CITYMULTI®

# 12-TON PQRY-P144YSLMU-A1

MITSUBISHI ELECTRIC
HEATING & AIR CONDITIONING

Job Name:

System Reference: Date:

## 460V MODULAR WATER-SOURCE VRF HEAT PUMP SYSTEM



## ACCESSORIES

- ✓ Twinning Kit (Required) ..... CMY-Q100CBK2
- ✓ BC Controller (Required) ..... for details see BC Controller Submittals
- ☐ Joint Kit ..... for details see Pipe Accessories Submittal

| Specifications | | | System |
|---|---|---|---|
| Unit Type | | | PQRY-P144YSLMU-A1 |
| Cooling Capacity (Nominal) | | BTU/H | 144,000 |
| Heating Capacity (Nominal) | | BTU/H | 160,000 |
| Net Weight | | Lbs. [kg] | 812 [368] |
| Refrigerant Piping Diameter (From Twinning Kit to First Joint or Header) | Liquid (High Pressure) | In. [mm] | 7/8 [22.2] Brazed |
| | Gas (Low Pressure) | In. [mm] | 1-1/8 [28.58] Brazed |
| Max. Total Refrigerant Line Length | | Ft. | 2,460 |
| Max. Refrigerant Line Length (Between ODU & IDU) | | Ft. | 541 |
| Max. Control Wiring Length | | Ft. | 1,640 |
| Indoor Unit Connectable | Total Capacity | | 50.0~150.0% of heatsource unit capacity |
| | Model/Quantity | | P06~P96/1.0~36.0 |
| Sound Pressure Level | | dB(A) | 49.0/49.0 |
| Compressor Operating Range | | | 12.0% to 100.0% |
| AHRI Ratings (Ducted/Non-ducted) | EER | | 15.1/18.6 |
| | IEER | | 22.5/26.1 |
| | COP | | 5.29/5.94 |
| | SCHE | | 21.7/20.2 |

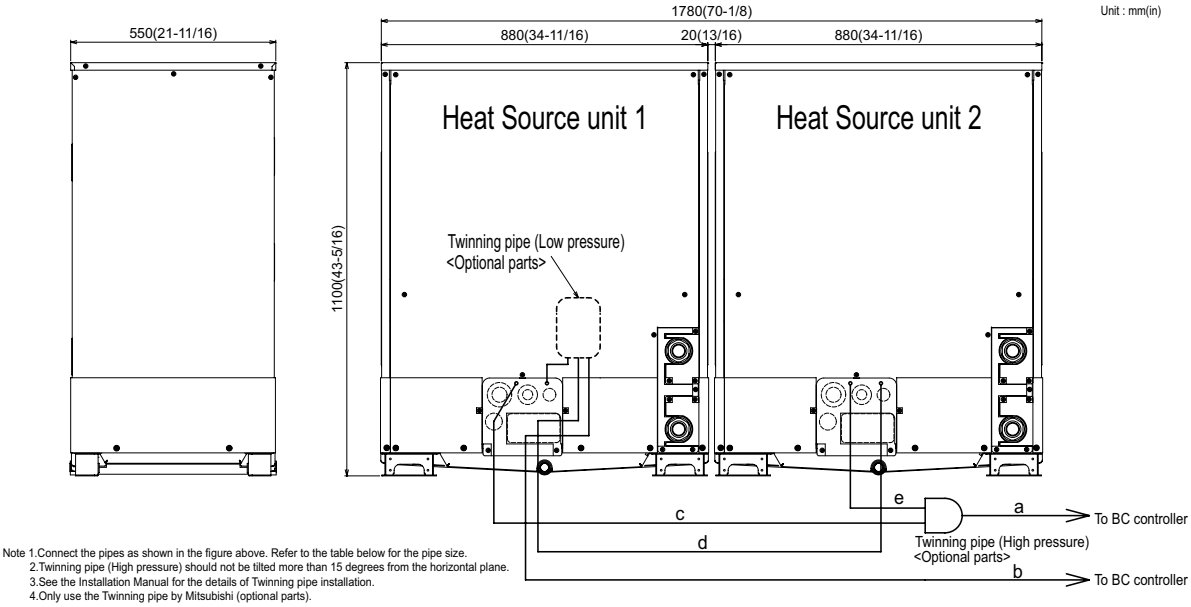
| Specifications | | | Module 1 | Module 2 |
|---|---|---|---|---|
| Unit Type | | | PQRY-P72YLMU-A1 | PQRY-P72YLMU-A1 |
| Cooling Capacity (Nominal) | | BTU/H | 72,000 | 72,000 |
| Heating Capacity (Nominal) | | BTU/H | 80,000 | 80,000 |
| Operating Temperature Range | Cooling (Indoor) | °F WB [°C WB] | 59~75 [ 15.0~ 24.0] | 59~75 [ 15.0~ 24.0] |
| | Heating (Indoor) | °F DB [°C DB] | 59~81 [15.0~27.0] | 59~81 [15.0~27.0] |
| Operating Water Temperature Range[1] | Cooling/Heating | °F [°C] | 50~113.0 [10~45.0] | 50~113.0 [10~45.0] |
| External Dimensions (H x W x D) | | In. [mm] | 43-5/16 x 34-11/16 x 21-11/16 [1,100 x 880 x 550] | 43-5/16 x 34-11/16 x 21-11/16 [1,100 x 880 x 550] |
| Net Weight | | Lbs. [kg] | 406 [184] | 406 [184] |
| External Finish | | | Galvanized steel sheets | Galvanized steel sheets |
| Electrical Power Requirements | Voltage, Phase, Hertz, Power Tolerance | | 460, 3, 60, ±10 | 460, 3, 60, ±10 |
| Minimum Circuit Ampacity | | A | 6.0 | 6.0 |
| Maximum Overcurrent Protection | | A | 15 | 15 |
| SCCR | | kA | 5 | 5 |
| Flow Rate | | G/min [gpm] | 25.4 | 25.4 |
| | | L/min | 96 | 96 |
| Pressure Drop | | psi | 3.48 | 3.48 |
| | | Ft. | 8.0 | 8.0 |
| Operation Volume Range | | G/min [gpm] | 13.2~31.7 | 13.2~31.7 |
| | | m3/h | 3.0~7.2 | 3.0~7.2 |
| Refrigerant Piping Diameter (From Twinning Kit) | Liquid (High Pressure) | In. [mm] | 5/8 [ 15.88] Brazed | 5/8 [ 15.88] Brazed |
| | Gas (Low Pressure) | In. [mm] | 3/4 [19.05] Brazed | 3/4 [19.05] Brazed |
| Compressor | Type x Quantity | | Inverter scroll hermetic x 1 | Inverter scroll hermetic x 1 |
| Compressor Motor Output | | kW | 4.3 | 4.3 |
| Refrigerant | Type x Original Charge | | R410A x 11.0 lbs. + 1.0oz. [5.0 kg] | R410A x 11.0 lbs. + 1.0oz. [5.0 kg] |
| Lubricant | Lubricant | Lubricant | MEL32 | MEL32 |
| Protection Devices | High Pressure Protection | High Pressure Protection | High pressure sensor, High pressure switch at 4.15 Mpa (601 psi) | High pressure sensor, High pressure switch at 4.15 Mpa (601 psi) |
| | Inverter Circuit | Inverter Circuit | Over-heat protection, Over-current protection | Over-heat protection, Over-current protection |
| | Compressor | Compressor | Over-heat protection | Over-heat protection |

NOTES:
[1]23°F EWT (Entering water temperature) is possible with glycol.
Each individual module requires a separate electrical connection. Refer to electrical data for each individual module.

Specifications are subject to change without notice.

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# OUTDOOR UNIT: PQRY-P144YSLMU-A1 – DIMENSIONS




Note 1.Connect the pipes as shown in the figure above. Refer to the table below for the pipe size.
2.Twinning pipe (High pressure) should not be tilted more than 15 degrees from the horizontal plane.
3.See the Installation Manual for the details of Twinning pipe installation.
4.Only use the Twinning pipe by Mitsubishi (optional parts).

Twinning pipe connection size

| Package unit name | | | PQRY-P144YSLMU-A1 | PQRY-P168YSLMU-A1 | PQRY-P192YSLMU-A1 | PQRY-P216YSLMU-A1 | PQRY-P240YSLMU-A1 |
|---|---|---|---|---|---|---|---|
| Component unit name | Heat Source unit 1 | | PQRY-P72YLMU-A1 | PQRY-P96YLMU-A1 | PQRY-P96YLMU-A1 | PQRY-P120YLMU-A1 | PQRY-P120YLMU-A1 |
| | Heat Source unit 2 | | PQRY-P72YLMU-A1 | PQRY-P72YLMU-A1 | PQRY-P96YLMU-A1 | PQRY-P96YLMU-A1 | PQRY-P120YLMU-A1 |
| Twinning pipe Kit(optional parts) | | | CMY-Q100CBK2 | | | | |
| BC controller~Twinning pipe | High pressure | a | ø22.2(7/8) | | | ø22.2(7/8) *1 | |
| | Low pressure | b | ø28.58(1-1/8) | | | | ø34.93(1-3/8) |

| | Unit model | High pressure | Low pressure |
|---|---|---|---|
| | | c or e | d |
| Twinning pipe~Heat source unit | P72 | ø15.88(5/8) *2 | ø19.05(3/4) *2 |
| | P96 | ø19.05(3/4) | ø22.2(7/8) |
| | P120 | | |

*1.When the piping length is 65 m or longer, use the ø28.58(1-1/8) pipe for the part that exceeds 65 m.
*2.When the package unit name"PQRY-P168YSLMU-A", use the ø19.05(3/4) pipe for high pressure and the ø22.2(7/8) pipe for low pressure.

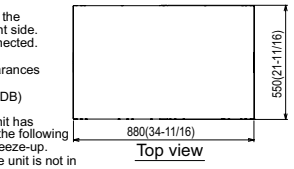

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# MODULE 1: PQRY-P72YLMU-A1 – DIMENSIONS

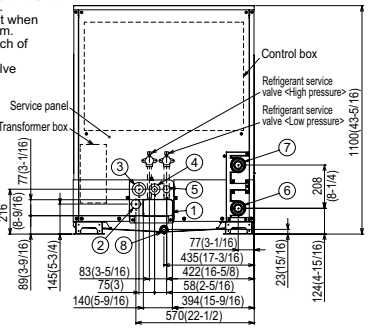
Note1.Seal around the water piping, the refrigerant piping, the power supply, and the control wiring and plug unused knockout holes with putty, etc., to prevent moisture or dirt from entering cabinet.
Note2.At the time of product shipment, the front side piping serves as the local drainage connection.
When connecting on the rear side, please remove the rear side plug sealing corks, and attach on the front side.
Ensure there is no leak in piping system once connected.
Note3.See Fig. A and Fig. B for service clearances.
Note4.If piping is installed in front of the unit, provide clearances as shown in Fig. A and Fig. B.
Note5.Environmental condition for installation; -20~40°C(DB) (-4~104°F) for indoor installation.
Note6.In case the temperature around the heat source unit has possibility to drop under 0°C(32°F), be careful for the following point to prevent the pipe burst by the water pipe freeze-up.
•Circulate the water all the time even if heat source unit is not in operation and provide glycol for freeze protection.
•Drain the water from inside of the heat source unit when the heat source unit will not operate for a long term.
Note7.Ensure that the drain piping is downward with a pitch of more than 1/100.
Note8.At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C(248°F).

<Accessories>
• Refrigerant (high pressure) conn. pipe····· 1pc.
(P72/P96/P120 ; Packaged in the accessory kit)
• Refrigerant (low pressure) conn. elbow····· 1pc.
(P72/P96/P120 ; Packaged in the accessory kit)
• Water stopper····· 1pc.
(P72/P96/P120 ; Packaged in the accessory kit)
• Sealing material for water stopper····· 1pc.
(P72/P96/P120 ; Packaged in the accessory kit)
• Sealing material for field piping (high pressure, low pressure)····· 1pc. each
(P72/P96/P120 ; Packaged in the accessory kit)
• Sealing material for drain socket····· 1pc.
(P72/P96/P120 ; Packaged in the accessory kit)
• Pipe cover for low pressure····· 1pc.
(P72/P96/P120 ; Packaged in the accessory kit)

Unit : mm(in)

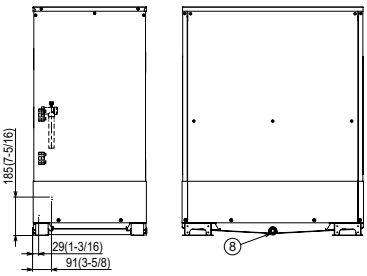


Top view



Front view

Top of unit casing not suitable for supporting system modules stacked above - field framing required for stacking modules of additional systems



Right side view


Back view

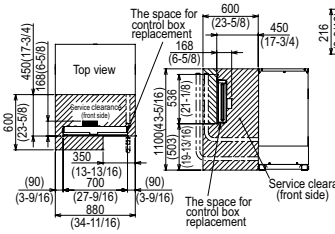
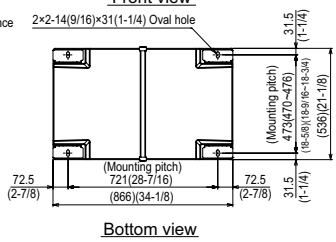


Fig.A Fig.B



Bottom view

Connecting pipe specifications

| Model | Diameter | | | |
|---|---|---|---|---|
| | Refrigerant pipe | | Service valve | |
| | High pressure | Low pressure | High pressure | Low pressure |
| PQRY-P72YLMU-A1 | ø15.88 Brazed (5/8) *1 *2 | ø19.05 Brazed (3/4) *1 *2 | ø19.05 (3/4) | ø25.4 (1) |
| PQRY-P96YLMU-A1 | ø19.05 Brazed (3/4) *1 | ø22.2 Brazed (7/8) *1 *2 | | |
| PQRY-P120YLMU-A1 | | | | |

*1.Connect by using the connecting pipes and elbow that are supplied.
*2.Use the pipe joint(field supply) and connect to the refrigerant service valve piping.

| NO. | Usage | | Specifications |
|---|---|---|---|
| ① | For pipes | Front through hole | 140 × 77 Knockout hole (5-9/16) (3-1/16) |
| ② | | Front through hole (Uses when twinning kit (optional parts) is mounted.) | ø45 Knockout hole (1-13/16) |
| ③ | For wires | Front through hole | ø62.7 or ø34.5 Knockout hole (2-1/2) (1-3/8) |
| ④ | | Front through hole | ø43.7 or ø22.2 Knockout hole (1-3/4) (7/8) |
| ⑤ | For transmission cables | Front through hole | ø34 Knockout hole (1-3/8) |
| ⑥ | Water pipe | inlet | NPT1-1/2 Screw |
| ⑦ | | outlet | NPT1-1/2 Screw |
| ⑧ | Drain pipe | Rc3/4 Screw | |

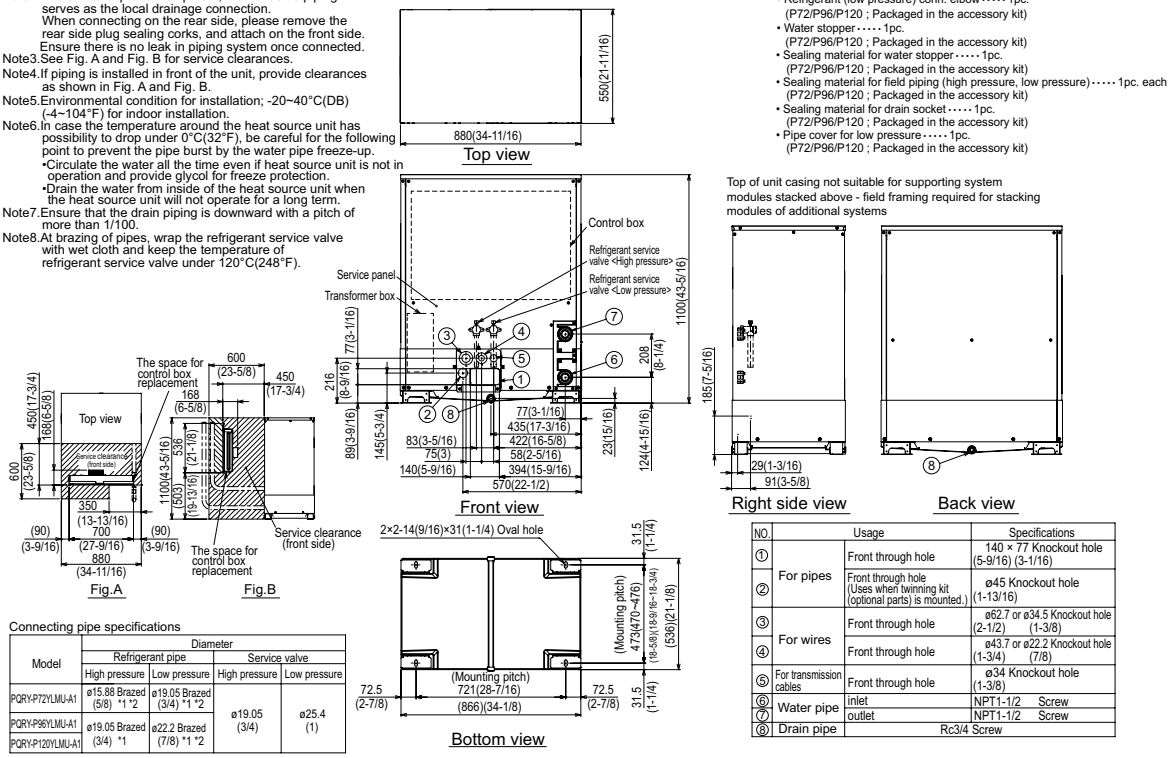
Specifications are subject to change without notice.
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# MODULE 2: PQRY-P72YLMU-A1 – DIMENSIONS

Note1.Seal around the water piping, the refrigerant piping, the power supply, and the control wiring and plug unused knockout holes with putty, etc., to prevent moisture or dirt from entering cabinet.
Note2.At the time of product shipment, the front side piping serves as the local drainage connection.
When connecting on the rear side, please remove the rear side plug sealing corks, and attach on the front side.
Ensure there is no leak in piping system once connected.
Note3.See Fig. A and Fig. B for service clearances.
Note4.If piping is installed in front of the unit, provide clearances as shown in Fig. A and Fig. B.
Note5.Environmental condition for installation; -20~40°C(DB) (-4~104°F) for indoor installation.
Note6.In case the temperature around the heat source unit has possibility to drop under 0°C(32°F), be careful for the following point to prevent the pipe burst by the water pipe freeze-up.
•Circulate the water all the time even if heat source unit is not in operation and provide glycol for freeze protection.
•Drain the water from inside of the heat source unit when the heat source unit will not operate for a long term.
Note7.Ensure that the drain piping is downward with a pitch of more than 1/100.
Note8.At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C(248°F).

<Accessories>
• Refrigerant (high pressure) conn. pipe····· 1pc.
(P72/P96/P120 ; Packaged in the accessory kit)
• Refrigerant (low pressure) conn. elbow····· 1pc.
(P72/P96/P120 ; Packaged in the accessory kit)
• Water stopper····· 1pc.
(P72/P96/P120 ; Packaged in the accessory kit)
• Sealing material for water stopper····· 1pc.
(P72/P96/P120 ; Packaged in the accessory kit)
• Sealing material for field piping (high pressure, low pressure)····· 1pc. each
(P72/P96/P120 ; Packaged in the accessory kit)
• Sealing material for drain socket····· 1pc.
(P72/P96/P120 ; Packaged in the accessory kit)
• Pipe cover for low pressure····· 1pc.
(P72/P96/P120 ; Packaged in the accessory kit)

Unit : mm(in)




| NO. | Usage | | Specifications |
|---|---|---|---|
| ① | For pipes | Front through hole | 140 × 77 Knockout hole (5-9/16) (3-1/16) |
| ② | | Front through hole (Uses when twinning kit (optional parts) is mounted.) | ø45 Knockout hole (1-13/16) |
| ③ | For wires | Front through hole | ø62.7 or ø34.5 Knockout hole (2-1/2) (1-3/8) |
| ④ | | Front through hole | ø43.7 or ø22.2 Knockout hole (1-3/4) (7/8) |
| ⑤ | For transmission cables | Front through hole | ø34 Knockout hole (1-3/8) |
| ⑥ | Water pipe | inlet | NPT1-1/2 Screw |
| ⑦ | | outlet | NPT1-1/2 Screw |
| ⑧ | Drain pipe | Rc3/4 Screw | |

Connecting pipe specifications

| Model | Diameter | | | |
|---|---|---|---|---|
| | Refrigerant pipe | | Service valve | |
| | High pressure | Low pressure | High pressure | Low pressure |
| PQRY-P72YLMU-A1 | ø15.88 Brazed (5/8) *1 *2 | ø19.05 Brazed (3/4) *1 *2 | ø19.05 (3/4) | ø25.4 (1) |
| PQRY-P96YLMU-A1 | ø19.05 Brazed (3/4) *1 | ø22.2 Brazed (7/8) *1 *2 | | |
| PQRY-P120YLMU-A1 | | | | |

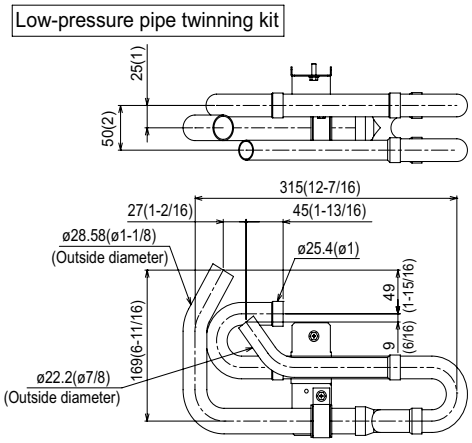
*1.Connect by using the connecting pipes and elbow that are supplied.
*2.Use the pipe joint(field supply) and connect to the refrigerant service valve piping.

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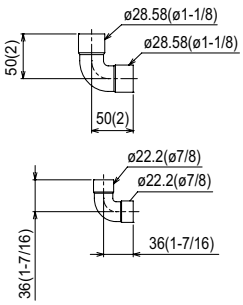
# TWINNING KIT: CMY-Q100CBK2 – DIMENSIONS

## CMY-Q100CBK2

Low-pressure pipe twinning kit



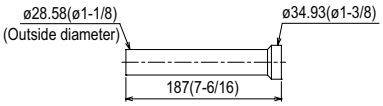

<Elbow pipe(Accessory)>



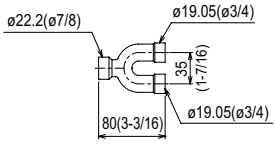

<Accessory>

| | |
|---|---|
| Fixing screw | • • • 1 |
| Insulation cover | • • • 1 |
| Pipe cover (150mm(5-15/16) Length) | • • • 2 |
| Pipe cover (60mm(2-3/8) Length) | • • • 1 |
| Pipe cover (80mm(3-3/16) Length) | • • • 2 |
| Cable tie | • • • 2 |
| Water stopper | • • • 1 |
| Sealing material (Small) | • • • 1 |
| Sealing material (Large) | • • • 1 |

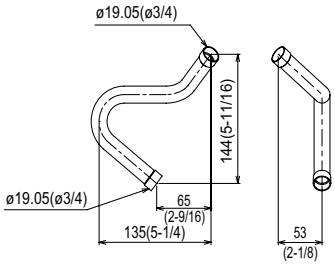
<Pipe for routing through the front (Accessory)>



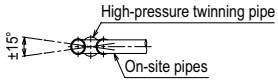

High-pressure twinning pipe




<Pipe for routing through the front (Accessory)>




Note 1. Refer to the figure below for the installation position of the high-pressure twinning pipe.




Inclination tolerance of the high-pressure twinning pipe is ±15° relative to the ground.

2. Pipe diameter is indicated by inside diameter.


1340 Satellite Boulevard Suwanee, GA 30024
Toll Free: 800-433-4822 www.mehvac.com



FORM# PQRY-P144YSLMU-A1 - 202207



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