

## Introduction

The 4606-9102 Liquid Crystal Display (LCD) Annunciator for the 4010ES provides remote annunciation of the Fire Alarm Control Unit (FACU) status, see Figure 1. Visual status is provided using an LCD and LEDs. Audible annunciation is provided using a piezo sounder. Use the keyswitch to lock or enable the annunciator switch.

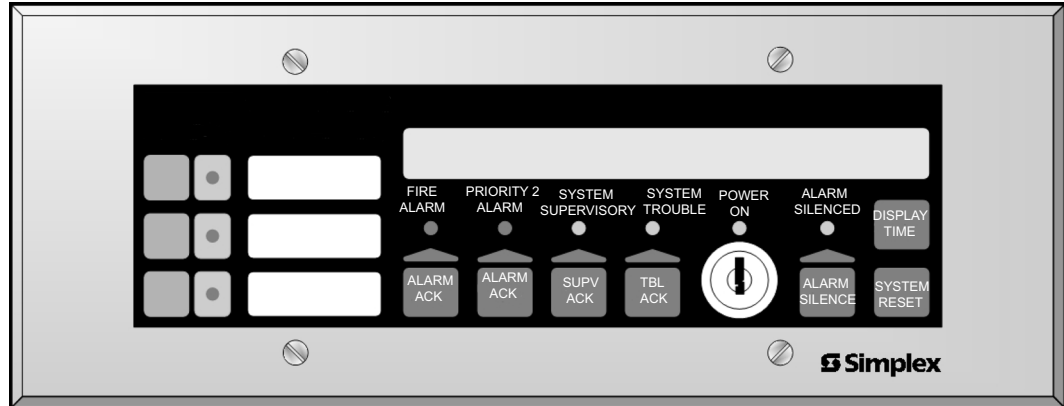


Figure 1. 4606-9102 LCD Annunciator

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## Cautions and warnings



**READ AND SAVE THESE INSTRUCTIONS** - Follow the instructions in this installation manual. These instructions must be followed to avoid damage to this product and associated equipment. Product operation and reliability depend upon proper installation.

**DO NOT INSTALL ANY SIMPLEX® PRODUCT THAT APPEARS DAMAGED** - Upon unpacking your Simplex product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify an authorized Simplex product supplier.



**ELECTRICAL HAZARD** - Disconnect electrical field power when making any internal adjustments or repairs. All repairs should be performed by a representative or authorized agent of your local Simplex product supplier.



**STATIC HAZARD** - Static electricity can damage components. Handle as follows:

- Ground yourself before opening or installing components.
- Prior to installation, keep components wrapped in anti-static material at all times.



**EYE SAFETY HAZARD** - Under certain fiber optic application conditions, the optical output of this device may exceed eye safety limits. Do not use magnification (such as a microscope or other focusing equipment) when viewing the output of this device.



**SULFURIC ACID WARNING** - Battery contains sulfuric acid, which can cause severe burns to the skin and eyes and can destroy fabric. Replace any leaking or damaged battery while wearing appropriate protective gear. If you come in contact with sulfuric acid, immediately flush skin or eyes with water for 15 minutes and seek immediate medical attention.

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## Specifications

**Table 1: Power requirements and environmental limitations**

<b>Voltage</b>	24VDC Power Supply.	24VDC Nominal/18VDC minimum.
<b>Current</b>	Maximum Current Draw.	with LCD Backlight OFF at 24VDC: 65mA.
	Maximum Current Draw.	with LCD Backlight ON at 24VDC: 110mA.
	Maximum Current Draw.	with LCD Backlight ON and Piezo ON at 18VDC: 140mA.
<b>Temperature</b>	Operating Range.	32°F to 120°F (0°C to 49°C).
<b>Humidity</b>	The equipment operates normally under non-condensing humidity conditions up to 93% relative humidity at 100°F (38°C).	

- Communication wiring is supervised and power-limited.
- 24V power wiring supplied by a 4010ES FACU is power-limited.
- If the interconnected control unit is not used to provide operating power to the annunciator, a regulated UL-listed 24VDC power supply for fire protective signaling is required.
- A minimum 18 AWG Twisted pair wiring is required for communications. If twisted-shielded pair wire is used, ground the shield at the main panel only.
- Connect a dedicated earth ground connection to the back box, in accordance with NFPA 70, Article 250.

### Flush mount 4606-9102 LCD Annunciators

- In masonry walls, use a Steel City GW-635-G (3½ in/89mm deep) masonry box, or an equivalent box.
- In plasterboard walls, use six listed gangable switch boxes, RACO 590 (3½ in/89mm deep), RACO 600 (2½ in/63.5mm deep), RACO 601 (3½ in/89mm deep), or an equivalent box.

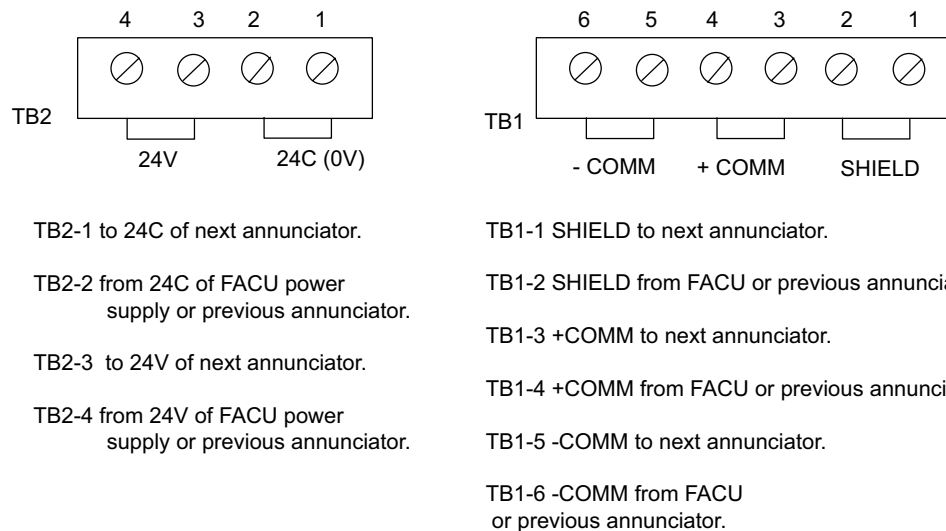
### Surface mount 4606-9102 LCD Annunciators

- Use a 2975-9206 box (2¾ in/69.85mm deep) or a 2975-9217 box (1¾ in/44.75mm deep).

## Installing the 4606-9102 LCD Annunciator

Complete the following steps to install the 4606-9102 LCD Annunciator:

1. Terminate the annunciator's communication (COMM) and power lines as shown in Figure 2.



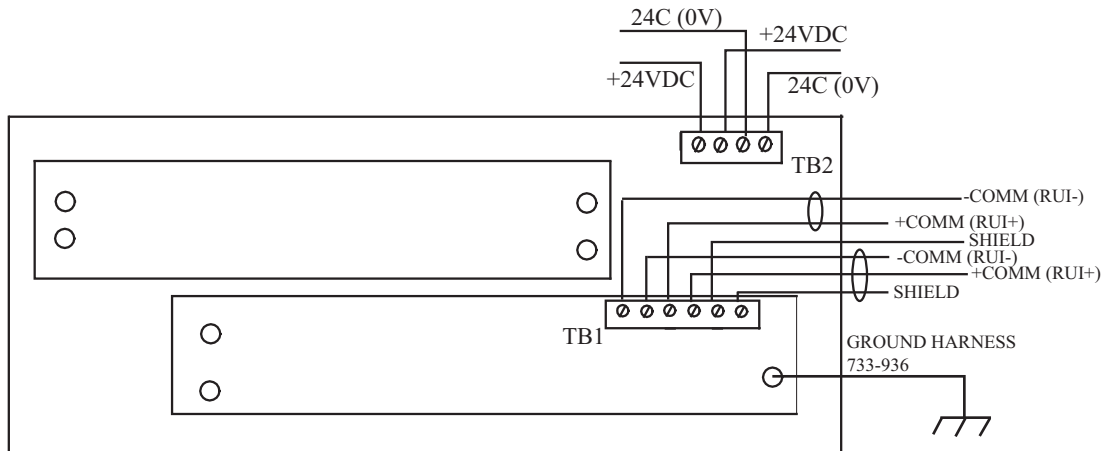
**Figure 2. Terminating the COMM and Power Lines**

2. Connect the ground harness to earth ground.

**Note:** To prevent Electrostatic Discharge (ESD), use a wrist strap assembly that connects to ground. Ensure the power is OFF before installing or servicing the annunciator.

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## Installing the 4606-9102 LCD Annunciator



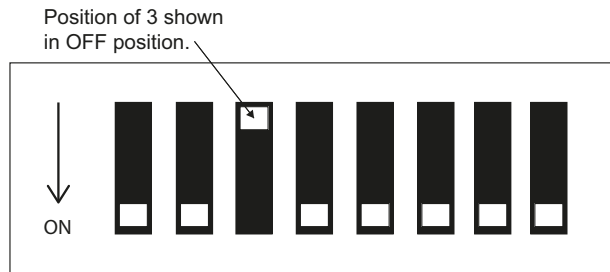
**Figure 3. Power and RUI Communicating Wiring to TB1 and TB2**

3. Using switch SW2 (see Figure 4), set the annunciator's address in accordance with Table 2. Switches **SW2-1** through **SW2-7** set the annunciator's address, and switch **SW2-8** sets the annunciator's baud rate.

SW2-8 OFF or OPEN = 1200 Baud.

SW2-8 ON or CLOSED = 9600 Baud.

**Note:** DIP switch SW2 is located at the bottom of the electronics assembly.



Example depicts:  
Address = 4  
Baud Rate = 9600

**Figure 4. DIP switch SW2**

*Continued on the next page.*

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## Address chart

Table 2: Address chart

SW2-1	SW2-2	SW2-3	SW2-4	SW2-5	SW2-6	SW2-7		ADDRESS
OFF	ON	ON	ON	ON	ON	ON	=	ADDRESS 1
ON	OFF	ON	ON	ON	ON	ON	=	ADDRESS 2
OFF	OFF	ON	ON	ON	ON	ON	=	ADDRESS 3
ON	ON	OFF	ON	ON	ON	ON	=	ADDRESS 4
OFF	ON	OFF	ON	ON	ON	ON	=	ADDRESS 5
ON	OFF	OFF	ON	ON	ON	ON	=	ADDRESS 6
OFF	OFF	OFF	ON	ON	ON	ON	=	ADDRESS 7
ON	ON	ON	OFF	ON	ON	ON	=	ADDRESS 8
OFF	ON	ON	OFF	ON	ON	ON	=	ADDRESS 9
ON	OFF	ON	OFF	ON	ON	ON	=	ADDRESS 10
OFF	OFF	ON	OFF	ON	ON	ON	=	ADDRESS 11
ON	ON	OFF	OFF	ON	ON	ON	=	ADDRESS 12
OFF	ON	OFF	OFF	ON	ON	ON	=	ADDRESS 13
ON	OFF	OFF	OFF	ON	ON	ON	=	ADDRESS 14
OFF	OFF	OFF	OFF	ON	ON	ON	=	ADDRESS 15
ON	ON	ON	ON	OFF	ON	ON	=	ADDRESS 16
OFF	ON	ON	ON	OFF	ON	ON	=	ADDRESS 17
ON	OFF	ON	ON	OFF	ON	ON	=	ADDRESS 18
OFF	OFF	ON	ON	OFF	ON	ON	=	ADDRESS 19
ON	ON	OFF	ON	OFF	ON	ON	=	ADDRESS 20
OFF	ON	OFF	ON	OFF	ON	ON	=	ADDRESS 21
ON	OFF	OFF	ON	OFF	ON	ON	=	ADDRESS 22
OFF	OFF	OFF	ON	OFF	ON	ON	=	ADDRESS 23
ON	ON	ON	OFF	OFF	ON	ON	=	ADDRESS 24
OFF	ON	ON	OFF	OFF	ON	ON	=	ADDRESS 25
ON	OFF	ON	OFF	OFF	ON	ON	=	ADDRESS 26
OFF	OFF	ON	OFF	OFF	ON	ON	=	ADDRESS 27
ON	ON	OFF	OFF	OFF	ON	ON	=	ADDRESS 28
OFF	ON	OFF	OFF	OFF	ON	ON	=	ADDRESS 29
ON	OFF	OFF	OFF	OFF	ON	ON	=	ADDRESS 30
OFF	OFF	OFF	OFF	OFF	ON	ON	=	ADDRESS 31
ON	ON	ON	ON	ON	OFF	ON	=	ADDRESS 32
OFF	ON	ON	ON	ON	OFF	ON	=	ADDRESS 33
ON	OFF	ON	ON	ON	OFF	ON	=	ADDRESS 34
OFF	OFF	ON	ON	ON	OFF	ON	=	ADDRESS 35
ON	ON	OFF	ON	ON	OFF	ON	=	ADDRESS 36
OFF	ON	OFF	ON	ON	OFF	ON	=	ADDRESS 37
ON	OFF	OFF	ON	ON	OFF	ON	=	ADDRESS 38
OFF	OFF	OFF	ON	ON	OFF	ON	=	ADDRESS 39
ON	ON	ON	OFF	ON	OFF	ON	=	ADDRESS 40
OFF	ON	ON	OFF	ON	OFF	ON	=	ADDRESS 41
ON	OFF	ON	OFF	ON	OFF	ON	=	ADDRESS 42
OFF	OFF	ON	OFF	ON	OFF	ON	=	ADDRESS 43
ON	ON	OFF	OFF	ON	OFF	ON	=	ADDRESS 44
OFF	ON	OFF	OFF	ON	OFF	ON	=	ADDRESS 45
ON	OFF	OFF	OFF	ON	OFF	ON	=	ADDRESS 46
OFF	OFF	OFF	OFF	ON	OFF	ON	=	ADDRESS 47
ON	ON	ON	ON	OFF	OFF	ON	=	ADDRESS 48
OFF	ON	ON	ON	OFF	OFF	ON	=	ADDRESS 49
ON	OFF	ON	ON	OFF	OFF	ON	=	ADDRESS 50
OFF	OFF	ON	ON	OFF	OFF	ON	=	ADDRESS 51
ON	ON	OFF	ON	OFF	OFF	ON	=	ADDRESS 52
OFF	ON	OFF	ON	OFF	OFF	ON	=	ADDRESS 53
ON	OFF	OFF	ON	OFF	OFF	ON	=	ADDRESS 54
OFF	OFF	OFF	ON	OFF	OFF	ON	=	ADDRESS 55
ON	ON	ON	OFF	OFF	OFF	ON	=	ADDRESS 56
OFF	ON	ON	OFF	OFF	OFF	ON	=	ADDRESS 57
ON	OFF	ON	OFF	OFF	OFF	ON	=	ADDRESS 58
OFF	OFF	ON	OFF	OFF	OFF	ON	=	ADDRESS 59
ON	ON	OFF	OFF	OFF	OFF	ON	=	ADDRESS 60
OFF	ON	OFF	OFF	OFF	OFF	ON	=	ADDRESS 61
ON	OFF	OFF	OFF	OFF	OFF	ON	=	ADDRESS 62
OFF	OFF	OFF	OFF	OFF	OFF	ON	=	ADDRESS 63
ON	ON	ON	ON	ON	ON	OFF	=	ADDRESS 64

Continued on the next page.

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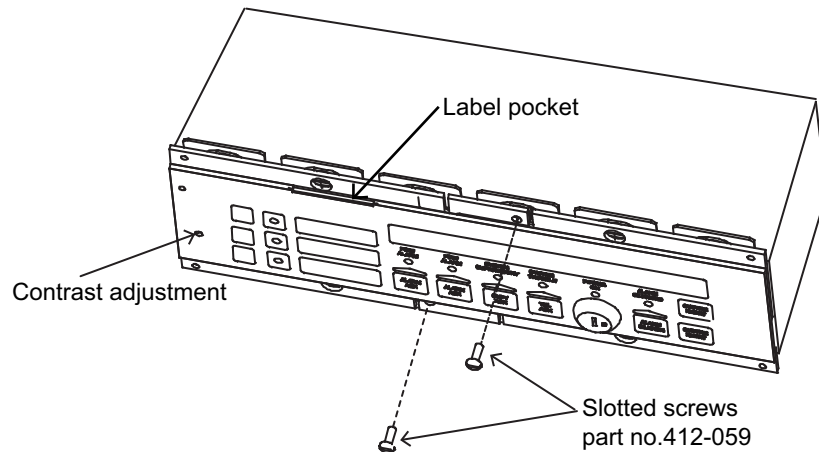
Table 2: Address chart

SW2-1	SW2-2	SW2-3	SW2-4	SW2-5	SW2-6	SW2-7		ADDRESS
OFF	ON	ON	ON	ON	ON	OFF	=	ADDRESS 65
ON	OFF	ON	ON	ON	ON	OFF	=	ADDRESS 66
OFF	OFF	ON	ON	ON	ON	OFF	=	ADDRESS 67
ON	ON	OFF	ON	ON	ON	OFF	=	ADDRESS 68
OFF	ON	OFF	ON	ON	ON	OFF	=	ADDRESS 69
ON	OFF	OFF	ON	ON	ON	OFF	=	ADDRESS 70
OFF	OFF	OFF	ON	ON	ON	OFF	=	ADDRESS 71
ON	ON	ON	OFF	ON	ON	OFF	=	ADDRESS 72
OFF	ON	ON	OFF	ON	ON	OFF	=	ADDRESS 73
ON	OFF	ON	OFF	ON	ON	OFF	=	ADDRESS 74
OFF	OFF	ON	OFF	ON	ON	OFF	=	ADDRESS 75
ON	ON	OFF	OFF	ON	ON	OFF	=	ADDRESS 76
OFF	ON	OFF	OFF	ON	ON	OFF	=	ADDRESS 77
ON	OFF	OFF	OFF	ON	ON	OFF	=	ADDRESS 78
OFF	OFF	OFF	OFF	ON	ON	OFF	=	ADDRESS 79
ON	ON	ON	ON	OFF	ON	OFF	=	ADDRESS 80
OFF	ON	ON	ON	OFF	ON	OFF	=	ADDRESS 81
ON	OFF	ON	ON	OFF	ON	OFF	=	ADDRESS 82
OFF	OFF	ON	ON	OFF	ON	OFF	=	ADDRESS 83
ON	ON	OFF	ON	OFF	ON	OFF	=	ADDRESS 84
OFF	ON	OFF	ON	OFF	ON	OFF	=	ADDRESS 85
ON	OFF	OFF	ON	OFF	ON	OFF	=	ADDRESS 86
OFF	OFF	OFF	ON	OFF	ON	OFF	=	ADDRESS 87
ON	ON	ON	OFF	OFF	ON	OFF	=	ADDRESS 88
OFF	ON	ON	OFF	OFF	ON	OFF	=	ADDRESS 89
ON	OFF	ON	OFF	OFF	ON	OFF	=	ADDRESS 90
OFF	OFF	ON	OFF	OFF	ON	OFF	=	ADDRESS 91
ON	ON	OFF	OFF	OFF	ON	OFF	=	ADDRESS 92
OFF	ON	OFF	OFF	OFF	ON	OFF	=	ADDRESS 93
ON	OFF	OFF	OFF	OFF	ON	OFF	=	ADDRESS 94
OFF	OFF	OFF	OFF	OFF	ON	OFF	=	ADDRESS 95
ON	ON	ON	ON	ON	OFF	OFF	=	ADDRESS 96
OFF	ON	ON	ON	ON	OFF	OFF	=	ADDRESS 97
ON	OFF	ON	ON	ON	OFF	OFF	=	ADDRESS 98
OFF	OFF	ON	ON	ON	OFF	OFF	=	ADDRESS 99
ON	ON	OFF	ON	ON	OFF	OFF	=	ADDRESS 100
OFF	ON	OFF	ON	ON	OFF	OFF	=	ADDRESS 101
ON	OFF	OFF	ON	ON	OFF	OFF	=	ADDRESS 102
OFF	OFF	OFF	ON	ON	OFF	OFF	=	ADDRESS 103
ON	ON	ON	OFF	ON	OFF	OFF	=	ADDRESS 104
OFF	ON	ON	OFF	ON	OFF	OFF	=	ADDRESS 105
ON	OFF	ON	OFF	ON	OFF	OFF	=	ADDRESS 106
OFF	OFF	ON	OFF	ON	OFF	OFF	=	ADDRESS 107
ON	ON	OFF	OFF	ON	OFF	OFF	=	ADDRESS 108
OFF	ON	OFF	OFF	ON	OFF	OFF	=	ADDRESS 109
ON	OFF	OFF	OFF	ON	OFF	OFF	=	ADDRESS 110
OFF	OFF	OFF	OFF	ON	OFF	OFF	=	ADDRESS 111
ON	ON	ON	ON	OFF	OFF	OFF	=	ADDRESS 112
OFF	ON	ON	ON	OFF	OFF	OFF	=	ADDRESS 113
ON	OFF	ON	ON	OFF	OFF	OFF	=	ADDRESS 114
OFF	OFF	ON	ON	OFF	OFF	OFF	=	ADDRESS 115
ON	ON	OFF	ON	OFF	OFF	OFF	=	ADDRESS 116
OFF	ON	OFF	ON	OFF	OFF	OFF	=	ADDRESS 117
ON	OFF	OFF	ON	OFF	OFF	OFF	=	ADDRESS 118
OFF	OFF	OFF	ON	OFF	OFF	OFF	=	ADDRESS 119

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## Installing the 4606-9102 LCD Annunciator

4. Mount the annunciator in the back box using the two slotted screws provided, see Figure 5.

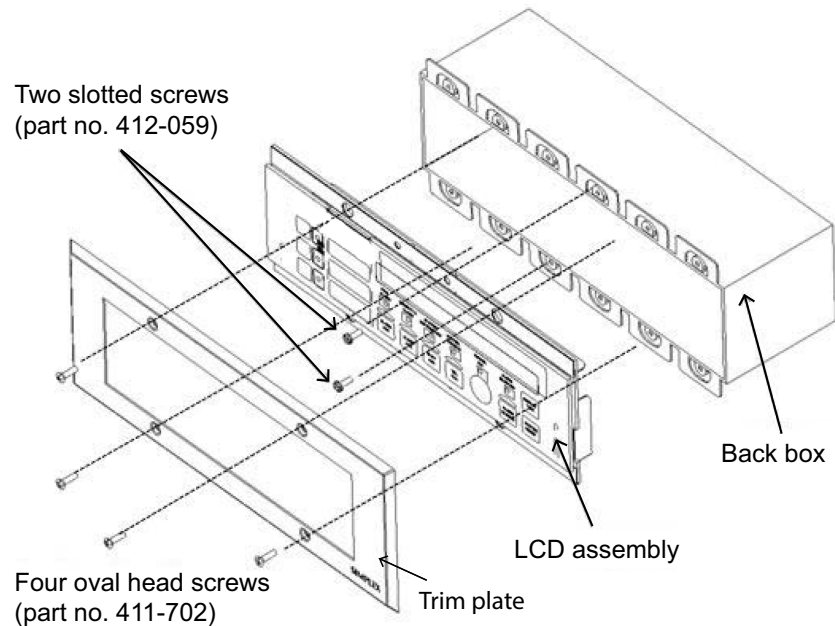


**Figure 5. LCD Assembly**

### **IMPORTANT:**

- Use the holes specified in Figure 5 to install the LCD assembly.
- The trim plate covers a hole in the keyboard which provides access to the display's contrast adjustment potentiometer.

5. Adjust the contrast located on the lower left-end corner of the electronics assembly, see Figure 5, using a small screw driver. Turn the potentiometer and observe the LCD display until the contrast is at the correct setting.
6. Label the user-defined labels appropriately. Pull the top of the label pocket forward and insert the user-defined labels.
7. Using the four oval-head screws provided, mount the trim plate to the back box, see Figure 6.



**Figure 6. Expanded view of 4606-9102 LCD Annunciator**

*Continued on the next page.*

# 4606-9102 LCD Annunciator installation instructions

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## General wiring precautions

- All wiring **must** be copper conductors only.
- Do not exceed the maximum wiring lengths specified in the wire length tables in this document.
- If shielding is used:
  - Maintain the metallic continuity of the shield throughout the entire length of cable.
  - The entire length of the cable must have a resistance greater than  $1 \times 10^6$  Ohms to earth ground.
  - Ensure the shield is connected to a SHIELD terminal at each annunciator, and is terminated only at the main panel.
- Ensure underground wiring is free of water.
- Do not run wires through elevator shafts.
- Wire runs in plenums must be in a conduit unless they are rated for plenum use.
- Splicing is permitted in the following situations:
  - All connections are soldered (rosin-core solder), crimped in metal sleeves, or encapsulated with an epoxy resin.
  - When using solder or crimped metal sleeves, ensure the junction is insulated with a high grade electrical tape that equals the quality of the original insulating jacket.
  - The continuity of the shield is maintained throughout the length of the cable.
- Do not run other wiring in the same conduit as system wiring.

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## Specific wiring precaution

- Ensure 24V power wiring is power limited.
- Communication wiring is supervised and power limited.
- 4606-9102 LCD Annunciator wiring that leaves the building, above or below ground, requires overvoltage suppression at both ends for the communication and the power wiring. Communication and power wiring must meet the following requirements using:
  - A Simplex Model 2081-9044 overvoltage protector (200 mA) or a Simplex Model 2081-9027 (200 mA) isolated loop circuits protector.
  - Simplex Model 2081-9028 (5-amp) isolated loop circuit protector.
  - For underground wiring, select the appropriate isolated loop circuit protector. Run the circuit wiring in a separate parallel wiring trough, to separate it from any commercial power distribution wiring.
  - For overhead wiring, select the appropriate isolated loop circuit protector. The wiring is limited to one contiguous property and the total wire length **must** not exceed 2500 feet (762 meters). Run the circuit wiring on separate poles, to separate it from any poles supporting commercial power distribution wiring. Run the wiring in parallel with direct relation to the commercial power distribution. The separation is a minimum distance, whichever is greater, of 100 feet (30.48 meters), or the maximum span between any two adjacent poles of either the system's circuit or the commercial power distribution circuit.
- For the maximum wire lengths with or without circuit protectors, see Tables 3 through 6.

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## Wire length tables

Table 3 and Table 4 show the maximum wire lengths possible for the power wiring. Table 5 and Table 6 show the maximum wire lengths for the communication wiring.

### Note:

- When using multiple annunciators and runs, ensure the total of all runs does not exceed 10,000 feet (3048 meters), including T-Taps.
- The maximum number of 2081-9044 over-voltage protectors on a single communication loop is four. The maximum number of 2081-9028 isolated loop circuit protectors on a single communication loop is four.

*Continued on the next page.*

# 4606-9102 LCD Annunciator installation instructions

## Wire length tables

**Table 3: With 2081-9044 or 2081-9027 Circuit Protectors**

Total Current (Amps)	12 AWG (3.309 mm <sup>2</sup> )	14 AWG (2.801 mm <sup>2</sup> )	16 AWG (1.309 mm <sup>2</sup> )	18 AWG (0.823 mm <sup>2</sup> )
0.100	2,500ft (762m)	2,500ft (762m)	2,371ft (722.68m)	1,409ft (429.46m)
0.200	2,500ft (762m)	1,782ft (543.15m)	889ft (270.96m)	705ft (214.88m)

**Table 4: Without 2081-9044 / 2081-9027 Circuit Protectors (or with 2081-9028 Circuit Protectors)**

Total Current (Amps)	12 AWG (3.309 mm <sup>2</sup> )	14 AWG (2.801 mm <sup>2</sup> )	16 AWG (1.309 mm <sup>2</sup> )	18 AWG (0.823 mm <sup>2</sup> )
0.100	2,500ft (762m)	2,500ft (762m)	2,500ft (762m)	2,349ft (715.97m)
0.200	2,500ft (762m)	2,500ft (762m)	1,482ft (451.71m)	1,175ft (358.14m)
0.300	2,500ft (762m)	1,980ft (603.5m)	988ft (301.14m)	783ft (238.65m)
0.400	2,361ft (719.63m)	1,485ft (452.62m)	741ft (225.85m)	587ft (178.91m)
0.500	1,889ft (575.76m)	1,188ft (362.1m)	593ft (180.74m)	470ft (143.25m)
0.600	1,574ft (479.75m)	990ft (301.75m)	494ft (150.57m)	392ft (119.48m)
0.700	1,349ft (411.17m)	849ft (258.77m)	423ft (128.93m)	336ft (102.41m)
0.800	1,181ft (359.96m)	743ft (226.46m)	371ft (113.08m)	294ft (89.61m)
0.900	1,049ft (319.73m)	660ft (201.16m)	329ft (100.27m)	261ft (79.55m)
1.000	944ft (287.73m)	594ft (181.05m)	296ft (90.22m)	235ft (71.62m)
1.100	859ft (261.82m)	540ft (164.59m)	269ft (81.99m)	214ft (65.22m)
1.200	787ft (239.87m)	495ft (150.87m)	247ft (75.28m)	196ft (59.74m)
<b>With 2081-9027 isolated Loop Circuit Protectors</b>				
0.100	2,500ft (762m)	2,500ft (762m)	2,371ft (722.68m)	1,409ft (429.46m)
0.200	2,500ft (762m)	1,782ft (543.15m)	889ft (270.96m)	705ft (214.88m)

## Communication line tables:

**Table 5: With 2081-9044 or 2081-9027 Circuit Protectors**

12 AWG (3.309 mm <sup>2</sup> )	14 AWG (2.801 mm <sup>2</sup> )	16 AWG (1.309 mm <sup>2</sup> )	18 AWG (0.823 mm <sup>2</sup> )
2,500ft (762m)	2,500ft (762m)	2,450ft (746.76m)	1,650ft (502.92m)

**Table 6: Without 2081-9044 / 2081-9027 Circuit Protectors (or with 2081-9028 Circuit Protectors)**

12 AWG (3.309 mm <sup>2</sup> )	14 AWG (2.801 mm <sup>2</sup> )	16 AWG (1.309 mm <sup>2</sup> )	18 AWG (0.823 mm <sup>2</sup> )
2,500ft (762m)	2,500ft (762m)	2,500ft (762m)	2,500ft (762m)
<b>With 2081-9027 isolated Loop Circuit Protectors</b>			
2,500ft (762m)	2,500ft (762m)	2,450ft (746.76m)	1,650ft (502.92m)

## Checkout procedure

When the installation is complete, verify that the remote annunciator is working correctly:

1. Verify that the LEDs and the LCD are working by turning the keyswitch OFF and then ON. This process causes the remote annunciator to execute a self-test which checks each LED and the LCD.
2. Verify that the annunciator communicates properly with the FACU by observing the remote annunciator. If the annunciator is not wired properly and is not communicating with the FACU, error messages are displayed and an audible signal is emitted. Also, a card missing trouble is displayed at the FACU.

**Note:** For Programming changes, refer to the relevant panel programming manual.