Hydro Module unit
HMU

R410A

Remote control (option)

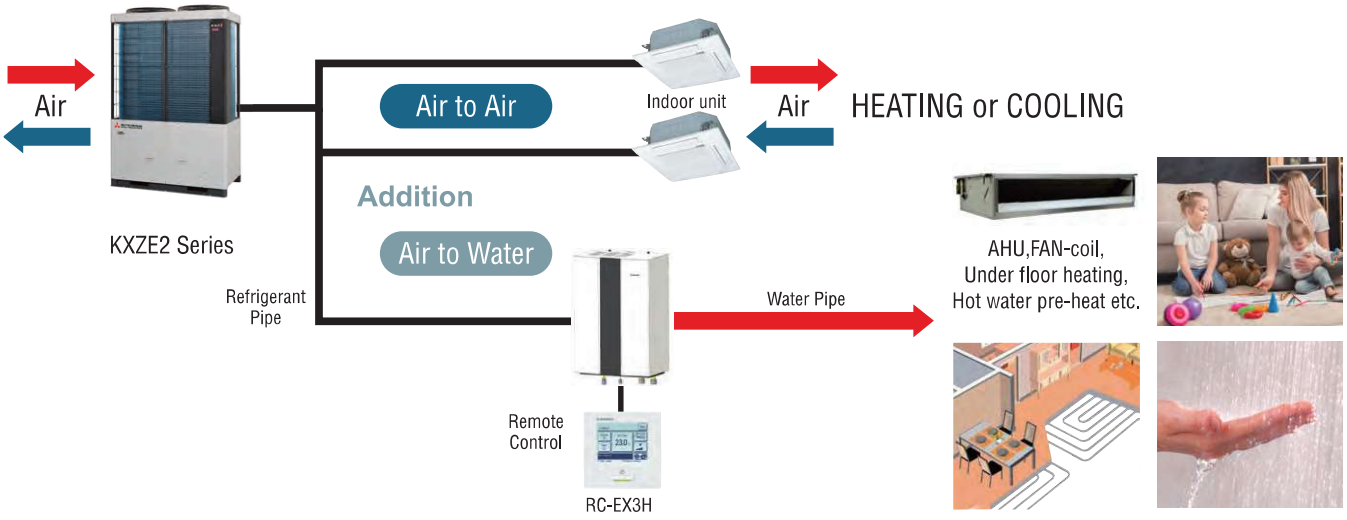
Wired

RC-EX3H

HMU140 · 280

What is the hydro module unit? (Hydro module unit : HMU)

This unit is an auxiliary device for use with the VRF type multi systems to control water temperatures.
It employs the plate heat exchanger in place of fin heat exchanger, and produces cold or hot water by exchanging heat between refrigerant and water.
Since it can produce hot or cold water using the VRF type multi systems as the heat source, it allows to configure a chiller system in a simple way on the one hand. On the other, it can expand the range of applications of air-conditioner because it can be used mixed with the multiple indoor unit for building.



Target outlet water temperature constant control

- This is achieved by controlling compressor frequency and control of EEVs.
- Controlling the capacity of HMUs in accordance with the load.
- The HMU is designed to achieve a hot water temperature of 55°C.

Antifreeze control

- Anti-freeze protection of plate heat exchanger is enabled during defrost operation.

Mixed operation

- Mixed operation is possible in the air to air indoor unit and HMU.
- During the operation only of HMU , it can accommodate a wide range of outlet water temperature controlled by a dedicated control.
- When the system is in mixed operation, the HMU or air-conditioner can be set as priority.

External equipment linked

- External output of interlocking signal to an external heat source for the secondary heating.
- Possible target setting temperature change from the external input. (3 points)
- Water pump control (ON / OFF) possible.

*HMU is designed for closed loop heat exchange applications. Connections to any other open loop systems (such as domestic water) should be handled via a secondary heat exchanger.

Application example

Heating system using HMU and air-conditioner propose various solutions.

SPECIFICATIONS

Indoor unit			HMU	140KXZE1	280KXZE1
Power source				1 Phase 220-240V, 50Hz	
Deviation, incoming supply			%	± 10%(Min.85% at starting)	
Operation range	Maximum capacity	Cooling	kW	14	28
		Heating			
	Power consumption (Rated/Max.)	Cooling	W	220/360	316/360
		Heating			
	Current (Rated/Max.)	Cooling	A	1.00-0.92/1.54	1.44-1.32/1.54
		Heating			
	Outdoor temperature	Cooling	°C	15-46	
		Heating		-20-32(Mixed Use*1 : -20-20)	
	Indoor temperature		°C	0-32(Without freezing)	
	Indoor relative humidity		%	≦ 90	
	Inlet water temperature	Cooling	°C	12-30(Mixed Use*1 : 19-24)	
		Heating*2		20-50(Mixed Use*1 : 20-35)	
		Heating*3		25-50(Mixed Use*1 : 25-35)	
	Outlet water temperature	Cooling	°C	7-25(Mixed Use*1 : 14-19)	
		Heating*2		25-55(Mixed Use*1 : 25-40)	
		Heating*3		30-55(Mixed Use*1 : 30-40)	
	Water flow (Rated/Min.-Max.)		L/min	40/20-40	80/24-80
	External water pressure @Rated flow		kPa	98	80
	Allowable operating pressure (water)		kPa	30-600	
	Minimum suction head at 50°C		kPa	30	
	Inlet water pressure		kPa	30-600	
Sound power level		Cooling*4, 6	dB(A)	48	
		Heating*5, 6		46	49
Sound pressure level		Cooling*4	dB(A)	32	
		Heating*5		27	31
Exterior dimensions (HxWxD)			mm	860(110*7) x 550 x 400	
Weight (without water)			kg	46	48
Weight (Including water)			kg	47.8	50.6
Minimum amount of water in the water circuit			L	150	230
Set pressure of safety valve			kPa	600	
Water pipe connection				R1-1/2	
Refrigerant piping size		Liquid	mm (in)	ø9.52(3/8")(Flare)	
		Gas		ø15.88(5/8")(Flare)	ø22.22(7/8")*8 (Brazing)

*1 Mixed use means HMU and air to air indoor unit mixed operation. *2 In case outdoor temperature more than 0°C.(0°C<Outdoor air temperature) *3 In case outdoor air temperature is 0°C or less. (Outdoor temperature ≦ 0°C) *4 Sound test condition for cooling: Cooling condition 1. *5 Sound test condition for heating: Heating condition 3. *6 MIC position: 1m from the center of the HMU. *7 Outside piping length. *8 Accessory pipe needs to be connected for gas pipe on site.

Performance data

Indoor unit			HMU280KXZE1
Outdoor unit			FDC280KXZE2
Heating nominal capacity	condition 1	kW	23.00
	condition 2		23.15
	condition 3		25.20
Heating power consumption	condition 1	kW	8.40
	condition 2		6.90
	condition 3		6.00
COP	condition 1	-	2.74
	condition 2		3.36
	condition 3		4.20
ηsh	condition 3 base		151
Cooling nominal capacity	condition 1	kW	25.80
	condition 2		18.80
Cooling power consumption	condition 1	kW	6.35
	condition 3		6.25
EER	condition 1	-	4.06
	condition 2		3.01

Note:Heating condition 1: Inlet/outlet water temp. 47°C/55°C, Outdoor temp. 7°CWB/6°CDB. Heating condition 2: Inlet/outlet water temp. 40°C/45°C, Outdoor temp. 7°CWB/6°CDB.
Heating condition 3: Inlet/outlet water temp. 30°C/35°C, Outdoor temp. 7°CWB/6°CDB.
Cooling condition 1: Inlet/outlet water temp. 23°C/18°C, Outdoor temp. 35°CWB/-. Cooling condition 2: Inlet/outlet water temp. 12°C/7°C, Outdoor temp. 35°CWB/-.