Simplex

*UL, ULC, CSFM Listed; FM, NYC Fire Dept Approved**

Datasheet

4010ES Fire Control Units

4010ES Basic Addressable Fire Detection and Control Unit Modules and Accessories

Features

Compatible with Simplex ES Net and 4120 fire alarm networks

Basic system includes:

- Models available with Color ES Touch Screen Display or Monochrome 2 line x 40 Character Display
- Capacity for up to 1000 addressable IDNet points, up to 127 VESDA Air Aspiration points, up to 2000 points of annunciation and up to 20 internal and external card addresses
- CPU assembly includes dedicated compact flash memory for on-site system information storage and convenient Ethernet service port access
- 8 A power supply with up to 2 A of auxiliary power and battery charger capacity for up to 110 Ah batteries (UL) or up to 50 Ah batteries (ULC) (33 Ah max in single bay control cabinet 50 Ah maximum with 4100-0650 battery shelf in two-bay control cabinet
- Four onboard Class A or B, 3 A notification appliance circuits (NACs) and one programmable auxiliary relay output rated for 2 A at 32 VDC
- IDNet addressable device communications that support 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
- Remote annunciator module support with remote unit interface (RUI) communications port, either Class B or Class A operation
- 48 LED panel mount annunciation provides 40 red and 8 yellow pluggable LEDs (select models), optional LED kits are available for custom LED configurations

Optional Main System Supply 2 and door mounted modules, and other options include:

- City Connect Module
- Alarm relay module
- Battery brackets for seismic area protection

Optional block space modules include:

- Fire alarm network interface card (NIC) for ES Net or 4120 network
- Peer-to-peer network communications, supports either Class B or Class X operation
- Ethernet connectivity options include ES Net NIC , Building Network Interface card (BNIC), and BACpac Ethernet portal
- Dual RS-232 Module for printer or third party interface
- VESDA Air Aspiration High Level Interface
- Serial DACT
- 8-Point Zone/Relay Module
- 4-Point Auxiliary Relay Module with Feedback
- 8 Zone IDC Modules Class A or B
- Four point Auxiliary Relay module
- Modem or TCP/IP Physical Bridge Network Modules, Class B or Class X
- Additional IDNet addressable channels
- Connected Services Gateway



Figure 1: 2-Bay 4010ES Fire Control Panel with 2x40 Monochrome LCD Display

4010ES Agency Listing*:

- UL 864 - Control Units, System (UOJZ); Control Unit Accessories, System, Fire Alarm (UOXX); Control Units, Releasing Device Service (SYZV); Smoke Control System Equipment (UUKL)
- UL 1076 - Proprietary Alarm Units (APOU)
- UL 1730 - Smoke Detector Monitors and Accessories (UULH)
- UL 2017 - Emergency Alarm System Control Units, CO detection (FSZI); Process Equipment Management (QVAX)
- ULC-S527 - Control Units, System, Fire Alarm (UOJZ7); Control Unit Accessories, System, Fire Alarm (UOXX7); Control Units, Releasing Device Service (SYZV7)
- ULC-S559 - Central Station Fire Alarm System Units (DAYR7)
- ULC/ORD-C1076 - Proprietary Burglar Alarm System Units (APOU7)
- ULC/ORD-C100 - Smoke Control System Equipment, (UUKL7)

*This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7165-0026:0369 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. NYC Fire Dept COA #6095. At the time of publication only UL and ULC listings are applicable to ES Color Touch Screen Display models. 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 Fire Protection Products.

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Introduction

4010ES series fire detection and control units provide leading edge installation, operator, and service features for customer applications in the mid-range addressable fire alarm systems market. An onboard 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.

Modular design: A variety of functional modules are available to meet specific system requirements. With the selections, control units are configurable for either stand-alone or networked fire control operation.

InfoAlarm Command Center options provide convenient expanded display content. Refer to data sheet ***InfoAlarm Command Center for the 4010ES Fire Alarm Control Unit S4010-0009*** for more information.

Compatible with Simplex remotely located:

- 4098-9757 QuickConnect2 and legacy 4098-9757 QuickConnect TrueAlarm smoke sensors
- 4003EC Small Voice Control Units
- 4009 IDNet NAC Extenders (4009A)
- 4081 Series, 110 Ah Battery Chargers
- 4100-7400 Series Graphic Annunciators
- 4190 Series Fiber Modems and Physical Bridges
- 4606-9102 Remote LCD Annunciator and 4100-9400 Series Remote ES Touch Screen Displays, and 4100-9400 Series Remote InfoAlarm Command Centers, and 4602 Series Status Command Units (SCU) and Remote Command Units (RCU) Annunciators

Mechanical description

- Mounting box provides convenient stud markers for drywall thickness and nail-hole knockouts for quicker mounting
- Includes smooth box surfaces for locally cutting conduit entrance holes exactly where required
- The hinged user interface panel easily opens for internal access
- NACs mount 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
- Doors include tempered glass inserts; boxes and doors are available in platinum or red
- Box and door or retainer assemblies are included with basic control unit assemblies
- Cabinet assembly is rated NEMA 1 and IP 30
- Cabinet assembly design has been seismic tested and is certified to IBC and CBC standards and to ASCE 7 categories A through F; requires battery brackets as detailed on data sheet ***Battery Brackets for Seismic Activity Applications S2081-0019***

Control unit hardware

The Master Controller and Main System Supply 2

Mount the Master Controller and Main System Supply 2 in the upper section of the 4010ES cabinet. See Figure 10 for more information.

4010ES Block Space Option Cards

Mount the 4010ES Block Space Option Cards to the left of the 4010ES Main System Supply 2. In two-bay cabinets, mount the block space option cards below the 4010ES ESS.

Other 4010ES options

Mount the 4010ES City Connect module or the optional Alarm Relay module directly to the Main System Supply 2. These options are mutually exclusive.

The battery compartment located in the bottom of the 4010ES cabinet accepts two batteries without interfering with expansion module space.

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 a distinct test abnormal message on display when in test mode
- TrueAlarm sensor peak value performance report
- Install Mode allows grouping of multiple troubles for uninstalled modules and devices into a single trouble condition
- Module level ground fault searching assists installation and service by locating and isolating modules with grounded wiring
- Recurring Trouble Filtering allows the control unit 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

Compatible peripheral devices

The 4010ES is compatible with an extensive list of remote peripheral devices including printers and both conventional and addressable devices including TrueAlarm analog sensors.

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Addressable device control

The 4010ES provides standard addressable device communications for IDNet compatible devices. Using a two-wire communications circuit, individual devices such as manual fire alarm stations, TrueAlarm sensors, conventional IDC zones, and sprinkler waterflow switches interface to the addressable controller to communicate their identity and status.

Addressability allows the location and condition of the connected device to display on the operator interface LCD and on remote system annunciators. Additionally, control circuits such as fans or dampers may be individually controlled and monitored with addressable devices.

Addressable operation

Each addressable device on the communication channel is continuously interrogated for status condition such as: normal, off-normal, alarm, supervisory, or trouble. Both Class B and Class A pathway operation are available. Sophisticated poll and response communication techniques ensure supervision integrity and allow for T-tapping of the circuit 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 control unit.

IDNet addressable channel capacity

The Main System Supply 2 provides an electrically isolated IDNet2 signaling line circuit (SLC) that supports up to 250 addressable monitor and control points intermixed on the same pair of wires. Additional 250 address IDNet 2+2 Modules with four short circuit isolating output loops are available. IDNet 2+2 Module SLCs are isolated from other system reference voltages to reduce common mode noise interaction with adjacent system wiring.

Table 1: IDNet 2 and IDNet 2+2 SLC wiring specifications

Specification		Rating
Maximum distance from control unit for each device load	0 to 125	4000 ft (1219 m); 50 ohms
	126 to 250	2500 ft (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 µF
Maximum capacitance between IDNet channels		1 µF
Wire type and connections		Shielded or unshielded, twisted or untwisted wire*
Connections		Terminals for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2)
Installation instructions		579-989
Compatibility includes: IDNet communicating devices and TrueAlarm sensors including QuickConnect2 sensors. See data sheet *S4090-0011* for additional reference. **Note:** *Some applications may require shielded wiring. Review your 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.

To determine status, compare 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

You can select the programmable sensitivity of each sensor at the control unit 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 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. You can enable or disable the CO sensor for use in LED or Switch modes and custom control, and you can make the CO sensor public for communication across a fire alarm network. Refer to data sheet *TrueAlarm CO Sensor Bases for Smoke, Heat, and Photo/Heat Sensors using IDNet Communications S4098-0052* for details.

TrueAlarm heat sensors

You can select TrueAlarm heat sensors 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 are selectable as either Fahrenheit or Celsius.

TrueSense early fire detection

Multi-sensor 4098-9754 provides photoelectric and heat sensor data using a single 4010ES IDNet address. The control unit evaluates smoke activity, heat activity, and their combination, to provide TrueSense early detection. For more details on this operation, refer to data sheet *TrueAlarm Multi-Sensor Model A4098-9754 Providing TrueSense Early Fire Detection S4098-0024*.

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Diagnostics and default device type

Sensor status

TrueAlarm operation allows the control unit 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 when end of life is reached.

Modular TrueAlarm sensors

Modular TrueAlarm sensors use the same base and either smoke or heat sensor sensor types. You can easily interchange the sensors to meet specific location requirements. This allows intentional sensor substitution during building construction when conditions are temporarily dusty. Instead of covering smoke sensors and causing them to be disabled, you can install heat sensors without reprogramming the control unit. The control unit 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.

Master Controller (CPU)

- The 4010ES Master Controller includes dedicated compact flash Mass Storage memory for on-site system information storage and convenient Ethernet service port access
- Convenient front panel accessed Ethernet port for quick and easy download of site-specific programming and firmware enhancements. Firmware enhancements are made through software downloads to the onboard flash memory.
- Every downloaded job is automatically stored to compact flash without overwriting earlier versions providing a means for recovering previous configurations
- Downtime is reduced because the system stays running during download
- Modifications can be uploaded as well as downloaded for greater service flexibility
- Mass storage allows job specific files to be stored in the control unit such as test and inspection reports, record drawings, specifications, and more
- RUI communications port supports either Class B or Class A operation for remote annunciation equipment

Basic control unit description

4010ES control units include the following features:

- An Operator Interface, Master Controller with Compact Flash, IDNet addressable device SLCs with short circuit isolating loops configurable for Class B or Class A operation
- 8 A power supply with up to 2 A of auxiliary power, 110 Ah (UL)/50 Ah (ULC) battery charger (33 Ah max in one bay cabinet, 50 Ah max with 4100-0650 battery shelf in two bay control cabinet); four Class A or Class B NACs rated @ 3 A each for Special Application Appliances, selectable for synchronized strobe, or SmartSync horn/strobe operation over two wires; and 2 A for regulated 24 DC operation; one programmable auxiliary relay rated for 2 A @ 32 VDC
- One RUI Class B or Class A communications port for remote annunciation devices, cabinet and door
- Support for up to 20 internal and external card addresses. Other standard options may be provided depending on model; see and for additional details on specific models

8-point zone/relay module details

- **Select as IDC or Relay:** configure up to eight Class B IDCs, or up to four Class A IDCs; or up to eight 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, 2-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 Chart 579-832*** for additional details.
- **You can select IDC EOL resistor values as:** 3.3 kohms, 2 kohms, 2.2 kohms, 3.4 kohms, 3.9 kohms, 4.7 kohms, 5.1 kohms, 5.6 kohms, 6.34/6.8 kohms, and 3.6 kohms + 1.1 kohms. Refer to ***Zone/Relay Module Installation Instructions 579-1236AC*** for more details.

Main System Supply 2

The Main System Supply 2 provides the power source and the input or output connections for the basic 4010ES control unit. The main features are listed in Basic control unit description.

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Color ES Touch Screen Display

The Color ES Touch Screen Display interface offers intuitive operation similar to a tablet or smart phone. With a larger area format versus an individual text line display, more information is available at a glance, and minimal key presses are needed to access detailed information.

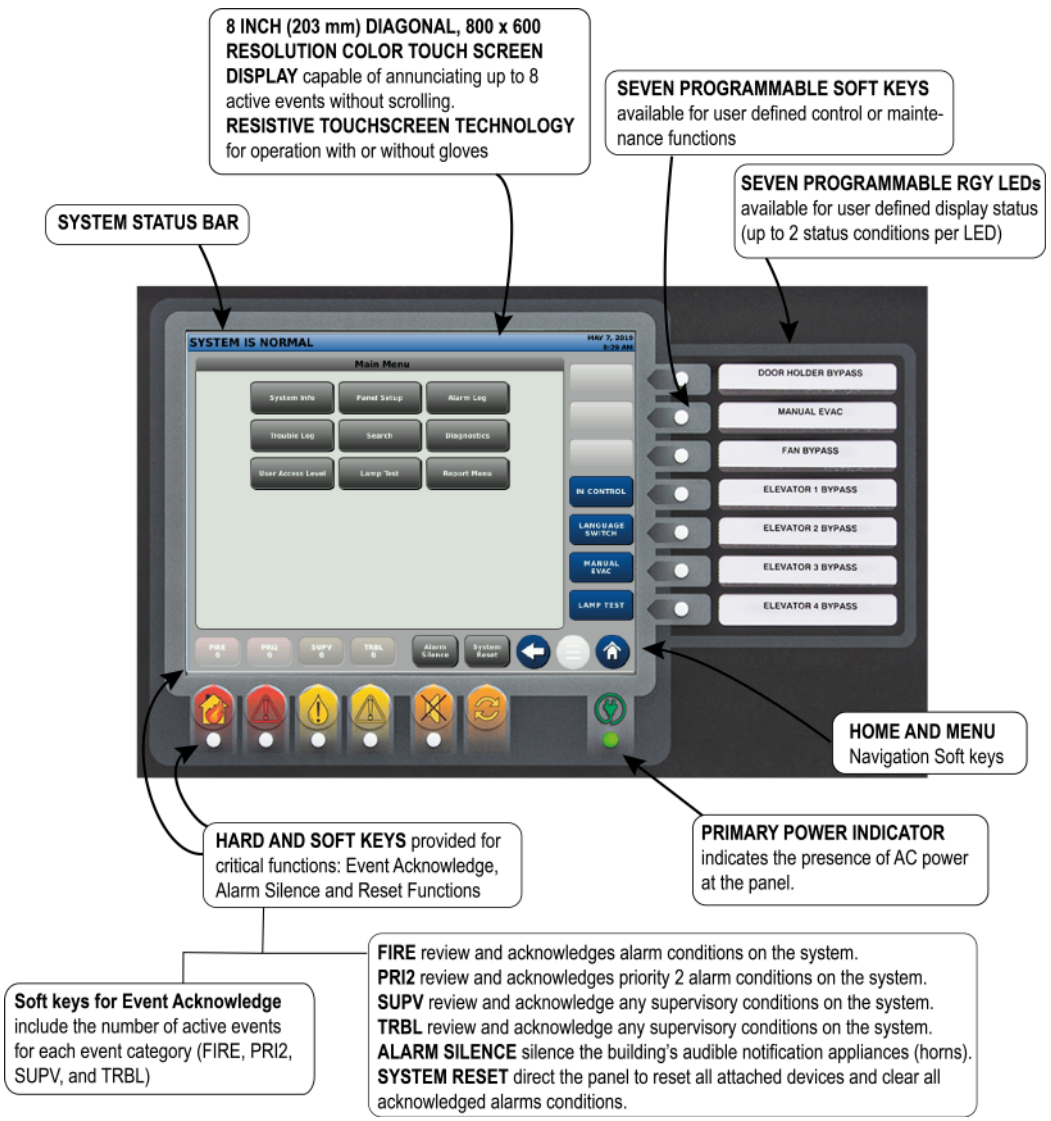


Figure 2: ES Touch Screen Display Operator Interface

Features

ES Touch Screen Displays provide customized operating experience

- Event activity display choices include: First 8 Events; or First 7 Events with emphasis on Most Recent; or First 6 Events with emphasis on First and Most Recent (individually selectable for each event type)
- System reports are easily viewable; logs can be read with minimal scrolling
- Up to two languages are available per system, easily selected by programmable key press
- Information sent to Remote ES Touch Screen Displays can be vectored by point or zone
- Both Hard and Soft keys available for critical functions: Event Acknowledge, Alarm Silence, and Reset Functions
- Resistive touchscreen technology allows operation with or without gloves
- Seven programmable RGY LEDs available for user-defined display status (up to 2 status conditions per LED)
- Seven programmable Soft keys available for user-defined control or maintenance functions
- PRI2 Soft key label can be changed to CO to annunciate Carbon Monoxide detection status
- ES Touch Screen Display can be programmed to report individual points or groups of points as a single zone
- Supports ability to display a custom watermark background file of a company logo or other desired display content

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Display properties

- 8 inch (203 mm) diagonal, 800 x 600 resolution color touch screen display capable of annunciating up to 8 active events without scrolling
- Bright white LED backlighting provides efficient and long lasting illumination; backlight is dim in quiescent state, automatically switches to full power on touch or on event activity in system.

Description

ES Touch Screen Displays for 4100ES fire alarm systems provide a large display with extended information content, dual language support including UTF-8 character languages, and an intuitive control key interface per the following:

- Up to 10 ES Touch Screen Displays are supported per 4100ES control panel; able to allow one ES Touch Screen Display to take-control and to designate access levels for interfaces not in-control; programmable LEDs can be assigned to in-control status indications
- Menu-driven format conveniently prompts operators for the next action required
- Direct point callup displays individual points alphabetically and then homes in on the logical choice as more point information is entered
- Event categories are color coded for quick visual representation; Red for Alarm and Priority 2 Events; Yellow for Supervisory and Trouble events
- Date formats are either MM/DD/YY or DD/MM/YY
- Time formats are either 24 hour or 12 hour with AM/PM
- System Normal screen supports a color background (watermark) for company name, company logo, or other desired display content

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Example Display Screens

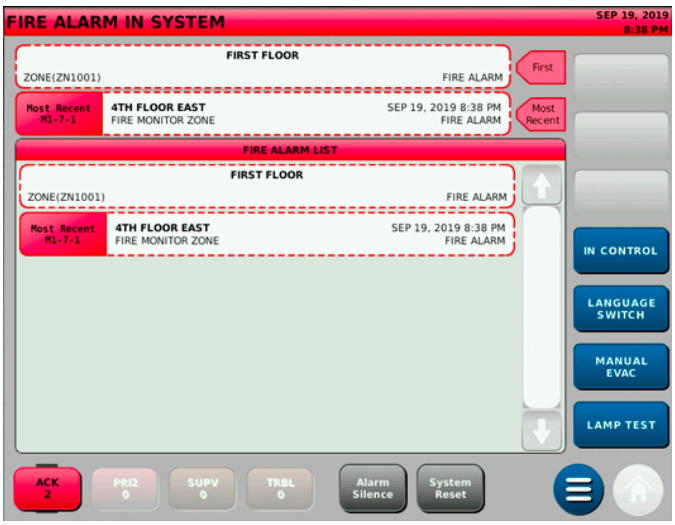


Figure 3: First and Most Recent Alarm Display

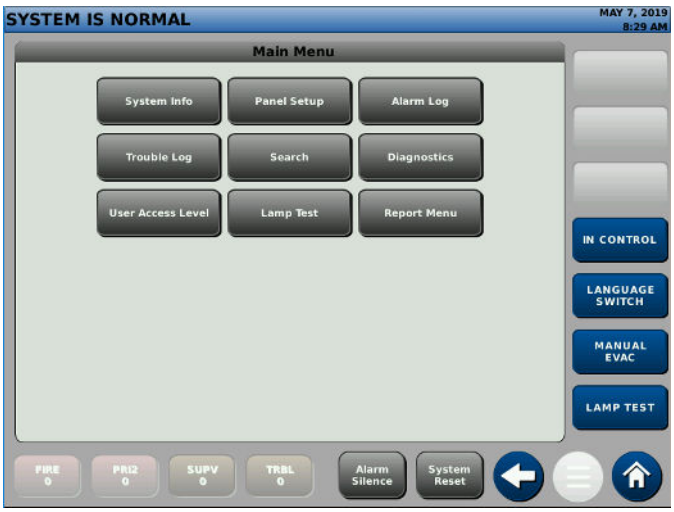


Figure 4: Main Menu



Figure 5: First Eight Active Trouble Events List

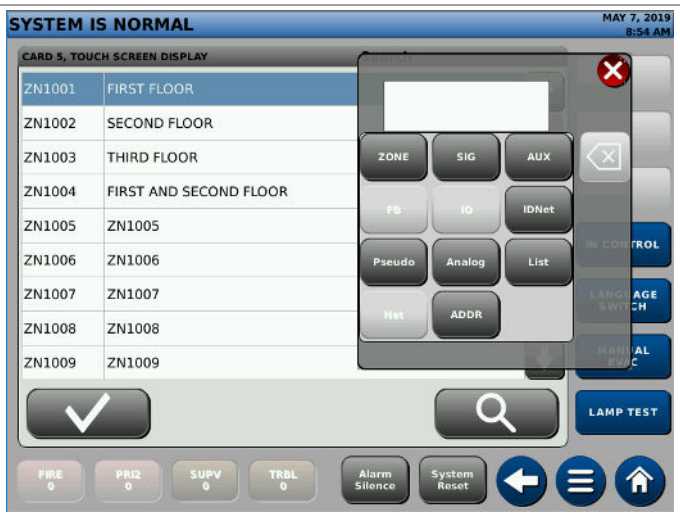


Figure 6: Direct Point Callup

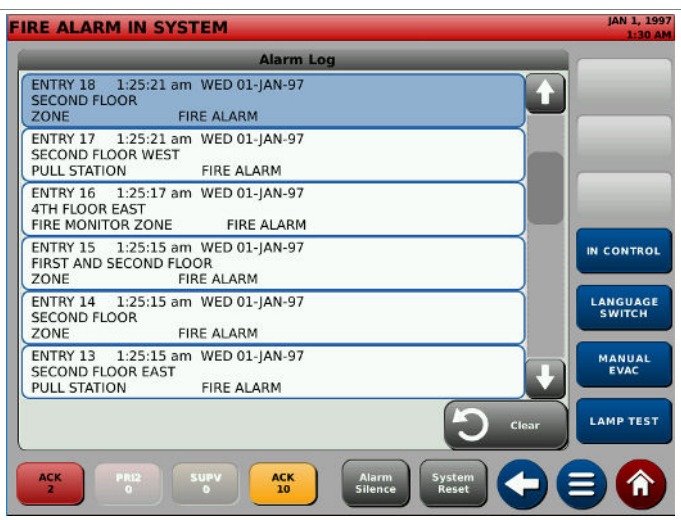


Figure 7: Alarm History Log

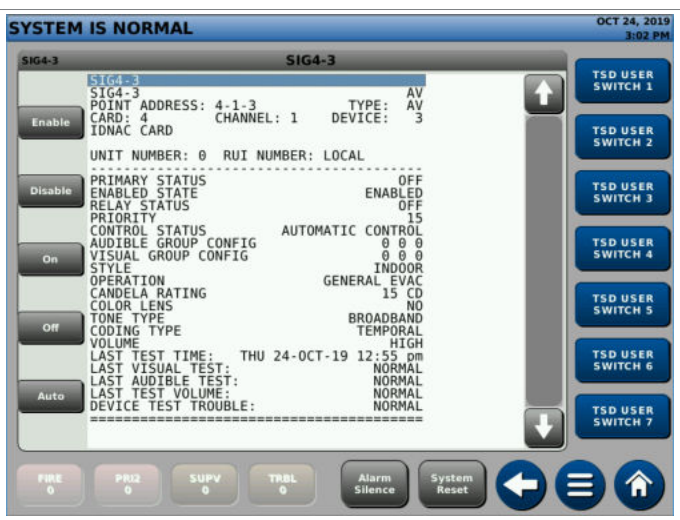


Figure 8: Detailed Point Status Screen for TrueAlert ES Appliance

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Specifications

Table 2: General ES Touch Screen Display Specifications

Specification	Rating
Resolution	800 x 600 Pixels (RGB)
Size / Type	8 inch (203 mm) Diagonal / Color Touch Screen
Touch Screen Technology	Resistive
Event Display	Up to 8 Events without scrolling
Normal Screen Custom Watermark File Format	680 x 484 Pixels: BMP, JPG, TIFF, GIF or PNG file format
Environmental	Operating Temperature: 32°F to 120°F (0°C to 49°C)
	Operating Humidity: Up to 93% RH, non-condensing @ 90°F (32°C) maximum

Operator Interface with Monochrome 2 x 40 LCD

- Provides convenient and extensive operator information using a logical, menu-driven display
- Multiple automatic and manual diagnostics for maintenance reduction
- Alarm and Trouble History Logs of up to 1250 entries for each, 2500 total events, are available for viewing on the LCD screen, printing on a connected printer, or downloading to a service computer
- Convenient PC programmer label editing
- Password access control

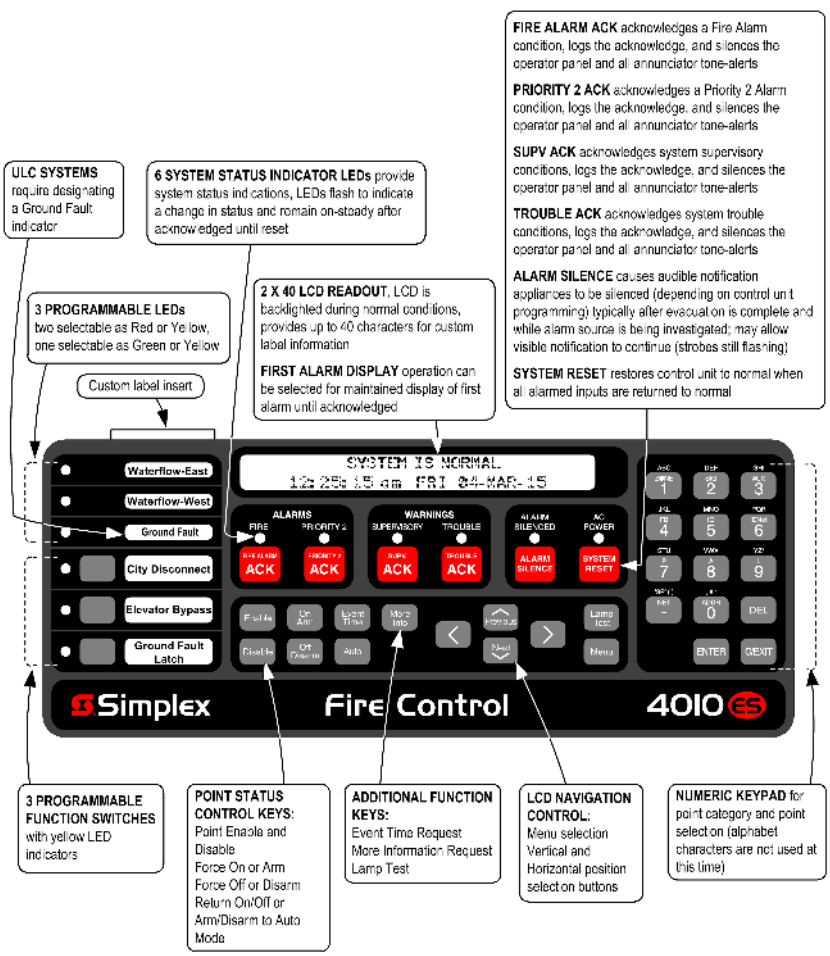


Figure 9: Operator interface features

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Basic control unit model selection, one-bay units

Supervisory and alarm current specifications are for determining battery standby requirements. Current specifications include an active RUI channel. Models with an IDNet channel include 20 IDNet device LEDs activated in alarm. Actual IDNet device current is not included. For models with 48 LED annunciation, alarm also includes 24 LEDs activated.

Table 3: Basic Control Unit Model Selection - 1 Bay Units

Model	Panel Color	Language & Voltage	Listings	Features	Supv. Current	Alarm Current	Available Option Blocks
4010-9401 4010-9401BA	Red	English 120 VAC	UL, CSFM, FM, NYC Fire Dept	Basic control unit with 2x40 LCD Operator Interface and one two-loop isolated IDNet2 Communications Channel, Class A or Class B operation, with support for up to 250 addressable analog devices	316 mA	430 mA	Three 4 in. x 5 in. blocks
4010-9402 4010-9402BA	Platinum						
4010-9403	Red	English 120 VAC	UL, ULC, CSFM, FM, NYC Fire Dept	Same features as above with 48 LED annunciation	336 mA	495 mA	
4010-9404	Platinum						
4010-9405	Red	French 120 VAC	ULC, CSFM FM				
4010-9406	Platinum						
Note: Model numbers ending in BA are assembled in the USA.							

Basic control unit model selection, two-bay units

Supervisory and alarm current specifications are for determining battery standby requirements. Current specifications include an active RUI channel. Models with IDNet channels include 20 IDNet device LEDs activated in alarm for each channel. Actual IDNet current is not included. See Addressable device load specifications for battery standby for details.

Table 4: Basic Control Unit Model Selection - 2 Bay Units

Model	Panel Color	Language & Voltage	Listings	Features	Available Option Blocks	Supv. Current	Alarm Current
4010-9421 4010-9421BA	Red	English 120 VAC	UL, FM	Basic control unit with **2x40 Operator Interface**, one two-loop isolated IDNet2 Communications Channel and one four-loop Isolated IDNet 2+2 Communications Channel Module, Class A or Class B operation, with support for up to 500 addressable IDNet points	10 4 in. x 5 in. blocks	391 mA	545 mA
4010-9422 4010-9422BA	Platinum	English 120 VAC					
4010-9423	Red	English 120 VAC	UL, ULC, FM	Same features as above with 48 LED annunciation		411 mA	610 mA
4010-9428	Platinum	English 120 VAC		Same features as above with 48 LED annunciation			
4010-9430	Platinum	French 120 VAC		Same features as above with 48 LED annunciation			
4010-9425 4010-9425BA	Red	English 120 VAC	UL, FM	Basic control unit with **InfoAlarm Operator Interface** and one two-loop isolated IDNet2 Communications Channel, one four-loop isolated IDNet 2+2 Communications Channel module, Class A or Class B operation, with support for up to 500 addressable IDNet points		473 mA	611 mA
4010-9426 4010-9426BA	Platinum						
4010-9435	Red	120 VAC (multiple languages available, contact your local Simplex product supplier for details)	UL/ULC	Basic control unit with **ES Touch Screen Operator Interface** and one two-loop Isolated IDNet2 Communications Channel, one four-loop Isolated IDNet 2+2 Communications Channel Module, Class A or Class B operation, with support for up to 500 addressable IDNet points		486 mA	661 mA
Note: Model numbers ending in BA are assembled in the USA.							

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Miscellaneous accessories

Table 5: LED kits (LEDs are pluggable, use to change color for local application requirements)

Model	Description
4010-9831	French Applique Kit for ES Touch Screen Display Panels (order separately as required for Canadian French panels)
4100-9843	8 Yellow LED Kit
4100-9844	8 Green LED Kit
4100-9845	8 Red LED Kit
4100-9855	8 Blue LED Kit
4100-0650	Battery shelf, required for 50 Ah batteries, in two-bay cabinets only

Table 6: End User and Factory Programming Tools

Model	Description
4100-8802	End User Programming Unit Software
4100-0292	Custom Label Editing (USB Dongle)
4100-0295	Port Vectoring Setup and Control (USB Dongle)
4100-0296	Access Level/Passcode Editing (USB Dongle)
4100-0298	WalkTest Configuration Setup and Control (USB Dongle)
4010-0831	Custom Labels and Programming (requires 4010-8810)
4010-8810	Factory Programming (select)

General specifications

Table 7: General specifications

Specification	Rating		
AC input current	120 VAC models	4 A maximum, 120 VAC @ 60 Hz nominal	
Power supply output ratings (nominal 28 VDC on AC, 24 VDC on battery backup)	Total power supply output rating	**Including module currents and auxiliary power outputs**; 8 A total for Special Application appliances; 4 A total for Regulated 24 DC power (see below for details)	Output switches to battery backup during mains AC failure or brownout conditions
	Auxiliary power tap	2 A maximum, rated 19.1 VDC to 31.1 VDC	
Special application appliances, maximum of 70 appliances for each NAC	Simplex 4901, 4903, 4904, and 4906 series horns, strobes, and combination horn or strobes and speaker or 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		
Battery charger rating (sealed lead acid batteries)	Battery capacity range	See data sheet *Batteries and Battery Cabinets; 110 Ah Sealed Lead-Acid Batteries and Compatible Battery Cabinet (without charger) S2081-0012* for further details.	
	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	
Battery Current	9 A maximum @ 24 VDC (during battery operation)		
Environmental	Operating temperature	32°F to 120°F (0°C to 49°C)	
	Operating humidity	Up to 93% RH, non-condensing @ 90°F (32°C) maximum	
Additional technical reference	Installation instructions	*579-989*	
	Operating instructions	*579-969*	

Addressable device load specifications for battery standby

Table 8: Addressable device load specifications for battery standby

Addressable channel	Device load	Supervisory current	Alarm current
IDNet2 and IDNet 2+2 Channel Device Currents (20 device LEDs in alarm are included with control unit and module currents) Supervisory = 0.8 mA for each device Alarm = 1 mA for each device	With 250 devices add	200 mA	250 mA
	With 125 devices add	100 mA	125 mA
	With 50 devices add	40 mA	50 mA

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Block space option card selection

Note: Maximum block option module quantities may require 2 bay cabinets, 1 bay cabinets are limited to 3 option block spaces total. See Figure 10 for option module space availability. Supervisory and alarm current specifications for determining battery standby requirement consider no load on addressable channels except as noted, see Addressable device load specifications for battery standby.

Table 9: Single block option modules

Model	Features		Supervisory current	Alarm current	Option block usage
4010-2504	Connected Services Gateway with IP communicator		125 mA	125 mA	1 block
4010-9912	Serial DACT **Note:** Must mount in Block D under Main System Supply 2		30 mA	40 mA	1 block (must mount in top bay, block D)
4010-9908	4-Point Aux Relay Module		15 mA	60 mA	1 block (3 max)
4010-9916	Voltage Regulator Module, 22.8 VDC to 26.4 VDC (25 VDC nominal); isolated and resettable output; includes earth detection circuit and trouble relay for status monitoring. One 4010-6305 harness (see below) is required for each 4010-9935 or 4010-9936 module powered from the 4010-9916.		3 A maximum with 2.5 A load	4.9 A maximum with 4 A load	1 block (1 max)
4010-9918	Dual RS-232 Module		60 mA	60 mA	1 block (3 max)
4010-9915	BACpac Ethernet Portal Module; requires 4010-9918 RS-232 Module (no address required)		123 mA	123 mA	1 block (3 max)
4010-9901	VESDA HLI		60 mA	60 mA	1 block (1 max)
4010-9935	8-point z1/relay 4 in. x 5 in. flat module. Supports eight Class B or four Class A IDCs. Mounts in any open block in a master controller or expansion bay. Alarm current shown is for eight Class B IDCs using 3.3 K end-of-line-resistors with four IDCs in alarm and four IDCs in standby. Standby current shown is for all eight IDCs in standby. Detector current is added separately. Refer to *Z1/Relay Module Installation Instructions 579-1236* for more information.		83 mA	295 mA	One block (11 maximum)
4010-9936	4 DPDT Relays with feedback, 2A		18 mA	65 mA	1 Block (11 maximum)
4010-6305	25 V regulator harness for 8 point z1/relay module. 1 required for each 8 point z1/relay module to be powered by the 4010-9916 25 V regulator module. A maximum quantity of five 8 point z1/relay modules can be powered from the 4010-9916 25 V regulator module.		N/A	N/A	N/A
4010-9929	**IDNet 2+2 Module,** 250 point capacity; electrically isolated output with **four** short circuit isolating Class B or Class A output loops; alarm currents for 50 and above devices includes 20 device LEDs in alarm; see control unit model selection for individual device currents	No device	50 mA	60 mA	1 block (3 max)
		50 devices	90 mA	150 mA	
		125 devices	150 mA	225 mA	
		250 devices	250 mA	350 mA	

Table 10: Dual vertical block (flat) modules**

Model	Features	Option block usage	Supervisory current	Alarm current
4010-9928	**For 1 bay control units only**: Dual Vertical Block Card Mounting Kit, allows selecting two, dual Vertical Block (flat) modules from the list below; mounts at right angle to chassis (note the block usage details)	Two vertical blocks (mounts in top bay, block space A and B only)	N/A	N/A
4010-9923*	SafeLINC Internet Interface	2 Vertical Blocks	115 mA	115 mA

Note: * UL,ULC, and CSFM Listed.

Note: ** For details on other dual vertical block network options refer to data sheets S4100-0029, S4100-0056, S4100-0057, *ES Net Network Applications, Communications, Options and Specifications S4100-0076*, and *Building Network Interface Card (BNIC) S4100-0061*.

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Additional control unit feature selection - block space is not used

Table 11: Additional control unit feature selection - block space is not used

Model	Features	Supervisory current	Alarm current	Mounting requirements
4010-9909	City Connect Module w/ disconnect switches	20 mA	36 mA	Mounts on Main System Supply (1 max)
4010-9910	City Connect Module	20 mA	36 mA	
4010-9911	Alarm Relay Module	15 mA	37 mA	
4100-5128	Battery Distribution Terminal Block, mounts to side of box. Required when battery connection leaves the 4010ES box. Also used in the 4100ES fire alarm control unit.			
Refer to data sheet *S4100-0063* and contact your local Simplex product representative for more details.				

Network interface and network media card product selection

4010ES fire alarm control units are compatible with Simplex ES Net network or 4120 network fire alarm products.

- Refer to datasheet *ES Net Network Applications, Communications, Options and Specifications 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.
- Refer to datasheet *S4100-0061* for additional information on the BNIC.
- Refer to datasheet *Connected Services Gateway - Central Station Communication and SafeLINC Cloud Services S2080-0091* for additional information on the Connected Services Gateway.

Additional 4010ES and network product reference data sheets

Table 12: Additional 4010ES and network product reference data sheets

Title	Doc. number
Serial DACT (SDACT) for 4100ES, 4010ES, 4007ES	*S2080-0009*
Connected Services Gateway - Central Station Communication and SafeLINC Cloud Services	*S2080-0091*
Seismic Battery Brackets Reference	*S2081-0019*
4003EC Voice Control Unit	*S4003-0002*
4009 IDNet NAC Extender	*S4009-0002*
4009 IDNAC Repeater	*S4009-0004*
4010ES Extinguishing Release Applications	*S4010-0005*
4010ES Panels with Conventional Notification (INTL)	*S4010-0006*
4010ES Extinguishing Release Applications (INTL)	*S4010-0007*
InfoAlarm Command Center for the 4010ES Panels	*S4010-0008*
InfoAlarm Command Center for the 4010ES Panels (INTL)	*S4010-0009*
4010ES Panels with Addressable Notification	*S4010-0011*
4010ES Panels with Addressable Notification (INTL)	*S4010-0012*
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*
NDU with SPS Power Supplies for 4120 Network	*S4100-0036*
InfoAlarm Command Center with SPS Power Supplies	*S4100-0045*
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*
ES Net Network Products and Specifications	*S4100-0076*
NDU with EPS Power Supplies for 4120 Network	*S4100-0102*
NDU with EPS Power Supplies for ES Net	*S4100-0104*
NDU with ES-PS Power Supplies for 4120 Network	*S4100-1036*
Remote ES Touch Screen Displays for 4100ES and 4010ES Panels	*S4100-1070*
NDU with ES-PS Power Supplies for ES Net	*S4100-1077*
TrueSite Workstation	*S4190-0016*
TrueSite Incident Commander	*S4190-0020*
24-Pin Dot Matrix Fire Alarm System Remote Printer	*S4190-0027*
SCU/RCU Annunciators	*S4602-0001*
4606-9102 Remote LCD Annunciator	*S4606-0002*

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4010ES card address allocation

The 4010ES has a maximum internal and external card address limit of 20 card addresses. Use Table 13 to calculate 4010ES card address allocation.

1. For the applicable control unit, write in the Card Address Consumption value in the Card Address Allocation column. Select one control unit only.
2. For the option cards to be installed on the 4010ES, write in the Card Address Consumption value in the Card Address Allocation column.
3. Total the Card Address Allocation column. The total must not exceed 20.

Table 13: 4010ES card address allocation

Model	Description		Card Address Consumption	Card Address Allocation
Control units (select one)				
4010-9401 4010-9401BA 4010-9402 4010-9402BA 4010-9405 4010-9406	2x40 display, (1) IDNet 2 Communications Channel, 1-Bay box		2	
4010-9403 4010-9404	2x40 Display, (1) IDNet 2 Communications Channel, 48 Pluggable LED Module, 1-Bay Box		3	
4010-9421 4010-9421BA 4010-9422 4010-9422BA	2x40 Display, (1) IDNet 2 Communications Channels and one IDNet 2+2 Communications Channel, 2-Bay box		3	
4010-9423 4010-9428 4010-9430	2x40 Display, (1) IDNet2 Communications Channels and (1) IDNet 2+2 Communications Channel, 48 Pluggable LED Module, 2-Bay Box		4	
4010-9425 4010-9425BA 4010-9426 4010-9426BA	InfoAlarm display, one IDNet+ Communications Channel and one IDNet 2+2 Communications Channel, 2-Bay box		4	
4010-9435	ES Color Touch Screen Display, (1) IDNet 2 Communications Channel and (1) IDNet 2+2 Communications Channel, 2-Bay Box		4	
Control unit option cards (select as required)				
4010-2504	Connected Services Gateway with IP communicator		1	
4010-9901	Flat VESDA HLI Card		1	
4010-9922	Flat 4120 Network Card		1	
4010-6310	Flat ES Net Network Interface Card		1	
4010-9908	4 Point Flat Aux Relay Module		1	
4010-9912	Serial DACT		1	
4010-9923	SafeLINC Internet Interface Card		1	
4010-9914	Building Network Interface Card		1	
4010-9918	Dual RS-232 Module		1	
4010-9935	8 point zone/relay 4 in. x 5 in. flat module		1	
4010-9929	IDNet 2+2 Communications Module		1	
4010-9936	4-Point Auxiliary Relay Module with Feedback		1	
Remote Annunciation (Select As Required)				
4100-9401	Remote InfoAlarm Command Center	Red Cabinet, English	2	
4100-9403		Platinum Cabinet, English	2	
4100-9421		Red Cabinet, French	2	
4100-9423		Platinum Cabinet, French	2	
4100-9441		Red Cabinet, with blank inserts for key labels	2	
4100-9443		Platinum Cabinet, with blank inserts for key labels	2	
4100-9404	Remote ES Touch Screen Display	Red Cabinet	1	
4100-9405		Platinum Cabinet	1	
4606-9102	4010ES RUI LCD Annunciator, English		1	

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Table 13: 4010ES card address allocation

Model	Description	Card Address Consumption	Card Address Allocation
4606-9102BA	4010ES RUI LCD Annunciator, English	1	
4606-9102CF	4010ES RUI LCD Annunciator, French	1	
4602-9101	Status Command Unit (SCU) LED Annunciator	1	
4602-9102	Remote Command Unit (RCU) LED Annunciator w/control	1	
4602-9150	Graphic I/O RCU/SCU Assembly for custom annunciator	1	
4602-7101	Graphic I/O RCU/SCU Assembly for custom annunciator	1	
4602-7001	RCU for cabinet mount	1	
4602-6001	SCU for cabinet mount	1	
4100-7401	24 Point I/O Graphic Module (requires mounting cabinet)	1	
4100-7402	64/64 LED Switch Controller for custom annunciator	1	
4100-7403	32 Point LED Driver Module for custom annunciator	1	
4100-7404	32 Point Switch Input Module for custom annunciator	1	
	Total Card Addresses (not to exceed 20)	**TOTAL**	

Note: Products ending with BA are assembled in the USA.

One-bay and two-bay cabinet loading reference

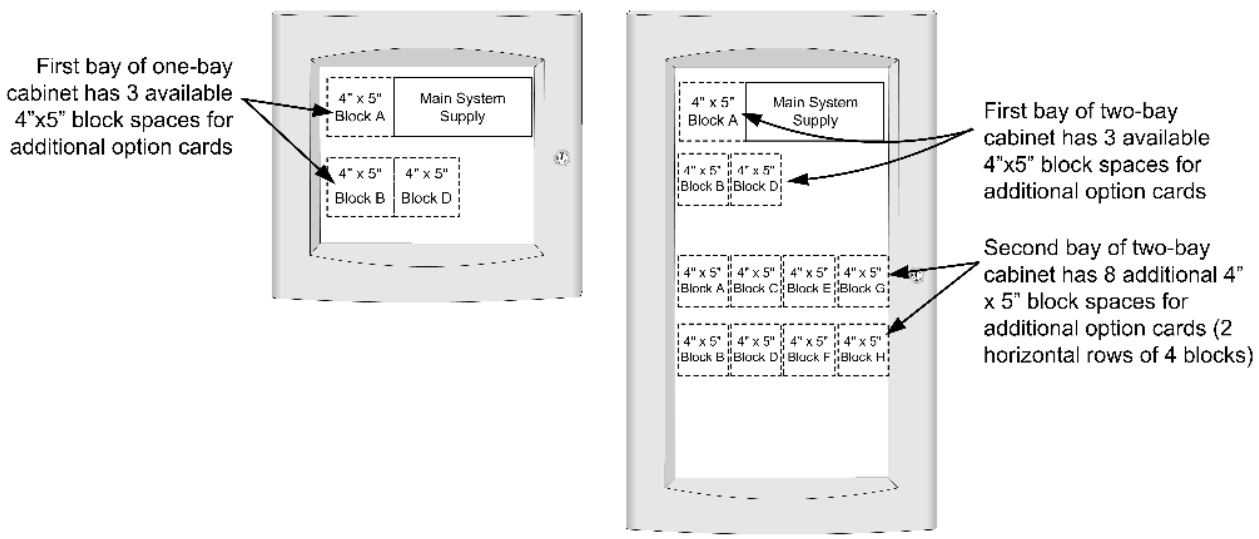


Figure 10: Loading reference

Note: Some spaces may be used by basic control unit features.

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Cabinet dimension reference

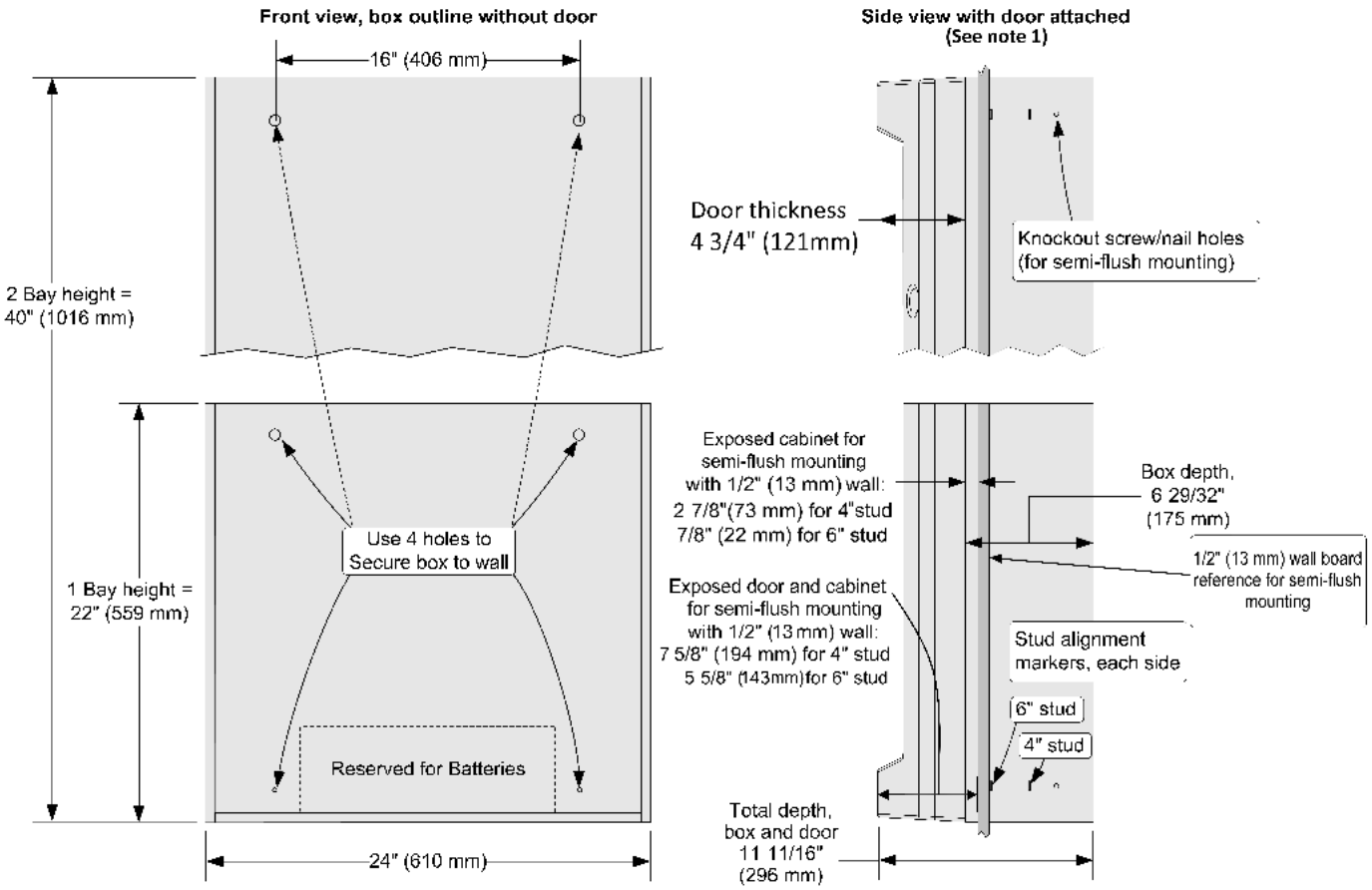


Figure 11: Cabinet dimension reference

Note: Side view dimensions are shown with minimal cabinet and door protrusion from the exterior wall. For 6 in. 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 in. (76 mm) for both 4 in. and 6 in. stud construction.

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