

## Features



Figure 1: 4100ES cabinets are available with one, two or three bays (2 bay cabinet shown)

### Compatible with Simplex ES Net or 4120 Fire Alarm Networks

#### Master Controller (top) bay standard equipment

- 32-Bit Master Controller with color-coded operator interface and raised switches for high confidence feedback
- Dual configuration program CPU, convenient service port access, and capacity for up to 2500 addressable points
- CPU assembly includes 2 GB dedicated compact flash memory for on-site system programming and information storage
- An Enhanced Power Supply (EPS) and battery charger (9 A output) with on-board: IDNAC SLCs (signaling line circuit) for addressable appliance control, an IDNet 2 Module for addressable device control; and programmable function auxiliary output
- Also available with InfoAlarm Command Center expanded content user interface (see data sheet [S4100-0045](#))

#### Standard addressable device interfaces include:

- 250 point addressable device IDNet 2 SLC that supports TrueAlarm analog sensors and IDNet communications monitoring and control devices with an electrically isolated output channel allowing use with either shielded or unshielded, twisted or untwisted single pair wiring; and providing dual short circuit isolating output loops
- MINIPLEX Transponder and remote LCD and LED annunciator support via RUI+ (isolated or un-isolated) communications port (see [Standard CPU Bay Module Details](#))

#### Standard power supplies (EPS) provide enhanced power delivery IDNAC SLCs to addressable notification appliances

- With IDNAC SLCs, a constant 29 VDC source voltage is maintained during alarm, even during battery operation, allowing strobes to operate at higher voltage with lower current and ensuring a consistent

current draw and voltage drop margin under both primary power and secondary battery standby

- Efficiencies include lower strobe currents, wiring distances up to 2 to 3 times farther than with conventional notification, support for more appliances per IDNAC SLC, and the ability to use smaller gauge wiring – all providing installation and maintenance savings with high assurance that appliances that operate during normal system testing will also operate during worst case alarm conditions
- IDNAC SLCs are compatible with both TrueAlert ES and TrueAlert addressable notification appliances, and remote 4009 IDNAC Repeaters to extend power and wiring distance even farther

#### Optional modules and connections

- Fire Alarm Network Interfaces, city connections, and up to five (5) RS-232 ports for printers and terminals
- Building Network Interface Card (BNIC) for Ethernet connectivity options (see data sheet [S4100-0061](#))
- Side mounted DACT assembly requiring minimal panel space; DACT is compatible with IP Communicators
- Emergency communications systems (ECS) equipment; 8 channel digital audio or 2 channel analog audio
- Additional IDNet 2 communications SLCs, IDNet 2+2 Modules with quad short circuit isolating output loops; additional power supplies, alarm relays, and auxiliary relays
- LED/switch modules and panel mount printers; VESDA Air Aspiration Systems interface, ASHRAE BACnet Interface, TCP/IP Bridges
- Battery brackets for seismic area protection
- 4100ES compatible legacy interface modules, including control of conventional (non-addressable) NACS
- 8-point zone/relay module, each point is selectable as an IDC input or relay output. Class A IDCs require 2 points (one out and one return). Relays rated for 2 A @ 30 VDC (resistive). Configurable as normally open or closed.

#### 4100ES Listings reference:

- UL 864, Fire Detection and Control (UOJZ), and Smoke Control Service (UUKL), Releasing Device Service (SYZV)
- UL 1076, Proprietary Alarm Units - Burglar (APOU)
- UL 2017, Process Management Equipment (QVAX), Emergency Alarm System Control Units (FSZI)
- UL 1730, Smoke Detector Monitor (UULH)
- UL 2572, Mass Notification Systems (PGWM)
- CAN/ULC S527, Control Units for Fire Alarm Systems (UOJZ7), Releasing Device Service (SYZV7)
- ULC/ORD-C1076 Proprietary Burglar Alarm Units and Systems (APOU7)
- ULC/ORD-C100 Smoke Control System Equipment (UUKL7)

## Software Feature Summary

#### CPU provides dual configuration programs

- Two programs allow for optimal system protection and commissioning efficiency with one active program and one reserve; downtime is reduced because the system stays running during download

#### PC based programmer features

- Convenient front panel accessed Ethernet 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 are made via software downloads to the on-board flash memory

- **"Install Mode"** allows grouping of multiple troubles for uninstalled modules and devices into a single trouble condition (typical with future phased expansion); with future equipment and devices grouped into a single trouble, operators can more clearly identify events from the commissioned and occupied areas
- Module level ground fault searching assists installation and service by locating and isolating modules with grounded wiring
- **"Recurring Trouble Filtering"** allows the panel to recognize, process, and log recurring intermittent troubles (such as external wiring ground faults), but only sends a single outbound system trouble to avoid nuisance communications
- WALKTEST silent or audible system test performs an automatic self-resetting test cycle
- Support for TrueAlarm individual analog sensing and IDNAC addressable notification with front panel information and selection access

## Introduction

4100ES fire panels provide extensive installation, operator, and service features with point and module capacities suitable for a wide range of system applications. An on-board Ethernet port provides fast external system communications to expedite installation and service activity. Dedicated compact flash memory archiving provides secure on-site system information storage of electronic job configuration files to meet NFPA 72 (National Fire Alarm and Signaling Code) requirements.

## Modular design

A wide variety of functional modules are available to meet specific system requirements. Selections allow panels to be configured for either stand-alone or networked fire control operation.

## ES panel compatibility with ES Net

Simplex ES Network (ES Net) is a next generation IP based fire network that uses industry standard network technology and infrastructure and allows for simplified network upgrades, easy terminal connectivity and IP file transfer between nodes; and advanced network diagnostics.

ES fire alarm control panels can be upgraded to operate on an ES network by adding an ES Net NIC to the panel.

To upgrade an existing 4120 network to ES Net, all of the 4120 NIC cards on the network loop must be replaced with ES Net NICs.

**Note:** ES NICs and 4120 NICs cannot be mixed on the same network loop.

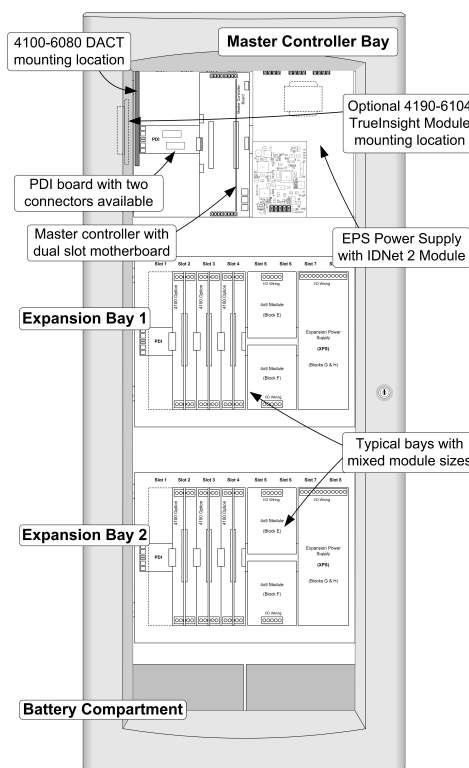
For more detailed information on ES Net, consult *datasheet S4100-0076*, and talk to your local Simplex product supplier.

## Module Bay Description

**The Master Controller Bay** (top) includes a standard multi-featured enhanced power supply (EPS) with IDNet 2 Module, the master controller board, two vertical expansion blocks, and operator interface equipment.

**The Expansion Bays** include a Power Distribution Interface (PDI) for connection of single or multiple block modules, and/or slot style (motherboard/daughter card) modules.

**The Battery Compartment** (bottom) accepts two batteries, up to 50 Ah, to be mounted within the cabinet without interfering with module space.



**Figure 2: 4100ES Module Placement Reference in 3-Bay Cabinet**

## Mechanical Description

- Boxes can be close-nipped; each box provides convenient stud markers for drywall thickness and nail-hole knockouts for quicker mounting
- Smooth box surfaces are provided for locally cutting conduit entrance holes exactly where required
- Cabinet assembly design has been seismic tested and is certified to IBC and CBC standards as well as to ASCE 7 categories A through F, requires 4100-7912 option for additional legacy card stabilizer brackets and battery brackets as detailed on data sheet **S2081-0019**
- The latching front panel assembly easily lifts off for internal access
- Modules are power-limited (except as noted, such as relay modules)
- The NEMA 1/IP30 box is ordered separately and available for early installation
- Doors are available with tempered glass inserts or solid; boxes and doors are available in platinum or red
- Boxes and door/retainer assemblies are ordered separately per system requirements; refer to data sheet **S4100-0037**

## Operator Interface Detail Reference

The following illustration identifies the primary functions of the operator interface.

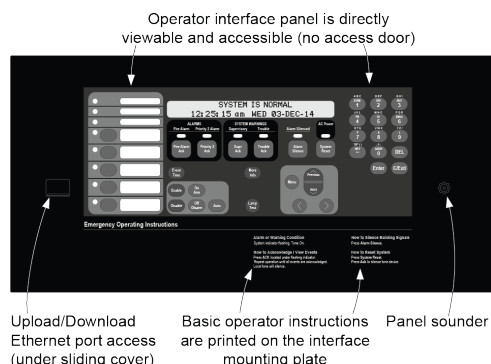


Figure 3: Operator interface

## IDNet Addressable Device and IDNAC Addressable Notification Appliance Control

**Overview.** The 4100ES EPS power supply with IDNet 2 Module provides addressable initiating device and IDNAC addressable notification appliance Signaling Line Circuits (SLCs) that supervise wiring connections and the individual device/appliance communications status on their SLC. With these 2-wire SLCs, initiation, monitoring, and control devices such as manual fire alarm stations, TrueAlarm sensors, control relays, and sprinkler waterflow switches; and notification appliances such as strobes and horns can communicate their identity and status and receive fire alarm system control. Additional interface modules include circuit isolators, conventional IDC zone adapters, and interface to other system circuits such as fans, dampers, and elevator controls.

## IDNet Addressable Device Operation

**Each addressable device** on an IDNet communication channel is continuously interrogated for status condition such as: normal, off-normal, alarm, supervisory, or trouble. Both Class B and Class A operation is available. Sophisticated poll and response communication techniques ensure supervision integrity and allow for "T-tapping" of the circuits for Class B operation. Devices with LEDs pulse the LED to indicate receipt of a communications poll and can be turned on steady from the panel. With addressable devices, the location and status of the connected device is monitored and logged, and displayed on the operator interface LCD and on remote system annunciators with each device having its own 40 character custom label for precise identification.

## TrueAlarm Addressable Sensor Operation

Addressable initiating 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.

Table 1: TrueAlarm Addressable Sensor Reference

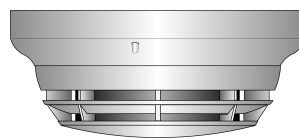


Figure 4: TrueAlarm Photo Sensor with Base

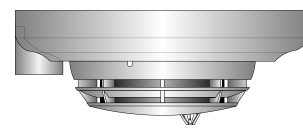


Figure 5: TrueAlarm Photo/Heat Sensor in CO Base

### Programmable sensitivity

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

### CO sensor bases

CO sensor bases combine an electrolytic CO sensing module with a TrueAlarm analog sensor to provide a single multiple sensing assembly using one system address. The CO sensor can be enabled/disabled, used in LED/Switch modes and custom control, and can be made public for communication across a fire alarm Network. (refer to data sheet [S4098-0052](#) for details)

### TrueAlarm heat sensors

TrueAlarm heat sensors can be selected for 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. Readings can selected as either Fahrenheit or Celsius.

### TrueSense Early Fire Detection

Multi-sensor 4098-9754 provides photoelectric and heat sensor data using a single 4100ES IDNet address. The panel evaluates smoke activity, heat activity, and their combination, to provide TrueSense early detection. For more details on this 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. The NFPA 72 requirement for a test of the sensitivity range of the sensors is fulfilled by the ability of TrueAlarm operation to maintain the sensitivity level of each sensor. CO Sensors track their 10 year active life status providing indicators to assist with service planning. Indicators occur at: 1 year, 6 months, and end of life.

### Modular TrueAlarm sensors

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.

## IDNet Addressable Device Wiring Reference

### IDNet Addressable Channel Capacity

The CPU bay standard power supply (EPS) provides an IDNet 2 Module providing a signaling line circuit (SLC) that supports up to 250 addressable monitor and control points intermixed on the same pair

of wires. IDNet 2 and IDNet 2+2 Module SLCs are isolated from other system reference voltages to reduce common mode noise interaction with adjacent system wiring. Additional 250 address IDNet 2 or IDNet 2+2 Modules are available.

**Table 2: IDNet 2 and IDNet 2+2 SLC Wiring Specifications**

Specification		Rating
Maximum Distance from Control Panel per Device Load	1 - 125	4000 ft (1219 m); 50 ohms
	126 - 250	2500 feet (762 m); 35 ohms
Total Wire Length Allowed With "T" Taps for Class B Wiring		Up to 12,500 ft (3.8 km); 0.60 $\mu$ F
Maximum Capacitance Between IDNet 2 Channels		1 $\mu$ F
Loading per device		0.8 mA supv., 1 mA alarm; 2 mA per activated device LED
Wire Type and Connections		Shielded or unshielded, twisted or untwisted wire*
Connections		Terminals for 18 to 12 AWG (0.82 mm <sup>2</sup> to 3.31 mm <sup>2</sup> )
<b>IDNet 2 and IDNet 2+2 Module Compatibility:</b> IDNet communicating devices and TrueAlarm sensors including QuickConnect and QuickConnect2 sensors		
<b>Note:</b> * Some applications may require shielded wiring. Review your system with your local Simplex product supplier.		

## IDNAC SLC Control of TrueAlert and TrueAlert ES Addressable Notification

**Addressable notification appliance communications** include operation of TrueAlert and TrueAlert ES Visible only (V/O, strobe), Audible only (A/O, horn), Audible/Visible (A/V, horn/strobe), and strobes of Speaker/Visible (S/V) notification appliances. (S/V appliances require separate speaker wiring.) IDNAC SLC addressable communications allow each horn and strobe to be individually controlled using a single two-wire circuit, confirms the wiring connections to the individual notification appliance's electronic circuit, and confirms communications between each appliance and the fire alarm control panel. Addressable communications increases supervision integrity versus conventional notification systems by providing supervision beyond the circuit wiring to each individual appliance and by constantly verifying the ability of each appliance to communicate with the control panel.

### Individual Appliance Status and Settings

The fire alarm control panel monitors and records each addressable notification appliance status, type of appliance, and its configured appliance settings. A fault in any individual appliance automatically reports a trouble condition to the control panel.



**Figure 6: TrueAlert ES Addressable Appliance Reference**

## Virtual NACs Provide Control Convenience

For control convenience, IDNAC notification appliances can be grouped into **Virtual NACs** (VNACs) for group control, grouping that can be made across SLCs, not defined by their wiring connection.

### Panel Control Convenience

Applicable operation settings for each appliance can be programmed **without having to replace appliances or remove them from the wall or ceiling**. An appliance's VNAC notification zone can be easily changed through programming without having to add additional circuits, conduit, and wiring. Audible and visible appliances for non-Fire Emergency Communications notification can be programmed to operate separately **on the same pair of wires as the fire alarm notification appliances**. The result is lower installation, retrofit, and overall life-cycle cost of ownership compared with traditional conventional notification systems.

### Installation, Retrofit, and Life-Cycle Cost Benefits

With each addressable appliance capable of being controlled separately on the same two-wire IDNAC SLC, installation time and expense for both retrofit and new construction can be significantly reduced. When Class B wiring is used, wiring can be "T-tapped" allowing more savings in distance, wire, conduit (size and utilization), and overall installation efficiency.

### Location Information, Diagnostics and Troubleshooting

Each addressable notification appliance has its own 40 character custom label to identify the location of the appliance and to aid in troubleshooting fault conditions. In conventional notification systems, conventional appliances are not capable of communicating with the control panel. Fault reporting on a conventional system is limited to the circuit wiring and the entire area (zone) covered by appliances on the notification appliance circuit (NAC) making it much more difficult and costly to locate and correct the source of a problem. Using the TrueAlert **magnet test** allows each appliance to individually identify its candela setting and address and to briefly operate if desired, and using the **TrueAlert ES Appliance Self-Test feature provides detailed performance verification per appliance**.

## TrueAlert ES Appliance Self-Test Operation

### On-Board Test Sensors

TrueAlert ES appliances are equipped with on-board sensors to detect strobe and/or horn output allowing efficient and unobtrusive Self-Testing. When **Automatic Self-Test** is initiated from the control panel, each appliance within the selected VNAC group will briefly operate and then report its Self-Test status to the control panel, all within several seconds. Silent Self-Test can be selected to test only visible appliance if desired. The control panel is in a trouble condition during testing and in the event of an alarm, Self-Test is automatically terminated.

**Additionally, Automatic Self-Test can be scheduled** to occur at a convenient time on a regular basis (Requires version 2.03.01 or higher software).

### Automatic Self-Test

Automatic Self-Test results are communicated to the control panel with a time and date stamp and are stored in memory. Results are viewable at the front panel display and printed reports can be generated from the panel service port.

### Individual Self-Test

Individual Self-Test is selected from the control panel when individual appliances need to be observed to operate. Each appliance in the selected VNAC group will turn on its LED until individually activated by applying a magnet. After performing the individual test, the appliance LED turns off to indicate completion. Results are recorded the same as during the automatic test.



## IDNAC SLC Hardware Reference

### EPS Power Supplies

EPS Power Supplies provide three, 3 A IDNAC SLCs for control and power to TrueAlert ES and TrueAlert addressable notification appliances. Both power supplies incorporate an efficient switching design that provides a regulated output of 29 VDC, even during battery operation. With 29 VDC minimum output at the panel, addressable notification SLCs can support wiring distances 2 to 3 times farther than available with conventional notification, or support more appliances per SLC, or work with smaller gauge wiring, or combinations of these benefits, all resulting in installation and maintenance savings with high assurance that appliances that operate during normal system testing will operate during worst case alarm conditions.

## IDNAC SLC Appliance Wiring Reference

### IDNAC SLC Capacity

Up to 127 addresses and up to 139 unit loads (appliances are typically one unit load, devices such as Isolators may require more than one load, refer to individual device data sheet for specific information)

**Table 3: IDNAC SLC Appliance Wiring Reference**

Specification	Rating
Recommended wire type	UTP, unshielded twisted pair
Maximum wire length allowed with "T-Taps" for Class B wiring, per SLC	10,000 ft (3048 m)
Maximum wire length per SLC to any appliance	4000 ft (1219 m)
Appliance Supervisory Current	1 unit load = 0.8 mA per appliance
Wiring connections	Terminals for 18 to 12 AWG (0.82 mm <sup>2</sup> to 3.31 mm <sup>2</sup> )
Installation Instructions (see for more information)	579-1015

## Standard CPU Bay Module Details

### Master Controller and Motherboard

- Mounts in Slot 2 of a two slot motherboard and provides one Class B or Class A, RUI+ communications channel configurable for isolated or un-isolated operation
- Slot 1 of the motherboard is primarily for an optional network interface card or secondarily for the 4100-6038 dual RS-232 board communications
- RUI+ and RUI communications controls up to 31 remote devices per master controller at up to 2500 ft (762 m) for single run, or 10,000 ft (3048 m) total if wiring is Class B and T tapped; if more distance is required, up to four total RUI channels are supported; add up to three 4100-1291 RUI Expansion Modules (4100-1291 provides unisolated RUI communications)
- Compatible RUI+ and RUI remote equipment includes: MINIPLEX transponders, 4603-9101 LCD Annunciators, 4602-9101 Status Command Units (SCU), 4602-9102 Remote Command Units (RCU), 4602 Series LED Annunciator Panels, 4100 Series 24 I/O and LED/Switch modules, (4602 series annunciators require un-isolated communications).
- Up to 4 RUI channels (combination of built-in RUI+ and optional RUI modules) are supported
- Open slot space on the left of the CPU motherboard is available for either another dual slot motherboard, or for one or two block modules (refer to Figure 2)

### EPS Mounted Optional Modules (select one)

- City Connect Module (4100-6031, with disconnect switches, or

4100-6032, without disconnect switches) can be selected for conventional dual circuit city connections

- Alarm Relay Module (4100-6033) provides three Form C relays that are used for Alarm, Trouble, and Supervisory, rated 2 A resistive @ 32 VDC

### EPS (Enhanced Power Supply) with IDNet 2 Module Details

- Rating is 9 A output with "Special Application" appliances
- Outputs are power-limited, except for the battery charger
- Provides system power, battery charging, auxiliary power, earth detection, on-board electrically isolated IDNet 2 Module with 250 point SLC, three on-board 3 A IDNAC SLCs, and provisions for either an optional City Connect Module or an optional Alarm/Supv/Tbl Relay Module
- IDNet 2 Module SLC** Output provides Class B or Class A communications for up to 250 addressable devices with dual short circuit isolating loop outputs

**Note:** The "IDNet 2 Module" replaced the "IDNet 1+ Module" and the term "EPS with IDNet 2 Module" replaces the term "EPS+"

- Note:** The "IDNet 2 Module" replaced the "IDNet 1+ Module" and the term "EPS with IDNet 2 Module" replaces the term "EPS+". **DCAI (Dual Class A IDNAC Isolator)** Module creates two Class A outputs from one IDNAC SLC Class B Input; up to two can be connected to one IDNAC SLC, with up to 6 total per EPS; total Class A output loop current is limited to the 3 A rating of the IDNAC SLC
- Battery Charger** is dual rate, temperature compensated, and charges up to 50 Ah sealed lead-acid batteries mounted in the battery compartment (33 Ah for single bay cabinets). UL listed for charging up to 110 Ah batteries mounted in an external cabinet (see data sheet S2081-0012 for details)
- Battery and Charger Monitoring** includes battery charger status and low or depleted battery conditions; status information provided to the master controller includes analog values for: battery voltage, charger voltage and current, actual system voltage and current, and individual IDNAC SLC currents
- Low Battery Cutout** is selectable for each EPS power supply, Canadian models are shipped selected, other models are shipped unselected

### 2 A Programmable Output

- Select for conventional non-synchronous NAC operation to provide supervised reverse polarity for sounder base power, Suppression Release Peripheral (SRP) power, or other coded NAC operation requirements
- Select for Auxiliary (AUX) operation for sounder base power, 4-wire detector power, or door holder; supervised AUX operation does not require an end-of-line relay to provide power-limited operation

### 8-Point Zone/Relay Module Details

- Select as IDC or Relay;** configure up to 8, Class B IDCs, or up to 4, Class A IDCs; or up to 8, Relay outputs rated 2 A resistive @ 30 VDC (N.O. or N.C.); or combinations of IDCs and Relays; each zone is separately configurable as an IDC or Relay output
- IDC Support:** each IDC supports up to 30, two-wire devices. Zone relay modules may be powered directly from the control unit power supply or through the optional 25 VDC regulator module where required for 2-wire detector compatibility (refer to 2-Wire Detector Compatibility document **579-832** for additional details).
- IDC EOL resistor values are selectable as:** 3.3 kΩ, 2 kΩ, 2.2 kΩ, 3.4 kΩ, 3.9 kΩ, 4.7 kΩ, 5.1 kΩ, 5.6 kΩ, 6.34/6.8 kΩ, and 3.6 kΩ + 1.1 kΩ; see instructions for more details

## Master Controller Selection Information

**Table 4: Master Controller and Expansion Bay Selection**

Model	Model Type and Listing		Description	Current
4100-9311	120 VAC, 50/60 Hz Input	UL	4100ES Master Controller Assembly with LCD display, operator interface and RUI+ isolated or un-insolated output communications interface; 9 A EPS (Enhanced Power Supply) with battery charger, electrically isolated 250 point IDNet 2 Module, three Class B IDNAC SLCs, one 2 A output configurable for Auxiliary Power or Simple NAC operation and expansion slot for City Circuit or Alarm/Supv/Tbl Relay option.	Without IDNet devices: Supervisory = 425 mA Alarm = 735 mA Note: Master Controller current does not subtract from 9 A output rating
4100-9312	English	120 VAC, 50/60 Hz Canadian		Without IDNet devices: Supervisory = 425 mA Alarm = 735 mA Note: Master Controller current does not subtract from 9 A output rating
4100-9313	French	120 VAC, 50/60 Hz Canadian		Without IDNet devices: Supervisory = 425 mA Alarm = 735 mA Note: Master Controller current does not subtract from 9 A output rating
4100-9511	220-240 VAC, 50/60 Hz Input	UL	4100ES Master Controller Assembly with LCD display, operator interface and RUI+ isolated or un-insolated output communications interface; 9 A EPS (Enhanced Power Supply) with battery charger, electrically isolated 250 point IDNet 2 Module, three Class B IDNAC SLCs, one 2 A output configurable for Auxiliary Power or Simple NAC operation and expansion slot for City Circuit or Alarm/Supv/Tbl Relay option	Without IDNet devices: Supervisory = 425 mA Alarm = 735 mA Note: Master Controller current does not subtract from 9 A output rating
4100-9331	120 VAC, 50/60 Hz input	UL	4100ES Master Controller Assembly ; same as above models except without LCD Display and Operator Interface	
4100-9332	120 VAC, 50/60 Hz input, Canadian, English	ULC	4100ES Master Controller Assembly ; same as above models except without LCD Display and Operator Interface	Without IDNet devices: Supervisory = 425 mA Alarm = 735 mA Note: Master Controller current does not subtract from 9 A output rating
4100-2300	Expansion Bay Assembly; <b>order for each required expansion bay</b>			
4100-2303	Slot Module Stabilizer Bracket, used when expansion bays have style modules			

**Table 5: Communication Modules**

Model	Description		Size	Supv.	Alarm
4100-6055	Network Access Dial-in Service Modem, mounts to 4100-6078 or 4100-6061 Network Interface Card, requires telephone line connection		N.A.	60 mA	60 mA
4100-1291	Un-isolated Remote Unit Interface Module (RUI); up to 3 maximum per control panel		1 Slot	85 mA	85 mA
4100-6031	Select one per EPS.	City Circuit, with disconnect switches	N.A.	20 mA	36 mA
4100-6032	<b>Maximum one City Circuit module per panel</b>	City Circuit, w/o disconnect switches	N.A.	20 mA	36 mA
4100-6033		Alarm/Supv/Tbl Relay, 3 Form C relays, 2 A @ 32 VDC	N.A.	15 mA	37 mA
4100-6046	Dual Port RS-232 standard interface (single block)		3maximum RS-232 Modules per panel	1Block	60mA
4100-6038	Dual Port RS-232 with 2120 interface (slot module)			1Slot	132 mA
4100-6079	SafeLINC Internet Interface (refer to data sheet S4100-0062 for details)		2 Blocks	145 mA	145 mA
4190-6104	TrueInsight Remote Monitoring Module (refer to data sheet S4100-0063 for details)		Side Mt.	62 mA	73 mA
4100-6101	Physical Bridge, Class B, includes 1 modem module and 2 wired modules		1Slot	210 mA	210 mA
4100-6102	Physical Bridge, Class X, includes 2 modem and 2 wired modules		2Slots	300 mA	300 mA
4100-6048	VESDA Aspiration System Interface (refer to data sheet S4100-0026 for details)		1Slot	132 mA	132 mA
4100-6080	DACT, Point or Event Reporting; 1 shipped unless 4100-7908 is selected; 2 max. per system; includes 2, 2080-9047 cables, 14 ft (4.3 m) long, RJ45 plug and spade lugs		SideMt.	30 mA	40 mA

## Module Selection Information

**Table 6: Additional Enhanced Power Supplies, Expansion Power Supply, and Accessories**

Model	Voltage	Listing	Description	Size	Supv.	Alarm
4100-5311	120 VAC	UL & ULC	<b>Enhanced Power Supply (EPS) with IDNet 2 Module;</b> 9 A Enhanced Power Supply with battery charger, electrically isolated 250 point IDNet 2 Module, three Class B IDNAC SLCs, one 2 A output configurable for Auxiliary Power or Simple NAC operation, and expansion slot for City Circuit or Alarm/Supv/Tbl Relay option; 120 VAC model has selectable low battery cutout	4 Blocks Right Side	225 mA	490 mA
4100-5313	220-240 VAC	UL & ULC			add IDNet device currents separately	
4100-5325	120 VAC	UL & ULC	<b>Expansion EPS;</b> 9 A Expansion EPS, functionally identical to the Enhanced Power Supply except without the IDNet 2 Module	4 Blocks Right Side	125 mA	220 mA
4100-5327	220-240 VAC	UL & ULC				
4100-5101	120 VAC	UL & ULC	<b>Expansion Power Supply (XPS);</b> 9 A output, 3 built-in Class A/B conventional (non-addressable) 3 A NACs that can also be selected as 2 A auxiliary power output, 2 A separate auxiliary power output; without battery charger	2 Blocks	50 mA	50 mA
4100-5102	220-240 VAC	UL & ULC				
4100-5103	120 VAC, Canadian	ULC	<b>Expansion Power Supply (XPS);</b> 9 A output, 3 built-in Class A/B conventional (non-addressable) 3 A NACs that can also be selected as 2 A auxiliary power output, 2 A separate auxiliary power output; without battery charger; Canadian model has low battery cutout	2 Blocks	50 mA	50 mA
4100-5115	NAC Expansion Module, 3 NACs, Class A/B, <b>mounts on XPS only</b>			N.A.	25 mA	25 mA
4100-6103	<b>Dual Class A IDNAC Isolator (DCAI);</b> converts a single Class B IDNAC SLC input to two Class A or two Class B SLC outputs; provides short circuit isolation between each Class A or B output circuit; connect up to two DCAI Modules per IDNAC SLC input up to a maximum of 6 DCAI Modules per EPS; each isolated output SLC used requires one IDNAC address; the total current remains controlled by the Class B input source SLC at 3 A maximum; each isolated loop supports up to 30 device addresses (note: up to 30 additional device addresses may be installed between each 4905-9929 TrueAlert Addressable Isolator+ Module, not to exceed the maximum address and unit loading specifications for the IDNAC channel)			1 Block	8.3 mA	18.5 mA
4100-5152	12 VDC Power Option, 2 A maximum			1 Block	1.5 A maximum	
4100-0156	8 VDC Converter, required for multiple Physical Bridge Modules, 3 A maximum			1 Block	included w/ loads	
4100-5130	Voltage Regulator Module, 22.8 to 26.4 VDC (25VDC nominal); isolated and resettable output; includes earth detection circuit and trouble relay for status monitoring			1 Block	3 A maximum with 2.5A load, 4.9A maximum with 4 A load	
4100-0636	Box Interconnection Harness Kit (non-audio); order one for each close-nipped cabinet					
4100-0638	4100 Slot Module Additional 24 VDC Harness; needed when 4100 Slot module requirements exceed 2 A from EPS					

**Note:** for additional non-addressable Power Supplies, refer to data sheet S4100-0031.

**Table 7: 8 Zone Initiating Device Circuits**

Model	Type	Supv.	Alarm
4100-5005	Class B	75 mA	195 mA
4100-5015	Class A	75 mA	195 mA

**Note:** Modules are for use with all 4100U systems and 4100ES systems version 3.03.05 or earlier. IDC Modules are 1 slot size.

## Addressable Fire Detection and Control Basic Panel Modules and Accessories

**Table 8: 8-Point Zone/Relay Card (requires 4100ES Version 3.04.01 or later)**

Model	Description	Size	Supv.	Alarm
4100-5013	8 point zone/relay 4x5" flat module. Mounts in any open block in a master controller or expansion bay. Alarm current shown is for 8 Class B IDCs using 3.3K end-of-line-resistors with 4 in alarm and 4 in standby. Standby current shown is for all 8 IDCs in standby. Refer to 579-1236 Zone/Relay Module Installation Instructions for additional information.	1 block	83 mA	351 mA
4100-6305	25V regulator harness for 8 point zone/relay module. One required for each 8 point zone/relay module to be powered by the 4100-5130 25V regulator module. A maximum of (5) 8 point zone/relay modules may be powered from the 4100-5130 per bay.	N/A	N/A	N/A

**Table 9: System Option for Seismic Compliance**

Model	Description
4100-7912	System option for Seismic compliance, provides additional stabilizer brackets required for legacy style cards

**Table 10: Addressable Interface Modules**

Model	Description	Size	Supv.	Alarm
4100-3109*	<b>IDNet 2 Module</b> , 250 point capacity; electrically isolated output with <b>two</b> short circuit isolating Class B or Class A output loops, 1 block; standard on EPS with IDNet 2 Module; alarm currents for 50 and above devices includes 20 device LEDs in alarm	no devices	50 mA	60 mA
		50 devices	90 mA	150 mA
		125 devices	150 mA	225 mA
		250 devices	250 mA	350 mA
4100-3110*	<b>IDNet 2+2 Module</b> , 250 point capacity; electrically isolated output with <b>four</b> short circuit isolating Class B or Class A output loops, 1 block; mounts in expansion bay or available master controller bay module locations only, not applicable for EPS mounting; alarm currents for 50 and above devices includes 20 device LEDs in alarm	no devices	50 mA	60 mA
		50 devices	90 mA	150 mA
		125 devices	150 mA	225 mA
		250 devices	250 mA	350 mA
4100-3111*	<b>IDNet Short Circuit Isolating Loop Output Module</b> ; mount up to two on a 4100-3109 module; for use with 4100-3109 modules in expansion bays or available master controller bay module locations only; not applicable for mounting on a 4100-3109 mounted on an EPS; this option is for aftermarket field installation only			
4100-3112	<b>Four Loop IDNet Master Controller</b> ; for the Master Controller Assemblies listed in <a href="#">Master Controller Selection Information</a> , this option moves the standard IDNet 2 Module from the Master Controller EPS to an available block space in the master controller bay and adds 2, 4100-3111 IDNet Loop Output Modules. Requires selection of Factory Built Option 4100-7905; current requirements remain the same.			

**Note:** \*

Loading per IDNet device (no LEDs on) = 0.8 mA supervisory and 1 mA alarm.

Total of *initiating* SLCs per CPU, including VESDA Interface, is 30.

Each IDNet 2 and IDNet 2+2 Short Circuit Isolating Loop Output can be individually controlled for system diagnostics and can be assigned a public point for Fire Alarm Network annunciation.

**Table 11: Relay Modules; Non power-limited (for mounting in expansion bay only)**

Model	Description	Resistive Ratings	Inductive Ratings	Size	Supv.	Alarm
4100-3202	4 DPDT w/feedback	10 A @ 250 VAC	10 A @ 250 VAC	2 Slots	15 mA	175 mA
4100-3204	4 DPDT w/feedback	2 A @ 30 VDC/ VAC	1/2 A @ 30 VDC/120 VAC	1 Block	15 mA	60 mA
4100-3206	8 SPDT	3 A @ 30 VDC/120 VAC	1-1/2 A @ 30 VDC/120 VAC	1 Block	15 mA	190 mA

**Current Calculation Notes:**

To determine total supervisory 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 SLC and NAC loads **and** all external loads powered from panel power supplies.

**Table 12: End User Programming Software (requires 4100-8802)**

Model	Description
4100-8802	Programming Software (select)



## Addressable Fire Detection and Control Basic Panel Modules and Accessories

**Table 13: End User Programming Software Selection (select maximum of one each from below)**

Model	Description
4100-0292	Custom Labels Editing; allows editing of 40 Character Custom Labels for non-system user points
4100-0296	Access Level/Passcode Editing; allows user to re-assign Access Levels and Passcodes for each display function; Acknowledge, Alarm Silence, System Reset, Point Enable/Disable, WALKTEST Enable/Disable, Clear History Logs, Change Time & Date, etc.
4100-0295	Port Vectoring Setup and Control; Allows vectoring of events to PC Annunciator, Printers, LCD Annunciators, etc.
4100-0298	WALKTEST Configuration Setup and Control; Allows user to create or edit WALKTEST groups used to test system initiating devices and signals by a single person, these groups allow an inspector to conduct a one-person WALKTEST in a specific area of a building (or different buildings), and limit the activation of the building signals to only the intended area; up to 8 WALKTEST groups are supported

**Table 14: Miscellaneous Accessories**

Model	Description
4100-1279	Single blank 2" display cover; 4100-2302 provides a single plate for a full bay
4100-9835	Termination and Address Label Kit (for module marking); provides additional labels for field installed modules
4100-9856	4100ES Canadian French Appliqué Kit; Simplex, 4100ES, Contrôle Incendie
4100-9868	Special Purpose Appliqué Kit: Simplex, Elevator Recall Control and Supervisory Control Unit, 4100ES
4100-9869	Special Purpose Appliqué Kit: Simplex, Sprinkler Waterflow and Supervisory Station, 4100ES
4100-6029	Smoke Management Application Guide; <b>required for UUKL listing</b>
4100-6034	Tamper Switch, one per cabinet assembly if required; monitors solid door for panels with solid door; monitors the internal retainer panel for panels with glass door (not the glass door); has a built-in addressable IDNet IAM
2081-9031	Series resistor for WSO, IDCs (N.O. water flow and tamper on same circuit, wires after water flow and before tamper) 470 Ω, 1 W, encapsulated, two 18 AWG leads (0.82 mm <sup>2</sup> ), 2-1/2" L x 1-3/8" W x 1" H (64 mm x 35 mm x 25 mm)

### Network Interface and Network Media Card Product Selection

4100ES fire alarm control units are compatible with Simplex ES Net network or 4120 network fire alarm products.

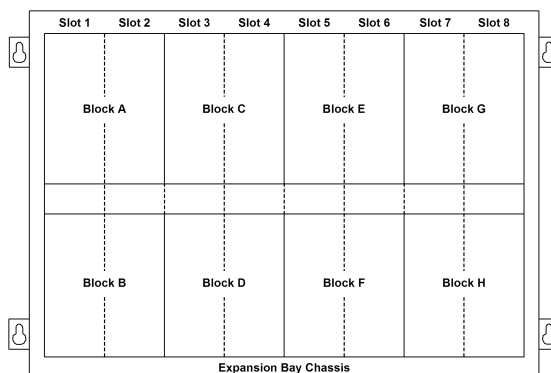
- Refer to datasheet S4100-0076 for additional information on compatible ES Net fire alarm products.
- Refer to datasheet S4100-0056 for additional information on compatible 4120 network fire alarm products.

## General Specifications

**Table 15: General Specifications**

Specification		Description		
Input Power	Enhanced Power Supplies (EPS)	120 VAC Models	4.6 A maximum @ 102 to 132 VAC, 50/60 Hz	
		220-240 VAC Models	2.3 A maximum @ 204 to 264 VAC, 50/60 Hz; separate taps for 220/230/240 VAC	
		Battery Input Rating	12 A maximum @ 24 VDC (during battery operation)	
	Expansion Power Supplies (XPS)	120 VAC Models	4 A maximum @ 102 to 132 VAC, 60 Hz	
		220-240 VAC Models	2 A maximum @ 204 to 264 VAC, 50/60 Hz; separate taps for 220/230/240 VAC	
Power Supply Output Ratings for EPS		Total Power Supply Output Rating	9 A output for "Special Application" appliances  <b>Note:</b> The 9 A output rating of the EPS was determined such that optional module currents, and external device and appliance currents can be directly added together, not to exceed 9 A total.  3 A, regulated 29 VDC during Alarm, 127 addresses, 139 unit loads; DC-DC converter circuit is >92% efficient over operating range  Output terminals are rated for 18 to 12 AWG with duplicate output terminals rated for two wires each, allowing up to four (4) Class B branch circuit T-taps to be made in the cabinet; additional T-taps may be made in external wiring junction cabinets or boxes  2 A maximum, 24 VDC nominal (19.5 to 31.1 VDC)	Output switches to battery backup during mains AC failure or brownout conditions
		IDNAC SLC Ratings		
		IDNAC SLC Wiring		
		Auxiliary Power Tap		
Compatible Special Application Appliances		Simplex TrueAlert ES and TrueAlert addressable notification appliances; contact your Simplex product representative for compatible appliances		
Battery Charger Ratings for EPS (sealed lead-acid batteries)	Battery capacity range	UL listed for battery charging of 6.2 Ah up to 115 Ah (batteries larger than 50 Ah require a remote battery cabinet); ULC listed for charging up to 50 Ah batteries		
	Charger characteristics and performance	Temperature compensated, dual rate, recharges depleted batteries within 48 hours per UL Standard 864; to 70% capacity in 12 hours per ULC Standard S527		
Power Supply Output Ratings for XPS (nominal 28 VDC on AC; 24 VDC on battery backup)	Total Power Supply Output Rating	Including module currents and auxiliary power outputs; NAC outputs are rated 9 A output for "Special Application" non-addressable appliances; 4 A output for "Regulated 24 DC" power (see details below); 6 A output with each NAC selected as auxiliary power output		Output switches to battery backup during mains AC failure or brownout conditions
	Auxiliary Power Tap	2 A maximum	Rated 19.1 to 31.1 VDC	
	NACs Programmed for Auxiliary Power	2 A maximum per NAC; 5 A maximum total		
Special Application Appliances	Simplex horns, strobes, and combination horn/strobes and speaker/strobes (contact your Simplex product representative for compatible appliances)			
Regulated 24 DC Appliances	Power for other UL listed appliances; use associated external synchronization modules where required			
Environmental	Operating Temperature	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


**Figure 7: Expansion Bay Reference**

### Size Definitions:

- 1 Block = 4" W x 5.65" H (102 mm x 144 mm); (often called 4 x 5 modules)
- 1 Slot = 2" W x 11.3" H (51 mm x 287 mm), typically a motherboard with daughter card

## 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 Figure 8.

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

- Convenient and extensive operator information is provided using a logical, menu-driven display
- Multiple automatic and manual diagnostics for maintenance reduction
- Alarm and Trouble History Logs (up to 1000 entries for each, 2000 total events) 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

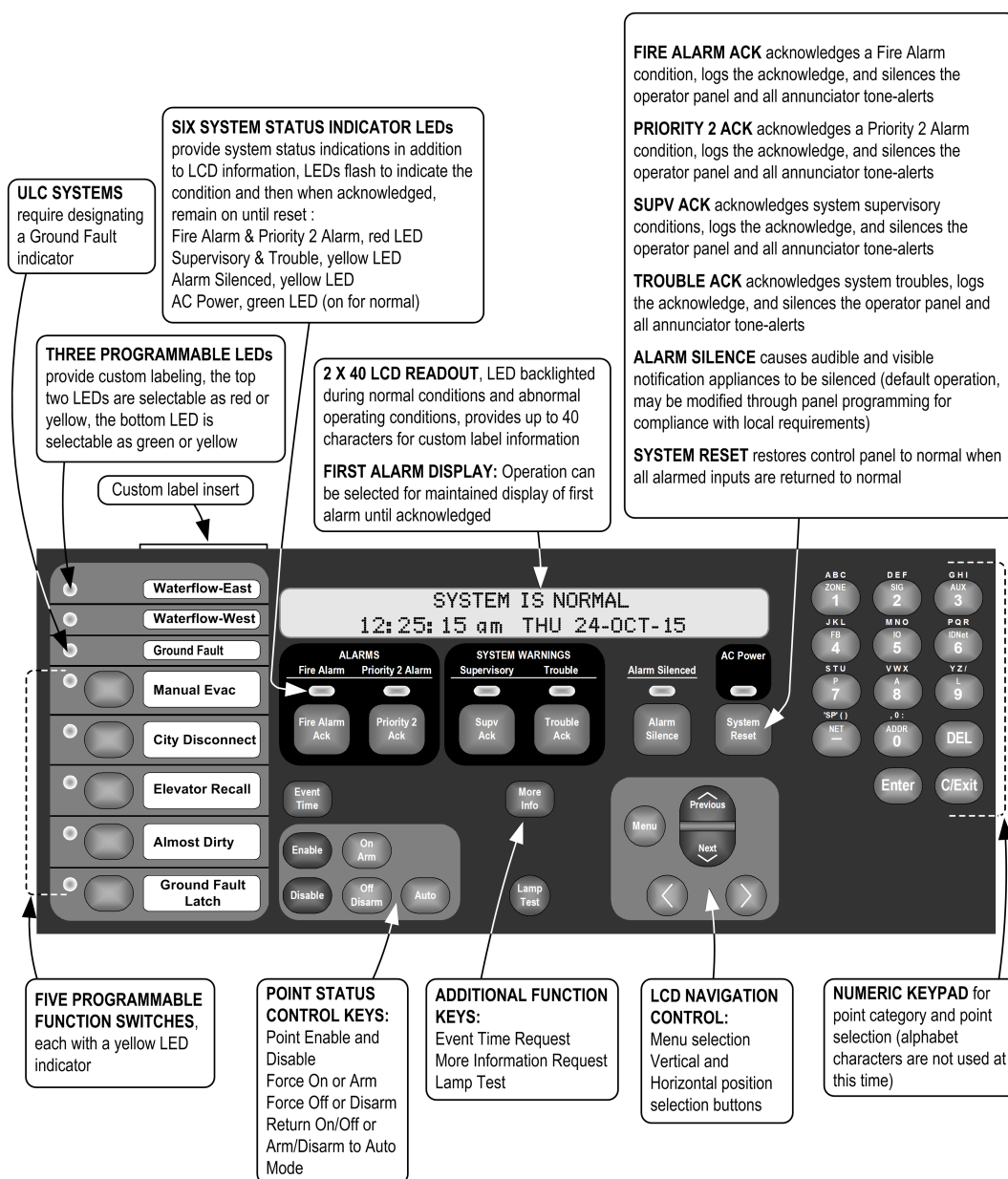


Figure 8: Operator interface features

## Mounting and CPU Bay Module Reference

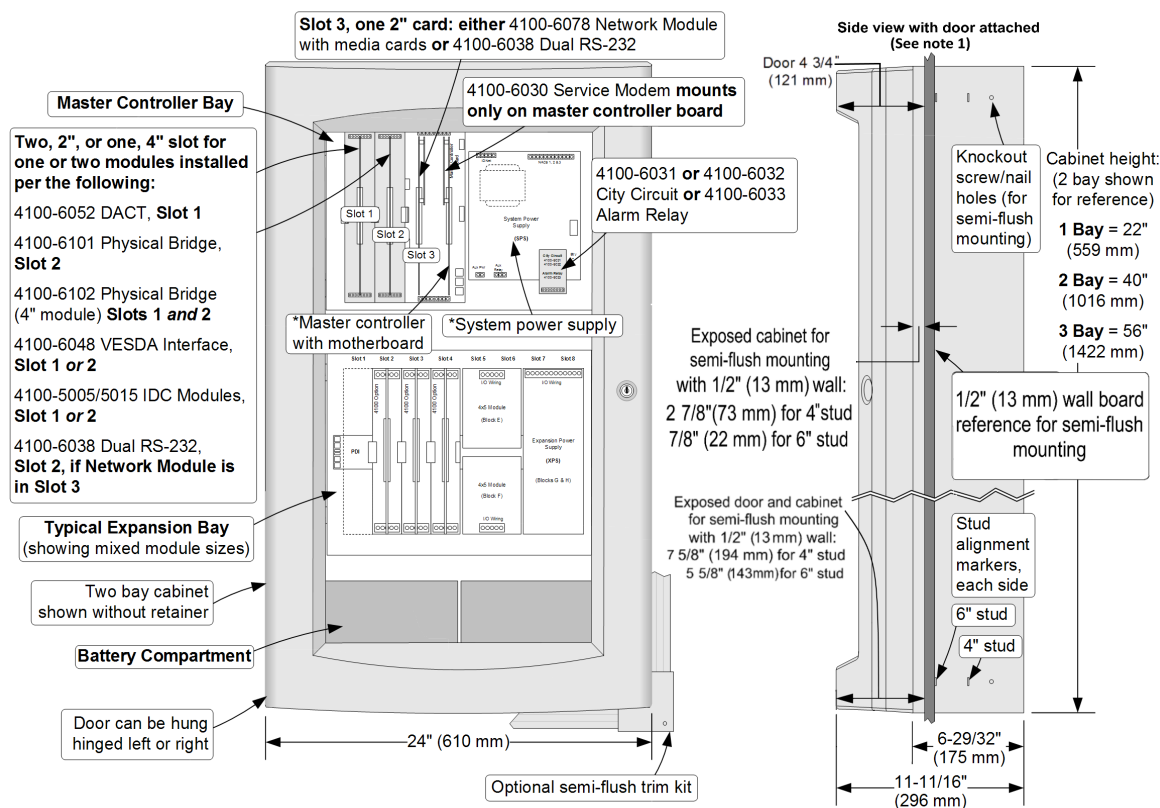


Figure 9: Mounting and CPU Bay Module Reference (\* indicates supplied modules)

### Note:

1. Side View dimensions are shown with minimal cabinet and door protrusion from the exterior wall. For 6 inch stud construction with minimum protrusion shown, the door will open 90 degrees. To allow the door to open 180 degrees, the exposed cabinet dimension from the exterior wall must be a minimum of 3 inches (76 mm) for both 4 inch and 6 inch stud construction.

2. A system ground must be provided for Earth Detection and transient protection devices. This connection shall be made to an approved, dedicated Earth connection per NFPA 70, Article 250, and NFPA 780.

Table 16: Reference Notes

Note	PID
Note 1	4100-6052
Note 2	4100-6101
Note 3	4100-6102
Note 4	4100-6048
Note 5	4100-5005 or 4100-5015
Note 6	4100-6038
Note 7	4100-6031
Note 8	4100-6032
Note 9	4100-6033
Note 10	4100-6033

## TrueAlert ES Appliance Self-Test Last Test ResultsReport Example

Service Port		Page 1		
REPORT 10	TrueAlertES Self-Test Report	12:34:56pm	WED	03-DEC-14
Point ID	Custom Label	Date	Visual	Audible
T1-1-1	VO FIRST FLOOR (up to 40 characters)	03-DEC-14	NO OUT	N/A
T1-2-5	AV FIRST FLOOR EAST WING	03-DEC-14	NO OUT	NORMAL
T7-3-55	AO SECOND FLOOR EAST WING	03-DEC-14	N/A	NO OUT
T8-2-45	AV SECOND FLOOR ROOM 29	03-DEC-14	NOT TST	N/A
T8-2-60	AV SECOND FLOOR ROOM 22	03-DEC-14	NORMAL	NORMAL
T1-2-4	AO FIRST FLOOR ROOM 17	03-DEC-14	N/A	UNSUPP
TRUEALERT_ES SELF-TEST REPORT COMPLETED				
Press RETURN for next Screen OR CTRL-X to abort				

Figure 10: TrueAlert ES Appliance Self-Test Last Test Results Report Example

### Results Description

- **NORMAL** = Works correctly
- **NO OUT** = No Output, no light or sound was detected
- **NOT TST** = No result. Either the appliance did not return a result before the test ended or the test was conducted as silent (strokes only) and audible appliance was not activated
- **N/A** = Not applicable (no strobe, on audible only, etc.)
- **UNSUPP** = Appliance not compatible with Self-Test (TrueAlert addressable appliance not TrueAlert ES addressable appliance)

**Note:** Additional TrueAlert ES Self-Test information is detailed in ES Operating Instructions 579-197 shipped with the panel.

## TrueAlert ES Appliance Self-Test All Test ResultsReport Example

Service Port		Page 1		
REPORT 10	TrueAlertES Self-Test Report	12:34:56pm	WED	03-DEC-14
Point ID	Custom Label	Date	Visual	Audible
T1-1-1	VO FIRST FLOOR	03-DEC-14	NO OUT	N/A
T1-2-5	AV FIRST FLOOR EAST WING	03-DEC-14	NO OUT	NORMAL
T1-2-6	AV FIRST FLOOR NORTH ENTRANCE	30-OCT-14	NO OUT	NORMAL
T7-3-55	AO SECOND FLOOR EAST WING	03-DEC-14	N/A	NO OUT
T8-2-45	AV SECOND FLOOR ROOM 29	03-DEC-14	NOT TST	N/A
T1-1-11	AV FIRST FLOOR SOUTH ENTRANCE	30-OCT-14	NORMAL	NORMAL
T8-2-60	AV SECOND FLOOR ROOM 22	03-DEC-14	NORMAL	NORMAL
T1-2-4	AO FIRST FLOOR ROOM 17	03-DEC-14	N/A	UNSUPP
T1-2-7	AO FIRST FLOOR ROOM 12	30-OCT-14	N/A	UNSUPP
T8-3-43	AV SECOND FLOOR ROOM 25	30-OCT-14	UNSUPP	UNSUPP
TRUEALERT_ES SELF-TEST REPORT COMPLETED				
Press RETURN for next Screen OR CTRL-X to abort				

Figure 11: TrueAlert ES Appliance Self-Test All Test Results Report Example

## TrueAlert ES Appliance Self-Test Individual Appliance Report Example

CUSTOM LABEL	
4-1-2	AV
POINT ADDRESS: 4-1-2	Type: AV
CARD: 4 CHANNEL: 1 DEVICE: 2	
EXTENDED POWER SUPPLY	
UNIT NUMBER: 2	RUI NUMBER: LOCAL
PRIMARY STATUS	NORMAL
AUDIBLE GROUP CONFIG:	0 0 0
VISUAL GROUP CONFIG:	0 0 0
STYLE:	INDOOR
OPERATION:	GENERAL EVAC
CANDELA RATING	15 CD
COLOR LENS	YES
TONE TYPE	BROADBAND
CODING TYPE	TEMPORAL
VOLUME	HIGH
LAST TEST TIME:	MON 02-JUN-14 01:00 AM
LAST VISUAL TEST:	NORMAL
LAST AUDIBLE TEST:	NORMAL
LAST TEST VOLUME:	NORMAL
DEVICE TEST TROUBLE:	NORMAL

Figure 12: TrueAlert ES Appliance Self-Test Individual Appliance Report Example



## Additional Technical and Datasheet Reference

**Table 17: Additional Technical Reference**

Description	Document
ES Installation Instructions	574-848
ES Operating Instructions	579-197
DCAI Module Installation Instructions	579-1029
IDNet 2 and 2+2 Module Installation Instructions	579-1169
EPS Installation Instructions	579-1015

**Table 18: Additional 4100ES datasheet reference**

Subject	Data Sheet
Serial DACT (SDACT) for 4100ES, 4010ES, 4007ES	S2080-0009
Battery and Battery Cabinet Reference for 4100ES	S2081-0006
110 Ah Batteries and Cabinets for 4100ES	S2081-0012
Seismic Battery Brackets Reference	S2081-0019
4009 IDNet NAC Extender	S4009-0002
4009 IDNAC Repeater	S4009-0004
External 110 Ah Battery Charger for 4100ES, 4010ES	S4081-0002
Graphic I/O Modules for 4100ES, 4010ES, 4007ES	S4100-0005
Interface to VESDA Air Aspiration Detection Systems	S4100-0026
4100ES Basic Panels with SPS Power Supplies	S4100-0031
4100ES LED/Switch Modules & Printer	S4100-0032
Master Clock Interface	S4100-0033
4100ES Emergency Voice/Alarm Equipment	S4100-0034
MINIPLEX Transponders with SPS Power Supplies	S4100-0035
NDU with SPS Power Supplies for 4120 Network	S4100-0036
4100ES Enclosures	S4100-0037
4100ES Remote Annunciator Panels	S4100-0038
4100ES Extinguishing Release Applications	S4100-0040
TFX Interface Module	S4100-0042
InfoAlarm Command Center with SPS Power Supplies	S4100-0045
2120 BMUX Module	S4100-0048
Multiple Signal Fiber Optic Modems for 4120 Networks	S4100-0049
BACpac Ethernet Module	S4100-0051
4120 Network Products and Specifications	S4100-0056
Building Network Interface Card (BNIC)	S4100-0061
SafeLINC Internet Interface	S4100-0062
TrueInsight Remote Gateway	S4100-0063
ES Net Network Products and Specifications	S4100-0076
NDU with SPS Power Supplies for ES Net	S4100-0077
InfoAlarm Command Center with EPS Power Supplies	S4100-0101
NDU with EPS Power Supplies for 4120 Network	S4100-0102
MINIPLEX Transponders with EPS Power Supplies	S4100-0103
NDU with EPS Power Supplies for ES Net	S4100-0104
120 VAC Remote Printer	S4190-0011
PC Annunciator	S4190-0013
TrueSite Workstation	S4190-0016
Network System Integrator (NSI) for 4120 Networks	S4190-0017
TrueSite Incident Commander	S4190-0020
SCU/RCU Annunciators	S4602-0001
LCD Annunciator for 4100ES	S4603-0001