



F220 Fire Alarm Control Panel NZS 4512:2021

- User-friendly operation** – **Easy to read large-text 178 mm colour display**
- Rapid configuration** – **Economical, intuitive installation**
- Fast, hi-capacity network** – **Up to 160 F220 fire panels per network**
- Flexible network backbone** – **Economical fibre-optic network cable interface**

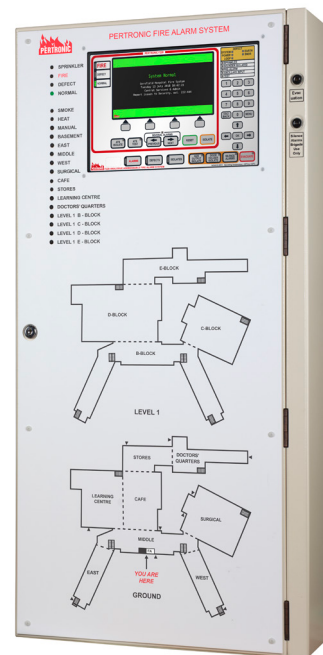
Overview -

The Pertronic F220 is a modular, expandable, networkable, intelligent fire panel which displays the exact location of any alarm or other signal activation in a user-friendly format that streamlines the management of critical situations.

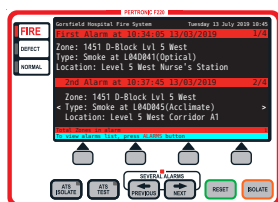
The F220 uses a 178 mm 800 x 480 pixel colour display to unmistakably identify the panel status. Red status bars and large easy-to-read text descriptors clearly identify the alarm mode. Defect information, device isolation information, pre-alarm conditions, walk test, ancillary and system information all have their own unique coloured display screens, providing comprehensive easy to use information for all users including fire brigade personnel, building managers, and service technicians.

Up to 160 F220 fire panels may be connected in a fast, robust, Pertronic Net2 Network system. A full range of LCD and LED mimics provide remote control and display capabilities for single panels or networks.

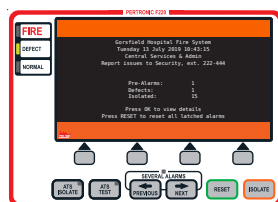
The F220 is compatible with the Pertronic FireMap® graphical user interface. Multiple event logs in the F220 provide all users with powerful diagnostic information.



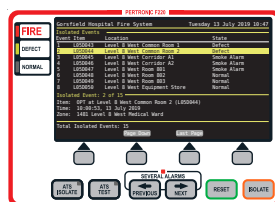
F220 Fire Alarm Control Panel
in 900mm Cabinet



Alarm Screen



Pre-Alarm Off-Normal Screen



Isolation List Screen

Major Features

- > 178 mm 800 x 480 pixel TFT LCD colour display
- > Easily readable 5 mm text height on Alarm screen
- > Monitors and controls up to 20 analogue addressable (AA) circuits with up to 3,180 sensors; and 1,980 input / output modules, manual call points, or AA alarm devices
- > Automatically identifies the exact location of any alarm or other signal activation
- > Colour-coded status and event display
- > Separate keyboard frees the entire screen area for display of fire system information
- > Auto-scrolling alarm view provides details of multiple alarms without user action
- > Evacuate button triggers a trial evacuation
- > Up to 160 panels may be connected in a high-speed, fault-tolerant Pertronic F220-Net2 Network system
- > High-speed configuration file upload/download (less than 30 seconds) via Ethernet or USB memory stick
- > PC interface programming and interrogation with the user-friendly Pertronic FireUtils® application
- > Three serial buses (RS-485) for interfacing to LCD and LED mimics and ancillary peripheral devices
- > Interface for phased evacuation system ("EWIS")
- > Virtual detection makes best use of information from intelligent sensors to combine maximum alarm sensitivity and excellent nuisance alarm immunity
- > Specialised history logs retain critical information even after large numbers of minor events
- > User can isolate individual sensors, loop devices, zones, local buzzer, timers, logic blocks, and network inputs
- > Compatible with a full range of peripherals including sounders, strobes, audio-visual signs, amplifiers, speakers, audible warning and evacuation systems, and Ethernet interfaces
- > Brigade transmitter *Isolate* and *Test* switches
- > A stand-alone Pertronic F120A system is easily upgraded to an F220 system
- > A variety of cabinet and customised assembly options
- > NZS4512:2021 compliant by accredited laboratory, and FPA NZ listed PI/132 (pending)
- > Tested to seismic standard 1170.5 by recognised laboratory

F220 Options

Internal Options

Pertronic Industries supply an extensive range of options for the F220 fire panel. The number and type of internal options required for a specific project will affect the choice of cabinet size, power supply current rating, and battery capacity (see note below).

The following list outlines the popular F220 internal options:

Two-Loop Driver (F120P2LMB)

Provides two analogue addressable loops.

AA Multi-Function Loop Responder (AALR-MF)

Provides eight conventional detection zone or switch input circuits with one relay configurable as Form C clean contact or supervised 100 Volt Line output.

Addressable Loop Relay (F100LRU)

Provides four outputs, individually configurable as supervised or voltage-free relay contacts. Also provides an input for supervising the defect signal from an external power supply.

AA Isolator Board (8SAAIB)

Provides eight isolated analogue addressable loop spurs. Allows conventional fire alarm zones to be converted to analogue addressable spurs using the existing cable, when upgrading from a conventional to an intelligent fire panel.

Evacuation Amplifiers

Complete with evacuation tone generator and a single supervised 100 Volt Line output for speakers:

- > 60 Watt (EA60)
- > 120 Watt (EA120)

Hand-Held Microphone and cradle, mounted on front panel.

Audio Distribution Module (ADM-4)

Provides four audio channels from a single 100 Volt line. All channels are continuously supervised for line defects. A line defect on any channel does not prevent operation on other channels. An F220 may be fitted with multiple Audio Distribution Modules.

Emergency Warning and Information System (EWIS)

Audible voice evacuation and emergency intercom system.

Ethernet Gateway (NET2GATE)

Interface with any Ethernet network including a virtual private network (VPN). The Ethernet Gateway provides an interface for Pertronic FireMap® graphical user interface.

Special Purpose Displays

A range of special purpose LED displays is available for the F220. The displays are designed to satisfy specific project requirements. Please contact Pertronic Industries for more information about special purpose control units and displays.

Bell Monitor Board (ZMB24V)

Provides additional supervised outputs for warning devices such as strobes, sounders (bells), and audiovisual signs.

Accessories

A full range of accessories is available for the F220, including a range of F220 Mimics. Please refer to the Pertronic website or contact Pertronic for more information.

Network Card (NET2CARD)

Interface with other F220 panels over an F220-Net2 Network, via fibre-optic or copper (RS-485) connections.

Also provides an interface between an F220-Net2 Network and:

- Building management system (bidirectional Modbus over Ethernet)
- Net2 Network Control Unit or Net2 mini-mimics
- Pertronic FireMap
- Text-based system such as a printer or paging system

(Note: When used as an interface with BMS, FireMap, or Text-based systems, the NET2CARD may not be used to interface an F220 fire panel with the Net2 Network. Each BMS, FireMap, or Text interface requires a separate, dedicated NET2CARD.)

Ancillary Peripherals

- > 48-way Open Collector Board
- > 8 Way Relay Mimic
- > 8 Way Common Relay Board
- > Auxiliary Panel Relay (2-pole 4-amp 24 V dc form C contact)

General Purpose Interfaces

BACNet, Modbus, Nurse Call Pager, Printer, Serial Text-Based Systems.

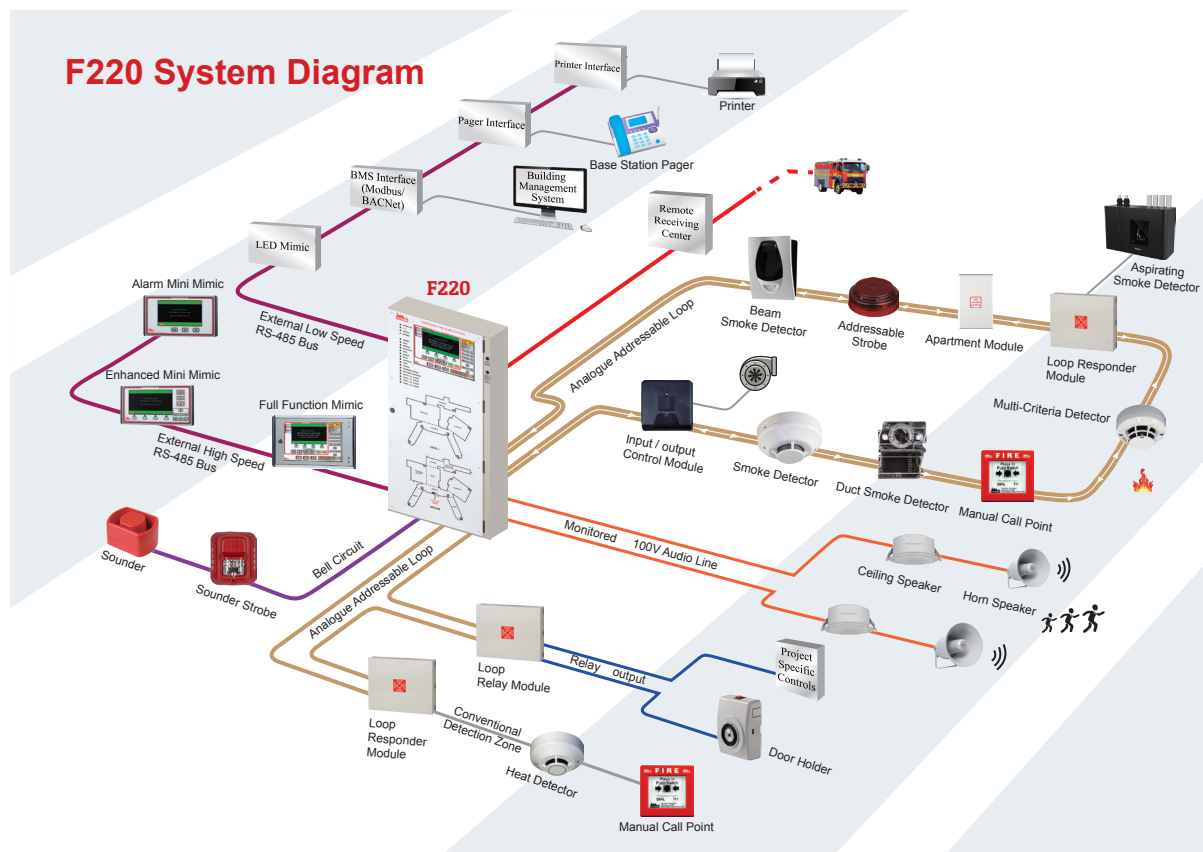
Fibre Optic Interface Adaptors

Available for RS-232, RS-485, or Ethernet.

24 V dc Door Holder Power Supply

2 amp, 5 amp, 10 amp

NOTE: The fire panel's maximum total current consumption, including any auxiliary power outputs, must not exceed the power supply's load capacity. Most optional components draw their maximum current when the system is in Alarm mode. The Pertronic web-site (www.pertronic.co.nz) provides a calculator for computing supply current and battery capacity. <https://www.pertronic.co.nz/tools/battery-size-calculator/>



F220 Specification

Processor (Masterboard)

- 32-bit 456 MHz RISC processor
- 4.128 Gbit flash memory
- Linux operating system

Display

- 7 inch 800 x 480 pixel colour TFT-LCD
- 32-bit 64 MHz RISC processor

Power Supply Output Current

- 24 V dc 5 Amp PSU 4.5 A
- 24 V dc 11 Amp PSU 10.5 A
- 24 V dc 22 Amp PSU 21.5 A

Maximum Battery Size

- 900 mm Cabinet 40 Ah
- 900 mm Double Cabinet 22 Ah
- 22U and 28U 55 Ah
- 40U 100 Ah

Relay Contact Ratings (Resistive Load)

- Fire, Defect, Isolate, General Purpose, Aux 2 A @ 30 V dc
- Door Holder 5 A @ 30 V dc

Outputs with Configurable Fault Supervision

- AUXM Relay, O/P 1, O/P 2 1.25 A @ 30 V dc
- 2 Circuits (Bell 1 and Bell 2) 3 A @ 30 V dc

Operating Temperature

0 °C to +45 °C

Humidity

≤ 95 % RH, non-condensing

RS-485 Mimic Buses

- External High Speed RS-485 (data) 115.2 kbit/s (power) 3.5 amp
- Low Speed RS-485 (data) 9,600 bit/s (power) 1.4 amp

Communication Ports

- Ethernet 10/100 Mbit/s
- USB Port USB 2

Analogue Addressable (AA) Loop Circuits

- Number of Loops 2 to 20, in 2-loop increments
- Sensors Up to 159 per loop
- Input/output modules, addressable sounder devices, or MCPs Up to 99 per loop
- Loop Current 350 mA (maximum)
- Loop Resistance 50 Ω (maximum)
- Loop Length Up to 2500 metres end to end with appropriate configuration
- Spur Resistance 40 Ω (maximum)
- Spur Length Up to 2500 metres from panel to end of spur with appropriate configuration

Loop configuration must be verified using the loop calculator at <https://www.pertronic.co.nz/tools/loop-length-calculator/>

F220 Software Features

- > Configurable from front panel, PC or USB stick
- > Numeric keypad for rapid information retrieval and efficient front panel configuration
- > Configurable 31-character text descriptors for: Analogue addressable devices (sensors, modules, MCPs, & AA alarm devices); zones; smoke (fire fan) controls; deluge controls; logic blocks; timers, groups, "LEDs" (versatile mapping objects), auxiliary fault input, network inputs, and network nodal mapping objects (NMO)
- > Nuisance alarm management facilities:
 - > NZS 4512:2021 Type 5
 - > Alarm Verification Function (AVF)
- > Multiple configurable action levels per sensor (with appropriate sensor types)
- > Sensor pre-alarm and maintenance warnings
- > Individual sensor dual sensitivity for configurable day or night settings
- > Automatic clock adjustment for daylight saving
- > The time-zone can be configured
- > Auto-Learn function for fast loop configuration
- > Automatic system test of charger, batteries and sensors. The test may be configured to occur at any time of the day
- > Cause & effect logic may be configured to isolate specified devices in response to defined events
- > Versatile loop device test capability
- > Zone Timers delay alarm signals from designated devices within the associated zone. The delay finishes at the end of the configured time period, or when a second device in the same zone goes into alarm
- > Fire panel door interlock switch
- > Memory Lock switch prevents configuration data from being over-written
- > System maintenance and analysis reports may be exported via Ethernet in pdf, Excel, or Word formats (Please refer to the FireUtils® datasheet for details)
- > Linux OS diagnostic logs may be exported via FireUtils® for analysis by Pertronic support engineers

F220 Capacity (per fire panel)

- > Analogue Addressable Loops up to 20
- > Intelligent Sensors 3,180 (max.)
- > Intelligent Modules, MCPs & Addressable Alarm Devices 1,980 (max.)
- > Up to 999 consecutively numbered zones per F220 panel, within the range 1 to 64999
- > Air Handling (Fan) Controls 400
- > Deluge Controls 400
- > Cause-Effect Logic Blocks 999
- > General Purpose Timers 200
- > Groups 999
- > Network Inputs 999
- > "LEDs" (Mapping Objects, note 1) 2048
- > Multiple Unique Panel History Logs (note 2)
 - Main All Event Log 10,000 events
 - Alarm Log 2,000 events
 - Pre-Alarm Log 500 events
 - Defect Log 500 events
 - Ancillary Log 500 events
 - Isolation Log 500 events
 - Isolation Activity Log 500 events
 - Active Event Log 500 events
 - System Event Log 500 events
 - Power Supply Log (note 3) 5,000 entries

Notes:

1. An F220 fire panel mapping object is a software-controlled object that can be "Active" or "Inactive". Each mapping object can be configured to control a wide range of software and hardware devices, including logic blocks, timers, network inputs, indicator LEDs, and amplifiers. Historically in Pertronic systems, fire panel mapping objects are called "LEDs".
2. In total the panel history data logs can store up to 20,500 entries. Logs may be saved to a USB stick or imported to a PC running FireUtils®, for more detailed filtering and analysis of events.
3. Each power supply (PSU) log entry includes: Time, system voltage, and battery voltage.

Ordering Information

Product Code	Description	NZFPA Listing
600mm Cabinet	(HxWxD = 600mm x 450mm x 195mm)	
F220-600F/5A/CR	F220, 600mm, Front Service, 2 Loop, 5 Amp PSU, Cream	PI/132 (pending)
F220-600F/11A/CR	F220, 600mm, Front Service, 2 Loop, 11 Amp PSU, Cream	PI/132 (pending)
F220-600R/5A/CR	F220, 600mm, Rear Service, 2 Loop, 5 Amp PSU, Cream	PI/132 (pending)
900mm Cabinet	(HxWxD = 900mm x 450mm x 195mm)	PI/132 (pending)
F220-900F/5A/CR	F220, 900mm, Front Service, 2 Loop, 5 Amp PSU, Cream	PI/132 (pending)
F220-990F/11A/CR	F220, 900mm, Front Service, 2 Loop, 11 Amp PSU, Cream	PI/132 (pending)
F220-900F/22A/CR	F220, 900mm, Front Service, 2 Loop, 22 Amp PSU, Cream	PI/132 (pending)
F220-900R/5A/CR	F220, 900mm, Rear Service, 2 Loop, 5 Amp PSU, Cream	PI/132 (pending)
F220-900R/11A/CR	F220, 900mm, Rear Service, 2 Loop, 11 Amp PSU, Cream	PI/132 (pending)
F220-900R/22A/CR	F220, 900mm, Rear Service, 2 Loop, 22 Amp PSU, Cream	PI/132 (pending)
22U Cabinet	(HxWxD = 1065mm x 575mm x 290mm)	
F220-22UF/5A/CR	F220, 22U, Front Service, 2 Loop, 5 Amp PSU, Cream	PI/132 (pending)
F220-22UF/11A/CR	F220, 22U, Front Service, 2 Loop, 11 Amp PSU, Cream	PI/132 (pending)
F220-22UF/22A/CR	F220, 22U, Front Service, 2 Loop, 22 Amp PSU, Cream	PI/132 (pending)
28U Cabinet	(HxWxD = 1330mm x 575mm x 290mm)	
F220-28UF/5A/CR	F220, 28U, Front Service, 2 Loop, 5 Amp PSU, Cream	PI/132 (pending)
F220-28UF/11A/CR	F220, 28U, Front Service, 2 Loop, 11 Amp PSU, Cream	PI/132 (pending)
F220-28UF/22A/CR	F220, 28U, Front Service, 2 Loop, 22 Amp PSU, Cream	PI/132 (pending)
40U Cabinet	(HxWxD = 1865mm x 575mm x 340mm)	
F220-40UF/5A/CR	F220, 40U, Front Service, 2 Loop, 5 Amp PSU, Cream	PI/132 (pending)
F220-40UF/11A/CR	F220, 40U, Front Service, 2 Loop, 11 Amp PSU, Cream	PI/132 (pending)
F220-40UF/22A/CR	F220, 40U, Front Service, 2 Loop, 22 Amp PSU, Cream	PI/132 (pending)
Double Cabinet	(HxWxD = 900mm x 800mm x 130mm)	
F220-DC/5A/CR	F220, Double Cabinet, Without Indexes, 5 Amp PSU, Cream	PI/132 (pending)
F220-DC/11A/CR	F220, Double Cabinet, Without Indexes, 11 Amp PSU, Cream	PI/132 (pending)
F220-DC/22A/CR	F220, Double Cabinet, Without Indexes, 22 Amp PSU, Cream	PI/132 (pending)
F220-DCF/5A/CR	F220, Double Cabinet, Front Service, 5 Amp PSU, Cream	PI/132 (pending)
F220-DCF/11A/CR	F220, Double Cabinet, Front Service, 11 Amp PSU, Cream	PI/132 (pending)
F220-DCF/22A/CR	F220, Double Cabinet, Front Service, 22 Amp PSU, Cream	PI/132 (pending)
F220-DCR/5A/CR	F220, Double Cabinet, Rear Service, 5 Amp PSU, Cream	PI/132 (pending)
F220-DCR/11A/CR	F220, Double Cabinet, Rear Service, 11 Amp PSU, Cream	PI/132 (pending)
F220-DCR/22A/CR	F220, Double Cabinet, Rear Service, 22 Amp PSU, Cream	PI/132 (pending)

This information 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 applicable 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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