

Heat Pump Unit Inverter Compressor

Design for precision temperature and humidity controls application



°C +
%RH

Suitable where humidity controls required.



HPU Series

Heating capacity range 9 - 280 kW
Cooling capacity range 7 - 208 kW

R410A



ENERCOV heat pump unit provide fully range of heating solution for humidity controls which compare to electric heater, we also getting by produce of cooling, will reduce operating costs.

■ Why ENERCOV

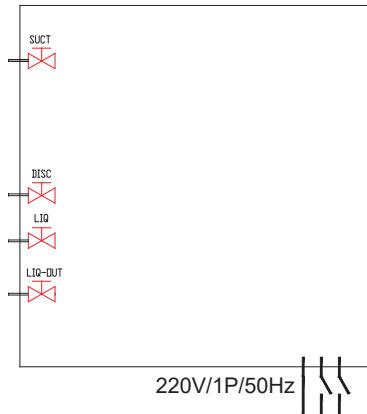
More than 15 years of ENERCOV experiences to apply heat recovery system such as reheating dehumidifier process for humidity control. Hot water making machine, and much more. We provide HPU series heat pump unit which high efficiency, more reliability, heavy duty running and environment concern. This unit is suitable for reheating process of humidity control purpose.

■ Easy INSTALLATION

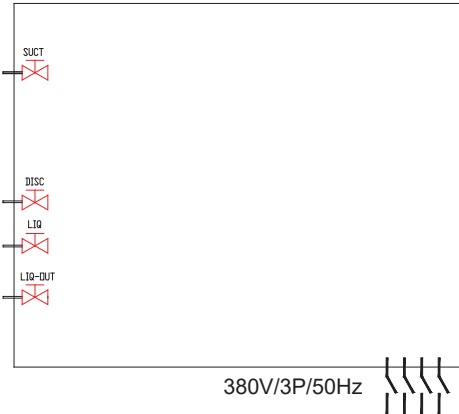
ENERCOV heat pump HPU series is an air to air type which are combined with air handling unit or outdoor air unit. It is very easy to install like normal air conditioning system. There are HPU housing, copper piping work with insulation, air handling unit (or outdoor air unit), electrical power installation work, etc. However, we have trained engineer to supervise all of necessary installation needed.

REFRIGERANT DIAGRAM

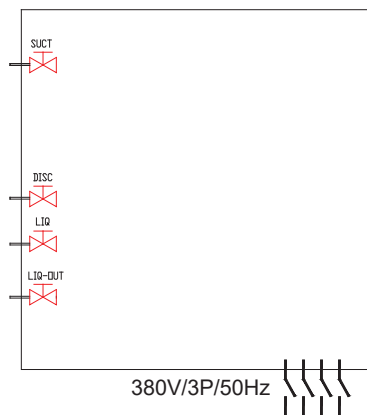
HPU-09 to HPU-17



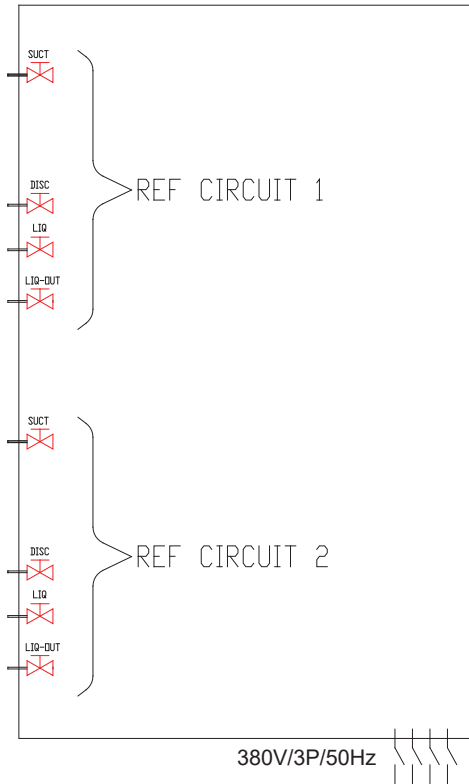
HPU-85 to HPU-140 HPU-25-C to HPU-100-C



HPU-25 to HPU-70



HPU-170 to HPU-280 HPU-130-C to HPU-220-C



SUCT	Suction Line
LIQ	Liquid Line
DISC	Discharge Line
LIQ-OUT	Liquid Out to Evaporator
COMP	Compressor
OILSEP	Oil Separator
EEV	Electronic Expansion Valve
SG	Sightglass
F/D	Filter Drier
RECIEVER	Liquid Reciever Tank
LPS	Low Pressure Switch
LPT	Low Pressure Transducer
HPS	High Pressure Switch
HPT	High Pressure Transducer

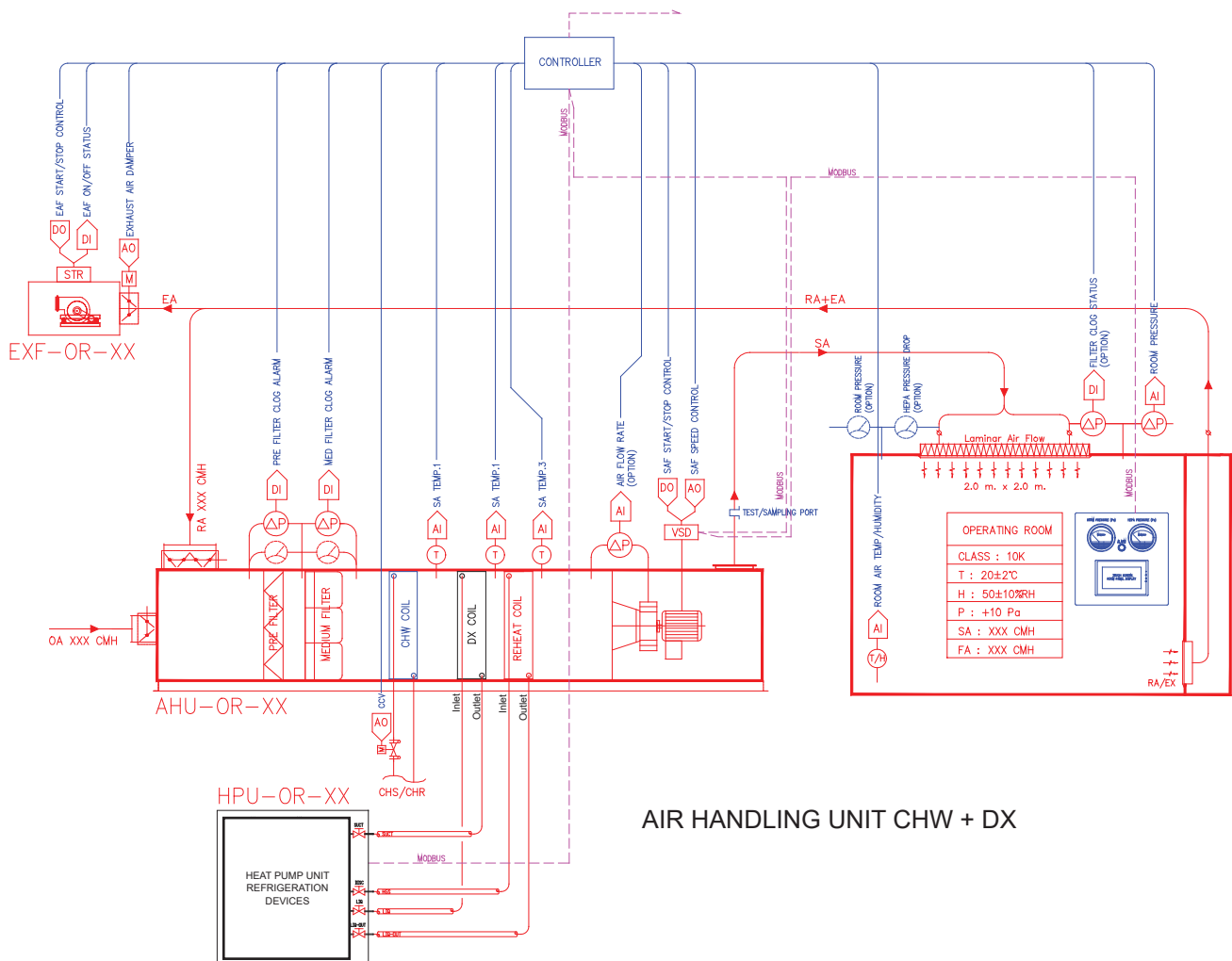
■ Heat Pump and Humidity Controls

ENERCOV heat pump unit provides heating process for humidity control system. It is applied instead of electric heater. Furthermore, the system generates free cooling while heating operation. That means the useful energy of heat pump unit are both cooling and heating production.

■ Energy SAVING

ENERCOV heat pump unit energy output is transferred from electrical power input of compressor plus free energy from the air side. So, coefficient of performance (COP) of system higher 6 times. That means, we can get heat energy 6 units, but heat pump consumes electric power only 1 unit. If compared to electric heater, it consumes electrical power 1 unit and gives us heat energy 1 unit equal (COP of electric heater is 1).

AIR HANDLING UNIT APPLICATION

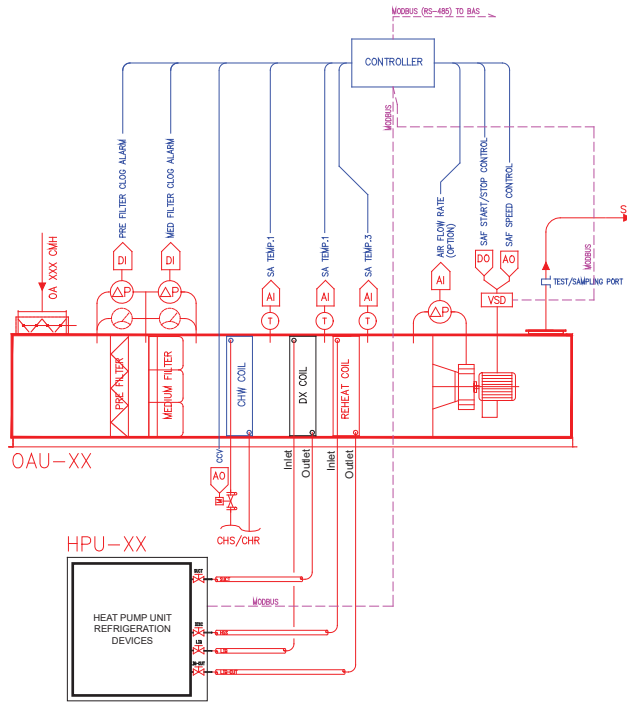


AIR HANDLING UNIT CHW + DX

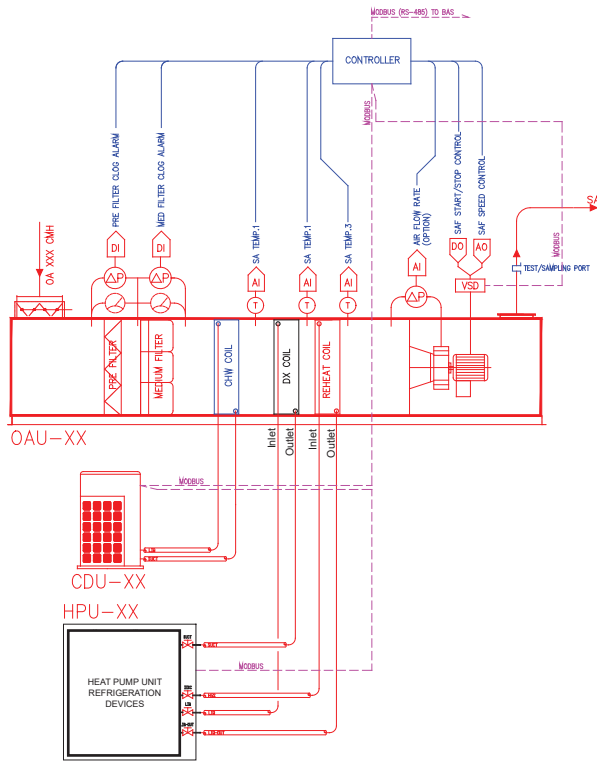
■ Refrigerant Piping Connection

There are direct expansion (DX) cooling and heating coils inside air handling unit (AHU). The DX cooling coil is connected to suction and discharge pipe line from AHU to heat pump unit. The DX heating coil is connected to liquid and liquid out pipe line. The sizing of copper piping shall be properly specified according to engineering principle. It includes proper p-trap for suction line up riser at AHU refrigerant pipe outlet.

OUTDOOR AIR UNIT APPLICATION



Chilled Water + DX



DX + DX

HEAT PUMP UNIT FEATURES ;

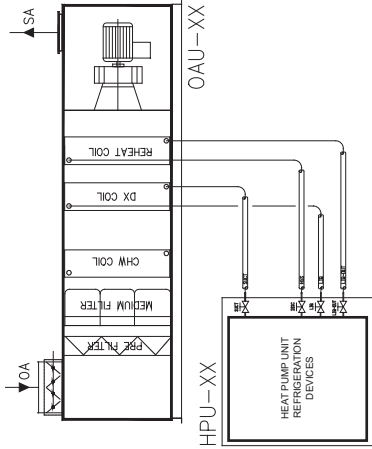
- Heating capacity range from 9 kW to 280 kW
- Maximum distance of HPU & AHU is 50 m.
- Environment friendly refrigerant R410A
- Galvanized with epoxy power coated painting
- Oil separator with oil return function
- Liquid receiver tank
- Refrigerant Sightglass and filter drier
- Electronic expansion valve (EEV)
- High performance inverter scroll compressor
- Programmable controller with sensors (Option : BAS interface with Modbus)
- Ball valve connection
- Hi/Lo pressure cutoff switches
- Hi/Lo pressure cutoff transducers (option)
- Stainless steel of compressor's base
- Hi/Lo pressure gauge (option)
- Oil balance system (dual compressor only)

HPU SERIES TECHNICAL DATA

SPLIT AHU & HPU

Heat Pump Unit Specification (R410A)

Heat Pump Unit Specification (R410A)																						
Model	COMP	Driver	Metering Device	Standard Equipment	Cooling Cap.		Heating Cap.		EE Power		RLA	No Of Refrigerant Circuit	No Of Compressor(s)	Power Supply (V/Ph/Hz)	Refrigrant Pipe Connection (Inches)			Drawing				
					Min (kW)	Max (kW)	Min (kW)	Max (kW)	Max (kW)	(Amps)					Disc	Suct	Liq		Liq-Out			
HPU-09	Single Scroll Inverter	DC Inverter	Electronics Expansion Valve (EXV)	Oil Separator & Liquid Reciever Tank	1.8	7.0	2.4	9.5	2.1	10.5	1	1	1	220/150	1/2	5/8	3/8	3/8	1			
HPU-10					1.9	7.5	2.5	10.1	2.3	11.5	1	1	1	220/150	1/2	5/8	3/8	3/8	1			
HPU-17					3.2	12.7	4.3	17.2	4.5	22.9	1	1	1	220/150	1/2	7/8	1/2	1/2	1			
HPU-25					4.7	18.9	6.4	25.5	6.7	11.3	1	1	1	380/350	5/8	7/8	1/2	1/2	1			
HPU-35					6.3	25.3	8.5	35.2	8.4	14.2	1	1	1	380/350	7/8	1-1/8	1/2	1/2	2			
HPU-40					7.9	31.7	10.7	42.8	10.4	17.6	1	1	1	380/350	7/8	1-1/8	5/8	5/8	2			
HPU-55	Tandem Scroll Inverter				10.0	40.1	13.5	55.3	13.0	22.0	1	1	1	380/350	7/8	1-1/8	5/8	5/8	2			
HPU-60					11.9	47.4	16.0	64.0	15.3	25.8	1	1	1	380/350	7/8	1-3/8	5/8	5/8	2			
HPU-70					13.0	52.0	17.6	70.2	17.0	28.7	1	1	1	380/350	1-1/8	1-3/8	7/8	7/8	2			
HPU-85					7.9	63.5	10.7	85.3	20.8	35.1	2	2	2	380/350	7/8 x 2	1-1/8 x 2	5/8 x 2	5/8 x 2	3			
HPU-110					10.0	80.2	27.1	110.2	26.0	43.9	2	2	2	380/350	7/8 x 2	1-1/8 x 2	5/8 x 2	5/8 x 2	3			
HPU-125					11.9	94.8	32.0	128.0	30.6	51.6	2	2	2	380/350	7/8 x 2	1-3/8 x 2	5/8 x 2	5/8 x 2	3			
HPU-140					13.0	104.0	35.1	140.2	34.0	57.4	2	2	2	380/350	1-1/8 x 2	1-3/8 x 2	7/8 x 2	7/8 x 2	3			
HPU-170					7.9	126.9	10.7	171.0	41.6	70.2	2	4	4	380/350	1-1/8 x 2	1-3/8 x 2	7/8 x 2	7/8 x 2	4			
HPU-220					10.0	160.4	13.5	221.0	52.0	87.8	2	4	4	380/350	1-1/8 x 2	1-5/8 x 2	7/8 x 2	7/8 x 2	4			
HPU-250					11.9	189.6	16.0	255.0	61.1	103.2	2	4	4	380/350	1-1/8 x 2	1-5/8 x 2	7/8 x 2	7/8 x 2	4			
HPU-280					13.0	208.0	17.6	280.3	68.0	114.8	2	4	4	380/350	1-3/8 x 2	1-5/8 x 2	7/8 x 2	7/8 x 2	4			



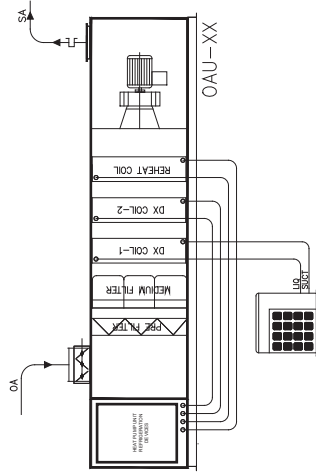
SEPARATED HPU & AHU DIAGRAM

HPU SERIES TECHNICAL DATA

INTEGRATED AHU & HPU

Intergrated Heat Pump Unit Specification (R410A)

Model	COMP	Driver	Metering Device	Standard Equipment	Cooling Cap.		Heating Cap.		EE Power Max (kW)	RLA (Amps)	No Of Refrigerant Circuit	No Of Compressor(s)	Power Supply (V/Ph/Hz)	Refrigrant Pipe Connection (Inches)			Drawing
					Min (kW)	Max (kW)	Min (kW)	Max (kW)						Disc	Suct	Liq	
HPU-09-i	Single Scroll Inverter	DC Inverter	Electronics Expansion Valve (EXV)	Oil Separator & Liquid Reciever Tank	1.8	7.0	2.4	9.5	2.1	10.5	1	1	220/150	1/2	5/8	3/8	Integrated w/AHU housing
HPU-10-i					1.9	7.5	2.5	10.1	2.3	11.5	1	1	220/150	1/2	5/8	3/8	
HPU-13-i					2.4	9.7	3.3	13.1	3.1	15.8	1	1	220/150	1/2	5/8	3/8	
HPU-17-i					3.2	12.7	4.3	17.2	4.5	22.9	1	1	220/150	1/2	7/8	1/2	
HPU-25-i					4.7	18.9	6.4	25.5	6.7	11.3	1	1	380/350	5/8	7/8	1/2	
HPU-35-i					6.3	25.3	8.5	35.2	8.4	14.2	1	1	380/350	7/8	1-1/8	1/2	
HPU-40-i					7.9	31.7	10.7	42.8	10.4	17.6	1	1	380/350	7/8	1-1/8	5/8	
HPU-55-i					10.0	40.1	13.5	55.3	13.0	22.0	1	1	380/350	7/8	1-1/8	5/8	
HPU-60-i					11.9	47.4	16.0	64.0	15.3	25.8	1	1	380/350	7/8	1-3/8	5/8	
HPU-70-i					13.0	52.0	17.6	70.2	17.0	28.7	1	1	380/350	1-1/8	1-3/8	7/8	
HPU-85-i	Tandem Scroll Inverter				7.9	63.5	10.7	85.3	20.8	35.1	2	2	380/350	7/8 x 2	1-1/8 x 2	5/8 x 2	Integrated w/AHU housing
HPU-110-i					10.0	80.2	27.1	110.2	26.0	43.9	2	2	380/350	7/8 x 2	1-1/8 x 2	5/8 x 2	
HPU-125-i					11.9	94.8	32.0	128.0	30.6	51.6	2	2	380/350	7/8 x 2	1-3/8 x 2	5/8 x 2	
HPU-140-i					13.0	104.0	35.1	140.2	34.0	57.4	2	2	380/350	1-1/8 x 2	1-3/8 x 2	7/8 x 2	
HPU-170-i					7.9	126.9	10.7	171.0	41.6	70.2	2	4	380/350	1-1/8 x 2	1-3/8 x 2	7/8 x 2	
HPU-220-i					10.0	160.4	13.5	221.0	52.0	87.8	2	4	380/350	1-1/8 x 2	1-5/8 x 2	7/8 x 2	
HPU-250-i					11.9	189.6	16.0	255.0	61.1	103.2	2	4	380/350	1-1/8 x 2	1-5/8 x 2	7/8 x 2	Integrated w/AHU housing
HPU-280-i					13.0	208.0	17.6	280.3	68.0	114.8	2	4	380/350	1-3/8 x 2	1-5/8 x 2	7/8 x 2	

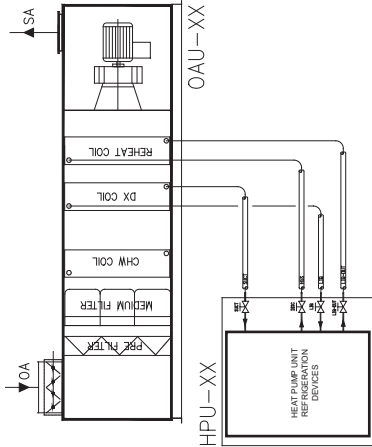


INTEGRATED HPU & AHU DIAGRAM

HPU SERIES TECHNICAL DATA

SPLIT AHU & HPU

Heat Pump Unit Specification (R410A)													
Model	COMP	Driver	Metering Device	Standard Equipment	Cooling Cap. (kW)		Heating Cap. (kW)		EE Power Max (kW)	RLA (Amps)	No Of Refrigerant Circuit	No Of Compressor	Power Supply (V/Ph/Hz)
					Min	Max	Min	Max					
HPU-25-C	Single Scroll Inverter	DC Inverter	Electronics Expansion Valve (EXV)	Oil Separator & Liquid Receiver Tank	4.8	19.3	6.5	26.0	5.1	8.6	1	1	380/3/50
HPU-30-C					5.7	22.8	7.7	30.7	6.4	10.8	1	1	380/3/50
HPU-40-C					7.7	30.6	10.3	41.3	8.3	14.0	1	1	380/3/50
HPU-50-C					9.9	39.7	13.4	53.6	11.2	18.9	1	1	380/3/50
HPU-65-C					12.2	48.7	16.4	65.7	13.6	23.0	1	1	380/3/50
HPU-80-C	Single Scroll Inverter	DC Inverter	Electronics Expansion Valve (EXV)	Oil Separator & Liquid Receiver Tank	14.8	59.3	20.0	80.1	16.4	27.7	1	1	380/3/50
HPU-100-C					19.6	78.5	26.5	109.1	19.1	32.2	1	1	380/3/50
HPU-130-C					24.3	97.4	32.9	131.5	27.2	45.9	2	2	380/3/50
HPU-160-C					29.7	118.6	40.0	160.1	32.8	55.4	2	2	380/3/50
HPU-220-C					39.2	156.9	53.0	218.1	38.1	64.4	2	2	380/3/50
											Disc	Suct	Liq
											5/8	7/8	1/2
											7/8	1-1/8	1/2
											7/8	1-1/8	5/8
											7/8	1-1/8	5/8
											7/8	1-3/8	7/8
											1-1/8	1-3/8	7/8
											1-1/8	1-5/8	7/8
											2 x 7/8	2 x 1-3/8	2 x 7/8
											2 x 1-1/8	2 x 1-3/8	2 x 7/8
											2 x 1-1/8	2 x 1-5/8	2 x 7/8



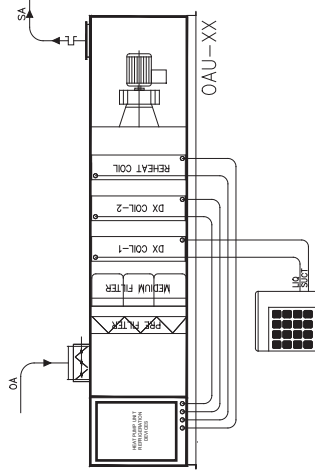
SEPARATED HPU & AHU DIAGRAM

HPU SERIES TECHNICAL DATA

INTEGRATED AHU & HPU

Heat Pump Unit Specification (R410A)

Heat Pump Unit Specification (R410A)																		
Model	COMP	Driver	Metering Device	Standard Equipment	Cooling Cap.		Heating Cap.		EE Power Max (kW)	RLA (Amps)	No Of Refrigerant Circuit	No Of Compressor	Power Supply (V/Ph/Hz)	Refrigerant Pipe Connection (Inches)			Drawing	
					Min (kW)	Max (kW)	Min (kW)	Max (kW)						Disc	Suct	Liq		
HPU-25-C-i	Single Scroll Inverter	DC Inverter	Electronics Expansion Valve (EXV)	Oil Separator & Liquid Reciever Tank	4.8	19.3	6.5	26.0	5.1	8.6	1	1	380/3/50	5/8	7/8	1/2	1/2	-
HPU-30-C-i					5.7	22.8	7.7	30.7	6.4	10.8	1	1	380/3/50	7/8	1-1/8	1/2	1/2	-
HPU-40-C-i					7.7	30.6	10.3	41.3	8.3	14.0	1	1	380/3/50	7/8	1-1/8	5/8	5/8	-
HPU-50-C-i					9.9	39.7	13.4	53.6	11.2	18.9	1	1	380/3/50	7/8	1-1/8	5/8	5/8	-
HPU-65-C-i					12.2	48.7	16.4	65.7	13.6	23.0	1	1	380/3/50	7/8	1-3/8	7/8	7/8	-
HPU-80-C-i	Single Scroll Inverter	DC Inverter	Electronics Expansion Valve (EXV)	Oil Separator & Liquid Reciever Tank	14.8	59.3	20.0	80.1	16.4	27.7	1	1	380/3/50	1-1/8	1-3/8	7/8	7/8	-
HPU-100-C-i					19.6	78.5	26.5	109.1	19.1	32.2	1	1	380/3/50	1-1/8	1-5/8	7/8	7/8	-
HPU-130-C-i					24.3	97.4	32.9	131.5	27.2	45.9	2	2	380/3/50	2 x 1-3/8	2 x 1-3/8	2 x 7/8	2 x 7/8	-
HPU-160-C-i	Single Scroll Inverter	DC Inverter	Electronics Expansion Valve (EXV)	Oil Separator & Liquid Reciever Tank	29.7	118.6	40.0	160.1	32.8	55.4	2	2	380/3/50	2 x 1-1/8	2 x 1-3/8	2 x 7/8	2 x 7/8	-
HPU-220-C-i					39.2	156.9	53.0	218.1	38.1	64.4	2	2	380/3/50	2 x 1-1/8	2 x 1-5/8	2 x 7/8	2 x 7/8	-



INTEGRATED HPU & AHU DIAGRAM

■ Split Heat Pump Unit & AHU

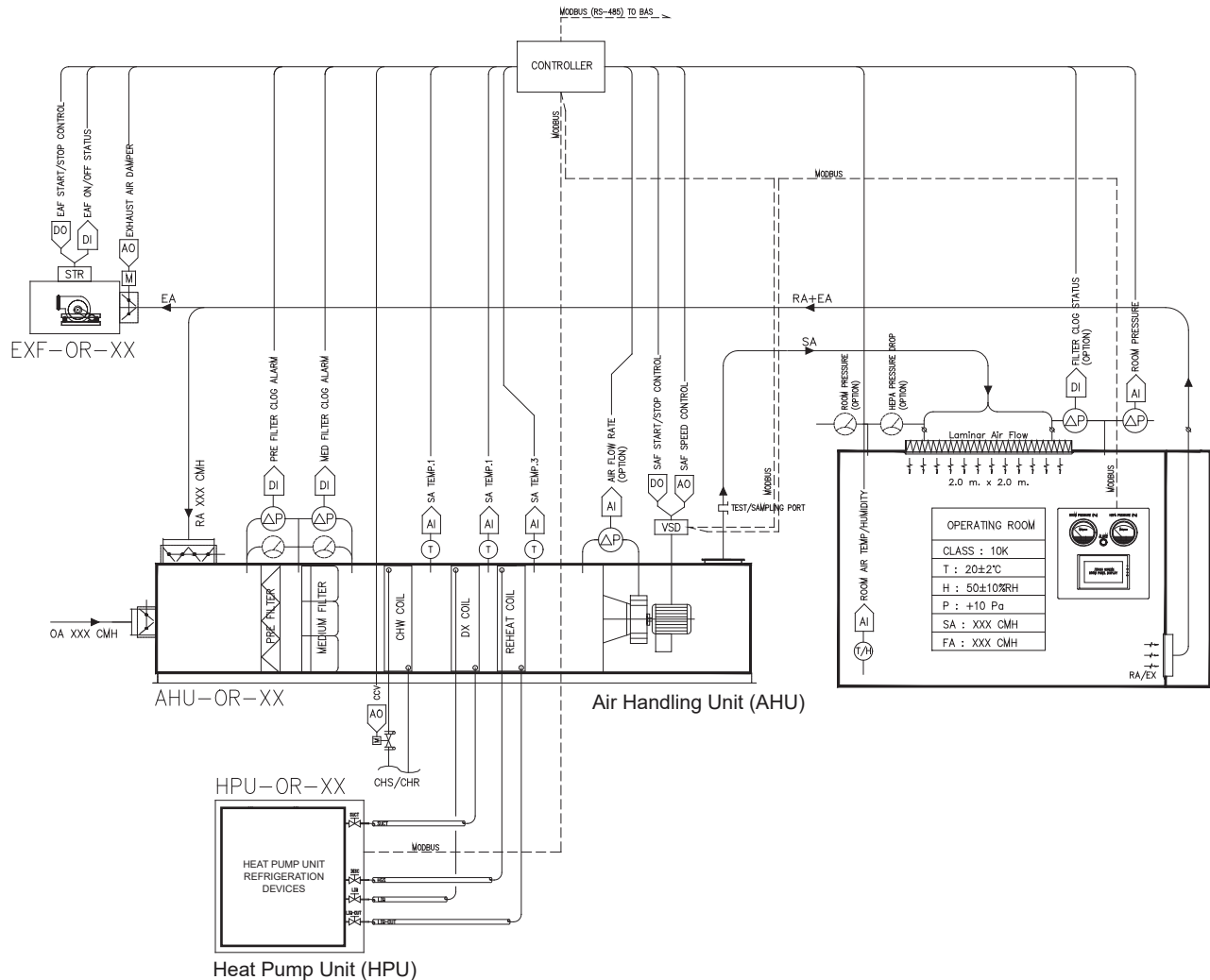
This ENERCOV's HPU series is a split type unit and should be install nearby the AHU. This application requires space of HPU box and shall provide refrigerant piping to AHU including electrical power source according to the technical data specification. This HPU series can be connected with general air handling unit or ENERCOV's AHE/AHD series as well.

■ Integrated Heat Pump Unit Application

The heat pump unit will be integrated with ENERCOV's air handling unit AHE/AHD series. This unit is completed installation from factory. It reduces high risk of the job site mistake. So, the finished product also test, quality checking before deliver. However, the air handling unit must be longer than normal because it is equipped with heat pump devices.

CONTROLS & APPLICATION

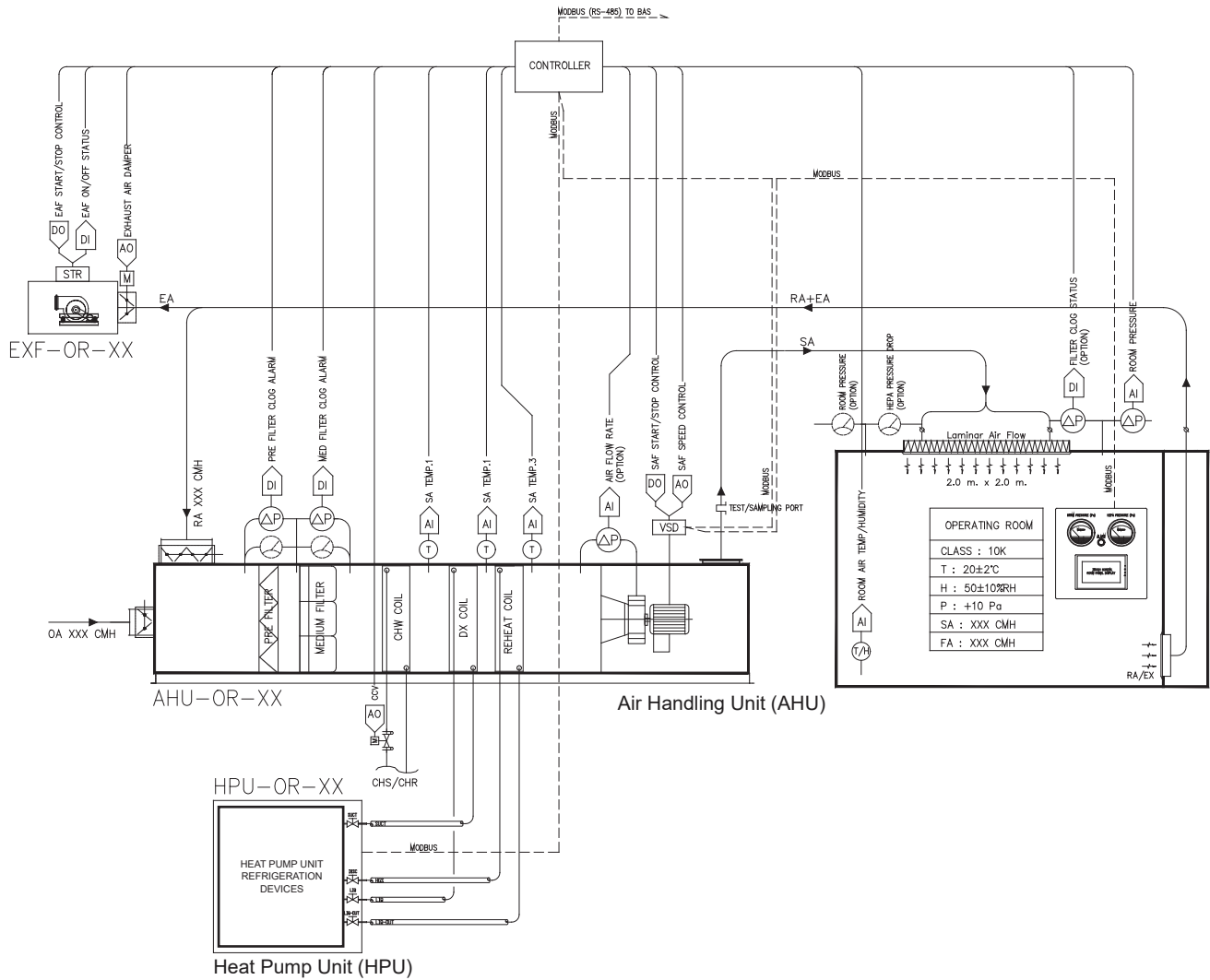
Split HPU & AHU



- AHU & HPU Application
- 1st Cooling Coil : Chilled Water (CHW)
- 2nd Cooling Coil : Direc Expansion (DX)

CONTROLS & APPLICATION

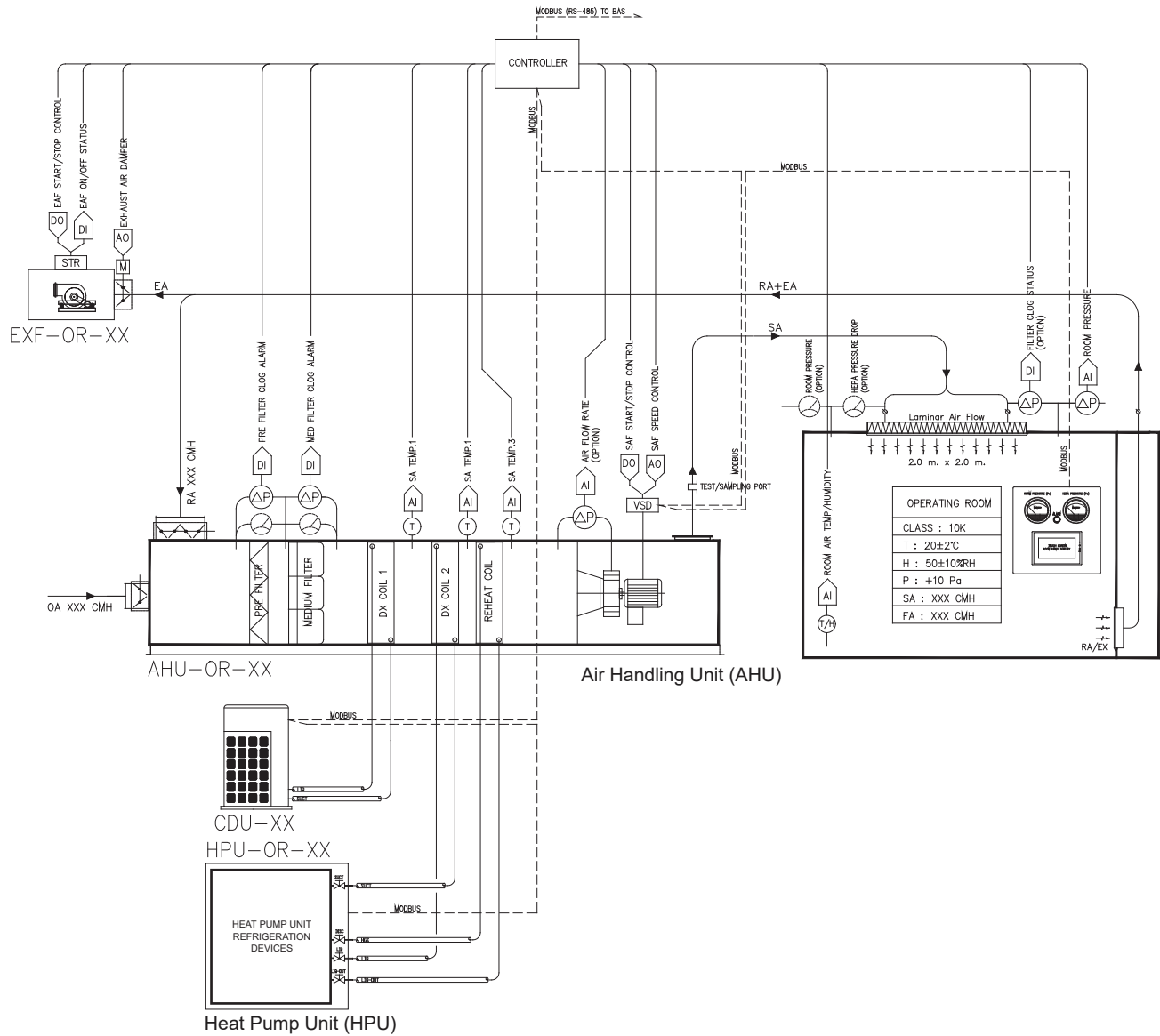
Split AHU & HPU



- AHU & HPU Application
- 1st Cooling Coil : Chilled Water (CHW)
- 2nd Cooling Coil : Direc Expansion (DX)

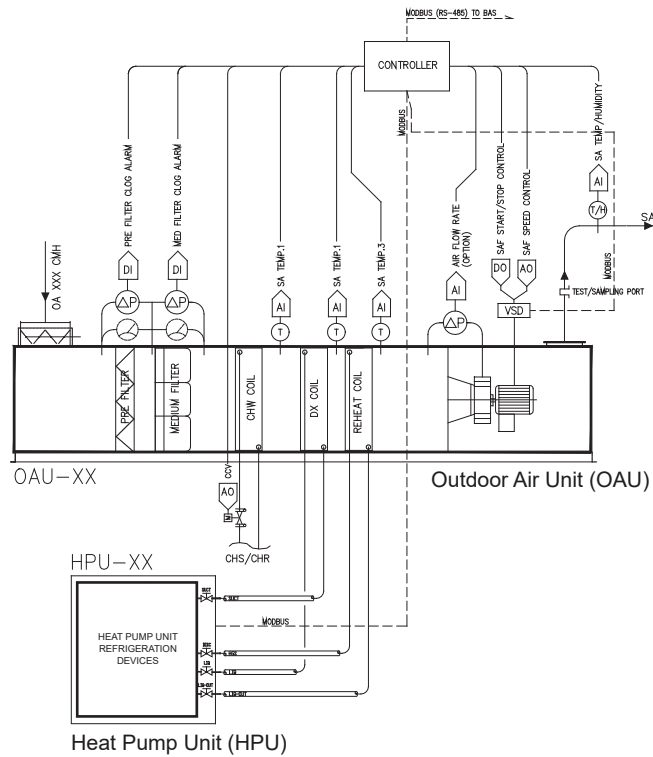
CONTROLS & APPLICATION

Split AHU & HPU

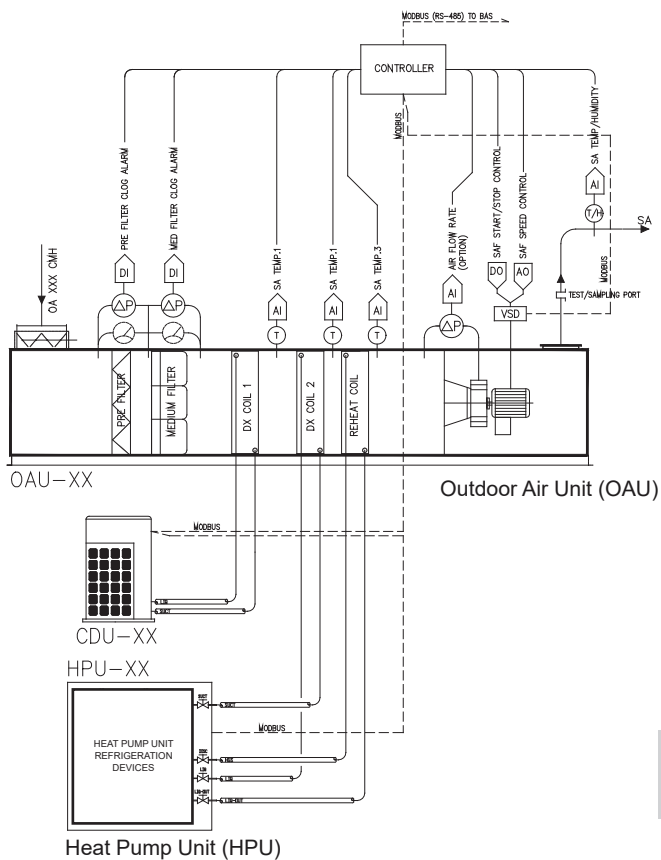


- AHU & HPU Application
- 1st Cooling Coil : Direct Expansion (DX)
- 2nd Cooling Coil : Direct Expansion (DX)

CONTROLS & APPLICATION Split OAU & HPU



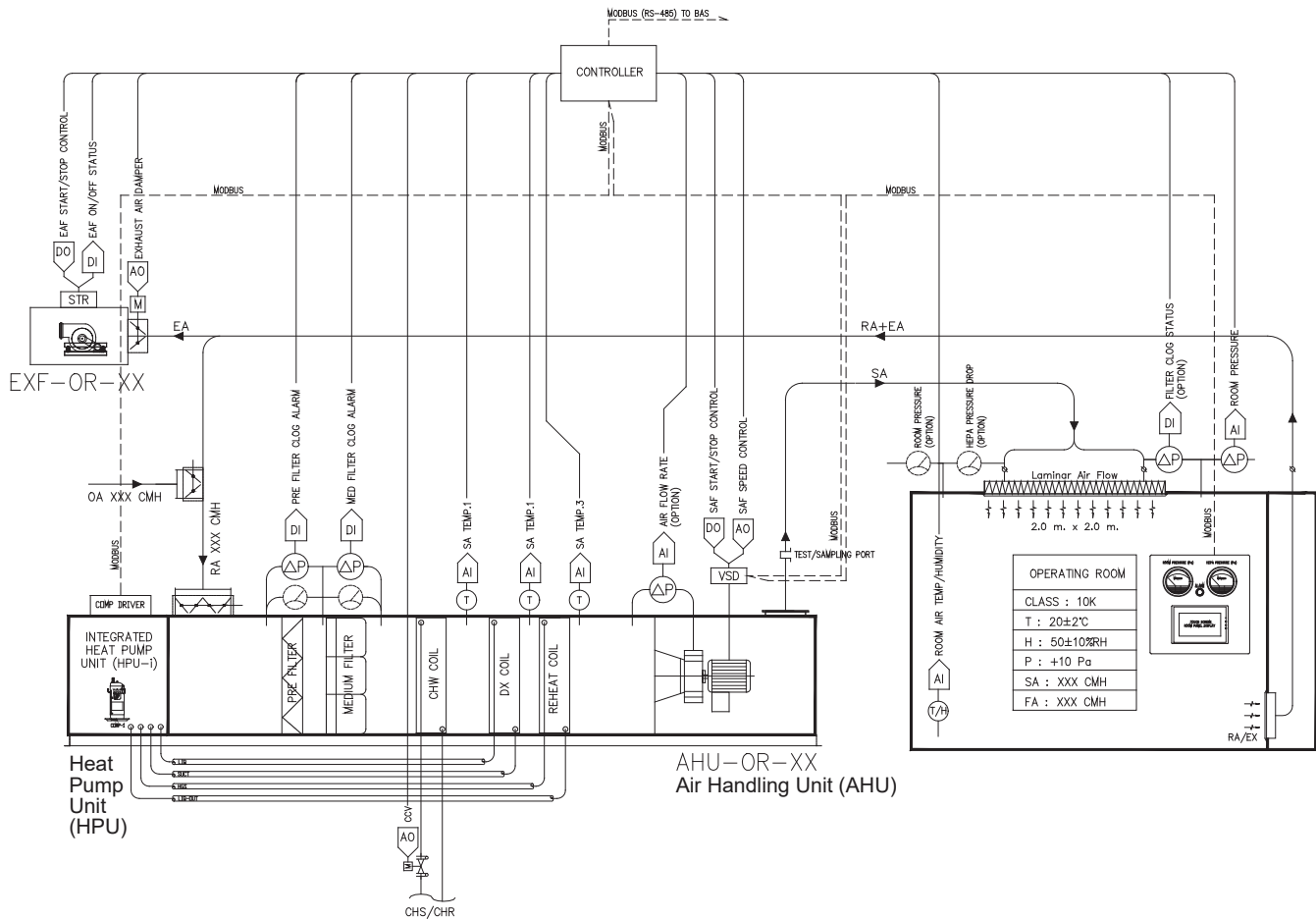
■ OAU & HPU Application
1st Cooling Coil : Chilled Water (CHW)
2nd Cooling Coil : Direct Expansion (DX)



■ OAU & HPU Application
1st Cooling Coil : Direct Expansion (DX)
2nd Cooling Coil : Direct Expansion (DX)

CONTROLS & APPLICATION

Integrated AHU & HPU

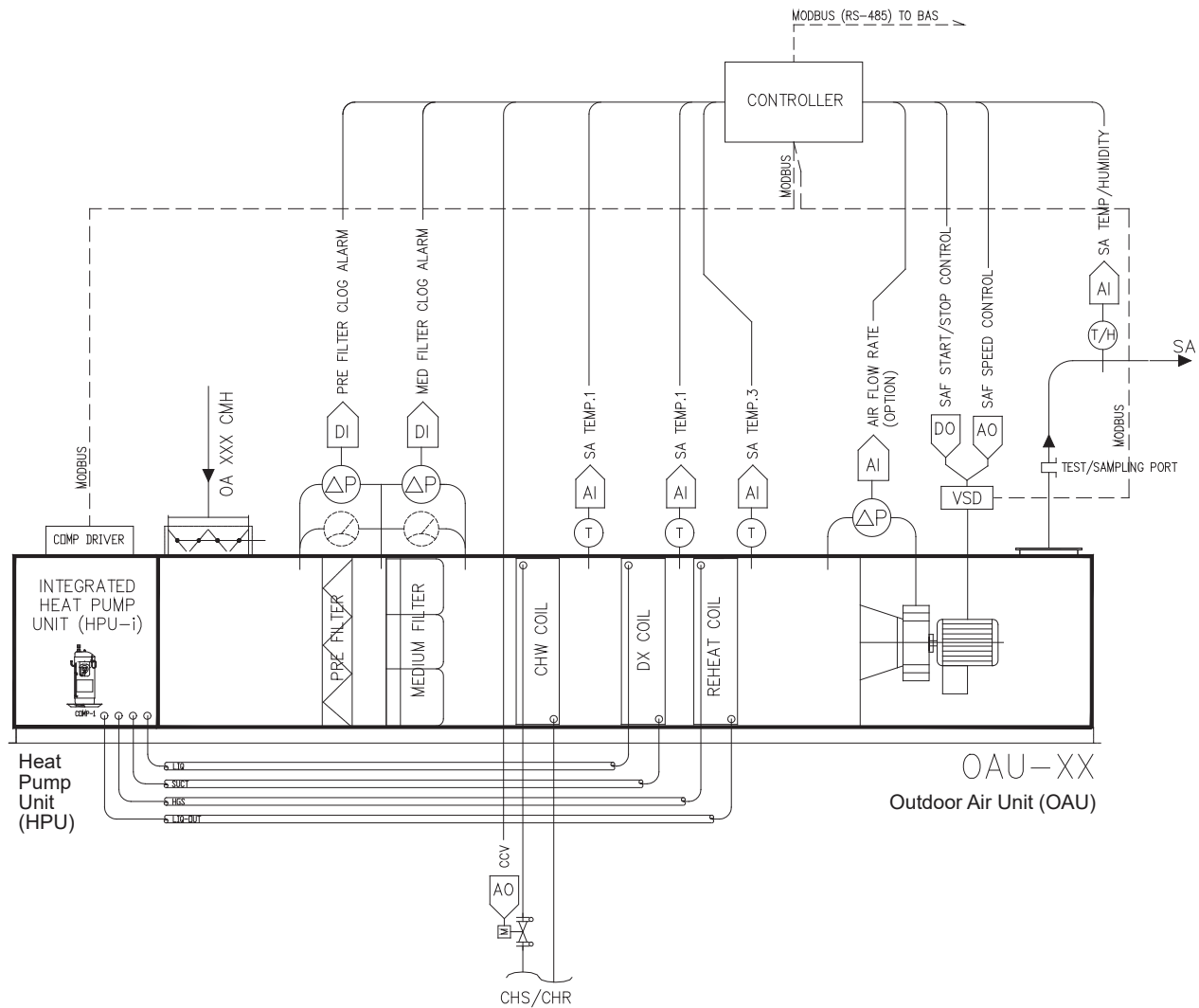


- AHU & HPU Application
- 1st Cooling Coil : Chilled Water (CHW)
- 2nd Cooling Coil : Direct Expansion (DX)



CONTROLS & APPLICATION

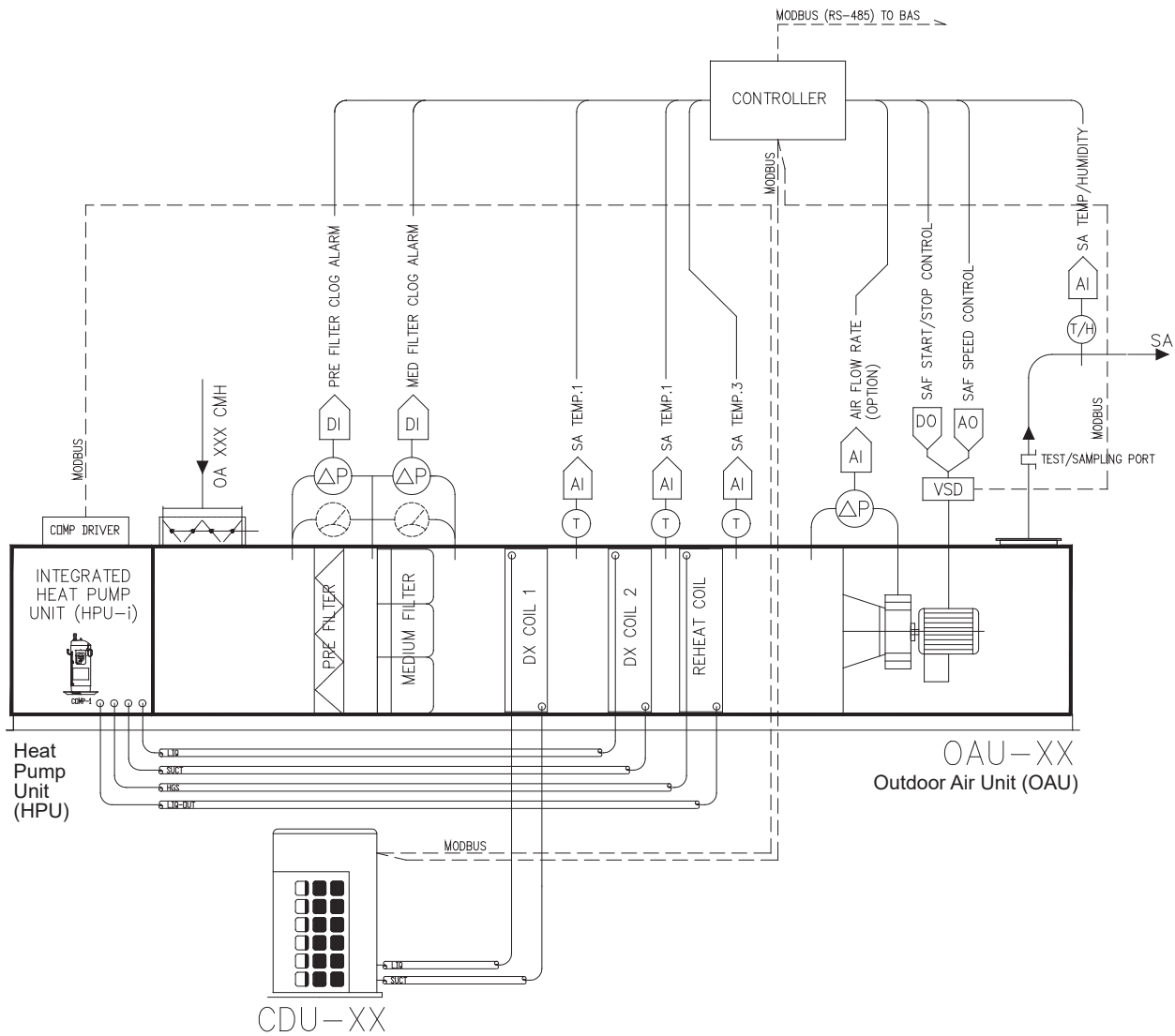
Integrated OAU & HPU



- OAU & HPU Application
- 1st Cooling Coil : Chilled Water (CHW)
- 2nd Cooling Coil : Direct Expansion (DX)

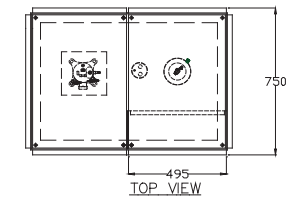
CONTROLS & APPLICATION

Integrated OAU & HPU

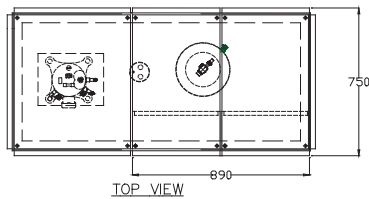
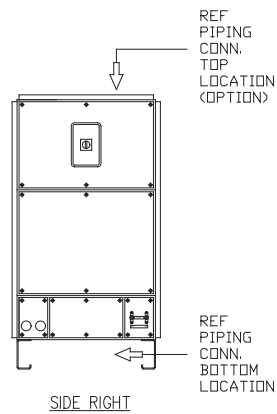
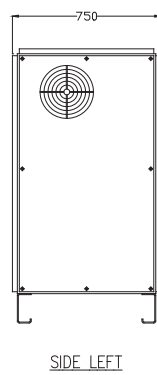
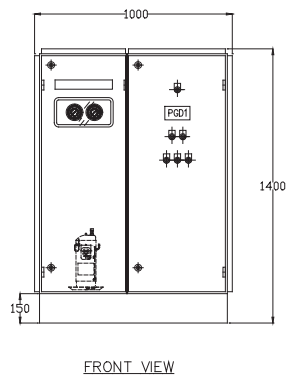


- **OAU & HPU Application**
- 1st Cooling Coil : Direct Expansion (DX)
- 2nd Cooling Coil : Direct Expansion (DX)

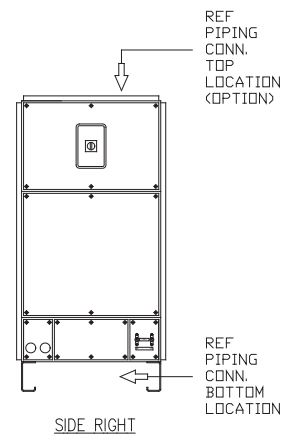
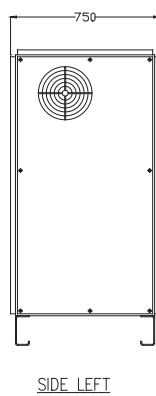
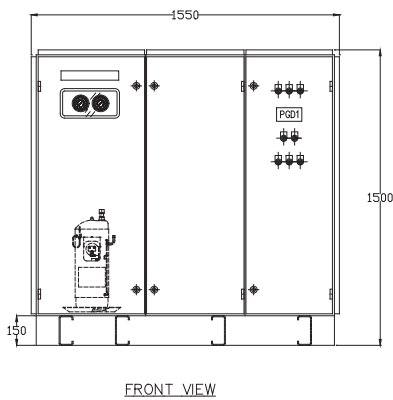
SPLIT HEAT PUMP UNIT DIMENSION IN MM.



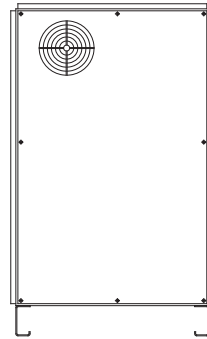
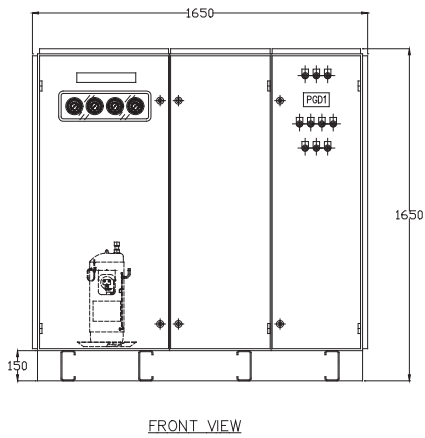
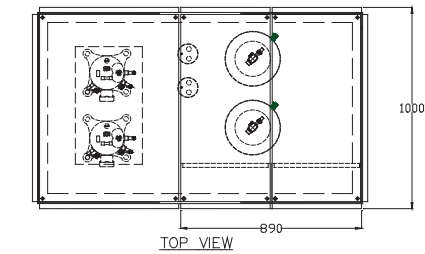
DRAWING 1 HPU-09 to HPU-25



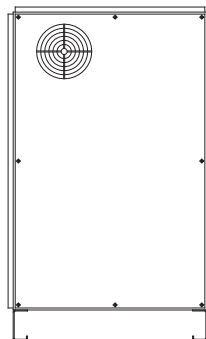
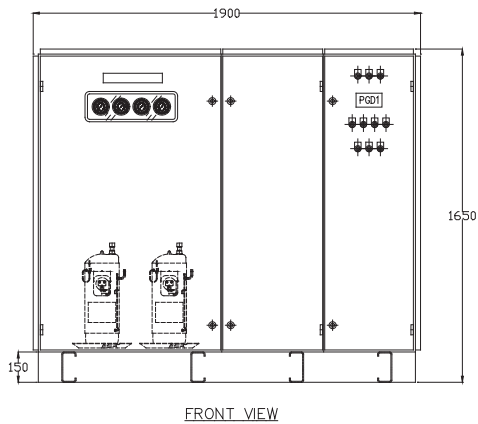
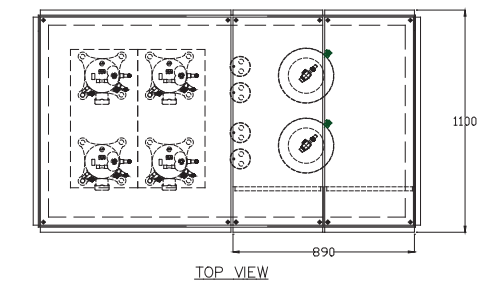
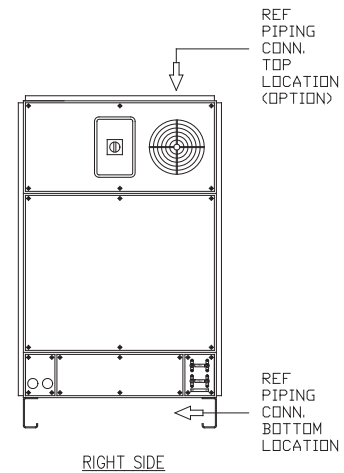
DRAWING 2 HPU-35 to HPU-70 HPU-25-C to HPU-50-C



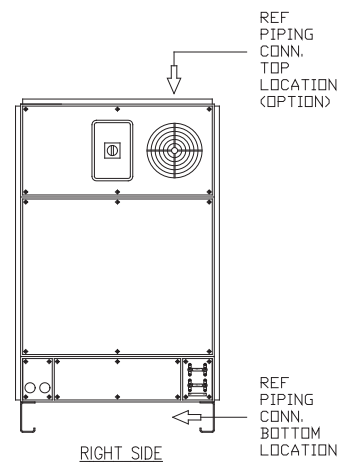
SPLIT HEAT PUMP UNIT DIMENSION IN MM.



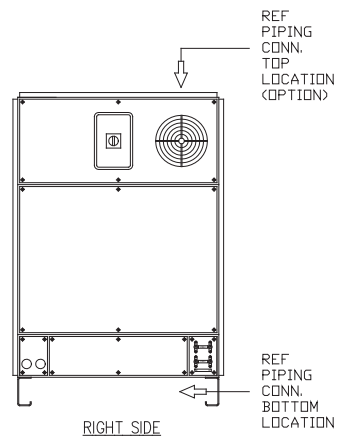
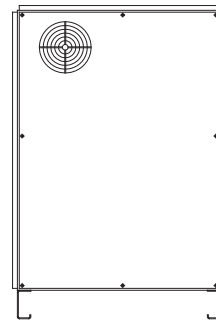
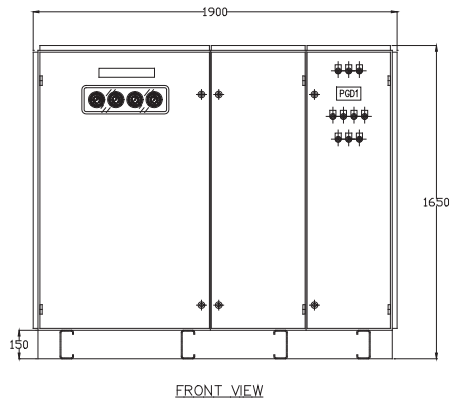
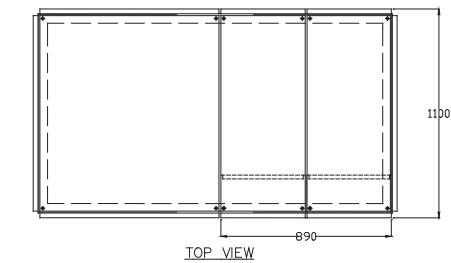
DRAWING 3 HPU-85 to HPU-140



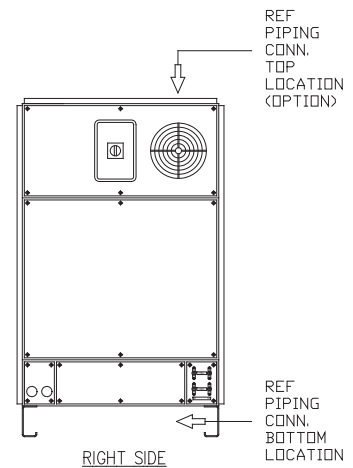
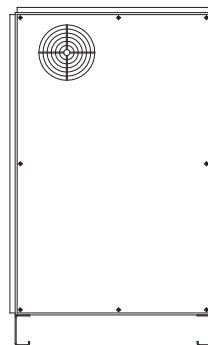
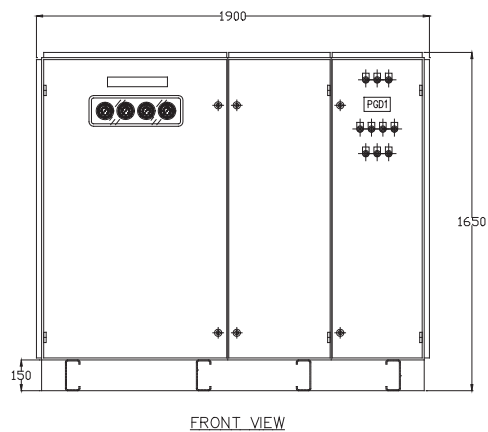
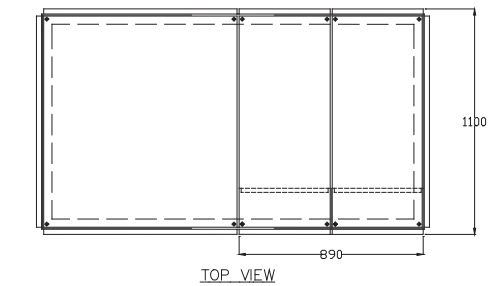
DRAWING 4 HPU-170 to HPU-280



**SPLIT HEAT PUMP UNIT
DIMENSION IN MM.**



**DRAWING 5
HPU-25-C to HPU-100-C**



**DRAWING 6
HPU-130-C to HPU-220-C**