# Panasonic

## DX-AHU WITH VRF SYSTEMS



# **JOINING TWO FORCES**

Panasonic, the global leading air conditioning company, and SAIVER, manufacturer of high quality air handling units for more than half a century, now join forces to bring DX-AHU with VRF Systems, a new and comprehensive air conditioning solution to the market through cutting edge technologies and superior reliability.

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**VRF** Systems by Panasonic FSVEEX

#### Case studies - DX-AHU with VRF Systems



Global Switch Data Center / Hong Kong - Installed in 2018



Paramount Utropolis / Malaysia - Installed in 2017 Queen Mary Hospital / Hong Kong - Installed in 2015

### Installation reference



Cheung Ching Community Centre / Hong Kong - Installed in 2017

## **MIL SAIVER**

SAIVER Air Handling Units incorporate the finely tuned, value engineered cost effective design aided by computer coupled with human ingenuity. SAIVER team comprises of highly experienced engineers and technicians totally committed to produce one of the finest Double Skinned Air Handling Units range in the World to meet the requirements of most demanding cost and quality conscious customer.

Iconic project



Marina Bay Sands

Sukmo Gallery / Thailand - Installed in 2018





Tesco Lotus / Thailand - Installed in 2015





Panasonic's air conditioner business delivers leading-quality air conditioning solutions throughout the world. Its reliable and widely-trusted Japanese craftsmanship, with performance that has been refined for over 60 years since the start of the air conditioner business, is acknowledged as a global brand of the highest quality.

Iconic Project



Xiamen University



#### **DX-AHU** with VRF Systems applications

Air quality and efficient air conditioning plays a vital role in maintaining our health, comfort and productivity. Whether it's a hotel, hospital or museum, every building matters. That's why Panasonic together with SAIVER has developed large scale DX-AHU with VRF Systems to suit a variety of business applications.

#### Benefits by applications





Easy air conditioning installation for both guest rooms(VRF) and large spaces(DX-AHU) like ballroom.

Effortless management of air conditioning for large spaces displaying items that require temperature control.

Effective air conditioning for classrooms and large spaces and rooms.

### Panasonic VRF Systems

Panasonic's FSV-EX is a game-changing VRF systems delivering high energy-saving performance, powerful operation, reliability and comfort surpassing anything previously possible. It represents a true paradigm shift in air conditioning solutions. Taking quality to the extreme - that's the Panasonic challenge.

#### System overview



#### University





Customized air conditioning for processes requiring control of temperature.



Easily customized air conditioning for general wards and lobbies.

### SAIVER AHU

- SAIVER's AHU/OHU is HVAC system used to regulate and circulate air as part of heating, cooling and ventilation with large air flow rate and high static pressure.
- Its configuration is also expandable with various add-ons such as heat recovery, heat pipe, filter, etc., providing a tailor-made solution according to modular size fitting for a variety of large sized applications.

### Comparison of DX-AHU with VRF Systems to Chiller & AHU Systems

The combined system of VRF for building and AHU allows control of room air temperature delivering many benefits. The installation of DX-AHU with VRF Systems requires minimal effort as there's no need to add cooling towers, chiller and long piping on the premises. It also allows installation to spaces with limited construction flexibility. Even the maintenance cost of the total solution can be drastically reduced eliminating after care of cooling tower and water piping.

#### **DX-AHU** with VRF Systems



DX-AHU with VRF Systems		Chiller & AHU Systems
Easy maintenance (Same as common VRF Systems)	Maintenance	Require frequent maintenance (Cooling tower, chiller, pump & terminal)
Minimal maintenance cost	Maintenance Cost	Higher cost due to frequent maintenance
Small installation space (Only for AHU & VRF)	Space	Require lager installation space (AHU, FCU, chiller, cooling tower)
Simple system (HVAC ducting)	System	Complex system (HVAC ducting,chiller and water piping)
Simple control (Intelligent controller)	Control	Complex control (Variable frequency device, variable air volume control, complicated wiring)

### Increased piping length for greater design flexibility

Adaptable to various building types and sizes. Actual piping length: 100m / Equivalent 120m

\*Connection of other types of indoor units is not available in case of DX-AHU with VRF in the same system.

is below DX-AHU.

#### Better air treatment

Comparison of custom made DX-AHU with VRF Systems to conventional VRF Systems for fresh air.



• Up to 30,000 CMH

- Large cooling capacity (up to 80HP)
- Large external static pressure provided (up 500Pa)
- Lots of IAQ options

#### Comfort temperature control

Comparing inverter condensing unit to non-inverter condensing unit. - Prevention of temperature hunting







- Small air flow rate (Max. 2,100 CMH)
- Small cooling capacity (Max. 10HP)
- Limited external static pressure (Max. 200Pa)
- No space to install IAQ components

## **Air Handling Unit Kit**

Panasonic AHU Kit connects VRF systems to SAIVER Air Handling Unit systems using same refrigerant circuit as the VRF systems. With flexible connectivity, Panasonic AHU Kit can be easily integrated to air conditioning system for a high efficiency operation.

#### Standard kit

#### AHU connection kit

PCB, power trans, terminal block









**Optional controller** 

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Timer remote controller CZ-RTC5B



System and regulations. System overview

- 1 | AHU connection kit equipment (field supplied)
- 2 | AHU connection kit system controller (field supplied)
- 5 | Thermistor for liquid pipe (E1)
- 6 | Thermistor for suction air
- 7 | Inter-unit wiring
- 8 | Outdoor unit

### **Optional parts**

#### Seri-Para I/O unit for DDC connection (CZ-CAPBC2)



- Control and status monitoring is possible for individual indoor unit (1 group).
- In addition to operation and stop, there is a digital input function for temperature setting and operation mode.
- Temperature setting and measuring of the indoor suction temperature can be performed from central monitoring.
- The analog input for temperature setting is DC0 to 10 V, or 0 to 140 Ohm.
- Power is supplied from the T10 terminal of the indoor units.
- Separate power supply also is possible (in case of suction temperature measuring).

#### AHU kit usage example

#### Standard usage

(Used without DDC\*)

DX-AHU with VRF supplies large air volume to large spaces. AHU Kit can be used with DX-AHU without DDC or other external devices under certain conditions. (Please consult with Panasonic sales engineers).



#### Send the On/Off status to DDC for damper control



When DDC controls external equipment (e.g. Dampers), AHU Kit gives On/Off status to DDC with dry contact. (Dampers are controlled by DDC.)

AHU co	nnection kit	t / System combinati	ion					
Capacity	/	0	outdoor unit combination	on	AHU connection	n kit combination		
5 HP	16 kW		All FSV outdoor units		160MAH3M	-	_	_
10 HP	28 kW	U-10ME2E8	-	-	280MAH3M	-	-	-
20 HP	56 kW	U-20ME2E8	_	-	560MAH3M	_	_	_
30 HP	84 kW	U-16ME2E8	U-14ME2E8	-	560MAH3M	280MAH3M	-	-
40 HP	112 kW	U-20ME2E8	U-20ME2E8	-	560MAH3M	560MAH3M	-	—
50 HP	140 kW	U-18ME2E8	U-16ME2E8	U-16ME2E8	560MAH3M	560MAH3M	280MAH3M	_
60 HP	168 kW	U-20ME2E8	U-20ME2E8	U-20ME2E8	560MAH3M	560MAH3M	560MAH3M	-
70 HP	196 kW	U-20ME2E8	U-20ME2E8	U-20ME2E8	560MAH3M	560MAH3M	560MAH3M	280MAH3M
80 HP	224 kW	U-20ME2E8	U-20ME2E8	U-20ME2E8	560MAH3M	560MAH3M	560MAH3M	560MAH3M
20 HP 30 HP 40 HP 50 HP 60 HP 70 HP 80 HP	56 kW 84 kW 112 kW 140 kW 168 kW 196 kW 224 kW	U-20ME2E8 U-16ME2E8 U-20ME2E8 U-18ME2E8 U-20ME2E8 U-20ME2E8 U-20ME2E8 U-20ME2E8			560MAH3M 560MAH3M 560MAH3M 560MAH3M 560MAH3M 560MAH3M 560MAH3M			

Seri-Para unit.



3 | AHU connection kit controller box (with control PCB)

- 4 | Thermistor for gas pipe (E2)



As AHU

#### Room temperature control by DDC



#### Digital/Analog output to external devices



\*This specification is an example. Please consult SE for the actual installation.

#### AHU Performance

	HP		10	20	30	40					
	Ref	AHU	AHU-10HP	AHU-20HP	AHU-30HP	AHU-40HP					
	Air Flow	CMH	4,140	8,568	13,032	17,100					
	AITFIOW	CMS	1.15	2.38	3.62	4.75					
	SP (External)	Pa	500	500	500	500					
SA	Motor	kW	2.2	4.0	5.5	7.5					
Fan	Drive Method			Centrifugal Fan Belt Drive							
	Power			3Ø 380V~480V 50/60Hz							
	Total Cooling Cap	acity (kW)	28.0	56.0	85.0	113.0					
	Cooling Coil	No. of row	6	6	6	6					
Coil	No. of coil		1	1	1	1					
	Face Velocity	m/s	2.26	2.42	2.31	2.34					
	Effective Area	m <sup>2</sup>	0.508	0.984 1.565		2.032					
Contro	kit model	CZ-280MAH1	1	-	1	—					
Contro	or Rit model	CZ-560MAH1	—	1	1	2					
Filter	Filtration Efficienc	у		6	33						
		W	1102	1159	1712	1864					
Dimen	sion	Н	897	1049	1354	1507					
		L	2017	2169	2322	2474					
Total V	Veight	Kg	313	452	637	737					

Remarks: Height include the unit base 100mm

#### **OHU** Performance

	HP		10	20	30	40	50	60	70	80				
	Ref	OHU	OHU-10HP	OHU-20HP	OHU-30HP	OHU-40HP	OHU-50HP	OHU-60HP	OHU-70HP	OHU-80HP				
	Air Flow	CMH	1,620	3,312	5,040	6,696	8,280	9,936	11,592	13,248				
	AII FIOW	CMS	0.45	0.92	1.40	1.86	2.30	2.76	3.22	3.68				
	SP (External)	Pa	500	500	500	500	500	500	500	500				
SA	Motor	kW	0.75	0.75 1.50 2.20 3.00 4.00 4.00						5.50				
Fan	Drive Method					Centrifugal F	an Belt Drive							
	Power			3Ø 380V~480V 50/60Hz										
	Total Cooling Capacity (kW)		28.0	56.0	85.0	113.0	140.0	168.0	196.0	224.0				
	Cooling Coil	No. of row	6	6	6	6	6	6	6	6				
Coil	No. of coil		1	1	1	1	1	1	1	1				
	Face Velocity	m/s	2.02	2.34	2.32	2.49	2.17	2.29	2.30	2.35				
	Effective Area	m <sup>2</sup>	0.222	0.394	0.603	0.748	1.062	1.207	1.397	1.565				
Contro	kit model	CZ-280MAH1	1	-	1	-	1	-	1	-				
Contro	I NIL ITIOUEI	CZ-560MAH1	-	1	1	2	2	3	3	4				
Filter	Filtration Efficiency	/				0	33							
		W	644	797	1254	1254	1407	1559	1559	1712				
Dimen	sion	Н	897	1049	897	1049	1202	1202	1354	1354				
	-	L	2169	2017	2169	2169	2169	2322	2322	2322				
Total V	Veight	Kg	246	292	354	391	475	532	587	636				

Remarks: Height include the unit base 100mm

\* OHU...Outside air handling unit

#### Specifications

	Standard Series ( 30mm Panel )					
	30mm Thickness double skinned panel					
Casing/Insulation	0.6mm Thickness precoated GI sheet					
	30mm Thickness polyurethane foam 40kg/m <sup>3</sup> density					
Casing-frame	Extruded aluminum pentapost profile					
Coil	DX coil					
Tube	Copper tube					
Fin	Aluminum slit					
Header	Copper tube					
Frame	Galvanized steel					
working pressure	1600kPa					
Fan	Brand = Nicotra/Comefri					
Туре	Double width double inlet backward/Forward curved centrifugal belt drive fan					
Wheel	Mild steel					
Housing	Hot dip galvanized steel					
Frame	Steel with polyester powder coating					
	(Brand=Teco/WEG/Alliance)					
Motor	Three-phrase induction motor totally enclosed fan-cooled type					
	Protection =IP55 insulation class=F					
Vibration isolator	Spring isolator					
Duala a sa	Aluminum/painted Gl					
Drain pan	Beneath the drain pan is covered with PU insulation 40Kg/m <sup>3</sup> density					
	(Brand = AAF/Mayair)					
Air filter	Class = G3 (AFI=80-85%) Synthetic washable					
	Size = Full (24" x 24" x 2") Half (12" x 24" x 2")					







\*This specification is an example. Please consult SE for the actual installation.

#### AHU Performance

	HP		10	20	30	40	50	60	70	80				
	Ref	AHU	AHU-10HP	AHU-20HP	AHU-30HP	AHU-40HP	AHU-50HP	AHU-60HP	AHU-70HP	AHU-80HP				
	Air Flow	CMH	4,140	8,568	13,032	17,100	21,420	25,704	29,988	34,272				
	AILFIOW	CMS	1.15	2.38	3.62	4.75	5.95	7.14	8.33	9.52				
	SP (External)	Pa	500	500	500	500	500	500	500	500				
SA	Motor	kW	1 x 2.95	1 x 5.25	2 x 5.25	2 x 5.25	2 x 5.25	3 x 5.25	3 x 5.25	3 x 5.25				
Fan	Drive Method			EC Fan complete with DC Brushless Motor										
	Power			3Ø 380V~480V 50/60Hz										
	Total Cooling Capacity (kW)		28.0	56.0	85.0	113.0	140.0	168.0	196.0	224.0				
	Cooling Coil	No. of row	6	6	6	6	6	6	6	6				
Coil	No. of coil		1	1	1	1	1	1	1	1				
	Face Velocity	m/s	2.49	2.40	2.47	2.49	2.47	2.48	2.37	2.48				
	Effective Area	m <sup>2</sup>	0.462	0.991	1.463	1.906	2.408	2.880	3.520	3.840				
Contra	al Kit madal	CZ-280MAH1	1	-	1	-	1	-	1	-				
COLLIN	DI KILITIOUEI	CZ-560MAH1	-	1	1	2	2	3	3	4				
Filter	Filtration Efficiency	/				0	33							
		W	833	985	1138	1290	1595	1748	2053	2205				
Dimer	ision	Н	1238	1848	2153	2305	2305	2458	2458	2458				
		L	2205	2510	2510	2663	2663	2663	2663	2815				
Total \	Neight	Kg	350	534	712	780	890	1019	1108	1189				

Remarks: Height include the unit base 100mm

#### **OHU** Performance

	HP		10	20	30	40	50	60	70	80				
	Ref	OHU	OHU-10HP	OHU-20HP	OHU-30HP	OHU-40HP	OHU-50HP	OHU-60HP	OHU-70HP	OHU-80HP				
	Air Flow	CMH	1,620	3,312	5,040	6,696	8,280	9,936	11,592	13,248				
	AII FIOW	CMS	0.45	0.92	1.40	1.86	2.30	2.76	3.22	3.68				
	SP (External)	Pa	500	500	500	500	500	500	500	500				
SA	Motor	kW	1 x 2.95	1 x 2.95	1 x 2.95	1 x 5.25	1 x 5.25	1 x 5.25	1 x 5.25	2 x 5.25				
Fan	Drive Method				EC	Fan complete wit	h DC Brushless M	otor						
	Power			3Ø 380V~480V 50/60Hz										
	Total Cooling Capacity (kW)		28.0	56.0	85.0	113.0	140.0	168.0	196.0	224.0				
Coil	Cooling Coil	No. of row	7	6	6	6	6	6	6	6				
	No. of coil		1	1	1	1	1	1	1	1				
	Face Velocity	m/s	2.46	2.41	2.30	2.35	2.32	2.32	2.40	2.50				
	Effective Area	m <sup>2</sup>	0.183	0.381	0.610	0.792	0.991	1.189	1.341	1.472				
Contro	al Kitana dal	CZ-280MAH1	1	-	1	-	1	-	1	-				
CONING		CZ-560MAH1	-	1	1	2	2	3	3	4				
Filter	Filtration Efficience	y				(	33							
		W	680	833	833	985	985	985	1138	1138				
Dimen	Dimension	Н	933	1085	1543	1543	1848	2153	2000	2153				
		L	2205	2205	2205	2358	2510	2510	2510	2510				
Total \	Neight	Kg	260	313	378	463	541	591	612	712				

Remarks: Height include the unit base 100mm \* OHU...Outside air handling unit

#### Specifications

	Standard Series (60mm Panel)				
	60mm Thickness double skinned panel				
Casing/Insulation	0.6mm Thickness precoated gi sheet				
	60mm Thickness polyurethane foam 40kg/m <sup>3</sup> densit				
Casing-frame	Extruded aluminum pentapost profile				
Coil	DX coil				
Tube	Copper tube				
Fin	Aluminum slit				
Header	Copper tube				
Frame	Galvanized steel				
working pressure	1600kPa				
Fan	Brand = ebm				
Туре	EC Plug fan				
Wheel	Aluminum				
Housing	N/A				
Frame	N/A				
Motor	External rotor motor				
MOLOI	Protection =IP54 Insulation class=F				
Vibration isolator	N/A				
Droin non	Aluminum/painted GI				
Drain pan	Beneath the drain pan is covered with PU insulation				
	(Brand = AAF/Mayair)				
Air filter	Class = G3 (AFI=80-85%) Synthetic washable				
	Size = Full (24" x 24" x 2") Half (12" x 24" x 2")				



#### Drawings



## **SAIVER DX-AHU Options**

## Wide range options to fit any use-case



#### 1 Fan types

Backward curve aerofoil

- Plug fan
- Standard in 60mm EC fan series

#### 2 Fan motor controls

- Fixed speed
- Class H motor
- Exn/ Exe explosion motor
- PM motor

#### 3 DX coil material types

- Copper fin
- Blue fin
- Epoxy coated fin and coil
- Tinned copper fin
- Heresite coated fin Blygold coated fin

#### 4 Drain pan types

- Galvanized steel
- Stainless steel
- (SS304/ SS316/ SS316L)





• Epoxy polyester powder coated GI



\*Please consult a Panasonic system engineer for more details.

#### 5 Air filter types

• Extra filter

Synthetic

• Bag

• HEPA

• ULPA

- Airflow
- Capacity

Customization

## **DX-AHU** work flow / Certification







### Certification for SAIVER AHU\*

- ✓ EUROVENT EN1886
- ✓ VDI 6022 Hygienic standard
- ✓ AMCA Fan standard
- ✓ AHRI 410, 430, 1350 Certified
- \* AHU unit only.



- Aluminum Cartridge
- Auto-roll filter
- Chemical filter
- Carbon filter

#### 6 Special options

- Electric heater
- Mixing box
- Outdoor roof
- 88mm panel thickness Heat pipes
- Heat wheel Acoustic panel
- Dessicant wheel • UV lamp
- Humidifier









#### Selection software by SAIVER

- Sophisticated computer selection software. Flexible AHU dimension.
- Accurate quotation, technical data, detailed drawing.

#### **Selection sheet**

- -Data sheet, sound data
- -Energy class calculation
- -Psychrometric chart
- -Fan operating point
- -Dimensioning
- -Eurovent

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#### Real use case

- -Customized system design
- -E.G. : Outdoor installation Outdoor canopy with slope Rain hood, wire mesh Anti-corrosion



## **VRF Systems Features**

## **FSV-EX** advantages

The most efficient, powerful and quiet systems in Panasonic's history. There has never been a VRF systems like it. It's the story of a true game changer.



#### Extended operation range up to 52°C

The FSV-EX can provide cooling even when the outside temperature reaches a maximum of about 52°C. And amazingly, it can still operate at 100% capacity when the outside temperature is as high as 43°C.



#### Low-noise operation

Numerous technological innovations, including an improved compressor and a newly designed bell mouth and larger fan, have dramatically reduced the outdoor noise level.



#### Remarkable improvement on key components

#### In the second second



heat exchanger Multiple large-capacity

inverter compressor (More than 14HP)

#### **Extraordinary energy-saving** performance



2 Enlarged heat exchanger surface area with triple surface\* \*For 8 & 10HP unit, the heat exchanger is 2 row design.



Conventional New model model [ME1] [ME2]



3 Newly designed curved air discharge bell mouth for better aerodynamics



model [ME1]

#### 4 Large air discharge area with new flush surface top panel



Conventiona model [ME1]

New mo [ME2]

[ME2]

#### High external static pressure on condensers

With a newly designed fan, fan guard, motor, and casing, new models can be custom-installed on-site to provide up to 80 Pa of external static pressure. An air discharge duct prevents shortages of air circulation, allowing outdoor units to be installed on every floor of a building.



#### Extended compressor life by uniform compressor operation time

The total run-time of compressors are monitored by a built-in microcomputer, which ensures that operation times of all compressors within the same refrigerant circuit are balanced.



\* Depend on accumulated operation time of each compressors \* Compressor priority has possibility to be changed (e.g) Case1:  $A \rightarrow C \rightarrow B \rightarrow D$ , Case2:  $C \rightarrow A \rightarrow D \rightarrow B$ , Case3:  $A \rightarrow C \rightarrow D \rightarrow B$ , Case4:  $C \rightarrow A \rightarrow B \rightarrow D$ 

#### Automatic backup operation

Automatic backup operation in the case of compressor failure or outdoor unit malfunction.

\*Except for 10 HP single unit installation.

\*Backup operation allows uninterrupted cooling or heating to continue whilst waiting for service. Users should contact their authorised service center as soon as fault occurs.

Even if a whole outdoor unit fails



Even if a compressor in

The other outdoor unit can keep running





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Compressors with histories showing shorter run times are selected first, ensuring equal wear and tear across all units and extended the working life of the system.

#### Hi-durability outdoor unit (option)

Corrosion-resistance treated for high resistance to rust and salty air to assure long-lasting performance.

Note: Selecting this unit does not completely eliminate the possibility of rust developing. For details concerning unit installation and maintenance, please consult an authorised dealer



### 2-PIPE FSV-EX ME2 Series

Appearance												
kW				22.4	28.0	33.5	40.0	45.0	50.0	56.0	61.5	68.0
Model name				U-8ME2R8	U-10ME2R8	U-12ME2R8	U-14ME2R8	U-16ME2R8	U-18ME2R8	U-20ME2R8	U-10ME2R8 U-12ME2R8	U-12ME2R8 U-12ME2R8
Power supply					·		400	/415V, 3 phase -	50Hz			
	Oralia		kW	22.4	28.0	33.5	40.0	45.0	50.0	56.0	61.5	68.0
Oracita	Cooling		BTU/h	76,500	95,600	114,300	136,500	153,600	170,600	191,100	209,900	232,100
Capacity	Liesting		kW	25.0	31.5	37.5	45.0	50.0	56.0	63.0	69.0	76.5
Heating			BTU/h	85,300	107,500	128,000	153,600	170,600	191,100	215,000	235,500	261,100
	FFR / COP		W/W	4.70	4.37	3.96	3.88	3.52	3.38	3.01	4.13	3.93
EER/COP	Heating		W/W	5.13	4.76	4.73	4.56	4.42	4.38	3.94	4.76	4.69
Dimensions	H x W x D mm		mm	1,842 x 770 x 1,000	1,842 x 770 x 1,000	1,842 x 1,180 x 1,000	1,842 x 1,180 x 1,000	1,842 x 1,180 x 1,000	1,842 x 1,540 x 1,000	1,842 x 1,540 x 1,000	1,842 x 2,010 x 1,000	1,842 x 2,420 x 1,000
Net weight kg		220	220	270	315	315	375	375	490	540		
	o "	Cooling Running current A Power input kW		7.40 / 7.14	10.2 / 9.80	13.0 / 12.5	16.5 / 15.9	20.1 / 19.4	23.0 / 22.1	28.3 / 27.2	23.1 / 22.3	26.6 / 25.6
	Cooling			4.77	6.41	8.47	10.3	12.8	14.8	18.6	14.9	17.3
Electrical ratings	I I a a tha a	Running o	current A	7.56 / 7.29	10.5 / 10.1	12.3 / 11.9	15.8 / 15.2	17.9 / 17.3	20.1 / 19.4	24.6 / 23.7	22.7 / 21.9	25.3 / 24.4
	Heating	Power i	nput kW	4.87	6.62	7.92	9.86	11.3	12.8	16.0	14.5	16.3
Starting current			А	1	1	1	2	2	2	2	2	2
A in flammaka			m³/h	13,440	13,440	13,920	13,920	13,920	24,300	24,300	27,360	27,840
Air now rate			L/s	3,733	3,733	3,866	3,866	3,866	6,750	6,750	7,600	7,733
Refrigerant amo	unt at shi	pment	kg	11.1	11.1	11.3	11.3	11.3	11.0	11.0	22.4	22.6
External static p	ressure		Pa	80	80	80	80	80	80	80	80	80
	Gas pip	e	mm (inches)	Ø19.05 (Ø3/4)	Ø22.22 (Ø7/8)	Ø25.40 (Ø1)	Ø25.40 (Ø1)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)	Ø28.58 (Ø1-1/8)
Piping	Liquid p	oipe	mm (inches)	Ø9.52 (Ø3/8)	Ø9.52 (Ø3/8)	Ø12.70 (Ø1/2)	Ø12.70 (Ø1/2)	Ø12.70 (Ø1/2)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)	Ø15.88 (Ø5/8)
001110010110	Balance	e pipe	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)
Ambient temperature operating range						Cooling	g: -10°C (DB)~ +5	2°C (DB). Heating	g: -25°C (WB)~ +1	18°C (WB)		
Sound	Normal	mode	dB (A)	54.0	56.0	59.0	60.0	61.0	59.0	60.0	61.0	62.0
pressure level	Silent m	node (2)	dB (A)	49.0	51.0	54.0	55.0	56.0	54.0	55.0	56.0	57.0
Sound power level	Normal	mode	dB	75.0	77.0	80.0	81.0	82.0	80.0	81.0	82.0	83.0

				1									
Appearance												印	
kW				140.0	145.0	151.0	156.0	162.0	168.0	174.0	180.0	185.0	
Model name				U-14ME2R8 U-16ME2R8 U-20ME2R8	U-16ME2R8 U-16ME2R8 U-20ME2R8	U-14ME2R8 U-20ME2R8 U-20ME2R8	U-16ME2R8 U-20ME2R8 U-20ME2R8	U-18ME2R8 U-20ME2R8 U-20ME2R8	U-20ME2R8 U-20ME2R8 U-20ME2R8	U-14ME2R8 U-16ME2R8 U-16ME2R8 U-16ME2R8	U-16ME2R8 U-16ME2R8 U-16ME2R8 U-16ME2R8	U-10ME2R8 U-16ME2R8 U-20ME2R8 U-20ME2R8	
Power supply				400/415V, 3 phase - 50Hz									
	0 "		kW	140.0	145.0	151.0	156.0	162.0	168.0	174.0	180.0	185.0	
o ''	Cooling		BTU/h	477,800	494,900	515,400	532,400	552,900	573,400	593,900	614,300	631,400	
Capacity			kW	155.0	160.0	169.0	175.0	182.0	189.0	195.0	201.0	207.0	
	Heating		BTU/h	529,000	546,100	576,800	597,300	621,200	645,100	665,500	686,000	706,500	
Cooling			W/W	3.39	3.32	3.21	3.15	3.12	3.01	3.60	3.52	3.28	
EER/COP	Heating		W/W	4.29	4.27	4.11	4.08	4.06	3.94	4.45	4.42	4.16	
Dimensions	Dimensions H x W x D mm		1,842 x 4,020 x 1,000	1,842 x 4,020 x 1,000	1,842 x 4,380 x 1,000	1,842 x 4,380 x 1,000	1,842 x 4,740 x 1,000	1,842 x 4,740 x 1,000	1,842 x 4,900 x 1,000	1,842 x 4,900 x 1,000	1,842 x 5,210 x 1,000		
Net weight kg		1,005	1,005	1,065	1,065	1,125	1,125	1,260	1,260	1,285			
	Oralian	Running o	current A	64.1 / 61.8	67.8 / 65.4	72.2 / 69.6	76.0 / 73.3	79.8 / 77.0	84.8 / 81.7	75.8 / 73.0	80.3 / 77.4	86.6 / 83.5	
Electrical vations	Cooling Power		nput kW	41.3	43.7	47.0	49.5	52.0	55.8	48.3	51.2	56.4	
Electrical ratings	Lipsting	Running curren		56.6 / 54.6	58.8 / 56.7	63.8 / 61.5	66.6 / 64.2	69.5 / 67.0	73.7 / 71.0	69.5 / 67.0	72.2 / 69.6	77.1 / 74.3	
	Heating	Power i	nput kW	36.1	37.5	41.1	42.9	44.8	48.0	43.8	45.5	49.7	
Starting current			А	6	6	6	6	6	6	8	8	7	
Air flow roto			m³/h	52,140	52,140	62,520	62,520	72,900	72,900	55,680	55,680	75,960	
All now rate			L/s	14,483	14,483	17,366	17,366	20,250	20,250	15,466	15,466	21,100	
Refrigerant amo	unt at shij	pment	kg	33.6	33.6	33.3	33.3	33.0	33.0	45.2	45.2	44.4	
External static p	ressure		Pa	80	80	80	80	80	80	80	80	80	
<b>C</b>	Gas pip	е	mm (inches)	Ø38.10 (Ø1-1/2)	Ø41.28 (Ø1-5/8)	Ø41.28 (Ø1-5/8)	Ø41.28 (Ø1-5/8)						
Piping	Liquid p	ipe	mm (inches)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)							
	Balance	e pipe	mm (inches)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)							
Ambient temperature operating range					Cooling: -1	0°C (DB)~ +52°C	(DB). Heating: -2	5°C (WB)~ +18°C	(WB)				
Sound	Normal	mode	dB (A)	65.5	65.5	65.0	65.5	64.5	65.0	67.0	67.0	66.0	
pressure level	Silent m	iode (2)	dB (A)	60.5	60.5	60.0	60.5	59.5	60.0	62.0	62.0	61.0	
Sound power level	Normal	mode	dB	86.5	86.5	86.0	86.5	85.5	86.0	88.0	88.0	87.0	

U-12ME2R8 U-14ME2R8 U-16ME2R8 U-8ME2R8 U-10ME2R8 U-18ME2R8 U-20ME2R8 

	78.5 85.0 90.0							j.		j.	
73.0	78.5	85.0	90.0	96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0
U-10ME2R8 U-16ME2R8	U-12ME2R8 U-16ME2R8	U-14ME2R8 U-16ME2R8	U-16ME2R8 U-16ME2R8	U-14ME2R8 U-20ME2R8	U-16ME2R8 U-20ME2R8	U-18ME2R8 U-20ME2R8	U-20ME2R8 U-20ME2R8	U-10ME2R8 U-16ME2R8 U-16ME2R8	U-12ME2R8 U-16ME2R8 U-16ME2R8	U-14ME2R8 U-16ME2R8 U-16ME2R8	U-16ME2R8 U-16ME2R8 U-16ME2R8
					400/415V, 3	phase - 50Hz					
73.0	78.5	85.0	90.0	96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0
249,100	267,900	290,100	307,200	327,600	344,700	365,200	385,700	402,700	423,200	443,700	460,800
81.5	87.5	95.0	100.0	108.0	113.0	119.0	127.0	132.0	138.0	145.0	150.0
278,200	298,600	324,200	341,300	368,600	385,700	406,100	433,400	450,500	471,000	494,900	511,900
3.80	3.69	3.68	3.52	3.32	3.22	3.16	3.00	3.69	3.62	3.62	3.52
4.55	4.56	4.48	4.42	4.17	4.14	4.13	3.92	4.49	4.50	4.46	4.42
1,842 x 2,010 x 1,000	1,842 x 2,420 x 1,000	1,842 x 2,420 x 1,000	1,842 x 2,420 x 1,000	1,842 x 2,780 x 1,000	1,842 x 2,780 x 1,000	1,842 x 3,140 x 1,000	1,842 x 3,140 x 1,000	1,842 x 3,250 x 1,000	1,842 x 3,660 x 1,000	1,842 x 3,660 x 1,000	1,842 x 3,660 x 1,000
535	585	630	630	690	690	750	750	850	900	945	945
30.1 / 29.0	33.1 / 31.9	36.6 / 35.3	40.2 / 38.7	44.9 / 43.2	48.2 / 46.5	52.1 / 50.2	57.3 / 55.2	50.2 / 48.4	53.2 / 51.3	56.9 / 54.9	60.2 / 58.1
19.2	21.3	23.1	25.6	28.9	31.4	33.9	37.7	32.0	34.3	35.9	38.4
28.4 / 27.4	30.1 / 29.0	33.6 / 32.4	35.8 / 34.6	40.6 / 39.2	42.4 / 40.8	44.7 / 43.1	49.8 / 48.0	46.6 / 44.9	48.2 / 46.4	51.5 / 49.7	53.8 / 51.8
17.9	19.2	21.2	22.6	25.9	27.3	28.8	32.4	29.4	30.7	32.5	33.9
3	3	4	4	4	4	4	4	5	5	6	6
27,360	27,840	27,840	27,840	38,220	38,220	48,600	48,600	41,280	41,760	41,760	41,760
7,600	7,733	7,733	7,733	10,616	10,616	13,500	13,500	11,466	11,600	11,600	11,600
22.4	22.6	22.6	22.6	22.3	22.3	22.0	22.0	33.7	33.9	33.9	33.9
80	80	80	80	80	80	80	80	80	80	80	80
Ø31.75 (Ø1-1/4)	Ø31.75 (Ø1-1/4)	Ø31.75 (Ø1-1/4)	Ø31.75 (Ø1-1/4)	Ø31.75 (Ø1-1/4)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)
Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)
Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)
				Cooling: -10°C (	DB)~ +52°C (DB)	. Heating: -25°C (	WB)~ +18°C (WB	)			
62.5	63.5	63.5	64.0	63.0	63.5	62.5	63.0	65.0	65.5	65.5	66.0
57.5	58.5	58.5	59.0	58.0	58.5	57.5	58.0	60.0	60.5	60.5	61.0
83.5	84.5	84.5	85.0	84.0	84.5	83.5	84.0	86.0	86.5	86.5	87.0

	78.5 85.0 90.0							p			
73.0 U-10ME2R8 U-16ME2R8	78.5 U-12ME2R8 U-16ME2R8	85.0 U-14ME2R8 U-16ME2R8	90.0 U-16ME2R8 U-16ME2R8	96.0 U-14ME2R8 U-20ME2R8	101.0 U-16ME2R8 U-20ME2R8	107.0 U-18ME2R8 U-20ME2R8	113.0 U-20ME2R8 U-20ME2R8	118.0 U-10ME2R8 U-16ME2R8 U-16ME2R8	124.0 U-12ME2R8 U-16ME2R8 U-16ME2R8	130.0 U-14ME2R8 U-16ME2R8 U-16ME2R8	135.0 U-16ME2R8 U-16ME2R8 U-16ME2R8
					400/415V, 3	phase - 50Hz					
73.0	78.5	85.0	90.0	96.0	101.0	107.0	113.0	118.0	124.0	130.0	135.0
249,100	267,900	290,100	307,200	327,600	344,700	365,200	385,700	402,700	423,200	443,700	460,800
81.5	87.5	95.0	100.0	108.0	113.0	119.0	127.0	132.0	138.0	145.0	150.0
278,200	298,600	324,200	341,300	368,600	385,700	406,100	433,400	450,500	471,000	494,900	511,900
3.80	3.69	3.68	3.52	3.32	3.22	3.16	3.00	3.69	3.62	3.62	3.52
4.55	4.56	4.48	4.42	4.17	4.14	4.13	3.92	4.49	4.50	4.46	4.42
1,842 x 2,010 x 1,000	1,842 x 2,420 x 1,000	1,842 x 2,420 x 1,000	1,842 x 2,420 x 1,000	1,842 x 2,780 x 1,000	1,842 x 2,780 x 1,000	1,842 x 3,140 x 1,000	1,842 x 3,140 x 1,000	1,842 x 3,250 x 1,000	1,842 x 3,660 x 1,000	1,842 x 3,660 x 1,000	1,842 x 3,660 x 1,000
535	585	630	630	690	690	750	750	850	900	945	945
30.1 / 29.0	33.1 / 31.9	36.6 / 35.3	40.2 / 38.7	44.9 / 43.2	48.2 / 46.5	52.1 / 50.2	57.3 / 55.2	50.2 / 48.4	53.2 / 51.3	56.9 / 54.9	60.2 / 58.1
19.2	21.3	23.1	25.6	28.9	31.4	33.9	37.7	32.0	34.3	35.9	38.4
28.4 / 27.4	30.1 / 29.0	33.6 / 32.4	35.8 / 34.6	40.6 / 39.2	42.4 / 40.8	44.7 / 43.1	49.8 / 48.0	46.6 / 44.9	48.2 / 46.4	51.5 / 49.7	53.8 / 51.8
17.9	19.2	21.2	22.6	25.9	27.3	28.8	32.4	29.4	30.7	32.5	33.9
3	3	4	4	4	4	4	4	5	5	6	6
27,360	27,840	27,840	27,840	38,220	38,220	48,600	48,600	41,280	41,760	41,760	41,760
7,600	7,733	7,733	7,733	10,616	10,616	13,500	13,500	11,466	11,600	11,600	11,600
22.4	22.6	22.6	22.6	22.3	22.3	22.0	22.0	33.7	33.9	33.9	33.9
80	80	80	80	80	80	80	80	80	80	80	80
Ø31.75 (Ø1-1/4)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)	Ø38.10 (Ø1-1/2)				
Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)	Ø19.05 (Ø3/4)					
Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)					
				Cooling: -10°C (	DB)~ +52°C (DB).	. Heating: -25°C (	WB)~ +18°C (WB	)			
62.5	63.5	63.5	64.0	63.0	63.5	62.5	63.0	65.0	65.5	65.5	66.0
57.5	58.5	58.5	59.0	58.0	58.5	57.5	58.0	60.0	60.5	60.5	61.0
83.5	84.5	84.5	85.0	84.0	84.5	83.5	84.0	86.0	86.5	86.5	87.0

P	P	P		j]I		j
190.0	196.0	202.0	208.0	213.0	219.0	
U-12ME2R8 U-16ME2R8 U-20ME2R8 U-20ME2R8	U-10ME2R8 U-20ME2R8 U-20ME2R8 U-20ME2R8	U-16ME2R8 U-16ME2R8 U-20ME2R8 U-20ME2R8	U-16ME2R8 U-18ME2R8 U-20ME2R8 U-20ME2R8	U-16ME2R8 U-20ME2R8 U-20ME2R8 U-20ME2R8	U-18ME2R8 U-20ME2R8 U-20ME2R8 U-20ME2R8	U-20 U-20 U-20 U-20

400/415V, 3 phase - 50Hz						
190.0	196.0	202.0	208.0	213.0	219.0	224.0
648,500	668,900	689,400	709,900	727,000	747,400	764,500
213.0	219.0	226.0	233.0	239.0	245.0	252.0
727,000	747,400	771,300	795,200	815,700	836,200	860,100
3.26	3.15	3.22	3.19	3.10	3.08	3.01
4.18	4.05	4.14	4.12	4.03	4.03	3.94
1,842 x 5,620 x 1,000	1,842 x 5,570 x 1,000	1,842 x 5,620 x 1,000	1,842 x 5,980 x 1,000	1,842 x 5,980 x 1,000	1,842 x 6,340 x 1,000	1,842 x 6,340 x 1,000
1,335	1,345	1,380	1,440	1,440	1,500	1,500
89.4 / 86.1	95.5 / 92.1	96.4 / 92.9	100.3 / 96.6	105.3 / 101.5	108.0 / 104.1	113.0 / 109.0
58.2	62.2	62.8	65.3	68.6	71.1	74.4
79.2 / 76.3	83.1 / 80.1	84.7 / 81.7	87.7 / 84.5	92.0 / 88.7	93.4 / 90.0	98.3 / 94.7
51.0	54.1	54.6	56.5	59.3	60.8	64.0
7	7	8	8	8	8	8
76,440	86,340	76,440	86,820	86,820	97,200	97,200
21,233	23,983	21,233	24,116	24,116	27,000	27,000
44.6	44.1	44.6	44.3	44.3	44.0	44.0
80	80	80	80	80	80	80
Ø41.28 (Ø1-5/8)	Ø41.28 (Ø1-5/8)	Ø44.45 (Ø1-3/4)				
Ø22.22 (Ø7/8)	Ø22.22 (Ø7/8)	Ø22.22 (Ø7/8)	Ø22.22 (Ø7/8)	Ø22.22 (Ø7/8)	Ø22.22 (Ø7/8)	Ø22.22 (Ø7/8)
Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)	Ø6.35 (Ø1/4)
Cooling: -10°C (DB)~ +52°C (DB). Heating: -25°C (WB)~ +18°C (WB)						
66.5	65.5	66.5	66.5	66.5	66.0	66.0
61.5	60.5	61.5	61.5	61.5	61.0	61.0
87.5	86.5	87.5	87.5	87.5	87.0	87.0



# 224.0 20ME2R8 20ME2R8 20ME2R8 20ME2R8

#### GLOBALREMARKS

Rated conditions:	Cooling	Heating
Indoor air temperature	27°C DB / 19°C WB	20°C DB
Outdoor air temperature	35°C DB	7°C DB / 6°C WB

\* These specifications are subject to change without notice. \*\* High durable model (with suffix "E") has the same specifications.

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## Panasonic®



Panasonic Air Conditioning Systems

We face a time in which "quality air" differentiates business. It's a time for Panasonic to fully display its strengths. Our ability to assemble and build superior systems isn't just due to the rich resources we have as a comprehensive electronics manufacturer, but also to Panasonic's 100 years of tradition, where each person thinks and acts on their own initiative while working in a team to reach further heights. We do not compromise. Each of our independent selves is a one stop solution. We face our customers' challenges together with our customers and do all that we can to build effective systems. As a true partner for our customers, we strive to always be at the forefront of business.

- Please read the Installation Instructions carefully before installing the unit, and the Operating Instructions before using it.
- Specifications are subject to change without prior notice.
- The contents of this catalogue are accurate as of May 2024.
- Due to printing considerations, actual colours may vary slightly from those shown.
- All graphics are provided solely for the purpose of illustrating a point.

Do not add or replace refrigerant other than the specified type. Manufacturer is not responsible for damage or deterioration in safety due to usage of other refrigerant. Authorised Dealer

#### Panasonic Australia Pty. Limited.

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