Features

Network Display Unit (NDU) provides annunciation for up to 12,000 network points

- The basic NDU is a special purpose master controller that includes an ES Net network interface card.
- An NDU with a voice command center (VCC) mounted in the same cabinet provides an additional separate network node within the same cabinet for control of network level emergency voice/alarm communications equipment

NDU master controller equipment (top bay)

- Master controller assembly with operator interface
- 4100ES CPU with dual configuration programs, convenient service port access, and capacity for up to 12,000 points
- System power supply (SPS) and charger (9 A total) with on-board programmable auxiliary output
- Operator interface that is conveniently color coded with raised switches providing high confidence feedback
- Available with InfoAlarm command center expanded content user interface (refer to data sheet *S4100-0101*)
- Construction that is optimized for easy installation, upgrade, and maintenance
- Glass door (ordered separately) provides view of available operator controls visible behind locked door

Standard addressable interfaces include:

- Remote annunciator module support via RUI (remote unit interface) communications port

NDU field installed option modules include:

- DACT and city connection
- Service modems for remote panel status inquiry
- RS-232 ports for printers or maintenance terminals
- Alarm relays and expansion power supplies
- SafeLINC internet interface
- Battery brackets for seismic area protection.

VCC equipment (second expansion bay)

- VCC includes enhanced power supply (EPS) and battery charger (9 A total) with on-board IDNAC SLCs (signaling line circuit) for addressable appliance control, electrically isolated IDNet 2 addressable device control module with dual short circuit isolating output loops, and programmable function auxiliary output
- For additional information concerning EPS power supplies and their enhanced features, and on IDNet 2 communications modules, refer to 4100ES data sheet *S4100-0100* and refer to additional related product data sheet list.
- Voice control options are similar to a networked fire alarm control panel with an extensive list of modules available for initiating, notification, and user interface

Introduction

The 4100ES NDU with VCC for ES Net is a network level annunciator and manual system/point controller with Network voice control equipment. It provides alphanumeric annunciation for up to 12,000 Network points and/or point lists and can be programmed to function as the network master controller for Alarm Silence, Trouble Acknowledge, and System Reset.
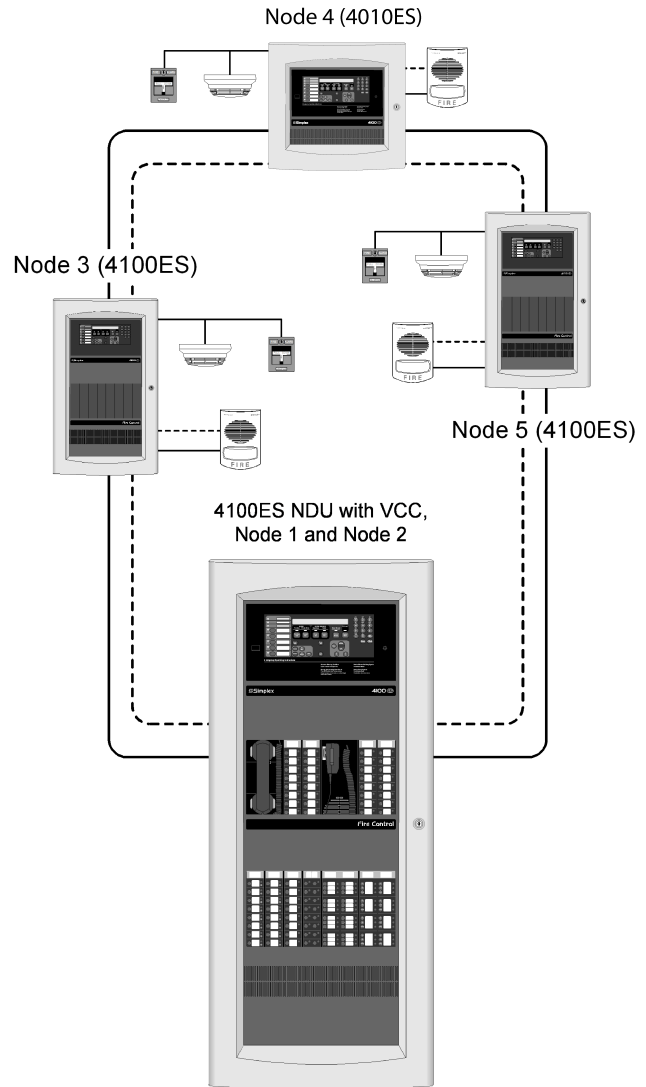

Figure 1: Network one-line diagram showing an NDU with VCC

Listings information

- UL 864, Fire Detection and Control (UOJZ), 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)

ES Net Network Overview

When connected to other ES Net network nodes, individual fire alarm control panels become components of a distributed intelligence system. Each panel that directly connects to the network is called a network "node" and is capable of performing individual supervision and control on its locally connected devices but has the ability to inform the 4100ES NDU (as well as other network control panels) of point status and panel condition. This allows system information to reach the proper location for appropriate system response.

Multiple 4100ES NDUs (separately packaged) can be connected to a network to duplicate common information at separate locations, or direct selected information by type such as troubles, alarms, control, etc.

NDU module bay description

The NDU master controller bay (top) includes a special purpose system power supply with battery charger (SPS), the master controller board, an ES network interface card, and operator interface equipment similar to that used on the standard fire alarm control modules. Slots 1 and 2 are available for single slot panel mounted modules.

The VCC includes an expansion bay with separate: master controller board, ES network interface card, and an EPS power supply with IDNet 2 module. This results in two separate network nodes residing within the same cabinet.

In the VCC bay, a dual PDI connection is available for either a dual slot module, or one or two block modules. Optional LED/switch modules can also be mounted. For 2-bay cabinets, the VCC mounts in bay 2. For 3-bay cabinets as shown to the right, the VCC mounts in the second expansion bay, bay 3.

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

Refer to the NDU with VCC internal module bay reference illustration for typical three bay cabinet module location.

Packaging availability

· Modules are power-limited (unless specifically noted otherwise)
· Enclosure are available for one, two, or three bay sizes or for cabinet rack mounting
· Additional cabinets can be mounted close-nippled for module expansion
· NEMA 1/IP30 boxes, doors with tempered glass inserts, and dress panels are available in platinum or red, (ordered separately)
· Refer to data sheet *S4100-0037* for enclosure details.

Software feature summary

· Selectable service override allows authorized operators to clear alarm conditions during system reset even if status has gone to trouble before reset occurred
· Duplicate address error detection
· Convenient PC programming using a Microsoft Windows user interface based program
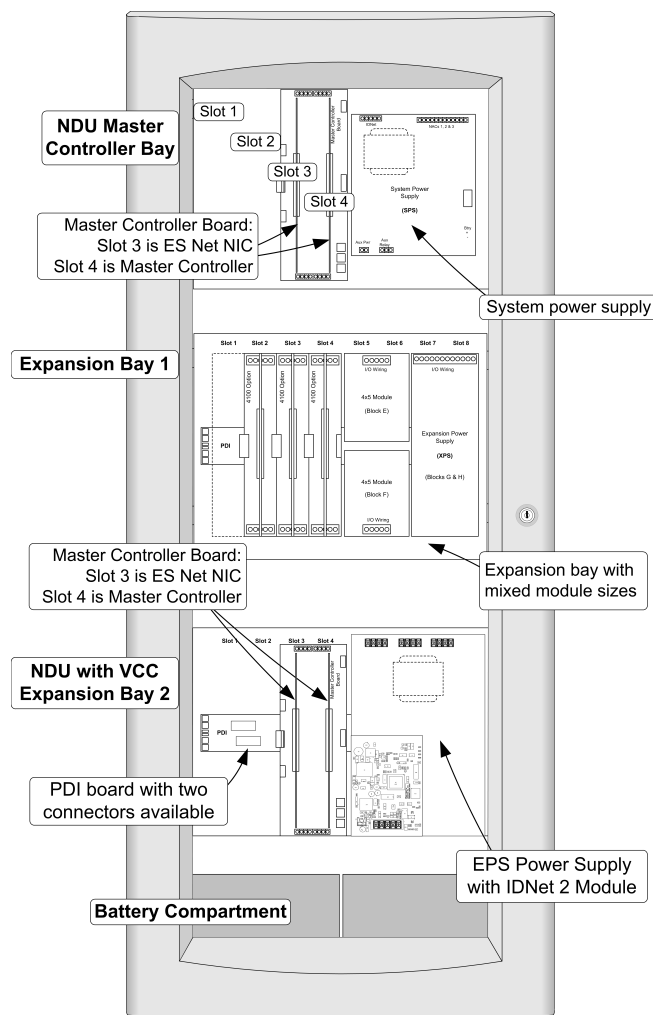
NDU with VCC internal module bay reference

Figure 2: NDU with VCC Internal Module Bay Reference (exact layout is determined by specific system requirements)

Standard module details

NDU (top bay) master controller & motherboard includes a master controller, master controller motherboard, ES Net NIC, and SPS power supply

· The master controller mounts in slot 4 of a two slot motherboard (slots 3 and 4 of the master controller bay) and provides one RUI+ communications channel (Class B or Class A), available at slot 4. An ES Net network interface card is mounted in slot 3.
· The NDU bay RUI+ communications output (configurable for isolated or un-isolated operation) supports up to 31 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 per master controller (up to three 4100-1291 RUI expansion modules may be added). 4100-1291 provides un-isolated RUI communications.
· Both the NDU master controller RUI+ output and RUI expansion modules support the following remote LCD annunciators: 4603-9100 series LCD annunciators and 4100-9400 series remote InfoAlarm command centers.
· Optional service modem 4100-6030 mounts onto the master controller board with its own on-board connections
· System power supply (SPS) is rated for 9 A total; includes battery

charger, one 2 A aux power output selectable for detector reset, door holder, or coded output operation and expansion slot for one city circuit (4100-6031 or 4100-6032) or alarm/supv/tbl relay (4100-6033) option (see data sheet *S4100-0100* for details)

- Outputs are power-limited, except for the battery charger

Note: SPS IDNet channel, NACs and aux relay are disabled in NDU bay.

VCC (expansion bay) includes a master controller, master controller motherboard, ES Net NIC and EPS power supply with IDNet 2 module

- The master controller mounts in slot 4 of a two slot motherboard (slots 3 and 4 of the master controller bay) and provides one RUI+ communications channel (Class B or Class A), available at slot 4. An ES Net network interface card is mounted in Slot 3.

- The VCC bay RUI+ communications output (configurable for isolated or un-isolated operation) supports up to 31 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 per master controller (up to three 4100-1291 RUI expansion modules may be added). 4100-1291 provides un-isolated RUI communications.

- Both the VCC master controller RUI+ output and RUI expansion modules are compatible with the following equipment: miniplex transponders, 4603-9100 series LCD annunciators, 4100-9400 series remote InfoAlarm command centers, 4100 series 24 I/O and LED/switch modules and 4602 series status command units (SCU), remote command units (RCU) and graphic I/O modules (4602 series equipment requires un-isolated output).

- Enhanced power supply (EPS) is rated for 9 A total; includes battery charger, on-board electrically isolated 250 point IDNet 2 SLC communications 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. The IDNet 2 SLC communications channel supports up to 250 addressable devices and comes with two short circuit isolating loop outputs (Class B or Class A).

- 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); also is 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

- Outputs are power-limited, except for the battery charger

2 A programmable output

- Select for conventional NAC operation to provide supervised reverse polarity for sounder base power, suppression release peripheral (SRP) power, and 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

EPS power supply 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

Operator interface

Convenient Status Information

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

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

Operator interface detail reference

Operator interface panel is directly viewable and accessible (no access door)

Upload/Download Ethernet port access (under sliding cover)

Basic operator instructions are printed on the interface mounting plate
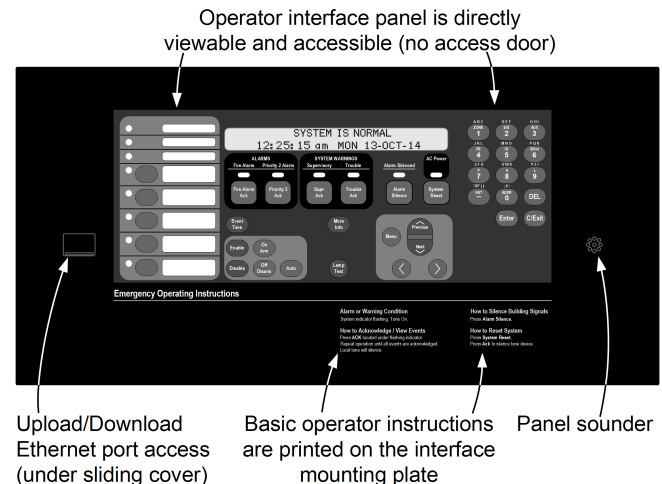
Panel sounder

Figure 3: Operator interface detail reference

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
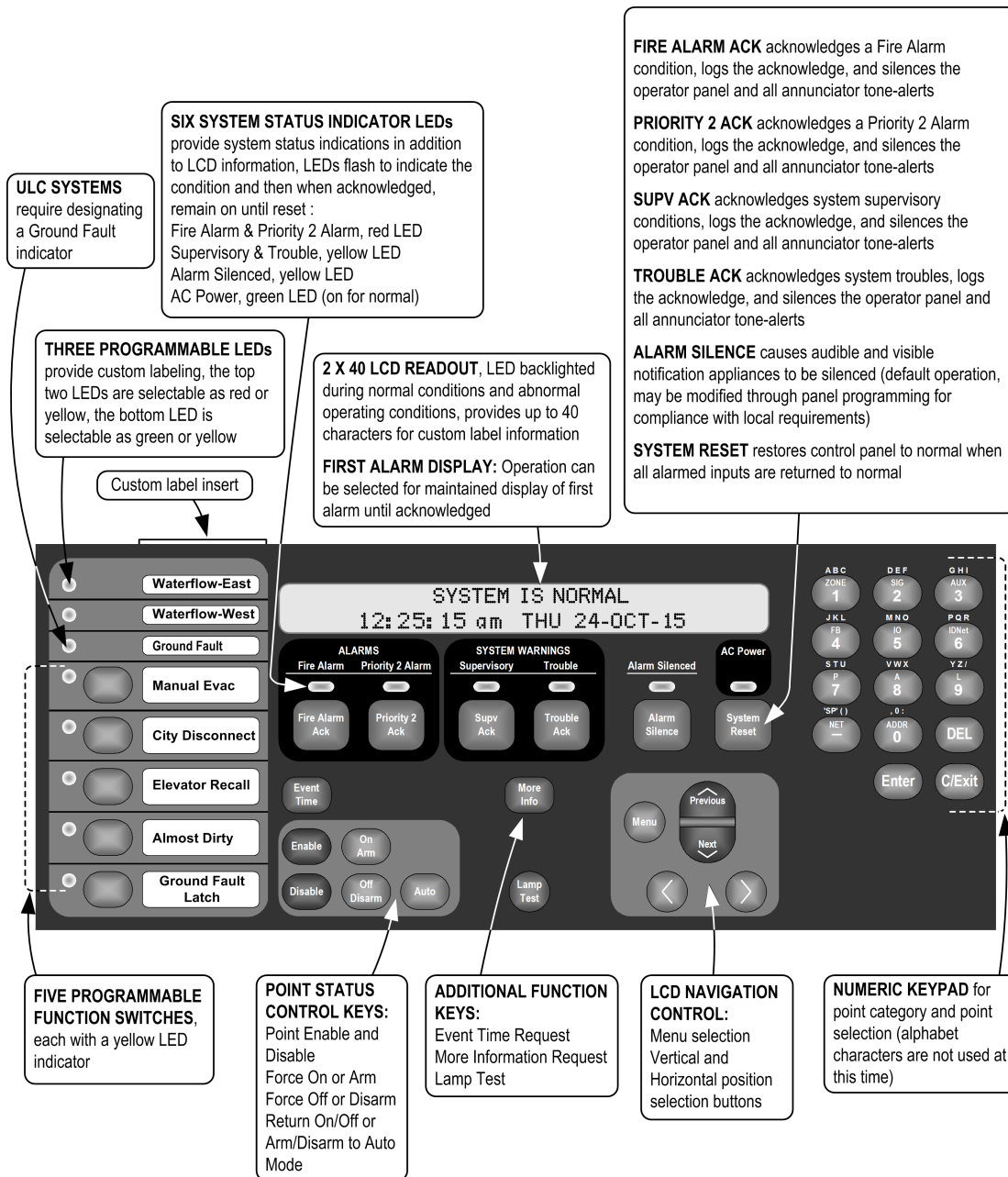· Password access control

FIRE ALARM ACK acknowledges a Fire Alarm condition, logs the acknowledge, and silences the operator panel and all annunciator tone-alerts

PRIORITY 2 ACK acknowledges a Priority 2 Alarm condition, logs the acknowledge, and silences the operator panel and all annunciator tone-alerts

SUPV ACK acknowledges system supervisory conditions, logs the acknowledge, and silences the operator panel and all annunciator tone-alerts

TROUBLE ACK acknowledges system troubles, logs the acknowledge, and silences the operator panel and all annunciator tone-alerts

ALARM SILENCE causes audible and visible notification appliances to be silenced (default operation, may be modified through panel programming for compliance with local requirements)

SYSTEM RESET restores control panel to normal when all alarmed inputs are returned to normal

SIX SYSTEM STATUS INDICATOR LEDs provide system status indications in addition to LCD information, LEDs flash to indicate the condition and then when acknowledged, remain on until reset :
Fire Alarm & Priority 2 Alarm, red LED
Supervisory & Trouble, yellow LED
Alarm Silenced, yellow LED
AC Power, green LED (on for normal)

ULC SYSTEMS require designating a Ground Fault indicator

THREE PROGRAMMABLE LEDs provide custom labeling, the top two LEDs are selectable as red or yellow, the bottom LED is selectable as green or yellow

Custom label insert

2 X 40 LCD READOUT, LED backlighted during normal conditions and abnormal operating conditions, provides up to 40 characters for custom label information

FIRST ALARM DISPLAY: Operation can be selected for maintained display of first alarm until acknowledged

Figure 4: Operator Interface Features

FIVE PROGRAMMABLE FUNCTION SWITCHES, each with a yellow LED indicator

POINT STATUS CONTROL KEYS:
Point Enable and Disable
Force On or Arm
Force Off or Disarm
Return On/Off or Arm/Disarm to Auto Mode

ADDITIONAL FUNCTION KEYS:
Event Time Request
More Information Request
Lamp Test

LCD NAVIGATION CONTROL:
Menu selection
Vertical and Horizontal position selection buttons

NUMERIC KEYPAD for point category and point selection (alphabet characters are not used at this time)

ES Net 4100ES NDU annunciator panels with VCC

4100ES NDUs with VCC and EPS provide annunciation for up to 99 network nodes in an ES Network.

Table 1: ES Net NDU with VCC and EPS power supplies

Model	Model Type	Description	Listing	Supv.	Alarm
4100-9357	120 VAC Input	Includes a 2x40 LCD operator interface, (2) master controller cards, (2) RUI+ isolated or un-isolated outputs, (2) ES Net network interface cards (1) 9A system power supply/charger (SPS) in master controller bay, (1) 9A enhanced system power supply/battery charger (EPS) and power distribution interface board in 2nd expansion bay.	UL	1.028 A	1.360 A
4100-9358	120 VAC Input	Includes a InfoAlarm LCD operator interface with raised keys, (2) master controller cards, (2) RUI+ isolated or un-isolated outputs, (2) ES Net network interface cards, (1) InfoAlarm memory expansion card, (1) 9A system power supply/charger (SPS) in master controller bay, (1) 9A enhanced system power supply/battery charger (EPS) and power distribution interface board in 2nd expansion bay.	UL	1.100 A	1.430 A
4100-9359	120 VAC Input	Includes a InfoAlarm LCD operator interface with raised keys, (2) master controller cards, (2) RUI+ isolated or un-isolated outputs, (2) ES Net network interface cards, (1) InfoAlarm memory expansion card, (1) 9A system power supply/charger (SPS) in master controller bay, (1) 9A enhanced system power supply/battery charger (EPS) and power distribution interface board in 2nd expansion bay.	ULC	1.100 A	1.430 A
4100-9545	220-240 VAC Input	Includes a 2x40 LCD operator interface, (2) master controller cards, (2) RUI+ isolated or un-isolated outputs, (2) ES Net network interface cards (1) 9A system power supply/charger (SPS) in master controller bay, (1) 9A enhanced system power supply/battery charger (EPS) and power distribution interface board in 2nd expansion bay.	UL	1.028 A	1.360 A

Notes:

1. SPS IDNet channel, NACs and aux relay are disabled in NDU bay.
2. See Standard module details for additional system power supply information.
3. ES Net media card current is listed separately, see relevant media specifications for more details.
4. For additional information on ES Net products and specifications refer to data sheet *S4100-0076*.
5. For additional information on InfoAlarm Command Center expanded content displays refer to data sheet *S4100-0101*.
6. For panels listed in Table 1, order audio modules separately as required.

ES Net NIC and media cards for 4100ES, TrueSite Workstation, or Incident Commander

Table 2: ES Net NIC cards for 4100ES, TrueSite Workstation, or Incident Commander

Model	Card Type	Description	Size	Alarm/Supv.
4100-6104	Slot	Mounts in 4100ES cabinet. Connects a 4100ES FACU, TrueSite Workstation, or Incident Commander to an ES Net Network. Supports Class B or Class X operation. Includes (4) built in Ethernet ports, install to a single slot in a 4100ES bay. Supports up to (2) additional media cards. Ports A and C can be configured for earth fault detection.	2 vertical blocks	120 mA
4100-6310	Flat	Mounts in 4100ES cabinet. Connects a 4100ES FACU, TrueSite Workstation, or Incident Commander to an ES Net Network. Supports Class B or Class X operation. Includes (4) built in Ethernet ports, install to any (2) vertical block space in a 4100ES bay. Supports up to (2) additional media cards. Ports A and C can be configured for earth fault detection.	2 vertical blocks	120 mA

Table 3: ES Net dual channel media cards for 4100ES mounted NICs

Model	Description		Size	Alarm/Supv.
4100-6308	ES Net NIC dual channel single-mode fiber media card	Select per network connection requirements; mounts on the supplied ES Net NIC; up to (2) media cards per slot type and flat type NIC. Dual Channel Media Cards provide 2 ports for input and output connections.	N/A	135 mA
4100-6309	ES Net NIC dual channel multi-mode fiber media card	Field connections require proper port pairing, refer to *579-1258 ES Net Dual Channel Fiber, Ethernet, and DSL Media Card Installation Instructions* for additional information.	N/A	135 mA
4100-6307	ES Net NIC dual channel DSL media card		N/A	155 mA

Table 2 and 3 notes:

1. Each NDU bay and VCC Bay includes one A100-6104 network interface card with built-in ethernet network communication ports, order optional media cards as required.

2. TrueSite workstation connection is Class B, for Class X networks TSW connection must be 20 ft (6 M) maximum in conduit.

3. For additional information on ES Net products and specifications refer to data sheet AC4100-0076.

4. Order fiber media service kits for retrofit jobs where ST connectors are already installed. Refer to Fiber media card service kits for additional information.

Fiber media card service kits

Table 4: ES Net fiber media card service kits

Model	Fiber type	Description
4100-6412	50/125 µm multi-mode	For use in retrofit jobs where fiber optic cables with ST connectors are already installed. Includes (1) ST to SC 18 in. (45.7 cm) fiber optic patch cord, (1) ST-ST coupler, (1) wire clamp, and (1) insulating sleeve.
4100-6413	62.5/125 µm multi-mode	
4100-6414	9/125 µm single-mode	

Note: Fiber optic media cards must be of the same type on each end of the fiber link. When replacing a media card with a different type, the card on the other end of the link must be replaced with a fiber optic media card of the same type.

NDU with VCC, LED/switch modules

Refer to *S4100-0032* for additional detail.

Table 5: LED/Switch Modules, Special Purpose (LED/switch controller and label kit is ordered separately)

Model	Operation
4100-1286	Eight function HOA (On, Off, Auto) Control Module with labeled switches; ON/OFF/Auto; Green/Red/Green LEDs
4100-1295	Eight function HOA (On, Off, Auto) Control Module, same as 4100-1286 except switches are unlabeled

Table 6: LED/Switch Modules, General Purpose (LED/switch controller and label kit is ordered separately)

Model	LEDs per Switch	LED Color(s)	LED Quantity	Switch Quantity
4100-1276	LEDs only	Red; pluggable	8	LEDs only
4100-1277		Red on top, Yellow on bottom, pluggable	16	
4100-1280	One	Red	8	8
4100-1281	One	Yellow		
4100-1282	Two	Red on top, Yellow on bottom	16	8
4100-1283	Two	Yellow, top and bottom		
4100-1284	Two	Red on top, Green on bottom	16	8

Table 6: LED/Switch Modules, General Purpose (LED/switch controller and label kit is ordered separately)

Model	LEDs per Switch	LED Color(s)	LED Quantity	Switch Quantity
4100-1296	Two	Green on top, Yellow on bottom	16	8
4100-1285	One	Red	16	16
4100-1278	One	8 Red on left, 8 Yellow on right		
4100-1287	One	Red	24	24

Table 7: LED/Switch Controller Modules and Accessories

Model	Description	
4100-1288	64 LED/64 Switch Controller Module with mounting plate; controls up to 64 LEDs and interfaces to up to 64 switches; mounts behind the LED/switch modules and has provisions for one 4100-1289 Controller Module	**Note:** LED/switch controllers and their connected LED/switch modules must be in the same bay; refer to data sheet *S4100-0032* for additional LED/Switch module details when Flex-35/50 amplifiers are in the same bay
4100-1289	64 LED/64 Switch Controller Module without mounting plate; mounts on extra space of 4100-1288; controls an additional 64 LEDs and 64 switches	
4100-1294	LED/Switch Module Slide-in Labels, required when LED/switch modules are present; order one per cabinet	
4100-9843	Kit of 8 yellow LEDs; order as required for 4100-1276/4100-1277 modules	
4100-9844	Kit of 8 green LEDs; order as required for 4100-1276/4100-1277 modules	
4100-9845	Kit of 8 red LEDs; order as required for 4100-1276/4100-1277 modules	

VCC, emergency voice/alarm communications selection

Refer to document *S4100-0034* for additional voice/alarm module information.

Table 8: Options for either Analog or Digital Systems

Model	Description	Model	Description	
4100-1259	Constant Supervision Adapter for 25 VRMS Amplifiers	4100-5116	Expansion Signal Module; three, 1.5 A NACs	
4100-1260	Constant Supervision Adapter for 70.7 VRMS Amplifiers	4100-1266	NAC Extender	Options for use with Expansion Signal Module
4100-1240	Auxiliary Audio Input Module; four additional inputs	4100-1267	Class A Adapter	
4100-1241	8 Minute Message Expansion Module	4100-1268	Constant Supervision Adapter	
4100-1242	32 Minute Message Expansion Module	4081-9018	End-of-line resistor for 70.7 VRMS NACs; 10 kΩ, 1 W	
4100-0623	Network Audio Riser Controller Module for control of analog (-0621) or digital (-0622) riser module, see *S4100-0034* for details			

Table 9: Options for use with either Analog or Digital Amplifiers*

Model	Description	Model	Description
4100-1245	Flex-35/50 NAC Expansion Module; (Adds 3 Class B, 1.5 A NACs)	4100-1248	100W Amplifier NAC Expansion Module; (Adds six Class B, 2 A NACs)
4100-1246	Flex-35/50 Class A Adapter for 3 NACs	4100-1249	100W Amplifier Class A Adapter Module for 6 NACs

Table 10: 100 W Digital Amplifiers with Power Supply, Constant Supervision Compatible

Model/Output Voltage		Power Supply Input/Listing		Description	Details
25 VRMS	70.7 VRMS				
4100-1328	4100-1329	120 VAC, 60 Hz	UL	Primary 100 W Amplifier	Includes six, Class B audio NACs; NAC rating = 50 W or 100 speakers maximum; 2 A @ 25 VRMS; 1.4 A @ 70.7 VRMS
4100-1332	4100-1333	220/230/240 VAC, 50/60 Hz	UL	Primary 100 W Amplifier	Includes six, Class B audio NACs; NAC rating = 50 W or 100 speakers maximum; 2 A @ 25 VRMS; 1.4 A @ 70.7 VRMS
4100-1334	4100-1335	120 VAC, 60 Hz	UL	Backup 100 W Amplifier	Uses the six Class B NACs of primary amplifier
4100-1338	4100-1339	220/230/240 VAC, 50/60 Hz	UL	Backup 100 W Amplifier	Uses the six Class B NACs of primary amplifier

Note: ULC models in Table 10 have low battery dropout circuit.

Table 11: Digital Emergency Voice/Alarm Communications Equipment

Model	Description		Details		
4100-9621	Basic Digital Audio Operation with microphone, requires dedicated expansion bay		Includes: Expansion Bay, A100-1311 Digital Controller Board, Microphone Module, and Audio Expansion Bay Kit		
4100-1311	Eight Channel Digital Controller Board only; order expansion bay and audio expansion bay kit separately		Controller board mounts in Blocks A and B		
4100-1363	25VRMS output	Flex-35, 35 W Amplifier, constant supervision compatible	Includes three on-board Class B audio NACs;	NAC rating = 1.4 A	35W or 100W speakers
4100-1364	70.07VRMS output			NAC rating = 0.5 A	

Table 11: Digital Emergency Voice/Alarm Communications Equipment

Model	Description	Details			
4100-1326	25VRMS output	Flex-50, 50 W Amplifier, constant supervision compatible	power is supplied from an XPS, SPS, or RPS	NAC rating = 2 A	50W or 100W speakers
4100-1327	70.7VRMS output			NAC rating = 0.707 A	

Table 12: 100 W Analog Amplifiers with Power Supply, Constant Supervision Compatible

Model/Output Voltage		Power Supply Input/Listing		Description	Details
25 VRMS	70.7 VRMS				
4100-1314	4100-1315	120 VAC, 60 Hz	UL	Primary 100 W Amplifier	Includes six, Class B audio NACs; NAC rating = 50 W or 100 speakers maximum; 2 A @ 25 VRMS; 1.4 A @ 70.7 VRMS
4100-1320	4100-1321	120 VAC, 60 Hz	UL	Backup 100 W Amplifier	Uses the six Class B NACs of primary amplifier
4100-1324	4100-1325	220/230/240 VAC, 50/60 Hz	UL	Backup 100 W Amplifier	Uses the six Class B NACs of primary amplifier

Note: ULC models in Table 12 have low battery dropout circuit.

Table 13: Analog Emergency Voice/Alarm Communications Equipment, Constant Supervision Compatible

Model	Description		Details		
4100-9620	Basic Analog Audio Operation with microphone, requires dedicated expansion bay		Includes: Expansion Bay, 4100-1210 Analog Controller Board, Microphone Module, and Audio Expansion Bay Kit		
4100-1210	Analog Controller Board only; order expansion bay and audio expansion bay kit separately		Controller board mounts in Blocks A and B		
4100-1361	25 VRMS output	Flex-35, 35 W Amplifier, constant supervision compatible	Includes three on-board Class B audio NACs; power is supplied from an XPS, RPS, or SPS	NAC rating = 1.4 A	35 W, or 100 speakers
4100-1362	70.07 VRMS output			NAC rating = 0.5 A	
4100-1312	25 VRMS output	Flex-50, 50 W Amplifier, constant supervision compatible		NAC rating = 2 A	50 W, or 100 speakers
4100-1313	70.7 VRMS output			NAC rating = 0.707 A	

Table 14: Firefighter Telephone System Products

Model	Description	Details and Mounting Reference
4100-1270	Master Telephone with Telephone Control Module and 3 Class B telephone NACs; for Fire Alarm Control Panels	One max. per audio system; front panel module; space behind for 4100ES flat modules only; telephone control module mounts on bay module mounting plate; use LED/switch modules for circuit control
4100-1272	Telephone Module with 3 phone NACs	Class B NACs, single Block module, mounts to bay mounting plate
4100-1273	Telephone Class A Adapter Module	Mounts to 4100-1272, no additional space required

Table 15: VCC, Emergency Voice/Alarm Communications Products

Model	Description		Details and Mounting Reference
4100-1243	Master Microphone Module; one maximum per audio system; mounts on front panel		Requires 2 Slots (4" [102 mm]), locate on expansion bay only; space behind for 4100ES flat modules only Supv. current = 2.4 mA; Active current = 6 mA
4100-1252	1 Channel (audio or mike)	Operator Interface Modules	Single slot modules requiring connection to an LED/switch controller (see data sheet *S4100-0032* for LED/Switch Module details); space behind controller accepts 4100ES flat modules only
4100-1253	1.5 Channel (audio + mike)		
4100-1254	2 Channel (full audio)		
4100-1255	3-8 Channel		Additional adjacent LED/switch module(s) are required for specific speaker circuit selection

Additional enhanced expansion and remote power supplies and accessories

Table 16: Additional enhanced expansion and remote power supplies, and accessories

Model	Voltage/Listing		Description	Size	Supv.	Alarm
4100-5311	120 VAC	UL & ULC	Enhanced Power Supply (EPS) with IDNet 2 module; 9 A enhanced power supply with 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			add IDNet device currents separately	
4100-5325	120 VAC	UL & ULC	Expansion EPS; 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				

Table 16: Additional enhanced expansion and remote power supplies, and accessories

Model	Voltage/Listing		Description	Size	Supv.	Alarm
4100-6103			Dual Class A IDNAC isolator (DCAI), 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	6.5 mA	6.5 mA
4100-5101	120 VAC	UL	Expansion power supply (XPS); 9 A output, 3 built-in Class A/B NACs, rated 3 A for special application appliances (2 A for regulated DC); NACs can be selected as auxiliary power outputs, derated to 2 A for continuous duty, total per XPS is 5 A	2 Blocks	50 mA	50 mA
4100-5103	120 VAC, Canadian	ULC	Expansion power supply (XPS); 9 A output, 3 built-in Class A/B NACs, rated 3 A for special application appliances (2 A for regulated DC); NACs can be selected as auxiliary power outputs, derated to 2 A for continuous duty, total per XPS is 5 A	2 Blocks	50 mA	50 mA
4100-5102	220-240 VAC	UL	Expansion power supply (XPS); 9 A output, 3 built-in Class A/B NACs, rated 3 A for special application appliances (2 A for regulated DC); NACs can be selected as auxiliary power outputs, derated to 2 A for continuous duty, total per XPS is 5 A	2 Blocks	50 mA	50 mA
4100-5115	NAC expansion module, 3 NACs, Class A/B, mounts on XPS only			N.A.	25 mA	25 mA
4100-5125	120 VAC	UL	Remote power supply (RPS); 9 A power supply/charger similar to XPS except with battery charger; will accept one 4100-6033; Canadian model has low battery cutout; use to power Flex series amplifiers.	4 Blocks	150 mA	185 mA
4100-5127	220-240 VAC	UL	Remote power supply (RPS); 9 A power supply/charger similar to XPS except with battery charger; will accept one 4100-6033; Canadian model has low battery cutout; use to power Flex series amplifiers.	4 Blocks	150 mA	185 mA
4100-5152	12 VDC	UL & ULC	12 VDC power option, 2 A maximum; 1.5 A maximum supervisory or alarm	1 Block	1.5 A maximum	
4100-0634	120 VAC	UL & ULC	Power distribution module (PDM); select per system voltage; one required per box or cabinet rack			
4100-0635	220/230/240 VAC	UL & ULC				

NDU with VCC, additional options

NDU's with VCC support the same options available for 4100ES basic panels. For additional information on available options for NDU's with VCC refer to data sheet *S4100-0100*.

Note: Additional options are not applicable to NDU only models.

General specifications

Table 17: Input power, power supply output ratings, compatible special application appliances, battery charger ratings

	Specification		Rating	
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	
	System power supply (SPS) expansion Power supply (XPS) remote power supply (RPS) 100 W Amplifiers	120 VAC Models	4 A maximum @ 102 to 132 VAC, 50/60 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		Including module currents and auxiliary power outputs; 9 A total for "Special Application" appliances	Output switches to battery backup during mains AC failure or brownout conditions
	IDNAC output voltage		Regulated 29 VRMS	
	Auxiliary power tap		2 A maximum	
Power supply output ratings for SPS, RPS, and XPS (nominal 28 VDC on AC; 24 VDC on battery backup)	Total power supply output rating		9 A total including module currents and auxiliary power outputs	
	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	
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, SPS, and RPS (sealed lead-acid batteries)	Battery capacity range		UL listed for battery charging of 6.2 Ah up to 110 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	

Table 18: IDNet 2 communications wiring specifications (refer to installation instructions for more information)

Specification		Rating	
Maximum Distance from Control Panel per Device Load	0 to 125	4000 ft (1219 m); 50 ohms	
	126-250	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 2 Channels		1 µF	
Wire Type and Connections		Shielded or unshielded, twisted or untwisted wire	Some applications may require shielded wiring. Review your system with your local Simplex product supplier.
Connections		Terminal blocks for 18 to 12 AWG	
Total of initiating SLCs per CPU		30, including VESDA Interface	
Compatibility		IDNet communicating devices and TrueAlarm sensors including QuickConnect and QuickConnect2 sensors	

Table 19: IDNAC SLC wiring specifications (refer to installation instructions for more information)

Specification		Rating	
Recommended wire type		UTP, unshielded twisted pair	
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.
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)	
Maximum wiring resistance between appliances		26 Ω	
Wiring connections		Terminal blocks for 18 to 12 AWG	
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	

Expansion bay module loading reference

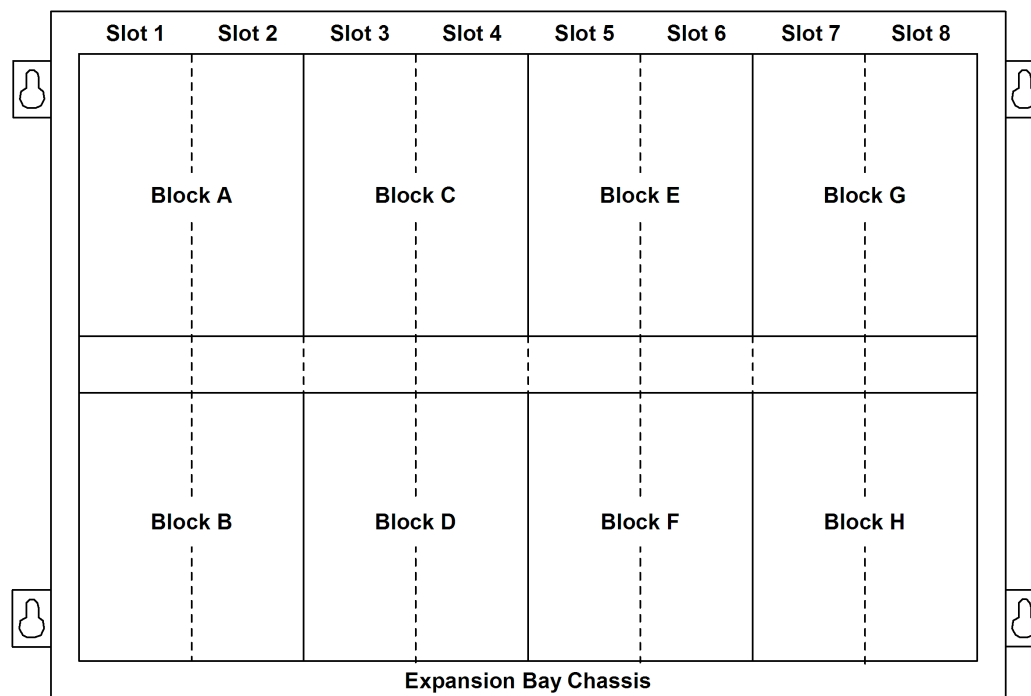Exact locations are provided with shipped product.

Figure 5: Expansion bay module loading reference

Size Definitions
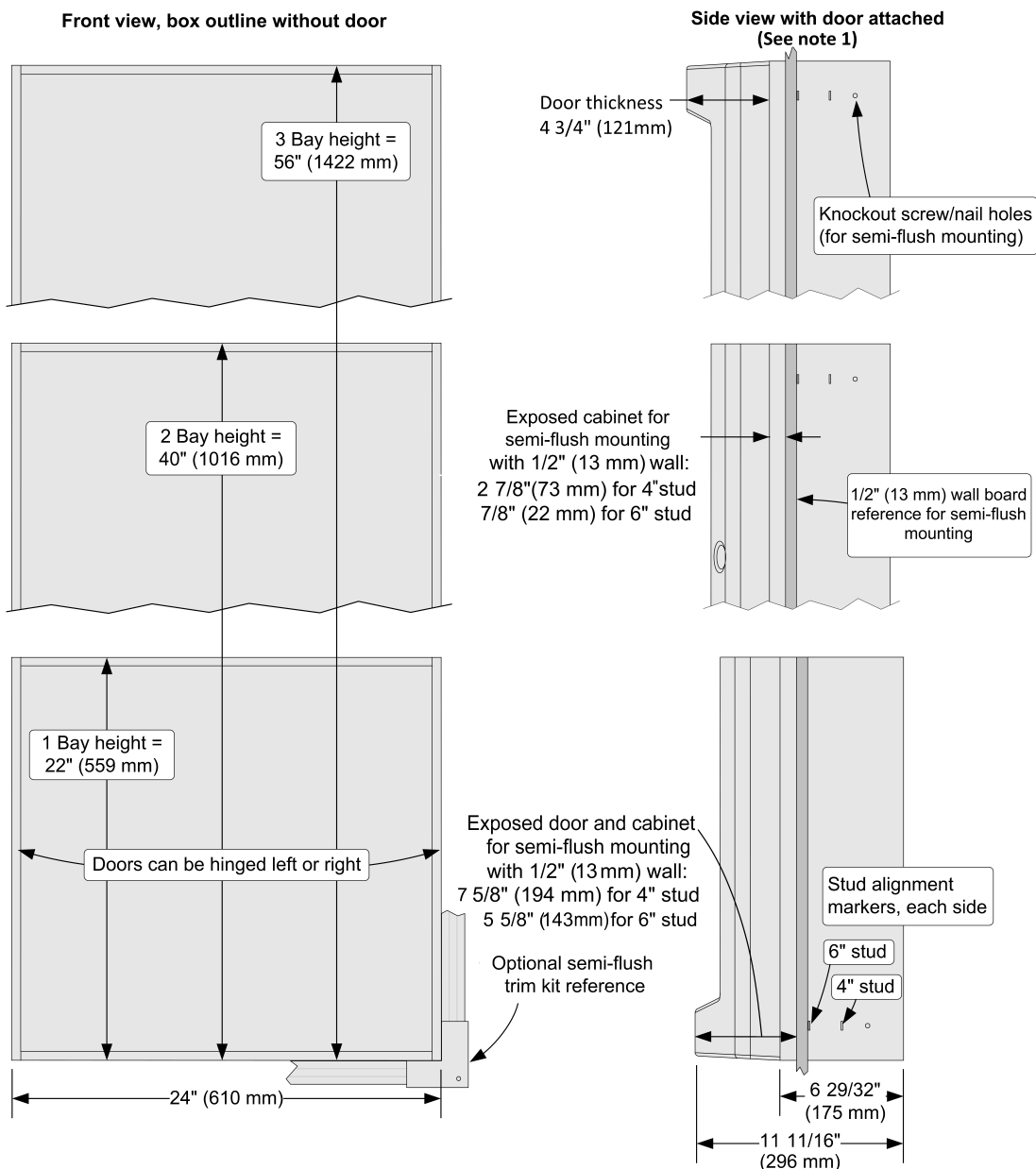1 Block = 4" W x 5.65" H (102 mm x 144 mm); (often called 4 x 5 modules)
Slot = 2" W x 8" H (51 mm x 203 mm) motherboard with daughter card

Table 20: Module Loading Reference

Description	Mounting
Terminal Block Module	1 block
System, Remote, or EPS Power Supply	Blocks E, F, G & H ONLY
Expansion Power Supply	Blocks G & H ONLY
Audio Controller Modules	Blocks A & B
Flex-35 Amplifiers, 2 max/bay*	Blocks E & F; C & D; or A & B
Flex-50 Amplifiers, 2 max/bay*	Blocks E & F or C & D
100 W Amplifiers, 1 max/bay	Blocks E, F, G & H
100 W Backup Amplifiers, 1 max. per bay with primary amplifier	Blocks A, B, C & D
Master Telephone Module	Blocks A & B
Master Microphone Module (do not mount next to telephone)	Two vertical Blocks, any location
Telephone Module	1 Block
Operator LED/Switch Modules	1 Slot

Note: When mounting dual Flex amplifiers on an expansion bay, special mounting rules apply.

Wall mounted enclosure installation reference

Front view, box outline without door

3 Bay height =
56" (1422 mm)

2 Bay height =
40" (1016 mm)

1 Bay height =
22" (559 mm)

Doors can be hinged left or right

Exposed door and cabinet
for semi-flush mounting
with 1/2" (13 mm) wall:
7 5/8" (194 mm) for 4" stud
5 5/8" (143mm)for 6" stud

Optional semi-flush
trim kit reference

24" (610 mm)

**Side view with door attached
(See note 1)**

Door thickness
4 3/4" (121mm)

Knockout screw/nail holes
(for semi-flush mounting)

Exposed cabinet for
semi-flush mounting
with 1/2" (13 mm) wall:
2 7/8"(73 mm) for 4"stud
7/8" (22 mm) for 6" stud

1/2" (13 mm) wall board
reference for semi-flush
mounting

Stud alignment
markers, each side

6" stud

4" stud

6 29/32"
(175 mm)

11 11/16"
(296 mm)

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.

Additional 4100ES and ES Net product reference

Table 21: Additional 4100ES and ES Net data sheet 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
External 110 Ah Battery Charger for 4100ES, 4010ES	S4081-0002
4100ES Basic Panels with SPS Power Supplies	S4100-0031
4100ES LED/Switch Modules & Printer	S4100-0032
4100ES Emergency Voice/Alarm Equipment	S4100-0034
4100ES Enclosures	S4100-0037
InfoAlarm Command Center with SPS Power Supplies	S4100-0045
BACpac Ethernet Module	S4100-0051
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
4100ES Basic Panels with EPS Power Supplies	S4100-0100
InfoAlarm Command Center with EPS Power Supplies	S4100-0101
TrueSite Workstation	S4190-0016
TrueSite Incident Commander	S4190-0020