

LENNOX**PRODUCT SPECIFICATIONS****FEATURES**

The Lennox FM21 heat pump control system is designed for use with a conventional gas or oil furnace in a new or existing application.

The complete system consists of a heat pump outdoor unit, heat pump indoor coil, refrigerant lines, the FM21 control box and the furnace.

The system is installed as usual except that the indoor coil is installed on a furnace instead of the conventional heat pump air handler.

The FM21 control box may be installed indoors in a convenient location adjacent to or on the furnace where wiring connections can be easily made.

Installation, operation and efficiency of a FM21 controlled system are different from a conventional heating/cooling or heat pump system.

Because a heat pump requires the same air volume for heating and cooling, the following considerations should be given before adding a heat pump system:

- Furnace air volume capabilities.
- Accurate heating/cooling load calculations.
- Precisely sized air distribution duct system and diffuser location.
- Insulated air ducts and adequate return air.
- Building insulation, exposure, design and construction, climate and living habits determine how efficient a heat pump system will be and make every heat pump installation unique. Each job should be carefully calculated.

For complete outdoor unit data, see individual bulletins indexed in the Heat Pump section.

For indoor coil specifications, see tab section Indoor Coils.

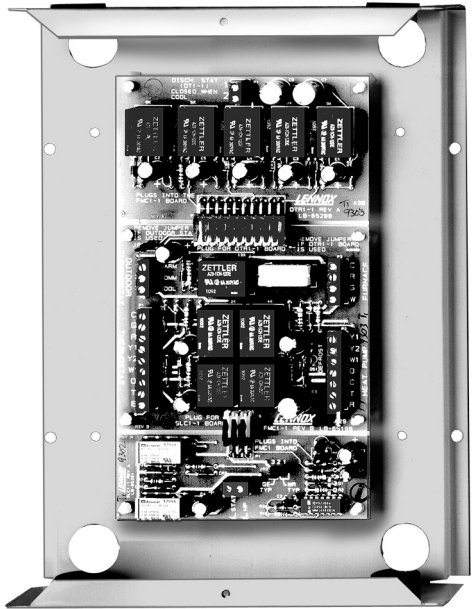
For furnace specifications, see tab sections Gas Furnaces or Oil Furnaces.

Operation (Basic Control)

In the heating mode the FM21 heat pump control operates the heat pump for 1st stage heating. If 1st stage is not satisfied, the 2nd stage will activate the furnace (secondary heat source). FM21 control automatically terminates heat pump operation on furnace start-up.

FM21 control automatically changes blower speeds between heat pump and furnace operation. Blower operates in high speed during 1st stage (heat pump) operation and is terminated during changeover to furnace operation.

Blower starts up when heat exchanger is warm, and runs in low speed during 2nd stage (furnace) operation.



FM21 Control Box
(Cover Removed
Shown with Optional Defrost Module
and Service Light Module)

If continuous blower operation is available on thermostat, change in blower speed automatically occurs during heat pump to furnace changeover.

FM21 Control

Contains all necessary relays and controls to operate the system and provides a common connection point for all thermostat wiring.

Control cabinet is constructed of durable aluminum with a enamel paint finish and removeable cover.

Control board features low voltage terminal strips for wiring connections to thermostat, furnace, outdoor heat pump unit and outdoor thermostat. A red LED indicates a defrost cycle.

Connections at top and bottom of circuit board are furnished for plug-in connection of optional Defrost Air Tempering Module and Service Light Module.

Holes for mounting are furnished and electrical inlets are provided in top and bottom of panel. See dimension drawing.

Power requirements: 24VAC. FM21 control is powered by furnace transformer.

Shipping weight: 1 lb.

FEATURES

OPTIONAL ACCESSORIES

Defrost Air Tempering Module

For air temperature control during defrost cycle.

Module (16J93) is available for field installation.

Module plugs into FM21 control board to provide control for furnace operation during defrost cycle to temper the air and avoid distribution of cold air through the system.

Also furnished is a discharge temperature thermostat for field installation in-between the furnace and the indoor coil to control system operation.

75VA transformer is also furnished for replacement of existing furnace transformer for proper system operation. Circuit board has terminal strip for connections to the discharge thermostat.

Operation with optional defrost module is the same as the basic control but with the following exceptions:

Blower operation is continuous (high speed) during the heat pump/furnace cycle without interruption. If 1st stage cannot be satisfied, 2nd stage (furnace) will be activated while heat pump continues to run.

The FM21 control will shut heat pump off when discharge temperature rises above 90°F to protect unit.

Heat pump operation is controlled by the discharge temperature thermostat (furnished with module) field installed between furnace and coil.

When a defrost cycle is required, the FM21 control will automatically cycle furnace to temper the air, avoiding distribution of cold air through the system. During defrost operation, furnace is controlled by the discharge temperature thermostat. After defrost cycle is completed, normal heat pump operation resumes.

Service Light Module

For operation of thermostat service light on thermostat.

Module (16J94) is available for field installation. Module plugs into FM21 circuit board. Board has terminal strip for connections to heat pump outdoor unit and thermostat.

Outdoor Thermostat

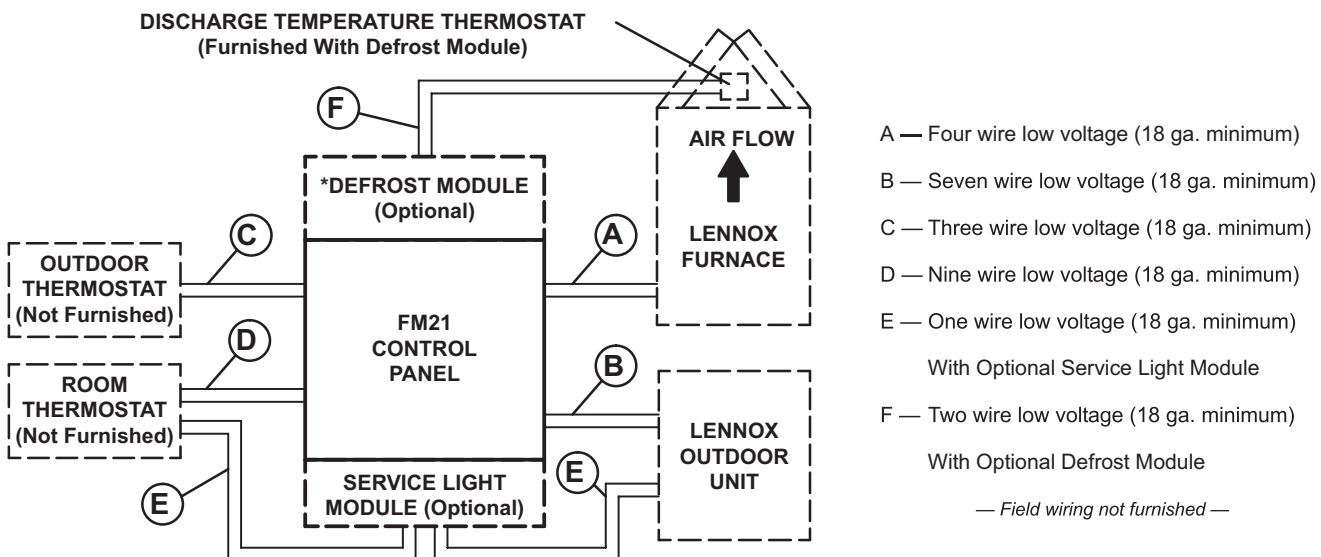
When outdoor temperature drops below balance point, (heat loss=heat pump heating capacity) heat pump is de-activated and furnace becomes primary heat source.

Outdoor thermostat can be used for temperature control between heat pump and furnace operation.

Outdoor thermostat maintains the heating load (at balance point) on 1st stage (heat pump) before allowing 2nd stage heat (furnace) operation.

Thermostat Kit (56A87) and Mounting Box (31461) must be ordered extra.

FIELD WIRING



*Includes 75VA transformer for replacement of existing furnace transformer.

NOTE — All wiring to conform to NEC or CEC and Local Electrical Codes.

REVISIONS

Sections	Description of Change
Document	Updated to new publishing software. No changes to data.



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