**HVAC Guide Specifications**

**Ducted PEAD- Series**

# Single-split System

# Capacity Range: 0.75 to 1.5 Ton Nominal

**Mitsubishi Model Number: PEAD-AxxAA7 with SUZ-KAxxNAH2 or SUZ-KAxxNAHZ**

# Part 1 – General

* 1. System Description:

1. The indoor ducted unit and outdoor unit shall be factory assembled, wired, and run tested. Within the unit shall be all factory wiring, piping, control circuit board and DC fan motor. The unit shall have a self-diagnostic function, 3-minute time delay mechanism, an auto restart function, an emergency operation function, and test run function from system controller. Indoor unit refrigerant pipes shall be charged with dehydrated air before shipment from the factory. The unit shall be ETL certified.
2. Horizontal Ducted Indoor Unit; PEAD-A09AA7, PEAD-A12AA7, PEAD-A15AA7, PEAD-A18AA7, PEAD-A24AA7, PEAD-A30AA7 and PEAD-A36AA7
3. Outdoor unit model numbers may be: SUZ-KA09NAH2, SUZ-KA12NAH2, SUZ-KA15NAH2, SUZ-KA18NAH2 models shall have minimum operating temperature of -20°C. SUZ-KA24NAH2, SUZ-KA30NAH2 and SUZ-KA36NAH2 models shall have minimum operating temperature of -15°C

OR

1. Outdoor unit model numbers may be: SUZ-KA09NAHZ, SUZ-KA12NAHZ, SUZ-KA15NAHZ, SUZ-KA18NAHZ, SUZ-KA24NAHZ, SUZ-KA30NAHZ and SUZ-KA36NAHZ. Models ending in NAHZ are designated as “Hyper Heat” models and have minimum operating temperature to -25°C with 100% heat capacity at -15°C.

1.02 Quality Assurance

1. The units shall be tested by a Nationally Recognized Testing Laboratory (NRTL) and shall bear the ETL label.
2. All wiring shall be in accordance with the Canadian Electrical Code (C.E.C.) and local codes as required.
3. The units shall be rated in accordance with Air-conditioning, Heating, and Refrigeration Institute’s (AHRI) Standard 240 and bear the AHRI Certification label.
4. The units shall be manufactured in a facility registered to ISO 9001 and ISO 14001, which is a set of standards applying to environmental protection standards and procedures set by the International Standard Organization (ISO).
5. A dry air holding charge shall be provided in the indoor section.
6. System efficiency shall meet or exceed 15 SEER when part of a 1:1 (indoor/outdoor) system.

1.03 Delivery, Storage and Handling

1. Unit shall be stored and handled according to the manufacturer’s recommendations.
2. The optional wireless or wired controller shall be shipped separately from the indoor unit and able to withstand 105°F storage temperatures and 95% relative humidity without adverse effect.

# Part 2 – Warranty

* 1. The units shall have a manufacturer warranty for parts and defects for a period five (5) years from date of installation. The compressor shall have a warranty of seven (7) years from the same date of installation. If, during this period, any part should fail to function properly due to defects in manufacturing workmanship or material defects, it shall be replaced or repaired at the discretion of the manufacturer. This warranty does not include labor.
  2. Notwithstanding the foregoing, if the System is installed by a licensed HVAC Installer who has completed the Mitsubishi Electric Quality Dealer Training Program (“MESCA Authorized Contractor”) and all parts of the System are registered in the Mitsubishi Electric Extended Warranty program within 90 days from installation, the parts and compressor will be covered under warranty for a period of 120 months (10 years) to the original owner, providing the System remains at the original installed address.
  3. Manufacturer shall have over 30 years of continuous experience in the Canadian market.

# Part 3 – Performance and Operating Range

* 1. Each system shall perform in accordance with the ratings shown in the table below.
  2. Cooling performance shall be based on 80°F DB, 67°F WB (26.7°C DB, 19.4°C WB) for the indoor unit and 95°F DB, 75°F WB (35°C DB, 23.9°C WB) for the outdoor unit at rated, minimum and maximum frequencies.
  3. Heating performance shall be based on 70ºF DB, 60 ºF WB (21.1ºC DB, 15.6ºC WB) for the indoor unit and 47 º F DB, 43º F WB (8.3 º C DB, 6.1º C WB) for the outdoor unit at rated, minimum and maximum frequencies.

**SUZ-KA\*\*NAH2 Models:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Indoor / Outdoor unit model | | | PEAD-A09AA7  SUZ-KA09NAH2 | PEAD-A12AA7  SUZ-KA12NAH2 | PEAD-A15AA7  SUZ-KA15NAH2 | PEAD-A18AA7  SUZ-KA18NAH2 |
| Capacity  Rated (Min - Max) | Cooling1 | Btu/h | 9000  (4300 – 9000) | 12000  (4400 – 12000) | 15000  (5500 – 15000) | 18000  (6200 – 18000) |
| Heating 471 | Btu/h | 12000  (3960 – 13000) | 15000  (4800 – 17000) | 18000  (4900 – 21500) | 21600  (8120 – 25600) |
| Capacity Rated | Heating 172 | Btu/h | 7600 | 9900 | 11300 | 14000 |
| Power Consumption  Rated | Cooling 1 | W | 720 | 930 | 1150 | 1270 |
| Heating 471 | W | 900 | 1160 | 1350 | 1600 |
| Power Consumption Rated | Heating 172 | W | 7600 | 9900 | 11300 | 1440 |
| EER [SEER] | Cooling | | 12.5 (19.7) | 12.9 (20.5) | 13 (19.2) | 14.1 (19.8) |
| HSPF IV (V) | Heating | | 11.9 (12.6) | 12.4 (13) | 11.2 (11.6) | 12.5 (12.9) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Indoor / Outdoor unit model | | | PEAD-A24AA7  SUZ-KA24NAH2 | PEAD-A30AA7  SUZ-KA30NAH2 | PEAD-A36AA7  SUZ-KA136AH2 |
| Capacity  Rated (Min - Max) | Cooling1 | Btu/h | 24000  (12000 – 24000) | 27000  (13200 – 27000) | 33000  (14000 – 33000) |
| Heating 471 | Btu/h | 25000  (14400 – 28000) | 30000  (15860 – 33000) | 33400  (14750 – 36000) |
| Capacity Rated | Heating 172 | Btu/h | 15000 | 22400 | 23100 |
| Power consumption  Rated | Cooling 1 | W | 1920 | 2160 | 3510 |
| Heating 471 | W | 1990 | 2410 | 3170 |
| Power consumption Rated | Heating 172 | W | 1650 | 1920 | 2830 |
| EER [SEER] | Cooling | | 12.5 (18) | 12.5 (18) | 9.4 (16) |
| HSPF IV (V) | Heating | | 11 (11.2) | 12.4 (12.6) | 11.5 (11.6) |
| **NOTE**: Test conditions are based on ARI 210/240.  1: Rating conditions (Cooling) — Indoor: 80˚FDB, 67˚FWB, Outdoor: 95˚FDB, (75˚FWB)  (Heating) — Indoor: 70˚FDB, 60˚FWB, Outdoor: 47˚FDB, 43˚FWB  2: (Heating) — Indoor: 70˚FDB, 60˚FWB, Outdoor: 17˚FDB, 15˚FWB | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Indoor / Outdoor Model Numbers | Cooling  BTU/h | Heating (47°F)  BTU/h | SHF  Cooling | SHF  Heating | Input Cooling  (W) | Input  Heating (W) |
| PEAD-A09AA7 /  SUZ-KA09NAH2 | 9000 | 12000 | 0.90 | - | 720 | 900 |
| PEAD-A12AA7 /  SUZ-KA12NAH2 | 12000 | 15000 | 0.90 | - | 930 | 1160 |
| PEAD-A15AA7 /  SUZ-KA15NAH2 | 15000 | 18000 | 0.90 | - | 1150 | 1350 |
| PEAD-A18AA7 /  SUZ-KA18NAH2 | 18000 | 21600 | 0.80 | - | 1270 | 1600 |
| PEAD-A24AA7 /  SUZ-KA18NAH2 | 24000 | 25000 | 0.77 | - | 1920 | 1990 |
| PEAD-A30AA7 /  SUZ-KA18NAH2 | 27000 | 30000 | 0.84 | - | 2160 | 2410 |
| PEAD-A36AA7 /  SUZ-KA18NAH2 | 33000 | 33400 | 0.84 | - | 3510 | 3170 |

Operating Range shall be in accord with the Table below:

|  |  |  |  |
| --- | --- | --- | --- |
|  | | Indoor Intake Air Temp | Outdoor Intake Air Temp |
| Cooling | Maximum | 35°C (95°F) DB, 21°C (71°F) WB | 46°C (115°F) DB |
| Minimum | 19.4°C (67°F) DB, 13.9°C (57°F) WB | -10°C (14°F) DB |
| Heating | Maximum | 27°C (80°F) DB, 19.4°C (67F) WB | 24°C (75°F) DB, 18°C (65°F) WB |
| Minimum | 21°C (70°F) DB, 15.6°C (60F) WB | -20°C (-4°F) DB, -21°C (-5°F) WB\* |

**SUZ-KA\*\*NAHZ Hyper Heat Models:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Indoor / Outdoor unit model | | | PEAD-A09AA7  SUZ-KA09NAHZ | PEAD-A12AA7  SUZ-KA12NAHZ | PEAD-A15AA7  SUZ-KA15NAHZ | PEAD-A18AA7  SUZ-KA18NAHZ |
| Capacity  Rated (Min- Max) | Cooling1 | Btu/h | 9000  (5000-9000) | 12000  (5770 – 12000) | 15000  (9600 – 15000) | 18000  (9320 – 18000) |
| Heating 471 | Btu/h | 12000  (8200 – 14000) | 15000  (7900 – 18000) | 18000  (8800 – 23000) | 21600  (8800 – 28000) |
| Capacity Rated (Max) | Heating 172 | Btu/h | 6800 (12000) | 9000 (15000) | 11700 (18000) | 14200 (21600) |
| Power consumption  Rated | Cooling 1 | W | 650 | 850 | 1190 | 1400 |
| Heating 471 | W | 910 | 1100 | 1710 | 1890 |
| Power consumption Rated (Max) | Heating 172 | W | 6800 (12000) | 9000 (15000) | 11700 (18000) | 14200 (21600) |
| EER [SEER] | Cooling | | 13.8 (17.8) | 14.1 (19.3) | 12.6 (18.3) | 12.8 (18.9) |
| HSPF IV (V) | Heating | | 10.8 | 11 | 9.9 | 10.8 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Indoor / Outdoor unit model | | | PEAD-A24AA7  SUZ-KA24NAHZ | PEAD-A30AA7  SUZ-KA30NAHZ | PEAD-A36AA7  SUZ-KA36NAHZ | |
| Capacity  Rated (Min - Max) | Cooling1 | Btu/h | 24000  (10000 – 24000) | 30000  (14600 – 30000) | 33000  (15600 – 33000) | |
| Heating 471 | Btu/h | 25000  (1000 – 28000) | 32000  (14700 – 34000) | 37000  (17400 – 40000) | |
| Capacity Rated (Max) | Heating 172 | Btu/h | 18000 (25000) | 21000 (32000) | 25400 (37000) | |
| Power consumption  Rated | Cooling 1 | W | 2080 | 2350 | 2490 | |
| Heating 471 | W | 1920 | 2740 | 2940 | |
| Power consumption Rated (Max) | Heating 172 | W | 18000  (25000) | 21000  (32000) | 25400  (37000) | |
| EER [SEER] | Cooling | | 10.3 (15) | 12.5 (15) | 12.5 (15) | |
| HSPF IV (V) | Heating | | 9 | 9 | 9 | |
| **NOTE**: Test conditions are based on ARI 210/240.  1: Rating conditions (Cooling) — Indoor: 80˚FDB, 67˚FWB, Outdoor: 95˚FDB, (75˚FWB)  (Heating) — Indoor: 70˚FDB, 60˚FWB, Outdoor: 47˚FDB, 43˚FWB  2: (Heating) — Indoor: 70˚FDB, 60˚FWB, Outdoor: 17˚FDB, 15˚FWB | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Indoor / Outdoor Model Numbers | Cooling  BTU/h | Heating @ 47°F  BTU/h | SHF  Cooling | SHF  Heating | Input Cooling  (W) | Input  Heating (W) |
| PEAD-A09AA7 /  SUZ-KA09NAHZ | 9000 | 12000 | 0.82 | - | 650 | 910 |
| PEAD-A12AA7 /  SUZ-KA12NAHZ | 12000 | 15000 | 0.82 | - | 850 | 1100 |
| PEAD-A15AA7 /  SUZ-KA15NAHZ | 15000 | 18000 | 0.82 | - | 1190 | 1710 |
| PEAD-A18AA7 /  SUZ-KA18NAHZ | 18000 | 21600 | 0.78 | - | 1400 | 1890 |
| PEAD-A24AA7 /  SUZ-KA24NAHZ | 24000 | 25000 | 0.68 | - | 2080 | 1920 |
| PEAD-A30AA7 /  SUZ-KA30NAHZ | 30000 | 32000 | 0.76 | - | 2350 | 2740 |
| PEAD-A36AA7 /  SUZ-KA36NAHZ | 33000 | 37000 | 0.88 | - | 2490 | 2940 |

Operating Range shall be in accord with the Table below:

|  |  |  |  |
| --- | --- | --- | --- |
|  | | Indoor Intake Air Temp | Outdoor Intake Air Temp |
| Cooling | Maximum | 35°C (90°F) DB, 21.7°C (73°F) WB | 46°C (115°F) DB |
| Minimum | 19.4°C (67°F) DB, 13.9°C (57°F) WB | -10°C (14°F) DB |
| Heating | Maximum | 26.7°C (80°F) DB, 19.4°C (67) WB | 24°C (75°F) DB, 18°C (65°F) WB |
| Minimum | 10°C (50°F) DB, 15.6°C (60) WB | -25°C (-13°F) DB, -26°C (-14°F) WB\* |

# Part 4 – Products

# 4.1 Outdoor Unit

1. General:

The SUZ-KA Series horizontal discharge outdoor units shall be specifically designed to perform and communicate with the PEAD-A\*\*AA7 indoor unit. The outdoor unit shall be completely factory assembled. Each unit shall be test run at the factory.

A. Unit Cabinet:

1. The casing shall be fabricated of galvanized steel.

2. Cabinet color shall be galvanized steel.

3. Two (2) mild steel mounting feet, traverse mounted across the cabinet base pan, welded mount, providing four (4) slotted mounting holes shall be furnished.

B. Fan:

1. The unit shall be furnished with a direct drive, high performance propeller type fan.

2. The condenser fan motor shall be a variable speed, direct current (DC) motor and shall have permanently lubricated bearings.

3. Fan speed shall be switch automatically according to outdoor ambient temperature and indoor temperature demand.

4. The fan motor shall be mounted with vibration isolation for quiet operation.

5. The fan shall be provided with a raised guard to prevent contact with moving parts.

6. The outdoor unit shall have horizontal discharge airflow.

7. Outdoor unit sound level shall not exceed:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model |  | Cooling (\*NAH**2**) | Heating (\*NAH**2**) | Cooling (\*NAH**Z**) | Heating (\*NAH**Z**) |
| SUZ-KA09\* | dB(A) | 48 | 50 | 54 | 55 |
| SUZ-KA12\* | 49 | 51 | 54 | 55 |
| SUZ-KA15\* | 49 | 51 | 55 | |
| SUZ-KA18\* | 54 | 55 | 55 | |

C. Coil:

* + - 1. The outdoor unit coil shall be of nonferrous construction with lanced or corrugated plate fins on copper tubing.
      2. The coil shall be protected with an integral guard.
      3. Refrigerant flow from the outdoor unit to the indoor units shall be controlled by means of electronic linear expansion valves in outdoor unit.
      4. Outdoor unit shall be pre-charged with sufficient R-410a refrigerant for up to twenty-five (25) feet of refrigerant piping.
      5. All refrigerant lines between outdoor and indoor units shall be of annealed, refrigeration grade copper tubing, ARC Type, meeting ASTM B280 requirements, individually insulated in twin-tube, flexible, closed-cell, CFC-free (ozone depletion potential of zero), elastomeric material for the insulation of refrigerant pipes and tubes with thermal conductivity equal to or better than 0.27 BTU-inch/hour per Sq Ft / °F, a water vapor transmission equal to or better than 0.08 Perm-inch and superior fire ratings such that insulation will not contribute significantly to fire and up to 1” thick insulation shall have a Flame-Spread Index of less than 25 and a Smoke-development Index of less than 50 as tested by ASTM E 84 and CAN / ULC S-102.
      6. All refrigerant connections between outdoor and indoor units shall be flare type.

D. Compressor:

1. The compressor shall be a high performance, hermetic, inverter driven, variable speed, dual rotary type manufactured by Mitsubishi Electric Corporation.

2. The compressor motor shall be direct current (DC) type equipped with a factory supplied and installed inverter drive package.

3. The outdoor unit shall be equipped with a suction side refrigerant accumulator.

4. The compressor will be equipped with an internal thermal overload.

5. The outdoor unit must have the ability to operate over the full capacity range with a maximum height difference of 40 feet (12 meters) for 9,000, 12,000, 15,000 BTU/h and 50 feet (15 meters) for 18,000, 24000, 30000 and 36000 BTU/h models. Units shall have the maximum refrigerant tubing length of up to 65 feet (20 meters) for 9000, 12000, 15000 and 100 feet (30 meters) for 18000, 24000, 30000 and 36000 BTU/h units between the indoor and outdoor units.

6. There shall be no need for line size changes, filters, sight glasses, and traps shall not be used, and no additional refrigerant oil shall be required.

7. The compressor shall be mounted to avoid the transmission of vibration.

F. Electrical:

1. The outdoor unit electrical power shall be 208/230 volts, 1-phase, 60 hertz.
2. The unit shall be capable of satisfactory operation within voltage limits of 198 to 253 volts AC.
3. The outdoor unit microprocessor shall have bidirectional digital communication with indoor unit microprocessor digitally using A-Control.
4. A-Control provides fluctuating 12 to 24 VDC bidirectional data communications between indoor and outdoor units, and AC power to indoor unit from the outdoor unit using a 3-wire 14 AWG connection plus ground.
5. The outdoor unit shall be equipped with Pulse Amplitude Modulation (PAM) inverter drive control for brushless DC compressor for maximum efficiency with minimum power consumption.

**4.2 Indoor Units**

4.2.1 Horizontal Ducted PEAD-A\*\*AA7 Indoor Unit:

General:

1. The indoor unit shall be factory assembled, wired and run tested. All factory wiring, piping, control circuit board, fan motor, and drain pump shall be contained within the unit. The unit shall have a self-diagnostic function, 3-minute time delay mechanism, an auto restart function, an emergency operation function and a test run switch. Indoor unit refrigerant pipes shall be charged with dehydrated air before shipment from the factory.
2. Unit Cabinet:
   1. The pre-insulated, 22-gauge galvanized steel cabinet.
3. Fan:
4. The indoor fan shall be an assembly with a direct drive turbo fan driven by a single DC motor.
5. The indoor fan shall be statically and dynamically balanced to driven by a motor with permanently lubricated bearings.
6. The indoor fan shall consist of three (3) speeds, Low, Mid, and High.
7. Filter: Return air shall be filtered by means of a long-life washable filter.
8. The indoor fan motor shall have programable static pressures of 0.14, 0.20, 0.28, 0.40 and 0.60 in W.G.
9. Coil:
10. The indoor coil shall be of nonferrous construction with smooth plate fins on copper tubing.
11. The tubing shall have inner grooves for high efficiency heat exchange.
12. All tube joints shall be brazed with phos-copper or silver alloy.
13. The coils shall be pressure tested at the factory.
14. A condensate pan and drain shall be provided under the coil.
15. The unit shall include a condensate lift mechanism that will be able to raise drain water 27 9/16” inches above the condensate pan.
16. Both refrigerant lines to the indoor unit shall be insulated.
17. Electrical:
18. The unit electrical power shall be 208/230 volts AC, 1-phase, 60 hertz.
19. The system shall be capable of satisfactory operation within voltage limits of 187-228 volts (208V/60Hz) or 207-253 volts (230V/60Hz).
20. Controls:

1. The control system shall consist of a minimum of one microprocessor in each indoor unit and one in the outdoor unit, communicating via A-Control data over power transmission. The microprocessor located in the indoor unit shall have the capability of monitoring return air temperature and indoor coil temperature, receiving and processing commands from the wired or wireless controller, providing emergency operation and controlling the outdoor unit. The control signal between the indoor and outdoor unit shall be pulsating 9 to24 volts DC signal. Indoor units shall have the ability to control supplemental heat via connector CN24 and a 12 VDC relay output. Indoor units shall have the ability to control LOSSNAY (energy recovery ventilation) via connector CN2L and an adapter cable.

2. For A-Control, a three (3) conductor 14 AWG gauge wire with ground shall provide power feed and bi-directional control transmission between the outdoor and indoor units. If national and local codes require a disconnect mounted near the indoor unit, a 3-Pole Disconnect shall be used – all three conductors must be interrupted.

3. The system shall be capable of automatic restart when power is restored after power interruption. The system shall have self-diagnostics ability, including recording total hours of compressor run time. Diagnostics codes for indoor and outdoor units shall be displayed on the wired controller panel.

Remote Controllers

Remote controller needs to be selected and ordered separately from the unit.

* 1. An optional North American thermostat adapter is available and requires interface RMF-CA100. This interface allows standard thermostats to be connected with the Mitsubishi Electric heat pump system.
  2. Wireless, wall mounted remote controller kit (MHK1)

The Wireless, wall mounted remote controller kit (MHK1) shall consist of a wireless, wall mounted controller (MRCH1), a wireless receiver (MIFH1) and a cable (MRC1) to connect the receiver to the indoor unit. The controller shall be white in color with a light-green LCD display and a backlight feature. The MRCH1 shall consist of four Function buttons below the display, and Increase/Decrease Set Temperature buttons and a Hold button to the right of the display. The controller shall have a built-in temperature sensor and a battery holder, using two AA alkaline batteries. Temperature shall be displayed in either Fahrenheit (°F) or Celsius (°C), and temperature changes shall be by increments of 1°F (0.5°C).

The MHK1 uses Honeywell RedLINKTM technology, and the wireless receiver is specially designed for Mitsubishi units. Linking to the wireless network shall be done from the receiver and from the remote controller. There shall not be any interference with other wireless devices or neighboring RedLINKTM products. Communication shall be automatically restored after power resumes and after batteries are replaced.

The basic functions are as follows:

| **Wireless, Wall Mounted Remote Controller Kit (MHK1)** | |
| --- | --- |
| **Item** | **Description** |
| Number of Units Controllable | 1 unit |
| ON/OFF | Run and stop operation |
| Operation Mode | Switches between Cool/Drying/Auto/Fan/Heat. |
| Temperature Setting  (Range and modes depend on connected indoor unit model) | Controller general setpoint temperature range:  Cool/Dry: 50°F-99°F  Heat: 40°F-90°F  Auto: 50°F-90°F  Controller temperature range when connected to the PEAD/SUZ system:  Cool/Dry: 67°F-87°F  Heat: 63°F-83°F  Auto: 67°F-83°F |
| Fan Speed Setting  (Range and modes depend on connected unit model) | Hi/Mid-2/Mid-1/Low/Auto |
| Dual Setpoint Control | Separate heating and cooling setpoints. Adjustable deadband from 2ºF to 8ºF. Automatically adjusts setpoints to ensure deadband.  System changeover with dual setpoints. |
| Scheduling | 5-2 and 5-1-1 schedules  Separate Heat/Cool schedules  Allows operation in AUTO with Scheduling setbacks and dual setpoint  Simple temperature setting can be done up to 4 times one day in the week. The time can be set by the 15-minute interval.  Remote controller shall be programmable as either a residential controller, which will offer residential scheduling options only; or as a commercial controller, which will offer commercial scheduling options only. |
| Optimal Start | Set occupied time and desired set temperature  Remote controller learns when to start warm up or cool down so that space is at set temperature at start of occupied time |
| Operating Conditions Display | Setpoint and room temperature. Default sensing is at the remote controller. Installer setting to select at return air sensor. Automatically switches to return air sensor if communication to remote controller is lost  Outdoor temperature and humidity (Require optional air sensor MOS1) |
| Additional Functions | Hold Function  Temporary Schedule Override  Reset to factory default |
| Error | When an error is currently occurring on an air conditioner unit, the afflicted unit and the error code are displayed |
| Auto Lock Out Function | Setting/releasing of simplified locking for remote control settings can be performed.   * Locking of all settings * Locking of ON/OFF setting * Locking of system setting (Heat, Cool, Off, Auto, etc.) * Locking of fan setting * Locking of temperature setting * Locking of Clock/Day/Schedule |

Two optional devices can be used with the MHK1 controller kit. These are, an outdoor air sensor (MOS1), which allows the display of the outdoor temperature and humidity, and a portable central controller (MCCH1), which can control up to 16 zones/units with On/Off, set temperature, heat/cool mode selection and auto-off timer.

1. Wired Remote Controller (PAR-40MAA)

The Wired Remote Controller (PAR-40MAA) shall be approximately 5” x 5” in size and white in color with a light-blue LCD display. The PAR-40MAA shall support a selection from multiple languages (Spanish, German, Japanese, Chinese, English, Russian, Italian, or French) for display information. There shall be a built-in weekly timer with up to 8 pattern settings per day. The controller shall consist of an On/Off button, four function buttons, menu button, select button and return button and operation indicator led. Other operation shall be selected by use of function buttons. The controller shall have a built-in temperature sensor. Temperature shall be displayed in either Fahrenheit (°F) or Celsius (°C), and Temperature changes shall be by increments of 1°F (0.5°C).

Field wiring shall run directly from the indoor unit to the wired controller with no splices. The voltage to the wired controller from the indoor unit shall be 12 VDC. Up to two wired controllers shall be able to be used to control one unit.

The basic functions are:

| **Wired Remote Controller (PAR-40MAA)** | |
| --- | --- |
| **Item** | **Description** |
| Number of Units Controllable | 16 units as 1 group |
| ON/OFF | Run and stop operation |
| Operation Mode | Switches between Cool/Dry/Auto/Fan/Heat. |
| Temperature Setting  (Range and modes depend on connected unit model) | Sets the setpoint temperature in the following range  Cool/Dry: 67°F-87°F  Heat: 63°F-83°F  Auto: 67°F-83°F |
| Fan Speed Setting  (Range and modes depend on connected unit model) | Hi/Mid-2/Mid-1/Low/Auto |
| Weekly Scheduler | ON/OFF/Temperature setting can be done up to 8 times one day in the week. The time can be set by the 1-minute interval. |
| Operating Conditions Display | Setpoint and room temperature. Sensing can be done at the remote controller or the indoor unit depending on the indoor unit dipswitch setting  Liquid, discharge, indoor and outdoor pipe temperatures  LEV opening pulses, sub cooling and discharge super heat  Compressor Operating Conditions: Running current, frequency, input voltage, On/Off status and operating time |
| Error | When an error is currently occurring on an air conditioner unit, the afflicted unit and the error code are displayed |
| Ventilation Equipment | Up to 16 indoor units can be connected to an interlocked system that has one LOSSNAY unit. LOSSNAY items that can be set are “Hi”, “Low”, and “Stop”. Ventilation mode switching is not available. |
| Auto Lock Out Function | Setting/releasing of simplified locking for remote control buttons can be performed.   * Locking of all buttons * Locking of all buttons except ON/OFF button |

1. Optional Wireless, handheld remote controller (PAR-FL32MA-E) with wireless receiver (PAR-FA32MA-E).

The wireless hand-held remote controller (PAR-FL32MA-E) shall be used with a wireless receiver

(PAR-FA32MA-E). The controller shall perform input functions necessary to operate the system. The wireless receiver shall be plug compatible with the indoor unit.

The controller shall have a Power On/Off switch, Mode Selector – Cool, Dry, Heat, Auto, and Powerful Modes - Temperature Setting, Timer Control and Fan Speed Selector. The indoor unit shall perform Self-diagnostic Function and Check Mode switching. Temperature changes shall be in 1ºF (0.5ºC) increments with a setting range of 61 to 88ºF (16 to 31ºC).

1. Backlit Simple MA Remote Controller((PAC-YT53CRAU-J):

The Backlit Simple MA Remote Controller shall be capable of controlling up to 16 indoor units (defined as 1 group). When grouping M-Series units each unit requires a MAC-334IF-E Interface. The Backlit Simple MA Remote Controller shall only be used in same group with another Backlit Simple MA Remote Controller, with up to two remote controllers per group. Backlit brightness is adjustable. Basic functions include:

|  |  |  |  |
| --- | --- | --- | --- |
| **Backlit Simple MA Remote Controller** | | | |
| **Item** | **Description** | **Operation** | **Display** |
| ON/OFF | Run and stop operation for a single group | Each Group | Each Group |
| Operation Mode | Switches between Cool/Drying/Auto/Fan/Heat. Operation modes vary depending on the air conditioner unit. | Each Group | Each Group |
| Temperature Setting | Sets the temperature from 40°F – 95°F depending on operation mode and indoor unit. | Each Group | Each Group |
| Fan Speed Setting | Available fan speed settings depending on indoor unit. | Each Group | Each Group |
| Air Flow Direction Setting | Air flow direction settings vary depending on the indoor unit model. | Each Group | Each Group |
| Permit / Prohibit Local Operation | Individually prohibit operation of each local remote control function (Start/Stop, Change operation mode, Set temperature, Reset filter). \*1: Centrally Controlled is displayed on the remote controller for prohibited functions. | N/A | Each Group \*1 |
| Display Indoor Unit Intake Temp | Measures and displays the intake temperature of the indoor unit when the indoor unit is operating. | N/A | Each Group |
| Display Backlight | Pressing the button lights up a backlight. The light automatically turns off after a certain period of time. (The brightness settings can be selected from Bright, Dark, and Light off.) | N/A | Each Unit |
| Error | When an error is currently occurring on an air conditioner unit, the afflicted unit and the error code are displayed | N/A | Each Unit |
| Test Run | Operates air conditioner units in test run mode. \*2 The display for test run mode will be the same as for normal start/stop (does not display “test run”). | Each Group | Each Group |
| Ventilation Equipment | Up to 16 indoor units can be connected to an interlocked system that has one LOSSNAY unit. | Each Group | N/A |
| Set Temperature Range Limit | Set temperature range limit for cooling, heating, or auto mode. | Each Group | Each Group |

1. Touch MA Remote Controller (PAR-CT01MAU-SB touch screen controller):

The Touch MA Remote Controller shall be capable of controlling up to 16 indoor units (defined as 1 group).

The controller has brightness adjustable back light. PAR-CT01MAU-SB has Bluetooth capability and requires phone app. The Touch MA Remote Controller shall only be the only controller in the group. Basic functions include:

|  |  |  |  |
| --- | --- | --- | --- |
| Touch MA Remote Controller | | | |
| Item | Description | Operation | Display |
| ON/OFF | Run and stop operation for a single group | Each Group | Each Group |
| Operation Mode | Switches between Cool/Drying/Auto/Fan/Heat. | Each Group | Each Group |
|  | Operation modes vary depending on the air conditioner unit. |  |  |
| Temperature Setting | Sets the temperature from 40°F – 87°F depending on operation mode and indoor unit. | Each Group | Each Group |
| Fan Speed Setting | Available fan speed settings depending on indoor unit. | Each Group | Each Group |
| Air Flow Direction Setting | Air flow direction settings vary depending on the indoor unit model. | Each Group | Each Group |
| Permit / Prohibit Local Operation | Individually prohibit operation of each local function control (Start/Stop, Change operation mode, Set temperature, Reset filter). | N/A | Each Group \*1 |
|  | \*1: Centrally Controlled is displayed on the remote controller for prohibited functions. |  |  |
| Display Indoor Unit Intake Temp | Measures and displays the intake temperature of the indoor unit when the indoor unit is operating. | N/A | Each Group |
| Display Backlight | Pressing the screen lights up a backlight. The light automatically turns off after a certain period of time. (The brightness settings can be selected from Bright, Dark, and Light off.) | N/A | Each Unit |