Generic Commissioning Instructions

Vigilon range of panels
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Preface
This is the second issue of the Commissioning instructions for the fire alarm system based on the EN54/BS Vigilon 4/6 loop panels, Vigilon Compact (includes networking) panel and Vigilon Compact Voice Alarm panel. This manual covers EN panels having Master Control Card / Master Control Board software at version 4.3X and BS panels having Master Control Card software at version 3.9X.

Associated documents
Programming tool manual
EN54 Vigilon 4/6-loop panel Installation instructions
EN54 Vigilon 4/6 loop panel Operating instructions
BS Vigilon 4-loop panel Installation instructions
BS Vigilon 4-loop panel Operating instructions
Vigilon Compact panel Installation instructions
Vigilon Compact panel Operating instructions
Vigilon Compact Voice Alarm panel Installation instructions
Vigilon Compact Voice Alarm panel Operating instructions

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.

Symbol Keys

What you will see

What you will hear
Preliminary information

34K Control Panels
This manual does not cover the 34K 4-Loop Control Panels.

For information on 34K 4-Loop Control panel refer to Vigilon BS 4-Loop Control panels in this manual.

Both range of panels have version 3+ software and the only difference is in the branding.

Safety information

1. Do not remove or replace printed circuit 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 (disconnect device).

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 always use anti-static work procedures.

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

Abbreviations

ADC - Analogue to digital converter
C - Common
CH -channel
DEV - Device
DIL - Dual in line
DKC - Display keyboard card
DPCO - Double pole change over (relay contacts)
EOL - End of line
FAB - First action byte
HF - High frequency
IO or I/O - Input Output (Interface unit)
IP - Ingress protection
LED - Light emitting diode
LPC - Loop processor card
LPCB - Loss prevention council certification board
MCB - Master control board
MCC - Main control card or Main controller card
MCP - Manual call point
Mpeg - Moving picture expert group
N/C or NC - Normally closed
N/O or NO - Normally open
NVM - Non Volatile Memory (CARD14)
O/C or OC - Open circuit
OS - Outstation (Loop device or DEV)
PC - Personal computer
PCB - Printed circuit board
PIN - Personal identification number
    (usercode, password, access code)
PSU - Power supply unit
PVC - Polyvinyl chloride
QB - Quick blow (fuse)
RAM - Random access memory
ROM - Read only memory
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)
TBA - To be advised
USB - Universal serial bus
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 and printer, plus instructions, are available.
☐ Ensure spare parts are available, such as:
  • MCP glasses
  • MCP test key
  • Printer paper roll
  • Equipment door keys.

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 accordance with 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 may also need opening.

Unattended equipment
☐ Where 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 of an assembly must be restored and 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 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 (V4) & Commission Mode (V3+)

- During commissioning of the system you will need to switch On the Test/Commission mode. It is important to switch Off the test/commission 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.

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.
A typical commissioning process

Things to do when commissioning the system.

Always power down the panel or device when working on the system, for example when connecting wires and fitting components.

Pre visit checks
- Ensure you have:
  - As-fitted drawings
  - Access to all protected areas
  - Installer is present to rectify wiring faults
  - Tools and spare parts.

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 protected premises will hear test alarms.

Survey the installation
Survey the installation with reference to most recent as-fitted drawings.

Ensure the equipment has been installed in accordance with the appropriate standards and project specification.

Panel preparation
- Open the panel doors and:
  - Fit the internal cables and install the loop card(s)
  - Ensure no external circuits are connected at this stage
  - Fit the end of line resistors to the master alarms and monitored input where applicable
  - Connect the external printer to the panel where used
  - Ensure no other external circuits are connected to devices on loop circuits.

Power up
- Fit the batteries and Power up the mains supply before connecting the batteries.

Initial tests and set ups
- Do a display test
- Set the system clock at the panel
- Configure the printer port if printer is installed
- Set up engineer level password to prevent unauthorised access to controls.

Address allocation and loop map
- Set interface switches and also ensure mains devices on the loop are powered up.
- Connect a loop circuit
- Allocate addresses to loop devices, one loop at a time.
- Set switches on the interface units.
- Ensure interface I/O circuits remain disconnected at this stage.
- Power up mains powered devices
- Upon successful allocation of addresses to loop devices check the loop map. Check the devices are installed in their correct location. Repeat the allocation process on the other loop circuits.

Backup
- Upon successful allocation of loop circuits back up the system data to the NVM.

Regularly back up the configuration during commissioning of the system.

Loop wiring tests
- Carry out tests on each loop wiring and [Repair] the loop after each wiring test.

Audio loop wiring tests
- Connect each audio loop and carry out tests.

Background music and PA microphone
- Connect and test Background music system
- Connect and test PA microphone
- Test the emergency microphone

Devices local set up
- Ensure all devices on the loop circuits are set up:
  - Calibrate speaker circuits
  - Adjust volume of audio at each micro DAU
  - Adjust volume of S-Cubed

Retrieve the system data to Commissioning computer
Connect the commissioning computer and retrieve the system data, see Commissioning tools manual.

Adjust Beam sensors
- Align beam transmitter and receiver heads if installed
- Adjust volume of S-Cubed
- Adjust volume of audio at each micro DAU
- Calibrate speaker circuits

Configure the system
Configure the system to site specific requirement using the Commissioning tool and transmit the configuration back to the control panel, see Commissioning tool manual.

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:
- Fire sensors
- Interface units
  - Prior to functional test ensure the I/O circuits remain isolated. After functional test reconnected the I/O circuits and where appropriate test the I/O circuits to project recommendations.
  - S-cubed - The output volume of an S-cubed can be adjusted using the [Set up] [Setup] [Device] [S-Cubed] [Volume] command at the panel.
  - Repeat and Mimic panels
  - Check events are displayed and indicated
  - Auxiliary equipment - Prior to the functional test ensure the auxiliary equipment is isolated from the system
  - Connect Master alarm and Monitored input circuits and move the end-of-line resistor to the end of the circuit.
  - Sounders - Conduct sound level tests to ensure the levels do not fall below the requirements.
  - 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, such as the disablements of internal buzzer.

Customer password
Set up a customer PIN / password and inform responsible person of its existence and use.

Backup of configuration
- Back up the local system configuration
- Finally if changes have been made to the local system then retrieve the system to the commissioning tool for future reference.
Product Approval and Standards

Fire detection and alarm control panel

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

<table>
<thead>
<tr>
<th>Product number</th>
<th>Description</th>
<th>Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIGn</td>
<td>EN Vigilon 4 loop panels</td>
<td>EN 54 Parts 2 &amp; 4</td>
</tr>
</tbody>
</table>

n can be 1, 2, 3 or 4

The COMPACT_N, VIG1-24 and VIG1-72 panels described in this manual are pending approval.

S-Quad Sensors

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

<table>
<thead>
<tr>
<th>Product number</th>
<th>Description</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>S4-720</td>
<td>Heat sensor</td>
<td>EN54 : Part 5 :2002* (heat)</td>
</tr>
<tr>
<td>S4-780</td>
<td>Heat Sensor Sounder</td>
<td>EN54 : Part 5 :2002* (heat)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EN54 : Part 3 2001 - (sounder tone~)</td>
</tr>
<tr>
<td>S4-711</td>
<td>Dual Optical Heat Sensor</td>
<td>EN54 : Part 7 :2000* (optical smoke)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EN54 : Part 5 :2000* (heat)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CEA 4021 : 2003-07 Class P heat multisensor detector</td>
</tr>
<tr>
<td></td>
<td>(Strobe - no approval)</td>
<td>EN54 : Part 5 :2000* (heat)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CEA 4021 : 2003-07 Class P heat multisensor detector</td>
</tr>
<tr>
<td></td>
<td>(CO - no approval)</td>
<td>EN54 : Part 5 :2000* (heat)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CEA 4021 : 2003-07 Class P heat multisensor detector</td>
</tr>
<tr>
<td>(Speech and Strobe - no approval)</td>
<td>EN54 : Part 5 :2002* (heat)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EN54 : Part 3 2001 - (sounder tone~)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CEA 4021 : 2003-07 Class P heat multisensor detector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EN54 : Part 5 :2002* (heat)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EN54 : Part 3 2001 - (sounder tone~)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CEA 4021 : 2003-07 Class P heat multisensor detector</td>
</tr>
<tr>
<td>(Speech, Strobe &amp; CO - no approval)</td>
<td>EN54 : Part 5 :2002* (heat)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EN54 : Part 3 2001 - (sounder tone~)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CEA 4021 : 2003-07 Class P heat multisensor detector</td>
</tr>
</tbody>
</table>

* - these devices are LPCB approved when operating in the LPCB approved STATE, see 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 configured at the control panel.

<table>
<thead>
<tr>
<th>Device</th>
<th>LPCB approved sensor STATE *</th>
<th>Meets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual optical &amp; Heat sensor</td>
<td>State 0</td>
<td>Medium optical smoke / Class A1 heat</td>
</tr>
<tr>
<td>(S4-711 &amp; S4-711-ST)</td>
<td>State 5</td>
<td>Medium optical smoke / Class B heat</td>
</tr>
<tr>
<td></td>
<td>State 8</td>
<td>Delayed medium optical smoke / Class A1 heat</td>
</tr>
<tr>
<td>Dual optical, Heat &amp; CO sensor</td>
<td>State 0</td>
<td>Medium optical smoke / Class A1 heat</td>
</tr>
<tr>
<td>(S4-911)</td>
<td>State 9</td>
<td>Class A1 heat</td>
</tr>
<tr>
<td>Heat sensor (S4-720)</td>
<td>State 0</td>
<td>Class A1 heat</td>
</tr>
<tr>
<td></td>
<td>State 5</td>
<td>Class B heat</td>
</tr>
</tbody>
</table>
Device LPCB approved sensor STATE * Meets

<table>
<thead>
<tr>
<th>Device</th>
<th>STATE</th>
<th>Meets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Sounder (S4-780)</td>
<td>State 0</td>
<td>Class A1 heat</td>
</tr>
<tr>
<td></td>
<td>State 5</td>
<td>Class B heat</td>
</tr>
<tr>
<td>Dual Optical Heat Sensor Speech strobe (S4-711-ST-VO &amp; S4-771)</td>
<td>State 0 medium optical smoke / Class A1 heat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>State 5</td>
<td>Medium optical smoke / Class B heat</td>
</tr>
<tr>
<td></td>
<td>State 8</td>
<td>Delayed medium optical smoke / Class A1 heat</td>
</tr>
<tr>
<td>Dual Optical Heat CO Sensor Speech &amp; Strobe (S4-911-ST-VO)</td>
<td>State 0 medium optical smoke / Class A1 heat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>State 9</td>
<td>Class A1 heat</td>
</tr>
</tbody>
</table>

All S4 range of sensor sounder devices meet CEA GEI 1 - 084 Requirements and test methods for input/output devices for use on the transmission paths of fire detection and alarm system.

- Meets following tone settings High tone (Continuous 933Hz) & Alternate (High 933Hz for 0.25s / low 700Hz for 0.25s)

On initial power-up the system selects state 0 for all devices.

34xxx Sensors

The following 34xxx sensors when operating in the state shown below are LPCB approved to the respective standard.

<table>
<thead>
<tr>
<th>Product number</th>
<th>Description</th>
<th>Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compact “O”</td>
<td>Optical sensor</td>
<td>EN 54 : Part 7 #</td>
</tr>
<tr>
<td>34710</td>
<td>Optical heat sensor</td>
<td>EN 54 : Part 5 and Part 7 #</td>
</tr>
<tr>
<td>34720</td>
<td>Heat sensor</td>
<td>EN 54 : Part 5 #</td>
</tr>
<tr>
<td>34770</td>
<td>Optical heat sounder sensor</td>
<td>EN 54 : Part 5, part 7 and LPCB requirements #</td>
</tr>
<tr>
<td>34800-EN</td>
<td>Manual Call Point</td>
<td>EN54 Part 11</td>
</tr>
<tr>
<td>34842-EN</td>
<td>Manual Call Point</td>
<td>EN54 Part 11</td>
</tr>
</tbody>
</table>

If a 34xxx sensor is configured to operate a non LPCB approved state, then this will contravene the LPCB approval.

* - these devices are LPCB approved when operating in the LPCB approved STATE, see table below.

All the LPCB states applicable to fire sensors are shown below. The required state is configured during commissioning and can be configured at the control panel.

<table>
<thead>
<tr>
<th>Device</th>
<th>LPCB approved sensor STATE #</th>
<th>Meets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical heat sensor (34770 and 34710)</td>
<td>State 0</td>
<td>Medium smoke sensitivity with Grade 2 heat</td>
</tr>
<tr>
<td></td>
<td>State 8</td>
<td>Smoke sensing with delay + Grade 2 heat</td>
</tr>
<tr>
<td></td>
<td>State 12</td>
<td>Grade 1 heat only</td>
</tr>
<tr>
<td></td>
<td>State 13</td>
<td>Grade 2 heat only</td>
</tr>
<tr>
<td>Heat sensor (34720)</td>
<td>State 0</td>
<td>Default sensitivity</td>
</tr>
<tr>
<td></td>
<td>State 1</td>
<td>Grade 1</td>
</tr>
<tr>
<td>Heat sounder (34780)</td>
<td>State 0</td>
<td>Grade 2 heat</td>
</tr>
<tr>
<td></td>
<td>State 12</td>
<td>Grade 1 heat</td>
</tr>
</tbody>
</table>

On initial power-up the system selects state 0 for all devices.

Sounder Strobe

The following S-cubed Mark 1 range of products are LPCB approved to EN 54 : Part 3

Interface Units

The following products are approved to prEN 54 Part 18 : 2005

- Zone module (loop powered)
- 4 Channel Input / Output Interface unit (loop powered)
- Single channel Interface unit
Panel Controls and indications

**Vigilon Compact Panel**

- Message Display
- Access level 1 Controls to scroll events
- Key lock to open the outer door
- Indications

**Vigilon Compact VA panel**

- Message display
- Access level 1 Controls to scroll events
- Key lock to open the outer door
- Indications

**Vigilon 4-loop panels (BS panel shown)**

- Message display
- Access level 1 Controls to scroll events
- Key lock to open the outer door
- Indications

Vigilon Fire System GENT 2005 Designed to EN54 Pt 2 & 4

15:45

- Fault
- System Fault
- Commission
- Fire
- Power Fault
- CB254

- Delay
- Verify
- CB253

Previous Next
Controls and indications

Vigilon Compact panel or Vigilon Compact Voice Alarm panel

EN Vigilon 4-loop panel or BS Vigilon 4-loop panel

BS Vigilon 4-loop panel: NOT USED

Not fitted on BS Vigilon 4-loop panel

BS Vigilon 4-loop panel: Commission Warning

Fault
- Power Fault
- System Fault
- Delay
- Test
- Disablement

Sound Alarms Silence Alarms Reset

Fire
- Verify
- Sounder
- CB253
- CB254
- Power

Menu On/Off

Previous Next

Cancel Buzzer

Sound Alarms Silence Alarms Reset

Verify

U1

U2

Cancel Buzzer

Fault
- Power Fault
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- Test
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Sound Alarms Silence Alarms Reset

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- CB254
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Verify

U1

U2

Cancel Buzzer
### Indicators and controls

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Display</strong></td>
<td>The 'display' provides messages of the system status and events. Most panel display have 8 lines by 40 characters per line display.</td>
</tr>
<tr>
<td><strong>Zones</strong></td>
<td>Hidden-until-lit fire zone indicators. When &quot;Zones&quot; text and number(s) are illuminated it indicates that a FIRE has been detected in the specified zone(s).</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>When illuminated it indicates that a supply to the panel is present.</td>
</tr>
<tr>
<td><strong>Fire</strong></td>
<td>When illuminated it indicates that a FIRE has been detected in the protected premises.</td>
</tr>
<tr>
<td><strong>Verify</strong></td>
<td>When illuminated it indicates that the Verify button has been pressed and the alarm sounders in the system are delayed from sounding.</td>
</tr>
<tr>
<td><strong>Fault</strong></td>
<td>When illuminated it indicates that a FAULT has been detected in the fire detection and alarm system or in the audio system.</td>
</tr>
<tr>
<td><strong>System Fault</strong></td>
<td>When illuminated it indicates that a fault has occurred with the system processor. <strong>It is important to investigate this fault because the fire alarm system may not be able to detect fires.</strong></td>
</tr>
<tr>
<td><strong>Disablement</strong></td>
<td><strong>Applicable for EN Vigilon panels only</strong> When illuminated it indicates that a part of the system has been disabled.</td>
</tr>
<tr>
<td><strong>Warning</strong></td>
<td><strong>Applicable for BS Vigilon panels only</strong> When illuminated it indicates that a part of the system has been disabled, delayed or not functioning.</td>
</tr>
<tr>
<td><strong>CB253 or CB254</strong></td>
<td>When illuminated it indicates command builds 253 or 254 has been activated.</td>
</tr>
<tr>
<td><strong>Power Fault</strong></td>
<td>When illuminated it indicates the battery or mains supply to the panel has failed.</td>
</tr>
<tr>
<td><strong>Sounder</strong></td>
<td><strong>EN Vigilon panels only</strong> 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).</td>
</tr>
<tr>
<td><strong>Delay</strong></td>
<td><strong>EN Vigilon panels only</strong> When illuminated it indicates that one or more delay blocks are setup on the panel.</td>
</tr>
<tr>
<td><strong>Test</strong></td>
<td><strong>EN Vigilon panels only</strong> When illuminated it indicates one or more zones are in Test mode.</td>
</tr>
<tr>
<td><strong>Commission</strong></td>
<td><strong>EN Vigilon panels only</strong> When illuminated it indicates panel is in commissioning mode.</td>
</tr>
<tr>
<td><strong>Menu On/Off</strong></td>
<td>Pressing Menu On/Off enables/disables the on screen menu facility which gives access to the system menus.</td>
</tr>
<tr>
<td><strong>F1</strong> to <strong>F4</strong></td>
<td>The 'F1' buttons are used to select functions and sub-functions of the system menus which 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.</td>
</tr>
<tr>
<td><strong>Cancel Buzzer</strong></td>
<td>The Cancel Buzzer button when pressed will stop the internal panel buzzer from sounding. Note the local buzzer is automatically silenced when the emergency microphone is being used to announce live speech, on Vigilon Compact VA panel.</td>
</tr>
<tr>
<td><strong>Sound Alarms</strong></td>
<td>Pressing the Sound Alarms button will announce evacuate message and sound evacuate alarms. This button is only pressed in an emergency or at other agreed times, for example when conducting a system test or practice evacuation.</td>
</tr>
<tr>
<td><strong>Silence Alarms</strong></td>
<td>Pressing the Silence Alarms button will stop emergency message announcements and silence the system alarms.</td>
</tr>
<tr>
<td><strong>Reset</strong></td>
<td>Pressing the Reset button will clear any fires and return the panel to its normal state. If a fire condition occurs immediately after reset then the indicated device should be investigated.</td>
</tr>
<tr>
<td>Indicators and controls</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Verify</strong></td>
<td>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 option of cancelling the alarm within the delay time period.</td>
</tr>
</tbody>
</table>

**Applicable for Vigilon Compact (& VA) panels only:**

- These buttons can be configured during commissioning to action user defined functions, such as disablement of devices in areas where smoke may be generated or where plant shutdown is required.

- The function of these buttons should be written on the label that is fitted on the back of the outer door.

- The Vigilon 4-loop panels have four configurable buttons.

- These four buttons are used to scroll the displayed text.

<table>
<thead>
<tr>
<th>U1</th>
<th>U2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These buttons allow data to be entered manually at the control panel.

**When entering a label each press of a key will scroll the character string, for example:**

- key 2 will scroll A B C 2 a b c.
- key 1 will scroll 1 ?,. À & * /

The bottom row of text keys explained:

- The **U** button is used to enter a SPACE between characters
- The **INS** key allows text to be moved one position to the right
- The **DEL** key allows a character to be deleted
- The **BKSP** button will delete previous character.

**When entering a data range, such as a range of devices**

- The key **THRU** (-) is used to enter a range, for example 1 - 5.

- This is pressed to acknowledge an entry of data such as a label.
Pressing one or more of the 10 buttons selects the Voice Alarm Zone to which emergency or auxiliary messages, or emergency microphone is to be announced. The two LEDs beneath flash alternately to show the Voice Alarm Zone has been selected.

On selecting the required emergency or auxiliary message only one of these LEDs change to steady or flashing indication determined by the type of audio to be outputted to the selected Voice Alarm Zones. The left LED indicates auxiliary message selection while the right LED indicates emergency message selection.

Pressing the All Zones button allows quick selection of all Voice Alarm Zones. The accompanying LED gives a steady indication when the button is pressed.

Pressing Clear Zones button will clear selected Voice Alarm Zones, also when auxiliary messages are being announced pressing this button will silence the announcements.

When illuminated the system is ready to allow live speech announcement to selected Voice Alarm Zones via the Emergency microphone. The indicators are lit following selection of Voice Alarm Zones and on pressing the Press to Talk (PTT) button on the Emergency microphone.

If the Press to Talk button is released the Speak Now indicators will flash and switch off after 20 seconds duration or immediately switch off on pressing the Clear Zone button.

When illuminated the system is announcing auxiliary message n to the selected Voice Alarm Zones. The indicator is lit following selection of Voice Alarm Zones and on pressing the required Auxiliary message button.

When illuminated the system is announcing emergency message n to the selected Voice Alarm Zones. The indicator is steady or flashing determined by type of emergency message being announced to Voice Alarm Zones.
new Vigilon 4/6 loop Panels

The following procedures assume the respective 1st fix assembly for the new Vigilon 4 loop (VIG1-24) / 6 loop (VIG1-72) panel is already installed. The first fix backbox assembly may be surface or flush mounted.

☐ The second fix parts must now be installed before powering up the control panel.

☐ Check the second fix parts supplied:

<table>
<thead>
<tr>
<th>Parts</th>
<th>new EN Vigilon 4 loop Control panel (VIG1-24)</th>
<th>EN Vigilon 6 loop Control panel (VIG1-72)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner door assembly</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Battery Pack (2 x 12V 21Ah)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Battery box</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Outer door assembly</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Master Control Card (post Aug 2006)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Loop card</td>
<td>1 (Option of up to 4 maximum)</td>
<td>1 (option of up to 6 maximum)</td>
</tr>
<tr>
<td>Spares pack see installation manual for pack content</td>
<td>1pack</td>
<td>1pack</td>
</tr>
</tbody>
</table>
Remove the protective covers

PSU Cardboard cover
Remove the cardboard protection cover fitted over the PSU. The cover is held in by a retaining clip.

Backplane transparent cover
Remove the transparent protection cover fitted over the backplane.

Fitting the inner door
Locate the hinge pins on the inner door assembly into the two hinge pin holes on the backbox outer face.
Fit the earth lead from the backbox to the inner door spade connector.
Fit together the two blue connectors of the printer 0V leads, 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. 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 upwards direction as this may damage the integral printer.

Card installation

When installing the cards into a 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 Commissioning tool. The DKC now connects directly to the new MCC card and the Commissioning tool is connected via the USB on MCB.

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

Setting the DKC card

The link, switch and pot on the DKC are factory configured as shown in below. The switch can be reconfigured for required baud rate and domain address.

Baud Rate Domain address

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>Addr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>Off</td>
<td>1200</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>64</td>
</tr>
<tr>
<td>Off</td>
<td>On</td>
<td>2400</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>On</td>
<td>1</td>
</tr>
<tr>
<td>On</td>
<td>Off</td>
<td>9600</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>On</td>
<td>Off</td>
<td>2</td>
</tr>
<tr>
<td>On</td>
<td>On</td>
<td>19200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>On</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>On</td>
<td>63</td>
</tr>
</tbody>
</table>

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

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

**Backplane**

Terminals for card in slot P8 of Backplane

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P10

Terminals for card in slot P7 of Backplane

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P11

**Terminal card**

- **LOOP 4**
  - L1 0V L2 0V
- **LOOP 3**
  - L1 0V L2 0V
- **LOOP 2**
  - L1 0V L2 0V
- **LOOP 1**
  - L1 0V L2 0V

**P2**

**P3**

**P4**

- **RS485**
  - -ve 5V +ve 0V
- **RS232**
  - Tx CTS Rx RTS

**P5**

**P6**

- **Master alarm**
  - M1+ M1- M2+ M2-
- **Clean C**
  - NC C NO

**P7**

**P8**

- **Auxiliary Relay 1**
  - NC C NO NC C NO
- **Auxiliary Relay 2**
  - NC C NO NC C NO

**P9**

**Battery connections**

- B1+ B1- B2+ B2- TH+ TH-
Before power-up

- With the exception of the mains cable ensure the following external cables are left disconnected at this stage of commissioning:
  - all loop circuits
  - clean contacts
  - auxiliary circuits
  - master alarm circuits, only the end-of-line resistor (22K Ohm) should be fitted to the terminals to inhibit a master alarm circuit fault indication.
  - 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.

Battery information

The panel makes use of sealed lead acid type batteries which 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 of use. 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.

Mains supply

- Fire alarm system products are NOT designed to be powered from IT Power systems.

- 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 any 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 cover should be marked: FIRE ALARM - DO NOT SWITCH OFF

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

VIG1-24 panel battery installation

1. Place the two batteries in 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.
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 shelf and connect to the respective connectors on PCB, located on the top right side of the enclosure.
6. Add two more batteries 'B' to the lower shelf and repeat procedures 1 to 5.
7. Where required, add four batteries to the upper shelf, follow procedures 1 to 5. The only exception is that the red/black lead is directly connected to the respective upper connectors on the PCB.

VIG1-72 panel battery installation

1. It is recommended that the mains supply is switched off during battery installation.
2. Fit the bolt, spade connector, washer, spring washer to each battery terminal.
3. Insert right hand battery into the back box.
4. Insert left hand battery into the back box.
5. Fit the link lead (white) to outer + and - spade connectors on the two batteries.
6. Fit the battery lead (red & black) assembly to inner + and - spade connectors of the two batteries observing polarity.
7. Plug the battery connector into connector P20 located on the bottom left of power supply PCB.

4 - 12V 21Ah batteries

Battery Box

Upper shelf

Lower shelf

A

B

8 - 12V 21Ah batteries

Battery Box

Upper shelf

Lower shelf

A

B

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

The panel will only power up after the mains supply is switched on.
PSU LED indications

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 master controller card, loop processor cards, IO cards and network cards. It 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 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.

EN panel factory settings

P0 - RS232, Baud: 1200, Mode: Repeat
   (Terminal card - terminals P4)
P1 - RS485, Baud: 9600, Mode: Standard
   (Terminal card - terminals P4)
Domain address - 0
Panel (Node) address - 1
NVM - software write allowed (NVM protect -disabled)
hardware write allowed (NVM protect -disabled)

The above LEDs flash 1s on and 1s off. When LED is ON it indicates an error. For more than one error the LEDs will flash in sequence.
System configuration
All devices are assigned to sector 1
All devices are assigned to zone 1

How to configure the 'U' buttons and CB254 LED

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

On operating a 'U' button the panel will trigger 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

Example 1
This example shows how to configure the U1 button such that pressing it will start the master alarm sounders and pressing Silence alarm button will stop the sounders.

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

Example 2
This example shows how to configure the U1 button such that it operates an output of an interface unit and releasing the U1 button it returns the output to normal condition.

Press Menu On/Off button and select [Setup], momentarily press <etc> to select [Setup] -> [Build] and type in the command build number 251, select [Action] -> [Usercode] and momentarily press <etc> to select -> [Digital] and type in the interface output channel number, select [On] and type in the interface device number, select [Loop] and type in the loop number -> [Enter], now select [Reversibl] and then [Enter]. The U1 button is now configured to switch on the digital output on an interface unit and on releasing it will switch off the output.

CB253 & CB254 LEDs
The switching of the LED CB253 or CB254 result from a trigger of command build 253 or 254. The switching action must be configured during commissioning.

Example 2
This example shows how to configure the panel such that by activating an interface input (can be a push button switch), it will cause the panel LED - CB254 and Master alarms to switch On. If the interface input is released, then the panel LED-CB254 and Master alarms will switch Off.

The following procedures assume a password entry is not required.

Firstly set up command build 254 to be triggered by an interface:
Press Menu On/Off button and select [Setup], momentarily press <etc> to select [Setup] and [Build], type in the command build number 254, select [Trigger] and [IO line], type in the interface input channel number, select [Device], type in the interface device number, select [Loop], type in the loop number and then select [Enter]. The command build 254 is now configured to be triggered by the interface input.

Now to create a command build label:
Press Menu On/Off button and select [Setup], momentarily press <etc> to select [Setup] and [Build], type in the command build number 254, select [Label] and type in a label of up to 40 character in length, select [Display] to display the label on the panel when the command build 254 is triggered.

Now to set up the action of command build 254:
Press Menu On/Off button and select [Setup], momentarily press <etc> to select [Setup] and [Build], type in the command build number 254, select [Action] and [Start MA], [Enter], [Reversibl] and [Enter].

How to fit the outer door
To close 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. The outer door may be secured to the backbox using the key lock.
Vigilon Compact Panel

The following procedures assume the fire alarm control panel is installed, with cables terminated at the backbox with the inner and outer doors fitted.

These procedures assume the protective cover fitted over the Master control board inside in the backbox has been removed.

- Connect flying earth lead ① from the back box to the inner door.
- If not already done remove the protective cover ② fitted over the Master control board inside in the backbox.
- Connect the ribbon cable ③ from the Display KEYBOARD to socket on the Master Control Board (MCB). Secure the ribbon cable to the side of the enclosure using the cable clamp provided.
Installing the cards

Setting the Rotary switch SW2
Before installing the Loop and Network cards onto the MCB ensure the rotary switch SW2 is set to a required setting, see table on the next page.

NVM hardware link P13
The NVM can be enabled or disabled by setting a hardware link P13 on the MCB. If the NVM protect is hardware disabled then it is also possible to software enable or disable the NVM using a [Protect] menu 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 enable to disallow writing to the NVM.

Installing the Cards
The MCB can accommodate two Loop Cards. One Loop card can be fitted into slot labelled CARD1 and the other Loop card into slot labelled CARD2.

For a networkable system a Network Card can ONLY be fitted into the slot CARD 2. Additionally the Network Card can accommodate the second Loop card.
Installing a new MCB in an older Vigilon Compact panel

These instructions cover how to fit a new Master Control Board (VCS-MCB-N) into a COMPACT-24 (non networkable) or COMPACT-24-N (networkable) Vigilon Compact panel.

NEW Master Control Board (new replacement MCB) - networkable

OLD Master Control Board (old MCB) - non networkable

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When a network card is to be installed ensure a spade tab is fitted under the PCB fixing screw 1. Also ensure the bottom PCB fixing screw 2 is tightened to give good connection.

How to replace a MCB

There are in existence four variants of Vigilon Compact panels in the field. Here are the steps to replace an old or new type MCB fitted in a panel.

Save Configuration to Commissioning tool

☐ If the panel is functioning correctly, before powering down, ensure the system configuration is retrieved to the laptop via commissioning tool.

Power down

☐ Completely power down the panel by isolating the mains and battery supply and then remove the ribbon cable connectors from the MCB.

Remove the cards

☐ Remove the Loop card(s) from the MCB and Network card#. Remove Network card# from MCB and then remove the MCB from the panel. (# - where applicable)

Firmware number and rotary switch setting

☐ Make a note of the firmware number on the chip in socket IC3 of the MCB being replaced. Using the table determine the applicable switch setting required and set the rotary switch on the new replacement MCB.

Configuration

☐ Using a chip extractor, extract the Back up 'Configuration' chip fitted in IC16 (NVM) of the MCB removed from the panel and then fit the chip into the new replacement MCB.

Firmware in socket IC3 of MCB being replaced

<table>
<thead>
<tr>
<th>New setting of switch SW2 on new replacement MCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>2211-148</td>
</tr>
<tr>
<td>2211-146</td>
</tr>
<tr>
<td>2211-136</td>
</tr>
<tr>
<td>2211-127</td>
</tr>
</tbody>
</table>

Re-fit the cards

☐ Fit the new MCB into the panel and reconnect the ribbon cables, and then fit the previously removed Network card and Loop cards.

☐ An earth lead must be fitted between the spade tabs 1 on MCB and Network card.

Power up

Power up the mains and battery supplies to the panel.
With the exception of the mains cable, ensure the following external circuit cables are left disconnected at this stage of commissioning:

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

Ensure the mains cable is securely connected to the mains terminal block on the Power supply unit (PSU).
Battery connection

- Remove the lithium battery insulation sleeve or disk to allow it to come in direct contact with retaining connector.

Power up

Battery supply

- Fit the battery lead to the PSU.
- Remove the battery bracket from the backbox.
- Fit the batteries in the correct orientation.
- Refit the battery bracket.

Switching the essential controls

Factory set link position:
Control buttons active

- Control buttons: Sound alarms button
- Silence alarms button
- Reset button
- Verify button

Switching the essential controls

Factory set link position:
Control buttons inactive

- or

Factory settings

Ports
- P0 - RS485, Baud: 1200 Mode: Repeat
- P1 - RS232, Baud: 38400, Mode: Standard
- P2 - RS232, Baud: 38400, Mode: Standard
- P3 - USB

System configuration
- Domain address - 0
- Panel (Node) address - 1
- All devices assigned to sector 1
- All devices assigned to zone 1

The panel makes use of sealed lead acid type batteries which 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 of use. 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.

Switch On the mains supply to the panel and then make the connection to the battery.
Mains supply

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

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

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 Disconnect 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

<table>
<thead>
<tr>
<th>Description</th>
<th>Y1 (yellow)</th>
<th>Y2 (yellow)</th>
<th>G1 (green)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal condition (no faults in the system)</td>
<td></td>
<td>fast flash</td>
<td></td>
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<tr>
<td>Mains out of limit</td>
<td></td>
<td>slow flash</td>
<td></td>
</tr>
<tr>
<td>24VDC failure only</td>
<td>fast flash</td>
<td>fast flash</td>
<td></td>
</tr>
<tr>
<td>Battery 1 failure only</td>
<td>slow flash</td>
<td>fast flash</td>
<td></td>
</tr>
<tr>
<td>Battery 1 and 24VDC failure</td>
<td>slow flash</td>
<td>fast flash</td>
<td></td>
</tr>
<tr>
<td>43VDC failure only</td>
<td>fast flash</td>
<td>fast flash</td>
<td></td>
</tr>
<tr>
<td>No power to PSU</td>
<td>fast flash</td>
<td>fast flash</td>
<td></td>
</tr>
<tr>
<td>Earth fault only</td>
<td>On</td>
<td>On</td>
<td>On</td>
</tr>
</tbody>
</table>

Note on initial power up all three LEDs on the PSU will switch on for approximately 1 second duration.
Generic Commissioning instructions

How to configure the monitored input

The monitored input at the fire panel is activated by an external switch installed 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 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 alarms 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 1 and on releasing or "opening" the monitored input the panel will stop the alarms.

The following procedures assume a password entry is not required.
Press Menu On/Off button and select [Setup], 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] -> [Digital] and type in the interface output channel number, select [On] and type in the interface device number, select [Loop] and type in the loop number -> [Enter], now select [Reversb] and then [Enter]. The U1 button is now configured to switch on the digital output on an interface unit and on releasing it will switch off the output.

Press Menu On/Off button and select [Setup], momentarily press <etc> to select [Setup] -> [Usercode], now select [Action] -> [Non Reversb] -> [Enter]. The U1 button is now configured to start the master alarm sounders.

Example 2
This example shows how to configure the U1 button such that it operates an output of an interface unit and releasing the U1 button it returns the output to normal condition.

The following procedures assume a password entry is not required.
Press Menu On/Off button and select [Setup], momentarily press <etc> to select [Setup] -> [Build] and type in the command build number 251, select [Action] -> [Usercode] and momentarily press <etc> to select -> [Digital] and type in the interface output channel number, select [On] and type in the interface device number, select [Loop] and type in the loop number -> [Enter], now select [Reversb] and then [Enter]. The U1 button is now configured to switch to normal condition.

How to configure LEDs CB253 and CB254

The switching of the LEDs CB253 and CB254 result from actioning on command builds 253 and 254 respectively. The switching action must be configured during commissioning.

This example shows how to configure the panel such that by activating an interface input (can be a push button switch), it will cause the panel LED - CB253 and Master alarms to switch Off. If the interface input is released then the panel LED-CB253 and Master alarms will switch Off.

The following procedures assume a password entry is not required.
Example:
Press Menu On/Off button and select [Setup], momentarily press <etc> to select [Setup] -> [Build] and type in the command build number 253, select [Trigger] -> [IO line] and type in the interface input channel number, select [Device] and type in the interface device number, select [Loop] and type in the loop number -> [Enter], now select [Reversb] and then [Enter]. The command build 253 is now configured to be triggered by the interface input.

Now to configure the command build label:
Press Menu On/Off button and select [Setup], momentarily press <etc> to select [Setup] -> [Build] and type in the command build number 253, select [Label] and enter a label of up to 40 character in length, select either [Display] to display the label on the panel when the command build 253 is triggered.

Now to setup the action of command build 253:
Press Menu On/Off button and select [Setup], momentarily press <etc> to select [Setup] -> [Build] and type in the command build number 253, select [Action] -> [Start MA] -> [Enter] -> [Non Reversb] and [Enter]
External printer

An external printer may be connected to the control panel during commissioning. There are two printers available COMPACT-HAND and COMPACT-DESK. It is essential the printer is connected to the RS232 - Port 1.

The factory set baud rate for Port 1 is 9600 and need not be changed when a printer is connected. However the factory set Mode is Standard and must be changed to Printer when a printer is connected to Port 1.

How to configure Port 1 mode to printer

To configure Port 1 to Printer mode: Press Menu On/Off button and then select [Test/Eng]. Select [UserCode] and enter the Engineering password (PIN), this is only necessary if an Engineering password has been set up. Press <etc> and select [Config]. Momentarily press <etc> to select [Comms]. Select [Card] and enter 0 for 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]. Select [UserCode] and enter the Engineering password (PIN), this is only necessary if an Engineering password has been set up. Select [Printer] and then select [On] and [Enter].
Vigilon Compact Voice Alarm Panel

The following procedures assume the Control panel is installed, with cables terminated at the backbox.

- Open the Outer door to the enclosure using the front door key and then open the inner door using the Allen key located on the inside of the Outer door.
- Remove the protective cover fitted over the printed circuit boards located inside the backbox.
- Earth Lead
  Ensure the earth lead located in the top right of the backbox is connected to the spade connector on the inner door.

- DKC ribbon cable
  Connect the 40-way ribbon cable from the DKC to the socket marked KEYBOARD on the left edge of the Master Control Board (MCB). Secure the ribbon cable to the side of the enclosure using the cable clamp provided.

- ACC DKC ribbon cable
  Route the 14-way ribbon cable from the backbox on to the inner door and connect it to the left unoccupied socket on the ACC DKC. Secure the ribbon cable to the inner door using the cable clamp provided.

- Emergency microphone cable
  Connect the Emergency microphone cable to the socket P11 labelled microphone on the bottom edge of the ACC board. Secure the microphone lead to the P clip on the backbox.

 Connect the 40-way ribbon to the socket labelled KEYBOARD on MCB and secure cable to side of the enclosure.

 Fit the earth lead to the inner door

 Connect 14-way ribbon to socket ACC DKC.

 Secure 14-way ribbon to Inner door using cable clamps supplied.

 Connect microphone cable to the socket P11 labelled microphone on ACC board and secure cable to the P clip.

 P Clip for mains cable

 Mains terminal block with fuse

 ACC

 MCB

 PSU
All the cards (Printed circuit boards) are factory fitted in the panel, with the exception of the loop processor card (LPC).

- Ensure one loop processor card (LPC) is firmly fitted in CARD 1 slot on the Master control board.
- If an optional loop processor card (LPC) is required, then it must be fitted in CARD 2 slot on the Master control board.

The mains cable may be securely fitted to the mains terminal block.

At this point DO NOT switch On the mains supply to the panel.

Ensure the following external circuit cables are left disconnected at this stage of commissioning:

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

- Remove the lithium battery sleeve on the retaining clip to allow it to come in direct contact with the battery.
## Master Control Board Terminals
### Descriptions of MCB terminals

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>24V, 0V, B and A</td>
<td>These terminals accept the connection of a repeat indicator panel (Port 0).</td>
</tr>
<tr>
<td>NC, C and NO</td>
<td>These are auxiliary relay contacts. The auxiliary relay 1 is factory set as a normally de-energised relay that operates with any fire event. The auxiliary relay 2 is factory set as a normally energised relay that operates with any fault event.</td>
</tr>
<tr>
<td>Aux 1- 2-sets</td>
<td>These are terminals for RS232 or RS485 (Ports 1 or Port 2 respectively) to connect to a commissioning computer.</td>
</tr>
<tr>
<td>Aux 2 - 1set</td>
<td>These are voltage free relay contact outputs that operate with a fire event.</td>
</tr>
<tr>
<td>0V, TX, A, RX and B</td>
<td>These are monitored input terminals that can accept the connection of a switch. An active input will trigger Command build 250.</td>
</tr>
<tr>
<td>L1, 0V, L2, 0V (Loop 1 and Loop 2)</td>
<td>These terminals accept the connection of system devices on a two wire loop that starts at L1 and terminates at L2. Devices that can be connected on the loop circuit include addressable fire sensors, alarm sounders, interface units repeat/mimic panels and micro distributed amplifiers units.</td>
</tr>
<tr>
<td>MA1+, MA1-, MA2+ and MA2-</td>
<td>These terminals can accept two master alarm circuits that can operate 24V conventional alarm devices.</td>
</tr>
</tbody>
</table>

## Terminals on Audio Control Card (ACC)

### Descriptions of ACC terminals

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>24V, B, A, PA1, PTT and 0V</td>
<td>These connections accept the connection of a microphone for PA application.</td>
</tr>
<tr>
<td>PA2, PTT2 and 0V</td>
<td>These terminals are for future use to accept the connection of a second microphone.</td>
</tr>
<tr>
<td>O/A, O/B, I/A and I/B (for Audio loop 1 and 2)</td>
<td>These terminals accept the audio loop circuit connection. Here the O in O/A and O/B signify output, while the I in I/A and I/B signify input. Audio loop 1 is associated with analogue loop 1 and audio loop 2 is associated with analogue loop 2.</td>
</tr>
</tbody>
</table>

### How to link out an audio loop if it is not being used

How to link out an audio loop if it is not being used.
Factory settings

The factory settings of the panel are described here.
P0 - RS485, Baud: 1200 Mode: Repeat
   (dedicated for repeat indicator panel)
P1 - RS232, Baud: 9600, Mode: Standard
P2 - RS485, Baud: 9600, Mode: Standard
NVM - software write allowed (NVM protect -disabled)
hardware write allowed (NVM protect -disabled)
NVM hardware link P13

System configuration

Domain address - 0
Panel (Node) address - 1
All devices assigned to sector 1
All devices assigned to zone 1
Sector 1 is assigned to all ten voice alarm zones

Loop Processor Card (LPC)

A Loop Processor Card (part number: COMPACT-LPC) is able to control up to 200 devices connected onto a loop circuit. The LPC drives the loop circuit from both ends, and handles all messages to and from each device. The control panel can accommodate up to 2 LPCs.

Fit the Loop Processor Card in Card 1/2 slot on the MCB.
Power up

Battery supply

☐ A battery lead supplied in the spares pack must be fitted to the Power supply board, connector P7 labelled Bat1. Next install the batteries inside the enclosure, which requires removal of battery brackets from the panel and installation of the batteries in correct orientation, standing on the small side with terminals at the top facing outwards. Secure the batteries by refitting the battery brackets.

☐ Switch On the mains supply to the panel and then make the connection to the battery.

Switch On the mains supply to the panel and then make the connection to the battery.

The panel makes use of sealed lead acid type batteries which 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 of use. 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.

Mains supply

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 any loop wiring.

☐ The mains supply to the fire alarm control and indicating equipment must be via a 2-pole unswitched fused spur unit (Disconnect device). A Disconnect Device should be available as part of the building installation, fitted near the panel. The contacts of the disconnect device should have a separation of at least 3mm.

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

☐ Each fire alarm equipment fused spur unit must be from a dedicated switch or protective device at the local mains supply distribution board, which should be clearly labelled FIRE ALARM - DO NOT SWITCH OFF.

Indicators on the power supply board

<table>
<thead>
<tr>
<th>Description</th>
<th>Y1 (yellow)</th>
<th>Y2 (yellow)</th>
<th>G1 (green)</th>
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<td></td>
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<td>Battery 1 and 24VDC failure</td>
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</tr>
<tr>
<td>43VDC failure only</td>
<td>fast flash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No power to PSU</td>
<td>fast flash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earth fault only</td>
<td>On</td>
<td>On</td>
<td>On</td>
</tr>
</tbody>
</table>

Note on initial power up all three LEDs on the PSU will switch on for approximately 1 second duration.
External printer
As for Vigilon Compact, see page 31.

How to configure the monitored input
As for Vigilon Compact, see page 30.

How to configure the buttons U1 and U2
As for Vigilon Compact, see page 30.

How to configure LEDs CB253 and CB254
As for Vigilon Compact, see page 30.

How to check and set the audio signal

Jack sockets
There are two stereo 3.5mm jack socket on the Audio Control Card labelled Audio 1 and Audio 2. A standard low impedance headphones may be plugged into the jack sockets to listen to the audios. Any audio from the panel that is outputted can be listened to using the headphones.

VU Meter
The VU (Volume Unit) meter provides an indication of the signal level of audio being sent to the two audio loops.

- For an optimum setting of audio the deflection on the VU meter must not exceed 0dB.
- The noise level remains constant for all input signals. If the input signal is low as read on the VU meter then noise level will be more noticeable.

Where an amplifier of a music system provides an adjustable pre-amplified output, the adjustment must be such that the heavy beat of background music does not cause the pointer on the VU meter to deflect above 0dB, in the red range.
Indications on power up

These are typical power up indications given at the panel with no loop circuits connected. For Vigilon Compact VA panel the audio loop must remain disconnected at this stage.

- Switching on the mains power to the panel and connecting the battery supply:
  - the panel buzzer sounds
  - some LEDs on the panel will be momentarily lit
  - a message is displayed.

Power up - please wait

- the dots below the powering up message is a progress indicator.
- the Disablement light gives a flashing indication and after a short duration changes to a steady indication.
- the display gives messages similar to:
  - Time not set
  - NVM Card Fitted
  - Audio Card Keypad fitted -(Compact VA)
  - NVM is not write protected.
  - Card found at Card 1 x.xx (aa/bb/cc)
  - Allocating Loop n

- NVM Card is the Non Volatile Memory (NVM) Card
- Card 1 is always a Loop card
- Card 2 message will only appear if an optional loop card is fitted in CARD 2 slot of the Master control board (Vigilon compact or compact VA only)
- the x.xx is the software version number of the card
- the aa/bb/cc signifies the day month and year of software release.

Allocation: OK at Card X : Nothing found

There may be other indications and messages depending on the panel condition.
- Disablement indicator is lit.

Initial tests

Display test
- To test the display press the Menu On/Off button and then select [Test/Eng] ->[Disp Test]. The Display Test option will cause all the LEDs and buzzer (including backlight) to remain On for a short duration.

Setting the Clock
- To set up the time and date, press the Menu On/Off button and then select [SetUp] ->[Set Clock]. The Set Clock option will allow the setting of the time and date at the panel.

Printer test (if fitted)
- To test the printer press the Menu On/Off button and then select [Control] -> [Printer], if the printer is On select [Test] to carry out a printer test.

Power supply test
- Test the panel’s mains and battery supply by carrying out temporary disconnection and reconnection, to allow an indication of the events to be given on the panel. Ensure sufficient time is given for the event to be displayed, normally within 2 minutes.

Master alarms circuit tests
- Check that indications are given when there is a fault on the master alarm circuit. Carry out an open circuit test by disconnecting the end of line resistor. Then carry out a short circuit test by shorting the master alarm circuit terminals.
Useful menu options

The menu map for all the menu driven controls that are accessible at the control panel are detailed in Appendix A.

Panel Buzzer

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

Press Menu On/Off button and then select [Test/Eng], [UserCode] and enter the Engineering password (PIN), this is only necessary if an Engineering password has been set up. Select <etc> [Config], [Buzzer] this will allow selection of [Disable], [Fault], [Fire] or [Supervis] signifying total buzzer disablement or disablement of local sound signal for this type of event and then select [On/Off] and [Enter].

Software version

The software version of the panel can be displayed by viewing the status of the master control board/card.

To check the software on the master control board/card: Press Menu On/Off button and then select [Info], momentarily press <etc> to select [Status] -> [Card] and enter Card number 0, which is the Main Control Card / Master Control Board and select [Enter]. The display will show software version number and date of release.

Password or Personal Identification Number

The terms Password, PIN, Usercode and Access code mean the same and are used interchangeably.

A password or personal identification number (PIN) restricts access to the controls available to the user at the Control panel. There are three access levels to the controls these are access level 1, 2 and 3. **Access level 1** only allows the cycling through multiple events on the screen using the two buttons on the outer door.

- **Access level 2a** is for the CUSTOMER, here the person responsible for the system can access essential controls using the panel door key

- **Access level 2b** is for the CUSTOMER - here the person responsible for the system can access essential controls and some configuration menu options using the panel door key plus customer PIN.

- **Access level 3** is for the ENGINEER - here the person responsible for the system can access essential controls and all system menu options using the panel door key plus Engineer PIN.

- There is another password (PIN) that changes daily, which is available to the servicing organisation. This daily PIN is only used when the Engineer's PIN is not known.

Always make a note of the Customer and Engineering passwords or PINs once they are created. Ensure the Customer password or PIN is passed on to the person responsible for the fire alarm system on site.
How to set up the Engineer password

The engineer password (PIN) gives access to level 3 menu options which are used during the commissioning and maintenance of the fire alarm system. To set up the password for the first time:

☐ Press the Menu On/Off button and select [Test/Eng] -> then momentarily press <etc> to select [Config] -> [New Pass] and then type a password (PIN) and press the Enter key.

☐ It is recommended that the PIN is at least 4 numbers and no greater than 15 numbers for Vigilon compact and Vigilon Compact VA panels. The Vigilon panels can use numbers and letters.

How to set up a Customer password

An Engineer PIN must be set up before you can create a Customer PIN.

The customer authorised operators can be given a password (PIN) to access level 2b controls, which provides access to restricted menu options that cannot alter the configuration of the system. To set up the customer password for the first time:

☐ Press the Menu On/Off button and then [Test/Eng] -> [UserCode] -> type '2' and select [Enter], select [New Pass] and then type a password of less than 15 characters in length and press the Enter key.

☐ It is recommended that the PIN is at least 4 numbers and no greater than 15 numbers for Vigilon compact and Vigilon Compact VA panels. The Vigilon panels can use numbers and letters.
Address allocation

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

Connecting Loop 1 circuit

Ensure the panel is powered down first 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 only.

With Loop 1 End 1 connected

- Ensure **end-2 of the loop cable remains disconnected**.
- Connect 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.

Allocating Loop n
 Allocation: OK at Card X : Allocated Y
Starting Loop n
Loop started OK at Card X: Started Y

- Even if all the devices are wired correctly and there are no allocation faults, there may still be some device faults, like mains and battery disconnected at interface units, these will be displayed at the panel. The panel **fault buzzer** will sound and the Fault LED will be lit.
- To stop the local buzzer from sounding press **Cancel Buzzer** button.

In practice there may be system wiring and hardware faults during the address allocation stage, these faults are also displayed as messages and for further information on what they mean and possible action that can be taken, see Appendix B - Message action.
How to re-allocate a loop circuit

It is possible to selectively commence the process of address allocation on a loop by loop basis.

- 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 n to power up loop circuit n and now select [Enter].

How addresses are allocated to devices

Each device connected to a loop circuit is allocated a software address on a sequential lowest unused value basis.

- The allocation of addresses start from one End of a loop circuit in a numerical order. If both ends of the loop are connected then the allocation of addresses start from End1. On reaching a T-breaker the spur circuit off is allocated addresses. On completion the process continues along the main loop.

The new map is checked against the last map on the NVM, if found to be different then a warning indication is given.

Possible allocation faults

- The device with a hardware fault may have its LED lit.

<table>
<thead>
<tr>
<th>Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW Fault Card x number y</td>
</tr>
<tr>
<td>Loop z</td>
</tr>
<tr>
<td>Tx Fault Card x number y</td>
</tr>
<tr>
<td>Loop z</td>
</tr>
<tr>
<td>Double Allocation Card x</td>
</tr>
<tr>
<td>number y Loop z</td>
</tr>
<tr>
<td>Map Error at Card x number</td>
</tr>
<tr>
<td>y Loop z</td>
</tr>
</tbody>
</table>

- 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, the loop re-allocates 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 analogue channels are read.

Typical starter fault

ASCII Device is Faulty, number X Loop Y

Loop circuit 1 End 2

- Power-down the loop before making any changes to the wiring.

<table>
<thead>
<tr>
<th>Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disconnect end 1 of loop 1 and connect the loop cable End-2 and power up to reallocate the loop.</td>
</tr>
<tr>
<td>On completion of this test, power down the loop and connect both ends of the loop. Repeat the test on the other loops if fitted.</td>
</tr>
</tbody>
</table>
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. The following procedure assumes no password access is required. Press the Menu On/Off button and then [Info] -> [Display]/[Print] note these options will only appear if a printer is connected to the panel. Momentarily press <etc> to select [Loop Map], type in a loop number and select [Enter]. The loop map is either displayed or printed. A typical example is shown:

<table>
<thead>
<tr>
<th>Map information for Loop 2</th>
<th>15:45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Position</td>
<td></td>
</tr>
<tr>
<td>1 End1</td>
<td>2 Main Loop</td>
</tr>
<tr>
<td>2 1 3</td>
<td>Main Loop</td>
</tr>
<tr>
<td>3 2 4</td>
<td>Main Loop</td>
</tr>
<tr>
<td>4 3 9</td>
<td>L2 5 Spur Loop</td>
</tr>
<tr>
<td>5 4 6</td>
<td>Spur Loop</td>
</tr>
<tr>
<td>6 5 7</td>
<td>Spur Loop</td>
</tr>
<tr>
<td>7 6 8</td>
<td>Spur Loop</td>
</tr>
</tbody>
</table>

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 or 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.

Interface units

⚠ Ensure 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 will repeat.

The loop powered zone module and single channel interface will provide an indication by switching on the red LED (D22) on the interface board.

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

☐ Check the suitability of each device for the area in which it is installed and the location of installation with reference to the as fitted drawings.

To find devices on 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 marks 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] -> [Loop] -> [Find Dev], now enter CARD number n to select the loop circuit n, select [Start] and type in a device number (usually device 1) and 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.
Non Volatile Memory (NVM)

The Backplane and the Master Control board fitted inside the panel have the Non Volatile Memory (NVM). The NVM should hold the latest system configuration data.

Hardware write protect

**Do not attempt to write protect using the link P13 while a back up to the flash chip or initialization of the memory is in progress.**

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 NVM.

**Where the system is required to be EN54 Part 2 compliant, then the link P13 must be left in the protect enable state, that is to disallow write to NVM.**

Hardware write protect on Vigilon 4-loop panel

Hardware write protect on Vigilon Compact (+ VA) panels

The configuration data held at the panel

**Master Controller Card (MCC)**

- printer state - On/ Off
- usercode - the user entry password
- timeslots and time blocks
- sounder configuration for all three Signals plus IO line
- auxiliary relay
- action/deaction #
- assign/remove #
- setup #
  - # - some exceptions are held on the loop processor card

**Loop Processor Card (LPC)**

- Holds the status or configuration of devices:
  - labels
  - gain
  - assign/remove to sectors
  - setup of states and timeblocks.
Data Back-up & Recovery

To back up loop data to NVM

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], momentarily press <etc> to select [Backup] and select the loop number n to be backed up to the NVM. Select [NVM card] -> [Enter]. 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 follow the above procedures except after the [Backup] command enter 0, as this is card 0.

To recover loop data from NVM

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

  Recovery failed at card x

- It is possible to recover data previously backed up to Non Volatile Memory. The following procedure assumes there is no password access required. Press the Menu On/Off button and then [SetUp], momentarily press <etc> to select [Recover] and select the card number n to be recovered from the Non Volatile Memory. Select [NVM card] -> [Enter]. 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 NVM see page 44.

To 'software' write protect NVM

Once the NVM is protected it is not possible to write or backup card data to the NVM. After card data is backed up to NVM it must be write protected.

- The following procedure assumes no password access is required. Press the Menu On/Off button and then [SetUp], momentarily press <etc> to select [Protect] and then select [Disable] -> [Enter]. A confirmation will be given on the display:

  NVM is not write protected at card 14

To 'software' write unprotect NVM

Once the NVM is unprotected it is possible to write or backup card data to the NVM. After card data is backed up to NVM it must be write protected.

- The following procedure assumes no password access is required. Press the Menu On/Off button and then [SetUp], momentarily press <etc> to select [Protect] and then select [Enable] -> [Enter]. A confirmation will be given on the display:

  NVM is write protected at card 14

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.

To initialise 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] and then [Enter].

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.

How to electrically erase the NVM

Under normal circumstances erasing the NVM is not necessary as there is only one back up of the complete system configuration data held at the panel. The NVM Initialisation should only be performed by a trained and qualified engineer, as executing this command will erase all the data backed up at the panel.

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.

To initialise 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] and then [Enter].

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.
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 loop circuit:

- Individually
- in a consecutive range
- or an entire loop can be safe addressed

**To safe address a device**

```plaintext
Map information for Loop 2

<table>
<thead>
<tr>
<th>Os</th>
<th>Prev</th>
<th>Next</th>
<th>Common</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>+1</td>
<td>End1</td>
<td>2</td>
<td></td>
<td>Main Loop</td>
</tr>
<tr>
<td>+2</td>
<td>1</td>
<td>3</td>
<td></td>
<td>Main Loop</td>
</tr>
<tr>
<td>+3</td>
<td>2</td>
<td>4</td>
<td></td>
<td>Main Loop</td>
</tr>
<tr>
<td>+4</td>
<td>3</td>
<td>9</td>
<td>+2</td>
<td>L2 Spur Loop</td>
</tr>
<tr>
<td>+5</td>
<td>4</td>
<td>6</td>
<td></td>
<td>Spur Loop</td>
</tr>
<tr>
<td>+6</td>
<td>5</td>
<td>7</td>
<td></td>
<td>Spur Loop</td>
</tr>
<tr>
<td>+7</td>
<td>6</td>
<td>8</td>
<td></td>
<td>Spur Loop</td>
</tr>
</tbody>
</table>
```

+ indicates the device is safe addressed

Press Menu On/Off button and then [Set Up] and then momentarily press <etc> to select [Set Up] and then momentarily press <etc> to select [Device], now type in the soft address of the device and then select [Loop], now type in the loop on which the device resides and then select [Safe] and finally type in a safe address and select [Enter].

It is efficient to safe address devices using the commissioning tool. If safe addressing a range of devices it is quicker to do using the controls at the panel.

**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:

Press Menu On/Off button and select [Set Up] and then momentarily press <etc> to select [Set Up] and then momentarily press <etc> to select [Device], now type in the safe address of the device and then select [Loop], now type in the loop on which the device resides and then select [Safe] and finally type in 0 the safe address and select [Enter]. This will convert the device back to soft addressing mode.
Loop circuit tests

The loop circuit test involves checking the loop circuit resistance and capacitance and then to carry out open circuit, short circuit and break tests.

Loop resistance and capacitance

1. Power down and disconnect both ends of the loop 0V wiring at the control panel, whose resistance and capacitance are to be measured.

Resistance

- Using a multimeter measure the resistance between the loop 0V (End 1) and loop 0V (End 2). In practice this should not be greater than 13 ohms.

Capacitance

- Check the capacitance between the loop 0V and cable screen. The capacitance should not be greater than 1.0uF. Also the cable end-1 and end-2 should read the same value.

How to [Repair] a loop circuit

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

a. Press the Menu On/Off button and select [Test /Eng].

b. Select [Usercode] and if a password access is required, type in your user code and press the Enter button.

c. Select [Loop] and then momentarily select <etc> until [Repair] appears on the display.

d. Select [Repair] and type in the loop circuit you want to repair, for example loop 1 or 2 and then select [Enter].

Loop short circuit test

A loop short circuit isolation test should be carried out at this stage. It is recommended that the sounders are switched On before conducting this test.

End 1 Short test

- Short circuit the pair of loop terminals at End-1. There should be no loss of any part of the system. The display shows:

  Wiring changed - short at card x number
  Wiring changed - loop split

- After rectification re-allocate the loop circuit.

End 2 and Mid circuit Short test

- A short circuit test should then be repeated at End-2 and again at mid point of the loop.

⚠️ The loop circuit on which a short circuit occurred must be repaired using the [Repair] function.

- At the end of the test operate the [Repair] function at the panel.
**Ground break test**

A ground break test should be carried out at this stage:

- Disconnect the 0V line from End-1 of a loop circuit.

A single 0V line break should not cause the loss of any part of the system.

---

**End 1 cable break test**

- The cable break may have to be sustained for up to a minute. The display will show:
  - Wiring changed - ground break at card x number y on loop z
- To clear the fault, the 0V line should be reconnected and then the loop should be re-allocated.

**End 2 loop break test**

- The ground break test should be repeated at the other end of the loop circuit, **End-2** and again at **Mid point of the loop**.

The exact location of a ground break is not indicated, however the loop will run as normal. When the fault is rectified and the defective cable has been repaired and the loop must be re-allocated.

- At the end of the test operate the [Repair] function at the panel.

---

**Positive line break test**

A positive line break test should be carried out at this stage:

- Disconnect the +ve loop connection at one End of a loop circuit.

A single +ve line break should not cause the loss of any part of the system.

---

- Reconnect +ve line to clear the fault.
- At the end of the test operate the [Repair] function at the panel.
Earth fault test

Earth fault tests should be carried at this stage:

0V-line earth fault test

☐ Connect the 0V line to the earth of the control panel enclosure. This may have to be sustained for up to 1 minute for the fault to be detected. The display should show:

Earth Fault

☐ Restore normal conditions. The display show:

Earth Fault cleared

+ve line earth fault test

☐ Now connect the +ve line to earth via a 10K ohm resistor. This may have to be sustained for up to 1 minute for the fault to be detected. The display shows an Earth fault message as above and after restoration a cleared message.

If the resistance between Earth and Loop +ve is in the order of a few ohms then this will be registered as a ‘short circuit’.

Type of earth fault

Interrogate the [PSU] readings in the [Test/Eng] menu to establish the type of Earth fault.

<table>
<thead>
<tr>
<th>Type of Earth fault</th>
<th>Earth (Ear) reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>No earth fault</td>
<td>around 60</td>
</tr>
<tr>
<td>+ve line and earth</td>
<td>greater than 75</td>
</tr>
<tr>
<td>-ve line and earth</td>
<td>less than 40</td>
</tr>
</tbody>
</table>

☐ At the end of the test operate the [Repair] function at the panel.
Checking 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 a device number, select [Loop], enter the loop number n, select [Enter] to view device status information.

<table>
<thead>
<tr>
<th>Device</th>
<th>digital I / 0</th>
<th>channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>S cubed</td>
<td>0 0 0 0</td>
<td>5</td>
</tr>
<tr>
<td>1- IR control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - Tone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - Power</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 - Strobe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sounder</td>
<td>0 0 0</td>
<td></td>
</tr>
<tr>
<td>3 - Low freq.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - On/Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeat sounder</td>
<td>0 0 0</td>
<td></td>
</tr>
<tr>
<td>Interface unit (mains)</td>
<td>all possible</td>
<td></td>
</tr>
<tr>
<td>powered)</td>
<td>1 - input</td>
<td></td>
</tr>
<tr>
<td>Analogue channels</td>
<td>0 - output</td>
<td></td>
</tr>
<tr>
<td>1: Optical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: Heat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: Gas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4: Optical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5: Sounder/Strobe/Speech</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analogue channels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6: Monitored line or LED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optical</td>
<td>0 0 0</td>
<td>1</td>
</tr>
<tr>
<td>Optical heat</td>
<td>0 0 0</td>
<td>1,2</td>
</tr>
<tr>
<td>Heat</td>
<td>0 0 0</td>
<td>4</td>
</tr>
<tr>
<td>Slave Relay</td>
<td>0 0 0 +R</td>
<td></td>
</tr>
<tr>
<td>Slave LED</td>
<td>0 0 +L</td>
<td></td>
</tr>
<tr>
<td>Beam transmitter</td>
<td>0 0 0</td>
<td>2</td>
</tr>
<tr>
<td>Beam receiver</td>
<td>0 0 0</td>
<td>1- raw data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2- average data</td>
</tr>
<tr>
<td>MCP</td>
<td>0 0 0</td>
<td>6</td>
</tr>
<tr>
<td>Repeat panel</td>
<td>0 0 0</td>
<td></td>
</tr>
<tr>
<td>Zonal mimic</td>
<td>0 0 0</td>
<td></td>
</tr>
</tbody>
</table>

Device description:

Loop 1 No. 7 Dual optical/Heat/CO
LED
End1:Hi End2:Hi
1/Oi...0 Anal:1-4,6
2nd:250 3rd:0_Short delay:0
Zone 1 Zone 1

Digital Input outputs

Tertiary address used primarily by sounders/strobe

Analogue channels

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/operation to the control panel

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 there will be a loop voltage on the unconnected end of the cable.
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

You can manually recover card data. The following procedure assumes there is no password access required. Press the Menu On/Off button and then [Info], momentarily press <etc> to select [Time Avg] and type in the channel number from the range 1-6, select [Device] and type in the device number for which the time average is required, select [Loop] and type in the loop number of the device. The display shows time averages for the device.

<table>
<thead>
<tr>
<th>Channel</th>
<th>Device type</th>
<th>Analogue Channel number</th>
<th>Time average Tnew</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34K</td>
<td>1</td>
<td>200 - 235</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>180 - 210</td>
</tr>
<tr>
<td></td>
<td>Heat</td>
<td>1</td>
<td>200 - 235</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>180 - 210</td>
</tr>
<tr>
<td></td>
<td>Beam Transmit</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Beam Receive</td>
<td>2</td>
<td>150 - 170</td>
</tr>
</tbody>
</table>

Device type 34K

### Foreground (fast) time average readings

- **T1**: 80mS
- **T2**: 320mS
- **T3**: 1.28S
- **T4**: 5.12S
- **T5**: 20.48S

Normal reading 252, if there is no threshold.

### Background (slow) time average readings

- **T6**: 1.36min
- **T7**: 5.46min
- **T8**: 21.84min
- **T9**: 1.45hr
- **T10**: 5.82hr
- **T11**: 23.3hr

Device type S-Quad

<table>
<thead>
<tr>
<th>Device type</th>
<th>Analogue Channels</th>
<th>Time average Tnew</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Sensor</td>
<td>2 - heat</td>
<td>66</td>
</tr>
<tr>
<td>Heat Sensor Sounder</td>
<td>2 - heat</td>
<td>66</td>
</tr>
<tr>
<td>Dual Optical Heat Sensor</td>
<td>1 - optical (forward)</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>2 - heat</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>4 - optical (backward)</td>
<td>40</td>
</tr>
<tr>
<td>Dual Optical Heat Sensor Strobe</td>
<td>1 - optical (forward)</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>2 - heat</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>4 - optical (backward)</td>
<td>40</td>
</tr>
<tr>
<td>Dual Optical Heat Sensor Sounder</td>
<td>1 - optical (forward)</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>2 - heat</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>4 - optical (backward)</td>
<td>40</td>
</tr>
<tr>
<td>Dual Optical Heat Sensor Speech Strobe</td>
<td>1 - optical (forward)</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>2 - heat</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>4 - optical (backward)</td>
<td>40</td>
</tr>
<tr>
<td>Dual Optical Heat Sensor CO</td>
<td>1 - optical (forward)</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>2 - heat</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>3 - CO</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>4 - optical (backward)</td>
<td>40</td>
</tr>
<tr>
<td>Dual Optical Heat Sensor CO Speech Strobe</td>
<td>1 - optical (forward)</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>2 - heat</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>3 - CO</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>4 - optical (backward)</td>
<td>40</td>
</tr>
</tbody>
</table>
Checking the sensor Exceptions/Subfault codes

Exceptions (EN) or Subfaults (BS) are also called condition codes and 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 that the 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.

<table>
<thead>
<tr>
<th>Exception Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>This condition is OK. This code is not displayed unless another non zero code exists.</td>
</tr>
<tr>
<td>1 or 2</td>
<td>Suggests preventive maintenance is required, where necessary, to avoid possible false alarms.</td>
</tr>
<tr>
<td>3</td>
<td>The sensor is faulty. A fault condition indication is given at the control panel. A message reading ‘Sensor Out of Specification’ is displayed.</td>
</tr>
</tbody>
</table>

To view the exceptions/condition codes of a device press Menu On/Off button and select [Info] -> [Event] -> [Exception] -> [Enter]. Cleared codes will return if the conditions are still true.

How to clear Exceptions

This can be done by removal and replacement of the sensor chamber, by re-allocation of the loop having the sensor or, by using the menu controls: Press Menu On/Off button to select [Test/Eng] -> [Usercode] -> [Config] -> [Clear] -> [Exception] -> [Enter].

Exceptions/Condition codes

<table>
<thead>
<tr>
<th>Exceptions/Condition codes</th>
<th>Meaning</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>10000000000 or 01000000000 or 11000000000</td>
<td>This is the sub-fire band and if set should be taken as showing that the sensor is at its optimum sensitivity for its location.</td>
<td>No action need be taken.</td>
</tr>
<tr>
<td>20000000000 or 02000000000 or 22000000000</td>
<td>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.</td>
<td>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 Card.</td>
</tr>
<tr>
<td>00100000000 or 00200000000</td>
<td>These codes indicate that the sensor is in a windy location. This will cause the chamber voltage to drop. Code Level 1 shows one drop only, Level 2 shows greater than one drop.</td>
<td>The location should be checked and a change in siting made, if required. Note: Wind will not cause the sensor to false alarm.</td>
</tr>
<tr>
<td>00001000000 or 00002000000 or 00000100000 or 00000200000</td>
<td>This shows that the sensor time averages are close to acceptable limits.</td>
<td>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.</td>
</tr>
<tr>
<td>00000010000 or 00000020000 or 00000010000 or 00000002000</td>
<td>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.</td>
<td>The device should be replaced. On maintenance, sensor with code 2 should be replaced. If it reoccurs then check the environment.</td>
</tr>
<tr>
<td>00000001000 or 00000002000 or 00000001000 or 00000000200</td>
<td>This shows device hardware faults. 1 for code 1 and more than one for a code 2.</td>
<td>The sensor should be replaced.</td>
</tr>
<tr>
<td>00000000010 or 00000000020</td>
<td>This shows transmission faults are being noted. Code 2 is worse than code 1.</td>
<td>The device should be replaced. If it reoccurs then check the environment.</td>
</tr>
</tbody>
</table>
### Exception codes for Optical (heat) (sounder) sensor

<table>
<thead>
<tr>
<th>Gen Type</th>
<th>Pos No.</th>
<th>Description</th>
<th>Exception codes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>normal band 0</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>sub fault band 1</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>fault band 2</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>fault band 3</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>Optical subfire</td>
<td>None</td>
<td>Small signal sensed [Check location, state &amp; type]</td>
</tr>
<tr>
<td>2nd</td>
<td>Heat subfire</td>
<td>None</td>
<td>Small signal sensed [Check location, state &amp; type]</td>
</tr>
<tr>
<td>3rd</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td>Optical channel drift or out of range</td>
<td>OK</td>
<td>Close to acceptable limit Low $T_{11}&lt;175$ High $T_8&gt;240$ [Clean]</td>
</tr>
<tr>
<td>6th</td>
<td>Heat channel drift or out of range</td>
<td>OK</td>
<td>Close to acceptable limit [Clean]</td>
</tr>
<tr>
<td>7th</td>
<td>Optical channel noisy (High freq)</td>
<td>OK</td>
<td>Single HF noise event detected</td>
</tr>
<tr>
<td>8th</td>
<td>Heat channel noisy (High frequency)</td>
<td>OK</td>
<td>Single HF noise event detected</td>
</tr>
<tr>
<td>10th</td>
<td>device transmission</td>
<td>OK</td>
<td>Low error rate [Report]</td>
</tr>
</tbody>
</table>

*For the Heat sounder product ignore the Optical codes.*
# Exception codes for Heat sensor

<table>
<thead>
<tr>
<th>Gen type</th>
<th>Pos No.</th>
<th>Description</th>
<th>normal band 0</th>
<th>sub fault band 1</th>
<th>sub fault band 2</th>
<th>fault band 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Subfire background</td>
<td>None</td>
<td>Small signal sensed [Check location, state &amp; type]</td>
<td>Subfire</td>
<td>[Check location, state &amp; type]</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>Subfire foreground</td>
<td>None</td>
<td>Small signal sensed [Check location, state &amp; type]</td>
<td>Subfire</td>
<td>[Check location, state &amp; type]</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td>Drift out of range high</td>
<td>OK</td>
<td>OK</td>
<td>Above upper limit (T_9 &gt; 250) [Replace]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th</td>
<td>Heat channel drift or out of range</td>
<td>OK</td>
<td>OK</td>
<td>Below lower limit (T_{11} &lt; 20) [Replace]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7th</td>
<td>Noisy (High frequency)</td>
<td>OK</td>
<td>Single HF noise event detected</td>
<td>Multiple HF noise seen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10th</td>
<td>device transmission</td>
<td>OK</td>
<td>Low error rate</td>
<td>Medium error rate</td>
<td>High error rate [Replace]</td>
<td></td>
</tr>
<tr>
<td>Gen type</td>
<td>Pos No.</td>
<td>Description</td>
<td>Exception codes</td>
<td>normal band 0</td>
<td>sub fault band 1</td>
<td>2</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>------------------------------</td>
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<td>---------------</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td></td>
<td>Subfire background</td>
<td>None</td>
<td></td>
<td>Small signal</td>
<td>Subfire</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>sensed [Check</td>
<td>[Check location,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>location, state &amp; type]</td>
<td>state &amp; type]</td>
</tr>
<tr>
<td>2nd</td>
<td></td>
<td>Subfire foreground</td>
<td>None</td>
<td></td>
<td>Small signal</td>
<td>Subfire</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>sensed [Check</td>
<td>[Check location,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>location, state &amp; type]</td>
<td>state &amp; type]</td>
</tr>
<tr>
<td>3rd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td></td>
<td>Total beam obscuration</td>
<td>OK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td></td>
<td>Drift out of range high</td>
<td>OK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th</td>
<td></td>
<td>Drift out of range low</td>
<td>OK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7th</td>
<td></td>
<td>Noisy (High frequency)</td>
<td>OK</td>
<td></td>
<td>Single HF fall seen</td>
<td>Multiple HF fall seen</td>
</tr>
<tr>
<td>8th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9th</td>
<td></td>
<td>device firmware</td>
<td>OK</td>
<td></td>
<td>Isolated fault</td>
<td>Repetitive fault</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[Note/report]</td>
<td>[Note/report/replace]</td>
</tr>
<tr>
<td>10th</td>
<td></td>
<td>device transmission</td>
<td>OK</td>
<td></td>
<td>Low error rate</td>
<td>Medium error rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[Report]</td>
<td>[Report]</td>
</tr>
</tbody>
</table>
## Exception (or Condition) Codes for S-Quads

<table>
<thead>
<tr>
<th>Gen type</th>
<th>Pos No.</th>
<th>Description</th>
<th>Exception codes</th>
<th>sub fault band</th>
<th>fault band</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>normal band</strong></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1st</td>
<td>Optical subfire</td>
<td>None</td>
<td>Small signal sensed [Check location, state &amp; type]</td>
<td>Subfire</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>Heat subfire</td>
<td>None</td>
<td>Small signal sensed [Check location, state &amp; type]</td>
<td>Subfire</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>Gas subfire</td>
<td>-</td>
<td>Small signal sensed [Check location, state &amp; type]</td>
<td>Subfire</td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td>Optical/Gas channel drift or out of range</td>
<td>OK</td>
<td>Close to acceptable limit</td>
<td>Out of limits</td>
<td>[Clean/replace]</td>
</tr>
<tr>
<td>6th</td>
<td>Heat channel drift or out of range</td>
<td>OK</td>
<td></td>
<td>Out of limits</td>
<td>[Clean/replace]</td>
</tr>
<tr>
<td>7th</td>
<td>Optical/Gas channel noisy (High freq)</td>
<td>OK</td>
<td>Single HF noise event detected</td>
<td>Multiple HF noise seen (Check location and report)</td>
<td></td>
</tr>
<tr>
<td>8th</td>
<td>Heat channel noisy (High frequency)</td>
<td>OK</td>
<td>Single HF noise event detected</td>
<td>Multiple HF noise seen (check location and report)</td>
<td></td>
</tr>
<tr>
<td>10th</td>
<td>device transmission</td>
<td>OK</td>
<td>Low error rate [Report]</td>
<td>Medium error rate [Report]</td>
<td>High error rate [Replace]</td>
</tr>
</tbody>
</table>
### Pre Fire, Fire and Super fire

**Definitions**

<table>
<thead>
<tr>
<th>Condition</th>
<th>meaning..</th>
<th>..and for State 0 it implies</th>
</tr>
</thead>
<tbody>
<tr>
<td>PreFire</td>
<td>Fire detection is at a <strong>higher sensitivity</strong> than the selected state.</td>
<td>Fire detection that will <strong>easily pass</strong> the respective <strong>EN54 test.</strong></td>
</tr>
<tr>
<td>Fire</td>
<td>Fire detection <strong>at the sensitivity</strong> of the selected state.</td>
<td>Fire detection that is <strong>referenced</strong> to the respective <strong>EN54 test.</strong></td>
</tr>
<tr>
<td>SuperFire</td>
<td>Fire detection at <strong>lower sensitivity</strong> than the selected state.</td>
<td>Fire detection that will <strong>not pass</strong> the <strong>British Standard test.</strong></td>
</tr>
</tbody>
</table>
Device States

States are normally used to switch sensor sensitivity or to disable the sensing channel during specific times of a day. For example, the optical smoke sensing channel may be disabled during normal working time in an area where smoking is allowed and occupants can smoke in the designated area and the channel is enabled to a sensitive state during non working time.

**Non defined states**

If a non defined state is selected during commissioning then the control panel will revert to State 15. Which means the device is functionally switched OFF.

**Optical heat (sounder) sensor states (34000 range)**

These states cover the following sensors:
- Optical heat sensor
- Optical heat sounder
- Heat sounder

For the Heat sounder product ignore the Optical states.

<table>
<thead>
<tr>
<th>State</th>
<th>Definition</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 0</td>
<td>Medium sensitivity Heat Grade 2</td>
<td>Suitable for most applications. Provides smoke detection to meet BS5445:Part 7 and provides heat detection to meet Grade 2 as defined in BS5445:Part 5.</td>
</tr>
<tr>
<td></td>
<td>Optical smoke normal sensitivity</td>
<td></td>
</tr>
<tr>
<td>State 1</td>
<td>High sensitivity optical or Grade 2 heat</td>
<td>Used in areas or situations where airborne smoke or dust is unlikely to occur and therefore a more sensitive detection is available.</td>
</tr>
<tr>
<td>State 5</td>
<td>Medium sensitivity optical only</td>
<td>Where high ambient temperatures of greater than 40°C are expected in the detection area.</td>
</tr>
<tr>
<td>State 8</td>
<td>Medium sensitivity optical with 20 seconds time constant or Grade 2 heat</td>
<td>This state is useful in hotel bedrooms where low levels of signal could occur for short durations. If smoke and heat occur simultaneously the time delay is effectively overridden to provide fast detection.</td>
</tr>
<tr>
<td></td>
<td>Grade 2 heat</td>
<td></td>
</tr>
<tr>
<td>State 10</td>
<td>Medium sensitivity optical with time delay (20 second time constant) or</td>
<td>Similar performance to state 8 without the time delay overridden. Useful in hotel bedrooms and loading bays where low levels of signal may occur.</td>
</tr>
<tr>
<td></td>
<td>Grade 2 heat</td>
<td></td>
</tr>
<tr>
<td>State 11</td>
<td>Low sensitivity optical or Grade 3 heat</td>
<td>Used for smoke detection in areas where airborne particles or smoke are normally present, or high temperatures (up to 40°C) can be normally attained.</td>
</tr>
<tr>
<td>State 12</td>
<td>Grade 1 heat only</td>
<td>No optical smoke detection. Can be used where airborne particles or smoke could occur briefly or at specific times. Optical detection can be used in conjunction with time blocks/slots to enable/disable sensor depending on application.</td>
</tr>
<tr>
<td></td>
<td>Grade 3 heat only</td>
<td></td>
</tr>
<tr>
<td>State 15</td>
<td>No detection</td>
<td>This state can be used to provide total disablement on a timed or temporary basis.</td>
</tr>
</tbody>
</table>
# Heat sensor states (34000 range)

<table>
<thead>
<tr>
<th>State</th>
<th>Definition</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 0</td>
<td>(Default) Grade 2, rate of rise and fixed temperature</td>
<td>Suitable for general use in ambient temperatures up to 40°C. Provides detection to Grade 2 performance as defined in BS5445 : Part 5.</td>
</tr>
<tr>
<td>(LPC approved)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State 1</td>
<td>Grade 1, faster rate of temperature rise as well as fixed temperature</td>
<td>Applicable for areas with normally very steady low ambient temperatures. A faster rate of rise can signal a fire below the normal set temperature at 58°C.</td>
</tr>
<tr>
<td>(LPC approved)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State 2</td>
<td>Grade 1, limited rate of rise</td>
<td>Applicable for normal ambient temperature where temperature variations are expected up to 40°C but faster response than grade 2 is required e.g. hotel bedroom.</td>
</tr>
<tr>
<td>State 5</td>
<td>High temperature with rate of rise</td>
<td>Provides detection as specified by Range 1 BS5445:Part 8.</td>
</tr>
<tr>
<td>State 6</td>
<td>High temperature with no rate of rise</td>
<td>Provides detection as specified by Range 1 BS5445:Part 8.</td>
</tr>
<tr>
<td>State 15</td>
<td>No detection</td>
<td>No detection. This is a total disablement of the sensor.</td>
</tr>
</tbody>
</table>

# Beam sensor states (34000 range)

<table>
<thead>
<tr>
<th>Beam sensor</th>
<th>Path length</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short path</td>
<td>2-30m</td>
<td>State 2/3</td>
</tr>
<tr>
<td>Long path</td>
<td>from 30-100m</td>
<td>State 0/1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>State</th>
<th>Definition</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 0</td>
<td>Default detection</td>
<td>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 fault is registered. This allows the Control panel to differentiate between a fire and a fault signal caused by accidental obscuration.</td>
</tr>
<tr>
<td>(LPC approved)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State 1</td>
<td>Normal sensitivity</td>
<td>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.</td>
</tr>
<tr>
<td>State 2</td>
<td>Medium Sensitivity</td>
<td>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.</td>
</tr>
<tr>
<td>(LPC approved)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State 3</td>
<td>Medium Sensitivity</td>
<td>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.</td>
</tr>
<tr>
<td>State 4</td>
<td>High Sensitivity</td>
<td>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.</td>
</tr>
<tr>
<td>State 5</td>
<td>High Sensitivity</td>
<td>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.</td>
</tr>
<tr>
<td>State 15</td>
<td>No detection</td>
<td>This is a total disablement of the sensor.</td>
</tr>
</tbody>
</table>
The state in which the S-Quad sensors operate can be changed from the default factory set state to another state during commissioning. The environment in which the S-Quad device is installed will determine what state is applicable.

# - Default state

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual optical &amp; Heat sensor (S4-711 &amp; S4-711-ST)</td>
<td>State 0 # Medium optical smoke~ / Class A1 heat *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>State 5 Medium optical smoke~ / Class B heat *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>State 8 Delayed medium optical smoke~ / Class A1 heat *</td>
<td></td>
</tr>
<tr>
<td>Dual optical, Heat &amp; CO sensor (S4-911)</td>
<td>State 0 # Medium optical smoke ~ / Class A1 heat *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>State 9 Class A1 heat *</td>
<td></td>
</tr>
<tr>
<td>Heat sensor (S4-720)</td>
<td>State 0 # Class A1 heat *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>State 5 Class B heat *</td>
<td></td>
</tr>
<tr>
<td>Heat Sounder (S4-780)</td>
<td>State 0 # Class A1 heat *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>State 5 Class B heat *</td>
<td></td>
</tr>
<tr>
<td>Dual Optical Heat Sensor Speech strobe (S4-711-ST-VO &amp; S4-771)</td>
<td>State 0 # Medium optical smoke ~ / Class A1 heat *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>State 5 Medium optical smoke ~ / Class B heat *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>State 8 Delayed medium optical smoke ~ / Class A1 heat *</td>
<td></td>
</tr>
<tr>
<td>Dual Optical Heat CO Sensor Speech &amp; Strobe (S4-911-ST-VO)</td>
<td>State 0 # Medium optical smoke ~ / Class A1 heat *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>State 9 Class A1 heat *</td>
<td></td>
</tr>
</tbody>
</table>

All S-Quad range of sensor sounder devices meet CEA GEI 1 - 084 Requirements and test methods for input/output devices for use on the transmission paths of fire detection and alarm system.

### S-Quad Heat sensor states

<table>
<thead>
<tr>
<th>State</th>
<th>Definition / Class</th>
<th>Application / Suitable for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 0#</td>
<td>Class A1 heat</td>
<td>Where high level of smoke/dust/steam present</td>
</tr>
<tr>
<td>State 5</td>
<td>High temperature Class B heat</td>
<td>High ambient temperature and where dust/smoke/steam is present</td>
</tr>
<tr>
<td>State 6</td>
<td>High temperature Class BS heat - with no rate of rise component</td>
<td>Rapid temperature changes in areas where dust/smoke/steam is present</td>
</tr>
<tr>
<td>State 13</td>
<td>Class A2 heat</td>
<td>Moderate temperature changes in areas where dust/ smoke/steam is present</td>
</tr>
<tr>
<td>State 15</td>
<td>No detection</td>
<td></td>
</tr>
</tbody>
</table>

### S-Quad Optical sensor states

<table>
<thead>
<tr>
<th>State</th>
<th>Definition / Class</th>
<th>Application / Suitable for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 0#</td>
<td>Medium sensitivity optical</td>
<td>General application</td>
</tr>
<tr>
<td>State 2</td>
<td>Low sensitivity optical</td>
<td>Application with moderate dust or smoke present</td>
</tr>
<tr>
<td>State 3</td>
<td>High sensitivity optical</td>
<td>Clean environments (where early detection is required).</td>
</tr>
<tr>
<td>State 8</td>
<td>Delayed medium sensitivity optical</td>
<td>General application with transient steam, dust or smoke present</td>
</tr>
<tr>
<td>State 15</td>
<td>No detection</td>
<td></td>
</tr>
</tbody>
</table>
# S-Quad Dual Optical Heat / Optical Heat sensor states

<table>
<thead>
<tr>
<th>State</th>
<th>Definition / Class</th>
<th>Application / Suitable for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 0#</td>
<td>Medium sensitivity optical, Class A1 heat</td>
<td>General application</td>
</tr>
<tr>
<td>State 2</td>
<td>Low sensitivity optical, Class A1 heat</td>
<td>Application with moderate dust, smoke or steam is present</td>
</tr>
<tr>
<td>State 3</td>
<td>High sensitivity optical, Class A1 heat</td>
<td>Clean environments (where early detection is required)</td>
</tr>
<tr>
<td>State 5</td>
<td>Medium sensitivity optical, Class B heat</td>
<td>High ambient temperature plus low dust or smoke or steam present</td>
</tr>
<tr>
<td>State 6</td>
<td>Low sensitivity optical, Class BS heat</td>
<td>High ambient temperature with change, plus moderate dust, smoke or steam present</td>
</tr>
<tr>
<td>State 8</td>
<td>Delayed medium sensitivity optical, Class A1 heat</td>
<td>General application with transient steam dust or smoke present</td>
</tr>
<tr>
<td>State 11</td>
<td>Low sensitivity optical, Class B heat</td>
<td>High ambient temperature where moderate dust, smoke or steam present</td>
</tr>
<tr>
<td>State 12</td>
<td>Class A1 heat only</td>
<td>Smoke, dust or steam occurring often</td>
</tr>
<tr>
<td>State 15</td>
<td>No detection</td>
<td></td>
</tr>
</tbody>
</table>

## S-Quad Dual Optical Heat CO sensor states

<table>
<thead>
<tr>
<th>State</th>
<th>Definition / Class</th>
<th>Application / Suitable for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 0#</td>
<td>Medium sensitivity optical, Class A1 heat, Medium sensitivity gas (false alarm resistant)</td>
<td>General application where false alarm reduction is required</td>
</tr>
<tr>
<td>State 1</td>
<td>High sensitivity optical, Class A1 heat, high sensitivity gas</td>
<td>Clean environments (where early detection is required) false alarm reduction</td>
</tr>
<tr>
<td>State 9</td>
<td>Medium sensitivity gas, Class A1 heat</td>
<td>High levels of smoke/dust/steam often present</td>
</tr>
<tr>
<td>State 11</td>
<td>Medium sensitivity optical, Class B heat</td>
<td>High ambient temperature, plus low levels of dust/smoke/steam</td>
</tr>
<tr>
<td>State 12</td>
<td>Class B heat</td>
<td>Smoke/dust/steam/gas occurring often</td>
</tr>
<tr>
<td>State 15</td>
<td>No detection</td>
<td></td>
</tr>
</tbody>
</table>
### Interface input states

**4 - channel interface input states**
These include the mains or loop powered interface.

<table>
<thead>
<tr>
<th>State</th>
<th>Definition</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 0</td>
<td>Default - all Inputs enabled</td>
<td>Normal use</td>
</tr>
<tr>
<td>State 1</td>
<td>Input 1 disabled</td>
<td>Selective disablement and enablement of interface input circuits</td>
</tr>
<tr>
<td>State 2</td>
<td>Input 2 disabled</td>
<td></td>
</tr>
<tr>
<td>State 3</td>
<td>Inputs 1 and 2 disabled</td>
<td></td>
</tr>
<tr>
<td>State 4</td>
<td>Input 3 disabled</td>
<td></td>
</tr>
<tr>
<td>State 5</td>
<td>Inputs 1 and 3 disabled</td>
<td></td>
</tr>
<tr>
<td>State 6</td>
<td>Inputs 2 and 3 disabled</td>
<td></td>
</tr>
<tr>
<td>State 7</td>
<td>Inputs 1, 2 and 3 disabled</td>
<td></td>
</tr>
<tr>
<td>State 8</td>
<td>Input 4 disabled</td>
<td></td>
</tr>
<tr>
<td>State 9</td>
<td>Inputs 1 and 4 disabled</td>
<td></td>
</tr>
<tr>
<td>State 10</td>
<td>Inputs 2 and 4 disabled</td>
<td></td>
</tr>
<tr>
<td>State 11</td>
<td>Input 1, 2 and 4 disabled</td>
<td></td>
</tr>
<tr>
<td>State 12</td>
<td>Inputs 3 and 4 disabled</td>
<td></td>
</tr>
<tr>
<td>State 13</td>
<td>Inputs 1, 3 and 4 disabled</td>
<td></td>
</tr>
<tr>
<td>State 14</td>
<td>Inputs 2, 3 and 4 disabled</td>
<td></td>
</tr>
<tr>
<td>State 15</td>
<td>All inputs disabled</td>
<td>Interface input disablement</td>
</tr>
</tbody>
</table>

**Single channel interface**
This include loop powered **single channel interface** and **loop powered zone module**.

<table>
<thead>
<tr>
<th>State</th>
<th>Definition</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 0</td>
<td>Default - all Inputs enabled</td>
<td>Normal use</td>
</tr>
<tr>
<td>State 1</td>
<td>Input 1 disabled</td>
<td>Selective disablement and enablement of interface input circuits</td>
</tr>
<tr>
<td>State 15</td>
<td>All inputs disabled</td>
<td>Interface input disablement</td>
</tr>
</tbody>
</table>

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

Preparation

☐ Check to ensure access will be provided to areas where installed equipment is to be tested, such as 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, sensor removal kit and MCP test key, plus keys to open system equipment.

Communication to site occupants

☐ Before undertaking any of these tests and to prevent unnecessary building evacuation, ensure:
  • all affected personnel on 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 computer

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

Zone 'Test' mode

The Zone Test mode is applicable for EN Vigilon 4-loop panel, Vigilon Compact panel and Vigilon Compact VA panel only. The Zone Test mode may be 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.

While the panel is in the Zone test mode, following a fire event the alarm sounds for 5 seconds and then automatically performs the silence alarm sequence and thereafter a panel reset. The panel inhibits the operation of delay block functions, network functions, auxiliary and clean contact relays operation in this mode.

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

Commission mode

The Commissioning mode is applicable for BS Vigilon 4-loop panels only.

☐ The 'Commission' mode may be used when testing the system. It allows the engineer to test devices without having to return to the panel to perform silence alarms and reset. While the panel is in the Commissioning mode, following a fire event the alarm sounds for 5 seconds and then automatically performs a silence alarm sequence and thereafter a panel reset. The panel inhibits the operation of delay block functions, network functions, auxiliary and clean contact relays operation in this mode.

☐ To put the control panel in or out of commissioning mode. Press Menu On/Off button and select [Test/Eng]. Select [UserCode] and enter the Engineering password, this need only be done if an Engineering password is set up. Press <etc> and select [Commission] and [On].

On completion of commissioning, switch Off the [Commission] mode and notice the Commission indicator also switches Off.

Fire Sensors

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

2. Recommended test equipment and methods must be used to fire test flame detectors off interface units.

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.

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

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.
☐ Where practical, each conventional flame detector operating via an interface unit should be functionally tested.
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 input / output circuits of an interface unit, such as when it is connected to plant equipment.

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

3. Fit a mains voltage warning label where mains supply is being switched.

Ancillary equipment

☐ Tests should be carried out following customer consent. It may also be necessary to obtain third party consent.

☐ All tests on ancillary equipment should have been agreed during the project design stage.

Tests

☐ Each interface should be tested for the following:

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

* - not applicable for the loop powered interface units, but input tests are applicable to loop powered zone module.

# - a fire from a manual call point or detector connected to a loop powered zone module input cannot be differentiated.

~ - the output of the single channel interface operates with sector. The output is a set of voltage free contacts which are not fault monitored.

Interfaced equipment test

☐ The external equipment connected to the system via an interface unit should be tested as per project specification.

Keyswitches

☐ Where the interface unit has a keyswitch door fitted, then the keyswitches should be configured for correct operation and tested as per project specification.

☐ Check on operating the keyswitch the adjacent LED will be lit.

S Cubed

-The remote control is only operable when the panel is in the zone Test mode (EN) / Commission mode (BS).

Tests

1. Press the function button to toggle between:

- Tone function and note the Red LED flashes x1 every 2 seconds
- Volume function and note the Red LED flashes x2 every 2 seconds

2. Press the button to increase volume or to select the next tone

3. Press the button to decrease volume or to select the previous tone

   Note: The strobe light on the S unit if fitted will flash rapidly when the volume is being adjusted using the remote control.

4. Press and hold the Power button to save the settings and adjustments. The Red LED will remain On whilst the button is held pressed. The data is saved to the unit when the tone/speech on the S unit stops briefly. Release the button on the remote control and the Red LED will switch Off.

Troubleshooting

If the remote control fails to operate in close proximity to the thinned section of the S product, then a possible cause may be the battery. Replace the battery.
**S-Quad**

- The sensor(s) part of the S-Quad must be system tested, see Testing fire sensors.
- For the Sound and Speech part of the S-Quad ensure each device outputs the correct signal at the appropriate volume level and ensure the strobe operates at the required flash rate. All S-Quad devices in the system should have been setup using the commissioning tool.
- Each S-Quad 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.

**Sounders**

- With the *standard alarm sounder* it is possible to lower sound levels by shorting link P3 across pins 2-3 (adjust). This enables the sound output to be varied using RV3.

- Each sounder 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.

**Auxiliary equipment**

- Prior to any functional tests on the system, all auxiliary equipment should be isolated.

**Repeat panel**

- Each *repeat panel* should be tested for the following:
  - Cancel Buzzer
  - System event messages and indications
  - Display of active event log

**Mimic Panel**

Each Mimic Indicator should be configured and tested for the following:

- To confirm fires are indicated

  1. The power to an A4 mimic display is supplied from the connected A4 mimic control unit.
  2. The fire/fault buzzer in an A4 mimic panel will not operate if it is disabled. However the panel does provide common light indication of fire and fault event.

- Battery disconnection
- Mains supply disconnection

**Lamp Test**

- On an *A2 mimic panel* is performed by using a test key.

- On an *A4 mimic panel* is performed by inserting a 2mm pin like object (for example a small terminal screwdriver) into a hole located on the underside of the panel enclosure.

**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 Network

A networked fire alarm system can consist of a number of control panels of standalone systems wired together in a secure network loop. A network loop is achieved by installation of a network card in each Vigilon Compact panel, which facilitates the interconnection. Each standalone system is first commissioned before being networked. The network 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 it works, with master sectors and global alarms configured 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 panel that can connect to a Supervisor system.

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

**Single Network connections**

- Each standalone system must first be fully commissioned individually.
- Check that the correct cable is used to wire the network, the installers manual lists all the approved cables.
Wiring a Copper network

Where a multicore cable is being used ensure the unused cores (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 baud and node address Switches

The copper network card is factory set for 38.4K baud with node address 4.

Node address Baud rate

<table>
<thead>
<tr>
<th>Address</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>on</td>
<td>2400</td>
</tr>
<tr>
<td>1</td>
<td>on</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>on</td>
<td>9600</td>
</tr>
<tr>
<td>2</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>on</td>
<td>19.2K</td>
</tr>
<tr>
<td>3</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>on</td>
<td>38.4K</td>
</tr>
<tr>
<td>4</td>
<td>off</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>on</td>
<td>19.2K</td>
</tr>
<tr>
<td>63</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td></td>
</tr>
</tbody>
</table>

Address Baud

- factory settings

Powering-up the Network

☐ Add one panel at a time starting from the network controller (Node 1) at 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 4.

How to check a Network map

☐ Using the Menu On/Off -> [Info] -> [Map] -> [NetMap] menu, enter the network card address, usually 4. 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 10
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 10
Nodes on side 1
1 9 7 6 5 3 1
Nodes on side 2
1 3 5 6 7 9 1

This example shows the network is secure
How to check Network Card status

Using the Menu On/Off -> [Info] -> [Status] -> [Card] and enter the network card 10. 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. 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 alternates 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.
- Replace network card at point of failure.
- Check the addresses and baud rates of the input output and network cards of the networked panels.
- Check the network cable is correctly earthed to the equipment.
- It may be necessary escalate an investigation to:
  - look at the noise voltage between conductors, screen and earth.


The networked system may now be configured for network commands to be actioned, such as master sectors and global alarms as per site requirement.
Single Vigilon Network

A networked fire alarm system can consist of a number of control panels of standalone systems wired together in a secure network loop. A network loop is achieved by installation of a network card in each panel, which facilitates the interconnection. Each standalone system is first commissioned before being networked. The network 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 it works, with master sectors and global alarms configured 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 panel that is connected to a Supervisor system.

All panels in a networked system must operate at the same baud rate, normally this is 38.4K where copper network card is used and 115.2K where Fibre network card is used.

Single Network connections

☐ 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 Off position. The baud and address switch settings are now located on DKC

On EN panels, DKC switches set the Domain address.
Powering-up the Network

☐ Add one panel at a time starting from the network controller (the panel) at 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 usually card 6.

How to check a Network map


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’ is normally the network controller.

<table>
<thead>
<tr>
<th>Nodes on side 1 of a SECURE NETWORK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 10 4 24 3 6 2 22 7 23 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nodes on side 1 of a NON-SECURE NETWORK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 10 4 24 3 6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nodes on side 2 of non-secure network</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 23 7 22 2</td>
</tr>
</tbody>
</table>

How to check Network Card status

Using the Menu On/Off -> [Info] -> [Status] -> [Card] and enter the network card address. The display will confirm:

☐ address of the network card

☐ address of network controller

☐ and a set of condition codes

![Card detail](image)

- Parity/Framing error
- CRC
- Timing errors
- UART type
- End communicating 1 or 2
- Freeblock
- Check software

Card 6 Is OK Fault 0: Warning 0
Network (0) Version 4.xx 30/04/04
Address 5 Controller 5 Baud Rate 38400
condition 0 0 0 0 0 0 2 1 198 199

1 error = count of 10 but every 1sec the counter is decremented by 1
1 error = count of 100
**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. 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 alternates 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.
- Replace network card at point of failure.
- Check the addresses and baud rates of the input output and network cards of the networked panels.
- Check the network cable is correctly earthed to the equipment.
- It may be necessary to escalate an investigation to:
  - look at the noise voltage between conductors, screen and earth.


The networked system may now be configured for network commands to be actioned, such as master sectors and global alarms as per site requirement.
Multiple Vigilon Networks

Domain Bridge using Input Output card

Two or more Vigilon networks can be connected together at domain bridge IO cards by having a direct RS232 connection, Modems, RS422 Converter unit, Fibre Optics units or NPORT units. This allows the display of events at any control panel 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

Network Node
- 4 IOC Cards
- 1 Network Card
Switch settings of cards inside EN54 Vigilon panels / Nodes where Domain Bridge IO Card is used to network fire systems:

- **Domain Bridge**
  - Node 1
    - Control panel
    - Network Card
      - Address 2
      - Baud 38.4K
    - DKC
      - Address 1
      - Baud 19.2K
  - Node 2
    - Control panel
    - Network Card
      - Address 2
      - Baud 38.4K
    - DKC
      - Address 2
      - Baud 19.2K
  - Node 3
    - Control panel
    - Network Card
      - Address 2
      - Baud 38.4K
    - DKC
      - Address 1
      - Baud 19.2K

- **Domain 1**
  - Node 1
    - Control panel
    - Network Card
      - Address 1
      - Baud 38.4K
    - IO Card
      - all switches to Off position
  - Node 2
    - Control panel
    - Network Card
      - Address 2
      - Baud 38.4K
    - IO Card
      - all switches to Off position
  - Node 3
    - Control panel
    - Network Card
      - Address 3
      - Baud 38.4K
    - IO Card
      - all switches to Off position

- **Domain 2**
  - Node 1
    - Control panel
    - Network Card
      - Address 1
      - Baud 38.4K
    - IO Card
      - all switches to Off position
  - Node 2
    - Control panel
    - Network Card
      - Address 2
      - Baud 38.4K
    - IO Card
      - all switches to Off position
  - Node 3
    - Control panel
    - Network Card
      - Address 3
      - Baud 38.4K
    - IO Card
      - all switches to Off position

**IO Card switches must be set to Off, these are now located on the DKC.**

**Baud rate settings must be set as shown.**

- **Network Card address** is the Node address
- **Domain Bridge IO Card address** is the Domain address
- The **Network card address** is the Domain address

**Multiple Vigilon Networks**
Message routing

The local controller card (Card 0) will accept all messages from Master group 1 and route messages to domains 2 and 3 via the network card (Card 6).

The Network card (Card 6) will accept all messages to and from Master group 1 domains 2 and 3 via the local controller card (Card 0).

The Domain bridge IO card (Card 15) has no need to route messages as there is nothing connected.

Messages from other Network Domains

Messages to other Network Domains

Messages to the local network

Control panel

Domain 1

Domain 2

Domain 3

Message routing at Card 0
All events - 1
Domain 2 = Card 6
Domain 3 = Card 6
Message routing at Card 6
All events - 1
Domain accessed via LCC: 2,3
Message routing at Card 15
All events - 1
Domain accessed via LCC: None

--------------------------------

Domain accessed via LCC: None
All events - 1
Message routing at Card 15
Domain accessed via LCC: None

--------------------------------

Domain accessed via LCC: 1,3
All events - 1
Domain accessed via LCC: 1,3
Message routing at Card 15
All events - 1
Domain accessed via LCC: None

--------------------------------

Domain accessed via LCC: 1,2
All events - 1
Domain accessed via LCC: 1,2
Message routing at Card 15
All events - 1
Domain accessed via LCC: None

--------------------------------

Domain accessed via LCC: 1
All events - 1
Domain 1 = Card 15
Domain 2 = Card 15
Message routing at Card 6
All events - 1
Domain accessed via LCC: 1,2
Message routing at Card 15
All events - 1
Domain accessed via LCC: None

--------------------------------

Domain accessed via LCC: None
All events - 1
Domain accessed via LCC: None
Message routing at Card 15
Domain accessed via LCC: None

--------------------------------

Domain accessed via LCC: None
All events - 1
Domain accessed via LCC: None
Message routing at Card 15
Domain accessed via LCC: None

--------------------------------

Domain accessed via LCC: None
All events - 1
Domain accessed via LCC: None
Message routing at Card 15
Domain accessed via LCC: None

--------------------------------

Domain accessed via LCC: None
All events - 1
Domain accessed via LCC: None
Message routing at Card 15
Domain accessed via LCC: None

Multiple Vigilon Networks
**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 card**. 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 networks can be connected together in a secure loop by using domain bridge fibre optics network card (VIG-NC-DOM-FO), with the card is installed in socket P7 of the backplane. This allows the display of events at any control panel in the connected networks.

The above diagram shows small fibre network connected together to a 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.
Switch settings of Cards inside a EN54 Vigilon panels where Fibre Optics Network Domain Bridge Card is installed

Network card address is the Node address
IO Card address is the Domain address
Baud rate settings must as shown.

The FO Network DOM card switches must be set to the domain address

Control panel
IO Card
all switches to Off position

Network Card
Address 2
Baud 38.4K

DKC
Address 1
Baud 19.2K

Control panel
IO Card
all switches to Off position

Network Card
Address 3
Baud 38.4K

DKC
Address 3
Baud 19.2K

Control panel
IO Card
all switches to Off position

Network Card
Address 2
Baud 38.4K

DKC
Address 3
Baud 19.2K

Control panel
IO Card
all switches to Off position

Network Card
Address 3
Baud 38.4K

IO Card
all switches to Off position
Appendix A - Menu maps for EN54 Vigilon 4-Loop panel, Vigilon Compact (and VA) panels

The menu options [Control], [SetUp], [Info] and [Test/Eng] are accessible on pressing the MENU ON/OFF button.
Vigilon Compact Voice Alarm panel with V4.32 MCB software
[Control] Menu map 2-1 and 2-2

Appendix A - Menu maps for EN54 Vigilon 4-Loop panel,
Appendix A - Menu maps for EN54 Vigilon 4-Loop panel,

EN Vigilon panel with MCC/MB software V4.37

[Set Up] Menu map 1

Commands accessible under customer (level 2) password
Commands accessible under engineer (level 3) password only
# [Save] option will only appear under customer password to allow saving of labels and clock settings

- [SD Card] option is for Vigilon Compact panel only when SD Card is fitted

See Setup menu map 2-1
See Set up menu map 3

Enter upto 8 FAB/SAB pairs

These options are accessible with freeblock switched On

EN Vigilon (Compact + VA) Comms.
EN Vigilon panel with MCC/MCB software V4.37

[Set Up] Menu map 2

**Appendix A - Menu maps for EN54 Vigilon 4-Loop panel,**

**Commands accessible under engineer (level 3) password only**

NOTE: The Network commands are only applicable when a network card is fitted in the control panel.

Key:
- [E] = [Enter]
- [C] = [Cancel]
- [Q] = [Quit]
- [En] = [Enable]
- [Dis] = [Disable]
Appendix A - Menu maps for EN54 Vigilon 4-Loop panel,
EN Vigilon panel with MCC/MCB software V4.37
[Set Up] Menu map 4

NOTE: The Network commands such as Master Sector, Master Group are only applicable when a network card is fitted in the control panel and Network node.

Appendix A - Menu maps for EN54 Vigilon 4-Loop panel,
EN Vigilon panel with MCC/MCB software V4.37

[Test/Eng] Menu map 1

Appendix A - Menu maps for EN54 Vigilon 4-Loop panel,
EN Vigilon panel with MCC/MCB software V4.37
[Test/Eng] Menu map 2

Appendix A - Menu maps for EN54 Vigilon 4-Loop panel,
Appendix A - Menu maps for BS version 3+ Vigilon
4-Loop panels

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

NOTE: The Network commands such as Master Sector, Master Group are only applicable when a network card is fitted in the control panel.

Commands accessible under engineer (level 3) password only

Commands are accessible under customer (level 2) password

No password required
Appendix A - Menu maps for BS version 3+ Vigilon

BS Vigilon / 34K 4-loop panel with MCC software V3.92 xx/08/05

[Set Up] Menu map 1

NOTE: The Network commands such as Master Sector, Master Group are only applicable when a network card is fitted in the control panel and Network node.
NOTE: The Network commands are only applicable when a network card is fitted in the control panel.

Commands accessible under engineer (level 3) password only

Key
[E] = [Enter]
[C] = [Cancel]
[Q] = [Quit]
[En] = [Enable]
[Dis] = [Disable]
Appendix A - Menu maps for BS version 3+ Vigilon

Vigilon / 34K 4-loop panel with MCC software V3.92 xx/08/05

[Set Up] Menu map 3

From set up menu map 1

[Set Up]

Commands accessible under engineer (level 3) password only

NOTE: The Network commands such as Master Sector, Master Group are only applicable when a network card is fitted in the control panel and Network node.

NOTE: The Network commands such as Master Sector, Master Group are only applicable when a network card is fitted in the control panel and Network node.

Vigilon / 34K 4-loop panel with MCC software V3.92 xx/08/05

Set Up

Commands accessible under engineer (level 3) password only
**Appendix A - Menu maps for BS version 3+ Vigilon**

**BS Vigilon / 34K 4-loop panel with MCC software V3.92 xx/08/05**

[Set Up] Menu map 4

**NOTE:** The Network commands such as Master Sector, Master Group are only applicable when a network card is fitted in the control panel and Network node.

Key:
- [E] = [Enter]
- [C] = [Cancel]
- [Q] = [Quit]
- [En] = [Enable]
- [Dis] = [Disable]
Appendix A - Menu maps for BS version 3+ Vigilon
Appendix A - Menu maps for BS version 3+ Vigilon

Vigilon / 34K 4-loop panel with MCC software V3.92 xx/08/05

[Test/Eng] Menu map 2

Commands are accessible under customer (level 2) password
Commands accessible under engineer (level 3) password only

These options are accessible with freeblock switched On

see Test/Eng menu map 1
Appendix B - Message Action List

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

Clearable fault events

The following faults are identified as clearable 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 mis-match

How to clear a clearable 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].

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. To re-allocate a loop circuit refer to section headed How to power a loop.

Repairable fault events

- Loop (partial) short circuit.
- Ground break

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 or loop repeat panels are given here in an alphanumerical order to provide guidance:
- on fault message
- 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 or loop repeat panels.

The term device was previously referred to as outstation.
### Message Action List

<table>
<thead>
<tr>
<th>Message</th>
<th>associated with..</th>
<th>meaning..</th>
<th>possible action</th>
</tr>
</thead>
<tbody>
<tr>
<td>A spurious FIRQ at card x</td>
<td>MCC / MCB (main control card/board)</td>
<td>There is glitch on the MCC hardware that appears on the backplane / MCB.</td>
<td>Clear and ignore single occurrence.</td>
</tr>
<tr>
<td>A spurious IRQ at card x</td>
<td>MCC / MCB (main control card/board)</td>
<td>There is glitch on the MCC / MCB hardware.</td>
<td>Clear and ignore single occurrence.</td>
</tr>
<tr>
<td>A spurious NMI at card x</td>
<td>MCC / MCB (main control card/board)</td>
<td>There is glitch on the MCC / MCB hardware.</td>
<td>Clear and ignore single occurrence.</td>
</tr>
<tr>
<td>A spurious SWI2 at card x</td>
<td>MCC / MCB (main control card/board)</td>
<td>There is glitch on the MCC hardware.</td>
<td>Clear and ignore single occurrence.</td>
</tr>
<tr>
<td>A spurious SWI3 at card x</td>
<td>MCC / MCB (main control card/board)</td>
<td>There is glitch on the MCC / MCB hardware.</td>
<td>Clear and ignore single occurrence.</td>
</tr>
<tr>
<td>Access fault at card x</td>
<td>Any Card</td>
<td>Card cannot talk to the MCC / MCB local controller.</td>
<td>Replace card if the fault keeps reoccurring. Could also be caused by excessive network messages. Investigate message passing.</td>
</tr>
<tr>
<td>ACIA Failed at card x</td>
<td>Network Card or MCC / MCB</td>
<td>Communication chip failure or the FABs and SABs are corrupt.</td>
<td>Reset the card and replace if it fault keeps reoccurring.</td>
</tr>
<tr>
<td>Alarm Zone Disabled / Enabled at card x</td>
<td>Loop Processor Card</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Alarms silenced</td>
<td>MCC / MCB (main control card/board)</td>
<td>Silence alarms button has been pressed.</td>
<td>-</td>
</tr>
<tr>
<td>Alarms sounded</td>
<td>MCC / MCB (main control card/board)</td>
<td>Sound alarms button has been pressed.</td>
<td>-</td>
</tr>
<tr>
<td>Alarms Verified</td>
<td>MCC / MCB (main control card/board)</td>
<td>Alarms verify or acknowledge button has been pressed.</td>
<td>-</td>
</tr>
<tr>
<td>Allocation : memory Overflow at card x number y on loop z</td>
<td>Loop Processor Card</td>
<td>Loop processor has run out of memory during allocation / when starting a loop.</td>
<td>Software error or more likely a faulty RAM chip.</td>
</tr>
<tr>
<td>Allocation : Double Allocated card x number y on loop z</td>
<td>Loop Processor Card</td>
<td>Two devices are given the same address. Loop breaker (relay contacts) are fused 'micro welded' together (closed) or there is a bad connection.</td>
<td>The device may be faulty.</td>
</tr>
<tr>
<td>Allocation : Hw fault card x number y on loop z</td>
<td>Loop Processor Card</td>
<td>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.</td>
<td>Check the device connections.</td>
</tr>
<tr>
<td>Allocation : Map error card x number y on loop z</td>
<td>Loop Processor Card</td>
<td>Loop wiring is incorrect, e.g. a sub loop may have been wired on a spur.</td>
<td>Check and rewire if necessary. This fault can also be device failure.</td>
</tr>
<tr>
<td>Message</td>
<td>associated with..</td>
<td>meaning..</td>
<td>..possible action</td>
</tr>
<tr>
<td>---------</td>
<td>------------------</td>
<td>------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Allocation : not ready at Card x</td>
<td>Loop Processor Card</td>
<td>An attempt allocate a loop when it is already allocating.</td>
<td>Wait and if it takes longer than 10 minutes then reset the loop card.</td>
</tr>
<tr>
<td>Allocation : OK at Card n : Allocated x</td>
<td>Loop Processor Card</td>
<td>The loop circuit has been successfully allocated.</td>
<td>-</td>
</tr>
<tr>
<td>Allocation : Too many card x number y on loop z</td>
<td>Loop Processor Card</td>
<td>Allocated more than 200 devices or the device is restricted for use the particular software version.</td>
<td>Replace incompatible devices ie:32000 or SMS device found in system.</td>
</tr>
<tr>
<td>Allocation : Tx fault card x number y on loop z</td>
<td>Loop Processor Card</td>
<td>Invalid reply from the device.</td>
<td>Check the device. Also check cable routing and length (measure resistance and capacitance of cable).</td>
</tr>
<tr>
<td>Allocation started from end 2 at Card x</td>
<td>Loop Processor Card</td>
<td>No devices found on End-1 or End 1 of loop is open circuit.</td>
<td>Check the wiring to the first device or last device on the loop.</td>
</tr>
<tr>
<td>ASCII Device is faulty number x on loop y</td>
<td>Loop Processor Card</td>
<td>Failure of control panel to communicate with Repeat / Mimic panel. The power supplies to the panels are not connected.</td>
<td>If applicable connect the power supply or RESET the Master Repeat Card in the Repeat and Mimic panel. If necessary replace the card/software.</td>
</tr>
<tr>
<td>Back up</td>
<td>Memory (NVM)-Backplane</td>
<td>Data is being copied from cards and stored onto the NVM Card.</td>
<td>-</td>
</tr>
<tr>
<td>Back up required</td>
<td>Memory (NVM)-Backplane</td>
<td>Data must be saved to memory</td>
<td>Back up data to the memory.</td>
</tr>
<tr>
<td>Battery discharged</td>
<td>Power supply</td>
<td>This indicates the failure of battery load test. The ADC value should be equal to or less than normal - 9.</td>
<td>Check load test and the battery condition.</td>
</tr>
<tr>
<td>Battery disconnected/ restored</td>
<td>Power supply</td>
<td>A disconnection is indicated when the ADC value from the battery is equal to or less than 130.</td>
<td>Normally it should be = 234 (27.4V) To give a restored indication the ADC value should = Vbatt 1/6x256/5.</td>
</tr>
<tr>
<td>Baud rate x at Card y</td>
<td>MCC / MCB / Network Card</td>
<td>Baud rate set has been read.</td>
<td>If required, change the baud rate.</td>
</tr>
<tr>
<td>being initialised at Card x</td>
<td>Memory - on Backplane</td>
<td>Memory is being set up by the MCC / MCB (main control card/board), ready for use.</td>
<td>-</td>
</tr>
<tr>
<td>Buffer full at card x</td>
<td>Any Card</td>
<td>Software error.</td>
<td>-</td>
</tr>
<tr>
<td>Buffers out of step at card x</td>
<td>Any Card</td>
<td>Software error.</td>
<td>Software errors will activate a system reset. Ignore single occurrence. Record the event in log book.</td>
</tr>
<tr>
<td>Message</td>
<td>associated with..</td>
<td>meaning..</td>
<td>.possible action</td>
</tr>
<tr>
<td>---------</td>
<td>------------------</td>
<td>-----------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Call point glass is broken number x loop y</td>
<td>Device</td>
<td>Call point has been operated when the device is disabled.</td>
<td>Replace the glass, if necessary.</td>
</tr>
<tr>
<td>Call point on interface unit operated/ restored</td>
<td>Device</td>
<td>Mains powered interface input has been triggered by conventional MCP. Value of input is equal to or less than 6V.</td>
<td>-</td>
</tr>
<tr>
<td>Call point open cct number x on loop y</td>
<td>Device</td>
<td>Monitored base does not see end-of-line unit. There is a bad connection to MCP.</td>
<td>Check the internal wiring, there may be a loose connection.</td>
</tr>
<tr>
<td>Call point operated/restore d number x loop y</td>
<td>Device</td>
<td>Break glass has been broken or operated with a test key.</td>
<td>Replace the break glass to restore the call point or remove the test key, whichever is applicable.</td>
</tr>
<tr>
<td>Call point short cct number x loop y</td>
<td>Device</td>
<td>Call point contacts are short circuit.</td>
<td>Check the call point contacts and circuit internally.</td>
</tr>
<tr>
<td>Card found/lost at card x</td>
<td>Any Card</td>
<td>The card has been found/lost. If lost then it is locked out.</td>
<td>There may be a hardware fault on card or Bckplane. Investigate and rectify.</td>
</tr>
<tr>
<td>Card n recovered /Card n backed up</td>
<td>Memory (NVM) - Backplane</td>
<td>Data recovered to a card from the NVM. A card data has been backed up to the NVM.</td>
<td>-</td>
</tr>
<tr>
<td>Chamber Removed /Replaced number x on loop y</td>
<td>Device</td>
<td>Device chamber has been removed.</td>
<td>Replacing the chamber will cause a replaced indication.</td>
</tr>
<tr>
<td>Charger Fault</td>
<td>Panel Power Supply Unit (PSU)</td>
<td>Charger circuit has failed.</td>
<td>Replace the PSU.</td>
</tr>
<tr>
<td>Charger Fault number x on loop y</td>
<td>EN54 System device power supply (Repeat, Mimic or mains powered interface)</td>
<td>Charger circuit has failed.</td>
<td>Replace the board (having the power supply) on the loop device.</td>
</tr>
<tr>
<td>Charger Restored</td>
<td>Panel power supply</td>
<td>Charger circuit is working again.</td>
<td>-</td>
</tr>
<tr>
<td>Charger Restored number x on loop y</td>
<td>EN54 System device power supply (Repeat, Mimic or mains powered interface).</td>
<td>Charger circuit is working again.</td>
<td>-</td>
</tr>
<tr>
<td>Chk=4.874 NVMC 41874 Flag=0 NVM is write protected at Card x</td>
<td>Memory (NVM) - Backplane</td>
<td>The memory is read only.</td>
<td>Disable the write protect using the [set up] menu.</td>
</tr>
</tbody>
</table>
### Vigilon (EN & BS) Compact (VA) panels

#### Appendix B - Message Action List

<table>
<thead>
<tr>
<th>Message</th>
<th>associated with..</th>
<th>meaning..</th>
<th>.possible action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clock changed / Clock not set up</td>
<td>MCC / MCB (main control card/board)</td>
<td>Time and date has been altered or no time has been entered.</td>
<td>If necessary, set the clock using the set up menu.</td>
</tr>
<tr>
<td>CO sensor faulty</td>
<td>Device</td>
<td>There is a fault with the CO sensor on S-Quad.</td>
<td>Replace device</td>
</tr>
<tr>
<td>CO sensor near end of life</td>
<td>Device</td>
<td>The CO cell is nearing the end manufacturer recommended life expectancy (S-Quad).</td>
<td>Replace the device</td>
</tr>
<tr>
<td>CO sensor restored</td>
<td>Device</td>
<td>The CO sensor fault has been restored (S-Quad)</td>
<td></td>
</tr>
<tr>
<td>Command build activated/deactivated</td>
<td>MCC / MCB (main control card/board)</td>
<td>Command build has been switched ON (activated) or OFF (deactivated).</td>
<td>If necessary switch ON/OFF the command build using the [control] menu.</td>
</tr>
<tr>
<td>Command build enabled / disabled</td>
<td>MCC / MCB (main control card/board)</td>
<td>This is an automatic or manually controlled action.</td>
<td>If necessary, manually enable/disable the command build using the [control] menu.</td>
</tr>
<tr>
<td>Comms Enabled/Disabled at card x</td>
<td>MCC / MCB (main control card/board)</td>
<td>Card communications have been enabled or disabled.</td>
<td>If necessary, manually enable/disable the Comms using the [control] menu.</td>
</tr>
<tr>
<td>Comms Enabled/Disabled at card x</td>
<td>Network Card</td>
<td>Control panel has been isolated from the network.</td>
<td></td>
</tr>
<tr>
<td>Comms Supply Fault</td>
<td>Network node</td>
<td>The communications power supply has failed.</td>
<td>Replace the power supply unit.</td>
</tr>
<tr>
<td>Comms supply Restored</td>
<td>Network node</td>
<td>The communications power supply has been restored.</td>
<td>-</td>
</tr>
<tr>
<td>Communications started/stopped at Card x</td>
<td>MCC / MCB (main control card/board)</td>
<td>Communication to a particular panel or to external equipment linked to the panel (eg Laptop for com. tool) has started / stopped.</td>
<td>Check the wiring.</td>
</tr>
<tr>
<td>Control passed at Card x</td>
<td>Network</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Corrupted NVM memory at card x</td>
<td>Any Card</td>
<td>Checksum failure on configuration at midnight.</td>
<td>Recover data and record in log book. If it reoccurs then replace the card.</td>
</tr>
<tr>
<td>DC Power fail restored</td>
<td>Power supply</td>
<td>The ADC of output 27V regulator Normal=146(28.5V).</td>
<td>-</td>
</tr>
<tr>
<td>DC too high / DC too low</td>
<td>Power supply</td>
<td>The DC supply is: Too high if greater than 164 (32V) Too low if less than 102 (20V)</td>
<td>Check the mains supply.</td>
</tr>
<tr>
<td>Message</td>
<td>associated with..</td>
<td>meaning..</td>
<td>.possible action</td>
</tr>
<tr>
<td>---------</td>
<td>------------------</td>
<td>-----------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Delay block setup</td>
<td>MCC / MCB (main control card/board)</td>
<td>A Delay Block has been configured.</td>
<td>-</td>
</tr>
<tr>
<td>Delay blocks Cleared</td>
<td>MCC / MCB (main control card/board)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Detection Zone Disabled/Enabled at card x</td>
<td>Loop Processor Card</td>
<td>The detection zone has been enabled or disabled automatically or manually.</td>
<td>If necessary, manually enable/disable the Detection zone using the [control] menu.</td>
</tr>
<tr>
<td>Detector on interface unit number x on loop y channel z</td>
<td>Device</td>
<td>Mains powered interface input has been triggered by conventional detector. Value of the input is equal to or less than 10V.</td>
<td>-</td>
</tr>
<tr>
<td>Device Address Changed from x number y on loop z</td>
<td>Loop Processor Card</td>
<td>Device SAFE address has changed.</td>
<td>If necessary rectify the device SAFE address.</td>
</tr>
<tr>
<td>Device battery fault /restored</td>
<td>Device</td>
<td>The battery has failed the load test. For a mains powered interface the value is equal to or less than normal - 2V.</td>
<td>Check and replace the battery if necessary.</td>
</tr>
<tr>
<td>Device Battery OC number x on loop y</td>
<td>Device</td>
<td>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).</td>
<td>Check and replace if necessary to restore.</td>
</tr>
<tr>
<td>Device Enabled / Disabled at Card x</td>
<td>Loop Processor Card</td>
<td>Device has been enabled or disabled manually or automatically.</td>
<td>If necessary manually enable or disable the device.</td>
</tr>
<tr>
<td>Device Fault number x on loop y</td>
<td>Audio Control Unit</td>
<td>Fault input has been asserted.</td>
<td>Check remote equipment wired to the fault input.</td>
</tr>
<tr>
<td>Device Gain set to x number y on loop z</td>
<td>Beam and Flame devices</td>
<td>Confirmation of a change in gain setting.</td>
<td>-</td>
</tr>
<tr>
<td>Device Mains too high / low number x loop y</td>
<td>Devices like: Mimic / Repeat / Mains powered interface unit</td>
<td>Failure of device mains supply. The value of rectified DC is too high / low i.e in the region of 30V / 17V.</td>
<td>Check the power supply and replace it if necessary</td>
</tr>
<tr>
<td>Device power Fault / Restored number x on loop y</td>
<td>Device</td>
<td>The failure of internal power supply rail.</td>
<td>Replace the device.</td>
</tr>
<tr>
<td>Message</td>
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<td>meaning..</td>
<td>.possible action</td>
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</tr>
<tr>
<td>Device power too high/ restored too low</td>
<td>Device</td>
<td>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)</td>
<td>Replace the device</td>
</tr>
<tr>
<td>number x on loop y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device Replaced is faulty number x on Loop y</td>
<td>Loop Processor Card</td>
<td>Tx fault re-finding device.</td>
<td>Check connections to device / base and also device type etc.</td>
</tr>
<tr>
<td>Device Replaced number x loop y</td>
<td>Loop Processor Card</td>
<td>The replaced device is now communicating with the panel.</td>
<td>-</td>
</tr>
<tr>
<td>Device soft address; SAFE: number x on loop y</td>
<td>Device</td>
<td>Device primary address does not match SAFE address.</td>
<td>Check loop configuration.</td>
</tr>
<tr>
<td>Device Mains Failed / Restored number x loop y</td>
<td>Device</td>
<td>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.</td>
<td>Check mains supply connections and the mains fuse. When the rectified DC is greater than 24V it is restored.</td>
</tr>
<tr>
<td>Disables Cleared</td>
<td>MCC / MCB (main control card/board)</td>
<td>All disablements have been removed from the panel.</td>
<td>-</td>
</tr>
<tr>
<td>Duplicate SAFE Address error: number x on loop y</td>
<td>Device</td>
<td>Two devices on a loop have the same SAFE address.</td>
<td>Change one of the SAFE address.</td>
</tr>
<tr>
<td>Earth Fault/ Fault Cleared</td>
<td>Power supply</td>
<td>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).</td>
<td>A clear indication is normally given when ADC is equal to 64.</td>
</tr>
<tr>
<td>Enabled Aux relay x</td>
<td>MCC / MCB (main control card/board)</td>
<td>The auxiliary relay has been enabled or disabled automatically or manually.</td>
<td>If necessary, manually enable/disable the auxiliary relays using the [control] menu.</td>
</tr>
<tr>
<td>Disabled Aux relay x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End switching normal at card x</td>
<td>Network</td>
<td>Network card is back to normal operation, (see also end switching disabled)</td>
<td>-</td>
</tr>
<tr>
<td>Exception number x on loop y</td>
<td>(Exceptions also referred to as Sub-Fault) Loop Processor Card</td>
<td>Condition pattern has been matched.</td>
<td>Check the condition codes.</td>
</tr>
<tr>
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</tbody>
</table>
### Generic Commissioning instructions

<table>
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<tr>
<th>Message</th>
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<th>meaning..</th>
<th>possible action</th>
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<tbody>
<tr>
<td>Excessive transmission error rate</td>
<td>Loop Processor Card</td>
<td>There were more than 10 reply errors in one day. (More than 16 reply errors will cause the device isolation.)</td>
<td>Check screening and electrical noise in area of operation + check loose connections to loop.</td>
</tr>
<tr>
<td>Too many errors: lost device or loop split</td>
<td></td>
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</tr>
<tr>
<td>External Fire at panel n</td>
<td>MCC / MCB (main control card/board)</td>
<td>There is a Fire on another panel in a network.</td>
<td>Investigate the fire.</td>
</tr>
<tr>
<td>Fast scan started number x on loop y channel z</td>
<td>Data logging</td>
<td>Fire sensor has detected a change on its input.</td>
<td>The message is normally given when the data logger is connected.</td>
</tr>
<tr>
<td>Fault cleared Warning cleared</td>
<td>MCC / MCB(main control card/board)</td>
<td>Fault or warning has now gone.</td>
<td>-</td>
</tr>
<tr>
<td>Fire number n loop y channel z</td>
<td>Loop Processor Card</td>
<td>Pattern match is equal to a Fire or MCP operated or conventional detection on IO line of interface operated.</td>
<td>-</td>
</tr>
<tr>
<td>Fire reset</td>
<td>MCC / MCB (main control card/board)</td>
<td>The Fire reset button has been pressed.</td>
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</tr>
<tr>
<td>Flash memory checksum error</td>
<td>Device</td>
<td>Speech Memory Checksum Error</td>
<td>Replace the device</td>
</tr>
<tr>
<td>Full keyboard Removed / Fitted number x loop y</td>
<td>MCC / MCB / DKC/ MRC</td>
<td>The keyboard has been ‘removed’ (is not fitted).</td>
<td>Check the cable connections to the keyboard to bring about the ‘fitted’ message.</td>
</tr>
<tr>
<td>Group Enabled / Disabled</td>
<td>MCC / MCB (main control card/board)</td>
<td>A group has been automatically or manually disabled or enabled.</td>
<td>If necessary, manually enable/disable the group using the [control] menu.</td>
</tr>
<tr>
<td>High Error rate at Card x</td>
<td>Network</td>
<td>High number of communication errors.</td>
<td>TBA</td>
</tr>
<tr>
<td>Incompatible Card Version at card x</td>
<td>Any Card</td>
<td>There is a card software conflict.</td>
<td>Fit card with compatible software.</td>
</tr>
<tr>
<td>Interface Failed at Card x</td>
<td>MCC / MCB</td>
<td>The interface timer chip has failed.</td>
<td>Clear the fault and ignore single occurrence. Replace the card on multiple failures.</td>
</tr>
<tr>
<td>Interface input - fault / restored number x on loop y channel z</td>
<td>Device</td>
<td>IO line fault.</td>
<td>Check the wiring and restore the input for normal operation.</td>
</tr>
<tr>
<td>Interface Input Fire number x on loop y channel z</td>
<td>Device</td>
<td>Interface IO line triggered a fire event.</td>
<td>Check the wiring and restore the input for normal operation.</td>
</tr>
<tr>
<td>Interface input not Reset number x on loop y channel z</td>
<td>Device</td>
<td>The input line continues to trigger.</td>
<td>Check devices on the IO line.</td>
</tr>
<tr>
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</tr>
<tr>
<td>Interface Input OC / restored</td>
<td>Device</td>
<td>The end-of-line is not seen.</td>
<td>Check the wiring. The device may have been removed, if so refit the device to restore.</td>
</tr>
<tr>
<td>Interface input operated / released number x on loop y channel z</td>
<td>Device</td>
<td>Fixed extinguishant interface unit input has been triggered.</td>
<td>Follow the FE system reset procedure to release the input.</td>
</tr>
<tr>
<td>Interface input SC / restored number x on loop y channel z</td>
<td>Device</td>
<td>The interface wiring is short circuit. The value of input is equal to or less than 2V.</td>
<td>Check the interface wiring and rectify to restore the input.</td>
</tr>
<tr>
<td>Interface output SC or OC or Restored number x on loop y channel z</td>
<td>Device</td>
<td>The value of output is equal to or less than 50% for SC or is TBA for OC.</td>
<td>Check the wiring and restore the output circuit.</td>
</tr>
<tr>
<td>Intermittent Fault at card x</td>
<td>Any Card</td>
<td>A fault has been picked up by the MCC / MCB (main control card/board).</td>
<td>Replace the appropriate card if the fault keeps reoccurring.</td>
</tr>
<tr>
<td>Invalid configuration</td>
<td>Loop Processor Card</td>
<td>Loop recovered with freeblocks ON.</td>
<td>This is not allowed. Switch OFF the freeblocks and reallocate.</td>
</tr>
<tr>
<td></td>
<td>Device</td>
<td>FLASH incorrectly programmed</td>
<td>Replace the device</td>
</tr>
<tr>
<td>Invalid configuration at card x</td>
<td>Loop Processor Card</td>
<td>Loop recovered with freeblocks ON.</td>
<td>This is not allowed. Switch OFF the freeblocks and reallocate.</td>
</tr>
<tr>
<td>Invalid message / reply received at card x</td>
<td>Loop Processor Card</td>
<td>The message/reply received cannot be understood. The communication can be from a Repeat, Mimic, Supervisor, Network or Orator system.</td>
<td>Ignore single occurrence and record in log book.</td>
</tr>
<tr>
<td>Invalid message/reply at card x</td>
<td>Network Card</td>
<td>The message/reply has not been understood from other panels.</td>
<td>Ignore for single occurrence and record in log book.</td>
</tr>
<tr>
<td>Invalid task delay at card x</td>
<td>Any Card</td>
<td>Software error.</td>
<td>Software errors will activate a system reset.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ignore single occurrence. Record the event in log book.</td>
</tr>
<tr>
<td>Invalid task stage</td>
<td>Any Card</td>
<td>Software error.</td>
<td>Software errors will activate a system reset.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ignore single occurrence. Record the event in log book.</td>
</tr>
<tr>
<td>IO line Enabled / Disabled at Card x</td>
<td>Loop Processor Card</td>
<td>The IO line is either enabled or disabled automatically or manually.</td>
<td>If necessary, manually enable/disable the IO line using the [control] menu.</td>
</tr>
<tr>
<td>Message</td>
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</tr>
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</tr>
<tr>
<td>Loop map has changed card x</td>
<td>Loop Processor Card</td>
<td>The map is different to that previously allocated.</td>
<td>Check and confirm difference with backup map.</td>
</tr>
<tr>
<td>Loop power restored</td>
<td>Power supply</td>
<td>Normal loop supply restored: Normal ADC = 202 (44V). Value = Vsupp x 1/11X256/5.</td>
<td>-</td>
</tr>
<tr>
<td>Loop Started not ready at card x number y loop z</td>
<td>Loop Processor Card</td>
<td>As per message.</td>
<td>Wait and if it takes longer than 10 minutes then reset the loop card.</td>
</tr>
<tr>
<td>Loop stopped at Card x</td>
<td>Loop Processor Card</td>
<td>The loop has been aborted or is still being allocated.</td>
<td>Re-allocate the loop.</td>
</tr>
<tr>
<td>Loop voltage too high/low</td>
<td>Power supply</td>
<td>The ADC value is too high.</td>
<td>Check PSU values in the [Test/Eng] menu, normal reading is 221. Replace PSU if necessary.</td>
</tr>
<tr>
<td>Lost Command number x on Loop y</td>
<td>Loop Processor Card</td>
<td>Lost FAB/SAB.</td>
<td>Ignore single occurrence and record in log book.</td>
</tr>
<tr>
<td>Lost Device number x on loop y</td>
<td>Loop Processor Card</td>
<td>There is no reply on ends 1&amp;2 of the device.</td>
<td>Check the device connections.</td>
</tr>
<tr>
<td>Lost slave Device number x on loop y</td>
<td>Loop Processor Card</td>
<td>There is no reply on ends 1&amp;2 of the device.</td>
<td>Check the slave device connections and replace if necessary.</td>
</tr>
<tr>
<td>Magnetic switch operated number x loop y</td>
<td>Device</td>
<td>The reset switch in the base has closed.</td>
<td>Check base and proximity of magnetic field.</td>
</tr>
<tr>
<td>Main program not running at card x</td>
<td>Any Card</td>
<td>Problem with software. The watchdog will operate the MCC / MCB (main control card/board).</td>
<td>Software errors will activate a system reset. Ignore single occurrence. Record event in log book.</td>
</tr>
<tr>
<td>Mains failed / restored</td>
<td>Power supply</td>
<td>Failure is detected when the ADC output from the rectifier is equal to or less than 105.</td>
<td>Check mains and fuse. Replace PSU if necessary. This should normally equal to 60V to get a restored message.</td>
</tr>
<tr>
<td>Mains too high</td>
<td>Power supply</td>
<td>The ADC value is too high.</td>
<td>Check the PSU values in the [Test Eng] menu. Replace PSU if necessary.</td>
</tr>
<tr>
<td>Mains too low</td>
<td>Power supply</td>
<td>Mains supply is too low.</td>
<td></td>
</tr>
<tr>
<td>Master alarm</td>
<td>Power supply</td>
<td>No end-of-line unit seen. ADC value is greater than 92 or ADC value is less than 37</td>
<td>Check the wiring to the master alarm circuits. Ensure EOL is connected inside the control panel if master alarm circuits are not used.</td>
</tr>
<tr>
<td>Lost Command number x on Loop y</td>
<td>Loop Processor Card</td>
<td>Lost FAB/SAB.</td>
<td>Ignore single occurrence and record in log book.</td>
</tr>
<tr>
<td>Lost Device number x on loop y</td>
<td>Loop Processor Card</td>
<td>There is no reply on ends 1&amp;2 of the device.</td>
<td>Check the device connections.</td>
</tr>
<tr>
<td>Magnetic switch operated number x loop y</td>
<td>Device</td>
<td>The reset switch in the base has closed.</td>
<td>Check base and proximity of magnetic field.</td>
</tr>
<tr>
<td>Main program not running at card x</td>
<td>Any Card</td>
<td>Problem with software. The watchdog will operate the MCC / MCB (main control card/board).</td>
<td>Software errors will activate a system reset. Ignore single occurrence. Record event in log book.</td>
</tr>
<tr>
<td>Mains failed / restored</td>
<td>Power supply</td>
<td>Failure is detected when the ADC output from the rectifier is equal to or less than 105.</td>
<td>Check mains and fuse. Replace PSU if necessary. This should normally equal to 60V to get a restored message.</td>
</tr>
<tr>
<td>Mains too high</td>
<td>Power supply</td>
<td>The ADC value is too high.</td>
<td>Check the PSU values in the [Test Eng] menu. Replace PSU if necessary.</td>
</tr>
<tr>
<td>Mains too low</td>
<td>Power supply</td>
<td>Mains supply is too low.</td>
<td></td>
</tr>
<tr>
<td>Master alarm</td>
<td>Power supply</td>
<td>No end-of-line unit seen. ADC value is greater than 92 or ADC value is less than 37</td>
<td>Check the wiring to the master alarm circuits. Ensure EOL is connected inside the control panel if master alarm circuits are not used.</td>
</tr>
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<td>Message</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Master alarm enabled/disabled</td>
<td>MCC / MCB (main control card/board)</td>
<td>The master alarm has been enabled or disabled automatically or manually.</td>
<td>If necessary, manually enable or disable the master alarm using the [Control] menu.</td>
</tr>
<tr>
<td>Master alarm restored</td>
<td>Power supply</td>
<td>Master alarm fault cleared. The ADC value should be 74.</td>
<td></td>
</tr>
<tr>
<td>Master polling/not polling at card x</td>
<td>MCC / MCB</td>
<td>PC or SRI (service request interface) is not handshaking with the control panel</td>
<td>Check the wiring</td>
</tr>
<tr>
<td>Master Sector Actioned</td>
<td>MCC / MCB (main control card/board)</td>
<td>Master sector has been switched ON/OFF.</td>
<td>-</td>
</tr>
<tr>
<td>Master Sector Enabled/Disabled</td>
<td>MCC / MCB (main control card/board)</td>
<td>Master sector has been enabled or disabled manually or automatically.</td>
<td>If necessary manually enable or disable the master sector.</td>
</tr>
<tr>
<td>Memory corrupt number x loop y</td>
<td>Device</td>
<td>FLASH checksum failure</td>
<td>Replace the device</td>
</tr>
<tr>
<td>Message discarded</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td>Neighbour ACK Failed at card n</td>
<td>-</td>
<td>Repeated address</td>
<td>Check domain addresses are unique</td>
</tr>
<tr>
<td>Neighbour ACK Invalid at card n</td>
<td>TBA</td>
<td></td>
<td>TBA</td>
</tr>
<tr>
<td>Network initialised at Card x</td>
<td>Network Card</td>
<td>Successful network map with polled panels.</td>
<td>-</td>
</tr>
<tr>
<td>Network Insecure / Secure at Card x</td>
<td>Network Card</td>
<td>There are 3 missing replies in a row on End-2 of the controller.</td>
<td>Check the wiring. Check the error rate.</td>
</tr>
<tr>
<td>Network starting at Card x</td>
<td>Network Card</td>
<td>Communication starting with other connected panels.</td>
<td>-</td>
</tr>
<tr>
<td>Network wiring fault at card x</td>
<td>Network Card</td>
<td>Wiring is presumed to be oc between panel n and panel n.</td>
<td>Check the wiring.</td>
</tr>
<tr>
<td>New address n at card x</td>
<td>MCC / MCB</td>
<td>The new address set has been read.</td>
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<tr>
<td>New domain address n at Card x</td>
<td>Network Card</td>
<td>The new address set been read at the particular card.</td>
<td>-</td>
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<tr>
<td>NMI’s missed at card x</td>
<td>Loop Processor Card</td>
<td>Software error.</td>
<td>Software errors will activate a system reset. Ignore single occurrence. Record the event in log book.</td>
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</tr>
<tr>
<td>No periodic interrupts at card x</td>
<td>Any Card</td>
<td>Problem with software, the watchdog will operate the MCC / MCB (main control card/board).</td>
<td>Software error will activate a system reset. Ignore single occurrence. Record event in log book.</td>
</tr>
<tr>
<td>No response number x loop y</td>
<td>Loop Processor Card</td>
<td>There is no communication with repeat or mimic panel software.</td>
<td>Power-up the repeat or mimic panel.</td>
</tr>
<tr>
<td>No room on NVM card</td>
<td>Backplane (with memory)</td>
<td>User attempts to backup or save to an NVM that does not have enough free space</td>
<td>If there is no memory left then the card 14 located on Backplane needs to be initialised</td>
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<tr>
<td>Node double allocated at card x</td>
<td>Network Card</td>
<td>Two network cards have same address.</td>
<td>Keep address unique.</td>
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<tr>
<td>Node found at Card x</td>
<td>Network Card</td>
<td>Another panel on the network acknowledged.</td>
<td>-</td>
</tr>
<tr>
<td>Node lost/restored at Card x</td>
<td>Network Card</td>
<td>There have been 15 missing replies from another panel.</td>
<td>Check the wiring or check and reset the panel Network card to restore.</td>
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<tr>
<td>Not enough RAM at card x</td>
<td>Any Card</td>
<td>Not enough memory.</td>
<td>Reset the card and ignore single occurrence. If necessary replace the card or add RAM, where applicable.</td>
</tr>
<tr>
<td>Nothing found at Card x</td>
<td>Loop Processor Card</td>
<td>No devices found on End 1 or End 2.</td>
<td>Check wiring of loop circuit.</td>
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<tr>
<td>NVM initialised</td>
<td>Memory (NVM)-Backplane</td>
<td>Memory available verified.</td>
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<tr>
<td>NVM is not write protected</td>
<td>Memory (NVM)-Backplane</td>
<td>Read and write is possible to the memory card.</td>
<td>Enable protect if required using the [set up] menu.</td>
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<tr>
<td>NVM is read only</td>
<td>Backplane (with memory)</td>
<td>User attempts to write to a hardware write protected NVM card</td>
<td>Remove the hardware write protect before writing</td>
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<tr>
<td>Panel in/out of commissioning mode</td>
<td>MCC / MCB (main control card/board)</td>
<td>Commissioning mode switched ON/OFF.</td>
<td>To manually switch commissioning mode use the [Test/Eng] menu.</td>
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<tr>
<td>Panel Label Set up</td>
<td>MCC / MCB (main control card/board)</td>
<td>Panel label has been set from the menu.</td>
<td>-</td>
</tr>
<tr>
<td>Panel powerup</td>
<td>MCC / MCB (main control card/board)</td>
<td>Software reset of system or there has been a manual reset of card 0.</td>
<td>If an automatic reset has occurred than check for system errors.</td>
</tr>
<tr>
<td>Pattern number x on loop y channel x</td>
<td>Loop Processor Card</td>
<td>Sensor has detected an interesting event eg fire/fault.</td>
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</tr>
<tr>
<td>Pointer corrupted at Card x</td>
<td>Any Card</td>
<td>Software error.</td>
<td>Software errors will activate a system reset. Ignore single occurrence. Record the event in log book.</td>
</tr>
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<td>---------</td>
<td>------------------</td>
<td>-----------</td>
<td>-----------------</td>
</tr>
</tbody>
</table>
| 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 log book. |
<p>| Prefire number x on loop y channel z | 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 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 log book. |
| Program runaway at card x | Any Card | CPU has crashed. | Clear and ignore single occurrence. Record in 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 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 log book. |
| Recover failed at Card x | Loop Processor Card | Loop does not match what is on NVM card. | Check and confirm/correct the difference and then backup. |
| Recover succeeded at card x | Loop Processor Card | Successful recovery after a previous failure. | - |
| Replaced Device Wrong type number x on loop y | Loop Processor Card | Device is a different type. | Check and confirm installation of correct type and reallocate. Back up to memory. |</p>
<table>
<thead>
<tr>
<th>Message</th>
<th>associated with..</th>
<th>meaning..</th>
<th>possible action</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFE Address not Set up number x on loop y</td>
<td>Loop Processor Card</td>
<td>The replaced device is not SAFE addressed. The device previously installed in the location was SAFE addressed.</td>
<td>Set up the SAFE address.</td>
</tr>
<tr>
<td>Scan error number x at card y</td>
<td>Loop Processor Card</td>
<td>Invalid universal scan reply.</td>
<td>Check loop length and screening</td>
</tr>
<tr>
<td>Sector actioned</td>
<td>Loop Processor Card</td>
<td>Sector is switched ON/OFF.</td>
<td>-</td>
</tr>
<tr>
<td>Sector Enabled/ Disabled at card x</td>
<td>Loop Processor Card</td>
<td>The sector(s) has been enabled or disabled automatically or manually.</td>
<td>If necessary, manually enable/disable the sector using the [Control] menu.</td>
</tr>
<tr>
<td>Sensor out of specification number x on Loop y Channel z</td>
<td>Loop Processor Card</td>
<td>Fault pattern has been matched.</td>
<td>Check and replace the sensor if necessary.</td>
</tr>
<tr>
<td>Shared memory hardware is faulty at Card x</td>
<td>Any Card</td>
<td>There is MCC / MCB problem.</td>
<td>Replace all other cards than the MCC/MCB. See if the problems persist. Replace MCC / MCB if necessary.</td>
</tr>
<tr>
<td>Slave Device Replaced number x on loop y</td>
<td>Loop Processor Card</td>
<td>Slave type device has been replaced.</td>
<td>-</td>
</tr>
<tr>
<td>Slave micro failed at Card x</td>
<td>Loop Processor Card</td>
<td>Loop driver is watchdogged by loop processor.</td>
<td>Reset and ignore single occurrence. Record in log book.</td>
</tr>
<tr>
<td>Software errors</td>
<td>Software errors will activate a system reset</td>
<td>Software error</td>
<td>Software errors will activate a system reset. Ignore single occurrence. Record the event in log book.</td>
</tr>
<tr>
<td>Sounder circuit failed</td>
<td>Device</td>
<td>There is a fault with the sounder hardware on the S-cubed or S-Quad.</td>
<td>Replace the device</td>
</tr>
<tr>
<td>Sounder circuit Restored</td>
<td>Device</td>
<td>The fault on the sounder circuit associated with S-Quad or S-Cubed has been restored.</td>
<td>-</td>
</tr>
<tr>
<td>Speech circuit has failed</td>
<td>Device</td>
<td>There is a hardware fault possibly associated with the voice chip on the speech S-cubed or S-Quad</td>
<td>Replace the device</td>
</tr>
<tr>
<td>Speech circuit Restored</td>
<td>Device</td>
<td>The fault on the speech S-Quad and S-Cubed has been restored.</td>
<td>-</td>
</tr>
<tr>
<td>Message</td>
<td>associated with..</td>
<td>meaning..</td>
<td>.possible action</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>-------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Spurious acknowledgment at card x</td>
<td>Any Card</td>
<td>Software error.</td>
<td>Software errors will activate a system reset. Ignore single occurrence. Record the event in log book.</td>
</tr>
<tr>
<td>Spurious FAB Number x on Loop y</td>
<td>Loop Processor Card</td>
<td>Device has FAB but shouldn’t have any.</td>
<td>Ignore single occurrence. Panel will remove the indication.</td>
</tr>
<tr>
<td>Stack overflow at card x</td>
<td>Any Card</td>
<td>Software error</td>
<td>Software errors will activate a system reset. Ignore single occurrence. Record the event in log book</td>
</tr>
<tr>
<td>Stack too deep at card x</td>
<td>Any Card</td>
<td>Software error</td>
<td>Software errors will activate a system reset. Ignore single occurrence. Record the event in log book</td>
</tr>
<tr>
<td>Strobe circuit has failed</td>
<td>Device</td>
<td>The strobe circuit on the S-Quad or S-Cubed device has failed.</td>
<td>Replace the device</td>
</tr>
<tr>
<td>Strobe circuit restored</td>
<td>Device</td>
<td>The strobe hardware fault, such as internal connection, on the S-cubed or S-Quad has been restored</td>
<td>-</td>
</tr>
<tr>
<td>Sub Faults</td>
<td></td>
<td></td>
<td>See exceptions</td>
</tr>
<tr>
<td>Superfire number x on loop y channel z</td>
<td>Loop Processor Card</td>
<td>Pattern match is equal to or greater than a Fire.</td>
<td>-</td>
</tr>
<tr>
<td>Supply totally Failed</td>
<td>MCC / MCB (main control card/board)</td>
<td>The message does not normally appear.</td>
<td>-</td>
</tr>
<tr>
<td>Switching inhibited at end 1 at card x</td>
<td>Network</td>
<td>Automatic end swapping on the network controller has been disabled for test purpose</td>
<td>-</td>
</tr>
<tr>
<td>System Printer fitted at card x number y loop z</td>
<td>MCC / MCB (main control card/board)</td>
<td>An 80 column serial printer is fitted to the panel.</td>
<td>-</td>
</tr>
<tr>
<td>System Printer Lost at card x number y on loop z</td>
<td>MCC / MCB (Printer option)</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td>System Restarted /Started</td>
<td>MCC / MCB (main control card/board)</td>
<td>Link on back plane restored.</td>
<td>-</td>
</tr>
<tr>
<td>System stopped</td>
<td>MCC / MCB (main control card/board)</td>
<td>Backplane link moved causing the system to stop.</td>
<td>The link should not be normally accessed.</td>
</tr>
<tr>
<td>Message</td>
<td>associated with..</td>
<td>meaning..</td>
<td>possible action</td>
</tr>
<tr>
<td>---------</td>
<td>------------------</td>
<td>-----------</td>
<td>----------------</td>
</tr>
<tr>
<td>Task stuck at card x</td>
<td>Any Card</td>
<td>Software error.</td>
<td>Software errors will activate a system reset. Ignore single occurrence. Record the event in log book.</td>
</tr>
<tr>
<td>Test set found / removed at Card x</td>
<td>Loop Processor Card</td>
<td>Remote allocation unit has been found connected to the system.</td>
<td>Disconnection of the test set will bring about a removed message.</td>
</tr>
<tr>
<td>Too many errors number x on loop y</td>
<td>Device</td>
<td>More than 15 errors from a device in 34 hours.</td>
<td>Check the loop wiring to the device.</td>
</tr>
<tr>
<td>Too many errors x at Card y</td>
<td>Network Card</td>
<td>Up to 6 consecutive communication errors.</td>
<td>Check wiring and cable screen. There may be faults with the installation.</td>
</tr>
<tr>
<td>Two controller at Card x</td>
<td>Network</td>
<td>There are two network controllers.</td>
<td>One network controller will automatically shut down.</td>
</tr>
<tr>
<td>Two master has the same address at Card x</td>
<td>MCC / MCB / DKC</td>
<td>Two PCs have been given the same address.</td>
<td>Each PC must have a unique address.</td>
</tr>
<tr>
<td>Unable to claim buffers at card x</td>
<td>Any Card</td>
<td>System too busy</td>
<td>Wait or reset card if stuck, record in log book.</td>
</tr>
<tr>
<td>Unrecoverable Tx fault number x loop y</td>
<td>Loop Processor Card</td>
<td>More than 3 consecutive reply errors</td>
<td>Check the device connections and replace if necessary.</td>
</tr>
<tr>
<td>Warm restart</td>
<td>MCC (main control card)</td>
<td>The 5V rail has seen a dip activating the watchdog or the button has been pressed on MCC/MCB or panel power reconnected.</td>
<td>-</td>
</tr>
<tr>
<td>Warning cleared</td>
<td>MCC / MCB (main control card/board)</td>
<td>Warning has been removed.</td>
<td>-</td>
</tr>
<tr>
<td>Wiring changed - ground break at card x number y on loop z</td>
<td>Loop Processor Card</td>
<td>A test has shown a break on the 0V line. The test is conducted every minute.</td>
<td>Check wiring of 0V around loop.</td>
</tr>
<tr>
<td>Wiring changed - short at card x number y loop z</td>
<td>Loop Processor Card</td>
<td>Loop short circuit after the particular device.</td>
<td>Check wiring and device after indicated device.</td>
</tr>
<tr>
<td>Wiring changed - split/closed at Card x number y on loop z</td>
<td>Loop Processor Card</td>
<td>No reply received from a device at End-2 of loop.</td>
<td>Check wiring, there can be other reasons.</td>
</tr>
<tr>
<td>Wiring changed part short at Card x number y on loop z</td>
<td>Loop Processor Card</td>
<td>Less than 80 ohms between the +ve and 0V of loop wiring.</td>
<td>Check wiring and device after the partially shorted device.</td>
</tr>
<tr>
<td>Message</td>
<td>associated with..</td>
<td>meaning..</td>
<td>.possible action</td>
</tr>
<tr>
<td>---------</td>
<td>------------------</td>
<td>-----------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Wrong card type at Card x</td>
<td>Any Card</td>
<td>Card in wrong slot.</td>
<td>Move the cards to the right location.</td>
</tr>
<tr>
<td>Zone enabled / disabled at Card x</td>
<td>MCC / MCB (main control card/board)</td>
<td>The zone has been enabled or disabled automatically or manually.</td>
<td>If necessary, manually enable or disable the zone using the [Control] menu.</td>
</tr>
</tbody>
</table>
Appendix C - Guidelines for standalone system commands

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

- labels
- sectors (including flag set 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.
- 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 GENT Supervisor in the network.
  - 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.

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 Features**

<table>
<thead>
<tr>
<th>AREA</th>
<th>ANNEXE</th>
<th>BLOCK</th>
<th>BUILDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE</td>
<td>CORRIDOR</td>
<td>DOOR</td>
<td>DUCT</td>
</tr>
<tr>
<td>ENTRANCE</td>
<td>ESCALATOR</td>
<td>EXIT</td>
<td>EXTENSION</td>
</tr>
<tr>
<td>FLAT</td>
<td>HALL</td>
<td>HOUSE</td>
<td>LIFT</td>
</tr>
<tr>
<td>LOBBY</td>
<td>RISER</td>
<td>ROOM</td>
<td>ROUTE</td>
</tr>
<tr>
<td>STAIRS</td>
<td>TOWER</td>
<td>UNIT</td>
<td>VENTILATION</td>
</tr>
<tr>
<td>VOID</td>
<td>ZONE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Vertical Location**

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>MEZZANINE</th>
<th>FLOOR</th>
<th>BASEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUND</td>
<td>FIRST</td>
<td>SECOND</td>
<td>THIRD</td>
</tr>
<tr>
<td>FOURTH</td>
<td>CEILING</td>
<td>ROOF</td>
<td>ATRIUM</td>
</tr>
</tbody>
</table>

**Geographic Location**

<table>
<thead>
<tr>
<th>NORTH</th>
<th>SOUTH</th>
<th>EAST</th>
<th>WEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEAR</td>
<td>OUTSIDE</td>
<td>ABOVE</td>
<td>UPPER</td>
</tr>
<tr>
<td>CENTRE</td>
<td>LOWER</td>
<td>LEFT</td>
<td>RIGHT</td>
</tr>
<tr>
<td>FRONT</td>
<td>REAR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Building Usage**

<table>
<thead>
<tr>
<th>ACCOMMODATION</th>
<th>ADMIN</th>
<th>BEDROOM</th>
<th>BOILER</th>
</tr>
</thead>
<tbody>
<tr>
<td>CENTRAL</td>
<td>CHANGING</td>
<td>COMPUTER</td>
<td>CONTROL</td>
</tr>
<tr>
<td>CUPBOARD</td>
<td>ELECTRICAL</td>
<td>ENGINEERING</td>
<td>EXTERNAL</td>
</tr>
<tr>
<td>GALLERY</td>
<td>GARAGE</td>
<td>GENERAL</td>
<td>HOUSING</td>
</tr>
<tr>
<td>KITCHEN</td>
<td>LAUNDRY</td>
<td>LOUNGE</td>
<td>OFFICE</td>
</tr>
<tr>
<td>PLANT</td>
<td>RECEPTION</td>
<td>RESTAURANT</td>
<td>SERVICE</td>
</tr>
<tr>
<td>SERVICES</td>
<td>SHOP</td>
<td>STAFF</td>
<td>STORE</td>
</tr>
<tr>
<td>STORES</td>
<td>SWITCH</td>
<td>SYSTEM</td>
<td>TOILET</td>
</tr>
<tr>
<td>WORKSHOP</td>
<td>WARD</td>
<td>WAREHOUSE</td>
<td></td>
</tr>
</tbody>
</table>

**Airport Tokens**

<table>
<thead>
<tr>
<th>AIR SIDE</th>
<th>ARRIVALS</th>
<th>BAGGAGE</th>
<th>BRIDGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUREAU DE CHANGE</td>
<td>CUSTOMS</td>
<td>CONCOURSE</td>
<td>DEPARTURES</td>
</tr>
<tr>
<td>DUTY FREE</td>
<td>EXCHANGE</td>
<td>GATE</td>
<td>HANDLING</td>
</tr>
<tr>
<td>IMMIGRATION</td>
<td>LANDSIDE</td>
<td>LUGGAGE</td>
<td>MALL</td>
</tr>
<tr>
<td>PASSENGER</td>
<td>RETAIL</td>
<td>SECURITY</td>
<td>STATION</td>
</tr>
<tr>
<td>TERMINAL</td>
<td>TRANSFER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Medical Tokens**

<table>
<thead>
<tr>
<th>MEDICAL</th>
<th>THEATRE</th>
<th>X-RAY</th>
<th>CLINIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATIENTS</td>
<td>PHYSIOTHERAPY</td>
<td>GERIATRICS</td>
<td>PAEDIATRICS</td>
</tr>
<tr>
<td>RECORDS</td>
<td>HEALTH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Components of the Fire System**

<table>
<thead>
<tr>
<th>SOUNDER</th>
<th>DETECTOR</th>
<th>OPTICAL</th>
<th>IONISATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEAT</td>
<td>INTERFACE</td>
<td>BEAM</td>
<td>REPEAT</td>
</tr>
<tr>
<td>SPRINKLER</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Bank 1

### General Building Features

<table>
<thead>
<tr>
<th>Chamber</th>
<th>Foyer</th>
<th>Shaft</th>
<th>Staircase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stairwell</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Vertical Location

<table>
<thead>
<tr>
<th>Fifth</th>
<th>Sixth</th>
<th>Attic</th>
<th>Balcony</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landing</td>
<td>Passage</td>
<td>Subway</td>
<td>Tunnel</td>
</tr>
</tbody>
</table>

### Positions

<table>
<thead>
<tr>
<th>Adjacent</th>
<th>Bottom</th>
</tr>
</thead>
</table>

### Building Usage

<table>
<thead>
<tr>
<th>Catering</th>
<th>College</th>
<th>Conference</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispatch</td>
<td>Emergency</td>
<td>Equipment</td>
<td>Escape</td>
</tr>
<tr>
<td>Manager</td>
<td>Meeting</td>
<td>Packing</td>
<td>Physics</td>
</tr>
<tr>
<td>Point</td>
<td>Preparation</td>
<td>Shopping</td>
<td>Sitting</td>
</tr>
<tr>
<td>Stationery</td>
<td>Suite</td>
<td>Supply</td>
<td>Telephone</td>
</tr>
<tr>
<td>Transformer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Airport Tokens

<table>
<thead>
<tr>
<th>Airlines</th>
<th>Bonded</th>
<th>Check-in</th>
<th>Clorifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conveyor</td>
<td>Cul-de-sac</td>
<td>Domestic</td>
<td>Forecourt</td>
</tr>
<tr>
<td>Information</td>
<td>Interconnector</td>
<td>International</td>
<td>Reclaim</td>
</tr>
<tr>
<td>Screening</td>
<td>Secret Sign</td>
<td>Travolator</td>
<td>Trucking</td>
</tr>
</tbody>
</table>

### Medical Tokens

<table>
<thead>
<tr>
<th>Dispensary</th>
</tr>
</thead>
</table>

### Components of the Fire System

<table>
<thead>
<tr>
<th>Aspirating</th>
<th>Input</th>
<th>Output</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shutter</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Bank 2

### General Building Features

<table>
<thead>
<tr>
<th>Blower</th>
<th>Chute</th>
<th>Doors</th>
<th>Hoist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roller</td>
<td>Sluice</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Position

<table>
<thead>
<tr>
<th>Behind</th>
<th>Below</th>
<th>Under</th>
<th>Middle</th>
</tr>
</thead>
</table>

### Building Usage

<table>
<thead>
<tr>
<th>Bistro</th>
<th>Business</th>
<th>Canteen</th>
<th>Chiller</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>Classroom</td>
<td>Cleaners</td>
<td>Disabled</td>
</tr>
<tr>
<td>Electronics</td>
<td>Factory</td>
<td>Female</td>
<td>Library</td>
</tr>
<tr>
<td>Locker</td>
<td>Maintenance</td>
<td>Motor</td>
<td>Music</td>
</tr>
<tr>
<td>Nursery</td>
<td>Phase</td>
<td>Quiet</td>
<td>Seating</td>
</tr>
<tr>
<td>Shower</td>
<td>Storage</td>
<td>Tenant</td>
<td>Vehicle</td>
</tr>
<tr>
<td>Voltage</td>
<td>Walkway</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Airport Token

<table>
<thead>
<tr>
<th>Apron</th>
<th>Autowalk</th>
<th>Boarding</th>
<th>Cabin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector</td>
<td>Craft</td>
<td>Departure</td>
<td>Flight</td>
</tr>
<tr>
<td>Stand</td>
<td>Touchdown</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Generic Commissioning instructions**

116 4188-856_i2_12/06_Generic Vigilon (Compact + VA) Comms.
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 alarm sounders.
- 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 will be silenced on operation of the ‘Reset’ button
- The sectors 29-32 are independent of the ‘Sound Alarms’ button and are primarily used with Fixed Extinguishant interface product which is not no longer supported. However the sectors 29-30 can be configured to normal sector operation.
- Sensors, call points and interface inputs 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.
- Alarm sounders, OHS and interface outputs are restricted to one sector only.

- There can be up to 10 Voice Alarm Zones.
- Voice alarm zones are push button switches on the control panel that can be assigned to Sectors.
- Any normal Sector (1-28) can be assigned to any voice alarm zone (1-10)
**Integral sounder operation**

- Integral sounder sector operation (also called flag set sector) can be configured using the menu commands: [SetUp] -> [Sector] -> [Sounder] -> [On].

**Integral sounder sector functions**

**INTEGRAL SOUNDER SECTOR FUNCTIONS**

- **Flag set sector**
  - 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.

- **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.
  - Fixed extinguishing inputs / outputs are automatically assigned to sector 29. Note the Fixed extinguishing interface unit 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 device 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 assignment has been lost due to system power down and subsequent NVM recovery conflicts 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 (except Sector 1 and Sectors 29-32) to signal 2

**Site specific fire plan**

- A site specific fire plan can be created by configuring sectors.

A sector configured for integral sounder operation will in the event of a fire at an optical heat sensor sounder (OHS) device will operate ONLY the local sounder (of the OHS).

**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.
- Fixed extinguishing inputs / outputs are automatically assigned to sector 29. Note the Fixed extinguishing interface unit 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 device and IO lines to sector 1
  - and then action all sectors (except sectors 29-32) on all sectors to signal 2.

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- 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 assignment has been lost due to system power down and subsequent NVM recovery conflicts 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 (except Sector 1 and Sectors 29-32) to signal 2

**Site specific fire plan**

- A site specific fire plan can be created by configuring sectors.
Delay Blocks

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 actioned from a command build can have a separate delay of up to 10 minutes.
- 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 is set up (within the command build entry line).
**Time slots and time blocks**

TIMESLOTS & TIMEBLOCKS FUNCTIONS

**Time slots**
A time slot must be linked with a time block. It is the time block that performs actions on the system.

- 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 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.

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

The default is for all the outstations to be in Time block 0. A Timeblock is enabled if any one of the Timeslots within it is in the enable state.
A zone has a collection of trigger devices that are located in the same general area. It may be used for one or all three of the following:

- for illumination of zonal fire lamps on Main panel or Zonal mimic panel
- for common disablement purposes

There can be up to 128 Zones per A2 / 64 Zones per A4 zonal mimic panel.

Zones are used to provide local indication of fire at the main panel and to send fire messages to zonal mimic and loop repeat panels and repeat indicator panels off main panel.

- integral zonal indicators 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.

All MCC / MCB / LCC (local controller) events are in Group 0, ie FAULTS, WARNING, SILENCE ALARMS and RESET etc.
There can be up to 128 Zones of which the first 64 are for standalone system and remaining zones 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
- an device can only be assigned to one zone
- A Zone task 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:
  - Prefires
  - Fires
  - Superfires
- 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 or a range of command builds, (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
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.
- 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.
- 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 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.

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 sounders 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.

<table>
<thead>
<tr>
<th>Number</th>
<th>FAB action</th>
<th>SAB action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>no output</td>
<td>turns Off selected Outputs</td>
</tr>
<tr>
<td>1</td>
<td>frequency tone</td>
<td>10mS pulse on Selected Outputs</td>
</tr>
<tr>
<td>2</td>
<td>-</td>
<td>40mS pulse on Selected Outputs</td>
</tr>
<tr>
<td>3</td>
<td>-</td>
<td>90mS pulse on Selected Outputs</td>
</tr>
<tr>
<td>4</td>
<td>On/Off control (On being low frequency)</td>
<td>160mS pulse on Selected Outputs</td>
</tr>
<tr>
<td>5</td>
<td>-</td>
<td>250mS pulse on Selected Outputs</td>
</tr>
<tr>
<td>6</td>
<td>high frequency tone</td>
<td>350mS pulse on Selected Outputs</td>
</tr>
<tr>
<td>7</td>
<td>-</td>
<td>480mS pulse on Selected Outputs</td>
</tr>
<tr>
<td>8</td>
<td>-</td>
<td>630mS pulse on Selected Outputs</td>
</tr>
<tr>
<td>9</td>
<td>-</td>
<td>800mS pulse on Selected Outputs</td>
</tr>
<tr>
<td>A</td>
<td>-</td>
<td>980mS pulse on Selected Outputs</td>
</tr>
<tr>
<td>B</td>
<td>-</td>
<td>1.2S pulse on Selected Outputs</td>
</tr>
<tr>
<td>C</td>
<td>-</td>
<td>1.4S pulse on Selected Outputs</td>
</tr>
<tr>
<td>D</td>
<td>-</td>
<td>1.6S pulse on Selected Outputs</td>
</tr>
<tr>
<td>E</td>
<td>-</td>
<td>1.9S pulse on Selected Outputs</td>
</tr>
<tr>
<td>F</td>
<td>-</td>
<td>Turn on Selected Outputs</td>
</tr>
</tbody>
</table>

Factory Default FABs SABs

<table>
<thead>
<tr>
<th>Time in seconds</th>
<th>0</th>
<th>0.25</th>
<th>0.5</th>
<th>0.75</th>
<th>1.0</th>
<th>1.25</th>
<th>1.5</th>
<th>1.75</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Signal 3 (Continuous)</strong></td>
<td>Output turns on Low frequency sound continuous every 0.5 seconds.</td>
<td>4F</td>
<td>00</td>
<td>4F</td>
<td>00</td>
<td>4F</td>
<td>00</td>
<td>4F</td>
</tr>
<tr>
<td><strong>Signal 2 (Evacuate)</strong></td>
<td>First output turns on Low frequency sound continuously, then every half second the High frequency output is pulsed for 250mS.</td>
<td>4F</td>
<td>25</td>
<td>4F</td>
<td>25</td>
<td>4F</td>
<td>25</td>
<td>4F</td>
</tr>
<tr>
<td><strong>Signal 1 (Alert)</strong></td>
<td>Pulses high frequency for 250mS every half second.</td>
<td>65</td>
<td>00</td>
<td>65</td>
<td>00</td>
<td>65</td>
<td>00</td>
<td>65</td>
</tr>
</tbody>
</table>
S³ Mark I

An S³ device can operate in Tone or Voice mode, dependent on type.
All S³ in a system can share a common volume setting from a range between 16% to 100% sound output.
All S³ 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.

Setting selectable using the commissioning tool:
S³ 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.
S³ 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 S³ device.

- **Voice**
  - The Speech only S³ provides voice message with tone output.

- **Sounder**
  - The Sounder S³ provides sound output over a duration as defined by the FAB/SAB held at the control panel.

- **Strobe**
  - The Strobe S³ output is defined by what signal is being actioned on the S³.
  - If actioned:
    - Signal 1 will provide strobe output at 0.5Hz
    - Signals 2 or Signal 3 will provide strobe output at 1Hz.

FAB/SAB is output, see Sounders configuration held at the control panel.
S-Cubed Mark II and S-Quad

Speech function
The new Mark II 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 an S-Cubed 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.

Strobe function
In the event of a fire the appropriate S-Cubed or S-Quad device in the system will output alarm signals according to the site specific configuration and these can be either signal 1, 2 or 3 alarm:
- every 2s with signal 1
- every 1 second with signal 2
- every 1 second with signal 3
However the operation of the strobe with the signals 1, 2 and 3 can be changed at the commissioning stage. The strobe is synchronised with S-Cubed and S-Quad strobes installed in the same system.

Sounder function
A new Mark II S-Cubed or S-Quad sounder 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 34000 sounders and other S-Cubed or S-Quad 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 sounders can output in turbo and/or non turbo modes. When the panel commands a low or high tone output at S-Cubed or S-Quad, if configured during commissioning, the S-Cubed or S-Quad sounder will output turbo and/or non turbo tones. 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 frequency as the resonant frequency of the S-Cubed or S-Quad piezo. The non turbo mode outputs modulated turbo waveform.

Waveforms with basic frequency same as resonant frequency of piezo
- Turbo square wave
- Turbo high tone
- Turbo low tone - high output
- Turbo low tone
- Turbo rich high tone
- Turbo rich low tone

Modulated version of turbo waveform
- Non-Turbo square wave
- Non-Turbo high tone (Default)
- Non-Turbo low tone - high output
- Non-Turbo low tone (Default)
- Non-Turbo rich high tone
- Non-Turbo rich low tone

It is possible to reprogram factory set speech messages

The Disability Act 1995 recommends visual alarms, like S-Cubed and S-Quad, are installed in protected premises to warn occupants who are hard of hearing.
**Auxiliary Relays**

The two auxiliary relays in the control panel are defaulted to operate on a sectored fire event aux relay 1 and Fault event aux relay 2.

- the auxiliary relays can be configured for normally-open or normally-closed operation.
- the 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.
Appendix D - Guidelines for Networked system commands

These functions 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 network of control panels, ensure the software version is same across all the panels. This is also applicable when an existing network is to be installed with additional panels.

Master Sectors

MASTER SECTOR FUNCTIONS

☐ 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 more than 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.
The verify control button that is applicable for EN panels only can operate globally, like the Sound alarm, Silence alarm and Reset buttons.

- 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 on a Network.
- Messages can be displayed or printed on Control Panels or Repeat Panels. Messages are routed on a Card by Card basis, ie:
  - card 0 = Panel LCD
  - card 15 = Panel Printer
  - cards 1-8 = Repeats and Mimics (Loops 1-8)
  - 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 a global repeat or mimic indication, the local panel will also have to have reset messages routed also any other groups than 0 will have to be routed.

- 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.
Appendix E - Cards

This section contain copies of instructions leaflet supplied with each card.
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Data and Installation
Main Control Card
(VIG-MCC-24)

This leaflet covers the Main Control(ler) Card (VIG-MCC-24) which is designed for installation in VIG1-24 and VIG1-72 Vigilon panels.

Technical data

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall size</td>
<td>157mm height x 100mm width</td>
</tr>
<tr>
<td>Weight</td>
<td>96g (approximate)</td>
</tr>
<tr>
<td>Lithium Battery</td>
<td>CR2032 3V cell.</td>
</tr>
<tr>
<td></td>
<td>Replace the battery only with the same or equivalent type. Dispose of all used batteries according to the manufacturer’s instructions.</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0°C to 45°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-10°C to 55°C</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>up to 90%</td>
</tr>
</tbody>
</table>

Battery connection

The MCC has a battery insulation sleeve or disk that must be removed before the card is fitted in the backplane.

- **Reset Switch (SW1)**

- **BATT1**

- **Chip 2211-143 V4.37**

- **MCC card fits into the Backplane slot marked P1 (MCC/LCC)**

- **Remove insulation sleeve or disk before installing the card**

**Backplane**

The MCC card must be installed in the correct location in the backplane.

- **An IO Card is not required for the connection of DKC and Commissioning tool. The DKC ribbon cables now connect to P2 and P4 on the MCC and the Commissioning tool connect to the USB port on MCC.**

- **When handling the card always use anti-static work procedures.**

- **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 a reverse order.**

**Battery connection**

- **Once the battery insulation sleeve or disk is removed from the MCC, the card MUST NOT be placed on a metal surface as this may result in damage to the components on the card.**

- Use the USB port on the MCC to connect to the Commissioning tool.
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This leaflet covers a range of Main Control(ler) Card (MCC) options for BS version 3/3+ control panels and terminal nodes. Each MCC is supplied with a number of chips having part numbers 2211-xxx, see chart overleaf. The appropriate chip must be fitted to the card before card installation. Card options:


### Battery connection

The MCC has a battery sleeve that must be removed before the MCC card is installed into the backplane.

⚠️ Once the battery sleeve is removed from the MCC, the card MUST NOT be placed on a metal surface as this may result in damage to the components on the card.

### Technical data

<table>
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<th>Parameter</th>
<th>Specification</th>
</tr>
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</tr>
<tr>
<td>Weight</td>
<td>96g (approximate)</td>
</tr>
<tr>
<td>Lithium Battery</td>
<td>CR2032 3V cell. Replace the battery only with the same or equivalent type. Dispose of all used batteries according to the manufacturer’s instructions.</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0°C to 45°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-10°C to 55°C</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>up to 90%</td>
</tr>
</tbody>
</table>

### Backplane

The MCC card must be installed in the correct location on the appropriate backplane.
### Main Control Card (BS version 3/3+) - Compatibility Information

<table>
<thead>
<tr>
<th>Main Control Card</th>
<th>Vig-MCC-BS-MOD-UPG</th>
<th>34K-MCC-UPGR</th>
<th>Vig-MCC-V0+</th>
<th>Vig-MCC-3400</th>
<th>Vig-MCC-3500-MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal Ports</td>
<td>30000N1</td>
<td>28000N2</td>
<td>28000N1</td>
<td>28000N2</td>
<td></td>
</tr>
<tr>
<td>Current Panel</td>
<td>Vig BS</td>
<td>34K BS</td>
<td>Vig BS</td>
<td>34K BS</td>
<td></td>
</tr>
<tr>
<td>Backplane</td>
<td>V3 or</td>
<td>V3 or</td>
<td>V3 or</td>
<td>V3 or</td>
<td>3505 Terminal Node</td>
</tr>
<tr>
<td></td>
<td>Senator 2</td>
<td>Senator 2</td>
<td>Senator 2</td>
<td>Senator 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+V30N1/40N2</td>
<td>+V30N1/40N2</td>
<td>+V30N1/40N2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Smart-2</td>
<td>Smart-2</td>
<td>Smart-2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 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.

Gent by Honeywell 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.
This leaflet covers a range of Main Control(ler) Card (MCC) options for EN version 4.xx control panels and Network nodes. Each MCC is supplied with a number of chips having part numbers 2211-xxx, see chart overleaf. The appropriate chip must be fitted to the card before card installation. Card options:

- VIG-MCC-UPGR
- VIG-MCC-EN-NOD-UPG.

**Chip 2211-xxx**

- Fit the correct chip 2211-xxx in the MCC for the type of panel or node, see chart overleaf.

**Battery connection**

The MCC has a battery sleeve that must be removed before the card is fitted in the backplane.

Once the battery sleeve is removed from the MCC, the card MUST NOT be placed on a metal surface as this may result in damage to the components on the card.

**Technical data**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall size</td>
<td>157mm height x 100mm width</td>
</tr>
<tr>
<td>Weight</td>
<td>96g (approximate)</td>
</tr>
<tr>
<td>Lithium Battery</td>
<td>CR2032 3V cell.</td>
</tr>
<tr>
<td></td>
<td>Replace the battery only with the same or equivalent type. Dispose of all used batteries according to the manufacturer’s instructions.</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0°C to 45°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-10°C to 55°C</td>
</tr>
<tr>
<td>Relative humidity (non condensing)</td>
<td>up to 90%</td>
</tr>
</tbody>
</table>
### Main Control Card (EN) - Compatibility Information

<table>
<thead>
<tr>
<th>Current products</th>
<th>Past Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viglon EN Network Node</td>
<td>Viglon EN Control Panel</td>
</tr>
<tr>
<td>Viglon EN + Zn LEDs Post Feb 05</td>
<td>Viglon EN + Zn LEDs Post Feb 05</td>
</tr>
<tr>
<td>Viglon EN Network Node</td>
<td>Viglon EN Network Node</td>
</tr>
</tbody>
</table>

### 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.

---

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---

**GENT by Honeywell**

Hamilton Industrial Park, Waterside Road, Leicester LE5 1TN, UK

Website: www.gent.co.uk

Telephone: +44 (0) 116 246 2000

Fax (UK): +44 (0) 116 246 2300

4188-861 issue 1_01/06_MCC EN
This copper network card is used to allow messages of status and control data to pass between control panels and network (or terminal) nodes in a networked fire system. The card must be plugged into the backplane of each panel and node in a dedicated slot. When it is plugged into the slot P8 on the backplane the external cables must be connected to terminal block P10, which is also located on the backplane. The dual-in-line switches on the card are set to program the address number and baud rate.

**Connecting the Panels and Nodes**

This network card can be installed in:

**Vigilon or 34K Fire Panels**
- VIG1-V3+ or 34K1-V3+
- VIG1-NET-V3+
- VIG2-V3+
- VIG2-NET-V3+
- VIG3-V3+
- VIG3-NET-V3+
- VIG4-V3+
- VIG4-NET-V3+

**Vigilon or 34K Network (or Terminal) Node**
- VIG-NODE-V3+ or 34K-NODE-V3+

**Specification**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall size</td>
<td>128mm height x 100mm width</td>
</tr>
<tr>
<td>Node address range</td>
<td>1 to 31</td>
</tr>
<tr>
<td>Baud</td>
<td>2400, 9600, 19.2K and 38.4K</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>±5V (RS485)</td>
</tr>
<tr>
<td>Terminations</td>
<td>Terminal block P10 assuming</td>
</tr>
<tr>
<td></td>
<td>Network card is installed in</td>
</tr>
<tr>
<td></td>
<td>backplane slot P8</td>
</tr>
<tr>
<td>Cable</td>
<td>Belden 9729 (example)</td>
</tr>
<tr>
<td>Weight</td>
<td>72g (approximate)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0°C to 45°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-10°C to 55°C</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>up to 90%</td>
</tr>
</tbody>
</table>

Using the Copper Network card a maximum of up to 31 Control panels and Network (Terminal) nodes can be connected in a secure network loop, with up to 1.2Km cable distance between panels/nodes dependent on cable type.
The copper network card is factory set for 38.4K baud with node address 4.

<table>
<thead>
<tr>
<th>Node address switch numbers and settings</th>
<th>Baud rate switch numbers and settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 7 6 5 4 3 2 1</td>
<td>2 1</td>
</tr>
<tr>
<td>64 off off off off off off</td>
<td>off off 2400</td>
</tr>
<tr>
<td>1 on off off off off off</td>
<td>on off 9600</td>
</tr>
<tr>
<td>2 off on off off off off</td>
<td>off on 19.2K</td>
</tr>
<tr>
<td>3 on on off off off off</td>
<td>on on 38.4K</td>
</tr>
<tr>
<td>4 off off on off off off</td>
<td></td>
</tr>
<tr>
<td>63 on on on on on on</td>
<td></td>
</tr>
</tbody>
</table>

- factory settings

The copper network card is factory set for 38.4K baud with node address 4.
This copper network card is used to allow data to pass between control panels and network nodes installed in a networked fire system. The card must be plugged into the backplane of the panel or node in a dedicated slot. When it is plugged into the slot P8 on the backplane the external cables must be connected to terminal block P10, which is also on the backplane.

The dual-in-line switches on the card are set to program the address number and baud rate.

Where a copper network card is plugged into a control panel or network node, ensure the panel/node Local Controller software is at Version 4.00 or later.

Connecting the Panels and Nodes

Using the Copper Network card a maximum of up to 31 Control panels and Network nodes can be connected in a secure network loop, with up to 1.2Km cable distance between panels/nodes dependent on cable type.

Overall size 128mm height x 100mm width
Node address range 1 to 31
Baud 2400, 9600, 19.2K and 38.4K
Operating voltage ±5V (RS485)
Terminations Terminal block P10 assuming Network card is installed in backplane slot P8
Cable Belden 9729 (example)
Weight 72g (approximate)
Operating temperature 0°C to 45°C
Storage temperature -10°C to 55°C
Relative humidity (non condensing) up to 90%
The copper network card is factory set for 38.4K baud with node address 4.

<table>
<thead>
<tr>
<th>Node address switch numbers and settings</th>
<th>Baud rate switch numbers and settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 7 6 5 4 3</td>
<td>2 1</td>
</tr>
<tr>
<td>64 off off off off off off</td>
<td>off off 2400</td>
</tr>
<tr>
<td>1 on off off off off off</td>
<td>on off 9600</td>
</tr>
<tr>
<td>2 off on off off off off</td>
<td>off on 19.2K</td>
</tr>
<tr>
<td>3 on off on off off off</td>
<td>on on 38.4K</td>
</tr>
<tr>
<td>4 off off on off off off</td>
<td></td>
</tr>
<tr>
<td>63 on on on on on on</td>
<td>Address</td>
</tr>
<tr>
<td></td>
<td>Baud</td>
</tr>
<tr>
<td></td>
<td>- factory settings</td>
</tr>
</tbody>
</table>

**WEEE Directive:**
At the end of their useful life, the packaging, product and batteries should be disposed of via a suitable recycling centre.
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The fibre network card allows fast message passing to the network. The card must be plugged into the backplane of the panel or node in a dedicated slot. The fibre optic cables connect directly to sockets on the card. There are two types of fibre network cards for secure EN54 Vigilon network.

VIG-NC-FO Fibre Optic Network card
Using the Fibre Optic Network card VIG-NC-FO up to 31 Control panels and Network Nodes can be connected in a secure loop. There can be up to 2Km Fibre Optic cable distance between panel and node.

VIG-NC-DOM-FO Fibre Optic Network card (for Domain bridge)
Using the Fibre Optic Network card VIG-NC-DOM-FO up to 64 smaller networks can be connected to form a secure domain. The Fibre Optic cable distance between nodes of the smaller networks can be up to 2Km. The entire system can have up to 200 panels/nodes.

Where a fibre network card is plugged into a control panel or a network node ensure their Local Controller software is at Version 4.00 or later when using VIG-NC-FO and version 4.16 or later when using VIG-NC-DOM-FO.

Connect to Panels and Nodes

Links P2 and P3 are booster links. Normally the links are not fitted, however for distance exceeding 750m the links must be fitted. P2 settings are for End 1
P3 settings are for End 2

Ensure the patch leads are of the correct length. The leads connect directly to the Fibre Network Card and patch panel.

Specification

<table>
<thead>
<tr>
<th>Overall size</th>
<th>144mm height x 100mm width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Node address range</td>
<td>1 to 64 (VIG-NC-DOM-FO)</td>
</tr>
<tr>
<td></td>
<td>1 to 32 (VIG-NC-FO)</td>
</tr>
<tr>
<td>Baud</td>
<td>19.2K, 38.4K, 115.2K and 230.4K</td>
</tr>
<tr>
<td>Terminations / Fibre Optics</td>
<td>ST connection is by means of the ST sockets on the Network card. Cable: Multi mode 62.5 / 125µm Fibre 820nm wavelength</td>
</tr>
<tr>
<td>Weight</td>
<td>82g (approximate)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0°C to 45°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-10°C to 55°C</td>
</tr>
<tr>
<td>Relative humidity (non condensing)</td>
<td>up to 90%</td>
</tr>
</tbody>
</table>

Connecting Panels and Nodes
The fibre optic network cards are factory set for 38.4K baud with node address 4.

**Switch settings**

<table>
<thead>
<tr>
<th>Node Address and switch settings</th>
<th>Switch settings and Baud rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7</td>
</tr>
<tr>
<td>64</td>
<td>off off off off off off</td>
</tr>
<tr>
<td>1</td>
<td>on off off off off off</td>
</tr>
<tr>
<td>2</td>
<td>off on off off off off</td>
</tr>
<tr>
<td>3</td>
<td>on on off off off off</td>
</tr>
<tr>
<td>4</td>
<td>off off on off off off</td>
</tr>
<tr>
<td>63</td>
<td>on on on on on on</td>
</tr>
</tbody>
</table>

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The new Input Output (IO) cards part numbers VIG-IOC-V3+ and 34K-IOC-V3+ have version 3+ software. They are designed for installation in fire panels to BS5839:Part 4, such as the Vigilon, 34000, 32000, 3400 and 3300 analogue addressable fire panels and Network (or Terminal) nodes.

**new IO cards replaces existing IO cards**

The new IO card combine the functions of all the existing IO cards and will replace the existing IO cards:

<table>
<thead>
<tr>
<th>VIG-IOC-PRT-V3+</th>
<th>34K-IOC-PRT-V3+</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIG-IOC-ASCOM-V3+</td>
<td>34K-IOC-UFD-V3+</td>
</tr>
<tr>
<td>VIG-IOC-UFD-V3+</td>
<td>34K-IOC-UNI-V3+</td>
</tr>
<tr>
<td>VIG-IOC-UNI-V3+</td>
<td>34K-IOC-SLV-V3+</td>
</tr>
<tr>
<td>13432-03V3</td>
<td>32023-21</td>
</tr>
<tr>
<td>13332-13</td>
<td></td>
</tr>
</tbody>
</table>

The existing IO cards listed above are no longer available.

**Specification**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall size</td>
<td>148mm height x 100mm width</td>
</tr>
<tr>
<td>Node address range</td>
<td>1 to 31</td>
</tr>
<tr>
<td>Baud</td>
<td>1200, 1800, 2400, 3600, 4800, 7200, 9600 and 19200</td>
</tr>
<tr>
<td>(When installed as an additional IO card)</td>
<td></td>
</tr>
<tr>
<td>RS232 (Port 0)</td>
<td>10m cable distance</td>
</tr>
<tr>
<td>RS485 (Port 1)</td>
<td>1.2Km cable distance</td>
</tr>
<tr>
<td>Weight</td>
<td>72g (approximate)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0°C to 45°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-10°C to 55°C</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>up to 90% (non condensing)</td>
</tr>
</tbody>
</table>

There is no need to switch between the RS232 and RS485 ports as they are both available for simultaneous use.

**IO installation and associated terminals**

The diagram below shows the associated terminal for standard IO card when it is installed in the backplane of panel/node.

<table>
<thead>
<tr>
<th>Control Panel or Network Node</th>
<th>Backplane plug in location</th>
<th>Associated terminals on terminal card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vigilon Control panel</td>
<td>P2</td>
<td>RS232/RS485 (Port 0)</td>
</tr>
<tr>
<td>34000 Control panel</td>
<td>P2</td>
<td>RS485 (Port 1)</td>
</tr>
<tr>
<td>Network node for Vigilon and 34000</td>
<td>P2</td>
<td>P4</td>
</tr>
<tr>
<td>32000 Control panel</td>
<td>IOC</td>
<td>P2</td>
</tr>
<tr>
<td>Network node for 32000</td>
<td>P6</td>
<td>P8-P9</td>
</tr>
<tr>
<td>3404 Control panel</td>
<td>SK2</td>
<td>TB9/TB10</td>
</tr>
<tr>
<td>3408 Control panel</td>
<td>SK2</td>
<td>TB6</td>
</tr>
<tr>
<td>3405 Network node for 3408/3404</td>
<td>P5</td>
<td>P6</td>
</tr>
</tbody>
</table>
Checks

- Set the rotary switch SW2 to a required function.
- Ensure all DIP switches of SW1 are set to the Off position before installing the IO card in the backplane of Vigilon or 34000 system Control panel or Network node.
- A 20 way ribbon cable connects between DKC connector P4 and the IO card socket P2.
- One additional IO card can be fitted into the spare socket on the backplane of the Vigilon/34000/34000 control panels and up to four into the backplane sockets of the associated Network node.

When installing an additional IO card it is important to set its DIP switches SW1 to the required baud rate and node address and the rotary switch SW2 to the required function before installing the card in a spare socket of the backplane.

Setting switches SW1 and SW2

### SW1 Switch settings

The switch positions shown here are applicable for the new IO Card when installed as an additional IO card in the Vigilon or 34000 panel or node.

**No dongle is required for the DIP switches to work, when used as a second or additional IO card.**

#### Baud Rate

<table>
<thead>
<tr>
<th>Port 1 (RS485 mode)</th>
<th>Port 0 (RS232) Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 or 8</td>
<td>3217 Half Duplex</td>
</tr>
<tr>
<td>1 or 9</td>
<td>Slave I/O</td>
</tr>
<tr>
<td>2 or A</td>
<td>Remote Printer (as VIG-IOC-PRT-V3+)</td>
</tr>
<tr>
<td>3 or B</td>
<td>Universal Full-Duplex (as VIG-IOC-UFD-V3+)</td>
</tr>
<tr>
<td>4 or C</td>
<td>Ascom Pager (as VIG-IOC-ASCOM-V3+)</td>
</tr>
<tr>
<td>5 or D</td>
<td>Domain Bridge Full-Duplex</td>
</tr>
<tr>
<td>6 or E</td>
<td>Universal Half-Duplex (as VIG-IOC-UNI-V3+)</td>
</tr>
<tr>
<td>7 or F</td>
<td>-</td>
</tr>
</tbody>
</table>

### SW2 Switch settings

#### Port 0 (RS232) Mode

<table>
<thead>
<tr>
<th>SW2 Switch Pos.</th>
<th>Standard connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 or 8</td>
<td>3217 Half Duplex</td>
</tr>
<tr>
<td>1 or 9</td>
<td>Slave I/O</td>
</tr>
<tr>
<td>2 or A</td>
<td>Remote Printer (as VIG-IOC-PRT-V3+)</td>
</tr>
<tr>
<td>3 or B</td>
<td>Universal Full-Duplex (as VIG-IOC-UFD-V3+)</td>
</tr>
<tr>
<td>4 or C</td>
<td>Ascom Pager (as VIG-IOC-ASCOM-V3+)</td>
</tr>
<tr>
<td>5 or D</td>
<td>Domain Bridge Full-Duplex</td>
</tr>
<tr>
<td>6 or E</td>
<td>Universal Half-Duplex (as VIG-IOC-UNI-V3+)</td>
</tr>
<tr>
<td>7 or F</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Factory settings

**IMPORTANT:**
The Vigilon and 34000 Control Panels make use of the DIP switches on the DKC, located on the inner door. The switches are used to set address and baud rate. For these panels it is important that the DIP switches SW1 on the IO card are ALL set in the UP or OFF position so that they are ignored.

**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.
This new Input Output (IO) card (part no. VIG-IOC-DOM) is designed for installation in EN54 Vigilon analogue addressable fire panels and Network node:

**Vigilon Fire Panels**
- VIG1
- VIG1-NET
- VIG2
- VIG2-NET
- VIG3
- VIG3-NET
- VIG4
- VIG4-NET

**Vigilon Network (Terminal) Node**
- VIG-NODE.

**new IO card replaces existing IO cards**
The new IO card combines the functions of and will replace the existing IO cards:
- VIG-IOC-PRT
- VIG-IOC-ASCOM
- VIG-IOC-UFD
- VIG-IOC-UNI

The existing IO cards are no longer available.

---

**Specification**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall size</td>
<td>148mm height x 100mm width</td>
</tr>
<tr>
<td>Node address range</td>
<td>1 to 31</td>
</tr>
<tr>
<td>Baud (When installed as an additional IO card)</td>
<td>1200, 1800, 2400, 3600, 4800, 7200, 9600 and 19200</td>
</tr>
<tr>
<td>RS232 (Port 0)</td>
<td>10m cable distance</td>
</tr>
<tr>
<td>RS485 (Port 1)</td>
<td>1.2Km cable distance</td>
</tr>
<tr>
<td>Weight</td>
<td>72g (approximate)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0°C to 45°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-10°C to 55°C</td>
</tr>
<tr>
<td>Relative humidity (non condensing)</td>
<td>up to 90%</td>
</tr>
</tbody>
</table>

---

**IO card installation and associated terminals**
The diagram below shows the associated terminals for standard IO card when it is installed in the backplane of panel/node.

---

**Checks**

- Set the rotary switch SW2 to a required function.
- Ensure all DIP switches SW1 are set to the Off position before installing the IO card in socket P2 of the backplane.
- Connect the 20 way ribbon cable from DKC connector P4 to the IO card socket P2.
- One additional IO card can be fitted into the backplane spare socket P7 of the control panel and up to four into the backplane sockets of the Network node.

When installing an additional IO card it is important to set its DIP switches SW1 to the required baud rate and node address and the rotary switch SW2 to the required function before installing the card in a spare socket of the backplane.
IO card location

One new IO card is normally fitted as Card 15 in socket P2 of the Control panel backplane.

Setting switches SW1 and SW2

SW1 Switch settings
The switch positions shown here are applicable for the new IO Card when installed as an additional IO card.

No dongle is required for DIP switches to work when used as second or additional IO card.

<table>
<thead>
<tr>
<th>SW1 Switch settings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baud Rate</strong></td>
</tr>
<tr>
<td><strong>Node Address</strong></td>
</tr>
<tr>
<td><strong>Pos.</strong></td>
</tr>
<tr>
<td><strong>Standard connections Port 0 (RS232) Mode</strong></td>
</tr>
<tr>
<td><strong>Port 1 (RS485 mode)</strong></td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>

SW2 Switch settings

Factory settings

IMPORTANT:
The Vigilon Control Panel make use of the DIP switches on the DKC, located on the inner door. The switches are used to set address and baud rate. It is important that the DIP switches SW1 on the IO card are ALL set in the UP or OFF position so that they are ignored.

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.
Installation instructions
Conversion kit
(2534-196) for PSU wiring in Vigilon panel

This kit may be required when installing a replacement PSU in a Vigilon panel.

If upgrading to new earthing arrangement the EMC cover part number 4094-290.01 will be required and is available free of charge upon request from GENT Sales.

Before working on the panel you must first power down the mains and battery supply to the panel.

Kit
This kit must be used to correctly wire the replacement PSU

<table>
<thead>
<tr>
<th>No.</th>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Back box spade connector to mains input filter earth. Yellow/Green wire</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Back box spade connector to PSU earth. Yellow/Green wire</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Mains filter to PSU live (brown) and neutral (blue) wire loom</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Spade connector</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>Cable tie</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>Primary earth label</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>Nut</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>Shake proof washer</td>
</tr>
</tbody>
</table>

The parts in the kits are used according to the wiring arrangements.

Parts used
Parts used when converting the old earthing arrangement to the new earthing arrangement:
Items required: 1 2 3 4 5 6 7 8

Parts used when converting the new earthing arrangement to the old earthing arrangement:
Items required: 2 3 5 6 7 8

Wiring arrangements

Converting from the old earthing arrangement
Wiring arrangement before replacing the PSU

Converting from the new earthing arrangement
Wiring arrangement before replacing the PSU

Converting from the old earthing arrangement
Wiring arrangement after replacing the PSU

Converting from the new earthing arrangement
Wiring arrangement after replacing the PSU
How to fit the kit when replacing the PSU

a. Power down the mains and battery supply to the panel.
b. Disconnect the two ribbon cables fitted to the PSU PCB.
c. Remove, if fitted, the 0V black lead from the printer to the PSU.
d. Remove, if fitted, the terminal cover over the mains terminal on the PSU chassis.
e. Remove, if fitted, the EMC Cover. If upgrading to the new wiring arrangement a new cover will be required.

The EMC cover will be available free of charge upon request from GENT Sales.

f. Disconnect the battery loom from the terminal card.
g. Remove the Fuse holder from the mains terminal mounted on the back box.
h. Remove, if fitted, the clear moulded mains terminal cover and nylon fastener. These items should be discarded, as they are no longer required.
i. Disconnect the transformer earth if fitted to the primary earth.
j. Disconnect the BLUE and BROWN (and the GREEN/YELLOW wire if fitted) from the terminals on PSU chassis.
k. Loosen the three knurled captive screws that secures the PSU to backbox and then unhook the PSU assembly out of the backbox.
l. Fit the replacement PSU onto the backbox and secure it to the backbox.
m. Wire the PSU mains cables according to the wiring arrangement. Ensure the primary earth point Tag (spade connector) and shakeproof washers and nut provided are correctly fitted, see illustrations.

ENSURE THAT THE NUT ON THE EARTH BONDING STRIP IS SECURELY TIGHTENED AS THIS PROVIDES THE PRIMARY EARTH FOR THE CONTROL PANEL.

n. Use the cable tie to secure any loose cable.
o. Fit the supplied Primary Earth Label next to the earth bonding strip.
Appendix F - Device commissioning

The appendix has information on commissioning devices such as interface units, Beam sensors and Mimic panels connected on a loop circuit.
This page has been intentionally left blank.
Repeat indicator panel

Always press the RESET button after setting the switches.

Port 0 is a factory configured to RS485 for connecting Repeat indicator panel. It is factory set for RS485 at 1200 baud. If however the port settings were changed then it is possible to reconfigure Port 0.

If there is only one repeat indicator panel connected to the control panel then an external 24V power supply is NOT required. Connect the 24V wire directly to the control panel.

On the control panel, RS485 Port 2 may be used to connect repeat indicator panels. You will need to configure Port 2 for Repeat mode and required baud.
Maximum cable usage per circuit

- Zone circuit - 100 metres maximum.
- Clean contact Input circuit - 300 metres maximum
- LED output - 30 metres maximum
- Relay output - unlimited.

End-of-line (EOL) devices

- An input circuit requires in series with the contacts a 10K resistor plus a 10K EOL resistor supplied.
- A zone input circuit is monitored with an EOL capacitor unit supplied.

Zone input functionality

A zone input can have conventional detectors and manual call points (MCPs) connected. All MCPs must have a 470 Ohms or 3V9 zener diode in series with normally open contacts. The zone input can take a maximum load of up to 2mA at 24V nominal (with minimum operating voltage of 18V). The zone circuit must be terminated with an EOL capacitor unit.

Confirmation Input / Output functionality

An input and an output of a module can be paired to operate in a confirmation mode. External equipment can send an acknowledgement upon receiving a signal from the module, this is called ‘confirmation input’. External equipment can also receive an acknowledgement from the module upon sending it a signal, this is called ‘confirmation output’.

S4 1-Input Interface

The single input interface module monitors a circuit of either normally open or closed contacts. The input can be programmed as a fire, fault, supervisory or confirmation input. Optionally it is also possible to configure the input for a zone of conventional detectors and MCPs. In all input modes the interface will detect short and open circuit faults.

S4 4-Input /Output Interface

The quad input/output interface module can be configured to provide any combination of up to four inputs or outputs. An output of either normally open or normally closed relay contacts can be used to control a load of up to 1A @ 30Vdc/ac. Optionally an output can be configured to provide 1.5mA at 24V dc to drive an LED that can be normally On or normally Off. An input can be programmed as a fire, fault, supervisory or confirmation input. Additionally it is possible for Channel 1 to be used as a Zone input, which allow connection of conventional detectors and MCPs to this module. Zone input can be configured to have alarm validation feature and configurable reset time. The alarm validation feature can be used to minimise false alarms by suppressing a fire input for a period of time defined during commissioning. The zone reset period can be extended to allow for different types of fire detectors.

Ensure the links are configured on the PCB before the outer covers are closed, as it is difficult to reopen the covers once assembled.

Configuration

Use the Commissioning Tool Version 1.21 or greater to commission these interface modules.
The loop cable screen must be continued through each interface module. The loop, switch input, zone input, and LED output cable screens used must connect to an earth terminal.

**S4 1-Input module connection details**

![Diagram of S4 1-Input module connection details]

**S4 1-Output & 1-input module connection details**

![Diagram of S4 1-Output & 1-input module connection details]

**S4 4-Input/Output module connection details**

![Diagram of S4 4-Input/Output module connection details]

**Note 1** - When the input is configured as a Zone input, it is possible to attach conventional detectors and MCPs (with 470 Ohms or 3V9 zener diode in series with normally open contacts), maximum load is 2mA @ 24V nominal (18V minimum) with End-of-line capacitor.

**Note 2** - Only channel 1 (terminals 5 & 6) can be configured as a zone input.

**Note 3** - Contact rating 1A 30V ac/dc Resistive load.

**Note 4** - Output is 1.5mA @ 24V dc.

# Can be configured as LED output

* The cable screens must be connected to an earth terminal on the chassis or in the metal box.

If a module is mounted on a DIN rail then the DIN rail must electrically connected to the loop cable screen via the earth terminal.
### Technical data

<table>
<thead>
<tr>
<th></th>
<th>S4-34410 S4 1- Input</th>
<th>S4-34450 S4 4-Input/Output</th>
<th>S4-34420 S4 1-Output &amp; 1-Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approval</td>
<td>EN54-17:2005 and EN54-18:2005 (Approval pending)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight-dimen. module</td>
<td>92g ①</td>
<td>100g ①</td>
<td>100g ①</td>
</tr>
<tr>
<td>module in plastic box</td>
<td>1047g ②</td>
<td>1055g ②</td>
<td>1055g ②</td>
</tr>
<tr>
<td>module in metal box</td>
<td>782g ③</td>
<td>790g ③</td>
<td>790g ③</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-30°C to 70°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10°C to 60°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>Up to 95%</td>
<td>Temperature 5°C to 45°C</td>
<td></td>
</tr>
<tr>
<td>Emission</td>
<td>BS EN 61000-6-3:2001 Residential, Commercial &amp; Light Industry Class B limits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunity</td>
<td>BS EN50130-4: 1996: Part 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LVD</td>
<td>BS EN 60950-2002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingress Protection</td>
<td>IP31 for plastic box S4-34490 &amp; IP40 estimated for metal box S4-34492</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td>Module-white / Plastic box-dark grey (Lid-light grey) / Metal box-dark grey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input mode</td>
<td>Input channel-1 only can be configured as a zone input to accept conventional devices, with a load of 2mA quiescent and 9mA alarm maximum at 24V nominal (18V minimum). With configurable 2s to 5s reset period and 5s to 40s alarm validation delay.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Switch input can work with or without a delay.

Input channel can be configured as a **switch input** of Fire*, Fault*, Supervisory* (non fire) or Confirmation# signal. * with input acceptance delay of up to 10 seconds for a Fire input and up to 300s for Fault or Supervisory input. # A fault is generated if confirmation input is not seen within predefined period of the output action (Confirmation function is not a feature of the single input module).

Output mode

- A relay output of either NO or NC set of contacts rated 1A - 30Vac/dc resistive load.
- A relay output of change over contacts NC, COM and NO rated 1A - 30Vac/dc resistive load.

LED output

1.5mA at 24Vdc (Normally On or Normally Off)

Load Factor

1-4 switch inputs = 1 (maximum 200 per loop)
1-4 relay outputs = 2 (maximum 200 per loop only 8 individually sectored)
Zone Input = 26 (maximum 30 per loop)
Every LED output = +5 (maximum 100 LED outputs per loop)

**EN54-17 data**

<table>
<thead>
<tr>
<th>Vmax</th>
<th>Vnom</th>
<th>Vmin</th>
<th>VSO max</th>
<th>VSO min</th>
<th>IC max</th>
<th>IS max</th>
<th>IL max</th>
<th>ZC max</th>
</tr>
</thead>
<tbody>
<tr>
<td>42V</td>
<td>40V</td>
<td>24V</td>
<td>14V</td>
<td>10V</td>
<td>0.4A</td>
<td>1A</td>
<td>20µA</td>
<td>0.1Ω</td>
</tr>
</tbody>
</table>

Panel compatibility


---

**WEEE Directive:**

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.

Do not dispose of with your normal household waste.

Do not burn.

---

Gent by Honeywell 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.
The loop cable screen must be continued through each interface module. If a module is mounted on a DIN rail, then the DIN rail must be electrically connected to the loop cable screen.

The output contacts are rated at 13A 230V ac resistive load. In order to meet the requirements of European Safety Standards, ensure that all cables carrying voltages in excess of 48V (Live and Neutral) are suitably fused.

**Dimensions**

- Depth 48mm
- Depth 50mm

**Technical data**

- Approval: EN54-17:2005 & EN54-18:2005 (Pending Approval)
- Dimensions: See illustrations
- Weight: DIN mountable: 138g
  - PCB with cover in metal box: 800g
- Storage temperature: -30°C to 70°C
- Operating temperature: -10°C to 60°C
- Relative Humidity: Up to 95% - Temperature 5°C to 45°C (Non condensing)
- Emission: BS EN 61000-6-3:2001
  - Residential, Commercial & Light Industry Class B limits
- Immunity: BS EN50130-4: 1996: Part 4
- LVD: BS EN 60950-2002
- Ingress Protection: Metal box - IP40 estimated
- Colour - Metal Box: Dark Grey
- Output: Single pole change over contacts rated at 13A 230V ac Resistive load.
- Contact ratings:
  - **Type**: 1hp @ 240V ac, 1/2hp @ 120V ac (UL508)
  - **Cycle**: 6x10³
- Terminals: 2.5mm²
- Load Factor: 5
  - (maximum 200 devices per loop)
- **EN54-17 data**
  - \( V_{\text{max}} \): 42V
  - \( V_{\text{nom}} \): 40V
  - \( V_{\text{min}} \): 24V
  - \( V_{\text{SO max}} \): 14V
  - \( V_{\text{SO min}} \): 10V
  - \( I_{\text{C max}} \): 0.4A
  - \( I_{\text{S max}} \): 1A
  - \( I_{\text{L max}} \): 20μA
  - \( Z_{\text{C max}} \): 0.1Ω
- Panel compatibility: Compatible with

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.

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# 2nd Fix Installation

<table>
<thead>
<tr>
<th>Repeat panel 2nd fix part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer door assembly</td>
<td>1</td>
</tr>
<tr>
<td>Inner door assembly</td>
<td>1</td>
</tr>
<tr>
<td>Master Repeat Card</td>
<td>1</td>
</tr>
<tr>
<td>20 Way ribbon cable</td>
<td>1</td>
</tr>
<tr>
<td>40 Way ribbon cable</td>
<td>1</td>
</tr>
<tr>
<td>Spares pack (includes battery leads)</td>
<td>1</td>
</tr>
</tbody>
</table>

a. Remove the protective temporary cover from the backbox.
b. Fit the inner door to the repeat panel enclosure, remembering to connect the earth lead to door and then fit the outer moulded door.
c. Fit the Master Repeat Card into the backbox and:
   - connect the transformer wires to terminal block - P10.
   - connect battery wires supplied with the spares to terminal block P9 (note the red wire connects to the + and black wire to the - terminal respectively).
   - connect the ribbon cable from the terminal card to connector - P14 on Master Repeat Card.
   - connect the 40 way ribbon cable from Master Repeat Card connector P7 to Display Key Card connector - P1.
   - connect the 20 way ribbon cable from Master Repeat Card connector P8 to Display Key Card connector - P6.

   Power-up the panel by connecting the mains supply and then the battery supply, and note:
   - the green and amber LEDs on the Master repeat card are lit
   - all lights on the panel facia are lit for a short duration
   - a reset message appears on the display
   - the local buzzer sounds for a short duration
   - a battery disconnected message appears
   - the display shows: MAIN PANEL OFF LINE
   - the System Fault LED is lit on the panel facia
Configuring the links and switches

Display selection

- Section of the Master Repeat Card (MRC)
- Links shown in factory set positions

To DKC connector P1
- P7
- P21

To DKC connector P6
- P1
- P6
- P20
- P8
- P21

Contrast and emergency control

<table>
<thead>
<tr>
<th>CONTRAST ADJUSTMENT</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark unreadable</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Normal factory setting</td>
<td>X</td>
<td>X</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Light unreadable</td>
<td>X</td>
<td>X</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>

- Display and keyboard Card (DKC)
- Inner door

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Do not dispose of with your normal household waste.
Do not burn.

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micro Distributed Amplifier Unit

The Audio loop wiring is routed from the control panel with connection to each micro DAU on the associated loop with return connection at the panel, that is Audio loop 1 is used with Device loop 1.

Terminals Description

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 &amp; 01, L2 &amp; 02, loop circuits 1 and 2</td>
<td>These terminals are use to wire to the loop circuit, the loop in is at L1 &amp; 01 terminals and loop out is at L2 &amp; 01 terminals.</td>
</tr>
<tr>
<td>A B, local audio</td>
<td>These terminals accept most audio source, such as background music for broadcast to the local speaker circuits.</td>
</tr>
<tr>
<td>I/A &amp; I/B, O/A &amp; O/B, audio loop</td>
<td>These terminals accept the audio loop circuit. Here the O in O/A and O/B signify output, while the I in I/A and I/B signify input.</td>
</tr>
</tbody>
</table>
| NO1, C1, NC1 and NO2, C2 and NC2, auxiliary relay contacts | These are auxiliary relay contacts, rated at 1A 24Vdc. The relay can be configured to operate with operation of:  
- central emergency  
- microphone, local message  
- activation, central message  
- activation, central PA  
- activation, Background music, local auxiliary input (background music) or with local test microphone.  
The relay can be configured to operate with any of the above conditions, in any combination. |
| A+, A-, and B+, B-, Speaker circuits | These terminals accept the connection of two speaker circuits. Each speaker circuit can have up to 5 x 64ohms speakers. |
# Audio Pack 1

The main panel and the micro Distributed amplifier unit each has an Audio pack 1 that contains the following messages and tones.

<table>
<thead>
<tr>
<th>No.</th>
<th>Type of message</th>
<th>Voice</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>micro DAU Test</td>
<td>Male</td>
<td>The voice alarm volumes are being adjusted there is no need to take any action.</td>
</tr>
<tr>
<td>2</td>
<td>Alert (default - Emergency 1)</td>
<td>Female</td>
<td>Your attention please, the fire alarm has been activated in another area, please remain where you are and await further instructions.</td>
</tr>
<tr>
<td>3</td>
<td>Evacuate (default - Emergency 2)</td>
<td>Male</td>
<td>Attention please, attention please, this is an emergency, please leave the building by the nearest available exit. Do not use the lifts or escalator.</td>
</tr>
<tr>
<td>4</td>
<td>Bomb (default - Emergency 3)</td>
<td>Female</td>
<td>May I have your attention please, an incident has been reported in the area, as a precaution please move away from the windows, I repeat, please move away from all windows, further information will follow shortly.</td>
</tr>
<tr>
<td>5</td>
<td>Alert (alternative)</td>
<td>Female</td>
<td>May I have your attention please, may I have your attention please, an incident has been reported in the building, whilst this report is being investigated, please remain at your workplace.</td>
</tr>
<tr>
<td>6</td>
<td>Evacuate (alternative)</td>
<td>Male</td>
<td>Ladies and gentlemen, due to unforeseen circumstances we are required to evacuate the building, please leave the building immediately by the nearest available exit.</td>
</tr>
<tr>
<td>7</td>
<td>Gas Carbon Monoxide</td>
<td>Male</td>
<td>May I have your attention please, may I have your attention please, excessive carbon monoxide levels have been detected, please leave the area immediately by the nearest available exit.</td>
</tr>
<tr>
<td>8</td>
<td>Gas Fixed Extinguishing</td>
<td>Male</td>
<td>May I have your attention please, may I have your attention please, extinguishing gas release imminent, please evacuate the area immediately by the nearest available exit.</td>
</tr>
<tr>
<td>9</td>
<td>Fire alarm test (default - Auxiliary 1)</td>
<td>Female</td>
<td>Attention please, attention please, this is the test of the fire and voice alarm system, there is no need to take any action.</td>
</tr>
<tr>
<td>10</td>
<td>Fire alarm test end (default Auxiliary 2)</td>
<td>Female</td>
<td>The test of the fire and voice alarm system has now been completed.</td>
</tr>
<tr>
<td>11</td>
<td>Coded message</td>
<td>Female</td>
<td>Would Mr Sands please report to reception.</td>
</tr>
<tr>
<td>12</td>
<td>Class change</td>
<td>Female</td>
<td>Class change</td>
</tr>
<tr>
<td>13</td>
<td>Gent Limited advertisement</td>
<td>Female</td>
<td>Ladies and gentlemen this speech message is produced by Gent Limited’s Vigilon Compact Voice Alarm system. This product integrates voice alarm functions into an analogue fire alarm system ideal for small to medium sized buildings.</td>
</tr>
<tr>
<td>14</td>
<td>Stand down (default - Auxiliary 3)</td>
<td>Female</td>
<td>May I have your attention please, the cause of the alarm has been investigated and the system reset. There is no cause for concern. Thank you.</td>
</tr>
<tr>
<td>15</td>
<td>Navy radiological attack</td>
<td>-</td>
<td>Beep beep beep (950Hz 80ms beep every 420ms)</td>
</tr>
<tr>
<td>16</td>
<td>Navy bandit attack</td>
<td>-</td>
<td>Beep beep beep (950Hz 50ms beep every 80ms)</td>
</tr>
<tr>
<td>17</td>
<td>Nursery Rhyme 1</td>
<td>Boys &amp; Girls</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Nursery Rhyme 2</td>
<td>Boys &amp; Girls</td>
<td>Twinkle Twinkle</td>
</tr>
<tr>
<td>19</td>
<td>Factory test</td>
<td>-</td>
<td>Frequency sweep (300Hz to 10KHz in 3s)</td>
</tr>
</tbody>
</table>

## Attention tone

<table>
<thead>
<tr>
<th>No.</th>
<th>Description of tone</th>
<th>No.</th>
<th>Description of tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nee Naw x 8</td>
<td>6</td>
<td>Pulse</td>
</tr>
<tr>
<td>2</td>
<td>Two tone (Bing bong)</td>
<td>7</td>
<td>Continuous</td>
</tr>
<tr>
<td>3</td>
<td>Four Tones - ascending</td>
<td>8</td>
<td>Bong</td>
</tr>
<tr>
<td>4</td>
<td>Four Tones - descending</td>
<td>9</td>
<td>Chopin</td>
</tr>
<tr>
<td>5</td>
<td>Bell</td>
<td>10</td>
<td>Jingle</td>
</tr>
</tbody>
</table>
**Indications at the micro DAU**

When using the remote control on a micro DAU the indications given by these LEDs will be different, see instructions for the Remote control.

<table>
<thead>
<tr>
<th>Audio Status</th>
<th>Circuit A fault</th>
<th>Circuit B fault</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio circuit</td>
<td>Loop circuit (analogue loop)</td>
<td></td>
</tr>
</tbody>
</table>

**LED Keys**
- **- Off**
- **- blink** - 1 blink (quick flash) every 1s
- **- slow** - 1 slow flash (every 0.5s - On 0.5s Off) every 1s
- **- x2** - 2 flashes (single occurrence)
- **- fast** - 8 quick flashes (blinks) every 1s
- **- steady On**

<table>
<thead>
<tr>
<th>Amplifiers and Speaker circuits faulty</th>
<th>green LED</th>
<th>yellow LED</th>
<th>yellow LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Power to micro-DAU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quiescent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audio On</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>micro DAU in Fall back mode</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>During Speaker calibration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fault on Speaker Circuit A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wiring Short or open circuit on Speaker Circuit A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fault on Speaker Circuit B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wiring Short or open circuit on Speaker Circuit B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amplifier A fault</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amplifier B fault</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audio and device loops disconnected. For example when the micro DAU is discharging the stored energy.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**It may be possible to recover from these faults by calibrating the speaker circuits, see 'How to calibrate speaker circuits'.**

**It may be possible to recover from an Amplifier fault**

The panel MUST NOT be in 'Test Mode' when attempting an Amplifier fault recovery.

**Press the CAL button on micro DAU board.**

If the amplifier is still faulty then the indication will reappear.

- **CAL**
- **Fault Reset**
- **micro DAU board**
To calibrate the Speaker circuits using the remote

When the speaker circuits are wired to the micro DAU it is important to calibrate the circuits by pressing the CAL button.

To calibrate the speaker circuit at the micro DAU

1. Switch On the Test Mode at the Control panel.
2. Press the CAL button on micro DAU board to calibrate the both speaker circuits.
3. Start of calibration, single indication:

   - CAL/ Fault
   - Audio Status

Wait for 2 minutes for end of calibration. No indication is given of end of calibration.
4. Ensure the panel Test Mode is switched Off

To calibrate the speaker circuits using the Remote control

The preferred method of calibrating the speaker circuits is by using the CAL button on the micro DAU PCB.

To calibrate the speaker circuits

1. Switch On the Test mode at the control panel, see #.
2. Press and hold the button and make a short press on the Power button and then release the button. This will start the calibration of both the speaker circuits of the micro DAU.
3. Wait for 2 minutes You may also hear a popping sound from the speakers during calibration.
4. Make a short press on the button and release it to power off the remote control.
5. Switch Off the Test mode at the control panel, see #.

Keys for Remote Control

- Off
- x1 - 1 flash every 2s
- x2 - 2 flashes (single occurrence)
- x3 - 3 quick flashes every 2 seconds
- steady On

Keys for micro DAU

- Off
- x2 - 2 flashes single occurrence
- blink - 1 blink (quick flash) every 1s
- slow - 1 slow flash (every 0.5s - On 0.5s Off) every 1s
- steady On

Trouble shooting

If the remote control fails to operate in close proximity to the indication aperture on micro DAU then a possible cause may be the battery. Replace the battery in the remote control.

# To switch On/Off Test mode:
At the control panel press the Menu On/Off button, select [Test/Eng], [UserCode] and enter code if appropriate, select <etc>, [Test], [Zone], for On select [On] or for off select [Off], key in zone number and select [Enter].
To adjust the volume level of PA, VA and background music using the remote control.

For certain types of applications, such as in an hospital, there may be a requirement to set the volume levels of a micro DAU using the remote control.

To comply with the requirements of EN54:Part 3 the minimum volume of the S-Quad sounder for voice alarm application should be no less than 65dBA at 1m.

Trouble shooting
If the remote control fails to operate in close proximity to the indication aperture on micro DAU then a possible cause may be the battery. Replace the battery in the remote control.

To adjust the volume level of PA, VA and background music using the remote control.

1. If PA or VA volume level is required to be adjusted then switch On the Test mode at the control panel, see #.

2. Quick press and release the Power button on Remote control. You are now in 'BGM' background music volume adjust mode.

3. Press to increase the volume or to decrease the volume and adjust to a required level.

4. Press the button to allow mode change.

5. Press and hold the Power button to save the settings and release the button after about 2 seconds.

6. Switch off the Test mode at the control panel, see #.

Keys for Remote Control
- Off
- x1 - 1 flash every 2s
- x2 - 2 flashes every 2s
- steady On

Keys for micro DAU
- Off
- blink - 1 quick flash every second
- slow - 1 slow flash (every 0.5s - On 0.5s Off) every 1s
- Fast - 8 quick flashes every second
- steady On
To test the audio to speaker circuits

The audio to speaker circuits can be tested by making announcements via:
- Emergency microphone
- PA microphone
- Activating the central emergency and auxiliary messages at the control panel
- And by switching on the background music system.

How to enable or disable Background music or PA

The background music and PA can be enabled or disabled, to do this press the Menu On/Off button and then select [Control] followed by [Enable] / [Disable] and then momentarily press <etc> and select [Audio], now select either [PA] or [Music] followed by [Enter].
How to connect the Audio Loop

The audio loop may be commissioned once the analogue detection loop has been satisfactorily powered up with addresses allocated to all the devices on loop circuits.

Before connecting the audio loop at the panel ensure the panel is powered down.

It is recommended that each audio loop circuit is wired up and tested independently.

Testing the Audio loops

The audio loop must also be tested for open circuit and short circuit faults.

Open circuit fault on Audio loop

When the positive or negative line of the audio loop is disconnected at any point on the loop, the panel will display a fault message and will light the fault LED, plus the panel buzzer will sound.

The message displayed will read:
ACC Loop n O/C

There will also be other information such as time and date of the event.

Short circuit fault on Audio loop

When the positive and negative lines of the audio loop are short circuited together at any point on the loop, it will cause a fault event and the panel will display a fault message and will light the fault LED, plus the panel buzzer will sound.

The message displayed will read:
ACC Loop n S/C (1,4)

There will also be other information such as time and date of the event.

The numbers in the brackets will help identify the location of the short circuit. In this case the location of the fault is between micro DAU device address 1 and 4.
Background Music

The background music system should be connected to the control panel as shown below. The setting the 0dBA pre-amplified output if adjustable must not cause the pointer on the VU meter at the control panel to deflect above 0dBA, in the red range, see page 22.

Further adjustment of volume level of audio to the speaker circuits is made during the configuration stage, this is done using the commissioning tool. Volume adjustment is also possible using a remote control, see the micro DAU section.

PA Microphone

The PA microphone should be connected to the control panel as shown below. When configuring the system it is possible to select the voice alarms zones to which PA announcements apply. An attention tone such as a bing bong tone can be configuration to sound each time the press to talk button on the microphone is pressed.

Recommended cable Belden No 9842
Cable distance 100m maximum
Interface and panel outstations

It is important to prepare the interface units, mimic and repeat panels on a loop circuit to be powered up. This is necessary in order to minimise the number of fault events being flagged up.

VIG-INT-MAINS - Mains powered interface

**NOTE:** Always power-up this interface unit before powering-up the control panel.

Figure 3-1 Interface board connections
### Ratings

<table>
<thead>
<tr>
<th>Zone (input)</th>
<th>Link</th>
<th>Position</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector (output)</td>
<td>LK1</td>
<td>1 - 2 #</td>
<td>Normal zone voltage</td>
</tr>
<tr>
<td>Auxiliary power output</td>
<td>LK1</td>
<td>2 - 3</td>
<td>Low zone voltage ‘Reduces the zone voltage by 4V for Thorn detectors’</td>
</tr>
<tr>
<td>LED1 (green)</td>
<td>LK3</td>
<td>1 - 2#</td>
<td>Fail safe disable</td>
</tr>
<tr>
<td>LED2 (yellow)</td>
<td>LK3</td>
<td>2 - 3</td>
<td>Fail safe enable</td>
</tr>
</tbody>
</table>

### Fail safe mode

In this mode if there is a **loop communication failure** lasting over **1 minute** duration, then all the outputs of the unit are **activated**, switched On. The outputs deactivate on restoration of communication.

If there are **three communication failures** over **10 minutes** duration then the outputs will be **latched On**, in this case the unit must be powered down and powered up again to unlatch and restore normal operation.

### Dual-in-line switches

- Set the dual-in-line switches S1-S4 for **input, output or not used (off)** position.

### End-of-line units

- Connect the end-of-line EOL units to IO lines to allow fault free IO lines to be seen for the allocation of addresses.

### Links

- Set the links LK1 and LK3 plus the rotary switch on the interface board, as necessary.

### Rotary switch

The rotary switch can be set to any one of its 16 positions, from 0 to F.

- Normally the rotary switch is factory set for **conventional GENT detectors** connected to input lines. Other settings are available to allow detectors from other manufacturers.

---

**NOTE:** The mains terminals are located behind a metal cover inside the interface unit enclosure.
### Interface and panel outstations

**NOTE:** All input circuits must have a **GENT End-of-line units** fitted, irrespective of manufacture of detector.

<table>
<thead>
<tr>
<th>Rotary switch (S5) setting</th>
<th>detector manufacturer</th>
<th>detector range</th>
<th>comment</th>
<th>link LK1 on interface board</th>
<th>type of detectors tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Gent</td>
<td>XEN-DET-XXX range</td>
<td></td>
<td>1-2</td>
<td>whole range</td>
</tr>
<tr>
<td>1</td>
<td>Hochiki or Apollo</td>
<td>CD range Series 20</td>
<td></td>
<td>1-2</td>
<td>optical and heat</td>
</tr>
<tr>
<td>2</td>
<td>Menvier</td>
<td>Series 700</td>
<td></td>
<td>1-2</td>
<td>optical</td>
</tr>
<tr>
<td>3</td>
<td>Nittan</td>
<td>NH-G Series</td>
<td></td>
<td>1-2</td>
<td>Heat</td>
</tr>
<tr>
<td>4</td>
<td>Notifier</td>
<td>EC range</td>
<td><strong>Without resistor fitted to detector base</strong></td>
<td>1-2</td>
<td>Heat</td>
</tr>
<tr>
<td>5</td>
<td>Thorn</td>
<td>Series 300</td>
<td></td>
<td>2-3</td>
<td>Optical</td>
</tr>
<tr>
<td>6</td>
<td>Gent</td>
<td>XEN-DET-XXX range</td>
<td></td>
<td>1-2</td>
<td>whole range</td>
</tr>
<tr>
<td>7</td>
<td>Gent</td>
<td>XEN-DET-XXX range</td>
<td></td>
<td>1-2</td>
<td>whole range</td>
</tr>
<tr>
<td>8</td>
<td>Gent</td>
<td>XEN-DET-XXX range</td>
<td></td>
<td>1-2</td>
<td>whole range</td>
</tr>
<tr>
<td>9</td>
<td>Gent</td>
<td>XEN-DET-XXX range</td>
<td></td>
<td>1-2</td>
<td>whole range</td>
</tr>
<tr>
<td>A</td>
<td>Gent</td>
<td>XEN-DET-XXX range</td>
<td></td>
<td>1-2</td>
<td>whole range</td>
</tr>
<tr>
<td>B</td>
<td>Gent</td>
<td>XEN-DET-XXX range</td>
<td></td>
<td>1-2</td>
<td>whole range</td>
</tr>
<tr>
<td>C</td>
<td>Gent</td>
<td>XEN-DET-XXX range</td>
<td></td>
<td>1-2</td>
<td>whole range</td>
</tr>
<tr>
<td>D</td>
<td>Gent</td>
<td>XEN-DET-XXX range</td>
<td></td>
<td>1-2</td>
<td>whole range</td>
</tr>
<tr>
<td>E</td>
<td>Gent</td>
<td>XEN-DET-XXX range</td>
<td></td>
<td>1-2</td>
<td>whole range</td>
</tr>
<tr>
<td>F</td>
<td>Gent</td>
<td>XEN-DET-XXX range</td>
<td></td>
<td>1-2</td>
<td>whole range</td>
</tr>
</tbody>
</table>

**NOTE:** On changing the rotary switch setting, the interface unit must be completely powered-down, both mains and battery supply, and then powered-up again. Also the loop on which the unit resides must be reallocated.

**Other manufacturers MCP**

- Where an input circuit is required to have other manufacturers manual call points, then a **3.9V zener diode** should be fitted in series with the **contacts** of the call point. There should be no other components fitted to the call point contacts.

**NOTE:** Where NITTAN detectors and manual call point are installed on input circuit, the Vigilon system will not be able to differentiate between a fire from a call point or detector.

**IO Line tests**

- Test the IO line as per project specification. The tests should be based on the type of equipment interfaced, for example the interface may control air conditioning system, escalator, fire door release or sprinkler system.
VIG-INT-1CH Single channel interface

- Open the front cover and make the cable connections to the loop circuit.

**NOTE:** The loop and input line cable screens must be earthed.

**Single channel interface**

**Loop circuit connections**

- SW1
- RL2
- D22: Red LED
- P2: NO, COM, NC, P3

**Output circuit**
- (operates with alarm)
- Rated: 5A @ 24Vdc
- 5A @ 250Vac

**See input line connections below**

**Single input using a line module**

**Multiple inputs**

- 470Ω Resistor
- End-of-line Capacitor diode unit

**Figure 3-6 Single channel interface board**

Vigilon System Commissioning
Power-up

- Connect the mains supply and power-up the panel.
- Indications given on the master repeat card:
  - green (power on) LED will be lit
  - amber (watchdog) LED will be lit momentarily
  - red (loop communication failed) LED will be lit
  - the local buzzer will sound for a short duration, if enabled
  - after a short duration a message will appear on the mimic panel:
    
    OFF LINE

- Connect the battery supply.

Fault messages

<table>
<thead>
<tr>
<th>Message</th>
<th>Meaning</th>
<th>Possible cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comms fault</td>
<td>Communications failure between mimic display and mimic control units</td>
<td>There is a wiring fault between mimic display unit and mimic control unit</td>
</tr>
<tr>
<td>Disp Ack Fault</td>
<td>The mimic display fails to acknowledge communications from the mimic control unit</td>
<td>There is a communication failure between display board (display unit) and small interface board in the (control unit)</td>
</tr>
<tr>
<td>MRC I/F fault</td>
<td>The A4 mimic interface card in the control unit has detected a fault with the master repeat card</td>
<td>Bad ribbon cable connection or the master repeat card is faulty</td>
</tr>
<tr>
<td>System error #1</td>
<td>Mimic display unit ROM fault</td>
<td>Faulty micro processor in the display unit</td>
</tr>
<tr>
<td>System error #2</td>
<td>Mimic display unit RAM fault</td>
<td></td>
</tr>
<tr>
<td>System error #3</td>
<td>Hardware fault</td>
<td></td>
</tr>
<tr>
<td>System error #4</td>
<td>Spurious interrupt</td>
<td>These faults are normally transient and infrequent. Regular occurrence of such faults should be reported.</td>
</tr>
<tr>
<td>System error #5</td>
<td>Data corruption</td>
<td></td>
</tr>
<tr>
<td>System error #6</td>
<td>Task stalled</td>
<td></td>
</tr>
</tbody>
</table>

- Close the door on the unit and lock it.
Set the rotary switch SW1 (on the interface board) for the required input.

<table>
<thead>
<tr>
<th>Rotary Switch (SW1) position</th>
<th>Input circuit function. To monitor:</th>
<th>mode of input circuit operation</th>
<th>normal status of the input signal</th>
<th>delay (seconds) before signal is accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Off</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Off</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Multiple inputs</td>
<td>Fire</td>
<td>N/O</td>
<td>0s</td>
</tr>
<tr>
<td>3</td>
<td>Multiple inputs</td>
<td>Fire</td>
<td>N/O</td>
<td>30s</td>
</tr>
<tr>
<td>4</td>
<td>Single input</td>
<td>Fire</td>
<td>N/O</td>
<td>0s</td>
</tr>
<tr>
<td>5</td>
<td>Single input</td>
<td>Fire</td>
<td>N/O</td>
<td>30s</td>
</tr>
<tr>
<td>6</td>
<td>Single input</td>
<td>Fire</td>
<td>N/C</td>
<td>0s</td>
</tr>
<tr>
<td>7</td>
<td>Single input</td>
<td>Fire</td>
<td>N/C</td>
<td>30s</td>
</tr>
<tr>
<td>8</td>
<td>Single input</td>
<td>Fault</td>
<td>N/O</td>
<td>0s</td>
</tr>
<tr>
<td>9</td>
<td>Single input</td>
<td>Fault</td>
<td>N/O</td>
<td>30s</td>
</tr>
<tr>
<td>A</td>
<td>Single input</td>
<td>Fault</td>
<td>N/C</td>
<td>0s</td>
</tr>
<tr>
<td>B</td>
<td>Single input</td>
<td>Fault</td>
<td>N/C</td>
<td>30s</td>
</tr>
<tr>
<td>C</td>
<td>Single input</td>
<td>Supervisory</td>
<td>N/O</td>
<td>0s</td>
</tr>
<tr>
<td>D</td>
<td>Single input</td>
<td>Supervisory</td>
<td>N/O</td>
<td>30s</td>
</tr>
<tr>
<td>E</td>
<td>Single input</td>
<td>Supervisory</td>
<td>N/C</td>
<td>0s</td>
</tr>
<tr>
<td>F</td>
<td>Single input</td>
<td>Supervisory</td>
<td>N/C</td>
<td>30s</td>
</tr>
</tbody>
</table>

N/O = Normally open      N/C = Normally closed

**NOTE:** An input circuit is monitored for both open or short circuit faults.

**Configurations**

The single channel interface unit can be configured to operate:

- Single input
- or Multiple input
- with Output signal via relay change over contacts

**Input/Output line test**

At an appropriate stage of commissioning the interface input and output circuits must be tested as per project specification. The tests are based on the type of equipment interfaced.

**Single input**

**NOTE:** When the single channel interface unit is configured to accept single input then a line module must be used.

**Line module switch**

The line module may be installed in a remote location up to 100m cable distance away. Its two position switch must be set to input.
**Multiple inputs**

*NOTE:* When the single channel interface unit is configured for multiple inputs then an end-of-line capacitor unit must be used.

*NOTE:* The multiple inputs may be from manual call points with an in line 470 ohms resistor connected.

**Output circuit**

The single channel interface unit output operation is via a relay. The relay contacts are voltage free and rated:

- 5A at 24Vdc

*NOTE:* The relay output of the interface will operate with a sector. Therefore the single channel interface outstation will need to be configured to a sector.

*NOTE:* A local switching facility to select the input/output mode of operation is not provided. The single channel interface unit operates both input and output circuits.
VIG-INT-ZONE Loop powered zone module

- Open the front cover.
- Make the cable connections to the loop circuit.

**NOTE:** The loop and input line cable screens must be earthed.

**NOTE:** An end-of-line capacitor unit must be connected to the end of the detection (zone) circuit.

![Diagram of loop circuit connections](image)

**Detection (zone) circuit**

![Diagram of detection circuit](image)

**NOTE:** The Vigilon system is unable to distinguish between a fire input from manual call points and detectors connected to the zone circuit of the loop powered zone module.

**Zone circuit**

The zone circuit can accept up to **20 conventional devices**, such as GENT XEN-DET-XXX range of conventional fire detectors and manual call points (the latter fitted with 3.9V zener or 470 R resistor in series with its contact).
Ensure the cable connecting to the IO lines of the interface unit is **EMC compliant**.

### Dual-in-line switches
- Set the dual-in-line switches S1 and S2 (on the interface board) for the required input or output on each channel.
**NOTE:** The supervisory mode is a non fire input used to trigger a command build.

**NOTE:** On changing the setting of switches S1 and S2 the loop must be reallocated.

### Keyswitch application

- Where keyswitches are being used, they must be connected to connectors P1 (for channel 1), P2 (for channel 2), P3 (for channel 3) and P4 (for channel 4).
- Fit the keyswitch door to the interface unit. The door can accommodate 4 off 2-way keyswitches or 2 off 3-way keyswitches, see keyswitch door option.

**NOTE:** A line module must not be used on a channel that has a keyswitch connected to connectors P1, P2, P3 and P4.

- For keyswitch input, the interface board *dual-in-line switches S1/S2* must be set to a **normally open input**.

### Line module

- If a line module is used, set its switch S1 to the same, input or output, setting as the interface channel to which it is connected.
- The line module may be installed in a remote location up to **100m** cable distance away.

**NOTE:** A maximum of **1Km** cable usage per loop is allowed for the connection of line modules installed in remote locations and 19245-06 power supply input output lines.

### IO line test

- Test the IO line as per project specification. The tests should be based on the type of equipment interfaced, for example equipment such as air conditioning system, escalator, fire door release or sprinkler system.
Assuming a keyswitch door is to be fitted to a loop powered interface unit or the rack interface:

- Remove the appropriate blanking plate from the door.
- Fit onto the keyswitch door the keyswitch, lock nut, label holder and dress-nut.
- Replace the original interface door with a keyswitch door.
- Fit the wires from keyswitches to connectors P1 - P4 or CH1-CH4 (Rack only) on the interface board.
Partially slide each card into the respective socket. The rack unit can accommodate up to 10 cards.

NOTE: The interface cards must be installed with ribbon header at the front for connection to the front line terminal modules.

Connect each interface card to either the respective line-terminal module or keyswitch. Then fully slide the interface card into the rack and ensure it is fully seated into its socket.

NOTE: A keyswitch door option can be fitted to this rack unit. The door can accommodate up to 28 off 2-way keyswitches or 20 off 3-way keyswitches, limited by 40 inputs, see keyswitch door option.
VIG-MIM/ZONE Mimic or Zonal panel

See also Mimic configurer part of this manual.

- Unhook the front cover.

**Zonal panel**

**NOTE:** The zonal panel is supplied with the pre-programmed EPROM and the zone designation plan fitted.

**Mimic panel**

- A custom site plan must be fitted in-between the two translucent sheets of the panel front cover. Also a custom EPROM must be fitted on the master repeat card, see Mimic configurer part of this manual.

**NOTE:** Ensure the custom site plan is fitted to the panel to coincide with the LED matrix.

- Open the hinged inner door.

- Connect the mains supply and power-up the panel.
  - the green and amber LEDs on the master repeat card are lit
  - the local buzzer sounds for a short duration
  - after a short duration a message will appear on the mimic panel: OFF LINE

- Operate the keyswitch on the panel, this will:
  - cancel the local buzzer
  - and carry out lamp test.

- Connect the battery supply.
VIG-MIM-A4  A4 Mimic panel

See also Mimic configurer part of this manual.

The A4 Mimic panel set consists of:

- A4 Mimic display unit - which requires:
  - Site plan kit to make it into an A4 Mimic panel
  - or Zonal kit to convert to an A4 Zonal panel

- A4 Mimic control unit

A4 Mimic display unit

This unit requires a custom site plan or a zonal plan to be fitted to the LED housing.

To fit the site plan

a) Remove the protective cover fitted to the mimic display unit and open the door.

b) Remove the 8-screws that secure the LED housing to the door frame. The LED housing may be hinged back into the backbox and allowed to rest on the foam block to ease installation of the A4 site plan.
c) Remove the backing from one side of an A5 adhesive sheet. Apply to the reverse side of the printed A4 site plan or zonal plan sheet, so that when attached to the LED blocks it will be in the position shown by the dotted line, see Figure 3-3. Press the adhesive sheet down firmly.

d) Remove the remaining backing from the adhesive sheet attached to the plan sheet.

e) Align and fit the plan sheet to the LED blocks and smooth out any air bubbles.
NOTE: If slight repositioning is required, the low-tack adhesive sheet allows the plan sheet to be removed and replaced as required.

Local buzzer disable

f) If required, insert a link to short pins P3 on the mimic display PCB to disable the local buzzer.

NOTE: With the buzzer disabled there will be no local buzzer indication in the event of a fire or fault condition.

g) Refit the LED housing to the door frame using screws previously removed.

h) Ensure the cable connections from the Mimic control unit are made at the Mimic display unit.

NOTE: Ensure the cable screen is earthed to both the control unit and display unit.

i) Close and lock the door.

A4 Mimic Control unit

This unit requires a custom EPROM to be fitted to the master repeat card, in the mimic control unit, see also the Mimic configurer part of this manual.

- Open the mimic control unit door.
- Make the cable connections between the A4 Mimic display unit and the mimic control unit. Connect also the loop and mains supply cables.
- Check all internal connections are secure.
If required, insert a link to short pins P1 on the master repeat card PCB to disable the local buzzer.

**NOTE:** Placing a link across P1 will disable the local buzzer.

**NOTE:** Under mains fail condition, that is with only the green power and yellow fault LEDs On, the optional battery if installed will provide a standby supply to the unit for up to **72 hours plus 0.5 hour alarm load**.

**NOTE:** If the local buzzer is enabled, then there is no means of locally cancelling the buzzer during local fault condition. The buzzer is automatically cancelled when the main panel buzzer is cancelled.
Preparation

To commission the beam sensor pair check the following:

- The control panel Loop processor and Local controller cards have software version 3.4x or later.

**NOTE:** The VIG-BEAM Beam sensor is a Type 3 sensor and it is SAFE compatible.

- The beam transmitter and receiver heads are installed on the same loop circuit.

- A two way radio is available for communication, while one person aligns the beam sensor head, another person operates the controls and read measurements given at the control panel.

The terms ‘head, device and outstation’ are used interchangeably.

These procedures assume the heads are mounted on the angle brackets. Similar procedures are applicable for the IP rated and parallel brackets.

Identification

- The beam sensor heads each has a **black plastic circular label** surrounding the lens for identification.

- The 2-way base has is a **black plastic cover** fitted over the electronics.
Beam sensor alignment

NOTE: Before aligning the sensor heads check to ensure all **bracket** and **base** fixing screws are securely fitted. After alignment ensure the pivot pins and adjusters are secure.

Initial alignment

a) Using the adjuster on the bracket, roughly align one head to face the other head. To do this:

- slacken the locknuts to unscrew the Y-adjusters
- to make a large adjustment remove the centre pin of the Y pivot
- align the head in the Y-axis to face the opposite head
- secure the centre pin into the appropriate Y-pivot, to enable adjustment
- turn the adjusters to meet the centre pin and lock the axis adjusted using the lock nuts.
- repeat procedure for the X-adjusters
- repeat the whole procedure for the opposite head.

Figure 6-2 Beam sensor with bracket assembly
Fine adjustment  

g) Unlock the lock nuts to allow Y axis adjustment and using the adjusters move the transmitter head in a Y direction, then:

- stop on reaching a time average reading 5 bits below the peak value
- while counting the number of turns, adjust in the opposite direction to reach 5 bits below the peak value
- finally turn the adjuster half the number of counted turns, towards the peak and then stop
- secure the axis adjusted using the lock nuts

h) Repeat g) for adjustment in the X direction.

i) Repeat g) and h) at the receiver head.

l) Carry out a final [Autogain]. Then recheck the time average reading is within 140 to 170 band.

m) Back up the appropriate loop processor card LPC (which holds the gain data) to the RAM using [Back Up] command in the [Set Up] menu.
Select Gain

b) Select a gain from the table for the required path. Set the gain of the receiver head, select [Test/Eng] -> [Gain] and enter gain value.

CAUTION: On changing the gain of the beam receiver, do not:
- power-down the control panel
- or reset the local controller card
- or reallocate or reset the loop having beam sensors

until gain changed acknowledge followed by the gain number is display. Otherwise a ‘Memory corrupt’ message will appear on the display.

<table>
<thead>
<tr>
<th>Gain</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-9</td>
<td>2m</td>
</tr>
<tr>
<td>29-33</td>
<td>10m</td>
</tr>
<tr>
<td>56-60</td>
<td>100m</td>
</tr>
</tbody>
</table>

Course adjustment

c) Use the [Align] function in the [Test/Eng] menu and enter the two sensor head addresses. Note the LEDs on the heads will flash once every 2 seconds:

- a 1.9 seconds LED flash will be seen for a large signal
- a 100mS LED flash will be seen for a small signal.

d) Adjust the transmitter head in X and Y directions to obtain a long LED flash signal, allow at least 3 seconds for the flash rate to change. Then lock the adjusters using the lock nuts.

e) Repeat d) for the receiver head, to obtain a maximum flash length.

Time averages

f) Using the [Info] menu, read the time averages on channel 2 of the receiver head, this should be between 140-170. After each adjustment wait for 5 seconds for a change in the reading.

NOTE: For time average reading above 200 bits, carry out an [Autogain] using the [Test Eng] menu. This will minimise the fine adjustment.

CAUTION: Never [Autogain] a range of outstations.
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