

FEATURES

Overview of Features

- Network control for up to 31 units.
- Network Control Panel (NCP) connects directly to L Series Units Integrated Modular Control (IMC).
- Large LCD display screen for viewing and editing functions.
- Permanent storage of all data.
- Field upgradeable core software.

NCP1-1 Network Control Panel (59L21)

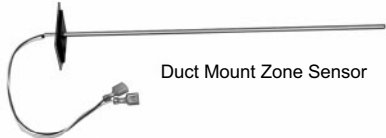
- Direct Digital Control (DDC) programmable controller connects directly to L Series Units Integrated Modular Control (IMC) for building comfort control.
- All network functions are controlled by the panel.
- Backlit LCD display screen shows 26 different weekly programs (A-Z) and also displays network status, time schedules, and editing functions.
- 7 Day independent programming plus holidays (up to 99 different day schedules).
- Up to 50 dates can be entered as holidays and assigned different day schedules.
- Factory shipped in the manual mode - default Heating 70°F (21°C)/Cooling 74°F (23°C).
- Day schedules 1-2 and weekly programs A-B are factory pre-set programs.
- Six different time/temperature (°F or °C) schedules per day for up to 31 single zone units.
- Schedules can be copied from unit to another for easy setup.
- Adjustable override setpoint for each program.
- Password protected (may be disabled).
- Two methods of control:
 - Monitor and control system when zone or duct sensor (ordered separately) is used.
 - Monitor system only when optional thermostat (not furnished) is used.
- Keypad consists of four multi-task buttons used to enter and retrieve data using on-screen menus and commands:
 - Left button backs out of (exits) current screen being displayed.
 - ▲ button scrolls up through current selections on screen or changes a highlighted value on current screen.
 - ▼ button scrolls down through current selections on screen or changes a highlighted value on current screen.
 - Right button advances (enters) into next screen depending on current screen selection selected with arrow buttons or toggles (highlights) between areas on current screen.
- Terminal blocks for easy field wiring connections to power and L Connection bus.
- RS-485 port for interfacing with PC and IMC Service Software.
- RS-232 port for for upgrading software.
- Voltage requirements - 24 VAC, 50/60hz, fuse protected.
- High impact ABS plastic case.
- Dimensions (H x W x D) - 5-5/16 x 6-5/8 x 1-13/16 in. (135 x 168 x 46 mm).
- Weight - 2 lbs. (9 kg).



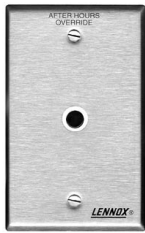
Network Control Panel



Wall Mount Zone Sensor



Duct Mount Zone Sensor



After Hours Remote Override Button

Information Storage

- All time schedules, network configuration, alarm logs and setup options are permanently stored in Flash (non-volatile) memory to ensure the data is saved in event of a power failure.
- Storage log of last 75 alarms and time and date at which they occurred.
- Real time clock has a 10 year back-up battery.

Field Upgradeable Software

- Network Control Panel can be easily updated by upgrading a new core program by connecting a PC to the built-in RS-232 port.
- The core program is stored in Flash (non-volatile) memory.

Connection

- Network Control Panel connects to the L Connection network using RS-485, shielded twisted pair wire.
- Can be mounted up to 4000 feet (1219 m) from the farthest unit.
- 24v power supplied nearest by L Series packaged unit.

ACCESSORIES (MUST BE ORDERED EXTRA)

Wall Mount Zone Sensor (56L80)

- One zone sensor required for each unit.
- Terminal block for connection to packaged unit.
- RS-485 phone jack for interfacing with PC service software.
- After hours override button provides occupied time and temperature control based on Network Control Panel settings.
- Warmer/Cooler adjustment on bottom of sensor provides plus or minus 3 degree temperature control.
- Dimensions (H x W x D): 4-1/2 x 2-3/4 x 1-1/8 in. (114 x 70 x 29 mm)

Duct Mount Zone Sensor (56L81)

- One zone sensor required for each unit in place of wall mount sensor.
- For return air duct mounted sensing.

After Hours Remote Override Button (56L16)

- Use with duct mounted sensor for override capabilities.
- Provides occupied time and temperature control based on Network Control Panel settings.
- Wall mounting plate furnished.

SETUP/SERVICE SCREENS

Screen Displays

Network Control Panel has the following Setup/Service display screens
(Main Screens are in Bold):

Start-Up Welcome Screen

Main Menu Screen

1 - Network Setup Menu

- 1 - Programming Menu
 - 1 - Assign Program To Unit
 - 2 - Create Program
 - A - New Program
 - B - Copy and Edit Program
 - C - Delete a Program
 - 3 - Create Day Schedule
 - A - New day Schedule
 - B - Copy and Edit Schedule
 - C - Delete a Day Schedule
 - 4 - Select Holidays
 - A - Add a New Holiday
 - B - Edit an Existing Holiday
 - C - Delete a Holiday
- 2 - Poll All Units
- 3 - Select Units
 - A - Monitoring or Thermostat Mode
 - B - Control Sensor Mode
 - C - Start-Up
 - D - NCP Mode
 - E - Remove Unit
- 4 - Unit/Zone Names

2 - Panel Setup Menu

- 1 - Set Time/Date
- 2 - Display Settings
 - A - Backlit
 - B - Contrast
 - C - Brightness
 - D - Beep
- 3 - Control Settings
 - A - Temperature Units
 - B - Override Range
 - C - Override Timer
 - D - Filter Time
- 4 - Change Password
 - A - New Password
 - B - Enter Password
 - C - Enable/Disable
 - D - Unknown or Forgotten

3 - Service Menu

- 1 - Self Test
 - Test Clock
 - Test Screen
 - Test Buttons
 - Test Network
 - Test Speaker
 - Test Memory
- 2 - Unit Data
- 3 - Reset
- 4 - Software Update
- 5 - Restore Factory (default settings)

OPERATION SCREENS

Sensor Mode Status Screen (When Using Wall or Duct Mounted Zone Sensor)

- Unit description (**Dave's Office**)
- Unit address (**Unit 04 Zone 01**)
- Zone temperature
- Alarm status (only displays when alarm is present)
- Filter Status (only displays when filter has been in use beyond user specified time period)
- Unit Operation (**Cooling, Heating, Idle**)
- Control Mode (**Manual, Program**)
- Date, day of week and time of day
- Heating / cooling setpoint
- Outdoor temperature
- Co₂ levels (PPM)
- Occupied/Unoccupied mode
- Push button prompts (**Network** ▲ ▼ +)

SENSOR MODE

DAVE'S OFFICE
Unit 04 Zone 01

76 °F

	Heat 70
	Cool 75

Alarm		Outdoor 98
Check Filter		CO ₂ 304
Cooling		Occupied
Manual		

01/05/2000 Fri 8:30:40A

Network ▲ ▼ +

Thermostat Mode Status Screen (When using Optional Thermostat)

- Unit description (**Lobby**)
- Unit address (**Unit 04 Zone 01**)
- No. of compressors operating
- No. of heating stages operating
- Economizer status
- Alarm status
- Filter Status
- Unit Operation (**Offline, Standby, Smoke, Unit Lockout, Lockout 1, 2, 3, 4, Reheat, Defrost 1 or 2, Warm Up, Heating, Cooldown, Cooling, Idle**)
- Control Mode (**Thermostat**)
- Date, day of week and time of day
- Blower status (**On, Off**)
- Return air temperature
- Supply air temperature
- Outdoor air temperature
- Co₂ levels (PPM)
- Occupied/Unoccupied mode
- Push button prompts (**Network** ▲ ▼ +)

THERMOSTAT MODE

LOBBY
Unit 04 Zone 01

Comp <input checked="" type="checkbox"/>		Blower ON
Heat <input type="checkbox"/> <input type="checkbox"/>		

Econ 1 Pct Off		Return 70
No New Alarms		Supply 64
Filter OK		Outdoor 78
Cooling		CO ₂ 304
Tstat		Unoccupied

01/05/2000 Fri 8:30:40A

Network ▲ ▼ +

NOTE - Empty boxes indicate number of Compressors, Heat Sections and Blowers present. Filled boxes indicate components operating.

Network Status Screen

- Unit (**U**)
- Zone (**Z**)
- Zone temperature (**Temp**)
- Unit address (**01, 02**)
- Alarm notification (**02a**)
- Zone address (**01, 01**)
- Zone occupied (**01o**) or unoccupied (**01u**)
- Unit Operation (**Offline, Standby, Smoke, Unit Lockout, Lockout 1, 2, 3, 4, Reheat, Defrost 1 or 2, Warm Up, Heating, Cooldown, Cooling, Idle**)
- Heat/Cool setpoints
- Push button prompts (**Main** ▲ ▼ **Select**)

NOTE - Zone temperature and setpoints are not displayed when panel is used in Thermostat Mode.

NETWORK STATUS

<u>U</u>	<u>Z</u>	<u>Temp</u>		<u>Heat</u>	<u>Cool</u>
01	01o	75	Cooling	70	75
02a	01u	72	Idle	70	74

Main ▲ ▼ Select

SAMPLE SCREENS AND MISCELLANEOUS DATA

Alarms Screen

- Unit no. (**U-01**)
- Alarm no. (**1, 2**)
- Error code (**6, 12**)
- Date alarm occurred
- Time alarm occurred
- Push button prompts (**Exit** ▲ ▼ **Select**)

NOTE - Use arrow buttons and select button to select and view description of alarms or select **<Delete all alarms>** to delete all alarms displayed on screen.

ALARMS

ALARMS		U-01	
<Delete all alarms>			
1	6	12/18/1999	10:16:00A
▶2	12	12/20/1999	2:20:00A

Exit ▲ ▼ Select

Error Code Screen

- Description of error
- Push button prompts (**Exit** ▲ ▼)

NOTE - Use arrow buttons to scroll through descriptions of all error codes displayed.

ERROR CODE

IMC Error Code 12

S4 (High Press 1) is open.
 Note: On LHA088S units, S4 and S5 (discharge temp) is open. Compressor 1 is off.

Exit ▲ ▼

Service Menu - Unit Data Screen

- Unit description (**Lobby**)
- Unit address (**Unit 04**)
- Unit type (**LCA**)
- IMC software version (**3.04**)
- Outdoor Fans operating (**Fans**)
- Compressors operating (**Comp**)
- Gas or Electric Heat operating (**Heat**)
- Economizer operation (**Econ 1 Pct Min Damper**)
- Alarm status
- Unit Operation (**Offline, Standby, Smoke, Unit Lockout, Lockout 1, 2, 3, 4, Reheat, Defrost 1 or 2, Warm Up, Heating, Cooldown, Cooling, Idle**)
- Control mode (**Zone Air / Return Air Backup Occupied**)
- Alarm date and time (**Most Recent Alarm: 94 01/01/2000 5:08:00P**)
- Blower operation
- Return air temperature
- Supply air temperature
- Outdoor temperature
- Co₂ levels (PPM)
- Occupied/Unoccupied mode
- Push button prompts (**Done** ▲ ▼ **Alarms**)

NOTE - Empty boxes indicate number of Outdoor Fans, Compressors, Heat Sections and Blowers present. Filled boxes indicate components operating.

UNIT DATA

LOBBY			
Unit	04	LCA	3.04
Fans	■	Blower	■
Comp	■		
Heat	<input type="checkbox"/> <input type="checkbox"/>		
Econ 1 Pct	Min Damper	Return	70
Alarm		Supply	64
		Outdoor	78
Idle		CO ₂	304
		Occupied	
Zone Air / Return Air Backup Occupied			
Most Recent Alarm: 94 01/01/2000 5:08:00P			

Done ▲ ▼ Alarms

Pre-set Programs

- Two factory pre-set weekly programs (Program A / Program B) are furnished.
- Two factory pre-set day schedules (Schedule 1 / Schedule 2) are furnished.
- Program A uses Schedule 1 for all 7 days.
- Program B uses Schedule 1 for weekdays and Schedule 2 for weekends.

	Start Time	Heating	Cooling	Occupied
<u>Day Schedule 1</u>	7:00 a.m.	70	74	Yes
	5:00 p.m.	60	84	No
<u>Day Schedule 2</u>	12:00 a.m.	60	84	No

SAMPLE SCREENS AND MISCELLANEOUS DATA

New Day Schedule Screen

- Press "Edit" button to edit first time period.
- Use arrow buttons to enter new times, setpoints and occupied periods.
- Press "Done" button at the end of each line.
- Use arrow buttons to advance to the next time period.
- Press "Done" button when last time period is entered to exit screen.

Create Program Screen

- Program name (**Program: A**) NOTE - Program "A" is one of the pre-set weekly programs.
- Day of the week and which schedule they use. NOTE - "1" is one of the pre-set day schedules.
- Heating and cooling override settings (**Override: H:70 C:74**)

Blank Program Screen

- Use arrow buttons to select and change highlighted Program A to a new blank program (**Program C**).
- NOTE - Days do not have a day schedule attached to them and Override settings are blank.

Edit Program Screen

- Press "Edit" button on the Program C screen to select Monday (black box indicates selected).
- Arrow buttons change to the day schedule desired. "Enter" button stores schedule and advances to the next day.
- "Done" button exits this screen.

Assign Weekly Program To Unit Screen

- Use arrow buttons to select unit.
- Press "Select" button to highlight current program (MAN).
- Use arrow buttons to choose desired weekly program.
- "Done" button assigns program.
- Use arrow buttons to select next unit.
- "Exit" button returns to Main Menu.

NOTE - Units 1, 2 and 3 are communicating with the Network Control Panel. Highlighted units indicates units that are not on the network.

CREATE DAY SCHEDULE

Day Schedule: 03

	Heat	Cool	OCP
▶ ---	0	0	Y
---	0	0	N
---	0	0	N
---	0	0	N
---	0	0	N
---	0	0	N
---	0	0	N

Select a Day Schedule

Done ▲ ▼ Edit

CREATE PROGRAM

Program: **A**

Mon	Tue	Wed	Thu	Fri	Sat	Sun	H
1	1	1	1	1	1	1	1

Override: H:70 C:74

Select a Program

Exit ▲ ▼ Select

BLANK PROGRAM

Program: **C**

Mon	Tue	Wed	Thu	Fri	Sat	Sun	H
-	-	-	-	-	-	-	-

Override: H: 0 C: 0

Select a Program

Exit ▲ ▼ Select

EDIT PROGRAM

Mon	Tue	Wed	Thu	Fri	Sat	Sun	H
■	-	-	-	-	-	-	-

	Heat	Cool	OCP
7:00:00A	70	74	Y
5:00:00P	60	84	N
---	0	0	N
---	0	0	N
---	0	0	N
---	0	0	N

Select Schedule for each day

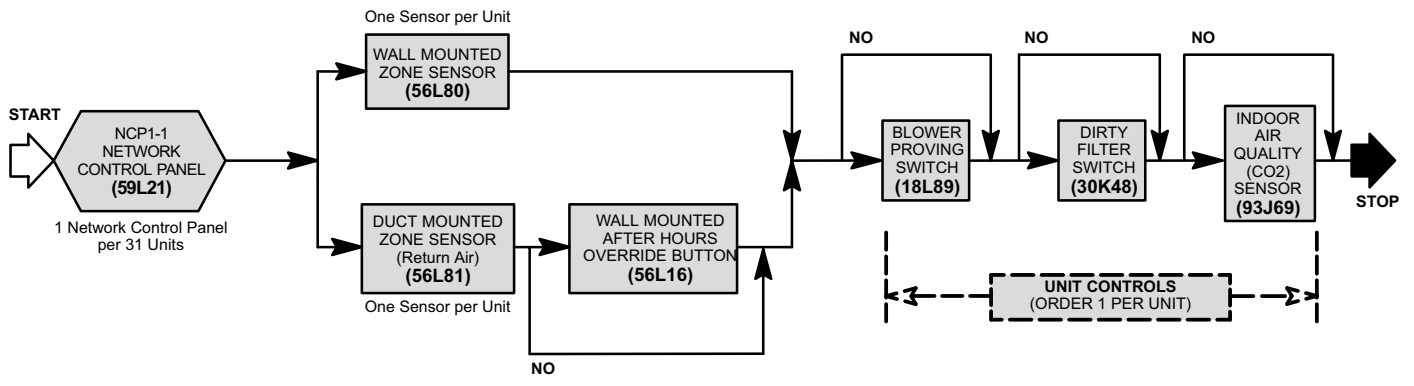
Done ▲ ▼ Enter

ASSIGN PROGRAM TO UNIT

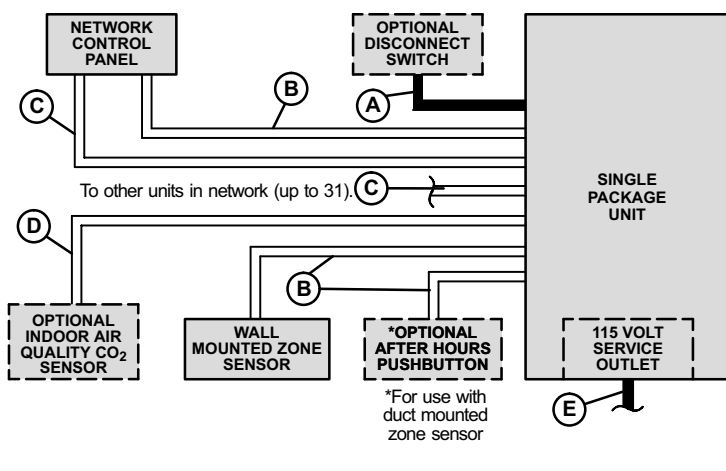
Unit	Program In Zone
	1 2 3 4 5 6 7 8
	<Clear all assignments>
01	▶ MAN
02	MAN
03	MAN
04	MAN
05	MAN
06	MAN
07	MAN
08	MAN

Exit ▲ ▼ Select

L CONNECTION NETWORK - CONTROL SELECTION FLOWCHART



FIELD WIRING



- A — Two or Three wire power (See unit Electrical Data Table)
 - B — Two wire low voltage 20 AWG min.
 - C — RS-485 shielded twisted pair
 - D — Four wire low voltage 20 AWG min.
 - E — Two wire power (115 volt)
- Field wiring not furnished —
- NOTE — All wiring must conform to NEC or CEC and local electrical codes.