Introduction
The AZM800 is an MX addressable module which integrates many of the key functions required for Type 5 fire alarm systems as defined in the NZ Building Code Compliance Documents. These are typically used for apartments or other residential occupancies.
These functions include:
- Switching and supervision of a 100V speaker line spur
- Built-in addressable loop short circuit isolator (SCI)
- (optional) connection of conventional heat/smoke/MCP detector circuit
- (optional) smoke alarm silence hush button – integrated or remote
- (optional) local control relay output (unsupervised)

Figure 1 shows a representative schematic of various Type 5 system arrangements in a typical apartment complex, using AZM800 Apartment Zone Modules.
This shows the flexibility of the arrangements. In particular the use of conventional and/or analogue addressable detectors, and the centralised 100V line tone generator which is controlled globally by the fire panel (2 tones) and selectively switched by AZM800s to individual apartments (and common areas) as required.

**Figure 1 – Representative Wiring using AZM800s in an Apartment Complex**

See the back page of these instructions for ordering codes and other product information.
Compatible Detectors
The AZM800 is compatible with the types and quantities of detectors listed in Table 1. Detector numbers depend on AZM800 detector configuration.

The total standby current of all detectors connected to an AZM800 must not exceed 700µA for the Normal detector circuit setting or 150µA for the Low Current detector circuit setting.

<table>
<thead>
<tr>
<th>Brand</th>
<th>Detector Type</th>
<th>Alarm Type</th>
<th>Standby current (µA)</th>
<th>Max. Number (Normal setting)</th>
<th>Max. Number (Low Current setting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Sensor</td>
<td>2351E</td>
<td>Smoke/Heat *</td>
<td>65</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2351TEM</td>
<td>Smoke/Heat *</td>
<td>80</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>4351E</td>
<td>Heat *</td>
<td>90</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>5351E</td>
<td>Heat *</td>
<td>80</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1151</td>
<td>Smoke</td>
<td>40</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2151</td>
<td>Smoke</td>
<td>45</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>Tyco</td>
<td>614CH</td>
<td>CO/Heat *</td>
<td>70</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>614P</td>
<td>Smoke</td>
<td>60</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>614T</td>
<td>Heat *</td>
<td>85</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Vigilant</td>
<td>Indi-VIGIL Mk2 Heat Detector</td>
<td>Heat/MCP</td>
<td>18</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>1841 Indicating Manual Call Point</td>
<td>Heat/MCP</td>
<td>18</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>PA1022 Clean Contact Adaptor</td>
<td>Heat/MCP</td>
<td>18</td>
<td>35</td>
<td>8</td>
</tr>
</tbody>
</table>

* these heat detectors will not produce a brigade alarm unless the AZM800 is specially configured, in which case, any smoke or heat alarm on that AZM800 will produce a latching brigade alarm.

Mounting Requirements
The AZM800 mounts on a standard single electrical flush box. Since each AZM800 will have at least 5 and up to 8 cables connected to it, the flush box must have enough room for these cables or have an open back.

Some suitable flush box parts are: PDL cat 145V, Superlux FB-0.

There are some types of mounting plate with metal clips that clip onto the wallboard. The metal clip on the front side of the wallboard may make contact with the circuit board of the AZM800 when it is fitted, causing faults and other incorrect operation. These types of mounting are not recommended.

Penetrations in fire-rated walls may require fire stopping, e.g., fire rated flush boxes with intumescent pads.

Converting to Blank Cover
If the internal silence/hush button in the AZM800 is not required, it can be disabled as follows:
- Remove the single hole coverplate,
- Peel off the labelled button overlay,
- Remove the push button actuator,
- Fit the blank coverplate supplied.

Wiring
The AZM800 uses four demountable connectors for field wiring. These connectors must be terminated to the building cables, then plugged into the AZM800. Four coloured cable ties (supplied with each AZM800) should be
used to tag the cables wired to each connector, to match the colours printed on the AZM800 circuit board (see Figure 4b). This is very important for technician safety (100V line) and for ease of future servicing. General wiring of field devices (detectors and loudspeakers) is shown in Figure 2. Wiring details for these four connectors are shown in Figure 3.

Figure 2 – Wiring of Local Detector and 100V Speaker Circuits

Notes
1. A single branch of speaker wiring uses 56kΩ EOLR (marked green-blue-black-red). A dual branch of speaker wiring uses 100kΩ EOLR (not supplied) on each branch.
2. Normal detector circuit uses a 9.1kΩ EOLR (marked white-brown-black-brown). Low Current detector circuit uses a 18kΩ EOLR (marked brown-grey-black-red). Detectors and manual call points can be connected in any order on the detector circuit.
3. When a Remote Hush Unit is not used, fit a 9.1kΩ Normalising Resistor (marked white-brown-black-brown).
4. Unused detector circuits should preferably be configured as Low Current. The default (Normal) detector circuit setting uses more current from the MX Loop.
A shows the wiring for the MX addressable loop cables.
Tag colour is BLUE.

B shows the wiring for the 100V feeder loop cables.
Tag colour is GREEN.

A – MX Addressable Loop
B – 100V Feeder Loop

C1 shows the wiring for the local 100V speaker circuit and the local control relay output.

C2 shows the wiring when the local control relay is not used.
Tag colour is YELLOW.

C1 – Speakers and Relay
C2 – Speakers only

D1 through D3 show wiring options for the local detector circuit and Remote Hush Unit.
Tag colour is BLACK.

D1 – Detectors only, no RHU
D2 – Detectors and RHU
D3 – No detectors, no RHU

Figure 3 – Wiring field cables to AZM800 Terminal Blocks

Fitting the AZM800
When all the terminal blocks are wired and tagged, these should be arranged as shown in Figure 4a, to match the connector positions on the AZM800.
Plug each terminal block into the corresponding connector of the AZM800. These are each labelled with the colour of the tag, as shown in Figure 4b.
When all terminals are correctly fitted, the AZM800 can be mated to the flush box and fastened in place with the mounting screws supplied.
Do not overtighten the mounting screws, since this may affect the operation of the internal hush button. After tightening the screws check the action of the hush button – there should be a noticeable click when it is pressed firmly. If the button does not click and it seems to be bulging, loosen the mounting screws until the action frees up.

**Figure 4a – Terminated Connectors ready for AZM800 to be fitted**

**Figure 4b – Colour Code Labels on AZM800**

**Configuration**

The following options can be configured at each AZM800:

1. Device Address – default 255 (=unallocated).
2. Hush Period: 2, 3, 4 or 5 minutes – default is 2 minutes.
3. Normal/Low Current detector circuit – default is Normal.
4. Non-latching or Latching smoke detector operation – default is Non-latching.
5. Ancillary relay output normally-open or normally-closed – default is normally-open.

Configuration of an AZM800 requires an 850EMT MX Engineering Management Tool, 801AP MX Service Tool, or other approved MX addressable module programming device.

The probe lead of the 850EMT or 801AP programming tool can be plugged into the AZM800 once the cover plate is removed (see Figure 5). It does not require removal from the wall.

It does not matter whether the AZM800 is connected to the MX loop or not. The programming tool will override the commands from the fire panel.

Note that the 801AP Service Tool will identify the AZM800 as an MIO800. The 850EMT Engineering Management Tool will correctly identify the AZM800.

**Figure 5 – Connecting the Programming Tool**
Setting the AZM800 Device Address

This is the same as for other MX addressable devices. For the 801AP, from the Main Menu of the Service Tool, select ADDRESS, WRITE, set the address, WRITE. For the 850EMT, select DEVICE STATUS, then Change Address, set the address, ENTER.

Setting other AZM800 Options

For the 801AP, from the main menu of the Service Tool, select DIGITAL OUTPUTS. For the 850EMT, from the home screen select TEST FUNCTIONS, followed by TEST DIGITAL OUTPUT. Set the programming tool to 00000000 and write this to the AZM800.

For each setting to be adjusted:

1. Set the programming tool to 00000001 (older 801AP Service Tool version 2.0) or 10000000, (850EMT all versions, or 801AP with software version 2.2 or later) and write this to the AZM800. The internal yellow Status LED should glimmer faintly. The next step must be completed within 90 seconds to be accepted by the AZM800.

2. Choose the appropriate value from Table 2 which matches the setting to be changed. Set the programming tool to this number and write this to the AZM800. The yellow Status LED will turn on steady for five seconds if this setting is accepted. If not, go back to the previous step and start again.

3. Set the programming tool to 00000000 and write this to the AZM800 to finish the sequence.

When all settings are correct, unplug the Service Tool from the AZM800.

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### Table 2 – Setting Values to write to the AZM800 with the programming tool

<table>
<thead>
<tr>
<th>Setting</th>
<th>Options</th>
<th>Older 801AP Service Tool (v2.0)</th>
<th>850EMT (all) or Newer 801AP Service Tool (v2.2 or later)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hush Period for Smoke Alarms</td>
<td>2 minutes (default)</td>
<td>00101000</td>
<td>000101000</td>
</tr>
<tr>
<td></td>
<td>3 minutes</td>
<td>01101000</td>
<td>000101100</td>
</tr>
<tr>
<td></td>
<td>4 minutes</td>
<td>00011000</td>
<td>00011000</td>
</tr>
<tr>
<td></td>
<td>5 minutes</td>
<td>01011000</td>
<td>00011010</td>
</tr>
<tr>
<td>Maximum Detector Standby Current</td>
<td>Normal Current 0.7mA (default)</td>
<td>00000100</td>
<td>00100000</td>
</tr>
<tr>
<td></td>
<td>Low Current 0.15mA</td>
<td>01001000</td>
<td>00100010</td>
</tr>
<tr>
<td>Smoke Alarm Behaviour</td>
<td>Non-Latching, hushable (default)</td>
<td>00001100</td>
<td>00110000</td>
</tr>
<tr>
<td></td>
<td>Latching, not hushable</td>
<td>01001100</td>
<td>00110010</td>
</tr>
<tr>
<td>Local Control Relay Output</td>
<td>Normally Open (default)</td>
<td>00000010</td>
<td>01000000</td>
</tr>
<tr>
<td></td>
<td>Normally Closed</td>
<td>01000010</td>
<td>01000010</td>
</tr>
</tbody>
</table>

**Commissioning**

There is no special adjustment required for commissioning.

MX Loop wiring faults can be traced by using the fire panel or MX Loop Tester to report which AZM800 addresses are missing. All these faults must be cleared first.

Do not test the tone generator and the sounder wiring until the MX Loop wiring is confirmed as correct. If the 100V feeder loop is accidentally connected to the MX Loop terminals of any AZM800, that module may be damaged if the tone generator is operated.
Fault Status Indicator

Each AZM800 will display any local off-normal conditions on its yellow Status LED when either the internal or remote Hush button is pressed. If there are any conditions to display the Status LED will flash 8 times. A long flash indicates that the corresponding condition is present.

**Table 3 - Interpretation of Internal Status LED flashes**

<table>
<thead>
<tr>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detector Circuit Open or Leaky</td>
<td>Detector Circuit Short</td>
<td>Speaker Circuit Open</td>
<td>Speaker Circuit Short</td>
<td>Remote Hush Circuit Open</td>
<td>Remote Hush Circuit Short</td>
<td>AZM800 Internal Defect</td>
<td>Heat Detector/MCP Activated</td>
</tr>
</tbody>
</table>

Each AZM800 will report local wiring faults to the fire panel encoded in its local detector circuit analogue point value as shown below:

**Table 4 – Interpretation of Analogue Value Recalls at the Fire Panel**

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-29</td>
<td>Internal AZM800 fault</td>
</tr>
<tr>
<td>30-49</td>
<td>Remote Hush Shorted</td>
</tr>
<tr>
<td>50-69</td>
<td>Remote Hush Open</td>
</tr>
<tr>
<td>70-89</td>
<td>Local Speaker Shorted</td>
</tr>
<tr>
<td>90-109</td>
<td>Local Speaker Open</td>
</tr>
<tr>
<td>110-129</td>
<td>Detector Circuit Shorted</td>
</tr>
<tr>
<td>130-149</td>
<td>Detector Circuit Open or Leaky</td>
</tr>
<tr>
<td>150-175</td>
<td>Normal, self test passed</td>
</tr>
<tr>
<td>175-199</td>
<td>Normal</td>
</tr>
<tr>
<td>200-255</td>
<td>Alarm</td>
</tr>
</tbody>
</table>

Operation and Alarm Status Indicator

The red Alarm indicator is normally off. The fire panel may flash this indicator on poll, if it is configured to do so (not recommended, except for commissioning).

When a local (non-latching) smoke alarm is present, the Alarm indicator will flash rapidly, and the AZM800 will switch an Alert tone from the fire panel to the local loudspeakers. If the Silence button on the AZM800 or Remote Hush Unit is pressed, the Alarm indicator will flash slowly and the Alert tone in the loudspeakers will be silenced. If the hush period ends before the smoke is cleared, the fast flash and the Alert tone will resume. When the smoke is cleared, the flashing and the Alert tone will stop.

If a heat detector or MCP connected to the AZM800 is activated, the AZM800 will signal this to the fire panel, but it will not light its Alarm indicator unless commanded by the fire panel. The indicator on the activated heat detector or MCP will light as usual.

When a brigade alarm is present, the fire panel commands all AZM800s to switch Evacuation tone from the fire panel to all local loudspeakers. None of the AZM800s will light their Alarm indicators.
AZM800 Specifications

System Compatibility: Vigilant MX1 (firmware V1.20, or later), or Vigilant MX4428 (firmware V3.21, or later) with MXP (firmware V1.15, or later).

Environment: Indoor Application only.

Operating Temperature: -10° to +45°C.

Storage Temperature: -40° to +80°C.

Operating Humidity: 10% to 95% RH (non-condensing).

Format: PDL 600 series module.

Dimensions (HWD): 118 x 75 x 34 mm.

Mounting Requirements: Standard Aus/NZ single electrical flush box.

MX Loop Voltage: 22 to 40VDC.

Current from MX Loop: 4mA normal, 17mA alarm if local detector operated, 5mA alarm otherwise.

Detector Circuit Voltage: 12 to 14VDC depending on MX addressable Loop voltage.

Max. Detector Current: 0.7mA (normal setting, default), 0.15mA (low current setting) quiescent, 15mA (12mA nominal) in alarm.

Detector Circuit EOLR: 9k1Ω (normal setting), 18kΩ (low current setting).

Detector Circuit Resistance: 10Ω maximum.

Local 100V Loudspeaker Circuit Voltage: 10W load maximum @ 100V line. 56kΩ EOLR (presents 0.2W extra load). Supervised o/c or s/c = Fault.

Hush Period: Selectable 2 (default), 3, 4, or 5 minutes.

Local Control Relay Output: Can be set for Normally Open (default) or Normally Closed, 30VDC 1A resistive, 0.5A inductive.

Ordering Codes

FP0959 AZM800 Apartment Zone Module, including connectors, mounting screws, EOLRs for detector and speaker circuits, cable ID tags, spare blank cover plate, installation instructions.

FP0962 AZM800-RHU Remote Hush Unit.

FP0959 Contents

- 1 x AZM800 module with cover plate, white
- 2 x fastening screws for the flush box
- 1 x blank switchplate cover, white
- 4 x coloured cable ties: black, blue, green, yellow
- 4 x 4-way terminal blocks
- 2 x 9k1 EOLRs – detector circuit and/or remote hush circuit – marked white-brown-black-brown
- 1 x 18k EOLR – low current detector circuit - marked brown-grey-black-red
- 1 x 56k EOLR – local loudspeaker circuit - marked green-blue-black-red
- 1 x these Installation Instructions (LT0459)

FP0962 Contents

- 1 x AZM-RHU module with cover plate, white
- 2 x fastening screws for the flush box

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