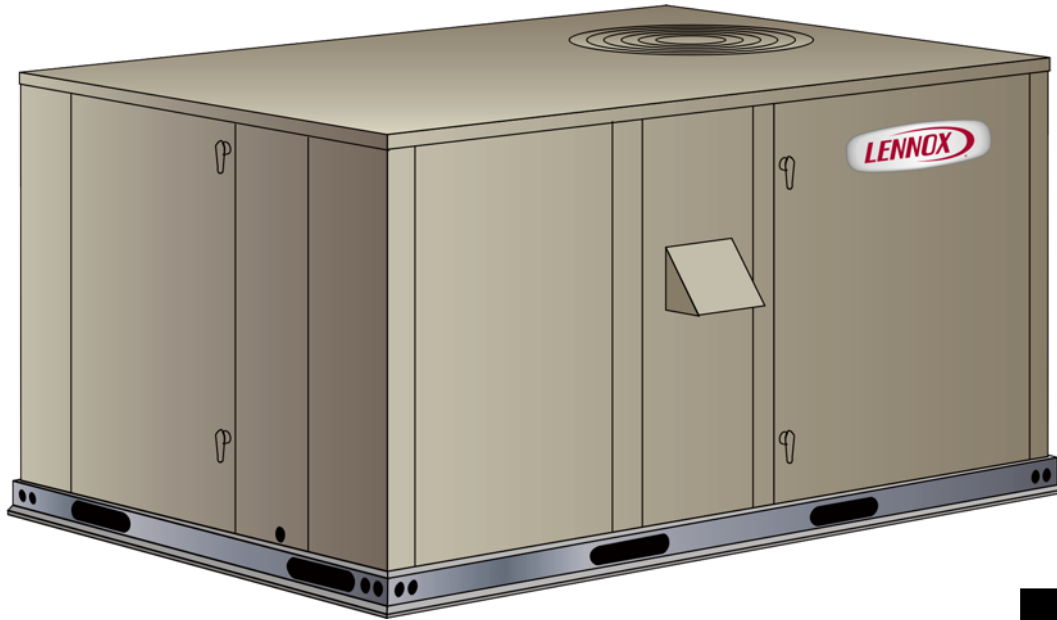




ENGINEERING DATA

LG
L SERIES® ROOFTOP UNITS
60 HZ

Bulletin No. 210316
 July 2008
 Supersedes October 2007

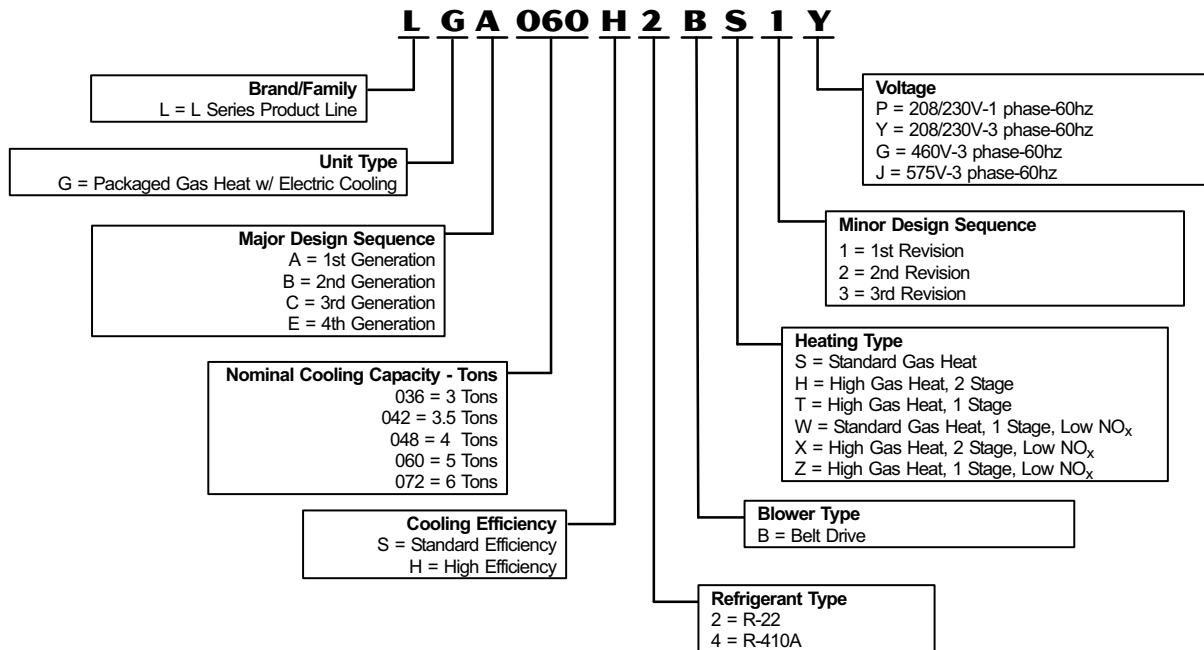


ASHRAE 90.1
 COMPLIANT



3 to 6 Tons
Net Cooling Capacity - 35,000 to 72,000 Btuh
Gas Input Heat Capacity - 78,000 to 125,000 Btuh

MODEL NUMBER IDENTIFICATION



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FEATURES AND BENEFITS

APPROVALS

ETL and CSA listed.

Efficiency rating verified by GAMA (US) and CSA certified (Canada).

Components bonded for grounding to meet safety standards for servicing required by UL, ULC and National and Canadian Electrical Codes.

3 thru 5 ton models are certified in accordance with the USE certification program, which is based on ARI Standard 210/240-2005.

6 ton models are certified in accordance with the ULE certification program, which is based on ARI Standard 340/360-2004. ENERGY STAR® certified units are designed to use less energy, help save money on utility bills, and help protect the environment.

The ENERGY STAR® Partner of the Year Award signifies that Lennox has made outstanding contributions to design energy efficient units that will lower energy bills, while meeting industry standards for comfort and indoor air quality. Lennox was the first HVAC manufacturer to win this award and has been a four-time recipient since 2003.

All Low NOx models meet the California Nitrogen Oxides (NOx) Standards that apply in the South Coast Air Quality Management District and the San Francisco Bay Area Air Quality Management District.

ISO 9001 Registered Manufacturing Quality System.

Dealer Design Award

Lennox has received the Dealer Design Award from an independent panel of dealer-contractors selected by Air Conditioning, Heating & Refrigeration News ("The News") magazine. Their decision is based on "best in categories" of installation, maintenance and service as well as quality and performance.

WARRANTY

Limited ten years aluminized heat exchanger, limited fifteen years optional stainless steel heat exchanger.

Limited five years on compressors.

Limited three years on Integrated Modular Control.

Limited one year all other covered components.

CABINET

1 Construction

Heavy-gauge steel panels and full perimeter heavy-gauge galvanized steel base rail provides structural integrity for transportation, handling, and installation. Base rails have rigging holes. Three sides of the base rail have fork slots.

Raised edges around duct and power entry openings in the bottom of the unit provide additional protection against water entering the building.

Air-Flow Choice

Units are shipped in down-flow (vertical) configuration, can be field converted to horizontal air flow configuration.

Duct Flanges

Provided for horizontal duct attachment.

2 Power/Gas Entry

Electrical lines can be brought through the unit base or through horizontal access knock-outs.

Gas lines can be brought through horizontal access knock-outs.

3 Exterior Panels

Constructed of heavy-gauge, galvanized steel with a two-layer enamel paint finish.

4 Insulation

All panels adjacent to conditioned air are fully insulated with non-hygroscopic fiberglass insulation.

Unit base is fully insulated. The insulation also serves as an air seal to the roof curb, eliminating the need to add a seal during installation.

5 Access Panels

Hinged access panels are provided for the economizer/filter section, and compressor/controls section.

All hinged panels have seals and quarter-turn latching handles to provide a tight air and water seal.

REQUIRED SELECTIONS

Air Flow Configuration

Specify horizontal or down-flow.

OPTIONS/ACCESSORIES

Factory Installed

Corrosion Protection

Polymeric epoxy coating that is deposited by electrical transport (electrophoresis), using a process known as electrocoat (e-coat). Available for enhanced coil corrosion protection. Factory installed on the condenser coil, evaporator coil, or both.

Field Installed

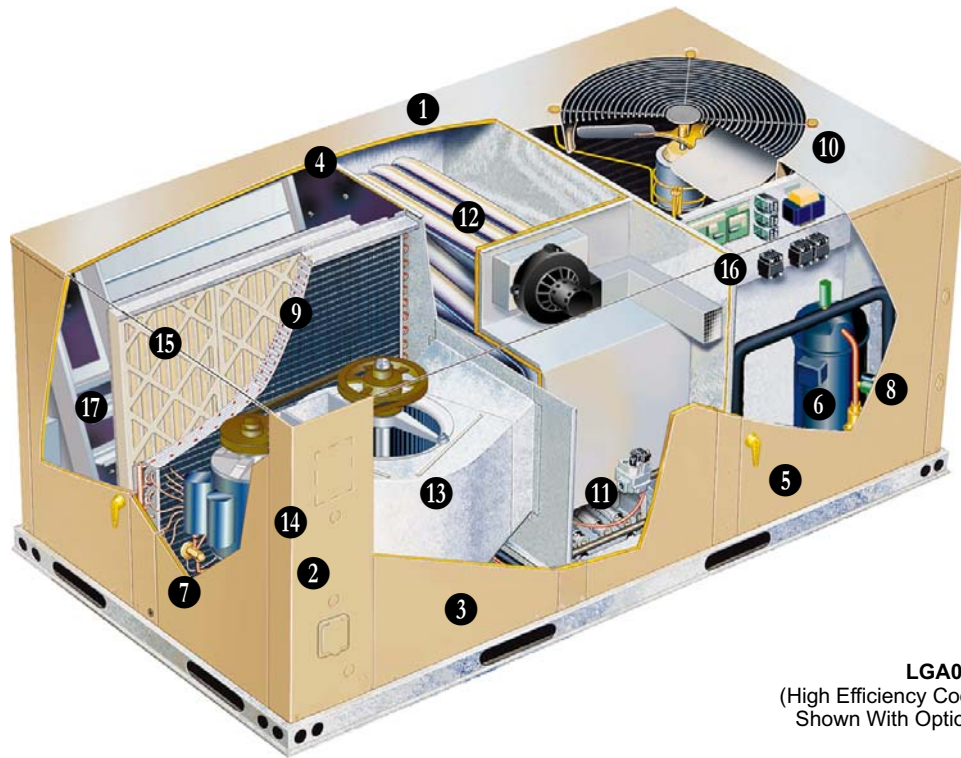
Coil Guards

Painted, galvanized steel wire guards to protect outdoor coil. Not used with Hail Guards.

Hail Guards

Constructed of heavy gauge steel, painted to match cabinet, helps protect outdoor coils from hail damage. Not used with Coil Guards.

FEATURES AND BENEFITS



LGA060H
(High Efficiency Cooling & Gas Heat)
Shown With Optional Economizer

COOLING SYSTEM

Designed to maximize sensible and latent cooling performance at design conditions. System can operate from 0°F to 125°F without any additional controls.

6 Compressor

Resiliently mounted on rubber grommets for quiet operation. Scroll compressors on all models for high performance, reliability and quiet operation.

Compressor Crankcase Heater

Protects against refrigerant migration that can occur during low ambient operation.

7 Thermal Expansion Valve

Assures optimal performance throughout the application range. Removable element head.

Filter/Drier

High capacity filter/drier protects the system from dirt and moisture.

8 High Pressure Switch

Protects the compressor from overload conditions such as dirty condenser coils, blocked refrigerant flow, or loss of outdoor fan operation.

Low Pressure Switch

Protects the compressor from low pressure conditions such as low refrigerant charge, or low/no air flow.

Freezestat

Protects the evaporator coil from damaging ice build-up due to conditions such as low/no air flow, or low/no refrigerant charge.

9 Coil Construction

Copper tube construction, enhanced rippled-edge aluminum fins, flared shoulder tubing connections, silver soldered construction for improved heat transfer. Factory leak tested.

Evaporator Coil

Cross row circuiting with rifled copper tubing optimizes both sensible and latent cooling capacity.

Condenser Coil

Two independent formed coils allow separation for cleaning.

Condensate Drain Pan

Painted, galvanized pan with positive slope. Drain connection extends outside unit.

10 Outdoor Coil Fan Motor

Thermal overload protected, totally enclosed, permanently lubricated ball bearings, shaft up, wire basket mount.

Outdoor Coil Fan

PVC coated fan guard furnished.

REQUIRED SELECTIONS

Cooling Capacity

Specify nominal cooling capacity of the unit

Cooling Efficiency (6 Ton models only)

Specify either standard or high efficiency.

Refrigerant Choice

Specify R-22 or R-410A refrigerant. -042 models are only available with R-22 refrigerant.

OPTIONS/ACCESSORIES

Factory Installed

Service Valves

Fully serviceable brass valves installed in discharge & liquid lines.

Factory or Field Installed

Condensate Drain Trap

Field installed only, may be factory enclosed to ship with unit. Available in copper or PVC.

HEATING SYSTEM

11 Aluminized steel inshot burners, direct spark ignition, electronic flame sensor, combustion air inducer, redundant automatic single or dual stage gas valve with manual shut-off.

12 Heat Exchanger

Tubular construction, aluminized steel, life cycle tested. Stainless Steel Heat Exchanger is required if mixed air temperature is below 45°F.

Limit Controls

Factory installed, redundant limit controls with fixed temperature setting. Heat limit controls protect heat exchanger and other components from overheating.

Safety Switches

Flame roll-out switch, flame sensor and combustion air inducer proving switch protect system operation. All safety switches are monitored by the IMC (Integrated Modular Control) unit controller and diagnostic errors are reported and recorded.

Low NO_x Models

All models are available in low NO_x versions.

FEATURES AND BENEFITS

HEATING SYSTEM

REQUIRED SELECTIONS

Gas Input Choice - Order one:

78,000 Btuh Standard Heat Gas

92,000/125,000 Btuh High Gas Heat, 2 Stage.

125,000 Btuh High Gas Heat, 1 Stage.

Standard or Low NOx

Specify standard gas heat or Low NOx option.

OPTIONS/ACCESSORIES

Factory Installed

Low Temperature Vestibule Heater

Extends gas heat operation from -40°F (standard) down to -60°F. Electric heater automatically controls minimum temperature in gas burner compartment when temperature falls below -40°F.

Stainless Steel Heat Exchanger

Required if mixed air temperature is below 45 °F.

Field Installed

Combustion Air Intake Extensions

Recommended for use with existing flue extension kits in areas where high snow areas can block intake air.

LPG/Propane Kits

Conversion kit to field change over units from Natural Gas to LPG/Propane.

Vertical Vent Extension Kit

Use to exhaust flue gases vertically above unit. Required when unit vent is too close to fresh air intakes per building codes. The vent kit also prevents ice formation on intake louvers.

13 BLOWER

A wide selection of supply air blower options are available to meet a variety of air flow requirements.

Motor

Overload protected, equipped with ball bearings.

Belt drive motors are available in several different sizes to maximize air performance.

Motor Efficiency

Specify standard (all models) or high efficiency (available only on 3 phase motors).

Supply Air Blower

Forward curved blades, blower wheel is statically and dynamically balanced.

All belt drive motors have adjustable pulley for speed change.

Ordering Information

Specify motor horsepower and drive kit number when base unit is ordered.

REQUIRED SELECTIONS

Supply Air Blower

Order Standard or High Efficiency (3 phase) Blower motor (See Blower Data Table for specifications).

Order one drive kit,, see Drive Kit Specifications Table.

ELECTRICAL

REQUIRED SELECTIONS

Voltage Choice

Specify when ordering base unit.

OPTIONS/ACCESSORIES

Factory Installed

Circuit Breakers

HACR type. For overload and short circuit protection. Factory wired and mounted in the power entry panel. Current sensitive and temperature activated. Manual reset.

Phase Monitor (3 Phase models only)

Protects unit against premature equipment failure caused by phase loss, phase reversal, phase unbalance, undervoltage and overvoltage.

Field Installed

14 Disconnect Switch

Accessible from outside of unit, spring loaded weatherproof cover furnished.

GFI Service Outlets (2)

115v ground fault circuit interrupter (GFCI) type.

INDOOR AIR QUALITY

15 Air Filters

Disposable 2 inch filters furnished as standard.

OPTIONS/ACCESSORIES

Factory or Field Installed

Healthy Climate® High Efficiency Air Filters

Disposable MERV 11 (Minimum Efficiency Reporting Value based on ASHRAE 52.2) efficiency 2 inch pleated filters.

Field Installed

Healthy Climate® High Efficiency Air Filters

Disposable MERV 15 (Minimum Efficiency Reporting Value based on ASHRAE 52.2) efficiency 2 inch pleated filters.

Indoor Air Quality (CO₂) Sensor

Monitors CO₂ levels, reports to IMC board which adjusts economizer dampers as needed.

SERVICEABILITY

Designed to streamline general maintenance and decrease troubleshooting time.

Diagnostics

IMC diagnostic codes pinpoint problems, minimizing troubleshooting time.

Marked & Color-Coded Wiring

All electrical wiring is color-coded and marked to identify which components it is connecting.

Electrical Plugs

Positive connection electrical plugs are used to connect common accessories or maintenance parts for easy removal or installation.

Toolless, Hinged Access Panels

Large access panels are hinged and have quarter-turn, latching handles for quick and easy access to maintenance areas (economizer / filter, compressor / controls).

Blower Access

Supply air blower parts are located near the access door for easy servicing and adjustment.

Thermal Expansion Valves

Thermal expansion valves are located near the perimeter of the unit for easier access.

Removable element head allows change out of element and bulb without removing the TXV.

Coil Cleaning

Independently formed condenser coils allow separation for easier cleaning.

Standard Components

A large number of common maintenance parts are standard throughout the entire range of sizes (3-30 tons), reducing the need to carry a lot of different parts to the job or maintain in inventory.

Compressor Compartment

Compressors are located near the perimeter of the unit for easier access.

Compressors are isolated from the condenser air flow allowing system operation checks to be done without changing the air flow across the outdoor coils.

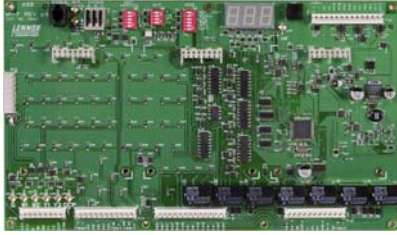
Service Valves (optional)

Optional factory installed liquid and discharge service valves allow refrigerant to be isolated to the high side for service work on the low side of the refrigeration system.

FEATURES AND BENEFITS

CONTROLS

16 INTELLIGENT UNIT CONTROLLER



The Integrated Modular Control (IMC) is a solid-state microprocessor-based control board that provides flexible control of all unit functions.

All control voltage is provided via a 24V (secondary) transformer with built-in circuit breaker protection.

Built-in functions include:

Blower On/Off Delay - Adjustable time delay between blower on and off.

Built-in Control Parameter Defaults - No programming required.

Compressor Time-Off Delay - Adjustable time delay between compressor shutoff and start up.

DDC Compatible - Various third party DDC controllers can be factory or field installed. Refer to the Unit Controllers section for details.

Dirty Filter Switch Input - When a Dirty Filter Switch is installed, the IMC will signal when the indoor blower static pressure increases, indicating a dirty filter condition. Switch is optional and can be factory or field installed.

Discharge Air Temperature Control - The IMC will cycle up to 4 stages of heating or cooling to maintain the discharge air setpoints for heating or cooling. Optional sensor for remote field installation in the supply duct.

Display/Sensor Readout - Displays control parameters, diagnostic codes, and sensor readings. The IMC unit controller displays temperature readings from return air, supply air, and outdoor air sensors that are furnished as standard on all L Series units. IMC will also display readings from optional sensors such as zone sensors, CO₂ sensors or relative humidity sensors.

Economizer Control Choice - The economizer is controlled by an add-on board to the IMC. The economizer control board has several choices for controlling the economizer. See Economizer / Outdoor Air / Exhaust Options.

Fresh Air Tempering - Provides heating and cooling as needed to maintain the supply air temperature within a comfort range, regardless of the thermostat demand. Sensor ships with unit but must be field installed in the supply air duct. Requires change to IMC (ECTO) parameter in the field to activate this mode of operation.

Extensive Unit Diagnostics - The IMC monitors all sensors and functions related to unit operation to provide critical information. The IMC will display detailed diagnostic information with over 90 diagnostic codes to pinpoint any problems and reduce troubleshooting time. All diagnostic codes are listed inside control access panel for easy reference.

Exhaust Fan Control Modes - Fans controlled by fresh air damper position or building static differential pressure transducer.

Permanent Diagnostic Code Storage - Maintains diagnostic codes through a power failure.

Field Changeable Control Parameters - Over 200 different control parameters allow customization of the unit operation by changing delays, cooling stages, deadbands, and setpoints.

Indoor Air Quality Input - The IMC is Demand Control Ventilation ready from the factory (optional field installed CO₂ sensor required). Two modes of operation are available: setpoint and proportional.

1 - Setpoint - Opens the economizer dampers to full position when CO₂ setpoint level is reached.

2 - Proportional - Opens the dampers at the first set point and gradually increases it as the CO₂ level increases until the second setpoint is reached.

Low Ambient Controls - Allows unit cooling operation down to 0°F.

Gas Valve Time Delay Between First and Second Stage - Allows gradual increase of input rate.

Minimum Compressor Run Time - Ensures proper oil return to the compressor.

Network Capable - The IMC can be daisy chained to other L Series units or L Connection® Network controllers using twisted pair wire.

Night Setback Mode - Adjusts setpoints, closes outdoor air dampers and operates the blower on demand, may be customized for special requirements.

Return Air Temperature Limit Control - Allows the user to override the demands based upon the return air temperature during either heating or cooling operation. Helps protect against abnormal operating conditions in the event of a room sensor or thermostat failure.

Safety Switch Input - Normally-closed digital input allows the IMC to respond to an external safety switch trip (phase protector, low voltage, etc.) shutting down unit operation.

Service Relay Output - Digital output can indicate a critical error has occurred to an external control device. Can also be configured to energize based on relative humidity, indoor air quality, outdoor air temperature or unit operation.

Smoke Alarm Mode - Control board has four choices for responding to a smoke alarm.

1 - Unit Off - unit will turn off.

2 - Positive Pressure - blower is energized, exhaust fan is de-energized, and the outdoor air dampers are opened.

3 - Negative Pressure - blower is energized, exhaust fan is energized, and the outdoor air dampers are closed.

4 - Purge - blower is energized, exhaust fan is energized, and the outdoor air dampers are opened.

Staging - 2 heat/2 cool. Capable of up to 4 heat/4 cool with zone sensor or third party DDC control system.

“Strike Three” Protection - Ends cooling or heating operation when any of the following occurs three times (adjustable) within a thermostat cycle: low pressure trip, high pressure trip, heat limit trip, or freeze-stat trip.

Gas Reheat - Control parameter option that allows simultaneous heating and cooling operation for controlling humidity for process air applications such as supermarkets. Field installed relative humidity sensor or dehumidistat can be used.

On-Demand Dehumidification - Monitors and controls condenser hot gas bypass operation with Humiditrol option. Prioritizes heat and cool demand with dehumidification demand. Reheat demand can be enabled by digital input or a field installed relative humidity sensor can be used.

Thermostat Bounce Delay - Protects compressor from short cycling when mechanical thermostat is used.

Warm-up Mode Delay - Adjustable time that the economizer dampers are kept in the closed position during morning warm-up.

On-Board User Interface - Push-button, DIP switches used with three-digit display readout for field adjustment of control parameters. LED indicators for L Connection Network (transmit and receive) and for each thermostat input.

PC Interface - PC with optional Unit Controller software may be used to field or remotely adjust parameters, read alarms, or display unit status.

Zone Sensor Operation - Controls zone temperature with up to 4 stages of heating or cooling with optional zone sensor.

OPTIONS / ACCESSORIES

Factory or Field Installed

Blower Proving Switch

Monitors blower operation, shuts down unit if blower fails. Factory installed.

Dirty Filter Switch

Senses static pressure increase indicating dirty filter condition.

FEATURES AND BENEFITS

CONTROLS

OPTIONS / ACCESSORIES

Factory or Field Installed

Fresh Air Tempering

Used in applications with high outside air requirements. The IMC (Integrated Modular Control) energizes the first stage heat as needed to maintain a minimum supply air temperature for comfort, regardless of the thermostat demand. When ordered as a factory option, the sensor ships with the unit but must be field installed.

Smoke Detector

Photoelectric type, installed in supply air section or return air section or both sections

Interoperability via BACnet® or LonTalk® Protocols

Communication compatible with third-party automation systems that support the BACnet Application Specific Controller device profile, LonMark® Space Comfort Controller functional profile, or LonMark Discharge Air Controller functional profile. See Page 28.

Commercial Control Systems

L Connection® Network

Complete building automation control system for single or multi-zone applications. Options include local interface, software for local or remote communication, and hardware for networking other control functions. See L Connection Network Engineering Handbook Bulletin for details.

Aftermarket DDC

Novar® Unit Controller and options. See Page 27.

Thermostats

Control system and thermostat options. Aftermarket unit controller options. See See Page 32.

Field Installed

Humidity Sensor Kit, Remote Mounted

Humidity sensor required with factory installed Humiditrol® Option or Supermarket reheat field selectable option.

OPTIONS / ACCESSORIES

ECONOMIZER/OUTDOOR AIR/EXHAUST OPTIONS

Factory or Field Installed

Economizer

Parallel gear driven action return air and outdoor air dampers, plug-in connections to unit, nylon bearings, neoprene seals, 24 volt fully modulating spring return motor, adjustable minimum damper position, damper assembly slides in unit, outdoor air hood must be ordered separately, optional down-flow barometric relief dampers available, choice of economizer controls. The IMC add-on board for economizer control is included with the economizer. Control board has four choices for controlling the economizer (DIP switch selections).

1 - Differential Sensible Control - Factory setting. Uses outdoor air and return air sensors that are furnished with the unit. The IMC compares outdoor air and return air and using setpoints, enables the economizer when the outdoor air temperature is below the configured setpoint and cooler than return air.

NOTE - Differential Sensible Control can be configured in the field to provide Offset Differential Sensible Control or Single Sensible Control.

In Offset Differential Sensible Control mode, the economizer is enabled if the temperature differential (offset) between outdoor air and return air reaches the configured setpoint.

In Single Sensible Control mode, the economizer is enabled when outdoor air temperature falls below the configured setpoint.

2 - Global Control - The IMC communicates with a DDC system with one global sensor (enthalpy or sensible) to determine whether outside air is suitable for free cooling on all units connected to the control system. Sensor must be field provided.

3 - Single Enthalpy Control - Outdoor air enthalpy sensor enables economizer if the outdoor enthalpy is less than the setpoint of the board. Factory installed.

4 - Differential Enthalpy Control - Two solid-state enthalpy sensors allow the economizer control board to select

between outdoor air or return air, whichever has lower enthalpy. Factory installed.

Barometric Relief Dampers, Down-Flow

Allows relief of excess air, aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle, bird screen furnished. Requires field installed Damper Hood. See Field Installed Only section. Not used with Power Exhaust Fan.

Outdoor Air Damper - Down-Flow or Horizontal

Linked mechanical dampers, 0 to 25% (fixed) outdoor air adjustable, installs in unit, outdoor air hood must be ordered separately. Automatic model features fully modulating spring return damper motor with plug-in connection. Manual model features a slide damper. Maximum mixed air temperature in cooling mode: 100°F.

Outdoor Air Hood

Required with LAREMD Economizer, LAOAD and LAOADM Outdoor Air Damper Sections, one cleanable aluminum mesh fresh air filter furnished.

Field Installed

Barometric Relief Damper Hood, Down-Flow

Required with Down-Flow Barometric Relief Dampers.

Barometric Relief Dampers, Horizontal

Allows relief of excess air, aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle, field installed in return air duct, bird screen and hood furnished, two dampers per order number.

Power Exhaust Fan

Installs external to unit for down-flow applications only with economizer option, provides exhaust air pressure relief, includes integrated barometric relief damper that prevents blow-back and outdoor air infiltration during off cycle, interlocked to run when supply air blower is operating, fan runs when outdoor air dampers are 50% open (adjustable), motor is overload protected, bird screen and hood are furnished, steel cabinet and hood are painted to match unit. Fan is 14 in. diameter with 4 fan blades. Total air volume is 1900 cfm at 0 in. w.g. (0 Pa). 1/2 hp motor. 385 Watts total input.

CEILING DIFFUSERS

Ceiling Diffusers (Flush or Step-Down)

Aluminum grilles, large center grille, insulated diffuser box with flanges, hanging rings furnished, interior transition (even air flow), internally sealed (prevents recirculation), adapts to T-bar ceiling grids or plaster ceilings.

Transitions (Supply and Return)

Used with diffusers, installs in roof curb, galvanized steel construction, flanges furnished for duct connection to diffusers, fully insulated.

ROOF CURBS

Roof Curb, Down-Flow

Nailer strip furnished, mates to unit, US National Roofing Contractors Approved, shipped knocked down. Available in 8, 14, 18, and 24 inch heights.

Cliplock curbs use interlocking tabs to fasten together. No tools required.

Standard roof curb corners fasten together with furnished hardware.

OPTIONS / ACCESSORIES

HUMIDITROL® DEHUMIDIFICATION SYSTEM

Factory installed option designed to control humidity. Provides dehumidification on demand using ASHRAE 90.1 recommended method for comfort conditioning humidity control. Unit comes equipped with 1 row reheat coil, solenoid valve and humidity controller.

Provides dehumidification on demand using ASHRAE 90.1 recommended method for reheat with comfort conditioning humidity control.

In addition to a thermostat or room sensor used for conventional operation, a humidity sensor is required and must be located in the occupied space. Remote Mounted Humidity Sensor Kit is required for field installation.

The humidity sensor provides input to the Integrated Modular Control which is used to control activation of the dehumidification operation.

Reheat controls are located in the compressor control section of the unit for easy access.

Benefits

Improves indoor air quality.

Helps prevent damage due to high humidity levels.

Improves comfort levels by reducing space humidity levels.

OPERATION

No Dehumidification Demand

The unit will operate conventionally whenever there is a demand for cooling or heating and no dehumidification demand.

Free cooling is only permitted when there is no demand for dehumidification.

Dehumidification Demand Only

The IMC is factory set at 60% relative humidity setpoint and can be adjusted at the IMC or with optional Unit Controller Software.

For L Connection® Network Control Panel (NCP) applications, the humidity setpoint can be adjusted at the NCP.

The unit will operate in the dehumidification mode until the relative humidity of the conditioned space is 3% below the setpoint.

Reheat operation will initiate on a dehumidification demand and does not require a cooling demand.

The reheat coil is sized to provide 68°F to 75°F supply air during reheat operation. This reduces sensible cooling capacity and extends compressor run time to control humidity when the cooling load is low.

A solenoid valve diverts hot gas from the compressor to the reheat coil.

The cooled and dehumidified air from the evaporator is reheated as it passes through the reheat coil.

The de-superheated and partially condensed refrigerant continues to the outdoor condenser coil where condensing is completed. The unit will continue to operate in this mode until the dehumidification demand is satisfied.

A heating demand or cooling demand will terminate reheat operation.

Dehumidification and Cooling Demand (Thermostat/Room Sensor Application)

If both a dehumidification and a cooling demand occur, the system will operate in cooling until the cooling demand is satisfied. Then the system will energize the dehumidification mode.

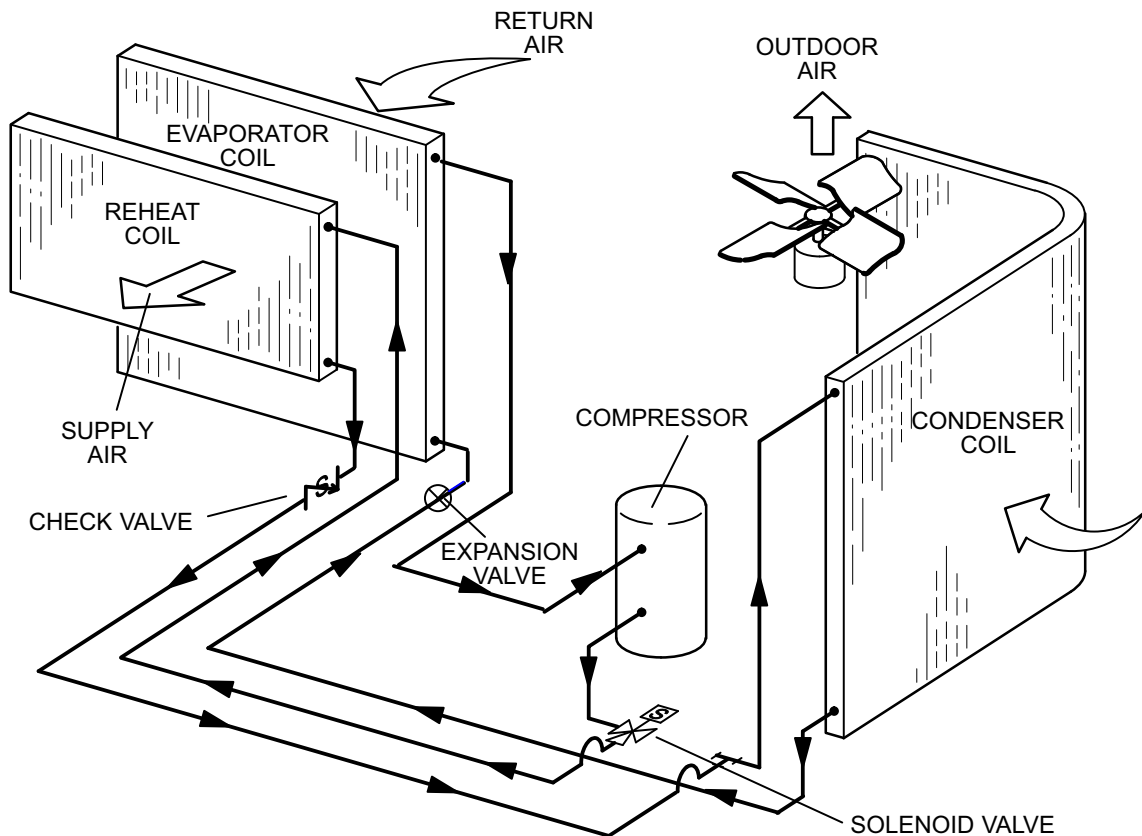
ACCESSORIES

Field Installed

Humidity Sensor Kit, Remote Mounted

Humidity sensor required with factory installed Humiditrol® Option or Supermarket reheat field selectable option.

HUMIDITROL DEHUMIDIFICATION SCHEMATIC



OPTIONS / ACCESSORIES

Item	Catalog No.	036	042	048	060	072
COOLING SYSTEM						
Condensate Drain Trap	PVC - LTACDKP03/07	37K69	⊗	⊗	⊗	⊗
	Copper - LTACDKC03/07	45K67	⊗	⊗	⊗	⊗
Corrosion Protection	Factory	○	○	○	○	○
Efficiency	Standard	Factory				○
	High	Factory	○	○	○	○
Refrigerant Type	R-22	Factory	○	○	○	○
	R-410A	Factory	○		○	○
Service Valves	Factory	○	○	○	○	○
Stainless Steel Condensate Drain Pan	Factory	○	○	○	○	○
HEATING SYSTEM						
Combustion Air Intake Extensions		89L98	x	x	x	x
Gas Heat Input	Standard One-Stage - 78 kBtuh input	Factory	○	○	○	○
	High Two-Stage - 92/125 kBtuh input	Factory		○	○	○
	High One-Stage - 125 kBtuh input	Factory		○	○	○
Low Temperature Vestibule Heater	Factory	○	○	○	○	○
LPG/Propane Conversion Kits	Standard - 78 kBtuh input - LTALPGK-78	96L92	x	x	x	x
	High - 92/125 kBtuh input - LTALPGK-92/125	96L91		x	x	x
	High - 125 kBtuh input - LTALPGK-125	96L93		x	x	x
Stainless Steel Heat Exchanger	Factory	○	○	○	○	○
Vertical Vent Extension	LTAW EK10/15	73M72	x	x	x	x
BLOWER - SUPPLY AIR						
	1.5 hp Standard or High Efficiency	Factory	○	○	○	○
	2 hp Standard or High Efficiency	Factory	○	○	○	○
	3 hp Standard Efficiency	Factory	○	○	○	○
CABINET						
Coil Guards		28L52	x	x	x	x
Hail Guards		28L53	x	x	x	x
CONTROLS						
Blower Proving Switch	C0SWCH01AE1-	30K49	⊗	⊗	⊗	⊗
Commercial Controls	L Connection® Building Automation System	---	⊗	⊗	⊗	⊗
	IMC BACnet® Module - C0CTRL50AE1L	11W29	⊗	⊗	⊗	⊗
	IMC LonTalk® Module - C0CTRL51AE1L	11W28	⊗	⊗	⊗	⊗
	Novar® ETM-2051 Unit Controller	69K67	⊗	⊗	⊗	⊗
Dirty Filter Switch	C0SWCH00AE1-	30K48	⊗	⊗	⊗	⊗
Fresh Air Tempering	C0SNDC03AE-1	45L78	⊗	⊗	⊗	⊗
Smoke Detector - Supply	LTSASDK03/07	41L85	⊗	⊗	⊗	⊗
Smoke Detector - Return	LTARSDK03/07	41L86	⊗	⊗	⊗	⊗

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.

⊗ - Field Installed or Configure to Order (factory installed)

○ - Configure to Order (Factory Installed)

X - Field Installed.

OPTIONS / ACCESSORIES

Item	Catalog No.	036	042	048	060	072
ELECTRICAL						
Voltage 60 hz	208/230V - 1 phase	Factory	○	○	○	○
	208/230V - 3 phase	Factory	○	○	○	○
	460V - 3 phase	Factory	○	○	○	○
	575V - 3 phase	Factory	○	○	○	○
HACR Circuit Breakers	Factory	○	○	○	○	
Disconnect Switch	80 Amp	67M16	⊗	⊗	⊗	⊗
GFI Service Outlets	LTAGFIK10/15	31M77	⊗	⊗	⊗	⊗
Phase Monitor - 3 Phase Models Only	Factory	○	○	○	○	
ECONOMIZER						
Economizer						
Economizer (Sensible Control) - Order Hood Separately	LAREMD03/07	62K67	⊗	⊗	⊗	⊗
Outdoor Air Hood for Economizer	LAOAH03/07	62K70	⊗	⊗	⊗	⊗
Economizer Controls						
Differential (Dual) Enthalpy	C1SNSR07AE1-	86M33	⊗	⊗	⊗	⊗
Single Enthalpy	C1SNSR06AE1-	86M32	⊗	⊗	⊗	⊗
Global, Enthalpy	Sensor Field Provided	Factory	○	○	○	○
Differential Sensible	Furnished	Factory	○	○	○	○
Barometric Relief						
Down-Flow Barometric Relief Dampers - Order Hood Separately	LAGED03/07	62K61	⊗	⊗	⊗	⊗
Damper Hood for Down-Flow Barometric Relief Dampers	LAGEH03/07	28L51	⊗	⊗	⊗	⊗
Horizontal Barometric Relief Dampers - Hood Furnished	LAGEDH03/15	53K04	x	x	x	x
HUMIDITROL® DEHUMIDIFICATION SYSTEM						
Humiditrol	Factory	○	○	○	○	
Humidity Sensor Kit, Remote Mounted (required)	C0SNSR31AE-1	17M50	x	x	x	x
Remote Sensor Wall Seal Plate	C0MISC18AE-1	58L33	x	x	x	x
INDOOR AIR QUALITY						
Air Filters						
Healthy Climate® High Efficiency Air Filters 16 x 25 x 2 - Order 2 per unit	MERV 11 - C1FILT20EA1-	97L84	⊗	⊗	⊗	⊗
	MERV 15 - C1FLTR50EA1-	28W02	x	x	x	x
Indoor Air Quality (CO₂) Sensors						
Sensor - white case CO ₂ display	C0SNSR50AE1L	77N39	x	x	x	x
Sensor - white case no display	C0SNSR52AE1L	87N53	x	x	x	x
Sensor - black case CO ₂ display	C0SNSR51AE1L	87N52	x	x	x	x
Sensor - duct mount, black case, no display	C0SNSR53AE1L	87N54	x	x	x	x
CO ₂ Sensor Duct Mounting Kit	C0MISC19AE1-	85L43	x	x	x	x
Aspiration Box for duct mounting	C0MISC16AE1-	90N43	x	x	x	x
Handheld CO ₂ Monitor	LTIAQSHM03/36	70N93	x	x	x	x
OUTDOOR AIR						
Outdoor Air Dampers (down-flow or horizontal)						
Damper Section, Motorized Operation - Order Hood Separately	LAOADM03/07	62K69	⊗	⊗	⊗	⊗
Damper Section, Manual Operation - Order Hood Separately	LAOAD03/07	62K68	⊗	⊗	⊗	⊗
Outdoor Air Hood for Outdoor Air Dampers (required) Number and size of Filters (1) 16 x 25 x 1 in.	LAOAH03/07	62K70	⊗	⊗	⊗	⊗
POWER EXHAUST (DOWN-FLOW ONLY)						
Standard Static (Includes Barometric Relief Dampers and Hood)	208/230V - LAPEF03/06	62K63	x	x	x	x
	460V - LAPEF03/06	62K64	x	x	x	x
	575V - LAPEF03/07	62K65	x	x	x	x

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.

⊗ - Field Installed or Configure to Order (factory installed)

○ - Configure to Order (Factory Installed)

x - Field Installed.

OPTIONS / ACCESSORIES

Item	Catalog No.	036	042	048	060	072
ROOF CURBS - CLIPLOCK 1000						
Down-Flow						
8 in. height	L1CURB23A-1	26W35	x	x	x	x
14 in. height	LARMF03/07S-14	59J47	x	x	x	x
18 in. height	LARMF03/07S-18	25K03	x	x	x	x
24 in. height	LARMF03/07S-24	12K69	x	x	x	x
ROOF CURBS - STANDARD						
Down-Flow						
14 in. height	LARMF03/07-14	45J19	x	x	x	x
24 in. height	LARMF03/07-24	29L66	x	x	x	x
CEILING DIFFUSERS						
Step-Down - Order one	RTD9-65-R	27G87	x	x	x	x
	RTD11-95	29G04				x
	(Canada Only) RTD11-95S	13K61				x
Flush - Order one	FD9-65-R	27G86	x	x	x	x
	FD11-95	29G08				x
	(Canada Only) FD11-95S	13K56				x
Transitions (Supply and Return) - Order one	LASRT03/06	28L50	x	x	x	x
	(Canada Only) LASRT03/072	38L01	x	x	x	x
	LASRT07	48J27				x

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.

X - Field Installed.

SPECIFICATIONS
3-3.5 TON

General Data	Nominal Tonnage Model No. Efficiency Type	3 Ton		3.5 Ton
		LGA036H2B	LGA036H4B	LGA042H2B
		High	High	High
Cooling Performance	Gross Cooling Capacity - Btuh (kW)	37,600 (11.0)	36,200 (10.6)	44,800 (13.1)
	² Net Cooling Capacity - Btuh (kW)	36,400 (10.7)	35,000 (10.2)	43,500 (12.7)
	ARI Rated Air Flow - cfm (L/s)	1200 (565)	1300 (615)	1370 (650)
	³ Sound Rating Number (dB)	82	82	82
	Total Unit Power (kW)	3.3	3.1	3.9
	² SEER (Btuh/Watt)	13.00	13.40	13.00
	² EER (Btuh/Watt)	11.20	11.4	11.30
	Refrigerant Type	R-22	R-410	R-22
	Refrigerant Charge Furnished	7 lbs. 0 oz. (3.18 kg)	8 lbs. 12 oz. (3.97 kg)	8 lbs. 8 oz. (3.86 kg)
Refrigerant Charge Furnished with Humiditrol® Option	7 lbs. 14 oz. (3.57 kg)	8 lbs. 12 oz. (3.97 kg)	Not Available	
Gas Heating Options Available - See Page 14		Standard (1 Stage)		Standard (1 Stage) High (2 or 1 Stage)
Compressor Type		Scroll	Scroll	Scroll
Outdoor Coil	Net face area - sq. ft. (m ²)	14.6 (1.35)	14.6 (1.35)	14.6 (1.35)
	Tube diameter - in. (mm)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	Number of rows	2	2	1.3
	Fins per inch (m)	20 (787)	20 (787)	20 (787)
Outdoor Coil Fan	Motor horsepower (W)	1/3 (224)	1/3 (224)	1/3 (224)
	Motor rpm	1075	1075	1075
	Total Motor watts	360	360	360
	Diameter - in. (mm)	24 (610)	24 (610)	24 (610)
	Number of blades	3	3	3
	Total Air volume - cfm (L/s)	4200 (1980)	4200 (1980)	4200 (1980)
Indoor Coil	Net face area - sq. ft. (m ²)	6.25 (0.58)	6.25 (0.58)	6.25 (0.58)
	Tube diameter - in. (mm)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	Number of rows	2	2	3
	Fins per inch (m)	15 (591)	15 (591)	15 (591)
	Drain connect - no. & size - in. (mm) fpt	(1) 3/4 (19)	(1) 3/4 (19)	(1) 3/4 (19)
Expansion device type		Balanced Port Thermostatic Expansion Valve, replaceable thermostatic element		
⁴ Indoor Blower and Drive Selection	Nominal motor output -	1.5 hp (1.1 kW) - 208/230V 1ph, 208/230V, 460V or 575V 3ph 2 hp (1.5 kW) - 208/230V, 460V or 575V - 3ph 3 hp (2.2 kW) - 208/230V, 460V or 575V - 3ph		
	Maximum usable motor output	1.72 hp (1.3 kW), 2.3 hp (1.7 kW) or 3.45 hp (2.6 kW)		
	Motor - Drive kit	1.5 hp kit #1 - 615 - 920 rpm kit #2 - 800 - 1105 rpm	2 hp kit #3 - 920 - 1230 rpm	3 hp kit #4 - 1070 - 1325 rpm
	Wheel nominal diameter x width - in. (mm)	11-1/2 x 9 (292 x 229)		
Filters	Type of filter	Disposable		
	Number and size - in. (mm)	(2) 16 x 25 x 2 (406 x 635 x 51)		
Electrical characteristics - 60 Hz		208/230V - 1 phase 208/230V, 460V or 575V - 3 phase		

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

¹ All models less than 13 SEER are not available in Ontario.

² Certified in accordance with the USE certification program, which is based on ARI Standard 210/240; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.

³ Sound Rating Number rated in accordance with test conditions included in ARI Standard 270.

⁴ Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS

4-5 TON

General Data		4 Ton		5 Ton	
		LGA048H2B	LGA048H4B	LGA060H2B	LGA060H4B
Nominal Tonnage					
Model No.					
Efficiency Type		High	High	High	High
Cooling Performance	Gross Cooling Capacity - Btuh (kW)	50,500 (14.8)	51,000 (17.6)	63,000 (18.5)	62,500 (18.3)
	² Net Cooling Capacity - Btuh (kW)	49,000 (14.4)	49,500 (14.5)	61,000 (17.9)	60,000 (17.6)
	ARI Rated Air Flow - cfm (L/s)	1450 (685)	1600 (755)	2000 (945)	2000 (945)
	³ Sound Rating Number (dB)	82	82	82	82
	Total Unit Power (kW)	4.3	4.3	5.5	5.8
	² SEER (Btuh/Watt)	13.25	13.50	13.00	13.00
	² EER (Btuh/Watt)	11.30	11.5	11.00	10.90
	Refrigerant Type	R-22	R-410	R-22	R-410A
	Refrigerant Charge Furnished	9 lbs. 8 oz. (4.31 kg)	10 lbs. 12 oz. (4.88 kg)	10 lbs. 0 oz. (4.54 kg)	10 lbs. 9 oz. (4.79 kg)
Refrigerant Charge Furnished with Humiditrol® Option	11 lbs. 0 oz. (4.99 kg)	10 lbs. 12 oz. (4.88 kg)	11 lbs. 13 oz. (5.36 kg)	12 lbs. 6 oz. (5.61 kg)	
Gas Heating Options Available - See Page 14		Standard (1 Stage) or High (2 or 1 Stage)			
Compressor Type		Scroll	Scroll	Scroll	Scroll
Outdoor Coil	Net face area - sq. ft. (m ²)	14.6 (1.35)	14.6 (1.35)	14.6 (1.35)	14.6 (1.35)
	Tube diameter - in. (mm)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	Number of rows	2	2	2	2
	Fins per inch (m)	20 (787)	20 (787)	20 (788)	20 (788)
Outdoor Coil Fan	Motor horsepower (W)	1/3 (224)	1/3 (224)	1/3 (248)	1/3 (248)
	Motor rpm	1075	1075	1075	1075
	Total Motor watts	360	360	360	360
	Diameter - in. (mm)	24 (610)	24 (610)	24 (610)	24 (610)
	Number of blades	3	3	3	3
	Total Air volume - cfm (L/s)	4200 (1980)	4200 (1980)	4200 (1980)	4200 (1980)
Indoor Coil	Net face area - sq. ft. (m ²)	6.25 (0.58)	6.25 (0.58)	6.25 (0.58)	6.25 (0.58)
	Tube diameter - in. (mm)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	Number of rows	3	3	3	3
	Fins per inch (m)	15 (591)	15 (591)	15 (591)	15 (591)
	Drain connect - no. & size - in. (mm) fpt	(1) 3/4 (19)	(1) 3/4 (19)	(1) 3/4 (19)	(1) 3/4 (19)
Expansion device type		Balanced Port Thermostatic Expansion Valve, replaceable thermostatic element			
4 Indoor Blower and Drive Selection	Nominal motor output - voltage	1.5 hp (1.1 kW) - 208/230V 1ph, 208/230V, 460V or 575V 3ph 2 hp (1.5 kW) - 208/230V, 460V or 575V - 3ph 3 hp (2.2 kW) - 208/230V, 460V or 575V - 3ph			
	Maximum usable motor output	1.72 hp (1.3 kW), 2.3 hp (1.7 kW) or 3.45 hp (2.6 kW)			
	Motor - Drive kit	1.5 hp kit #1 - 615 - 920 rpm kit #2 - 800 - 1105 rpm	2 hp kit #3 - 920 - 1230 rpm	3 hp kit #4 - 1070 - 1325 rpm	
Wheel nominal diameter x width - in. (mm)		11-1/2 x 9 (292 x 229)			
Filters	Type of filter	Disposable			
	Number and size - in. (mm)	(2) 16 x 25 x 2 (406 x 635 x 51)			
Electrical characteristics - 60 Hz		208/230V - 1 phase 208/230V, 460V or 575V - 3 phase			

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.
² Certified in accordance with the USE certification program, which is based on ARI Standard 210/240; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.
³ Sound Rating Number rated in accordance with test conditions included in ARI Standard 270.
⁴ Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS
6 TON

General Data	Model No.	Nominal Tonnage	6 Ton			
		Efficiency Type	LGC072S2B Standard	LGC072S4B Standard	LGA072H2B High	LGA072H4B High
Cooling Performance		Gross Cooling Capacity - Btuh (kW)	76,000 (22.3)	75,000 (22.0)	74,000 (21.7)	75,000 (22.0)
		¹ Net Cooling Capacity - Btuh (kW)	72,000 (21.1)	72,000 (21.1)	71,000 (20.8)	72,000 (21.1)
		ARI Rated Air Flow - cfm (L/s)	2100 (990)	2250 (1060)	2100 (990)	2250 (1060)
		² Sound Rating Number (dB)	82	82	82	82
		Total Unit Power (kW)	7.2	7.0	6.8	7.0
		¹ EER (Btuh/Watt)	10.1	10.1	10.5	10.4
		Refrigerant Type	R-22	R-410A	R-22	R-410A
		Refrigerant Charge Furnished	9 lbs. 5 oz. (4.22 kg)	10 lbs. 14 oz. (4.93 kg)	9 lbs. 13 oz. (4.45 kg)	11 lbs. 8 oz. (5.22 kg)
	Refrigerant Charge Furnished with Humiditrol® Option	9 lbs. 8 oz. (4.31 kg)	10 lbs. 14 oz. (4.93 kg)	Not Available	Not Available	
Gas Heating Options Available - See Page 14		Standard (1 Stage) or High (2 or 1 Stage)				
Compressor Type		Scroll	Scroll	Scroll	Scroll	
Condenser Coil		Net face area - sq. ft. (m ²)	14.6 (1.35)	14.6 (1.35)	14.6 (1.35)	14.6 (1.35)
		Tube diameter - in. (mm)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
		Number of rows	2	2	2	2
		Fins per inch (m)	20 (788)	20 (788)	20 (788)	20 (788)
Outdoor Coil Fan		Motor horsepower (W)	1/3 (248)	1/3 (248)	1/3 (248)	1/3 (248)
		Motor rpm	1075	1075	1075	1075
		Total Motor watts	360	360	360	360
		Diameter - in. (mm)	24 (610)	24 (610)	24 (610)	24 (610)
		Number of blades	3	3	3	3
		Total Air volume - cfm (L/s)	4200 (1980)	4200 (1980)	4200 (1980)	4200 (1980)
Indoor Coil		Net face area - sq. ft. (m ²)	6.25 (0.58)	6.25 (0.58)	6.25 (0.58)	6.25 (0.58)
		Tube diameter - in. (mm)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
		Number of rows	3	3	4	4
		Fins per inch (m)	15 (591)	15 (591)	15 (591)	15 (591)
		Drain connection - no. & size - in. (mm) fpt	(1) 3/4 (19)	(1) 3/4 (19)	(1) 3/4 (19)	(1) 3/4 (19)
	Expansion device type	Balanced Port Thermostatic Expansion Valve, replaceable thermostatic element				
³ Indoor Blower and Drive Selection		Nominal motor output - voltage	1.5 hp (1.1kW)	2 hp (1.5 kW)	3 hp (2.2 kW)	
		Maximum usable motor output	1.72 hp (1.3 kW), 2.3 hp (1.7 kW) or 3.45 hp (2.6 kW)			
		Motor - Drive kit	1.5 hp kit #1 - 615 - 920 rpm kit #2 - 800 - 1105 rpm	2 hp kit #3 - 920 - 1230 rpm	3 hp kit #4 - 1070 - 1325 rpm	
	Wheel nominal diameter x width - in. (mm)	11-1/2 x 9 (292 x 229)				
Filters		Type of filter	Disposable			
		Number and size - in. (mm)	(2) 16 x 25 x 2 (406 x 635 x 51)			
Electrical characteristics - 60 Hz		208/230V, 460V or 575V - 3 phase				

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

¹ Certified in accordance with the USE certification program, which is based on ARI Standard 210/240; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.

² Sound Rating Number rated in accordance with test conditions included in ARI Standard 270.

³ Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS - GAS HEAT

Usage Data		Model No.	-036, -042, -048, -060, -072	-042, -048, -060, and -072	
Gas Heating Performance	Heat Input Type		Standard (1 Stage)	High (2 Stage)	High (1 Stage)
	Input - Btuh (kW) - First Stage		78,000 (22.9)	92,000 (27.0)	125,000 (36.6)
	Second Stage		---	125,000 (36.6)	---
	Output - Btuh (kW) - First Stage		62,400 (18.3)	73,600 (21.6)	100,000 (29.3)
	Second Stage		---	100,000 (29.3)	---
	Temperature rise range - F°		25 - 55	40 - 70	40 - 70
Steady State Efficiency (natural gas)			80.0%		
¹ AFUE (natural gas)			78.0%		
Gas Supply Connections			1/2 in. npt		
Recommended Gas Supply Pressure - Natural			7 in. w.c. (1.7 kPa)		
LPG/Propane			11 in. w.c. (2.7 kPa)		

¹ Annual Fuel Utilization Efficiency based on U.S. DOE test procedures and FTC labeling regulations.

HIGH ALTITUDE DERATE

Units may be installed at altitudes up to 4500 feet (1372 m) above sea level without any modification. At altitudes above 4500 ft., unit must be derated 2% for each 1000 ft. above sea level.	Altitude		Gas Manifold Pressure				Maximum Input Rate
	feet	m	Natural Gas		LPG/Propane		Natural Gas or LPG/Propane
			in. w.g.	kPa	in. w.g.	kPa	
NOTE - This is the only permissible derate for these units.	0 - 4500	0 - 1372	3.5	0.87	10.5	2.61	78,000 - Standard Heat 92,000/125,000 - High Heat

COOLING RATINGS

NOTE - For Temperatures and Capacities not shown in tables, see bulletin - Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

3 TON HIGH EFFICIENCY (R-22)

LGA036H2

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
						75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C
cfm	L/s	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW							
63°F (17°C)	960	455	35.3	10.3	2.26	.69	.82	.95	34.1	10.0	2.55	.70	.84	.97	32.8	9.6	2.88	.71	.85	.98	31.5	9.2	3.26	.72	.87	1.00
	1200	565	36.8	10.8	2.25	.73	.89	1.00	35.5	10.4	2.54	.75	.91	1.00	34.2	10.0	2.87	.76	.93	1.00	32.8	9.6	3.25	.78	.95	1.00
	1440	680	38.0	11.1	2.25	.78	.95	1.00	36.7	10.8	2.54	.80	.97	1.00	35.3	10.3	2.86	.82	.99	1.00	34.0	10.0	3.24	.84	1.00	1.00
67°F (19°C)	960	455	37.8	11.1	2.25	.54	.66	.78	36.5	10.7	2.54	.55	.67	.80	35.1	10.3	2.87	.55	.68	.82	33.6	9.8	3.25	.56	.69	.84
	1200	565	39.1	11.5	2.24	.57	.71	.86	37.7	11.0	2.53	.57	.72	.87	36.3	10.6	2.86	.58	.74	.89	34.7	10.2	3.24	.59	.76	.92
	1440	680	40.1	11.8	2.24	.59	.76	.92	38.6	11.3	2.53	.60	.78	.94	37.1	10.9	2.86	.61	.79	.96	35.5	10.4	3.24	.62	.82	.98
71°F (22°C)	960	455	40.5	11.9	2.24	.41	.52	.63	39.1	11.5	2.52	.41	.53	.64	37.6	11.0	2.85	.41	.53	.66	36.1	10.6	3.23	.41	.54	.67
	1200	565	41.9	12.3	2.23	.42	.55	.68	40.4	11.8	2.52	.42	.56	.70	38.8	11.4	2.85	.42	.57	.71	37.2	10.9	3.23	.43	.58	.72
	1440	680	42.8	12.5	2.23	.43	.58	.73	41.3	12.1	2.52	.43	.59	.75	39.6	11.6	2.84	.44	.60	.77	38.0	11.1	3.22	.44	.61	.79

3 TON HIGH EFFICIENCY (R-410A)

LGA036H4

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
						75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C
cfm	L/s	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW							
63°F (17°C)	960	455	34.1	10.0	1.96	.68	.83	.97	32.6	9.6	2.28	.70	.85	.99	31.0	9.1	2.62	.71	.87	1.00	29.2	8.6	3.02	.73	.90	1.00
	1200	565	35.5	10.4	1.97	.74	.90	1.00	33.9	9.9	2.28	.75	.93	1.00	32.2	9.4	2.63	.78	.96	1.00	30.4	8.9	3.03	.80	.98	1.00
	1440	680	36.6	10.7	1.97	.79	.97	1.00	35.0	10.3	2.28	.81	.99	1.00	33.4	9.8	2.63	.84	1.00	1.00	31.7	9.3	3.02	.87	1.00	1.00
67°F (19°C)	960	455	36.4	10.7	1.97	.54	.66	.79	34.7	10.2	2.28	.54	.67	.81	33.0	9.7	2.63	.55	.69	.83	31.1	9.1	3.03	.56	.71	.86
	1200	565	37.6	11.0	1.97	.57	.71	.87	35.9	10.5	2.28	.58	.73	.89	34.0	10.0	2.63	.59	.75	.92	32.0	9.4	3.03	.60	.78	.95
	1440	680	38.5	11.3	1.97	.60	.77	.94	36.7	10.8	2.28	.61	.79	.96	34.7	10.2	2.64	.62	.82	.99	32.6	9.6	3.03	.64	.85	1.00
71°F (22°C)	960	455	38.9	11.4	1.98	.40	.52	.64	37.1	10.9	2.29	.41	.53	.65	35.3	10.3	2.63	.41	.54	.67	33.2	9.7	3.03	.41	.55	.68
	1200	565	40.1	11.8	1.98	.41	.55	.69	38.2	11.2	2.29	.42	.56	.70	36.3	10.6	2.64	.42	.57	.72	34.1	10.0	3.03	.43	.59	.75
	1440	680	40.9	12.0	1.98	.43	.58	.74	39.0	11.4	2.29	.43	.60	.76	36.9	10.8	2.64	.44	.61	.79	34.7	10.2	3.03	.44	.63	.82

3.5 TON HIGH EFFICIENCY (R-22)

LGA042H2

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
						75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C
cfm	L/s	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW							
63°F (17°C)	1120	530	41.2	12.1	2.69	.70	.83	.96	39.7	11.6	3.04	.71	.85	.97	38.2	11.2	3.45	.72	.86	.99	36.6	10.7	3.90	.73	.88	1.00
	1400	660	42.9	12.6	2.68	.75	.90	1.00	41.4	12.1	3.04	.76	.92	1.00	39.8	11.7	3.44	.78	.94	1.00	38.2	11.2	3.89	.79	.96	1.00
	1680	795	44.4	13.0	2.68	.80	.96	1.00	42.8	12.5	3.03	.82	.98	1.00	41.3	12.1	3.43	.83	.99	1.00	39.7	11.6	3.88	.86	1.00	1.00
67°F (19°C)	1120	530	44.0	12.9	2.68	.55	.67	.80	42.5	12.5	3.03	.55	.68	.81	40.8	12.0	3.43	.56	.69	.83	39.1	11.5	3.89	.57	.70	.84
	1400	660	45.6	13.4	2.67	.58	.72	.87	44.0	12.9	3.02	.58	.74	.89	42.3	12.4	3.42	.59	.75	.90	40.5	11.9	3.88	.60	.77	.92
	1680	795	46.8	13.7	2.67	.61	.78	.93	45.1	13.2	3.02	.62	.79	.95	43.3	12.7	3.42	.63	.81	.97	41.4	12.1	3.87	.64	.83	.99
71°F (22°C)	1120	530	47.2	13.8	2.67	.42	.53	.64	45.5	13.3	3.02	.42	.54	.66	43.8	12.8	3.42	.42	.54	.66	42.0	12.3	3.87	.42	.55	.68
	1400	660	48.8	14.3	2.66	.43	.56	.70	47.0	13.8	3.01	.43	.57	.71	45.2	13.2	3.41	.43	.58	.72	43.3	12.7	3.86	.43	.59	.74
	1680	795	49.9	14.6	2.66	.44	.60	.75	48.1	14.1	3.00	.44	.61	.77	46.2	13.5	3.40	.45	.62	.78	44.2	13.0	3.85	.45	.63	.80

4 TON HIGH EFFICIENCY (R-22)

LGA048H2

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
						75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C
cfm	L/s	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW							
63°F (17°C)	1280	605	47.3	13.9	3.11	.69	.82	.95	45.6	13.4	3.51	.70	.84	.97	43.8	12.8	3.96	.71	.85	.98	41.9	12.3	4.47	.72	.88	1.00
	1600	755	49.2	14.4	3.13	.74	.90	1.00	47.4	13.9	3.53	.75	.92	1.00	45.5	13.3	3.99	.77	.93	1.00	43.6	12.8	4.50	.79	.96	1.00
	1920	905	50.8	14.9	3.15	.79	.96	1.00	48.9	14.3	3.55	.81	.98	1.00	47.1	13.8	4.01	.83	.99	1.00	45.3	13.3	4.52	.85	1.00	1.00
67°F (19°C)	1280	605	50.3	14.7	3.15	.54	.66	.79	48.5	14.2	3.55	.55	.67	.80	46.6	13.7	4.00	.55	.69	.82	44.6	13.1	4.51	.56	.70	.84
	1600	755	52.1	15.3	3.17	.57	.71	.86	50.2	14.7	3.57	.58	.73	.88	48.1	14.1	4.03	.59	.74	.90	46.0	13.5	4.54	.60	.76	.92
	1920	905	53.3	15.6	3.19	.60	.77	.93	51.3	15.0	3.59	.61	.78	.95	49.2	14.4	4.05	.62	.80	.97	47.1	13.8	4.56	.63	.82	.99
71°F (22°C)	1280	605	53.7	15.7	3.19	.41	.53	.64	51.8	15.2	3.60	.41	.53	.65	49.8	14.6	4.05	.42	.54	.66	47.7	14.0	4.56	.42	.55	.67
	1600	755	55.5	16.3	3.21	.42	.56	.69	53.4	15.6	3.62	.42	.56	.70	51.3	15.0	4.08	.43	.57	.72	49.0	14.4	4.60	.43	.58	.74
	1920	905	56.6	16.6	3.23	.43	.59	.74	54.5	16.0	3.64	.43	.60	.76	52.2	15.3	4.10	.44	.61	.78	50.0	14.7	4.61	.44	.62	.80

COOLING RATINGS

NOTE - For Temperatures and Capacities not shown in tables, see bulletin - Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

4 TON HIGH EFFICIENCY (R-410A)

LGA048H4

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
			kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1280	605	49.2	14.4	2.97	.69	.83	.97	46.9	13.7	3.38	.70	.86	.99	44.4	13.0	3.85	.72	.88	1.00	41.8	12.3	4.40	.74	.91	1.00
	1600	755	51.2	15.0	2.99	.74	.91	1.00	48.8	14.3	3.39	.76	.94	1.00	46.3	13.6	3.86	.78	.97	1.00	43.7	12.8	4.41	.81	.99	1.00
	1920	905	52.8	15.5	3.00	.80	.98	1.00	50.5	14.8	3.40	.82	1.00	1.00	48.2	14.1	3.87	.85	1.00	1.00	45.6	13.4	4.42	.89	1.00	1.00
67°F (19°C)	1280	605	52.3	15.3	3.00	.54	.66	.79	49.9	14.6	3.40	.54	.68	.82	47.3	13.9	3.87	.55	.69	.84	44.4	13.0	4.42	.57	.71	.87
	1600	755	54.1	15.9	3.01	.57	.72	.88	51.5	15.1	3.42	.58	.73	.91	48.8	14.3	3.88	.59	.76	.93	45.8	13.4	4.42	.60	.79	.97
	1920	905	55.4	16.2	3.02	.60	.77	.95	52.7	15.4	3.42	.61	.80	.98	49.8	14.6	3.89	.63	.83	1.00	46.9	13.7	4.43	.65	.86	1.00
71°F (22°C)	1280	605	55.9	16.4	3.02	.40	.52	.64	53.3	15.6	3.42	.41	.53	.65	50.6	14.8	3.89	.41	.54	.67	47.6	14.0	4.44	.41	.55	.69
	1600	755	57.7	16.9	3.03	.41	.55	.69	54.9	16.1	3.44	.42	.57	.71	52.0	15.2	3.90	.42	.58	.73	48.9	14.3	4.45	.43	.59	.76
	1920	905	58.8	17.2	3.04	.43	.59	.75	56.0	16.4	3.45	.43	.60	.77	53.0	15.5	3.91	.44	.62	.80	49.8	14.6	4.45	.45	.64	.83

5 TON HIGH EFFICIENCY (R-22)

LGA060H2

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
			kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1600	755	60.5	17.7	3.92	.70	.84	.96	58.5	17.1	4.43	.70	.85	.98	56.4	16.5	5.00	.72	.87	.99	54.1	15.9	5.63	.73	.89	1.00
	2000	945	62.8	18.4	3.95	.75	.91	1.00	60.7	17.8	4.45	.76	.93	1.00	58.5	17.1	5.02	.78	.95	1.00	56.2	16.5	5.66	.80	.97	1.00
	2400	1135	64.8	19.0	3.97	.80	.97	1.00	62.7	18.4	4.47	.82	.99	1.00	60.5	17.7	5.05	.84	1.00	1.00	58.3	17.1	5.68	.86	1.00	1.00
67°F (19°C)	1600	755	64.2	18.8	3.96	.55	.67	.80	62.0	18.2	4.47	.55	.68	.81	59.7	17.5	5.04	.56	.69	.83	57.3	16.8	5.67	.56	.71	.85
	2000	945	66.2	19.4	3.98	.58	.72	.88	63.9	18.7	4.49	.58	.74	.89	61.5	18.0	5.06	.59	.75	.92	59.0	17.3	5.70	.60	.77	.94
	2400	1135	67.7	19.8	4.00	.61	.78	.95	65.3	19.1	4.51	.62	.80	.96	62.8	18.4	5.08	.63	.82	.98	60.2	17.6	5.72	.64	.84	.99
71°F (22°C)	1600	755	68.4	20.0	4.00	.41	.53	.65	66.0	19.3	4.51	.41	.54	.66	63.6	18.6	5.09	.41	.54	.67	61.1	17.9	5.71	.42	.55	.68
	2000	945	70.3	20.6	4.03	.42	.56	.70	67.9	19.9	4.53	.42	.57	.71	65.3	19.1	5.10	.43	.58	.73	62.6	18.3	5.74	.43	.59	.75
	2400	1135	71.7	21.0	4.04	.43	.60	.76	69.1	20.3	4.54	.44	.61	.77	66.5	19.5	5.12	.44	.62	.79	63.7	18.7	5.76	.45	.63	.81

5 TON HIGH EFFICIENCY (R-410A)

LGA060H4

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
			kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1600	755	59.8	17.5	3.82	.67	.82	.97	57.1	16.7	4.32	.68	.84	.99	54.3	15.9	4.89	.70	.87	1.00	51.2	15.0	5.57	.72	.90	1.00
	2000	945	62.1	18.2	3.84	.72	.91	1.00	59.3	17.4	4.35	.74	.93	1.00	56.4	16.5	4.93	.76	.96	1.00	53.3	15.6	5.60	.80	.99	1.00
	2400	1135	64.1	18.8	3.87	.78	.98	1.00	61.4	18.0	4.37	.81	.99	1.00	58.5	17.1	4.96	.84	1.00	1.00	55.6	16.3	5.64	.87	1.00	1.00
67°F (19°C)	1600	755	63.5	18.6	3.86	.52	.65	.78	60.6	17.8	4.37	.53	.66	.80	57.5	16.9	4.94	.54	.68	.83	54.3	15.9	5.62	.55	.69	.86
	2000	945	65.6	19.2	3.88	.55	.70	.87	62.5	18.3	4.39	.56	.71	.90	59.3	17.4	4.98	.57	.74	.93	55.8	16.4	5.65	.59	.77	.96
	2400	1135	67.0	19.6	3.90	.58	.76	.95	63.9	18.7	4.41	.60	.78	.97	60.5	17.7	5.00	.61	.81	.99	57.0	16.7	5.67	.63	.85	1.00
71°F (22°C)	1600	755	67.8	19.9	3.91	.39	.51	.62	64.7	19.0	4.42	.39	.52	.64	61.4	18.0	5.00	.40	.53	.65	58.0	17.0	5.69	.40	.54	.67
	2000	945	69.7	20.4	3.94	.40	.54	.68	66.5	19.5	4.45	.41	.55	.69	63.0	18.5	5.04	.41	.56	.71	59.4	17.4	5.72	.42	.58	.74
	2400	1135	71.1	20.8	3.95	.42	.57	.73	67.7	19.8	4.47	.42	.59	.76	64.2	18.8	5.05	.43	.60	.79	60.4	17.7	5.74	.43	.62	.82

COOLING RATINGS

NOTE - For Temperatures and Capacities not shown in tables, see bulletin - Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

6 TON STANDARD EFFICIENCY (R-22)

LGC072S2

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
			kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1920	905	72.4	21.2	5.31	.66	.81	.96	70.0	20.5	5.96	.67	.83	.97	67.5	19.8	6.71	.68	.85	.99	64.8	19.0	7.54	.69	.87	1.00
	2400	1135	74.9	22.0	5.37	.71	.90	1.00	72.5	21.2	6.03	.73	.92	1.00	69.9	20.5	6.78	.74	.94	1.00	67.2	19.7	7.62	.76	.95	1.00
	2880	1360	77.0	22.6	5.43	.77	.97	1.00	74.6	21.9	6.08	.79	.98	1.00	72.0	21.1	6.84	.81	.99	1.00	69.4	20.3	7.67	.83	1.00	1.00
67°F (19°C)	1920	905	76.3	22.4	5.40	.52	.64	.77	73.8	21.6	6.06	.52	.65	.79	71.1	20.8	6.80	.53	.66	.81	68.2	20.0	7.64	.54	.67	.83
	2400	1135	78.4	23.0	5.46	.55	.69	.86	75.8	22.2	6.11	.55	.70	.88	73.0	21.4	6.86	.56	.72	.90	70.1	20.5	7.70	.57	.74	.92
	2880	1360	79.9	23.4	5.50	.58	.75	.94	77.3	22.7	6.16	.59	.77	.95	74.5	21.8	6.90	.59	.79	.97	71.4	20.9	7.75	.61	.81	.99
71°F (22°C)	1920	905	80.8	23.7	5.52	.39	.50	.62	78.2	22.9	6.18	.39	.51	.63	75.4	22.1	6.92	.39	.51	.64	72.4	21.2	7.76	.39	.52	.65
	2400	1135	82.8	24.3	5.57	.40	.54	.67	80.1	23.5	6.23	.40	.54	.68	77.1	22.6	6.98	.40	.55	.69	74.0	21.7	7.82	.41	.56	.71
	2880	1360	84.2	24.7	5.61	.41	.57	.73	81.3	23.8	6.27	.41	.58	.75	78.3	22.9	7.02	.42	.59	.77	75.1	22.0	7.86	.42	.60	.79

6 TON STANDARD EFFICIENCY (R-410A)

LGC072S4

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
			kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1920	905	73.6	21.6	5.46	.70	.84	.97	70.5	20.7	6.16	.72	.87	.99	67.3	19.7	6.98	.73	.89	1.00	63.9	18.7	7.91	.75	.91	1.00
	2400	1135	76.2	22.3	5.52	.76	.92	1.00	73.1	21.4	6.22	.77	.94	1.00	69.9	20.5	7.01	.79	.96	1.00	66.6	19.5	7.92	.82	.98	1.00
	2880	1360	78.4	23.0	5.57	.81	.98	1.00	75.4	22.1	6.27	.83	.99	1.00	72.2	21.2	7.06	.86	1.00	1.00	68.9	20.2	8.00	.88	1.00	1.00
67°F (19°C)	1920	905	77.6	22.7	5.55	.55	.68	.81	74.4	21.8	6.24	.56	.69	.83	71.0	20.8	7.03	.57	.71	.85	67.4	19.8	7.95	.58	.72	.88
	2400	1135	79.8	23.4	5.60	.58	.73	.89	76.4	22.4	6.29	.59	.75	.91	72.9	21.4	7.09	.60	.77	.94	69.2	20.3	8.02	.62	.79	.96
	2880	1360	81.3	23.8	5.64	.61	.79	.95	77.9	22.8	6.34	.63	.81	.97	74.3	21.8	7.14	.64	.84	.99	70.6	20.7	8.06	.66	.86	1.00
71°F (22°C)	1920	905	82.3	24.1	5.66	.41	.53	.66	78.9	23.1	6.36	.41	.54	.67	75.3	22.1	7.16	.42	.55	.68	71.6	21.0	8.09	.42	.56	.70
	2400	1135	84.3	24.7	5.72	.42	.57	.72	80.8	23.7	6.41	.43	.58	.73	77.1	22.6	7.21	.43	.59	.75	73.2	21.5	8.13	.44	.61	.77
	2880	1360	85.7	25.1	5.75	.44	.61	.77	82.1	24.1	6.45	.44	.62	.79	78.2	22.9	7.25	.45	.63	.82	74.2	21.7	8.18	.45	.65	.84

6 TON HIGH EFFICIENCY (R-22)

LGA072H2

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
			kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1920	905	72.0	21.1	5.02	.69	.83	.96	69.6	20.4	5.62	.70	.85	.98	67.0	19.6	6.31	.71	.86	.99	64.1	18.8	7.12	.72	.89	1.00
	2400	1135	74.6	21.9	5.09	.74	.91	1.00	72.2	21.2	5.69	.76	.93	1.00	69.5	20.4	6.39	.77	.95	1.00	66.5	19.5	7.21	.79	.97	1.00
	2880	1360	76.9	22.5	5.15	.80	.97	1.00	74.4	21.8	5.76	.81	.99	1.00	71.7	21.0	6.46	.83	1.00	1.00	68.9	20.2	7.29	.86	1.00	1.00
67°F (19°C)	1920	905	76.3	22.4	5.14	.54	.67	.80	73.7	21.6	5.74	.55	.68	.81	70.9	20.8	6.43	.55	.69	.83	67.8	19.9	7.25	.56	.70	.85
	2400	1135	78.6	23.0	5.20	.57	.72	.88	75.9	22.2	5.80	.58	.73	.89	73.0	21.4	6.52	.59	.75	.91	69.7	20.4	7.34	.60	.77	.94
	2880	1360	80.3	23.5	5.26	.60	.78	.95	77.5	22.7	5.86	.61	.79	.96	74.4	21.8	6.57	.62	.81	.98	71.1	20.8	7.38	.64	.83	1.00
71°F (22°C)	1920	905	81.1	23.8	5.28	.41	.53	.64	78.3	22.9	5.89	.41	.53	.65	75.4	22.1	6.60	.41	.54	.66	72.1	21.1	7.42	.41	.55	.68
	2400	1135	83.3	24.4	5.35	.42	.56	.70	80.4	23.6	5.96	.42	.57	.71	77.3	22.7	6.67	.42	.58	.73	73.8	21.6	7.49	.43	.59	.74
	2880	1360	84.8	24.9	5.41	.43	.59	.75	81.8	24.0	6.01	.43	.60	.77	78.6	23.0	6.72	.44	.61	.79	75.0	22.0	7.54	.44	.63	.82

6 TON HIGH EFFICIENCY (R-410A)

LGA072H4

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
			kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1920	905	73.5	21.5	5.12	.70	.84	.97	70.1	20.5	5.73	.72	.86	.99	66.4	19.5	6.44	.73	.89	1.00	62.4	18.3	7.26	.75	.92	1.00
	2400	1135	76.2	22.3	5.19	.75	.92	1.00	72.7	21.3	5.81	.77	.94	1.00	68.9	20.2	6.52	.80	.97	1.00	65.0	19.0	7.33	.83	.99	1.00
	2880	1360	78.5	23.0	5.24	.81	.98	1.00	75.0	22.0	5.87	.83	1.00	1.00	71.4	20.9	6.59	.86	1.00	1.00	67.5	19.8	7.42	.89	1.00	1.00
67°F (19°C)	1920	905	77.9	22.8	5.23	.55	.68	.81	74.2	21.7	5.86	.56	.69	.83	70.3	20.6	6.56	.57	.71	.85	65.9	19.3	7.38	.58	.73	.89
	2400	1135	80.2	23.5	5.30	.58	.73	.89	76.4	22.4	5.92	.59	.75	.91	72.2	21.2	6.62	.60	.77	.94	67.8	19.9	7.44	.62	.80	.97
	2880	1360	81.9	24.0	5.35	.61	.79	.96	77.9	22.8	5.96	.63	.81	.98	73.7	21.6	6.67	.64	.84	1.00	69.1	20.3	7.49	.66	.87	1.00
71°F (22°C)	1920	905	82.7	24.2	5.37	.41	.53	.65	78.9	23.1	5.99	.42	.54	.67	74.7	21.9	6.70	.42	.55	.69	70.1	20.5	7.53	.42	.57	.71
	2400	1135	85.0	24.9	5.44	.42	.57	.71	80.9	23.7	6.06	.43	.58	.73	76.5	22.4	6.77	.43	.59	.75	71.8	21.0	7.58	.44	.61	.78
	2880	1360	86.5	25.4	5.49	.44	.60	.77	82.3	24.1	6.10	.44	.62	.79	77.8	22.8	6.81	.45	.63	.82	72.9	21.4	7.63	.46	.66	.85

HUMIDITROL® DEHUMIDIFICATION SYSTEM RATINGS

3 TON HIGH EFFICIENCY (R-22) COOLING CAPACITY WITH HUMIDITROL ON

LGA036H2

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)		
						Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb		
cfm	L/s	kBtuh	kW	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C		
63° F (17° C)	960	455	20.5	6.0	1.78	.40	.63	.85	19.5	5.7	2.00	0.40	0.64	0.89	18.3	5.4	2.26	0.40	0.65	0.90	17.1	5.0	2.53	0.40	0.68	0.94
	1200	565	22.1	6.5	1.77	.49	.77	.98	21.0	6.2	2.00	0.51	0.78	0.98	19.8	5.8	2.25	0.52	0.80	1.00	18.5	5.4	2.52	0.52	0.83	1.00
	1440	680	23.4	6.9	1.77	.59	.88	1.00	22.2	6.5	2.00	0.59	0.89	1.00	21.0	6.2	2.25	0.62	0.91	1.00	19.7	5.8	2.52	0.63	0.94	1.00
67° F (19° C)	960	455	25.2	7.4	1.77	.25	.44	.63	24.0	7.0	2.00	0.25	0.43	0.64	22.8	6.7	2.25	0.24	0.44	0.65	21.5	6.3	2.52	0.24	0.44	0.66
	1200	565	26.6	7.8	1.77	.30	.52	.73	25.4	7.4	1.99	0.30	0.52	0.75	24.1	7.1	2.24	0.30	0.53	0.77	22.7	6.7	2.51	0.29	0.53	0.78
	1440	680	27.7	8.1	1.76	.35	.61	.83	26.4	7.7	1.99	0.36	0.61	0.86	25.1	7.4	2.24	0.34	0.62	0.87	23.6	6.9	2.51	0.35	0.64	0.90
71° F (22° C)	960	455	29.0	8.5	1.76	.13	.27	.44	27.8	8.1	1.99	0.11	0.28	0.44	26.5	7.8	2.24	0.10	0.27	0.43	25.1	7.4	2.50	0.08	0.27	0.44
	1200	565	30.5	8.9	1.76	.14	.33	.50	29.2	8.6	1.98	0.14	0.33	0.51	27.9	8.2	2.23	0.13	0.32	0.52	26.4	7.7	2.50	0.11	0.33	0.54
	1440	680	31.6	9.3	1.76	.16	.38	.58	30.2	8.9	1.98	0.17	0.37	0.59	28.8	8.4	2.23	0.15	0.38	0.61	27.3	8.0	2.50	0.14	0.38	0.62

3 TON HIGH EFFICIENCY (R-410A) COOLING CAPACITY WITH HUMIDITROL ON

LGA036H4

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)		
						Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb		
cfm	L/s	kBtuh	kW	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C		
63° F (17° C)	960	450	24.7	7.2	2.0	0.50	0.70	0.89	20.6	6.0	2.2	0.44	0.68	0.91	16.4	4.8	2.3	0.35	0.66	0.92	15.2	4.4	2.5	0.35	0.70	0.96
	1200	570	25.6	7.5	2.0	0.56	0.80	0.98	21.4	6.3	2.2	0.53	0.81	1.00	17.2	5.1	2.4	0.46	0.81	1.00	16.0	4.7	2.5	0.49	0.85	1.00
	1440	680	26.4	7.7	1.9	0.63	0.89	1.00	22.0	6.5	2.1	0.61	0.91	1.00	17.6	5.2	2.3	0.58	0.94	1.00	16.3	4.8	2.5	0.61	0.98	1.00
67° F (19° C)	960	450	40.0	11.7	2.0	0.32	0.49	0.65	23.6	6.9	2.1	0.25	0.45	0.64	20.6	6.0	2.3	0.18	0.41	0.64	19.5	5.7	2.6	0.19	0.42	0.68
	1200	570	29.0	8.5	2.0	0.37	0.56	0.76	24.6	7.2	2.1	0.29	0.52	0.76	20.9	6.1	2.3	0.22	0.49	0.76	19.1	5.6	2.6	0.20	0.50	0.79
	1440	680	30.4	8.9	2.0	0.42	0.64	0.86	25.7	7.5	2.1	0.35	0.60	0.87	21.6	6.3	2.3	0.28	0.59	0.89	19.6	5.7	2.5	0.26	0.60	0.92
71° F (22° C)	960	450	31.0	9.1	2.0	0.13	0.28	0.44	25.1	7.4	2.2	0.04	0.22	0.40	23.9	7.0	2.4	0.03	0.23	0.41	22.9	6.7	2.6	0.03	0.23	0.43
	1200	570	44.2	13.0	2.0	0.20	0.37	0.54	27.8	8.2	2.2	0.10	0.31	0.51	25.6	7.5	2.4	0.08	0.29	0.51	23.7	6.9	2.6	0.05	0.30	0.53
	1440	680	31.4	9.2	1.9	0.23	0.41	0.61	28.7	8.4	2.1	0.14	0.37	0.59	26.0	7.6	2.3	0.09	0.35	0.60	23.5	6.9	2.5	0.04	0.33	0.61

4 TON HIGH EFFICIENCY (R-22) COOLING CAPACITY WITH HUMIDITROL ON

LGA048H2

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)		
						Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb		
cfm	L/s	kBtuh	kW	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C		
63° F (17° C)	1280	605	29.8	8.7	2.47	.44	.66	.88	28.4	8.3	2.77	.45	.67	.90	26.9	7.9	3.11	.45	.70	.91	25.2	7.4	3.51	.46	.71	.95
	1600	755	31.9	9.3	2.49	.54	.79	.98	30.5	8.9	2.79	.55	.80	1.00	28.8	8.4	3.13	.56	.83	1.00	27.0	7.9	3.53	.56	.86	1.00
	1920	910	33.5	9.8	2.50	.63	.89	1.00	32.0	9.4	2.80	.62	.92	1.00	30.4	8.9	3.15	.65	.93	1.00	28.5	8.3	3.55	.67	.97	1.00
67° F (19° C)	1280	605	35.1	10.3	2.49	.30	.47	.65	33.6	9.8	2.80	.29	.47	.66	31.9	9.3	3.15	.27	.46	.67	30.1	8.8	3.55	.27	.47	.68
	1600	755	37.0	10.8	2.51	.34	.55	.76	35.5	10.4	2.82	.33	.54	.77	33.7	9.9	3.17	.34	.55	.78	31.8	9.3	3.57	.34	.59	.81
	1920	910	38.4	11.3	2.52	.39	.63	.85	36.8	10.8	2.83	.39	.64	.87	34.9	10.2	3.19	.39	.65	.89	32.9	9.6	3.59	.39	.67	.92
71° F (22° C)	1280	605	40.0	11.7	2.52	.16	.31	.46	38.4	11.3	2.83	.15	.31	.47	36.6	10.7	3.19	.13	.31	.47	34.7	10.2	3.60	.12	.28	.48
	1600	755	41.9	12.3	2.54	.18	.35	.54	40.3	11.8	2.86	.17	.36	.54	38.4	11.3	3.21	.16	.36	.55	36.3	10.6	3.62	.15	.35	.56
	1920	910	43.3	12.7	2.55	.20	.40	.61	41.5	12.2	2.87	.19	.41	.62	39.5	11.6	3.23	.18	.41	.64	37.4	11.0	3.64	.17	.42	.65

4 TON HIGH EFFICIENCY (R-410A) COOLING CAPACITY WITH HUMIDITROL ON

LGA048H4

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)		
						Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb		
cfm	L/s	kBtuh	kW	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C		
63° F (17° C)	1280	600	34.5	10.1	2.7	0.49	0.69	0.89	31.9	9.3	3.0	0.48	0.71	0.92	27.6	8.1	3.3	0.45	0.70	0.95	26.2	7.7	3.6	0.46	0.75	0.98
	1600	760	35.6	10.4	2.6	0.55	0.81	1.00	33.4	9.8	2.9	0.57	0.82	1.00	29.0	8.5	3.2	0.54	0.84	1.00	27.5	8.1	3.5	0.57	0.89	1.00
	1920	910	36.9	10.8	2.7	0.64	0.91	1.00	34.5	10.1	2.9	0.65	0.94	1.00	29.9	8.8	3.2	0.65	0.96	1.00	28.4	8.3	3.5	0.70	1.00	1.00
67° F (19° C)	1280	600	56.8	16.6	2.6	0.30	0.47	0.65	35.8	10.5	2.9	0.28	0.47	0.66	31.6	9.3	3.2	0.24	0.44	0.67	30.3	8.9	3.5	0.24	0.47	0.70
	1600	760	40.4	11.8	2.6	0.34	0.55	0.77	37.4	11.0	2.9	0.34	0.55	0.79	32.5	9.5	3.2	0.28	0.53	0.80	30.3	8.9	3.5	0.29	0.56	0.85
	1920	910	41.7	12.2	2.7	0.40	0.63	0.87	38.9	11.4	3.0	0.39	0.64	0.90	33.6	9.9	3.2	0.34	0.64	0.92	31.2	9.1	3.5	0.34	0.66	0.97
71° F (22° C)	1280	600	42.3	12.4	2.6	0.18	0.33	0.48	40.4	11.8	2.9	0.13	0.31	0.47	38.0	11.1	3.2	0.12	0.29	0.47	35.3	10.4	3.5	0.11	0.29	0.47
	1600	760	62.6	18.3	2.7	0.24	0.41	0.57	43.6	12.8	3.0	0.19	0.38	0.56	40.3	11.8	3.3	0.15	0.36	0.56	36.6	10.7	3.6	0.13	0.35	0.56
	1920	910	47.7	14.0	2.7	0.26	0.45	0.64	44.9	13.1	3.0	0.20	0.42	0.63	40.9	12.0	3.3	0.18	0.41	0.64	36.8	10.8	3.6	0.13	0.39	0.66

HUMIDITROL® DEHUMIDIFICATION SYSTEM RATINGS

5 TON HIGH EFFICIENCY (R-22) COOLING CAPACITY WITH HUMIDITROL ON

LGA060H2

Entering Wet Bulb Temperature	Total Air Volume cfm L/s		Outdoor Air Temperature Entering Outdoor Coil																							
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
			kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1600	755	37.2	10.9	3.12	.45	.67	.90	35.4	10.4	3.49	0.45	0.70	0.91	33.5	9.8	3.92	0.46	0.71	0.95	31.5	9.2	4.43	0.44	0.72	0.96
	2000	945	39.7	11.6	3.15	.55	.80	1.00	37.9	11.1	3.58	0.55	0.83	1.00	35.8	10.5	3.95	0.56	0.84	1.00	33.7	9.9	4.45	0.57	0.87	1.00
	2400	1135	41.8	12.3	3.16	.64	.92	1.00	39.8	11.7	3.53	0.65	0.93	1.00	37.5	11.0	3.97	0.66	0.95	1.00	35.7	10.5	4.47	0.68	0.98	1.00
67°F (19°C)	1600	755	44.2	13.0	3.15	.29	.48	.66	42.3	12.4	3.52	0.28	0.47	0.67	40.2	11.8	3.96	0.28	0.47	0.68	38	11.1	4.47	0.27	0.48	0.71
	2000	945	46.5	13.6	3.18	.33	.56	.77	44.4	13.0	3.55	0.34	0.55	0.78	42.2	12.4	3.98	0.34	0.58	0.81	39.9	11.7	4.49	0.33	0.58	0.84
	2400	1135	48.1	14.1	3.19	.39	.64	.88	45.9	13.5	3.56	0.39	0.65	0.89	43.7	12.8	4.00	0.40	0.66	0.92	41.3	12.1	4.51	0.40	0.68	0.94
71°F (22°C)	1600	755	50.7	14.9	3.19	.15	.31	.48	48.6	14.2	3.56	0.14	0.30	0.48	46.4	13.6	4.00	0.13	0.31	0.48	44	12.9	4.51	0.10	0.31	0.49
	2000	945	52.9	15.5	3.21	.18	.36	.55	50.7	14.9	3.58	0.17	0.37	0.56	48.3	14.2	4.03	0.16	0.36	0.56	45.9	13.5	4.53	0.13	0.36	0.57
	2400	1135	54.4	15.9	3.23	.20	.41	.62	52.1	15.3	3.60	0.19	0.42	0.64	49.7	14.6	4.04	0.18	0.42	0.67	47.1	13.8	4.54	0.18	0.43	0.68

5 TON HIGH EFFICIENCY (R-410A) COOLING CAPACITY WITH HUMIDITROL ON

LGA060H4

Entering Wet Bulb Temperature	Total Air Volume cfm L/s		Outdoor Air Temperature Entering Outdoor Coil																							
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
			kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1600	755	38.7	11.4	2.9	0.42	0.65	0.88	36.3	10.7	3.4	0.42	0.67	0.91	33.8	9.9	3.8	0.42	0.70	0.95	31.2	9.2	4.3	0.42	0.73	0.98
	2000	945	41.2	12.1	3.0	0.51	0.79	1.00	38.8	11.4	3.4	0.52	0.82	1.00	36.1	10.6	3.8	0.54	0.85	1.00	33.3	9.8	4.4	0.56	0.89	1.00
	2400	1135	43.3	12.7	3.0	0.60	0.90	1.00	40.8	12.0	3.4	0.62	0.93	1.00	37.9	11.1	3.9	0.64	0.97	1.00	35.5	10.4	4.4	0.67	0.98	1.00
67°F (19°C)	1600	755	45.6	13.4	3.0	0.26	0.44	0.62	43.1	12.6	3.4	0.26	0.45	0.65	40.4	11.8	3.8	0.25	0.45	0.65	37.5	11.0	4.4	0.24	0.45	0.69
	2000	945	47.9	14.0	3.0	0.32	0.51	0.75	45.2	13.2	3.4	0.32	0.52	0.77	42.4	12.4	3.9	0.30	0.54	0.80	39.4	11.5	4.4	0.30	0.56	0.84
	2400	1135	49.6	14.5	3.0	0.37	0.60	0.85	46.8	13.7	3.4	0.36	0.61	0.88	43.9	12.9	3.9	0.36	0.63	0.92	40.8	12.0	4.4	0.37	0.67	0.95
71°F (22°C)	1600	755	52.1	15.3	3.0	0.14	0.30	0.44	49.5	14.5	3.4	0.13	0.29	0.44	46.6	13.7	3.9	0.11	0.29	0.45	43.4	12.7	4.4	0.09	0.28	0.46
	2000	945	54.4	15.9	3.0	0.16	0.33	0.51	51.5	15.1	3.5	0.15	0.34	0.52	48.4	14.2	3.9	0.14	0.34	0.54	45.3	13.3	4.4	0.13	0.34	0.54
	2400	1135	55.9	16.4	3.1	0.18	0.38	0.59	53.0	15.5	3.5	0.17	0.38	0.61	49.8	14.6	3.9	0.17	0.39	0.63	46.4	13.6	4.5	0.15	0.40	0.65

6 TON STANDARD EFFICIENCY (R-22) COOLING CAPACITY WITH HUMIDITROL ON

LGC072S2

Entering Wet Bulb Temperature	Total Air Volume cfm L/s		Outdoor Air Temperature Entering Outdoor Coil																							
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
			kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1920	905	45.4	13.3	4.24	.46	.70	.90	43.4	12.7	4.75	0.47	0.71	0.91	41.2	12.1	5.26	0.47	0.72	0.93	38.9	11.4	5.73	0.46	0.73	0.96
	2400	1135	48.1	14.1	4.30	.56	.82	1.00	46.0	13.5	4.81	0.56	0.83	1.00	43.8	12.8	5.32	0.57	0.85	1.00	41.4	12.1	5.79	0.58	0.88	1.00
	2880	1360	50.3	14.7	4.35	.64	.92	1.00	48.1	14.1	4.86	0.67	0.93	1.00	45.9	13.5	5.37	0.68	0.95	1.00	43.4	12.7	5.84	0.69	0.97	1.00
67°F (19°C)	1920	905	52.6	15.4	4.33	.30	.48	.66	50.4	14.8	4.84	0.28	0.47	0.67	48.1	14.1	5.34	0.29	0.48	0.68	45.6	13.4	5.82	0.27	0.48	0.71
	2400	1135	54.9	16.1	4.39	.35	.56	.77	52.7	15.4	4.89	0.34	0.57	0.80	50.2	14.7	5.40	0.35	0.58	0.81	47.7	14.0	5.87	0.33	0.59	0.84
	2880	1360	56.6	16.6	4.43	.39	.64	.88	54.3	15.9	4.93	0.39	0.65	0.89	51.8	15.2	5.45	0.40	0.68	0.92	49.1	14.4	5.91	0.40	0.69	0.94
71°F (22°C)	1920	905	59.4	17.4	4.44	.15	.31	.48	57.1	16.7	4.95	0.14	0.30	0.48	54.7	16.0	5.46	0.13	0.31	0.48	52.1	15.3	5.93	0.10	0.31	0.49
	2400	1135	61.6	18.1	4.50	.18	.36	.56	59.2	17.4	5.01	0.17	0.37	0.57	56.7	16.6	5.52	0.15	0.36	0.58	53.9	15.8	5.99	0.13	0.36	0.58
	2880	1360	63.2	18.5	4.53	.20	.41	.63	60.7	17.8	5.04	0.19	0.41	0.64	58.0	17.0	5.56	0.17	0.42	0.67	55.2	16.2	6.03	0.18	0.43	0.68

6 TON STANDARD EFFICIENCY (R-410) COOLING CAPACITY WITH HUMIDITROL ON

LGC072S4

Entering Wet Bulb Temperature	Total Air Volume cfm L/s		Outdoor Air Temperature Entering Outdoor Coil																							
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
			kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1920	905	47.6	13.9	4.3	0.47	0.70	0.90	45.1	13.2	4.9	0.47	0.71	0.93	42.2	12.4	5.4	0.48	0.74	0.95	39.2	11.5	5.9	0.50	0.77	0.98
	2400	1135	50.4	14.8	4.4	0.56	0.82	1.00	47.8	14.0	4.9	0.59	0.83	1.00	44.9	13.1	5.5	0.59	0.86	1.00	41.8	12.2	6.0	0.61	0.89	1.00
	2880	1360	52.6	15.4	4.4	0.65	0.92	1.00	49.9	14.6	5.0	0.67	0.93	1.00	47.1	13.8	5.5	0.70	0.97	1.00	44.0	12.9	6.0	0.73	0.98	1.00
67°F (19°C)	1920	905	55.0	16.1	4.4	0.30	0.48	0.67	52.2	15.3	5.0	0.29	0.49	0.69	49.2	14.4	5.5	0.29	0.50	0.70	46.0	13.5	6.0	0.29	0.50	0.72
	2400	1135	57.3	16.8	4.5	0.36	0.57	0.79	54.5	16.0	5.0	0.35	0.57	0.80	51.4	15.1	5.5	0.35	0.60	0.83	48.1	14.1	6.1	0.35	0.60	0.86
	2880	1360	59.0	17.3	4.5	0.41	0.64	0.88	56.2	16.5	5.0	0.41	0.67	0.91	53.0	15.5	5.6	0.40	0.69	0.94	49.5	14.5	6.1	0.42	0.72	0.95
71°F (22°C)	1920	905	62.0	18.2	4.5	0.16	0.32	0.49	59.0	17.3	5.1	0.15	0.32	0.49	56.0	16.4	5.6	0.13	0.31	0.50	52.6	15.4	6.1	0.11	0.31	0.50
	2400	1135	64.2	18.8	4.6	0.18	0.36	0.56	61.2	17.9	5.1	0.17	0.37	0.57	58.0	17.0	5.7	0.16	0.37	0.59	54.4	15.9	6.2	0.15	0.38	0.60
	2880	1360	65.9	19.3	4.6	0.20	0.43	0.64	62.7	18.4	5.2	0.19	0.4													

BLOWER DATA

3 THRU 6 TON - BELT DRIVE BLOWER - BASE UNIT

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

- ADD:**
- 1 - Wet indoor coil air resistance of selected unit.
 - 2 - Any factory installed options air resistance (economizer, etc.)
 - 3 - Any field installed accessories air resistance (duct resistance, diffuser, etc.)

Then determine from blower table blower motor output and drive required.

See above for blower motors and drives and Page 21 for wet coil and options/accessory air resistance data.

NOTE - UNITS ARE NOT APPROVED FOR OPERATION ABOVE 1325 RPM.

BOLD INDICATE FIELD FURNISHED DRIVE.

Air Volume cfm (L/s)	Total Static Pressure — Inches Water Gauge (Pa)																			
	.00 (00)		.20 (50)		.40 (100)		.60 (150)		.80 (200)		1.00 (250)		1.20 (300)		1.40 (350)		1.60 (400)		1.80 (450)	
	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)
1000 (470)	375	0.10 (0.07)	515	0.15 (0.11)	645	0.20 (0.15)	760	0.30 (0.22)	860	0.45 (0.34)	955	0.60 (0.45)	1040	0.75 (0.56)	1120	1.00 (0.75)	1195	1.20 (0.90)	1270	1.45 (1.08)
1200 (565)	430	0.15 (0.11)	560	0.20 (0.15)	680	0.25 (0.19)	785	0.35 (0.26)	885	0.50 (0.37)	970	0.65 (0.48)	1055	0.80 (0.60)	1130	1.00 (0.75)	1205	1.20 (0.90)	1275	1.45 (1.08)
1400 (660)	490	0.20 (0.15)	615	0.30 (0.22)	725	0.35 (0.26)	820	0.45 (0.34)	910	0.55 (0.41)	995	0.70 (0.52)	1075	0.85 (0.63)	1150	1.05 (0.78)	1220	1.25 (0.93)	1285	1.45 (1.08)
1600 (755)	560	0.35 (0.26)	670	0.40 (0.30)	770	0.50 (0.37)	860	0.60 (0.45)	945	0.70 (0.52)	1025	0.80 (0.60)	1100	0.95 (0.71)	1170	1.15 (0.86)	1240	1.30 (0.97)	1305	1.50 (1.12)
1800 (850)	630	0.50 (0.37)	730	0.55 (0.41)	820	0.65 (0.48)	905	0.75 (0.56)	985	0.85 (0.63)	1060	1.00 (0.75)	1130	1.10 (0.82)	1200	1.30 (0.97)	1265	1.45 (1.08)	1325	1.65 (1.23)
2000 (945)	700	0.65 (0.48)	790	0.75 (0.56)	875	0.85 (0.63)	955	0.95 (0.71)	1030	1.05 (0.78)	1100	1.20 (0.90)	1165	1.30 (0.97)	1230	1.45 (1.08)	1295	1.65 (1.23)	---	---
2200 (1040)	770	0.85 (0.63)	855	0.95 (0.71)	930	1.05 (0.78)	1005	1.15 (0.86)	1075	1.30 (0.97)	1140	1.40 (1.04)	1205	1.55 (1.16)	1265	1.70 (1.27)	1325	1.85 (1.38)	---	---
2400 (1135)	840	1.15 (0.86)	920	1.25 (0.93)	990	1.35 (1.01)	1060	1.45 (1.08)	1125	1.55 (1.16)	1190	1.70 (1.27)	1250	1.85 (1.38)	1305	2.00 (1.49)	---	---	---	---
2600 (1225)	910	1.45 (1.08)	980	1.55 (1.16)	1050	1.65 (1.23)	1115	1.75 (1.31)	1175	1.90 (1.42)	1235	2.05 (1.53)	1295	2.20 (1.64)	---	---	---	---	---	---
2800 (1320)	980	1.80 (1.34)	1050	1.90 (1.42)	1110	2.05 (1.53)	1170	2.15 (1.60)	1230	2.30 (1.72)	1285	2.40 (1.79)	---	---	---	---	---	---	---	---
3000 (1415)	1050	2.20 (1.64)	1115	2.35 (1.75)	1175	2.45 (1.83)	1230	2.60 (1.94)	1285	2.70 (2.01)	---	---	---	---	---	---	---	---	---	---

FACTORY INSTALLED BELT DRIVE KIT SPECIFICATIONS

Motor Outputs				RPM Range			
Nominal hp	Maximum hp	Nominal kW	Maximum kW	Drive 1	Drive 2	Drive 3	Drive 4
1.5 hp Standard or High Efficiency	1.72	1.1	1.3	615 - 920	800 - 1105	---	---
2 hp Standard or High Efficiency	2.3	1.5	1.7	---	---	920 - 1230	---
3 hp Standard Efficiency Only	3.45	2.2	2.6	---	---	---	1070 - 1325

*Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

BLOWER DATA

FACTORY INSTALLED OPTIONS/FIELD INSTALLED ACCESSORY AIR RESISTANCE

Air Volume		Wet Indoor Coil						Economizer		Humiditrol Dehumidification Coil		Filters			
		036H/042H (2 row)		048H/060H 072S (3 row)		072H (4 row)						MERV 11		MERV 15	
cfm	L/s	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa
1000	470	0.02	4	0.05	12	0.07	18	0.04	10	0.01	3	0.01	3	0.04	10
1200	565	0.03	8	0.06	16	0.09	24	0.04	10	0.02	4	0.01	3	0.05	12
1400	660	0.04	10	0.08	21	0.12	31	0.04	10	0.02	5	0.02	4	0.06	15
1600	755	0.05	13	0.10	26	0.15	38	0.04	10	0.02	6	0.03	7	0.07	18
1800	850	0.06	16	0.12	31	0.18	46	0.05	12	0.03	7	0.03	7	0.08	21
2000	945	0.07	18	0.14	36	0.21	53	0.05	12	0.03	7	0.04	10	0.10	26
2200	1040	0.09	21	0.17	42	0.25	62	0.05	12	0.04	10	0.05	11	0.11	27
2400	1135	0.11	27	0.19	48	0.28	70	0.05	12	0.05	11	0.06	15	0.12	31
2600	1225	0.13	32	0.22	54	0.31	77	0.06	15	0.05	13	0.07	16	0.14	36
2800	1320	0.16	40	0.25	63	0.36	88	0.06	15	0.06	15	0.08	21	0.15	38
3000	1415	0.20	50	0.29	71	0.41	101	0.06	15	0.07	16	0.09	24	0.17	42

AIR RESISTANCE - CEILING DIFFUSERS

Air Volume		RTD9 Step-Down Diffuser						FD9 Flush Diffuser		RTD11 Step-Down Diffuser						FD11 Flush Diffuser	
		2 Ends Open		1 Side 2 Ends Open		All Ends & Sides Open				2 Ends Open		1 Side 2 Ends Open		All Ends & Sides Open			
cfm	L/s	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa
1000	470	0.19	47	0.16	40	0.14	35	0.14	35	---	---	---	---	---	---	---	---
1200	565	0.25	62	0.20	50	0.17	42	0.17	42	---	---	---	---	---	---	---	---
1400	660	0.33	82	0.26	65	0.20	50	0.20	50	---	---	---	---	---	---	---	---
1600	755	0.43	107	0.32	80	0.20	50	0.24	60	---	---	---	---	---	---	---	---
1800	850	0.56	139	0.40	100	0.30	75	0.30	75	0.13	32	0.11	27	0.09	22	0.09	22
2000	945	0.73	182	0.50	125	0.36	90	0.36	90	0.15	37	0.13	32	0.11	27	0.10	25
2200	1040	0.95	237	0.63	157	0.44	110	0.44	110	0.18	45	0.15	37	0.12	30	0.12	30
2400	1135	---	---	---	---	---	---	---	---	0.21	52	0.18	45	0.15	37	0.14	35
2600	1225	---	---	---	---	---	---	---	---	0.24	60	0.21	52	0.18	45	0.17	42
2800	1320	---	---	---	---	---	---	---	---	0.27	67	0.24	60	0.21	52	0.20	50
3000	1415	---	---	---	---	---	---	---	---	0.32	80	0.29	72	0.25	62	0.25	62

CEILING DIFFUSER AIR THROW DATA

Air Volume		1 Effective Throw			
		RTD9-65		FD9-65	
Model No.		ft.	m	ft.	m
1000	470	10 - 17	3 - 5	15 - 20	5 - 6
1200	565	11 - 18	3 - 5	16 - 22	5 - 7
1400	660	12 - 19	4 - 6	17 - 24	5 - 7
1600	755	12 - 20	4 - 6	18 - 25	5 - 7
1800	850	13 - 21	4 - 6	20 - 28	6 - 9
2000	945	14 - 23	4 - 7	21 - 29	6 - 9
2200	1040	16 - 25	5 - 8	22 - 30	7 - 9
Model No.		RTD11-95		FD11-95	
2600	1225	24 - 29	7 - 9	19 - 24	6 - 7
2800	1320	25 - 30	8 - 9	20 - 28	6 - 9
3000	1415	27 - 33	8 - 10	21 - 29	6 - 9

POWER EXHAUST FANS PERFORMANCE

Return Air System Static Pressure		Air Volume Exhausted	
in. w.g.	Pa	cfm	L/s
0	0	1900	895
0.05	12	1745	825
0.10	25	1570	740
0.15	37	1400	660
0.20	50	1230	580
0.25	62	1060	500
0.30	75	970	460
0.35	87	800	380

¹ Effective throw based on terminal velocities of 75 ft. (22.9 m) per minute.

OUTDOOR SOUND DATA

Unit Model No.	Octave Band Sound Power Levels dBA, re 10 ⁻¹² Watts - Center Frequency - HZ							1 Sound Rating Number (dB)
	125	250	500	1000	2000	4000	8000	
036	70	73	77	76	73	68	60	82
042	70	73	76	77	73	68	59	82
048	69	72	77	76	72	66	58	82
060	72	73	78	78	73	68	61	82
072	68	71	76	77	74	69	61	82

NOTE - The octave sound power data shown does not include tonal correction.

¹ Sound Rating Number according to ARI Standard 270-95.

ELECTRICAL DATA

3-3.5 TON

HIGH EFFICIENCY (R-22)

LGA036H2

¹ Voltage - 60hz	208/230V-1 Ph	208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph			
Compressor	Rated Load Amps	16	10.3			5.8			4.2		
	Locked Rotor Amps	88	77			39			30.6		
Outdoor Fan Motor - Full Load Amps	2.4	2.4			1.3			1			
Power Exhaust (1) 0.5 HP - Full Load Amps	4.4	4.4			1.7			1.7			
Service Outlet 115V GFI (Amps)	15	15			15			15			
Indoor Blower Motor	Horsepower	1.5	1.5	2	3	1.5	2	3	1.5	2	3
	Full Load Amps	11.5	5.7	7.5	10.6	2.8	3.4	4.8	2.4	2.7	3.9
² Maximum Overcurrent Protection	Unit Only	45	30	30	35	15	15	15	15	15	15
	With Power Exhaust	50	35	35	40	15	15	20	15	15	15
³ Minimum Circuit Ampacity	Unit Only	34	21	23	26	12	12	14	9	9	11
	With Power Exhaust	39	26	28	31	14	14	16	11	11	12

ELECTRICAL ACCESSORIES

Disconnect	67M16	67M16	67M16	67M16
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HIGH EFFICIENCY (R-410A)

LGA036H4

¹ Voltage - 60hz	208/230V-1ph	208/230V-3ph			460V-3ph			575V-3ph			
Compressor	Rated Load Amps	15.4	11.5			5.1			4.3		
	Locked Rotor Amps	83	77			35			31		
Outdoor Fan Motor - Full Load Amps	2.4	2.4			1.3			1.0			
Power Exhaust (1) 0.5 HP - Full Load Amps	4.4	4.4			1.7			1.7			
Service Outlet 115V GFI (amps)	15	15			15			15			
Indoor Blower Motor	Horsepower	1.5	1.5	2	3	1.5	2	3	1.5	2	3
	Rated Load Amps	11.5	5.7	7.5	10.6	2.8	3.4	4.8	2.4	2.7	3.9
² Maximum Overcurrent Protection	Unit Only	45	30	35	35	15	15	15	15	15	15
	with power exhaust	50	35	40	40	15	15	15	15	15	15
³ Minimum Circuit Ampacity	Unit Only	34	23	25	28	11	12	13	9	10	11
	with power exhaust	38	27	29	32	13	13	15	11	11	12

ELECTRICAL ACCESSORIES

Disconnect	67M16	67M16	67M16	67M16
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HIGH EFFICIENCY (R-22)

LGA042H2

¹ Voltage - 60hz	208/230V-1ph	208/230V-3ph			460V-3ph			575V-3ph			
Compressor	Rated Load Amps	17.9	12.4			5.8			4.8		
	Locked Rotor Amps	103	88			44			34		
Outdoor Fan Motor - Full Load Amps	2.4	2.4			1.3			1.0			
Power Exhaust (1) 0.5 HP - Full Load Amps	4.4	4.4			1.7			1.7			
Service Outlet 115V GFI (amps)	15	15			15			15			
Indoor Blower Motor	Horsepower	1.5	1.5	2	3	1.5	2	3	1.5	2	3
	Rated Load Amps	11.5	5.7	7.5	10.6	2.8	3.4	4.8	2.4	2.7	3.9
² Maximum Overcurrent Protection	Unit Only	50	35	35	40	15	15	15	15	15	15
	with power exhaust	50	40	40	45	15	15	20	15	15	15
³ Minimum Circuit Ampacity	Unit Only	37	24	26	29	12	12	14	10	10	11
	with power exhaust	41	28	30	33	14	14	16	12	12	13

ELECTRICAL ACCESSORIES

Disconnect	67M16	67M16	67M16	67M16
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¹ Extremes of operating range are plus and minus 10% of line voltage.

² HACR type breaker or fuse.

³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA**4 TON****HIGH EFFICIENCY (R-22)****LGA048H2**

¹ Voltage - 60hz		208/230V-1ph	208/230V-3ph			460V-3ph			575V-3ph		
Compressor	Rated Load Amps	19.2	14.7			7.1			5.1		
	Locked Rotor Amps	137	91			50			37		
Outdoor Fan Motor - Full Load Amps		2.4	2.4			1.3			1.0		
Power Exhaust (1) 0.5 HP - Full Load Amps		4.4	4.4			1.7			1.7		
Service Outlet 115V GFI (amps)		15	15			15			15		
Indoor Blower Motor	Horsepower	1.5	1.5	2	3	1.5	2	3	1.5	2	3
	Rated Load Amps	11.5	5.7	7.5	10.6	2.8	3.4	4.8	2.4	2.7	3.9
² Maximum Overcurrent Protection	Unit Only	50	40	40	45	20	20	20	15	15	15
	with power exhaust	60	45	45	50	20	20	20	15	15	15
³ Minimum Circuit Ampacity	Unit Only	38	27	29	32	13	14	15	10	11	12
	with power exhaust	43	31	33	36	15	16	17	12	12	13

ELECTRICAL ACCESSORIES

Disconnect	67M16	67M16	67M16	67M16
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HIGH EFFICIENCY (R-410A)**LGA048H4**

¹ Voltage - 60hz		208/230V-1ph	208/230V-3ph			460V-3ph			575V-3ph		
Compressor	Rated Load Amps	25.7	17.9			7.9			6.2		
	Locked Rotor Amps	134.0	91.0			46.0			37.0		
Outdoor Fan Motor - Full Load Amps		2.4	2.4			1.3			1.0		
Power Exhaust (1) 0.5 HP - Full Load Amps		4.4	4.4			1.7			1.7		
Service Outlet 115V GFI (amps)		15	15			15			15		
Indoor Blower Motor	Horsepower	1.5	1.5	2	3	1.5	2	3	1.5	2	3
	Rated Load Amps	11.5	5.7	7.5	10.6	2.8	3.4	4.8	2.4	2.7	3.9
² Maximum Overcurrent Protection	Unit Only	70	45	50	50	20	20	20	15	15	15
	with power exhaust	70	50	50	50	20	20	25	15	15	20
³ Minimum Circuit Ampacity	Unit Only	47	31	33	36	14	15	16	12	12	13
	with power exhaust	51	35	37	40	16	17	18	13	14	15

ELECTRICAL ACCESSORIES

Disconnect	67M16	67M16	67M16	67M16
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¹ Extremes of operating range are plus and minus 10% of line voltage.

² HACR type breaker or fuse.

³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA**5 TON****HIGH EFFICIENCY (R-22)****LGA060H2**

¹ Voltage - 60hz		208/230V-1ph	208/230V-3ph			460V-3ph			575V-3ph		
Compressor	Rated Load Amps	28.8	17.3			9.0			7.1		
	Locked Rotor Amps	169	123			62			50		
Outdoor Fan Motor - Full Load Amps		2.4	2.4			1.3			1.0		
Power Exhaust (1) 0.5 HP - Full Load Amps		4.4	4.4			1.7			1.7		
Service Outlet 115V GFI (amps)		15	15			15			15		
Indoor Blower Motor	Horsepower	1.5	1.5	2	3	1.5	2	3	1.5	2	3
	Rated Load Amps	11.5	5.7	7.5	10.6	2.8	3.4	4.8	2.4	2.7	3.9
² Maximum Overcurrent Protection	Unit Only	70	45	45	50	20	20	25	15	15	20
	with power exhaust	80	50	50	50	25	25	25	20	20	20
³ Minimum Circuit Ampacity	Unit Only	50	30	32	35	16	16	18	13	13	14
	with power exhaust	55	35	36	40	18	18	20	14	15	16

ELECTRICAL ACCESSORIES

Disconnect	67M16	67M16	67M16	67M16
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HIGH EFFICIENCY (R-410A)**LGA060H4**

¹ Voltage - 60hz		208/230V-1ph	208/230V-3ph			460V-3ph			575V-3ph		
Compressor	Rated Load Amps	30.1	18.1			9.0			6.8		
	Locked Rotor Amps	158	137			62			50		
Outdoor Fan Motor - Full Load Amps		2.4	2.4			1.3			1.0		
Power Exhaust (1) 0.5 HP - Full Load Amps		4.4	4.4			1.7			1.7		
Service Outlet 115V GFI (amps)		15	15			15			15		
Indoor Blower Motor	Horsepower	1.5	1.5	2	3	1.5	2	3	1.5	2	3
	Rated Load Amps	11.5	5.7	7.5	10.6	2.8	3.4	4.8	2.4	2.7	3.9
² Maximum Overcurrent Protection	Unit Only	80	45	50	50	20	20	25	15	15	20
	with power exhaust	80	50	50	50	25	25	25	20	20	20
³ Minimum Circuit Ampacity	Unit Only	52	31	33	36	16	16	18	12	13	14
	with power exhaust	56	36	37	41	18	18	20	14	14	16

ELECTRICAL ACCESSORIES

Disconnect	67M16	67M16	67M16	67M16
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¹ Extremes of operating range are plus and minus 10% of line voltage.² HACR type breaker or fuse.³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA**6 TON****STANDARD EFFICIENCY (R-22)****LGC072S2**

¹ Voltage - 60hz		208/230V-3ph			460V-3ph			575V-3ph		
Compressor	Rated Load Amps	20.7			10.3			7.4		
	Locked Rotor Amps	156			75			54		
Outdoor Fan Motor - Full Load Amps		2.4			1.3			1.0		
Power Exhaust (1) 0.5 HP - Full Load Amps		4.4			1.7			1.7		
Service Outlet 115V GFI (amps)		15			15			15		
Indoor Blower Motor	Horsepower	1.5	2	3	1.5	2	3	1.5	2	3
	Rated Load Amps	5.7	7.5	10.6	2.8	3.4	4.8	2.4	2.7	3.9
² Maximum Overcurrent Protection	Unit Only	50	50	50	20	20	25	20	20	20
	with power exhaust	50	60	60	25	25	25	20	20	20
³ Minimum Circuit Ampacity	Unit Only	34	36	39	16	16	18	13	13	15
	with power exhaust	39	41	44	18	18	20	15	15	16

ELECTRICAL ACCESSORIES

Disconnect	67M16	67M16	67M16
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HIGH EFFICIENCY (R-22)**LGA072H2**

¹ Voltage - 60hz - 3 phase		208/230V-3ph			460V-3ph			575V-3ph		
Compressor	Rated Load Amps	19.9			9.0			7.4		
	Locked Rotor Amps	156			70			54		
Outdoor Fan Motor - Full Load Amps		2.4			1.3			1.0		
Power Exhaust (1) 0.5 HP - Full Load Amps		4.4			1.7			1.7		
Service Outlet 115V GFI (amps)		15			15			15		
Indoor Blower Motor	Horsepower	1.5	2	3	1.5	2	3	1.5	2	3
	Rated Load Amps	5.7	7.5	10.6	2.8	3.4	4.8	2.4	2.7	3.9
² Maximum Overcurrent Protection	Unit Only	50	50	50	20	20	25	15	20	20
	with power exhaust	50	50	60	25	25	25	20	20	20
³ Minimum Circuit Ampacity	Unit Only	33	35	38	16	16	18	13	13	15
	with power exhaust	38	40	43	18	18	20	15	15	16

ELECTRICAL ACCESSORIES

Disconnect	67M16	67M16	67M16
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¹ Extremes of operating range are plus and minus 10% of line voltage.² HACR type breaker or fuse.³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.**STANDARD OR HIGH EFFICIENCY (R-410A)****LGA072S4/LGA072H4**

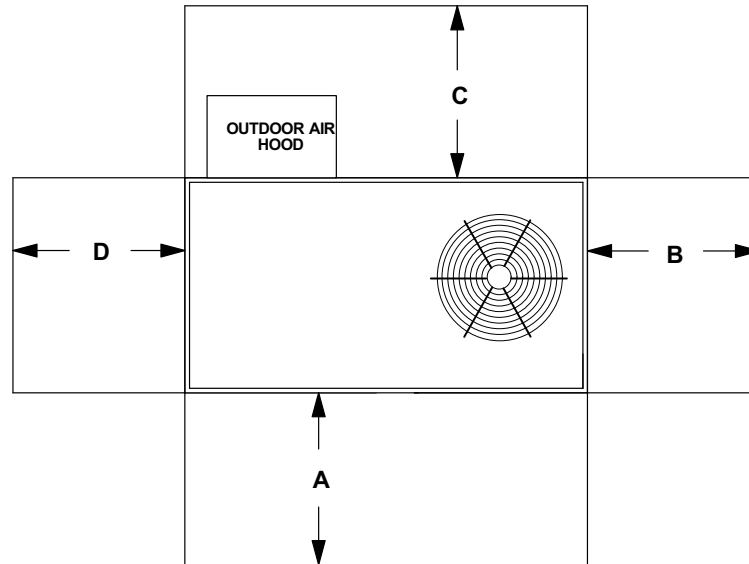
¹ Voltage - 60hz - 3 phase		208/230V-3ph			460V-3ph			575V-3ph		
Compressor	Rated Load Amps	22.4			10.6			7.7		
	Locked Rotor Amps	149.0			75			54		
Outdoor Fan Motor - Full Load Amps		2.4			1.3			1.0		
Power Exhaust (1) 0.5 HP - Full Load Amps		4.4			1.7			1.7		
Service Outlet 115V GFI (amps)		15			15			15		
Indoor Blower Motor	Horsepower	1.5	2	3	1.5	2	3	1.5	2	3
	Rated Load Amps	5.7	7.5	10.6	2.8	3.4	4.8	2.4	2.7	3.9
² Maximum Overcurrent Protection	Unit Only	50	60	60	25	25	25	20	20	20
	with power exhaust	60	60	60	25	30	30	20	20	20
³ Minimum Circuit Ampacity	Unit Only	37	38	41	18	18	20	14	14	15
	with power exhaust	41	43	46	20	20	22	15	16	17

ELECTRICAL ACCESSORIES

Disconnect	67M16	67M16	67M16
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¹ Extremes of operating range are plus and minus 10% of line voltage.² HACR type breaker or fuse.³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

UNIT CLEARANCES - INCHES (MM)



¹ Unit Clearance	A		B		C		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	36	914	36	914	36	914	36	914	Unobstructed
Clearance to Combustibles	36	914	1	25	1	25	1	25	
Minimum Operation Clearance	36	914	36	914	36	914	36	914	

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

¹ **Service Clearance** - Required for removal of serviceable parts.

Clearance to Combustibles - Required clearance to combustible material.

Minimum Operation Clearance - Required clearance for proper unit operation.

OPTIONAL UNIT CONTROLLERS AND SYSTEMS INTEGRATION

FACTORY OR FIELD INSTALLED

NOVAR ETM-2051

Electronic Thermostat Module (ETM)/Blower Proving Switch/Return Air Sensor/Discharge Air Sensor/Wiring Harness -

Module monitors unit operation from different sensors installed in unit and monitors unit diagnostic codes of the IMC. The ETM has outputs for 2 stage heat/2 stage cool, 7 relay outputs: fan Cool 1, Cool 2, Heat 1, Heat 2, Economizer, Night Mode, automatic or continuous blower operation, economizer damper operation and night setback, features: day/occupied mode with low enthalpy (outdoor air damper open), high enthalpy (outdoor air damper closed) or night/unoccupied mode (outdoor air damper closed), network communication (RS-485, shielded pair twisted wire), local override (1 to 255 minutes), watchdog function, fail-safe operation, ETM allows units to be "daisy chained" together (up to 31 units) to be operated from one central location with an "executive" type control processor (on-site or off-site), built-in time delays, built-in unit operating defaults, diagnostic LED's indicate various operating functions, surge suppression protects ETM against lightning or voltage spikes, Blower Proving Switch monitors blower operation and locks out unit in case of blower failure, Return Air Sensor provides input to ETM module to determine heating or cooling operation and number of stages required, Discharge Air Sensor monitors leaving air temperature during unit operation.

C0CTRL35EA1L

FIELD INSTALLED

Room Temperature Sensor with Adjustable Temperature Setpoint and Built-in Night Setback Override Button - Provides input to ETM module to determine heating or cooling operation and number of stages required. Temperature setpoint adjustment. Override button allows momentary override of night setback during unoccupied mode. Status LED.

C0SNZN75AE1-

Room Temperature Sensor - Provides input to ETM module to determine heating or cooling operation and number of stages required.

C0SNZN74AE1-

Room Temperature Sensor with Switchover - Used to sense indoor space temperatures in commercial and industrial environments. In programmable "fall-back" configuration, provides capability to switch over control to a secondary sensor if the signal is lost from this sensor.

C0SNZN76AE1-

Averaging Sensor - Used for temperature averaging in a large room.

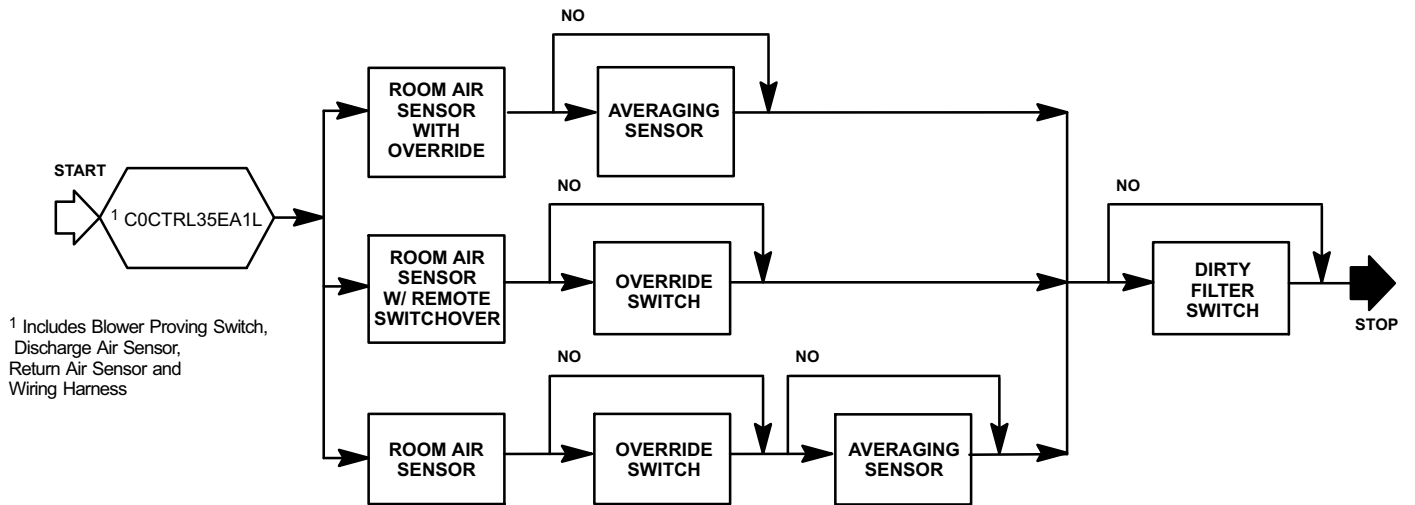
C0SNZN74AE1-

Override Switch - After Hours Remote Override Button - Wall Plate furnished.

C0SWCH20AE1-

Dirty Filter Switch - Senses static pressure increase indicating a dirty filter condition.

C0SWCH00AE1-



OPTIONAL UNIT CONTROLLERS AND SYSTEMS INTEGRATION

FACTORY OR FIELD INSTALLED

IMC LONTALK® MODULE

The IMC LonTalk module allows communication between the Lennox IMC (M1-7, v5.10+) controller and a LonWorks® network. The module translates input and output variables between the Lennox protocol and the LonTalk protocol. The IMC LonTalk Module has been developed to communicate with building automation systems that support the LonMark® Space Comfort Controller (SCC) or Discharge Air Controller (DAC) functional profiles. A Lennox zone sensor, a LonTalk network zone sensor, or a LonTalk thermostat or DDC controller may be used to send the zone temperature or thermostat demands to the IMC.

The IMC LonTalk Module utilizes an FTT-10A free topology transceiver communicating at 78.8 kbps. It is compatible with Echelon® qualified twisted pair cable such as Lennox model no. C0MISC03AE1-, Belden 8471 or NEMA Level 4 cables. The Module can communicate up to 1640 ft. (500m) with no repeater and up to 3200 ft. (1000m) with one repeater. The LonWorks limit of 64 nodes per segment applies to this device. One termination module, Lennox model no. C0MISC90AE1- is required for free topology segments and two are required for doubly terminated bus topology segments. Termination modules must be field provided.

C0CTRL51AE1L

NOTE: A qualified systems integrator with adequate training and experience is required to integrate and commission the IMC LonTalk Module into a third-party LonTalk building automation system. A LonWorks network configuration software tool such as LonMaker® (or equivalent) is required to commission the LonWorks network. An external interface file (XIF) will be made available upon request.

LONWORKS NETWORK VARIABLES - INPUTS

LonMark Name	Variable Type	Description
nviApplicMode	SNVT_hvac_mode	Unit application mode
0-Auto		Auto (unit-defined operation)
1-Heat		Demand for full heating
3-Cool		Demand for full cooling
6-Off		Unit off (IMC standby)
9-Fan only		Main fan (blower) on
254-Reset		Force controller reset
255-Null		Same as auto.
nviOAMinPos		SNVT_lev_percent
nviOccManCmd	SNVT_occupancy	Zone occupied status
nviOccSchedule	SNVT_tod_event	Occupancy scheduler input used to put controller unit into different occupancy modes
nviOccSensor	SNVT_occupancy	Occupancy sensor input. Used to indicate the presence of occupants
nviSpaceDehumSP	SNVT_lev_percent	Zone relative humidity set point
nviSetpoint	SNVT_temp_p	Zone temperature setpoint
nviSetptOffset	SNVT_temp_p	Zone temp setpoint offset
nviSpaceTemp	SNVT_temp_p	Remote zone temp.
nviEmergOverride	SNVT_hvac_emerg	Emergency smoke override
nviComprEnable	SNVT_switch	Compressor enable
nviPriHeatEnable	SNVT_switch	Primary heat enable
nviAuxHeatEnable	SNVT_switch	Auxiliary heat enable

OPTIONAL UNIT CONTROLLERS AND SYSTEMS INTEGRATION

IMC LONTALK® MODULE (Continued)

LONWORKS NETWORK VARIABLES - OUTPUTS

LonMark Name	Variable Type	Description
snvoIMCVersion	Manufacturer defined	IMC firmware version. D0-D3 (ASCII)
snvoUnitID	Manufacturer defined	Unit ID. \$3x-Gas/Elect \$4x-Elect/Elect \$5x-Heat Pump
nvoUnitStatus:	SNVT_hvac_status	Unit operation mode (i.e. cool, heat, etc)
1 - HVAC heat		
2 - HVAC morning warmup		
3 - HVAC cool		
5 - HVAC pre-cool		
6 - HVAC off		
7 - HVAC test		
8 - HVAC emergency heat		
9 - HVAC fan only		
12 - HVAC max heat		
14 - HVAC dehumidification		
129 - HVAC fresh air heating		
131 - HVAC fresh air cooling		
145 - HVAC defrost 1		
161 - HVAC defrost 2		
177 - HVAC defrost 1 2		
nvoSpaceTemp	SNVT_temp_p	Zone Temperature, effective
nvoDischAirTemp	SNVT_temp_p	Supply air temperature
nvoEffectOccup	SNVT_occupancy	Zone occupied status
nvoLocalOATemp	SNVT_temp_p	Outdoor air temperature
nvoLocalSpaceTemp	SNVT_temp_p	Zone Temperature, local
nvoOADamper	SNVT_lev_percent	Economizer damper position
nvoHeatPrimary	SNVT_lev_percent	Primary heating status
nvoHeatSecondary	SNVT_lev_percent	Heat pump electric strip heating status
nvoCoolPrimary	SNVT_lev_percent	Cooling compressor 1-4 status (on/off)
nvoEconEnabled	SNVT_switch	Economizer outdoor air suitable
nvoSupFanStatus	SNVT_switch	Supply fan status
nvoEffectSetpt	SNVT_temp_p	Zone temperature set points
snvoCurrentError	Manufacturer defined	Currently displayed error code
snvoCommStatus	Manufacturer defined	IMC Communicating
snvoErrorPointer	Manufacturer defined	Error pointer. This value points to the next available alarm code location. It runs from 0 to 83 and then returns to 0. Tracking this value and using the ten most recent IMC error codes (next variable) allows an application to 1) determine when new errors are logged by the IMC, 2) what those errors are, and 3) if any errors have been missed due to network delays or other reasons.
snvoMostRecErr1-10	Manufacturer defined	Alarm codes listed in the IMC manual
nvoSpaceCO2	SNVT_ppm	Zone CO ₂ level (PPM), local
nvoSpaceRHEff	SNVT_lev_percent	Zone relative humidity, effective
nvoSpaceRH	SNVT_lev_percent	Zone relative humidity, local
nvoEffSpaceDHSP	SNVT_lev_percent	Zone relative humidity set point
nvoDehumidifier	SNVT_switch	Dehumidification status
nvoRATemp	SNVT_temp_p	Return air temperature
nvoBldgStatPress	SNVT_press_p	Analog Input 2 (GP1 - VAV Bldg Static)
nvoDuctStatPress	SNVT_press_p	Analog Input 1 (GP1 - VAV Supply Static)
nvoExhFanStatus	SNVT_switch	Exhaust fan status

OPTIONAL UNIT CONTROLLERS AND SYSTEMS INTEGRATION

FACTORY OR FIELD INSTALLED

IMC BACNET® MODULE

The IMC BACnet module allows communication between the Lennox IMC (M1-7, v5.10+) controller and a BACnet MSTP network. The module translates input and output variables between the Lennox protocol and the BACnet protocol. The IMC BACnet Module has been developed to communicate with building automation systems that support the BACnet Application Specific Controller (B-ASC) device profile. A Lennox zone sensor, a BACnet network zone sensor, or a BACnet thermostat or DDC controller may be used to send the zone temperature or thermostat demands to the IMC.

The IMC BACnet Module is compatible with MSTP EIA-485 daisy-chain networks communicating at 38.4 kbps. It is compatible with twisted pair, shielded cable such as Lennox model nos. C0MISC00AE1-, C0MISC04AE1- or C0MISC01AE1- or Belden 8761, 88761. A maximum of 31 IMC BACnet Modules can be included per network. The BACnet MSTP maximum total bus length (without repeater) of 850 ft. (260m) applies to this device. A 120 ohm resistor must be added to the last module in the daisy chain (included in field kit).

C0CTRL50AE1L

NOTE: A qualified systems integrator with adequate training and experience is required to integrate and commission the IMC BACnet Module into a third-party BACnet building automation system. A BACnet network configuration software tool is required to commission the BACnet network.

INPUTS TO IMC

BACnet Object Name	Object Type: ID: Units	Description
Application Mode Control	AO: 101:95 (No_Units)	Unit application
0 - Auto		Auto (unit-defined operation)
1 - Heat		Demand for full Heating
3 - Cool		Demand for full Cooling
6 - Off		Unit Off (IMC stand by)
9 - Fan only		Main fan (blower) on
228 - Cool 1		Thermostat input Y1
232 - Cool 2		Thermostat input Y2
236 - Cool 3		Thermostat input Y1 & Y2
225 - Heat 1		Thermostat input W1
226 - Heat 2 (heat pump only)		Thermostat input W2 (heat pump emergency heat)
227 - Heat 3		Thermostat input W1 & W2
229 - Supermarket Reheat Lo		Thermostat input Y1 & W1
230 - Supermarket Reheat Hi		Thermostat input Y1 & W2
254 - Reset		Force controller reset
255 - Null		Same as auto.
Outdoor Air Min Pos Control	AO: 102 : 98 (Percent)	Min economizer damper position
Occupancy Override Control	AO: 103: 95 (No_Units)	Zone occupied status
Occupancy Scheduler Control	AO: 104: 95 (No_Units)	Occupancy scheduler input used to put controller unit into different occupancy modes.
Occupancy Sensor Input	AO: 107: 95 (No_Units)	Occupancy sensor input. Used to indicate the presence of occupants
Space Dehumidification Setpt	AO: 108: 98 (Percent)	Zone relative humidity set point
Temperature Setpoint (abs)	AO: 109: 64 (Degrees - Fahrenheit)	Zone temperature setpoint
Temperature Setpoint Offset	AO: 110: 64 (Degrees - Fahrenheit)	Zone temp setpoint offset
Space Temperature Input	AO: 113: 64 (Degrees - Fahrenheit)	Remote zone temp.
Emergency Override Control	AO: 114: 95 (No_Units)	Emergency smoke override
Compressor Enable Control	AO: 115: 98 (Percent)	Compressor enable
Primary Heat Enable Control	AO: 117: 98 (Percent)	Primary heat enable
Auxiliary Heat Enable Control	AO: 119: 98 (Percent)	Auxiliary heat enable

OPTIONAL UNIT CONTROLLERS AND SYSTEMS INTEGRATION

IMC BACNET® MODULE (Continued)

OUTPUTS FROM IMC

OUTPUTS FROM IMC		
IMC Version [00].....[07]	AI: 200-207 : 95 (No_Units)	IMC firmware version. (null terminated ASCII)
Unit ID	AI: 231 : 95 (No_Units)	Unit ID \$3x-Gas/Elect. \$4x-Elect/Elect. \$5x-Heat Pump
Unit Status	AI :232 : 95 (No_Units)	Unit operation mode (i.e. cool, heat, etc.)
1 - HVAC heat		
2 - HVAC morning warm-up		
3 - HVAC cool		
5 - HVAC pre-cool		
6 - HVAC off		
7 - HVAC test		
8 - HVAC emergency heat		
9 - HVAC fan only		
12 - HVAC max heat		
14 - HVAC dehumidification		
129 - HVAC fresh air heating		
131 - HVAC fresh air cooling		
145 - HVAC defrost 1		
161 - HVAC defrost 2		
177 - HVAC defrost 1, 2		
Space Temperature	AI: 239 : 64 : 95 (Degrees - Fahrenheit))	
Discharge Air Temperature	AI: 240 : 64 (Degrees - Fahrenheit)	Supply air temperature
Effective Occupancy	AI : 241 : 95 (No_ Unit)	Zone occupied status
Local Outside Air Temperature	AI 242 : 64 (Degrees - Fahrenheit)	Outdoor air temperature
Local Space Temperature	AI: 243 :64 (Degrees Fahrenheit)	Zone Temperature, local
Outside Air Damper	AI: 244 : 98 (Percent)	Economizer damper position
Heat Primary	AI: 245 :98 (Percent)	Primary heating status
Heat Secondary	AI: 246 : 98 (Percent)	Heat pump electric strip heating status
Cool Primary	AI: 247 : 98 (Percent)	Cooling compressor 1-4 status (on/off)
Economizer Enabled	AI: 248 : 95 (Percent)	Economizer outdoor air suitable
Supply Fan Status	AI: 250 : 98 (Percent)	Supply fan status
Space Temperature Set Point (Eff)	AI: 252 :64 (Degrees Fahrenheit)	Zone temperature set points
Current Error	AI: 253 : 95 (No_Units)	Currently displayed error code
Error Pointer	AI: 254 : 95 (No_Units)	Error pointer. This value points to the next available alarm code location. It runs from 0 to 83 and then rolls-over to 0. Tracking this value and using the ten most recent error codes (below) allows an application to determine when new errors are logged by the IMC, what those errors are, and if any errors have been missed due to network delays or for any other reason.
Most recent Error 1..10	AI: 255-264 : 95 (No_Units)	IMC alarm codes as listed in the IMC manual.
Space CO2 Sensor (Local)	AI : 274 :96 (Parts per million)	Zone CO ₂ level (PPM), local
Space Humidity (Local)	AI: 276 : 98 (Percent)	Zone relative humidity, local
Dehumidification Set Point (Eff)	AI: 278 : 98 (Percent)	Zone relative humidity set point
Dehumidification Status	AI: 279 : 95 (No_Units)	Dehumidification status
Return Air Temperature	AI: 281 :64 (Degrees Fahrenheit))	Return air temperature
Building Static Pressure	AI: 282 : 64 (Inches of water)	Analog Input 2 (GP1 - VAV Bldg Static)
Duct Static Pressure	AI: 282 : 64 (Inches of water)	Analog Input 1 (GP1 - VAV Supply Static)
Exhaust Fan Status	AI: 285 :98 (Percent)	Exhaust fan status
Controller Online	B1:100 :95 (No_Units)	IMC Communicating

OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS - FIELD INSTALLED

COMMERCIAL TOUCHSCREEN THERMOSTAT



Intuitive Touchscreen Interface - **Two Stage Heating / Two Stage Cooling Conventional or Heat Pump** - Seven Day Programmable - Four Time Periods/Day - Economizer Output - Title 24 Compliant - ENERGY STAR® Qualified - Backlit Display - Automatic Changeover

C0STAT02AE1L

Sensors For Touchscreen Thermostat

¹ Remote non-adjustable wall mount 20k temperature sensor	C0SNZN01AE1-
¹ Remote non-adjustable wall mount 10k averaging temperature sensor	C0SNZN73AE1-
¹ Remote non-adjustable duct mount temperature sensor	C0SNDC00AE1-
Outdoor temperature sensor	C0SNSR03AE1-

Accessories For Touchscreen Thermostat

Locking cover (clear)	C0MISC15AE1-
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¹ Remote sensors for C0STAT02AE1L can be applied in the following combinations: (1) C0SNZN01AE1-, (2) C0SNZN73AE1-, (2) C0SNZN01AE1- and (1) C0SNZN73AE1-, (4) C0SNZN01AE1-, (3) C0SNZN01AE1- and (2) C0SNZN73AE1.

DIGITAL NON-PROGRAMMABLE THERMOSTATS



Intuitive Interface - Automatic Changeover - Simple Up and Down Temperature Control

Two-stage heating / cooling conventional systems	C0STAT10AE1L
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Sensor For Digital Non-Programmable Thermostats Above

Remote wall mounted temperature sensor	C0SNZN00AE1-
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Intuitive Interface - Automatic Changeover - Backlit Display - Simple Up and Down Temperature Control

One-stage heating / cooling conventional systems	C0STAT12AE1L
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Sensor For Digital Non-Programmable Thermostats Above

Outdoor temperature sensor	C0SNSR04AE1-
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Accessories For Digital Non-Programmable Thermostats Above

Optional wall mounting plate	C0MISC17AE1-
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WEIGHT DATA

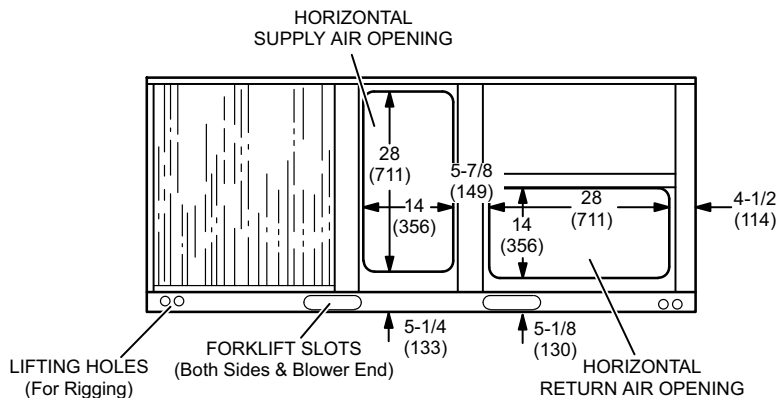
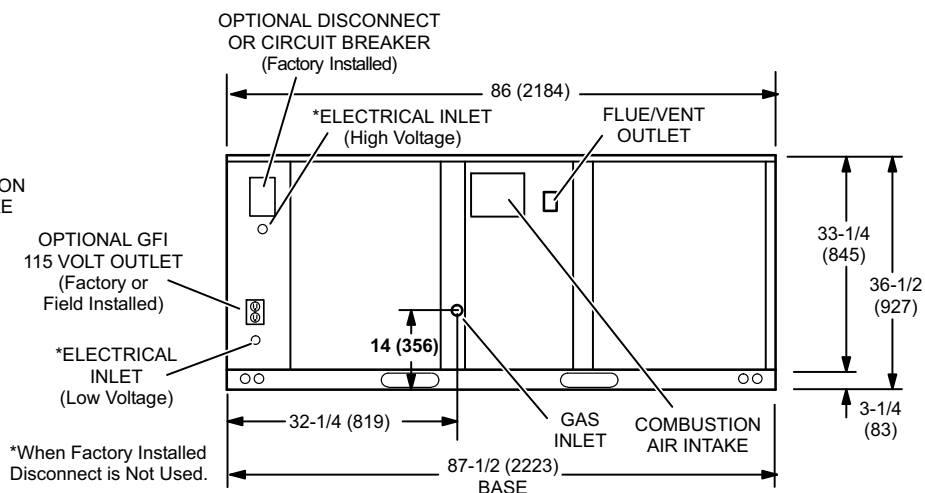
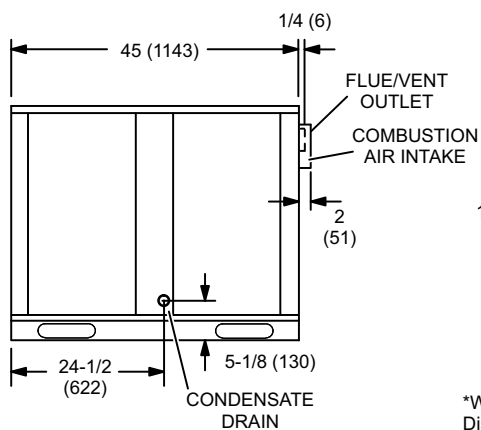
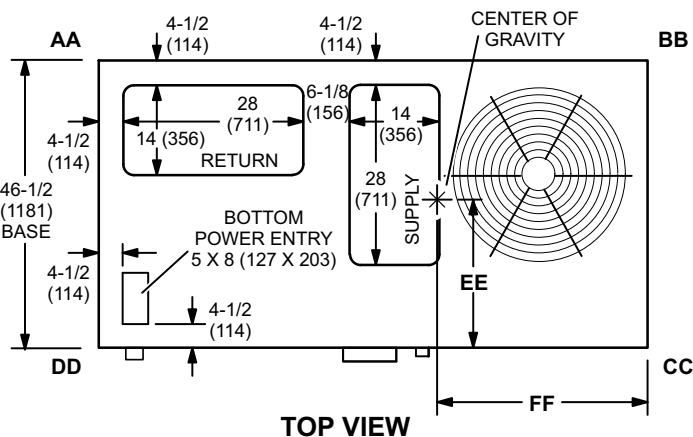
Model Number	Net		Shipping	
	lbs.	kg	lbs.	kg
036	656	298	786	357
042	656	298	786	357
048	720	327	850	386
060	730	331	860	390
072	745	338	875	397

OPTIONS / ACCESSORIES

		Weight	
		lbs.	kg.
CEILING DIFFUSERS			
Step-Down	RTD9-65	67	30
	RTD11-95	88	40
Flush	FD9-65	37	17
	FD11-95	75	34
Transitions	LARST03/06	28	13
	LARST07	28	13
ECONOMIZER / OUTDOOR AIR / EXHAUST			
Economizer	LAREMD03/07	34	17
Barometric Relief			
Down-Flow Barometric Relief Dampers	LAGED03/07	8	4
Down-Flow Barometric Relief Damper Hood		15	7
Horizontal Barometric Relief Dampers	LAGEDH03/07	8	4
Outdoor Air Dampers			
Damper Section (down-flow) - Automatic	LAOADM03/07	24	11
Damper Section (down-flow) - Manual	LAOAD03/07	46	11
Outdoor Air Hood (down-flow)	LAOAH03/07	18	8
Power Exhaust	LAPEF03/07	69	31
HEAT EXCHANGER			
Dual Fire / High Fire Heat Exchanger		18	8
PACKAGING			
LTL Packaging (less than truck load)		8	4
ROOF CURBS - CLIPLOCK			
Down-Flow			
8 in. (203 mm) height	L1CURB23AN1	85	39
14 in. (356 mm) height	LARMF03/07S-14	100	45
18 in. (457 mm) height	LARMF03/07S-18	112	51
24 in. (610 mm) height	LARMF03/07S-24	131	59
ROOF CURBS - STANDARD			
Down-Flow			
14 in. (356 mm) height	LARMF03/07-14	100	45
24 in. (610 mm) height	LARMF03/07-24	172	78
HUMIDITROL DEHUMIDIFICATION SYSTEM			
Humiditrol		15	7

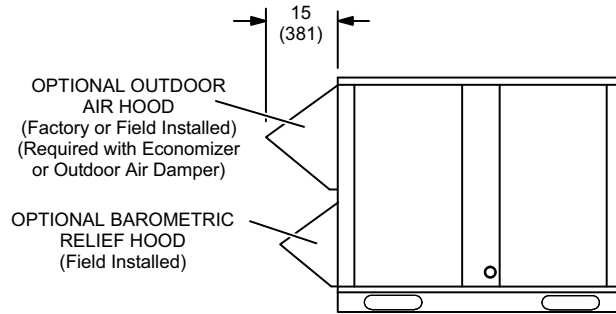
DIMENSIONS - INCHES (MM)

Model No.	CORNER WEIGHTS								CENTER OF GRAVITY			
	AA		BB		CC		DD		EE		FF	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm
036	120	54	146	66	215	98	176	80	18-3/4	476	39-3/8	1000
042	120	54	146	66	215	98	176	80	18-3/4	476	39-3/8	1000
048	146	66	158	72	227	103	209	95	19	483	42	1067
060	146	66	160	73	233	106	211	96	18-7/8	479	41-5/8	1057
072	161	73	174	79	228	104	212	96	20-1/8	511	42-1/8	1070

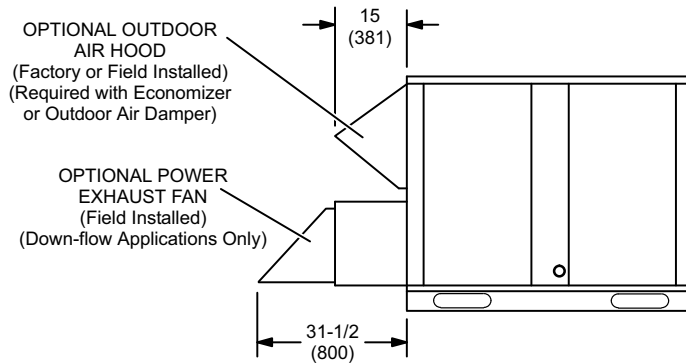


ACCESSORY DIMENSIONS - INCHES (MM)

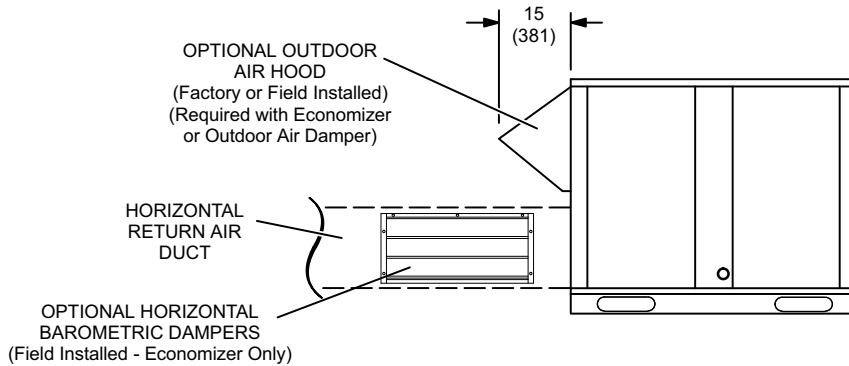
OPTIONAL OUTDOOR AIR HOOD DETAIL WITH BAROMETRIC RELIEF DAMPERS (Down-Flow)



OPTIONAL OUTDOOR AIR HOOD DETAIL WITH POWER EXHAUST FANS (Down-Flow)

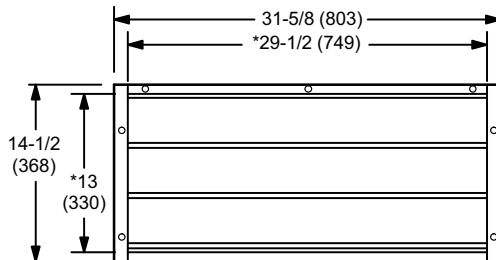


OPTIONAL OUTDOOR AIR HOOD DETAIL WITH HORIZONTAL BAROMETRIC RELIEF DAMPERS (Horizontal)



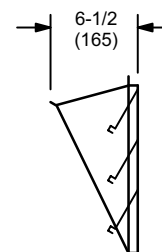
HORIZONTAL BAROMETRIC RELIEF DAMPERS

(Field installed in horizontal return air duct adjacent to unit)



*NOTE - Opening size required in return air duct.

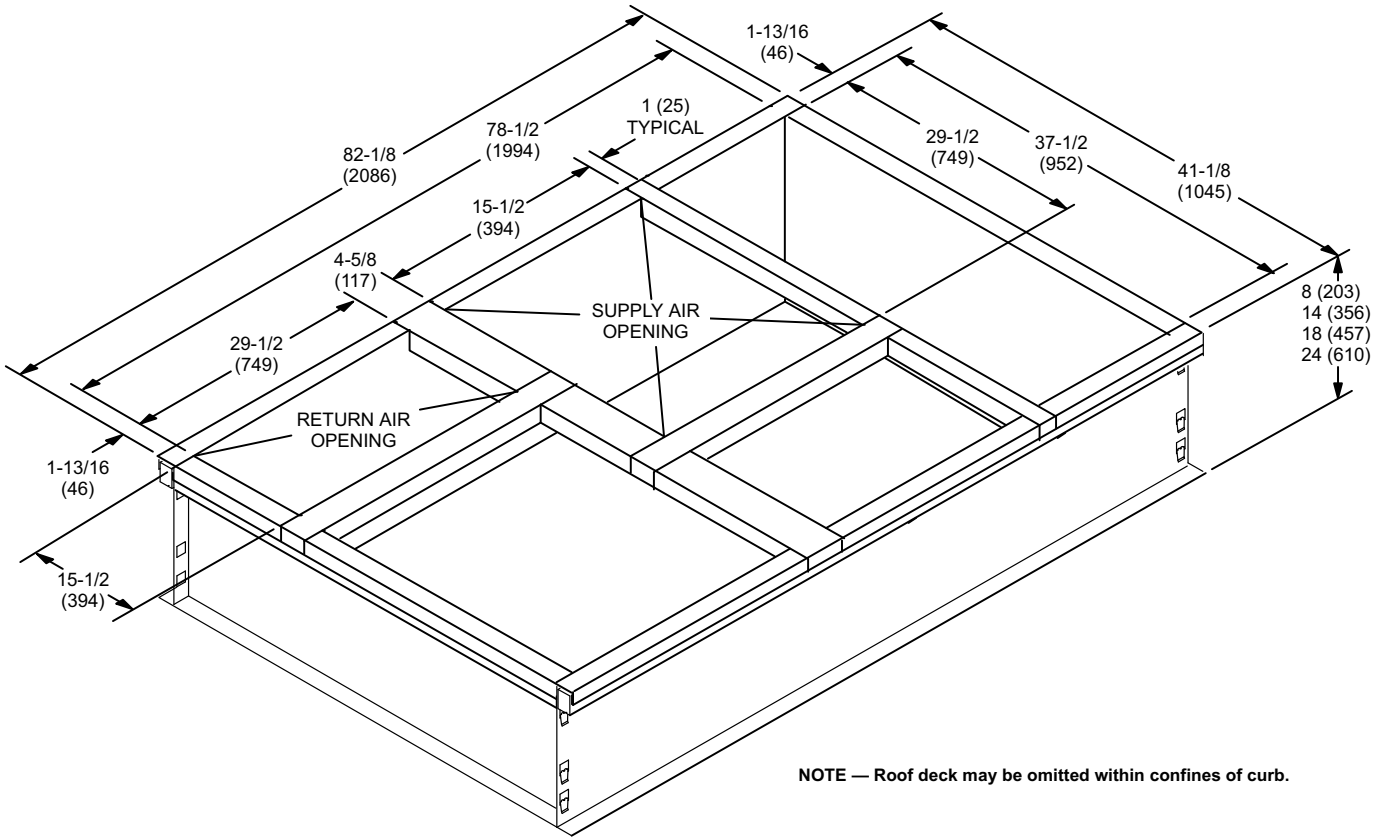
FRONT VIEW



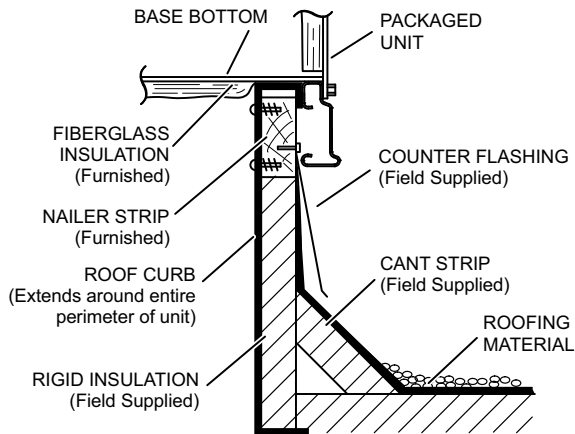
SIDE VIEW

ACCESSORY DIMENSIONS - INCHES (MM)

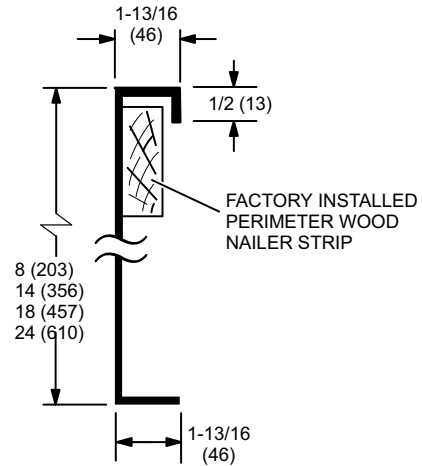
CLIPLOCK 1000 ROOF CURBS - DOUBLE DUCT OPENING



TYPICAL FLASHING DETAIL FOR ROOF CURB

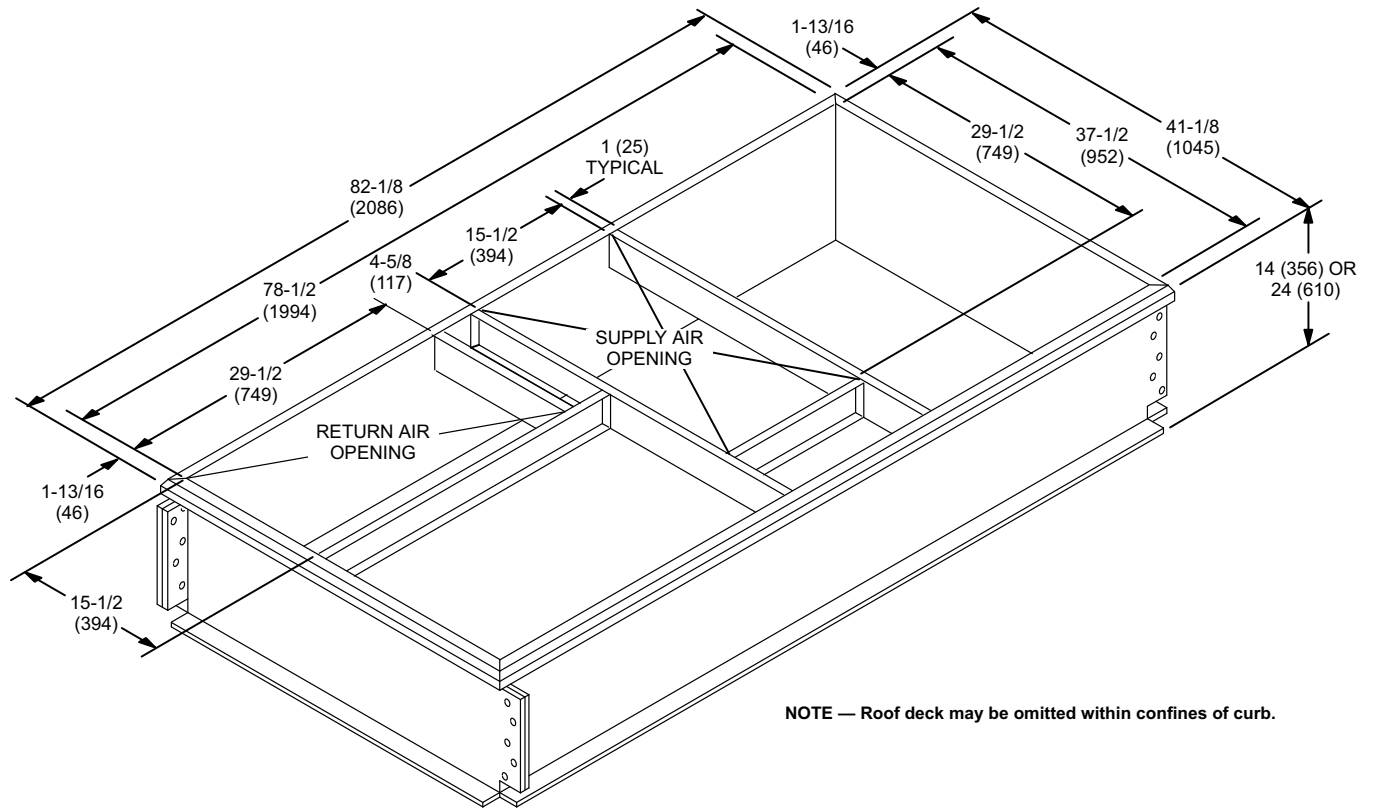


DETAIL ROOF CURB

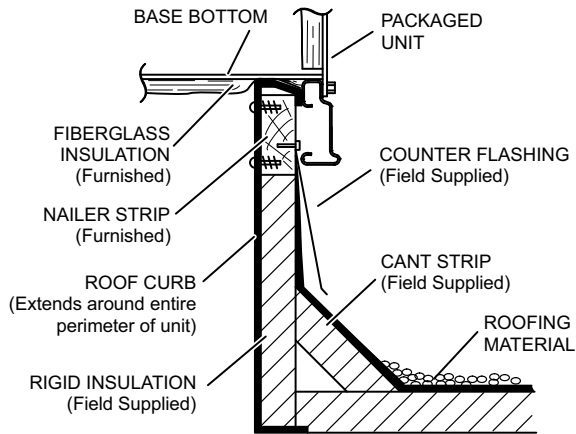


ACCESSORY DIMENSIONS - INCHES (MM)

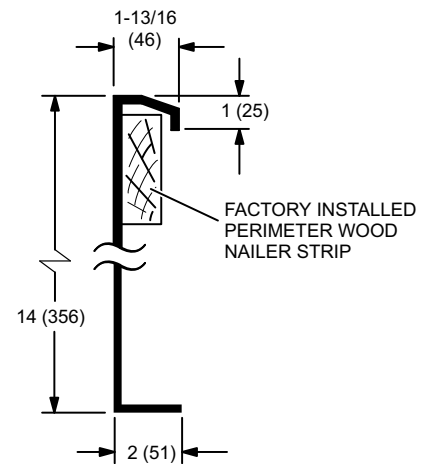
STANDARD ROOF CURBS - DOUBLE DUCT OPENING



TYPICAL FLASHING DETAIL FOR ROOF CURB

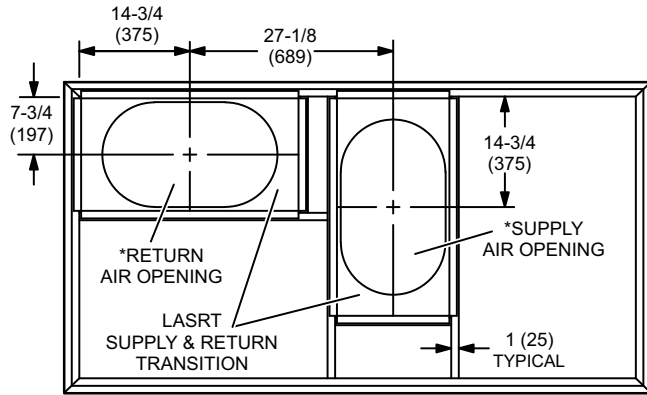


DETAIL ROOF CURB



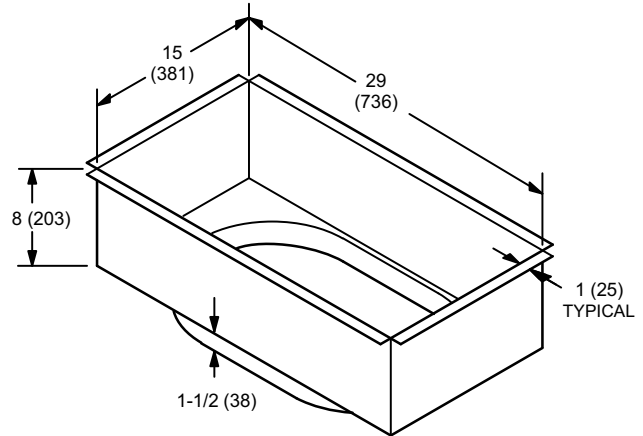
ACCESSORY DIMENSIONS - INCHES (MM)

ROOF CURBS WITH SUPPLY AND RETURN AIR TRANSITIONS FOR CEILING DIFFUSERS



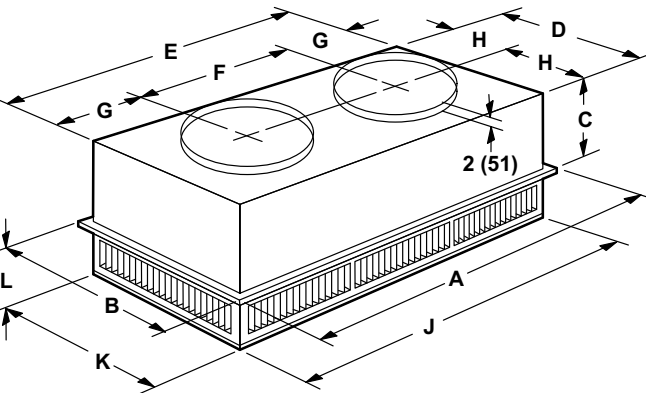
*NOTE LASRT-03/06 - 18 in. (457mm) Oval Duct Connection
LASRT-07 - 20 in. (508mm) Oval Duct Connection

LASRT CEILING SUPPLY AND RETURN AIR TRANSITION

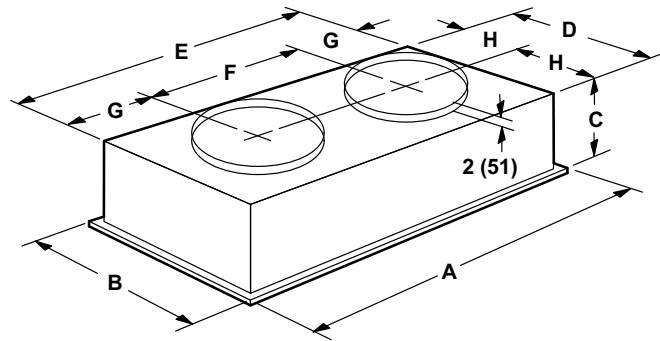


COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



FLUSH CEILING DIFFUSER



Model Number		RTD9-65	RTD11-95
A	in.	47-5/8	47-5/8
	mm	1159	1159
B	in.	23-5/8	29-5/8
	mm	600	752
C	in.	11-3/8	14-3/8
	mm	289	365
D	in.	21-1/2	27-1/2
	mm	546	699
E	in.	45-1/2	45-1/2
	mm	1156	1158
F	in.	22-1/2	22-1/2
	mm	572	572
G	in.	11-1/2	11-1/2
	mm	292	292
H	in.	10-3/4	13-3/4
	mm	273	349
J	in.	45-1/2	45-1/2
	mm	1156	1156
K	in.	21-1/2	27-1/2
	mm	546	699
L	in.	7-1/8	8-1/8
	mm	181	206
Duct Size	in.	18 round	20 round
	mm	457 round	508 round

Model Number		FD9-65	FD11-95
A	in.	47-5/8	47-5/8
	mm	1159	1159
B	in.	23-5/8	29-5/8
	mm	600	752
C	in.	13-1/2	16-5/8
	mm	343	422
D	in.	21	27
	mm	533	686
E	in.	45	45
	mm	1143	1143
F	in.	22-1/2	22-1/2
	mm	572	572
G	in.	11-1/4	11-1/4
	mm	286	286
H	in.	10-1/2	13-1/2
	mm	267	343
Duct Size	in.	18 round	20 round
	mm	457 round	508 round

GUIDE SPECIFICATIONS

This specification is for [*Lennox Industries L Series*[®]] rooftop units. Revise specification section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat*[™] for other section numbers and titles.

Optional text and text that requires a decision are indicated by **bold brackets []** and proprietary information is indicated by **bold italic brackets []**; delete text that is not needed in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

Specifying Engineer Please Note - These Guide Specifications cover all L Series units (3 thru 30 tons). Please edit to accurately identify the options selected for the job.

SECTION 23 74 33 UNITARY AIR CONDITIONING EQUIPMENT

PART 1 GENERAL

PART 1.01 SUMMARY

- A. Section Includes: Packaged rooftop units and commercial packaged, gas/electric and electric/electric heat pumps.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI MasterFormat and specifier's practice.

- B. Related Sections:

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Division 1 References Section may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section. Retain only those reference standards to be used within the text of this Section. Add and delete as required for specific project.

PART 1.02 REFERENCES

- A. American National Standards Institute (ANSI):
1. ANSI/ASHRAE 15 Safety Standard for Refrigeration Systems.
 2. ANSI/ASHRAE/IESNA 90.1 Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings.
 3. ANSI Z21.47 Gas-Fired Central Furnaces.
- B. Air-Conditioning and Refrigeration Institute (ARI):
1. ARI 210/240 Unitary Air-Conditioning and Air-Source Heat Pump Equipment.
 2. ARI 270 Sound Rating of Outdoor Unitary Equipment.
 3. ARI 340/360 Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment.
 4. ARI 370 Sound Rating of Large Outdoor Refrigerating and Air Conditioning Equipment.
- C. American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE):
1. ASHRAE 52.2 Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size (ANSI approved).
 2. ASHRAE 62.1 Ventilation for Acceptable Indoor Air Quality.
- D. U.S. Energy Policy Act of 1992 (EPACT).
- E. U.S. National Appliance Energy Conservation Act (NAECA):
1. NAECA 1988.
- F. National Fire Protection Association (NFPA):
1. NFPA 90A Installation of Air Conditioning and Ventilation Systems.
- G. Underwriters Laboratories, Inc. (UL):
1. UL 1995 Standard for Safety for Heating and Cooling Equipment.

GUIDE SPECIFICATIONS

Specifier Note: Article below should be restricted to statements describing design or performance requirements and functional (not dimensional) tolerances of a complete system. Limit descriptions to composite and operational properties required to link components of a system together and to interface with other systems.

PART 1.03 SYSTEM DESCRIPTION

- A. Design Requirements: Provide products and systems that have been manufactured, fabricated and installed to following criteria:
1. ANSI/ASHRAE/IESNA 90.1.
 2. ANSI Z21.47.
 3. UL 1995.
- B. Performance Requirements:
1. Packaged Gas Electric:
 - a. Natural Gas Supply Pressure: 7 in. w.c. (1.7 kPa).

Specifier Note: For belt drive blowers from models LGC036S, LGA036H, LGC042S, LGA042H, LGC048S, LGA048H, LGC060S, LGA060H, LGC072S, LGA072H, LGC090S, LGA090H, LGC102S, LGA102H, LGC120S, LGA120H, LGC150S, LGC156H, LGC180S, LGC180H, LGC210S, LGC210H, LGC240S, LGA240H, LGA248H, LGC300S, LGC300H and LGC360H single phase is not an option.

- b. LPG/Propane Supply Pressure: 11 in. w.c. (2.7 kPa).

Specifier Note: Specify 208/230V or 460V or 575V, 3-phase for L Series units from 6 - 30 ton (21.1 - 105.6 kW). Specify 208/230V, 1-phase, 208/230V, 460V or 575V, 3-phase for L Series units from 3 - 5 ton (10.6 - 17.6 kW).

2. Packaged Cooling:
 - a. Electrical Requirements for Direct Drive Blowers: 60 hz, [208/230 V, 1-phase] [208/230 V, 3-phase] [460 V, 3-phase] [575 V, 3-phase].

Specifier Note: For belt drive blowers from models LCC036S, LCA036H, LCC042S, LCA042H, LCC048S, LCA048H, LCC060S, LCA060H, LCC072S, LCA072H, LCC090S, LCA090H, LCC102S, LCA102H, LCC120S, LCA120H, LCC150S, LCC156H, LCC180S, LCC180H, LCC210S, LCC210H, LCC240S, LCA240H, LCA248H, LCC300S, LCC300H and LCC360H single phase is not an option.

- b. Electrical Requirements for Belt Drive Blowers: 60 hz, [208/230 V, 3-phase] [460 V, 3-phase] [575 V, 3-phase].

Specifier Note: Available Heat Pump units include LHA090, LHA102, LHA120, LHA150, LHA180 and LHA240 only.

3. Packaged Heat Pumps:
 - a. Electrical Requirements: 60 hz, [208/230 V, 3-phase] [460 V, 3-phase] [575 V, 3-phase].
4. ARI Rated Net Cooling Efficiency: To meet or exceed ASHRAE Standard 90.1 at rated airflow not less than 350 cfm/ton.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 1 Submittal Procedures Section.

PART 1.04 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures.
- B. Product Data: Submit product data for specified products.
- C. Shop Drawings:
1. Submit shop drawings in accordance with Section 01 33 23 - Submittal Procedures.
 2. Indicate:
 - a. Equipment, piping and connections, together with valves, strainers, control assemblies, thermostatic controls, auxiliaries and hardware, and recommended ancillaries which are mounted, wired and piped ready for final connection to building system, its size and recommended bypass connections.
 - b. Piping, valves and fittings shipped loose showing final location in assembly.
 - c. Control equipment shipped loose, showing final location in assembly.
 - d. Dimensions, internal and external construction details, recommended method of installation with proposed structural steel support, mounting curb details, sizes and location of mounting bolt holes; include mass distribution drawings showing point loads.

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- e. Detailed composite wiring diagrams for control systems showing factory installed wiring and equipment on packaged equipment or required for controlling devices or ancillaries, accessories and controllers.
 - f. Details of vibration isolation.
 - g. Estimate of sound levels to be expected across individual octave bands in dB.
 - h. Type of refrigerant used.
- D. Quality Assurance:
- 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
 - 2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
 - 3. Manufacturer's Instructions: Manufacturer's installation instructions.

Specifier Note: Coordinate paragraph below with Part 3 Field Quality Requirements Article herein. Retain or delete as applicable.

- E. Manufacturer's Field Reports: Manufacturer's field reports specified.
- F. Closeout Submittals: Submit the following:
- 1. Warranty: Warranty documents specified.
 - 2. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance. Include names and addresses of spare part suppliers.
 - 3. Provide brief description of unit, with details of function, operation, control and component service.
 - 4. Commissioning Report: Submit commissioning reports, report forms and schematics in accordance with Section 01 91 00 - Commissioning.

PART 1.05 QUALITY ASSURANCE

- A. Qualifications:
- 1. Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
 - 2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction and approving application method.

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Conditions of the Contract and Division 1 Regulatory Requirements Section. Repetitive statements should be avoided. Current data on building code requirements and product compliance may be obtained from filter manufacturer technical support specialists.

- B. Regulatory Requirements: Provide **[Packaged gas electric] [Packaged cooling] [Packaged heat pump]** that complies with the following requirements:
- 1. ARI 210/240.
 - 2. ARI 270.
 - 3. ARI 340/360.
 - 4. ASHRAE 52.2.
 - 5. NFPA 90A.
- C. Preinstallation Meetings: Conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings).

PART 1.06 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirements.
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Packing, Shipping, Handling and Delivery:
- 1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
 - 2. Ship, handle and unload units according to manufacturer's instructions.
- D. Storage and Protection:
- 1. Store materials protected from exposure to harmful weather conditions.

GUIDE SPECIFICATIONS

2. Factory shipping covers to remain in place until installation.

PART 1.07 PROJECT CONDITIONS

- A. Installation Location: **[Confirm design conditions and temperature.]**.

Specifier Note: Coordinate article below with Conditions of the Contract and with Division 1 Closeout Submittals (Warranty).

PART 1.08 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

Specifier Note: Coordinate paragraph below with manufacturer's warranty requirements.

- C. Warranty: Commencing on Date of Installation.
 1. Compressors: 5 years (limited).
 2. Integrated Modular Control: 3 years (limited).
 3. Other System Components: 1 year (limited).
 4. Aluminized Heat Exchangers: 10 years (limited).
 5. Stainless Steel Heat Exchangers: 15 years (limited).

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

PART 2.01 ROOFTOP UNITS

- A. Manufacturer: Lennox Industries Inc.
 1. Contact: 2100 Lake Park Blvd., Richardson, TX 75080; Telephone: (800) 453-6669; website: www.lennox.com.
- B. Proprietary Products/Systems: Lennox L Series Unitary Air Conditioning Equipment, including the following equipment:
 1. Cabinet: Weatherproofing tested and certified to AGA **[Rain test standards]** and soundproofing tested to ARI 270, **[]** dBA at **[]** m (**[]**) ft. free field.
 - a. Heavy gauge steel panels and full perimeter heavy gauge galvanized steel base rails.
 - b. Raised edges around duct and power entry openings in bottom of unit.
 - c. Airflow Configuration: **[Down-flow (vertical) return air] [Horizontal return airflow with Horizontal Roof Mounting Frame] [And Horizontal Return Air Panel Kit (required when converting down-flow configured unit to horizontal airflow)]**.
 - d. Power Entry: Electrical **[And gas]** lines brought through unit base or through horizontal access knockouts.
 - e. Exterior Panels: Constructed of heavy gauge, galvanized steel with 2-layer enamel paint finish.
 - f. Insulation: All panels adjacent to conditioned air fully insulated with non-hygroscopic fiberglass insulation. Unit base fully insulated.
 - g. Base Rail: Full perimeter base rail with rigging holes; 3 sides with fork slots.
 - h. Access Panels: Hinged for compressor/controls/heating areas, blower access and air filter/economizer access; and, sealed with quarter-turn latching handles and tight air and water seal.
 2. Compressor:
 - a. Copeland scroll type, hermetically sealed.
 3. Fans, General: Centrifugal, forward curved impellers, statically and dynamically balanced. **[Multi]** V-belt drive with adjustable variable pitch motor pulley.
 - a. Condenser Fan: Low sound operating, PVC coated fan guard, direct drive propeller type fans to discharge vertically.
 - b. Condenser Fan Motor: Permanently lubricated, permanent split capacitor; totally enclosed from weather, dust and corrosion; permanently lubricated ball bearings; resiliently mounted; overload protected.
 4. Evaporator Coils: Pressure and leak tested to 500 psi (3445 kPa), nonferrous coils with enhanced aluminum fins mechanically bonded to durable copper tubes.

GUIDE SPECIFICATIONS

5. Condenser Coils:
 - a. Pressure and leak tested to 500 psi (3445 kPa), nonferrous coils with enhanced aluminum fins mechanically bonded to durable copper tubes.

Specifier Note: Specify slab construction for L Series over 6 tons (21.1 kW), excluding heat pumps.

- b. **[Formed construction] [Slab construction].**
6. Air Distribution:
 - a. Equipment capable of down-flow (vertical) or side (horizontal) handling of conditioned air.
 - b. Optional Equipment:

Specifier Note: The following kit is required for horizontal air handling for L Series 3 - 12 ton (10.6 - 42.2 kW) models.

- 1) Horizontal conversion kit for horizontal air handling.

Specifier Note: The following kit is required for horizontal air handling for L Series, 13 - 30 ton (45.8 - 105.6 kW) models.

- 2) Horizontal return air panel kit and horizontal roof mounting frame for horizontal air handling.
7. Filters: To meet NFPA 90A, air filter requirements **[Type Class 1] [Type Class 2]; [_____] % efficiency, metal framed, [Replaceable media] [Throwaway] [Standard to unit manufacturer].**
 - a. Disposable 2 inch (51 mm).
 - b. Disposable 2 inch (51 mm) pleated MERV 11 rated.
 - c. Disposable 2 inch (51 mm) pleated MERV 15 rated.
8. Heat Exchanger: Removable for servicing; stainless steel optional for applications where mixed air temperature below 45 degrees F (7 degrees C); E.T.L./C.S.A. design certified for outdoor installation.
9. Gas Heating System:
 - a. Tubular heat exchanger and inshot type gas burners constructed of aluminized steel.
 - b. Direct spark ignition; electronic flame sensor controls; flame rollout switch; limit controls and automatic redundant dual gas valve with staging control and combustion air proving switch on combustion air inducer.

Specifier Note: When LPG/propane is required, specify optional kit.

- c. Able to use LPG/propane **[With optional kit].**
 - d. Complete service access provided for controls and wiring.
10. Electric Heating System:
 - a. Available for factory or field installation.
 - b. Heating elements of Nichrome bare wire exposed directly to airstream.
11. Refrigeration System:
 - a. Self-sealing, discharge, suction and liquid line service gauge ports, freeze-stats, expansion valves and full refrigerant charge.

Specifier Note: R-22 is available on all models with 3 - 30 ton (10.6 - 105.6 kW) capacities. R-410 is available on all high efficiency units and on the 6, 12.5 and 25 ton (21.1, 44 and 87.9 kW) standard efficiency models. Variable air volume with R-410a is available on 21, 25 and 30 ton (74, 88 and 105.6 kW) units.

- b. **[R22] [R-410a] [Variable air volume] [Variable air volume with R-410a].**
 - c. Copper tubing not to touch sharp metal surfaces.
 - d. Compressor Circuits: Automatic reset, high pressure switch; automatic reset, low pressure switch; liquid line filter-drier.
 - e. Capable of operating down to 0 degrees F (-17 degrees C) without installation of additional controls.
12. Supply Air Blower:
 - a. **[Constant air volume with adjustable pulleys] [Variable air volume with fixed pulleys and variable frequency drive] [Variable air volume with fixed pulleys and variable frequency drive with bypass]** with motor/drive combinations and optional drive kits.
 - b. Centrifugal supply air blower with **[Permanently lubricated ball bearings and adjustable belt drive] [Sleeve bearings and multi-speed direct drive motor].**
 - c. Blower assembly **[Slides out of unit] [Is accessible]** for servicing.
 - d. Blower wheel statically and dynamically balanced.

GUIDE SPECIFICATIONS

13. Integrated Modular Control (IMC):
 - a. Solid state control board to operate unit.
 - b. Built-in functions include: Blower on/off delay; built-in control parameter defaults; service relay output; dirty filter switch input; dehumidistat input, economizer control; **[Gas valve delay between stages]; [ETM compatible]; [DDC compatible];** unit diagnosis; diagnostics code storage; indoor air quality input; low ambient controls; minimum run time; night setback mode; smoke alarm mode; low pressure control; thermostat bounce delay; 3-digit display; degrees F or degrees C display, 2-stage heat/4-stage cool thermostat compatible and warm-up mode; **[Electric heat staging with optional 4-stage board].**
14. Gas Heating Controls:
 - a. Remote thermostat[s] as indicated.
 - b. Built-in **[Un]** fused disconnect switch.
 - c. **[Four]** stages of heating control from **[Thermostat with optional four stage board] [DDC with room sensor].**
 - d. Supply fan to turn on **[40]** seconds after heating demand is received with 8 - 60 second adjustable time delay.
 - e. Supply fan to turn off **[120]** seconds after heating demand has ended with 80 - 300 second adjustable time delay.
 - f. Adjustable delay time of **[30] [Value between 30 - 160]** seconds between low and high fire of 2-stage gas valve system.
 - g. Heat off delay of **[100] [Value between 30 - 300]** seconds after thermostat heating demand has ended.
 - h. To turn off heat and keep supply air fan running if overheat limit occurs.
 - i. Adjustable maximum overheat limit trip count during heating cycle of **[3] [Value between 1 - 15]**, with digital output, limit indicator.
 - j. To report error with each occurrence of overheat limit trip and to identify limit that tripped. Error code stored in nonvolatile memory.
 - k. To shut off gas heat if flame rollout occurs and to report error identifying rollout switch.
 - l. Maximum flame rollout switch trip count of **[3]** during heating cycle, with digital output, limit indicator. Maximum count limit adjustable from 1 - 6 counts.
 - m. To turn off heat if induced airflow is too low and to report error identifying pressure switch.
 - n. Maximum induced airflow pressure switch trip count of **[3]** during heating cycle, with digital output, limit indicator. Maximum count limit adjustable from 1 - 6 counts.
 - o. Error reported if gas valve not energized 2 minutes after heating demand; gas valve identified.
 - p. Maximum ignition failure count of **[3]** with digital output, limit indicator. Maximum count limit adjustable from 1 - 6 counts.
 - q. To shut off gas valve if flame not sensed. Error reported and stored in nonvolatile memory.
 - r. Delay between stages on gas valve.
 - s. To shut off unit if gas valve is energized with no demand for heat. Error reported and stored in nonvolatile memory.
15. Electric Heating Controls:
 - a. Panel board with **[_____]** stage controller.
 - b. Remote thermostat[s] as indicated.
 - c. Built-in **[Un]** fused disconnect switch.
 - d. Supply Fan: Start before electric elements are energized and continue operating until bonnet temperature reaches minimum setting. Include switch for continuous fan operation.
 - e. Two stages of heating control from **[Thermostat] [DDC].**
 - f. Supply fan to turn off **[20]** seconds after heating demand has ended. Time delay adjustable from 0 - 300 seconds.
 - g. With delay time of **[12]** seconds between low and high heat stages. Time delay adjustable from 12 - 60 seconds.
 - h. To turn off heat and keep supply air fan running if overheat limit occurs.
 - i. Adjustable maximum overheat limit trip count of **[3]** during heating cycle with digital output, limit indicator. Maximum count limit adjustable from 1 - 15 counts.
 - j. Error reported and identified if overheat limit tripped. Error code stored in nonvolatile memory.
16. Cooling Controls:
 - a. Provide **[Smoke detectors in return] [Smoke detectors in supply].**

GUIDE SPECIFICATIONS

Specifier Note: Specify b, c or d below.

- b. **[Manual] [Automatic]** outside **[And return]** air dampers for fixed outside air quantity.
- c. Remote controlled outside **[And return]** air dampers with damper operator and means for adjusting outside air quantity.
- d. Motorized outside, return and **[Automatic] [Power exhaust] [Gravity]** relief dampers with spring return damper operator and control package to automatically vary outside air quantity. Outside air and exhaust air dampers, normally closed.
- e. Tight-fitting parallel blade dampers with neoprene or suitable gaskets, synthetic bushings and 1% maximum leakage.
- f. Damper Operation: 24 V, spring return motor with gear train sealed in oil.
- g. Mixed Air Controls: **[Maintain 55 degrees F (13 degrees C)] [Indicated]** mixed air temperature (adjustable).
- h. Up to 2 stages of cooling from **[Thermostat] [External DDC controller]** without need for additional controls.
- i. Up to 3 stages of cooling when used with relay and **[3-stage thermostat] [DDC controller]**.
- j. Up to 4 stages of cooling standard with room sensor.

Specifier Note: Specify article "j" when used with Lennox L Connection Network Building Automation System.

- k. Up to 4 stages of cooling.
- l. To allow blower on delay of up to 60 seconds after cooling demand is received. Default value of zero.
- m. To allow blower off delay of up to 240 seconds after cooling demand has ended. Default value of zero.
- n. Minimum compressor on time of **[240]** seconds on 3-phase units, adjustable between 60 - 510 seconds.
- o. Minimum compressor off time of **[300]** seconds on single-phase units, adjustable from 60 - 510 seconds.
- p. Default maximum high pressure switch trip occurrence during cooling or dehumidification cycle of **[3]**. Trip occurrence limit adjustable from 1 - 8 occurrences. If maximum limit reached, compressor locked out and digital output for service activated.
- q. Default maximum low pressure switch trip occurrence during cooling or dehumidification cycle of **[3]**. Trip occurrence limit adjustable from 1 - 8 occurrences. If maximum limit reached, compressor locked out and digital output for service activated.
- r. Low pressure trip read delay of **[5]** minutes if compressor off time has been less than 4 hours and outdoor temperature is less than 70 degrees F (21 degrees C). Delay adjustable from 0 - 34 minutes. Temperature set point adjustable from 10 degrees F (-12 degrees C) to 100 degrees F (38 degrees C). Compressor off time adjustable from 1 - 6 hours.
- s. Low pressure trip read delay of **[15]** minutes if compressor off time has been 4 hours or greater and outdoor temperature is less than 70 degrees F (21 degrees C). Delay adjustable from 0 - 34 minutes. Temperature set point adjustable from 10 degrees F (-12 degrees C) to 100 degrees F (38 degrees C). Compressor off time adjustable from 1 - 6 hours.
- t. Low pressure trip read delay of **[2]** minutes if compressor off time has been less than 4 hours and outdoor temperature is 70 degrees F (21 degrees C) or greater. Delay adjustable from 0 - 34 minutes.
- u. Temperature set point adjustable from 10 degrees F (-12 degrees C) to 100 degrees F (38 degrees C). Compressor off time adjustable from 1 - 6 hours.
- v. Low pressure trip read delay of **[8]** minutes if compressor off time has been 4 hours or greater and outdoor temperature is 70 degrees F (21 degrees C) or greater. Delay adjustable from 0 - 34 minutes.
- w. Temperature set point adjustable from 10 degrees F (-12 degrees C) to 100 degrees F (38 degrees C). Compressor off time adjustable from 1 - 6 hours.
- x. Each pressure switch trip occurrence (either high or low) to record error in nonvolatile memory and identify compressor circuit.
- y. Low outdoor air temperature compressor lockout set point of 0 degrees F (-18 degrees C) for each compressor circuit. Low outdoor temperature limit set point individually adjustable for each compressor circuit from 80 degrees F (27 degrees C) to -30 degrees F (-34 degrees C).
- z. Maximum allowable evaporator freeze-stat trip occurrence of **[3]** during cooling demand with limit adjustable from 1 - 4 occurrences. Control to shut off compressor each time freeze-stat trip occurs and record error code in nonvolatile memory. If maximum limit reached, compressor locked out and digital output for service activated.
- aa. Condenser Fan Control:
 - 1) On units with multiple condenser fans, **[6]** second time delay between condenser fan shutoff and restart to prevent reverse rotation of fan. Time delay adjustable between 0 - 16 seconds.
 - 2) On units with 4 condenser fans, first stage low outdoor temperature set point of 55 degrees F (13 degrees C) that reduces airflow through condenser by turning off some fans. Set point adjustable between 60 degrees F (16 degrees C) and 10 degrees F (-12 degrees C).

GUIDE SPECIFICATIONS

- 3) On units with 6 condenser fans, second stage low outdoor temperature set point of 40 degrees F (4 degrees C) to reduce airflow through condenser by turning off all fans. Set point adjustable between 60 degrees F (16 degrees C) and 10 degrees F (-12 degrees C).
- 4) On units with 6 condenser fans, condenser fan on delay of **[2]** seconds. Adjustable between 0 - 240 seconds.

Specifier Note: Edit article below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 1 Project Requirements (Product Substitutions Procedures) Section.

PART 2.02 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

PART 3 EXECUTION

PART 3.01 MANUFACTURER'S INSTRUCTIONS

Specifier Note: Article below is an addition to the CSI SectionFormat and a supplement to MANU-SPEC. Revise article below to suit project requirements and specifier's practice.

- A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, and product carton installation instructions.

PART 3.02 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

PART 3.03 INSTALLATION

- A. Install **[Packaged rooftop units] [And] [Commercial packaged, gas/electric and electric/electric heat pumps]** in accordance with manufacturer's instructions, on roof curbs **[Provided by manufacturer] [As indicated]**.
- B. Run drain line from cooling coil condensation drain pan to discharge **[Over roof drain]**.

PART 3.04 COMPLETION AND CLEANUP

- A. Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

AFTERMARKET ZONING SYSTEM INTERFACE

Introduction

Lennox' premium rooftop unit (RTU) controller, the Integrated Modular Controller (IMC), along with a variable frequency drive (VFD) option on certain RTUs, increases the ability of premium Lennox RTUs to be applied to a variety of zoning systems. The type of zoning system to be used dictates the type of RTU and the requirements for the zoning control system. The following explains each basic system and how the IMC must interface with an aftermarket zoning control system to meet the requirements of each application.

Lennox units in single zone and constant volume bypass applications may utilize an aftermarket unit controller as supervisory controller for the RTU. The IMC runs in thermostat mode and is primarily useful for diagnostic purposes, allowing the aftermarket controller to directly monitor and control heat/cool staging, the bypass damper, zone dampers, etc. When the IMC is used in thermostat mode, a maximum of two stage heating and three stage cooling are available.

Supervisory control must be provided by the Lennox IMC to minimize complication and standardize control on Lennox VFD-controlled variable air volume (VAV) RTUs. In this configuration, the IMC controls the VFD based on static pressure in the supply duct. It controls the economizer, and stages compressors based on discharge air temperature. The aftermarket controller simply sends calls for cooling or heating based on setpoint and schedule conditions. The IMC also has many options for controlling single-stage, 50% power exhaust fans; two-stage, 100% power exhaust fans; or modulating power exhaust fans.

NOTE - Please refer to the IMC Manual for additional details.

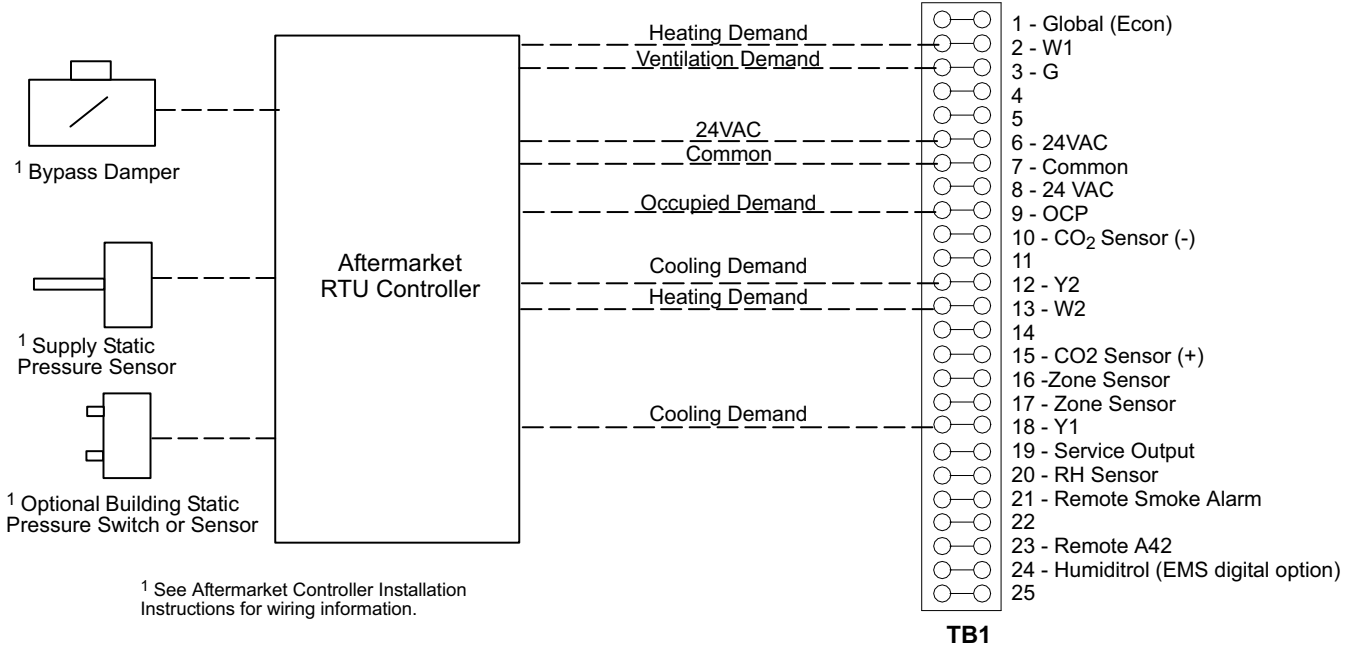
Interface Definition

With an aftermarket control system interface, the IMC requires four digital inputs to control the rooftop unit: G (blower enable), OCP (occupied), Y1 (enables discharge cooling), W1 (enables discharge heating) and Y2 (second stage call for cooling) and W2 (second stage call for heating) should be added in constant volume applications.

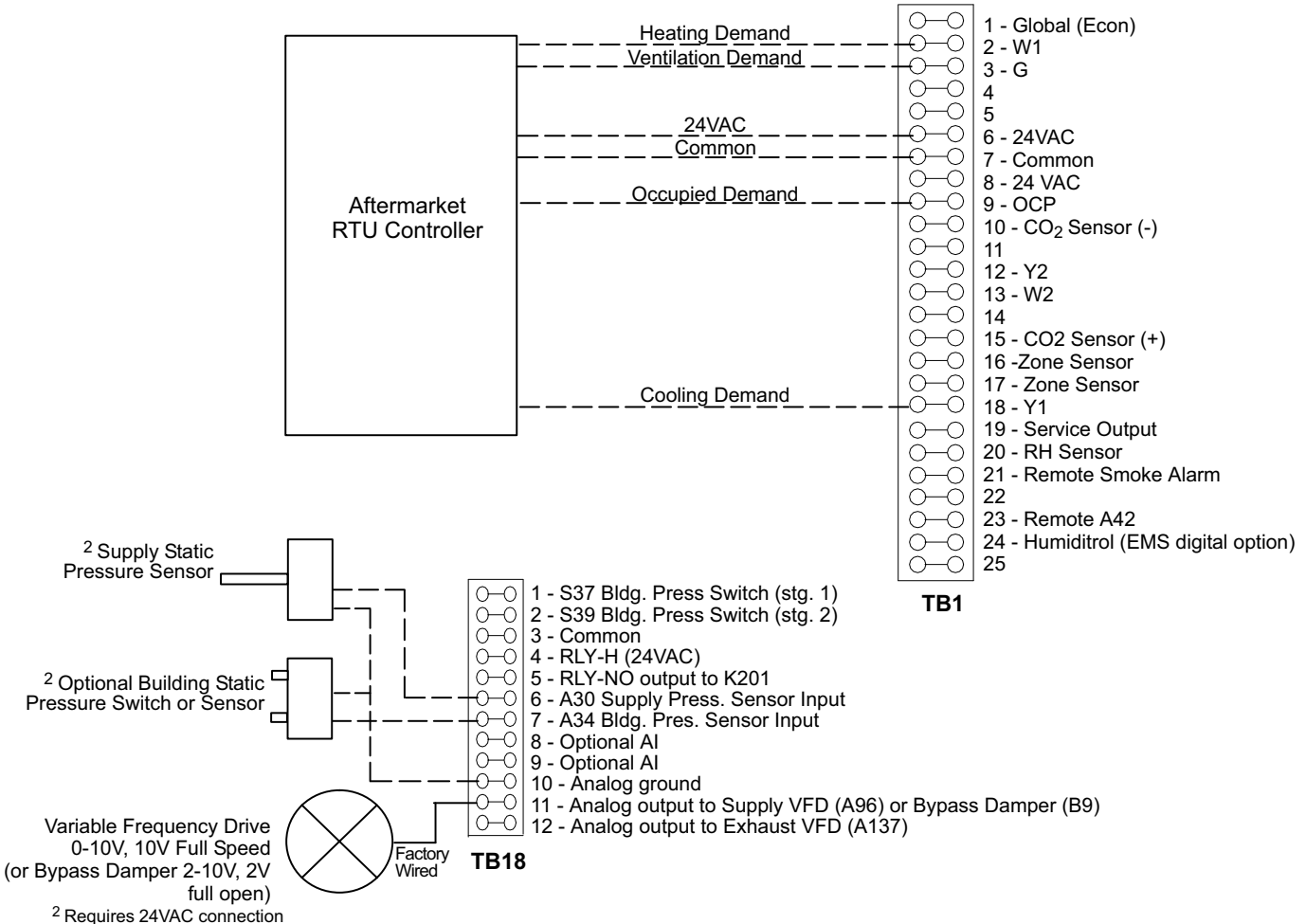
These configurations minimize the controls expertise required to create a viable interface. Further, they create a consistent, standardized approach conducive to support and trouble-shooting on a broad basis without the need for substantial knowledge of the IMC, VFD, bypass, or aftermarket controllers or systems.

AFTERMARKET ZONING SYSTEM INTERFACE

Constant Volume Bypass RTU Wiring Summary for units equipped with M1-6 or higher (Aftermarket Supervisory Control)



Variable Air Volume RTU Wiring Summary - for units equipped with M1-7 or higher (IMC Supervisory Control)



AFTERMARKET ZONING SYSTEM INTERFACE

Sequence of Operation **IMC Supervisory Control**

Operation when IMC blower (G) input is energized

When a G signal is present, the IMC controls the VFD or bypass damper to hold a constant supply duct static pressure based on the input from the IMC pressure sensor, using a PID control loop. For increased flexibility, the IMC has separate, adjustable static pressure setpoints for ventilation, cooling, heating and smoke alarms. These set points reside in the memory of the IMC, have factory default settings, and may be adjusted in the field prior to start-up.

Operation when IMC occupied (OCP) input is energized

When an OCP signal is present, the IMC adjusts the fresh air damper to either a fixed minimum position or allows it to modulate based on a CO₂ sensor. The CO₂ sensor can be wired directly to the IMC, to another controller that can monitor the sensor and pass a signal to the IMC for damper control, or to both the IMC and another device for monitoring through the desired man-machine interface while the IMC maintains damper control. During morning warm-up/cool-down the IMC keeps the fresh air damper closed based on the IMC configuration settings selected. The set points for minimum and maximum damper position setting and CO₂ control reside in the memory of the IMC, have factory default settings, and may be adjusted at start up. They cannot be adjusted using the aftermarket controls system.

Operation when IMC first stage cooling (Y1) input is energized

When a Y1 signal is present the IMC controls up to 4 stages of cooling (depending on RTU configuration) to maintain a cooling discharge air temperature setpoint. These stages include mechanical cooling, or outdoor air for cooling with an economizer. The discharge air temperature setpoint resides in the IMC, has a factory default setting, and may be adjusted at start up. It cannot be adjusted using the aftermarket controls system. The IMC has advanced discharge-air cooling reset options selected at start up based on return air temperature and/or outside air temperature. Outside air reset saves energy by gradually increasing the discharge air set point as outside air temperature decreases. Return air reset reduces potential for overcooling if the zoning system is misapplied, has an abnormal condition, or a dominant zone. The reset gradually increases discharge air temperature as return air temperature decreases.

NOTE - Y2 signal is recommended for constant volume applications.

Operation when IMC first stage heating (W1) input is energized

When a W1 signal is present, the IMC controls up to 4 stages of heating (depending on RTU configuration) to maintain a heating discharge air temperature. The heating discharge air temperature set point resides in the IMC, has a factory default setting, and may be adjusted at start up. It cannot be adjusted using the aftermarket controls system. The IMC has advanced discharge air heating reset options based on return air temperature and/or outside air temperature. Outside air reset saves energy by gradually decreasing the discharge air set point as outside air temperature increases. Return air reset reduces the potential for overheating if the zoning system is misapplied, has an abnormal condition, or a dominant zone. The reset gradually decreases discharge air temperature as return air temperature increases.

NOTE - W2 signal is recommended for constant volume applications.

Power Exhaust Fan Operation

The IMC has many power exhaust fan control options that include single-stage, two-stage and modulating control, depending on how the unit is equipped. Stage control options can be triggered based on fresh air damper positions, pressure switches, or a analog pressure sensor. Modulating control for units with VFD powered exhaust fans are typically modulated to maintain return or building static pressure, but can be staged. Set-points and operation settings for controlling power exhaust fans reside in the IMC, have factory default settings, and may be adjusted at start up. They cannot be adjusted using the aftermarket controls system.

REVISIONS

Sections	Description of Change
All	Removed all 2-5 ton Standard and High efficiency models with SEER less than 13. This eliminates all direct drive models.
Options/Accessories	Removed Sectra Add horizontal configuration to Outdoor Air Dampers Removed Manual Horizontal Outdoor Air Dampers (OAD3) Added Low Temperature Vestible Heater New catalog number for Outdoor Air Hood New catalog number for Vertical Vent Extension
High Altitude Derate	Updated Maximum Input Rate data.
Sound Data	New sound data
Electrical Data	New format
Accessory Dimensions	Add horizontal configuration to Outdoor Air Dampers Removed Manual Horizontal Outdoor Air Dampers (OAD3) New diffuser drawings
Application Guide	Updated section to reflect usage with M1-6 and higher versions.



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