

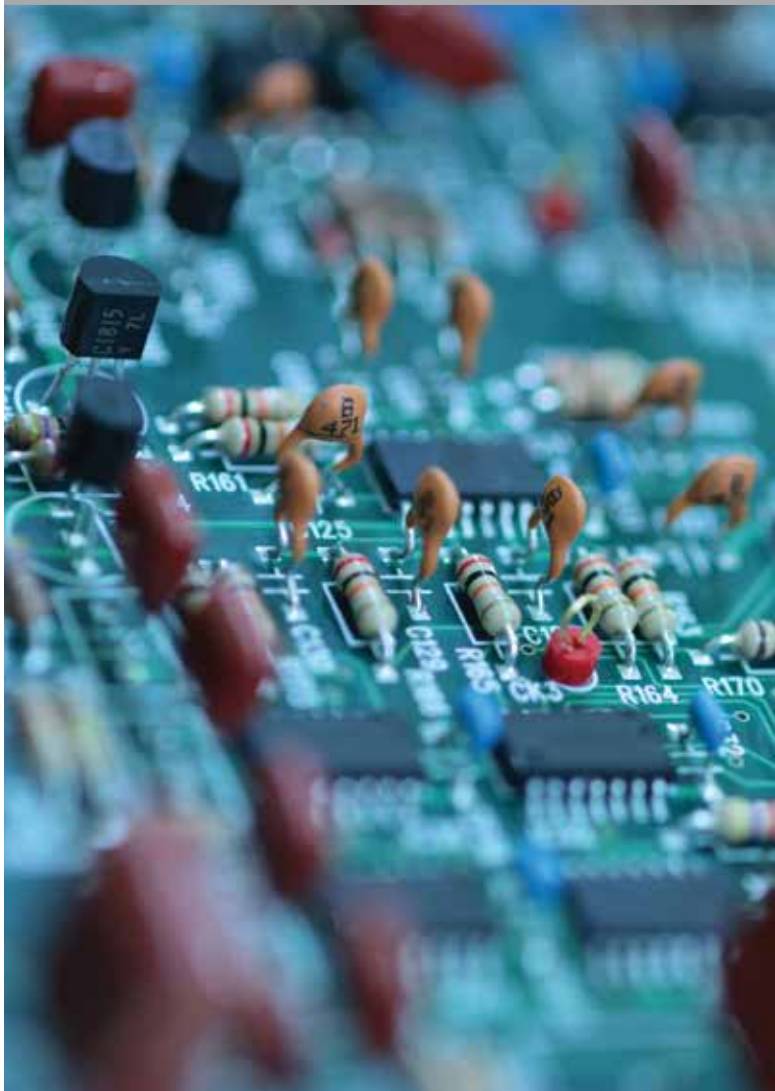
TOSHIBA
Leading Innovation >>>

Air Conditioning Solution for Residential and Commercial Buildings



Side Discharge VRF





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Toshiba solutions

Toshiba offers a solution for all applications: residential and commercial buildings. Residential indoor units are designed to blend perfectly with all interiors and incorporate advanced filtration systems to deliver optimum indoor air quality. For small commercial premises, products are designed to deliver top performance combined with energy efficiency.

For larger applications, VRF systems combine flexibility, energy efficiency and respect for the environment, with a wide choice of stylish indoor units.

Absolute comfort

Toshiba's commitment to society drives a company-wide focus on attention to the details through every stage of the development process, from design to user field tests. Installations using our products and systems therefore feature a higher standard of indoor air quality, sound levels, energy savings, and environmental awareness.



Defining a HIGHER standard

The all-new Side discharge VRF air conditioner lineup lets you cool or warm as many as 12*¹ rooms with a single system. Outdoor units ranging from 6HP to 12HP, offer best class energy savings, installation flexibility and quiet operation, plus with 13 indoor units to choose from, the Side discharge VRF makes a perfect solution for small shops and office buildings.

*1: 3-phase 12HP outdoor unit



Side Discharge VRF

The Side discharge VRF 6, 8, 10 and 12HP models featuring 3-phase power supply for small and mid-size installations

HIGHER ENERGY SAVINGS

Side discharge VRF achieves world-class COP of 4.40*² and EER of 3.60*² thanks to an integrated combination of Toshiba's more advanced twin rotary compressor, vector-controlled inverter and heat exchanger technologies.

*2: 3-phase 6HP outdoor unit

HIGHER COMFORT AND EASE

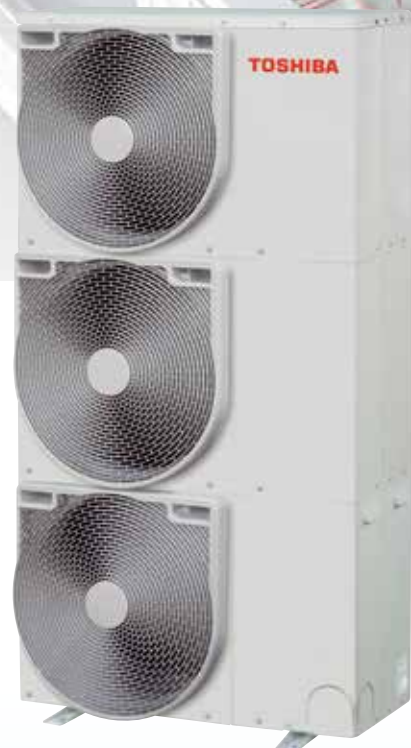
A single outdoor unit is powerful enough to accommodate up to 12*¹ independently controlled interior units, delivering ideal quiet comfort to every room.



HIGHER INSTALLATION FLEXIBILITY

Side discharge VRF small footprint allows for fast and easy installation. Furthermore, a maximum piping extension of 180m*³ affords unprecedented configuration flexibility, making this unit ideal for a wide variety of applications.

*3: 3-phase 10 and 12HP outdoor units

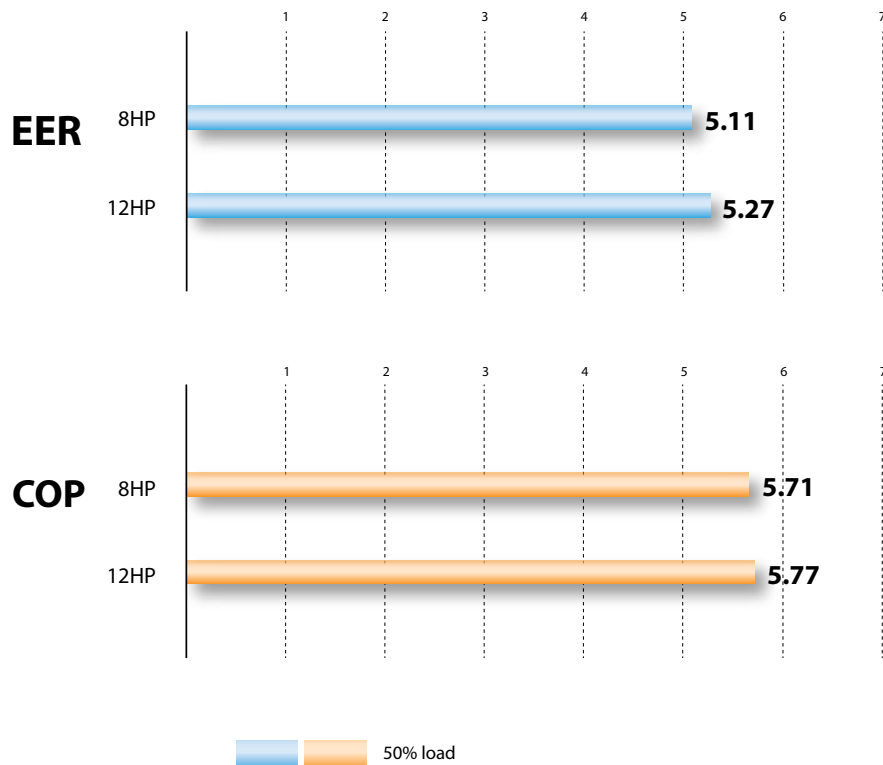


HIGHER ENERGY SAVINGS

Industry-leading energy savings

Energy-efficient performance for greater eco-consciousness

Adopting the highly efficient DC twin-rotary compressors and advanced vector-controlled inverters realize world class efficiency.



8HP: MCY-MAP0804HT8 12HP: MCY-MHP1204HT8-1

*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

Toshiba's unique energy-efficient air conditioning innovations and technologies deliver high energy savings.

DC fan motor

- Highly efficient DC motor
- Sine wave drive

Heat exchanger

High-efficiency R410A heat-transfer tube



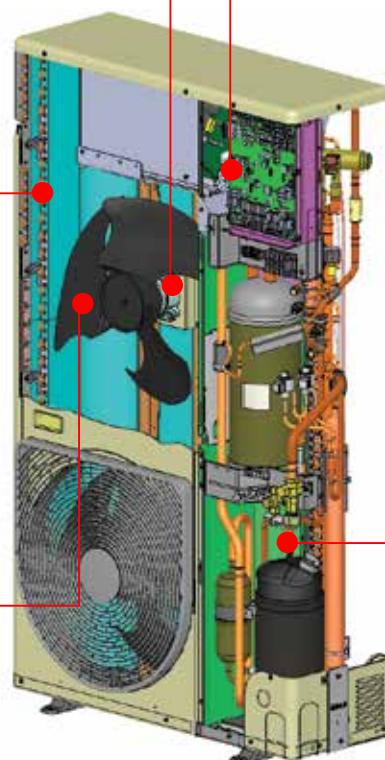
Configuration of the finned heat-transfer tube

Bat wing fan

High-pressure low-volume fan

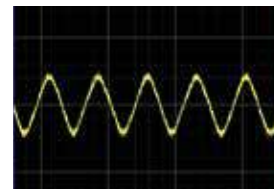


The bat wing fan realizes low sound level.



Vector-controlled inverter

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



Smooth sine curve realizes higher efficiency and less noise.



Efficient circuit built-in; new PIM

Vector IPDU control changes the motor current wave to a smooth sine pattern so that noise emitted from the drive units is greatly reduced.

Twin-rotary DC compressor

Increased, wide range efficiency is realized.

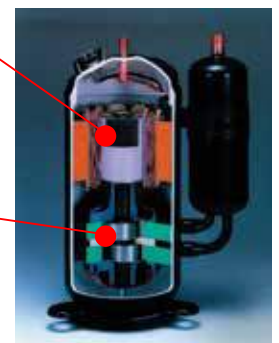


DC driven motor with rare-earth magnet

- Compact
- Higher efficiency
- Higher power motor torque

Precise manufacturing technology in the compression parts

- Higher efficiency (in wide range)
- Higher reliability





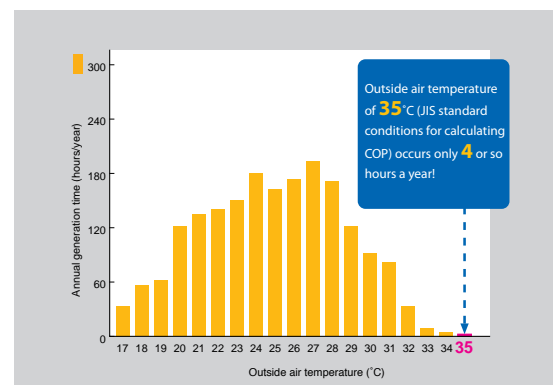
Our Side discharge VRF has the lowest seasonal power consumption and the highest energy conservation.

Why our systems make a big difference to your electricity bill even though the COP is virtually the same!

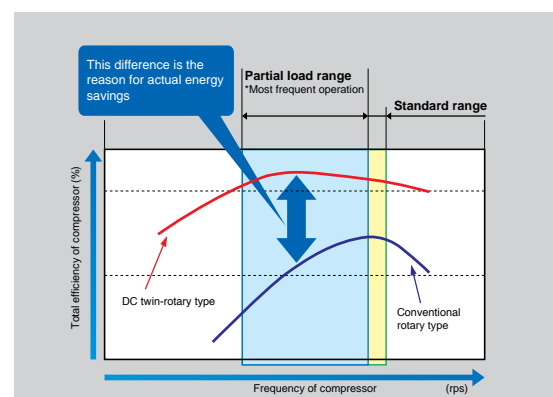
Your electricity bill (seasonal power consumption) is highly dependent on fluctuating outside air temperature.

However, COP is calculated at only two outside temperature points, 7°C (heating rating) and 35°C (cooling rating) which is often not representative of actual conditions.

To estimate energy savings, you should factor the actual outside air temperature generation time into your seasonal power consumption.



Outside air temperature conditions for calculating COP during cooling (from 8:00 to 21:00 in Tokyo)



Comparison of DC twin-rotary and conventional rotary compressors



Mechanism of improving COP

Amount of oil released from compressor reduced

Oil separator unnecessary

Oil separator:
This component separates the oil and refrigerant that are released from the compressor, and returns the oil to the compressor.



Improves both COP and reliability

What accounts for the improvement in COP? Previous multi-system outdoor units like the SMMS required both an oil separator and a power source for the oil separator, but this system needs neither, thus improving COP.

DC twin-rotary compressor advantage

Side discharge VRF uses twin-rotary inverter compressors that deliver a more stable, energy-efficient performance through their full range of compressor rotation when compared to scroll type compressors. Scroll compressors too can achieve high-efficiency operation, but only within a narrow range. As VRF systems require a wide range of capacity, twin-rotary compressors are the ideal choice.

HIGHER COMFORT AND EASE

A single outdoor unit is powerful enough to accommodate up to 12* independently controlled interior units, delivering ideal quiet comfort to every room.

*3-phase 12HP outdoor unit

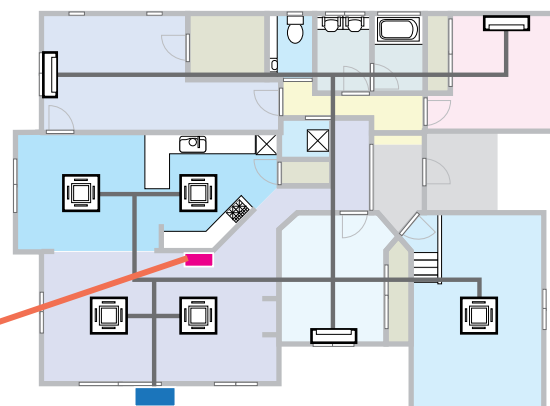
Comfort and wide application control

The ON-OFF controller makes it easy to manage all indoor units from a single location.

ON-OFF controller
TCB-CC163TLE2



All ON-OFF button



Indoor Unit Outdoor Unit

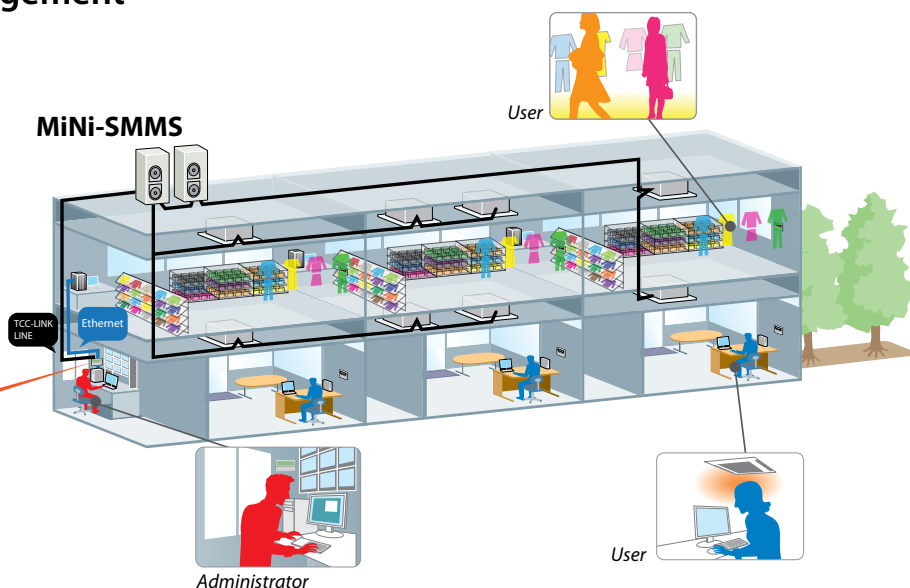
Smart Manager for remote management

By connecting a PC to the system via Ethernet, temperatures and operation in each room can be remotely monitored and controlled. Furthermore, daily, weekly, and monthly schedules can be set for automated operation.

SMART MANAGER
BMS-SM1280HTLE



Mini-SMMS



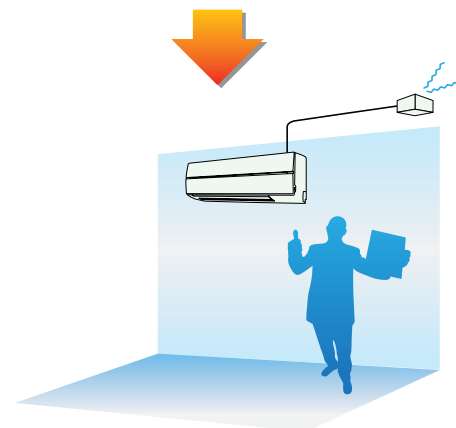


PMV kit for quieter operation

An optional PMV kit allows quieter placement by efficiently reducing the sound made by the refrigerant in the piping.



The PMV function is normally inside the indoor unit, and is the cause of most of the noise from the indoor unit.

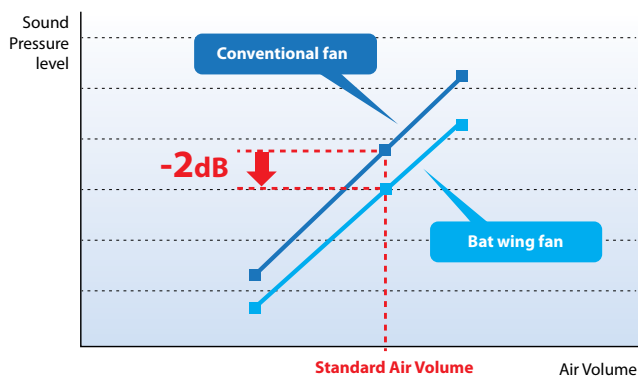


If the PMV function is removed from the indoor unit, noise can be significantly reduced.

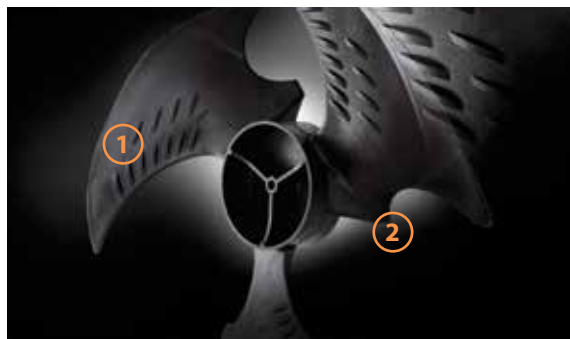


Bat wing fan

Fan blade design plays a significant part reducing noise and vibration. Anti-eddy projections and reverse-arc shaped wings reduce air resistance resulting in low operating noise of the outdoor unit.

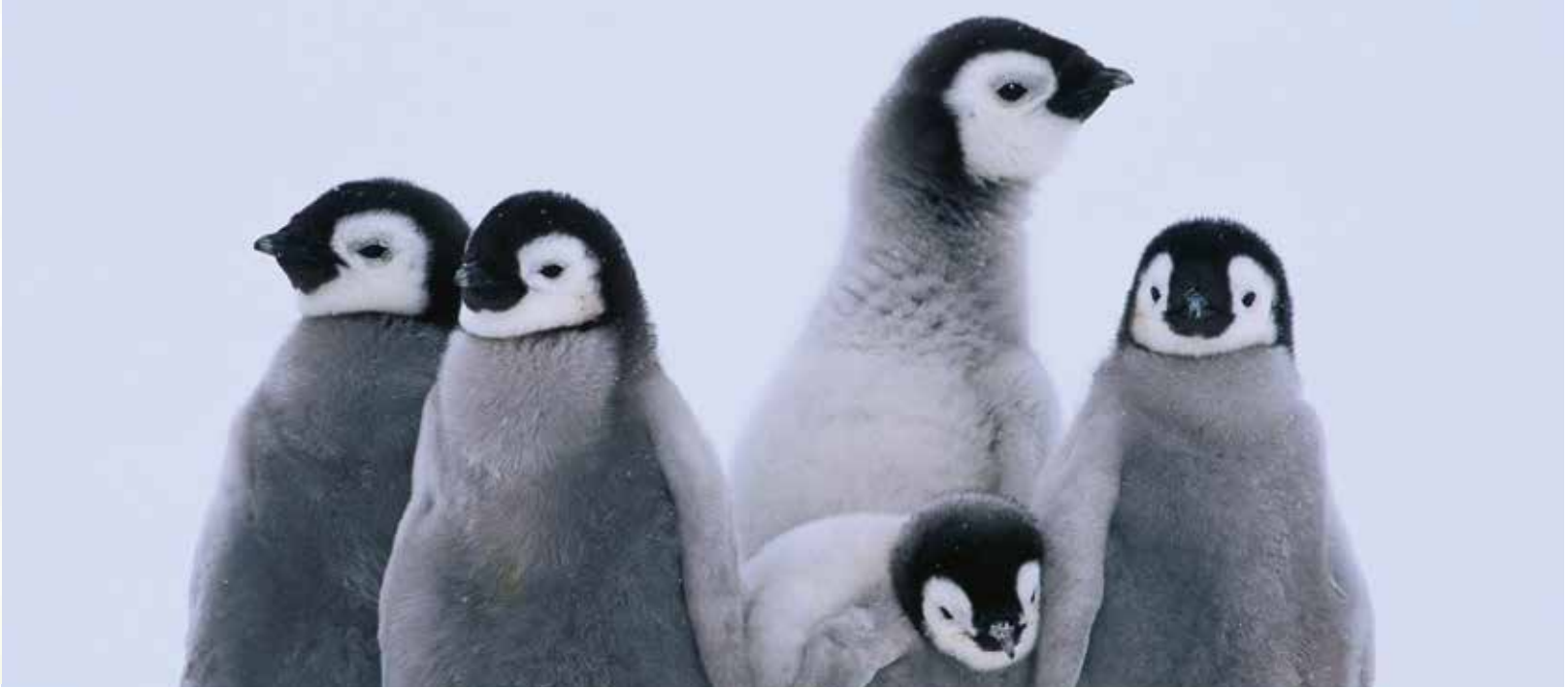


At same air volume, sound is reduced by 2 dB.



- ① **Anti-eddy projections**
Minimizes the generation of large eddies.
- ② **Reverse-arc-shaped wing**
Reduces rear turbulence due to less pressure loss.





Night operation (sound reduction) control

(with optional PC Board (TCB-PCMO4E) 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. (Timer or switch to be locally obtained.)

3-phase outdoor unit

Operation control		Normal	Night
6HP	Cooling	58 dB(A)	50 dB(A)
	Heating		
8HP	Cooling	58 dB(A)	50 dB(A)
	Heating		
10HP	Cooling	58 dB(A)	50 dB(A)
	Heating	59 dB(A)	50 dB(A)
12HP	Cooling	61 dB(A)	50 dB(A)
	Heating	62 dB(A)	50 dB(A)

*Sound pressure level: dB(A)



HIGHER INSTALLATION FLEXIBILITY

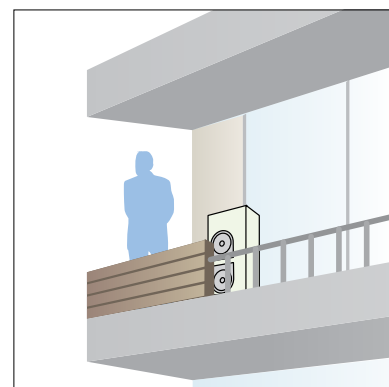
Small footprint

The outdoor unit has a small physical footprint of only 0.29m² and 0.39m², taking up as little space outside as possible.



Side discharge VRF is suitable for balconies

The outdoor unit is compact and expels exhaust air to the side, so it can be installed even in limited spaces as shown.

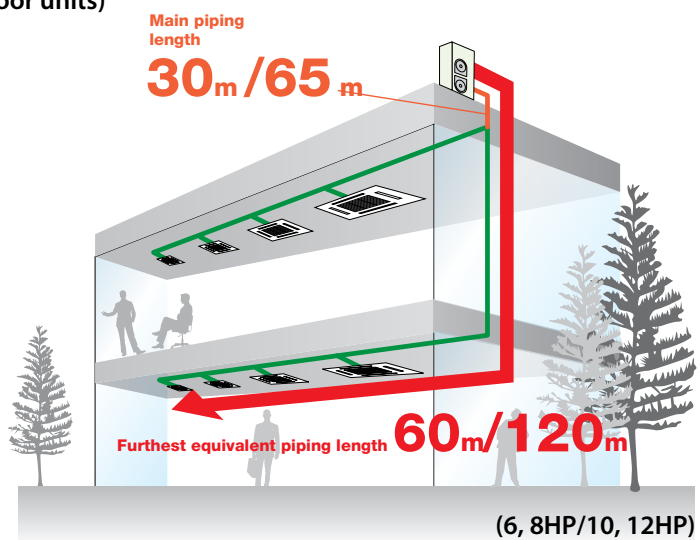




Maximum piping length (3-phase outdoor units)

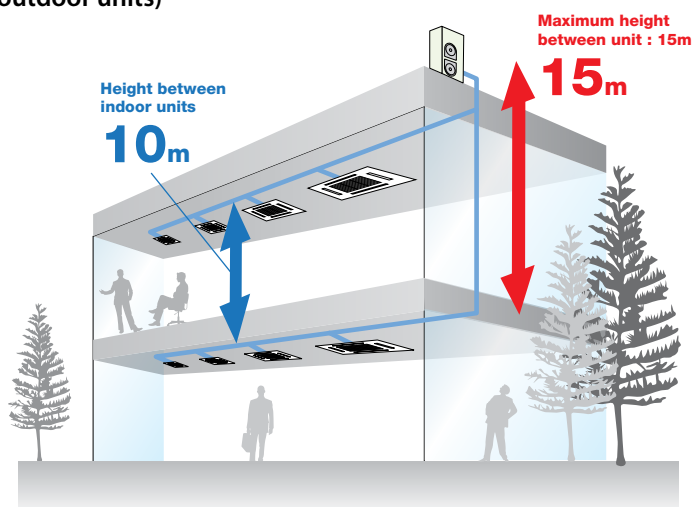
With a maximum piping length of up to 120m*, the outdoor unit can be placed far away and out of sight.

*: 3-phase 10 and 12HP outdoor units



Maximum height difference (3-phase outdoor units)

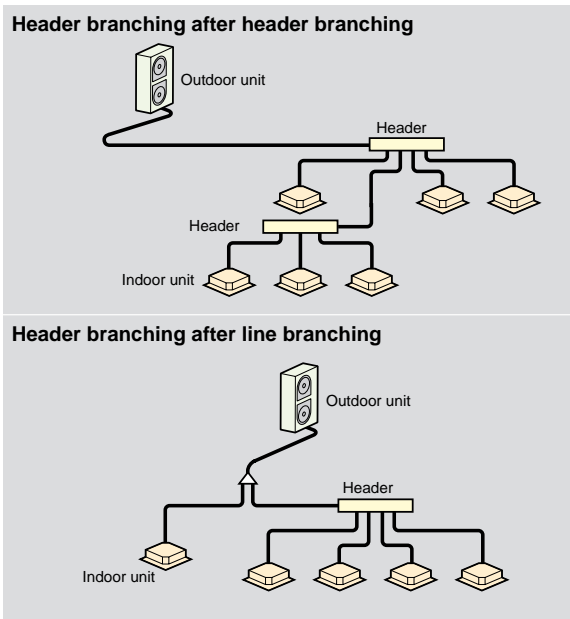
A maximum height difference of 15m means a single unit can supply indoor units on two or even three floors.



Shortest route design by free branching

Combination of line and header branching is highly flexible, allowing the shortest route possible thereby saving on installation time and costs.

Header branching after header branching is only available with Toshiba systems.



Maximum piping length with PMV kit

Extended refrigerant piping possibilities are possible even with the optional PMV kit installed.

3-phase 6 and 8HP outdoor units have a maximum pipe extension of 100m, regardless of PMV kits used.

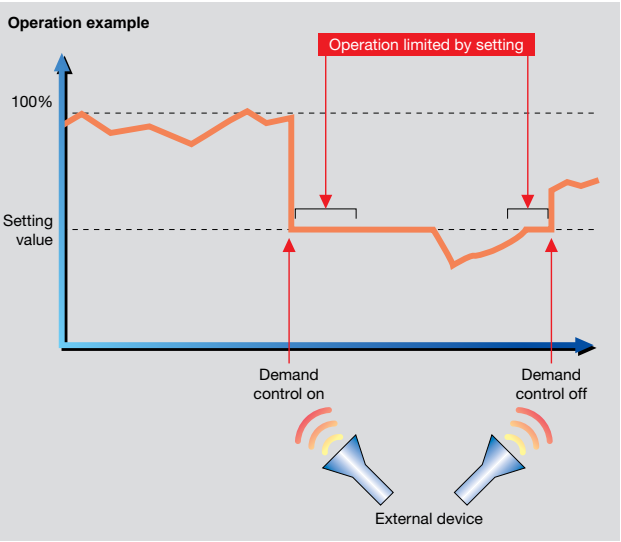
3-phase 10 and 12HP outdoor units have a maximum pipe extension of 180m, and 150m (without PMV kits).



More Attractive Features

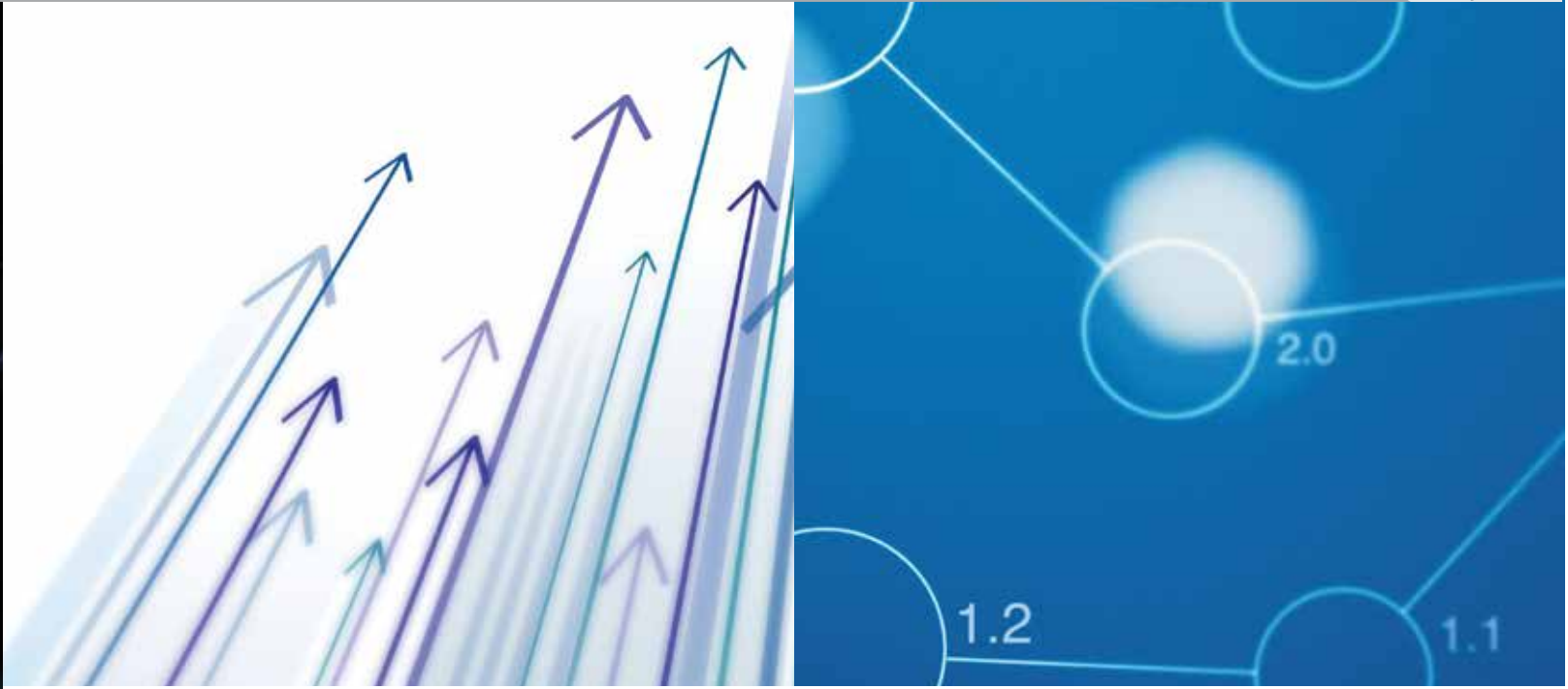
Reducing peak power consumption levels (optional)

An optional circuit board (TCB-PCDM4E) can be used to limit operation to specified setting ranges (Standard and Extended modes), controlled by the demand signal status. System operation is confined to a range that does not exceed thresholds.



Mode	Pattern	Selectable Capacity
Standard (2-steps)	A	100%(Normal) / 0%(Stop)
	B	100%(Normal) / Up to 60%
Extended (4-steps)	A	100%(Normal) / Up to 80% / Up to 60% / 0%(Stop)
	B	100%(Normal) / Up to 85% / Up to 75% / Up to 60%

Note: The above limitations do not apply at startup after heating operation has been turned off, during defrosting, and when heating operation is starting after defrosting finishes.

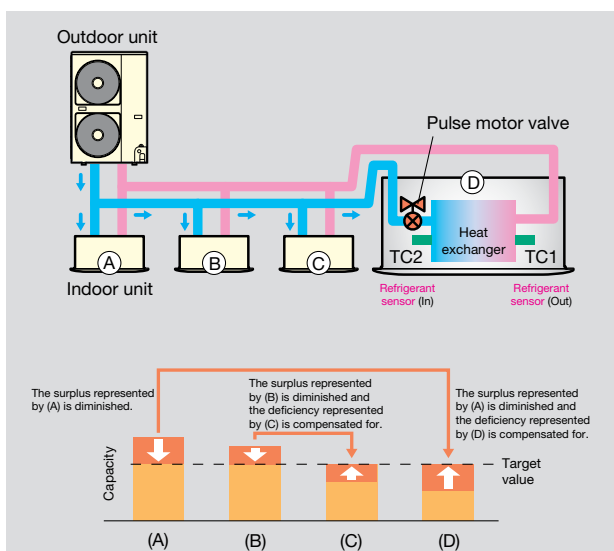


Optimal refrigerant control

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 because pressure loss and heat leaks occur 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 precisely controls the capacity (amount of refrigerant) to eliminate variations.



Outdoor units line-up

3-phase model


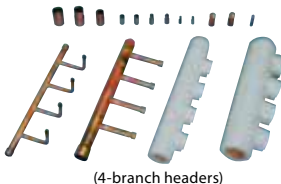
					
Capacity		6HP	8HP	10HP	12HP
Model Name	50 Hz (MCY-)	MAP0604HT8	MAP0804HT8	MHP1004HT8-1	MHP1204HT8-1
Cooling capacity* (kW)		15.5	22.4	28.0	33.5
Heating capacity* (kW)		18.0	25.0	31.5	37.5
Power supply		3-phase 4 wires 50Hz 380V-415V		3-phase 4 wires 50Hz 380V-415V	

*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

Branching joints and headers

	Y-shape branching joint		Branch headers	
Appearance			 (4-branch headers)	
Model name (RBM-)	BY55E (Below 6.4HP)	BY105E (6.4HP or more)	HY1043E (Max. 4 branches)	HY1083E (Max. 8 branches)

PMV kit

	PMV kit	
Appearance		
Model name (RBM-)	PMV0363E	PMV0903E
Indoor unit capacity type	007/009/012 type	015/018/024 type

Outdoor units Specification

3-phase model

Technical specifications

Equivalent HP				6HP	8HP	10HP	12HP
Model name	50Hz (MCY-)			MAP0604HT8	MAP0804HT8	MHP1004HT8-1	MHP1204HT8-1
Outdoor unit type				Inverter unit			
Cooling capacity ^{*1} (kW)				15.5	22.4	28.0	33.5
Heating capacity ^{*1} (kW)				18.0	25.0	31.5	37.5
Power supply				3-phase 4 wires 50Hz 380 - 415V		3-phase 4 wires 50Hz 380 - 415V	
External dimensions (Height / Width / Depth) (mm)				1540 / 900 / 320		1825 / 990 / 390	
Total weight (kg)				123		162	164
Compressor	Motor output (kW)			3.75		5.60	
Fan unit	Motor output (kW)			0.1 +0.1		0.1 +0.1 +0.1	
	Air volume (m³/h)			7860		11100	12000
Refrigerant piping Specifications	Connecting port dia.	Gas side (OD) (mm)	19.1	22.2		22.2	25.4
		Liquid side (OD) (mm)	9.5		12.7		
	Max. height between indoor and outdoor units (m)			Outdoor unit higher than indoor unit: 15			
				Outdoor unit lower than indoor unit: 15			
Max. no. of connected indoor units				8	8	12	12
Sound pressure level (Cooling/Heating) ^{*3} (dB(A))				58/58	58/58	58/59	61/62

*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

*2 When PMV kit is used

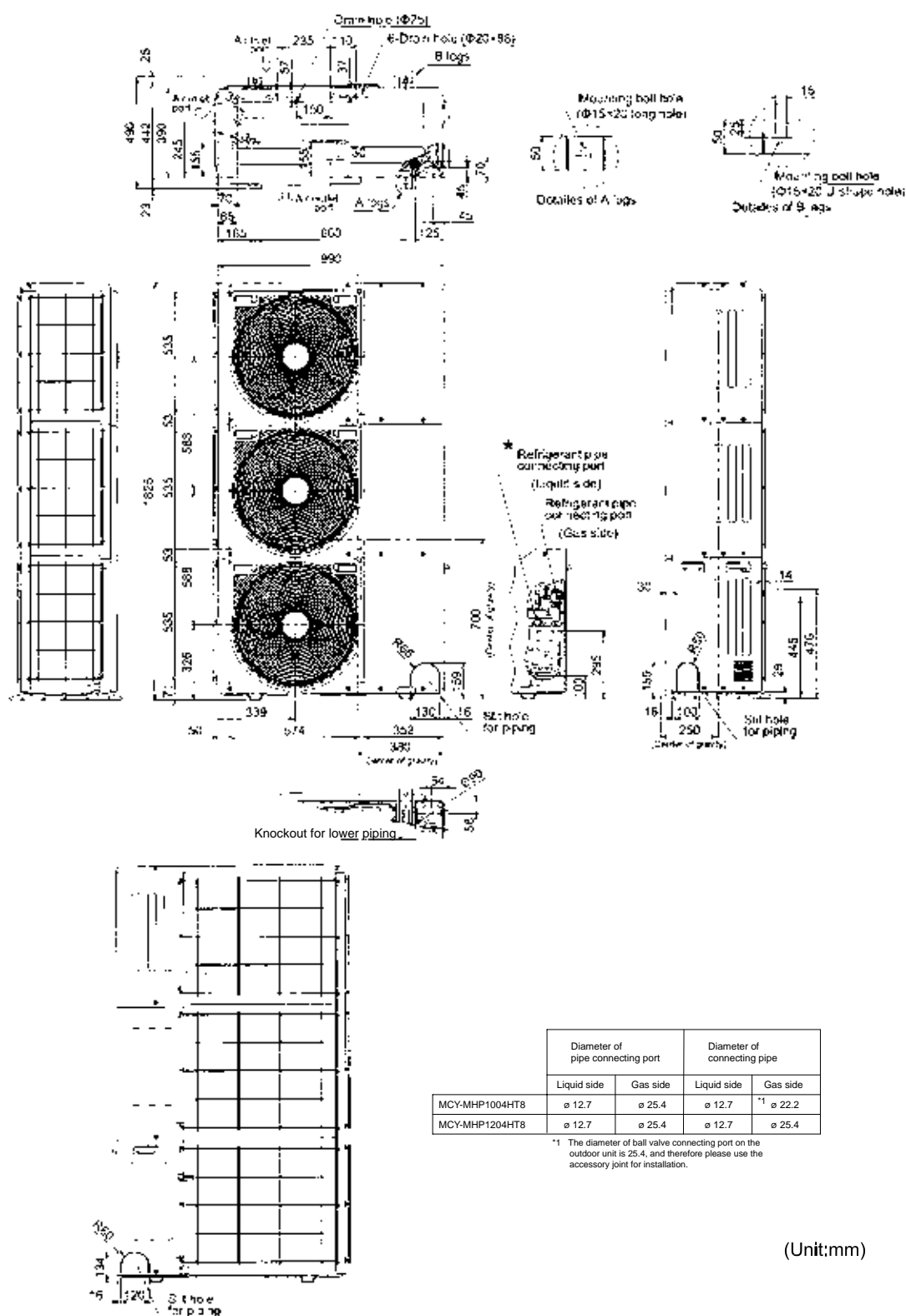
*3 Sound pressure levels measured in an anechoic chamber

3-phase model :
MCY-MAP0604HT8, MAP0804HT8 (50Hz)



3-phase model :

MCY-MHP1004HT8-1, MHP1204HT8-1 (50Hz)



(Unit:mm)

Indoor units line-up



Cooling capacity (HP equivalent)	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
007 type 2.2 kW (0.8HP)		MMU-AP0074MH-E	MMU-AP0072WH	MMU-AP0074YH-E	MMD-AP0076BHP-E
009 type 2.8 kW (1HP)	MMU-AP0094HP-E	MMU-AP0094MH-E	MMU-AP0092WH	MMU-AP0094YH-E	MMD-AP0096BHP-E
012 type 3.6 kW (1.25HP)	MMU-AP0124HP-E	MMU-AP0124MH-E	MMU-AP0122WH	MMU-AP0124YH-E	MMD-AP0126BHP-E
015 type 4.5 kW (1.7HP)	MMU-AP0154HP-E	MMU-AP0154MH-E	MMU-AP0152WH	MMU-AP0154SH-E	MMD-AP0156BHP-E
018 type 5.6 kW (2HP)	MMU-AP0184HP-E	MMU-AP0184MH-E	MMU-AP0182WH	MMU-AP0184SH-E	MMD-AP0186BHP-E
024 type 7.1 kW (2.5HP)	MMU-AP0244HP-E		MMU-AP0242WH	MMU-AP0244SH-E	MMD-AP0246BHP-E
027 type 8.0 kW (3HP)	MMU-AP0274HP-E		MMU-AP0272WH		MMD-AP0276BHP-E
030 type 9.0 kW (3.2HP)	MMU-AP0304HP-E		MMU-AP0302WH		MMD-AP0306BHP-E
036 type 11.2 kW (4HP)	MMU-AP0364HP-E		MMU-AP0362WH		MMD-AP0366BHP-E
048 type 14.0 kW (5HP)	MMU-AP0484HP-E		MMU-AP0482WH		MMD-AP0486BHP-E
056 type 16.0kW (6HP)	MMU-AP0564HP-E		MMU-AP0562WH		MMD-AP0566BHP-E
072 type 22.4kW (8HP)					
096 type 28.0kW (10HP)					



Cooling capacity (HP equivalent)	Concealed duct high static pressure type	Slim duct type	Ceiling type	High wall type 6 series
007 type 2.2 kW (0.8HP)		MMD-AP0074SPH-E		MMK-AP0076HP-IN
009 type 2.8 kW (1HP)		MMD-AP0094SPH-E		MMK-AP0096HP-IN
012 type 3.6 kW (1.25HP)		MMD-AP0124SPH-E		MMK-AP0126HP-IN
015 type 4.5 kW (1.7HP)		MMD-AP0154SPH-E	MMC-AP0157HP-E	MMK-AP0156HP-IN
018 type 5.6 kW (2HP)	MMD-AP0186HP-E	MMD-AP0184SPH-E	MMC-AP0187HP-E	MMK-AP0186HP-IN
024 type 7.1 kW (2.5HP)	MMD-AP0246HP-E	MMD-AP0244SPH-E	MMC-AP0247HP-E	MMK-AP0246HP-IN
027 type 8.0 kW (3HP)	MMD-AP0276HP-E	MMD-AP0274SPH-E	MMC-AP0277HP-E	
030 type 9.0 kW (3.2HP)				
036 type 11.2 kW (4HP)	MMD-AP0366HP-E		MMC-AP0367HP-E	
048 type 14.0 kW (5HP)	MMD-AP0486HP-E		MMC-AP0487HP-E	
056 type 16.0kW (6HP)			MMC-AP0567HP-E	
072 type 22.4kW (8HP)				
096 type 28.0 kW (10HP)				



Cooling capacity (HP equivalent)	Console	Floor standing cabinet type	Floor standing concealed type	Floor standing type
007 type 2.2 kW (0.8HP)	MML-AP0074NH-E	MML-AP0074H-E	MML-AP0074BH-E	
009 type 2.8 kW (1HP)	MML-AP0094NH-E	MML-AP0094H-E	MML-AP0094BH-E	
012 type 3.6 kW (1.25HP)	MML-AP0124NH-E	MML-AP0124H-E	MML-AP0124BH-E	
015 type 4.5 kW (1.7HP)	MML-AP0154NH-E	MML-AP0154H-E	MML-AP0154BH-E	MMF-AP0156H-E
018 type 5.6 kW (2HP)	MML-AP0184NH-E	MML-AP0184H-E	MML-AP0184BH-E	MMF-AP0186H-E
024 type 7.1 kW (2.5HP)		MML-AP0244H-E	MML-AP0244BH-E	MMF-AP0246H-E
027 type 8.0 kW (3HP)				MMF-AP0276H-E
030 type 9.0 kW (3.2HP)				
036 type 11.2 kW (4HP)				MMF-AP0366H-E
048 type 14.0 kW (5HP)				MMF-AP0486H-E
056 type 16.0 kW (6HP)				MMF-AP0566H-E
072 type 22.4 kW (8HP)				
096 type 28.0 kW (10HP)				
144 type 45.0 kW (16HP)				
192 type 56.0 kW (20HP)				



Air volume	Air-to-air heat exchanger*
150 m ³ /h	VN-M150HE
250 m ³ /h	VN-M250HE
300 m ³ /h	VN-M350HE
500 m ³ /h	VN-M500HE
650 m ³ /h	VN-M650HE
800 m ³ /h	VN-M800HE
1000 m ³ /h	VN-M1000HE
1500 m ³ /h	VN-M1500HE
2000 m ³ /h	VN-M2000HE

*: Does not connect to refrigerant piping from outdoor unit.
Control wires can be connected.


MMU-AP*4HP-E**

4-way Air Discharge Cassette Type

Individual louver control

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

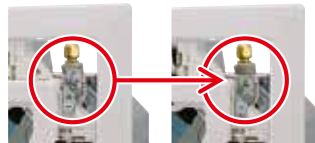


Easy installation

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



RBC-U31PGP(W)-E



Technical specifications

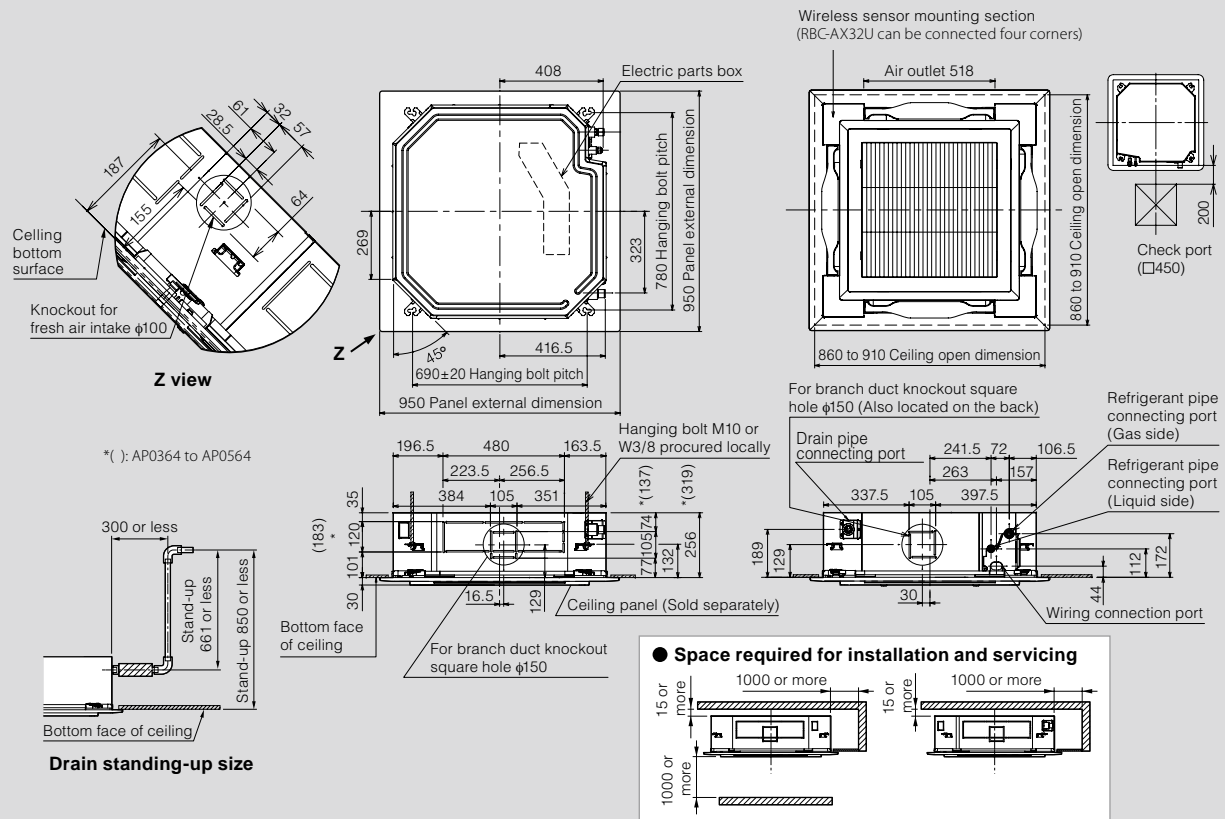
Model name		MMU-	AP0094HP-E	AP0124HP-E	AP0154HP-E	AP0184HP-E	AP0244HP-E	AP0274HP-E	AP0304HP-E	AP0364HP-E	AP0484HP-E	AP0564HP-E
Cooling/Heating capacity* ¹		(kW)	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0	8.0/9.0	9.0/10.0	11.2/12.5	14.0/16.0	16.0/18.0
Electrical characteristics	Power requirements	1-phase 50Hz 230V (220–240V) (Separate power supply for indoor units required.)										
Appearance (Ceiling panel)		Model	RBC-U31PGP(W)-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	Air Flow (H/M/L)	CFM	470/430/400		546/488/465	618/541/471	758/541/471		777/654/500	1159/841/629	1253/841/665	1253/894/724
	Motor output	(W)	14				20			68	72	
Connecting pipe	Gas side	(mm)	ø9.5		ø12.7		ø15.9					
	Liquid side	(mm)	ø6.4				ø9.5					
	Drain port (nominal dia.)	(mm)	25 (Polyvinyl chloride tube)									
Sound pressure level* ² (H/M/L)		(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

* Figures in parentheses are for ceiling panels.

*1: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping.
The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height.
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

*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616.
Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

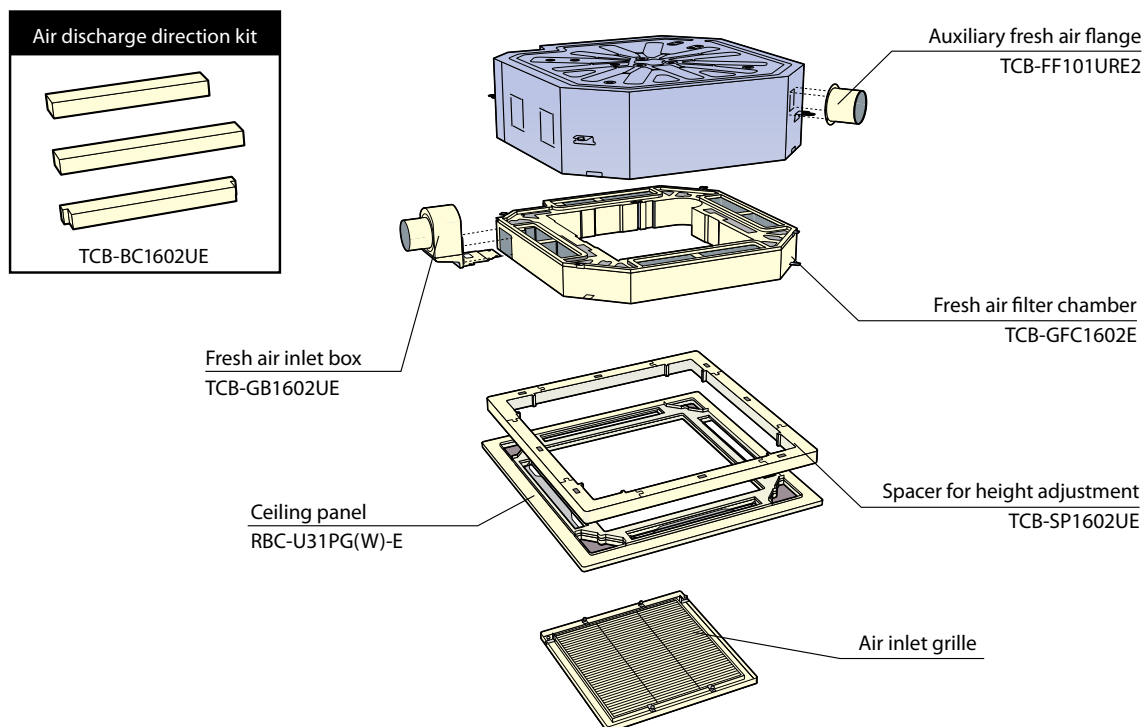
MMU-AP0094HP-E to MMU-AP0564HP-E



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

(Unit: mm)

Options




MMU-AP*4MH-E**

Compact 4-way Cassette (600 × 600) Type

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

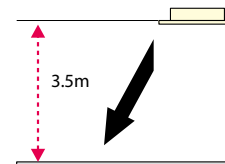
The slim design is only 268 mm in height even when an electrical box is located inside the unit.

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.


RBC-UM11PG(W)E

Drain-checking hole

Maximum height

Technical specifications

Model name		MMU-	AP0074MH-E	AP0094MH-E	AP0124MH-E	AP0154MH-E	AP0184MH-E
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 50Hz 230V (220–240V) (Separate power supply for indoor units required.)				
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	Air Flow (H/M/L)	(CFM)	325/272/222	335/275/222	349/296/236	388/325/275	448/378/307
	Motor output		(W)	60			
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7	
	Liquid side	(mm)	ø6.4				
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)				
Sound pressure level* ² (H/M/L)		(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: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height. 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

*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.



This diagram shows the exploded view of the ceiling panel assembly. It includes the main ceiling panel (RBC-UM11PG(W)E) and the auxiliary fresh air flange (TCB-FF101URE2). The flange is shown being inserted into the side of the ceiling panel. The main panel has a central circular grille and a rectangular grille on the right side. The flange is a yellow cylindrical component with a flange on one end and a mounting bracket on the other.

Auxiliary fresh air flange
TCB-FF101URE2

Ceiling panel
RBC-UM11PG(W)E


MMU-AP*2WH**

2-way Air Discharge Cassette Type

Slim and compact unit

Unified the width of ceiling panel to 680mm.

Condensate drain pump included.

Available for ceilings up to 3.8m in height. (in case of 0.8HP to 3.2HP)

Easy installation and fine adjustment using the "Adjust-Cover" function.

Technical specifications

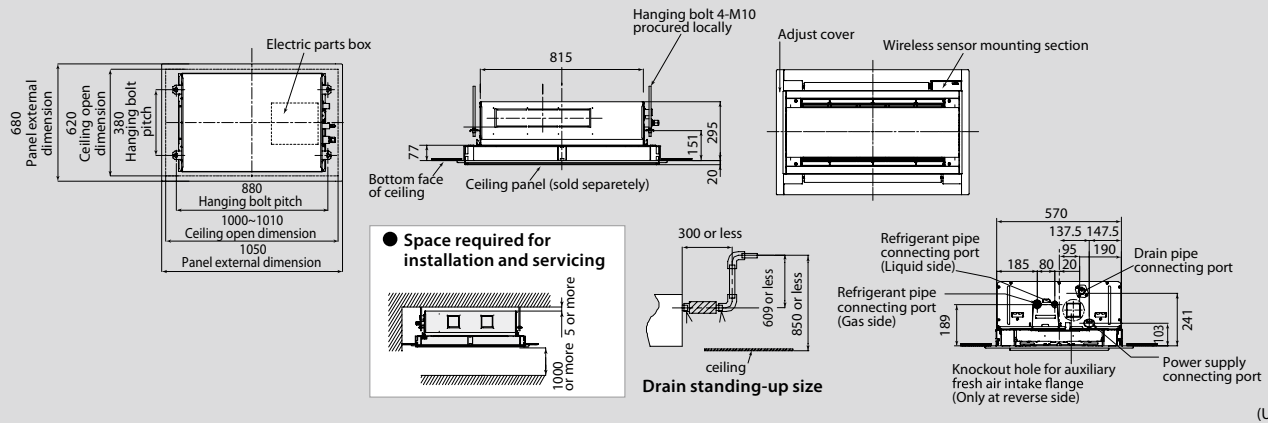
Model name		MMU-	AP0072WH	AP0092WH	AP0122WH	AP0152WH	AP0182WH	AP0242WH	AP0272WH	AP0302WH	AP0362WH	AP0482WH	AP0562WH
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0	8.0/9.0	9.0/10.0	11.2/12.5	14.0/16.0	16.0/18.0
Electrical characteristics	Power requirements	1-phase 50Hz 230V (220–240V) (Separate power supply for indoor units required.)											
Appearance (Ceiling panel)		Model	RBC-UW283PG(W)-E				RBC-UW803PG(W)-E				RBC-UW1403(W)PG-E		
External dimensions: Main unit (Ceiling panel)*	Height	(mm)	295 (20)				345 (20)						
	Width	(mm)	815 (1050)				1180 (1415)				1600 (1835)		
	Depth	(mm)	570 (680)										
Total weight: Main unit (Ceiling panel)*		(kg)	19 (10)				26 (14)				36 (14)		
Fan unit	Air Flow (H/M/L)	CFM	328/293/265			353/314/265	529/441/363	617/494/434		741/529/459	1023/843/696	1059/872/723	1200/928/776
	Motor output	(W)	20				30	40		50	70		
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7		ø15.9					
	Liquid side	(mm)	ø6.4					ø9.5					
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)										
Sound pressure level*2 (H/M/L)		(dB(A))	34/32/30			35/33/30		38/35/33		40/37/34	42/39/36	43/40/37	46/42/39

* Figures in parentheses are for ceiling panels.

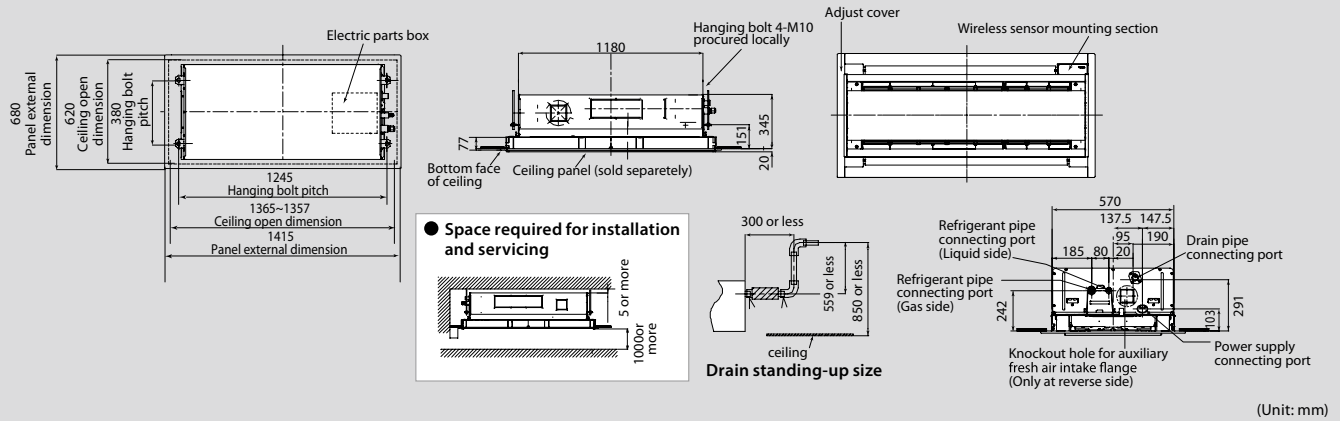
*1: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping.
The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height.
Rated conditions Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB
Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616.
Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

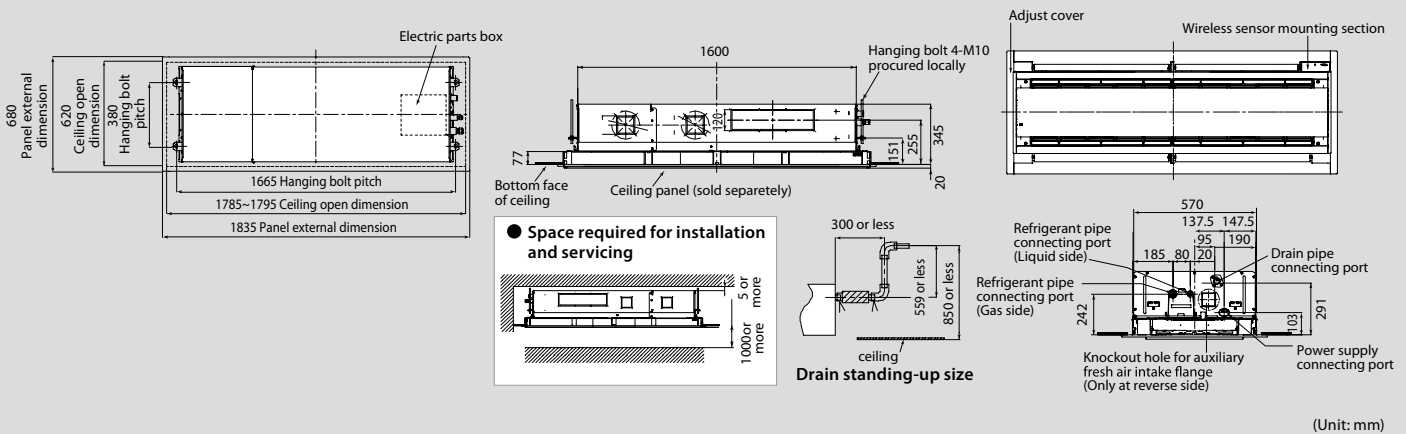
MMU-AP0072WH to AP0152WH



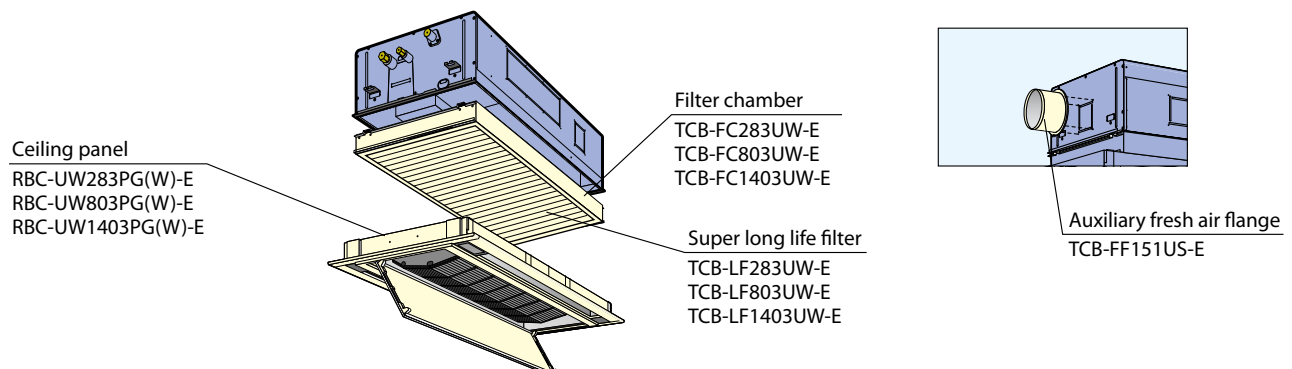
MMU-AP0182WH to AP0302WH



MMU-AP0362WH to AP0562WH



Options




MMU-AP*4YH-E**
MMU-AP*4SH-E**

* The photo shows the MMU-AP***4SH Series.

1-way Air Discharge Cassette Type

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.

Technical specifications

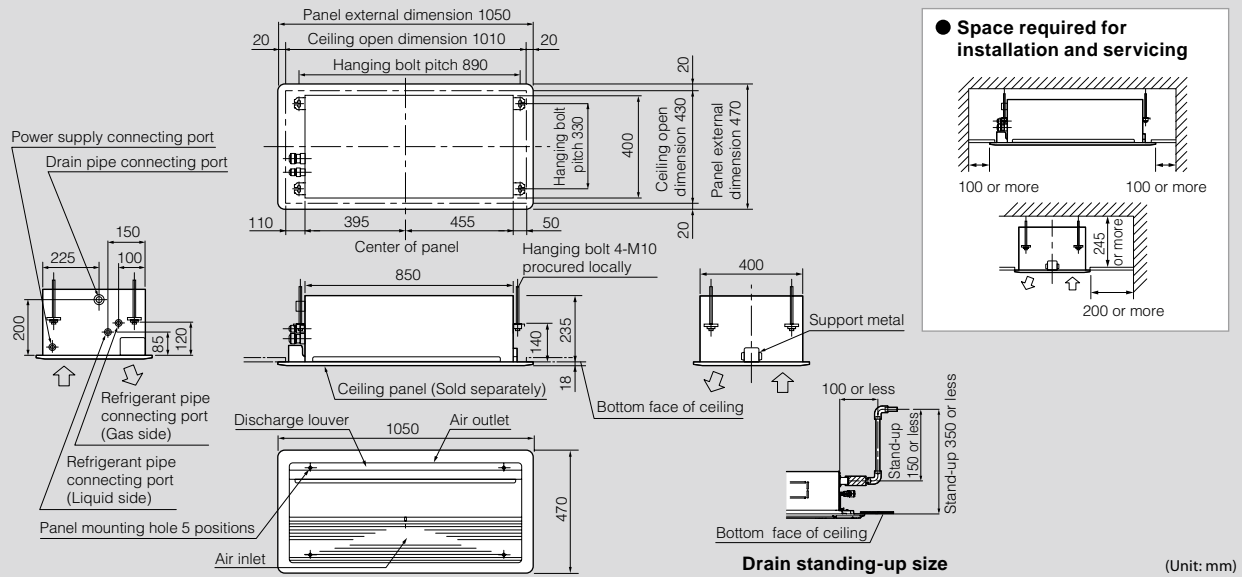
Model name		MMU-	AP0074YH-E	AP0094YH-E	AP0124YH-E	AP0154SH-E	AP0184SH-E	AP0244SH-E
Cooling/Heating capacity* ¹		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0
Electrical characteristics	Power requirements		1-phase 50Hz 230V (220–240V) (Separate power supply for indoor units required.)					
Appearance (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	Air Flow (H/M/L)	CFM	318/282/247			441/406/371	459/423/388	671/565/476
	Motor output	(W)	22			30		
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7		ø15.9
	Liquid side	(mm)	ø6.4					ø9.5
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)					
Sound pressure level* ² (H/M/L)		(dB(A))	42/39/34			37/35/32	38/36/34	45/41/37

* Figures in parentheses are for ceiling panels.

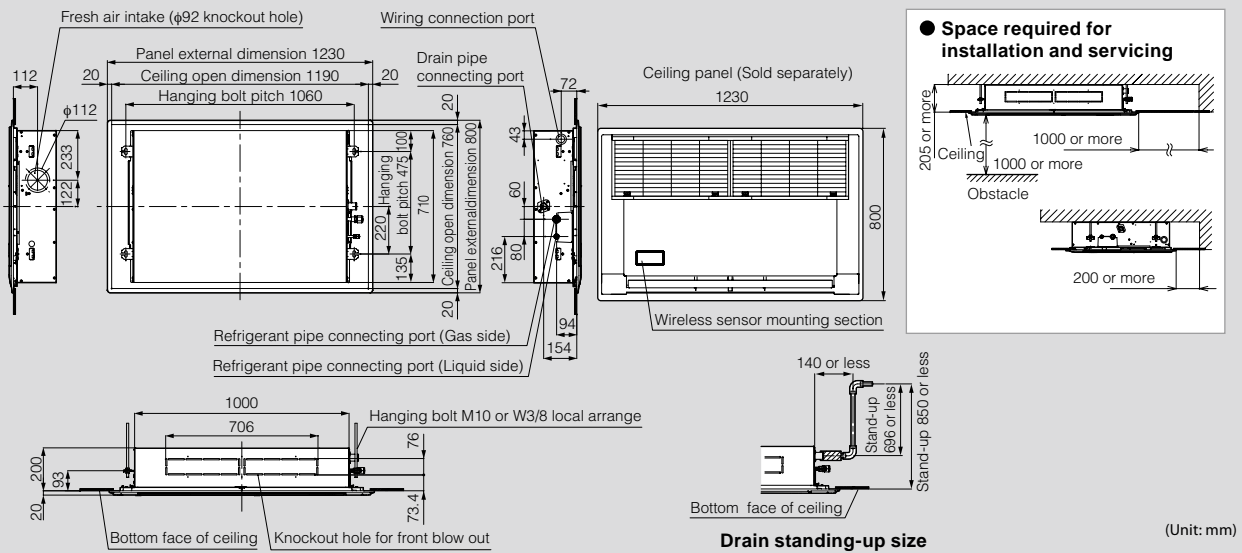
*1: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height. Rated conditions Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

MMU-AP0074YH-E to AP0124YH-E

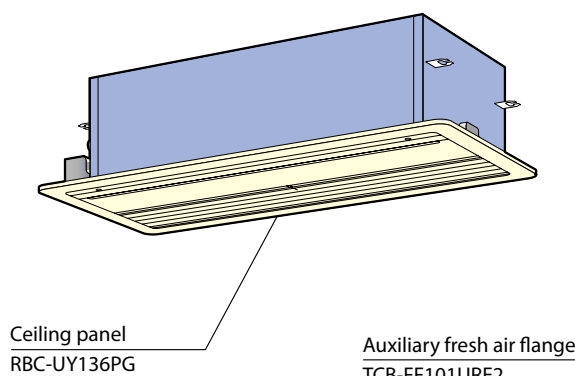


MMU-AP0154SH-E to AP0244SH-E

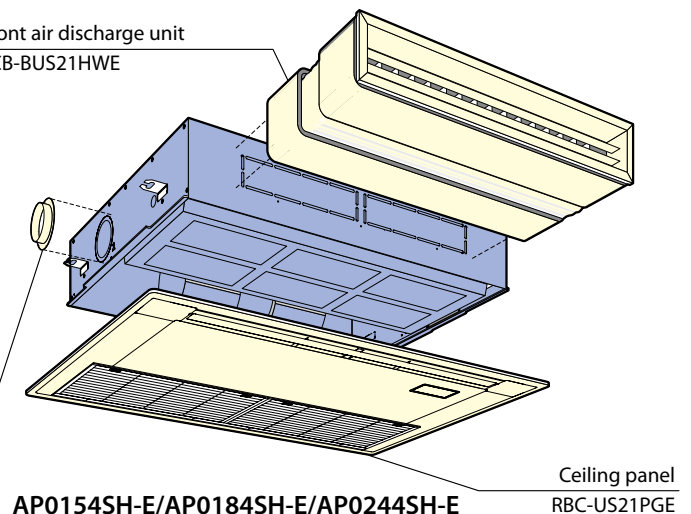


Options

AP0074YH-E/AP0094YH-E/AP0124YH-E



Front air discharge unit
TCB-BUS21HWE




MMD-AP*6BHP-E**

Concealed Duct Type

High static pressure

External static pressure can be raised as high as 120 Pa, so that all areas of the room can be reached for even temperature distribution, no matter how complex the layout.

In-built high lift drain pump kit

Kit that raises the drain piping up to 27 cm from the drain port.

Technical specifications

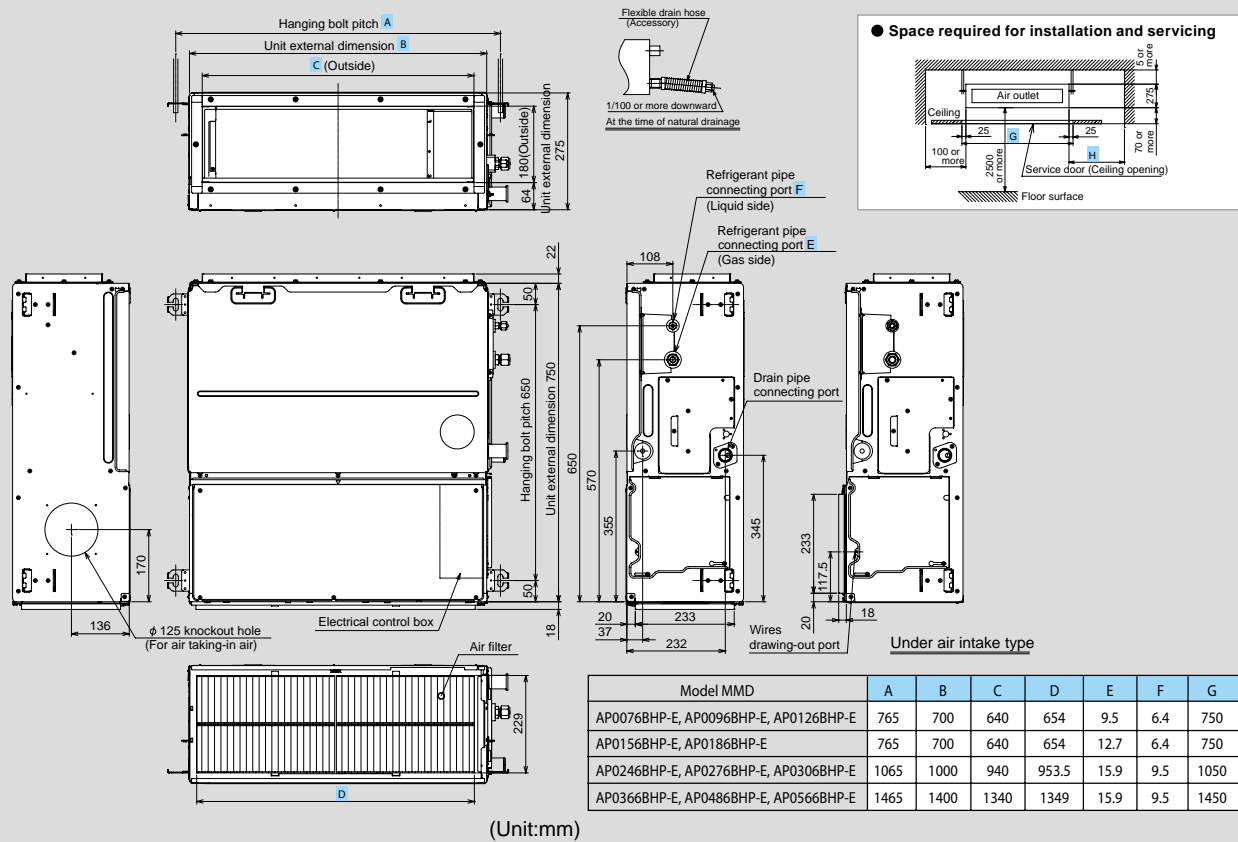
Model name		MMD-	AP0076BHP-E	AP0096BHP-E	AP0126BHP-E	AP0156BHP-E	AP0186BHP-E	AP0246BHP-E	AP0276BHP-E	AP0306BHP-E	AP0366BHP-E	AP0486BHP-E	AP0566BHP-E	
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0	8.0/9.0	9.0/10.0	11.2/12.5	14.0/16.0	16.0/18.0	
Electrical characteristics	Power requirements	1-phase 50Hz 230V (220–240V) (Separate power supply for indoor units required.)												
External dimension	Height	(mm)	275											
	Width	(mm)	700						1000					
	Depth	(mm)	750											
Total weight		(kg)	23						30			40		
Fan unit	Air flow (H/M/L)	CFM	318/265/211	335/282/229		470/388/318		706/582/512		742/653/547	1130/953/812	1236/1024/882		
	Motor output	(W)	150										250	
	External static pressure (factory setting)	(Pa)	30						40			50		
	External static pressure	(Pa)	30-40-50-65-80-100-120 (7 steps)											
Connecting pipe	Gas side	(mm)	9.5			12.7		15.9						
	Liquid side	(mm)	6.4						9.5					
	Drain port dia.)	(nominal)	25 (Polyvinyl chloride tube)											
Sound pressure level*2 (H/M/L)		(dB(A))	29/26/23	30/26/23		33/29/25		36/31/27			40/36/33			

* Figures in parentheses are for ceiling panels.

*1: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping.
The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height.
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

*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616.
Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

MMD-AP0076BHP-E to AP0566BHP-E

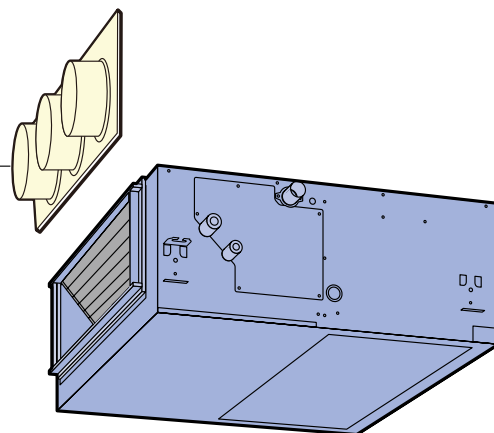


* Standard filter is provided, but deeper filtration filter needs to be purchased locally.

Options

Spigot shaped flange

TCB-SF56C6BE
TCB-SF80C6BE
TCB-SF160C6BE




MMD-AP*6HP-E**

Concealed Duct High Static Pressure Type

Design flexibility

Satisfies all your design needs.

Compatible with external static pressures up to 200 Pa.

In-built drain pump* (only up to 6HP)

Can be equipped with the following options:

- high-efficiency filter (65, 90)
- drain pump kit

Construction characteristics

The flexible duct is accessible.

Easy service and installation.

Inspection hole enables easy access and maintenance.

Technical specifications

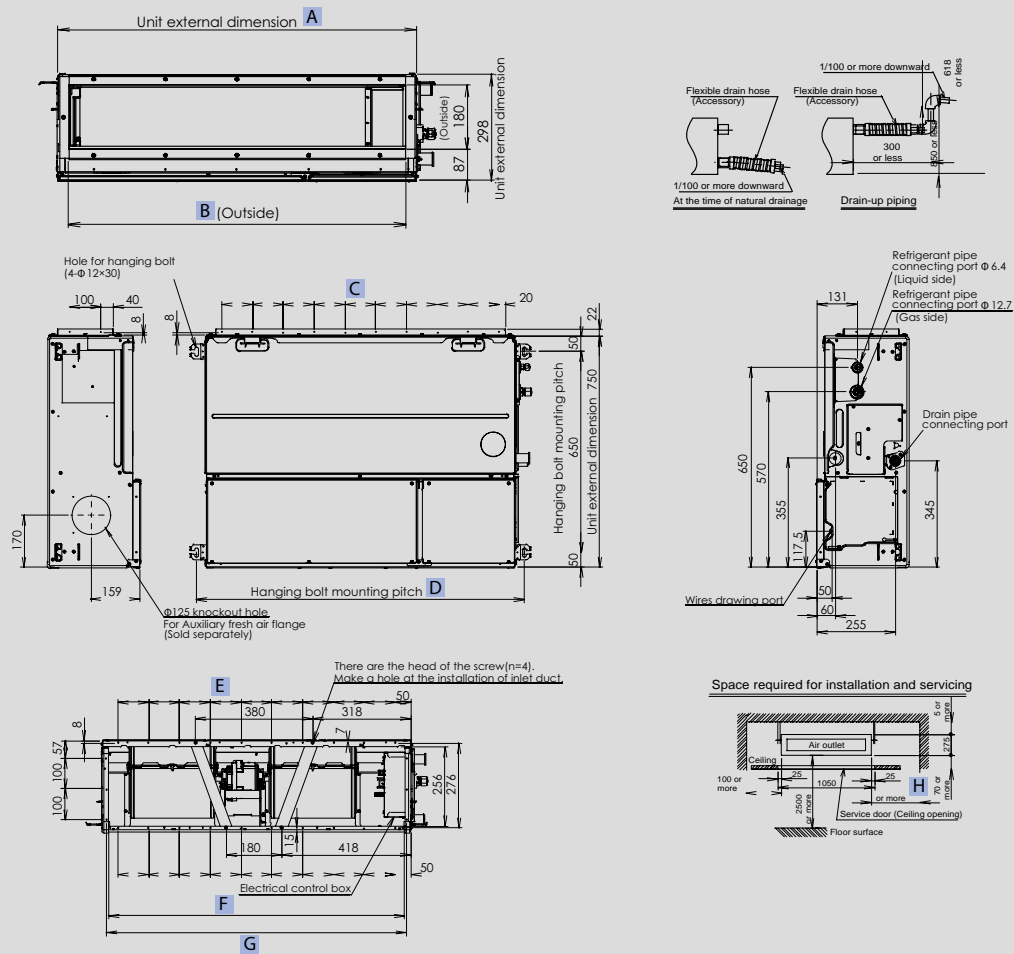
Model name		MMD-	AP0186HP-E	AP0246HP-E	AP0276HP-E	AP0366HP-E	AP0486HP-E
Cooling/Heating capacity*1		(kW)	5.6/6.3	7.1/8.0	8.0/9.0	11.2/12.5	14.0/16.0
Electrical characteristics	Power requirements		1-phase 50Hz 230V (220–240V) (Separate power supply for indoor units required.)				
External dimensions	Height	(mm)	298				
	Width	(mm)	1000			1400	
	Depth	(mm)	750				
Total weight		(kg)	34			43	
Fan unit	Air flow (H/M/L)	CFM	470/388/323	706/571/471		1130/918/789	1236/1024/836
	Motor output	(W)	250			350	
	External static pressure (factory setting)	(Pa)	100				
	External static pressure	(Pa)	50-75-150-125-175-200 (7 steps)				
Connecting pipe	Gas side	(mm)	12.7	15.9			
	Liquid side	(mm)	6.4	9.5			
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)				
Sound pressure level*2 (High/Mid/Low)		(dB(A))	37/32/30	38/34/31		41/37/34	42/40/35

* Figures in parentheses are for ceiling panels.

*1: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping.
The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height.
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

*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616.
Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

MMD-AP0186HP-E to MMD-AP0486HP-E



	A	B	C	D	E	F	G	H
MMD-AP0186HP-E to AP0276HP-E	1000	940	900	1065	900	960	975	500
MMD0AP0366HP-E to AP0566 HP-E	1400	1340	1300	1465	1300	1360	1375	700

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


MMD-AP*4SPH-E**

Slim Duct Type

Functional design

Only 210 mm in height for greater application flexibility.

4-step static pressure setup.

Concealed installation within a ceiling void.

Auxiliary fresh air intake available.

Slim & quiet

Perfect comfort throughout the room.

Can be used with any style of air diffuser.

Quiet, powerful operation.

Technical specifications

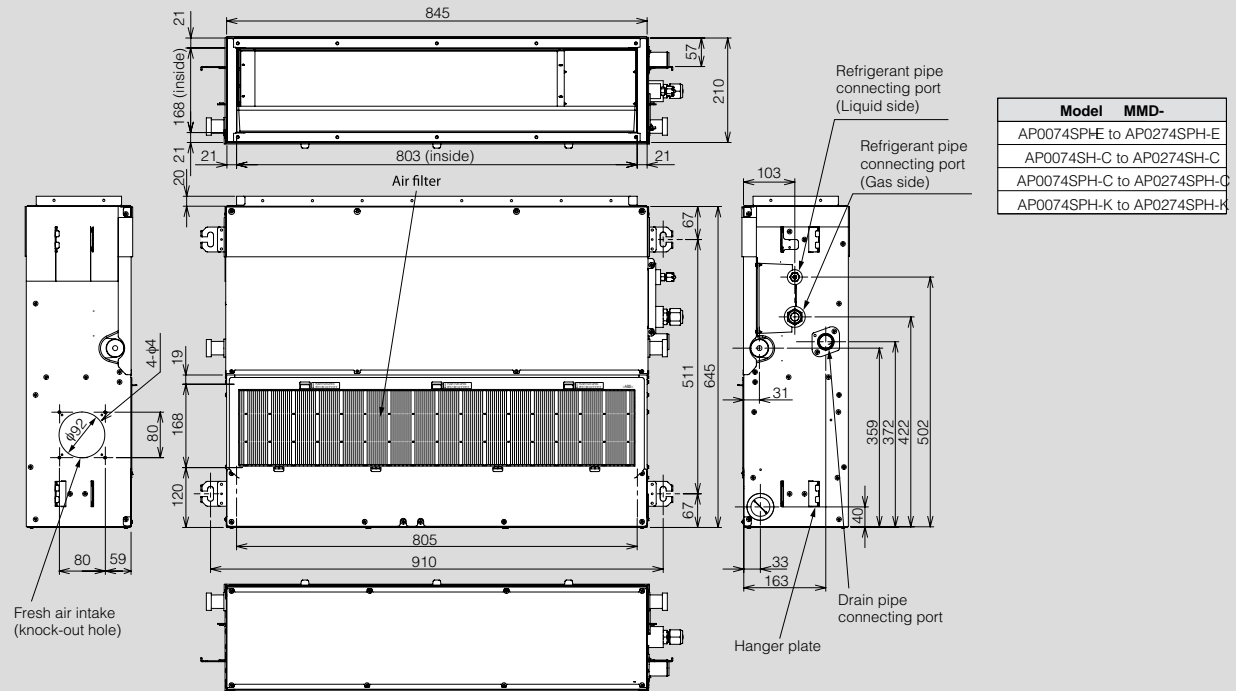
Model name		MMD-	AP0074SPH-E	AP0094SPH-E	AP0124SPH-E	AP0154SPH-E	AP0184SPH-E	AP0244SPH-E	AP0274SPH-E
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0	8.0/9.0
Electrical characteristics	Power supply	1-phase 50Hz 230V (220~240V) (Separate power supply for indoor units required.)							
External dimensions	Height	(mm)	210						
	Width	(mm)	845					1140	
	Depth	(mm)	645						
Total weight		(kg)	22			23		29	
Fan unit	Air flow (H/M/L)	CFM	318/276/235		353/306/265	405/353/305	459/400/341	635/588/529	
	Motor output	(W)	60					120	
	External static pressure	(Pa)	6-16-31-46 (4 steps)		5-15-30-45 (4 steps)		4-14-29-44 (4 steps)	2-12-22-42 (4 steps)	
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7		ø15.9	
	Liquid side	(mm)	ø6.4					ø9.5	
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)						
Sound pressure level*2 (H/M/L)	Under air inlet	(dB(A))	36/33/30		38/35/32	39/36/33	40/38/36	49/47/44	
	Back air inlet	(dB(A))	28/26/24		29/27/25	32/30/28	33/31/29	38/36/33	

* Figures in parentheses are for ceiling panels.

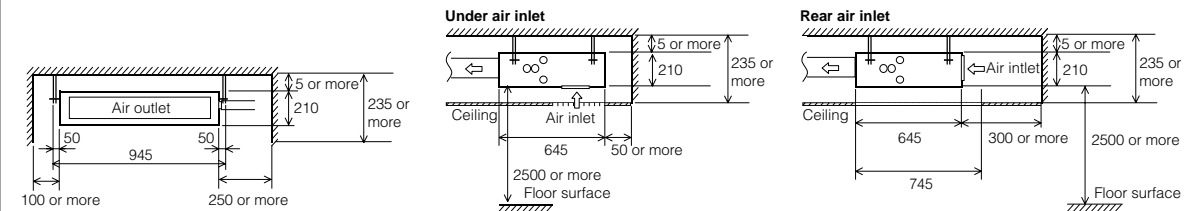
*1: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height. Rated conditions Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

MMD-AP0074SPH-E to AP0274SPH-E



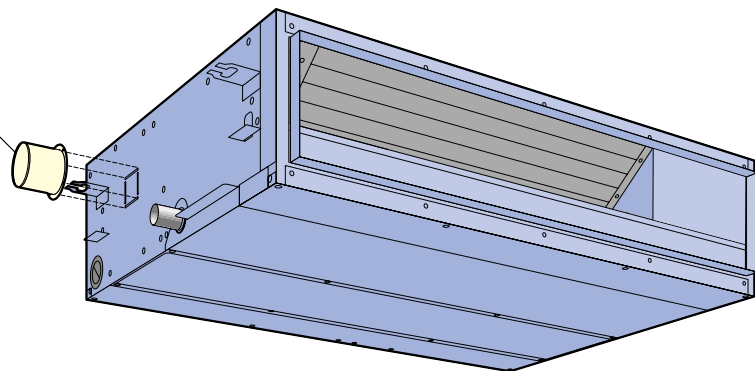
● Space required for installation and servicing



(Unit: mm)

Options

Auxiliary fresh air flange
TCB-FF101URE2




MMC-AP* 7HP-E**

Ceiling Type

Comfortable ambience

Top-class quietness

- New design reduces sound 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.

Installation efficiency

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

Technical specifications

Model name		MMC-	AP0157HP-E	AP0187HP-E	AP0247HP-E	AP0277HP-E	AP0367HP-E	AP0487HP-E	AP0567HP-E
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 50Hz 230V (220-240V) (Separate powersupply for indoor units required)							
External dimensions	Height	(mm)	253						
	Width	(mm)	950		1270		1586		
	Depth	(mm)	690						
Total weight		(kg)	24		30		37		
Fan unit	Air flow (H/M/L)	CFM	494/406/318	565/424/318	848/600/441		1095/795/600	1095/900/706	1200/971/742
	Motor output	(W)	94				139		
Connecting pipe	Gas side	(mm)	12.7		15.9				
	Liquid side	(mm)	6.4		9.5				
	Drain port	(nominal dia.)	20 (Polyvinyl chloride tube)						
Sound pressure level*2 (H/M/L)		(dB(A))	36/34/28	37/35/28	41/36/29		44/38/32	44/41/35	46/42/36

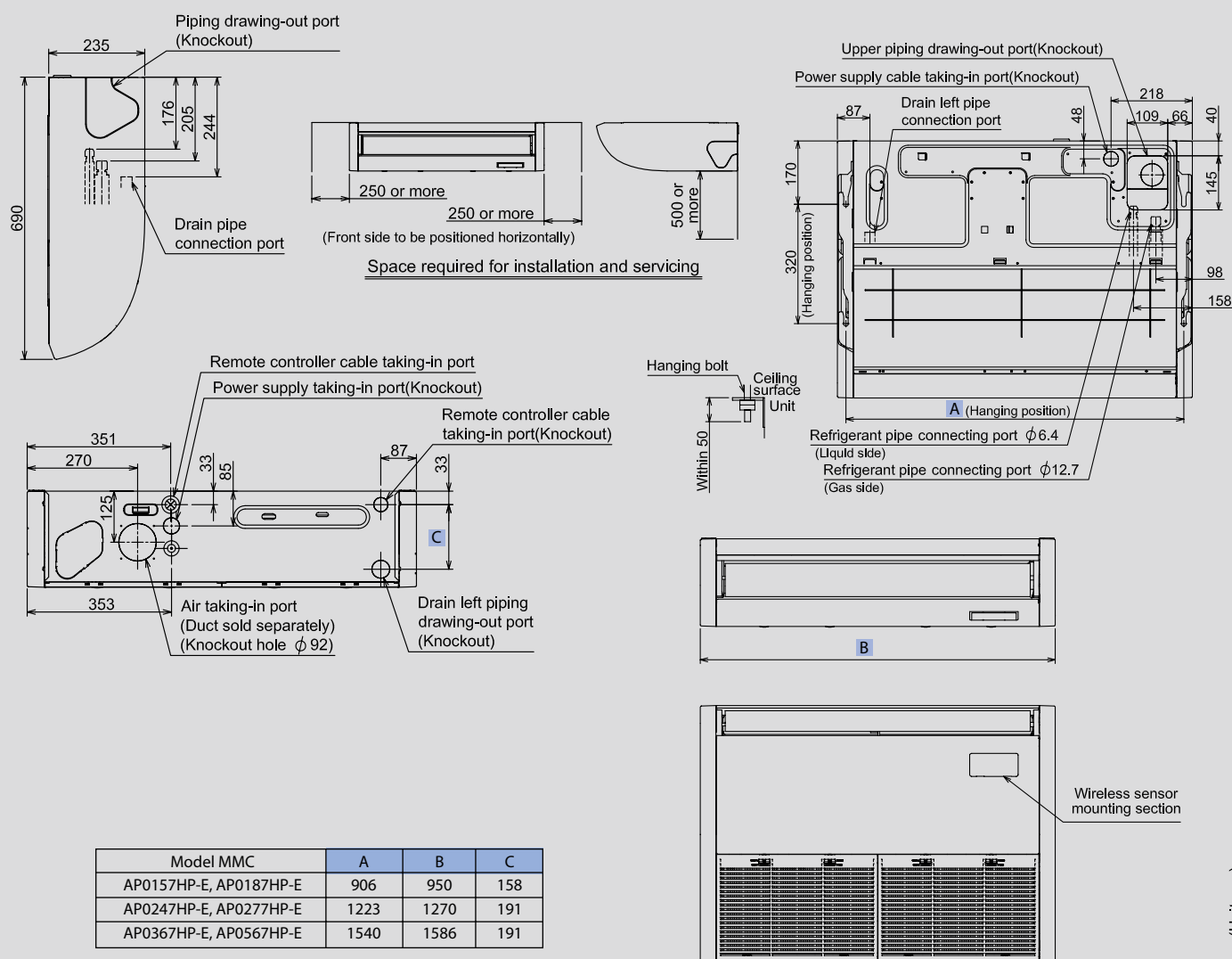
* Figures in parentheses are for ceiling panels.

*1: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping.
The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height.
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

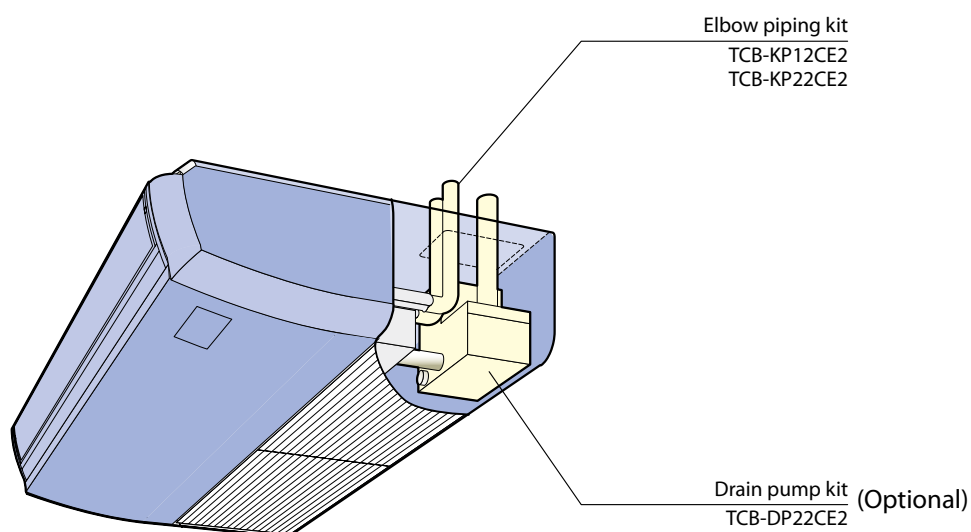
*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616.

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

MMC-AP0157HP-E to MMC-AP0567HP-E



Options





High-wall Type (6 series)

Elegant and slim

This classic high-wall is elegant and slim; it can easily blend in with any room interior.

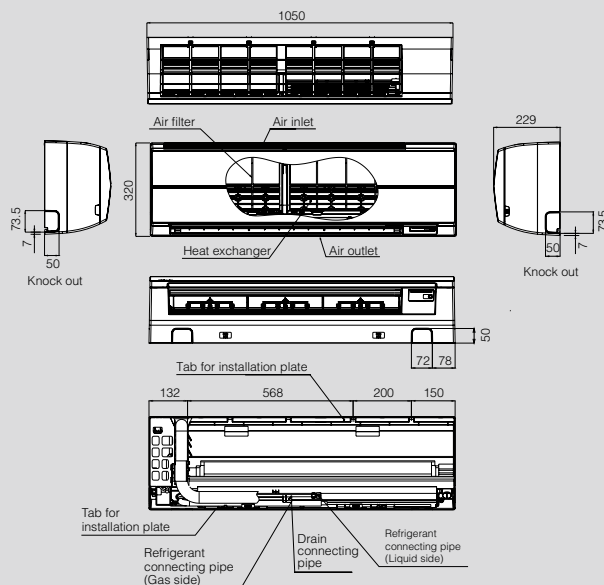
Total comfort is granted, thanks also to the 70° directional auto-swing louver that provides uniform air distribution.



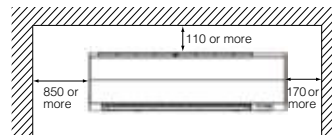
Remote controller

MMK-AP*6HP-IN**

MMK-AP076HP-IN to AP0246HP-IN



● Space required for installation and servicing



(Unit: mm)

Technical specifications

Model name		MMK-	AP0076HP-IN	AP0096HP-IN	AP0126HP-IN	AP0156HP-IN	AP0186HP-IN	AP0246HP-IN
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 50Hz 230V (220-240V) (Separate power supply for indoor units required.)						
External dimensions	Height	(mm)	320					
	Width	(mm)	1050					
	Depth	(mm)	229					
Total weight		(kg)	15					
Fan unit	Air flow (H/M/L)	CFM	335/265/229	353/282/229		494/388/318		600/441/335
	Motor output	(W)	30					
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7		ø15.9
	Liquid side	(mm)	ø6.4					ø9.5
	Drain port	(nominal dia.)	16 (polyvinyl chloride tube)					
Sound pressure level*2 (H/M/L)		(dB(A))	35/31/28	37/32/28		41/36/33		46/39/34

* Figures in parentheses are for ceiling panels.

*1: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping.
The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height.
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

*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616.
Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

Console

Features

Elegant & simple design makes this unit a perfect fit for shops, office buildings, and luxury apartments.

Bottom flow functionality ensures comfortable air bi-flow for an advantage in heating and floor warming.

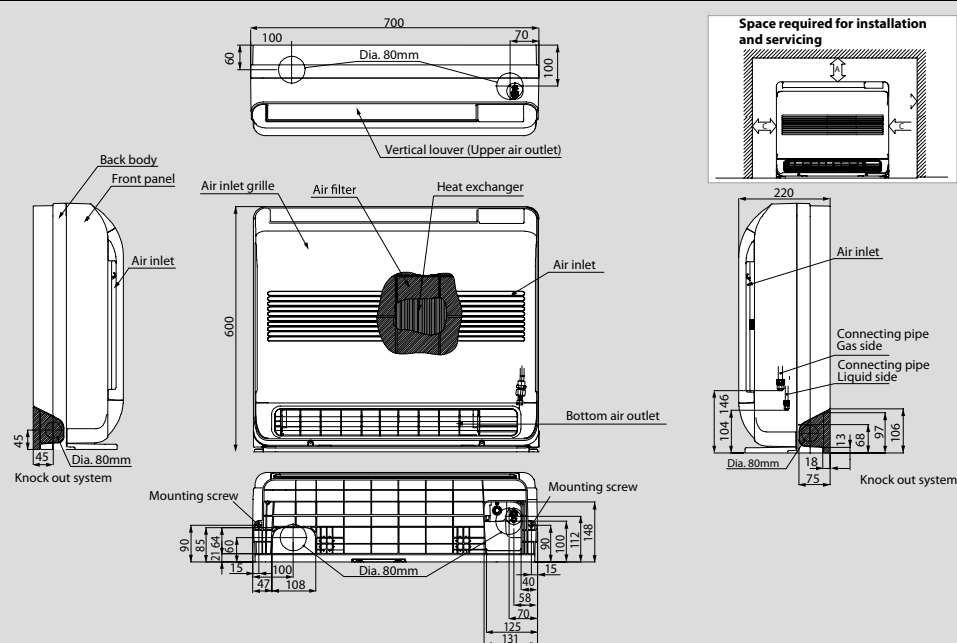
Multi-function operation is convenient, making adjustments by the user possible using the wireless remote controller.



Remote controller

MML-AP*4NH-E**

MML-AP0074NH-E to AP0184NH-E



(Unit: mm)

Technical specifications

Model name		MML-	AP0074NH-E	AP0094NH-E	AP0124NH-E	AP0154NH-E	AP0184NH-E
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 50Hz 230V (220–240V) (Separate power supply for indoor units required.)					
External dimensions	Height	(mm)	600				
	Width	(mm)	700				
	Depth	(mm)	220				
Total weight		(kg)	17				
Fan unit	Air flow (H/M/L)	CFM	300/215/166		325/240/191	367/275/226	427/310/250
	Motor output	(W)	41				
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7	
	Liquid side	(mm)	ø6.4				
	Drain port	(nominal dia.)	16 (Polyvinyl chloride tube)				
Sound pressure level*2 (H/M/L)		(dB(A))	38/32/26		40/34/29	43/37/31	47/40/34

* Figures in parentheses are for ceiling panels.

*1: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height. 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

*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616.
Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.


MML-AP*4H-E**

Floor Standing Cabinet Type

Slim & compact design

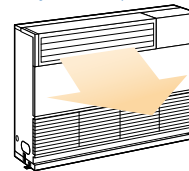
Under-window mounting does not block lighting.

Indoor unit size of 2.2 kW to 7.1 kW is the same.

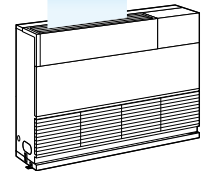
Air exits from front or top

Distribution can be reversed to suit occupant preference.

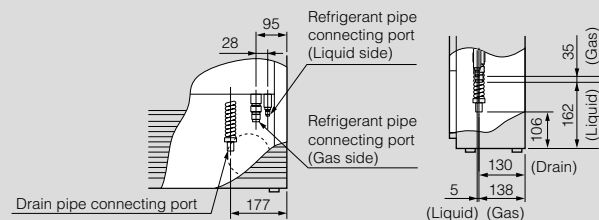
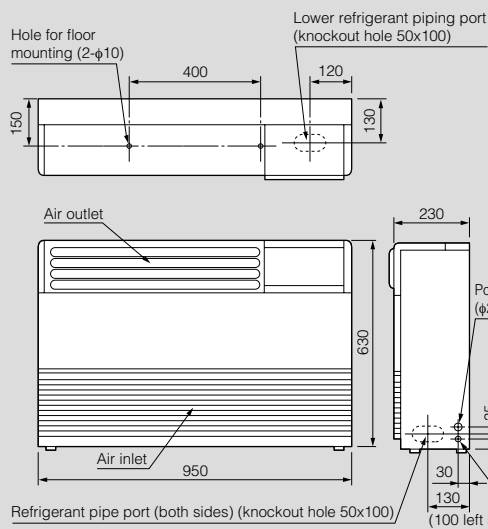
Air blown from front panel
(factory default)



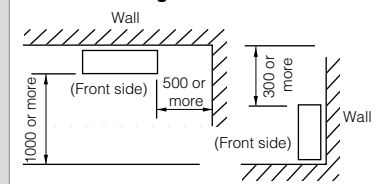
Air blown from top



MML-AP0074H-E to AP0244H-E


Piping positional drawing

Space required for installation and servicing



(Unit: mm)

Technical specifications

Model name		MML-	AP0074H-E	AP0094H-E	AP0124H-E	AP0154H-E	AP0184H-E	AP0244H-E	
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 50Hz 230V (220–240V) (Separate power supply for indoor units required.)						
External dimensions	Height	(mm)	630						
	Width	(mm)	950						
	Depth	(mm)	230						
Total weight		(kg)	37				40		
Fan unit	Air flow (H/M/L)	CFM	282/247/212		529/459/382		635/547/459		
	Motor output	(W)	45				70		
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7		ø15.9	
	Liquid side	(mm)	ø6.4						ø9.5
	Drain port	(nominal dia.)	20 (Polyvinyl chloride tube)						
Sound pressure level*2 (H/M/L)		(dB(A))	39/37/35		45/41/38		49/44/39		

* Figures in parentheses are for ceiling panels.

*1: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping.
The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height.
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

*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616.
Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.


MML-AP*4BH-E**

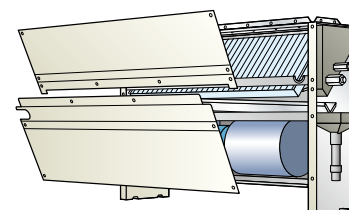
Floor Standing Concealed Type

Cool air makes for a pleasant indoor environment

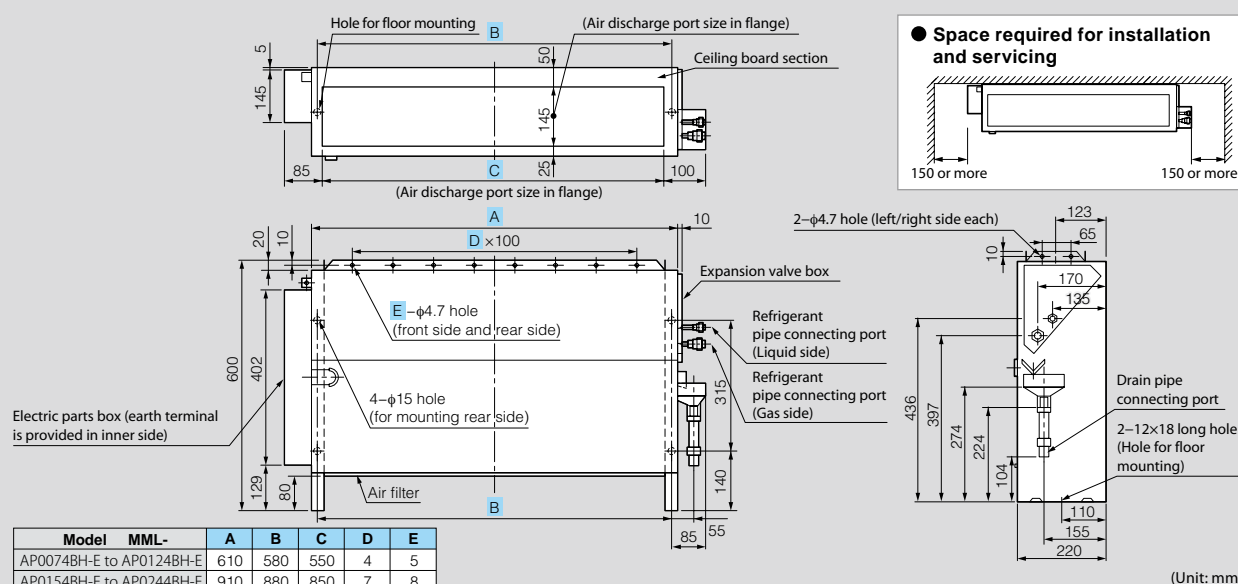
Install it under a window and air-condition any room effectively.

Easy maintenance

Simplified design of fan and drainage pipe eases maintenance.



MML-AP0074BH-E to AP0244BH-E



Technical specifications

Model name		MML-	AP0074BH-E	AP0094BH-E	AP0124BH-E	AP0154BH-E	AP0184BH-E	AP0244BH-E
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 50Hz 230V (220–240V) (Separate power supply for indoor units required.)						
	Height	(mm)	600					
	Width	(mm)	745					
External dimensions	Depth	(mm)	220					
	Total weight	(kg)	21					
Fan unit	Air flow (H/M/L)	CFM	270/235/176					
	Motor output	(W)	19					
	Gas side	(mm)	ø9.5					
Connecting pipe	Liquid side	(mm)	ø6.4					
	Drain port	(nominal dia.)	20 (Polyvinyl chloride tube)					
	Sound pressure level*2 (H/M/L)	(dB(A))	36/34/32					

* Figures in parentheses are for ceiling panels.

*1: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping. The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height. 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

*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616. Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.


MMF-AP*6H-E**

Floor Standing Type

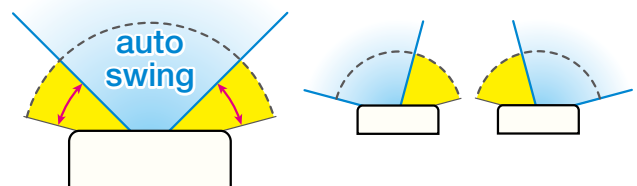
Thin profile suits interior design

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

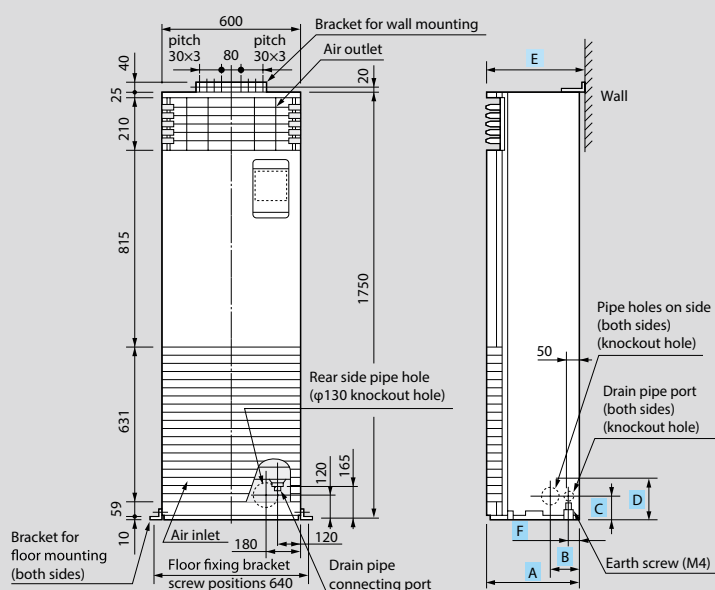
Wide outlet

Corner location is also possible, with right and left auto swing.

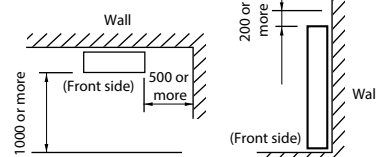
Set the vertical angle manually.



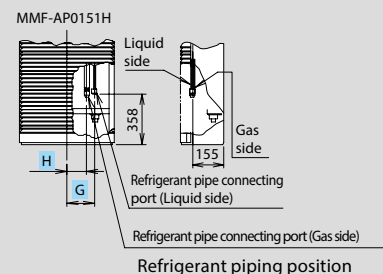
MMF-AP0156H-E to AP0566H-E



● Space required for installation and servicing



Model MMF	A	B	C	D	E	F	G	H
AP0156H-E To AP0276H-E	200	107	132	157	210	50	181	164
AP0366H-E To AP0566H-E	380	125	120	160	390	40	215	165



(Unit: mm)

Technical specifications

Model name		MMF-	AP0156H-E	AP0186H-E	AP0246H-E	AP0276H-E	AP0366H-E	AP0486H-E	AP0566H-E
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 50Hz 230V (220–240V) (Separate power supply for indoor units required.)						
External dimensions	Height	(mm)	1750						
	Width	(mm)	600						
	Depth	(mm)	210				390		
Total weight		(kg)	46	47		62			
Fan unit	Air flow (H/M/L)	CFM	529/459/388		706/582/494		1130/953/812	1270/1018/918	
	Motor output	(W)	37	63		110	160		
Connecting pipe	Gas side	(mm)	12.7						
	Liquid side	(mm)	6.4			9.5			
	Drain port	(nominal dia.)	20(One side of male screw)						
Sound pressure level*2 (H/M/L)		(dB(A))	46/42/37		49/45/39		51/46/41	54/49/44	

* Figures in parentheses are for ceiling panels.

*1: The capacities are measured under the conditions specified by JIS B 8615 based on the reference piping.
The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 m height.
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

*2: The sound level are measured in an anechoic chamber in accordance with JIS B 8616.

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



VN-M***HE

Remote controller
NRC-01HE

Air-to-Air Heat Exchanger (Standalone unit, only wiring connection is required)

Greater comfort and reduced load

Easily integrated into air conditioning systems of 150m³/h to 2000m³/h air volume, the air-to-air heat exchangers use exhaust air to pre-condition the incoming air, thus reducing the cooling or heating load and the overall size of the required system.

Easy maintenance

The heat exchange element can be washed in water.

Free cooling at night

When the air outdoors is cooler at night, the system expels warm air from the room. This reduces the air conditioning load the next day for improved energy efficiency.

Flexible control

Supply and exhaust fan speed ratios can be changed for improved air volume control that best matches the needs of the environment and location.

* Does not connect to refrigerant piping from outdoor unit. Control wires can be connected.

Technical specifications

Model name			VN-	M150HE	M250HE	M350HE	M500HE	M650HE	M800HE	M1000HE	M1500HE	M2000HE
Power supply (V)		Fan speed	1-phase 50Hz 230V (220–240V) / 1-phase 60Hz 220V (Separate power supply for indoor units required.)									
Air volume *1 (m³/h)	(Extra high)		150	250	350	500	650	800	1000	1500	2000	
	High		150	250	350	500	650	800	1000	1500	2000	
	Low		110	155	210	390	520	700	755	1200	1400	
External static pressure (Pa)	(Extra high)		82-102	80-98	114-125	134-150	91-107	142-158	130-150	135-156	124-143	
	High		52-78	34-65	56-83	69-99	58-82	102-132	97-122	103-129	92-116	
	Low		47-64	28-40	65-94	62-92	61-96	76-112	84-127	112-142	110-143	
Sound pressure level *2 (dB(A))	(Extra high)		26-28	29.5-30	34-35	32.5-34	34-36	37-38.5	39.5-40.5	38-39	41-42.5	
	High		24-25.5	25-27	30-32	29.5-31	33-34	35.5-37	38.5-40	36.5-37.5	39.5-41	
	Low		20-22	21-22	27-29	26-29	31-32.5	33.5-35	34-35.5	36-37.5	37-38	
Temperature exchange efficiency (%)	(Extra high)		81.5	78	74.5	76.5	75	76.5	73.5	76.5	73.5	
	High		81.5	78	74.5	76.5	75	76.5	73.5	76.5	73.5	
	Low		83	81.5	79.5	78	76.5	77.5	77	79	77.5	
Enthalpy exchange efficiency (%)	for heating	(Extra high)	74.5	70	65	72	69.5	71	68.5	71	68.5	
		High	74.5	70	65	72	69.5	71	68.5	71	68.5	
		Low	76	74	71.5	73.5	71.5			73.5	72	
	for cooling	(Extra high)	69.5	65	60.5	64.5	61.5	64	60.5	64	60.5	
		High	69.5	65	60.5	64.5	61.5	64	60.5	64	60.5	
		Low	71	69	67	66.5	64	65.5	64.5	67	65.5	
Dimensions (Length x Width x Height) (mm)			900 x 900 x 290			1140 x 1140 x 350			1189 x 1189 x 400		1189 x 1189 x 810	
Weight (kg)			36		38		53		70		143	
Duct diameter (mm)			100	150		200			250		inside: 250, outside: 283 x 730	
Operating range	Around unit		-10°C – 40°C 80% RH or less									
	Outdoor Air (OA)		-15°C – 43°C RH									
	Return Air (RA)		5°C – 40°C 0% RH or less									

*1 Air volume can be changed over to high (extra high) mode or low mode.

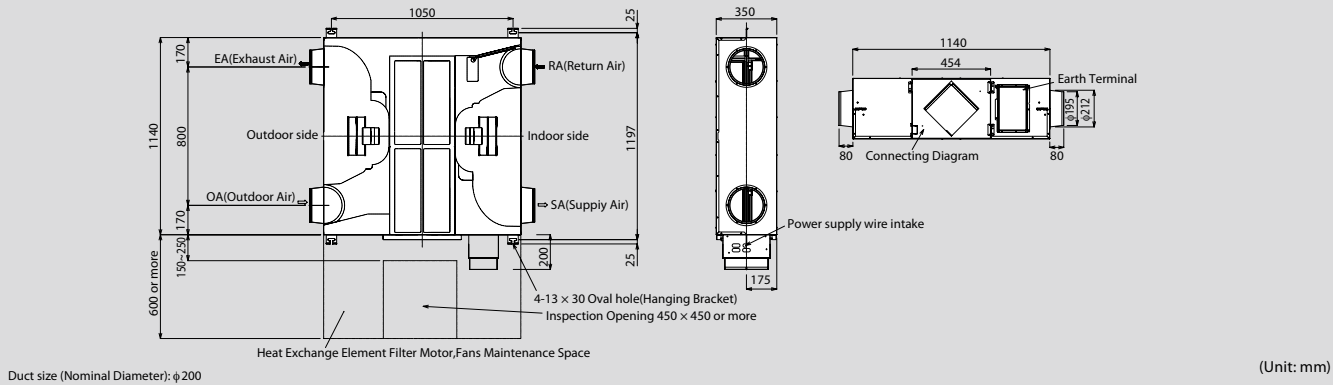
*2 Sound pressure level is measured 1.5m below the center of the unit.

Sound pressure level is the value which was measured at the acoustic room.

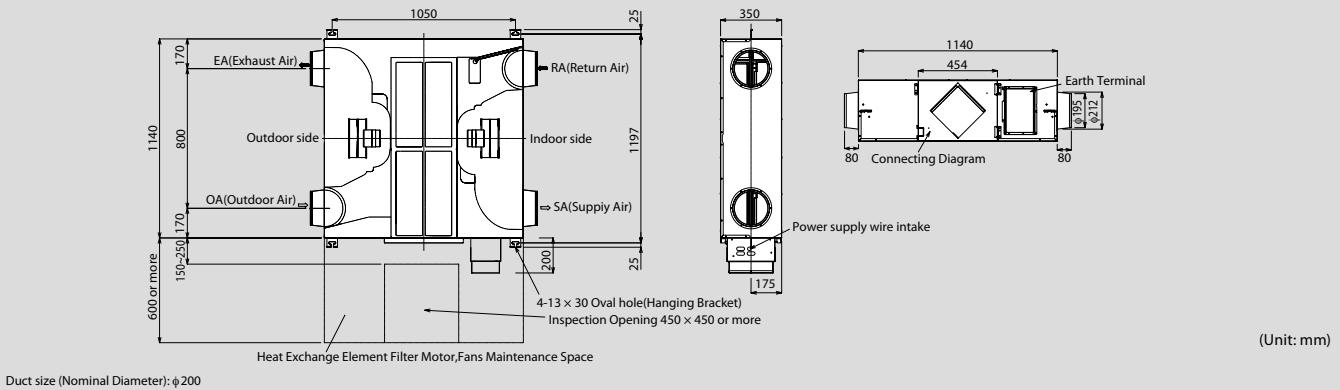
The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Sound pressure level is less than 70 dBA

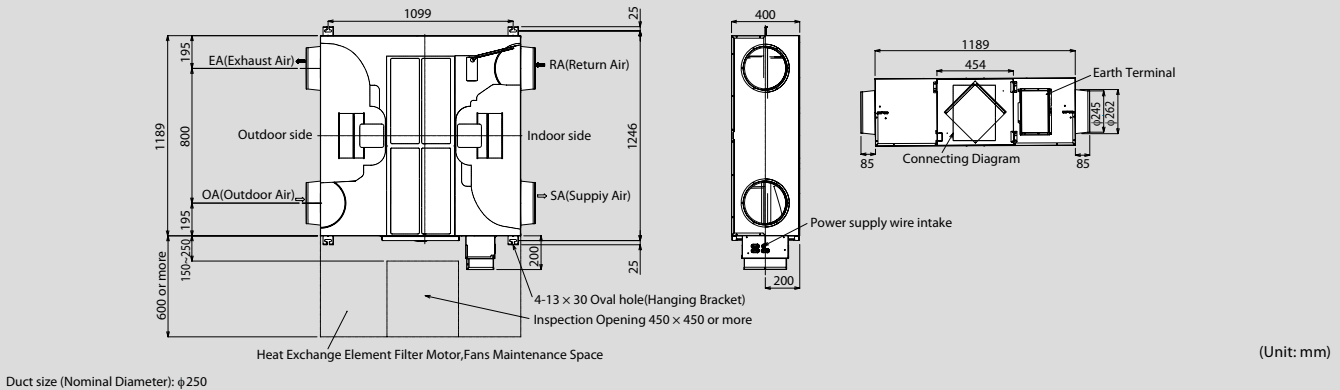
VN-M150HE to VN-M350HE



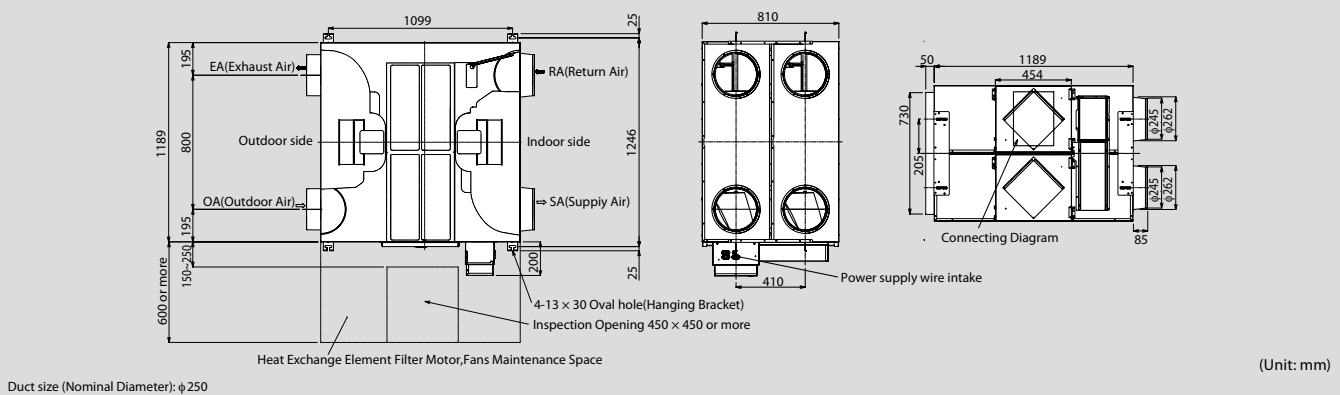
VN-M500HE, VN-M650HE



VN-M800HE, VN-M1000HE



VN-M1500HE, VN-M2000HE



Indoor unit accessories

Indoor unit accessories

Indoor unit	Parts Name	Model Name	Applied Model	Notes	Remarks
4-way air discharge cassette type	Ceiling panel	RBC-U31PG(W)-E	MMU-AP***4HP-E	Required accessory	
	Fresh air inlet box	TCB-GB1602UE		For fresh air intake by using the knockout hole of fresh air filter chamber. (dia.=100 mm)	Use with TCB-GFC1602UE
	Fresh air 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***4MH-E	Required accessory	
	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-UW283PG(W)-E	MMU-AP0072 to 0152WH	Required accessory	
		RBC-UW803PG(W)-E	MMU-AP0182 to 0302WH		
		RBC-UW1403PG(W)-E	MMU-AP0362/0482/0562WH		
	Super long life filter	TCB-LF283UW-E	MMU-AP0072 to 0152WH	Dust collecting effect: 50% (Weight method)	Use with TCB-FC283UW-E
		TCB-LF803UW-E	MMU-AP0182 to 0302WH		Use with TCB-FC803UW-E
		TCB-LF1403UW-E	MMU-AP0362/0482/0562WH		Use with TCB-FC1403UW-E
	Filter chamber	TCB-FC283UW-E	MMU-AP0072 to 0152WH	For super long life filter	
		TCB-FC803UW-E	MMU-AP0182 to 0302WH		
		TCB-FC1403UW-E	MMU-AP0362/0482/0562WH		
	Auxiliary fresh air flange	TCB-FF151US-E	MMU-AP***2WH	For fresh air intake by using the knockout hole of indoor unit. (dia.=150mm)	
1-way air discharge cassette type	Ceiling panel	RBC-UY136PG	MMU-AP***4YH-E	Required accessory	
		RBC-US21PGE	MMU-AP***4SH-E	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	Spigot shaped flange	TCB-SF56C6BE	MMD-AP0076 to 0186BHP-E		
		TCB-SF80C6BE	MMD-AP0246/0276/0306BHP-E		
		TCB-SF160C6BE	MMD-AP0366/0486/0566BHP-E		
Concealed duct high static pressure type	High-efficiency filter 65	TCB-UFM1D-1E	MMD-AP0186HP-E	Dust collecting effect: 65% (NBS Colorimetric method)	Use with TCB-FCY21DE
		TCB-UFM2D-1E (2 pcs.)	MMD-AP0246/0276/0366HP-E		Use with TCB-FCY31DE
		TCB-UFM1D-1E (2 pcs.)	MMD-AP0486HP-E		Use with TCB-FCY51DE
	High-efficiency filter 90	TCB-UFH5D-1E	MMD-AP0186HP-E	Dust collecting effect: 90% (NBS Colorimetric method)	Use with TCB-FCY21DE
		TCB-UFH6D-1E (2 pcs.)	MMD-AP0246/0276/0366HP-E		Use with TCB-FCY31DE
		TCB-UFH5D-1E (2 pcs.)	MMD-AP0486HP-E		Use with TCB-FCY51DE
	Long life prefilter	TCB-PF1D-1E	MMD-AP0186HP-E	Dust collecting effect: 50% (Weight method)	Use with TCB-FCY21DE
		TCB-PF2D-1E (2 pcs.)	MMD-AP0246/0276/0366HP-E		Use with TCB-FCY31DE
		TCB-PF1D-1E (2 pcs.)	MMD-AP0486HP-E		Use with TCB-FCY51DE
	Filter chamber	TCB-FCY21DE	MMD-AP0186HP-E	For high-efficiency filter or long life prefilter	
		TCB-FCY31DE	MMD-AP0246/0276/0366HP-E		
		TCB-FCY51DE	MMD-AP0486HP-E		
	Drain pump kit	TCB-DP31DE	MMD-AP0186HP-E to 0486HP-E	Stand-up 330 or less (from bottom face of ceiling)	
Slim duct type	Auxiliary fresh air flange	TCB-FF101URE2	MMD-AP***4SPH-E	For fresh air intake by using the knockout hole of indoor unit. (dia.=100 mm)	
Ceiling type	Drain pump kit	TCB-DP22CE2	MMC-AP0157/0187HP-E	Stand-up 600 or less (from bottom face of ceiling)	Use with TCB-KP12CE2
			MMC-AP0247 to 0567HP-E		Use with TCB-KP22CE2
	Elbow piping kit	TCB-KP12CE2 TCB-KP22CE2	MMC-AP0157/0187HP-E MMC-AP0247 to 0567HP-E	Needed when drain pump kit is used	
Air to Air Heat Exchanger with DX-coil	Drain pump kit	TCB-DP31HEXE	MMD-VN502 to 1002HEXE	Stand-up 330 mm or less (from bottom face of ceiling)	

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 filter chamber	Fresh air 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 filter chamber	OK			OK	—	OK
3	Fresh air 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	

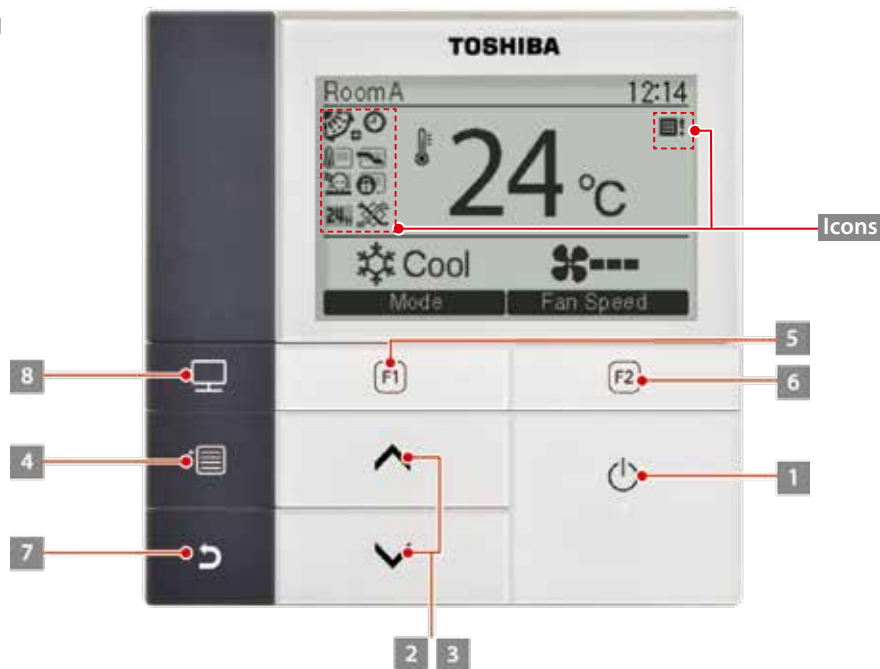
2) Accessory for concealed duct high static pressure type/fresh air intake indoor unit type: combination pattern

		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
3	Long life prefilter	OK	OK		OK	OK
4	Filter chamber	OK	OK	OK		OK
5	Drain pump kit	OK	OK	OK	OK	

Remote controllers

Lite-Vision plus Remote Controller

RBC-AMS51E-ES
RBC-AMS51E-EN



The RBC-AMS51E-ES/EN is the new wired remote controller with a built-in 7-day timer-featuring a new multi-language LCD display with backlight, energy saving options and a return back function.

Key Features

- Possibility to set and display the room name to easily set-up and monitor the working parameters.
- New modern and desirable controller design with menu driven display.
- Save mode by schedule timer to optimise energy consumption.
- Room temperature display always available.
- Two "Hot Keys" (F1, F2) for easy operation of air conditioner functions.
- Easy to read layout including display of indoor unit model name and serial number.
- Built-in backup power. Settings are kept in memory up to 72 hours in case of power failure.
- Remote TA sensor available in controller.
- Can be connected to a single indoor unit or a group of up to 8 indoor units.

Languages

RBC-AMS51E-ES
English, Spanish, Portuguese, French, Dutch, German

RBC-AMS51E-EN
English, Italian, Polish, Greek, Russian, Turkish

- 1

ON/OFF button
- 2

During normal operation: adjusts the temperature.
On the menu screen: selects a menu item.
- 3

During normal operation: adjusts the temperature.
On the menu screen: selects a menu item.
- 4

Displays the menu screen.
- 5

button
Varies its function according to the setting screen.
- 6

button
Varies its function according to the setting screen.
- 7

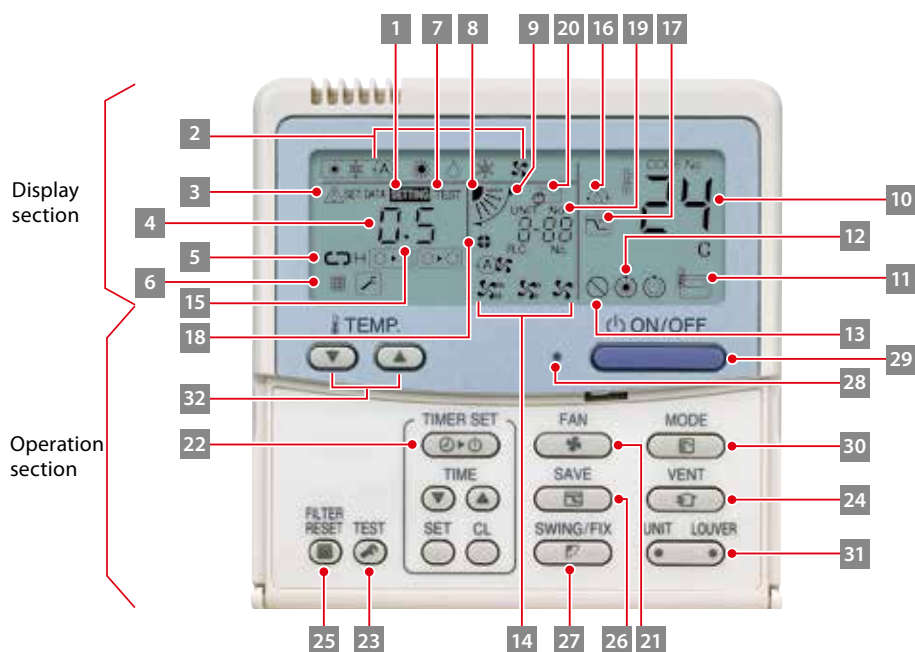
button
Functions as indicated on the screen, such as returning to the previous menu screen.
- 8





button
Displays the monitoring screen.








Icons





	Energy saving operation indicator		Timer indicator
	Remote controller sensor indicator		Louver lock indicator
	Night operation indicator		Louver position indicator
	Under central control indicator		Filter cleaning required indicator
	Total heat exchange mode indicator		24-hour ventilation mode indicator





RBC-AMT32E











- 1 **SETTING indicator**
Displayed during setup of the timer, etc.
- 2 **Operation mode select indicator**
The selected operation mode is displayed.
- 3 **CHECK indicator**
Displayed while the protective device is triggered or a problem occurs.
- 4 **Timer time indicator**
Time of the timer is displayed.
(When a problem occurs, the check code is displayed.)
- 5 **Timer SET IN setup indicator**
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 cleaning required indicator**
If "FILTER  is displayed, clean the air filter.
- 7 **TEST run indicator**
Displayed during a test run.
- 8 **Louver position indicator**
Displays louver position.

- 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**  **CHECK** 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.

- 9** **SWING indicator**
Displayed during up/down movement of the louver.
- 10** **Set temperature indicator**
The selected set temperature is displayed.
- 11** **Remote controller sensor indicator**
Displayed while the sensor of the remote controller is used.
- 12** **PRE-HEAT indicator**
Displayed when the heating operation starts or defrost operation is carried out.
While this indication is displayed, the indoor fan stops.
- 13** **No function indicator**
Displayed if there is no function even if the button is pushed.
- 14** **Air volume selection indicator**
The selected air volume mode is displayed.
(AUTO)  (HIGH) 
(MED.)  (LOW) 
- 15** **Louver number indicator**
(example: 01, 02, 03, 04)
- 16** **Self-cleaning indicator**
Displayed during dry operation in self-cleaning function.

- 26**  button
(Power-save operation)
SAVE button is used for power-save operation.
- 27**  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**  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**  button
(Operation select button)
Selects desired operation mode.

- 17** Power-saving mode indicator
Displayed during capacity saving mode by temporary peak-cut limiting the power current level of the outdoor unit.
- 18** Louver lock indicator
Displayed when there is a louver-locked unit in the group (including 1 indoor unit by 1 outdoor unit).
- 19** Unit number indicator
Unit number of the indoor unit selected with the unit select button or abnormal indicate the indoor/outdoor unit.
- 20** Under central control indicator
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.)
- 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**   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.



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



Simple wired remote controller

RBC-AS41E

- 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 minimised.



Wireless remote controller kit & sensor unit (receiver unit)

- 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

*The wireless remote control cannot be connected to concealed duct high static pressure type.



RBC-AX32U(W)-E

Integral receiver (For 4-way air discharge cassette) (MMU-AP***4HP-E)



RBC-AX33CE

Integral receiver

(For ceiling, 1-way air discharge cassette) (MMU-AP***4SH-E, MMC-AP***4H-E)



Wireless remote controller kit & sensor unit (receiver unit)

- 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

*The wireless remote control cannot be connected to concealed duct high static pressure type.



TCB-AX32E2

Stand alone receiver

(For 4-way air discharge cassette, compact 4-way cassette (600 x 600), 2-way air discharge cassette, ceiling, concealed duct standard, slim duct, floor standing cabinet, floor standing, 1-way discharge cassette (MMU-AP***4YH-E/SH-E))



RBC-AX23UW(W)-E

Integral receiver (For 2-way air discharge cassette) (MMU-AP***2WH)



ON-OFF controller

TCB-CC163TLE2

- Individual control of up to 16 indoor units.
- Setting of simultaneous ON/OFF 3 times per day combined with the weekly timer.



Schedule timer

TCB-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



Wired remote controller for air to air heat exchanger

NRC-01HE

- Up to 8 units of the Air to Air Heat Exchanger can be operated using this remote controller.
- Control by 2 remote controllers is available.
Two remote controllers can operate a single Air to Air Heat Exchanger.
- Air conditioning units may be controlled in addition to controlling the Air to Air Heat Exchanger.
- Central control allows linked ON/OFF operation of air conditioner and Air to Air Heat Exchanger.
- Central control can be set to allow standalone operation of the Air to Air Heat Exchanger.
- Switchable ventilation modes (Automatic/Air to Air/Normal)
- Switchable ventilation air volume (Extra-high/High-Low)



Central remote controller

TCB-SC642TLE2

- 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
- Usable with other central control devices (Max. 10 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.



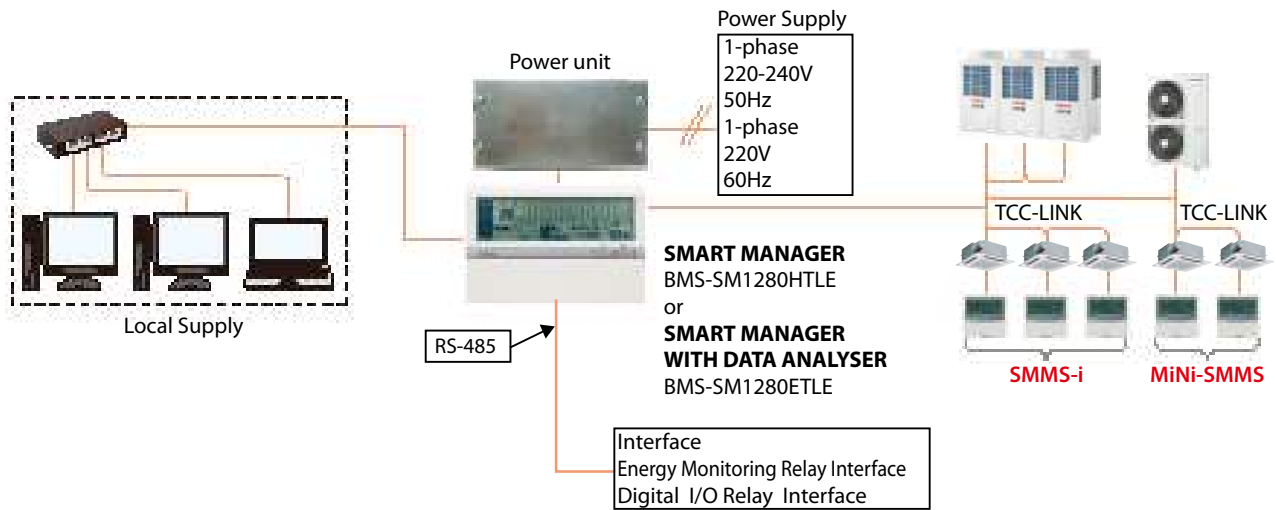
Smart Manager

BMS-SM1280HTLE

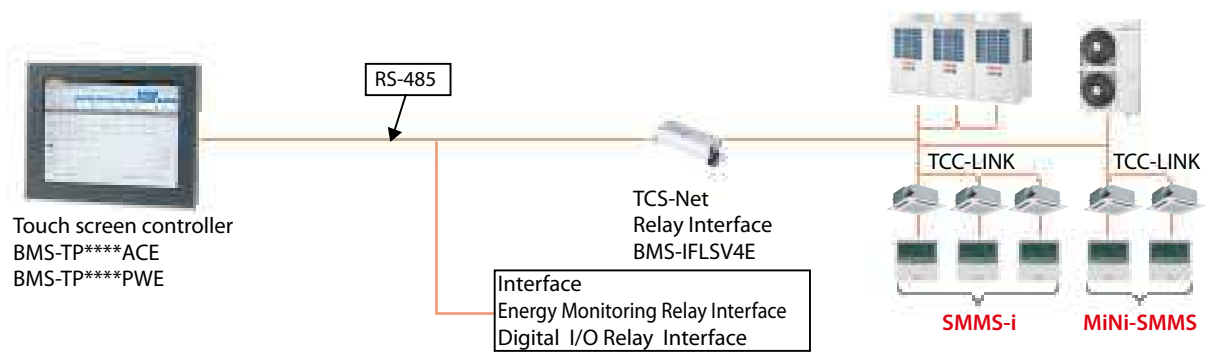
- **Operation/Monitoring**
Individual operation of 128 indoor units
Temperature control
Operation Mode
Flow setting
Swing and direction control
Filter alarm
Child lock
Power Saving model
Return back
Individual/Central operation prohibition
Ventilation control

Building management systems

SMART MANAGER / SMART MANAGER WITH DATA ANALYSER



Touch screen controller





SMART MANAGER
BMS-SM1280HTLE

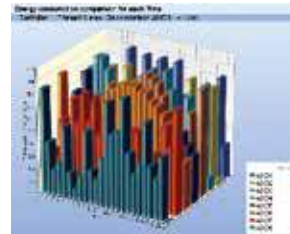
SMART MANAGER WITH DATA ANALYSER
BMS-SM1280ETLE



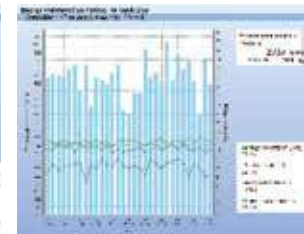
Web browser control software

- List View available - Displays all indoor units in one screen
- Set View available - Shows basic indoor unit settings on main screen
- Advanced operation and master schedule functions available
- Advanced operation & master schedules can be set on a calendar
- Up to 4 concurrent users can be connected
- Up to 32 user accounts can be programmed with different levels of access (at least 1 must be administrator level)
- Energy monitoring and billing functions available
- Additional digital I/O device available
- Thin profile controller and separate power supply unit enables easy installation.

Energy monitoring display



3D energy view



Daily energy view



Touch screen controller

BMS-TP0641ACE
BMS-TP5121ACE
BMS-TP0641PWE*
BMS-TP5121PWE*

* With energy monitoring and billing

• Touch screen controller

Using the touch screen controller provides a clear display and enables easy operation.

A maximum of 512 units / groups are controllable.

• Energy monitoring and billing application

Power meter interface, power meter locally supplied Energy Monitoring relay I/F (BMS-IFWH5E)

• Power meter

(Local Supply)

1 kWh/pulse or 10 kWh/pulse

(Pulse duration 50 to 1000 ms)

(Maximum 8 power meters per interface)



Relay Interface BMS-IFWH5E
For Energy Monitoring

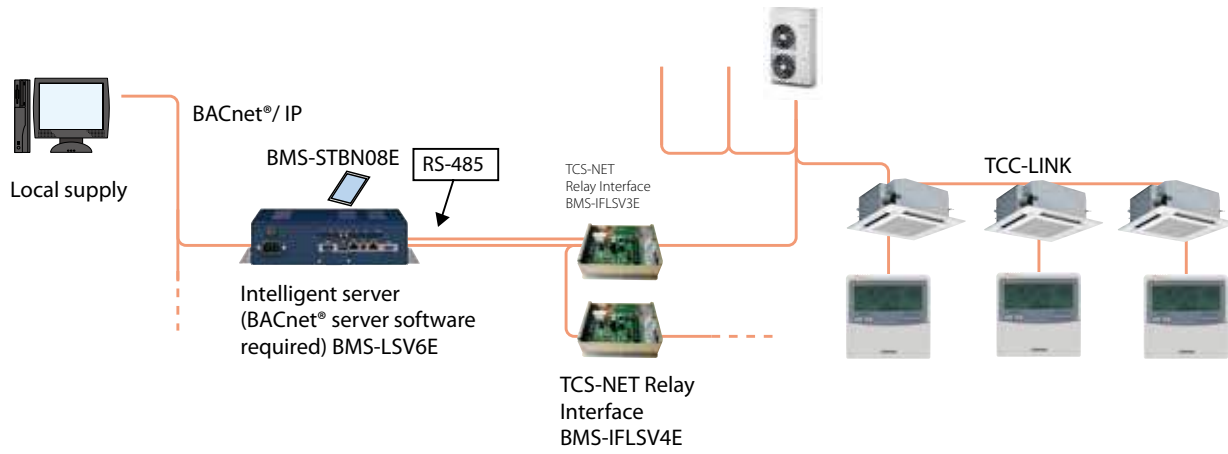
Relay Interface BMS-IFDD03E
For Digital I/O



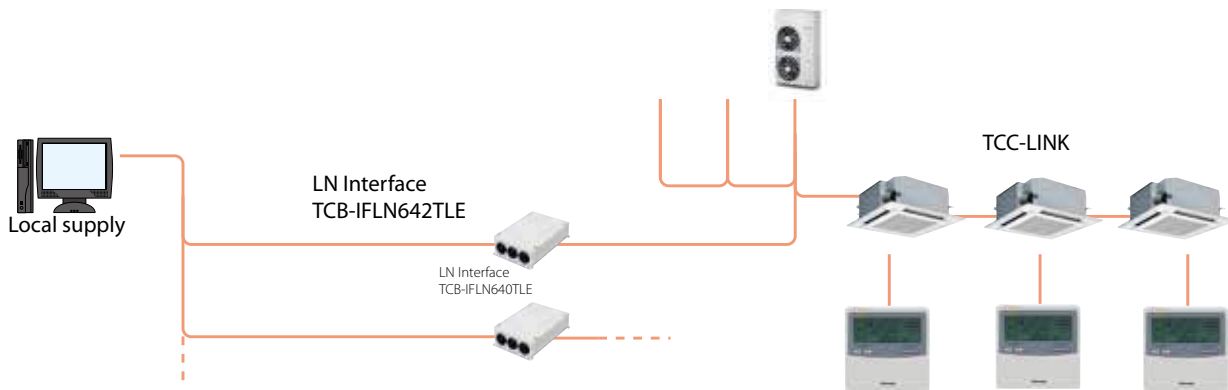
Relay Interface BMS-IFLSV4E
For TCS-NET

Open network systems

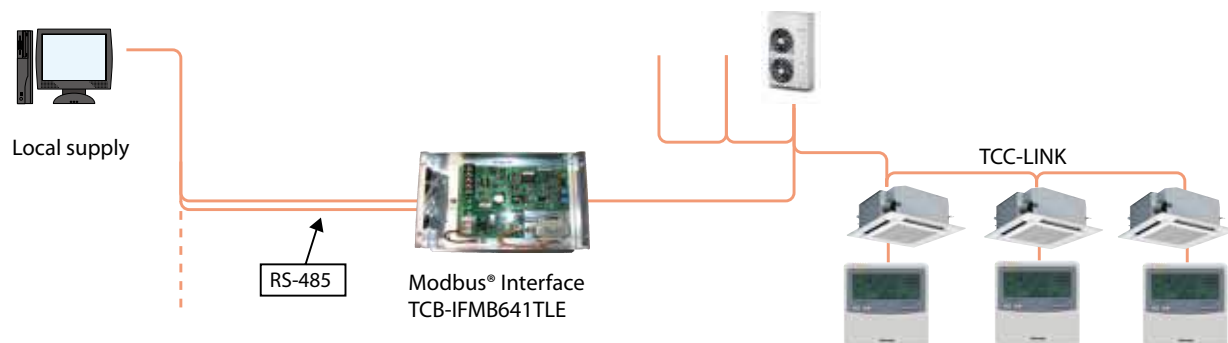
BACnet® system



LonWorks®



Modbus®





Intelligent Server
BMS-LSV6E

• **BACnet®**

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

• **Control**

- ON/OFF
- Temperature setting
- Fan speed

• **Monitoring**

- ON/OFF
- Operation mode
- Temperature setting
- Room temperature
- Local remote controller : permit / prohibit



BACnet® Server Software
BMS-STBN08E



Relay Interface BMS-IFLSV4E
For TCS-NET



LN Interface
TCB-IFLN642TLE

• **LonWorks® LN Interface**

The LonWorks® interface manages the MiNi-SMMS air conditioning system as a Lon device to communicate with the customer's Building Management System and to monitor operational status.

A maximum of 64 units / groups are controllable per interface.

• **SNVT signal**

Signals and provides the following functions:

• **Control**

- ON/OFF
- Temperature setting
- Fan speed

• **Monitoring**

- ON/OFF
- Operation mode
- Temperature setting
- Room temperature
- Local remote controller : permit / prohibit



Modbus® Interface
TCB-IFMB641TLE

• **Modbus®**

The Modbus® interface manages the MiNi-SMMS air conditioning system as a Modbus® device to communicate with the customer's Building Management System.

Accessible to 64 units / groups per one TCB-IFMB641TLE, 15 TCB-IFMB641TLEs on one Modbus® Master (prepared by user).

Signals and provides the following functions:

• **Control**

- ON/OFF
- Temperature setting
- Fan speed

• **Monitoring**

- ON/OFF
- Operation mode
- Temperature setting
- Room temperature
- Local remote controller : permit / prohibit

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.

Application controls

TCB-PCDM4E



Size: 71 × 85 (mm)

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 outdoor unit.



* Install the optional P.C. board in the inverter assembly of the outdoor unit.

TCB-PCMO4E



Size: 55.5 × 60 (mm)

Snowfall fan control

• Feature

The upper limit capacity of the outdoor unit is restricted based on the outdoor power peak selected setting.



* Install the optional P.C. board in the inverter assembly of the outdoor unit.

External master ON/OFF control

• Feature

The outdoor unit starts or stops the system.

Night operation (Sound reduction) control

• Feature

Sound level can be reduced by restricting the compressor and fan speeds.

Operation mode selection control

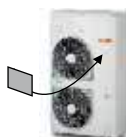
• Feature

This control can restrict the selectable operation modes.

TCB-PCIN4E



Size: 73 × 79 (mm)



* Install the optional P.C. board in the inverter assembly of the outdoor unit.

Error/Operation output control

• Feature

Enables external output of error and operation signals.

Compressor operation output

• Feature

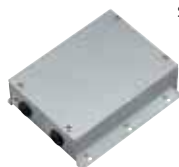
Enables external signal output for each compressor that is in operation within any given outdoor unit. This feature provides a practical method for calculating total operating times for each compressor.

Operating rate output

• Feature

External output of system operating rates enables remote monitoring of operating conditions.

TCB-IFCB-4E2

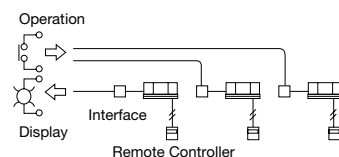


Size: 200 × 170 × 66 (mm)

Remote location ON/OFF control box

• Feature

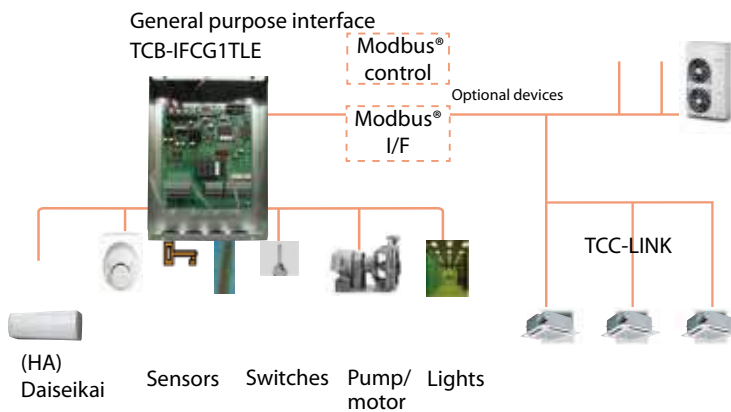
Start and stop of the air conditioner is possible by an external signal and indication of operation/alarm externally.



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.

General Purpose Interface



Concept

- Controls the operation status of each indoor unit.

- ON/OFF control of peripheral equipment via the relay point of Toshiba's BMS. (1 pt only)

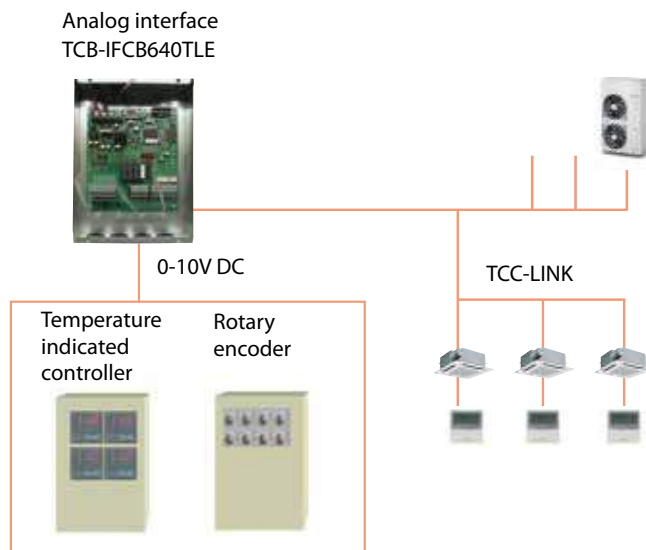
Standard function

Central remote controller and Building Management System devices can control ON/OFF function via digital I/O ports.

Optional function

Control using the following channels: 4-channel relay control, 6-channel digital input, 2-channel analog voltage input and output, and 2-channel temperature measurement functions via Modbus® I/F.

Analog Interface



Concept

- Provides access to 64 indoor units.

- Does not require special network knowledge.

- Can control each indoor unit on TCC-LINK, (on/off, temperature setting, airflow volume, louver position), and monitor status based on 0-10V DC voltage input.

- Enables relay control and status monitoring of general-purpose I/F TCB-IFCG1TLE.

Notes

Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

TOSHIBA

Leading Innovation >>>

Toshiba Air Conditioning



For more details, please contact our Carrier India sales office:

Factory & Corporate Office: Carrier Airconditioning & Refrigeration Ltd, Kherki Daula Post, Narsingpur, Gurgaon 122004, Tel: 0124-4825500 **Sales Offices:** **Delhi/NCR:** 0124-4707311/4707333 **Ghaziabad:** 0120-4183260 **Lucknow:** 0522-2202346/ 2230598, **Chandigarh:** 0172-5007548/5007550 **Jaipur:** 0141-5113444/5113999 **Indore:** 0731-4070378 **Mumbai:** 022-61700700 **Ahmedabad:** 079-40267777 **Pune:** 020-67045100 **Kolkata:** 033-40201300 **Chennai:** 044-42222888 **Bangalore:** 080-43442000 **Hyderabad:** 040-41100222 **Cochin:** 0484-4029001/0

CIN: U74999HR1992FLC036104/ **Website:** www.toshiba-aircon.co.in/ **E-mail:** info@toshiba-aircon.co.in



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