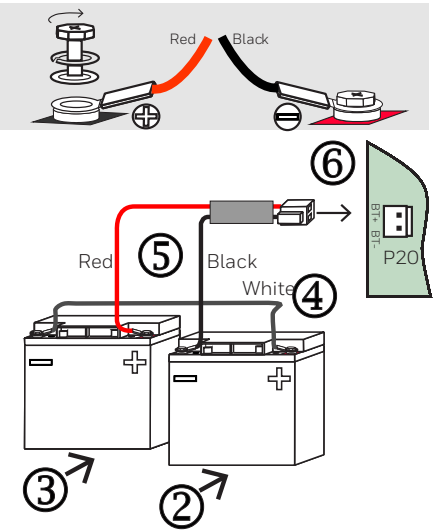
BATTERY INSTALLATION

The panel makes use of sealed lead acid type batteries which can have a useful life of 5 years or more from the date of manufacture. It is strongly recommended that batteries are replaced after 4 years of use. All batteries must be disposed of as per recommendation made by battery manufacturer.

Always use the recommended replacement battery. As there is a risk of an explosion if incorrect batteries are used.

VIGPLUS-24 panel and VIGPLUS-NODE battery installation

Ensure the batteries are held in place while they are being wired. Ensure the battery terminals do not come into contact with the metal enclosure.



It is recommended that the mains supply to the panel/ node is switched Off during battery installation.

① Fit the bolt, spade connector, washer, spring washer to each battery terminal, as shown.

② Insert the battery on the right into the back box.

③ Insert the battery on the left into the back box.

④ Fit the 'White' link lead to outer + and - spade connectors on the two batteries, as shown.

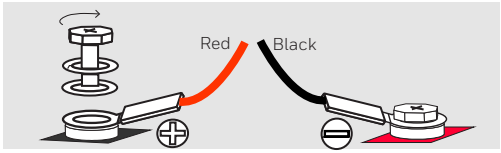
⑤ Fit the battery lead assembly (red & black) to the remaining + and - spade connectors on the two batteries, observe polarity.

⑥ Plug the plug on the battery lead to connector P20 located on the bottom left of power supply PCB.

The panel will only power up after the mains supply is switched On.

VIGPLUS-72 panel battery installation

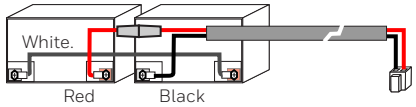
It is recommended that the mains supply is switched Off during battery installation.



Ensure the batteries are held in place while they are being wired. Ensure the battery terminals do not come into contact with the metal enclosure.

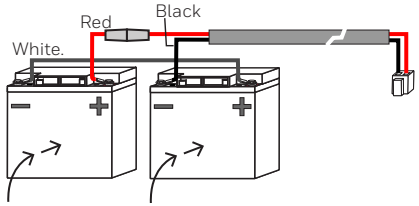
① Place the two batteries on the lower shelf and lay them horizontally with terminals facing outwards.

② Fit the bolt, spade connector, washer and spring washer to each battery terminal as shown above.



③ Fit the white link lead and then fit the red/black fused lead to the battery terminals, as shown above.

④ Raise the two batteries to an upright position and push them back into the enclosure.



⑤ Route the battery red/black lead through hole in the shelf of the battery box and fit the connector end of the lead to the PCB, located on the top right side.

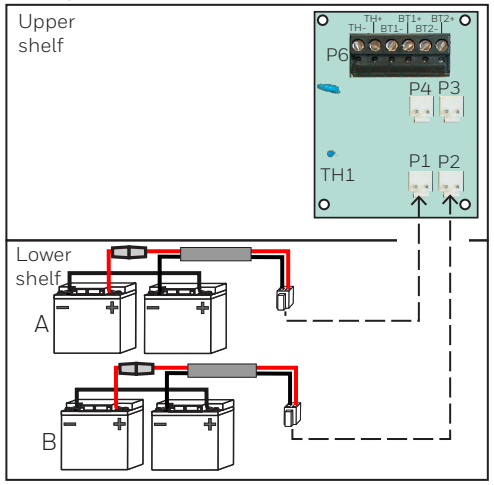
⑥ Place two more batteries 'B' onto the lower shelf and repeat procedures ① to ⑤.

⑦ Where required, add further four batteries onto the upper shelf, use procedures ① to ⑥. The only exception is that the red/black lead is directly connected to the respective upper connectors on the PCB.

The panel will only power up after the mains supply is switched On.

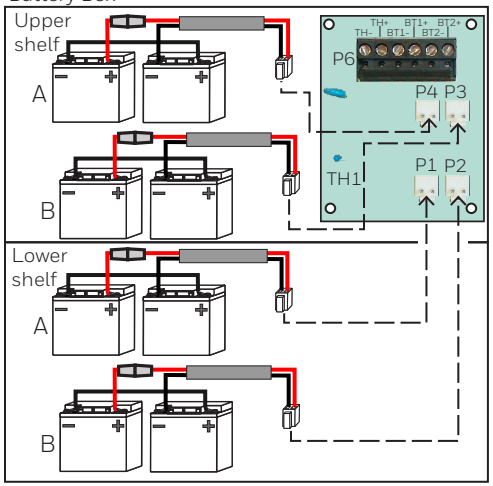
4 - 12V 21Ah batteries

Battery Box



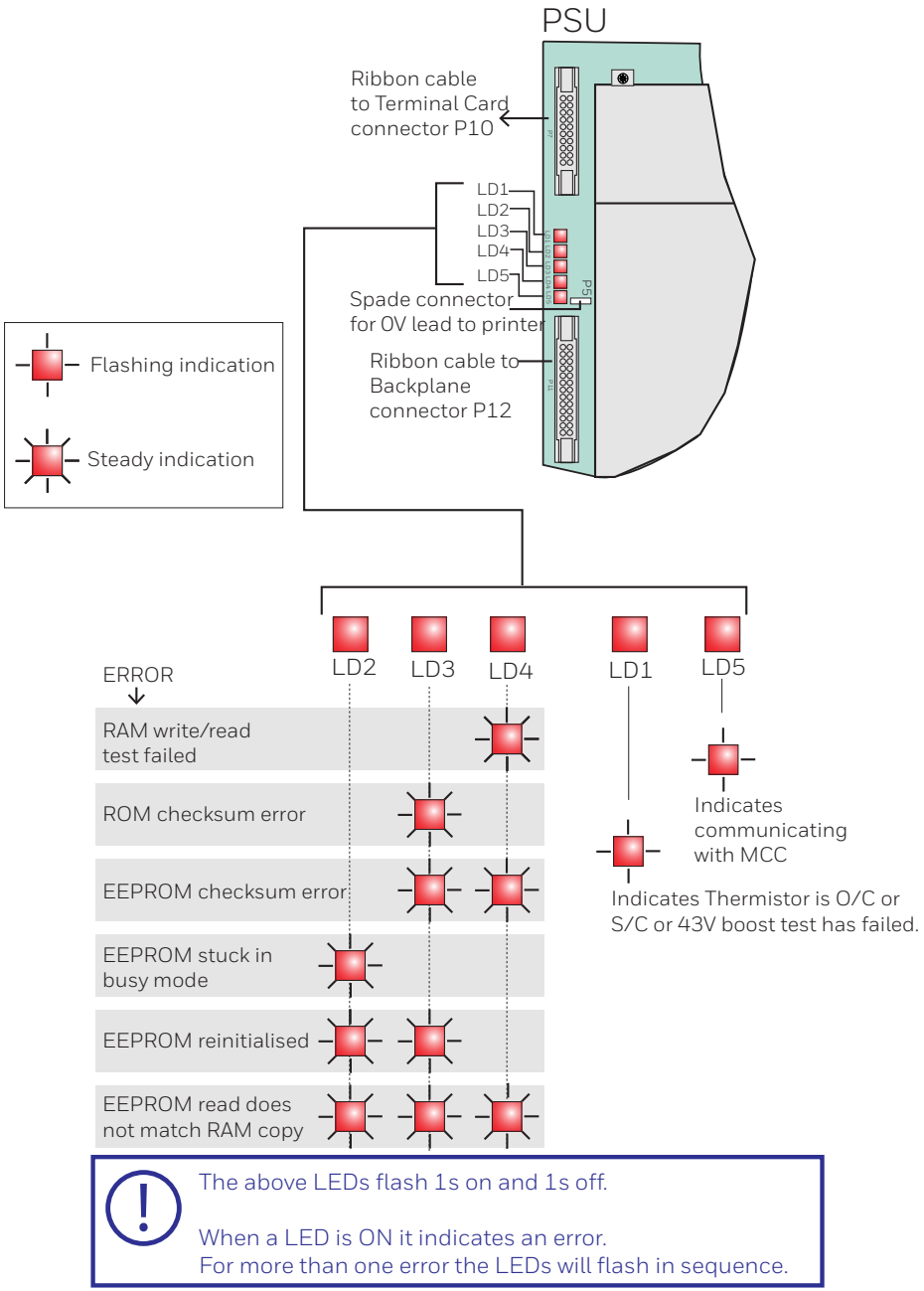
8 - 12V 21Ah batteries

Battery Box



In-line fuse rated 10A QB ceramic 20mm x 5mm

PSU LED INDICATIONS



The above LEDs flash 1s on and 1s off.

When a LED is ON it indicates an error.
For more than one error the LEDs will flash in sequence.

WRITE PROTECT LINK ON BACKPLANE

The backplane assembly is fitted inside the left side of the backbox.

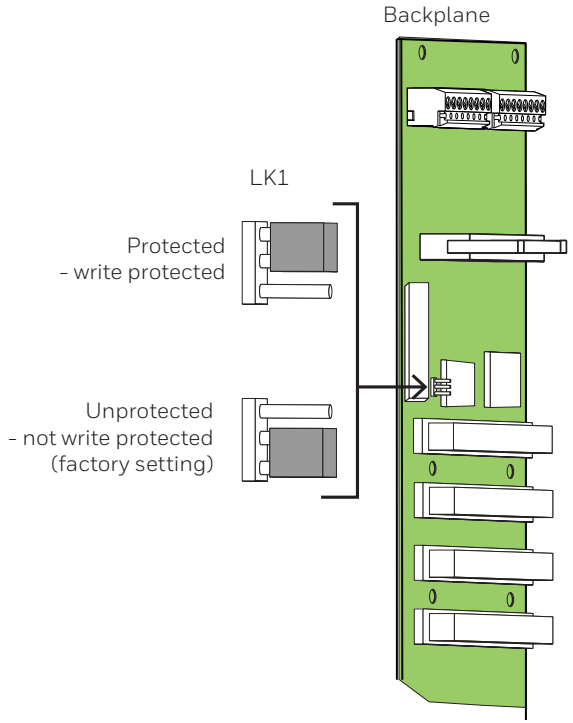
The backplane has the card slots to facilitate interconnection of plug-in cards, such as the Main Controller Card (MCC), Loop Processor Cards, IO Cards and Network Cards.

The backplane also has the flash memory (NVM) which is under the control of MCC and is a shared memory to which the system configuration data is saved.

The link header on the backplane marked LK1 provides 'write' protection and will stop the SAVE and BACKUP commands from the panel controls modifying the memory.

Once the system is fully commissioned the link LK1 should be configured to 'write protected', this is important on sites where customers require compliance to the EN54 Part 2 standard.

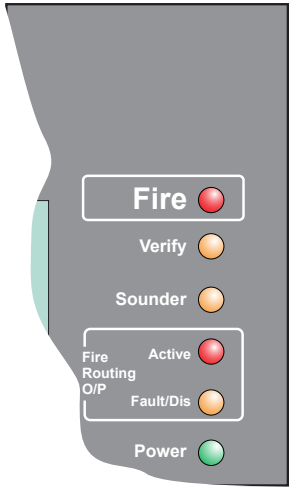
The NVM should always hold the complete system back up.



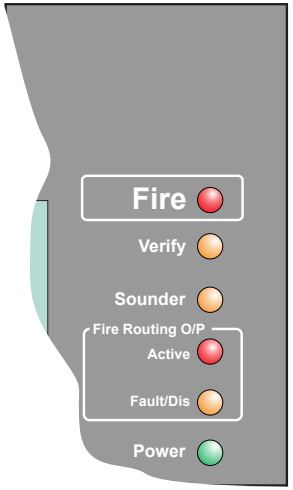
FIRE ROUTING LEDS (POST MID 2015)

The Fire alarm routing LEDs are fitted on Vigilon panels post March 2015 in place of Command Build LEDs.
The Fire Alarm Routing Equipment FARE red LED works with FARE Interface configured to operate as a FARE device. The FARE LEDs illuminate to indicate status of FARE, with Fault/Dis LED showing fault or disablement status.

Post Q3 2016
Vigilon Plus panel



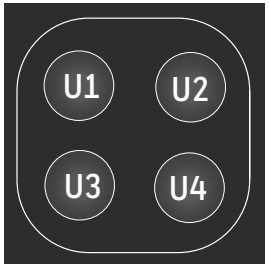
Post mid 2015
Vigilon panel



HOW TO CONFIGURE THE ‘U’ BUTTONS

The U1, U2, U3 and U4 buttons are active at access level 2, that is the buttons are accessible by opening the panel outer door.

Post Q3 2016
Vigilon Plus panel
Vigilon Compact Plus panel
Vigilon Plus Network Node
Vigilon Compact Plus Node



Part of the Vigilon keyboard showing the ‘U’ buttons.

To operate a ‘U’ button first press the ‘Shift’ key and then the respective ‘U’ button. Each ‘U’ button is linked with a command build:

- U1 button will trigger command build number 251
- U2 button will trigger command build number 252
- U3 button will trigger command build number 253
- U4 button will trigger command build number 254

During commissioning the required command build action must be configured.

Example
This example shows how to configure the U1 button such that pressing it will start the master alarm sounders and pressing ‘U1’ button again or pressing the Silence alarm button will stop the sounders.

The following procedures assume a password entry is not required.
- will appear if a PIN is setup.

Press Menu On/Off button and select [SetUp] -> [Usercode]# , momentarily press <etc> to select [SetUp] -> [Build] and type in the command build number 251, select [Action] -> [Start MA] -> [Enter] -> [Reversbl] -> [Enter]. The U1 button is now configured to start the master alarm sounders.

FACTORY SETTINGS OF THE PANEL

An EN Vigilon Plus 4/6 loop control panel has the following factory settings:

System configuration

All devices are assigned to Sector 1
All devices are assigned to Zone 1

Port settings

P3 - USB (on MCC)

Options:
P0 - RS232 - (Terminal card - terminals P4) when an optional IOC is fitted in slot P2 of backplane
P1 - RS485 - (Terminal card - terminals P4) when an optional IOC is fitted in slot P2 of backplane

Addresses

Domain address - 1 for EN panel
Panel (Node) address - 1

NVM protect

Software 'write' allowed (NVM protect - disabled)
Hardware 'write' allowed (NVM protect -disabled)

HOW TO FIT THE OUTER DOOR

To fit the outer door you will first need to close the inner door and secure it to the backbox using the two fasteners located on the right edge of the inner door.

Fit the Outer door to the enclosure by hooking it onto the side hinge pins on the backbox located on the left edge. The outer door may be secured to the backbox using the key lock.

Vigilon Compact Plus Panel Comp. Plus Network node

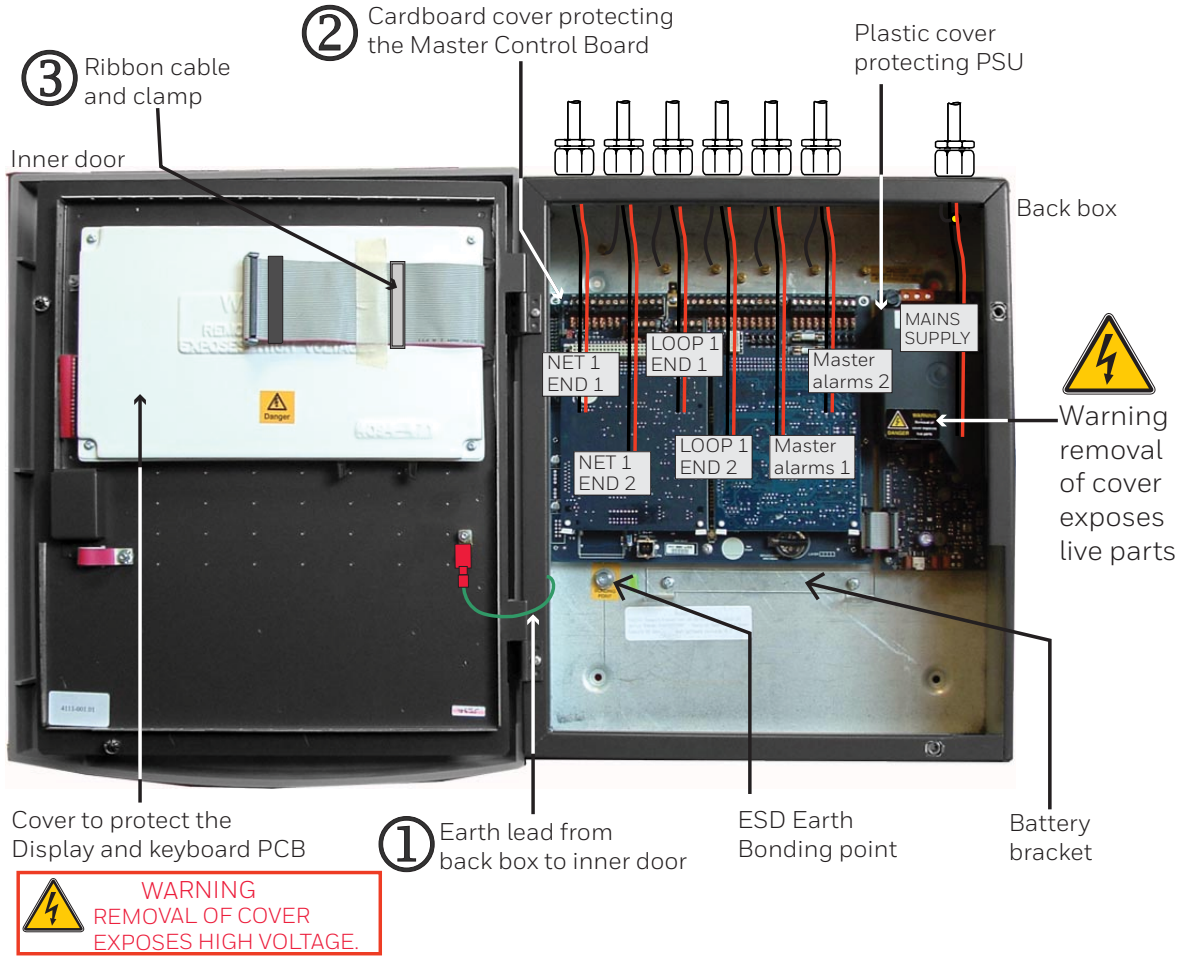
COMMISSIONING INSTALLATION

The following procedures assume the Vigilon Compact Plus panel or Compact Plus network node is installed, with cables terminated at the backbox and with the inner and outer doors fitted.

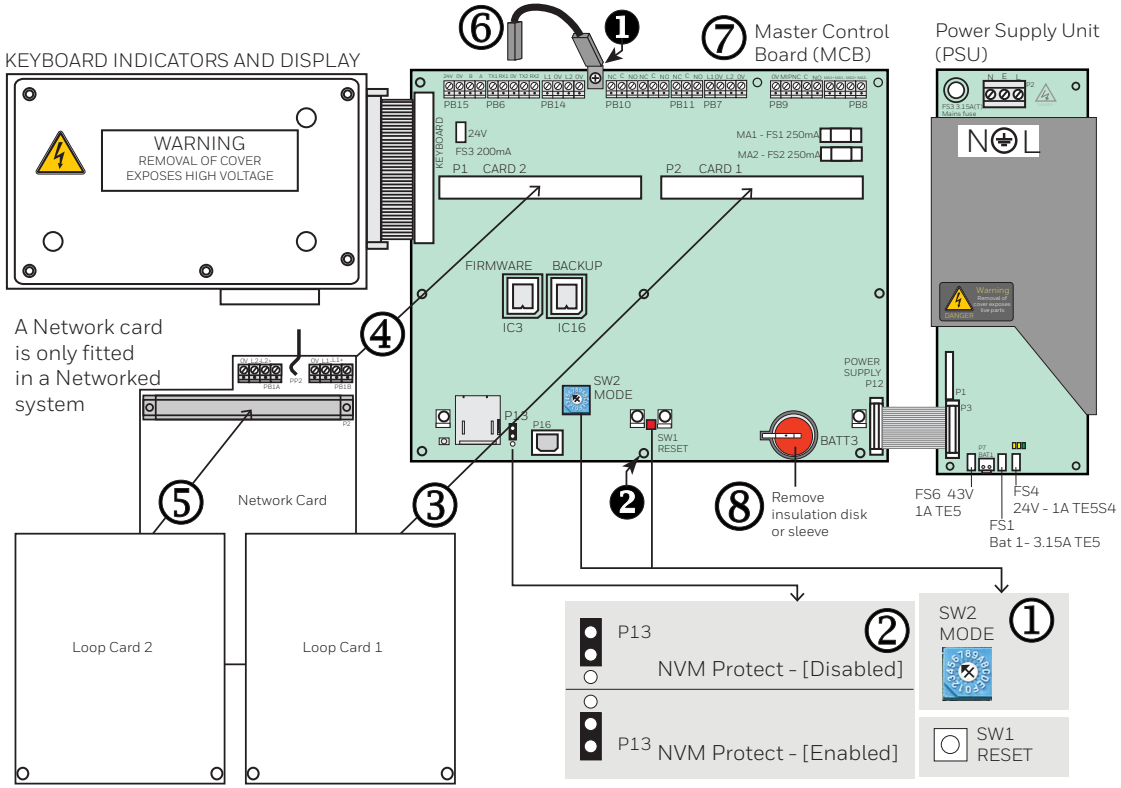
01 Connect the flying earth lead ① from the back box to the inner door spade connector.

02 If not already done remove the protective cover ② fitted over the Master control board inside in the backbox.

03 Connect the ribbon cable ③ from the Display KEYBOARD (DKC) to the socket marked 'KEYBOARD' on the Master control board. Secure the ribbon cable to the side of the enclosure using the cable clamp provided.



CARDS AND INTERNAL CABLES OF THE PANEL



⑧ Battery

The lithium battery is disconnected on leaving the factory by means of an insulation disk or sleeve over the top connector. The insulation disk or sleeve must be removed before powering up the system.

⑦ Terminals

The terminal blocks on the top edge of the MCB are used for wiring external circuits. The terminal block on the top edge of the PSU is used for wiring the mains supply to the panel. The connector P7 'Bat 1'located on the bottom edge of the PSU board is used to connect the battery supply.

⑥ Earthing Link

The earth link lead is supplied with the Network Card. This link lead must be fitted to the spade connector on the top edge of MCB with the other end to the spade connector on the Network Card.

① Set the Rotary switch SW2

This switch is set to the required position for the panel build on leaving the factory. Before installing the Loop cards and Network card onto the Master control board MCB ensure the switch SW2 is set to position 6. For MCB installation in a legacy panel select relevant setting based on firmware.

Firmware in socket IC3 of MCB being replaced	① Applicable settings of switch SW2 on replacement MCB
2211-148	0
2211-146	1
2211-136	2
2211-127	3
2211-180	4
2211-192	6
	7 (for Compact Network Node)
	A (for MCBs manufactured from January 2019 onwards)

② NVM hardware link P13

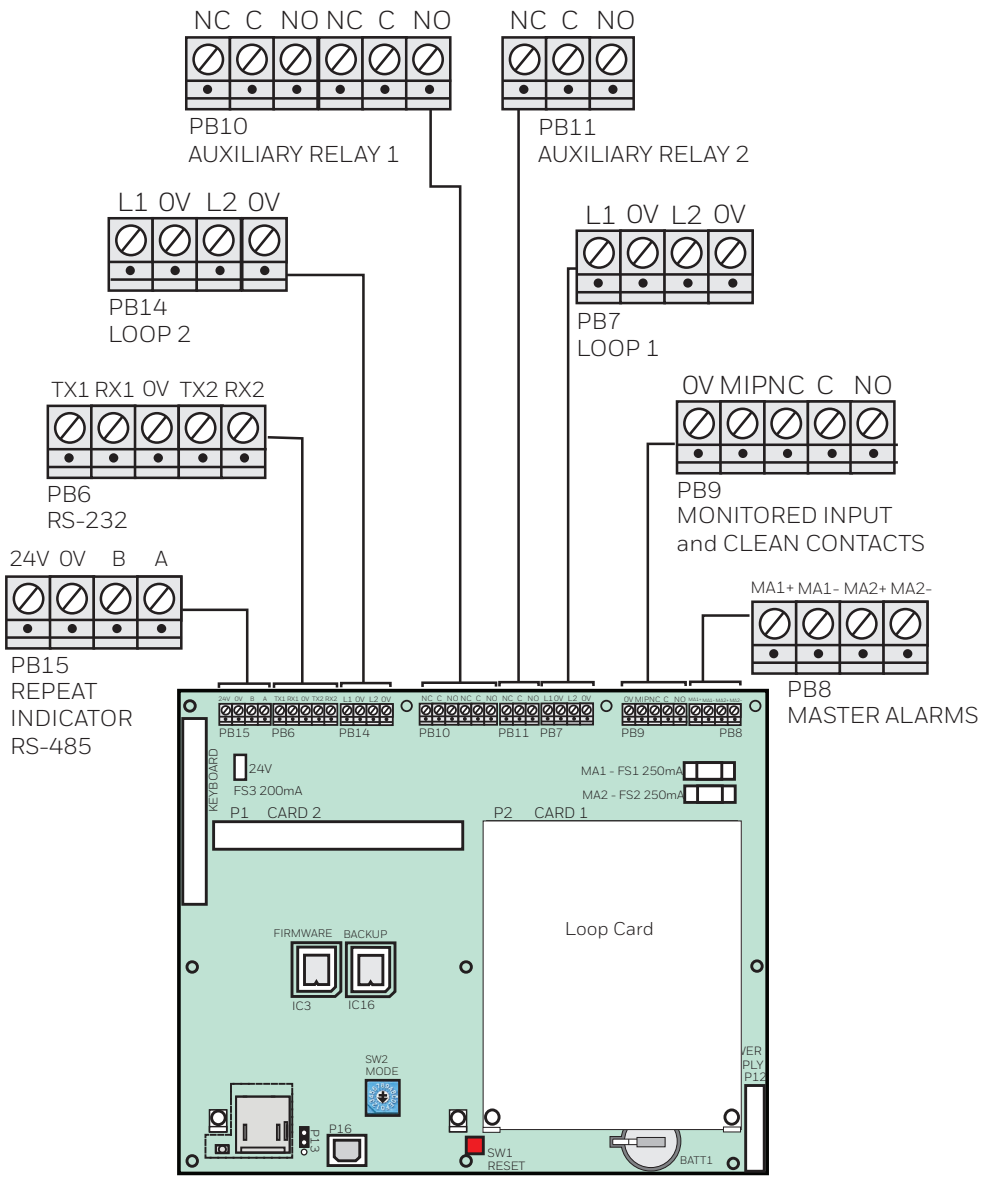
The NVM can be enabled or disabled by setting the hardware link on the MCB. If the NVM protect is hardware disabled then it is also possible to software enable or disable the NVM using the [Protect] option under the [Setup] menu at the panel.
Unprotect: Normally during commissioning the NVM is disabled (unprotected) and writing to NVM is allowed.
Protect: Once the configuration is backed up to the NVM the hardware link must be in the enabled position to disallow writing to the NVM.

③ & ⑤ Installing the Cards

The MCB can accommodate two Loop Cards (Loop cards are applicable for Vigilon Plus Compact panel only). One Loop card can be fitted into the slot labelled CARD1 and the second Loop card into the slot labelled CARD2.

> A networkable system has a Network Card ④ fitted into the slot CARD 2 on the MCB and additionally the Network Card can accommodate the second Loop card.

TERMINALS ON THE MASTER CONTROL BOARD (MCB)



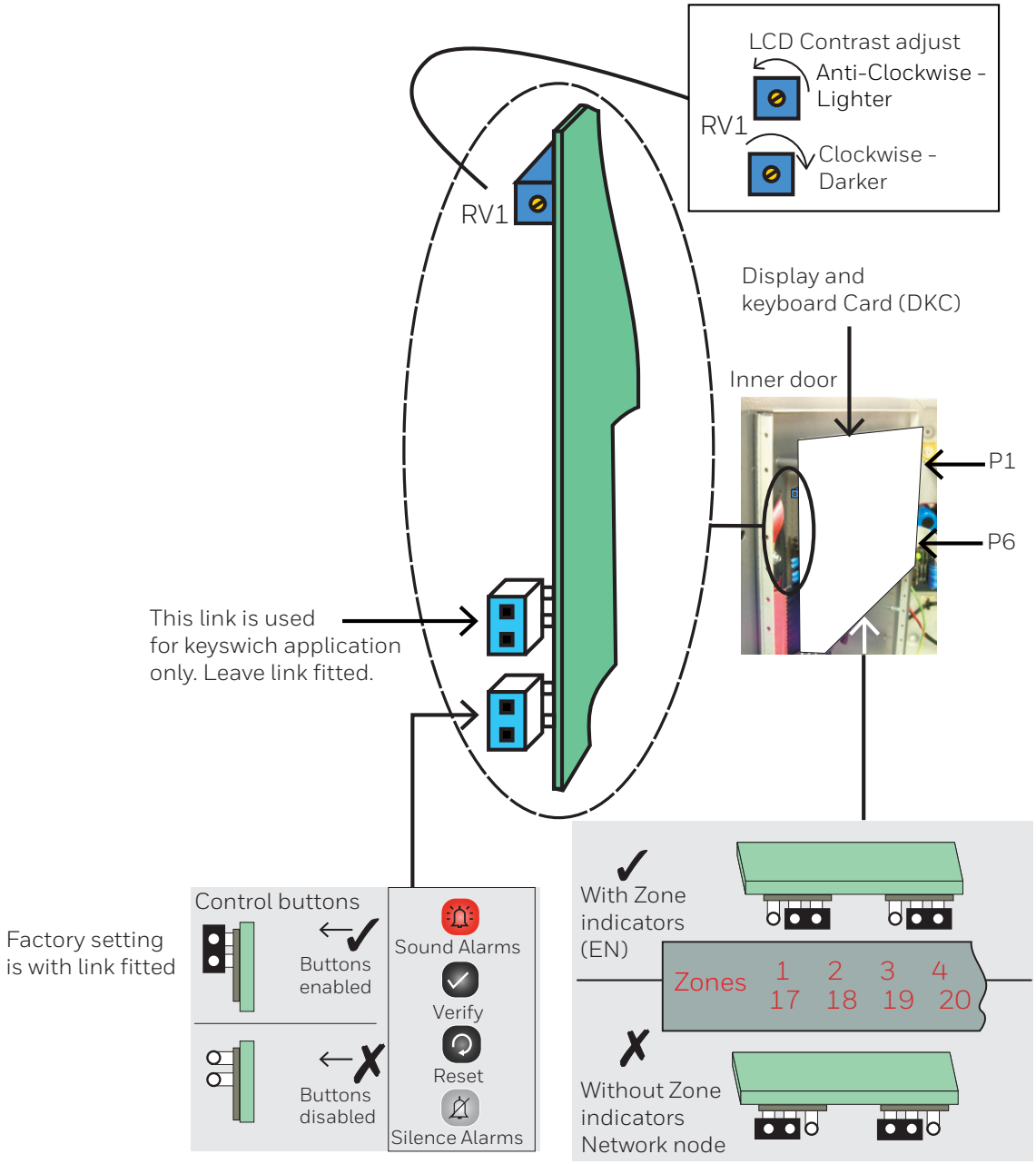
Master Control Board

Descriptions of MCB terminals

Terminals	Description
24V, 0V, B and A	These terminals accept the connection of a repeat indicator panel (Port 0). Also the power terminals may be used on a Network node to supply BACnet Gateway.
NC, C and NO Aux 1- 2-sets Aux 2 - 1set	These are auxiliary relay contacts. The auxiliary relay 1 is normally de-energised and operates with any fire event. The auxiliary relay 2 is normally energised and operates (de-energises) with any fault event.
0V, TX, A, RX and B	These are terminals for RS232 or RS232 (Port 1 or 2 respectively).
L1, 0V, L2, 0V (Loop 1 and Loop 2)	These terminals are only applicable for Vigilon Compact Plus panel. These terminals accept the connection of system devices on a loop circuit that starts at L1 and ends at L2. Devices that are connected to the loop circuit include addressable fire sensor/sounders, manual call points, interface units and repeat/mimic panels.
MA1+, MA1-, MA2+ and MA2-	These terminals can accept two master alarm circuits that can operate 24V conventional alarm devices.
0V and MIP	These are monitored input terminals that can accept the connection of a switch. An active input will trigger Command build 250.
NC, C and NO (clean contact)	These are voltage free relay contacts (output) that operate with a fire event.

SETTINGS ON THE DKC

The links and pot on the DKC are factory configured as shown below.



Control buttons

> The emergency control buttons MUST always be left in an enabled state, with the 'control buttons' link fitted.
>
> There is no indication given at the panel/node when the links are set for inactive controls.

The display contrast is set using the Pot RV1 on the DKC, which is factory adjusted for optimum contrast. You can also adjust the contrast using the menu option under [Test/Eng].

Display Contrast

The display contrast is set using the Pot RV1 on the DKC, which is factory adjusted for optimum contrast. You can also adjust the contrast using the menu option under [Test/Eng].

Address and baud rate

> The node and domain addresses can be changed from the factory settings to a required address using the panel [Test/Eng] menus.

Zone indicators

The Zone indicators are enabled for normal operation at the control panel and must NOT be disabled.

The Zone indicators are not applicable on a Network node, so check to ensure the zone indicator links are set in the disabled position on these products.

PRE POWER UP CHECKS

External cables of external circuits are left disconnected at this stage of commissioning these include:

- loop circuits
- clean contacts
- auxiliary circuits
- master alarms (the 10K Ohm end-of-line resistor fitted to inhibit a fault indication)
- Monitored input (the 10K Ohm end-of-line resistor is fitted to inhibit fault indication).

Ensure the mains cable to the panel is securely connected to the mains terminal block on the Power supply unit (PSU), but the mains power remains switched off.

01 Ensure all cards are securely fitted into their appropriate slots on the MCB.

02 Ensure all ribbon cables are securely fitted into their respective sockets.

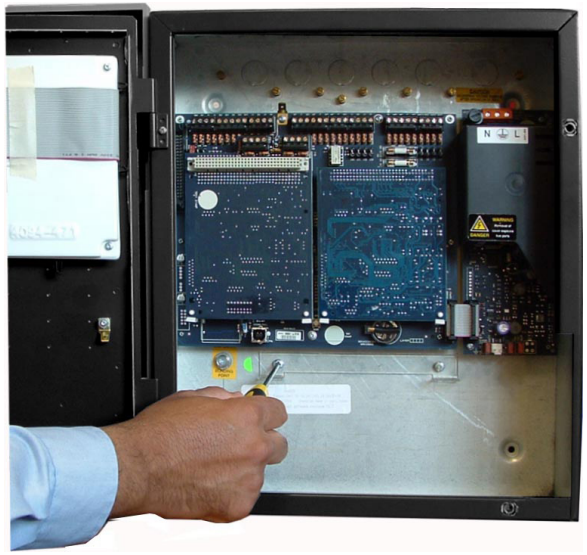
BATTERY INSTALLATION

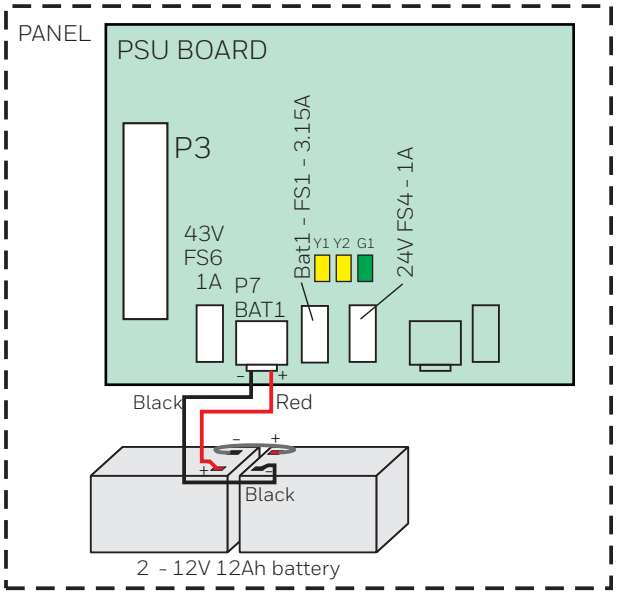
01 Remove the battery support bracket from the backbox, see photo below.

02 Fit the battery lead to the PSU, see illustration below.

03 Fit the batteries in their correct orientation inside the backbox, see illustration below.

04 Refit the battery bracket to secure the batteries in place.



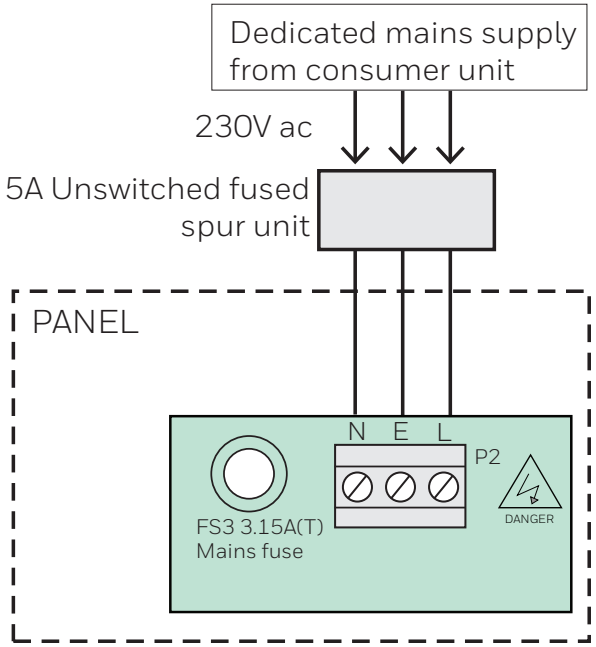


The panel makes use of sealed lead acid type batteries which can have a useful life of 5 years or more from the date of manufacture. It is strongly recommended that batteries are replaced after 4 years of use. All batteries must be disposed of as per recommendation made by the battery manufacturer and in accordance with local regulations.

Always use the recommended replacement battery, as there is a risk of an explosion if incorrect batteries are used.

05 Connect the battery leads as shown but leave the final circuit connection until after the Mains supply is switched On.

MAINS SUPPLY



Ensure the mains supply cable enters the panel enclosure through a dedicated cable entry point.

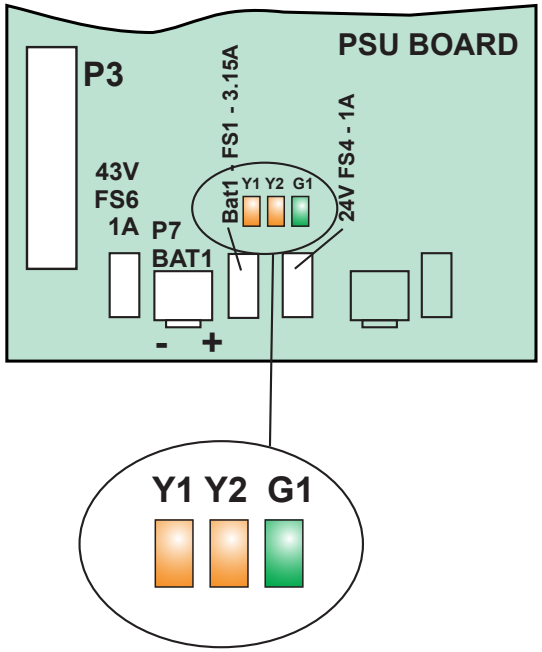
These fire alarm system products are NOT designed to be powered from an IT Power system.

All mains powered equipment must be earthed. Mains supply to any fire alarm control and indicating equipment must be via a dedicated unswitched 5A fused spur unit, which should be clearly labelled FIRE ALARM - DO NOT SWITCH OFF.

A 'disconnect device' must be provided to disconnect both poles and must have a minimum gap of 3mm. The device should be available as part of the building installation and must be easily accessible after installation is complete.

Hazardous voltage remains after operation of a protection fuse. Take appropriate action to guard against the risk of equipment having exposed live mains supply.

PSU Indicators



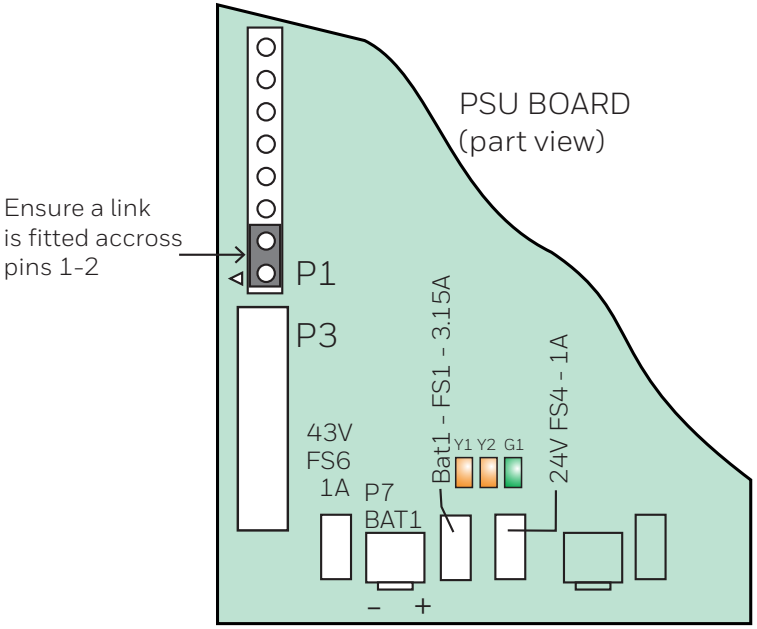
Description	Y1 (yellow LED)	Y2 (yellow LED)	G1 (green LED)
Normal condition (no faults in the system)			fast flash
Mains out of limit			slow flash
24VDC failure only		fast flash	fast flash
Battery 1 failure only		slow flash	fast flash
Battery 1 and 24VDC failure		slow flash	fast flash
43VDC failure only	fast flash		fast flash
No power to PSU			
Earth fault only	On	On	On

On initial power-up all three PSU LEDs will switch ON for approximately 1 second.

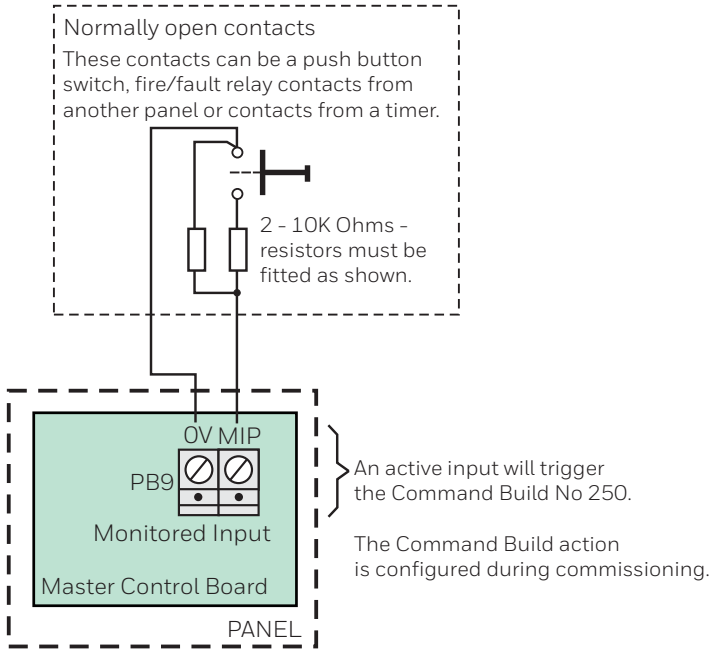
PSU EEPROM link

Ensure a shorting link is fitted to the programming header P1 located on the PSU. The link must be fitted such that it shorts pins 1 and 2. This enables the EEPROM hardware write protect.

> The link is supplied fitted on the PSU board manufactured after September 2007.



HOW TO CONFIGURE THE MONITORED INPUT



The monitored input at the fire panel is activated by an external switch installed a maximum of 100m cable distance away from the fire panel. The input is monitored for both short and open circuit faults. When the input is active it triggers the command build number 250 of the fire panel.

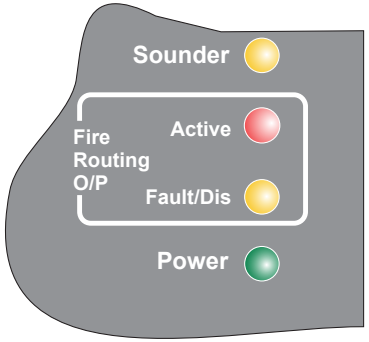
Example
The following example shows how to configure the monitored input at the panel to provide an output sound signal 1 alarm in sector 2 of loop 1 as a reversible action. This means on operating or “closing” the monitored input the panel will start alarms in sector 2 and on releasing or “opening” the monitored input the panel will stop all the alarms from sounding.

- will appear if a PIN is setup.

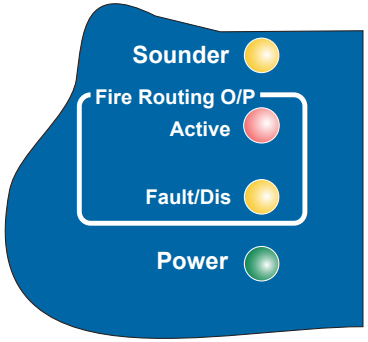
The following procedures assume a password entry is not required.
Press Menu On/Off button and select [SetUp] -> [Usercode]#, momentarily press <etc> to select [SetUp] -> [Build] and type in the command build number 250, select [Action] -> [UserCode], momentarily press <etc> to select [Sector], type in 2 for sector 2 and select [Loop] and type in 1 for Loop 1 -> [Action] -> [Signal 1] -> [Enter] -> [reversb] -> [Enter].

FIRE ROUTING LEDS (POST MID 2015 AND POST Q3 2016)

Post Q3 2016 on
Vigilon Compact Plus panels



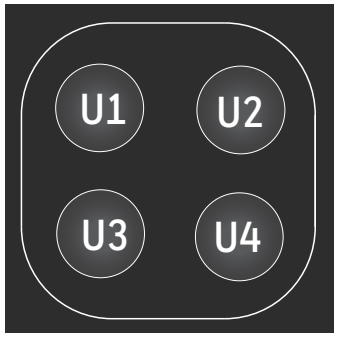
Post mid 2015 on
Vigilon Compact panels



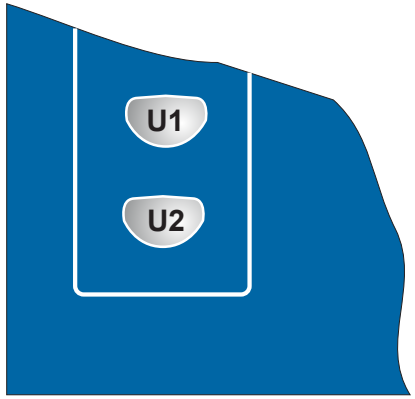
The Fire alarm routing LEDs are fitted on Vigilon panels post mid 2015 in place of the Command Build LEDs.
The Fire Alarm Routing Equipment FARE red LED work with FARE Interface configured to operate as a FARE device. The FARE LEDs illuminate to indicate the status of FARE.

HOW TO CONFIGURE THE 'U' BUTTONS

Post Q4 2016 on
Vigilon Compact Plus panels



Pre Q4 2016 on
Vigilon Compact panel



Part of the Keyboards showing the U buttons.

> The 'U' buttons are accessible by opening the panel outer door.

On operating the U1, U2, U3 or U4 at the panel will cause triggering of command build number 251 (for button U1) to command build number 254 (for button U4). During commissioning the required command build action must be configured.

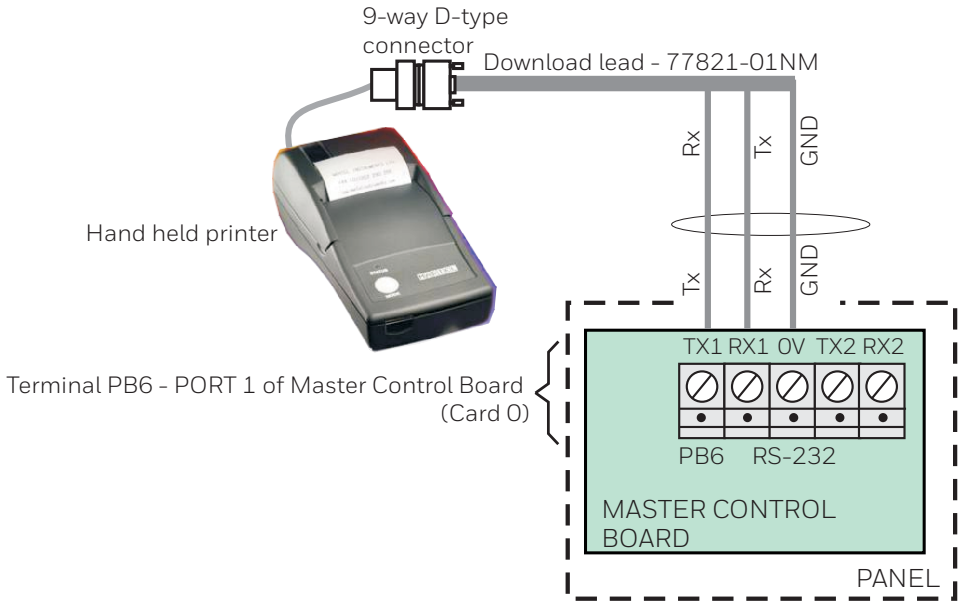
Example
This example shows how to configure the U1 button such that pressing it after holding down the Shift button it will start the master alarm sounders. On releasing the U1 button it will stop the sounders from sounding.

The following procedures assume a password entry is not required.
- will appear if a PIN is setup.

Press Menu On/Off button and select [SetUp] -> [Usercode]# , momentarily press <etc> to select [SetUp] -> [Build] and type in the command build number 251, select [Action] -> [Start MA] -> [Enter] -> [Reversbl] -> [Enter].
The U1 button is now configured to start the master alarm sounders.

EXTERNAL PRINTER

An external printer (part number PRINTER-HAND) may be connected to the control panel during commissioning. It is essential that the printer is connected to the RS232 - Port 1.



PORT 1 of the Master Control Board (Card 0) is configured during commissioning to 'Printer mode' with an appropriate 'baud rate' setting, can be 1200 baud.

How to configure Port 1 mode to the printer

- will appear if a PIN is setup.

To configure Port 1 to the Printer mode: Press Menu On/Off button and then select [Test/Eng]-> [Usercode]#, select <etc> and then select [Config]. Momentarily press <etc> to select [Comms]. Then select [Card] and enter 0 on choosing the master control card. Then enter 1 to select Port 1. Select [Mode] and using the [Previous] and [Next] buttons scroll to Printer and select by the [Enter] option.

To switch ON the printer
If the printer is not working and is switched Off then you can switch it On. To switch On the printer: Press Menu On/Off button and then select [Control] -> [UserCode]# and select [Printer] and then select [On] and [Enter].

FACTORY SETTINGS

An EN Vigilon Compact Plus Control panel has the following factory settings:

System configuration

All devices are assigned to Sector 1

All devices are assigned to Zone 1

Port settings

P0 - RS485, Baud: 1200, Mode: Repeat

P1 - RS232, Baud: 38400, Mode: Standard

P2 - RS232, Baud: 38400, Mode: Standard

P3 - USB

Addresses

Domain address - 1 for EN panel

Panel (Node) address - 1

NVM protect

Software 'write' allowed (NVM protect - disabled)
Hardware 'write' allowed (NVM protect -disabled)

Address allocation

RESONANCE SEARCH[1]

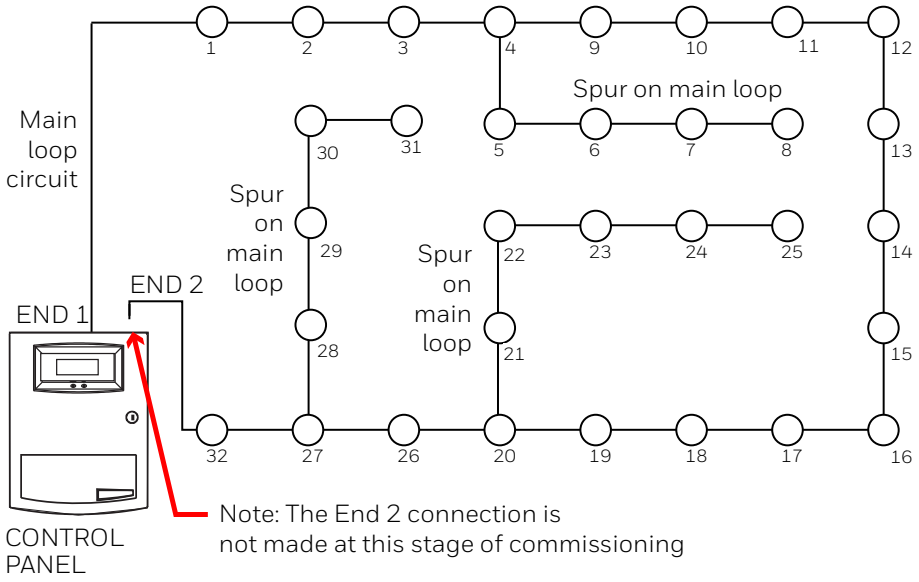
Where S-Quad sounder devices manufactured post April 2014 are installed in a system then these devices automatically check that the components used to produce the sound output are working at their resonant frequency, this is the optimum point where the sound output is at its loudest for the lowest power consumption.
During a resonance search the sounders will slowly change the tone frequency to confirm the resonant point. This change in tone frequency will be **heard** as a slight tone shift that lasts for about **1 minute.**

After each allocation of loop circuit from a VIGILON PLUS or VIGILON Compact PLUS panel and subsequent first operation of sounders such as when operating the Sound Alarm function then there is one time only post allocation Resonance Search performed.

> ⚠ Always power-up the panel with the mains supply first and then connect the battery. The power-down sequence should be in the reverse order.

HOW ADDRESSES ARE ALLOCATED TO DEVICES ON A LOOP

Each device connected to a loop circuit is allocated a software address on a sequential lowest unused value basis. The allocation of addresses starts from one End of a loop circuit in a numerical order. If both ends of the loop circuit are connected then the allocation of addresses start from End1. On reaching a T-breaker the devices on the spur circuit are allocated addresses. On completion of allocation of addresses to the spur circuit the process continues along the main loop.



ADDRESS ALLOCATION WITH LOOP CIRCUIT END 1 CONNECTED

> ⚠ Ensure the panel is first powered-down before connecting the external loop cables to the panel.

It is recommended that each external circuit is wired up to the terminals at the panel, one circuit at a time and tests conducted to ensure that each circuit is functioning correctly. We start by connecting End 1 of the loop only.

- Ensure end-2 of the loop cable remains disconnected.
- Switch ON the mains and battery supply to power-up the panel, you will initially see the powering up messages. If there are no device 'address allocation' faults the panel will start the loop.

Card Found at card 14
NVM card fitted
Card Found at card 1 (V4.xx xx/xx/xx)

1 . Resonance search has the advantage that ensures sounders operate at maximum efficiency, especially in extremes of temperature and to take account of potential ageing of the sounder parts with time. It is important for resonance search to be conducted during annual maintenance.
Note also sounder & VAD devices are monitored for failure. Also EN54 Part 3 speech sounder has an attention tone volume that is lower than the volume output from a standard sounder. All speech sounder devices will not perform the resonance search unless this mode is exited and set to maximum volume.

Allocating Loop n
Loop 1: 0V resistance is 1.1R, L is 1
Allocation: OK at Card X : Allocated Y
Starting Loop n
Loop started OK at Card X: Started Y

Typical panel related fault messages

Master Alarm O/C n

- Even if all the devices are wired correctly and there are no allocation faults, there may still be some device faults. The panel fault buzzer will sound and the Fault LED will be lit.
- To stop the local buzzer from sounding press the Cancel Buzzer button.

There may be other system wiring and hardware faults during the address allocation stage. For further information message meaning and possible action to take see Appendix B - Message action.

ALLOCATION FAULTS

During address allocation to the devices connected to a loop circuit there may be other faults detected and these are displayed at the panel accompanied with LED indications.

HW Fault Card x number y Loop z
Tx Fault Card x number y Loop z
Double Allocated Card x number y Loop z

- An allocation fault that has been rectified will not be recognised until after re-allocation of the loop.
- A loop with allocation faults will not be able to distinguish between a point type sensor and a call point.
- When a short circuit fault is found on allocation of addresses, the loop re-allocates addresses to the device before the short circuit. The device loop breaker remains open and the device LED is lit.

During start up

- A loop is started after allocation. Each device is set up to start operating normally based on its type, when the analogue channels are read.

Typical starter fault

Device Battery OC, number X Loop Y

The above fault will only be displayed if for example an interface unit is powered up from mains supply.

HOW TO RE-ALLOCATE ADDRESSES TO DEVICES ON A LOOP CIRCUIT

It is possible to selectively commence the address reallocation to devices on a loop circuit:.

- Press the Menu On/Off button and then [Test/Eng] -> [UserCode] ->type your password if one is set up and then select [Loop] ->[Allocate], now enter the CARD number of the loop circuit and select [Enter].

There may be other system wiring and hardware faults during the address allocation stage. For further information message meaning and possible action to take see Appendix B - Message action.

ADDRESS ALLOCATION WITH LOOP CIRCUIT END 2 CONNECTED

There may be other system wiring and hardware faults during the address allocation stage. For further information message meaning and possible action to take see Appendix B - Message action.

- Disconnect End 1 of loop 1 and connect the End-2 of the loop and power up to commence reallocating of addresses to devices on the loop, this time from End 2. Ensure addresses are allocated to all the devices on the loop.
- On completion of this test, power down the loop and connect both ends of the loop and ensure addresses are allocated to all the devices on the loop from End 1.
- Repeat these tests on the other loops if fitted.

PLEXUS DEVICES

After soft allocation of addresses to loop devices the Plexus devices will need to be allocated addresses using the Plexus tool.

The Plexus tool will need to be connected to the VIGILON panel for LRT binding data to be created. The binding data is then applied to each Plexus device so that it is associated with the LRT and the Plexus devices is given a SAFE device address.

For full information on how to pre commission and pre allocate a Plexus system see publication titled ‘Preallocation & Pre-Commissioning - User Guide (4188-1011_Part 2).

SAFE ADDRESSING

A SAFE address is an address given to a device during commissioning, the value of which is stored in the non volatile memory within the electronics module of the device, the SAFE address is therefore carried with the device.

A SAFE address can be given to any device on a loop circuit:

- Individually
- in a consecutive range or
- to all the devices on a loop circuit.

TO SAFE ADDRESS A DEVICE

- will appear if a PIN is setup.
Press Menu On/Off button and then [Set Up] -> [Usercode]# and then momentarily press <etc> to select [Set Up] and then again momentarily press <etc> to select [Device], now type in the soft address of the device and then select [Loop], now type in the loop number on which the device resides and then select [Safe] and finally type in a safe address and select [Enter].

> There may be other system wiring and hardware faults during the address allocation stage. For further information message meaning and possible action to take see Appendix B - Message action.

TO CONVERT FROM SAFE TO SOFT ADDRESS

If for any reason the SAFE address given to a device is not required and the device needs to be converted for soft addressing, then:

- will appear if a PIN is setup.
Press Menu On/Off button and select [Set Up] -> [Usercode]# and then momentarily press <etc> to select [Set Up] and then again momentarily press <etc> to select [Device], now type in the SAFE address of the device and then select [Loop], now type in the loop number on which the device resides and then select [Safe] and finally types in 0 for the safe address and select [Enter]. This will convert the device back to soft addressing mode.

Checking a loop map

A loop map is checked against the as fitted wiring drawings. This will confirm the exact location of each system device and its address. It is possible to display or print a loop map.

- Press the Menu On/Off button and then [Info] -> [Display]/[Print], note print will only appear if a printer is connected to the panel. Momentarily press <etc> to select [Loop Map] (note the menu is different if a network card is fitted in the panel as there will be a [Net Map] option), type in a loop number and select [Enter]. The loop map is either displayed or printed, a typical example is shown below.



```
Map information for Loop 2                          15:45
 Os Prev Next       Common    Position
 1  End1   2                   Main Loop
 2    1    3                   Main Loop
 3    2    4                   Main Loop
 4    3    9         L2    5   Spur
 5    4    6                   Spur
 6    5    7                   Spur
 7    6    8                   Spur
```

Address of next device

Address of previous device

Where the device is located, either on the main loop or spur

Address of the device

TO FIND DEVICES ON A LOOP CIRCUIT

Checking physical location of devices on a loop map is made easier by having two people in communication with each other. While one person walks around the site and mark off the devices on the as fitted wiring drawings, the other person operates the panel controls.
The 'find' device is a function that gives visual or audible indication at the respective device on a loop circuit. The following procedure assumes no password access is required.

- Press the Menu On/Off button and then [Test/Eng] -> [Usercode] ->[Loop] ->[Find Dev], now enter CARD number n of loop circuit n, select [Start] and type in a device number (usually device 1 if starting from the beginning) and then select [Enter]. The display shows the device and loop number:

Number 1 on Loop 1

- Press [Next] to find the next device on the loop and at any stage if the previous device needs to be found then select [Previous].

A FOUND DEVICE WILL PROVIDE VISUAL OR AUDIBLE INDICATION.

S-Quad Sensors and MCP

- A fire sensor or system manual call point will operate its LED for 0.5 second On and 0.5 second Off repeated.

Sounders and S-Cubed

- Each system alarm sounder on S cubed or S-Quad device will provide an audible and / or visual indication for 0.5 second On and 0.5 second Off repeated.

Mains powered DAU and micro DAU - in Legacy system only

- A Mains powered DAU will switch On an LED located on the main board, which changes from blink to 1s on 1s off when it is found.

Interface units

Ensure the outputs are not connected to external equipment at this stage of commissioning.

- Each interface output will in turn be activated for 0.5 second On and 0.5 second Off, this process will repeat.

Panels on loop circuits

A mimic and repeat panel on a loop circuit will display its device number.

NVM and SD Cards

The NVM is located inside the panel on the Backplane of VIGILON panel The SD Card is located on the Main Controller Card of VIGILON panel and on the Master Control Board of VIGILON Compact panel. The NVM should hold the latest system configuration data.

There may be other system wiring and hardware faults during the address allocation stage. For further information message meaning and possible action to take see Appendix B - Message action.

The link header P13 on the Backplane provides hardware 'write' protection and will stop [Save] and [Back-up] commands from the panel controls modifying the memory. The link is factory fitted to allow card data to be saved to the memory.

There may be other system wiring and hardware faults during the address allocation stage. For further information message meaning and possible action to take see Appendix B - Message action.

NVM / SD Cards software - 'write protect' and 'unprotect'

To 'software' write protect NVM

Once the NVM / SD Cards are protected, it is not possible to 'write' or 'backup' card data to NVM card or SD Card. To enable write protect:

- Press the Menu On/Off button and then [SetUp] -> [Usercode]#, momentarily press <etc> to select [Protect], select to [NCM card] / [SD Card] and then select [Enable] ->[Enter]. # - will appear if a PIN is setup. A confirmation will be given on the display:

NVM is write protected at card 14

To 'software' write unprotect NVM card / SD Card

Once the NVM is unprotected, it is possible to 'write' or 'backup' card data to the NVM. To write to NVM:

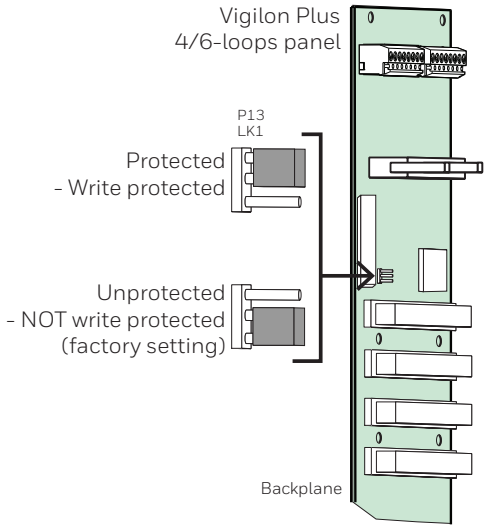
- Press the Menu On/Off button and then [SetUp] -> [Usercode]#, momentarily press <etc> to select [Protect], select to [NVM card] / [SD Card] and then select [Disable] ->[Enter]. # - will appear if a PIN is setup, if so enter a PIN.

A confirmation will be given on the display and the warning light may be illuminated:

NVM is not write protected at card 14

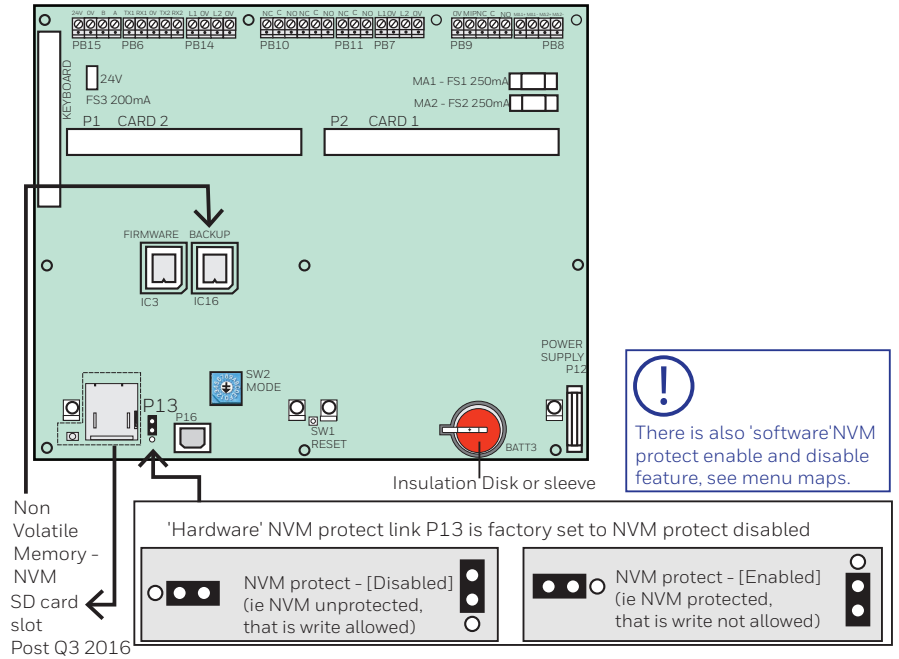
NVM / SD CARD - HARDWARE WRITE PROTECT

Hardware 'write protect' on a VIGILON Plus 4/6 loop panel



Hardware 'write protect' - VIGILON Compact Plus panel

Master Control Board (MCB) - networkable
pre & post Q3 2016



NVM / SD CARDS SOFTWARE - 'WRITE PROTECT' AND 'UNPROTECT'

To 'software' write protect NVM
Once the NVM / SD Cards are protected, it is not possible to 'write' or 'backup' card data to NVM card or SD Card. To enable write protect:

- Press the Menu On/Off button and then [SetUp] -> [Usercode]#, momentarily press <etc> to select [Protect], select to [NCM card] / [SD Card] and then select [Enable] ->[Enter]. # - will appear if a PIN is setup.

  A confirmation will be given on the display:

NVM is write protected at card 14

To 'software' write unprotect NVM card / SD Card

Once the NVM is unprotected, it is possible to 'write' or 'backup' card data to the NVM. To write to NVM:

- Press the Menu On/Off button and then [SetUp] -> [Usercode]#, momentarily press <etc> to select [Protect], select to [NCM card] / [SD Card] and then select [Disable] ->[Enter]. # - will appear if a PIN is setup, if so enter a PIN.

  A confirmation will be given on the display and the warning light may be illuminated:

NVM is not write protected at card 14

TO BACK UP LOOP DATA TO NVM OR SD CARDS

A fully allocated loop should be backed up to the Non Volatile Memory (NVM). The following procedure assumes no password access is required and write protect is disabled.

- Press the Menu On/Off button and then [SetUp] -> [Usercode]#, momentarily press <etc> to select [Backup] and select the loop number n to be backed up to the NVM. Select [NCM card] / [SD Card] ->[Enter]. # - will appear if a PIN is setup.

  A confirmation will be given on the display:

Loop card n Backed up
Checksum written to card 14

> ! It is also important to back up data held in Card 0 (MCC), to do this carry out above procedures except after the [Backup] command enter '0', which signify card 0.

TO RECOVER LOOP DATA FROM NVM / SD CARDS

- On power-up the information stored on the Non Volatile Memory is automatically recovered to the Local Controller (MCB) and Loop processor cards.

  If there is a recovery failure you will get the following message:

Recovery failed at card x

- It is possible to recover data previously backed up to NVM card or SD Card. Press the Menu On/Off button and then [SetUp] -> [Usercode]#, momentarily press <etc> to select [Recover] and select the card number n to be recovered from the Memory. Select [NVM card] / [SD card] ->[Enter]. # - will appear if a PIN is setup.

A confirmation will be given on the display:

Loop card 1 Recovered

> ! A warning will be given if the loop map is different to that previously backed up to the memory (NVM). For information on how to 'hardware' write protect of NVM Cards and SD Card, see page .

Conduct tests on 2Km Loop circuits using the LDT

USING THE LOOP DIAGNOSTIC TOOL

Pre requisite

The loop load/battery standby calculator should have been used to correctly calculate the maximums, some of these are predicted values for entry into the LDT:

- loop cable resistance, maximum loop cable length, maximum device numbers, maximum quiescent current, maximum alarm load for each loop and the minimum battery standby for the system.

It is important to conduct tests on a Vigilon plus system using the Loop Diagnostic Tool (LDT) to ensure the panel loops are working correctly. Tests are applicable where the panel is fitted with VIG-LPC-EN or COMPACT-LPC-EN cards. The LDT may only be used where 2km loop cards are fitted in a VIGILON Plus panel or VIGILON Compact Plus panel where loop circuits have compatible devices.

LDT measured values

- Check the actual installed loop values (predicted) with values calculated using the loop diagnostic tool. Ensure that the expected loop values match with the values measured using the LDT.

For information on the Loop Diagnostic Tool (LDT), see the associated User guide.
During certain tests using the Loop Diagnostic Tool and when directed by the tool it may be necessary to repair a loop circuit after a test.

HOW TO [REPAIR] A LOOP CIRCUIT

When a loop circuit is tested for open circuit fault or if a genuine wiring open circuit fault, then rectification action must be taken. To rectify the open circuit fault, remove the fault and process the repair command at the control panel.

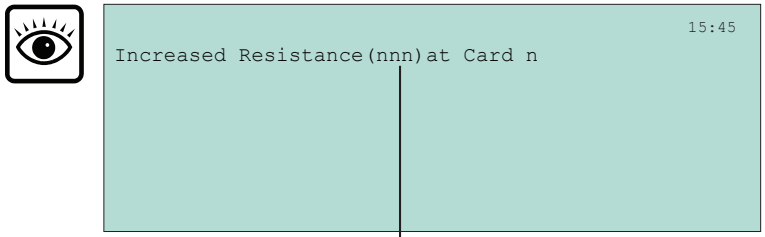
Press the Menu On/Off button and select [Test /Eng], [Usercode] and if a password access is required, type in the PIN and press the Enter button. Select [Loop] and then momentarily select <etc> and select [Repair] and type in the loop circuit you want to repair, for example loop 1or 2 and then select [Enter].

LOOP RESISTANCE AS MEASURED BY THE PANEL

The loop cards VIG-LPC-EN or COMPACT-LPC-EN measures and displays the loop resistance on the panel screen during power up of the loop circuits. The measured resistance can be viewed at any time after allocation using the [Info] menu under the Loop Card status at the panel.

HOW TO LOCATE ABNORMAL LOOP RESISTANCE

There may be abnormal resistance resulting from partial short or partial open circuit on positive or negative line of a loop circuit. Also large loop resistance due to excessive cable usage between loop devices. In such cases the panel will show messages like:



This message suggests the loop resistance has changed from that previously measured (predicted) value indicating there is a short circuit or a partial open circuit on Loop n.

The number(nnn)is a raw Analogue to Digital value mainly for debugging purposes. It is used by the panel to determine how far above (or close to) the limit of a partial short or partial open circuit.

A similar message is displayed for an increased resistance on the negative line

Using the Loop Diagnostic Tool assess the measurement values under ‘Wiring Related Measurements’. Find which measurements have shown changes on the positive or negative line and where appropriate compare with previously saved measurements. Then view the ‘Loop Profile’ chart under ‘Measurement Analysis’ to narrow down the part of the loop wiring to check and rectify.

EN54-13 Loop calibration procedures

- Check to ensure the loop load/battery standby calculator was used to correctly calculate the maximums and some of these will be entered as predicted values into the LDT.
- Ensure predicted 'calculated' values match those measured using the LDT, see page 48.
- Fix any unexpected faults, or unexplained inconsistencies, see Page 48.
- Configure the Vigilon Plus system and test the system as appropriate, see Page 64.
- Back up each loop circuit to NVM, see page 46.

In storing a loop to NVM this will also store the actual loop resistance values of each loop at the panel and set appropriate fault limits for each loop in the panel.

HOW TO ELECTRICALLY ERASE THE NVM / SD CARDS

To completely erase the NVM you will first need to switch On the freeblock and disable the hardware and software write protect. This will allow access to the initialisation command.

To switch On freeblock

The following procedures assume no password access is required.
Press the Menu On/Off button and then [Test/Eng] -> [UserCode]# momentarily press <etc> and select [Test] and then select [Freeblock], press [Next] for controller and select [Enter], which will display numbers on the top left of the display to show the freeblock is On. # - will appear if a PIN is setup.

To initialise the Non Volatile Memory

The following procedures assume no password access is required.
Press the Menu On/Off button and then [Test/Eng] -> [UserCode]# and then select [Card] -> [Init] -> [NVM] / [SD Card] and then [Enter]. The following confirmation message will be displayed:

NVM Card Being Initialised NVM card 14 : 512K bytes

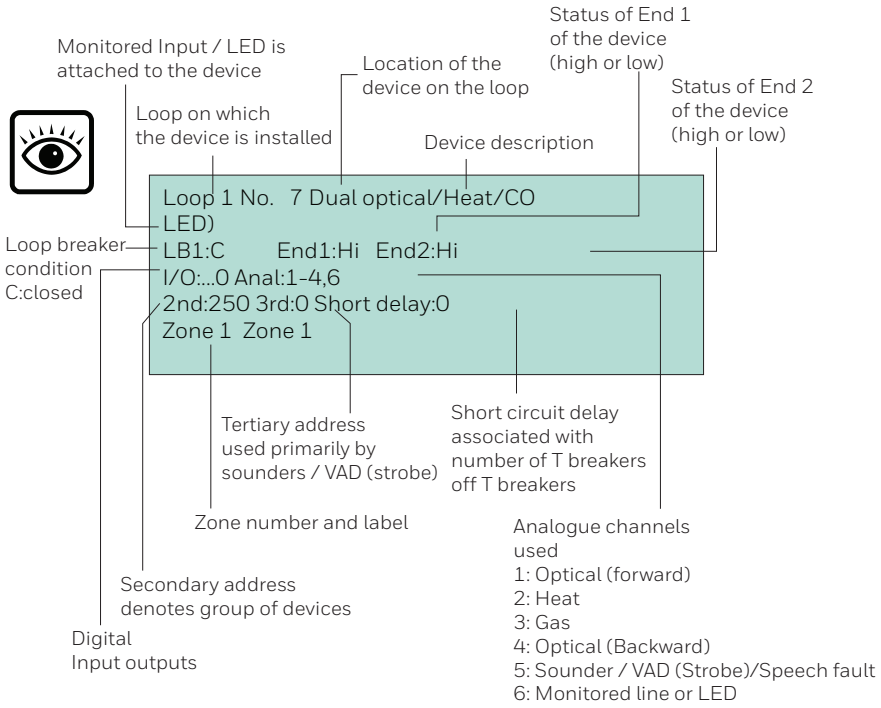
To switch Off freeblock

Press the Menu On/Off button and then [Test/Eng] -> [UserCode]#, momentarily press <etc> and select [Test] and then select [Freeblock], press [Previous] for Off and select [Enter]. On completion do a display test to clear the freeblock number display.

Checking device STATUS

LOOP DEVICE STATUS

To list the STATUS of a device on an allocated loop at the Control Panel: Press Menu On/Off button and then select [Info], momentarily press <etc> to select [Status] -> [Device], enter the device number, select [Loop], enter the loop number n on which the device resides, select [Enter] to view device status information.



Analogue Channel 1 is forward scatter optical smoke sensor
Analogue Channel 2 is heat sensor
Analogue Channel 3 is for CO gas sensor
Analogue Channel 4 is for backward scatter optical smoke sensor
Analogue Channel 5 reports sounder/flasher/speech faults to the control panel
Analogue Channel 6 reports monitored input/monitored output faults to the control panel

Note: The status shown for S4 devices below also apply to equivalent S4T and S4M devices.
O - Output, I - Input and . signify - not used

Device	digital I / O	channels
S4 Dual OH/Red VAD (HP)	O . . O	1, 2, 4, 5
S4 Heat/Voice Sen Sndr/Red VAD (HP)	OOOO	2, 5
S4 Dual OH/Voice Sen Sndr/Red VAD (HP)	. OOO	1, 2, 4, 5
S4 Dual OH/CO/Voice Sen Sndr/Red VAD (HP)	OOOO	1, 2, 3, 4, 5
S4 Dual OH/White VAD (Std)	O . . O	1, 2, 4, 5
S4 Dual OH/White VAD (HP)	O . . O	1, 2, 4, 5
S4 Dual OH/Voice Sndr/White VAD (Std)	OOOO	1, 2, 4, 5
S4 Dual OH/Voice Sen Sndr/White VAD (HP)	OOOO	1, 2, 4, 5
S4 Heat/Voice Sndr/White VAD (HP)	OOOO	2, 5
S4 Dual OH CO/Voice Sen Sndr / White VAD (HP)	OOOO	1, 2, 3, 4, 5
S4 Dual OH/Voice Sounder	. OOO	1, 2, 4, 5
S4 OH Sensor Sounder	. OOO	1, 2, 5
S4 Dual OH Sensor Sounder	. OOO	1, 2, 4, 5
S4 Heat Sensor Sounder	. OOO	2, 5
S4 Dual OH CO Sensor	. . . O	1, 2, 3, 4, 5
S4 Heat Sensor	. . . O	2
S4 Heat Sensor Sounder	. OOO	2, 5
S4 Dual Optical Heat Sensor	. . . O	1, 2, 4
S4 Dual Optical Heat Sensor CO	. . . O	1, 2, 3, 4, 5
S4 Dual Optical Heat Sensor Sounder	. OOO	1, 2, 4, 5
+ Monitored input		6
+ Monitored output		6
Other devices		
Beam transmitter	. . . O	2
Beam receiver	. . . O	1- raw data 2- average data

Device	digital I / O	channels
MCP	. . . O	6
Repeat panel	. . . O	-
Zonal mimic	. . . O	-
Mimic panel	. . . O	-
T-breaker	. . . O	
Loop interface	all possible I - input O - output	1-channel 1 2-channel 2 3-channel 3 4-channel 4 5
Interface unit (mains powered)	all possible I - input O - output	1-channel 1 2-channel 2 3-channel 3 4-channel 4 5-battery 6-mains
S Cubed	OOOO	1 - IR control 2 - Tone 3 - Power 4 - VAD (Strobe) 5

Device	digital I / O	channels
The legacy products below are for reference		
S-Quad Dual Optical Heat Sensor Strobe	O . . O	1, 2, 4, 5
S-Quad Dual Optical Heat Sensor Sounder	. OOO	1, 2, 4, 5
S-Quad Dual Optical Heat Sensor Speech Strobe	OOOO	1, 2, 4, 5
S-Quad Dual Optical Heat Sensor CO Speech Strobe	OOOO	1, 2, 3, 4, 5
Slave LED	. . . O +L	
Sounder	. OO . 3 – LowFreq. 2 - On/Off	
Repeat sounder	. OO .	
Optical	. . . O	1
Optical heat	. . . O	1,2
Heat	. . . O	4
Single channel interface unit	I O . O	1,2,5
Loop powered zone module	I . . O	1,5
Optical/Heat Sounder	. OOO	1,2

The correct device type may not be displayed if the loop circuit has allocation faults.

- Check that the device is of the correct type and is suitable for the area in which it is installed.
- Check the digital status of all devices.
- On successful allocation check that the total number of devices found equals the number installed. Also note there will be a loop voltage on the unconnected end of the cable.

PLEXUS DEVICE STATUS

At the Vigilon Plus Control panel select [Info] -> momentarily select <etc> in order to find and select [Status] -> [Device] and enter the device number or range whose status is required, then select [Loop] and enter the loop number on which the Plexus devices reside and then select [Enter]. The panel displays the status of device(s):

Radio Call Point

```
Loop 2 No.   43 Radio Call Point        15:45
I/O:...O Anal:5, 6
2nd:0 3rd:0 LRT:41
Zone 2 Zone 2
S:000005098244  ID:3040
P1:42  RSSI:48  P2:41  RSSI:49  Batt:40
```

This is the RSSI which is a measure of the link quality with the linked Parent device having address 42

This is the network ID

Months of charge remaining dependent on use.
A device battery fault indication is given closer to end of useful battery life.

This is the RSSI which is a measure of the link quality with the linked Parent device having address 41

This is the serial number given of the Radio call point, which is the same number as the one printed on a label inside the Call point on its PCB.

Radio Sounder Strobe

```
Loop 1 No.   47 Radio Sounder Strobe   15:47
I/O:.OOO Anal:5,6
2nd:0 3rd:0 LRT:41
Zone 4 Zone 4
S:010010485766  ID:3040
P1:43  RSSI:47  P2:42  RSSI:43  Batt:35
```

Radio Optical detector

```
Loop 1 No.   51 Radio optical          15:48
I/O:...O Anal:1,5
2nd:0 3rd:0 LRT:41
Zone 4 Zone 4
S:039100006577  ID:3040
P1:47  RSSI:41  P2:51  RSSI:44  Batt:59
```

Radio Heat detector

```
Loop 1 No.   45 Radio Heat             15:46
I/O:...O Anal:2, 5
2nd:0 3rd:0 LRT:41
Zone 2 Zone 2
S:136110645425  ID:3040
P1:44  RSSI:45  P2:47  RSSI:47  Batt:59
```

Radio Dual Optical Heat detector

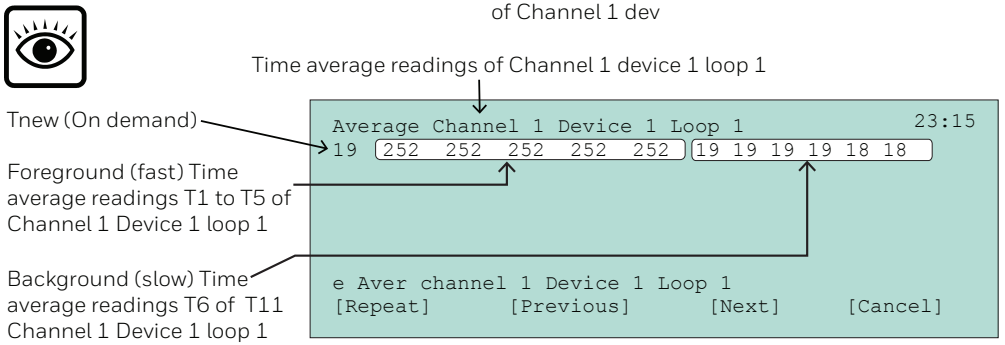
```
Loop 1 No.   51 Radio Dual optical/Heat
I/O:...O Anal:1,2,3,4
2nd:0 3rd:0 LRT:41
Zone 2 Zone 2
S:0471000064440  ID:3040
P1:50  RSSI:44  P2:43  RSSI:42  Batt:59
```

Device checks

Ensure all dust covers have been removed from the sensor heads and the system is allowed to operate for at least 24 hours to obtain accurate time average and condition code readings.

CHECKING THE TIME AVERAGES

Press the Menu On/Off button and then [Info], momentarily press <etc> to select [Time Avg] and type in the required channel number from the range 1-6 whose time average is required, select [Device] and type in the device number, select [Loop] and type in the loop number of the device ->[Enter]. The display shows time averages for the device.



	Foreground (fast) time average readings					
Tnew	T1	T2	T3	T4	T5	
On demand	80mS	320mS	1.28S	5.12S	20.48S	
	Normally reads 252, unless there is a threshold.					
	Background (slow) time average readings					
Tnew	T6	T7	T8	T9	T10	T11
On demand	1.36min	5.46min	21.84min	1.45hr	5.82hr	23.3hr

Note: The time averages shown below for S4 devices also apply to equivalent S4T and S4M devices.

Product	Analogue Channels	Time average at manufacture Tnew
S4 Heat Sensor	2 - heat	66
S4 Heat Sensor Sounder	2 - heat	66
S4 Dual Optical Heat Sensor	1 - optical (forward) 2 - heat 4 - optical (backward)	25 66 40
S4 Dual OH/Red VAD	1 - Optical (forward) 2 - Heat 4 - Optical (backward)	25 66 40
S4 Heat/Voice Sen Sndr/Red VAD	2 - Heat	66
S4 Dual OH/Voice Sen Sndr/Red VAD	1 - Optical (forward) 2 - Heat 4 - Optical (backward)	25 66 40
S4 Dual OH/CO/Voice Sen Sndr/ Red VAD	1 - Optical (forward) 2 - Heat 3 - CO 4 - Optical (backward)	25 66 25 40
S4 Dual OH/White VAD	1 - Optical (forward) 2 - Heat 4 - Optical (backward)	25 66 40
S4 Dual OH/White VAD (HP)	1 - Optical (forward) 2 - Heat 4 - Optical (backward)	25 66 40
S4 Dual OH/Voice Sndr/White VAD (Std)	1 - Optical (forward) 2 - Heat 4 - Optical (backward)	25 66 40
S4 Heat/Voice Sndr/White VAD (HP)	2 - Heat	66
S4 Dual OH/CO/Voice Sen Sndr/ White VAD HP	1 - Optical (forward) 2 - Heat 3 - CO 4 - Optical (backward)	25 66 25 40

Product	Analogue Channels	Time average at manufacture Tnew
S4 Dual OH/Voice Sounder	1 - Optical (forward) 2 - Heat 4 - Optical (backward)	25 66 40
S4 OH Sensor Sounder	1 - Optical (forward) 2 - Heat	25 66
S4 Dual OH Sensor Sounder	1 - Optical (forward) 2 - Heat 4 - Optical (backward)	25 66 40
S4 Heat Sensor Sounder	2 - Heat	66
S4 Dual OH CO Sensor	1 - Optical (forward) 2 - Heat 3 - CO 4 - Optical (backward)	25 66 25 40
Beam Transmit		0
Beam Receive	2	150 - 170

Typical new Time average values for legacy 34K sensors

Device type 34K	Analogue Channel number	Time average Tnew
Optical Heat	1 2	200 - 235 180 - 210
Heat	2	180 - 210

CHECKING THE EXCEPTION CODES

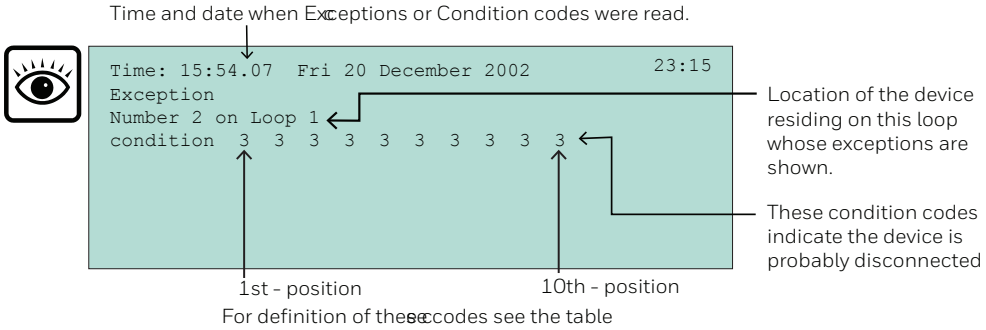
An 'Exception' or condition code was previously known as 'Subfault'. These codes provide information about a sensor device. A code indicates small changes in the environmental condition, sensor mechanism and how the sensor performs in the system. To ensure sensor exception codes are meaningful, all existing codes must be cleared and the system left undisturbed for at least 24 hours.

Code definition

There are ten different conditions possible for each sensor type, although not all of them are defined. Each condition code has a range of 0-3.

Code	Meaning
0	This condition is OK. This code is not displayed unless another non zero code exists.
1 or 2	Suggests preventive maintenance is required, where necessary, to avoid possible false alarms.
3	The sensor is faulty. A fault condition indication is given at the control panel. A message reading 'Sensor is faulty' Pre MCC V4.45 this message read 'Sensor out of Specification'.

A device with CODE 3 is automatically disabled to prevent false alarms.



To view the exception/condition codes of a device

Press to select Menu On/Off button and select [Info] -> <etc> -> [Event] -> <etc> -> [Exception] -> [Enter]. To view all the currently active exceptions on the system use the next and previous menu options to scroll through.

How to clear 'Exceptions' (# - will appear if a PIN is setup)

This can be done by removal and replacement of the sensor chamber, by re-allocation of the loop having the sensor or, by using [Clear] function at the panel: Press Menu On/Off button to select [Test/Eng] -> [Usercode]# -> <etc> -> [Config] -> [Clear]-> [Exception] -> [Enter]. Note cleared codes will return if the conditions are still true.

Exceptions /Condition codes	Meaning	Action
1 0 0 0 0 0 0 0 0 0 or 0 1 0 0 0 0 0 0 0 0 or 1 1 0 0 0 0 0 0 0 0	This is the sub-fire band and if set as shown it should be taken as showing that the sensor is at its optimum sensitivity for its location.	No action need be taken.
2 0 0 0 0 0 0 0 0 0 or 0 2 0 0 0 0 0 0 0 0 or 2 2 0 0 0 0 0 0 0 0	A sub-fire has been generated which would suggest that the sensor was either too sensitive for its environment or that the sensor type may be incorrect for the location.	Action should be to check location and alter sensor state or type as required. This should only be done with the knowledge of the customer. Remember to re-backup all changes to states onto the NVM.
0 0 1 0 0 0 0 0 0 0 or 0 0 2 0 0 0 0 0 0 0	These codes indicate that the sensor has sensed small signals. Code Level 1 shows one event, Level 2 shows greater than one event.	The location should be checked and a change in siting made, if required.
0 0 0 0 1 0 0 0 0 0 or 0 0 0 0 2 0 0 0 0 0 or 0 0 0 0 0 1 0 0 0 0 or 0 0 0 0 0 2 0 0 0 0	This shows that the sensor time averages are close to acceptable limits.	On commissioning the sensor should be replaced. A sensor with code 2 is worse than code 1. On maintenance sensors with code 2 should be replaced.
0 0 0 0 0 0 1 0 0 0 or 0 0 0 0 0 0 2 0 0 0 or 0 0 0 0 0 0 0 1 0 0 or 0 0 0 0 0 0 0 2 0 0	This shows that high frequency noise events have been detected by the system. A code 1 shows one event and a code 2 shows more than one event. The device should be replaced. On maintenance, sensor with code 2 should be replaced. If it reoccurs then check the environment.	The device should be replaced. On maintenance, sensor with code 2 should be replaced. If it reoccurs then check the environment.
0 0 0 0 0 0 0 0 1 0 or 0 0 0 0 0 0 0 0 2 0	This shows device hardware faults. 1-fault code 1 and more than one fault code 2.	The sensor should be replaced.
0 0 0 0 0 0 0 0 0 1 or 0 0 0 0 0 0 0 0 0 2	This shows that transmission faults are being noted. Code 2 is worse than code 1.	The device should be replaced. If it reoccurs then check the environment.

CONDITION CODES FOR S-QUADS (EXCEPTION / SUB FAULT CODES)

Gen type	Pos. No.	Description	Exception codes			
			Normal band 0	Sub fault band 1	2	Fault band 3
ENVIRONMENT	1	Optical subfire	None	Small signal sensed [Check location, state & type]	Subfire [Check location, state & type]	
	2	Heat subfire	None	Small signal sensed [Check location, state & type]	Subfire [Check location, state & type]	
	3	Gas subfire		Small signal sensed [Check location, state & type]	Subfire [Check location, state & type]	
	4					
SENSOR	5	Optical/Gas channel drift or out of range	OK		Close to acceptable limit	Out of limits [Clean/replace]
	6	Heat channel drift or out of range	OK			Out of limits [Clean/replace]
	7	Optical/Gas channel noisy (High freq)	OK	Single HF noise event detected	Multiple HF noise seen (Check location and report)	
	8	Heat channel noisy (High frequency)	OK	Single HF noise event detected	Multiple HF noise seen (check location and report)	
DEVICE	9	device firmware	OK	Isolated fault [Note/report]	Repetitive fault [Note / report / replace]	Total failure [Replace]
	10	device transmission	OK	Low error rate	Medium error rate [Report]	High error rate [Replace]

EXCEPTION (OR CONDITION) CODES FOR S-QUAD BEAM

Gen type	Pos. No.	Description	Exception codes			
			Normal band 0	**Sub fault band** 1	2	**Fault band** 3
ENVIRONMENT	1	Subfire	None			
	2	Subfire	None			
	3					
	4	Total beam obscuration	OK			Obscured for > 1 minute or Tx failure
SENSOR	5	Out of range - high	OK			Gain not set-up or faulty set replace
	6	Drift out of range - low	OK	T5 time average < 14 seen	Low resolution [Clean / check / gain, align / replace]	Below lower limit [Check gain / replace]
	7	Noisy (high frequency)	OK	Single HF noise event detected	Multiple HF noise seen [Check location]	
	8		OK			
DEVICE	9	Outstation firmware	OK	Isolated fault [Note / report]	Isolated fault [Note / report]	Total failure [Replace]
	10	Outstation transmission	OK	Low error rate	Medium error rate [Report]	High error rate [Report / Replace]

S-Quad Sensor with VAD - STATES (current range)

The STATE in which an S-Quad sensor operates can be changed from the default factory set STATE to another STATE during commissioning using the Commissioning tool. The environment in which an S-Quad device is installed will determine what STATE is used.
- Factory Default STATE ~ EN54 : Part 7 :2000 * EN54 : Part 5 :2002

⚠ The S-Quad with VAD devices are compatible with Vigilon Plus control panel software (MCC/MCB ≥ V4.52 and LPC ≥ V4.48).
≥ - means greater than or equal to.

See page 13 for information on LPCB approved STATES.

S-QUAD DUAL OPTICAL HEAT & OPTICAL HEAT SENSOR STATES

State	Definition / Class	Application in / Suitable for:	Sensitivity a-high- to-k-none
State 3	High sensitivity optical, Class A1 heat	Clean area or environment, where early detection is required.	a
State 4	Normal sensitivity with no optical spike protection, Class A1 heat	General area as STATE 0 with less immunity to steam and dust for ease of testing using artificial smoke in normal operating mode, when test / commissioning mode is not active.	b
State 0#	Normal sensitivity optical, Class A1 heat	General area.	c
State 8	Delayed normal sensitivity optical, Class A1 heat	General application in area with transient steam, dust or smoke present.	d
State 7	Normal sensitivity optical, Class A2S heat	General application in area with low dust, smoke or steam present, for fixed temperature operation that is totally unaffected by transient temperature variation.	e
State 5	Normal sensitivity optical, Class B heat	Area having high ambient temperature with low dust, smoke or steam present.	f
State 2	Low sensitivity optical smoke ◈, Class A1 heat	Areas with moderate dust, smoke or heat during working hours when used with timing function.	g
State 11	Low sensitivity optical smoke ◈, Class B heat	Area having high ambient temperature, plus where moderate dust, smoke or steam present.	h
State 6	Low sensitivity optical smoke ◈, Class BS heat	Area having high ambient temperature that changes, plus moderate dust, smoke or steam present.	I
State 12	Class A1 heat only	Area where smoke, dust or steam occurs at times.	j
State 15	No detection		k

- factory default STATE. NOTE: All the Sensor STATES in the above table are LPCB approved to EN54-5 & EN54-7 with the exception of STATES 2, 6 and 11 which are only approved to EN54-5.
◈ Low sensitivity optical smoke sensing is not approved but may still be useful in certain applications. The STATE 15 is a no detection state and is not part of LPCB approval.

S-QUAD DUAL OPTICAL, HEAT & CO SENSOR STATES

State	Definition / Class	Application in / Suitable for:	Sensitivity a-high- to-i-None
State 1	High sensitivity optical, Class A1 heat, high sensitivity gas	Clean area or environment where early detection is required with false alarm reduction.	a
State 4	Normal sensitivity optical with no spike protection, Class A1 heat, normal sensitivity gas (CO)	General area as STATE 0 with less immunity to steam and dust for ease of testing using artificial smoke in normal operating mode, when test / commissioning mode is not active.	b
State 0#	Normal sensitivity optical, Class A1 heat, Normal sensitivity gas (CO)	General area where false alarm reduction is required for comprehensive fire detection.	c
STATE 7	Normal sensitivity optical, Class A2S heat, normal sensitivity gas (CO)	General area with moderate dust, smoke (tobacco) or steam, operates at a fixed temperature and is totally unaffected by transient temperature variation.	d
State 2	Normal sensitivity optical, Class A1 heat, low sensitivity gas (CO)	Applications with moderate dust, smoke (tobacco) or steam.	e
State 9	Normal sensitivity gas (CO), Class A1 heat	Area where high levels of smoke, dust or steam is often present.	f
State 11	Normal sensitivity optical, Class B heat,	Area with high ambient temperature, plus moderate levels of dust, smoke or steam present.	g
State 6	Low sensitivity optical smoke ◈, Class B heat, normal sensitivity gas (CO)	Area with high ambient temperature, plus normal levels of dust, smoke or steam present.	h
State 12	Class A1 heat only	Area where smoke, dust, steam or gas occurs at times.	i
State 15	No detection		j

- factory default STATE. NOTE: All the Sensor STATES in the above table are LPCB approved to EN54-5 & EN54-7 with the exception of STATE 6 which is only approved to EN54-5.

◈ Low sensitivity optical smoke sensing is not approved but may still be useful in certain applications. The STATE 15 is a no detection state and is not part of LPCB approval.

S-QUAD HEAT SENSOR STATES

State	Definition / Class	Application in / Suitable for:	Sensitivity a-high- to-f-none
State 0#	Class A1 heat	Area having high levels of smoke, dust or steam.	a
State 13	Class A2 heat	Area where there is moderate temperature changes plus dust, smoke or steam present.	b
STATE 7	Class A2S heat	Area where fixed temperature operation is required, but is totally unaffected by transient temperature variations.	c
State 5	High temperature Class B heat	Area having high ambient temperature plus dust, smoke or steam present.	d
State 6	High temperature Class BS heat - with no rate of rise component	Area where there is rapid temperature changes plus dust, smoke or steam present.	e
State 15	No detection		f

- factory default STATE. NOTE: All the Sensor STATES in the above table are LPCB approved to EN54-5. The STATE 15 is a no detection state and is not part of LPCB approval.

S-QUAD OPTICAL SENSOR STATES

State	Definition / Class	Application in / Suitable for:	Sensitivity a-high- to-f-none
State 3	High sensitivity optical	Clean area or environment where early detection is required.	a
State 4	Normal sensitivity with no spike protection	General area as STATE 0 with less immunity to steam and dust to facilitate witness test.	b
State 0#	Normal sensitivity optical	General area.	c
State 8	Delayed normal sensitivity optical	General area with transient steam, dust or smoke present.	d
State 2	Low sensitivity optical smoke [3]	Area with moderate dust, smoke or steam present.	e
State 15	No detection		f

- factory default STATE. NOTE: All the sensor STATES in the above table are LPCB approved to EN54-7 with the exception of STATE 2.
◈ Low sensitivity optical smoke sensing is not approved but may still be useful in certain applications. The STATE 15 is a no detection state and is not part of LPCB approval.

S4 SELF TEST DUAL OPTICAL HEAT & OPTICAL HEAT S4T AND S4M SENSOR STATES

STATE	Definition / Category	Application in / Suitable for:	Sensitivity a-high- to-k-none
STATE 3	High sensitivity optical, Category A1 heat	Area where smoke, dust or steam occurs at times.	a
STATE 4	Normal sensitivity with no optical spike protection, Category A1 heat	General area as STATE 0 with less immunity to steam and dust for ease of testing using artificial smoke in normal operating mode, when test / commissioning mode is not active.	b
STATE 0#	Normal sensitivity optical, Category A1 heat	General area.	c
STATE 8	Delayed normal sensitivity optical, Category A1 heat	General application in area with transient steam, dust or smoke present.	d
STATE 7	Normal sensitivity optical, Category A2S heat	General application in area with low dust, smoke or steam present, for fixed temperature operation that is totally unaffected by transient temperature variation.	e
STATE 5	Normal sensitivity optical, Category B heat	Area having high ambient temperature with low dust, smoke or steam present.	f
STATE 2	*Low sensitivity optical smoke* ◈, Category A1 heat	Areas with moderate dust, smoke or heat during working hours when used with timing function.	g
STATE 11	*Low sensitivity optical smoke* ◈, Category B heat	Area having high ambient temperature, plus where moderate dust, smoke or steam present.	h
STATE 6	*Low sensitivity optical smoke* ◈, Category BS heat	Area having high ambient temperature that changes, plus moderate dust, smoke or steam present.	i
STATE 12	Category A1 heat only	Area where smoke, dust or steam occurs at times.	j
STATE 15	No detection		k

- factory default STATE. NOTE: All the Sensor STATES in the above table are LPCB approved to EN54-5 & EN54-7 with the exception of STATES 2, 6 and 11 which are only approved to EN54-5. ◈Low sensitivity optical smoke sensing is not approved but may still be useful in certain applications. The STATE 15 is no detection and is not part of LPCB approval.

S4 SELF TEST HEAT S4T & NON SELF TEST S4M SENSOR STATES

STATE	Definition / Category	Application in / Suitable for:	Sensitivity a-high- to-k-none
STATE 0#	Category A1 heat	Area having high levels of smoke, dust or steam.	a
STATE 13	Category A2 heat	Area where there is moderate temperature changes plus dust, smoke or steam present.	b
STATE 7	Category A2S heat	Area where fixed temperature operation is required, but is totally unaffected by transient temperature variations.	c
STATE 5	High temperature Category B heat	Area having high ambient temperature plus dust, smoke or steam present.	d
STATE 6	High temperature Category BS heat - with no rate of rise component	Area where there is rapid temperature changes plus dust, smoke or steam present.	e
STATE 15	No detection		f

- factory default STATE. NOTE: All the Sensor STATES in the above table are LPCB approved to EN54-5.
The STATE 15 is no detection and is not part of LPCB approval.

BEAM SENSOR STATES

Sensor STATES	Ideal range minimum to maximum
4 or 5	2m to 30m
2 or 3	5m to 100m
0 or 1	12m to 100m

STATE	Definition	Application
State 0#	Default detection	A fire is detected when there is a 50% (3dB) fall in signal level, however if the fall is by 90% (10dB) in less than 1second and is maintained for 40 seconds, then a fault is registered. This allows the Control panel to differentiate between a fire and a fault signal caused by accidental obscuration.
State 1	Normal sensitivity	A fire is detected when there is a 50% (3dB) fall in signal level, however if the fall is by 90% (10dB) in less than 1 second and is maintained for 40 seconds then a fire is registered.
State 2	Medium Sensitivity	A fire is detected when there is a 25% (1.3dB) fall in signal level, however if the fall is by 90% (10dB) in less than 1 second and is maintained for 40 seconds then a fault is registered.
State 3	Medium Sensitivity	A fire is detected when there is a 25% (1.3dB) fall in signal level, however if the fall is by 90% (10dB) in less than 1 second and is maintained for 40 seconds then a fire is registered.
State 4	High Sensitivity	A fire is detected when there is a 10% (0.5dB) fall in signal level, however if the fall is by 90% (10dB) in less than 1 second and is maintained for 40 seconds then a fault is registered.
State 5	High Sensitivity	A fire is detected when there is a 10% (0.5dB) fall in signal level, however if the fall is by 90% (10dB) in less than 1 second and is maintained for 40 seconds then a fire is also registered.
State 15	No detection.	This is a total disablement of the sensor.

- factory default STATE

Interface Unit STATES

SINGLE CHANNEL INTERFACE INPUT STATES

These STATES apply to loop powered single channel interface.

STATE	Definition	Application
State 0	Default - all Inputs enabled	Normal use
State 1	Input 1 disabled	Selective disablement and enablement of interface input circuit. Where the input circuit is used for fire detection application, the call points on the circuit will NOT remain operational on disablement of the circuit.
State 15	All inputs disabled	Interface input disablement

4 - CHANNEL INTERFACE UNIT STATES

The 4 - channel interface units have input STATES for configuration, which are applicable for both mains and loop powered interface units.

STATE	Definition	Applications
State 0	Default - all Inputs enabled	Normal use
State 1	Input 1 disabled	Selective disablement and enablement of interface input circuits.
State 2	Input 2 disabled	
State 3	Inputs 1 and 2 disabled	
State 4	Input 3 disabled	
State 5	Inputs 1 and 3 disabled	
State 6	Inputs 2 and 3 disabled	
State 7	Inputs 1, 2 and 3 disabled	
State 8	Input 4 disabled	
State 9	Inputs 1 and 4 disabled	
State 10	Inputs 2 and 4 disabled	
State 11	Input 1, 2 and 4 disabled	
State 12	Inputs 3 and 4 disabled	
State 13	Inputs 1, 3 and 4 disabled	
State 14	Inputs 2, 3 and 4 disabled	
State 15	All inputs disabled	interface input disablement

Where an input circuit is used for fire detection application, the call points on the input circuit will remain operational on disablement of the input circuit.

Installed equipment tests

PREPARATION

- Check to ensure access will be provided to areas where installed equipment is to be tested, such as to locked or secure areas.
- Ensure all sensor dust covers are removed from sensor devices.
- Tests may be made easier by having: sensor extractor tool, smoke poles, smoke canister, heat gun, beam obscuration filter and MCP test key, plus keys to open system equipment. Where applicable read the instructions supplied with the test kit.

COMMUNICATION TO SITE OCCUPANTS

- Before undertaking tests and to prevent unnecessary building evacuation ensure:
  - all affected personnel on the site are informed, via a responsible person that the fire alarm system is being commissioned.
  - where there is a link to an alarm receiving centre, the appropriate action should be taken to ensure they are informed that tests are being carried out on the system.

COMMISSIONING TOOL

It is much easier for the panel and system to be configured from the Commissioning tool, see the Commissioning tool manual.

PLANT EQUIPMENT

Prior to any functional tests being carried out on the system, all the plant equipment interfaced to the fire alarm system should be isolated.

- Tests should be carried out following customer consent. It may also be necessary to obtain third-party consent dependent on what plant equipment is connected to the panels auxiliary contacts.
- All the tests on plant equipment should be as agreed during the project design stage.

FIRE ALARM ROUTING EQUIPMENT (FARE)

Only one loop interface unit in a Vigilon system can be configured for FARE operation. The interface unit is automatically placed into a Plant sector. The interfaced fire alarm routing equipment must be tested to project requirements and to the 3rd party equipment manufacturers instructions, such equipment may be connected to an alarm receiving centre.

FIRE PROTECTION EQUIPMENT (FPE)

There can be more than one loop interface unit in a Vigilon system configured for FPE operation. The interface unit is automatically placed into a Plant sector. Each interfaced fire protection equipment must be tested to project requirements and to the 3rd party equipment manufactures instructions, such equipment may be fire dampers, fixed fire fighting system, sprinkler system, smoke and heat control system.

ZONE ‘TEST’ MODE

The Zone Test mode is applicable for EN VIGILON Plus 4/6-loop panel and VIGILON Compact Plus panel only and is used when testing devices in a zone. It allows the engineer to test zones without having to return to the panel to silence alarms and reset the system.

While the panel is in the Zone test mode, following a fire event the alarms sound for 5 seconds and then the alarms are silenced automatically followed by a panel reset. The panel inhibits the operation of delay block functions, network functions, auxiliary and clean contact relay’s operation in Zone test mode.

- All zones of the system that are not in zone test mode will operate normally.
- To put the control panel into or out of the ‘zone test mode’: Press Menu On/Off button and select [Test/Eng] -> [UserCode] and enter the Engineering password, this need only be done if an Engineering password is set up. Press <etc> and select [Test] and then select [Zone] and [On] / [Off]. Now enter the zone number and select [Enter]. The ‘Test’ LED is lit if On is selected.

- NOTE: On entering the Test mode the local panel’s ‘Test LED’ will be lit and this event is displayed and logged at the local panel. Any other panels that are connected to the local panel to form a networked system, then these networked panels will only display a momentary message ‘Zone in Test Mode’ ‘Node X’ (where X is the local panel node Id). When the test mode is removed at the local panel then the networked panels will display a momentary message ‘Zone no longer in Test mode’.



On completion of all tests, switch Off the [Test] mode and notice the ‘Test’ LED also switches Off.

TESTING SELF TEST DETECTORS USING CLSS

The self-testing of optical sensor of a self test device is made possible by activating a paraffin aerosol (smoke) generator. A controlled amount of smoke is generated and then directed into the optical scatter chamber by a variable speed fan. The self-testing of heat sensor in the device is made possible by heating the thermistor.

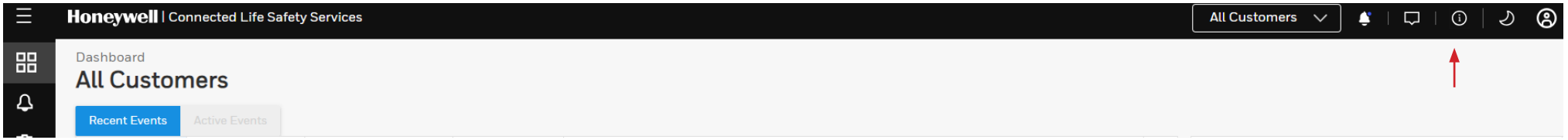
Service Mode

The Service Mode is a new access level controlled test feature within Vigilon Plus and Compact Plus system. It allows testing to be performed via the CLSS Gateway and CLSS App.

- This includes Self-Test, Zone-Test, C&E testing, Fire LED Test & the Visual Inspection with Bluetooth.
- Self-Test and Zone-Test do not operate outputs, therefore the panel does not need to be isolated like traditional testing.
- These new features include inspection prompts (configurable) to help identify which devices need to be functionally tested and/or visually inspected. The device LED's will extinguish when both are completed on a device.

The C&E testing does operate outputs so please be mindful when using the CLSS App it will ask the user to confirm they wish to proceed as a precautionary measure.

All CLSS App related user guides can be found in the help section ⓘ in CLSS Cloud Portal - site manager.



Prerequisites

- Self Test is performed with the Vigilon Plus panel in Service Mode
- Vigilon Plus panel must have MCC firmware at V4.61 or higher, with Self test devices wired to its loop circuits
- Log in is required to CLSS Cloud portal to get access to Customer, Site, Building and Vigilon plus panel having self test devices on its loop circuits
- Use CLSS App on a Mobile or Tablet device to initiate self test.

01 Put Vigilon panel in Service Mode + BLE.

02 Create a Test Plan using CLSS Cloud Portal.

03 Log into CLSS Mobile App.

04 Carry out Self Test and inspection of the ST Devices. At the end of test you can: END TEST WITH REPORT or END TEST.

05 Exit Service Mode at the panel

Refer to the End to End detailed self test process document.

FIRE SENSORS

1. When testing heat sensors DO NOT use a heat gun for the test in a hazardous environment.

2. Manufacturer recommended test equipment and methods must be used to fire test flame detectors connected via interface unit.

4. When smoke testing fire sensors using artificial smoke, avoid excessive spray to prevent accumulation of sticky residue on sensor, see instructions on the smoke canister. Ensure the 'Test mode' is used when performing smoke test on an S-Quad sensor

5. The beam sensors should be tested using obscuration filters to simulate smoke at the appropriate sensitivity STATE.

The BS5839:Part 1 recommends that all sensors are tested for correct operation.

- Unless otherwise instructed all sensors should be tested. Each Sensor should also be checked for any physical obstacles that would inhibit the operation of the sensor in the event of a fire.
- Each Sound and Speech part of the S-Quad and S-Cubed should output the correct signal at the appropriate volume level in accordance with the Standard requirements and to meet the site specific needs as agreed with the customer.
- The VAD/Strobe part of S-Quad and S-Cubed should operate at the required flash rate in the event of a fire and is not obstructed.
- Each fire sensor should be tested for correct operation in the event of fire.
- Each speech/sounder should be tested for correct operation in the event of fire.

Manual Call Points

Each call point should be tested for correct initiation of a fire event.

INTERFACE UNITS

1. In some instances it may not be possible to functionally test equipment (plant equipment) connected to input / output circuits off an interface unit.

2. Ensure the contact rating of interface output circuits are adequate for the plant equipment load requirement.

Plant equipment

- Tests should be carried out on the operation of plant equipment, like lift, escalator, door release, fire dampers, alarm quiet etc following customer consent. It may also be necessary to obtain third party consent.
- All tests on plant equipment should have been agreed during the project design stage.

Tests

Where tests are performed on a interface unit check each circuit failure is indicated at the control panel, such as:

- Battery disconnection*
- Mains supply disconnection*
- Input line open circuit and then short circuit
- Input line detector and MCP fire#
  Output line open circuit and then short circuit ~
- Output line operation ~

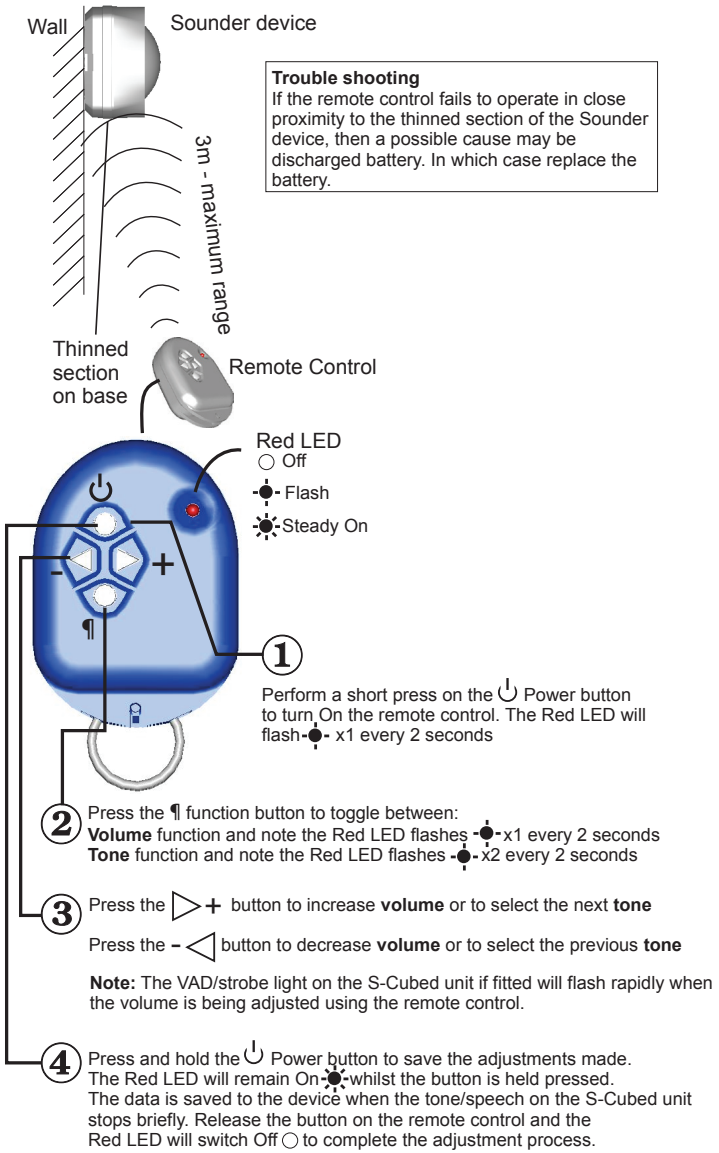
* - not applicable for the loop powered interface units.
# - a fire from a call point or detector connected to an interface input cannot be differentiated.
~ - the output of a single channel interface operates with sector and the output is a set of voltage free contacts, the contacts are not fault monitored.

Keyswitches

- Where the interface unit input is from a keyswitch, then the keyswitch should be configured for correct operation and tested as per project specification.
- Check on operating a keyswitch the confirmation LED, where applicable, is lit to show operation.

S CUBED

The remote control is only operable when the panel is in the Zone Test mode for an EN system or Commission mode for a BS system.



Trouble shooting
If the remote control fails to operate in close proximity to the thinned section of the Sounder device, then a possible cause may be discharged battery. In which case replace the battery.

- Depending on the type of S-Cubed device being commissioned check to ensure correct output sound tone, speech message and VAD/strobe rate are given. The S-Cubed devices should have been setup using the commissioning tool.
- The volume of the sounder S-Cubed device can be adjusted by using a remote control.
- Each S-Cubed should be tested for correct operation in the event of fire.
- The sound levels in the areas should be tested in accordance with the British Standard requirements and to meet the site specific needs, as agreed with the customer.

REPEAT PANEL (LOOP CONNECTED)

Each loop repeat panel should be tested for the following:

- System event messages and indications are given
- Local fault events, such as Battery and Mains supply disconnection
- Alarm controls & Cancel Buzzer operation is possible

MIMIC PANEL

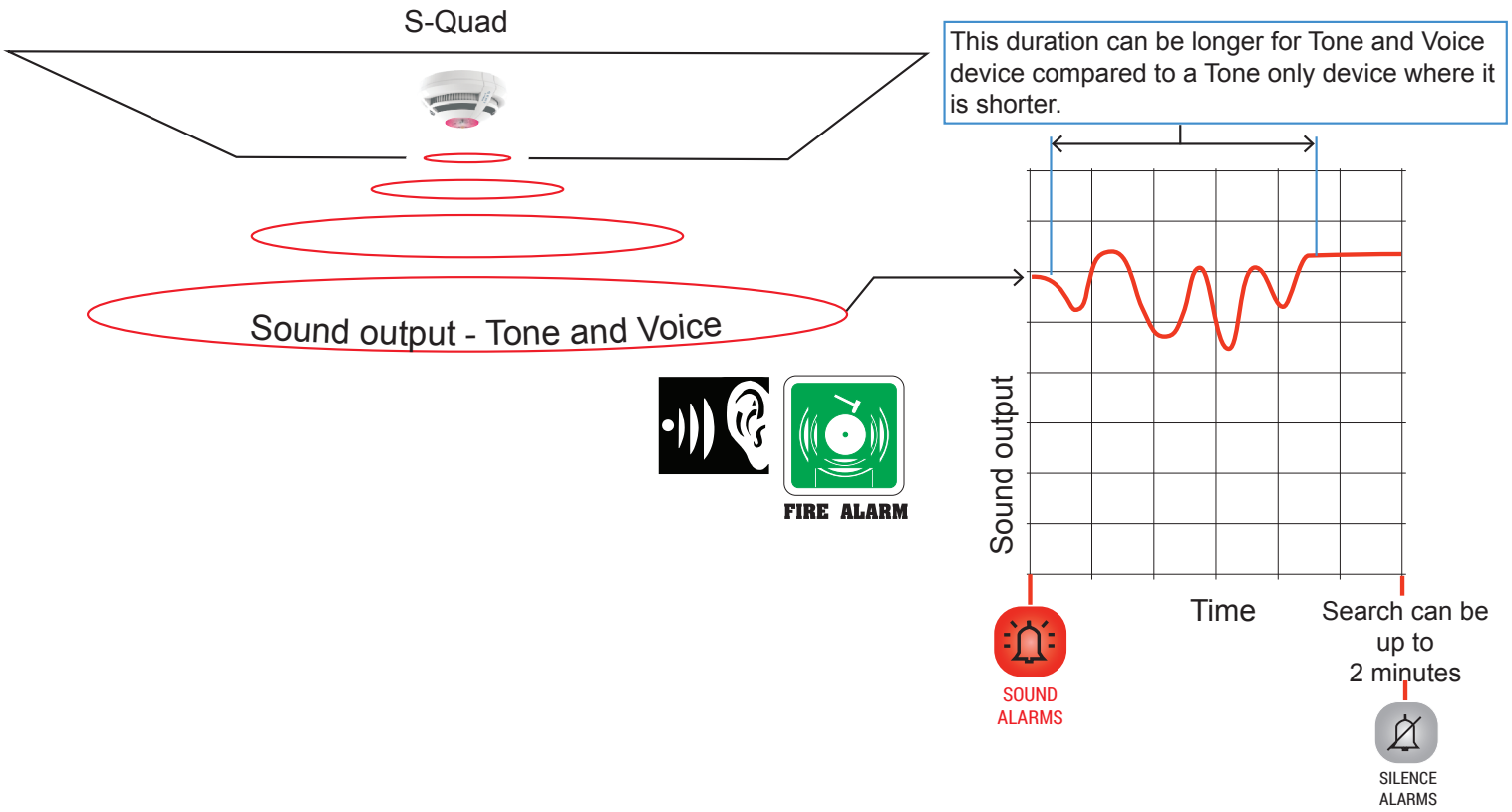
Each Mimic indicator panel should be configured and tested for the following:

- To confirm fires are indicated
- Local fault events, such as Battery and Mains supply disconnection
- Lamp Test can be performed on an A3 Mimic panel by pressing the button on the centre face of the unit.

RESONANCE SEARCH TEST

All the sounder and voice devices installed in a system are required to be switched on to sound for 2 minutes duration on completion of system commissioning. This is done so that the devices find their optimum resonance frequency for optimum sound output.

All the sounders in the system will switch ON during this test, so it is important to inform responsible persons these tests are happening.



To do this test from the Control panel press the SOUND ALARM button and then on completion after 2 minutes press the SILENCE ALARMS button.

During this test you will hear voice and tone devices in the system outputting varying sound/voice levels that will step up and down until their individual optimum resonance frequency is found.

This test must be performed when the system is first commissioned, extended with new devices and when loops are reset or reallocated.

If however only one device is replaced then the test may be performed on that device on its own.

DEVIATIONS FROM STANDARDS

- The results of system tests carried out must be in accordance with the relevant standards and project specification.
- Any deviations must be documented and reported for approval.

Vigilon Compact Plus Network

A VIGILON Compact Plus network can consist of a number of control panels and network nodes wired together in a secure loop. A secure loop is achieved by installation of a network card in each VIGILON Compact Plus panel and VIGILON Compact Plus Network Node to facilitate the network interconnection of panels and nodes.

Each standalone system is first commissioned before being networked together with other panels and nodes.

The network commissioning process involves systematic introduction of each standalone system to the network with tests to ensure the network is working.

The whole networked system is then configured and tested to ensure alarms and global controls operate to site requirements.

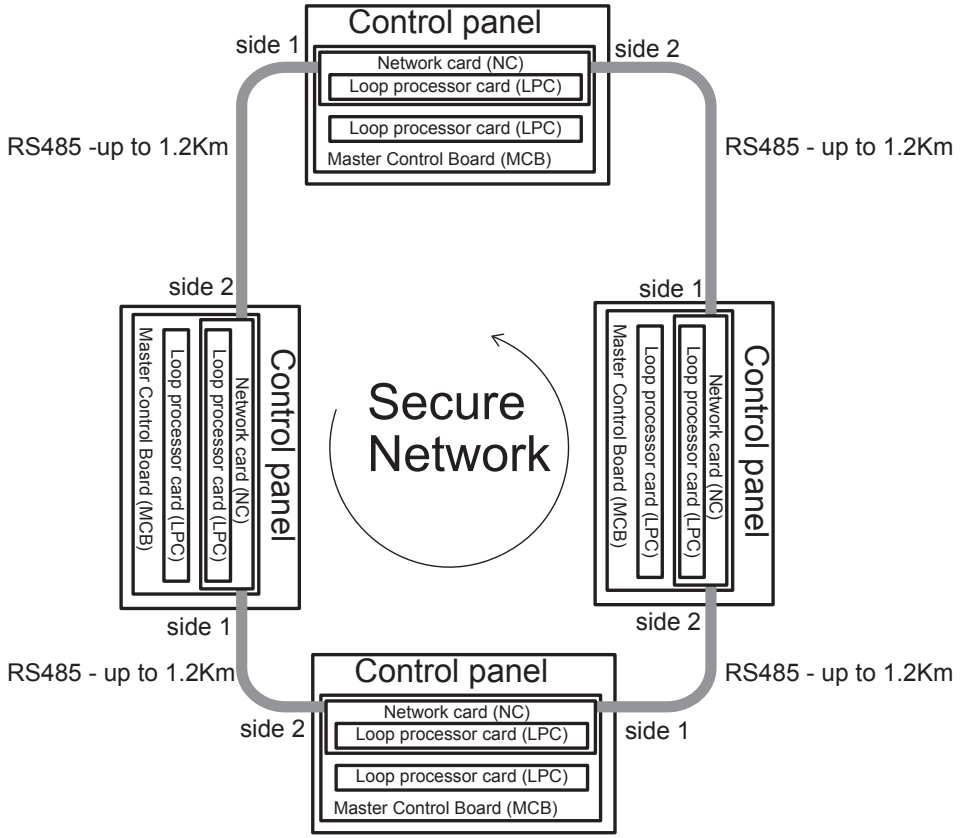
When setting the address switches on the 'network card', ensure the network controller which can be the network node or panel is given the lowest address.

A network controller is a node that can be connected to a Central monitoring system.

All panels in a networked system must operate at the same baud rate, normally this is 38.4K where copper network card is being used.

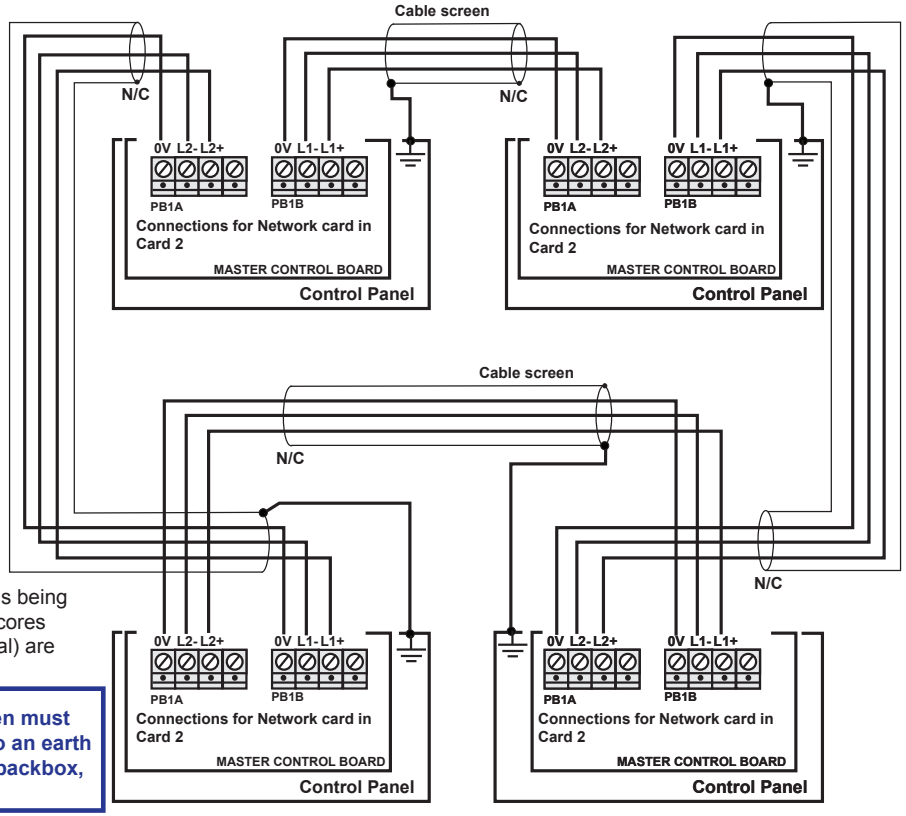
SINGLE NETWORK

- Each standalone system must first be fully commissioned individually.
- Check that the correct cable is used to wire the network, the installer's manual lists all the approved cables.



WIRING THE SINGLE NETWORK

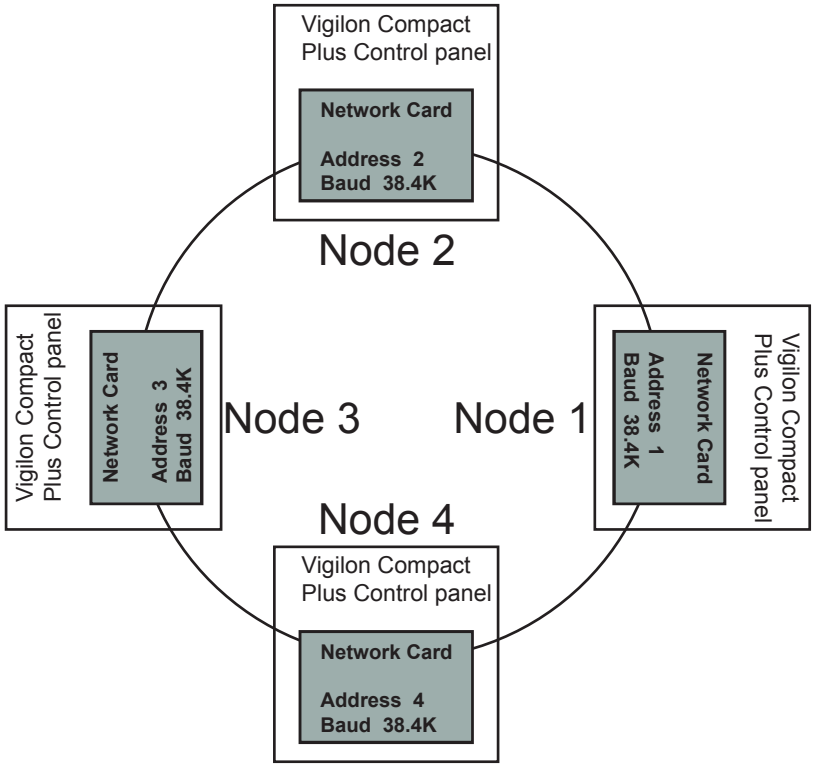
N/C = No connection



Where a multicore cable is being used ensure the unused cores (those cores without signal) are connected to 0V.

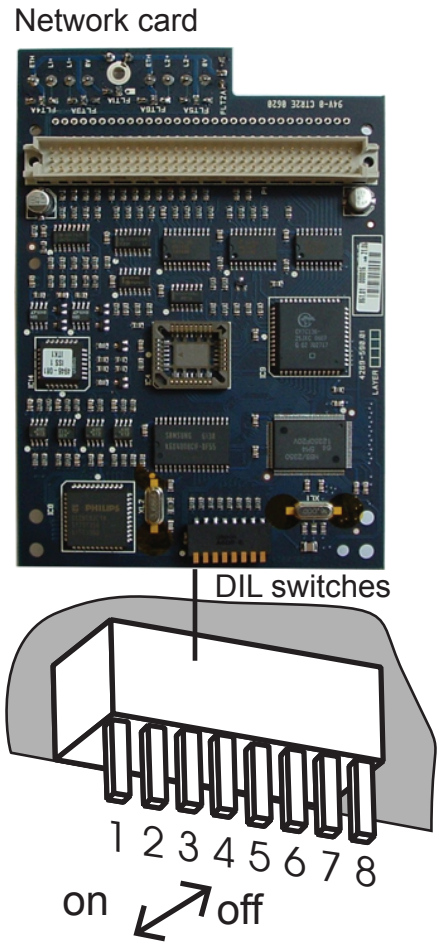
The cable screen must be connected to an earth terminal in the backbox, as shown.

SINGLE NETWORK WITHOUT DOMAIN BRIDGE



NETWORK CARD FOR COMPACT PLUS - BAUD AND NODE ADDRESS SWITCH SETTINGS

The copper network card for use in a Vigilon Compact Plus panel is factory set to 38.4K baud with node address 4. Both node address and Baud rate can be changed to another setting by configuring the switches on the Network card.



Node address							Baud rate		
	8	7	6	5	4	3	2	1	
64	off	off	off	off	off	off	off	off	2400
1	on	off	off	off	off	off	on	off	9600
2	off	on	off	off	off	off	off	on	19.2K
3	on	on	off	off	off	off	on	on	38.4K
4	off	off	on	off	off	off			
4	off	off	on	off	off	off			
	Address						Baud		
	- factory settings								

POWERING-UP THE NETWORK

Add one panel at a time starting from the network controller (Node 1) at side 1.

- For each panel powered-up the network controller will automatically try to establish communication with the connected equipment.
- The network controller will display the status of the network as being started, secure or non-secure and from now on will monitor and control the network communications.
- Use disable comms to isolate a panel from the rest of the network, ie it operates at the network card in an echo mode, select Menu On/Off -> [Control] -> [Disable] -> [Comms] and enter the Network Card, always card 10 on a Compact plus panel and Card 6 on a Vigilon plus panel.

HOW TO CHECK A NETWORK MAP

Using the Menu On/Off -> [Info] -> [Map] -> [NetMap] option to enter the network card address 10 on a Compact plus panel and Card 6 on a Vigilon plus panel.

The display will provide a list in cabling order the addresses of panels in the networked system.

These are examples of different networks. The lowest address '1' has been given to the network controller.

```
Map information for Network at card 6
Nodes on side 1
1  9  7  6  5
Nodes on side 2
1  3
```

This example shows the network is not secure

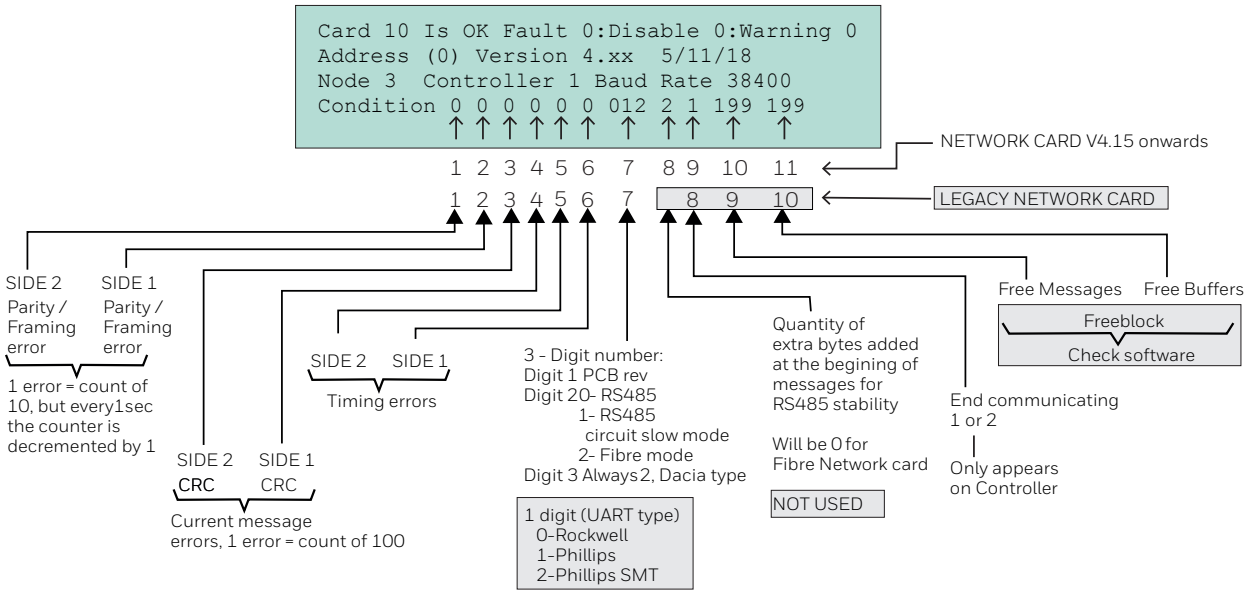
```
Map information for Network at card 6
Nodes on side 1
1  9  7  6  5  3  1
Nodes on side 2
```

This example shows the network is secure

HOW TO CHECK NETWORK CARD STATUS

Using the Menu On/Off -> [Info] -> [Status] -> [Card] and enter Network Card number, always card 10 on a Compact plus panel. The display will confirm:

- the address of the network card
- the address of network controller
- and a set of condition codes



Errors	meaning
Parity	Parity is incorrect, data corrupted.
Framing	8- bit transmitted incorrectly and the data line does not return to logic 1 at the end of the transmission.
CRC	Cyclic redundancy code. When a message consisting of a number of 8 bit transmissions is sent, a calculation is carried out to check that data corruption has not occurred.
Time out error	Where an 8 bit transmission block is not fully received, the network card will time out ready to receive the next message. A time out error will also be generated for each parity/ framing error.
Freeblock	Free memory blocks available to temporarily store messages waiting to be processed. The maximum number = 199, although it may drop as low as 175 - 180 on a highly populated network. A lower value may indicate a high error value and will require rectification.

FAULT FINDING

- The communication path in a secure network will alternate between end 1 (side 1) and end 2 (side 2) every minute.
- The network will be non secure until the last panel is connected and powered-up.

HIGH ERRORS

- Check cable lengths and type used.
- Check wiring, connections and earthing arrangements. Check the network cable is correctly earthed to the equipment.
- Replace network card at point of failure, where required.
- Check the addresses and baud rates of the network cards of all the networked panels.
- It may be necessary to investigate and look at the noise voltage between conductors, screen and earth.

> Always reset the Network Card first when rechecking for errors, using [Test/Eng] -> [Card] ->[Reset] -> Network Card number, Card 10 on a Vigilon Compact Plus panel and select [E].

On completion of the above the networked system may now be configured for network operation, ie for master sectors and global controls to be actioned as per site requirements.

Single Vigilon Plus Network

A VIGILON Plus network consists of a number of control panels of standalone systems and network nodes wired together in a secure loop using copper or fibre network cards.

A secure loop is achieved by installation of a copper or fibre network card in each VIGILON Plus panel and VIGILON Plus Network Node to facilitate the interconnection of panels and nodes. Each standalone system is first commissioned before being networked together with other panels and nodes.

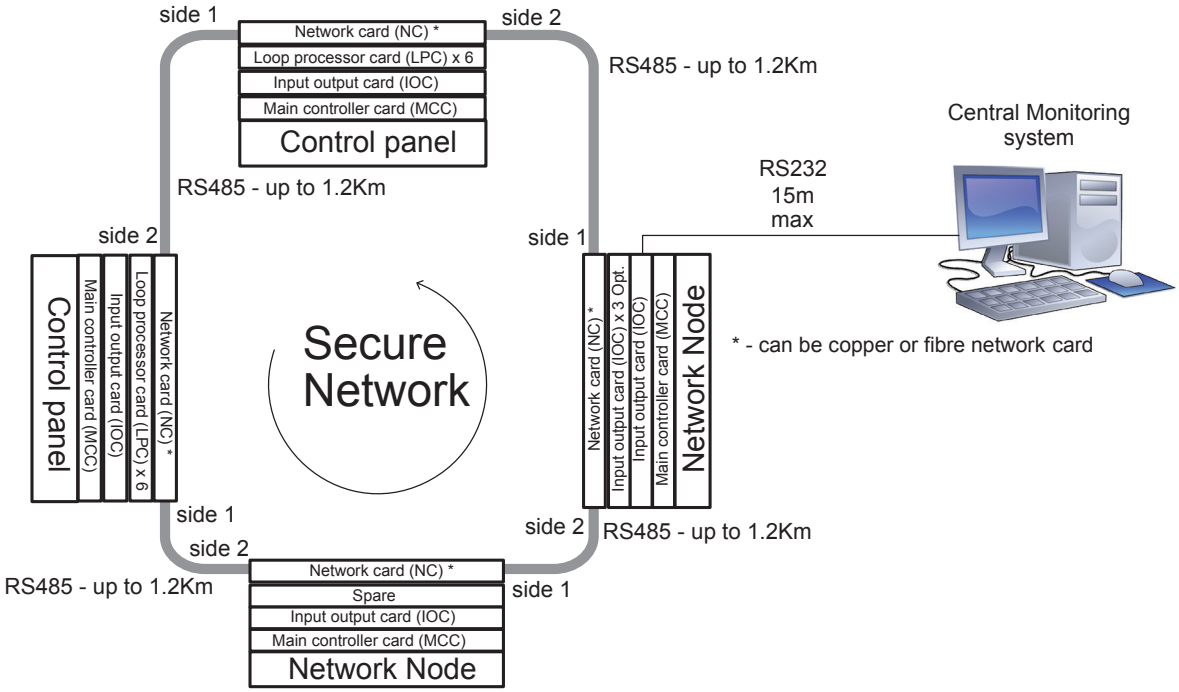
The commissioning involves systematic introduction of each standalone system to the network and tests to ensure the network is working.

The whole networked system is then configured and tested to ensure alarms and global controls operate to site requirements.

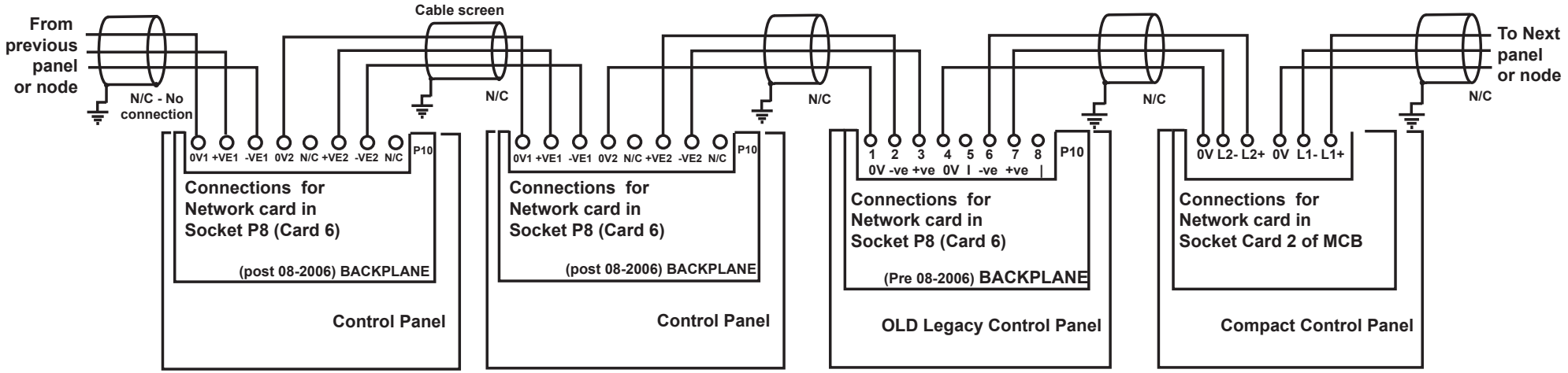
> When setting the address switches on the 'network card', ensure the network controller is given the lowest address.
>
> A network controller is a node/panel that can be connected to a Central monitoring system.
>
> All panels in a networked system must operate at the same baud rate, normally this value is 38.4K where copper network cards are being used and 115.2K where Fibre network cards are being used.

SINGLE NETWORK

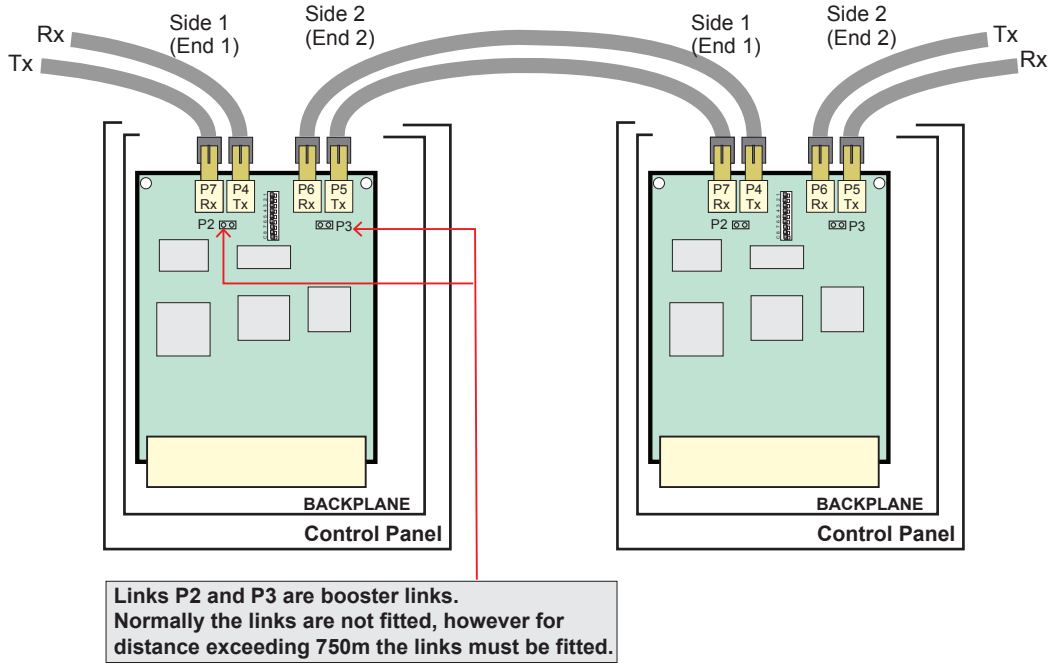
- Each standalone system must first be fully commissioned individually.
- Check that the correct cable is used to wire the network.



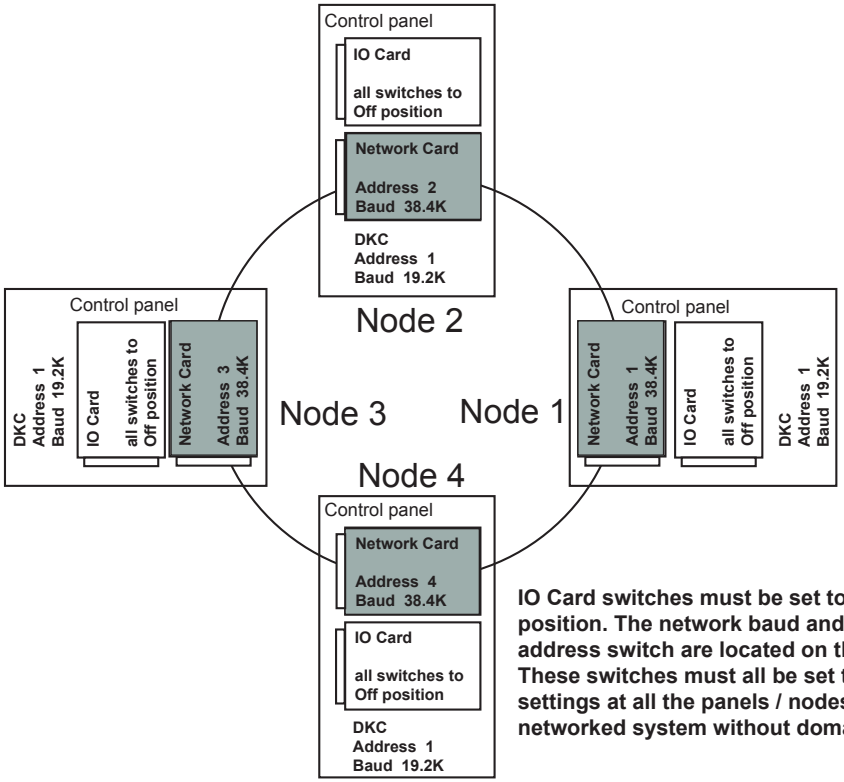
WIRING A COPPER NETWORK



WIRING A FIBRE NETWORK



SINGLE NETWORK WITHOUT DOMAIN BRIDGE



IO Card switches must be set to the Off position. The network baud and domain address switch are located on the DKC. These switches must all be set to the same settings at all the panels / nodes in a single networked system without domain bridge.

POWERING-UP THE NETWORK

Add one panel at a time starting from the network controller, adding one panel/ node at a time to side 1.

> It can take a few minutes for the system map to update.

- For each panel powered-up the network controller will automatically try to establish communication with the connected equipment.
- The network controller will display the status of the network as being started, secure or non-secure and from now on will monitor and control the network communications.
- Use disable comms to isolate a panel from the rest of the network, ie it operates at the network card in an echo mode, select Menu On/Off -> [Control] -> [Disable] -> [Comms] and enter the Network Card number, Network Card 6 if Copper or 5 if Fibre on a Vigilon Plus panel.

HOW TO CHECK A NETWORK MAP

Using the Menu On/Off -> [Info] -> [Map] -> [NetMap] menu, enter the network card address, usually Card 6 # and select [Enter].
Network Card 6 if copper card or card 5 if fibre card on a Vigilon Plus panel.

The display will provide a list in cabling order the addresses of panels/nodes in the networked system.

Here are examples of different networks. The lowest address '1' is normally the network controller.

Nodes on side 1 of a SECURE NETWORK

1	10	4	24	3	6	2	22	7	23	1

Nodes on side 1 of a NON-SECURE NETWORK

1	10	4	24	3	6	

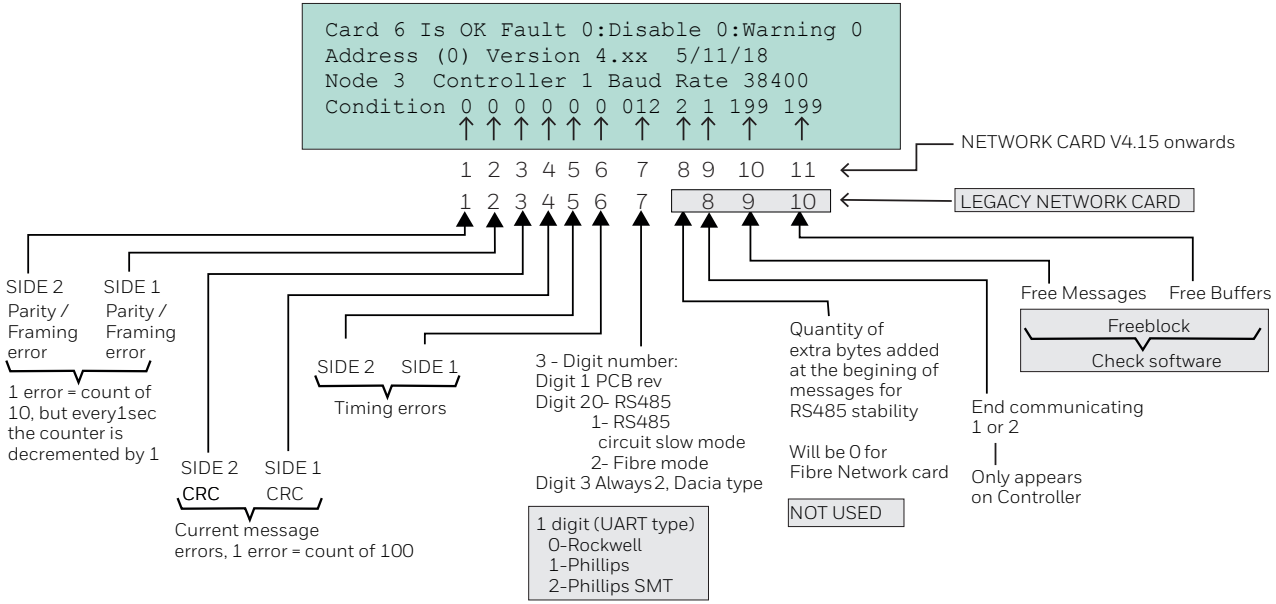
Nodes on side 2 of a NON-SECURE NETWORK

1	23	7	22	2	

HOW TO CHECK NETWORK CARD STATUS

Using the Menu On/Off -> [Info] -> [Status] -> [Card] and enter the network card number, usually this is card number 6 if copper card or number 5 if Fibre card and then select [Enter]. The display will confirm:

- address of the network card
- address of network controller
- and a set of condition codes



Errors	meaning
Parity	Parity is incorrect, data corrupted.
Framing	8- bit transmitted incorrectly and the data line does not return to logic 1 at the end of the transmission.
CRC	Cyclic redundancy code. When a message consisting of a number of 8 bit transmissions is sent, a calculation is carried out to check that data corruption has not occurred.
Time out error	Where an 8 bit transmission block is not fully received, the network card will time out ready to receive the next message. A time out error will also be generated for each parity/ framing error.
Freeblock	Free memory blocks available to temporarily store messages waiting to be processed. The maximum number = 199, although it may drop as low as 175 - 180 on a highly populated network. A lower value may indicate a high error value and will require rectification.

FAULT FINDING

- The communication path in a secure network will alternate between end 1 (side 1) and end 2 (side 2) every minute.
- The network will be non secure until the last panel is connected and powered-up.

HIGH ERRORS

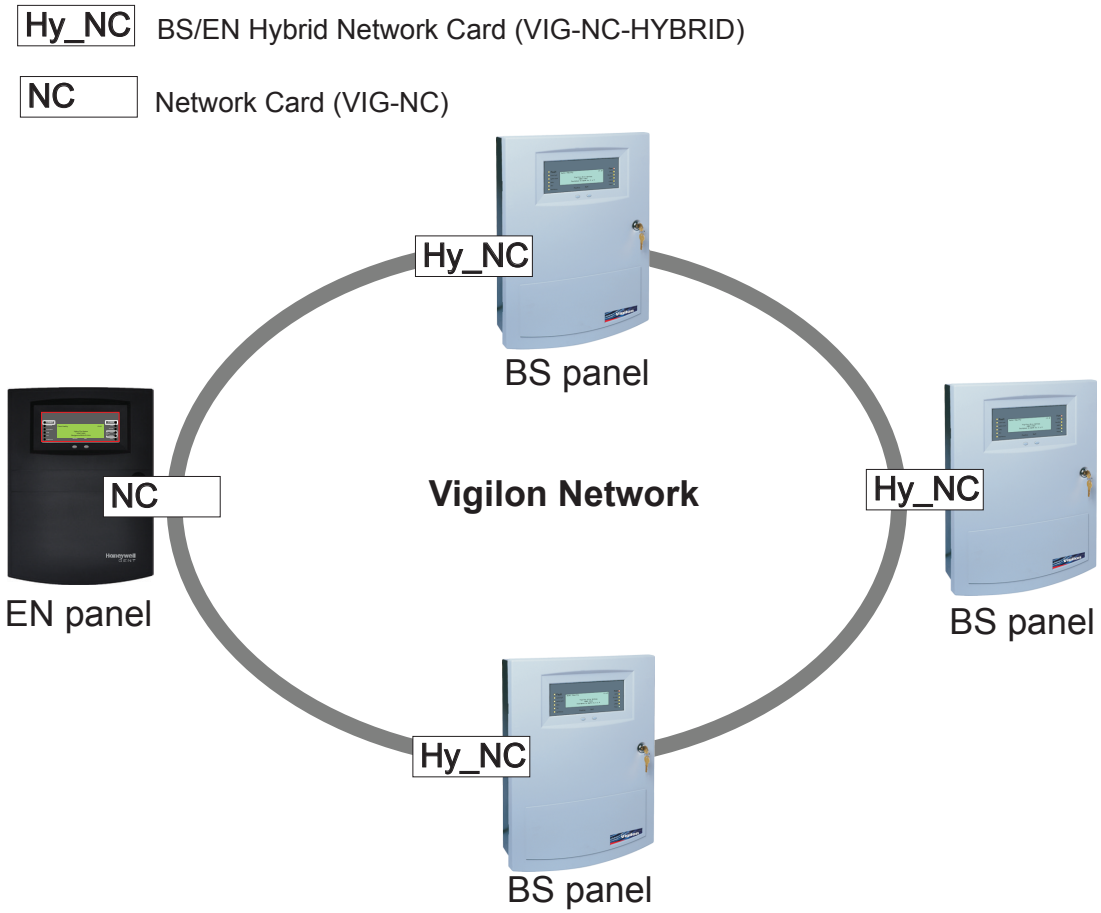
- Check cable lengths and type used.
- Check wiring, connections and earthing arrangements. Check the network cable is correctly earthed to the equipment.
- Replace network card at point of failure, where required.
- Check the addresses and baud rates of the network cards of all the networked panels.
- It may be necessary to investigate and look at the noise voltage between conductors, screen and earth.

> Always reset the Network Card first when rechecking for errors, using [Test/Eng] -> [Card] ->[Reset] -> Network Card number, normally Card 6 (copper) / 5 (fibre) on Vigilon plus panel and select [E].

On completion of the above the networked system may now be configured for network operation, ie for master sectors and global controls to be actioned as per site requirements.

Hybrid Network

The Vigilon network can make use of Hybrid EN/BS Network card (VIG-NC-HYBRID) installed in BS networked panels where controlled introduction of EN panels is required. The use of this card permits EN panels to co-exist with BS panels while keeping the network functionality.

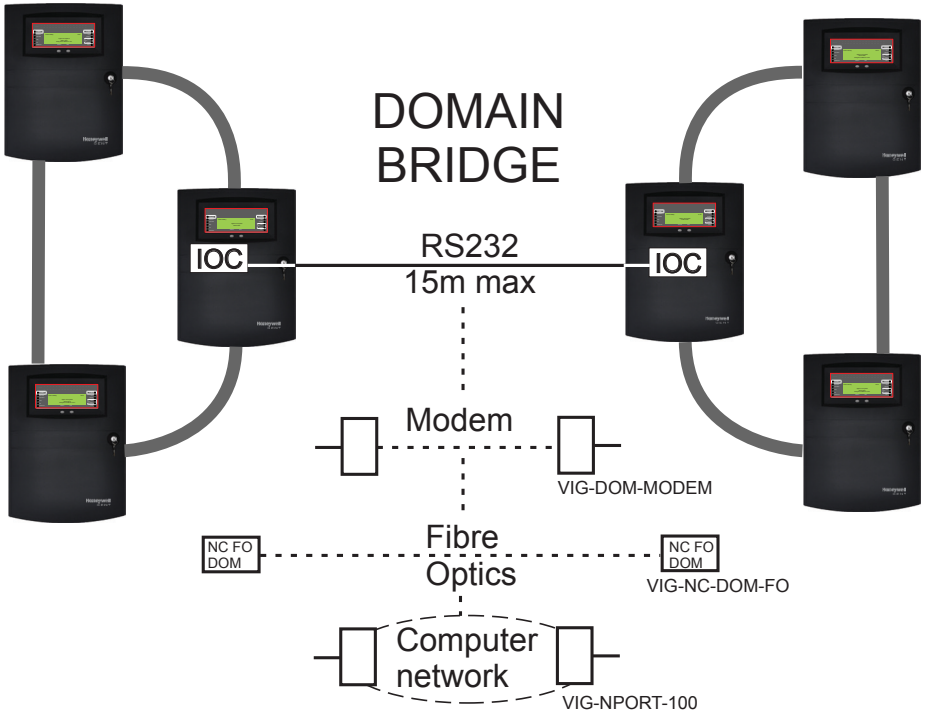


Multiple Vigilon Plus Networks

DOMAIN BRIDGE USING INPUT OUTPUT CARD

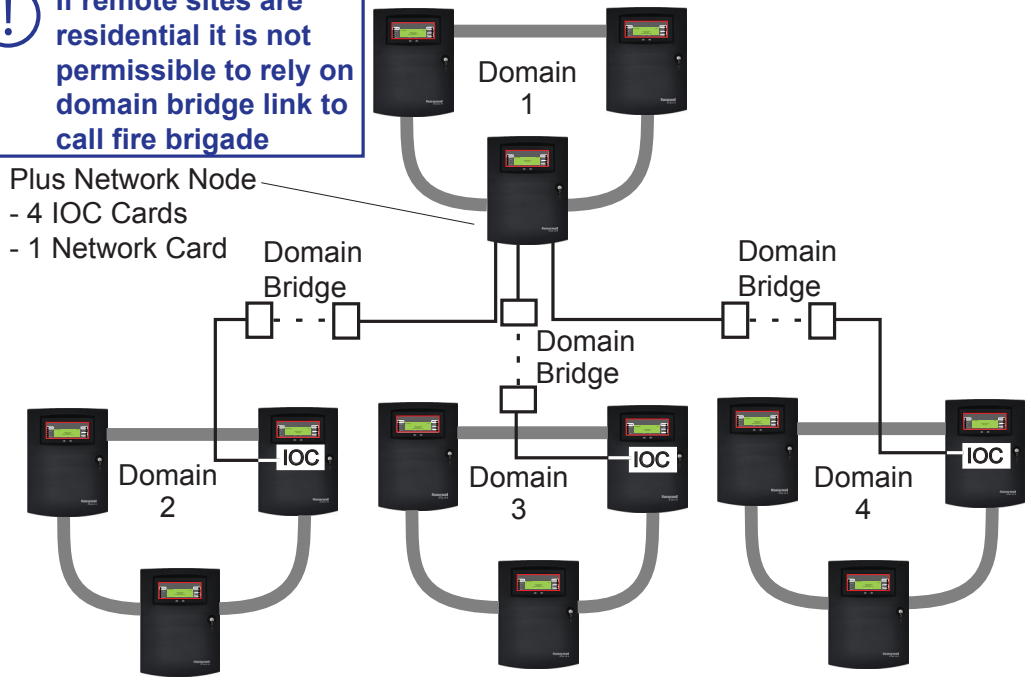
Two or more VIGILON Plus networks can be connected together at domain bridge IO cards by having a direct RS232 connection, Modems, Fibre Optics units or NPORT units. This allows the display of events at any control panel/ Network node in the connected networks.

Two networks using Domain bridge IO card

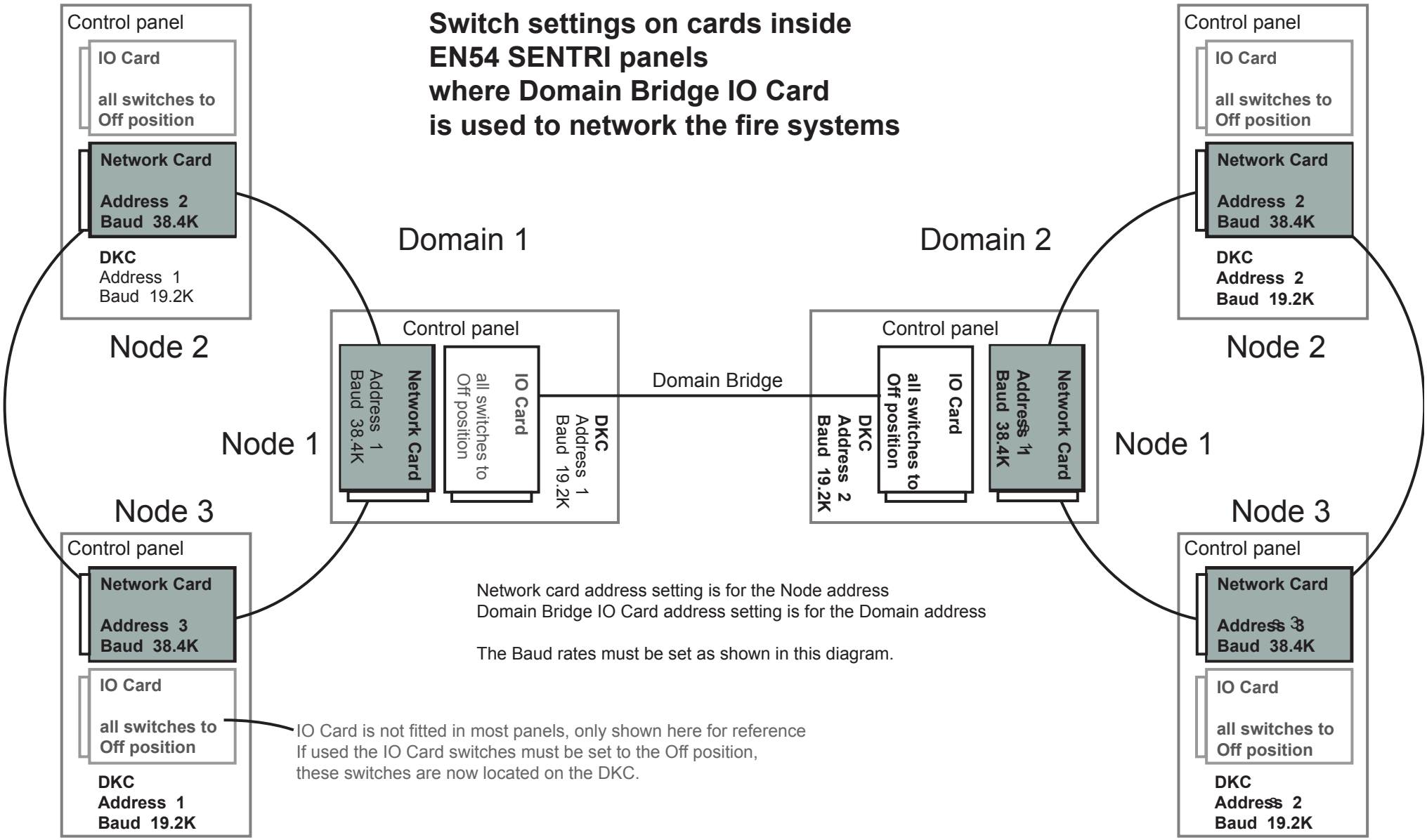


STAR NETWORK USING DOMAIN BRIDGE IO CARDS

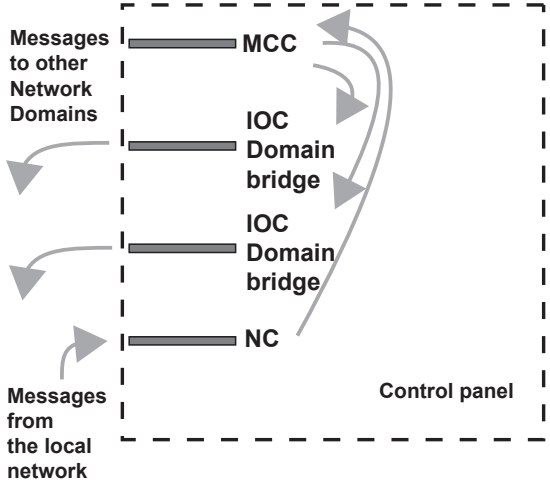
If remote sites are residential it is not permissible to rely on domain bridge link to call fire brigade

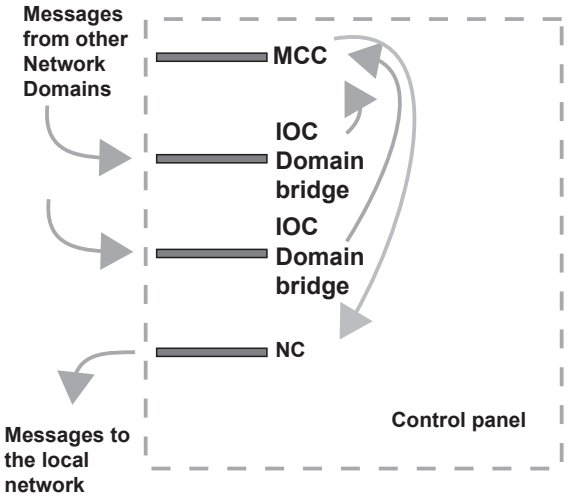


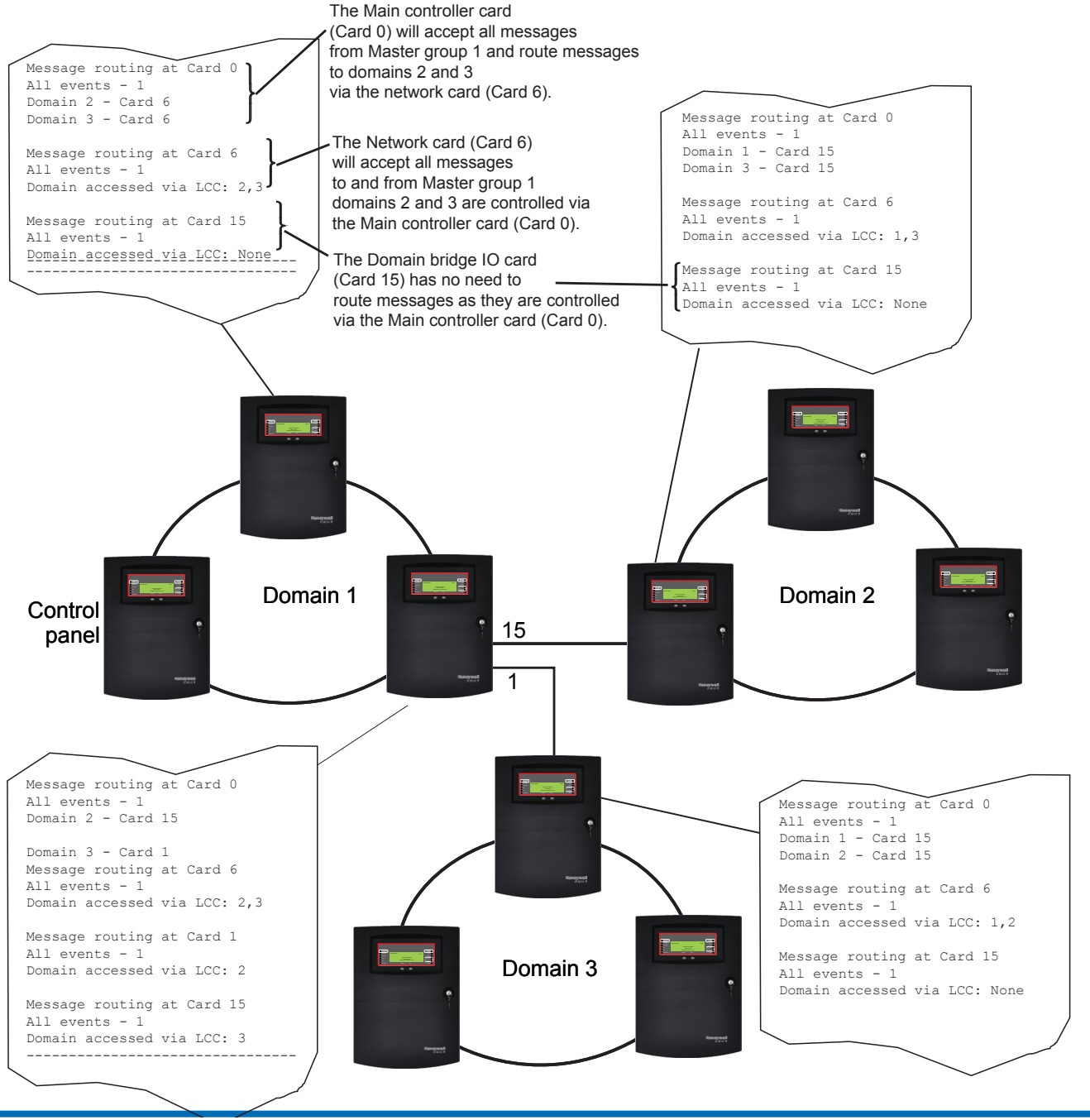
IO DOMAIN BRIDGE NETWORK SWITCH SETTINGS



MESSAGE ROUTING







DOMAIN BRIDGE MESSAGE PASSING TESTS

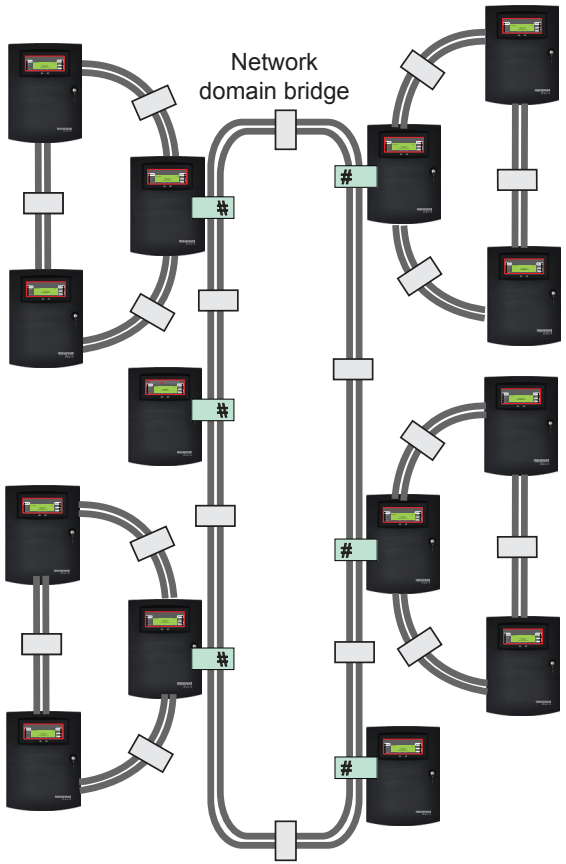
To check the domain bridge connections and to ensure messages can be passed between networks the following must be done.

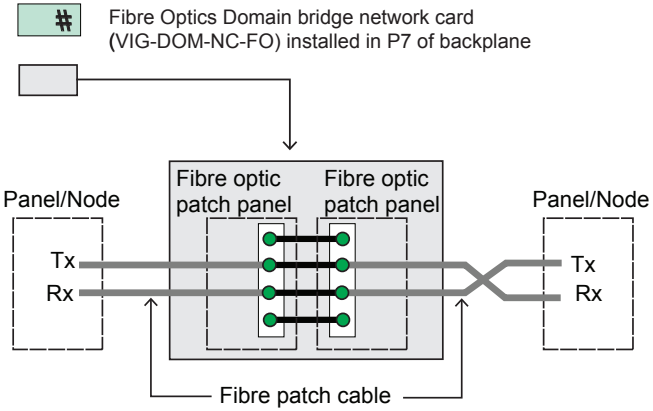
Trigger an event in a network, such as a fault.

- Check the event is passed on to the connecting networks and is displayed at the networked control panels
- Repeat the test at each network to establish message passing between networks
- Finally back up the cards of the panel including the Network card and IO card to the Memory. This ensures the panels of each network knows the location of network controller, ie the domain bridge connection point.

DOMAIN BRIDGE USING FIBRE OPTIC NETWORK CARD

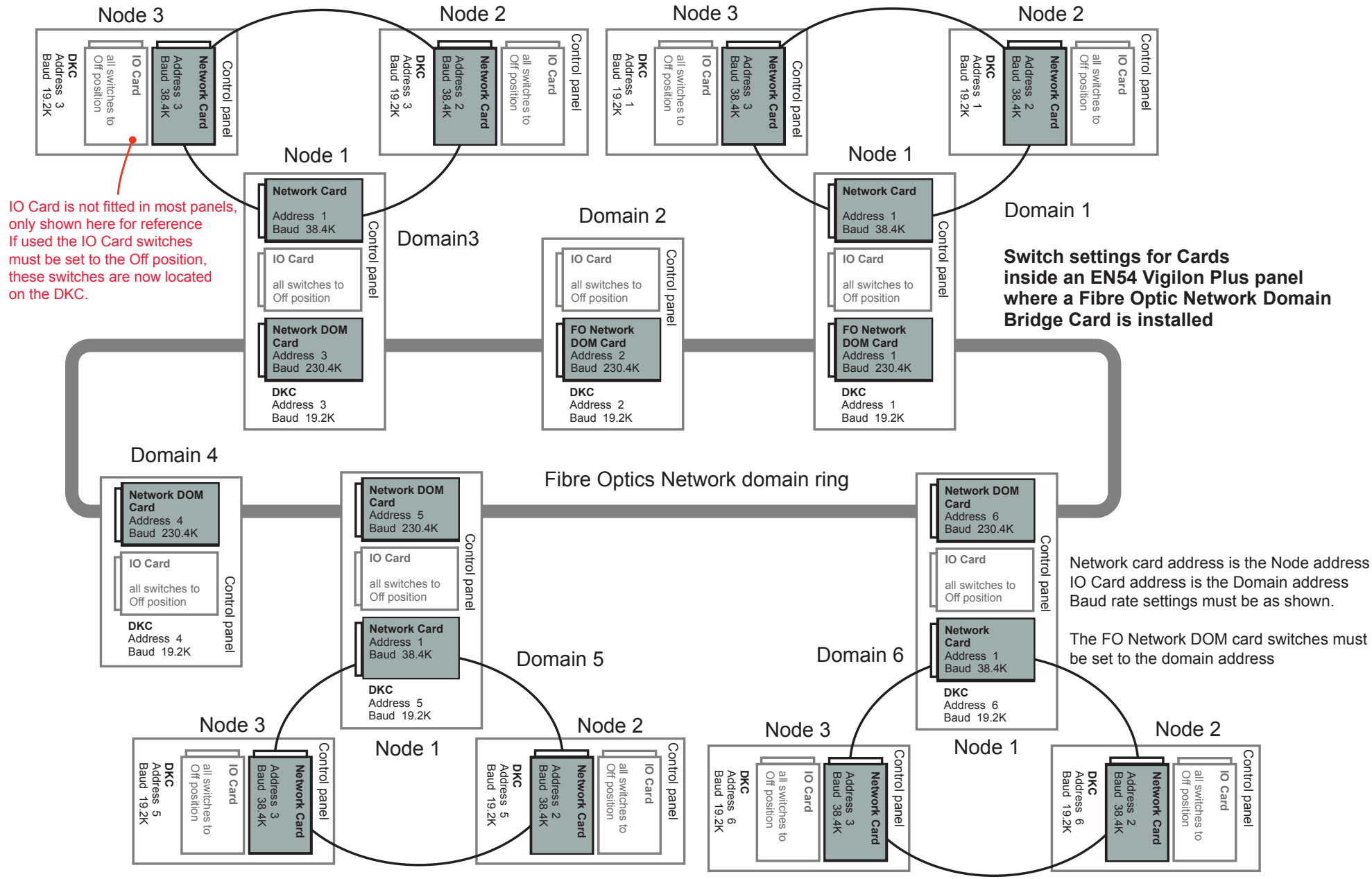
Up to 64 small VIGILON Plus networks can be connected together in a secure loop by using domain bridge fibre optics network card (VIG-NC-DOM-FO), with the card installed in Card 5* of the backplane. This allows the display of events at any control panel in the connected networks. (* can be Card 6, 5 or 15 on a Vigilon plus panel and Card 10 only which can only be a Copper network card on a Vigilon Compact Plus panel)





The above diagram shows small fibre networks connected together by a fibre network domain. It is equally possible to mix small copper networks and small fibre networks together in the manner shown above to a network domain.

FO DOMAIN NETWORK SWITCH SETTINGS

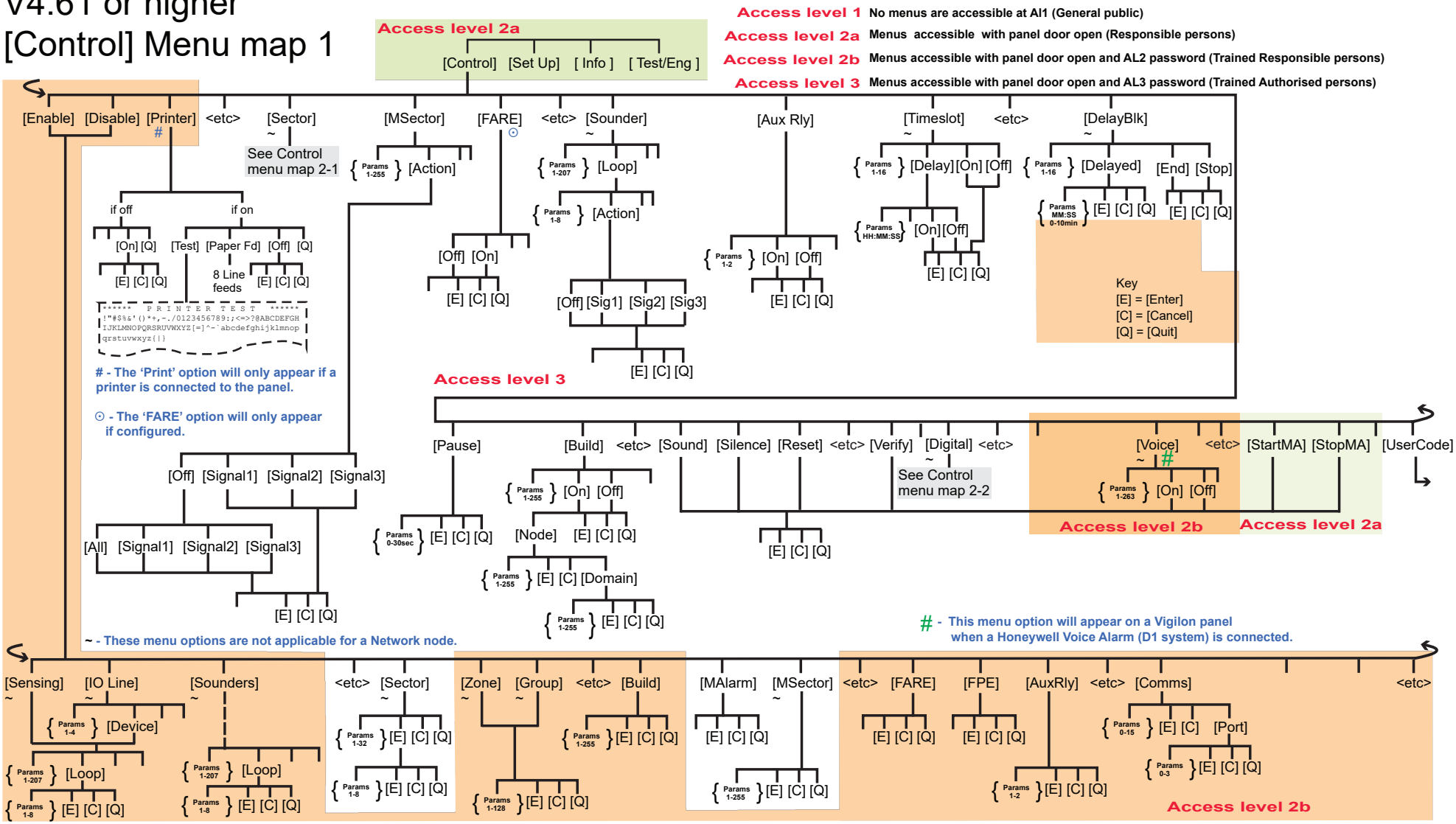


Appendix A - Menu maps for EN54 (V4) Vigilon Plus

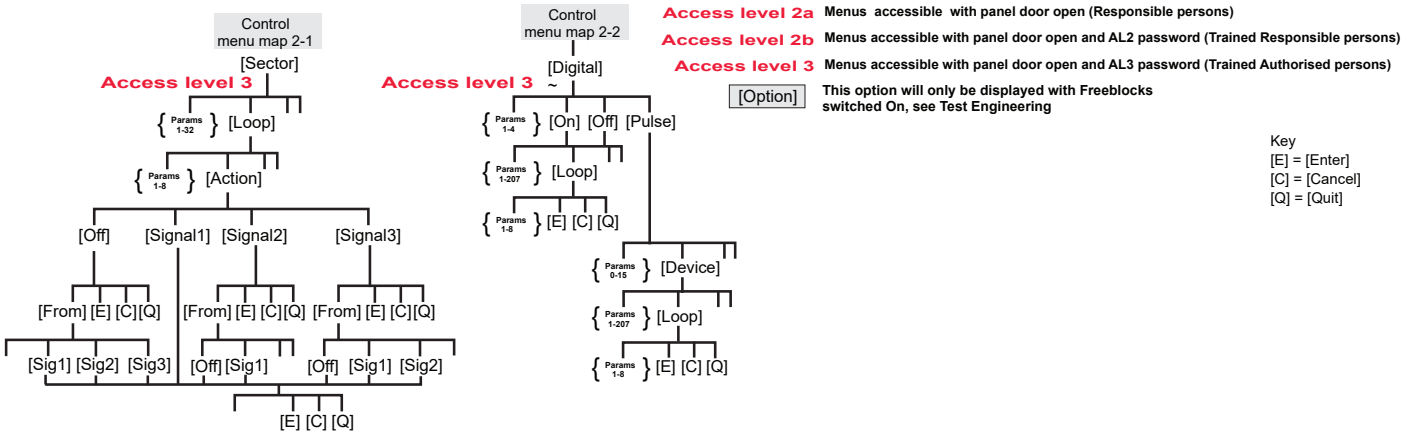
The menu options [Control], [SetUp], [Info] and [Test/Eng] are accessible on pressing the MENU ON/OFF button.

MENU MAPS

EN Vigilon Plus Control panel with MCC/MCB at V4.61 or higher
[Control] Menu map 1



EN Vigilon Plus Control panel with MCC/MCB at V4.61 or higher
[Control] Menu map 2-1 to 2-2



Access level 1 No menus are accessible at Al1 (General public)

Access level 2a Menus accessible with panel door open (Responsible persons)

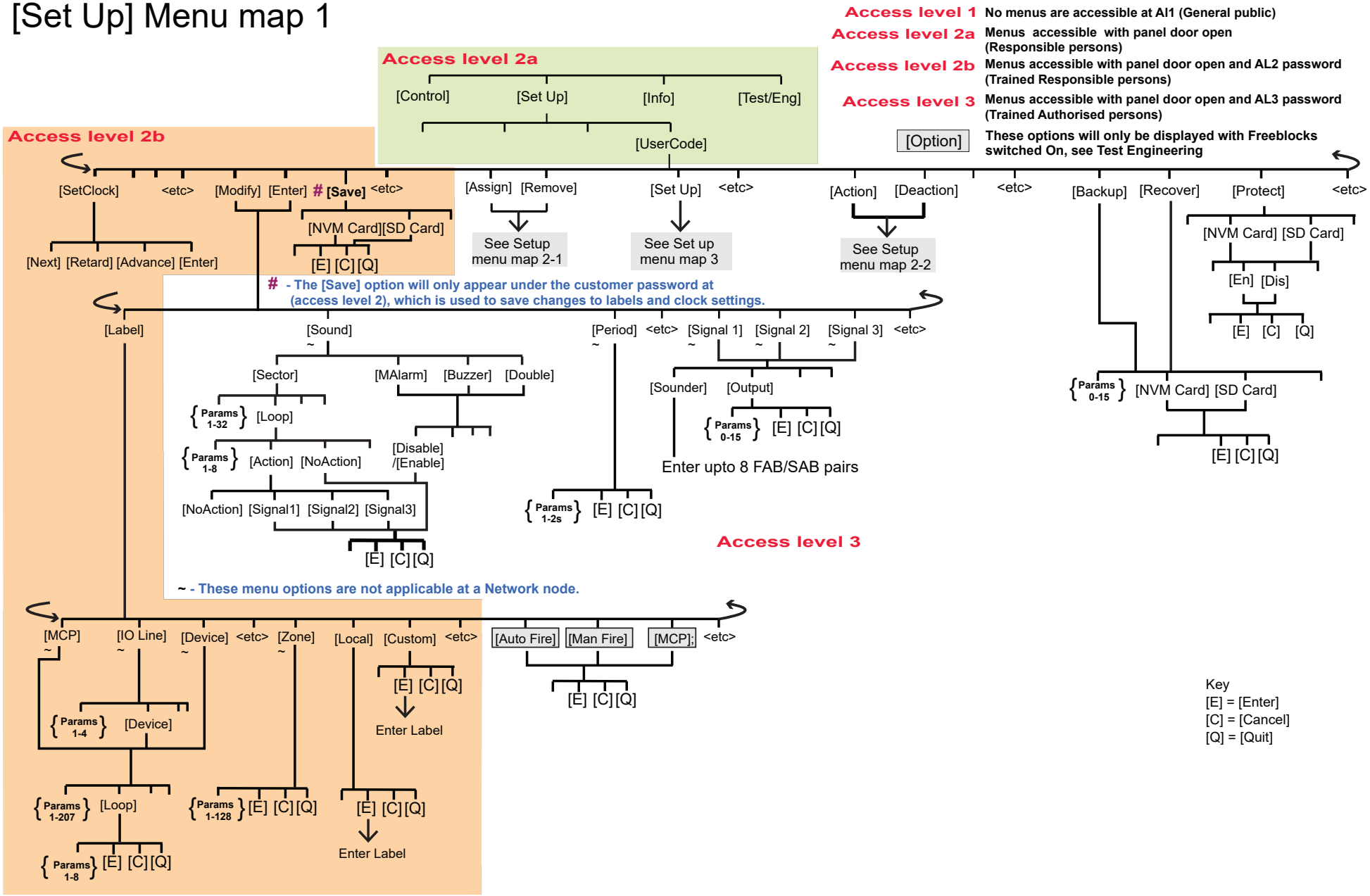
Access level 2b Menus accessible with panel door open and AL2 password (Trained Responsible persons)

Access level 3 Menus accessible with panel door open and AL3 password (Trained Authorised persons)

[Option] **This option will only be displayed with Freeblocks switched On, see Test Engineering**

Key
[E] = [Enter]
[C] = [Cancel]
[Q] = [Quit]

EN Vigilon Plus Control panel with MCC/MCB at V4.61 or higher
[Set Up] Menu map 1



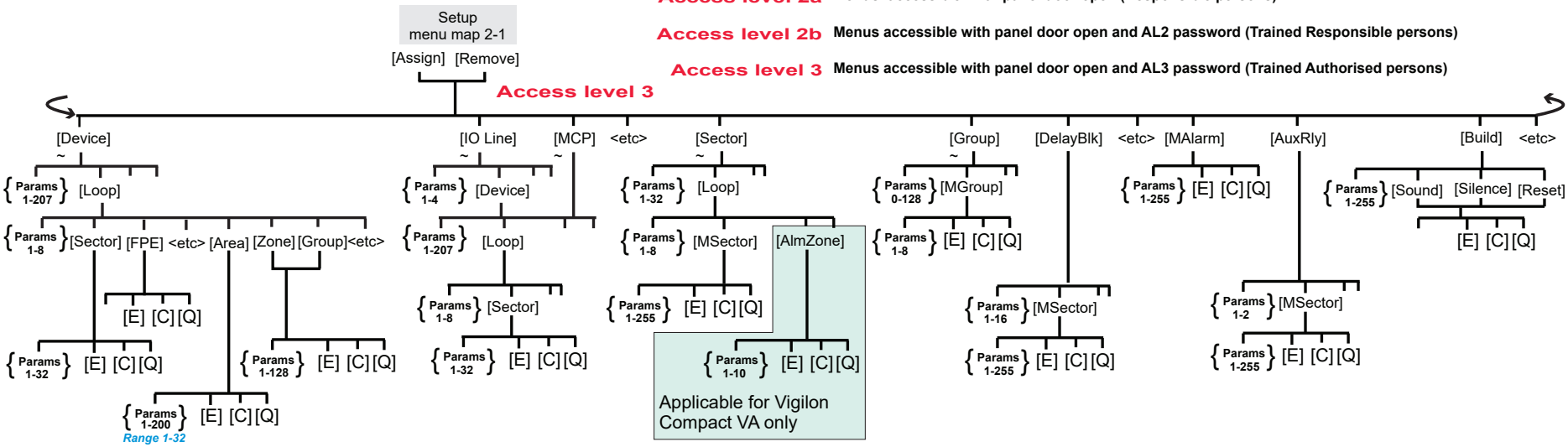
EN Vigilon Plus Control panel with MCC/MCB at V4.61 or higher
[Set Up] Menu map 2-1 and 2-2

Access level 1 No menus are accessible at Al1 (General public)

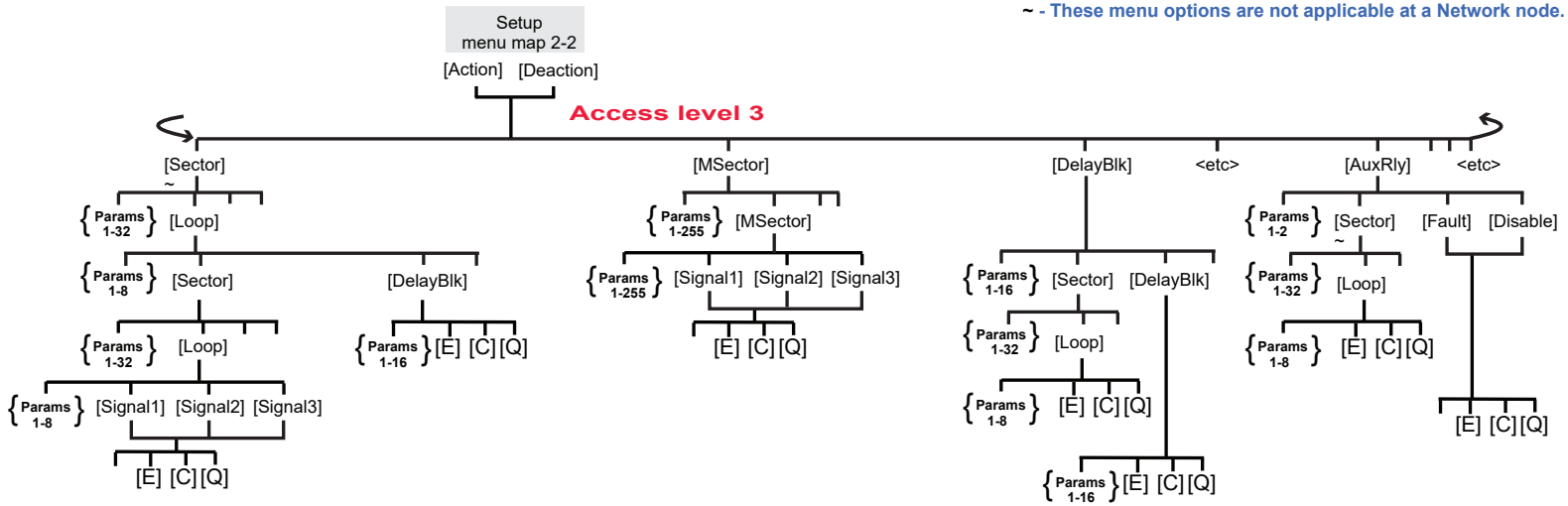
Access level 2a Menus accessible with panel door open (Responsible persons)

Access level 2b Menus accessible with panel door open and AL2 password (Trained Responsible persons)

Access level 3 Menus accessible with panel door open and AL3 password (Trained Authorised persons)



~ - These menu options are not applicable at a Network node.



Key
[E] = [Enter]
[C] = [Cancel]
[Q] = [Quit]

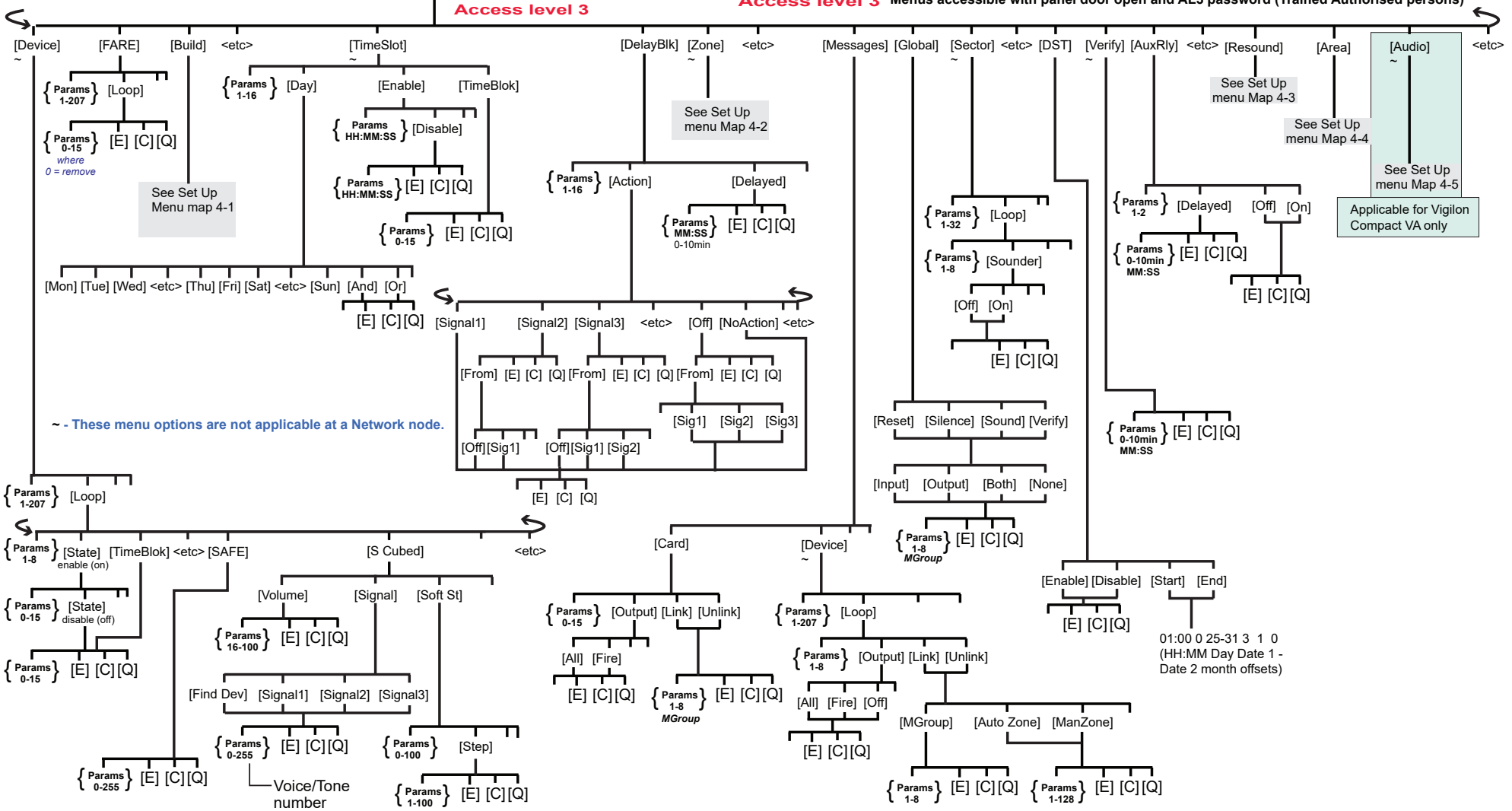
EN Vigilon Plus Control panel with MCC/MCB at V4.61 or higher
[Set Up] Menu map 3

Access level 1 — No menus are accessible at Al1 (General public)

Access level 2a — Menus accessible with panel door open (Responsible persons)

Access level 2b — Menus accessible with panel door open and AL2 password (Trained Responsible persons)

Access level 3 — Menus accessible with panel door open and AL3 password (Trained Authorised persons)



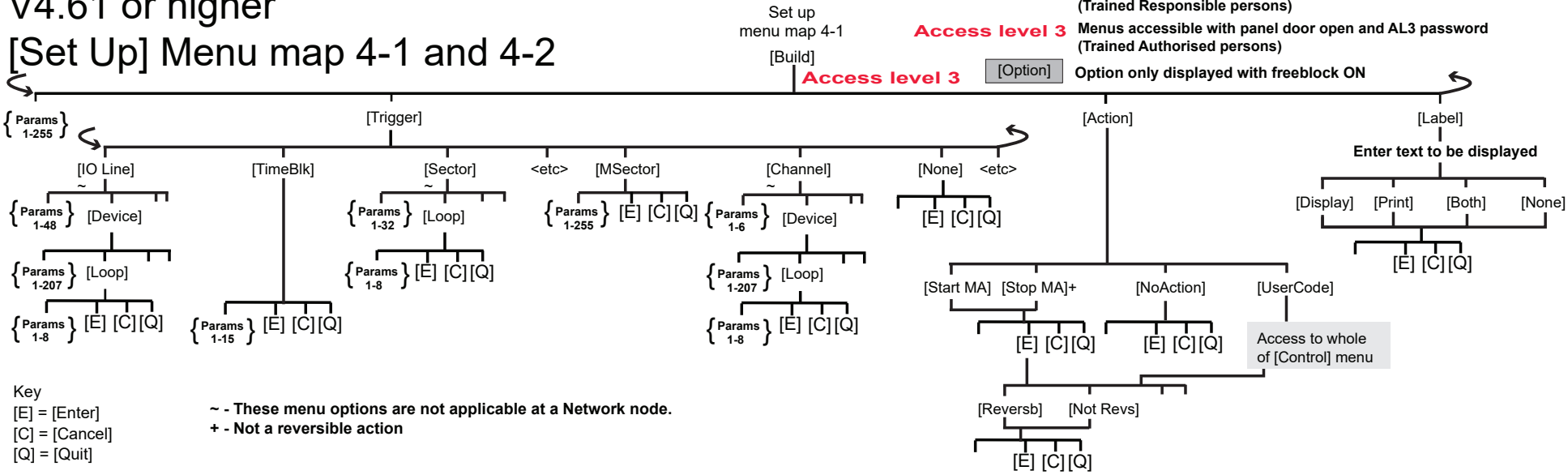
EN Vigilon Plus Control panel with MCC/MCB at V4.61 or higher
[Set Up] Menu map 4-1 and 4-2

Access level 1 No menus are accessible at AI1 (General public)

Access level 2a Menus accessible with panel door open (Responsible persons)

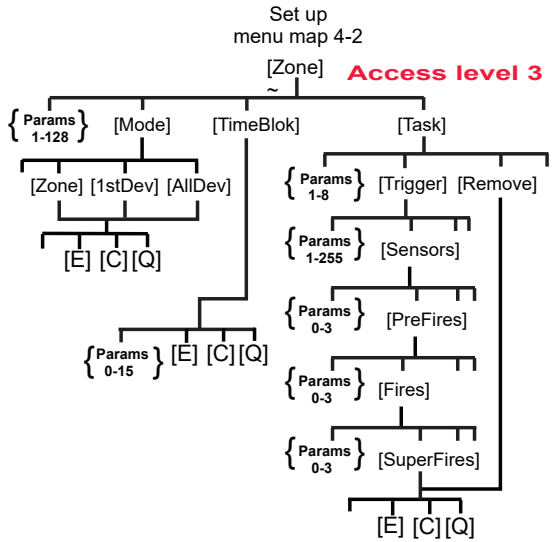
Access level 2b Menus accessible with panel door open and AL2 password (Trained Responsible persons)

Access level 3 Menus accessible with panel door open and AL3 password (Trained Authorised persons)



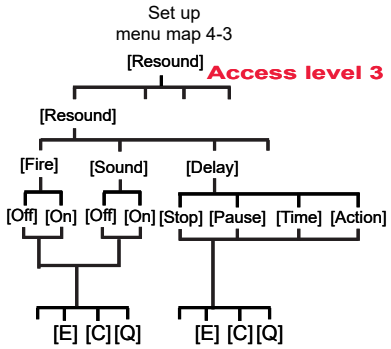
Key
[E] = [Enter]
[C] = [Cancel]
[Q] = [Quit]

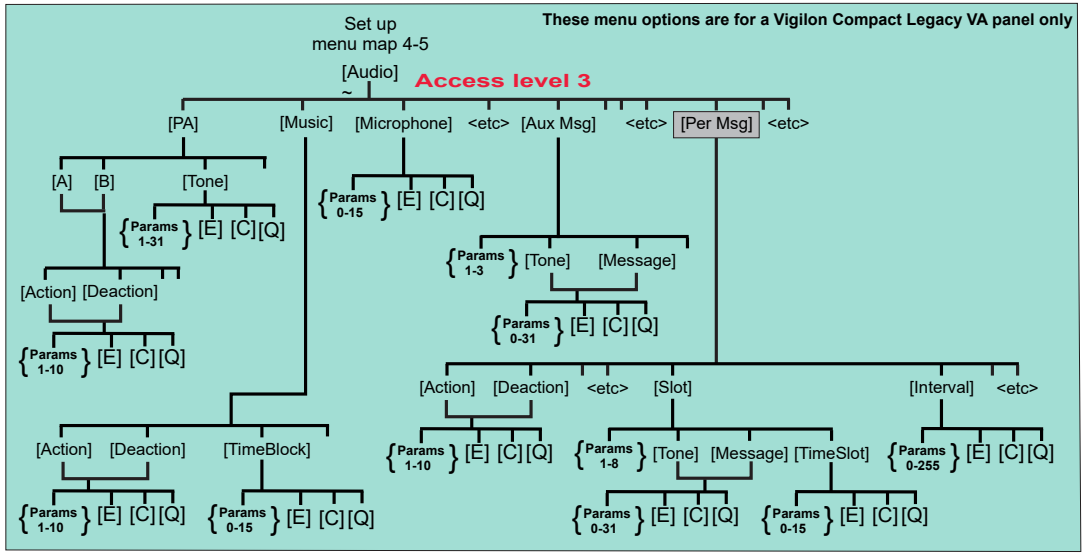
~ - These menu options are not applicable at a Network node.
+ - Not a reversible action

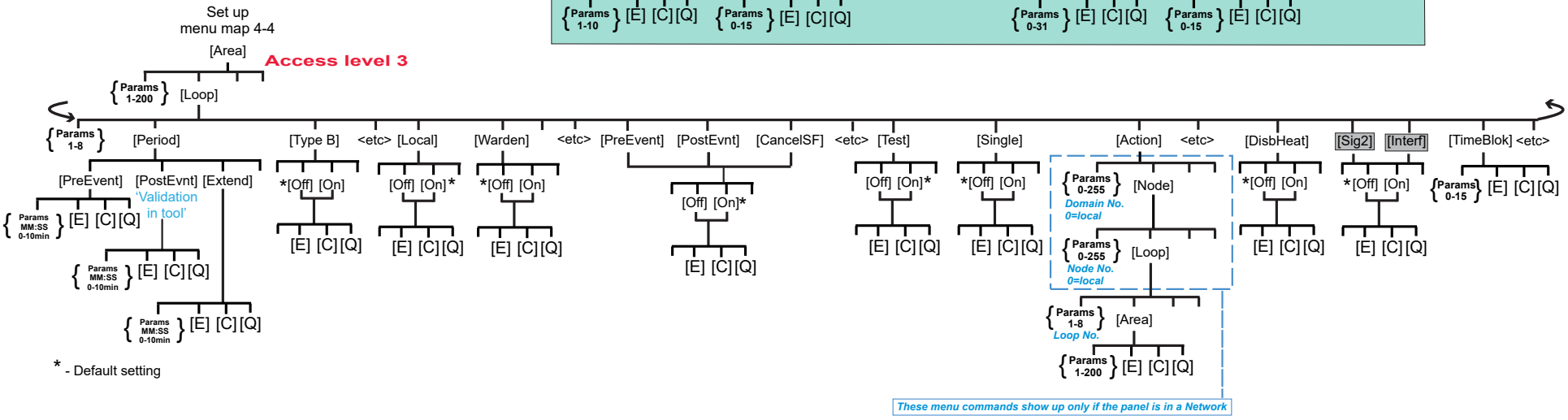


EN Vigilon Plus Control panel with MCC/MCB at V4.61 or higher
[Set Up] Menu map 4-3, 4-4 and 4-5

Access level 1 No menus are accessible at Al1 (General public)
Access level 2a Menus accessible with panel door open (Responsible persons)
Access level 2b Menus accessible with panel door open and AL2 password (Trained Responsible persons)
Access level 3 Menus accessible with panel door open and AL3 password (Trained Authorised persons)
[Option] Option only displayed with freeblock ON



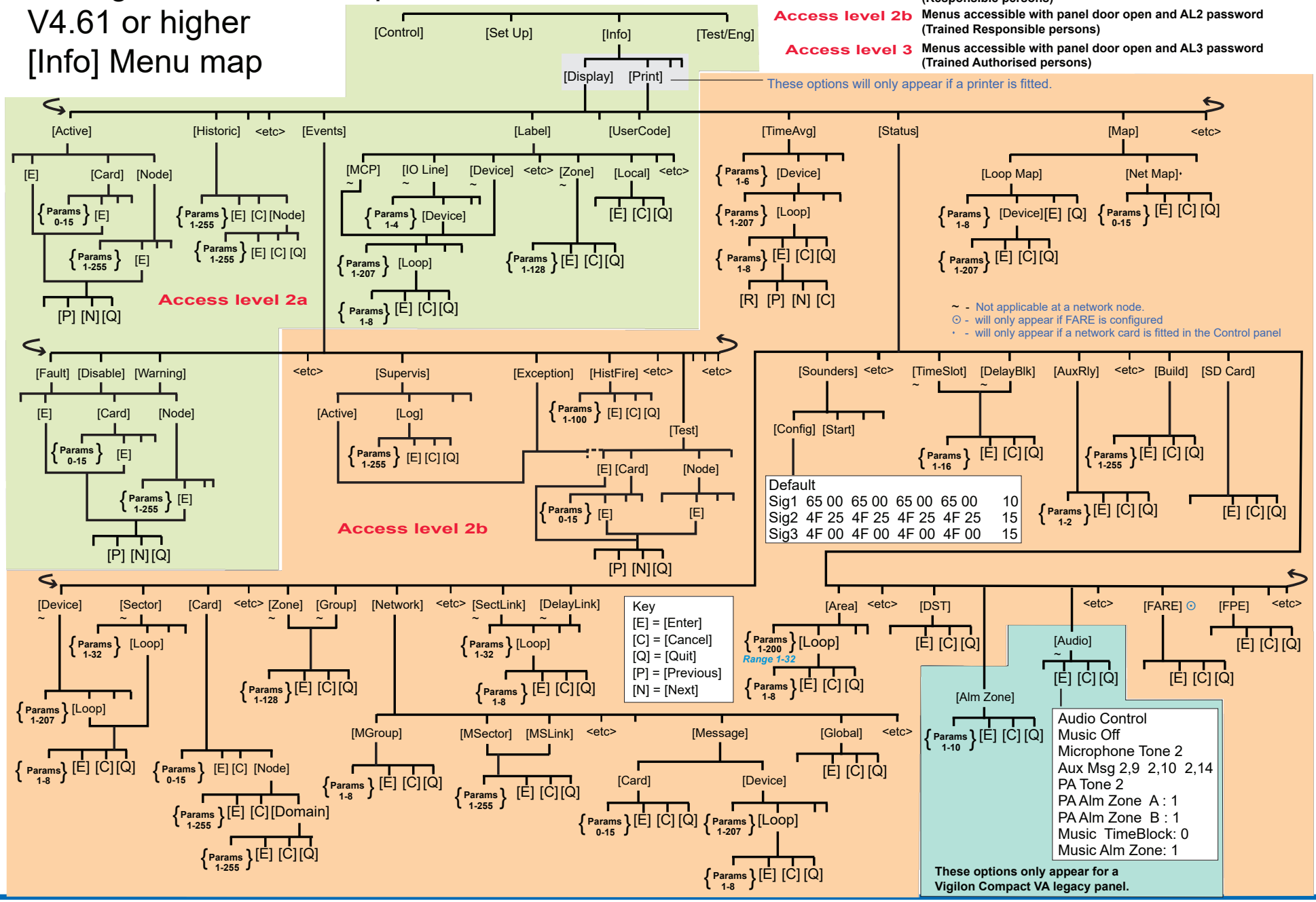




* - Default setting

EN Vigilon Plus Control panel with MCC/MCB at V4.61 or higher [Info] Menu map

Access level 1 No menus are accessible at Al1 (General public)
Access level 2a Menus accessible with panel door open (Responsible persons)
Access level 2b Menus accessible with panel door open and AL2 password (Trained Responsible persons)
Access level 3 Menus accessible with panel door open and AL3 password (Trained Authorised persons)



EN Vigilon Plus Control panel with MCC/MCB at V4.61 or higher [Test/Eng] Menu map 1

Access level 1 No menus are accessible at Al1 (General public)

Access level 2a Menus accessible with panel door open (Responsible persons)

Access level 2b Menus accessible with panel door open and AL2 password (Trained Responsible persons)

Access level 3 Menus accessible with panel door open and AL3 password (Trained Authorised persons)

[Control] [Set Up] [Info] [Test/Eng] [DispTest] [UserCode]

Access level 2a

[Option] **These options will only be displayed with Freeblocks switched On, see Test Engineering**

Service mode is not accessible wtih freeblock On

Access level 2b

[Loop] ~ [Remote]◈ [Card]

see Test/Eng menu map 2-1

{Params 1-255} [E] [C] [Q]

Access level 3

[Network] <etc>

[Message] [Remote]+ <etc> [Comms] [Global] [Routing] <etc>

{Params 1-255} [Enter] [Domain]

Enter message to be displayed

{Params 1-255} [Enter] [Domain]

Enter message to be displayed

[1] [2] [Both]

{Params 0-15} [E] [C] [Q]

[On/Off]

[E] [C] [Q]

{Params 1-255} [Card] [Port]

{Params 0-15} [E] [C] [Q]

{Params 0-3} [E] [C] [Q]

[Reset] [Init] [Log]

{Params 0-15} [E] [C] [Q]

[Eject] for SD card

[NVM Card] [SD Card] [Log]

[Off] [On]

[E] [C] [Q]

[Off / On]

[E] [C] [Q]

[E] [C] [Q]

[Config] AL2b

[Test]

[FreeBlok] [PSU] [Datalog] [Test]

[Previous] [Next] [E]

Off Controller Card 1 to 15

[R] [Q]

[Off] [On]

{Params 0-15} [E] [C] [Q]

[Off] [On] [No Reset] / [Reset] [No Silence]

[Zone]

{Params 1-128} [E] [C] [Q]

[E] [C] [Q]

Note: Bt2 and BC2 are only applicable for 6 Loop panel

Typical values:

	Mns	DC	Bt1	BC1	Bt2	BC2	MA1	MA2	Ear	Lpv
4/6 Loop panel	214	141	206	206	0	0	127	74	60	221
2 Loop panel	206	138	200	203	0	0	74	74	65	197
2 Loop VA panel	195	139	202	206	0	0	75	75	65	198

Displayed on 4/6 Loop panel: 'PSU at V1.00'
Displayed on 2 Loop panel: 'PSU at V2.05'
Displayed on 2 loop VA panel: 'Audio Control Unit V1.10'

[ServMode] ←/→ [Commissn] <etc>

[On] / [Off] [On+BLE] / [Off]

[E] [C] [Q]

[On/Off] [No Reset] [No Silence]

[E] [C] [Q]

Access level 2b

[Clear]

[Fault] [Disable] [Exception] [All]

[E] [Card] [Node]

{Params 0-15} [E] {Params 1-255} [E]

[P] [N] [Q]

[NewPass]

Enter an access code

[Buzzer] <etc>

[Disable] [Fault] [Fire] <etc> [Supervis] [Build] <etc>

[Off/On]

[E] [C] [Q]

[Zone] ~

{Params 1-128} [Sensors] [All Dev]

[E] [C] [Q]

[Language]

[P] [N] [E]

English - Espanol - Portugues

[Label] ~long labels

[Off / On]

[E] [C] [Q]

[Comms]

see Test/Eng menu map 2-2

[Display]

[Contrast] [Zone]

[P] [N] [E]

Range 0-31 (default 15)

[Off] [On] ~ [Flashing] ~

[E] [C] [Q]

[Delayblk]

[Off] [On]

[E] [C] [Q]

[Network] ‡

{Params 0-15} [Delay]

[Off/On]

[E] [C] [Q]

[Radio]^

[Mode] [Reset]

{Params 0-15} [Device]

{Params 1-207} [Loop]

{Params 1-8} [E] [C] [Q]

[Bypass]

[Off]

[Zone] [Group]

[E] [C] [Q]

[Co-incid] ~

[E] [C] [Q]

[Delay]

{Params MM-SS 0-10} [E] [C] [Q]

[Area]

[Verify]

[Add]

[E] [C] [Q]

[FireWard]

see Test/Eng menu map 2-3

⊗[Off] [On]

[E] [C] [Q]

⊗ Default

~ - These menu options are not applicable at a Network node

+ - This option is only applicable at a Vigilon panel

^ - This option is only applicable if **Radio devices** are fitted in the system

◈ - This option will only appear on a Vigilon panel when at Access level 2b

‡ - This option will only appear at a Networked panel

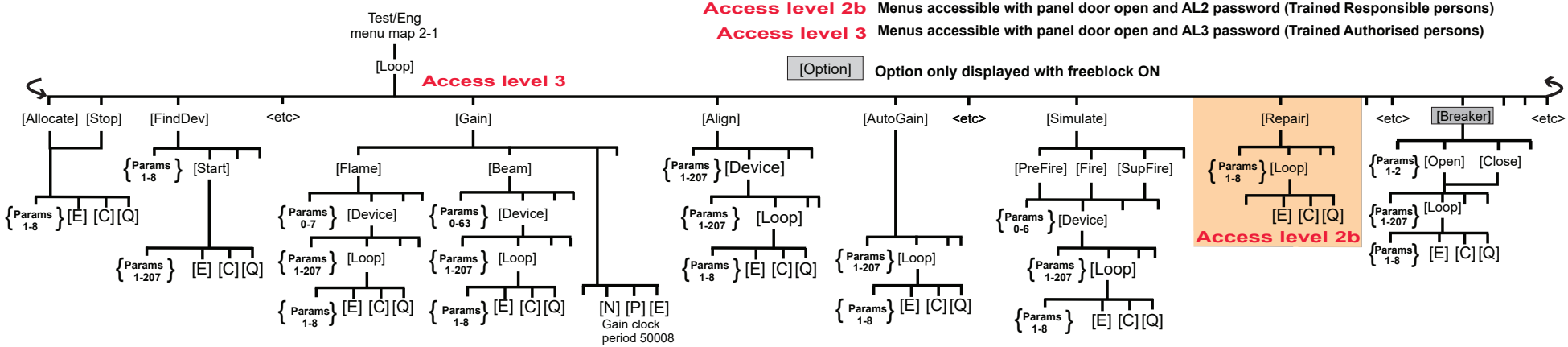
Key
[E] = [Enter]
[C] = [Cancel]
[Q] = [Quit]
[P] = [Previous]
[N] = [Next]

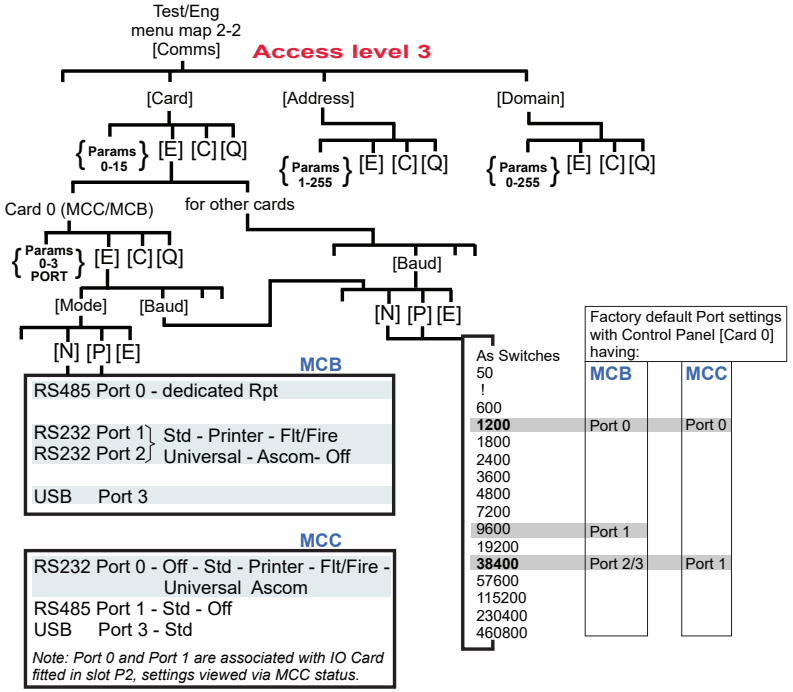
The Events are saved to the SD card when Card 0 backup is performed.

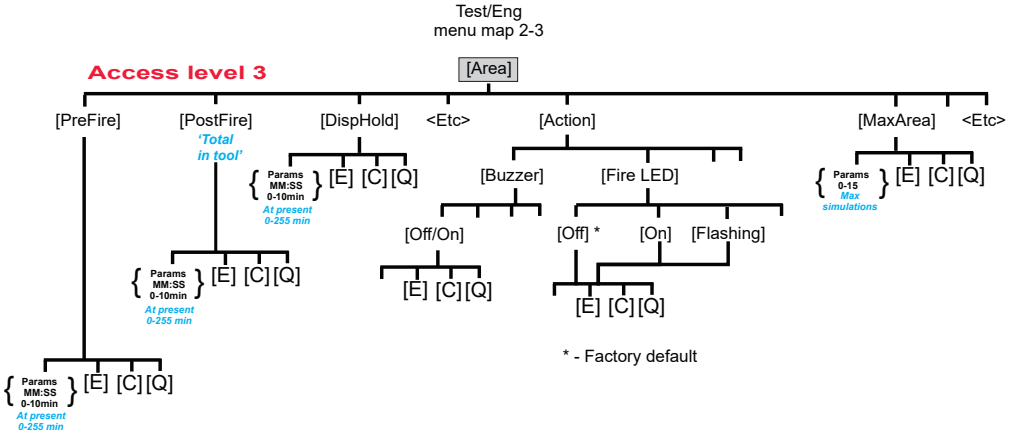
EN Vigilon Plus Control panel with MCC/MCB at V4.61 or higher
[Test/Eng] Menu map 2.1, 2.2 and 2.3

Access level 1 No menus are accessible at Al1 (General public)
Access level 2a Menus accessible with panel door open (Responsible persons)
Access level 2b Menus accessible with panel door open and AL2 password (Trained Responsible persons)
Access level 3 Menus accessible with panel door open and AL3 password (Trained Authorised persons)

[Option] Option only displayed with freeblock ON







Key
[E] = [Enter]
[C] = [Cancel]
[Q] = [Quit]
[P] = [Previous]
[N] = [Next]

Appendix B - Message Action List

This appendix lists all the messages that are likely to be displayed at the Vigilon Plus control panel / Network Node. There are some fault events that are not self clearing and will require manual intervention.

CLEAR-ABLE FAULT EVENTS

The following faults are identified as clear-able fault events.

- FLASH corrupt
- Invalid device configuration
- Too many errors
- Can be cleared but will not reset the counters.
- Unrecoverable Tx fault
- Checksum error
- FLASH Configuration data and FLASH in sensors
- NVM recovery failures or map mismatch

How to clear a clear-able fault event

To clear the fault at the control panel press the Menu on/Off button -> [Test/Eng] -> [UserCode] -> enter your PIN (where necessary) -> <etc> -> [Config] -> [Clear] -> [Fault] -> [Enter], then scroll through to the fault you wish to clear and select [clear].
If the fault is current then it will reappear and return to the display.

LATCHING FAULT EVENTS

The following faults are identified as latching events.

- Slave devices lost
- Loop allocation fault
- Invalid loop configuration

How to clear a latching fault event

To clear a latching fault it is necessary to re-allocate the loop circuit.

REPAIRABLE FAULT EVENTS

Repairable fault events are those that require manual intervention to clear the fault, for example after a Ground break require Repair action.

How to clear a repairable fault event

To repair the fault at the control panel press the Menu on/Off button -> [Test/Eng] -> [UserCode] -> enter your PIN (where necessary) -> [Loop] -> <etc> -> <etc> -> [Repair] -> [Loop] -> enter the loop number on which the fault resides -> [Enter].

MESSAGE ACTION LIST

The messages displayed at the control panel, network node or loop repeat panels are given here in an alphanumerical order to provide guidance:

- on a 'fault message'
- the likely meaning of the message
- along with suggestions on what initial actions may be taken to rectify the problem.

> Only the messages that are applicable will appear on the display of the control panel, network node or loop repeat panels. Additionally the display will identify the panel where the event was first detected. Not all the messages are applicable as this list covers all the panels including the legacy range.

- The term device was previously referred to as outstation.

Message	associated with..	meaning..	..possible action
A spurious FIRQ at card x	MCC / MCB (Main control card/ board)	There is glitch on the MCC hardware that appears on the backplane / MCB.	Clear and ignore single occurrence.
A spurious IRQ at card x	MCC / MCB (Main control card/ board)	There is glitch on the MCC / MCB hardware.	Clear and ignore single occurrence.
A spurious NMI at card x	MCC / MCB (Main control card/ board)	There is glitch on the MCC / MCB hardware.	Clear and ignore single occurrence.
A spurious SWI2 at card x	MCC / MCB (Main control card/ board)	There is glitch on the MCC hardware.	Clear and ignore single occurrence.
A spurious SWI3 at card x	MCC / MCB (Main control card/ board)	There is glitch on the MCC / MCB hardware.	Clear and ignore single occurrence.
Access fault at card x	Any Card	Card cannot talk to the MCC / MCB local controller.	Replace card if the fault keeps reoccurring. Could also be caused by excessive network messages. Investigate message passing.
ACIA Failed at card x	Network Card or MCC / MCB	Communication chip failure or the FABs and SABs are corrupt.	Reset the card and replace if it fault keeps reoccurring.

Message	associated with..	meaning..	..possible action
SAFE System operated number x on loop y	Device	The Silence Fire Alarm button has operated on the SAFE System switch during a Normal operating condition (ie non fire condition). The operation of the button is intended to disable smoke detection in an Area to prevent false alarm.	If required to terminate the SAFE System operation then by operating the Silence Fire Alarm button again on the SAFE System switch during the PreEvent delay duration. Alternatively wait until the PreEvent delay has expired for automatic return to normal operation.
SAFE System operated pre-emptively number x on loop y channel z	Device	The Silence Fire Alarm button has operated on the SAFE System switch during PreEvent duration, that is after an Event has been detected in an Area.	If required you can terminate the SAFE System operation by pressing the Silence fire Alarms button again, otherwise wait until the PreEvent delay duration has expired for an automatic return to normal operation.
SAFE System Test number x on loop y channel z	Device	The Test Fire Alarm button has been operated on the SAFE System switch for testing of Area Alarms.	Release the Test Fire alarm button and wait for 5 seconds for the Area Alarms to silence and return to pre test condition.
SAFE System cancelled number x on loop y channel z	Device	The Silence Fire Alarm button has been operated 2nd time during Post-Event or Pre-Event duration to cancel the SAFE system operation and return to normal.	-
Alarms Resounded	MCC / MCB (Main control card/ board)	If resound is switched On then the configured alarms will resound on 2nd Fire or on pressing Sound Alarms button.	-
Alarms Sounded / Silenced	MCC / MCB (Main control card/ board)	Sound alarms button has been pressed / Silence alarms button has been pressed.	-
Alarms Verified	MCC / MCB (Main control card/ board)	Alarms verify button has been pressed.	-
Alarm Zone Disabled / Enabled at card x	LPC (Loop processor card)	-	
Allocation Double Allocated card x number y on loop z	LPC (Loop processor card)	Two devices are given the same address. Loop breaker (relay contacts) are fused 'micro welded' together (closed) or there is a bad connection.	Check the device wiring. The device may be faulty, replace if required.
Allocation Hw fault card x number y on loop z	LPC (Loop processor card)	Loop breaker relay has not closed or serial line End-2 is faulty or relay is stuck i.e. closed. The device may not be correctly fitted.	Check the device wiring. The device may be faulty, replace if required.

Message	associated with..	meaning..	..possible action
Allocation Map error card x number y on loop z	LPC (Loop processor card)	Loop wiring is incorrect, e.g. a sub loop may have been wired on a spur.	Check and rewire if necessary. This fault can also be device failure.
Allocation memory Overflow at card x number y on loop z	LPC (Loop processor card)	Loop processor has run out of memory during allocation / when starting a loop.	Software error or more likely a faulty RAM chip.
Allocation not ready at card x	LPC (Loop processor card)	An attempt to allocate a loop when it is already allocating.	Wait and if it takes longer than 10 minutes then reset the loop card.
Allocation OK at Card n : Allocated x	LPC (Loop processor card)	The loop circuit has been successfully allocated.	-
Allocation started from end 2 at card x	LPC (Loop processor card)	No devices found on End-1 or End 1 of the loop is open circuit.	Check the wiring to the first device or last device on the loop.
Allocation too many at card x number y on loop z	LPC (Loop processor card)	Allocated more than 200 devices or the device is restricted for use with the particular software version.	Replace incompatible devices used on other systems i.e.:32000 or SMS device found in system.
Allocation Tx fault card x number y on loop z	LPC (Loop processor card)	Invalid reply from the device.	Check the device. Also check cable routing and length (measure resistance and capacitance of cable).
ASCII Device is faulty number x on loop y	LPC (Loop processor card)	Failure of the Control panel to communicate with Repeat / Mimic panel. The power supplies to these panels may not be connected.	If applicable, connect the power supply or RESET the Master Repeat Card in the Repeat and Mimic panel. If necessary replace the card/software.
Back up	NVM (non volatile memory) on backplane or MCB	Data is being copied from cards and stored onto the NVM.	-
Back up required at card x	NVM (non volatile memory) on backplane or MCB	Data must be saved to memory.	Back up data to the memory.
Battery discharged	Power supply	This indicates the failure of battery load test. The ADC value should be equal to or less than normal - 9.	Check load test and the battery condition.
Battery disconnected/ restored	Power supply	A disconnection is indicated when the ADC value from the battery is equal to or less than 130.	Normally it should be = 234 (27.4V)To give a restored indication the ADC value should = Vbatt 1/6x256/5.
Baud rate x at card y	MCC / MCB /Network Card	Baud rate set has been read.	If required, change the baud rate.

Message	associated with..	meaning..	..possible action
Beam Rx saturated/ no longer saturated number x loop y	Device	Beam receiver is saturated message	Check receive and the cause of saturation.
Beam Rx Faulty number x loop y	Device	Beam receiver is faulty.	Check and if appropriate replace the beam receiver.
Beam Tx faulty number x loop y	Device	Beam transmitter is faulty.	Check and if appropriate replace the beam transmitter.
Beam Tx restored number x loop y	Device	Beam transmitter is restored to normal.	-
Being Initialised at card x	NVM (non volatile memory) on backplane or MCB	Memory is being set up by the MCC / MCB (Main control card/board), ready for use.	-
Buffer full at card x	Any Card	Software error.	-
Buffers out of step at card x	Any Card	Software error.	Software errors will activate a system reset. Ignore single occurrence. Record the event in the log book.
Call point glass is broken number x loop y	Device	Call point has been operated when the device is disabled.	Replace the glass, if necessary.
Call point on interface unit operated / restored	Device	Mains powered interface input has been triggered by conventional MCP, value of input is equal to or less than 6V.	-
Call point open cct number x on loop y	Device	Monitored base does not see end-of-line unit. There is a bad connection in MCP.	Check the internal wiring, there may be a loose connection.
Call point operated/ restored number x loop y	Device	Break glass has been broken or operated with a test key.	Replace the break glass to restore the call point or remove the test key, whichever is applicable.
Call point short cct number x loop y	Device	Call point contacts are short circuit.	Check the call point contacts and internal wiring.
Card found/lost at card x	Any Card	The card has been found/lost. If lost then it is locked out.	There may be a hardware fault on card or backplane. Investigate and rectify.
Card n recovered / Card n backed up	NVM (non volatile memory) on backplane or MCB	Data recovered to a card from the NVM. A card data has been backed up to the NVM.	-

Message	associated with..	meaning..	..possible action
Chamber Removed / Replaced number x on loop y	Device	Device chamber has been removed.	Replacing the chamber will cause a replaced indication.
Charger Fault	Panel power supply	Charger circuit has failed.	Replace the PSU.
Charger Fault number x on loop y	EN54 System device power supply (Repeat, Mimic or mains powered interface)	Charger circuit has failed at a loop device.	Replace the board (having the power supply) on the loop device.
Charger Restored	Panel power supply	Charger circuit is working again.	-
Charger Restored number x on loop y	EN54 System device power supply (Repeat, Mimic or mains powered interface).	Charger circuit at the loop device is working again.	-
Chk=4.874 NVMC 41874 Flag=0 NVM is write protected at Card x	NVM (non volatile memory) on backplane or MCB	The memory is read only.	Disable the write protect using the [set up] menu.
Clock changed / Clock not set up	MCC / MCB (Main control card/ board)	Time and date has been altered or no time has been entered.	If necessary, set the clock using the set up menu.
CO sensor faulty	Device	There is a fault with the CO sensor in an S-Quad.	Replace device
CO sensor near end of life	Device	The CO cell is nearing the end manufacturer recommended life expectancy in an S-Quad.	Replace the device
CO sensor restored at Card x	Device	The CO sensor fault has been restored in an S-Quad	-
Command build activate / deactivated	MCC / MCB (Main control card/ board)	Command build has been switched ON (activated) or switched OFF (deactivated).	If necessary switch ON/OFF the command build using the [control] menu.
Command build enabled / disabled	MCC /MCB (Main control card/ board)	This is an automatic or manually controlled action.	If necessary, manually enable/disable the command build using the [control] menu.
Comms enabled / disabled at card x	MCC / MCB (Main control card/ board) Network Card	Card communications have been enabled or disabled. Control panel has been isolated from the network.	If necessary, manually enable/disable the Comms using the [control] menu
Comms Supply Fault / Restored	Network node	The communications power supply has failed / restored.	Replace the power supply unit on failure. No action on required for Restore

Message	associated with..	meaning..	..possible action
Communications started / stopped at card x	MCC / MCB (Main control card/ board)	Communication to a particular panel or to external equipment linked to the panel (eg Laptop having the commissioning tool) has started / stopped.	Check the wiring.
Control passed at card x	Network	-	-
Corrupted NVM memory at card x	Any Card	Checksum failure on configuration at midnight.	Recover data and record event in the log book. If it reoccurs then replace the card.
DC Power fail / restored	Power supply	The ADC of output 27V regulator is normally=146(28.5V).	-
DC too high / DC too low	Power supply	The DC supply is: Too high if greater than 164 (32V) Too low if less than 102 (20V)	Check the mains supply and battery wiring.
Delay block setup	MCC / MCB (Main control card/ board)	A Delay Block has been configured.	-
Delay blocks Cleared	MCC / MCB (Main control card/ board)	-	-
Detection Zone Disabled/Enabled at card x	LPC (Loop processor card)	The detection zone has been enabled or disabled automatically or manually.	If necessary, manually enable/disable the detection zone using the [control] menu.
Detector on interface unit number x on loop y channel z	Device	Conventional detector connected to an input of a mains powered interface input has triggered. Value of the input is equal to or less than 10V.	-
Device Address changed from x number y on loop z	Device	Device SAFE address has changed.	If necessary rectify the device SAFE address.
Device Battery Fault number x on loop y	Radio (Plexus) Device	Radio (Plexus) device has a battery failure	Check the batteries at the Radio (Plexus) device using the Battery Condition Indicator tool and replace the batteries if necessary
Device Batteries need replacing	Radio (Plexus) Device	The batteries inside a Radio (Plexus) device needs to be replaced	Replace the batteries in the Radio (Plexus) device
Device Battery discharged number x on loop y	Radio (Plexus) Device	The batteries inside a Radio (Plexus) device are nearing end of life.	Replace the batteries in the Radio (Plexus) device

Message	associated with..	meaning..	..possible action
Device Battery 1 fault /restored number x on loop y	Device	The battery has failed the load test at the device, for a mains powered interface the value is equal to or less than normal - 2V.	Check and replace the battery if necessary.
Device Battery OC number x on loop y	Device	Failure of fuse or battery wiring is OC on products like mains powered interface unit. Normal value = 27.4V Value is equal to or less than 16V (OC) / greater than 17V (Restored).	Check and replace if necessary to restore.
Device Enabled / Disabled at Card x	LPC (Loop processor card)	Device has been enabled or disabled manually or automatically.	If necessary manually enable or disable the device.
Device Gain set to x number y on loop z	Beam devices (can also be a Flame device - no longer supported)	Confirmation of a change in gain setting.	-
Device inoperative	Radio (Plexus) Device	The Radio (Plexus) device batteries are too low for device to operate correctly	Use the Battery Condition Indicator tool to determine if the batteries in the Radio (Plexus) Device require replacing, if necessary replace the batteries.
Device Mains Failed / Restored number x loop y	Device	Failure of mains supply to mimic/repeat /mains powered interface unit. The value of rectified DC is equal to or less than 8V i.e. failed.	Check mains supply connections and the mains fuse. When the rectified DC is greater than 24V it is restored.
Device Mains too high / low number x loop y	Devices like: Mimic / Repeat / Mains powered interface unit	Failure of device mains supply. The value of rectified DC is too high / low i.e in the region of 30V / 17V.	Check the power supply and replace it if necessary
Device Moved	Radio (Plexus) Device	The Radio (Plexus) device has been tampered with	The Radio (Plexus) device has been moved from the original installed location or there has been changes in the area that affect the device operation.
Device Power Fault / Restored number x on loop y	Device	The failure of internal power supply rail.	Replace the device.
Device Power too high/ restored too low /restored number x on loop y	Device	Internal power rail of mains powered interface unit has a value of rectified DC equal to or greater than 32V (high) / less than 30V (restored) DC equal to or less than 24V (low) / greater than 26V (restored)	Replace the device
Device Replaced is faulty number x on Loop y	LPC (Loop processor card)	Tx fault re-finding device.	Check connections to device / base and also device type.

Message	associated with..	meaning..	..possible action
Device Replaced number x loop y	LPC (Loop processor card)	The replaced device is now communicating with the panel.	-
Device Returned number x loop yd	Radio (Plexus) Device	Radio device has been returned to it's base	The moved Radio (Plexus) Device has been returned to its original installed position.
Device soft address; SAFE: number x on loop y	Device	Device primary address does not match SAFE address.	Check loop configuration.
Disables Cleared	MCC / MCB (Main control card/ board)	All disablements have been removed from the panel.	-
Domain Found 1 at card x	MCC / MCB (Main control card/ board)	The is a domain connection found at an IO card.	
Duplicate SAFE Address error number x on loop y	Device	Two devices on a loop have the same SAFE address.	Change one of the SAFE address.
Earth Fault/ Fault Cleared	Power supply	The ADC value to earth of the 8V regulator: is equal to or greater than 5 (for a +ve fault) or less than 3 (for a -ve fault).	A clear indication is normally given when ADC is equal to 64.
Earth Fault at Card n Loop n: 0v resistance is xxR, L is y Loop n: Earth is aaa, bbb (99)	LPC (2Km Loop processor card)	There is an earth fault present before allocation. Note: An Earth fault post allocation is indicated as Earth fault.	Use the Loop Diagnostic Tool to diagnose the earth fault condition and rectify it.
Enabled Aux relay x Disabled Aux relay x	MCC / MCB (Main control card/ board)	The auxiliary relay has been enabled or disabled automatically or manually.	If necessary, manually enable/disable the auxiliary relays using the [control] menu.
Device Power too high/ restored too low /restored number x on loop y	Device	Internal power rail of mains powered interface unit has a value of rectified DC equal to or greater than 32V (high) / less than 30V (restored) DC equal to or less than 24V (low) / greater than 26V (restored)	Replace the device
Device Replaced is faulty number x on Loop y	LPC (Loop processor card)	Tx fault re-finding device.	Check connections to device / base and also device type.
Device Replaced number x loop y	LPC (Loop processor card)	The replaced device is now communicating with the panel.	-

Message	associated with..	meaning..	..possible action
Device Returned number x loop yd	Radio (Plexus) Device	Radio device has been returned to it's base	The moved Radio (Plexus) Device has been returned to its original installed position.
Device soft address; SAFE: number x on loop y	Device	Device primary address does not match SAFE address.	Check loop configuration.
Disables Cleared	MCC / MCB (Main control card/ board)	All disablements have been removed from the panel.	-
Domain Found 1 at card x	MCC / MCB (Main control card/ board)	The is a domain connection found at an IO card.	
Duplicate SAFE Address error number x on loop y	Device	Two devices on a loop have the same SAFE address.	Change one of the SAFE address.
Earth Fault/ Fault Cleared	Power supply	The ADC value to earth of the 8V regulator: is equal to or greater than 5 (for a +ve fault) or less than 3 (for a -ve fault).	A clear indication is normally given when ADC is equal to 64.
Earth Fault at Card n Loop n: 0v resistance is xxR, L is yLoop n: Earth is aaa, bbb (99)	LPC (2Km Loop Processor Card)	There is an earth fault present before allocation. Note: An Earth fault post allocation is indicated as Earth fault.	Use the Loop Diagnostic Tool to diagnose the earth fault condition and rectify it.
Enabled Aux relay x Disabled Aux relay x	MCC / MCB (Main control card/ board)	The auxiliary relay has been enabled or disabled automatically or manually.	If necessary, manually enable/disable the auxiliary relays using the [control] menu.
End switching normal at card x	Network	Network card is back to normal operation, (see also end switching disabled).	-
Exception number x on loop y	(Exceptions also referred to as Sub-Fault) Loop processor card	Change noted in the environment of the device.	Check the condition codes.
Excessive transmission error rate Too many errors: lost device or loop split	LPC (loop processor card)	There were more than 10 reply errors in one day. (More than 16 reply errors will cause the device isolation.)	Check screening and electrical noise in area of operation + check loose connections to loop.

Message	associated with..	meaning..	..possible action
External Fire at panel n	MCC / MCB (Main control card/ board)	There is a Fire on another panel in a network.	Investigate the fire.
FARE Enabled / Disabled number z on loop y Zone x	Device	The FARE device has been enabled or disabled manually or automatically.	Manually enable or disable the FARE device if required.
FARE Activated / Deactivated number z on loop yzone x	Device	The FARE device has been activated / deactivated manually or automatically.	
FARE Faulty/Restored number x loop y zone x	Device	A 'faulty' message is given when there is a fault associated with FARE equipment.	A 'restored' message is given when the FARE equipment fault is investigated and rectified.
FARE loop x, device y	Device	This information shows the FARE Interface is on loop x and is device y.	-
Fast scan started number x on loop y channel z	Data logging	Fire sensor has detected a change on its input.	The message is normally given when the data logger is connected.
Fault cleared / Warning cleared	MCC / MCB (Main control card/ board)	Fault or warning has now gone.	-
Fire number n loop y channel z	LPC (Loop processor card)	Pattern match is equal to a Fire or MCP operated or conventional detection on IO line of interface operated.	-
Fire reset	MCC / MCB (Main control card/ board)	The Fire reset button has been pressed.	-
Flash memory checksum error	Device	Speech Memory Checksum Error	Replace the device
FPE Enabled / Disabled at card x	Device	All FPE Interface devices on loop x have been enabled or disabled manually or automatically.	Manually enable or disable all FPE Interface devices if required.
FPE w: x, y, z	Device	This information shows the FPE Interfaces on loop w and are devices x, y and z.	-
Full Keyboard Removed / Fitted number x loop y	MCC/ MCB / DKC/ MRC	The keyboard has been ‘removed’ (is not fitted).	Check the cable connections to the keyboard to bring about the ‘fitted’ message.

Message	associated with..	meaning..	..possible action
Group Enabled / Disabled	MCC / MCB (Main control card/ board)	A group has been automatically or manually disabled or enabled.	If necessary, manually enable/disable the group using the [control] menu.
High resistance (n) at card x	LPC (2Km Loop processor card)	There is a high resistance measured on the device loop circuit (loop card x).	Using the Loop Diagnostic Tool assess the measurement values under 'Wiring Related Measurements'. Find which measurements have shown changes on the positive or negative line and where appropriate compare with previously saved measurements. Then view the 'Loop Profile' chart under 'Measurement Analysis' to narrow down the part of the loop wiring to check and rectify.
High resistance on Positive line (n) at card x	LPC (2Km Loop processor card)	There is a high resistance measured on the positive line wiring of a device loop circuit (loop card x).	
High resistance on negative line (n) at card x	LPC (2Km Loop processor card)	There is a high resistance measured on the negative line wiring of a device loop circuit (loop card x).	
Increased resistance (nnn) at card x	LPC (2Km Loop processor card)	There is a partial short circuit or partial open circuit detected on a device loop circuit (loop card x).	Using the Loop Diagnostic Tool assess the measurement values under 'Wiring Related Measurements'. Find which measurements have shown changes on the positive or negative line and where appropriate compare with previously saved measurements. Then view the 'Loop Profile' chart under 'Measurement Analysis' to narrow down the part of the loop wiring to check and rectify.
Increased res positive line (n) at card x	LPC (2Km Loop processor card)	There is a partial short circuit or partial open circuit detected on the positive line of a device loop circuit x (loop card x).	
Increased res negative line (n) at card x	LPC (2Km Loop processor card)	There is a partial short circuit or partial open circuit detected on the negative line of a device loop circuit x (loop card x).	
Incompatible Card Version at card x	Any Card	There is a card software conflict.	Fit card with compatible software.

Message	associated with..	meaning..	..possible action
Interface Failed at card x	MCC / MCB (Main control card/ board)	The interface timer chip has failed.	Clear the fault and ignore single occurrence. Replace the card on multiple failures.
Interface input - fault / restored number x on loop y channel z	Device	IO line fault.	Check the wiring and restore the input for normal operation.
Interface Input Fire number x on loop y channel z	Device	Interface IO line triggered a fire event.	Check the wiring and restore the input for normal operation.
Interface input not Reset number x on loop y channel z	Device	The input line continues to trigger.	Check devices on the IO line.
Interface Input OC / restored	Device	The end-of-line is not seen.	Check the wiring. The device may have been removed, if so refit the device to restore.
Interface input operated / released number x on loop y channel z	Device	Fixed extinguishing interface unit input has been triggered (applicable for old systems only).	Follow the FE system reset procedure to release the input.
Interface input SC / restored number x on loop y channel z	Device	The interface wiring is short circuit. The value of input is equal to or less than 2V.	Check the interface wiring and rectify to restore the input.
Interface output SC or OC or Restored number x on loop y channel y	Device	The value of output is equal to or less than 50% for SC or is TBA for OC.	Check the wiring and restore the output circuit.
Intermittent Fault at card x	Any Card	A fault has been picked up by the MCC / MCB (Main control card/board).	Replace the appropriate card if the fault keeps reoccurring.
Invalid configuration	LPC (Loop processor card)	Loop recovered with freeblocks ON.	This is not allowed. Switch OFF the freeblocks and reallocate.
	Device	FLASH incorrectly programmed	-
Invalid configuration at card x	LPC (Loop processor card)	Loop recovered with freeblocks ON or Loop configuration faulty, possibly after upload from Commissioning Tool.	This is not allowed. Switch OFF the freeblocks and reallocate.

Message	associated with..	meaning..	..possible action
Invalid message / reply received at card x	LPC (Loop processor card)	The message/reply received cannot be understood. The communication can be from a Repeat, Mimic, Networked system.	Ignore single occurrence and record in the log book.
Invalid message/ reply at card x	Network Card	The message/reply has not been understood from other panels.	Ignore for single occurrence and record in the log book.
Invalid task delay at card x	Any Card	Software error.	Software errors will activate a system reset. Ignore single occurrence. Record the event in the log book.
Invalid task stage	Any Card	Software error.	Software errors will activate a system reset. Ignore single occurrence. Record the event in the log book.
IO line Enabled / Disabled at card x	LPC (Loop processor card)	The IO line is either enabled or disabled automatically or manually.	If necessary, manually enable/disable the IO line using the [control] menu.
Legacy device present number x loop y	LPC (Loop processor card)	A legacy device is connected to a loop circuit.	Locate, check and replace the legacy device with a compatible device.
Loop map has changed card x	LPC (Loop processor card)	The map is different to that previously allocated.	Check and confirm difference with backup map.
Loop n: High resistance	LPC (2Km Loop processor card)	High resistance on both lines.	Use the Loop Diagnostic Tool to diagnose the cause of high resistance on the loop and rectify it.
Loop n: High resistance on negative line	LPC (2Km Loop processor card)	High resistance on 0v lines.	Use the Loop Diagnostic Tool to diagnose the cause of high resistance on the negative line and rectify it.
Loop n: Overloaded	LPC (2Km Loop processor card)	The loop is overloaded, i.e. is taking too much current.	Use the Loop Diagnostic Tool to diagnose the fault condition and rectify it.
Loop n: Reply marginal	LPC (2Km Loop processor card)	The named device is at the marginal limits of correct communications (timing or level)	Use the Loop Diagnostic Tool to diagnose the cause of communication issue and rectify it.
Loop power restored	Power supply	Normal loop supply restored:Normal ADC = 202 (44V). Value = Vsupp x 1/11X256/5.	-
Loop Started not ready at card x number y loop z	LPC (Loop processor card)	As per message.	Wait and if it takes longer than 10 minutes then reset the loop card.

Message	associated with..	meaning..	..possible action
Loop stopped at Card x	LPC (Loop processor card)	The loop has been aborted or is still being allocated.	Re-allocate the loop.
Loop voltage too high/low	Power supply	The ADC value too high. or The ADC value is too low.	Check PSU values in the [test/eng] menu, normal reading is 221. Check fuses and replace PSU if necessary.
Lost command number x Loop y	LPC (Loop processor card)	Lost FAB/SAB.	Ignore single occurrence and record in the log book.
Lost Device number x on loop y	LPC (Loop processor card)	There is no reply on ends 1&2 of the device.	Check the device connections.
Lost slave Device number x on loop y	LPC (Loop processor card)	There is no reply on ends 1&2 of the device.	Check the slave device connections and replace if necessary.
Magnetic switch operated number x loop y	Device	The reset switch in the base has closed for 3400 devices only.	Check base and proximity of magnetic field.
Main program not running at card x	Any Card	Problem with software. The watchdog will operate the MCC / MCB (Main control card/board).	Software errors will activate a system reset. Ignore single occurrence. Record event in the log book.
Mains failed / restored	Power supply	Failure is detected when the ADC output from the rectifier is equal to or less than 105.	Check mains and fuse. Replace PSU if necessary. This should normally equal to 60V to get a restored message.
Mains too high	Power supply	The ADC value is too high.	Check the PSU values in the [Test Eng] menu. Replace PSU if necessary.
Mains too low	Power supply	Mains supply is too low.	
Master alarm OC or SC Restored	Power supply	No end-of-line unit seen. ADC value is greater than 92 or ADC value is less than 37 ADC value is 74	Check the wiring to the master alarm circuits. Ensure EOLs are connected inside the control panel if master alarm circuits are not used.
Master alarm enabled/disabled	MCC / MCB (Main control card/ board)	The master alarm has been enabled or disabled automatically or manually.	If necessary, manually enable or disable the master alarm using the [control] menu.
Master alarm restored	Power supply	Master alarm fault cleared.	
The ADC value should be 74.			
Master polling/not polling at card x	MCC / MCB (Main control card/ board)	PC or SRI (service request interface) is not handshaking with the control panel	Check the wiring

Message	associated with..	meaning..	..possible action
Master sector actioned	MCC / MCB (Main control card/ board)	Master sector has been switched ON/OFF.	-
Master Sector enabled/disabled	MCC / MCB (Main control card/ board)	Master sector has been enabled or disabled manually or automatically.	If necessary manually enable or disable the master sector.
Memory corrupt number x loop y	Device	FLASH checksum failure	Replace the device
Monitored input S/C or O/C number x loop y	Device	Monitored output of a device is either short or open circuit.	Check the device and its monitored output wiring and remove wiring fault.
Monitored Output Restored	Device	Device output is now restored.	-
Monitored output S/C or O/C number x loop y	Device	Monitored output of a device is either short or open circuit.	Check the device and its monitored output wiring and remove wiring fault.
Message discarded	Network Card & LPC (Loop processor card)	Message received that couldn't be routed or understood.	Check the location displayed, try resetting card.
Neighbour ACK Failed at card n	-	Repeated address	Check domain addresses are unique
Neighbour ACK Invalid at card n	TBA	TBA	TBA
Network initialised at card x	Network Card	Successful network map with polled panels.	-
Network Insecure / Secure at card x	Network Card	There are 3 missing replies in a row on End-2 of the controller. Also there may also be a Partial short circuit on network wiring.	Check the error rate. Check the wiring.
Network starting at card x	Network Card	Communication starting with other connected panels.	-
Network wiring fault at card x	Network Card	Wiring is presumed to be OC between panel n and panel n.	Check the wiring.
New address n at card x	MCC / MCB Network Card	The new address set has been read.	-
New Domain Address n at card x	Network Card	The new address set been read at the particular card.	-

Message	associated with..	meaning..	..possible action
NMI's missed at card x	LPC (Loop processor card)	Software error.	Software errors will activate a system reset. Ignore single occurrence. Record the event in the log book.
No periodic interrupts at card x	Any Card	Problem with software, the watchdog will operate the MCC / MCB (Main control card/board).	Software error will activate a system reset. Ignore single occurrence. Record event in the log book.
No response number x loop y	LPC (Loop processor card)	There is no communication with repeat or mimic panel software.	Power-up the repeat or mimic panel.
No room on NVM card	NVM (non volatile memory) on backplane or MCB	User attempts to backup or save to an NVM that does not have enough free space	If there is no memory left then the card 14 located on the Backplane or on MCB (Card 0) needs to be initialised
Node double allocated at card x	Network Card	Two network cards have same address.	Keep address unique.
Node found at card x	Network Card	Another panel on the network acknowledged.	-
Node Lost / Restored at card x	Network Card	There have been 15 missing replies from another panel.	Check the wiring or check and reset the panel Network card to restore.
Not enough RAM at card x	Any Card	Not enough memory.	Reset the card and ignore single occurrence. If necessary replace the card or add RAM, where applicable.
Nothing found at card x	LPC (Loop processor card)	No devices found on End 1 or End 2.	Check wiring of loop circuit.
NVM initialised	NVM (non volatile memory) on backplane or MCB	Memory available verified.	-
NVM is not write protected at card x	NVM (non volatile memory)on backplane or MCB	Read and write is possible to the memory card.	Enable protect if required using the [set up] menu.
NVM is read only	NVM (non volatile memory) on backplane or MCB	User attempts to write to a hardware write protected NVM	Remove the hardware write protect before writing
Panel in/out of commissioning mode	MCC / MCB (Main control card/ board)	Commissioning mode is switched ON/OFF.	To manually switch commissioning mode use the [test/eng] menu.
Panel label set up	MCC / MCB (Main control card/ board)	Panel label has been set from the menu.	-

Message	associated with..	meaning..	..possible action
Panel power up	MCC / MCB (Main control card/ board)	Software reset of system or there has been a manual reset of card 0.	If an automatic reset has occurred then check for system errors.
Pattern number x on loop y channel x	LPC (Loop processor card)	Sensor has detected an interesting event eg fire/ fault.	-
Pointer corrupted at card x	Any Card	Software error.	Software errors will activate a system reset. Ignore single occurrence. Record the event in the log book.
Pointer missing at card x	Any Card	Software error	Software errors will cause a system reset. Card fault should be ignored for single occurrence. Record the event in the log book.
Prefire number x on loop y channel z	LPC (Loop processor card)	Pattern match less than a Fire.	-
Printer lost/fitted at card x number y on loop z	MCC / MCB / DKC / MRC	The external printer has not been seen and is 'lost'.	Check the connections to the printer. Also check for paper jam in the printer mechanism.
Program memory corrupted at card x	Any Card	Checksum failure on FLASH at midnight.	Clear and ignore single occurrence. Record in the log book.
Program not running at card x	Any Card	Problem with software, the watchdog will operate the MCC / MCB (Main control card/board).	Software errors will activate an automatic system reset. Ignore for single occurrence. Record event in the log book.
Program runaway at card x	Any Card	CPU has crashed.	Clear and ignore single occurrence. Record in the log book.
Q buffer full at card x	Any Card	Software error.	Software errors will activate a system reset. Ignore single occurrence. Record the event in the log book.
Q buffer number Failed at card x	Any Card	Software error.	Software errors will activate a system reset. Ignore single occurrence. Record the event in the log book.
Radio devices recovered number x on loop y	LRT	Radio LRT has completed finding all of the radio devices	-
Recover failed at card x	LPC (Loop processor card)	Loop does not match with what is in NVM.	Check and confirm/correct the difference and then backup.

Message	associated with..	meaning..	..possible action
Recover succeeded at card x	LPC (Loop processor card)	Successful recovery after a previous failure.	-
Replaced Device Wrong type number x on loop y	LPC (Loop processor card)	Device is a different type.	Check and confirm installation of correct type and reallocate. Back up to memory.
SAFE Address not Set up number x on loop y	LPC (Loop processor card)	The replaced device is not SAFE addressed. The device previously installed in the location was SAFE addressed.	Set up the SAFE address.
Scan error number x at card y	LPC (Loop processor card)	Invalid universal scan reply.	Check loop length and screening.
Self tests cancelled	LPC (Loop processor card)	Self test was cancelled, for example due to a real fire being detected or mains failure at the panel.	Address the real fire or reestablish the mains supply and then carry out self test.
Self test Optical failed	LPC (Loop processor card)	Optical self test has failed at the device.	Investigate rectify probable cause and repeat self test. Replace the device if failure persists.
Self test Heat failed	LPC (Loop processor card)	Heat self test has failed at the device.	Investigate and rectify probable cause and repeat self test. Replace the device if failure persists.
Self test Smoke Entry failed	LPC (Loop processor card)	Smoke entry into the chamber was inhibited during self test	Investigate and remove the dust cover and repeat self test.
Self test hardware faulty	LPC (Loop processor card)	There is a hardware fault detected at a self test device.	Replace the device
Sector actioned	LPC (Loop processor card)	Sector is switched ON/OFF.	-
Sector enabled/ disabled at card x	LPC (Loop processor card)	The sector has been enabled or disabled automatically or manually.	If necessary, manually enable/disable the sector using the [control] menu.
Seeking radio devices	LRT	Radio LRT is finding all of the radio devices	-
Sensor is faulty	LPC (Loop processor card)	Wireless system - sensor head needs cleaning or sensor head lost from a wireless base (wireless adaptor)Also mean - Fault pattern has been matched.	Check and replace the sensor if necessary.
Sensor out of specification number x on Loop y channel z	LPC (Loop processor card)	Fault pattern has been matched.	Check and replace the sensor if necessary.

Message	associated with..	meaning..	..possible action
Sensor restored number x on Loop y	Radio (Plexus) Device	A Radio (Plexus) Device head has been restored.	-
Shared memory hardware is faulty at card x	Any Card	There is MCC / MCB problem.	Replace all other cards first other than the MCC/MCB to see if the problem is resolved. If it persists then replace MCC / MCB.
Slave Device Replaced number x on loop y	LPC (Loop processor card)	Slave type device has been replaced.	-
Slave micro failed at card x	LPC (Loop processor card)	Loop driver is watchdogged by loop processor.	Reset and ignore single occurrence. Record in the log book.
Software errors	Software errors will activate a system reset	Software error.	Software errors will activate a system reset. Ignore single occurrence. Record the event in the log book.
Sounder circuit failed	Device	There is a fault with the sounder hardware on the S-Cubed or S-Quad.	Replace the device.
Sounder circuit Restored number x on loop y	Device	The fault is on the sounder circuit associated with S-Quad or S-Cubed has been restored.	-
Speech circuit has failed	Device	There is a hardware fault possibly associated with the voice chip on the speech S-Cubed or S-Quad.	Replace the device.
Speech circuit Restored x on loop y	Device	The fault on the speech S-Quad and S-Cubed has been restored.	-
Spurious acknowledgment at card x	Any Card	Software error.	Software errors will activate a system reset. Ignore single occurrence. Record the event in the log book.
Spurious FAB number x on loop y	LPC (Loop processor card)	Device has FAB but shouldn't have any.	Ignore single occurrence as the panel will remove the indication.
Stack overflow at card x	Any Card	Software error.	Software errors will activate a system reset Ignore single occurrence. Record the event in the log book
Stack too deep at card x	Any Card	Software error.	Software errors will activate a system reset. Ignore single occurrence. Record the event in the log book.
Strobe circuit has failed / restored	Device	The strobe circuit in the S-Quad or S-Cubed device has failed or restored.	Replace the faulty device.

Message	associated with..	meaning..	..possible action
Sub Faults			See exceptions.
Superfire number x on loop y channel z	LPC (Loop processor card)	Pattern match is equal to or greater than a Fire.	-
Supply totally Failed	MCC / MCB (Main control card/ board)	The message does not normally appear.	-
Switching inhibited at end 1 at card x	Network	Automatic end swapping on the network controller has been disabled for test purpose.	-
System Printer fitted at card x number y loop z	MCC / MCB (Main control card/ board)	A 80 column serial printer is fitted to the panel.	-
System Printer Lost at card x number y on loop z	MCC / MCB (Printer option)	External printer connected to an IO card cannot seen by the panel.	Check the wiring from the panel to the external printer and ensure the printer is switched On.
System Restarted / Started	MCC / MCB (Main control card/ board)	Link on back plane restored.	-
System stopped	MCC / MCB (Main control card/boa	Backplane link moved causing the system to stop.	Backplane link moved causing the system to stop.
Task stuck at card x	Any Card	Software error.	Software errors will activate a system reset. Ignore single occurrence. Record the event in the log book.
Test set found / removed at card x	LPC (Loop processor card)	Remote allocation unit has been found connected to the system.	Disconnection of the test set will bring about a removed message.
Too many errors number x on loop y	Device	More than 15 errors from a device in 34 hours.	Check the loop wiring to the device.
Too many errors x at card y	Network Card	Up to 6 consecutive communication errors.	Check wiring and cable screen. There may be faults with the installation.
Two controller at card x	Network	There are two network controllers.	One network controller will automatically shut down.
Two master have the same address at card x	MCC / MCB / DAC	Two PCs have been given the same address.	Each PC must have a unique address.
Unable to claim buffers at card x	Any Card	System too busy	Wait or reset card if stuck, record in the log book.

Message	associated with..	meaning..	..possible action
Unrecoverable tx Fault number x loop y	LPC (Loop processor card)	More than 3 consecutive reply errors.	Check the device connections and replace if necessary.
Voice Alarm comms failed Port 1 / Node x	Panel's Serial Link	There is a serial link wiring fault between Vigilon Plus panel 'Port 1' and DOM/Comprio. Other Vigilon Plus panels in the connected network will indicate the 'Node' number of the panel connected to DOM / Comprio.	Check the serial link is working, ensure: - Serial link cable is connected to DOM to socket TWI - Serial link cables are connected to the two 9 way D Type connectors on the Adapter TWI-RS232 and -Serial link cable is wired correctly at a Vigilon plus/Compact plus panel to terminals Tx, Rx and 0V.
Voice Alarm comms failed Port 1 / Node x	Panel's Serial Link	There is a serial link wiring fault has been restored between Vigilon Plus panel 'Port 1' and DOM/ Comprio. Other Vigilon Plus panels in the connected network will indicate the 'Node' number of the panel connected to DOM /Comprio.	-
Voice Alarm common fault Node x	Connected D1 Voice Alarm system	There is a common fault, that is any fault in D1 Voice Alarm system, for example Speaker line fault, Amplifier fault, Mains power fault, etc. The ERROR LED is lit at the DOM/Comprio connected via serial link to Vigilon Plus panel.	Find the cause of common fault at a D1 Voice Alarm system: - Refer to user guides for D1 Voice Alarm system modules to locate the fault. - Once the fault is rectified the fault message and notice fault indications are removed at both Vigilon Plus and D1 Voice Alarm system.
Voice Alarm configuration fault Nos. 17	Configuration fault at a D1 Voice Alarm System	This message and indication is given at Vigilon Plus panel of a configuration fault in a D1 Voice Alarm system. The affected output (VOP) in this case No 17 is not recognised.	Test for a configuration error which occurs when a non existent or not configured properly Virtual Output Point is made active.- - Confirm the VOP displayed as being faulty is non existent. - Rectify the configuration at Vigilon Plus and/or at the D1 Voice Alarm system. - Repeat this test to ensure the revised configuration works. Check to ensure the fault has cleared.

Message	associated with..	meaning..	..possible action
Warm restart	MCC / MCB (Main control card)	The 5V rail has seen a dip activating the watchdog or the button has been pressed on MCC / MCB or panel power reconnected.	-
Warning cleared	MCC / MCB (Main control card/ board)	Warning has been removed.	-
Wiring changed - ground break at card x number y on loop z	LPC (Loop processor card)	A test has shown a break on the 0V line. The test is conducted every minute.	Check wiring of 0V around loop.
Wiring changed - short at/after card x number y loop z	LPC (Loop processor card)	Loop short circuit after the particular device.	Check wiring and device after indicated device.
Wiring changed - split/closed at/ after card x number y on loop z	LPC (Loop processor card)	No reply received from a device at End-2 of loop.	Check wiring.
Wiring changed part short at/after card x number y on loop z	LPC (Loop processor card)	Less than 80 ohms between the +ve and 0V of loop wiring.	Check wiring and the device after the partially shorted device.
Wrong card type at Card x	Any Card	Card in wrong slot.	Move the cards to the right location.
Zone enabled / disabled at card x	MCC / MCB (Main control card/ board)	The zone has been enabled or disabled automatically or manually.	If necessary, manually enable or disable the zone using the [control] menu.
Zone in test mode	MCC / MCB (Main control card/ board)	The zone test mode is On.	Remove zone from test mode once tests are complete.
Zone no longer in test mode	MCC / MCB (Main control card/ board)	The zone is no longer in test mode	-

Appendix C - Guidelines for standalone system functions

This appendix provides guidance on factors that must be taken into consideration when applying standalone system functions, such as:

- labels
- sectors (including flag set or integral sectors)
- delay blocks
- time slots and time blocks
- zones
- groups
- voice alarm zones
- command builds
- sounder configuration
- auxiliary relays.

LABELS

- Labels are given to identify location of areas on a site where products are installed
- A previously created label can be modified

> Where manual call points are being used then each can only have a label of up to 28 characters.

- a 32 character label can be assigned to a:
  - device (must have a label having 28 characters if it is an MCP)
  - each Input/Output line (must have a label having 28 characters maximum if one or more MCPs are installed on the input line)
  - zone
  - group
  - control panel.

Input channel label

A supervisory input channel label of an interface unit will only be displayed at the control panel of the standalone system.

- By adding an * in front of the channel label it will allow the label to appear on all the networked panels.

  The networked panels must however be setup to display all events. In this configuration the label will also be displayed at a network node and Central monitoring system.

- When an interface input is operated the standalone system's (local) control panel buzzer can only be activated by configuring the input to trigger a Command build. In this case the Command build should not have actions

- To activate buzzers of control panels in a network an * must be inserted before the command build label.

LONG LABELS

Long labels having up to 64 characters can be given to devices and command builds. This is achieved by replacing commonly used words with token values (special codes). Tokenised labels :When tokens are decoded, a trailing space is automatically added to the decoded word. Likewise when a label is being tokenised, the word must have a space following it, or be at the end of a line. Therefore a token word cannot be followed with a comma, dash or other such character.

To switch ON long labels: Press the Menu on/Off button -> [Test/Eng] -> [UserCode] -> enter your PIN (where necessary) -> <etc> -> [Config] -> <etc> -> [Label] -> [On] -> [Enter].



All tokenised labels are displayed in Upper case.

Banks 0, 1 and 2 show the list of tokens used by the software to reduce the character label to 32 characters or less.

Bank 0

General Building Feature			
AREA	ANNEXE	BLOCK	BUILDING
CORE	CORRIDOR	DOOR	DUCT
ENTRANCE	ESCALATOR	EXIT	EXTENSION
FLAT	HALL	HOUSE	LIFT
LOBBY	RISER	ROOM	ROUTE
STAIRS	TOWER	UNIT	VENTILATION
VOID	ZONE		
Vertical Location			
LEVEL	MEZZANINE	FLOOR	BASEMENT
GROUND	FIRST	SECOND	THIRD
FOURTH	CEILING	ROOF	ATRIUM
Geographic Location			
NORTH	SOUTH	EAST	WEST
NEAR	OUTSIDE	ABOVE	UPPER
CENTRE	LOWER	LEFT	RIGHT
FRONT	REAR		
Building Usage			

ACCOMMODATION	ADMIN	BEDROOM	BOILER
CENTRAL	CHANGING	COMPUTER	CONTROL
CUPBOARD	ELECTRICAL	ENGINEERING	EXTERNAL
GALLERY	GARAGE	GENERAL	HOUSING
KITCHEN	LAUNDRY	LOUNGE	OFFICE
PLANT	RECEPTION	RESTAURANT	SERVICE
SERVICES	SHOP	STAFF	STORE
STORES	SWITCH	SYSTEM	TOILET
WORKSHOP	WARD	WAREHOUSE	
Airport Tokens			
AIR SIDE	ARRIVALS	BAGGAGE	BRIDGE
BUREAU DE CHANGE	CUSTOMS	CONCOURSE	DEPARTURES
DUTY FREE	EXCHANGE	GATE	HANDLING
IMMIGRATION	LANDSIDE	LUGGAGE	MALL
PASSENGER	RETAIL	SECURITY	STATION
TERMINAL	TRANSFER		
Medical Tokens			
MEDICAL	THEATRE	X-RAY	CLINIC
PATIENTS	PHYSIOTHERAPY	GERIATRICS	PAEDIATRICS
RECORDS	HEALTH		
Components of the Fire System			
SOUNDER	DETECTOR	OPTICAL	IONISATION
HEAT	INTERFACE	BEAM	REPEAT
SPRINKLER			

BANK 1

General Building Features			
CHAMBER	FOYER	SHAFT	STAIRCASE
STAIRWELL			
Vertical Location			
FIFTH	SIXTH	ATTIC	BALCONY
LANDING	PASSAGE	SUBWAY	TUNNEL

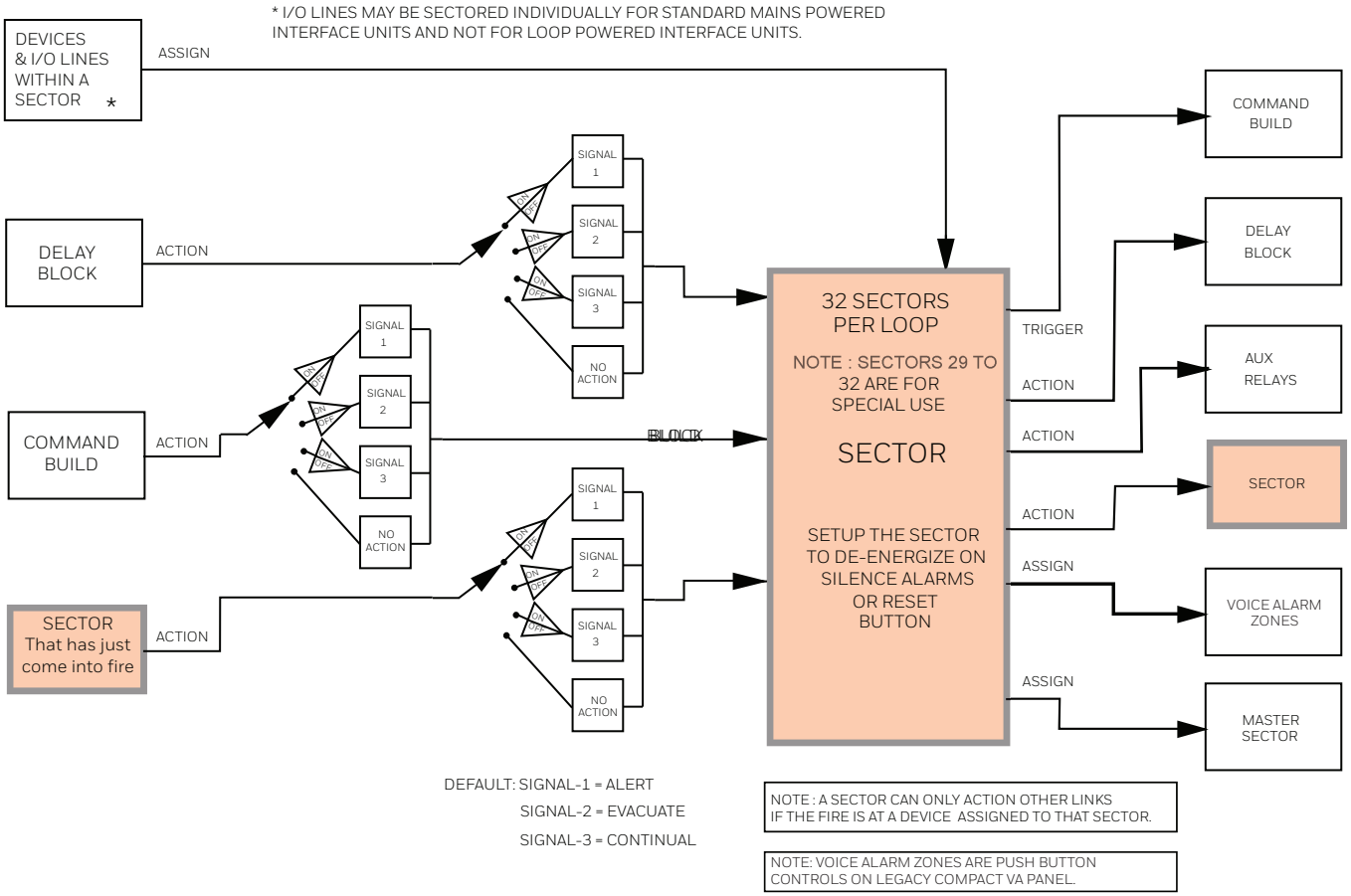
Positions			
ADJACENT	BOTTOM		
Building Usage			
CATERING	COLLEGE	CONFERENCE	DEPARTMENT
DISPATCH	EMERGENCY	EQUIPMENT	ESCAPE
MANAGER	MEETING	PACKING	PHYSICS
POINT	PREPARATION	SHOPPING	SITTING
STATIONERY	SUITE	SUPPLY	TELEPHONE
TRANSFORMER			
Airport Tokens			
AIRLINES	BONDED	CHECK-IN	CLORIFIER
CONVEYOR	CUL-DE-SAC	DOMESTIC	FORECOURT
INFORMATION	INTERCONNECTOR	INTERNATIONAL	RECLAIM
SCREENING	SECRET SIGN	TRAVOLATOR	TRUCKING
Medical Tokens			
DISPENSARY			
Components of the Fire System			
ASPIRATING	INPUT	OUTPUT	PRESSURE
SHUTTER			

BANK 2

General Building Features			
BLOWER	CHUTE	DOORS	HOIST
ROLLER	SLUICE		
Position			
BEHIND	BELOW	UNDER	MIDDLE
Building usage			
BISTRO	BUSINESS	CANTEEN	CHILLER
CLASS	CLASSROOM	CLEANERS	DISABLED
ELECTRONICS	FACTORY	FEMALE	LIBRARY
LOCKER	MAINTENANCE	MOTOR	MUSIC

NURSERY	PHASE	QUIET	SEATING
SHOWER	STORAGE	TENANT	VEHICLE
VOLTAGE	WALKWAY		
Airport token			
APRON	AUTOWALK	BOARDING	CABIN
CONNECTOR	CRAFT	DEPARTURE	FLIGHT
STAND	TOUCHDOWN		

SECTORS



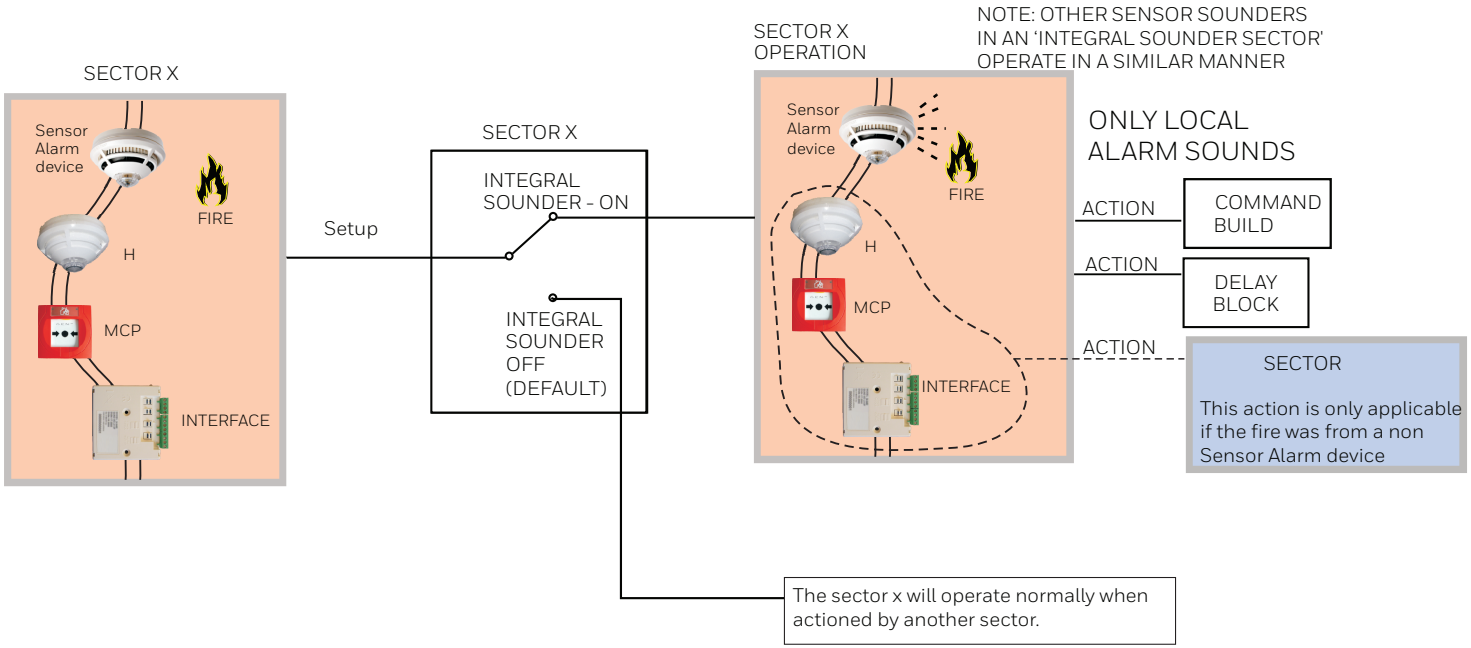
- There can be up to 32 sectors per loop
- a Sector is a collection of devices on the same loop having a common action
- a Sector that is actioned ON will activate its alarm devices, such as interface outputs, S Cubed and S-Quad devices.
- a sector can be configured to give one of three signals
  - Signal 1 Alert (priority 3)
  - Signal 2 Evacuate (priority 2)
  - Signal 3 Continuous (priority 1).

- Sectors 1-28 operate automatically with ‘Sound Alarms’ and ‘Silence Alarms’ buttons
- a Sector (any one of 1-28) that is configured for NO action on ‘Sound Alarms’ button being pressed will be silenced on operation of the ‘Reset’ button
- the Sectors 29-32 are independent of the ‘Sound Alarms’ button and are primarily used for the control of plant equipment. However, the Sectors 29-30 can be configured to normal sector operation
- sensors, call points and interface inputs can be assigned to a sector and not normally advised with caution may be assigned to more than one Sector
- a loop powered interface is assigned to a Sector and consequently the inputs and outputs lines of that interface will be assigned to the same Sector
- S4 devices having alarm sounder and interface outputs are restricted to one Sector only

INTEGRAL SOUNDER OPERATION

A sensor sounder device can have its integral sounder only actioned in the event of a local fire event being detected at the device.

- Integral sounder Sector operation can be configured using the panel menu commands [SetUp]-> [Sector] -> [Sounder] -> [On]
- when a Sector is configured for 'integral sounder mode' then a fire event from a sensor sounder in the Sector will cause only the integral sounder to operate
- linked Sectors are not affected when sensor/sounder type device is triggered from Sector configured for 'integral operation mode', only its local sounder operates and fire is reported at the panel
- Delay Blocks can be configured to action other Sectors from sector operating in an integral sounder mode
- Sectors configured for integral sounder mode operation can be setup to action command builds.



DEFAULT FIRE PLAN

The fire plan on power up is known as 'one out all out'. This is when Sector 1 is assigned with all devices of the system. A fire will activate evacuate (signal 2) on all interface outputs and alarm sounders of S-Quads, S-Cubed and DAU devices.

- Fixed extinguishing inputs / outputs are automatically assigned to Sector 29. Note the Fixed extinguishing interface unit is a legacy product and is no longer a part of the product range.

To assign a default fire plan

To manually configure the default fire plan using the set up menu:

- Assign all devices and IO lines to Sector 1 and then action all sectors (except Sectors 29-32) on all sectors to signal 2.

To remove the default fire plan.

- If the system is not intended to operate with the default 'Fire Plan', then do exactly the same as making the default fire plan, but this time replace the [Assign] with [Remove]. Also remove IO lines.

  All sensors, call points, sounders and interface lines are now completely separate from each other.



- also [Deaction] all sectors on all Sectors. This will remove any configured Sector actions

- a site specific 'Fire Plan' can now be set up by assigning devices within common initiation areas to Sectors and then actioning them together to form the required 'Fire Plan'.

FAIL SAFE FIRE PLAN

- It is advisable to build a fail safe mechanism when Sectoring. If for any reason certain Sector assignments have been lost due to system power down and subsequent NVM recovery conflict on system power up, the sounders will still operate in the event of a fire.

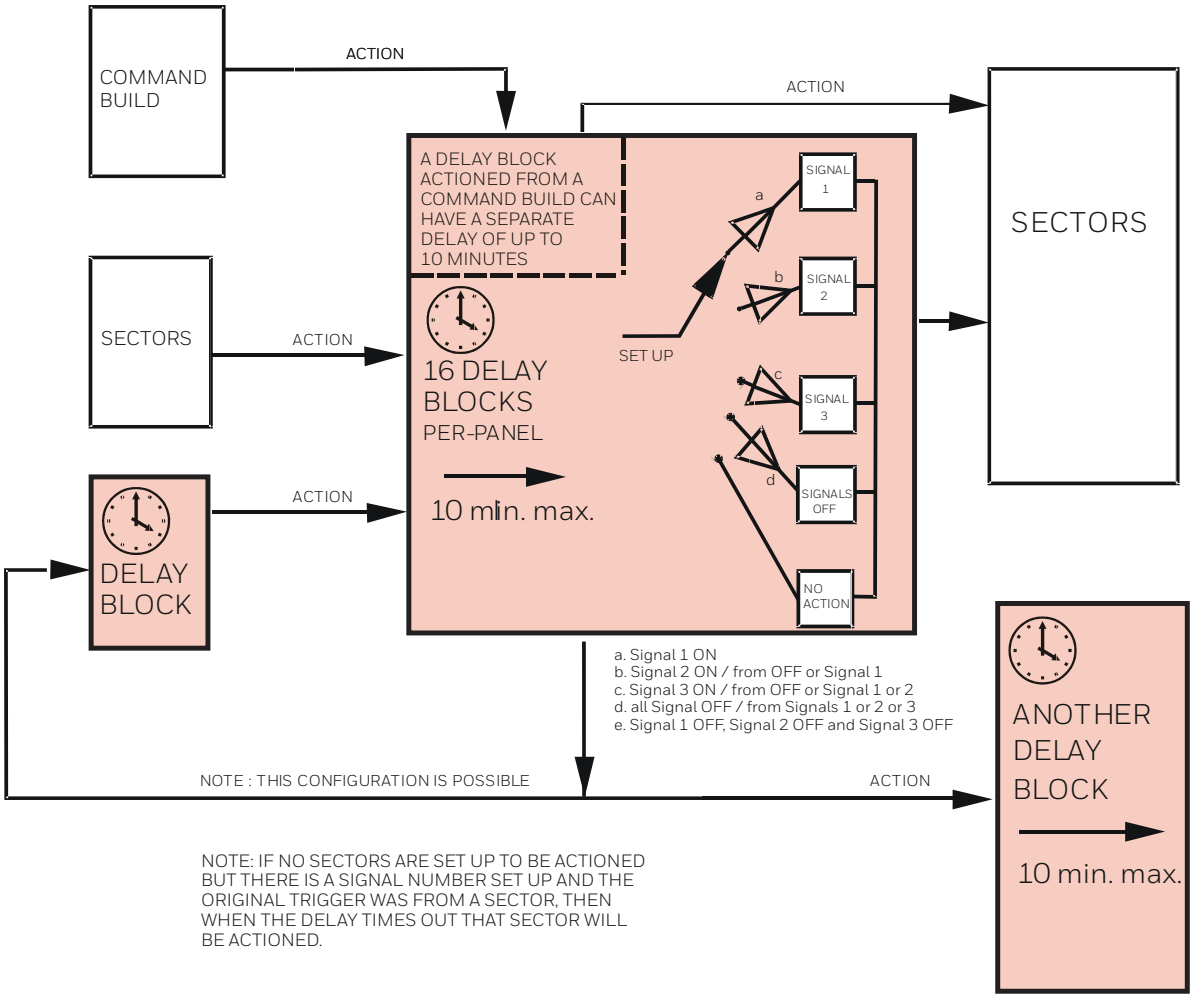
- the fail safe mechanism will involve leaving Sector 1 on each loop free from any device assignment, as any devices that lose their sector assignment will default to Sector 1

- the following action will give an evacuate tone to any alarm sounders that have defaulted to Sector 1:
  - Action all Sectors (except Sectors 29-32) on Sector 1 to signal 2
  - Action Sector 1 on all sectors to signal 2.

SITE SPECIFIC FIRE PLAN

- A site specific fire plan can be created by configuring Sectors to site requirement.

DELAY BLOCKS



NOTE: IF NO SECTORS ARE SET UP TO BE ACTIONED BUT THERE IS A SIGNAL NUMBER SET UP AND THE ORIGINAL TRIGGER WAS FROM A SECTOR, THEN WHEN THE DELAY TIMES OUT THAT SECTOR WILL BE ACTIONED.

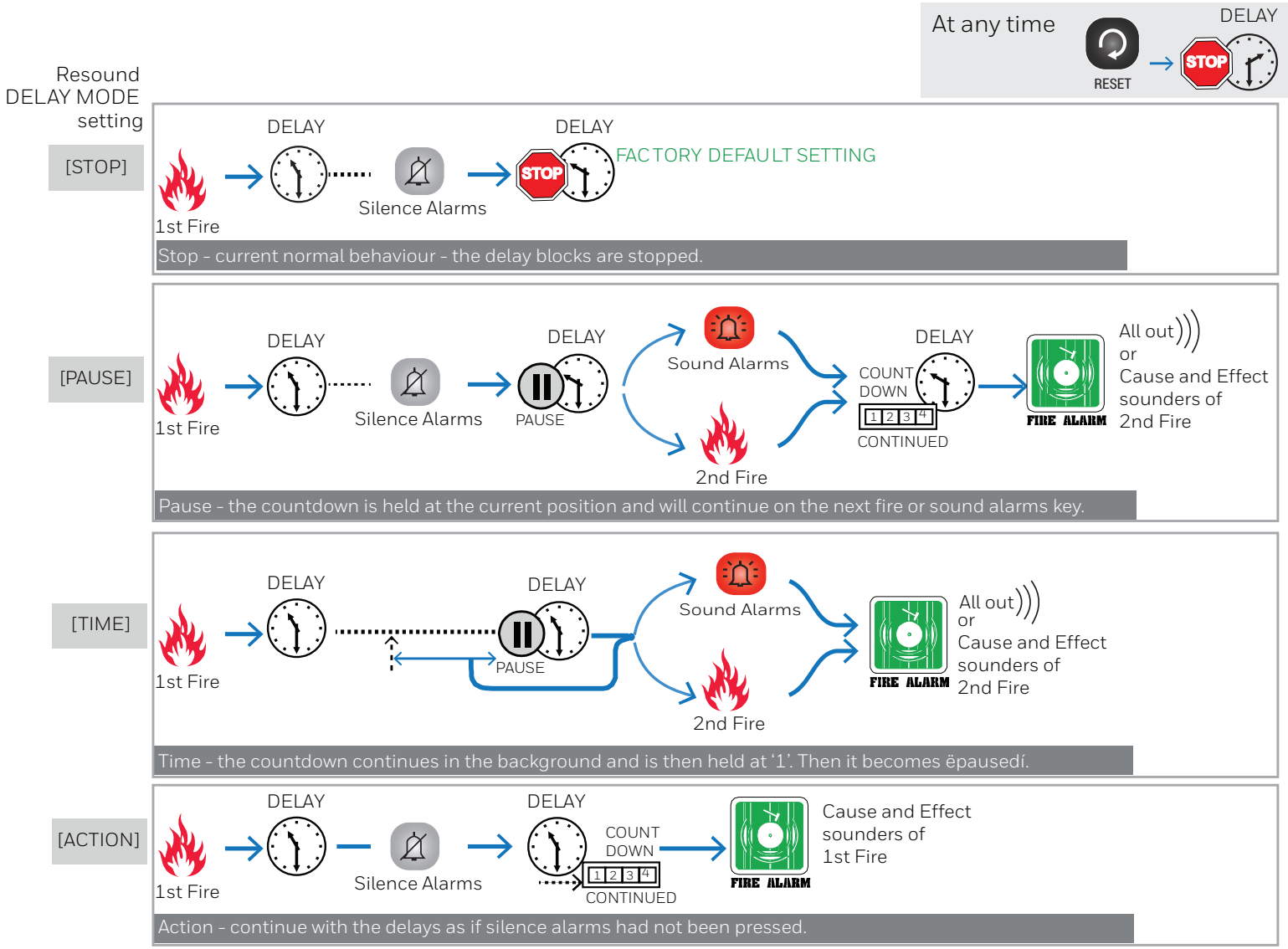
- There can be up to 16 Delay blocks per panel
- each Delay block can provide a delay of between 4 seconds to 10 minutes (in 4 second increments) before starting a desired action
- a Delay block can action:
  - Sectors
  - Delay blocks
- a Delay block may be actioned by:
  - Sectored fire event
  - Command build
  - Delay blocks
- if the required delay is beyond 10 minutes. This can be achieved by a Delay block actioning another Delay block before the required action is taken

> If Delay Blocks are linked to produce a delay of longer than 10 minutes, then the panel will no longer meet the requirements of EN54: Part 2:1997.

- where a Delay block is actioned by a command build, a different delay time can be set up (within the Command build entry line).

RESOUND DELAY MODE FUNCTIONS

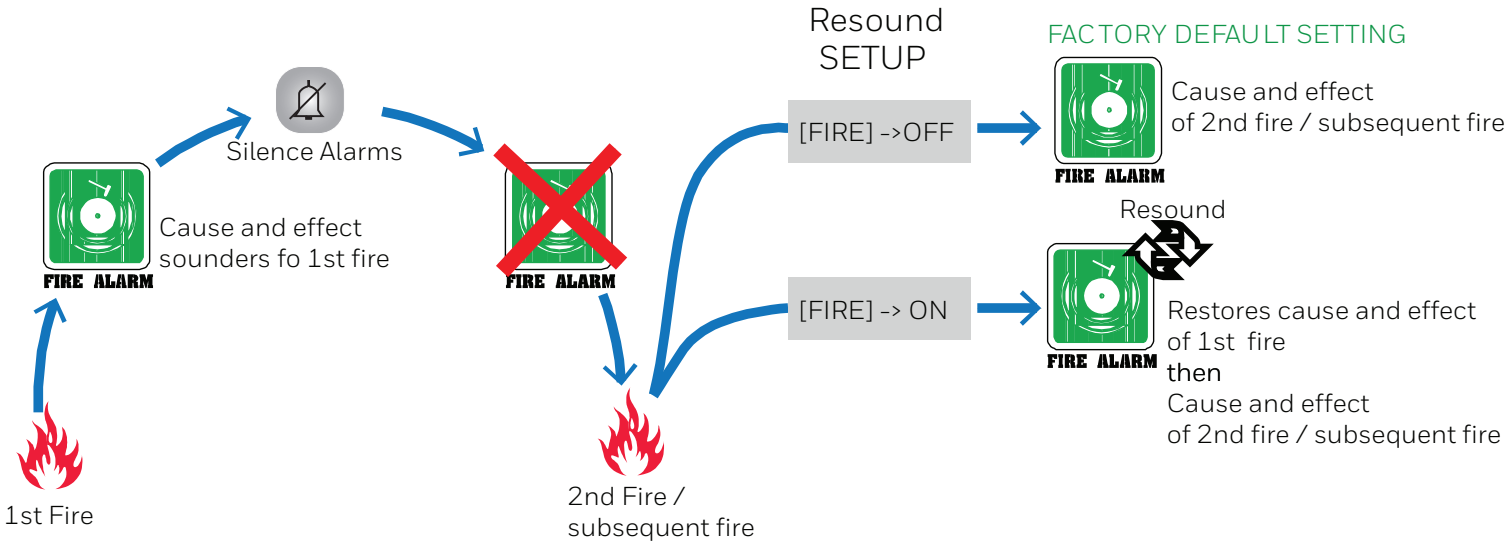
There are 4 control settings for Delay mode under [Resound]. These settings control what happens to the delay blocks when the Silence Alarms button is pressed.



SOUND AND RESOUND ALARMS OPTIONS

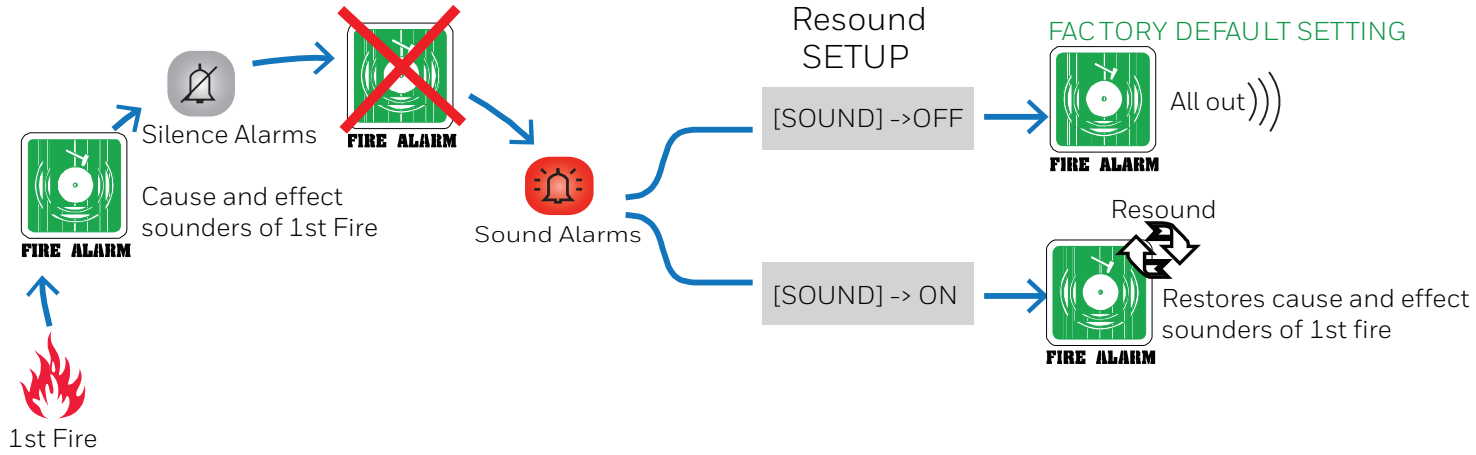
Resound [FIRE] -> ON / OFF setting

The FIRE ON/OFF setting under [Resound] controls the way sounders operate when a 2nd or subsequent fire occurs after the alarms have been silenced following 1st fire.

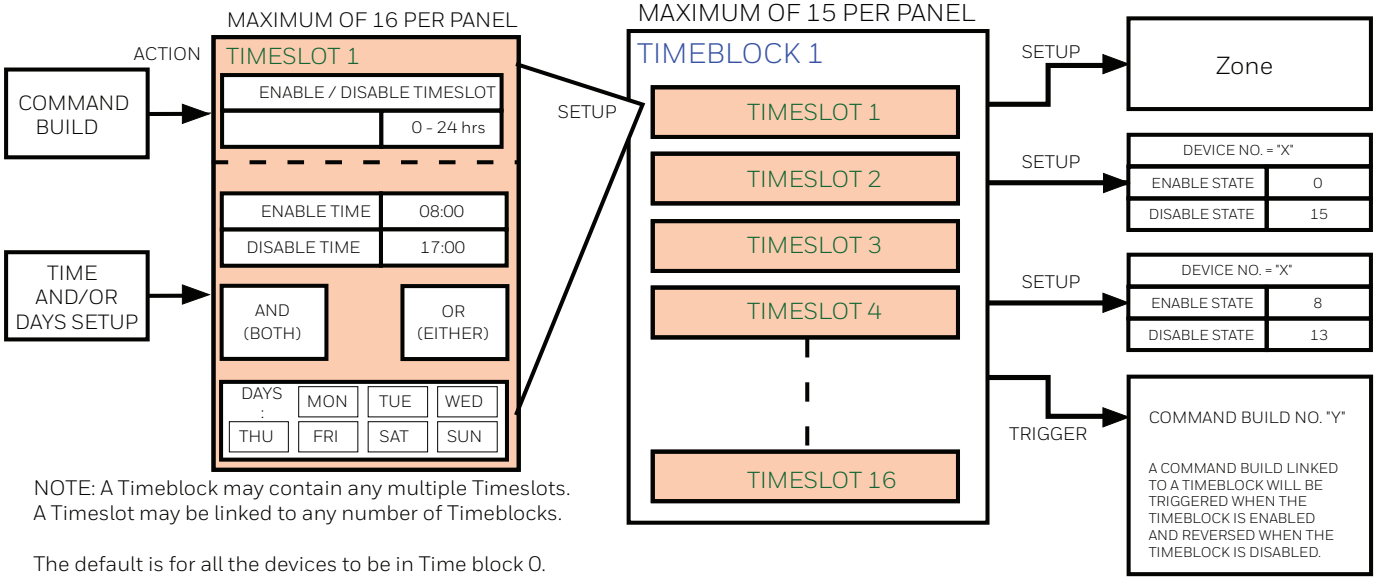


Resound [SOUND] -> ON / OFF setting

The SOUND ON/OFF setting located under [Resound] controls the way sounders operate on 1st press of the Sound Alarms button during a fire condition after the alarms have been silenced. When set to ON the sounders will resound and when set to OFF the sounders will perform the standard action of all-out alarms.



TIME SLOTS AND TIME BLOCKS



NOTE: A Timeblock may contain any multiple Timeslots. A Timeslot may be linked to any number of Timeblocks.

The default is for all the devices to be in Time block 0. A Timeblock is enabled if any one of the Timeslots within it is in the enable state.

Time slots

A Time slot must be linked with a Time block. It is the Time block that perform actions on the system.

> Timeslots do not process when the panel is in a fire condition.

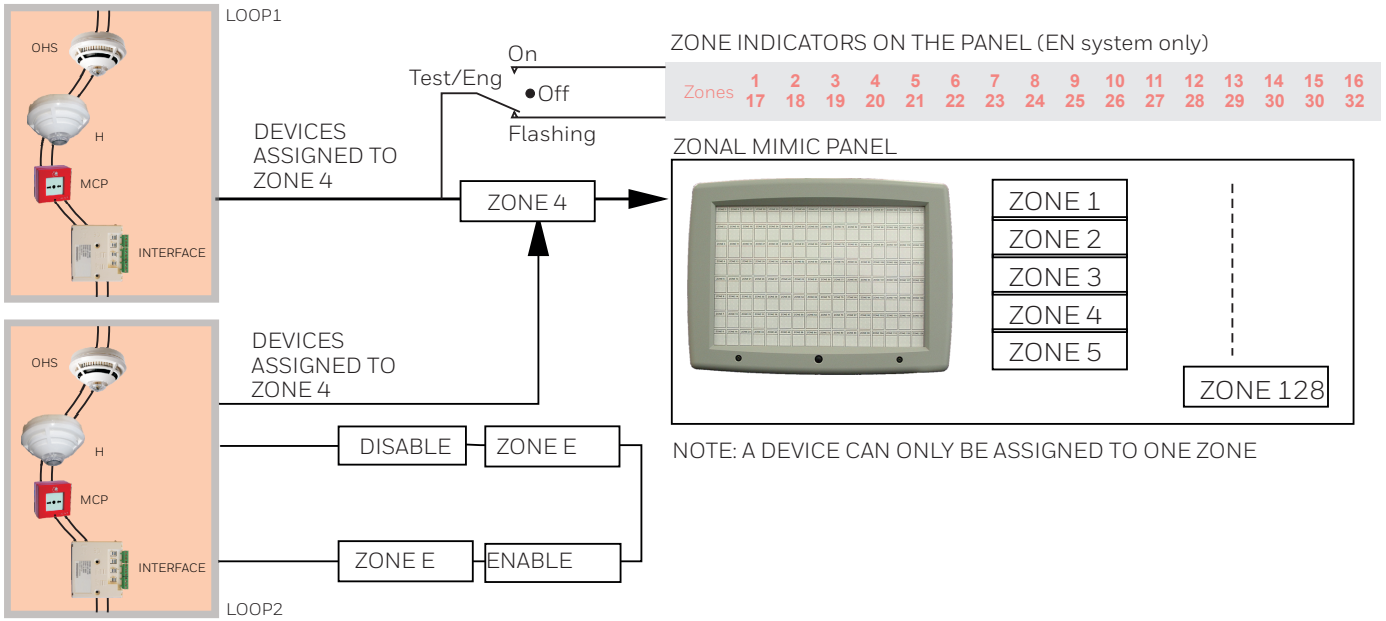
- a Time slot can be:
  - triggered automatically
  - switched ON / OFF manually
  - or switched ON / OFF by Command build
- it performs an action immediately or after a delay of 0 to 24 hours.
- there can be up to 16 Time slots per panel
- each Time slot has to be given an Enable time and a Disable time
- each Time slot must be ANDed / ORed to the days of week, (Mon, Tue, Wed, Thu, Fri, Sat, Sun).
- when a Time slot is ANDed with selected days, it will only operate on the selected days
- when a Time slot is ORed with selected days, it will be Enabled during selected times and will remain ON throughout the days selected.

Time blocks

A Time block is used to perform periodic enable disable action on the system.

- There are 0 - 15 Time blocks per panel
- the Time block 0 is always in the Enable state and is the default for all sensors
- a Time block can be linked to one or more Time slots
- when a Time slot is enabled the time block it is linked to is also Enabled
- a sensor or interface input can only be assigned to one Time block
- when a Time block is in an Enable state:
  - any sensor(s) linked to it will operate in the Enable state that has been set up
  - any Command build linked to it is triggered.
- when a Time block is in a Disabled state any Zone tasks linked to it are also Disabled.

ZONES



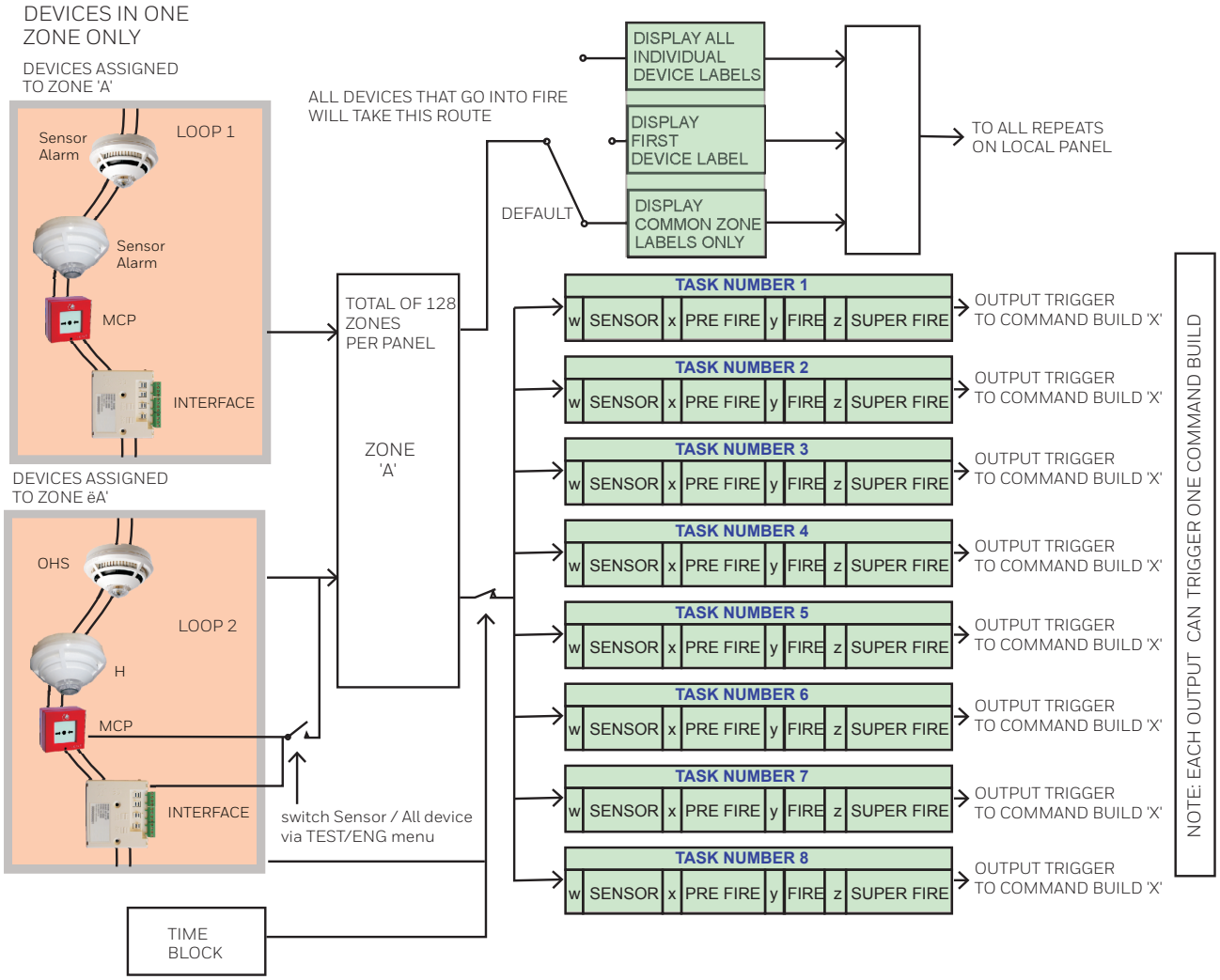
NOTE: A DEVICE CAN ONLY BE ASSIGNED TO ONE ZONE

- A Zone has a collection of trigger devices that are located in the same general area. It may be used for one or all of the following:
  - for illumination of zonal fire lights on Main panel or Zonal panel or Mimic panel
  - are also used for common disablement purposes.
- There can be up to 128 Zones per A3 or on A2 zonal mimic panel / 64 Zones per A4 zonal mimic panel, the latter two panel are legacy products
- Zones are used to provide local indication of fire at the main panel and to send fire messages to Zonal mimic panel, Loop Repeat panels and Repeat indicator panels off main panel.
  - integral zonal indicators on a local panel can be configured to give steady / flashing indication of 1st zone in fire.
- Devices from any loop may be assigned to the same Zone
- A device may only be assigned to one Zone
- Input/output lines of an interface can not be assigned individually to Zones. The interface lines can only be assigned collectively to a Zone.

GROUPS

- There can be up to 128 Groups
- all devices default to Group 1
- all local controller events are in Group 0, ie faults, warning, silence alarms and reset.

ZONE TASKS

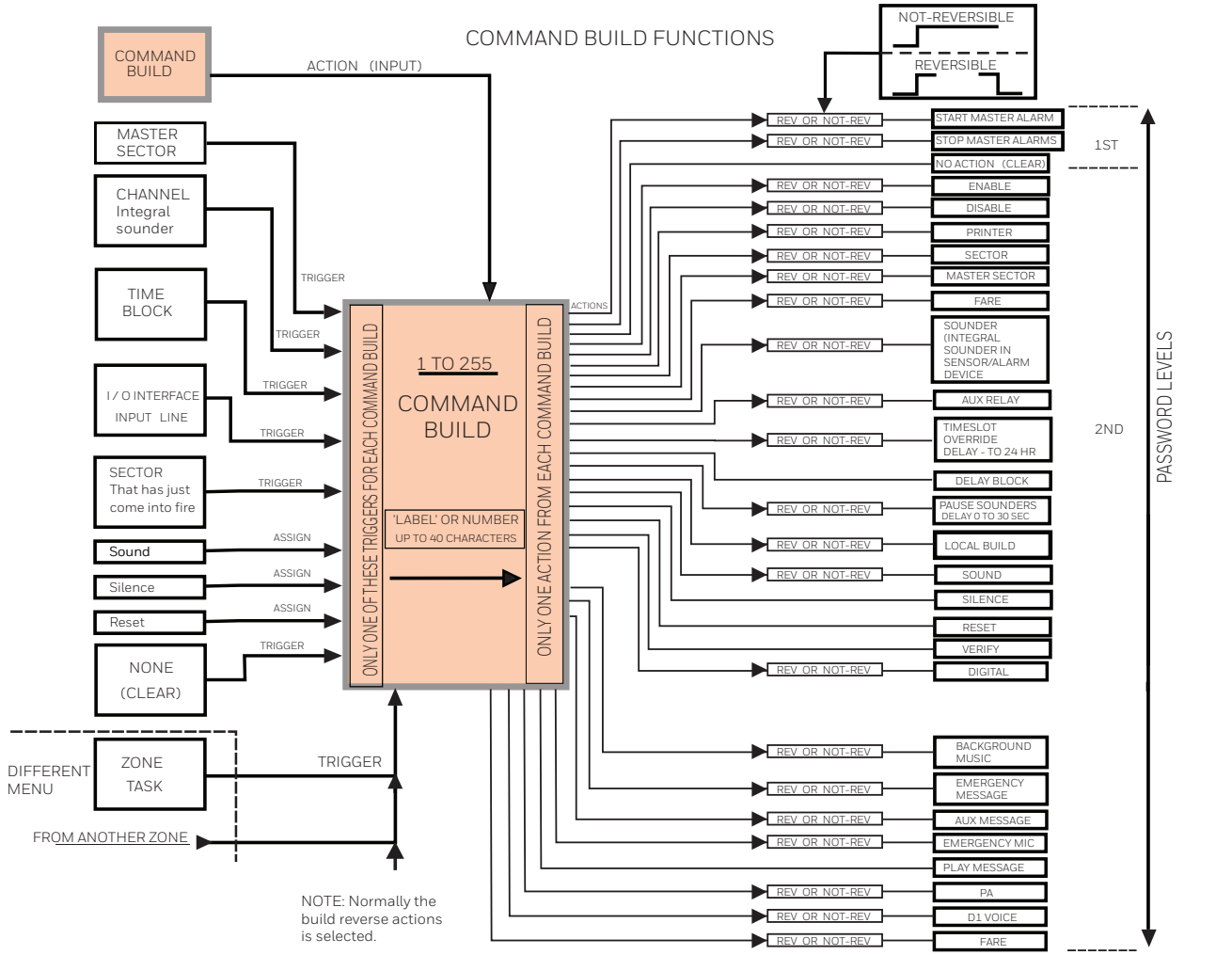


- There can be up to 128 Zones of which the first 64 are for standalone system and remaining zones are for network use. The number of Zones for standalone system can be re-configured via the commissioning tool
- a Zone is a collection of devices, sharing a common label
- a device can only be assigned to one Zone
- Zone mode may be used to control the display of fire messages, to provide:
  - Common zone label only (this is the default).
  - label of first device in fire
  - or all individual device labels.
- a Zone can provide 3-level sensing:

Condition	meaning..	..and for State 0 it implies
PreFire	Fire detection is at a higher sensitivity than the selected STATE.	Fire detection that will easily pass the respective EN54 test.
Fire	Fire detection at the sensitivity of the selected STATE.	Fire detection that is referenced to the respective EN54 test.
SuperFire	Fire detection at lower sensitivity than the selected STATE.	Fire detection that will not pass the Standards test.

- sensors can be configured to provide coincidence operation using a combination of all 3 levels if required
- up to 8 permutations of fire detection (Zone tasks) may be configured per zone
- a Zone task can be made to trigger a command build, this is done in the zone set up menu
- the same Command build can be triggered by different tasks within a Zone
- disabling a Zone will disable the sensors within that Zone
- disabling a Zone via a Time block disables the tasks performed by the Zone
- all devices default to Zone 1.

COMMAND BUILD



Where possible use sectored action instead of command build action.

- There can be up to 255 Command builds per panel
- a Command build can only be set up with one trigger (can be a range)
- a Command build can be triggered:
  - for reversible action (automatic deaction on removal of trigger)
  - or non-reversible action, (deactioned by another Command build for a non-fire trigger or reset for a fire trigger).
- the Command build trigger for Zone tasks reside under the zone menu/function
- Command builds that are triggered through a Sector fire event will deaction on fire reset. This is independent of whether the Sector is configured to deaction on silence alarms
- Command builds that are configured for turn Off actions have no reverse action to turn On again, another Command build or manual action is required
- Command builds can be used under fire and non fire conditions to carry out pre-configured actions built up from the Control menu command
- a Command build can only be set up to perform one action (can be a range), any split range would require a second Command build
- each Command build can be given a 40 character label to be displayed and/or printed when triggered. If no label is given then nothing will be displayed
- if a label is given, the local buzzer will operate for 1 minute when the Command build is active
- Command builds are logged with an On/Off time, this information can be viewed by selecting [info] -> <etc> -> [Event]-> <etc> -> [Supervis]-> [Log] -> [Enter] and if still On via [Info]-> [Event]-> <etc> -> [Supervis]-> [Active] -> [Enter], this is only possible if a label has been given to the Command Build
- when speed of operation is required the lowest number Command builds should be used as these are processed first
- if a digital output line is to be actioned by a Command build, the I/O line should not be assigned to a Sector as it may deaction when the silence alarms is pressed regardless of the Command build still being active
- a fire condition takes priority over a Command build

Take great care not to action a digital output to an input line, as this will effectively disable the input.

SOUNDERS CONFIGURATION

- The standard alarm devices of each standalone system can be configured for three sound output signals
- every 250mS over a 2 second time the sound output can be altered to high, low or off tone
- sound signal configuration can be altered by modifying the FAB-SAB pairs by pressing the button Menu On/Off to select [Set-Up] -> <etc-> -> [Modify]-> <etc> -> [Signal n] -> [Sounder] -> [Enter] and enter the FAB/SAB for Signal n and press enter.

FABs & SABs

The FAB (first action byte) determines tone and On/Off control while the SAB (second action byte) determines the action to be performed on the output.

	Time in seconds							
Factory Default FABs SABs	0	0.25	0.5	0.75	1.0	1.25	1.5	1.75
Signal 3 (Continuous) Output turns on Low frequency sound continuous every 0.5 seconds.		00	4F	00	4F	00	4F	00
Signal 2 (Evacuate) First output turns on Low frequency sound continuously, then every half second the High frequency output is pulsed for 250mS.	4F	25	4F	25	4F	25	4F	25
Signal 1 (Alert) Pulses high frequency for 250mS every half second.	65	00	65	00	65	00	65	00

Number	FAB action	SAB action
0	no output	Turns Off selected Outputs
1	-	10mS pulse on selected Outputs
3	-	90mS pulse on selected Outputs
4	On/Off control.(On being low frequency)	160mS pulse on selected Outputs
5	-	250mS pulse on selected Outputs
6	high frequency tone	350mS pulse on selected Outputs
7	-	480mS pulse on selected Outputs
8	-	630mS pulse on selected Outputs
9	-	800mS pulse on selected Outputs
A	-	980mS pulse on selected Outputs
B	-	1.2S pulse on selected Outputs
C	-	1.4S pulse on selected Outputs
D	-	1.6S pulse on selected Outputs
E		1.9S pulse on selected Outputs
F		Turn on selected Outputs

AUXILIARY RELAYS

The two Auxiliary relays in the control panel are defaulted to operate on:
- a Sectored fire event the Auxiliary relay 1 and
- a fault event the Auxiliary relay 2.

- the Auxiliary relays can be configured for normally-open or normally-closed operation

- the Auxiliary relays may be configured to be operated with:
  - a Fault
  - a Warning
  - any combination of Sectored Fire events
  - or any of the above combination

- It is possible to delay the operation of each relay by up to 10 minutes after the first FIRE event. The accuracy of the delay is 0 - 4 seconds

- The relay will operate immediately for fault and warning events.

RADIO DEVICE

A Plexus radio device is bound to a LRT and can be configured using the Plexus Commissioning tool in a similar manner to any other system device, however see the following note.

> It is important to note that a Radio sensor device do not have multiple STATES and therefore a radio sensor device cannot operate with Timeslot, like for example a S-Quad sensor where the sensor STATE can be switched at pre defined times of a day.

Prior to commissioning radio devices using the commissioning tool ensure they are all pre-commissioned using the Plexus Pre-commissioning tool.

TYPE C FUNCTIONALITY (2 FIRE DETECTION COINCIDENCE)

The type C functionality requires the coincidence of two detectors in a zone going into alarm to activate a Zone task which actions a FARE interface in special Sector 32 to operate FARE equipment.

Steps to configure Type C dependency at Access level 3 see the illustrated example below.

01 Assign required Sensors, MCPs and interface devices to a ZONE x.

02 Assign required alarms, strobe, interface outputs to a normal Sector y.

03 If required Assign an Interface to Sector 32 to operate as per Item C Figure 1 of EN54-1.

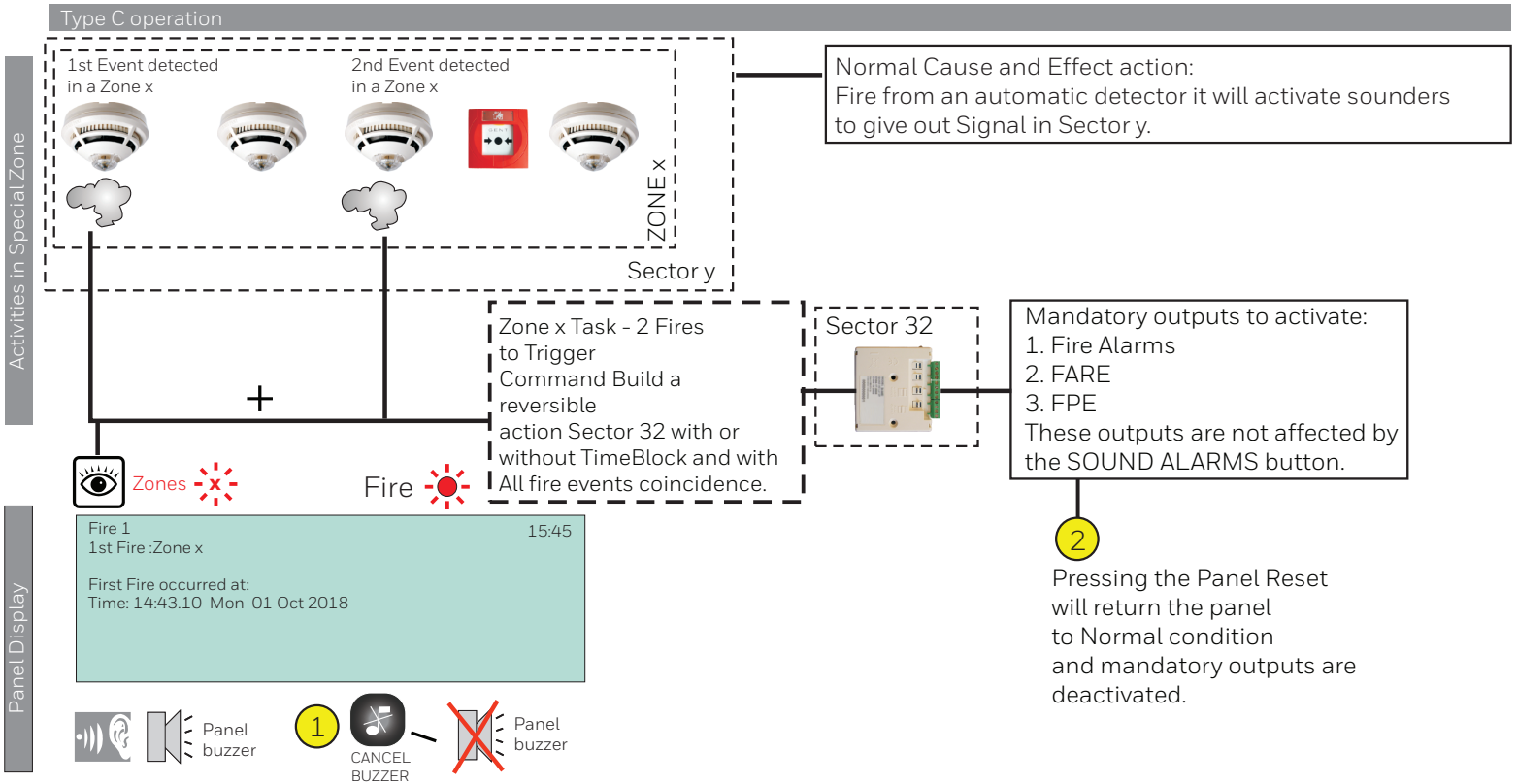
- If required Assign an interface(s) for FPE operation as per item G, Figure 1 EN54-1. These FPE interfaces are automatically assigned to Sector 32.
- If required Setup an interface for FARE operation as per item E, Figure 1 EN54-1. This FARE device is automatically assigned to Sector 32.
  (If more than one item is required then each one may be placed in separate special sector and these are Sector 28-32.)

04 Ensure Group Coincidence Mode is unchecked to enable Zone tasks.

05 Set up 'Zone x' task for 2-Fire detection coincidence (2 - fire counts) from all fire trigger.

06 Set up task to trigger a Command Build a with reversible action to switch Sector 32#, ie interface outputs.

* - To switch Fire alarms, FARE and/or FPE via interfaces. # - Devices in Sector 28-32 are not affected by the panel's SOUND ALARMS button by default.



TYPE C FUNCTIONALITY (2-ZONE COINCIDENCE)

The type C functionality requires the coincidence of two zones going into alarm to activate a Group task which actions a FARE interface in special Sector 32 to operate FARE equipment.

Steps on how the user may configure Type C dependency at Access level 3 see the illustrated example below.

01 Assign required Sensors, MCPs and interface devices to a ZONE x and ZONE y respectively.

02 Assign required alarms, strobe, interface to a normal SECTOR a.

03 Assign all the devices to Group a, this will be all the devices in ZONE x and ZONE y

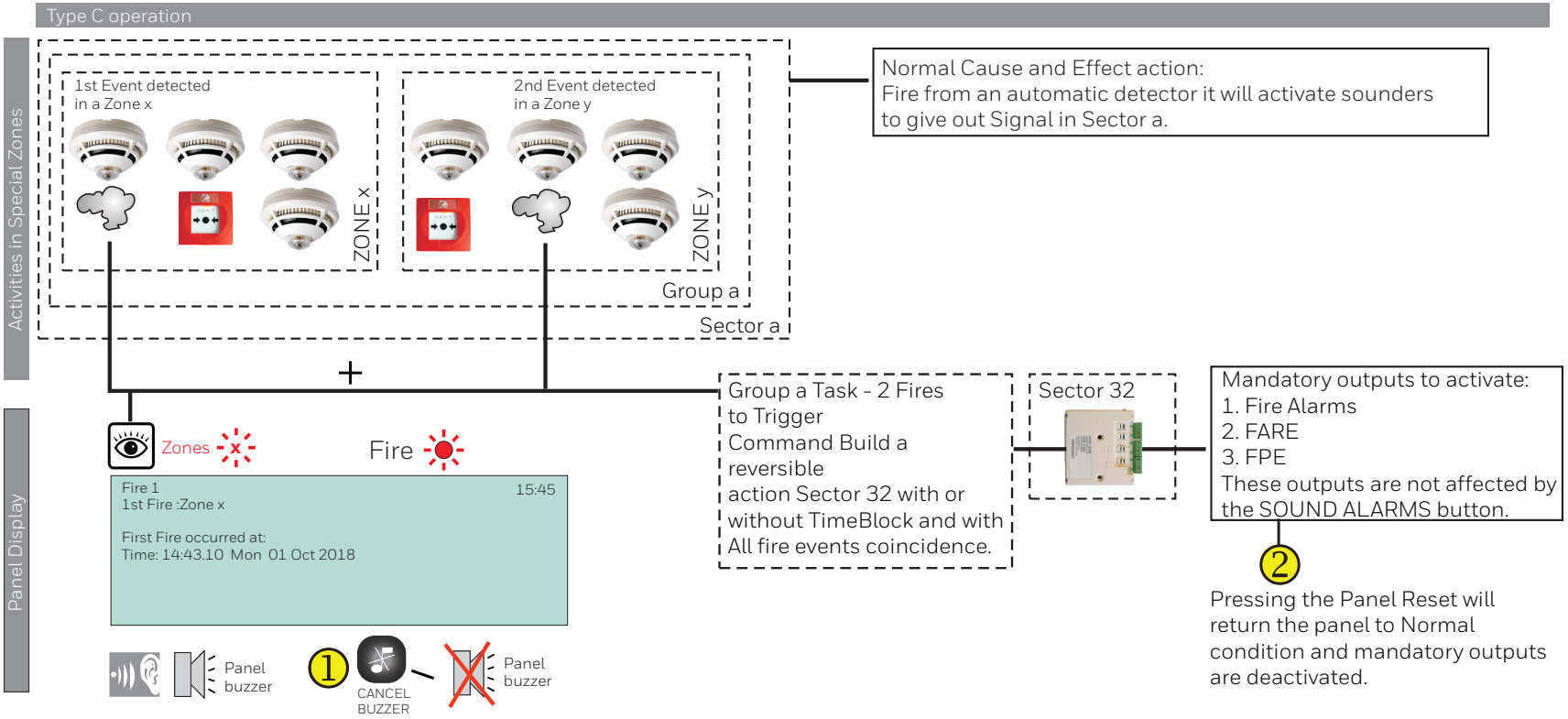
- If required Assign an Interface to Sector 32 to operate as per Item C Figure 1 of EN54-1 or
- If required Assign an interface(s) for FPE operation as per item G, Figure 1 EN54-1. These FPE interfaces are automatically assigned to Sector 32.
- If required Setup an interface for FARE operation as per item E, Figure 1 EN54-1. This FARE device is automatically assigned to Sector 32.
  (If more than one item is required then each one may be placed in separate special sector and these are Sectors 28-32.)

04 Ensure Group Coincidence Mode is checked.

05 Set up a 'Group a' Task for 2-Zone coincidence from all fire triggers.

06 Set up the task to trigger a Command Build a with reversible action to switch Sector 32#, ie interface outputs.

* - To switch Fire alarms, FARE and/or FPE via interfaces. # - Devices in Sector 28-32 are not affected by the panel's SOUND ALARMS button by default.

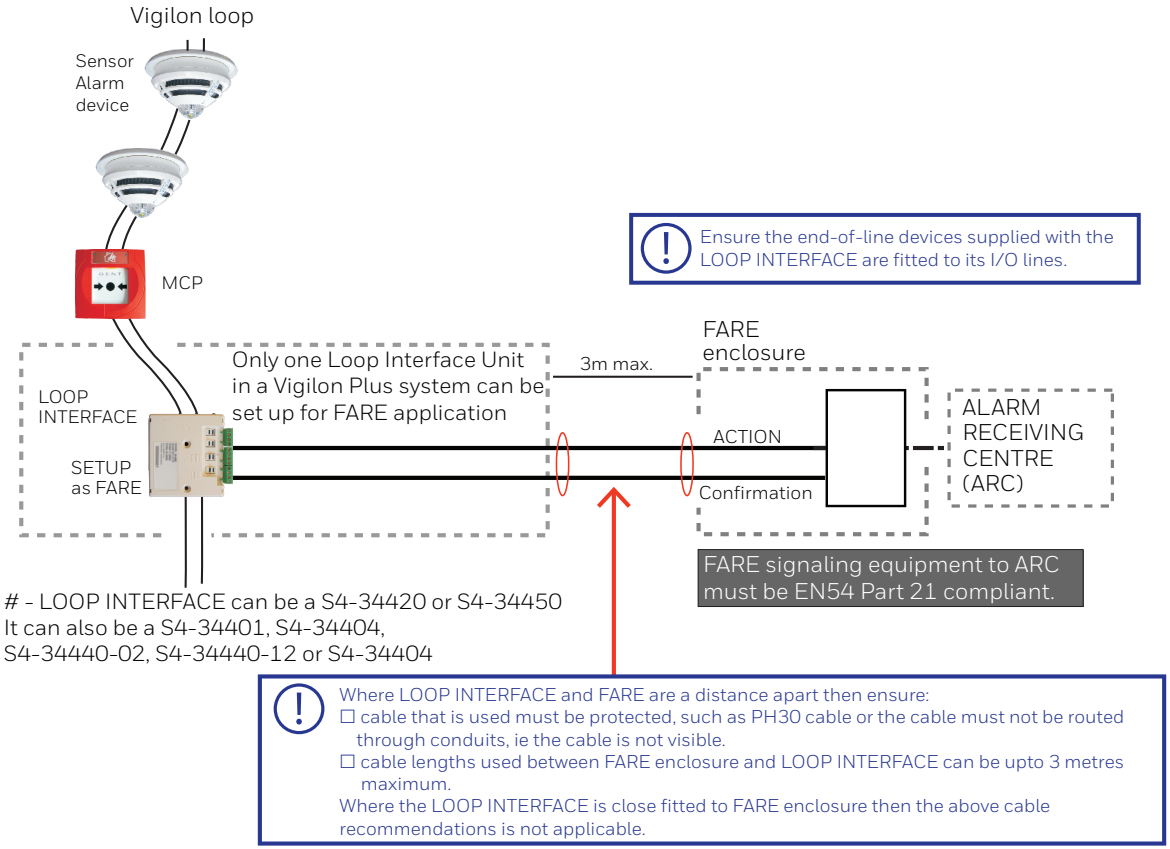


FIRE ALARM ROUTING EQUIPMENT (FARE)

- There can be one FARE Interface per Vigilon Plus System.
  A Loop Interface like the LV Interface unit S4-34420 or S4-34450 can be configured for FARE application.
  Other interface units can also be configured FARE, these include S4-34440-02, S4-34440-12, S4-34401 and S4-34404.

- a FARE Loop Interface is automatically placed in plant Sector 32 (as default) and is unaffected by operation of SOUND ALARMS control

- a FARE Loop Interface may be switched ON or OFF from the panel menus to do this select:
  Menu On/Off button to select [Control] -> <etc> -> [FARE] -> [ON] or [Off] -> [E]
  This option directly actions the LOOP INTERFACE outputs which in switch the FARE outputs ON/OFF.
  This is a short method in the control menu where the user does not have to know the FARE interface parameters, like the node address, loop number and device number.



Where a FARE interface is required to be disabled then use the FARE device disablement option.

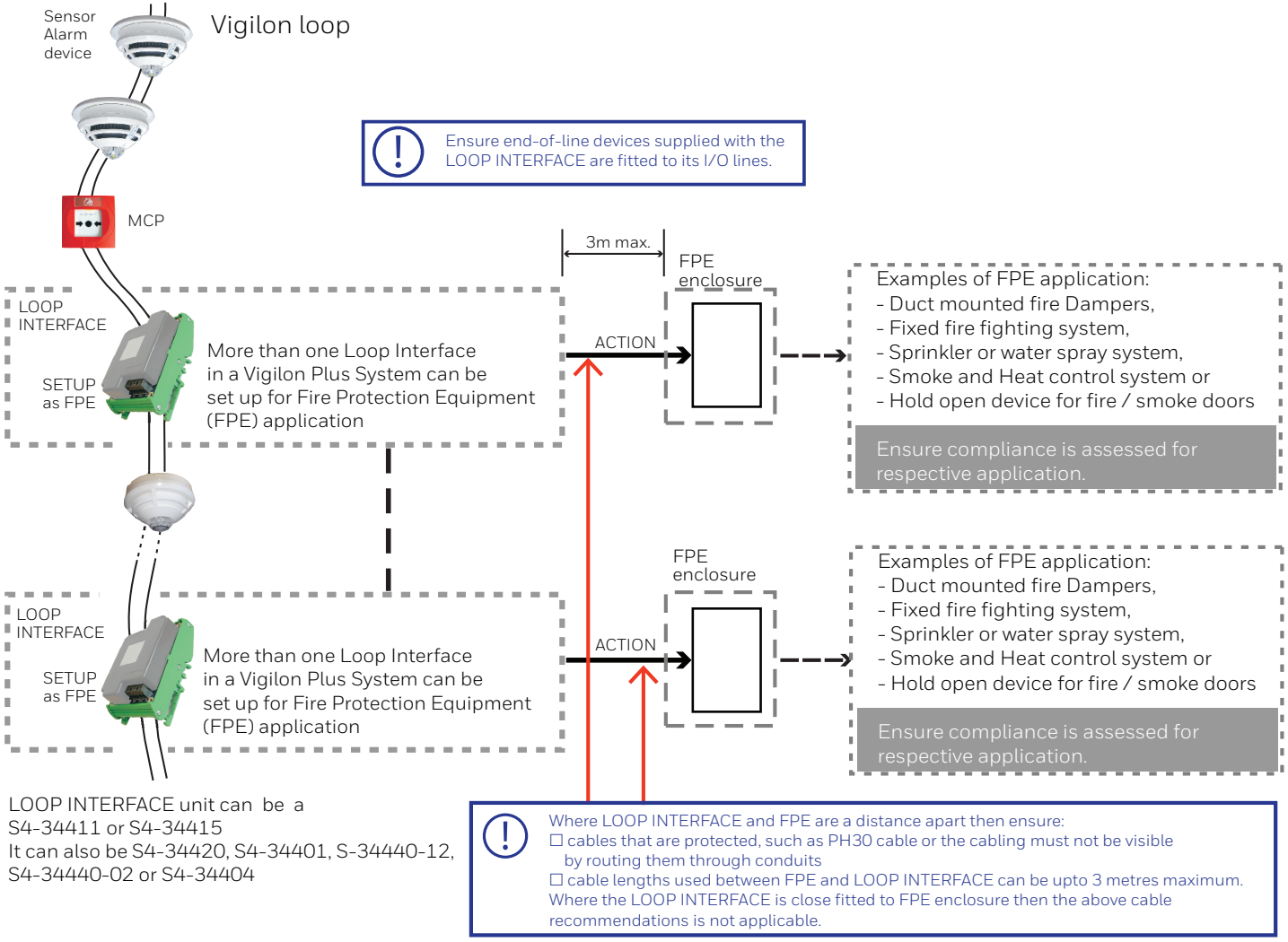
- a FARE Loop Interface may be Enabled or Disabled from the panel select:

  Menu On/Off button to select [Control] -> [Enable] / [Disable] -> <etc> -> <etc> -> <etc> -[FARE] -> [E]

  The Disable option prevents further automatic changes to the FARE output.

FIRE PROTECTION EQUIPMENT (FPE)

- There can more than one Interface configured for FPE application in a Vigilon Plus System.
  A FPE Loop Interface unit can be a MV Interface unit S4-34411, S4-34415 or S4-34420.
  Other interface units can also be configured for FPE, these include S4-34440-02, S4-34440-12, S4-34401 and S4-34404.
- a FPE Loop Interface is automatically placed in plant Sector 32 (as default) and is unaffected by operation of SOUND ALARMS control



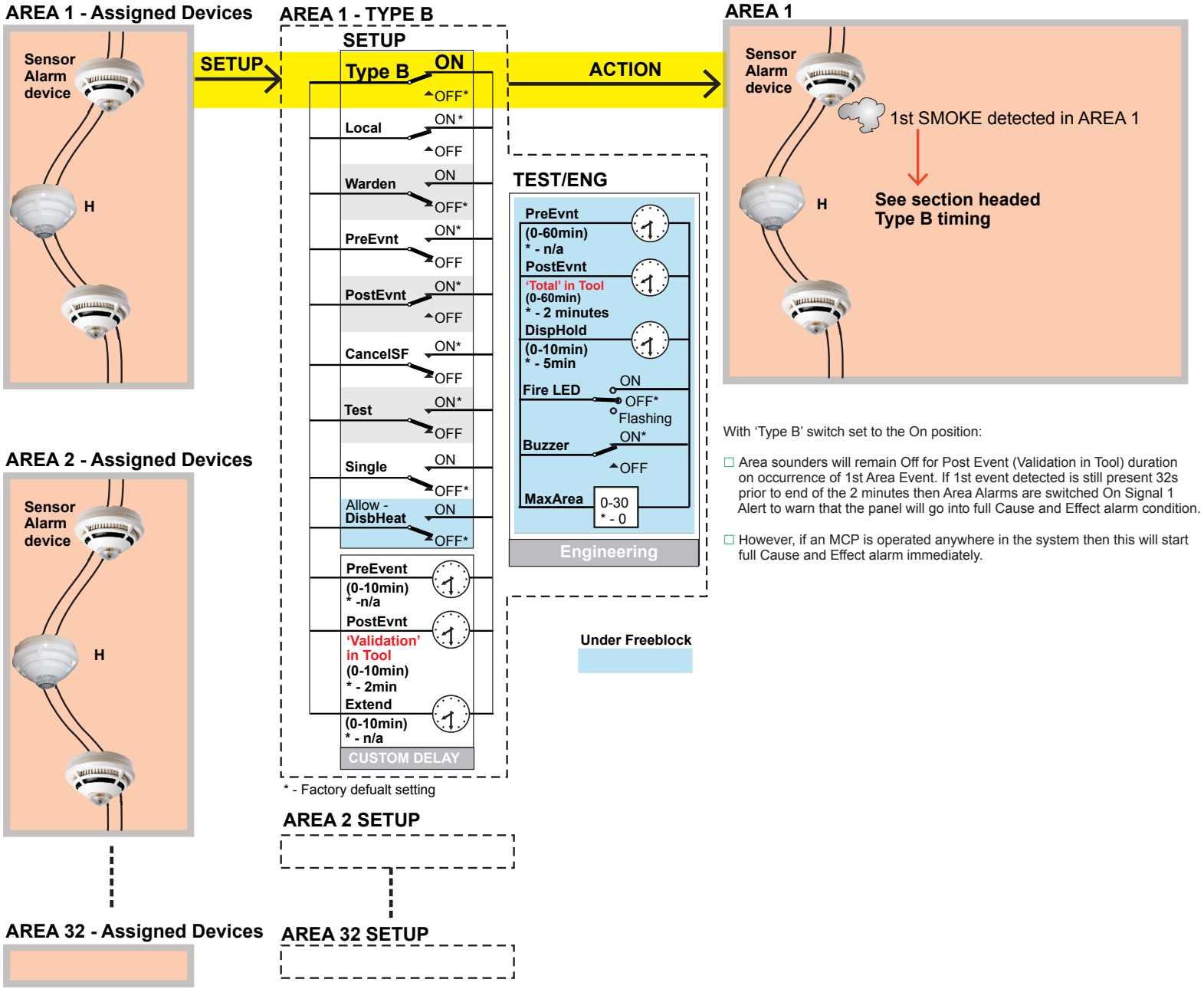
Where a FARE interface is required to be disabled then use the FARE device disablement option.

- a FPE Loop Interface device may be Enabled or Disabled from the panel, to do this select:

  Menu On/Off button to select [Control] -> [Enable] / [Disable] -> <etc> -> <etc> -> <etc> -[FPE] -> [E]

  The Disable option prevents further automatic changes to the FPE output.

TYPE B FUNCTIONALITY

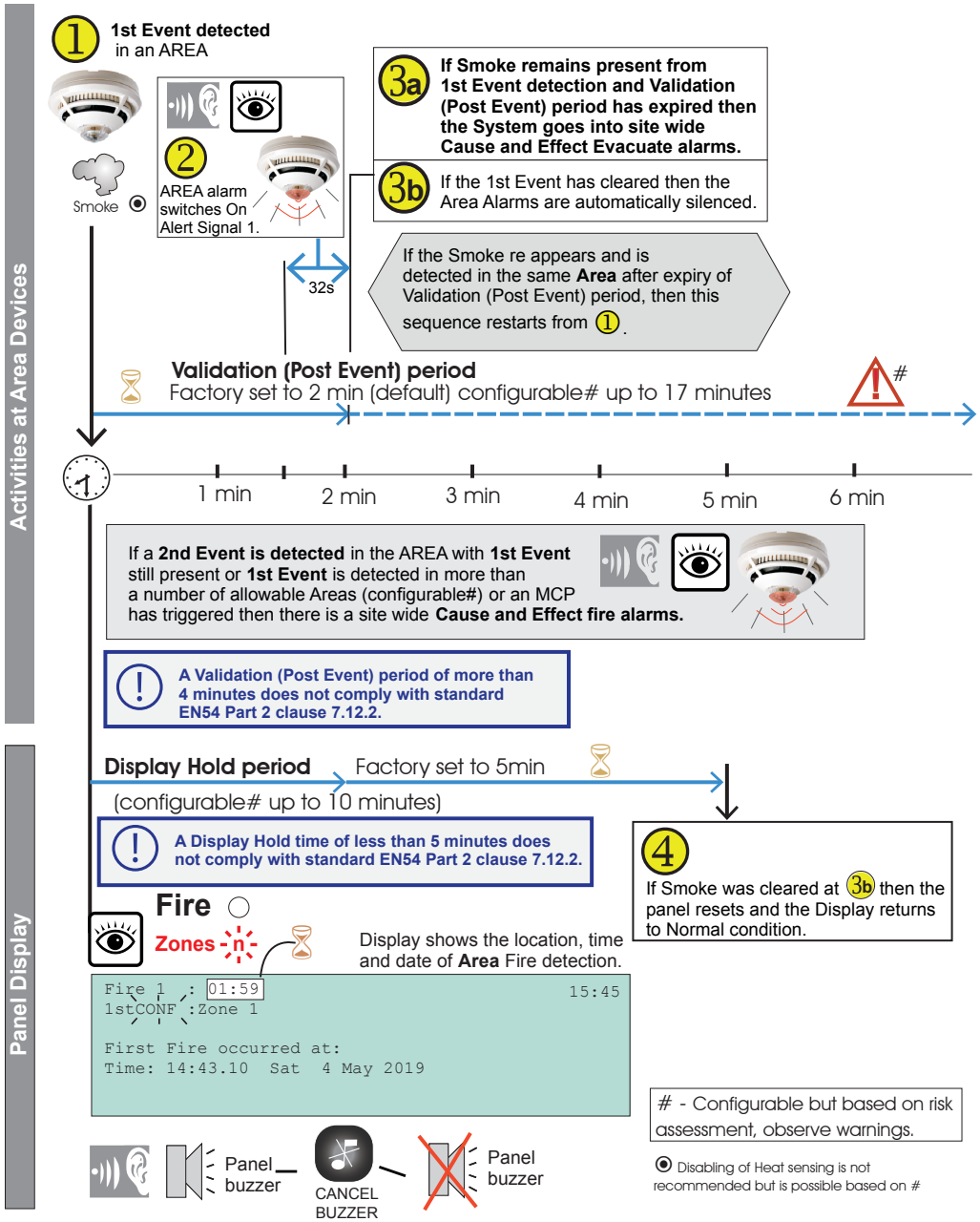


With 'Type B' switch set to the On position:

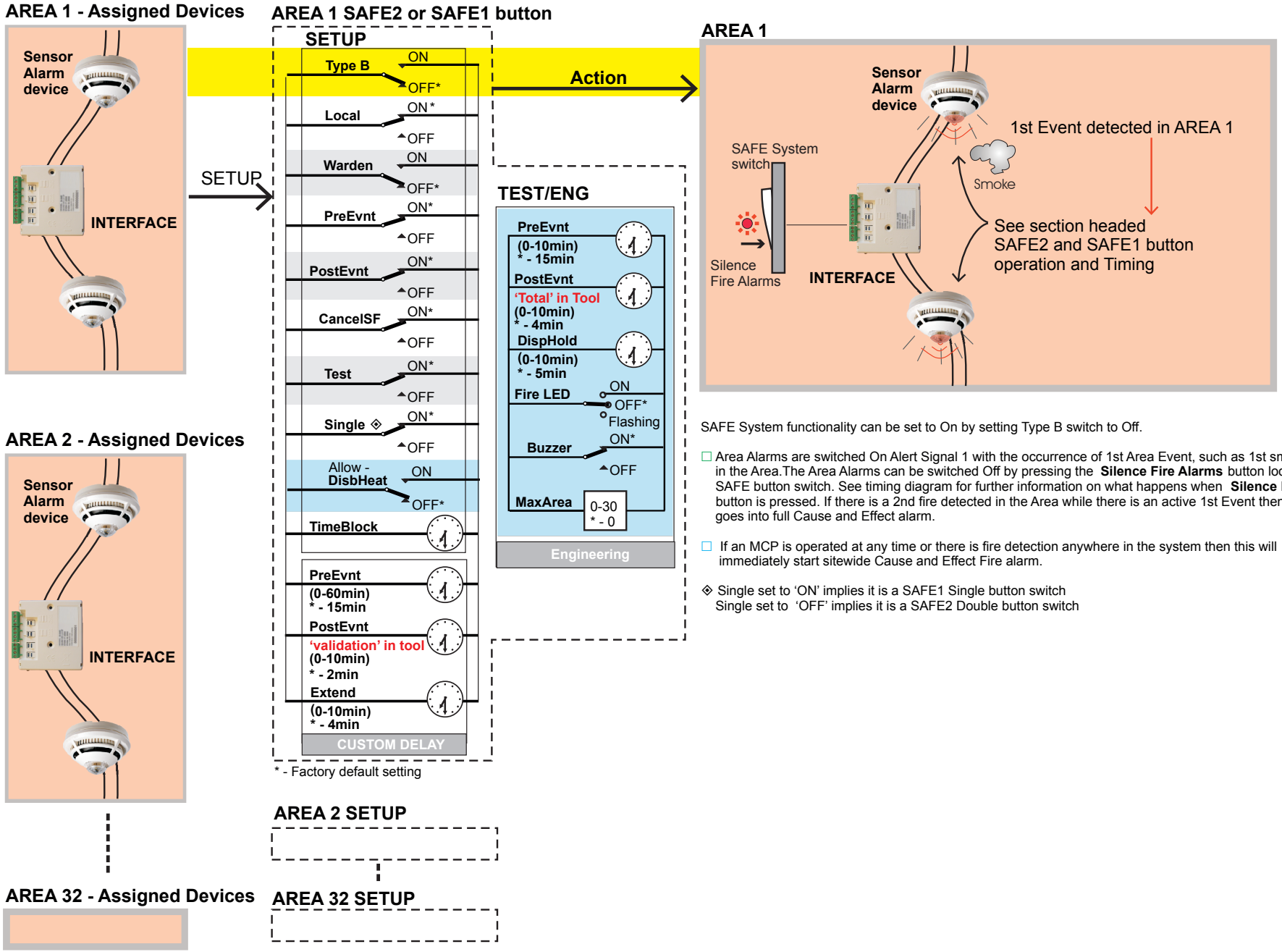
- Area sounders will remain Off for Post Event (Validation in Tool) duration on occurrence of 1st Area Event. If 1st event detected is still present 32s prior to end of the 2 minutes then Area Alarms are switched On Signal 1 Alert to warn that the panel will go into full Cause and Effect alarm condition.
- However, if an MCP is operated anywhere in the system then this will start full Cause and Effect alarm immediately.

TYPE B TIMING

Type B Area event operation only



SAFE2 BUTTON AND SAFE1 BUTTON FUNCTIONALITY



SAFE System functionality can be set to On by setting Type B switch to Off.

☐ Area Alarms are switched On Alert Signal 1 with the occurrence of 1st Area Event, such as 1st smoke detection in the Area.The Area Alarms can be switched Off by pressing the **Silence Fire Alarms** button located on the SAFE button switch. See timing diagram for further information on what happens when **Silence Fire Alarms** button is pressed. If there is a 2nd fire detected in the Area while there is an active 1st Event then the panel goes into full Cause and Effect alarm.

☐ If an MCP is operated at any time or there is fire detection anywhere in the system then this will immediately start sitewide Cause and Effect Fire alarm.

◈ Single set to 'ON' implies it is a SAFE1 Single button switch
Single set to 'OFF' implies it is a SAFE2 Double button switch

SAFE2 BUTTON AND SAFE1 BUTTON OPERATION AND TIMING

SAFE2 Double button or SAFE1 Single button operation under Event condition

This illustration shows what happens when using the SAFE switch with factory settings with default time.

Activities at Area Devices and Timing

1 **1st Event detected** in an AREA

2 AREA alarm switches On Alert Signal 1.

Smoke

4a **If 1st Event remains in an Area and the Validation time has expired then the System goes into full Cause and Effect Fire Condition, with Evacuate alarm Signal 2.**

4b If the 1st Event has cleared then the Area Alarms are automatically silenced.

Validation (Post Event) period 2 mins (default) (configurable#) up to 17 min.

As 3 32s

Start of **'Extend'** period

'Extend' period is 4 min (default) (Configurable# up to 10 minutes)

As 3 32s

3 During the final 32 seconds a warning Alert Signal 1 is outputted.

Red LED

Press and hold the **Silence Fire Alarms** button for 5s or until the red LED is lit, then let go of the button.

The AREA alarms will be switched OFF and Delay restarts for **'Validation'** or **'Extend'** period.

During the final 32 seconds a warning Alert Signal 1 is outputted. **Reactivation of 'Extend' duration is only possible with a longer custom 'Total' duration.**

If the Event re appears and is detected in the same Area after the **'Total'** period then the sequence restarts from 1.

'Total' factory default is 4 minutes, configurable # up to 60 minutes maximum.

1 min 2 min 3 min 4 min 5 min 6 min

Recommendation & 2nd Fire

Our recommendation is NOT to increase the Validation (Post Event) plus Extend delays and Total for SAFE system period or beyond 4 mins, however, you can increase these periods based on your risk assessment of Alarm Area.

If a **2nd Event is detected** in the AREA with **1st Event** still present or **1st Event** is detected in more than a number of allowable **Areas** (configurable) or an MCP was triggered then there is **site wide Cause and Effect fire alarms.**

Display Hold period is factory set to 5 min (Configurable# up to 10 minutes)

Our recommendation is not to have a Display Hold time of less than 5 mins, however, you can reduce this period based on your risk assessment of Alarm Area.

Panel Display

Fire

Zones n

Display shows the location, time and date of an Area Fire

```
Fire 1 01:59                    15:45
1stCONF::Zone 1

First Fire occurred at:
Time: 14:43.10  Sat  4 May 2019
```

Panel buzzer → CANCEL BUZZER → Panel buzzer

5 At the end of Display hold and assuming smoke has cleared an automatic **Panel Reset** is performed to return panel to a Normal condition.

The responsible person may have chosen to do a prior manual **Panel Reset** to return to Normal condition providing 1st smoke detected was cleared.

- Configurable based on risk assessment, observe warnings

Disabling of Heat sensing is not recommended but is possible based on #

SAFE2 Double button and SAFE 1 Single button Test operation under normal non Event condition

Activities at Area Devices

Green LED SAFE2 button

1 Or SAFE1 button

Red LED

2 Panel Display shows

```
Safe System Test                15:45
number x on Loop y
Channel z
Zone A
```

3 Release the **Fire Alarm Test -** the Area Alarm continues for 5s and then Stops.

5 s

SAFE2 Double button Area Disablement operation under normal non Event condition

Activities at Area Devices

1 SAFE2 button

Press and hold **Fire Alarm Silence** button for 5s or until the red LED is lit, then let go of the switch.

Red LED

Switched OFF

During Pre-Emptive (PreEvent) state Area Smoke detection is disabled.

32 s

Panel Display shows

```
Safe System Operated Preemptively  15:45
number x on Loop y
Channel z
Zone A
```

If an MCP is triggered then there will be **site wide Cause and Effect Alarms.**

3a **If Smoke remains in the Area then the System goes into full Cause and Effect Alarm.**

3b **If Smoke has cleared then the panel automatically resets and Area detection is enabled.**

Switched ON Detection is enabled.

At any time over this Pre Event period pressing the **Silence Fire Alarm** button again will re-enable the **Area** detection. The Area detection returns to normal operating condition.

SAFE2 button

Panel Display shows

```
Safe System Cancelled           15:45
number x on Loop y
Channel z
Zone A
```

Single Chirp

32 s

2 Pressing the **Silence Fire Alarm** button during the final 32 s will restart Pre Event period of **detection Off (disablement)** from point 1. for a PreEvent period again.

Red LED

Pre Event period

Factory set to 15 min (Default), can be configured for up to 4 hours &15 minutes

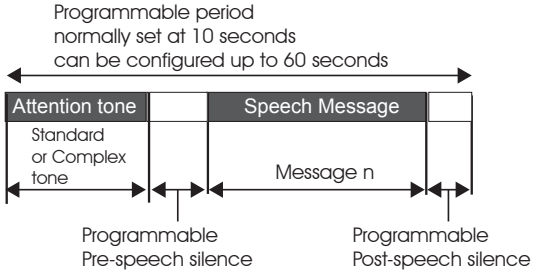
5 min 10 min 15 min

S-CUBED MARK III OR II AND S-QUAD

Speech function

The Mark II or III S-Cubed or S-Quad Speech sounder function is provided by stored messages on a flash memory chip within the assembly. The standard flash memory can hold up to 20 seconds of audio and additionally it holds local complex attention tones, such as the bell and DIN signals.

Each signal output from a S Cubed Mark III or II, or S-Quad Speech device consists of an attention tone followed by a message. The attention tone can be a local complex tone or a panel tone, such as the standard 'nee naw' sound.



It is possible to reprogram factory set speech messages

Visual Alarm function - Part 23 complaint

It is possible to set the flash rate of devices like S-Cubed Mark III (including S-Quad with VAD) using the commissioning tool. The flash rate can be set to 1s, 2s or 4s, but only the 2s rate is compliant with EN54-23.

> The Equality Act 2010 recommends visual alarms like those offered by S-Cubed and S-Quad devices, are installed in protected premises to warn occupants who are hard of hearing.

Strobe function (Legacy)

In the event of a fire the appropriate legacy S-Cubed Mark II or I and legacy S-Quad devices when installed in the system will output alarm signals according to the site specific needs and these can be Signal 1, 2 and 3. The strobe alarm flash rate is every 2s for signal 1, every 1s for signal 2 and every 1s for signal 3. The output from these Strobes are not Part 23 compliant.

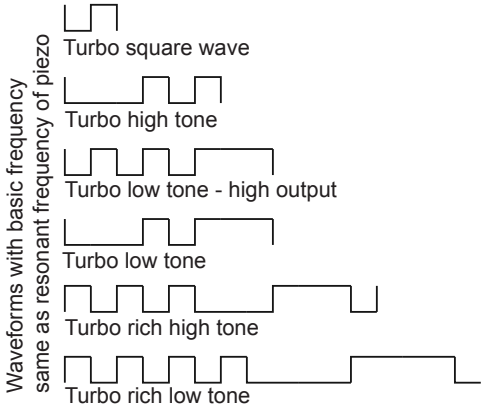
The strobe flash rate for signals 1, 2 and 3 can be changed using the commissioning tool. The output flash rates are synchronised with S-Cubed Mark II or I strobe and legacy S-Quad strobe devices installed in the same system.

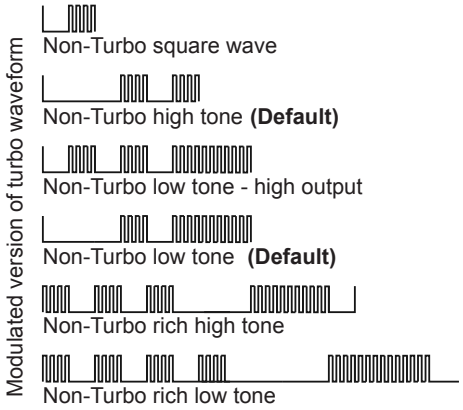
Sounder function

A S-Cubed Mark III and II and S-Quad sounder element can operate in turbo mode if configured during commissioning to provide further 3dB output. The sound outputs are based on the settings of the FABs and SABs at the panel that gives changing levels over 2 seconds duration in 8 time slots. The standard outputs are synchronised with the S-Quad devices, S-Cubed device and 34000 sounder devices installed in the same system.
The volume of the sound output can be individually set at the device, note that the sound level should not be set lower than 65dBA at 1m for standards compliance. The system prevents adjustment of volume down to zero. Another feature that can be configured is the soft start that ramps the sound volume gradually to the maximum level set at the device.

Turbo and Non Turbo Modes

The S-Cubed or S-Quad sounder can output in turbo and/or in non turbo modes. The high and low FAB mappings are used to change the tone output of the S-Cubed or S-Quad sounder. The turbo mode outputs a waveform with a basic frequency that is the same as the resonant frequency of the piezo inside each device. The non turbo mode outputs modulated turbo waveform.





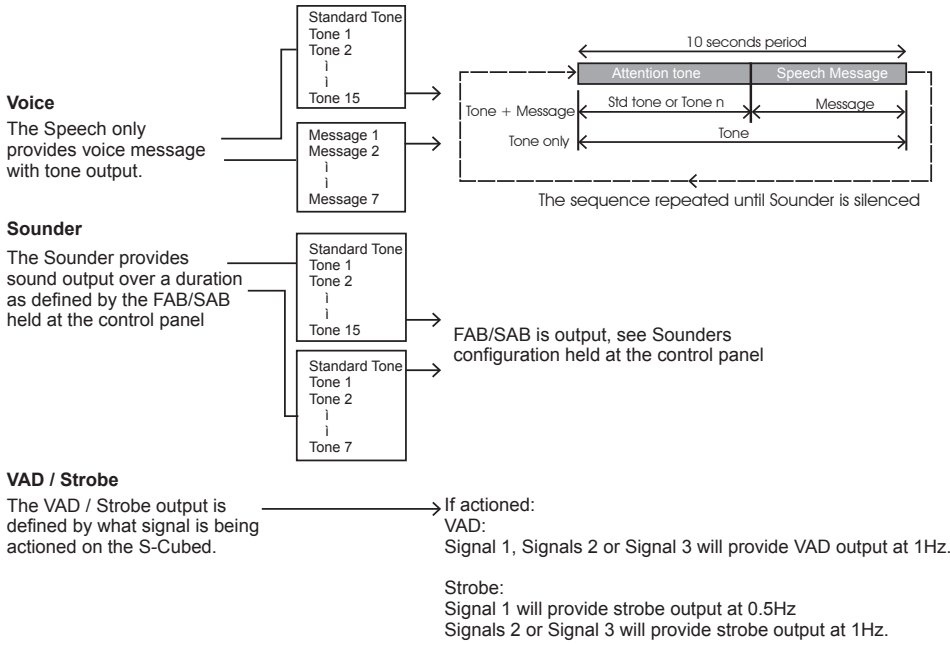
S-CUBED MARK I

The S-Cubed Mark 1 strobe outputs is not compliant to EN54 part 23. The S-Cubed Mark 3 Visual Alarm Devices are compliant to EN54 part 23.

- An S-Cubed device can operate in Tone or Voice mode dependent on type.
- All S-Cubed in a system can share a common start volume setting from a range between 16% to 100% sound output.
- All S-Cubed in a system can share a common soft start facility, if set the sound output will increment the volume every 0.25s from a defined start level to maximum output.

VOICE AND SOUNDER MODE PULSE VAD/ STROBE ACTION

- S-Cubed/S-Quad operating in tone mode allows selection from a range of low and high frequency tones that are outputted according to FAB/SAB settings, see sounders configurations section.
- S-Cubed/S-Quad set for Voice mode operation allows selection from a range of tones and messages that span over 10 seconds duration. The tones and messages are those held in respective S-Cubed/S-Quad device.

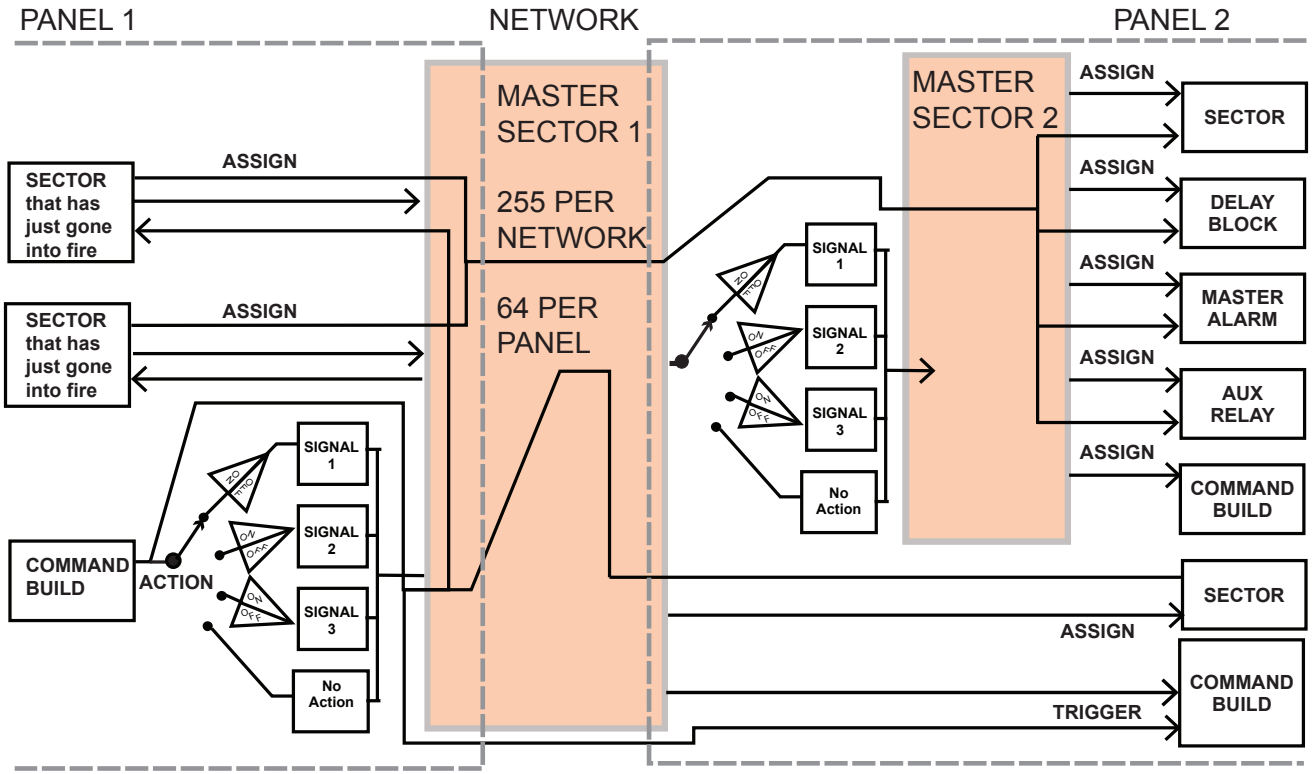


Appendix D - Guidelines for Networked system commands

The functions explained in this section apply to networked systems. See also guidelines for standalone system. For information on Command build actions across a network, see Appendix C.

When commissioning a new network of control panels, ensure the software version is the same across all the panels. This is recommendation may also be applied where an existing network is to be installed with additional panels.

MASTER SECTORS

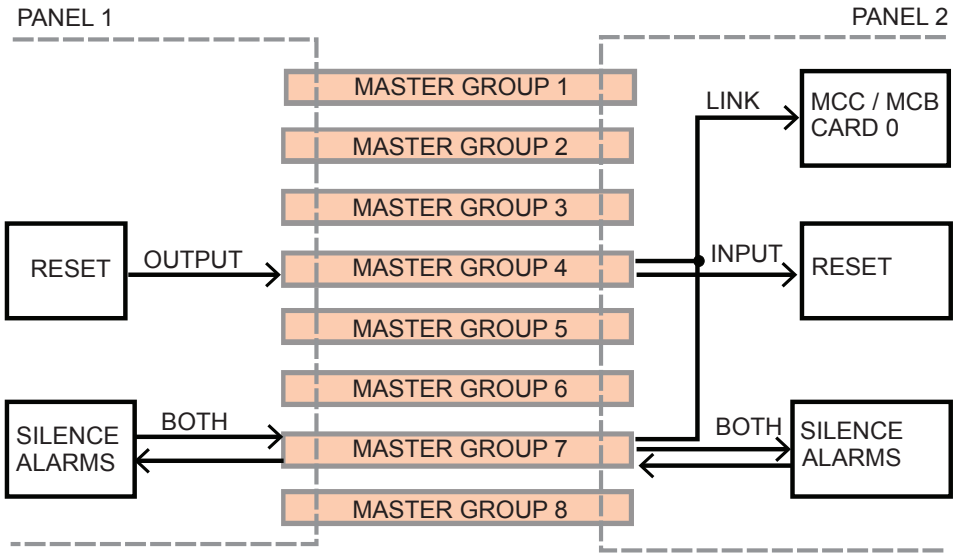


- There can be up to a maximum of 64 Master Sectors per panel
- a total of 255 Master sectors per network system
- they are therefore a collection of:
  - Sectors
  - Delayblocks
  - Master Alarms
  - and Aux Relays from one or more Systems.
- they provide global alarm actions across a network of control panels.

Guidelines

- Fire Input Sectors must only be assigned to one Master Sector.
- Output Sectors can be assigned to one Master Sector.
- Master Sectors can be actioned by a Sectored Fire Event.
- a triggered Master Sector can action one or any combination of:
  - Sector
  - another Master Sector
  - Command Build (not locally)
  - Delay Blocks
  - Master Alarms
  - or Auxiliary Relays.
- if a Sector assigned to a Master Sector has a Fire Event, the Master Sector will not perform any local actions on the Panel in alarm.
- if a Command Build actions a Master Sector, the actions will be performed on other panels, but Command Builds will not be triggered.
- a Master Sector must have something assigned to it before any Master Sector action links can be made to it.
- Master Sector Fire Event actions on other Panels can be stopped by global Silence Alarms.

MASTER GROUPS



- There can be up to a maximum of 8 Master Groups per network.
- These are a collection of Groups used for:
  - selective fire and non fire event message routing within a Control Panel or around a Network of Panels
  - and for routing Global Controls 'Silence Alarms, Sound Alarms and/or Reset' to designated Control Panels in a Network.
- Messages can be displayed or printed on Control Panels and Repeat Panels. Messages are routed on a Card by Card basis, ie:
  Card 0 = Panel LCD
  Card 15 on Vig Plus = Remote RS232 Printer
  Cards 1-6 = Repeats and Mimics panels on Loops 1-6
  - Each Card can be configured to display/print All Events (default) or just Fire Events. Repeat Panels on the same loop will always give the same information.

Once message passing has been setup for global repeat or mimic indication, the local panel will also have to route reset messages to other groups, besides Group 0.

- Groups within different Control Panels can be assigned to the same Master Group
- Global controls can be configured to output/input or both.
- Messages and controls within a standalone system do not require any setting up
- the Group 0 contains all panel events and fire resets and therefore must always be assigned to a Master Group.

The Verify control button is applicable for EN panels only can operate globally, like the Sound alarms, Silence alarms and Reset buttons.

Appendix E - Cards

CARDS

Refer to the instruction leaflet supplied with each card.



WEEE Directive:
At the end of their useful life, the packaging, product and batteries should be disposed of via a suitable recycling centre.
Do not dispose of with your normal household waste.
Do not burn.



At the end of their useful life, the packaging, product and batteries should be disposed of via a suitable recycling centre and in accordance with national or local legislation.

Honeywell Gent reserves the right to revise this publication from time to time and make changes to the content hereof without obligation to notify any person of such revisions of changes.

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