GE
Security

R Series Remote Annunciators and Expander Installation and Operation Guide

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Content

Introduction to the R Series 1

Installation features and controls 1

Installing annunciators and expanders 3

Wiring diagrams 6

Troubleshooting 8

Specifications 9

Operating the LCD models 10

Operating the LED models 12

Reading LCD displays 14
- System Normal screen 14
- Event Message screen 14
- Details screen 15

Entering a password 16

Message priorities 17

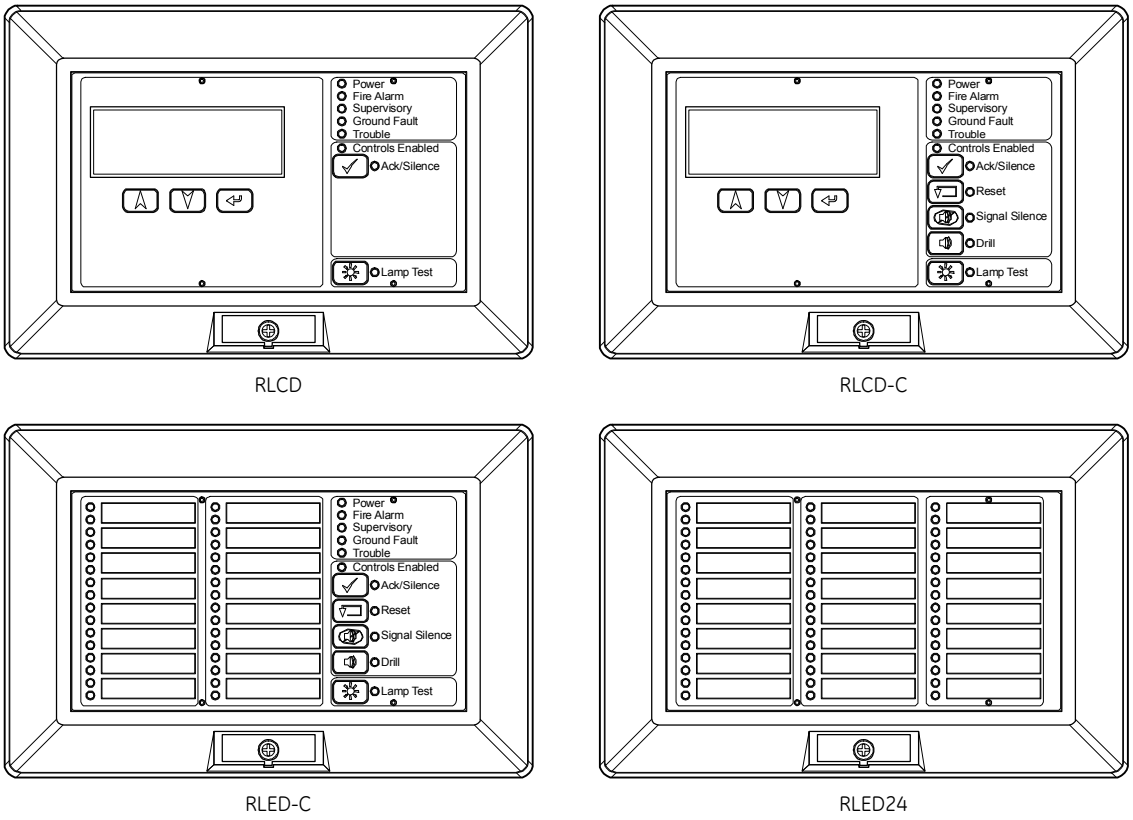
Index 19

Introduction to the R Series

The R Series Remote Annunciators and Expander provide remote annunciation for fire alarm systems. The annunciators offer LCD or LED annunciation, and can include common controls. The expander uses LEDs.

The R Series includes three annunciator models and one expander model. One or two expanders can be connected to any of the annunciator models. Figure 1 shows the four models in the R Series. Table 1 lists the features of each model. Table 2 is a complete list of all models and accessories in the series.

Figure 1: Models in the R Series



RLCD

RLCD-C

RLED-C

RLED24

Table 1: Features of the models

Model	LCD Display	Zone LEDs	Common controls	System LEDs	Buzzer
RLCD, RLCD-R, RLCDF	Yes	No	No	Yes	Yes
RLCD-C, RLCD-CR, RLCD-CF	Yes	No	Yes	Yes	Yes
RLED-C, RLED-CR, RLED-CF	No	16 pairs	Yes	Yes	Yes
RLED24, RLED24R	No	24 pairs	No	No	No

The annunciators and expanders can be mounted on a standard 4-inch square electrical box, using the included mounting ring. They can also be surface mounted in locking steel enclosures.

The annunciators communicate with the FACP on the RS-485 data riser. This can be configured for Class A or Class B communication. The annunciators do not provide ground fault isolation.

The annunciators are stand-alone units that can be powered by the FACP or by an approved power supply.

Models with common controls can use a separate, remote key switch to enable or disable the common controls.

Table 2: R Series models and accessories

Model number	Description
RLCD	Remote Annunciator: LCD text annunciator without common controls. English.
RLCD-R	Remote Annunciator: LCD text annunciator without common controls. English. Red.
RLCDF	Remote Annunciator: LCD text annunciator without common controls. French.
RLCD-C	Remote Annunciator:LCD text annunciator with common controls. English.
RLCD-CR	Remote Annunciator:LCD text annunciator with common controls. English. Red.
RLCD-CF	Remote Annunciator:LCD text annunciator with common controls. French.
RLED-C	Remote Annunciator: 16-pair LED zone annunciator with common controls. English.
RLED-CR	Remote Annunciator: 16-pair LED zone annunciator with common controls. English. Red.
RLED-CF	Remote Annunciator: 16-pair LED zone annunciator with common controls. French.
RLED24	Remote Expander: 24-pair LED zone expander with expander cable and zone card insert.
RLED24R	Remote Expander: 24-pair LED zone expander with expander cable and zone card insert. Red.

Model number	Description
RA-ENC1	One-position enclosure for Remote Annunciator.
RA-ENC2	Two-position enclosure for Remote Annunciator and one Remote Expander, including one interconnection cable.
RA-ENC3	Three-position enclosure for Remote Annunciator and two Remote Expanders, including two interconnection cables.
RKEY	Remote key switch on plate for enabling or disabling common controls (Lock/Unlock).
RA-LED16ZC	Zone card insert for RLED-C, RLED-CR, and RLED-CF.
RA-LED24ZC	Zone card insert for RLED24, RLED24R.
Part number	**Description**
27193-16	Electrical box, surface mount, white, single-gang.
7300073	24-inch expander cable assembly, includes cable and hardware.
7120313-01	12-inch expander cable (cable only).
7120313-02	24-inch expander cable (cable only).

Installation features and controls

Figure 2: Annunciator rear view showing terminals and controls

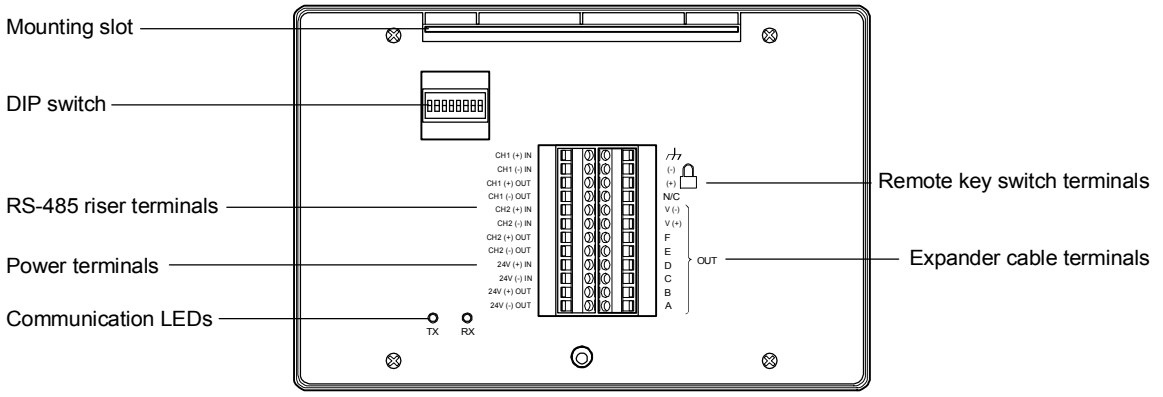


Figure 3: Expander rear view showing terminals

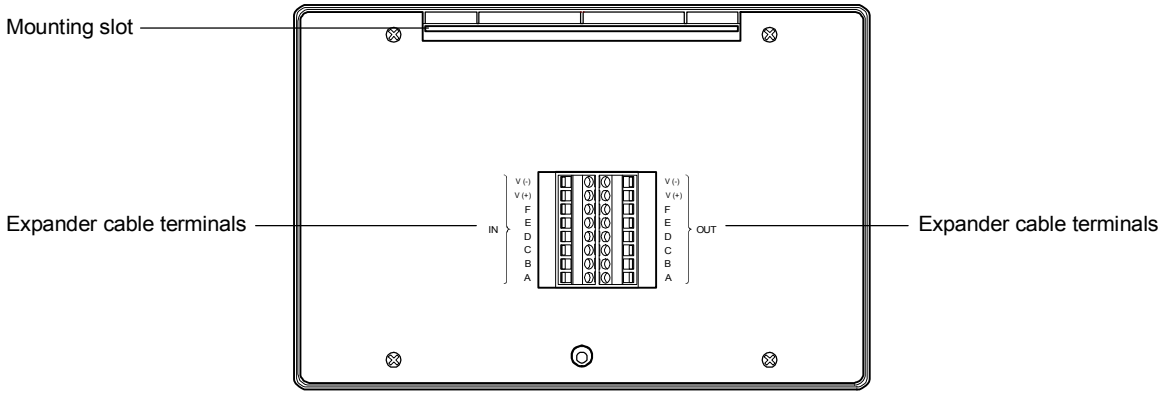
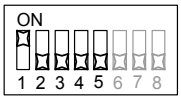
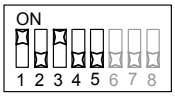
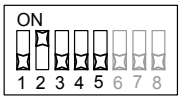
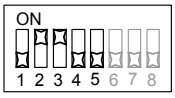
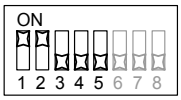
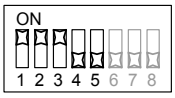
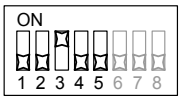
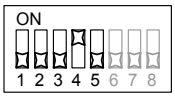


Table 3: DIP switch settings

Switch	Description and values
S1 to S5	Network address. The annunciator network address (in binary). The factory setting is for address 2. See Table 4 for examples.
S6	Network baud rate. OFF = 9600 baud (factory default setting) ON = 38,400 baud
S7 to S8	Not used

Table 4: Examples of DIP switch address settings

Address	Settings	Address	Settings
1		5	
2		6	
3		7	
4		8	

Installing annunciators and expanders

For correct operation, the annunciator must be configured with a unique network address, must have the correct baud rate setting, and must be in communication with the FACP.

If you are installing a Remote Annunciator and Remote Expanders in enclosures RA-ENC2 or RA-ENC3, you must install the expanders first. Refer to the installation sheets for the enclosures for the correct sequence of steps.

If you are installing Remote Annunciators and Remote Expanders using separate electrical boxes, the wire runs between the boxes must be enclosed in conduit.

If you are installing a remote key switch, the switch must be located within the enclosure, or within 20 feet (6.1 m) of the enclosure with the cabling installed in conduit.

To install an annunciator:

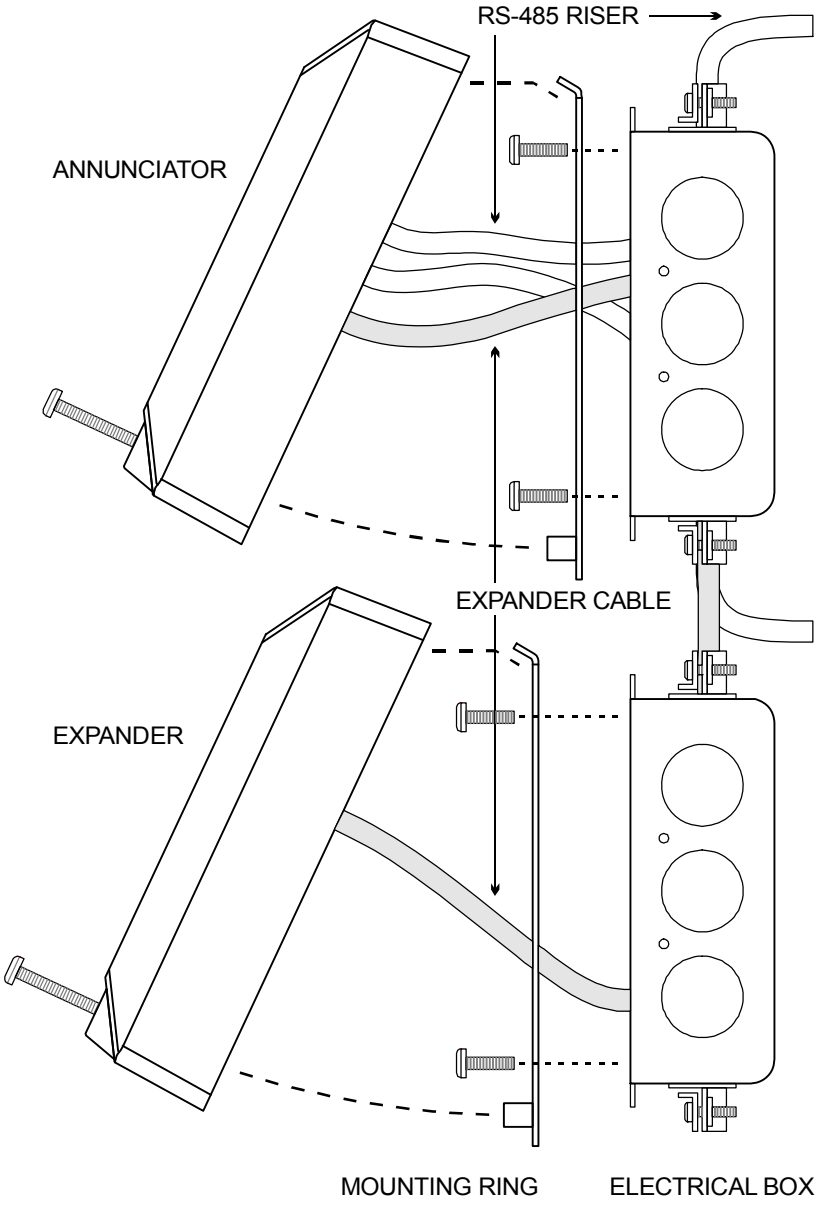
1. Secure the mounting ring to the electrical box, as shown in Figure 4.
2. Use the DIP switch to set the correct network address and baud rate. See Table 3 for DIP switch settings.
3. Connect the RS-485 riser to the appropriate annunciator terminals, as per Figure 5 (Class A) or Figure 6 (Class B).

   Tip: Leave enough wire to remove and position the annunciator when setting the DIP switch.
4. Attach the expander cable to the annunciator, if applicable. See Figure 7.
5. Attach the remote key switch wiring to the annunciator, if applicable. See Figure 8.
6. Tilt the annunciator up and slide the mounting slot onto the onto the top flange of the mounting ring.
7. Tilt the annunciator down and push the bottom of the annunciator over the stud-nut, as shown in Figure 4.
8. Secure the bottom of the annunciator to the mounting ring using the captive screw.
9. Cover the screw hole with the product label plate.

To install an expander:

1. Complete and insert the zone card (labeling sheet) into the expander.
2. Secure the mounting ring to the electrical box, as shown in Figure 4.
3. Connect the expander cable to the expander. Attach an expander cable for interconnection to a second expander, if applicable. See Figure 7.
4. Tilt the expander up and slide the mounting slot onto the top flange of the mounting ring.
5. Tilt the expander down and push the bottom of the annunciator over the stud-nut, as shown in Figure 4.
6. Secure the bottom of the annunciator to the mounting ring using the captive screw.
7. Cover the screw hole with the product label plate.
8. Repeat steps 1 through 7 for a second expander, if applicable.

Figure 4: Installing the mounting ring, annunciator, and expander



Wiring diagrams

All wiring is supervised and power-limited, unless otherwise noted.

Figure 5: Class A wiring

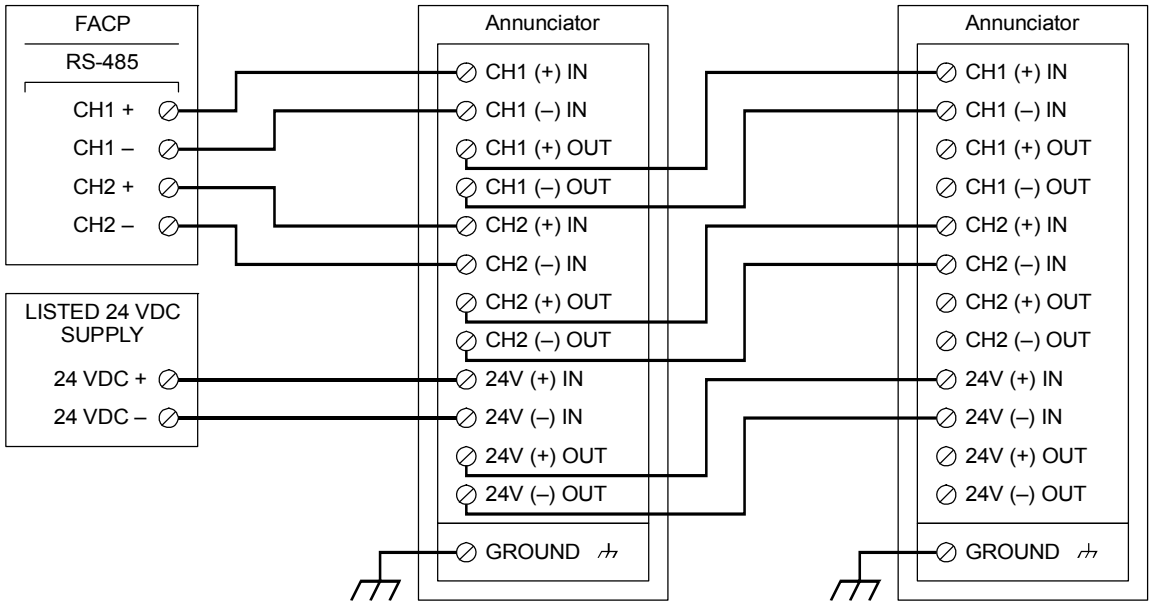


Figure 6: Class B wiring

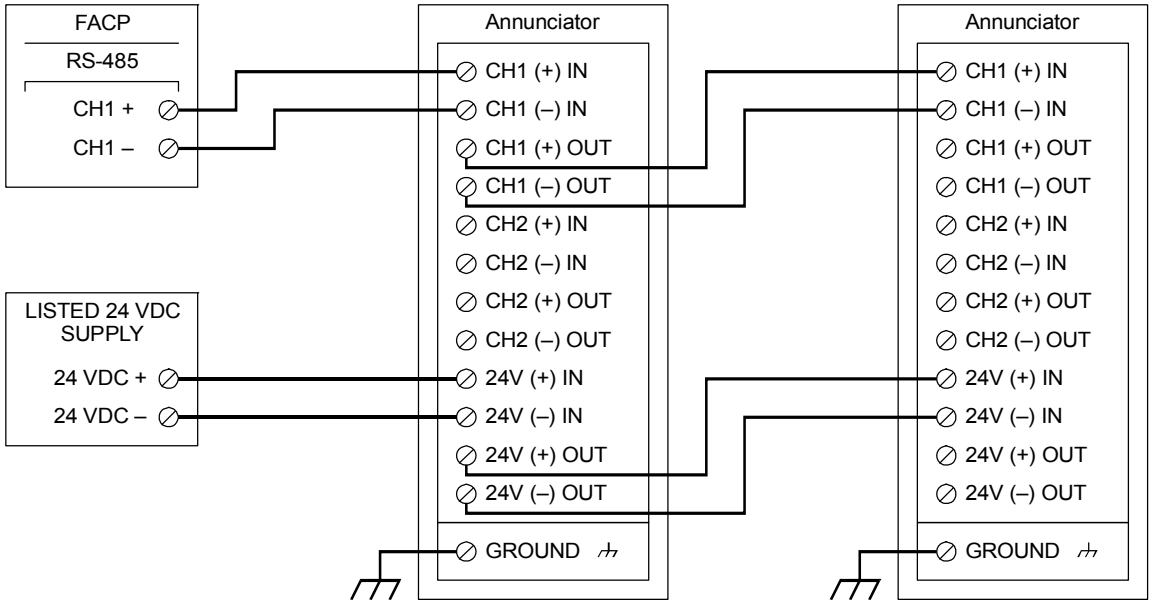


Figure 7: Expander wiring

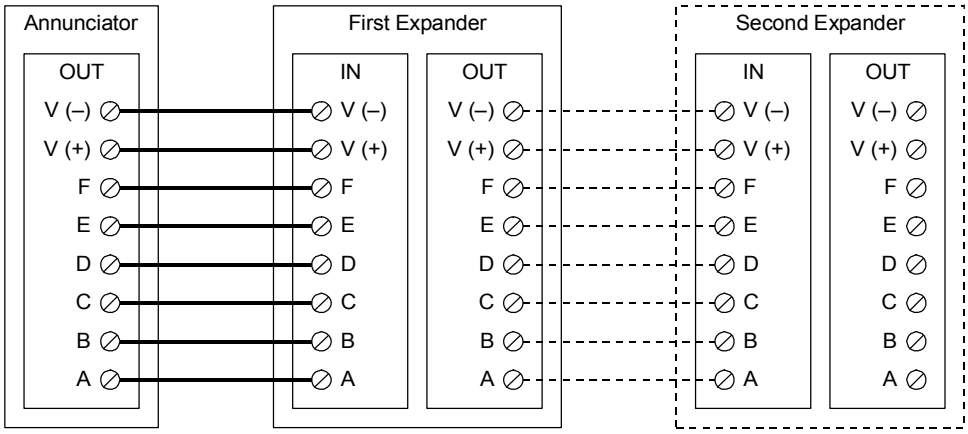
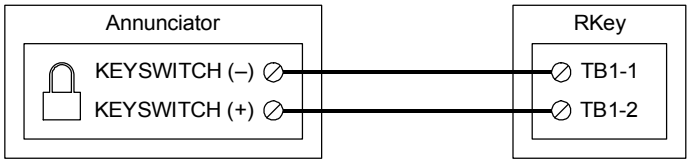


Figure 8: Remote key switch wiring



Note: Remote key switch wiring is not supervised. The key switch must be located within 20 feet (6.1 m) of the annunciator and installed in conduit.

Troubleshooting

When an R Series annunciator is operating correctly, the Trouble LED follows the panel's Trouble LED. Annunciators with LCD displays show the same trouble messages as the panel. See the topic "Reading LCD displays" on page 14 for details about message displays.

The following table summarizes symptoms and solutions for common installation and operation problems.

Table 5: R Series troubleshooting

Problem	Cause
Panel detail display: Annunciator 000 Communication Fault	Communication wiring has an open fault
	Communication wiring polarity is reversed
	Annunciator has no power
	Annunciator address DIP switches are set incorrectly (on the annunciator shown in the panel message)
	Annunciator network baud rate DIP switch is set incorrectly (for normal operation use 9600 baud)
Annunciator LCD and LEDs are inoperative	Annunciator has no power
Annunciator control switches don't work	Remote key switch is in the "locked" or disabled position
	Password entry may be required (see "Entering a password"on page 16)
Lamp test	During a lamp test the annunciators with LCDs show the version of annunciator firmware currently loaded

Specifications

Operating voltage	24 VDC, continuous. Do not use FACP accessory power outputs that are interrupted when the panel is reset. Supply must be UL/ULC Listed for use with fire protective signaling systems and have a rating designation of Regulated 24 DC or Regulated 24 FWR.
Standby current	RLCD, RLCD-R: 98 mA RLCDF: 98 mA RLCD-C, RLCD-CR: 99 mA RLCD-CF: 99 mA RLED-C, RLED-CR: 28 mA RLED-CF: 28 mA RLED24, RLED24R: 6 mA
Alarm current	RLCD, RLCD-R: 113 mA RLCDF: 113 mA RLCD-C, RLCD-CR: 115 mA RLCD-CF: 115 mA RLED-C, RLED-CR: 62 mA RLED-CF: 62 mA RLED24, RLED24R: 34 mA
RS-485 communications	Class A or Class B, 9600 baud
Data wiring	18 to 14 AWG (1.0 to 2.5 sq mm) twisted pair (6 twists per foot minimum). Maximum wire run is 4,000 ft. (1,219 m)
Remote key switch circuit	5 VDC at 1 mA, power-limited, unsupervised
Ground fault impedance	0 Ω
Power wiring	18 to 14 AWG (1.0 to 2.5 sq. mm)
Display area	4 lines of 20 characters each
Dimensions (H x W x D)	5-5/8 x 8-1/2 x 1-1/2 in. (14.3 x 21.4 x 3.8 cm)
Mounting	North American 4-inch square electrical box or listed enclosure (see **Error! Not a valid result for table.**)
Operating environment	Temperature: 32 to 120°F (0 to 49°C) Humidity: 0 to 93% RH, noncondensing at 90°F (32°C)

Operating the LCD models

Figure 9: Controls and indicators for: RLCD, RLCD-R, RLCDF

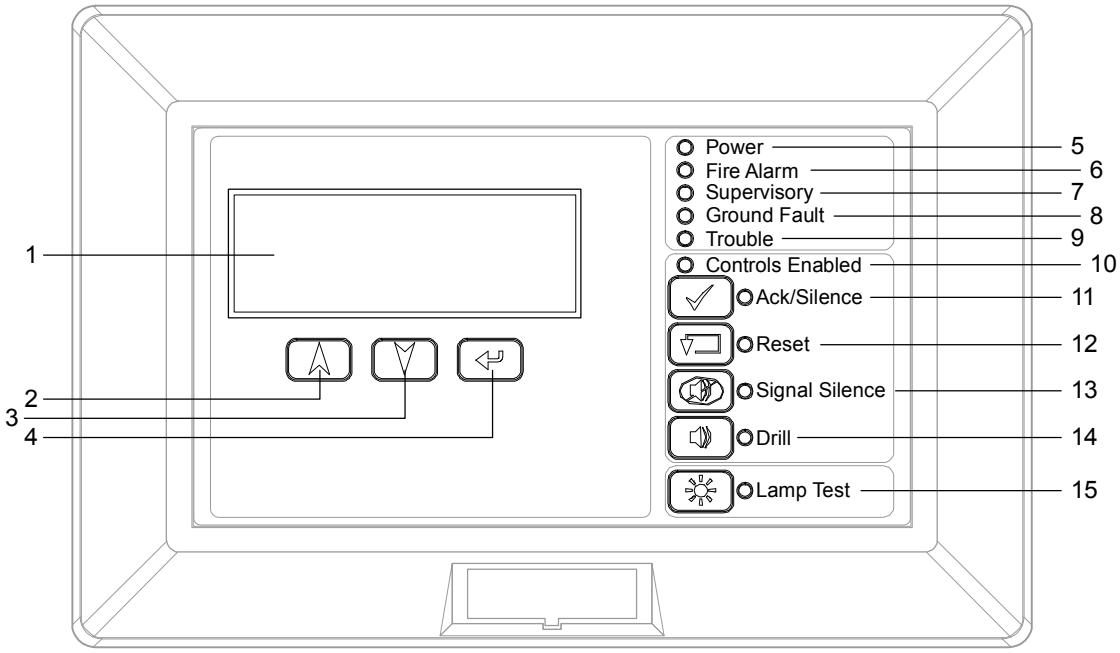


Figure 10: Controls and indicators for: RLCD-C, RLCD-CR, RLCD-CF

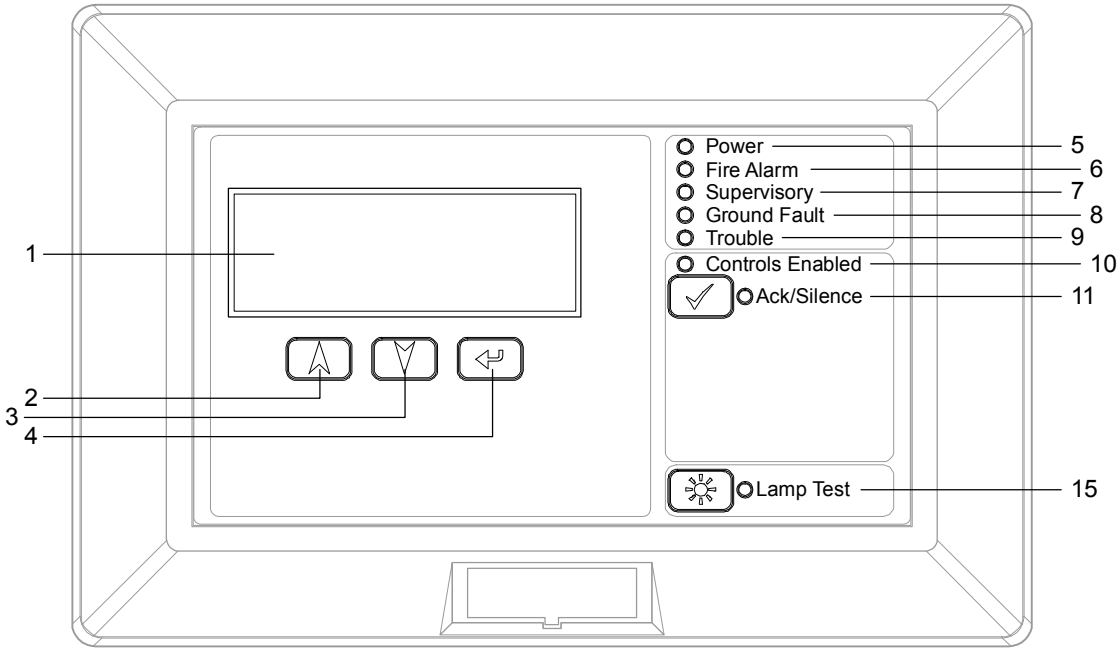


Table 6: Controls and indicators for the RLCD, RLCD-R, RLCDF, RLCD-C, RLCD-CR, and RLCD-CF

No.	Item	Description
1	LCD display	Displays system status, event messages, and event message details
2	Up cursor button	Scrolls up through the messages in the event message queue. Scrolls up through characters for password entry.
3	Down cursor button	Scrolls down through the messages in the event message queue. Scrolls down through characters for password entry.
4	Enter button	Displays message details for the current message. Enters the password character selected.
5	Power LED	Green LED that indicates the annunciator is energized
6	Fire Alarm LED	Red LED that indicates an active fire alarm state (flashing = new fire alarm event, steady = all current fire alarm events have been acknowledged)
7	Supervisory LED	Yellow LED that indicates an active supervisory state (flashing = new supervisory event, steady = all current supervisory events have been acknowledged)
8	Ground Fault LED	Yellow LED that indicates a ground fault somewhere in the system
9	Trouble LED	Yellow LED that indicates an active trouble state (flashing = new trouble event, steady = all current trouble events have been acknowledged)
10	Controls Enabled LED	Yellow LED that indicates the controls in that group are enabled at the annunciator. Enabling the controls requires the level 2 password or the enable controls key.
11	Ack/Silence LED-button	Silences the panel buzzer and acknowledges all current events. The LED next to the button indicates the function is active. Requires the level 2 password or the enable controls key to operate.
12	Reset LED-button	Restores the system to the normal state, provided that no inputs are latched in the active state. The LED next to the button indicates the reset function is active. Requires the level 2 password or enable controls key to operate.
13	Signal Silence LED-button	Turns off (silences) all active audible and common alarm output devices, and if configured, all visible devices. Pressing the button again turns them back on. The LED next to the button indicates the function is active. Requires the level 2 password or the enable controls key to operate.
14	Drill LED-button	Turns on all audible and common alarm output devices, and if configured, all visible devices. Pressing the button again turns them back off. The LED next to the button indicates the function is active. Requires the level 2 password to operate. note they've got to press and hold for 2 seconds before this takes effect
15	Lamp Test LED-button	Turns on all LEDs and displays a test pattern on the LCD. The test runs for ten seconds. The LED next to the button indicates the lamp test is running.

Operating the LED models

Figure 11: Controls and indicators for: RLED-C, RLED-CR, RLED-CF

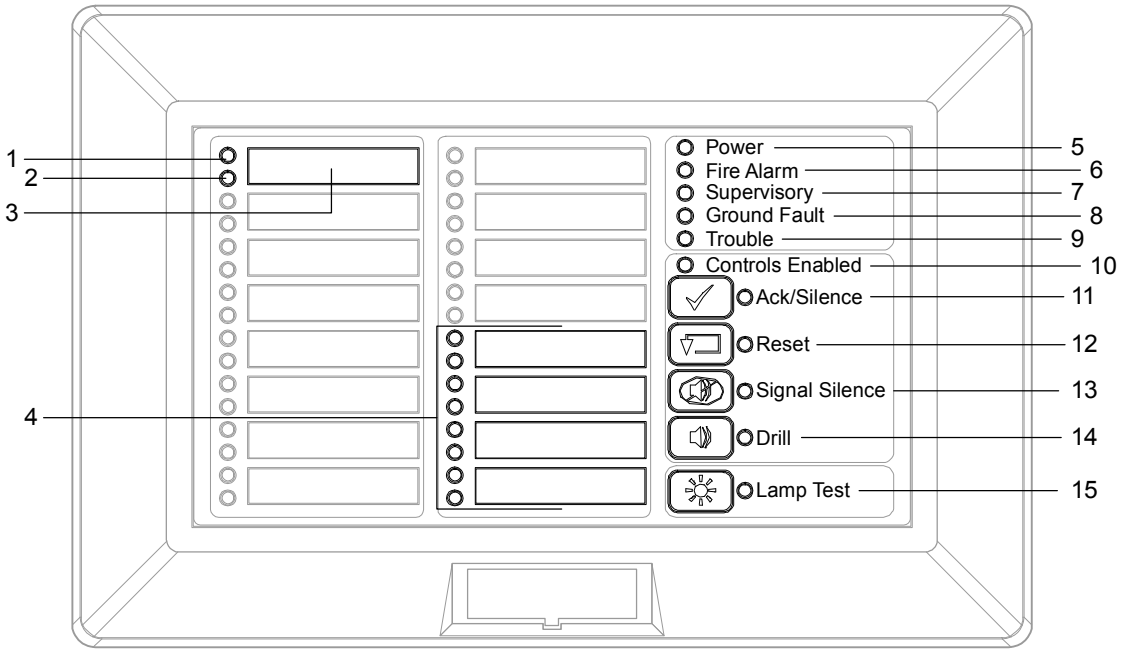


Figure 12: Controls and indicators for the RLED24 and RLED24R

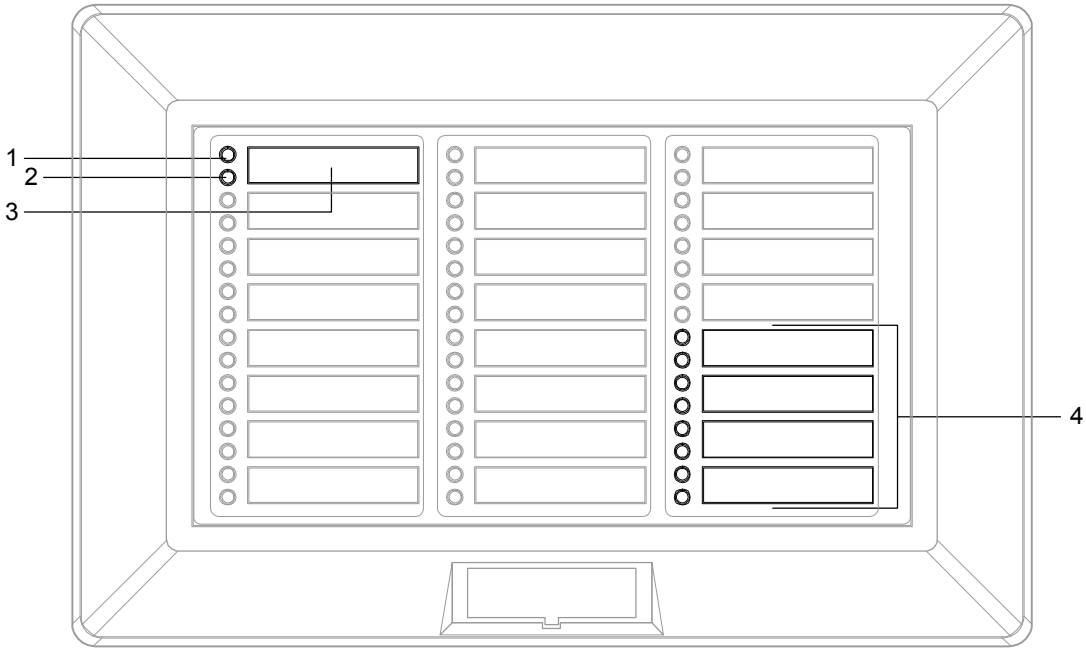


Table 7: Controls and indicators for the RLED-C, RLED-CR, RLED-CF, RLED24, and RLED24R

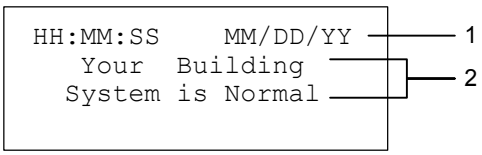
No.	Item	Description
1	Active LED	Red LED that indicates the zone or device is in the alarm state
2	Trouble LED	Yellow LED that indicates the zone or device is in the trouble state
3	Zone description label	Zone or device description
4	Supervisory zones	The last four zones can be configured as alarm or supervisory. For these zones, the top LED is a red/yellow bicolor LED. Red = fire alarm event. Yellow = supervisory or monitor event.
5	Power LED	Green LED that indicates the annunciator is energized
6	Fire Alarm LED	Red LED that indicates an active fire alarm state (flashing = new fire alarm event, steady = all current fire alarm events have been acknowledged)
7	Supervisory LED	Yellow LED that indicates an active supervisory state (flashing = new supervisory event, steady = all current supervisory events have been acknowledged)
8	Ground Fault LED	Yellow LED that indicates a ground fault somewhere in the system
9	Trouble LED	Yellow LED that indicates an active trouble state (flashing = new trouble event, steady = all current trouble events have been acknowledged)
10	Controls Enabled LED	Yellow LED that indicates the controls in that group are enabled at the annunciator. Enabling the controls requires the level 2 password or the enable controls key.
11	Ack/Silence LED-button	Silences the panel buzzer and acknowledges all current events. The LED next to the button indicates the function is active. Requires the level 2 password or the enable controls key to operate.
12	Reset LED-button	Restores the system to the normal state, provided that no inputs are latched in the active state. The LED next to the button indicates the reset function is active. Requires the level 2 password or enable controls key to operate.
13	Signal Silence LED-button	Turns off (silences) all active audible and common alarm output devices, and if configured, all visible devices. Pressing the button again turns them back on. The LED next to the button indicates the function is active. Requires the level 2 password or the enable controls key to operate.
14	Drill LED-button	Turns on all audible and common alarm output devices, and if configured, all visible devices. Pressing the button again turns them back off. The LED next to the button indicates the function is active. Requires the level 2 password to operate. note they've got to press and hold for 2 seconds before this takes effect
15	Lamp Test LED-button	Turns on all LEDs and displays a test pattern on the LCD. The test runs for ten seconds. The LED next to the button indicates the lamp test is running.

Reading LCD displays

In addition to the system status LEDs, two annunciator models include an LCD display that can show the system status, event messages, or event message details. The display can also be used to enter a password that enables the common control buttons.

System Normal screen

The LCD display shows the System Normal screen when the control panel is in the normal (quiescent) state.

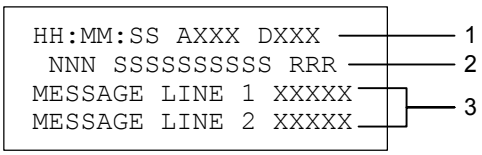


1 Time and date: The system time in 24-hour format and the system date in MM/DD/YY or DD/MM/YY format, depending on the market place.

2 Banner lines: Your facility name (if programmed) and the message "System Normal."

Event Message screen

The LCD display shows the Event Message screen when the control panel enters the fire alarm, supervisory, monitor, trouble, disablement, or test state. Use the up and down cursor buttons to scroll through the messages in the queue.



1 Time and points: The system time in 24-hour format, the number of active points (Annn), and the number of disabled points (Dnnn) currently in the system.

2 Event status: The event number (NNN), the event type (SSSSSSSSSS), and the event status (RRR). The event number is the position of the event in the queue. The event type is alarm, supervisory, trouble, or monitor. The event status is "Act" for active, or "Rst" for restored.

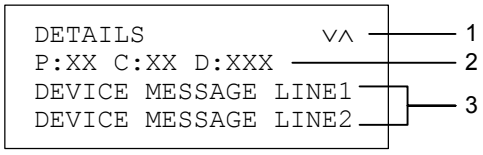
3. Event message: The first and second lines of the event message.

Example screen

```
13:47:00 A003 D000
 001 ZONE ALARM ACT
East Wing Hallway
South Entrance
```

Details screen

Pressing the Enter button while an event message is selected displays the Details screen. The system displays this screen as long as you are pressing the Enter button or using the up and down cursor buttons. The system returns to the Event Message screen after approximately 20 seconds of inactivity. You can also toggle between the Event Message and Details screens by pressing and releasing the Enter button.



The Details screen provides details about the zone or device that generated the selected event message. If the selected event message is for a zone, the Details display screen shows which devices in the zone are active.

1 Scrolling symbols: The symbols at the right of the screen title line show whether there are more detail messages before or after the current message. Use the up and down cursor buttons to scroll through the detail messages or devices in the zone. The up or down symbols disappear when you reach the start or end of the list (or when there are no off-normal devices).

2 Device address: The panel (P), card (C), and device number (D) that constitute the complete device address for the device generating the event message.

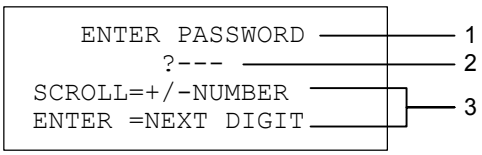
3 Device message lines: If programmed, the device message for the device that generated the event message. This is usually a location description.

Example

```
DETAILS           v
P:01 C:01 D:001
East Wing Hallway
South Entrance
```

Entering a password

When the Controls Enabled LED is off, you need to enter your level 2 password to enable the controls. When you press any of the control buttons, the system displays the Enter Password screen.



1 Title line: This is constant text.

2 Password: You use the up and down cursor buttons to scroll through the digits in each position of the password. Each number appears on this line, but is masked as soon as you press the Enter button.

3. Instruction lines: These lines prompt you to press the up and down cursor buttons to select a number, or the Enter button to select a number and move to the next position.

To enter a password:

1. Press any of the control buttons.

   The system displays the Enter Password screen, with the cursor in the first position of the four-digit password field.

2. Press the up or down cursor button to scroll through the numbers until the correct number appears.

3. Press the Enter button to enter that number and move to the next position.

   When you press Enter, the system masks the number you just entered with an asterisk.

4. Repeat steps 2 and 3 until you've entered all four digits of the password.

If you make a mistake, pressing Enter before filling all four positions will cancel the operation, and return you to the System Normal screen. If you enter an invalid password, the system displays an error message and returns you to the Enter Password screen.

Message priorities

Event messages are stored in a single list or queue. Within the queue they are sorted into priority according to the event type and the order of event occurrence. The priority of event types is shown in the following lists.

US market place

1. Fire alarm events
2. Supervisory events and Trouble events
3. Other (monitor) events

Canadian market place

1. Fire alarm events
2. Supervisory events
3. Trouble events
4. Other (monitor) events

European market place

1. Fire alarm events
2. Supervisory events
3. Trouble events
4. Other (monitor) events

Index

A

accessories available, 2
Ack/Silence LED-button, 11, 13
Act, 14
Active LED, 13
active points, 14
alarm current, 9
annunciators
  features, 1
  installation, 3, 5
  models, 1
  models and accessories, 2
  rear view, 1
arrows, 15

B

banner lines, 14
baud rate, 1, 3

C

C:XX, 15
card address, 15
Class A, 2, 6
Class B, 2, 6
common controls, 2
communication
  baud rate, 1
  FACP, 2
  LEDs, 1
configuration, 1
contrast adjustment, 1
controls
  common, 2
  configuration, 1
  passwords, 16
  RLCD, 10
  RLCD-C, 10
  RLCD-CF, 10
  RLCD-CR, 10
  RLCDF, 10
  RLCD-R, 10
  RLED24, 12
  RLED24R, 12
  RLED-C, 12
  RLED-CF, 12
  RLED-CR, 12
Controls Enabled LED, 11, 13, 16
current, 9

D

D:XXX, 15
data wiring, 9
date, 14
description labels, 13
Details screen, 15
device
  address, 15
  description, 13
  message, 15
dimensions, 9
DIP switch, 1, 3
disabled points, 14
down cursor button, 11
Drill LED-button, 11, 13

E

electrical boxes, 2, 5, 9
enclosures, 2, 3
Enter button, 11
Enter Password screen, 16
entering passwords, 16
event message priorities, 17
Event Message screen, 14
event messages, 15
events, 14
expanders
  cable terminals, 1
  cables, 3, 4
  features, 1
  installation, 3, 4, 5
  models and accessories, 2
  rear view, 1
  wiring diagrams, 7

F

fire alarm events, 17
Fire Alarm LED, 11, 13

G

ground fault isolation, 2
Ground Fault LED, 11, 13

H

humidity, 9

I

indicators
  RLCD, 10
  RLCD-C, 10
  RLCD-CF, 10
  RLCD-CR, 10
  RLCDF, 10
  RLCD-R, 10
  RLED24, 12
  RLED24R, 12
  RLED-C, 12
  RLED-CF, 12

indicators (continued)
RLED-CR, 12
installation, 3

L

Lamp Test LED-button, 11, 13
LCD display
A999, 14
Act, 14
active points, 14
banner lines, 14
C:XX, 15
D:XXX, 15
D999, 14
Details screen, 15
device address, 15
device messages, 15
disabled points, 14
Enter Password screen, 16
event message, 15
Event Message screen, 14
event status, 14
location, 11
location messages, 15
message lines, 14
P:XX, 15
points, 14
reading, 14
Rst, 14
scrolling symbols, 15
System Normal screen, 14
time, 14
time and date, 14
location message, 15

M

message lines, 14
message priorities, 17
models available, 2
monitor events, 17
mounting, 2, 9
mounting rings, 2, 3, 4, 5
mounting slots, 1

N

network address, 1, 3

O

operating voltage, 9
other events, 17

P

P:XX, 15
panel address, 15
passwords, 16
PCD address, 15
Power LED, 11, 13
power supplies, 2
power wiring, 9
priorities, 17

R

remote key switch, 2, 1, 3, 7
Reset LED-button, 11, 13
RLCD controls and indicators, 10
RLCD-C controls and indicators, 10
RLCD-CF controls and indicators, 10
RLCD-CR controls and indicators, 10
RLCDF controls and indicators, 10
RLCD-R controls and indicators, 10
RLED24 controls and indicators, 12
RLED24R controls and indicators, 12
RLED-C controls and indicators, 12
RLED-CF controls and indicators, 12
RLED-CR controls and indicators, 12
RS-485 riser, 2
RS-485 riser terminals, 1
Rst, 14

S

scrolling symbols, 15
Signal Silence LED-button, 11, 13
specifications, 9
standby current, 9
supervisory events, 17
Supervisory LED, 11, 13
supervisory zones, 13
System Normal screen, 14

T

temperature, 9
time, 14
trouble events, 17
Trouble LED, 11, 13

U

up cursor button, 11

W

wire specifications, 9
wiring diagrams, 6
topic, 6, 7

Z

zone card inserts, 2, 4
zone description, 13