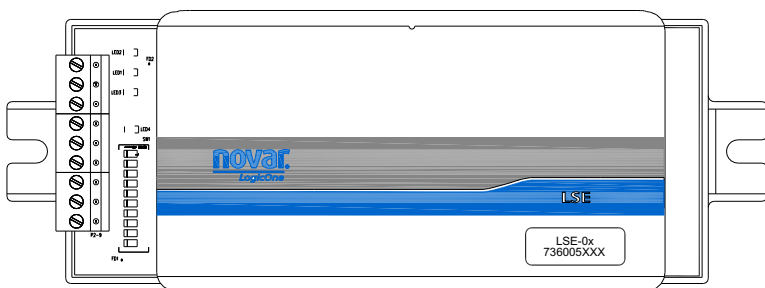


# Logic One® System Enhancer (LSE) Installation Instructions

## Description

Novar's Logic One® System Enhancer (LSE, Figure 1) provides an interface between the Novar Logic One system and Lennox L Series® and S-Class™ rooftop units with the Integrated Modular Controller (IMC). Enhanced features include global demand ventilation, economizer damper control with position feedback, control of dehumidification systems, and enhanced equipment performance alarms.



**Figure 1.** Logic One System Enhancer (LSE)

This document provides instructions for mounting, wiring, setting the module address, and checking the module's operation.

## Specifications

### Agency Approvals

Listed device:	CUL/UL E90949
Standards used:	UL 916, Energy Management Equipment CSA C22.2, No. 205-M1983, Signal Equipment

### Power Requirements

Voltage and Current: 24 VAC, 3 VA, Class II, 50/60 Hz

### Operating Environment

Operating Temperature:	32° to 158 F (0 to 70 C)
Operating Humidity:	0–95% Relative, noncondensing
Storage Temperature:	–40 to 185 F (–40 to 85 C)
Storage Humidity:	0–95% Relative, noncondensing

### Physical Dimensions

Length:	7.65 inches
Width:	2.84 inches
Height:	1.55 inches
Weight:	0.35 lb



## Hardware/Software Minimum Requirements

Novar executive module minimum versions are:

- Lingo® XE Version 1.08
- Savvy® or Envoy® Version 53.00

The Lennox IMC must be Version 5.03 or greater. Older versions of the IMC can be upgraded. Contact Lennox for details.

## Mounting the LSE

The LSE can be mounted horizontally or vertically. The base is equipped with a slotted mounting tab on each side (see Figure 1).

**NOTE!** Do not remove the cover of the LSE. There are no user serviceable parts on the inside.

The following procedure should be used to mount the LSE.

Step	Procedure
1	Position the module against the mounting surface and mark the surface to indicate the location of the slotted mounting holes on each side of the module.
2	Drill holes in the marked locations and, if necessary, insert hollow-wall anchors.
3	Place the module against the mounting surface and insert and tighten the mounting screws to secure the module.

## Wiring the Module

Wiring connections and a wiring diagram are located on the left side of the module (see Figure 1). Figure 2 shows the terminals used to make the wiring connections.

COMMUNICATION NETWORKS						PWR IN		
AUXILIARY			MODULE			24VAC 3VA	AC COM	GND
+	SHLD	-	+	SHLD	-			
1	2	3	4	5	6	7	8	9
⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗

**Figure 2.** LSE wiring connections

## Communication Networks

Two-conductor shielded cable (Belden 8761, Novar WIR-1010, or equivalent) should be used to make the communication wiring connections.

### Auxiliary Communications

The auxiliary communications terminals are used to connect the LSE with the IMC communications network. The following procedure should be used to make the Auxiliary Communications connections.

Step	Procedure
1	Connect the positive wire to Terminal 1 (+).
2	Connect the shield to Terminal 2 (SHLD).
3	Connect the negative wire to Terminal 3 (-).

### Module Communications

The module communications terminals are used to connect the LSE with the Logic One system module communications network. The following procedure should be used to make the Module Communications connections.

Step	Procedure
1	Connect the positive wire to Terminal 4 (+).
2	Connect the shield to Terminal 5 (SHLD).
3	Connect the negative wire to Terminal 6 (-).

## Power Connection

The procedure outlined in the following table should be used to make the power connections. The LSE does not require a dedicated transformer. The transformer provided must be 24 VAC (nominal) and have an available capacity of 3 VA.

Step	Procedure
1	<i>(If using a transformer with a grounded secondary):</i> Connect the ungrounded side to Terminal 7.
2	<i>(If using a transformer with a grounded secondary):</i> Connect the grounded side to Terminal 8.
3	Connect the LSE to ground on Terminal 9 (GND).

## Setting the Module Address

Every module must have a unique address for the Logic One executive module to identify it. Addresses are assigned in the software during system formatting.

The LSE is provided with a single, ten-position, DIP switch, located on the left side of the module (see Figure 1). Only Switches 1 through 6 (Figure 3) are used to assign an address from 0 to 63 to the module.

ADDRESS	SWITCH SETTINGS	ADDRESS	SWITCH SETTINGS	ADDRESS	SWITCH SETTINGS	ADDRESS	SWITCH SETTINGS
00	ON ↑ 1 2 3 4 5 6	16	ON ↑ 1 2 3 4 5 6	32	ON ↑ 1 2 3 4 5 6	48	ON ↑ 1 2 3 4 5 6
01	↓ 1 2 3 4 5 6	17	↓ 1 2 3 4 5 6	33	↓ 1 2 3 4 5 6	49	↓ 1 2 3 4 5 6
02	↓ 1 2 3 4 5 6	18	↓ 1 2 3 4 5 6	34	↓ 1 2 3 4 5 6	50	↓ 1 2 3 4 5 6
03	↓ 1 2 3 4 5 6	19	↓ 1 2 3 4 5 6	35	↓ 1 2 3 4 5 6	51	↓ 1 2 3 4 5 6
04	↓ 1 2 3 4 5 6	20	↓ 1 2 3 4 5 6	36	↓ 1 2 3 4 5 6	52	↓ 1 2 3 4 5 6
05	↓ 1 2 3 4 5 6	21	↓ 1 2 3 4 5 6	37	↓ 1 2 3 4 5 6	53	↓ 1 2 3 4 5 6
06	↓ 1 2 3 4 5 6	22	↓ 1 2 3 4 5 6	38	↓ 1 2 3 4 5 6	54	↓ 1 2 3 4 5 6
07	↓ 1 2 3 4 5 6	23	↓ 1 2 3 4 5 6	39	↓ 1 2 3 4 5 6	55	↓ 1 2 3 4 5 6
08	↓ 1 2 3 4 5 6	24	↓ 1 2 3 4 5 6	40	↓ 1 2 3 4 5 6	56	↓ 1 2 3 4 5 6
09	↓ 1 2 3 4 5 6	25	↓ 1 2 3 4 5 6	41	↓ 1 2 3 4 5 6	57	↓ 1 2 3 4 5 6
10	↓ 1 2 3 4 5 6	26	↓ 1 2 3 4 5 6	42	↓ 1 2 3 4 5 6	58	↓ 1 2 3 4 5 6
11	↓ 1 2 3 4 5 6	27	↓ 1 2 3 4 5 6	43	↓ 1 2 3 4 5 6	59	↓ 1 2 3 4 5 6
12	↓ 1 2 3 4 5 6	28	↓ 1 2 3 4 5 6	44	↓ 1 2 3 4 5 6	60	↓ 1 2 3 4 5 6
13	↓ 1 2 3 4 5 6	29	↓ 1 2 3 4 5 6	45	↓ 1 2 3 4 5 6	61	↓ 1 2 3 4 5 6
14	↓ 1 2 3 4 5 6	30	↓ 1 2 3 4 5 6	46	↓ 1 2 3 4 5 6	62	↓ 1 2 3 4 5 6
15	↓ 1 2 3 4 5 6	31	↓ 1 2 3 4 5 6	47	↓ 1 2 3 4 5 6	63	↓ 1 2 3 4 5 6
	OFF ↓		OFF ↓		OFF ↓		OFF ↓

Figure 3. Addressing the LSE

## Checking Operation

When the installation has been completed, check the following items to make sure that the LSE is operating properly.

- Double check all wiring connections to make sure they are correct and secure before turning on the power.
- Supply power to the system. After 1 minute, check the status of the green LEDs. They should be responding as follows:
  - Heartbeat should blink at approximately once per second. No heartbeat LED indicates an internal problem.
  - Power should be lit continuously.
  - Aux. COMM should blink rapidly as it communicates with the IMCs.
  - MODULE COMM Status should blink as it communicates with the Novar executive. The rate varies depending on how many other control modules exist in the system.
- Check the executive module for alarm messages indicating faults or malfunctions.

**Model and Part Numbers.**

The part numbers provided in Table 1 should be used to order the appropriate Novar equipment.

<b>Table 1. Novar Part Numbers</b>		
<b>PRODUCT</b>	<b>MODEL NO.</b>	<b>PART NO.</b>
Logic One System Enhancer for 1 IMC	LSE-01	736005010
Logic One System Enhancer for 5 IMC	LSE-05	736005050
Logic One System Enhancer for 10 IMC	LSE-10	736005100
Logic One System Enhancer for 15 IMC	LSE-15	736005150
Logic One System Enhancer for 20 IMC	LSE-20	736005200
Logic One System Enhancer for 25 IMC	LSE-25	736005250
Logic One System Enhancer for 31 IMC	LSE-31	736005310

**Regulatory Compliance**

**Safety**

This device has been tested and found to be in compliance with the requirements set forth in UL 916, Energy Management Equipment, and is listed by Underwriters Laboratories, Inc., for installations in the United States.

This device has been tested and found to be in compliance with the requirements set forth in C22.2, No. 205-M1983, Signal Equipment, and is Certified by Underwriters Laboratories, Inc., for installations in Canada.

**CE Declaration of Conformity**

Novar declares under its sole responsibility that the LSE is in conformity with EMC Standard En61326:1998.

**NOTE!** To maintain international compliance, the LSE must be powered by a CE-certified, UL Class 2 transformer.

**Electromagnetic Compatibility (EMC)**

**Federal Communications Commission (FCC)**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

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**NOTE!** This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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**CAUTION!** Any changes or modifications not expressly approved by Novar could void your authority to operate this equipment.

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#### **Industry Canada**

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled *Digital Apparatus*, ICES-003, of Industry Canada.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouiller: *Appareils Numériques*, NMB-003, édictée par l'Industrie Canada.

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#### **Waste Electrical & Electronic Equipment (WEEE)**

Customers are advised to dispose of this product at the end of its useful life according to applicable local laws, regulations, and procedures.

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## Notes

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