CITYMULTI®

12-TON PQHY-P144TSLMU-A2

MITSUBISHI ELECTRIC
HEATING & AIR CONDITIONING

Job Name:

System Reference: Date:

208/230V MODULAR WATER-SOURCE VRF HEAT PUMP SYSTEM



ACCESSORIES

- ☐ 1.5” Temp sensor, optional (One Piece) ..... ZM-TW150NPT KIT
- ☐ Transformer 50VA (One Piece)** TR50VA015
- ☐ Optical Relay for Flow Switch (One Piece)* RIBTE24B
- ☐ 1.5” EPIV Valve (One Piece)* EV150S396NRXME
- ☑ Twinning Kit (Required) CMY-Y100CBK3R1
- ☐ Header Kit ..... for details see Pipe Accessories Submittal
- ☐ Joint Kit ..... for details see Pipe Accessories Submittal

*Requires two EPIV valves
*Requires two optical relays
**Requires four transformers
**Requires four temp sensors per two EPIV valves if optional temp sensors are used.

Specifications			System
Unit Type			PQHY-P144TSLMU-A2
Cooling Capacity (Nominal)		BTU/H	144,000
Heating Capacity (Nominal)		BTU/H	160,000
Net Weight		Lbs. [kg]	742 [336]
Refrigerant Piping Diameter (From Twinning Kit to First Joint or Header)	Liquid (High Pressure)	In. [mm]	1/2 [12.7] Brazed
	Gas (Low Pressure)	In. [mm]	1-1/8 [28.58] Brazed
Max. Total Refrigerant Line Length		Ft.	1,640
Max. Refrigerant Line Length (Between ODU & IDU)		Ft.	541
Max. Control Wiring Length		Ft.	1,640
Indoor Unit Connectable	Total Capacity		50.0~130.0% of heatsource unit capacity
	Model/Quantity		P04~P96/1.0~36.0
Sound Power Level		dB(A)	63.5
Compressor Operating Range			12.0% to 100.0%
AHRI Ratings (Ducted/Non-ducted)	EER		15.5/18.4
	IEER		21.3/22.9
	COP		5.31/6.3

Specifications			Module 1	Module 2
Unit Type			PQHY-P72TLMU-A2	PQHY-P72TLMU-A2
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]	371 [168]	371 [168]
External Finish			Galvanized steel sheets	Galvanized steel sheets
Electrical Power Requirements	Voltage, Phase, Hertz, Power Tolerance		208/230, 3, 60, ±10	208/230, 3, 60, ±10
Minimum Circuit Ampacity		A	17.0/16.0	17.0/16.0
Maximum Overcurrent Protection		A	30/25	30/25
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]	3/8 [9.52] Brazed	3/8 [9.52] 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

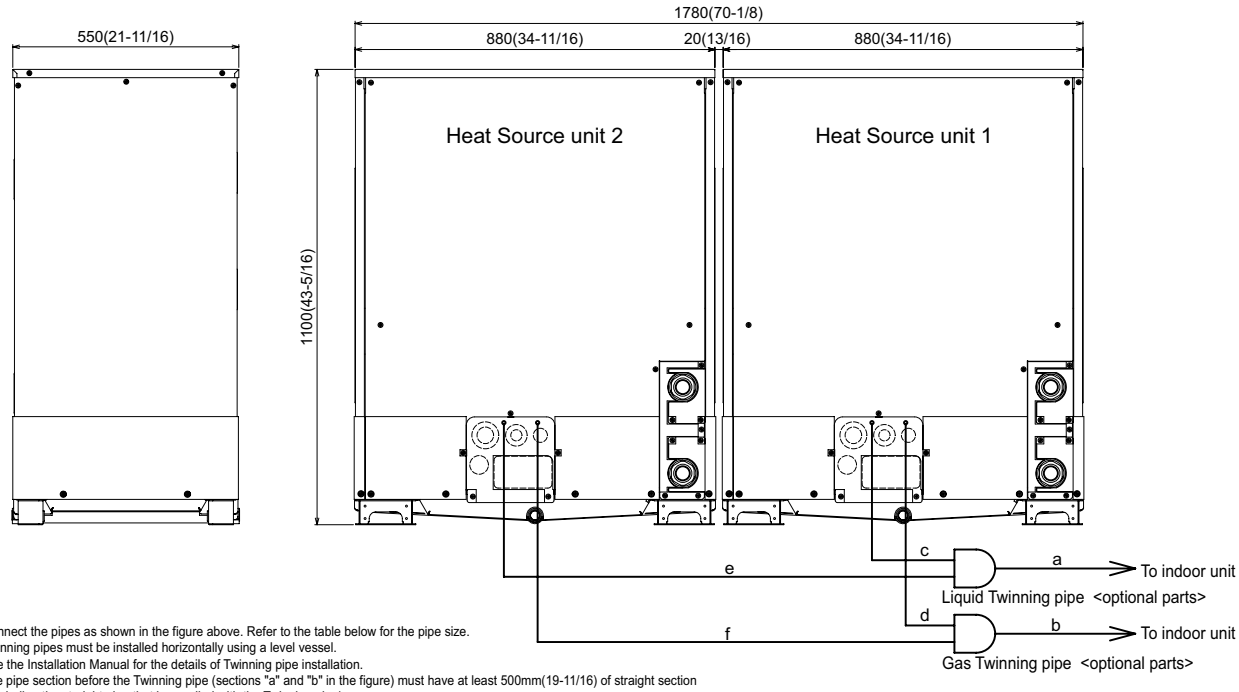
NOTES:
[1]23°F EWT (Entering water temperature) is possible with glycol.
Each individual module requires a separate electrical connection. Refer to electrical data for each individual module.

Specifications are subject to change without notice.

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OUTDOOR UNIT: PQHY-P144TSLMU-A2 – DIMENSIONS

Unit: mm(in)



Note 1.Connect the pipes as shown in the figure above. Refer to the table below for the pipe size.
2.Twinning pipes must be installed horizontally using a level vessel.
3.See the Installation Manual for the details of Twinning pipe installation.
4.The pipe section before the Twinning pipe (sections "a" and "b" in the figure) must have at least 500mm(19-11/16) of straight section (*including the straight pipe that is supplied with the Twinning pipe).
5.Only use the Twinning pipe by Mitsubishi (optional parts).

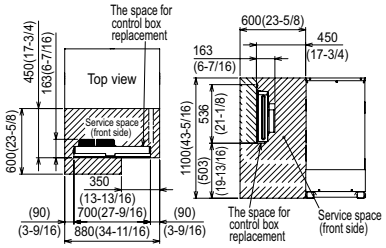
Twinning pipe connection size

Package unit name				PQHY-P144TSLMU-A2	PQHY-P168TSLMU-A2	PQHY-P192TSLMU-A2	PQHY-P216TSLMU-A2	PQHY-P240TSLMU-A2
Component unit name	Heat Source unit 1			PQHY-P72TLMU-A2	PQHY-P96TLMU-A2	PQHY-P96TLMU-A2	PQHY-P120TLMU-A2	PQHY-P120TLMU-A2
	Heat Source unit 2			PQHY-P72TLMU-A2	PQHY-P72TLMU-A2	PQHY-P96TLMU-A2	PQHY-P96TLMU-A2	PQHY-P120TLMU-A2
Twinning Kit(optional parts)				CMY-Y100CBK3 R1				
Indoor unit~Twinning pipe	Lquid	a		ø12.7(1/2)	ø15.88(5/8)			
	Gas	b		ø28.58(1-1/8)				
Twinning pipe~Heat Source unit 1	Lquid	c		ø9.52(3/8)			ø12.7(1/2)	
	Gas	d		ø19.05(3/4)	ø22.2(7/8)			
Twinning pipe~Heat Source unit 2	Lquid	e		ø9.52(3/8)			ø12.7(1/2)	
	Gas	f		ø19.05(3/4)	ø22.2(7/8)			

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MODULE 1: PQHY-P72TLMU-A2 – DIMENSIONS

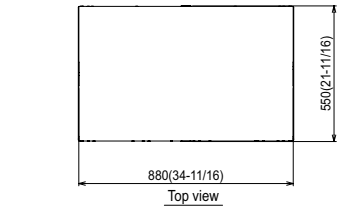
Note1. Close a hole of the water piping, the refrigerant piping, the power supply, and the control wiring and unused knockout holes with the putty etc. so as not to infiltrate rain water etc.(fielderectionwork)
Note2. At the time of product shipment, the front side piping specification serves as the local drainage connection. When connecting on the rear side, please remove the rear side plug sealing corks, and attach a front side. Ensure there is noleak after the attachment has been fitted.
Note3. Take notice of service space as Fig.A. (In case of single installation, 600mm(23-5/8) or more of back space as front space makes easier access when servicing the unit from rear side.)
Note4. If water pipes or refrigerant pipes stretch upward, required space for service and maintenance due to replacement of control box is shown inFig.B.
Note5. Environmental condition for installation; -20~40°C(DB)(-4~104°F) as 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 the heat source unit is not inoperation.
•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).

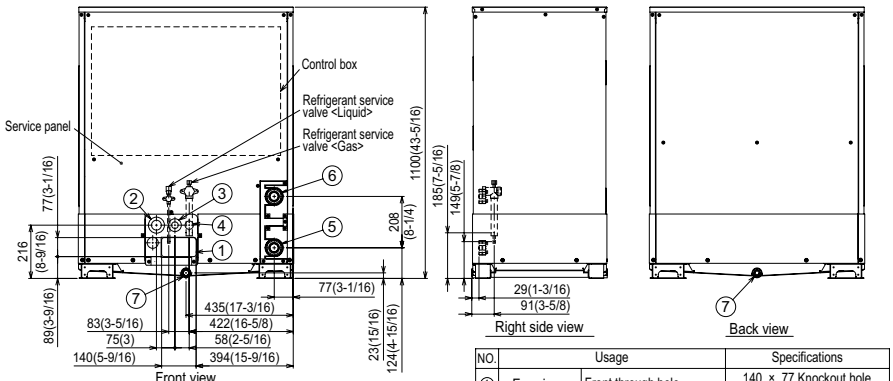


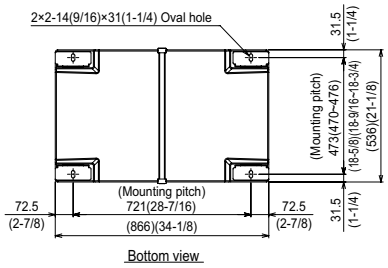
Connecting pipe specifications

Model	Diameter			
	Refrigerant pipe		Service valve	
	Liquid	Gas	Liquid	Gas
PQHY-P72TLMU-A2	ø9.52 Brazed (3/8) *1	ø19.05 Brazed (3/4) *1 *4	ø9.52 (3/8)	ø25.4 (1)
PQHY-P96TLMU-A2	ø9.52 Brazed (3/8) *1 (ø12.7 Brazed) (1/2) *2 *4	ø22.2 Brazed (7/8)*1 *4		
PQHY-P120TLMU-A2	ø9.52 Brazed (3/8) *1 (ø12.7 Brazed) (1/2) *3 *4			

*1. Connect by using the connecting pipes and elbow that are supplied.
*2. Total length ≥ 90m(295ft)
*3. Total length ≥ 40m(131ft)
*4. Use the pipe joint(field supply) and connect to the refrigerant service valve piping.







<Accessories (Packaged in the accessory kit)>
- Refrigerant (Liquid) conn. pipe ····· 1pc.
- Refrigerant (Gas) conn. elbow ····· 1pc.
- Water stopper (Liquid,Gas) ····· 1pc. each
- Sealing material for water stopper (Liquid,Gas) ····· 1pc. each
- Sealing material for field piping (Liquid,Gas) ····· 1pc. each
- Sealing material for drain socket ····· 1pc.
- Pipe cover for gas ····· 1pc.

Unit: mm(in)

NO.	Usage		Specifications
①	For pipes	Front through hole	140 × 77 Knockout hole (5-9/16) (3-1/16)
②	For wires	Front through hole	ø62.7 or ø34.5 Knockout hole (2-1/2) (1-3/8)
③		Front through hole	ø43.7 or ø22.2 Knockout hole (1-3/4) (7/8)
④	For transmission cables	Front through hole	ø34 Knockout hole (1-3/8)
⑤	Water pipe	inlet	NPT1-1/2 Screw
⑥		outlet	NPT1-1/2 Screw
⑦	Drain pipe	Rc3/4 Screw	

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MODULE 2: PQHY-P72TLMU-A2 – DIMENSIONS

Note1. Close a hole of the water piping, the refrigerant piping, the power supply, and the control wiring and unused knockout holes with the putty etc. so as not to infiltrate rain water etc.(fielderectionwork)
Note2. At the time of product shipment, the front side piping specification serves as the local drainage connection. When connecting on the rear side, please remove the rear side plug sealing corks, and attach a front side. Ensure there is noleak after the attachment has been fitted.
Note3. Take notice of service space as Fig.A. (In case of single installation, 600mm(23-5/8) or more of back space as front space makes easier access when servicing the unit from rear side.)
Note4. If water pipes or refrigerant pipes stretch upward, required space for service and maintenance due to replacement of control box is shown inFig.B.
Note5. Environmental condition for installation; -20~40°C(DB)(-4~104°F) as indoor installation.
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•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).

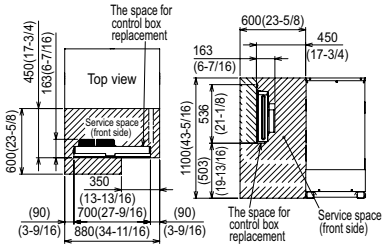
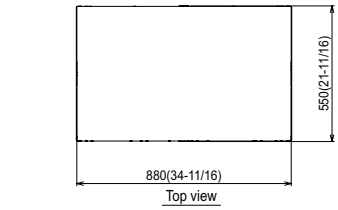


Fig.A Fig.B

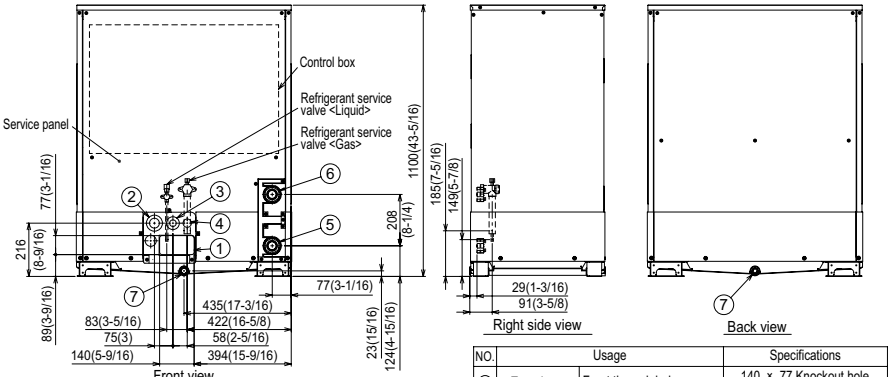
Connecting pipe specifications

Model	Diameter			
	Refrigerant pipe		Service valve	
	Liquid	Gas	Liquid	Gas
PQHY-P72TLMU-A2	ø9.52 Brazed (3/8) *1	ø19.05 Brazed (3/4) *1 *4	ø9.52 (3/8)	ø25.4 (1)
PQHY-P96TLMU-A2	ø9.52 Brazed (3/8) *1 (ø12.7 Brazed) (1/2) *2 *4	ø22.2 Brazed (7/8)*1 *4		
PQHY-P120TLMU-A2	ø9.52 Brazed (3/8) *1 (ø12.7 Brazed) (1/2) *3 *4			

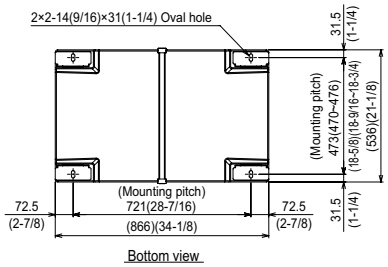
*1. Connect by using the connecting pipes and elbow that are supplied.
*2. Total length ≥ 90m(295ft)
*3. Total length ≥ 40m(131ft)
*4. Use the pipe joint(field supply) and connect to the refrigerant service valve piping.



Top view



Front view Right side view Back view



Bottom view

Unit: mm(in)

<Accessories (Packaged in the accessory kit)>
- Refrigerant (Liquid) conn. pipe ····· 1pc.
- Refrigerant (Gas) conn. elbow ····· 1pc.
- Water stopper (Liquid,Gas) ····· 1pc. each
- Sealing material for water stopper (Liquid,Gas) ····· 1pc. each
- Sealing material for field piping (Liquid,Gas) ····· 1pc. each
- Sealing material for drain socket ····· 1pc.
- Pipe cover for gas ····· 1pc.

NO.	Usage		Specifications
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⑤	Water pipe	inlet	NPT1-1/2 Screw
⑥		outlet	NPT1-1/2 Screw
⑦	Drain pipe	Rc3/4 Screw	

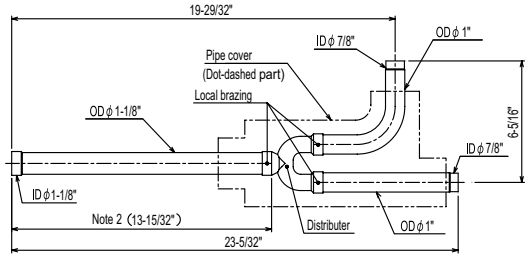
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TWINNING KIT: CMY-Y100CBK3R1 – DIMENSIONS

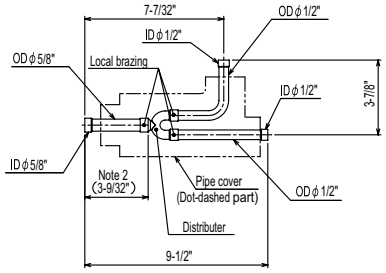
CMY-Y100CBK3R1

in.

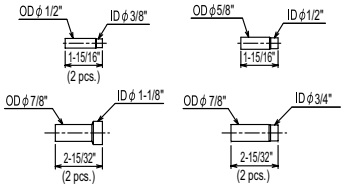
For Gas pipe:



For Liquid pipe:

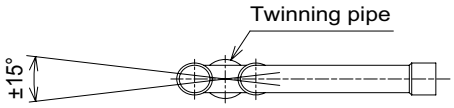


<Reducer(Accessory)>



ID: Inner Diameter OD: Outer Diameter

Note 1. Reference the attitude angle of the twinning pipe below the fig.



The angle of the twinning pipe is within ±15° against the horizontal plane.

2. Use the attached pipe to braze the port-opening of the twinning pipe.
3. Pipe diameter is indicated by inside diameter.
4. Only use the Twinning pipe by Mitsubishi (optional parts).

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