

Features

4100ES Series MINIPLEX transponders allow remotely located initiating and notification functions:

- Transponder operation is available as standard or with local mode operation
- Communications with the host fire alarm control panel use the Remote Unit Interface (RUI/RUI+) format

Initiating functions include:

- Addressable device support including TrueAlarm analog sensor compatibility
- Conventional initiating device circuit (IDC) support

Notification functions include:

- Addressable strobe and horn notification using *enhanced power delivery* IDNAC SLCs
- Emergency voice/alarm communications
- Conventional DC notification appliance circuits (NACs)

Local mode operation provides:

- Default local initiating and notification operation in the event of a communications loss with the host control panel
- Enabling of an optional Local Mode Controller with a local alarm sounder, LED status indicators, and keyswitch enabled control switches
- Support for IDNet addressable devices, addressable and conventional notification appliances, and default output tones from local amplifiers

Optional modules include:

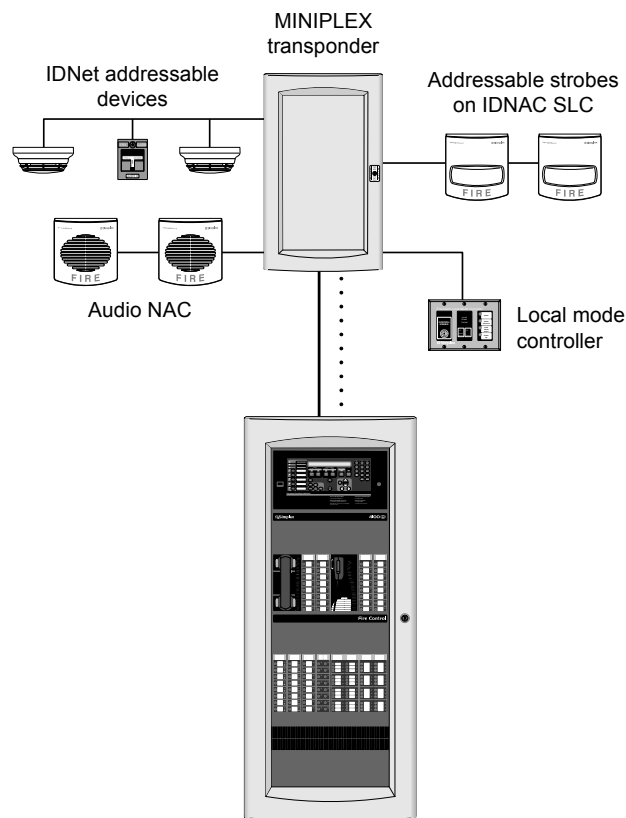
- Digital or Analog audio riser modules for connection to system audio signals
- Digital or analog input audio amplifiers with integral on-board NACs
- Power supplies with or without battery chargers
- City Connect modules and RS-232 ports for printers or maintenance terminals
- Alarm relays, auxiliary relays, additional IDC modules, and NAC expansion modules

Cabinets are equipped with solid doors (beige or red) and in one, two, or three bay sizes

Listed to:

- UL Std. 864, Fire Detection and Control (UOJZ), and Smoke Control Service (UUKL)
- UL Std. 2017, Process Management Equipment (QVAX)
- UL Std. 1076, Proprietary Alarm Units-Burglar (APOU)
- UL Std. 1730, Smoke Detector Monitor (UULH)
- ULC Std. S527-99

* See pages 4 and 5 for product that is listed as UL or ULC. 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 7165-0026:0251 for allowable values and/or conditions concerning material presented in this document. 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.



4100ES Fire Alarm Control Panel
with Voice Control

Typical 4100ES MINIPLEX System One-Line Drawing

Introduction

4100ES MINIPLEX transponders connect to a host 4100ES Fire Alarm Control Panel using Simplex® remote unit interface (RUI) communications. At the transponder, RUI communications are received by the transponder interface module and translated into the same internal communications format that is used in the host control panel.

Remotely located modules. With RUI communications, the transponder can remotely provide the same initiating and notification functions that occur at the host control panel without requiring multiple long distance wiring runs. Connections to the host panel are low current communications and audio wiring with distances up to 2500 ft (762 m).

Additional Reference. Refer to document S4100-0100 and the other documents listed on page 3 for additional information concerning the extensive initiating and notification features of the 4100ES fire alarm control panels.

Module Bay Description

Transponder model 4100-9600 includes a bay assembly, a power distribution interface module (PDI), a Basic Transponder Interface Module, and an interconnect harness. Communications with the host fire alarm control panel are via a Remote Unit Interface (RUI) connection that allows for up to 2500 ft (762 m) distance. RUI can communicate with up to a total of 31 remote devices and can be either Style 4 or Style 7 communications.

Transponder model 4100-9601 substitutes a Local Mode Transponder Module for the Basic Transponder Module.

Optional Expansion Bays each include a PDI and accept a variety of optional modules (refer to list starting on page 4).

The Battery Compartment (bottom) accepts two batteries, up to 50 Ah, that can be mounted within the cabinet. Battery mounting does not interfere with available module space. A power supply with battery charger is required for each battery set.

Packaging Availability

- Modules are power-limited (except as noted, such as relay modules)
- Enclosure are available for one, two, or three bay sizes or for cabinet rack mounting
- Boxes and solid doors are available in beige or red (ordered separately)
- Up to eight close-nipped cabinets can be connected at one transponder location (close-nipped is mounted within 20 ft (6 m) and with interconnecting wiring enclosed in conduit)
- Refer to document S4100-0037 for enclosure details

Local Mode Control Operation

Default Stand-Alone Operation. In the event of a communications loss with the host fire alarm control panel, model 4100-9601 MINIPLEX Local Mode Transponders provide fire alarm response default operation for its connected devices and appliances per the following.

Input Operation. During local mode operation, TrueAlarm initiating devices connected to the transponder will cause an alarm at their least sensitive alarm threshold.

- Photoelectric sensors will alarm at 3.7%/ft smoke obscuration
- Ionization sensors will alarm at 1.3%/ft obscuration
- Heat sensors will alarm at a fixed temperature of 135° F (57° C)
- TrueAlarm device LEDs will be activated to indicate a device in alarm

Local Mode Control Operation (Continued)

Notification Operation. Fire alarm conditions reported against a fire alarm point type within a transponder in local mode will cause all notification appliance circuits in that transponder to:

- Sound a general alarm temporal pattern horn tone
- Activate visible notification appliance circuits

Local Mode Module Support. Local mode operation provides support for the following 4100ES modules:

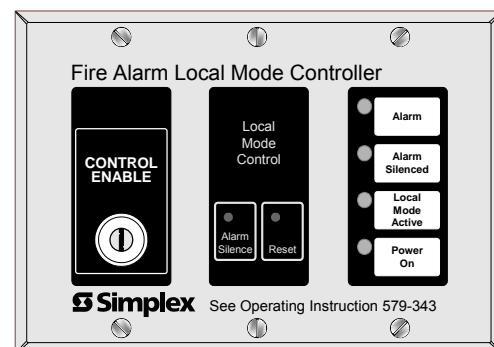
- Enhanced Power Supplies (EPS+/EPS) including on-board IDNAC SLCs
- IDNet 1+ addressable device circuits, including those on-board the EPS+, IDNet 1+ expansion modules, and the Quad IDNet Isolator Module
- Expansion Power Supplies (XPS) including on-board NACs and expansion signal modules, operated at a temporal pattern
- 4100ES amplifiers will provide their on-board horn tones (500 Hz) at a temporal pattern through their on-board amplifier NACs
- Firefighter Telephone control modules in local mode

Local Mode Operation Module Exclusion. Modules not listed above but that are listed as compatible with MINIPLEX transponders per this document, do not interfere with local mode operation but **are not supported** during local mode operation.

Local Mode Controller

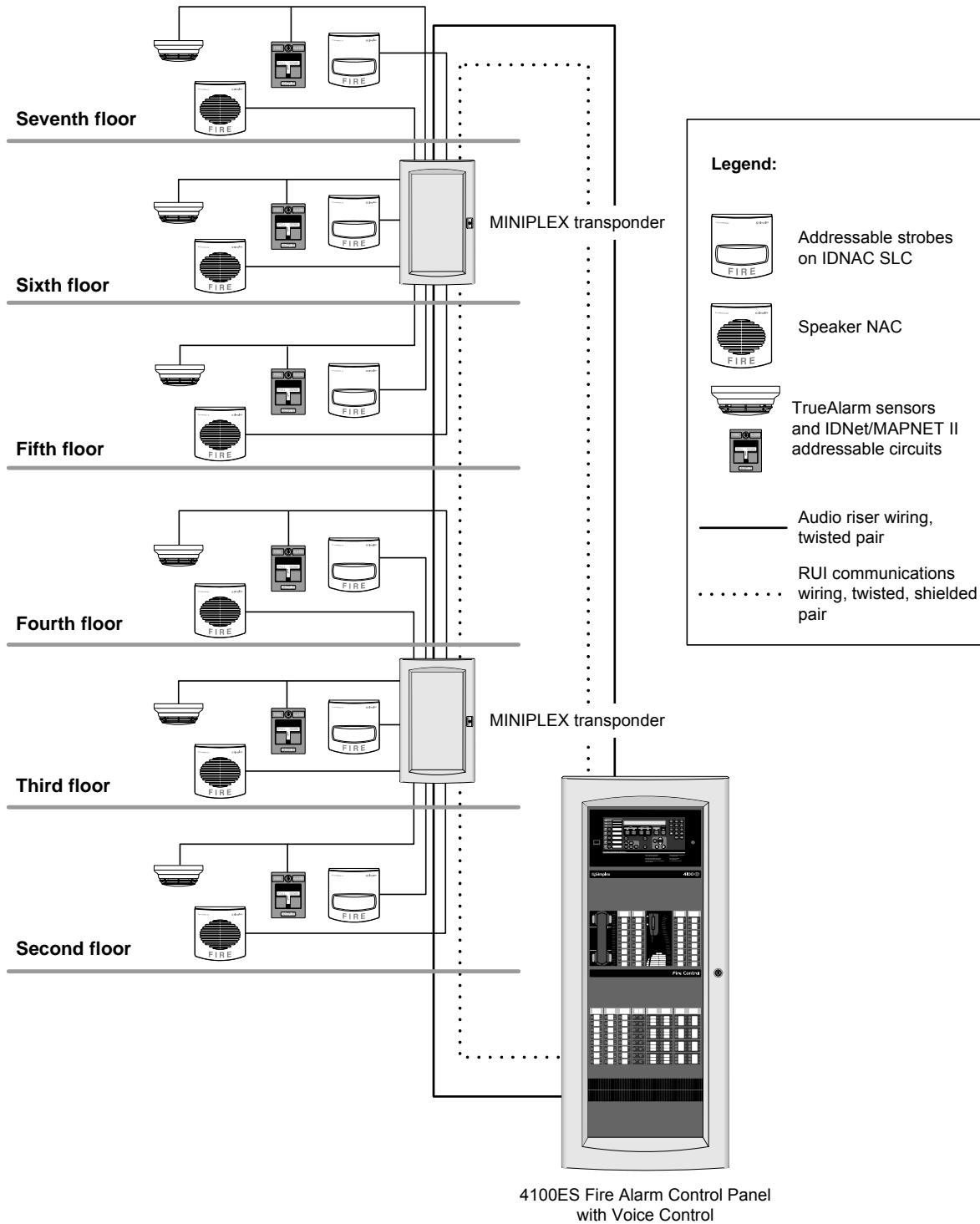
Operation. During local mode operation, an optional Local Mode Controller will indicate status (see illustration below) and can be enabled using a keyswitch to perform local alarm silence or reset. If alarms occurring during local mode are reset using a Local Mode Controller, upon restoration of communications, **those alarms will not be sent to the master controller.** If alarms are still present upon restoration of communications, then the alarm condition will be reported and host fire alarm control panel programmed alarm functions will occur. When communications are re-established, the local mode transponder restores automatically.

Mounting. Local Mode Controllers are mounted on three-gang plates, are available in beige or red, and for either flush or semi-flush mounting. (See page 7 for details).



Local Mode Controller Module

Typical Multi-Floor MINIPLEX Audio System



First floor

Additional 4100ES Data Sheet Reference

Subject	Data Sheet	Subject	Data Sheet
MINIPLEX Transponders for conventional (non-addressable) notification applications	S4100-0035	Basic Panel Modules and Accessories	S4100-0100
Enclosures	S4100-0037	Network Display Unit (NDU)	S4100-0102
LED/Switch Modules	S4100-0032	Remote Annunciators	S4100-0038
4100ES Audio/Phone Modules	S4100-0034	Remote Battery Charger	S4081-0002
IDNet+ Module with Quad Isolator	S4100-0046	Addressable Device Compatibility	S4090-0011

MINIPLEX Transponder Product Selection

Transponder Type

Model	Description	Supv.	Alarm
4100-9600	Basic Transponder, includes bay equipment with power distribution interface, and 4100-0620 Basic Transponder Interface Module mounted in Block A	87 mA	87 mA
4100-9601	Local Mode Transponder, includes bay equipment with power distribution interface, and 4100-0625 Local Mode Transponder Interface Module mounted in Block A	normal	87 mA
		in local mode	112 mA

Local Mode Controller Selection

Model	Description	Supv.	Alarm
4601-9108	Flush mount	normal	12 mA
4601-9109	Surface mount		
4601-9110	Flush mount	in local mode	20 mA
4601-9111	Surface mount		

Communication Modules

Model	Description	Size	Supv.	Alarm
4100-6031	Select one per EPS+ or EPS	City Circuit, with disconnect switches	N.A.	20 mA
4100-6032		City Circuit, without disconnect switches	N.A.	20 mA
4100-6033		Alarm Relay, 3 Form C relays, 2 A @ 32 VDC	N.A.	15 mA
4100-6038	Dual RS-232 Interface	1 Slot	132 mA	132 mA
4100-6045	Decoder Module	3 Slots	85 mA	163 mA
4100-6048	VESDA Aspiration System Interface	1 Slot	132 mA	132 mA
4100-9816	Master Clock Interface Module with one standard RS-232 port (see S4100-0033)	1 Slot	132 mA	132 mA

Enhanced and Expansion Power Supplies and Accessories (see specification details on page 6)

Model	Voltage/Listing	Description	Size	Supv.	Alarm	
4100-5311	120 VAC	UL & ULC Enhanced Power Supply (EPS+); 9 A Enhanced Power Supply/battery charger with 250 point IDNet 1+ interface, 3 Class B IDNAC SLCs, RUI+ isolated output communications interface, and auxiliary relay; 120 VAC model has selectable low battery cutout	4 Blocks Right Side	217 mA	480 mA	
4100-5313	220-240 VAC					UL
4100-5325	120 VAC	UL & ULC Enhanced Power Supply (EPS); 9 A Enhanced Power Supply/battery charger with 3 Class B IDNAC SLCs, RUI+ isolated output communications interface, and auxiliary relay; 120 VAC model has selectable low battery cutout	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	
Model	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; 4100-5103 has low battery cutout	2 Blocks	50 mA	50 mA	
4100-5103	120 VAC, Canadian					ULC
4100-5102	220-240 VAC					UL
4100-5115	NAC Expansion Module, 3 NACs, Class A/B, mounts on XPS only		N.A.	25 mA	25 mA	
4100-5152	12 VDC Power Option, 2 A maximum		1 Block	1.5 A maximum		
4100-0636	Box Interconnection Harness Kit (non-audio); order one for each close-nipped cabinet					

Miscellaneous Options and Accessories

Model	Description
4100-1290	24 Point I/O Module for external connections, select each point as either a switch input (momentary or maintained) or an output (for lamp/LED/relay); requires 1 Slot (refer to data sheet S4100-0032 for additional information)
4100-0632	Terminal Block Utility Module with 2, 16 position terminal blocks on 4" x 5" single block, for of up to 12 AWG wire (3.31 mm ²)
4100-0633	Door Tamper Switch, connects into Transponder Interface Module, one per cabinet assembly if required
4100-0634	Power Distribution Module (PDM) select per system voltage; one required per box
4100-0635	
4100-9837	220/230/240 VAC
4100-9837	Green LED Power-on Indicator Kit, required for ULC listing of MINIPLEX transponder; mounts on solid door knockout
2081-9031	Series resistor for WSO, IDCs (N.O. water flow and tamper on same circuit, wires after water flow and before tamper) 470 Ω, 1 W, encapsulated, two 18 AWG leads (0.82 mm ²), 2 ½" L x 1 ¾" W x 1" H (64 mm x 35 mm x 25 mm)

* Standard power supply NACs can provide synchronized strobe or SmartSync, two-wire operation.

Continued on next page

MINIPLEX Transponder Product Selection (Continued)

Audio Riser Modules

Model	Description	Size	Supv.	Alarm
4100-0621	Dual Channel <i>Analog</i> Audio Riser Module; accepts one or two separate audio signals from host control panel; mounts in Block B, is controlled by Transponder Interface Module	1 Block	0 mA	15 mA
4100-0622	3-8 Channel <i>Digital</i> Audio Riser Module; similar to analog module, except receives and decodes a digital input signal with up to eight audio channels; with Non-Alarm Audio input	1 Block	70 mA	70 mA

Analog Emergency Voice/Alarm Communications Equipment, Constant Supervision Compatible*

Model	Description	Details
4100-1361	25 VRMS output	Includes three on-board Class B audio NACs; power is supplied from an EPS+, EPS, or XPS
4100-1362	70.07 VRMS output	
4100-1312	25 VRMS output	Flex-50, 50 W Amplifier, constant supervision compatible
4100-1313	70.7 VRMS output	

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
4100-1316	4100-1317	120 VAC, 60 Hz	ULC		
4100-1318	4100-1319	220/230/240 VAC, 50/60 Hz	UL		
4100-1320	4100-1321	120 VAC, 60 Hz	UL	Backup 100 W Amplifier	Uses the six Class B NACs of primary amplifier
4100-1322	4100-1323	120 VAC, 60 Hz	ULC		
4100-1324	4100-1325	220/230/240 VAC, 50/60 Hz	UL		

Digital Emergency Voice/Alarm Communications Equipment*

Model	Description	Details
4100-1363	25 VRMS output	Includes three on-board Class B audio NACs; power is supplied from an EPS+, EPS, or XPS
4100-1364	70.07 VRMS output	
4100-1326	25 VRMS output	Flex-50, 50 W Amplifier, constant supervision compatible
4100-1327	70.7 VRMS output	

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
4100-1330	4100-1331	120 VAC, 60 Hz	ULC		
4100-1332	4100-1333	220/230/240 VAC, 50/60 Hz	UL		
4100-1334	4100-1335	120 VAC, 60 Hz	UL	Backup 100 W Amplifier	Uses the six Class B NACs of primary amplifier
4100-1336	4100-1337	120 VAC, 60 Hz	ULC		
4100-1338	4100-1339	220/230/240 VAC, 50/60 Hz	UL		

Options for use with either Analog or Digital Amplifiers

Model	Description	Details and Mounting Reference
4100-1245	Flex-35/50 Expansion NAC Module; adds three Class B audio NACs	Choose one per amplifier Mounts on Flex-35/50 assembly; NAC ratings = 1.5 A, 35/50 W, or 100 speakers maximum; <i>Supv</i> = 8 mA, <i>Alarm</i> = 60 mA
4100-1246	Flex-35/50 Class A Adapter Module; converts three on-board NACS to Class A operation	
4100-1248	100 W Amplifier Expansion NAC Module; NAC ratings = 1.5 A, 50 W, or 100 speakers max.	Choose one per amplifier Provides six additional Class B audio NACs, mounts on 100 W amplifier assembly; <i>Supv</i> = 17 mA, <i>Alarm</i> = 60 mA
4100-1249	100 W Class A Adapter Module; NAC ratings = 2 A, 50 W, or 100 speakers max.	
4100-1259	25 VRMS Output; NAC rating = 2 A, 50 W, or 100 speakers max.	Constant Supervision Adapter for three NACs; select per amplifier output; not compatible with amplifier NAC expansion modules; deactivated when on batteries <i>Supv</i> = 10 mA on batteries; <i>Alarm</i> = 35 mA
4100-1260	70.7 VRMS Output; NAC rating = 0.707 A, 50 W, or 100 speakers max.	

Firefighters Telephone Options*

Model	Description	Size	Supv.	In Use
4100-1272	Expansion Telephone Control Module with three Class B telephone NACS; required when telephone circuits are mounted in transponder;	1 Block	80 mA	130 mA
4100-1273	Telephone Class A Adapter Module; mounts on 4100-1272; no additional current required			

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

MINIPLEX Transponder Product Selection (Continued)

Audio Expansion Signal Module and Options

Model	Description	Details and Mounting Reference	
4100-5116	Expansion Signal Module; three, 1.5 A Class B NACs for Audio applications; up to five maximum per amplifier; NAC rating = 1.5 A, 50 W, or 100 speakers maximum	Converts one NAC input to three NAC outputs; selects between two inputs; for Flex-35/50 amplifiers only, two input NACs are required; Single Block module mounts in expansion bay; <i>Supv = 20 mA; Alarm = 80 mA</i>	
4100-1266	Expansion Signal Module NAC Expander; NAC rating = 1.5 A, 50 W, or 100 speakers max.	Expands module capacity to six, Class B NACs; <i>Supv = 0.84 mA; Alarm = 60 mA</i>	These modules mount on the 4100-5116; select one max. per 4100-5116 as required
4100-1267	Expansion Signal Module Class A Adapter; NAC rating = 1.5 A, 50 W, or 100 speakers maximum	Converts 3 Class B, NACs to Class A; <i>Supv = 0 mA; Alarm = 30 mA</i>	
4100-1268	Expansion Signal Module Constant Supervision Adapter; Converts 3 Class B NACs to Constant Supervision Class B or Class A NACs; for 25 or 70.7 VRMS audio	NAC rating = 1.4 A, 50 W, or 100 speakers max.; <i>Supv = 38 mA on batteries (constant supervision deactivated); Alarm = 70 mA</i>	

General Audio Options

Model	Description
4081-9018	End-of-line resistor harness for 70.7 VRMS NACs; 10 k Ω , 1 W
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-nipped audio cabinet

Addressable Interface Modules

Model	Description	Supv.	Alarm	
4100-3108	IDNet 1+ Module, 250 point capacity with isolated output, 1 block	With 250 IDNet devices, and 20 device LEDs in alarm	292 mA	510 mA
		Module without devices	92 mA	115 mA
		Loading per IDNet device (no LEDs on)	0.8 mA	1 mA
4100-3107	Quad IDNet Isolator Module; converts a single connected SLC into four isolated outputs selectable as Class A or Class B, provides advanced diagnostics for use with retrofit wiring; dual horizontal block module; (see data sheet S4100-0046 for additional details) NOTE: This module is compatible with IDNet Remote Isolators	75 mA	115 mA	

Relay Modules; Nonpower-Limited

Model	Description	Resistive Ratings		Inductive Ratings		Size	Supv.	Alarm
4100-3202	4 DPDT w/feedback	10 A	250 VAC	10 A	250 VAC	2 Slots	15 mA	175 mA
4100-3204	4 DPDT w/feedback	2 A	30 VDC/VAC	½ A	30 VDC/120 VAC	1 Block	15 mA	60 mA
4100-3206	8 SPDT	3 A	30 VDC/120 VAC	1 ½ A	30 VDC/120 VAC	1 Block	15 mA	190 mA

Current Calculation Notes:

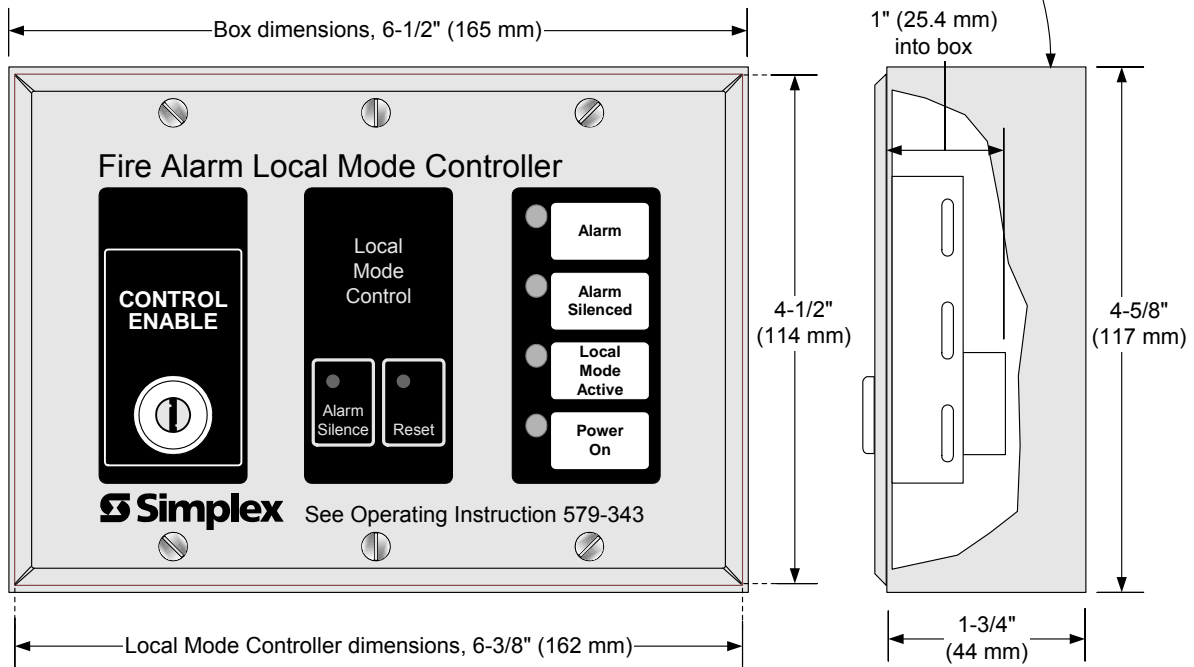
- For total supervisory current, add panel module currents to base system value **and** add all external panel-powered loads.
- For total alarm current, add panel module currents to base system alarm current **and** add all panel SLC/NAC loads **and** all external loads powered from panel power supplies.

General Specifications

Input Power	Enhanced Power Supplies, EPS/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	
Input Power	Expansion Power Supply (XPS) 100 W Amplifiers	120 VAC Models	4 A maximum @ 102 to 132 VAC, 60 Hz	
		220-240 VAC Models	2 A maximum @ 204 to 264 VAC, 50/60 Hz; separate taps for 220/230/240 VAC	
Power Supply Output Ratings for EPS/EPS+	Total Power Supply Output Rating	Including module currents and auxiliary power outputs; 9 A total for "Special Application" appliances		
	IDNAC Output Voltage	Regulated 29 VRMS		
	Auxiliary Power Tap	2 A maximum		
Power Supply Output Ratings for 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		
	NACs Programmed for Auxiliary Power	2 A maximum per NAC; 5 A maximum total	Rated 19.1 to 31.1 VDC	
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/EPS+ (sealed lead-acid batteries)	Battery capacity range	UL listed for battery charging of 6.2 Ah up to 115 Ah (batteries larger than 50 Ah require a remote battery cabinet); ULC listed for charging up to 50 Ah batteries		
	Charger characteristics and performance	Temperature compensated, dual rate, recharges depleted batteries within 48 hours per UL Standard 864, to 70% capacity in 12 hours per ULC Standard S527		
Environmental	Operating Temp. Range	32° to 120°F (0° to 49° C)		
	Operating Humidity Range	Up to 93% RH, non-condensing @ 90° F (32° C) maximum		
Installation Instruction Reference		574-844, Transponder Interface Cards	579-343, Local Mode Controller	

Local Mode Controller Detail

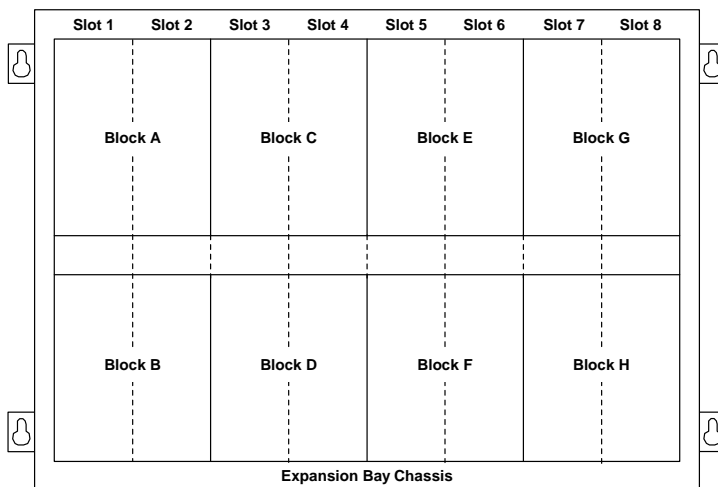
Matching box is supplied with surface mount models 4601-9109 (red) and 4601-9111 (beige); for semi-flush models 4601-9108 (red) and 4601-9110 (beige), use a 1-1/2" (38 mm) minimum depth, 3-gang box



Local Mode Controller to Transponder Wiring:

1. Wire close-nipped to transponder, maximum distance = 20 ft (6.1 m).
2. Nine wires required: 24 VDC (2), one per LED indicator (4), and one per switch (3).
3. Wire size, 18 AWG (0.82 mm²).

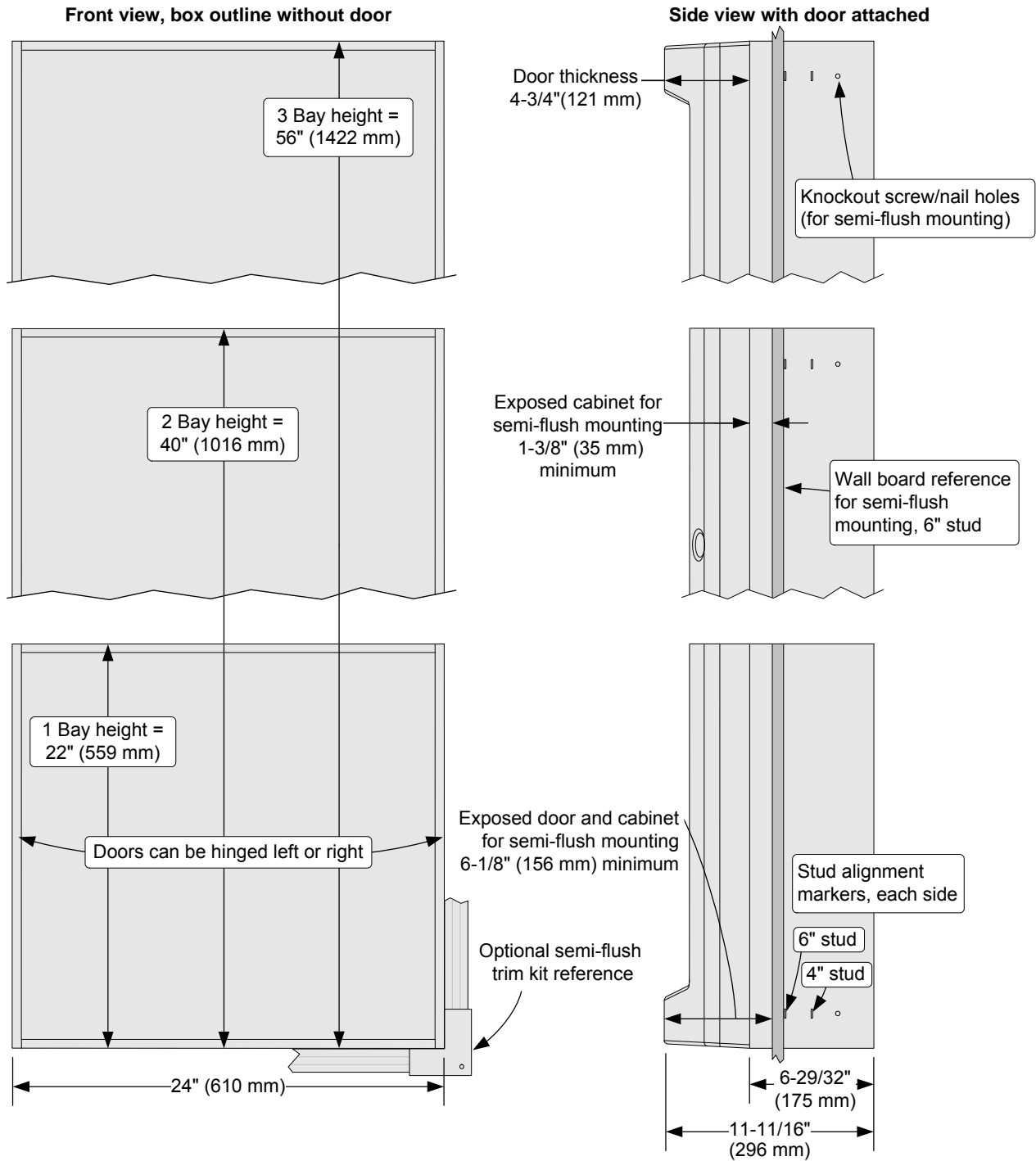
Expansion Bay Module Loading Reference



Size Definitions:

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

Enclosure Installation Reference



NOTE: 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.

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