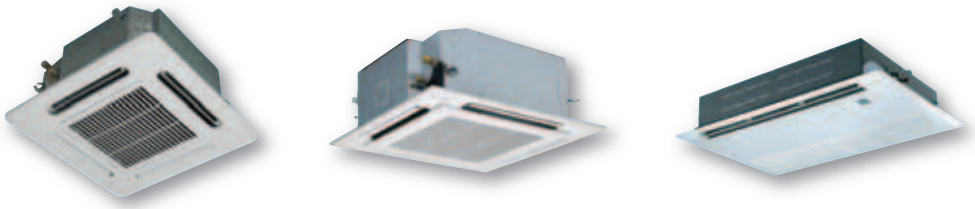
TOSHIBA

Leading Innovation



SMMS

AIR CONDITIONING FOR LARGE BUILDINGS

SUPER

SUPER MODULAR MULTI SYSTEM

TOSHIBA
Leading Innovation

We care about better air.

Our fresher perspective uplifts environmental progress

Earth can hardly wait for a change in the atmosphere. Nor can we.

By making air conditioning supremely energy-efficient, quiet, easy to install, and cost-effective, Toshiba aims at the heart of growing global pollution.

Such inspiration takes team spirit even more than competitive spirit. We lead initiatives with innovators in academia, industry and government to think bigger, act bolder and move faster toward more eco-friendly solutions. To sustain better qualities of life, we have to take better care of business and the environment in the long run.

Change is in the air. Together, we can all make a world of difference.

TOSHIBA AIRCONDITIONING

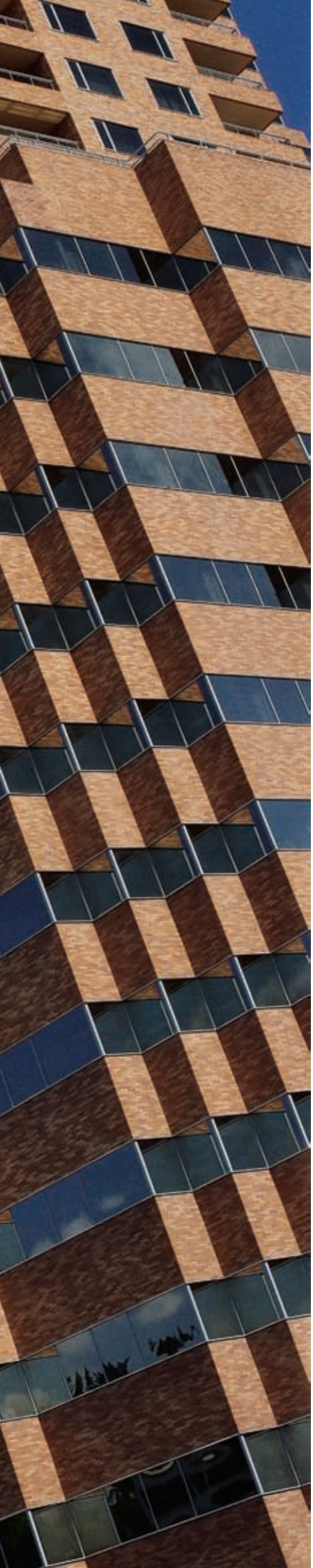
Advancing the eco -evolution

The Super Modular Multi System opens up
a new dimension in air conditioning.

World's best class energy savings
Greater installation flexibility
Improved operation control

SUPER

SUPER MODULAR MULTI SYSTEM



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World's Best Class Energy Savings

COP of 4.25* achieved by Toshiba's unrivalled Super Modular Multi System (SMMS) technologies and newly developed components

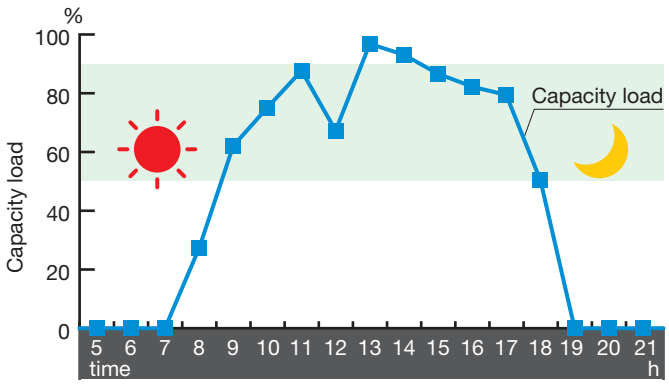
* 8HP CDU system, heating operation

Part load operation

A VRF system can achieve energy efficient operation especially in a separated room layout as shown. Not all of the indoor units operate at the same time so the system is almost always operating with a partial indoor unit load.

Capacity load curve

(Example of an office)

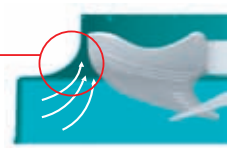


SMMS high performance COP

Partial load performance is the most important value for a VRF with fluctuating performance due to changes in the number of units operating and/or fluctuations in the air conditioning load. (100–50% partial load operation)

New high-performance bell mouth with smooth flow

Enlarged suction radius provides smoother flow.



DC fan motor

- Pressure fluctuations due to interference have been suppressed.
- Efficiency is high, and noise has been reduced.

High output / high-efficiency DC motor

600 W output

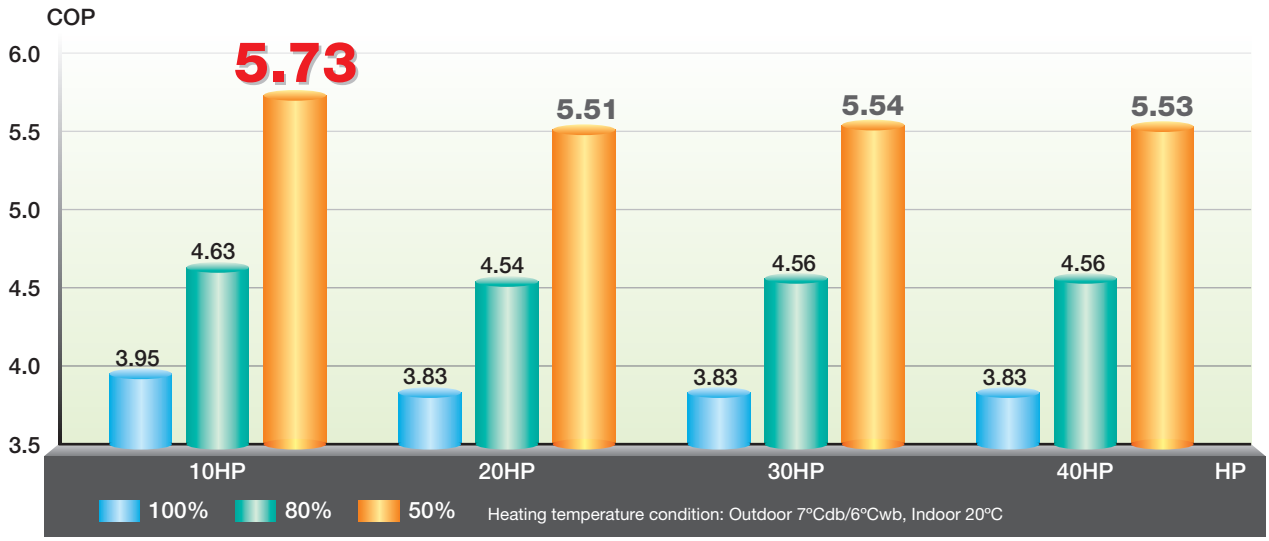
Vector-controlled inverter

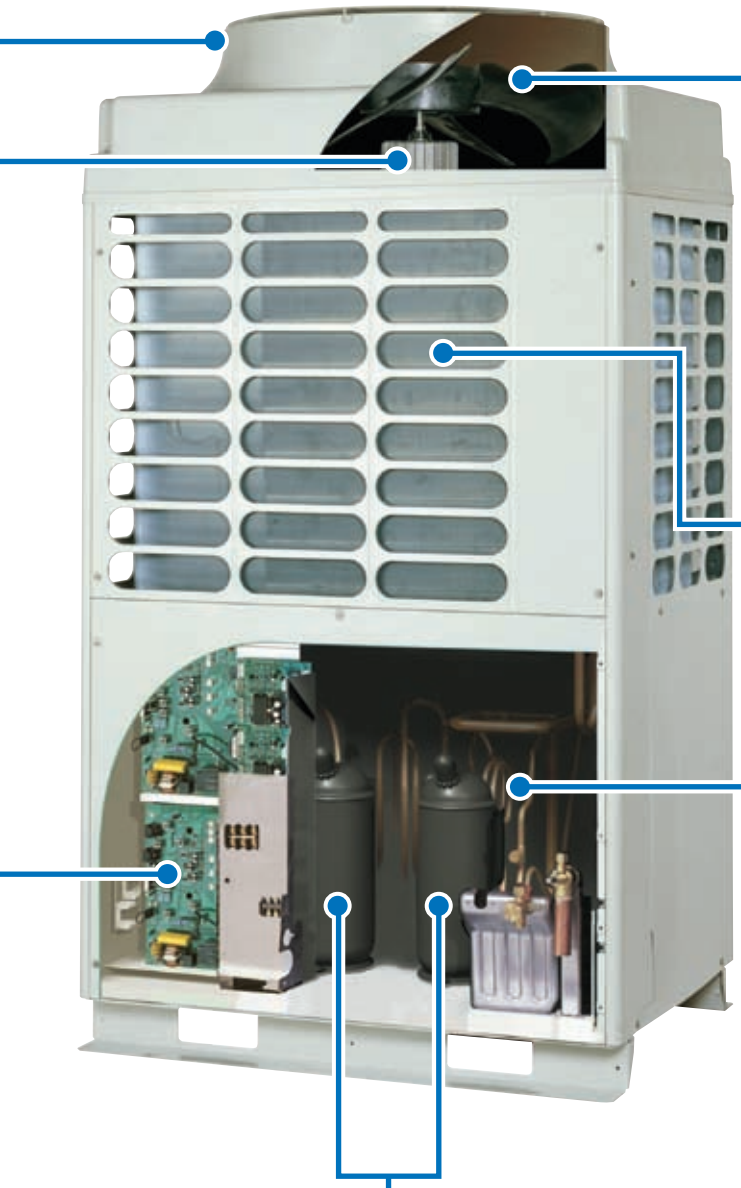
The inverter boosts efficiency by controlling R410A and a twin-rotary DC compressor.

Efficient circuit built-in; new PIM

Smooth sine curve realizes higher efficiency and less noise.

World's best class partial load COP





New large-diameter propeller fan (flash wing fan)

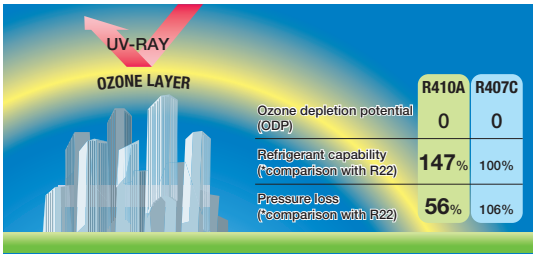
Enlarged fan diameter
ϕ630→ ϕ710

The concave leading edge of the fan blades reduces flow interference between adjacent blades.

Outdoor heat-transfer

- Compact heat-transfer tube with intakes on four sides.
- Heat-transfer tube with improved heat-transfer coefficient of the inner surface.

Configuration of the finned heat-transfer tube



R410A refrigerant

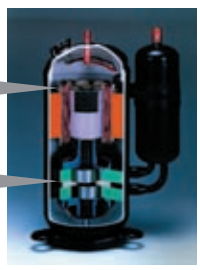
An ozone layer depletion coefficient of zero has become absolutely essential for an advanced air conditioning system.

Twin-rotary DC compressor

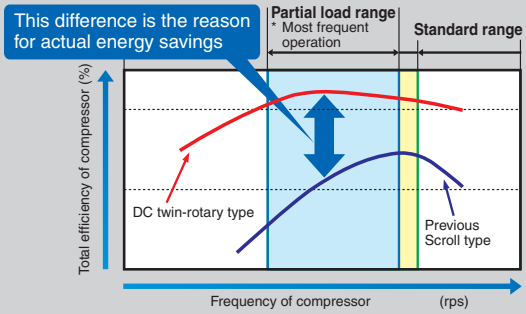
Two DC twin-rotary compressors (dual configuration) are equipped per module (basic outdoor unit)

DC driven motor with rare earth magnet
- Compact
- Higher efficiency
- Higher power motor torque

Precise manufacturing technology in the compression parts
- Higher efficiency (in wide range)
- Higher reliability

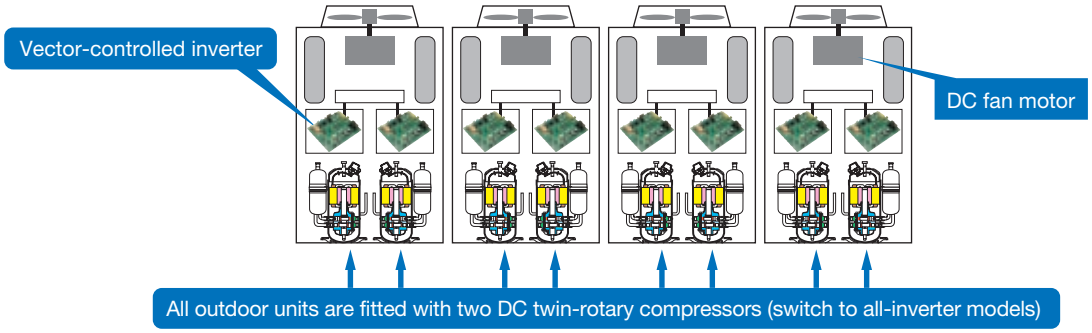


Comparison of DC twin-rotary and Previous Scroll Compressors



High-efficiency DC twin-rotary compressors

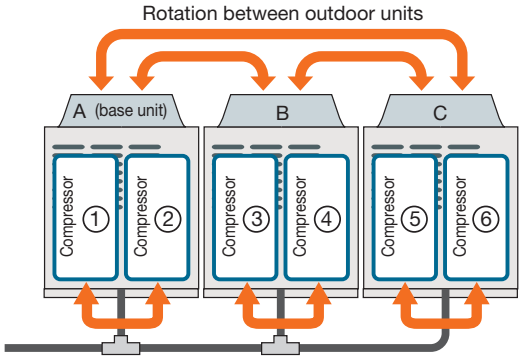
Every outdoor unit incorporates two new DC twin-rotary compressors and dual-inverter drives — this is unique to Toshiba and the air conditioning industry.



Reliability

With dual-rotation, the load is distributed more evenly — this means that the operating sequence of the outdoor units and the individual compressors is rotated to spread the operating hours more evenly.

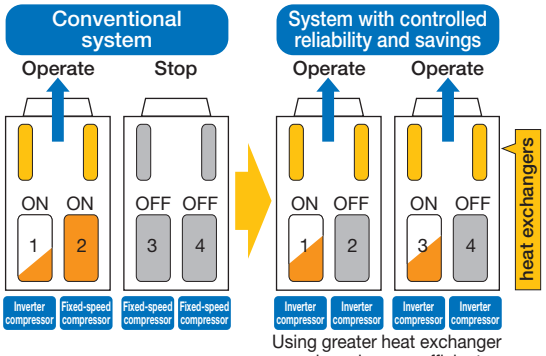
As the compressors are all inverter driven, power surges are eliminated. Over- or under-utilisation of power, typical for non-inverter compressors is eliminated, and there is no on/off power surge as the system adjusts to the demand required by the occupant or system. The use of inverter compressors reduces the risk of compressor failure, more common in standard non-inverter systems.



Sequencing of individual compressors (compressors ① and ②, compressors ③ and ④, compressors ⑤ and ⑥)

Energy savings

During operation the system determines which heat exchanger can be used most efficiently and selects the compressor to deliver the power required. Inverter systems save energy as continuous operation offers the same capacity with lower power consumption. This benefits all occupants by maintaining even room temperatures, as well as the environment by reducing energy consumption.



Using greater heat exchanger volume is more efficient

DC twin-rotary compressor advantage

This is a comparison of compressor energy efficiency by compressor rotation.

SMMS use twin-rotary inverter compressor, energy efficiency through all range of compressor rotation is more stable than scroll type compressor in characteristic.

Scroll compressor can achieve high-efficiency operation in narrow scope.

As the VRF air conditioner required a wide range of capacity, a twin-rotary compressor is well-suited for the VRF.

This technologically advanced product has received honors from public organizations in Japan.

2003
Energy Conservation Grand Prize
Winner of the
"Resource Energy Secretary's Prize"

Product: Super Module Multi
"Cooling/Heating Selection" Series

This product has been honored as an energy consuming system with superior energy and resource conservation features contributing to reduced emission of global warming gases.*
(Energy Conservation Center, Japan)

SUPER
SUPER MODULE MULTI
高効率冷媒 R410A 採用

2004
Japan Society of Refrigerating and Air Conditioning Engineers
Winner of the "Technology Award"

Product: Super Module Multi
"Cooling/Heating Selection" Series

This product was praised as a particularly technologically advanced product in terms of hardware and installation in the field of cooling and air conditioning.
(Japan Society of Refrigerating and Air Conditioning Engineers)

2005
The Institute of Electrical Engineers of Japan
Winner of the Electrical Learning Advancement Prize "Promotion Prize"

Product: Super Module Multi
"Cooling/Warming Flex" Series

This product was mentioned for its remarkable results for a proposed or demonstrated new logic, device, or system made into a product or facility using electricity-related learning or technology.
(The Institute of Electrical Engineers of Japan)

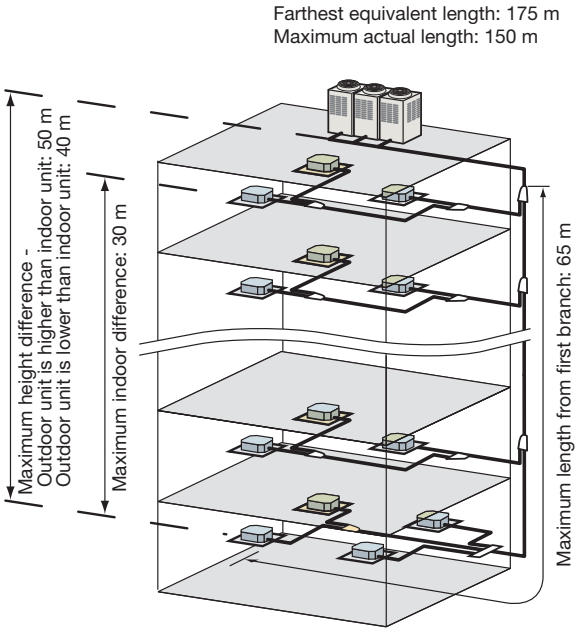
2005
Winner of "Promotion Prize"
(The Institute of Electrical Engineers of Japan)
For "the development and application of a vector control inverter"

* Energy Conservation Grand Prize Models
MMY-MAP1401H, MMY-MAP1601H, MMY-MAP2241H, MMY-MAP2801H, MMY-MAP3351
MMY-AP3841H, MMY-AP4501H, MMY-AP5041H, MMY-AP5601H, MMY-AP6151H, MMY-AP6151H1, MMY-AP6801H, MMY-AP6801H1, MMY-AP7301H, MMY-AP7851H, MMY-AP8401H, MMY-AP9001H, MMY-AP9001H1, MMY-AP9601H, MMY-AP9601H1, MMY-AP10101H, MMY-AP10101H1, MMY-AP10651H, MMY-AP11201H, MMY-AP11801H, MMY-AP12351H, MMY-AP13001H, MMY-AP13501H

Toshiba Carrier Commitment to the Environment

- Reduced level of emission of CO_2 Protects against global warming Response to energy problems	➡	Established and promoted goals for reducing the amount of energy used in all production activities 25% improvement per basic unit in total sales by 2010 taking 1990 as a reference
- Reduced level of emission of chemical substances	➡	30% reduction by 2005 taking 2000 as a reference
- Zero emission of harmful substances	➡	Achieved zero emission of harmful substances in 2003 (Defined as an overall emission level of 1% or less of harmful substances)
- Complete elimination of HCFC refrigerants Positive response to CFC problems	➡	Completely eliminated by 2004
- Reduced power consumption per product function		
- Development of environmentally harmony products		
- Utilization of lead-free solder		

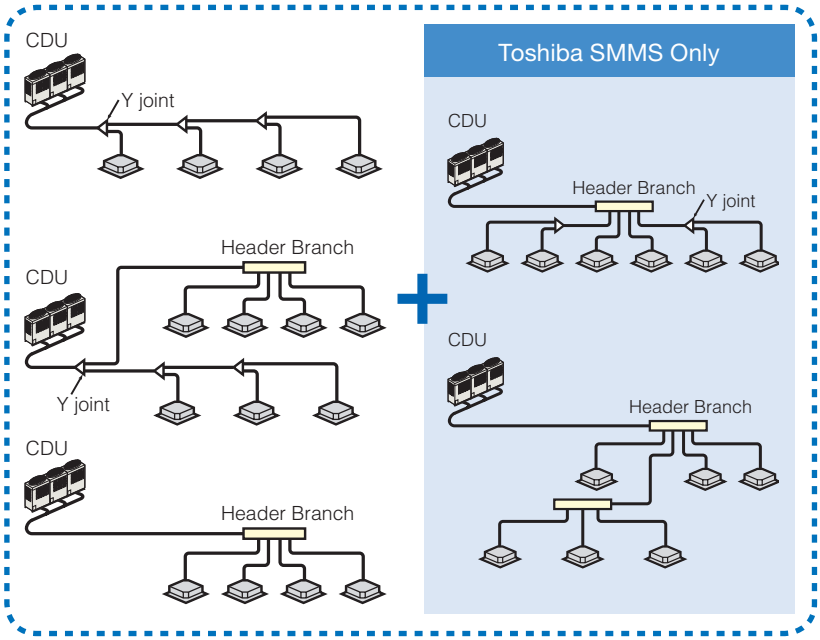
Greater Installation Flexibility



The pipe runs for the SMMS have been extended to offer greater application flexibility.

Extended piping capabilities

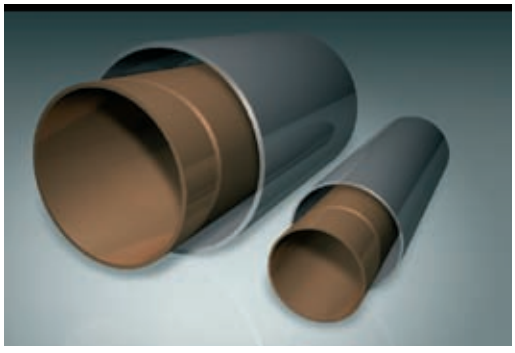
Maximum actual length	150 m
Farthest equivalent length	175 m
Extension	300 m
Maximum height difference, outdoor unit is higher than indoor unit	50 m
Maximum height difference, outdoor unit is lower than indoor unit	40 m
Maximum height difference between indoor units	30 m
Maximum length from first branch	65 m



Flexible branching

The versatility of the SMMS means that virtually any imaginable configuration of the refrigerant Y-type branches and/or header piping can be used in an application to give the shortest, most cost-effective piping installation.

The piping can be run in any direction to facilitate refurbishment work.



Previous (R407C) — ϕ gas 38.1 mm – liquid 19.1 mm

SMMS (R410A) — ϕ gas 28.6 mm – liquid 15.9 mm

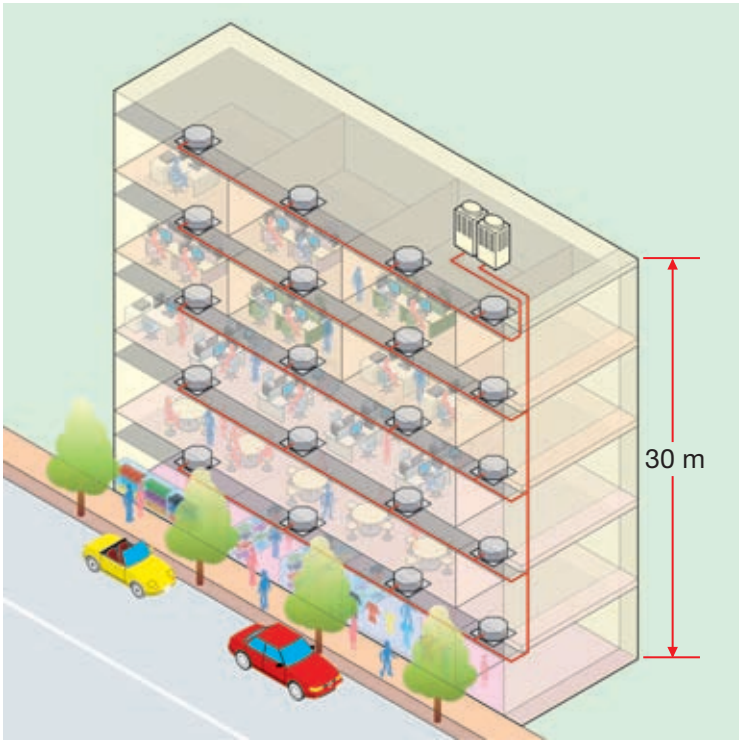
(20HP type diameters compared)

The diameter of the liquid and gas pipes is reduced due to the utilisation of R410A refrigerant (in some units). More effective use of pipe shafts is also possible, resulting in greater savings in installation costs.

World's Top Class

Up to 48 indoor unit connections

Up to 48 units can be connected at up to 135% outdoor unit capacity in a single cooling system.
- Allows smooth response to floors with small rooms and tenants who change layouts often.



Height between indoor and outdoor units
(Outdoor unit higher than indoor unit)

Wide variety in our indoor unit line-up

World-class line-up of 14 types of indoor units.

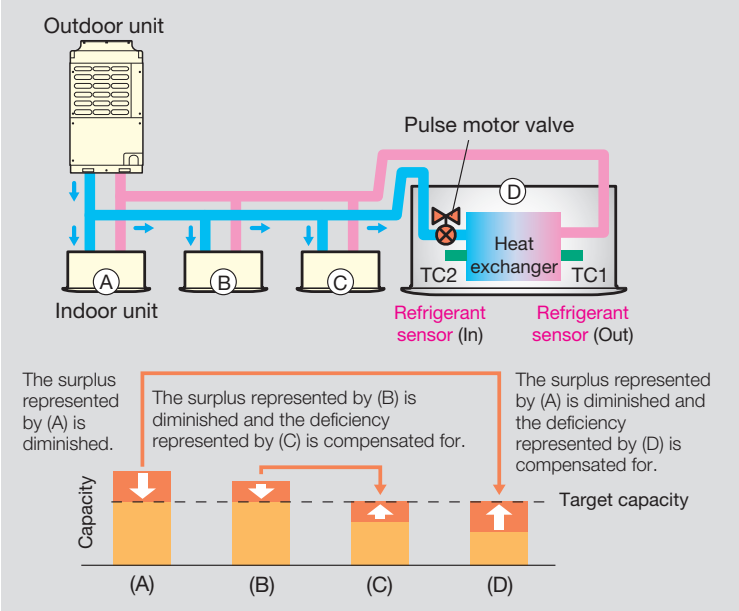
Improved Operation Control

Optimal refrigerant control

– When a multiple number of indoor units are connected, an insufficient or excess amount of refrigerant may be supplied to indoor units depending on the difference in length of the connection pipe from the outdoor unit.

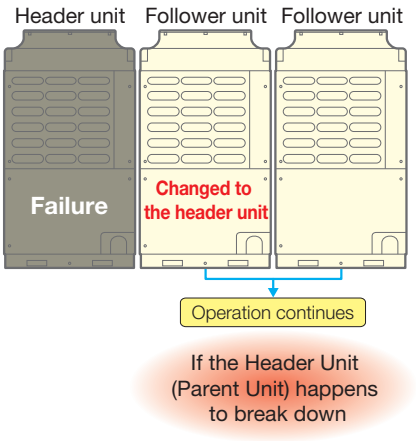
– This is caused by pressure loss and heat leaks as the refrigerant travels through the pipes, resulting in incorrect amounts of refrigerant being supplied to the indoor units.

– Optimal refrigerant control uses a multiple number of refrigerant sensors to detect the air conditioning status of each indoor unit and control the capacity (refrigerant amounts) very precisely to eliminate the variations.



Back-up function

In the unlikely event of one compressor within an outdoor unit failing, it is possible in most circumstances to operate the second compressor on its own simply by setting a switch on the interface PCB. In the case of a complete outdoor unit failure, select another outdoor unit to be the header unit. In multiple outdoor unit systems any unit can be selected to be the header unit.



Night operation (sound reduction) control

(with optional PC Board (TCB-PCMO2E) and locally supplied timer/switch)

The unit also comes with a night-time low-noise mode, which reduces operating noise at the programmed activation time.

Equivalent HP	Normal	Night	Equivalent HP
5HP	55dB	50dB	5HP
6HP	56dB	50dB	6HP
8HP	57dB	50dB	8HP
10HP	58dB	50dB	10HP
12HP	59dB	50dB	12HP

* Refer to page 61 “Application controls by the optional P.C. board of outdoor unit.”

Oil level detection system

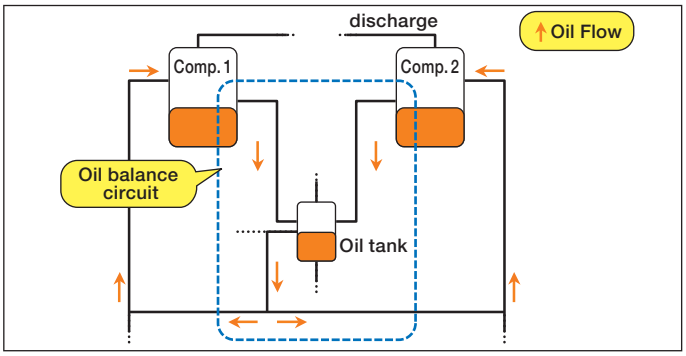
Toshiba Original

These controls realize stable oil supplies.

1) Oil balance control
2) Oil supply control
3) Oil supply control between outdoor units

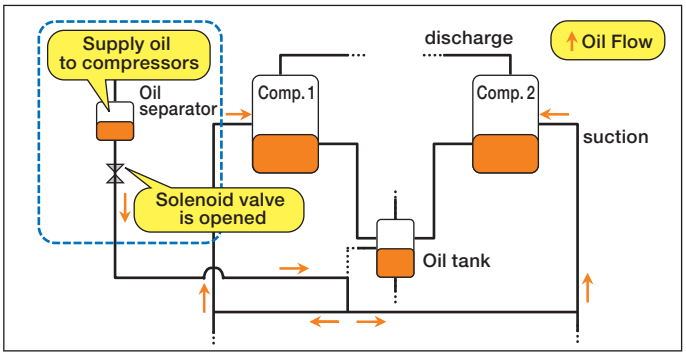
1) Oil balance control

This control equalizes amount of oil between two compressors.



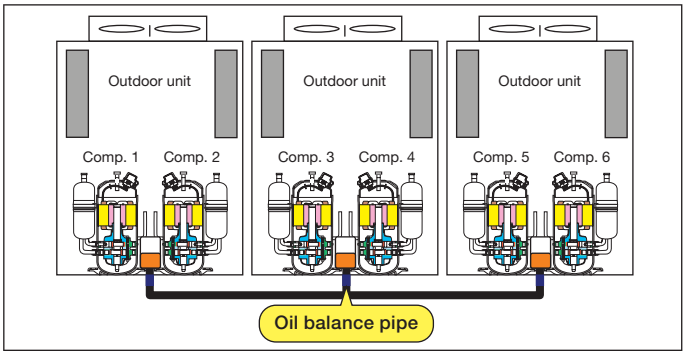
2) Oil supply control

This control accumulates oil in the oil separator. When oil is insufficient, the system supplies oil to the compressors.



3) Oil supply control between outdoor units

This control supplies oil accumulated in the oil tank of each outdoor unit to the outdoor unit with insufficient oil.



Model Line-up

Choose from a line-up of 28 outdoor units and 75 indoor units. Design with greater freedom than ever before, by linking up to 48 indoor units together in one system.

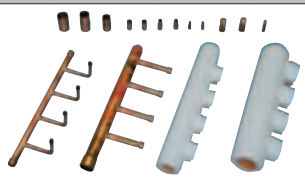
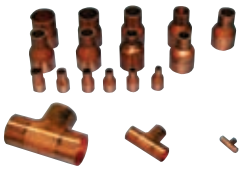
Outdoor unit line-up

HP	Cooling Capacity	Heating capacity (H/P only)	Model name			No. of units in combination	Max. No. of indoor units
			Heat pump 50 Hz	Cooling Only 50 Hz	Heat pump 60 Hz		
5HP	14.0 kW	16.0 kW	MMY-MAP0501HT8	MMY-MAP0501T8	MMY-MAP0501HT7	1	8
6HP	16.0 kW	18.0 kW	MMY-MAP0601HT8	MMY-MAP0601T8	MMY-MAP0601HT7	1	10
8HP	22.4 kW	25.0 kW	MMY-MAP0801HT8	MMY-MAP0801T8	MMY-MAP0801HT7	1	13
10HP	28.0 kW	31.5 kW	MMY-MAP1001HT8	MMY-MAP1001T8	MMY-MAP1001HT7	1	16
12HP	33.5 kW	37.5 kW	MMY-MAP1201HT8	MMY-MAP1201T8	MMY-MAP1201HT7	1	20
14HP	38.4 kW	43.0 kW	MMY-AP1401HT8	MMY-AP1401T8	MMY-AP1401HT7	2 (22.4 kW+16.0 kW)	23
16HP	45.0 kW	50.0 kW	MMY-AP1601HT8	MMY-AP1601T8	MMY-AP1601HT7	2 (22.4 kW+22.4 kW)	27
18HP	50.4 kW	56.5 kW	MMY-AP1801HT8	MMY-AP1801T8	MMY-AP1801HT7	2 (28.0 kW+22.4 kW)	30
20HP	56.0 kW	63.0 kW	MMY-AP2001HT8	MMY-AP2001T8	MMY-AP2001HT7	2 (28.0 kW+28.0 kW)	33
22HP	61.5 kW	69.0 kW	MMY-AP2201HT8	MMY-AP2201T8	MMY-AP2201HT7	3 (22.4 kW+22.4kW+16.0 kW)	37
22HP	61.5 kW	69.0 kW	MMY-AP2211HT8	MMY-AP2211T8	MMY-AP2211HT7	2 (33.5 kW+28.0 kW)	37
24HP	68.0 kW	76.5 kW	MMY-AP2401HT8	MMY-AP2401T8	MMY-AP2401HT7	3 (22.4 kW+22.4 kW+22.4 kW)	40
24HP	68.0 kW	76.5 kW	MMY-AP2411HT8	MMY-AP2411T8	MMY-AP2411HT7	2 (33.5 kW+33.5 kW)	40
26HP	73.0 kW	81.5 kW	MMY-AP2601HT8	MMY-AP2601T8	MMY-AP2601HT7	3 (28.0 kW+22.4 kW+22.4 kW)	43
28HP	78.5 kW	88.0 kW	MMY-AP2801HT8	MMY-AP2801T8	MMY-AP2801HT7	3 (28.0 kW+28.0 kW+22.4 kW)	47
30HP	84.0 kW	95.0 kW	MMY-AP3001HT8	MMY-AP3001T8	MMY-AP3001HT7	3 (28.0 kW+28.0 kW+28.0 kW)	48
32HP	90.0 kW	100.0 kW	MMY-AP3201HT8	MMY-AP3201T8	MMY-AP3201HT7	4 (22.4 kW+22.4 kW+22.4 kW+22.4 kW)	48
32HP	90.0 kW	100.0 kW	MMY-AP3211HT8	MMY-AP3211T8	MMY-AP3211HT7	3 (33.5 kW+28.0 kW+28.0 kW)	48
34HP	96.0 kW	108.0 kW	MMY-AP3401HT8	MMY-AP3401T8	MMY-AP3401HT7	4 (28.0 kW+22.4 kW+22.4 kW+22.4 kW)	48
34HP	96.0 kW	108.0 kW	MMY-AP3411HT8	MMY-AP3411T8	MMY-AP3411HT7	3 (33.5 kW+33.5 kW+28.0 kW)	48
36HP	101.0 kW	113.0 kW	MMY-AP3601HT8	MMY-AP3601T8	MMY-AP3601HT7	4 (28.0 kW+28.0 kW+22.4 kW+22.4 kW)	48
36HP	101.0 kW	113.0 kW	MMY-AP3611HT8	MMY-AP3611T8	MMY-AP3611HT7	3 (33.5 kW+33.5 kW+33.5 kW)	48
38HP	106.5 kW	119.5 kW	MMY-AP3801HT8	MMY-AP3801T8	MMY-AP3801HT7	4 (28.0 kW+28.0 kW+28.0 kW+22.4 kW)	48
40HP	112.0 kW	126.5 kW	MMY-AP4001HT8	MMY-AP4001T8	MMY-AP4001HT7	4 (28.0 kW+28.0 kW+28.0 kW+28.0 kW)	48
42HP	118.0 kW	132.0 kW	MMY-AP4201HT8	MMY-AP4201T8	MMY-AP4201HT7	4 (33.5 kW+28.0 kW+28.0 kW+28.0 kW)	48
44HP	123.5 kW	138.0 kW	MMY-AP4401HT8	MMY-AP4401T8	MMY-AP4401HT7	4 (33.5 kW+33.5 kW+28.0 kW+28.0 kW)	48
46HP	130.0 kW	145.0 kW	MMY-AP4601HT8	MMY-AP4601T8	MMY-AP4601HT7	4 (33.5 kW+33.5 kW+33.5 kW+28.0 kW)	48
48HP	135.0 kW	150.0 kW	MMY-AP4801HT8	MMY-AP4801T8	MMY-AP4801HT7	4 (33.5 kW+33.5 kW+33.5 kW+33.5 kW)	48

"-E" is appended to model number end in the European, Middle East and Africa market
"-K" is appended to model number end in the Korea market

Appearance			
			
14.0 kW–33.5 kW (5–12HP)	38.4 kW–68.0 kW (14–24HP)	61.5 kW–101.0 kW (22–36HP)	90.0 kW–135.0 kW (32–48HP)

* Consult your local dealer for model suitability in a highly saline or coastal environment.

	Y-shape branching joints				Branch headers				T-shape branching joints
Application	 (Image photo)				 (4-branch headers)				
Model	RBM-BY54E	RBM-BY104E	RBM-BY204E	RBM-BY304E	RBM-HY1043E	RBM-HY2043E	RBM-HY1083E	RBM-HY2083E	RBM-BT13E
Application	Indoor unit, capacity code total <6.4	Indoor unit, capacity code total 6.4<14.2	Indoor unit, capacity code total 14.2<25.2	Indoor unit, capacity code total 25.2	4-branch headers Max. 4 branches		8-branch headers Max. 8 branches		The 3 T-joints/pipes below form one set. - Balancing pipe (ϕ9.5) x 1 - Liquid piping (corresponds to diameters ϕ9.5–ϕ22.2) x 1 - Gas piping (corresponds to diameters ϕ15.9–ϕ38.1) x 1
					Indoor unit, capacity code total <14.2	Indoor unit, capacity code total 14.2<25.2	Indoor unit, capacity code total <14.2	Indoor unit, capacity code total 14.2<25.2	

* Capacity codes are shown as HP equivalents.

Equivalent HP				5HP	6HP	8HP	10HP	12HP	14HP		16HP		18HP		20HP	
Set model name	Cooling Only		MMY-	—	—	—	—	—	AP1401T8		AP1601T8		AP1801T8		AP2001T8	
	Heat Pump		MMY-	—	—	—	—	—	AP1401HT8		AP1601HT8		AP1801HT8		AP2001HT8	
Outdoor unit type				Inverter												
Outdoor unit model	Cooling Only		MMY-	MAP0501T8	MAP0601T8	MAP0801T8	MAP1001T8	MAP1201T8	MAP0801T8	MAP0601T8	MAP0801T8	MAP0801T8	MAP1001T8	MAP0801T8	MAP1001T8	MAP1001T8
	Heat Pump		MMY-	MAP0501HT8	MAP0601HT8	MAP0801HT8	MAP1001HT8	MAP1201HT8	MAP0801HT8	MAP0601HT8	MAP0801HT8	MAP0801HT8	MAP1001HT8	MAP0801HT8	MAP1001HT8	MAP1001HT8
Rated cooling capacity (*1)			(kW)	14.0	16.0	22.4	28.0	33.5	38.4		45.0		50.4		56.0	
Standard heating capacity (*1)			(kW)	16.0	18.0	25.0	31.5	37.5	43.0		50.0		56.5		63.0	
Power supply (*2)				3-phase 50 Hz 400 V (380–415 V)												
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	3.65	4.64	5.67	7.68	11.92	11.12		12.20		14.16		16.17	
		EER (Energy Efficiency Ratio)	(kW/kW)	3.84	3.45	3.95	3.65	2.81	3.45		3.69		3.56		3.46	
	Heating	Power consumption	(kW)	3.84	4.56	5.88	7.97	10.19	10.96		12.28		14.37		16.46	
		EER (Energy Efficiency Ratio)	(kW/kW)	4.17	3.95	4.25	3.95	3.68	3.92		4.07		3.93		3.83	
External dimensions			(mm)	Height 1,800 x Width 990 x Depth 750 (Per outdoor unit)												
Total weight	Cooling Only		(kg)	227		256			256	227	256	256	256	256	256	256
	Heat Pump		(kg)	228		258			258	228	258	258	258	258	258	258
Compressor	Motor output		(kW)	1.1 x 2	1.4 x 2	2.3 x 2	3.1 x 2	4.2 x 2	2.3 x 2	1.4 x 2	2.3 x 2	2.3 x 2	3.1 x 2	2.3 x 2	3.1 x 2	3.1 x 2
Fan unit	Motor output		(kW)	0.6 (Per outdoor unit)												
	Air volume		(m^3/h)	9,000		9,900	10,500		9,900	9,000	9,900		10,500	9,900	10,500	
Refrigerant pipe spec. (*3)	Connecting port dia.	Gas side	(mm)	ϕ15.9	ϕ19.1	ϕ22.2		ϕ28.6	ϕ22.2	ϕ19.1	ϕ22.2					
		Liquid side	(mm)	ϕ9.5		ϕ12.7			ϕ12.7	ϕ9.5	ϕ12.7					
		Balance side	(mm)	ϕ9.5												
	Max. equivalent length		(m)	175												
	Max. actual length		(m)	150 (However, if equivalent bend length is longer, equivalent length is the standard.)												
	Max. total pipe length (Actual length)		(m)	300												
	Max. height difference		(m)	Outdoor unit is higher than indoor unit: 50												
				Outdoor unit is lower than indoor unit: 40												
Max. No. of connected indoor units				8	10	13	16	20	23		27		30		33	
Sound pressure level (dB(A))				55.0	56.0	57.0	58.0	59.0	59.5		60.0		60.5		61.0	

Equivalent HP				22HP					24HP				
Set model name	Cooling Only		MMY-	AP2201T8			AP2211T8		AP2401T8			AP2411T8	
	Heat Pump		MMY-	AP2201HT8			AP2211HT8		AP2401HT8			AP2411HT8	
Outdoor unit type				Inverter									
Outdoor unit model	Cooling Only		MMY-	MAP0801T8	MAP0801T8	MAP0601T8	MAP1201T8	MAP1001T8	MAP0801T8	MAP0801T8	MAP0801T8	MAP1201T8	MAP1201T8
	Heat Pump		MMY-	MAP0801HT8	MAP0801HT8	MAP0601HT8	MAP1201HT8	MAP1001HT8	MAP0801HT8	MAP0801HT8	MAP0801HT8	MAP1201HT8	MAP1201HT8
Rated cooling capacity (*1)			(kW)	61.5					68.0				
Standard heating capacity (*1)			(kW)	69.0					76.5				
Power supply (*2)				3-phase 50 Hz 400 V (380–415 V)									
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	17.39			20.41		18.44			25.02	
		EER (Energy Efficiency Ratio)	(kW/kW)	3.54			3.01		3.69			2.72	
	Heating	Power consumption	(kW)	17.35			18.68		18.79			21.32	
		EER (Energy Efficiency Ratio)	(kW/kW)	3.98			3.69		4.07			3.59	
External dimensions			(mm)	Height 1,800 x Width 990 x Depth 750 (Per outdoor unit)									
Total weight	Cooling Only		(kg)	256	256	227	256	256	256	256	256	256	256
	Heat Pump		(kg)	258	258	228	258	258	258	258	258	258	258
Compressor	Motor output		(kW)	2.3 x 2	2.3 x 2	1.4 x 2	4.2 x 2	3.1 x 2	2.3 x 2	2.3 x 2	2.3 x 2	4.2 x 2	4.2 x 2
Fan unit	Motor output		(kW)	0.6 (Per outdoor unit)									
	Air volume		(m^3/h)	9,900		9,000	10,500		9,900			10.500	
Refrigerant pipe spec. (*3)	Connecting port dia.	Gas side	(mm)	ϕ22.2		ϕ19.1	ϕ28.6		ϕ22.2			ϕ28.6	
		Liquid side	(mm)	ϕ12.7		ϕ9.5	ϕ12.7						
		Balance side	(mm)	ϕ9.5									
	Max. equivalent length		(m)	175									
	Max. actual length		(m)	150 (However, if equivalent bend length is longer, equivalent length is the standard.)									
	Max. total pipe length (Actual length)		(m)	300									
	Max. height difference		(m)	Outdoor unit is higher than indoor unit: 50									
				Outdoor unit is lower than indoor unit: 40									
Max. No. of connected indoor units				37					40				
Sound pressure level (dB(A))				61.5					62.0				

* Figures in tables above are of 50 Hz units. See the data book for figures of 60Hz units.

*1: Rated conditions
Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB
Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB
The standard piping means that main pipe length is 5 m, branching pipe length 2.5 m of branch piping connected with a 0 meter height.
*2: The source voltage must not fluctuate more than ±10%.
*3: The maximum total piping length indicates the sum of one-way piping lengths on the liquid side or gas side.

Equivalent HP				26HP			28HP			30HP			32HP						
Set model name	Cooling Only		MMY-	AP2601T8			AP2801T8			AP3001T8			AP3201T8				AP3211T8		
	Heat Pump		MMY-	AP2601HT8			AP2801HT8			AP3001HT8			AP3201HT8				AP3211HT8		
Outdoor unit type				Inverter															
Outdoor unit model	Cooling Only		MMY-	MAP1001T8	MAP0801T8	MAP0801T8	MAP1001T8	MAP1001T8	MAP0801T8	MAP1001T8	MAP1001T8	MAP1001T8	MAP0801T8	MAP0801T8	MAP0801T8	MAP0801T8	MAP1201T8	MAP1001T8	MAP1001T8
	Heat Pump		MMY-	MAP1001HT8	MAP0801HT8	MAP0801HT8	MAP1001HT8	MAP1001HT8	MAP0801HT8	MAP1001HT8	MAP1001HT8	MAP1001HT8	MAP0801HT8	MAP0801HT8	MAP0801HT8	MAP0801HT8	MAP1201HT8	MAP1001HT8	MAP1001HT8
Rated cooling capacity (*1)			(kW)	73.0			78.5			84.0			90.0						
Standard heating capacity (*1)			(kW)	81.5			88.0			95.0			100.0						
Power supply (*2)				3-phase 50 Hz 400 V (380–415 V)															
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	20.29			22.27			24.26			24.41				28.65		
		EER (Energy Efficiency Ratio)	(kW/kW)	3.60			3.52			3.46			3.69				3.14		
	Heating	Power consumption	(kW)	20.51			22.60			24.82			24.56				26.78		
		EER (Energy Efficiency Ratio)	(kW/kW)	3.97			3.89			3.83			4.07				3.73		
External dimensions			(mm)	Height 1,800 x Width 990 x Depth 750 (Per outdoor unit)															
Total weight		Cooling Only	(kg)	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256
		Heat Pump	(kg)	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258
Compressor	Motor output		(kW)	2.3 x 2	2.3 x 2	2.3 x 2	3.1 x 2	3.1 x 2	2.3 x 2	3.1 x 2	3.1 x 2	3.1 x 2	2.3 x 2	2.3 x 2	2.3 x 2	2.3 x 2	4.2 x 2	3.1 x 2	3.1 x 2
Fan unit	Motor output		(kW)	0.6 (Per outdoor unit)															
	Air volume		(m^3/h)	10,500	9,900		10,500		9,900	10,500			9,900				10,500		
Refrigerant pipe spec. (*3)	Connecting port dia.	Gas side	(mm)	ϕ22.2													ϕ28.6	ϕ22.2	
		Liquid side	(mm)	ϕ12.7															
		Balance side	(mm)	ϕ9.5															
	Max. equivalent length		(m)	175															
	Max. actual length		(m)	150 (However, if equivalent bend length is longer, equivalent length is the standard.)															
	Max. total pipe length (Actual length)		(m)	300															
	Max. height difference		(m)	Outdoor unit is higher than indoor unit: 50															
				Outdoor unit is lower than indoor unit: 40															
Max. No. of connected indoor units				43			47			48									
Sound pressure level (dB(A))				62.0			62.5			63.0									

Equivalent HP				34HP							36HP						
Set model name	Cooling Only		MMY-	AP3401T8				AP3411T8			AP3601T8				AP3611T8		
	Heat Pump		MMY-	AP3401HT8				AP3411HT8			AP3601HT8				AP3611HT8		
Outdoor unit type				Inverter													
Outdoor unit model	Cooling Only		MMY-	MAP1001T8	MAP0801T8	MAP0801T8	MAP0801T8	MAP1201T8	MAP1201T8	MAP1001T8	MAP1001T8	MAP1001T8	MAP0801T8	MAP0801T8	MAP1201T8	MAP1201T8	MAP1201T8
	Heat Pump		MMY-	MAP1001HT8	MAP0801HT8	MAP0801HT8	MAP0801HT8	MAP1201HT8	MAP1201HT8	MAP1001HT8	MAP1001HT8	MAP1001HT8	MAP0801HT8	MAP0801HT8	MAP1201HT8	MAP1201HT8	MAP1201HT8
Rated cooling capacity (*1)			(kW)	96.0							101.0						
Standard heating capacity (*1)			(kW)	108.0							113.0						
Power supply (*2)				3-phase 50 Hz 400 V (380–415 V)													
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	26.53				33.08			28.38				37.16		
		EER (Energy Efficiency Ratio)	(kW/kW)	3.62				2.90			3.56				2.72		
	Heating	Power consumption	(kW)	27.03				29.54			28.74				31.49		
		EER (Energy Efficiency Ratio)	(kW/kW)	4.00				3.66			3.93				3.59		
External dimensions			(mm)	Height 1,800 x Width 990 x Depth 750 (Per outdoor unit)													
Total weight		Cooling Only	(kg)	256	256	256	256	256	256	256	256	256	256	256	256	256	256
		Heat Pump	(kg)	258	258	258	258	258	258	258	258	258	258	258	258	258	258
Compressor	Motor output		(kW)	3.1 x 2	2.3 x 2	2.3 x 2	2.3 x 2	4.2 x 2	4.2 x 2	3.1 x 2	3.1 x 2	3.1 x 2	2.3 x 2	2.3 x 2	4.2 x 2	4.2 x 2	4.2 x 2
Fan unit	Motor output		(kW)	0.6 (Per outdoor unit)													
	Air volume		(m^3/h)	10,500	9,900			10,500			10,500	9,900			10,500		
Refrigerant pipe spec. (*3)	Connecting port dia.	Gas side	(mm)	ϕ22.2				ϕ28.6		ϕ22.2					ϕ28.6		
		Liquid side	(mm)	ϕ12.7													
		Balance side	(mm)	ϕ9.5													
	Max. equivalent length		(m)	175													
	Max. actual length		(m)	150 (However, if equivalent bend length is longer, equivalent length is the standard.)													
	Max. total pipe length (Actual length)		(m)	300													
	Max. height difference		(m)	Outdoor unit is higher than indoor unit: 50													
				Outdoor unit is lower than indoor unit: 40													
Max. No. of connected indoor units				48													
Sound pressure level (dB(A))				63.5											64.0		

* Figures in tables above are of 50 Hz units. See the data book for figures of 60Hz units.

*1: Rated conditions
Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB
Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB
The standard piping means that main pipe length is 5 m, branching pipe length 2.5 m of branch piping connected with a 0 meter height.
*2: The source voltage must not fluctuate more than ±10%.
*3: The maximum total piping length indicates the sum of one-way piping lengths on the liquid side or gas side.

Equivalent HP				38HP				40HP				42HP			
Set model name	Cooling Only		MMY-	AP3801T8				AP4001T8				AP4201T8			
	Heat Pump		MMY-	AP3801HT8				AP4001HT8				AP4201HT8			
Outdoor unit type				Inverter											
Outdoor unit model	Cooling Only		MMY-	MAP1001T8	MAP1001T8	MAP1001T8	MAP0801T8	MAP1001T8	MAP1001T8	MAP1001T8	MAP1001T8	MAP1201T8	MAP1001T8	MAP1001T8	MAP1001T8
	Heat Pump		MMY-	MAP1001HT8	MAP1001HT8	MAP1001HT8	MAP0801HT8	MAP1001HT8	MAP1001HT8	MAP1001HT8	MAP1001HT8	MAP1201HT8	MAP1001HT8	MAP1001HT8	MAP1001HT8
Rated cooling capacity (*1)			(kW)	106.5				112.0				118.0			
Standard heating capacity (*1)			(kW)	119.5				126.5				132.0			
Power supply (*2)				3-phase 50 Hz 400 V (380–415 V)											
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	30.36				32.34				36.74			
		EER (Energy Efficiency Ratio)	(kW/kW)	3.51				3.46				3.21			
	Heating	Power consumption	(kW)	30.83				33.05				35.14			
		EER (Energy Efficiency Ratio)	(kW/kW)	3.88				3.83				3.76			
External dimensions			(mm)	Height 1,800 x Width 990 x Depth 750 (Per outdoor unit)											
Total weight		Cooling Only	(kg)	256	256	256	256	256	256	256	256	256	256	256	256
		Heat Pump	(kg)	258	258	258	258	258	258	258	258	258	258	258	258
Compressor	Motor output		(kW)	3.1 x 2	3.1 x 2	3.1 x 2	2.3 x 2	3.1 x 2	3.1 x 2	3.1 x 2	3.1 x 2	4.2 x 2	3.1 x 2	3.1 x 2	3.1 x 2
Fan unit	Motor output		(kW)	0.6 (Per outdoor unit)											
	Air volume		(m^3/h)	10,500			9,900	10,500							
Refrigerant pipe spec. (*3)	Connecting port dia.	Gas side	(mm)	ϕ22.2								ϕ28.6	ϕ22.2		
		Liquid side	(mm)	ϕ12.7											
		Balance side	(mm)	ϕ9.5											
	Max. equivalent length		(m)	175											
	Max. actual length		(m)	150 (However, if equivalent bend length is longer, equivalent length is the standard.)											
	Max. total pipe length (Actual length)		(m)	300											
	Max. height difference		(m)	Outdoor unit is higher than indoor unit: 50											
				Outdoor unit is lower than indoor unit: 40											
Max. No. of connected indoor units				48											
Sound pressure level (dB(A))				64.0								64.5			

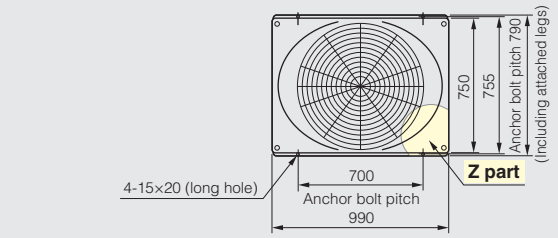
Equivalent HP				44HP				46HP				48HP			
Set model name	Cooling Only		MMY-	AP4401T8				AP4601T8				AP4801T8			
	Heat Pump		MMY-	AP4401HT8				AP4601HT8				AP4801HT8			
Outdoor unit type				Inverter											
Outdoor unit model	Cooling Only		MMY-	MAP1201T8	MAP1201T8	MAP1001T8	MAP1001T8	MAP1201T8	MAP1201T8	MAP1201T8	MAP1001T8	MAP1201T8	MAP1201T8	MAP1201T8	MAP1201T8
	Heat Pump		MMY-	MAP1201HT8	MAP1201HT8	MAP1001HT8	MAP1001HT8	MAP1201HT8	MAP1201HT8	MAP1201HT8	MAP1001HT8	MAP1201HT8	MAP1201HT8	MAP1201HT8	MAP1201HT8
Rated cooling capacity (*1)			(kW)	123.5				130.0				135.0			
Standard heating capacity (*1)			(kW)	138.5				145.0				150.0			
Power supply (*2)				3-phase 50 Hz 400 V (380–415 V)											
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	40.99				45.59				49.67			
		EER (Energy Efficiency Ratio)	(kW/kW)	3.01				2.85				2.72			
	Heating	Power consumption	(kW)	37.36				39.85				41.80			
		EER (Energy Efficiency Ratio)	(kW/kW)	3.69				3.64				3.59			
External dimensions			(mm)	Height 1,800 x Width 990 x Depth 750 (Per outdoor unit)											
Total weight		Cooling Only	(kg)	256	256	256	256	256	256	256	256	256	256	256	256
		Heat Pump	(kg)	258	258	258	258	258	258	258	258	258	258	258	258
Compressor	Motor output		(kW)	4.2 x 2	4.2 x 2	3.1 x 2	3.1 x 2	4.2 x 2	4.2 x 2	4.2 x 2	3.1 x 2	4.2 x 2	4.2 x 2	4.2 x 2	4.2 x 2
Fan unit	Motor output		(kW)	0.6 (Per outdoor unit)											
	Air volume		(m^3/h)	10,500											
Refrigerant pipe spec. (*3)	Connecting port dia.	Gas side	(mm)	ϕ28.6		ϕ22.2		ϕ28.6			ϕ22.2	ϕ28.6			
		Liquid side	(mm)	ϕ12.7											
		Balance side	(mm)	ϕ9.5											
	Max. equivalent length		(m)	175				160							
	Max. actual length		(m)	150 (However, if equivalent bend length is longer, equivalent length is the standard.)				135 (However, if equivalent bend length is longer, equivalent length is the standard.)							
	Max. total pipe length (Actual length)		(m)	300											
	Max. height difference		(m)	Outdoor unit is higher than indoor unit: 50											
				Outdoor unit is lower than indoor unit: 40											
Max. No. of connected indoor units				48											
Sound pressure level (dB(A))				64.5				65.0							

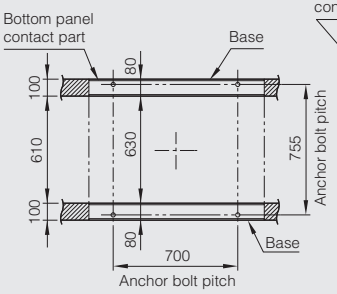
* Figures in tables above are of 50 Hz units. See the data book for figures of 60Hz units.

*1: Rated conditions
Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB
Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB
The standard piping means that main pipe length is 5 m, branching pipe length 2.5 m of branch piping connected with a 0 meter height.
*2: The source voltage must not fluctuate more than ±10%.
*3: The maximum total piping length indicates the sum of one-way piping lengths on the liquid side or gas side.

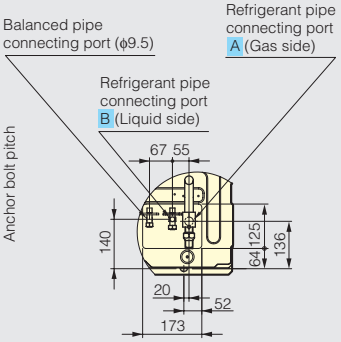
External view of outdoor unit

Basic Outdoor Unit

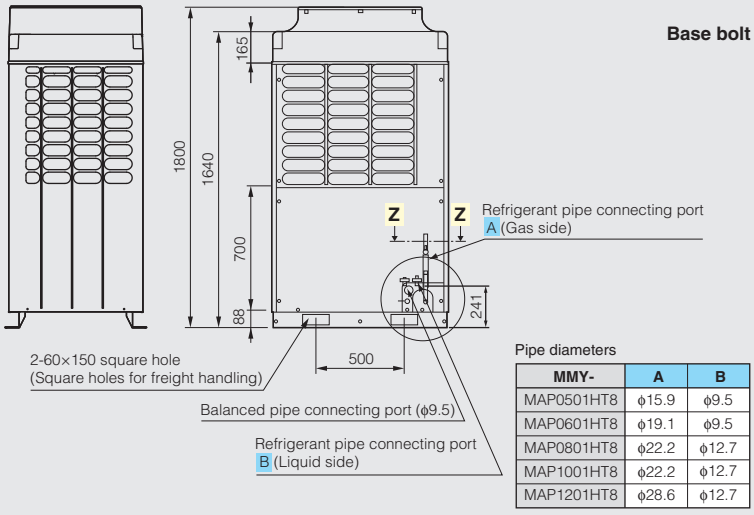




Base bolt position



Detail of hole for routing bottom pipe (flat view) Z view

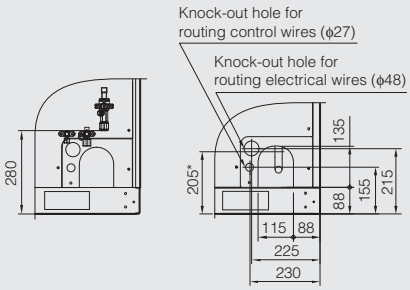


Pipe diameters

MMY-	A	B
MAP0501HT8	ϕ15.9	ϕ9.5
MAP0601HT8	ϕ19.1	ϕ9.5
MAP0801HT8	ϕ22.2	ϕ12.7
MAP1001HT8	ϕ22.2	ϕ12.7
MAP1201HT8	ϕ28.6	ϕ12.7

SMMS (Heat pump)	MMY-	MAP0501HT8	MAP0601HT8	MAP0801HT8	MAP1001HT8	MAP1201HT8

MAP (0501HT8 · 0601HT8) (0801HT8 · 1001HT8 · 1201HT8)

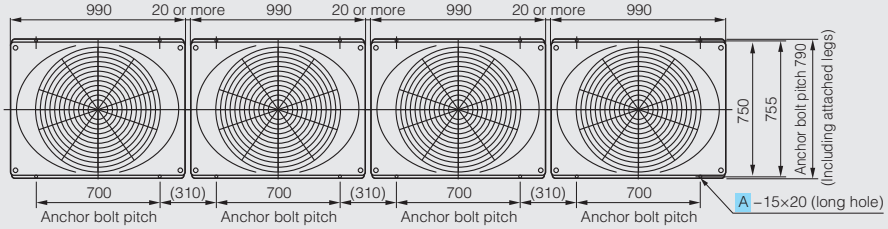


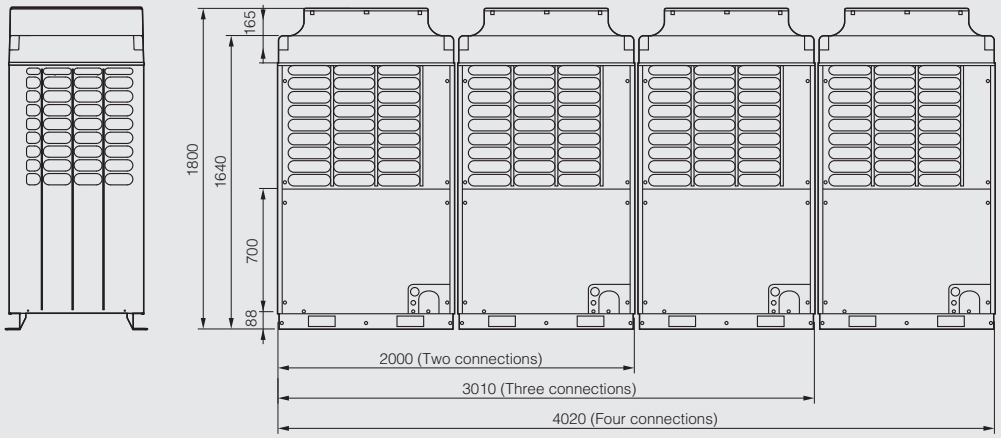
*: Cut position for L-shaped pipe when connecting gas pipes

Piping front view / Hole details for wiring

(Unit: mm)

Connecting 2 to 4 Units





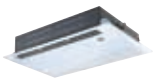
	A
Two connections	8
Three connections	12
Four connections	16

For piping and wiring parts, see the basic outdoor unit.
Install outdoor units in order of capacity.

SMMS (Heat pump)										
Two connections	MMY-	AP1401HT8	AP1601HT8	AP1801HT8	AP2001HT8	AP2211HT8	AP2411HT8			
Three connections	MMY-	AP2201HT8	AP2401HT8	AP2601HT8	AP2801HT8	AP3001HT8	AP3211HT8	AP3411HT8	AP3611HT8	
Four connections	MMY-	AP3201HT8	AP3401HT8	AP3601HT8	AP3801HT8	AP4001HT8	AP4201HT8	AP4401HT8	AP4601HT8	AP4801HT8

(Unit: mm)

Indoor unit range

	4-way air discharge cassette type	Compact 4-way cassette (600 × 600) type	2-way air discharge cassette type	1-way air discharge cassette type	Concealed duct type	Concealed duct high static pressure type	Slim duct type*2
Cooling capacity (HP equivalent)							
007 type 2.2 kW (0.8HP)		MMU-AP0071MH	MMU-AP0071WH	MMU-AP0071YH	MMD-AP0071BH		MMD-AP0071SPH
009 type 2.8 kW (1HP)	MMU-AP0092H	MMU-AP0091MH	MMU-AP0091WH	MMU-AP0091YH	MMD-AP0091BH		MMD-AP0091SPH
012 type 3.6 kW (1.25HP)	MMU-AP0122H	MMU-AP0121MH	MMU-AP0121WH	MMU-AP0121YH	MMD-AP0121BH		MMD-AP0121SPH
015 type 4.5 kW (1.7HP)	MMU-AP0152H	MMU-AP0151MH	MMU-AP0151WH	MMU-AP0152SH	MMD-AP0151BH		MMD-AP0151SPH
018 type 5.6 kW (2HP)	MMU-AP0182H	MMU-AP0181MH	MMU-AP0181WH	MMU-AP0182SH	MMD-AP0181BH	MMD-AP0181H	MMD-AP0181SPH
024 type 7.1 kW (2.5HP)	MMU-AP0242H		MMU-AP0241WH	MMU-AP0242SH	MMD-AP0241BH	MMD-AP0241H	
027 type 8.0 kW (3HP)	MMU-AP0272H		MMU-AP0271WH		MMD-AP0271BH	MMD-AP0271H	
030 type 9.0 kW (3.2HP)	MMU-AP0302H		MMU-AP0301WH		MMD-AP0301BH		
036 type 11.2 kW (4HP)	MMU-AP0362H				MMD-AP0361BH	MMD-AP0361H	
048 type 14.0 kW (5HP)	MMU-AP0482H		MMU-AP0481WH*1		MMD-AP0481BH	MMD-AP0481H	
056 type 16.0 kW (6HP)	MMU-AP0562H				MMD-AP0561BH		
072 type 22.4 kW (8HP)						MMD-AP0721H	
096 type 28.0 kW (10HP)						MMD-AP0961H	

	Ceiling type	High wall type 1 series	High wall type 2 series*3	Floor standing concealed type	Floor standing cabinet type	Floor standing type	Fresh air intake indoor unit type
Cooling capacity (HP equivalent)							
007 type 2.2 kW (0.8HP)		MMK-AP0071H	MMK-AP0072H	MML-AP0071BH	MML-AP0071H		
009 type 2.8 kW (1HP)		MMK-AP0091H	MMK-AP0092H	MML-AP0091BH	MML-AP0091H		
012 type 3.6 kW (1.25HP)		MMK-AP0121H	MMK-AP0122H	MML-AP0121BH	MML-AP0121H		
015 type 4.5 kW (1.7HP)	MMC-AP0151H	MMK-AP0151H		MML-AP0151BH	MML-AP0151H	MMF-AP0151H	
018 type 5.6 kW (2HP)	MMC-AP0181H	MMK-AP0181H		MML-AP0181BH	MML-AP0181H	MMF-AP0181H	
024 type 7.1 kW (2.5HP)	MMC-AP0241H	MMK-AP0241H		MML-AP0241BH	MML-AP0241H	MMF-AP0241H	
027 type 8.0 kW (3HP)	MMC-AP0271H					MMF-AP0271H	
030 type 9.0 kW (3.2HP)							
036 type 11.2 kW (4HP)	MMC-AP0361H					MMF-AP0361H	
048 type 14.0 kW (5HP)	MMC-AP0481H					MMF-AP0481H	MMD-AP0481HFE
056 type 16.0 kW (6HP)						MMF-AP0561H	
072 type 22.4 kW (8HP)							MMD-AP0721HFE
096 type 28.0 kW (10HP)							MMD-AP0961HFE

Coming soon

	New High wall type 3 series
Appearance	
Model number	To be decided

"-K" is appended to model number end in the Korea market

*1 China market only
*2 (SPH-C) China market only, (SH-C) Drain pump connection not possible/China market only
*3 European market only

4-way Air Discharge Cassette Type

NEW

Sales scheduled to start in October 2008

Model

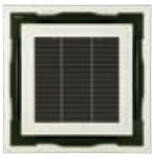
MMU-AP***2H

Panels

RBC-U31PG(W)-E
RBC-U31PGS(W)-E*
RBC-U31PGS(WS)-E*

RBC-U31PG(W)-E

RBC-U31PGS(W)-E*

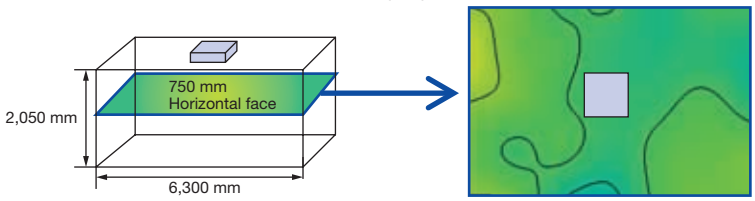


RBC-U31PGS(WS)-E*

* European market only

Temperature conditioning

MMU-AP0182H/RBC-U31PG(W)-E



* Air flows in all directions.

Individual louvre control

The angles of each of the four louvres can be set individually
⇒ Enables airflow to be adapted to user preferences.

Three louvre swing patterns

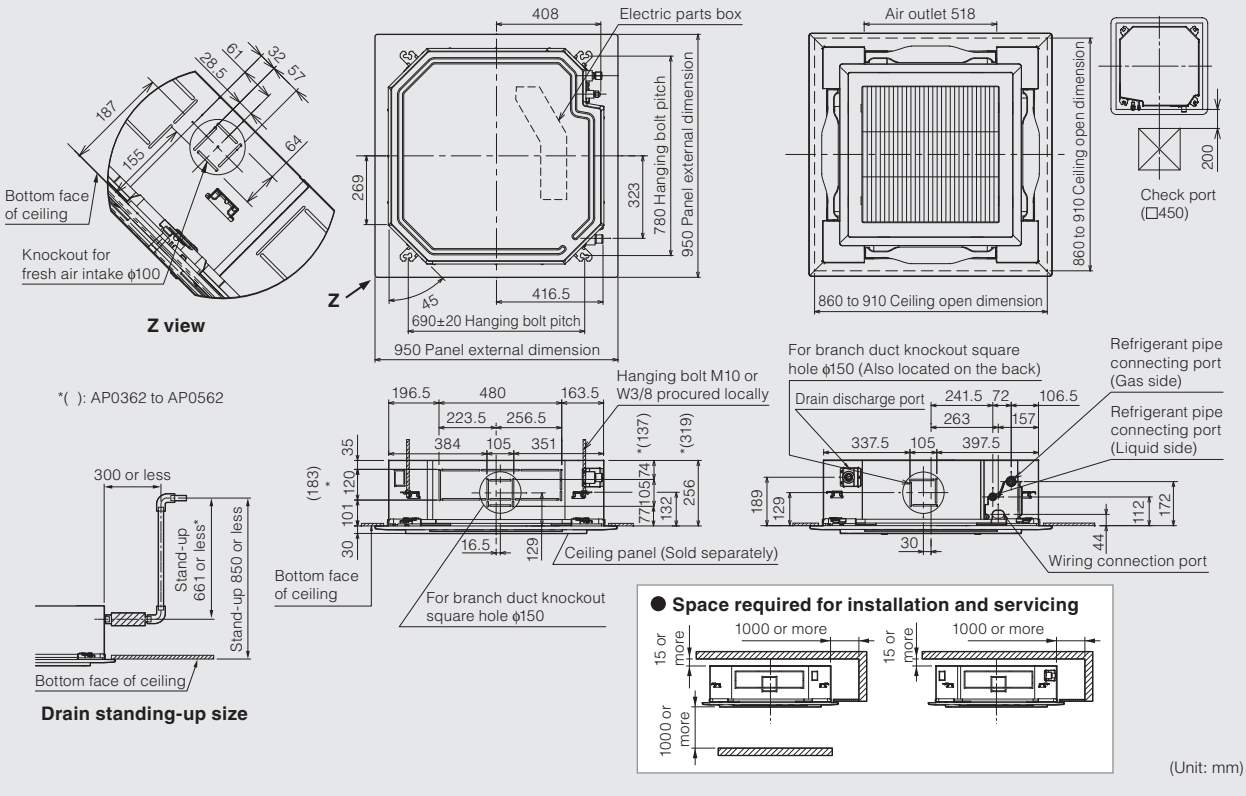
(1) Standard swing
(2) Diagonally opposite swing
(3) Turn-around swing

Note: RBC-AMT32E, RBC-AMS41E only

Easy installation

The panel is attached using the bolt already installed on the indoor unit.

MMU-AP0092H to MMU-AP0562H



(Unit: mm)

* The figure shows the RBC-U31PG(W)-E panel.

4-way Air Discharge Cassette Type

Model name		MMU-	AP0092H	AP0122H	AP0152H	AP0182H	AP0242H	AP0272H	AP0302H	AP0362H	AP0482H	AP0562H
Cooling/Heating capacity*1		(kW)	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0	8.0/9.0	9.0/10.0	11.2/12.5	14.0/16.0	16.0/18.0
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)									
	Power consumption 50 Hz/60 Hz	(kW)	0.021/0.021		0.023/0.023	0.026/0.026	0.036/0.036		0.043/0.043	0.088/0.088	0.112/0.112	0.112/0.112
Appearance (Ceiling panel)		Model	RBC-U31PG(W)-E/RBC-U31PGS(W)-E*/RBC-U31PGS(WS)-E*									
External dimensions: Main unit (Ceiling panel)*	Height	(mm)	256 (30)*							319 (30)*		
	Width	(mm)	840 (950)*									
	Depth	(mm)	840 (950)*									
Total weight: Main unit (Ceiling panel)*		(kg)	18 (4)*		20 (4)*					25 (4)*		
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	800/730/680		930/830/790	1050/920/800	1290/920/800		1320/1110/850	1970/1430/1070	2130/1430/1130	2130/1520/1230
	Motor output	(W)	14				20			68	72	
Connecting pipe	Gas side	(mm)	ϕ9.5		ϕ12.7		ϕ15.9					
	Liquid side	(mm)	ϕ6.4				ϕ9.5					
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)									
Sound pressure level*2 (High/Mid/Low)		(dB(A))	30/29/27		31/29/27	32/29/27	35/31/28		38/33/30	43/38/32	46/38/33	46/40/33

* Preliminary

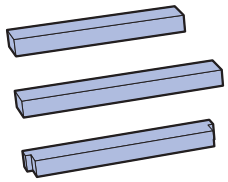
* Figures in parentheses are for ceiling panels.

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.

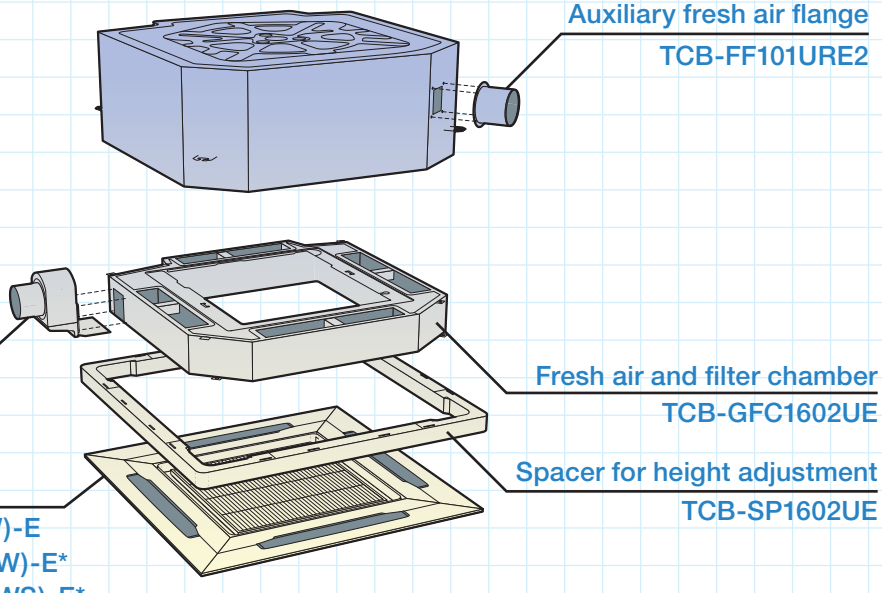
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Options

Air discharge direction kit



TCB-BC1602UE



Auxiliary fresh air flange
TCB-FF101URE2

Fresh air inlet box
TCB-GB1602UE

Fresh air and filter chamber
TCB-GFC1602UE

Spacer for height adjustment
TCB-SP1602UE

Ceiling panel
RBC-U31PG(W)-E
RBC-U31PGS(W)-E*
RBC-U31PGS(WS)-E*

* European market only

Compact 4-way Cassette (600 × 600) Type

Model

MMU-AP***1MH

Panel

RBC-UM11PG(W)-E

* Wireless remote controllers with TCB-AX21E2 stand alone receiver can be connected.

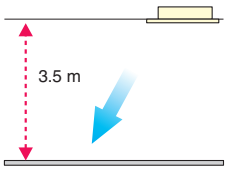
Perfect for grid system ceiling

- This compact unit (575 × 575 mm) fits perfectly into ceilings and matches standard architectural modules, without the need to cut ceiling tiles.
- The flaps fold tightly against the ceiling when operation stops so that the ceiling is affected only slightly even if air conditioning is installed.

Designed for simple & easy installation and maintenance

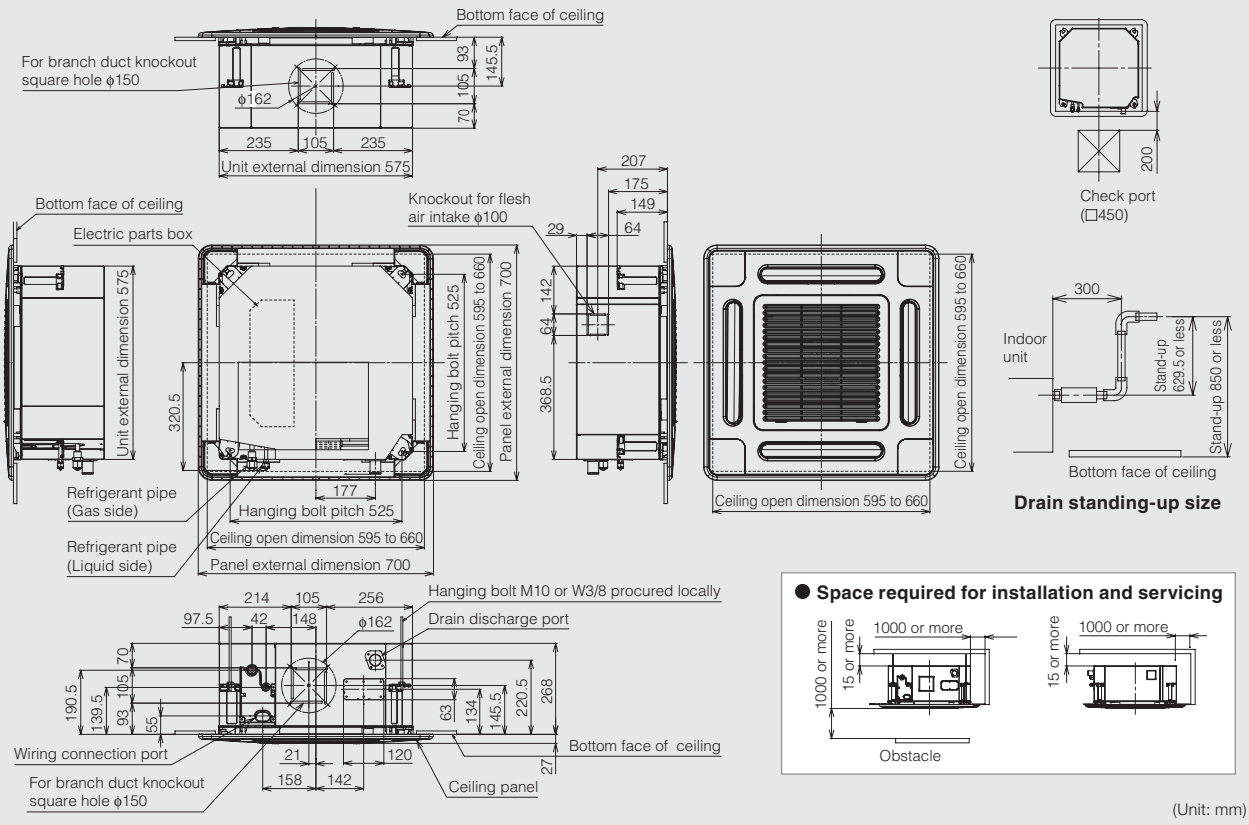
- The slim design is only 268 mm in height even when an electrical box is located inside the unit.
- Easy installation is also possible using the panel adjust pocket. Use the “adjust pocket” function for fine adjustments after installation.
- Available for ceilings up to 3.5 m in height.
- The drain-checking hole makes it possible to check the drain pan through the side case.

Drain-checking hole



Maximum height

MMU-AP0071MH to MMU-AP0181MH

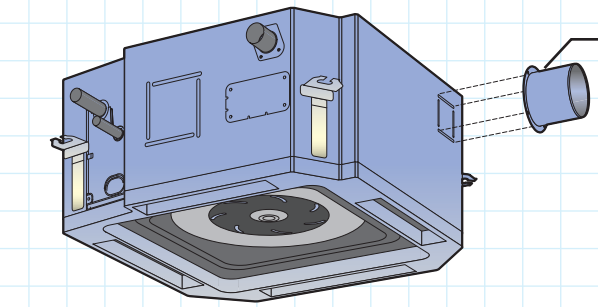


Compact 4-way Cassette (600 × 600) Type

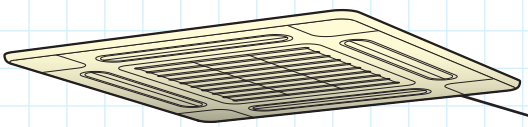
Model name		MMU-	AP0071MH	AP0091MH	AP0121MH	AP0151MH	AP0181MH
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)				
	Power consumption 50 Hz/60 Hz	(kW)	0.034/0.034	0.036/0.036	0.038/0.038	0.041/0.041	0.052/0.052
Appearance (Ceiling panel)		Model	RBC-UM11PG(W)-E				
External dimensions: Main unit (Ceiling panel)*	Height	(mm)	268 (27)*				
	Width	(mm)	575 (700)*				
	Depth	(mm)	575(700)*				
Total weight: Main unit (Ceiling panel)*		(kg)	17 (3)*				
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	552/462/378	570/468/378	594/504/402	660/552/468	762/642/522
	Motor output	(W)	60				
Connecting pipe	Gas side	(mm)	ϕ9.5			ϕ12.7	
	Liquid side	(mm)	ϕ6.4				
	Drain port (nominal dia.)		25 (Polyvinyl chloride tube)				
Sound pressure level*2 (High/Mid/Low)		(dB(A))	36/32/28	37/33/28	37/33/29	40/35/30	44/39/34

* Figures in parentheses are for ceiling panels.
*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Options

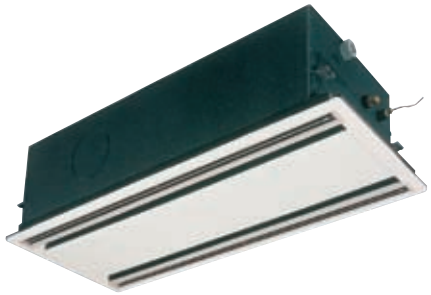


Auxiliary fresh air flange
TCB-FF101URE2



Ceiling panel
RBC-UM11PG(W)-E

2-way Air Discharge Cassette Type



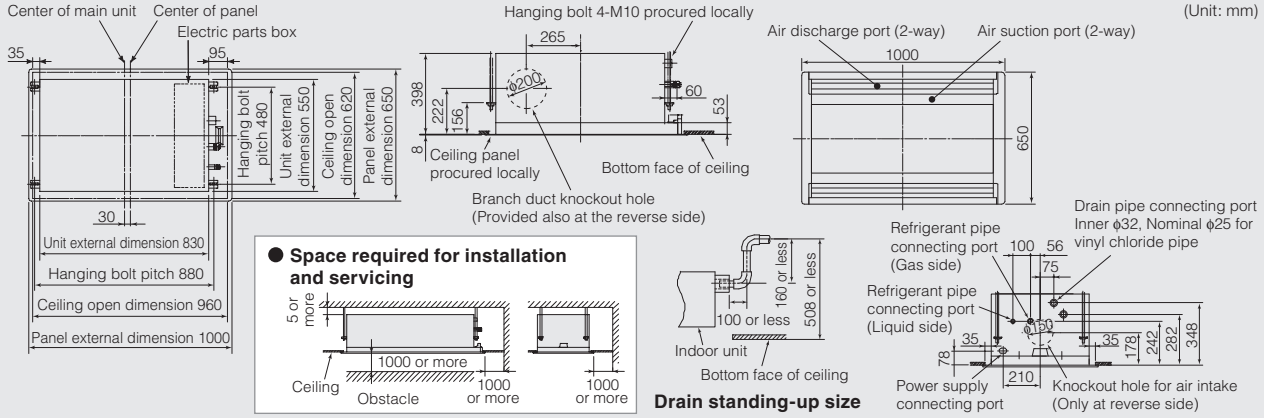
Slim and flat ceiling panel just 8 mm high

- Simple flat grill
- Condensate drain pump included
- Long-life filters fitted as standard
- Silent sound design ensures the quiet required for the office
- Ideal for smaller rooms

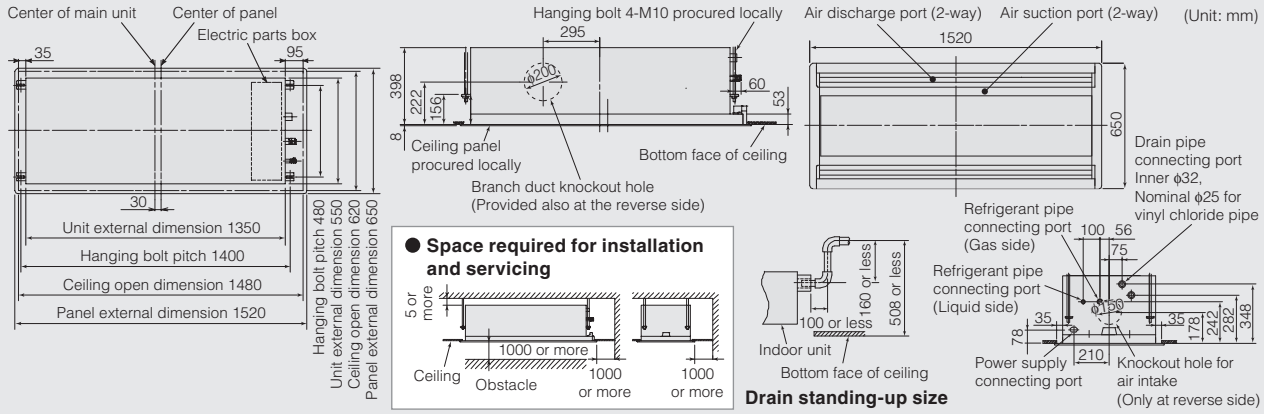
Model

MMU-AP***1WH

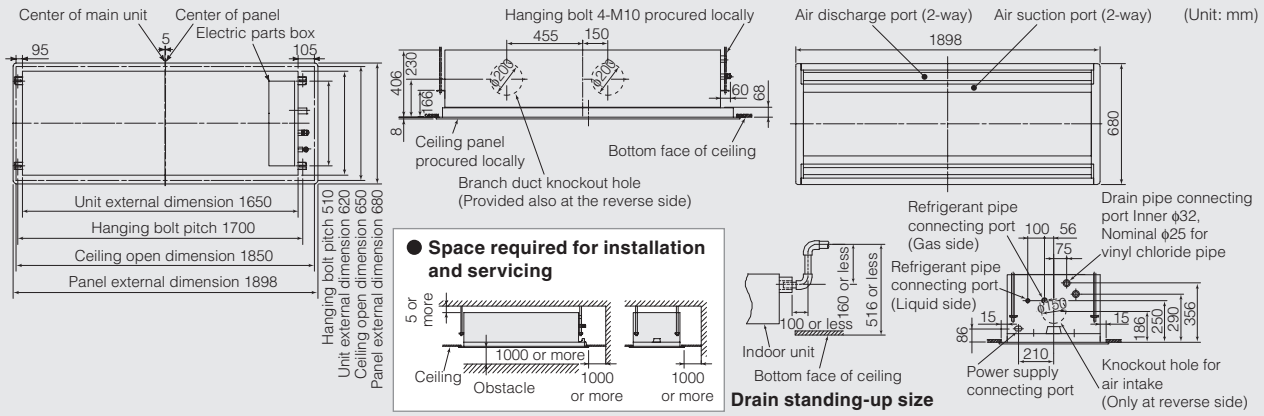
MMU-AP0071WH to AP0121WH



MMU-AP0151WH to AP0301WH

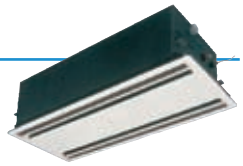


MMU-AP0481WH*



* China market only

2-way Air Discharge Cassette Type



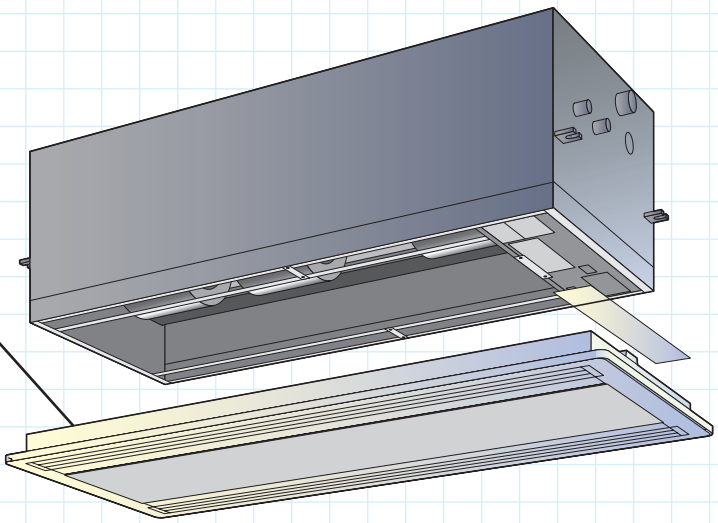
Model name		MMU-	AP0071WH	AP0091WH	AP0121WH	AP0151WH	AP0181WH	AP0241WH	AP0271WH	AP0301WH	AP0481WH*3
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0	8.0/9.0	9.0/10.0	14.0/16.0
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)								1-phase 50 Hz 220 V
	Power consumption 50 Hz/60 Hz	(kW)	0.070/0.070			0.072/0.076		0.105/0.115		0.106/0.123	0.250
Appearance (Ceiling panel)		Model	RBC-UW136PG			RBC-UW266PG					RBC-UW466PG
External dimensions: Main unit (Ceiling panel)*	Height	(mm)	398 (8)*								406 (8)
	Width	(mm)	830 (1000)*			1350 (1520)*					1650 (1898)
	Depth	(mm)	550 (650)*								620 (680)
Total weight: Main unit (Ceiling panel)*		(kg)	33 (8)*			44 (11)*		48 (11)*			52 (18)
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	570/510/450			780/700/600		1140/960/720		1260/1140/960	1920/1500/1050
	Motor output	(W)	53			39		53			92
Connecting pipe	Gas side	(mm)	ϕ9.5			ϕ12.7		ϕ15.9			
	Liquid side	(mm)	ϕ6.4					ϕ9.5			
	Drain port(nominal dia.)		25 (Polyvinyl chloride tube)								
Sound pressure level*2 (High/Mid/Low)		(dB(A))	34/32/30			35/33/30		38/35/33		40/37/34	45/42/39

* Figures in parentheses are for ceiling panels.
*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.
*3 China market only

Options

Ceiling panel

RBC-UW136PG
RBC-UW266PG
RBC-UW466PG



1-way Air Discharge Cassette Type

Models

MMU-AP***1YH

MMU-AP***2SH

* The photo shows the MMU-AP***2SH Series.

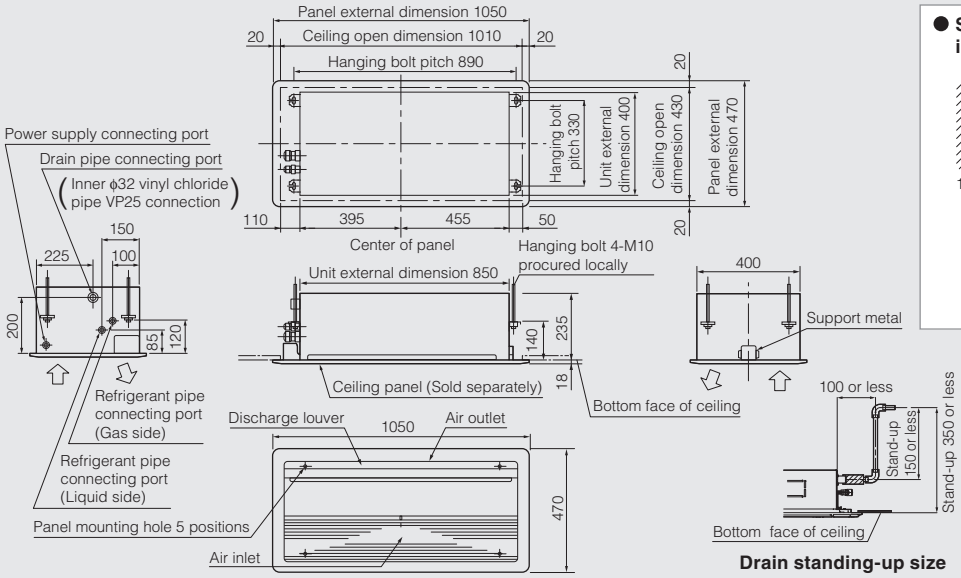
The perfect choice for hotels and reception areas

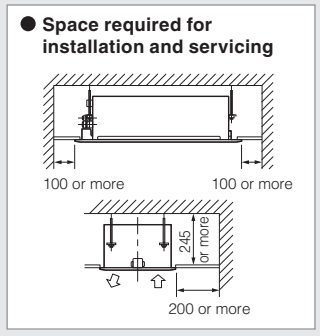
- Silent sound design ensures the quiet required for the office
- Ideal for smaller rooms where one-way air distribution is required
- Able to blow air straight out
- Condensate drain pump included
- Long-life filters fitted as standard

Fresh air intake is possible

- Preparations/connection possible with a circle duct flange

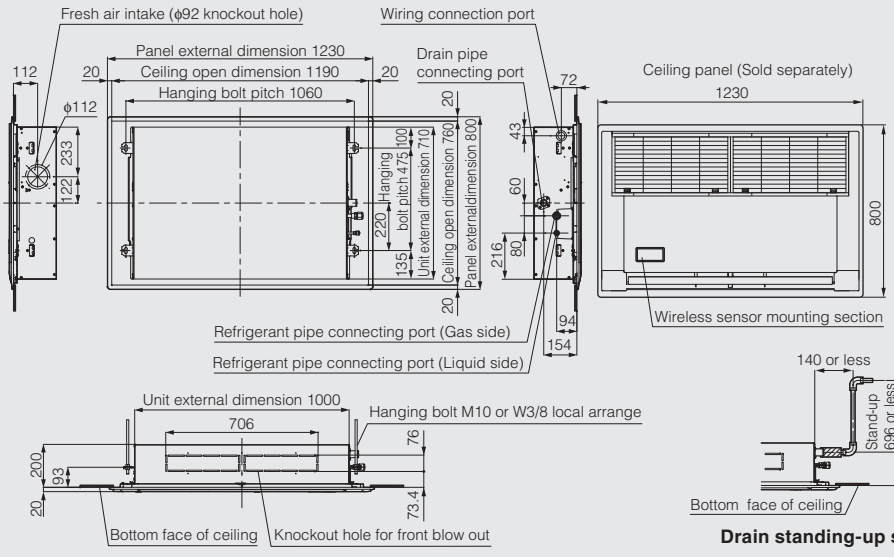
MMU-AP0071YH to AP0121YH

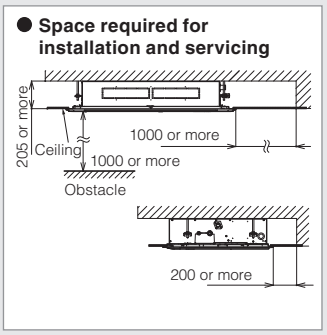




(Unit: mm)

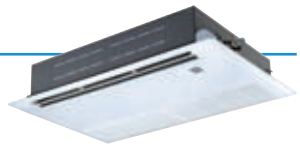
MMU-AP0152SH to AP0242SH





(Unit: mm)

1-way Air Discharge Cassette Type

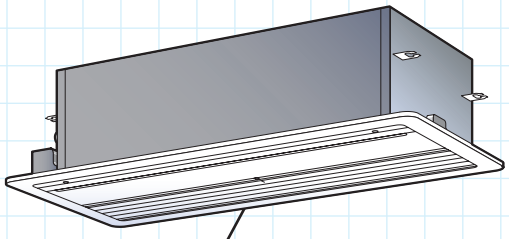


Model name		MMU-	AP0071YH	AP0091YH	AP0121YH	AP0152SH	AP0182SH	AP0242SH
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)					
	Power consumption 50 Hz/60 Hz	(kW)	0.053/0.056			0.042/0.041	0.046/0.045	0.075/0.073
Appearance (Ceiling panel)		Model	RBC-UY136PG			RBC-US21PGE		
External dimensions: Main unit (Ceiling panel)*	Height	(mm)	235 (18)*			200 (20)*		
	Width	(mm)	850 (1050)*			1000 (1230)*		
	Depth	(mm)	400 (470)*			710 (800)*		
Total weight: Main unit (Ceiling panel)*		(kg)	22 (3.5)*			21 (5.5)*		22 (5.5)*
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	540/480/420			750/690/630	780/720/660	1140/960/810
	Motor output	(W)	22			30		
Connecting pipe	Gas side	(mm)	ϕ9.5			ϕ12.7		ϕ15.9
	Liquid side	(mm)	ϕ6.4					ϕ9.5
	Drain port (nominal dia.)		25 (Polyvinyl chloride tube)					
Sound pressure level*2 (High/Mid/Low)		(dB(A))	42/39/34			37/35/32	38/36/34	45/41/37

* Figures in parentheses are for ceiling panels.
*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Options

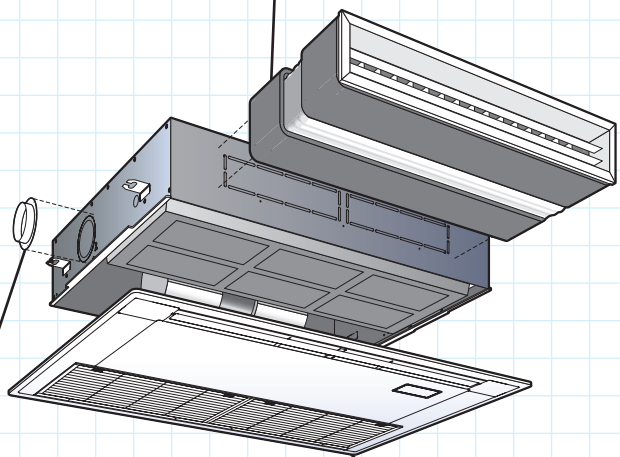
AP0071YH/AP0091YH/AP0121YH



Ceiling panel
RBC-UY136PG

AP0152SH/AP0182SH/AP0242SH

Front air discharge unit
TCB-BUS21HWE



Auxiliary fresh air flange
TCB-FF101URE2

Ceiling panel
RBC-US21PGE

Concealed Duct Type

Model

MMD-AP***1BH

Features

- Allows complete design flexibility
- Full range of filters to enhance indoor air quality
- Fresh air intake is possible

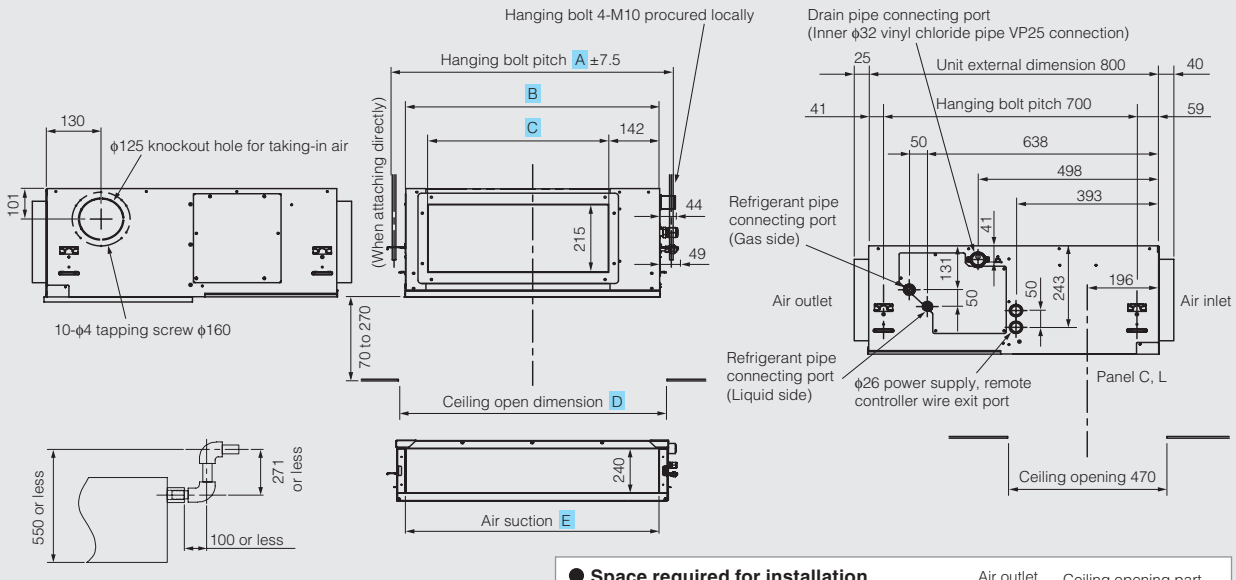
High static pressure

External static pressure can be raised as high as 110 Pa, so that all areas of the room can be reached for even temperature distribution, no matter how complex the layout.

High-lift drain pump

The flexible piping layout is made possible by an optionally available drain pump kit that raises the drain piping up to 27 cm from the drain port.

MMD-AP0071BH to AP0561BH

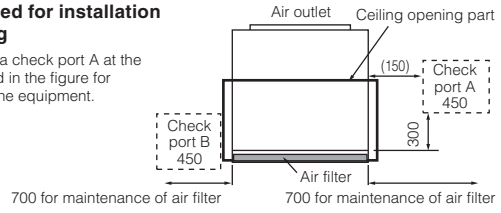


Drain standing-up size

Model MMD-	A	B	C	D	E
AP0071BH, AP0091BH, AP0121BH	616	550	350	600	470
AP0151BH, AP0181BH	766	700	500	750	620
AP0241BH, AP0271BH, AP0301BH	1066	1000	800	1050	920
AP0361BH, AP0481BH, AP0561BH	1416	1350	1150	1400	1270

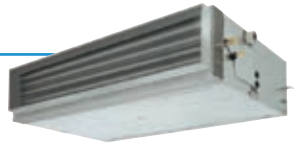
● **Space required for installation and servicing**

Be sure to place a check port A at the position indicated in the figure for maintenance of the equipment.



(Unit: mm)

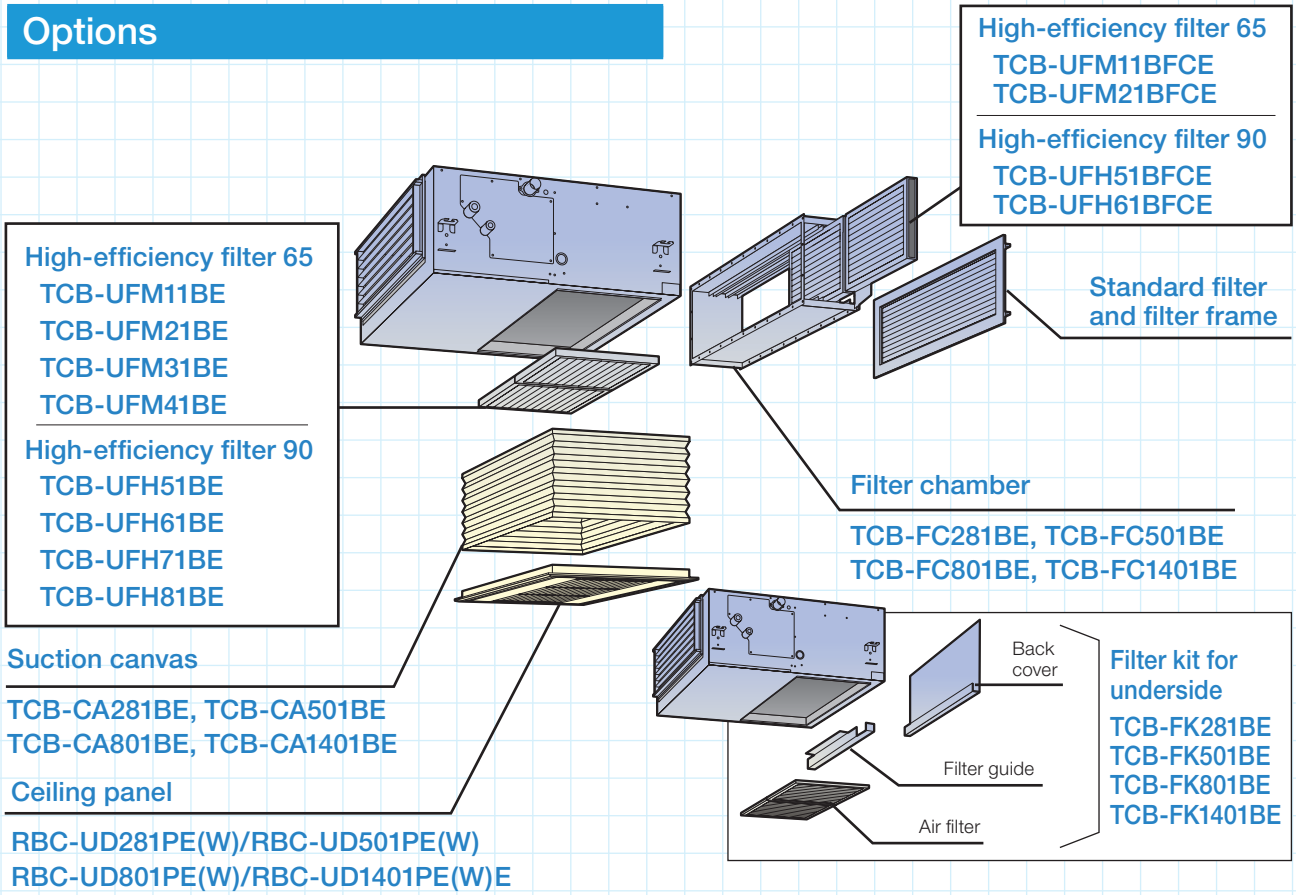
Concealed Duct Type



Model name		MMD-	AP0071BH	AP0091BH	AP0121BH	AP0151BH	AP0181BH	AP0241BH	AP0271BH	AP0301BH	AP0361BH	AP0481BH	AP0561BH
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0	8.0/9.0	9.0/10.0	11.2/12.5	14.0/16.0	16.0/18.0
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)										
	Power consumption 50 Hz/60 Hz	(kW)	0.033/0.033		0.039/0.039		0.050/0.050	0.060/0.060		0.071/0.071	0.107/0.107	0.128/0.128	
External dimensions: Main unit	Height	(mm)	320										
	Width	(mm)	550			700		1000			1350		
	Depth	(mm)	800										
Total weight		(kg)	28			32		43			55		
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	480/420/340		570/490/400	650/540/480	780/660/540	1140/990/870		1260/1080/870	1620/1410/1200	1980/1710/1490	
	Motor output	(W)	120										
	External static pressure (factory setting)	(Pa)	50 (4 mmAq)										
	External static pressure	(Pa)	110 (10 mmAq)										
Connecting pipe	Gas side	(mm)	ϕ9.5			ϕ12.7		ϕ15.9					
	Liquid side	(mm)	ϕ6.4					ϕ9.5					
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)										
Sound pressure level*2 (High/Mid/Low)		(dB(A))	30/28/26		31/29/27		32/30/28	33/31/29		34/32/29	36/34/32	36/34/32 (50Hz) 38/36/32 (60Hz)	

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Options



Concealed Duct
High Static Pressure Type

Model

MMD-AP***1H

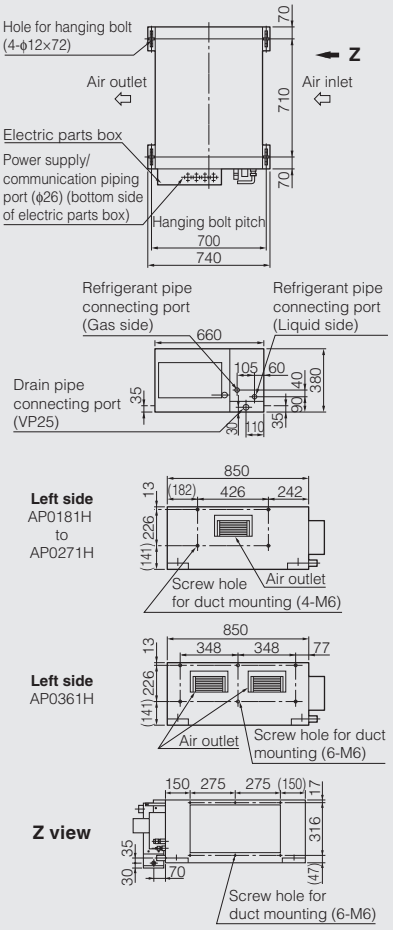
Features

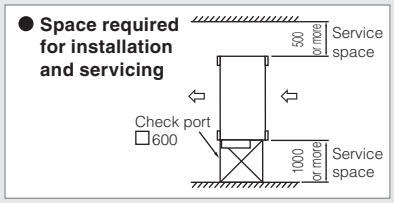
- Satisfies all your design needs
- Compatible with external static pressures up to 196 Pa
- Inspection inlet enables easy access and maintenance
  - high-efficiency filter (65, 90)
  - drain pump kit

Construction characteristics

- Three-phase-switchable static pressure
- The flexible duct is accessible
- Easy service and installation
- Inspection hole enables easy access and maintenance

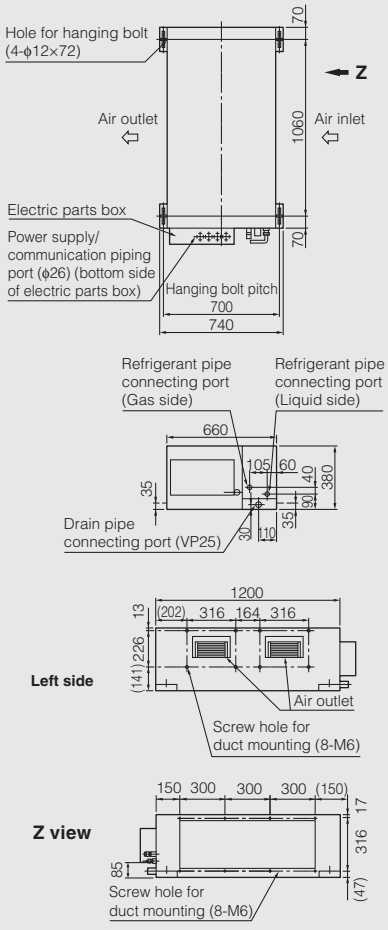
MMD-AP0181H to AP0361H

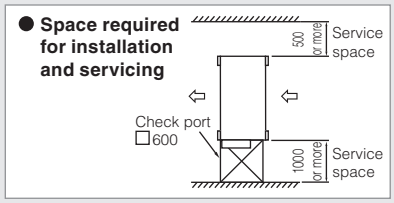




(Unit: mm)

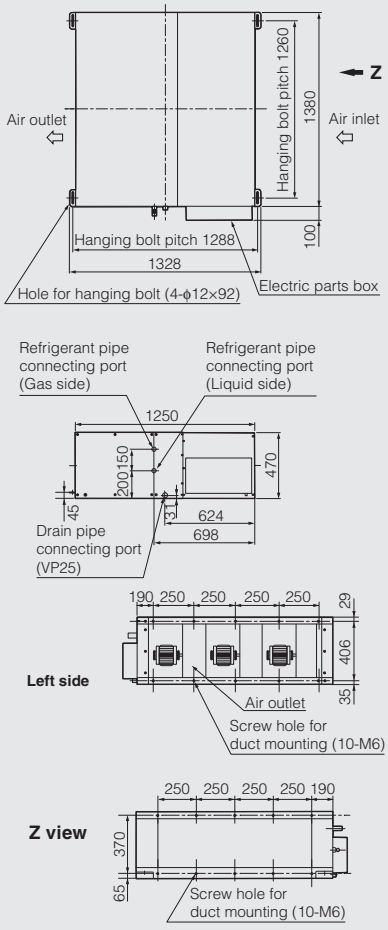
MMD-AP0481H

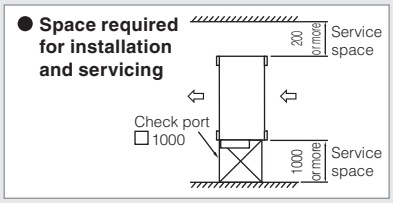




(Unit: mm)

MMD-AP0721H, AP0961H





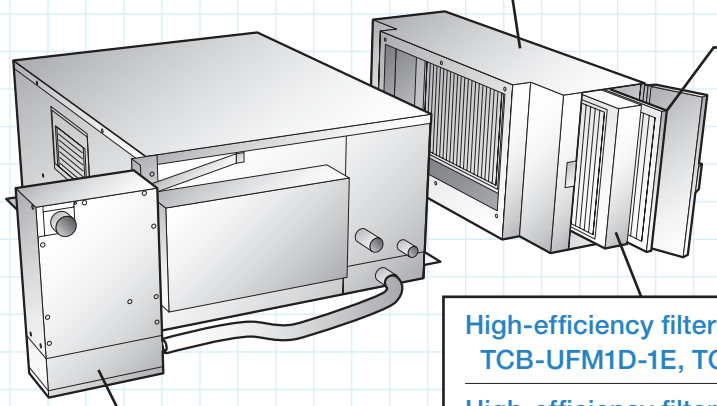
(Unit: mm)

Concealed Duct High Static Pressure Type

Model name MMD-		AP0181H	AP0241H	AP0271H	AP0361H	AP0481H	AP0721H	AP0961H
Cooling/Heating capacity*1 (kW)		5.6/6.3	7.1/8.0	8.0/9.0	11.2/12.5	14.0/16.0	22.4/25.0	28.0/31.5
Electrical characteristics	Power requirements	1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)						
	Power consumption 50 Hz/60 Hz (kW)	0.184/0.198	0.299/0.385		0.368/0.450	0.414/0.490	1.200/1.540	1.260/1.610
External dimensions: Main unit	Height (mm)	380					470	
	Width (mm)	850				1200	1380	
	Depth (mm)	660					1250	
Total weight (kg)		50	52		56	67	150	
Fan unit	Standard air flow (High/Mid/Low) (m^3/h)	900	1320		1600	2100	3600	4200
	Motor output (W)	160			260		370×3	
	External static pressure (factory setting) (Pa)	137						
	External static pressure (Pa)	68.6 – 137 – 196						
Connecting pipe	Gas side (mm)	ϕ12.7	ϕ15.9				ϕ22.2	
	Liquid side (mm)	ϕ6.4	ϕ9.5				ϕ12.7	
	Drain port (nominal dia.)	25 (male screw)						
Sound pressure level*2 (High/Mid/Low) (dB(A))		37	40				49	50

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Options



Filter chamber
TCB-FCY21DE, TCB-FCY31DE
TCB-FCY51DE, TCB-FCY100DE

Long-life prefilter
TCB-PF1D-1E
TCB-PF2D-1E
TCB-PF3DE

High-efficiency filter 65
TCB-UFM1D-1E, TCB-UFM2D-1E, TCB-UFM3DE

High-efficiency filter 90
TCB-UFH5D-1E, TCB-UFH6D-1E, TCB-UFM7DE

Drain pump kit
TCB-DP31DE
TCB-DP32DE

Slim Duct Type

Model

MMD-AP***1SPH

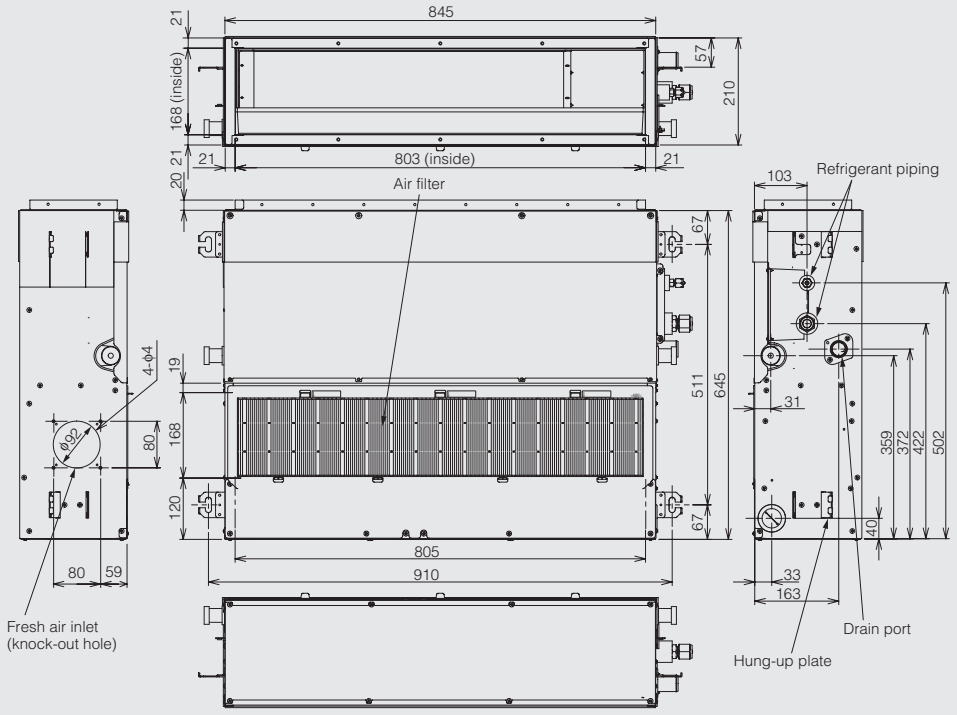
Features

- Only 210 mm in height for greater application flexibility
- 4-step static pressure setup
- Concealed installation within a ceiling void
- Fresh air intake available

Slim & quiet

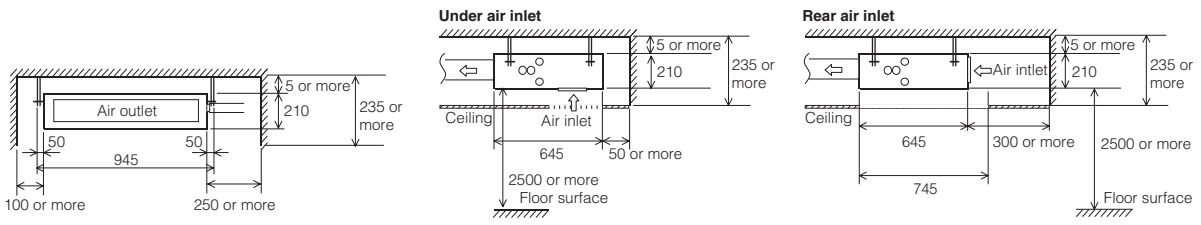
- Perfect comfort throughout the room
- Can be used with any style of air diffuser
- Quiet, powerful operation

MMD-AP0071SPH to AP0181SPH*



Model MMD-
AP0071SPH
AP0091SPH
AP0121SPH
AP0151SPH
AP0181SPH
AP0071SH-C
AP0091SH-C
AP0121SH-C
AP0151SH-C
AP0181SH-C
AP0071SPH-C
AP0091SPH-C
AP0121SPH-C
AP0151SPH-C
AP0181SPH-C
AP0071SPH-K
AP0091SPH-K
AP0121SPH-K
AP0151SPH-K
AP0181SPH-K

● **Space required for installation and servicing**



(Unit: mm)

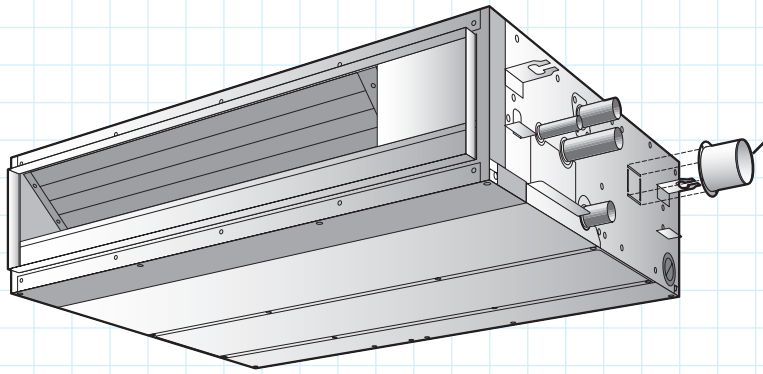
* (SPH-C) China market only, (SH-C) Drain pump connection not possible/China market only

Slim Duct Type

Model name MMD-		AP0071SPH	AP0091SPH	AP0121SPH	AP0151SPH	AP0181SPH
Cooling/Heating capacity*1 (kW)		2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3
Electrical characteristics	Power requirements	1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)				
	Power consumption 50 Hz/60 Hz (kW)	0.039/0.037		0.043/0.041	0.045/0.043	0.054/0.052
External dimensions: Main unit	Height (mm)	210				
	Width (mm)	845				
	Depth (mm)	645				
Total weight (kg)		22			23	
Fan unit	Standard air flow (High/Mid/Low) (m^3/h)	540/470/400		600/520/450	690/600/520	780/680/580
	Motor output (W)	60				
	External static pressure (factory setting) (Pa)	6 (Factory setting) –16 –31–46, 4 steps		5 (Factory setting) –15 –30–45, 4 steps		4 (Factory setting) –14 –29–44, 4 steps
Connecting pipe	Gas side (mm)	ϕ9.5			ϕ12.7	
	Liquid side (mm)	ϕ6.4				
	Drain port (nominal dia.)	25 (Polyvinyl chloride tube: External ϕ32, Internal ϕ25)				
Sound pressure level*2 (High/Mid/Low) (dB(A))	Under air inlet	36/33/30		38/35/32	39/36/33	40/38/36
	Back air inlet	28/26/24		29/27/25	32/30/28	33/31/29

* Includes drain pump and standard filter.
*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Options



Auxiliary fresh air flange

TCB-FF101URE2

Ceiling Type

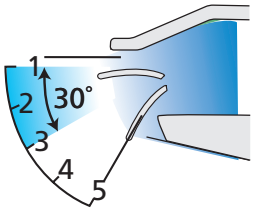
Model

MMC-AP***1H

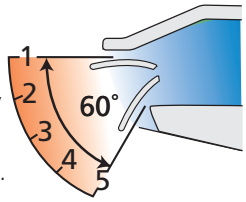
Comfortable ambience

- Quietest in industry
  - New design reduces noise level to half that of conventional units.
- Flap control
  - The airflow angle is automatically set to the most suitable setting according to your cooling or heating needs, and an automatic swing mode enables airflow to reach all areas of the room to create a comfortable ambience.

In cooling mode, the flap automatically swings between the top three positions.



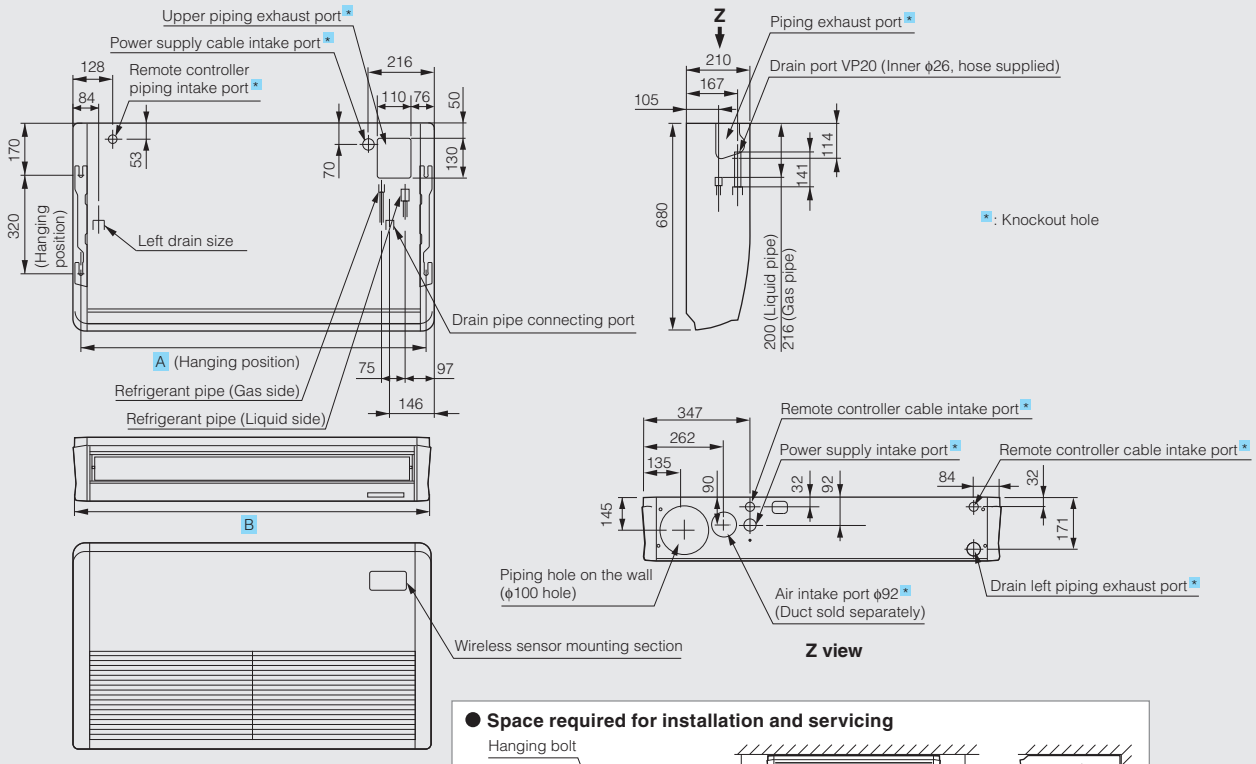
In heating mode, the flap automatically swings between all five positions.



Installation efficiency

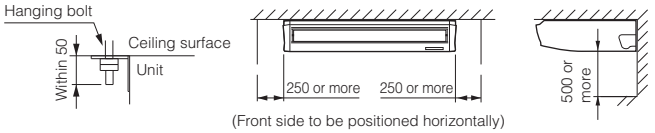
The unit can be suspended from the ceiling simply by adjusting two screws on the intake grill, avoiding complex procedures which can involve up to a dozen installation screws.

MMC-AP0151H to AP0481H



Model MMC-	A	B
AP0151H, AP0181H	855	910
AP0241H, AP0271H	1125	1180
AP0361H, AP0481H	1540	1595

● **Space required for installation and servicing**



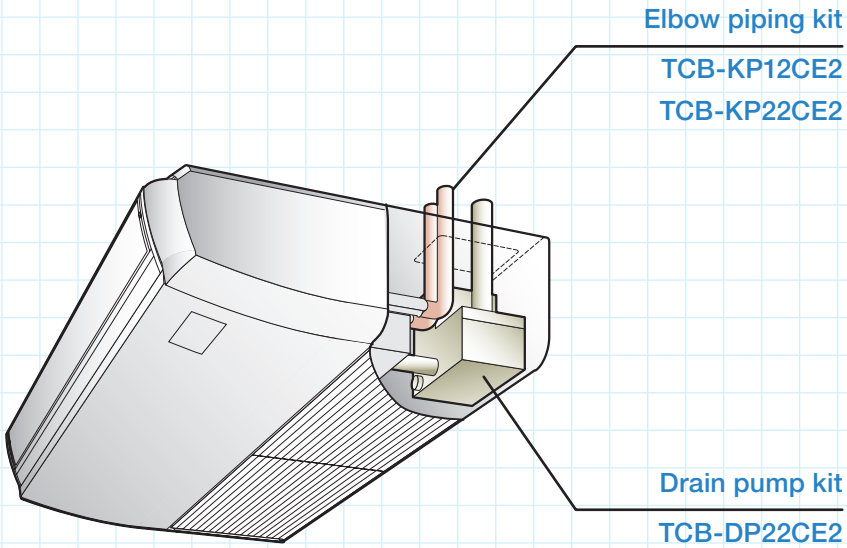
(Unit: mm)

Ceiling Type

Model name MMC-		AP0151H	AP0181H	AP0241H	AP0271H	AP0361H	AP0481H
Cooling/Heating capacity*1 (kW)		4.5/5.0	5.6/6.3	7.1/8.0	8.0/9.0	11.2/12.5	14.0/16.0
Electrical characteristics	Power requirements	1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)					
	Power consumption 50 Hz/60 Hz (kW)	0.033/0.033	0.038/0.038	0.050/0.050		0.091/0.091	0.110/0.110
External dimensions: Main unit	Height (mm)	210					
	Width (mm)	910		1,180		1,595	
	Depth (mm)	680					
Total weight (kg)		22		26		34	
Fan unit	Standard air flow (High/Mid/Low) (m^3/h)	720/600/540	780/660/540	1110/900/840		1650/1380/1200	1800/1560/1320
	Motor output (W)	30		40		80	
Connecting pipe	Gas side (mm)	ϕ12.7		ϕ15.9			
	Liquid side (mm)	ϕ6.4		ϕ9.5			
	Drain port (nominal dia.)	20 (Polyvinyl chloride tube)					
Sound pressure level*2 (High/Mid/Low) (dB(A))		35/32/30	36/33/30	38/36/33		41/38/35	43/40/37

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Options



High-wall Type (1 series)

Model

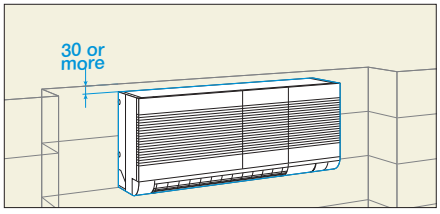
MMK-AP***1H

Compact and stylish

- 70° directional auto-swing louvre ensures even air distribution
- Auxiliary piping makes installation easy

Requires little space above for installation

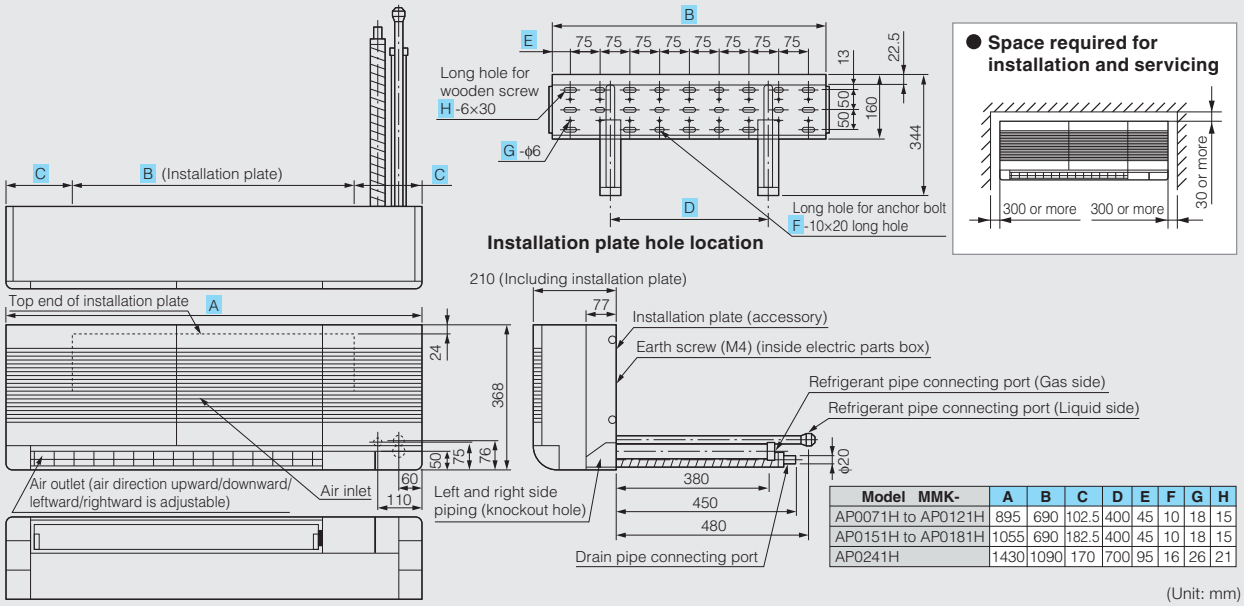
Maintenance is okay with just 30 mm above.



Model name		MMK-	AP0071H	AP0091H	AP0121H	AP0151H	AP0181H	AP0241H
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)					
	Power consumption 50 Hz/60 Hz	(kW)	0.035/0.035			0.037/0.037		0.040/0.040
External dimensions: Main unit (Ceiling panel)*	Height	(mm)	368					
	Width	(mm)	895			1055		1430
	Depth	(mm)	210					
Total weight		(kg)	18			19		25
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	600/540/480			780/660/600		1200/1020/900
	Motor output	(W)	30					
Connecting pipe	Gas side	(mm)	ϕ9.5			ϕ12.7		ϕ15.9
	Liquid side	(mm)	ϕ6.4					ϕ9.5
	Drain port (nominal dia.)		20 (Polyvinyl chloride tube)					
Sound pressure level*2 (High/Mid/Low)		(dB(A))	39/34/31			42/38/35		42/38/35

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MMK-AP0071H to AP0241H



Model MMK-	A	B	C	D	E	F	G	H
AP0071H to AP0121H	895	690	102.5	400	45	10	18	15
AP0151H to AP0181H	1055	690	182.5	400	45	10	18	15
AP0241H	1430	1090	170	700	95	16	26	21

(Unit: mm)

High-wall Type (2 series) European market only

Model

MMK-AP***2H

Remote controller

Features

- With its attractive, slim-line design, this unit is best suited for restaurants and other applications requiring understated elegance.
- The filtration system further improves the indoor air quality benefits of this high-wall unit.

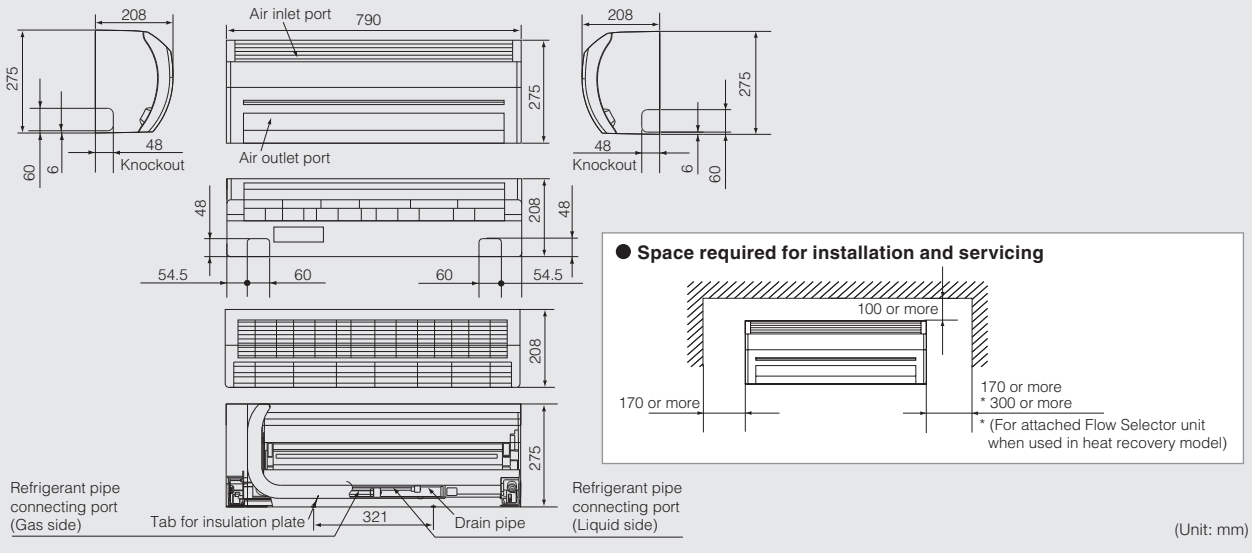
Key features

- Auto-louvre mode allows optimum air distribution throughout the room.
- Wireless controller is included.

Model name		MMK-	AP0072H	AP0092H	AP0122H
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V) (Power exclusive for indoor is required.)		
	Power consumption 50 Hz	(kW)	0.017	0.018	0.019
External dimensions: Main unit (Ceiling panel)*	Height	(mm)	275		
	Width	(mm)	790		
	Depth	(mm)	208		
Total weight		(kg)	11		
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	480/420/360	510/450/360	540/450/360
	Motor output	(W)	30		
Connecting pipe	Gas side	(mm)	ϕ9.5		
	Liquid side	(mm)	ϕ6.4		
	Drain port (nominal dia.)		16 (polyvinyl chloride tube)		
Sound pressure level*2 (High/Mid/Low)		(dB(A))	35/32/29	36/33/29	37/33/29

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MMK-AP0072H to AP0122H



(Unit: mm)

Floor Standing Concealed Type

Model

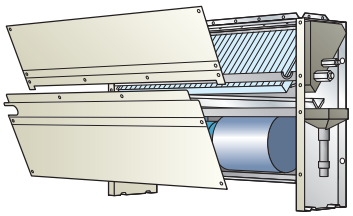
MML-AP***1BH

Cool air makes for a pleasant indoor environment

Install it in the under a window and air-condition any room effectively.

Easy maintenance

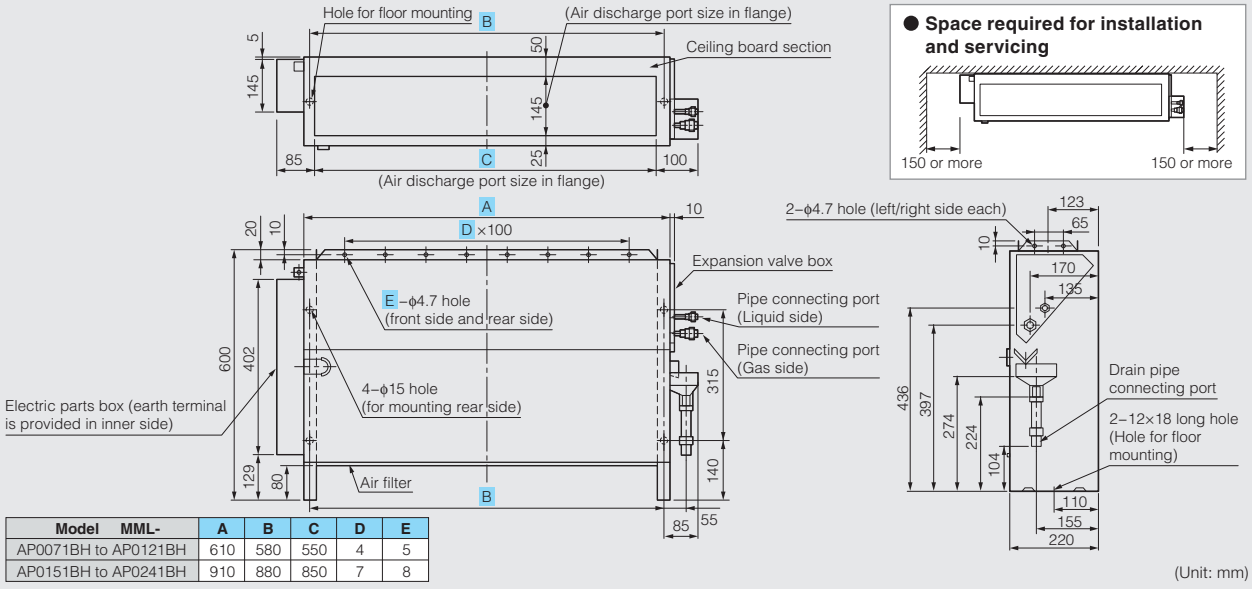
Simplified design of fan and drainage pipe eases maintenance.



Model name	MML-	AP0071BH	AP0091BH	AP0121BH	AP0151BH	AP0181BH	AP0241BH
Cooling/Heating capacity*1	(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0
Electrical characteristics	Power requirements	1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)					
	Power consumption 50 Hz/60 Hz (kW)	0.056/0.058			0.090/0.096		0.095/0.110
External dimensions: Main unit	Height (mm)	600					
	Width (mm)	745			1045		
	Depth (mm)	220					
Total weight	(kg)	21			29		
Fan unit	Standard air flow (High/Mid/Low) (m^3/h)	460/400/300			740/600/490		950/790/640
	Motor output (W)	19			70		
Connecting pipe	Gas side (mm)	ϕ9.5			ϕ12.7		ϕ15.9
	Liquid side (mm)	ϕ6.4					ϕ9.5
	Drain port (nominal dia.)	20 (Polyvinyl chloride tube)					
Sound pressure level*2 (High/Mid/Low)	(dB(A))	36/34/32					42/37/33

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MML-AP0071BH to AP0241BH



Model MML-	A	B	C	D	E
AP0071BH to AP0121BH	610	580	550	4	5
AP0151BH to AP0241BH	910	880	850	7	8

(Unit: mm)

Floor Standing Cabinet Type

Models

MML-AP***1H

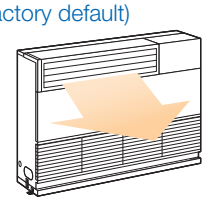
Slim & compact design

- Under-window mounting does not block lighting.
- Indoor unit size of 2.2 kW to 7.1 kW is the same.

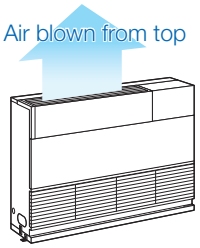
Air exits from front or top

Distribution can be reversed to suit occupant preference.

Air blown from front panel (factory default)



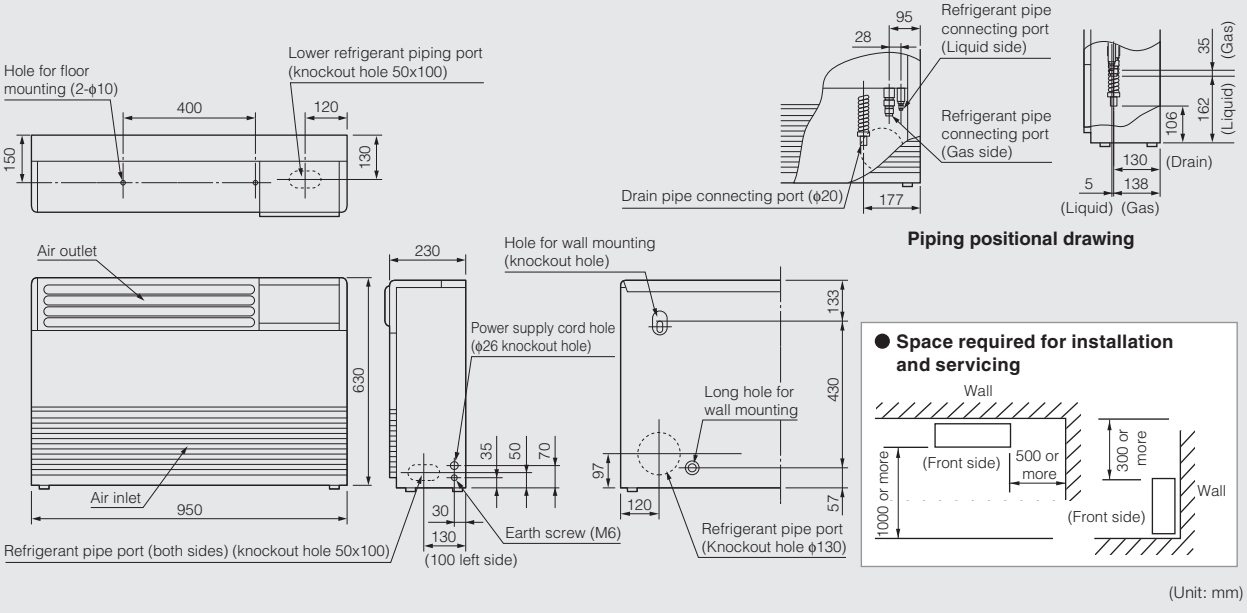
Air blown from top



Model name		MML-	AP0071H	AP0091H	AP0121H	AP0151H	AP0181H	AP0241H
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V) (Power exclusively for indoor is required.)/1-phase 60 Hz 220 V					
	Power consumption 50 Hz/60 Hz	(kW)	0.056/0.053		0.092/0.092		0.102/0.113	
External dimensions: Main unit	Height	(mm)	630					
	Width	(mm)	950					
	Depth	(mm)	230					
Total weight		(kg)	37				40	
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	480/420/360		900/780/650		1080/930/780	
	Motor output	(W)	45				70	
Connecting pipe	Gas side	(mm)	ϕ9.5			ϕ12.7		ϕ15.9
	Liquid side	(mm)	ϕ6.4					ϕ9.5
	Drain port (nominal dia.)		20 (Polyvinyl chloride tube)					
Sound pressure level*2 (High/Mid/Low)		(dB(A))	39/37/35		45/41/38		49/44/39	

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MML-AP0071H to AP0241H



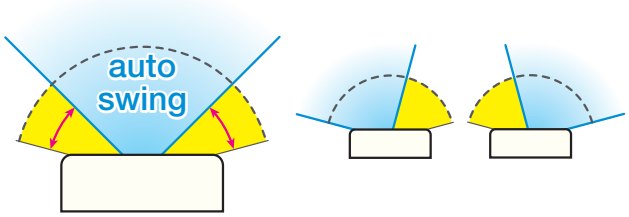
Floor Standing Type

Thin profile suits interior design

Slender, space-saving type (1.7–8.0HP)

Wide outlet

- Corner location is also possible, with right and left auto swing.
- Set the vertical angle manually.



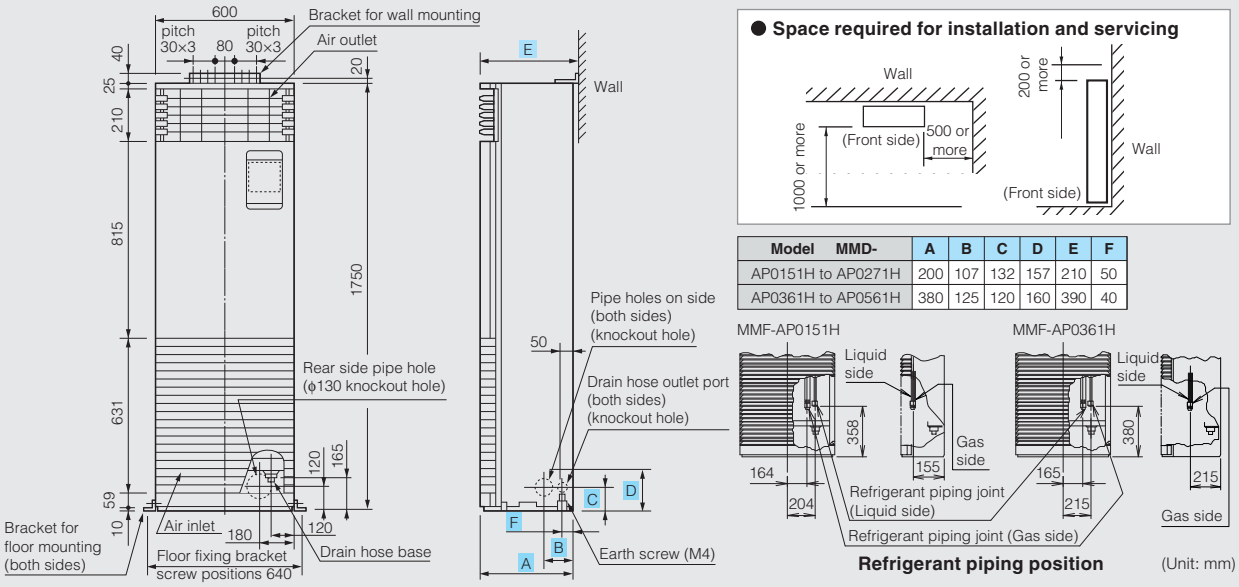
Model

MMF-AP***1H

Model name MMF-		AP0151H	AP0181H	AP0241H	AP0271H	AP0361H	AP0481H	AP0561H
Cooling/Heating capacity*1 (kW)		4.5/5.0	5.6/6.3	7.1/8.0	8.0/9.0	11.2/12.5	14.0/16.0	16.0/18.0
Electrical characteristics	Power requirements	1-phase 50 Hz 230 V (220–240 V) (Power exclusive for indoor is required.)/1-phase 60 Hz 220 V						
	Power consumption 50 Hz/60 Hz (kW)	0.150/0.146		0.190/0.195		0.280/0.295	0.350/0.380	
External dimensions: Main unit	Height (mm)	1750						
	Width (mm)	600						
	Depth (mm)	210				390		
Total weight (kg)		48		49		65		
Fan unit	Standard air flow (High/Mid/Low) (m³/h)	900/ 780/660		1200/ 1020/840		1920/ 1680/1380	2160/ 1860/1560	
	Motor output (W)	37		63		110	160	
Connecting pipe	Gas side (mm)	ϕ12.7		ϕ15.9				
	Liquid side (mm)	ϕ6.4		ϕ9.5				
	Drain port (nominal dia.)	20 (polyvinyl chloride tube: external dia. 26; internal dia. 20)						
Sound pressure level*2 (High/Mid/Low) (dB(A))		46/43/38		49/45/40		51/48/44	54/50/46	

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MMF-AP0151H to AP0561H



Model MMD-	A	B	C	D	E	F
AP0151H to AP0271H	200	107	132	157	210	50
AP0361H to AP0561H	380	125	120	160	390	40

Fresh Air Intake Indoor Unit Type

Models

MMD-AP***HFE

Connectable outdoor unit

MMY-MAPXXXXT8
MMY-MAPXXXXHT8
MMY-MAPXXXXHT7

* Cooling/Heating selecting SMMS type outdoor unit.

Features

- Outside static pressure maximum 230 Pa (in case of 50 Hz of 5HP)
- Use of high-performance filter provides more comfortable room environment
- Introduces outdoor air at a temperature close to that of the indoor air
- Primary processing of fresh outdoor air

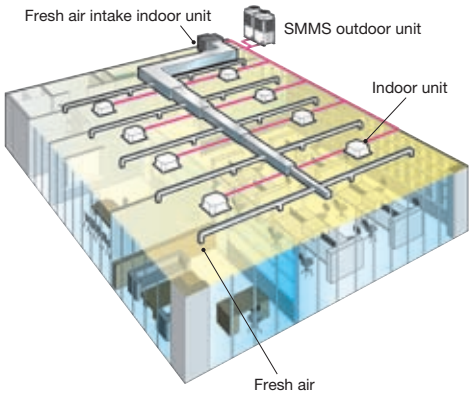
Air controller for fresh-air intake

Fresh-air intake often influences the system, rendering normal control of the air conditioner difficult, or placing large loads on the system and its cooling performance. Therefore it is frequently adopted to handle the fresh air to a certain condition before the fresh air will enter in the main air conditioner.
This device is known as a fresh air intake indoor unit.

NOTE: The fresh air intake indoor unit is an air conditioner provided to handle the fresh air load and is not to control the room temperature. For correspondence to the load of the indoor air controller, set an air conditioner separately.

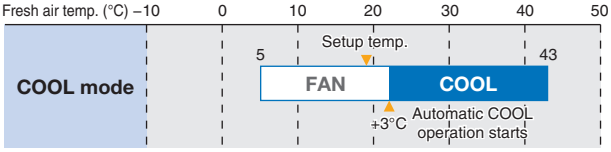
Model constitution

Three models (5HP, 8HP, 10HP) are available.
Corresponds to a system including fresh air intake indoor units and indoor air conditions.
(For the fresh air intake indoor units, up to 2 units for one system, and within 30% to capacity of the connectable indoor air conditioners are allowed.)

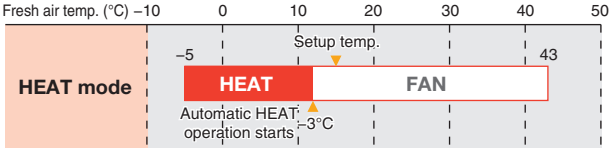


Use Conditions

- In COOL mode, if temperature of the fresh air is below the setup temp. of +3°C, FAN status is automatically made. When temperature of the fresh air is below 19°C, FAN status is also made regardless of the setup temperature.



- In HEAT mode, if temperature of the fresh air is above the setup temp. –3°C, FAN status is automatically made. When temperature of the fresh air is above 15°C, FAN status is also made regardless of the setup temperature.



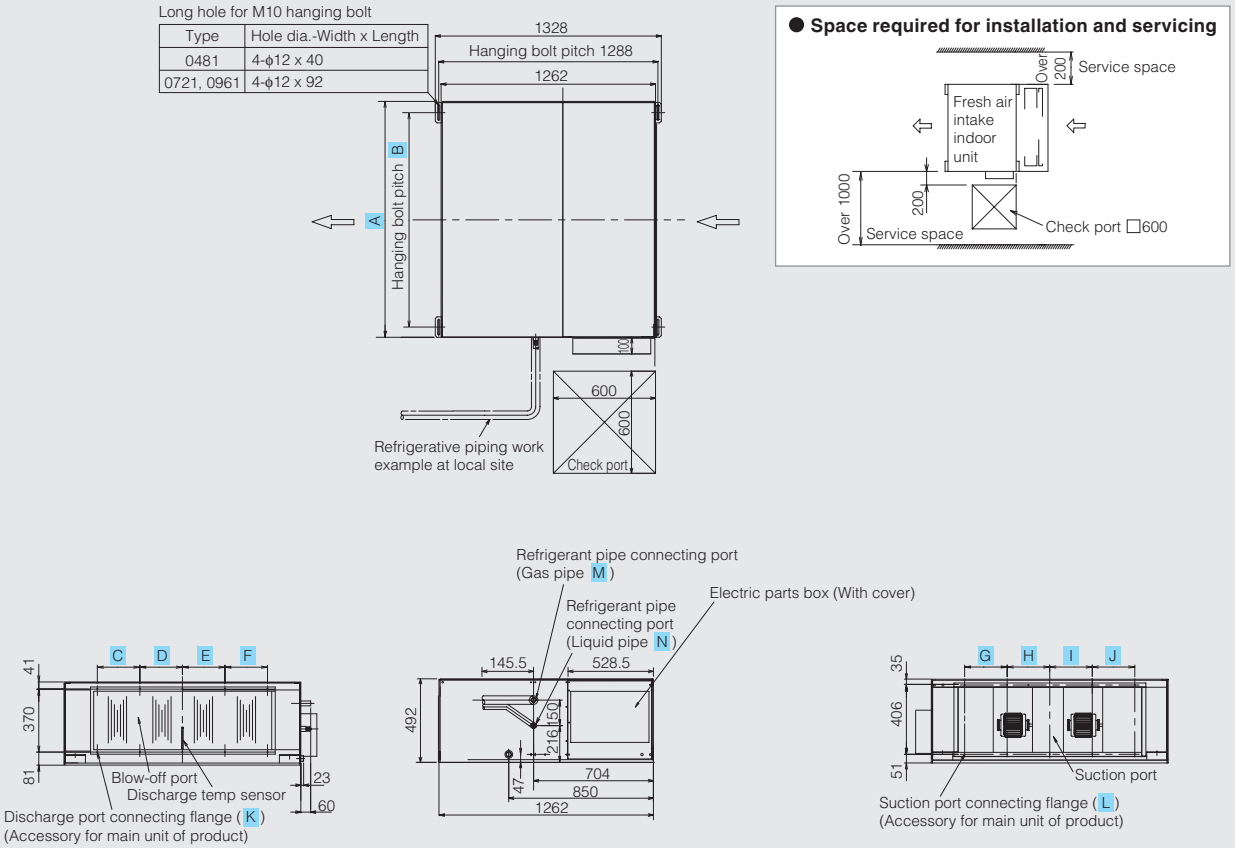
Operable mode and discharge temperature setup range

Operation mode	At shipment from factory	Setup range
COOL	18°C	16 to 27°C
HEAT	25°C	16 to 27°C

Special notes

1. The fan operation of the fresh air intake indoor unit stops during defrosting.
   However, fan operation can be programmed to continue.
2. When a central controller is used, divide zone setup of indoor air conditioner and fresh air intake indoor unit.
3. Although control of discharge temperature is standard, priority is given to capacity control for the indoor air conditioner in a system in which the normal indoor air conditioner is concurrently operated.
4. The fresh air intake indoor unit cannot be connected with remote controller of the indoor air conditioner.
5. In heating operation, if the temperature is below –5°C, the operation stops automatically. (FAN stop)
   (To protect the refrigerant cycle)
6. In cooling operation, if the temperature is below 5°C, the operation stops automatically. (FAN stop)

MMD-AP0481HFE to AP0961HFE



Model MMD-	A	B	C	D	E	F	G	H	I	J	K	L	M	N
AP0961HFE	1392	1260	250	250	250	250	250	250	250	250	10-M6	10-M6	ϕ22.2 brazing	ϕ12.7 flare
AP0721HFE	1392	1260	250	250	250	250	250	250	250	250	10-M6	10-M6	ϕ22.2 brazing	ϕ12.7 flare
AP0481HFE	892	810	215	107.5	107.5	215	—	250	250	—	8-M6	6-M6	ϕ15.9 flare	ϕ9.5 flare

(Unit: mm)

1. Always install an inspection port to the right of the air discharge port.
2. A slope the piping outside of the unit downward at 1/100.
3. Check that water drainage is safely performed during trial operation.
4. Do not install the air conditioner in salty areas near an ocean, nor where sulphurous gases are generated, such as near a spa.
5. Clean the drain plate before the air conditioning season. (Water overflows from the drain plate when the drain plate and the drain port are dirty, and the ceiling might become wet.)
6. The air filter is not built into the fresh air intake indoor unit. Please remove the dust that enters from air by installing an optional filter chamber, prefilter, and high-efficiency filter. (If no air filter is installed, dust will collect in the heat exchanger, which may cause the air conditioner to malfunction or to leak.)
7. Place where the unit can be installed horizontally.
8. Be sure to use ducts made of canvas or other material so that vibrations of the main unit are not transferred to the duct or the wall.
9. Always fashion a trap for the drain as flow at the drain plate will worsen if hydrostatic pressure is applied. Note, however, that a trap is not needed if the drain upgrade kit is being used.
10. Connect electric wires to the electric parts box. For details, see the wiring diagram.
11. Please note that the size is different because of MMD-AP0481HFE and MMD-AP0721HFE/MMD-AP0961HFE in the electric parts box.

Fresh Air Intake Indoor Unit Type

Model name			MMD-	AP0481HFE	AP0721HFE	AP0961HFE
Cooling/Heating capacity (Note 1)			(kW)	14.0/8.9	22.4/13.9	28.0/17.4
Electrical characteristics	Power supply		(kW)	1-phase 50 Hz 230 V (220–240 V)/60 Hz 220 V		
	Power consumption		(kW)	0.28/0.34	0.45/0.55	0.52/0.65
Outer dimension	Main unit	Height	(mm)	492		
		Width	(mm)	892	1392	
		Depth	(mm)	1262		
Total weight			(kg)	93	144	
Fan unit	Standard air flow		(m^3/h)	1080	1680	2100
	Motor output		(kW)	0.160	0.160×2	
	External static pressure 50 Hz/60 Hz			170-210-230/ 115-215-260	140-165-180/ 150-210-235	160-190-205/ 80-180-220
	Air flow limit Lower limit/Upper limit		(m^3/h)	756/1188	1176/1848	1470/3310
Connecting pipe	Gas side		(mm)	ϕ15.9	ϕ22.2	
	Liquid side		(mm)	ϕ9.5	ϕ12.7	
	Drain port		(nominal dia.)	R1		
Sound pressure level (Note 2) (High/Med./Low)			(dB(A))	45/43/41	46/45/44	
Operation range	Cooling (Note 3)		(°C)	5 – 43		
	Heating (Note 4)		(°C)	–5 – 43		

* The setting temperature is 16 – 27°C (standard FCU…18 – 29°C).
* An optional humidifier is not available with fresh air intake indoor unit.
* Height difference between fresh air intake indoor units must be within 0.5 m. Height difference between fresh air intake indoor unit and standard FCU must be within 30 m.

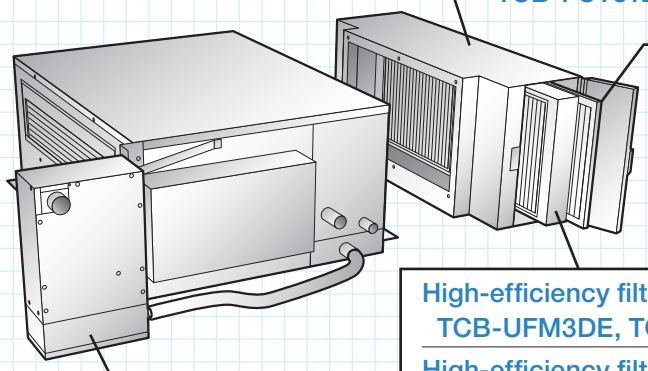
NOTE 1 Rated conditions Cooling: Outdoor air temperature 33°C DB/28°C WB setting temperature 18°C
Heating: Outdoor air temperature 0°C DB/–2.9°C WB setting temperature 25°C
Piping: Length 7.5 m / Height 0 m

NOTE 2 Normally, the values measured in the actual operating environment become large than the indicated values due to the effects of external sound.

NOTE 3 * When supply air temperature is "setting temperature + 3°C" or less, fresh air intake indoor unit operates as FAN mode.
* When supply air temperature is 19°C or less, Fresh Air Intake Indoor unit operates as FAN mode.

NOTE 4 * When supply air temperature is "setting temperature –3°C" or over, fresh air intake indoor unit operates as FAN mode.

Options



Filter chamber
TCB-FCY100DE
TCB-FCY51DFE

Long-life prefilter
TCB-PF3DE
TCB-PF4D-1E

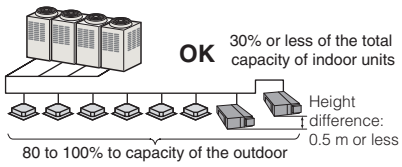
High-efficiency filter 65
TCB-UFM3DE, TCB-UFM4D-1E

High-efficiency filter 90
TCB-UFH7DE, TCB-UFH8D-1E

Drain pump kit
TCB-DP32DFE

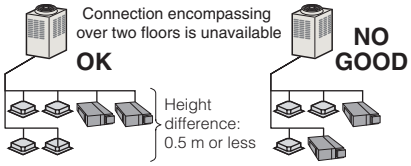
Combinable system

The fresh air intake indoor unit is connectable to SMMS.
However, it is not connectable to SHRM (Super Heat Recovery Multi system).

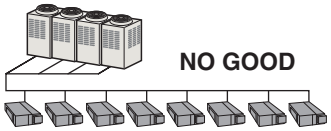


Keep the height difference between the fresh air intake indoor units to 0.5 m or less.

Up to two fresh air intake indoor units can be connected on one line of the multi system. The allowable total capacity of the two fresh air intake indoor units must be 30% or less as opposed to the total capacity of the indoor units (including the fresh air intake indoor units).



The fresh air intake indoor unit is usually used together with the indoor units on one line of the multi system.
The fresh air intake indoor unit only cannot be connected.



The total capacity of the indoor units and the fresh air intake indoor units is restricted to 80% to 100% as opposed to the total capacity of the outdoor units. (This restriction should be strictly observed for correct control of the refrigerant.)

Indoor Unit Accessories

1. Indoor accessories

Indoor unit	Parts Name	Model Name	Applied Model SMMS	Notes	Remarks
4-way air discharge cassette type	Ceiling panel	RBC-U31PG(W)-E RBC-U31PGS(W)-E* RBC-U31PGS(WS)-E*	MMU-AP***2H	Required accessory	
	Fresh air inlet box	TCB-GB1602UE		For fresh air intake by using the knockout hole of Fresh air and filter chamber. (dia.=100 mm)	Use with TCB-GFC1602UE
	Fresh air and filter chamber	TCB-GFC1602UE		For fresh air inlet box	
	Auxiliary fresh air flange	TCB-FF101URE2		For easy fresh air intake by using the knockout hole of indoor unit. (dia.=100 mm)	
	Spacer for height adjustment	TCB-SP1602UE		Height=50 mm	
	Air discharge direction kit	TCB-BC1602UE		Air direction charge by cutting off air discharge port (3 pcs.)	
Compact 4-way cassette (600 × 600) type	Ceiling panel	RBC-UM11PG(W)-E	MMU-AP***1MH	Required accessor	
	Auxiliary fresh air flange	TCB-FF101URE2		For easy fresh air intake by using the knockout hole of indoor unit. (dia.=100 mm)	
2-way air discharge cassette type	Ceiling panel	RBC-UW136PG	MMU-AP0071WH/0091/0121WH	Required accessory	
		RBC-UW266PG	MMU-AP0151 to 0301WH		
		RBC-UW466PG	MMU-AP481WH		China market only
1-way air discharge cassette type	Ceiling panel	RBC-UY136PG	MMU-AP***1YH	Required accessory	
		RBC-US21PGE	MMU-AP***2SH	Required accessory	
	Front air discharge unit	TCB-BUS21HWE			
	Auxiliary fresh air flange	TCB-FF101URE2		For easy fresh air intake by using the knockout hole of indoor unit. (dia.=100 mm)	
Concealed duct type	High-efficiency filter 65 (for rear suction)	TCB-UFM11BFCE	MMD-AP0071/0091/0121BH	Dust collecting effect: 65% (NBS Colorimentric method)	Use with TCB-FC281BE
		TCB-UFM21BFCE	MMD-AP0151/0181BH		Use with TCB-FC501BE
		TCB-UFM11BFCE (2 pcs.)	MMD-AP0241/0271/0301BH		Use with TCB-FC801BE
		TCB-UFM21BFCE (2 pcs.)	MMD-AP0361/0481/0561BH		Use with TCB-FC1401BE
	High-efficiency filter 90 (for rear suction)	TCB-UFH51BFCE	MMD-AP0071/0091/0121BH	Dust collecting effect: 90% (NBS Colorimentric method)	Use with TCB-FC281BE
		TCB-UFH61BFCE	MMD-AP0151/0181BH		Use with TCB-FC501BE
		TCB-UFH51BFCE (2 pcs.)	MMD-AP0241/0271/0301BH		Use with TCB-FC801BE
		TCB-UFH61BFCE (2 pcs.)	MMD-AP0361/0481/0561BH		Use with TCB-FC1401BE
	Filter chamber (for rear suction)	TCB-FC281BE	MMD-AP0071/0091/0121BH	For high-efficiency filter	
		TCB-FC501BE	MMD-AP0151/0181BH		
		TCB-FC801BE	MMD-AP0241/0271/0301BH		
		TCB-FC1401BE	MMD-AP0361/0481/0561BH		
	High-efficiency filter 65 (for underside suction)	TCB-UFM11BE	MMD-AP0071/0091/0121BH	Dust collecting effect: 65% (NBS Colorimentric method)	
		TCB-UFM21BE	MMD-AP0151/0181BH		
		TCB-UFM31BE	MMD-AP0241/0271/0301BH		
		TCB-UFM41BE	MMD-AP0361/0481/0561BH		
	High-efficiency filter 90 (for underside suction)	TCB-UFH51BE	MMD-AP0071/0091/0121BH	Dust collecting effect: 90% (NBS Colorimentric method)	
		TCB-UFH61BE	MMD-AP0151/0181BH		
		TCB-UFH71BE	MMD-AP0241/0271/0301BH		
		TCB-UFH81BE	MMD-AP0361/0481/0561BH		
	Ceiling panel (half panel for underside suction)	RBC-UD281PE(W)	MMD-AP0071/0091/0121BH		
		RBC-UD501PE(W)	MMD-AP0151/0181BH		
		RBC-UD801PE(W)	MMD-AP0241/0271/0301BH		
		RBC-UD1401PE(W)	MMD-AP0361/0481/0561BH		
	Suction canvas (for underside suction)	TCB-CA281BE	MMD-AP0071/0091/0121BH	Adjustment height of the suction canvas is between 40 mm and 100 mm	
		TCB-CA501BE	MMD-AP0151/0181BH		
		TCB-CA801BE	MMD-AP0241/0271/0301BH		
		TCB-CA1401BE	MMD-AP0361/0481/0561BH		
	Filter kit for underside	TCB-FK281BE	MMD-AP0071/0091/0121BH	Kit of underside prefilter & shielding plate of rear suction	
		TCB-FK501BE	MMD-AP0151/0181BH		
		TCB-FK801BE	MMD-AP0241/0271/0301BH		
		TCB-FK1401BE	MMD-AP0361/0481/0561BH		
Concealed duct high static pressure type	High-efficiency filter 65	TCB-UFM1D-1E	MMD-AP0181H	Dust collecting effect: 65% (NBS Colorimentric method)	Use with TCB-FCY21DE
		TCB-UFM2D-1E (2 pcs.)	MMD-AP0241/0271/0361H		Use with TCB-FCY31DE
		TCB-UFM1D-1E (2 pcs.)	MMD-AP0481H		Use with TCB-FCY51DE
		TCB-UFM3DE	MMD-AP0721/0961H		Use with TCB-FCY100DE
	High-efficiency filter 90	TCB-UFH5D-1E	MMD-AP0181H	Dust collecting effect: 90% (NBS Colorimentric method)	Use with TCB-FCY21DE
		TCB-UFH6D-1E (2 pcs.)	MMD-AP0241/0271/0361H		Use with TCB-FCY31DE
		TCB-UFH5D-1E (2 pcs.)	MMD-AP0481H		Use with TCB-FCY51DE
		TCB-UFH7DE	MMD-AP0721/0961H		Use with TCB-FCY100DE
	Long life prefilter	TCB-PF1D-1E	MMD-AP0181H	Dust collecting effect: 50% (Weight method)	Use with TCB-FCY21DE
		TCB-PF2D-1E (2 pcs.)	MMD-AP0241/0271/0361H		Use with TCB-FCY31DE
		TCB-PF1D-1E (2 pcs.)	MMD-AP0481H		Use with TCB-FCY51DE
		TCB-PF3DE	MMD-AP0721/0961H		Use with TCB-FCY100DE
	Filter chamber	TCB-FCY21DE	MMD-AP0181H	For high-efficiency filter or long life prefilter	
		TCB-FCY31DE	MMD-AP0241/0271/0361H		
		TCB-FCY51DE	MMD-AP0481H		
		TCB-FCY100DE	MMD-AP0721/0961H		
	Drain pump kit	TCB-DP31DE	MMD-AP0181H to 0481H	Stand-up 330 or less (from bottom face of ceiling)	
		TCB-DP32DE	MMD-AP0721/0961H		
Slim duct type	Auxiliary fresh air flange	TCB-FF101URE2	MMD-AP***1SPH	For fresh air intake by using the knockout hole of indoor unit. (dia.=100 mm)	
Ceiling type	Drain pump kit	TCB-DP22CE2	MMC-AP0151/0181H	Stand-up 600 or less (from bottom face of ceiling)	Use with TCB-KP12CE2
			MMC-AP0241 to 0581H		Use with TCB-KP22CE2
	Elbow piping kit	TCB-KP12CE2	MMC-AP0151/0181H	Needed when Drain Pump Kit is used	
		TCB-KP22CE2	MMC-AP0241 to 0581H		
Fresh air intake indoor unit type	High-efficiency filter 65	TCB-UFM3DE	MMD-AP0721/0961HFE	Dust collecting effect: 65% (NBS Colorimentric method)	Use with TCB-PF3DE
		TCB-UFM4D-1E	MMD-AP0481HFE		Use with TCB-PF4D-1E
	High-efficiency filter 90	TCB-UFH7DE	MMD-AP0721/0961HFE	Dust collecting effect: 90% (NBS Colorimentric method)	Use with TCB-PF3DE
		TCB-UFH8D-1E	MMD-AP0481HFE		Use with TCB-PF4D-1E
	Long life prefilter	TCB-PF3DE	MMD-AP0721/0961HFE	Dust collecting effect: 50% (Weight method)	Use with TCB-FCY100DE
		TCB-PF4D-1E	MMD-AP0481HFE		Use with TCB-FCY51DFE
	Filter chamber	TCB-FCY51DFE	MMD-AP0481HFE	For high-efficiency filter or long life prefilter	
		TCB-FCY100DE	MMD-AP0721/0961HFE		
	Drain pump kit	TCB-DP32DFE	MMD-AP0481/0721/0961HFE	Stand-up 330 or less (from bottom face of ceiling)	

* European market only

2. Combination Pattern

1) Accessory for 4-way air discharge cassette type: combination pattern

		1	2	3	4	5	6
		Ceiling panel	Fresh air inlet box + Fresh air and filter chamber	Fresh air and filter chamber	Auxiliary fresh air flange	Spacer for height adjustment	Air discharge direction kit
1	Ceiling panel		OK	OK	OK	OK	OK
2	Fresh air inlet box + Fresh air and filter chamber	OK			OK	—	OK
3	Fresh air and filter chamber	OK			OK	OK	OK
4	Auxiliary fresh air flange	OK	OK	OK		OK	OK
5	Spacer for height adjustment	OK	—	OK	OK		OK
6	Air discharge direction kit	OK	OK	OK	OK	OK	

2) Accessory for concealed duct type: combination pattern

		1	2	3	4	5	6	7	9
		For rear suction			For underside suction				
		High-efficiency filter 65 (For rear suction)	High-efficiency filter 90 (For rear suction)	Filter chamber (for rear suction)	High-efficiency filter 65 (for underside suction)	High-efficiency filter 90 (for underside suction)	Ceiling panel (half panel for underside suction)	Suction canvas (for underside suction)	Filter kit for underside*
1	High-efficiency filter 65 (for rear suction)		—	OK	—	—	—	—	—
2	High-efficiency filter 90 (for rear suction)	—		OK	—	—	—	—	—
3	Filter chamber (for rear suction)	OK	OK		—	—	—	—	—
4	High-efficiency filter 65 (for underside suction)	—	—	—		—	OK	OK	OK
6	High-efficiency filter 90 (for underside suction)	—	—	—	—		OK	OK	OK
7	Ceiling panel (half panel for underside suction)	—	—	—	OK	OK		OK	OK
8	Suction canvas (for underside suction)	—	—	—	OK	OK	OK		OK
9	Filter kit for underside*	—	—	—	OK	OK	OK	OK	

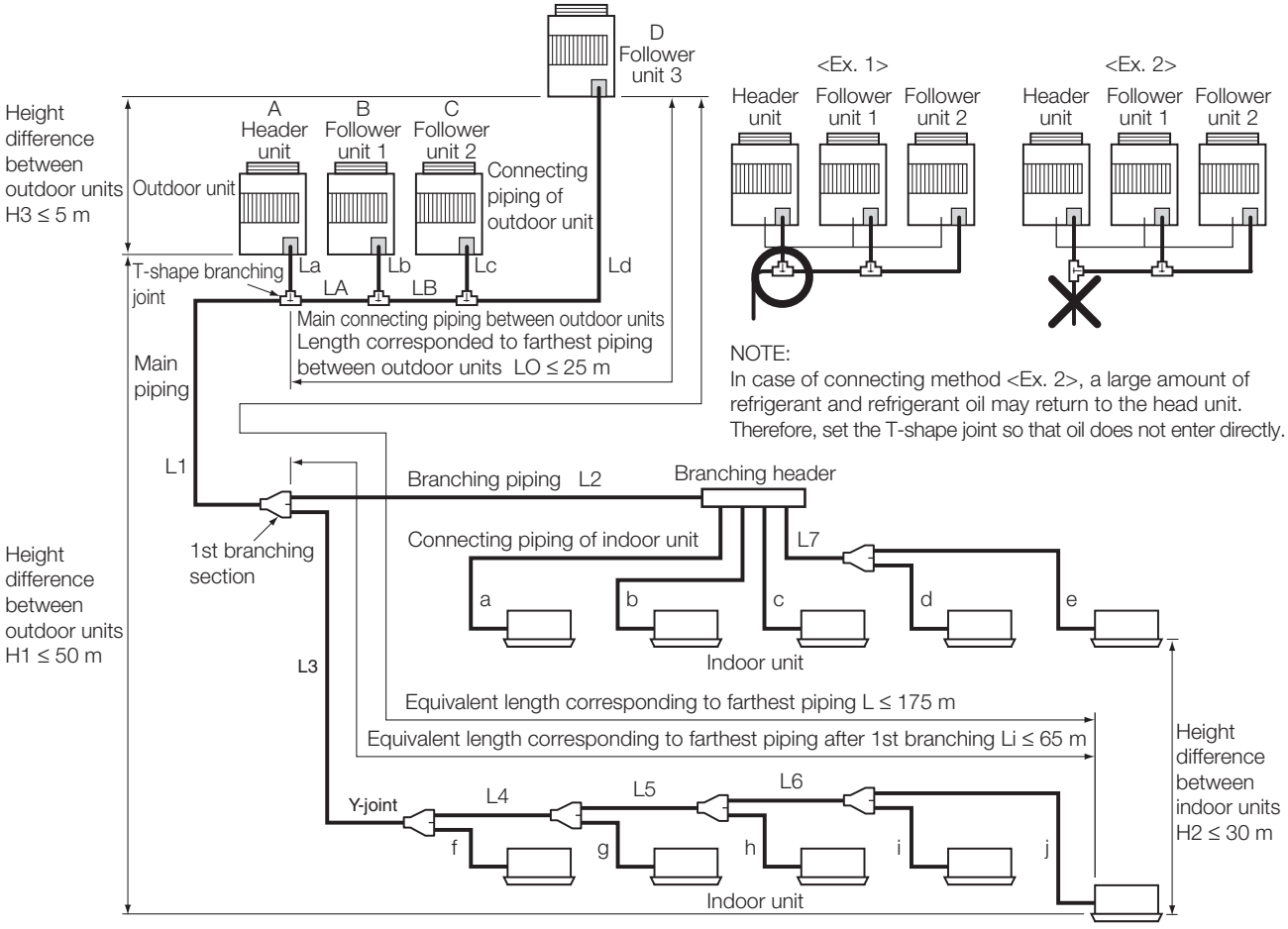
* In case of underside,Filter kit is required accessory

3) Accessory for concealed duct high static pressure type/fresh air intake indoor unit type: combination pattern

		1	2	3	4	5
		High-efficiency filter 65	High-efficiency filter 90	Long life prefilter	Filter chamber	Drain pump kit
1	High-efficiency filter 65		—	OK	OK	OK
2	High-efficiency filter 90	—		OK	OK	OK
7	Long life prefilter	OK	OK		OK	OK
8	Filter chamber	OK	OK	OK		OK
9	Drain pump kit	OK	OK	OK	OK	

Refrigerant Piping Design

Allowable length/height difference of refrigerant piping



NOTE:
In case of connecting method <Ex. 2>, a large amount of refrigerant and refrigerant oil may return to the head unit. Therefore, set the T-shape joint so that oil does not enter directly.

- System restrictions

Max. No. of combined outdoor units		4 units
Max. capacity of combined outdoor units		48HP
Max. No. of connected indoor units		48 units
Max. capacity of combined indoor units	H2 ≤ 15	135%
	H2 > 15	105%

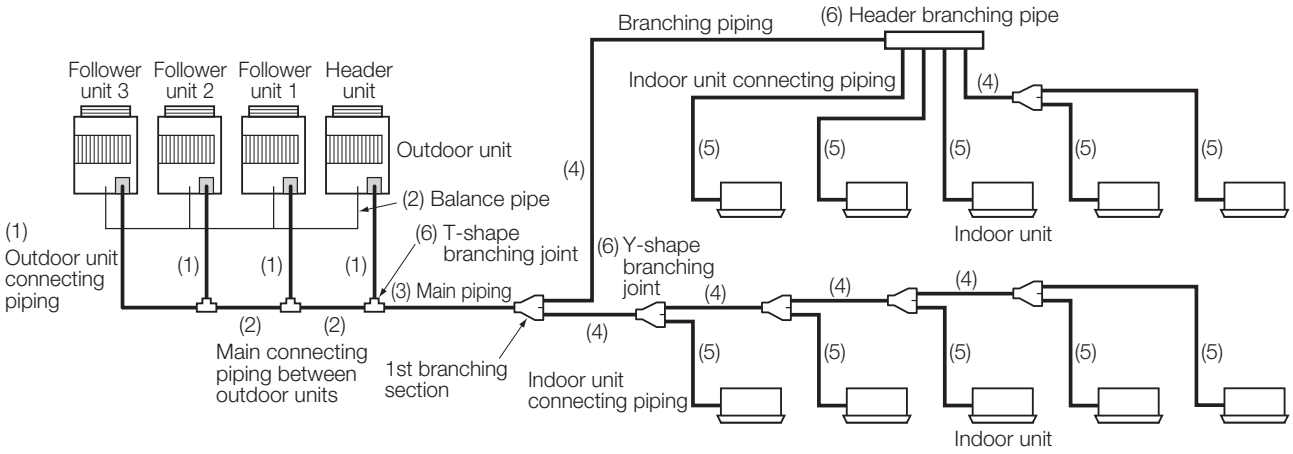
NOTE 1 Combination of outdoor units: Header unit (1 unit) + Follower units (0 to 3 units).
Header unit is the outdoor unit nearest to the connected indoor units.
NOTE 2 Install the outdoor units in order of capacity.
(Header unit > Follower unit 1 > Follower unit 2 > Follower unit 3)
NOTE 3 Piping to indoor units shall be perpendicular to piping to the head outdoor unit as <Ex.1>.
Do not connect piping to indoor units in the same direction of Head outdoor unit as <Ex.2>.

- Allowable length and height difference of refrigerant piping

			Allowable value	Piping section
Piping length	Total extension of pipe (Liquid pipe, actual length)		300 m	LA + LB + La + Lb + Lc + Ld + L1 + L2 + L3 + L4+ L5 + L6 + L7 + a + b + c + d + e + f + g + h + i + j
	Farthest piping length L *	Actual length	150 m	LA + LB + Ld + L1 + L3 + L4 + L5 + L6 + j
		Equivalent length	175 m	
	Equivalent length of farthest piping from 1st branching Li *		65 m	L3 + L4 + L5 + L6 + j
	Equivalent length of farthest piping between outdoor units LO *		25 m	LA + LB + Ld, (LA + Lb, LA + LB + Lc)
	Max. equivalent length of main piping ***		85 m	L1
	Max. equivalent length of outdoor unit connecting piping		10 m	Ld, (La, Lb, Lc)
	Max. actual length of indoor unit connecting piping		30 m	a, b, c, d, e, f, g, h, i, j
Height difference	Height between indoor and outdoor units H1	Upper outdoor unit	50 m	—
		Lower outdoor unit	40 m **	—
	Height between indoor units H2		30 m	—
	Height between outdoor units H3		5 m	—

* (D) is outdoor unit farthest from 1st branching, and (j) is indoor unit farthest from 1st branching.
** If the height difference (H2) between indoor units exceeds 3 m, set below 30 m.
*** If the maximum capacity of combination of the outdoor units is 46HP or more, the maximum equivalent length is restricted up to 70 m.

Selection of refrigerant piping



(1) Pipe size of outdoor unit (Table 1)

Model name MMY-			Gas side	Liquid side
MAP0501T8	MAP0501HT8	MAP0501HT7	ϕ15.9	ϕ9.5
MAP0601T8	MAP0601HT8	MAP0601HT7	ϕ19.1	ϕ9.5
MAP0801T8	MAP0801HT8	MAP0801HT7	ϕ22.2	ϕ12.7
MAP1001T8	MAP1001HT8	MAP1001HT7	ϕ22.2	ϕ12.7
MAP1201T8	MAP1201HT8	MAP1201HT7	ϕ28.6	ϕ12.7

(2) Connecting pipe size between outdoor units (Table 2)

Total capacity code of outdoor units at downstream side	Gas side	Liquid side	Balance pipe
14 to below 22	ϕ28.6	ϕ15.9	ϕ9.5
22 to below 26	ϕ34.9	ϕ15.9	
26 to below 36	ϕ34.9	ϕ19.1	
36 or more	ϕ41.3	ϕ22.2	

(3) Size of main pipe (Table 3)

Total capacity code of all outdoor units *1	Gas side	Liquid side
Below 6	ϕ15.9	ϕ9.5
6 to below 8	ϕ19.1	ϕ9.5
8 to below 12	ϕ22.2	ϕ12.7
12 to below 14	ϕ28.6	ϕ12.7
14 to below 22	ϕ28.6	ϕ15.9
22 to below 26	ϕ34.9	ϕ15.9
26 to below 36	ϕ34.9	ϕ19.1
36 to below 46	ϕ41.3	ϕ22.2
46 or more	ϕ41.3 *5	ϕ22.2

Determine thickness of the main pipe according to capacity of the outdoor units.

(4) Pipe size between branching sections (Table 4)

Total capacity code of indoor units at downstream side *1	Gas side	Liquid side
2.8 or less	ϕ12.7	ϕ9.5
2.8 to below 6.4	ϕ15.9	ϕ9.5
6.4 to below 12.2	ϕ22.2	ϕ12.7
12.2 to below 20.2	ϕ28.6	ϕ15.9
20.2 to below 25.2	ϕ34.9	ϕ15.9
25.2 to below 35.2	ϕ34.9	ϕ19.1
35.2 or more	ϕ41.3	ϕ22.2

If the total capacity code value of indoor units exceeds that of outdoor units, apply the capacity code of outdoor units.

(5) Piping of indoor unit (Table 5)

Capacity rank		Gas side	Liquid side
007 type to 012 type	Actual length 15 m or less	ϕ9.5	ϕ6.4
	Actual length exceeds 15 m	ϕ12.7	ϕ6.4
015 type to 018 type		ϕ12.7	ϕ6.4
024 type to 056 type		ϕ15.9	ϕ9.5
072 type to 096 type		ϕ22.2	ϕ12.7

(6) Selection of branching section (Table 6)

	Total capacity code of indoor unit *1		Model name
Y-shape branching joint *2	Below 6.4		RBM-BY54E
	6.4 to below 14.2		RBM-BY104E
	14.2 to below 25.2		RBM-BY204E
	25.2 or more		RBM-BY304E
Branching header *3	For 4 branching	Below 14.2	RBM-HY1043E
		14.2 to below 25.2	RBM-HY2043E
	For 8 branching	Below 14.2	RBM-HY1083E
		14.2 to below 25.2	RBM-HY2083E
T-shape branching joint (For connecting outdoor unit)	1 set of 3 types of T-shape joint pipes as described below: The required quantity is arranged and combined at the site. • Balance pipe (Corresponded difference ϕ9.52) × 1 • Piping at liquid side (Corresponded difference ϕ9.5 to ϕ22.1) × 1 • Piping at gas side (Corresponded difference ϕ15.9 to ϕ41.3) × 1		RBM-BT13E

(7) Minimum wall thickness for R410A application (Table 7)

Soft	Half hard or hard		OD (inch)	OD (mm)	Minimum wall thickness (mm)
OK	OK		1/4”	6.35	0.80
OK	OK		3/8”	9.52	0.80
OK	OK		1/2”	12.70	0.80
OK	OK		5/8”	15.88	1.00
NG	*4	OK	3/4”	19.05	1.00
NG		OK	7/8”	22.20	1.00
NG		OK	1.1/8”	28.58	1.00
NG		OK	1.3/8”	34.92	1.10
NG		OK	1.5/8”	41.28	1.25

*1 Code is determined according to the capacity rank.
*2 When using Y-shape branching joint for 1st branching, select according to capacity code of outdoor unit.
*3 For 1 line after header branching, indoor units with a maximum of 6.0 capacity code in total can be connected.
*4 If the pipe size is ϕ19.0 or more, use a hard type or half hard type for material of the pipe.
*5 The maximum equivalent length of the main pipe should be 70 m or shorter.

Charging requirement with additional refrigerant

After the system has been vacuumed, replace the vacuum pump with a refrigerant cylinder and charge the system with additional refrigerant.

Calculating the amount of additional refrigerant required

HFC
R410A

Refrigerant in the system when shipped from the factory

		5HP	6HP	8HP	10HP	12HP
Refrigerant amount charged in factory	Heat pump model	8.5 kg	8.5 kg	11.8 kg	11.8 kg	11.8 kg
	Cooling only model	8.0 kg	8.0 kg	11.0 kg	11.0 kg	11.0 kg

When the system is charged with refrigerant at the factory, the amount of refrigerant needed for the pipes at the site is not included. Calculate the additional amount needed, and add that amount to the system.

(Calculation)
Additional refrigerant charge amount is calculated from size of liquid pipe at site and its actual length.

Additional refrigerant charge amount at site =
Actual length of liquid pipe × Additional refrigerant charge amount per liquid pipe 1 m (Table 7-1) + Compensation by system HP (Table 7-2)

Example: Additional charge amount R (kg) = (L1 x 0.025 kg/m) + (L2 x 0.055 kg/m) + (L3 x 0.105 kg/m) + (3.0 kg)
L1: Actual total length of liquid pipe ϕ6.4 (m)
L2: Actual total length of liquid pipe ϕ9.5 (m)
L3: Actual total length of liquid pipe ϕ12.7 (m)

Table 7-1

Pipe dia. at liquid side	ϕ6.4	ϕ9.5	ϕ12.7	ϕ15.9	ϕ19.0	ϕ22.2
Additional refrigerant amount / 1 m	0.025 kg	0.055 kg	0.105 kg	0.160 kg	0.250 kg	0.350 kg

Table 7-2

Combined horse power (HP)	Outdoor combination (HP)				Compensation by system HP (kg)
5	5				0.0
6	6				0.0
8	8				1.5
10	10				2.5
12	12				3.5
14	8	6			0.0
16	8	8			0.0
18	10	8			0.0
20	10	10			3.0
22	12	10			5.0
	8	8	6		0.0
24	12	12			7.0
	8	8	8		–4.0
26	10	8	8		–4.0

Combined horse power (HP)	Outdoor combination (HP)				Compensation by system HP (kg)
28	10	10	8		–2.0
30	10	10	10		0.0
32	12	10	10		1.0
	8	8	8	8	–6.0
34	12	12	10		3.0
	10	8	8	8	–6.0
36	12	12	12		4.0
	10	10	8	8	–6.0
38	10	10	10	8	–6.0
40	10	10	10	10	–5.0
42	12	10	10	10	–4.0
44	12	12	10	10	–2.0
46	12	12	12	10	0.0
48	12	12	12	12	2.0

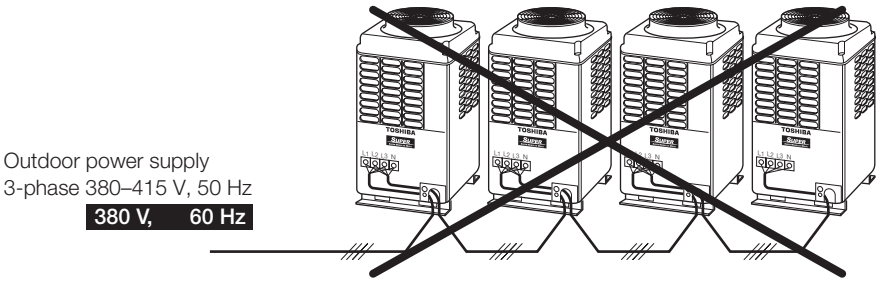
Wiring Design

General

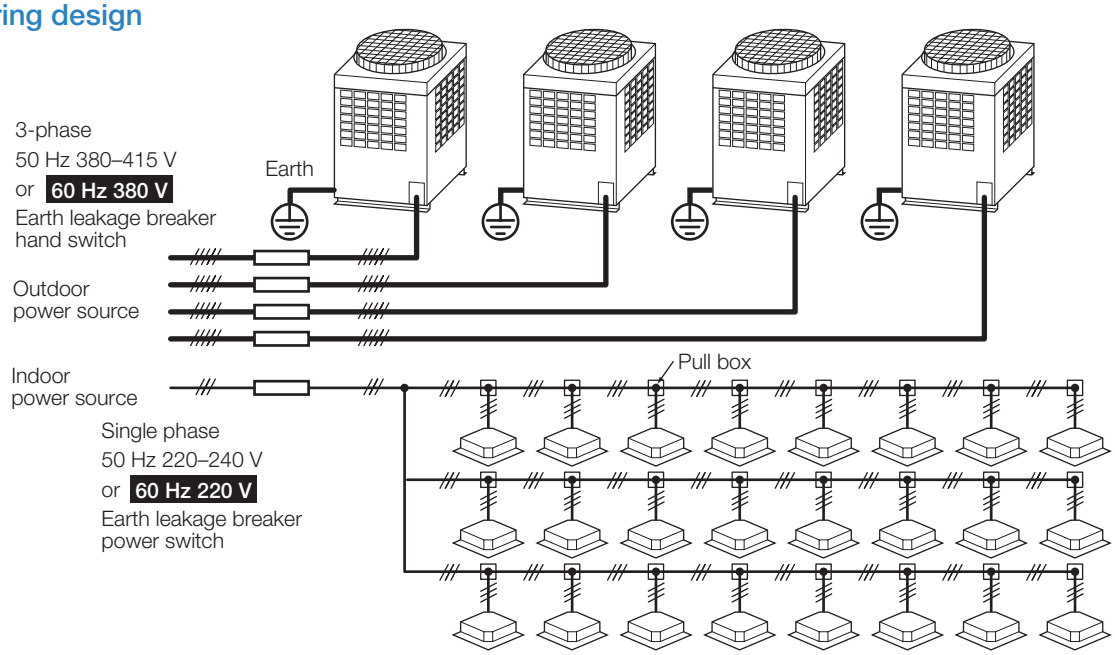
(1) Perform wiring of the power supply in conformance with the regulations of the local electric company.
(2) For the control wires connecting indoor units, outdoor units, and between indoor and outdoor units, use of double-core shield wires is recommended to prevent noise trouble.
(3) Be sure to set the earth leakage breaker and the switches to the power supply section of the indoor unit.
(4) Supply power to each outdoor unit and provide an earth leakage breaker or hand switch for each outdoor unit.
(5) Never connect 220–240 V power to the terminal block (U1, U2, U3, U4, U5, U6) for control cables. (Problems may occur.)
(6) Store wiring system for control and refrigerant piping system in the same line.
(7) Arrange the cables so that the electric wires do not come in contact with high-temperature part of the pipe; otherwise coating melts and an accident may occur.
(8) Do not turn on power of the indoor unit until vacuuming of the refrigerant pipe is completed.

For outdoor unit power supply

- Select the power supply cabling and fuse of each outdoor unit from the following specifications:
  Cable 5-core, in conformance with Design 60245 IEC 66
- Do not connect the outdoor units by crossing outside of them (see illustration), but connect them via the incorporated terminal block (L1, L2, L3, N).



Electrical wiring design



Model	Outdoor power supply
MMY-APxxxxT8, HT8	3-phase, 380–415 V, 50 Hz
MMY-APxxxxHT7	3-phase, 380 V, 60 Hz

- Unit capacities and power supply wire sizes (Reference)

Model MMY-			Power supply wiring	
			Wire size	Field fuse
MAP0501T8	MAP0501HT8	MAP0501HT7	3.5 mm² (AWG #12) Max. 26 m	20 A
MAP0601T8	MAP0601HT8	MAP0601HT7	3.5 mm² (AWG #12) Max. 26 m	20 A
MAP0801T8	MAP0801HT8	MAP0801HT7	3.5 mm² (AWG #10) Max. 20 m	30 A
MAP1001T8	MAP1001HT8	MAP1001HT7	5.5 mm² (AWG #10) Max. 28 m	30 A
MAP1201T8	MAP1201HT8	MAP1201HT7	5.5 mm² (AWG #10) Max. 27 m	30 A

- Determine the wire size for indoor unit according to the number of connected indoor units downstream.
- Observe local regulations regarding wire size selection and installation.

For indoor unit power supply (Must be independent from outdoor unit power.)

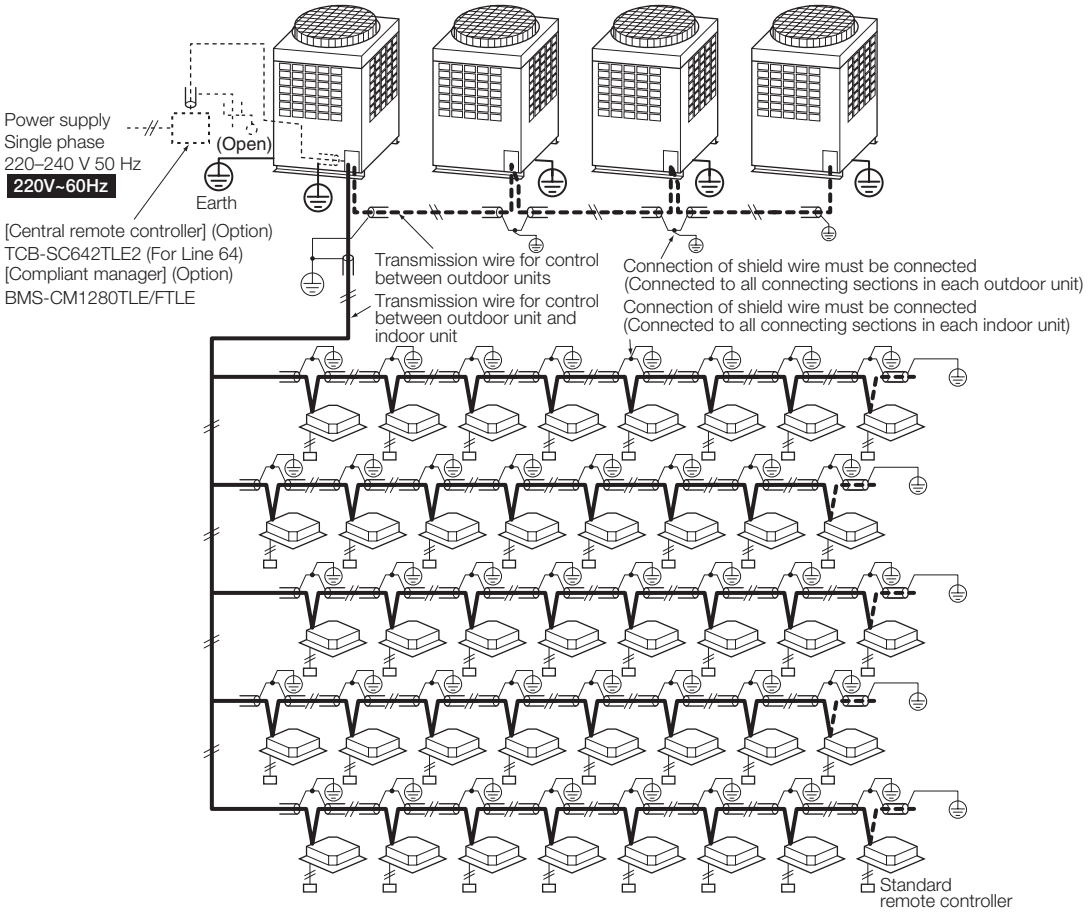
Item / Model	Power supply wiring		
	Wire size		Field fuse
All models of indoor units	2.0 mm² (AWG#14) Max. 20 m	3.5 mm² (AWG#12) Max. 50 m	15 A

NOTE : The connecting length indicated in the table represents the length from the pull box to the outdoor unit when the indoor units are connected in parallel for power, as shown in the above illustration. A voltage drop of no more than 2% is also assumed. If the connecting length will exceed the length indicated in the table, select the wire thickness in accordance with local wiring standards.

⚠ CAUTIONS

(1) Keep the refrigerant piping system and the indoor-indoor / indoor-outdoor control wiring systems together.
(2) When running power wires and control wires parallel to each other, either run them through separate conduits, or maintain a suitable distance between them.
(Current capacity of power wires: 10 A or less for 300 m, 50 A or less for 500 m)

Design of control wiring



- Wire specification, quantity, size of crossover wiring and remote controller wiring

Name	Quantity	Size			Specification
		Up to 500 m	Up to 1000 m	1000 to 2000 m	
Crossover wiring (indoor-indoor / indoor-outdoor / outdoor-outdoor control wiring, central control wiring)	2 cores	1.25 mm²		2.0 mm²	Shield wire
Remote controller wiring	2 cores	0.5 to 2.0 mm²	—	—	—

(1) The crossover wiring and central control wiring use 2-core non-polarity transmission wires. Use 2-core shield wires to prevent noise trouble. In this case, close (connect) the end of shield wires, and perform the functional grounding for the end of the shield wires which are connected to both indoor and outdoor units. For the shield wires which are connected between the central remote controller and the outdoor unit, perform the functional grounding at only one end of central control wiring.
(2) Use 2-core and non-polarity wire for remote controller. (A, B terminals)
Use 2-core and non-polarity wire for wiring of group control. (A, B terminals)

Control wiring diagram

(1) All control wiring is 2-core and non-polarity wire.
(2) Be sure to use shield wire for the following wiring to prevent noise trouble.

- Outdoor-outdoor / indoor-indoor / outdoor-indoor control wiring, central control wiring.

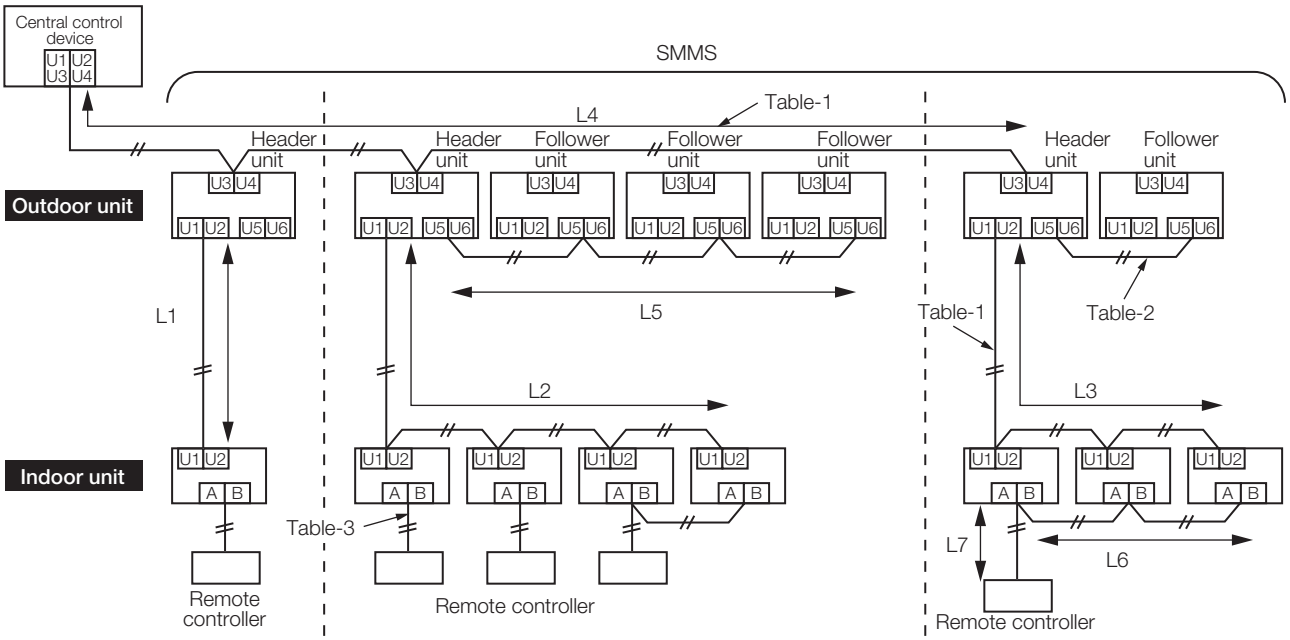


Table-1 Control wiring between indoor and outdoor units (L1, L2, L3), central control wiring (L4)

Wiring	2-core, non-polarity
Type	Shield wire
Size Length	1.25 mm² : Up to 1000 m 2.0 mm² : Up to 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)

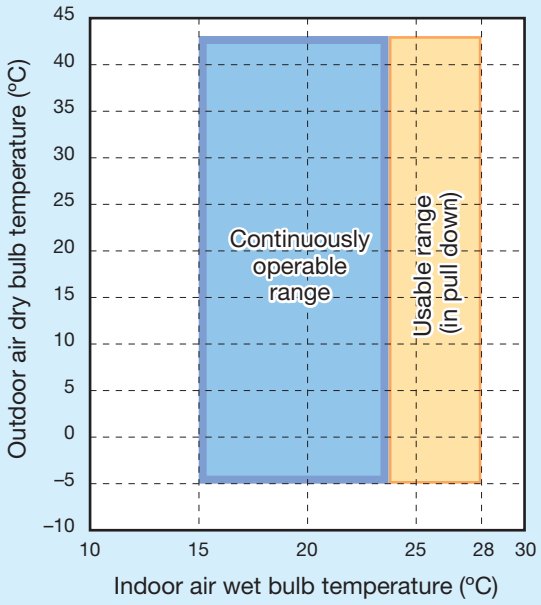
Wiring	2-core, non-polarity
Type	Shield wire
Size Length	1.25 mm² to 2.0 mm² Up to 100 m (L5)

Table-3 Remote controller wiring (L6, L7)

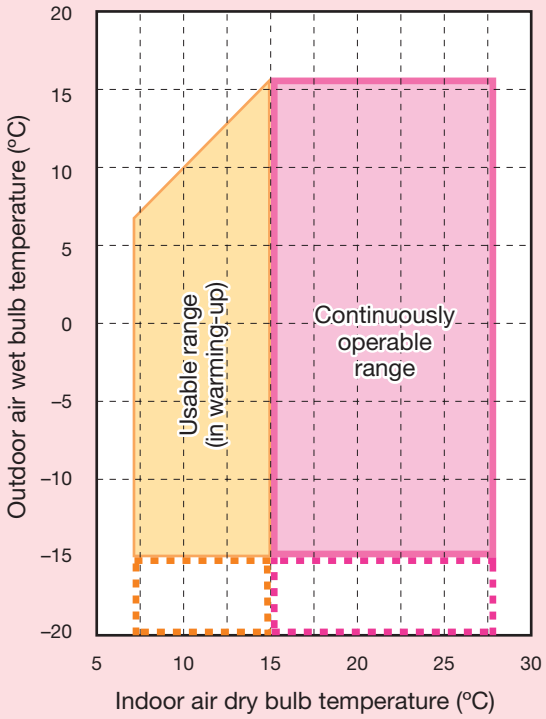
Wiring	2-core
Size	0.5 mm² to 2.0 mm²
Length	• Up to 500 m (L6 + L7) • Up to 400 m in case of wireless remote controller in group control. • Up to 200 m total length of control wiring between indoor units (L6)

Operating Temperature Range

In cooling time



In heating time



* The unit can be operated even if outdoor temperature gets down to –20˚C. However, note that the warranty covers only up to –15˚C because operation beyond that temperature is out of specification.

* When outdoor air temperature falls below –15˚C, it may cause shortening of the product's lifetime.

⚠ SAFETY PRECAUTIONS

For operation:

- Before use, read through the operating instructions to ensure proper use.

Concerning the purpose for which the air conditioners are to be used

- The air conditioners presented in this catalog are air conditioning/heating units to be used solely by general consumers.
  - Do not use these air conditioners for special applications such as for the storage of food items, animals, plants, precision machines or works of art. Doing so may degrade the quality of the items.
  - Do not use these air conditioners for air-conditioning applications in vehicles or ships. Doing so may cause water and/or power leakages.

Precautions for using air conditioners

Concerning the automatic defrosting unit

When the outdoor air temperature drops, frost may form on the heat exchanger of the outdoor unit. In such cases, the automatic defrosting unit will be activated, and it will take 5 to 8 minutes for the heating operation to be restored.

Concerning the air conditioner's operating conditions and their selection

(1) Avoid using the air conditioner in the following locations.

- Locations with acidic or alkaline atmospheres (locations at which highly acidic or alkaline air is directly drawn in, such as in hot springs areas from which sulfur gases are given off, or where chemicals, vinegar, exhaust air from burners, etc., are given off) The heat exchangers and other parts may become corroded.
- Locations with atmospheres filled with coolant or other machine oil or steam exhaust (such as at food preparation factories or machine plants). The heat exchangers may corrode; frost may form as a result of heat exchanger malfunction; air conditioner operating performance may be compromised or condensation may form as a result of clogged filters; plastic parts may incur damage; heat-insulation materials may become separated, etc.

(2) Before using an air conditioner in any of the following locations, consult with your dealer or a qualified contractor.

- Locations where vapors from edible oils are given off (such as in bakeries or kitchens and restaurants that use edible oils) ...The air conditioner's operating performance may be compromised or condensation may form as a result of clogged filters, and the plastic parts may incur damage. In line with the prevailing conditions, take countermeasures such as tailoring the installation conditions in accordance with the conditions, using air conditioners designed for kitchens or oil guard filters, etc.
- Locations with disinfectant-induced chlorine atmospheres (water tanks, etc.) The metal parts in the heat exchangers, motors, etc., may become corroded.
- Locations with high salinity (coastal areas, etc.) Corrosion may occur so use outdoor units specifically designed to withstand exposure to salt.
- Locations where power is supplied from independent power generators The power line frequency and/or voltage may fluctuate, possibly causing the air conditioner to malfunction.
- Locations where high frequencies or electrical noise is generated (from high-frequency welders used for vinyl welding and processing, high-frequency therapeutic devices used for thermotherapy, etc.) The electronic components may be adversely affected, possibly causing the air conditioner to malfunction.
- Locations where electronic equipment is installed Electrical noise may adversely affect the operation of the electronic equipment.

(3) Concerning use in locations with high ceilings

- In locations with high ceilings, use of circulators for improving the temperature distribution during heating is recommended.

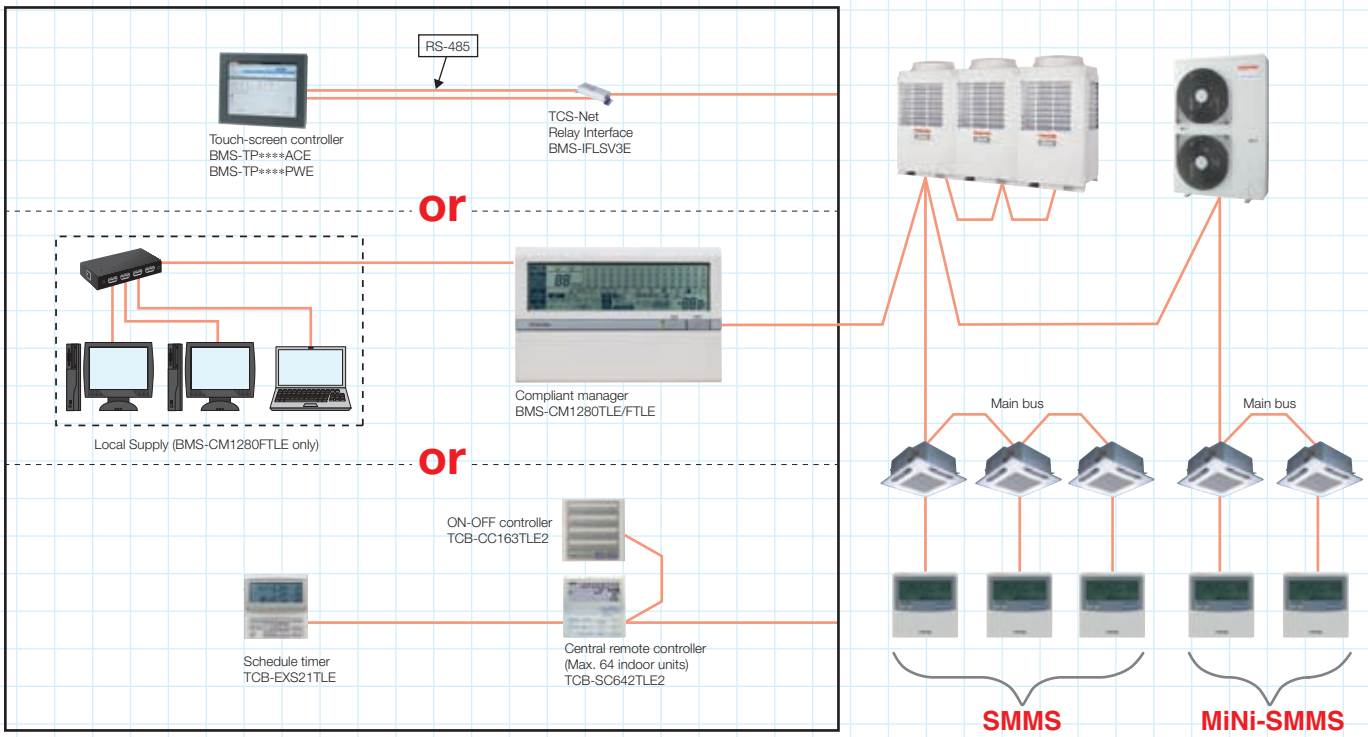
(4) Concerning use in high-humidity environments

- When the ceiling-recessed type of indoor unit is installed in a location, such as those described below, and it is very hot and humid inside the ceiling, condensation may form on the external surfaces of the indoor unit and drip down. In such cases, add external heat-insulating materials.
  - Locations such as food preparation sites in which the areas above the ceilings are hot and humid
  - Locations in which outside air is drawn in and routed above the ceiling
  - Above ceilings with a slate roof or tiled roof overhead

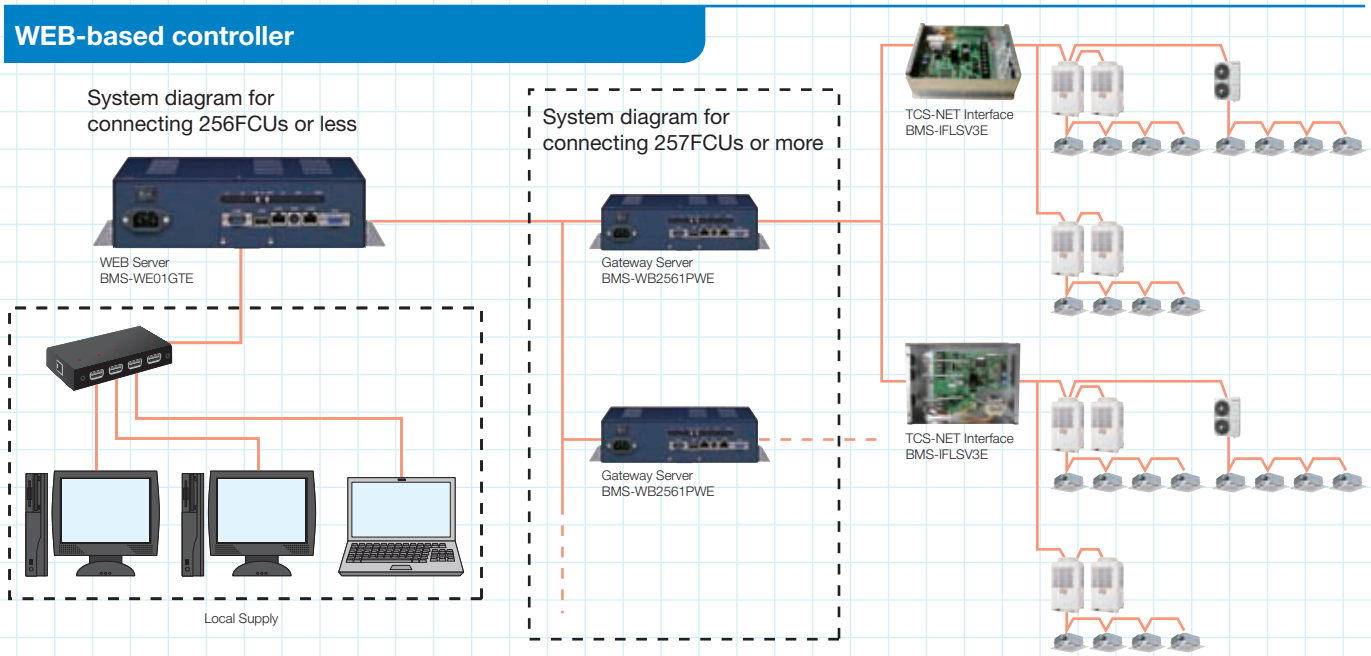
(5) Even when an air conditioner is shut down, it will still consume a small amount of power to protect the unit. If the air conditioner will not be used for a prolonged period, turn OFF the main switch (ground fault circuit breaker). However, before the unit is to be used again, turn ON the main switch (ground fault circuit breaker) for at least 12 hours in order to prevent trouble.

Wide Control Applications (TCC-Link Controls)

Touch-screen controller and central remote controller



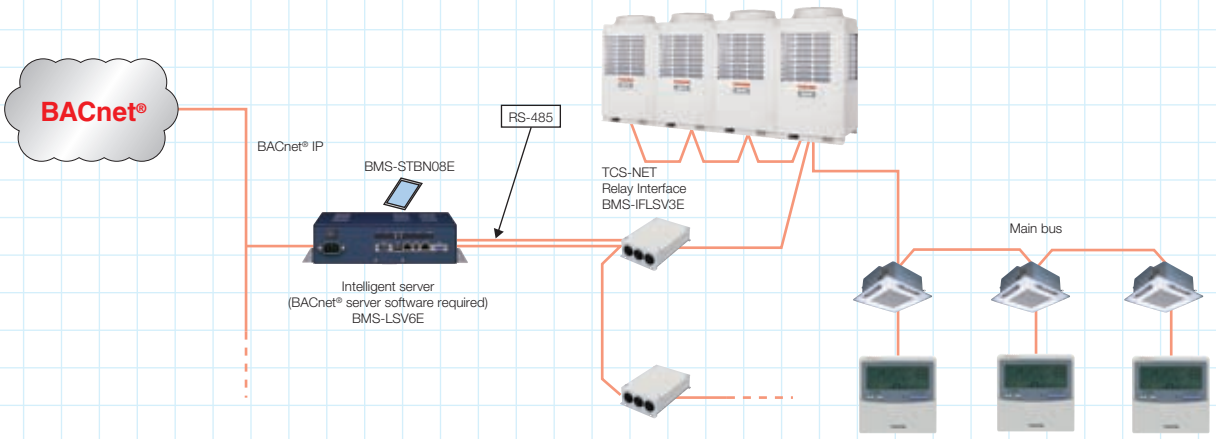
WEB-based controller



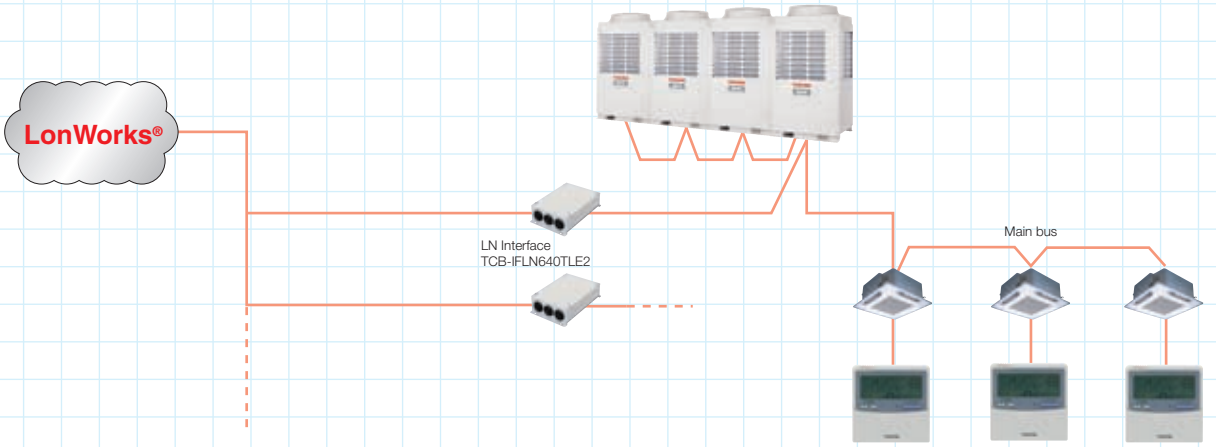
Other controllers

Mobilephone control interface, analog interface, EIB, general-purpose interface, VN interface and VN controller units are under development.

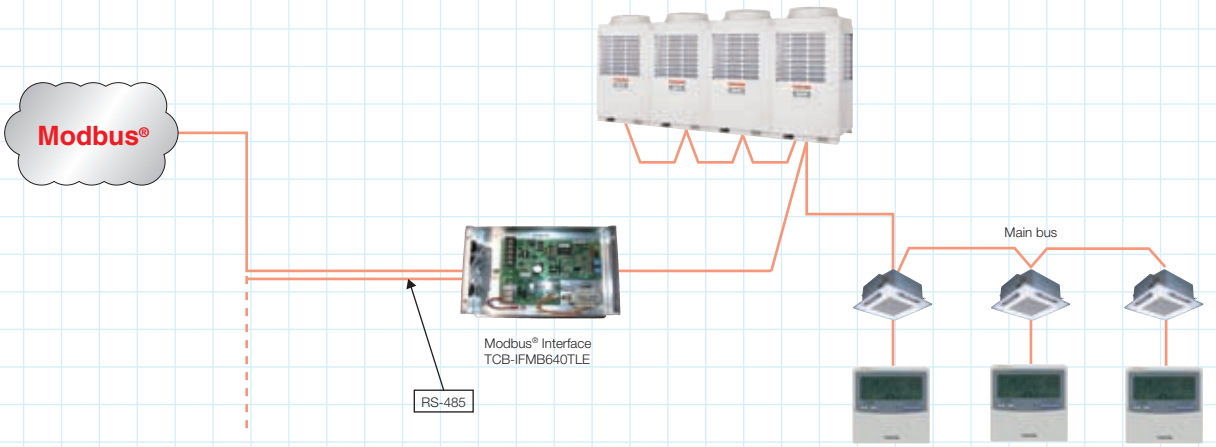
BACnet® gateway



LonWorks®



Modbus®



Network Control

The SMMS control system offers flexible centralised network control to suit varied customer needs.

Touch-screen Controller

BMS-TP0641ACE
BMS-TP5121ACE
BMS-TP0641PWE*
BMS-TP5121PWE*
* With energy monitoring and billing

WEB Based Controller

BMS-WE01GTE
(WEB Server)

BMS-WB2561PWE
(Gateway Server)

■ Touch-screen controller

Using the touch-screen controller provides a clear display and enables easy operation.
A maximum of 512 units are controllable using the one-touch controller.

■ Energy monitoring and billing application

Power meter interface, power meter locally supplied Energy Monitoring relay I/F (BMS-IFWH4E2)

■ Power Meter (Local Supply)

1 kWh/pulse or 10 kWh/pulse (Pulse duration 50 to 1000 ms) (Maximum 8 power meter per interface)

Relay Interface

BMS-IFWH4E2
For Energy Monitoring

BMS-IFDD02E2
For Digital I/O

BMS-IFLSV3E
For TCS-NET

■ WEB Based Controller

Signals and provides the following functions :

- Operation monitoring
- Operation control
- Operation Schedule
- Operation display
- Error Code
- Alarm List
- Energy monitoring/Billing
- Digital I/O Signal Control

Connect the WEB server for every 256 indoor units, and connect a gateway server upstream from the server.

Intelligent Server

BMS-LSV6E

■ BACnet®

The BACnet® system operates in conjunction with the BAC net server. Server uses object signals to provide the following functions:

Object signals command
- ON/OFF
- Mode: cool/heat/fan
- Temperature setting
- Central/local
- Fan speed

Monitoring
- ON/OFF etc.

Mode
- Cool/heat/fan/failure
- Temperature setting
- Room temperature
- Central/local
- Energy monitoring, etc.

BACnet® Server Software

BMS-STBN08E

■ BACnet®

The BACnet® system operates in conjunction with the BAC net software and intelligent server.

LN Interface

TCB-IFLN640TLE2

■ LonWorks® LN Interface

The LonWorks® interface manages the SMMS air conditioning system as a Lon device to communicate with the custormer's Building Management System and to monitor operational status.
A maximum of 64 units are controllable per interface.

■ SNVT signal

Signals and provides the following functions:

Object signals command
- ON/OFF
- Mode: cool/heat/fan
- Temperature setting
- Central/local

Monitoring
- ON/OFF

Mode
- Cool/heat/fan/failure
- Temperature setting
- Room temperature
- Central/local, etc.

Modbus Interface

TCB-IFMB640TLE

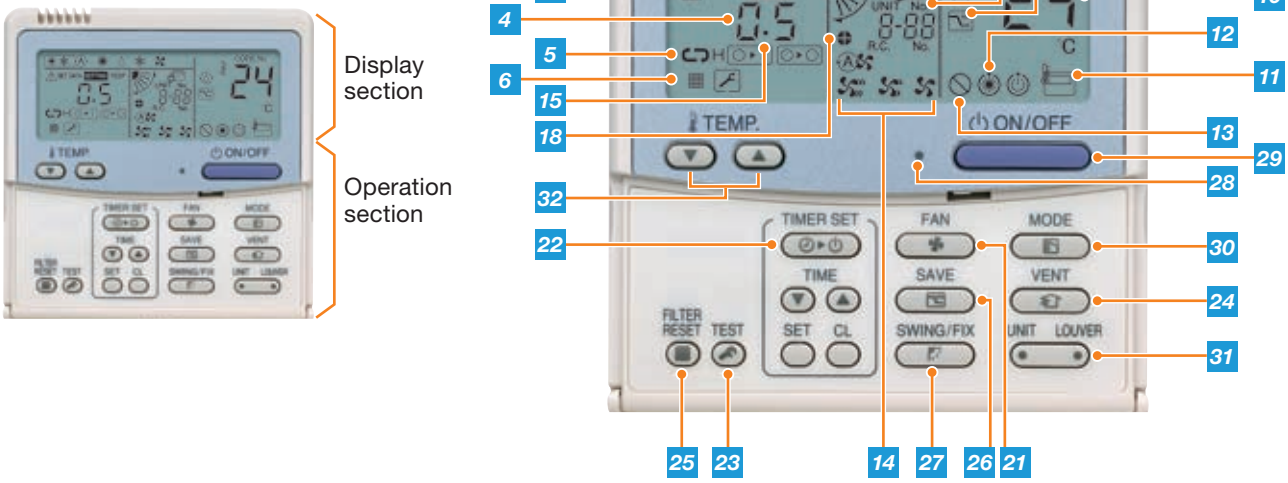
■ Modbus®

The Modbus® interface manages the SMMS air conditioning system as a Modbus® device to communicate with the custormer's Building Management System. Accessible to 64 units per one TCB-IFMB640TLE, 15 TCB-IFMB640TLEs on one Modbus® Master (prepared by user).

Signals and provides the following functions:
- ON/OFF
- Mode: cool/heat/fan
- Air flow/Louver setting
- Temperature setting
- Filter reset
- Accumulated operation time, etc.

1. LonWorks®: Registered trademark Echelon corporation
2. BACnet®: ANSI/ASHRAE 135-1995, A data Communication Protocol for Building Automation and Control Networks.
3. Modbus® is a registered trademark of Schneider E.

Remote Controller RBC-AMT32E (RBC-AMT31E) (main wired remote controller)



Display section

1 SETTING display
Displayed during setup of the timer, etc.

2 Operation mode select display
The selected operation mode is displayed.

3 CHECK display
Displayed while the protective device works or a problem occurs.

4 Timer time display
Time of the timer is displayed. (When a problem occurs, the check code is displayed.)

5 Timer SET IN setup display
When pushing the Timer SET IN button, the display of the timer is selected in order of [OFF] → [OFF] repeat OFF timer → [ON] → No display.

6 Filter display
If "FILTER" is displayed, clean the air filter.

7 TEST run display
Displayed during a test run.

8 Louver position display
Displays louver position.

9 SWING display
Displayed during up/down movement of the louver.

10 Set up temperature display
The selected set up temperature is displayed.

11 Remote controller sensor display
Displayed while the sensor of the remote controller is used.

12 PRE-HEAT display
Displayed when the heating operation starts or defrost operation is carried out.
While this indication is displayed, the indoor fan stops.

13 No function display
Displayed if there is no function even if the button is pushed.

14 Air volume select display
The selected air volume mode is displayed.
(AUTO) (HIGH)
(MED.) (LOW)

15 Louver Number display (example: 01, 02, 03, 04)

16 Dry operation in self-cleaning function
Displayed during dry operation in self-cleaning function.

17 Power-saving mode display
Displayed during capacity saving mode by temporary peak-cut limiting the power current level of the outdoor unit.

18 Louver lock display
Displayed when there is a louver-locked unit in the group (including 1 indoor unit by 1 outdoor unit).

19 Unit Number display
Unit number of the indoor unit selected with the unit select button or abnormal indicate the indoor/outdoor unit.

20 Central control display
Displayed when the air conditioner is used under the central control in combination with a central control remote controller.
In case the remote controller is disabled by the central control system, flashes . The button operation is not accepted.
Even when you push ON/OFF, MODE, or TEMP. button, and the button operation is not accepted.
(Settings made by the remote controller vary with the central control mode. For details, refer to the Owner's Manual of the central control remote controller.)

Operation section

21 FAN button (Air volume select button)
Selects the desired air volume mode.

22 TIMER SET button (Timer set button)
TIMER SET button is used when the timer is set up.

23 TEST button (Check button)
The CHECK button is used for the check operation. During normal operation, do not use this button.

24 VENT button (Ventilation button)
Ventilation button is used when a fan which is sold separately is connected.
- If "No function" is displayed on the remote controller when pushing the Ventilation button, a fan is not connected.

25 FILTER RESET button (Filter reset button)
Resets (Erases) "FILTER" display.

26 SAVE button (Power-save operation)
SAVE button is used for power-save operation. Cannot be used in SMMSs.

27 SWING/FIX button (Swing/Wind direction button)
Selects automatic swing or setting the louver direction.

28 Operation lamp
Lamp is lit during operation.
Lamp is off when stopped.
The lamp flashes when operating the protection device or abnormal time.

29 ON/OFF button
When the button is pushed, operation starts, and it stops by pushing the button again.
When operation has stopped, the operation lamp and all the displays disappear.

30 MODE button (Operation select button)
Selects desired operation mode.

31 UNIT LOUVER button (Unit/Louver select button)
Selects a unit number (left) and louver number (right).

UNIT:
Selects an indoor unit when adjusting wind direction when multiple indoor units are controlled with one remote controller.
(4-way air discharge cassette type only)

LOUVER:
Selects a louver when setting louver lock or wind direction adjustment independently.

32 TEMP. button (Set up temperature button)
Adjusts the room temperature.
Set the desired set temperature by pushing TEMP. or TEMP. .

OPTION:
Remote controller sensor
Usually the TEMP. sensor of the indoor unit senses the temperature. The temperature surrounding the remote controller can also be sensed.
For details, contact the dealer from which you have purchased the air conditioner.

* The RBC-AMT31E does not have a SAVE button. Buttons displayed in photo vary slightly for RBC-AMT31E.

Model name		Appearance		Function
Simple wired remote controller	RBC-AS21E2			• Start/Stop • Temperature setting • Air flow changing • Check code display
Remote sensor	TCB-TC21LE2			Install this sensor when outside air has been introduced or when overcooling and overheating are to be minimized.
Wireless remote controller kit & sensor unit (receiver unit)	RBC-AX31U(W)-E RBC-AX31U(WS)-E		 **RBC-AX31U(W)-E/RBC-AX31U(WS)-E** Integral receiver	• Start/Stop • Changing mode • Temperature setting • Air flow changing • Timer function Either “ON” time or “OFF” time or “CYCLIC” can be set how many 30 min. later ON or OFF is operated. • Control by 2 remote controllers is available. Two wireless remote controllers can operate one indoor unit. The indoor unit can then be operated separately from the two different locations. • Check code display **RBC-AX31U(W)-E/RBC-AX31U(WS)-E** (For 4-way air discharge cassette) **RBC-AX22CE2** (For Ceiling, 1-way air discharge cassette (MMU-AP***2SH)) **TCB-AX21E2** (For Compact 4-way cassette (600 x 600), 2-way air discharge cassette, Concealed duct standard, Slim duct, Floor standing cabinet, Floor standing, 1-way discharge cassette (MMU-AP***1YH)) * The wireless remote control cannot be connected to Concealed duct high static pressure type or Fresh air intake indoor unit type units.
	RBC-AX22CE2		 **RBC-AX22CE2** Integral receiver	
	TCB-AX21E2		 **TCB-AX21E2** Stand alone receiver	

Model name		Appearance	Performance
ON-OFF controller	TCB-CC163TLE2		• Individual control of up to 16 indoor units. • Connection by 2 remote controllers is available. • Setting of simultaneous ON/OFF 3 times per day combined with the weekly timer.
Central remote controller	TCB-SC642TLE2		• Individual control of up to 64 indoor units. • Individual control for max. 64 indoor units divided into 1 to 4 zone (Up to 16 indoor units for each zone) • Up to 16 outdoor header units are connectable • 4 types of central control settings to inhibit individual operation by remote controller can be selected • Setting for one of 1 to 4 zones is available • Usable with other central control devices (Up to 10 central control devices in one control circuit) • Two control mode selectivity (Central controller mode / Remote controller mode) • Setting of simultaneous ON/OFF 3 times per day combined with the weekly timer.
Schedule Timer	TBC-EXS21TLE		• **Schedule timer mode** – 6 programmings per day – Enabling 8 groups to be programmed – A maximum of 64 indoor units can be controlled – A maximum of 100 hours back-up power supply • **Weekly timer mode** – 7 types of weekly schedule and 3 programmings per day – Can program off mode by one-minute units
Remote controller with weekly timer (7-day timer function)	RBC-AMS41E		• **Clock display** • **Schedule timer:** Possible to program schedule timer (7-day timer) function Possible to program 8 functions for each day of the week * The following items can be set in program: Operation time, Operation start/stop, Operation mode, Temperature setting, Restriction on button operation

BMS-CM1280TLE, BMS-CM1280FTLE* (Compliant manager)

Operation

Individual operation of 128 indoor units available
Return Back Operation
Weekly Schedule Operation*
(ON/OFF)
* Schedule timer necessary

Monitoring

Zone setting (64 zones x 2)
Individual unit operation mode operation restriction
Alarm display
Control input
Status output

Web Application (BMS-CM1280FTLE)

Network connection
Setting Schedule (ON/OFF, Setting temperature, operation mode and Remote control Permit/Prohibit)
Error history electrical power distribution* external connection*
* PC necessary

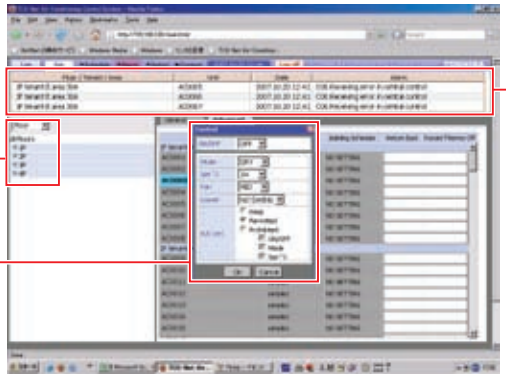
* BMS-CM1280FTLE can be connected to Web.

Operation Functions

Up to 128 indoor units can be easily monitored

Display tenant name where the indoor unit is installed for easier monitoring.

Simple checking and setting by clicking each indoor unit.



Easy to check alarm details

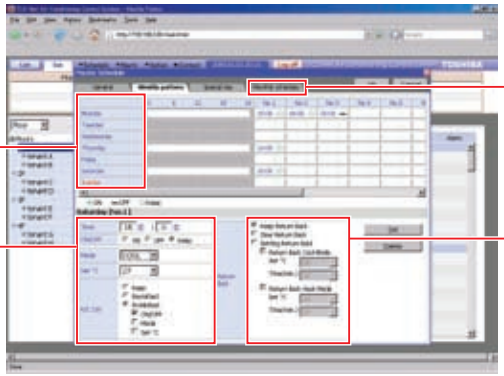
(PC screen)

Schedule Operation

Easy Schedule Control
Can set weekly, monthly schedule

7 days schedule setting
Can use the same setting every week to save setting time.

After selecting the day of the week, can set detailed operation setting.
- ON/OFF switch-over at the set time.
- When selecting the keep mode, the same setting can be continually used.



Holiday settings ahead of time.

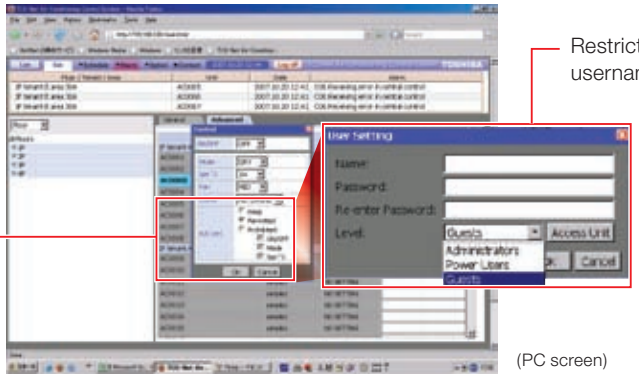
Return Back Function for automatic temperature control to maintain the desired fixed temperature.

(PC screen)

System Management

Three-level System Management

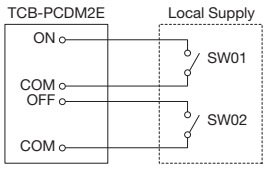
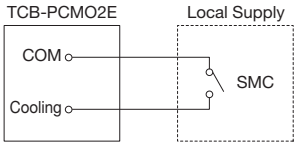
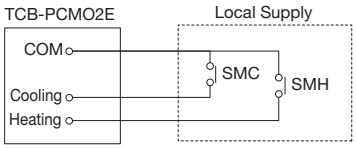
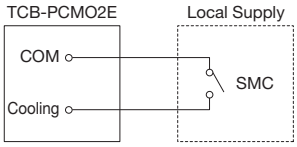
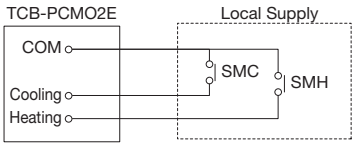
Three-level authorization for multiple user management.

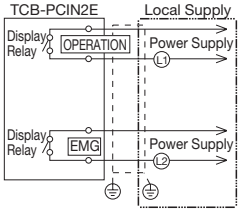


Restrict user authority by username and password.

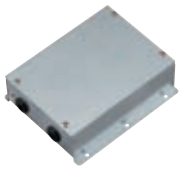
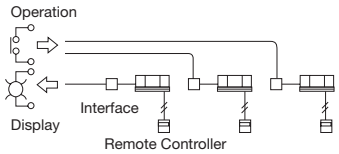
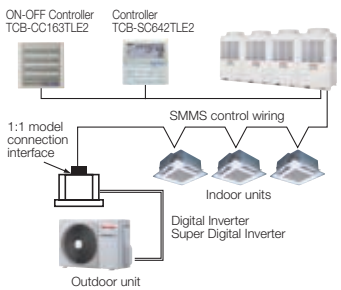
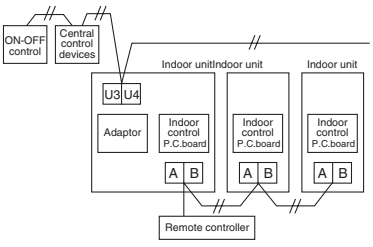
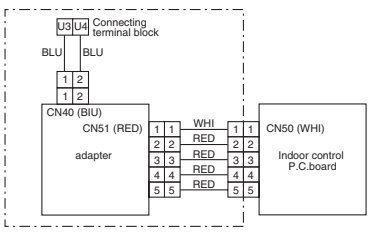
(PC screen)

Application controls by the optional P.C. board of outdoor units

Model name	Appearance	Feature & Function
TCB-PCDM2E	 Size: 71 × 85 (mm)  * Install the optional P.C. board in the inverter assembly of the outdoor header unit.	**[1] Power peak-cut Control** • Feature The upper limit capacity of the outdoor unit is restricted based on the outdoor power peak selected setting. • Function Two control settings are selectable by setting SW07 on the interface P.C. board on the header outdoor unit.  **[Standard function]** SW07-2 OFF Input / SW07-1 SW01 / SW02 / OFF / ON ON / OFF / 0% (stop) / Up to 60% OFF / ON / 100% (Normal) / 100% (Normal) **[Additional function]** SW07-2 ON Input / SW07-1 SW01 / SW02 / OFF / ON OFF / OFF / 100% (Nomal) / 100% (Nomal) ON / OFF / Up to 80% / Up to 85% OFF / ON / Up to 60% / Up to 75% ON / ON / 0% (stop) / Up to 60% • Ensure that terminal contacts are fixed and secure. • Do not turn on SW1 and SW2 terminals simultaneously.
TCB-PCMO2E	 Size: 55.5 × 60 (mm)  * Install the optional P.C. board in the inverter assembly of the outdoor header unit.	**[2] Snowfall fan control** • Feature The upper limit capacity of the outdoor unit is restricted based on the outdoor power peak selected setting. • Function  **SMC: Cooling mode select input (switch)** Terminal / Input signal / Operation SMC / ON / OFF / Snowfall fan control (Operates outdoor fan.) SMC / ON / OFF / Normal operation (Releases control) This control is activated when an input signal increases or decreases. (The increasing or decreasing signal needs to be held for a minimum of 100 m/sec in order to activate the control.)
		[3] External master ON/OFF control • Feature The outdoor unit starts or stops the system. • Function  **SMC: Input signal for start** **SMH: Input signal for stop** Terminal / Input signal / Operation SMC / ON / OFF / Starts all indoor units. SMH / ON / OFF / Stops all indoor units. • Ensure that terminal contacts are fixed and secure. This control is activated when an input signal increases or decreases. (The increasing or decreasing signal needs to be held for a minimum of 100 m/sec in order to activate the control).
		[4] Night operation (Sound reduction) control • Feature Sound level can be reduced by restricting the compressor and fan speeds. • Function  **SMC: Cooling mode designated input switch** Terminal / Input signal / Operation SMC / ON / OFF / Night operation (sound reduction) control SMC / ON / OFF / Normal operation This control is activated when an input signal increases or decreases. (The increasing or decreasing signal needs to be held for a minimum of 100 m/sec in order to activate the control).
		[5] Operation mode selection control • Feature This control can restrict the selectable operation mode. • Function  **SMC: Cooling mode designated input switch** **SMH: Heating mode designated input switch** SMC / SMH / Selected operation mode ON / OFF / Only cooling mode permitted OFF / ON / Only heating mode permitted Ensure terminal contacts are securely fixed.

Model name	Appearance	Feature & Function
TCB-PCIN2E	 Size: 73 × 79 (mm)  * Install the optional P.C. board in the inverter assembly of the outdoor header unit.	**[6] Error/Operation Control** • Feature This control can restrict the selectable operation mode. • Function  Ⓛ1 : Operation monitoring lamp Ⓛ2 : Error monitoring lamp Operation monitoring: Display relay is ON with more than one indoor unit operation. EMG monitoring: Display relay is ON when the system is in error status. **CAUTION** Be sure to prepare a non-voltage point for each terminal. Display Relay capacity of “OPERATION” and “EMG” Below AC240V 0.5A (COSØ = 100%) When connecting load such as relay coil to “L1, L2” load, insert the noise surge absorber. Below DC24V 1A (Non-inductive load) When connecting load such as relay coil to “L1, L2” load, insert the bypass circuit.

Application control of optional devices connectable to indoor units

Model name	Appearance	Feature & Function
TCB-IFCB-4E2	 Size: 200 × 170 × 66 (mm)  	**[1] Remote location ON/OFF control box** • Feature Start and stop of the air conditioner is possible by an external signal and indication of operation/alarm externally. • Function Monitoring ON/OFF status (for indoor unit) Alarm status (system & indoor unit stop) ON/OFF command Air conditioner can be turned ON/OFF by the external signals. The external ON/OFF signals will initiate the signals shown below. 
TCB-PCNT30TLE2	 Size: 85 × 52 (mm) Install optional P.C. board in E-parts of the indoor unit.  	**[2] Network adapter** • Feature Link adapter for “1:1 model” to enable connection to VRF system network. 1:1 model: Super digital inverter Digital inverter Used only for light commercial products • Function  

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