

PERTRONIC F220 Fire Panel

Features

- ✓ **Intuitive, user-friendly operation**
- ✓ **Economical installation**
- ✓ **Large-text 7-inch colour display**
- ✓ **32-bit RISC processor**
- ✓ **Separate keyboard frees the entire screen area for the presentation of information**
- ✓ **Versatile Warning System with Pertronic EA Series Amplifiers**
Up to 360 W audio per F220 fire panel
More information on page 4
- ✓ **Text to Speech Tool for Custom Speech Messages**
See page 4 for more
- ✓ **Up to 32 remote LCD displays per F220 fire panel**
Turn to page 4 for more
- ✓ **Custom Display Options**
More information on page 5
- ✓ **Up to 20 loops with 3,180 detectors and 1,980 input/output modules or MCPs**
- ✓ **Pertronic FireMap® graphic user interface**
Turn to page 4 for more on FireMap
- ✓ **Up to 160 F220 fire panels per network**
Flexible network backbone
Economical fibre-optic network cable interface
- ✓ **Rapid configuration with Pertronic FireUtils®**
- ✓ **Independently tested and ActivFire listed to Australian fire alarm standards**
Details on page 3

Product Overview

The Pertronic F220® is a modular, expandable, networkable, intelligent fire panel which is approved to Australian fire alarm standard AS 7240.2. (AS 7240.2 is based on ISO 7240.2). The F220 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 7 inch 800 x 480 pixel colour display to unmistakably identify the panel status. The alarm mode is highlighted with red status bars and large easy-to-read text descriptors. Fault information, device disablement information, pre-alarm conditions, walk test, supervisory, 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.

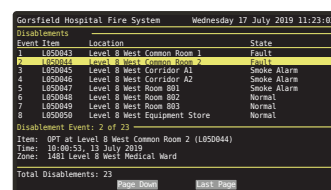
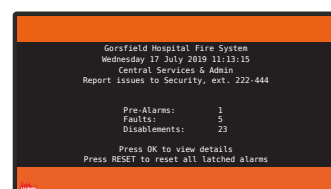
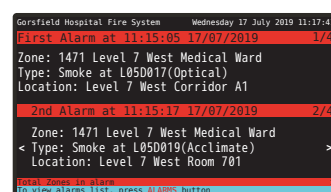
Up to 160 F220 fire panels may be connected in a fast, robust, F220-Net2 Network. Economical fibre-optic adapters are available for the F220-Net2 network card. A full range of remote control and LCD or LED display units is available for single panels or networks.

The F220 is compatible with the Pertronic FireMap® graphic user interface.

Multiple event logs in the F220 provide all users with powerful diagnostic information.



A Pertronic F220® fire panel in a 22U indoor cabinet. The F220 is available in many sizes from 10U to 40U, including weatherproof versions. Turn to page 7 for more information on F220 cabinets.

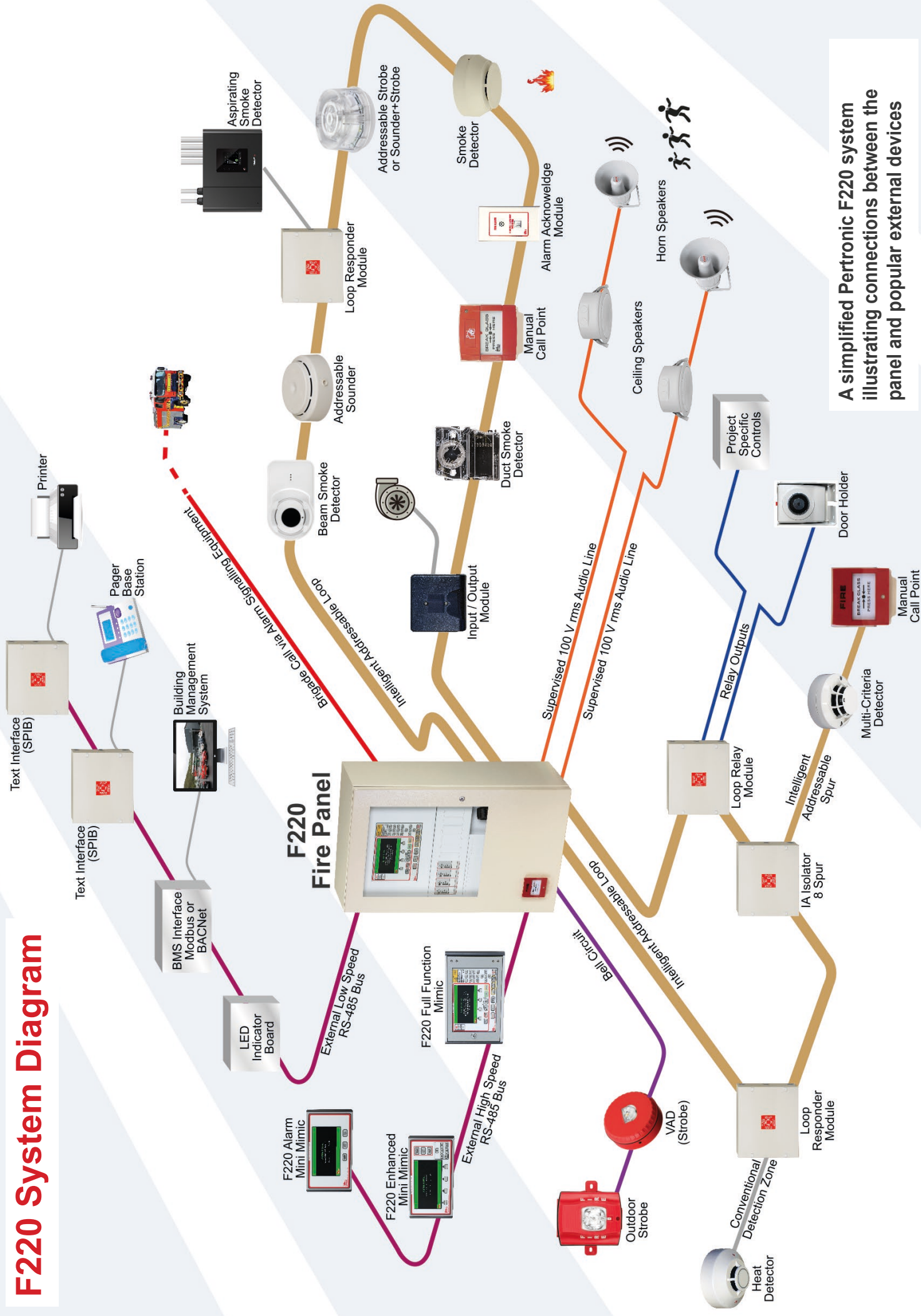


All Pertronic F220 fire panels and remote LCD displays feature the 7-inch F220 LCD display with colour-coded information screens:

From Top:

- Alarm View,
- Pre-Alarm Off-Normal View,
- Disablement List View

F220 System Diagram



A simplified Pertronic F220 system illustrating connections between the panel and popular external devices

F220 Features

- » Seven inch 800 x 480 pixel TFT LCD colour display
- » Separate keyboard frees the whole screen for information display
- » Automatically identifies the exact location of any alarm or other signal activation
- » Easily readable 5 mm text height on Alarm View
- » Monitors and controls up to 20 intelligent addressable (IA) circuits with up to 3,180 sensors; and 1,980 input / output modules, manual call points, or IA alarm devices
- » Authorised users can test all outputs from the keyboard
- » Authorised users can easily disable individual sensors, loop devices, zones, local MCP, local buzzer, alarm routing, logic blocks, timers, and network inputs for building or fire system maintenance
- » Up to 160 panels may be connected in a high-speed, fault-tolerant Pertronic F220-Net2 Network system
- » Economical fibre-optic interfaces
- » Any network segment may be copper or fibre-optic
- » Every F220 panel, F220 display unit, and F220-Net2 Network node features a 32-bit RISC processor
- » Occupant Warning System (optional) with built-in test capability and easily customised audible signals
- » PC interface programming and interrogation with the user-friendly Pertronic FireUtils® application
- » High-speed upload/download of configuration files (less than 30 seconds) via Ethernet or USB memory stick
- » Versatile easy-to-programme cause & effect features with highly adaptable logic blocks, timers, fan control blocks, and deluge control blocks
- » Virtual detection makes better use of information from intelligent sensors to combine maximum alarm sensitivity and excellent nuisance alarm immunity
- » Serial buses (RS-485) for interfacing with LCD mimics, LED displays and ancillary peripheral devices
- » EWIS interface
- » Easy upgrade from Pertronic F120A to F220 system
- » Large range of cabinet sizes, including weatherproof
- » Customised assembly options
- » Configurable from laptop or personal computer (Ethernet), USB stick, or F220 keyboard/display
- » Configurable 31-character text descriptors for: intelligent addressable devices (sensors, modules, MCPs, & IA alarm devices); zones; smoke (fire fan) controls; deluge controls; logic blocks; timers, groups, AAF/ADF units, “LEDs” (versatile mapping objects), auxiliary fault input, network inputs, and network nodal mapping objects (NMO)
- » Numeric keypad for rapid information retrieval and efficient front panel programming
- » AS 1670.1:2018-compliant facilities for nuisance alarm management:
 - » Alarm Acknowledgement Function (AAF)
 - » Alarm Delay Function (ADF)
 - » 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 one time of the day, on any day(s) of the week
- » Configurable force output feature to allow manual activation of output, even if disabled
- » Cause & effect logic may be configured to disable specified devices in response to defined events
- » Versatile IA 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
- » Specialised history logs retain critical information even after large numbers of minor events
- » Fire panel 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

Intelligent Addressable (IA) Spurs

An F220 IA circuit may include multiple IA spurs, as follows:

- » One or more spurs radiating directly from the fire panel
- » One or more spurs radiating from any point along an intelligent addressable loop circuit

Spur-connected devices are part of the associated IA loop circuit. The total number of detectors connected to the loop and any associated spurs must not exceed 159. The loop and its associated spurs may have up to 99 control modules, addressable alarm devices, or MCPs. Each spur may include up to 40 intelligent addressable devices.

The Pertronic 8SAAIB IA Isolator Board (see page 6) provides eight spurs from an F220 IA loop. The 8SAAIB may be mounted inside a fire panel or at any location along the loop. Any F220 IA loop may include multiple 8SAAIB isolators. No additional wiring is required because the unit is powered from the IA loop.

We strongly recommend that each intelligent addressable spur should cover only one zone. This is mandatory in systems that are required to comply with AS 1670.1:2018.

F220 Compliance and Approvals

- » Independent laboratory tested and ActivFire listed (afp-3054) to AS 7240.2, AS 7240.4, & AS 4428-3
- » Complies with the relevant parts of AS 1670
- » Occupant warning system (if fitted) ActivFire listed (afp-3779) to AS 4428.16:2020 grade 3
- » The F220-Net2 Network is ActivFire listed (afp-3054) to AS 7240.13:2006 with up to 130 nodes
- » Recently, a 160-node Pertronic F220-Net2 Network was independently certified for compliance with AS 7240.13:2006 by an IANZ-accredited laboratory
- » Smoke controls (if fitted) comply with AS 1670.1 sect. 7

F220 Occupant Warning System (OWS)

The F220 OWS is a sound system for occupant warning, public address, background music, and other audio applications.

The integral audible signal generator provides a wide range of emergency and general purpose signals and announcements including the default evacuate signal required by AS 4428.16:2020.

The Pertronic Text to Speech Tool allows Pertronic customers to create project-specific custom speech messages.

Custom speech messages and additional signals are easily uploaded to the amplifier(s) via a USB connection.

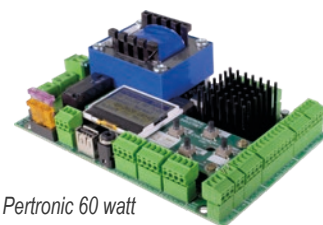
The system has three audio inputs for local and/or remote microphones and external audio sources.

Built-in test features include a user- and occupant-friendly walk test and output load measurement.

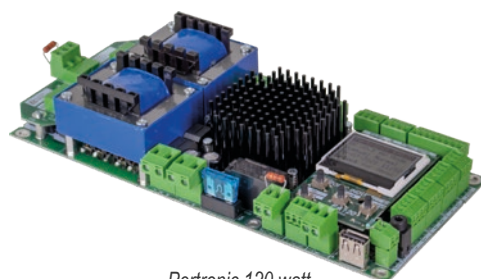
Users are able to configure operating settings, signals, and announcements via the keyboard and display.

The OWS is based on EA series amplifiers. A single F220 fire panel may be fitted with multiple EA60 and/or EA120 series amplifiers, delivering a total of 360 watts rms into one or more supervised 100 volt line circuits. (Larger systems are available to special order.)

For more information, please refer to the [“EA Series 60 Watt and 120 Watt Amplifiers”](#) datasheet.

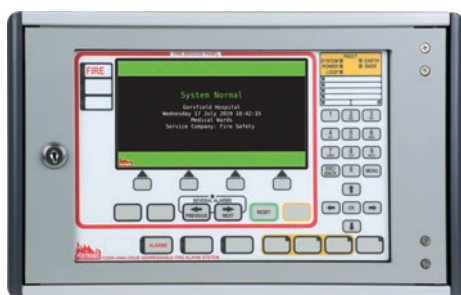


Pertronic 60 watt
EA series amplifier (EA60)



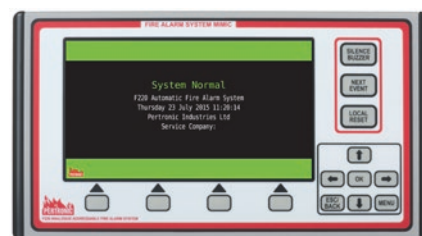
Pertronic 120 watt
EA series amplifier (EA120)

F220 LCD Mimics



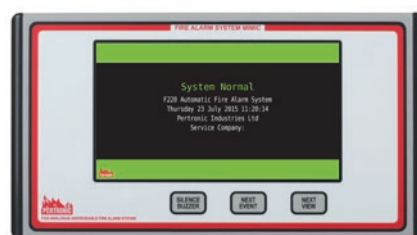
F220 Full Function Mimic

Performs all the keyboard and display functions of the F220 fire panel from a remote location. Features a keyboard and 7-inch LCD display identical to the F220 fire panel's keyboard and display.



F220 Enhanced Mini-Mimic

Provides access to all available information from the F220 panel, including all event screens and event logs.



F220 Alarm Mini-Mimic

Displays only Alarm screens and the “Warning System On” screen. Designed for use by staff who are responsible for responding to alarms.

All F220 LCD mimics features the standard F220 7-inch LCD display.

For more information on Pertronic F220 LCD Mimics, please refer to the [“F220 & Net2 LCD Mimics”](#) datasheet.

Pertronic FireMap® Graphic User Interface

Pertronic FireMap® is an economical fire system management tool, providing remote monitoring and graphic-based touch-screen control of Pertronic F220® fire systems.

Whenever a monitored fire panel or F220-Net2 Network originates an alarm:

- » FireMap sounds an audible warning and automatically displays a map of the zone that triggered the alarm, with the active zone outlined in red
- » FireMap displays the word “Alarm” and details of the location
- » Fire panels with active alarms are highlighted in red on the display
- » FireMap’s smart icons map the active detectors in red

FireMap’s information storage and retrieval capabilities provide quick and easy access to additional information, including contact information for key personnel, response procedures, and photographs.



F220 External High-Speed RS-485 Bus

The Pertronic F220® Fire Panel has a high-speed RS-485 bus port which supports a range of Pertronic peripherals including F220 LCD Mimic displays. The RS-485 bus runs over 4-wire cable. Within the 4-wire RS-485 bus cable, a twisted pair of wires carries the balanced data circuit. The other two wires carry the 24 volt dc power circuit.

RS-485 Data Circuit

Mimics and other peripherals are connected across the data circuit in a multi-drop (“daisy-chain”) configuration.

For satisfactory performance, each bus segment must be a point to point transmission line with no branches or spurs.

The Pertronic RS-485 Repeater/Splitter may be used to create up to five separate RS-485 bus segments. Each segment, including the segment from control panel to splitter, may be up to one kilometre from end to end. The F220 External High-Speed RS-485 Bus must not have more than two segments connected in cascade.

Every bus segment must be terminated at each end with a terminating resistor equal to the data circuit's characteristic impedance. For typical fire-rated twisted pair cables a 100 ohm resistor provides a suitable end of line termination.

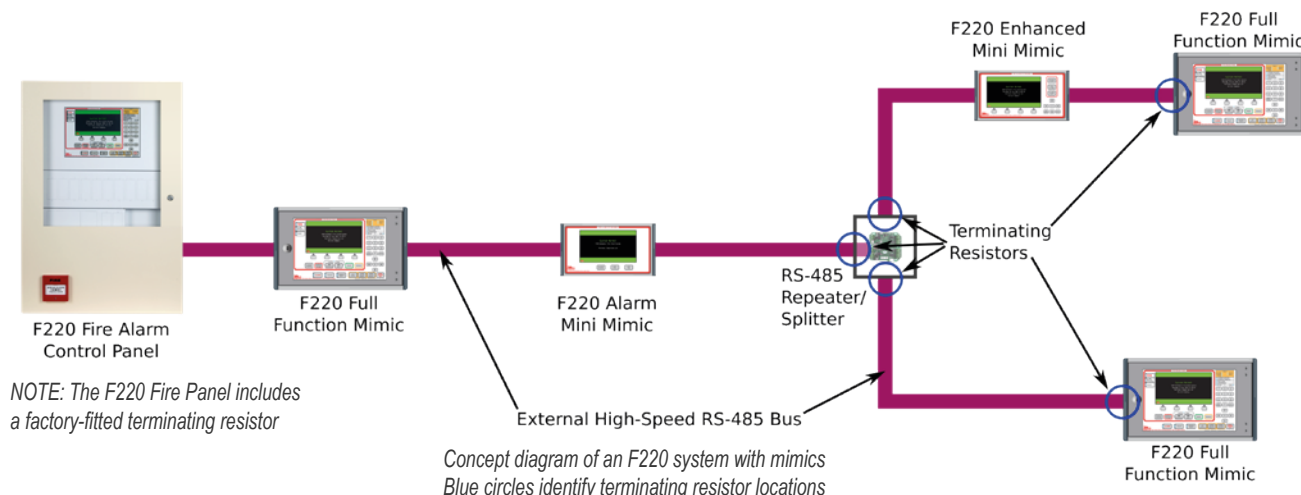
The F220 has terminating resistors permanently connected to its External High-Speed RS-485 port. Terminating resistors are supplied with every mimic, to be fitted if required. Please consult the relevant installation instructions about terminating resistors for other peripherals.

Note: DO NOT fit terminating resistors to mimics or peripherals at intermediate locations on a bus segment.

RS-485 Power Circuit

The RS-485 bus provides a nominal 24 volt dc power supply for mimics and other peripheral devices.

However, voltage drop on long cable runs can be significant. Pertronic Industries strongly recommends that voltage drop calculations should be used to check that adequate voltage will be available to mimics and peripherals. For F220 mimics the total volt drop must not exceed 4 volts. This ensures the mimics will work properly on battery power, even if the battery voltage falls to 19 volts.



Purpose-Built Control & Indicating Boards

A Pertronic purpose-built control and indicating board is an important part of many F220 systems.

A purpose-built control and indicating board (CIB) simplifies the control and monitoring of automatic equipment such as ventilation fans, dampers, and water deluge systems. A well-designed board enables facility staff and fire-fighters to quickly assess the system's status. If manual intervention is required, the CIB helps incident managers implement the right decision at the right time.

Many purpose-built CIBs are installed in Pertronic F220® fire panels. Pertronic Industries also designs and builds CIBs for

remote locations.

Successful development of a control and indicating board requires close collaboration between multiple project participants. Please contact us at the beginning of the project to discuss purpose-built CIB requirements.

Right: A purpose-built control and indicating board (CIB) installed in a 40U F220® fire panel. This CIB has deluge controls, smoke controls, sprinkler indicators, user instructions, and a colour-coded floor plan.



F220 Internal Options

Pertronic Industries supplies 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 1, page 7).

The following list outlines the popular internal options:

Two-Loop Driver (F120P2LMB-A)

Provides two intelligent addressable (IA) loops.

Occupant Warning System

Complete with audible signal generator, high quality Pertronic EA series audio amplifier, and optional audio distribution modules.

Provides multiple supervised 100 Vrms line output channels for speakers.

An F220 may be fitted with multiple amplifiers. Each amplifier may drive one or more audio distribution modules, and provides one dual polarity circuit for two-colour strobes (VAD).

All audio output channels are continuously supervised for line faults. A line fault on any channel does not prevent operation on other channels.

- » EA60 amplifier, 60 watt
- » EA120 amplifier, 120 watt
- » ADM-4 audio distribution module with four supervised output channels
- » Dual-polarity output (per amplifier) for two-colour strobes

(More information on page 4)

Hand-Held Microphone

Supervised emergency microphone with cradle, mounted on front plate.

Multi-Function Loop Responder (AALR-MFA)

Provides eight conventional detection zone or switch input circuits with one relay configurable as form C clean contact or 100 volt line switch with optional supervision.

Addressable Loop Relay (AALREL)

Provides four outputs, individually configurable as voltage-free relay contacts, or supervised voltage outputs. Also provides an input for monitoring the fault signal from an external device, such as a power supply.

8 Spur Isolator Board (8SAAIB)

Provides eight isolated IA spurs from an intelligent addressable loop circuit, with up to 40 intelligent addressable devices per spur.

Recommended for systems requiring spur connection of IA devices. Also allows conventional fire alarm zones to be converted to IA spurs using the existing cable, when upgrading from a conventional to an intelligent addressable fire panel.

(Refer to "Intelligent Addressable Spurs", pg 3)

FireMap Ethernet Gateway (FMEGATE)

Interfaces a single F220 fire panel with the Pertronic FireMap® graphic user interface over an Ethernet network including a virtual private network (VPN).

(Note: For F220-Net2 Networks we recommend the NET2CARD, which interfaces FireMap directly to the entire network).

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 (bi-directional Modbus over Ethernet)
- » Net2 Network Control Unit or Net2 mini-mimics
- » Pertronic FireMap
- » Text-based system such as a printer or paging system

(Note: Each BMS, FireMap, or text interface requires an additional, dedicated NET2CARD. 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 network.)

Control Plate

A 3U rack-mounted front plate that accepts any combination of control units and AFI displays. Each Control Plate accepts 10 standard control units or five AFI displays. An F220 panel can be fitted with multiple Control Plates.

- » Fan Control Unit
- » 8 Way Solenoid Test Control
- » 8 Way Zone Isolate Switch
- » AFI Display, with alarm, fault, and isolate indicators for 8 zones.



Control Plate with AFI Display (left), Fan Control Reset Unit (centre) & Fan Control Switch Unit (right)

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)

BMS Interface (SPIB-MODBUS HLI)

This Modbus interface provides bi-directional communication between a single F220 panel and a building or plant management system.

(Note: For F220-Net2 Networks we recommend the NET2CARD, which interfaces the BMS directly to the entire network).

Text Interface (SPIB-NCPP)

Interface a single F220 panel with a Printer, Paging System, Nurse-Call System, or other text-based system.

(Note: For F220-Net2 Networks we recommend the NET2CARD, which interfaces a text system directly to the entire network).

BMS Interface (BASGLX-M1)

Provides "read-only" connection between a single F220 panel and a building or plant management system, using the BACnet protocol. Requires SPIB-MODBUS HLI.

Extinguishing Agent Release Controller

Provides automatic control of gaseous (and other) fire suppression systems.

Bell Monitor Board (ZMB24V)

Provides additional supervised outputs for alarm devices such as strobes, sounders (bells), and audio-visual signs.

Fibre Optic Interface

Adaptors available for RS-232, RS-485, or Ethernet.

Brigade Transmitter Interface

Highly adaptable interface system designed to work with a wide range of Alarm Signalling Equipment. The F220 Auxiliary Relay Board, and the 8 Way Common Relay Board, may be used to provide additional connections if necessary.

24 V dc Door Holder Power Supply

2.5 amp, 5 amp, 10 amp



13U F220 Fire Panel with 60 watt OWS, hand-held emergency microphone, and white front plates



28U IP65 Weatherproof F220 Fire Panel with grey front plates and document holder

F220 Cabinet Details

Cabinet Type (Note 2)	Height mm	Width mm	Depth mm (Note 3)	Protrusion mm	Window	MCP	Document Holder	Recommended Maximum Battery Size
600mm	600	450	155	30 (MCP)	✓	✓	✓	18 amp-hour
10U	530	550	185	30 (MCP)	✓	✓	✓	22 amp-hour
13U	645	550	185	30 (MCP)	✓	✓	✓	33 amp-hour
16U	800	575	185	30 (MCP)	✓	✓	✓	33 amp-hour
22U	1065	575	290	30 (MCP)	✓	✓	✓	40 amp-hour
28U Slim	1330	575	290	30 (MCP)	✓	✓	Optional	40 amp-hour
28U Deep	1330	575	385	30 (MCP)	✓	✓	Optional	55 amp-hour
40U Deep	1865	575	385	0	✓	Optional	Optional	55 amp-hour
16U Weatherproof, IPX5 (note 4)	800	600	260	30 (Handle)	✓	✗	✗	Please call Pertronic
28U Weatherproof, IPX5 (note 4)	1330	600	260	30 (Handle)	✓	✗	Optional	Please call Pertronic
16U Weatherproof, IP65 (note 4)	800	600	260	30 (Handle)	✗	✗	✗	Please call Pertronic
28U Weatherproof, IP65 (note 4)	1330	600	260	30 (Handle)	✗	✗	Optional	Please call Pertronic

F220 Fire Panel Ordering Information

Product Code (Notes 5 & 6)	Cabinet	IA Loops	PSU	Includes the Following Options
F220-A0.6/5A	600 mm	2	5 A	
F220-A10U/5A	10U	2	5 A	
F220-A13U/5A	13U	2	5 A	
F220-A13U/5A/EA60	13U	2	5 A	60 watt OWS with emergency mic
F220-A13U/11A	13U	2	11 A	
F220-A13U/11A/EA60	13U	2	11 A	60 watt OWS with emergency mic
F220-A16U/5A	16U	2	5 A	
F220-A16U/5A/EA60	16U	2	5 A	60 watt OWS with emergency mic
F220-A16U/5A/NCU	16U	2	5 A	Net2 NCU in place of keyboard
F220-A16U/11A	16U	2	11 A	
F220-A16U/11A/EA60	16U	2	11 A	60 watt OWS with emergency mic
F220-A16U/11A/EA120	16U	2	11 A	120 W OWS with emergency mic
F220-A16U/11A/NCU	16U	2	11 A	Net2 NCU in place of keyboard
F220-A22U/5A	22U	2	5 A	
F220-A22U/5A/EA60	22U	2	5 A	60 watt OWS with emergency mic
F220-A22U/11A	22U	2	11 A	
F220-A22U/11A/EA60	22U	2	11 A	60 watt OWS with emergency mic
F220-A22U/11A/EA120	22U	2	11 A	120 W OWS with emergency mic
F220-A22U/22A	22U	2	22 A	
F220-A22U/22A/EA60	22U	2	22 A	60 watt OWS with emergency mic
F220-A22U/22A/EA120	22U	2	22 A	120 W OWS including fire mic
F220-A28US/5A	28U Slim	2	5 A	
F220-A28US/5A/EA60	28U Slim	2	5 A	60 watt OWS with emergency mic
F220-A28US/5A/NCU	28U Slim	2	5 A	Net2 NCU in place of keyboard
F220-A28US/11A	28U Slim	2	11 A	
F220-A28US/11A/EA60	28U Slim	2	11 A	60 watt OWS with emergency mic
F220-A28US/11A/EA120	28U Slim	2	11 A	120 W OWS including fire mic
F220-A28US/11A/NCU	28U Slim	2	11 A	Net2 NCU in place of keyboard

Notes

- 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 website provides a [calculator for computing supply current and battery capacity](#) for F220 fire alarm systems.
- Other cabinet sizes and styles available for special orders
- Specified depth is measured to front face. Some fittings protrude forward of the front face.
- Please refer to the "[Weatherproof Cabinets](#)" datasheet for more information about weatherproof cabinets.
- Each product listed above includes one 2-Loop Driver (F120P2LMB-A 2). The Pertronic factory installs additional 2-Loop Drivers as required to increase the number of intelligent addressable loop circuits.
- The product codes listed above specify white front plates. To specify grey front plates, add a suffix "-G" to the product code. For example: F220-A28U/5A-G.

Product Code (Notes 5 & 6)	Cabinet	IA Loops	PSU	Includes the Following Options
F220-A28US/22A	28U Slim	2	22 A	
F220-A28US/22A/EA60	28U Slim	2	22 A	60 watt OWS with emergency mic
F220-A28US/11A/EA60	28U Slim	2	22 A	120 W OWS including fire mic
F220-A28U/5A	28U Deep	2	5 A	
F220-A28U/5A/EA60	28U Deep	2	5 A	60 watt OWS with emergency mic
F220-A28U/5A/NCU	28U Deep	2	5 A	Net2 NCU in place of keyboard
F220-A28U/11A	28U Deep	2	11 A	
F220-A28U/11A/EA60	28U Deep	2	11 A	60 watt OWS with emergency mic
F220-A28U/11A/EA120	28U Deep	2	11 A	120 W OWS with emergency mic
F220-A28U/11A/NCU	28U Deep	2	11 A	Net2 NCU in place of keyboard
F220-A28U/22A	28U Deep	2	22 A	
F220-A28U/22A/EA60	28U Deep	2	22 A	60 watt OWS with emergency mic
F220-A28U/22A/EA120	28U Deep	2	22 A	120 W OWS with emergency mic
F220-A40U/5A	40U	2	5 A	
F220-A40U/5A/EA60	40U	2	5 A	60 watt OWS with emergency mic
F220-A40U/5A/NCU	40U	2	5 A	Net2 NCU in place of keyboard
F220-A40U/11A	40U	2	11 A	
F220-A40U/11A/EA60	40U	2	11 A	60 watt OWS with emergency mic
F220-A40U/11A/EA120	40U	2	11 A	120 W OWS with emergency mic
F220-A40U/11A/NCU	40U	2	11 A	Net2 NCU in place of keyboard
F220-A40U/22A	40U	2	22 A	
F220-A40U/22A/EA60	40U	2	22 A	60 watt OWS with emergency mic
F220-A40U/22A/EA120	40U	2	22 A	120 W OWS with emergency mic

Notes (continued)

- If more than eight LCD full-function mimics or 32 LCD remote displays are required, please contact your nearest Pertronic office.
- The External High Speed RS-485 bus supports up to 40 fault-supervised RS-485 peripherals, including up to 32 F220 LCD mimics and/or mini-mimics, eight LED Mimics, and sixteen EA series amplifiers.
- The Low-Speed RS-485 Bus supports up to 40 fault-supervised RS-485 peripherals.
- Additional unsupervised RS-485 peripherals may be connected to the RS-485 buses. Please consult the F220 Technical Manual or contact us for more details.
- 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 have been called "LEDs".
- In total the panel history data logs can store up to 20,500 entries. Data logs may be saved to a USB stick or imported to a PC running FireUtils®, for more detailed filtering and analysis of events.
- Each PSU log entry includes: System voltage; Charge voltage; Charge current; Battery voltage; and Temperature.
- The F220 has 32 system event "slots", each with six outputs. Each system event slot can be programmed with a system event type such as "Fire", "Fault", "Warn Sys On". There are 31 system types. Please refer to the F220 Technical Manual for details.

F220 Specification

Masterboard Processor	32-bit 456 MHz RISC processor 4 Gbit flash memory Linux operating system
Display	7 inch 800 x 480 pixel colour TFT-LCD 32-bit 64 MHz RISC processor
Full Function Remote Control/ Display Units (Mimics)	Up to 8 per F220 fire panel Extendable, see note 7 page 7
Remote LCD Displays (Mini-Mimics)	Up to 32 per F220 fire panel Extendable, see note 7 page 7
Detector Sensitivity	Configurable using FireUtils®
Zones	Up to 999 consecutively numbered zones per F220 panel, within the range 1 to 64999
Smoke (Fire Fan) Controls	400
Deluge Controls	400
Cause-Effect Logic Blocks	999
General Purpose Timers	200
AAF or ADF Units	1,200
Groups	999
Network Inputs	Directly Addressable 640 Addressable via Logic 359
Zone Timers (one per zone)	999
"LEDs" (Mapping Objects)	2,048 (note 10 page 7)
System Events (note 14 page 7)	32

F220 Intelligent Addressable (IA) Circuits

IA Loops per F220 panel	2 to 20 in two-loop increments
IA Detectors	Up to 159 per loop Maximum 3180 per F220 fire panel
IA Input/Output Modules, MCPs, and Alarm Devices	Up to 99 per loop circuit Maximum 1980 per F220 fire panel
Loop Current	Maximum 350 mA
Loop Resistance	Maximum 50 Ω
Loop Length	Up to 2500 metres end to end, with appropriate configuration
Spur Resistance	Maximum 40 Ω
Spur Length	Up to 2500 metres from panel to end of spur, with appropriate configuration
IA Devices per Spur	Up to 40
Verify loop and spur circuit configuration using the loop calculator at http://www.pertronic.com.au/	

F220 Power Supply Specification

	5A PSU	11A PSU	22A PSU
Mains Input Voltage	85 – 264 volts ac, 50 – 60 hertz		
Mains Input	176 VA	350 VA	680 VA
Maximum Load Current (Battery charge current < 225 mA)	5 amp	11 amp	21.5 amp
Battery Type	24 V or 2 x 12 V (nominal) Lead Acid Gel or ABM types only		
Battery Charger Output Voltage	27.4 volts @ 20 °C, temperature compensated for sealed lead-acid batteries		
Maximum Battery Charger Output Current	2.1 amp	2.1 amp	5.2 amp
Recommended Minimum Battery Capacity	7 amp-hour	7 amp-hour	16 amp-hour
The fire panel's maximum total current consumption, including any auxiliary power outputs, must not exceed the power supply's load capacity. The Pertronic website provides a calculator for computing supply current and battery capacity for F220 fire alarm systems.			

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, typical specifications and nominal dimensions are provided. Actual product performance and dimensions may vary. All information in this document is subject to change. Please consult Pertronic Industries or visit our web site for up to date information. PERTRONIC®, FIREUTILS®, PERTRONIC F220®, and PERTRONIC FIREMAP® are registered trademarks of Pertronic Industries Limited.

RS-485 Mimic Buses (Details: page 5. See also notes 8, 9, & 10, page 7)	External High-Speed RS-485	data	115.2 kbit/s
		power	3.5 amp
	Low-Speed (Legacy) RS-485	data	9,600 bit/s
		power	1.4 amp
	Max. Bus Length	1 kilometre per segment Maximum two segments in cascade	
Communication Ports (electrically isolated)	Ethernet	10/100 Mbit/s	
	RS-232	9.6 or 115.2 kbit/s (auto-adapting)	
	USB	USB 2	
Relay Contact Ratings (resistive load)	Fire, Fault, Disable, Battery Fault, General Purpose, GP ASE	2 A @ 30 V dc	
	Door Holder	5 A @ 30 V dc	
	Outputs with Configurable Fault Supervision	ACF, O/P 1, O/P 2	1.25 A @ 30 V dc
		Warning System, External Bell/Strobe	3 A @ 30 V dc
Dimensions	Please refer to "F220 Cabinet Details" on page 7		
Colour	Cabinets & Doors	Off White Ripple	Dulux 288-97072
	Front (Rack) Plates	Arctic White	Dulux 915-58861
	Front Plates (optional)	Apo Grey	Dulux 915-32786
	Weatherproof cabinets also available in Brushed Stainless Steel		
Operating Temperature		-10 °C to +50 °C	
Humidity		≤ 95 % RH, non-condensing	

Multiple Unique Panel History Logs

Main All Event Log	10,000 events
Alarm Log	2,000 events
Pre-Alarm Log	500 events
Fault Log	500 events
Supervisory Log	500 events
Disablement Log	500 events
Disablement Activity Log	500 events
Active Event Log	500 events
System Event Log	500 events
Power Supply (PSU) Log	5,000 entries
Please refer to notes 12 and 13, page 7	

