

SSL Listed: *afp1682*

Features

Master Controller:

- Master controller assembly with operator interface and 4100 Software Revision 11.08
- Enhanced CPU with dual configuration programs, convenient service port access and capacity for up to 2000 detection, monitoring & control points
- System power supply (SPS) and charger (9 A total) with on-board supervised outputs (NACs), IDNet™ addressable device interface and programmable auxiliary output and alarm relays
- Zone Alarm & Isolate status displayed and Zone Isolate/de-isolate control via LED/Switch modules (to AS4428) for “at a glance” system status.
- Operator interface with 2 line x 40 character LCD & specific function keys for additional information.
- Module level earth fault search locates and isolates faults to assist installation and service
- Fully compatible with older 4100 cards and modules
- IDNet addressable device interface with 250 points
- Remote annunciator module support via RUI (remote unit interface) communications port

Optional modules include:

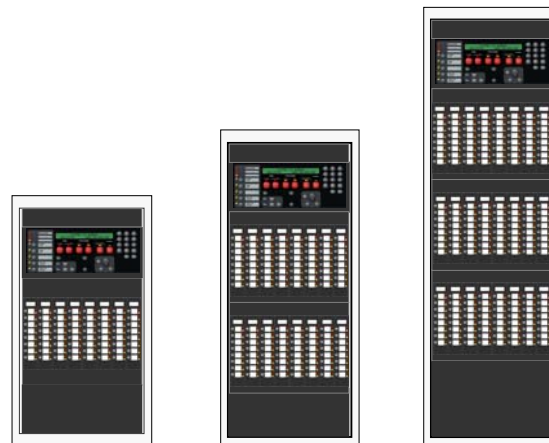
- Up to 30 MAPNET II® or IDNet addressable interfaces that support TrueAlarm® analog sensing operation and operate with *either shielded or unshielded* twisted pair wiring**
- Panel mounted MAPNET or IDnet quad isolators
- Network & PC Annunciator interfaces
- RS-232 ports for printers, terminals or BMS interface
- Alarm relays, auxiliary relays, additional power supplies & zone modules
- Service modems & VESDA® Air Aspiration Systems interface
- LED/switch modules (refer to data sheet S4100-0032)
- LAN/Internet Interface with panel generated e-mail

Compatible with Simplex® remotely located:

- QE90 EWIS Systems
- BACpac® BACnet® portal

Master controller upgrade kits are available for existing 4100 fire alarm control panels.

New 4100U Programming software can read the data out of an existing 4100+ panel's flash chip (no disk required) and automatically generate the 4100U program.



4100U Cabinets are 19" rack format - from 18U to 40U

Revision 11 Software Feature Summary

CPU provides two on-board configuration programs:

- Two programs allow for reduced service programming time with one active program and one reserve
- Downtime is reduced because the system stays running during download

PC based programmer features:

- Convenient front panel access port for quick and easy **download** of site-specific programming
- Modifications can be **uploaded** as well as downloaded for greater service flexibility
- **AND** firmware enhancements to 4100U modules are made via software downloads – service personnel are not required to exchange board level components

Introduction

Building on the established power & flexibility of the 4100 Series products, the 4100U Series offers additional operator, installation and service features. These new features include both new hardware and new software designs that provide high performance and convenient operation, installation and maintenance.

Module Bay Description

4100U Control Panels provide point and module capacities that are suitable for a wide range of small to large size applications. They accept a variety of interface modules and can be configured for either Stand-Alone or Networked fire control panel operation.

* Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Safety Products Westminster.

** Simplex fire alarm technology is protected by the following U.S. Patent Numbers:
TrueAlarm analog smoke detection: 5,155,468; 5,173,683 and 5,543,777. IDNet and MAPNET II addressable communications: 4,796,025. TrueAlert addressable notification: 6,313,744 and 6,426,697. SmartSync horn/strobe control: 6,281,789.

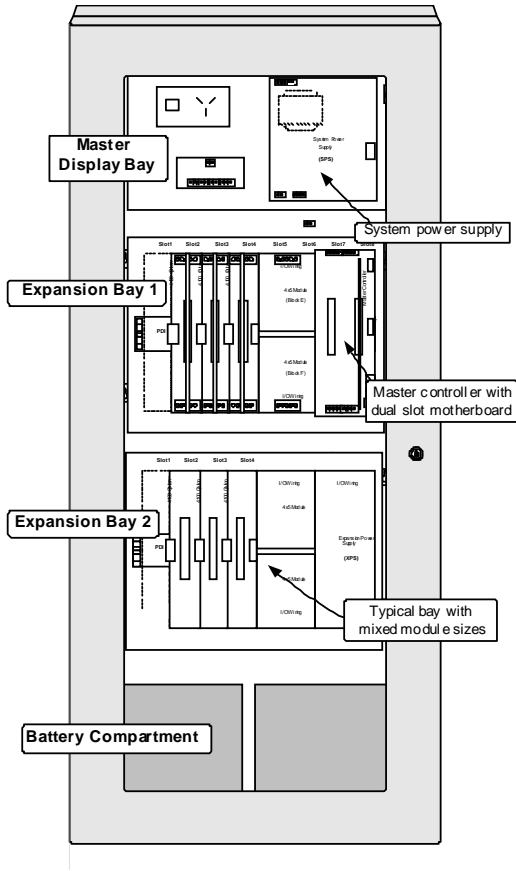
Module Bay Description (Continued)

The **Master Display Bay** (top) includes a standard multi-featured system power supply, GPO for mains power, 4 output fused field power module and operator interface equipment.

The **Expansion Bays** include a Power Distribution Interface (PDI) for new 4" x 5" flat design option modules and also accommodate 4100-style modules.

The **Battery Compartment** (bottom) accepts two batteries, up to 80 Ah to be mounted within the cabinet without interfering with module space.

The following illustration identifies bay locations using a three bay cabinet for reference.



4100U Module Bay Reference

Mechanical Description

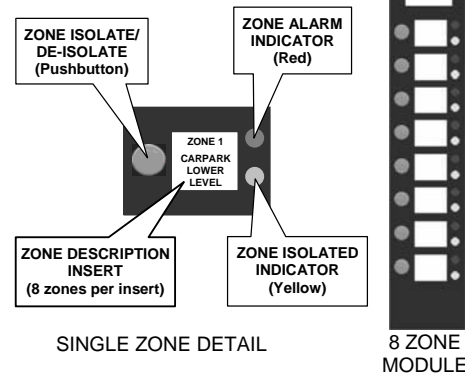
- Optional modules are easily and quickly installed and programmed
- New design modules are mechanically secured in place and electrically plugged into the PDI module reducing the need for wiring harnesses.
- 4100 style motherboard & daughter cards can be easily fitted – new CPU fully supports older 4100 expansion cards.
- Cabinet has removable gland plates to facilitate easy cable installation.

Mechanical Description (Continued)

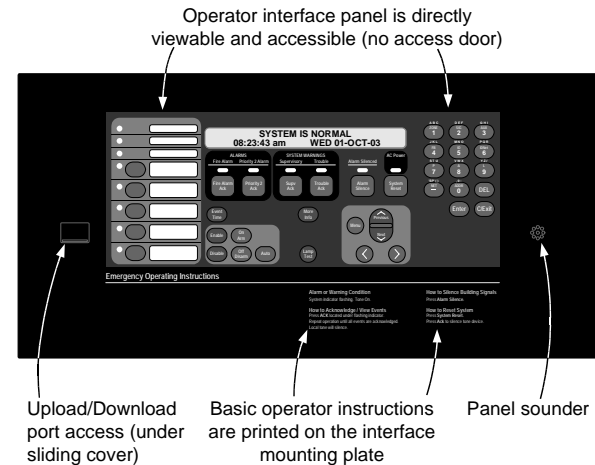
- Industry standard 19 inch rack modules can be fitted
- Supervised outputs are mounted directly on power supply assemblies providing minimized wiring loss, compact size and readily accessible terminations
- Modules are power-limited (except as noted, such as relay modules)
- Boxes & doors match with QE90 EWIS systems
- Boxes & doors are available in cream powdercoat or custom colours
- Doors are available with Lexan window or solid

Operator Interface Detail Reference

The following illustrations identify the primary functions of the operator interface.



ZONE ALARM & ISOLATE STATUS INDICATION WITH ISOLATE/ DE-ISOLATE CONTROL TO AS4428



ADDITIONAL INFORMATION & CONTROL IS AVAILABLE VIA THE LCD & KEYBOARD.

Software Feature Summary

- TrueAlarm individual analog sensing with front panel information and selection access
- “Dirty” TrueAlarm sensor maintenance alerts, service and status reports including “almost dirty”
- TrueAlarm magnet test indication appears as distinct “test abnormal” message on display when in test mode
- TrueAlarm sensor peak value performance report

Continued on next page

Software Feature Summary *continued*

- Module level ground fault searching assists installation and service by locating and isolating 4100U modules with grounded wiring
- WALKTEST™ silent or audible system test performs an automatic self-resetting test cycle (WALKTEST operation is protected under U.S. patent No. 4,725,818)

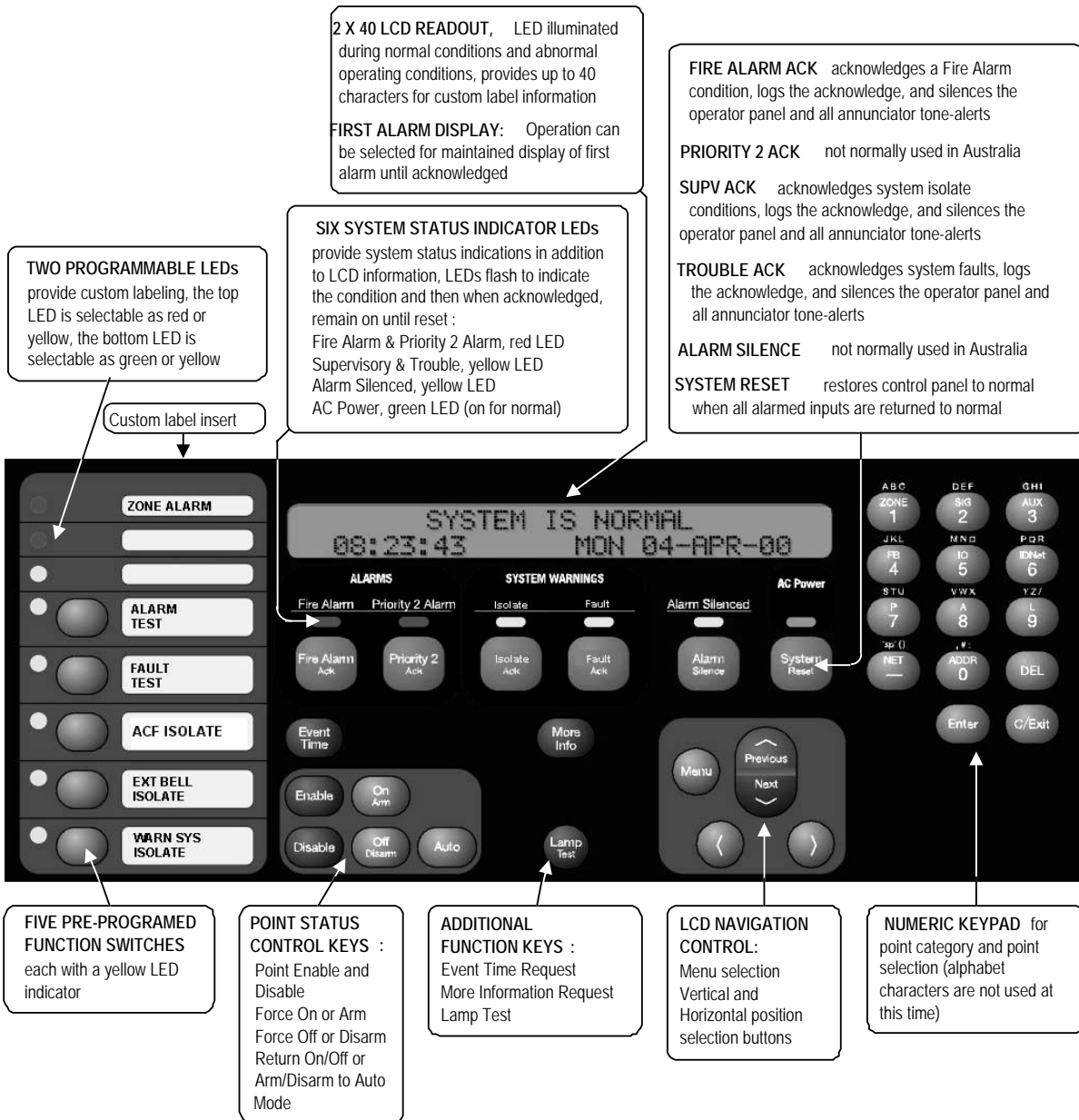
Operator Interface

Convenient Status Information. With the locking door closed, the glass window allows viewing of the display, status LEDs and available operator switches. Features include a two-line by 40-character, wide viewing angle (super-twist) LCD with status LEDs and switches as shown in the illustration below.

LED indicators describe the general category of activity being displayed with the LCD providing more detail. For the authorized user, unlocking the door provides access to the control switches and allows further inquiry by scrolling the display for additional detail.

Operator Interface Features

- Zone Alarm & Isolate status via LEDs
- Zone Isolate & De-isolate control via pushbuttons
- Convenient and extensive operator information is provided using a logical, menu-driven display
- Multiple automatic and manual diagnostics for maintenance reduction
- Alarm and Fault History Logs are available for viewing from the LCD, or capable of being printed to a connected printer, or downloaded to a service computer
- Convenient PC programmer label editing
- Password access control



Compatible Peripheral Devices

The 4100U is compatible with an extensive list of 4100 Series peripheral devices including printers, CRT/keyboards and both conventional and addressable devices including TrueAlarm analog sensors.

Addressable Device Control

Overview. The 4100U provides standard addressable device communications for IDNet compatible devices and accepts optional modules for communications with MAPNET II compatible devices. Using a two wire communications circuit, individual devices such as manual fire alarm stations, TrueAlarm sensors, conventional detector zones and sprinkler flowswitches can be interfaced to the addressable controller to communicate their identity and status.

Addressability allows the location and condition of the connected device to be displayed on the operator interface LCD and on remote system annunciators. Additionally, control circuits (fans, dampers, etc.) may be individually controlled by using a relay IAM (individual addressable module).

Addressable Operation. Each addressable device on the communication channel is continuously interrogated for status condition such as: normal, off-normal, alarm, isolate, or fault. Sophisticated poll and response communication techniques ensure supervision integrity and allow for "T-tapping" of the circuit for Class B (Style 4) operation. The device LED blinks to indicate receipt of a communications poll and is steady on to indicate an alarm (or fault) condition.

IDNet Channel Capacity. The CPU bay system power supply (SPS) provides an IDNet circuit that supports up to 250 addressable monitor and control points intermixed on the same pair of wires. Additional IDNet circuit modules are available for 64, 127, or 250 addressable devices.

MAPNET II Channel Capacity. A total of 127 addressable monitor and control points may be intermixed on the same pair of wires supporting a single MAPNET II circuit.

Wiring Requirements for MAPNET II or IDNet Communications. Refer to the specifications chart below. Distances are for shielded or unshielded wire. Shielded wire may provide protection from unexpected sources of interference.

Wiring Specifications

Size	1.5 mm ²
Type	Preferred Shielded twisted pair (STP)
	Acceptable* Unshielded twisted pair (UTP)
Total loop length for fully loaded loop of 250 Devices	Up to 1200 m.
Maximum Loop resistance / capacitance	35 Ohms / 0.58uF

* Some applications may require shielded wiring. Review system with your local Simplex product supplier.

TrueAlarm System Operation

Addressable device communications include operation of TrueAlarm smoke and temperature sensors. Smoke sensors transmit an output value based on their smoke chamber condition and the CPU maintains a current value, peak value and an average value for each sensor. Status is determined by comparing the current sensor value to its average value. Tracking this average value as a continuously shifting reference point filters out environmental factors that cause shifts in sensitivity.

Programmable sensitivity of each sensor can be field selected at the control panel for different levels of smoke obscuration (shown directly in percent) or for specific heat detection temperatures. In order to evaluate whether the sensitivity should be revised, the peak value is stored in memory and can be easily read and compared to the alarm threshold directly in percent.

TrueAlarm heat sensors can be selected for a fixed temperature detection, with or without rate-of-rise detection. Utility temperature sensing is also available, typically to provide freeze warnings or alert to HVAC system problems. The temperature readings can be programmed to be read in either Fahrenheit or Celsius.

TrueSense[®] Early Fire Detection. Multi-sensor 4098-9754 provides photoelectric and heat sensor data using a single 4100U IDNet address. With revision 11 software, the panel evaluates smoke activity, heat activity and *their combination*, to provide TrueSense early detection. For more details on this patented operation, refer to data sheet S4098-0024.

Diagnostics and Default Device Type

Sensor Status. TrueAlarm operation allows the control panel to automatically indicate when a sensor is almost dirty, dirty and excessively dirty.

Modular TrueAlarm sensors use the same base and different sensor types (smoke or heat sensor) and can be easily interchanged to meet specific location requirements. This allows intentional sensor substitution during building construction when conditions are temporarily dusty. Instead of covering smoke sensors (causing them to be disabled), heat sensors may be installed without reprogramming the control panel. The control panel will indicate an incorrect sensor type, but the heat sensor will operate at a default sensitivity to provide heat detection for building protection at that location.

CPU & DISPLAY Details

Master Controller & Motherboard:

- The master controller mounts in Slot 8 of a two slot motherboard (Slots 7 and 8 of the Master Controller CPU) and provides a standard RUI communications channel, selectable as Style 4 or Style 7, available at Slot 7
- RUI communications control up to 31 remote annunciators/MINIPLEX[®] transponders per channel including the 4603-9101 LCD Annunciator, the 4602-9101 Status Command Unit (SCU) and 4602-9102 Remote Command Unit (RCU)
- Up to four RUI channels are supported; use up to three 4100-1291 RUI expansion modules as required
- Optional Service Modem 4100-6030 mounts onto the master controller board with its own on-board connections
- Slot 7 of the motherboard is primarily used for the 4100-6014 Network Interface Board with media modules or alternatively can accommodate the 4100-6038 Dual RS-232 Board

System Power Supply:

- Rating is 9 A total, including module currents
- Outputs are power-limited, except for the battery charger
- Provides system power, battery charging, auxiliary power, auxiliary relay, earth detection, on-board IDNet communications channel for 250 points, three on-board supervised outputs and provisions for an Alarm Relay Module (ASE interface)
- Dual rate, temperature compensated battery charger charges up to 80 Ah sealed lead-acid batteries mounted in the battery compartment

System Power Supply (Continued):

- The charger is UL listed for charging up to 110 Ah batteries mounted in an external cabinet
- Performs battery monitor & test to AS4428
- Provides status information to the master controller and numerical values for battery voltage, charger voltage and current, actual system voltage and current and individual supervised output currents
- **2 A Auxiliary Power Output** is selectable for detector reset, door holder or programmable output operation
- **Auxiliary Relay** is selectable as N.O. or N.C., rated 2 A @ 32 VDC and is programmable as a fault relay, either normally energized or normally de-energized, or as an auxiliary control
- **Brigade Relay Module** (4100-6033) provides three Form C relays that are used for Alarm, Fault and Isolate, rated 2 A resistive @ 32 VDC
- **IDNet Output** provides Style 4 or Style 7 communications for up to 250 addressable devices (as described on page 4)
- **Three, 3 A On-Board Supervised Outputs (NACs)**, conventional reverse polarity operation, selectable as Class A or Class B, with electronic control and overcurrent protection and can be selected as auxiliary power outputs derated to 2 A for continuous duty; the total of all auxiliary power output per SPS is limited to 5 A maximum

Master Controller Selection Information

Master Controller and Expansion Bay Selection

Model	Model Type/Listing		Description	Isolate.	Alarm
4100-9211	220-240 VAC Input	SSL	4100U Master Controller Assembly with LCD and operator interface , 9 A system power supply/battery charger (SPS), 250 point IDNet interface, 3 NACs, auxiliary relay and external RUI communications interface	373 mA	470 mA
4100-9230	220-240 VAC Input	SSL	4100U Master Controller Assembly, no display, no operator interface , 9 A system power supply/battery charger (SPS), 250 point IDNet interface, 3 NACs, auxiliary relay and external RUI communications interface	363 mA	425 mA
4100-2300	Expansion Bay Assembly; order for each required expansion bay (not required for 4100-9121)				

Master Controller Upgrades for Existing 4100 Series Fire Alarm Control Panels

Model	Description	4100 Panel Type	Details
4100-7150	Master Controller Upgrade with LCD and operator interface assembly	1000 point	Upgrades existing 4100 panel to revision 11 operation
4100-7151	Master Controller Upgrade without LCD or operator interface		
4100-7152	Master Controller Upgrade with LCD, operator interface and power supply	512 point	
4100-2301	Expansion Bay Upgrade Kit for mounting 4100U style (4" x 5" modules) in existing 4100 style panels		

Module Selection Information

Communication Modules

Model	Description	Size	Isolate.	Alarm
4100-6014	Modular Network Interface; each requires two media modules (below)	1 Slot	28 mA	28 mA
4100-6056	Wired Media Module	Select two media cards as required; mounts on 4100-6014	N.A.	55 mA
4100-6057	Fiber Optic Media Module		N.A.	25 mA
4100-6055	Network Access Dial-in Service Modem, mounts to 4100-6014 or 4100-6061 Network Interface Card, requires telephone line connection	N.A.	75 mA	75 mA
4100-1291	Remote Unit Interface Module (RUI); up to three maximum per control panel	1 Slot	85 mA	85 mA
4100-6030	Service Port Modem, local panel access only, mounts to Master Controller Module, requires telephone line connection, accesses same information as front panel port	N.A.	70 mA	70 mA
4100-6033	Alarm Relay, 3 Form C relays, 2 A @ 32 VDC; for SPS or RPS	N.A.	15 mA	37 mA
4100-6037	Physical Bridge, Style 7, includes 2 modem and 2 wired modules	2 Slots	304 mA	304 mA
4100-6038	Dual Port RS-232 Interface, mounts in Slot 3 or Slot 2; 3 max. RS-232 type per panel	1 Slot	132 mA	132 mA
4100-6048	VESDA Aspiration System Interface	1 Slot	132 mA	132 mA

Expansion, System, Remote and TrueAlert Power Supplies and Accessories*

Model	Description/Listing		Size	Isolate.	Alarm
4100-5102	220-240 VAC	SSL	Expansion Power Supply (XPS) ; 9 A output, 3 built-in Class A/B supervised outputs (NACs)	2 Blocks	50 mA
4100-5115	NAC Expansion Module, 3 NACs, Class A/B, mounts on XPS only		N.A.	25 mA	25 mA
4100-5113	220-240 VAC	SSL	Additional System Power Supply (SPS) ; 9 A power supply/charger with 250 point IDNet channel, 3 Class A/B NACs, add IDNet device currents separately	4 Blocks	175 mA
4100-5127	220-240 VAC	SSL	Remote Power Supply (RPS) ; 9 A power supply/charger similar to SPS except no IDNet channel or ASE interface	4 Blocks	150 mA
4100-0636	Box Interconnection Harness Kit (non-audio); order one for each cabinet				
4100-0638	4100 Slot Module Additional 24 VDC Harness; need when 4100 Slot module requirements exceed 2 A from SPS				

Miscellaneous Accessories

Model	Description
4100-1279	Single blank 2" display cover, order as required (8 are required to fill a bay front)
4100-9835	Termination and Address Label Kit (for module marking); provides additional labels for field installed modules
4100-6034	Door Tamper Switch with built-in addressable IDNet IAM, one per cabinet assembly if required

Initiating Device Circuits (conventional zones)

Model	Description	Size	Isolate.	Alarm
4100-5005	Eight zones, Class B	1 Slot	75 mA	195 mA

Continued on next page

Module Selection Information (Continued)

Addressable Interface Modules

Model	Description	Isolate.	Alarm
4100-3101	IDNet Module, 250 point capacity	With 250 IDNet devices, add 200 mA	250 mA
4100-3104	IDNet Module, 127 point capacity	With 127 IDNet devices, add 102 mA	127 mA
4100-3105	IDNet Module, 64 point capacity	With 64 IDNet devices, add 51 mA	64 mA
IDNet Modules, Specifications for each capacity; Module size = 1 Block		Module without devices 75 mA	115 mA
		Loading per IDNet device 0.8 mA	1 mA
Model	Description	Isolate.	Alarm
4100-3102	MAPNET II Module, 127 point capacity, add devices separately; Module size = 2 Slots; Loading per MAPNET II device = 1.7 mA	Module without devices 270 mA	290 mA
		Fully loaded module, total 470 mA	490 mA
4100-3103	Isolator Module for MAPNET II or IDNet ; converts a single circuit into four isolated outputs selectable as Class A or Class B; up to two Isolator Modules can be connected to one loop; Module size = 1 Slot	50 mA	50 mA

Relay Modules; Nonpower-limited (for mounting in expansion bay only)

Model	Description	Resistive Ratings		Inductive Ratings		Size	Isolate.	Alarm
4100-3204	4 DPDT w/feedback	2 A	30 VDC/VAC	1/2 A	30 VDC/120 VAC	1 Block	18 mA	70 mA
4100-3206	8 SPDT	3 A	30 VDC/120 VAC	1-1/2 A	30 VDC/120 VAC	1 Block	16 mA	200 mA

Current Calculation Notes:

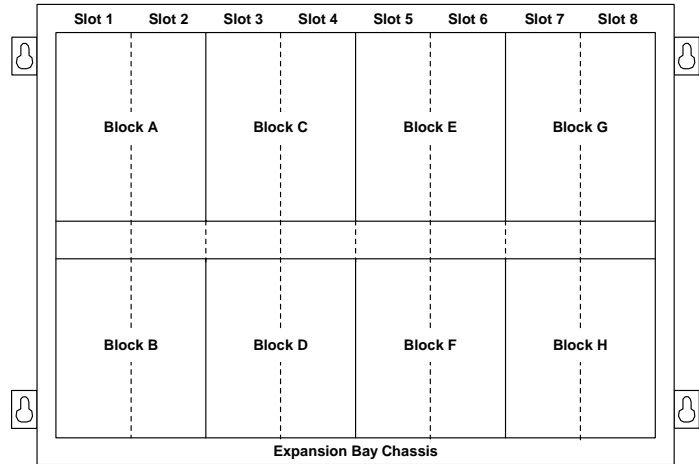
- To determine total isolate current, add currents of modules in panel to base system value **and** all external loads powered by panel power supplies.
- To determine total alarm current, add currents of modules in panel to base system alarm current **and** add all panel NAC loads **and** all external loads powered from panel power supplies.

General Specifications

Input Power	System Power Supplies (SPS) Expansion Power Supplies (XPS) Remote Power Supplies (RPS)	220-240 VAC Models	1.75 A maximum @ 204 to 264 VAC, 50/60 Hz; separate taps for 220/230/240 VAC
Power Supply Output Ratings, System, Expansion and Remote Power Supplies	Total Power Supply Output Rating	9 A total @ nominal 28 VDC, including module currents and auxiliary power outputs	
	Auxiliary Power Tap	2 A maximum @ nominal 28 VDC	
	NACs Programmed for Auxiliary Power	2 A maximum per NAC, 5 A maximum total @ nominal 28 VDC	
Battery Charger, System and Remote Power Supply	Battery capacity range	6.2 Ah to 80 Ah; selectable via programming for batteries below 18 Ah; the SPS is UL listed for up to 110 Ah battery charging for remotely located batteries	
	Charger characteristics and performance	Temperature compensated, dual rate, recharges depleted batteries within 24 hours per AS4428 and to 70% capacity in 12 hours per ULC Standard S527	
Environmental	Operating Temp.	32° to 120°F (0° to 49° C)	
	Operating Humidity	Up to 93% RH, non-condensing @ 90° F (32° C) maximum	

Expansion Bay Module Loading Reference

Description	Mounting	
IDNet Modules	1 Block	
4, 2 A Relays	NON Power-limited	
4, 10 A Relays		1 block
8, 3 A Relays		4", 2 slots
8, 3 A Relays	1 block	
VESDA Interface	2", 1 Slot	
8 Zone Monitor	2", 1 Slot	
RS232/2120 Interface	2", 1 Slot	
MAPNET II Module	4", 2 Slots	
MAPNET II/IDNet Isolator	2", 1 Slot	
Internet Interface	4", 2 Slots	
Style 7 Physical Bridge	4", 2 Slots	
System, Remote, or TrueAlert Power Supply	Blocks E, F, G & H ONLY	
Expansion Power Supply	Blocks G & H ONLY	
NAC Expansion Module	On XPS ONLY	



Size Definitions: Block = 4" W x 5" H (102 mm x 127 mm) card area
Slot = 2" W x 8" H (51 mm x 203 mm) motherboard with daughter card

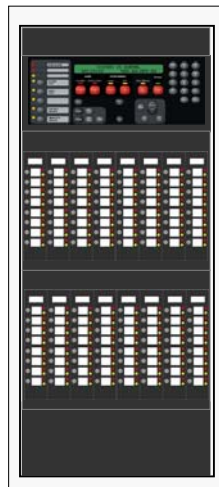
Cabinet Sizes & Dimensions

Door Types	Size	Height	Width	Depth
Glass Door, Right Hand Hinged Glass Door, Solid Door	18U	885 mm	575 mm	260 mm
	28U	1330 mm		380 mm
	40U	1865 mm		

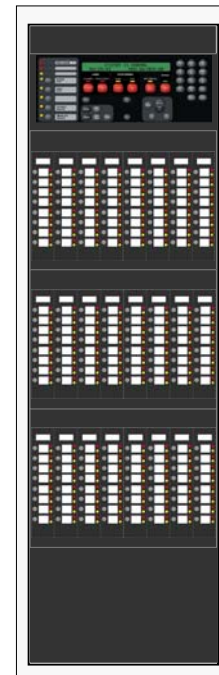
Paint Colour: Powder Coat Cream Wrinkle
Cabinet Material: 1.6mm Zinc Coated Mild Steel



18U



28U



40U

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