



ENGINEERING DATA

LG
L SERIES® ROOFTOP UNITS
50 HZ

Bulletin No. 490128
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 Supersedes October 2008



74, 88 and 105 kW (21, 25 and 30 Ton)
Net Cooling Capacity - 66.5 to 91.7 kW (227 000 to 313 000 Btuh)
Gas Input Heat Capacity - 49.5 to 123.0 kW (169 000 to 420 000 Btuh)

MODEL NUMBER IDENTIFICATION

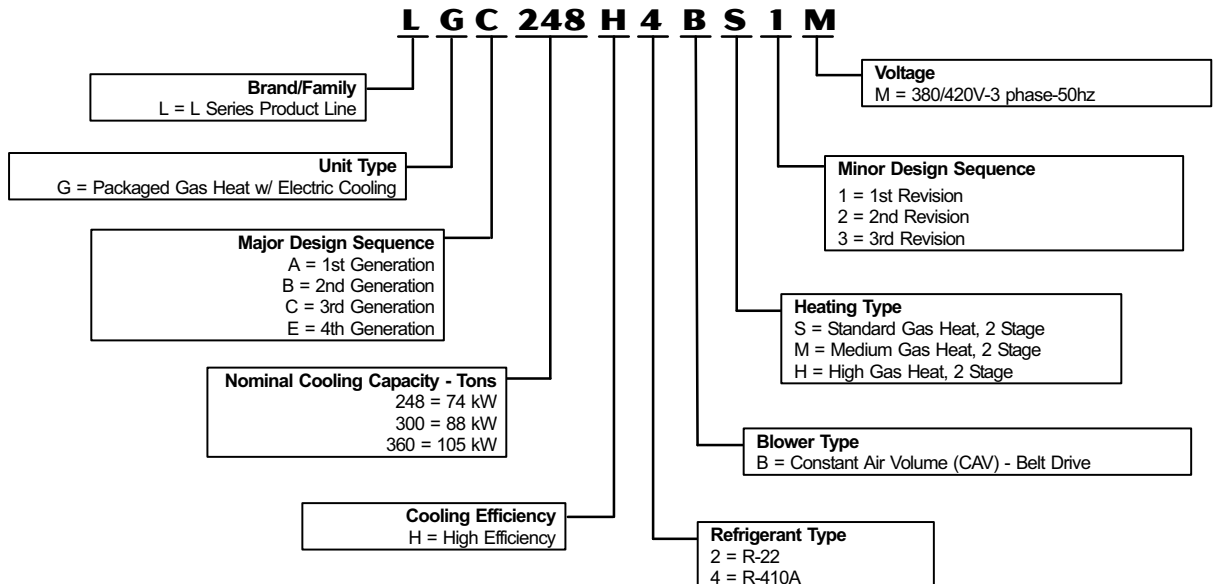


TABLE OF CONTENTS

Accessory Air Resistance	Page 18
Blower Data	Pages 17-19
Control Systems	Pages 22-26
Cooling Ratings	Pages 14-16
Dimensions	Pages 28-33
Electrical Data	Page 20
Features and Benefits	Pages 2-6
High Altitude Information	Page 13
Model Number Identification	Page 1
Options / Accessories	Pages 8-9
Specifications	Pages 10-12
Specifications - Gas Heat	Page 13
Sound Data	Page 19
Unit Clearances	Page 21
Weight Data	Page 27

FEATURES AND BENEFITS

APPROVALS

Components bonded for grounding to meet safety standards for servicing required by Underwriters Laboratories (UL) and the International Electrotechnical Commission (IEC). Cooling performance is rated at test conditions included in Air-Conditioning and Refrigeration Institute (ARI) Standard 340/360-2000 while operating at rated voltage and air volumes. International Organization for Standardization (ISO) 9001 Registered Manufacturing Quality System.

COOLING SYSTEM

Designed to maximize sensible and latent cooling performance at design conditions. System can operate from -17°C to 52°C (0°F to 125°F) without any additional controls.

1 Compressors

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

Compressor Crankcase Heaters

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

2 Thermal Expansion Valves

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

3 Filter/Driers

High capacity filter/driers protect the system from dirt and moisture.

4 High Pressure Switches

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

Low Pressure Switches

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

Freezestats

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

5 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. Low fin per inch count minimizes air pressure drop. Constant air volume (CAV) models have face-split evaporator coils.

Condenser Coil

Angled, slab design helps protect coil from possible contact or hail damage.

Condensate Drain Pan

Drain connection extends outside unit. Painted, galvanized pan with positive slope. Stainless steel drain pan available as a factory installed option.

Outdoor Coil Fan Motors

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

6 Outdoor Coil Fan

Polyvinyl chloride (PVC) coated fan guard furnished.

Refrigerant Choice

Can be ordered with R-22 or R-410A refrigerant.

REQUIRED SELECTIONS

Cooling Capacity

Specify the nominal cooling capacity of the unit

Refrigerant Choice

Specify R-22 or R-410A refrigerant.

OPTIONS / ACCESSORIES

Factory Installed

Discharge Air Temperature Sensor

Sensor sends information to the IMC to cycle up to 4 stages of heating or cooling to maintain the discharge air setpoints for heating or cooling. Optional for CAV units (single zone or bypass zoning control). Sensor is shipped with the unit for remote field installation in the supply duct.

7 Service Valves

Fully serviceable brass valves installed in discharge & liquid lines.

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 the IMC (Integrated Modular Controller) (ECTO) parameter in the field to activate this mode of operation.

Stainless Steel Condensate Drain Pan

Factory installed

Factory or Field Installed

Condensate Drain Trap

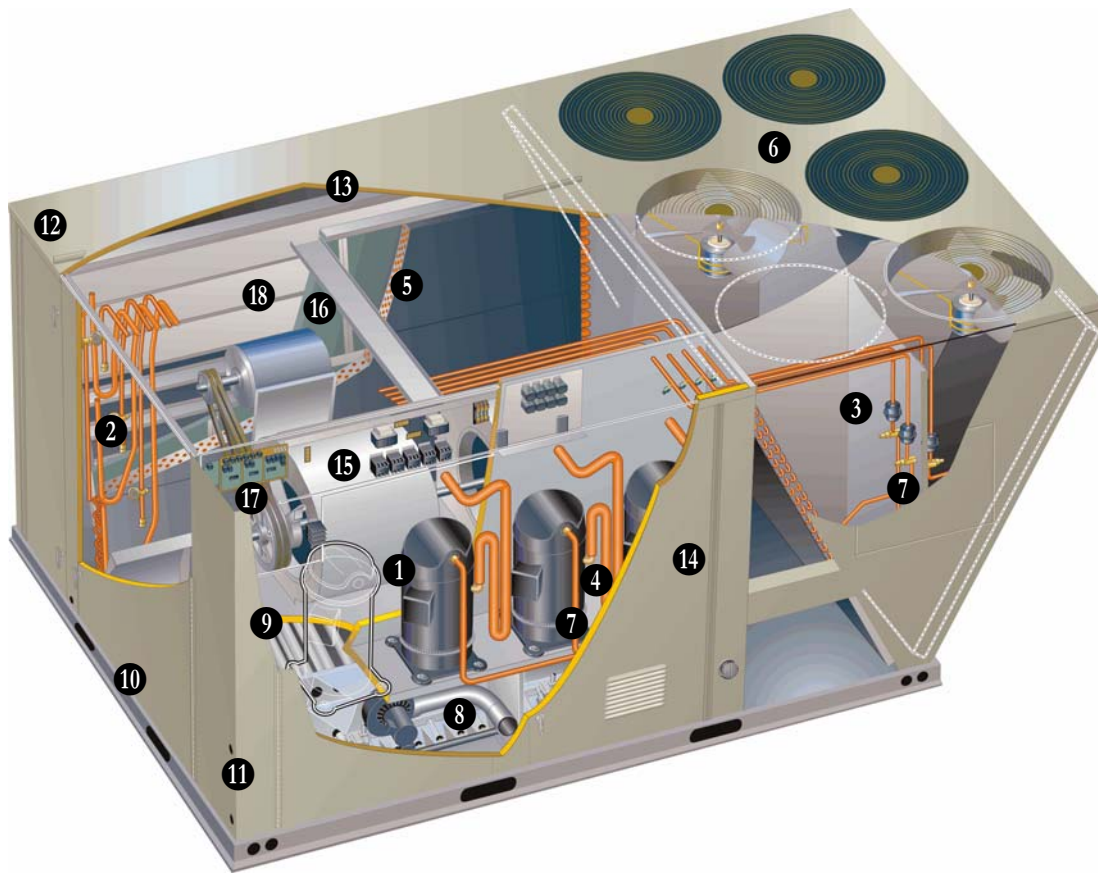
Field installed only, may be factory enclosed to ship with unit. Available in copper or polyvinyl chloride (PVC).

Field Installed

Drain Pan Overflow Switch

Monitors condensate level in drain pan, shuts down unit if drain becomes clogged.

FEATURES AND BENEFITS



HEATING SYSTEM

- 8 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.

- 9 **Heat Exchanger**

Tubular construction, aluminized steel, life cycle tested. Stainless Steel Heat Exchanger is required if mixed air temperature is less than 7°C (45°F).

Fan & Limit Controls

Factory installed with fixed temperature setting. Heat limit controls protect against overheating.

Safety Switches

Flame roll-out switches, flame sensors and combustion air inducer proving switches protect system operation. All safety switches are monitored by the IMC unit controller and diagnostic errors are reported and recorded.

REQUIRED SELECTIONS

Gas Input - Order one:

49.5 / 68.6 kW (169 000 / 234 000 Btuh) low/high fire - Standard Heat Gas Input.

68.6 / 92.0 kW (234 000 / 314 000 Btuh) low/high fire - Medium Gas Heat Input.

91.4 / 123.1 kW (312 000 / 420 000 Btuh) low/high fire - High Gas Heat Input.

OPTIONS / ACCESSORIES

Factory Installed

Discharge Air Temperature Sensor

Sensor sends information to the IMC to cycle up to 4 stages of heating or cooling to maintain the discharge air setpoints for heating or cooling. Optional for CAV units (single zone or bypass zoning control). Sensor is shipped with the unit for remote field installation in the supply duct.

Low Temperature Vestibule Heater

Electric heater automatically controls minimum temperature in gas burner compartment when temperature is below -40°C (-40°F). Allows operation of unit down to -51°C (-60°F).

Stainless Steel Heat Exchanger

Required if mixed air temperature is below 7°C (45°F).

Field Installed

Combustion Air Intake Extensions

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

LPG/Propane Kits

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

Vertical Vent Extension Kit

Exhausts flue gases vertically above unit.

FEATURES AND BENEFITS

CABINET

Construction

- 10 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 available in down-flow (vertical) or horizontal return air flow configuration.

Horizontal air flow requires Horizontal Roof Curb.

Horizontal Return Air Panel Kit is also required if converting a down-flow configured unit to horizontal air flow.

11 Power and Gas Entry

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

12 Exterior Panels

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

13 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.

14 Access Panels

Hinged access panels are provided for 2 compressor/controls/heating areas, blower access and air filter/economizer access.

All 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.

Grille Guards

Protects the space between outdoor coils and main cabinet.

Hail Guards

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

Horizontal Return Air Panel Kit

Required for horizontal applications with Horizontal Roof Curb, contains panel with return air opening for field replacement of existing unit panel and panel to cover bottom return air opening in unit, see dimension drawings.

15 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 offered in several different sizes to maximize air performance.

Supply Air Blower

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

Belt drive motors with adjustable pulley for speed change.

Blower assembly slides out of unit for servicing.

Grease fittings furnished.

REQUIRED SELECTIONS

Supply Air Blower

Order blower motor required (See Blower Data Table for specifications).

Order one drive kit, see Drive Kit Specifications Table.

INDOOR AIR QUALITY

16 Air Filters

Disposable 51 mm (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 51 mm (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 51 mm (2 inch) pleated filters.

Indoor Air Quality (CO₂) Sensor

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

FEATURES AND BENEFITS

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.

Tool-less, Hinged Access Panels

Large access panels are hinged and have quarter-turn, latching handles for quick and easy access to maintenance areas.

Filter access panels are hinged for easy access to the filters.

Blower Access

Blower assembly slides out of the unit for easy access.

Coil Cleaning

Slab condenser coils allow easier cleaning.

Standard Components

A large number of common maintenance parts are standard throughout the entire range of sizes, reducing the need to carry a lot of different parts to the job or 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.

Thermal Expansion Valves

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

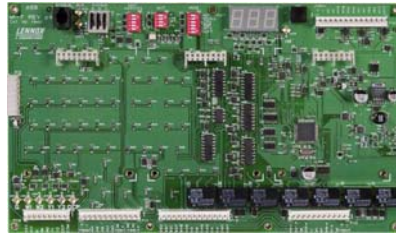
Removable element head allows change out of element and bulb without removing the TXV.

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.

CONTROLS

17 INTELLIGENT UNIT CONTROLLER



The Integrated Modular Controller (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.

Blower Air Delivery Options - Two air delivery options; single zone CAV and bypass zoning with bypass dampers.

Built-in Control Parameter Defaults - No programming required for standard CAV models.

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 for CAV units (single zone or bypass zoning control). Sensor is shipped with the unit 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 (non-VFD power exhaust) 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.

FEATURES AND BENEFITS

CONTROLS - CONTINUED

INTELLIGENT UNIT CONTROLLER CONTINUED

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 -32°C (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 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 a 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 on CAV gas units 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 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.

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.

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 22.

Thermostats

Control system and thermostat options. Aftermarket unit controller options. See See Page 26.

OPTIONS / ACCESSORIES

ECONOMIZER/OUTDOOR AIR/EXHAUST

Factory or Field Installed

18 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 the outdoor air and return air sensors that are furnished with the unit. The IMC compares the 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.

Outdoor Air Dampers (Manual or Automatic)

Linked mechanical dampers, 0 to 25% (fixed) outdoor air adjustable, installs in unit, outdoor air hood must be ordered separately. Motorized model features fully modulating spring return damper motor with plug-in connection. Manual model features a slide damper. Minimum mixed air temperature in heating mode: -1°C (30°F). Maximum mixed air temperature in cooling mode: 32°C (90°F).

Outdoor Air Hood

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

Down-Flow Barometric Relief Dampers

Allows relief of excess air, aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle, bird screen furnished. Dampers are required with Standard Static Power Exhaust Fans. Down-Flow Barometric Relief Damper Hood is available and must be ordered extra.

Field Installed

Down-Flow Barometric Relief Damper Hood

Field installed only. Use with Barometric Relief Dampers.

Horizontal Barometric Relief Dampers

Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle, field installed in return air duct, bird screen furnished.

Factory or Field Installed

Standard Static Power Exhaust Fans

Three, 0.22 kW (1/3 hp) motors with 508 mm (20 in.), five blade propeller-type fans with a total power input of 1125 Watts and a total air volume of 6040 L/s (12,800 cfm) at 0 Pa (0 in. w.g.).

Motor is inherently protected and enclosed for maximum protection from weather, dust and corrosion. Installs internal to unit for down-flow applications only with economizer option, provides exhaust air pressure relief, interlocked to run when return air dampers are closed and supply air blower is operating, fan runs when outdoor air dampers are 50% open (adjustable), motor is overload protected, steel cabinet and hood painted to match unit, requires optional Down-flow Economizer Barometric Relief Dampers.

See Standard Static Power Exhaust Blower Tables.

OPTIONS / ACCESSORIES

CEILING DIFFUSERS

Field Installed

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

Field Installed

Nailer strip furnished, mates to unit, shipped knocked down.

Standard Down-Flow

Available in 356 and 610 mm (14 and 24 in.) heights

Horizontal

Converts unit from down-flow to horizontal (side) air flow, return air is on unit, supply air is on curb, see dimension drawings. Curbs for rooftop applications meet National Roofing Code requirements. Requires Horizontal Return Air Panel. Available in 762 and 1041 mm (30 and 40 in.) heights. Optional Insulation Kit is available to help prevent sweating.

OPTIONS / ACCESSORIES

Item		Catalog No.	248H	300H	360H
COOLING SYSTEM					
Condensate Drain Trap	Polyvinyl Chloride (PVC) - C1TRAP20AD2	76W26	⊗	⊗	⊗
	Copper - C1TRAP10AD2	76W27	⊗	⊗	⊗
Corrosion Protection	Factory		○	○	○
Drain Pan Overflow Switch		60W18	x	x	x
Efficiency	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	LTACA1K10/15	89L97	1x	1x	1x
Gas Heat Input	Standard - 260 kBtuh input	Factory	○	○	○
	Medium - 360 kBtuh input	Factory	○	○	○
	High - 480 kBtuh input	Factory	○	○	○
LPG/Propane Conversion Kits	260 (2 kits) kBtuh input - LTALPGK-130	72M94	1x	1x	1x
	360 (2 kits) kBtuh input - LTALPGK-180	72M95	1x	1x	1x
	480 (2 kits) kBtuh input - LTALPGK-240	72M96	1x	1x	1x
Low Temperature Vestibule Heater		Factory	○	○	○
Stainless Steel Heat Exchanger		Factory	○	○	○
Vertical Vent Extension	C1EXTN20FF1	42W16	1x	1x	1x
BLOWER - SUPPLY AIR					
Constant Air Volume	3.7 kW (5 hp)	Factory	○	○	○
	5.5 kW (7.5 hp)	Factory	○	○	○
	7.5 kW (10 hp)	Factory	○	○	○
CABINET					
Coil Guards		88K53	x	x	x
Grille Guards		86K30	x	x	x
Hail Guards		88K26	x	x	x
Horizontal Return Air Panel Kit		38K48	x	x	x
CONTROLS					
Blower Proving Switch	C0SWCH01AE1-	30K49	⊗	⊗	⊗
Dirty Filter Switch	C0SWCH00AE1-	30K48	⊗	⊗	⊗
Discharge Air Temperature Sensor		Factory	○	○	○
Fresh Air Tempering	C0SNC03AE-1	45L78	⊗	⊗	⊗
Smoke Detector	Supply - LTASASDK10/36	70K87	⊗	⊗	⊗
	Return - LTARASDK10/30	70K86	⊗	⊗	⊗
INDOOR AIR QUALITY					
Air Filters					
Healthy Climate® High Efficiency Air Filters 508 x 508 x 51 mm (20 x 20 x 2 in.) - order 12 per unit	MERV 11 - C1FTLR20D-1-	97L88	⊗	⊗	⊗
	MERV 15 - C1FLTR50D-1-	28W06	x	x	x
Indoor Air Quality Sensors					
CO ₂ Sensor - white case w/ display	C0SNSR50AE1L	77N39	x	x	x
CO ₂ Sensor - white case, no display	C0SNSR50AE1L	87N53	x	x	x
CO ₂ Sensor - black case w/ display	C0SNSR50AE1L	87N52	x	x	x
CO ₂ Sensor - black case, no display	C0SNSR50AE1L	87N54	x	x	x
CO ₂ Sensor Duct Mounting Kit	C0MISC19AE1-	85L43	x	x	x
Aspiration Box for duct mounting Sensor	C0MISC16AE1-	90N43	x	x	x
Handheld CO ₂ Monitor	LTAIAQSHM03/36	70N93	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.

¹ Order two each.

OPTIONS / ACCESSORIES

Item	Catalog No.	248H	300H	360H	
ELECTRICAL					
Voltage 50 hz	380/420V - 3 phase	Factory	○	○	○
ECONOMIZER					
Economizer					
Economizer (Order Hood Separately)	LAREMD30/36	33K72	⊗	⊗	⊗
Economizer Controls					
Differential Enthalpy	C1SNSR07AE	86M32	⊗	⊗	⊗
Single Enthalpy	C1SNSR06AE	86M33	⊗	⊗	⊗
Global, Enthalpy	Sensor Field Provided	Factory	○	○	○
Differential Sensible	Furnished	Factory	○	○	○
Outdoor Air CFM Control	C0SNSR23DE1	98M61	⊗	⊗	⊗
Barometric Relief					
Down-Flow Barometric Relief Dampers (Order Hood Separately)	LAGED30/36	33K77	⊗	⊗	⊗
Hood for Down-Flow LAGED	LAGEH30H/36	88K81	⊗	⊗	⊗
Horizontal Barometric Relief Dampers (Hood Furnished)	LAGEDH30/36	33K78	⊗	⊗	⊗
Power Exhaust Fans (Down-Flow Applications Only)					
Standard Static	380/420V - LAPEF30/36	33K74	⊗	⊗	⊗
OUTDOOR AIR					
Outdoor Air Dampers					
Damper Section (down-flow) Motorized (Order Hood Separately)	LAOADM30/36	33K70	⊗	⊗	⊗
Damper Section (down-flow) - Manual (Order Hood Separately)	LAOAD30/36	33K69	⊗	⊗	⊗
Outdoor Air Hoods					
Outdoor Air Hood (down-flow) Number and size of filters - (5) 406 x 635 x 25 mm (16 x 20 x 5 in.)		31W45	⊗	⊗	⊗
ROOF CURBS - STANDARD					
Down-Flow					
356 mm (14 in.) height	LARMF18/36-14	16K87	x	x	x
610 mm (24 in.) height	LARMF18/36-24	16K88	x	x	x
Horizontal					
62 mm (30 in.) height - Rooftop applications	LARMFH30/36-30	33K79	x	x	x
1041 mm (40 in.) height - Slab applications	LARMFH30/36-41	73K33	x	x	x
Horizontal Return Air Panel Kit		38K48	x	x	x
Insulation Kits					
for LARMFH30/36-30		73K33	x	x	x
for LARMFH30/36-41		73K35	x	x	x
CEILING DIFFUSERS					
Step-Down - Order one	LARTD30/36	35K25	x	x	x
Flush - Order one	LAFD30/36	35K24	x	x	x
Transitions (Supply and Return) Order one	LASRT30/36	33K80	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.

SPECIFICATIONS
74 kW

General Data		Nominal kW	74 kW	74 kW
		Model	LGA248H2B	LGA248H4B
		Efficiency Type	High	High
		Blower Type	Constant Air Volume (CAV)	Constant Air Volume (CAV)
Cooling Performance	Gross Cooling Capacity - kW (Btuh)		68.8 (234 800)	73.4 (250 500)
	¹ Net Cooling Capacity - kW (Btuh)		66.5 (227 000)	71.2 (243 000)
	Rated Air Flow - L/s (cfm)		3965 (8400)	3965 (8400)
	Total Unit Power (kW)		18.4	20.2
	¹ EER		12.3	12.0
	Coefficient of Performance (input/output)		3.6	3.5
	² Integrated Part Load Value (IPLV)		12.3	12.7
Refrigerant Type			R-22	R-410A
Refrigerant Charge Furnished	Circuit 1		5.67 kg (12 lbs. 8 oz.)	5.90 kg (13 lbs. 0 oz.)
	Circuit 2		5.67 kg (12 lbs. 8 oz.)	5.90 kg (13 lbs. 0 oz.)
	Circuit 3		5.67 kg (12 lbs. 8 oz.)	5.90 kg (13 lbs. 0 oz.)
	Circuit 4		5.67 kg (12 lbs. 8 oz.)	5.90 kg (13 lbs. 0 oz.)
Compressor Type (no.)			Scroll (4)	Scroll (4)
Gas Heating Options Available - See page 13			Standard (2 Stage), Medium (2 Stage), or High (2 Stage)	
Outdoor Coils	Net face area - m ² (sq. ft.) total		6.6 (70.6)	6.6 (70.6)
	Tube diameter - mm (in.)		9.5 (3/8)	9.5 (3/8)
	Number of rows		2	2
	Fins per m (inch)		787 (20)	787 (20)
Outdoor Coil Fans	Motor output - W (hp)		(6) 249 (1/3)	(6) 249 (1/3)
	Motor rev/min		895	895
	Total Motor watts		1910	1910
	Diameter - mm (in.)		(6) 610 (24)	(6) 610 (24)
	Number of blades		3	3
Total Air volume - L/s (cfm)		8445 (17 900)	8445 (17 900)	
Indoor Coils	Net face area - m ² (sq. ft.) total		3.1 (33.3)	3.1 (33.3)
	Tube diameter - mm (in.)		9.5 (3/8)	9.5 (3/8)
	Number of rows		3	3
	Fins per m (inch)		551 (14)	551 (14)
Condensate Drain - number & size			(1) 1 in. NPT coupling	
Expansion device type			Balanced Port Thermostatic Expansion Valve, removeable power head	
³ Indoor Blower and Drive Selection	Nominal motor output		3.7 kW (5 hp) - 5.6 kW (7.5 hp) - 7.5 kW (10 hp)	
	Maximum usable motor output		4.3 kW (5.75 hp) - 6.4 kW (8.63 hp) - 8.6 kW (11.5 hp)	
	Motor - Drive kit		3.7 kW (5 hp) kit #1 - 550-675 rev/min kit #2 - 640-805 rev/min kit #6 - 465-590 rev/min 5.6 kW 7.5 hp kit #3 - 595-735 rev/min kit #4 - 640-805 rev/min 7.5 kW 10 hp kit #3 - 595-735 rev/min kit #5 - 640-870 rev/min	
Blower wheel nominal diameter x width - mm			(2) 457 x 381 (18 x 15)	
Filters	Type of filter		Disposable	
	Number and size - mm (in.)		(12) 508 x 508 x 51 (20 x 20 x 2)	
Electrical characteristics			380/420V - 50 hertz - 3 phase	

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

¹ Rating test conditions are those included in Air-Conditioning and Refrigeration Institute (ARI) Standard 340/360; 35°C (95°F) outdoor air temperature and 27°C (80°F) db/19°C (67°F) wb entering evaporator air; minimum external duct static pressure while operating at rated voltage and air volumes.

² Integrated Part Load Value tested at 27°C (80°F) outdoor air temperature.

³ Using total air volume and system static pressure requirements determine from blower performance tables rev/min and motor size required. Maximum usable size of motors furnished is shown. If motors of comparable size are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS

88 kW

General Data		88 kW LGC300H2B High Constant Air Volume (CAV)	88 kW LGC300H4B High Constant Air Volume (CAV)
	Nominal kW		
	Model		
	Efficiency Type		
	Blower Type		
Cooling Performance	Gross Cooling Capacity - kW (Btuh)	83.0 (283 200)	83.3 (284 600)
	¹ Net Cooling Capacity - kW (Btuh)	80.0 (273 000)	80.6 (275 000)
	Rated Air Flow - L/s (cfm)	10 000	10 000
	Total Unit Power (kW)	24.1	23.8
	¹ EER	11.3	11.5
	Coefficient of Performance (input/output)	3.2	3.4
	² Integrated Part Load Value (IPLV)	11.5	11.8
	Refrigerant Type	R-22	R-410A
Refrigerant Charge Furnished	Circuit 1	4.99 kg (11 lbs. 0 oz.)	5.9 kg (13 lbs. 0 oz.)
	Circuit 2	4.99 kg (11 lbs. 0 oz.)	5.9 kg (13 lbs. 0 oz.)
	Circuit 3	4.99 kg (11 lbs. 0 oz.)	5.9 kg (13 lbs. 0 oz.)
	Circuit 4	4.99 kg (11 lbs. 0 oz.)	5.9 kg (13 lbs. 0 oz.)
Compressor Type (no.)		Scroll (4)	Scroll (4)
Gas Heating Options Available - See page 13		Standard (2 Stage), Medium (2 Stage), or High (2 Stage)	
Outdoor Coils	Net face area - m ² (sq. ft.) total	6.6 (70.6)	6.6 (70.6)
	Tube diameter - mm (in.)	9.5 (3/8)	9.5 (3/8)
	Number of rows	2	2
	Fins per m (inch)	787 (20)	787 (20)
Outdoor Coil Fans	Motor output - W (hp)	(6) 249 (1/3)	(6) 249 (1/3)
	Motor rev/min	895	895
	Total Motor watts	1910	1910
	Diameter - mm (in.)	(6) 610 (24)	(6) 610 (24)
	Number of blades	3	3
	Total Air volume - L/s (cfm)	8445 (17 900)	8445 (17 900)
Evaporator Coils	Net face area - m ² (sq. ft.) total	3.1 (33.3)	3.1 (33.3)
	Tube diameter - mm (in.)	9.5 (3/8)	9.5 (3/8)
	Number of rows	3	3
	Fins per m (inch)	551 (14)	551 (14)
	Condensate Drain - number and size	(1) 1 in. NPT coupling	
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removeable power head	
³ Indoor Blower and Drive Selection	Nominal motor output	3.7 kW (5 hp) - 5.6 kW (7.5 hp) - 7.5 kW (10 hp)	
	Maximum usable motor output	4.3 kW (5.75 hp) - 6.4 kW (8.63 hp) - 8.6 kW (11.5 hp)	
	Motor - Drive kit	3.7 kW (5 hp) kit #1 - 550-675 rev/min kit #2 - 640-805 rev/min kit #6 - 465-590 rev/min 5.6 kW 7.5 hp kit #3 - 595-735 rev/min kit #4 - 640-805 rev/min 7.5 kW 10 hp kit #3 - 595-735 rev/min kit #5 - 640-870 rev/min	
	Blower wheel nominal diameter x width - mm (in.)	(2) 457 x 381 (18 x 15)	
Filters	Type of filter	Disposable	
	Number and size - mm (in.)	(12) 508 x 508 x 51 (20 x 20 x 2)	
Electrical characteristics		380/420V - 50 hertz - 3 phase	

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.
¹ Rating test conditions are those included in Air-Conditioning and Refrigeration Institute (ARI) Standard 340/360; 35°C (95°F) outdoor air temperature and 27°C (80°F) db/19°C (67°F) wb entering evaporator air; minimum external duct static pressure while operating at rated voltage and air volumes.
² Integrated Part Load Value tested at 27°C (80°F) outdoor air temperature.
³ Using total air volume and system static pressure requirements determine from blower performance tables rev/min and motor size required. Maximum usable size of motors furnished is shown. If motors of comparable size are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS

105 kW

General Data		Nominal kW	105 kW	105 kW
		Model	LGC360H2B	LGC360H4B
		Efficiency Type	High	High
		Blower Type	Constant Air Volume (CAV)	
Cooling Performance	Gross Cooling Capacity - kW (Btuh)		96.2 (328 400)	96.2 (328 400)
	¹ Net Cooling Capacity - kW (Btuh)		91.7 (313 000)	91.7 (313 000)
	Rated Air Flow - L/s (cfm)		5475 (11 600)	5475 (11 600)
	Total Unit Power (kW)		31.0	31.0
	¹ EER		10.0	10.0
	Coefficient of Performance (input/output)		2.9	2.9
	² Integrated Part Load Value (IPLV)		10.6	11.2
Refrigerant Type			R-22	R-410A
Refrigerant Charge Furnished	Circuit 1		5.67 kg (12 lbs. 8 oz.)	5.9 kg (13 lbs. 0 oz.)
	Circuit 2		5.67 kg (12 lbs. 8 oz.)	5.9 kg (13 lbs. 0 oz.)
	Circuit 3		5.67 kg (12 lbs. 8 oz.)	5.9 kg (13 lbs. 0 oz.)
	Circuit 4		5.67 kg (12 lbs. 8 oz.)	5.9 kg (13 lbs. 0 oz.)
Compressor Type (no.)			Scroll (4)	Scroll (4)
Gas Heating Options Available - See page 13			Standard (2 Stage), Medium (2 Stage), or High (2 Stage)	
Outdoor Coils	Net face area - m ² (sq. ft.) total		6.6 (70.6)	6.6 (70.6)
	Tube diameter - mm (in.)		9.5 (3/8)	9.5 (3/8)
	Number of rows		2	2
	Fins per m (inch)		787 (20)	787 (20)
Outdoor Coil Fans	Motor horsepower (W)		(6) 249 (1/3)	(6) 249 (1/3)
	Motor rev/min		1075	1075
	Total Motor watts		2500	2500
	Diameter - in. (mm) - No. of blades		(6) 610 (24)	(6) 610 (24)
	Number of blades		3	3
	Total Air volume - L/s (cfm)		10 145 (21 500)	10 145 (21 500)
Evaporator Coils	Net face area - m ² (sq. ft.) total		3.1 (33.3)	3.1 (33.3)
	Tube diameter - mm (in.)		9.5 (3/8)	9.5 (3/8)
	Number of rows		3	3
	Fins per m (inch)		551 (14)	551 (14)
	Condensate Drain - number and size		(1) 1 in. NPT coupling	
Expansion device type			Balanced Port Thermostatic Expansion Valve, removeable power head	
³ Indoor Blower and Drive Selection	Nominal motor output		3.7 kW (5 hp) - 5.6 kW (7.5 hp) - 7.5 kW (10 hp)	
	Maximum usable motor output		4.3 kW (5.75 hp) - 6.4 kW (8.63 hp) - 8.6 kW (11.5 hp)	
	Motor - Drive kit		3.7 kW (5 hp) kit #1 - 550-675 rev/min kit #2 - 640-805 rev/min kit #6 - 465-590 rev/min	
			5.6 kW 7.5 hp kit #3 - 595-735 rev/min kit #4 - 640-805 rev/min	
		7.5 kW 10 hp kit #3 - 595-735 rev/min kit #5 - 640-870 rev/min		
Blower wheel nominal diameter x width - mm			(2) 457 x 381 (18 x 15)	
Filters	Type of filter		Disposable	
	Number and size - mm (in.)		(12) 508 x 508 x 51 (20 x 20 x 2)	
Electrical characteristics			380/420V - 50 hertz - 3 phase	

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

¹ Rating test conditions are those included in Air-Conditioning and Refrigeration Institute (ARI) Standard 340/360; 35°C (95°F) outdoor air temperature and 27°C (80°F) db/19°C (67°F) wb entering evaporator air; minimum external duct static pressure while operating at rated voltage and air volumes.

² Integrated Part Load Value tested at 27°C (80°F) outdoor air temperature.

³ Using total air volume and system static pressure requirements determine from blower performance tables rev/min and motor size required. Maximum usable size of motors furnished is shown. If motors of comparable size are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS - GAS HEAT

Gas Heating Performance	Heat Input Type		Standard (2 Stage)	Medium (2 Stage)	High (2 Stage)
	Input - kW (Btuh)	First Stage		49.5 (169 000)	68.6 (234 000)
Second Stage			68.5 (234 000)	91.9 (314 000)	123.0 (420 000)
Output - kW (Btuh)	First Stage		---	---	---
	Second Stage		54.8 (187 000)	73.5 (251 000)	98.4 (336 000)
Thermal Efficiency			80.0%		
Gas Supply Connections			1 in. npt		
Recommended Gas Supply Pressure - Natural			1.7 kPa (7 in. w.g.)		
LPG/Propane			2.7 kPa (11 in. w.g.)		

HIGH ALTITUDE DERATE

Units may be installed at altitudes up to 610 m (2000 feet) above sea level without any modification. At altitudes above 610 m (2000 feet), units must be derated to match gas manifold pressures shown in table below. NOTE - This is the only permissible derate for these units.

Heat Input Type	Altitude		Gas Manifold Pressure			
			Natural Gas		LPG/Propane	
	m	ft.	kPa	in. w.g.	kPa	in. w.g.
Standard	610 - 1372	2001 - 4500	0.52	2.6	1.82	7.3
Medium	610 - 1372	2001 - 4500	0.52	2.6	1.82	7.3
High	610 - 1372	2001 - 4500	0.52	2.6	1.82	7.3

COOLING RATINGS

74 KW

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

74 KW HIGH EFFICIENCY (R-22) TWO COMPRESSORS OPERATING

LGA248H2B

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)					
			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		
			kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	3.17	6720	33.0	112.5	4.93	.60	.78	.98	32.1	109.4	5.51	.61	.80	.99	31.1	106.0	6.19	.61	.82	1.00	30.0	102.3	6.98	.62	.85	1.00
19°C (67°F)	3.17	6720	35.1	119.6	4.98	.47	.58	.73	34.1	116.2	5.56	.47	.59	.75	33.0	112.5	6.25	.48	.59	.77	31.8	108.6	7.03	.48	.60	.79
22°C (71°F)	3.17	6720	37.4	127.6	5.04	.35	.45	.56	36.3	124.0	5.62	.35	.46	.57	35.2	120.0	6.31	.35	.46	.57	33.9	115.7	7.09	.36	.47	.58

74 KW HIGH EFFICIENCY (R-22) ALL COMPRESSORS OPERATING

LGA248H2B

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			27°C (80°F)						35°C (95°F)						43°C (110°F)						52°C (125°F)					
			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		
			kW	kBtuh		27°C 80°F	29°C 85°F	32°C 90°F	kW	kBtuh		27°C 80°F	29°C 85°F	32°C 90°F	kW	kBtuh		27°C 80°F	29°C 85°F	32°C 90°F	kW	kBtuh		27°C 80°F	29°C 85°F	32°C 90°F
19°C (67°F)	3.17	6720	70.9	241.8	11.86	.69	.83	.97	67.3	229.6	14.14	.71	.86	.99	63.4	216.2	16.98	.73	.89	1.00	59.3	202.2	20.42	.76	.93	1.00
22°C (71°F)	3.17	6720	75.1	256.4	11.98	.54	.67	.80	71.3	243.4	14.28	.55	.68	.82	67.2	229.2	17.14	.56	.71	.86	62.7	214.0	20.56	.58	.73	.89
24°C (75°F)	3.17	6720	80.1	273.2	12.10	.40	.52	.64	76.0	259.2	14.42	.41	.54	.66	71.5	244.0	17.26	.41	.55	.68	66.8	227.8	20.70	.42	.57	.71

74 KW HIGH EFFICIENCY (R-410A) TWO COMPRESSORS OPERATING

LGA248H4B

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)					
			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		
			kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh		24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	3.17	6720	34.4	117.3	4.65	.56	.75	.97	33.1	112.8	5.39	.57	.78	1.00	31.7	108.0	6.16	.58	.82	1.00	30.2	102.9	7.01	.59	.86	1.00
19°C (67°F)	3.17	6720	36.6	124.8	4.71	.44	.54	.70	35.1	119.9	5.45	.44	.55	.72	33.6	114.7	6.22	.45	.56	.76	32.0	109.2	7.07	.46	.58	.80
22°C (71°F)	3.17	6720	39.0	133.2	4.79	.33	.43	.52	37.5	128.0	5.51	.33	.43	.53	35.9	122.4	6.30	.33	.44	.54	34.2	116.6	7.15	.33	.45	.56

74 KW HIGH EFFICIENCY (R-410A) ALL COMPRESSORS OPERATING

LGA248H4B

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			27°C (80°F)						35°C (95°F)						43°C (110°F)						52°C (125°F)					
			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		
			kW	kBtuh		27°C 80°F	29°C 85°F	32°C 90°F	kW	kBtuh		27°C 80°F	29°C 85°F	32°C 90°F	kW	kBtuh		27°C 80°F	29°C 85°F	32°C 90°F	kW	kBtuh		27°C 80°F	29°C 85°F	32°C 90°F
19°C (67°F)	3.17	6720	76.9	262.3	13.14	.64	.78	.94	71.7	244.5	15.92	.66	.82	.98	65.8	224.5	19.24	.69	.87	1.00	59.2	202.0	23.22	.74	.94	1.00
22°C (71°F)	3.17	6720	81.7	278.7	13.29	.50	.62	.74	76.1	259.6	16.09	.52	.64	.78	69.8	238.1	19.39	.53	.67	.83	62.6	213.7	23.33	.56	.71	.90
24°C (75°F)	3.17	6720	87.1	297.1	13.52	.38	.49	.60	81.1	276.7	16.30	.38	.50	.62	74.3	253.6	19.62	.39	.52	.65	66.7	227.6	23.53	.40	.55	.69

BLOWER DATA

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

FOR ALL UNITS ADD:

- 1 - Wet indoor coil air resistance of selected unit.
- 2 - Any factory installed options air resistance (heat section, 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 page 18 for wet coil and option/accessory air resistance data.

See page 18 for factory installed drive kit specifications.

BOLD INDICATES FIELD FURNISHED DRIVE

Air Volume cfm (L/s)	TOTAL STATIC PRESSURE — Inches Water Gauge (Pa)												
	.20 (50) REV/ BHP MIN (kW)	.40 (100) REV/ BHP MIN (kW)	.60 (150) REV/ BHP MIN (kW)	.80 (200) REV/ BHP MIN (kW)	1.00 (250) REV/ BHP MIN (kW)	1.20 (300) REV/ BHP MIN (kW)	1.40 (350) REV/ BHP MIN (kW)	1.60 (400) REV/ BHP MIN (kW)	1.80 (450) REV/ BHP MIN (kW)	2.00 (495) REV/ BHP MIN (kW)	2.20 (545) REV/ BHP MIN (kW)	2.40 (595) REV/ BHP MIN (kW)	2.60 (645) REV/ BHP MIN (kW)
6000 (2830)	---	435 1.20 (0.90)	525 1.45 (1.08)	570 1.60 (1.19)	630 2.00 (1.49)	700 2.35 (1.75)	750 2.80 (2.09)	795 3.15 (2.35)	840 3.40 (2.54)	880 3.80 (2.83)	920 4.20 (3.13)	960 4.65 (3.47)	995 5.10 (3.80)
6500 (3065)	---	445 1.30 (0.97)	530 1.60 (1.19)	580 1.80 (1.34)	640 2.20 (1.64)	705 2.60 (1.94)	755 3.05 (2.28)	800 3.40 (2.54)	845 3.70 (2.76)	885 4.15 (3.10)	925 4.60 (4.43)	965 5.00 (3.73)	1000 5.45 (4.07)
7000 (3305)	---	455 1.40 (1.04)	535 1.75 (1.31)	590 2.05 (1.53)	650 2.45 (1.83)	710 2.85 (2.13)	760 3.30 (2.46)	805 3.70 (2.76)	850 4.05 (3.02)	890 4.50 (3.36)	930 4.95 (3.69)	970 5.40 (4.03)	1005 5.85 (4.36)
7500 (3540)	380 1.05 (0.78)	465 1.50 (1.12)	540 1.90 (1.42)	600 2.30 (1.72)	660 2.70 (2.01)	715 3.15 (2.35)	765 3.60 (2.69)	810 4.00 (2.98)	855 4.45 (3.32)	895 4.90 (3.66)	935 5.35 (3.99)	975 5.85 (4.36)	1010 6.30 (4.70)
8000 (3775)	390 1.25 (0.93)	475 1.65 (1.23)	545 2.10 (1.57)	610 2.55 (1.90)	665 2.95 (2.20)	720 3.45 (2.57)	770 3.90 (2.91)	815 4.35 (3.25)	860 4.85 (3.62)	900 5.30 (3.95)	940 5.75 (4.29)	980 6.30 (4.70)	1015 6.75 (5.04)
8500 (4010)	405 1.40 (1.04)	485 1.90 (1.42)	555 2.35 (1.75)	620 2.80 (2.09)	675 3.30 (2.46)	725 3.75 (2.80)	775 4.20 (3.13)	820 4.70 (3.51)	865 5.20 (3.88)	905 5.70 (4.25)	945 6.20 (4.63)	985 6.75 (5.04)	1020 7.25 (5.41)
9000 (4245)	415 1.60 (1.19)	495 2.10 (1.57)	565 2.60 (1.94)	625 3.10 (2.31)	685 3.60 (2.69)	735 4.10 (3.06)	785 4.60 (3.43)	830 5.10 (3.80)	870 5.60 (4.18)	915 6.15 (4.59)	955 6.70 (5.00)	990 7.20 (5.37)	1025 7.70 (5.74)
9500 (4485)	430 1.85 (1.38)	505 2.35 (1.75)	575 2.90 (2.16)	635 3.40 (2.54)	690 3.90 (2.91)	745 4.50 (3.36)	790 4.95 (3.69)	835 5.50 (4.10)	880 6.05 (4.51)	920 6.60 (4.92)	960 7.15 (5.33)	995 7.70 (5.74)	1035 8.30 (6.19)
10 000 (4720)	445 2.10 (1.57)	520 2.65 (1.98)	585 3.20 (2.39)	645 3.75 (2.80)	700 4.30 (3.21)	750 4.85 (3.64)	800 5.40 (4.03)	845 5.95 (4.44)	885 6.50 (4.85)	925 7.05 (5.26)	965 7.65 (5.71)	1000 8.20 (6.12)	1040 8.85 (6.60)
10 500 4955)	455 2.35 (1.75)	530 2.95 (2.20)	595 3.50 (2.61)	655 4.10 (3.06)	710 4.70 (3.03)	760 5.25 (3.92)	805 5.80 (4.33)	850 6.40 (4.77)	895 7.00 (5.22)	935 7.60 (5.67)	970 8.15 (6.08)	1010 8.80 (6.56)	1045 9.40 (7.01)
11 000 (5190)	470 2.60 (1.94)	545 3.25 (2.42)	605 3.85 (2.87)	665 4.45 (3.32)	720 5.10 (3.80)	765 5.66 (4.22)	815 6.30 (4.70)	860 6.90 (5.15)	900 7.50 (5.60)	940 8.10 (6.04)	980 8.75 (6.53)	1015 9.35 (6.98)	---
11 500 (5425)	485 2.95 (2.20)	555 3.60 (2.69)	620 4.25 (3.17)	675 4.85 (3.62)	730 5.55 (4.14)	775 6.10 (4.55)	820 6.70 (5.00)	865 7.40 (5.52)	910 8.05 (6.01)	945 8.65 (6.45)	985 9.30 (6.94)	1020 9.95 (7.42)	---
12 000 (5665)	500 3.30 (2.46)	570 4.00 (2.98)	630 4.65 (3.47)	685 5.30 (3.95)	740 6.00 (4.48)	785 6.60 (4.92)	830 7.25 (5.41)	875 7.95 (5.93)	915 8.60 (6.42)	955 9.25 (6.90)	995 9.95 (7.42)	1030 10.60 (7.91)	---
12 500 (5900)	515 3.65 (2.72)	580 4.35 (3.25)	640 5.05 (3.77)	695 5.75 (4.29)	750 6.50 (4.85)	795 7.10 (5.30)	840 7.80 (5.82)	885 8.55 (6.38)	925 9.20 (6.86)	965 9.90 (7.39)	1000 10.55 (7.87)	1035 11.25 (8.39)	---
13 000 (6135)	530 4.05 (3.02)	595 4.80 (3.58)	655 5.55 (4.14)	710 6.25 (4.66)	760 7.00 (5.22)	805 7.65 (5.71)	850 8.40 (6.27)	890 9.05 (6.75)	930 9.75 (7.27)	970 10.50 (7.83)	1010 11.30 (8.43)	---	---
13 500 (6370)	545 4.45 (3.32)	610 5.25 (3.92)	665 6.00 (4.48)	720 6.75 (5.04)	770 7.50 (5.60)	815 8.25 (6.15)	860 9.00 (6.71)	900 9.70 (7.24)	940 10.45 (7.80)	980 11.20 (8.36)	---	---	---
14 000 (6605)	560 4.90 (3.66)	620 5.70 (4.25)	680 6.55 (4.89)	730 7.30 (5.45)	780 8.10 (6.04)	825 8.85 (6.60)	870 9.65 (7.20)	910 10.40 (7.76)	950 11.15 (8.31)	---	---	---	---
14 500 (6845)	575 5.40 (4.03)	635 6.25 (4.66)	690 7.05 (5.26)	745 7.90 (5.89)	790 8.65 (6.45)	835 9.45 (7.05)	880 10.30 (7.68)	920 11.10 (8.28)	---	---	---	---	---
15 000 (7080)	590 5.90 (4.40)	650 6.80 (5.07)	705 7.65 (5.71)	755 8.50 (6.34)	800 9.30 (6.94)	845 10.10 (7.53)	890 11.00 (8.21)	---	---	---	---	---	---

BLOWER DATA

DRIVE KIT SPECIFICATIONS

Nominal kW	Maximum kW	Nominal hp	Maximum hp	Drive Kit Number	Rev/Min Range
3.7	4.3	5 hp	5.75	1 2 6	550 - 675 640 - 805 465 - 590
5.6	6.4	7.5 hp	8.63	3 4	595 - 735 640 - 805
7.5	8.6	10 hp	11.5	3 5	595 - 735 640 - 870

NOTE - Using total air volume and system static pressure requirements determine from blower performance tables rev/min and motor size required. Maximum usable size of motors furnished is shown. If motors of comparable size are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

ACCESSORY AIR RESISTANCE

Air Volume		Wet Indoor Coil		Gas Heat Exchanger						Economizer		Horizontal Roof Curb		Filters			
				Standard Heat		Medium Heat		High Heat						MERV 11		MERV 15	
L/s	cfm	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	in. w.g.
2830	6000	10	0.04	30	0.12	40	0.16	47	0.19	3	0.01	20	0.08	2	0.01	7	0.03
3070	6500	13	0.05	32	0.13	45	0.18	52	0.21	3	0.01	22	0.09	2	0.01	10	0.04
3305	7000	15	0.06	35	0.14	50	0.20	59	0.24	5	0.02	25	0.10	2	0.01	10	0.04
3540	7500	17	0.07	37	0.15	52	0.21	62	0.25	5	0.02	27	0.11	5	0.02	10	0.04
3775	8000	20	0.08	42	0.17	59	0.24	70	0.28	5	0.02	32	0.13	5	0.02	12	0.05
4010	8500	20	0.08	50	0.20	67	0.27	77	0.31	7	0.03	37	0.15	5	0.02	12	0.05
4245	9000	22	0.09	55	0.22	72	0.29	85	0.34	10	0.04	42	0.17	5	0.02	12	0.05
4485	9500	25	0.10	60	0.24	80	0.32	94	0.38	10	0.04	47	0.19	7	0.03	15	0.06
4720	10 000	27	0.11	67	0.27	90	0.36	104	0.42	12	0.05	52	0.21	7	0.03	15	0.06
4955	10 500	30	0.12	75	0.30	99	0.40	114	0.46	15	0.06	60	0.24	7	0.03	15	0.06
5190	11 000	30	0.12	92	0.33	107	0.43	137	0.50	17	0.07	67	0.27	10	0.04	17	0.07
5425	11 500	32	0.13	92	0.37	119	0.48	137	0.55	20	0.08	75	0.30	10	0.04	17	0.07
5665	12 000	35	0.14	99	0.40	129	0.52	149	0.60	25	0.10	82	0.33	10	0.04	20	0.08
5900	12 500	37	0.15	109	0.44	142	0.57	162	0.65	27	0.11	92	0.37	12	0.05	20	0.08
6135	13 000	40	0.16	119	0.48	152	0.61	174	0.70	32	0.13	99	0.40	12	0.05	20	0.08
6370	13 500	42	0.17	132	0.53	167	0.67	189	0.76	35	0.14	109	0.44	15	0.06	22	0.09
6605	14 000	45	0.18	142	0.57	179	0.72	204	0.82	40	0.16	122	0.49	15	0.06	22	0.09
6845	14 500	47	0.19	154	0.62	194	0.78	221	0.89	45	0.18	132	0.53	15	0.06	25	0.10
7080	15 000	50	0.20	169	0.68	209	0.84	236	0.95	52	0.21	144	0.58	17	0.07	25	0.10

BLOWER DATA

CEILING DIFFUSER AIR RESISTANCE

Air Volume		Step-Down Diffuser - LARTD30/36						Flush Diffuser - LAFD30/36	
		2 Ends Open		1 Side/2 Ends Open		All Ends & Sides Open		Pa	in. w.g.
L/s	cfm	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.
3540	7500	92	.37	77	.31	62	.25	72	.29
3775	8000	104	.42	90	.36	72	.29	85	.34
4010	8500	119	.48	102	.41	85	.34	97	.39
4245	9000	137	.55	117	.47	97	.39	109	.44
4485	9500	154	.62	132	.53	112	.45	127	.51
4720	10,000	174	.70	149	.60	127	.51	142	.57
4955	10 500	194	.78	169	.68	144	.58	162	.65
5190	11 000	216	.87	190	.76	162	.65	179	.72
5425	11 500	241	.97	211	.85	182	.73	201	.81
5665	12 000	269	1.08	234	.94	204	.82	223	.90
5900	12 500	296	1.19	259	1.04	226	.91	246	.99
6135	13 000	323	1.30	286	1.15	249	1.00	274	1.10
6370	13 500	356	1.43	313	1.26	374	1.10	298	1.20
6605	14 000	388	1.56	343	1.38	298	1.20	326	1.31
6845	14 500	420	1.69	373	1.50	326	1.31	356	1.43
7080	15 000	457	1.84	405	1.63	356	1.43	388	1.56

CEILING DIFFUSER AIR THROW DATA

Air Volume		¹ Effective Throw Range				Air Volume		¹ Effective Throw Range			
		Step-Down		Flush				Step-Down		Flush	
L/s	cfm	m	ft.	m	ft.	L/s	cfm	m	ft.	m	ft.
Diffuser Model		LARTD30/36		LAFD30/36		Diffuser Model		LARTD30/36		LAFD30/36	
4245	9000	12 - 14	40 - 47	8 - 11	29 - 35	5425	11 500	17 - 20	55 - 64	15 - 19	50 - 61
4485	9500	13 - 15	43 - 50	10 - 12	33 - 41	5665	12 000	18 - 20	58 - 67	16 - 20	54 - 66
4720	10 000	14 - 16	46 - 54	11 - 14	37 - 46	5900	12 500	19 - 22	61 - 71	18 - 22	58 - 71
4955	10 500	15 - 18	50 - 58	13 - 15	42 - 51	6135	13 000	20 - 23	64 - 74	19 - 23	62 - 75
4190	11 000	16 - 19	53 - 61	14 - 17	46 - 56	6370	13 500	20 - 23	67 - 77	20 - 24	66 - 79

¹ Throw is the horizontal or vertical distance an airstream travels on leaving the outlet or diffuser before the maximum velocity is reduced to 15 m (50 ft.) per minute. Four sides open.

POWER EXHAUST FANS - STANDARD STATIC OPERATION

Return Duct Negative Static Pressure		Air Volume	
Pa	in. w.g.	L/s	cfm
0	0	6040	12,800
12	0.05	5760	12,200
25	0.10	5430	11,500
37	0.15	5100	10,800
50	0.20	4670	9900
62	0.25	4250	9000
75	0.30	3730	7900
87	0.35	3190	6750
100	0.40	2570	5450
112	0.45	1960	4150
125	0.50	1370	2900

OUTDOOR SOUND DATA

Test Conditions	Octave Band Sound Power Levels dBA, re 10 ⁻¹² Watts							¹ Sound Rating Number (dB)
	Center Frequency - HZ							
	125	250	500	1000	2000	4000	8000	
General Data								
248, 300H	79	84	88	89	85	82	73	94
360	78	85	90	91	87	82	74	95

Note - The octave sound power data does not include tonal corrections.

¹ Sound Rating Number according to ARI Standard 370-2001.

ELECTRICAL DATA**74, 88 AND 105 KW**

HIGH EFFICIENCY (R-22)		LGA248H2			LGC300H2			LGC360H2		
¹ Voltage - 50hz with neutral		380/420V-3 Ph			380/420V-3 Ph			380/420V-3 Ph		
Compressor 1	Rated Load Amps	9			9			10.9		
	Locked Rotor Amps	62			75			100		
Compressor 2	Rated Load Amps	9			9			10.9		
	Locked Rotor Amps	62			75			100		
Compressor 3	Rated Load Amps	9			9			10.9		
	Locked Rotor Amps	62			75			100		
Compressor 4	Rated Load Amps	9			9			10.9		
	Locked Rotor Amps	62			75			100		
Outdoor Fan Motors (6)	Full Load Amps (total)	1.3 (7.8)			1.3 (7.8)			1.3 (7.8)		
Indoor Blower Motor	kW (hp)	3.73 (5)	5.6 (7.5)	7.5 (10)	3.73 (5)	5.6 (7.5)	7.5 (10)	3.73 (5)	5.6 (7.5)	7.5 (10)
	Full Load Amps	7.8	11.8	15.2	7.8	11.8	15.2	7.8	11.8	15.2
² Maximum Overcurrent Protection	Unit Only	60	70	70	60	70	70	70	70	80
	Unit With (3) 0.19 kW (0.25 hp) Power Exhaust	60	70	80	60	70	80	70	80	80
³ Minimum Circuit Ampacity	Unit Only	54	58	62	54	58	62	62	66	70
	Unit With (3) 0.19 kW (0.25 hp) Power Exhaust	58	62	66	58	62	66	66	70	74

ELECTRICAL ACCESSORIES

Disconnect	Unit Only	84M13	84M13	84M13	84M13	84M13	84M13	84M13	84M13	84M13
Terminal Block		30K75	30K75	30K75	30K75	30K75	30K75	30K75	30K75	30K75

HIGH EFFICIENCY (R-410A)		LGA248H4			LGC300H4			LGC360H4		
¹ Voltage - 50hz with neutral		380/420V-3 Ph			380/420V-3 Ph			380/420V-3 Ph		
Compressor 1	Rated Load Amps	9			10.6			12.2		
	Locked Rotor Amps	62			74			100		
Compressor 2	Rated Load Amps	9			10.6			12.2		
	Locked Rotor Amps	62			74			100		
Compressor 3	Rated Load Amps	9			10.6			12.2		
	Locked Rotor Amps	62			74			100		
Compressor 4	Rated Load Amps	9			10.6			12.2		
	Locked Rotor Amps	62			74			100		
Outdoor Fan Motors (6)	Full Load Amps (total)	1.3 (7.8)			1.3 (7.8)			1.3 (7.8)		
Indoor Blower Motor	kW (hp)	3.73 (5)	5.6 (7.5)	7.5 (10)	3.73 (5)	5.6 (7.5)	7.5 (10)	3.73 (5)	5.6 (7.5)	7.5 (10)
	Full Load Amps	7.8	11.8	15.2	7.8	11.8	15.2	7.8	11.8	15.2
² Maximum Overcurrent Protection	Unit Only	60	70	70	70	70	80	70	80	90
	Unit With (3) 0.19 kW (0.25 hp) Power Exhaust	60	70	80	70	80	80	80	80	90
³ Minimum Circuit Ampacity	Unit Only	54	58	62	61	65	69	68	72	75
	Unit With (3) 0.19 kW (0.25 hp) Power Exhaust	58	62	66	65	69	72	72	76	79

ELECTRICAL ACCESSORIES

Disconnect	Unit Only	84M13	84M13	84M13	84M13	84M13	84M13	84M13	84M14	84M14
Terminal Block		30K75	30K75	30K75	30K75	30K75	30K75	30K75	30K75	30K75

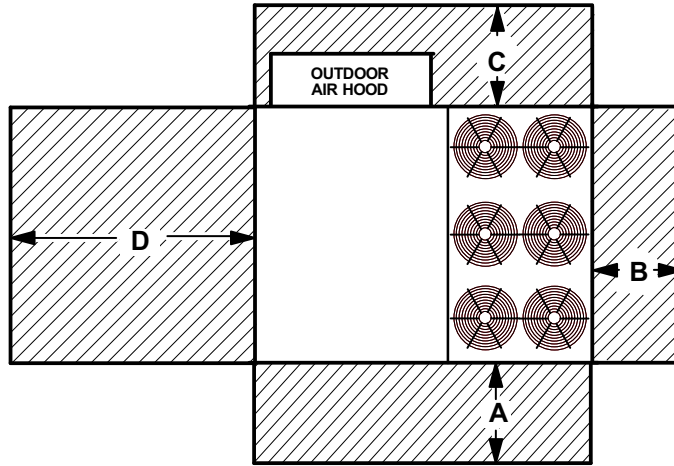
¹ Extremes of operating range are plus and minus 10% of line voltage.

² Heating, Air Conditioning, Refrigeration type breaker or fuse.

³ Refer to local electrical code to determine wire, fuse and disconnect size requirements.

UNIT CLEARANCES - MM (INCHES)

Unit With Economizer



1 Unit Clearance	A		B		C		D		Top Clearance
	mm	in.	mm	in.	mm	in.	mm	in.	
Service Clearance	1524	60	914	36	914	36	1676	66	Unobstructed
Clearance to Combustibles	914	36	25	1	25	1	25	1	
Minimum Operation Clearance	1143	45	914	36	914	36	1041	41	

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

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

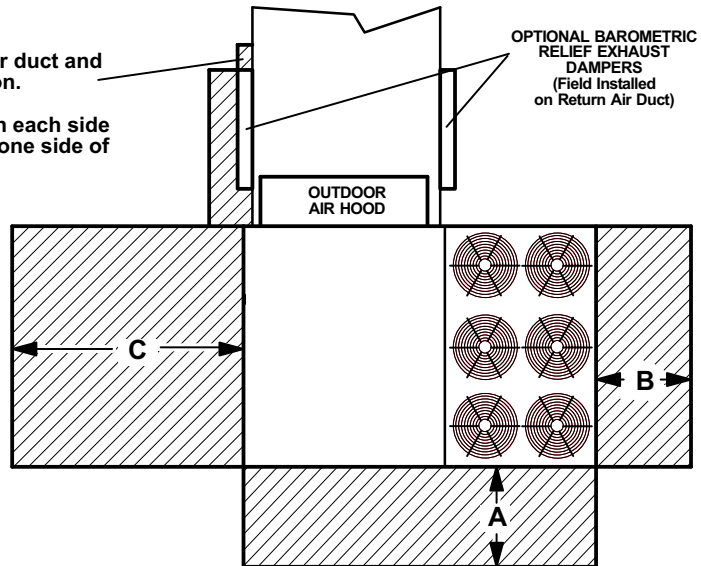
Clearance to Combustibles - Required clearance to combustible material.

Minimum Operation Clearance - Required clearance for proper unit operation.

Unit With Horizontal Barometric Relief Dampers

NOTE Allow adequate clearance for duct and barometric relief damper installation.

NOTE Dampers may be installed on each side of return air duct or end to end on one side of return air duct.



1 Unit Clearance	A		B		C		Top Clearance
	mm	in.	mm	in.	mm	in.	
Service Clearance	1524	60	914	36	1676	66	Unobstructed
Clearance to Combustibles	914	36	25	1	25	1	
Minimum Operation Clearance	1143	45	914	36	1041	41	

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

IMC LONTALK® MODULE

The IMC LonTalk module allows communication between the Lennox IMC (M1-8) 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 four different MSTP network speeds (6, 9, 19.2, or 76.8 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	
	kg	lbs.	kg	lbs.
All - Base Unit	1370	3020	1465	3230
All - Max. Unit	1515	3340	1565	3450

OPTIONS / ACCESSORIES

		Weight	
		kg	lbs.
CEILING DIFFUSERS			
Step-Down	LARTD30/36	198	437
Flush	LAFD30/36	188	414
Transitions	LASRT30/36	39	85
ECONOMIZER/OUTDOOR AIR			
Economizer	LAREMD30/36	54	119
Barometric Relief		Barometric Relief	
Down-Flow Barometric Relief Dampers	LAGED30/36	20	45
Horizontal Barometric Relief Dampers	LAGEDH30/36	9	20
Outdoor Air Dampers		Outdoor Air Dampers	
Damper Section (down-flow)	Motorized - LAOADM30/36	33	72
	Manual - LAOAD30/36	31	68
Outdoor Air Hood (down-flow)	LAOAH30/36	34	76
Power Exhaust			
Power Exhaust	Standard Static - LAPEF30/36	45	99
HEAT EXCHANGER			
High Fire Heat Exchanger		36	80
PACKAGING			
LTL Packaging (less than truck load)		136	300
ROOF CURBS - STANDARD			
Down-Flow			
356 mm (14 in.) height	LARMF18/36-14	73	160
610 mm (24 in.) height	LARMF18/36-24	100	220
Horizontal			
762 mm (30 in.) height	LARMFH30/36-30	202	445
1041 mm (41 in.) height	LARMFH30/36-41	329	725

Base Unit - The unit with low fire heat exchanger NO OPTIONS.

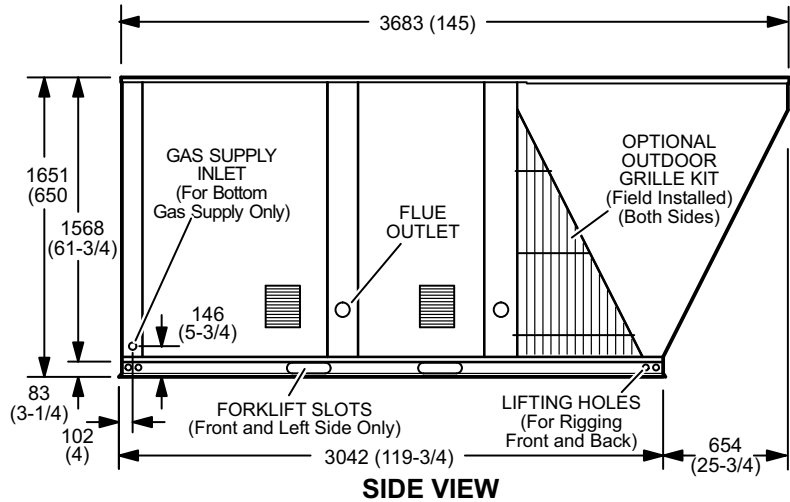
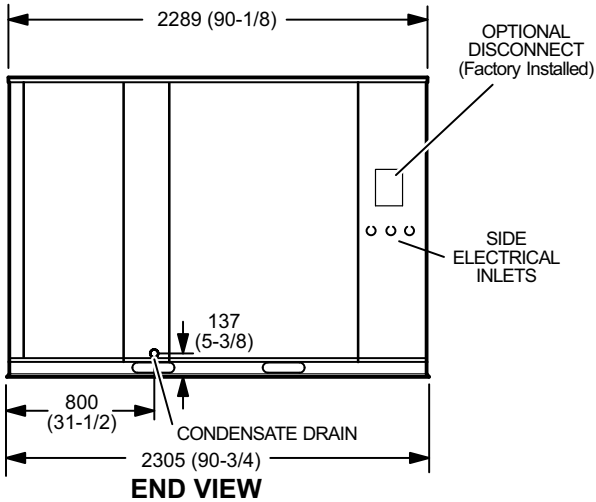
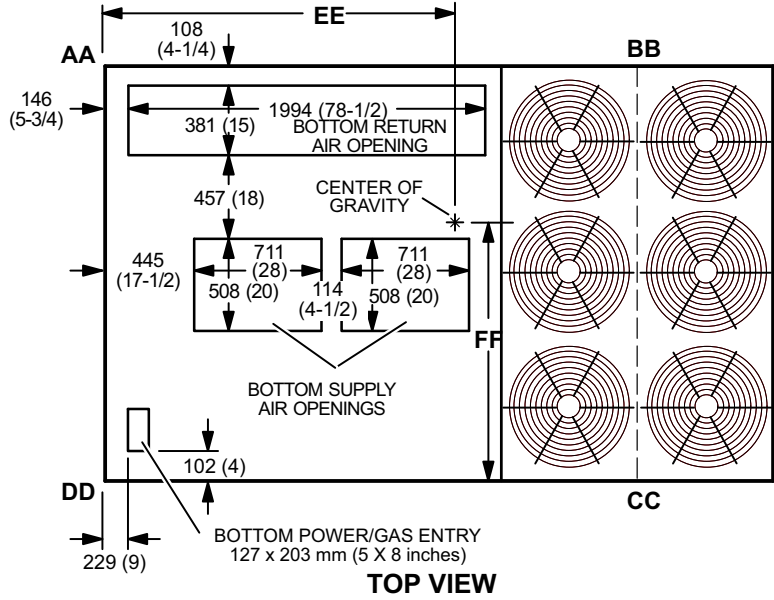
Max. Unit - The unit with ALL OPTIONS Installed. (High Input Heat Exchanger, Economizer, Power Exhaust Fans, Controls)

DIMENSIONS - INCHES (MM)

Model Number	CORNER WEIGHTS								CENTER OF GRAVITY			
	AA		BB		CC		DD		EE		FF	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	mm	inch	mm	inch
All - Base Unit	267	588	286	630	423	932	395	870	1591	62-5/8	933	36-3/4
All - Max. Unit	325	716	337	743	335	958	419	923	1556	61-1/4	1010	39-3/4

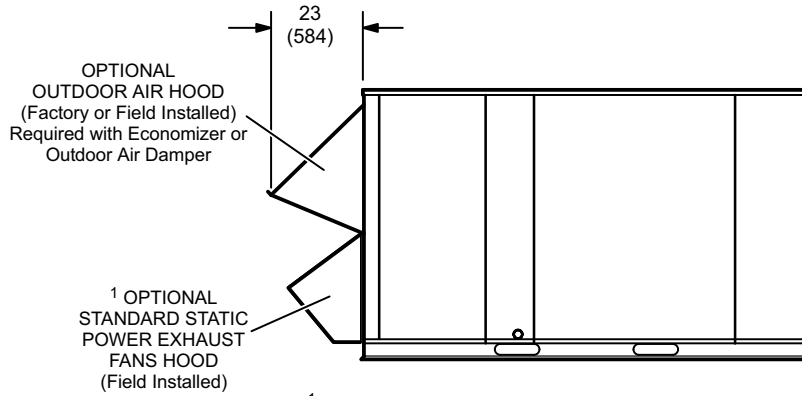
Base Unit - The unit with low fire heat exchanger NO OPTIONS.

Max. Unit - The unit with ALL OPTIONS Installed. (High Input Heat Exchanger, Economizer, Power Exhaust Fans, Controls)



ACCESSORY DIMENSIONS - INCHES (MM)

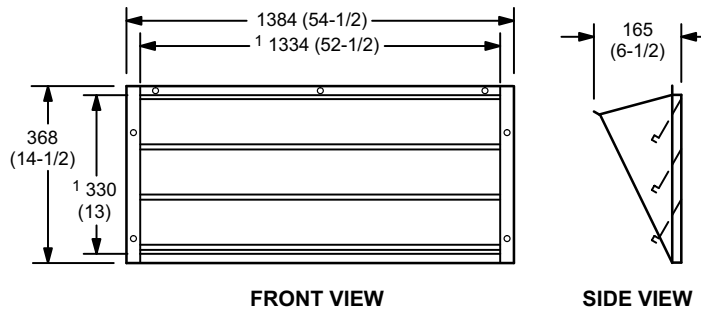
**OPTIONAL OUTDOOR AIR HOOD DETAIL
WITH STANDARD STATIC POWER EXHAUST FANS**



¹ Field Installed in Return Air Duct for Horizontal Applications.

HORIZONTAL BAROMETRIC RELIEF DAMPERS

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

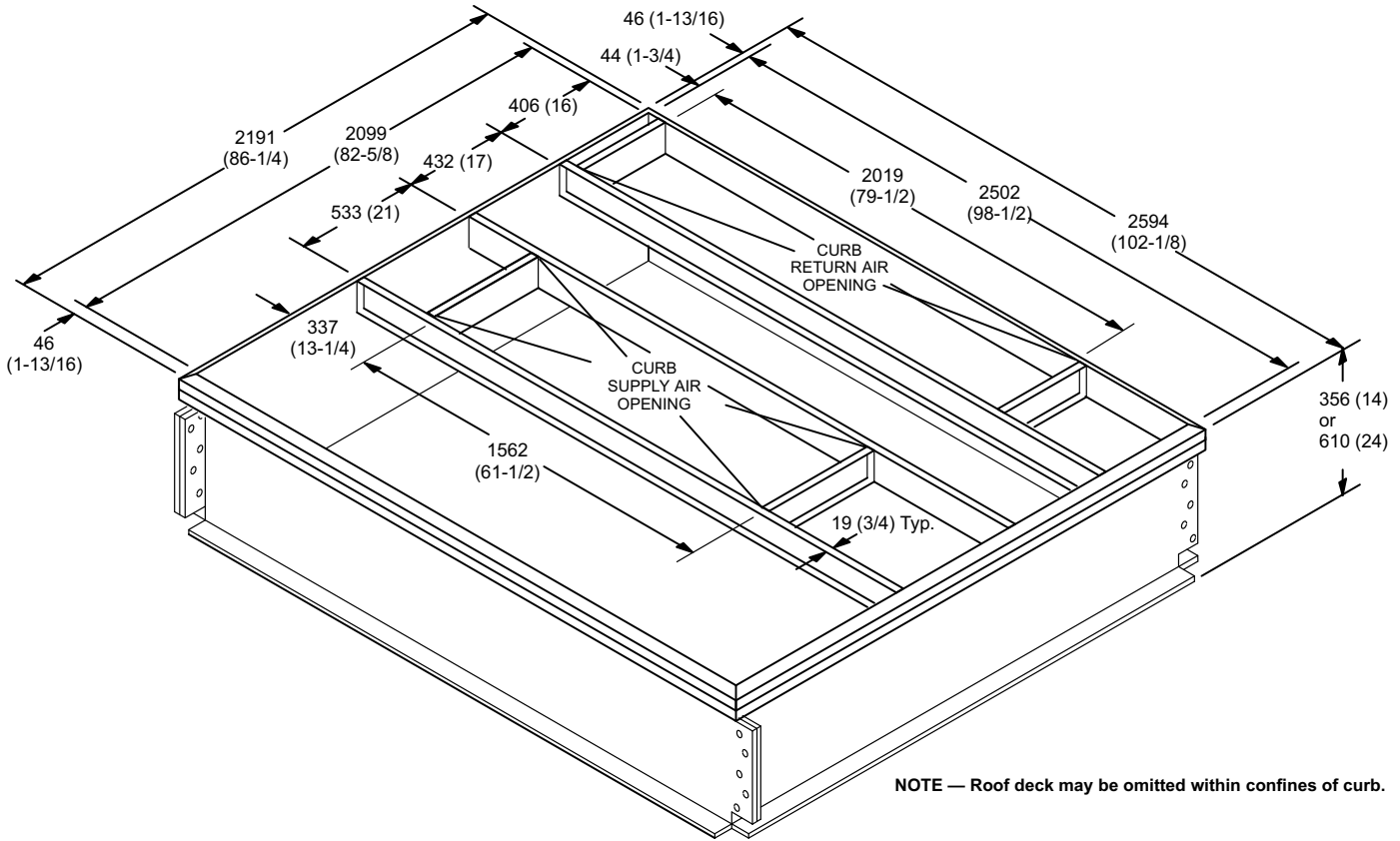


NOTE - Two furnished per order no.

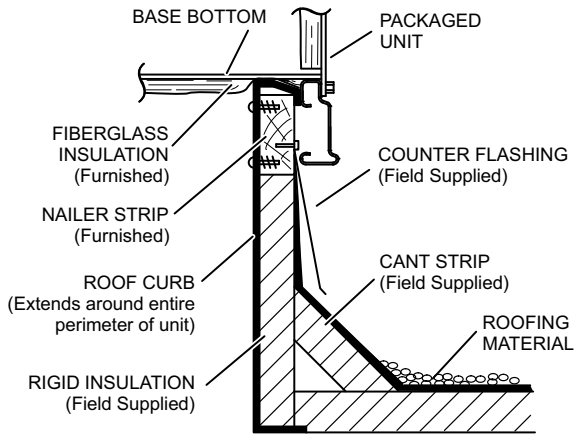
¹ NOTE - Opening size required in return air duct.

ACCESSORY DIMENSIONS - MM (INCHES)

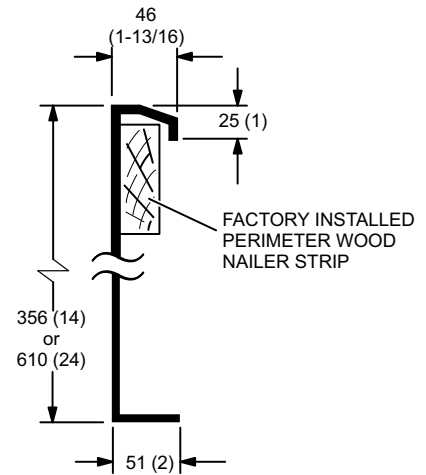
STANDARD ROOF CURBS - DOUBLE DUCT OPENING



TYPICAL FLASHING DETAIL FOR ROOF CURB

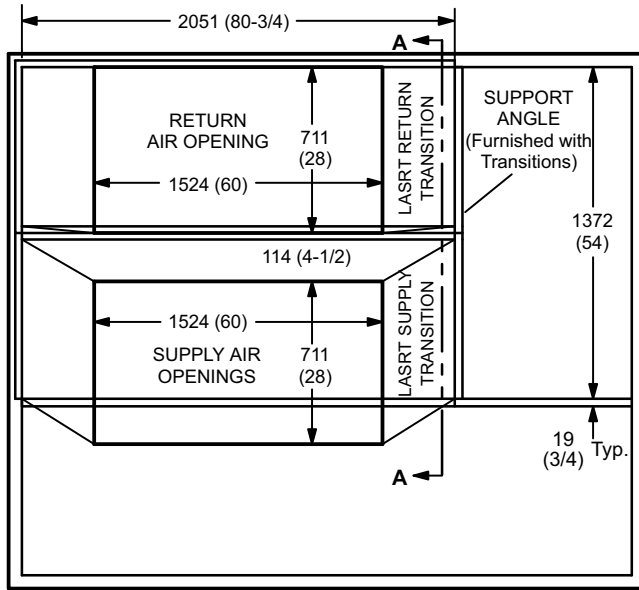


DETAIL ROOF CURB

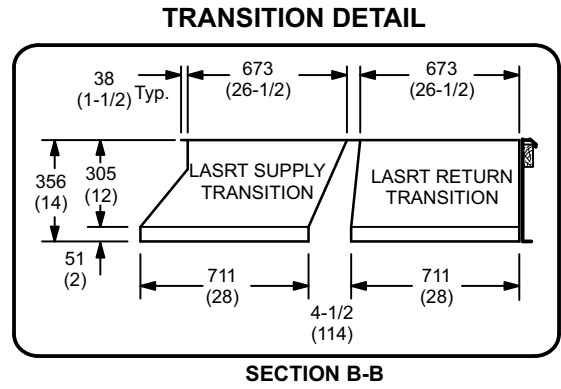


ACCESSORY DIMENSIONS - MM (INCHES)

ROOF CURBS WITH SUPPLY & RETURN AIR TRANSITIONS FOR CEILING DIFFUSERS



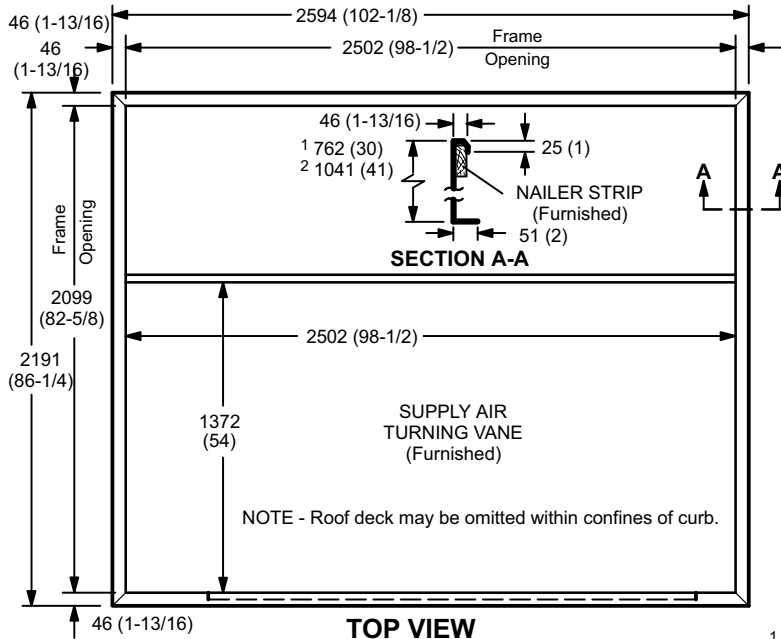
TOP VIEW



SECTION B-B

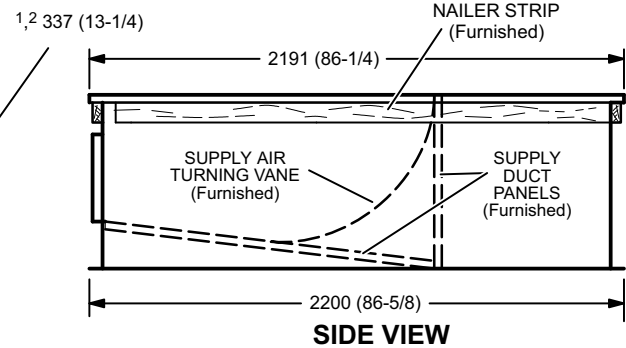
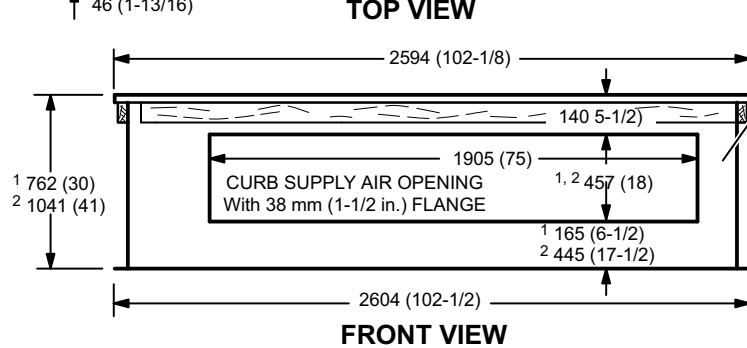
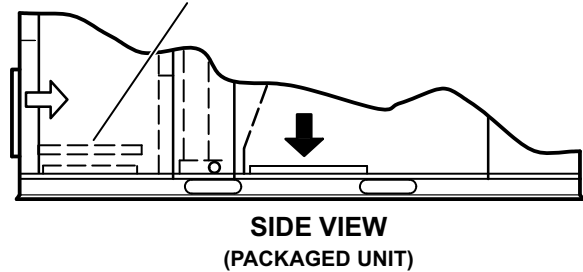
ACCESSORY DIMENSIONS - MM (INCHES)

HORIZONTAL ROOF CURBS - Requires Optional Horizontal Return Air Panel Kit



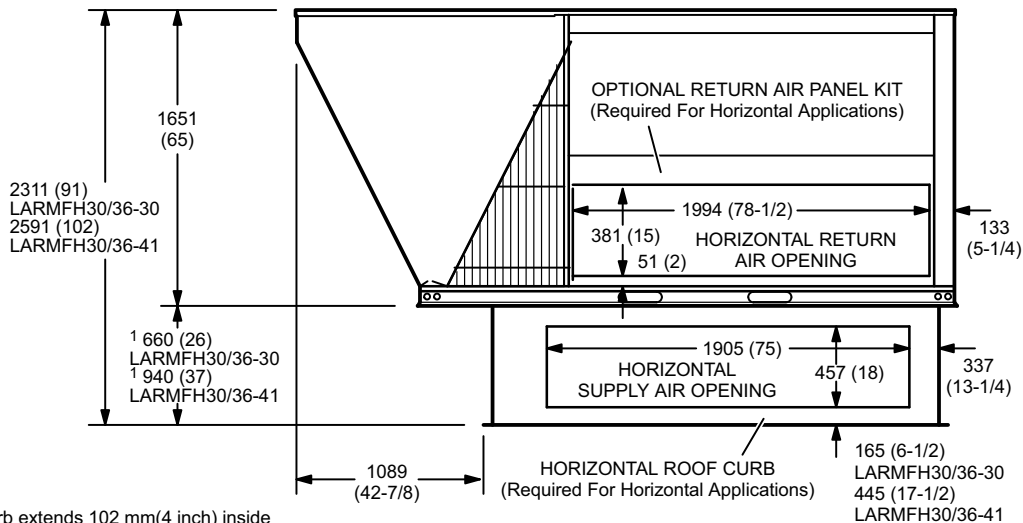
NOTE LARMFH30/36-30 is designed for horizontal discharge when unit is mounted on a rooftop.
 LARMFH30/36-41 is designed for horizontal discharge when unit is mounted on a slab.

PANEL TO COVER RETURN AIR OPENING IN BOTTOM OF UNIT (Furnished With Optional Horizontal Return Air Panel Kit)



¹ LARMFH30/36-30 ² LARMFH30/36-41

HORIZONTAL SUPPLY AND RETURN AIR OPENINGS ROOFTOP UNIT WITH HORIZONTAL ROOF CURB

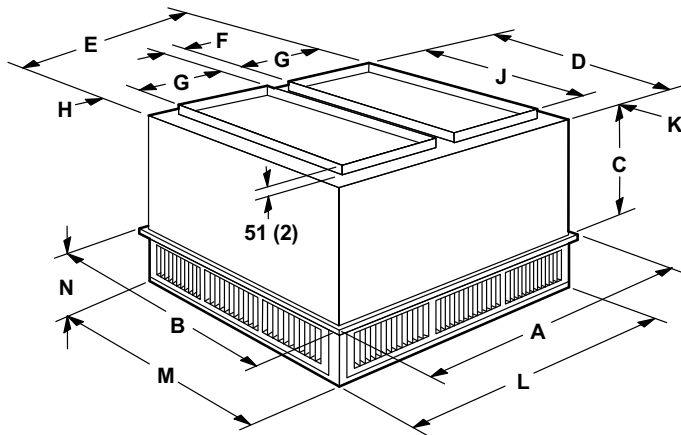


¹ NOTE - Top of Curb extends 102 mm(4 inch) inside bottom of unit base. See Typical Flashing Detail.

ACCESSORY DIMENSIONS - MM (INCHES)

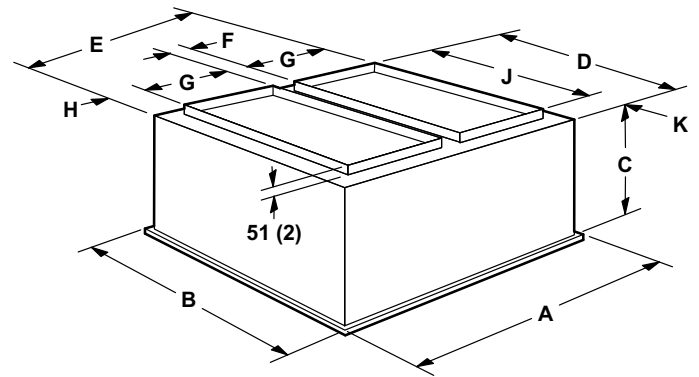
COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



Model Number		LARTD30/36
A	mm	1667
	in.	65-5/8
B	mm	1667
	in.	65-5/8
C	mm	1029
	in.	40-1/2
D	mm	1613
	in.	63-1/2
E	mm	1613
	in.	63-1/2
F	mm	114
	in.	4-1/2
G	mm	711
	in.	28
H	mm	38
	in.	1-1/2
J	mm	1524
	in.	60
K	mm	44
	in.	1-3/4
L	mm	1613
	in.	63-1/2
M	mm	1613
	in.	63-1/2
N	mm	308
	in.	12-1/8
Duct Size	mm	711 x 1524
	in.	28 x 60

FLUSH CEILING DIFFUSER



Model Number		LAFD30/36
A	mm	1667
	in.	65-5/8
B	mm	1667
	in.	65-5/8
C	mm	1016
	in.	40
D	mm	1613
	in.	63-1/2
E	mm	1613
	in.	63-1/2
F	mm	108
	in.	4-1/4
G	mm	711
	in.	28
H	mm	32
	in.	1-5/8
J	mm	1524
	in.	60
K	mm	44
	in.	1-3/4
Duct Size	mm	711 x 1524
	in.	28 x 60

REVISIONS

Sections	Description of Change
Options/Accessories	Revised Condensate Drain Pan Kits.



REGISTERED
QUALITY
SYSTEMS



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Contact us at 1-800-4-LENNOX