



**HARRINGTON**  
SIGNAL INC.  
**FIRE ALARM**

**HS3100 / HS3200**  
Addressable Fire Alarm Control Panel

Harrington Signal Inc.  
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ISO 9001 Certified Management System

Description

HS3100 and HS3200 addressable input fire alarm control panels provide flexible and cost-effective operation to satisfy system requirements for both economy and capability. Their modular design assures that as system needs and applicable codes evolve, fire alarm control panel functions can be updated as required.

Optional networking modules allows the HS3100 and HS-3200 to be connected to a Harrington network to provide additional input circuits, visual zones, and relays. Up to 254 control and annunciator units can be networked together. The network is a DCLR (Data Communications Link, Redundant) configuration loop.

HS3100 models provide a single addressable input Signaling Line Circuit for support of up to 198 addressable devices; up to 99 detectors and up to 99 control/monitor modules.

HS3200 models provide two SLCs for support of 198 devices on each allowing a total capacity of up to 396 addressable devices; up to 198 detectors and up to 198 control/monitor modules total.

Optional modules mount directly to the chassis and can be conveniently field installed. Modules are available for additional: NAC output circuits, function relay output circuits, remote annunciation, additional NAC power, and other fire alarm interface operations.



Programming the HS3100/HS2200 consists of two convenient and easy operations. Input circuit programming and special features (such as cross-zoning functions, day/night mode, selective control operations, etc.) is performed from an externally generated database produced on a Windows® based PC. System parameters and control panel display and operation functions are conveniently programmed from the on-board LCD and keypad.

ORDERING INFORMATION		
MODEL #	PART #	DESCRIPTION
HS-3100R	345-0685	Provides a single addressable input signaling line. SLC's are selectable for either (Style 6) or (Style 4) Two notification circuits A, or B. Expandable to eight with HS3NC2
HS-3200R	345-0686	Provides dual addressable input signaling line. SLC's are selectable for either (Style 6) or (Style 4). Two notification circuits A, or B. Expandable to eight with HS3NC2
HS3DC	345-3012	HS3100 HS3200 Dialer Module
HS3NC2	345-3006	Expansion (2) notification circuit modules
HS3RL4	345-3013	Expansion (4) relay modules
HS3LD8	345-3005	Expansion (8) LED modules
HS312VAC	345-3011	Expansion Transformer
HS32NTWR	345-3017	HS3100/3200 Network board, Port 1 and Port 2 Standard
HS32NTWR1	345-3022	HS3100/3200 Network board, Port 1 RS232 and Port 2 Standard
HS32NTWR1.2	345-3020	HS3100/3200 Network board, Port 1 and Port 2 RS232
HS32NTWR2	345-3019	HS3100/3200 Network board, Port 1 standard and Port 2 RS232
SHS31MPCB	345-3008	Replacement main PC board (1) SLC - HS-3100
SHS32MPCB	345-3010	Replacement main PC board (2) SLC - HS-3200
SHS32DPCB	345-3009	Service replacement 1 or 2 loop display PCB



## Features

- UL Listed
- UL Listed to Standard 864 "standard for Control Units for Fire Protective Signaling Systems"
- HS3100 provides a Single Addressable Input Signaling Line Circuit (SLC) for up to 198 Addressable Devices
- HS3200 provides Dual Addressable Input Signaling Line Circuits for up to 396 Addressable Devices
- SLCs are selectable for either Class A (Style 6) or Class B (Style 4) operation
- Two (2) Notification Appliance Circuits (NACs), Class A (Style Z) or Class B (Style Y); expandable to eight (8) NACs with optional HSNC2 modules
- Four (4) programmable function relays, Form C; expandable to sixteen (16) relays with HSRL4 modules
- Programmable cross-zoning functions, day/night mode, and selective control operations
- Two (2) auxiliary power outputs, 500 mA @ 24 VDC each
- 4.3 A Power supply with integral battery charger provides 2.5 A for NACs and Auxiliary Outputs; Expandable to provide up to 7 A NAC Current
- Four(4) additional communications ports for Dialer, PC Interface, Voice Evacuation System, and Remote Annunciators
- Optional Style 7 (DCLR) HS Network panel to panel communications
- LCD/LED system status display with optional HSLD8 LED zone display modules

- Surface/flush mount cabinet with dead-front construction allows up to 12 Ah batteries internally mounted
- Battery charger is capable of charging up to 35 Ah mounted in an external battery cabinet
- Cabinet doors are removable for easy installation
- Operating program and database can both be uploaded/downloaded using a Windows® based PC with Harrington Programming Software
- Nonvolatile event history log stores 1000+ events

## Main CONTROL UNIT

System controls consist of eight system switches, an LCD readout, and display entry switches. The display entry keypad is used for technical functions, system/detector maintenance, history recall, device and circuit disarming, and for manual operation of addressable output modules, relay modules, and notification appliance (bell) circuits.

## Operator Keys

There are eight operator keys. In the figure below, the keys are located on the lower left and are labeled "System Controls." The LEDs associated with these keys are used to display function status. The top three keys are pre-assigned and are: Acknowledge, Signal Silence, and System Reset.

The bottom five keys are user-assignable, selected for the following functions: Lamp Test, Relay Disconnect, Test Mode, Signal Disconnect, Common Disconnect, General Alarm,

Selectable Switch Function On, Switch Function Off, or Manual Restart.

The panel local sounder will beep once when a valid key is pressed and beep three times if an invalid or unavailable key is pressed. Key presses are recorded in the history log.

## Display Information

The Main Control Panel LCD readout is backlit and displays 4 lines with 20 characters per line. With AC power present, the LCD backlighting turns off automatically within 5 minutes if no activity occurs. During AC power failure, the backlighting will turn off within 30 seconds without activity. During normal conditions the display is the main menu which includes the date and a 24 hour clock. During alarm conditions, the first or last (selectable) events of highest priority will be displayed instead of

the main menu. A status summary screen lists the number of active alarm, supervisory, or trouble events indicating "SYSTEM OFF NORMAL"



### Addressable Input Circuits

Up to 99 addressable detectors and up to 99 addressable control/monitoring modules may be connected per SLC for a total of 198 addressable devices. HS3100 models provide a single SLC output, HS3200 models provide dual SLCs.

Addressable monitoring modules can be programmed for alarm or supervisory functions. Control modules are available for dry contact or supervised output functions.

### NAC Outputs

Standard are two NACs rated 2 A maximum. NAC output voltage is a nominal 24 VDC, full wave rectified. NAC expansion can be up to eight NACs by using HSNC2 NAC expander modules.

### Auxiliary Outputs

Two auxiliary power outputs are provided, each rated for 500 mA at a nominal 24 VDC, filtered and regulated.

### Function Relays

The panel comes with four programmable Form C function relays rated 2 A @ 30 VDC resistive. Total function relays can be

Relays can be programmed as Common Alarm, Common Trouble, Common Supervisory, or general-purpose functions.

### Power Supply and Expansion Transformer

Each HS3100/3200 fire alarm control panel is shipped with either a 120 VAC or 240 VAC transformer as determined by the base model number. Total NAC power can be increased by adding a second transformer of the same voltage, HS12VAC or HS24VAC.

The standard power supply provides 2.5 A @ 24 VDC (full-wave rectified, unfiltered) for the total of NAC and Auxiliary power output.

With the addition of an optional transformer, the total NAC and Auxiliary power output is increased to 8 A with up to 7 A available for NACs.

### Enclosure Details

The enclosure includes the mounting box, outer door, dead front door, and hardware plate. It can be flush or surface mounted without requiring a separate trim ring.

Both the outer door and dead front doors are removable. The hardware plate holds the main printed circuit board and transformer(s). This enclosure holds two transforms, up to three NAC or Relay expander modules, and one communicator module.

The backbox is included with the fire alarm control panel and includes an outer lip around the perimeter to provide a built-in trim for semi-flush mounting

applications. The door conceals the outer lip and provides a neat and clean appearance for surface mounted box applications.

### NAC Expander Board

#### Model HSNC2

NAC Expander Boards provide two additional NAC outputs. Up to three modules can be added within the basic enclosure and can be any combination of NAC or Relay expanders.

NAC Expander Board NACs are rated for 2 A @ 24 VDC each, the same as the standard NACs.

### Relay Expander HSRL4

Relay Expander module HSRL4 provides four additional function relay outputs. Each relay provides a Form C contact rated 2 A @ 30 VDC resistive with dry contacts requiring connection to a power limited source.



### Eight Zone LED Module HSLD8

For local LED panel mounted zone annunciation, the HSLD8 module provides eight zones of LED annunciation, readily visible on the front of the control panel cabinet. Up to three LED modules can be mounted on the front of the cabinet. A single HSLD8 is standard for Canadian models.

Each module has label pockets to locally identify zone locations.

### DACT Module - HSDL

The optional Digital Alarm Communicator Transmitter (DACT) module is added to the system to provide Remote Station monitoring of system alarms, troubles, and supervisory conditions. Communications are available for : Contact ID, SIA, or 10/20 bps formats.

Use of the DACT module requires that two telephone lines be provided for connection to the DACT. Service must be arranged with a Central Station monitoring facility for Remote Station Service.

### Panel to Panel NETWORKING

HS-3100/3200 control panels can be networked to other control units for up to a total of 254 networked members, each using Style 7 (DCLR) loop communications. One control unit for the network and diagnostics can be done at any control unit.

### COMPATIBLE PRODUCTS

#### LCD Annunciator Model HS3644

For remote information annunciation, model HS3644 is an LCD status annunciator with display, general system status LEDs, and general function keys.

#### City Connection Module HSCTYB

Optional module HSCTYB can be configured for remote Station (reverse polarity) or Municipal Master (local energy) service. The HSCTYB can transmit alarm, trouble, and supervisory conditions when configured for reverse polarity operation. Alarm conditions are only reported when configured for Municipal Master operation.

**Note:** The HS3100/HS3200 accepts either the HSDL or the HSCTYB module.



HS3644 Remote LCD Annunciator



**PRODUCT SPECIFICATIONS**

**INPUT POWER**

120 VAC, 60Hz 2 A maximum Ratings are per transformer; one additional transformer may be added to increase capacity

**MECHANICAL**

Overall dimension with door 16-7/8" W x 29-1/2" H x 6-3/4" D (429mm x 749mm x 172mm)

**ENVIRONMENTAL**

Temperature Range 32° to 120°F (0° to 49°C)  
Humidity Range Up to 93% RH, non-condensing @ 90° F (32° C) maximum

**SIGNALING LINE CIRCUIT RATINGS**

Voltage 24VDC nominal, 27.5 VDC maximum  
Max. number of devices HS3100, single SLC: 198 total, 99 detector, 99 control/monitor modules  
HS3200, Dual SLCs: 396 total, 198 detectors, 198 control/monitor modules  
Maximum line length 3045 m (10,000 ft.)(12AWG, 3.31 mm<sup>2</sup>)  
Operation modes Available as Style 6 (Class A) or Style 4 (Class B; T-tapping is allowed with Style 4 (Class B) connections only

**NOTIFICATION APPLIANCE CIRCUIT OUTPUT CIRCUITS, STANDARD AND EXPANSION NACS**

NAC Output Ratings 2A maximum per NAC; 24 V full wave rectified DC output; power limited  
NAC Current, Standard with One Transformer Total of NACs + Auxiliary Power = 2.5 A maximum  
(if Aux. Power total = 500 mA; NAC power = 2 A maximum)  
Total NAC current = 7 A maximum  
NAC Current with Optional Transformer Total of NACs + Auxiliary Power = 8 A maximum  
(optional transformer HS312VAC)

**FUNCTION RELAY OUTPUT CIRCUITS, STANDARD AND EXPANSION**

All Relays 2 A @ 30 VDC resistive; Form C contacts; requires power unlimited source

**POWER OUTPUT CIRCUITS**

Auxiliary Power Outputs (two outputs) Each output is rated at 500 mA @ 24VDC, filtered, regulated, and power limited; maximum ripple voltage = 600mVpp

**BATTERY INFORMATION**

Battery Charger Current limited float charger for sealed lead acid batteries  
Float Charge 27.5 VDC  
Charging Current 2.7 A maximum, no auxiliary loads; 1.7 A nominal with 0.5 A on each Auxiliary output  
Maximum Battery Capacity 12 Ah maximum size internal to cabinet;  
35 Ah maximum size allowed, requires model BATT-CABL External Battery Cabinet

**COMMUNICATION PORTS**

ANN (annunciator port) Fixed baud rate @ 4800 bps; for use with HS2802E OR HS 3644 Annunciators (refer to individual product Installation Instructions for capacities and wiring distances)  
HSRS282-2 Fixed baud rate @ 9600 bps; 6.01 m (20 ft.) maximum distance; for use with HAVED Voice Evacuation System  
CON4 (Dialer/City Module Port) Fixed baud rate @ 4800 bps; for use with HSDL Digital Communicator Module or HSCTYB City Module  
J1 (Service port or serial printer port) Fixed baud rate @ 9600 bps; 6 m (20 ft.) maximum distance; for use with Service /Programming PC (using Windows 95 or 98); or for serial input printer

**NETWORK PORTS**

Standard Protocol: 10km (33,000 ft.; 6.2 miles) maximum distance between nodes  
minimum 28AWG wires (0.081 mm<sup>2</sup>)

COM 1, COM 2 (Harrington HS Panel to Panel network, Redundant DCLR)

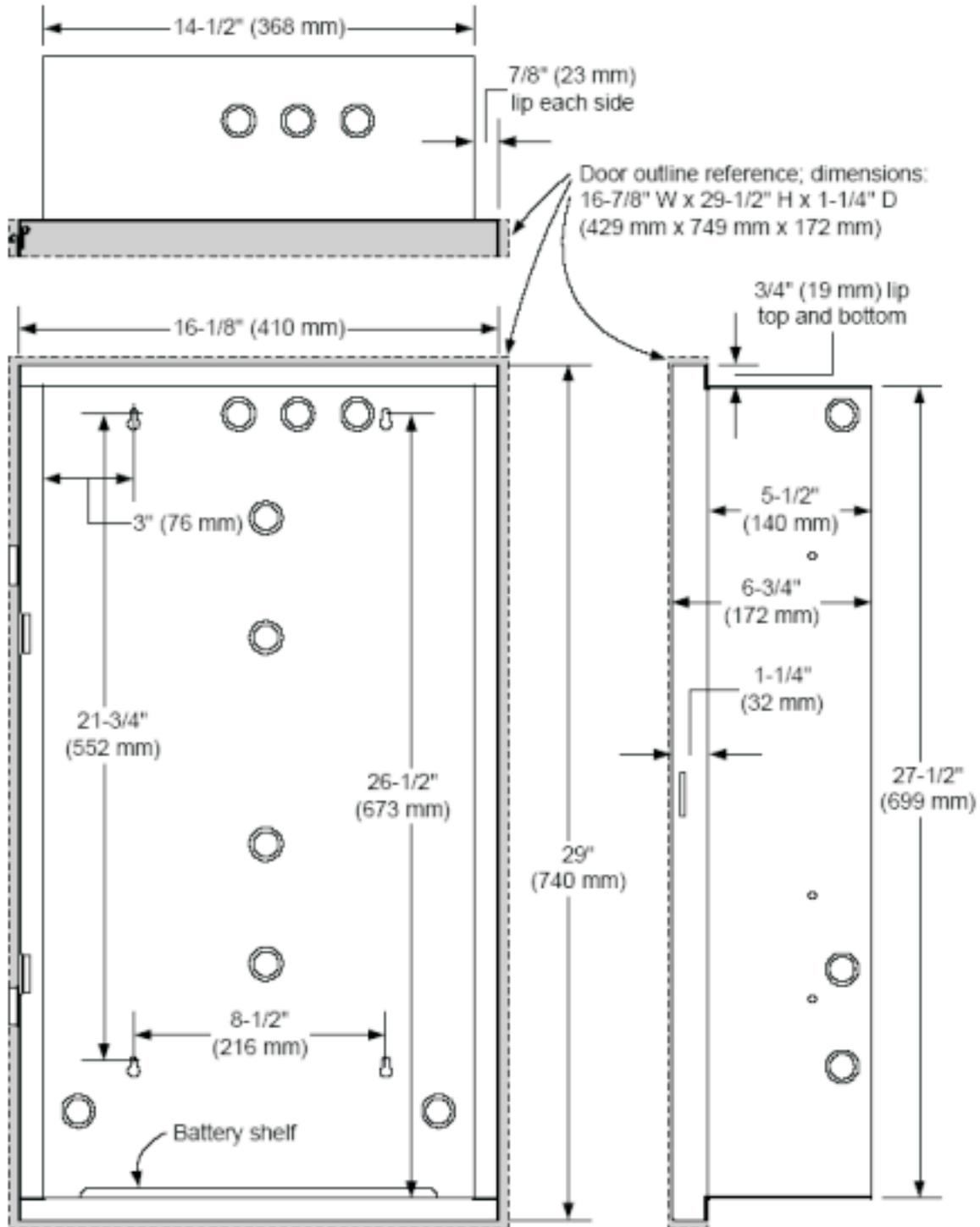
RS232 Protocol: up to 20 m (66 ft.) typically for connection to external modem

Network Wiring Parameters (maximum line resistance = 680 ohms)	BAUD RATE	MAXIMUM CAPACITANCE	MAXIMUM NETWORK NODES
	9600	100nF	254
	4800	220nF	254
	2400	470nF	254
	1200	680nF	200



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NOTICE: The information contained in this document is intended only as a summary and is subject to change without notice. The products described have specific instructional/installation documentation, which covers various technical, approval, code, limitation and liability information. Copies of this documentation along with any general product warning and limitation documents, which also contain important information, are provided with the product and are also available from Harrington Signal Inc. The information contained in all of these documents should be considered before specifying or using the products. Any example applications shown are subject to the most current enforced local/national codes, standards, approvals, certifications, and/or the authority having jurisdiction. All of these resources, as well as the specific manufacturer of any shown or mentioned related equipment, should be consulted prior to any implementation. For further information or assistance concerning the products, contact Harrington Signal Inc. Harrington Signal Inc. reserves the right to change any and all documentation without notice. Quality manufactured for Harrington Signal Inc. Fire Alarm by Secutron.