

CITY MULTI®
VRF | TECHNOLOGY

 **MITSUBISHI
ELECTRIC**
COOLING & HEATING
Live Better

Variable Refrigerant Flow

Zoning Systems: 3-30 Tons





Cooling and Heating Solutions

Mitsubishi Electric is a world leader in all types of *quality* products. Our consumer products, like high-definition televisions and home theater systems, have won awards for innovation and *quality*.

Semi-conductors, opto-electronics devices, communication products, power generation systems, and, of course, heating and air-conditioning systems are all a part of the global Mitsubishi Electric family.

Quality describes the products engineered and manufactured by Mitsubishi Electric. *Quality* is what comes to mind when we think of Mitsubishi televisions, elevators, and air-handling systems – *quality* because the majority of components found in Mitsubishi Electric products are made by Mitsubishi Electric



factories. *Quality* comes from a company that controls its own research, development, design, materials and manufacturing. From beginning to end, it is all Mitsubishi Electric engineering. It is all about *quality*.

The technological advances developed by Mitsubishi Electric are apparent as innovative features throughout all of Mitsubishi Electric's products. Efficient and technologically advanced motors, controls, INVERTER-driven compressors and micro-processors are all developed by Mitsubishi Electric and used in CITY MULTI® Variable Refrigerant Flow (VRF) zoning systems. Cross-functional engineering allows Mitsubishi Electric to provide innovative new products in the United States that have proven track records worldwide.



Good for the environment and your bottom line.

Mitsubishi Electric Cooling and Heating Solutions promotes environmental awareness not only by putting innovative technology to work for you, but also in the products themselves of the design and manufacture for example:

- **Eco-friendly refrigerant:** Environmentally-friendly R410A refrigerant offers zero Ozone Depletion Potential (ODP) and allows for higher heat transfer coefficient (COP). This innovative feature means a reduction in equipment size, a reduction in piping size and higher pressure for greater performance. Smaller equipment also means less impact on the environment at the end of the product's life cycle.
- **Standard compliance:** All Mitsubishi Electric products follow standards and guidelines as set forth by the **ENERGY STAR®**, EPA, AHRI, ASHRAE, UL, ETL and ISO.
- **Recycling design:** Our air conditioners are specially designed to allow for easy cleaning, efficient disassembly and more practical recycling. The number of parts used in indoor units has been reduced by adopting modular components, a process which also simplifies materials separation for recycling.
- **Minimal impact on landfills:** All air-conditioning products use long-life washable filters rather than disposable filters. To date, as much as 89.8 percent of the materials used to build a standard CITY MULTI system component are recyclable.
- **Smart energy usage:** Mitsubishi Electric INVERTER zoning systems smartly deliver only the amount of capacity needed—unlike a typical full-power ON system. Individual indoor air handlers are installed each zone. These air handlers measure the load for each zone and deliver only the capacity needed directly there, reducing energy costs from long duct runs. Smarter sensing technology and microprocessors enhance the system's ability to accurately measure room temperature for added comfort, performance and efficiency.

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TOOLS

CITY MULTI® VRF

(Variable Refrigerant Flow)

Zoning Systems: user-friendly ductless, or ducted commercial or residential comfort control systems.

Quality and reliability from a name you know: Mitsubishi Electric

CITY MULTI is the first two-pipe, simultaneous cooling and heating system available in the United States and around the world. Our technology has a long and proven track record of quality and reliability. Mitsubishi Electric, an acknowledged global industry leader, has installed CITY MULTI zoning systems in buildings throughout Asia, Europe, and other countries for nearly 30 years with great success and customer satisfaction. Let a Mitsubishi Electric representative show you how you can put the ultimate cooling and heating system to work for you and your customers right here, right now. Contact us at 800-433-4822 (option #4).

CITY MULTI advantage

The best way to ensure total comfort for the occupants of offices, schools, hospitals, assisted-living facilities, hotels and other is to provide each individual zone with a personalized comfort system. Zoning offers maximum individual comfort and energy savings because each zone receives conditioning only when it needs it. Each zone of the CITY MULTI system has its own indoor unit or group of indoor units that precisely control the indoor temperature, while operating with minimal energy usage. You set the comfort level, then relax.

The CITY MULTI VRF (Variable Refrigerant Flow Zoning) system takes advantage of INVERTER technology by varying the speed of the compressor in the outdoor unit to meet the changing load requirements in each of the indoor zones.

CITY MULTI®
V R F | T E C H N O L O G Y

Complete zoning system

A CITY MULTI VRF system consists of an outdoor unit, a branch circuit (BC) Controller (depending on series), multiple indoor units, and corresponding system and zone controllers. Installing this fully integrated zoning system is fairly simple. A single outdoor modular unit or combined modular units, the BC Controller, and each of the indoor units are connected by a two-pipe refrigerant system. The outdoor unit and the BC Controller, depending on the series, work in unison to deliver the required refrigerant flow to each indoor unit. The Direct Digital Controls (DDC) system controls the network link between the indoor units with the BC Controller and the outdoor unit to provide convenient control of the entire system. Separate remote controllers connected to individual indoor units – or groups of indoor units – provide individual zone control. These controllers provide a wide variety of configuration settings to satisfy each zone's requirements, including temperature control and timer settings.

Design flexibility

CITY MULTI VRF systems provide the flexibility to meet any application, ranging from the simple to the complex. CITY MULTI R2, Y, and W-Series systems, available in 208/230V and 460V capabilities, can be designed for up to 50 zones per system. The 208/230 V single phase S-Series system can be configured for up to eight zones. Systems with Mitsubishi Electric Hyper-Heating INVERTER (H2i™) have the capability to connect with up to 24 indoor units. With 11 different indoor unit styles, providing both ducted and ductless offerings, the CITY MULTI VRF system is ideal for any type of application.

Multiple CITY MULTI systems can be integrated into our controls network to manage up to 2,000 zones from a single networked PC using Mitsubishi Electric furnished software.





Advanced comfort control

The CITY MULTI Controls Network (CMCN) uses Mitsubishi Electric's advanced M-NET technology to provide individual, personalized comfort and powerful, centralized control. Each component is integrated onto the secure high-speed communication bus to provide precise temperature control by varying the output of the outdoor unit(s) to match the needs of each zone.

Complete product family

Mitsubishi Electric HVAC has a complete family of equipment to meet the needs of nearly every heating and cooling application. CITY MULTI VRF is often specified as the primary system in commercial applications, but opportunities exist for complementary products to provide a complete solution. The Mr. Slim product line from Mitsubishi Electric offers a wide range of options for the designer.

The Mr. Slim M-Series line is a single phase product with offerings from 6,000 to 48,000 Btu/h, using from one to eight indoor units. With an extensive offering of ENERGY STAR approved models, the M-Series offers a high efficiency solution for a multitude of applications.

If the job requires a heavy duty and reliable piece of equipment that will work in a low ambient application or an industrial installation, the Mr. Slim P-Series is the best choice. No other manufacturer has a product that can compete with the reliability and high quality designed into the P-Series equipment. Available from 12,000 to 42,000 Btu/h in mostly single zone applications, including the revolutionary Hyper Heat configuration, the P-Series is designed to perform.

To receive additional information on the entire Mr. Slim product line, please contact your local Mitsubishi Electric representative or visit our website at www.mitsubishipro.com.

Easy to install, easier to operate

CITY MULTI is a simple, two-pipe system with easy, non-polar, two-wire control connections. Because of the modular outdoor unit's compact design, transportation can be transported through a standard, six-person elevator during the building process. This translates into less labor and materials, quicker, easier installation, and a much lower overall operating cost for the building owner.

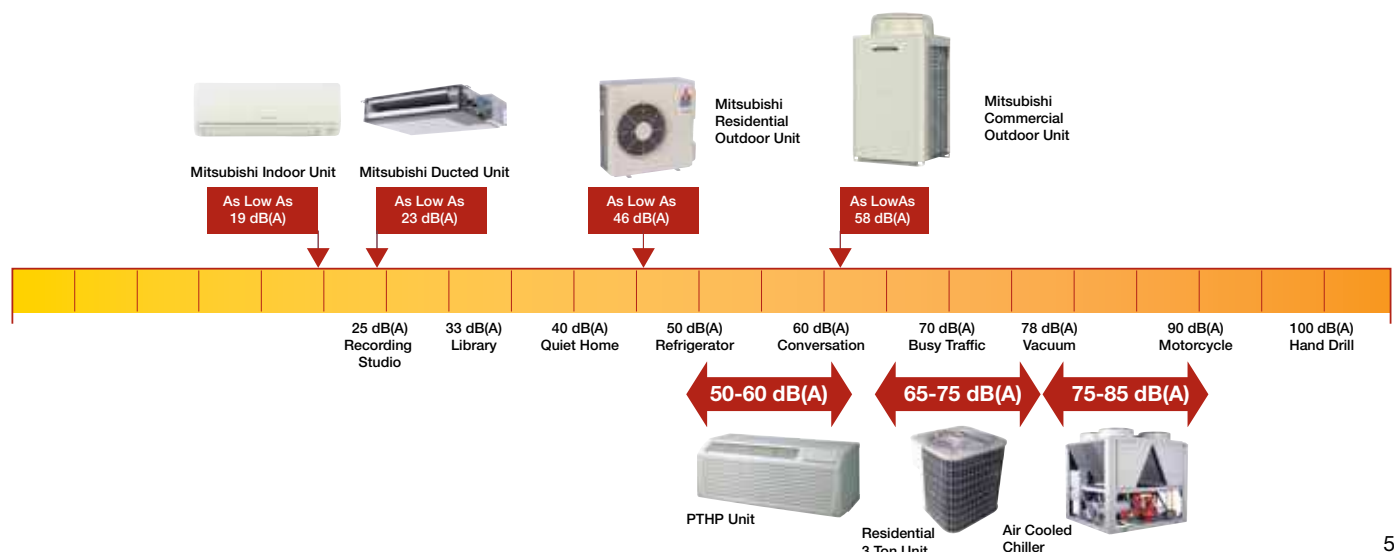
Sustainable

The CITY MULTI technology is designed to allow building owners and designers as many opportunities as possible to attain Leadership in Energy and Environmental Design (LEED®) points when designing and applying CITY MULTI. Mitsubishi Electric is a corporate member of U.S. Green Building Council (USGBC) and is committed to sustainable products and design. CITY MULTI VRF technology may contribute to a building receiving LEED points in areas of Energy and Atmosphere and Indoor Air Quality.



So quiet, you'll hardly notice it's there

CITY MULTI is designed to provide the quietest possible operation for both indoor and outdoor environments. Indoor units operate as low as 24 dB(A), and outdoor units operate as low as 58 dB(A). That's a major benefit, especially for hospitals, other health care facilities, schools, and libraries. CITY MULTI dependably provides comfortable cooling and heating all year long.



OUTDOOR UNITS

Mitsubishi Electric HVAC has an extensive outdoor unit line-up that can be tailored to any building design need. Choose from modular units that have capacities up to 30 tons for Y-Series heat pump systems or 24 tons for R2-Series heat recovery systems, the Hyper-Heating INVERTER (H2i™) Y-Series units that provides up to 100% heating capacity at -4° F outdoor temperature, single-phase S-Series heat pump, or W-Series water-source units available up to 30 tons.



R2-SERIES (Heat Recovery)

The R2-Series **simultaneously cools and heats** different zones within a building to provide energy-saving, heat-recovery operation through the use of the **BC Controller**. This means less work is required of the outdoor unit, which translates into energy savings and increased,

overall capacity. The R2-Series can support up to 50 indoor units. The modular unit design features low operating sound, easy piping and maintenance design. Lightweight materials, and **R2-Series units are available in both 208/230V and 460V for various applications.**

Y-SERIES (Heat Pump)

Y-Series outdoor units are flexible enough to cool or heat up to 50 individual zones, maximizing building design options. The modular unit design features a small footprint, low operating sound, lightweight materials, and easy piping and maintenance design.

Y-Series units are available in both 208/230V and 460V for various applications.



Hyper-Heating INVERTER (H2i™) Y-Series (Heat Pump)

Hyper-Heating INVERTER Y-Series units combine the ultimate in application flexibility with powerful cooling and heating capabilities to deliver precise comfort control to multiple zones in a building. **Providing up to 100% heating capacity at -4° F outdoor temperature and 84% capacity at -13° F outdoor temperature, the H2i unit is the perfect choice for year-round comfort – even in the coldest of climates.**



S-SERIES

(Powerful Single Phase Heat Pump)

The CITY MULTI S-Series is a **single-phase** system perfect for light commercial or large residential applications. Available in 36,000 or 48,000 Btu/h, the S-Series can provide cooling or heating for up to eight individual zones.



WATER-SOURCE UNITS

W-Series WR2, WY (Heat Recovery And Heat Pump Systems)

W-Series units combine the convenience of **water-source systems with VRF technology**. These units are easily installed indoors, and can be used on a range of closed water loop applications, including geothermal. The W-Series includes WR2 heat recovery units for simultaneous cooling and heating, and powerful heat pump WY models.

New modular design up to 30 tons maximum capacity. Available in 208/230 460V capacity.



INDOOR UNITS

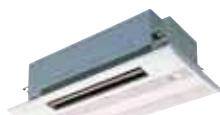
Mitsubishi Electric's wide selection of different indoor unit styles allows you to choose the styles and size that meets your requirements for layout and design.



PKFY
Wall-mounted



PLFY-NBMU (33"x33") & PLFY-NCMU (22"x22") (4-Way)
Ceiling-recessed Cassette



PMFY (1-way)
Ceiling-recessed Cassette



PCFY
Ceiling-suspended



PVFY
Vertical Concealed



PEFY-NMSU/ PEFY-NMAU/ PEFY-NMHU
Ceiling-concealed Ducted Low Profile
Ceiling-concealed Ducted Medium Static
Ceiling-concealed Ducted Alternate High Static



PFFY-NEMU
Floor-standing Exposed



PFFY-NRMU
Floor-standing Concealed

Hydronic Heat Exchanger



PWFY-P36/72NMU-E-AU
PWFY-P36NMU-E-BU
Booster Unit

CONTROLS NETWORK



AG-150
Touch Screen
Centralized Controller



GB50ADA Centralized
Controller for PC



meZO iPhone App



TC-24
Touch Screen
Centralized Controller



PAR-21MAA
PAR-F27MEA
Remote Controllers



PAC-YT51CRB
Simple Remote



Wireless Remote



DIDO / AI
Control Boards

CITY MULTI Controls Network (CMCN)

Mitsubishi Electric's M-NET communication bus allows CMCN to deliver precise temperature control to each individual zone. The M-NET allows for a simple installation and configuration of CMCN components. The flexibility of CMCN allows building owners to customize the levels of control from remote controllers for the occupant in the space, from PC browsers for building engineers, and via BACnet® and LonWorks® interfaces for the BMS.

R2-Series Heat Recovery *NEW*

PURY-P-T/Y(S)JMU-A
up to 50 indoor units

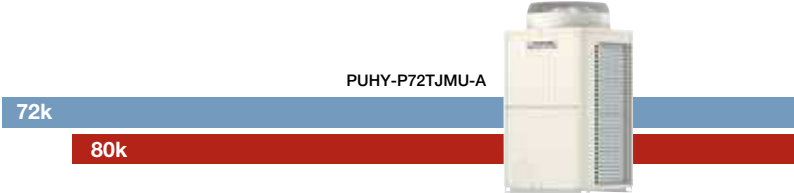
208/230V
460V



Y-Series Heat Pump *NEW*

PUHY-P-T/Y(S)JMU-A
up to 50 indoor units

208/230V
460V



Y-Series H2i® Heat Pump *NEW*

PUHY-HP-T/Y(S)JMU-A



208/230V



TONS	3.5	4	4.5	5	8	10	12
Btu/h	42k	48k	54k	60k	96k	120k	144k

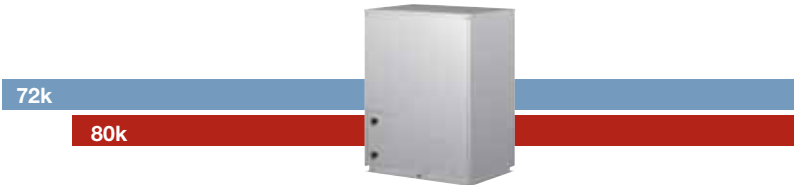
WR2-Series Heat Recovery (Water-source) *NEW*

PQRY / PQHY

208/230V
460V

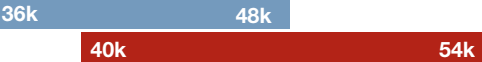


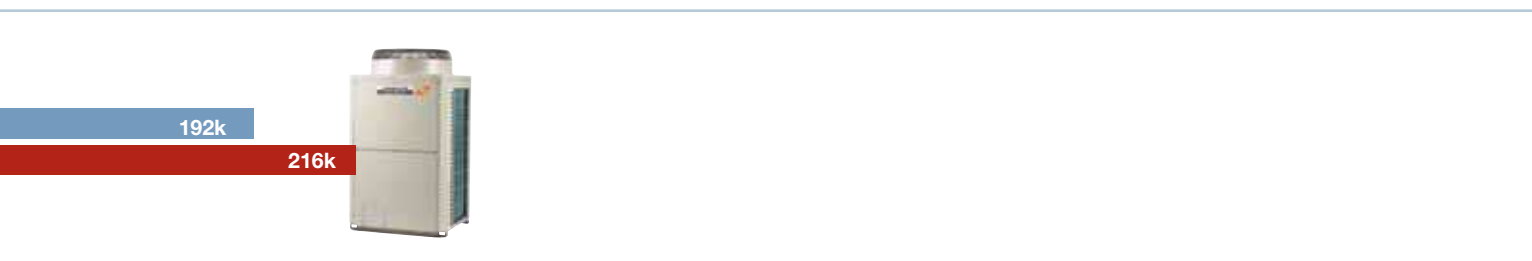
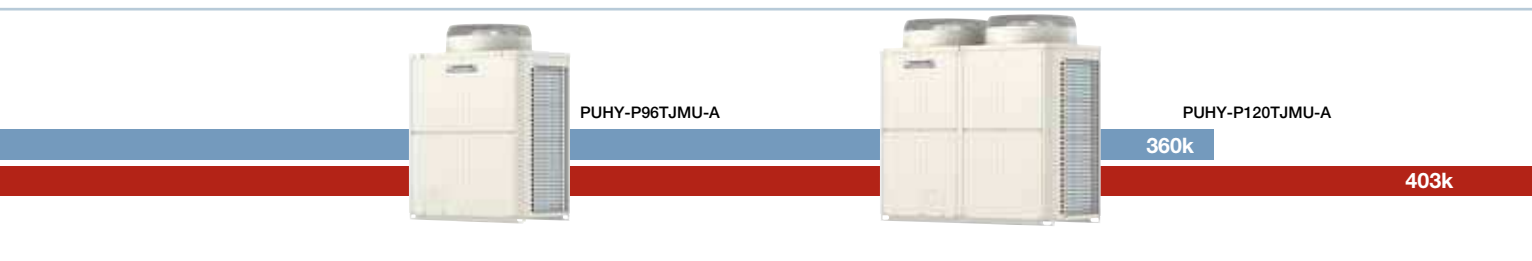
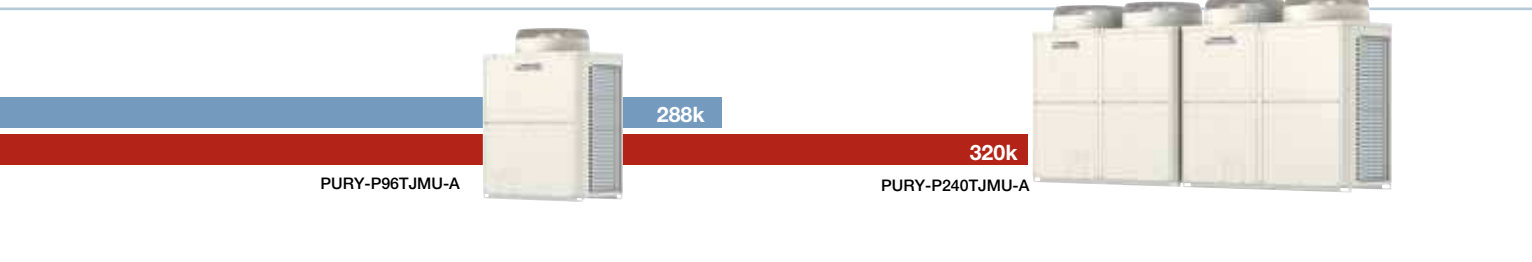
208/230V
460V



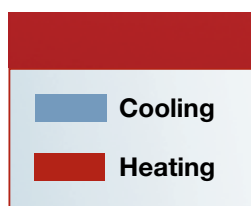
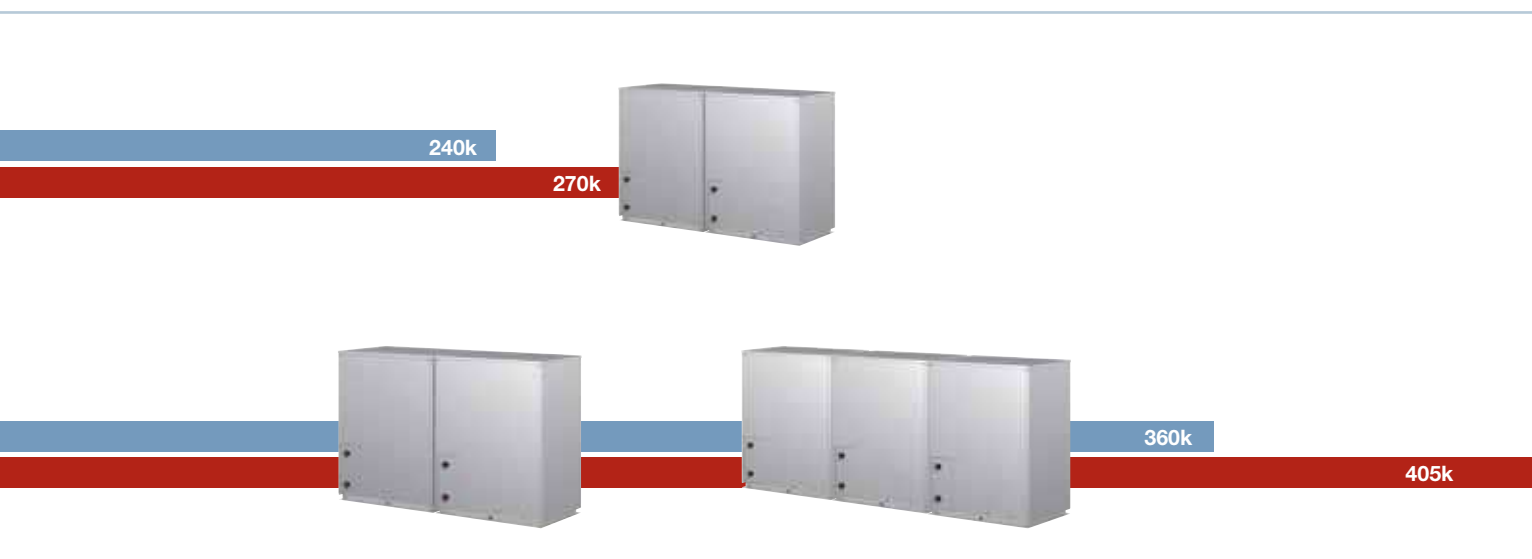
S-Series Heat Pump

PUMY





16	20	24	26	30	TONS
192k	240k	288k	312k	360k	Btu/h



HIGH PERFORMANCE, MODULAR CITY MULTI® VRF SYSTEMS

R2-Series / Y-Series / H2i™ Y-Series

CITY MULTI modular outdoor units feature a new modular, design with a smaller installation footprint, low operating sound, easy piping and maintenance, longer line lengths, and light weight. The modular unit design offers greater flexibility in increasing capacity (up to 24 tons with the R2-Series and 30 tons with the Y-Series) while increasing the number of connectable indoor units, to 50. The modular units are available in both 208/230V and 460V for various sizes of building application requirements.



Blue Fin treatment

The standard anti-corrosion Blue Fin treatment of the heat exchanger is especially effective in environments where traffic pollution can damage the aluminum fins, reducing the capacity and life expectancy of the unit. All CITY MULTI R410A outdoor units are treated with Blue Fin prior to leaving the factory.



Additional seacoast protection of the frame and other component materials on all outdoors is available as an option, as indicated on the model suffix number with a '-BS'.

CITY MULTI Revit® Objects

Autodesk® Revit® building information modeling (BIM) software is helping engineers, architects, and construction professionals explore early design concepts and forms and more accurately maintain a vision through design, documentation, and construction. In mid-2009, Revit "objects" for Mitsubishi CITY MULTI systems were made available on Autodesk® Seek, The SmartBIM Library from Reed Construction Data and on Mitsubishi's Website. The complete outdoor unit and indoor unit lineup are available for download. As use of Revit and the Mitsubishi product offering continues to grow, look for upcoming announcements regarding additional Revit objects.

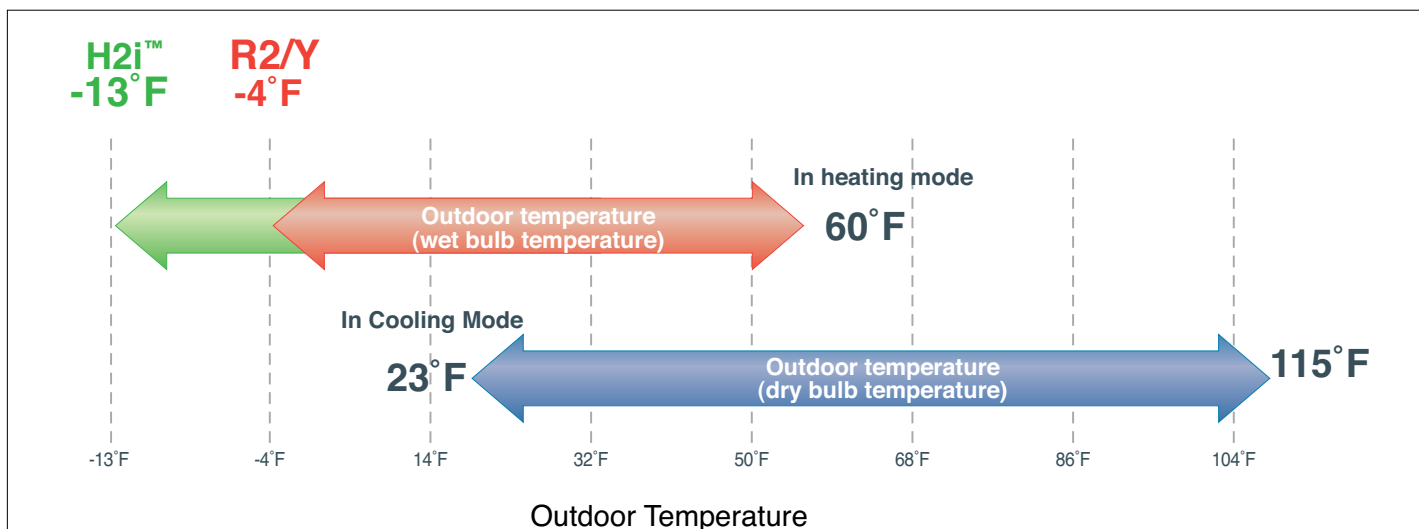


Larger projects, more options

The modular outdoor unit design offers the option for either a 208/230V, 3-Phase, 60Hz power source or a 460V, 3-Phase, 60Hz power source. Another feature is the larger capacities for the larger projects—up to 30 tons on select systems—and up to 50 an increased number of connectable indoor units with increased line lengths. These capabilities increase the range of applications for which an architect, engineer or building owner can specify.

Wide temperature operating range

CITY MULTI VRF systems are designed to operate in a wide range of ambient conditions. Units can operate in the Cooling mode up to 115° F dry bulb and down to 23° F DB. Extended temperature range now down to -10° F with the new low ambient kit (see page 10). But it is not only cooling where CITY MULTI excels. The technology designed into the VRF heat pump system using Mitsubishi Inverter driven compressors allows high capacity operation, enough to actually provide usable heat down to -4° F WB on standard models and -13° F WB on the industry leading-H2i Hyper Heat Models.



100% INVERTER-driven, like no other

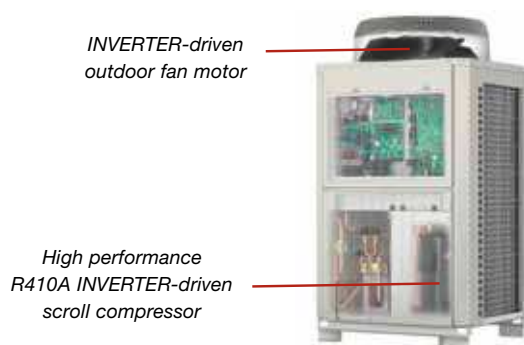


The compressor varies its speed to match the indoor cooling or heating demand and, therefore only consumes the energy that is required.

When an INVERTER-driven system is operating at partial load, the energy efficiency of the system is significantly higher than that of a standard fixed-speed system.

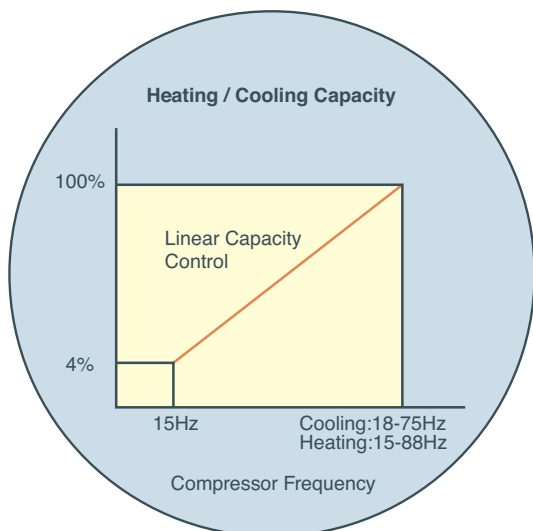
This is because fixed-speed systems can only operate at 100%, however, partial load conditions prevail for the majority of the time—so fixed-speed systems cannot match the annual efficiencies of INVERTER-driven systems.

Using only one INVERTER-driven compressor per outdoor unit module, CITY MULTI outdoor units provide low starting currents (only 15 amps for a TJMU-A outdoor unit), and smooth transition across the range of compressor frequencies. Minimum capacity control ranges from **four percent to 18 percent** depending on outdoor unit systems.



The outdoor unit combinations comprise one unit for P72-P144 models (R2 and Y-Series), two units for P168-P288 models systems (R2 and Y-Series), and three units for P264-P360 models (Y-Series only). Each outdoor unit model features one INVERTER-driven compressor, making simple and highly reliable control possible.

Not only does it allow low starting currents, the INVERTER-driven compressor also provides precise indoor comfort and adapts to the air-conditioning load as needed.



Additional features

Adjustable high static pressure, standard

R2-, Y- and H2i™ Y-Series feature adjustable static pressure up to 0.24" W.G., ideal and flexible for any type of application.

The static pressure setting is adjustable by changing a dip switch. The default setting is 0" W.G. with options 0.12 and 0.24" W.G.

Long line length

The modular chassis for both the R2- and Y-Series outdoor units allows for an increased line length to the connected indoor units, up to a total combined length of refrigerant piping up to 2,624 feet for R2-Series and up to 3,280 feet for Y-Series.

Back-up and outdoor unit rotation

Back-up Function
(combined module systems)

The combined modular outdoor unit design ensures an exceptionally high level of reliability by utilizing a back-up function, which can be easily operated in the unlikely case of a malfunction from an indoor unit remote controller.



Back-up Function



Rotation Function

Rotation Function
(combined module systems)

Running outdoor units alternatively with the 'Rotation Function', the system is able to ensure an optimum product life cycle for both of its component units.

System check

Ensuring simple and easy maintenance, system tests are available to check wiring, sensors and the refrigerant amount.

Easy maintenance

Our systems allow an indoor unit to be serviced while other indoor units within the same piping system are still in operation. Note that this does not apply to all situations and proper procedures must be followed when servicing any equipment. Indoor units typically require filter changes and cleaning.

LOW AMBIENT COOLING OPTION

Mitsubishi Electric is the first and only VRF manufacturer to offer a **low ambient cooling solution** for its 6–30 ton air source outdoor units.



PATENT PENDING

The low ambient cooling kit makes it possible to provide 100% cooling capacity at outdoor temperatures down to -10° F while still allowing full airflow at higher ambient temperatures and full heating capacity if the unit switches to that mode.

The kits are designed for use with the PUHY, PURY and PUHY-HP modular outdoor units. The hood, which includes an electronically controlled damper assembly, will modulate its position automatically and, combined with the INVERTER-driven fans, will provide optimum airflow at lower temperatures. The specially designed wind deflectors will block unwanted wind that could impede operation and, at the same time will allow full airflow when required at higher ambient temperatures or in heating mode. Another benefit of the assembly is a more efficient defrost cycle when the unit is operating in heating mode.

Complete Low Ambient Kit requires hood with control damper assembly and wind deflectors.

Additional features

- Hood and wind deflectors constructed of 20 gauge Hot-dipped galvanized G-90 steel
- Heavy-duty polyester-based powder paint finish
- Designed to work with both 208/230 and 460 3-phase units
- NEMA 4X control box protects electrical components from the elements
- Kit easily connects to outdoor unit with plug-in electrical connections
- Wind deflectors easily install with existing (wire guard) fasteners

General features

Allows system to operate at 100% COOLING capacity at reduced outdoor temperatures:

- PUHY Y-Series Outdoor Units – (Now down to -10° FDB Outdoor Temp.)
- PURY R2-Series Outdoor Units – (Now down to -10° FDB Outdoor Temp.)
- PUHY-HP H2i Y-Series Outdoor Units – (Now down to 0° FDB Outdoor Temp.)

Components required per outdoor unit(s)

For outdoor units with multiple modules, a minimum 1-3/16" separation between the modules is recommended. If modules are placed farther apart, than 15" apart, more than one set of SWD-1 side wind deflectors may be needed. For multiple units or module sets placed in a row, only one side wind deflector kit (SWD-1) is needed to cover the two outside module coil surfaces.



LOW AMBIENT SPECIFICATIONS

Part #	Description	Electrical	Net Wt.
LAH-1	Low Ambient Hood Assembly (master) with damper control box for single fan modules (S and L)	208/230 1-phase .20 amp	59 lbs.
LAH-2	Low Ambient Hood Assembly (slave) combined with the LAH-1 for double fan (XL) modules	Controlled by LAH-2	51 lbs.
SWD-1	Side Wind Deflector, includes 2 pieces (fits all modules)	N/A	45 lbs.
RWD-1	Rear Wind Deflector (1 fits S module, 2 fit the XL module)	N/A	37 lbs.
RWD-2	Rear Wind Deflector (1 fits L Module)	N/A	40 lbs.

PURY-P-T/Y(S)JMU Series

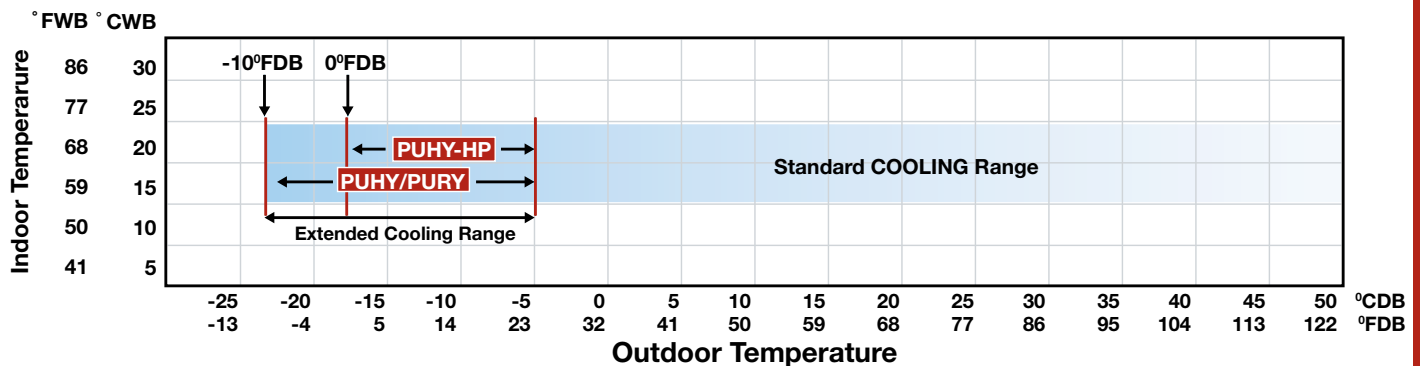
Unit Model	Module Size			Component Quantity				
	S	L	XL	LAH-1	LAH-2	SWD-1	RWD-1	RWD-2
PURY-P72(T,Y)JMU-A	1			1		1	1	
PURY-P96(T,Y)JMU-A		1		1		1		1
PURY-P120(T,Y)JMU-A			1	1	1	1	2	
PURY-P144(T,Y)JMU-A			1	1	1	1	2	
PURY-P168(T,Y)JMU-A	1	1		2		1	1	1
PURY-P192(T,Y)JMU-A		2		2		1		2
PURY-P216(T,Y)JMU-A		1	1	2	1	1	2	1
PURY-P240(T,Y)JMU-A			2	2	2	1	4	
PURY-P264(T,Y)JMU-A			2	2	2	1	4	
PURY-P288(T,Y)JMU-A			2	2	2	1	4	

PUHY-P-T/Y(S)JMU Series

Unit Model	Module Size			Component Quantity				
	S	L	XL	LAH-1	LAH-2	SWD-1	RWD-1	RWD-2
PUHY-P72(T,Y)JMU-A	1			1		1	1	
PUHY-P96(T,Y)JMU-A		1		1		1		
PUHY-P120(T,Y)JMU-A			1	1	1	1	2	
PUHY-P144(T,Y)JMU-A			1	1	1	1	2	
PUHY-P168(T,Y)JMU-A	1	1		2		1	1	1
PUHY-P192(T,Y)JMU-A	1		1	2	1	1	3	
PUHY-P216(T,Y)JMU-A		1	1	2	1	1	2	1
PUHY-P240(T,Y)JMU-A			2	2	2	1	4	
PUHY-P264(T,Y)JMU-A			2	2	2	1	4	
PUHY-P288(T,Y)JMU-A			2	2	2	1	4	
PUHY-P312(T,Y)JMU-A	1		2	3	2	1	5	
PUHY-P336(T,Y)JMU-A		1	2	3	2	1	4	1
PUHY-P360(T,Y)JMU-A		1	2	3	2	1	4	1

PUHY-HP-T/Y(S)JMU Series

Unit Model	Module Size			Component Quantity				
	S	L	XL	LAH-1	LAH-2	SWD-1	RWD-1	RWD-2
PUHY-HP72 TJMU-A	1			1		1	1	
PUHY-HP96 TJMU-A		1		1		1		1
PUHY-HP144 TSMU-A	2			2		1	2	
PUHY-HP192 TSMU-A		2		2		1		2



Mitsubishi Electric HVAC
continues to drive acceptance
of VRF technology in the U.S.
engineering and regulatory
arenas.

Leading the VRF industry

Mitsubishi Electric HVAC has been at the forefront of the charge to develop proper testing standards and procedures for VRF systems, providing clients the necessary information to properly incorporate these systems into their building designs.

AHRI Standards

Air-conditioning, Heating and Refrigeration Institute (AHRI) Standards 210/240 and 340/360 had been used as the benchmark for establishing the testing methods of traditional unitary HVAC equipment. These standards have formalized the use of such terms as EER, IPLV, COP, SEER, and HSPF—terms which are recognized and applied throughout the HVAC industry today. The simple testing procedures detailed in these existing AHRI standards, however, were not adequate to appropriately measure efficiency levels within advanced VRF systems, and could not account for such technologies as inverter-driven compressors, simultaneous cooling and heating, and variable-capacity ductless and ducted indoor units.

AHRI Standard 1230

Mitsubishi Electric worked with the Department of Energy (DOE) and AHRI to gain regulatory acceptance for VRF systems. Initially, Mitsubishi Electric requested DOE grant waivers from the existing testing standards for VRF systems. It was quickly recognized that waivers weren't a long-term solution, and Mitsubishi Electric immediately assisted in developing a proper testing standard for VRF systems—a standard that is now known as AHRI Standard 1230.

Integrated Energy Efficiency Ratio

IEER is the new measure of partial-load cooling performance for unitary equipment and VRF systems. IEER greatly improves the industry methodology for part-load testing by collecting data for four different outdoor testing conditions based on load on the system. The formula (shown below) used for testing, more accurately demonstrates the value and capabilities of INVERTER-driven VRF systems at part-load operation.

Test Condition "A"	=	100% Capacity @ 95° FDB
Test Condition "B"	=	75% Capacity @ 81.5° FDB
Test Condition "C"	=	50% Capacity @ 68° FDB
Test Condition "D"	=	25% Capacity @ 65° FDB

$$\text{IEER} = 0.02A + 0.617B + 0.238C + 0.125D$$

ASHRAE Standard 90.1-2007

ASHRAE Standard 90.1 is synonymous with energy efficiency requirements in commercial buildings. Many city, state, and national codes reference the efficiency levels listed in this standard. With the development and approval of AHRI Standard 1230, Mitsubishi Electric and other VRF system manufacturers had a platform that supported the introduction of VRF efficiency standards as an addendum to Standard 90.1-2007, and incorporated these standards as a part of Standard 90.1-2010. The minimum VRF efficiency standards are shown in Table 1.

VRF partial load vs. Unitary

A section taken directly from the ASHRAE-90.1-2007 addendum for VRF equipment:

*"Cooling EER and heating COP efficiency levels are proposed for a full range of product cooling capacities at standard rating conditions listed in AHRI Standard 1230. The proposed SEER, HSPF, EER, and COP levels are identical to the minimum efficiencies for conventional ducted air cooled air conditioners and applied heat pumps listed in ASHRAE 90.1. **Higher IEER** levels are being proposed because these products are primarily designed to operate in zoning applications and at part-load conditions. The first tier of IEER values is effective immediately, while the second phase will become effective on July 1, 2012."*

The minimum IEER requirements for VRF systems have been set at 10% higher than minimum unitary equipment requirements with approval from the VRF industry.

On July 1, 2012 that minimum will be increased to 15% above the unitary requirement, further emphasizing the superior part-load performance of VRF equipment.

TABLE 1

Electrically Operated Variable Refrigerant Flow Air-to-Air and Applied Heat Pumps—Minimum Efficiency Requirements

Equipment Type	Size Category	Heating Section Type	Sub-Category or Rating Condition	Minimum Efficiency	Test Procedure
VRF Air Cooled, (cooling mode)	<65,000 Btu/h	All	VRF Multi-split System	13.0 SEER	AHRI 1230
	≥65,000 Btu/h and <135,000 Btu/h	Electric Resistance (or none)	VRF Multi-split System	11.0 EER 12.3 IEER 12.9 IEER (as of 7/1/2012)	
	≥65,000 Btu/h and <135,000 Btu/h	Electric Resistance (or none)	VRF Multi-split System with Heat Recovery	10.8 EER 12.1 IEER 12.7 IEER (as of 7/1/2012)	
	≥135,000 Btu/h and <240,000 Btu/h	Electric Resistance (or none)	VRF Multi-split System	10.6 EER 11.8 IEER 12.3 IEER (as of 7/1/2012)	
	≥135,000 Btu/h and <240,000 Btu/h	Electric Resistance (or none)	VRF Multi-split System with Heat Recovery	10.4 EER 11.6 IEER 12.1 IEER (as of 7/1/2012)	
	≥240,000 Btu/h	Electric Resistance (or none)	VRF Multi-split System	9.5 EER 10.6 IEER 11.0 IEER (as of 7/1/2012)	
	≥240,000 Btu/h	Electric Resistance (or none)	VRF Multi-split System with Heat Recovery	9.3 EER 10.4 IEER 10.8 IEER (as of 7/1/2012)	
VRF Water Source, (cooling mode)	<65,000 Btu/h	All	VRF Multi-split System 86°F entering water	12.0 EER	AHRI 1230
	≥65,000 Btu/h	All	VRF Multi-split System with Heat Recovery 86°F entering water	11.8 EER	
	≥65,000 Btu/h and <135,000 Btu/h	All	VRF Multi-split systems 86°F entering water	12.0 EER	
	≥65,000 Btu/h and <135,000 Btu/h	All	VRF Multi-split System with Heat Recovery 86°F entering water	11.8 EER	
	≥135,000 Btu/h	All	VRF Multi-split systems 86°F entering water	10.0 EER	
	≥135,000 Btu/h	All	VRF Multi-split System with Heat Recovery 86°F entering water	9.8 EER	
VRF Ground Water Source, (cooling mode)	≥135,000 Btu/h	All	VRF Multi-split System 59°F entering water	16.2 EER	AHRI 1230
	≥135,000 Btu/h	All	VRF Multi-split System with Heat Recovery 59°F entering water	16.0 EER	
	≥135,000 Btu/h	All	VRF Multi-split System 59°F entering water	13.8 EER	
	≥135,000 Btu/h	All	VRF Multi-split System with Heat Recovery 59°F entering water	13.6 EER	

Note: For efficiency values tested in accordance with AHRI-1230, contact your local Mitsubishi Electric sales representative



CITY MULTI® R2-Series: The first two-pipe heat recovery system that simultaneously cools and heats

The R2-Series simultaneously cools and heats different zones within a building to provide energy-saving, heat-recovery operation through the use of the BC Controller. The R2-Series can support up to 50 indoor units. Modular units feature low operating sound, easy piping and maintenance design, and are lightweight.

R2-Series systems are available in both 208/230V and 460V up to 24 tons for different applications, (6-20 ton units meet ENERGY STAR® Light commercial requirements and will exceed proposed ASHRAE 90.1 efficiency ratings for 2010).

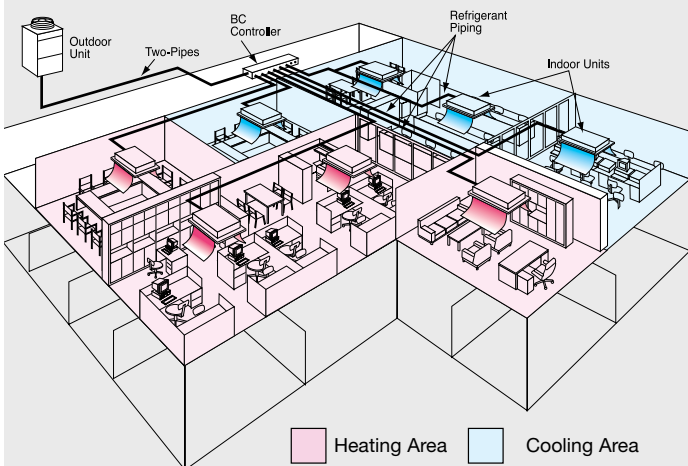
The CITY MULTI R2-Series offers the ultimate in freedom and flexibility. Cool one zone while heating another. Set up zones to maximize simultaneous operation: interior/perimeter or eastern/western exposure. Each zone gets the cooling or heating that is needed at any time.

CITY MULTI R2-Series Variable Refrigerant Flow systems offer the ultimate in enhanced comfort and effective energy usage. R2-Series outdoor unit modules use a single INVERTER-driven compressor (Variable Frequency Drive) per module to provide highly responsive cooling and heating performance. By responding to indoor and outdoor temperature fluctuations, by adjusting the compressor speed to optimize energy usage, systems vary power consumption. The variable-capacity indoor units are controlled by electronic expansion valves, which allow operation only at the levels required to maintain a consistently comfortable indoor environment without wasting energy.



Heat Recovery (R2-/WR2-Series)

Simultaneous cooling and heating



Simultaneous operation

CITY MULTI systems provide simultaneous cooling and heating any time of year above 23° F. So there are a significant number of days when the CITY MULTI

R2-Series takes advantage of simultaneous operation, while maximizing comfort. This innovation minimizes energy wasted by being expelled outdoors and results in optimum energy usage.

Year-round energy savings

CITY MULTI R2-Series VRF systems provide continuous energy savings. During warm weather, R2-Series systems deliver the precise amount of cooling to the zones requiring conditioning. During cold weather, R2-Series systems provide outstanding heating performance because of the high-speed capabilities of the INVERTER-driven compressor in the outdoor unit.

Most of the year, R2-Series systems operate in partial-load conditions, so the INVERTER-driven compressor runs only at the speeds necessary to provide the required amount of cooling and heating.

Using a two-pipe refrigerant circuit, the system heats one or more zones while simultaneously cooling one or more additional zones.

Effective energy usage

The total *applied* capacity of the R2-Series system's indoor units can be up to 150% of the capacity of the outdoor unit. This is made possible by taking advantage of load diversity and simultaneous cooling/heating operation. CITY MULTI VRF systems can satisfy a significantly higher building load by efficiently distributing the capacity to the outdoor unit and indoor units while using much less energy.

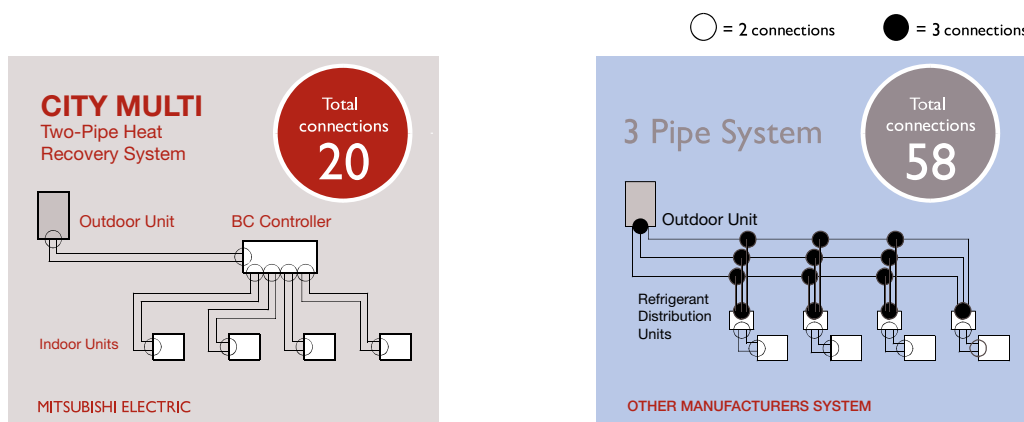
Simplified connections

With the Twinning Kit accessory, the modular units easily combine in the field to create a larger capacity system. Only two refrigerant pipes need to be twinned, saving time and materials. Oil and pressure equalization lines aren't needed when combining modules. This also helps to reduce installation cost.



Advantages of CITY MULTI two-pipe systems

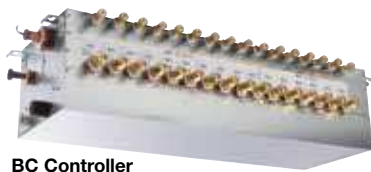
The advantages of the two-pipe CITY MULTI system become very obvious when it comes to installation. The illustration below compare the minimum number of connections required for simultaneous cooling and heating system with four indoor units. The CITY MULTI system requires only 20 connections versus 58 for a three-pipe system. As the number of indoor units grow, so do the two-pipe installations savings, in terms of connections (refrigerant and electrical) as well as maintenance access.



BC Controller

The BC Controller is the technological heart of the CITY MULTI R2-/WR2-Series. It works in unison with the outdoor unit to provide simultaneous cooling and heating, something no other two-pipe system can do.

The Single BC Controller is connected to the outdoor unit by two refrigerant pipes, and to each indoor unit by a series of two pipes, depending on the indoor unit count.



The Main BC Controller and up to two optional Sub BC Controllers connect the outdoor unit to the system's indoor units. A Single or Main BC Controller is required for each CITY MULTI R2-/WR2-Series installation. The BC Controller model and size selected depends on how many indoor units will be operated from each outdoor unit, your total capacity requirements, and your installation needs. Each set of ports supports up to 54,000 Btu/h of capacity.

- **Single BC Controller:**

Used when only one BC controller is required. For systems with up to 120,000 Btu/h nominal cooling capacity.

- **Main BC Controller:**

For systems with up to 288,000 Btu/h nominal cooling capacity and when use of Sub BC Controllers is desired.

- **Sub BC Controller:**

Used with a Main BC controller to connect additional indoor units. A maximum of two Sub BC Controllers can be connected to one Main BC Controller per system.

Increased pipe length

The R2-Series system offers flexibility and reduced costs for refrigerant piping. The system may have a maximum total length of refrigerant piping from 1,804 to 2,624 feet one way, depending on outdoor unit model.

Refrigerant piping lengths	Maximum feet
Total length	1,804 - 2,624
- Maximum total length is dependent on the outdoor unit model and distance between BC controller.	
Farthest Indoor from Outdoor	541 (623 equivalent)
Maximum length between outdoor and single/main BC controller	360
Maximum length between single/main BC controller and indoor	131-196
Vertical differentials between units	Maximum feet
Indoor/outdoor (outdoor higher)	164*
Indoor/outdoor (outdoor lower)	131
Indoor/BC controller (single/main)	49
- Maximum length between single/main BC controller and indoor is dependent upon the vertical differential between the single/main BC controller and the indoor unit.	
Indoor/indoor	49
Controller/Sub BC Controller	49

*Can be extended. Ask your local Mitsubishi Electric representative for more details.

R2-SERIES SPECIFICATIONS



Model Name			208/230V	PURY-P72TJMU-A (-BS)	PURY-P96TJMU-A (-BS)	PURY-P120TJMU-A (-BS)	PURY-P144TJMU-A (-BS)
			460V	PURY-P72YJMU-A (-BS)	PURY-P96YJMU-A (-BS)	PURY-P120YJMU-A (-BS)	PURY-P144YJMU-A (-BS)
Power source			208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz				
Capacity (Nominal) *1	Cooling	BTU / h	72,000	96,000	120,000	144,000	
		kW	5.66	7.8	9.99	12.43	
		A	17.4 / 15.7 / 7.8	24.0 / 21.7 / 10.8	30.8 / 27.8 / 13.9	38.3 / 34.6 / 17.3	
	Heating	BTU / h	80,000	108,000	135,000	160,000	
		kW	6.16	8.66	11.02	13.20	
		A	18.9 / 17.1 / 8.5	26.7 / 24.1 / 12.0	33.9 / 30.7 / 15.3	40.7 / 36.8 / 18.4	
Electrical Supply	MCA	A	27 / 25 / 13	35 / 32 / 16	49 / 46 / 23	59 / 54 / 27	
	MOCP	A	40 / 30 / 15	50 / 50 / 25	70 / 70 / 30	90 / 80 / 40	
Fan	Type x Quantity		Propeller Fan x 1		Propeller Fan x 2		
	Air flow rate	cfm	6,180		10,600	12,010	
	Motor Output	kW	0.92	0.92	0.92+0.92		
	External static pressure		Selectable; 0, 0.12 or 0.24"WG; factory set to 0"W.G.				
Compressor	Type x Quantity		INVERTER-driven Scroll Hermetic x 1				
	Operating Range		16% to 100%	17% to 100%	15% to 100%	13% to 100%	
	Direct-drive INVERTER Motor output	kW	5.1	7.0	8.1	9.5	
	Crankcase heater	W	35	45			
	Lubricant		MEL32				
Refrigerant	Type		R410A				
External finish			Pre-coated galvanized steel sheet (Plus Powder Coating for -BS type) <MUNSELL 5Y 8/1 or Similar>				
Dimensions H x W x D	Height	In.	65"				
	Width	In.	36-1/4"	48-1/16"	68-15/16"		
	Depth	In.	29-15/16"				
Net Weight		Pounds	519 / 552	585 / 618	695 / 728		
Sound pressure level (measured in anechoic room)		dB <A>	58.0		60.0	61.0	
Protection devices	High Pressure Protection		High pressure sensor, High pressure switch				
	Compressor / Fan		Over-heat protection / Thermal switch				
	Inverter		Overheat and Overcurrent Protection				
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	3/4"	7/8"	1-1/8"		
	High Pressure (Brazed)	In.	5/8"	3/4"		7/8"	
Indoor unit connectable	Total capacity		50 to 150% of outdoor unit capacity				
	Model / Quantity		P06 to P96 / 1 to 18	P06 to P96 / 1 to 24	P06 to P96 / 1 to 30	P06-P96 / 1 to 36	
Operating Temperature Range	Cooling	D.B.	**Outdoor: 23 to 115° F				
	Heating	W.B.	Outdoor: -4 to +60° F				

Note: Rating Conditions:

*1 Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB.

*2 Note for Low Ambient

Heating: Indoor: 70°F (21°C) DB; Outdoor: 47°F (8°C) DB / 43°F (6°C) WB.

-BS indicates Seacoast Protection option.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.

See our website for details on specific additional application installation coverage.

** For details on extended ambient cooling operation range down to -10 FDB see Low Ambient Cooling section.

Specifications are subject to change.



Model Name			208/230V	PURY-P168TSJMU-A (-BS) *2	PURY-P192TSJMU-A (-BS) *2	PURY-P216TSJMU-A (-BS) *2	PURY-P240TSJMU-A (-BS) *2	PURY-P264TJMU-A (-BS) *2 *5	PURY-P288TSJMU-A (-BS) *2 *5
				With 1 PURY-P72TJMU-A (-BS) and 1 PURY-P96TJMU-A (-BS) *3	With 2 PURY-P96TJMU-A (-BS) *3	With 1 PURY-P96TJMU-A (-BS) and 1 PURY-P120TJMU-A (-BS) *3	With 2 PURY-P120TJMU-A (-BS) *3	With 1 PURY-P120TJMU-A (-BS) and 1 PURY-P144TJMU-A (-BS) *3	With 2 PURY-P144TJMU-A (-BS) *3
			460V	PURY-P168YSJMU-A (-BS) *2	PURY-P192YSJMU-A (-BS) *2	PURY-P216YSJMU-A (-BS) *2	PURY-P240YSJMU-A (-BS) *2	PURY-P264YSJMU-A (-BS) *2 *5	PURY-P288YSJMU-A (-BS) *2 *5
Power source			208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz						208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz
Capacity (Nominal) *1	Cooling	BTU / h		168,000	192,000	216,000	240,000	264,000	288,000
		kW		13.86 *3	16.07 *3	18.32 *3	20.58 *3	23.09 *3	25.61 *3
		A		42.7 / 38.6 / 19.3 *3	49.5 / 44.8 / 22.4 *3	56.5 / 51.0 / 25.5 *3	63.4 / 57.4 / 28.7 *3	71.2 / 64.4 / 32.2 *3	78.9 / 71.4 / 35.7 *3
	Heating	BTU / h		188,000	215,000	243,000	270,000	295,000	320,000
		kW		15.26 *3	17.84 *3	20.27 *3	22.70 *3	24.95 *3	27.19 *3
		A		47.0 / 42.5 / 21.2 *3	55.0 / 49.7 / 24.8 *3	62.5 / 56.5 / 28.2 *3	70.0 / 63.3 / 31.6 *3	76.9 / 69.5 / 34.7 *3	83.8 / 75.8 / 37.9 *3
Fan	Type x Quantity		Refer to PURY-P72TJMU-A (-BS) / PURY-P96TJMU-A (-BS) and PURY-P72YJMU-A (-BS) / PURY-P96YJMU-A (-BS) Specifications on page ??						
	Air flow rate	cfm	Refer to PURY-P96TJMU-A (-BS) and PURY-P96YJMU-A (-BS) Specifications on page ??						
	Direct-drive INVERTER Motor Output	kW	Refer to PURY-P96TJMU-A (-BS) and PURY-P96YJMU-A (-BS) Specifications on page ??						
	External static pressure		Refer to PURY-P120TJMU-A (-BS) and PURY-P120YJMU-A (-BS) Specifications on page ??						
Compressor	Type x Quantity		7% to 100%						
	Operating Range		9% to 100%						
	Direct-drive INVERTER Motor output	kW	Refer to PURY-P72TJMU-A (-BS) / PURY-P96TJMU-A (-BS) and PURY-P72YJMU-A (-BS) / PURY-P96YJMU-A (-BS) Specifications on page 18						
	Crankcase heater	W	Refer to PURY-P96TJMU-A (-BS) and PURY-P96YJMU-A (-BS) Specifications on page 18						
Refrigerant			Refer to PURY-P120TJMU-A (-BS) and PURY-P120YJMU-A (-BS) Specifications on page 18						
External finish			Refer to PURY-P120TJMU-A (-BS) and PURY-P120YJMU-A (-BS) Specifications on page 18						
Dimensions H x W x D	Height	In.	Refer to PURY-P120TJMU-A (-BS) and PURY-P120YJMU-A (-BS) Specifications on page 18						
	Width	In.	Refer to PURY-P120TJMU-A (-BS) and PURY-P120YJMU-A (-BS) Specifications on page 18						
	Depth	In.	Refer to PURY-P120TJMU-A (-BS) and PURY-P120YJMU-A (-BS) Specifications on page 18						
Net Weight			Pounds						
Sound pressure level (measured in anechoic room)			dB(A)						
Protection devices	High Pressure Protection		High pressure sensor, High pressure switch						
	Compressor / Fan		Over-heat protection / Thermal switch						
	Inverter		Overheat and Overcurrent Protection						
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	1-1/8						
	High Pressure (Brazed)	In.	7/8						
Indoor unit connectable	Total capacity		50 to 150% of outdoor unit capacity 50 to 150% of outdoor unit capacity						
	Model / Quantity		P06-P96 / 1 to 42	P06-P96 / 1 to 48	P06-P96 / 2 to 50 *4	P06-P96 / 2 to 50 *4	P06-P96 / 2 to 50 *4	P06-P96 / 2 to 50 *4	P06-P96 / 2 to 50 *4
Operating Temperature Range	Cooling	D.B.	**Outdoor: 23 to 115° F						
	Heating	W.B.	Outdoor: -4 to +60° F						

*1 *1 Rating Conditions: *1 Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB. Heating: Indoor: 70°F (21°C) DB; Outdoor: 47°F (8°C) DB / 43°F (6°C) WB.

*2 Twinning Kit is required for combining two individual outdoor units in the field for PURY-P-T(Y)SJMUs combined systems.

*3 Each individual outdoor unit requires a separate electrical connection. Reference electrical data for each individual outdoor unit.

*4 Maximum connectable no. of branch pipes is 48. -BS indicates Seacoast Protection option.

*5 LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts. See our website for details on specific additional application installation coverage.

Specifications are subject to change.

* 264 and 288 require use -HA,BC controller

** For details on extended ambient cooling operation range down to -10 FDB see Low Ambient Cooling section.

NOTES: In systems with considerably long piping runs, the outdoor units may exhibit slightly louder than normal sound pressure levels when in heating mode.

The outdoor twinning kit (low pressure) should be connected to the low pressure side of the outdoor unit. If the connected units are different capacities, the outdoor twinning kit (low pressure) should be installed in the unit with the largest capacity.

BC CONTROLLER SPECIFICATIONS
for R2-Series and WR2-Series Systems (Heat Recovery)



CMB-P-NU-G (Single BC) Specifications

Model Name			CMB-P105NU-G	CMB-P106NU-G	CMB-P108NU-G	CMB-P1010NU-G	CMB-P1013NU-G	CMB-P1016NU-G
Number of Branches			5	6	8	10	13	16
Power Source			208/230V, 1-phase, 60 Hz					
Power Input	Cooling	W	73	86	112	138	178	217
	Heating	W	33	40	53	66	86	106
Current (208/230V)	Cooling	A	0.35/0.32	0.41/0.37	0.54/0.49	0.66/0.60	0.86/0.77	1.04/0.94
	Heating	A	0.16/0.14	0.19/0.17	0.25/0.23	0.32/0.29	0.41/0.37	0.51/0.46
External Finish			Unit: Galvanized steel plate; Drain pan: Pre-coated galvanized sheets plus powder coating					
Dimensions	Height	Inches	11-3/16	11-3/16	11-3/16	11-3/16	11-3/16	11-3/16
	Width	Inches	25-17/32	25-17/32	25-17/32	25-17/32	43-1/4	43-1/4
	Depth	Inches	17-1/32	17-1/32	17-1/32	17-1/32	17-1/32	17-1/32
Net Weight		Pounds	72	76	84	94	126	138
Connectable Outdoor Unit			PURY-P72/96/120THMU-A(-BS), PURY-P72/96/120YHMU-A(-BS), PQRY-P72/96TGMU-A					
Refrigerant Pipe Dimensions	To Outdoor Unit PURY-P72 and Water-source Unit PQRY-P72	Low Pressure (in.)	3/4 (Brazed)					
		High Pressure (in.)	5/8 (Brazed)					
	To Outdoor Unit PURY-P96 and Water-source Unit PQRY-P96	Low Pressure (in.)	7/8 (Brazed)					
		High Pressure (in.)	3/4 (Brazed)					
	To Outdoor Unit PURY-P120	Low Pressure (in.)	1-1/8 (Brazed)					
		High Pressure (in.)	3/4 (Brazed)					
	To Indoor Unit *1	Gas Pipe (in.)	5/8 (Flare)					
		Liquid Pipe (in.)	3/8 (Flare)					
Max. Connected Capacity for All Branches		Btu/h	189,000	189,000	189,000	189,000	189,000	189,000
Indoor Unit Capacity Connectable to One Branch			54,000 Btu/h or less per branch					
Drain pipe			O.D. 1-1/4"					

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

Specifications are subject to change.



CMB-P-NU-GA/HA (Main BC) Specifications

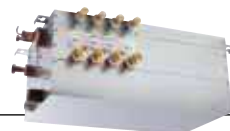
Model Name			CMB-P108NU-GA	CMB-P1010NU-GA	CMB-P1013NU-GA	CMB-P1016NU-HA
Number of Branches			8	10	13	16
Power Source			208/230V, 1-phase, 60 Hz			
Power Input	Cooling	W	112	138	178	274/353
	Heating	W	53	66	86	137/177
Current (208/230V)	Cooling	A	0.54/0.49	0.66/0.60	0.86/0.77	1.32/1.54
	Heating	A	0.25/0.23	0.32/0.29	0.41/0.37	0.66/0.77
External Finish			Unit: Galvanized steel plate; Drain pan: Pre-coated galvanized sheets plus powder coating			
Dimensions	Height	Inches	11-7/16	11-7/16	11-7/16	11-7/16
	Width	Inches	43-3/4	43-3/4	43-3/4	43-3/4
	Depth	Inches	20-1/2	20-1/2	20-1/2	20-1/2
Net Weight		Pounds	122	132	148	172
Connectable Outdoor Unit			PURY-P72/96/120/144/168/192/216/240T(S)JHMU-A(BS), 264, 288 PURY-P72/96/120/144/168/192/216/240Y(S)HMU-A(-BS), PQRY-P72/96TGMU-A (HA)			
Refrigerant Pipe Dimensions	To Outdoor Unit PURY-P72 and Water-source Unit PQRY-P72	Low Pressure (in.)	3/4 (Brazed)			
		High Pressure (in.)	5/8 (Brazed)			
	To Outdoor Unit PURY-P96 and Water-source Unit PQRY-P96	Low Pressure (in.)	7/8 (Brazed)			
		High Pressure (in.)	3/4 (Brazed)			
	To Outdoor Unit PURY-P120 and Water-source	Low Pressure (in.)	1-1/8 (Brazed)			
		High Pressure (in.)	3/4 (Brazed)			
	To Outdoor Unit PURY-P144/168/192 and Water- source	Low Pressure (in.)	1-1/8 (Brazed)			
		High Pressure (in.)	7/8 (Brazed)			
	To Outdoor Unit PURY-P216/240/264/288 and PQRY P216/240	Low Pressure (in.)	1-1/8 (Brazed)			
		High Pressure (in.)	1-1/8 (Brazed)			
	To Outdoor Unit PURY-P240/264/288	Low Pressure (in.)	1-3/8"			
		High Pressure (in.)	1-1/8"			
To Indoor Unit *1	Gas (in.)	5/8 (Flare)				
	Liquid (in.)	3/8 (Flare)				
Max. connected capacity for all branches		Btu/h	360,000	360,000	360,000	432,000
Max. Connected Capacity to Sub BC Controller(s) *2		Btu/h	126,000	126,000	126,000	126,000
Indoor Unit Capacity Connectable to One Branch			54,000 Btu/h or less per branch			
Drain pipe			O.D. 1-1/4"			

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

*2 If two sub BC controllers are connected and at least one is a CMB-P1016NU-HB, the maximum

connected capacity is 168,000 Btu/h.

Specifications are subject to change.



CMB-P-NU-GB, HB (Sub BC) Specifications

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

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

Specifications are subject to change.

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

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

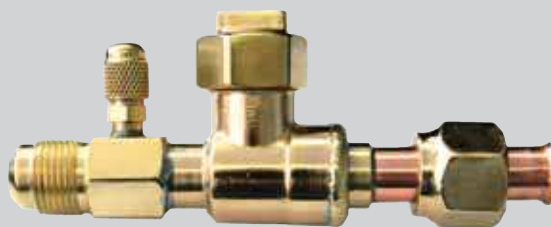
Specifications are subject to change.



Model numbers:

BV14FFSI / BV38FFSI / BV12FFSI / BV58FFSI

- Size available: 3/8"; 5/8"
- Fully factory assembled
- Furnace brazed and pressure tested
- Each ball valve is equipped with Schrader Valve for refrigerant service
- Design working pressure: 700 PSIG
- Temperature range: -40° F to +325° F (-40° C to +149° C)
- Forged brass body and seal cap
- Polytetrafluoroethylene (PTFE) seals and gaskets (no synthetic O-rings)
- Seal cap design permits valve operation without removal of seal cap
- One year limited materials and workmanship warranty on Ball Valves



- Full Port Design
- 700 PSIG Rated
- R-410A Compatible
- Flare Connections

Part Number	SAE Flare	A	B	C	D	E	F
BV38FFSI	3/8"	6.30	2.67	1.80	1.22	1.42	1.10
BV58FFSI	5/8"	6.64	2.67	1.80	1.28	1.42	1.10

*Ball valves come with an insulation piece

CITY MULTI® Y-Series: The two-pipe zoned system designed for heat pump operation

Y-Series outdoor units are flexible enough to cool or heat up to 50 individual zones, maximizing building design options. They feature low operating sound, easy piping and maintenance design, and light weight. Y-Series units are available in both 208/230V and 460V up to 30 tons for different applications, **(6-20 ton units meet ENERGY STAR® Light Commercial Requirements and will exceed proposed ASHRAE 90.1 efficiency ratings for 2010).**

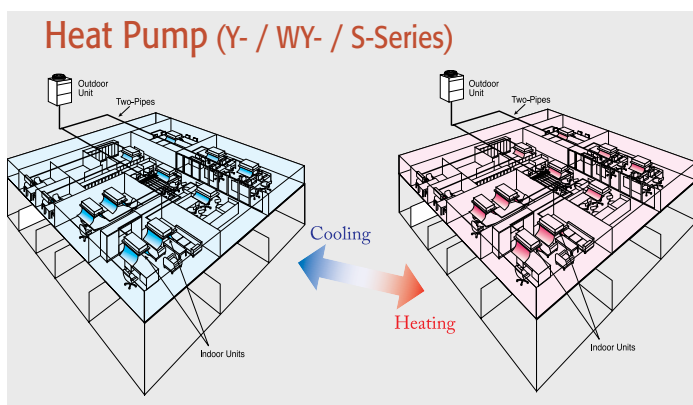


Design flexibility

Flexibility is the key with the CITY MULTI Y-Series. The Y-Series, just like the R2-Series, can condition up to 50 zones intelligently. The Y-Series takes advantage of Mitsubishi Electric's INVERTER technology to deliver the precise amount of cooling or heating to all connected zones. By using T-branches and headers, the Y-Series provides the ultimate in piping design flexibility that is truly simple in application. The BC Controller is not used for Y-Series installations.

The ultimate in zoning

The CITY MULTI Y-Series uses a two-pipe system with a wide variety of indoor units and individual zone controllers to provide the ultimate zoning system. Headers and T-branches simplify the piping design and provide design freedom for placement of both piping and indoor units. Individual zones are managed by remote controllers placed in each zone or by the centralized controller. The BC Controller is not used for Y-Series installations.



Intelligent energy usage

The highly responsive INVERTER technology and customized individual zones of the CITY MULTI Y-Series provide year-round savings. In warm summer months, the Y-Series provides exceptional zoned cooling, and in cold winter months the INVERTER-driven compressor provides outstanding heating performance.

CITY MULTI systems, in combination with Mitsubishi Electric's TG-2000 integrated system software configured with Tenant Billing, are able to monitor and log each zone's energy usage via a networked PC.

Larger projects, more options

New to the modular outdoor unit design specifications is an option for either a 208/230V, 3-Phase, 60Hz powersource or a 460V, 3-Phase, 60Hz power source. Another feature is larger capacities for the larger projects—to 30 tons—and an increased number of connectable indoor units—50—with increased line lengths. These capabilities increase the range of potential applications for which an architect, engineer or building owner can specify CITY MULTI VRF systems.

Increased pipe length

The Y-Series two-pipe system offers great piping design flexibility. Two pipes run from the Y-series outdoor unit to connect up to 50 indoor units via simple T-branches, headers, or combination of both. A Y-Series system may have a total combined length of refrigerant piping up to 3,280 feet one way. The farthest distance between the Y-Series outdoor unit and any one of the 50 indoor units is 541 feet. The outdoor unit can be placed 164* feet vertically above the lowest indoor unit or 131 feet vertically below the highest indoor unit. The Y-Series offers exceptional line lengths that will accommodate just about any commercial application, including multi-story office buildings, universities, and many, many others.

Refrigerant piping lengths	Maximum feet
Total length	3,280
Farthest indoor from outdoor	541 (623 equivalent)
Farthest indoor unit from first branch	134 – 184

Vertical differentials between units	Maximum feet
Indoor/outdoor (outdoor higher)	164*
Indoor/outdoor (outdoor lower)	131
Indoor/BC controller (single/main)	49
- Maximum length between single/main BC controller and indoor is dependent upon the vertical differential between the single/main BC controller and the indoor unit.	
Indoor/indoor	49
Main BC Controller/Sub BC Controller	49

Y-SERIES SPECIFICATIONS



OUTDOOR UNITS

Model Name			208/230V	PUHY-P72TJMU-A (-BS)	PUHY-P96TJMU-A (-BS)	PUHY-P120TJMU-A (-BS)	PUHY-P144TJMU-A (-BS)
			460V	PUHY-P72YJMU-A (-BS)	PUHY-P96YJMU-A (-BS)	PUHY-P120YJMU-A (-BS)	PUHY-P144YJMU-A (-BS)
Power source			208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz				
Capacity (Nominal) *1	Cooling	BTU / h	72,000	96,000	120,000	144,000	
		kW	5.27	7.95	9.90	12.42	
		A	16.2 / 14.6 / 7.3	24.5 / 22.1 / 11.0	30.5 / 27.6 / 13.8	38.3 / 34.6 / 17.3	
	Heating	BTU / h	80,000	108,000	135,000	160,000	
		kW	5.68	8.54	10.41	13.08	
		A	17.5 / 15.8 / 7.9	26.3 / 23.8 / 11.9	32.1 / 29.0 / 14.5	40.3 / 36.4 / 18.2	
Electrical Supply	MCA	A	25 / 24 / 12	36 / 34 / 17	49 / 46 / 23	59 / 54 / 27	
	Maximum Fuse Size	A	30 / 30 / 15	50 / 50 / 25	70 / 60 / 30	90 / 80 / 40	
Fan	Type x Quantity		Propeller Fan x 1		Propeller Fan x 2		
	Air flow rate	cfm	6,180		12,010		
	Motor Output	kW	0.92	0.92	0.92+0.92		
	External static pressure		Selectable; 0, 0.12 or 0.24"WG; factory set to 0"W.G.				
Compressor	Type x Quantity		INVERTER-driven Scroll Hermetic x 1				
	Operating Range		18% to 100%	19% to 100%	18% to 100%	14% to 100%	
	Direct-drive INVERTER Motor output	kW	5.1	6.8	8.1	9.5	
	Crankcase heater	W	35	45			
	Lubricant		MEL32				
Refrigerant	Type		R410A				
External finish			Pre-coated galvanized steel sheet (Plus Powder Coating for -BS type) <MUNSELL 5Y 8/1 or Similar>				
Dimensions H x W x D	Height	In.	65"				
	Width	In.	36-1/4"	48-1/16"	68-15/16"		
	Depth	In.	29-15/16"				
Net Weight		Pounds	441 / 474	497 / 530	629 / 662		
Sound pressure level (measured in anechoic room)		dB <A>	58.0	58.0	60.0	61.0	
Protection devices	High Pressure Protection		High pressure sensor, High pressure switch				
	Compressor / Fan		Over-heat protection / Thermal switch				
	Inverter		Overheat and Overcurrent Protection				
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	3/4"	7/8"		1-1/8"	
	High Pressure (Brazed)	In.	3/8"	3/8" (1/2", length to first joint≥ 295")	3/8" (1/2", length to first joint≥ 131")	1/2"	
Indoor unit connectable	Total capacity		50 to 130% of outdoor unit capacity				
	Model / Quantity		P06 to P96 / 1 to 18	P06 to P96 / 1 to 20	P06 to P96 / 1 to 26	P06-P96 / 1 to 31	
Operating Temperature Range	Cooling	D.B.	**Outdoor: 23 to 115° F				
	Heating	W.B.	Outdoor: -4 to +60° F				

Note: Rating Conditions: *1 Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB. Heating: Indoor: 70°F (21°C) DB; Outdoor: 47°F (8°C) DB / 43°F (6°C) WB.

-BS indicates Seacoast Protection option.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.

See our website for details on specific additional application installation coverage.

** For details on extended ambient cooling operation range down to -10 FDB see Low Ambient Cooling section.

Specifications are subject to change.

Y-SERIES SPECIFICATIONS (continued)



Model Name			208/230V	PUHY-P168TSJMU-A (-BS) *2	PUHY-P192TSJMU-A (-BS) *2	PUHY-P216TSJMU-A (-BS) *2	PUHY-P240TSJMU-A (-BS) *2	PUHY-P264TJMU-A (-BS) *2				
				With 1 PUHY-P72TJMU-A (-BS) and 1 PUHY-P96TJMU-A (-BS) *3	With 1 PUHY-P72TJMU-A (-BS) and 1 PUHY-P120TJMU-A (-BS) *3	With 1 PUHY-P96TJMU-A (-BS) and 1 PUHY-P120TJMU-A (-BS) *3	With 2 PUHY-P120TJMU-A (-BS) *3	With 1 PUHY-P120TSUMU-A (-BS) and 1 PUHY-P144TJMU-A (-BS) *3				
				460V	PUHY-P168YSJMU-A (-BS) *2	PUHY-P192YSJMU-A (-BS) *2	PUHY-P216YSJMU-A (-BS) *2	PUHY-P240YSJMU-A (-BS) *2	PUHY-P264YTSUMU-A (-BS) *2			
					With 1 PUHY-P72YJMU-A (-BS) and 1 PUHY-P96YJMU-A (-BS) *3	With 1 PUHY-P72YJMU-A (-BS) and 1 PUHY-P120YJMU-A (-BS) *3	With 1 PUHY-P96YJMU-A (-BS) and 1 PUHY-P120YJMU-A (-BS) *3	With 2 PUHY-P120YJMU-A (-BS) *3	With 1 PUHY-P120YJMU-A (-BS) and 1 PUHY-P144YJMU-A (-BS) *3			
Power source			208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz									
Capacity (Nominal) *1	Cooling	BTU / h	168,000	192,000	216,000	240,000	264,000					
		kW	13.62 *3	15.63 *3	18.39 *3	20.39 *3	22.99 *3					
		A	42.0 / 37.9 / 18.9 *3	48.2 / 43.5 / 21.7 *3	56.7 / 51.2 / 25.6 *3	62.8 / 56.8 / 28.4 *3	70.9 / 64.1 / 32.0 *3					
	Heating	BTU / h	188,000	215,000	243,000	270,000	295,000					
		kW	14.65 *3	16.57 *3	19.52 *3	21.44 *3	24.19 *3					
		A	45.1 / 40.8 / 20.4 *3	51.1 / 46.2 / 23.1 *3	60.2 / 54.4 / 27.2 *3	66.1 / 59.7 / 29.8 *3	74.6 / 67.4 / 33.7 *3					
Fan	Type x Quantity		Refer to PUHY-P72TJMU-A (-BS) / PUHY-P96TJMU-A (-BS) and PUHY-P72YJMU-A (-BS) / PUHY-Y96JMU-A (-BS) Specifications on page 23	Refer to PUHY-P72TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P72YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23	Refer to PUHY-P96TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P96YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23	Refer to PUHY-P120TJMU-A (-BS) and PUHY-P120YJMU-A (-BS) Specifications on page 23	Refer to PUHY-P120TJMU-A (-BS) / PUHY-P144TJMU-A (-BS) and PUHY-P120YJMU-A (-BS) / PUHY-P144YJMU-A (-BS) Specifications on page 23					
	Air flow rate	cfm										
	Direct-drive INVERTER Motor Output	kW										
	External static pressure											
Compressor	Type x Quantity		Refer to PUHY-P72TJMU-A (-BS) / PUHY-P96TJMU-A (-BS) and PUHY-P72YJMU-A (-BS) / PUHY-Y96JMU-A (-BS) Specifications on page 23	Refer to PUHY-P72TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P72YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23	Refer to PUHY-P96TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P96YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23	Refer to PUHY-P120TJMU-A (-BS) and PUHY-P120YJMU-A (-BS) Specifications on page 23	Refer to PUHY-P120TJMU-A (-BS) / PUHY-P144TJMU-A (-BS) and PUHY-P120YJMU-A (-BS) / PUHY-P144YJMU-A (-BS) Specifications on page 23					
	Operating Range							8% to 100%	6% to 100%	9% to 100%	8% to 100%	7% to 100%
	Direct-drive INVERTER Motor output	kW										
	Crankcase heater	W										
	Lubricant											
Refrigerant	Type											
External finish												
Dimensions H x W x D	Height	In.										
	Width	In.										
	Depth	In.										
Net Weight		Pounds										
Sound pressure level (measured in anechoic room)		dB(A)	61.0	62.5	62.5	63.0	63.5					
Protection devices	High Pressure Protection		High pressure sensor, High pressure switch									
	Compressor / Fan		Over-heat protection / Thermal switch									
	Inverter		Overheat and Overcurrent Protection									
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	1-1/8				1-3/8					
	High Pressure (Brazed)	In.	5/8				3/4					
Indoor unit connectable	Total capacity		50 to 130% of outdoor unit capacity									
	Model / Quantity		P06-P96 / 1 to 36	P06-P96 / 1 to 41	P06-P96 / 2 to 46	P06-P96 / 2 to 50	P06-P96 / 2 to 50					
Operating Temperature Range	Cooling	D.B.	**Outdoor: 23 to 115° F									
	Heating	W.B.	Outdoor: -4 to +60° F									

*1 Rating Conditions: *1 Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB. Heating: Indoor: 70°F (21°C) DB; Outdoor: 47°F (8°C) DB / 43°F (6°C) WB.

*2 Twinning Kit is required for combining two or three individual outdoor units in the field for PUHY-P-T(S)SJHJU combined systems.

*3 Each individual outdoor unit requires a separate electrical connection. Reference electrical data for each individual outdoor unit.

** For details on extended ambient cooling operation range down to -10 FDB see Low Ambient Cooling section.

-BS indicates Seacoast Protection option.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts. See our website for details on specific additional application installation coverage..

Specifications are subject to change.

Y-SERIES SPECIFICATIONS (continued)



OUTDOOR UNITS

Model Name			208/230V	PUHY-P288TSJMU-A (-BS) *2	PUHY-P312TSJMU-A (-BS) *2	PUHY-P336TSJMU-A (-BS) *2	PUHY-P360TSJMU-A (-BS) *2
				With 2 PUHY-P144TJMU-A (-BS) *3	With 1 PUHY-P72TJMU-A (-BS) and 2 PUHY-P120TJMU-A (-BS) *3	With 1 PUHY-P96TJMU-A (-BS) and 2 PUHY-P120TJMU-A (-BS) *3	With 1 PUHY-P96TJMU-A (-BS), 1 PUHY-P120YJMU-A (-BS), and 1 PUHY-P144TJMU-A (-BS) *3
			460V	PUHY-P288YSJMU-A (-BS) *2	PUHY-P312YSJMU-A (-BS) *2	PUHY-P336YSJMU-A (-BS) *2	PUHY-P360YSJMU-A (-BS) *2
			With 2 PUHY-P144YJMU-A (-BS) *3	With 1 PUHY-P72YJMU-A (-BS) and 2 PUHY-P120YJMU-A (-BS) *3	With 1 PUHY-P96YJMU-A (-BS) and 2 PUHY-P120YJMU-A (-BS) *3	With 1 PUHY-P96YJMU-A (-BS), 1 PUHY-P120YJMU-A (-BS), and 1 PUHY-P144YJMU-A (-BS) *3	
Power source				208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz			
Capacity (Nominal) *1	Cooling	BTU / h	288,000	312,000	336,000	360,000	
		kW	25.59 *3	25.82 *3	28.58 *3	31.18 *3	
		A	78.9 / 71.3 / 35.6 *3	79.6 / 72.0 / 36.0 *3	88.1 / 79.7 / 39.8 *3	96.1 / 86.9 / 43.4 *3	
	Heating	BTU / h	320,000	350,000	378,000	403,000	
		kW	26.94 *3	27.3 *3	30.24 *3	32.99 *3	
		A	83.0 / 75.1 / 37.5 *3	84.1 / 76.1 / 38.0 *3	93.2 / 84.3 / 42.1 *3	101.7 / 92.0 / 46.0 *3	
Fan	Type x Quantity	Refer to PUHY-P144TJMU-A (-BS) and PUHY-P144YJMU-A (-BS) Specifications on page 23	Refer to PUHY-P72TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P72YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23	Refer to PUHY-P96TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P96YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23	Refer to PUHY-P96TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) / PUHY-P144TJMU-A (-BS) and PUHY-P96YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) / PUHY-P144YJMU-A (-BS) Specifications on page 23		
	Air flow rate					cfm	
	Direct-drive INVERTER Motor Output					kW	
	External static pressure						
Compressor	Type x Quantity	7% to 100%	4% to 100%	7% to 100%	6% to 100%		
	Operating Range						
	Direct-drive INVERTER Motor output					kW	
	Crankcase heater					W	
	Lubricant						
Refrigerant	Type	Refer to PUHY-P144TJMU-A (-BS) and PUHY-P144YJMU-A (-BS) Specifications on page 23	Refer to PUHY-P72TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P72YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23	Refer to PUHY-P96TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P96YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23	Refer to PUHY-P96TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) / PUHY-P144TJMU-A (-BS) and PUHY-P96YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) / PUHY-P144YJMU-A (-BS) Specifications on page 23		
External finish							
Dimensions H x W x D	Height					In.	
	Width					In.	
	Depth					In.	
Net Weight		Pounds					
Sound pressure level (measured in anechoic room)		dB(A)	64.0	64.5		65.0	
Protection devices	High Pressure Protection		High pressure sensor, High pressure switch				
	Compressor / Fan		Over-heat protection / Thermal switch				
	Inverter		Overheat and Overcurrent Protection				
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	1-3/8		1-5/8		
	High Pressure (Brazed)	In.	3/4				
Indoor unit connectable	Total capacity		50 to 130% of outdoor unit capacity				
	Model / Quantity		P06-P96 / 2 to 50				
Operating Temperature Range	Cooling	D.B.	*Outdoor: 23 to 115° F				
	Heating	W.B.	Outdoor: -4 to +60° F				

*1 Rating Conditions: *1 Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB. Heating: Indoor: 70°F (21°C) DB; Outdoor: 47°F (8°C) DB / 43°F (6°C) WB.

*2 Twinning Kit is required for combining two or three individual outdoor units in the field for PUHY-P-T(S)SJHJU combined systems.

*3 Each individual outdoor unit requires a separate electrical connection. Reference electrical data for each individual outdoor unit.

** For details on extended ambient cooling operation range down to -10 FDB see Low Ambient Cooling section.

-BS indicates Seacoast Protection option.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts. See our website for details on specific additional application installation coverage.

Specifications are subject to change.



Bringing year-round comfort solutions to extreme climates

The Hyper-Heating INVERTER (H2i™) technology* is exclusively from Mitsubishi Electric and is available in select CITY MULTI® VRF models. The H2i™ series improves on the Y-Series by providing full heating capacity at 0° F outdoor ambient. H2i™ Y-Series units are available in 208/230V up to 16 tons for different applications (**6-16 ton units meet ENERGY STAR® Light Commercial Requirements and will exceed proposed ASHRAE 90.1 efficiency ratings for 2010**).



With our INVERTER-driven heat pump systems, you use energy effectively while maintaining the ideal comfort level. Now, with the integration of the innovative H2i technology, you experience the added benefit of superior heating performance—even on the coldest days of the year. This system has the capability to provide 100% heating capacity at 0° F and 84% heating capacity at -13° F.

Warm air quickly!

On start up, a special circuit assures that normally dormant refrigerant quickly enters the conditioning cycle. This process rapidly increases the mass flow rate in the system, which quickly provides comfortable discharge temperatures from the indoor units.

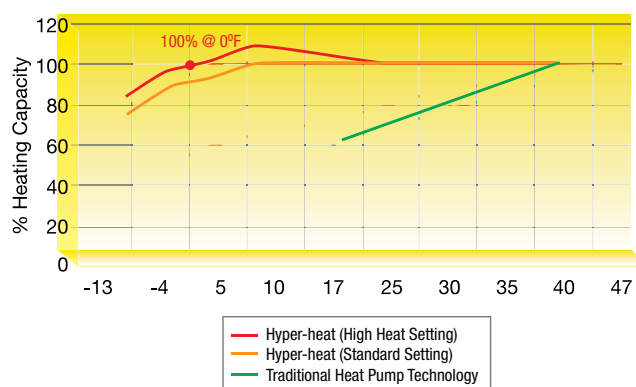
Even at -13° F outdoor temperature, the H2i system can provide 100° F discharge air temperature from the indoor unit. And at 5° F outdoor temperature and above, the discharge temperature reaches an impressive 110° F with a 40° F temperature rise.

The technology behind the unequalled comfort

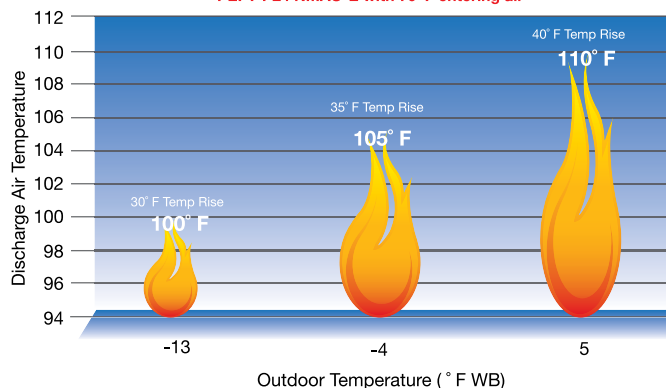
The Hyper-Heating INVERTER outdoor unit uses flash technology which recollects heat energy that is normally wasted in the flash process at the outdoor coil. This process helps the H2i system overcome issues commonly associated with conventional heat pumps, such as decreases in low-side pressure, refrigerant mass flow rate, and operational capacity.

The patent-pending flash process cools the compressor, allowing higher speeds at a lower outdoor temperature without overheating. This also allows for an increase in mass flow rate in the system providing phenomenal heating performance at low temperatures.

Hyper Heating Inverter vs. Others
96,000 Btuh size, 70° FWB entering indoor unit



Indoor Unit Heating Discharge Temperature
PEFY-P24 NMAU-E with 70° F entering air



Setting a new standard in performance

The Hyper-Heating INVERTER Y-Series combines the ultimate in application flexibility, powerful cooling and heating capabilities to deliver precise comfort control to multiple zones of a commercial or institutional building. The outdoor units deliver full-sized performance from a compact, space-saving design for ease of transportation and installation. The INVERTER-driven scroll compressor delivers the precise amount of comfort to the zones as required. Now, with its expanded heating capabilities, the CITY MULTI H2i Y-Series provides year-round comfort—even in extreme climates.



Model Name			PUHY-HP72TJMU-A (-BS)	PUHY-HP96TJMU-A (-BS)	PUHY-HP144TSJMU-A (-BS) *2	PUHY-HP192TSJMU-A (-BS) *2
					With 2 PUHY-HP72TJMU-A (-BS)	With 2 PUHY-HP96TJMU-A (-BS)
Power Source			208/230V, 3-Phase, 60Hz			
Capacity *1	Cooling	Btu/h	72,000	96,000	144,000	192,000
	Heating	Btu/h	80,000	108,000	160,000	216,000
Power Input	Cooling	kW	5.60	8.16	11.54 *3	16.81 *3
	Heating	kW	6.14	8.80	12.65 *3	18.13 *3
Current (208/230V)	Cooling	A	17.2-15.6	25.1-22.7	35.5-32.1 *3	51.8-46.8 *3
	Heating	A	18.9-17.1	27.1-24.5	39.0-35.2 *3	55.9-50.5 *3
Electrical Supply	MCA	A	59 / 54	74 / 68	59 + 59 / 54 + 54 *3	74 + 74 / 68 + 68 *3
	Recommended Fuse/ Breaker Size	A	60 / 60	75 / 75	60 + 60 *3	75 + 75 *3
	Maximum Fuse Size	A	100 / 90	120 / 110	100 + 100 / 90 + 90 *3	120 + 120 / 110 + 110 *3
Fan	Type x Quantity		Propeller Fan x 1		Refer to PUHY-HP72TJMU-A (-BS) Specifications	Refer to PUHY-HP96TJMU-A (-BS) Specifications
	Airflow Rate	CFM	6,180	7,950		
	Motor Output	kW		0.92		
Compressor	Operating Range	Cooling	30% to 100%	23% to 100%	15% to 100%	12% to 100%
		Heating	16% to 100%	13% to 100%	8% to 100%	6% to 100%
	Type		Inverter Scroll Hermetic		Refer to PUHY-HP72TJMU-A (-BS) Specifications	Refer to PUHY-HP96TJMU-A (-BS) Specifications
	Motor Output	kW	5.3	6.7		
	Crankcase Heater	W	45			
	Lubricant		MEL32			
	Refrigerant	Type		R410A		
External Finish		Pre-coated Galvanized Sheets (Plus Powder-coating for -BS types) <Munsell No. 5Y 8/1 or Similar>				
Dimensions	Height	In.	65			
	Width	In.	36-1/4	48-1/16		
	Depth	In.	29-15/16			
Net Weight		Lbs.	497	585		
Sound Pressure Level (As Measured in an Anechoic Room)		dB(A)	56 (61 in Heating at -5° F Outdoor Temperature)	57 (62 in Heating at -5° F Outdoor Temperature)	59 (64 in Heating at -5° F Outdoor Temperature)	60 (65 in Heating at -5° F Outdoor Temperature)
Protection Devices	High Pressure Protection		High-pressure Sensor, High-pressure Switch			
	Compressor/Fan		Overheat Protection / Thermal Switch			
	Inverter		Overheat and Overcurrent Protection			
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	3/4	7/8	1-1/8	
	High Pressure (Brazed)	In.	1/2		5/8	
Indoor Unit	Total Capacity		50 to 130% of Outdoor Unit Capacity			
	Quantity		P06-P72/1-15	P06-P96/1-20	P06-P96/1-31	P06-P96/1-41
Operating Temperature Range	Cooling		**Outdoor: 23° F D.B. to 109° F D.B.			
	Heating		Outdoor: -13° F W.B. to +60° F W.B.			

*1 Rating conditions (cooling)-Indoor: D.B. 26.7° C (80° F), W.B. 19.4° C (67° F); Outdoor: D.B. 35° C (95° F). Rating conditions (heating)-Indoor: D.B. 21.1° C (70° F); Outdoor: D.B. 8.3° C (47° F), W.B. 6.1° C (43° F).

*2 Twinning Kit CMY-Y100VBK2 is required for combining two individual outdoor units in the field for PUHY-HP-TSHJMU combined systems.

*3 Each individual outdoor unit requires a separate electrical connection. Reference electrical data for each individual outdoor unit.

** For details on extended ambient cooling operation range down to 0 FDB see Low Ambient Cooling section.

-BS indicates Seacoast Protection option.
LIMITED WARRANTY | Seven-year warranty on compressor.
One-year warranty on parts.
See our website for details on specific additional application installation coverage.

Specifications are subject to change.

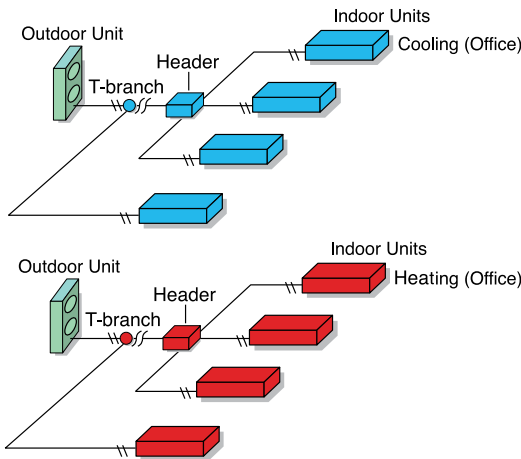
CITY MULTI® S-Series:
Heat Pump
solutions for the home
or small office

The CITY MULTI S-Series is a single-phase heat pump system that is perfect for light commercial or large residential applications. Available in 36,000 or 48,000 Btu/h, the S-Series can provide cooling or heating for up to eight individual zones.

The CITY MULTI S-Series provides homes and small offices with all the features and benefits of our large commercial CITY MULTI Y-Series. The S-Series Solution features a single-phase outdoor unit with Variable Refrigerant Flow Zoning (VRF) technology and CITY MULTI Controls Network (CMCN) to cool or heat all zones with a choice of indoor unit styles. The compact outdoor unit utilizes R410A refrigerant and an INVERTER-driven compressor to use energy effectively. A maximum of eight CITY MULTI indoor units can be connected with up to 130% connected capacity, depending on diversity. The CITY MULTI Controls Network intelligently manages the CITY MULTI building comfort solution through zone controllers and system controllers (and optionally through a networked PC), to manage individual comfort and provide the ultimate building comfort solution.



S-Series two-pipe cooling or heating system



Blue Fin treatment

The standard anti-corrosion Blue Fin treatment of the heat exchanger is especially effective in protecting the aluminum fins from pollution damage, such as smog and environmental pollens, which can reduce the capacity and life expectancy of the unit. All CITY MULTI R410A outdoor units are treated with Blue Fin prior to leaving the factory.

Additional seacoast protection of the frame and other component materials on all outdoor units is available as an option, as indicated on the model suffix number with a '-BS'.



Refrigerant piping lengths	Maximum feet
Total length	393
Farthest indoor from Outdoor	262
Farthest indoor unit from first branch.....	98

Vertical differentials between units	Maximum feet
Indoor/outdoor (outdoor higher)	98
Indoor/outdoor (outdoor lower).....	65
Indoor/indoor	39

Easy, flexible installation

The S-Series outdoor unit is easy to install and can be accessed for service through both a front and side panel. The unit's compact dimensions and easy accessibility allow multiple units to be stacked side-by-side in tight areas, saving valuable space and resources.

S-SERIES SPECIFICATIONS



OUTDOOR UNITS

Model Name			PUMY-P36NHMU(-BS)	PUMY-P48NHMU(-BS)
Power Source			208/230V, 1-phase, 60Hz	
Capacity *1	Cooling	Btu/h	36,000	48,000
	Heating	Btu/h	40,000	54,000
Power Input	Cooling	kW	3.22	4.97
	Heating	kW	2.93	4.88
Current (208-230V)	Cooling	A	14.2/15.7	24.0/21.7
	Heating	A	12.9/14.2	23.6/21.3
Electrical Supply	MCA	A	26	26
	Maximum Fuse Size	A	30	30
Fan	Type x Quantity		Propeller Fan x 2	
	Airflow Rate	CFM	3,530	
	Motor Output	kW	0.086 x 2	
Compressor	Type		INVERTER-driven Scroll Hermetic	
	Motor Output	kW	2.4	
	Crankcase Heater	W	-	
	Lubricant		FV50S	
Refrigerant			R410A	
External Finish			Galvanized Sheets (plus Powder Coating for -BS Model) Munsell 3Y 7.8/1.1	
Dimensions	Height	Inches	53-3/16	
	Width	Inches	37-7/16	
	Depth	Inches	13 (+1-3/16)	
Net Weight		Pounds	287	
Sound Pressure Levels (As Measured in an Anechoic Room)		dB(A)	49/51	50/52
Protection Devices	High Pressure Protection		High Pressure Switch	
	Compressor/Fan		Discharge Thermo and Over-current Detection	
	Inverter		Over-current/Overheat Protection	
Refrigerant Pipe Dimensions	Low Pressure	Inches	5/8 Flare	
	High Pressure	Inches	3/8 Flare	
Indoor Unit	Total Capacity		50 - 130% of Outdoor Unit Capacity	
	Quantity		P06-36/1-6	P06-P54/1-8
Operating Temperature Range	Cooling		Outdoor: 23° FDB ~ 115° FDB; 50°FDB ~ 115°FDB if connecting PKFY-P06/08 Indoor Unit	
	Heating		Outdoor: 0° FWB ~ 60° FWB	

Note: Rating Conditions:

*1 Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB.

Heating: Indoor: 70°F (21°C) DB; Outdoor: 47°F (8°C) DB/ 43°F (6°C) WB.

-BS indicates seacoast protection option.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.

See our website for details on specific additional application installation coverage.

Specifications are subject to change.

PUMY-P-NHMu Energy Efficiencies

Model	Indoor Unit Type	SEER	HSPF
PUMY-P36NHMU(-BS)	Non-ducted	14.3	8.2
	Ducted and Non-ducted	14.3	8.2
	Ducted	14.3	8.2
PUMY-P48NHMU (-BS)	Non-ducted	15.5	8.7
	Ducted and Non-ducted	15	8.7
	Ducted	14.5	8.7

CITY MULTI® W-Series: Modular Water-Source Systems that Simultaneously cool and heat or provide heat pump operation

New W-Series modular units combine the convenience of water-source systems with VRF technology. These units are 30% smaller than previous models and are easily installed indoors, which means that system performance efficiency is independent of outdoor ambient temperatures. The W-Series includes WR2 models for simultaneous cooling and heating, and WY models as powerful heat pumps.



The new modular W-Series water-source units are designed for buildings with closed loop boiler/water tower or geothermal loop systems. They combine the efficiency of water as a heat exchange medium with the INVERTER-driven compressor, providing effective energy use for optimum comfort in each connected zone. You can control temperature in every room, on every floor, in every building with Mitsubishi Electric's CITY MULTI systems. It's an innovative concept that is transforming the way the industry approaches building design, construction, and renovation. It's based on the understanding that every building has its own unique characteristics and challenges. The CITY MULTI VRF building comfort solution gives you the freedom to customize a solution that fits your building like a tailored suit fits a person. As usage patterns and building requirements change, the systems can be adapted to fit these new needs.

W-Series systems from CITY MULTI use water as a heat exchange medium and are intended to be installed inside, rather than outside a building. Zone cooling and heating is

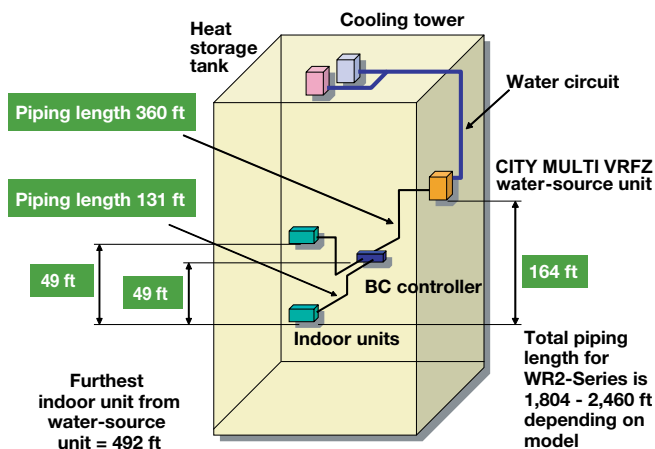
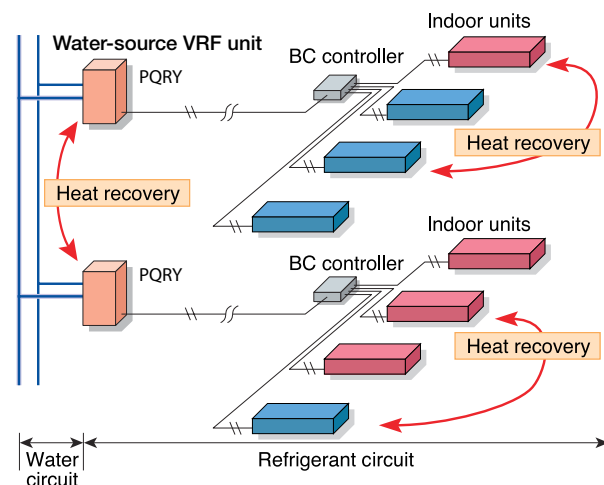
controlled by refrigerant piped between water-source unit, BC controller (R2-Series) or manifold (Y-series) and indoor units. W-Series systems can be designed with a wide selection of indoor model configurations and controllers. Indoor units can be monitored and operated individually with remote controllers—up to 50 from one central controller, or up to 2,000 using the TG2000 software and the CITY MULTI Controls Network (CMCN) integrates with LonWorks® and BACnet® for integrated systems control of the entire building.

Applications include multi-story office buildings, government buildings, military buildings, medical facilities, nursing homes, schools and universities, hotels, resorts, casinos and multi-family dwellings.

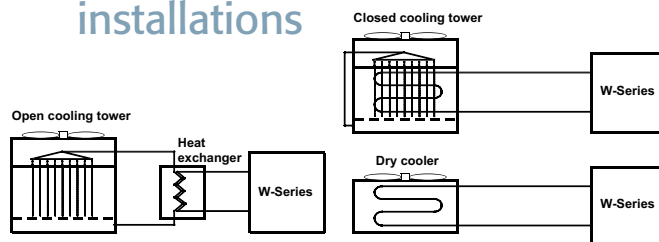
Double heat recovery

The double-heat recovery feature of the WR2-Series helps control energy that would normally be rejected to the atmosphere. First, within the system, energy is absorbed in units providing cooling. The energy is redirected by refrigerant to units that are in heating mode. Secondly, energy can be recovered between systems through the water loop. For example, a system providing primarily cooling is rejecting heat to the water loop. This energy could then be utilized by systems providing primarily heating.

Double Heat Recovery with WR2-Series

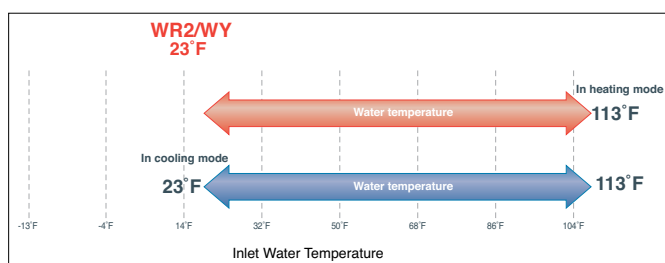


Typical closed-loop installations



Extended temperature range

The updated WR2 and WY series CITY MULTI water source units can now handle entering water temperatures down to 23°F in both heating and cooling mode allowing more possibilities for geothermal applications. Coupling the water source units with a geothermal loop will not only provide the benefit of higher efficiencies by using a lower entering water temperature, but will also provide all the benefit of an inverter driven CITY MULTI system. Running the loop temperatures colder when the system is operating in cooling mode reduce the power required by the outdoor units by as much as 35%.



CITY MULTI Systems and geothermal applications

CITY MULTI water cooled systems used in geothermal applications work by taking heat or rejecting heat from/to the ground. Closed loop systems accomplish this by circulating water through a series of wells or loops that are installed in the ground. This effectively turns the ground into a large heat exchanger.

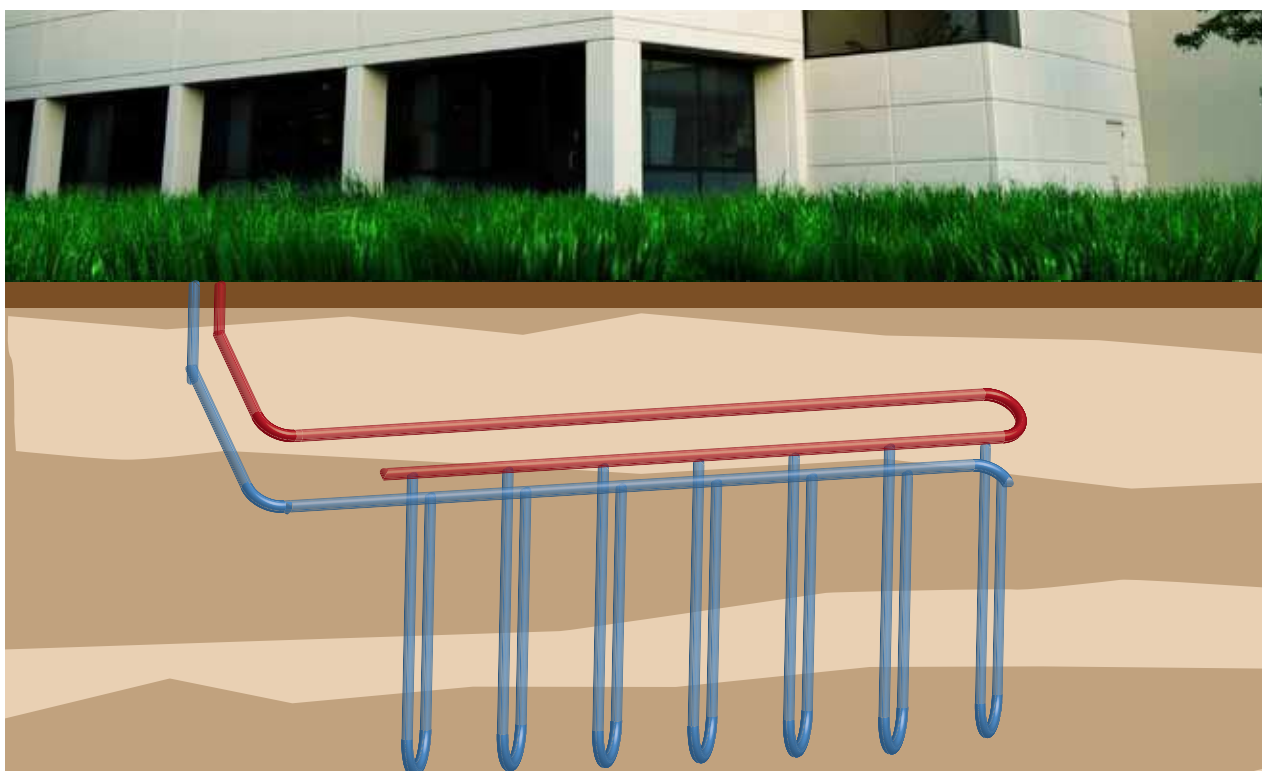
Because the ground remains relatively unaffected by outdoor ambient temperatures, the loop can be run at temperatures lower than ambient throughout the cooling season, and higher than ambient throughout the heating season. By running the loop at lower temperatures in the cooling season, the system becomes more efficient and by running the loop at higher temperatures during the heating season, it may reduce or remove the requirement for an auxiliary boiler to supplement the system.

Available tax credits

Coupling the CITY MULTI system with a ground source loop could qualify the entire system for a 10% commercial tax credit provided that the building meets the following requirements:

- The system was placed in service between 10/3/2008 – 12/31/2016
- The building owner is not tax exempt
- The building is located in the United States

If the building meets these requirements, the building owner may be able to claim a 10% tax credit for the total installed cost of CITY MULTI geothermal system.



W-SERIES SPECIFICATIONS

WR2-Series Heat Recovery Water-source Unit (Requires BC Controller - refer to specifications on pages 20 - 21)



Model Name		208/230V	PQRY-P72THMU-A	PQRY-P96THMU-A	PQRY-P120THMU-A
		460V	PQRY-P72YHMU-A	PQRY-P96YHMU-A	PQRY-P120YHMU-A
Power source			208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz		
Capacity (Nominal) *1	Cooling	BTU / h	72,700	96,300	120,000
		kW	3.97	5.77	7.73
		A	12.6 / 11.4 / 5.7	17.9 / 16.2 / 8.1	23.6 / 21.4 / 10.6
	Heating	BTU / h	80,000	108,000	135,000
		kW	3.83	6.18	7.62
A		11.8 / 10.7 / 5.3	19.1 / 17.2 / 8.6	23.5 / 21.3 / 10.6	
Electrical Supply	MCA	A	16 / 15 / 8	23 / 21 / 11	30 / 27 / 14
	Max. Fuse Size	A	20 / 20 / 15	30 / 30 / 15	40 / 40 / 20
Compressor	Type x Quantity		INVERTER-driven Scroll Hermetic x 1		
	Operating Range		23% to 100%	19% to 100%	14% to 100%
	Direct-drive INVERTER Motor output	kW	4.5 / 4.6	6.2 / 6.3	8.5
	Crankcase heater	W	51		
	Lubricant		MEL32		
Circulating Water	Water Flow Rate	GPM	25		
	Pressure Drop	Ft. (psi)	6 / (3)		
	Max Water Pressure 290 PSI / 2 MPA				
Refrigerant	Type		R410A		
External finish			Acrylic-painted Steel Sheets		
Dimensions	Height	In.	43-5/16"		
	Width	In.	34-11/16"		
	Depth	In.	21-11/16"		
Net Weight		Pounds	402 / 428		
Sound pressure level (measured in anechoic room)		dB(A)	47.0	49.0	51.0
Protection devices	High Pressure Protection		High pressure sensor, High pressure switch		
	Compressor		Overheat protection		
	Inverter		Overheat and Overcurrent Protection		
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	3/4	7/8	
	High Pressure (Brazed)	In.	5/8	3/4	
Indoor unit connectable	Total capacity		50 to 150% of water-source unit capacity		
	Model / Quantity		P06 to P96 / 1 to 18	P06 to P96 / 1 to 24	P06 to P96 / 1 to 30
Operating Temperature Range	Cooling	W.B.	Indoor: 59 to 75° F		
	Heating	D.B.	Indoor: 59 to 81° F		
Inlet Water Temperature Range	Cooling		*50 to 113° F		
	Heating		*50 to 113° F		

Note: Rating Conditions

*1 Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Water Temperature: 85° F (29°C)

Heating: Indoor: 70° F (21°C) DB; Water Temperature: 70° F (21°C)

* Inlet water temperature range can be extended down to 23° F by flipping dip switch 3-9 to on. When dip switch 3-9 is on a glycol solution should always be used to prevent freezing.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.
See our website for details on specific additional application installation coverage.

Specifications are subject to change.

WR2-Series Heat Recovery Water-source Unit (continued)
(Requires BC Controller - refer to specifications on pages 20 - 21)



Model Name			208/230V	PQRY-P144TSHMU-A *2 With 2 PQRY-P72THMU-A *3	PQRY-P168TSHMU-A *2 With 1 PQRY-P72YHMU-A and 1 PQRY-P96THMU-A *3	PQRY-P192TSHMU-A *2 With 2 PQRY-P96THMU-A *3	PQRY-P216TSHMU-A *2 With 1 PQRY-P96THMU-A and 1 PQRY-P120THMU-A *3	PQRY-P240TSHMU-A *2 With 2 PQRY-P120THMU-A *3			
			460V	PQRY-P144YSHMU-A *2	PQRY-P168YSHMU-A *2	PQRY-P192YSHMU-A *2	PQRY-P216YSHMU-A *2	PQRY-P240YSHMU-A *2			
				With 2 PQRY-P72YHMU-A *3	With 1 PQRY-P72YHMU-A and 1 PQRY-P96YHMU-A *3	With 2 PQRY-P96YHMU-A *3	With 1 PQRY-P96YHMU-A and 1 PQRY-P120YHMU-A *3	With 2 PQRY-P120YHMU-A *3			
Power source			208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz								
Capacity (Nominal) *1	Cooling	BTU / h	145,400	169,100	192,600	216,000	240,000				
		kW	8.18 *3	10.02 *3	11.09 *3	13.90 *3	15.93 *3				
		A	25.9 / 23.4 / 11.7 *3	31.4 / 28.4 / 14.2 *3	37.0 / 33.4 / 16.7 *3	42.8 / 38.7 / 19.3 *3	48.7 / 44.0 / 22.0 *3				
	Heating	BTU / h	160,000	188,000	216,000	243,000	270,000				
		kW	7.89 *3	10.32 *3	12.74 *3	14.22 *3	15.70 *3				
		A	24.3 / 22.0 / 11.0 *3	31.8 / 28.8 / 14.3 *3	39.3 / 35.5 / 17.7 *3	43.9 / 39.7 / 19.8 *3	48.4 / 43.8 / 21.8 *3				
Compressor	Operating Range		11% to 100%	10% to 100%	9% to 100%	8% to 100%	7% to 100%				
	Type x Quantity	kW	Refer to PQRY-P72THMU-A and PQRY-P72YHMU-A Specifications on page 32	Refer to PQRY-P72THMU-A / PQRY-P96THMU-A and PQRY-P72YHMU-A / PQRY-P96YHMU-A Specifications on page 32	Refer to PQRY-P96THMU-A and PQRY-P96YHMU-A Specifications on page 32	Refer to PQRY-P96THMU-A / PQRY-P120THMU-A and PQRY-P96YHMU-A / PQRY-P120YHMU-A Specifications on page 32	Refer to PQRY-P120THMU-A and PQRY-P120YHMU-A Specifications on page 32				
	Direct-drive INVERTER Motor output										
	Crankcase heater							W			
	Lubricant										
Circulating Water	Water Flow Rate	GPM (L/s)									
	Pressure Drop	Ft. (psi)									
	Operation Volume Range	GPM (L/m)									
Refrigerant		Type									
External finish											
Dimensions	Height	In.									
	Width	In.									
	Depth	In.									
Net Weight		Pounds									
Sound pressure level (measured in anechoic room)		dB(A)	50.0	51.0	52.0	53.0	54.0				
Protection devices	High Pressure Protection		High pressure sensor, High pressure switch								
	Compressor / Fan		Overheat protection / Thermal switch								
	Inverter		Overheat and Overcurrent Protection								
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	1-1/8								
	High Pressure (Brazed)	In.	7/8			1-1/8					
Indoor unit connectable	Total capacity		50 to 150% of outdoor unit capacity								
	Model / Quantity		P06-P96 / 1 to 36	P06-P96 / 1 to 42	P06-P96 / 1 to 48	P06-P96 / 2 to 50 *4	P06-P96 / 2 to 50 *4				
Inlet Water Temperature Range	Cooling		*50 to 113° F								
	Heating		*50 to 113° F								

Note: Rating Conditions

*1 Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Water Temperature: 85° F (29°C)

Heating: Indoor: 70° F (21°C) DB; Water Temperature: 70° F (21°C)

*2 Twinning kit is required for combining two individual outdoor units in the field for PQRY-P-T(S)SHMU

*3 Each individual outdoor unit requires a separate electrical connection. Reference electrical data for each individual outdoor unit.

* Inlet water temperature range can be extended down to 23° F by flipping dip switch 3-9 to on. When dip switch 3-9 is on a glycol solution should always be used to prevent freezing.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.
See our website for details on specific additional application installation coverage.

Specifications are subject to change.

WY-Series Heat Pump Water-source Unit



Model Name		208/230V	PQHY-P72THMU-A	PQHY-P96THMU-A	PQHY-P120THMU-A
		460V	PQHY-P72YHMU-A	PQHY-P96YHMU-A	PQHY-P120YHMU-A
Power source			208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz		
Capacity (Nominal) *1	Cooling	BTU / h	72,700	96,000	120,000
		kW	3.85	5.61	7.51
		A	12.2 / 11.0 / 5.5	17.4 / 15.8 / 7.8	22.9 / 20.8 / 10.3
	Heating	BTU / h	80,000	108,000	135,000
		kW	3.83	6.18	7.62
		A	11.8 / 10.7 / 5.3	19.1 / 17.2 / 8.6	23.5 / 21.3 / 10.6
Electrical Supply	MCA	A	16 / 14 / 7	22 / 22 / 10	29 / 26 / 13
	Max. Fuse Size	A	20 / 20 / 15	30 / 30 / 15	40 / 40 / 20
Compressor	Type x Quantity		INVERTER-driven Scroll Hermetic x 1		
	Operating Range		23% to 100%	19% to 100%	14% to 100%
	Direct-drive INVERTER Motor output	kW	4.5 / 4.6	6.2 / 6.3	7.9 / 8.5
	Crankcase heater	W	51		
	Lubricant		MEL32		
Circulating Water	Water Flow Rate	GPM	25		
	Pressure Drop	Ft. (psi)	6 / (3)		
	Max Water Pressure	PSI (MPA)	290 (2)		
External finish			Acrylic-painted Steel Sheets		
Dimensions	Height	In.	43-5/16"		
	Width	In.	34-11/16"		
	Depth	In.	21-11/16"		
Net Weight		Pounds	433 / 459		
Sound pressure level (measured in anechoic room)		dB(A)	47.0	49.0	51.0
Protection devices	High Pressure Protection		High pressure sensor, High pressure switch		
	Compressor		Overheat protection		
	Inverter		Overheat and Overcurrent Protection		
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	3/4"	7/8"	
	High Pressure (Brazed)	In.	3/8"	3/8" (1/2", total length ≥ 295')	3/8" (1/2",total length ≥ 131')
Indoor unit connectable	Total capacity		50 to 130% of water-source unit capacity		
	Model / Quantity		P06 to P96 / 1 to 15	P06 to P96 / 1 to 20	P06 to P96 / 1 to 26
Inlet Water Temperature Range	Cooling		*50 to 113° F		
	Heating		*50 to 113° F		

Note: Rating Conditions

*1 Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Water Temperature: 85° F (29°C)
Heating: Indoor: 70° F (21°C) DB; Water Temperature: 70° F (21°C)

* Inlet water temperature range can be extended down to 23° F by flipping dip switch 3-9 to on. When dip switch 3-9 is on a glycol solution should always be used to prevent freezing.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.
See our website for details on specific additional application installation coverage.

Specifications are subject to change.

WY-Series Heat Pump Water-source Unit (continued)



Model Name			208/230V	PQHY-P144TSHMU-A *2 With 2 PQHY-P72THMU-A *3	PQHY-P168TSHMU-A *2 With 1 PQHY-P72THMU-A and 1 PQHY-P96THMU-A *3	PQHY-P192TSHMU-A *2 With 2 PQHY-P96THMU-A *3	PQHY-P216TSHMU-A *2 With 1 PQHY-P96THMU-A and 1 PQHY-P120THMU-A *3	PQHY-P240TSHMU-A *2 With 2 PQHY-P120THMU-A *3
			460V	PQHY-P144YSHMU-A *2 With 2 PQHY-P72YHMU-A *3	PQHY-P168YSHMU-A *2 With 1 PQHY-P72YHMU-A and 1 PQHY-P96YHMU-A *3	PQHY-P192YSHMU-A *2 With 2 PQHY-P96YHMU-A *3	PQHY-P216YSHMU-A *2 With 1 PQHY-P96YHMU-A and 1 PQHY-P120YHMU-A *3	PQHY-P240YSHMU-A *2 With 2 PQHY-P120YHMU-A *3
				208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz				
Power source								
Capacity (Nominal) *1	Cooling	BTU / h	145,400	169,100	192,600	216,000	240,000	
		kW	7.94 *3	9.73 *3	11.55 *3	13.50 *3	15.47 *3	
		A	25.1 / 22.7 / 11.3 *3	30.5 / 27.6 / 13.7 *3	35.9 / 32.5 / 16.2 *3	41.6 / 37.6 / 18.8 *3	47.3 / 42.8 / 21.3 *3	
	Heating	BTU / h	160,000	188,000	216,000	243,000	270,000	
		kW	7.89 *3	10.32 *3	12.74 *3	14.22 *3	15.70 *3	
		A	24.3 / 22.0 / 11.0 *3	31.8 / 28.8 / 14.3 *3	39.3 / 35.5 / 17.7 *3	43.9 / 39.7 / 19.8 *3	48.4 / 43.8 / 21.8 *3	
Compressor	Operating Range		11% to 100%	10% to 100%	9% to 100%	8% to 100%	7% to 100%	
	Type x Quantity		Refer to PQHY-P72THMU-A and PQHY-P72YHMU-A Specifications on page 34	Refer to PQHY-P72THMU-A / PQHY-P96THMU-A and PQHY-P72YHMU-A / PQHY- P96YJMU-A Specifications on page 34	Refer to PQHY- P96THMU-A and PQHY-P96YHMU-A Specifications on page 34	Refer to PQHY- P96THMU-A / PUHY- P120THMU-A and PQHY-P96YHMU-A / PQHY-P120YHMU-A Specifications on page 34	Refer to PQHY- P120THMU-A and PQHY-P120YHMU-A (-BS) Specifications on page 34	
	Direct-drive INVERTER Motor output	kW						
	Crankcase heater	W						
	Lubricant							
Circulating Water	Water Flow Rate	GPM (L/s)						
	Pressure Drop	Ft. (psi)						
	Operation Volume Range	GPM (L/m)						
Refrigerant	Type		Refer to PQHY-P72THMU-A and PQHY-P72YHMU-A Specifications on page 34	Refer to PQHY-P72THMU-A / PQHY-P96THMU-A and PQHY-P72YHMU-A / PQHY- P96YJMU-A Specifications on page 34	Refer to PQHY- P96THMU-A and PQHY-P96YHMU-A Specifications on page 34	Refer to PQHY- P96THMU-A / PUHY- P120THMU-A and PQHY-P96YHMU-A / PQHY-P120YHMU-A Specifications on page 34	Refer to PQHY- P120THMU-A and PQHY-P120YHMU-A (-BS) Specifications on page 34	
External finish								
Dimensions	Height	In.						
	Width	In.						
	Depth	In.						
Net Weight		Pounds	50.0	51.0	52.0	53.0	54.0	
Sound pressure level (measured in anechoic room)		dB(A)						
Protection devices	High Pressure Protection		High pressure sensor, High pressure switch					
	Compressor / Fan		Overheat protection / Thermal switch					
	Inverter		Overheat and Overcurrent Protection					
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	1-1/8					
	High Pressure (Brazed)	In.	1/2	5/8				
Indoor unit connectable	Total capacity		50 to 130% of outdoor unit capacity					
	Model / Quantity		P06-P96 / 1 to 31	P06-P96 / 1 to 36	P06-P96 / 1 to 41	P06-P96 / 2 to 46	P06-P96 / 2 to 50	
Inlet Water Temperature Range	Cooling		*50 to 113° F					
	Heating		*50 to 113° F					

Note: Rating Conditions

*1 Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Water Temperature: 85° F (29°C)
Heating: Indoor: 70° F (21°C) DB; Water Temperature: 70° F (21°C)

*2 Twinning Kit is required for combining two or three individual outdoor units in the field for PQRY-P-T(Y)SHMU combined systems.

*3 Each individual outdoor unit requires a separate electrical connection.
Reference electrical data for each individual outdoor unit.

* Inlet water temperature range can be extended down to 23° F by flipping dip switch 3-9 to on. When dip switch 3-9 is on a glycol solution should always be used to prevent freezing.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.
See our website for details on specific additional application installation coverage.

Specifications are subject to change.

WY-Series Heat Pump Water-source Unit (continued)



Model Name			208/230V	PQHY-P264TSHMU-A *2	PQHY-P288TSHMU-A *2	PQHY-P312TSHMU-A *2	PQHY-P336TSHMU-A *2	PQHY-P360TSHMU-A *2				
			With 1 PQHY-P72THMU-A and 2 PQHY-P96THMU-A *3	With 3 PQHY-P96THMU-A *3	With 2 PQHY-P96THMU-A and 1 PQHY-P120THMU-A *3	With 1 PQHY-P96THMU-A and 2 PQHY-P120THMU-A *3	With 3 PQHY-P120YHMU-A *3					
			460V	PQHY-P264YHMU-A *2	PQHY-P288YSHMU-A *2	PQHY-P312YSHMU-A *2	PQHY-P336YSHMU-A *2	PQHY-P360YSHMU-A *2				
			With 1 PQHY-P96YHMU-A and 2 PQHY-P96YHMU-A *3	With 3 PQHY-P96YHMU-A *3	With 2 PQHY-P96YHMU-A and 1 PQHY-P120YHMU-A *3	With 1 PQHY-P96YHMU-A and 2 PQHY-P120YHMU-A *3	With 3 PQHY-P120YHMU-A *3					
Power source				208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz								
Capacity (Nominal) *1	Cooling	BTU / h	265,400	288,900	312,200	336,000	360,000					
		kW	15.49 *3	17.32 *3	19.27 *3	21.23 *3	23.21 *3					
		A	48.5 / 43.8 / 21.9 *3	53.8 / 48.7 / 24.3 *3	59.6 / 53.9 / 26.9 *3	65.2 / 59.0 / 29.4 *3	70.9 / 64.1 / 32.0 *3					
	Heating	BTU / h	296,000	324,000	351,000	378,000	405,000					
		kW	16.68 *3	19.10 *3	20.58 *3	22.07 *3	23.55 *3					
		A	51.4 / 46.5 / 23.2 *3	58.9 / 53.3 / 26.6 *3	63.5 / 57.4 / 28.7 *3	68.1 / 61.6 / 30.7 *3	72.6 / 65.7 / 32.8 *3					
Compressor	Operating Range		7% to 100%	6% to 100%	6% to 100%	5% to 100%	5% to 100%					
	Type x Quantity		Refer to PQHY-P72THMU-A / PQHY-P96THMU-A and PQHY-P72YHMU-A / PQHY-P96YHMU-A Specifications on page 34	Refer to PQHY-P96THMU-A and PQHY-P96YHMU-A Specifications on page 34	Refer to PQHY-P96THMU-A / PQHY-P120THMU-A and PQHY-P96YHMU-A / PQHY-P120YHMU-A Specifications on page 34	Refer to PQHY-P96THMU-A / PQHY-P120THMU-A and PQHY-P96YHMU-A / PQHY-P120YHMU-A Specifications on page 34	Refer to PQHY-P120THMU-A and PQHY-P120YHMU-A Specifications on page 34					
	Direct-drive INVERTER Motor output	kW										
	Crankcase heater	W										
	Lubricant											
Circulation Water	Water Flow Rate	GPM (L/s)	Refer to PQHY-P72THMU-A / PQHY-P96THMU-A and PQHY-P72YHMU-A / PQHY-P96YHMU-A Specifications on page 34	Refer to PQHY-P96THMU-A and PQHY-P96YHMU-A Specifications on page 34	Refer to PQHY-P96THMU-A / PQHY-P120THMU-A and PQHY-P96YHMU-A / PQHY-P120YHMU-A Specifications on page 34	Refer to PQHY-P96THMU-A / PQHY-P120THMU-A and PQHY-P96YHMU-A / PQHY-P120YHMU-A Specifications on page 34	Refer to PQHY-P120THMU-A and PQHY-P120YHMU-A Specifications on page 34					
	Pressure Drop	Ft. (psi)										
	Operation Volume Range	GPM (L/m)										
Refrigerant	Type											
External finish												
Dimensions	Height	In.										
	Width	In.										
	Depth	In.										
Net Weight		Pounds										
Sound pressure level (measured in anechoic room)		dB(A)	53.0	54.0	54.5	55.0	56.0					
Protection devices	High Pressure Protection		High pressure sensor, High pressure switch									
	Compressor / Fan		Overheat protection / Thermal switch									
	Inverter		Overheat and Overcurrent Protection									
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	1-3/8			1-5/8						
	High Pressure (Brazed)	In.	3/4									
Indoor unit connectable	Total capacity		50 to 130% of outdoor unit capacity									
	Model / Quantity		P06-P96 / 2 to 50									
Inlet Water Temperature Range	Cooling		*50 to 113° F									
	Heating		*50 to 113° F									

Note: Rating Conditions

*1 Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Water Temperature: 85° F (29°C)
Heating: Indoor: 70° F (21°C) DB; Water Temperature: 70° F (21°C)

*2 Twinning Kit is required for combining two or three individual outdoor units in the field for PQRY-P-T(Y)SHMU combined systems.

*3 Each individual outdoor unit requires a separate electrical connection.
Reference electrical data for each individual outdoor unit.

* Inlet water temperature range can be extended down to 23° F by flipping dip switch 3-9 to on. When dip switch 3-9 is on a glycol solution should always be used to prevent freezing.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.
See our website for details on specific additional application installation coverage.

Specifications are subject to change.

Hot and cold water,
quickly and efficiently.

PWFY: Hydronic Heat Exchanger

The PWFY Hydronic Heat Exchanger is available in two configurations, the HEX (-AU) and the Booster (-BU). Each provides unique solutions to incorporate into an existing VRF system for an efficient means to heat and cool water.



Available sizes: 36,000 & 72,000 Btu/h

The PWFY Hydronic Heat Exchanger is a closed-circuit water heater that works with the Y-Series and R2-Series outdoor units. The system can produce cool water to 50° F and heat water up to 115° F and is available in capacities of 36,000 and 72,000 Btu/h. The Booster unit can produce hot water up to 160° F and is available in a capacity of 36,000 Btu/h.

HEX unit (-AU) (Compatible with the Y- and R2-Series)

- Heats water to 115° F
 - Hydronic heat exchanger transfers energy from refrigerant to water
 - Can be used to recover waste heat from cooling operation to water when combined with the R2 system, resulting in large energy savings
 - Applications include radiant heating, snow melt, reheating air, preheating hot water and more
- Cools water to 50° F
 - Can be used for cooling outside air, cooling pool water, misting stations, process cooling, drinking water and more
- Unit is not suitable for direct potable water flow
- Connectable only with CITY MULTI modular R2, Y, WR2 and WY systems
- Y-strainer included
- Uses PAR-W21MAA to control operation



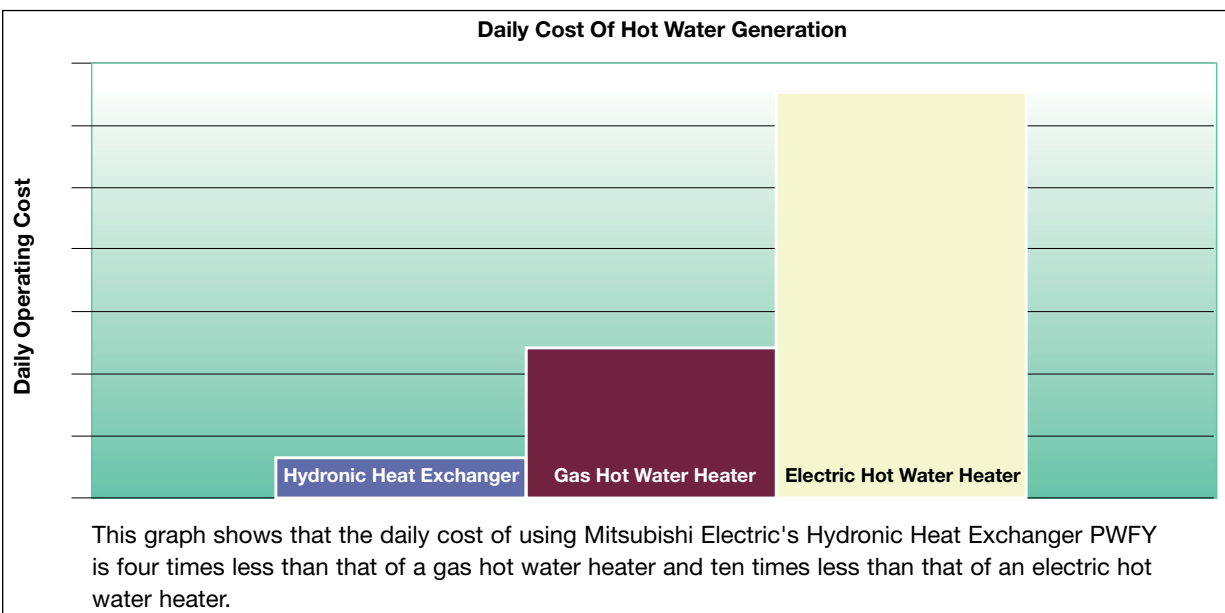
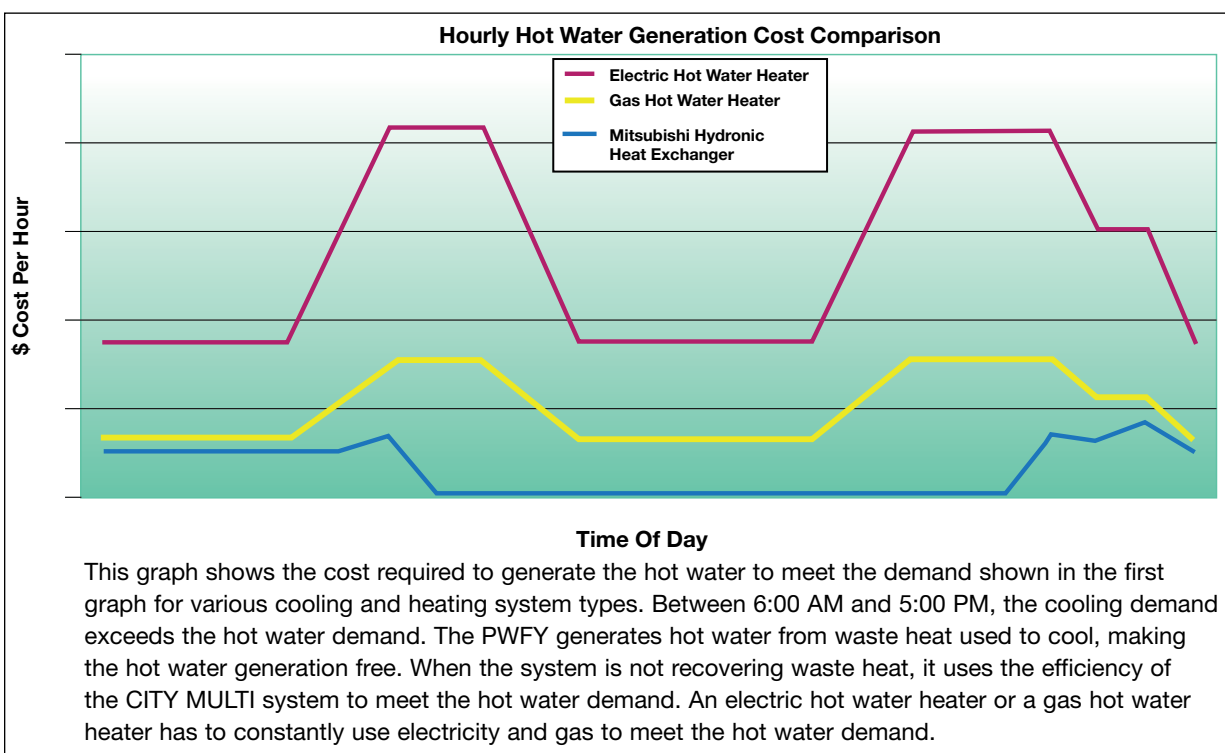
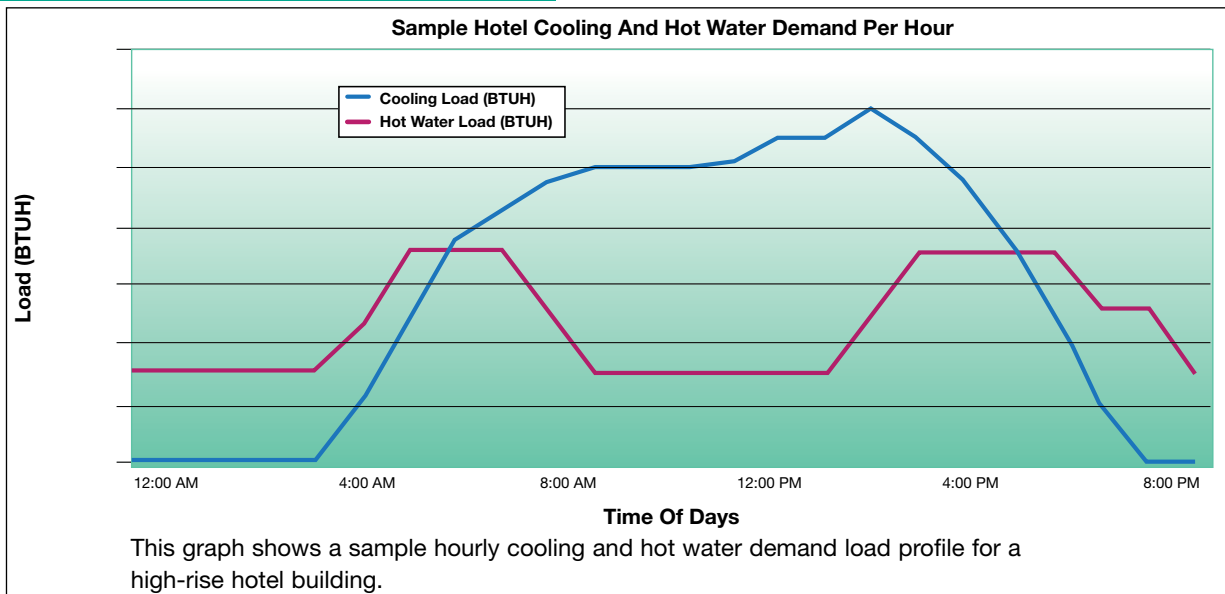
Booster unit (-BU) (Compatible with R2-Series)

- Heats water to 160° F
- Hydronic heat exchanger transfers energy from refrigerant to water
- Can be used to transfer waste heat from cooling operation to water, resulting in large energy savings
- Applications include radiant heating, hot water preheating, melting snow, reheating air, warming pools, and more
- Unit is not suitable for direct potable water flow
- Includes R134A compressor circuit for boosting water temperature
- Connectable only with modular CITY MULTI R2 and WR2 systems
- Y-strainer included
- Uses PAR-W21MAA to control operation

The Hydronic Heat Exchanger offers the flexibility to meet the needs of almost any commercial application. The ability of the HEX to heat water up to 115° F makes it ideal for in-floor radiant heating, snow melt, domestic hot water preheating, and hot water preheating. The ability of the Booster to heat water up to 160° F makes it ideal for hot water heating for hydronic coils, perimeter radiant heat, and commercial kitchen domestic hot water. Both systems create hot water efficiently either through the use of the INVERTER drive compressor or through reclamation of waste heat from the cooling cycle.



PAR-W21MAA





Model Name			PWFY-P36NMU-E-AU	PWFY-P72NMU-E-AU	PWFY-P36NMU-E-BU
Power Source			208/230V, 1-phase, 60Hz		
Cooling Capacity *1		Btu/h	36,200	72,000	-
Heating Capacity *1		Btu/h	39,900	79,800	39,900
Power Consumption	Cooling	W	15		N/A
	Heating	W	15		2,480
Current	Cooling	A	0.072 / 0.065		N/A
	Heating	A	0.072 / 0.065		12.30 / 11.12
External Finish			Galvanized-steel Sheet		
Dimensions	Height	In.	31-1/2		
	Width	In.	17-3/4		
	Depth	In.	11-13/16		
Net Weight	Unit	Pounds	78	84	133
Operating Inlet Water Temp. Range	Cooling		50° F to 95° F		-
	Heating		50° F to 105° F		50° F to 160° F
Circulating Water Operation Volume Range		GPM (L/m)	3-9 (10-35)	5-18 (20-72)	3-9 (10-35)
Circulating Water Design Pressure		MPa (psi)	1 (145)		
Water Piping Dimensions	Inlet	In.	3/4 FPT	1 FPT	3/4 FPT
	Outlet	In.	3/4 FPT	1 FPT	3/4 FPT
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	5/8	3/4	5/8
	High Pressure (Brazed)	In.	3/8	3/8	3/8
Drainpipe Dimensions (O.D.)		In.	1-1/4		
Sound Pressure Levels		dB(A)	29		44
Connectable Outdoor Units			PURY-P72~240T/Y(S)HMU (-BS), PURY-P72~288T/Y(S)JMU (-BS), PQRY-P72~240T/Y(S)HMU (-BS), PUHY-P72~360T/Y(S)HMU (-BS), PUHY-P72~360T/Y(S)JMU (-BS), PQHY-P72~360T/Y(S)HMU (-BS)		PURY-P72~240T/Y(S)HMU (-BS), PURY-P72~288T/Y(S)JMU (-BS), PQRY-P72~240T/Y(S)HMU (-BS), PQRY-P72~240T/Y(S)HMU (-BS)

*1 Cooling/Heating Capacity indicates the maximum value at operation under the following conditions:

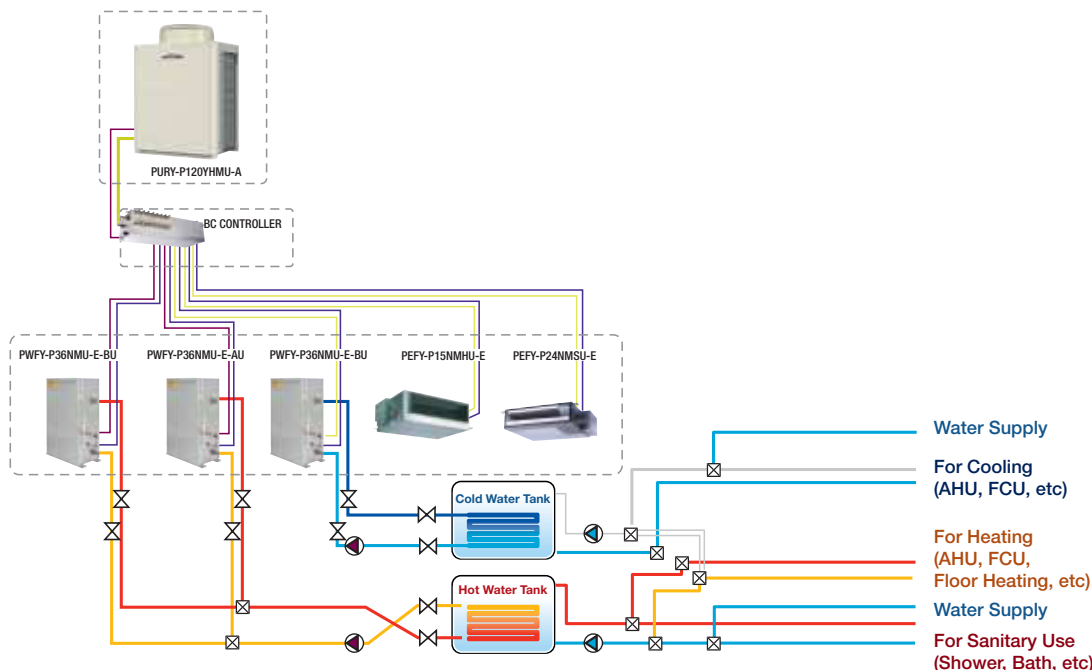
Cooling: Inlet water temperature : 74° F; Outdoor: 95° F (35°C) DB; Water flow rate: 9.25 GPM

Heating: Inlet water temperature: 86° F (30°C); Outdoor: 47° F (8°C) DB / 43° F (6°C) WB; Water flow rate: 9.25 GPM

*2 Airflow rate/sound pressure levels are at Low-Mid1-Mid2-Hi, Low-Mid-Hi, or Low-Hi

Ventilation Air: Providing sufficient ventilation air is an important part of very building design. ASHRAE Standard 62 provides the minimum air requirements. Also check local codes.

Specifications are subject to change.



Multiple choices for indoor units

In today's modern building practices, interior mechanical components are designed for ultimate comfort and functionality. Aesthetics are also important. CITY MULTI VRF systems offer many sleek styles of ductless or ducted indoor units for various applications. Each indoor unit gives you ultimate in zoning flexibility in each space. All are compatible with R2-Series, Y-Series, H2i™ Y-Series, W-Series and S-Series outdoor units.

PKFY: Wall-mounted

The PKFY wall-mounted indoor unit has a smooth front and lighter color finish and is very quiet, with sound ratings as low as 32 dB(A). PKFY models are available in capacities of 6,000, 8,000, 12,000, 15,000, 18,000, 24,000 and 30,000 Btu/h. This style of indoor unit is well-suited for hotels, assisted living facilities, offices, residences and other applications where wall space is available.



PCFY: Ceiling-suspended

THE PCFY is a ceiling-suspended indoor unit. It is available in capacities of 15,000, 24,000, 30,000 and 36,000 Btu/h. The PCFY's auto vane swings distributes the conditioned air throughout the room. This model, with an updated smooth finish and lighter color, is ideal for restaurants, classrooms, and stores.



PLFY: Ceiling-recessed cassette with up to four-way airflow

The PLFY is a ceiling-recessed type indoor unit with a two-, three-, or four-way airflow option, it is available in two styles. It provides discreet individual room control and four fan speed settings. It can be installed in a lay-in tile or drywall ceiling and can be serviced via an access point in the corner pocket panel at each of its four corners. The PLFY-NBMU unit has a built-in, drain-lift mechanism with 33 inches of condensation lift. It features four-way independent vane motor control, a wider air stream than previous models and an optional i-see™ sensor to measure floor temperature in real time for better temperature management.



PLFY-NBMU models are available in capacities of 12,000, 15,000, 18,000, 20,000, 24,000 and 36,000 Btu/h. PLFY-NCMU units are specifically designed to fit inside of a ceiling grid for added installation and design convenience. PLFY-NCMU models are available in capacities of 8,000, 12,000 and 15,000 Btu/h. PLFY models are well-suited for office buildings, school classrooms, computer server rooms, and other applications where at least 12 inches of space is available above the ceiling.

PMFY: Ceiling-recessed cassette with one-way airflow

The PMFY is a ductless, one-way, ceiling-recessed cassette indoor unit that can be connected to ventilation air. This unit is easy to install and is offered in 6,000, 8,000, 12,000 and 15,000 Btu/H capacities. The PMFY model is designed for use in areas that cannot support duct work or lack sufficient space to support wall-mounted units.



PEFY: Ceiling-concealed ducted

The PEFY is a concealed-type, ducted indoor unit available in standard, low profile, and alternate high-static styles. It is installed above the ceiling to allow multiple outlets to be ducted from it. The compact design allows maximum flexibility for air conditioning hard-to-reach zones or for zones that are larger in size. PEFY units are extremely quiet. Capacities range from 6,000 to 96,000 Btu/h. This style of indoor unit is well-suited for office buildings, schools, hotels, assisted-living facilities, residences and other applications where ceiling space is available and the most discreet mechanical system is desired.



PFFY: Floor-standing

The PFFY floor-mounted model is available as an exposed or conceal indoor unit. These two styles are available in capacities of 6,000, 8,000, 12,000, 15,000, 18,000 and 24,000 Btu/h. The PFFY-NEMU requires no finish work and is perfect for any application, especially schools, office buildings, and hotels. The PFFY-NRMU is a concealed floor-mounted unit that practically disappears in the room.



Floor-standing Exposed
PFFY-NEMU



Floor-standing
Concealed
PFFY-NRMU



PVFY: Vertical-concealed

The PVFY vertical air handler is designed for closet or attic applications. The side drain pan makes it possible to use in a horizontal, left facing, position. With all the components, including a linear expansion valve (LEV) and controls pre-mounted within the cabinet for easy installation, this unit is ideally suited for use in retrofit and new building applications. Its available in capacities of 12,000, 18,000, 24,000, 30,000, 36,000, 48,000 and 54,000 Btu/h.

Customize your CITY MULTI building comfort solution

All models are quiet, easy to maintain and provide the ultimate in comfort. The chart below gives the capacity size for each model.

Capacity Code	Nominal Btu/h	6,000	8,000	12,000	15,000	18,000	24,000	27,000	30,000	36,000	48,000	54,000	72,000	96,000
Wall-mounted PKFY-P-N*MU-E			●	●	●	●	●		●					
Ceiling-recessed Cassette PLFY-P-NBMU-E				●	●	●	●		●	●				
Ceiling-recessed Cassette PLFY-P-NCMU-E			●	●	●									
Ceiling-recessed Cassette PMFY-P-NBMU-E		●	●	●	●									
Ceiling-suspended PCFY-P-NKMU-E					●		●		●	●				
Ceiling-concealed (ducted) PEFY-P-NMAU		●	●	●	●	●	●	●	●	●	●	●		
Ceiling-concealed (ducted low-profile) PEFY-P-NMSU-E		●	●	●	●	●	●							
Ceiling concealed (ducted alternative high-static option) PEFY-P-NMHU-E					●	●	●	●	●	●	●	●	●	●
Floor-standing (exposed/concealed) PFFY-P-NEMU/NRMU-E		●	●	●	●	●	●							
Vertical-concealed PVFY-P-E00A				●		●	●		●	●	●	●		

Elegant design and compact dimensions ideal for offices, classrooms, and residential uses.



Capacity range: 6,000 to 30,000 Btu/h

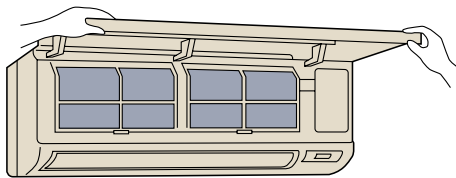
A wide selection for your design and performance needs

Whatever the size or shape of your room, there is a Mitsubishi Electric PKFY unit that is just right, delivering the style and performance you demand and deserve. PKFY units mount high on the wall and blend beautifully into any space. They are compact, lightweight and feature a built-in wireless sensor for use with an optional wireless remote controller. In addition, they are extremely quiet, with some of the lowest sound ratings available. When it comes to comfort, the PKFY's auto-vane and auto fan speed (on models P12, P15, P18) features deliver optimal air distribution and uniform temperatures throughout your space. All this performance and design flexibility comes in a unit that is remarkably easy to install and maintain. The template and back mounting plate shipped with each unit make installation a snap.

Front grille opens for easy filter cleaning

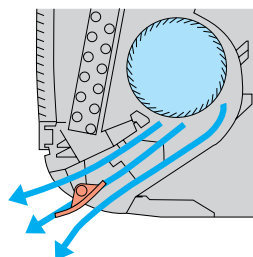
The front grille hinges open easily—no tools are needed to gain quick access to the filter. The filter can be removed and cleaned as needed.

Front grille opens for filter access



Operation is among the quietest available

The unit incorporates a random-pitch fan to assure quiet operation. The optimal design of the airflow passage features a small fan diameter to allow for a compact installation. Thanks to practical casing configuration, airflow generated by the fan is distributed uniformly. This design also suppresses condensation.



Swing vane

A user-selectable vane swing setting with PAR-21MAA and PAR-F27MEA controllers enhances air distribution in the conditioned space.

Five-way piping provides flexibility in selecting installation sites

Refrigerant and drain piping can be connected from the rear, right, base, or left of the unit, providing much greater flexibility for piping and selecting an installation site.

PKFY-P-N*MU-E SPECIFICATIONS



Model Name			PKFY- P6NBMU-E	PKFY- P08NBMU-E	PKFY- P12NHMU-E	PKFY- P15NHMU-E	PKFY- P18NHMU-E	PKFY- P24NKMU-E	PKFY- P30NKMU-E
Power Source			208 / 230V, 1 Phase, 60Hz						
Cooling Capacity		Btu/h *1	6,000	8,000	12,000	15,000	18,000	24,000	30,000
Heating Capacity		Btu/h *1	6,700	9,000	13,500	17,000	20,000	27,000	34,000
Power Consumption	Cooling	W	30					40	60
	Heating	W	30					40	60
Current	Cooling	A	0.15		0.30			0.29	0.43
	Heating	A	0.15		0.30			0.29	0.43
External Finish	Munsell No.		1.0Y 9.2 / 0.2						
Dimensions	Height	Inches	11-5/8					14-3/8	
	Width	Inches	32-1/8		35-3/8			46-1/16	
	Depth	Inches	8-7/8		9-13/16			11-5/8	
Net Weight	Unit	Pounds	22		29			46	
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)						
Fan	Type x quantity		Line Flow Fan x 1						
	Airflow Rate *2	CFM	170-180-200-210		320-355-390	320-370-405	320-370-425	570-710	710-850
	Motor Type		Single-phase Induction Motor		Direct-driven DC Motor				
	Motor Output	W	8		30			56	
Air Filter			Polypropylene Honeycomb						
Refrigerant Pipe Dimensions	Low Pressure (Flare)	Inches	1/2					5/8	
	High Pressure (Flare)	Inches	1/4					3/8	
Drain Pipe Dimension (I.D.)		Inches	5/8						
Sound Pressure Levels *2	Lo-Mid1-Mid2-Hi	dB(A)	32-33-35-36		34-38-42		36-41-45	39-45	43-49

*1 Cooling/Heating Capacity indicates the maximum value at operation under the following conditions:

Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Outdoor 95° F (35°C) DB

Heating: Indoor: 70° F (21°C) DB; Outdoor: 45° F (7°C) DB / 43° F (6°C) WB

*2 Airflow rate/sound pressure levels are at Low-Mid1-Mid2-Hi, Low-Mid-Hi, or Low-Hi

Ventilation Air: Providing sufficient ventilation air is an important part of very building design. ASHRAE Standard 62 provides the minimum air requirements. Also check local codes.

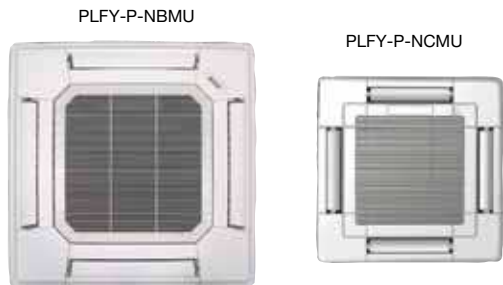
Specifications are subject to change.

Perfect airflow to meet your needs with four-way control.



Capacity range: 12,000 – 36,000 Btu/h

The PLFY-Series indoor unit offers unequalled flexibility of installation. This compact ceiling-recessed design makes it easy to install and operate. Its exceptional performance provides excellent air coverage. Two styles are available.



High performance and versatility

The PLFY looks great and works beautifully. The four-way cassette-type unit is compact and recesses easily into a ceiling space—so all you see is an attractive, flush-mounted grille. Beneath that elegant exterior is a powerful, high-performance machine with a built-in drain lift-up mechanism. The fan is engineered to provide optimum air distribution with minimal sound. Both styles can bring outside air into your space. The PLFY-NBMU can also branch over to air condition an adjacent room. The PLFY-NCMU unit is specifically designed to fit within a ceiling grid for ease of installation.

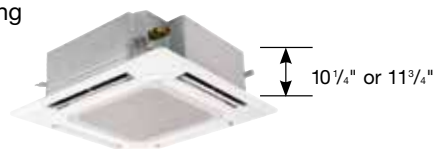
Quiet operation

This powerful indoor unit is whisper-quiet, down to 29 dB(A) for the PLFY-NCMU and 27 dB(A) for the PLFY-NBMU.



Ceiling applications

The PLFY-NBMU has a unit height of only 10-1/4" or 11-3/4", depending on the model. It provides great looking installations in low-ceiling areas with very limited space.

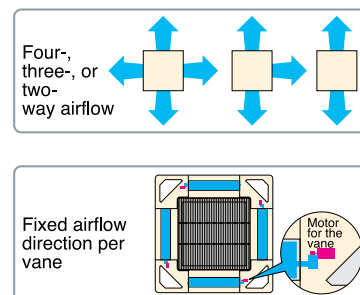


At only 8-3/16" in height and only 22-7/16 x 22-7/16" in width, the PLFY-NCMU makes accessing even the tightest of ceiling installations a possibility. The NCMU's grille is color-matched with the NBMU and blends in well with white drop ceiling tiles.



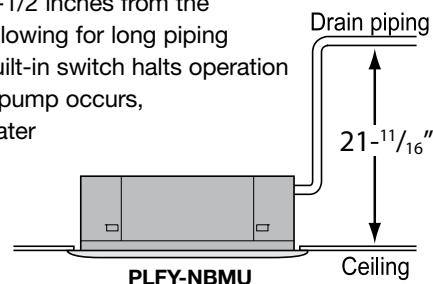
Customize the airflow pattern to meet your needs

The different airflow patterns provide the best solution for a variety of room layouts and air-conditioning requirements. For extra versatility, you can select from two-, three-, or four-way airflow.



Built-in condensate lift mechanism

The drain piping of the PLFY-NBMU can be positioned anywhere up to 33-1/2 inches from the ceiling's surface, allowing for long piping and versatility. A built-in switch halts operation if an error with the pump occurs, ensuring that no water leaks from the unit.



The PLFY-NCMU model has a built-in pump that lifts condensation 20 inches from the ceiling's surface. The unit recognizes when there is a pump failure and safeguards against leaks.

Corner-pocket design simplifies maintenance and installation

PLFY-NBMU allows access through the pockets equipped on each of four corners of the grille to complete installation, maintenance work, and height adjustment. The PLFY-NCMU unit requires an access panel for maintenance work.



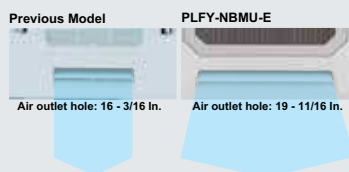
Easy maintenance, long-life filter

The washable filter provides about 2,500 hours of use in a normal office environment before cleaning is needed. The PLFY-NBMU is also available with an optional multi-function casement that allows for additional ventilation air and better filtration.

ADDITIONAL FEATURES FOR PLFY-NBMU MODELS

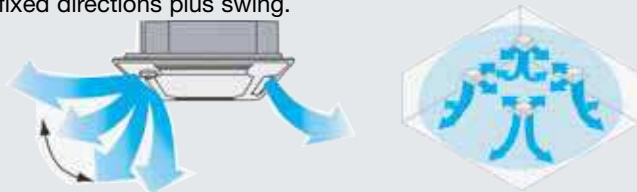
Wide air stream

Long air outlets on the PLFY-NBMU unit deliver wide air streams for improved air distribution and energy savings. This feature means quiet air delivery with fewer drafts and great overall cooling and heating coverage.



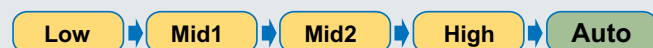
Independent vane motor control

Each of the four vanes on the PLFY-NBMU can be set by the wired remote controller to operate independently to match the room layout. Specific vane settings include five fixed directions plus swing.



Auto fan speed feature

The PLFY-NBMU unit offers a choice of four set fan speeds, or auto fan speed, to ensure for quick achievement of room temperature target. Auto fan speed mode allows the fan to adjust its speed based on the degree of differential between set point and room temperature.



Auto Wave airflow feature (Heating Mode)

In the Heating mode on the PLFY-NBMU, each air outlet vane operates independently, distributing warm air in multiple directions for better room heating.



The i-see™ sensor accessory

In addition to the return air temperature, the PLFY-NBMU four-way ceiling cassette with the field-installed i-see sensor measures the average floor temperature, observing the room vertically for better management of "sensible" temperature (temperature felt by occupant). The i-see sensor measures the infrared rays generated from the surrounding wall and floor surface at an angle of 360°. This infrared ray energy is converted into a temperature value. The i-see sensor rotates 90° slowly – in five-second intervals – for correct measurement of temperature to cover the full floor space.

i-see Sensor



i-see sensor detail

PLFY-P-NBMU-E SPECIFICATIONS



Model Name			PLFY-P12NBMU-E	PLFY-P15NBMU-E	PLFY-P18NBMU-E
Power Source			208/230V, 1-phase, 60Hz		
Cooling Capacity		Btu/h *1	12,000	15,000	18,000
Heating Capacity		Btu/h *1	13,500	17,000	20,000
Power Consumption	Cooling	W	30	40	50
	Heating	W	20	30	40
Current	Cooling	A	0.22	0.29	0.36
	Heating	A	0.14	0.22	0.29
External Finish Color (Munsell No.)			Grille 6.4Y 8.9/0.4		
Dimensions	Height	Inches	10-3/16		
	Width	Inches	33-3/32		
	Depth	Inches	33-3/32		
Net Weight *2	Unit/Panel	Pounds	49/13		51/13
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)		
Fan	Type x Quantity		Turbo Fan x 1		
	Airflow Rate *3	CFM	388-424-459-494	424-459-494-565	494-530-565-636
	Motor Type		DC Motor		
	Motor Output	kW	0.050		
Air Filter			Polypropylene Honeycomb		
Refrigerant Pipe Dimensions	Low Pressure (Flare)	Inches	1/2		
	High Pressure (Flare)	Inches	1/4		
Condensate Lift Mechanism (Standard)		Inches	33-1/2		
Drain pipe Dimension (O.D.)		Inches	1-1/4		
Sound Pressure Levels (As Measured in an Anechoic Room)*3	(Low-Mid1-Mid2-High)	dB(A)	27-28-29-31	27-28-30-31	28-29-30-32

Model Name			PLFY-P24NBMU-E	PLFY-P30NBMU-E	PLFY-P36NBMU-E
Power Source			208/230, 1-phase, 60Hz		
Cooling Capacity		Btu/h *1	24,000	30,000	36,000
Heating Capacity		Btu/h *1	27,000	34,000	40,000
Power Consumption	Cooling	W	60	70	160
	Heating	W	50	60	150
Current	Cooling	A	0.43	0.51	1.07
	Heating	A	0.36	0.43	1.00
External Finish Color (Munsell No.)			Grille 6.4Y 8.9/0.4		
Dimensions	Height	Inches	10-3/16		11-3/4
	Width	Inches	33-3/32		
	Depth	Inches	33-3/32		
Net Weight *2	Unit/Panel	Pounds	51/13		60/13
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)		
Fan	Type x Quantity		Turbo Fan x 1		
	Airflow Rate *3	CFM	530-565-636-706	565-636-706-777	777-883-989-1,059
	Motor Type		DC Motor		
	Motor Output	kW	0.050		0.120
Air Filter			Polypropylene Honeycomb		
Refrigerant Pipe Dimensions	Low Pressure (Flare)	Inches	5/8		
	High Pressure (Flare)	Inches	3/8		
Condensate Lift Mechanism (Standard)		Inches	33-1/2		
Drain pipe Dimension (O.D.)		Inches	1-1/4		
Sound Pressure Levels (As Measured in an Anechoic Room)*3	(Low-Mid1-Mid2-High)	dB(A)	28-30-32-34	30-32-35-37	35-38-41-43

Note:

*1 Cooling / Heating capacity indicates the maximum value at operation under the following conditions:

Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB

Heating: Indoor: 70°F (21°C) DB; Outdoor: 47°F (8°C) DB / 43°F (6°C) WB

*2 Net weight is shown for unit / grille

*3 Airflow rate / sound pressure levels are at (Low-Mid1-Mid2-High).

Ventilation Air: Providing sufficient ventilation air is an important part of every building design. ASHRAE Standard 62 provides the minimum ventilation air requirements. Also check local codes.

Specifications are subject to change.

PLFY-P-NCMU-E SPECIFICATIONS



Model Name			PLFY-P08NCMU-E	PLFY-P12NCMU-E	PLFY-P15NCMU-E
Power Source			208 230V, 1-phase, 60Hz		
Cooling Capacity		Btu/h *1	8,000	12,000	15,000
Heating Capacity		Btu/h *1	9,000	13,500	17,000
Power Consumption	Cooling	W	50	60	
	Heating	W	50	60	
Current	Cooling	A	0.23	0.28	
	Heating	A	0.23	0.28	
External Finish (Munsell No.)			Grille: White (6.4Y 8.9/0.4)		
Dimensions	Height	Inches	8-3/16		
	Width	Inches	22-7/16		
	Depth	Inches	22-7/16		
Net Weight *2	Unit/Panel	Pounds	34/7	37/7	
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)		
Fan	Type x Quantity		Turbo Fan x 1		
	Airflow Rate *3	CFM	280-320-350	320-350-390	
	Motor Type		Single-phase Induction Motor		
	Motor Output	kW	0.015	0.020	
Air Filter			Polypropylene Honeycomb		
Refrigerant Pipe Dimensions	Low Pressure (Flare)	Inches	1/2		
	High Pressure (Flare)	Inches	1/4		
Condensate Lift Mechanism (Standard)		Inches	19-11/16		
Drain pipe Dimension (O.D.)		Inches	1-1/4		
Sound Pressure Levels (As Measured in an Anechoic Room) *3	(Low-Mid-High)	dB(A)	29-32-38	30-34-39	31-35-40

Note:

*1 Cooling / Heating capacity indicates the maximum value at operation under the following conditions:

Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB

Heating: Indoor: 70°F (21°C) DB; Outdoor: 47°F (8°C) DB / 43°F (6°C) WB

*2 Net weight is shown for unit / grille

*3 Airflow rate / sound pressure levels are at (Low-Mid-High).

Ventilation Air: Providing sufficient ventilation air is an important part of every building design. ASHRAE Standard 62 provides the minimum ventilation air requirements. Also check local codes.

Specifications are subject to change.

Compact and lightweight
one way airflow, perfect
for limited ceiling
space applications.



Capacity range: 6,000 – 15,000 Btu/h

Ideal for small spaces

The PMFY model is a one-way, ceiling-recessed cassette unit perfect for shallow ceiling spaces. The PMFY unit moves air in one direction and can introduce ventilation air. It is designed especially for use in areas like hotel rooms which cannot support duct work or lack sufficient space to allow for wall-mounted units. The PMFY is available in 6,000, 8,000, 12,000 and 15,000 Btu/h capacities.

Compact size for easy installation and maintenance

Unit body size has been standardized for all models at 31-31/32" for easier installation. This profile is one of the smallest of all CITY MULTI ceiling models, with a height of only 9-1/16" – ideal for tight locations. Unit weight is only 31 pounds for the main unit and seven pounds for the panel, making this unit one of the lightest in the industry.

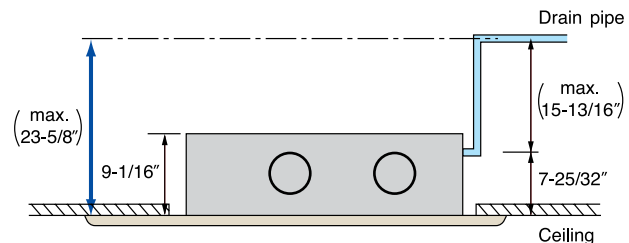


Quiet operation

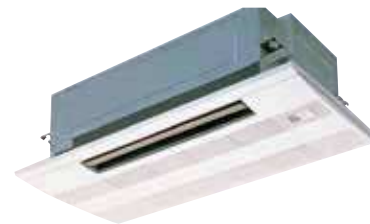
Newly-developed airflow control technology operates as low as 27 dB(A) for industry-leading quiet performance.

Drain lift-up mechanism

The drain pipe can be extended anywhere up to 23-5/8" above the ceiling's surface.



PMFY-P-NBMU-E SPECIFICATIONS



Model			PMFY-P06NBMU-E	PMFY-P08NBMU-E	PMFY-P12NBMU-E	PMFY-P15NBMU-E
Power Source			208/230V, 1 Phase, 60Hz			
Cooling Capacity	Btu/h *1		6,000	8,000	12,000	15,000
Heating Capacity	Btu/h *1		6,700	9,000	13,500	17,000
Power Consumption	Cooling	W	40	40	40	50
	Heating	W	40	40	40	50
Current	Cooling	A	0.20	0.20	0.21	0.26
	Heating	A	0.20	0.20	0.21	0.26
External Finish			Grille: Munsell 0.98Y 8.99/0.63			
Dimensions	Height	Inches	9-1/16	9-1/16	9-1/16	9-1/16
	Width	Inches	31-31/32	31-31/32	31-31/32	31-31/32
	Depth	Inches	15-9/16	15-9/16	15-9/16	15-9/16
Net Weight *2	Unit/Panel	Pounds	31/7	31/7	31/7	31/7
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)			
Fan	Type x quantity		Line Flow Fan x 1			
	Airflow Rate *3	CFM	230-254-283-307	258-283-304-328	258-283-304-328	272-307-340-378
	Motor Type		DC Brushless Motor			
	Motor Output	W	28	28	28	28
Air Filter			PP Honeycomb			
Refrigerant Pipe Dimensions	Low Pressure (Flare)	Inches	1/2	1/2	1/2	1/2
	High Pressure (Flare)	Inches	1/4	1/4	1/4	1/4
Condensate Lift Mechanism (standard)	Inches		23-5/8	23-5/8	23-5/8	23-5/8
Drain Pipe Dimension	Inches		O.D. 1-1/32	O.D. 1-1/32	O.D. 1-1/32	O.D. 1-1/32
Sound Levels *3	(Low-Mid1-Mid2-High)	dB(A)	27-30-33-35	32-34-36-37	32-34-36-37	33-35-37-39

Note: *1 Cooling / Heating capacity indicates the maximum value at operation under the following conditions:

Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB

Heating: Indoor: 70°F (21°C) DB; Outdoor: 45°F (7°C) DB / 43°F (6°C) WB

*2 Net weight is shown for unit/panel

*3 Airflow rate / sound levels are at (Low-Mid1-Mid2-High)

Ventilation Air: Providing sufficient ventilation air is an important part of every building design. ASHRAE Standard 62 provides the minimum ventilation air requirements. Also check local codes.

Specifications are subject to change.

Compact design ideal for classrooms, restaurants, and stores.



Capacity range: 15,000 – 36,000 Btu/h

Superior performance provides plenty of relief

Powerful cooling and heating performance is what the PCFY style is all about. This easy-to-install, ceiling-suspended unit delivers enough cold or hot air to make any space more comfortable. Manually adjusted, over-sized swing louvers direct the airflow left or right, covering the entire space quietly and efficiently.

The dimensions of the compact PCFY style make it perfect for classrooms, restaurants, kitchens, and other large commercial spaces where ovens and other equipment add to an already-taxed cooling or heating load. The PCFY is available in 15,000, 24,000, 30,000 and 36,000 Btu/h capacities.

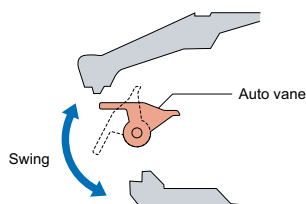
Quiet, powerful airflow

Appropriate airflow can be selected to enhance air-conditioning efficiency and comfort while operating at a low sound level.

Model Name	Airflow Rate	Sound Level at Low Airflow
PCFY-P15NKMU-E	353-388-424-459	29 dB(A)
PCFY-P24NKMU-E	494-530-565-636	31 dB(A)
PCFY-P30NKMU-E	703-777-883-989	34 dB(A)
PCFY-P36NKMU-E	742-847-953-1,095	36 dB(A)

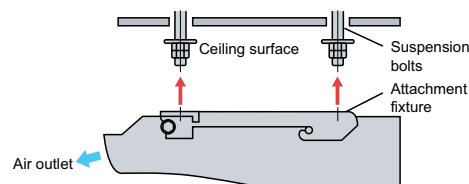
Strong, efficient airflow

PCFY's auto-vane and wide-range outlet swings the conditioned air and distributes it uniformly to all corners of the room. Accessory filters are also available to increase filtration effectiveness.



Easy install with direct suspension

The PCFY's direct suspension allows it to be installed onto most ceiling surfaces quickly and securely using only suspension bolts and the PCFY's durable attachment fixture. An optional pump kit is available to dispose of condensate (model# PAC-SH91MK-E).



The i-see™ sensor accessory



In addition to the return air temperature, the PCFY ceiling-suspended unit with the field installed i-see sensor measures the average floor temperature, observing the room vertically for better management of temperature at occupied levels. The i-see sensor measures the infrared rays generated from the surrounding wall and floor surface at an angle of 360°. This infrared ray energy is converted into a temperature value. The i-see sensor rotates 90° slowly – in five-second intervals – for correct measurement of temperature to cover the full floor space.

PCFY SPECIFICATIONS



Model Name			PCFY-P15NKMU-E	PCFY-P24NKMU-E	PCFY-P30NKMU-E	PCFY-P36NKMU-E
Power Source			208 / 230V, 1 Phase, 60Hz			
Cooling Capacity		Btu/h *1	15,000	24,000	30,000	36,000
Heating Capacity		Btu/h *1	17,000	27,000	34,000	40,000
Power Consumption	Cooling	W	30	40	90	110
	Heating	W	30	40	90	110
Current	Cooling	A	0.35	0.41	0.83	0.97
	Heating	A	0.35	0.41	0.83	0.97
External Finish	Munsell No.		6.4Y 8.9 / 0.4			
Dimensions	Height	Inches	9-1/16			
	Width	Inches	37-13/16	50-3/8	63	
	Depth	Inches	26-3/4			
Net Weight	Unit	Pounds	53	71	79	84
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)			
Fan	Type x quantity		Sirocco Fan x 2	Sirocco Fan x 3	Sirocco Fan x 4	
	Airflow Rate *2	CFM	353-388-424-459	494-530-565-636	703-777-883-989	742-847-953-1,095
	Motor Type		Direct-driven DC Motor			
	Motor Output	W	90	95	160	
Air Filter			Polypropylene Honeycomb			
Refrigerant Pipe Dimensions	Low Pressure (Flare)	Inches	1/2	5/8		
	High Pressure (Flare)	Inches	1/4	3/8		
Drain Pipe Dimension (O.D.)		Inches	1			
Sound Pressure Levels	Lo-Mid1-Mid2-Hi	dB(A)	29-32-34-36	31-33-35-37	34-37-40-43	36-39-42-44

*1 Cooling/Heating Capacity indicates the maximum value at operation under the following conditions:

Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Outdoor 95° F (35°C) DB

Heating: Indoor: 70° F (21°C) DB; Outdoor: 45° F (7°C) DB / 43° F (6°C) WB

*2 Airflow rate/sound pressure levels are at Low-Mid1-Mid2-Hi.

Ventilation Air: Providing sufficient ventilation air is an important part of very building design. ASHRAE Standard 62 provides the minimum air requirements. Also check local codes.

Specifications are subject to change.

Flexible design allows elegant interior layout.

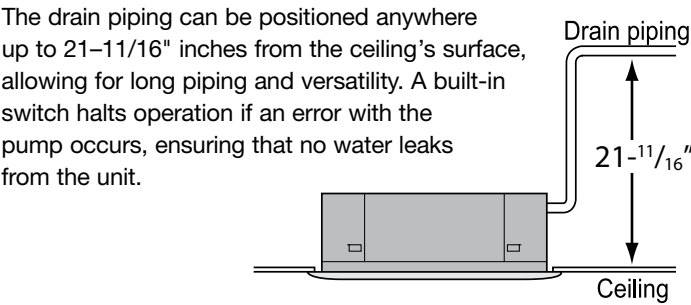


Capacity range: 6,000 – 96,000 Btu/h

Designed to be neither seen nor heard, just to perform

The PEFY model is a high-performance, ceiling-concealed, ducted indoor unit. In fact, if it weren't for the constantly comfortable environment this unit delivers, you might not even know it was there. The ducted fan coils are designed to be installed above the ceiling, hidden from public view. And it's extremely quiet, with sound ratings as low as 22 dB(A). But hidden doesn't mean hard to reach. The PEFY fan coils are extremely easy to access and maintain according to their application. The unit opens on one side so you can easily access the fan or motor for maintenance. It's easy to customize to your cooling and heating needs. The external static pressure settings are adjustable to meet different Application conditions, such as the use of a high-performance filter.

Built-in condensate lift mechanism



Quiet operation thanks to a specially designed centrifugal fan

Operating Sound Range

		PEFY-P-NMAU-E	P06	P08	P12	P15	P18	P24	P27	P30	P36	P48	P54
Sound Level dB(A)	Fan Speed	Low-High	26-29		28-34	28-35	29-36	30-38	32-41	35-44	36-45		

		PEFY-P-NMSU-E	P06	P08	P12	P15	P18	P24
Sound Level dB(A)	Fan Speed	Low-High	22-28	23-30	23-35	28-33	30-37	30-40

		PEFY-P-NMHU-E	P15	P18	P24	P27	P30	P36	P48	P54	P72	P96
Sound Level dB(A)	Fan Speed	Low-High	34-39	36-41	35-41	38-43		38-44		47	54	



Choice of external static pressure

The additional external static pressure capacity provides flexibility for duct extension, branching, and air outlet configuration. The factory setting of 0.20" W.G. can be field-adjusted to 0.14" W.G. or 0.60" W.G. to match installed duct work for PEFY Medium static indoor units. The PEFY indoor unit is available in a low-profile option with up to 0.20" W.G. and an alternate high-static option for up to 0.80" W.G.

Even smaller compact size (PEFY-P-NMSU)

The PEFY-P**NMSU-E model is very compact, with a height of 7-7/8". Additional features for the PEFY-NMSU include an increased external static pressure (setting available up to 0.20" W.G.). Standard features include brazed refrigerant connections, rear air return, and auto fan mode. The unit is extremely quiet—as low as 22 dB(A)—and the control panel is located on the opposite side from other ducted models. This unit is an ideal choice for guest rooms in hotels, dormitories, assisted living centers or any application with tight vertical clearances and minimal duct work.

PEFY-P-NMHU-E SPECIFICATIONS ALTERNATE HIGH STATIC OPTION



Model Name			PEFY-P15NMHU-E	PEFY-P18NMHU-E	PEFY-P24NMHU-E	PEFY-P27NMHU-E	PEFY-P30NMHU-E
Power Source			208/230V, 1-phase, 60Hz				
Cooling Capacity *1	Btu/h		15,000	18,000	24,000	27,000	30,000
Heating Capacity *1	Btu/h		17,000	20,000	27,000	30,000	34,000
Power Consumption	Cooling	W	188/207	188/207	245/270	270/297	326/360
	Heating	W	188/207	188/207	245/270	270/297	326/360
Current	Cooling	A	0.96/1.06	0.96/1.06	1.25/1.38	1.37/1.51	1.66/1.83
	Heating	A	0.96/1.06	0.96/1.06	1.25/1.38	1.37/1.51	1.66/1.83
External Finish			Unit: Galvanized Steel Plate				
Dimensions	Height	Inches	14-31/32	14-31/32	14-31/32	14-31/32	14-31/32
	Width	Inches	29-17/32	29-17/32	29-17/32	39-3/8	39-3/8
	Depth	Inches	35-7/16	35-7/16	35-7/16	35-7/16	35-7/16
Net Weight	Unit	Pounds	98	100	100	111	111
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)				
Fan	Type x Quantity		Sirocco Fan x 1	Sirocco Fan x 1	Sirocco Fan x 1	Sirocco Fan x 1	Sirocco Fan x 1
	Airflow Rate *2	CFM	353-494	353-494	477-671	547-777	636-883
	Ext. Static Pressure (208/230V)	In. W.G.	0.201-0.642/0.401-0.602-0.803				
	Motor Type		Single-phase Induction Motor				
	Motor Output	W	130	130	180	220	230
Air Filter			Optional Part				
Refrigerant Pipe Dimensions	Low Pressure	Inches	1/2 (Flare)	1/2 (Flare)	5/8 (Flare)	5/8 (Flare)	5/8 (Flare)
	High Pressure	Inches	1/4 (Flare)	1/4 (Flare)	3/8 (Flare)	3/8 (Flare)	3/8 (Flare)
Drain pipe Dimension (O.D.)		Inches	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4
Sound Pressure Levels *2 (Low-High)		dB(A) @ 230V	34-39	34-39	36-41	35-41	38-43

Model Name			PEFY-P36NMHU-E	PEFY-P48NMHU-E	PEFY-P54NMHU-E	PEFY-P72NMHU-E	PEFY-P96NMHU-E
Power Source			208/230V, 1-phase, 60Hz			208/230V, 3-phase, 60Hz	
Cooling Capacity *1	Btu/h		36,000	48,000	54,000	72,000	96,000
Heating Capacity *1	Btu/h		40,000	54,000	60,000	80,000	108,000
Power Consumption	Cooling	W	683/754	683/754	695/767	1,352/1,495	1,690/1,870
	Heating	W	683/754	683/754	695/767	1,352/1,495	1,690/1,870
Current	Cooling	A	3.38/3.73	3.38/3.73	3.43/3.78	4.48/4.94	5.69/6.28
	Heating	A	3.38/3.73	3.38/3.73	3.43/3.78	4.48/4.94	5.69/6.28
External Finish			Unit: Galvanized Steel Plate				
Dimensions	Height	Inches	14-31/32	14-31/32	14-31/32	18-17/32	18-17/32
	Width	Inches	47-1/4	47-1/4	47-1/4	49-7/32	49-7/32
	Depth	Inches	35-7/16	35-7/16	35-7/16	44-1/8	44-1/8
Net Weight	Unit	Pounds	155	155	155	221	221
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)				
Fan	Type x Quantity		Sirocco Fan x 2	Sirocco Fan x 2	Sirocco Fan x 2	Sirocco Fan x 2	Sirocco Fan x 2
	Airflow Rate *2	CFM	936-1,342	936-1,342	989-1,412	2,048	2,541
	Ext. Static Pressure (208/230V)	In. W.G.	0.201-0.642/0.401-0.602-0.803			0.28-0.642/0.40-0.80	
	Motor Type		Single-phase Induction Motor			Three-phase Induction Motor	
	Motor Output	W	400	400	400	650	850
Air Filter			Optional Part				
Refrigerant Pipe Dimensions	Low Pressure	Inches	5/8 (Flare)	5/8 (Flare)	5/8 (Flare)	3/4 (Brazed)	7/8 (Brazed)
	High Pressure	Inches	3/8 (Flare)	3/8 (Flare)	3/8 (Flare)	3/8 (Brazed)	3/8 (Brazed)
Drain pipe Dimension (O.D.)		Inches	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4
Sound Levels *2 (Low-High)		dB(A) @ 230V	38-44	38-44	38-44	47	54

Note:

*1 Cooling/Heating capacity indicates the maximum value at operation under the following conditions:

Cooling: Indoor: 80°F (27°C) DB/67°F (19°C) WB; Outdoor: 95°F (35°C) DB

Heating: Indoor: 70°F (21°C) DB; Outdoor: 47°F (8°C) DB/43°F (6°C) WB

*2 Airflow rate/sound levels are at (Low-High)

Ventilation Air: Providing sufficient ventilation air is an important part of every building design.

ASHRAE standard 62 provides the minimum ventilation air requirements. Also check local codes.

Specifications are subject to change.

PEFY-P-NMAU-E SPECIFICATIONS (Medium static)



Model Name			PEFY-P06NMAU-E	PEFY-P08NMAU-E	PEFY-P12NMAU-E	PEFY-P15NMAU-E	PEFY-P18NMAU-E	PEFY-P24NMAU-E	
Power Source			208 / 230V, 1 Phase, 60Hz						
Cooling Capacity		Btu/h *1	6,000	8,000	12,000	15,000	18,000	24,000	
Heating Capacity		Btu/h *1	6,700	9,000	13,500	17,000	20,000	27,000	
Power Consumption	Cooling	W	60		90		110	120	
	Heating	W	40		70		90	100	
Current	Cooling	A	0.56		0.66	0.67	0.77	1.04	
	Heating	A	0.45		0.55	0.56	0.66	0.93	
External Finish			Galvanized-steel Sheet						
Dimensions	Height	Inches	9-13/16						
	Width	Inches	27-9/16			35-7/16		43-5/16	
	Depth	Inches	28-7/8						
Net Weight	Unit	Pounds	51			58		71	
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)						
Fan	Type x quantity		Sirocco Fan x 1						Sirocco Fan x 2
	Airflow Rate *2	CFM	212-265-300		265-318-371	353-424-494	424-512-600	477-565-671	
	External Static Pressure	In.WG	0.14-0.20-0.28-0.40-0.60						
	Motor Type		Direct-driven DC Brushless Motor						
	Motor Output	W	85					121	
Air Filter			Polypropylene Honeycomb						
Refrigerant Pipe Dimensions	Low Pressure (Flare)	Inches	1/2					5/8	
	High Pressure (Flare)	Inches	1/4					3/8	
Drain Pipe Dimension (O.D.)		Inches	1-1/4						
Sound Pressure Levels	Lo-Mid-Hi	dB(A)	26-28-29		28-30-34		28-32-35	29-32-36	

Model Name			PEFY-P27NMAU-E	PEFY-P30NMAU-E	PEFY-P36NMAU-E	PEFY-P48NMAU-E	PEFY-P54NMAU-E	
Power Source			208 / 230V, 1 Phase, 60Hz					
Cooling Capacity		Btu/h *1	27,000	30,000	36,000	48,000	54,000	
Heating Capacity		Btu/h *1	30,000	34,000	40,000	54,000	60,000	
Power Consumption	Cooling	W	140		240	340	360	
	Heating	W	120		220	320	340	
Current	Cooling	A	1.18		1.50	2.08	2.24	
	Heating	A	1.07		1.39	1.97	2.13	
External Finish			Galvanized-steel Sheet					
Dimensions	Height	Inches	9-13/16					
	Width	Inches	43-5/16			55-1/8		63
	Depth	Inches	28-7/8					
Net Weight	Unit	Pounds	71			93		102
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)					
Fan	Type x quantity		Sirocco Fan x 2					
	Airflow Rate *2	CFM	512-636-742		812-989-1,165	989-1,201-1,412	1,042-1,254-1,483	
	External Static Pressure	In.WG	0.14-0.20-0.28-0.40-0.60					
	Extended Static Motor Type		Direct-driven DC Brushless Motor					
	Motor Output	W	121		244			
Air Filter			Polypropylene Honeycomb					
Refrigerant Pipe Dimensions	Low Pressure (Flare)	Inches	5/8					
	High Pressure (Flare)	Inches	3/8					
Drain Pipe Dimension (O.D.)		Inches	1-1/4					
Sound Pressure Levels	Lo-Mid1-Mid2-Hi	dB(A)	30-34-38		32-37-41	35-40-44	36-41-45	

*1 Cooling/Heating Capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Outdoor 95° F (35°C) DB
Heating: Indoor: 70° F (21°C) DB; Outdoor: 45° F (7°C) DB / 43° F (6°C) WB
*2 Airflow rate/sound pressure levels are at Low-Mid-Hi.

Ventilation Air: Providing sufficient ventilation air is an important part of very building design. ASHRAE Standard 62 provides the minimum air requirements. Also check local codes.

Specifications are subject to change.

Designed for CITY MULTI® PEFY-P-NMAU-E Medium-Static Indoor Units



FBM Series filter boxes

FB Series filter boxes are available in compatible sizes for all CITY MULTI horizontal ducted indoor units.

FBM2 boxes include 2" thick pleated MERV 13 filter(s) installed. Filters are tested in accordance with ANSI/ASHRAE Standard 52.2 and Rated Class 2 under U.L. Standard 900.

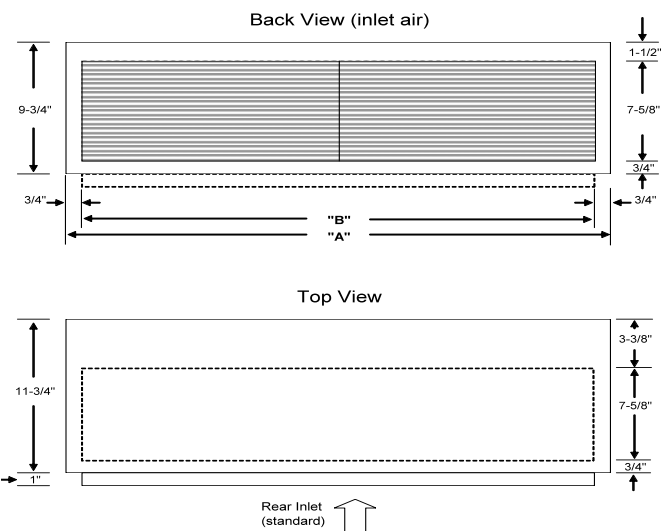
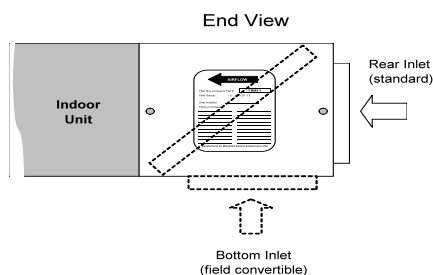
The cabinet is constructed of non-insulated 20 gauge G-60 galvanized steel with a foam for provides air-tight connection to indoor unit and access door – gasket material complies with UL 723 requirements.

The units screw-through cabinet design for secure attachment to indoor unit and return connection in rear can be easily field converted to bottom return.

GENERAL FEATURES

- All filter boxes include 2" thick pleated MERV 13 filter(s) installed
 - Rated MERV 13 when tested in accordance with ANSI/ASHRAE 52.2 Standard
 - Rated Class 2 under U.L. Standard 900
- Cabinet is constructed of non-insulated 20 gauge G-60 galvanized steel
- Knurled thumb screws on access door allow easy filter replacement
- Foam gasket provides air-tight connection to indoor unit and access door
- Gasket material complies with UL 723 requirements
- Screw-through cabinet design for secure attachment to indoor unit
- Return connection in rear easily field converted to bottom
- Filter access door includes area to record maintenance schedule

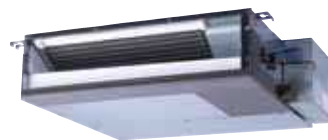
EXTERNAL DIMENSIONS



SPECIFICATIONS

Part Number	Used on CITY MULTI Models	Filters Included	Net Weight lbs.
FBM2-1	PEFY-P06, P08, P12-NMAU-E	(1) - 14" x 25" x 2"	20
FBM2-2	PEFY-P15, P18-NMAU-E	(1) - 14" x 20" x 2", (1) - 14" x 14" x 2"	26
FBM2-3	PEFY-P24, P27, P30-NMAU-E	(2) - 14" x 20" x 2"	32
FBM2-4	PEFY-P36, P48-NMAU-E	(2) - 14" x 20" x 2", (1) - 14" x 14" x 2"	41
FBM2-5	PEFY-P54-NMAU-E	(3) - 14" x 20" x 2"	46

PEFY-P-NMSU-E SPECIFICATIONS LOW PROFILE



Model Name			PEFY-P06NMSU-E* 1	PEFY-P08NMSU-E	PEFY-P12NMSU-E	PEFY-P15NMSU-E	PEFY-P18NMSU-E	PEFY-P24NMSU-E
Power Source			208/230V, 1-phase, 60Hz					
Cooling Capacity *2		Btu/h	6,000	8,000	12,000	15,000	18,000	24,000
Heating Capacity *2		Btu/h	6,700	9,000	13,500	17,000	20,000	27,000
Power Consumption	Cooling	W	50/50	60/60	70/70		90/90	120/120
	Heating	W	30/30	40/40	50/50		70/70	100/100
Current	Cooling	A	0.42/0.41	0.51/0.49	0.56/0.53	0.57/0.55	0.74/0.70	0.98/0.93
	Heating	A	0.32/0.31	0.41/0.39	0.46/0.43	0.47/0.45	0.64/0.60	0.88/0.83
External Finish			Galvanized Steel Sheets					
Dimensions	Height	Inches	7-7/8					
	Width	Inches	31-1/8			39		46-7/8
	Depth	Inches	27-9/16					
Net Weight	Unit	Pounds	42		46	54		62
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)					
Fan	Type x Quantity		Sirocco Fan x 2			Sirocco Fan x 3		Sirocco Fan x 4
	Airflow Rate *3	CFM	176-212-247	194-247-317	211-282-370	282-335-388	353-441-529	423-565-706
	External Static Pressure *4	In.W.G.	0.02-0.06-0.14-0.20					
	Motor Type		DC Brushless Motor					
	Motor Output	W	96					
Air Filter			Polypropylene Honeycomb Fabric (washable)					
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	Inches	1/2					5/8
	High Pressure (Brazed)	Inches	1/4					3/8
Condensate Lift Mechanism (standard)		Inches	21-4/16					
Drain pipe Dimensions (O.D.)		Inches	1-1/4					
Sound Pressure Levels *3	Low-Mid-High	dB(A)	22-24-28	23-26-30	23-28-35	28-30-33	30-34-37	30-35-40

Note:

*1 PEFY-P06NMSU-E cannot be used with PUHY/PURY-P-TGMU or PQHY/PQRY-P-TGMU units.

*2 Cooling/Heating capacity indicates the maximum value at operation under the following conditions:

Cooling: Indoor: 80°F (27° C) DB/67°F (19°C) WB; Outdoor: 95°F (35°C) DB.

Heating: Indoor: 70°F (21°C) DB; Outdoor: 47°F (8°C) DB/43°F (6°C) WB.

*3 Airflow rate/sound pressure levels are at (Low-Mid-High).

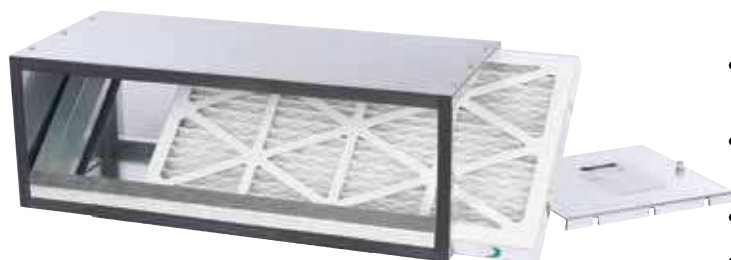
*4 External static pressure is factory set to 0.06 in.WG.

Ventilation Air: Providing sufficient ventilation air is an important part of every building design.

ASHRAE Standard 62 provides the minimum ventilation air requirements. Also check local codes.

Specifications are subject to change.

Designed for CITY MULTI® PEFY-P-NMSU-E Low Profile Indoor Units



FBL Series filter boxes

FBL1 filter boxes include 1" thick pleated MERV 8 filter(s). Filters are tested in accordance with ANSI/ASHRAE Standard 52.2 and Rated Class 2 under U.L. Standard 900

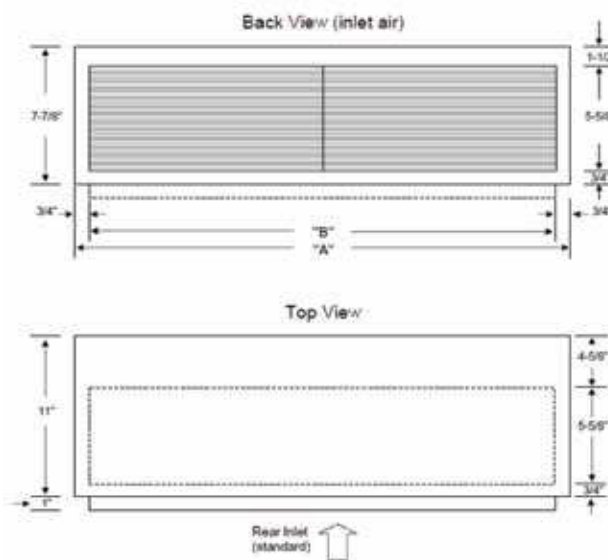
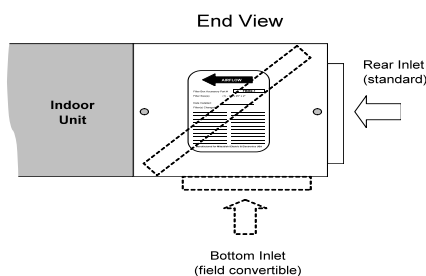
The cabinet is constructed of non-insulated 20 gauge G-60 galvanized steel with a foam gasket for air-tight connection to indoor unit and access door – gasket material complies with UL 723 requirements.

Screw-through cabinet design for secure attachment to indoor unit and return connection in rear easily field converted to bottom return.

GENERAL FEATURES

- All filter boxes include 1" thick pleated MERV 8 filter(s) installed
- Rated MERV 8 when tested in accordance with ANSI/ASHRAE 52.2 Standard
- Rated Class 2 under U.L. Standard 900
- Cabinet is constructed of non-insulated 20 gauge G-60 galvanized steel
- Knurled thumb screws on access door allow easy filter replacement
- Foam gasket provides air-tight connection to indoor unit and access door
- Gasket material complies with UL 723 requirements
- Screw-through cabinet design for secure attachment to indoor unit
- Return connection in rear easily field converted to bottom
- Filter access door includes area to record maintenance schedule

EXTERNAL DIMENSIONS



SPECIFICATIONS

Part Number	Used on CITY MULTI Models	Filters Included	Net Weight lbs.
FBL1-1	PEFY-P06,P08,P12-NMSU-E	(1) - 12" x 25" x 1"	12
FBL1-2	PEFY-P15,P18-NMSU-E	(1) - 12" x 20" x 1", (1) - 12" x 14" x 1"	15
FBL1-3	PEFY-P24-NMSU-E	(2) - 12" x 20" x 1"	18

Effective use
of perimeter space.



Concealed Type
PFFY-P-NEMU-E



Concealed Type
PFFY-P-NRMU-E

Capacity range: 6,000 – 24,000 Btu/h



Compact unit provides simple, effective air-conditioning in perimeter zones

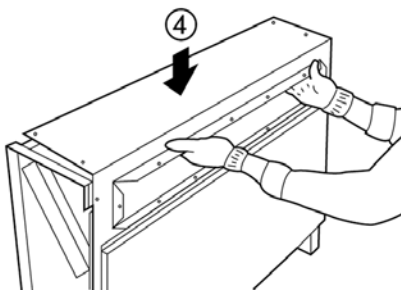
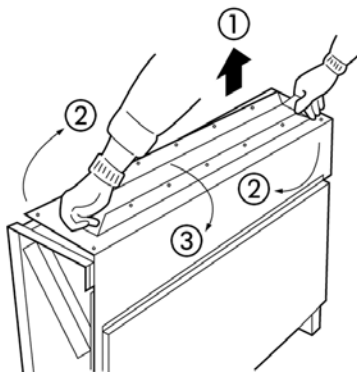
Less than nine inches deep, these PFFY floor-standing units are easy to install in peripheral spaces, yet offer highly efficient air-conditioning performance. Since these are floor-standing models, they are perfect for spaces with little or no ceiling space. Their low operating sound and compact size make them ideal for hotel rooms. The PFFY offers tremendous flexibility in two distinct versions. The PFFY-NEMU exposed-type model is perfect for most applications and requires no finish work. The PFFY-NRMU is designed for applications requiring a built-in, concealed, floor-standing unit. Both types are available in 6,000, 8,000, 12,000, 15,000, 18,000 and 24,000 Btu/H capacities.

Optional mounting for remote controller

PFFY units can house either a Deluxe MA or ME Remote Controller in the top corner (under a cover panel). Thus, the remote controller can be mounted on the wall or in the PFFY unit.

Installation flexibility

The PFFY-P-NRMU-E unit can be field-converted from top discharge to front discharge to increase installation flexibility.



PFFY-P-NEMU/NRMU-E SPECIFICATIONS



PFFY-P-NEMU-E

Model			PFFY-P06NEMU-E	PFFY-P08NEMU-E	PFFY-P12NEMU-E	PFFY-P15NEMU-E	PFFY-P18NEMU-E	PFFY-P24NEMU-E
Power Source			208/230V, 1 Phase, 60Hz					
Cooling Capacity		Btu/h *1	6,000	8,000	12,000	15,000	18,000	24,000
Heating Capacity		Btu/h *1	6,700	9,000	13,500	17,000	20,000	27,000
Power	Cooling	W	51/61	51/61	55/67	65/78	78/93	96/114
Consumption	Heating	kW	51/61	51/61	55/67	65/78	78/93	96/114
Current	Cooling	A	0.25/0.27	0.25/0.27	0.27/0.30	0.32/0.35	0.38/0.42	0.47/0.51
	Heating	A	0.25/0.27	0.25/0.27	0.27/0.30	0.32/0.35	0.38/0.42	0.47/0.51
External Finish (Munsell No.)			Acrylic Painted (5Y 8/1)					
Dimensions	Height	Inches	24-13/16	24-13/16	24-13/16	24-13/16	24-13/16	24-13/16
	Width	Inches	41-11/32	41-11/32	46-3/32	46-3/32	55-17/32	55-17/32
	Depth	Inches	8-11/16	8-11/16	8-11/16	8-11/16	8-11/16	8-11/16
Net Weight	Unit	Pounds	51	51	56	58	67	71
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)					
Fan	Type x Quantity		Sirocco Fan x 1	Sirocco Fan x 1	Sirocco Fan x 2	Sirocco Fan x 2	Sirocco Fan x 2	Sirocco Fan x 2
	Airflow Rate *2	CFM	194-229	194-229	247-317	300-388	353-459	353-494
	Motor Type		Single Phase Induction Motor					
	Motor Output	W	15	15	18	30	35	63
Air Filter			Standard Filter					
Refrigerant Pipe Dimensions	Low Pressure (Flare)	Inches	1/2	1/2	1/2	1/2	1/2	5/8
	High Pressure (Flare)	Inches	1/4	1/4	1/4	1/4	1/4	3/8
Drain Pipe Dimension		Inches	O.D. 1-3/32					
Sound Levels *2 (Low-High)		dB(A)	36-41	36-41	37-41	38-43	38-43	40-46

Note: *1 Cooling / Heating capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB
Heating: Indoor: 70°F (21°C) DB; Outdoor: 45°F (7°C) DB / 43°F (6°C) WB
*2 Airflow rate/sound levels are at (Low-High)

Ventilation Air: Providing sufficient ventilation air is an important part of every building design. ASHRAE standard 62 provides the minimum ventilation air requirements. Also check local codes.

Specifications are subject to change.



PFFY-P-NRMU-E

Model			PFFY-P06NRMU-E	PFFY-P08NRMU-E	PFFY-P12NRMU-E	PFFY-P15NRMU-E	PFFY-P18NRMU-E	PFFY-P24NRMU-E
Power Source			208/230V, 1 Phase, 60Hz					
Cooling Capacity		Btu/h *1	6,000	8,000	12,000	15,000	18,000	24,000
Heating Capacity		Btu/h *1	6,700	9,000	13,500	17,000	20,000	27,000
Power	Cooling	W	51/61	51/61	55/67	65/78	78/93	96/114
Consumption	Heating	W	51/61	51/61	55/67	65/78	78/93	96/114
Current	Cooling	A	0.25/0.27	0.25/0.27	0.27/0.30	0.32/0.35	0.38/0.42	0.47/0.51
	Heating	A	0.25/0.27	0.25/0.27	0.27/0.30	0.32/0.35	0.38/0.42	0.47/0.51
External Finish (Munsell No.)			Galvanized Sheet Metal					
Dimensions	Height	Inches	25-3/16	25-3/16	25-3/16	25-3/16	25-3/16	25-3/16
	Width	Inches	34-29/32	34-29/32	39-5/8	39-5/8	49-1/16	49-1/16
	Depth	Inches	8-11/16	8-11/16	8-11/16	8-11/16	8-11/16	8-11/16
Net Weight	Unit	Pounds	41	41	45	47	56	60
Heat Exchanger			Cross Fin (Aluminum Plate Fin and Copper Tube)					
Fan	Type x Quantity		Sirocco Fan x 1	Sirocco Fan x 1	Sirocco Fan x 2	Sirocco Fan x 2	Sirocco Fan x 2	Sirocco Fan x 2
	Airflow Rate *2	CFM	194-229	194-229	247-317	300-388	353-459	353-494
	Motor Type		Single Phase Induction Motor					
	Motor Output	kW	0.015	0.015	0.018	0.030	0.035	0.063
Air Filter			Standard Filter					
Refrigerant Pipe	Low Pressure (Flare)	Inches	1/2	1/2	1/2	1/2	1/2	5/8
Dimensions	High Pressure (Flare)	Inches	1/4	1/4	1/4	1/4	1/4	3/8
Drain Pipe Dimension		Inches	O.D. 1-3/32					
Sound Levels *2	(Low-High)	dB(A)	36-41	36-41	37-41	38-43	38-43	40-46

Note: *1 Cooling / Heating capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB
Heating: Indoor: 70°F (21°C) DB; Outdoor: 45°F (7°C) DB / 43°F (6°C) WB
*2 Airflow rate/sound levels are at (Low-High)

Ventilation Air: Providing sufficient ventilation air is an important part of every building design. ASHRAE standard 62 provides the minimum ventilation air requirements. Also check local codes.

Specifications are subject to change.

Ideal for closet
or attic applications.



Capacity range: 12,000 – 54,000 Btu/h

The Vertical Air Handler

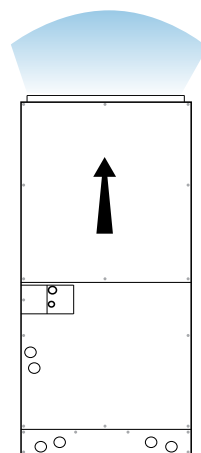
The PVFY Vertical Air Handler is ideal for installations in closets or equipment rooms where space is limited. It also has a side drain pan allowing it to be installed in a horizontal left position. The vertical air handler can be connected to a system with all other CITY MULTI indoor units for complete system design flexibility.

Other features include:

- An adjustable blower static pressure from a factory set 0.30" W.G. to 0.50" W.G.
- The blower includes three fan speeds selectable at the remote controller, allowing the occupant to fine-tune the occupant's comfort
- High efficiency DC Motors and a forward curved blower provide quiet efficient operation
- A standard plug-in connection allows easy integration with auxiliary heat when using the optional relay kit.
- The control board allows an easy connection for a condensate overflow safety switch
- The cabinets are constructed of heavy gauge pre-painted steel with one-inch insulation providing an R-4.2 insulating value
- Conversion kit now available for down flow configuration

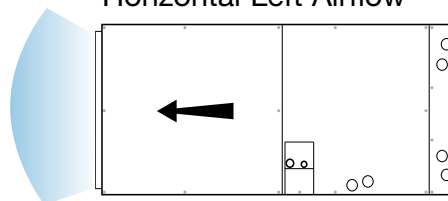


Vertical Airflow



*High efficiency
DC motor maintains
constant CFM even with
varying input voltages*

Horizontal Left Airflow



PVFY-P-E00A SPECIFICATIONS



Model Name			PVFY-P12E00A	PVFY-P18E00A	PVFY-P24E00A	PVFY-P30E00A	PVFY-P36E00A	PVFY-P48E00A	PVFY-P54E00A
Power Source			208/230V, 1-phase, 60Hz						
Cooling Capacity		Btu/h *1	12,000	18,000	24,000	30,000	36,000	48,000	54,000
Heating Capacity		Btu/h *1	13,500	20,000	27,000	34,000	40,000	54,000	60,000
Power Consumption	Cooling	kW	0.17 / 0.17	0.28 / 0.28	0.26 / 0.26	0.38 / 0.38	0.32 / 0.32	0.36/0.36	0.41/0.41
	Heating	kW	0.17 / 0.17	0.28 / 0.28	0.26 / 0.26	0.38 / 0.38	0.32 / 0.32	0.36/0.36	0.41/0.41
Current	Cooling	A	0.69 / 0.61	1.48 / 1.31	1.48 / 1.31	2.38 / 2.11	0.93 / 1.71	2.27/2.01	2.83/2.51
	Heating	A	0.69 / 0.61	1.48 / 1.31	1.48 / 1.31	2.38 / 2.11	0.93 / 1.71	2.27/2.01	2.83/2.51
Dimensions	Height	Inches	42-7/8			48-1/8		58-3/4	
	Width	Inches	17-5/8			21-1/16		24-1/2	
	Depth	Inches	21-1/16			21		21-3/4	
Net Weight	Unit	Pounds	88	98	108	115	120	160	168
Heat Exchanger			Aluminum Fin and Copper Tube						
Fan	Type x Qty.		Forward Curved Blower x 1						
	Airflow Rate *2	CFM	243-320-376	385-481-531	483-636-705	637-800-886	784-954-1057	982-1268-1405	1114-1426-1576
	External Static Pressure	In. W.G.	0.30 - 0.50 (selectable)						
	Motor Type		High Efficiency DC (Single-phase Induction Motor)						
Filter			Filter and Rack field supplied						
Refrigerant Pipe Dimensions	Low Pressure (Brazed)	Inches	1/4	1/4	3/8	3/8	3/8	3/8	3/8
	High Pressure (Brazed)	Inches	1/2	1/2	5/8	5/8	5/8	5/8	5/8
Drain Pipe Dimension	Primary	Inches	3/4 FPT						
	Secondary		3/4 FPT						
Sound Pressure Levels	Lo-Mid-Hi	dB(A)	29-31-35	29-32-36	30-33-39	31-34-38	33-38-42	36-41-45	31-34-38

Note:

*1 Cooling/Heating capacity indicates the maximum value at operation under the following conditions:

Cooling: Indoor: 80°F (27°C) DB/67°F (19°C) WB; Outdoor: 95°F (35°C) DB

Heating: Indoor: 70°F (21°C) DB; Outdoor: 47°F (8°C) DB/43°F (6°C) WB

*2 Airflow rates are at (Low-Mid-High)

Ventilation Air: Providing sufficient ventilation air is an important part of every building design. ASHRAE standard 62 provides the minimum ventilation air requirements. Also check local codes.

Specifications are subject to change.

Our CITY MULTI Controls Network makes it easy to manage your building

The CITY MULTI Controls Network (CMCN) manages up to **2,000 indoor units** from a single networked PC—operation, monitoring, scheduling (daily, weekly, and yearly), error email, personal browser, tenant billing, and maintenance diagnostic information. The CMCN puts individual, personalized comfort in the hands of the tenants and the building manager.

Flexible design for customized, individual zone control

Building owners and engineers can select from a wide variety of remote controllers and timers to satisfy the exact level of tenant control on a zone-by-zone basis, while providing the ultimate in individualized control. Each indoor unit may have one or two remote controllers or none at all.

The remote controllers allow the temperature set point to be changed along with On/Off control and fan speed adjustment. Mode selection (Cool/Heat/Dry/Fan/Auto) and vane control are also possible, depending on the remote controller and indoor unit.

The CMCN enables the room temperature to be sensed either at the remote controller in the zone or the actual indoor unit simply by changing the dip switch setting on the indoor unit. Depending on the type of remote controller, the remote controller can be physically located in the controlled zone or in a physical location different than the controlled zone to meet the customer's specific requirements.

The versatility of the CMCN customizes each building's controls network to address the specific design and tenant requirements, while providing unparalleled comfort conditioning.

Optional easy-to-use control via PC web browser

With the CMCN, you have the option to control multiple CITY MULTI systems with the AG-150/GB-50ADA/GB-24 Centralized Controller(s) from a PC's web browser. From Internet Explorer® on a PC, the building manager can now monitor, operate, and schedule (daily, weekly, and yearly) the HVAC system through the AG-150/GB-50ADA/GB-24 network. Emails can be automatically generated when an abnormal condition is detected on the system with the source address and the error code. The building manager can enable tenants to control their own individual zones via a personal web browser on their networked PC in conjunction with the AG-150 or GB-50ADA centralized controllers.

Easy installation

The CMCN uses simple, non-polar, two-wire control connections. All components are daisy-chained and addressed onto the M-NET communication bus. It all adds up to less labor and materials with quicker installation.

Single-source control for up to 2,000 indoor units

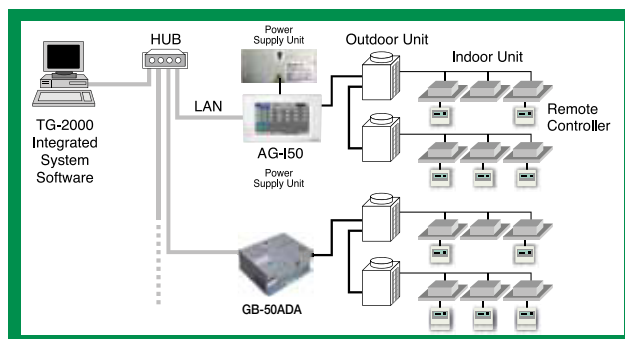
From a single networked PC configured with our TG-2000 software, you can control up to 2,000 units. Our TG-2000 integrated system software provides the ultimate in building management by allowing input of the building's floor plan with illustrative icons for the CITY MULTI indoor units. This software, in conjunction with Centralized Controllers, empowers the building manager to control the HVAC system for multiple buildings in a business park, educational campus, or retirement facility.

Tenant billing

The TG-2000 software configured with the tenant billing option and interconnected with RS-485 watt-hour meter(s) can calculate the energy consumption relative to each outdoor unit on a per-tenant basis and generate a CITY MULTI energy fee per-tenant.

System integration

Not only can our CMCN act as a stand-alone building management system, it can also integrate with existing systems via LonWorks® or BACnet® interfaces.



TG-2000 software manages up to 2,000 indoor units using centralized controllers and software licenses.





iPhone Screen Shots



iPhone Mobile Application

The meZO (Mitsubishi Electric Zone) controller App allows for the monitoring and controlling of Mitsubishi Electric HVAC systems. This level of access can be utilized by building or campus managers, maintenance personnel, building owners and homeowners to name a few.

meZO can control CITY MULTI® systems and Mr. Slim® units connected to the M-NET and controlled from one of Mitsubishi Electric's Central Controllers, AG-150, GB-50, GB-50ADA, or GB-24. The iPhone or iPod Touch's Wi-Fi connection allows meZO to communicate to the central controller across a Local Area Network (LAN). Network settings may vary from locations so check with your administrator for any login information that might be needed to access the LAN.

Each indoor unit can be monitored and controlled in terms of:

- On/Off
- Mode
- Set Temperature
- Space Temperature (monitor only)
- Fan Speed
- Vane Direction

meZO is configured through menu-driven settings that support the following:

- Multiple locations
- Multiple controllers per location
- Customizable names for indoor units

(set up may need to be done with support from the installing contractor to create the network access point or assign the indoor unit location names)

* Note that you must press the 'Refresh' button when you are viewing the Controllers to update the indoor unit's settings.

CENTRALIZED CONTROLLER AG-150



Function	Description
Touch Screen	9" high resolution color touch screen
Max No. of Indoor Units	Up to 50 indoor units can be connected
ON/OFF	On/Off operation for a single group and batch operation
Operation Mode	Cool/Dry/Auto/Fan/Heat Auto mode is available with only R2 and WR2 systems
Temperature Setting	Set temperature from 57° F - 87° F depending on operation mode and indoor unit
Fan Speed Setting	Hi/Mid-2/Mid-1/Low/Auto Available fan speed settings depending on indoor unit
Air Flow Direction Setting	Air flow angles: 100° - 80° - 60° - 40° and swing Air flow direction settings vary depending on indoor unit model
Permit/Prohibit Function	Individual prohibit operations for each remote controller function (ON/OFF, Set Temperature, Operation Mode and Filter reset)
Indoor Return Air Temperature	Displays the measured return air temperature from each group
Error Indication	Displays a 4 digit code and the affected unit address
Test Run Function	Allows indoor units to operate in test mode
Ventilation Interlock	Allows the group to be interlocked with Lossnay unit
Schedule Operation	Weekly schedule can be set by groups based on operation pattern
External Input/Output	Inputs: Level Signal-Batch Start/Stop, Batch Emergency Stop Outputs: Start/Stop Status, Error/Normal Status
Power Supply	PAC-SC51KUA
Dimensions - (W x D x H)	11-13/16" x 2-7/16" x 6-7/8"

AG-150 Software Options

(details on optional software on page 69)

SW-Mon	PC monitoring
SW-Sch	PC scheduling
SW-Email	Error email
SW-Maint	Online Maintenance Tool
SW-Charge	Tenant billing (requires TG-2000)
SW-Pweb	Personal web browser
SW-Interlock	

AG-150 Optional Accessories

Part Number	Description
PAC-YG83UTB	Electric Box (Mounting Bracket)
PAC-YG85KTB	AG-150 and Power Supply Surface Mounting Kit
PAC-YG81TB	AG-150 Surface Mounting Kit
PAC-YG71CBL	Black Surface Cover



Function	Description
Max No. of Indoor Units	Up to 50 indoor units can be connected
ON/OFF	On/Off operation for a single group and batch operation
Operation Mode	Cool/Dry/Auto/Fan/ Heat. Auto mode is available with only R2 and WR2 systems
Temperature Setting	Set temperature from 57° F - 87° F depending on operation mode and indoor unit
Fan Speed Setting	Hi/Mid-2/Mid-1/Low/Auto Available fan speed settings depending on indoor unit
Air Flow Direction Setting	Air flow angles: 100° - 80° - 60° - 40° and swing Air flow direction settings vary depending on indoor unit model
Permit/Prohibit Function	Individual prohibit operations for each remote controller function (ON/OFF, Set Temperature, Operation Mode and Filter reset)
Indoor Return Air Temperature	Displays the measured return air temperature from each group
Error Indication	Displays a 4 digit code and the affected unit address
Ventilation Interlock	Allows the group to be interlocked with Lossnay unit
Schedule Operation	Weekly schedule can be set by groups based on operation pattern
External Input/Output	Inputs: Level Signal-Batch Start/Stop, Batch Emergency Stop Outputs: Start/Stop Status, Error/Normal Status
Power Supply	100-240 VAC
Dimensions - (W x D x H)	9-7/8" x 3-7/8" x 8-9/16"

GB-50ADA Software Options *(details on optional software on page 69)*

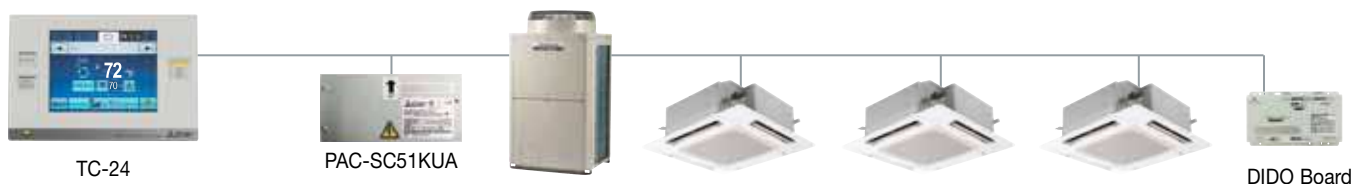
Pre-Licensed Software

SW-Mon	PC monitoring
SW-Sched	PC scheduling
SW-Email	Error email
SW-Maint	Online Maintenance Tool

Optional Software

SW-Charge	Tenant billing (requires TG-2000)
SW-Pweb	Personal web browser
SW-Interlock	

CENTRALIZED CONTROLLER TC-24



Function	Description
Max No. of Indoor Units	Up to 24 indoor units can be connected
ON/OFF	On/Off operation for a single group and batch operation
Operation Mode	Cool/Dry/Auto/Fan/ Heat/Setback. Auto mode is available with only R2 and WR2 systems
Temperature Setting	Set temperature from 57° F - 87° F depending on operation mode and indoor unit
Fan Speed Setting	Hi/Mid-2/Mid-1/Low/Auto Available fan speed settings depending on indoor unit
Air Flow Direction Setting	Air flow angles: 100° - 80° - 60° - 40° and swing Air flow direction settings vary depending on indoor unit model
Permit/Prohibit Function	Individual prohibit operations for each remote controller function (ON/OFF, Set Temperature, Operation Mode and Filter reset)
Indoor Return Air Temperature	Displays the measured return air temperature from each group
Error Indication	Displays a 4 digit code and the affected unit address
Ventilation Interlock	Allows the group to be interlocked with Lossnay unit
Schedule Operation	Weekly schedule can be set by groups based on operation pattern *requires PC Monitoring (SW-Mon) and PC Scheduling (SW-Sch)
External Input/Output	Inputs: Level Signal-Batch Start/Stop, Batch Emergency Stop Outputs: Start/Stop Status, Error/Normal Status
Power Supply	PAC-SC51KUA
Dimensions - (W x D x H)	7-8/8" x 1-3/16" x 4-3/4"



Function	Description
Max No. of Indoor Units	Up to 24 indoor units can be connected
ON/OFF	On/Off operation for a single group and batch operation
Operation Mode	Cool/Dry/Auto/Fan/ Heat/Setback. Auto mode is available with only R2 and WR2 systems
Temperature Setting	Set temperature from 57° F - 87° F depending on operation mode and indoor unit
Fan Speed Setting	Hi/Mid-2/Mid-1/Low/Auto Available fan speed settings depending on indoor unit
Air Flow Direction Setting	Air flow angles: 100° - 80° - 60° - 40° and swing Air flow direction settings vary depending on indoor unit model
Permit/Prohibit Function	Individual prohibit operations for each remote controller function (ON/OFF, Set Temperature, Operation Mode and Filter reset)
Indoor Return Air Temperature	Displays the measured return air temperature from each group
Error Indication	Displays a 4 digit code and the affected unit address
Ventilation Interlock	Allows the group to be interlocked with Lossnay unit
Schedule Operation	Weekly schedule can be set by groups based on operation pattern *requires PC Monitoring (SW-Mon) and PC Scheduling (SW-Sch)
External Input/Output	Inputs: Level Signal-Batch Start/Stop, Batch Emergency Stop Outputs: Start/Stop Status, Error/Normal Status
Power Supply	PAC-SC51KUA
Dimensions - (W x D x H)	9-7/8" x 1-1/2" x 5-1/8"

GB-24 Software Options

Pre-Licensed Software

SW-Mon	PC monitoring
SW-Sch	PC scheduling
SW-Email	Error email
SW-Maint	Online Maintenance Tool

CONTROLS NETWORK SPECIFICATIONS

Model	Local remote controller											
	PAR21MAA	PAR-F27MEA	PAC-Y151CRB	PAR-FL32MAA	AG-150 50 / 50		GB-50ADA 50 / 50		GB24 24 / 24		TC-24	TG-2000 *4*5 2000 / 2000
Controlable Groups/Indoors (Groups/Indoors)	1 / 16	1 / 16	1 / 16	1 / 16	AG-150	AG-150	GB-50	Browser *4	GB24	Browser *7		
■ Operating												
ON/OFF	○	○	○	○	○	○	▲	○	▲	○	○	○
Mode(cool/heat/dry/fan)	○	○	○	○	○	○	N	○	N	○	○	○
Temperature	○	○	○	○	○	○	N	○	N	○	○	○
Local Permit/Prohibit	N	N	N	N	○	○	N	○	N	○	○	○
Fan speed	○	○	○	○	○	○	N	○	N	○	○	○
Air-Flow	○	○	N	○	○	○	N	○	N	○	○	○
■ Status monitoring												
ON/OFF	○	○	○	○	○	○	▲	○	▲	○	○	○
Mode(cool/heat/dry/fan)	○	○	○	○	○	○	N	○	N	○	○	○
Temperature	○	○	○	○	○	○	N	○	N	○	○	○
Local Permit/Prohibit	○	○	○	○	○	○	N	○	N	○	○	○
Fan speed	○	○	○	○	○	○	N	○	N	○	○	○
Air-Flow	○	○	N	○	○	○	N	○	N	○	○	○
Indoor temperature	○	○	N	N	○	○	N	○	N	○	○	○
Filter design	○	○	N	N	○	○	N	○	N	○	○	○
Error flashing	○	○	○	○	○	○	▲	○	▲	○	○	○
Error code	○	○	○	N	○	○	N	○	N	○	○	○
Operation hour	N	N	N	N	N	N	N	○	N	○	○	●
■ Scheduling												
One-day	○	○	N	N	N	●	N	●	N	●	●	●
Times of ON/OFF per day	8	1/1	N	1/1	24	24	N	24	N	12	12	12 or 24
Weekly	○	N	N	N	○	●	N	●	N	●	●	●
Times of ON/OFF per week	8x7	N	N	N	24x7	24x7	N	24x7	N	12x7	12x7	12x7 or 24x7
Annual	N	N	N	N	N	●	N	●	N	●	●	●
Auto-off timer	○	○	N	N	N	N	N	N	N	N	N	N
Min. timer setting unit(minute)	1	10	N	10	1	1	N	1	N	1	1	1
■ Recording												
Error record	N	N	N	N	○	○	N	○	N	○	○	○
Daily/monthly report	N	N	N	N	N	N	N	N	N	N	N	○
Electricity charge	N	N	N	N	N	N	N	N	N	N	N	●
■ Other												
Temperature-set limitation	○	○	○	N	N	○*2	N	○*2	N	○*2	○*2	○
Auto-lock	○	○	N	N	N	N	N	N	N	N	N	N
■ Management (Group/Interlocked)												
Ventilation interlock	N/O	N/O	N/O	N	○	○/○*2	N	○/○*2	N	○/○*2	○	○/○
Group setting	○*1	○	○*1	N	○	○*2	N	○*2	N	○*2	○	○
Block setting	N	N	N	N	○	○*2	N	○*2	N	○*2	○	○
Revision of electricity charge	N	N	N	N	N	N	N	N	N	N	N	□●
■ Operating on LOSSNAY interlocked (Group/Interlocked)												
ON/OFF	N/O	N/O	N/O	N/O	○/○	○/○	▲/▲	○/○	▲/▲	○/○	○/○	○/○
Fan speed	N/O	N/O	N	N	○/○	○/○	N/N	○/○	N/N	○/○	○/○	○/○
Ventilation mode	N/N	N	N	N	○/N	○/N	N/N	○/N	N/N	○/N	○/N	○/N
■ Status monitoring on LOSSNAY interlocked (Group/Interlocked)												
ON/OFF	N/O	N/O	N	N	○/○	○/○	▲/▲	○/○	▲/▲	○/○	○/○	○/○
Fan speed	N/O	N/O	N	N	○/○	○/○	N/N	○/○	N/N	○/○	○/○	○/○
Ventilation mode	N	N	N	N	○/N	○/N	N/N	○/N	N/N	○/N	○/N	○/N

○ : Each group/Batched

● : GB50ADA license registration possible

▲ : Batched handling (for maintenance)

○ : Each Group

□ : BLOCK (for CITY MULTI Indoor unit,
not for all Mr. Slim

N : Not available (not used)

■ : BLOCK

△ : Batched only

*1 Group setting via wiring between indoor units with cross-over cable;

*2 Installation possible at initial setting web browser;

*3 Inter-lock is set at local remote controller.

*4 AG-150/GB-50ADA licence registration to GB-50ADA is required to monitor and operate the units by browser and TG-2000.

*5 AG-150 license registration to AG-150 is required to monitor and operate the units by browser and TG-2000.

*6 This function can be set only on the remote controller. This function cannot be used with System controller

*7 GB-24 license registration is required to monitor and operate the units by browser .

Specifications are subject to change.

The Centralized Controllers support operations that supersede control of the remote controllers and include system configuration, daily/weekly scheduling, operation, and malfunction monitoring. All Centralized Controllers are equipped with an RJ-45 Ethernet port to support interconnection with a networked PC via a closed/direct Local Area Network (LAN). Software functions are available so that the building manager can securely log into each Centralized Controller via the PC's web browser to support operation monitoring, daily/weekly/yearly scheduling, error email distribution, personal browser, and maintenance diagnostics.

Software functions for the PC include web monitoring, web scheduling, error email, personal browser, online maintenance tool, tenant billing (requires TG-2000 on dedicated PC) and BACnet (requires dedicated PC). The optional software functions are licensed per Centralized Controller.

PC monitoring (SW-Mon)

This feature enables the building manager to easily monitor and operate all 50 units from the PC's browser.



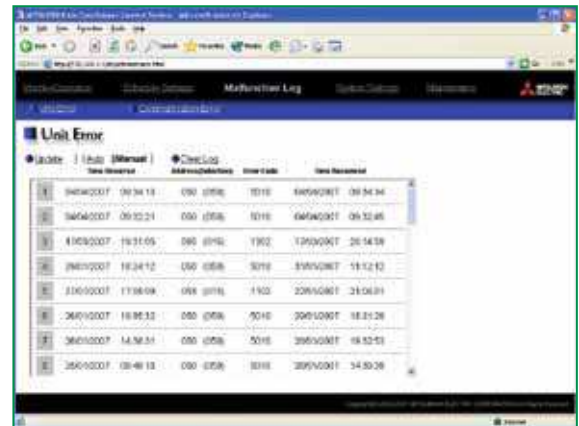
PC scheduling (SW-Sch)

This function enables the building manager to customize daily, weekly, and yearly schedules for all 50 units. Schedules can be applied to a single unit, a group of units, or collectively (batch) to all units.



Error email (SW-Email)

If an error occurs on the CITY MULTI system monitored by the Centralized Controller, the fault will be detected and isolated, and a detailed alert will be sent to the necessary personnel via real-time email. The user can then view and clear the error logs from the PC and use the information for troubleshooting.



Online maintenance tool (SW-Maint)

This capability performs maintenance diagnostics via a network PC, the Centralized Controller and Maintenance Tool software (see page 60 for more details on Maintenance Tool software).



Individual personal browser via PC web browser (SW-Pweb)

This innovation allows individual users to control their zone conditioning via personal networked PC's with or without remote controllers. Personal web browser is only supported on AG-150 and GB-50ADA Centralized Controllers.



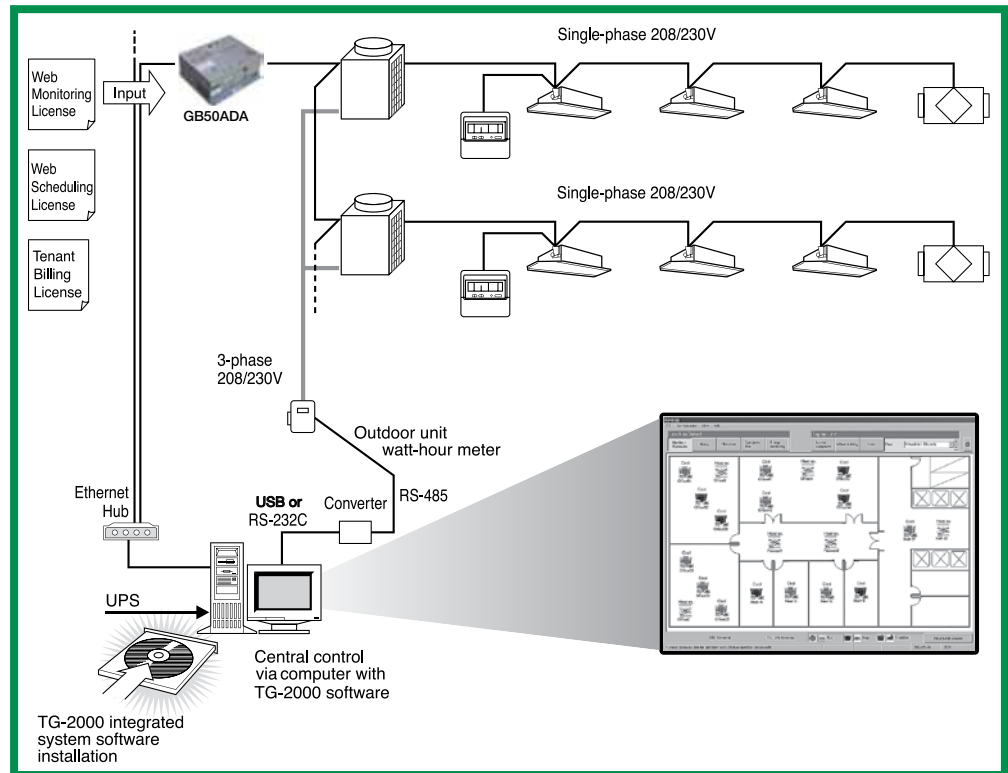
The TG-2000 integrated system software enables the user to control multiple AG-150/GB-50ADA controllers and provide enhanced functions from a single, dedicated networked PC configured with the TG-2000 software and AG-150/GB-50ADA software licenses. The TG-2000 configured PC is capable of controlling up to 2,000 indoor units with the AG-150/GB-50ADA Centralized Controllers.

Additional software features are available through the TG-2000 software including tenant billing.

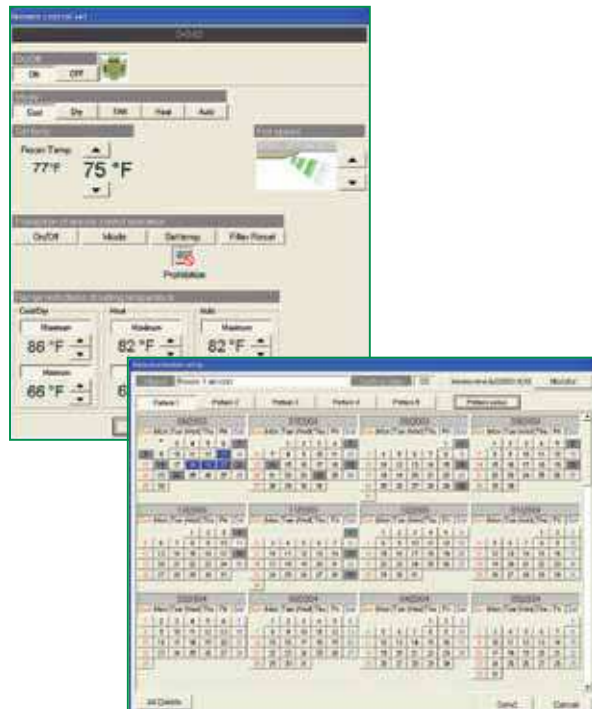
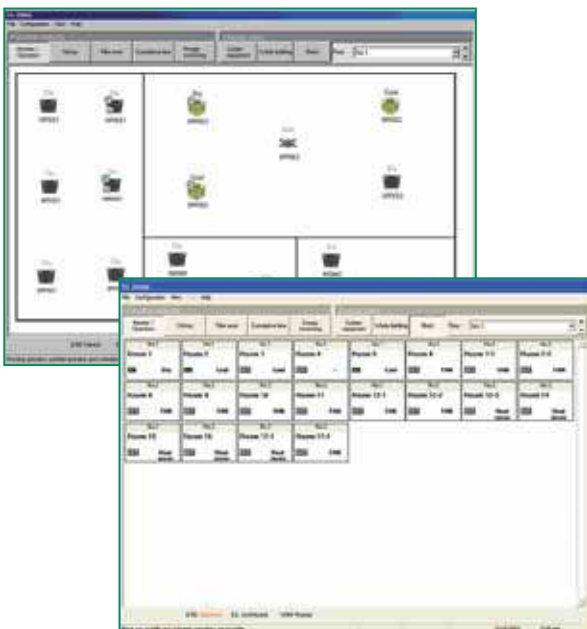
Tenant billing

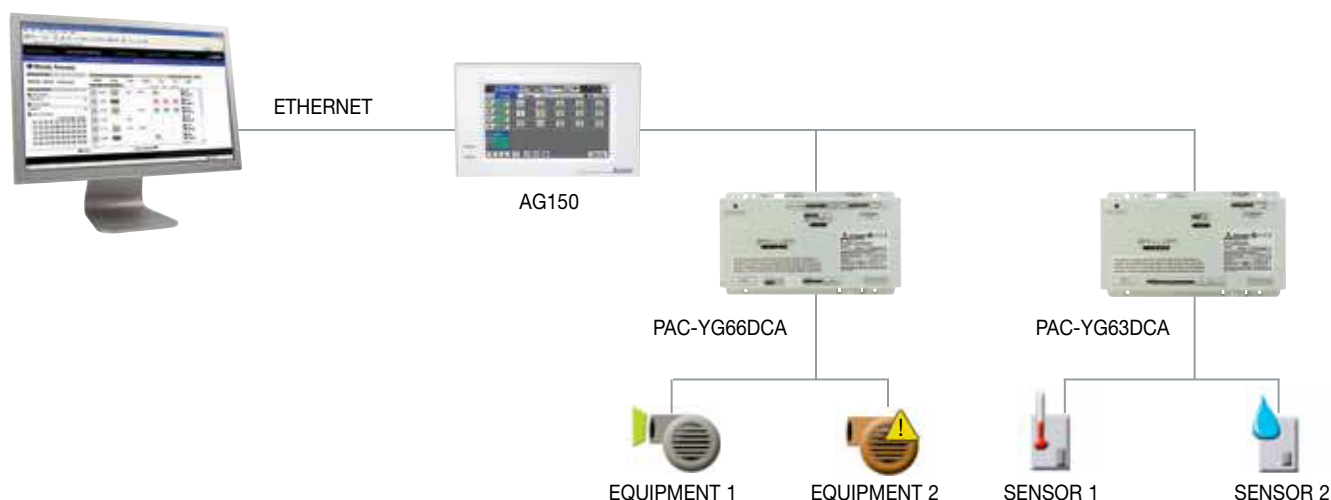
(requires AG-150, GB-50ADA and SW Charge software license)

The tenant billing function of TG-2000 will output the HVAC energy consumption fee in kWh and monetary amount for the CITY MULTI outdoor unit(s) divided among defined blocks of indoor units. The tenant billing function requires that a RS-485 WHM monitor the energy consumption of one or more CITY MULTI outdoor units and be interconnected to the TG-2000 computer via a RS-485/RS-232C or RS-485/USB converter. The tenant billing output can be sent directly to a networked printer and/or to a destination folder on the TG-2000 PC as an Excel® file. This tenant billing output can then be input into an Excel-based



support tool to generate an individual *HVAC Energy Fee* per tenant. The format of this *HVAC Energy Fee* can be customized.





PAC-YG66DCA Digital Input Digital Output (DIDO) Control Board

The DIDO controller used in conjunction with a AG-150, GB-50ADA, GB-24 or TC-24 Centralized Controller can control and monitor third-party general equipment.

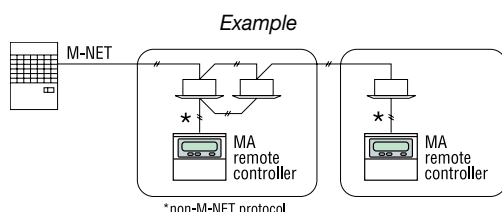
Function	Description
Inputs	Qty 2 analog inputs (non-voltage contacts)
Outputs	Qty 2 digital outputs (non-voltage relay contact) Use only VDC with outputs
Monitor	Status, Fault Requires AG-150, GB-50ADA, GB-24 or TC-24 Centralized Controller
Control	On/Off, Start/Stop, Enable/Disable Requires AG-150, GB-50ADA, GB-24 or TC-24 Centralized Controller
Schedule Operation	Weekly schedule can be set by groups based on operation pattern Requires AG-150, GB-50ADA, GB-24 or TC-24 Centralized Controller
Interlock Function	Interlock M-NET devices and output contacts according to status of input contacts
Power Supply	24 VDC (5W plus loads)
Communication	M-NET
Dimensions - (W x D x H)	7-7/8" x 1-13/16" x 4-3/4"

PAC-YG63MCA Analog Input (AI) Control Board

The AI controller used in conjunction with a AG-150, GB-50ADA, or GB-24 Centralized Controller can monitor and trend temperature and humidity from a field supplied temperature or humidity sensor.

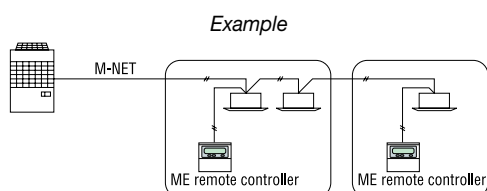
Function	Description
Inputs	Qty 2 analog inputs (0/10 VDC, 4/20 mA, 1-5 VDC)
Monitor	Temperature and/or Humidity Requires AG-150, GB-50ADA, or GB-24 Centralized Controller and field supplied sensor
Interlock Function	Interlock M-NET devices and output contacts according to measured values on inputs
Alarms	Generate alarm based on user defined high and low limits
Power Supply	24 VDC (5W)
Communication	M-NET
Dimensions - (W x D x H)	7-7/8" x 1-13/16" x 4-3/4"

Deluxe MA Remote Controller (PAR-21MAA)



- Features user-friendly multilingual operation and monitoring
- Controls up to 16 indoor units in a single group
- User Functions: Allows user to set:
 - On/Off
 - operation modes of Cool, Heat, Dry, Fan, or Auto (R2-Series only), ventilation
 - set temperature from 57° F – 87° F, depending on operation mode and indoor unit
 - fan speed setting
 - airflow direction
- Timer Operation: Supports Weekly Timer operation (On/Off/Set Temperature). Supports Auto-Off Timer
- Room Temperature: Displays room temperature sensed either at the Remote Controller or at the indoor unit
- Set Temperature Range Limit: Reduces the allowable set temperature range in Cool or Heat modes from Remote Controller
- Function Lock Out: Prohibits all functions or all functions except On/Off
- Diagnostics: Displays four-digit error code
- Grouping: Can only be used in same group with other PAR-21MAA Deluxe MA Remote Controllers and PAC-YT51 Simple MA remote controllers, with up to two remote controllers per group
- Addressing: No addressing required
- Wiring: Connects using two-wire, stranded, non-polar control wire to TB15 connection terminal on the indoor unit Requires cross-over wiring for grouping across indoor units
- Dimensions: 5-1/8" x 3/4" x 4-3/4"

ME Remote Controller (PAR-F27MEA)

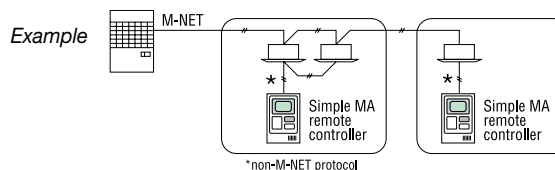


- Features user-friendly operation and monitoring
- Controls up to 16 indoor units in a single group
- User Functions: Allows user to set:
 - On/Off
 - operation modes of Cool, Heat, Dry, Fan, or Auto (R2-Series only), ventilation
 - set temperature from 57° F – 87° F, depending on operation mode and indoor unit
 - fan speed setting
 - airflow direction
- Timer Operation: Supports repeated daily timer operation of one On/Off setting repeated every day and an Auto-off timer
- Room Temperature: Displays room temperature sensed either at the Remote Controller or at the indoor unit
- Set Temperature Range Limit: Reduces the allowable set temperature range in Cool or Heat modes from Remote Controller or PC
- Function Lock-Out: Prohibits all functions or all functions except On/Off
- Diagnostics: Displays four-digit error code and error unit address
- Grouping: Can be used only in same group with a total of two PAR-F27MEA (ME Remote Controllers) per group
- Addressing: Requires manual addressing using rotary dial switch to the M-NET communication bus
- Wiring: Connects using two stranded, non-polar control wires to TB5 connection terminal on the indoor unit
- Dimensions: 5-1/8" x 3/4" x 4-3/4"

Simple MA Remote Controller (PAC-YT51CRB)



- Features user-friendly operation and monitoring
- Controls up to 16 indoor units in a single group
- User Functions: Allows user to set:
 - On/Off
 - operation modes of Cool, Heat, Dry, Fan, Auto (R2-Series only), Ventilation
 - fan speed setting
 - set temperature from 57° F - 87° F, depending on operation mode and indoor unit
- Grouping: Can be used only in same group with other PAC-YT51 (Simple MA Remote Controller) and PAR-21MAA (Deluxe MA Remote Controller) with up to two remote controllers per group
- Addressing: No addressing required
- Set Temperature Range Limit: Reduces the allowable set temperature range in Cool or Heat modes from Remote Controller
- Diagnostics: Displays four-digit error code and error unit address
- Wiring: Connects using two stranded, non-polar control wires to TB15 connection terminal on the indoor unit Requires crossover wiring for grouping across indoor units
- Dimensions: 2-3/4" x 1-5/8" x 4-3/4"



Wireless MA Remote Controller (PAR-FL32MA) and Receiver (PAR-FA32MA)



- Features user-friendly operation and monitoring
- Controls up to 16 indoor units in a single group
- User Function: Allows user to set:
 - On/Off
 - operation modes of Cool, Heat, Dry, Fan or Auto (R2-Series only)
 - set temperature from 57° F – 87° F, depending on operation mode and indoor unit
 - fan speed setting
 - airflow direction
- Grouping: Can be used only in same group with PAC-YT51 (Simple MA Remote Controller), PAR-21MAA (Deluxe MA Remote Controller), and other PAR-FL32MA (Wireless MA Remote Controllers)
- Addressing: No addressing required
- Wiring: Connects using two stranded, non-polar control wires to TB15 connection terminal on the indoor unit. Requires crossover wiring for grouping across indoor units
- Dimensions: Remote (2-5/16" x 3/4" x 5-1/4"), Receiver (2-3/4" x 7/8" x 4-12/16")

(Receiver (PAR-FA32MA) not shown)

On/Off Controller (PAC-YT40ANRA)



- On/Off Control for up to 16 Groups (max. of 50 indoor units)
- Collective On/Off Button turns all units on/off; collective LED displays if any units are on, off, or in error
- Individual On/Off Button for 16 groups of indoor units; Turns individual group on/off; Individual LED displays if any units in the group are on, off, or in error
- Diagnostics: Flashing LED indicates error. Displays four-digit error code
- Addressing: Requires manual addressing using rotary dial switch to the M-NET communication bus (default address is 201)
- Wiring: Connects to TB7 connection terminal on outdoor unit via PAC-SC50KUA power supply or connects to TB3 connection terminal on outdoor unit
- Dimensions: 5-1/8" x 3/4" x 4-3/4"
- Recommended to be used in conjunction with PAR-21MAA Deluxe MA Remote Controllers or PAR-F27MEA ME Remote Controllers for temperature and mode setting
- Expandability: External input signal can be used for batch operation such as Emergency Stop, On/Off, or On/Off plus prohibit of local remote controller operation, external output signal for collective operation state or error state

Schedule Timer (PAC-YT34STA)



- Schedules up to 50 indoor units. Maximum number of indoor units per one group is 16. Maximum number of groups is 50
- Use only in conjunction with PAR-21MAA (Deluxe MA Remote Controllers) or PAR-F27MEA (ME Remote Controllers)
- Scheduling: Supports up to nine patterns with up to 16 operations per pattern; operations include On/Off, mode selection (Cool, Heat), set temperature, and prohibition of remote controller functions (On/Off, operation mode change, and set temperature adjustment); patterns are applied to each group of indoor units on a per-day basis; minimum time interval is five minutes
- Diagnostics: Displays four-digit error code and error unit address
- Addressing: Requires manual addressing using rotary dial switch to the M-NET communication bus.
- Wiring: Connects to TB7 connection terminal on outdoor unit with the PAC-SC50KUA power supply or connects to TB3 connection terminal on outdoor unit
- Dimensions: 5-1/8" x 3/4" x 4-3/4"
- Expandability: Can be used in conjunction with AG-150 Centralized Controller, which has higher priority but requires change in dip-switch setting. Can be used in conjunction with external input/output signals

SYSTEM INTEGRATION: LONWORKS® AND BACNET®

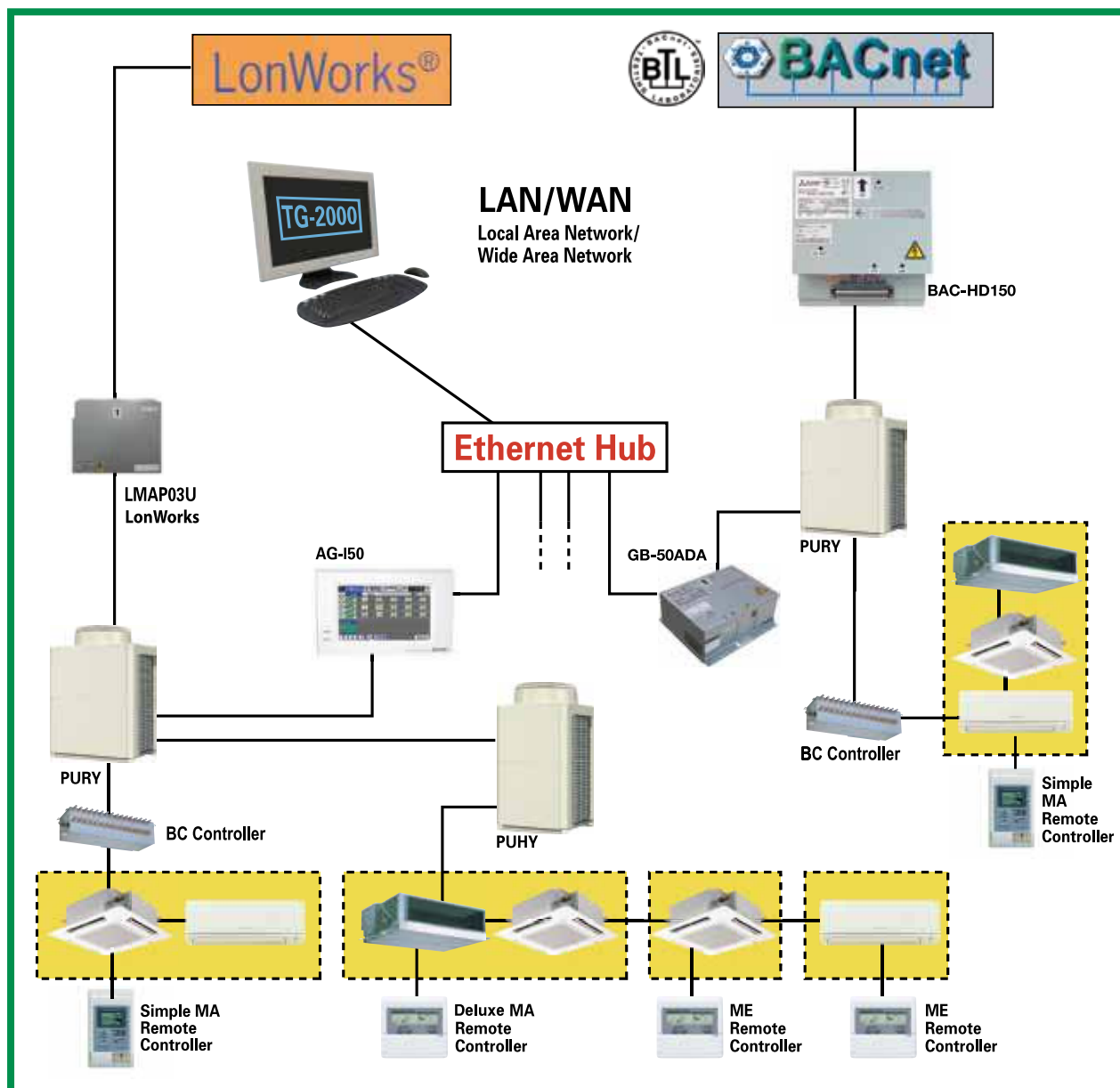
The CMCN supports integration with Building Management Systems (BMS) via our LonWorks® and BACnet® interfaces.

LonWorks® Interface

The Mitsubishi Electric HVAC LonWorks® interface, LMAP03U, supports up to 50 indoor units with a variety of network variables on a per indoor unit basis. Input variables include, but are not limited to: On/Off, Operation Mode, Fan Speed, Prohibit Remote Controller, and Filter Sign Reset. Output variables include but are not limited to: Model Size, Alarm State, Error Code, and Error Address.

BACnet® Interface

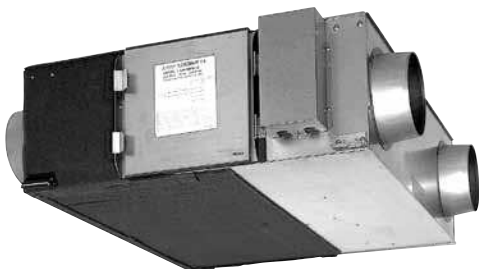
The Mitsubishi Electric HVAC BACnet® gateway, BAC-HD150, is compliant with BACnet®/IP (ANSI/ASHRAE 135-2004) and is BTL® Listed. Each BAC-HD150 can support up to 50 indoor units with a variety of object types. Operation and monitoring points available include ON/OFF, mode, space temperature set point, prohibition of remote controller functions, error codes and alarms.



Lossnay energy recovery ventilators provide outdoor air solutions for indoor environmental quality.



See the Lossnay Technical Brochure for complete information.



Model	CFM	Model	CFM
LGH-F300RX3-E	300	LGH-F470RX3-E	470
LGH-F600RX3-E	600	LGH-F1200RX3-E	1,200

Improved sound attenuation makes Lossnay® units quiet enough for places where silence is a must, such as meeting rooms and libraries. A free-cooling function is standard to help reduce costs and boost efficiency. The integrated bypass damper design makes installation and system management quick and efficient.

Interlock simply, effectively, and economically

Because the M-NET adapter comes as standard equipment, networking systems connected with Mitsubishi Electric air conditioners has never been easier. There is no need to purchase additional parts. Systems can be assembled simply and logically, reducing construction times and keeping initial costs low.



PZ-41SLB-E

Bypass auto ventilation standard

Lossnay models offer three ventilation modes:

- Energy Recovery - Heat Exchange
- Bypass - No Exchange
- Automatic - Heat Exchange/Bypass

With conventional ERVs, bypass ventilation was impossible without attaching additional dampers and adapters. With the LGH-F-RX3-E series, however, this mode is available without the use of other parts. An automatic mode allows the system to select recovery or bypass as required. Mode selection is easy when interlocked with M-NET systems using the PZ-52SF remote controller, which is sold separately. When using Lossnay independently, the separately sold PZ-41SLB remote controller provides mode selection.

System compatibility

The LGH-F-RX3-E series is fully compatible with Mitsubishi Electric's TG-2000 software, LMAP LonWorks® interface and BACnet® interface, further increasing the scope of total system management.

Multi-function LCD remote controller

These ERV remote controllers are compact and attractive. In addition to controls for ON/OFF, Run mode, and Ventilation mode, the time period for filter maintenance is also displayed. The liquid crystal display has been designed for easier visibility. The Lossnay M-NET controller, model PZ-52SF-E, can control up to 16 Lossnay units in a single group.



PZ-52SF-E

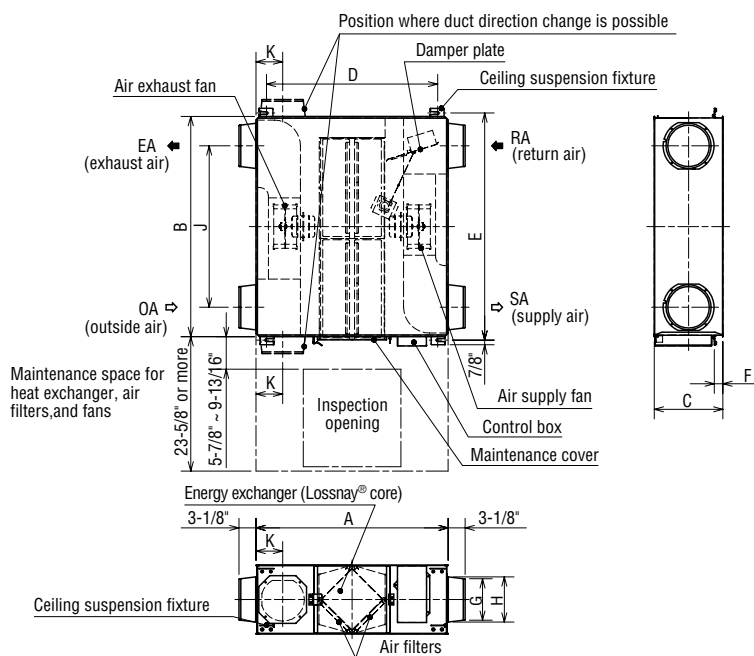
LOSSNAY ENERGY® SPECIFICATIONS

Model Name		LGH-F300RX3-E			LGH-F470RX3-E		
Power supply		Single-phase 208/230V 60Hz			Single-phase 208/230V 60Hz		
Fan Speed		Extra high	High	Low	Extra high	High	Low
Current (A)		1.3	1.1	0.6	2.5	2.4	1.7
Power consumption (W)		278	260	146	560	525	375
Air volume (CFM)		300	300	180	470	470	380
External static pressure (in. H2O)		0.65	0.10	0.02	0.96	0.78	0.51
Temperature recovery efficiency (%)		69	70	77	69	69	72
Enthalpy recovery efficiency (%)	Heating	62	64	71	62	62	65
	Cooling	44	46	55	44	44	48
Sound level (dB[A])	Measured 59 in. under center of panel	36	32	25	39	37	31.5
	Air Outlets	44	40	31	50.5	48.5	40.5
Filter		Washable filter (4)					
Starting current		Under 14A					

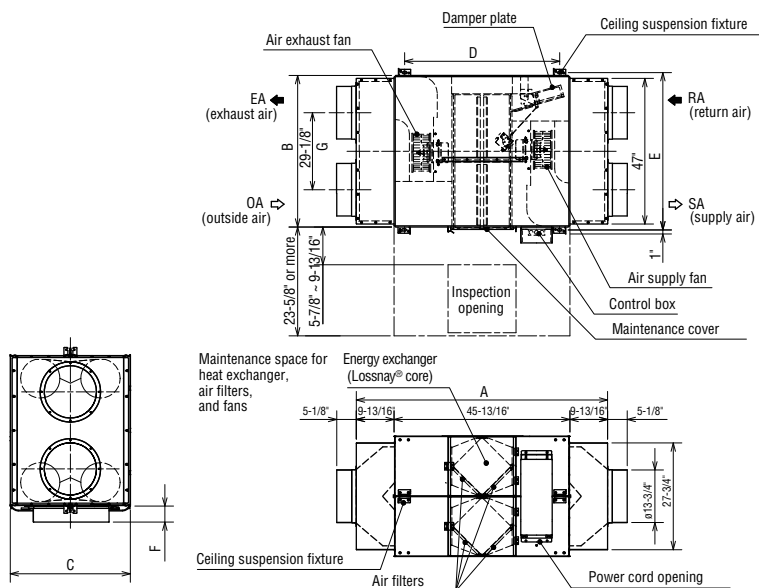
Model Name		LGH-F600RX3-E			LGH-F1200RX3-E		
Power supply		Single-phase 208/230V 60Hz			Single-phase 208/230V 60Hz		
Fan Speed		Extra high	High	Low	Extra high	High	Low
Current (A)		2.9	2.6	1.7	5.7	5.6	3.6
Power consumption (W)		654	600	310	1290	1200	810
Air volume (CFM)		600	600	430	1200	1200	800
External static pressure (in. H2O)		0.80	0.48	0.24	0.75	0.43	0.20
Temperature recovery efficiency (%)		69	70	75	69	70	76
Enthalpy recovery efficiency (%)	Heating	62	63	69	62	63	69
	Cooling	44	47	53	44	47	53
Sound level (dB[A])	Measured 59 in. under center of panel	39	37	30	41	39	32
	Air Outlets	47	45	37	52	49	41
Filter		Washable filter (4)					



Model	Dimensions			Ceiling suspension fixture pitch			Nominal diameter	Duct connecting flange		Duct pitch		Weight
	A	B	C	D	E	F		G	H	J	K	
LGH-F300RX3-E	34-15/16	40	12-1/2	31-1/8	41-1/4	1-9/16	ø8	ø7-9/16	ø8-3/16	29-5/16	4-7/8	73 lb
LGH-F470RX3-E	45-13/16	39-1/2	15-11/16	40-9/16	40-13/16	3/8	ø10	ø9-1/2	ø10-3/16	27-3/16	5-7/8	143 lb
LGH-F600RX3-E	45-13/16	48-7/16	15-11/16	40-9/16	49-3/4	3/8	ø10	ø9-1/2	ø10-3/16	36-3/16	5-7/8	159 lb

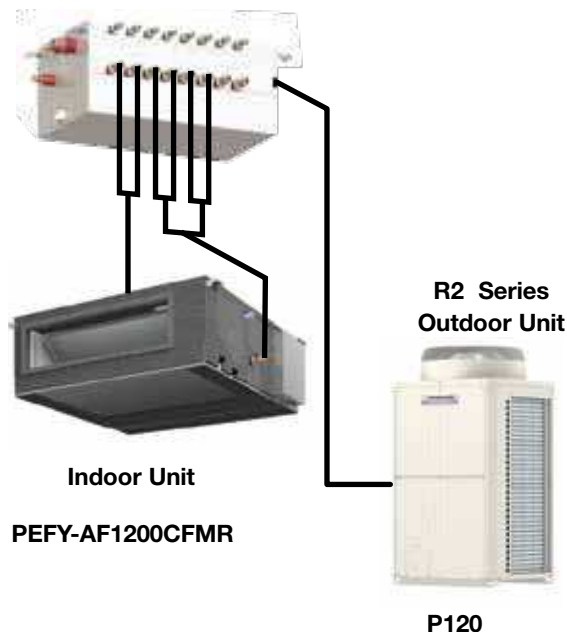
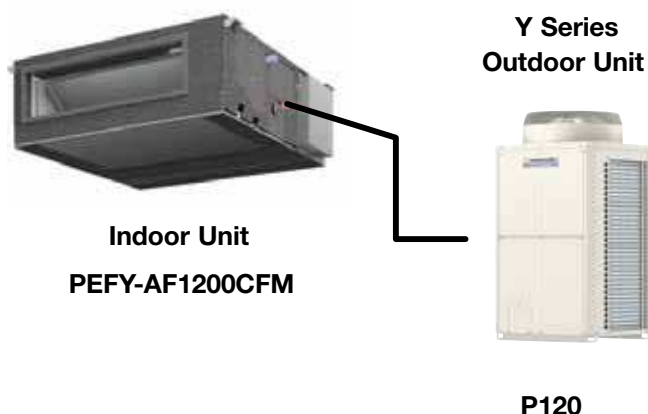


Model	Dimensions			Ceiling suspension fixture pitch			Nominal diameter	Duct connecting flange		Duct pitch		Weight
	A	B	C	D	E	F		G	H	J	K	
LGH-F1200RX3-E	65-7/16	48-7/16	31-1/2	40-9/16	50-1/8	8-3/4	ø14	ø13-3/4	29- 1/8	395 lb	4-7/8	73 lb



Dedicated Outdoor Air System (DOAS) without reheat and with reheat

The PEFY-AF Dedicated Outside Air System comes in two configurations, the CFM and the CFMR. Both configurations offer a high capacity coil that will condition incoming outside air, making it suitable to be distributed to down-stream fan coil units.



CITY MULTI DOAS without reheat consists of:

- One PEFY-AF1200CFM indoor unit
- One PUHY-P120TJMU or PUHY-P120YJMU outdoor unit
- One PAR-21MAA wired remote controller and/or centralized control

PEFY-AF1200CFM (For use with the PUHY-P120):

- Large DX coil with high latent capacity
- Entering air temperature and humidity sensors factory installed
- 50° F to 70° F saturated air available in cooling mode
- Multiple external static pressure setpoints up to 1.04"
- Single-speed 1200 CFM fan
- Thin 18-9/16" high cabinet installs in small areas
- Drain lift mechanism up to 21-11/16" included as standard

CITY MULTI DOAS with reheat consists of:

- One PEFY-AF1200CFMR indoor unit
- One PURY-P120TJMU or PURY-P120YJMU outdoor unit
- One CMB-P106NU-G or CMB-P108NU-G branch controller
- One PAR-21MAA wired remote controller and/or centralized control

PEFY-AF1200CFMR (For use with the PURY-P120):

- Reheat capabilities using recovered energy from cooling through the branch controller
- Two DX coils for both cooling and reheating outside air
 - Primary coil: Large DX coil with high latent capacity
 - Secondary coil: Smaller coil for providing heating or reheating
- Multiple external static pressure setpoints up to 0.96"
- Single-speed 1200 CFM fan
- Thin 18-9/16" high cabinet installs in small areas
- Drain lift mechanism up to 21-11/16" included as standard

Model			PEFY-AF1200CFM	PEFY-AF1200CFMR
Power Source			208/230V, 1-phase, 60Hz	
Cooling Capacity *1		Btu/h	112,000	112,000
Heating Capacity *1		Btu/h	61,400	61,400
Reheat Capacity		Btu/h	-	24,200
Power Consumption	Cooling	W	660 / 780	
	Heating	W	660 / 780	
Current	Cooling	A	3.19 / 3.45	
	Heating	A	3.19 / 3.45	
External Finish			Galvanized-steel Sheets	
Dimensions	Height	In.	18-9/16	
	Width	In.	49-1/4	
	Depth	In.	55-1/8	
Net Weight	Unit	Pounds	287	309
Heat Exchanger			Cross Fin (Aluminum Fin and Copper Tube)	
Fan	Type x Quantity		Sirocco x 2	
	Airflow Rate *2	CFM	1,200	
	External Static Pressure *3	In.WG	0.40 - 0.60 - 0.88 (208V)	0.28 - 0.48 - 0.80 (280V)
			0.64 - 0.80 - 1.04 (230V)	0.52 - 0.72- 0.96 (230V)
	Motor Type			
	Motor Output	W		
Air Filter				
Main Coil Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.		
	High Pressure (Brazed)	In.		
Reheat Coil Refrigerant Pipe Dimensions	Low Pressure (Brazed)	In.	7/8	
	High Pressure (Brazed)	In.	3/8	
Drainpipe Dimensions (O.D.)		In.		
Sound Pressure Levels *3	Low-Mid-High	dB(A)		
			39 - 41 - 43 (230V)	
Operating Temperature Range	Cooling	50° F WB to 95° F WB (109° F DB) (10°C WB to 35°C WB [43°C DB])		
	Heating	-4° F WB to +60° F WB (-20°C WB to +16°C WB)		
Connectable Outdoor Units			PUHY-P120TJMU (-BS), PUHY-P120YJMU (-BS) PUHY-P120THMU PUHY-P120YHMU	PURY-P120TJMU (-BS), PURY-P120YJMU (-BS) PURY-P120THMU PURY-P120YHMU



MAINTENANCE TOOL SOFTWARE OVERVIEW

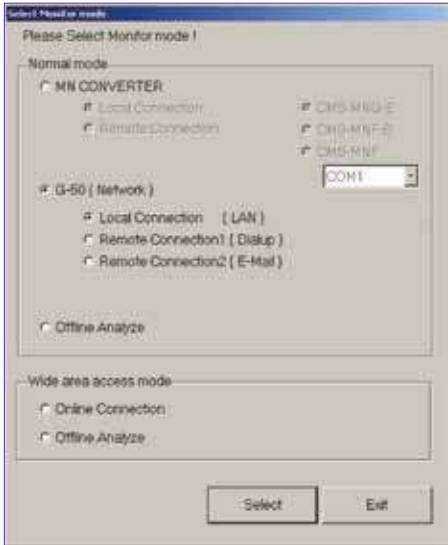
Mitsubishi's easy-to-use, Windows® based Maintenance Tool software allows technicians to monitor and collect CITY MULTI system data and control various functions of the system for maintenance purposes. System monitoring is accomplished through direct connection between your PC and the M-NET bus line using the MN-Converter or by connecting remotely to a system centralized controller, such as the AG-150 or GB-50ADA via a TCP/IP network, or via a remote dialup connection.

Use Maintenance Tool software to monitor pressure and temperature readings from CITY MULTI system sensors, display and control system LEV settings and display and remotely control all connected indoor units.

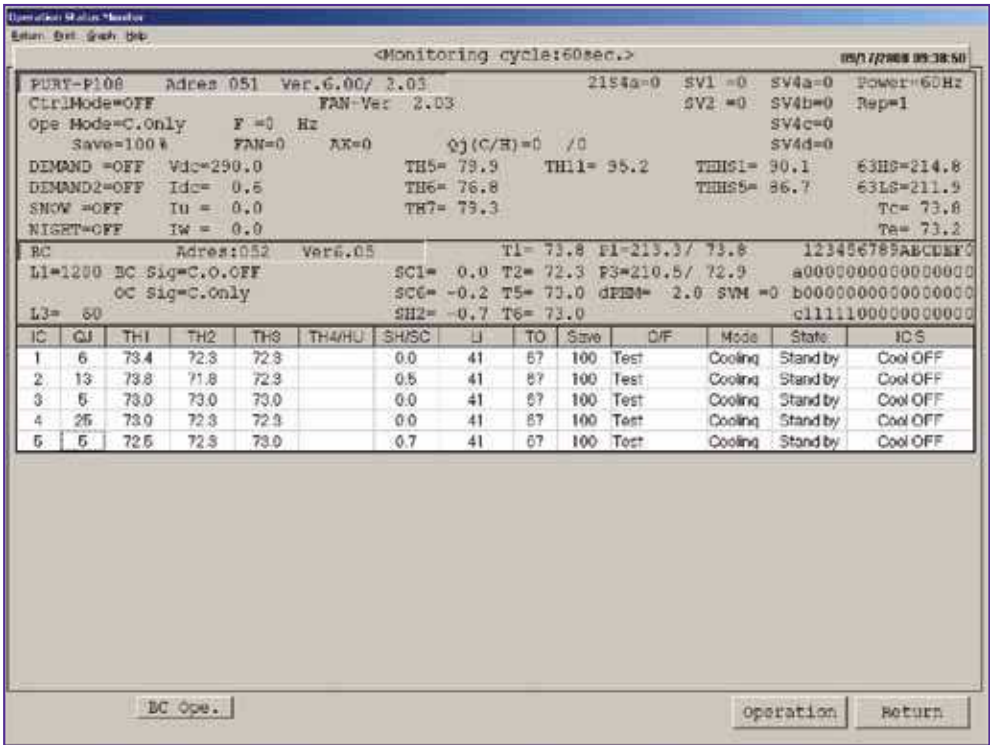
Maintenance Tool software also allows the technician to record and save system monitor data for the purposes of trending and system analysis off site as well as display malfunction logs and email error reports to personnel responsible for servicing the system.



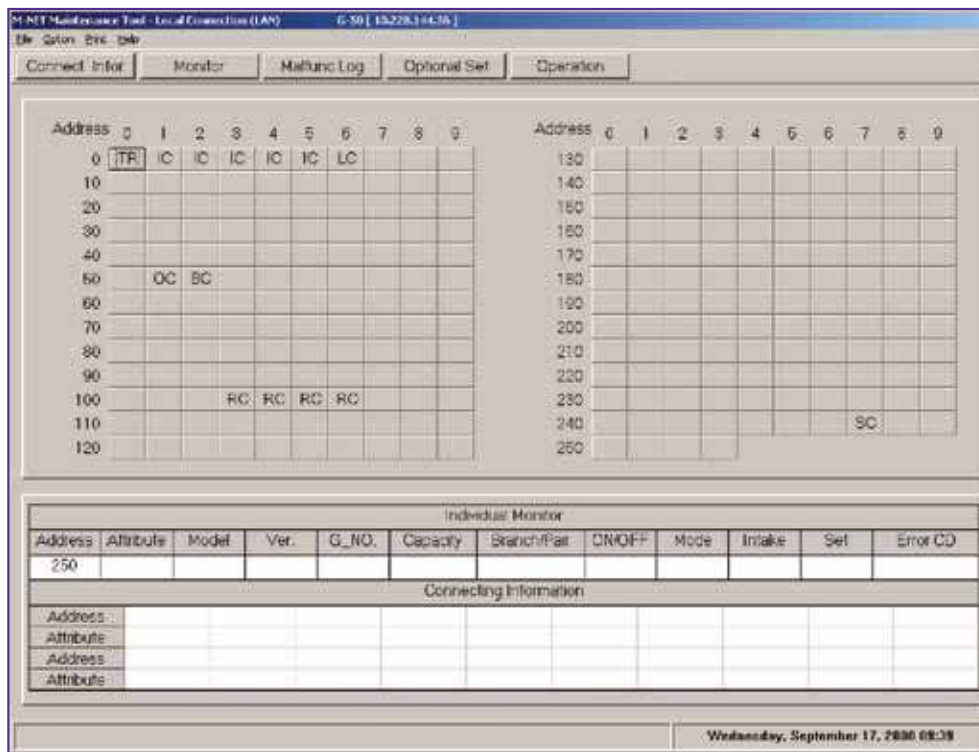
MN Converter (CMS-MNG-E)



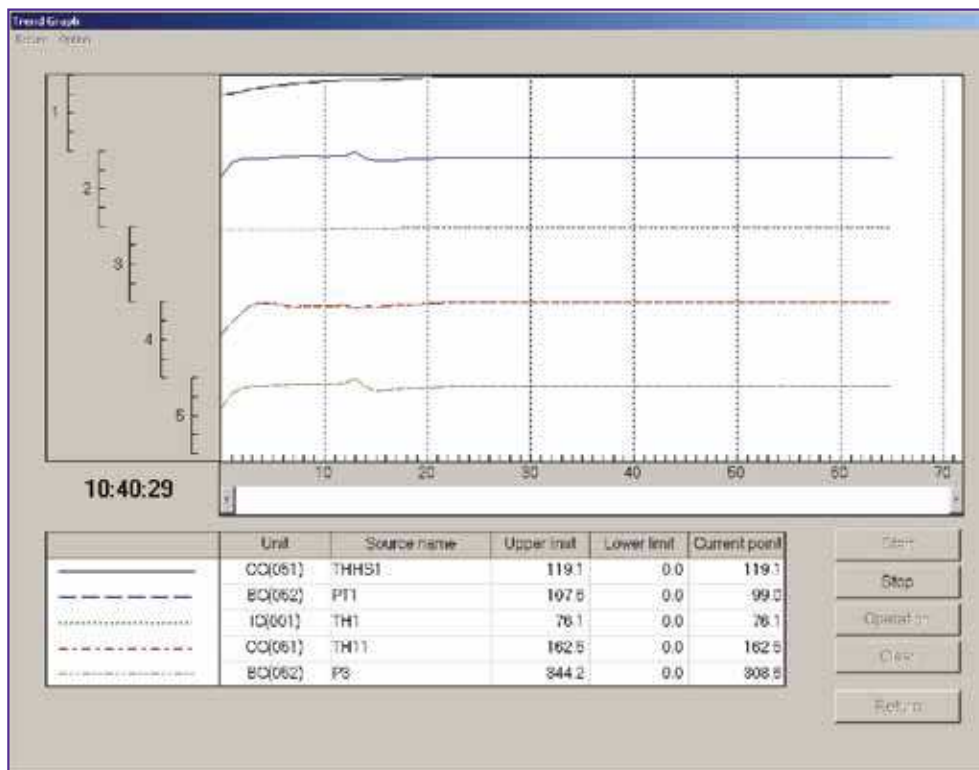
The mode select screen allows the user to select the method for connection to the CITY MULTI system, whether direct or remotely, or choose to analyze previously recorded data off-line.



The operation status monitor screen displays the operational data for the connected system including system pressures, temperatures, LEV settings, compressor frequency, current operational mode, and more. Pre-recorded data can also be viewed in and off-line version of this screen.



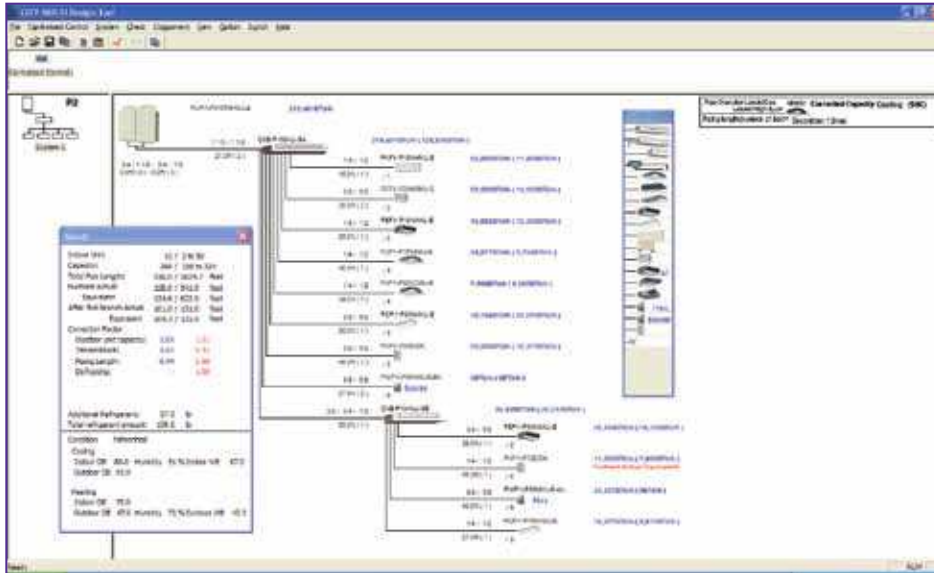
The system connection information view shows a snapshot of the components connected to the system, identifying each component's type and system address. Through a simple series of clicks, the user can monitor the critical data points for each component, manipulate the control features and operate each component, or view each component's malfunction log.



Maintenance Tool allows the user to identify and select specific points to monitor and graph over time for the purposes of data trending and system diagnostics.

DESIGN TOOL SOFTWARE OVERVIEW

Mitsubishi's Design Tool software makes designing with CITY MULTI quick and easy. The designer just needs to drag and drop components to complete the design. The program has built-in safeguards against exceeding limitations and shows if there is an error. Assuring line lengths, maximum connected capacities, component selection, control scheme, etc. are within the system requirements.



Equipment Name	Capacity	Other Parameters
Indoor Unit 1	10.0	...
Indoor Unit 2	10.0	...
Indoor Unit 3	10.0	...
Indoor Unit 4	10.0	...
Indoor Unit 5	10.0	...
Indoor Unit 6	10.0	...
Indoor Unit 7	10.0	...
Indoor Unit 8	10.0	...
Indoor Unit 9	10.0	...
Indoor Unit 10	10.0	...

Similar to the equipment section, the controls and Lossnay ERVs can be set up by selecting their styles and dragging and dropping them into the design. Interlocking component operation is done with the click of a mouse.

System design conditions such as indoor and outdoor design conditions are easily entered for both heating and cooling. Also, the customer and project name can be entered to identify the job on the outputs.

Mitsubishi Electric Air Conditioning & Refrigeration Systems
Works acquired ISO 9001 certification under Series 9000 of the international Standard Organization (ISO), based on a review of quality warranties for the production of refrigeration and air conditioning equipment.

ISO Authorization System

The ISO 9000 series is a plant authorization system relating to quality warranties as stipulated by the ISO. ISO 9001 certifies quality warranties based on the "design, development, production, installation and auxiliary services" for products built at an authorized plant.

Mitsubishi Electric Air Conditioning & Refrigeration Systems

Works acquired environmental management system standard ISO 14001 certification.

The ISO 14000 series is a set of standards applying to environmental protection set by the International Standard Organization (ISO).



Mitsubishi Electric & Electronics USA, Inc.
www.mitsubishipro.com



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See complete warranty for terms, conditions, and limitations. A copy is available from Mitsubishi Electric, 3400 Lawrenceville Suwanee Road, Suwanee, GA 30024

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