# **5** Simplex

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

## **40**10 Fire Control Panels

Addressable Fire Detection and Control Basic Panel Modules and Accessories

#### **Features**

#### **Basic system includes:**

- Capacity for up to 248 addressable devices, up to 127 VESDA SLI points, up to 2000 points of Annunciation and up to 20 internal and external card addresses
- Color-coded operator interface with membrane keypad includes 2 x 40 Super-twist LCD display, 3 programmable control keys and 6 programmable LEDs
- CPU assembly includes dedicated compact flash memory for on-site system information storage and convenient Ethernet service port access
- 8 A power supply with up to 2 A of Auxiliary power and battery charger capacity for up to 110 Ah batteries (UL) or up to 50 Ah batteries (ULC) (33 Ah max in control panel cabinet)
- 4 on-board Class A or B, 3 A NACs and one programmable auxiliary relay output rated for 2 A @ 32 VDC
- Class A or B Two-loop Isolated IDNet Communications (IDNet+) supports up to 248 addressable and analog sensing devices on non-twisted, non-shielded wiring
- Remote annunciator module support via RUI (Remote Unit Interface) communications port, supports either Class B (Style 4) or X (Style 7) Pathway operation
- 48 LED panel mount annunciation provides 40 Red and 8 Yellow pluggable LEDs (select models, meets ULC requirements), optional LED kits are available for custom LED configurations

# Optional Main System Supply and door mounted modules include:

- City Connect (with or without disconnect switches)
- Alarm Relay Module
- TrueInsight Remote Gateway

#### Optional block space modules include:

- Fire Alarm Network Interface Card for 4120/4100
   Peer-to-Peer network communications, supports either
   Class B or X (Style 7) Pathway operation
- Ethernet connectivity options include Building Network Interface Module (BNIC), SafeLINC Internet Interface, and BACpac Ethernet Portal
- Dual RS-232 Module (for printer, PC annunciator or third party interface)
- VESDA Air Aspiration High Level Interface
- Serial DACT
- 8 Zone IDC Modules Class A or B
- 4 Point Auxiliary Relay Module
- Physical Bridge Network Modules





4010ES Fire Alarm Control Panels are available standard (left) or with LED Annunciation (right)

## Compatible with Simplex® remotely located:

- 4098-9757 QuickConnect 2 and legacy 4098-9710 QuickConnect TrueAlarm smoke sensors
- 4003EC Small Voice Panels
- 4009 IDNet NAC Extenders (4009A)
- TrueAlert Addressable Controllers (4009T) and Remote TrueAlert Power Supplies (4009 TPS)
- 4081 Series, 110Ah Battery Chargers
- 4100-7400 Series Graphic Annunciators
- 4190 Series PC Annunciator
- 4190 Series Fiber Modems and Physical Bridges
- 4606-9102 Remote LCD Annunciator, 4100-9400 Series Remote InfoAlarm Command Centers, and 4602 Series Status Command Units (SCU) and Remote Command Units (RCU) Annunciators
- IP communicator compatibility

#### **4010ES Agency listings:**

- UL Std. 864, Fire Detection and Control (UOJZ), and Smoke Control Service (UUKL), and Releasing Service (SYZV)
- UL Std. 2017, Process Management Equipment (OVAX)
- UL Std. 1076, Proprietary Alarm Units-Burglar (APOU)
- UL Std. 1730, Smoke Detector Monitor (UULH)
- ULC Std. S527-99, Fire Detection and Control (UOJZC)
- ULC Std. S559-04, Supervising Station (DAYRC)

<sup>\*</sup> See pages 5 and 6 for additional listing information. This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7165-0026:0369 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. NYC Fire Dept COA #6095. 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.

#### Introduction

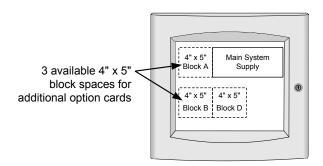
#### **4010ES Series Fire Detection and Control Panels**

provide leading edge installation, operator, and service features for customer applications in the mid-range addressable fire alarm systems market. An on-board Ethernet port provides fast external system communications to expedite installation and service activity. Dedicated compact flash memory archiving provides secure on-site system information storage of electronic job configuration files to meet NFPA 72 (National Fire Alarm and Signaling Code) requirements.

**Modular design.** A variety of functional modules are available to meet specific system requirements. Selections allow panels to be configured for either Stand-Alone or Networked fire control operation.

#### **Panel Hardware**

The Master Controller and Main System Supply are mounted in the upper section of the 4100ES cabinet.



#### Panel Hardware (Continued)

**4010ES Block Space Option Cards** mount to the left of the 4010ES Main System Supply. There are 3 available 4" x 5" blocks for mounting 4010ES hardware options.

**Other 4010ES Options:** The 4010ES City Connect module or the optional Alarm Relay module mount directly to the Main System Supply. These options are mutually exclusive.

Network Media modules mount directly to the 4010ES Network Interface Card.

The TrueInsight Remote Gateway mounts on the back side of the 4010ES User Interface Panel.

**The Battery Compartment** located in the bottom of the 4010ES cabinet accepts two batteries, up to 33 Ah, without interfering with expansion module space.

The illustrations below identify mounting locations available for optional 4010ES modules.



Mounting Locations for Optional Modules

#### **Mechanical Description**

- Mounting box provides convenient stud markers for drywall thickness and nail-hole knockouts for quicker mounting
- Smooth box surfaces are provided for locally cutting conduit entrance holes exactly where required
- The hinged User Interface panel easily opens for internal access
- Modules are power-limited (except as noted, such as relay modules)
- Doors include tempered glass inserts, boxes and doors are available in platinum or red
- Box and door/retainer assemblies are included with Basic Panel assemblies

#### **Software Feature Summary**

- TrueAlarm individual analog sensing with front panel information and selection access
- "Dirty" TrueAlarm sensor maintenance alerts, service and status reports including "almost dirty"
- TrueAlarm magnet test indication appears as distinct "test abnormal" message on display when in test mode
- TrueAlarm sensor peak value performance report
- "Install Mode" allows grouping of multiple troubles for uninstalled modules and devices into a single trouble condition (typical with future phased expansion); with future equipment and devices grouped into a single trouble, operators can more clearly identify events from the commissioned and occupied areas
- Module level ground fault searching assists installation and service by locating and isolating modules with grounded wiring
- "Recurring Trouble Filtering" allows the panel to recognize, process, and log recurring intermittent troubles (such as external wiring ground faults), but only sends a single outbound system trouble to avoid nuisance communications
- WALKTEST silent or audible system test performs an automatic self-resetting test cycle

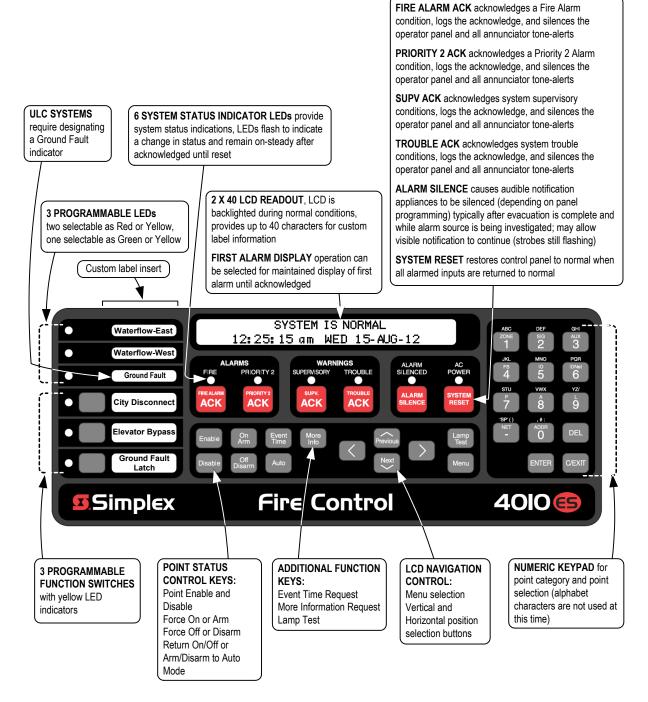
## **Operator Interface Features**

- Convenient and extensive operator information is provided using a logical, menu-driven display
- Multiple automatic and manual diagnostics for maintenance reduction
- Convenient PC programmer label editing
- Password access control
- Alarm and Trouble History Logs (up to 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 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.

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



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#### **Compatible Peripheral Devices**

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

#### **Addressable Device Control**

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

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

Addressable Operation. Each addressable device on the communication channel is continuously interrogated for status condition such as: normal, off-normal, alarm, supervisory, or trouble. Both Class B and Class A pathway operation are available. Sophisticated poll and response communication techniques ensure supervision integrity and allow for "T-tapping" of the circuit for Class B operation. Devices with LEDs pulse the LED to indicate receipt of a communications poll and can be turned on steady from the panel.

**IDNet+ Channel Capacity.** The Main System Supply provides an IDNet+ signaling line circuit (SLC) that supports up to 248 addressable monitor and control devices intermixed on the same pair of wires.

**IDNet+ Communications wiring specifications.** IDNet+ circuits may be run on NEC 760 untwisted pair, twisted pair, or shielded twisted pair conductors.

**IDNet+ Wiring Specifications** 

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Size		18 AWG (0.82 mm <sup>2</sup> )				
Туре		NEC 760 Wire (untwisted, twisted, or shielded twisted pair)				
Farthest Distance from Control Panel	126-248	Up to 2500 feet (762 m)				
per Device load	up to 125	Up to 4000 ft (1219 m)				
Total Wire Length Allow A or Class B, including for Class B wiring (total isolated circuits combin	"T-taps" for both	Up to 12,500 ft (3.8 km)  Note: The sum of line-to-line capacitance plus the capacitance of either line-to-shield (if shield is present) = 0.6 µF maximum (total for both isolated circuits combined)				

<sup>\*</sup> Other circuits may require shielded wiring. Review your system with your local Simplex product supplier.

#### TrueAlarm System Operation

Addressable device communications include operation of TrueAlarm smoke and temperature sensors. Smoke sensors transmit an output value based on their smoke chamber condition and the CPU maintains a current value, peak value, and an average value for each sensor.

Status is determined by comparing the current sensor value to its average value. Tracking this average value as a continuously shifting reference point filters out environmental factors that cause shifts in sensitivity.

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

**CO** sensor bases combine an electrolytic CO sensing module with a TrueAlarm analog sensor to provide a single multiple sensing assembly using one system address. The CO sensor can be enabled/disabled, used in LED/Switch modes and custom control, and can be made public for communication across a fire alarm Network. (refer to data sheet S4098-0041 for details)

**TrueAlarm heat sensors** can be selected for fixed temperature detection, with or without rate-of-rise detection. Utility temperature sensing is also available, typically to provide freeze warnings or alert to HVAC system problems. Readings can be selected as either Fahrenheit or Celsius.

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

#### Diagnostics and Default Device Type

**Sensor Status.** TrueAlarm operation allows the control panel to automatically indicate when a sensor is almost dirty, dirty, and excessively dirty. The NFPA 72 requirement for a test of the sensitivity range of the sensors is fulfilled by the ability of TrueAlarm operation to maintain the sensitivity level of each sensor. CO Sensors track their 5 year active life status providing indicators to assist with service planning. Indicators occur at: 1 year, 6 months, and when end of life is reached.

Modular TrueAlarm sensors use the same base and different sensor types (smoke or heat sensor) and can be easily interchanged to meet specific location requirements. This allows intentional sensor substitution during building construction when conditions are temporarily dusty. Instead of covering smoke sensors (causing them to be disabled), heat sensors may be installed without reprogramming the control panel. The control panel will indicate an incorrect sensor type, but the heat sensor will operate at a default sensitivity to provide heat detection for building protection at that location.

#### **Master Controller (CPU)**

- The 4010ES Master Controller includes dedicated 2GB compact flash Mass Storage memory for on-site system information storage and convenient Ethernet service port access
- Convenient front panel accessed Ethernet port for quick and easy download of site-specific programming
- *AND*, firmware enhancements are made via software downloads to the on-board flash memory
- Every downloaded job is automatically stored to Compact flash without overwriting earlier versions providing a means for recovering previous configurations
- Downtime is reduced because the system stays running during download
- Modifications can be *uploaded* as well as downloaded for greater service flexibility
- Mass Storage allows job specific files to be store in the control panel such as test and inspection reports, record drawings, specifications, and more...
- Ethernet connectivity options include Building Network Interface Module (BNIC) and SafeLINC Internet Interface
- RUI (Remote Unit Interface) communications port supports either Class B or X Pathway operation for remote annunciation equipment and for 4009 Series TrueAlert Controllers and TrueAlert Power Supplies

#### **Basic Panel Description**

4010ES panels include: an Operator Interface, Master Controller with 2GB Compact Flash, Class A or B Two-loop Isolated IDNet Communications (IDNet+) supporting up to 248 addressable and analog sensing devices, 8 A power supply with up to 2 A of auxiliary power, 110 Ah (UL) / 50 Ah (ULC) battery charger (33 Ah maximum in the control panel cabinet), 4 Class A or Class B NACs rated @ 3 A each for Special Application and 2 A for Regulated 24 DC operation, 1 programmable auxiliary relay rated for 2 A @ 32 VDC, 1 RUI Class B or X communications port for remote annunciation devices, cabinet, and door.

Support is for up to 20 internal and external card addresses. Other standard options may be provided depending on model (see basic panel model selection below for additional details on specific models).

#### Main System Supply

The Main System Supply provides the power source and the Input/Output connections for the basic 4010ES panel. The main features are listed in the Basic Panel description below.

### **Basic Panel Model Selection**

**Note:** Supervisory and Alarm current specifications are for determining battery standby requirements. Current specifications include an active RUI channel and alarm currents include 20 IDNet device LEDs activated. Actual IDNet channel device current is not included, refer to page 6 for details. For models with 48 LED Annunciation, alarm also includes 24 LEDs activated.

Model*	Panel Color	Language & Voltage	Listings	Features	Supv. Current	Alarm Current	Available Option Blocks
4010-9401(BA)	Red	English	UL, CSFM, FM,	Basic panel with 2x40 LCD Operator Interface and (1) Two-loop Isolated			
4010-9402(BA)	Platinum	120 VAC	NYC Fire Dept	IDNet+ Channel, Class A or B, with support for up to 248 addressable devices	316 mA	430 mA	3 4"x5" blocks
4010-9403(BA)	Red	English	UL, ULC, CSFM, FM,	EDept Same features as above with 48 LED annunciation		495 mA	
4010-9404(BA)	Platinum	120 VAC	NYC Fire Dept		336 mA		
4010-9405	Red	French	ULC, CSFM,		336 MA		
4010-9406	Platinum	120 VAC	FM				

<sup>\*</sup> Models with (BA) are available as assembled in the USA by adding the suffix "BA".

## Addressable Device Load Specifications for Battery Standby

Addressable Channel	Device Load	Supervisory Current	Alarm Current
Main System Supply IDNet+ Channel Output (does not include device LEDs in alarm)	With 248 Devices, Add	199 mA	248 mA
	With 125 Devices, Add	100 mA	125 mA
(does not include device LLDs in alaim)	With 50 Devices, Add	40 mA	50 mA

## Block Space Option Card Selection

**Note:** Refer to diagram on page 2 for Option Module availability. Supervisory and Alarm current specifications are for determining battery standby requirements.

## Single Block Option Modules, Select Three (3) Maximum if No Dual Block Module is Selected; Select One (1) Maximum if a Dual Block Module or the Module Bracket is Selected

Model	Features	Option Block Usage	Supervisory Current	Alarm Current
4010-9912	Serial DACT	1 Block (must mount in block D under main system supply)	30 mA	40 mA
4010-9908	4 Point Aux Relay Module	1 Block	15 mA	60 mA
4010-9916	Voltage Regulator Module, 22.8 to 26.4 VDC (25 VDC nominal); isolated and resettable output; includes earth detection circuit and trouble relay for status monitoring	1 Block	3 A maximum with 2.5 A load	4.9 A maximum with 4 A load
4010-9918	Dual RS-232 Module	1 Block	60 mA	60 mA
4010-9915	BACpac Ethernet Portal Module; requires 4010-9918 RS-232 Module (no address required)	1 Block	123 mA	123 mA
4010-9901	VESDA HLI	1 Block	60 mA	60 mA

#### Dual Vertical Block (Flat) Modules, Select One, or Two with 4010-9928 Bracket Kit (except for Media Cards)

Model	Features	Option Block Usage	Supervisory Current	Alarm Current
4010-9928	Dual Vertical Block Card Mounting Kit, allows selecting two, dual Vertical Block (flat) modules from the list below	2 Vertical Blocks	NA	NA
4010-9922	Modular Network Interface Card (requires two media modules, see below)	2 Vertical Blocks	30 mA	30 mA
4010-9818	Network Media Card Wired	N/A		55 mA
4010-9819	Network Media Card Fiber Optic	(mounts to 4010-9922)	25 mA	25 mA
4010-9914	Building Network Interface Card	2 Vertical Blocks	236 mA	236 mA
4010-9923*	SafeLINC Internet Interface	2 Vertical Blocks	115 mA	115 mA
4010-9924*	Modem Physical Bridge Class B (Style 4)	Requires one of the 2 Vertical Block spaces on the	193 mA	193 mA
4010-9925*	Modem Physical Bridge Class X (Style 7)	4010-9928 Mounting Kit	246 mA	246 mA
4010-9926**	TCP/IP Physical Bridge Class B (Style 4)	3 Block "L" Shape, requires one of the 2 Vertical Block	196 mA	196 mA
4010-9927**	TCP/IP Physical Bridge Class X (Style 7)	spaces on the 4010-9928 Mounting Kit, <b>plus</b> Block D	236 mA	236 mA

#### Dual Vertical Block (Slot) Modules, Select One if no Dual Vertical (Flat) Modules from Above are Selected

Model	Features	Option Block Usage	Supervisory Current	Alarm Current
4010-9920	8 Zone Initiating Device Circuit - Class B	2 Vertical Blocks	75 mA	195 mA
4010-9921	8 Zone Initiating Device Circuit - Class A	(mother/daughter card)	75 IIIA	195 IIIA

<sup>\*</sup>UL, ULC, and CSFM listed.

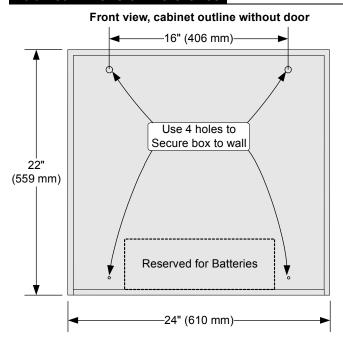
<sup>\*\*</sup> FM Approved only.

## Additional Panel Option Selection (block space is not used)

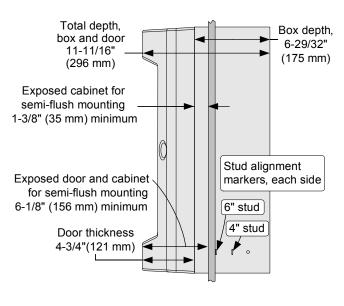
Model	Features	Supervisory Current	Alarm Current	Mounting Requirements		
4010-9909	City Connect Module w/ disconnect switches	20 mA	36 mA			
4010-9910 City Connect Module		20 mA	36 mA	Select one maximum, mounts on Main System Supply		
4010-9911	Alarm Relay Module	15 mA	37 mA	on main eyetem cupp.y		
4010-9919*	TrueInsight Remote Gateway	62 mA 62 mA Mounts on Front Door		Mounts on Front Door		
4100-5128	Battery Distribution Terminal Block, mounts to side of box, required when battery connection leaves the 4010ES box (also used in the 4100ES fire alarm control panel)					

<sup>\*</sup> Refer to data sheet S4100-0063 and contact your local Simplex product representative for more details.

#### Cabinet Dimension Reference



#### Side view with door attached



#### Miscellaneous Accessories

#### **LED Kits**

Model	Description
4100-9843	8 Yellow LED Kit
4100-9844	8 Green LED Kit
4100-9845	8 Red LED Kit
4100-9855	8 Blue LED Kit

### **End User Programming Tools**

Model	Description			
4100-8802	End User Programming Unit Software			
4100-0292	Custom Label Editing (USB Dongle)			
4100-0295	Port Vectoring Setup and Control (USB Dongle)			
4100-0296	User Group / Passcode Editing (USB Dongle)			
4100-0298	WalkTest Configuration Setup and Control (USB Dongle)			

#### **4010ES Factory Programming**

Model	Description
4010-8810	4010ES Factory Programming
4010-0831	Custom Label and Panel Programming

## **4010ES Card Address Allocation**

The 4010ES has a maximum Internal and External Card Address Limit of 20 Card Addresses. Use the Table below to calculate 4010ES card address allocation.

INSTRUCTIONS: Below is a list of 4010ES equipment and the quantity of card addresses they consume

- 1. For the applicable control panel, write in the Card Address Consumption value in the Card Address Allocation column. (Note: Only select 1 control panel)
- 2. For the option cards to be installed on the 4010ES, write in the Card Address Consumption value in the Card Address Allocation column.
- 3. Total the Card Address Allocation column (total must not exceed 20).

Model	Description		Card Address Consumption	Card Address Allocation	Notes
	Coi	ntrol Panels (Select One)			
4010-9401 4010-9402	2x40 Display	, Single IDNet Channel, Single Bay Box	2		
4010-9403 4010-9404 4010-9405 4010-9406	2x40 Display	, Single IDNet Channel, 48 Pluggable LED Module	3		4010-9405 & 4010-9406 are for Canada
	Panel Opt	ion Cards (Select As Required)			
4010-9901	Flat VESDA	HLI Card	1		
4010-9922	Flat Network	Card	1		
4010-9908	4 Point Flat	Aux Relay Module	1		
4010-9912	Serial DACT		1		
4010-9923	SafeLINC In	ternet Interface Card	1		
4010-9914	Building Net	work Interface Card	1		
4010-9918	Dual RS-232	2 Module	1		
4010-9920	8 Zone Initia	ting Device Circuit - Class B	1		
4010-9921	8 Zone Initia	ting Device Circuit - Class A	1		
R	emote Powe	r / Notification (Select As Required)			
4009-9401	TrueAlert Ad	dressable Controller (4009T) 120 VAC	1		
4009-9402CA	TrueAlert Ad	dressable Controller (4009T) w/ Low Battery Cutout	1		for Canada
4009-9813	Transponder	Interface Card for 4009 TPS	1		
4100-5120	120 VAC Do	mestic TrueAlert Power Supply for 4009 TPS	1		
4100-5121	120 VAC Ca	nadian TrueAlert Power Supply for 4009 TPS	1		for Canada
	Remote An	nunciation (Select As Required)			
4100-9401		Red Cabinet, English	2		
4100-9403	Remote	Platinum Cabinet, English	2		
4100-9421	InfoAlarm	Red Cabinet, French	2		for Canada
4100-9423	Command	Platinum Cabinet, French	2		for Canada
4100-9441	Center	Red Cabinet, with blank inserts for key labels	2		
4100-9443		Platinum Cabinet, with blank inserts for key labels	2		
4606-9102	4010ES RUI	LCD Annunciator, English	1		
4606-9102BA	4010ES RUI	LCD Annunciator, English	1		
4606-9102CF	4010ES RUI	LCD Annunciator, French	1		for Canada
4602-9101	Status Comr	mand Unit (SCU) LED Annunciator	1		
4602-9102	Remote Con	nmand Unit (RCU) LED Annunciator w/control	1		
4602-9150	Graphic I/O	RCU/SCU Assembly for custom annunciator panels	1		
4602-7101	<u> </u>	RCU/SCU Assembly for custom annunciator panels	1		
4602-7001	RCU for cab		1		
4602-6001	SCU for cab		1		
4100-7401		Graphic Module for custom annunciator panels	1		
4100-7402		witch Controller for custom annunciator panels	1		
4100-7403		Diver Module for custom annunciator panels	1		
4100-7404		tch Input Module for custom annunciator panels	1		
	Total Card	Addresses (Not to Exceed 20)	TOTAL		

## **General Specifications**

AC Input Current	4 A maximum, 120 VAC @ 60 Hz nominal					
Power Supply Output Ratings (nominal 28 VDC on AC, 24 VDC on	Total Power Supply Output Rating	Including module currents and auxiliary power outputs; 8 A total for "Special Application" appliances; 4 A total for "Regulated 24 DC" power (see below for details)	Output switches to battery backup during mains AC failure or brownout			
battery backup)	Auxiliary Power Tap	2 A maximum, rated 19.1 to 31.1 VDC	conditions			
Special Application Appliances, maximum of 70 appliances per NAC		01, 4903, 4904, and 4906 Series horns, strobes, and combination horn/strobes and obes (contact your Simplex product representative for compatible appliances)				
Regulated 24 DC Appliances	Power for other UL listed appliances; use associated external synchronization modules where required					
Battery Charger Rating	Battery capacity range	UL listed for battery charging of 6.2 Ah up to 110 Ah; ULC listed for charging up to 50 Ah batteries; batteries above 33 Ah require separate cabinet				
(sealed lead acid 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 Temperature	e 32° to 120°F (0° to 49° C)				
Environmental	Operating Humidity	Up to 93% RH, non-condensing @ 90° F (32° C) max	kimum			
Additional Technical	Installation Instructions	579-989				
Reference	Operating Instructions	579-969				

## Additional Compatible Equipment and Reference

Subject	Data Sheet	Subject	Data Sheet
4010ES Agent Release Applications and Accessories	S4010-0005	Network Communications	S4100-0056
Agent Release Accessories	S2080-0010	Multi-Signal Fiber Optics	S4100-0049
Building Network Interface	S4100-0061	4602 Series SCU/RCU	S4602-0001
SafeLINC Internet Interface	S4100-0062	PC Annunciator	S4190-0013
Interface to VESDA Air Aspiration Detection Systems	S4100-0026	TrueAlert Addressable Controller (4009T)	S4009-0003
Serial DACT (SDACT)	S2080-0009	4009 IDNet NAC Extender	S4009-0002
Fire Alarm Network Overview	S4100-0055	4003EC Voice Control Panel	S4003-0002
TrueInsight Remote Service	S4100-0063	120 VAC Desktop Remote Printer	S4190-0011
Addressable Device Compatibility, IDNet Communication Sensors and Devices	S4090-0011	4009 TPS (Remote TrueAlert Power Supply) Reference	S4100-0037
4606-9102 Remote LCD Annunciator	S4606-0002	110 Ah Batteries and Cabinets	S2081-0012
Graphic I/O Modules	S4100-0005	Remote 110 Ah Battery Chargers and Cabinets	S4081-0002
Remote InfoAlarm Command Center	S4010-0008	BACpac Ethernet Portal Module	S4100-0051
PC Annunciator	S4190-0013	Network Physical Bridge	S4100-0057
TCP/IP Physical Bridge	S4100-0029		

