

HVAC Guide Specifications
Inverter Driven, Direct Expansion (DX), Air-Cooled Heat Pump Split System

Section 15700 – Mechanical HVAC

Size Range:
2.5 to 3 TONS NOMINAL

Daikin HP Model Number:

ODU	IDU
RX30WMVJU9	FTX30WVJU9
RX36WMVJU9	FTX36WVJU9

Part 1- GENERAL

SINGLE SPLIT AIR CONDITIONING
SPECIFICATION – Heat Pump

1.01 SYSTEM DESCRIPTION

The variable capacity, cooling only system shall be a Daikin Inverter Driven series (heat/cool model) split system. The system shall consist of a wall mounted evaporator model FTX30WVJU9 exclusively matched to outdoor model RX30WMVJU9, and FTX36WVJU9 exclusively matched to outdoor model RX36WMVJU9 direct expansion (DX), air-cooled, Daikin swing, variable speed, inverter driven compressor using R-410A refrigerant. The outdoor unit is a horizontal discharge, variable speed, single fan unit using a single phase power supply. The system shall have a self diagnostic function, 3-minute time delay mechanism and have a factory pre-charge of R-410A adequate for 33 feet of total line set length. The system shall have automatic restart capability after a power failure has occurred and a low voltage cut-off feature to prevent stalling during power supply issues.

1.02 QUALITY ASSURANCE

- A. The units shall be tested by a Nationally Recognized Testing Laboratory (NRTL), in accordance with ANSI/UL C22.2 No. 60335-2-40– Heating and Cooling Equipment and bear the Listed Mark.
- B. All wiring shall be in accordance with the National Electric Code (NEC).
- C. Each combination shall be rated in accordance with Air Conditioning Refrigeration Institute's (ARI) Standard 210/240 and bear the ARI label.

- D. The system will be produced in an ISO 9001 and ISO 14001 facility, which are standards set by the International Standard Organization (ISO). The system shall be factory tested for safety and function.
- E. The outdoor unit will be factory charged for a line set length of 33 feet of refrigerant with R-410A refrigerant.
- F. A holding charge of dry nitrogen shall be provided in the evaporator.
- G. System Efficiency shall meet or exceed 15.9 SEER2, 9.1 EER2 and 7.5 HSPF2.

1.03 DELIVERY, STORAGE AND HANDLING

- A. Unit shall be stored and handled according to the manufacturer's recommendations.

Part 2 – WARRANTY

2.01 LIMITED WARRANTY

Complete warranty details are available from your local Daikin representative or at www.daikincomfort.com

Daikin Comfort Technologies Manufacturing, L.P. ("Daikin") warrants to the customer who is the original owner and user of the Daikin products specified above ("Customer") that under normal use and maintenance for comfort cooling and conditioning applications such products (the "Products") will be free from defects in material or workmanship. Warranty coverage begins on the "installation date".

- A. Non-Owner Occupied Residential Installations & Commercial Installations:
The installation date is one of two dates: (1) The installation date is the date that the unit is originally installed. (2) If the date the unit is originally installed cannot be verified, the installation date is three months after the manufacture date. The warranty lasts for a period up to 10 YEARS.

2.03 INSTALLATION REQUIREMENTS

Installation must comply with installation manual. It is recommended the system be installed by a contractor/dealer who has been through Daikin training programs.

Part 3 – PERFORMANCE

- 3.01 The system performance shall be in accordance with AHRI 210/240 test conditions as shown in the performance table below.

ODU	IDU	Cooling Capacity Rated (Min. ~ Max.)	Heating Capacity Rated (Min. ~ Max.)	SEER2	EER2	HSPF2
RX30WMVJU9	FTX30WVJU9	31,400 (10,200 ~ 31,400)	34,800 (10,200 ~ 34,800)	17.5	9.85	7.5
RX36WMVJU9	FTX36WVJU9	34,800 (10,200 ~ 34,800)	36,000 (10,200 ~ 36,000)	15.9	9.1	7.5

The cooling performance is based on 80°F DB / 67°F WB for the indoor unit and 95°F DB / 75°F WB for the outdoor unit and 25 feet of piping. The heating performance is based on 70°F DB / 60°F WB for the indoor unit and 47°F DB / 43°F WB for the outdoor unit and 25 feet of piping.

- 3.02 The operating range in cooling will be 50°F DB ~ 115°F DB, and down to -4°F DB when optional wind baffle used and dipswitch settings applied on ODU.
- 3.03 The operating range in heating will be 5°F WB ~ 65°F WB.
- 3.04 The system shall be capable of maximum refrigerant piping as follows. For the 30k btu and 36k btu a max of 98-1/2 feet, with 65-5/8 feet vertical difference, without any oil traps or additional components.

Part 4 – PRODUCTS

4.01 INDOOR UNIT

General:

The indoor unit shall be factory assembled and pre-wired with all necessary electronic and refrigerant controls. Both liquid and suction lines must be individually insulated between the outdoor and indoor units.

A. Unit Cabinet:

- 1. The indoor unit shall have a white, “wipe-clean” finish.
- 2. The drain and refrigerant piping shall be accessible from six (6) positions for flexible installation (right side, right back, and right bottom; and left side, left back, and left bottom).
- 3. The cabinet shall be supplied with a mounting plate to be installed onto a wall for securely mounting the cabinet.
- 4. The cabinet includes:
 - i. Indoor unit ON/OFF switch, capable of being used when the remote controller is missing. When switch is used, the default setting is AUTO mode, 77°F temperature setting, and AUTO airflow rate.
 - ii. “Intelligent Eye” motion sensor capable of setting back the set point temperature for energy savings. This feature may be disengaged on the wireless remote controller.
 - iii. OPERATION lamp that turns green when activated

- iv. TIMER lamp that turns orange when activated
- v. A Signal Receiver that receives signals from the remote controller at a maximum distance of 23 ft. When the unit receives a signal, you will hear the following: 2 beeps – operation start, 1 beep – Setting changed, 1 long beep – operation stop.

B. Fan:

1. The evaporator fan shall be an assembly consisting of a direct-driven fan by a single motor.
2. The fan shall be statically and dynamically balanced and operate on a motor with permanent lubricated bearings.
3. An auto-swing louver for adjustable air flow (both vertically and horizontally) is standard via the wireless remote control furnished with each system.
4. The indoor fan shall offer a choice of five speeds, plus quiet and auto settings.
5. The fan shall have a delayed start when initially put into HEAT operation, giving time for the evaporator coil to heat up and preventing a cold draft from entering the room.

C. Filter:

1. The return air filter provided will be a mildew resistant, removable and washable filter. Two titanium apatite photocatalytic air purifying filters are included for additional air filtration.

D. Coil:

1. The evaporator coil shall be a nonferrous, aluminum fin on copper tube heat exchanger.
2. All tube joints shall be brazed with silver alloy or phoscopper.
3. All coils will be factory pressure tested.
4. A condensate pan shall be provided under the coil with a drain connection.

E. Electrical:

1. The outdoor unit shall be powered with 208-230 volts, 1 phase, and 60 hertz power. The indoor unit shall receive 208-230 volt, 1 phase, 60 hertz power from the outdoor unit.
2. The allowable voltage range shall be 187 volts to 253 volts.

F. Control:

1. The unit shall have a backlit, wireless remote infra-red controller capable to operate the system. It shall have Cooling Operation, Heating Operation, Auto Operation, Dry Operation and Fan Only Operation.
2. The controller shall consist of an On/Off Power switch, Mode Selector, Quiet Button (for outdoor unit), Fan Setting, Swing Louver, On/Off Timer Setting, Temperature Adjustment, °C or °F Temperature Display, Intelligent Eye Sensor, Weekly Timer, Night Set Mode, Comfort Mode, Econo Mode, and Powerful Operation.
 - i. On/Off switch powers the system on or off.
 - ii. Mode selector shall operate the system in cool, heat, auto fan, or dry operation.
 - iii. Quiet button for outdoor unit lowers the noise level by changing frequency and fan speed of the outdoor unit.

- iv. Fan setting shall provide five fan speeds, plus quiet and auto settings.
 - v. Swing louver shall adjust the airflow (horizontal and vertical) blades.
 - 1. Vertical & horizontal positions can be manually adjusted, or placed into auto swing or 3-D airflow settings.
 - vi. On/Off timer is used for automatically switching the unit on or off.
 - 1. Night Set mode automatically engaged with Off Timer is set. This setting automatically adjusts the temperature setting 0.9°F (0.5°C) up in COOL, 3.6°F (2.0°C) down in HEAT to prevent excessive cooling or heating during sleeping hours.
 - vii. Temperature adjustment allows for the increase or decrease of the desired temperature.
 - viii. The Intelligent Eye sensor detects human movement. If no movement is detected in the room for more than 20 minutes, the operation automatically changes the temperature up or down 3.6°F to an energy saving operation.
 - ix. Weekly timer allows for programming the temperature setting and on/off times of up to four settings per day for each day of the week.
 - x. Comfort Mode directs the airflow upwards while in COOL and DRY operation, and downward while in HEAT operation. This function prevents cold or warm air from blowing directly on the occupants in the room.
 - xi. Econo operation is a function which enables efficient operation by limiting the maximum power consumption value. This function will also prevent the circuit breaker from tripping when the unit operates alongside other appliances on the same circuit.
 - xii. Powerful operation allows quick cool down or heating up in the desired space to achieve maximum desired temperature in the shortest allowable time period.
- 3. The controller shall be able to display two-digit fault codes extracted from the indoor unit to aid in troubleshooting.
 - 4. Temperature range on the remote control shall be 64°F to 90°F in COOL mode, 50°F to 86°F in HEAT, and 64°F to 86°F in AUTO. The temperature shall be controlled in 1° increments.
 - 5. The indoor unit microprocessor has the capability to receive and process commands via return air temperature and indoor coil temperature sensors enabled by commands from the remote control.
 - 6. The unit shall also have the capability to connect to a smart-device app via wireless adapter.

G. Sound:

1. Indoor unit sound levels shall not exceed:

Indoor Daikin Model	Cooling Mode Sound Level (H/M/L/SL) dB(A)	Heating Mode Sound Level (H/M/L/SL) dB(A)
FTX30WVJU9	53 / 47 / 40 / 37	53 / 46 / 38 / 35
FTX36WVJU9	54 / 47 / 40 / 37	53 / 46 / 38 / 35

*values are measured approximately 3 feet away with JIS standard operating conditions.

5.02 OUTDOOR UNIT

General:

The outdoor unit shall be specifically matched to the corresponding indoor unit size. The outdoor unit shall be completely factory assembled and pre-wired with all necessary electronic and refrigerant controls. The outdoor unit shall be controlled by a microprocessor and dedicated EEV's shall be provided for capacity control during part load of the indoor unit.

A. Unit Cabinet:

1. The outdoor unit shall be completely weatherproof and corrosion resistant. The unit shall be constructed from rust-proofed mild steel panels coated with a baked enamel finish.
2. The outdoor unit will come furnished with four (4) mounting feet, mounted across the base pan, to allow bolting to a cement pad or optionally supplied mounting bracket.

B. Fan:

1. The fan shall be a direct drive, propeller type fan.
2. The motor shall be inverter driven, permanently lubricated type bearings, inherent.
3. A fan guard is provided on the outdoor unit to prevent contact with fan operation.
4. Airflow shall be horizontal discharge.

C. Coil:

1. The outdoor coil shall be nonferrous construction with corrugated fin tube.
2. The fins are to be covered with an anti-corrosion acrylic resin and hydrophilic film type E1, rated for up to 1000 hours salt spray.
3. Refrigerant flow from the condenser will be controlled via a metering device.
4. Automatic defrost will remove any frost from the outdoor unit allowing the system to maintain heating capacity.

D. Compressor:

1. The outdoor compressor shall be a patented, variable speed Daikin swing inverter-driven compressor. The one piece action reduces noise, extends life, boasts higher efficiency and reduces energy consumption.
2. The outdoor unit shall have an accumulator and four-way reversing valve.
3. PVE Refrigerant Oil shall be used to provide improved lubrication & better chemical stability, and no hydrolysis, leading to higher product reliability.
4. The compressor shall have an internal thermal overload.

5. The outdoor unit can operate with a maximum vertical height difference of 65-5/8 feet and overall maximum length of 98-1/2 feet without any oil traps or additional components.
 6. The compressor shall have a quick-warming function to prevent pumping liquid refrigerant in low-ambient conditions.
- E. Electrical:
1. The electrical power requirement is 208-230 volt, 1-phase, and 60 Hz power.
 2. The voltage range limitations shall be a minimum of 187 volts and a maximum of 253 volts.
- F. Sound:
1. Outdoor unit sound levels shall not exceed:

Outdoor Daikin Model	Cooling Mode Sound Level (H/SL) dB(A)	Heating Mode Sound Level (H/SL) dB(A)
RK30WMVJU9	56	58
RK36WMVJU9	59	59

*values are measured approximately 3 feet away with JIS standard operating conditions

5.03 SYSTEM DIAGNOSTICS

General:

The system shall be capable of producing 2-digit fault codes:

- A. Controls
1. I/R controller
 2. Wi-fi module
- B. D-Checker software: The D-Checker software has the ability to display error codes and values for every sensor on the system through the outdoor unit. The sensor data points shall be graphed or recorded for export to a spreadsheet. The spreadsheet can then be analyzed to troubleshoot operational issues or acknowledge proper operation.