### Applications

The ALPHA series fire alarm systems are the ideal choice for small to medium size buildings such as:
- Rest homes
- Motels
- Boarding houses
- Hostels
- Town houses
- Factories
- Warehouses

### Complies with NZ Building Code and NZS 4512

Properly installed fire alarm systems using ALPHA 1 and approved manual call points and alerting devices can comply with the requirements of the NZ Building Code where fire safety precaution type 1 is specified. ALPHA 1 also complies with NZS 4512:1994 Part 3 and is FPIS listed for use in non-monitored manual fire alarm systems.

Properly installed fire alarm systems using ALPHA 4 and approved fire detectors and/or manual call points and alerting devices can comply with the requirements of the NZ Building Code where fire safety precautions types 2, 3, or 4 suffix e or f are specified. ALPHA 4 also complies with NZS 4512:1997 Part 2 and is FPIS listed for use in automatic and self-monitored manual systems.

### Ordering Information:

#### Panels and Accessories

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>ALPHA 1</th>
<th>ALPHA 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP0673</td>
<td>ALPHA 1 Fire Alarm System</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>FP0674</td>
<td>ALPHA 4 Fire Alarm System</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>FP0642</td>
<td>ALPHA 4 Mimic Display Panel</td>
<td>✓</td>
<td>no</td>
</tr>
<tr>
<td>FA1378</td>
<td>ALPHA 4 Mimic Display Spare Index</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>FP0549</td>
<td>Test Probe</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>LT0182</td>
<td>Alpha Fire Alarm System Technical Manual</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>RR0753</td>
<td>Circuit EOLR 2k7</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>RR0045</td>
<td>Evacuation EOLR 10k</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>RR0048</td>
<td>Evacuation EOLR 18k</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>RR0050</td>
<td>Evacuation EOLR 27k</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>PA0729</td>
<td>12V EOL Supervision Relay</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>PA0762</td>
<td>ALPHA 1 PCB Assembly</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>PA0763</td>
<td>ALPHA 4 PCB Assembly</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>HW0036</td>
<td>Spare door key</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>HW0213</td>
<td>Spare keyswitch key</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Expected Times for Standby Operation (assumes a battery in good condition)

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Battery Capacity</th>
<th>ALPHA 1</th>
<th>ALPHA 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>No smoke detectors (ALPHA 1), 5 x 2-wire smoke detectors (ALPHA 4), 1A sounder load.</td>
<td>2.2Ah</td>
<td>45 days</td>
<td>72 hours</td>
</tr>
<tr>
<td>No smoke detectors (ALPHA 1), 5 x 2-wire smoke detectors (ALPHA 4), 2A sounder load.</td>
<td>4Ah</td>
<td>2 months</td>
<td>120 hours</td>
</tr>
<tr>
<td>No smoke detectors (ALPHA 1), 5 x 2-wire smoke detectors (ALPHA 4), 3.5A sounder load.</td>
<td>6.5Ah</td>
<td>3 months</td>
<td>180 hours</td>
</tr>
<tr>
<td>5 x 4-wire smoke detectors (ALPHA 1), 40 x 2-wire smoke detectors (ALPHA 4), 3.5A sounder load.</td>
<td>6.5Ah</td>
<td>2 months</td>
<td>150 hours</td>
</tr>
</tbody>
</table>

Manufactured by: Vigilant Fire & Evacuation Systems, 211 Maces Road, PO Box 19-545, Christchurch, New Zealand
Telephone +64-3-389 5096 Facsimile +64-3-389 5938

Distributed in New Zealand by: Grinnell Supply Sales, 4 Portage Road, PO Box 15-492, Auckland, New Zealand.
Telephone +64-9-827 2290 Facsimile +64-9-827 2288
Installation

ALPHA is designed for surface mounting, but can also be inset if required. This page has a full size hole marking template, when using the mounting holes in the rear of the cabinet.

The location of ALPHA should be chosen with these factors in mind:
- Avoid excessively hot locations; this greatly reduces battery life.
- Avoid humid or damp locations; condensation can cause faults or incorrect operation.
- Avoid direct sunlight on the front panel; this can make the indicators hard to read.
- Allow for adequate clearances and easy access.

Connect the 3-way mains connector block to the incoming mains lead, before fitting the connector to the circuit board, as shown in these diagrams.

**WARNING:** REMEMBER TO ISOLATE THE SUPPLY CIRCUIT BEFORE WIRING THE ALPHA.

Recommended Mounting Clearances

Recommended Cable Routing Options within Cabinet

Configuration

- Lk1 EVAC MON/NORM: If defect monitoring of the alerting devices wiring is required, fit the link to the upper position EVAC MON (EOL resistors are then required on alerting device circuits - see the wiring diagram). Otherwise, fit this link to the lower position NORM.
- Lk2 NLT (ALPHA 1): See Operation (back page).
- Lk3 S/C ALM (ALPHA 1): If detectors with normally open contacts (closing on alarm) are being used, connect them according to the wiring diagram, and fit this link to select a short circuit to be an alarm instead of a defect.
Detector and Alerting Device Wiring

This diagram shows the general format for connecting alerting devices and detectors. Unless otherwise stated, the wiring examples apply to both ALPHA 1 and ALPHA 4. Detectors can be connected in any order.

Note 1: If Evacuation Monitoring is selected (see Configuration), all alerting devices must have a diode fitted in series as shown. A 1N4004 type diode is suitable for most small bells and sirens. The correct EOLR value depends on the number of wiring branches: 1 branch - 10kΩ, 2 branches - 18kΩ each, 3 branches - 27kΩ each. Monitoring may be disabled if not required (see Configuration).

Note 2: If using a 4-Wire Detector and a 12V Detector Supply Supervision relay with ALPHA 4, do not use Indi-VIGIL or 2-Wire Smoke Detectors on the same circuit. The relay short-circuits the detector circuit to show a supply fault, which prevents any 2-Wire Detector from operating. Clean contact devices are not affected. A suitable relay is Vigilant part number PA0729 (see Accessories).

Note 3: Use of 4-Wire Smoke Detectors with normally open contacts does not comply with NZS4512.

Note 4: Detector Circuit Limits: Thermal Detectors or Manual Call points: any number. 4-Wire Smoke Detectors: any number, but quiescent current reduces standby operation time. 2-Wire Smoke Detectors or Indi-VIGIL (ALPHA 4 only): up to 1.2mA total quiescent current per circuit (= 10 System Sensor detectors or 48 Indi-VIGIL detectors). Loop resistance limit for both types is 32Ω.

Note 5: For NZS4512 compliance detectors must have a minimum operating voltage of 9.6V or less. No currently available 4-wire smoke detectors meet this requirement.

Commissioning

Initial Powering Up

- Operate the external Silence Alarms keyswitch before initially applying power to the ALPHA, to prevent accidental operation of the alerting devices.
- Connect the battery leads to a charged battery. The Defect LED should start flashing immediately (due to Silence Alarms being operated).
- Switch the mains on. The Defect flash should change to the “mains on” pattern.

Fault Finding

- If any Circuit Alarm LED goes on, check that circuit wiring for open circuit, (or short circuit if S/C ALM is selected on ALPHA 1).
- If no Circuit Alarm LED is on, turn the Silence Alarms switch to normal. If there are no other faults, the Defect LED will go out, and the Normal LED come on. If not, check the Defect LED flashes to identify the type of fault (see Defect under Operation).
**Operation**

Indicators

- **Normal** -
  - On steady, "winking" off every 8 seconds: mains on.
  - On steady, "winking" off every 2 seconds: battery test in progress.
  - Off, winking on every 4 seconds: mains off.
  - Off steady: the panel is in defect, or alarm, or alarms are silenced, or non-latching test mode is on, or detector gating/reset is in progress (*ALPHA 4*).

- **Defect** - Gives a set of five flashes if a defect is present. These repeat after 2 seconds (mains on) or 25 seconds (mains off). Each flash represents a type of defect; a long flash means that a particular type of defect is present. Historical information is also displayed in the same format if the NLT link/switch is fitted/operated.
  - 1st = Circuit Defect
  - 2nd = Battery Low / Disconnected or Fuse Blown
  - 3rd = Evacuation Defect
  - 4th = Silence Alarms operated
  - 5th = Hardware Defect

- **Circuit Alarm** - On steady: a detector on this circuit has operated. Winking on with the first defect flash (when NLT is on): this circuit is in defect or has had a defect since the last Reset.

- **Buzzer** - Single beep: a defect is present. Double beep: non-latching test mode is on. Continuous beeping (*ALPHA 4*): the door is closed with the internal Silence Alarms switch on.

**Controls**

- **Silence Alarms/Reset** keyswitch (*ALPHA 1*) - Prevents the alerting devices from operating, immediately, if they are already on, otherwise after 1½ seconds. A single beep and the Defect LED show when this has happened. Restoring the switch to normal resets latched (not current) alarms, and historical defect indications. Alerting devices are re-enabled after 5 seconds.
  - For (Trial) Evacuation, turn the keyswitch on for 1 second then off again.

- **Silence Alarms** keyswitch and internal switch (*ALPHA 4*) - Either control prevents the alerting devices from operating. A defect is shown while the keyswitch is operated. Internal Silence Alarms switch is interlocked with the door.

- **Evacuation** keyswitch (*ALPHA 4*) - Unconditionally operates the alerting devices.

- **Reset** button (*ALPHA 4*) - Clears latched (not current) alarm indications, and historical defect indications.
  - Two presses 10 seconds apart are needed to clear alarms from 4-wire smoke detectors.

- **NLT** switch/link - Enables non-latched test mode if system is normal. Alerting devices operate for ½ second when any detector operates, but Alarm indicators latch. Smoke detectors are automatically reset on *ALPHA 4*. Also enables display of latched as well as current defects (Circuit Alarm LEDs show which circuits have or have had defects).

- **Lamp Test** (*ALPHA 4*) - Operate both External and Internal Silence Alarm switches to illuminate all LEDs.

**Regular Testing**

Use the FP0549 Test Probe to test the detector circuits and evacuation monitor (if enabled). Operate the Silence Alarms control to prevent disturbance from the alerting devices when testing for alarm.

**TO TEST** | **CONNECT CROCODILE CLIP TO** | **TOUCH PROBE TO** | **EXPECTED RESPONSE**
---|---|---|---
Detector Circuits on *ALPHA 1* | J16 (0V) or Battery (-)ve | Each CCT+ | Defect, or Alarm if S/C ALM link fitted
Detector Circuits on *ALPHA 4* | J16 (0V) or Battery (-)ve | Each CCT+ | Circuit Alarm after ~7 seconds gating delay
Evac. Monitor | J16 (0V) or Battery (-)ve | C/BELLS+ | Defect

- **WARNING** -

NZS4512 and the NZ Building Code contain important requirements for the installation, commissioning, and testing of fire alarm systems. You must comply with the requirements of these documents, and any other statutory or regulatory requirements, in addition to the information contained in these instructions.

*ALPHA* has no date functions, so is not affected by the “Year 2000” problem.