

Heat Pump

Model name:

MCY-MAP_7HS-UL

**Engineering
Data Book**



Notice: Toshiba is committed to continuously improving its products to ensure the highest quality and reliability standards, and to meet local regulations and market requirements. All features and specifications are subject to change without prior notice.



Safety caution	2
1 System overview	5
1-1. Allocation standard of model name	5
1-2. Summary of system equipments	6
2 Equipment selection procedure	9
2-1. Selection flow chart.....	9
2-2. Combination conditions for indoor unit and outdoor unit	10
2-3. Cooling/heating capacity characteristics.....	11
2-4. Operational temperature range.....	17
3 Refrigerant piping design.....	18
3-1. Free branching system	18
3-2. Allowable length/height difference of refrigerant piping	19
3-3. Selection of refrigerant piping	20
3-4. Charging requirement with additional refrigerant.....	21
4 Wiring design.....	22
4-1. General	22
4-2. Outdoor unit power supply.....	22
4-3. Indoor unit power supply.....	23
4-4. Design of control wiring	24
5 Outdoor unit.....	26
5-1. Specifications.....	26
5-2. Dimensional drawing	28
5-3. Center of gravity	29
5-4. Branch header / Branch joint	30
5-5. Refrigerant cycle diagram.....	31
5-6. Wiring diagram.....	32
5-7. Connecting diagram.....	33
5-8. Applied control for Outdoor Unit	34
5-9. Optional printed circuit board (PCB) of outdoor unit	35
5-10. Sound pressure level data	41



- Before use, read carefully through the “Safety caution” section to ensure correct operation.
- The important contents concerned to the safety are described in the “Safety cautions”. Be sure to keep them. For Indications and their meanings, see the following description.

■ Warning Indications on the Air Conditioner Unit

Warning indication	Description
 <div style="border: 1px solid black; padding: 2px;"> WARNING ELECTRICAL SHOCK HAZARD Disconnect all remote electric power supplies </div>	WARNING ELECTRICAL SHOCK HAZARD Disconnect all remote electric power supplies before servicing.
 <div style="border: 1px solid black; padding: 2px;"> WARNING Moving parts. Do not operate unit with grille removed. </div>	WARNING Moving parts. Do not operate unit with grille removed. Stop the unit before servicing.
 <div style="border: 1px solid black; padding: 2px;"> CAUTION High temperature parts. You might get burned when removing this panel. </div>	CAUTION High temperature parts. You might get burned when removing this panel.
 <div style="border: 1px solid black; padding: 2px;"> CAUTION Do not touch the aluminum fins of the unit. Doing so may result in injury. </div>	CAUTION Do not touch the aluminium fins of the unit. Doing so may result in injury.
 <div style="border: 1px solid black; padding: 2px;"> CAUTION BURST HAZARD Open the service valves before the operation, </div>	CAUTION BURST HAZARD Open the service valves before the operation, otherwise there might be the burst.
 <div style="border: 1px solid black; padding: 2px;"> CAUTION Do not climb onto the fan guard. Doing so may result injury. </div>	CAUTION Do not climb onto the fan guard. Doing so may result in injury.



■ Explanation of indications

WARNING

Improper handing of equipment could lead to serious injury or death.

CAUTION

Improper installation of the equipment could lead to minor injury or property damage.

- After installation work is completed, please run the system in test mode for proper operation and explain the maintenance schedules to the customer as outlined in owner's manual. Please ask the customer to retain the installation and owner's manual for future reference.

WARNING

The system should be installed by trained professional contractor by the factory.

Take precaution so that the refrigerant does not exceed the limit concentration even if it leaks when installing the unit in a small room.

Installation site location should be able to support the weight on the unit.

Ensure the room is properly ventilated in case of refrigerant leak during installation.

Leakage test should be performed to ensure there are no refrigerant leaks after installation.

Empty refrigerant cylinder should be used to recover the refrigerant from the system during repair or re-installation work.

Do not store system refrigerant at outdoor unit.

Certified electrician should perform all the electrical work in order to comply with national and local codes and regulations.

Use of proper size and type of wires is recommended for electrical and controls communication.

Ensure proper grounding of wire is carried out as needed through out the system.

CAUTION

Avoid installation of the unit close to combustible gas or highly corrosion areas.

Be sure to attach an earth leakage breaker; otherwise an electric shock may be caused.

Using a torque wrench, tighten the flare nut in the specified method.

If the flare nut is exceedingly tightened, the flare nut is broken and a refrigerant leakage may be caused after a long time has passed.



WARNINGS ON REFRIGERANT LEAKAGE

Concentration Limit Check

The room in which the air conditioner is to be installed requires a design that in the event of a refrigerant gas leak, its concentration will not exceed a set limit.

The refrigerant R410A which is used in the air conditioner is safe, without the toxicity or combustibility of ammonia, and is not restricted by laws to be imposed which protect the ozone layer. However, since it contains more than air, it poses the risk of suffocation if its concentration should rise excessively.

Suffocation from leakage of R410A is almost nonexistent. With the recent increase in the number of high concentration buildings, however, the installation of multi air conditioner systems is on the increase because of the need for effective use of floor space, individual control, energy conservation by curtailing heat and carrying power etc.

Most importantly, the multi air conditioner system is able to replenish a large amount of refrigerant compared with conventional individual air conditioners. If a single unit of the multi conditioner system is to be installed in a small room, select a suitable model and installation procedure so that if the refrigerant accidentally leaks out, its concentration does not reach the limit (and in the event of an emergency, measures can be made before injury can occur).

In a room where the concentration may exceed the limit, create an opening with adjacent rooms, or install mechanical ventilation combined with a gas leak detection device.

Use the following calculation to determine the correct amount.

Total amount of refrigerant (lbs (kg))

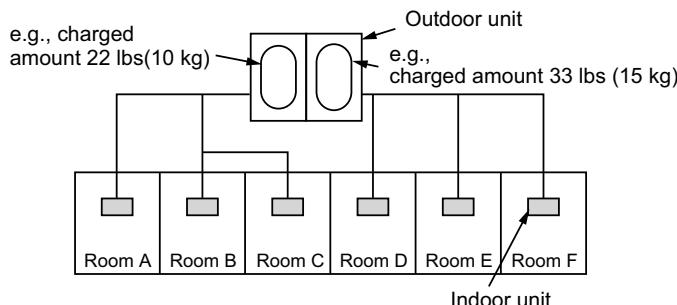
$$\frac{\text{Min. volume of the indoor unit installed room ft}^3(\text{m}^3)}{\leq \text{Concentration limit (lbs/ft}^3(\text{kg/m}^3)}$$

Concentration limit

Compliance to the local applicable regulations and standards for the concentration limit is required.

NOTE 1:

If there are 2 or more refrigerating systems in a single refrigerating device, the amounts of refrigerant should be as charged in each independent device.



For the amount of charge in this example:

The possible amount of leaked refrigerant gas in rooms A, B and C is 22 lbs (10 kg).

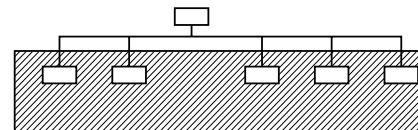
The possible amount of leaked refrigerant gas in rooms D, E and F is 33 lbs (15 kg).

Important

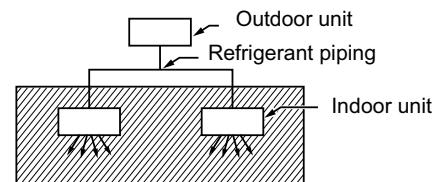
NOTE 2:

The standards for minimum room volume are as follows.

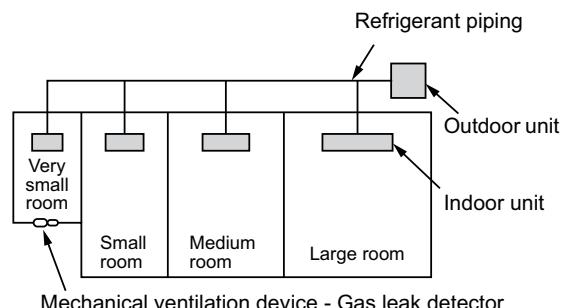
(1) No partition (shaded portion)



(2) When there is an effective opening with the adjacent room for ventilation of leaking refrigerant gas (opening without a door, or an opening 0.15 % or larger than the respective floor spaces at the top or bottom of the door).

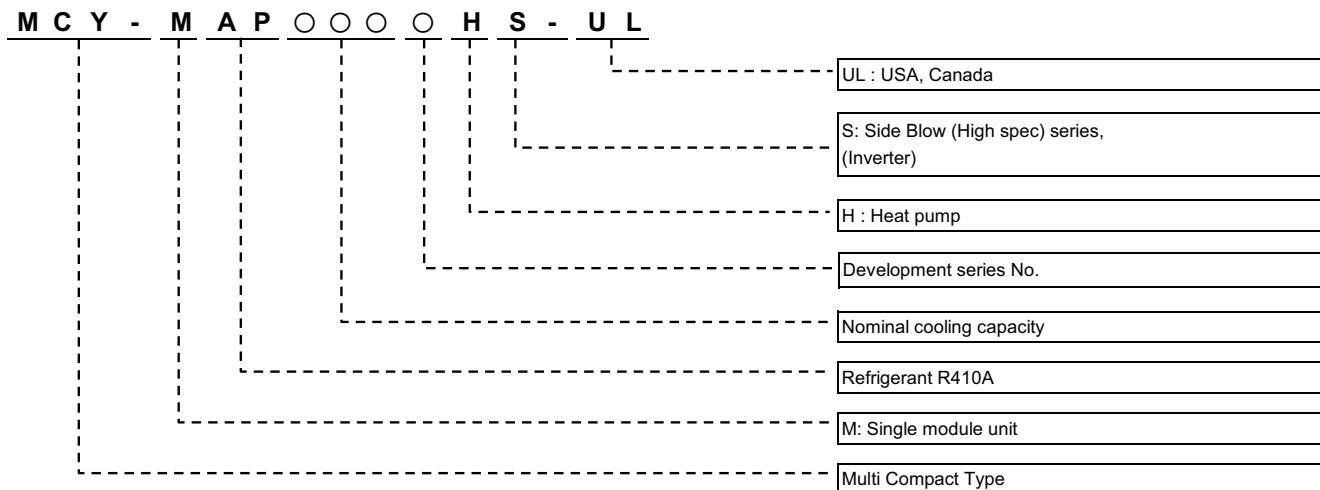


(3) If an indoor unit is installed in each partitioned room and the refrigerant piping is interconnected, the smallest room becomes the object. However when a mechanical ventilation is installed interlocked with a gas leakage detector in the smallest room where the density limit is exceeded, the volume of the next smallest room becomes the object.





1-1. Allocation standard of model name



1-2. Summary of system equipments

1-2-1. Outdoor units

Unit type			Inverter unit			Appearance
Model name	208/230 V, 60 Hz	MCY-	MAP0367HS-UL	MAP0487HS-UL	MAP0607HS-UL	
Capacity type			036 type	048 type	060 type	
Capacity code			36	48	60	





1-2-2. Indoor unit

Type	Appearance	Model name	Capacity type	Capacity code	Cooling capacity (kBtu/h)	Heating capacity (kBtu/h)
4-Way Cassette		MMU-UP0071HP-UL	007 type	7.5	7.5	8.5
		MMU-UP0091HP-UL	009 type	9.5	9.5	10.5
		MMU-UP0121HP-UL	012 type	12	12	13.5
		MMU-UP0151HP-UL	015 type	15.4	15.4	17
		MMU-UP0181HP-UL	018 type	18	18	20
		MMU-UP0241HP-UL	024 type	24	24	27
		MMU-UP0301HP-UL	030 type	30	30	34
		MMU-UP0361HP-UL	036 type	36	36	40
		MMU-UP0421HP-UL	042 type	42	42	47.5
		MMU-UP0481HP-UL	048 type	48	48	54
Compact 4-Way Cassette		MMU-UP0071MH-UL	007 type	7.5	7.5	8.5
		MMU-UP0091MH-UL	009 type	9.5	9.5	10.5
		MMU-UP0121MH-UL	012 type	12	12	13.5
		MMU-UP0151MH-UL	015 type	15.4	15.4	17
		MMU-UP0181MH-UL	018 type	18	18	20
1-way Cassette		MMU-UP0071YHP-UL	007 type	7.5	7.5	8.5
		MMU-UP0091YHP-UL	009 type	9.5	9.5	10.5
		MMU-UP0121YHP-UL	012 type	12	12	13.5
		MMU-UP0151YHP-UL	015 type	15.4	15.4	17
		MMU-UP0181YHP-UL	018 type	18	18	20
		MMU-UP0241YHP-UL	024 type	24	24	27
Ceiling		MMC-UP0181HP-UL	018 type	18	18	20
		MMC-UP0241HP-UL	024 type	24	24	27
		MMC-UP0301HP-UL	030 type	30	30	34
		MMC-UP0361HP-UL	036 type	36	36	40
		MMC-UP0481HP-UL	048 type	48	48	54
High Wall		MMK-UP0071HP-UL	007 type	7.5	7.5	8.5
		MMK-UP0091HP-UL	009 type	9.5	9.5	10.5
		MMK-UP0121HP-UL	012 type	12	12	13.5
		MMK-UP0151HP-UL	015 type	15.4	15.4	17
		MMK-UP0181HP-UL	018 type	18	18	20
		MMK-UP0241HP-UL	024 type	24	24	27
		MMK-UP0301HP-UL	030 type	30	30	34
Slim Duct		MMD-UP0071SPH-UL	007 type	7.5	7.5	8.5
		MMD-UP0091SPH-UL	009 type	9.5	9.5	10.5
		MMD-UP0121SPH-UL	012 type	12	12	13.5
		MMD-UP0151SPH-UL	015 type	15.4	15.4	17
		MMD-UP0181SPH-UL	018 type	18	18	20
Medium Static Duct		MMD-UP0071BHP-UL	007 type	7.5	7.5	8.5
		MMD-UP0091BHP-UL	009 type	9.5	9.5	10.5
		MMD-UP0121BHP-UL	012 type	12	12	13.5
		MMD-UP0151BHP-UL	015 type	15.4	15.4	17
		MMD-UP0181BHP-UL	018 type	18	18	20
		MMD-UP0211BHP-UL	021 type	21	21	24
		MMD-UP0241BHP-UL	024 type	24	24	27
		MMD-UP0301BHP-UL	030 type	30	30	34
		MMD-UP0361BHP-UL	036 type	36	36	40
		MMD-UP0421BHP-UL	042 type	42	42	47.5
High Static Duct		MMD-UP0481BHP-UL	048 type	48	48	54
		MMD-UP0541BHP-UL	054 type	54	54	60
		MMD-UP0241HP-UL	024 type	24	24	27
		MMD-UP0301HP-UL	030 type	30	30	34
		MMD-UP0361HP-UL	036 type	36	36	40
Floor console exposed		MMD-UP0481HP-UL	048 type	48	48	54
		MMD-UP0541HP-UL	054 type	54	54	60
		MML-UP0071H-UL	007 type	7.5	7.5	8.5
		MML-UP0091H-UL	009 type	9.5	9.5	10.5
		MML-UP0121H-UL	012 type	12	12	13.5
		MML-UP0151H-UL	015 type	15.4	15.4	17
Floor console recessed		MML-UP0181H-UL	018 type	18	18	20
		MML-UP0241H-UL	024 type	24	24	27
		MML-UP0071BH-UL	007 type	7.5	7.5	8.5
		MML-UP0091BH-UL	009 type	9.5	9.5	10.5
		MML-UP0121BH-UL	012 type	12	12	13.5
		MML-UP0151BH-UL	015 type	15.4	15.4	17



1-2-3. Branching joints and headers

Name	Model name	Appearance
Y-shape branching joint	RBM-BY55UL	
4-branching header	RBM-HY1043UL	
8-branching header	RBM-HY1083UL	

1-2-4. Remote control

Name	Model name	Remarks
Wired remote control	RBC-AMT32UL	
	RBC-AMS54E-UL	
	RBC-AWSU52-UL	
Simple wired remote control	RBC-AS41UL	
Wireless remote control kit	RBC-AX32U(W)-UL	For 4-Way Cassette type
	RBC-AXU31UP-UL	For 4-Way Cassette type
	RBC-AXU31UM-UL	For Compact 4-Way Cassette type
	RBC-AX33UYP-UL	For Compact 1-Way Cassette type
	RBC-AX33C-UL	For Ceiling type
	RBC-AXU33CP-UL	For Ceiling type
	RBC-AX32-UL	For Compact 4-Way Cassette type, Medium Static Ducted type, Slim Ducted type, Floor console recessed type
Central remote control	RBC-AXU31-UL	For All other units
	BMS-CM1281TLUL	
Wired remote control with weekly timer	BMS-SC640U-UL	
	RBC-AMS41UL	

1-2-5. Optional PCB of outdoor unit

Name	Model name	Remarks
Power peak-cut control board	TCB-PCDM4UL	Power peak-cut control
External master ON/OFF control board	TCB-PCMO4UL	External master ON/OFF control, Night operation control, Operation mode selection control, Snowfall fan control
Output control board	TCB-PCIN4UL	Error / operation output control, Compressor operation output, Operating rate output

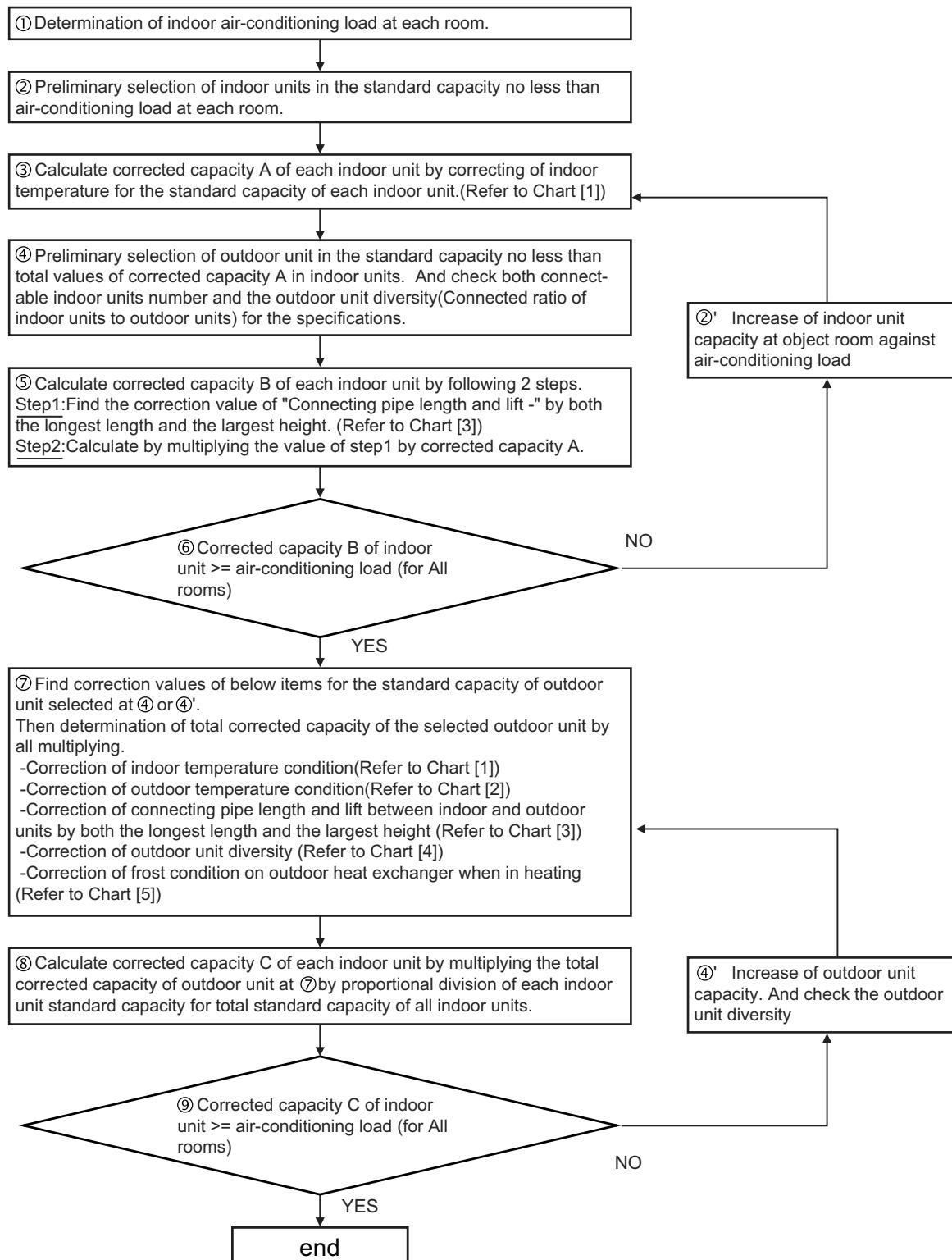
1-2-6. Controls

Name	Model name	Remarks
Remote location ON/OFF Control Box	TCB-IFCB-4UL	
"1:1 model" Connection Interface	TCB-PCNT31TLUL	Link adapter for "1:1 model" to enable connection to VRF system network.
LonWorks LN Interface	TCB-IFLN642TLUL	
Smart BMS manager	BMS-SM1280HTLUL	
Energy Monitoring Relay Interface	BMS-IFWH5UL	
Digital I/O Relay Interface	BMS-IFDD03UL	
BACnet Server	BMS-LSV6UL	
	BMS-STBN10UL	
Relay Interface	BMS-IFLSV4UL	
BN Interface	BMS-IFBN640TLUL	
Touch Screen Controller	BMS-CT5120UL	

"1:1 model" : RAV type indoor unit



2-1. Selection flow chart



Note : Please use selection software to layout the system.



2-2. Combination conditions for indoor unit and outdoor unit

Indoor unit can connect 50% to 135% of Outdoor unit capacity.

*Permanent operation below 80% is not recommended.

2-2-1. The capacity code of indoor unit is decided for each capacity type.

Indoor unit capacity type	007	009	012	015	018	021	024	027	030	036	042	048	054
Indoor unit capacity code	7.5	9.5	12	15.4	18	21	24	27	30	36	42	48	54

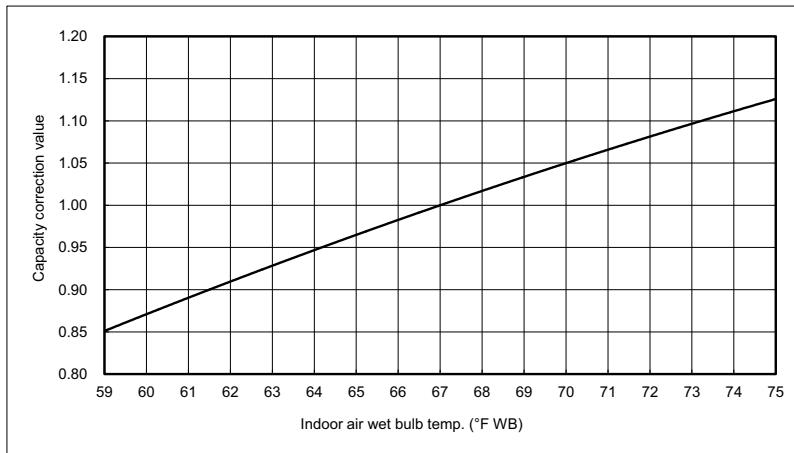
2-2-2. For outdoor unit, maximum No. of connectable indoor units and total capacity code of indoor units are decided.

Outdoor unit	Capacity code of outdoor unit	No. of connectable indoor units	Total capacity code of indoor units
MCY-MAP0367HS-UL	36	2 to 6	18 to 48
MCY-MAP0487HS-UL	48	2 to 8	24 to 64
MCY-MAP0607HS-UL	60	2 to 9	30 to 81

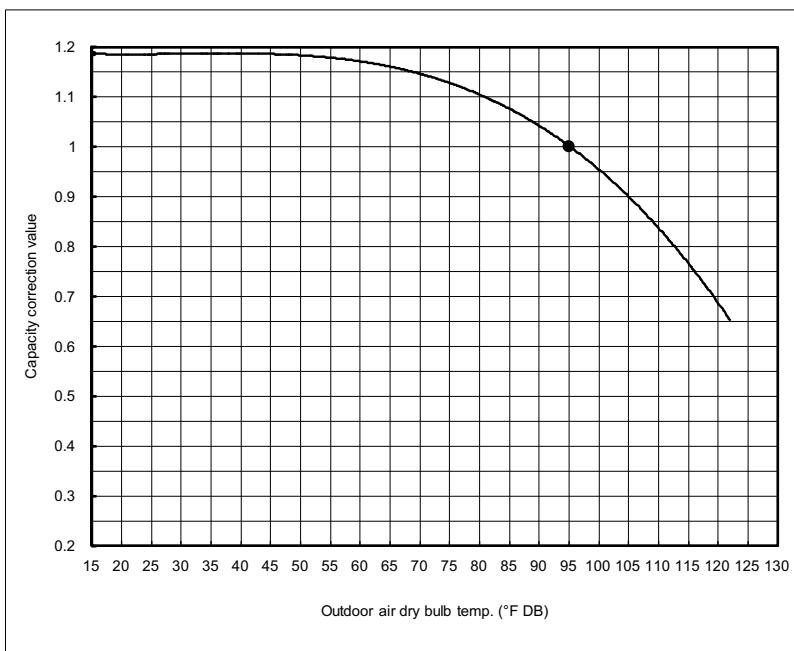
2-3. Cooling/heating capacity characteristics

2-3-1. Correction charts for cooling capacity calculation

[Chart 1] Indoor air wet bulb temperature vs. capacity correction value

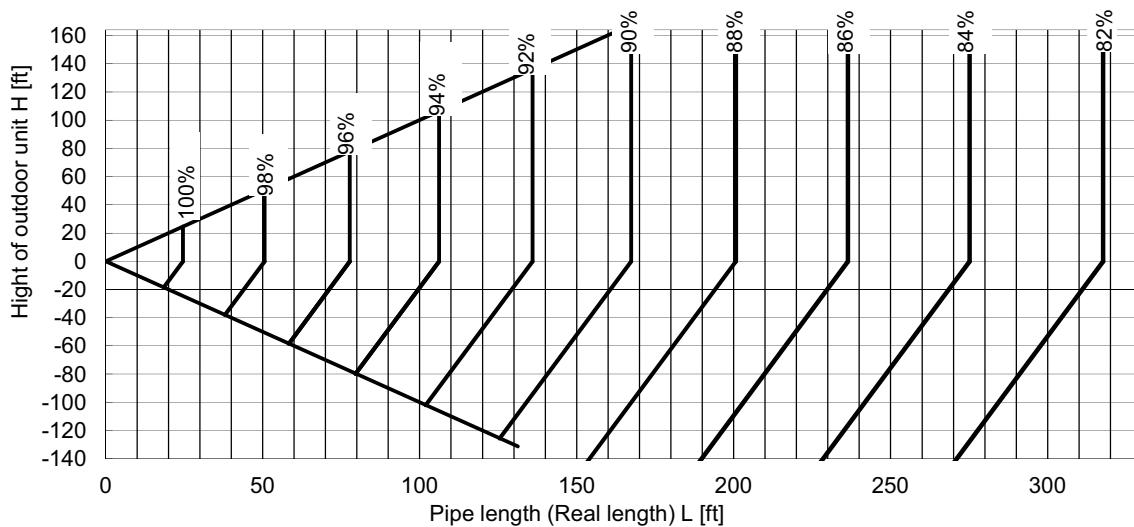
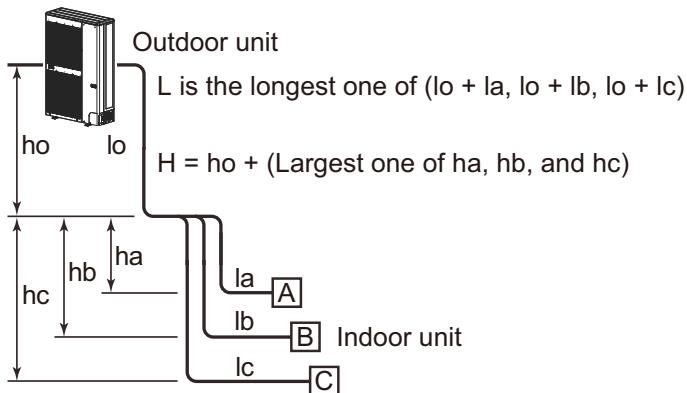


[Chart 2] Outdoor air dry bulb temperature vs. capacity correction value

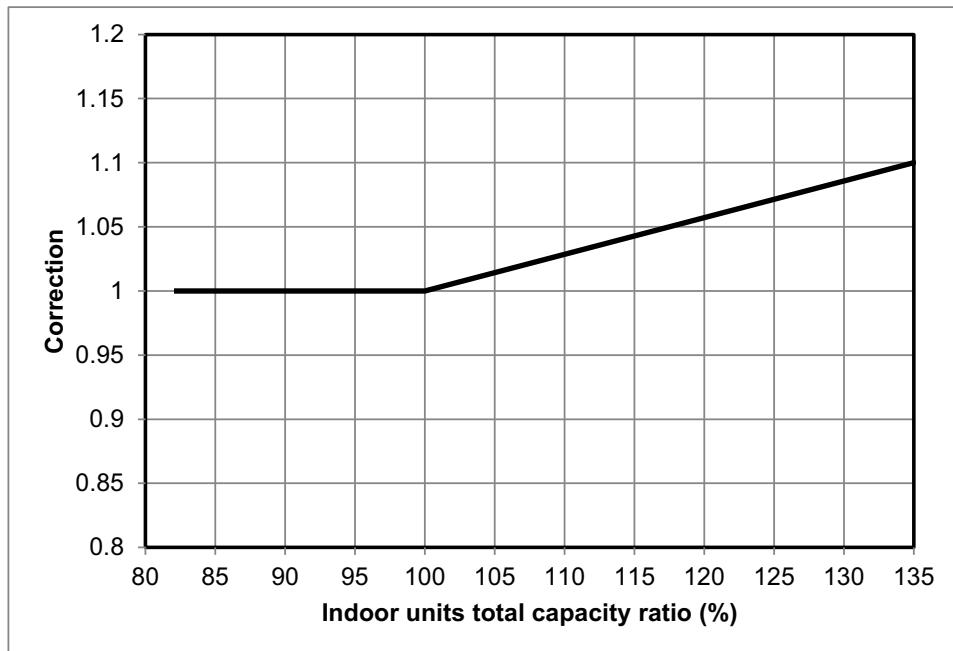




[Chart 3] Connecting pipe length and lift difference between indoor and outdoor units vs. capacity correction value



[4]* Correction of outdoor unit diversity

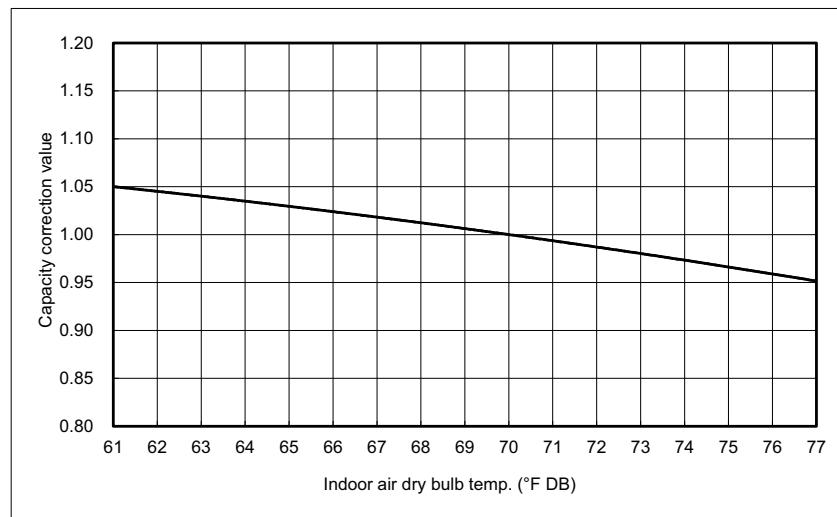


* Coefficient to use for the correction of the outdoor unit capacity when the total capacity of the indoor units are not equal to the outdoor unit capacity.



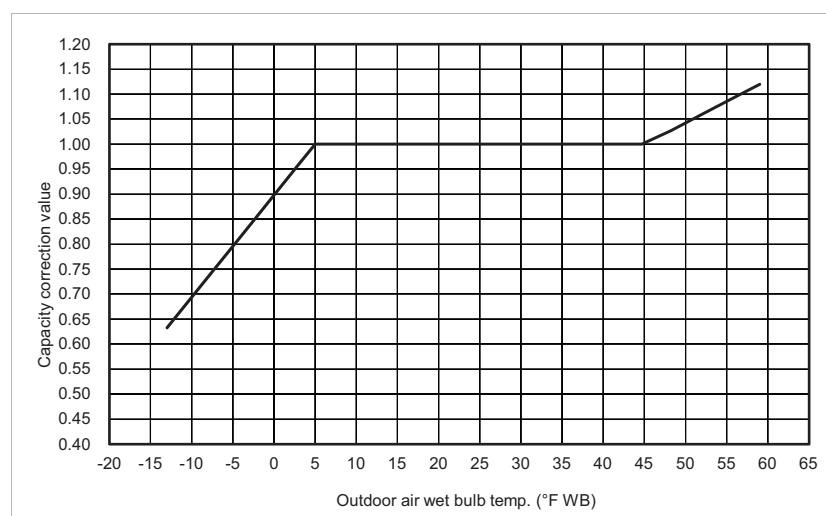
2-3-2. Correction charts for heating capacity calculation

[Chart 1] Indoor air dry bulb temperature vs. capacity correction value

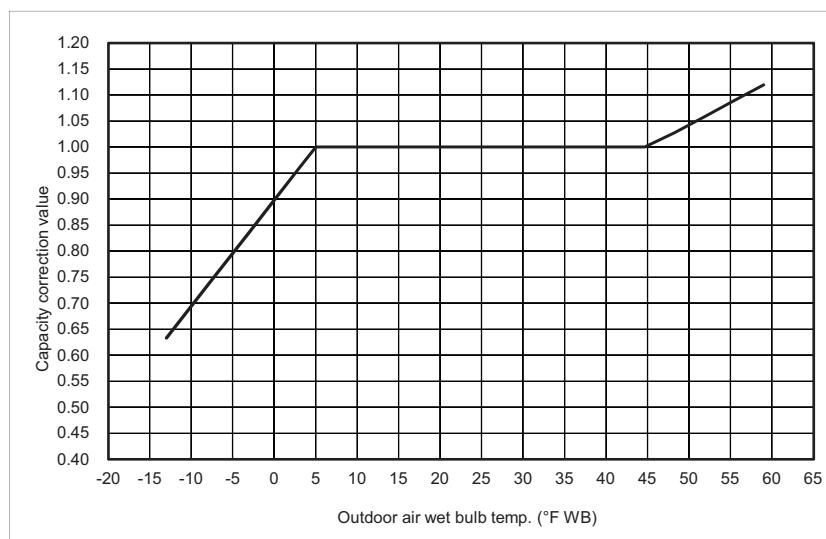


[Chart 2] Outdoor air wet bulb temperature vs. capacity correction value

MCY-MAP0367HS-UL

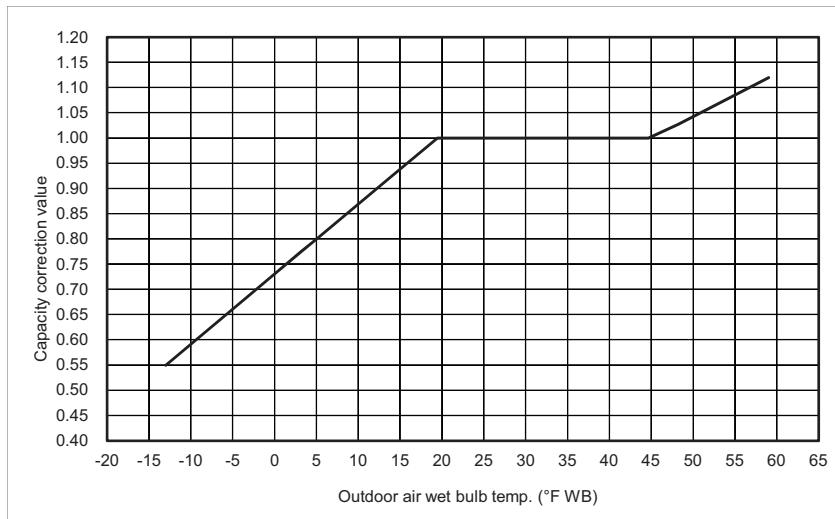


MCY-MAP0487HS-UL

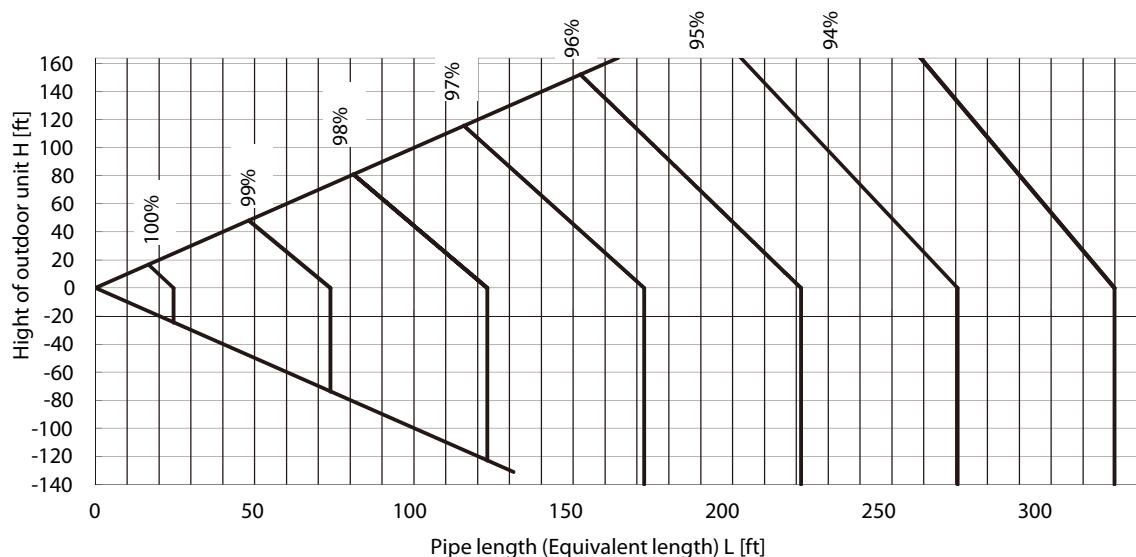
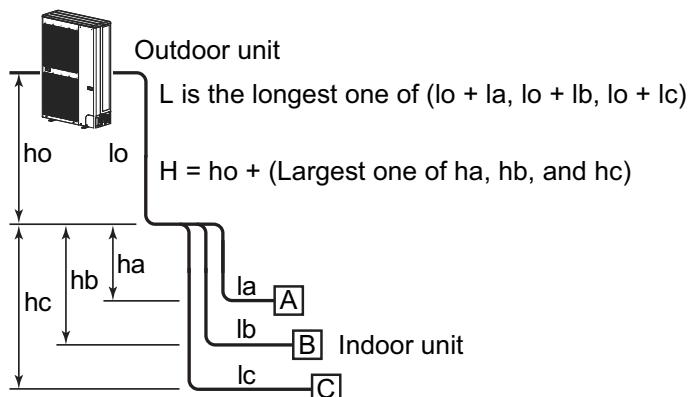




MCY-MAP0607HS-UL

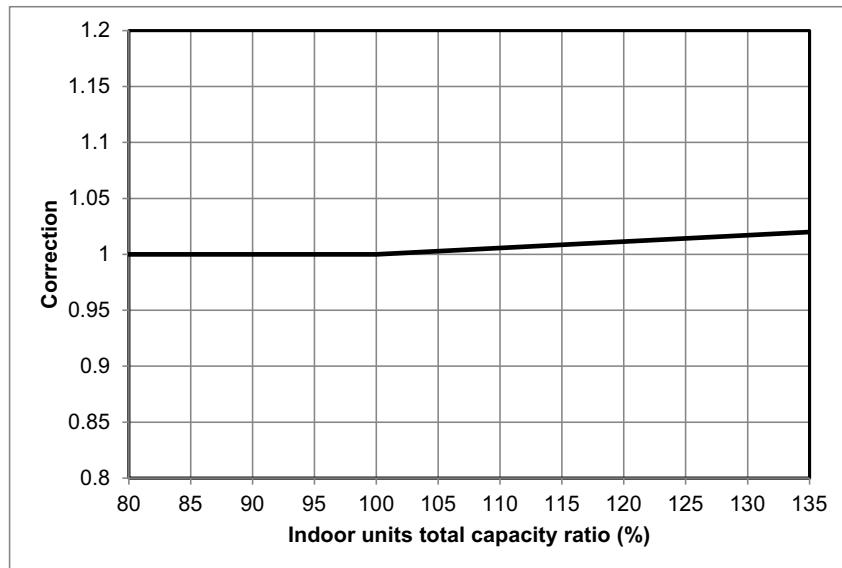


[Chart 3] Connecting pipe length and lift difference between indoor and outdoor units vs. capacity correction value





[Chart 4]* Correction of outdoor unit diversity



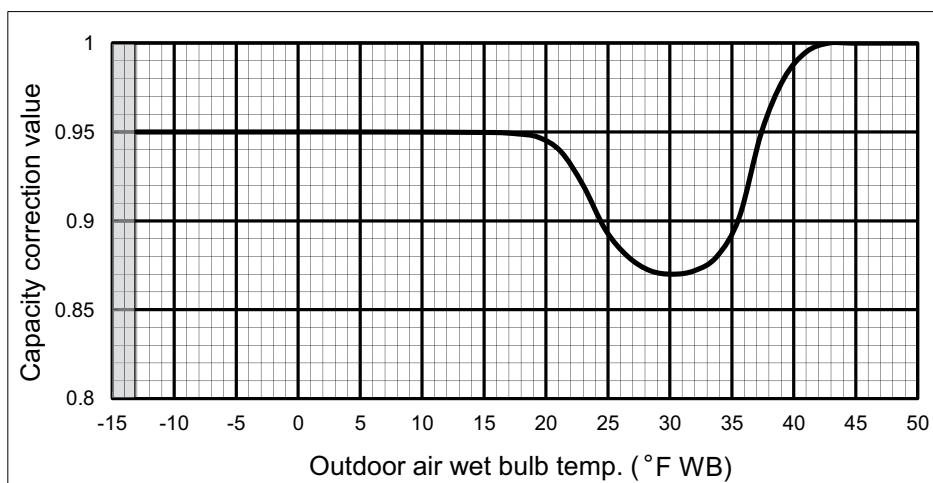
* Coefficient to use for correction of outdoor unit capacity when total capacity of the indoor units are not equal to the outdoor unit capacity.

2-3-3. Capacity correction in case of frost on the outdoor heat exchanger when in heating

Correct the heating capacity when frost can be found on the outdoor heat exchanger.

Heating capacity = Capacity after correction of outdoor unit x Correction value of capacity resulted from frost
(Capacity after correction of outdoor unit: Heating capacity calculated in the above item 2.)

[Chart 5] Capacity correction in case of frost on the outdoor heat exchanger



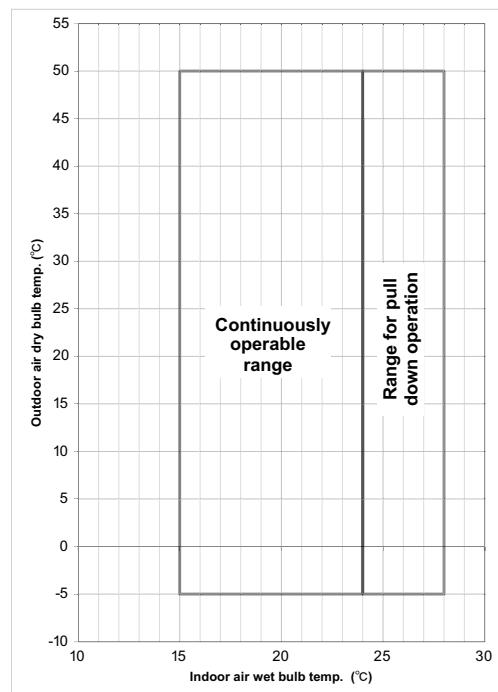
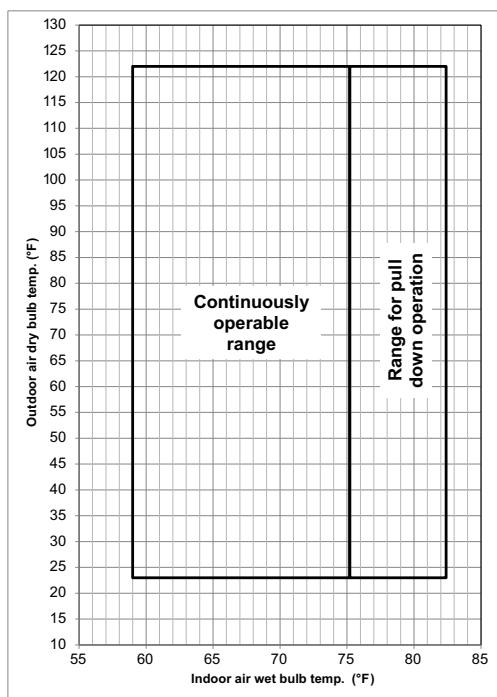
2-3-4. Rated conditions

Cooling: Indoor air temperature 80 °F DryBulb/67 °F WetBulb, Outdoor air temperature 95 °F DryBulb
Heating: Indoor air temperature 70 °F DryBulb, Outdoor air temperature 47 °F DryBulb/43 °F WetBulb

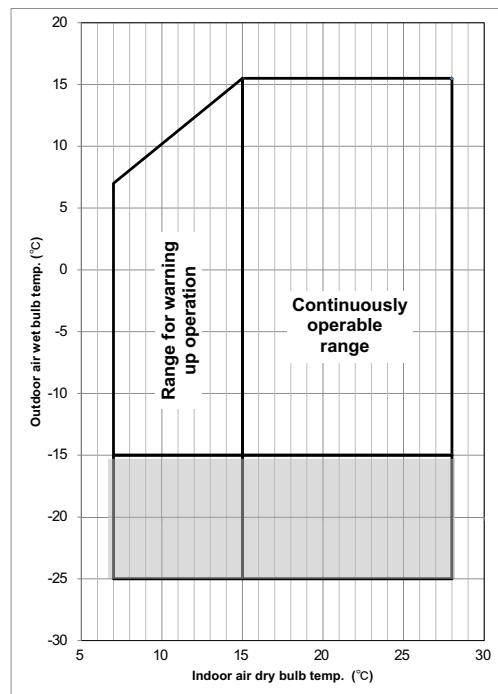
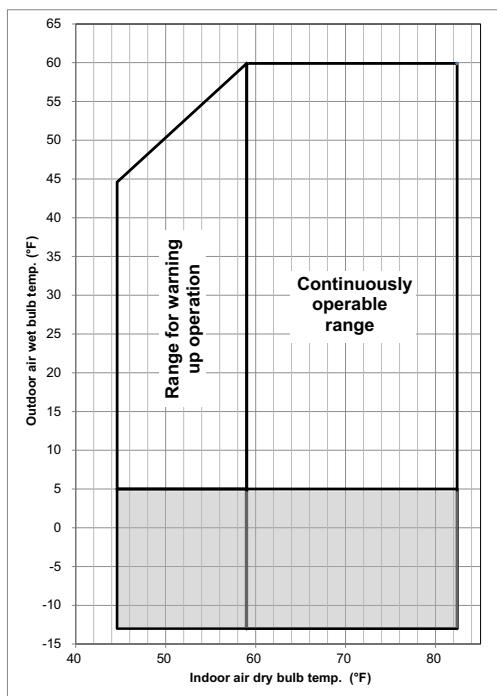


2-4. Operational temperature range

Cooling



Heating



The unit will operate down to an outdoor temperature of -13°F, however considerable performance decrease will be expected below 5°F. Therefore please consider installation location/surroundings and system design when expected to operate between 5 °F and -13°F.



3-1. Free branching system

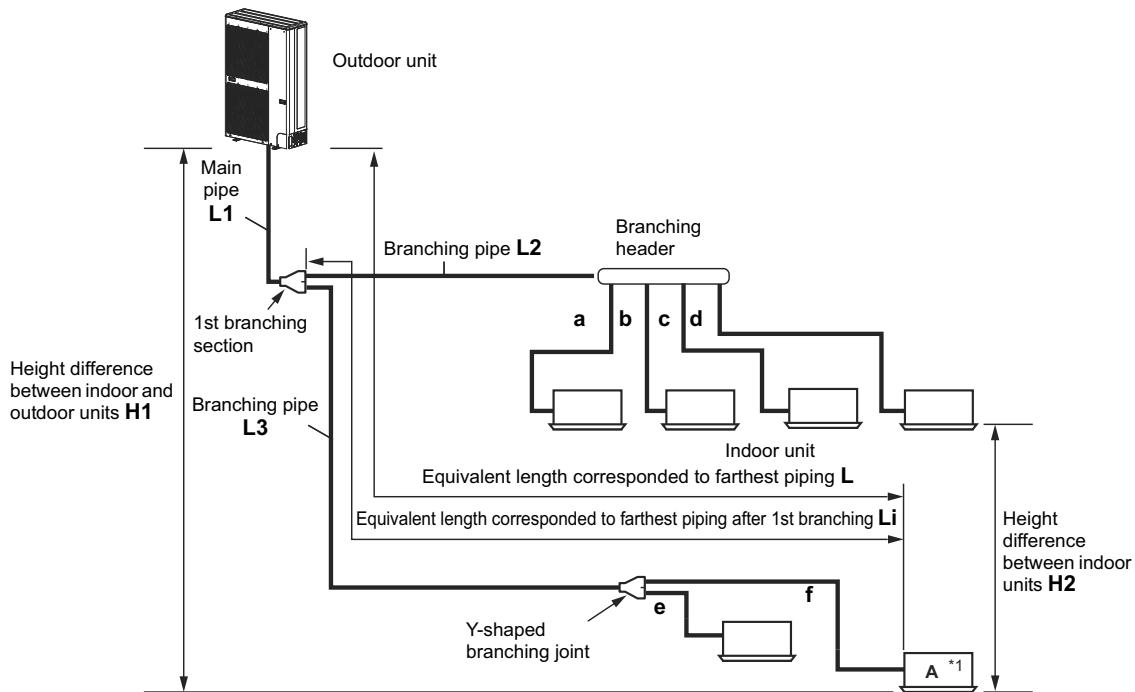
- [1] Line branching system
- [2] Header branching system
- [3] Header branching system after line branching
- [4] Line branching system after header branching
- [5] Header branching system after header branching

The above five branching systems enable to dramatically increase the flexibility of refrigerant piping design.

Line branching system	
Header branching system	
Header branching system after line branching	
Line branching system after header branching	
Header branching system after header branching	

3-2. Allowable length/height difference of refrigerant piping

■ Allowable length / height difference of refrigerant piping



			Allowable value (ft (m))	Pipes
Piping Length	Total extension of pipe (liquid pipe, real length)		591 (180)	$L1 + L2 + L3 + a + b + c + d + e + f$
	Furthest piping length L (*1)	Real length	328 (100)	$L1 + L3 + f$
		Equivalent length	410 (125)	
	Max. equivalent length of main pipe		213 (65)	L1
	Max. equivalent length of furthest piping from 1st branching Li (*1)		115 (35)	L3 + f
Height Difference	Max. real length of indoor unit connecting pipe		49 (15) (*2)	a, b, c, d, e, f
	Height between indoor and outdoor units H1	Upper outdoor unit	164 (50)	–
		Lower outdoor unit	131 (40)	
	Height between indoor units H2		49 (15)	

*1 Furthest indoor unit from 1st branch to be named "A".

*2 Max real length of indoor unit connecting pipe varies depending on H2. Please refer to the table below.

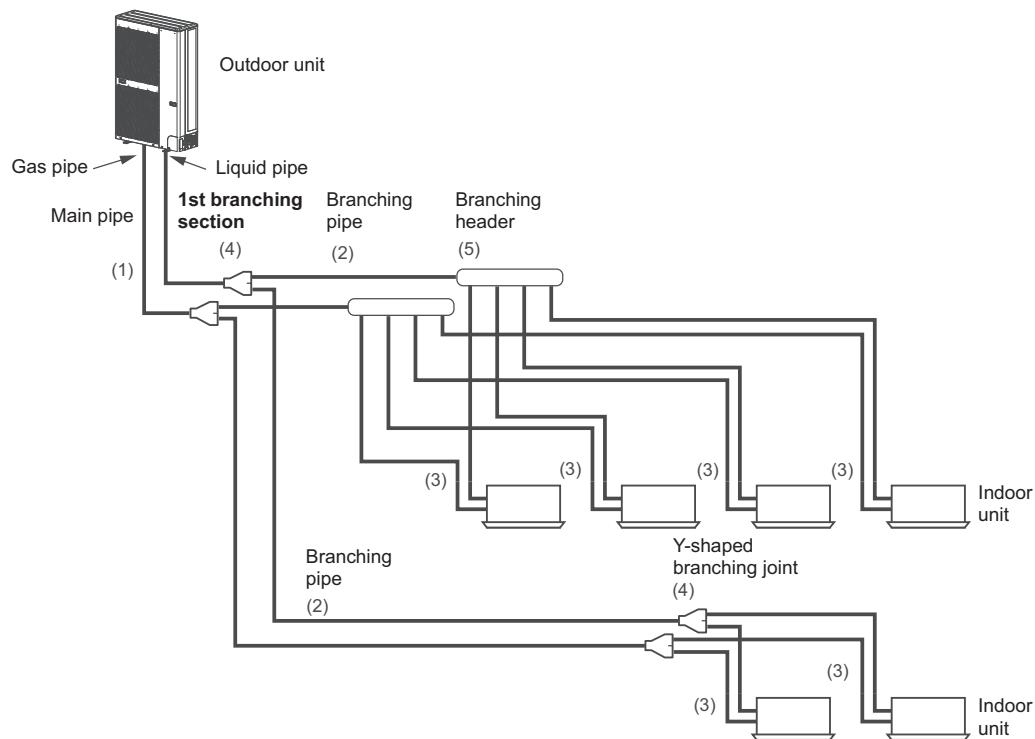
	Allowable value (ft (m))		
Max. real length of indoor unit connecting pipe	$H2 \leq 16\text{ft (5m)}$	$16\text{ft (5m)} < H2 \leq 33\text{ft (10m)}$	$33\text{ft (10m)} < H2$
	98ft (30m) (*3)	65ft (20m) (*3)	49ft (15m)

*3 Connecting pipe size of indoor unit varies depending on Max real length of indoor unit connecting pipe.

See the page of "Selection of refrigerant piping" for details.

3-3. Selection of refrigerant piping

■ Selection of refrigerant piping



No.	Piping parts	Name	Selection of pipe size			Remarks	
(1)	Outdoor unit ↓ 1st branching section	Main pipe	Size of main pipe			Same as connecting pipe size of the outdoor unit.	
Outdoor unit capacity type			Gas pipe		Liquid pipe		
0367 type			Ø5/8"		Ø3/8"		
0487 type			Ø5/8"		Ø3/8"		
0607 type			Ø3/4"		Ø3/8"		
(2)	Branching section ↓ Branching section	Branching pipe	Pipe size between branching sections			Pipe size differs based on the total capacity code value of indoor units at the downstream side. If the total value exceeds the capacity code of the outdoor unit, apply the capacity code of the outdoor unit. (See Table 1 and 2.)	
Total capacity codes of indoor units at downstream side			Gas pipe		Liquid pipe		
Equivalent to capacity							
Below 23			Ø1/2"		Ø3/8"		
23 to below 61			Ø5/8"		Ø3/8"		
61 or more			Ø3/4"		Ø3/8"		



Connecting pipe size of indoor unit		
Capacity rank		
007 to 012 type	Pipe length (real length)	49ft (15m) or less More than 49ft (15m)
		Ø3/8" Ø1/2"
		Ø1/2" Ø1/4"
		Ø5/8" Ø3/8"
Selection of branching section (Y-shaped branching joint)		
Model name		
Y-shape branch joint		RBM-BY55UL
Selection of branching section (Branching header)		
Model name		
Branching header*		RBM-HY1043UL
		RBM-HY1083UL
* A capacity code of up to a maximum of 57 is connectable to one line after branching from the header.		

3-4. Charging requirement with additional refrigerant

■ Adding refrigerant

After finishing vacuuming, exchange the vacuum pump with a refrigerant canister and start additional charging of refrigerant.

Calculation of additional refrigerant charge amount

Default refrigerant amount does not include the refrigerant for pipes at the local site.

For refrigerant to be charged in pipes at the local site, calculate the amount and charge it additionally.

Outdoor unit type	MAP0367	MAP0487	MAP0607
Charging amount (lbs (kg))	14.8 (6.7)	14.8 (6.7)	14.8 (6.7)

$$\text{Additional refrigerant charge amount at local site} = \text{Real length of liquid pipe} \times \text{charge amount per 1 ft liquid pipe} \times 1.2 + \text{Compensation by outdoor HP (Table 2)}$$

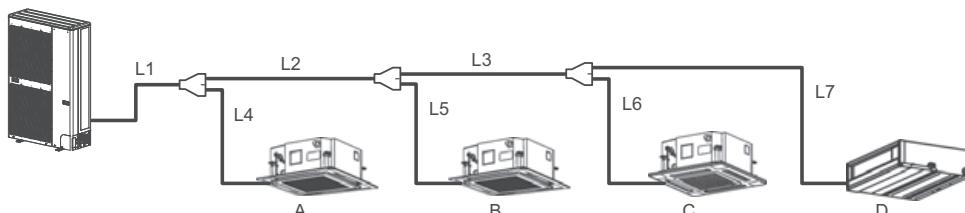
Table 1

Liquid pipe dia. (in)	Ø1/4"	Ø3/8"
Additional refrigerant amount / 1 m liquid pipe (lbs/ft)	0.017	0.038

Table 2

Outdoor unit type	MAP0367	MAP0487	MAP0607
Compensation by outdoor capacity (lbs (kg))	0 (0)	0.88 (0.4)	1.76 (0.8)

Example: (060 type)



L1	Ø3/8": 32.8 ft	L2	Ø3/8": 32.8 ft	L3	Ø3/8": 16.4 ft	L4	Ø3/8": 9.8 ft
L5	Ø1/4": 9.8 ft	L6	Ø1/4": 13.1 ft	L7	Ø1/4": 16.4 ft		

Additional charge amount R (kg)

Lx: Real total length of liquid pipe diameter 1/4" (ft)

Ly: Real total length of liquid pipe diameter 3/8" (ft)

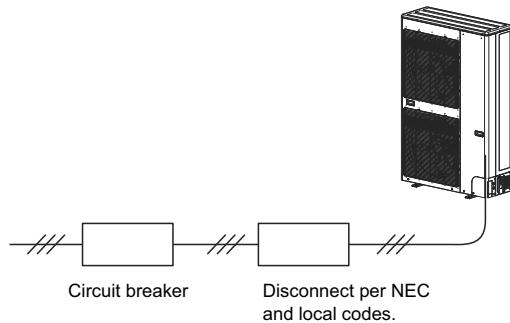
$$\begin{aligned}
 &= \{ (Lx \times 0.017 \text{ lbs/ft}) + (Ly \times 0.038 \text{ lbs/ft}) \} \times 1.2 + (1.76 \text{ lbs}) \\
 &= \{ (39.3 \times 0.017 \text{ lbs}) + (91.8 \times 0.038 \text{ lbs}) \} \times 1.2 + (1.76 \text{ lbs}) \\
 &= 6.75 \text{ lbs}
 \end{aligned}$$



4-1.General

- All field wiring insulation rating must comply with NEC and local codes.
- Do not connect 208/230 V power to the terminal blocks for control cables (U1, U2, U3, U4); otherwise, the unit may break down.
- Be sure that electric wiring does not come into contact with high-temperature parts of piping; otherwise, the coating of cables may melt and cause an accident.
- After connecting wires to the terminal block, take off the traps and fix the wires with cord clamps.
- Do not conduct power to indoor units until vacuuming of the refrigerant pipes has finished.
- For the wiring of power to indoor units and that between indoor and outdoor units, follow the instructions in the installation manual of each indoor unit.
- Prepare an exclusive power supply for the air conditioner.

4-2.Outdoor unit power supply



Outdoor unit data

Model name MCY-	Capacity type	Power supply		Voltage Range		Compressor (kW)	Fan Motor (kW)	MCA (A)	MOCP (A)	Recommended breaker size
		Phase and frequency	Nominal Voltage	Min. (V)	Max. (V)					
MAP0367HS-UL	36	1Ph 60 Hz	208/230 V	187	253	3.75	0.10 x 2	36.3	60	40
MAP0487HS-UL	48	1Ph 60 Hz	208/230 V	187	253	3.75	0.10 x 2	36.3	60	40
MAP0607HS-UL	60	1Ph 60 Hz	208/230 V	187	253	3.75	0.10 x 2	36.3	60	40

4-3. Indoor unit power supply

Type	Model name	Nominal Voltage (V-Ph-Hz)	Voltage Range (V)		FLA A	MCA A	MOCP A
			Min	Max			
4-Way Cassette	MMU-UP0071HP-UL	208/230-1-60	187	253	0.63	0.79	15
	MMU-UP0091HP-UL	208/230-1-60	187	253	0.63	0.79	15
	MMU-UP0121HP-UL	208/230-1-60	187	253	0.63	0.79	15
	MMU-UP0151HP-UL	208/230-1-60	187	253	0.80	1.00	15
	MMU-UP0181HP-UL	208/230-1-60	187	253	0.80	1.00	15
	MMU-UP0241HP-UL	208/230-1-60	187	253	0.87	1.09	15
	MMU-UP0301HP-UL	208/230-1-60	187	253	0.87	1.09	15
	MMU-UP0361HP-UL	208/230-1-60	187	253	1.15	1.44	15
	MMU-UP0421HP-UL	208/230-1-60	187	253	1.15	1.44	15
	MMU-UP0481HP-UL	208/230-1-60	187	253	1.15	1.44	15
	MMU-UP0561HP-UL	208/230-1-60	187	253	1.15	1.44	15
Compact 4-Way Cassette	MMU-UP0071MH-UL	208/230-1-60	187	253	0.40	0.50	15
	MMU-UP0091MH-UL	208/230-1-60	187	253	0.40	0.50	15
	MMU-UP0121MH-UL	208/230-1-60	187	253	0.40	0.50	15
	MMU-UP0151MH-UL	208/230-1-60	187	253	0.50	0.60	15
	MMU-UP0181MH-UL	208/230-1-60	187	253	0.60	0.70	15
1-Way Cassette	MMU-UP0071YHP-UL	208/230-1-60	187	253	0.32	0.40	15
	MMU-UP0091YHP-UL	208/230-1-60	187	253	0.32	0.40	15
	MMU-UP0121YHP-UL	208/230-1-60	187	253	0.32	0.40	15
	MMU-UP0151YHP-UL	208/230-1-60	187	253	0.58	0.73	15
	MMU-UP0181YHP-UL	208/230-1-60	187	253	0.58	0.73	15
Ceiling	MMU-UP0241YHP-UL	208/230-1-60	187	253	0.80	1.00	15
	MMC-UP0181HP-UL	208/230-1-60	187	253	0.42	0.53	15
	MMC-UP0241HP-UL	208/230-1-60	187	253	0.75	0.93	15
	MMC-UP0301HP-UL	208/230-1-60	187	253	0.75	0.93	15
	MMC-UP0361HP-UL	208/230-1-60	187	253	0.89	1.11	15
High Wall	MMC-UP0481HP-UL	208/230-1-60	187	253	0.89	1.11	15
	MMK-UP0071HP-UL	208/230-1-60	187	253	0.17	0.21	15
	MMK-UP0091HP-UL	208/230-1-60	187	253	0.18	0.23	15
	MMK-UP0121HP-UL	208/230-1-60	187	253	0.20	0.25	15
	MMK-UP0151HP-UL	208/230-1-60	187	253	0.30	0.37	15
	MMK-UP0181HP-UL	208/230-1-60	187	253	0.33	0.42	15
	MMK-UP0241HP-UL	208/230-1-60	187	253	0.48	0.60	15
Slim Duct	MMK-UP0301HP-UL	208/230-1-60	187	253	0.66	0.83	15
	MMK-UP0361HP-UL	208/230-1-60	187	253	0.66	0.83	15
	MMD-UP0071SPH-UL	208/230-1-60	187	253	0.70	0.90	15
	MMD-UP0091SPH-UL	208/230-1-60	187	253	0.80	1.00	15
	MMD-UP0121SPH-UL	208/230-1-60	187	253	0.80	1.00	15
Medium Static Duct	MMD-UP0151SPH-UL	208/230-1-60	187	253	0.80	1.00	15
	MMD-UP0181SPH-UL	208/230-1-60	187	253	0.90	1.20	15
	MMD-UP0211BHP-UL	208/230-1-60	187	253	0.73	0.91	15
	MMD-UP0241BHP-UL	208/230-1-60	187	253	0.88	1.10	15
	MMD-UP0301BHP-UL	208/230-1-60	187	253	0.88	1.10	15
	MMD-UP0361BHP-UL	208/230-1-60	187	253	1.53	1.91	15
	MMD-UP0421BHP-UL	208/230-1-60	187	253	1.53	1.91	15
	MMD-UP0481BHP-UL	208/230-1-60	187	253	1.78	2.23	15
	MMD-UP0541BHP-UL	208/230-1-60	187	253	1.78	2.23	15
	MMD-UP0211BHP-UL	208/230-1-60	187	253	1.85	2.31	15
High Static Duct	MMD-UP0361BHP-UL	208/230-1-60	187	253	2.71	3.39	15
	MMD-UP0421BHP-UL	208/230-1-60	187	253	2.71	3.39	15
	MMD-UP0481BHP-UL	208/230-1-60	187	253	2.85	3.56	15
	MMD-UP0541BHP-UL	208/230-1-60	187	253	2.85	3.56	15
	MMD-UP0241HP-UL	208/230-1-60	187	253	3.46	4.33	15
Floor console exposed	MMD-UP0301HP-UL	208/230-1-60	187	253	2.07	2.59	15
	MMD-UP0361HP-UL	208/230-1-60	187	253	2.39	2.99	15
	MMD-UP0481HP-UL	208/230-1-60	187	253	2.75	3.44	15
	MMD-UP0541HP-UL	208/230-1-60	187	253	3.10	3.88	15
	MML-UP0071H-UL	208/230-1-60	187	253	0.30	0.40	15
	MML-UP0091H-UL	208/230-1-60	187	253	0.30	0.40	15
Floor console recessed	MML-UP0121H-UL	208/230-1-60	187	253	0.50	0.60	15
	MML-UP0151H-UL	208/230-1-60	187	253	0.50	0.60	15
	MML-UP0181H-UL	208/230-1-60	187	253	0.60	0.70	15
	MML-UP0241H-UL	208/230-1-60	187	253	0.60	0.70	15
	MML-UP0071BH-UL	208/230-1-60	187	253	0.30	0.40	15
	MML-UP0091BH-UL	208/230-1-60	187	253	0.30	0.40	15
	MML-UP0121BH-UL	208/230-1-60	187	253	0.30	0.40	15
	MML-UP0151BH-UL	208/230-1-60	187	253	0.60	0.60	15
	MML-UP0181BH-UL	208/230-1-60	187	253	0.60	0.60	15
	MML-UP0241BH-UL	208/230-1-60	187	253	0.60	0.70	15
	MML-UP0071BH-UL	208/230-1-60	187	253	0.30	0.40	15
	MML-UP0091BH-UL	208/230-1-60	187	253	0.30	0.40	15

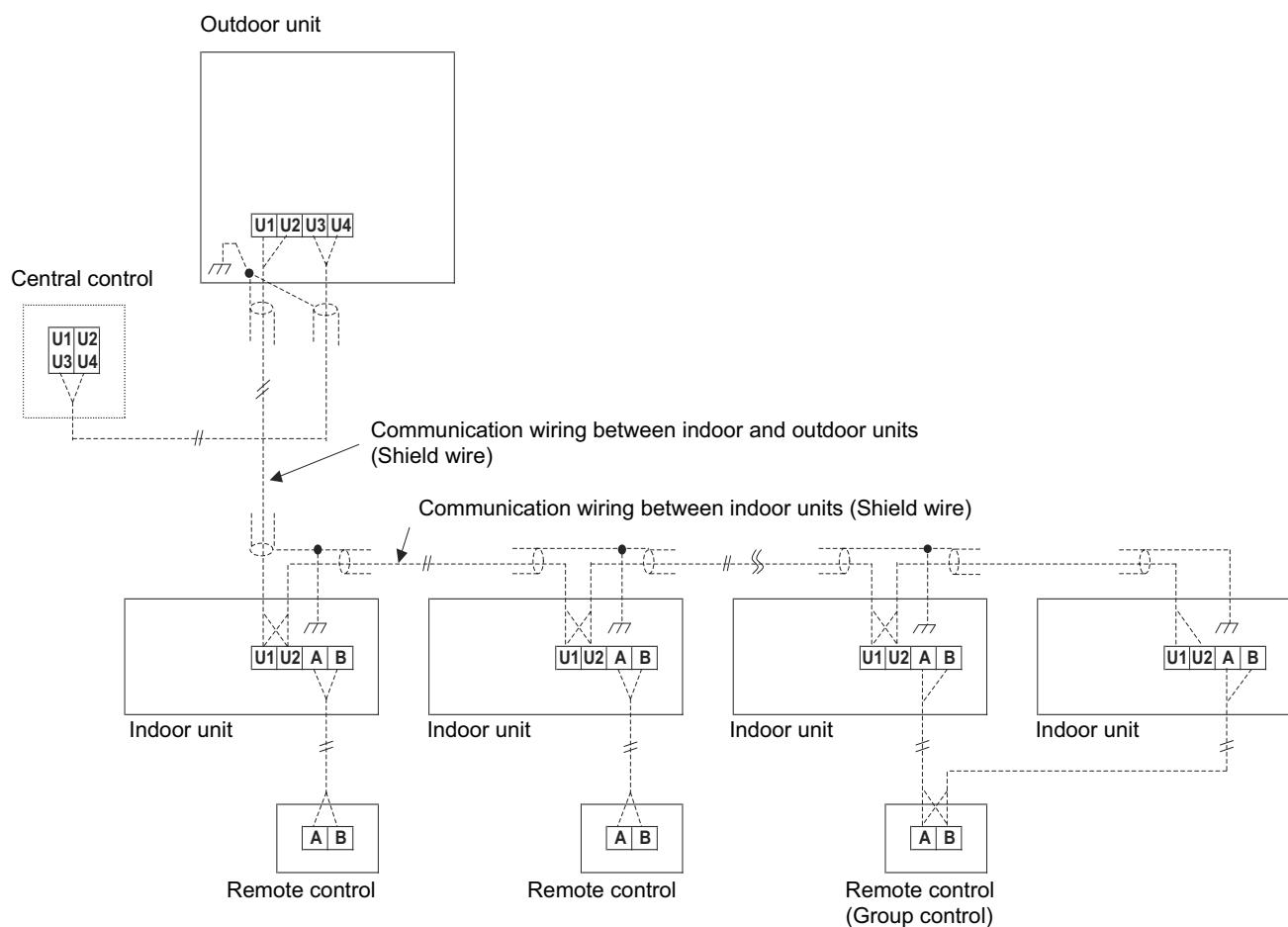
MCA: Minimum Circuit Amps @208V

FLA: Full Load Amps @208V

MOCP: Maximum Overcurrent Protection (Amps)

4-4.Design of control wiring

- Summary of control wiring



Communication wiring and central control wiring use 2-core non-polarity wires.

Use 2-core shield wires to prevent noise trouble.

In this case, for the system grounding, close (connect) the end of shield wires, and isolate the end of terminal.

Use 2-core non-polarity wire for remote control. (A, B terminals)

Use 2-core non-polarity wire for wiring of group control. (A, B terminals)



Keep the rule of below tables about size and length of communication wiring.

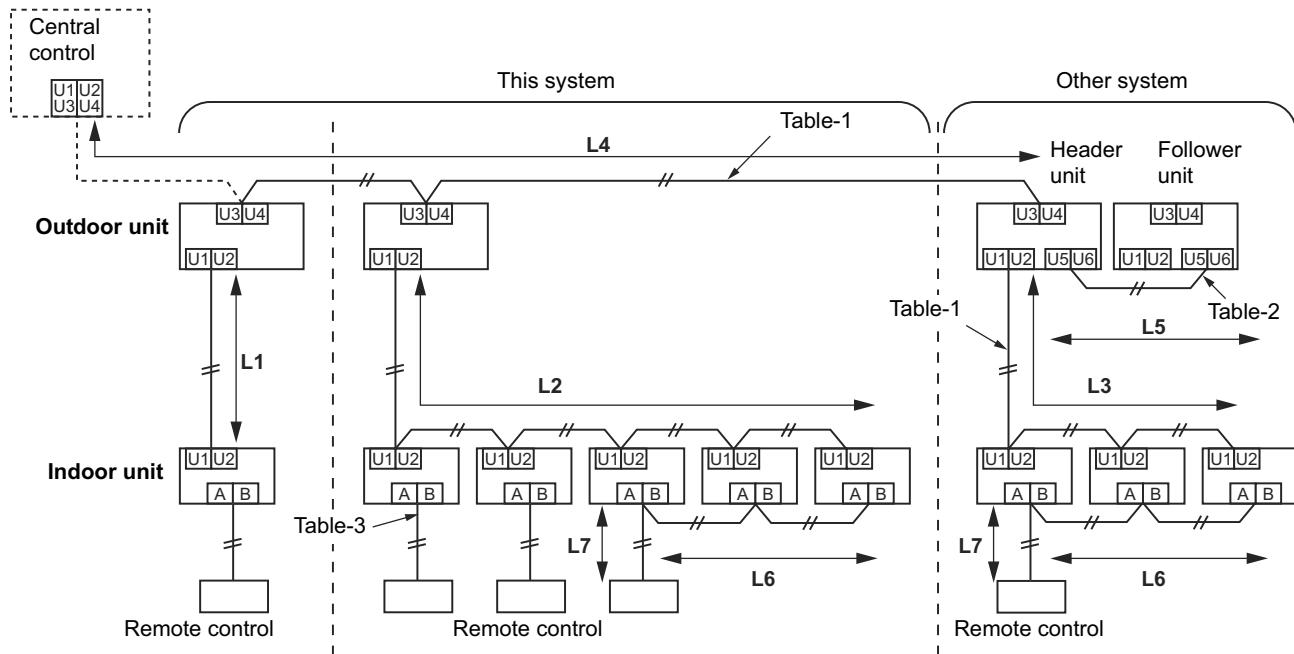


Table-1 Control wiring between indoor and outdoor units (L1, L2, L3), Central control wiring (L4)

Wiring	2-core, non-polarity
Type	Shield wire
Size / Length *1	AWG16: Up to 3280 ft (1000 m) AWG14: Up to 6560 ft (2000 m) (*1)

*1 Total of control wiring length for all refrigerant circuits (L1 + L2 + L3 + L4)

Table-2 Control wiring between outdoor units (L5) (Other system)

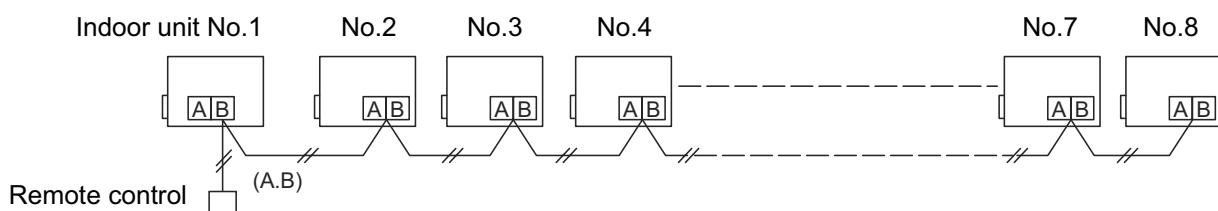
Wiring	2-core, non-polarity
Type	Shield wire
Size / Length	AWG16 to AWG14 / Up to 330 ft (100 m) (L5)

Table-3 Remote control wiring (L6, L7)

Wiring	2-core
Size	AWG20 to AWG14
Length	<ul style="list-style-type: none"> Up to 1640 ft (500 m) (L6 + L7) Up 1310 ft (400 m) in case of wireless remote control in group control. Up to 660 ft (200 m) total length of control wiring between indoor units (L6)

Group control through a remote control

Group control of multiple indoor units (8 units) through a single remote control





5-1. Specifications

System with Non-ducted indoor units

Outdoor unit model name			MCY-MAP0367HS-UL		MCY-MAP0487HS-UL		MCY-MAP0607HS-UL		
Outdoor unit type			Inverter		Inverter		Inverter		
Capacity code			ton		3		4		
Cooling Capacity (*1)			Btu/h		36,000		48,000		
Heating Capacity (*1)			Btu/h		40,000		54,000		
Electrical characteristics	Non-ducted	Power supply (*2)			Single phase 60Hz 208/230V		Single phase 60Hz 208/230V		
		Cooling (*1)	Running current	A	12.17	16.41	21.41		
			Power consumption	kW	2.52	3.64	4.88		
			EER2		14.30	13.20	12.30		
		Heating (*1)	Running current	A	12.15	17.43	21.18		
			Power consumption	kW	2.60	3.86	4.83		
			COP2		4.50	4.10	4.00		
		COP2 (17F) (*3)			3.00	2.60	2.50		
		COP2 (5F) (*4)			3.00	2.60	2.40		
		SEER2			22.80	22.60	23.10		
		HSPF2			10.00	10.30	10.60		
		Starting Current		A	Soft start	Soft start	Soft start		
Dimension		Unit	Height	In	61.0	61.0	61.0		
			Width	In	39.8	39.8	39.8		
			Depth	In	14.6	14.6	14.6		
		Packing	Height	In	66.5	66.5	66.5		
			Width	In	43.2	43.2	43.2		
			Depth	In	20.3	20.3	20.3		
Total Weight		Unit		lbs	311	311	311		
		Packed unit		lbs	331	331	331		
Appearance(Color)			Silky shade (Munsell 1Y8.5/0.5)		Silky shade (Munsell 1Y8.5/0.5)		Silky shade (Munsell 1Y8.5/0.5)		
Compressor		Type	Hermetic twin rotary compressor		Hermetic twin rotary compressor		Hermetic twin rotary compressor		
		Motor output	kW		3.75		3.75		
Fan unit		Fan	Propeller fan (Quantity 2)		Propeller fan (Quantity 2)		Propeller fan (Quantity 2)		
		Motor output	W		100+100		100+100		
		Air volume	cfm		4520		4690		
Heat exchanger			Finned tube		Finned tube		Finned tube		
Refrigerant R410A(Charged refrigerant amount(lbs))			(*5)		14.8		14.8		
High-pressure switch			psi		ON:602, OFF:464		ON:602, OFF:464		
Protective devices			Discharge temp. sensor / Suction temp. sensor / High- pressure sensor		Discharge temp. sensor / Suction temp. sensor / High- pressure sensor		Discharge temp. sensor / Suction temp. sensor / High- pressure sensor		
			Low-pressure sensor / Compressor case thermostat / PC board fuse		Low-pressure sensor / Compressor case thermostat / PC board fuse		Low-pressure sensor / Compressor case thermostat / PC board fuse		
Electrical specifications	Unit	MCA (*6)	A	36.3	36.3	36.3	36.3		
		MOCP (*7)	A	60	60	60	60		
		Recommended breaker size	A	40	40	40	40		
Refrigerant piping	Connecting port dia	Gas side(main pipe)	In	φ5/8	φ5/8	φ3/4	φ3/4		
		Liquid side(main pipe)	In	φ3/8	φ3/8	φ3/8	φ3/8		
	Connecting method	Gas side		Flare	Flare	Flare	Flare		
Max. No. of connected indoor units			6		8		9		
Sound pressure level			Cooling	dB(A)	52	54	55		
			Heating	dB(A)	55	57	58		
Operation temperature range			Cooling	FDB	23 to 122	23 to 122	23 to 122		
			Heating	FWB	-13 to 60	-13 to 60	-13 to 60		

(*1) Rated conditions Cooling : Indoor 80 F Dry Bulb /67 F Wet Bulb , Outdoor 95 F Dry Bulb.
Heating : Indoor 70 F Dry Bulb, Outdoor 47 F Dry Bulb / 43 F WetBulb.

The standard pipe means that equivalent piping length of 25ft and standard 0ft piping height difference .

The source voltage must not fluctuate more than ±10%

Heating conditons: Indoor 70 F Dry Bulb, Outdoor 17 F Dry Bulb / 15 F Wet Bulb.

The standard pipe means that equivalent piping length of 25ft and standard 0ft piping height defference.

Heating conditons: Indoor 70 F Dry Bulb, Outdoor 5 F Dry Bulb / 3 F Wet Bulb.

The standard pipe means that equivalent piping length of 25ft and standard 0ft piping height defference.

The amount dose not consider extra piping length and indoor unit type.

Refrigerant must be added on site in accordance with the actual piping length and indoor unit type

Select wire size base on the larger value of MCA.

(*6)

(*7)

MOCP:Maximum overcurrent protection (Amps)

Standard model System with Ducted indoor units

Outdoor unit model name				MCY-MAP0367HS-UL		MCY-MAP0487HS-UL		MCY-MAP0607HS-UL					
Outdoor unit type				Inverter		Inverter		Inverter					
Capacity code				ton		3		4					
Cooling Capacity				(*1) Btu/h		36,000		48,000					
Heating Capacity				(*1) Btu/h		40,000		54,000					
Electrical characteristics	Ducted	Power supply			(*2) Single phase 60Hz 208/230V		Single phase 60Hz 208/230V		Single phase 60Hz 208/230V				
		Cooling (*1)	Running current	A	12.75		16.94		23.80				
			Power consumption	kW	2.98		4.10		5.83				
			EER2		12.10		11.70		10.30				
		Heating (*1)	Running current	A	11.85		17.03		21.74				
			Power consumption	kW	2.93		4.16		5.37				
			COP2		4.00		3.80		3.60				
		COP2 (17F) (*3)			2.70		2.50		2.30				
		COP2 (5F) (*4)			2.70		2.50		2.20				
		SEER2			20.10		17.90		18.40				
		HSPF2			10.90		10.00		9.80				
		Starting Current			A		Soft start		Soft start				
Dimension		Unit	Height	In	61.0		61.0		61.0				
			Width	In	39.8		39.8		39.8				
			Depth	In	14.6		14.6		14.6				
		Packing	Height	In	66.5		66.5		66.5				
			Width	In	43.2		43.2		43.2				
			Depth	In	20.3		20.3		20.3				
Total Weight		Unit	lbs		311		311		311				
			Packed unit		lbs		331		331				
Appearance(Color)				Silky shade		Silky shade		Silky shade					
Compressor		Type			(Munsell 1Y8.5/0.5)		(Munsell 1Y8.5/0.5)		(Munsell 1Y8.5/0.5)				
		Motor output			kW		3.75		3.75				
		Fan			Propeller fan (Quantity 2)		Propeller fan (Quantity 2)		Propeller fan (Quantity 2)				
Fan unit		Motor output			W		100+100		100+100				
		Air volume			cfm		4520		4690				
		Heat exchanger			Finned tube		Finned tube		Finned tube				
Refrigerant R410A(Charged refrigerant amount(lbs))				(*5)		14.8		14.8		14.8			
High-pressure switch				psi		ON:602, OFF:464		ON:602, OFF:464		ON:602, OFF:464			
Protective devices				Discharge temp. sensor / Suction temp. sensor / High-pressure sensor		Discharge temp. sensor / Suction temp. sensor / High-pressure sensor		Discharge temp. sensor / Suction temp. sensor / High-pressure sensor		Discharge temp. sensor / Suction temp. sensor / High-pressure sensor			
Electrical specifications		Low-pressure sensor / Compressor case thermostat / PC board fuse			Low-pressure sensor / Compressor case thermostat / PC board fuse		Low-pressure sensor / Compressor case thermostat / PC board fuse		Low-pressure sensor / Compressor case thermostat / PC board fuse				
		Unit			MCA		(*6)		A				
		MOCP			(*7)		A		36.3				
		Recommended breaker size			A		60		60				
Refrigerant piping		Connecting port dia	Gas side(main pipe)			In		φ5/8		φ5/8			
			Liquid side(main pipe)			In		φ3/8		φ3/8			
		Connecting method	Gas side			Flare		Flare		Flare			
			Liquid side			Flare		Flare		Flare			
Max. No. of connected indoor units						6		8		9			
Sound pressure level				Cooling		dB(A)		52		54			
				Heating		dB(A)		55		57			
Operation temperature range				Cooling		FDB		23 to 122		23 to 122			
				Heating		EWR		-13 to 60		-13 to 60			

(*) Rated conditions Cooling : Indoor 80 F Dry Bulb /67 F Wet Bulb , Outdoor 95 F Dry Bulb.
Heating : Indoor 70 F Dry Bulb , Outdoor 47 F Dry Bulb / 43 F Wet Bulb

The standard pipe means that equivalent piping length of 25ft and standard Off piping height difference

(*) The source voltage must not fluctuate more than $\pm 10\%$.

Heating conditons: Indoor 70 F Dry Bulb, Outdoor 17 F Dry Bulb / 15 F Wet Bulb

The standard pipe means that equivalent piping length of 25ft and standard 0ft piping height difference.

Heating conditions: Indoor 70 F Dry Bulb, Outdoor 5 F Dry Bulb

The standard pipe means that equivalent piping length of 25ft and standard pipe diameter of 100mm.

The amount dose not consider extra piping length and indoor unit type.

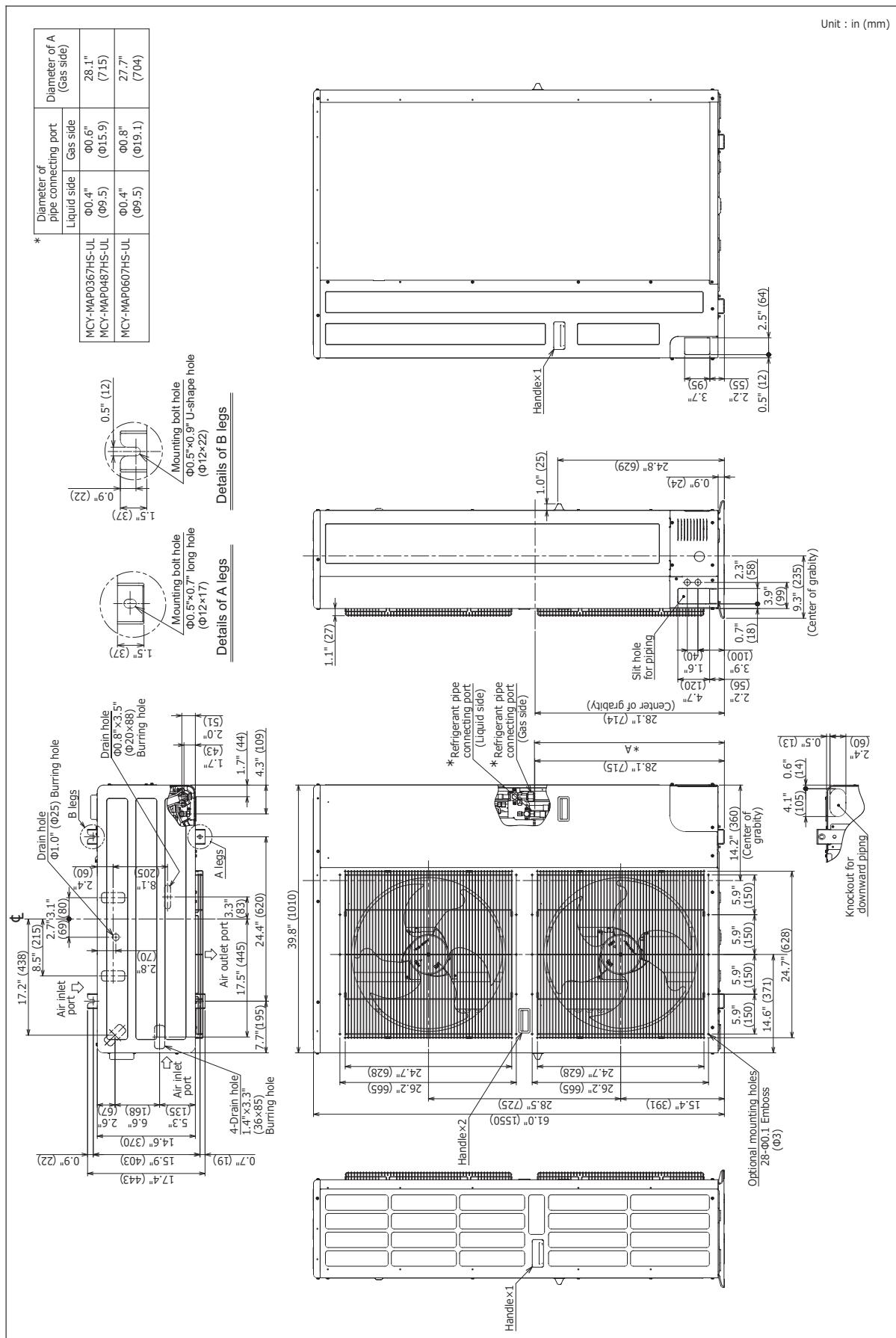
(12) Refrigerant must be added on site in accordance with the actual piping length and indoor unit type. Check the indoor unit label for the refrigerant type.

Select wire size base on the larger value of MCA.
MCA = Maximum current carrying capacity (A/mm²)

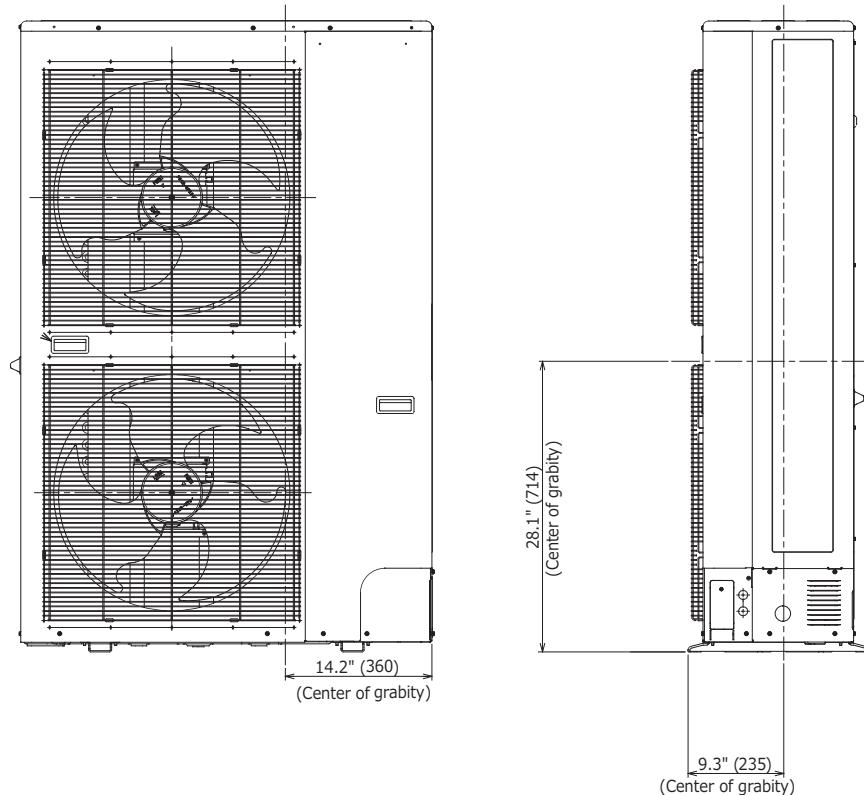
(*) MOCP:Maximum overcurrent protection (Amps)

5-2. Dimensional drawing

Model : MCY-MAP0367HS-UL, MAP0487HS-UL, MAP0607HS-UL



5-3. Center of gravity

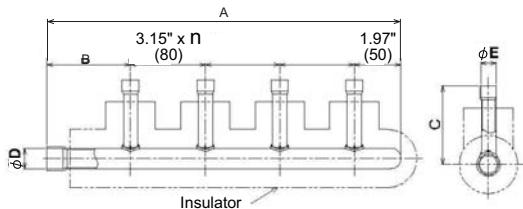




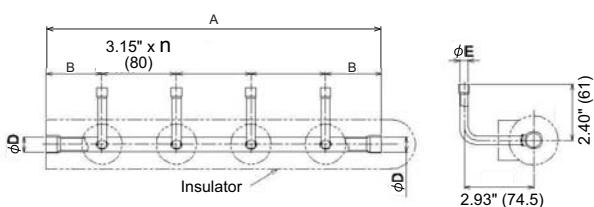
5-4. Branch header / Branch joint

- Branch header (Heat pump)
RBM-HY1043UL, HY1083UL

Gas side



Liquid side

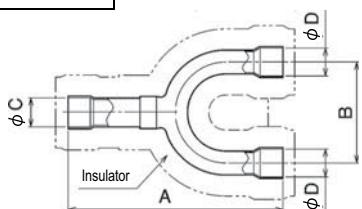


Unit: in (mm)

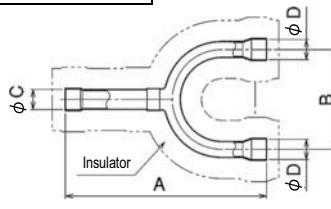
Model		A	B	C	D	E	n	Accessory socket Qty
RBM-HY1043UL	Gas side	15.0" (380)	3.54" (90)	3.29" (83.6)	7/8" (22.2)	5/8" (15.9)	3	⑥ x 4, ⑨ x 4, ⑭ x 1, ⑯ x 1, ⑰ x 1
	Liquid side	13.0" (330)	1.77" (45)	—	5/8" (15.9)	3/8" (9.5)	3	① x 4, ⑥ x 1, ⑨ x 1
RBM-HY1083UL	Gas side	27.6" (700)	3.54" (90)	3.29" (83.6)	7/8" (22.2)	5/8" (15.9)	7	⑥ x 8, ⑨ x 8, ⑭ x 1, ⑯ x 1, ⑰ x 1
	Liquid side	25.6" (650)	1.77" (45)	—	5/8" (15.9)	3/8" (9.5)	7	① x 8, ⑥ x 1, ⑨ x 1

- Y-shape branch joint (Heat pump)
RBM-BY55UL, BY105UL

Gas side



Liquid side



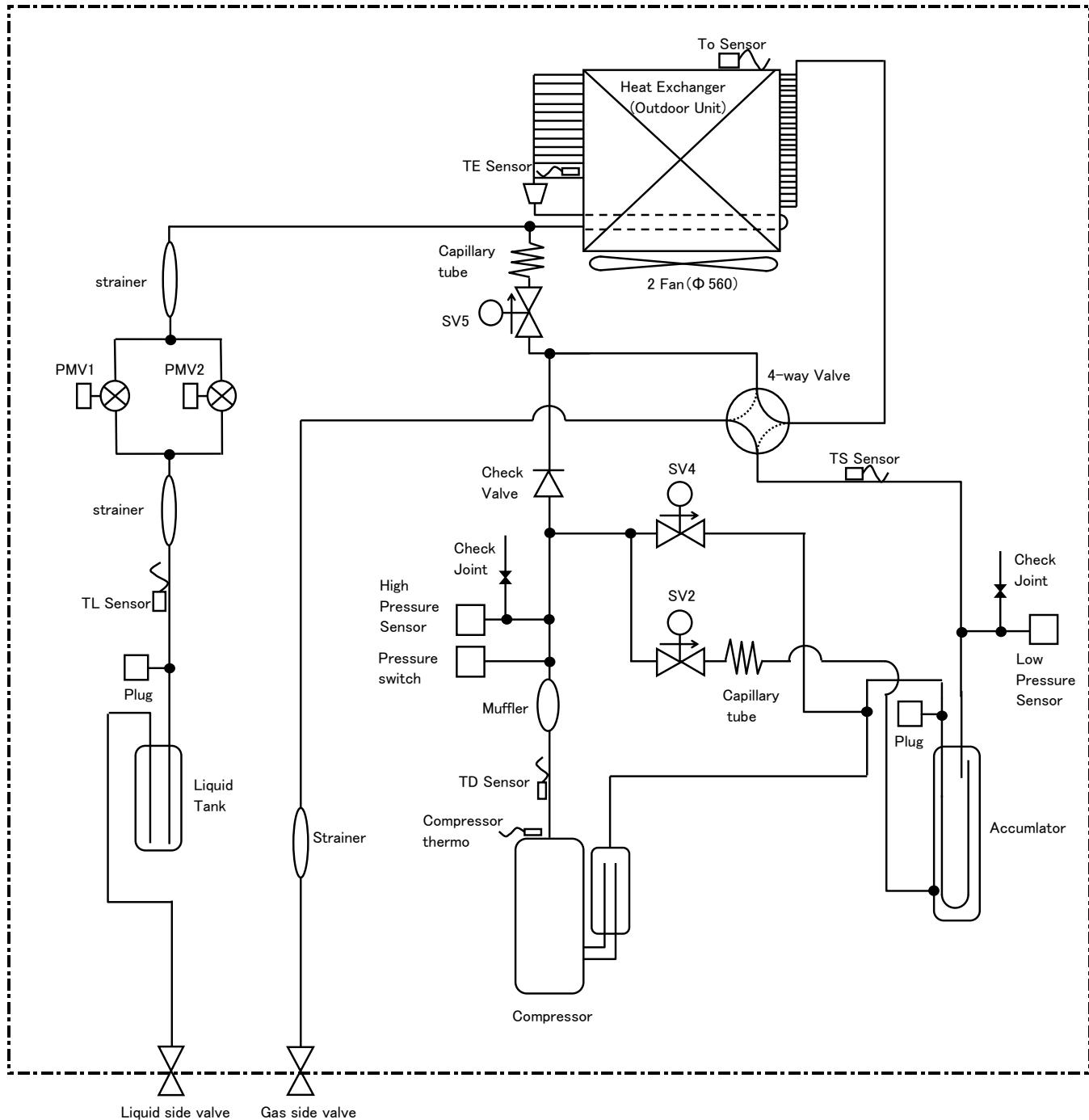
Unit: in (mm)

RBM-		A	B	C	D	Accessory socket Qty
BY55UL	Gas side	6.30" (160)	3.15" (80)	5/8" (15.9)	5/8" (15.9)	⑨ x 1, ⑮ x 2, ⑯ x 1
	Liquid side	5.12" (130)	2.76" (70)	3/8" (9.5)	3/8" (9.5)	① x 2
BY105UL	Gas side	6.69" (170)	3.15" (80)	7/8" (22.2)	7/8" (22.2)	⑭ x 21, ⑰ x 2, ⑯ x 1
	Liquid side	6.30" (160)	3.15" (80)	5/8" (15.9)	5/8" (15.9)	⑨ x 1, ⑯ x 1, ⑰ x 1



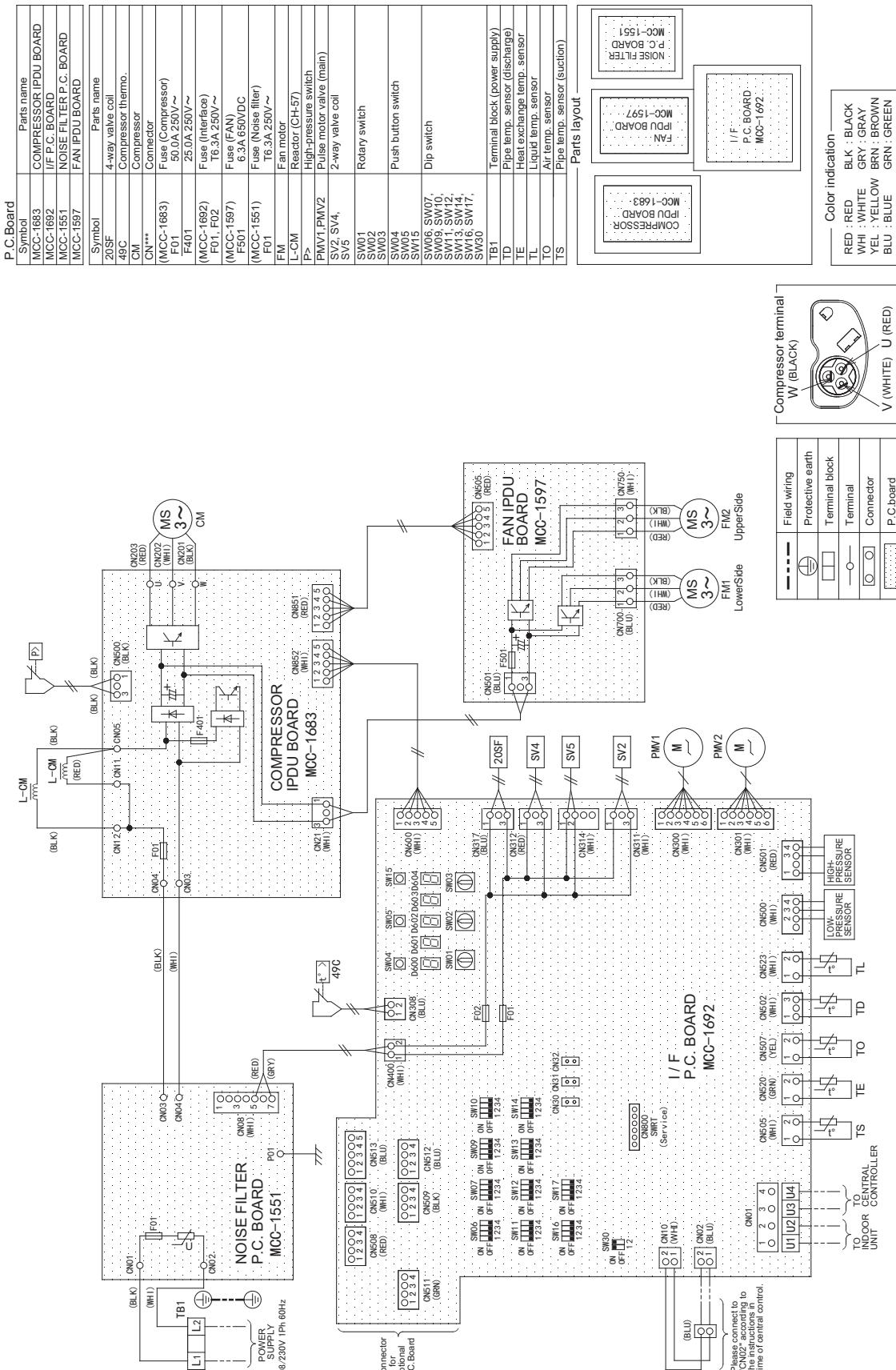
5-5. Refrigerant cycle diagram

Model : MCY-MAP0367HS-UL, MCY-MAP0487HS-UL, MCY-MAP0607HS-UL



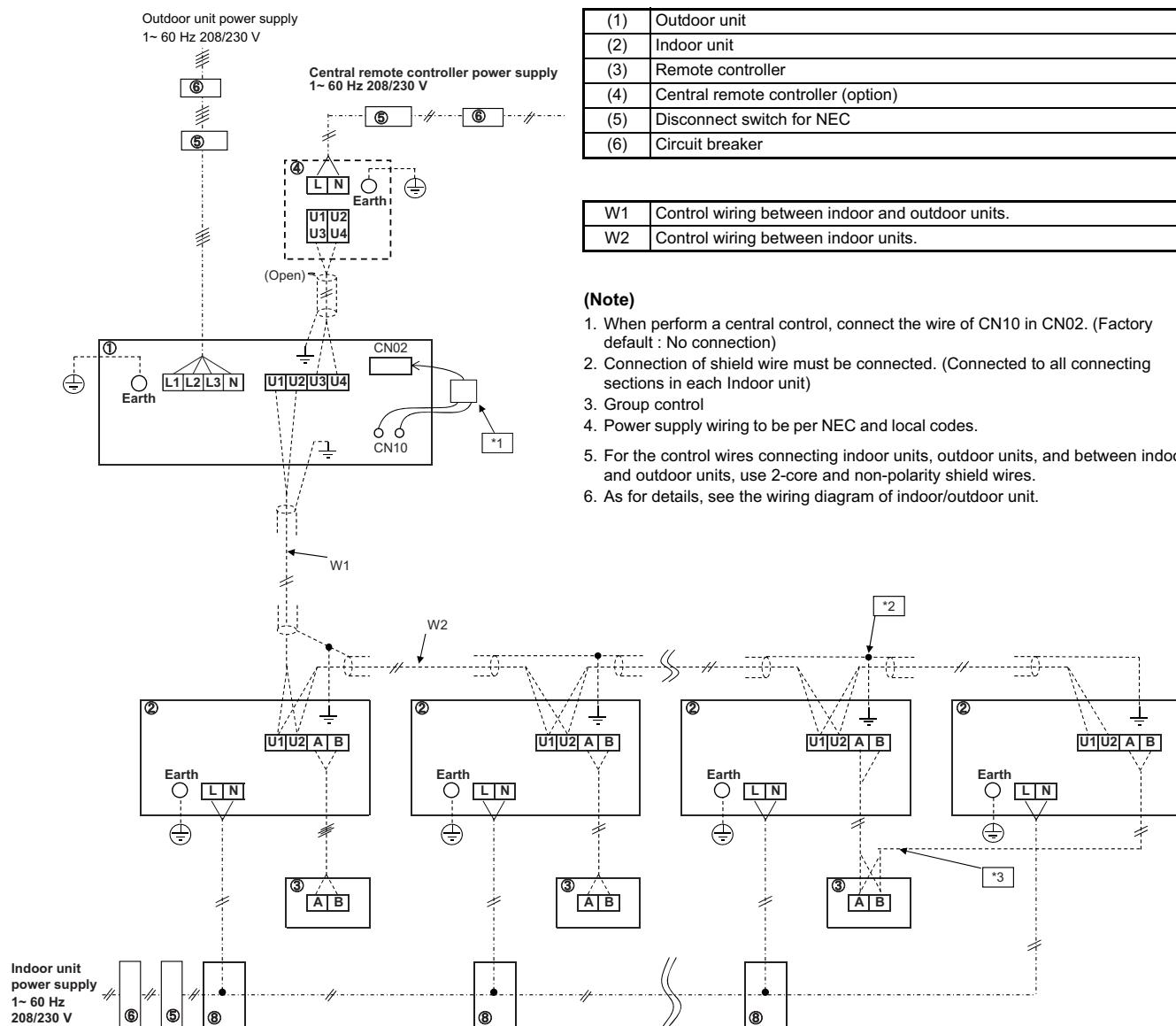
5-6. Wiring diagram

Model : MCY-MAP0367HS-UL, MCY-MAP0487HS-UL, MCY-MAP00607HS-UL



5-7. Connecting diagram

Model: MCY-MAP0367HS-UL, MCY-MAP0487HS-UL, MCY-MAP0607HS-UL





5-8. Applied control for Outdoor Unit

The outdoor fan high static pressure support function is made available by setting relevant switches provided on the interface P.C. board of the outdoor unit.

5-8-1. Outdoor Fan High Static Pressure Shift

Purpose/characteristics

This function is used when connecting a duct to the discharge port of an outdoor unit (as part of, for example, unit installation on the floor by floor installation.)

Setup

Turn ON the DIP switch [SW10, Bit 2] provided on the interface P.C. board of the outdoor unit.

This function must be enabled with every discharge duct connected outdoor unit for both of the header and follower units.

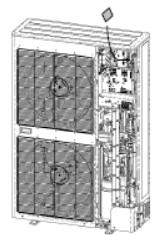
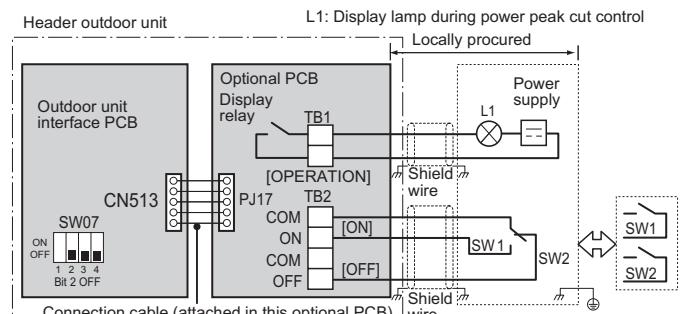
Specification

Increase the speed of the propeller fan units on the outdoor fan to allow the installation of a duct with a maximum external static pressure not greater than specified in the table below. If a discharge duct with a resistance greater than 0.04inWG (1.0 mmAq) is to be used, enable this function. The maximum external static pressures of outdoor units are shown below (Table 1).

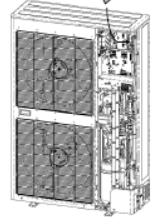
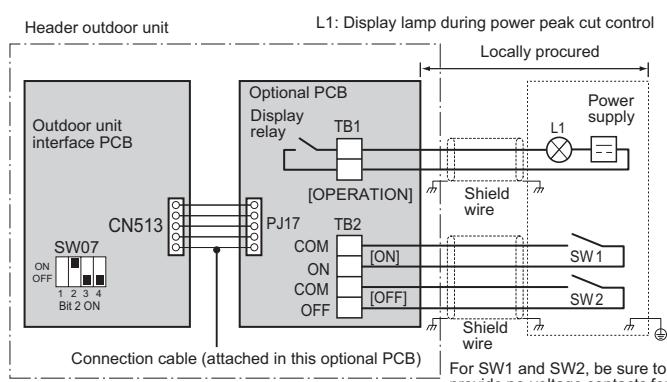
(Table 1.) Maximum external static pressures of outdoor units

Model name	Maximum external static pressure (inWG)	Outdoor unit air flow (CFM)
MCY-MAP0367HS-UL	0.08	4520
MCY-MAP0487HS-UL	0.08	4690
MCY-MAP0607HS-UL	0.08	4850

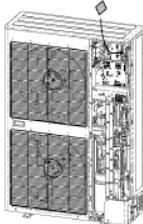
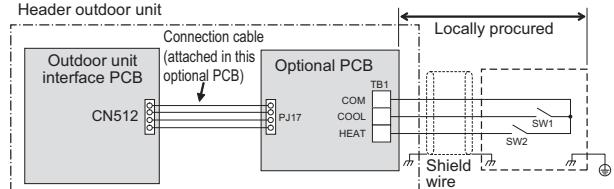
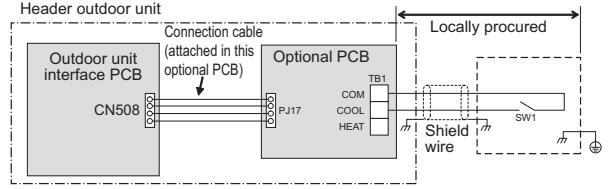
5-9. Optional printed circuit board (PCB) of outdoor unit

Model name	Appearance	Function																			
TCB-PCDM4UL	 <p>Size: 2.80 × 3.35 (in)</p> <p>Application</p>  <p>* Installation the optional PCB in the inverter-box of the outdoor unit.</p>	<p>Power peak-cut Control Standard Specifications</p> <p>(Wiring example)</p>  <p>For SW1 and SW2, be sure to provide no-voltage contacts for each terminal. The input signals of SW1 and SW2 may be pulse input (100 msec or more) or continuous make. Do not turn on [SW1] and [SW2] simultaneously.</p> <p><SW07 (bit 2) OFF [2-stage switching]></p> <table border="1"> <thead> <tr> <th colspan="2">Input</th> <th colspan="2">SW07 (bit 1)</th> <th rowspan="2">Display relay (L1)</th> </tr> <tr> <th>SW1</th> <th>SW2</th> <th>Bit 1 OFF</th> <th>Bit 1 ON</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>ON</td> <td>100% (normal operation)</td> <td>100% (normal operation)</td> <td>OFF</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>0% (forced stop)</td> <td>Approx. 60% (upper limit regulated)</td> <td>ON</td> </tr> </tbody> </table>	Input		SW07 (bit 1)		Display relay (L1)	SW1	SW2	Bit 1 OFF	Bit 1 ON	OFF	ON	100% (normal operation)	100% (normal operation)	OFF	ON	OFF	0% (forced stop)	Approx. 60% (upper limit regulated)	ON
Input		SW07 (bit 1)		Display relay (L1)																	
SW1	SW2	Bit 1 OFF	Bit 1 ON																		
OFF	ON	100% (normal operation)	100% (normal operation)	OFF																	
ON	OFF	0% (forced stop)	Approx. 60% (upper limit regulated)	ON																	

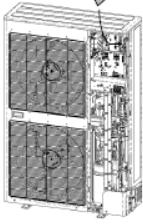
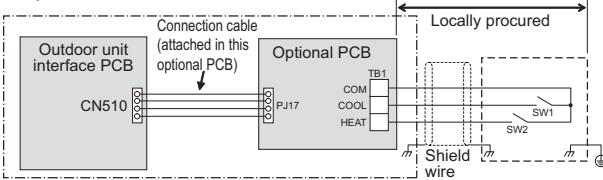


Model name	Appearance	Function																													
TCB-PCDM4UL	 <p>Size: 2.80 × 3.35 (in)</p> <p>Application</p>  <p>* Install the optional PCB in the inverter assembly of the outdoor header unit.</p>	<p>Enhanced Specifications (Wiring example)</p> <p>Header outdoor unit</p>  <p>For SW1 and SW2, be sure to provide no-voltage contacts for each terminal.</p> <p><SW07 (bit 2) ON [4-stage switching]></p> <table border="1"> <thead> <tr> <th colspan="2">Input</th> <th colspan="2">SW07 (bit 1)</th> <th rowspan="2">Display relay (L1)</th> </tr> <tr> <th>SW1</th> <th>SW2</th> <th>Bit 1 OFF</th> <th>Bit 1 ON</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>100% (normal operation)</td> <td>100% (normal operation)</td> <td>OFF</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>Approx. 80% (upper limit regulated)</td> <td>Approx. 85% (upper limit regulated)</td> <td>ON</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>Approx. 60% (upper limit regulated)</td> <td>Approx. 75% (upper limit regulated)</td> <td>ON</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>0% (forced stop)</td> <td>Approx. 60% (upper limit regulated)</td> <td>ON</td> </tr> </tbody> </table>	Input		SW07 (bit 1)		Display relay (L1)	SW1	SW2	Bit 1 OFF	Bit 1 ON	OFF	OFF	100% (normal operation)	100% (normal operation)	OFF	ON	OFF	Approx. 80% (upper limit regulated)	Approx. 85% (upper limit regulated)	ON	OFF	ON	Approx. 60% (upper limit regulated)	Approx. 75% (upper limit regulated)	ON	ON	ON	0% (forced stop)	Approx. 60% (upper limit regulated)	ON
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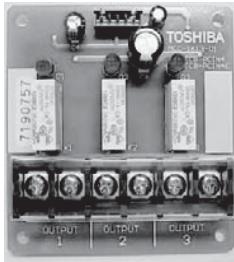
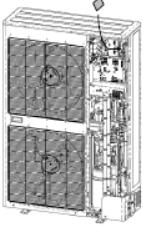
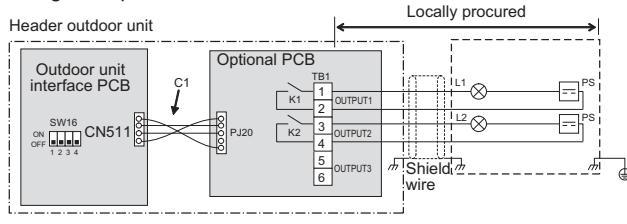


Model name	Appearance	Function																																	
TCB-PCMO4UL	 Size: 2.19 × 2.36 (in) Application  * Install the optional PCB in the inverter assembly of the outdoor header unit.	<p>[1] External master ON/OFF control</p> <p>▼ Function By connecting the cable (attached in this optional PCB) to the interface PC board on an outdoor unit, all indoor units connected to the outdoor unit enable to operate simultaneously.</p> <p>▼ Operation</p> <p>Header outdoor unit</p>  <p>SW1: Operation input switch SW2: Stop input switch</p> <table border="1" data-bbox="695 795 1378 923"> <thead> <tr> <th>Terminal</th> <th>Input Signal</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>COOL (SW1)</td> <td>ON OFF</td> <td>All indoor units operate together</td> </tr> <tr> <td>HEAT (SW2)</td> <td>ON OFF</td> <td>All indoor units stop together</td> </tr> </tbody> </table> <p>Provide no-voltage pulse contacts for each terminal. Hold the ON state for at least 100 msec. Do not turn SW1 and SW2 ON simultaneously</p>	Terminal	Input Signal	Operation	COOL (SW1)	ON OFF	All indoor units operate together	HEAT (SW2)	ON OFF	All indoor units stop together																								
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		<p>[2] Night time operation (sound reduction) control</p> <p>▼ Function As the cable (attached in this optional PCB) is connected to the "Interface PCB" on an outdoor unit, both compressor speed and fan speed are restricted while the signal of the night operation control is input. It makes the noise reduction during the night time operation.</p> <p>▼ Operation</p> <p>Header outdoor unit</p>  <p>SW1: Night time signal switch</p> <table border="1" data-bbox="695 1491 1378 1619"> <thead> <tr> <th>Terminal</th> <th>Input Signal</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>COOL (SW1)</td> <td>ON OFF</td> <td>Night time operation control</td> </tr> <tr> <td></td> <td>ON OFF</td> <td>Normal operation</td> </tr> </tbody> </table> <p>Each terminal should be connected to dry contact.</p> <p>▼ Sound reduction and approximation capacity (reference)</p> <table border="1" data-bbox="695 1724 1335 1904"> <thead> <tr> <th rowspan="2">Outdoor unit (base unit)</th> <th colspan="2">During low-noise mode dB(A)</th> <th colspan="2">Capacity</th> </tr> <tr> <th>Cooling</th> <th>Heating</th> <th>Cooling</th> <th>Heating</th> </tr> </thead> <tbody> <tr> <td>Model 0367*</td> <td>45</td> <td>49</td> <td>approx. 85%</td> <td>approx. 90%</td> </tr> <tr> <td>Model 0487*</td> <td>45</td> <td>51</td> <td>approx. 60%</td> <td>approx. 80%</td> </tr> <tr> <td>Model 0607*</td> <td>49</td> <td>52</td> <td>approx. 70%</td> <td>approx. 70%</td> </tr> </tbody> </table> <p>* Position of noise measuring device: 1 m from the front face of the set and 1.5 m above ground (anechoic sound)</p> <p>Relative to maximum capacity</p>	Terminal	Input Signal	Operation	COOL (SW1)	ON OFF	Night time operation control		ON OFF	Normal operation	Outdoor unit (base unit)	During low-noise mode dB(A)		Capacity		Cooling	Heating	Cooling	Heating	Model 0367*	45	49	approx. 85%	approx. 90%	Model 0487*	45	51	approx. 60%	approx. 80%	Model 0607*	49	52	approx. 70%	approx. 70%
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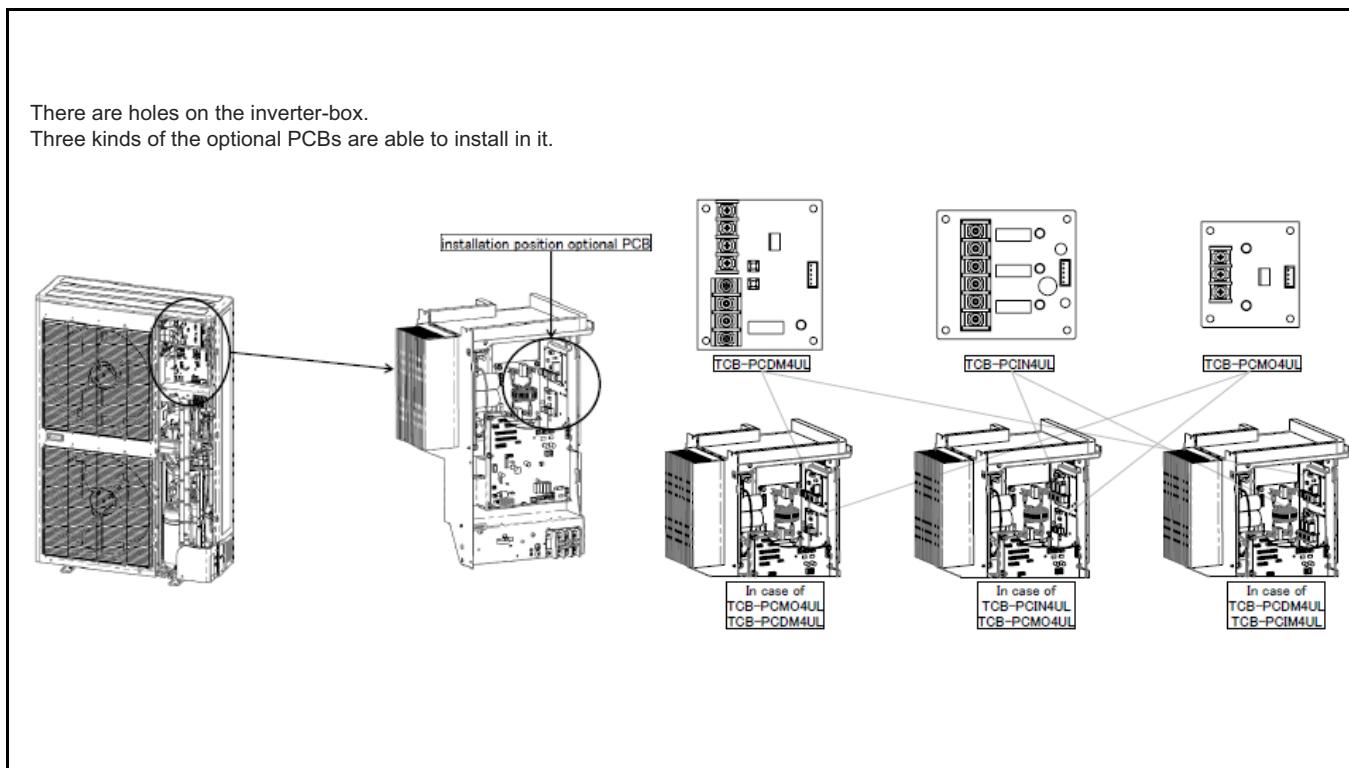


Model name	Appearance	Function																																				
TCB-PCM04UL	 <p>Size: 2.19 × 2.36 (in)</p> <p>Application</p>  <p>* Install the optional PCB in the inverter assembly of the outdoor header unit.</p>	<p>[3] Operation mode selection control</p> <p>▼ Function The heating/cooling mode of the system can be selected by connecting to the interface PCB of outdoor units.</p> <p>▼ Operation</p>  <p>SW1: Cooling mode specified input switch SW2: Heating mode specified input switch</p> <table border="1"> <thead> <tr> <th colspan="2">Input Signal</th> <th>Operation: Selected operation mode</th> </tr> <tr> <th>Cooling (SW1)</th> <th>Heating (SW2)</th> <td>Cooling operation only</td> </tr> </thead> <tbody> <tr> <td>ON</td> <td>OFF</td> <td>Heating operation only</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>Normal operation</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td></td> </tr> </tbody> </table> <p>Each terminal should be connected to dry contact.</p> <p>Indoor unit operation intervention function The statuses of indoor units operating in a mode different from the selected operation mode can be changed by changing the status of a jumper wire (J01) provided on the interface P.C. board of outdoor unit.</p> <table border="1"> <thead> <tr> <th>Jumper wire</th> <th colspan="2">Description of intervention</th> </tr> </thead> <tbody> <tr> <td>J01 connected (factory default)</td> <td colspan="2">All indoor units operating in a mode different from the selected operation mode (prohibited-mode indoor units) become non-priority units (thermostat OFF). The display “ (operation ready)” appears on the remote controller of prohibited-mode indoor units.</td> </tr> <tr> <td>J01 cut</td> <td colspan="2"> The selected operation mode is imposed on all indoor units operating in a different mode. <table border="1"> <thead> <tr> <th>Mode selected at P.C. board</th> <th colspan="2">Remote controller operation / display</th> </tr> </thead> <tbody> <tr> <td>Normal</td> <td>All modes (COOL, DRY, HEAT and FAN) available</td> <td></td> </tr> <tr> <td>COOL</td> <td>Only COOL, DRY and FAN available</td> <td> “ operation mode control” (turned on during remote controller operation)</td> </tr> <tr> <td>HEAT</td> <td>Only HEAT and FAN available</td> <td></td> </tr> </tbody> </table> </td> </tr> </tbody> </table>	Input Signal		Operation: Selected operation mode	Cooling (SW1)	Heating (SW2)	Cooling operation only	ON	OFF	Heating operation only	OFF	ON	Normal operation	OFF	OFF		Jumper wire	Description of intervention		J01 connected (factory default)	All indoor units operating in a mode different from the selected operation mode (prohibited-mode indoor units) become non-priority units (thermostat OFF). The display “  (operation ready)” appears on the remote controller of prohibited-mode indoor units.		J01 cut	The selected operation mode is imposed on all indoor units operating in a different mode. <table border="1"> <thead> <tr> <th>Mode selected at P.C. board</th> <th colspan="2">Remote controller operation / display</th> </tr> </thead> <tbody> <tr> <td>Normal</td> <td>All modes (COOL, DRY, HEAT and FAN) available</td> <td></td> </tr> <tr> <td>COOL</td> <td>Only COOL, DRY and FAN available</td> <td> “ operation mode control” (turned on during remote controller operation)</td> </tr> <tr> <td>HEAT</td> <td>Only HEAT and FAN available</td> <td></td> </tr> </tbody> </table>		Mode selected at P.C. board	Remote controller operation / display		Normal	All modes (COOL, DRY, HEAT and FAN) available		COOL	Only COOL, DRY and FAN available	 “  operation mode control” (turned on during remote controller operation)	HEAT	Only HEAT and FAN available	
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Model name	Appearance	Function																				
TCB-PCIN4UL	 <p>Size: 2.87 x 3.11 (in)</p> <p>Application</p>  <p>* Install the optional PCB in the inverter assembly of the outdoor header unit.</p>	<p>[1] Error / Operation Output</p> <p>▼ Function The operation error output PCB can indicate operation and error states by connecting to the interface PCB of outdoor units.</p> <p>▼ Operation Operation output: The operation indicator is on while any indoor unit in the system is operating. Error output: The error indicator is on when an error is occurred on even one of the indoor or outdoor units in the system.</p> <p>Wiring example</p>  <table border="1"> <tr> <td>C1</td> <td>Attached connection cable 1 (4wires)</td> </tr> <tr> <td>CN511</td> <td>Connector on interface side (green)</td> </tr> <tr> <td>K1, K2</td> <td>Relays</td> </tr> <tr> <td>L1</td> <td>Error indication Lamp</td> </tr> <tr> <td>L2</td> <td>Operation indication Lamp</td> </tr> <tr> <td>OUTPUT1</td> <td>Error output</td> </tr> <tr> <td>OUTPUT2</td> <td>Operation output</td> </tr> <tr> <td>PJ20</td> <td>Connector on optional PCB side</td> </tr> <tr> <td>PS</td> <td>Power supply unit</td> </tr> <tr> <td>TB1</td> <td>Terminal block</td> </tr> </table> <p>* [OUTPUT3] is displayed when power is turned on.</p>	C1	Attached connection cable 1 (4wires)	CN511	Connector on interface side (green)	K1, K2	Relays	L1	Error indication Lamp	L2	Operation indication Lamp	OUTPUT1	Error output	OUTPUT2	Operation output	PJ20	Connector on optional PCB side	PS	Power supply unit	TB1	Terminal block
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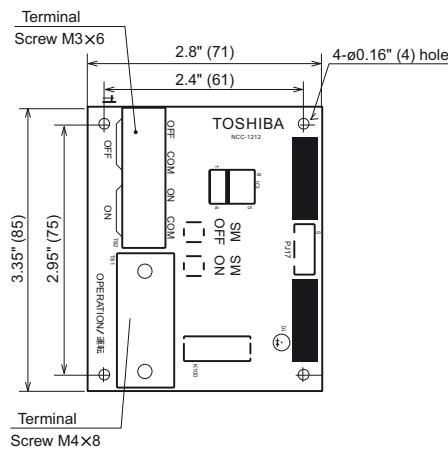
[PCB Installation Position]



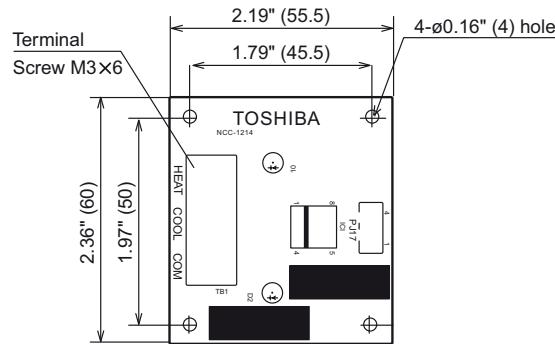
Dimensions of P.C. board

Unit: in (mm)

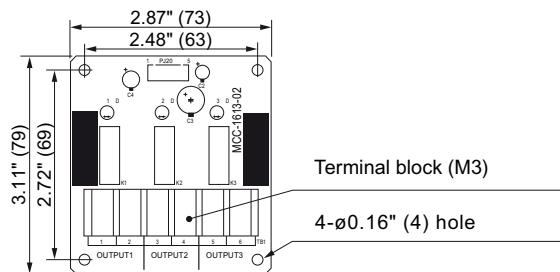
TCB-PCDM4UL



TCB-PCMO4UL

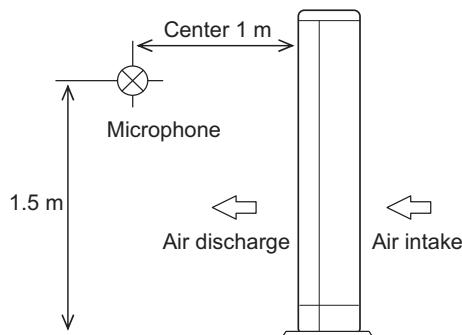


TCB-PCIN4UL



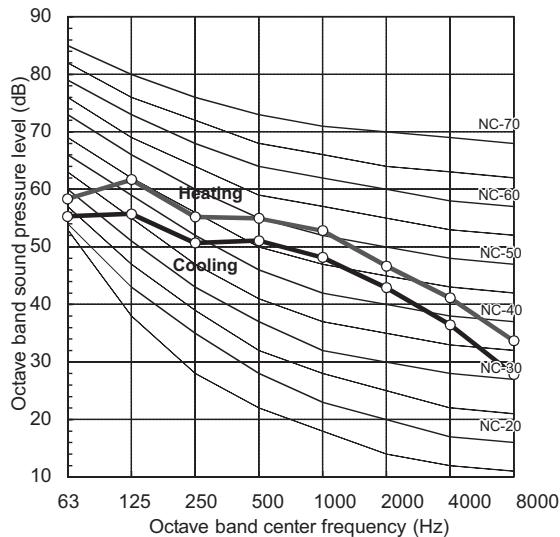


5-10. Sound pressure level data [Measuring location]



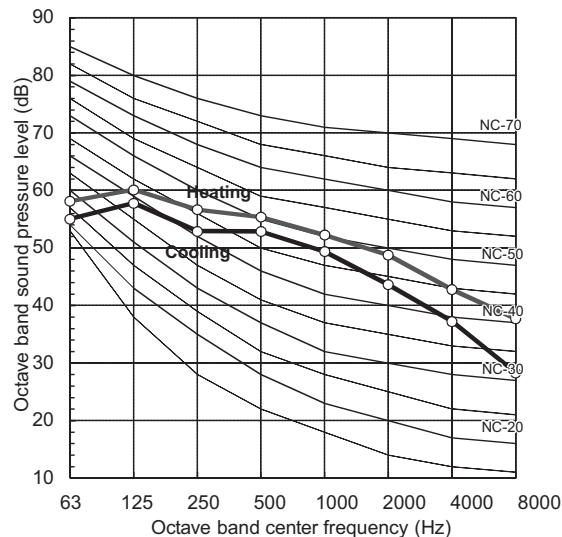
MCY-MAP0367HS-UL

Sound pressure level (dB(A))	Cooling	Heating
	52.0	55.0



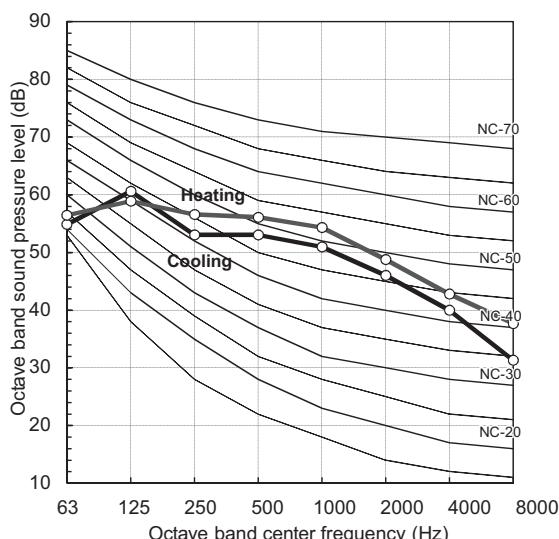
MCY-MAP0487HS-UL

Sound pressure level (dB(A))	Cooling	Heating
	54.0	57.0



MCY-MAP0607HS-UL

Sound pressure level (dB(A))	Cooling	Heating
	55.0	58.0



Engineering Data Book

Model name:

MCY-MAP__7HS-UL

December, 2016 (1st)

July, 2023 (2nd)