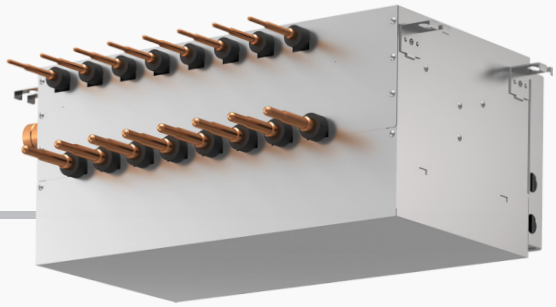
MITSUBISHI ELECTRIC

COOLING & HEATING

BRANCH CIRCUIT (BC) CONTROLLER

CITY MULTI® R2- AND WR2-SERIES



Product Overview

Mitsubishi Electric Cooling & Heating introduces enhancements to the Branch Circuit (BC) Controller, the technological center of CITY MULTI R2-Series, R2-Series H2i®, and WR2-Series systems. The BC Controller enables simultaneous cooling and heating capabilities with the industry's only two-pipe configuration, reducing installation complexity while preserving valuable space within the building and delivering personalized comfort to building occupants.. A requirement for R2- and WR2-Series installations, the BC Controller is available in multiple branch options, ranging from 5 to 16 branches. The optimal selection depends on the number of indoor units operated from each outdoor unit, along with total capacity requirements.

Features

- Brazed connections provide ease of installation.
- Quiet operation of 40dB(A) under normal conditions.
- Delivers simultaneous cooling and heating capabilities through a liquid-gas separator.
- Saves compressor energy through the use of tube-in-tube heat exchangers to accomplish subcooling without sending refrigerant back to the outdoor unit.
- Sizes range up to 16 individual branches on one BC Controller, or up to 48 branches on a system.
- Branches can be twinned to allow for larger indoor connected capacity (up to 96,000 Btu/h).
- Each branch contains a bypass valve, reducing system noise during indoor unit mode changes.

SINGLE BC CONTROLLER	MAIN BC CONTROLLER	SUB-BC CONTROLLER
▸ Used when one BC Controller (per system) is required. ▸ Sizes range up to 16 branches. ▸ Used on outdoor units up to 120,000 Btu/h nominal cooling capacity.	▸ Used on larger R2-Series systems. ▸ Connect a maximum of two (2) Sub BC Controllers if required. ▸ Sizes range up to 16 branches. ▸ Used on outdoor units with 144,000 Btu/h or more of nominal cooling capacity. ▸ HA style BC Controllers can be used on outdoor units sized 264,000 Btu/h or more of nominal cooling capacity.	▸ Used with a Main BC Controller to connect additional indoor units.Connect a maximum of two (2) Sub BC Controllers if required. ▸ Sizes range up to 16 branches. ▸ Connect a maximum of two (2) Sub BC Controllers to one Main BC Controller (per system).

Configuration Tips

- Each branch supports up to 54,000 Btu/h of capacity and up to three (3) indoor units.
- Combining branches will support up to 96,000 Btu/h and up to three (3) indoor units.
- When multiple indoor units are on a single or combined branch, they must be operated in the same mode.
- Isolation valves on each branch, even with indoor units are not connected, are strongly recommended.

CMB-P-NU-G1 (Single BC)

Model Name			CMB-P105NU-G1	CMB-P106NU-G1	CMB-P108NU-G1	CMB-P1010NU-G1	CMB-P1013NU-G1	CMB-P1016NU-G1
Number of Branches			5	6	8	10	13	16
Power Source			208 / 230V, 1-phase, 60 Hz					
Power Input	Cooling	W	73	86	112	138	178	217
	Heating	W	33	40	53	66	86	106
Current (208/230V)	Cooling	A	0.35 / 0.32	0.41 / 0.37	0.54 / 0.49	0.66 / 0.60	0.86 / 0.77	1.04 / 0.94
	Heating	A	0.16 / 0.14	0.19 / 0.17	0.25 / 0.23	0.32 / 0.29	0.41 / 0.37	0.51 / 0.46
External Finish			Unit: Galvanized steel plate; Drain pan: Pre-coated galvanized sheets plus powder coating					
Dimensions	Height	Inches	11-3/16					
	Width	Inches	25-17/32				43-1/4	
	Depth	Inches	17-1/32					
Net Weight		Pounds	72	76	84	94	126	138
Refrigerant Pipe Dimensions	To Indoor Unit *1	Liquid Pipe (In.)	3/8 (Brazed)					
		Gas Pipe (In.)	5/8 (Brazed)					
Indoor Unit Capacity Connectable to One Branch			54,000 Btu/h or less per branch					
Drain Pipe			O.D. 1-1/4"					

Notes:
*1 BC controller includes reducers for all branches. 5/8" braze to 1/2" braze, 3/8" braze to 1/4" braze.

CMB-P-NU-GA/HA1 (Main BC)

Model Name			CMB-P108NU-HA1	CMB-P1010NU-HA1	CMB-P1013NU-GA1	CMB-P1016NU-HA1
Number of Branches			8	10	13	16
Power Source			208 / 230V, 1-phase, 60 Hz			
Power Input	Cooling	W	152 / 196	183 / 236	178	274 / 353
	Heating	W	76 / 98	92 / 118	86	137 / 177
Current (208/230V)	Cooling	A	0.074 / 0.086	0.88 / 1.03	0.86 / 0.77	1.32 / 1.54
	Heating	A	0.37 / 0.43	0.45 / 0.52	0.41 / 0.37	0.66 / 0.77
External Finish			Unit: Galvanized steel plate; Drain pan: Pre-coated galvanized sheets plus powder coating			
Dimensions	Height	Inches	11-13/32	11-13/32	11-7/16	11-13/32
	Width	Inches	43-3/4			
	Depth	Inches	20-1/2			
Net Weight		Pounds	124	131	148	172
Refrigerant Pipe Dimensions	To Indoor Unit *1	Liquid Pipe (In.)	3/8 (Brazed)			
		Gas Pipe (In.)	5/8 (Brazed)			
Max. connected capacity for all branches		Btu/h	504,000	504,000	360,000	504,000
Max. Connected Capacity to Sub BC Controller(s) *2		Btu/h	126,000	126,000	126,000	126,000
Indoor Unit Capacity Connectable to One Branch			54,000 Btu/h or less per branch			
Drain Pipe			O.D. 1-1/4"			

Notes:
*1 BC controller includes reducers for all branches. 5/8" braze to 1/2" braze, 3/8" braze to 1/4" braze.

*2 If two Sub BC controllers are connected and at least one is a CMB-P1016NU-HA1, the maximum connected capacity is 168,000 Btu/h.

CMB-P-NU-GB1/HB1(Sub BC)

Model Name			CMB-P104NU-GB1	CMB-P108NU-GB1	CMB-P1016NU-HB1
Number of Branches			4	8	16
Power Source			208 / 230V, 1-phase, 60 Hz		
Power Input	Cooling	W	53	106	314
	Heating	W	27	53	157
Current (208/230V)	Cooling	A	0.25 / 0.23	0.51 / 0.46	1.17 / 1.37
	Heating	A	0.13 / 0.12	0.25 / 0.23	0.59 / 0.69
External Finish			Unit: Galvanized steel plate; Drain pan: Pre-coated galvanized sheets plus powder coating		
Dimensions	Height	Inches	11-3/16		
	Width	Inches	25-17/32		43-1/4
	Depth	Inches	17-1/32		
Net Weight		Pounds	62	82	136
Refrigerant Pipe Dimensions	To Indoor Unit *1	Liquid Pipe (In.)	3/8 (Brazed)		
		Gas Pipe (In.)	5/8 (Brazed)		
Max. Connected Capacity for All Branches*2		Btu/h	126,000	126,000	126,000
Indoor Unit Capacity Connectable to One Branch			54,000 Btu/h or less per branch		
Drain Pipe			O.D. 1-1/4"		

Notes:
*1 BC controller includes reducers for all branches. 5/8" braze to 1/2" braze, 3/8" braze to 1/4" braze
*2 If two Sub BC controllers are connected and at least one is a CMB-P1016NU-HA1, the maximum connected capacity is 168,000 Btu/h.

Specifications are subject to change without notice.

Refrigerant Pipe Dimensions from Single BC Controller to Air-source Outdoor and Water-source Unit(s)

	High Pressure	Low Pressure
To Air-source Outdoor Unit PURY-P72, PURY-HP72 and Water-source Unit PQRY-P72	5/8" (Brazed)	3/4" (Brazed)
To Air-source Outdoor Unit PURY-P96, PURY-HP96 and Water-source Unit PQRY-P96	3/4" (Brazed)	7/8" (Brazed)
To Air-source Outdoor Unit PURY-P120 and Water-source Unit PQRY-P120	3/4" (Brazed)	1-1/8" (Brazed)

Refrigerant Pipe Dimensions from Main BC Controller to Air-source Outdoor(s)

	High Pressure	Low Pressure
To Air-source Outdoor Unit PURY-P72 and PURY-HP72	5/8" (Brazed)	3/4" (Brazed)
To Air-source Outdoor Unit PURY-P96 and PURY-HP96	3/4" (Brazed)	7/8" (Brazed)
To Air-source Outdoor Unit PURY-P120	3/4" (Brazed)	1-1/8 (Brazed)
To Air-source Outdoor Unit PURY-P144/168/192 and PURY-HP144/192	7/8" (Brazed)	1-1/8 (Brazed)
To Air-source Outdoor Unit PURY-P216	1-1/8" (Brazed)	1-1/8" (Brazed)
To Air-source Outdoor Unit PURY-P240/264/288	1-1/8" (Brazed)	1-3/8" (Brazed)
To Air-source Outdoor Unit PURY-P316/336	1-1/8" (Brazed)	1-5/8" (Brazed)

Refrigerant Pipe Dimensions from Main BC Controller to Water-source Unit(s)

	High Pressure	Low Pressure
To Water-source Unit PQRY-P72	5/8" (Brazed)	3/8" (Brazed)
To Water-source Unit PQRY-P96	3/4" (Brazed)	7/8" (Brazed)
To Water-source Unit PQRY-P120	3/4" (Brazed)	1-1/8" (Brazed)
To Water-source Unit PQRY-P144/168/192	7/8" (Brazed)	1-1/8" (Brazed)
To Water-source Unit PQRY-P216/240	1-1/8" (Brazed)	1-1/8" (Brazed)

Refrigerant Line Sizes from Main BC Controller to Sub BC Controller(s)

	High Pressure	Low Pressure	Liquid Pipe
Total downstream capacity < 72,000 Btu/h (nominal cooling capacity)	5/8" (Brazed)	3/4" (Brazed)	3/8" (Brazed)
Total downstream capacity between 73,000 - 108,000 Btu/h (nominal cooling capacity)	3/4" (Brazed)	7/8" (Brazed)	3/8" (Brazed)
Total downstream capacity between 109,000 - 126,000 Btu/h (nominal cooling capacity)	3/4" (Brazed)	1-1/8" (Brazed)	1/2" (Brazed)
Total downstream capacity between 127,000 - 144,000 Btu/h (nominal cooling capacity)	7/8" (Brazed)	1-1/8" (Brazed)	1/2" (Brazed)
Total downstream capacity between 145,000 - 168,000 Btu/h (nominal cooling capacity)	7/8" (Brazed)	1-1/8" (Brazed)	5/8" (Brazed)

Specifications are subject to change without notice.

DIAMONDBACK™ BV-Series Ball Valves

c UL us
LISTED 891N
REFRIGERANT
VALVE

Model numbers:
BB14BBSI/ BB38BBSI/ BB12BBSI/ BB58BBSI

Features

- Sizes available: 1/4”; 3/8”; 1/2”; 5/8”.
- Fully factory assembled.
- Furnance brazed and pressure tested.
- Each ball valve is equipped with 4-1/4” Schrader® valve for refrigerant service.
- Design working pressure: 700 PSIG.
- Temperature range: -40° F to +325° F (-40° C to +149° C).
- Polytetrafluroethylene (PTFE) seals and gaskets (no synthetic O-rings).
- Seal Cap design permits valve operation without removal of seal cap.
- One year limited materials and workmanship warranty on Ball Valves.

Features

- Engineered for Mini-split and Multi-split HVAC Units.
- Full Port Design.
- 700 PSIG Rated.
- R-410A Compatible.
- Brazed Connections.

Part Number	SAE Flare	A	B	C	D	E
BB14BBSI	1/4"	6.5	3.06	1.81	1.44	1.42
BB38BBSI	3/8"	6.5	3.06	1.81	1.44	1.42
BB12BBSI	1/2"	6.5	3.06	1.81	1.44	1.42
BB58BBSI	5/8"	6.5	3.06	1.81	1.44	1.42

*Ball valves come with an insulation piece.

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Mitsubishi Electric Cooling & Heating
1340 Satellite Boulevard, Suwanee, GA 30024
Phone: 800-433-4822