

F16e Conventional Fire Alarm Control Panel



Overview

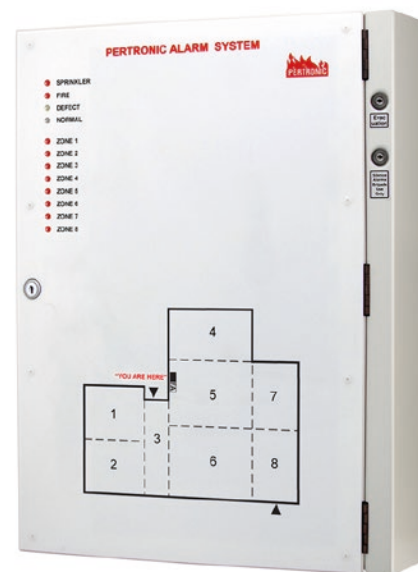
The Pertronic F16e is a conventional automatic fire detection and alarm system designed for small to medium applications.

The base F16e has 8 detection circuits. It is expandable in 8-circuit increments to a maximum 32 circuits, by adding 8-circuit expander modules.

F16e fire panels are available to comply with the requirements of the New Zealand Building Code and with New Zealand Standards NZS 4512:2010 and/or NZS 4512:1997.

The NZS 4512:2010 version of the F16e supports System Sensor smoke detectors, Pertronic indicating manual call-points (MCP), and Pertronic indicating heat detectors.

The NZS 4512:1997 version supports smoke detectors, both indicating and non-indicating MCPs, and heat detectors. An F16e may be configured with separate 2010 and 1997 master and extender boards to provide detection circuits to both standards.



F16e Fire Panel (Large Cabinet)

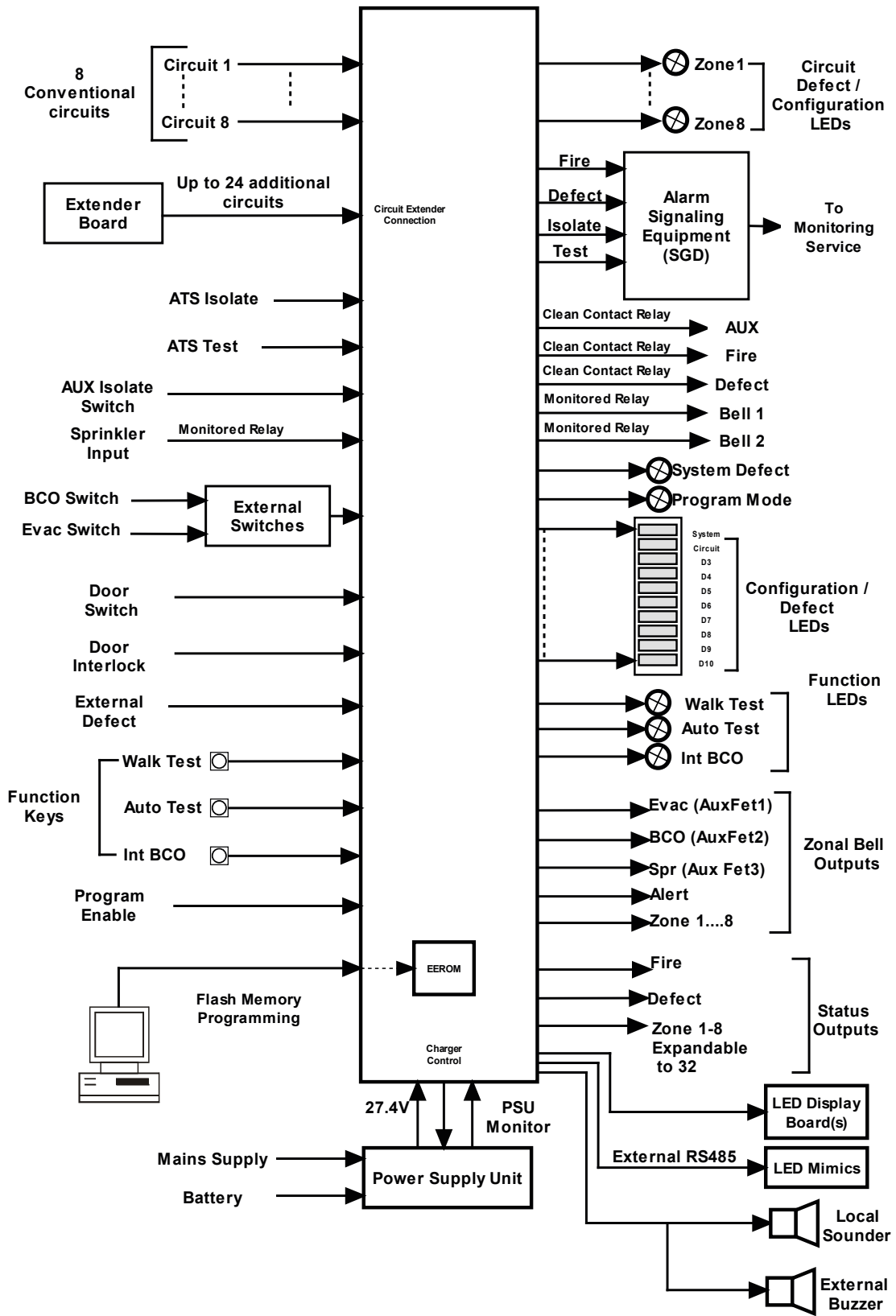
Features

- > Optional Front Service or Rear Service formats
- > 8 to 32 conventional detection zones terminated with 10 kΩ end-of-line (EOL) resistors
- > Automatic daily power supply & battery load test with automatic 'Battery Absent' detection circuitry
- > Alarm triggered by smoke detector with 1-second alarm verification or instant operation for indicating heat detector or indicating manual call points (MCP)
- > Two bell circuits, rated at 24Vdc, 5A, supervised with a 10kΩ, 1% EOL resistor
- > Each zone circuit accepts up to 40 System Sensor point smoke or heat detectors, and:
 - > A total of 50 Pertronic indicating MCPs and indicating heat detectors (NZS 4512:2010 standard), or
 - > An unlimited number of Pertronic non-indicating MCPs and heat detectors (NZS4512:1997 standard)
- > Recommended sounders:
 - > Pertronic EVAC50W24V or EVAC20W24V Amplifier and PSS1 or PSSB401 supervised 100V Line speakers
 - > Pertronic PS1 and PS2 sounders
- > FPA Listing Number: PI/125

Specification

| Electrical | |
|----------------------------|--|
| Power Supply | |
| Mini & Large Panel | 110-250 V ac, 50/60 Hz, 50 W |
| 900mm Panel | 110-250 V ac, 50/60 Hz, 150 W |
| Battery Charger | |
| Mini & Large Panel | 27.4 Vdc, 1.5 A temperature compensated |
| 900mm Panel | 27.4 Vdc, 4 A temperature compensated |
| Quiescent Current (Iq) | 35 mA at 24 Vdc, panel only, 8 circuits + 30 mA for each additional 8-cct module |
| Alarm Current | Iq + 84 mA @ 24 V dc Fire relays ON (excluding sounder load) |
| Battery (internal) | |
| Capacity | 2 x 12 V dc, 7 to 21 AHR |
| Type | Sealed lead acid (gel cell) |
| Mechanical | |
| Overall Dimensions | Front (FS) or Rear (RS) Service Cabinet |
| Mini Panel | 410 x 450 x 130 (H x W x D mm) |
| Large Panel | 600 x 450 x 130 (H x W x D mm) |
| 900mm Panel | 900 x 450 x 130 (H x W x D mm) |
| Weight (excluding battery) | |
| Mini Panel | 4 kg |
| Large Panel | 6 kg |
| Cabinet Material | 1.2 mm mild steel powder coated |
| Colour | Off White |
| Environmental | |
| Operating Temperature | 0 to +40 °C |
| Humidity | 10 to 95% RH (non-condensing) |

System Diagram



FI6e Standard Features

Detection Circuit

- > 8 to 32 circuits in increments of 8 circuits
- > Each extender board within a single panel may be configured to provide eight zone circuits, to either the NZS4512:2010 or NZS4512:1997 standards
- > Each zone circuit accepts up to 40 System Sensor point smoke or heat detectors, and:
 - > A total of 50 Pertronic indicating MCPs and indicating heat detectors (NZS 4512:2010 standard), or
 - > An unlimited number of Pertronic non-indicating MCPs and heat detectors (NZS4512:1997 standard)
- > A separate 20V regulator powers the detector circuits
- > The circuits use a floating 'datum' to monitor the detectors. This compensates for slow variations in environmental factors
- > All circuits must be terminated with 10 kΩ, 1 % EOL resistors
- > Each circuit may be individually isolated
- > Smoke detectors have 1-second alarm verification (AVF)
- > Heat detectors and MCPs give instantaneous (within 1 sec) response.
- > Zone circuit self-test on start-up and every 24 hours

Inputs

- > 'Internal Bell Cut-Off' and 'Silence Alarms' or 'External Bell Cut-Off' (BCO) switches
- > Trial Evacuation key-switch
- > Monitored DBA/Sprinkler input
- > Door Interlock input
- > External Defect input

Outputs

- > One (1) 'Fire' relay with changeover contacts rated at 30 V dc, 2.0 A, normally de-energised
- > One (1) 'Defect' relay with changeover contacts rated at 30 V dc, 2.0 A, normally energised
- > Two (2) monitored Sounder relays, 'Bell1' and 'Bell2', with voltage-reversal changeover contacts rated at 24 Vdc, 5 A. Mappable
- > One (1) non-monitored Auxiliary Form 'C' relay, 'AUX', with 'Isolate' control. The normally de-energised contacts are rated at 30 V dc, 1.25 A Mappable
- > Six (6) Auxiliary FET current-sink drivers: Fire, Evacuation, Sprinkler, Silence Alarms, Alert and Defect
 - > These outputs may be used to control ancillary devices
 - > The alert output may be configured to operate for each circuit individually
- > An open-collector output is available for each circuit/zone to drive auxiliary equipment: active when circuits are in 'Alarm'
- > External buzzer extension

LED Display

- > Four global LEDs (Fire, Defect, Sprinkler, Normal) plus up to 32 zone LEDs
- > Residential mode smoke indicators may use up to 32 additional display LEDs

Defect Display

- > Individual 'Defect' LEDs for each circuit
- > Separate Bell, Battery 'Defect' and coded System 'Defect' LEDs, using a 10-way bar-graph LED display

Configuration Keys

- > Three buttons and 10-way bar-graph LED display for configuration set-up and circuit isolation
- > Each circuit is configurable with six options:
 - > Brigade calling
 - > Operation of Bell 1 and/or Bell 2 outputs
 - > Zone: latching or non-latching
 - > Residential / Apartment mode
 - > Alert control output
 - > Auxiliary Relay operation

Other Functions

- > AUX Isolate switch or connector for remote isolation.
- > External RS485 connection for up to three remote LED Mimic Displays.
- > Earth Leakage monitoring
- > System test functions include:
 - > Battery Absent' monitoring
 - > 1 hour load test of the batteries every 24 hours
 - > Testing of each circuit for correct operation on 'start-up' and once every 24 hours
- > Integrated piezo alarm with selectable 'Piezo on Defect' warning.

SGD

- > Electrically isolated interface to an alarm transmitter (SGD) providing 'Fire', 'Defect', 'Isolate' and 'Test' signals
- > Clean relay contacts provide 'Fire' and 'Defect' outputs.
- > Brigade 'Isolate' and 'Test' switches.
- > For non-brigade connected systems, 'Buzzer on Defect' can be selected.

F16e masterboards and extenders can be used in the following configurations

| Configuration | Master | Extender | Note |
|-------------------|--------------|--------------|--|
| NZS4512:2010 | NZS4512:2010 | NZS4512:2010 | Must use indicating heat detectors and MCPs |
| NZS4512:1997 | NZS4512:1997 | NZS4512:1997 | May use indicating or non-indicating devices |
| NZS4512:2010/1997 | NZS4512:2010 | NZS4512:1997 | Allows a new panel to incorporate existing connections |
| NZS4512:1997/2010 | NZS4512:1997 | NZS4512:2010 | Allows an existing panel to be upgraded |

Ordering Information

NZS 4512:2010

| Product Code | Description |
|--------------|---|
| F16ELF | F16e FS 8cct 600mm Panel |
| F16ELR | F16e RS 8cct 600mm Panel |
| F16EMF | F16e FS 8cct 410mm Mini Panel |
| F16EMR | F16e RS 8cct 410mm Mini Panel |
| F16ETF | F16e FS 8cct 900mm Panel |
| F16ETR | F16e RS 8cct 900mm Panel |
| F16EX | F16e 8cct Extension Complete with LED Display |

NZS 4512:1997

| Product Code | Description |
|--------------|---|
| F16ELF-97 | F16e FS 8cct 600mm Panel :1997 |
| F16ELR-97 | F16e RS 8cct 600mm Panel :1997 |
| F16EMF-97 | F16e FS 8cct 410mm Mini Panel :1997 |
| F16EMR-97 | F16e RS 8cct 410mm Mini Panel :1997 |
| F16ETF-97 | F16e FS 8cct 900mm Panel :1997 |
| F16ETR-97 | F16e RS 8cct 900mm Panel :1997 |
| F16EX-97 | F16e 8cct Extension Complete with LED Display :1997 |

Note

Non-indicating heat detectors and MCPs will NOT produce a 'Fire' signal in an NZS 4512:2010 detection zone circuit when triggered and MUST NOT be used with NZS 4512:2010 detection zone circuits. A hard short-circuit or open-circuit on a Pertronic NZS 4512:2010 conventional detection circuit will produce a defect signal.

The information in this document must not be treated as partial or complete instructions for the design, construction, installation, commissioning, or maintenance of fire detection, fire alarm, or building evacuation systems. Fire and evacuation systems must be designed and installed by properly qualified persons, in accordance with all regulatory requirements.

Unless explicitly stated otherwise, this document provides typical specifications and nominal dimensions. Actual product performance and dimensions may vary.

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