BC Controllers

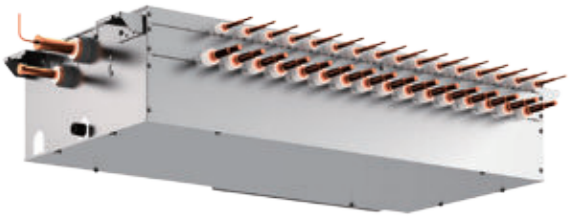
BC CONTROLLER FEATURES R32 R410A

For R2-Series

The secret of CITY MULTI heat recovery systems lies in the

BC Controller

The BC controller houses a liquid/gas separator, allowing the outdoor unit to deliver a mixture (2-phase) of hot gas for heating and liquid for cooling, all through the same pipe. The three pipe system allocates a pipe to each of these phases. When this mixture arrives at the BC controller, it is separated, and the correct phase is delivered to each indoor unit according to the individual requirement for either heating or cooling.



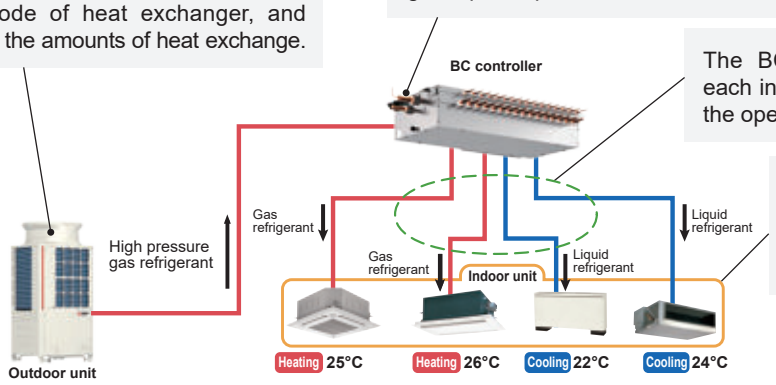
1 High pressure and low pressure decides the compressor frequency, the mode of heat exchanger, and control the amounts of heat exchange.

2 R2 Refrigerant Circuit

Gas-liquid 2-phase refrigerant from the outdoor unit is separated into gas refrigerant and liquid refrigerant by a gas-liquid separator in the BC controller.

The BC controller delivers refrigerant to each indoor unit properly in accordance with the operation mode of each indoor unit.

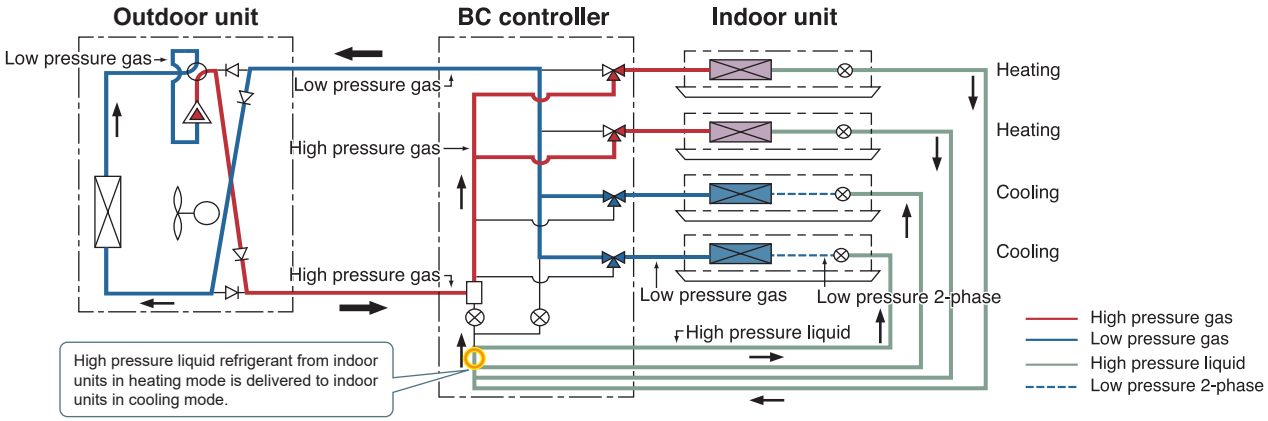
3 The refrigerant flow is adjusted according to the temperature difference between the inlet and outlet.



Demands for
- - - cooling/heating are met flexibly.

Heating = gas refrigerant
Cooling = liquid refrigerant

• Total heat recovery operation



The latest BC controller models are compatible with both the R32 and the R410A outdoor unit series.

Lineup

Conventional model

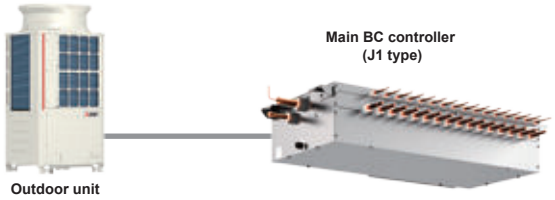
Type	Model name
J	CMB-P**V-J
JA	CMB-P**V-JA
KA	CMB-P**V-KA
KB	CMB-P**V-KB

Latest model

Type	Model name	Usage
J1	CMB-M**V-J1	Main BC controller
JA1	CMB-M**V-JA1	Main BC controller with sub BC controller
KA1	CMB-P**V-KA1 *	Main BC controller with sub BC controller
KB1	CMB-M**V-KB1	Sub BC controller

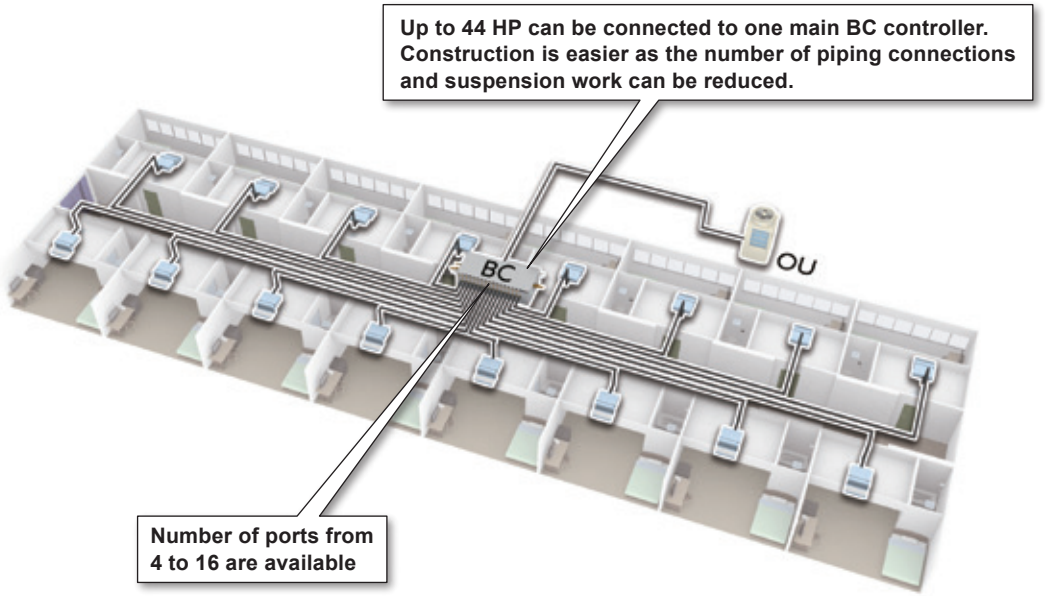
*KA1 type can only be connected to R410A outdoor units.
*When mixing the use of a conventional (J/JA/KA/KB type) and latest (J1/JA1/KA1/KB1 type) BC controller, please refer to the DATABOOK for details.

• System with a main BC controller

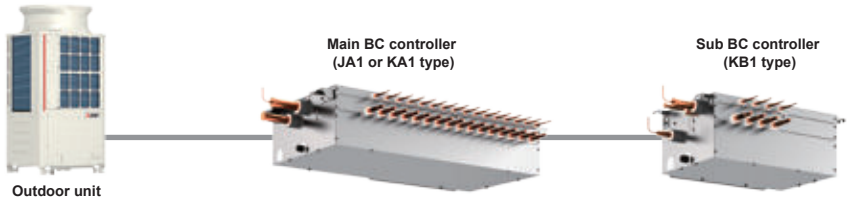


Main BC controller (J1 type)

Model	CMB-M104V-J1	CMB-M106V-J1	CMB-M108V-J1	CMB-M1012V-J1	CMB-M1016V-J1
Number of branches	4	6	8	12	16
Connectable outdoor unit capacity	R32 (E)M200 to (E)M300/ R410A (E)P200 to (E)P350				



• System with multiple BC controllers



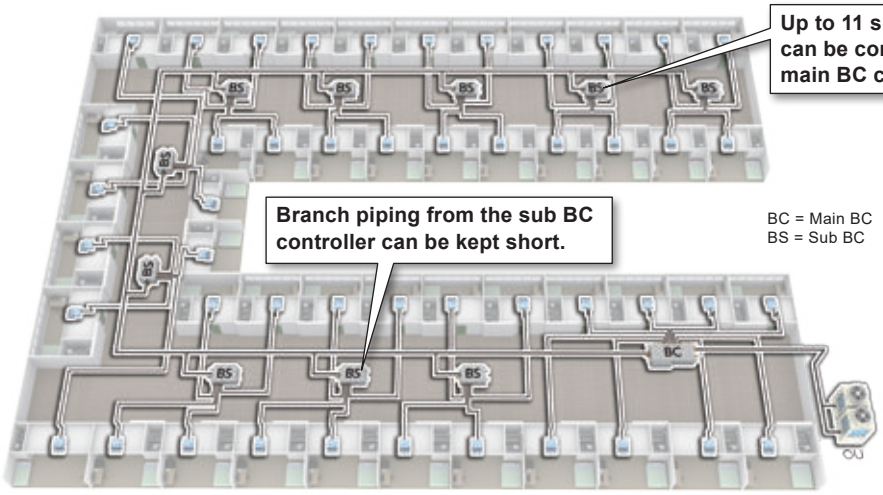
Main BC controller used with sub BC controller (JA1 and KA1 types)

Model	CMB-M108V-JA1	CMB-M1012V-JA1	CMB-M1016V-JA1	CMB-P1016V-KA1
Number of branches	8	12	16	16
Connectable outdoor unit capacity	R32 (E)M200 to (E)M300/ R410A (E)P200 to (E)P900			R410A (E)P200 to (E)P1100

*KA1 type can only be connected to R410A outdoor units.

Sub BC controller (KB1 type)

Model	CMB-M104V-KB1	CMB-M108V-KB1
Number of branches	4	8
Connectable main BC controller	CMB-M108/1012/1016V-JA1, CMB-P1016V-KA1	

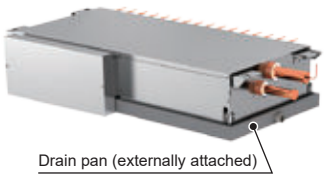


*When installing a sub BC controller, refer to the DATA BOOK for full details.
*The main BC controller has two ports for sub BC controllers. A low pressure pipe needs to be branched from the outdoor unit.

Features

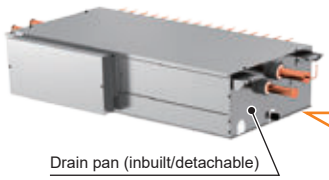
• Drain pan design

Conventional model *CMB-P V-J/V-JA/V-KA/V-KB



The drain pan is externally attached to the BC controller.

Latest model *CMB-M V-J1/V-JA1/V-KB1, CMB-P V-KA1

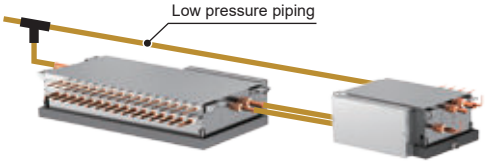


The drain pan on the latest BC controller is inbuilt and can be detached from the bottom for easier maintenance.

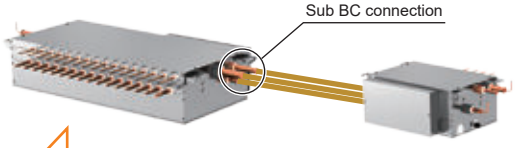
Easier maintenance with inbuilt detachable drain pan.

• Piping

Conventional model *CMB-P V-JA/V-KA/V-KB



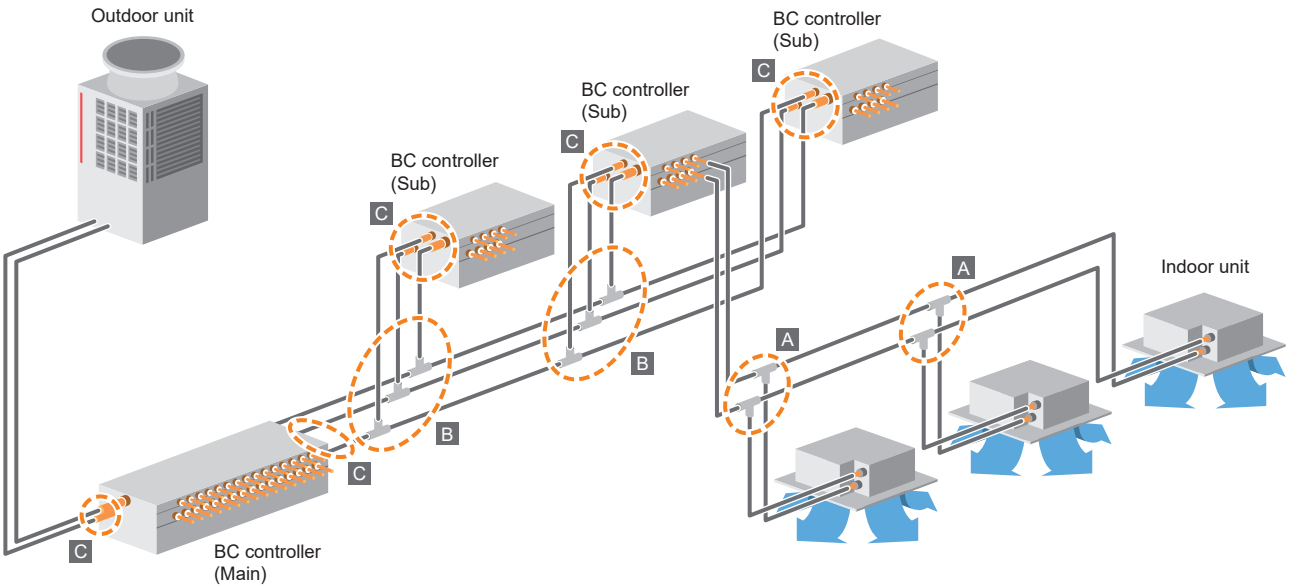
Latest model *CMB-M V-JA1/V-KB1, CMB-P V-KA1



Easier installation with a low pressure piping connected to a sub BC.

Optional parts

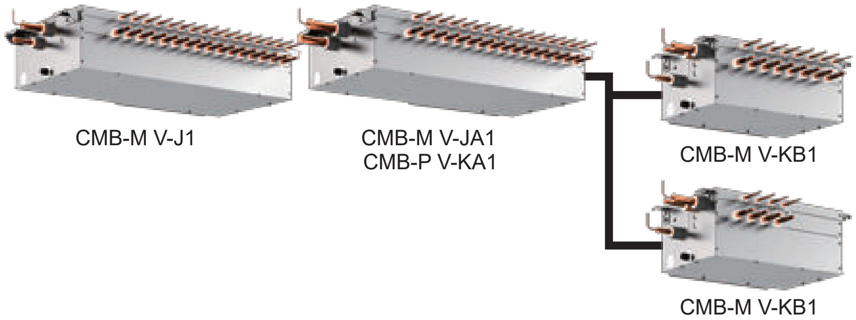
• For BC controllers



A	Branch joint	Between BC and indoor units	CMY-Y102SS-G2	Total down-stream indoor unit capacity: -P/M200
			CMY-Y102LS-G2	Total down-stream indoor unit capacity: P/M201-P/M250
B	Branch joint	Between Main BC and Sub BC	CMY-R201S-G	Total down-stream indoor unit capacity: -P/M350
			CMY-R202S-G	Total down-stream indoor unit capacity: P/M351-P/M600
			CMY-R203S-G	Total down-stream indoor unit capacity: P/M601-P/M650
			CMY-R204S-G	Total down-stream indoor unit capacity: P/M651-P/M1000
			CMY-R205S-G	Total down-stream indoor unit capacity: P/M1001-
C	Reducer	Between outdoor units and BC	CMY-R301S-G	For J1 type (Outdoor unit capacity: P200-P350/M200-M300)
			CMY-R302S-G1	For JA1 type (Outdoor unit capacity: P200-P900/M200-M300)
			CMY-R304S-G1	For KA1 type (Outdoor unit capacity: P200-P1100)
		Between Main BC and Sub BC	CMY-R303S-G1	For JA1 type (When using the Sub BC controller)
			CMY-R305S-G1	For KA1 type (When using the Sub BC controller)
			CMY-R306S-G	For KB1 type
Branch pipe (Header)			CMY-R160-J1	Joint for connecting to two nozzles

*Items “B” is not necessary when J1-type BC controller is used.

CMB-M V-J1
CMB-M V-JA1
CMB-P V-KA1
CMB-M V-KB1



J1 type R32 R410A

CMB-M V-J1

Model			CMB-M104V-J1(-TR)		CMB-M106V-J1(-TR)		CMB-M108V-J1(-TR)		CMB-M1012V-J1(-TR)		CMB-M1016V-J1(-TR)	
Number of branch			4		6		8		12		16	
Power source			1-phase 220-230-240 V									
			50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
Power input (220/230/240)	Cooling	kW	0.067/0.076/0.085	0.054/0.061/0.067	0.097/0.110/0.123	0.078/0.088/0.097	0.127/0.144/0.161	0.102/0.115/0.127	0.186/0.211/0.236	0.150/0.168/0.186	0.246/0.279/0.312	0.198/0.222/0.246
	Heating	kW	0.030/0.034/0.038	0.024/0.027/0.030	0.045/0.051/0.057	0.036/0.041/0.045	0.060/0.068/0.076	0.048/0.054/0.060	0.090/0.102/0.114	0.072/0.081/0.090	0.119/0.135/0.151	0.096/0.108/0.119
Current input (220/230/240)	Cooling	A	0.31/0.34/0.36	0.25/0.27/0.28	0.45/0.48/0.52	0.36/0.39/0.41	0.58/0.63/0.68	0.47/0.50/0.53	0.85/0.92/0.99	0.69/0.74/0.78	1.12/1.22/1.30	0.90/0.97/1.03
	Heating	A	0.14/0.15/0.16	0.11/0.12/0.13	0.21/0.23/0.24	0.17/0.18/0.19	0.28/0.30/0.32	0.22/0.24/0.25	0.42/0.44/0.48	0.33/0.36/0.38	0.55/0.59/0.63	0.44/0.47/0.50
External finish			Galvanized steel plate (Lower part drain pan: Pre-coated galvanized sheets + powder coating)									
Connectable outdoor unit capacity			P200 to P350/M200 to M300									
Indoor unit capacity connectable to 1 branch *14			Model P/M80 or smaller (Use optional joint pipe combining 2 branches when the total unit capacity exceeds P/M81.)									
External dimension HxWxD		mm	250 x 596 x 476		250 x 596 x 476		250 x 596 x 476		252 x 911 x 622		252 x 1,135 x 622	
		in.	9-7/8 x 23-1/2 x 18-3/4		9-7/8 x 23-1/2 x 18-3/4		9-7/8 x 23-1/2 x 18-3/4		9-15/16 x 35-7/8 x 24-1/2		9-15/16 x 44-11/16 x 24-1/2	
Refrigerant piping diameter	To outdoor unit / Connectable unit capacity		High press. pipe	Low press. pipe	High press. pipe	Low press. pipe	High press. pipe	Low press. pipe	High press. pipe	Low press. pipe	High press. pipe	Low press. pipe
	P200/M200	mm(in.) O.D.	15.88 (5/8) Brazed	19.05 (3/4) Brazed	15.88 (5/8) Brazed	19.05 (3/4) Brazed	15.88 (5/8) Brazed	19.05 (3/4) Brazed	15.88 (5/8) Brazed	19.05 (3/4) Brazed	15.88 (5/8) Brazed	19.05 (3/4) Brazed
	P250/P300	mm(in.) O.D.	19.05 (3/4) Brazed	22.2 (7/8) Brazed	19.05 (3/4) Brazed	22.2 (7/8) Brazed	19.05 (3/4) Brazed	22.2 (7/8) Brazed	19.05 (3/4) Brazed	22.2 (7/8) Brazed	19.05 (3/4) Brazed	22.2 (7/8) Brazed
	P350 *15	mm(in.) O.D.	19.05 (3/4) Brazed or 22.2 (7/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed or 22.2 (7/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed or 22.2 (7/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed or 22.2 (7/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed or 22.2 (7/8) Brazed	28.58 (1-1/8) Brazed
	M250/M300	mm(in.) O.D.	15.88 (5/8) Brazed	22.2 (7/8) Brazed	15.88 (5/8) Brazed	22.2 (7/8) Brazed	15.88 (5/8) Brazed	22.2 (7/8) Brazed	15.88 (5/8) Brazed	22.2 (7/8) Brazed	15.88 (5/8) Brazed	22.2 (7/8) Brazed
	To indoor unit		Liquid pipe	Gas pipe	Liquid pipe	Gas pipe	Liquid pipe	Gas pipe	Liquid pipe	Gas pipe	Liquid pipe	Gas pipe
		mm(in.) O.D.	Indoor unit Model 50 or smaller 6.35 (1/4) Brazed bigger than 50 9.52 (3/8) Brazed	Indoor unit Model 50 or smaller 12.7 (1/2) Brazed bigger than 50 15.88 (5/8) Brazed (19.05 (3/4), 22.2 (7/8) with optional joint pipe used.)	Indoor unit Model 50 or smaller 6.35 (1/4) Brazed bigger than 50 9.52 (3/8) Brazed	Indoor unit Model 50 or smaller 12.7 (1/2) Brazed bigger than 50 15.88 (5/8) Brazed (19.05 (3/4), 22.2 (7/8) with optional joint pipe used.)	Indoor unit Model 50 or smaller 6.35 (1/4) Brazed bigger than 50 9.52 (3/8) Brazed	Indoor unit Model 50 or smaller 12.7 (1/2) Brazed bigger than 50 15.88 (5/8) Brazed (19.05 (3/4), 22.2 (7/8) with optional joint pipe used.)	Indoor unit Model 50 or smaller 6.35 (1/4) Brazed bigger than 50 9.52 (3/8) Brazed	Indoor unit Model 50 or smaller 12.7 (1/2) Brazed bigger than 50 15.88 (5/8) Brazed (19.05 (3/4), 22.2 (7/8) with optional joint pipe used.)	Indoor unit Model 50 or smaller 6.35 (1/4) Brazed bigger than 50 9.52 (3/8) Brazed	Indoor unit Model 50 or smaller 12.7 (1/2) Brazed bigger than 50 15.88 (5/8) Brazed (19.05 (3/4), 22.2 (7/8) with optional joint pipe used.)
Field drain pipe size		mm (in.)	O.D. 32 (1-1/4)		O.D. 32 (1-1/4)		O.D. 32 (1-1/4)		O.D. 32 (1-1/4)		O.D. 32 (1-1/4)	
Net weight		kg (lbs)	26 (58)		29 (64)		33 (73)		49 (109)		59 (131)	
Sound power level (measured in anechoic room)	Rated operation	dB <A>	59		59		59		59		59	
	Defrost	dB <A>	71		71		71		71		71	
Sound pressure level (measured in anechoic room) *16	Rated operation	dB <A>	40		40		40		40		40	
	Defrost	dB <A>	53		53		53		53		53	
Accessories			Drain Connection pipe, Washer, Tie band									

Notes:

1. Installation/foundation work, electrical connection work, insulation work, power source switch, and other items shall be referred to the Installation Manual.
2. The equipment is for R410A or R32 refrigerant.
3. Install this product in a location where noise (refrigerant noise) emitted by the unit will not disturb the neighbors.
   (For use in quiet environments with low background noise, position the BC CONTROLLER at least 5m away from any indoor units.)
4. Sound pressure/power level differs depending on the connected outdoor unit capacity or operation condition.
   The sound pressure/power level at the rated operation is the value of the cooling mode.
5. The sound pressure/power level values were obtained in an anechoic room. Actual sound pressure level is usually greater than that measured in anechoic room due to ambient noise and deflection sound.
6. The sound pressure level values were obtained at the location below 1.5m from the unit.
7. The solenoid valve switching sound is 56 dB (sound pressure level) regardless of the unit model.
8. Indoor units P/M100, P/M125, P/M140 can be connected to 1 branch. (In this case, cooling capacity decrease a little.)
9. Refrigerant piping diameter for connection of plural indoor units with 1 branch shall be referred to the Installation Manual.
10. This unit is not designed for outside installations.
11. When blazing the pipes, be sure to blaze, after covering a wet cloth to the insulation pipes of the units in order to prevent it from burning and shrinking by heat.
12. The ambient relative humidity of the BC controller needs to be kept below 80%.
13. R32 is flammable, and certain restrictions apply to the installation of units.
    When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
    For detail, refer to the section in the DATA BOOK on installation restrictions.
14. Indoor unit capacity connectable to 1 branch is changed depending on the indoor unit type and connection method. Please refer to the Installation Manual for more information.
15. For the refrigerant pipe size, refer to Installation Manual of outdoor units.
16. The sound pressure level measured by the conventional method in JIS for reference purpose.

JA1 type R32 R410A

CMB-M V-JA1

Model			CMB-M108V-JA1(-TR)		CMB-M1012V-JA1(-TR)		CMB-M1016V-JA1(-TR)	
Number of branch			8		12		16	
Power source			1-phase 220-230-240 V					
			50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
Power input (220/230/240)	Cooling	kW	0.127/0.144/0.161	0.102/0.115/0.127	0.186/0.211/0.236	0.150/0.168/0.186	0.246/0.279/0.312	0.198/0.222/0.246
	Heating	kW	0.060/0.068/0.076	0.048/0.054/0.060	0.090/0.102/0.114	0.072/0.081/0.090	0.119/0.135/0.151	0.096/0.108/0.119
Current input (220/230/240)	Cooling	A	0.58/0.63/0.68	0.47/0.50/0.53	0.85/0.92/0.99	0.69/0.74/0.78	1.12/1.22/1.30	0.90/0.97/1.03
	Heating	A	0.28/0.30/0.32	0.22/0.24/0.25	0.42/0.44/0.48	0.33/0.36/0.38	0.55/0.59/0.63	0.44/0.47/0.50
External finish			Galvanized steel plate (Lower part drain pan: Pre-coated galvanized sheets + powder coating)					
Connectable outdoor unit capacity			P200 to P900/M200 to M300					
Indoor unit capacity connectable to 1 branch *14			Model P/M80 or smaller (Use optional joint pipe combining 2 branches when the total unit capacity exceeds P/M81.)					
External dimension HxWxD		mm	252 x 911 x 622		252 x 1,135 x 622		252 x 1,135 x 622	
		in.	9-15/16 x 35-7/8 x 24-1/2		9-15/16 x 44-11/16 x 24-1/2		9-15/16 x 44-11/16 x 24-1/2	
Refrigerant piping diameter	To outdoor unit							
	Connectable unit capacity		High press. pipe	Low press. pipe	High press. pipe	Low press. pipe	High press. pipe	Low press. pipe
	P200/M200	mm(in.) O.D.	15.88 (5/8) Brazed	19.05 (3/4) Brazed	15.88 (5/8) Brazed	19.05 (3/4) Brazed	15.88 (5/8) Brazed	19.05 (3/4) Brazed
	P250/P300	mm(in.) O.D.	19.05 (3/4) Brazed	22.2 (7/8) Brazed	19.05 (3/4) Brazed	22.2 (7/8) Brazed	19.05 (3/4) Brazed	22.2 (7/8) Brazed
	P350 *15	mm(in.) O.D.	19.05 (3/4) Brazed or 22.2 (7/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed or 22.2 (7/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed or 22.2 (7/8) Brazed	28.58 (1-1/8) Brazed
	P400 to P500	mm(in.) O.D.	22.2 (7/8) Brazed	28.58 (1-1/8) Brazed	22.2 (7/8) Brazed	28.58 (1-1/8) Brazed	22.2 (7/8) Brazed	28.58 (1-1/8) Brazed
	P550 *15	mm(in.) O.D.	22.2 (7/8) Brazed or 28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed	22.2 (7/8) Brazed or 28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed	22.2 (7/8) Brazed or 28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed
	P600 *15	mm(in.) O.D.	22.2 (7/8) Brazed or 28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed or 34.93 (1-3/8) Brazed	22.2 (7/8) Brazed or 28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed or 34.93 (1-3/8) Brazed	22.2 (7/8) Brazed or 28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed or 34.93 (1-3/8) Brazed
	P650	mm(in.) O.D.	28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed
	P700 to P800	mm(in.) O.D.	28.58 (1-1/8) Brazed	34.93 (1-3/8) Brazed	28.58 (1-1/8) Brazed	34.93 (1-3/8) Brazed	28.58 (1-1/8) Brazed	34.93 (1-3/8) Brazed
	P850 to P900	mm(in.) O.D.	28.58 (1-1/8) Brazed	41.28(1-5/8) Brazed	28.58 (1-1/8) Brazed	41.28(1-5/8) Brazed	28.58 (1-1/8) Brazed	41.28(1-5/8) Brazed
	M250/M300	mm(in.) O.D.	15.88 (5/8) Brazed	22.2 (7/8) Brazed	15.88 (5/8) Brazed	22.2 (7/8) Brazed	15.88 (5/8) Brazed	22.2 (7/8) Brazed
	To indoor unit		Liquid pipe	Gas pipe	Liquid pipe	Gas pipe	Liquid pipe	Gas pipe
		mm(in.) O.D.	Indoor unit Model 50 or smaller 6.35 (1/4) Brazed bigger than 50 9.52 (3/8) Brazed	Indoor unit Model 50 or smaller 12.7 (1/2) Brazed bigger than 50 15.88 (5/8) Brazed (19.05 (3/4), 22.2 (7/8) with optional joint pipe used.)	Indoor unit Model 50 or smaller 6.35 (1/4) Brazed bigger than 50 9.52 (3/8) Brazed	Indoor unit Model 50 or smaller 12.7 (1/2) Brazed bigger than 50 15.88 (5/8) Brazed (19.05 (3/4), 22.2 (7/8) with optional joint pipe used.)	Indoor unit Model 50 or smaller 6.35 (1/4) Brazed bigger than 50 9.52 (3/8) Brazed	Indoor unit Model 50 or smaller 12.7 (1/2) Brazed bigger than 50 15.88 (5/8) Brazed (19.05 (3/4), 22.2 (7/8) with optional joint pipe used.)

To other BC controller (Refrigerant piping diameter)		CMB-M108V-JA1(-TR)			CMB-M1012V-JA1(-TR)			CMB-M1016V-JA1(-TR)		
Total down-stream Indoor unit capacity		High press. pipe	Liquid pipe	Low press. pipe	High press. pipe	Liquid pipe	Low press. pipe	High press. pipe	Liquid pipe	Low press. pipe
to P200/M200	mm(in.) O.D.	15.88 (5/8) Brazed	9.52 (3/8) Brazed	19.05 (3/4) Brazed	15.88 (5/8) Brazed	9.52 (3/8) Brazed	19.05 (3/4) Brazed	15.88 (5/8) Brazed	9.52 (3/8) Brazed	19.05 (3/4) Brazed
P201 to P300	mm(in.) O.D.	19.05 (3/4) Brazed	9.52 (3/8) Brazed	22.2 (7/8) Brazed	19.05 (3/4) Brazed	9.52 (3/8) Brazed	22.2 (7/8) Brazed	19.05 (3/4) Brazed	9.52 (3/8) Brazed	22.2 (7/8) Brazed
P301 to P350	mm(in.) O.D.	19.05 (3/4) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed
P351 to P400	mm(in.) O.D.	22.2 (7/8) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed	22.2 (7/8) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed	22.2 (7/8) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed
P401 to P600	mm(in.) O.D.	22.2 (7/8) Brazed	15.88 (5/8) Brazed	28.58 (1-1/8) Brazed	22.2 (7/8) Brazed	15.88 (5/8) Brazed	28.58 (1-1/8) Brazed	22.2 (7/8) Brazed	15.88 (5/8) Brazed	28.58 (1-1/8) Brazed
P601 to P650	mm(in.) O.D.	28.58 (1-1/8) Brazed	15.88 (5/8) Brazed	28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed	15.88 (5/8) Brazed	28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed	15.88 (5/8) Brazed	28.58 (1-1/8) Brazed
P651 to P800	mm(in.) O.D.	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	34.93 (1-3/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	34.93 (1-3/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	34.93 (1-3/8) Brazed
P801 to P1000	mm(in.) O.D.	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	41.28(1-5/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	41.28(1-5/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	41.28(1-5/8) Brazed
P1001 or above	mm(in.) O.D.	34.93 (1-3/8) Brazed	19.05 (3/4) Brazed	41.28(1-5/8) Brazed	34.93 (1-3/8) Brazed	19.05 (3/4) Brazed	41.28(1-5/8) Brazed	34.93 (1-3/8) Brazed	19.05 (3/4) Brazed	41.28(1-5/8) Brazed
M201 to M300	mm(in.) O.D.	15.88 (5/8) Brazed	9.52 (3/8) Brazed	22.2 (7/8) Brazed	15.88 (5/8) Brazed	9.52 (3/8) Brazed	22.2 (7/8) Brazed	15.88 (5/8) Brazed	9.52 (3/8) Brazed	22.2 (7/8) Brazed
M301 to M350	mm(in.) O.D.	15.88 (5/8) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed	15.88 (5/8) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed	15.88 (5/8) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed
M351 to M400	mm(in.) O.D.	19.05 (3/4) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed
M401 to M450	mm(in.) O.D.	19.05 (3/4) Brazed	15.88 (5/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	15.88 (5/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	15.88 (5/8) Brazed	28.58 (1-1/8) Brazed

Model			CMB-M108V-JA1(-TR)	CMB-M1012V-JA1(-TR)	CMB-M1016V-JA1(-TR)
Field drain pipe size		mm (in.)	O.D. 32 (1-1/4)	O.D. 32 (1-1/4)	O.D. 32 (1-1/4)
Net weight		kg (lbs)	48 (106)	60 (133)	68 (150)
Sound power level (measured in anechoic room)	Rated operation	dB <A>	68	68	68
	Defrost	dB <A>	74	74	74
Sound pressure level (measured in anechoic room) *16	Rated operation	dB <A>	50	50	50
	Defrost	dB <A>	56	56	56
Accessories			Drain Connection pipe, Washer, Tie band		

Notes:

1. Installation/foundation work, electrical connection work, insulation work, power source switch, and other items shall be referred to the Installation Manual.
2. The equipment is for R410A or R32 refrigerant.
3. Install this product in a location where noise (refrigerant noise) emitted by the unit will not disturb the neighbors.
   (For use in quiet environments with low background noise, position the BC CONTROLLER at least 5m away from any indoor units.)
4. Sound pressure/power level differs depending on the connected outdoor unit capacity or operation condition.
   The sound pressure/power level at the rated operation is the value of the cooling mode.
5. The sound pressure/power level values were obtained in an anechoic room. Actual sound pressure level is usually greater than that measured in anechoic room due to ambient noise and deflection sound.
6. The sound pressure level values were obtained at the location below 1.5m from the unit.
7. The solenoid valve switching sound is 56 dB (sound pressure level) regardless of the unit model.
8. Indoor units P/M100, P/M125, P/M140 can be connected to 1 branch. (In this case, cooling capacity decrease a little.)
9. Refrigerant piping diameter for connection of plural indoor units with 1 branch shall be referred to the Installation Manual.
10. This unit is not designed for outside installations.
11. When blazing the pipes, be sure to blaze, after covering a wet cloth to the insulation pipes of the units in order to prevent it from burning and shrinking by heat.
12. The ambient relative humidity of the BC controller needs to be kept below 80%.
13. R32 is flammable, and certain restrictions apply to the installation of units.
    When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
    For detail, refer to the section in the DATA BOOK on installation restrictions.
14. Indoor unit capacity connectable to 1 branch is changed depending on the indoor unit type and connection method. Please refer to the Installation Manual for more information.
15. For the refrigerant pipe size, refer to Installation Manual of outdoor units.
16. The sound pressure level measured by the conventional method in JIS for reference purpose.

KA1 type R410A

CMB-P V-KA1

Model			CMB-P1016V-KA1(-TR)		
Number of branch			16		
Power source			1-phase 220-230-240 V		
			50Hz	60Hz	
Power input	Cooling	kW	0.246/0.279/0.312	0.198/0.222/0.246	
(220/230/240)	Heating	kW	0.119/0.135/0.151	0.096/0.108/0.119	
Current input	Cooling	A	1.12/1.22/1.30	0.90/0.97/1.03	
(220/230/240)	Heating	A	0.55/0.59/0.63	0.44/0.47/0.50	
External finish			Galvanized steel plate (Lower part drain pan: Pre-coated galvanized sheets + powder coating)		
Connectable outdoor unit capacity			P200 to P1100		
Indoor unit capacity connectable to 1 branch *13			Model P80 or smaller (Use optional joint pipe combining 2 branches when the total unit capacity exceeds P81.)		
External dimension HxWxD		mm	250 x 1,135 x 622		
		in.	9-7/8 x 44-11/16 x 24-1/2		
Refrigerant piping diameter	To outdoor unit	Connectable unit capacity	High press. pipe	Low press. pipe	
		P200 mm(in.) O.D.	15.88 (5/8) Brazed	19.05 (3/4) Brazed	
		P250/P300 mm(in.) O.D.	19.05 (3/4) Brazed	22.2 (7/8) Brazed	
		P350 *14 mm(in.) O.D.	19.05 (3/4) Brazed or 22.2 (7/8) Brazed	28.58 (1-1/8) Brazed	
		P400 to P500 mm(in.) O.D.	22.2 (7/8) Brazed	28.58 (1-1/8) Brazed	
		P550 *14 mm(in.) O.D.	22.2 (7/8) Brazed or 28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed	
		P600 *14 mm(in.) O.D.	22.2 (7/8) Brazed or 28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed or 34.93 (1-3/8) Brazed	
		P650 mm(in.) O.D.	28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed	
		P700 to P800 mm(in.) O.D.	28.58 (1-1/8) Brazed	34.93 (1-3/8) Brazed	
		P850 to P1000 mm(in.) O.D.	28.58 (1-1/8) Brazed	41.28 (1-5/8) Brazed	
		P1050 to P1100 mm(in.) O.D.	34.93 (1-3/8) Brazed	41.28 (1-5/8) Brazed	
	To indoor unit		Liquid pipe	Gas pipe	
		mm(in.) O.D.	Indoor unit Model 50 or smaller 6.35 (1/4) Brazed bigger than 50 9.52 (3/8) Brazed	Indoor unit Model 50 or smaller 12.7 (1/2) Brazed bigger than 50 15.88 (5/8) Brazed (19.05 (3/4), 22.2 (7/8) with optional joint pipe used.)	
	To other BC controller		High press. pipe	Liquid pipe	Low press. pipe
		Total down-stream Indoor unit capacity			
		to P200 mm(in.) O.D.	15.88 (5/8) Brazed	9.52 (3/8) Brazed	19.05 (3/4) Brazed
		P201 to P300 mm(in.) O.D.	19.05 (3/4) Brazed	9.52 (3/8) Brazed	22.2 (7/8) Brazed
		P301 to P350 mm(in.) O.D.	19.05 (3/4) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed
		P351 to P400 mm(in.) O.D.	22.2 (7/8) Brazed	12.7 (1/2) Brazed	28.58 (1-1/8) Brazed
		P401 to P600 mm(in.) O.D.	22.2 (7/8) Brazed	15.88 (5/8) Brazed	28.58 (1-1/8) Brazed
		P601 to P650 mm(in.) O.D.	28.58 (1-1/8) Brazed	15.88 (5/8) Brazed	28.58 (1-1/8) Brazed
		P651 to P800 mm(in.) O.D.	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	34.93 (1-3/8) Brazed
		P801 to P1000 mm(in.) O.D.	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	41.28 (1-5/8) Brazed
		P1001 or above mm(in.) O.D.	34.93 (1-3/8) Brazed	19.05 (3/4) Brazed	41.28 (1-5/8) Brazed
Field drain pipe size		mm (in.)	O.D. 32 (1-1/4)		
Net weight		kg (lbs)	69 (153)		
Sound power level (measured in anechoic room)	Rated operation	dB <A>	66		
	Defrost	dB <A>	73		
Sound pressure level (measured in anechoic room) *15	Rated operation	dB <A>	48		
	Defrost	dB <A>	55		
Accessories			Drain Connection pipe, Washer, Tie band		

Notes:

1. Installation/foundation work, electrical connection work, insulation work, power source switch, and other items shall be referred to the Installation Manual.
2. The equipment is for R410A refrigerant.
3. Install this product in a location where noise (refrigerant noise) emitted by the unit will not disturb the neighbors.
   (For use in quiet environments with low background noise, position the BC CONTROLLER at least 5m away from any indoor units.)
4. Sound pressure/power level differs depending on the connected outdoor unit capacity or operation condition. The sound pressure/power level at the rated operation is the value of the cooling mode.
5. The sound pressure/power level values were obtained in an anechoic room. Actual sound pressure level is usually greater than that measured in anechoic room due to ambient noise and deflection sound.
6. The sound pressure level values were obtained at the location below 1.5m from the unit.
7. The solenoid valve switching sound is 56 dB (sound pressure level) regardless of the unit model.
8. Indoor units P100, P125, P140 can be connected to 1 branch. (In this case, cooling capacity decrease a little.)
9. Refrigerant piping diameter for connection of plural indoor units with 1 branch shall be referred to the Installation Manual.
10. This unit is not designed for outside installations.
11. When blazing the pipes, be sure to blaze, after covering a wet cloth to the insulation pipes of the units in order to prevent it from burning and shrinking by heat.
12. The ambient relative humidity of the BC controller needs to be kept below 80%.
13. Indoor unit capacity connectable to 1 branch is changed depending on the indoor unit type and connection method. Please refer to the Installation Manual for more information.
14. For the refrigerant pipe size, refer to Installation Manual of outdoor units.
15. The sound pressure level measured by the conventional method in JIS for reference purpose.

KB1 type R32 R410A

CMB-M V-KB1

Model			CMB-M104V-KB1(-TR)		CMB-M108V-KB1(-TR)	
Number of branch			4		8	
Power source			1-phase 220-230-240 V			
			50 Hz	60 Hz	50 Hz	60 Hz
Power input	Cooling	kW	0.060/0.068/0.076	0.048/0.054/0.060	0.119/0.135/0.151	0.096/0.108/0.119
(220/230/240)	Heating	kW	0.030/0.034/0.038	0.024/0.027/0.030	0.060/0.068/0.076	0.048/0.054/0.060
Current input	Cooling	A	0.28/0.30/0.32	0.22/0.24/0.25	0.55/0.59/0.63	0.44/0.47/0.50
(220/230/240)	Heating	A	0.14/0.15/0.16	0.11/0.12/0.13	0.28/0.30/0.32	0.22/0.24/0.25
External finish			Galvanized steel plate (Lower part drain pan: Pre-coated galvanized sheets + powder coating)			
Connectable Main BC controller			CMB-M108/1012/1016V-JA1(-TR), CMB-P1016V-KA1(-TR)			
The maximum number of connectable Sub BC controllers			11			
The maximum connectable capacity of indoor units			P/M350 for each			
External dimension HxWxD		mm	250 x 596 x 476		250 x 596 x 476	
		in.	9-7/8 x 23-1/2 x 18-3/4		9-7/8 x 23-1/2 x 18-3/4	
Refrigerant piping diameter	To outdoor unit		High press. pipe	Low press. pipe	High press. pipe	Low press. pipe
	Connectable unit capacity					
	-	mm(in.) O.D.	-	-	-	-
	To indoor unit		Liquid pipe	Gas pipe	Liquid pipe	Gas pipe
		mm(in.) O.D.	Indoor unit Model 50 or smaller 6.35 (1/4) Brazed bigger than 50 9.52 (3/8) Brazed	Indoor unit Model 50 or smaller 12.7 (1/2) Brazed bigger than 50 15.88 (5/8) Brazed (19.05 (3/4), 22.2 (7/8) with optional joint pipe used.)	Indoor unit Model 50 or smaller 6.35 (1/4) Brazed bigger than 50 9.52 (3/8) Brazed	Indoor unit Model 50 or smaller 12.7 (1/2) Brazed bigger than 50 15.88 (5/8) Brazed (19.05 (3/4), 22.2 (7/8) with optional joint pipe used.)
	To other BC controller		High press. pipe	Liquid pipe / Low press. pipe	High press. pipe	Liquid pipe / Low press. pipe
	Total down-stream Indoor unit capacity					
	to P200/M200	mm(in.) O.D.	15.88 (5/8) Brazed	9.52 (3/8) Brazed / 19.05 (3/4) Brazed	15.88 (5/8) Brazed	9.52 (3/8) Brazed / 19.05 (3/4) Brazed
	P201 to P300	mm(in.) O.D.	19.05 (3/4) Brazed	9.52 (3/8) Brazed / 22.2 (7/8) Brazed	19.05 (3/4) Brazed	9.52 (3/8) Brazed / 22.2 (7/8) Brazed
	P301 to P350	mm(in.) O.D.	19.05 (3/4) Brazed	12.7 (1/2) Brazed / 28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	12.7 (1/2) Brazed / 28.58 (1-1/8) Brazed
	P351 to P400	mm(in.) O.D.	22.2 (7/8) Brazed	12.7 (1/2) Brazed / 28.58 (1-1/8) Brazed	22.2 (7/8) Brazed	12.7 (1/2) Brazed / 28.58 (1-1/8) Brazed
	P401 to P600	mm(in.) O.D.	22.2 (7/8) Brazed	15.88 (5/8) Brazed / 28.58 (1-1/8) Brazed	22.2 (7/8) Brazed	15.88 (5/8) Brazed / 28.58 (1-1/8) Brazed
	P601 to P650	mm(in.) O.D.	28.58 (1-1/8) Brazed	15.88 (5/8) Brazed / 28.58 (1-1/8) Brazed	28.58 (1-1/8) Brazed	15.88 (5/8) Brazed / 28.58 (1-1/8) Brazed
	P651 to P800	mm(in.) O.D.	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed / 34.93 (1-3/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed / 34.93 (1-3/8) Brazed
	P801 to P1000	mm(in.) O.D.	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed / 41.28(1-5/8) Brazed	28.58 (1-1/8) Brazed	19.05 (3/4) Brazed / 41.28(1-5/8) Brazed
	P1001 or above	mm(in.) O.D.	34.93 (1-3/8) Brazed	19.05 (3/4) Brazed / 41.28(1-5/8) Brazed	34.93 (1-3/8) Brazed	19.05 (3/4) Brazed / 41.28(1-5/8) Brazed
	M201 to M300	mm(in.) O.D.	15.88 (5/8) Brazed	9.52 (3/8) Brazed / 22.2 (7/8) Brazed	15.88 (5/8) Brazed	9.52 (3/8) Brazed / 22.2 (7/8) Brazed
	M301 to M350	mm(in.) O.D.	15.88 (5/8) Brazed	12.7 (1/2) Brazed / 28.58 (1-1/8) Brazed	15.88 (5/8) Brazed	12.7 (1/2) Brazed / 28.58 (1-1/8) Brazed
	M351 to M400	mm(in.) O.D.	19.05 (3/4) Brazed	12.7 (1/2) Brazed / 28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	12.7 (1/2) Brazed / 28.58 (1-1/8) Brazed
	M401 to M450	mm(in.) O.D.	19.05 (3/4) Brazed	15.88 (5/8) Brazed / 28.58 (1-1/8) Brazed	19.05 (3/4) Brazed	15.88 (5/8) Brazed / 28.58 (1-1/8) Brazed
Field drain pipe size		mm (in.)	O.D. 32 (1-1/4)		O.D. 32 (1-1/4)	
Net weight		kg (lbs)	23 (51)		31 (69)	
Sound power level (measured in anechoic room)	Rated operation	dB <A>	59		59	
	Defrost	dB <A>	71		71	
Sound pressure level (measured in anechoic room) *15	Rated operation	dB <A>	40		40	
	Defrost	dB <A>	53		53	
Accessories			Drain Connection pipe, Washer, Tie band			

Notes:

1. Installation/foundation work, electrical connection work, insulation work, power source switch, and other items shall be referred to the Installation Manual.
2. The equipment is for R410A or R32 refrigerant.
3. Install this product in a location where noise (refrigerant noise) emitted by the unit will not disturb the neighbors.
   (For use in quiet environments with low background noise, position the BC CONTROLLER at least 5m away from any indoor units.)
4. Sound pressure/power level differs depending on the connected outdoor unit capacity or operation condition.
   The sound pressure/power level at the rated operation is the value of the cooling mode.
5. The sound pressure/power level values were obtained in an anechoic room. Actual sound pressure level is usually greater than that measured in anechoic room due to ambient noise and deflection sound.
6. The sound pressure level values were obtained at the location below 1.5m from the unit.
7. The solenoid valve switching sound is 56 dB (sound pressure level) regardless of the unit model.
8. Indoor units P/M100, P/M125, P/M140 can be connected to 1 branch. (In this case, cooling capacity decrease a little.)
9. Refrigerant piping diameter for connection of plural indoor units with 1 branch shall be referred to the Installation Manual.
10. This unit is not designed for outside installations.
11. When blazing the pipes, be sure to blaze, after covering a wet cloth to the insulation pipes of the units in order to prevent it from burning and shrinking by heat.
12. Can't use singleness. (MAIN BC CONTROLLER is necessary)
13. The ambient relative humidity of the BC controller needs to be kept below 80%.
14. R32 is flammable, and certain restrictions apply to the installation of units.
    When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
    For detail, refer to the section in the DATA BOOK on installation restrictions.
15. The sound pressure level measured by the conventional method in JIS for reference purpose.