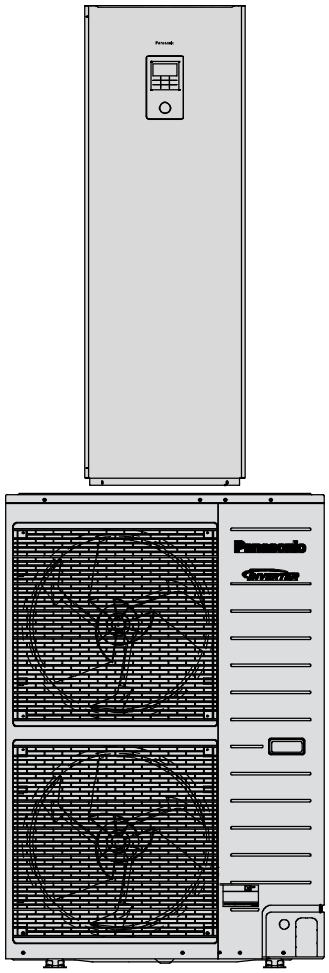
Service Manual

Air-to-Water Hydromodule + Tank



Indoor Unit
WH-ADC0916H9E8

Outdoor Unit

WH-UX09HE8
WH-UX12HE8
WH-UX16HE8

Destination
Europe

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

⚠ PRECAUTION OF LOW TEMPERATURE

In order to avoid frostbite, be assured of no refrigerant leakage during the installation or repairing of refrigerant circuit.

Panasonic®

Specifications

WH-ADC0916H9E8 WH-UX09HE8

Item		Unit	Outdoor Unit		
Performance Test Condition			EN 14511		
Cooling Capacity		Condition (Ambient/Water)	A35W7		
		kW	7.00		
		BTU/h	23900		
		kcal/h	6020		
Cooling EER		W/W	3.17		
		kcal/hW	2.72		
Heating Capacity		Condition (Ambient/Water)	A7W35	A2W35	
		kW	9.00	9.00	
		BTU/h	30700	30700	
		kcal/h	7740	7740	
Heating COP		W/W	4.84	3.59	
		kcal/hW	4.16	3.08	
Noise Level		Condition (Ambient/Water)	A35W7	A7W35	A2W35
		dB (A)	Cooling: 49	Heating: 51	—
		Power Level dB	Cooling: 67	Heating: 68	—
Air Flow		m^3/min (ft^3/min)	Cooling: 89.5 (3160) Heating: 76.8 (2710)		
Refrigeration Control Device			Expansion Valve		
Refrigeration Oil		cm^3	FV50S (1200)		
Refrigerant (R410A)		kg (oz)	2.85 (100.6)		
Dimension	Height	mm (inch)	1340 (52-3/4)		
	Width	mm (inch)	900 (35-7/16)		
	Depth	mm (inch)	320 (12-19/32)		
Net Weight		kg (lbs)	108 (238)		
Pipe Diameter	Liquid	mm (inch)	9.52 (3/8)		
	Gas	mm (inch)	15.88 (5/8)		
Standard Length		m (ft)	5 (16.4)		
Pipe Length Range		m (ft)	3 (9.8) ~ 30 (98.4)		
I/D & O/D Height Difference		m (ft)	20 (65.6)		
Additional Gas Amount		g/m (oz/ft)	50 (0.5)		
Refrigeration Charge Less		m (ft)	10 (32.8)		
Compressor	Type		Hermetic Motor		
	Motor Type		Brushless (4-poles)		
	Rated Output	kW	4.50		
Fan	Type		Propeller Fan		
	Material		PP		
	Motor Type		DC (8-poles)		
	Input Power	W	—		
	Output Power	W	60		
	Fan Speed	rpm	Cooling: 550 (Top), 590 (Bottom) Heating: 490 (Top), 530 (Bottom)		
Heat Exchanger	Fin material		Aluminium (Pre Coat)		
	Fin Type		Corrugated Fin		
	Row × Stage × FPI		2 × 51 × 18		
	Size (W × H × L)	mm	903.7 × 1295.4 × 38.1		

Item		Unit	Outdoor Unit		
Power Source (Phase, Voltage, Cycle)		ø	Three		
		V	400		
		Hz	50		
Input Power		Condition (Ambient/Water)	A35W7	A7W35	A2W35
		kW	Cooling: 2.21	Heating: 1.86	Heating: 2.51
Maximum Input Power For Heatpump System		kW	6.85		
Power Supply 1 : Phase (Ø) / Max. Current (A) / Max. Input Power (W)			3Ø / 10.4 / 6.85k		
Power Supply 2 : Phase (Ø) / Max. Current (A) / Max. Input Power (W)			3Ø / 13.0 / 9.00k		
Power Supply 3 : Phase (Ø) / Max. Current (A) / Max. Input Power (W)			— / — / —		
Starting Current		A	3.4		
Running Current		Condition (Ambient/Water)	A35W7	A7W35	A2W35
		A	Cooling: 3.4	Heating: 2.8	Heating: 3.8
Maximum Current For Heatpump System		A	10.4		
Power Factor Power factor means total figure of compressor and outdoor fan motor.		%	Cooling: 96 Heating: 95		
Power Cord	Number of core		-		
	Length	m (ft)	-		
Thermostat			Electronic Control		
Protection Device			Electronic Control		

Item		Unit	Indoor Unit		
Performance Test Condition			EN 14511		
Operation Range	Outdoor Ambient	°C (min. / max.)	Cooling: 16 / 43 Heating: -28 / 35		
	Water Outlet	°C (min. / max.)	Cooling: 5 / 20 Heating (Tank): - / 65*, Heating (Circuit): 20 / 55 (Below ambient – 15°C), 20 / 60 (Below ambient – 10°C)		
Internal Pressure Differential		kPa	Cooling: 15.0 Heating: 23.0		
Noise Level		Condition (Ambient/Water)	A35W7	A7W35	A2W35
		dB (A)	Cooling: 33	Heating: 33	—
		Power Level dB	Cooling: 46	Heating: 46	—
Dimension	Depth	mm (inch)	717 (28-7/32)		
	Width	mm (inch)	598 (23-17/32)		
	Height	mm (inch)	1800 (70-27/32)		
Net Weight		kg (lbs)	126 (278)		
Refrigerant Pipe Diameter	Liquid	mm (inch)	9.52 (3/8)		
	Gas	mm (inch)	15.88 (5/8)		
Water Pipe Diameter	Room	mm (inch)	31 (1-1/4)		
	Shower	mm (inch)	19 (3/4)		
Water Drain Hose Inner Diameter		mm (inch)	12.10 (17/36)		
Pump	Motor Type		DC Motor		
	No. of Speed		7 (Software Selection)		
	Input Power	W	52		
Hot Water Coil	Type		Brazed Plate		
	No. of Plates		52		
	Size (H x W x L)	mm	93 x 119 x 376		
	Water Flow Rate	l/min (m^3/h)	Cooling: 20.1 (1.2) Heating: 25.8 (1.5)		
Pressure Relief Valve Water Circuit		kPa	Open: 300, Close: 265 and below		
Flow Switch	Type		Magnetic Lead Switch		
	Set Point	l/min	11.1		
Pressure Release Valve		kPa	Open: 1150±200, Close: 700 and below		

Item		Unit	Indoor Unit
Protection Device		A	Residual Current Circuit Breaker (25)
Expansion Vessel	Volume	l	10
	MWP	bar	3
Capacity of Integrated Electric Heater / OLP TEMP		kW / °C	9.00 / 80
Tank Volume (Spec / Nett)		L	200 / 185
Max. Tank Water Set Temperature		°C	65
Tank Coil Surface		m^2	1.8
Maximum Working Pressure	Heat / Cool	Bar	3.0
	Tank Circuit	Bar	8.0
Operating Pressure	Tank Unit	Bar	3.5
	Expansion Relief Valve	Bar	8.0
Expansion Vessel Pre-charge Pressure (DHW Circuit)		Bar	3.5
Pressure Reducing Valve Set Pressure (DHW Circuit)		Bar	3.5
Pressure Vessel	Material		EN-1.4521
	Volume	L	185
	Design Pressure	Bar	10
Heat Exchanger	Material		EN-1.4162 / EN-1.4521
	Diameter	mm	22
	Thickness	mm	0.8
	Surface Area	m^2	1.8
	Total Length	m	25

Note:

- Cooling capacities are based on outdoor air temperature of 35°C Dry Bulb with controlled indoor water inlet temperature of 12°C and water outlet temperature of 7°C.
- Heating capacities are based on outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb) with controlled indoor water inlet temperature of 30°C and water outlet temperature of 35°C.
- Specifications are subjected to change without prior notice for further improvement.
- * Above 55°C, only possible with backup heater operation.

WH-ADC0916H9E8 WH-UX12HE8

Item		Unit	Outdoor Unit		
Performance Test Condition			EN 14511		
Cooling Capacity		Condition (Ambient/Water)	A35W7		
		kW	10.00		
		BTU/h	34100		
		kcal/h	8600		
Cooling EER		W/W	2.81		
		kcal/hW	2.42		
Heating Capacity		Condition (Ambient/Water)	A7W35	A2W35	
		kW	12.00	12.00	
		BTU/h	41000	41000	
		kcal/h	10320	10320	
Heating COP		W/W	4.74	3.44	
		kcal/hW	4.08	2.96	
Noise Level		Condition (Ambient/Water)	A35W7	A7W35	A2W35
		dB (A)	Cooling: 50	Heating: 52	—
		Power Level dB	Cooling: 68	Heating: 69	—
Air Flow		m^3/min (ft^3/min)	Cooling: 93.3 (3290) Heating: 80.0 (2830)		
Refrigeration Control Device			Expansion Valve		
Refrigeration Oil		cm^3	FV50S (1200)		
Refrigerant (R410A)		kg (oz)	2.85k (100.6)		
Dimension	Height	mm (inch)	1340 (52-3/4)		
	Width	mm (inch)	900 (35-7/16)		
	Depth	mm (inch)	320 (12-19/32)		
Net Weight		kg (lbs)	108 (238)		
Pipe Diameter	Liquid	mm (inch)	9.52 (3/8)		
	Gas	mm (inch)	15.88 (5/8)		
Standard Length		m (ft)	5 (16.4)		
Pipe Length Range		m (ft)	3 (9.8) ~ 30 (98.4)		
I/D & O/D Height Difference		m (ft)	20 (65.6)		
Additional Gas Amount		g/m (oz/ft)	50 (0.5)		
Refrigeration Charge Less		m (ft)	10 (32.8)		
Compressor	Type		Hermetic Motor		
	Motor Type		Brushless (4-poles)		
	Rated Output	kW	4.30		
Fan	Type		Propeller Fan		
	Material		PP		
	Motor Type		DC (8-poles)		
	Input Power	W	—		
	Output Power	W	60		
	Fan Speed	rpm	Cooling: 600 (Top), 640 (Bottom) Heating: 520 (Top), 560 (Bottom)		
Heat Exchanger	Fin material		Aluminium (Pre Coat)		
	Fin Type		Corrugated Fin		
	Row × Stage × FPI		2 × 51 x 18		
	Size (W × H × L)	mm	903.7 x 1295.4 x 38.1		

Item		Unit	Outdoor Unit		
Power Source (Phase, Voltage, Cycle)		ø	Three		
		V	400		
		Hz	50		
Input Power		Condition (Ambient/Water)	A35W7	A7W35	A2W35
		kW	Cooling: 3.56	Heating: 2.53	Heating: 3.49
Maximum Input Power For Heatpump System		kW	7.91		
Power Supply 1 : Phase (Ø) / Max. Current (A) / Max. Input Power (W)			3Ø / 11.9 / 7.91k		
Power Supply 2 : Phase (Ø) / Max. Current (A) / Max. Input Power (W)			3Ø / 13.0 / 9.00k		
Power Supply 3 : Phase (Ø) / Max. Current (A) / Max. Input Power (W)			— / — / —		
Starting Current		A	5.4		
Running Current		Condition (Ambient/Water)	A35W7	A7W35	A2W35
		A	Cooling: 5.4	Heating: 3.9	Heating: 5.3
Maximum Current For Heatpump System		A	11.9		
Power Factor Power factor means total figure of compressor and outdoor fan motor.		%	Cooling: 97	Heating: 96	Heating: 97
Power Cord	Number of core		-		
	Length	m (ft)	-		
Thermostat			Electronic Control		
Protection Device			Electronic Control		

Item		Unit	Indoor Unit		
Performance Test Condition			EN 14511		
Operation Range	Outdoor Ambient	°C (min. / max.)	Cooling: 16 / 43 Heating: -28 / 35		
	Water Outlet	°C (min. / max.)	Cooling: 5 / 20 Heating (Tank): - / 65*, Heating (Circuit): 20 / 55 (Below ambient – 15°C), 20 / 60 (Below ambient – 10°C)		
Internal Pressure Differential		kPa	Cooling: 28.0 Heating: 39.0		
Noise Level		Condition (Ambient/Water)	A35W7	A7W35	A2W35
		dB (A)	Cooling: 33	Cooling: 33	—
		Power Level dB	Cooling: 46	Cooling: 46	—
Dimension	Depth	mm (inch)	717 (28-7/32)		
	Width	mm (inch)	598 (23-17/32)		
	Height	mm (inch)	1800 (70-27/32)		
Net Weight		kg (lbs)	126 (278)		
Refrigerant Pipe Diameter	Liquid	mm (inch)	9.52 (3/8)		
	Gas	mm (inch)	15.88 (5/8)		
Water Pipe Diameter	Room	mm (inch)	31 (1-1/4)		
	Shower	mm (inch)	19 (3/4)		
Water Drain Hose Inner Diameter		mm (inch)	12.10 (17/36)		
Pump	Motor Type		DC Motor		
	No. of Speed		7 (Software Selection)		
	Input Power	W	82		
Hot Water Coil	Type		Brazed Plate		
	No. of Plates		52		
	Size (H x W x L)	mm	93 x 119 x 376		
	Water Flow Rate	l/min (m^3/h)	Cooling: 28.7 (1.7) Heating: 34.4 (2.1)		
Pressure Relief Valve Water Circuit		kPa	Open: 300, Close: 265 and below		
Flow Switch	Type		Magnetic Lead Switch		
	Set Point	l/min	11.1		
Pressure Release Valve		kPa	Open: 1150±200, Close: 700 and below		

Item		Unit	Indoor Unit
Protection Device		A	Residual Current Circuit Breaker (25)
Expansion Vessel	Volume	l	10
	MWP	bar	3
Capacity of Integrated Electric Heater / OLP TEMP		kW / °C	9.00 / 80
Tank Volume (Spec / Nett)		L	200 / 185
Max. Tank Water Set Temperature		°C	65
Tank Coil Surface		m^2	1.8
Maximum Working Pressure	Heat / Cool	Bar	3.0
	Tank Circuit	Bar	8.0
Operating Pressure	Tank Unit	Bar	3.5
	Expansion Relief Valve	Bar	8.0
Expansion Vessel Pre-charge Pressure (DHW Circuit)		Bar	3.5
Pressure Reducing Valve Set Pressure (DHW Circuit)		Bar	3.5
Pressure Vessel	Material		En-1.4521
	Volume	L	185
	Design Pressure	Bar	10
Heat Exchanger	Material		EN-1.4162 / EN-1.4521
	Diameter	mm	22
	Thickness	mm	0.8
	Surface Area	m^2	1.8
	Total Length	m	25

Note:

- Cooling capacities are based on outdoor air temperature of 35°C Dry Bulb with controlled indoor water inlet temperature of 12°C and water outlet temperature of 7°C.
- Heating capacities are based on outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb) with controlled indoor water inlet temperature of 30°C and water outlet temperature of 35°C.
- Specifications are subjected to change without prior notice for further improvement.
- * Above 55°C, only possible with backup heater operation.

WH-ADC0916H9E8 WH-UX16HE8

Item		Unit	Outdoor Unit		
Performance Test Condition			EN 14511		
Cooling Capacity		Condition (Ambient/Water)	A35W7		
		kW	12.20		
		BTU/h	41600		
		kcal/h	10490		
Cooling EER		W/W	2.57		
		kcal/hW	2.20		
Heating Capacity		Condition (Ambient/Water)	A7W35	A2W35	
		kW	16.00	16.00	
		BTU/h	54600	54600	
		kcal/h	13760	13760	
Heating COP		W/W	4.28	3.10	
		kcal/hW	3.68	2.67	
Noise Level		Condition (Ambient/Water)	A35W7	A7W35	A2W35
		dB (A)	Cooling: 54	Heating: 55	—
		Power Level dB	Cooling: 71	Heating: 72	—
Air Flow		m^3/min (ft^3/min)	Cooling: 109.4 (3860) Heating: 76.0 (2680)		
Refrigeration Control Device			Expansion Valve		
Refrigeration Oil		cm^3	FV50S (1200)		
Refrigerant (R410A)		kg (oz)	2.90 (102.4)		
Dimension	Height	mm (inch)	1340 (52-3/4)		
	Width	mm (inch)	900 (35-7/16)		
	Depth	mm (inch)	320 (12-19/32)		
Net Weight		kg (lbs)	118 (260)		
Pipe Diameter	Liquid	mm (inch)	9.52 (3/8)		
	Gas	mm (inch)	15.88 (5/8)		
Standard Length		m (ft)	5 (16.4)		
Pipe Length Range		m (ft)	3 (9.8) ~ 30 (98.4)		
I/D & O/D Height Difference		m (ft)	20 (65.6)		
Additional Gas Amount		g/m (oz/ft)	50 (0.5)		
Refrigeration Charge Less		m (ft)	10 (32.8)		
Compressor	Type		Hermetic Motor		
	Motor Type		Brushless (4-poles)		
	Rated Output	kW	4.76		
Fan	Type		Propeller Fan		
	Material		PP		
	Motor Type		DC (8-poles)		
	Input Power	W	—		
	Output Power	W	60		
	Fan Speed	rpm	Cooling: 680 (Top), 720 (Bottom) Heating: 580 (Top), 620 (Bottom)		
Heat Exchanger	Fin material		Aluminium (Pre Coat)		
	Fin Type		Corrugated Fin		
	Row × Stage × FPI		2 × 51 x 19		
	Size (W × H × L)	mm	898.8 x 1295.4 x 44		

Item		Unit	Outdoor Unit		
Power Source (Phase, Voltage, Cycle)		ø	Three		
		V	400		
		Hz	50		
Input Power		Condition (Ambient/Water)	A35W7	A7W35	A2W35
		kW	Cooling: 4.76	Heating: 3.74	Heating: 5.16
Maximum Input Power For Heatpump System		kW	10.27		
Power Supply 1 : Phase (Ø) / Max. Current (A) / Max. Input Power (W)			3Ø / 15.5 / 10.27k		
Power Supply 2 : Phase (Ø) / Max. Current (A) / Max. Input Power (W)			3Ø / 13.0 / 9.00k		
Power Supply 3 : Phase (Ø) / Max. Current (A) / Max. Input Power (W)			— / — / —		
Starting Current		A	7.2		
Running Current		Condition (Ambient/Water)	A35W7	A7W35	A2W35
		A	Cooling: 7.2	Heating: 5.7	Heating: 7.8
Maximum Current For Heatpump System		A	15.5		
Power Factor Power factor means total figure of compressor and outdoor fan motor.		%	Cooling: 98	Heating: 96	Heating: 96
Power Cord	Number of core		-		
	Length	m (ft)	-		
Thermostat			Electronic Control		
Protection Device			Electronic Control		

Item		Unit	Indoor Unit		
Performance Test Condition			EN 14511		
Operation Range	Outdoor Ambient	°C (min. / max.)	Cooling: 16 / 43 Heating: -28 / 35		
	Water Outlet	°C (min. / max.)	Cooling: 5 / 20 Heating (Tank): - / 65*, Heating (Circuit): 20 / 55 (Below ambient – 15°C), 20 / 60 (Below ambient – 10°C)		
Internal Pressure Differential		kPa	Cooling: 40.0 Heating: 69.0		
Noise Level		Condition (Ambient/Water)	A35W7	A7W35	A2W35
		dB (A)	Cooling: 33	Cooling: 33	—
		Power Level dB	Cooling: 46	Cooling: 46	—
Dimension	Depth	mm (inch)	717 (28-7/32)		
	Width	mm (inch)	598 (23-17/32)		
	Height	mm (inch)	1800 (70-27/32)		
Net Weight		kg (lbs)	126 (278)		
Refrigerant Pipe Diameter	Liquid	mm (inch)	9.52 (3/8)		
	Gas	mm (inch)	15.88 (5/8)		
Water Pipe Diameter	Room	mm (inch)	31 (1-1/4)		
	Shower	mm (inch)	19 (3/4)		
Water Drain Hose Inner Diameter		mm (inch)	12.10 (17/38)		
Pump	Motor Type		DC Motor		
	No. of Speed		7 (Software Selection)		
	Input Power	W	132		
Hot Water Coil	Type		Brazed Plate		
	No. of Plates		52		
	Size (H x W x L)	mm	93 x 119 x 376		
	Water Flow Rate	l/min (m^3/h)	Cooling: 35.0 (2.1) Heating: 45.9 (2.8)		
Pressure Relief Valve Water Circuit		kPa	Open: 300, Close: 265 and below		
Flow Switch	Type		Magnetic Lead Switch		
	Set Point	l/min	11.1		
Pressure Release Valve		kPa	Open: 1150±200, Close: 700 and below		

Item		Unit	Indoor Unit
Protection Device		A	Residual Current Circuit Breaker (25)
Expansion Vessel	Volume	l	10
	MWP	bar	3
Capacity of Integrated Electric Heater / OLP TEMP		kW / °C	9.00 / 80
Tank Volume (Spec / Nett)		L	200 / 185
Max. Tank Water Set Temperature		°C	65
Tank Coil Surface		m^2	1.8
Maximum Working Pressure	Heat / Cool	Bar	3.0
	Tank Circuit	Bar	8.0
Operating Pressure	Tank Unit	Bar	3.5
	Expansion Relief Valve	Bar	8.0
Expansion Vessel Pre-charge Pressure (DHW Circuit)		Bar	3.5
Pressure Reducing Valve Set Pressure (DHW Circuit)		Bar	3.5
Pressure Vessel	Material		En-1.4521
	Volume	L	185
	Design Pressure	Bar	10
Heat Exchanger	Material		EN-1.4162 / EN-1.4521
	Diameter	mm	22
	Thickness	mm	0.8
	Surface Area	m^2	1.8
	Total Length	m	25

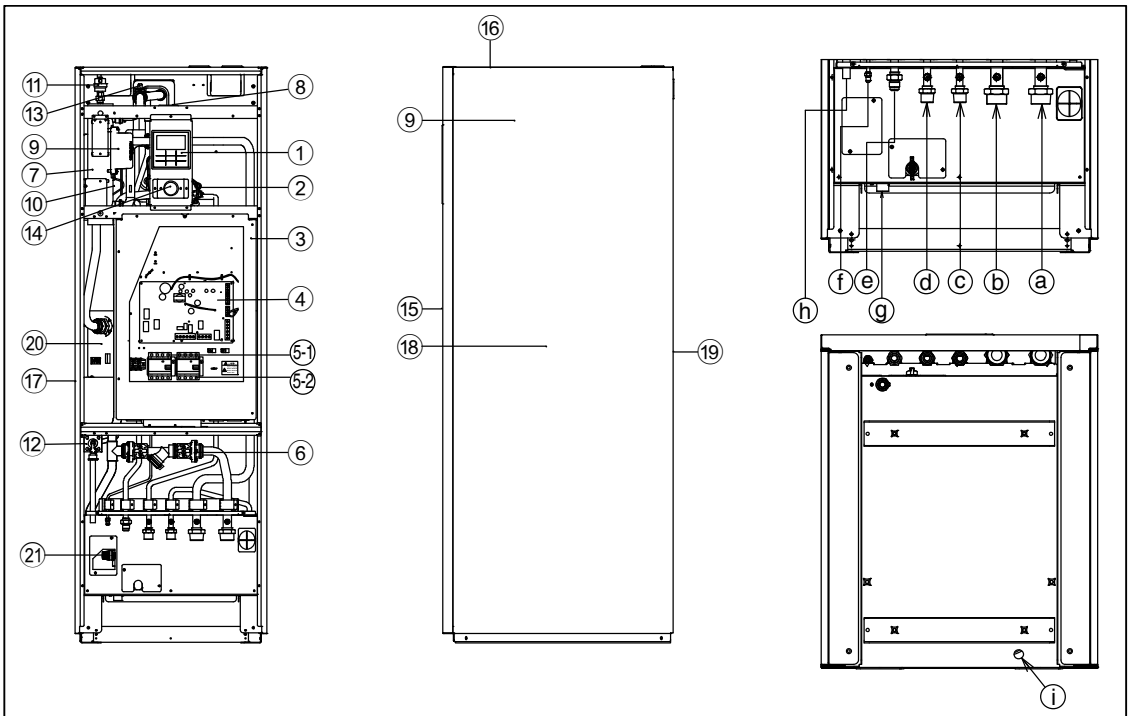
Note:

- Cooling capacities are based on outdoor air temperature of 35°C Dry Bulb with controlled indoor water inlet temperature of 12°C and water outlet temperature of 7°C.
- Heating capacities are based on outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb) with controlled indoor water inlet temperature of 30°C and water outlet temperature of 35°C.
- Specifications are subjected to change without prior notice for further improvement.
- * Above 55°C, only possible with backup heater operation.

Features

- **Inverter Technology**
  - Energy saving
- **High Efficiency**
- **Environment Protection**
  - Non-ozone depletion substances refrigerant (R410A)
- **Long Installation Piping**
  - Long piping up to 30 meter with height difference 20 meter
  - Flexible 4-way piping for outdoor unit
- **Easy to use control panel**
  - Auto mode
  - Holiday mode
  - Dry concrete function
  - Weekly timer setting
- **A-class energy efficiency pump**
  - Water pump speed can be set by selection at control panel
- **Improved deice cycle**
- **Protection Feature**
  - Random auto restart after power failure for safety restart operation
  - Gas leakage protection
  - Prevent compressor reverse cycle
  - Inner protector to protect compressor
- **Serviceability Feature**
  - Breakdown Self Diagnosis function
  - System Status Check Buttons for servicing purpose
  - System Pumpdown Button for servicing purpose
  - Front maintenance design for outdoor unit

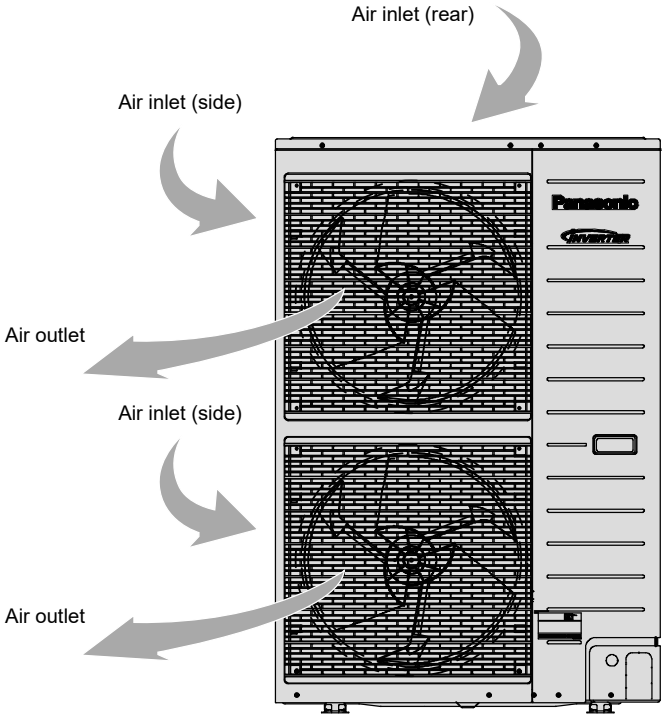
Main Components



① Remote Controller
② Water Pump
③ Control Board Cover
④ Main PCB
5-1 Three Phase RCCB (Main Power)
5-2 Three Phase RCCB (Backup Heater)
⑥ Water Filter Set
⑦ Heater Assembly
⑧ 3-Way Valve (Not Visible)
⑨ Overload Protector (Not Visible)
⑩ Expansion Vessel (Not Visible)
⑪ Air Purge Valve
⑫ Pressure Relief Valve
⑬ Flow Sensor
⑭ Water Pressure Gauge
⑮ Front Plate
⑯ Top Plate
⑰ Right Plate
⑱ Left Plate
⑲ Rear Plate
⑳ Tank Sensor (Not Visible)
㉑ Safety Relief Valve

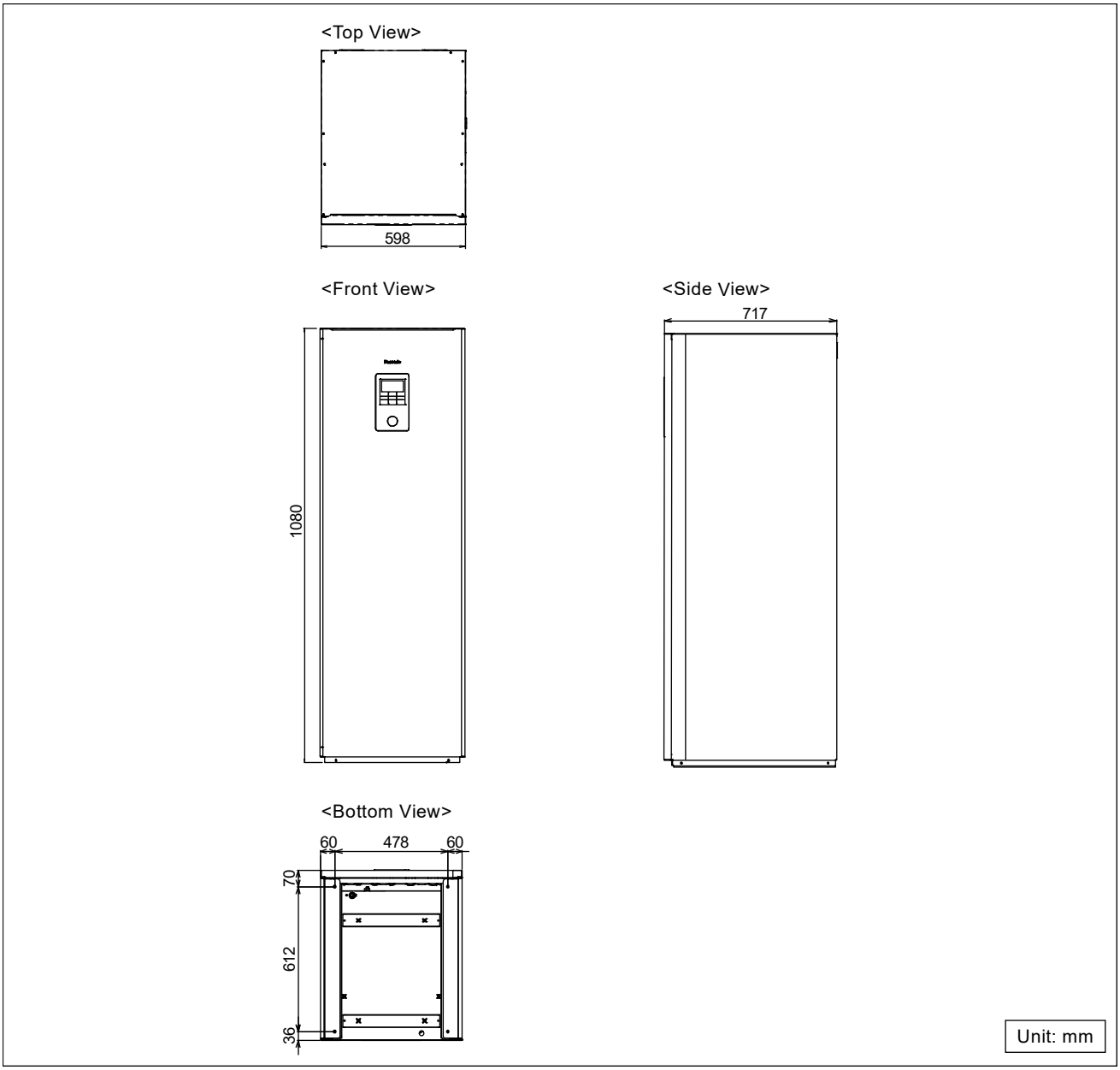
Connector name
ⓐ Water Inlet (From Space Heating/Cooling)
ⓑ Water Outlet (To Space Heating/Cooling)
ⓒ Cold Water Inlet (Domestic Hot Water Tank)
ⓓ Hot Water Outlet (Domestic Hot Water Tank)
ⓔ Refrigerant Gas
ⓕ Refrigerant Liquid
ⓖ Domestic Hot Water Tank Discharge (Drain Tap) Type: Ball Valve
ⓗ Pressure Relief Valve Drainage
ⓘ Drain Water Hole

Outdoor Unit



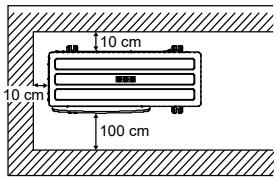
Dimensions

Indoor Unit



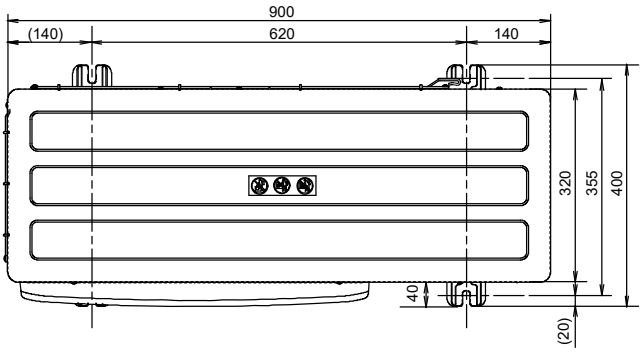
Outdoor Unit

Space necessary for installation

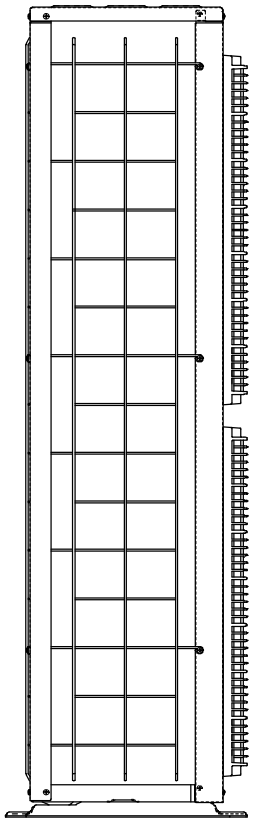


Anchor Bolt Pitch
355 x 260

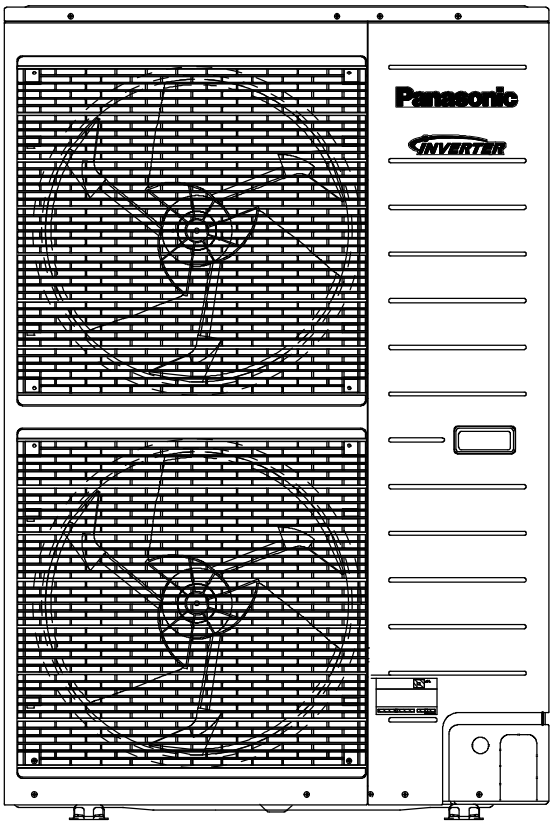
<Top View>



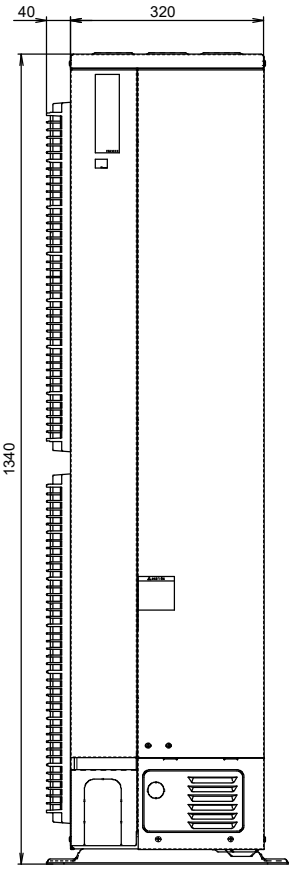
<Side View>



<Front View>



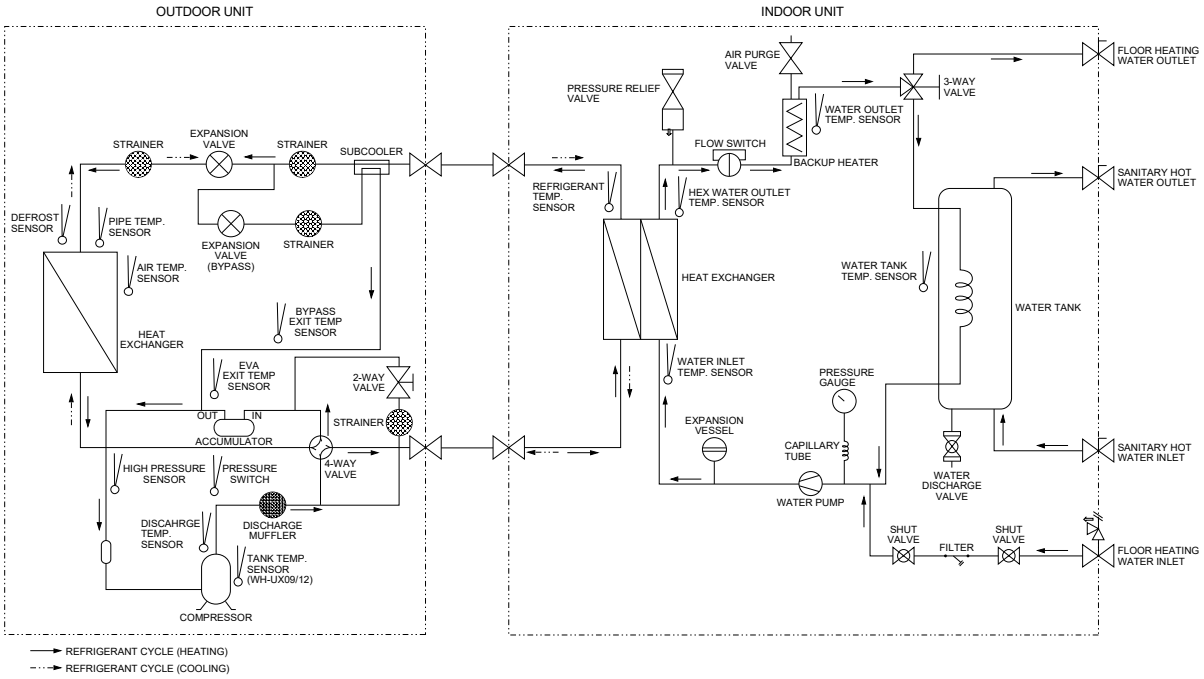
<Side View>



Unit: mm

Refrigeration and Water Cycle Diagram

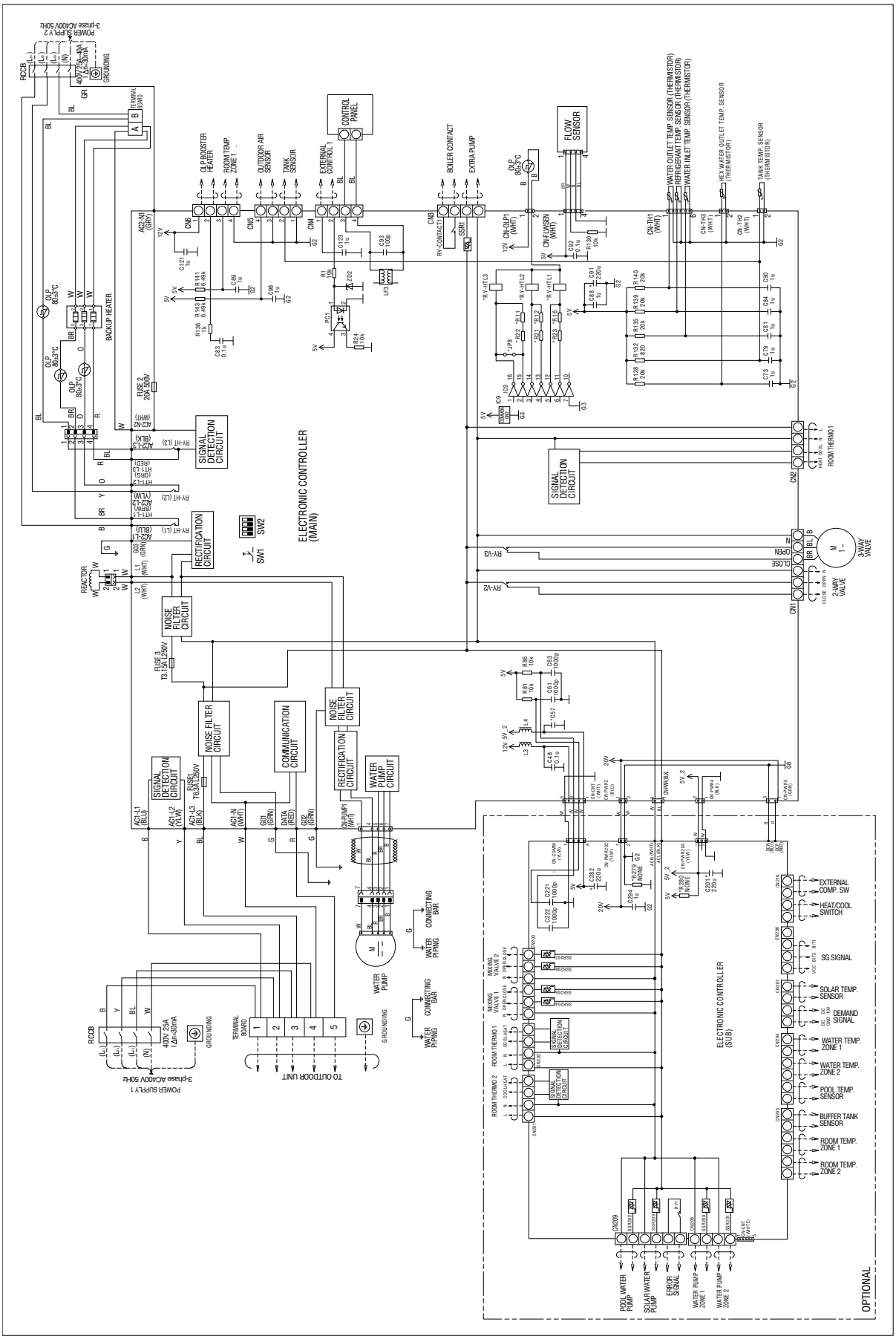
WH-ADC0916H9E8 WH-UX09/12/16HE8



Model		Piping size (Torque)	
Tank Unit	Outdoor Unit	Gas	Liquid
ADC0916H9E8	WH-UX09HE8 / WH-UX12HE8 / WH-UX16HE8	Ø15.88 mm (5/8") [65 N•m]	Ø9.52 mm (3/8") [42 N•m]

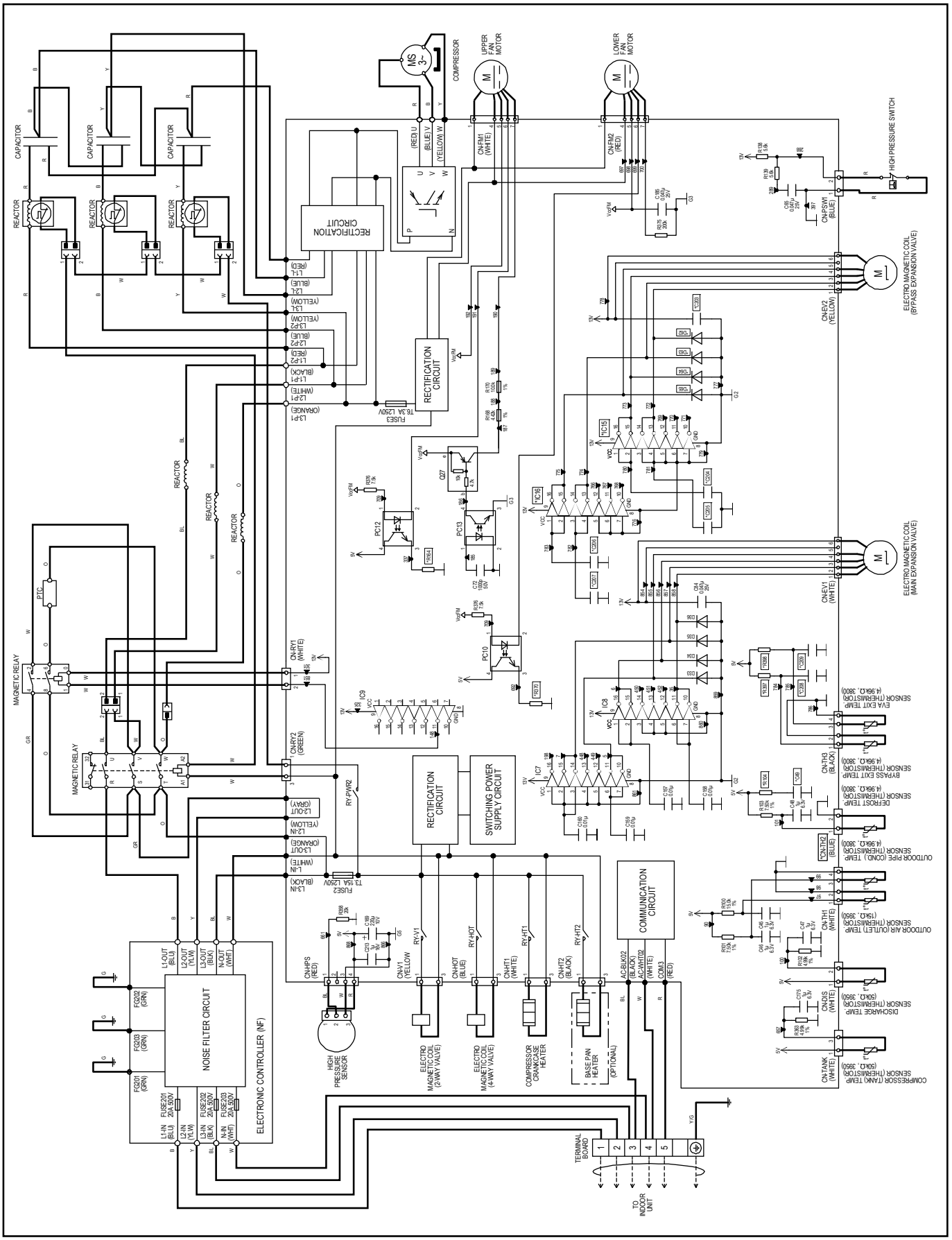
Electronic Circuit Diagram

Indoor Unit

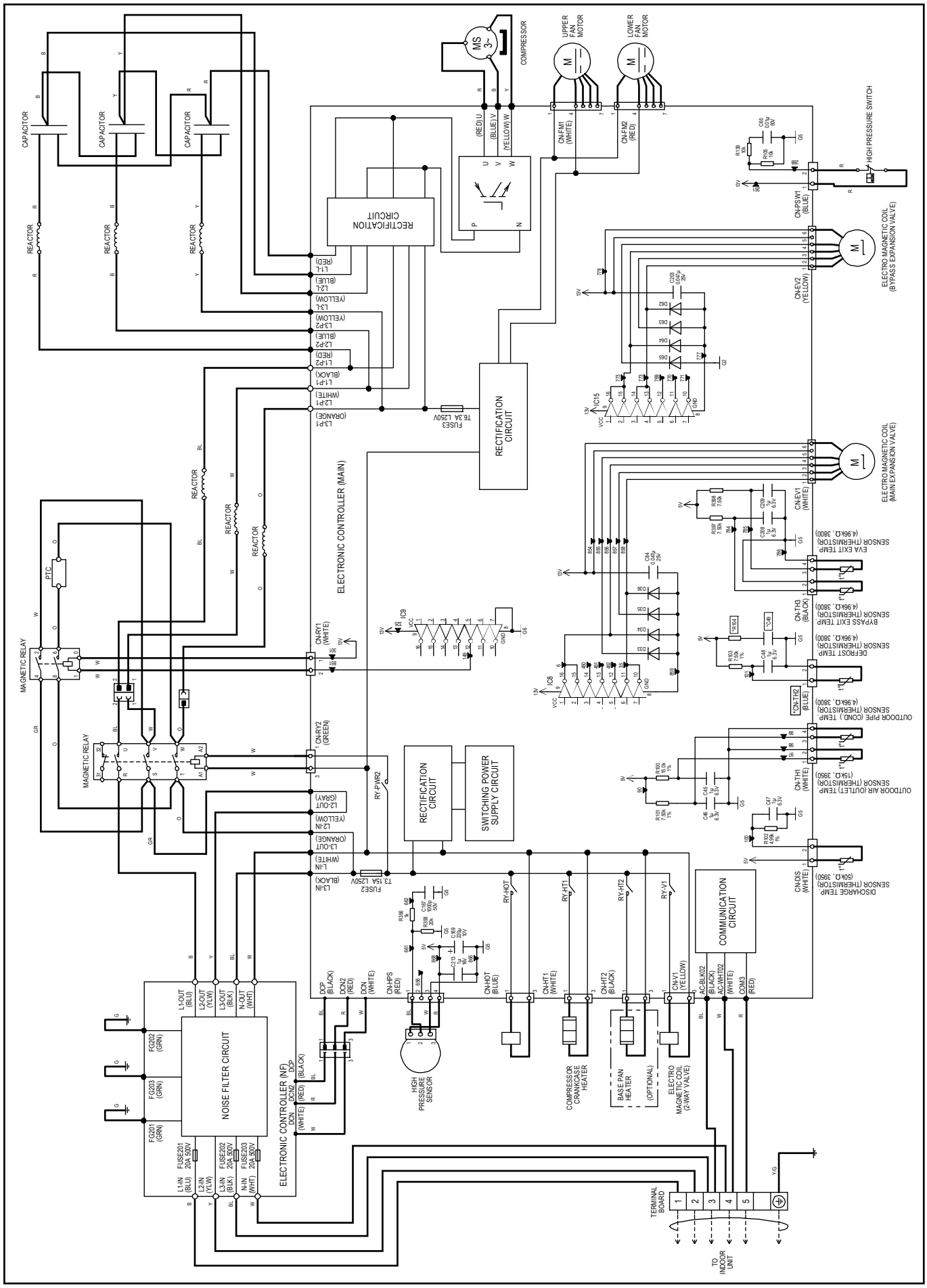


Outdoor Unit

WH-UX09HE8 WH-UX12HE8



WH-UX16HE8


COMPRESSOR
UPPER FAN MOTOR
LOWER FAN MOTOR
HIGH PRESSURE SWITCH
ELECTRO MAGNETIC COIL (BYPASS EXPANSION VALVE)
ELECTRO MAGNETIC COIL (MAIN EXPANSION VALVE)
CAPACITOR
REACTOR
RECTIFICATION CIRCUIT
ELECTRONIC CONTROLLER (MAIN)
MAGNETIC RELAY
PTC
SWITCHING POWER SUPPLY CIRCUIT
COMMUNICATION CIRCUIT
NOISE FILTER CIRCUIT
ELECTRONIC CONTROLLER (NF)
HIGH PRESSURE SENSOR
COMPRESSOR CRANKCASE HEATER
BASE PAN HEATER
(OPTIONAL)
ELECTRO MAGNETIC COIL (2-WAY VALVE)
TERMINAL BOARD
TO INDOOR UNIT
EVA EXIT TEMP. SENSOR (THERMISTOR) (4.96K Ω, 360Ω)
BYPASS EXIT TEMP. SENSOR (THERMISTOR) (4.96K Ω, 360Ω)
DEFROST TEMP. SENSOR (THERMISTOR) (4.96K Ω, 360Ω)
OUTDOOR PIPE (COND.) TEMP. SENSOR (THERMISTOR) (4.96K Ω, 360Ω)
OUTDOOR AIR (OUTLET) TEMP. SENSOR (THERMISTOR) (15K Ω, 395Ω)
DISCHARGE TEMP. SENSOR (THERMISTOR) (50K Ω, 395Ω)

Installation Instruction

Field Supply Accessories (Optional)

No.	Part		Model	Specifications	Maker
i	2-way valve kit *Cooling model	Electromotoric Actuator	SFA21/18	AC230V	Siemens
		2-port Valve	VVI46/25		Siemens
ii	Room Thermostat	Wired	PAW-A2W-RTWIRED	AC230V	-
		Wireless	PAW-A2W-RTWIRELESS		
iii	Mixing valve	-	167032	AC230V	Caleffi
iv	Pump	-	Yonos 25/6	AC230V	Wilo
v	Buffer tank sensor	-	PAW-A2W-TSBU	-	-
vi	Outdoor sensor	-	PAW-A2W-TSOD	-	-
vii	Zone water sensor	-	PAW-A2W-TSHC	-	-
xiii	Zone room sensor	-	PAW-A2W-TSRT	-	-
ix	Solar sensor	-	PAW-A2W-TSSO	-	-

- It is recommended to purchase the field supply accessories listed in above table.

Indoor Unit

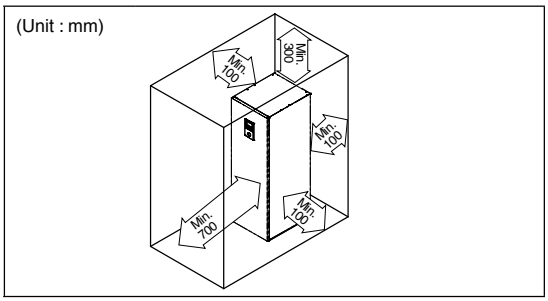
Select the Best Location

- Install the Tank Unit in indoors with frost free weather proof location only.
- Must install on a flat horizontal and solid hard surface.
- There should not be any heat source or steam near the Tank Unit.
- A place where air circulation in the room is good.
- A place where drainage can be easily done (e.g. Utility room).
- A place where Tank Unit's operation noise will not cause discomfort to the user.
- A place where Tank Unit is far from door way.
- A place where accessible for maintenance.
- Ensure to keep minimum distance of spaces as illustrated below from wall, ceiling, or other obstacles.
- A place where flammable gas leaking might not occur.
- Secure the Tank Unit to prevent it being knocked over accidentally or during earthquakes.

Please avoid installations which expose the Tank Unit to any of the following conditions:

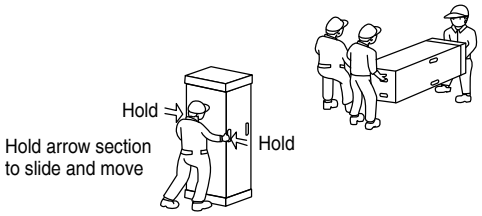
- Extraordinary environment conditions; installation in frost or exposure to unfavorable weather conditions.
- Voltage input exceeding the specified voltage.

Required space for installation



Transport and Handling

- Be careful during transporting the unit so that it is not damaged by impact.
- Only remove the packaging material once it has reached it is desired installation location.
- It may need three or more people to carry out the installation work. The weight of Tank Unit might cause injury if carried by one person.
- The Tank Unit can be transported either in vertical or horizontal.
  - If it transported in horizontal, make sure Front of packaging material (printed with "FRONT") must facing upwards.
  - If it transported in vertical, use the hand holes on sides, slide and move to the desired location.
- Fix the Adjustable Feet, if the Tank unit installed on an uneven surface.

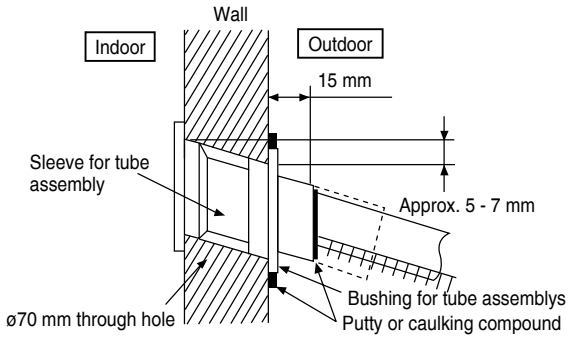


To Drill a Hole in the Wall and Install a Sleeve of Piping

1 Make a Ø70 mm through hole.
2 Insert the piping sleeve to the hole.
3 Fix the bushing to the sleeve.
4 Cut the sleeve until it extrudes about 15 mm from the wall.

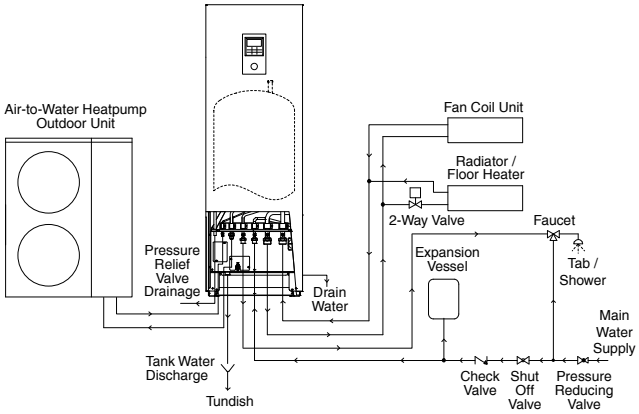
⚠ CAUTION
When the wall is hollow, please be sure to use the sleeve for tube assembly to prevent dangers caused by mice biting the connection cable.

5 Finish by sealing the sleeve with putty or caulking compound at the final stage.



Piping Installation

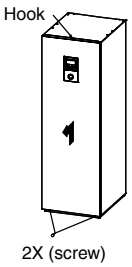
Typical Piping Installation



Access to Internal Components

⚠ WARNING

This section is for authorized and licensed electrician/water system installer only. Work behind the front plate secured by screws must only be carried out under supervision of qualified contractor, installation engineer or service person.



⚠ CAUTION

Open or close the Front Plate carefully. The heavy Bottom Front Plate may injures the fingers.

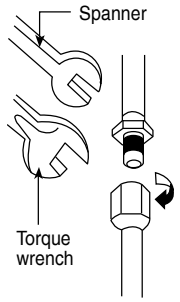
- **Open and Close Top Front Plate**
  1 Remove the 2 mounting screws of Bottom Front Plate.
  2 Slide it upwards to unhook the Bottom Front Plate hook.
  3 Reverse above steps 1~2 for close it.

Refrigerant Piping Installation

This Tank Unit is designed for combination with Panasonic Air-to-Water Heat Pump Outdoor Unit. If Outdoor Unit from other manufacturer are being used in combination with Panasonic Tank Unit, optimum operation and reliability of the system is not guaranteed. Thus warranty cannot be given in such case.

1 Connect Tank Unit to Air-to-Water Heatpump Outdoor Unit with correct piping size.

Model		Piping size (Torque)	
Tank Unit	Outdoor Unit	Gas	Liquid
ADC0916H9E8	WH-UX09HE8 / WH-UX12HE8 / WH-UX16HE8 / WH-UD09HE8 / WH-UD12HE8 / WH-UD16HE8	ø15.88mm (5/8") [65 N•m]	Ø9.52mm (3/8") [42 N•m]



⚠ CAUTION

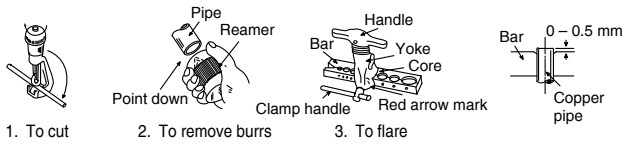
Do not overtighten, overtightening may cause gas leakage.

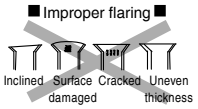
2 Please make flare after inserting flare nut (located at joint portion of tube assembly) onto the copper pipe. (In case of using long piping)
3 Do not use pipe wrench to open refrigerant piping. Flare nut may be broken and cause leakage. Use proper spanner or ring wrench.
4 Connect the piping:
  - o Align the centre of piping and sufficiently tighten the flare nut with fingers.
  - o Further tighten the flare nut with torque wrench in specified torque as stated in the table.

Cutting and Flaring the Piping

1 Please cut using pipe cutter and then remove the burrs.
2 Remove the burrs by using reamer. If burrs is not removed, gas leakage may be caused. Turn the piping end down to avoid the metal powder entering the pipe.

3 Please make flare after inserting the flare nut onto the copper pipes.



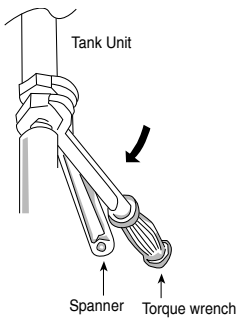


When properly flared, the internal surface of the flare will evenly shine and be of even thickness. Since the flare part comes into contact with the connections, carefully check the flare finish.

Water Piping Installation

- Avoid to use abnormally aggressive water which does not conform to EN 98/83 EC, hereunder Chloride content (maximum 250 mg/ litre), Sulphate content (maximum 250 mg/litre) and combination of Chloride / Sulphate content (maximum 300 mg/litre in total).
- Please engage a licensed water circuit installer to install this water circuit.
- This water circuit must comply with relevant European and national regulations (including EN61770), and local building regulation
- codes.
- Ensure the components installed in the water circuit could withstand water pressure during operation.
- Do not use worn out tube.
- Do not apply excessive force to pipes that may damage the pipes.
- Choose proper sealer which can withstand the pressures and temperatures of the system.
- Make sure to use two spanners to tighten the connection. Further tighten the nuts with torque wrench in specified torque as stated in the table.
- Cover the pipe end to prevent dirt and dust when inserting it through a wall.
- Choose proper sealer which can withstand the pressures and temperatures of the system.
- If non-brass metallic piping is used for installation, make sure to insulate the pipes to prevent galvanic corrosion.
- Do not connect galvanised pipes, this will cause galvanic corrosion.
- Use correct nut for all Tank Unit tube connections and clean all tubes with tap water before installation. See Tube Position Diagram for detail.

Tube Connector	Nut Size	Torque
ⓐ & ⓑ	RP 1¼"	117.6 N•m
ⓒ & ⓓ	RP ¾"	58.8 N•m



⚠ CAUTION
Do not overtighten, overtightening may cause water leakage.

- Make sure to insulate the water circuit pipes to prevent reduction of heating capacity.
- After installation, check the water leakage condition in connection area during test run.
- Failure to connect the tube appropriately might cause the Tank Unit malfunction.
- Protection From Frost:
  If the Tank Unit is being exposed to frost while power supply failure or pump operating failure, drain the system. When water is idle inside the system, freezing up is very likely to happen which could damage the system. Make sure the power supply is turned off before draining. Heater Assembly may be damaged under dry heating.
- Corrosion Resistance:
  Duplex stainless steel is naturally corrosion resistant to mains water supply. No specific maintenance is required to maintain this resistance. However, please note that Tank Unit is not guaranteed for use with a private water supply.
- It is recommended to use a tray (field supply) to collect water from the Tank Unit if water leakage occur.

(A) Space Heating/Cooling Pipework

- Connect Tank Unit Tube Connector ⓐ to outlet connector of Panel/Floor heater.
- Connect Tank Unit Tube Connector ⓑ to inlet connector of Panel/Floor heater.
- Failure to connect the tube appropriately might cause the Tank Unit malfunction.
- Refer below table for the rated flow rate of each particular Outdoor Unit.

Model		Rated Flow Rate (L/min)	
Tank Unit	Outdoor Unit	Cool	Heat
ADC0916H9E8	WH-UX09HE8	20.1	25.8
	WH-UX12HE8	28.7	34.4
	WH-UX16HE8	35.0	45.9
	WH-UD09HE8	20.1	25.8
	WH-UD12HE8	28.7	34.4
	WH-UD16HE8	35.0	45.9

(B) Domestic Hot Water Tank Pipework

- It's strongly recommended to install an expansion vessel (field supply) in the Domestic Hot Water Tank circuit. Refer Typical Piping Installation section to locate the expansion vessel.
  - Recommended pre-charge pressure of the expansion vessel (field supply) = 0.35MPa (3.5 bars)
- In high water pressure or water supply is above 500kPa, please install the Pressure Reducing Valve for water supply. If the pressure higher than that, it might damage the Tank Unit.

- A Pressure Reducing Valve (field supply) with below specification is strongly advised to be installed along the line of the tube connector ⓒ of Tank Unit. Refer Typical Piping Installation section to locate both of these valves.
- Recommended Pressure Reducing Valve specifications:
  - Set pressure: 0.35 MPa (3.5 bars)
- Must connect a faucet to Tank Unit Tube Connector ⓓ and main water supply, in order to supply water with appropriate temperature for shower or tap usage. Failure to do so might cause scalding.
- Failure to connect the tube appropriately might causing the Tank Unit malfunction.

(C) Pressure Relief Valve Drainage Pipework

- Connect a drain hose to the Pressure Relief Valve hose outlet ⓗ.
- The hose must be installed in a continuously downward direction and left open to the frost-free atmosphere.
- If drain hose is long, use a metal support fixture along the way to eliminate the wavy pattern of drain tube.
- The water may drip from this discharge hose. Therefore must guide the hose without close or block the outlet of the hose.
- Do not insert this hose into sewage hose or cleaning hose that may generate ammonia gas, sulphuric gas etc.
- If necessary, use a hose clamp to tighten the hose at drain hose connector to prevent it from leaking.
- Guide the drain hose to outdoor as illustrated at the right figure.

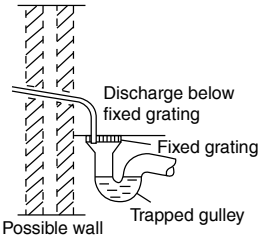


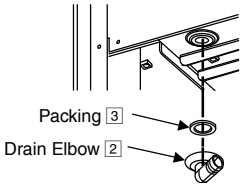
Illustration of guide drain hose to outdoor

(D) Domestic Hot Water Tank Discharge (Drain Tap) and Safety Relief Valve Pipework

- Safety Relief Valve 0.8MPa (8 bars) incorporated in Domestic Hot Water Tank.
- Drain Tap and Safety Relief Valve discharge fittings share the same drainage outlet.
- Use R½" male connector for this drainage outlet connection (Tube connector ⓖ).
- Piping must to be installed in a continuously downward direction. It must not be longer than 2m, with no more than 2 elbows, and must not allow condensation to build up or freezing to occur.
- The pipe from this drainage outlet fitting must not be shut off. The discharge must be freed.
- The end of this pipework must be in such a way so that the outlet is visible and can not cause any damage. Keep away from electrical components.
- It is recommended to fit a tundish into this ⓖ pipework. Tundish should be visible and positioned away from frost environment and electrical components.

(E) Drain Elbow and Hose Installation

- Fix the Drain Elbow and Packing to the bottom of Drain Water Hole ⓘ.
- Use inner diameter 17 mm drain hose in the market.
- This hose must to be installed in a continuously downward direction and in a frost-free environment. Improper drain piping may cause water leakage hence damage the furnitures.
- Guides this hose outlet to outdoor only.
- Do not insert this hose into sewage or drain pipe that may generate ammonia gas, sulphuric gas, etc.
- If necessary, use hose clamp to further tighten the hose at drain hose connector to prevent leakage.
- Water will drip from this hose, therefore the outlet of this hose must be installed in an area where the outlet cannot become blocked.



Connect the Cable to Tank Unit

⚠ WARNING
This section is for authorized and licensed electrician only. Work behind the Control Board Cover secured by screws must only be carried out under supervision of qualified contractor, installation engineer or service person.

Fixing of Power Supply Cable and Connecting Cable

1 Connecting cable between Tank Unit and Outdoor Unit shall be approved polychloroprene sheathed flexible cord, type designation 60245 IEC 57 or heavier cord. See below table for cable size requirement.

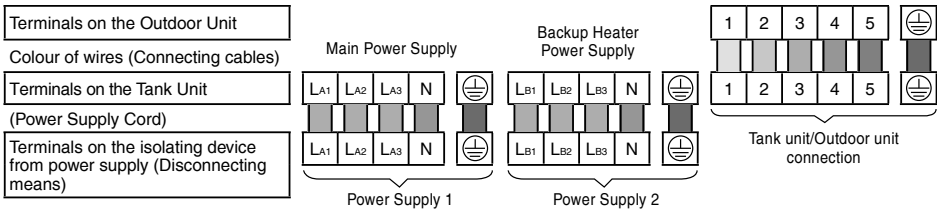
Model		Connecting Cable Size
Tank Unit	Outdoor Unit	
ADC0916H9E8	WH-UX09HE8 / WH-UX12HE8 / WH-UX16HE8 / WH-UD09HE8 / WH-UD12HE8 / WH-UD16HE8	6 x 1.5 mm^2

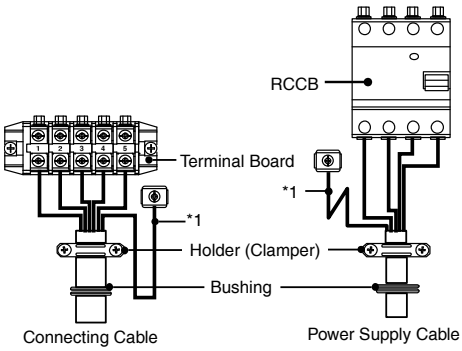
- Ensure the colour of wires of Outdoor Unit and the terminal no. are the same to the Tank Unit respectively.
- Earth wire shall be longer than the other wires as shown in the figure for the electrical safety in case of the slipping out of the cord from the Holder (Clamper).

2 An isolating device must be connected to the power supply cable.
- Isolating device (disconnecting means) should have minimum 3.0 mm contact gap.
- Connect the approved polychloroprene sheathed power supply 1 cord and power supply 2 cord and type designation 60245 IEC 57 or heavier cord to the terminal board, and to the other end of the cord to isolating device (Disconnecting means). See below table for cable size requirement.

Model		Power Supply Cord	Cable Size	Isolating Devices	Recommended RCD
Tank Unit	Outdoor Unit				
ADC0916H9E8	WH-UX09HE8 / WH-UX12HE8 / WH-UX16HE8 / WH-UD09HE8 / WH-UD12HE8 / WH-UD16HE8	1	5 x 1.5 mm^2	20A	30mA, 4P, type A
		2	5 x 1.5 mm^2	20A	30mA, 4P, type AC

3 To avoid the cable and cord being damaged by sharp edges, the cable and cord must be passed through a bushing (located at the bottom of Control Board) before terminal board. The bushing must be used and must not be removed.

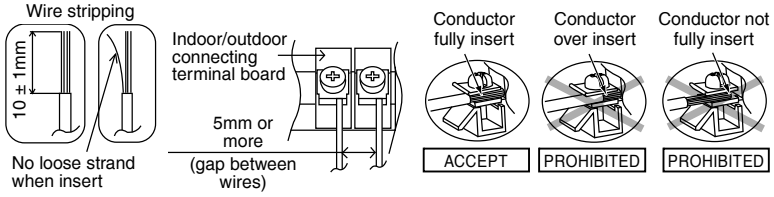




Terminal screw	Tightening torque cN•m {kgf•cm}
M4	157~196 {16~20}
M5	196~245 {20~25}

*1 - Earth wire must be longer than other cables for safety reasons

Wire Stripping and Connecting Requirement



Connecting Requirement

For Tank Unit with UX09HE8 / UX12HE8 / UX16HE8 / UD09HE8 / UD12HE8 / UD16HE8

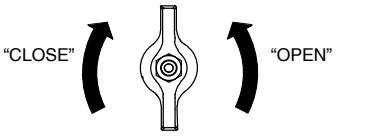
- The equipment's power supply 1 complies with IEC/EN 61000-3-2.
- The equipment's power supply 1 complies with IEC/EN 61000-3-3 and can be connected to current supply network.
- The equipment's power supply 2 complies with IEC/EN 61000-3-2.
- The equipment's power supply 2 complies with IEC/EN 61000-3-3 and can be connected to current supply network.

Charging and Discharging the Water

- Make sure all the piping installations are properly done before carry out below steps.

Charge the Water

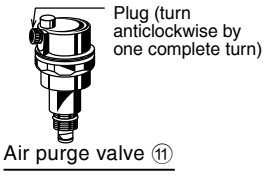
- **For Domestic Hot Water Tank**
  1 Set the Domestic Hot Water Tank Discharge (Drain Tap) ⑨ to "CLOSE".



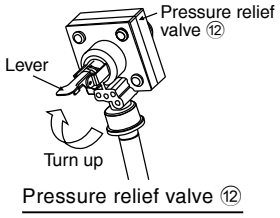
Domestic Hot Water Tank Discharge (Drain Tap) ⑨

  2 Set all Tap / Shower "OPEN".
  3 Start filling water to the Domestic Hot Water Tank via Tube Connector ⓒ.
  After 20~40min, water should flow out from Tap / Shower. Else, please contact your local authorized dealer.
  4 Check and make sure no water leaking at the tube connecting points.
  5 Set the Domestic Hot Water Tank Discharge (Drain Tap) ⑨ to "OPEN" for 10 seconds to release air from this pipeline. Then set it "CLOSE".
  6 Turn the Safety Relief Valve knob counterclockwise slightly and hold for 10 seconds to release air from this pipeline. Then recover the knob to original position.
  7 Ensure Step 5 & 6 is carried out each time after charging water to Domestic Hot Water Tank.
  8 To prevent back pressure from happening to the Safety Relief Valve, do turn the Safety Relief Valve knob counterclockwise.

- **For Space Heating / Cooling**
  1 Turn the plug on the Air Purge Valve outlet anticlockwise by one complete turn from fully closed position.



  2 Set the Pressure Relief Valve level "DOWN".



  3 Start filling water (with pressure more than 0.1 MPa (1 bar)) to the Space Heating / Cooling circuit via Tube Connector ⓐ. Stop filling water if the free water flow through Pressure Relief Valve Drainage ⓗ.
  4 Turn ON the Tank Unit and make sure Water Pump is running.
  5 Check and make sure no water leaking at the tube connecting points.

Discharge the Water

- **For Domestic Hot Water Tank**
  1 Turn OFF power supply.
  2 Set the Domestic Hot Water Tank Discharge (Drain Tap) ⑨ to "OPEN".
  3 Open Tap / Shower to allow air inlet.
  4 Turn the Safety Relief Valve knob counterclockwise slightly and hold it until all air is released from this pipeline. Then recover the knob to original position after ensured the pipeline is emptied.
  5 After discharge, set Domestic Hot Water Tank Discharge (Drain Tap) ⑨ to "CLOSE".

Reconfirmation

⚠ WARNING
Be sure to switch off all power supply before performing each of the below checkings.

*Check Water Pressure *(0.1 MPa = 1 bar)*

Water pressure should not lower than 0.05 MPa (with inspects the Water Pressure Gauge). If necessary add water into Tank Unit (via Tube Connector ⓐ).

Check Pressure Relief Valve

- Check for correct operation of Pressure Relief Valve by turning on the lever to become horizontal.
- If you do not hear a clacking sound (due to water drainage), contact your local authorized dealer.
- Push down the lever after finish checking.
- In case the water keep on draining out from the Tank Unit, switch off the system, and then contact your local authorized dealer.

Expansion Vessel Pre Pressure Checking

For Space Heating / Cooling

- Expansion Vessel with 10 L air capacity and initial pressure of 1 bar is installed in this Tank Unit.
- Total amount of water in system should be below 200 L. (Inner volume of Tank Unit's piping is about 5 L)
- If total amount of water is over 200 L, please add another expansion vessel. (field supply)
- Please keep the installation height difference of system water circuit within 10 m.

Check RCCB

Ensure the RCCB set to "ON" condition before check RCCB.
Turn on the power supply to the Tank Unit.
This testing could only be done when power is supplied to the Tank

⚠ WARNING
Be careful not to touch parts other than RCCB test button when the power is supplied to Tank Unit. Else, electrical shock may happen.

- Push the "TEST" button on the RCCB. The lever would turn down and indicate "0", if it functions normal.
- Contact authorized dealer if the RCCB malfunction.
- Turn off the power supply to the Tank Unit.
- If RCCB functions normal, set the lever to "ON" again after testing finish.

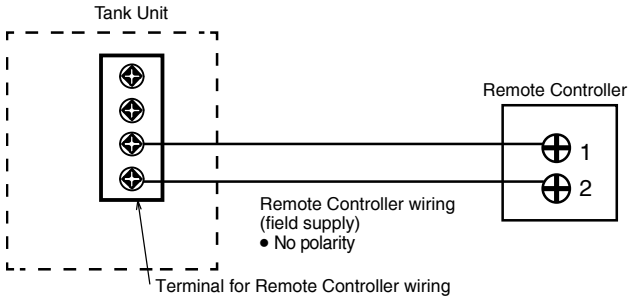
Installation of Remote Controller as Room Thermostat

- Remote Controller mounted to the Tank Unit can be moved to the room and serve as Room Thermostat.

Installation Location

- Install at the height of 1 to 1.5 m from the floor (Location where average room temperature can be detected).
- Install vertically against the wall.
- Avoid the following locations for installation.
  1 By the window, etc. exposed to direct sunlight or direct air.
  2 In the shadow or backside of objects deviated from the room airflow.
  3 Location where condensation occurs (The Remote Controller is not moisture proof or drip proof.)
  4 Location near heat source.
  5 Uneven surface.
- Keep distance of 1 m or more from the TV, radio and PC. (Cause of fuzzy image or noise)

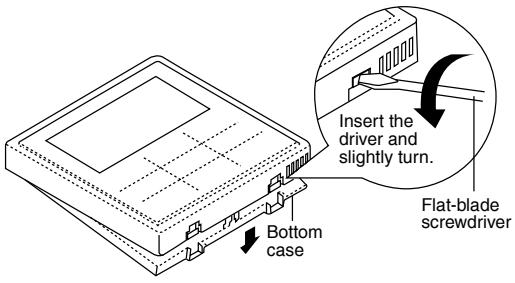
Remote Controller Wiring



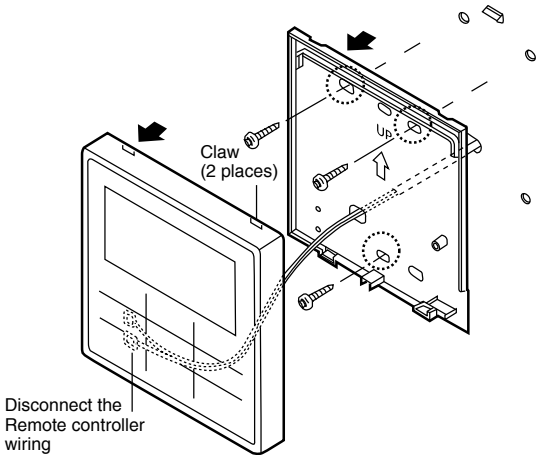
- Remote Controller cable shall be (2 x min 0.3 mm^2), of double insulation PVC-sheathed or rubber sheathed cable. Total cable length shall be 50 m or less.
- Be careful not to connect cables to other terminals of Tank Unit (e.g. power source wiring terminal). Malfunction may occur.
- Do not bundle together with the power source wiring or store in the same metal tube. Operation error may occur.

Remove The Remote Controller From Tank Unit

- Remove the top case from the bottom case.

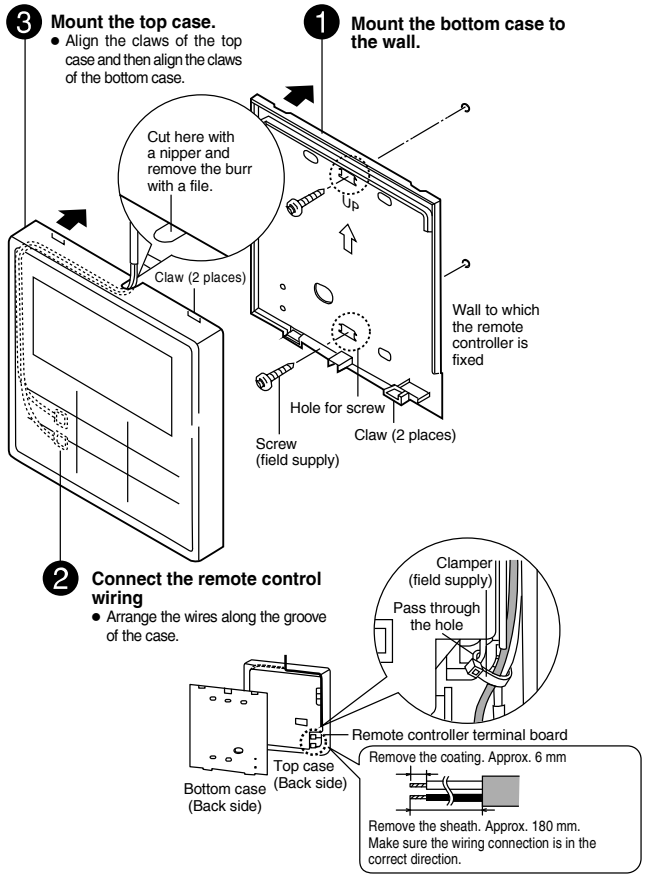


- Remove the wiring between Remote controller and Tank Unit terminal.

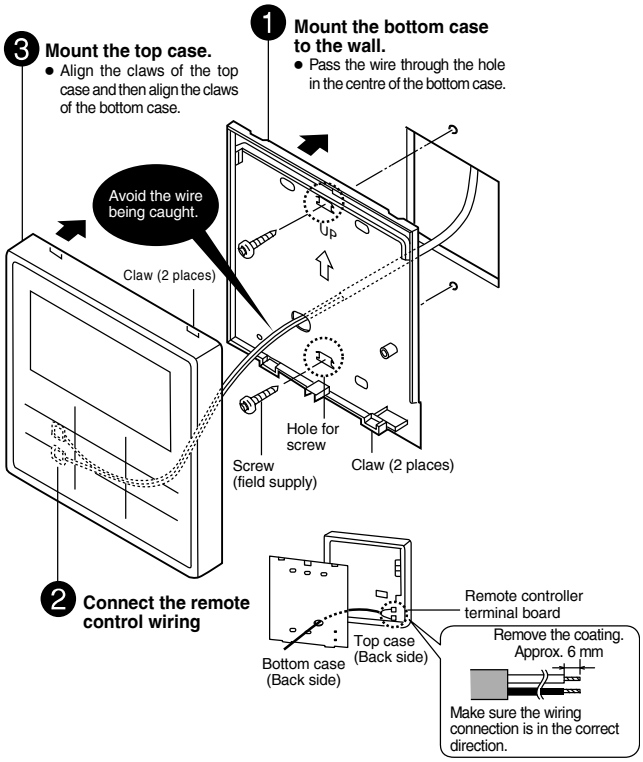


Mounting The Remote Controller

For exposed type
Preparation: Make 2 holes for screws using a driver.

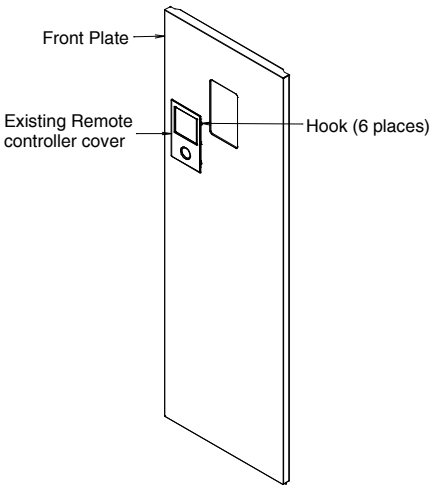


For embedded type
Preparation: Make 2 holes for screws using a driver.

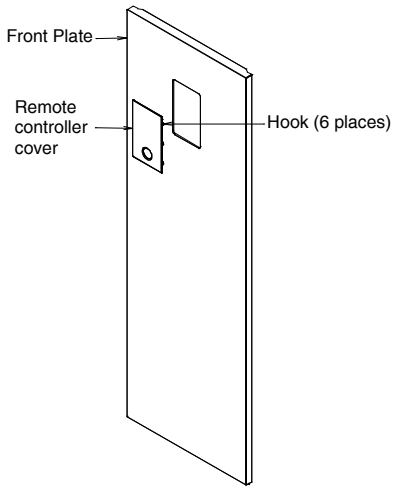


Replace The Remote Controller Cover

- Replace the existing Remote controller cover with Remote controller cover to close the hole left after remove the Remote controller.
  1 Release the Remote controller cover's hooks from behind the Front Plate.



2 Press from front to fix the Remote controller cover on the front plate.



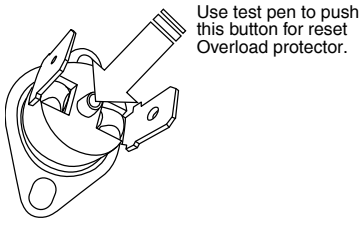
Test Run

- Before test run, make sure below items have been checked:-
  - Pipework are properly done.
  - Electric cable connecting work are properly done.
  - Tank Unit is filled up with water and trapped air is released.
  - Please turn on the power supply after filling the tank until full.
  - In order to check whether the tank is full, switch heater once for about 10 min.
- Switch ON the power supply of the Tank Unit. Set the Tank Unit RCCB to “ON” condition. Then, please refer to the Operation Instruction for operation of Remote Controller.
- For normal operation, Water Pressure Gauge reading should be in between 0.05 MPa and 0.3 MPa. If necessary, adjust the Water Pump SPEED accordingly to obtain normal water pressure operating range. If adjust Water Pump SPEED cannot solve the problem, contact your local authorized dealer.
- After test run, please clean the Water Filter Set. Reinstall it after finish cleaning.

Reset Overload Protector

Overload Protector a serves the safety purpose to prevent the water over heating. When the Overload Protector a trip at high water temperature, take below steps to reset it.

- Take out the cover.
- Use a test pen to push the centre button gently in order to reset the Overload Protector.
- Fix the cover to the original fixing condition.



Maintenance

- In order to ensure safety and optimal performance of the Tank Unit, seasonal inspections on the Tank Unit, functional check of RCCB, field wiring and piping have to be carried out at regular intervals. This maintenance should be carried out by authorized dealer. Contact dealer for scheduled inspection.

Maintenance for Water Filter Set

- Turn OFF power supply.
- Set the two valves for the Water Filter Set to “CLOSE”.
- Take off the clip, then gently pull out the mesh. Beware of small amount water drain out from it.
- Clean the mesh with warm water to remove all the stain. Use soft brush if necessary.
- Reinstall the mesh to the Water Filter Set and set back the clip on it.
- Set the two valves for the Water Filter Set to “OPEN”.
- Turn ON power supply.

Maintenance for Safety Relief Valve

- It is strongly recommended to operate the valve by turn the knob counter clockwise to ensure free water flow through discharge pipe at regular intervals to ensure it is not blocked and to remove lime deposit.

Proper Pump Down Procedure

⚠ WARNING

Strictly follow the steps below for proper pump down procedure. Explosion may occur if the steps are not followed as per sequence.

1. When the Tank Unit is not in operation (standby), enter the Service setup menu in the Remote Controller and select Pump down operation to turn it ON. (See APPENDIX for detail)
2. After 10~15 minutes, (after 1 or 2 minutes in case very low ambient temperatures (< 10°C)), fully close 2 way valve on Outdoor Unit.
3. After 3 minutes, fully close 3 way valve on Outdoor Unit.
4. Press the “OFF/ON” switch on the Remote Controller to stop pump down operation.
5. Remove the refrigerant piping.

Outdoor Unit

Attached accessories

No.	Accessories part	Qty.	No.	Accessories part	Qty.
1	Drain elbow 	1	3	Protective bushing 	2
2	Rubber cap 	8			

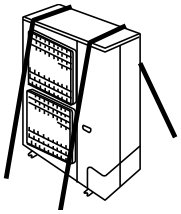
Optional Accessory

No.	Accessories part	Qty.
4	Base Pan Heater CZ-NE3P	1

- It is strongly recommended to install a Base Pan Heater (optional) if the outdoor unit is install in cold climate area. Refer the Base Pan Heater (optional) installation instruction for details of installation.

Select the Best Location

- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- Avoid installations in areas where the ambient temperature may drop below -20°C for UD models and -28°C for UX models.
- Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.
- Do not place any obstacles which may cause a short circuit of the discharged air.
- If outdoor unit installed near sea, region with high content of sulphur or oily location (e.g. machinery oil, etc), it lifespan maybe shorten.
- When installing the product in a place where it will be affected by typhoon or strong wind such as wind blowing between buildings, including the rooftop of a building and a place where there is no building in surroundings, fix the product with an overturn prevention wire, etc. (Overturn prevention fitting model number: K-KYZP15C)



- If piping length is over 10 m, additional refrigerant should be added as shown in the table.

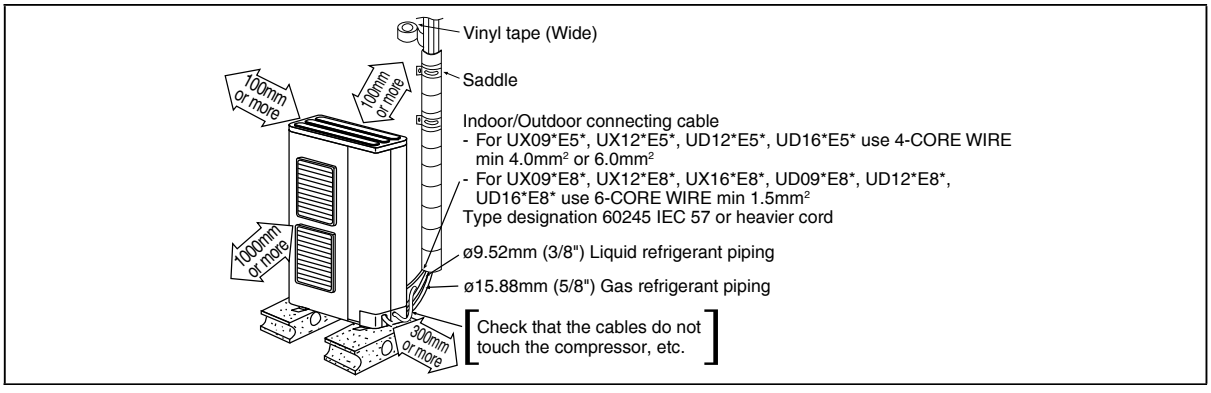
Model	Piping size		Rated Length (m)		Max. Elevation (m)	Min. Piping Length (m)	Max. Piping Length (m)	Additional Refrigerant (g/m)
	Gas	Liquid	For Heat Pump Indoor Unit	For Hydromodule + Tank				
UX09*E5*, UX12*E5*, UD12*E5*, UD16*E5*, UX09*E8*, UX12*E8*, UX16*E8*, UD09*E8*, UD12*E8*, UD16*E8*	ø15.88mm (5/8")	Ø9.52mm (3/8")	7	5	20	3	30	50

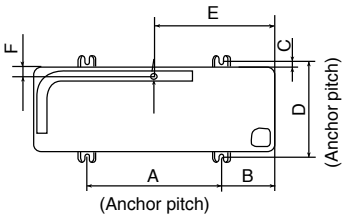
Example:
If piping length is 30m, the quantity of additional refrigerant should be 1000g. [(30-10)m x 50 g/m = 1000g]
GWP (R410A) = 2088

Install the Outdoor Unit

Installation Diagram

- It is advisable to avoid more than 2 blockage directions. For better ventilation & multiple-outdoor installation, please consult authorized dealer/specialist.
- This illustration is for explanation purposes only.





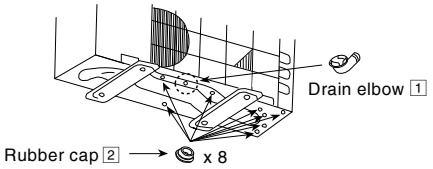
Model	A	B	C	D	E	F
UX09*E5*, UX12*E5*, UD12*E5*, UD16*E5*, UX09*E8*, UX12*E8*, UX16*E8*, UD09*E8*, UD12*E8*, UD16*E8*	620	140	15	355	450	44

(Unit : mm)

- After selecting the best location, start installation according to Installation Diagram.
  1 Fix the unit on concrete or rigid frame firmly and horizontally by bolt nut (ø10 mm).
  2 When installing at roof, please consider strong wind and earthquake. Please fasten the installation stand firmly with bolt or nails.

Disposal of Outdoor Unit Drain Water

- When a Drain elbow is used, please ensure to follow below:
  - the unit should be placed on a stand which is taller than 50 mm.
  - cover the ø20mm holes with Rubber cap (refer to illustration below).
  - use a tray (field supply) when necessary to dispose the outdoor unit drain water.
- If the unit is used in an area where temperature falls below 0°C for 2 or 3 consecutive days, it is recommended not to use the Drain elbow and Rubber cap, for the drain water freezes and the fan will not rotate.



Connecting the Piping

⚠ CAUTION
Do not over tighten, over tightening may cause gas leakage.

Model	Piping size (Torque)	
	Gas	Liquid
UX09*E5*, UX12*E5*, UD12*E5*, UD16*E5*, UX09*E8*, UX12*E8*, UX16*E8*, UD09*E8*, UD12*E8*, UD16*E8*	ø15.88mm (5/8") [65 N•m]	Ø9.52mm (3/8") [42 N•m]

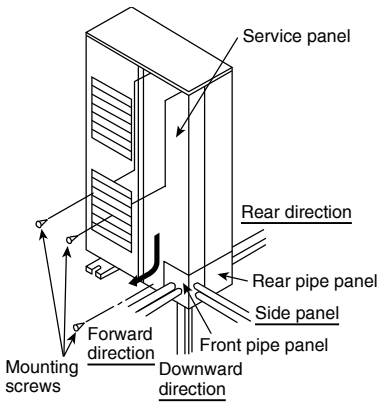
Connecting the Piping to Outdoor Unit

Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge. Make flare after inserting the flare nut (locate at valve) onto the copper pipe. Align center of piping to valves and then tighten with torque wrench to the specified torque as stated in the table.

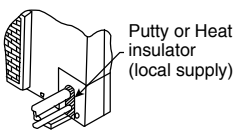
Local pipes can project in any of four directions.

- Make holes in the pipe panels for the pipes to pass through.
- Be sure to install the pipe panels to prevent rain from getting inside the outdoor unit.
  [Removing the service panel].
  (1) Remove the three mounting screws.
  (2) Slide the service panel downward to release the pawls.

After this, pull the service panel toward you to remove it.

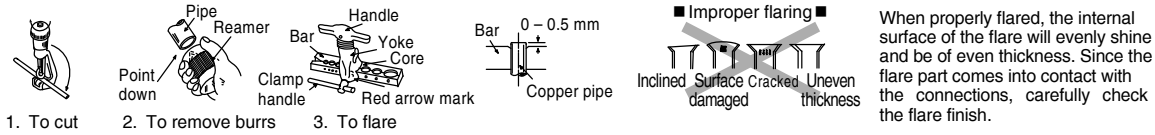


Close the tube joining area with putty heat insulator (local supply) without any gap as shown in right figure. (To prevent insects or small animal entering.)



Cutting and Flaring the Piping

1 Please cut using pipe cutter and then remove the burrs.
2 Remove the burrs by using reamer. If burrs is not removed, gas leakage may be caused. Turn the piping end down to avoid the metal powder entering the pipe.
3 Please make flare after inserting the flare nut onto the copper pipes.

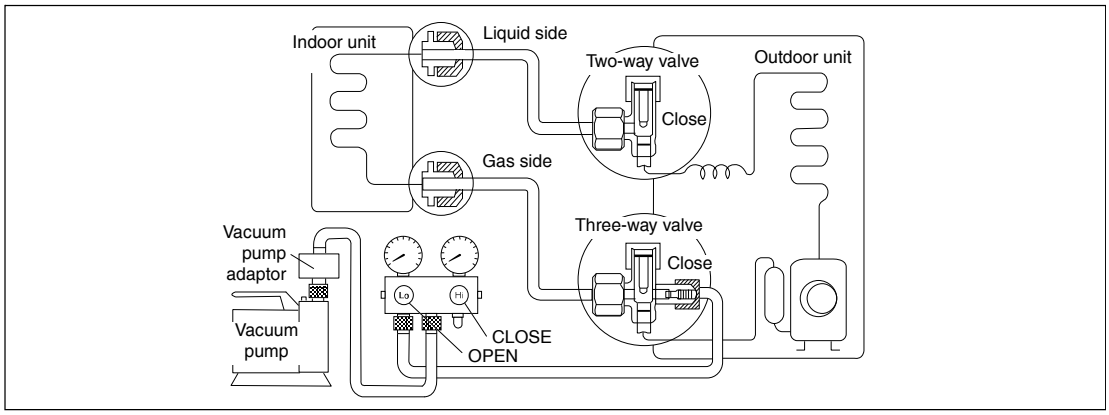


1. To cut 2. To remove burrs 3. To flare

When properly flared, the internal surface of the flare will evenly shine and be of even thickness. Since the flare part comes into contact with the connections, carefully check the flare finish.

Evacuation of the Equipment

WHEN INSTALLING AN AIR-TO-WATER HEAT PUMP, BE SURE TO EVACUATE THE AIR INSIDE THE UNIT AND PIPES in the following procedure.



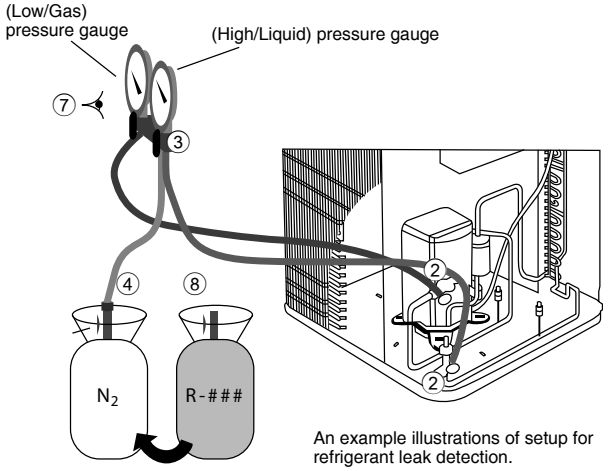
1 Connect a charging hose with a push pin to the Low side of a charging set and the service port of the 3-way valve.
   - Be sure to connect the end of the charging hose with the push pin to the service port.
2 Connect the center hose of the charging set to a vacuum pump with check valve, or vacuum pump and vacuum pump adaptor.
3 Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to –76 cmHg (–0.1 MPa). Then evacuate the air approximately ten minutes.
4 Close the Low side valve of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately five minutes.
   Note : BE SURE TO FOLLOW THIS PROCEDURE IN ORDER TO AVOID REFRIGERANT GAS LEAKAGE.
5 Disconnect the charging hose from the vacuum pump and from the service port of the 3-way valve.
6 Tighten the service port caps of the 3-way valve at a torque of 18 N•m with a torque wrench.
7 Remove the valve caps of both of the 2-way valve and 3-way valve. Position both of the valves to “OPEN” using a hexagonal wrench (4 mm).
8 Mount valve caps onto the 2-way valve and the 3-way valve.
   - Be sure to check for gas leakage.

⚠ CAUTION
If gauge needle does not move from 0 cmHg (0 MPa) to –76 cmHg (–0.1 MPa), in step ③ above take the following measure: 1. If the leak stops when the piping connections are tightened further, continue working from step ③. 2. If the leak does not stop when the connections are retightened, repair location of leak. 3. Do not release refrigerant during piping work for installation and reinstallation. Take care of the liquid refrigerant, it may cause frostbite.

Air-tightness Test on the Refrigerant System

Before system charged with refrigerant and before the refrigerating system in put into operation, below site test procedure and acceptance criteria shall be verified by the certified technicians, and/or the installer:-

- Step 1: Pressure test for refrigerant leak detection:
  1 Steps for pressure test, in accordance to ISO 5149.
  2 Evacuate the system from refrigerant before the leak test, attach the gauge manifold set correctly and tightly. Charging hose of Low side connect to Gas side. (Charging hose of High side connect to Liquid side if applicable.)
  3 Adjust the knob on the service valves, and regulator on the gauge set, so that test gas can be inserted through the centre manifold of the gauge set.
  4 Insert Nitrogen gas into the system through the centre manifold and wait until the pressure within the system to reach about 1MPa (10 BarG) wait for a few hours and monitor the pressure reading on the gauges.
  5 Please note that the system's pressure may rise slightly if the test is carried out on mid day, due to temperature rise. The inverse may happen when there is temperature drop at night. However, this variation will be minimal.
  6 Waiting time depends on the size of the system. Larger systems may require 12 hours of waiting time. Leak detection within smaller system can be achieved in 4 hours.
  7 Check if there is a constant pressure drop. Move to next step "Step 2: Refrigerant leak detection..." if there is any pressure drop. Otherwise, release the Nitrogen gas and, move to "Step 3: Vacuum test".
  8 Next, insert a small amount of same refrigerant into the system through the centre hose, until the pressure reaches about 1MPa (10 BarG).



An example illustrations of setup for refrigerant leak detection.

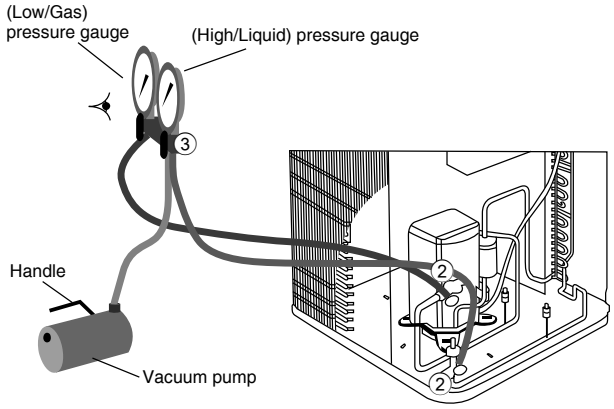
- Step 2: Refrigerant leak detection through Electronic halogen leak detector and/or ultrasonic leak detector:
  1 Use any one of below detector to check leaking.
    - Electronic halogen leak detector.
      - Switch on the unit.
      - Cover the test area from direct draft.
      - Pass the detection probe near test area and wait for audible and visible signals.
    - Ultrasonic Leak Detector
      - Make sure the area is quiet.
      - Switch on the ultrasonic leak detector.
      - Move the probe along your air conditioning system to test for leaks, and mark for repair.
  2 Any leak detected at this level shall be repaired and retested, starting from "Step 1: Pressure test".

NOTE:

- Always recover the refrigerant and Nitrogen gas into recovery cylinder after completion of a test.
- You must use the detection equipment with Detectable Leak Rate of 10^{-6} Pa.m^3/s or better.
- Do not use refrigerant as test medium for system with total refrigerant charge more than 5kg.
- Test shall be performed with dry Nitrogen or another non-flammable, non-reactive, dried gas. Oxygen, air or mixtures containing them shall not be used.

- Step 3: Vacuum test:
  1 Perform Vacuum test to check leak / moisture if present.
  2 Refer to section "EVACUATION OF THE EQUIPMENT" to vacuum gas out of the air conditioning system.
  3 Wait for a few hours, depending on the size of the refrigerating system and monitor the pressure rise. If the pressure rises until 1 bar absolute, then there is leak. If the pressure rises, but it is lower than 1 bar absolute, then moisture is present.

Next, remove the moisture, or repair, and redo the refrigerant leak testing, starting from “Step 1: Pressure test”.



An example illustrations of setup for refrigerant leak detection.

Connect the Cable to the Outdoor Unit

(FOR DETAIL REFER TO WIRING DIAGRAM AT UNIT)

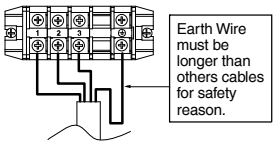
1 Remove the control board cover from the unit by loosening the screw.
2 Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed flexible cable (see below table), type designation 60245 IEC 57 or heavier cable.
3 Secure the cable onto the control board with the holder (clamper).
4 Attach the control board cover back to the original position with screw.

⚠ WARNING

This equipment must be properly earthed.

Models	Flexible cable specification
UX09*E5*, UX12*E5*, UD12*E5*, UD16*E5*	4 x min 4.0 mm² or 6.0 mm²

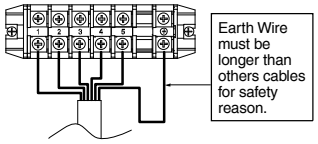
Terminals on the indoor unit	1	2	3	⏚
Colour of wires				
Terminals on the outdoor unit	1	2	3	⏚



Earth Wire must be longer than others cables for safety reason.

Models	Flexible cable specification
UX09*E8*, UX12*E8*, UX16*E8*, UD09*E8*, UD12*E8*, UD16*E8*	6 x min 1.5 mm²

Terminals on the indoor unit	1	2	3	4	5	⏚
Colour of wires						
Terminals on the outdoor unit	1	2	3	4	5	⏚

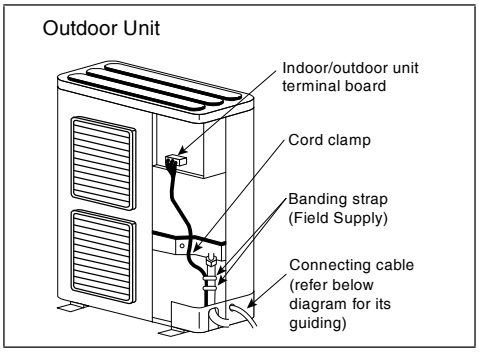


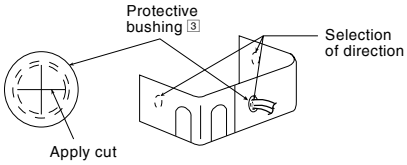
Earth Wire must be longer than others cables for safety reason.

⚠ CAUTION

- For three phase model never operate the unit by pressing the electromagnetic switch.
- Never correct the phase by switching over any of the wires inside the unit.

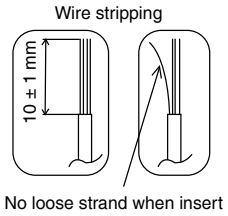
- Select required direction and apply protective bushing provided in accessories to protect cables from sharp edges.
- Once all wiring work has been completed, tie the cable and cord together with the binding strap so that they do not touch other parts such as the compressor and bare copper pipes.

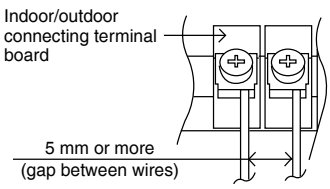


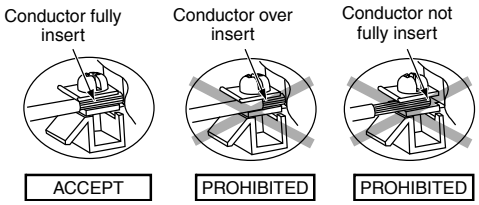


DETAIL OF CONNECTING CABLE GUIDING

Wire Stripping and Connecting Requirement







Pipe Insulation

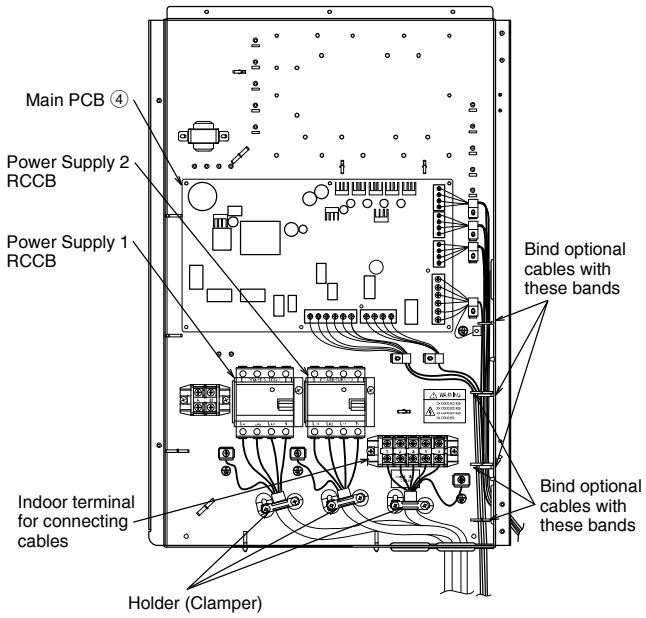
1 Please carry out insulation at pipe connection portion as mentioned in Indoor/Outdoor Unit Installation Diagram. Please wrap the insulated piping end to prevent water from going inside the piping.

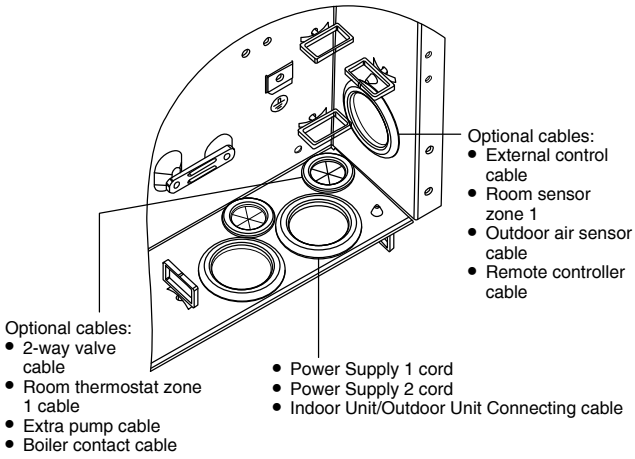
2 If drain hose or connecting piping is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with thickness 6 mm or above.

How to fix cable

Connecting with external device (optional)

- **All connections shall** follow to the local national wiring standard.
- It is strongly recommended to use manufacturer-recommended parts and accessories for installation.
- For connection to main PCB
  1 Two-way valve shall be spring and electronic type, refer to “Field Supply Accessories” table for details. Valve cable shall be (3 x min 1.5 mm^2), of type designation 60245 IEC 57 or heavier, or similarly double insulation sheathed cable.
  * note: - Two-way Valve shall be CE marking compliance component.
  - Maximum load for the valve is 9.8VA.
  2 Room thermostat cable must be (4 or 3 x min 0.5 mm^2), of type designation 60245 IEC 57 or heavier cord, or similarly double insulation sheathed cable.
  3 Extra pump cable shall be (2 x min 1.5 mm^2), of type designation 60245 IEC 57 or heavier.
  4 Boiler contact cable shall be (2 x min 0.5 mm^2), of type designation 60245 IEC 57 or heavier.
  5 External control shall be connected to 1-pole switch with min 3.0 mm contact gap. Its cable must be (2 x min 0.5 mm^2), double insulation layer of PVC-sheathed or rubber-sheathed cable.
  * note: - Switch used shall be CE compliance component.
  - Maximum operating current shall be less than $3A_{rms}$.
  6 Room sensor zone 1 cable shall be (2 x min 0.3 mm^2) double insulation layer of PVC-sheathed or rubber-sheathed.
  7 Outdoor air sensor cable shall be (2 x min 0.3 mm^2) double insulation layer of PVC-sheathed or rubber-sheathed.

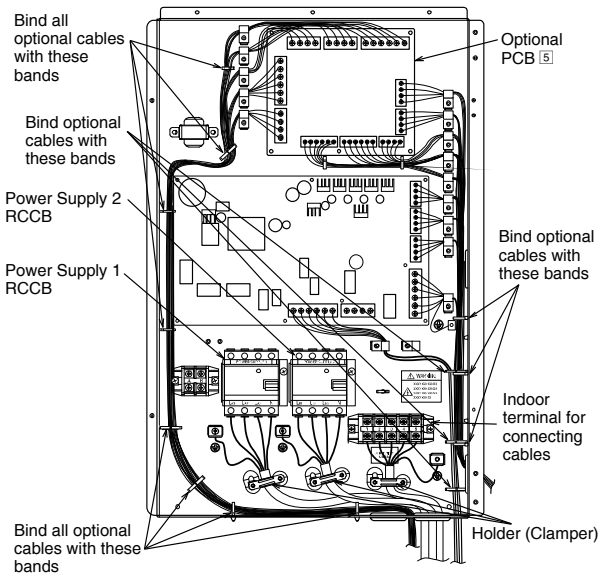




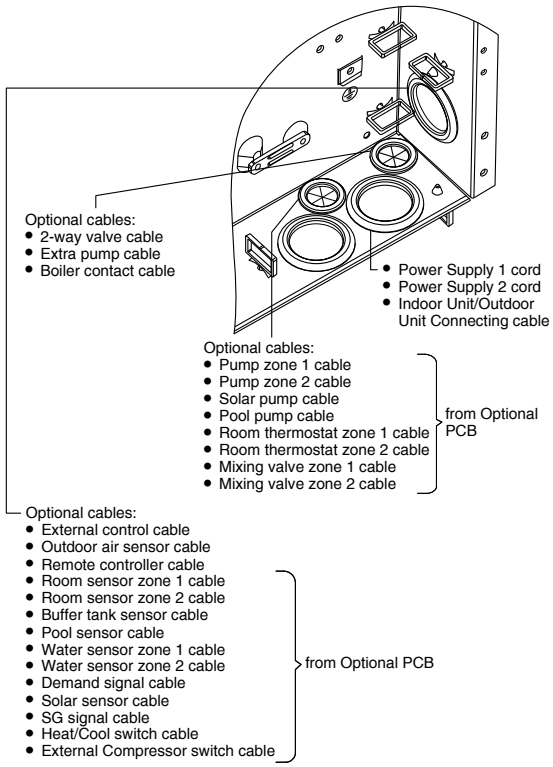
How to guide the optional cables and power supply cord
(view without internal wiring)

- For connection to Optional PCB
  1 By connecting Optional PCB, 2 Zone temperature control can be achieved. Please connect mixing valves, water pumps and thermistors in zone 1 and zone 2 to each terminals in Optional PCB.
  Temperature of each zone can be controlled independently by remote controller.
  2 Pump zone 1 and zone 2 cable shall be (2 x min 1.5 mm^2), of type designation 60245 IEC 57 or heavier.
  3 Solar pump cable shall be (2 x min 1.5 mm^2), of type designation 60245 IEC 57 or heavier.
  4 Pool pump cable shall be (2 x min 1.5 mm^2), of type designation 60245 IEC 57 or heavier.
  5 Room thermostat zone 1 and zone 2 cable shall be (4 x min 0.5 mm^2), of type designation 60245 IEC 57 or heavier.
  6 Mixing valve zone 1 and zone 2 cable shall be (3 x min 1.5 mm^2), of type designation 60245 IEC 57 or heavier.
  7 Room sensor zone 1 and zone 2 cable shall be (2 x min 0.3 mm^2), double insulation layer (with insulation strength of minimum 30V) of PVC-sheathed or rubber-sheathed cable.
  8 Buffer tank sensor, pool water sensor and solar sensor cable shall be (2 x min 0.3 mm^2), double insulation layer (with insulation strength of minimum 30V) of PVC-sheathed or rubber-sheathed cable.
  9 Water sensor zone 1 and zone 2 cable shall be (2 x min 0.3 mm^2), double insulation layer of PVC-sheathed or rubber-sheathed cable.

10 Demand signal cable shall be (2 x min 0.3 mm^2), double insulation layer of PVC-sheathed or rubber-sheathed cable.
11 SG signal cable shall be (3 x min 0.3 mm^2), double insulation layer of PVC-sheathed or rubber-sheathed cable.
12 Heat/Cool switch cable shall be (2 x min 0.3 mm^2), double insulation layer of PVC-sheathed or rubber-sheathed cable.
13 External compressor switch cable shall be (2 x min 0.3 mm^2), double insulation layer of PVC-sheathed or rubber-sheathed cable.



How to guide the optional cables and power supply cord
(view without internal wiring)



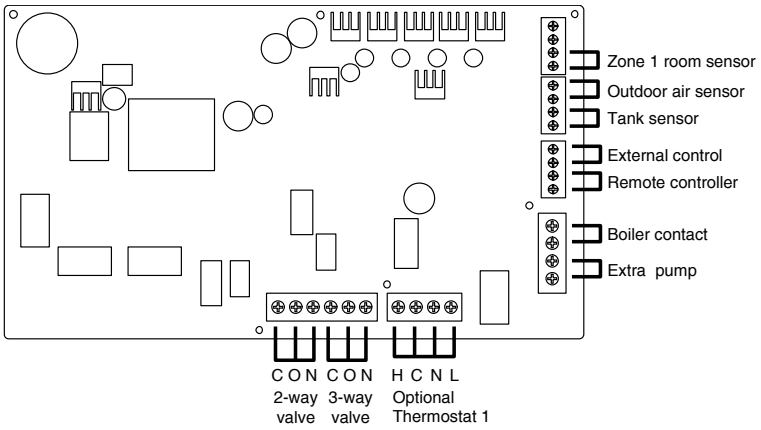
Terminal screw on PCB	Maximum tightening torque cN•m {kgf•cm}
M3	50 {5.1}
M4	120 {12.24}

Connecting Cables Length

When connecting cables between Tank Unit and external devices, the length of the said cables must not exceed the maximum length as shown in the table.

External device	Maximum cables length (m)
Two-way valve	50
Mixing valve	50
Room thermostat	50
Extra pump	50
Solar pump	50
Pool pump	50
Pump	50
Boiler contact	50
External control	50
Room sensor	30
Outdoor air sensor	30
Buffer tank sensor	30
Pool water sensor	30
Solar sensor	30
Water sensor	30
Demand signal	50
SG signal	50
Heat/Cool switch	50
External compressor switch	50

Connection of the main PCB



- Signal inputs

Optional Thermostat	L N =AC230V, Heat, Cool=Thermostat heat, Cool terminal ❉ It does not function when using the Optional PCB
External control	Dry contact Open=not operate, Short=operate (System setup necessary) Able to turn ON/OFF the operation by external switch
Remote controller	Connected (Please use 2 cores wire for relocation and extension. Total cable length shall be 50m or less.)

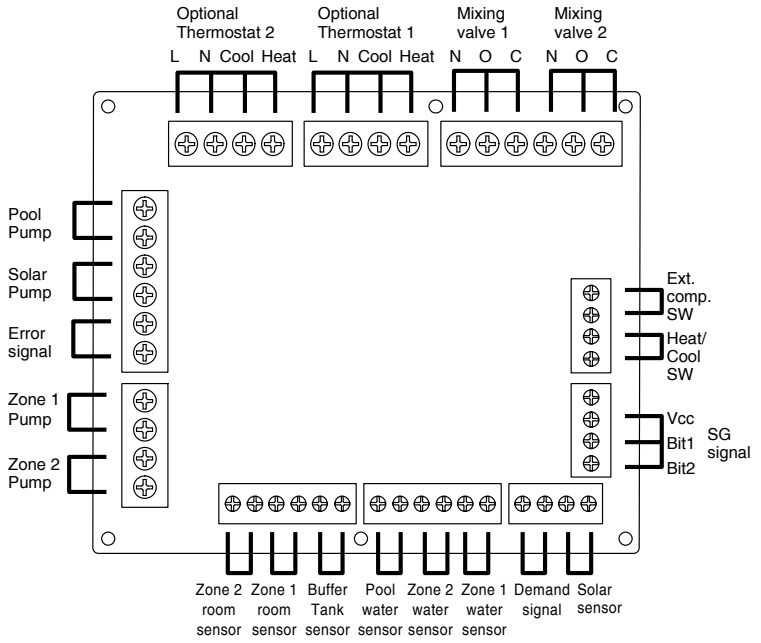
- Outputs

3-way valve	AC230V N=Neutral Open, Close=direction (For circuit switching when connected to DHW tank)
2-way valve	AC230V N=Neutral Open, Close (Prevent water circuit pass through during cooling mode)
Extra pump	AC230V (Used when Tank Unit pump capacity is insufficient)
Boiler contact	Dry contact (System setup necessary)

- Thermistor inputs

Zone 1 room sensor	PAW-A2W-TSRT ❉ It does not work when using the Optional PCB
Outdoor air sensor	AW-A2W-TSOD (Total cable length shall be 30m or less)

Connection of Optional PCB (CZ-NS4P)



- Signal inputs

Optional Thermostat	L N =AC230V, Heat, Cool=Thermostat heat, Cool terminal
SG signal	Dry contact Vcc-Bit1, Vcc-Bit2 open/short (System setup necessary) Switching SW (Please connect to the 2 contacts controller)
Heat/Cool SW	Dry contact Open=Heat, Short=Cool (System setup necessary)
External comp.SW	Dry contact Open=Comp.ON, Short=Comp.OFF (System setup necessary)
Demand signal	DC 0~10V (System setup necessary) Please connect to the DC 0~10V controller.

- Outputs

Mixing valve	AC230V N=Neutral Open, Close=mixture direction Operating time: 30s~120s
Pool pump	AC230V
Solar pump	AC230V
Zone pump	AC230V

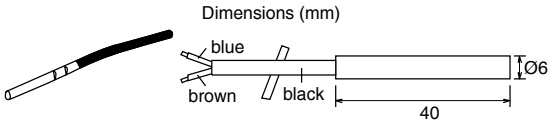
- Thermistor inputs

Zone room sensor	PAW-A2W-TSRT
Buffer tank sensor	PAW-A2W-TSBU
Pool water sensor	PAW-A2W-TSHC
Zone water sensor	PAW-A2W-TSHC
Solar sensor	PAW-A2W-TSSO

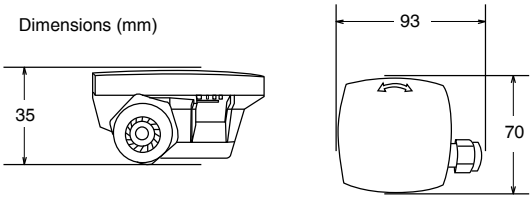
Recommended External Device Specification

- This section explains about the external devices (optional) recommended by Panasonic. Please always ensure to use the correct external device during system installation.
- For optional sensor.

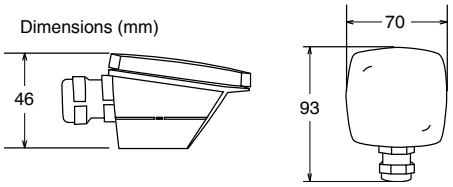
1 Buffer tank sensor: PAW-A2W-TSBU
Use for measurement of the buffer tank temperature.
Insert the sensor into the sensor pocket and paste it on the buffer tank surface.



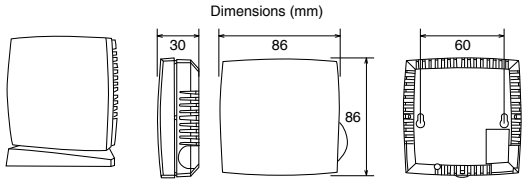
2 Zone water sensor: PAW-A2W- TSHC
Use to detect the water temperature of the control zone.
Mount it on the water piping by using the stainless steel metal strap and contact paste (both are included).



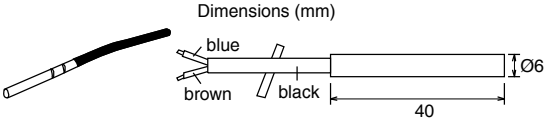
3 Outdoor sensor: PAW-A2W-TSOD
If the installation location of the outdoor unit is exposed to direct sunlight, the outdoor air temperature sensor will be unable to measure the actual outdoor ambient temperature correctly.
In this case, optional outdoor temperature sensor can be fixed at a suitable location to more accurately measure ambient temperature.



4 Room sensor: PAW-A2W- TSRT
Install the room temperature sensor to the room which requires room temperature control.



5 Solar sensor: PAW-A2W-TSSO
Use for measurement of the solar panel temperature.
Insert the sensor into the sensor pocket and paste it on the solar panel surface.

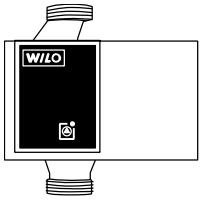


6 Please refer to the table below for sensor characteristic of the sensors mentioned above.

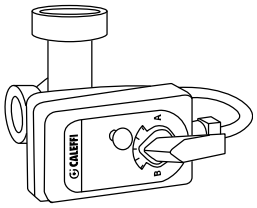
Temperature (°C)	Resistance (kΩ)
150	0.147
140	0.186
130	0.236
120	0.302
110	0.390
100	0.511
90	0.686
80	0.932
70	1.279
65	1.504
60	1.777
55	2.106
50	2.508
45	3.003

Temperature (°C)	Resistance (kΩ)
40	3.615
35	4.375
30	5.326
25	6.523
20	8.044
15	9.980
10	12.443
5	15.604
0	19.70
-5	25.05
-10	32.10
-15	41.45
-20	53.92
-25	70.53
-30	93.05
-35	124.24
-40	167.82

- For optional pump.
  Power supply: AC230V/50Hz, <500W
  Recommended part: Yonos 25/6: made by Wilo



- For optional mixing valve.
  Power supply: AC230V/50Hz (input open/output close)
  Operating time: 30s~120s
  Recommended part: 167032: made by Caleffi

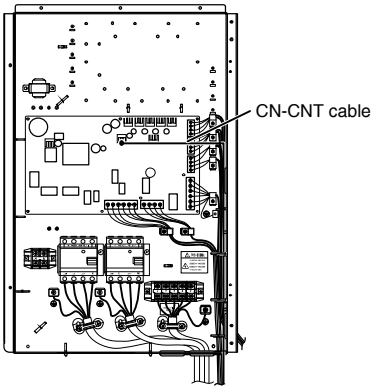


⚠ WARNING
This section is for authorized and licensed electrician/water system installer only. Work behind the front plate secured by screws must only be carried out under supervision of qualified contractor, installation engineer or service person.

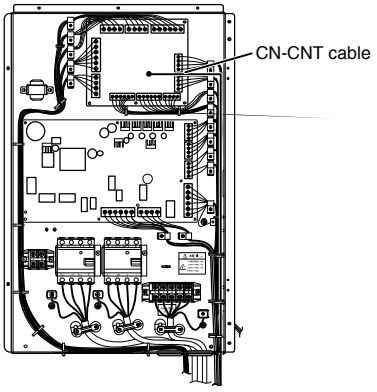
Network Adaptor Installation (Optional)

- **Remove the Control Board Cover, then connect the cable included with this adaptor to the CN-CNT connector on the printed circuit board.**
  - Pull the cable out of the Tank Unit so that there is no pinching.
  - If an Optional PCB has been installed in the Tank Unit, connect to the CN-CNT connector of the Optional PCB.

Connection examples: H series

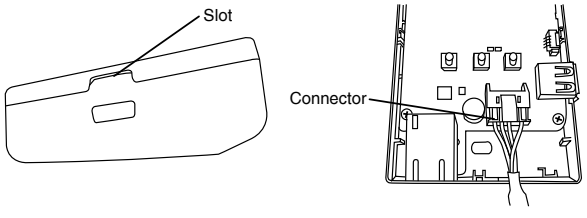


Without Optional PCB

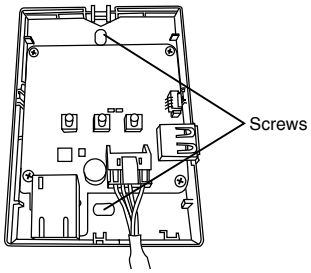


With Optional PCB

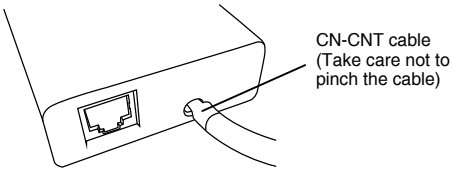
- **Insert a flat head screwdriver into the slot on the top of the adaptor and remove the cover. Connect the other end of the CN-CNT cable connector to the connector inside the adaptor.**



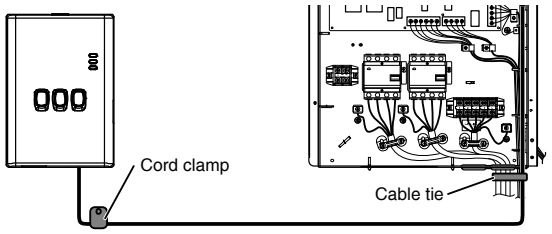
- **On the wall near the Tank Unit, attach the adaptor by screwing screws through the holes in the back cover.**



- **Pull the CN-CNT cable through the hole in the bottom of the adaptor and re-attach the front cover to the back cover.**



- **Use the included cord clamp to fix the CN-CNT cable to the wall.**
  Pull the cable around as shown in the diagram so that external forces cannot act on the connector in the adaptor.
  Furthermore, on the Tank Unit end, use the included cable tie to fix the cables together.



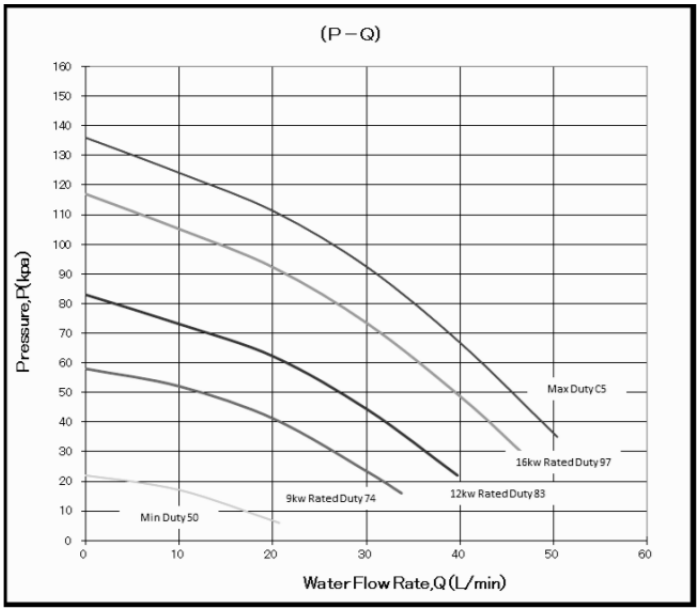
Maximum pump speed setting on remote control

- Standard pump speed is automatically controlled to get the designed water temperature different between water inlet and outlet (ΔT). Instead of setting the standard pump speed, maximum pump speed is manually adjusted by the installer according to water circuit pressure drop.

However, the following sequences do not follow maximum pump duty setting by remote control.

- Pump down mode
- Air purge mode
- Normal deice

1) P-Q graph for different pump HEX duty



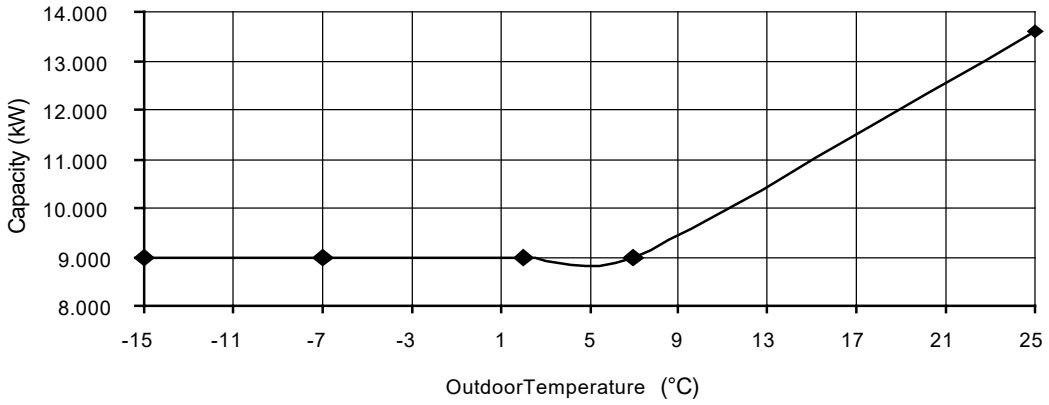
Technical Data

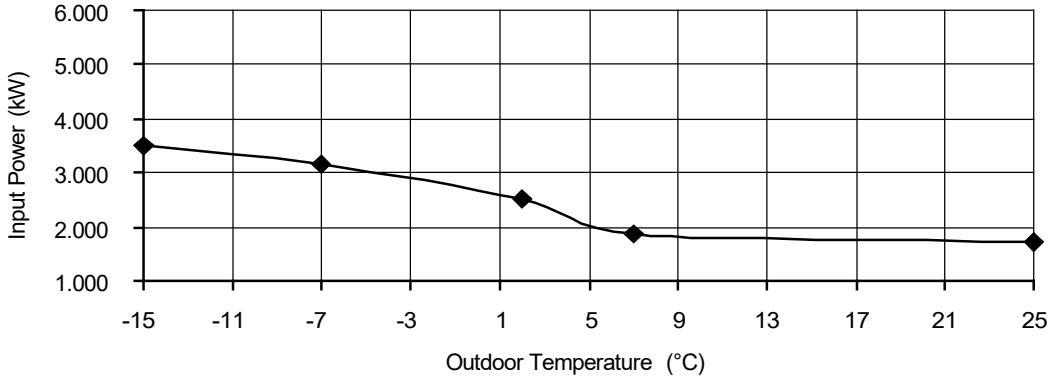
Operation Characteristics

WH-ADC0916H9E8 WH-UX09HE8

Heating Characteristics at Different Outdoor Air Temperature

Condition
Outdoor air temperature : 7°C (DBT), 6°C (WBT)
Indoor water inlet temperature : 30°C
Indoor water outlet temperature : 35°C
Piping length : 7 m





Cooling Characteristics at Different Outdoor Air Temperature

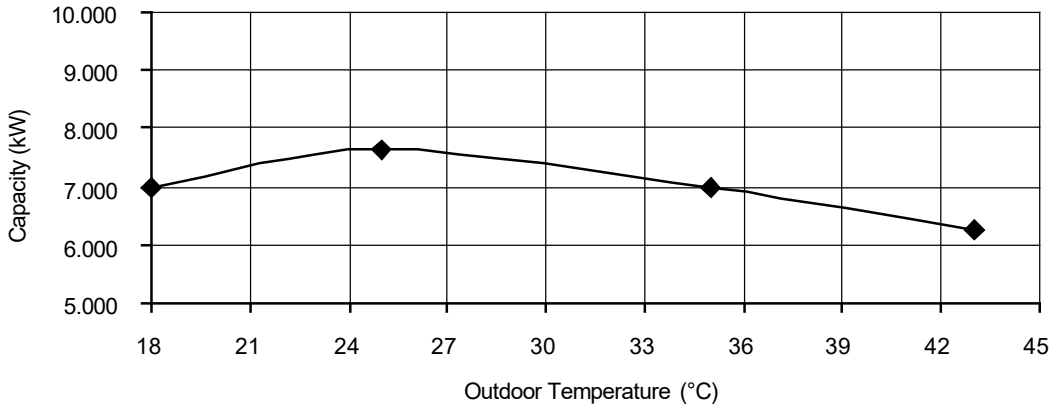
Condition

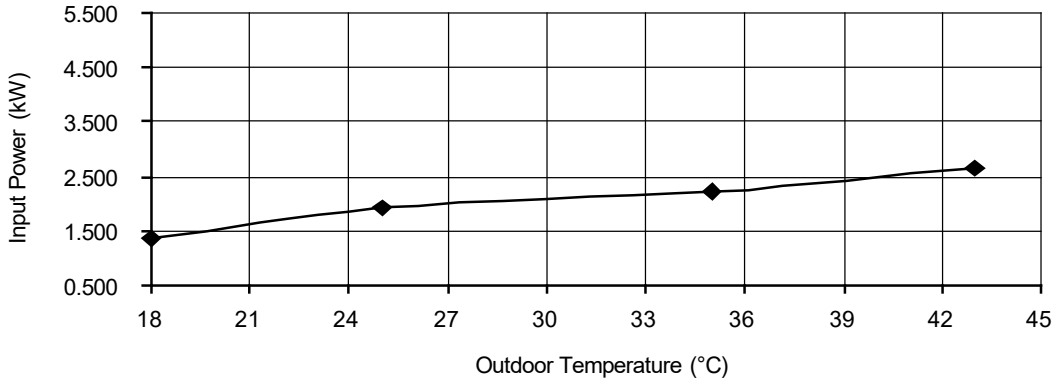
Outdoor air temperature : 35°C (DBT), -°C (WBT)

Indoor water inlet temperature : 12°C

Indoor water outlet temperature : 7°C

Piping length : 7 m





Heating Characteristics at Different Piping Length

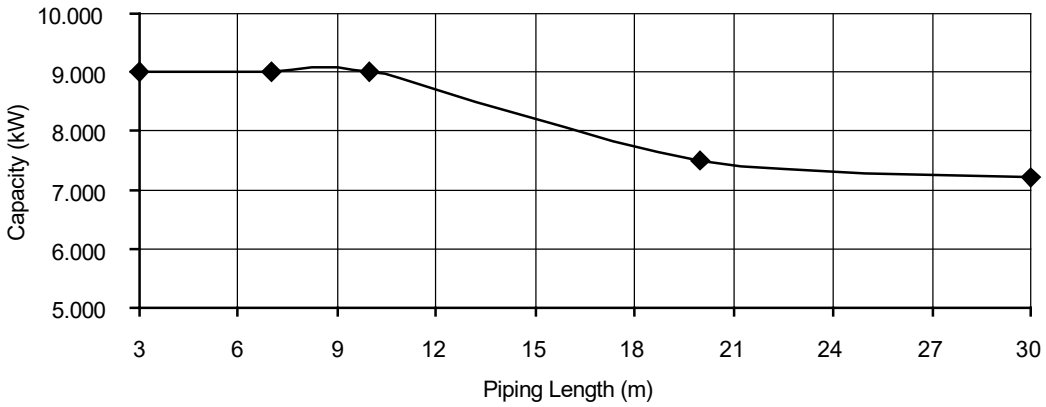
Condition

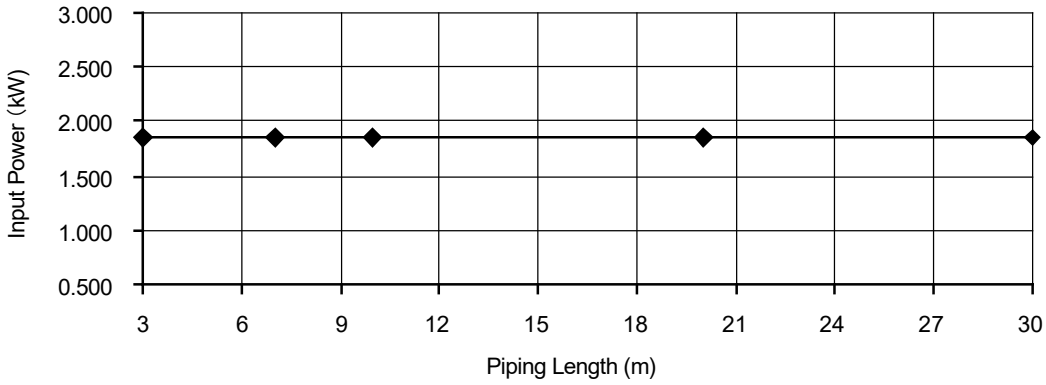
Outdoor air temperature : 7°C (DBT), 6°C (WBT)

Indoor water inlet temperature : 30°C

Indoor water outlet temperature : 35°C

Piping length : 7 m





Cooling Characteristics at Different Piping Length

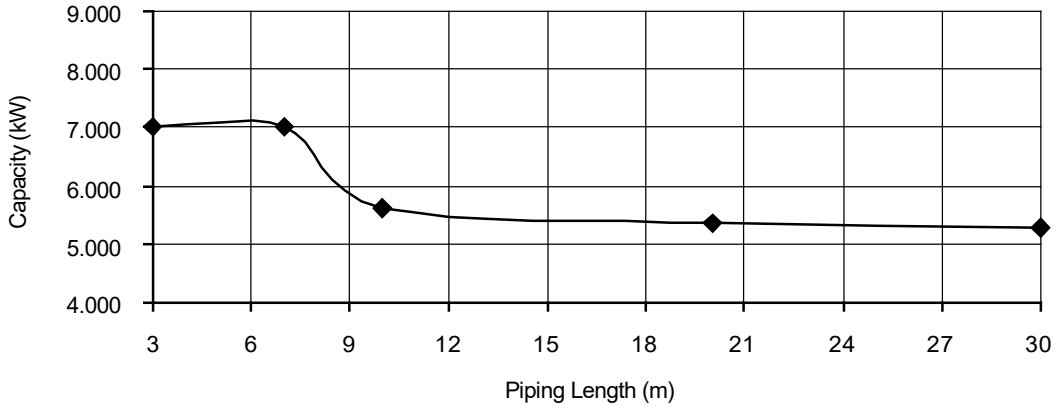
Condition

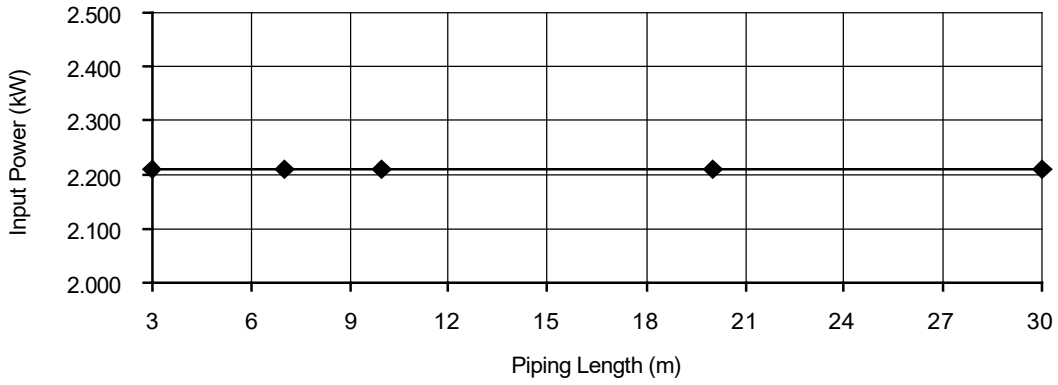
Outdoor air temperature : 35°C (DBT), -°C (WBT)

Indoor water inlet temperature : 12°C

Indoor water outlet temperature : 7°C

Piping length : 7 m

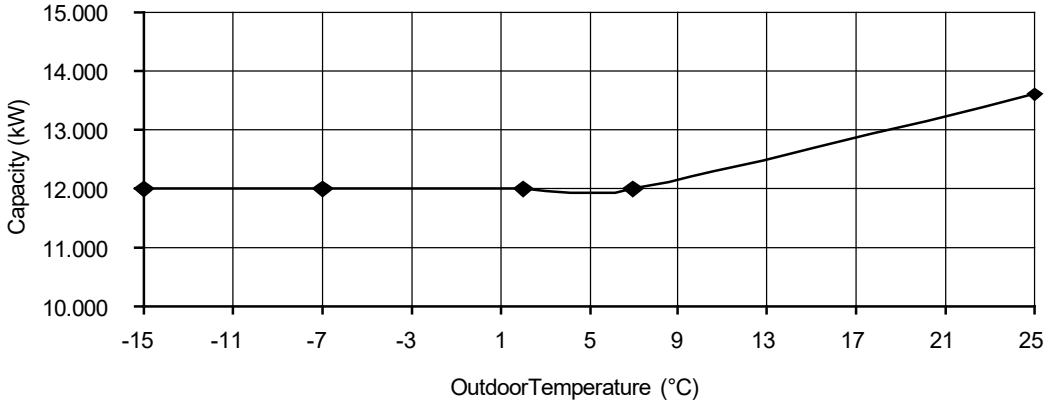


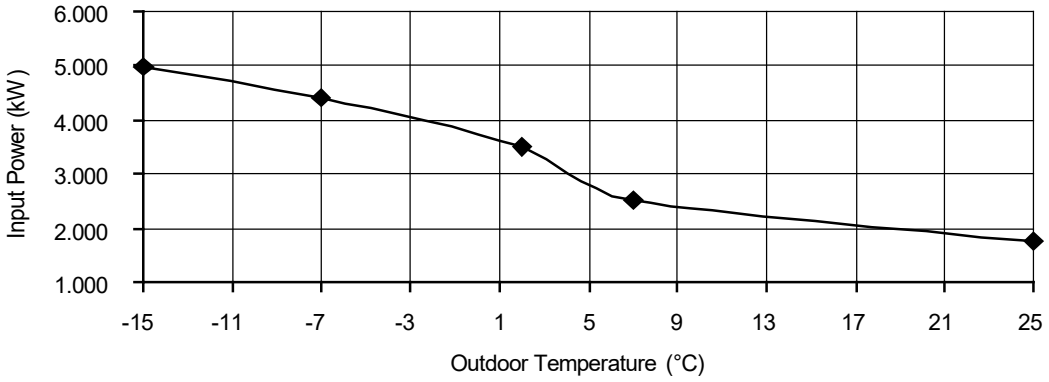


WH-ADC0916H9E8 WH-UX12HE8

Heating Characteristics at Different Outdoor Air Temperature

Condition
Outdoor air temperature : 7°C (DBT), 6°C (WBT)
Indoor water inlet temperature : 30°C
Indoor water outlet temperature : 35°C
Piping length : 7 m





Cooling Characteristics at Different Outdoor Air Temperature

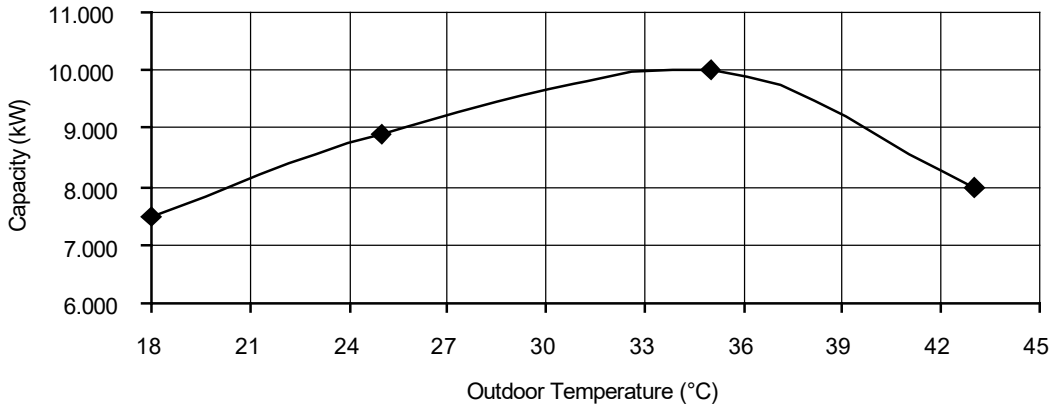
Condition

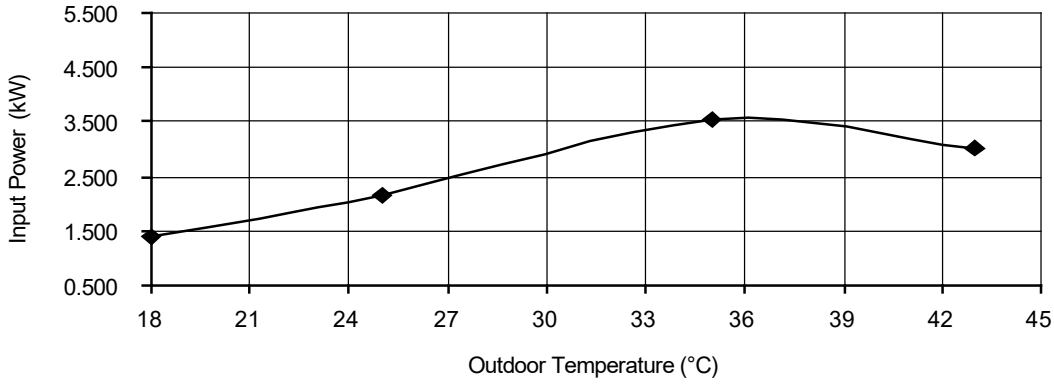
Outdoor air temperature : 35°C (DBT), -°C (WBT)

Indoor water inlet temperature : 12°C

Indoor water outlet temperature : 7°C

Piping length : 7 m





Heating Characteristics at Different Piping Length

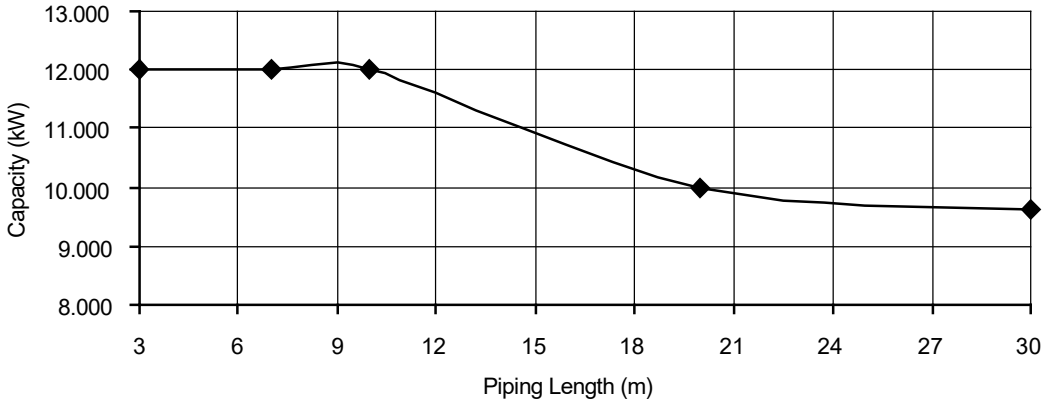
Condition

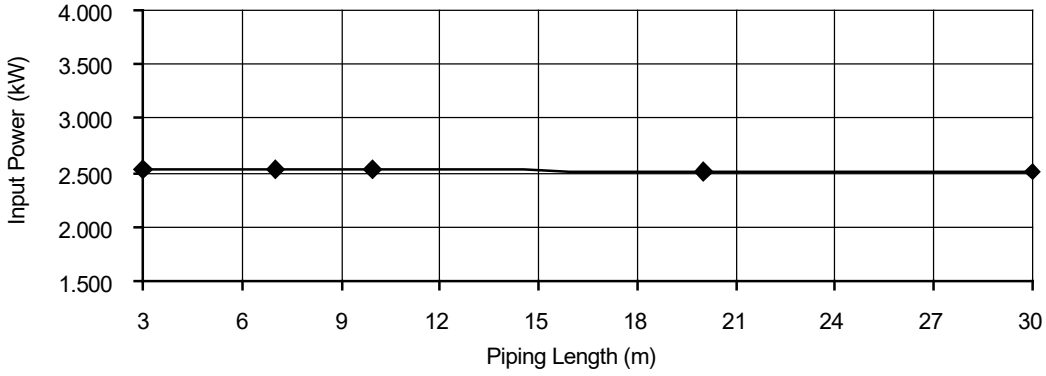
Outdoor air temperature : 7°C (DBT), 6°C (WBT)

Indoor water inlet temperature : 30°C

Indoor water outlet temperature : 35°C

Piping length : 7 m





Cooling Characteristics at Different Piping Length

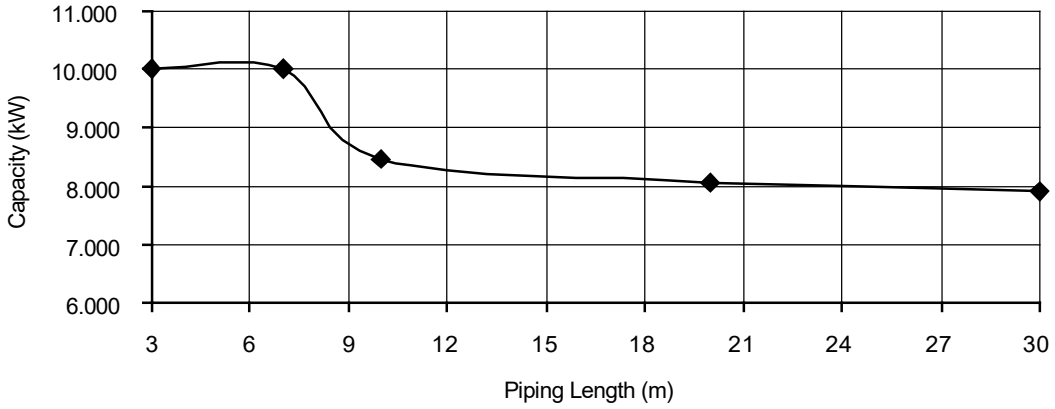
Condition

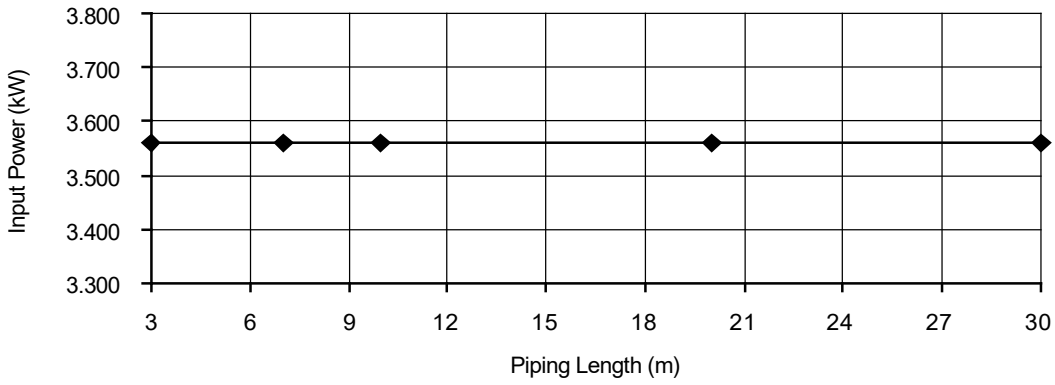
Outdoor air temperature : 35°C (DBT), -°C (WBT)

Indoor water inlet temperature : 12°C

Indoor water outlet temperature : 7°C

Piping length : 7 m

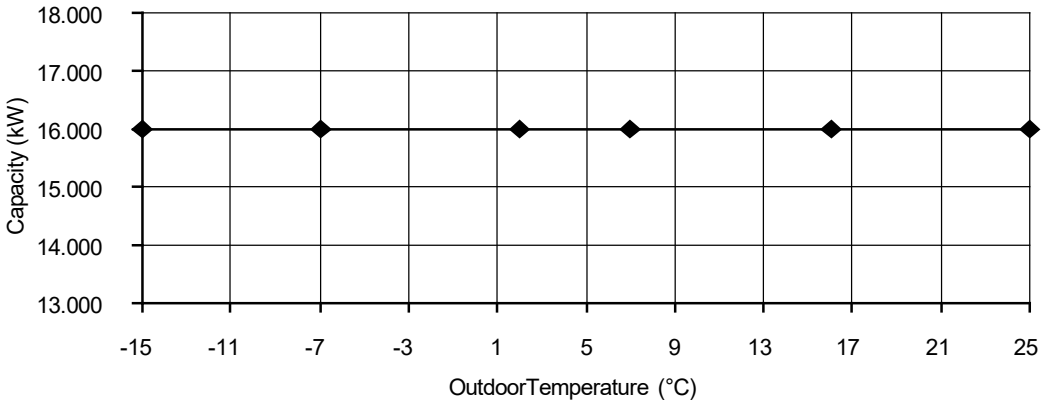


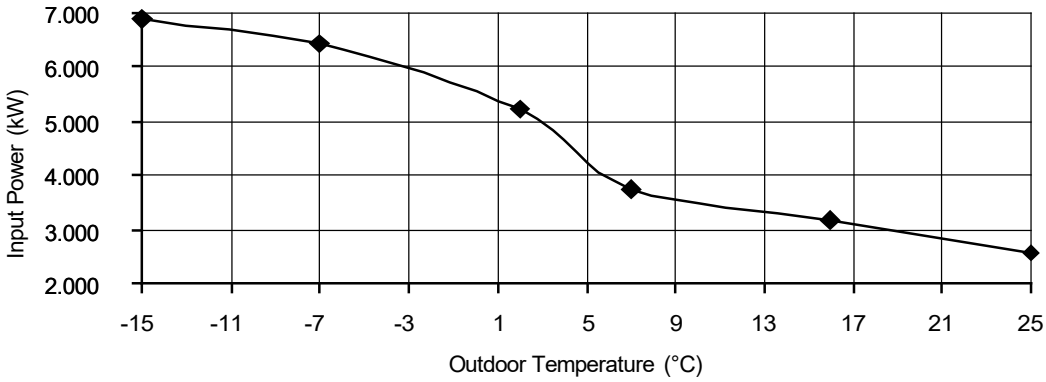


WH-ADC0916H9E8 WH-UX16HE8

Heating Characteristics at Different Outdoor Air Temperature

Condition
Outdoor air temperature : 7°C (DBT), 6°C (WBT)
Indoor water inlet temperature : 30°C
Indoor water outlet temperature : 35°C
Piping length : 7 m





Cooling Characteristics at Different Outdoor Air Temperature

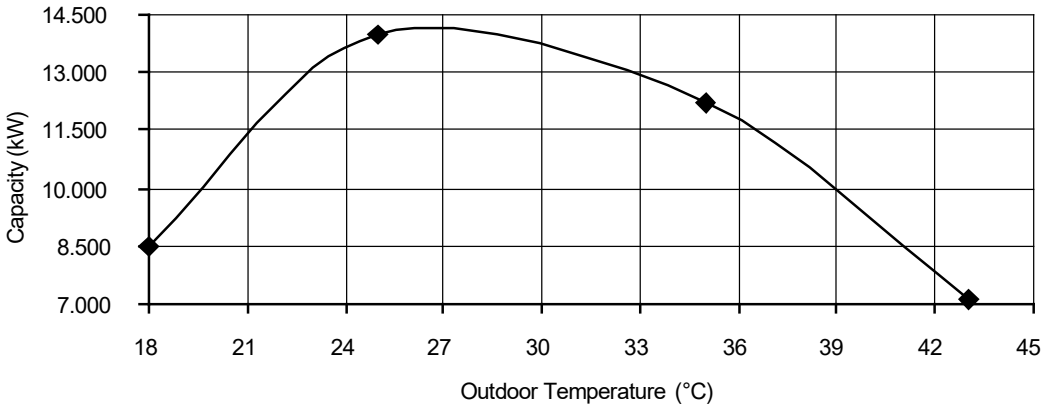
Condition

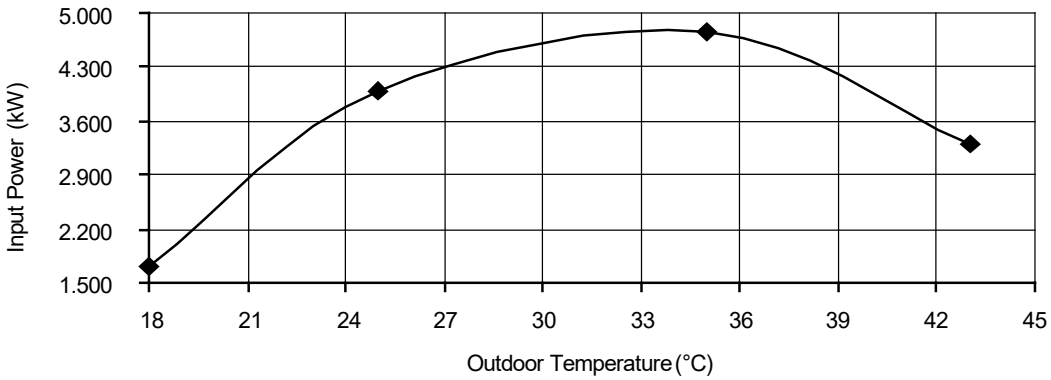
Outdoor air temperature : 35°C (DBT), -°C (WBT)

Indoor water inlet temperature : 12°C

Indoor water outlet temperature : 7°C

Piping length : 7 m





Cooling Characteristics at Different Outdoor Air Temperature

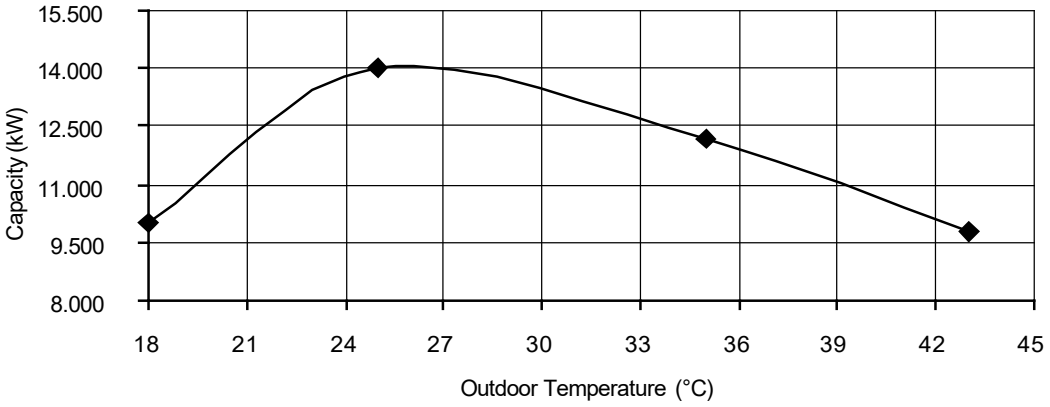
Condition

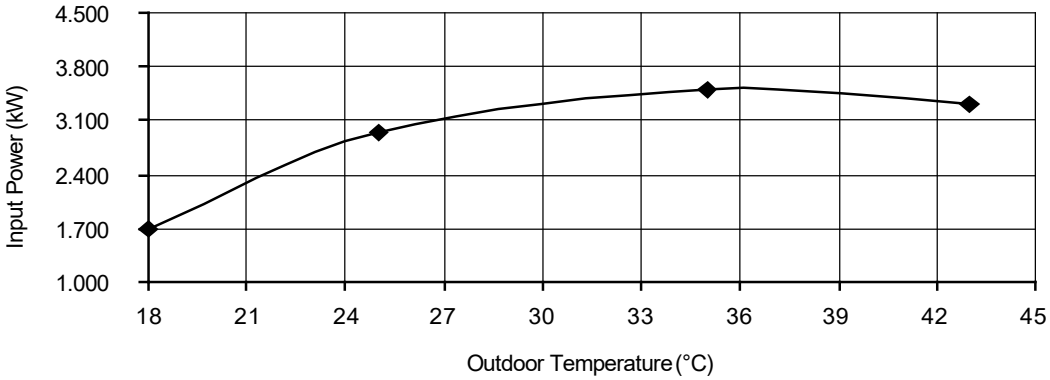
Outdoor air temperature : 35°C (DBT), -°C (WBT)

Indoor water inlet temperature : 12°C

Indoor water outlet temperature : 18°C

Piping length : 7 m





Heating Characteristics at Different Piping Length

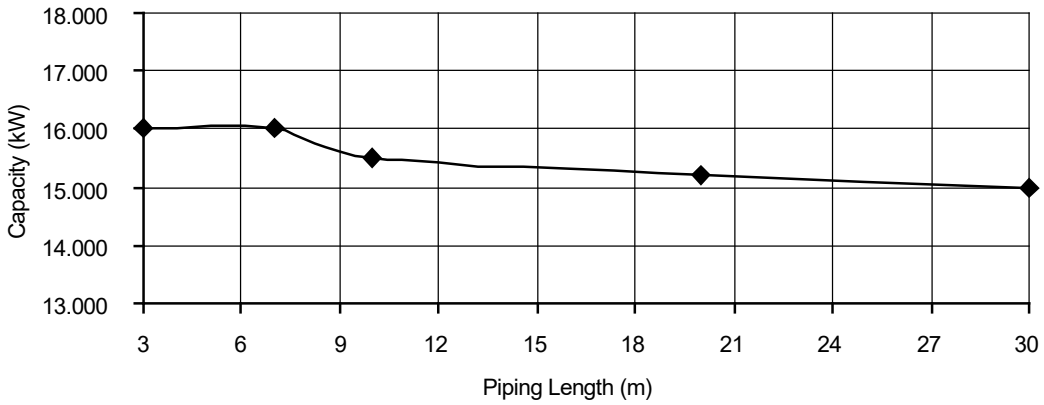
Condition

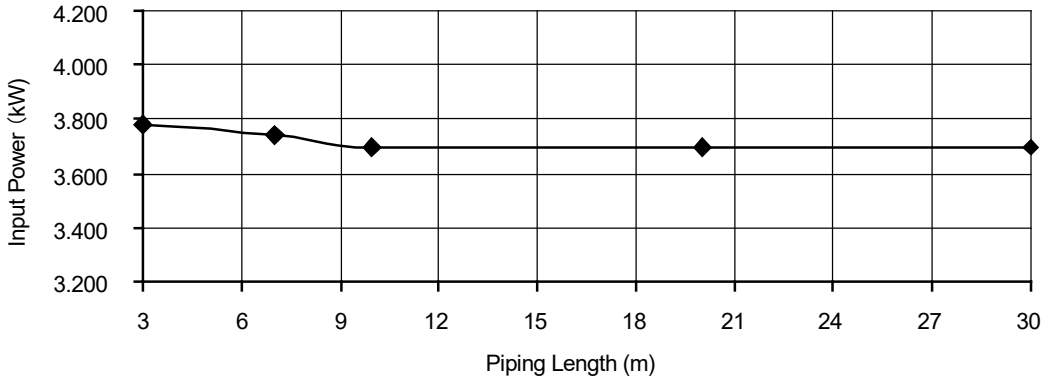
Outdoor air temperature : 7°C (DBT), 6°C (WBT)

Indoor water inlet temperature : 30°C

Indoor water outlet temperature : 35°C

Piping length : 7 m





Cooling Characteristics at Different Piping Length

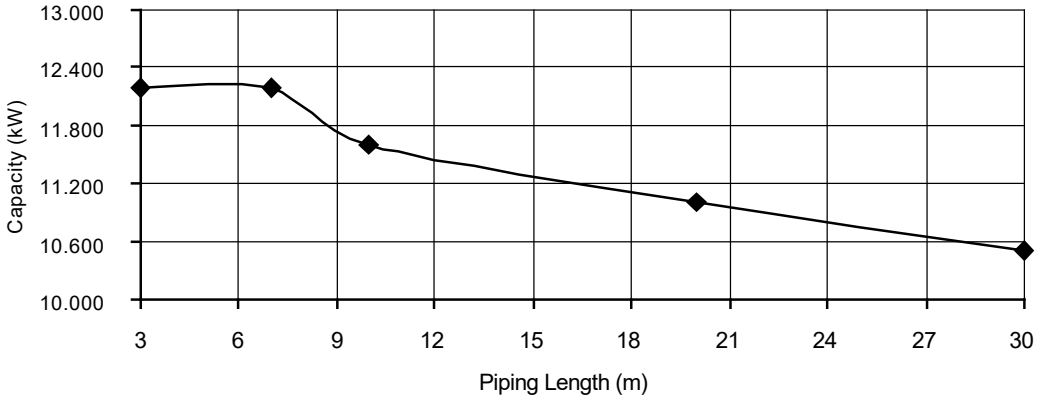
Condition

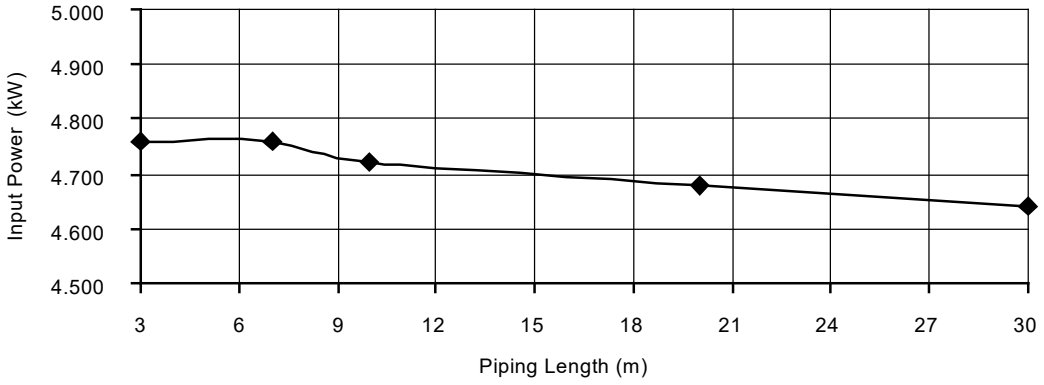
Outdoor air temperature : 35°C (DBT), -°C (WBT)

Indoor water inlet temperature : 12°C

Indoor water outlet temperature : 7°C

Piping length : 7 m





Heating Capacity Table

WH-UX09HE8

Water Out (°C)	30		35		40		45		50		55	
Outdoor Air (°C)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)
-15	9000	3240	9000	3510	9000	3910	9000	4300	9000	4730	9000	5160
-7	9000	2710	9000	3160	9000	3620	9000	4070	9000	4270	9000	4460
2	9000	2360	9000	2510	9000	2780	9000	3050	9000	3560	9000	4070
7	9000	1640	9000	1860	9000	2160	9000	2460	9000	2760	9000	3060
25	13600	1500	13600	1710	13200	1930	12800	2140	12000	2410	11200	2670

WH-UX12HE8

Water Out (°C)	30		35		40		45		50		55	
Outdoor Air (°C)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)
-15	12000	4750	12000	4960	12000	5410	12000	5860	11800	6240	11600	6620
-7	12000	3850	12000	4410	12000	4980	12000	5540	12000	5900	12000	6260
2	12000	3190	12000	3490	12000	3870	12000	4250	12000	4860	12000	5470
7	12000	2180	12000	2530	12000	2960	12000	3390	12000	3780	12000	4160
25	13600	1550	13600	1760	13400	2100	13200	2430	12600	2660	12000	2890

WH-UX16HE8

Water Out (°C)	30		35		40		45		50		55	
Outdoor Air (°C)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)
-15	16000	6300	16000	6890	16000	7450	16000	8100	16000	8480	15200	8960
-7	16000	5850	16000	6420	16000	7000	16000	7570	16000	8100	16000	8620
2	16000	4670	16000	5210	16000	5740	16000	6310	16000	6900	16000	7500
7	16000	3350	16000	3740	16000	4300	16000	4800	16000	5430	16000	5910
16	16000	2590	16000	3180	16000	3710	16000	4270	16000	4860	16000	5220
25	16000	2020	16000	2580	16000	2910	16000	3360	16000	3740	16000	4000

Cooling Capacity Table

WH-ADC0916H9E8 WH-UX09HE8

Outdoor Air (°C)	Capacity (W)	Input Power (W)
18	7000	1360
25	7650	1910
35	7000	2210
43	6250	2660

WH-ADC0916H9E8 WH-UX12HE8

Outdoor Air (°C)	Capacity (W)	Input Power (W)
18	7500	1410
25	8900	2160
35	10000	3560
43	8000	3010

WH-ADC0916H9E8 WH-UX16HE8

Water Out (°C)	7		18	
Outdoor Air (°C)	Capacity (W)	Input Power (W)	Capacity (W)	Input Power (W)
18	8500	1700	10000	1700
25	14000	4000	14000	2940
35	12200	4760	12200	3500
43	7100	3310	9800	3310