EST™
Life Safety & Communications

# Remote Alpha-Numeric Annunciators

## LSRA Series, SMDN Series

## Overview

The Edwards remote Alpha-Numeric Display annunciators provide remote annunciation of system events and custom programmed messages for EST2, IRC-3, FCC and LSS systems. Each annunciator contains a back lit Liquid Crystal Display for improved message visibility. The annunciators mount in standard North American two-gang or 4 inch square electrical boxes, European 100mm square box or within 19 inch RSAN rack mount or SAN type enclosures. The LSRA-SB surface mount box is available for surface mount applications. Common Control features are available to allow maximum system flexibility.

**Display:** The heart of the Edwards Alpha-Numeric annunciator is the Liquid Crystal Display. The display is a large back-lit, four line by twenty character per line, super-twist Liquid Crystal Display. All annunciators incorporate power saving features which automatically turn off the front panel back lighting. The lighting turns off after four minutes if there is no switch activity and no unacknowledged messages are waiting. The fire alarm systems battery capacity is maximized with this feature while providing clear visibility of system messages.

**Custom Messages, Message Seeking Intelligents:** All four of the Edwards Alpha-Numeric annunciators are programmed with system event specific messages. Custom messages are programmed into each annunciator via a laptop PC. The messages display in response to specific system events.

## Standard Features

- Back-lit alpha-numeric display
- Four lines of 20 characters each
- Up to 352 messages stored per annunciator on EST2
- Message seekingintelligence
- Software filters for messages on controls
- Buffers up to 1000 active system events per annunciator
- 31 annunciators on single line network
- Multiple alpha-numeric display annunciator networks
- Up to 7700 ft (2347 m) total network loop length
- Class B (Style 4) or Class A (Style 7) RS-485 wiring
- Printer port (optional with LSRA)
- Available with Common Controls



DATA SHEET 85006-0035
Not to be used for installation purposes. Issue 2.1

# Application

The LSRA and SMDN annunciators are designed for annunciation only applications. The LSRA-C and SMDN-C are designed for areas where annunciation and common control is required.

For simplicity of wiring the LSRA(-C) and SMDN(-C) connect to the IRC-3 single line RS-485 network directly, extra data wiring is not needed. Up to 31 annunciators are supported on a IRC-3 network loop. The IRC-3 regenerative mode operation is an integral part of the annunciator network. EST2 provides RS-485 terminals allowing up to 31 annunciators to be connected. With LSS4 up to four annunciators connect to the backbone RS-485 communication path.

For maximum flexibility FCC systems communicate with Edwards Alpha-Numeric annunciators over one, or multiple annunciator networks. The first LSRA(-C) or SMDN(-C) connects directly to the FCC head end. The connection can be made via a FCOM-485 located in the PCPU or a FCOM-232 located in the DCPU. For a single network communication path the LSRA(-C) and SMDN(-C) annunciators share a common RS-485 communication path with system network modules. Annunciators and system modules connect via a FCOM-485 located in the PCPU. Multiple annunciator networks are easily configured using one or multiple FCOM-232 modules located in the DCPU. The annunciators can be connected in Class A configuration by connecting the first annunciator to the FCC DCPU FCOM-232 port card. The last annunciator connects to a second FCOM-232 port card on the same FCC DCPU. All annunciators between the first and last will be connected on their own RS-485 communication path. Up to 32 annunciators wire on a single network path. With single or multiple annunciator networks system layout flexibility is unmatched. All FCC regenerative mode operation is maintained.

The RS-485 will allow the annunciator network to achieve distances up to 7700 feet (2348m) using #18 AWG (1.00 $mm^2$) twisted-pair wire. Each annunciator receives power from a nominal 24 Vdc riser.

# Operation

## Models

There are four models of Alpha-Numeric annunciators. All include Normal, Alarm, Supervisory, and Trouble LEDs. There are two push-button switches labeled BACK and NEXT/ACK. The BACK and NEXT/ACK switches acknowledge system event messages and allow the user to scroll through the event buffer.

**LSRA Series:** The LSRA series of annunciators mount in standard North American two-gang or 4 inch square electrical boxes, European 100mm square box enclosures. The annunciators come with four feature LEDs (Normal, Alarm, Supervisory, and Trouble) and two push-button Switches (BACK and NEXT/ACK).

**LSRA-C:** The LSRA-C annunciator supports common control functions in addition to the four feature LEDs and the BACK, NEXT/ACK push buttons found on the LSRA. RESET, ALARM SILENCE, TROUBLE SILENCE, and DRILL/ALL CALL push button switches provide common control functions. LSRA-C annunciators allow individual programming of front panel switch operation. The controls are enabled by entering a password via the annunciators front switches or by activating an optional remote enable/disable key switch. The LSRA-C annunciator mounts in a standard North American two-gang or 4 inch square electrical box or European 100mm square box.

**SMDN:** The SMDN annunciator has the same functions as the LSRA but mounts in any Edwards SAN cabinet or 19 inch RSAN-6 rack mount. The SMDN annunciator requires two SAN module mounting spaces.

**SMDN-C:** The SMDN-C annunciator has functions similar to the LSRA-C but has an on board enable/disable key switch and mounts in any Edwards SAN cabinet or 19 inch RSAN-6 rack mount. The SMDN annunicator requires two SAN module mounting spaces.

Each LSS4 system annunciator will support up to 52 custom messages. If a custom message does not exist for an event, the annunciator will display the current system event and zone information.

Each IRC-3 or EST2 system annunciator will support up to 352 custom messages. If a custom message does not exist for an event, the annunciator will display the current system event and zone information.

Each FCC system annunciator will support up to 746 custom messages. If a custom message does not exist for a system event the annunciator uses its “Message Seeking Intelligence” to locate a message. The annunciator will seek messages at the FCC, DCPU for the event which has occurred. In this way the most descriptive information is always displayed on each annunciator. If no custom message is found, the system event and zone information displays.

| | |
|---|---|
| JUN 01 01:12:56 M000 | **No Message Waiting** |
| JUN 01 01:20:32 M002<br>FIRE ALARM<br>Custom Message Entered thru the PC | **Typical Alarm Message** |

Line 1 = Date, Time, # of unacknowledged messages
Line 2 = Alarm Type
Line 3 and 4 = Custom message on two lines

**Event Buffer:** Each annunciator has a buffer that will hold active system events. The buffer is reviewed by pressing the NEXT/ACK and BACK push-button switches. The amount of buffer storage is determined by the system hosting the annunciator. The LSS4/52 annunciator will buffer 52 event messages, the EST2, IRC-3 and FCC PCPU RS-485 single line system annunciator will buffer 352 event messages and the FCC DCPU RS-232 system annunciator will buffer 1000 event messages.

**Software Filters:** Software filters add flexibility to Edwards LSRA(-C), SMDN(-C) annunciators. To avoid having unwanted messages displayed at an annunciator specific message routing capabilities are incorporated into the Edwards LSRA(-C) and SMDN(-C). Annunciators may be defined to receive alarm messages, or supervisory messages or trouble messages only with other panel changes being filtered out. Combinations of messages may be programmed such as Alarm and Trouble messages displayed with all Supervisory messages filtered out. This allows annunciators to be custom configured for specific operations. Only the information which is required at a specific location will be annunciated.

**Auto Acknowledge:** Auto Acknowledge is a software selectable feature that will automatically configure a specific annunciator to display active points only. As a system active point restores, the point message is removed from the annunciator display. Point restorations do not display on annunciators with Auto Acknowledge enabled. The internal buzzer and printer port become disabled on annunciators with the Auto Acknowledge feature enabled.

**Internal Buzzer Silence:** The LSRA/SMDN series annunciator's Internal Buzzer Silence feature provides an option that disables the internal buzzer. The silent operation is of particular use in areas sensitive to noise.

**ENABLE/DISABLE:** The common control function switches of the SMDN-C and LSRA-C are configurable to operate with the annunciators ENABLE/DISABLE mode of operation. By entering a password into the LSRA-C or through an ENABLE/DISABLE key switch any combination of common control functions are programmable.

As an example: The ENABLE/DISABLE function can be programmed to have the DRILL/ALL CALL switch function (active) in the DISABLED mode. All other common control switches would operate only in the ENABLED mode. Customizing of an annunciator for a specific operation is easily achieved with a laptop programmer.

**Printer Port:** When not used for network connection the optional Printer/Programmer Port for LSRA (-C) and the integral RS-232 port on SMDN(-C) supports a serial printer (PT-1S). The printer will provide a hard copy of the events which display on the annunciator it is connected to.

## Approvals and Listings

ULC, UL, CSFM

## Front Panel Switches and LED Functions

**1 = LSRA Series 2 = LSRA-C Series 3 = SMDN Series 4 = SMDN-C Series**

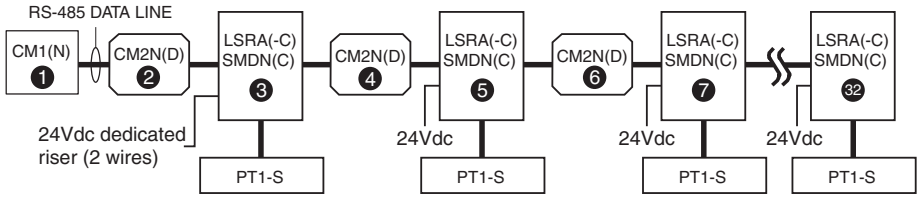
| Indicator/Switch | Available On | Function |
|---|---|---|
| Normal LED | 1, 2, 3, 4 | Illuminates steady when system has no faults or off-normal conditions. |
| Alarm LED | 1, 2, 3, 4 | Illuminates when an alarm condition exists on the system. |
| Supervisory LED | 1, 2, 3, 4 | Illuminates when a supervisory condition is received which is in its data base. A common supervisory (no message in display) turns on the supervisory LED, but does not need silencing. |
| Trouble LED | 1, 2, 3, 4 | Illuminates when a trouble condition is received which is in its data base. A common trouble (no message in display) turns on the trouble LED, but does not need silencing. |
| Alarm Silence LED | 2, 4 | Illuminates when the system wide alarm silence function is initiated. |
| Trouble Silenced LED | 2, 4 | Illuminates when the local trouble silence switch has been activated on LSRA-C or SMDN-C. |
| Drill/All Call LED | 2, 4 | Illuminates when the system wide drill/general evacuation function has been initiated. |
| Next/Acknowledge | 1, 2, 3, 4 | Acknowledges the receipt of new messages at the LSRA(-C)/SMDN(-C) and automatically advances the next unacknowledged message. When there are no unacknowledged messages, the switch allows the event messages of active points to be viewed. |
| Back | 1, 2, 3, 4 | When there are no unacknowledged messages the back switch allows the user to move in reverse through the event messages. |
| Enable/Disable Key-Switch | 2, 4 | Either the ENABLE or DISABLE mode may be configured to enable or disable any combination of the front panel RESET, ALARM SILENCE, TROUBLE SILENCE and DRILL/ALLCALL switches. |
| Enable/Disable Mode | 2 | Initiate the Enable or Disable mode of operation through a password entered into the Annunciator. Either the ENABLE or DISABLE mode may be configured to enable or disable any combination of RESET, ALARM SILENCE, TROUBLE SILENCE AND DRILL/ALLCALL |
| Reset | 2, 4 | Directs the CM1(N), EST2, or PCPU master controller on the system to issue a system wide reset. |
| Alarm Silence | 2, 4 | Directs the CM1(N), EST2, or PCPU master controller on the system to issue a system wide alarm silence. |
| Trouble Silence | 2, 4 | Silences the LSRA-C/SMDN-C trouble buzzer after all messages have been acknowledged. |
| Drill/Al Call | 2, 4 | Directs the CM1 (N), EST2, or PCPU master controller on the system to issue system wide drill command. |
| Audible Indicators | 1, 2, 3, 4 | The LSRA-C/SMDN-C internal buzzer will sound when an alarm, trouble or unacknowledged message(s) exists on the system. The LSRA/SMDN internal buzzer will sound for unacknowledged messages only. |
| Lamp Test | 2, 4 | Pressing Trouble silence and Alarm Silence switches simultaneously starts a 15 second LED test sequence on the LSRA-C/SMDN-C. |

## LED Indicator Functions

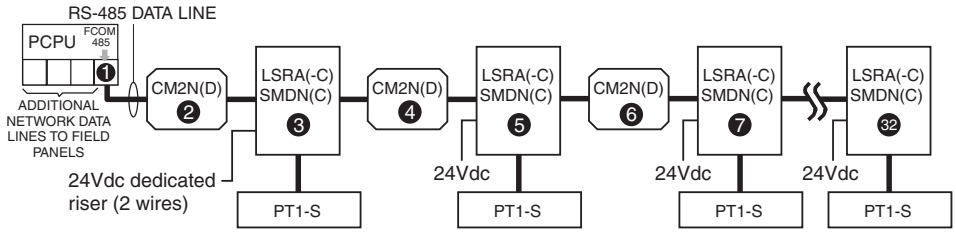
| Indicator | USA | Canada | Europe |
|---|---|---|---|
| Normal LED | Steady | Steady | Steady |
| Alarm LED | Steady | Flashing until acknowledged | Steady |
| Trouble LED | Steady | Flashing until acknowledged | Steady |
| Supervisory LED | Steady | Flashing until acknowledged | Steady |
| Buzzer | | | |
| UnAck Messages | Pulses | Pulses | Pulses Steady till silenced then 1/2 second pulse as a silenced reminder every 14 seconds when silenced. |
| Trouble | Steady | Steady | |

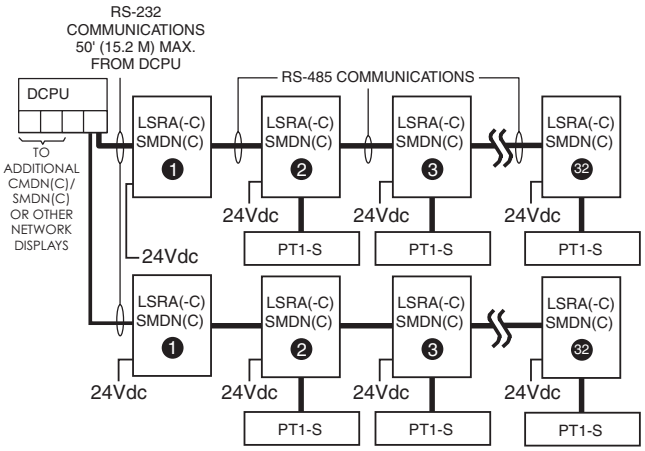
# Typical Wiring

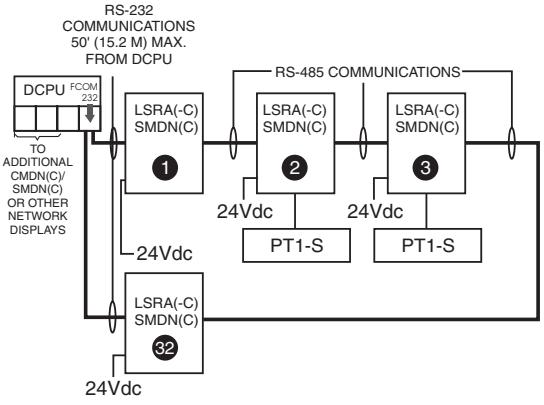
## IRC-3



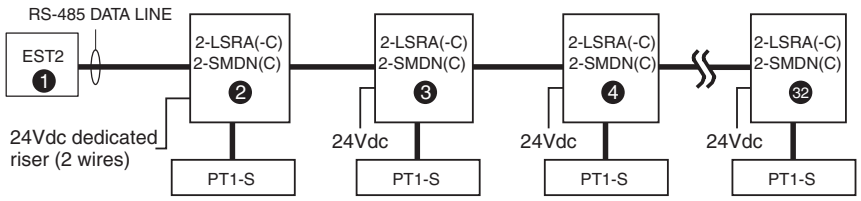

## FCC



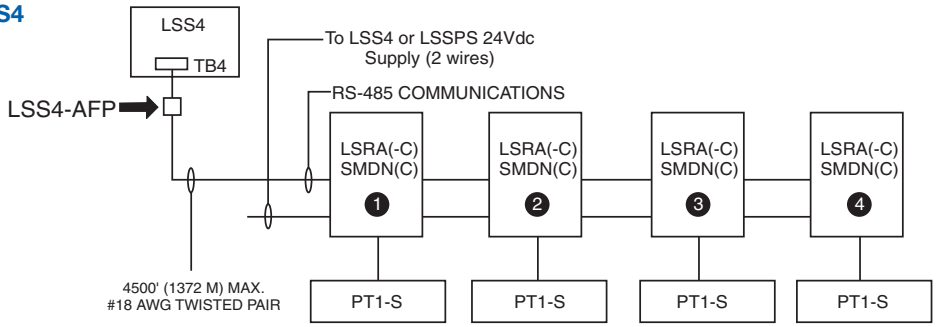




## EST2




## LSS4



## Engineering Specifications

Remote alpha-numeric annunciators shall be located throughout the facility as indicated on the plans. Each annunciator shall contain a supervised, back-lit, liquid crystal display with a minimum of four lines with twenty characters per line. Where required the annunciator shall contain a key-switch enabled reset, alarm silence, trouble silence and drill/all call switches. It must be possible through programming to determine which common control functions are active with the key-switch in the enable or disable position.

It must be possible to have up to 31 of any type of LSRA (-C) and SMDN(-C) annunciators on a single annunciator network. It must provide regenerative functions in the event of communication failure.

Each annunciator must be capable of supporting custom messages as well as system event annunciation. It must be possible to filter unwanted annunciation of trouble, alarm or supervisory functions. The annunciator must incorporate a power saving feature. The front panel back lighting must turn off after a minimum of four minutes if there is no switch activity and no unacknowledged messages waiting.

Where required it must be possible to connect a printer directly to the annunciator through a dedicated RS-232 port. The printer to facilitate generation of hard copy records of system activity.

The annunciators shall be mounted in stand-alone enclosures or integrated into the network panels as indicated on the plans.

The annunciator must be able to automatically seek specific messages from other parts of the network if no message resides in its data base.

## Technical Specifications

| Catalog Number | LSRA | 2-LSRA | LSRA-C | 2-LSRA-C | SMDN | 2-SMDN | SMDN-C | 2-SMDN-C |
|---|---|---|---|---|---|---|---|---|
| Dimensions (H, W, D) | 5-5/8 in H x 8-3/8 in W x 1-5/16 in D (14.29cm x 21.27cm x 3.33cm) | | | | 2 SAN Module Spaces | | | |
| Mounting | Standard North American 2-gang or 4 in square electrical boxes, European 100mm square box or LSRA-SB surface mount box | | | | Two SAN Module Slots in SAN-4, SAN-8 or RSAN-6 | | | |
| Operating Voltage Range | 24 Vdc Nominal | | | | | | | |
| Operating Current | 80 mA | | | | | | | |
| First Annunciator Communications Format | EST2, LSS4, IRC-3, FCC from Poling CPU — RS-485 FCC from Display CPU — RS-232 | | | | | | | |
| Inter-Annunciator Communications Format | RS-485 Style 4 (Class B) or Style 7 (Class A) | | | | | | | |
| Inter-Annunciator Communications Baud Rates | 2400, 4800, 9600, 19200 BPS | | | | | | | |
| Printer Port Format | RS-232 with optional LSRA-232 | | | | RS-232 Style 4 (Class B) | | | |
| Printer Baud Rates | 2400, 4800, 9600 | | | | | | | |
| Maximum Wire Length RS-232 RS-485 | 50 ft (15m) 7700 ft (2348m) on 18 AWG (1.00mm$^2$) copper, 4500 ft (1372m) with LSS4 | | | | | | | |
| Maximum Annunciators per Circuit | 32 | | | | | | | |
| Maximum Custom Messages per Display<br>FCC<br>IRC-3, EST2<br>LSS4 | 746 messages + Intelligent message search<br>352 messages 88 messages/panel address<br>52 messages | | | | | | | |
| Finish | Textured Gray | | | | Textured Black | | | |
| Ambient Operating Environment | Temperature - 0° C to +49° C; Relative Humidity - 93% @ 30° C | | | | | | | |

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**T : +65 6391 9300**
**F : +65 6391 9306**

**India**
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**F : +91 80 4344 2050**

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# Ordering Information

| Catalog Number | Description | Ship Weight lb (kg) |
|---|---|---|
| LSRA | Remote Display, semi-flush mounting | 4 (1.8) |
| LSRA-C | Remote Display, semi-flush mounting, with common control switches and enable/disable functions | 4 (1.8) |
| 2-LSRA | Same as LSRA but for EST2 applications | 4 (1.8) |
| 2-LSRA-C | Same as LSRA-C but for EST2 applications | 4 (1.8) |
| SMDN | Remote Display, SAN mounting | 2 (0.9) |
| SMDN-C | Remote Display, SAN mounting, with common control switches and enable/disable key-switch | 2 (0.9) |
| 2-SMDN | Same as SMDN but for EST2 applications | 2 (0.9) |
| 2-SMDN-C | Same as SMDN-C but for EST2 applications | 2 (0.9) |
| **Related Parts** | | |
| SAN-4 | Recessed cabinet, provides four single SAN module spaces, one SAN-CPU space | 10 (4.5) |
| SAN-8 | Recessed cabinet, provides eight single SAN module spaces, two SAN-CPU space | 14 (6.4) |
| RSAN-6 | 19 inch rack mount unit, provides six single SAN module spaces, one SAN-CPU space | 1 (0.45) |
| BP-A | SAN cabinet filler plate | 1 (0.45) |
| LSRA-SB | Surface mount enclosure – Dimensions (HWD) 5.75” x 8.5” x 2.0” (14.6 cm x 21.6 cm x 5.1 cm) | 2.25 (1.0) |
| LSRA-232 | Printer/programming port for LSRA series | 1 (0.45) |
| LSRA-RK | Remote Enable/Disable keyswitch mounts in single-gang North American electrical box | 1 (0.45) |