

## INSTALLATION MANUAL

# AIR CONDITIONER

Please read this installation manual completely before installing the product. Installation work must be performed in accordance with the national wiring standards by authorized personnel only. Please retain this installation manual for future reference after reading it thoroughly.

SINGLE PACKAGE TYPE AIR CONDITIONER



MFL71887801  
Rev.01\_032522

[www.lg.com](http://www.lg.com)

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## TIPS FOR SAVING ENERGY

Here are some tips that will help you minimize the power consumption when you use the air conditioner. You can use your air conditioner more efficiently by referring to the instructions below:

- Do not cool excessively indoors. This may be harmful for your health and may consume more electricity.
- Block sunlight with blinds or curtains while you are operating the air conditioner.
- Keep doors or windows closed tightly while you are operating the air conditioner.
- Adjust the direction of the air flow vertically or horizontally to circulate indoor air.
- Speed up the fan to cool or warm indoor air quickly, in a short period of time.
- Open windows regularly for ventilation as the indoor air quality may deteriorate if the air conditioner is used for many hours.
- Clean the air filter once every 2 weeks. Dust and impurities collected in the air filter may block the air flow or weaken the cooling / dehumidifying functions.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities may be different or reduced, or lack of experience or knowledge, unless such persons are supervision or training to operate the appliance by a person responsible for their safety. Children should be supervised to ensure they do not use the devices as a toy.



### WARNING

This device is not accessible to the public generally

#### *For your records*

Staple your receipt to this page in case you need it to prove the date of purchase or for warranty purposes. Write the model number and the serial number here:

Model number : \_\_\_\_\_

Serial number : \_\_\_\_\_

You can find them on a label on the side of each unit.

Dealer's name : \_\_\_\_\_

Date of purchase : \_\_\_\_\_

# SAFETY INSTRUCTIONS

The following safety guidelines are intended to prevent unforeseen risks or damage from unsafe or incorrect operation of the appliance.

The guidelines are separated into 'WARNING' and 'CAUTION' as described below.



This symbol is displayed to indicate matters and operations that can cause risk.  
Read the part with this symbol carefully and follow the instructions in order to avoid risk.



## WARNING

This indicates that the failure to follow the instructions can cause serious injury or death.



## CAUTION

This indicates that the failure to follow the instructions can cause the minor injury or damage to the product.



## WARNING

- Installation or repairs made by unqualified persons can result in hazards to you and others.
- Installation shall be in accordance with national standards of electrical appliances.
- The information contained in the manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments.
- Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.

## Installation

- Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.
  - There is risk of fire or electric shock.
- For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center.
  - Do not disassemble or repair the product. There is risk of fire or electric shock.
- Always ground the product.
  - There is risk of fire or electric shock.
- Install the panel and the cover of control box securely.
  - There is risk of fire or electric shock.
- Always install a dedicated circuit and circuit breaker.
  - Improper wiring or installation may cause fire or electric shock
- Use the correctly rated circuit breaker or fuse.
  - There is risk of fire or electric shock.
- Use the specified wires to connect the unit.
  - There is risk of fire or electric shock.
- Do not install, remove, or re-install the unit by yourself (customer).
  - There is risk of fire, electric shock, explosion, or injury.
- Be cautious when unpacking and installing the product.
  - Sharp edges could cause injury. Be especially careful of the case edges and the fins on the condenser and evaporator.
- For installation, always contact the dealer or an Authorized Service Center.

## 4 SAFETY INSTRUCTIONS

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- Do not install the product on a defective installation stand.
  - It may cause injury, accident, or damage to the product.
- Be sure the installation area does not deteriorate with age.
  - If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.
- Use a vacuum pump or Inert (nitrogen) gas when doing leakage test or air purge. Do not compress air or Oxygen and Do not use Flammable gases. Otherwise, it may cause fire or explosion.
  - There is the risk of death, injury, fire or explosion.
- When using Thermostat, be sure to use double insulated thermostat.

### Operation

- Take care to ensure that power cable could not be pulled out or damaged during operation.
  - There is risk of fire or electric shock.
- Do not place anything on the power cable.
  - There is risk of fire or electric shock.
- Do not touch(operate) the product with wet hands.
  - There is risk of fire or electrical shock.
- Do not place a heater or other appliances near the power cable.
  - There is risk of fire and electric shock.
- Do not allow water to run into electric parts.
  - It may cause failure of the product or electric shock.
- Do not store or use flammable gas or combustibles near the product.
  - There is risk of fire or failure of product.
- Do not use the product in a tightly closed space for a long time.
  - Oxygen deficiency could occur.
- When flammable gas leaks, turn off the gas and open a window for ventilation before turn the product on.
  - Do not use the telephone or turn switches on or off. There is risk of explosion or fire
- If strange sounds, smell or smoke comes from product. Turn the circuit breaker off or disconnect the power supply cable.
  - There is risk of electric shock or fire.
- Stop operation and close the window in storm or hurricane. If possible, remove the product from the window before the hurricane arrives.
  - There is risk of property damage, failure of product, or electric shock.
- Do not open the panel of product during operation. (If the unit has the electrostatic filter, Do not touch it.)
  - There is risk of physical injury, electric shock, or product failure.
- When the product is soaked (flooded or submerged), contact an Authorized Service Center.
  - There is risk of fire or electric shock.
- Be cautious that water could not enter the product.
  - There is risk of fire, electric shock, or product damage.
- Ventilate the product from time to time when operating it together with a stove, etc.
  - There is risk of fire or electric shock.
- Turn the main power off when cleaning or maintaining the product.
  - There is risk of electric shock.
- When the product is not be used for a long time, turn off the circuit breaker.
  - There is risk of product damage or failure, or unintended operation.
- Take care to ensure that nobody could step on or fall onto the unit.
  - This could result in personal injury and product damage.

## CAUTION

### Installation

- Always check for gas (refrigerant) pressure after installation or repair of product.
  - Low refrigerant levels may cause failure of product.
- Install the drain hose to ensure that water is drained away properly.
  - A bad connection may cause water leakage.
- Keep level even when installing the product.
  - To avoid vibration or water leakage.
- Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.
  - It may cause a problem for your neighbors.
- Don't use people to lift and transport the product.
  - Avoid personal injury.
- Do not install the product where it will be exposed to sea wind (salt spray) directly.
  - It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.
- Do not let the air conditioner run for a long time when the humidity is very high and a door or a window is left open.
  - Moisture may condense and wet or damage furniture.
- Do not install the unit in potentially explosive atmospheres.

### Operation

- Do not expose the skin directly to cool air for long periods of time. (Don't sit in the draft.)
  - This could harm to your health.
- Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer air conditioner, not a precision refrigeration system.
  - There is risk of damage or loss of property.
- Turn on the power at least 6 hours before starting operation.
  - Starting operation immediately after turning on the main power switch can result in severe damage to internal parts. Keep the power switch turned on during the operational season.

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# INTRODUCTION

## Features

Single packaged Units have been developed & produced to provide not only the ultimate indoor comfort, but also to guarantee long & trouble free operations.

Here lies the reason for the choice of only the highest quality components and design strategit to meet the most important objective such as:

- Efficiency
- Reliability
- Flexibility
- Easy Installation
- Serviceability
- Affordability



**Standard Features**

- Refrigerant : R410A.
- Factory Wired with Single Point Power Input.
- Scroll Compressor.
- High Pressure & Low Pressure Safety Switches.
- Power Controller, High/Low Voltage, Phase Loss/Reversal Protection.
- All units are provided with ON-Delay timers for Anti-short cycling.
- Internal Motor Protection for 3Ø Indoor & Outdoor motors.
- All Units are designed to operate with 24V Universal Thermostat.
- Thermostatic Expansion Valve
- Condenser Fans are Propeller type Direct Driven, draw through Vertical Discharge with fan guard mounted to the Panel.
- Condenser & Evaporator Coils made of Copper tubes and Aluminum fins.
- Weather resistant steel cabinet, qualified for 1000 Hours of Salt Spray test.
- 2" Disposable Air Filter
- Anti Corrosion Heresite Treatment on condenser coil HEX
- Hydrophilic coating on Evaporator HEX
- IP 55 Class F for Blower Motor

**Optional Features**

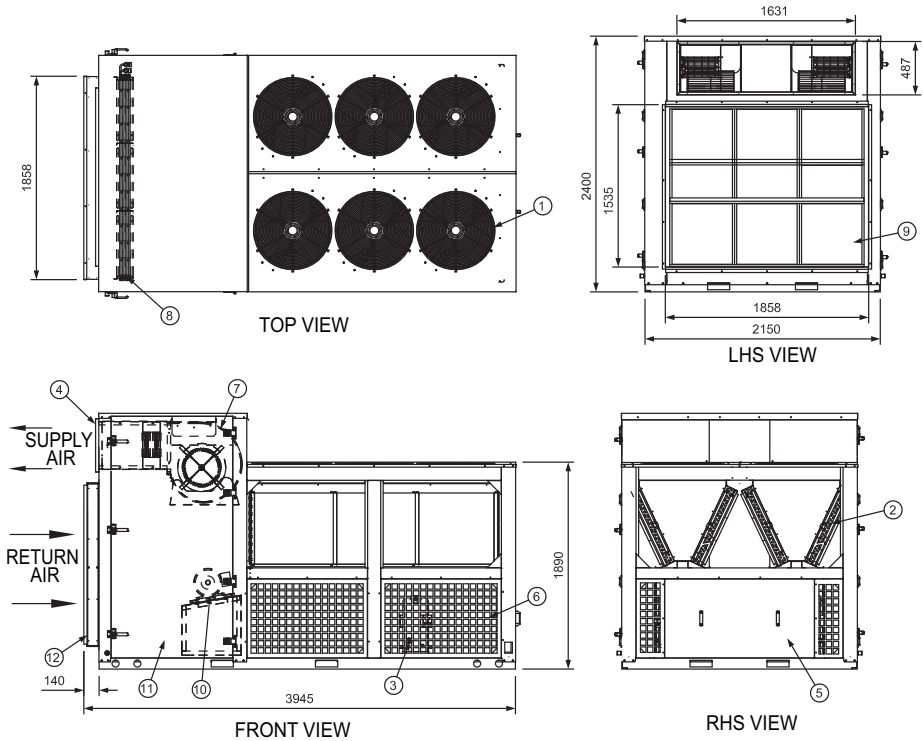
- Electric Heater.
- Overload External protection for Blower Motor.
- Anti Ice thermostat.
- Copper Fins for Evaporator & Condenser coil.
- Stainless Steel Drain Pan.
- Filter Differential pressure Switch. Overload External Protection for Compressor.
- Compressor Alternating Switch.
- Hour Run Meter.
- Fan Cycling Switch.
- Rotolock Compressor
- Circuit breaker (MCB) for Compressor & Blower Motor.
- Pump Down System.
- Dual Adjustable Pressure Switch.
- Hot Gas Bypass (with Solenoid). Pressure Gauges.
- Oversized Blower Motor & Alternate Drive Package.
- PCB Controller.
- Advanced Microprocessor Controller. Adjustable Voltage Monitor.
- UV Light.
- Adjustable Pressure Switch.
- VFD for Blower Motor.
- Soft Starter for Blower Motor.
- Volt free Contacts for Compressor & Blower ON/OFF/TRIP Status.
- Fire Alarm Interlock
- Crankcase Heater for Compressor
- Sight Glass
- 2" Synthetic Filter

# DIMENSIONAL DATA

Single packaged Units are designed for outdoor mounting with vertical condenser discharge. They can be located either at ground level or on roof.

Each unit contains an operating charge of Refrigerant as shipped.

[Unit : mm]



S.NO	LEGENDS
1	Cond Fan Motor & Grill
2	Condenser Coil
3	Compressor
4	Supply Air Opening
5	Control Panel Access
6	Compressor Access
7	Supply Air Blower
8	Evaporator Coil
9	Pre Filter
10	Blower Motor
11	Blower & Coil Access
12	Filter Access

# INSTALLATION OF UNIT

## General Statement

Single packaged Units have been designed & built for the optimum performance. However, it is required that you become well acquainted with good practices for the proper installation/operation/ and maintenance procedures in order to ensure a safe trouble free operation, year after year.

Please read through the whole manual contents before you attempt to install/operate/ and maintain the unit.

Most of the procedures described in this manual require certain skills and experience. The installation and other maintenance procedures should be performed only by highly skilled and experienced technicians. The end user's role should be limited to the cleaning of the filter.

Single packaged Units can be supplied, depending on the End User requirement, as the basic "Cool Only" version, or the "Heat & Cool" version (with electric heater module).

## Warranty

Single packaged Units are covered by the standard warranty terms against any manufacturer defect. Should you encounter any problem that falls under the warranty terms.

## Safety Issues

When performing any task pertaining to the installation and maintenance of the unit, the skilled technician should observe all the applicable safety measures (wear of safety helmet, boots, gloves, and goggles. Use of proper handling materials for brazing and use of wet cloth for quenching. A fire extinguisher should be easily accessible etc.). He should also read all the instructions and information in this Manual prior to attempting to perform any installation or servicing of the unit.

All applicable local codes should also be observed.



### WARNING

The PQ units operate on a high voltage with moving parts (at high speed) which can lead to serious injuries and/or damage to the unit. Never attempt to service the unit unless the main electrical power supply has been disconnected.



### CAUTION

Extra care should be observed when installing, test running, adjusting, servicing, or maintaining the unit as the hazard of explosion, fire, electrical shock, and potential personal injury and property damage are present.

## Inspection for damage

The unit should be carefully inspected visually for any sign of physical damage due to mishandling. Whenever a damage is detected, please indicate it on the corresponding delivery note before you sign it.

## General

These units are shipped completely assembled, charged, and wired. They do not require any field installation of refrigerant tubing. Units require external power, thermostat wiring, condensate drain piping and ducting as applicable.

Size of unit for an installation should be based on a heat gain calculation made according to applicable standards. Units must also be installed in accordance with regulations of the "National Fire Protection Association" and local electrical codes. Where local regulations conflicts with the instructions in this manual, installer should adhere to local standards. Prepare your concrete pad or steel stand based on the corresponding dimensions. Remove shipping protective covers and wooden crating and lift unit from base and place in position with suitable rubber vibration isolators.

All field installed accessories are to be installed by the customer with necessary reinforcements as required.

## Location of unit

When selecting the location for the unit, the following points should be kept in mind:

1. Provisions for a concrete pad or steel stand base.
2. That the terrain allows for drainage away from the unit.
3. If the unit is to be roof mounted, inspect the roof for load bearing capacity. The roof should have sufficient structural strength to carry the weight of the unit.
4. Install unit on vibration isolation pads, i.e. on rubber mounting pads
5. Availability of electric power.
6. To position the unit for unrestricted air circulation of the condenser air inlet and to prevent any possibility of air recirculation from the condenser fan discharge air (see figure on next page).
7. Check minimum clearances required for your unit, with regard to walls, or other obstructions (see figure on next page).
8. Air cooled equipment should not be installed under low structural overhangs which can cause condenser air recirculation or restriction. Observe minimum of clearance (see figure on next page).
9. Care should be taken to prevent air from other sources from entering condenser, if this air is at a high temperature.
10. Level the unit on its final location and be sure that the levelling tolerance is  $\pm 5\text{mm}$  per linear meter in any direction.

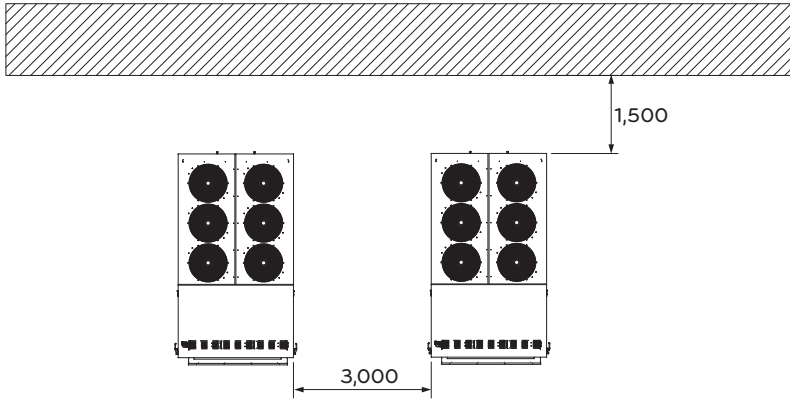


### CAUTION

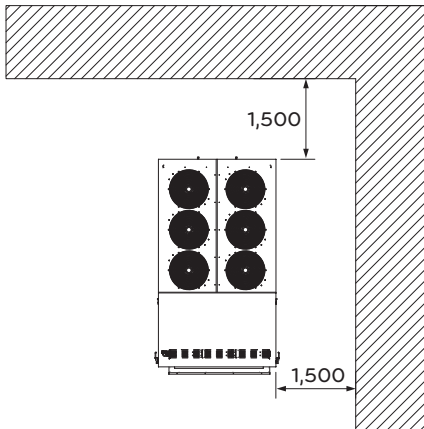
Do not install the unit as indoor unit, install it in an open area, and unit air inlets must not be located near exhaust vents or other source of contaminated air.

## Installation Clearance

### Straight Wall



### Corner Wall



### NOTE

All dimensions are in (mm).

## Rigging Instructions

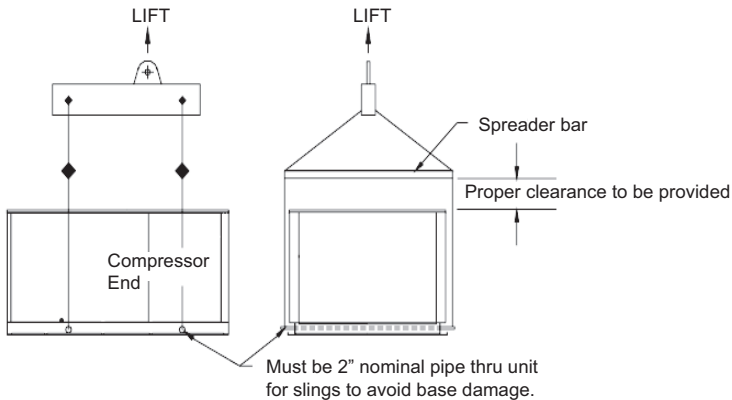
### Attention to riggers

- Insert 2" nominal pipe through holes in the base rail as shown in the figure below for slings.
- Holes in base rail are centered around the unit center of gravity.
- Use wooden pallet or spreader bar when rigging, to prevent the slings from damaging the unit.
- Rollers may be used to move the unit on the roof or ground.



### CAUTION

All panels should be in place when rigging.



## Condensate Drain Connection

Use standard PVC pipe with NPT connection for the condensate drain. Provide a 'P' trap immediately at the condensate drain connection.

Piping has to be sloped away from the unit.

Remember to remove the drain hole plug before operating the unit. Avoid bends & elbows.

## Duct Connection

The units can be connected to the ducting in horizontal configuration. Connect ducting using flexible duct connection. The duct should be properly designed and the drive package should match the required CFM & corresponding external static pressure.

### NOTE

Avoid abrupt changes in size and/or direction of duct to ensure proper unit performance.

## Electric Heaters

Electric heater kit is installed as an externally mounted kit at the supply air opening.

## Crankcase Heater

The crankcase heater is provided to hold the compressor oil reservoir at higher temperature than the coldest part in the system.

Power must be supplied to crankcase heater for a minimum of 12-hours prior to system start-up. If power is off for 6-hours or more, crankcase heater must be energized for 12-hours before operating the system. Otherwise compressor damage may result.

## Pump Down Control

If the unit is provided with pumpdown system, then a solenoid type valve is installed in the liquid line ahead of expansion valve to prevent flow of refrigerant into the evaporator during off cycle. The controller is wired to solenoid valve which energize in cooling and opening the valve. Whenever the thermostat temperature is satisfied, the solenoid will close followed compressor off after pumping the refrigerant from low side of the system until the low pressure switch open the control circuit.

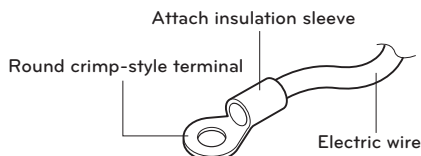
## Electronic Wiring

Follow ordinance of your governmental organization for technical standard related to electrical equipment, wiring regulations and guidance of each electric power company.

### WARNING

- Be sure to have authorized electrical engineers do the electric work using special circuits in accordance with regulations and this installation manual. If power supply circuit has a lack of capacity or electric work deficiency, it may cause an electric shock or fire.

Use round crimp-style terminals for connecting wires to the terminal block.

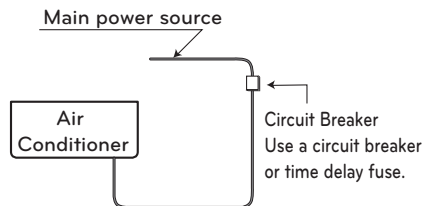


### CAUTION

- The circuit diagram is not subject to change without notice.
- Be sure to connect wires according to the circuit diagram.
- Connect the wires firmly, so that not to be pulled out easily.
- Connect the wires according to color codes by referring the circuit diagram.
- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer of its service agent.

### CAUTION

- Provide a circuit breaker between power source and the unit as shown below.



### CAUTION

- The power cord connected to the outdoor unit(Main Power supply cable) should be complied with the following specifications (Cable type approved by HAR or SAA).
- Select the wire size based on the MCA.

Cable Type	H07RN-F
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### 380-415 V 3~ 50 Hz

Capacity (RT)	Voltage range (V)	MCA (A)
30	342~456 V	96
35	342~456 V	115
40	342~456 V	125

### 380-400 V 3~ 60 Hz

Capacity (RT)	Voltage range (V)	MCA (A)
30	342~440 V	125

### NOTE

Pipes and wires should be purchased separately for installation of the product.

# MAINTENANCE INSTRUCTIONS

## Airflow Adjustment

The airflow could be adjusted by adjusting pulleys of blower motor or belt tension with proper mounting and alignment of pulleys:

- Refer to fan performance tables in the catalog for selecting applicable airflow, RPM and brake horse power at specified static pressure.
- Select the appropriate drive as per motor and blower characteristic in the catalog.
- The set screw shall be loosened to make the pulley moving.
- Adjust pulley's diameter, opening counter clockwise to reduce RPM and further reduce airflow, while closing clockwise increases RPM and airflow.
- Tighten the set screw and then install the belts.
- Test the unit operating airflow for further adjustment.

## Crankcase Heater

Periodic checking for proper operation or crankcase heater is highly recommended as follows :

- a) Check continuity of the heater using multimeter device.
- b) Check grounding of the heater by Meggar device (to prevent electrical hazards).
- c) Observe whether the heater is warming down the compressor near the oil sump.

## Cleaning of Coils & Filters

- Turn off the power supply.
- Take out access panel of evaporator coil.
- Remove the filter from its access panel.
- Protect electrical components and motors from water washing.
- Clean the coil by flushing water by pressure washer followed by compressed air from supply to return direction.
- Filter shall be cleaned every six month, in some hygienic application it is recommended for replacement.
- Cleaning drain pan and trap is recommended once in a year to prevent bacteria growing under the coil.

## Belt Tension Testing Procedure instruction

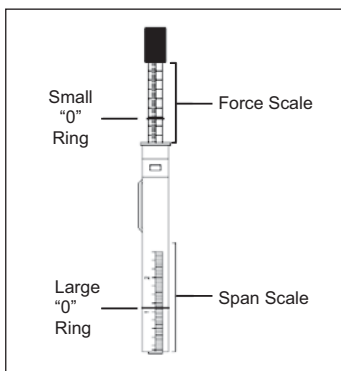
To determine the lbs. force required to tension a drive, you simply do the following:

1. Measure the Belt span as shown.
2. Divide belt span by 64 to get belt deflection needed to check tension.
3. Set large "0" ring on span scale at required belt deflection. This scale is in 1/16" increments.
4. Set small "0" ring at zero on the "Force Scale"(plunger).
5. Place the larger end of the tension checker squarely on one belt at the center of the belt span. Apply force on the plunger until the bottom of the large "0" ring is even with the top of the next belt or with the bottom of a straight edge laid across the sheaves.
6. Read the force scale under the small "0" ring to determine force required to give the needed deflection.
7. Compare the force scale reading with the correct value for the belt style and cross section used, as given in table on next page. The force should be between the minimum and maximum values shown.
8. If there is too little deflection force, the belts should be tightened. If there is too much deflection force, the belts should be loosened.

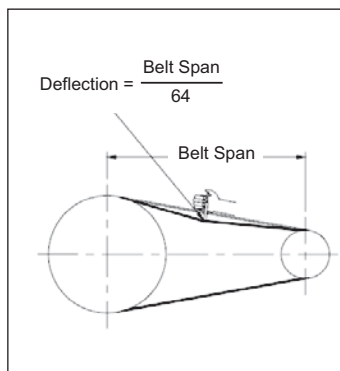
### NOTE

Tension new drives at the maximum deflection force recommended. Check the tension at least two times during the first day's operation as there normally will be a rapid decrease in belt tension until belts have run in. Check the tension periodically after the first day's operation and keep tension at which the belts will not slip under the peak load conditions. Shafts must be adequate for the tensions required.

## Belt Tension Testing Procedure



Belt tension checker



Measure the belt deflection force

**Belt**

Belt Type	Belt Cross Section	Small Pulley Pitch DIA.(P.D.) Range	Deflection Force-LBS.	
			Minimum	Maximum
-	3 L	1.25 - 1.75 2 - 2.25 2.5 - 3	1/2 5/8 3/4	5/8 7/8 1-1/8
A	4 L	2.1 - 2.8 3 - 3.5 3.7 - 5	1-1/8 1-1/2 1-7/8	1-5/8 2-1/8 2-5/8
B	5 L	3 - 4.2 4.5 - 5.2	2 2-3/8	2-7/8 3-3/8

**Preventive maintenance schedule**

ITEM	Frequency of Maintenance, Month ITEM (First 4 Years)	
	6	12
Clean air filter (Aluminum)*	X	
Pressure wash condenser & cooling coil as required		X
Check blower belt, tension, wear tear / replace if required	X	
Check alignment of pulleys		X
Clean drain pan, drain pipe		X
Clean blower wheel		X
Check for loose bolts/screws & tighten as necessary		X
Check all electrical controls, components, wiring terminals, tec..., for sparks, over heat, loose connections / repair or correct		X
Check for rusted / paint		X
Check all temperature, pressure readings as applicable and satisfy the operation performance		X
Run test all motors and check the amperage		X
Grease / oil as required		X
Check vibration isolators		X
Clean and fix thermal bulbs in the correct location. Insulate it.		X
Check canvass connections, insulation damage		X

\*If fiberglass filters used, replace it yearly.

**⚠ CAUTION**

Disconnect power supply and allow all rotating parts to stop before servicing the unit.

**NOTE**

Always observe for abnormal noise or vibration.

**Maintenance tools / equipment required**

- Standard : Screw drivers (Slot & Phillips), adjustable wrenches, pliers, refrigeration wrenches & socket set wrenches, pulley puller, etc.
- Special : Manifold gauge set, charging cylinder, belt tension checker, leak detector, vacuum pump with electronic gauges, Thermometer, hook type ammeter/voltmeter/ohmmeter and oxy-acetylene brazing set etc.

# TROUBLE SHOOTING

Symptom	Causes	Check & Corrective measure
Thermostat shows no display	<ol style="list-style-type: none"> <li>1. Power off / Blown fuse</li> <li>2. Faulty field wiring</li> <li>3. Loose connection</li> <li>4. Defective thermostat</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the power. Switch ON the circuit breaker. Replace fuse if it blown.</li> <li>2. Check wiring against diagram.</li> <li>3. Check and correct it.</li> <li>4. Replace it.</li> </ol>
Thermostat LCD panel display is not bright & does not function properly	<ol style="list-style-type: none"> <li>1. Battery life is over</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace battery</li> </ol>
Blower not running, compressor short cycles	<ol style="list-style-type: none"> <li>1. Blower belt slipped / not fixed</li> <li>2. Faulty wiring</li> <li>3. Burned wiring</li> <li>4. Defective blower motor contactor</li> <li>5. Defective blower motor</li> </ol>	<ol style="list-style-type: none"> <li>1. Correct belt. Check tension and alignment.</li> <li>2. Check wiring against diagram.</li> <li>3. Check and correct it.</li> <li>4. Replace it.</li> <li>5. Replace it.</li> </ol>
Blower running, no sufficient air	<ol style="list-style-type: none"> <li>1. Wrong rotation (Applicable initial start up / or after a power failure), 3 phase motor</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the rotation of blower, interchange phase of blower motor from blower motor contactor.</li> </ol>
Blower running, but with not enough supply air	<ol style="list-style-type: none"> <li>1. Loose Belt</li> <li>2. Variable pulley wide open</li> <li>3. Return air obstructed</li> <li>4. High static pressure</li> <li>5. Improper pulley selection</li> <li>6. Closed dampers / improper air balance</li> <li>7. Dirty filter</li> <li>8. Dirty cooling coil</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust it &amp; check belt tension.</li> <li>2. Adjust the pitch of the pulley.</li> <li>3. Check and remove the obstructions.</li> <li>4. Verify static pressure and fan performance data.</li> <li>5. Change pulley (if blower motor ampere within rated load.)</li> <li>6. Check all dampers opened properly. Balance air.</li> <li>7. Clean it.</li> <li>8. Clean it.</li> </ol>
Blower running and delivers excess air	<ol style="list-style-type: none"> <li>1. Variable pulley needs more tightening</li> <li>2. Improper pulley / motor selection</li> <li>3. Low external static pressure</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust the pitch of the pulley.</li> <li>2. Select suitable combination.</li> <li>3. Check the duct design.</li> </ol>
Blower runs, compressor not working	<ol style="list-style-type: none"> <li>1. Safety circuit open due to low suction pressure, high discharge pressure, overload protector</li> <li>2. Defective compressor contactor</li> <li>3. Burned wiring</li> <li>4. Defective compressor</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-set the unit and determine the reason. Check high &amp; low pressure (refer to symptom for "low/high suction pressure &amp; high discharge pressure").</li> <li>2. Replace it.</li> <li>3. Check and replace it.</li> <li>4. Replace it.</li> </ol>

Symptom	Causes	Check & Corrective measure
Compressor runs, but short cycling	<ol style="list-style-type: none"> <li>Safety circuit open due to :               <ol style="list-style-type: none"> <li>Low suction pressure</li> <li>High discharge pressure</li> <li>Overload protector</li> </ol> </li> <li>Thermostat in cold location</li> <li>High thermostat setting</li> </ol>	<ol style="list-style-type: none"> <li> <ol style="list-style-type: none"> <li>Verify the reason for low suction pressure (refer to symptom for "low suction pressure").</li> <li>Verify the reason for high discharge pressure (refer to symptom for "high discharge pressure").</li> <li>Check dome temperature. RLA each phase. Verify the reason.</li> </ol> </li> <li>Check and relocate as required.</li> <li>Lower the temperature setting to 21°C for test.</li> </ol>
Thermostat shows faulty indication	<ol style="list-style-type: none"> <li>Safety circuit open due to :               <ol style="list-style-type: none"> <li>Low suction switch</li> <li>High discharge switch</li> <li>Overload protector</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li> <ol style="list-style-type: none"> <li>Verify the reason for low suction pressure (refer to symptom for "low suction pressure").</li> <li>Verify the reason for high discharge pressure (refer to symptom for "high discharge pressure").</li> <li>Check comp. RLA against nameplate for each phase, check comp, dome temperature, etc. &amp; correct it.</li> </ol> </li> </ol>
Low suction pressure	<ol style="list-style-type: none"> <li>Less Freon</li> <li>Loose belt</li> <li>Variable pulley widely open</li> <li>Dirty filter</li> <li>Dirty cooling coil</li> <li>Return air restricted</li> <li>Improper expansion valve bulb installation / location</li> <li>Restriction in expansion valve / filter dryer</li> </ol>	<ol style="list-style-type: none"> <li>Check for gas leak &amp; charge freon as required.</li> <li>Adjust it. Check belt tension.</li> <li>Adjust the pulley.</li> <li>Clean it.</li> <li>Clean it.</li> <li>Check return air grille sizes, etc. against design.</li> <li>Verify and correct it.</li> <li>Check and correct / replace it.</li> </ol>
High suction pressure	<ol style="list-style-type: none"> <li>Excess freon charge</li> <li>Excess air quantity</li> <li>High room temperature condition</li> <li>Undersize unit (serving large open)</li> <li>Expansion valve widely open</li> <li>Defective compressor valve</li> </ol>	<ol style="list-style-type: none"> <li>Verify and adjust it.</li> <li>Adjust air quantity.</li> <li>Check &amp; verify. Isolate the area to be cooled &amp; observe.</li> <li>Check design / unit selection.</li> <li>Check superheat &amp; adjust it, if required.</li> <li>Check and replace compressor.</li> </ol>
High discharge pressure	<ol style="list-style-type: none"> <li>Condenser fan motor not working properly</li> <li>Excess freon charge</li> <li>Dirty condenser</li> <li>High ambient condition / Air in condenser obstructed</li> <li>Defective fan motor capacitor</li> <li>Defective fan motor</li> </ol>	<ol style="list-style-type: none"> <li>Fan blade stuck with ventury. Check &amp; correct it.</li> <li>Check freon and adjust it, if necessary.</li> <li>Clean it.</li> <li>Verify the reason and correct it.</li> <li>Check and replace it.</li> <li>Check and replace it.</li> </ol>

Symptom	Causes	Check & Corrective measure
Unit works continuously, no sufficient cooling	<ol style="list-style-type: none"> <li>1. Low suction pressure</li> <li>2. High discharge pressure</li> <li>3. Less air quantity</li> <li>4. Cooling coil ices up</li> <li>5. Second stage (if exists) not working.</li> <li>6. Serving large area</li> </ol>	<ol style="list-style-type: none"> <li>1. Verify the reason for low suction pressure (refer to symptom for "low suction pressure").</li> <li>2. Verify the reason for high discharge pressure (refer to symptom for "high discharge pressure").</li> <li>3. Refer to symptom for "blower works, less air".</li> <li>4. Determine the reason (refer to symptom for "cooling coil ice up") &amp; correct it.</li> <li>5. Set the thermostat to lower temperature(21 °C) / or verify the reason.</li> <li>6. Check the design.</li> </ol>
Unit not cooling properly during night time	<ol style="list-style-type: none"> <li>1. Low ambient condition</li> <li>2. Safety low pressure switch open due to low suction pressure.</li> <li>3. Fan cycling (whenever applicable) setting low</li> <li>4. Thermostat setting too low</li> <li>5. Cooling coil ices-up</li> <li>6. Less air quantity</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and verify the ambient temperature.</li> <li>2. Check the reason and correct it (refer to symptom for "low suction pressure").</li> <li>3. Adjust the fan cycling.</li> <li>4. Adjust the thermostat setting.</li> <li>5. Verify the reason and correct it (refer to symptom for "cooling coil ice up").</li> <li>6. Verify the reason and correct it (refer to symptom for "blower works, less air").</li> </ol>
Not sufficiently cooling during daytime	<ol style="list-style-type: none"> <li>1. High discharge pressure</li> <li>2. High thermostat setting</li> <li>3. Serving large area</li> <li>4. Less air quantity</li> <li>5. High ambient condition</li> <li>6. Dirty condenser</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and verify the reason for high discharge pressure (refer to symptom for "high discharge pressure").</li> <li>2. Adjust thermostat.</li> <li>3. Check the design / unit selection.</li> <li>4. Check and verify the reason (refer to symptom for "blower works, less air").</li> <li>5. Check the ambient condition.</li> <li>6. Clean it.</li> </ol>
Cooling coil ices up	<ol style="list-style-type: none"> <li>1. Less freon</li> <li>2. Less air quantity</li> <li>3. Dirty filter</li> <li>4. Dirty cooling coil</li> </ol>	<ol style="list-style-type: none"> <li>1. Check for gas leak &amp; charge freon as required.</li> <li>2. Determine the reason and correct it (refer to symptom for "high discharge pressure").</li> <li>3. Clean it.</li> <li>4. Clean it.</li> </ol>
Unit is not restarting (after a cut-off)	<ol style="list-style-type: none"> <li>1. Safety circuit open due to low pressure switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify the reason of low suction pressure (refer to symptom for "low suction pressure").</li> </ol>
Unit is taking long time to restart	<ol style="list-style-type: none"> <li>1. Thermostat in cold location</li> </ol>	<ol style="list-style-type: none"> <li>1. Shift the location as required.</li> </ol>
Compressor goes lockout (pump down system)	<ol style="list-style-type: none"> <li>1. Imbalance freon</li> <li>2. Malfunctioning pumpdown solenoid valve</li> </ol>	<ol style="list-style-type: none"> <li>1. Check freon charge and confirm FLA.</li> <li>2. Check pumpdown solenoid valve operation.</li> </ol>

Symptom	Causes	Check & Corrective measure
Taking more time for the pumpdown cycle, cooling coil ices up	<ol style="list-style-type: none"> <li>1. Leaky pumpdown solenoid valve</li> </ol>	<ol style="list-style-type: none"> <li>1. Check pumpdown solenoid valve and replace it.</li> </ol>
Noisy unit	<ol style="list-style-type: none"> <li>1. Improper installation</li> <li>2. Improper vibration isolators</li> <li>3. Loose parts or mountings</li> <li>4. Tubing rattle</li> <li>5. Bent fan blade causes vibration</li> <li>6. Defective bearings</li> <li>7. Belt tension is high</li> <li>8. Blower motor pulley is not aligned</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and correct it properly.</li> <li>2. Check and correct it properly.</li> <li>3. Check and tighten.</li> <li>4. Tighten the pipe support.</li> <li>5. Check the balance, alignment, bracket, etc. Correct it / replace it.</li> <li>6. Replace the motor.</li> <li>7. Adjust belt tension.</li> <li>8. Align pulley.</li> </ol>
Unit operation noise listening inside the building	<ol style="list-style-type: none"> <li>1. Improper installation</li> <li>2. Improper vibration isolators</li> <li>3. Abnormal noise in the unit</li> <li>4. Unit too close to the slab/wall openings</li> <li>5. Duct design (high static)</li> <li>6. Wooden packing beneath the compressor is not removed</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and correct it.</li> <li>2. Check and correct it.</li> <li>3. Verify the reason of noisy unit &amp; correct it.</li> <li>4. Verify the design / Relocate the unit if necessary.</li> <li>5. Check &amp; verify the design.</li> <li>6. Remove wooden packing (if any).</li> </ol>
Compressor not working	<ol style="list-style-type: none"> <li>1. Low voltage</li> <li>2. Single phase failure</li> <li>3. Burned wirings</li> <li>4. Overload protector open</li> <li>5. Defective contactor</li> <li>6. Burned compressor motor winding</li> <li>7. Damaged (stuck) compressor</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify the reason &amp; correct it.</li> <li>2. Check the compressor amperage each phase.</li> <li>3. Check and correct it.</li> <li>4. Check and verify the reason.</li> <li>5. Check and replace it.</li> <li>6. Check and replace it.</li> <li>7. Check and replace it.</li> </ol>
Circuit breaker of the unit trips	<ol style="list-style-type: none"> <li>1. Burned wirings</li> <li>2. Grounded wirings</li> <li>3. Faulty field wiring</li> <li>4. Grounded compressor/blower motor</li> <li>5. Undersize circuit breaker</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and correct the wiring.</li> <li>2. Check meggar test.</li> <li>3. Check wiring against diagram.</li> <li>4. Replace it, if required.</li> <li>5. Check the circuit breaker ratings.</li> </ol>

# INSTALLATION OF THERMOSTAT

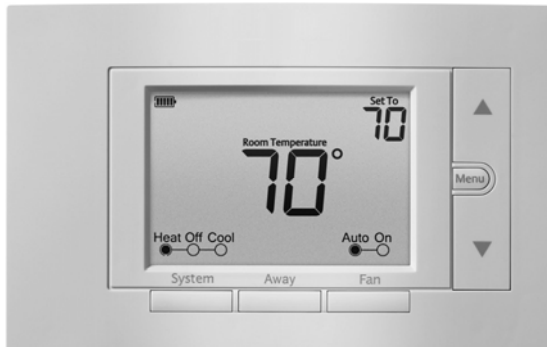
## ⚠ CAUTION

Failure to read and follow all instructions carefully before installing or operating this control could cause personal injury and/or property damage.

## INDEX

Thermostat Installation	2-4
Wiring	2
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Thermostat Applications	Maximum Stages Heat/ Cool
Conventional Gas, Oil, Electric(mV and 24V), Heat only, Cool only or Heat/Cool Systems	2/2
Heat Pump (Air Source or Geothermal) with Aux. Heat	4/2



## Specifications

Electrical Rating:			
Battery Power .....	mV to 30 VAC, NEC Class II, 50/60 Hz		
Input-Hardwire.....	20 to 30 VAC, NEC Class II, 50/60 Hz		
Terminal Load.....	1.5 A per terminal, 2.5A maximum all terminals combined		
Setpoint Range.....	45° to 99° F (7° to 37° C)		
Rated Differentials (@ 6°F/ Hr): .....	Fast	Med	Slow
Heat (Conventional Gas / Oil / Elect)	0.5°F	0.75°F	1.9°F
Cool (Central Air)	0.9°F	1.2°F	1.7°F
Heat Pump (Heat and Cool)	0.9°F	1.2°F	1.7°F
Heat Pump Aux	0.5°F	0.75°F	1.9°F
Operating Ambient .....	32°F to +105°F (0° to +41°C)		
Display Temperature Range .....	32°F to +99°F (0 to 37°C)		
Operating Humidity .....	90% non-condensing maximum		
Shipping Temperature Range .....	-20°F to + 150°F (-29° to +65°C)		
Thermostat Dimensions .....	3-3/4" H x 6" W x 1-1/8" D		



### CAUTION

To prevent electrical shock and/or equipment damage, disconnect electric power to system at main fuse or circuit breaker box until installation is complete.

### NOTE

#### MERCURY NOTICE:

This product does not contain mercury. However, this product may replace a product that contains mercury.

Mercury and products containing mercury must not be discarded in household trash.

Refer to [www.thermostat-recycle.org](http://www.thermostat-recycle.org) for information on disposing of products containing mercury.

## Thermostat Installation

### ⚠ WARNING

Refer to equipment manufacturer's instructions for specific system wiring information.

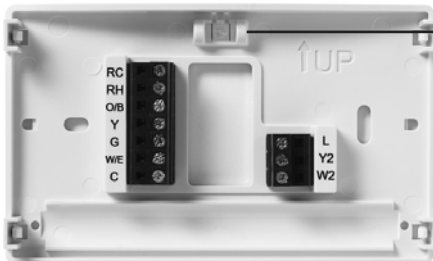
After wiring, see INSTALLER MENU for proper thermostat configuration.

Wiring table shown are for typical systems and describe the thermostat terminal functions.

Wiring will change when dedicated emergency heat is on (See Installer menu #15).

## WIRING

Terminal Designations	Terminal Function
RC	Power (24V) - Cooling
RH	Power (24V) - Heating
O/B 6 (not shown) - 3 wire zone valve	Reversing Valve or output for 3 wire zone valves Configurable as "O" or "B" Reversing Valve or 3 wire zone heat (power close)
Y	1st Stage Compressor
G	Fan Relay
W/E	1st Stage Heat (conventional); 1st Stage Auxiliary Heat (heat pump) Can operate as Emergency Heat only (See Installer Menu #15)
C	Common wire for 24V (optional with batteries)
L	Heat Pump Malfunction / Diagnostic terminal (input signal requires common)
Y2	2nd Stage compressor
W2	2nd Stage Heat (Conventional) 2nd Stage Auxiliary Heat (Heat Pump) Can operate as 1st Stage Auxiliary Heat (See Installer Menu #15)



### Leveling Thermostat

Leveling is for appearance only and will not affect thermostat operation.

**⚠ WARNING**

Do not use on circuits exceeding specified voltage. Higher voltage will damage control and could cause shock or fire hazard.

Do not short out terminals on gas valve or primary control to test.

Short or incorrect wiring will burn out thermostat and could cause personal injury and/or property damage.

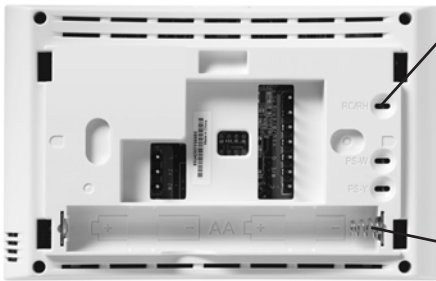
**⚠ CAUTION**

To prevent compressor and/or property damage, if the outdoor temperature is below 50°F, DO NOT operate the cooling system.

Do not allow the compressor to run unless the compressor oil heaters have been operational for 6 hours and the system has not been operational for at least 5 minutes.

**Precautions**

- Do not exceed the specification ratings.
- All wiring must conform to local and national electrical codes and ordinances.
- This control is a precision instrument, and should be handled carefully. Rough handling or distorting components could cause the control to malfunction.

**RC/RH Jumper Wire**

This thermostat electrically connects the RC and RH terminals so a jumper wire is not required. If the application provides a separate wire for RC and RH, clip the RC/RH jumper. This will isolate both terminals so they can be independently used.

**Battery Location**

Premium AA alkaline batteries are required when C-wire is not available. When C-wire is available, the batteries provide a back-up source of power (this will maintain the clock in the event of a power outage).








## Installer Menu


To prevent changes that may affect system performance, this thermostat has an INSTALLER MENU and a USER MENU.

The INSTALLER MENU provides access to every option, while the USER MENU provides access to items that will not affect system performance.

To access the INSTALLER MENU press the **Menu** button for 8 seconds.

The display will show item **05** in the table below. Use **Next** and **Back** to navigate through menu items. Press **or** to change a menu setting.

Installer Menu # (Hold Menu 8 Seconds)	Description	Default Setting (flashing icons)	Settings (Press ▲ or ▼)
05	Outdoor Equipment: selects air conditioner (AC) or heat pump (HP) equipment as well as the number of stage	AC2	AC0 AC1 AC2 HP1 HP2
10	Indoor Equipment: selects whether the equipment is a gas furnace, electric furnace or fan only	EL2	FAN GA1 GA2 EL1 EL2
15	 Dedicated Emergency: W/E only operates in Emergency Aux mode. W2 becomes 1st stage Aux. Heat	OFF	On OFF
20	 O,B or 3 Wire Zone Valve Selection	O	O B 3
30	 Heat Cycle Rate: how often the heat will turn on	MEd	SLO – slow MEd – medium FAS – fast
32	 Aux Cycle Rate: how often the auxiliary heat will turn on	MEd	SLO – slow MEd – medium FAS – fast
35	 Cool Cycle Rate: how often the cooling will turn on	MEd	SLO – slow MEd – medium FAS – fast
50	 Compressor Lockout: protects the compressor from short cycling	OFF	On – 5 minute delay OFF – no delay
65	Max Heat Limit: maximum set point for heat mode	99	47 to 99
66	Minimum Cool Limit: minimum set point for cool mode	45	45 to 97
79	Fahrenheit or Celsius	°F	°F – Fahrenheit °C – Celsius
81	Temperature Display Adjustment: adjust the displayed “Room Temperature”	0	-5 to +5
83	 Continuous Display Light: keep the backlight always on – “C” wire required	OFF	On – always on OFF – momentarily

Installer Menu # (Hold Menu 8 Seconds)	Description	Default Setting (flashing icons)	Settings (Press ▲ or ▼)
88	Auto Changeover: thermostat automatically switches between heat and cool.	OFF	On – enable auto OFF – disable auto
99 	Keypad Lock: prevent unwanted changes to the thermostat	OFF	On – disable buttons OFF – all buttons are active

## Test Equipment

Turn on power to the system

### Fan Operation

If your system does not have a G terminal connection, skip to **Heating System**.

- 1) Press the fan button to select the On position. The blower should begin to operate.
- 2) Press the fan button to select the Auto position. The blower should stop immediately.

### Heating System

- 1) Press the **System** button to select the **Heat** position. Heat Pumps only - if the auxiliary heating system has a standing pilot, be sure to light it.
- 2) Press to adjust thermostat setting to 1° above room temperature. The heating system should begin to operate and the thermostat will indicate **Heat On**.
- 3) For heat pumps with auxiliary- Press to adjust thermostat setting to 3° above room temperature.  
The auxiliary heat should begin to operate and the thermostat will indicate **Heat On Aux**.
- 4) Press to adjust thermostat setting 1° below room temperature. The heating system should stop operating and the **Heat On icon will disappear**.

### Auxiliary System (only for heat pumps with auxiliary)

- 1) Press the system button to select the **Aux** position. This bypasses the heat pump and runs auxiliary only heat.
- 2) Press to adjust thermostat setting to 1° above room temperature. The auxiliary heating system should begin to operate and the thermostat will indicate **Heat On Aux**.
- 3) Press to adjust thermostat setting 1° below room temperature. The auxiliary heating system should stop operating and the **Heat On Aux icon will disappear**.

### Cooling System

- 1) Press the system button to select the Cool position.
- 2) Press to adjust thermostat setting 1° below room temperature. The blower should come on immediately on high speed, followed by cold air circulation. The thermostat will indicate **Cool On**. There can be up to a 5 minute delay. (see INSTALLER MENU, item 50)
- 3) Press to adjust thermostat setting to 1° above room temperature. The cooling system should stop operating and the **Cool On icon will disappear**.

#### NOTE

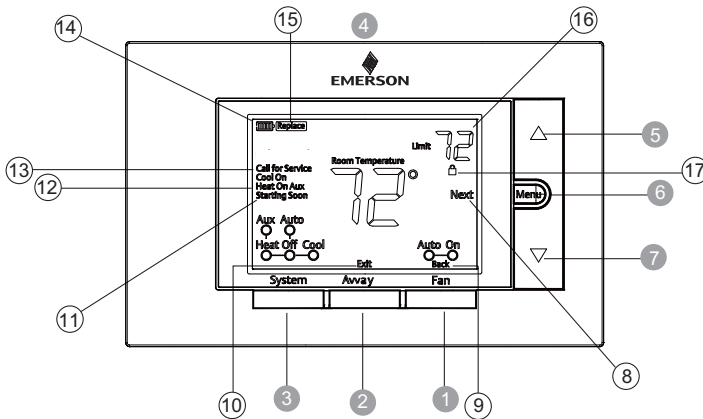
If **Starting Soon** is shown on the display, the compressor lockout feature is operating. There will be up to a 5 minute delay before the compressor turns on (see INSTALLER MENU, item 50).

# USING THE THERMOSTAT

## Thermostat Overview

Before you begin using your thermostat, you should be familiar with its features, display and the location/operation of the thermostat buttons and switches.

Thermostat Buttons And Switches	The Display
1) Fan Button	8) Next (Menu button) is used to navigate within a menu
2) Away Button (set a frequently used temperature)	9) Back (Fan button) is used to navigate within a menu
3) System Button	10) Exit (Away button) returns to the home screen
4) Backlight Button (located on the top of the thermostat)	11) Thermostat is protecting the equipment from short cycling (5-minute delay)
5) Raises Temperature Setting	12) Indicates that the system is running in Cool, Heat or Auxiliary mode. (Heat Pump Only -The auxiliary will run in Heat mode when the heat pump cannot maintain the set temperature)
6) Access Menu Options	13) SEE TROUBLESHOOTING
7) Lowers Temperature Setting	14) Battery status indicator
	15) Replace battery indicator
	16) Temperature setpoint
	17) Appears when the keypad is locked (to prevent unwanted changes)





Whenever “ Replace” appears in the display, new premium brand AA alkaline batteries should be installed.


If the house will be unoccupied for an extended period and either “” or “ Replace” is displayed, install new batteries before leaving.

## User Menu

To customize thermostat settings, press the **Menu** button from the home screen. Use the **▲** or **▼** buttons to highlight Settings and press **Next**. Use **Next** and **Back** to navigate through menu items. Press **▲** or **▼** to change the setting.

User's Menu # (Press Menu button and release)	Description	Default Setting (flashing icons)	Settings (Press ▲ or ▼)
01	Fahrenheit or Celsius	°F	°F – Fahrenheit °C – Celsius
02	Temperature Display Adjustment: adjust the Room Temperature	0	-5 to +5
03 	Continuous Display Light: keep the backlight always on – C wire required	OFF	On – always on OFF – momentarily
04	Auto-Changeover: thermostat automatically switches between heat and cool	OFF	On - enable auto OFF - disable auto
05 	Keypad Lock: prevent unwant- ed changes to the thermostat	OFF	On – disable buttons OFF – all buttons are active

## Thermostat Operation

- **Away** – Stores a frequently used temperature setting so that you can select it with a touch of the Away button. To set an Away temperature press temp up **▲** or temp down **▼** to the temperature you want. At the desired setting, hold the Away button for 3 seconds. When the setting is stored the set point will flash one time. You can store an Away setting for both Cool and Heat modes. (Example: Set an Away temperature to 88°F in the summer for cooling and 55°F in the winter for heating.)
- **Keypad Lockout** – To prevent unwanted changes, the buttons can be disabled. To turn this feature On, press and hold **▲** and the Menu button until the  icon appears (this can also be turned on in the menu). To turn Off, press and hold **▼** and the Menu button for 3 seconds.

### WARNING

For UAE models, Be sure to set the remote control temperature to 20°C or higher.

# TROUBLESHOOTING

## Resetting the Thermostat or Thermostat Settings

If the thermostat has good batteries, but has a blank display or does not respond to key presses, the thermostat should be reset by removing the batteries for 2 minutes.

This reset will not change the menu settings or program.

If the condition persists after reinstalling the batteries, replace the thermostat.

To conveniently reset only the schedule and user settings back to factory defaults, press **Menu** and **Backlight** buttons at the same time and hold until the display goes blank and resets.

Symptom	Possible Cause	Correction Action
No Heat/ No Cool/ No Fan(common problem)	<ol style="list-style-type: none"> <li>1) Blown fuse or tripped circuit breaker</li> <li>2) Furnace power switch to OFF</li> <li>3) Furnace blower compartment door panel loose or not properly installed</li> <li>4) Loose connection to thermostat or system</li> </ol>	<ol style="list-style-type: none"> <li>1) Replace fuse or reset breaker</li> <li>2) Turn switch to ON</li> <li>3) Replace door panel in proper position to engage safety interlock or door switch</li> <li>4) Tighten Connections</li> </ol>
No Heat	<ol style="list-style-type: none"> <li>1) System not set to Heat</li> <li>2) Loose connection to thermostat or system</li> <li>3) Heating System requires service or thermostat requires replacement</li> </ol>	<ol style="list-style-type: none"> <li>1) Set thermostat to Heat.</li> <li>2) Verify thermostat and system wires are securely attached.</li> <li>3) Diagnostic: Set System to Heat and raise the setpoint above room temperature. Within five minutes the thermostat should make a soft click sound and Heat On should appear on display. This sound indicates the thermostat is operating properly. If the thermostat does not click, try the reset operation listed below. If the thermostat does not click after being reset, contact your heating and cooling service person or place of purchase for a replacement. If the thermostat clicks, contact the furnace manufacturer or a service person to verify the heating system is operating correctly.</li> </ol>
No Cool	<ol style="list-style-type: none"> <li>1) System not set to Cool</li> <li>2) Loose connection to thermostat or system</li> <li>3) Cooling System requires service or thermostat requires replacement</li> </ol>	<ol style="list-style-type: none"> <li>1) Set thermostat to Cool.</li> <li>2) Verify thermostat and system wires are securely attached.</li> <li>3) Diagnostic: Set System to Cool and lower setpoint below room temperature. Same procedures as diagnostic for No Heat condition except set the thermostat to Cool and lower the setpoint below the room temperature. There may be up to a five minute delay before the thermostat clicks in Cooling if the compressor lock-out option is selected in the installer menu. (see INSTALLER MENU, item 50)</li> </ol>

Symptom	Possible Cause	Correction Action
Heat, Cool or Fan Runs Constantly	Possible short in wiring, thermostat, heat, cool or fan system	Check each wire connection to verify they are not shorted or touching other wires. Try resetting the thermostat. If the condition persists contact your HVAC service person.
Thermostat Display & Thermometer Disagree	Thermostat display requires adjustment	Display can be adjusted +/-5°. See User Menu item 05
Furnace (Air Conditioner) Cycles Too Fast or Slow (narrow or wide temperature swing)	The location of the thermostat and/ or the size of the Heating System may be influencing the cycle rate	Digital thermostats provide precise control and cycle faster than older mechanical models. The system turns on and off more frequently, but runs for a shorter time. If you would like to increase cycle time, choose SLO for slow cycle in the Installer menu. (Reference menu items 30, 32 & 35) If an acceptable cycle rate is not achieved, contact your HVAC service person.
“Call for Service” icon appears on displayed	<ol style="list-style-type: none"> <li>1) Heating system is not able to heat the space to within 10 degrees of the setpoint within 2 hours</li> <li>2) Cooling system is not able to cool the space to within 10 degrees of the setpoint within 2 hours</li> <li>3) If – is displayed for the Room Temperature, a replacement thermostat is needed</li> <li>4) None of the buttons operate on the thermostat</li> <li>5) If Call for Service is flashing, compressor self diagnostic is detecting an issue with the outdoor unit</li> </ol>	<ol style="list-style-type: none"> <li>1) See corrective action for No Heat</li> <li>2) See corrective action for No Cool</li> <li>3) Replace thermostat</li> <li>4) Make sure keypad lockout is not turned on ( ), If it's OFF, try reset shown below.</li> <li>5) Contact a service person to verify the outdoor equipment is operating correctly</li> </ol>

# INSTALLER SETTING

## Final Installation Checklist and Maintenance

<ul style="list-style-type: none"> <li>• Is the outdoor unit fan and indoor blower operating correctly, with proper rotation and without undue noise?</li> </ul>
<ul style="list-style-type: none"> <li>• Have voltage and running currents been checked to determine if it is within limits?</li> </ul>
<ul style="list-style-type: none"> <li>• Have the air discharge grilles been adjusted to balance the system?</li> </ul>
<ul style="list-style-type: none"> <li>• Has the ductwork been checked for air leaks and condensation?</li> </ul>
<ul style="list-style-type: none"> <li>• Has the indoor airflow been checked and adjusted if necessary?</li> </ul>
<ul style="list-style-type: none"> <li>• Has the unit been checked for tubing and sheet metal rattles and are there unusual noises to be checked?</li> </ul>
<ul style="list-style-type: none"> <li>• Are all covers and panels in place and properly fastened?</li> </ul>
<ul style="list-style-type: none"> <li>• Has the owner or maintenance personnel been given this manual, warranty, and been instructed on proper operation and maintenance?</li> </ul>

### Routine Maintenance By Owner

You can do some of the periodic maintenance functions for your unit yourself; this includes cleaning air filters, cleaning unit cabinet, cleaning the condenser coil, and conducting a general unit inspection on a regular basis.

Unfiltered air circulates through the unit's condenser coil and can cause the coil's surface to become clogged with dust, dirt, etc.. To clean the coil, vertically (i.e., along the fins) stroke the coil surface with a soft bristled brush.

Keep all vegetation away from the condenser coil area.

### WARNING

- Before removing access panels to service unit, disconnect power supply. Failure to disconnect power before attempting any servicing can result in severe injury or death.

### Maintenance Performed by Serviceman

To keep your unit operating safely and efficiently, the manufacturer recommends that a qualified serviceman check the entire system at least once each year, or more frequently if conditions warrant. Your serviceman may examine these areas of your unit:

1. Motors and drive system components	→ Check the cleanliness of Indoor Fan
2. Condenser coils	→ For cleaning
3. Safety Controls	→ For mechanical cleaning
4. Electrical components and wiring	→ For possible replacement or connection tightness
5. Condensate drain	→ For cleaning
6. Inspect the unit duct connections to ensure they are physically sound and sealed to the unit casing.	
7. Inspect the unit mounting support to see that it is sound.	
8. Inspect the unit to ensure there is no obvious deterioration.	



### CAUTION

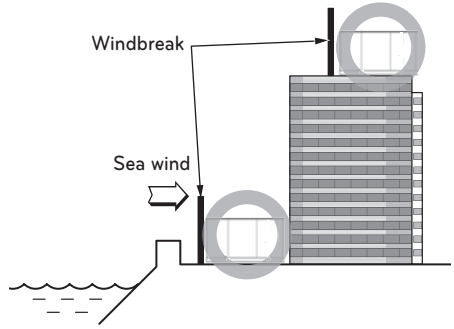
- To prevent injury or death due to electrical shock of contact with moving parts, lock unit disconnect switch in open position before servicing unit.  
To prevent an explosion and possible injury, death and equipment damage, do not store combustible materials, gasoline or other flammable vapors and liquids near the unit.

Inspect the control panel wiring to verify that all electrical connections are tight and wire insulation is intact.

## Installation guide at the seaside

### CAUTION

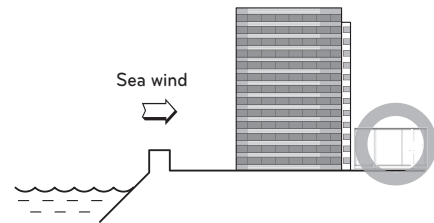
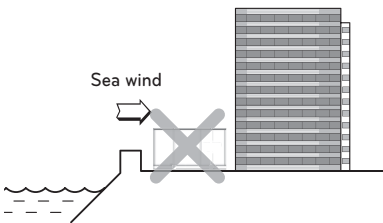
- Air conditioners should not be installed in areas where corrosive gases, such as acid or alkaline gas, are produced.
- Do not install the product where it could be exposed to sea wind (salty wind) directly. It can result corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient performance.
- If outdoor unit is installed close to the seaside, it should avoid direct exposure to the sea wind. Otherwise it needs additional anticorrosion treatment on the heat exchanger.



- It should be strong enough like concrete to prevent the sea wind from the sea.
- The height and width should be more than 150 % of the outdoor unit.
- It should keep more than 70 cm of space between outdoor unit and the windbreak for easy air flow.

### Selecting the location(Outdoor Unit)

If the outdoor unit is to be installed close to the seaside, direct exposure to the sea wind should be avoided. Install the outdoor unit on the opposite side of the sea wind direction.



Select a well-drained place.

- If you can't meet above guide line in the seaside installation, please contact LG Electronics for the additional anticorrosion.
- Periodic (more than once/year) cleaning of the dust or salt particles stuck on the heat exchanger by using water

In case, to install the outdoor unit on the seaside, set up a windbreak not to be exposed to the sea wind.

## Instruction Sheet

Model		AK-C3608H00	AK-C4208H00	AK-C4808H00
Brand		LG Electronics Inc	LG Electronics Inc	LG Electronics Inc
Country of origin		Bahrain	Bahrain	Bahrain
Type		Packaged	Packaged	Packaged
Voltage (V)		380-415	380-415	380-415
Min Voltage (V)		342	342	342
Phase (Ø)		3	3	3
Frequency (Hz)		50	50	50
Refrigerant		R410A (kg)	34.0	46.0
Cooling (T1)	Capacity (Btu/hr)	346 697	411 335	465 058
	Capacity (kW)	101.61	120.55	136.30
	Current (A)	57.32	71.63	79.27
	Power (kW)	34.15	40.69	45.58
	EER (Btu/Watt.hr)	10.2	10.1	10.2
Cooling (T3)	Capacity (Btu/hr)	313 226	371 902	414 162
	Capacity (kW)	91.80	108.99	121.38
	Current (A)	64.31	76.42	85.00
	Power (kW)	40.10	47.65	53.00
	EER (Btu/Watt.hr)	7.81	7.80	7.81
Power Factor (T3)		0.90	0.90	0.90
Max. Allowable Presssure (Mpa)		4.48	4.48	4.48
Excessive Operating Pressure Discharge (Mpa)		4.48	4.48	4.48
Excessive Operating Pressure Suction (Mpa)		1.5	1.5	1.5
Dimensions(W*H*D)		2 150 * 2 400 * 3 945 mm	2 150 * 2 400 * 3 945 mm	2 150 * 2 400 * 3 945 mm
Unit Weight (Kg)		2 150	2 340	2 480

Model		AK-C3609H00
Brand		LG Electronics Inc
Country of origin		Bahrain
Type		Packaged
Voltage (V)		380-400
Min Voltage (V)		342
Phase (Ø)		3
Frequency (Hz)		60
Refrigerant		R410A (kg)
Cooling (T1)	Capacity (Btu/hr)	32.0
	Capacity (kW)	350 000
	Current (A)	102.58
	Power (kW)	63.0
	EER (Btu/Watt.hr)	34.40
Cooling (T3)	EER (Btu/Watt.hr)	10.15
	Capacity (Btu/hr)	294 000
	Capacity (kW)	86.16
	Current (A)	72.0
	Power (kW)	38.80
Max. Allowable Presssure (Mpa)		7.55
Excessive Operating Pressure Discharge (Mpa)		4.48
Excessive Operating Pressure Suction (Mpa)		4.48
Dimensions(W*H*D)		1.5
Unit Weight (Kg)		2 150 * 2 075 * 3 945 mm
Unit Weight (Kg)		2 020

