Features

Compatible with 4120 Network

NDU provides annunciation for up to 12,000 network points:

- The basic Network Display Unit (NDU) is a special purpose master controller that includes a 4120 modular 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.

For NDU with VCC:

Optional features are similar to a networked fire alarm control panel and an extensive list of modules are available for; initiating, notification, and user interface

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
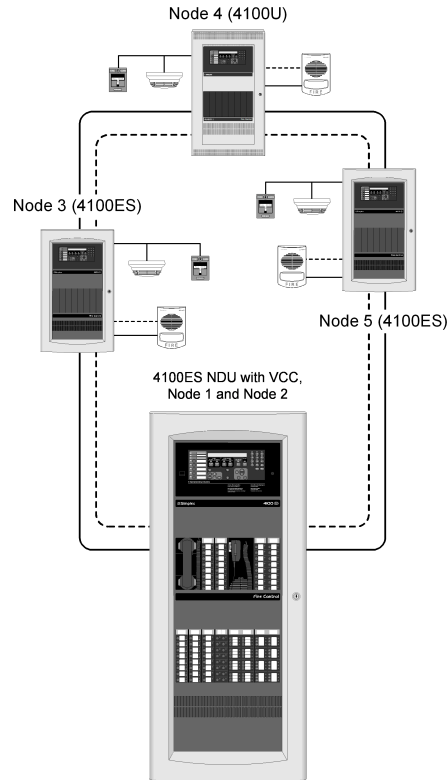

Node 4 (4100U)

Node 3 (4100ES)

Node 5 (4100ES)

4100ES NDU with VCC, Node 1 and Node 2

Figure 1: Network One-Line Diagram Showing an NDU with VCC

Listed to:

- 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)

Introduction

The 4100ES NDU with VCC is a 4120 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.

4120 Network Overview. When connected to other 4120 Network nodes, individual fire alarm control panels become components of a distributed intelligence system. Each panel that directly connects to the 4120 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 4120 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, a Network Interface Module, 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, Network Interface Module, 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)
· 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*
· 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.

Operator Interface Detail Reference

The following illustration identifies the primary functions of the operator interface.
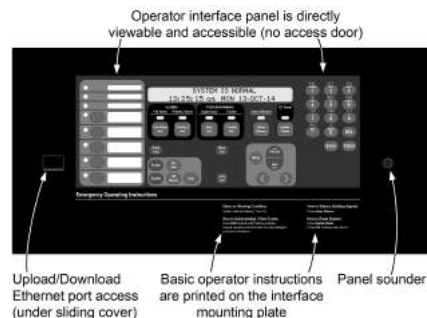
Figure 2: Detail reference

NDU with VCC Internal Module Bay Reference
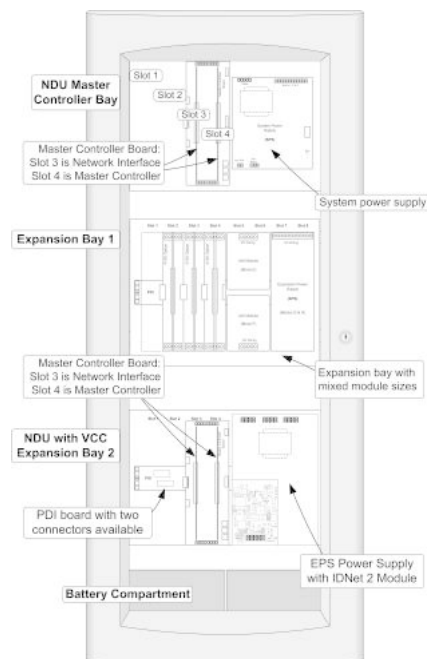
Figure 3: NDU with VCC Internal Module Bay Reference (exact layout is determined by specific system requirements)

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 Operator Interface Features.

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

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

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)

Standard Module Details

NDU (top bay) master controller & motherboard:

- Mounts in Slot 4 of a two slot motherboard (Slots 3 and 4 of the Master Controller Bay) and provides one Class B or Class A, RUI communications channel, available at Slot 4
- RUI communications controls 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; add up to three 4100-1291 RUI expansion modules 4100-1291 provides unisolated RUI communications)
- Compatible RUI remote equipment includes: MINIPLEX transponders, 4603-9101 LCD Annunciators, and 4100 Series 24 I/O and LED/Switch modules
- RUI Expansion Module 4100-1291 is also compatible with the RUI+ remote equipment listed above; and is required for control of 4602 Series LED/ Switch and I/O Annunciator modules, including 4602-9101 Status Command Units (SCU), and 4602-9102 Remote Command Units (RCU); (refer to data sheet S4602-0001)
- A Network Interface Module is mounted in Slot 3
- System Power Supply (SPS) is rated for 9 A total; includes battery charger, one 2 A Aux Power output and expansion slot for City Circuit or Alarm/ Supv/Tbl Relay option (NOTE: SPS IDNet channel, NACs and Aux Relay are disabled in NDU bay).

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

VCC (second expansion bay) includes an EPS Power Supply with IDNet 2 Module:

- Enhanced Power Supply (EPS) is rated for 9 A total; includes battery charger, on-board electrically isolated 250 Point IDNet 2 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
- Outputs are power-limited, except for the battery charger
- VCC CPU provides RUI+ communications with isolated output
- **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.
- **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 115 Ah batteries mounted in an external cabinet (see data sheet ACS2081-0012 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 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

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).

ICD 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

Network Display Unit with Voice Command Center (VCC) Main Equipment Selection

Table 1: Main Equipment Selection

SKU	Voltage	Description	Supv.	Alarm
4100-9342	120 VAC, 50/60 Hz	**Top Bay Equipment**: LCD display and operator interface; Network Interface Module (select media cards separately), Standard CPU Module with RUI output communications interface; 9 A System Power Supply (SPS) with battery charger, one 2 A Auxiliary Power output and expansion slot for City Circuit or Alarm/Supv/Tbl Relay option (NOTE: SPS IDNet channel, NACs and Aux Relay are disabled).	880 mA	1.212 A
4100-9542	220-240 VAC, 50/60 Hz	**Second Bay Equipment:** Voice Command Center (VCC) Bay includes Standard CPU Module with RUI+ isolated output communications interface; Network Interface Module (select media cards separately); 9 A Enhanced Power Supply (EPS) 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.	With 250 IDNet devices and 20 device LEDs in alarm; calculate other external loads separately	

Table 2: System Option for Seismic Compliance

SKU	Description
4100-7912	System option for Seismic compliance, provides additional stabilizer brackets required for legacy style cards
Note: For InfoAlarm Command Center expanded content display products, refer to data sheet *S4100-0101* .	

Table 3: Four Loop IDNet Voice Command Center (VCC) Option

Model	Description
4100-3112	**Four Loop IDNet Voice Command Center**; for the VCC Assemblies listed above, this option moves the standard IDNet 2 Module from the VCC EPS to an available block space in the VCC bay and adds 2, 4100-3111 IDNet Loop Output Modules; requires selection of Factory Built Option 4100-7905; current requirements remain the same (refer to data sheet *S4100-0100* for IDNet module details)

Communication Modules

Table 4: Communication Modules

SKU	Description		Size	Supv.	Alarm
4100-6056	Wired Network Media Card	Select per network connection requirements; mounts on the supplied modular network interface card(s); up to two media cards are required per network interface card; supports Class B or X operation	N.A.	55 mA	55 mA
4100-6301	Left port, single-mode 4120 duplex fiber media card	Select per network connection requirements; mounts on the supplied modular network interface card(s); up to two media cards are required per network interface card; supports Class B or X operation. Maximum of 1 left port and 1 right port duplex fiber media card per modular network interface card; field connections require left port to right port pairing. Order fiber media service kits for retrofit jobs where ST connectors are already installed (refer to data sheet S4100-056 for full fiber media module specifications and retrofit information)	N.A.	55 mA	55 mA
4100-6302	Right port, single-mode 4120 duplex fiber media card		N.A.	55 mA	55 mA
4100-6303	Left port, multi-mode 4120 duplex fiber media card		N.A.	55 mA	55 mA
4100-6304	Right port, multi-mode 4120 duplex fiber media card		N.A.	55 mA	55 mA
4100-6055	Network Access Dial-in Service Modem, mounts to supplied Network Interface Module, requires telephone line connection		N.A.	60 mA	60 mA
4100-1291	Remote Unit Interface Module (RUI); up to three maximum per control panel		1 Slot	85 mA	85 mA
4100-6030	Service Port Modem for local panel access only, mounts to Master Controller Module, requires telephone line connection, accesses same information as front panel port		N.A.	70 mA	70 mA
4100-6031	Select one per EPS or RPS (Note: one city circuit module per panel max)	City Circuit, with disconnect switches	For use with EPS only, not RPS	N.A.	20 mA	36 mA
4100-6032		City Circuit, without disconnect switches		N.A.	20 mA	36 mA
4100-6033		Alarm/Supv/Tbl Relay, 3 Form C relays, 2 A @ 32 VDC; for EPS or RPS		N.A.	15 mA	37 mA
4100-6046	Dual Port RS-232 standard interface (single block)	3 maximum RS-232 modules per panel		1 Block	60 mA	60 mA
4100-6038	Dual RS-232 with 2120 Interface (slot module)			1 Slot	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		Side Mt.	30 mA	40 mA
4100-0156	8 VDC Converter, required for multiple Physical Bridge Modules; 3 A @ 8 VDC maximum		1 Block	included with loads	
4100-9816	Master Clock Interface Module with one standard RS-232 port (see *S4100-0033*)		1 Slot	132 mA	132 mA
4190-6104	TrueInsight Remote Monitoring Module (refer to data sheet *S4100-0063* for details)		Side Mt.	62 mA	73 mA
4100-6079	SafeLINC Internet Interface module		2 Blocks	145 mA	145 mA

NDU with VCC, LED/Switch Modules
Refer to *S4100-0032* for additional detail.

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

SKU	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		8
4100-1284	Two	Red on top, Green on bottom	16	8
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 6: LED/Switch Modules, Special Purpose (LED/switch controller and label kit is ordered separately)

SKU	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 7: LED/Switch Controller Modules and Accessories

SKU	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	

SKU	Color	SKU	Color	SKU	Color	Description
4100-9843	Yellow	4100-9844	Green	4100-9845	Red	Kits of 8 LEDs; order as required for 4100-1276/4100-1277 modules

VCC, Emergency Voice/Alarm Communications Selection

Refer to document *S4100-0034* for additional audio module information.

Table 8: VCC, Emergency Voice/Alarm Communications Selection

SKU	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

Table 9: Firefighter Telephone System Products

SKU	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 10: Analog Emergency Voice/Alarm Communications Equipment, Constant Supervision Compatible

SKU	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, SPS, or RPS	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 11: 100 W Analog Amplifiers with Power Supply, Constant Supervision Compatible*

SKU/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	ULC models have low battery dropout circuit
4100-1316	4100-1317	120 VAC, 60 Hz	ULC	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	ULC models have low battery dropout circuit

Table 11: 100 W Analog Amplifiers with Power Supply, Constant Supervision Compatible*

SKU/Output Voltage		Power Supply Input/Listing		Description	Details	
25 VRMS	70.7 VRMS					
4100-1318	4100-1319	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	ULC models have low battery dropout circuit
4100-1320	4100-1321	120 VAC, 60 Hz	UL	Backup 100 W Amplifier	Uses the six Class B NACs of primary amplifier	ULC models have low battery dropout circuit
4100-1322	4100-1323	120 VAC, 60 Hz	ULC	Backup 100 W Amplifier	Uses the six Class B NACs of primary amplifier	ULC models have low battery dropout circuit
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	ULC models have low battery dropout circuit

Table 12: 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	NAC rating = 1.4 A	35W, or 100 speakers
				NAC rating = 0.5 A	
4100-1363	25VRMS output	Flex-35, 35 W Amplifier, constant supervision compatible	Includes three on-board Class B audio NACs; power is supplied from an XPS, SPS, or RPS	NAC rating = 2 ANAC rating = 0.707 A	50W, or 100 speakers
4100-1364	70.07VRMS output				
4100-1326	25VRMS output	Flex-50, 50 W Amplifier, constant supervision compatible		NAC rating = 2 ANAC rating = 0.707 A	
4100-1327	70.7VRMS output				

Table 13: 100W Digital Amplifiers with Power Supply, Constant Supervision Compatible*

SKU/OutputVoltage		Power Supply Input/Listing		Description	Details	
25VRMS	70.7VRMS					
4100-1328	4100-1329	120VAC, 60 Hz	UL	Primary100 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	ULC models have low battery dropout circuit
4100-1330	4100-1331	120VAC, 60 Hz	ULC	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	ULC models have low battery dropout circuit
4100-1332	4100-1333	220/230/240VAC, 50/60 Hz	UL	Primary100 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	ULC models have low battery dropout circuit
4100-1334	4100-1335	120VAC, 60 Hz	UL	Backup100 W Amplifier	Uses the six Class B NACs of primary amplifier	ULC models have low battery dropout circuit

Table 13: 100W Digital Amplifiers with Power Supply, Constant Supervision Compatible*

SKU/OutputVoltage		Power Supply Input/Listing		Description	Details	
25VRMS	70.7VRMS					
4100-1336	4100-1337	120VAC, 60 Hz	ULC	Backup100 W Amplifier	Uses the six Class B NACs of primary amplifier	ULC models have low battery dropout circuit
4100-1338	4100-1339	220/230/240VAC, 50/60 Hz	UL	Backup100 W Amplifier	Uses the six Class B NACs of primary amplifier	ULC models have low battery dropout circuit

Table 14: 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 ANACs)	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

*Refer to document *S4100-0034* for additional audio module information.

Table 15: Options for either Analog or Digital Systems

SKU	Description	SKU	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		

VCC, Additional Options

Table 16: VCC, Additional Options

SKU	Description				
4100-5152	12 VDC Power Option, 2 A maximum; 1 Block, 1.5 A maximum Supervisory or Alarm				
4100-0156	8 VDC Converter, required for multiple Physical Bridge Modules, 3 A maximum, 1 Block, current included with loads				
4100-0634	120 VAC	Power Distribution Module (PDM); select per system voltage; **one required per box or cabinet rack**			
4100-0635	220/230/240 VAC				
4100-6034	Door Tamper Switch with built-in addressable IDNet IAM, one per cabinet assembly if required				
4100-2320	Audio Bay-to-Bay Interconnection Harness Kit; **order one for each audio bay addition**				
4100-0637	Audio Box Interconnection Harness Kit; **order one for each close-nippled audio cabinet**				
4100-9835	Termination and Address Label Kit (for module marking); provides additional labels for field installed modules				
4100-1290	24 Point I/O Module; I Slot (see data sheet *S4100-0032* for details)				
4100-1293	Panel Mount Thermal Printhead Printer, supplied with one roll of paper; requires 3 Slots; see *S4100 -0032* for details				
4190-9803	Replacement Paper for 4100-1293 Printer, one roll				
4100-6045	Coded Manual Station Decoder Module; 3 Slot module; 85 mA supervisory, 163 mA alarm; see *S4100-0018* for details				
4100-6048	VESDA Air Aspiration Interface; 1 Slot module; 132 mA supervisory or alarm, see *S4100-0026* for details				
4100-1279	Single blank 2" display cover; order as required (8 fill a bay front); two max. in a row between LED/switch modules				
4100-2210	Appliqué, Canadian French, 4100ES Fire Control				
4100-2300	Expansion Bay Hardware, **order for each expansion bay** (unless included with selected option)				
4100-0636	Box Interconnection Harness Kit; **order one for each close-nippled cabinet**				
4100-0632	Terminal Block Module; 2, 16 position terminal blocks mounted on 4" x 5" single block size, for up to 12 AWG wire (3.31 mm2)				
4100-5128	Battery Distribution Terminal Block; mounts to side of box; required for close-nippled cabinets that interconnect battery wiring				
SKU	**Description**	**Resistive Ratings**	**Inductive Ratings**	**Size**	**Supv.**	**Alarm**
4100-3202	4 DPDT Relay w/feedback	10 A @ 250 VAC	10 A @ 250 VAC	2 Slots	15 mA	175 mA
4100-3204	4 DPDT Relay w/feedback	2 A @ 30 VDC/VAC	1/2 A @ 30 VDC/120 VAC	1 Block	15 mA	60 mA
4100-3206	8 SPDT Relay	3 A @ 30 VDC/120 VAC	1-1/2 A @ 30 VDC/120 VAC	1 Block	15 mA	190 mA

Additional Enhanced Expansion and Remote Power Supplies, and Accessories

Table 17: Additional Enhanced Expansion and Remote Power Supplies, and Accessories

SKU	Voltage/Listing		Description	Size	Supv.	Alarm
4100-5311	120 VAC	UL & ULC	**Enhanced Power Supply (EPS) with IDNet 2 Module**; 9 A	4 Blocks Right Side	225 mA	490 mA
4100-5313	220-240 VAC	UL	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		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				
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			1 Block	6.5 mA	6.5 mA
SKU	Voltage/Listing		Description	Size	Supv.	Alarm
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
SKU	Voltage/Listing		Description	Size	Supv.	Alarm
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
4100-5126	120 VAC, Canadian	ULC	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

8-Point Zone/Relay Card

Table 18: 8-Point Zone/Relay Card

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

General Specifications

Table 19: 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 115 Ah, 110 Ah with RPS (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 20: 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 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 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 21: 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	

Additional 4100ES and 4120 Network Product Reference

Table 22: Additional 4100ES and 4120 Network Product Reference

Subject	Datasheet
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
TCP/IP Physical Bridge Modules for 4120 Networks	S4100-0029

Table 22: Additional 4100ES and 4120 Network Product Reference

Subject	Datasheet
4100ES Basic Panels with SPS Power Supplies	S4100-0031
4100ES LED/Switch Modules & Printer	S4100-0032
4100ES Emergency Voice/Alarm Equipment	S4100-0034
NDU with SPS Power Supplies for 4120 Network	S4100-0036
4100ES Enclosures	S4100-0037
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
Physical Bridge Modules for 4120 Networks	S4100-0057
Building Network Interface Card (BNIC)	S4100-0061
SafeLINC Internet Interface	S4100-0062
TrueInsight Remote Gateway	S4100-0063
4100ES Basic Panels with EPS Power Supplies	S4100-0100
InfoAlarm Command Center with EPS Power Supplies	S4100-0101
TrueSite Workstation	S4190-0016
Network System Integrator (NSI) for 4120 Networks	S4190-0017
TrueSite Incident Commander	S4190-0020

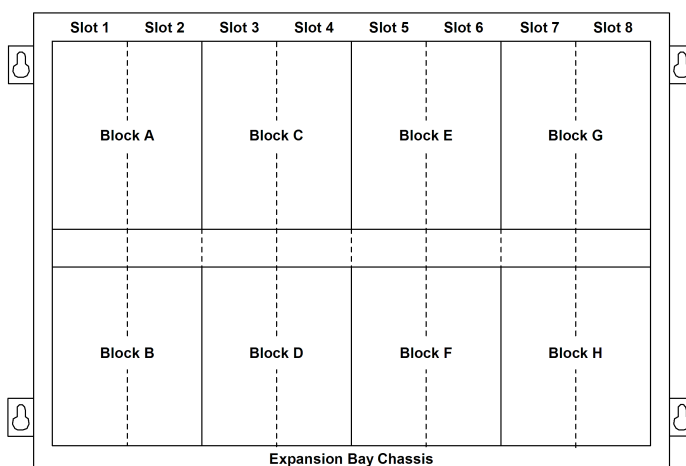## Expansion Bay Module Loading Reference (exact locations are provided with shipped product)

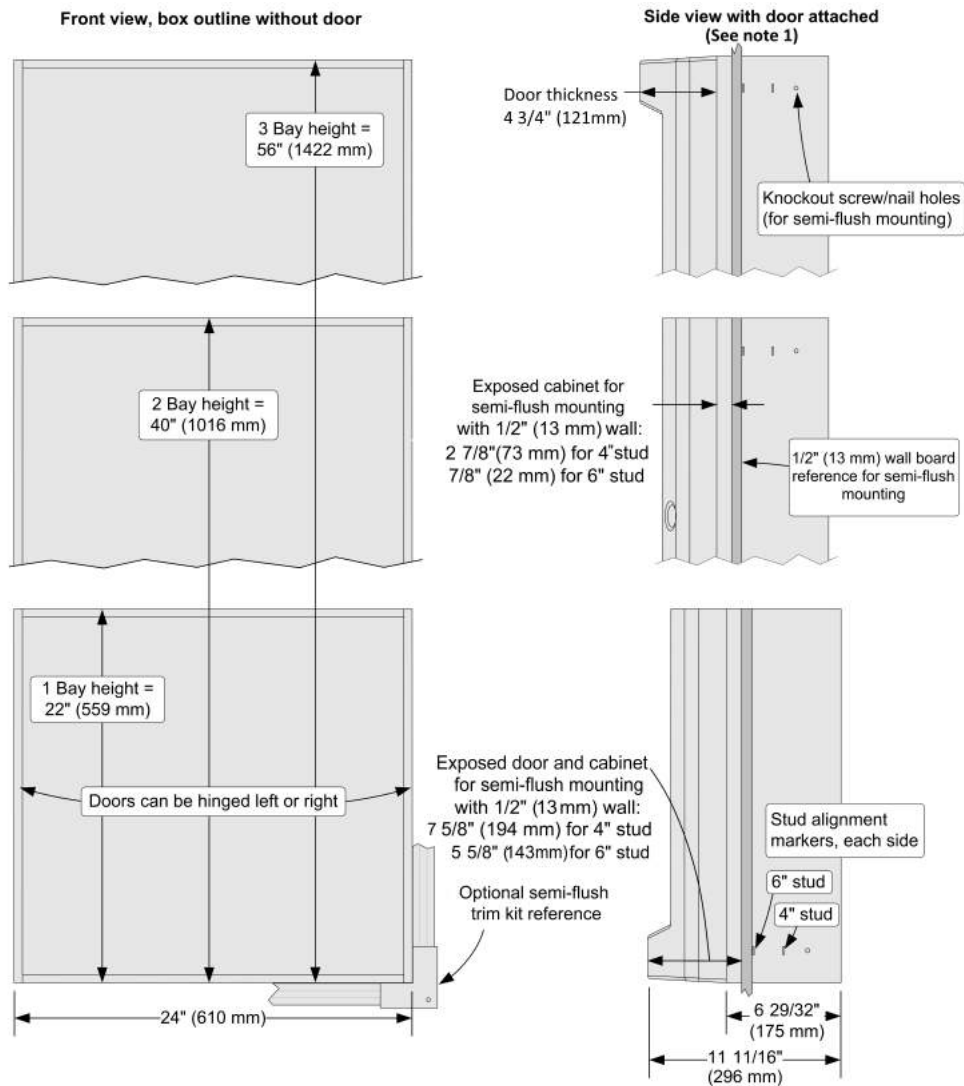Figure 4: Loading reference

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 23: Module Loading Reference

Description	Mounting
Terminal Block Module	1 block
Class B Physical Bridge	2", 1 slot
Class X Physical Bridge	4", 2 slots
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

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

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

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.