



2020

Product Catalogue

Market leading solutions to **cool, heat,**
ventilate & control the nation's buildings

M&E Edition

les.mitsubishielectric.co.uk

Welcome to Mitsubishi Electric

Mitsubishi Electric is a market leader in providing solutions to cool, heat, ventilate and control our buildings.

As a major manufacturer of some of these pivotal technologies, we hold the UK's energy challenges close to our heart. We want to help the nation achieve its climate goals; we want to help individuals and businesses reduce the energy consumption of their buildings, whilst also helping to reduce their annual running costs.

At Mitsubishi Electric, we are constantly evolving and today our areas of expertise go way beyond the advanced air conditioning systems that formed the foundation of our business. Here in the UK, we provide advanced solutions that cool, heat, ventilate and control buildings in the most energy efficient and cost-effective ways possible. Through technical expertise, experience and an innovative product range, we enable buildings everywhere to significantly improve energy efficiency, reduce running costs and adhere to increasingly tough legislation. **We also provide a variety of additional services and benefits to our customers which include:**

- Product training and technical support
- CPD guides and presentations
- Apps and tools
- Contractor Partner Programme
- Design and consultancy services
- Finance initiatives

Working towards a better use of energy in buildings

Mitsubishi Electric's global framework for realising a sustainable planet - **Environmental Vision 2021** - is translated in the UK into our **Green Gateway philosophy**, which is central to the way we do business. With this initiative, we are seeking to use our position as a manufacturer of key technologies to increase awareness and improve energy use in the built environment.

By constantly challenging everyone involved to combat the issues we all face and encouraging constructive dialogue throughout the industry, we aim to help everyone address their energy use and to work towards a more sustainable future. Working within the construction industry in this way we are continually developing energy efficient cooling, heating and ventilation solutions - all managed by the most advanced control systems available.



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Chillers

A new generation of energy saving
and innovative chiller technology





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The Innovative Chiller Range

Mitsubishi Electric has manufactured chillers for over 40 years and in 2015 combined this extensive experience with advanced component technology from the commercial air conditioning sector to produce the e-series modular chiller range.

Later the same year, Mitsubishi Electric purchased Climaveneta, enhancing our product line up and marking our full scale entry into the chiller market.



e-series

Climaveneta is a strong European brand, supported by 45 years of customer trust and high quality production. Its range of energy-saving, low-noise and innovative chiller technology further expands the application and customisation capabilities we are now able to offer.

Through our technical expertise, long experience and innovative product range, we enable building operators everywhere to significantly improve energy efficiency, reduce running costs and adhere to increasingly tough legislation.

**We believe that global climate challenges need local solutions.
Our aim is to help individuals and businesses reduce the energy consumption of their buildings and their running costs.**



CLIMAVENETA
SUSTAINABLE COMFORT

Our Modular Chiller Range

Chiller systems have been used for decades to deliver controlled cooling to buildings, but with increasing pressure on energy efficiency and running costs, we now need a low-carbon, flexible and cost effective option.

Comprising of Cooling Only and Heat Pump models, **Mitsubishi Electric's e-series modular chiller range** allows up to six individual units to be connected together to provide a system capacity from 90kW to 1,080kW.



The benefits of Mitsubishi Electric's e-series modular chiller range:

■ High efficiency

The e-series modular chiller range uses highly efficient scroll compressor technology from our City Multi VRF units, along with advanced inverters and controls to deliver exceptional efficiency and a wide operating range.

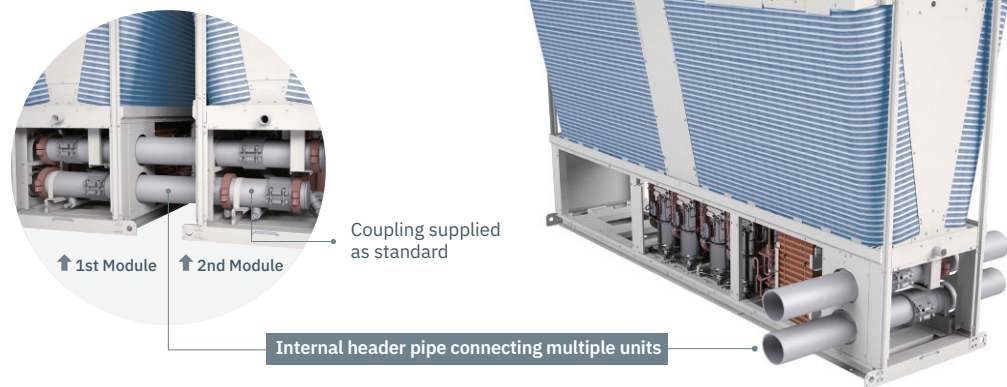
■ Unique modular approach

Using a modular approach reduces space requirements and simplifies lifting and installation. A modular approach also lends itself to a staged installation or future HVAC demands, as modular chillers can be scaled accordingly.

■ Reduced plant space

Each module can be positioned in a bank of up to six connected units using the same internal header. Typically 30% ~ 40% space saving can be achieved when compared with traditional flatbed type chillers.

Internal header pipe:



Our Modular Chiller Range

Low noise levels

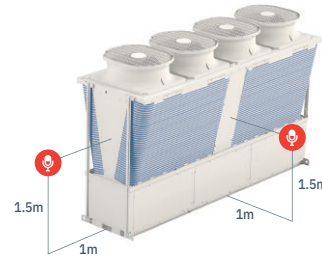
By utilising highly efficient components within a uniquely shaped chiller, the e-series modular chiller range offers market leading low noise levels as standard. Low noise levels are especially important in today's city centre locations where there is often a mixture of commercial and residential properties in the same area.

Sound pressure levels

EACV / EAHV	dB(A)		
Model	90kW	150kW	180kW
Front	64	66	68
Right	62	68	71
Back	65	66	67
Left	61	70	70



Measuring Point

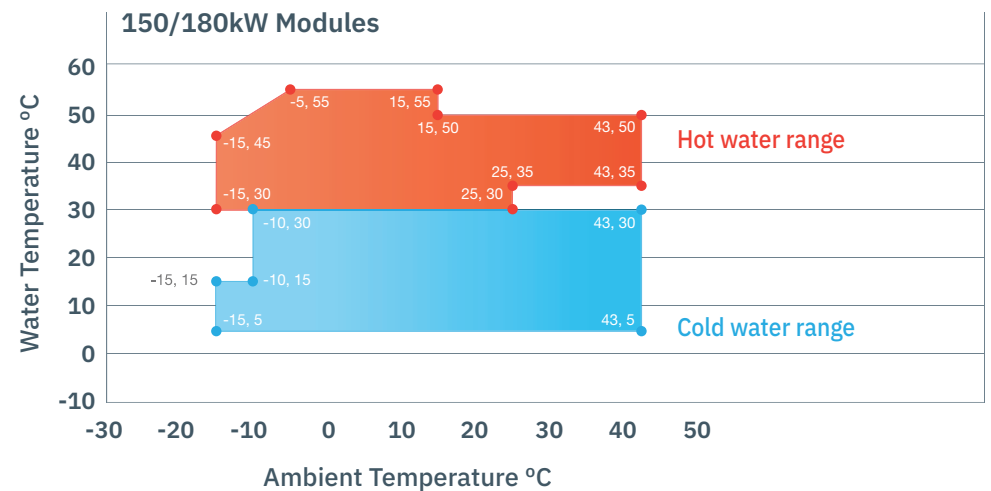
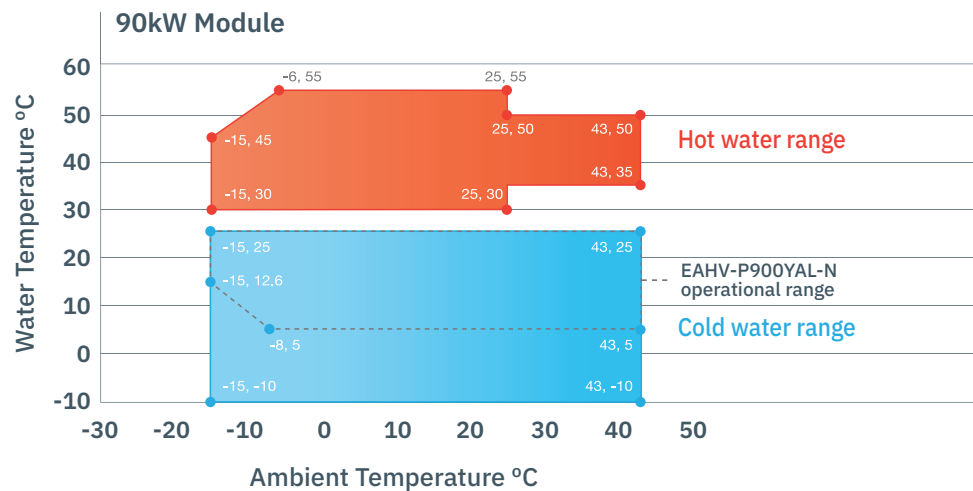


Sound power levels

EACV / EAHV	dB(A)								
Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	PWL dB(A)
90kW Module	55.8	60.8	66	67.4	70.1	74	65.2	54.1	77.1
150kW Module	59.2	67.4	74.3	79.8	78	75.1	72.3	59.3	84
180kW Module	60.8	73.1	76.3	81.5	80.2	77.5	73.8	62.5	86

Wide operating range

The e-series modular chiller has a wide operating range in both cooling and heating. The low chilled water temperature range of the 90kW module is ideal for efficient process cooling applications.

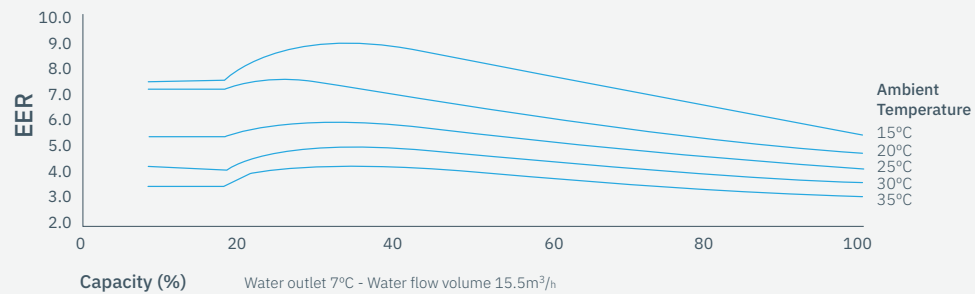


System efficiency and controllability

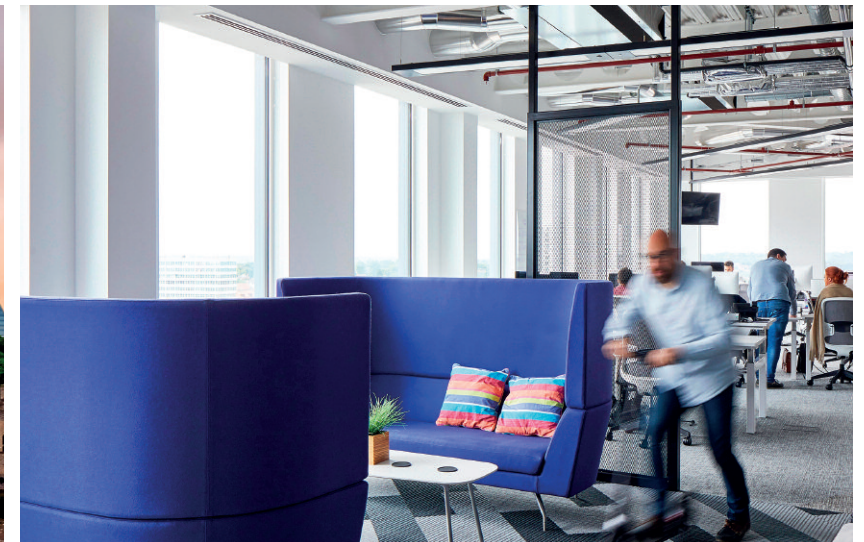
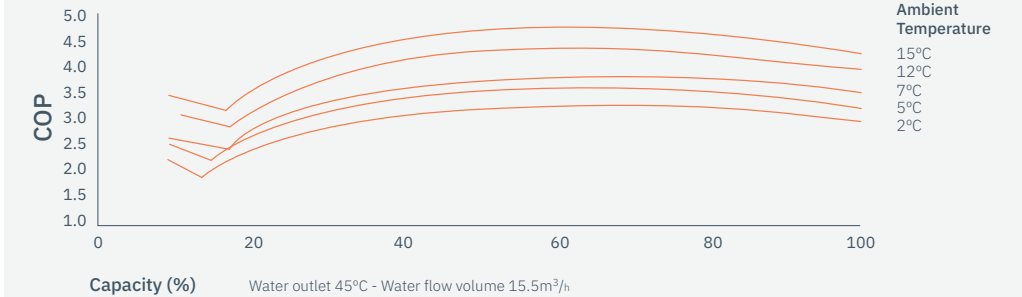
The e-series modular chiller has **multiple inverter driven compressors** that allow the unit to operate between 8% ~ 100% of capacity. By having a broad operating range the chiller has exceptional part load efficiencies, which is where most systems will operate.

High partial load performance

Cooling



Heating

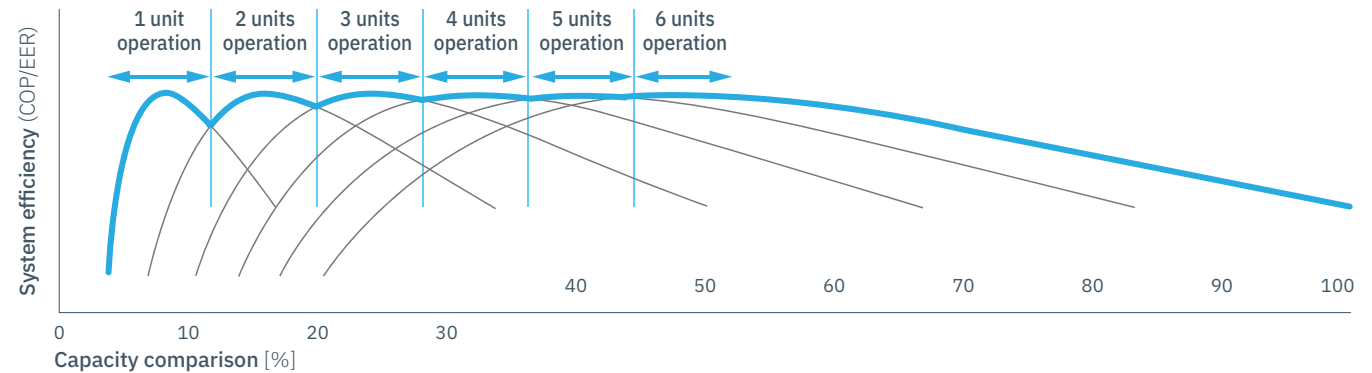


Our Modular Chiller Range

■ Optimum frequency control

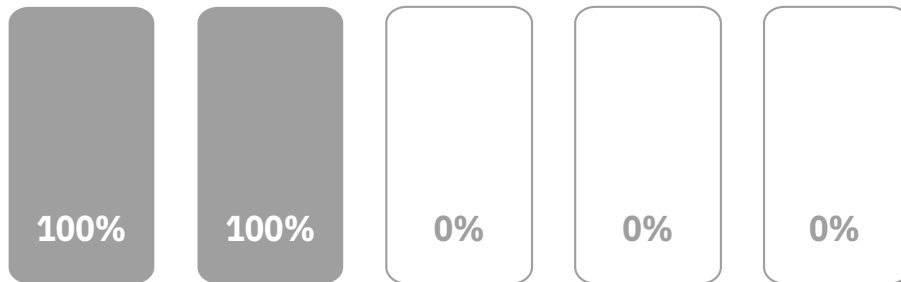
When multiple modules are connected, the frequency of each inverter compressor is controlled during operation to increase the efficiency of each module, achieving a high energy saving performance.

This control can be implemented by simply using our unique M-NET control, without the need for any other on-site design.



■ When the overall system load is 40%

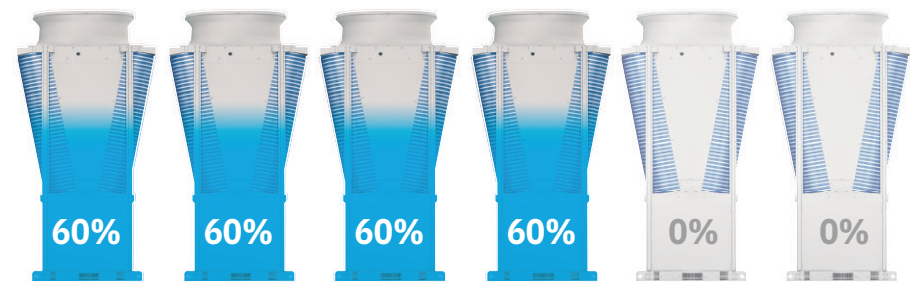
■ Without optimum frequency control



With non-inverter compressors, it is only possible to turn the unit on or off, and the compressor frequency cannot be adjusted according to the required capacity.

Since the compressors are running at inefficient frequencies, **the efficiency of the whole system is lower.**

■ With optimum frequency control



Our modules are equipped with inverter compressors, so the system can be operated in frequency ranges in which the efficiency of each module is at its peak (between 40 and 60%).

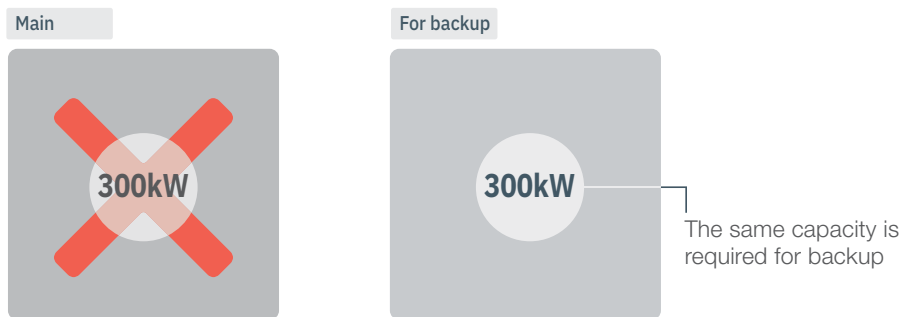
Optimum frequency control of each unit increases the efficiency of the whole system. In low load conditions, modules can be switched off to keep remaining modules at optimum efficiency.

The output of the pumps connected to the remaining group can be decreased, and the efficiency of the whole system is then increased. This control is achieved by connecting to M-NET. There is no need to prepare sensors, and the instrumentation is simple.

Improved redundancy & resilience

When a non-modular chiller is used as the main 300kW unit, as in this example, the same capacity would also be required as a backup. However, when a Mitsubishi Electric e-series modular chiller is used, two modules can still operate even if one module goes down, continuing normal operation. This reduces the backup capacity requirement.

Non-modular chiller

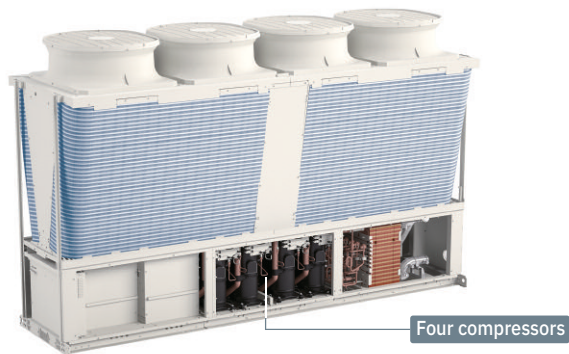


Emergency operation mode / Rotation operation

With a single module

The e-series module contains four compressors (two for the 90kW module) developed by Mitsubishi Electric. The four compressors operate as two pairs. If something is wrong with one of the two pairs, the other pair can temporarily continue to operate.

The 90kW module achieves this by operating its two compressors independently.

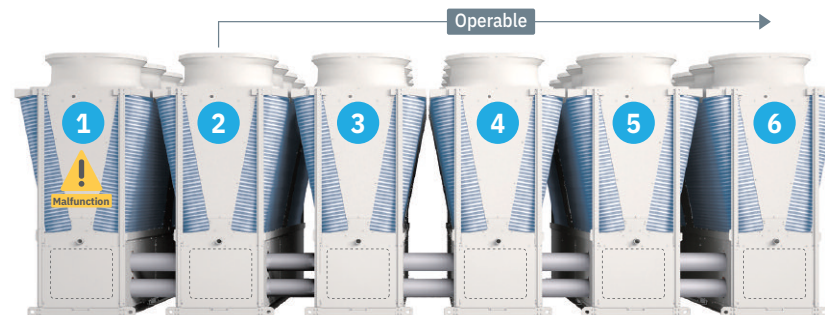


Mitsubishi Electric's e-series modular chiller



Multiple modules

If one of the e-series modules goes down, the remaining modules can continue to operate. Each module can independently control the outlet water temperature. Even if the main module goes down, operation can be continued. When multiple modules are installed, the operating time of each module in the same system is also equalized according to the load of the whole system.



* Units that have been stopped by thermo OFF before the main unit goes down are kept in the thermo OFF mode.

e-series Modular Chiller

(90-1,080kW)

Cooling Only or Heat Pump

e-series



The e-series chiller allows for up to six individual units to be connected together to provide a system capacity from 90kW to 1,080kW.

Using this modular approach reduces space requirements and simplifies lifting and installation. The e-series chiller is available as a cooling only or heat pump version, suitable for both comfort and process cooling applications.

Key Features

- Two high efficiency advanced DC inverter-driven scroll compressors are incorporated within each 90kW module and four within the 150/180kW modules. This allows the unit to operate between 8% ~ 100% of capacity, producing exceptional part load efficiencies
- Two-stage cooling circuit - both compressors (or pair of compressors) serve separate plate heat exchangers located in the centre of the unit
- Reduced plant space - each size module can be positioned in a bank of up to six connected units using the same internal header
- Internal header pipe - the in-built internal header pipes simplify design, installation and maintenance and also reduces space requirements, making the e-series range modular and suitable for almost any situation
- High performance compact air heat exchanger - the use of U-shaped or Y-shaped heat exchangers allows for a greater surface area, maximising efficiency whilst also keeping the units much narrower than conventional chillers. Blue Fin anti-corrosion coating on the heat exchanger is also provided as standard

SYSTEM CONFIGURATIONS							
MAXIMUM CAPACITY	90kW	150kW	180kW	270kW	300kW	360kW	450kW
COOLING ONLY	EACV-P900YAL-N	EACV-P1500YBL-N	EACV-P900YAL-N x2	EACV-P900YAL-N x3	EACV-P1500YBL-N x2	EACV-P900YAL-N x4	EACV-P900YAL-N x5
			EACV-P1800YBL-N			EACV-P1800YBL-N x2	EACV-P1500YBL-N x3
HEATING / COOLING	EAHV-P900YAL-N	EAHV-P1500YBL-N	EAHV-P900YAL-N x2	EAHV-P900YAL-N x3	EAHV-P1500YBL-N x2	EAHV-P900YAL-N x4	EAHV-P900YAL-N x5
			EAHV-P1800YBL-N			EAHV-P1800YBL-N x2	EAHV-P1500YBL-N x3

MAXIMUM CAPACITY	540kW	600kW	720kW	750kW	900kW	1,080kW
COOLING ONLY	EACV-P900YAL-N x6	EACV-P1500YBL-N x4	EACV-P1800YBL-N x4	EACV-P1500YBL-N x5	EACV-P1500YBL-N x6	EACV-P1800YBL-N x6
	EACV-P1800YBL-N x3				EACV-P1800YBL-N x5	
HEATING / COOLING	EAHV-P900YAL-N x6	EAHV-P1500YBL-N x4	EAHV-P1800YBL-N x4	EAHV-P1500YBL-N x5	EAHV-P1500YBL-N x6	EAHV-P1800YBL-N x6
	EAHV-P1800YBL-N x3				EAHV-P1800YBL-N x5	

150/180kW lower GWP R32 refrigerant modules available Autumn 2020

- Micro-channel aluminium heat exchanger
- Reduced refrigerant volume - 90% reduction in CO₂ equivalent compared to the current R410A cooling only models
- Expanded operating temperature range - will work with outdoor temperatures of -20°C

R32

e-series Modular Chiller

(90-1,080kW)

Cooling Only



MODEL			EACV-P900YAL-N Cooling Only	EACV-P1500YBL-N Cooling Only	EACV-P1800YBL-N Cooling Only
POWER SOURCE			3-phase 4-wire 380-400-415v, 50/60Hz	3-phase 4-wire 380-400-415v, 50/60Hz	3-phase 4-wire 380-400-415v, 50/60Hz
COOLING CAPACITY ^{*1} WATER		kW	90.0	150.0	180.0
		kcal/h	77,400	129,000	154,800
		BTU/h	307,080	511,800	614,160
	Power Input	kW	27.27	45.1	59.01
	EER (Pump input is not included)		3.30	3.33	3.05
	IPLV ^{*3}		6.34	6.55	6.33
	Water Flow Rate	m³/h	15.5	25.8	31
COOLING CAPACITY (EN14511) ^{*2} WATER		kW	90	148.6	177.8
		kcal/h	77,400	127,779	152,874
		BTU/h	307,080	506,955	606,517
	Power Input	kW	29.2	46.52	61.25
	EER		3.08	3.19	2.90
	Eurovent Efficiency Class		B	A	B
	ESEER ^{*4}		4.71	4.74	4.45
	SEER (ηsc) (BS EN14825)		4.88 (192%)	4.62 (181%)	4.58 (180%)
	Water Flow Rate	m³/h	15.5	25.8	31.0
	Minimum Water Circuit Volume	L	420	800	800
COOLING CAPACITY BRINE (ethylene glycol 35WT%) ^{*5} ^{*6}		kW	56.73	N/A	N/A
		kcal/h	48,788	N/A	N/A
		BTU/h	193,563	N/A	N/A
	Power Input	kW	25.98	N/A	N/A
	Current Input 380 - 400 - 415V	A	43.9 - 41.7 - 40.2	N/A	N/A
	EER (Pump input is not included)		2.18	N/A	N/A
	EER (Includes pump input based on EN14511)		2.10	N/A	N/A
	SEPR (ηsc) (BS EN14825)		6.11 (241%)	N/A	N/A
	Brine (ethyleneglycol 35WT%) Flow Rate	m³/h	11.5	N/A	N/A
	Cooling Current 380 - 400 - 415V ^{*1}	A	46.0 - 43.7 - 42.2	77 - 73 - 70	77 - 73 - 70
CURRENT INPUT	Maximum Current Input	A	61	111	111
	Water	kPa	135	114	164
WATER PRESSURE DROP ^{*1}	Brine (ethylene glycol 35WT%) ^{*5}	kPa	106	N/A	N/A
	Cooling Water	°C	Outlet water 5 ~ 25	Outlet water 5 ~ 30	Outlet water 5 ~ 30
TEMP RANGE	Cooling Brine (ethylene glycol 35WT%) ^{*5}	°C	Outlet brine -10 ~ 25	N/A	N/A
	Heating	°C	N/A	N/A	N/A
	Outdoor	°C	-15 ~ 43 ^{*6}	-15 ~ 43	-15 ~ 43
	CIRCULATING WATER VOLUME	m³/h	15.5	25.8	31
SOUND PRESSURE LEVEL (measured in anechoic room) at 1m ^{*1}		dB(A)	65	66	68
SOUND POWER LEVEL (measured in anechoic room) ^{*1}		dB(A)	77	84	86
DIAMETER OF WATER PIPE (Standard piping)	Inlet	mm	100A housing type joint	150A housing joint type	150A housing joint type
	Outlet	mm	100A housing type joint	150A housing joint type	150A housing joint type
EXTERNAL FINISH			Polyester powder coated steel plate	Polyester powder coated steel plate	Polyester powder coated steel plate
EXTERNAL DIMENSION	Width x Depth x Height	mm	2250 x 900 x 2450	3400 x 1080 x 2350	3400 x 1080 x 2350
WEIGHT	Inside Header Piping "-N" Model	kg	992	1256	1256
DESIGN PRESSURE	R410A	MPa	4.15	4.15	4.15
	Water	MPa	1	1	1
HEAT EXCHANGER	Water Side		Stainless steel plate and copper brazing	Stainless steel plate and copper brazing	Stainless steel plate and copper brazing
	Air Side		Plate fin and copper tube	Plate fin and copper tube	Plate fin and copper tube
COMPRESSOR	Type		Inverter scroll hermetic compressor	Inverter scroll hermetic compressor	Inverter scroll hermetic compressor
	Maker		Mitsubishi Electric Corporation	Mitsubishi Electric Corporation	Mitsubishi Electric Corporation
	Starting Method		Inverter	Inverter	Inverter
	Quantity		2	4	4
	Motor Output	kW	11.7 x 2	11.7 x 4	11.7 x 4
	Case Heater	kW	0.045 x 2	N/A	N/A
	Lubricant		MEL32	MEL32	MEL32
	Starting Current	A	8.5	19.1	19.1
	Max Running Current	A	61	111	111
	Air Flow Rate	m³/min	77 x 6	265 x 4	265 x 4
FAN		L/s	1,283 x 6	4,417 x 4	4,417 x 4
		cfm	2,719 x 6	9,357 x 4	9,357 x 4
	Type, Quantity		Propeller fan x 6	Propeller fan x 4	Propeller fan x 4
	Starting Method		Inverter	Inverter	Inverter
PROTECTION	Motor Output	kW	0.19 x 6	0.94 x 4	0.94 x 4
	High Pressure Protection		High pres. sensor & High pres. switch at 4.15MPa (601psi)	High pres. sensor & High pres. switch at 4.15MPa (601psi)	High pres. sensor & High pres. switch at 4.15MPa (601psi)
	Inverter Circuit		Over-heat protection, Over-current protection Over-heat protection	Over-heat protection, Over-current protection Over-heat protection	Over-heat protection, Over-current protection Over-heat protection
REFRIGERANT	Compressor				
	Charge (kg)	R410A (GWP 2088)	19 x 2	15 x 4	15 x 4
	CO2 Equivalent (t)		79.3	125.3	125.3
	Control		LEV	LEV	LEV

^{*1} Under normal cooling conditions at outdoor temp 35°CDB/24°CWB outlet water temp 7°C inlet water temp 12°C. Outlet brine temp -5°C inlet brine temp 0°C. Pump input not included.

^{*2} Under normal cooling conditions at outdoor temp 35°CDB/24°CWB outlet water temp 7°C inlet water temp 12°C. Pump input is included based on EN14511.

^{*3} IPLV IS is calculated in accordance with AHRI 550 - 590.

^{*4} ESEER is calculated in accordance with EUROVENT conditions.

^{*5} Under normal cooling conditions at outdoor temp 35°CDB/24°CWB outlet brine temp -5°C inlet water temp 0°C.

^{*6} Only EACV-P900YA-N capable of water flow temps to -10°C.

* Please always make water circulate, or take the circulation water out completely when not in use for long periods.

* The water circuit must be closed circuit.

* Due to continuous improvement, the above specifications may be subject to change without notice.

e-series Modular Chiller

(90-1,080kW)

Heat Pump



MODEL			EAHV-P900YAL-N Heating/Cooling	EAHV-P1500YBL-N Heating/Cooling	EAHV-P1800YBL-N Heating/Cooling
POWER SOURCE			3-phase 4-wire 380-400-415v, 50/60Hz	3-phase 4-wire 380-400-415v, 50/60Hz	3-phase 4-wire 380-400-415v, 50/60Hz
COOLING CAPACITY ^{*1} WATER		kW	90.0	150.0	180.0
		kcal/h	77,400	129,000	154,800
		BTU/h	307,080	511,800	614,160
	Power Input	kW	30.6	45.1	59.01
	EER (Pump input is not included)		3.30	3.33	3.05
	IPLV ^{*5}		6.34	6.55	6.33
	Water Flow Rate	m ³ /h	15.5	25.8	31
COOLING CAPACITY (EN14511) ^{*2} WATER		kW	90	148.6	177.8
		kcal/h	77,400	127,779	152,874
		BTU/h	307,080	506,955	606,517
	Power Input	kW	29.2	46.52	61.25
	EER		2.94	3.19	2.90
	Eurovent Efficiency Class		B	A	B
	ESEER ^{*6}		4.71	4.74	4.45
	SEER (ηsc) (BS EN14825)		4.88 (192%)	4.62 (181%)	4.58 (180%)
	Water Flow Rate	m ³ /h	15.5	25.8	31.0
	Minimum Water Circuit Volume	L	780	1450	1450
HEATING CAPACITY ^{*3}		kW	90.0	150	180
		kcal/h	77,400	129,000	154,800
		BTU/h	307,080	511,800	614,160
	Power Input ^{*3}	kW	25.71	44.59	55.68
	COP		3.50	3.36	3.23
	Water Flow Rate	m ³ /h	15.5	25.8	31.0
		kW	90.0	151.42	182.24
HEATING CAPACITY (EN14511) ^{*4}		kcal/h	77,400	130,221	156,726
		BTU/h	307,080	516,645	621,803
	Power Input ^{*3}	kW	27.6	46.01	57.92
	COP		3.25	3.29	3.15
	Eurovent Efficiency Class		A+	A	B
	SCOP Low/Medium		3.66 (143%) / 2.89 (113%)	3.24 (127%) / 2.85 (112%)	3.24 (127%) / 2.85 (112%)
	Water Flow Rate	m ³ /h	15.5	25.8	31.0
	Cooling Current 380 - 400 - 415V ^{*1}	A	46.0 - 43.7 - 42.3	77 - 73 - 70	77 - 73 - 70
	Heating Current 380 - 400 - 415V ^{*3}	A	43.4 - 41.2 - 39.7	76 - 72 - 69	76 - 72 - 69
	Maximum Current Input	A	61	111	111
WATER PRESSURE DROP ^{*1}	Water	kPa	135	114	164
TEMP RANGE	Cooling Water	°C	Outlet water 5 ~ 25	Outlet water 5 ~ 30	Outlet water 5 ~ 30
	Heating	°C	Outlet water 30 ~ 55	Outlet water 30 ~ 55	Outlet water 30 ~ 55
	Outdoor	°C	-15 ~ 43	-15 ~ 43	-15 ~ 43
CIRCULATING WATER VOLUME		m ³ /h	15.5	25.8	31
SOUND PRESSURE LEVEL (measured in anechoic room) at 1m ^{*1}		dB(A)	65	66	68
SOUND POWER LEVEL (measured in anechoic room) ^{*1}		dB(A)	77	84	86
DIAMETER OF WATER PIPE (Standard piping)	Inlet	mm	100A housing type joint	150A housing joint type	150A housing joint type
	Outlet	mm	100A housing type joint	150A housing joint type	150A housing joint type
EXTERNAL FINISH			Polyester powder coated steel plate	Polyester powder coated steel plate	Polyester powder coated steel plate
EXTERNAL DIMENSION		mm	2250 x 900 x 2450	3400 x 1080 x 2350	3400 x 1080 x 2350
WEIGHT		kg	1022	1326	1326
DESIGN PRESSURE	R410A	MPa	4.15	4.15	4.15
	Water	MPa	1	1	1
HEAT EXCHANGER			Stainless steel plate and copper brazing	Stainless steel plate and copper brazing	Stainless steel plate and copper brazing
COMPRESSOR	Water Side		Plate fin and copper tube	Plate fin and copper tube	Plate fin and copper tube
	Air Side		Plate fin and copper tube	Plate fin and copper tube	Plate fin and copper tube
	Type		Inverter scroll hermetic compressor	Inverter scroll hermetic compressor	Inverter scroll hermetic compressor
	Maker		Mitsubishi Electric Corporation	Mitsubishi Electric Corporation	Mitsubishi Electric Corporation
	Starting Method		Inverter	Inverter	Inverter
	Quantity		2	4	4
	Motor Output	kW	11.7 x 2	11.7 x 4	11.7 x 4
	Case Heater	kW	0.045 x 2	N/A	N/A
	Lubricant		MEL32	MEL32	MEL32
	Starting Current	A	8.5	19.1	19.1
FAN	Max Running Current	A	61	111	111
	Air Flow Rate	m ³ /min	77 x 6	265 x 4	265 x 4
		L/s	1,283 x 6	4,417 x 4	4,417 x 4
		cfm	2,719 x 6	9,357 x 4	9,357 x 4
	Type, Quantity		Propeller fan x 6	Propeller fan x 4	Propeller fan x 4
	Starting Method		Inverter	Inverter	Inverter
	Motor Output	kW	0.19 x 6	0.94 x 4	0.94 x 4
PROTECTION	High Pressure Protection		High pres. sensor & High pres. switch at 4.15MPa (601psi)	High pres. sensor & High pres. switch at 4.15MPa (601psi)	High pres. sensor & High pres. switch at 4.15MPa (601psi)
	Inverter Circuit		Over-heat protection, Over-current protection Over-heat protection	Over-heat protection, Over-current protection Over-heat protection	Over-heat protection, Over-current protection Over-heat protection
	Compressor		Over-heat protection	Over-heat protection	Over-heat protection
REFRIGERANT	Charge (kg)	R410A (GWP 2088)	19 x 2	15 x 4	15 x 4
	CO ₂ Equivalent (t)		79.3	125.3	125.3
	Control		LEV	LEV	LEV

*1 Under normal cooling conditions at outdoor temp 35°CDB/24°CWB outlet water temp 7°C inlet water temp 12°C. Pump input not included.

*2 Under normal cooling conditions at outdoor temp 35°CDB/24°CWB outlet water temp 7°C inlet water temp 12°C. Pump input is included based on EN14511.

*3 Under normal heating conditions at outdoor temp 7°CDB/6°CWB outlet water temp 45°C inlet 40°C. Pump input not included.

*4 Under normal heating conditions at outdoor temp 7°CDB/6°CWB outlet water temp 45°C inlet 40°C. Pump input power is included, based on EN14511.

*5 IPLV IS is calculated in accordance with AHRI 550 - 590.

*6 ESEER is calculated in accordance with EUROVENT conditions.

* Please always make water circulate, or take the circulation water out completely when not in use for long periods.

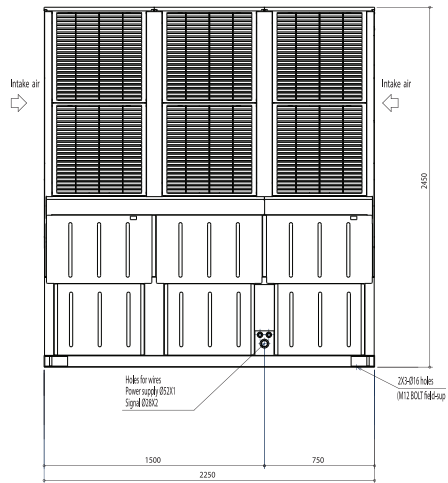
* The water circuit must be closed circuit.

* Due to continuous improvement, the above specifications may be subject to change without notice.

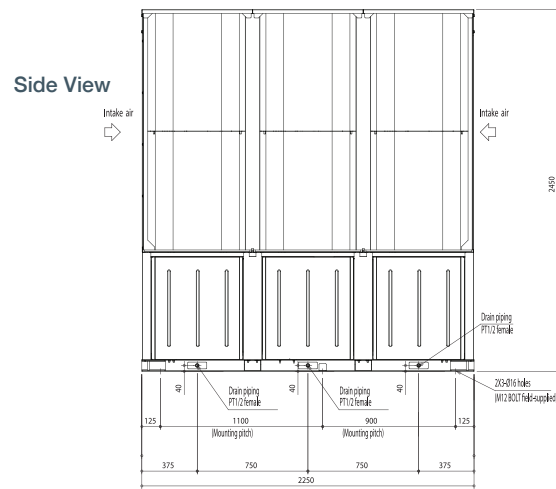
Product Dimensions

EA(C)(H)V-P900YAL-N

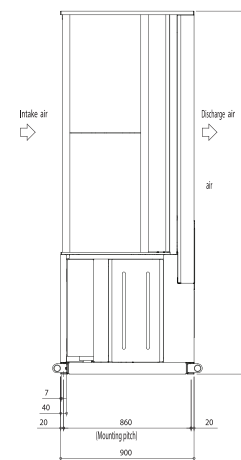
Front View



Rear View



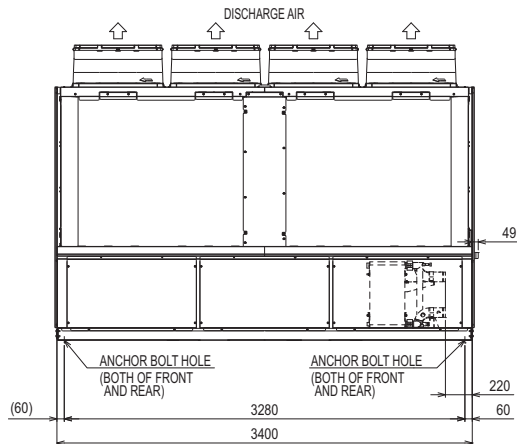
Side View



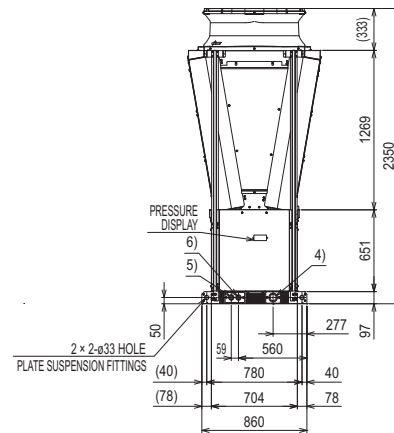
Product Dimensions

EA(C)(H)V-P1500/1800YBL-N

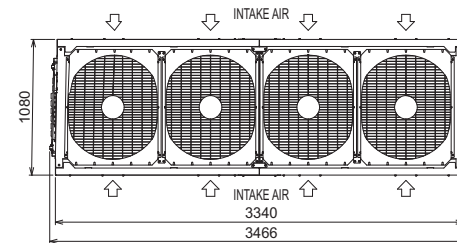
Front View



Side View



Upper View



i-BX

Air Cooled Chiller

(4.3-12.9kW)

Cooling Only

Single Phase



Climaveneta's range of small to medium sized, cooling only chillers efficiently and easily adapt to a wide range of cooling capacities. The whole range contains inverter driven compressors for enhanced efficiency and control.

Key Features

- Packaged monobloc unit for easy installation
- Full inverter technology with Mitsubishi Electric BLDC compressors
- Extended cooling range, water outlet temperature -8 ~ 18°C, at ambient range of -10 ~ 45°C
- Dynamic water set point, varies outlet temperature depending on ambient temperature
- EC water pump, relief valve, flow switch, safety valve and expansion vessel
- Night function incorporated to reduce noise levels during the night
- ErP 2021 compliant
- Modbus connectivity option
- Additional accessories available upon request



MODEL		i-BX 004 MHAN RV	i-BX 006 MHAN RV	i-BX 008 MHAN RV	i-BX 010 MHAN RV	i-BX 013 MHAN RV
POWER SUPPLY	V / ph / Hz	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50
PERFORMANCE						
COOLING CAPACITY ^{*1}	kW	4.3	6.11	8.1	10.6	12.9
TOTAL POWER INPUT ^{*1}	kW	1.55	2.12	2.82	3.64	4.74
EER ^{*1}		2.77	2.88	2.87	2.91	2.72
ESEER ^{*1}		4.2	4.36	4.7	4.29	4.55
COOLING ONLY (EN14511 VALUE)						
COOLING CAPACITY ^{*1,2}	kW	4.3	6.11	8.11	10.6	12.9
EER ^{*1,2}		2.82	2.92	2.92	2.92	2.74
ESEER ^{*1,2}		4.53	4.6	5.08	4.34	4.69
COOLING ENERGY CLASS		C	B	B	B	C
SEASONAL EFFICIENCY IN COOLING (REG.EU 2016/2281) - AVERAGE CLIMATE CONDITIONS						
SEER		4.38	4.43	4.93	4.39	4.78
PERFORMANCE (η _s) ^{*3}	%	172	174	194	172	188
HEAT EXCHANGER (USER SIDE)						
WATER FLOW ^{*1}	l/s	0.21	0.29	0.39	0.51	0.62
MIN. SYSTEM WATER CONTENT	l	10	15	19	24	31
INLET / OUTLET CONNECTION SIZE	in	1"	1"	1"	1"	1"1/4
REFRIGERANT CIRCUIT						
COMPRESSORS	N°	1	1	1	1	1
CIRCUITS	N°	1	1	1	1	1
REGULATION		STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
MIN. CAPACITY STEP	%	25	25	25	25	25
REFRIGERANT CHARGE R410A	kg	1.45	2.1	3.55	3.6	3.65
CO ₂ EQUIVALENT	t	3.02	4.38	7.41	7.51	7.62
OIL CHARGE	kg	0.35	0.35	0.4	0.87	1.4
ELECTRICAL						
FULL LOAD POWER (F.L.I.)	kW	1.9	2.7	3.7	4.9	6.5
FULL LOAD CURRENT (F.L.A.)	A	8.7	12.3	16.1	22.6	25.3
INRUSH CURRENT (S.A.)	A	1	1	1	1	1
FANS						
QUANTITY	N°	1	1	1	2	2
AIRFLOW	m³/s	1.02	0.98	0.99	1.74	1.58
FANS POWER INPUT	kW	0.12	0.12	0.12	0.12	0.12
NOISE LEVEL						
SOUND PRESSURE ^{*4}	dB(A)	33	34	35	38	39
SOUND POWER ^{*5,6}	dB(A)	64	65	66	69	70
SIZE AND WEIGHT						
WIDTH ^{*7}	mm	900	900	900	900	900
DEPTH ^{*7}	mm	370	370	420	420	420
HEIGHT ^{*7}	mm	940	940	1240	1240	1240
OPERATING WEIGHT ^{*7}	kg	70	80	95	110	125

*1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.

*2 Values in compliance with EN14511-3:2013.

*3 Seasonal energy efficiency of space cooling.

*4 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.

*5 Sound power on the basis of measurements made in compliance with ISO 9614.

*6 Sound power level in cooling, outdoors.

*7 Unit in standard configuration/execution, without optional accessories.

i-BX Air Cooled Chiller

(10.7-35.1kW)

Cooling Only

Three Phase



*1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.

*2 Values in compliance with EN14511-3:2013.

*3 Seasonal energy efficiency of space cooling.

*4 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.

*5 Sound power on the basis of measurements made in compliance with ISO 9614.

*6 Sound power level in cooling, outdoors.

*7 Unit in standard configuration/execution, without optional accessories.

Eurovent Certified Data

Climaveneta's range of small to medium sized, cooling only chillers efficiently and easily adapt to a wide range of cooling capacities. The whole range contains inverter driven compressors for enhanced efficiency and control.

Key Features

- Packaged monobloc unit for easy installation
- Full inverter technology with Mitsubishi Electric BLDC compressors
- Extended cooling range, water outlet temperature -8 ~ 18°C, at ambient range of -10 ~ 45°C
- Dynamic water set point, varies outlet temperature depending on ambient temperature
- EC water pump, relief valve, flow switch, safety valve and expansion vessel
- Night function incorporated to reduce noise levels during the night
- ErP 2021 compliant
- Modbus connectivity option
- Additional accessories available upon request



MODEL		i-BX 010 THAN RV	i-BX 013 THAN RV	i-BX 015 THAN RV	i-BX 020 THAN RV	i-BX 025 THAN RV	i-BX 030 THAN RV	i-BX 035 THAN RV
POWER SUPPLY	V / ph / Hz	415/3/50+N	415/3/50+N	415/3/50+N	415/3/50+N	415/3/50+N	415/3/50+N	415/3/50+N
PERFORMANCE								
COOLING CAPACITY *1	kW	10.7	13.3	15.5	20.6	25.0	29.8	35.1
TOTAL POWER INPUT *1	kW	3.64	4.74	5.44	7.2	8.69	10.0	11.8
EER *1		2.94	2.81	2.85	2.86	2.88	2.98	2.97
ESEER *1		4.36	4.57	4.14	4.12	4.26	4.15	4.29
COOLING ONLY (EN14511 VALUE)								
COOLING CAPACITY *1 *2	kW	10.7	13.3	15.5	20.6	25	29.9	35.2
EER *1 *2		2.95	2.82	2.87	2.88	2.90	3.01	3.00
ESEER *1 *2		4.42	4.69	4.2	4.2	4.36	4.27	4.39
COOLING ENERGY CLASS		B	C	C	C	B	B	B
SEASONAL EFFICIENCY IN COOLING (REG.EU 2016/2281) - AVERAGE CLIMATE CONDITIONS								
SEER		4.46	4.80	4.31	4.31	4.52	4.52	4.57
PERFORMANCE (ηs) *3	%	176	189	169	169	178	178	180
HEAT EXCHANGER (USER SIDE)								
WATER FLOW *1	l/s	0.51	0.64	0.74	0.99	1.2	1.43	1.68
MIN. SYSTEM WATER CONTENT	l	26	32	37	49	60	71	84
INLET / OUTLET CONNECTION SIZE	in	1"	1"1/4	1"1/4	1"1/4	1"1/4	1"1/2	1"1/2
REFRIGERANT CIRCUIT								
COMPRESSORS	N°	1	1	1	1	1	1	1
CIRCUITS	N°	1	1	1	1	1	1	1
REGULATION		STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
MIN. CAPACITY STEP	%	25	25	25	25	25	25	25
REFRIGERANT CHARGE R410A	kg	3.6	3.65	4.7	6.8	7	7.9	8.4
CO ₂ EQUIVALENT	t	7.51	7.62	9.81	14.19	14.62	16.49	17.54
OIL CHARGE	kg	0.87	1.4	1.4	1.4	1.4	2.3	2.3
ELECTRICAL								
FULL LOAD POWER (F.L.I.)	kW	4.9	6.5	7.4	9.4	11.3	13.7	16
FULL LOAD CURRENT (F.L.A.)	A	13	17	18	20	29	29	39
INRUSH CURRENT (S.A.)	A	1	1	1	1	1	1	1
FANS								
QUANTITY	N°	2	2	2	1	2	2	2
AIRFLOW	m³/s	1.74	1.7	1.64	2.26	3.76	4.2	4.86
FANS POWER INPUT	kW	0.12	0.12	0.12	0.6	0.4	0.55	0.52
NOISE LEVEL								
SOUND PRESSURE *4	dB(A)	38	39	43	43	43	44	45
SOUND POWER *5 *6	dB(A)	69	70	74	74	75	76	77
SIZE AND WEIGHT								
WIDTH *7	mm	900	900	900	1450	1450	1450	1700
DEPTH *7	mm	420	420	420	550	550	550	650
HEIGHT *7	mm	1240	1240	1390	1200	1700	1700	1700
OPERATING WEIGHT *7	kg	110	125	135	190	250	270	305

i-NX Air Cooled Chiller

(43.9-129kW)

Cooling Only

Three Phase



Climaveneta's range of small to medium sized i-NX Cooling Only chillers efficiently and easily adapt to a wide range of cooling capacities.

With the exclusive 1 + i philosophy, both the fixed speed scroll compressor and the scroll inverter compressor are combined in the same circuit. This technology ensures maximum benefit in terms of efficiency at partial loads compared to a solution with separate circuits. In different load conditions, only the most efficient combination of compressors required for optimum adaptation to the system load conditions is called upon.

Key Features

- High Efficiency - inverter driven scroll compressor
- Available with EC fans
- Aluminium microchannel coils
- ERP 2021 compliant
- Wide operating range
- Available with hydronic module



MODEL		i-NX 0151P	i-NX 0182P	i-NX 0202P	i-NX 0262P	i-NX 0302P	i-NX 0352P	i-NX 0402P	i-NX 0502P
POWER SUPPLY	V / ph / Hz	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3/50	400/3/50
PERFORMANCE									
COOLING CAPACITY ^{*1}	kW	43.9	52.9	63.1	72.1	83.8	101	120	129
TOTAL POWER INPUT ^{*1}	kW	15.7	18.8	21.4	25	29.2	35.2	41.9	46.8
EER ^{*1}		2.8	2.81	2.95	2.88	2.87	2.87	2.86	2.76
ESEER ^{*1}		4.56	4.55	4.51	4.54	4.51	4.66	4.58	4.53
COOLING ONLY (EN14511 VALUE)									
COOLING CAPACITY ^{*1,2}	kW	43.6	52.6	62.7	71.7	83.4	100.0	119.0	129.0
EER ^{*1,2}		2.73	2.75	2.88	2.82	2.82	2.82	2.80	2.72
ESEER ^{*1,2}		4.27	4.19	4.17	4.23	4.24	4.36	4.27	4.25
COOLING ENERGY CLASS		C	C	C	C	C	C	C	C
SEASONAL EFFICIENCY IN COOLING (REG.EU 2016/2281) - AVERAGE CLIMATE CONDITIONS									
SEER		4.15	4.11	4.13	4.18	4.23	4.36	4.32	4.30
PERFORMANCE (η _s) ^{*3}	%	163	161	162	164	166	171	170	169
HEAT EXCHANGER (USER SIDE)									
WATER FLOW ^{*1}	l/s	2.1	2.53	3.02	3.45	4.01	4.82	5.73	6.18
MIN. SYSTEM WATER CONTENT	l	154	185	221	252	293	354	420	452
PRESSURE DROP	kPa	37.2	41.2	42.3	39.4	35	36.2	42.9	38.9
INLET / OUTLET CONNECTION SIZE	in	1 1/2" VICTAULIC	1 1/2" VICTAULIC	1 1/2" VICTAULIC	2" VICTAULIC	2" VICTAULIC	2" VICTAULIC	2 1/2" VICTAULIC	2 1/2" VICTAULIC
REFRIGERANT CIRCUIT									
COMPRESSORS	N°	1	2	2	2	2	2	2	2
CIRCUITS	N°	1	1	1	1	1	1	1	1
REGULATION		STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
MIN. CAPACITY STEP	%	30	22	19	22	19	23	20	18
REFRIGERANT CHARGE R410A	kg	7	7.2	8.9	9.4	9.5	12.5	12.9	13.5
CO ₂ EQUIVALENT	t	14.6	15	18.6	19.6	19.8	26.1	26.9	28.2
OIL CHARGE	kg	3.5	6.1	6.4	6.7	7	13.4	13.4	13.4
ELECTRICAL									
FULL LOAD POWER (F.L.I.)	kW	23.5	27.4	30.2	37.5	41.4	53.9	59.7	64.6
FULL LOAD CURRENT (F.L.A.)	A	39	46	52	63	70	87	96	104
INRUSH CURRENT (S.A.)	A	4	118	164	174	225	198	243	288
FANS									
QUANTITY	N°	4	4	5	5	6	2	2	2
AIRFLOW	m³/s	3.77	5.07	6.57	6.57	7.66	9.08	11.53	11.53
FANS POWER INPUT	kW	0.2	0.3	0.3	0.3	0.3	1.2	2	2
NOISE LEVEL									
SOUND PRESSURE ^{*4}	dB(A)	51	52	53	53	54	55	57	57
SOUND POWER ^{*5,6}	dB(A)	83	84	85	85	86	87	89	89
SIZE AND WEIGHT									
WIDTH ^{*7}	mm	2000	2000	2625	2625	2625	3250	3250	3250
DEPTH ^{*7}	mm	1350	1350	1350	1350	1350	1350	1350	1350
HEIGHT ^{*7}	mm	2070	2070	2070	2070	2070	2170	2170	2170
OPERATING WEIGHT ^{*7}	kg	600	660	750	780	810	1060	1070	1080

*1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.

*2 Values in compliance with EN14511-3:2013.

*3 Seasonal energy efficiency of space cooling.

*4 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.

*5 Sound power on the basis of measurements made in compliance with ISO 9614.

*6 Sound power level in cooling, outdoors.

*7 Unit in standard configuration/execution, without optional accessories.

i-NX Air Cooled Chiller Low Noise Version (42.6-124kW)

Cooling Only

Three Phase



*1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.

*2 Values in compliance with EN14511-3:2013.

*3 Seasonal energy efficiency of space cooling.

*4 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.

*5 Sound power on the basis of measurements made in compliance with ISO 9614.

*6 Sound power level in cooling, outdoors.

*7 Unit in standard configuration/execution, without optional accessories.

Climaveneta's range of small to medium sized i-NX Cooling Only chillers efficiently and easily adapt to a wide range of cooling capacities. The super low noise variant offers up to a 7dB(A) reduction against the baseline model.

With the exclusive 1 + i philosophy both the fixed speed scroll compressor and the scroll inverter compressor are combined in the same circuit. This technology ensures maximum benefit in terms of efficiency at partial loads compared to a solution with separate circuits. In different load conditions, only the most efficient combination of compressors required for optimum adaptation to the system load conditions is called upon.

Key Features

- High Efficiency - inverter driven scroll compressor
- Aluminium microchannel coils
- Wide operating range
- Available with EC fans
- ERP 2021 compliant
- Available with hydronic module



MODEL		i-NX SL 0151P	i-NX SL 0182P	i-NX SL 0202P	i-NX SL 0262P	i-NX SL 0302P	i-NX SL 0352P	i-NX SL 0402P	i-NX SL 0502P
POWER SUPPLY	V / ph / Hz	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3/50	400/3/50	400/3/50
PERFORMANCE									
COOLING CAPACITY *1	kW	42.6	51.2	60.1	68.1	81.2	96.7	115.0	124.0
TOTAL POWER INPUT *1	kW	14.4	17.8	20.9	24.5	28.3	33.9	39.3	44.3
EER *1		2.96	2.88	2.88	2.78	2.87	2.85	2.93	2.81
ESEER *1		4.48	4.58	4.49	4.55	4.54	4.75	4.78	4.7
COOLING ONLY (EN14511 VALUE)									
COOLING CAPACITY *1*2	kW	42.3	50.9	59.8	67.7	80.8	96.3	115.0	124.0
EER *1*2		2.89	2.81	2.81	2.73	2.82	2.80	2.88	2.76
ESEER *1*2		4.21	4.26	4.2	4.25	4.26	4.48	4.5	4.43
COOLING ENERGY CLASS		C	C	C	C	C	C	C	C
SEASONAL EFFICIENCY IN COOLING (REG.EU 2016/2281) - AVERAGE CLIMATE CONDITIONS									
SEER		4.18	4.10	4.11	4.17	4.22	4.46	4.50	4.48
PERFORMANCE (ηs) *3	%	164	161	162	164	166	176	177	176
HEAT EXCHANGER (USER SIDE)									
WATER FLOW *1	l/s	2.04	2.45	2.87	3.26	3.88	4.62	5.5	5.95
MIN. SYSTEM WATER CONTENT	l	149	179	210	238	284	338	403	434
PRESSURE DROP	kPa	35.1	38.7	38.3	35.2	32.9	33.2	39.6	36.0
INLET / OUTLET CONNECTION SIZE	in	1 1/2" VICTAULIC	1 1/2" VICTAULIC	1 1/2" VICTAULIC	2" VICTAULIC	2" VICTAULIC	2" VICTAULIC	2 1/2" VICTAULIC	2 1/2" VICTAULIC
REFRIGERANT CIRCUIT									
COMPRESSORS	N°	1	2	2	2	2	2	2	2
CIRCUITS	N°	1	1	1	1	1	1	1	1
REGULATION		STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
MIN. CAPACITY STEP	%	30	23	20	23	20	24	21	19
REFRIGERANT CHARGE R410A	kg	8.1	8.3	8.7	9.2	11.8	12.3	14.7	15.2
CO ₂ EQUIVALENT	t	16.9	17.3	18.2	19.2	24.6	25.7	30.7	31.7
OIL CHARGE	kg	3.5	6.1	6.4	6.7	7	13.4	13.4	13.4
ELECTRICAL									
FULL LOAD POWER (F.L.I.)	kW	23.8	27.4	30.5	37.8	43.6	53.9	59.3	64.3
FULL LOAD CURRENT (F.L.A.)	A	40	47	53	64	71	87	95	104
INRUSH CURRENT (S.A.)	A	6	120	165	175	226	198	242	287
FANS									
QUANTITY	N°	5	5	6	6	2	2	2	2
AIRFLOW	m³/s	4.28	5.03	5.73	5.73	7.37	8.41	10.47	10.47
FANS POWER INPUT	kW	0.2	0.2	0.2	0.2	0.9	1.1	1.15	1.15
NOISE LEVEL									
SOUND PRESSURE *4	dB(A)	45	45	46	46	47	48	50	50
SOUND POWER *5*6	dB(A)	77	77	78	78	79	80	82	82
SIZE AND WEIGHT									
WIDTH *7	mm	2625	2625	2625	2625	3250	3250	3875	3875
DEPTH *7	mm	1350	1350	1350	1350	1350	1350	1350	1350
HEIGHT *7	mm	2070	2070	2070	2070	2170	2170	2170	2170
OPERATING WEIGHT *7	kg	700	760	790	820	980	1090	1180	1200

Eurovent Certified Data

i-NX-Q SL Air Cooled 4-Pipe Chiller Low Noise Version (45-139kW)

Heat Pump

Three Phase



*1 Plant (side) cooling heat exchanger water (in/out) 12.0°C/7.0°C; Source (side) heat exchanger air (in) 35.0°C.
*2 Values in compliance with EN14511.

*3 Plant (side) heating heat exchanger water (in/out) 40.0°C/45.0°C; Source (side) heat exchanger air (in) 7.0°C at 87% R.H.

*4 Plant (side) cooling heat exchanger water (in/out) 12.0°C/7.0°C; Plant (side) heating heat exchanger water (in/out) 40.0°C/45.0°C.

*5 Parameter calculated according to [Regulation (EU) N. 2016/2281].

*6 Seasonal energy efficiency ratio.

*7 Seasonal space cooling energy efficiency.

*8 Weather conditions average, biennial temperature -7.0°C.

*9 Seasonal space heating energy efficiency class LOW TEMPERATURE [REGULATION (EU) N. 813/2013].

*10 Calculated with variable flow rate and variable temperature.

*11 Average sound pressure level at 10m distance, unit in a free field on a reflective surface;

non-binding value calculated from the sound power level.

*12 Sound power on the basis of measurements made in compliance with ISO 9614.

*13 Sound power level in cooling and heating, outdoors.

*14 Unit in standard configuration/execution, without optional accessories.

Climaveneta's range of small to medium sized i-NX-Q chillers are designed to produce chilled and hot water simultaneously and efficiently using variable frequency drive compressors. The super low noise variant offers up to a 7dB(A) reduction against the baseline model.

The unit combines two variable speed scroll compressors in two separate refrigerant circuits. The full inverter solution applied on two separate refrigerant circuits ensures maximum reliability and total versatility, matching the thermal load request constantly and with maximum precision, while minimising energy consumption.

Key Features

- Simultaneous production of chilled water and hot water
- Two inverter scroll compressors
- Wide operating range
- ErP 2021 compliant
- Available with EC fans
- Available with factory installed pumps



MODEL		i-NX-Q SL 0152P	i-NX-Q SL 0182P	i-NX-Q SL 0202P	i-NX-Q SL 0252P	i-NX-Q SL 0262P	i-NX-Q SL 0302P	i-NX-Q SL 0352P	i-NX-Q SL 0402P	i-NX-Q SL 0502P	i-NX-Q SL 0552P
POWER SUPPLY	V/ph/Hz	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50
PERFORMANCE											
COOLING ONLY (EN14511 VALUE)											
COOLING CAPACITY ^{*12}	kW	45.6	52.3	56.3	62.9	70.9	84.0	89.5	105.0	119.9	138.4
TOTAL POWER INPUT ^{*12}	kW	14.12	17.26	18.7	22.71	25.97	29.27	30.86	37.37	44.08	49.78
EER ^{*12}	kW/kW	3.23	3.03	3.01	2.77	2.73	2.87	2.90	2.81	2.72	2.78
HEATING ONLY (EN14511 VALUE)											
TOTAL HEATING CAPACITY ^{*23}	kW	51.2	59.0	62.5	70.7	78.5	93.1	98.1	114.2	132.4	153.2
TOTAL POWER INPUT ^{*23}	kW	15.19	17.82	18.38	21.49	23.22	27.63	28.43	34.09	39.4	45.33
COP ^{*23}	kW/kW	3.37	3.31	3.4	3.29	3.38	3.37	3.45	3.35	3.36	3.38
COOLING WITH TOTAL HEAT RECOVERY											
COOLING CAPACITY ^{*4}	kW	46.14	53.06	57.75	65.22	75.09	84.65	94.59	109.4	126.4	145.5
TOTAL POWER INPUT ^{*4}	kW	13.78	16.52	17.25	20.42	22.95	26.96	27.75	33.52	39.5	44.93
RECOVERY HEAT EXCHANGER CAPACITY ^{*4}	kW	59.1	68.6	74.0	84.4	96.7	110.0	120.7	140.9	163.6	187.7
TER	kW/kW	7.62	7.37	7.61	7.33	7.47	7.21	7.77	7.47	7.34	7.42
SEASONAL COOLING EFFICIENCY											
P RATED CAPACITY ^{*5}	kW	45.6	52.3	56.3	62.9	70.9	84.0	89.5	105.0	119.9	138.4
SEER ^{*6}	-	4.41	4.43	4.5	4.39	4.22	4.25	4.33	4.34	4.4	4.45
PERFORMANCE NS ^{*7}	%	174	174	177	173	166	167	170	170	173	175
SEASONAL HEATING EFFICIENCY ^{*8}											
RATED HEAT OUTPUT AT T DESIGN H ^{*910}	Kw	37.0	43.0	45.0	52.0	59.0	70.0	74.0	79.0	97.0	115.0
SCOP ^{*10}	-	3.93	3.97	3.98	4.0	3.97	4.04	4.09	4.01	4.11	4.13
SEASONAL SPACE HEATING ENERGY EFFICIENCY ^{*910}	%	154	156	156	157	156	159	161	158	161	162
SEASONAL SPACE HEATING ENERGY EFFICIENCY CLASS ^{*910}	-	A++	A++	A++	A++	A++	A++	-	-	-	-
HEAT EXCHANGERS											
HEAT EXCHANGER USER SIDE IN COOLING											
WATER FLOW RATE ^{*1}	l/s	2.18	2.51	2.7	3.01	3.4	4.03	4.29	5.03	5.75	6.63
PRESSURE DROP ^{*1}	kPa	26.1	34.4	22.4	27.9	23.7	33.2	27.0	34.8	35.3	35.0
HEAT EXCHANGER USER SIDE IN HEATING											
WATER FLOW RATE ^{*3}	l/s	2.47	2.84	3.01	3.4	3.78	4.48	4.72	5.5	6.38	7.38
PRESSURE DROP ^{*3}	kPa	33.2	44	27.9	35.6	29.3	41.1	32.7	41.6	43.4	43.3
REFRIGERANT CIRCUIT											
COMPRESSORS	N°	2	2	2	2	2	2	2	2	2	2
NO. CIRCUITS	N°	2	2	2	2	2	2	2	2	2	2
REFRIGERANT CHARGE R410A	kg	26.7	27.3	27.8	29.2	31.2	43.8	40.6	45.8	53.4	60.0
OIL CHARGE	kg	4.6	4.6	4.6	4.6	7.2	7.2	13.4	13.4	13.4	13.4
NOISE LEVEL											
SOUND PRESSURE ^{*11}	dB(A)	47	47	48	49	49	50	50	51	53	55
SOUND POWER LEVEL ^{*1213}	dB(A)	79	79	80	81	81	82	82	83	85	87
SIZE AND WEIGHT											
WIDTH (A) ^{*14}	mm	2625	2625	2625	2625	2625	3250	3250	3250	3875	4500
DEPTH (B) ^{*14}	mm	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350
HEIGHT (H) ^{*14}	mm	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070
OPERATING WEIGHT ^{*14}	kg	960	960	990	990	1080	1210	1330	1440	1520	1660

Our Traditional, Chiller Range

An Overview



Consisting of a wide range of models, the Climaveneta range of chillers are a new generation of water chiller designed for comfort and process cooling applications.

Modern multi-function buildings, shopping centres, large business centres and process cooling are just some of the examples where increased comfort and precision control are required. The Climaveneta range of chillers can deliver all of this and more through their ability to be easily integrated into ever increasingly complex building systems.

In order to maximise performance, reliability and overall system efficiency, the Climaveneta range of products bring advanced technology and know-how together in customisable packages to aid design, specification, installation and on-going operation.

- Advanced technology
- Scalable and fully customisable
- Air source and water cooled versions
- Plate or Shell & Tube heat exchanger options

Flexible Application Options

Comfort Cooling

By using hydronic terminals, a simple application of a chiller can include cooling a space or environment to a set temperature. By using water as the medium of energy, high sensible cooling and stable room temperatures can be achieved.

- Retail stores / Shopping centres
- Schools / Universities
- Airports
- Museums
- Offices
- Hotels and Resorts
- Cinemas / Theatres
- Hospitals / Healthcare

Process Cooling

During manufacturing processes, many substances become hot and if overheated can negatively effect the productivity and efficiency of the process. By correctly applying a chiller it is possible to ensure optimum temperatures and conditions are maintained at a steady state.

- Manufacturing processes
- Automotive and Electronic processes
- Energy and Power generation
- Industrial technology



For further information on our traditional chiller range, please contact your local sales office

Climaveneta uses green HFO refrigerants such as HFO1234ze and HFO1234yf in many ranges.

Magnetic levitation centrifugal compressors range from 200kW to 4MW in both air source and water source, free cooling and evaporative free cooling versions, to deliver the highest efficiency in every application.

The capacity is modulated resulting in increased efficiency as well as in the possibility to effectively implement smart management solutions such as active redundancy.

The VPF (Variable Primary Flow) dynamically optimises the unit's thermoregulation for variable flow operation, thus ensuring both the highest pump energy savings and stable chiller operation.

Heat recovery solutions are employed, such as thermodynamic, plate and rotary heat recovery as well as refrigerant booster.

3 energy efficiency standard configurations available with most hydronic units.

A wide range of advanced, customisable models for use in efficiently cooling a space or an environment to a set temperature.

Key Features

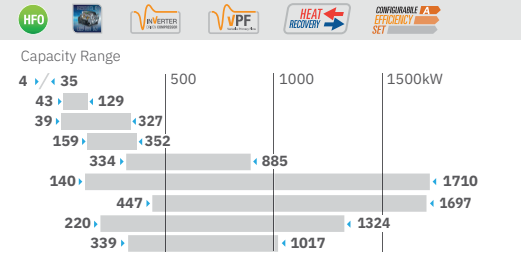
- Energy efficient, customisable chillers
- Low noise levels
- Low GWP, HFO and R513A refrigerant options
- Free cooling available



Air Cooled Chillers




i-BX	Inverter driven scroll compressors
i-NX	Inverter driven scroll compressors
NX	Scroll compressors
NX	Scroll compressors
NECS	Scroll compressors
FX	Screw compressors
i-FX (1+i)	Inverter driven screw compressors
TECS2	Inverter driven oil-free centrifugal compressors
TECS2 HFO	Inverter driven oil-free centrifugal compressors

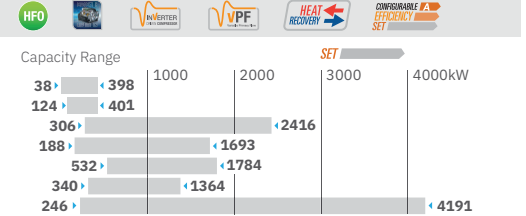
				INVERTER	AXIAL	P PLATES
				INVERTER	AXIAL	P PLATES
	R 454B			AXIAL	P PLATES	
				AXIAL	T SHELL & T	
				AXIAL	T SHELL & T	
R HF01234m	R 513A	P PLATES		AXIAL	T SHELL & T	
R HF01234m	R 512A	INVERTER		AXIAL	T SHELL & T	
R 512A		INVERTER	AXIAL	EC FAN	F FLOODE	
		INVERTER	R HF01234m	EC FAN	F FLOODE	



Water Cooled Chillers

NX-W	Scroll compressors
FX-W	Screw compressors
FOCS2-W	Screw compressors
FOCS3-W	Screw compressors
i-FX-W (1+i)	Screw compressors
TECS2-W HFO	Inverter driven oil-free centrifugal compressors
TX-W	Inverter driven oil-free centrifugal compressors

		P PLATES	
R 513A	R HF01234zo	T	SHELL &
	R 513A	T	SHELL &
	R 513A	FL	FLOOD
R 513A	 INVERTER	FL	FLOOD
R HF01234zo	 INVERTER	FL	FLOOD
R 513A	 INVERTER	FL	FLOOD



Condenserless Chillers

NECS-ME	Scroll compressors
FOCS-ME	Screw compressors

P PLATES
T SHELLS

Air Cooled with Free-Cooling Technology

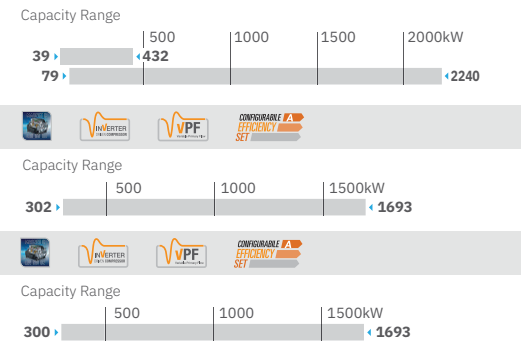
TECS-FC Inverter driven oil-free centrifugal compressors

R 513A TER EC FAN T SHELL&T

Air Cooled Chillers with Evaporative Free-Cooling Technology

TECS-EFC Inverter driven oil-free centrifugal compressors

INVERTER AXIAL FL FLOOD



For further information please contact your local sales office

Chillers for Heat Pump Applications



Inverter Driven Compressor

The capacity is modulated resulting in increased efficiency as well as in the possibility to effectively implement smart management solutions such as active redundancy.



VPF

The VPF (Variable Primary Flow) dynamically optimises the unit's thermoregulation for variable flow operation, thus ensuring both the highest pump energy savings and stable chiller operation.



High Water Temperature

A complete range of solutions designed to deliver high water temperature for any heating requirement.



Leading Heat Recovery Technology

Heat recovery solutions are employed, such as thermodynamic, plate and rotary heat recovery as well as refrigerant booster.



Configurable Efficiency Set

3 energy efficiency standard configurations available with most hydronic units.

A wide range of advanced, customisable models for use in efficiently cooling or heating a space or an environment to a set temperature.

Key Features

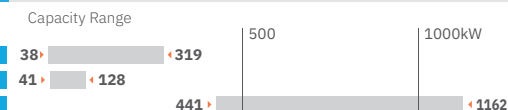
- Energy efficient, customisable chillers
- Low noise levels
- Low GWP, HFO and R513A refrigerant options
- Free cooling available
- Hot water production up to 78°C



Air to Water Reversible Heat Pumps

NX-N	Scroll compressors
i-NX-N	Inverter driven scroll compressors
FOCS-N	Screw compressors

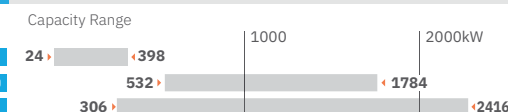
R 454B	SCROLL	AXIAL	P PLATES
INVERTER	SCROLL	AXIAL	P PLATES
SCREW	AXIAL	T SHELL&T	



Water to Water Heat Pumps Reversible on Hydraulic Side

NX-W/H	Scroll compressors
i-FX-W/H	Inverter screw compressors
FOCS2-W/H	Scroll compressors

R 513A	INVERTER	SCREW	F FLOODED
SCREW	T SHELL&T		



Water to Water Reversible Heat Pumps

NX-W/H	Scroll compressors
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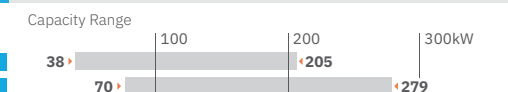
SCROLL	P PLATES
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Heating Only Heat Pumps

AW-HT	Air source with scroll compressors
EW-HT	Water source with scroll compressors

SCROLL	AXIAL	P PLATES
SCROLL	P PLATES	



For further information please contact your local sales office

INTEGRA

Simultaneous Heating & Cooling 4-Pipe Chiller System



Inverter Driven Compressor

The capacity is modulated resulting in increased efficiency as well as in the possibility to effectively implement smart management solutions such as active redundancy.



VPF

The VPF (Variable Primary Flow) dynamically optimises the unit's thermoregulation for variable flow operation, thus ensuring both the highest pump energy savings and stable chiller operation.



Smart Thermal Energy Management

An innovative heat recovery system that allows the smart use of rejected heat from the industrial process for comfort heating and other neighbouring applications.



High Water Temperature

A complete range of solutions designed to deliver high water temperature for any heating requirement.



Configurable Efficiency Set

3 energy efficiency standard configurations available with most hydronic units.

Air and Water sourced units for 4-pipe systems, using either scroll, screw or inverter screw compressors. Available from 45 to 1,125kW, these systems provide simultaneous heating and cooling in a highly efficient manner.

Key Features

- TER (Total efficiency Ratio) of up to 8
- Minimal footprint requiring less plant space
- Reduction of onsite operations as INTEGRA negates the need to connect to the gas network



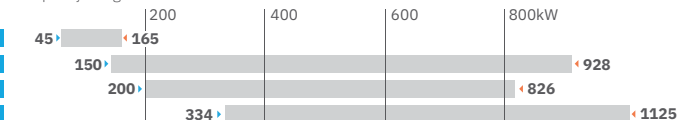
INTEGRA

Air to Water Units

i-NX-Q	Inverter scroll compressors
NECS-Q	Scroll compressors
ERACS2-Q	Screw compressors
i-FX-Q2	Inverter screw compressors



Capacity Range

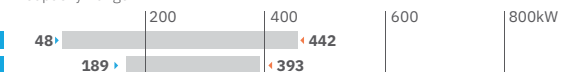


Water to Water Units

NECS-WQ	Scroll compressors
ERACS-WQ	Screw compressors

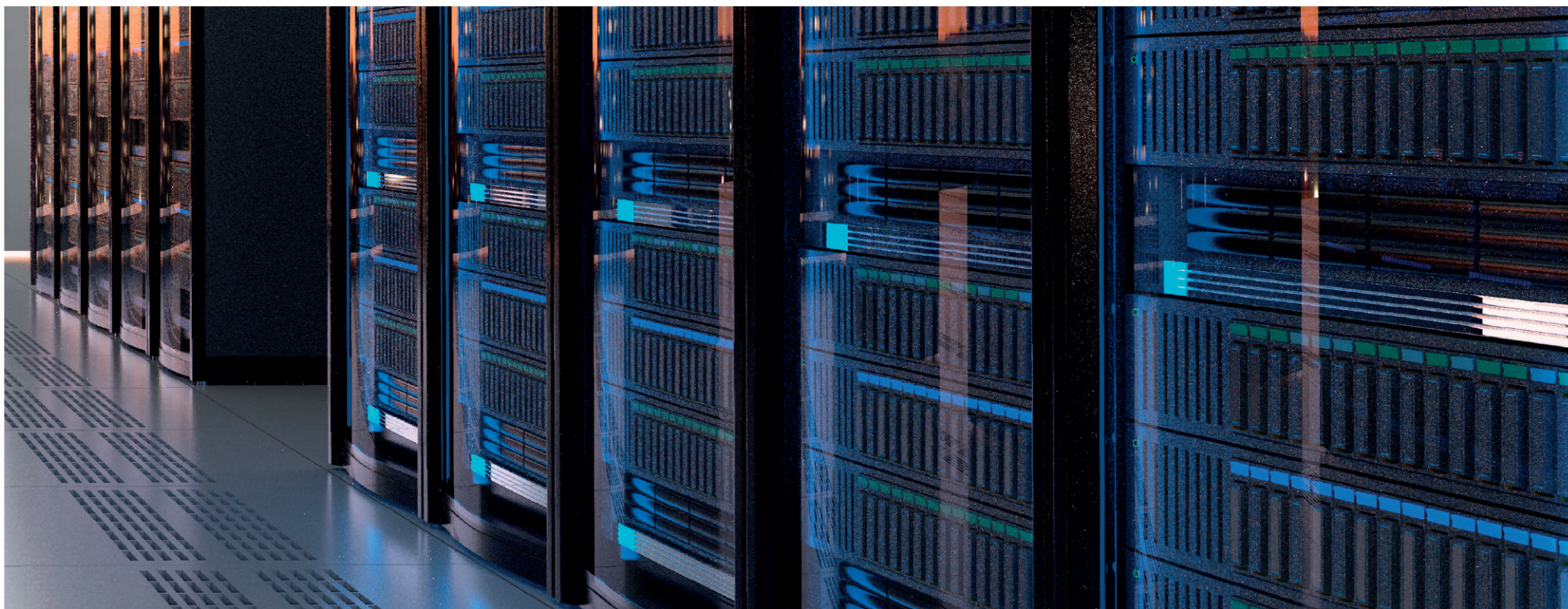


Capacity Range



I.T. Cooling

Close Control Computer Room
Air Conditioning Systems





Contents

s-MEXT-G00 DX R32 Close Control System	3.8
s-MEXT-G00 DX R410A Close Control System	3.9
i-NEXT DX R410A Close Control System	3.10
w-NEXT Chilled Water Close Control System	3.11
Accessories / Optional Extras	3.12

Close Control Air Conditioning Systems

Precise Temperature and Humidity Control

Complex I.T. environments are often characterised by variable cooling loads, which require a high cooling capacity at full load in order to allow the I.T. equipment to operate correctly when it is most needed.

Our I.T. Cooling range makes it possible to keep temperature and humidity constant, even with very wide load variations, ensuring the correct room conditions all year round.

The perfect match between efficiency and reliability

With our I.T. cooling systems, both efficiency and reliability are paramount throughout all the stages of research, design and manufacturing. By using this approach along **with over 50 years of manufacturing experience within the I.T. cooling sector**, we are able to offer tailor made I.T. Cooling solutions

Close Control Air Conditioning Systems

The need for high sensible cooling and close control of both temperatures and humidity in critical I.T. environments has never been higher.

Mitsubishi Electric and RC I.T. cooling systems have been designed to fulfil this requirement, reducing operational costs in the process through the use of highly efficient technology, with many systems incorporating inverter control as standard.



■ Mitsubishi Electric Perimeter Cooling units

Mitsubishi Electric's Close Control systems are specifically designed for rooms with a high sensible cooling load that require precise temperature and humidity control. Because of the need for close control 24 hours a day, 365 days a year, an inverter driven compressor has been incorporated into the outdoor units, maximising the energy efficiency of the system.

- Connects to Mr Slim Power Inverter outdoor units
- Easily integrates into existing and new control networks
- Quick recovery following power failure
- High Sensible cooling
- Close control of supply temperature
- Back-up and rotate function available
- Easy to install - no space required at the rear of the unit
- Inverter driven capacity control



■ RC Perimeter Cooling Units

The RC I.T. Cooling range of perimeter, upflow or downflow units have been designed to cool new and existing I.T. rooms efficiently and effectively. The perimeter range offers a broad range of unit types to meet any I.T. perimeter cooling demand.

- DX or chilled water versions available
- Precise temperature and humidity control
- New generation EC PUL (Polymeric ULtralight) high efficiency fans
- DC inverter technology
- Free cooling available
- Dual fluid circuits for the highest reliability
- Advanced control systems



Multi Density - Launching in 2020

Bringing together leading VRF technology and precision cooling

Mitsubishi Electric's new Multi Density systems combine the efficiency, quality and simplicity of City Multi VRF, with high performance in-row cooling solutions for high density data rooms.

- Plug and play
- High efficiency
- Long pipe runs
- Proven technology

In-Row Cooling Solution

These systems are suitable for application in modern I.T. infrastructure that is typically characterised by high thermal loads, and are particularly suitable for high density racks and blade server cooling in data centres with hot-spots.

The range is able to cope with the high density of the thermal load, with minimal impact of space in the data centre. In-row technology puts the air conditioning unit directly within the rows of racks to cool the localised heat sources (hot-spots).



CITY MULTI

Mitsubishi Electric cooling only VRF outdoor units

Multi Density is ideal for applications where high sensible cooling and close control of temperature in high density applications is required. Multi Density takes advantage of more than 50 years' experience of the RC brand within the I.T. Cooling market, coupled with Mitsubishi Electric renowned quality standards.

This indoor cooling package consists of multiple indoor 'coolside' close coupled air conditioners, connected to a City Multi VRF outdoor unit. The result is a full inverter multi-split system, designed according to the best quality standards and dedicated to the most reliable I.T. environments.

- Wide operating range
- Self-developed inverter compressor technology
- M-Net control
- Mitsubishi Electric Quality, manufactured in Japan



Air Conditioning for **High Density Racks and Blade Servers**

Rack Cooling Solutions

Rack cooling solutions have been designed for managing high density servers (blade servers), better known as hot-spots.

Through utilisation of advanced technology, these rack cooling units deliver targeted cooling exactly where it is required.

- DX or chilled water versions available
- Modulates airflow using EC high efficiency fans. The fans adapt to the thermal load detected by the sensors positioned in the hot and cold aisles
- Compatible with most rack systems and fully scalable
- Dual circuit and free cooling option available for N+1

Door Unit Cooling Solutions

Close-coupled cooling is one of the best ways to eliminate hot spots in a data centre environment.

The major advantage of door cooling systems lie in the fact that they are installed at the back of the rack (hot aisle), without occupying space that can then be used for servers. This in turn reduces the number of racks needed per row.

- New generation EC high efficiency fans
- Suitable for 42U / 48U racks
- Minimal intrusion into server space
- Dynamic control of air stratification
- Can be supplied with rack



s-MEXT-G00 DX

R32 Close Control System

High precision air conditioners are ideal for applications where high sensible cooling and close control of temperature and humidity are required.

s-MEXT takes advantage of more than 50 years experience of the RC brand within the I.T. Cooling market, coupled with Mitsubishi Electric renowned quality standards. The split cooling package consists of the indoor s-MEXT high precision air conditioner connected to a Mr Slim R32 Power Inverter outdoor unit. The result is a full inverter split system, designed according to the best quality standards and dedicated to the most reliable I.T. environments.

Key Features

- High Efficiency - full Mitsubishi Electric inverter technology and EC plug fans
- Small footprint
- Pipe runs up to 100m
- Trusted Mr Slim Power Inverter technology
- Available in Upflow [over] and Downflow [under] variants

R32



CRAC UNITS (Computer Room Air Conditioning)		s-MEXT-G00 DX 006 S F1	s-MEXT-G00 DX 009 S F1	s-MEXT-G00 DX 013 S F1	s-MEXT-G00 DX 022 S F2	s-MEXT-G00 DX 038 D F3	s-MEXT-G00 DX 044 D F3
COOLING CAPACITY (kW)*1	Total	6.82	10.1	11.9	22.6	39.0	42.5
	Sensible	6.18	8.91	10.2	19.3	33.6	35.3
SHR*2		0.91	0.88	0.86	0.85	0.86	0.83
SYSTEM EER		4.67	4.30	3.49	3.18	3.58	2.88
EC SUPPLY FAN (no.)		1	1	1	2	1	1
AIRFLOW (m³/h)		2,000	2,500	2,800	5,000	8,800	10,000
NOMINAL EXTERNAL STATIC PRESSURE (Pa)		20	20	20	20	20	20
MAX EXTERNAL STATIC PRESSURE (Pa)		208	22	110	21	129	20
POWER INPUT (kW)*3		0.21	0.35	0.47	0.70	1.43	1.96
REFRIGERANT		R32	R32	R32	R32	R32	R32
REFRIGERANT CIRCUITS (no.)		1	1	1	1	2	2
AIR FILTERS (no.)		1	1	1	2	4	4
SOUND LEVEL [ISO 3744] (dB(A))*4	Extended filtering surface (m²)	0.68	0.68	0.68	1.05	1.76	1.76
	Efficiency [ISO EN 16890] (COARSE)	60%	60%	60%	60%	60%	60%
	Pressure Level	53	57	61	60	63	67
	Power Level	69	73	77	76	79	83
POWER SUPPLY (V/Ph/Hz)		230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	400 / 3 / 50+N	400 / 3 / 50+N
ABSORBED CURRENT (A)*3		1.5	2.1	2.7	3.0	2.1	2.8
STARTING CURRENT (A)		2.0	2.0	2.8	3.3	3.8	3.8
MAX ABSORBED CURRENT (A)		2.3	2.3	2.8	3.9	3.8	3.8
ELECTRICAL PANEL	Power Input (kW)	0.14	0.14	0.14	0.14	0.14	0.14
DIMENSIONS (mm)	Width	600	600	600	1,000	1,000	1,000
	Depth	500	500	500	500	890	890
	Height	1,980	1,980	1,980	1,980	1,980	1,980
NET WEIGHT (kg)	Upflow	103	106	110	165	237	237
	Downflow	110	115	120	175	247	247
CONNECTIONS	Refrigerant pipes diameter - Gas (Ø Inch)	5/8"	5/8"	5/8"	1"	1"	1"
	Refrigerant pipes diameter - Liquid (Ø Inch)	3/8"	3/8"	3/8"	1/2"	3/8"	1/2"
	Condensate (Ømm)*5	19	19	19	19	19	19
	Power Supply wiring Cable (no. x mm²)*6	3G1.5	3G1.5	3G1.5	3G1.5	5G1.5	5G1.5

OUTDOOR UNITS		PUZ-ZM60VHA	PUZ-ZM100VKAR1	PUZ-ZM125YKAR2	PUZ-ZM250YKA	2 x PUZ-ZM200YKA	2 x PUZ-ZM250YKA
SOUND PRESSURE LEVEL (dB(A))	Cooling	47	49	50	59	59	59
WEIGHT (kg)		70	116	125	138	137	138
DIMENSIONS (mm)	Width x Depth x Height	950 x 330 x 25 x 943	1050 x 330 x 40 x 1338	1050 x 330 x 40 x 1338	1050 x 330x40 x 1338	1050 x 330x40 x 1338	1050 x 330x40 x 1338
ELECTRICAL SUPPLY		220-240V, 50Hz	220-240V, 50Hz	380-415V, 50Hz	380-415V, 50Hz	380-415V, 50Hz	380-415V, 50Hz
PHASE		Single	Single	Three	Three	Three	Three
OUTDOOR POWER INPUT (kW)	Cooling (nominal)	1.25	2.00	2.94	6.41	4.73	6.41
STARTING CURRENT (A)		6.0	13.0	6.0	12.3	8.67	12.3
MAX RUNNING CURRENT (A)	Cooling	19.2	27.0	10.0	22.5	22.5	22.5
FUSE RATING (BS88) - HRC (A)		25	32	16	32	32	32
MAINS CABLE	No. Cores	3	3	5	5	5	5
MAX PIPE LENGTH (m)		55	100	100	100	100	100
MAX HEIGHT DIFFERENCE (m)		30	30	30	30	30	30
CHARGE REFRIGERANT (kg) / CO ₂ EQUIVALENT (t)	R32 (GWP 675) - 30m	2.80 / 1.89	4.00 / 2.70	4.00 / 2.70	6.80 / 4.59	6.30 / 4.25	6.80 / 4.59
MAX ADDITIONAL REFRIGERANT (kg) / CO ₂ EQUIVALENT (t)	R32 (GWP 675)	0.80 / 0.54	2.80 / 1.89	2.80 / 1.89	2.40 / 1.62 (70m)*7	1.60 / 1.08 (70m)*7	2.40 / 1.62 (70m)*7
GUARANTEED OPERATING RANGE (°C)	Max Temp	46	46	46	46	46	46
	Min Temp*8	-15	-15	-15	-15	-15	-15

Notes:

The cooling capacity does not consider the supply fan motor thermal load.

*1 Gross value based on return air of 27°C - 47%RH; Ambient Temperature 35°C; ESP=20Pa; Interconnecting pipework length 5m.

*2 SHR = Sensible cooling capacity / Total cooling capacity.

*3 Corresponding to the nominal ESP=20Pa.

*4 Sound pressure level on air return at 1m.

*5 Rubber pipe - referred to internal diameter.

*6 Minimum section.

*7 For 70 to 100m please consult the service handbook.

*8 Optional air protection guide is required for temperatures below -5°C.

These units contain <HFC R32 [GWP100 675]> fluorinated greenhouse gas.

s-MEXT-G00 DX

R410A Close Control System

High precision air conditioners are ideal for applications where high sensible cooling and close control of temperature and humidity are required.

s-MEXT takes advantage of more than 50 years experience of the RC brand within the I.T. Cooling market, coupled with Mitsubishi Electric renowned quality standards. The split cooling package consists of the indoor s-MEXT high precision air conditioner connected to a Mr Slim R410A Power Inverter outdoor unit. The result is a full inverter split system, designed according to the best quality standards and dedicated to the most reliable I.T. environments.

Key Features

- High Efficiency - full Mitsubishi Electric inverter technology and EC plug fans
- Small footprint
- Pipe runs up to 100m
- Trusted Mr Slim Power Inverter technology
- Available in Upflow [over] and Downflow [under] variants



CRAC UNITS (Computer Room Air Conditioning)		s-MEXT-G00 DX 006 S F1	s-MEXT-G00 DX 009 S F1	s-MEXT-G00 DX 013 S F1	s-MEXT-G00 DX 022 S F2	s-MEXT-G00 DX 038 D F3	s-MEXT-G00 DX 044 D F3
COOLING CAPACITY (kW)*1	Total	6.79	10.1	11.9	22.5	38.8	42.4
	Sensible	6.28	9.0	10.3	19.5	34.0	37.5
SHR*2		0.92	0.89	0.87	0.87	0.88	0.88
SYSTEM EER		3.90	4.01	3.01	2.88	3.15	2.62
EC SUPPLY FAN (no.)		1	1	1	2	1	1
AIRFLOW (m³/h)		2,000	2,500	2,800	5,000	8,800	10,000
NOMINAL EXTERNAL STATIC PRESSURE (Pa)		20	20	20	20	20	20
MAX EXTERNAL STATIC PRESSURE (Pa)		208	22	110	21	129	20
POWER INPUT (kW)*3		0.21	0.35	0.47	0.7	1.43	1.96
REFRIGERANT		R410A	R410A	R410A	R410A	R410A	R410A
REFRIGERANT CIRCUITS (no.)		1	1	1	1	2	2
AIR FILTERS (no.)		1	1	1	2	4	4
SOUND LEVEL [ISO 3744] (dB(A))*4	Extended filtering surface (m²)	0.68	0.68	0.68	1.05	1.76	1.76
	Efficiency [ISO EN 16890] (COARSE)	60%	60%	60%	60%	60%	60%
	Pressure Level	53	57	61	60	63	67
	Power Level	69	73	77	76	79	83
POWER SUPPLY (V/Ph/Hz)		230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	400 / 3 / 50+N	400 / 3 / 50+N
ABSORBED CURRENT (A)*3		1.5	2.1	2.7	3.0	2.1	2.8
STARTING CURRENT (A)		2.0	2.0	2.8	3.3	3.8	3.8
MAX ABSORBED CURRENT (A)		2.3	2.3	2.8	3.9	3.8	3.8
ELECTRICAL PANEL	Power Input (kW)	0.14	0.14	0.14	0.14	0.14	0.14
DIMENSIONS (mm)	Width	600	600	600	1,000	1,000	1,000
	Depth	500	500	500	500	890	890
	Height	1,980	1,980	1,980	1,980	1,980	1,980
NET WEIGHT (kg)	Upflow	103	106	110	165	237	237
	Downflow	110	115	120	175	247	247
CONNECTIONS	Refrigerant pipes diameter - Gas (Ø Inch)	5/8"	5/8"	5/8"	1"	1"	1"
	Refrigerant pipes diameter - Liquid (Ø Inch)	3/8"	3/8"	3/8"	1/2"	3/8"	1/2"
	Condensate (Ømm)*5	19	19	19	19	19	19
	Power Supply wiring Cable (no. x mm²)*6	3G1.5	3G1.5	3G1.5	3G1.5	5G1.5	5G1.5

OUTDOOR UNITS		PUHZ-ZRP60VHA2	PUHZ-ZRP100VKA3	PUHZ-ZRP125YKA3	PUHZ-ZRP250YKA3	2 x PUHZ-ZRP200YKA3	2 x PUHZ-ZRP250YKA3
SOUND PRESSURE LEVEL (dB(A))	Cooling	47	49	50	59	59	59
WEIGHT (kg)		70	116	125	135	135	135
DIMENSIONS (mm)	Width x Depth x Height	950 x 330 x 30 x 943	1050 x 330 x 40 x 1338	1050 x 330 x 40 x 1338	1050 x 330x40 x 1338	1050 x 330x40 x 1338	1050 x 330x40 x 1338
ELECTRICAL SUPPLY		220-240V, 50Hz	220-240V, 50Hz	380-415V, 50Hz	380-415V, 50Hz	380-415V, 50Hz	380-415V, 50Hz
PHASE		Single	Single	Three	Three	Three	Three
OUTDOOR POWER INPUT (kW)	Cooling (nominal)	1.53	2.17	3.49	7.11	5.44	7.11
STARTING CURRENT (A)		5	12	4	5	5	5
MAX RUNNING CURRENT (A)	Cooling	19	26.5	9.45	21	19	21
FUSE RATING (BS88) - HRC (A)		25	32	16	32	32	32
MAINS CABLE	No. Cores	3	3	5	5	5	5
MAX PIPE LENGTH (m)		50	75	75	100	100	100
MAX HEIGHT DIFFERENCE (m)		30	30	30	30	30	30
CHARGE REFRIGERANT (kg) / CO ₂ EQUIVALENT (t)	R410A (GWP 2088) - 30m	3.50 / 7.31	5.00 / 10.44	5.00 / 10.44	7.70 / 16.08	7.10 / 14.82	7.70 / 16.08
MAX ADDITIONAL REFRIGERANT (kg) / CO ₂ EQUIVALENT (t)	R410A (GWP 2088)	1.20 / 2.51	2.40 / 5.01	2.40 / 5.01	4.80 / 10.02 (75m)*7	3.60 / 7.52 (75m)*7	4.80 / 10.02 (75m)*7
GUARANTEED OPERATING RANGE (°C)	Max Temp	46	46	46	46	46	46
	Min Temp*8	-15	-15	-15	-15	-15	-15

Notes:

The cooling capacity does not consider the supply fan motor thermal load.

*1 Gross value based on return air of 27°C - 47%RH; Ambient Temperature 35°C; ESP=20Pa; Interconnecting pipework length 5m.

*2 SHR = Sensible cooling capacity / Total cooling capacity.

*3 Corresponding to the nominal ESP=20Pa.

*4 Sound pressure level on air return at 1m.

*5 Rubber pipe - referred to internal diameter.

*6 Minimum section.

*7 For 75 to 100m please consult the service handbook.

*8 Optional air protection guide is required for temperatures below -5°C.

These units contain <HFC R410A [GWP100 2088]> fluorinated greenhouse gas.

i-NEXT DX

R410A Close Control System



High precision air conditioners are ideal for applications where high sensible cooling and close control of temperature and humidity are required.

The i-NEXT direct expansion air cooled range incorporates full inverter driven BLDC Mitsubishi Electric compressors and a new microchannel coil remote condenser, perfect for keeping room conditions constant under varying loads, whilst being highly efficient.

Key Features

- Perimeter unit with downflow and upflow configurations
- Full inverter technology with BLDC Mitsubishi Electric compressors
- Ultralight composite EC plug fans resulting in reduced noise and power usage
- Integrated control of up to 10 units for intelligent redundancy management
- Front access to main components for easy inspection and routine maintenance
- Automatic restart from power outage
- Return air temperature operating limits up to 40°C
- New microchannel coil remote condensers with AC axial fans
- Optional Modbus RS485 and BACnet TCP/IP connectivity
- Optional electrical heater and steam humidifiers
- Optional floor stands and discharge plenums



CRAC UNITS (Computer Room Air Conditioning)		i-NEXT DX 012 M1 S E1	i-NEXT DX 018 M1 S E2	i-NEXT DX 022 M1 S E3	i-NEXT DX 030 M1 S E4	i-NEXT DX 047 M1 S E5	i-NEXT DX 042 M2 D E5	i-NEXT DX 068 M2 D E7	i-NEXT DX 094 M2 D E8	i-NEXT DX 120 M4 D E9 ¹	i-NEXT DX 150 M4 D E9 ¹
COOLING CAPACITY (kW) ²	Capacity Range	3.2 - 10.0	6.7 - 20.4	7.1 - 23.1	12.5 - 37.7	17.4 - 51.6	15.4 - 47.4	23.9 - 75.7	33.5 - 101.0	25.7 - 108.0	32.1-129.0
	Total	10.0	20.4	23.1	37.7	51.6	47.4	75.7	101.0	108.0	129.0
	Sensible	9.8	19.3	23.1	37.7	51.4	47.4	75.7	97.1	108.0	129.0
SHR ³	Nominal	0.98	0.95	1.00	1.00	0.99	1.00	1.00	0.96	1.00	1.00
	Nominal	3.21	2.80	3.18	3.02	2.98	3.14	3.12	3.01	3.21	2.79
EER ⁴	Nominal	3.21	2.80	3.18	3.02	2.98	3.14	3.12	3.01	3.21	2.79
	Nominal	3.21	2.80	3.18	3.02	2.98	3.14	3.12	3.01	3.21	2.79
EC SUPPLY FAN(S)	No.	1	1	1	1	1	1	2	2	3	3
	No.	1	1	1	1	1	1	2	2	3	3
AIRFLOW (m³/h)	No.	2,800	4,100	5,500	10,000	12,000	12,000	20,000	22,000	28,000	32,000
	No.	2,800	4,100	5,500	10,000	12,000	12,000	20,000	22,000	28,000	32,000
EXTERNAL STATIC PRESSURE (Pa)	Nominal	20	20	20	20	20	20	20	20	20	20
	Nominal	20	20	20	20	20	20	20	20	20	20
MAX EXTERNAL STATIC PRESSURE (Pa)	Nominal	75	311	831	191	217	283	451	388	572	379
	Nominal	75	311	831	191	217	283	451	388	572	379
POWER INPUT (kW)	Fan Motor ESP=20Pa	0.29	0.52	0.78	2.04	2.27	2.05	3.51	3.72	4.20	5.82
	Total ⁴	3.11	7.28	7.27	12.50	17.30	15.10	24.30	33.60	33.60	46.30
REFRIGERANT	No.	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
	No.	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
REFRIGERANT CIRCUITS	No.	1	1	1	1	1	2	2	2	2	2
	No.	1	1	1	1	1	2	2	2	2	2
COMPRESSORS	No.	BLDC Rotary Inverter	BLDC Scroll Inverter	BLDC Scroll Inverter	BLDC Scroll Inverter	BLDC Scroll Inverter	2x BLDC Scroll Inverter	2x BLDC Scroll Inverter	2x BLDC Scroll Inverter	4x BLDC Scroll ⁶	4x BLDC Scroll ⁶
	No.	BLDC Rotary Inverter	BLDC Scroll Inverter	BLDC Scroll Inverter	BLDC Scroll Inverter	BLDC Scroll Inverter	2x BLDC Scroll Inverter	2x BLDC Scroll Inverter	2x BLDC Scroll Inverter	4x BLDC Scroll ⁶	4x BLDC Scroll ⁶
AIR FILTERS	No.	1	1	2	2	3	3	4	5	6	6
	No.	1	1	2	2	3	3	4	5	6	6
EFFICIENCY (ISO EN 16890) (COARSE)	No.	0.6	0.8	1.2	2.1	2.6	2.6	3.9	4.5	5.2	5.2
	No.	0.6	0.8	1.2	2.1	2.6	2.6	3.9	4.5	5.2	5.2
SOUND LEVEL dBA (ISO3774) ⁵	Downflow - Power / Pressure	63 / 47	64 / 48	62 / 46	74 / 57	76 / 59	76 / 59	75 / 58	78 / 60	80 / 62	80 / 62
	Upflow - Power / Pressure	69 / 53	63 / 47	65 / 49	75 / 58	81 / 64	81 / 64	79 / 62	83 / 65	N/A	N/A
POWER SUPPLY (V/Ph/Hz)	No.	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N
	No.	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N	400 / 3 / 50+N
STARTING CURRENT (A)	No.	4.3	5.7	8.2	9.2	11.4	8.4	13.9	15.9	70.9	72.9
	No.	4.3	5.7	8.2	9.2	11.4	8.4	13.9	15.9	70.9	72.9
MAX RUNNING CURRENT (A)	No.	17.3	18.7	21.2	29.2	29.4	38.4	58.9	58.9	90.9	90.9
	No.	17.3	18.7	21.2	29.2	29.4	38.4	58.9	58.9	90.9	90.9
DIMENSIONS (mm)	Width	650	785	1,085	1,305	1,630	1,630	2,175	2,499	2,899	2,899
	Depth	675	675	775	930	930	930	930	930	930	930
NET WEIGHT (kg)	Height	1,925	1,925	1,925	1,980	1,980	1,980	1,980	1,980	1,980	1,980
	Downflow	220	250	330	440	490	575	705	865	985	1,010
CONNECTIONS	Upflow	210	240	320	430	480	565	650	805	N/A	N/A
	Refrigerant pipe diameter - Gas (Ø mm) ⁷	12	16	16	18	22	2 x 16	2 x 18	2 x 22	2 x 28	2 x 28
CONNECTIONS	Refrigerant pipe diameter - Liquid (Ø mm) ⁷	12	12	16	16	22	2 x 16	2 x 16	2 x 22	2 x 22	2 x 22
	Condensate (Ø mm) ⁸	19	19	19	19	19	19	19	19	19	19

OUTDOOR UNITS / REMOTE CONDENSER(S)		GR-Z A B 50 013	GR-Z A B 50 027	GR-Z A B 50 034	GR-Z A B 50 049	GR-Z A B 50 067	2 x GR-Z A B 50 034	2 x GR-Z A B 50 049	2 x GR-Z A B 50 067	2 x GR-Z A B 50 082	2 x GR-Z A B 50 082
AIRFLOW (m³/h)		3,300	8,350	9,550	15,555	19,000	9,550	15,555	19,000	25,000	25,000
POWER SUPPLY (V/Ph/Hz)		230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50
MAX POWER INPUT (kW)		0.32	0.64	0.64	1.08	1.28	0.64	1.08	1.28	1.92	1.92
MAX RUNNING CURRENT (A)		1.40	2.90	2.90	4.94	5.80	2.90	4.94	5.80	8.70	8.70
SOUND PRESSURE LEVEL dBA(A) ⁵		50	55	56	54	58	56	54	58	59	59
DIMENSIONS (mm)	1m (ISO3744)	770 x 718 x 900	1150 x 718 x 900	1360 x 718 x 1100	2040 x 718 x 1100	2600 x 718 x 1100	1360 x 718 x 1100	2040 x 718 x 1100	2600 x 718 x 1100	2600 x 718 x 1100	2600 x 718 x 1100
	Vertical Airflow (W x L x H)	940 x 770 x 1143	940 x 1150 x 1168	1140 x 1360 x 1168	1140 x 2040 x 1168	1140 x 2600 x 1168	1140 x 1360 x 1168	1140 x 2040 x 1168	1140 x 2600 x 1168	1140 x 2600 x 1168	1140 x 2600 x 1168
NET WEIGHT (kg)		30	45	53	86	100	53	86	100	120	120
CONNECTION SIZE	Refrigerant pipe diameter - Gas (Ø mm) ⁷	16	18	18	22	22	18	22	22	28	28
	Refrigerant pipe diameter - Liquid (Ø mm) ⁷	12	16	16	18	18	16	18	18	22	22

THE COOLING CAPACITY DOES NOT CONSIDER THE SUPPLY FAN MOTOR THERMAL LOAD

¹ Downflow version only.

² Gross value based on return air at 26°C - 40%RH; Ambient Temperature 35°C with above condenser(s) models.

³ SHR = Sensible cooling capacity / Total cooling capacity.

⁴ Compressor(s) & Fan(s) input power (ESP=20Pa) - Remote air cooled condenser not included.

⁵ Average level at 1m from unit in free field conditions.

⁶ In 2(1+) configuration, 2 inverter driven with 2 direct online.

⁷ Please refer to i-NEXT databook for interconnecting pipework size.

⁸ Rubber pipe - refers to internal diameter.

These units contain <HFC R410A [GWP100 2088]> fluorinated greenhouse gas.

w-NEXT

Chilled Water Close Control System



High precision air conditioners are ideal for applications where high sensible cooling and close control of temperature and humidity are required.

The w-NEXT chilled water range incorporates the latest EC plug fan(s), advanced controls software and an increased coil area resulting in the highest efficiency.

Key Features

- High Efficiency - EC plug fans
- Small footprint
- Adaptive Set Point
- Active Redundancy
- Available in Upflow [over] and Downflow [under] variants

CRAC UNITS (Computer Room Air Conditioning)		w-NEXT S 007 E0	w-NEXT S 013 E1	w-NEXT S 021 E2	w-NEXT S 032 E3	w-NEXT S 045 E3P	w-NEXT S 053 E4	w-NEXT S 072 E5
CAPACITY (kW)*2	Total	6.5	11.2	18.9	29.1	41.0	48.1	66.1
	Sensible	5.8	11.2	18.9	29.1	41.0	48.1	66.1
SHR*3		0.89	1.00	1.00	1.00	1.00	1.00	1.00
EER		54.2	38.6	21.5	17.5	18.6	22.4	22.8
EC SUPPLY FAN(S)	No.	1	1	1	1	1	1	2
AIRFLOW (m³/h)		1,800	2,900	4,920	7,800	10,800	13,100	16,350
EXTERNAL STATIC PRESSURE (Pa)		20	20	20	20	20	20	20
MAX EXTERNAL STATIC PRESSURE (Pa)		82	75	101	471	297	194	532
POWER INPUT (kW)*4		0.12	0.29	0.88	1.66	2.20	2.15	2.90
AIR FILTERS	No.	1	1	1	2	2	3	3
	Extended filtering surface (m²)	0.28	0.61	0.78	1.24	1.71	2.07	2.59
	Efficiency [ISO EN 16890] (COARSE)	40%	60%	60%	60%	60%	60%	60%
CHILLED WATER FLOW RATE (l/s)		0.31	0.54	0.90	1.39	1.96	2.30	3.16
WATERSIDE PRESSURE DROP (kPa)	Coil + 2-Port Valve	25.6	16.4	45.2	40.9	34.1	37.3	42.9
SOUND LEVEL dB(A) (ISO3774)*5	Downflow - Power / Pressure	58 / 43	63 / 47	67 / 51	68 / 52	73 / 57	74 / 57	73 / 56
	Upflow - Power / Pressure	65 / 50	67 / 51	71 / 55	72 / 56	77 / 61	78 / 61	77 / 60
POWER SUPPLY (V/Ph/Hz)		230 / 1 / 50	400 / 3+N / 50	400 / 3+N / 50	400 / 3+N / 50	400 / 3+N / 50	400 / 3+N / 50	400 / 3+N / 50
MAX POWER ABSORBED (kW)		0.15	1.32	0.97	2.70	2.90	2.70	5.40
MAX RUNNING CURRENT (A)		1.2	2.1	1.7	4.2	4.4	4.2	8.4
DIMENSIONS (mm)	Width	655	650	785	1085	1085	1305	1630
	Depth	445	675	675	675	930	930	930
	Height	1680	1925	1925	1925	1925	1980	1980
NET WEIGHT (kg)	Downflow	150	203	239	302	321	345	470
	Upflow	150	216	257	325	329	379	428
	Water Inlet / Outlet ISO 7/1 (Ø inch)	3/4"	1"	1"	1 1/4"	1 1/4"	1 1/2"	2"
CONNECTIONS	Condensate (Ømm)*6	19	19	19	19	19	19	19

CRAC UNITS (Computer Room Air Conditioning)		w-NEXT S 081 E6	w-NEXT S 100 E7	w-NEXT S 120 E8	w-NEXT S 138 E9	w-NEXT S 160 E10*1	w-NEXT S 215 E10*1
CAPACITY (kW)*2	Total	73.5	91.6	111.0	126.0	147.0	204.0
	Sensible	73.5	91.6	111.0	126.0	147.0	177.0
SHR*3		1.00	1.00	1.00	1.00	1.00	0.87
EER		21.2	23.0	17.8	19.6	22.8	31.7
EC SUPPLY FAN(S)	No.	2	2	3	3	3	3
AIRFLOW (m³/h)		20,000	24,200	28,300	33,100	37,150	37,150
EXTERNAL STATIC PRESSURE (Pa)		20	20	20	20	20	20
MAX EXTERNAL STATIC PRESSURE (Pa)		458	247	237	309	207	207
POWER INPUT (kW)*4		3.47	3.98	6.22	6.42	6.44	6.44
AIR FILTERS	No.	4	4	5	6	6	6
	Extended filtering surface (m²)	3.16	3.83	4.47	5.24	6.54	6.54
	Efficiency [ISO EN 16890] (COARSE)	60%	60%	60%	60%	60%	60%
CHILLED WATER FLOW RATE (l/s)		3.51	4.38	5.33	6.04	7.03	9.74
WATERSIDE PRESSURE DROP (kPa)	Coil + 2-Port Valve	35.6	31.7	48.6	47	66.7	62.2
SOUND LEVEL dB(A) (ISO3774)*5	Downflow - Power / Pressure	75 / 58	76 / 59	79 / 61	80 / 62	79 / 61	79 / 61
	Upflow - Power / Pressure	79 / 62	80 / 63	83 / 65	81 / 63	N/A	N/A
POWER SUPPLY (V/Ph/Hz)		400 / 3+N / 50	400 / 3+N / 50	400 / 3+N / 50	400 / 3+N / 50	400 / 3+N / 50	400 / 3+N / 50
MAX POWER ABSORBED (kW)		5.80	5.40	8.10	8.70	8.10	8.10
MAX RUNNING CURRENT (A)		8.9	8.3	12.6	13.3	12.5	12.5
DIMENSIONS (mm)	Width	1875	2175	2499	2899	3510	3510
	Depth	930	930	930	930	930	930
	Height	1980	1980	1980	1980	1980	1980
NET WEIGHT (kg)	Downflow	531	589	660	753	900	970
	Upflow	483	535	598	679	N/A	N/A
CONNECTIONS	Water Inlet / Outlet ISO 7/1 (Ø inch)	2"	2 1/2"	2 1/2"	3"	3"	3"
	Condensate (Ømm)*6	19	19	19	19	19	19

THE COOLING CAPACITY DOES NOT CONSIDER THE SUPPLY FAN MOTOR THERMAL LOAD

*1 Downflow version only.

*2 Gross value based on return air at 24°C - 45%RH; Chiller water 7°C / 12°C.

*3 SHR = Sensible cooling capacity / Total cooling capacity.

*4 Fan(s) input power (ESP=20Pa).

*5 Average level at 1m from unit in free field conditions.

*6 Rubber pipe - refers to internal diameter.

I.T. Cooling Accessories / Optional Extras

DESCRIPTION

s-MEXT-G00 DX Accessories

Modbus serial card
 BACnet TCP/IP serial card
 Floor stand with rubber holders (255-350mm)
 Floor stand with rubber holders (355-450mm)
 Floor stand with rubber holders (400-510mm)
 Electric heater
 Steam humidifier
 Air discharge plenum (downflow)
 Air discharge plenum (upflow)
 Panel(s) for return air suction from below (upflow)

i-NEXT DX Accessories

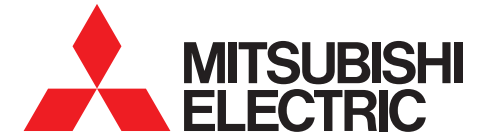
Modbus serial card
 BACnet TCP/IP serial card
 Floor stand with rubber holders (255-350mm)
 Floor stand with rubber holders (355-450mm)
 Floor stand with rubber holders (400-510mm)
 Electric heater
 Steam humidifier
 Air discharge plenum (downflow)
 Air discharge plenum (upflow)
 Panel(s) for return air suction from below (upflow)

w-NEXT Accessories

Modbus serial card
 BACnet TCP/IP serial card
 Floor stand with rubber holders (255-350mm)
 Floor stand with rubber holders (355-450mm)
 Floor stand with rubber holders (400-510mm)
 Electric heater
 Steam humidifier
 Air discharge plenum (downflow)
 Air discharge plenum (upflow)
 Panel(s) for return air suction from below (upflow)

Heating

Ecodan Renewable Heating Systems





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Ecodan Heat Pumps - Renewable Heating Systems

There is now no doubt that the world is in a climate crisis and that we need to act immediately to avoid catastrophic climate change. The UK Government have reacted by being the first major economy to pass net zero (Greenhouse Gas) emission laws. Renewable technologies, such as heat pumps, have become an integral part of the solution to the problem of reducing carbon emissions generated through heating.

As a market leader in both commercial and domestic heat pumps, Mitsubishi Electric is a pioneer in the development of this renewable technology. Around the world, heat pumps have been utilised for decades and Mitsubishi Electric has refined this technology to produce Ecodan - one of the most advanced, efficient heating systems available on the market today.

The award winning Ecodan heat pumps are available from 4kW up to 960kW, making them suitable for virtually any property, from small flats to large detached houses, from an office block to a school. They are the renewable, low carbon alternative to traditional high carbon heating systems.

- Renewable heating solution capable of reducing emissions and achieving climate targets
- Highly efficient, proven and refined technology that can lower energy bills
- Range of easy to design, install and maintain systems suitable for a variety of property and application types

Ecodan heat pumps are a renewable heating technology that efficiently and reliably generates sustainable space heating and hot water all year round, delivering a level of comfort that sets the technology apart from other forms of heating.



TV presenter, architect, lecturer and writer, George Clarke is a passionate advocate of design excellence and high levels of quality in the construction industry.

“ The way we design, build, heat, power and recycle our homes needs to change, and change quickly, and renewable heating is an important part of our future.

I'm therefore delighted to associate myself with Ecodan, the market-leading brand of heat pumps built here in the UK and which can help reduce energy bills and lower emissions for almost any home. ”

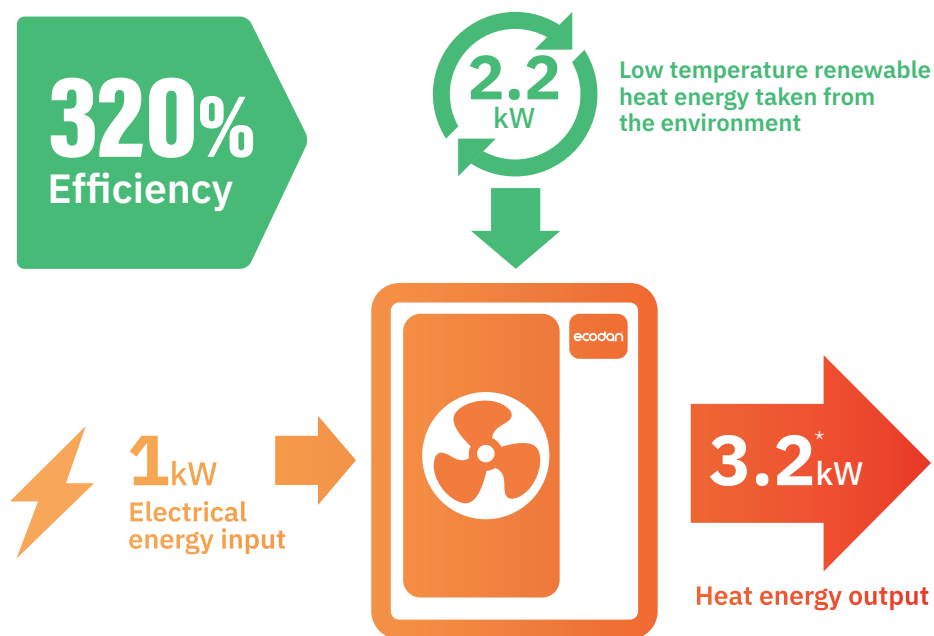
George Clarke

Ecodan Brand Ambassador

How do Ecodan air source heat pumps work?

Ecodan heat pumps harvest, upgrade and move heat from one location to another.

To achieve this, the **vapour compression cycle** is used, which has the ability to take low temperature renewable heat from the environment and raise it to usable temperatures capable of handling the space and water heating loads required in buildings.

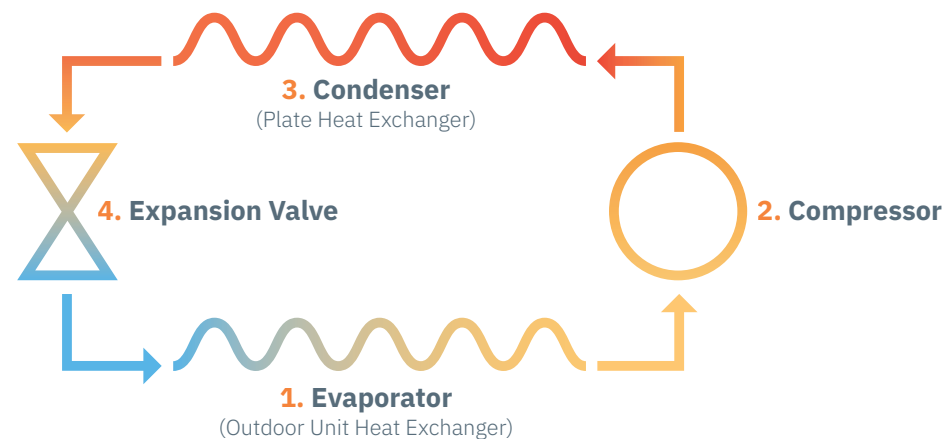


*As independently tested by BSRIA based upon BSEN14511 Part 3 standard rating conditions. Due to the method of operation, the performance of heat pumps will vary based upon the temperature of the heat source and the requirements of the heat delivered. The BSEN14511 testing relates to the heat pump performance only and not the entire heating system.

What is the vapour compression cycle?

■ At the beginning of the first phase the refrigerant is a cold low pressure liquid

- 1 Refrigerant passes through the evaporator and is exposed to the heat energy of the outside air. As the air flows over the evaporator coil, this heat energy is transferred to the refrigerant, causing it to pressurise into a warm vapour.
- 2 This warm vapour then enters the compressor where its temperature increases as a result of the compression process and turns into a hot gas.
- 3 Hot refrigerant gas passes through the condenser (plate heat exchanger) and transfers its heat energy into the (cooler) water side that is connected to the primary water circuit. The heated water in this circuit is then used to heat up a hot water cylinder inside the property. Due to this energy transfer, the passing hot refrigerant gas cools and transforms back into a cool vapour.
- 4 Although the refrigerant vapour has cooled, in order to return the refrigerant back to its initial state, it is passed through an expansion valve. This lowers the pressure of the cool refrigerant vapour and transforms it back into a low pressure liquid - allowing for the vapour compression cycle to start once again.



■ This process is repeated

As the refrigerant boils at -46°C, there is still plenty of energy in the air on a cold day to make the process work.

Ecodan Toolbox

Guidance and Support

With consideration for a multitude of different customers and requirements, Mitsubishi Electric have developed a wide range of advanced Ecodan products suited to satisfy the demands of the market.

Resources that provide guidance and support to optimise the performance and clarify the different types of Ecodan systems are readily available within our online Document Library and supporting digital media sources.

Whether technical product information sheets are required for a design specification, a brochure is required for a prospective customer, or a video is needed that explains how a heat pump is different from a common gas or oil boiler, an archive of useful resources are available at the click of a button.

Please visit the website:

library.mitsubishielectric.co.uk/pdf/directory/heating

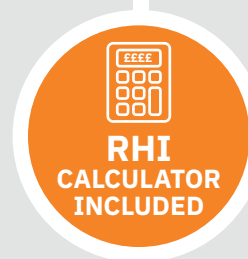
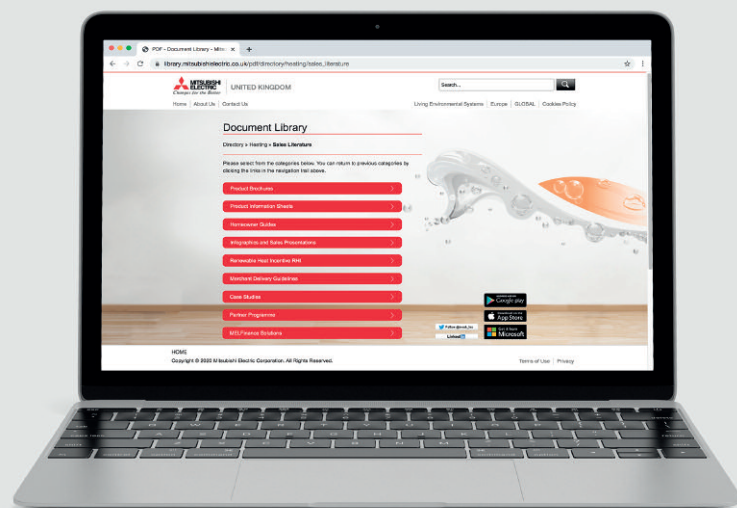
Ecodan Selection Tool

The Ecodan Heat Pump Selection Tool enables different customer types with varying levels of technical knowledge to obtain an insight into how a property can benefit from the renewable heating that this technology can deliver.

Developed with two selection options to choose from, whether the project is a single domestic dwelling or a large commercial project, the tool will guide the user towards the solution most suited to the needs of the property. Upon completion of the selection process, the tool will generate a bespoke and professional equipment selection report based upon the criteria entered; providing the different user types with the relevant information and resources required to progress to the next stage of design.
















Whether the user is a homeowner that wishes to understand the basic estimated costs of operating a renewable heating system or an installer that requires an MCS [MIS3005] standard compliant design for an RHI application, the Ecodan Selection Tool is capable of supporting an informed choice.

Please visit the website: **ecodanselectiontool.mitsubishielectric.co.uk**



Range Overview



System Type		Litres	4kW	5kW	6kW	8.5kW	11.2kW	14kW	40kW	43kW	60kW
Standalone				●	●	●	●	●	●	●	●
Thermal Store	 EHPT20Q-VM2EA	200	●								
Packaged Cylinder	 EHPT20X-MHEDW	200		●	●	●	●	●			
Pre-Plumbed Slimline Cylinder	 EHPT15X-UKHLDW	150		●	●	●					
	 EHPT17X-UKHLDW	170		●	●	●					
Pre-Plumbed Standard Cylinder	 EHPT15X-UKHWDW	150		●	●	●					
	 EHPT17X-UKHWDW	170		●	●	●					
	 EHPT21X-UKH(D/C)W	210		●	●	●	●	●			
	 EHPT25X-UKH(D/C)W	250				●	●	●			
	 EHPT30X-UKH(D/C)W	300				●	●	●			
Pre-Plumbed Solar Cylinder	 EHPT21X-UKHSDW	210		●	●	●	●	●			
	EHPT25X-UKHSDW	250				●	●	●			
	EHPT30X-UKHSDW	300				●	●	●			
Approvals	 Manufactured in the United Kingdom			●	●	●	●				
	 Red Dot Award				●	●	●				
	 Microgeneration Certification Scheme		●					●		●	●
	 Keymark			●	●	●	●	●			

Notes: Microgeneration or Keymark certification qualifies the approved product for the Renewable Heat Incentive (RHI) scheme.



QAHV

Monobloc Air Source Heat Pump



Specifically designed for commercial sanitary hot water application, where gas boilers, combined heat and power systems (CHP) or electric water heating have been traditionally utilised, the 40kW QAHV provides a low carbon solution for hotels, apartment blocks, leisure centres, hospitals, care homes, restaurants and education.

Utilising the natural and stable refrigerant CO₂ (R744), the environmentally clean solution enables compliance to strict local planning laws and boosts BREEAM points. Compounded by the increasing decarbonisation of the electrical grid, the QAHV provides a high efficiency, low carbon hot water delivery solution with leaving water temperature up to 90°C.

Key Features

- High efficiency at high flow temperatures
- Utilises CO₂ refrigerant which has a GWP of 1
- Uses a unique twisted and spiral gas cooler to enhance energy efficiency
- Full heating capacity down to -3°C outdoor temperature and operates down to -25°C
- Super low noise levels
- Able to utilise with an indirect system



OUTDOOR UNIT		QAHV-N560YA-HPB
WATER HEATING 65°C ^{*1}	CAPACITY (kW)	40
	POWER INPUT (kW)	10.31
	CURRENT INPUT (A)	16.3
	COP	3.88
WATER HEATING 65°C ^{*2}	CAPACITY (kW)	40
	POWER INPUT (kW)	10.97
	CURRENT INPUT (A)	18.3
	COP	3.65
WATER HEATING 65°C ^{*3}	CAPACITY (kW)	40
	POWER INPUT (kW)	11.6
	CURRENT INPUT (A)	18.7
	COP	3.44
WATER HEATING ENERGY EFFICIENCY CLASS	FOR MEDIUM TEMPERATURE APPLICATION	A
TEMPERATURE RANGE	INLET WATER TEMPERATURE (°C)	5 ~ 63
	OUTLET WATER TEMPERATURE (°C)	55 ~ 90
	OUTDOOR TEMPERATURE (°C)	-25~43
ELECTRICAL	MAX CURRENT INPUT (A)	33.8
	ELECTRICAL SUPPLY (V / Hz)	380-415v, 50Hz
	PHASE	3
	FUSE RATING - MCB SIZES (A) ^{*5}	40
WATER DETAIL	INLET / OUTLET (mm (in.))	19.05 (Rc 3/4"), screw pipe / 19.05 (Rc 3/4"), screw pipe
	ALLOWABLE EXTERNAL PUMP HEAD (kPa)	77
DIMENSIONS (mm)	WIDTH	1220
	DEPTH	760
	HEIGHT	1837 (1777 without legs)
WEIGHT (kg)		400
NOISE LEVEL	SOUND PRESSURE ^{*4} (dB(A))	56
REFRIGERANT	TYPE	R744 (GWP 1)
	REFRIGERANT CHARGE (kg) / CO ₂ EQUIVALENT (t)	6.5 / 0.0065

^{*1} Under Normal heating conditions at the outdoor temp, 16°CDB/12°CWB, the outlet water temperature 65°C, and the inlet water temperature 17°C

^{*2} Under Normal heating conditions at the outdoor temp, 7°CDB/6°CWB, the outlet water temperature 65°C, and the inlet water temperature 9°C

^{*3} Under Normal heating conditions at the outdoor temp, 7°CDB/6°CWB, the outlet water temperature 65°C, and the inlet water temperature 15°C

^{*4} Measured 1m from the front of the unit in an anechoic room

^{*5} MCB Sizes BS EN60898-2 & BS EN60947-2



CAHV

Monobloc Air Source Heat Pump

Specifically designed for large applications, the Ecodan CAHV air source heat pump monobloc system can operate singularly, or form part of a multiple unit system. The CAHV also comes equipped with a wide range of controller features as standard.

A multiple unit system has the ability to cascade available units on and off to meet the load from a building. As an example of this modulation, a 16 unit system allows 0.5kW increments of capacity, from 18kW all the way up to 688kW. This level of modulation is unprecedented within the heating industry and with cascade and rotation built in as standard, the Ecodan CAHV system is perfectly suited to a wide range of commercial applications.

Key Features

- Multiple unit cascade control of up to 688kW capacity, only water and electrical connections needed
- Ability to rotate units based on accumulated run hours
- Provides from 25°C up to 70°C water flow temperatures without boost heaters
- Low maintenance



OUTDOOR UNIT		CAHV-P500YB-HPB
HEAT PUMP SPACE HEATER - 55°C	ErP Rating	A++
	η_s	125%
	SCOP	3.19
HEAT PUMP SPACE HEATER - 35°C	ErP Rating	A+
	η_s	139%
	SCOP	3.54
HEATING*1 (A-3/W35)	Capacity (kW)	42.6
	Power Input (kW)	15.2
	COP	2.80
OPERATING AMBIENT TEMPERATURE (°C DB)		-20~+40°C
SOUND PRESSURE LEVEL AT 1M (dBA)*2,3		59
LOW NOISE MODE (dBA)*2		Variable
FLOW RATE (l/min)		126
WATER PRESSURE DROP (kPa)		18
DIMENSIONS (mm)	Width	1978
	Depth	759
	Height	1710 (1650 without legs)
WEIGHT (kg)		526
ELECTRICAL SUPPLY		380-415v, 50Hz
PHASE		3
NOMINAL RUNNING CURRENT [MAX] (A)		17.6 [52.9]
FUSE RATING - MCB SIZES (A)*4		63
REFRIGERANT CHARGE (kg) / CO ₂ EQUIVALENT (t)	R407C (GWP 1774)	11 / 19.5

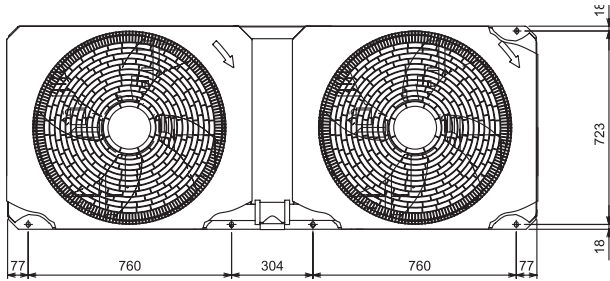


Certificate Number: MCS HP0002
Product Type: Heat Pumps
Product Reference: CAHV-P500YB-HPB

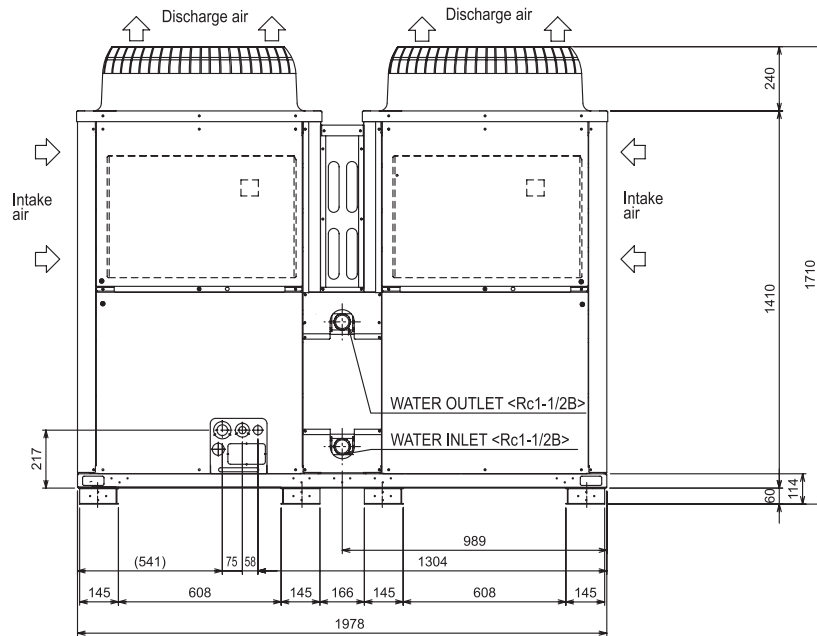
*1 Under normal heating conditions at outdoor temp: -3°CDB / -4°CWB, outlet water temp 35°C, inlet water temp 30°C *2 Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 35°C, inlet water temp 30°C as tested to BS EN14511
*3 Sound power level of the CAHV-P500YB-HPB is 70.7dBA. Tested to BS EN12102 *4 MCB Sizes BS EN60898-2 & BS EN60947-2

η_s is the seasonal space heating energy efficiency (SSHEE) η_{wh} is the water heating energy efficiency

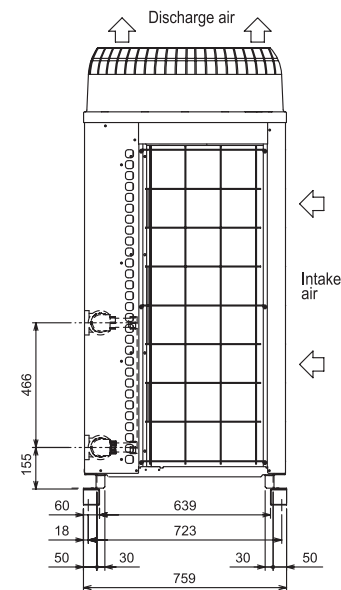
Upper View



Front View



Side View





CRHV

Monobloc Ground / Water Source Heat Pump



PLEASE NOTE: Full design criteria is needed to ascertain the capacity which could change based on heat source temperature and building flow temperature.

- *1 Under normal heating conditions at brine inlet: 0°C, outlet water temp 35°C as tested to BS EN14511 (60kW)
 *2 Under normal heating conditions at brine inlet: 0°C, outlet water temp 35°C as tested to BS EN14511 (45kW)
 *3 Under normal heating conditions at water inlet: 10°C, outlet water temp 35°C as tested to BS EN14511 (60kW)
 *4 Under normal heating conditions at water inlet: 10°C, outlet water temp 35°C as tested to BS EN14511 (45kW)
 *5 Sound power level as tested to BS EN12102
 *6 Heat source inlet temperature above 27°C and up to 45°C option must reverse the inlet and outlet heat source connections and refer to manual for dip switch changes
 *7 The system should be adequately protected from freezing
 *8 MCB Sizes BS EN60898-2 & BS EN60947-2
 * LTHW - Low Temperature Hot Water
 * Please use adequate frost protection to ensure pipework and the unit do not freeze if the system is powered down
 * Please do not use ground water or well water directly within the unit
 * The water circuit must be a closed circuit

η_{L} is the seasonal space heating energy efficiency (SSHEE)
 η_{w} is the water heating energy efficiency



Certificate Number: MCS-HP0002
 Product Type: Heat Pumps
 Product Reference: CRHV-P600YA-HPB

The inverter driven Ecodan CRHV monobloc ground / water source heat pump can operate singly, or be banked together to create a system that can modulate and cascade available units on and off to meet the load from a building.

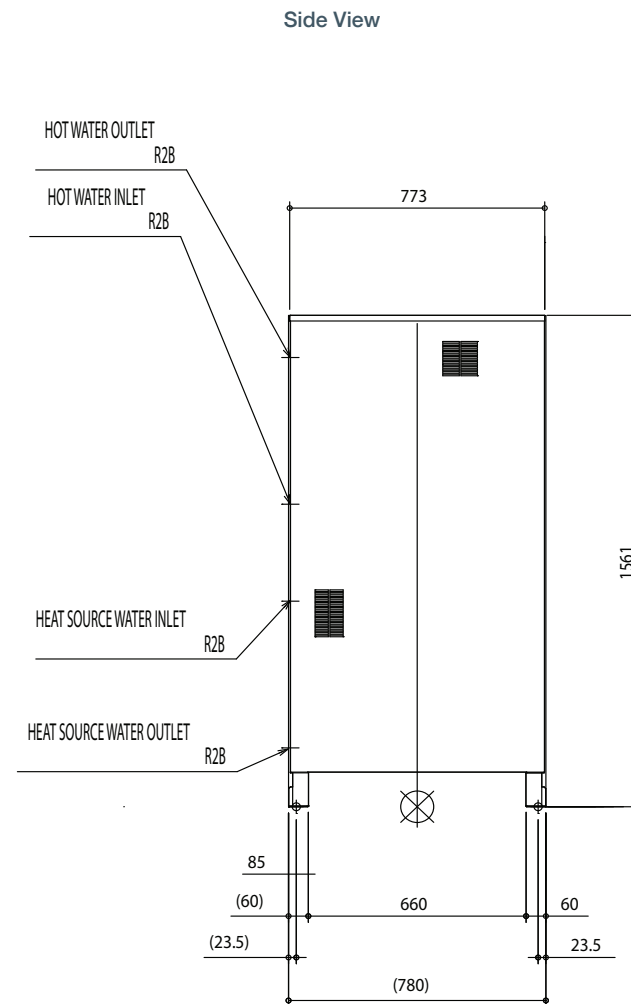
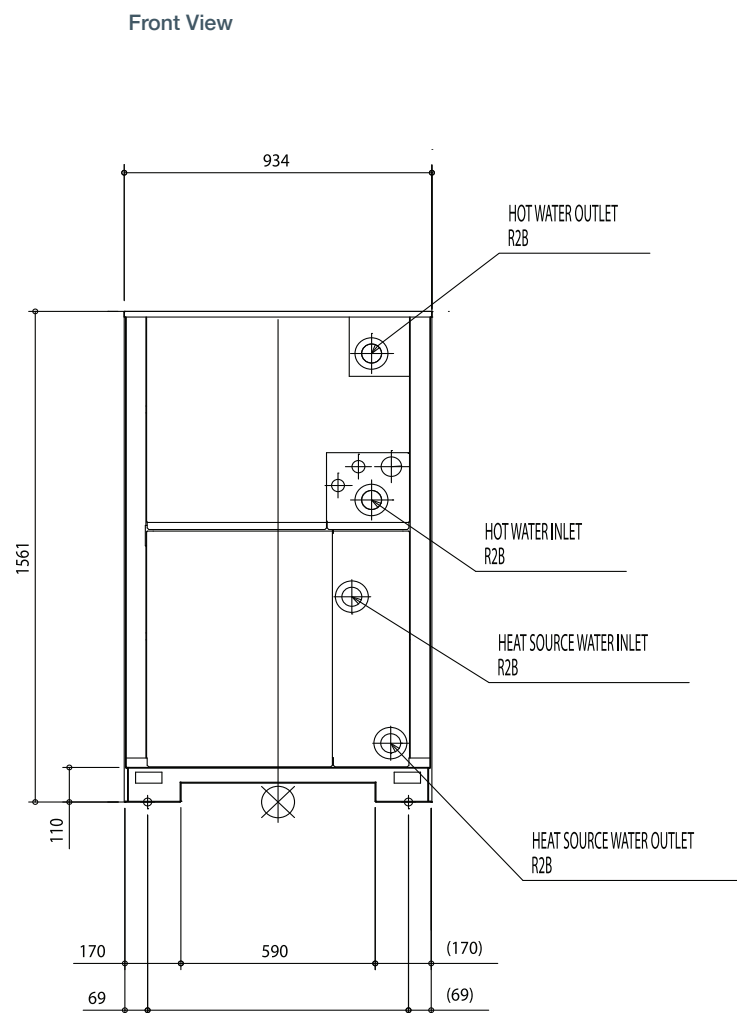
This level of modulation is unprecedented within the heating industry, and with cascade and rotation built in as standard, the Ecodan CRHV system is perfectly suited to a wide range of commercial applications.

Key Features

- Wide range of heat sources - bore holes, slinkies, aquifers, lakes, rivers and waste heat
- Multiple unit cascade control of up to 16 units / 960kW
- Ability to rotate units based on accumulated run hours
- Provides up to 65°C water flow temperatures without booster heaters
- Low maintenance, just electrical and water connections
- Heat recovery applications can be achieved by moving heat between applications
- Passive cooling possible by exchanging ground / water source with a chilled water system



CRHV HEAT PUMP		CRHV-P600YA-HPB
HEAT PUMP SPACE HEATER - 55°C	ErP Rating	A++
	η_{L}	127%
HEAT PUMP SPACE HEATER - 35°C	SCOP	3.37
	ErP Rating	A++
HEATING ^{*1} (B0/W35)	η_{L}	153%
	SCOP	4.03
SEASONAL EFFICIENCY EN14825 (SPF) HEATING ^{*2} (B0/W35)	Capacity (kW)	60
	Power Input inc. pump (kW)	14.20
SEASONAL EFFICIENCY EN14825 (SPF) HEATING ^{*3} (W10/W35)	COP	4.23
	B0/W35 (60kW)	4.33
SEASONAL EFFICIENCY EN14825 (SPF) HEATING ^{*4} (W10/W35)	Capacity (kW)	45
	Power Input inc. pump (kW)	10.20
SEASONAL EFFICIENCY EN14825 (SPF) HEATING ^{*4} (W10/W35)	COP	4.41
	B0/W35 (45kW)	4.03
SEASONAL EFFICIENCY EN14825 (SPF) HEATING ^{*4} (W10/W35)	Capacity (kW)	60
	Power Input inc. pump (kW)	11.90
SEASONAL EFFICIENCY EN14825 (SPF) HEATING ^{*4} (W10/W35)	COP	5.08
	W10/W35 (60kW)	5.09
SEASONAL EFFICIENCY EN14825 (SPF) HEATING ^{*4} (W10/W35)	Capacity (kW)	45
	Power Input inc. pump (kW)	8.89
SEASONAL EFFICIENCY EN14825 (SPF) HEATING ^{*4} (W10/W35)	COP	5.11
	W10/W35 (45kW)	4.55
SOUND DATA	Pressure Level L_{pA} at 1m (dBA)	50
	Power Level L_{wA} (dBA) ^{*5}	66
WATER DATA	Flow Rate Range	Heat Source (Brine) (l/s (m³/hr)) 1.5 to 4.1 (5.4 to 15) Building Side (LTHW) (l/s (m³/hr)) 1.5 to 4.4 (5.4 to 16)
	Mechanical Connections	Heat Source Outlet (Brine) (mm (")) 50.8 (R2) screw Heat Source Inlet (Brine) (mm (")) 50.8 (R2) screw Building Side Outlet (LTHW) (mm (")) 50.8 (R2) screw Building Side Inlet (LTHW) (mm (")) 50.8 (R2) screw
WATER DATA	Operating Temperature Range	Heat Source Inlet (Brine) (°C) -5 to +27 Heat Source Inlet Option (Brine) (°C) ^{*6} -5 to +45 Building Side Outlet (LTHW) (°C) +30 to +65
	Heat Source Fluid Type ^{*7}	Min 30% Ethylene Glycol or equivalent
WATER DATA	Pressure Drop (at 1.5l/s inc 30% glycol in heat source fluid)	Heat Source (Brine) (kPa) 12 Building Side (LTHW) (kPa) 7
	Maximum Working Pressure	Heat Source (Brine) (MPa(Bar)) 1 (10) Building Side (LTHW) (MPa(Bar)) 1 (10)
DIMENSIONS	Width (mm)	934
	Depth (mm)	780
WEIGHT (kg)	Height (mm)	1561
		395
REFRIGERANT	Type	R410A
	Charge (kg) / CO ₂ Equivalent (t)	9 / 18.7
ELECTRICAL DATA	Max pressure (MPa (Bar))	4.15 (41.5)
	Compressor Type	Inverter Driven
ELECTRICAL DATA	Circuit type	Hermetically Sealed System
	Electrical Supply	415v, 50Hz
ELECTRICAL DATA	Phase	3
	Maximum Running Current (A)	44
ELECTRICAL DATA	Fuse Rating - MCB Size (A) ^{*8}	50





QUHZ-W-VA

Monobloc Air Source Heat Pump With Thermal Store



The Ecodan QUHZ system combines a 4kW outdoor unit with a 200 litre Thermal Store and is the ideal plug and play heating and hot water solution for properties with a low space heating requirement.

With very low market leading noise levels for its class and highly efficient hot water generation due to its unique CO₂ system design, this compact space saving product is capable of providing instantaneous hot water and removes the risk of legionella.

Key Features

- Self contained system, only requires water connections and can be powered via the Thermal Store
- No need for gas supply, flues or ventilation
- Low maintenance and very quiet operation
- Operates with outside temperatures as low as -15°C
- Optimised low ambient defrost control and operation
- Capable of being used in domestic hot water generation mode only
- Energy monitoring as standard



OUTDOOR UNIT		QUHZ-W40VA
HEAT PUMP COMBINATION HEATER - 55°C	ErP Rating	A+
	η_{sa}	117%
	SCOP	2.90
HEAT PUMP COMBINATION HEATER - Large Profile ¹	ErP Rating	A
	η_{wh}	129%
	COP	3.00
HEATING ² (A-3/W55)	Capacity (kW)	4.32
	Power Input (kW)	2.18
	COP	1.98
OPERATING AMBIENT TEMPERATURE (°C DB)		-15 ~ +35
SOUND PRESSURE LEVEL AT 1M (dBA) ³		43
SOUND POWER LEVEL (dBA) ⁴		53
WATER DATA	Pipework Size (mm)	15
	Flow Rate (l/min)	3 to 8
DISTANCE BETWEEN OUTDOOR UNIT AND THERMAL STORE (m)	Height Difference	5
	Piping Length	15
DIMENSIONS (mm)	Width	809+70 ⁵
	Depth	300+20 ⁵
	Height	715
WEIGHT (kg)		57
ELECTRICAL DATA		Powered from indoor unit
REFRIGERANT CHARGE (kg) / CO ₂ EQUIVALENT (t)	R744 (GWP 1)	1.15 / 0.0015

THERMAL STORE		EHPT20Q-VM2EA
NOMINAL THERMAL STORE WATER VOLUME (LITRES)		200
WATER TEMPERATURE RANGE	DHW Mode (°C)	40-70
	Space Heating Mode (°C)	25-60
MECHANICAL ZONES		DHW and 1 Heating Zone (2 Zone capability with 3rd party 2-port valves)
OPERATING AMBIENT TEMPERATURE (°C DB)		0 ~ +35°C (RH<80%)
SOUND PRESSURE LEVEL AT 1M (dBA)		30
SOUND POWER LEVEL (dBA) ⁴		40
WATER DATA	Primary Pump	Grundfos Solar PML 25-145 180
	Sanitary Hot Water Pump	Grundfos Solar PML 25-145 180
	Connection Size (mm) Heating / DHW	22 / 22
	Primary Expansion Vessel (Litres)	25
	Charge Pressure (MPa (Bar))	0.1 (1)
WATER SAFETY DEVICES	Pressure relief valve (Mpa (Bar))	0.3 (3) - 2 No. devices
	Flow sensor (supplied)	Min. flow 1.3 L/min
	Manual reset thermostat (°C)	90
DIMENSIONS (mm)	Width	595
	Depth	680
	Height	1600
WEIGHT EMPTY / FULL (kg)		77 / 283
ELECTRICAL DATA	Electrical Supply	220-240v, 50Hz
	Phase	Single
	Maximum Running Current (A)	12.8
	Fuse Rating - MCB Sizes (A) ⁶	20
OPTIONAL SIMPLIFIED WIRELESS ROOM THERMOSTAT AND WIRELESS RECEIVER		PAR-WT50-E Controller and PAR-WR51-E Receiver

¹ Combination with EHPT20Q-VM2EA Thermal Store.

² Under normal heating conditions at outdoor temp: -3°CDB / -4°CWB, outlet water temp 55°C, inlet water temp 47°C.

³ Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 55°C, inlet water temp 47°C as tested to BS EN14511.

⁴ Sound power level tested to BS EN12102.

⁵ Grille or pipe cover.

⁶ MCB Sizes BS EN60898-2 & BS EN60947-2.

η_{sa} is the seasonal space heating energy efficiency (SSHEE)

η_{wh} is the water heating energy efficiency

APPROVED PRODUCT

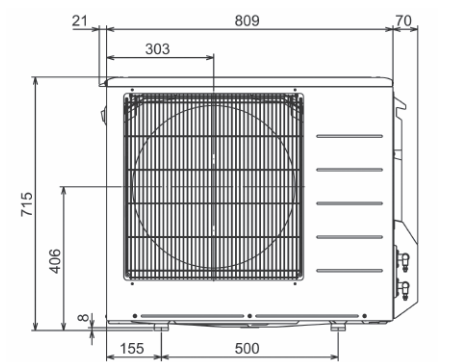


Certificate Number: MCS HP0002
Product Type: Heat Pumps
Product Reference: QUHZ-W40VA

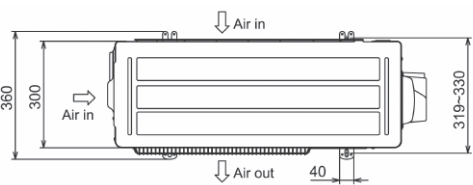
Product Dimensions

QUHZ-W40VA

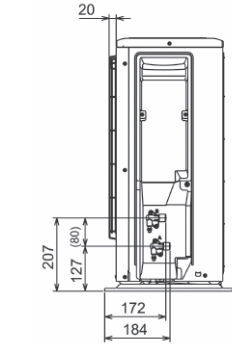
Front View



Upper View



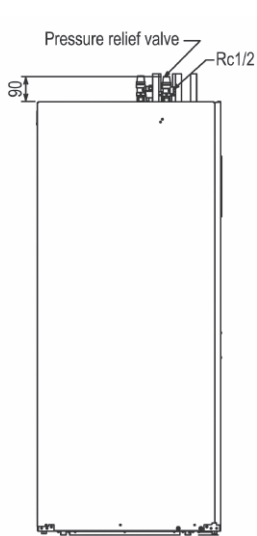
Side View



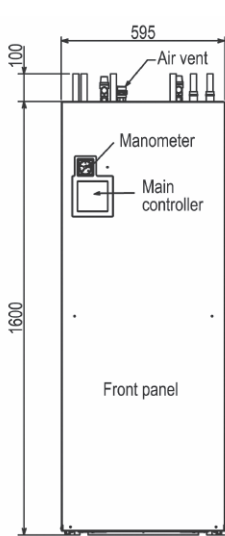
Product Dimensions

EHPT20Q-VM2EA

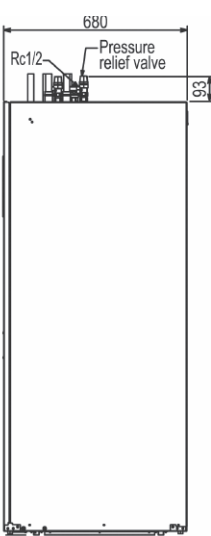
Left View



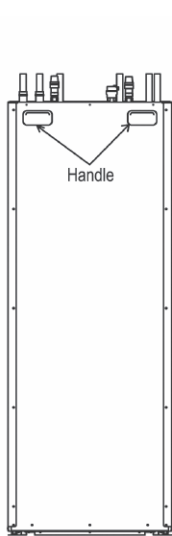
Front View



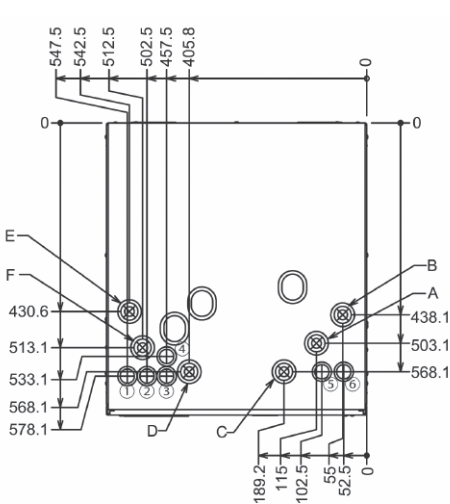
Right View



Rear View



Upper View



Letter	Pipe Description	Connection size/type
A	DHW outlet connection	22 mm/Compression
B	Cold water inlet connection	22 mm/Compression
C	Space heating return connection	22 mm/Compression
D	Space heating flow connection	22 mm/Compression
E	Flow from heat pump connection	22 mm/Compression
F	Return to heat pump connection	22 mm/Compression



PUZ-WM-VHA

Monobloc Standalone Air Source Heat Pump



Our range of Ecodan monobloc air source heat pumps includes a 5kW size.

With enhanced performance and efficiencies of the new chassis, combined with the ability to cascade up to six units of the same output, this Ecodan monobloc system can provide a capacity range from 5 through to 30kW. Designed to suit a wide number of applications, this model offers a viable solution for all types of domestic requirements that the UK housing market demands.

Key Features

- Self-contained unit, only requiring water and electric connections
- No need for gas supply, flues or ventilation
- Low maintenance and quiet operation
- Operates with outside temperatures as low as -20°C
- Optimised low ambient defrost control and operation down to -7°C
- Hybrid function, for use with conventional boilers
- Energy monitoring as standard
- Multiple unit cascade function



Manufactured in the UK



OUTDOOR UNIT		PUZ-WM50VHA(-BS)
HEAT PUMP SPACE HEATER - 55°C	ErP Rating	A++
	η_{s}	129%
	SCOP	3.33
HEAT PUMP SPACE HEATER - 35°C	ErP Rating	A+++
	η_{s}	183%
	SCOP	4.58
HEAT PUMP COMBINATION HEATER - Large Profile ¹	ErP Rating	A+
	η_{wh}	135%
HEATING ² (A-7/W35)	Capacity (kW)	5.0
	Power Input (kW)	1.67
	COP	3.00
OPERATING AMBIENT TEMPERATURE (°C DB)		-20 ~ +35
SOUND DATA ³	Pressure Level at 1m (dBA)	47
	Power Level (dBA) ⁴	61
WATER DATA	Pipework Size (mm)	22
	Flow Rate (l/min)	14.3
	Water Pressure Drop (kPa)	12.0
DIMENSIONS (mm)	Width	950
	Depth	330+30 ⁷
	Height	923
WEIGHT (kg)		71
ELECTRICAL DATA	Electrical Supply	220-240v, 50Hz
	Phase	Single
	Nominal Running Current [MAX] (A) ⁵	4.64 [13]
	Fuse Rating - MCB Sizes (A) ⁶	16
REFRIGERANT CHARGE (kg) / CO ₂ EQUIVALENT (t)	R32 (GWP 675)	2.0 / 1.35

¹ Combination with E*PT20X Cylinder

² Under normal heating conditions at outdoor temp: -7°CDB / -8°CWB, outlet water temp 35°C, inlet water temp 30°C.

³ Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 55°C, inlet water temp 47°C as tested to BS EN14511.

⁴ Sound power level tested to BS EN12102.

⁵ Under nominal heating conditions at outdoor temp: 7°C, outlet water temp: 35°C.

⁶ MCB Sizes BS EN60898-2 & BS EN60947-2.

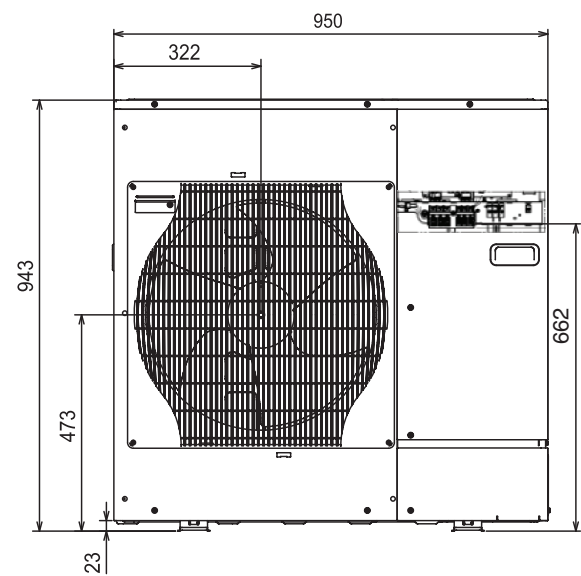
⁷ Grille.

η_{s} is the seasonal space heating energy efficiency (SSHEE) η_{wh} is the water heating energy efficiency

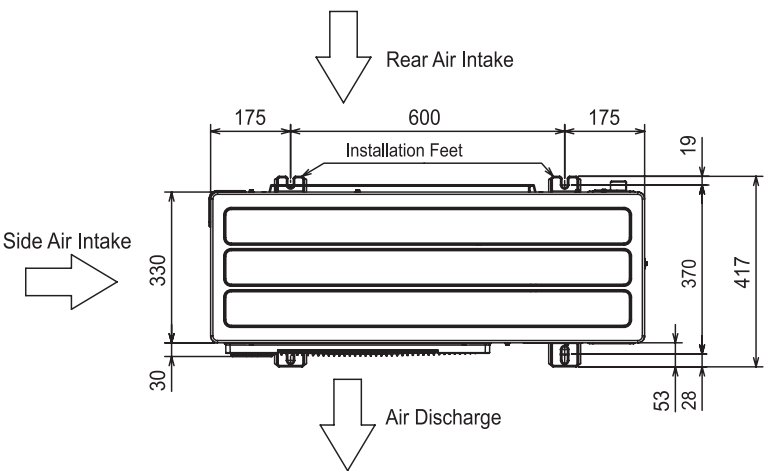


Certificate Number: 037-0032-20
Product Type: Heat Pumps
Product Reference: PUZ-WM50VHA(-BS)

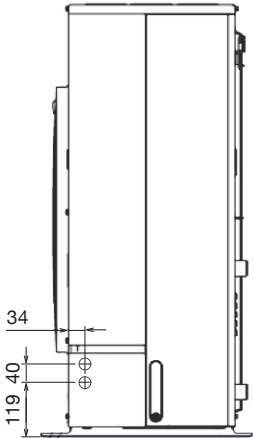
Front View



Upper View



Side View





PUZ-WM-VAA

Monobloc Standalone Ultra Quiet Air Source Heat Pumps



The multiple award winning range of Ultra Quiet AA chassis Ecodan monobloc air source heat pumps are designed specifically to suit the demands of the UK market and includes 6.0, 8.5 and 11.2kW sizes.

The innovative, stylish and compact single fan outdoor unit utilises advanced technologies to deliver improved efficiencies. Designed for a wide range of applications, the market leading low noise levels virtually eliminate the need for planning permission, maximises installation options and is a viable solution for all types of domestic requirements that the UK housing market demands.

Key Features

- Self-contained unit, only requiring water and electric connections
- No need for gas supply, flues or ventilation
- Low maintenance and ultra quiet operation
- Operates with outside temperatures as low as -25°C
- Optimised low ambient defrost control and operation down to -7°C
- Hybrid function, for use with conventional boilers
- Energy monitoring as standard
- Multiple unit cascade function



OUTDOOR UNIT		PUZ-WM60VAA(-BS)	PUZ-WM85VAA(-BS)	PUZ-WM112VAA(-BS)
HEAT PUMP SPACE HEATER - 55°C	ErP Rating	A++	A++	A++
	η_s	142%	139%	134%
	SCOP	3.30	3.50	3.45
HEAT PUMP SPACE HEATER - 35°C	ErP Rating	A+++	A+++	A+++
	η_s	190%	193%	191%
	SCOP	4.62	4.57	4.58
HEAT PUMP COMBINATION HEATER - Large Profile ¹	ErP Rating	A+	A+	A+
	η_{wh}	145%	145%	148%
HEATING ² (A-7/W35)	Capacity (kW)	6.0	8.5	11.2
	Power Input (kW)	1.88	3.27	3.73
	COP	3.20	2.60	3.00
OPERATING AMBIENT TEMPERATURE (°C DB)		-20 ~ +35	-20 ~ +35	-25 ~ +35
SOUND DATA ³	Pressure Level at 1m (dBA)	45	45	45
	Power Level (dBA) ⁴	58	58	60
WATER DATA	Pipework Size (mm)	22	28	28
	Flow Rate (l/min)	17.2	24.4	32.1
	Water Pressure Drop (kPa)	8.0	15.0	24.0
DIMENSIONS (mm)	Width	1050	1050	1050
	Depth	480	480	480
	Height	1020	1020	1020
WEIGHT (kg)		98	98	119
ELECTRICAL DATA	Electrical Supply	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz
	Phase	Single	Single	Single
	Nominal Running Current [MAX] (A) ⁵	5.68 [13]	9.1 [22]	10.9 [28]
	Fuse Rating - MCB Sizes (A) ⁶	16	25	32
REFRIGERANT CHARGE (kg) / CO ₂ EQUIVALENT (t)	R32 (GWP 675)	2.2 / 1.49	2.2 / 1.49	3.0 / 2.03

¹ Combination with E*PT20X Cylinder

² Under normal heating conditions at outdoor temp: -7°CDB / -8°CWB, outlet water temp 35°C, inlet water temp 30°C.

³ Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 55°C, inlet water temp 47°C as tested to BS EN14511.

⁴ Sound power level tested to BS EN12102.

⁵ Under nominal heating conditions at outdoor temp: 7°C, outlet water temp: 35°C.

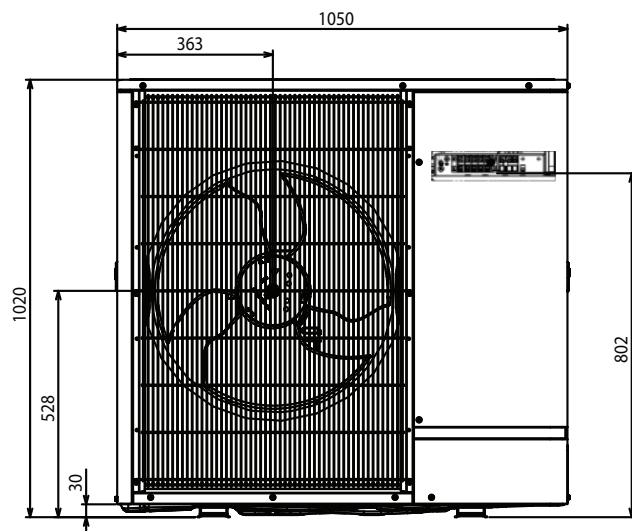
⁶ MCB Sizes BS EN60898-2 & BS EN60947-2.

η_s is the seasonal space heating energy efficiency (SHEE) η_{wh} is the water heating energy efficiency

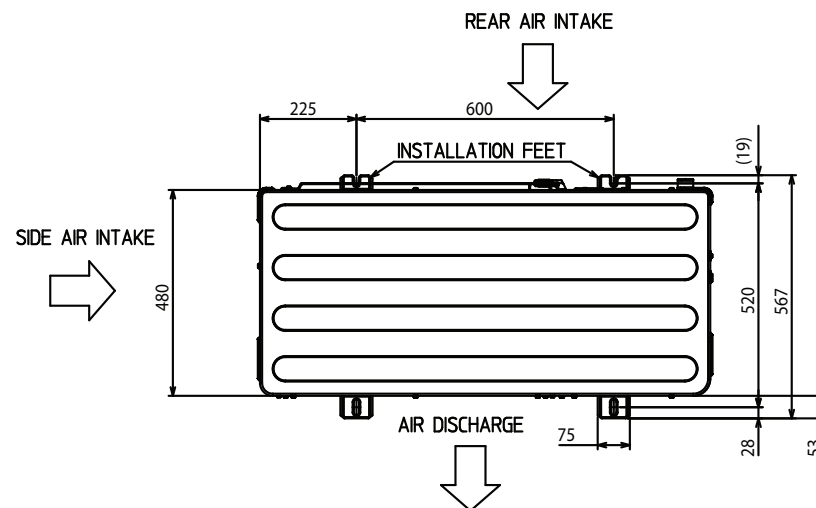


Certificate Number: 037-0033-20 / 037-0034-20
Product Type: Heat Pumps
Product Reference: PUZ-WM60/85VAA(-BS) / PUZ-WM112VAA(-BS)

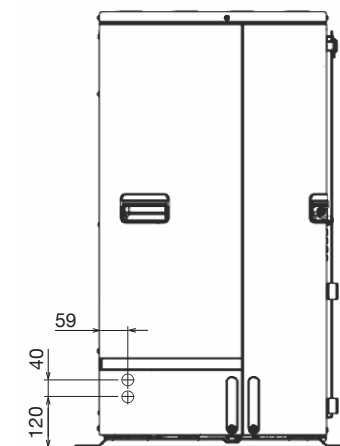
Front View



Upper View



Side View





PU(H)Z-HW(M) -VHA/YHA(2)

Monobloc Standalone Air Source Heat Pumps



Our range of Zubadan chassis Ecodan monobloc air source heat pumps are suitable for properties with large space heating requirements and are available in single or three phase 14kW sizes.

With its advanced flash injection technology, this product provides a solution to low ambient capacity issues common to standard systems and is a viable solution for all types of domestic requirements that the UK housing market demands.

Key Features

- Self-contained unit, only requiring water and electric connections
- No need for gas supply, flues or ventilation
- Low maintenance and quiet operation
- Operates with outside temperatures as low as -28°C
- Optimised low ambient defrost control and operation down to -15°C
- Hybrid function, for use with conventional boilers
- Energy monitoring as standard
- Multiple unit cascade function
- R32 models coming Autumn 2020



R32



OUTDOOR UNIT		PUZ-HWM140VHA(-BS)	PUZ-HWM140YHA(-BS)
HEAT PUMP SPACE HEATER - 55°C	ErP Rating	A++	A++
	$\eta_{s,h}$	-	-
	SCOP	3.34	3.34
HEAT PUMP SPACE HEATER - 35°C	ErP Rating	A+++	A+++
	$\eta_{s,h}$	-	-
	SCOP	4.45	4.45
HEAT PUMP COMBINATION HEATER - Large Profile ¹	ErP Rating	A+	A+
	$\eta_{s,h}$	-	-
	Capacity (kW)	14.0	14.0
HEATING ² (A-7/W35)	Power Input (kW)	5.72	5.72
	COP	2.45	2.45
OPERATING AMBIENT TEMPERATURE (°C DB)		-28 ~ +35	-28 ~ +35
SOUND DATA ³	Pressure Level at 1m (dBA)	53	53
	Power Level (dBA) ⁴	67	67
WATER DATA	Pipework Size (mm)	28	28
	Flow Rate (l/min)	-	-
	Water Pressure Drop (kPa)	-	-
DIMENSIONS (mm)	Width	1020	1020
	Depth	330+30 ⁷	330+30 ⁷
	Height	1350	1350
WEIGHT (kg)		-	-
ELECTRICAL DATA	Electrical Supply	220-240v, 50Hz	380-415v, 50Hz
	Phase	Single	3
	Nominal Running Current [MAX] (A) ⁵	- [-]	- [-]
	Fuse Rating - MCB Sizes (A) ⁶	-	-
REFRIGERANT CHARGE (kg) / CO ₂ EQUIVALENT (t)	R32 (GWP 675)	- / -	- / -
	R410A (GWP 2088)	- / -	- / -

PUHZ-HW140VHA2(-BS)	PUHZ-HW140YHA2(-BS)
A++	A++
126%	126%
3.22	3.22
A++	A++
157%	157%
3.99	3.99
A	A
96%	96%
14.0	14.0
4.81	4.81
2.91	2.91
-25 ~ +35	-25 ~ +35
53	53
65.5	67.5
28	28
40.1	40.1
9.0	9.0
1020	1020
330+30 ⁷	330+30 ⁷
1350	1350
134	148
220-240v, 50Hz	380-415v, 50Hz
Single	3
14.9 [35]	5.1 [13]
40	16
4.3 / 9.0	4.3 / 9.0

For information marked with a "*" please consult the databook or speak to your local sales office.

¹ Combination with E*PT20X Cylinder

² Under normal heating conditions at outdoor temp: -7°CDB / -8°CWB, outlet water temp 35°C, inlet water temp 30°C.

³ Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 55°C, inlet water temp 47°C as tested to BS EN14511.

⁴ Sound power level tested to BS EN12102.

⁵ Under nominal heating conditions at outdoor temp: 7°C, outlet water temp: 35°C.

⁶ MCB Sizes BS EN60898-2 & BS EN60947-2.

⁷ Grille.

$\eta_{s,h}$ is the seasonal space heating energy efficiency (SSHEE) $\eta_{w,h}$ is the water heating energy efficiency

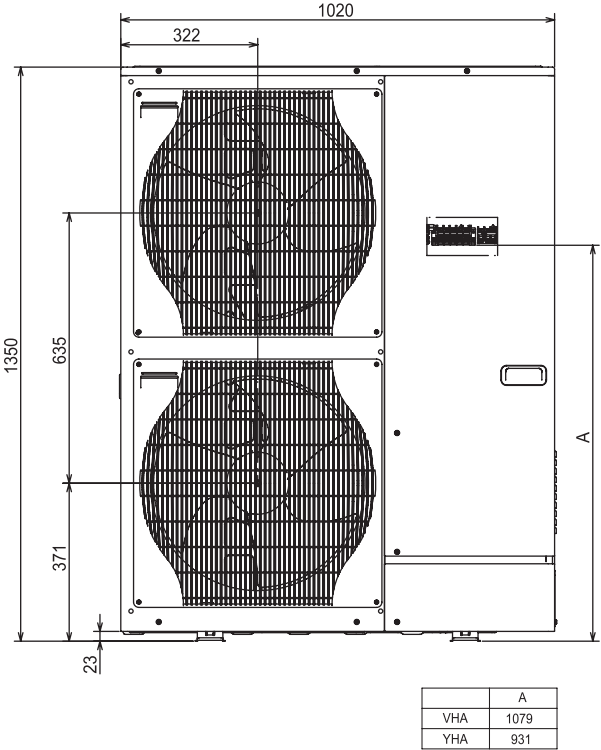


Certificate Number: MCS HP0002
Product Type: Heat Pumps
Product Reference:
PUHZ-HW140VHA2/YHA2(-BS)

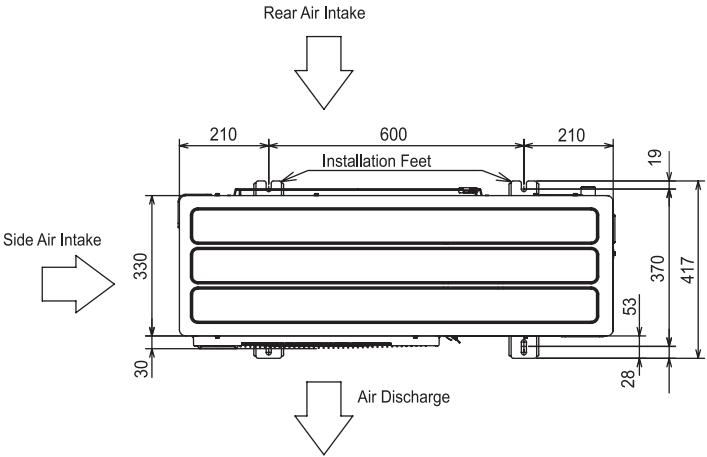


Certificate Number: 037-0035-20
Product Type: Heat Pumps
Product Reference:
PUZ-HWM140VHA/YHA(-BS)

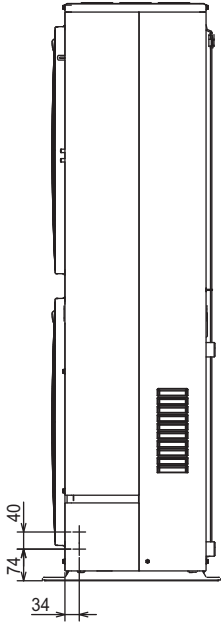
Front View



Upper View



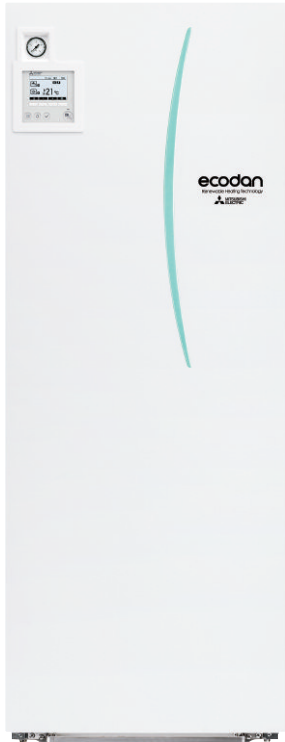
Side View





EHPT20X-MHEDW

Packaged Cylinder for Ecodan Monobloc Units



The Packaged Cylinder provides a highly adaptable heating solution for all property types.

Designed to optimise performance within a compact white goods footprint, the plug and play packaged cylinder fully integrates with the Ecodan monobloc air source heat pump range. Advanced plate heat exchanger technology delivers superior heat up times and our rapid SD card commissioning, MELCloud WiFi connectivity and energy monitoring functions are also included as standard.

Key Features

- Optional 2-zone energy efficient space heating control
- Ready-Plumbed and wired for faster installation
- Hybrid function, for use with conventional boilers
- Energy monitoring as standard
- MELCloud Wi-Fi connectivity



Manufactured in the UK

FTC6 Controller



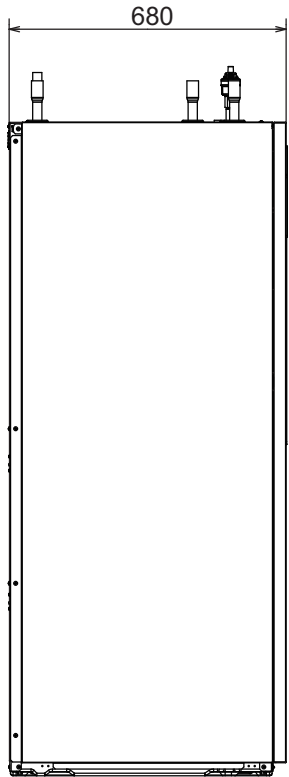
Mitsubishi Electric's sixth generation controller (FTC6) includes intelligent room temperature control as standard. This together with advanced weather compensation ensures the system delivers efficient, comfortable heating regardless of the season. FTC6 now also includes energy monitoring showing consumed and produced energy.

CYLINDER			EHPT20X-MHEDW	
NOMINAL HOT WATER VOLUME (LITRES)			200	
HEAT PUMP COMBINATION HEATER - Large Profile (Average Climate)			A+	
OPERATING AMBIENT TEMPERATURE (°C DB)			0 ~ +35°C (RH<80%)	
SOUND PRESSURE LEVEL AT 1M (dBA)			28	
WATER DATA			14 / 17 / 24 / 32 / 37	
			Flow Rate (l/min) - (H)WM 50 / 60 / 85 / 112 / 140	
			Primary Circuit Pump	
			Sanitary Hot Water Pump	
			Connection Size (mm) Heating / DHW	
			Control Thermistor (°C)	
			1 - 80	
			Flow Sensor (minimum flow 5L/min)	
			Supplied	
			Control Thermistor (°C)	
			75	
			Temp and Pressure Relief Valve (°C)/ (MPa (Bar))	
			90 / 0.7 (7)	
			Width	
			595	
			Depth	
			680	
			Height	
			1600	
			90 / 296	
WEIGHT EMPTY / FULL (kg)			220-240v, 50Hz	
ELECTRICAL DATA			Single	
			Phase	
			Fuse Rating - MCB Sizes (A) ¹	
			10	
			Electrical Supply	
			220-240v, 50Hz	
			Phase	
			Single	
			Capacity (kW)	
			3	
			Max Running Current (A)	
			13	
			Fuse Rating - MCB Sizes (A) ¹	
			16	
MECHANICAL ZONES			DHW and 1 Heating Zone ²	
OPTIONAL SIMPLIFIED WIRELESS ROOM THERMOSTAT AND WIRELESS RECEIVER			PAR-WT50-E Controller and PAR-WR51-E Receiver	

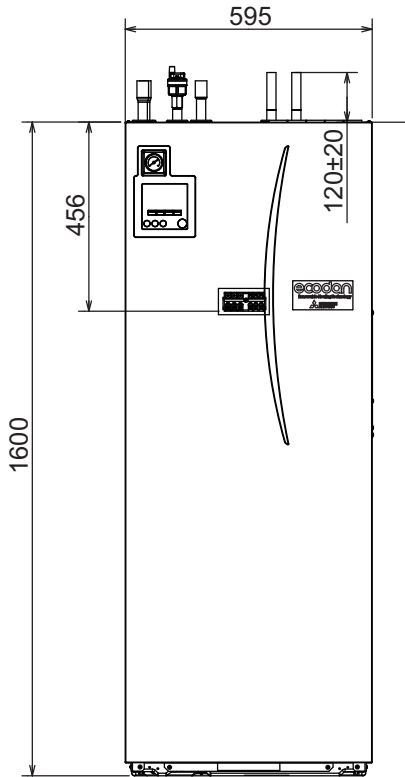
¹ MCB Sizes BS EN60898-2 & BS EN60947-2 ² Optional 2 zone accessory pack available

Notes: Cylinder includes: Flow Temperature Controller (FTC6) with Main Controller and Temperature Sensors, Pumps & Valves for Zone 1 and DHW use, Flow Sensor, Plate Heat Exchanger, Scale Trap, 3kW Immersion Heater.

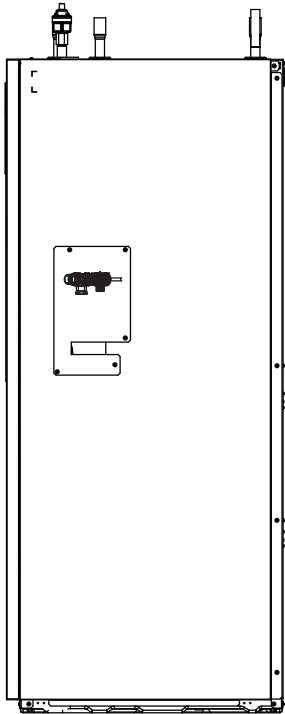
Left View



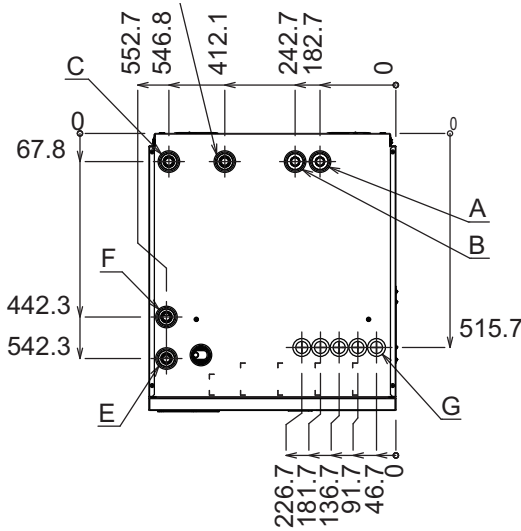
Front View



Right View



Upper View



Letter	Description	Connection Size/Type
A	DHW outlet connection	22mm/Compression
B	Cold water inlet connection	22mm/Compression
C	Space heating return connection	28mm/Compression
D	Space heating flow connection	28mm/Compression
E	Flow from heat pump connection	28mm/Compression
F	Return to heat pump connection	28mm/Compression
G	Electrical cable inlets	

ecodan®

EHPT15-17X -UKHLDW

Pre-Plumbed Slimline Cylinders for Ecodan Monobloc Units

The Pre-Plumbed Slimline Cylinder comes complete with integrated hydraulic components & advanced controls.

Designed to optimise performance and flexibility within a minimal footprint, the slimline cylinder fully integrates with the Ecodan monobloc air source heat pump range. Advanced plate heat exchanger technology delivers superior heat up times and our rapid SD card commissioning, MELCloud WiFi connectivity and energy monitoring functions are also included as standard.

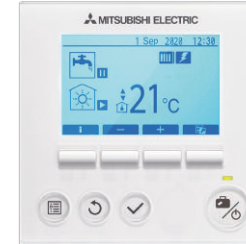
Key Features

- Optional 2-zone energy efficient space heating control
- Pre-Plumbed and wired for faster installation
- Hybrid function, for use with conventional boilers
- Energy monitoring as standard
- MELCloud Wi-Fi connectivity



Manufactured in the UK

FTC6 Controller



Mitsubishi Electric's sixth generation controller (FTC6) includes intelligent room temperature control as standard. This together with advanced weather compensation ensures the system delivers efficient, comfortable heating regardless of the season. FTC6 now also includes energy monitoring showing consumed and produced energy.



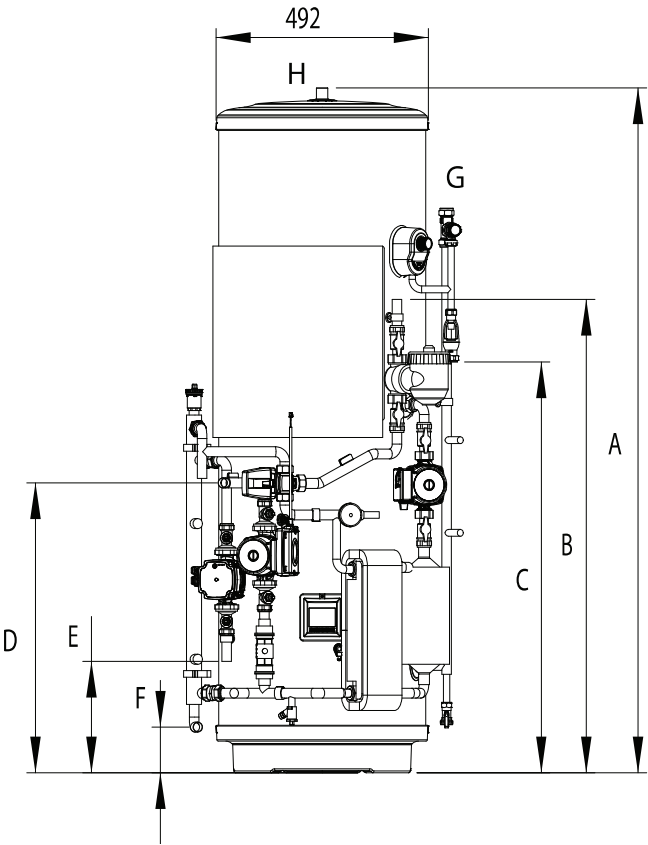
CYLINDER		EHPT15X-UKHLDW		EHPT17X-UKHLDW	
NOMINAL HOT WATER VOLUME (LITRES)		150		170	
ErP RATING		-		-	
HEAT LOSS (kWh/24hrs)		1.40		1.59	
HEAT LOSS (W)		58		66	
WATER		Flow Rate (l/min) - WM 50 / 60 / 85		14 / 17 / 24	
		Primary Circuit Pump		Grundfos UPMGEO 25-85	
		Heating Circuit Pump		Grundfos UPM3 25-70	
		Sanitary Hot Water Pump		Grundfos UPSO 15-60 CIL2	
		Connection Size (mm) Heating / DHW		22 / 22	
		Charge Pressure (MPa (Bar))		0.35 (3.5)	
WATER SAFETY	Water Circuit	Control Thermistor (°C)		1 - 80	
		Expansion Relief Valve (Cold)		0.8 (8)	
		DHW Expansion Vessel (Litres)		12	
	DHW Cylinder	Control Thermistor		75	
		Over Temperature Cut-Out (°C)		80 ± 5	
		Temp and Pressure Relief Valve (°C) / (MPa (Bar))		90 / 1.0 (10)	
DIMENSIONS (mm)		Width		648	
		Depth		645	
		Height		1515	
WEIGHT EMPTY / FULL (kg)		54 / 204		60 / 230	
CYLINDER MATERIAL	Cylinder	Cylinder Material		Stainless Steel	
	Insulation	Insulation Type		CFC / HCFC-free flame-retardant expanded Polyurethane	
		Insulation Thickness (mm)		50	
		GWP of Insulation		3.1	
		ODP of Insulation		0	
ELECTRICAL DATA	Control Board <i>optionally powered by outdoor unit</i>	Electrical Supply		220-240v, 50Hz	
		Phase		Single	
		Fuse Rating - MCB Sizes (A) ¹		16	
	Immersion Heater	Electrical Supply		220-240v, 50Hz	
		Phase		Single	
		Capacity (kW)		3	
		Max Running Current (A)		13	
		Fuse Rating - MCB Sizes (A) ¹¹		16	
MECHANICAL ZONES		DHW and 1 Heating Zone ²			
OPTIONAL SIMPLIFIED WIRELESS ROOM THERMOSTAT AND WIRELESS RECEIVER		PAR-WT50-E Controller and PAR-WR51-E Receiver			

For information marked with a "*" please consult the databook or speak to your local sales office.

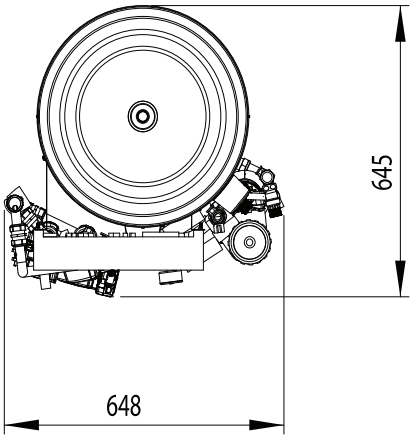
¹ MCB Sizes BS EN60898-2 & BS EN60947-2 ² Optional 2 zone accessory pack available

Notes: Cylinder includes: Flow Temperature Controller (FTC6) with Main Controller and Temperature Sensors, Magnetic & Cyclonic Filter, Pumps & Valves for Zone 1 and DHW use, Flow Sensor, Plate Heat Exchanger, Scale Trap, 3kW Immersion Heater and Expansion Vessel.

Front View



Upper View



- KEY
- A OVERALL HEIGHT
 - B HEAT PUMP FLOW CONNECTION (22mm O/D COPPER)
 - C TUNDISH OUTLET CONNECTION (22mm COMPRESSION)
 - D HEAT PUMP RETURN CONNECTION (22mm O/D COPPER)
 - E HEATING CIRCUIT FLOW CONNECTION (22mm O/D COPPER)
 - F HEATING CIRCUIT RETURN CONNECTION (22mm O/D COPPER)
 - G COLD WATER INLET CONNECTION (22mm COMPRESSION)
 - H HOT WATER OUTLET CONNECTION (22mm COMPRESSION / 3/4" BSP M)

CAPACITY	150	170
A	1515	1689
B	1047	1047
C	909	1083
D	637	636
E	246	246
F	101	101

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EHPT15-30X -UKH(D/C)W

Pre-Plumbed Standard Cylinders for Ecodan Monobloc Units



The Pre-Plumbed Standard Cylinder comes complete with integrated hydraulic components & advanced controls.

Designed to optimise performance and flexibility within an average footprint, the standard cylinder fully integrates with the Ecodan monobloc air source heat pump range. Advanced plate heat exchanger technology delivers superior heat up times and our rapid SD card commissioning, MELCloud WiFi connectivity and energy monitoring functions are also included as standard.

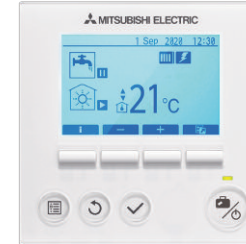
Key Features

- Optional 2-zone energy efficient space heating control
- Pre-Plumbed and wired for faster installation
- Hybrid function, for use with conventional boilers
- Energy monitoring as standard
- MELCloud Wi-Fi connectivity



Manufactured in the UK

FTC6 Controller



Mitsubishi Electric's sixth generation controller (FTC6) includes intelligent room temperature control as standard. This together with advanced weather compensation ensures the system delivers efficient, comfortable heating regardless of the season. FTC6 now also includes energy monitoring showing consumed and produced energy.

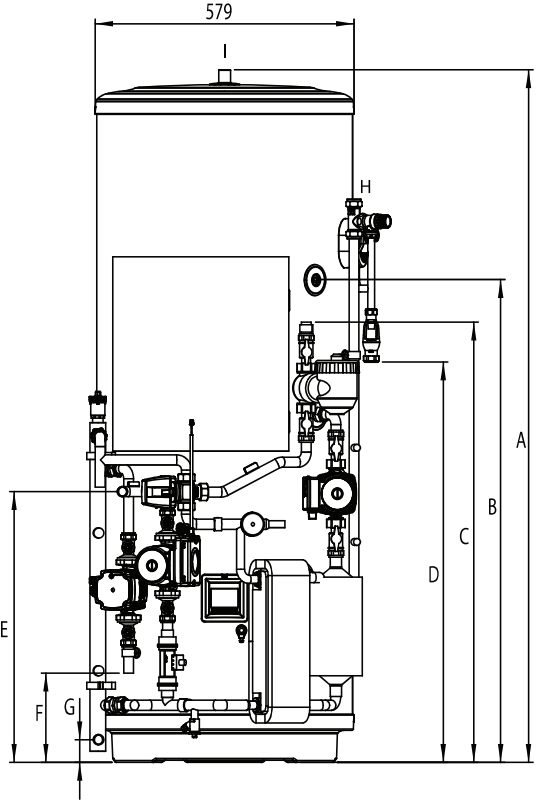
CYLINDER		EHPT15X-UKHDW	EHPT17X-UKHDW	EHPT21X-UKH(D/C)W	EHPT25X-UKH(D/C)W	EHPT30X-UKH(D/C)W
NOMINAL HOT WATER VOLUME (LITRES)		150	170	210	250	300
ErP RATING		-	-	- / C	- / C	- / C
HEAT LOSS (kWh/24hrs)		-	-	1.53 / 1.57	1.80 / 1.67	2.09 / 1.89
HEAT LOSS (W)		-	-	64 / 65	75 / 70	87 / 75
WATER	Flow Rate (l/min) - (H)WM 50 / 60 / 85 / 112 / 140 & HW140	14 / 17 / 24 / - / - & -	14 / 17 / 24 / - / - & -	14 / 17 / 24 / 32 / - & 40	N/A / N/A / 24 / 32 / - & 40	N/A / N/A / 24 / 32 / - & 40
	Primary Circuit Pump	Grundfos UPMGEO 25-85	Grundfos UPMGEO 25-85	Grundfos UPMGEO 25-85	Grundfos UPMXL GEO 25-125	Grundfos UPMXL GEO 25-125
WATER SAFETY DEVICES	Heating Circuit Pump	Grundfos UPM3 25-70				
	Sanitary Hot Water Pump	Grundfos UPSO 15-60 CIL2				
WATER SAFETY DEVICES	Connection Size (mm) Heating / DHW	22 / 22	22 / 22	22 / 22	22 / 22	22 / 22
	Charge Pressure (MPa (Bar))	0.35 (3.5)	0.35 (3.5)	0.35 (3.5)	0.35 (3.5)	0.35 (3.5)
WATER SAFETY DEVICES	Control Thermistor (°C)	1 - 80	1 - 80	1 - 80	1 - 80	1 - 80
	Expansion Relief Valve (Cold)	0.8 (8)	0.8 (8)	0.8 (8)	0.8 (8)	0.8 (8)
WATER SAFETY DEVICES	DHW Expansion Vessel (Litres)	12	18	18	24	24
	Control Thermistor	75	75	75 / 40-70	75 / 40-70	75 / 40-70
WATER SAFETY DEVICES	Over Temperature Cut-Out (°C)	80 ± 5	80 ± 5	80 ± 5	80 ± 5	80 ± 5
	Temp and Pressure Relief Valve (°C) / (MPa (Bar))	90 / 1.0 (10)	90 / 1.0 (10)	90 / 1.0 (10)	90 / 1.0 (10)	90 / 1.0 (10)
DIMENSIONS (mm)	Width	683	683	683	683	683
	Depth	730	730	730	730	730
DIMENSIONS (mm)	Height	1130	1256	1508	1760	2074
WEIGHT EMPTY / FULL (kg)		56 / 206	62 / 232	69 / 279	77 / 327	87 / 387
CYLINDER MATERIAL	Cylinder	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
	Insulation	CFC / HCFC-free flame-retardant expanded Polyurethane				
CYLINDER MATERIAL	Insulation Thickness (mm)	60	60	60	60	60
	GWP of Insulation	3.1	3.1	3.1	3.1	3.1
CYLINDER MATERIAL	ODP of Insulation	0	0	0	0	0
	Electrical Supply	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz
ELECTRICAL DATA	Phase	Single	Single	Single	Single	Single
	Fuse Rating - MCB Sizes (A) ¹	16	16	16	16	16
ELECTRICAL DATA	Immersion Heater	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz
	Phase	Single	Single	Single	Single	Single
ELECTRICAL DATA	Capacity (kW)	3	3	3	3	3
	Max Running Current (A)	13	13	13	13	13
ELECTRICAL DATA	Fuse Rating - MCB Sizes (A) ¹	16	16	16	16	16
MECHANICAL ZONES		DHW and 1 Heating Zone ²				
OPTIONAL SIMPLIFIED WIRELESS ROOM THERMOSTAT AND WIRELESS RECEIVER		PAR-WT50-E Controller and PAR-WR51-E Receiver				

For information marked with a "*" please consult the databook or speak to your local sales office.

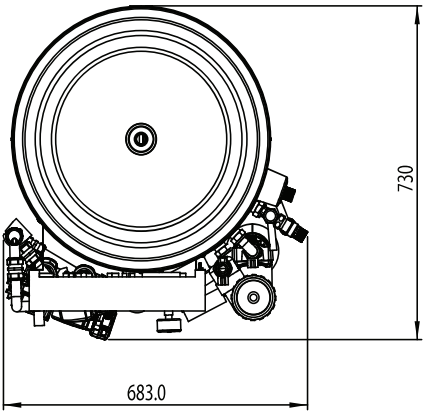
¹ MCB Sizes BS EN60898-2 & BS EN60947-2 ² Optional 2 zone accessory pack available

Notes: Cylinder includes: Flow Temperature Controller with Main Controller and Temperature Sensors, Magnetic & Cyclonic Filter, Pumps & Valves for Zone 1 and DHW use, Flow Sensor, Plate Heat Exchanger, Scale Trap, 3kW Immersion Heater and Expansion Vessel.

Front View



Upper View



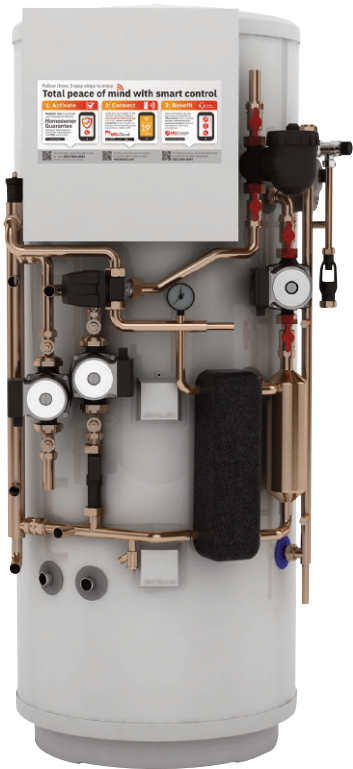
- KEY
- A OVERALL HEIGHT
 - B SECONDARY RETURN TAPPING
 - C HEAT PUMP FLOW CONNECTION (22mm O/D COPPER)
 - D TUNDISH OUTLET CONNECTION (22mm COMPRESSION)
 - E HEAT PUMP RETURN CONNECTION (22mm O/D COPPER)
 - F HEATING CIRCUIT FLOW CONNECTION (22mm O/D COPPER)
 - G HEATING CIRCUIT RETURN CONNECTION (22mm O/D COPPER)
 - H COLD WATER INLET CONNECTION (22mm COMPRESSION)
 - I HOT WATER OUTLET CONNECTION (22mm COMPRESSION / 3/4" BSP M)

CAPACITY	150	170	210	250	300
A	1130	1256	1508	1760	2074
B	-	-	1050	1175	1385
C	996	996	996	996	996
D	493	619	871	1123	1437
E	585	585	585	585	585
F	195	195	195	195	195
G	50	50	50	50	50

ecodan®

EHPT21-30X -UKHSDW

Pre-Plumbed Solar Cylinders for Ecodan Monobloc Units



The Pre-Plumbed Solar Cylinder comes complete with integrated hydraulic components & advanced controls.

Designed to optimise performance and flexibility within an average footprint, the solar cylinder includes an independent coil and fully integrates with the Ecodan monobloc air source heat pump range. Advanced plate heat exchanger technology delivers superior heat up times and our rapid SD card commissioning, MELCloud WiFi connectivity & energy monitoring functions are included as standard.

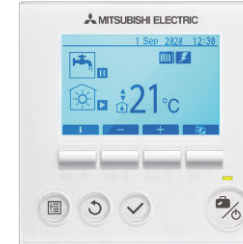
Key Features

- Includes independent coil for connection to solar thermal systems
- Optional 2-zone energy efficient space heating control
- Pre-Plumbed and wired for faster installation
- Hybrid function, for use with conventional boilers
- Energy monitoring as standard
- MELCloud Wi-Fi connectivity



Manufactured in the UK

FTC6 Controller



Mitsubishi Electric's sixth generation controller (FTC6) includes intelligent room temperature control as standard. This together with advanced weather compensation ensures the system delivers efficient, comfortable heating regardless of the season. FTC6 now also includes energy monitoring showing consumed and produced energy.

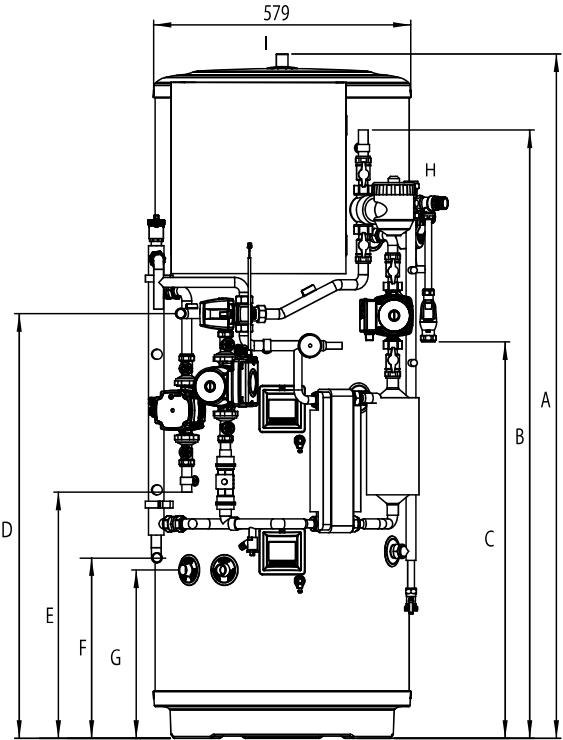
CYLINDER			EHPT21X-UKHSDW	EHPT25X-UKHSDW	EHPT30X-UKHSDW
NOMINAL HOT WATER VOLUME (LITRES)			210	250	300
ErP RATING			-	-	-
HEAT LOSS (kWh/24hrs)			1.55	1.79	-
HEAT LOSS (W)			65	75	-
WATER		Flow Rate (l/min) - (H)WM 50 / 60 / 85 / 112 / 140	14 / 17 / 24 / 32 / -	N/A / N/A / 24 / 32 / -	N/A / N/A / 24 / 32 / -
		Primary Circuit Pump	Grundfos UPMGEO 25-85	Grundfos UPMXL GEO 25-125	Grundfos UPMXL GEO 25-125
		Heating Circuit Pump		Grundfos UPM3 25-70	
		Sanitary Hot Water Pump		Grundfos UPSO 15-60 CIL2	
		Connection Size (mm) Heating / DHW	22 / 22	22 / 22	22 / 22
		Charge Pressure (MPa (Bar))	0.35 (3.5)	0.35 (3.5)	0.35 (3.5)
WATER SAFETY DEVICES	Water Circuit	Control Thermistor (°C)	1 - 80	1 - 80	1 - 80
		Expansion Relief Valve (Cold)	0.8 (8)	0.8 (8)	0.8 (8)
	DHW Cylinder	DHW Expansion Vessel (Litres)	18	24	24
		Control Thermistor	75	75	75
		Over Temperature Cut-Out (°C)	80 ± 5	80 ± 5	80 ± 5
		Temp and Pressure Relief Valve (°C) / (MPa (Bar))	90 / 1.0 (10)	90 / 1.0 (10)	90 / 1.0 (10)
DIMENSIONS (mm)		Width	683	683	683
		Depth	730	730	730
		Height	1513	1765	2081
WEIGHT EMPTY / FULL (kg)			74 / 284	82 / 332	92 / 392
CYLINDER MATERIAL	Cylinder Insulation	Cylinder Material	Stainless Steel	Stainless Steel	Stainless Steel
		Insulation Type	CFC / HCFC-free flame-retardant expanded Polyurethane		
		Insulation Thickness (mm)	60	60	60
		GWP of Insulation	3.1	3.1	3.1
		ODP of Insulation	0	0	0
ELECTRICAL DATA	Control Board <i>optionally powered by outdoor unit</i>	Electrical Supply	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz
		Phase	Single	Single	Single
		Fuse Rating - MCB Sizes (A) ¹	16	16	16
	Immersion Heater	Electrical Supply	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz
		Phase	Single	Single	Single
		Capacity (kW)	3	3	3
		Max Running Current (A)	13	13	13
		Fuse Rating - MCB Sizes (A) ¹	16	16	16
MECHANICAL ZONES			DHW and 1 Heating Zone ²		
OPTIONAL SIMPLIFIED WIRELESS ROOM THERMOSTAT AND WIRELESS RECEIVER			PAR-WT50-E Controller and PAR-WR51-E Receiver		

For information marked with a "*" please consult the databook or speak to your local sales office.

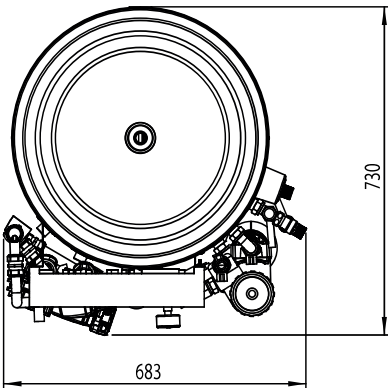
¹ MCB Sizes BS EN60898-2 & BS EN60947-2 ² Optional 2 zone accessory pack available

Notes: Cylinder includes: Flow Temperature Controller (FTC6) with Main Controller and Temperature Sensors, Magnetic & Cyclonic Filter, Pumps & Valves for Zone 1 and DHW use, Flow Sensor, Plate Heat Exchanger, Scale Trap, 3kW Immersion Heater and Expansion Vessel.

Front View



Upper View



- KEY
- A OVERALL HEIGHT
 - B HEAT PUMP FLOW CONNECTION (22mm O/D COPPER)
 - C TUNDISH OUTLET CONNECTION (22mm COMPRESSION)
 - D HEAT PUMP RETURN CONNECTION (22mm O/D COPPER)
 - E HEATING CIRCUIT FLOW CONNECTION (22mm O/D COPPER)
 - F HEATING CIRCUIT RETURN CONNECTION (22mm O/D COPPER)
 - G SOLAR COIL CONNECTIONS (22mm COMPRESSION / 3/4" BSP M)
 - H COLD WATER INLET CONNECTION (22mm COMPRESSION)
 - I HOT WATER OUTLET CONNECTION (22mm COMPRESSION / 3/4" BSP M)

CAPACITY	210	250	300
A	1513	1765	2081
B	1346	1346	1346
C	877	1129	1444
D	935	935	935
E	545	545	545
F	400	400	400
G	372	372	372

Solar coil specification:
Surface Area: 1.1m²
Coil volume: 5.8 litres
Pressure drop: 3.6 kPa (0.036 bar)
Output rating: 30kW at 80°C flow temperature, 15 litres/minute flow rate
Connections: 22mm compression / 3/4" BSP male
Dedicated solar volume: 75 litres



FTC6 / FTC2BR Flow Temperature Controllers

For use with Ecodan
Monobloc Units and
Third Party BEMS



The FTC6 Flow Temperature Controller is designed specifically by Mitsubishi Electric to integrate with the Ecodan PUZ monobloc air source heat pump range and a third party cylinder.

The FTC2BR has been developed to allow the Ecodan PUZ range to interface with third party or BEMS (Building Energy Management System) controls. A combination of volt free and voltage inputs allow the Ecodan PUZ monobloc range to be used in applications where only simple on/off and temperature control is required.

Functions that can be controlled and monitored by third party controls:

Controlled

- On/Off heating mode
- On/Off heating ECO mode
- On/Off hot water mode
- On/Off holiday mode
- On/Off legionella mode
- Change water flow temperature

Monitored

- Unit running
- Error
- Defrost

The ability to interface with third party controls opens up a huge number of application opportunities. Many processes simply require a heat source that provides hot water, without polished end user controls. The FTC2BR controller allows the Ecodan PUZ to be used in these applications. FTC2BR inputs and outputs can be used in conjunction with local BEMS.



FLOW TEMPERATURE CONTROLLERS		FTC6 (PAC-IF072B-E)	FTC2BR (PAC-IF033B-E)
COMPATIBILITY	PUZ-WM50VHA(-BS)	✓	✓
	PUZ-WM60VAA(-BS)	✓	✓
	PUZ-WM85VAA(-BS)	✓	✓
	PUZ-WM112VAA(-BS)	✓	✓
	PUZ-HWM140VHA/YHA(-BS)	✓	✓
	PUHZ-HW140VHA/YHA2(-BS)		
BUILT-IN FEATURES	Initial Setting Wizard	✓	
	Commissioning Aide	✓	
	Smart Grid Ready	✓	
	PV Connection	✓	
	Energy Monitoring	✓	
	Dual Set-Point DHW	✓	
	Silent-Mode	✓	
	Cascade ^{*1}	✓	
	Hybrid	✓	
MELCloud ^{*2}		✓	
BEMS INTERFACE			✓
DIMENSIONS (MM)	Width	393	336
	Depth	86.7	69
	Height	422	278
WEIGHT (kg)		4.1	3.2
OPERATING AMBIENT TEMPERATURE (°C) / HUMIDITY		0~ +35°C (RH<80%)	0~ +35°C (RH<80%)
ELECTRICAL DATA	Electrical Supply	Via Outdoor Unit or Independent Source (230v)	Via Outdoor Unit or Independent Source (230v)
	Phase	Single	Single

^{*1} Requires Optional part(s) PAC-SIF051B-E. Please contact your regional sales office technical team.

^{*2} Requires Wi-Fi interface MAC-567IF-E.



FTC5 / FTC2B Flow Temperature Controllers

For use with Ecodan
Monobloc Units and
Third Party BEMS



The FTC5 Flow Temperature Controller is designed specifically by Mitsubishi Electric to integrate with the Ecodan PUAZ monobloc air source heat pump range and a third party cylinder.

The FTC2B has been developed to allow the Ecodan PUAZ range to interface with third party or BEMS (Building Energy Management System) controls. A combination of volt free and voltage inputs allow the Ecodan PUAZ monobloc range to be used in applications where only simple on/off and temperature control is required.

Functions that can be controlled and monitored by third party controls:

Controlled

- On/Off heating mode
- On/Off heating ECO mode
- On/Off hot water mode
- On/Off holiday mode
- On/Off legionella mode
- Change water flow temperature

Monitored

- Unit running
- Error
- Defrost

The ability to interface with third party controls opens up a huge number of application opportunities. Many processes simply require a heat source that provides hot water, without polished end user controls. The FTC2B controller allows the Ecodan PUAZ to be used in these applications. FTC2B inputs and outputs can be used in conjunction with local BEMS.



FLOW TEMPERATURE CONTROLLERS		FTC5 (PAC-IF062B-E)	FTC2B (PAC-IF032B-E)
COMPATIBILITY	PUZ-WM50VHA(-BS)		
	PUZ-WM60VAA(-BS)		
	PUZ-WM85VAA(-BS)		
	PUZ-WM112VAA(-BS)		
	PUZ-HWM140VHA/YHA(-BS)		
	PUHZ-HW140VHA/YHA2(-BS)	✓	✓
BUILT-IN FEATURES	Initial Setting Wizard		
	Commissioning Aide		
	Smart Grid Ready	✓	
	PV Connection		
	Energy Monitoring	✓	
	Dual Set-Point DHW		
	Silent-Mode		
	Cascade ^{*1}	✓	
	Hybrid	✓	
MELCloud ^{*2}		✓	
BEMS INTERFACE			✓
DIMENSIONS (MM)	Width	393	336
	Depth	86.7	69
	Height	422	278
WEIGHT (kg)		4.4	3.2
OPERATING AMBIENT TEMPERATURE (°C) / HUMIDITY		0~ +35°C (RH<80%)	0~ +35°C (RH<80%)
ELECTRICAL DATA	Electrical Supply	Via Outdoor Unit or Independent Source (230v)	Via Outdoor Unit (230v)
	Phase	Single	Single

^{*1} Requires Optional part(s) PAC-SIF051B-E. Please contact your regional sales office technical team.

^{*2} Requires Wi-Fi interface MAC-567IF-E.



MELCloud Wi-Fi Connectivity



Featuring the award-winning



MELCloud is a cloud based solution for controlling your Mitsubishi Electric Ecodan heating system either locally or remotely by PC, Mac, Tablet or Smartphone via the internet.

The set up and remote operation of your Ecodan heating system via MELCloud is simple and straight forward. All you need is a wireless connection where the Ecodan is located and an internet connection on your mobile or fixed device. To set up the system, the router and the Ecodan Wi-Fi interface need pairing and this is done simply and quickly via the WPS button found on all mainstream routers, or using access point pairing via a mobile phone.

Key Features

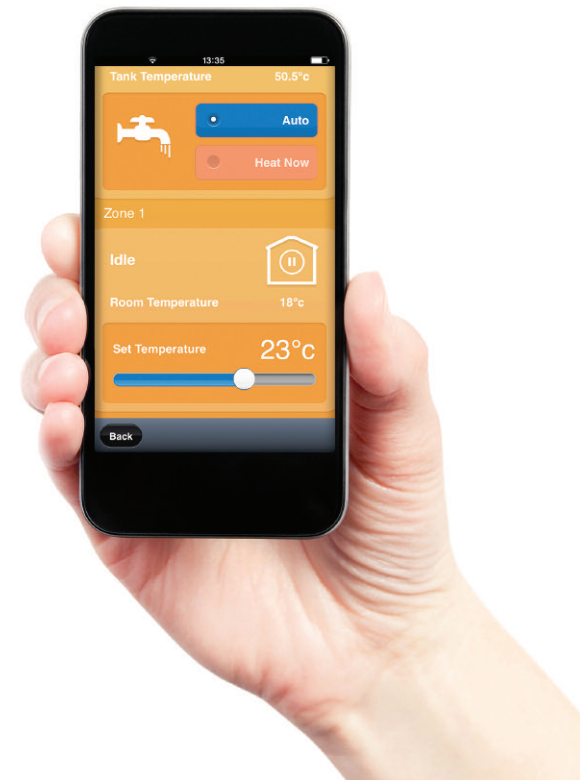
- Access to remote maintenance and technical support
- View and control your heating and hot water from anywhere in the world
- Reports on energy use, temperature history and more
- Live weather feed at location of Ecodan
- Share / restrict access and control of the Ecodan system
- Compatible with Alexa
- Available for any FTC6 / FTC5 based system, new or retrofit using a MAC-567IF-E interface



MELConsole

Once connected, you can also enjoy the benefits of **MELConsole** which provides **remote maintenance & technical support** reducing the need of a visit from an engineer.

24/7 Technical Support





For a demonstration of Mitsubishi Electric's MELCloud visit our website: melcloud.com and click 'Login'



Available for PC, Mac, Tablet or Smartphone

Supported Ecodan Models

All **Ecodan FTC6 / FTC5** systems have energy monitoring functionality as standard and the ability to connect to MELCloud. A MAC-567IF-E Wi-Fi Interface is required to use MELCloud.

Wi-Fi Interface	MAC-567IF-E
DESCRIPTION	Wi-Fi Interface
CONNECT TO	Indoor Unit
MAX NUMBER OF UNITS	1
COMPATIBILITY	Ecodan FTC6 / FTC5
POWER SUPPLY	From indoor unit
DIMENSIONS (WxDxH) mm	79 x 18.5 x 44
CONTROL	On/Off
	Mode
	Heating Setpoint
	Hot Water Boost
	2-Zone Control
	Holiday Mode
	Timer
	Frost Protection
MONITOR	On/Off
	Mode
	Heating Setpoint
	Tank Temperature
	Tank Target Temperature
	Outside Temperature
	Fault Codes
	Consumed Electrical Energy
	Produced Heat Energy

Supported Hardware / Software

Tablets (Apps or Web Client)

Apple iPad / iPad mini
Samsung Galaxy Tab / Note
Google Nexus
Dell Latitude 10
Microsoft Surface
BlackBerry PlayBook

Smartphones (Apps or Web Client)

Apple iPhone
Samsung Galaxy S
Google Nexus
Nokia Lumia
BlackBerry Z10

Operating Systems

Android
Apple iOS / OS
Microsoft Windows
BlackBerry

Internet Browsers (Web Client only)

Microsoft Internet Explorer
Google Chrome
Apple Safari
Mozilla Firefox
Opera

Please Note:

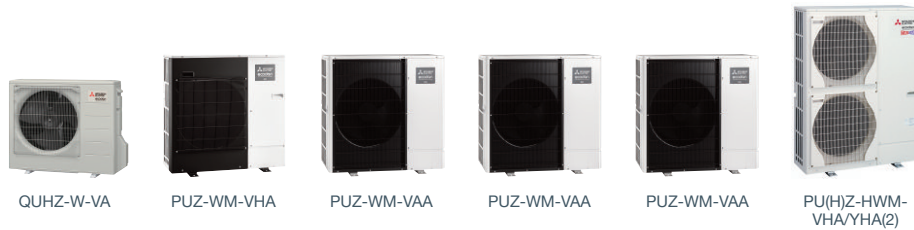
This is not definitive list of all compatible devices, other similar devices which use supported Operating Systems or Internet Browsers should also work either via dedicated Apps or via Web Browser / Web Client options. Please note that user experience may vary slightly depending on hardware and software combination.



Energy Monitoring Packs

All Ecodan Flow Temperature Control (FTC6 / FTC5) systems come with free energy monitoring as standard. System users are able to measure both consumed electrical energy and produced heat energy to the nearest kWh. Further energy monitoring packs are also available, ranging from electric meter packs, through to a Renewable Heat Incentive (RHI) compliant Metering and Monitoring Service Pack (MMSP) which allows additional RHI payments to be claimed.

In addition to the basic system functionality features, i.e. hot water and heating status, the system's energy performance can also now be viewed. Historic energy consumption, heat production and run cost reports are available via the main controller, SD card or MELCloud.




PACK	4kW	5kW	6kW	8.5kW	11.2kW	14kW	DESCRIPTION	ELECTRIC METER	HEAT METER	OPTIONAL WI-FI	DATA STORAGE
EMP1	✓	✓	✓	✓	✓	✓	Energy input & output estimation included as standard			Optional	
EMP2	✓	✓	✓	✓	✓	✓	Electrical energy measurement consumption pack	2		Optional	
EMP3-M-1Ph		✓	✓	✓	✓	✓ *VHA	MMSP compliant electrical energy consumption and heat generation pack with cloud data storage	2	1	Optional	✓
EMP3-M-3Ph						✓ *YHA	MMSP compliant electrical energy consumption and heat generation pack with cloud data storage	2	1	Optional	✓
EMP3-Q-1Ph	✓						MMSP compliant electrical energy consumption and heat generation pack with cloud data storage	2	1	Optional	✓
EMPH-M-1Ph		✓	✓	✓	✓	✓	Electrical energy consumption and heat generation pack for hybrid systems	2	1	Optional	

i-LIFE2 Slim

Fan Assisted Radiator



 i-Life2 Slim units are managed by a variable speed fan motor that continuously modulates the fan speed

1. Room temperature 27°C d.b./19°C w.b.; Chilled water (in/out) 7/12°C.
2. Room temperature 20°C d.b.; Hot water (in/out) 45/40 °C.
3. Sound pressure level in free field on a reflective surface, 1m from fan front and 1m from the ground. Non-binding value obtained from sound power level.
4. Sound power on the basis of measurements made in compliance with ISO 374 and Eurovent 8/2.
5. Unit in standard configuration/execution, without optional accessories.
6. Values in compliance with EN14511-3:2013.
7. Values in compliance with [REGULATION (UE) N.2016/2281].
8. Certified data in EUROVENT.

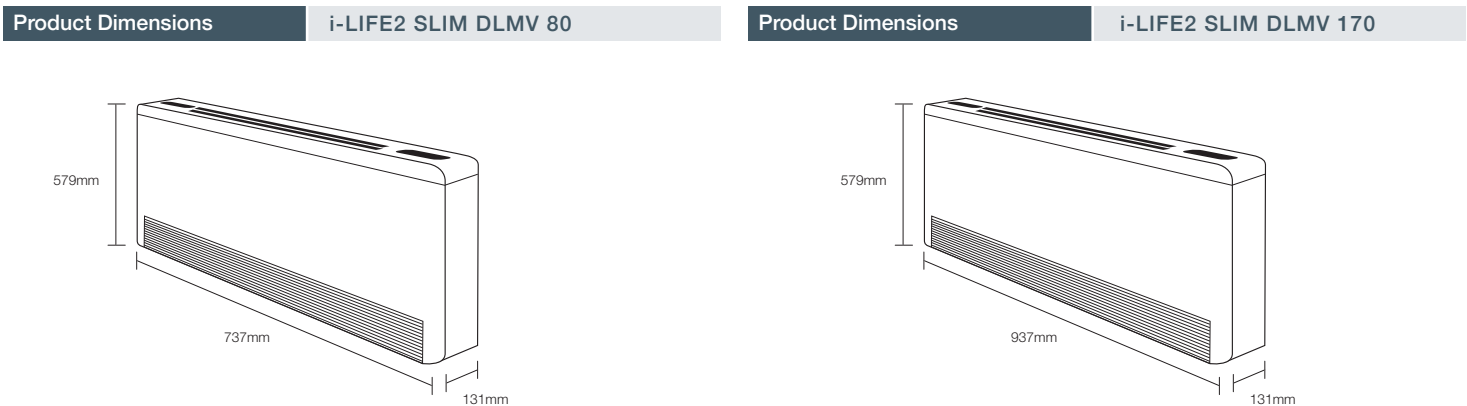


The i-Life2 Slim Fan Assisted Radiator designed to work seamlessly with existing heating or renewable technologies.

Key Features

- Stylish - At only 13cm deep, the sleek and elegant satin-white, wall mounted cabinet is designed to blend seamlessly into any setting
- Flexible - Packed with advanced controls and functions, the i-Life2 Slim will work with traditional heating or renewable systems such as heat pumps
- Easy to Use - Airflow is managed by deflectors at the top of the unit, which open and close automatically ensuring fast even heat distribution

MODEL		i-LIFE2 SLIM DLMV 80	i-LIFE2 SLIM DLMV 170
CAPACITY (W) ^{2 6 8}		500 / 780 / 880	1060 / 1660 / 2130
ELECTRICAL DATA	Electrical Supply	230v, 50Hz	230v, 50Hz
	Phase	Single	Single
	Fan Power Input (W) - (Lo-Mi-Hi) ^{1 8}	0.7 / 4.6 / 10.7	1.62 / 10.1 / 19.0
WATER DATA	Water Flow Rate (l/min) - (Lo-Mi-Hi) ²	1.2 / 2.4 / 2.4	3 / 4.8 / 6
	Water Pressure Drop (kPa) - (Lo-Mi-Hi) ^{2 8}	3 / 6 / 8	2 / 5 / 8
AIR DATA	Air Flow Rate (m3/h) - (Lo-Mi-Hi) ¹	51 / 93 / 125	122 / 221 / 277
SOUND DATA	Sound Pressure (dB(A)) - (Lo-Mi-Hi) ³	24 / 35 / 41	26 / 36 / 42
	Sound Power (dB(A)) - (Lo-Mi-Hi) ^{4 7 8}	33 / 44 / 50	35 / 45 / 51
DIMENSIONS (mm) ⁵	Width	737	937
	Depth	131	131
	Height	579	579
WEIGHT (kg) ⁵		17	20



Accessories / Optional Extras

DESCRIPTION	MODEL REF.
QAHV Accessories	
Main Pipework Thermistor	TW-TH16
Differential Pressure Switch for Water Systems	KS10-EP100S
Wired Remote Controller	PAR-W31MAA-J
Centralised Controller	AE-200E
AE-200E Wall Mounted Box - for Wall Mounting	PAC-YG82TB
Secondary Side Control Circuit Kit	Q-1SCK
CAHV Accessories	
Main Pipework Thermistor	TW-TH16
Differential Pressure Switch for Water Systems	KS10-EP100S
Wired Remote Controller	PAR-W21MAA-J
Centralised Controller	AE-200E
AE-200E Wall Mounted Box - for Wall Mounting	PAC-YG82TB
CRHV Accessories	
Main Pipework Thermistor	TW-TH16
Differential Pressure Switch for Water Systems	KS10-EP100S
Wired Remote Controller	PAR-W21MAA-J
Centralised Controller	AE-200E
AE-200E Wall Mounted Box - for Wall Mounting	PAC-YG82TB
External Temperature Sensor and Solar Guard	TMP-O
PU(H)Z / QUHZ Accessories	
Wireless Controller Transmitter	PAR-WT50R-E
Wireless Controller Receiver	PAR-WR51R-E
MELCloud Wi-Fi Interface	MAC-567IF-E
FTC6 / FTC5 Flow and Return Temperature Sensors 5m Cable	PAC-TH011-E
FTC5 High Temperature Sensor 5m Cable	PAC-TH011HT-E
FTC6 High Temperature Sensor 5m Cable	PAC-TH012HT-E
VHA Drain Socket Kit	PAC-SH71DS-E
VHA & VAA Drain Socket Kit	PAC-SG61DS-E
FTC6 / FTC5 Internal Air Temperature Sensor including Cover	PAC-SE41TS-E
Ecodan Anti-Vibration Fix-It-Foot 600mm Kit	ACC-AVM-001
Ecodan Reinforced Lightweight Slab plus Anti-Vibration Fix-It-Foot Kit	ACC-AVS-001
Insulated Flexible Connection Pipes (28mm x 300mm) Elbow Pair	ACC-FCP-E28
Insulated Through Wall Sleeve Kit (85mm)	ACC-FCP-TW1
External Pipework Trunking Length (1m x 140mm Black x2)	ACC-TRU-LE1
External Pipework Trunking Length (2m x 140mm Black x1)	ACC-TRU-LE2
External Pipework Trunking Length Connector (140mm Black)	ACC-TRU-JO1
External Pipework Trunking Wall Cover (140mm Black)	ACC-TRU-CO1
External Pipework Trunking Elbow (140mm Black)	ACC-TRU-EL1
External Pipework Trunking External Corner (140mm Black)	ACC-TRU-EC1
External Pipework Trunking Internal Corner (140mm Black)	ACC-TRU-IC1
10L Anti Freeze	ACC-AFZ-010
25L Anti Freeze	ACC-AFZ-025
Pack for 2 Zone Systems with Equal Temperatures	ACC-2ZP-K01
Pack for 2 Zone Systems with Different Temperatures	ACC-2ZP-K02

Ventilation

Fresh Air Ventilation Range





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Fresh Air Ventilation Range

Why Do We Need **Fresh Air Ventilation**?

The build-up of health damaging pollutants, mould and rot are all attributed to poor indoor air quality and the lack of effective ventilation.

With highly airtight buildings on the rise, alongside increasingly strict legislation on air quality, the need is growing for an effective solution such as mechanical ventilation, which is also energy efficient. Mitsubishi Electric systems are perfectly placed to address this need and are the ideal solution to provide fresh air.

Our range includes single and multi-room Mechanical Ventilation with Heat Recovery (MVHR) units and medium to large scale ventilation solutions including Air Handling Units (AHUs). All systems have been designed to provide the best ventilation solution for the chosen application, by delivering the required amount of fresh air, whilst extracting the right amount of stale air, in the most energy efficient way possible.



Fresh air benefits include:

- A healthy and better maintained building
- Improved air quality for occupants
- Improved comfort via the recovery of heat to incoming fresh air



Fresh Air Ventilation Range

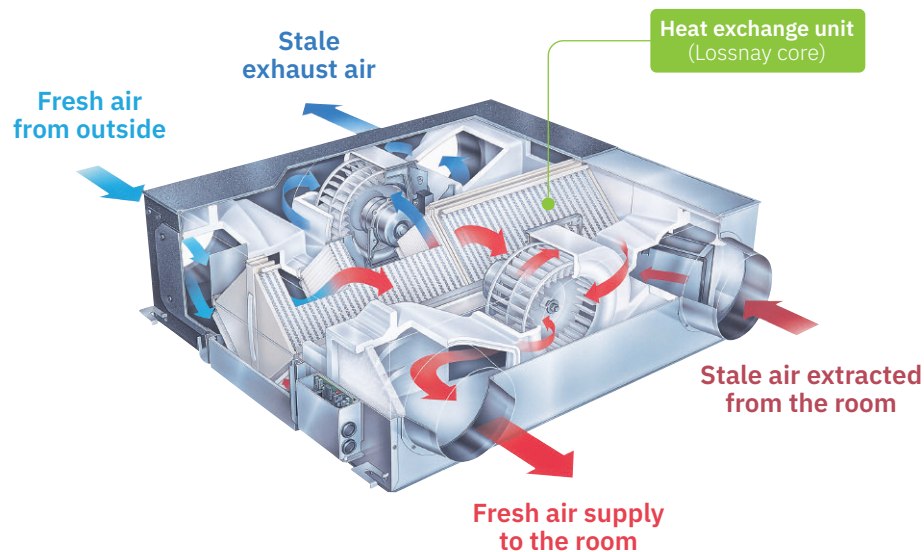
Excellent Air Quality and Heat Exchange Efficiency

How Lossnay Works

Our Lossnay systems have perfected the recovery of energy that would have otherwise been wasted. They do this by either warming or cooling incoming air, a feature which makes Mitsubishi Electric MVHR units extremely energy efficient.

Heat Recovery is made possible via the unique Lossnay ultra-thin paper core technology, which is constructed in a corrugated form and layered in alternative directions.

This design allows a cross airflow to maximise heat recovery without the supply and exhaust air mixing, ensuring only fresh air is introduced to the building.



How Air Handling Units work

Packaged Air Handling Units (AHUs) are designed to provide a tempered fresh air supply into commercial buildings. They work in conjunction with the building's air conditioning system to provide occupants with a fresh and comfortable environment.

The technology behind the Climaveneta Wizard AHU includes a highly efficient heat recovery thermal wheel to transfer heat between the supply and return air. By capturing and reusing this heat before it leaves the building, substantial energy savings can be made.

This technology can also provide free cooling and benefits from fully integrated, intelligent controls.



Fresh Air Ventilation Range

Lossnay

The Lossnay range of units have been developed to suit both commercial and domestic applications and benefit from heat recovery technology, ensuring effective fresh air ventilation whatever the type of building. The GUG air processing unit has been designed for use with the LGH range of Lossnay units to provide a full heating, cooling and ventilation solution for commercial applications.

LGH-RVX(T)-E

Exceptional ventilation for commercial applications



With 12 units available, the RVX(T) range of MVHR units cover a wide range of air volumes making them suitable for most commercial applications.

As well as a simultaneous supply of fresh air with an extraction of stale air and heat recovery, efficiency is further enhanced with a free cooling function that lowers the cooling demand of a building and saves on running costs.



VL-220CZGV-EB

Maximum efficiency and minimal energy use



The ceiling ducted VL-220 Mechanical Ventilation with Heat Recovery (MVHR) unit is an energy efficient whole-house ventilation solution, which is also suitable for applications such as small commercial.

It simultaneously supplies fresh air, whilst extracting stale and moist air from kitchens and bathrooms, enabling maximum heat recovery and dwelling welfare benefits.



VL-100(E)U₅-E

Compact and stylish



The wall mounted VL-100 is a single room total heat exchanger, suitable for applications such as small offices and homes.

It is compact, easy-to-install and enables a fresh, clean and healthy internal environment to be maintained, whilst helping to reduce energy bills.



Lossnay

GUG-01/02/03SL-E

Enhanced ventilation for LGH-RVX(T) units



Available in three sizes, the GUG is an air processing unit which works in conjunction with Mr Slim R410A outdoor units to heat and cool the supply air from a Lossnay LGH-RVX(T)-E unit.

The combination of these three products effectively creates an air handling system, which can supply fresh air efficiently to commercial applications.



GUF-50/100RD4

Enhanced ventilation with City Multi VRF



Available in two sizes, the GUF is an outdoor air processing unit which works in conjunction with City Multi outdoor units to provide ventilation, dust removal and heat recovery to help maintain a healthy indoor air quality.



Air Handling Unit

WizardX E-OU

Large scale commercial ventilation systems



The new Climaveneta Wizard AHUs, which range from 0.83m³/s up to 5.56m³/s, benefit from thermal wheel heat recovery technology and are fully compliant with Ecodesign.

These systems utilise Mr Slim Power Inverter technology and feature integrated controls making them highly advanced, flexible and efficient.



LGH-RVX-E

Commercial Lossnay

Designed to supply fresh air into any commercial building whilst simultaneously extracting stale air, the Lossnay **LGH-RVX-E** units also recover valuable heat energy for maximum efficiency, with total heat exchange.

Key Features

- Clean, fresh air
- Energy efficient heat recovery
- Can be used in conjunction with Mr Slim and City Multi for highly efficient and effective operation



MODEL			LGH15RVX-E	LGH25RVX-E	LGH35RVX-E	LGH50RVX-E	LGH65RVX-E	LGH80RVX-E	LGH100RVX-E	LGH150RVX-E	LGH200RVX-E
ELECTRICAL POWER SUPPLY			220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz
RUNNING CURRENT (A)	SP1		0.10	0.10	0.12	0.13	0.15	0.15	0.17	0.29	0.33
	SP2		0.15	0.16	0.26	0.26	0.39	0.36	0.50	0.70	0.88
	SP3		0.24	0.28	0.54	0.59	0.90	0.83	1.20	1.75	2.20
	SP4		0.40	0.48	0.98	1.15	1.65	1.82	2.50	3.71	4.88
INPUT POWER (W)	SP1		7	8	11	12	15	18	21	38	42
	SP2		14	16	31	32	49	60	75	123	153
	SP3		28	33	70	78	131	151	200	311	400
	SP4		49	62	140	165	252	335	420	670	850
AIRFLOW (m³/h)²	SP1		38	63	88	125	163	200	250	375	500
	SP2		75	125	175	250	325	400	500	750	1000
	SP3		113	188	263	375	488	600	750	1125	1500
	SP4		150	250	350	500	650	800	1000	1500	2000
AIRFLOW (l/s)²	SP1		10	17	24	35	45	56	69	104	139
	SP2		21	35	49	69	90	111	139	208	278
	SP3		31	52	73	104	135	167	208	313	417
	SP4		42	69	97	139	181	222	278	417	556
SPECIFIC FAN POWER (W/(l/s))	SP1		0.70	0.47	0.46	0.34	0.33	0.32	0.30	0.37	0.30
	SP2		0.67	0.46	0.63	0.46	0.54	0.54	0.54	0.59	0.55
	SP3		0.90	0.63	0.96	0.75	0.97	0.90	0.96	0.99	0.96
	SP4		1.17	0.90	1.44	1.19	1.39	1.51	1.51	1.61	1.53
EXTERNAL STATIC PRESSURE (Pa)	SP1		6	5	10	8	8	10	11	11	10
	SP2		24	21	40	30	30	38	43	44	38
	SP3		54	48	90	68	68	85	96	98	84
	SP4		95	85	160	120	120	150	170	175	150
SOUND PRESSURE LEVEL (dBA)	SP1		17	17	17	18	18	18	18	18	18
	SP2		19	20	20	19	22	23	23	24	28
	SP3		24	22	28	28	29	30	31	32	36
	SP4		28	27	32	34	34.5	34.5	37	39	40
TEMPERATURE EXCHANGE EFFICIENCY (%)	SP1		84	86	88.5	87	86	85	89.5	85	89.5
	SP2		83	82	86	83.5	84	84	86.5	84	86.5
	SP3		81	80	82.5	81	81	82.5	83	82.5	83
	SP4		80	79	80	78	77	79	80	80	80
ENTHALPY EXCHANGE EFFICIENCY (%)	Heating	SP1	79	83	83.5	82.5	82	81	87	81	87
		SP2	78	76	78.5	75	76	78	78	78	78
		SP3	75.5	72	74	71	71	73.5	74	73.5	74
		SP4	73	69.5	71.5	69	68.5	71	72.5	72	72.5
	Cooling	SP1	79	83	82	82	81	81	85.5	81	85.5
		SP2	78	74.5	78	72.5	74	78	77	78	77
		SP3	74.5	70	73	68	69.5	72.5	73	72.5	73
		SP4	71	68	71	66.5	66	70	71	70.5	71
WEIGHT (kg)			20	23	30	33	38	48	54	98	110
DIMENSIONS (mm)		Width x Depth x Height	780 x 610 x 289	780 x 735 x 289	888 x 874 x 331	888 x 1016 x 331	908 x 954 x 404	1144 x 1004 x 404	1144 x 1231 x 404	1144 x 1004 x 808	1144 x 1231 x 808
DUCT SIZE (mm)			100	150	150	200	200	250	250	(SARA)250 (DAEA)270 x 700 (SARA)250 (DAEA)270 x 700	
STANDARD FILTER¹			EU-G3	EU-G3	EU-G3	EU-G3	EU-G3	EU-G3	EU-G3	EU-G3	EU-G3
FUSE RATING (BS88) – HRC (A)			6	6	6	6	6	6	6	10	10

Notes: Running Current, Input Power and Recovery Efficiency are based on the above airflow rate, power supply 240v, 50Hz. Sound Pressure Level measured at 1.5m under the centre of panel.

*1: EU-F7 filter available as optional parts. *2: Airflow tested to Japan industrial standard JIS B 8628. SP1, SP2, SP3 & SP4 relate to the fan speeds of the Lossnay RVX units i.e. fanspeed 1, 2, 3 & 4.

Accessories

Remote Controllers

PZ-61DR-E

Lossnay remote controller for LGH-RVX-E

Filters

PZ-15RFM-E

F7 filter for LGH-15RVX-E

PZ-25RFM-E

F7 filter for LGH-25RVX-E

PZ-35RFM-E

F7 filter for LGH-35RVX-E

PZ-50RFM-E

F7 filter for LGH-50RVX-E

PZ-65RFM-E

F7 filter for LGH-65RVX-E

PZ-80RFM-E

F7 filter for LGH-80RVX-E / LGH-150RVX-E (2 sets)

PZ-100RFM-E

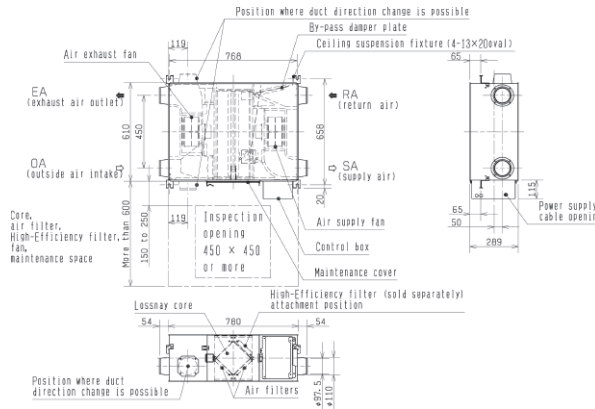
F7 filter for LGH-100RVX-E / LGH-200RVX-E (2 sets)

Weather Proof Housings

Weather proof housings are also available

DIMENSIONS

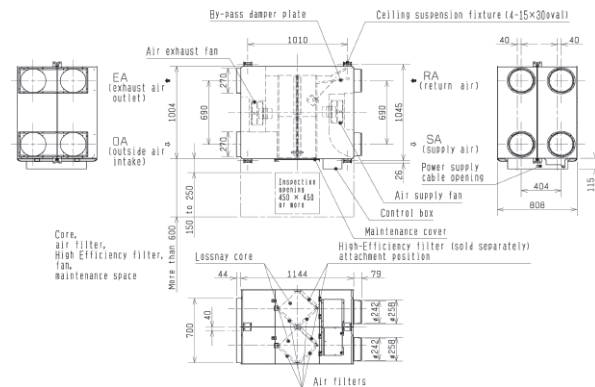
LGH-15RVX-E



MODEL REFERENCE	DIMENSIONS			CEILING SUSPENSION FIXTURE PITCH		NOMINAL DUCT DIAMETER
	A	B	C	D	E	
LGH-25RVX-E	780	735	289	768	782	150
LGH-35RVX-E	888	874	331	875	921	150
LGH-50RVX-E	888	1016	331	875	1063	200
LGH-65RVX-E	908	954	404	895	1001	200
LGH-80RVX-E	1144	1004	404	1131	1051	250
LGH-100RVX-E	1144	1231	404	1131	1278	250

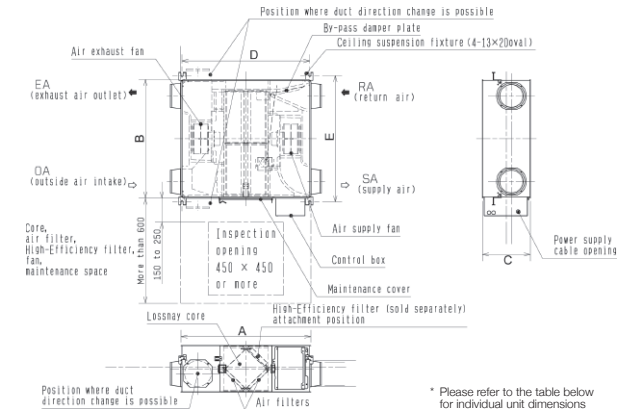
DIMENSIONS

LGH-150RVX-E



DIMENSIONS

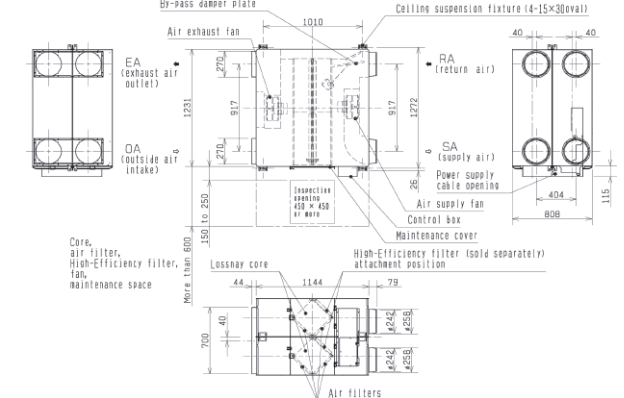
LGH-25-100RVX-E*



* Please refer to the table below for individual unit dimensions

DIMENSIONS

LGH-200RVX-E



LGH-RVXT-E

Commercial Lossnay

Lossnay **LGH-RVXT-E** Mechanical Ventilation Heat Recovery (MVHR) systems are designed to supply fresh air into any commercial building, whilst simultaneously extracting stale air and, most importantly, recovering valuable heat energy for maximum efficiency. The reduced height of this model makes it particularly suitable for installation in ceiling voids.

Key Features

- Clean, fresh air for improved air quality and comfort
- Energy efficient heat recovery
- Total heat exchange (sensible and latent)
- Significantly reduced height



MODEL		LGH150RVXT-E	LGH200RVXT-E	LGH250RVXT-E	
ELECTRICAL POWER SUPPLY		220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	
RUNNING CURRENT (A)	SP1	0.36	0.39	0.57	
	SP2	1.10	1.10	1.40	
	SP3	2.40	2.70	3.60	
	SP4	4.30	5.40	7.60	
INPUT POWER (W)	SP1	48	56	82	
	SP2	176	197	244	
	SP3	421	494	687	
	SP4	792	1000	1446	
AIRFLOW (m³/h) ²	SP1	375	500	625	
	SP2	750	1000	1250	
	SP3	1125	1500	1875	
	SP4	1500	2000	2500	
AIRFLOW (l/s) ²	SP1	104	139	174	
	SP2	208	278	347	
	SP3	313	417	521	
	SP4	417	556	694	
SPECIFIC FAN POWER (W/(l/s))	SP1	0.46	0.40	0.47	
	SP2	0.85	0.71	0.70	
	SP3	1.35	1.18	1.32	
	SP4	1.90	1.80	2.08	
EXTERNAL STATIC PRESSURE (Pa)	SP1	11	11	11	
	SP2	44	44	44	
	SP3	98	98	98	
	SP4	175	175	175	
SOUND PRESSURE LEVEL (dBA)	SP1	22	22	24	
	SP2	29.5	28	32	
	SP3	35.5	35.5	39	
	SP4	39.5	39.5	43	
TEMPERATURE EXCHANGE EFFICIENCY (%)	SP1	81.5	84	82.5	
	SP2	81	82.5	80.5	
	SP3	80.5	81	79	
	SP4	80	80	77	
ENTHALPY EXCHANGE EFFICIENCY (%)	Heating	SP1	75	83	79
		SP2	73	77	74
		SP3	71	73.5	71.5
		SP4	70	72.5	68
	Cooling	SP1	74	80.5	76.5
		SP2	72	74.5	71.5
		SP3	70	71	69
		SP4	69	70	65.5
WEIGHT (kg)		156	159	198	
DIMENSIONS (mm) Width x Depth x Height		1980 x 1500 x 500	1980 x 1500 x 500	1980 x 1500 x 500	
DUCT SIZE (mm)		250 x 750	250 x 750	250 x 750	
STANDARD FILTER ¹		EU-G3	EU-G3	EU-G3	
FUSE RATING (BS88) – HRC (A)		10	10	10	

Notes: Running Current, Input Power and Recovery Efficiency are based on the above airflow rate, power supply 240v, 50Hz. Sound Pressure Level measured at 1.5m under the centre of panel.

¹: M6 medium efficiency filter and F8 high efficiency filter available as optional parts. ²: Airflow tested to Japan industrial standard JIS B 8628. SP1, SP2, SP3 & SP4 relate to the fan speeds of the Lossnay RVXT units i.e. fanspeed 1, 2, 3 & 4.

Accessories

Remote Controllers

PZ-61DR-E

Lossnay remote controller for LGH-RVXT-E

Filters

PZ-M6RTFM-E

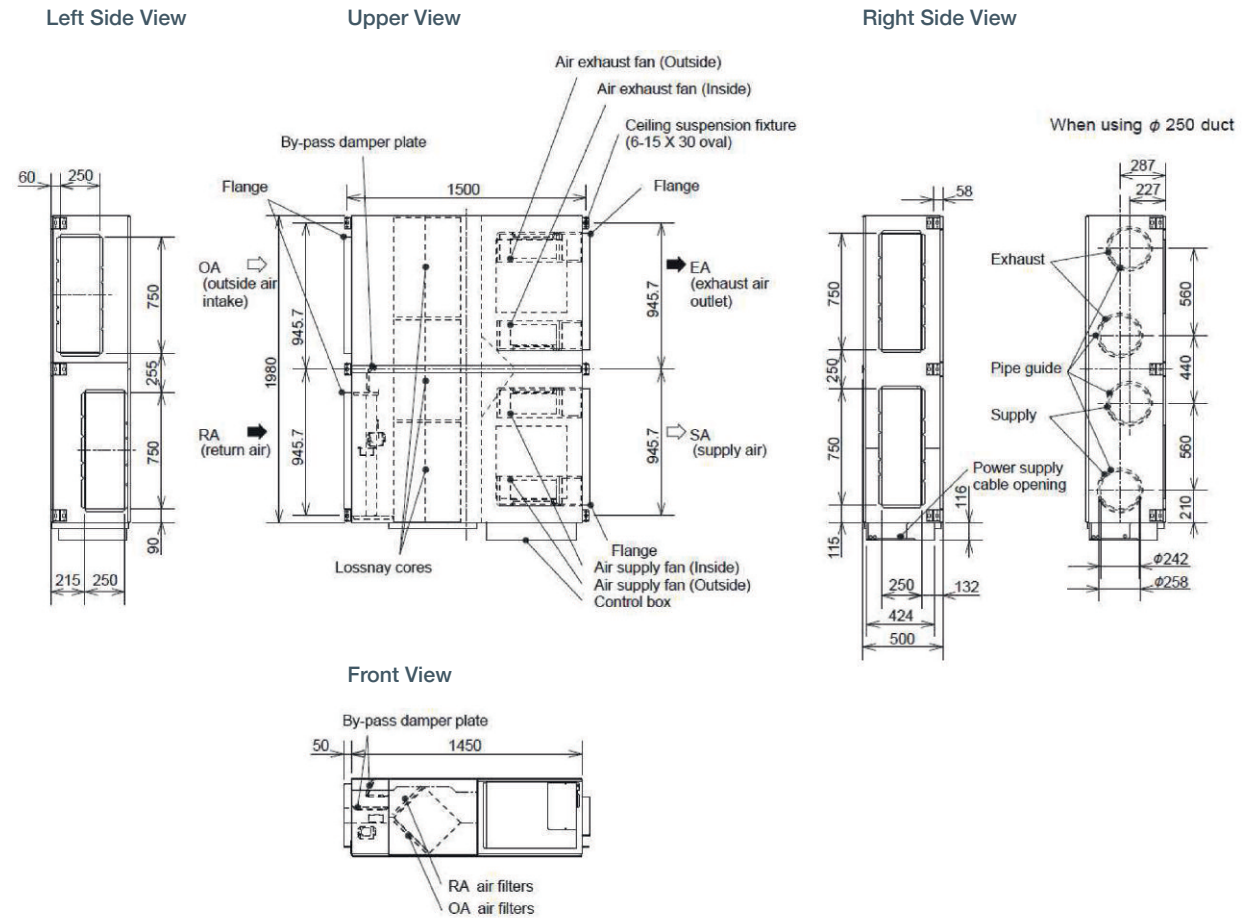
M6 filter for LGH-RVXT-E

PZ-F8RTFM-E

F8 filter for LGH-RVXT-E

DIMENSIONS

LGH-150/200/250RVXT-E



VL-100(E)U₅-E

Wall Mounted Lossnay

The **VL-100** units supply fresh air inside a room using simultaneous supply and extract operation in an energy efficient manner.

The recovery of both latent heat and sensible heat ensures a comfortable internal environment as well as reducing heat losses, saving both energy and costs.

The compact unit with its simple installation makes it ideal for single room applications, such as small offices, bedrooms etc.

Key Features

- Effective fresh air ventilation with improved air quality
- Reduces heating / cooling costs
- Simple installation

MODEL		VL-100U ₅ -E	VL-100EU ₅ -E
ELECTRICAL POWER SUPPLY		220-240V, 50Hz	220-240V, 50Hz
PHASE		Single	Single
POWER CONSUMPTION (W)	Low	17	17
	High	34	34
AIRFLOW (m ³ /h)	Low	61	61
	High	106	106
SOUND PRESSURE LEVEL (dBA)	Low	27	27
	High	38	38
TEMPERATURE EXCHANGE EFFICIENCY (%)	Low	79	79
	High	72	72
WEIGHT (kg)		7.5	7.5
DIMENSIONS (mm)	Width	620	620
	Depth	200	200
	Height	265	265
DUCT SIZE (mm)		2 x Ø75	2 x Ø75
FUSE RATING (BS88) - HRC (A)		6	6
MAINS CABLE No. Cores		3	3
CONTROL ON/OFF		Pull Cord	Field Supplied

Notes: The VL-100U₅-E includes a pull cord switch to control the unit. Also available as VL-100EU₅-E which includes the option to fit a field supplied external wall switch



Accessories

Filters

P-100HF₅-E

M6 filter for VL-100(E)U₅-E

Extension Pipe Kits

P-100P-E

Extension pipe for VL-100(E)U₅-E (300mm)

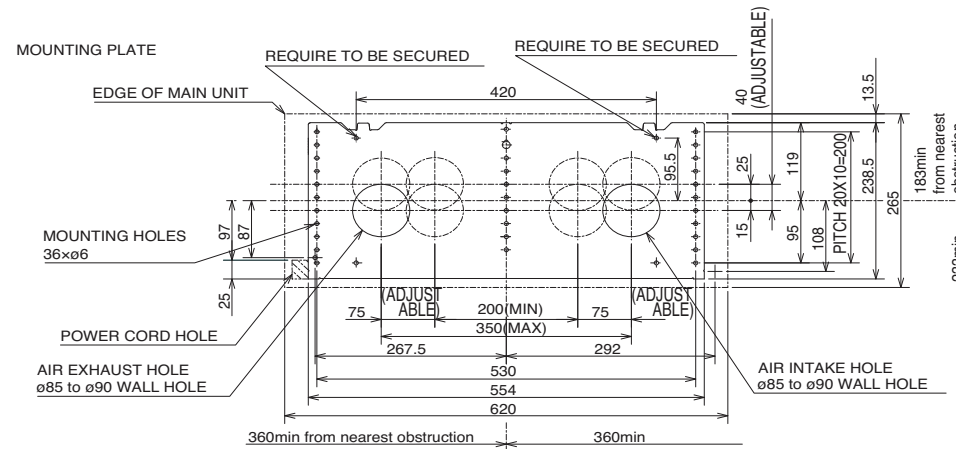
P-100PJ-E

Extension pipe joint for VL-100(E)U₅-E (300mm)

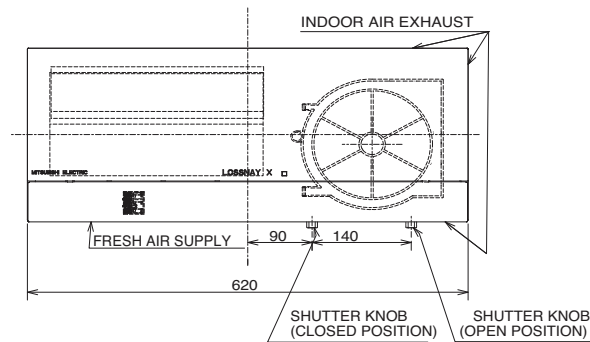
Product Dimensions

VL-100(E)U₅-E

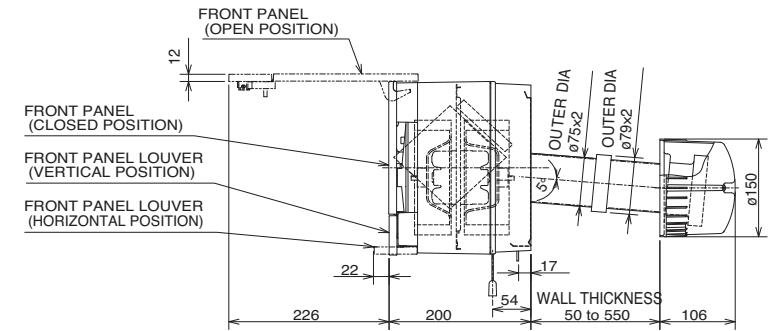
Front View



Upper View



Side View



Unit: mm

VL-220CZGV-EB

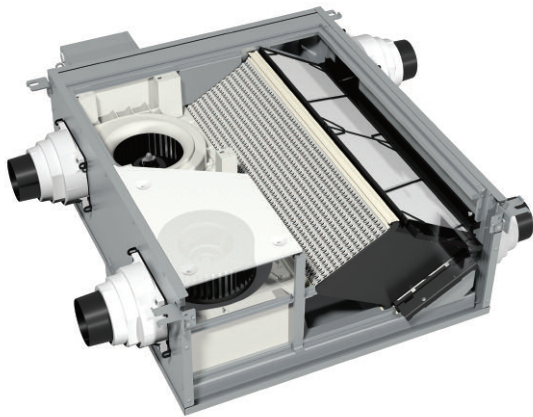
Residential / Light Commercial Lossnay

The Lossnay **VL-220** Mechanical Ventilation with Heat Recovery (MVHR) unit is an energy efficient whole-house ventilation solution which provides a clean, fresh air supply to a home.

It simultaneously extracts stale air from the internal environment whilst recovering valuable heat energy to maximise efficiency and minimise energy use. Ideal for high humidity areas, the Lossnay VL-220 is also suitable for small commercial properties.

Key Features

- Energy efficient whole-house ventilation with heat recovery
- Free cooling function
- Dedicated remote controller
- Treated Lossnay core allowing extract from high humidity areas



MODEL		VL-220CZGV-EB			
ELECTRICAL POWER SUPPLY		220-240V/50Hz			
WEIGHT (kg)		32			
FAN SPEED		1	2	3	4
RUNNING CURRENT (A)		0.11	0.18	0.29	0.60
INPUT POWER (W)		8.5	18.5	35	80
AIRFLOW (m³/h)		65	120	165	220
AIRFLOW (l/s)		18	33	46	64
EXTERNAL STATIC PRESSURE (Pa)		13	44	84	164
TEMPERATURE EXCHANGE EFFICIENCY (%)		86	85	84	82
NOISE (dB)		14	19	25	31
DIMENSIONS (mm)	Width	850			
	Depth	720			
	Height	340			
MAXIMUM CURRENT (A)		0.8			

Accessories

Controllers

PZ-61DR-E

Lossnay remote controller for VL-220CZGV-EB

PZ-43SMF-E

Lossnay simplified remote controller for VL-220CZGV-EB

Filters

P-220EMF-E

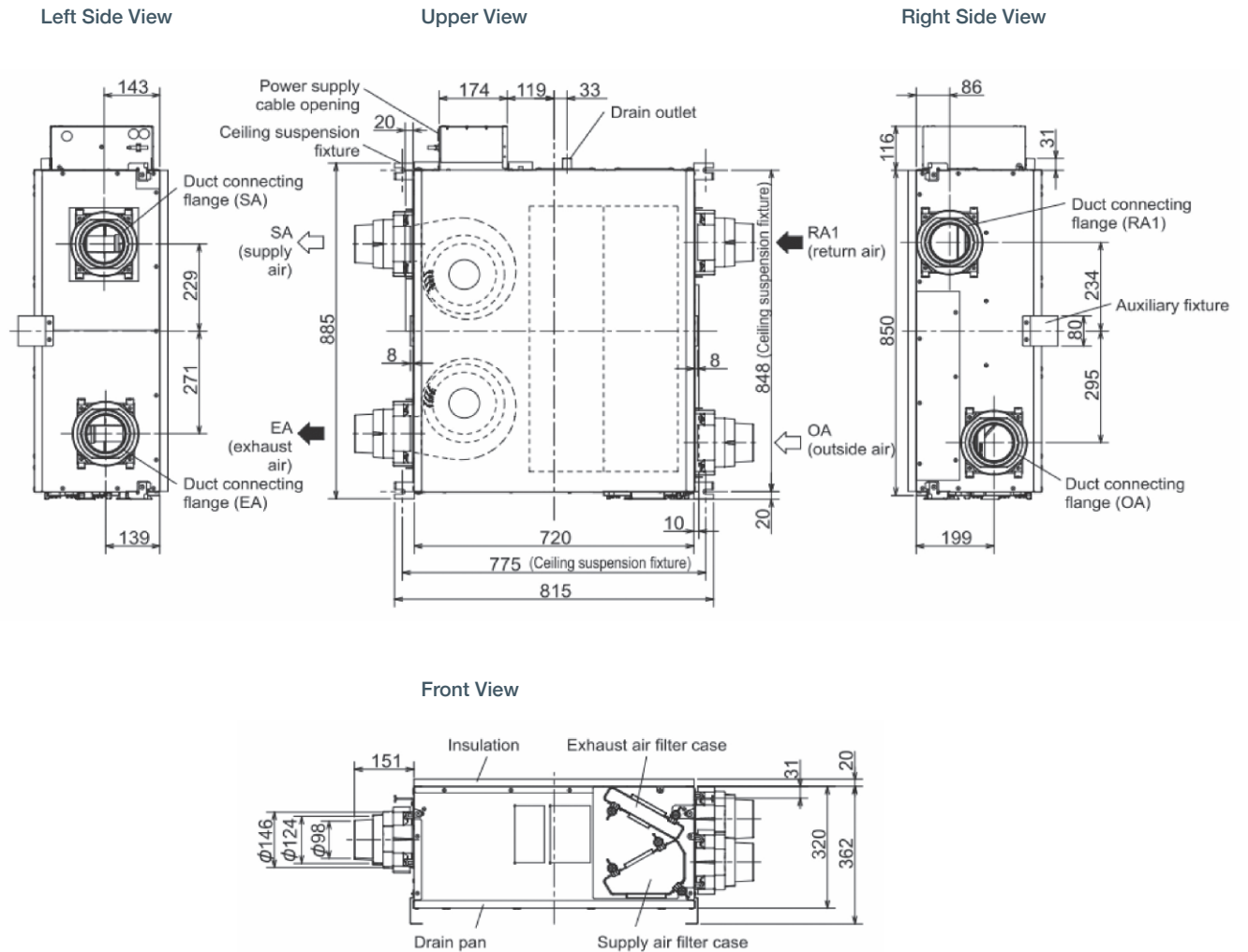
G4 filter for VL-220CZGV-EB (return air)

P-220SHF-E

M6 filter for VL-220CZGV-EB (supply air)

Product Dimensions

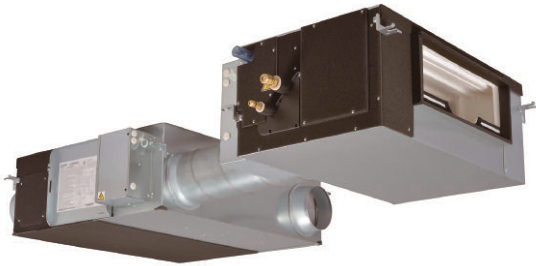
VL-220CZGV-EB



GUG-SL-E

Lossnay Air Processing DX Unit

Return Air Temperature Control
(5.6 to 15.8kW)



The **GUG-SL-E** combines a Lossnay Mechanical Ventilation with Heat Recovery (MVHR) unit with a Mr Slim Power Inverter outdoor heat pump to heat and cool the supply air delivery to the space.

In return temperature control mode, the combination of both technologies can provide the fresh air and temperature control to a space from a single system.

Key Features

- Single system reduces installation time, costs and space
- Provides heat recovery ventilation and air conditioning from the same ventilation system
- Return air temperature control allows for control dependent on the actual internal temperature



MODEL		GUG50-56RAV	GUG65-66RAV	GUG80-83RAV	GUG100-113RAV	GUG150-157RAVT	GUG150-157RAYT	GUG150-158RAV
FAN SPEED 3 (75%)	Air Volume (l/s)	104	135	167	208	313	313	313
	External Static Pressure (Pa)	59	53	73	73	84	84	84
FAN SPEED 4 (100%)	Air Volume (l/s)	139	181	222	278	417	417	417
	External Static Pressure (Pa)	105	95	130	130	150	150	150
HEATING CAPACITY ¹ (kW)	DX Coil Capacity	4.1	4.5	6.0	8.1	13.0	13.0	13.0
	Heat Recovery Capacity	2.4	3.2	4.0	5.1	7.4	7.4	7.7
	Total Capacity	6.5	7.7	10.0	13.2	20.4	20.4	20.7
COOLING CAPACITY ¹ (kW)	DX Coil Capacity	3.6	4.0	5.0	7.1	9.5	9.5	9.5
	Heat Recovery Capacity	2.0	2.6	3.3	4.2	6.2	6.2	6.3
	Total Capacity	5.6	6.6	8.3	11.3	15.7	15.7	15.8
SHF	Nominal	0.66	0.69	0.69	0.66	0.68	0.68	0.68
SYSTEM POWER INPUT (kW)	Heating (nominal)	1.59	1.63	2.17	2.99	5.01	5.01	4.88
	Cooling (nominal)	1.2	1.31	1.75	2.27	3.12	3.12	3
PERFORMANCE INDEX ²	Heating (nominal)	4.09	4.72	4.62	4.42	4.07	4.07	4.24
	Cooling (nominal)	4.69	5.03	4.76	4.98	5.03	5.03	5.27
MAX PIPE LENGTH (m)		50	50	50	50	75	75	75
MAX HEIGHT DIFFERENCE (m)		30	30	30	30	30	30	30
PIPE SIZE mm(in)	Gas	12.7 (1/2")	12.7 (1/2")	12.7 (1/2")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")
	Liquid	6.35 (1/4")	6.35 (1/4")	6.35 (1/4")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")
GUG DIMENSIONS (mm)	Width x Depth x Height	812 x 607 x 330	812 x 607 x 330	1034 x 607 x 394	1034 x 607 x 394	1130 x 576 x 404	1130 x 576 x 404	1130 x 576 x 404
GUG WEIGHT (kg)		21	21	26	26	28	28	28
GUG ELECTRICAL SUPPLY (supplied from outdoor unit) ³		220-240v / 50Hz	220-240v / 50Hz	220-240v / 50Hz	220-240v / 50Hz	220-240v / 50Hz	220-240v / 50Hz	220-240v / 50Hz
GUG UNIT ⁴		GUG-01SL-E	GUG-01SL-E	GUG-02SL-E	GUG-02SL-E	GUG-03SL-E	GUG-03SL-E	GUG-03SL-E
MR SLIM OUTDOOR UNIT		PUHZ-ZRP35VKA2	PUHZ-ZRP35VKA2	PUHZ-ZRP50VKA2	PUHZ-ZRP71VHA2	PUHZ-ZRP100VKA3	PUHZ-ZRP100YKA3	PUHZ-ZRP100VKA3
LOSSNAY UNIT		LGH-50RVX-E	LGH-65RVX-E	LGH-80RVX-E	LGH-100RVX-E	LGH-150RVXT-E	LGH-150RVXT-E	LGH-150RVX-E
LOSSNAY CONTROLLER		PZ-61DR-E	PZ-61DR-E	PZ-61DR-E	PZ-61DR-E	PZ-61DR-E	PZ-61DR-E	PZ-61DR-E

Notes:

¹ The cooling and heating capacities are based on the rated airflow of fan speed 4 and the following air conditions: Cooling Indoor: 27°CDB/19°CWB Outdoor: 35°CDB/24°CWB. Heating Indoor: 20°CDB/15°CWB Outdoor: 7°CDB/6°CWB

² Performance index is the total capacity divided by the total power consumption of the outdoor unit and Lossnay at the conditions above.

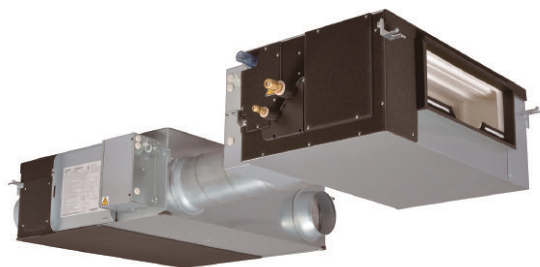
³ For electrical power requirements for Lossnay and Mr Slim outdoor unit, please refer to their respective sections

⁴ GUG unit includes a dedicated controller

GUG-SL-E

Lossnay Air Processing DX Unit

Return Air Temperature Control
(15.8 to 22.3kW)



The **GUG-SL-E** combines a Lossnay Mechanical Ventilation with Heat Recovery (MVHR) unit with a Mr Slim Power Inverter outdoor heat pump to heat and cool the supply air delivery to the space.

In return temperature control mode, the combination of both technologies can provide the fresh air and temperature control to a space from a single system.

Key Features

- Single system reduces installation time, costs and space
- Provides heat recovery ventilation and air conditioning from the same ventilation system
- Return air temperature control allows for control dependent on the actual internal temperature



MODEL		GUG150-156RAY	GUG200-184RAY	GUG200-184RAY	GUG200-184RAVT	GUG200-184RAYT	GUG250-223RAYT	GUG250-223RAYT
FAN SPEED 3 (75%)	Air Volume (l/s)	313	417	417	417	417	521	521
	External Static Pressure (Pa)	84	59	59	82	82	79	79
FAN SPEED 4 (100%)	Air Volume (l/s)	417	556	556	556	556	694	694
	External Static Pressure (Pa)	150	105	105	145	145	140	140
HEATING CAPACITY ¹ (kW)	DX Coil Capacity	13	13.5	13.5	13.5	13.5	14	14
	Heat Recovery Capacity	7.7	10.3	10.3	10.3	10.3	12.1	12.1
	Total Capacity	20.7	23.8	23.8	23.8	23.8	26.1	26.1
COOLING CAPACITY ¹ (kW)	DX Coil Capacity	9.5	10.0	10.0	10.0	10.0	12.5	12.5
	Heat Recovery Capacity	6.3	8.4	8.4	8.4	8.4	9.8	9.8
	Total Capacity	15.8	18.4	18.4	18.4	18.4	22.3	22.3
SHF	Nominal	0.68	0.76	0.76	0.76	0.76	0.87	0.87
SYSTEM POWER INPUT (kW)	Heating (nominal)	4.88	4.74	4.74	4.89	4.89	5.49	5.49
	Cooling (nominal)	3.00	3.14	3.14	3.29	3.29	4.86	4.86
PERFORMANCE INDEX ²	Heating (nominal)	4.24	5.02	5.02	4.86	4.86	4.75	4.75
	Cooling (nominal)	5.27	5.86	5.86	5.59	5.59	4.59	4.59
MAX PIPE LENGTH (m)		75	75	75	75	75	75	75
MAX HEIGHT DIFFERENCE (m)		30	30	30	30	30	30	30
PIPE SIZE mm(in)	Gas	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")
	Liquid	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")
GUG DIMENSIONS (mm)	Width x Depth x Height	1130 x 576 x 404	1130 x 576 x 404	1130 x 576 x 404	1130 x 576 x 404	1130 x 576 x 404	1130 x 576 x 404	1130 x 576 x 404
GUG WEIGHT (kg)		28	28	28	28	28	28	28
GUG ELECTRICAL SUPPLY (supplied from outdoor unit) ³		220-240V / 50Hz	220-240V / 50Hz	220-240V / 50Hz	220-240V / 50Hz	220-240V / 50Hz	220-240V / 50Hz	220-240V / 50Hz
GUG UNIT ⁴		GUG-03SL-E	GUG-03SL-E	GUG-03SL-E	GUG-03SL-E	GUG-03SL-E	GUG-03SL-E	GUG-03SL-E
MR SLIM OUTDOOR UNIT		PUHZ-ZRP100YKA3	PUHZ-ZRP100VKA3	PUHZ-ZRP100YKA3	PUHZ-ZRP100VKA3	PUHZ-ZRP100YKA3	PUHZ-ZRP125VKA3	PUHZ-ZRP125YKA3
LOSSNAY UNIT		LGH-150RVX-E	LGH-200RVX-E	LGH-200RVX-E	LGH-200RVXT-E	LGH-200RVXT-E	LGH-250RVXT-E	LGH-250RVXT-E
LOSSNAY CONTROLLER		PZ-61DR-E	PZ-61DR-E	PZ-61DR-E	PZ-61DR-E	PZ-61DR-E	PZ-61DR-E	PZ-61DR-E

Notes:

¹ The cooling and heating capacities are based on the rated airflow of fan speed 4 and the following air conditions: Cooling Indoor: 27°CDB/19°CWB Outdoor: 35°CDB/24°CWB. Heating Indoor: 20°CDB/15°CWB Outdoor: 7°CDB/6°CWB

² Performance index is the total capacity divided by the total power consumption of the outdoor unit and Lossnay at the conditions above.

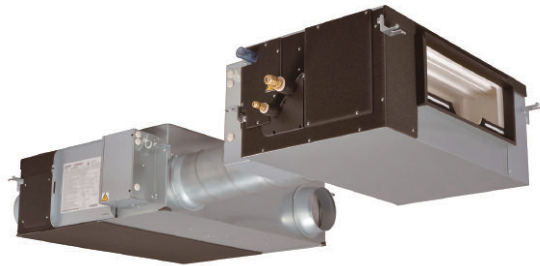
³ For electrical power requirements for Lossnay and Mr Slim outdoor unit, please refer to their respective sections

⁴ GUG unit includes a dedicated controller

GUG-SL-E

Lossnay Air Processing DX Unit

Supply Air Temperature Control
(8.3-17.6kW)



The **GUG-SL-E** combines a Lossnay Mechanical Ventilation with Heat Recovery (MVHR) unit with a Mr Slim Power Inverter outdoor heat pump to heat and cool the supply air delivery to the space.

In supply air temperature control mode, the combination of both technologies provides effective tempering of fresh air entering a space, taking the load off other cooling/heating services whilst eliminating any chance of draughts.

Key Features

- Single system reduces installation time, costs and space
- Provides heat recovery ventilation and air conditioning from the same ventilation system
- Supply air temperature control allows the system to target a specific temperature to supply to the internal environment



MODEL		GUG80-83SAV	GUG100-95SAV	GUG150-133SAVT	GUG150-134SAV	GUG200-159SAV	GUG200-159SAVT	GUG250-176SAVT
FAN SPEED 3 (75%)	Air Volume (l/s)	167	208	313	313	417	417	521
	External Static Pressure (Pa)	73	73	84	84	59	82	79
FAN SPEED 4 (100%)	Air Volume (l/s)	222	278	417	417	556	556	694
	External Static Pressure (Pa)	130	130	150	150	105	145	140
HEATING CAPACITY ¹ (kW)	DX Coil Capacity	6.0	6.3	8.9	8.9	9.2	9.2	9.5
	Heat Recovery Capacity	4.0	5.1	7.4	7.7	10.3	10.3	12.1
	Total Capacity	10.0	11.4	16.3	16.6	19.5	19.5	21.6
COOLING CAPACITY ¹ (kW)	DX Coil Capacity	5.0	5.3	7.1	7.1	7.4	7.4	7.8
	Heat Recovery Capacity	3.3	4.2	6.2	6.3	8.5	8.5	9.8
	Total Capacity	8.3	9.5	13.3	13.4	15.9	15.9	17.6
SHF	Nominal	0.69	0.73	0.86	0.85	0.90	0.90	0.95
SYSTEM POWER INPUT (kW)	Heating (nominal)	2.17	2.24	3.16	3.04	3.10	3.25	3.62
	Cooling (nominal)	1.75	1.75	2.64	2.52	2.72	2.87	3.32
PERFORMANCE INDEX ²	Heating (nominal)	4.62	5.09	5.16	5.46	6.30	6.01	5.97
	Cooling (nominal)	4.76	5.43	5.03	5.32	5.85	5.54	5.31
MAX PIPE LENGTH (m)		50	50	50	50	50	50	50
MAX HEIGHT DIFFERENCE (m)		30	30	30	30	30	30	30
PIPE SIZE mm(in)	Gas	12.7 (1/2")	12.7 (1/2")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")
	Liquid	6.35 (1/4")	6.35 (1/4")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")
GUG DIMENSIONS (mm)	Width x Depth x Height	1034 x 607 x 394	1034 x 607 x 394	1130 x 576 x 404	1130 x 576 x 404	1130 x 576 x 404	1130 x 576 x 404	1130 x 576 x 404
GUG WEIGHT (kg)		26	26	28	28	28	28	28
GUG ELECTRICAL SUPPLY (supplied from outdoor unit) ³		220-240V / 50Hz	220-240V / 50Hz	220-240V / 50Hz	220-240V / 50Hz	220-240V / 50Hz	220-240V / 50Hz	220-240V / 50Hz
GUG UNIT ⁴		GUG-02SL-E	GUG-02SL-E	GUG-03SL-E	GUG-03SL-E	GUG-03SL-E	GUG-03SL-E	GUG-03SL-E
MR SLIM OUTDOOR UNIT		PUHZ-ZRP50VKA2	PUHZ-ZRP50VKA2	PUHZ-ZRP71VHA2	PUHZ-ZRP71VHA2	PUHZ-ZRP71VHA2	PUHZ-ZRP71VHA2	PUHZ-ZRP71VHA2
LOSSNAY UNIT		LGH-80RVX-E	LGH-100RVX-E	LGH-150RVXT-E	LGH-150RVX-E	LGH-200RVX-E	LGH-200RVXT-E	LGH-250RVXT-E
LOSSNAY CONTROLLER		PZ-61DR-E	PZ-61DR-E	PZ-61DR-E	PZ-61DR-E	PZ-61DR-E	PZ-61DR-E	PZ-61DR-E

Notes:

¹ The cooling and heating capacities are based on the rated airflow of fan speed 4 and the following air conditions: Cooling Indoor: 27°CDB/19°CWB Outdoor: 35°CDB/24°CWB. Heating Indoor: 20°CDB/15°CWB Outdoor: 7°CDB/6°CWB

² Performance index is the total capacity divided by the total power consumption of the outdoor unit and Lossnay at the conditions above.

³ For electrical power requirements for Lossnay and Mr Slim outdoor unit, please refer to their respective sections

⁴ GUG unit includes a dedicated controller

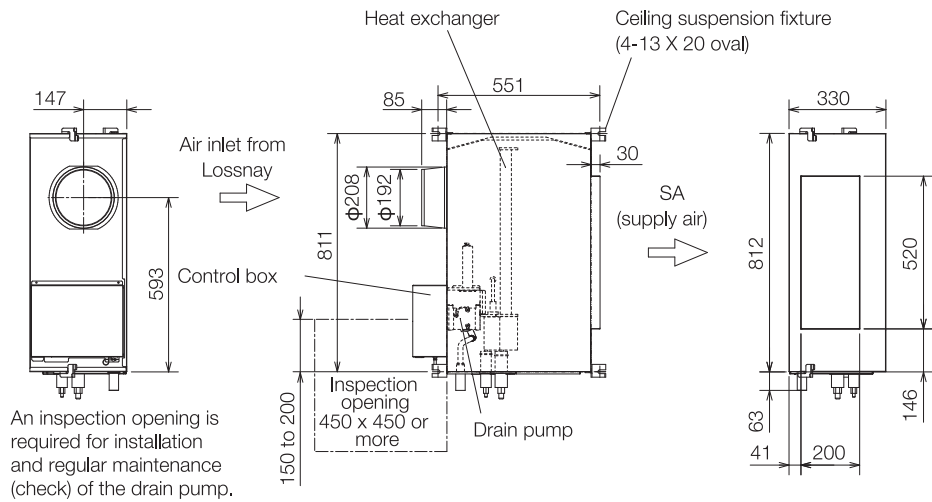
DIMENSIONS

GUG-01SL-E

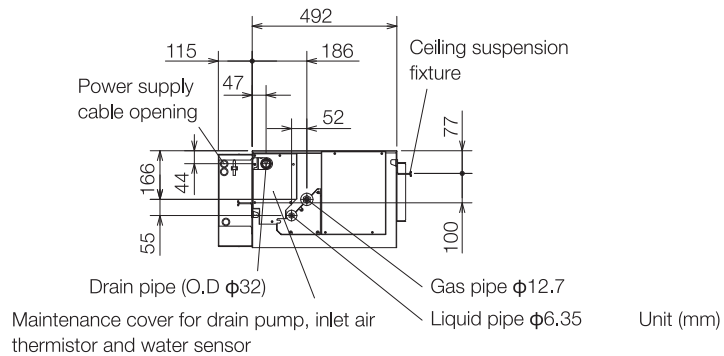
Left Side View

Upper View

Right Side View



Front View



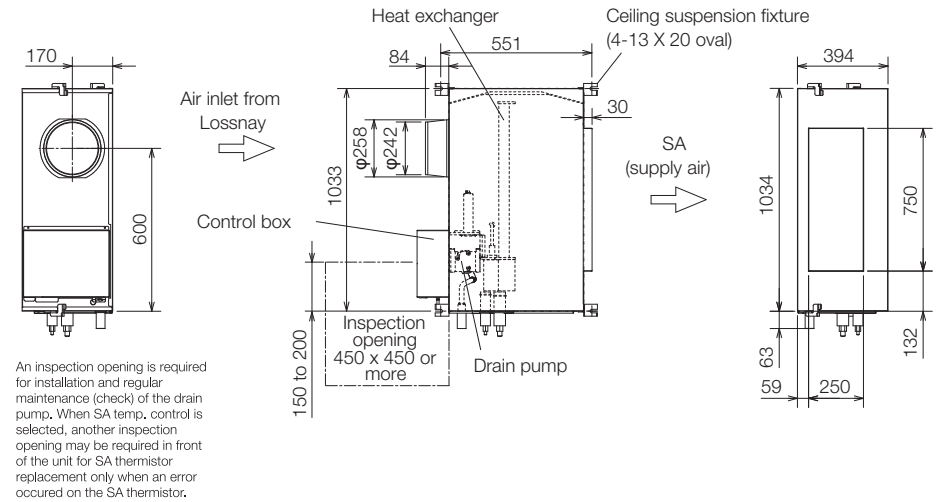
DIMENSIONS

GUG-02SL-E

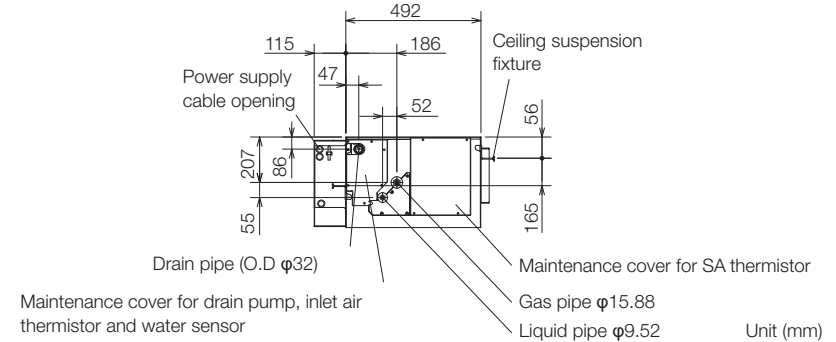
Left Side View

Upper View

Right Side View



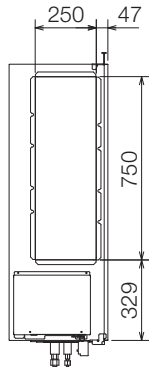
Front View



DIMENSIONS

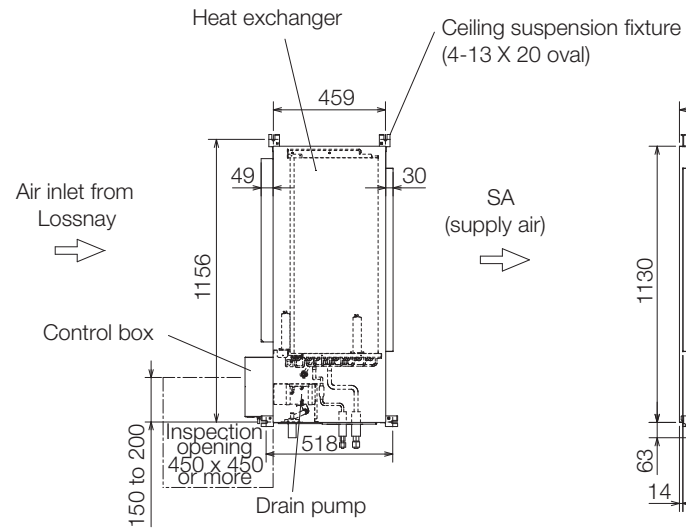
GUG-03SL-E

Left Side View

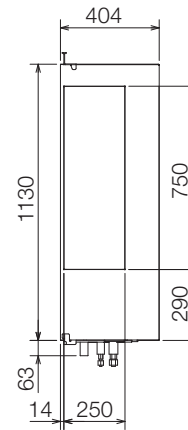


An inspection opening is required for installation and regular maintenance (check) of the drain pump. When SA temp. control is selected, another inspection opening may be required in front of the unit for SA thermistor replacement only when an error occurred on the SA thermistor.

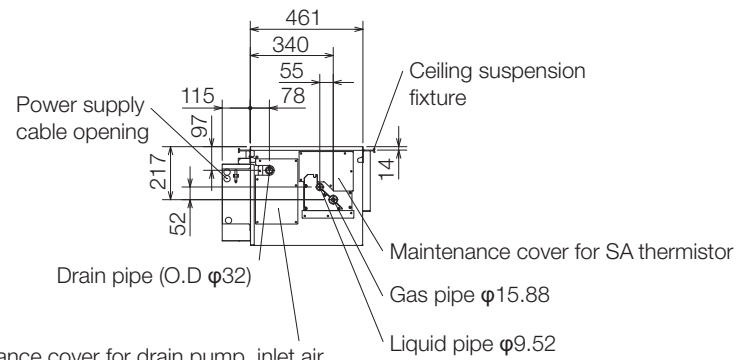
Upper View



Right Side View

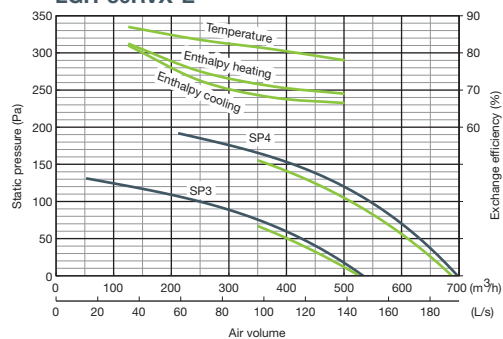


Front View

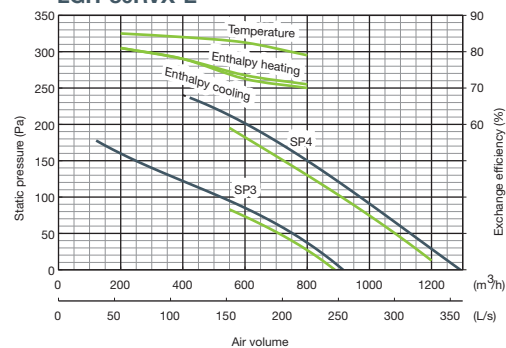


Unit (mm)

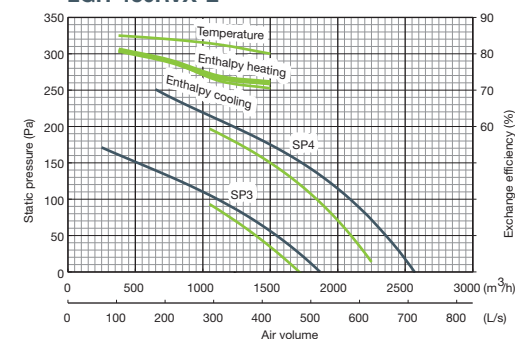
LGH-50RVX-E



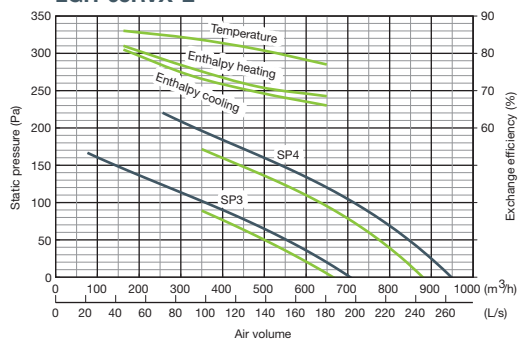
LGH-80RVX-E



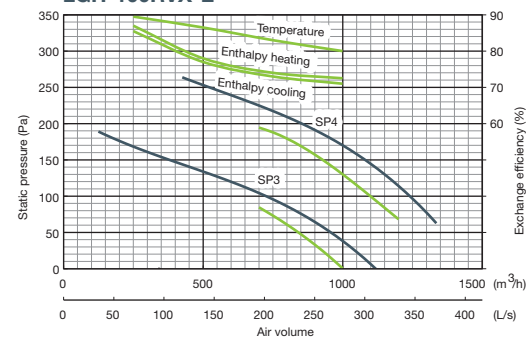
LGH-150RVX-E



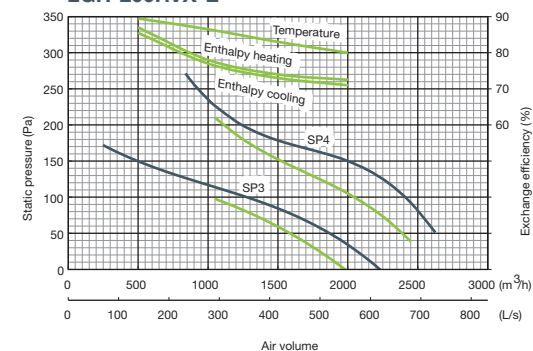
LGH-65RVX-E



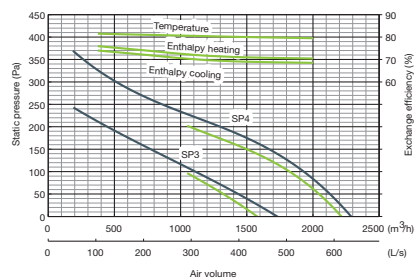
LGH-100RVX-E



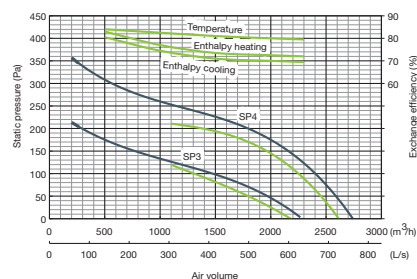
LGH-200RVX-E



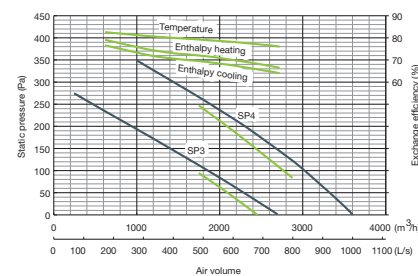
LGH-150RVXT-E



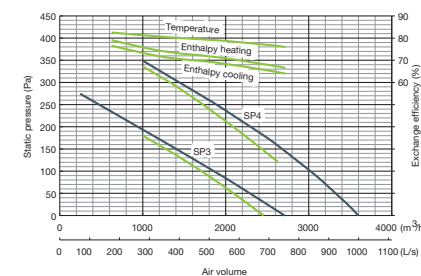
LGH-200RVXT-E



LGH-250RVXT-E
RA Temperature Control



LGH-250RVXT-E
SA Temperature Control



— With GUG-01SLE-E — Without GUG-01SLE-E

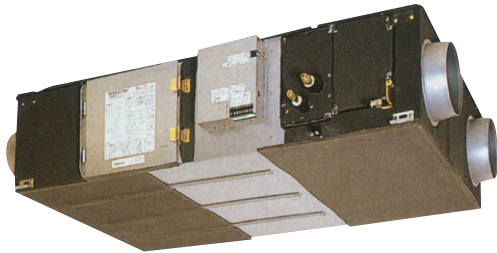
GUF-RD4

Lossnay Outdoor Air Processing Unit

The **GUF-50RD4** and **GUF-100RD4** Outdoor Air Processing units can be used with any of the extensive range of City Multi indoor units to provide ventilation, dust removal, humidification and heat recovery.

Key Features

- A combination of a Lossnay & City Multi indoor in a single unit
- The ventilating and air conditioning functions are integrated in a single unit, saving space and installation costs
- Heat recovery helps to save energy - a benefit that's not only good for the environment, but also great for cutting energy costs
- Free cooling is also available should outdoor conditions be suitable



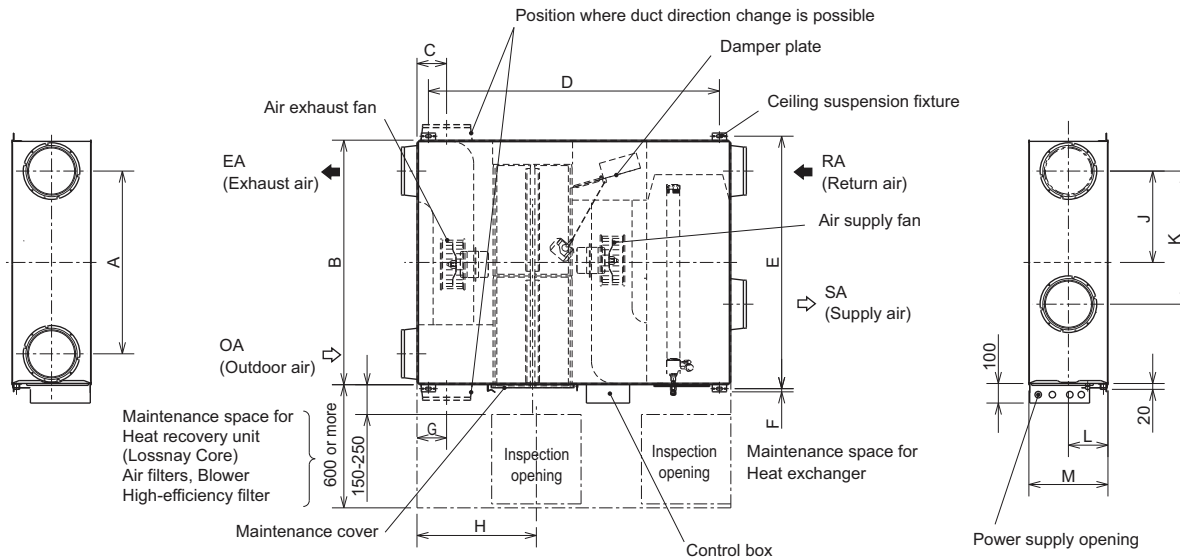
MODEL		GUF-50RD4	GUF-100RD4
CAPACITY (kW)	Heating (nominal)	6.21 (2.04)	12.56 (4.26)
	Cooling (nominal)	5.57 (1.94)	11.44 (4.12)
	UK Heating (High Performance)	6.42 (2.25)	13.00 (4.70)
	UK Heating (COP Priority)	5.93 (2.08)	12.01 (4.34)
	UK Total Cooling	5.03 (1.58)	10.27 (3.32)
POWER INPUT (kW)	Lo-Hi	0.150 / 0.265	0.370 / 0.505
AIRFLOW (m³/h)	Lo-Hi	400-500	800-1000
EXTERNAL STATIC PRESSURE (Pa)	Lo-Hi	90 - 140	90 - 140
TEMPERATURE EXCHANGE EFFICIENCY (%)	Lo-Hi	80 - 77.5	81.5 - 79.5
SOUND PRESSURE LEVEL (dBA)	Lo-Hi	29.5 - 34.5	34 - 39
WEIGHT (kg)		54	92
DIMENSIONS (mm)	Width	1016	1231
	Depth	1288	1580
	Height	317	398
ELECTRICAL SUPPLY		220-240v, 50Hz	220-240v, 50Hz
PHASE		Single	Single
RUNNING CURRENT (A)	Lo-Hi	0.70-1.15	1.73-2.20
FUSE RATING (BS88) - HRC (A)		6	6
MAINS CABLE No. Cores		3	3

Notes: The figures in () indicate the heat recovery at Lossnay core. Total value is capacity of Lossnay core and refrigerant coil. The current and input are based on the above air volume. The sound pressure at the air outlets (45° angle 1.5m ahead) is about 6dBA greater than the indicated value (high speed). Specifications may be subject to change without notice.

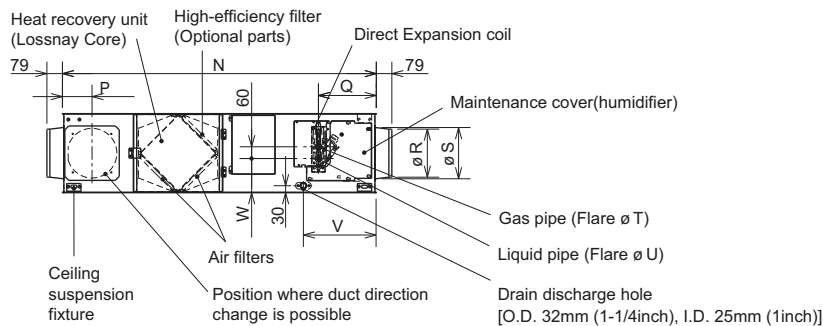
Side View

Upper View

Side View



Front View



Model	A	B	C	D	E	F	G	H	J	K	L
GUF-50RD4	745	1,016	124	1,185	1,048	22	124	450	372.5	435	158.5
GUF-100RD4	920	1,231	149	1,465	1,271	16	149	600	460	670	199
Model	M	N	P	Q	R	S	T	U	V	W	Y
GUF-50RD4	317	1,288	124	266	192	208	12.7	6.35	347	99	135
GUF-100RD4	398	1,580	149	280	242	258	15.88	9.52	361	110	169

WizardX E-OU

Air Handling Unit



The **Climaveneta Wizard Air Handling Units (AHUs)** utilise Mr Slim Power Inverter heat pump technology, efficient thermal wheel heat recovery technology and an integrated controls system, making them highly advanced, flexible and efficient.

Key Features

- Mr Slim Power Inverter heat pump technology
- Thermal wheel with hygroscopic coating
- Constant volume EC plug fans
- Easy air flow commissioning with selectable target air volume control
- Fully integrated controls and single point power supply regardless of accessories
- Units available in sections with all fixings, wiring, and electrical connectors included



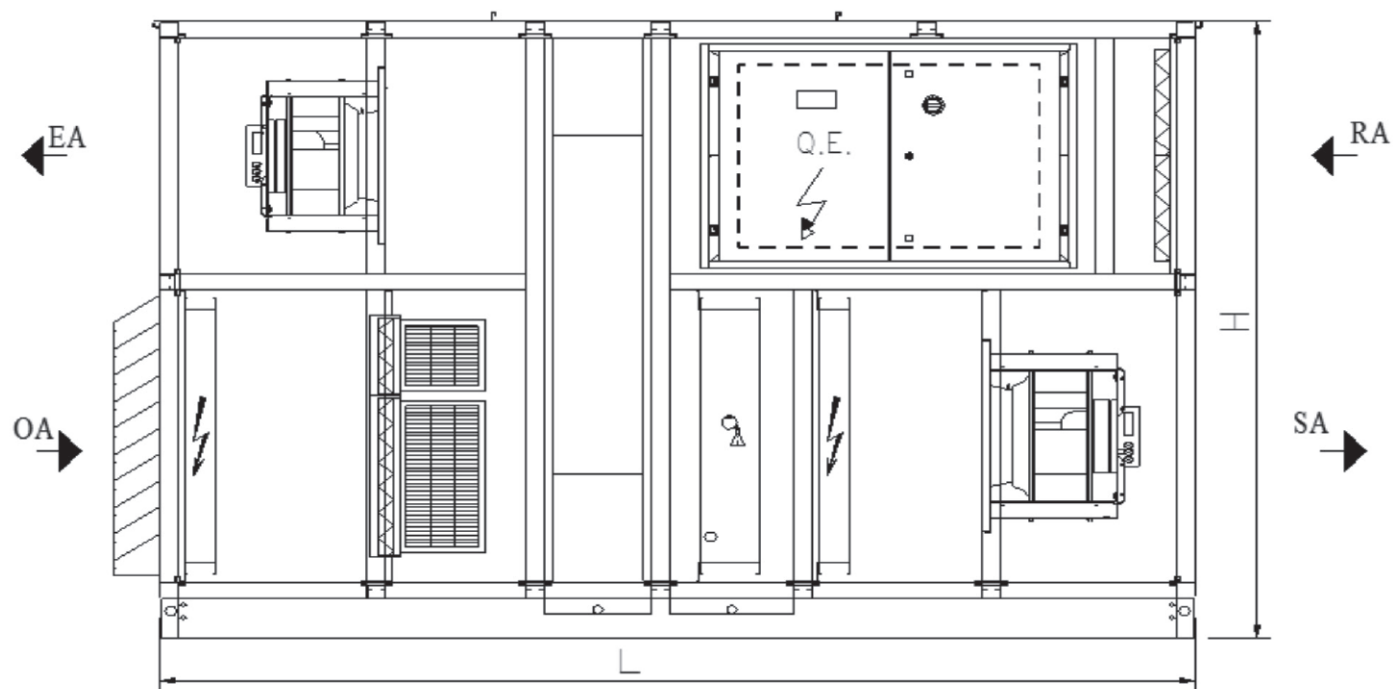
MODEL		WIZARDX E-OU 3000	WIZARDX E-OU 5000	WIZARDX E-OU 7500	WIZARDX E-OU 10000	WIZARDX E-OU 12500	WIZARDX E-OU 15000	WIZARDX E-OU 20000
RATED AIR VOLUME (m³/s)		0.83	1.39	2.08	2.78	3.47	4.17	5.56
AIR VOLUME RANGE (m³/s)		0.56 - 0.83	0.97 - 1.39	1.53 - 2.08	2.22 - 2.78	2.92 - 3.47	3.61 - 4.17	4.31 - 5.56
EXTERNAL STATIC PRESSURE (Pa)	Standard fans	250	250	250	250	250	250	250
	Up-rated fans	400	400	400	400	400	400	400
COOLING CAPACITY (kW)	DX Coil Capacity	9.38	18.9	23.6	37.5	39.7	47.1	70.6
	Wheel Recovery Capacity	24	39.4	57.7	77.8	96.2	115	160
	Total Capacity	33.38	58.3	81.3	115.3	135.9	162.1	230.6
HEATING CAPACITY (kW)	DX Coil Capacity	8.48	16.8	20.9	33.7	35.9	40.8	61
	Wheel Recovery Capacity	30.9	49.9	73.6	98.9	123	147	206
	Total Capacity	39.38	66.7	94.5	132.6	158.9	187.8	267
HEAT RECOVERY EFFICIENCY (%)		79	75.5	74.7	75.1	74.7	74.6	78.9
SPECIFIC FAN POWER (SFPint) (W/(l/s))		0.96	0.77	0.76	0.75	0.74	0.8	0.91
SOUND POWER LEVEL (dB(A))	Fresh/Outdoor	71	78	73	77	81	77	80
	Supply	78	85	79	83	87	83	87
	Return	69	78	71	75	81	74	79
	Exhaust	76	85	77	82	87	80	85
	Breakout	60	67	63	67	72	66	71
UNIT DIMENSIONS (WxDxH) ¹ (mm)		3400x1000x1600	3400x1400x1600	3400x1500x2200	3400x1800x2200	3400x2000x2300	3800x2200x2360	3800x2500x2820
WEIGHT (kg)		850	1000	1150	1350	1600	1950	2300
STANDARD FILTRATION	Fresh air 1st stage	ISO Coarse 50% / G4						
	Fresh air 2nd stage	ISO ePM1 50% / F7 Bag Filter						
	Return air	ISO Coarse 50% / G4						
CONSTRUCTION	Profiles	60mm aluminium						
	Panels	45mm sandwich panels, galvanised steel sheets with a pre-plastified external finish						
	Insulation	45 kg/m3 density polyurethane foam						
EN1886 ACHIEVED CLASSES (Deflection/Leakage/Filter bypass/Thermal transmittance/Thermal bridging)		D1(M), L3, F9, T3, TB4						
OPERATING RANGES (°C DB)	Target Supply Air Setpoint	17 - 28						
	DX On Coil Cooling	15 - 32						
	DX On Coil Heating	5 - 28						
ELECTRICAL POWER REQUIREMENTS		400VAC / 3ph+Positive Earth / 50Hz						
COMPATIBLE OUTDOOR UNITS	Power Inverter (R410A)	2 x PUHZ-ZRP50	2 x PUHZ-ZRP100	2 x PUHZ-ZRP125	2 x PUHZ-ZRP200	3 x PUHZ-ZRP140	2 x PUHZ-ZRP250	3 x PUHZ-ZRP250
	Standard Inverter (R410A)	Not Compatible	Not Compatible	Not Compatible	2 x PUHZ-P200	Not Compatible	2 x PUHZ-P250	3 x PUHZ-P250

Note: Please refer to Mr Slim section for outdoor unit specification data. The specification data is based on the rated conditions below, at the rated air flows.

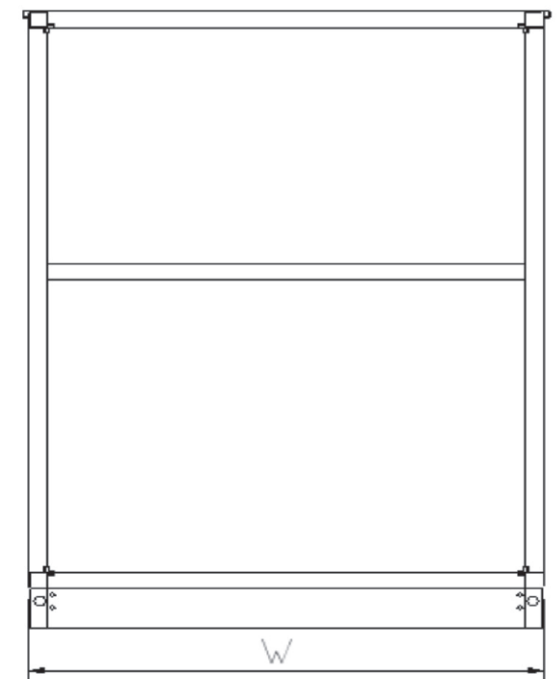
*1 Units in sections as an option will include extra profiles, increasing the weight and dimensions of the final unit.

RATED CONDITIONS	SUMMER		WINTER	
INDOOR	23°C DB	50% RH	21°C DB	50% RH
OUTDOOR	35°C DB	50% RH	-5°C DB	85% RH

Front View



Side View



MODEL	Q [m³/h]	W [mm]	H [mm]	L [mm]	STANDARD WEIGHT [kg]
E-OU 3000	3000	1000	1600	3400	850
E-OU 5000	5000	1400	1600	3400	1000
E-OU 7500	7500	1500	2200	3400	1150
E-OU 10000	10000	1800	2200	3400	1350
E-OU 12500	12500	2000	2300	3400	1600
E-OU 15000	15000	2200	2360	3800	1950
E-OU 20000	20000	2500	2820	3800	2300

Fresh Air Ventilation Range

Ventilation Accessories / Optional Extras

DESCRIPTION	MODEL REF.
Remote Controllers	
Lossnay Remote Controller for LGH-RVX(T)-E and VL-220CZGV-EB	PZ-61DR-E
Lossnay Simplified Remote Controller for VL-220CZGV-EB	PZ-43SMF-E
Filters	
M6 Filter for VL-100(E)U ₅ -E	P-100HF ₅ -E
G4 Filter for VL-220CZGV-EB (return air)	P-220EMF-E
M6 Filter for VL-220CZGV-EB (supply air)	P-220SHF-E
F7 Filter for LGH-15RVX-E	PZ-15RFM-E
F7 Filter for LGH-25RVX-E	PZ-25RFM-E
F7 Filter for LGH-35RVX-E	PZ-35RFM-E
F7 Filter for LGH-50RVX-E	PZ-50RFM-E
F7 Filter for LGH-65RVX-E	PZ-65RFM-E
F7 Filter for LGH-80RVX-E / LGH-150RVX-E (2 sets)	PZ-80RFM-E
F7 Filter for LGH-100RVX-E / LGH-200RVX-E (2 sets)	PZ-100RFM-E
M6 Filter for LGH-RVXT-E	PZ-M6RTFM-E
F8 Filter for LGH-RVXT-E	PZ-F8RTFM-E
Extension Pipe Kit	
Extension Pipe for VL-100(E)U ₅ -E (300mm)	P-100P-E
Extension Pipe joint for VL-100(E)U ₅ -E (300mm)	P-100PJ-E

Weather Proof Housings

Lossnay weather proof housings are also available for LGH-RVX-E

WizardX E-OU Optional Accessories	MODEL						
DESCRIPTION	E-OU 3000	E-OU 5000	E-OU 7500	E-OU 10000	E-OU 12500	E-OU 15000	E-OU 20000
High static pressure supply fan (400 Pa)	WD-3000 B501	WD-5000 B501	WD-7500 B501	WD-10000 B501	WD-12500 B501	WD-15000 B501	WD-20000 B501
High static pressure exhaust fan (400 Pa)	WD-3000 B511	WD-5000 B511	WD-7500 B511	WD-10000 B511	WD-12500 B511	WD-15000 B511	WD-20000 B511
Pre-heating electric coil	WD-3000 B531	WD-5000 B531	WD-7500 B531	WD-10000 B531	WD-12500 B531	WD-15000 B531	WD-20000 B531
Re-heating electric coil	WD-3000 1333	WD-5000 1333	WD-7500 1333	WD-10000 1333	WD-12500 1333	WD-15000 1333	WD-20000 1333
Pre-heating water coil	WD-3000 B532	WD-5000 B532	WD-7500 B532	WD-10000 B532	WD-12500 B532	WD-15000 B532	WD-20000 B532
Re-heating water coil	WD-3000 1331	WD-5000 1331	WD-7500 1331	WD-10000 1331	WD-12500 1331	WD-15000 1331	WD-20000 1331
Steam humidification system	WD-3000 B591	WD-5000 B591	WD-7500 B591	WD-10000 B591	WD-12500 B591	WD-15000 B591	N/A
Steam humidification system (two sections)	WD-3000 B592	WD-5000 B592	WD-7500 B592	WD-10000 B592	WD-12500 B592	WD-15000 B592	WD-20000 B592
Three-way mixing recirculation box	WD-3000 B601	WD-5000 B601	WD-7500 B601	WD-10000 B601	WD-12500 B601	WD-15000 B601	N/A
Three-way mixing recirculation box (two sections)	WD-3000 B602	WD-5000 B602	WD-7500 B602	WD-10000 B602	WD-12500 B602	WD-15000 B602	WD-20000 B602
CO ₂ probe for mixing box	WD-3000 B612	WD-5000 B612	WD-7500 B612	WD-10000 B612	WD-12500 B612	WD-15000 B612	WD-20000 B612
Two speed fan via VFC	WD-3000 B631	WD-5000 B631	WD-7500 B631	WD-10000 B631	WD-12500 B631	WD-15000 B631	WD-20000 B631
Two speed air flow with CO ₂ probe	WD-3000 B611	WD-5000 B611	WD-7500 B611	WD-10000 B611	WD-12500 B611	WD-15000 B611	WD-20000 B611
Fresh air damper	WD-3000 B551	WD-5000 B551	WD-7500 B551	WD-10000 B551	WD-12500 B551	WD-15000 B551	WD-20000 B551
Supply air damper	WD-3000 B561	WD-5000 B561	WD-7500 B561	WD-10000 B561	WD-12500 B561	WD-15000 B561	WD-20000 B561
Return air damper	WD-3000 B571	WD-5000 B571	WD-7500 B571	WD-10000 B571	WD-12500 B571	WD-15000 B571	WD-20000 B571
Exhaust air damper	WD-3000 B581	WD-5000 B581	WD-7500 B581	WD-10000 B581	WD-12500 B581	WD-15000 B581	WD-20000 B581
Activated charcoal filters F7	WD-3000 2529	WD-5000 2529	WD-7500 2529	WD-10000 2529	WD-12500 2529	WD-15000 2529	WD-20000 2529
Bag filters F9	WD-3000 2521A	WD-5000 2521A	WD-7500 2521A	WD-10000 2521A	WD-12500 2521A	WD-15000 2521A	WD-20000 2521A
Variable speed thermal wheel	WD-3000 B521	WD-5000 B521	WD-7500 B521	WD-10000 B521	WD-12500 B521	WD-15000 B521	WD-20000 B521
Intake weather protection grille	WD-3000 B621	WD-5000 B621	WD-7500 B621	WD-10000 B621	WD-12500 B621	WD-15000 B621	WD-20000 B621
Canopy - (essential for installation outdoors)	WD-3000 B541	WD-5000 B541	WD-7500 B541	WD-10000 B541	WD-12500 B541	WD-15000 B542	WD-20000 B542
Canopy for units in 3, 5 or 6 sections - (essential for installation outdoors)	WD-3000 B542	WD-5000 B542	WD-7500 B542	WD-10000 B542	WD-12500 B542	WD-15000 B542	WD-20000 B542
Wizard sub-divided into 5 sections	WD-3000 B482	WD-5000 B482	WD-7500 B482	WD-10000 B482	WD-12500 B482	WD-15000 B482 ¹	N/A ²
Modbus connection for BEMS	WD-3000 4181	WD-5000 4181	WD-7500 4181	WD-10000 4181	WD-12500 4181	WD-15000 4181	WD-20000 4181
Bacnet TCP-IP connection for BEMS	WD-3000 4185	WD-5000 4185	WD-7500 4185	WD-10000 4185	WD-12500 4185	WD-15000 4185	WD-20000 4185
Left-handed configuration (no additional charge)	WD-3000 2963	WD-5000 2963	WD-7500 2963	WD-10000 2963	WD-12500 2963	WD-15000 2963	WD-20000 2963
Connection to AE-200E for on/off and general alarm monitoring	PAC-YG6DCA						

Note: ¹ Three sections as standard, ² Six sections as standard.

Controls

Control Solutions





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The Importance of Controls

Time to take control

Operating an air conditioning, ventilation or heating system without effective controls can be costly in more ways than one. Not only are you likely to face higher monthly energy bills, it will also lead to an increase in carbon emissions - something that will become ever more important as businesses strive to keep up with tougher environmental legislation.

The right controls take building performance to the next level. With them, building systems become more responsive, easier to automate, monitor and maintain, and less costly to operate in the long-term.

The right controls can deliver a cost-effective solution that helps manage, monitor and report on the performance of all building services systems.

Control technology is now widely available for buildings of all sizes, so it is possible to access the benefits whatever the scale or scope of your project.



Mitsubishi Electric technology

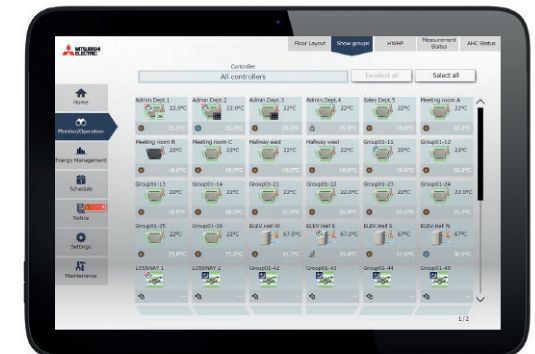
Mitsubishi Electric has been dedicated to producing energy efficient technology for over ninety years. Controls are an essential part of that. Mitsubishi Electric has long heritage in factory automation where the company leads the field in providing controls that enhance productivity, efficiency and energy use.

We have taken this extensive knowledge and experience and transferred it to the heart of our building services equipment.

We were also one of the first manufactures to provide an open gateway to our products to make integration easier for our customers. This enables direct connection of equipment into many common building energy management system (BEMS) platforms.

Recently, Mitsubishi Electric has developed Internet-based building controls that put information on building performance wherever users need it most and wireless technology that makes retro-fitting into existing buildings so much easier.

From a simple hand-held controller to a centralised BEMS, Mitsubishi Electric puts its customers in control.



The European Standard EN 15232

“Energy Performance of Buildings - Impact of Building Automation, Controls and Building Management” was compiled in conjunction with the Europe-wide implementation of the directive for energy efficiency in buildings (Energy Performance of Buildings Directive EPBD) 2002/91/EG.

The Standard describes methods for evaluating the influence of building automation and technical building management on the energy consumption of buildings.

Four efficiency classes A to D have been introduced to this purpose. After a building has been equipped with building automation and control systems, it will be assigned one of these classes. The potential savings for thermal and electrical energy can be calculated for each class based on the building type and building purpose. The values of the energy class C are used as the reference for comparing the efficiency.

The diagram on the right, shows the differences in energy consumption for three building types in the energy efficiency classes A, B and D relative to the basis values in rating C. For example, by using class A, 30 % of the thermal energy can be saved in offices.

BS EN 15232: Function list and assignment to energy performance classes

	Heating / Cooling Control	Ventilation / Air Conditioning Control	Lighting	Sun Protection
A	<ul style="list-style-type: none"> Individual room control with communication between controllers Indoor temperature control of distribution network water temperature Total interlock between heating and cooling control 	<ul style="list-style-type: none"> Demand or presence dependent air flow control at room level Variable set point with load dependant compensation of supply temperature control Room or exhaust or supply air humidity control 	<ul style="list-style-type: none"> Automatic daylight control Automatic occupancy detection manual on / auto off Automatic occupancy detection manual on / dimmed Automatic occupancy detection auto on / auto off Automatic occupancy detection auto on / dimmed 	<ul style="list-style-type: none"> Combined light / blind / HVAC control
B	<ul style="list-style-type: none"> Individual room control with communication between controllers Indoor temperature control of distribution network water temperature Partial interlock between heating and cooling control (dependent on HVAC system) 	<ul style="list-style-type: none"> Time dependent air flow control at room level Variable set point with outdoor temperature compensation of supply temperature control Room or exhaust or supply air humidity control 	<ul style="list-style-type: none"> Manual daylight control Automatic occupancy detection manual on / auto off Automatic occupancy detection manual on / dimmed Automatic occupancy detection auto on / auto off Automatic occupancy detection auto on / dimmed 	<ul style="list-style-type: none"> Motorised operation with automatic blind control
C	<ul style="list-style-type: none"> Individual room control with communication between controllers Indoor temperature control of distribution network water temperature Partial interlock between heating and cooling control (dependent on HVAC system) 	<ul style="list-style-type: none"> Time dependent air flow control at room level Constant set point of supply temperature control Supply air humidity limitation 	<ul style="list-style-type: none"> Manual daylight control Manual on / off switch + additional sweeping extinction signal Manual on / off switch 	<ul style="list-style-type: none"> Motorised operation with manual blind control
D	<ul style="list-style-type: none"> No automatic control No control of distribution network water temperature No interlock between heating and cooling control 	<ul style="list-style-type: none"> No air flow control at room level No supply temperature control No air humidity control 	<ul style="list-style-type: none"> Manual daylight control Manual on/off switch + additional sweeping extinction signal Manual on/off switch 	<ul style="list-style-type: none"> Manual operation for blinds

Section from table 1 of the BSEN 15232:2007 [D]

Building Automation and Control (BAC) efficiency classes to EN 15232

	Efficiency factor for thermal energy			Efficiency factor for electrical energy		
	Office	School	Hotel	Office	School	Hotel
A High energy performance building automation and control system (BACS) and technical building management (TBM)	0.70	0.80	0.68	0.87	0.86	0.90
B Advanced BACS and TBM	0.80	0.88	0.85	0.93	0.93	0.95
C Standard BACS	1	1	1	1	1	1
D Non energy efficient BACS	1.51	1.20	1.31	1.10	1.07	1.07

Control Solutions

The Importance of Controls



The Internet of Things

The Internet of Things (or IoT) describes the revolution already under way, with a growing number of internet-enabled devices that can network and communicate with each other and with other web-enabled gadgets.



Mitsubishi Electric is at the forefront of this revolution and all our products are now connectable to the internet using the following solutions^{*1}.

Features	MELCloud	RMI

Connect to	Wi-Fi	Ethernet or 3G
Compatibility	Air Conditioning, Ventilation and Heating	Air Conditioning and Ventilation
Third party control	X	✓ (with option PAC-YG66DCA)
SIM card provided	X	✓ (with 3G version)
Smartphone application	✓	✓
Tablet application	✓	✓
Web portal	✓	✓

^{*1} VL-100 and VL-220 are not connectable to the Internet

Which Controls Product for Which Application?

Good controls will benefit any application. With a wide portfolio of control products, it is important to select the right control solution for each application.



APPLICATION	SIZE	TYPICAL PRODUCT INSTALLED	CONTROL SOLUTIONS	CASE STUDY
OFFICE	SMALL	City Multi VRF Systems Mr Slim Split-Systems Mr Slim IT Room Applications	PAR-40MAA or AE-200E-WEB USER AE-200E or AT-50B PAC-YG66DCA or PAC-YG60MCA	Wholesaler PACAIR uses an AE-200E Centralised Controller to provide complete control of the office air conditioning. The 10.4" touch screen controller and easy to use interface gives PACAIR the ability to set up a weekly time schedule, as well as offering a host of energy saving features.
	LARGE	City Multi VRF Systems City Multi Air Curtains City Multi PWFY Heat Pumps	PAR-40MAA or AE-200E-WEB USER AE-200E or AT-50B	Mitsubishi Electric's Hatfield headquarters has been updated to new AE-200E/EW-50E HTML5 controls to monitor and control all of the air conditioning equipment across 3 floors and 2 wings. This enables the system to operate as efficiently as possible, incorporating easy to use controls and allows for fully programmable scheduling that accommodates flexible working patterns.
HOTEL	SMALL	City Multi VRF Systems	PAR-CT01MAA-S/PB AE-200E	The luxury 4-star Kingsmills Hotel provides a chic and contemporary venue for discerning Highlands travellers and focuses on relaxation, revitalisation and calm. The centralised controller delivers the efficiency and flexibility that both the hotel and its guests need, with air conditioning integrated with the room key card system combined with simple to use room controllers.
	LARGE	City Multi VRF Systems	PAR-CT01MAA-S/PB AE-200E MELCOTEL	The Premier Inn Hotel, Leicester uses the MELCOTEL™ control interface to efficiently and effectively control air conditioning that provides heating and cooling to 135 bedrooms, the bar, restaurant and back offices. A variety of control strategies were implemented and monitored and analysed, resulting in a 30% decrease in average monthly system running costs and CO ₂ emissions.
RETAIL	SMALL	Mr Slim Split-System Mr Slim Air Curtains	MELCORETAIL MINI	Costa Coffee was one of the first to make use of the MELCORETAIL MINI to capitalise on its energy saving feature whilst ensuring that customers and staff were comfortable in the overall coffee shop environment. Across a year of monitoring the MELCORETAIL MINI helped achieve a 20% reduction in energy use, giving it a payback period of less than 2 months.
	LARGE	City Multi VRF Systems City Multi Air Curtains	RMI PACKAGE LAN/ADSL RMI PACKAGE 3G	A pilot site for EON has demonstrated how connecting RMI to air conditioning can highlight ways of reducing energy or identify unnecessary use. An average saving of 30% throughout the branch network was made by employing RMI, providing a return on investment within 6 months.
LEISURE	SMALL	Mr Slim Split-System Mr Slim Air Curtains	MELCOBEMS MINI	The Castle golf course at St Andrews need a heating and cooling system that was as controllable and efficient as possible. The M2M interface controls and monitors the air conditioning to make sure it maximises energy saving, whilst allowing for continuous fine-tuning according to the golf clubs needs.
	LARGE	Mr Slim Split-System Mr Slim Air Curtains City Multi VRF Systems City Multi Air Curtains	MELCOBEMS	Fitness First uses monitoring BEMS to communicate with the air conditioning using Modbus, across its UK network. Dedicated Modbus Interfaces offer complete monitoring and control of the system and highlights the flexibility and potential for reducing running costs that our control systems have when working in conjunction with third party BEMS.
RESIDENTIAL	SMALL	Ecodan	MELCloud	A WW2 veteran has shown the way to a sustainable future with the installation of a hybrid Ecodan air source heat pump to work alongside his existing gas boiler. The hybrid system is designed specifically to work in conjunction with conventional boilers and the MELCloud Wi-Fi system also allows the heat pump to be monitored and controlled remotely
	LARGE	Ecodan	MELCloud AE-200E	The renewable heating system for St Mungo's in Lewisham needs to cope with different heating loads and deal effectively with regular changes in tenancy and occupied hours. It also had to offer tenants the ability to alter the temperature of their individual flats, whilst allowing the charity full central control of the system.

Which Controls Product for Which Function?

With a wide portfolio of control products, many functions are available. It is important to select the right control solution for each function.

FUNCTION	SYSTEM SIZE					NOTES
	OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPTION 5	
Remote On/Off or fire alarm	PAC-SA89TA	KTR-53B	MELCORETAIL MINI	AT-50B and PAC-YT51HAA	AE-200E and PAC-YG10HA	On/Off remote controller button lock except KTR-53B
Monitor run and faults	PAC-SA88HA	MELCORETAIL MINI	AT-50B and PAC-YT51HAA	AE-200E / EW-50E and PAC-YG10HA	-	Relays or power supply may be required
Window interlocking	PAC-SA89TA	KTR-53B	-	-	-	Controller will be centrally controlled when window opened
Setpoint limit	PAR-40MAA	PAR-U02MEDA	AT-50B	AE-200E / EW-50E	AE-200E	Available in Heat, Cool and Auto modes
Weekly timer	PAR-40MAA PAR-U02MEDA	AT-50B	AE-200E / EW-50E	AE-200E	-	Setpoint, On/Off can be reset
Night set back	KTR-53B	PAR-40MAA PAR-U02MEDA	AE-200E / EW-50E / AT-50B	AE-200E	-	KTR-53B requires thermostat, time switch, 12/24v AC/DC power supply
Energy monitoring	AE-200E / EW-50E Total Energy Measurement	AE-200E / EW-50E PAC-YG60MCA Total Energy Management	AE-200E and EW-50E Energy Apportioning	AE-200E / EW-50E PAC-YG60MCA Energy Apportioning	-	Different options for each choice. Meters required
Load shedding	EW-50E and PAC-YG60MCA	AE-200E and PAC-YG60MCA	-	-	-	Energy meters required
Trend logging	EW-50E and PAC-YG60MCA	AE-200E	-	-	-	CSV data available on a spreadsheet

Notes: The PAC-SA89TA is also known as a 3 wire adaptor and the PAC-SA88HA is also known as a 5 wire adaptor. Disclaimer: These options are for guidance only.

Which Controls Product for Which Function?

With a wide portfolio of control products, many functions are available. It is important to select the right control solution for each function.

FUNCTION	SMALL	SYSTEM SIZE		LARGE	NOTES
	OPTION 1	OPTION 2	OPTION 3		
Night mode	PAC-SA89TA	EW-50E	AE-200E		PAC-SA89TA requires a third party timer
Ambient tracking	AE-200E and PAC-YG63MCA	MELCOBEMS MINI	AE-200E		Option 1 is only available in cooling mode
Key card interlock for hotel	AE-200E and PAC-SA89TA	AE-200E / EW-50E, MELCOTEL2™ and PAC-SA89TA	-		Volt free contact for key card normally open
Window sensor interlock for hotel	AE-200E and PAC-SA89TA	AE-200E / EW-50E, MELCOTEL2™ and PAC-SA89TA	-		Volt free contact for window sensor normally closed
2 setpoints (1 for cool and 1 for heat)	-	MELCOMMS MINI	AE-200E		For instance, 19°C heat and 23°C cool. Fan only in between
Duty / Standby	PAR-40MAA	MELCOMMS MINI MELCOBEMS MINI	-		Backup, rotate, join in and high temperature function
A/C faults via Modbus and BACnet	MELCOBEMS MINI	-	-		SIM card not supplied
Optimised start	AE-200E	-	-		-
Mini BEMS	MELCOBEMS MINI	AE-200E	-		-
Occupancy sensor	PAR-U02MEDA	-	-		-

Notes: The PAC-SA89TA is also known as a 3 wire adaptor and the PAC-SA88HA is also known as a 5 wire adaptor. **Disclaimer:** These options are for guidance only.

Centralised Controllers

A wide range of centralised controllers are available to monitor and control our equipment efficiently. Some of our centralised controllers can also be used to monitor and control third party equipment.

Key Features

AT-50B



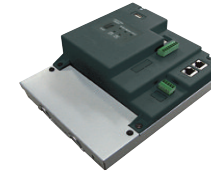
- 5" basic touch screen
- Centralised controller
- Monitor and control up to 50 indoor units
- Monitor and control general equipment

AE-200E



- 10.4" full function touch screen
- Centralised controller
- Monitor and control up to 50 indoor units (or up to 200 indoor units with EW-50Es)
- Monitor and control general equipment
- Energy monitoring, load shedding
- Web based controller
- Onboard HTML5 web browser
- Optional direct BACnet connection

EW-50E



- Web based controller
- Monitor and control up to 50 indoor units
- Monitor and control general equipment
- Energy monitoring, load shedding
- Onboard HTML5 web browser
- Optional direct BACnet connection

AE-200E-WEB USER



- Available as an option
- 200 user accounts per PIN CODE
- No installation cost
- Centralised controller required
- Very simple to use

PAC-SC51KUA



- M-NET power supply




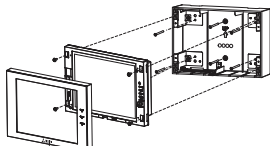
PAC-SF46EPA



- M-NET transmission booster

Centralised Controllers

Technical Specification

CENTRALISED CONTROLLERS	AT-50B	AE-200E	KS10-RFFI	PAC-YG82TB
				
Description	5" Touch Screen Controller	10.4" Touch Screen Controller	AE-200E Interface	AE-200E Plastic Wall Mounted Box
Connect to	M-NET Network	M-NET Network	AE-200E and EW-50E	-
Max Number of Units	50	50 and 4 Pulse Meters	-	-
Compatibility	M Series, Mr Slim, City Multi and Lossnay	M Series, Mr Slim, City Multi, Lossnay, e-series, MEHITS Chillers ^{*1} and Ecodan QAHV/CAHV/CRHV	-	AE-200E
Power Supply	Via PAC-SC51KUA	220-240v, 50Hz	220-240v, 50Hz	-
Dimensions (mm) (WxDxH)	180 x 30 x 120	283 x 64 x 199	130 x 30 x 80	282 x 77 x 198
Control				
On/Off	✓	✓	-	-
Mode	✓	✓	-	-
Setpoint	✓	✓	-	-
Fan Speed	✓	✓	-	-
Air Direction	✓	✓	-	-
Permit/Prohibit	✓	✓	-	-
Filter Sign	✓	✓	-	-
Monitor				
On/Off	✓	✓	✓	-
Mode	✓	✓	-	-
Setpoint	✓	✓	-	-
Fan Speed	✓	✓	-	-
Air Direction	✓	✓	-	-
Permit/Prohibit	✓	✓	-	-
Filter Sign	✓	✓	-	-
Fault Codes	✓	✓	✓	-
Room Temperature	✓	✓	-	-
Weekly Schedule	✓	✓	-	-
Annual Schedule	x	✓	-	-
Night Set Back	✓	✓	-	-
Web Pages	x	✓	-	-
Optimised Start	x	✓	-	-
Automatic Setpoint Adjustment	x	✓	-	-
Load Shedding	x	✓	-	-
Occupied / Unoccupied Settings Reset	x	x	-	-
Remote Monitoring with M2M	x	✓	-	-
Simple Energy Monitoring	x	✓	-	-
Advanced Energy Monitoring	x	✓	-	-

Notes: ^{*1} MEHITS adaptor required.

AE-200E demonstration website: http://dl.mitsubishielectric.co.jp/dl/dg/wink/wink_doc/contents/doc/acr/menu/ae200/en/

PIN CODES:





AE-200E-ENERGY

AE-200E-BACNET

AE-200E-WEB USER

Centralised Controllers

Technical Specification

CENTRALISED CONTROLLERS	EW-50E	AE-200E-WEB USER	PAC-SC51KUA	PAC-SF46EPA
				
Description	Web Interface and AE-200E expansion controller	AE-200E Web User Pin Code	M-NET Power Supply	M-NET Transmission Booster
Connect to	M-NET Network	AE-200E and EW-50E	M-NET Network	M-NET Network
Max Number of Units	50 and 4 Pulse Meters	200	50	-
Compatibility	M Series, Mr Slim, City Multi, Lossnay, e-series, MEHITS Chillers ^{*1} and Ecodan QAHV/CAHV/CRHV	AE-200E and EW-50E	AT-50B, EW-50E and AE-200E	M Series, Mr Slim and City Multi
Power Supply	220-240v, 50Hz	-	220-240v, 50Hz	220-240v, 50Hz
Dimensions (mm) (WxDxH)	172 x 92 x 253	-	271 x 72 x 169	360 x 59 x 340
Control	On/Off ✓ Mode ✓ Setpoint ✓ Fan Speed ✓ Air Direction ✓ Permit/Prohibit ✓ Filter Sign ✓	On/Off ✓ Mode ✓ Setpoint ✓ Fan Speed ✓ Air Direction ✓ Permit/Prohibit ✓ Filter Sign x	- - - - - - -	- - - - - - -
Monitor	On/Off ✓ Mode ✓ Setpoint ✓ Fan Speed ✓ Air Direction ✓ Permit/Prohibit ✓ Filter Sign ✓ Fault Codes ✓ Room Temperature ✓	On/Off ✓ Mode ✓ Setpoint ✓ Fan Speed ✓ Air Direction ✓ Permit/Prohibit ✓ Filter Sign ✓ Fault Codes ✓ Room Temperature ✓	- - - - - - - - -	- - - - - - - - -
Weekly Schedule	✓	✓	-	-
Annual Schedule	✓	✓	-	-
Night Set Back	✓	x	-	-
Web Pages	✓	✓	-	-
Optimised Start	✓	x	-	-
Automatic Setpoint Adjustment	✓	x	-	-
Load Shedding	✓	x	-	-
Occupied / Unoccupied Settings Reset	x	x	-	-
Remote Monitoring with M2M	✓	x	-	-
Simple Energy Monitoring	✓	✓	-	-
Advanced Energy Monitoring	✓	✓	-	-

PIN CODES:

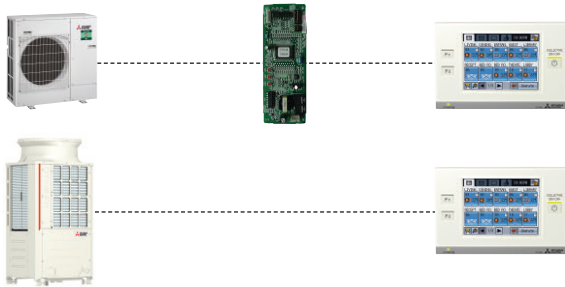
AE-200E-ENERGY

AE-200E-BACNET

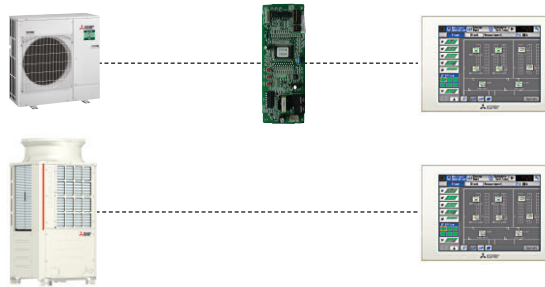
AE-200E-WEB USER

Notes: ^{*1} MEHITS adaptor required

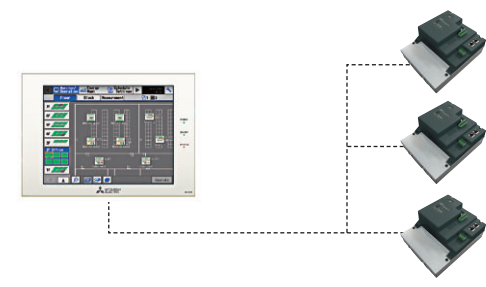
System Diagram AT-50B



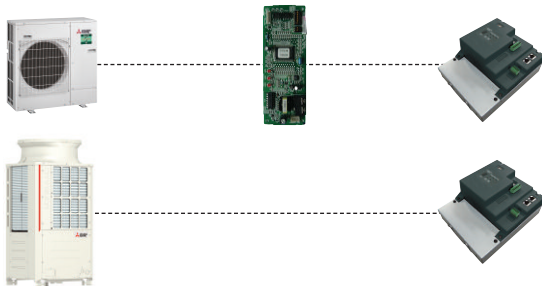
System Diagram AE-200E



System Diagram EW-50E



System Diagram EW-50E



System Diagram PAC-SC51KUA



System Diagram PAC-SF46EPA



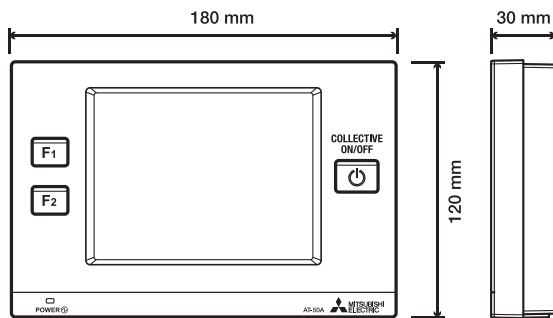
System Diagram AE-200E-WEB USER



Product Dimensions

AT-50B

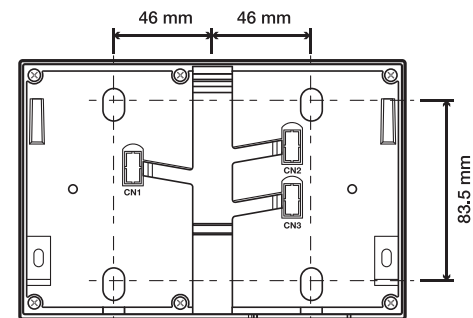
Front View



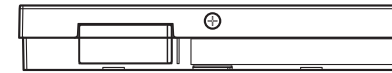
Side View



Back View



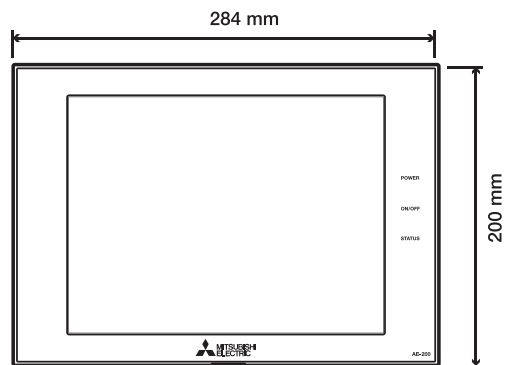
Top View



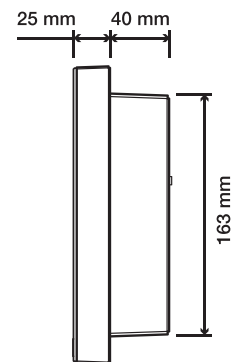
Product Dimensions

AE-200E

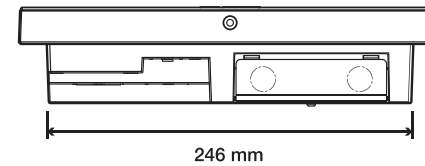
Front View



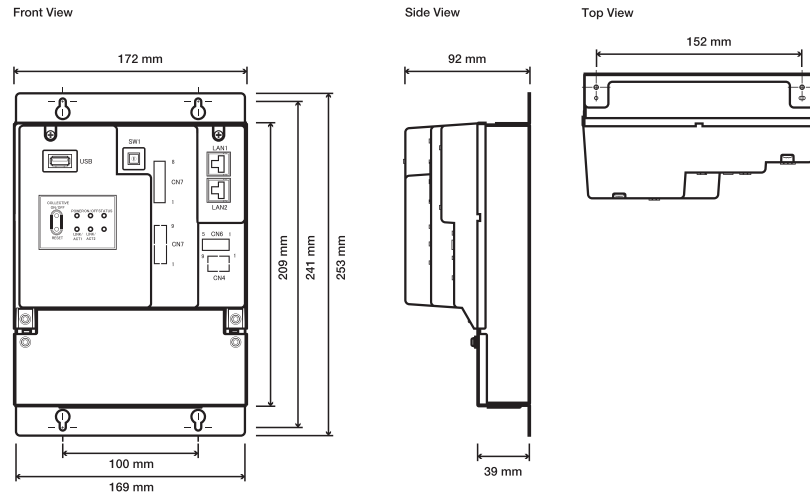
Side View



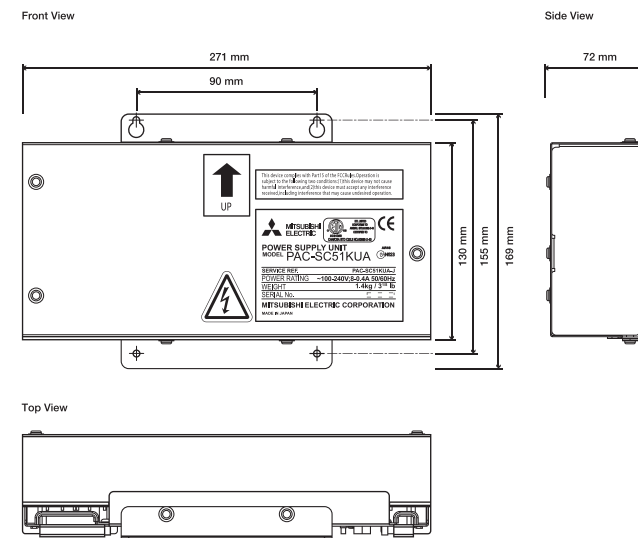
Top View



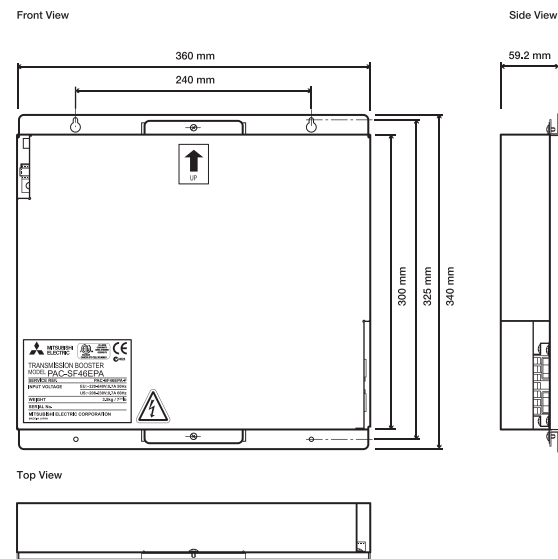
Product Dimensions EW-50E



Product Dimensions PAC-SC51KUA



Product Dimensions PAC-SF46EPA



Remote Controllers

From a simplified controller perfect for hotel applications to a full backlight touch screen controller, we have the right remote controller to choose from.

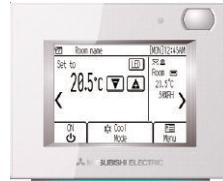
Key Features

PAR-CT01MAA-SB / PAR-CT01MAA-PB



- Simple to use
- Touch screen
- 180 colour screen
- 180 colour font display
- Backlight
- Fully configurable via smartphone App
- Customisable display
- Ability to display customer logos

PAR-U02MEDA



- Touch screen M-Net Controller
- Night set back, scheduling, setpoint limitation
- Built in occupancy/brightness sensor
- Backlight
- 0.5°C Set Point adjustment
- Dual Set Point

PAR-40MAA



- Most popular controller
- Night set back, scheduling, setpoint limitation
- 0.5°C Set Point adjustment
- Dual Set Point
- Run/Standby for Mr Slim
- Contact number under fault condition
- Backlight (White / Black options)
- Daylight saving function

PAR-FL / FA32MA



- Infrared solution
- Controller and receiver
- Controller able to control more than one receiver

PZ-61DR-E



- Dedicated Lossnay controller
- Night set back, scheduling
- Flexible night purge
- Backlight

PZ-43SMF-E



- Simplified Lossnay controller
- Controls a maximum of 2 units

PAR-W31MAA / PAR-W21MAA



- Dedicated remote controller (see technical specification on page 6.18)
- Button lock
- Contact number under fault condition
- Fault codes

PAR-WT50R-E / PAR-WR51R-E



- Ecodan wireless controller
- Ecodan receiver







PAC-IF072B-E / PAC-IF062B-E



- Ecodan controller
- Backlight

Remote Controllers









Technical Specification

REMOTE CONTROLLERS	PAR-CT01MAA-SB	PAR-CT01MAA-PB	PAR-U02MEDA	PAR-40MAA	PAR-FL32MA	PAR-FA32MA
						
Description	Simplified Touch Screen Wired Remote Controller	Simplified Touch Screen Wired Remote Controller (Premium Finish)	Touch Screen Remote Controller	Standard Wired Remote Controller	Infrared Remote Controller	Infrared Receiver
Connect to	Indoor	Indoor	M-NET Network	Indoor	-	Indoor
Max Number of Units	16	16	16	16	-	16
Compatibility	Mr Slim, City Multi and M Series via MAC-397IF ^{*3}	Mr Slim, City Multi and M Series via MAC-397IF ^{*3}	City Multi (M Series and Mr Slim via A2M adapter) ^{*2}	Mr Slim, City Multi and M Series via MAC-397IF or MAC-334IF	Mr Slim, City Multi and M Series via MAC-397IF	Mr Slim, City Multi and M Series via MAC-397IF
Dimensions (mm) (WxDxH)	120 x 14.1 x 65	120 x 14.1 x 65	140 x 25 x 120	120 x 14.5 x 120	157 x 18 x 57	120 x 18 x 70
Control						
On/Off	✓	✓	✓	✓	✓	-
Mode	✓	✓	✓	✓	✓	-
Setpoint	✓	✓	✓ (0.5°C)	✓ (0.5°C)	✓	-
Fan Speed	✓	✓	✓	✓	✓	-
Air Direction	✓	✓	✓	✓	✓	-
Permit/Prohibit	✓	✓	✓	✓	x	-
Filter Sign	✓	✓	✓	✓	x	-
Monitor						
On/Off	✓	✓	✓	✓	✓	-
Mode	✓	✓	✓	✓	✓	-
Setpoint	✓	✓	✓ (0.5°C)	✓ (0.5°C)	✓	-
Fan Speed	✓	✓	✓	✓	✓	-
Air Direction	✓	✓	✓	✓	✓	-
Permit/Prohibit	✓	✓	✓	✓	✓	-
Filter Sign	✓	✓	✓	✓	x	-
Fault Codes	✓	✓	✓	✓	x	LED
Room Temperature	✓	✓	✓ (0.5°C)	✓ (0.5°C)	x	-
Backlight	✓	✓	✓	✓	x	-
Setpoint Limitation	✓	✓	✓	✓	x	-
Independent Vane Control	x	x	x	✓	x	-
Contact Number under Fault Condition	x	x	x	✓	x	-
Scheduling	✓	✓	Weekly	Weekly	x	-
Night Set Back	x	x	✓	✓	x	-
Button Lock	✓	✓	✓	✓	x	-
Easy Maintenance with Mr Slim	x	x	x	✓	x	-
Run / Standby with Mr Slim	x	x	x	✓	x	-
Silent Mode with Mr Slim	x	x	x	✓	x	-
Energy Saving with Mr Slim	x	x	x	✓	x	-
Occupancy Sensor (PIR)	x	x	✓	x	x	-

Notes: ^{*1} Permit/Prohibit is via Centralised Controllers. ✓ = Yes, x = No, - = Not applicable. ^{*2} M-NET Power Supply Required via PAC-SC51KUA for M Series & Mr Slim

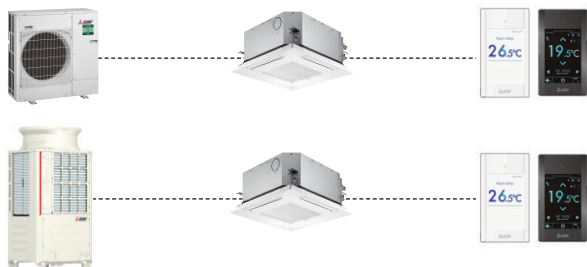
Remote Controllers

Technical Specification

REMOTE CONTROLLERS	PZ-61DR-E	PZ-43SMF-E	PAR-W31MAA	PAR-W21MAA	PAR-WT50R-E	PAR-WR51R-E	PAC-IF072B-E	PAC-IF062B-E
								
Description	Lossnay Wired Remote Controller	Lossnay Simplified Wired Remote Controller	Standard Wired Remote Controller	Standard Wired Remote Controller	Wireless Remote Controller Transmitter	Wireless Remote Controller Receiver	Flow Temperature Controller FTC6	Flow Temperature Controller FTC5
Connect to	Indoor	Indoor	e-series EACV / EAHV (1500 / 1800) and Ecodan QAHV	PWIFY, e-series EACV / EAHV (900), Mr Slim Air Curtains and Ecodan CAHV / CRHV	Ecodan PU(H)Z / QUHZ	Ecodan PU(H)Z / QUHZ	Ecodan PUZ / QUHZ	Ecodan PUHZ / QUHZ
Max Number of Units	15	2	6 (depends on unit connected)	16	8	1	1	1
Compatibility	Lossnay LGH-RVX(T)-E	Lossnay VL-220CZGV-EB	e-series EACV / EAHV (1500 / 1800) and Ecodan QAHV	PWIFY, e-series EACV / EAHV (900), Mr Slim Air Curtains and Ecodan CAHV / CRHV	Ecodan PU(H)Z / QUHZ	Ecodan PU(H)Z / QUHZ	Ecodan PUZ / QUHZ	Ecodan PUHZ / QUHZ
Dimensions (mm) (WxDxH)	120 x 19 x 120	70 x 15 x 120	120 x 19 x 120	130 x 19 x 120	140 x 18 x 75	100 x 30 x 80	120 x 19 x 120	120 x 19 x 120
Control	On/Off Mode Setpoint Fan Speed Air Direction Permit/Prohibit Filter Sign	✓ ✓ x ✓ x x x	✓ ✓ ✓ x x x x	✓ ✓ ✓ x x - x	x ✓ ✓ x x x x	- - - - - - -	✓ ✓ ✓ x x x x	✓ ✓ ✓ x x x x
Monitor	On/Off Mode Setpoint Fan Speed Air Direction Permit/Prohibit Filter Sign Fault Codes Room Temperature	✓ ✓ ✓ ✓ x x ✓ x x	✓ ✓ ✓ x x ✓ x ✓ x	✓ ✓ ✓ x x x x ✓ x	✓ ✓ ✓ x x x x x ✓	- - - - - - - - -	✓ ✓ ✓ x x x x ✓ ✓	✓ ✓ ✓ x x x x ✓ ✓
Backlight	✓	x	✓	x	✓	-	✓	✓
Setpoint Limitation	x	x	x	✓	✓	-	x	x
Independent Vane Control	x	x	x	x	x	-	x	x
Contact Number under Fault Condition	x	x	✓	x	x	-	x	x
Scheduling	Weekly	x	Weekly	Weekly	Weekly	-	Weekly	Weekly
Night Set Back	x	x	x	x	✓	-	✓	✓
Button Lock	x	x	x	✓	x	-	✓	✓
Easy Maintenance with Mr Slim	x	x	x	x	x	-	x	x
Run / Standby with Mr Slim	x	x	x	x	x	-	x	x
Silent Mode with Mr Slim	x	x	x	x	x	-	x	x
Energy Saving with Mr Slim	x	x	x	x	x	-	x	x
Occupancy Sensor (PIR)	x	x	x	x	x	-	x	x

Notes: *1 Permit/Prohibit is via Centralised Controllers. ✓ = Yes, x = No, - = Not applicable.

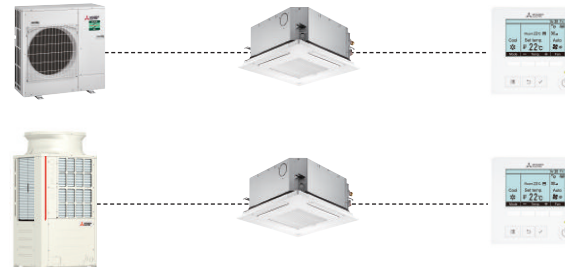
System Diagram PAR-CT01MAA-SB / PAR-CT01MAA-PB



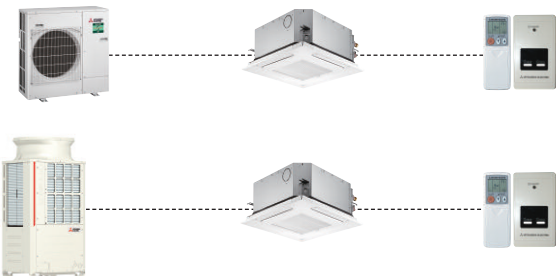
System Diagram PAR-U02MEDA



System Diagram PAR-40MAA



System Diagram PAR-FL / FA32MA



System Diagram PZ-61DR-E



System Diagram PZ-43SMF-E



System Diagram PAR-W31MAA



System Diagram PAR-WT50R-E / PAR-WR51R-E



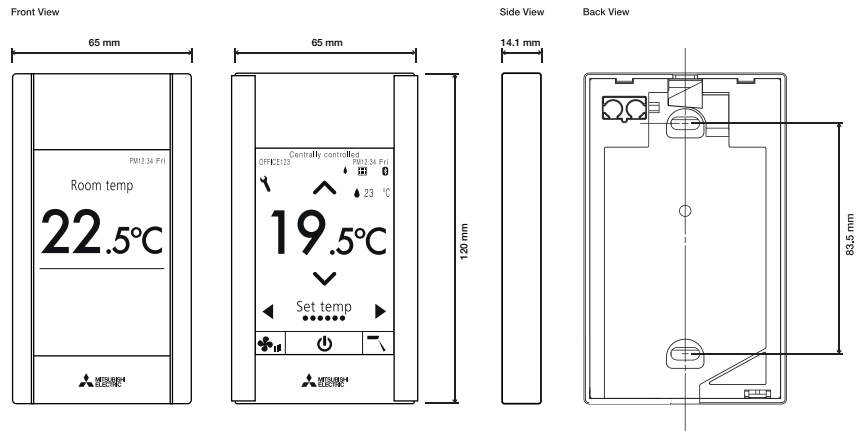
System Diagram PAC-IF072B-E / PAC-IF062B-E



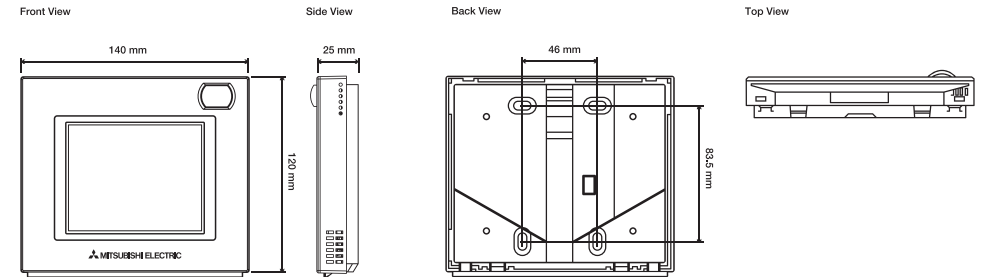
System Diagram PAR-W21MAA



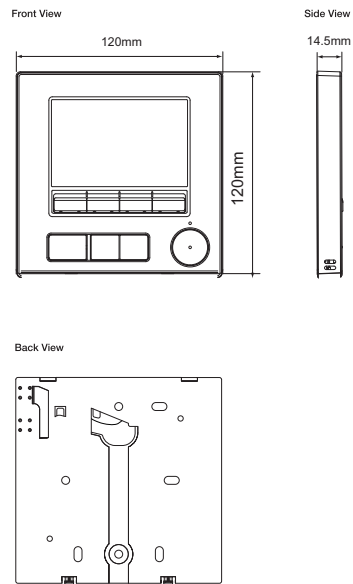
Product Dimensions PAR-CT01MAA-SB / PAR-CT01MAA-PB



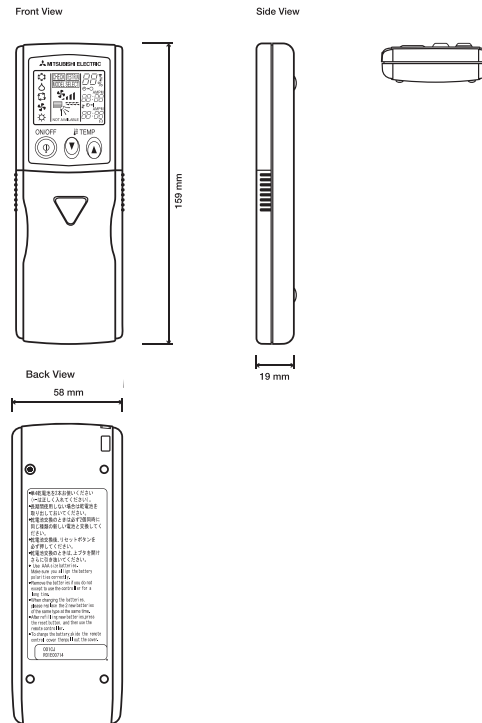
Product Dimensions PAR-U02MEDA



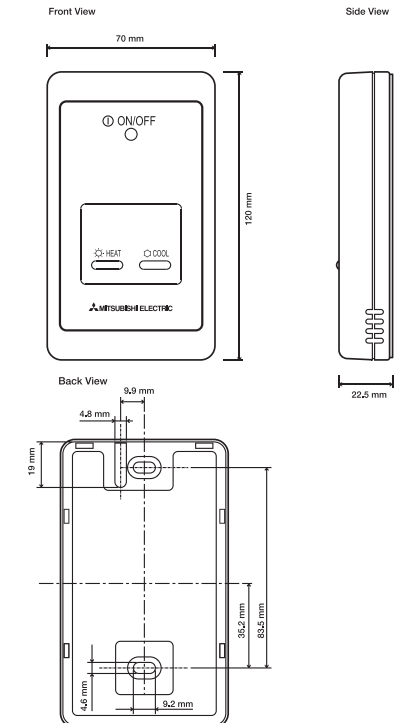
Product Dimensions PAR-40MAA



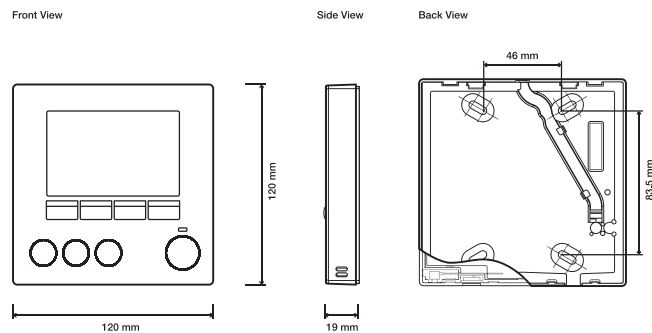
Product Dimensions PAR-FL32MA



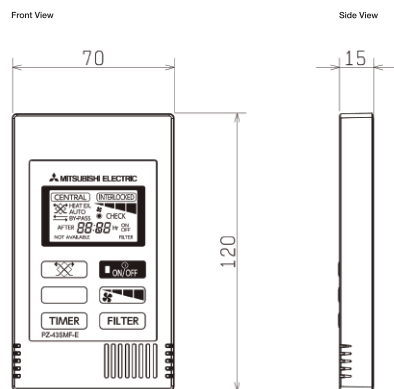
Product Dimensions PAR-FA32MA



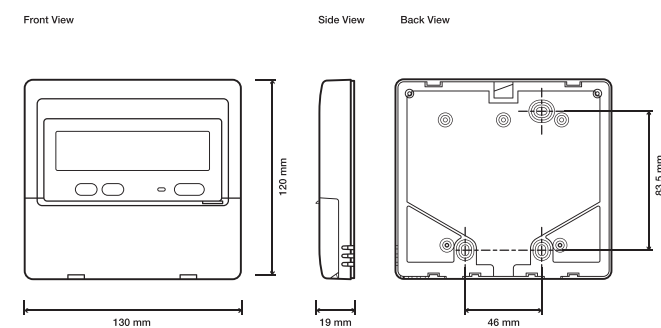
Product Dimensions PZ61DR-E / PAR-W31MAA



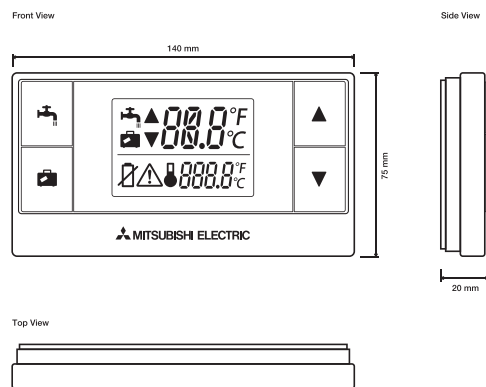
Product Dimensions PZ-43SMF-E



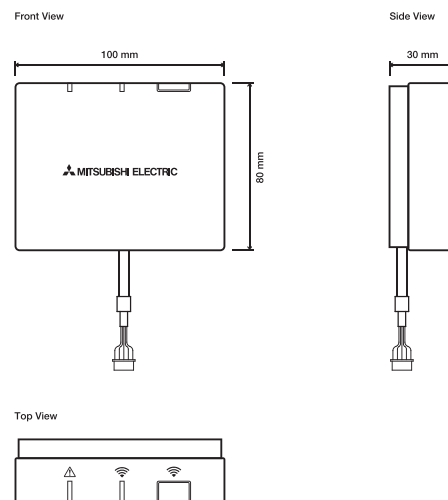
Product Dimensions PAR-W21MAA



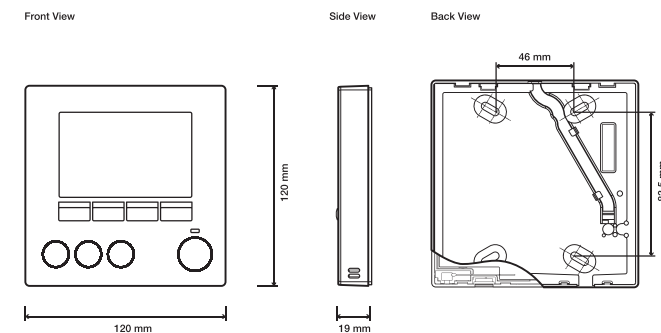
Product Dimensions PAR-WT50R-E



Product Dimensions PAR-WR51R-E



Product Dimensions PAC-IF072B-E / PAC-IF062B-E



Solution Interfaces

Our dedicated solution interfaces now include new sector specific products such as our **RMI Interfaces**.

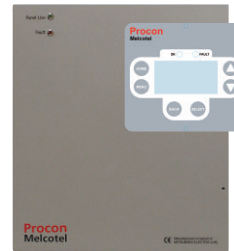
Key Features

MELCOMMS MINI



- Monitor and control up to 8 indoor units
- Run / Standby panel
- Includes 2 x MELCOBEMS MINI Interfaces (A1M)

MELCOTEL2



- Monitor and control up to 200 indoor units
- Dedicated hotel interface
- Key card and non key card integration
- Automatic Setpoint adjustment
- Occupied / Unoccupied Settings Reset

RMI PACKAGE LAN/ADSL



- Monitor and control up to 42 centralised controllers (2,100 indoor units)
- Reporting function on system operation and estimated energy performance
- Multi site control
- Multi user login available
- Site commissioning by MEU-UK Field Service included
- Connection via Wi-Fi router (LAN) or customer network





RMI PACKAGE 3G



- Monitor and control up to 42 centralised controllers (2,100 indoor units)
- Reporting function on system operation and estimated energy performance
- Multi site control
- Multi user login available
- Site commissioning by MEU-UK Field Service included
- Connection via 3G sim card (included)

Solution Interfaces

Technical Specification

SOLUTION INTERFACES	MELCOMMS MINI	MELCOTEL2	RMI Package LAN/ADSL	RMI Package 3G
				
Description	Run Standby Panel	AE-200E Hotel Interface and display	Remote Control & Monitoring Interface	Remote Control & Monitoring Interface
Connect to	MELCOBEMS MINI	AE-200E and EW-50E	AE-200E & EW-50E	AE-200E & EW-50E
Max Number of Units	8	200	2,100	2,100
Compatibility	M Series and Mr Slim	City Multi	M Series, Mr Slim, City Multi, Lossnay and Commercial Heating (CAHV / CRHV)	M Series, Mr Slim, City Multi, Lossnay and Commercial Heating (CAHV / CRHV)
Power Supply	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz
Dimensions (mm) (WxDxH)	253 x 90 x 180	350 x 80 x 400	113 x 28 x 89	85 x 36 x 100
SMS/GPRS Capabilities	x	x	x	3G ³
Ethernet Capabilities	x	x	✓	✓
SIM Card Provided	x	x	x	✓
Inputs	x	x	✓ 2 Digital ⁴	✓ 2 Digital ⁴
Outputs	✓ 1 Digital (Fault)	x	✓ 2 Digital ⁴	✓ 2 Digital ⁴
Control	On/Off Mode Setpoint Fan Speed Air Direction Permit/Prohibit Filter Sign	✓ ✓ ✓ x x x x	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓
Monitor	On/Off Mode Setpoint Fan Speed Air Direction Permit/Prohibit Filter Sign Fault Codes Room Temperature	✓ ✓ ✓ x x x x ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
Weekly Schedule	x	x	✓	✓
Annual Schedule	x	x	✓	✓
Night Setback	x	✓	✓	✓
Web Pages	x	x	✓	✓
Optimised Start	x	x	x	x
Automatic Setpoint Adjustment	x	✓	x	x
Load Shedding	x	x	x	x
Occupied / Unoccupied Settings reset	x	✓	x	x
Simple Energy Monitoring	x	x	✓ ¹	✓ ¹

Notes: ¹ The energy monitoring is estimated using the outdoor unit data. ² Discount cannot be applied. ³ Includes 5 years SIM hosting. ⁴ PAC-YG66DCA required.

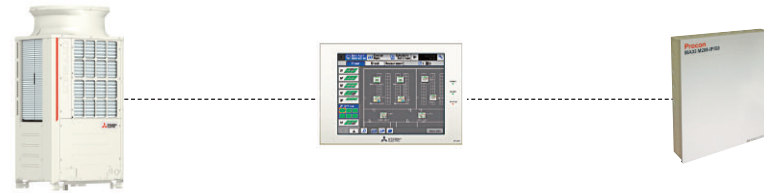
System Diagram

MELCOMMS MINI



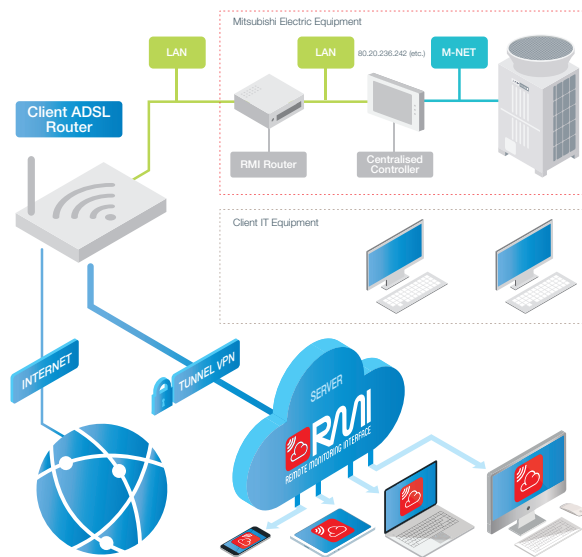
System Diagram

MELCOTEL2



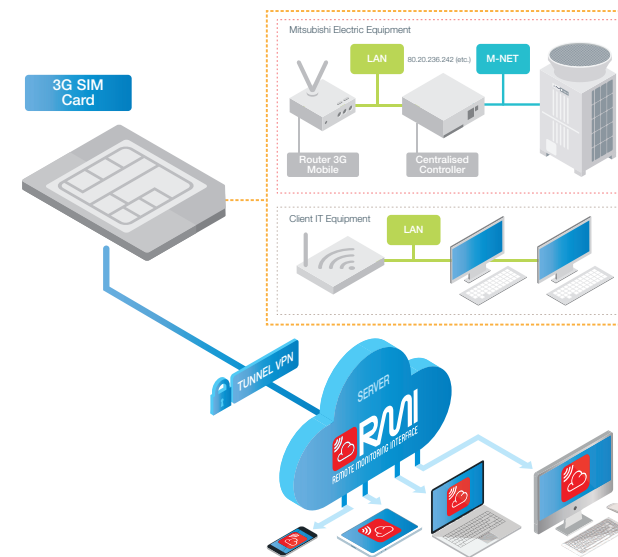
System Diagram

RMI PACKAGE LAN/ADSL



System Diagram

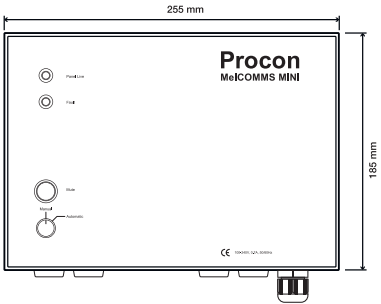
RMI PACKAGE 3G



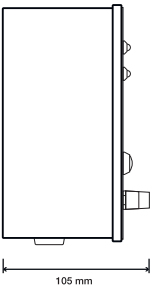
System Diagram

MELCOMMS MINI

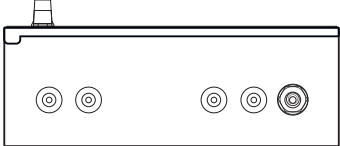
Front View



Side View



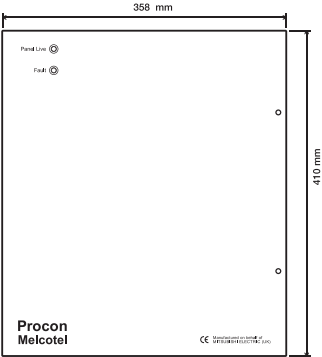
Top View



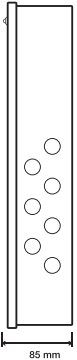
System Diagram

MELCOTEL2

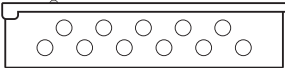
Front View



Side View



Top View



Simple Interfaces

A wide range of interfaces are available to allow third party equipment to monitor and control our units. Some interfaces are also available to monitor and control third party equipment from our centralised controllers.

Key Features

PAC-SA89TA



- Also known as 3 wire adaptor
- Remote on/off
- Fire alarm input
- Night mode
- Demand control

PAC-SA88HA



- Heating and cooling signal
- Run and fault signal

PAC-YT51HAA



- Remote on/off
- Fire alarm input
- Common run and fault signal

PAC-YG10HA



- Remote on/off
- Fire alarm input
- Common run and fault signal









PAC-SJ95MA-E / PAC-SJ96MA-E



- Adaptor to connect Mr Slim units to M-NET

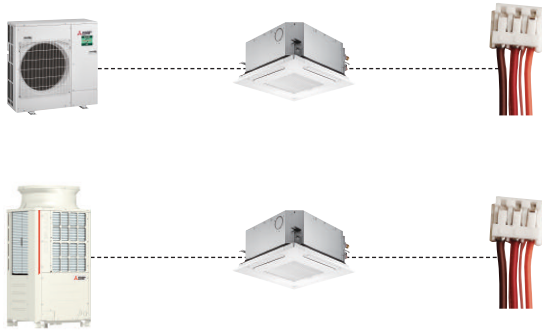
Simple Interfaces

Technical Specification

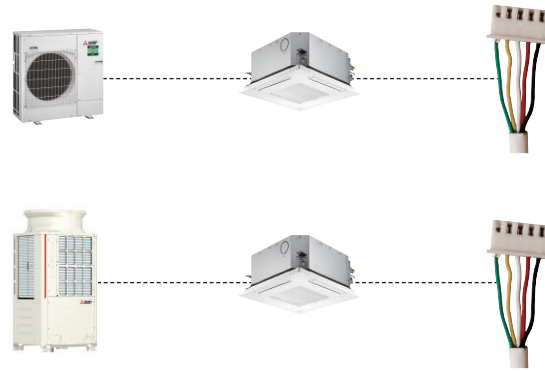
INTERFACES	PAC-SA89TA	PAC-SA89TA	PAC-SA88HA	PAC-SA88HA	PAC-SA88HA	PAC-YT51HAA	PAC-YG10HA	PAC-SJ95MA-E ¹ PAC-SJ96MA-E ²
								
Description	On/Off Adaptor (3 wire adaptor)	Night Mode and Demand Control (3 wire adaptor)	Run and Fault Adaptor (5 wire adaptor)	Heat and Cool Adaptor (5 wire adaptor)	Run and Fault Adaptor (5 wire adaptor)	On/Off Run and Fault Adaptor	On/Off Run and Fault Adaptor (9 wire adaptor)	M-NET Converter
Connect to	Indoor	Outdoor	Indoor	Indoor	Outdoor	AT-50B	AE-200E and EW-50E	Outdoor
Max Number of Units	1	1	1	1	1	1	1	1
Compatibility	Mr Slim and City Multi	Mr Slim and City Multi	Mr Slim and City Multi	City Multi	City Multi	AT-50B	AE-200E and EW-50E	Mr Slim Outdoor
Dimensions (mm) (WxDxH)	-	-	-	-	-	-	-	130 x 15 x 90
Control	On/Off	✓	✓	x	x	x	✓	✓
	Mode	x	x	x	x	x	x	x
	Setpoint	x	x	x	x	x	x	x
	Fan Speed	x	x	x	x	x	x	x
	Air Direction	x	x	x	x	x	x	x
	Permit/Prohibit	x	x	x	x	x	x	x
	Filter Sign	x	x	x	x	x	x	x
Monitor	On/Off	x	x	✓	x	✓	✓	✓
	Mode	x	x	x	✓	x	x	x
	Setpoint	x	x	x	x	x	x	x
	Fan Speed	x	x	x	x	x	x	x
	Air Direction	x	x	x	x	x	x	x
	Permit/Prohibit	x	x	x	x	x	x	x
	Filter Sign	x	x	x	x	x	x	x
	Fault Codes	x	x	✓	✓	✓	✓	✓
	Room Temperature	x	x	x	x	x	x	x
	Fire Alarm	✓	✓	x	x	✓	✓	✓
On/Off but Centrally Controlled	VFC	x	x	x	x	x	VFC	Via 24VDC
On/Off but NOT Centrally Controlled	x	x	x	x	x	x	x	x
Run and Fault Output	x	x	12VDC	x	12VDC	Via 24VDC	Via 24VDC	-
Heat and Cool Output	x	x	x	12VDC	x	x	x	x
Night Mode and Demand Control	x	VFC	x	x	x	x	x	x
Connect Mr Slim to M-NET	-	-	-	-	-	-	-	✓ ^{1,2}

Notes: VFC: Volt free contact. ¹ PAC-SJ95MA-E M-NET adaptor for PUZ-ZM60-250, PUHZ-ZRP71-250, PU(H)Z-M100-250, PUZ-SM100-140. ² PAC-SJ96MA-E M-NET adaptor for PUZ-ZM35-50.
✓ = Yes, x = No, - = Not applicable.

System Diagram PAC-SA89TA



System Diagram PAC-SA88HA



System Diagram PAC-YT51HAA



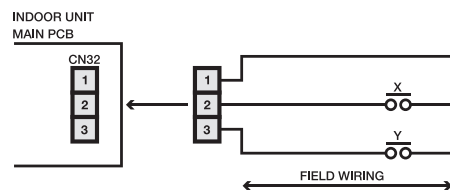
System Diagram PAC-YG10HA



System Diagram PAC-SJ95MA-E / PAC-SJ96MA-E



Wiring Diagram PAC-SA89TA



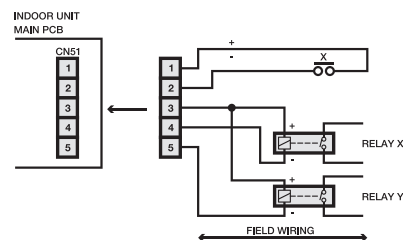
NOTE

- ON / OFF BUTTON ON THE REMOTE CONTROLLER NOT AVAILABLE
- ADAPTER WIRE COLOURS MAY VARY
- RELAYS NOT SUPPLIED

OPERATION

- X AND Y CLOSED TO START UNIT

Wiring Diagram PAC-SA88HA



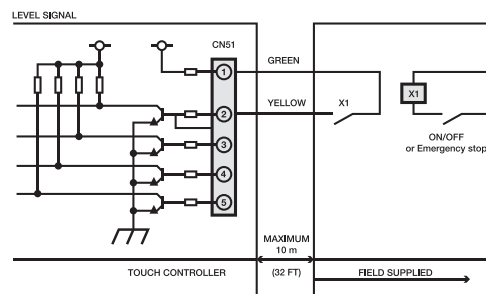
NOTE

- RELAYS NOT SUPPLIED
- X REQUIRES A PULSE SIGNAL TO START / STOP UNIT

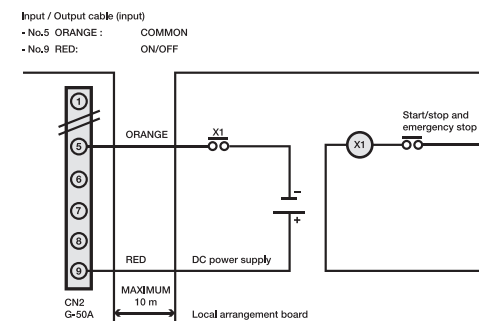
OPERATION

- RELAY X SUPPLIED WITH 12V DC WHEN UNIT IS ON
- RELAY Y SUPPLIED WITH 12V DC WHEN UNIT IN FAULT

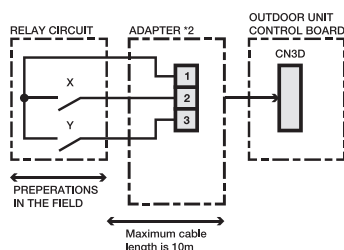
Wiring Diagram PAC-YT51HAA



Wiring Diagram PAC-YG10HA



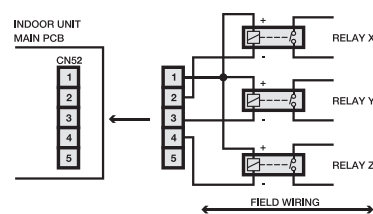
Wiring Diagram PAC-SA89TA



NOTE

- X : Low noise mode or demand
- Y : Demand
- X, Y : Relay Contact rating voltage $\geq 15VDC$
- Contact rating current $\geq 0.1A$
- Minimum applicable load $\leq 1mA$ at DC

Wiring Diagram PAC-SA88HA



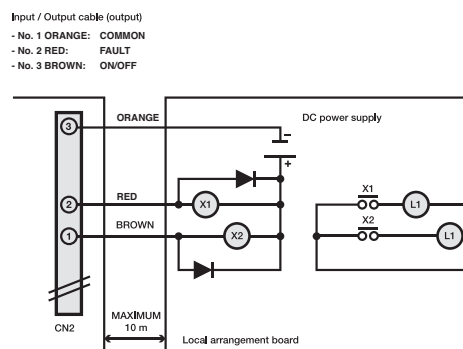
NOTE

- RELAYS NOT SUPPLIED

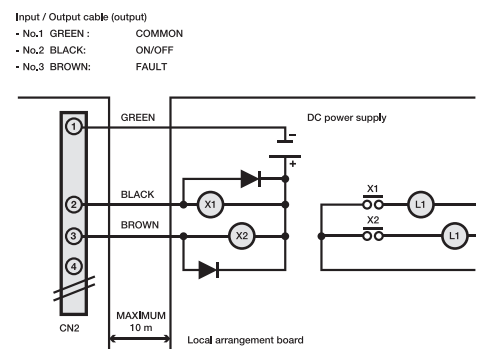
OPERATION

- RELAY X SUPPLIED WITH 12V DC WHEN FAN IS RUNNING
- RELAY Y SUPPLIED WITH 12V DC WHEN UNIT IS IN COOLING MODE AND THE REMOTE CONTROLLER IS ON OR OFF
- RELAY Z SUPPLIED WITH 12V DC WHEN UNIT IS IN HEATING MODE AND THE REMOTE CONTROLLER IS ON OR OFF

Wiring Diagram PAC-YT51HAA



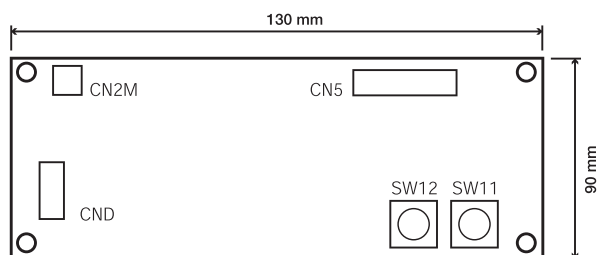
Wiring Diagram PAC-YG10HA



Product Dimensions

PAC-SJ95MA-E / PAC-SJ96MA-E

Front View



Side View



Advanced Interfaces

A wide range of interfaces are available to allow third party equipment to monitor and control our units. Some interfaces are also available to monitor and control third party equipment from our centralised controllers.

Key Features

KTR-53B



- Remote on/off
- Run and fault volt free outputs

MELCORETAIL MINI



- On/off, fire alarm and lock input
- Setpoint and fan speed input
- Run, fault, heat and cool output
- 2 energy saving features

PAC-YG60MCA



- Monitor up to 4 energy meters

PAC-YG63MCA



- Monitor up to 2 temperature sensors

PAC-YG66DCA



- Monitor and control up to 2 pieces of general equipment

MAC-397IF / MAC-334IF



- Adaptor to connect remote controller to M Series
- Adaptor to connect M Series to M-NET
- 3rd party heating interlock






MAC-567IF



- Wi-Fi Interface for MELCloud solution
- ATA, Lossnay and ATW support
- WPS and Wi-Fi pin pairing

Advanced Interfaces




Technical Specification

INTERFACES	KTR-53B	MELCORETAIL MINI	PAC-YG60MCA	PAC-YG63MCA	PAC-YG66DCA
					
Description	On/Off and Run/Fault Adaptor	Retail Control and Input / Output Interface	Pulse Meter Interface	Temperature and Humidity Interface	Third Party Control and Interface
Connect to	Indoor	Indoor	M-NET Network	M-NET Network	M-NET Network
Max Number of Units	1	1	4 Pulse Meters	1 PT100, 1 Humidity Sensor	2 General Equipment
Compatibility	Mr Slim and City Multi	M Series and Mr Slim	AE-200E and EW-50E	AE-200E and EW-50E	AE-200E and EW-50E
Power Supply	12/24VAC/DC	-	24VDC	24VDC	24VDC
Dimensions (mm) (WxDxH)	80 x 45 x 80	85 x 32 x 138	200 x 45 x 120	200 x 45 x 120	200 x 45 x 120
Control	On/Off Mode Setpoint Fan Speed Air Direction Permit/Prohibit Filter Sign	✓ - - - - - -	VFC 0 to 10VDC 0 to 10VDC - - - -	- - - - - - -	✓ x x x x x x
Monitor	On/Off Mode Setpoint Fan Speed Air Direction Permit/Prohibit Filter Sign Fault Codes Room Temperature	✓ - - - - - - ✓ -	VFC VFC - - - - - - -	- - - - - - - - -	✓ x x x x x x ✓ x
On/Off but Centrally Controlled	Option Lock/Unlock	VFC	x	-	-
On/Off but NOT Centrally Controlled	12/24VAC/DC	VFC	x	-	-
Run Output	x	VFC	x	-	-
Fault Output	x	VFC	x	-	-
Energy Saving	x	VFC	x	-	-
Heat / Cool / Thermo Output	x	VFC	x	-	-
Pulse Weight	x	x	0.1, 1.0 and 10	-	-

Notes: VFC: Volt free contact. ✓ = Yes, x = No, - = Not applicable.

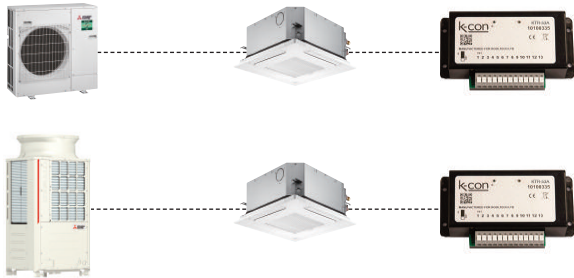
Advanced Interfaces

Technical Specification

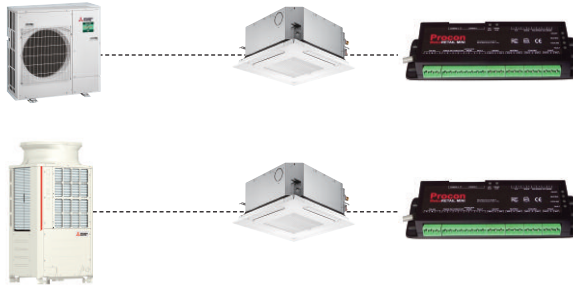
INTERFACES	MAC-397IF	MAC-334IF	MAC-567IF	
				
Description	Interface for MA Remote Controller, On/Off Input and Run/Fault Output	Interface for M-NET, MA Remote Controller, On/Off Input, Run/Fault Output and 3rd Party Heating Interlock (M Series)	AIR CONDITIONING	ECODAN*
Connect to	Indoor	Indoor	MELCloud Wi-Fi Interface	MELCloud Wi-Fi Interface
Max Number of Units	1	1	1	1
Compatibility	M Series and Mr Slim (SUZ)	M Series and Mr Slim (SUZ)	M Series, Mr Slim, City Multi and Lossnay	Ecodan FTC6 / FTC5
Power Supply	-	-	-	-
Dimensions (mm) (WxDxH)	160 x 55 x 70	160 x 55 x 70	79 x 18.5 x 44	79 x 18.5 x 44
Control	On/Off	✓	✓	✓
	Mode	x	✓	✓
	Setpoint	x	✓	✓
	Fan Speed	x	✓	x
	Air Direction	x	✓	x
	Permit/Prohibit	x	x	x
	Filter Sign	x	x	x
Monitor	On/Off	✓	✓	✓
	Mode	x	✓	✓
	Setpoint	x	✓	✓
	Fan Speed	x	✓	✓
	Air Direction	x	✓	✓
	Permit/Prohibit	x	x	x
	Filter Sign	x	✓	✓
	Fault Codes	✓	✓	✓
	Room Temperature	x	✓	✓
On/Off but Centrally Controlled	x	x	-	-
On/Off but NOT Centrally Controlled	✓	✓	-	-
Run Output	x	x	-	-
Fault Output	x	x	-	-
Energy Saving	x	x	-	-
Heat / Cool / Thermo Output	x	✓	-	-
Pulse Weight	x	x	-	-

Notes: VFC: Volt free contact. ✓ = Yes, x = No, - = Not applicable. *For further technical specification on the MAC-567IF for Ecodan please refer to the Heating Section of the Product Catalogue, pages 4.32 - 4.33.

System Diagram KTR-53B



System Diagram MELCORETAIL MINI



System Diagram PAC-YG60MCA



System Diagram PAC-YG63MCA



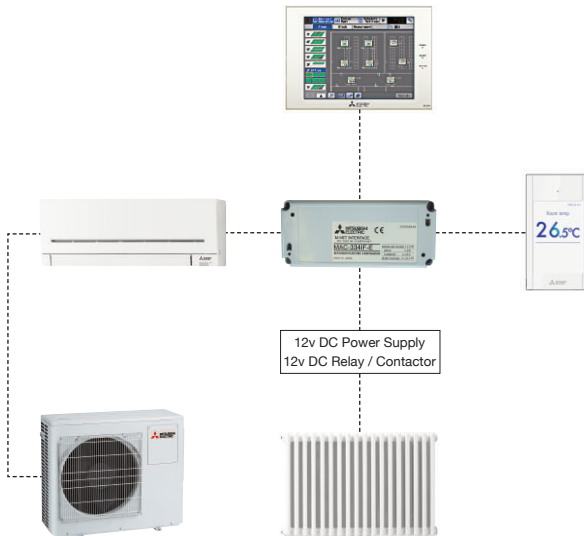
System Diagram PAC-YG66DCA



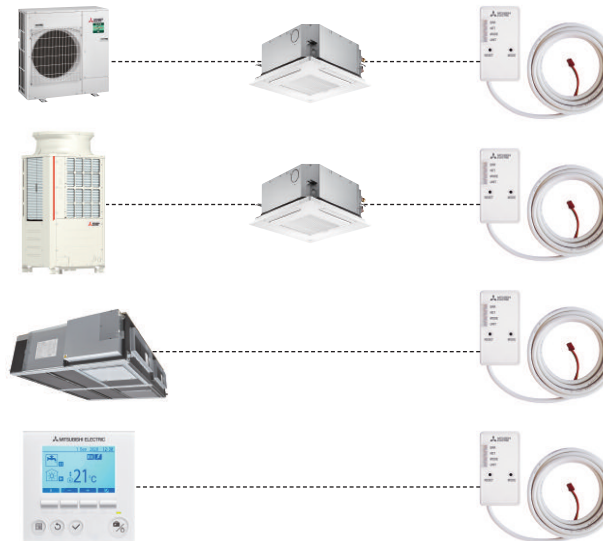
System Diagram MAC-397IF / MAC-334IF



System Diagram MAC-334IF Heating Interlock

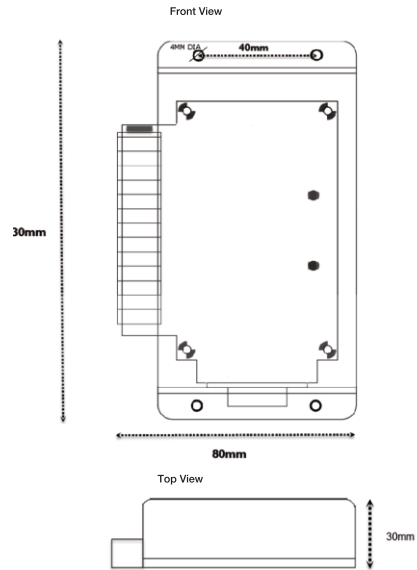


System Diagram MAC-567IF



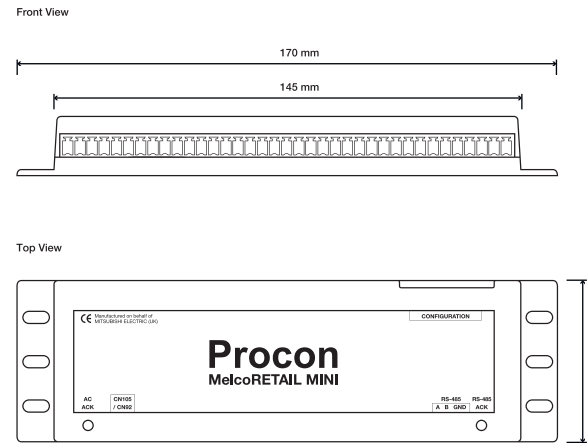
Product Dimensions

KTR-53B



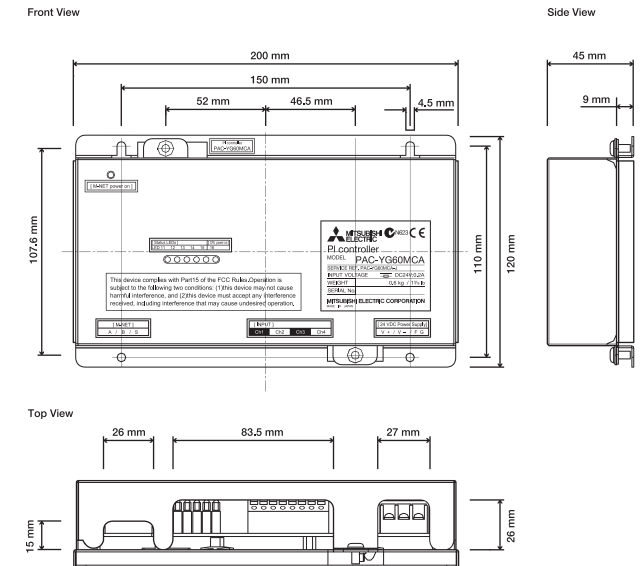
Product Dimensions

MELCORETAIL MINI



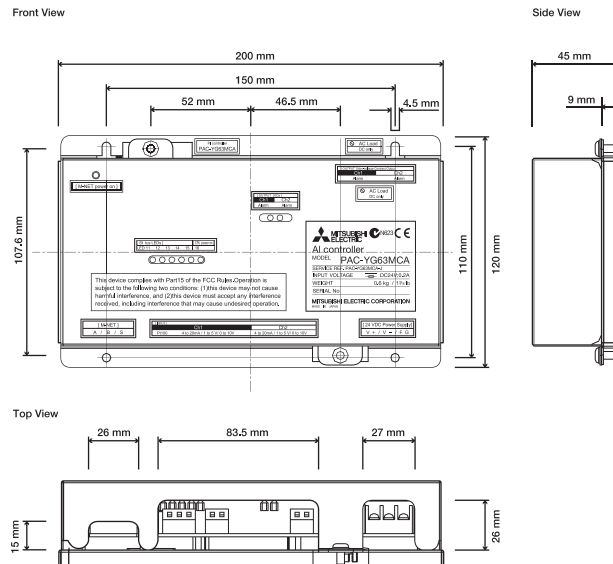
Product Dimensions

PAC-YG60MCA



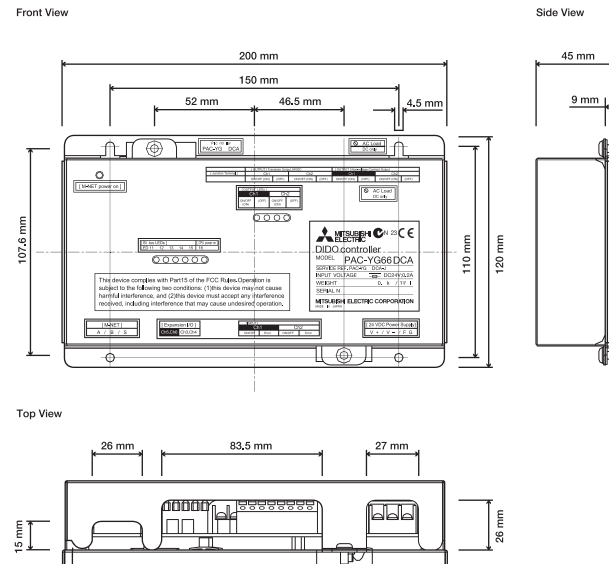
Product Dimensions

PAC-YG63MCA



Product Dimensions

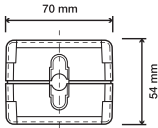
PAC-YG66DCA



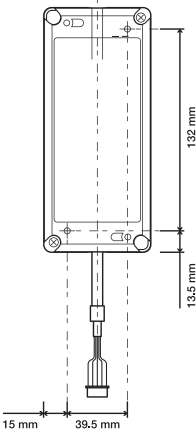
Product Dimensions

MAC-397IF

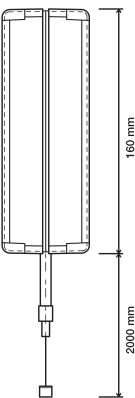
Top View



Front View



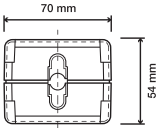
Side View



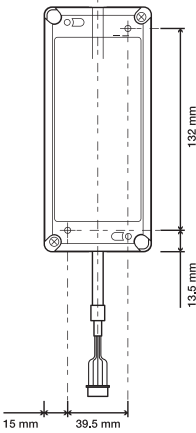
Product Dimensions

MAC-334IF

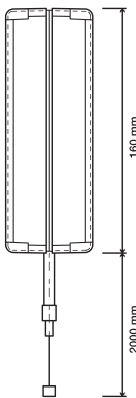
Top View



Front View



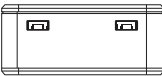
Side View



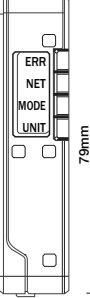
Product Dimensions

MAC-567IF

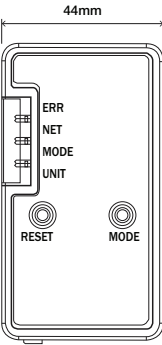
Top View



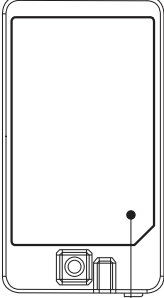
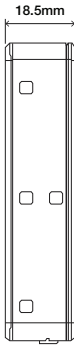
Side View



Front View



Side View



Name Plate

BEMS Interfaces

Building Energy Management Systems (BEMS) will allow a building to run efficiently. A wide range of interfaces are available to connect our systems simply to a BEMS.

Key Features

MELCOBEMS MINI



- Monitor and control up to 1 indoor unit
- Modbus and BACnet interface

MELCOBEMS



- Monitor and control up to 50 indoor units
- Modbus and BACnet interface
- Energy monitoring

IQ4 XNC



- Monitor and control up to 50 indoor units
- Trend interface



MELCOJACE-8000



- Monitor and control up to 50 / 100 / 200 indoor units
- Tridium Niagara 4 compatible
- Built in HTML5 web page for plug & play
- On-board library Modbus & BACnet MSTP for Procon MELCOBEMS MINI (A1M)
- No additional interface required, direct plug & play to centralised controllers
- On-board Wi-Fi application to allow commissioning by PC, tablet or smartphone
- BACnet
- Modbus

BEMS Interfaces

Technical Specification

BEMS INTERFACES		MELCOBEMS MINI	MELCOBEMS
			
Description	Air to Air Splits Modbus/BACnet Interface. Air (Water) to Water Modbus Interface, Lossnay Modbus Interface		AE-200E, EW-50E Modbus BACnet Interface
Connect to	Indoor or Ecodan PCB		AE-200E and EW-50E
Max Number of Units	1		50
Compatibility	M Series, Mr Slim, City Multi, Ecodan FTC6/5/4, e-series Chiller, Ecodan QAHV/CAHV/CRHV and Lossnay (LGH-RVX(T)-E1)		M Series, Mr Slim and City Multi
Power Supply	-		24VDC
Dimensions (mm) (WxDxH)	70 x 19 x 50		102 x 32 x 180
Network	Modbus / BACnet RS485 ¹		Modbus / BACnet RS485 and TCP/IP
BEMS Compatibility	Cylon, Satchwell, Crestron, Invensys, Interactive Homes, North BT, Andover, Siemens, WEMS, RDM		Cylon, Satchwell, Crestron, Invensys, Interactive Homes, North BT, Andover, Siemens, WEMS, Andover Controls, York BMS, Siemens, Priva Building Intelligence, Delta Controls, RDM
Control	Air to Air Splits and Lossnay		Air (Water) to Water
	On/Off	DI	AI
	Mode	AI	AI
	Setpoint	AI	AI
	Fan Speed	AI	-
	Air Direction	AI	AI
	Permit/Prohibit	x	AI
	Filter Sign	DI	DI
Monitor	On/Off	DO	DO
	Mode	AO	AO
	Setpoint	AO	AO
	Fan Speed	AO	-
	Air Direction	AO	-
	Permit/Prohibit	x	AO
	Filter Sign	DO	-
	Fault Codes	AO	AO
	Room Temperature	AO	AO
	Daily kW Energy	-	AO
	Monthly kW Energy	-	AO
			With EW-50E
			With EW-50E



Key: DI = Digital Input. DO = Digital Output. AI = Analogue Input. AO = Analogue Output.

Notes: ¹ Function only available on M Series, Mr Slim and City Multi.

The MELCOBEMS can monitor indoor daily and monthly kWh when used in conjunction with AE-200E, EW-50E, PAC-YG60MCA on third party energy meters.

BEMS Interfaces

Technical Specification

BEMS INTERFACES		IQ4 XNC	MELCOJACE-8000
			
Description		AE-200E and EW-50E Trend Interface ¹	AE-200E & EW-50E Tridium Niagara Interface ²
Connect to		AE-200E and EW-50E	AE-200E, EW-50E, AG-150A, EB-50G, GB-50
Max Number of Units		50	50 / 100 / 200
Compatibility		M Series, Mr Slim, City Multi and Lossnay	M Series, Mr Slim, City Multi and Lossnay
Power Supply		220-240v, 50Hz	24v, AC/DC
Dimensions (mm) (WxDxH)		263 x 46 x 150	171 x 61 x 110
Network		Trend	Niagara
BEMS Compatibility		Trend	Any Niagara compatible BMS/BEMS
Control	On/Off	DI	✓
	Mode	AI	✓
	Setpoint	AI	✓
	Fan Speed	AI	✓
	Air Direction	AI	✓
	Permit/Prohibit	DI	✓
	Filter Sign	DI	✓
Monitor	On/Off	DO	✓
	Mode	AO	✓
	Setpoint	AO	✓
	Fan Speed	AO	✓
	Air Direction	AO	✓
	Permit/Prohibit	DO	✓
	Filter Sign	DO	✓
	Fault Codes	AO	✓
	Room Temperature	AO	✓
	Daily kWh Energy	-	✓ ³
	Monthly kWh Energy	-	✓ ³

Notes: The PAC-YG***CA are not compatible with MELCOBEMS and IQ4 XNC.

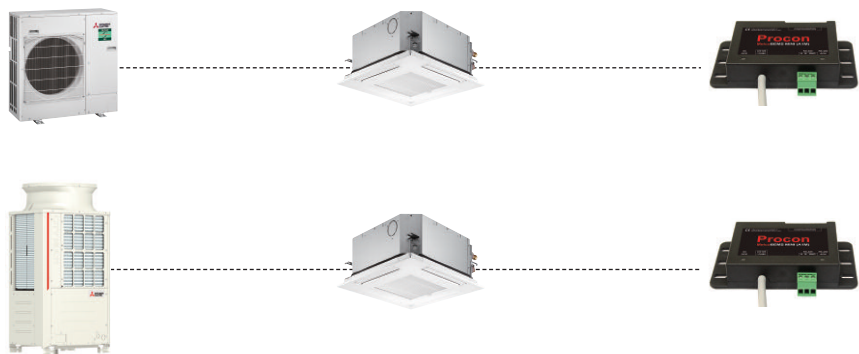
*1 Synapsys Solutions Ltd, 1 Woodlands Court, Albert Drive, Burgess Hill, West Sussex, RH15 9TN, Telephone 0845 680 0303

*2 The MELCOJACE-8000 can monitor indoor daily and monthly kWh when used in conjunction with AE-200E, EW-50E, PAC-YG60MCA on third party energy meters.

*3 The MELCOJACE-8000 range is only available from Forest Rock Systems Ltd, Charmwood Building, Holywell Park, Ashby Road, Loughborough, LE11 3AQ. Telephone: 0845 5197958

System Diagram

MELCOBEMS MINI



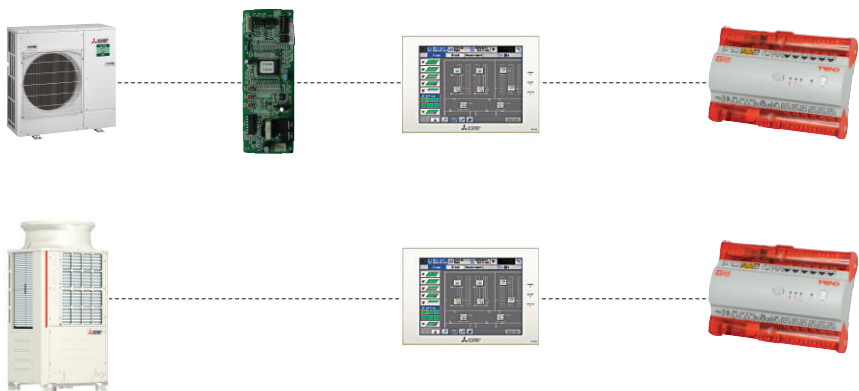
System Diagram

MELCOBEMS



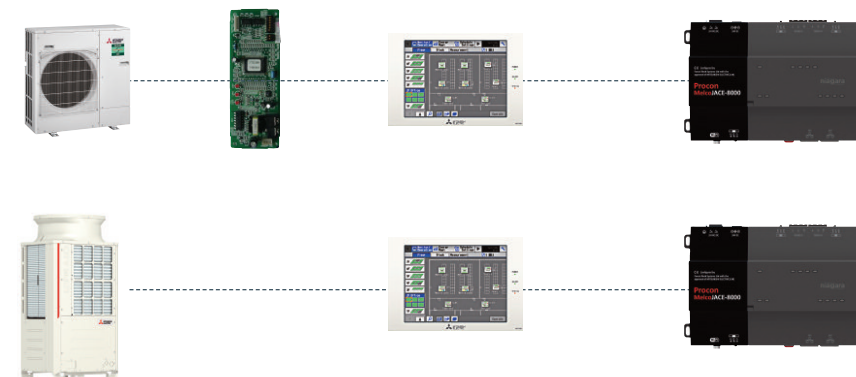
System Diagram

IQ4 XNC



System Diagram

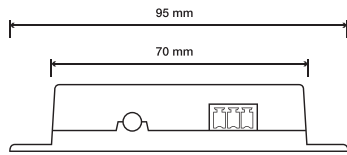
MELCOJACE-8000



Product Dimensions

MELCOBEMS MINI

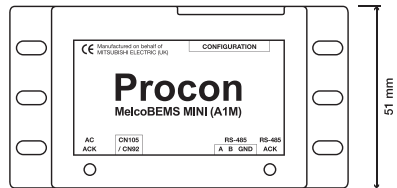
Front View



Side View



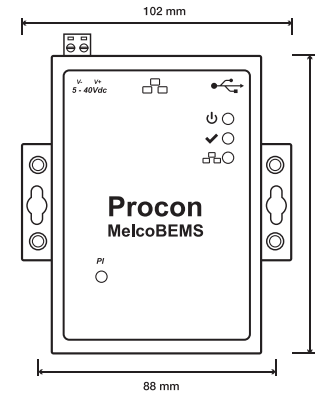
Top View



Product Dimensions

MELCOBEMS

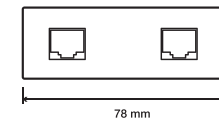
Front View



Side View



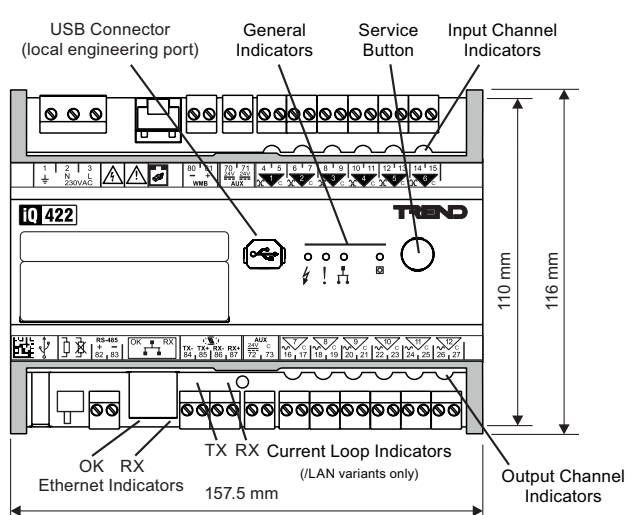
Top View



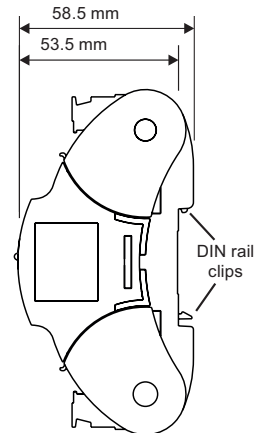
Product Dimensions

IQ4 XNC

Front View



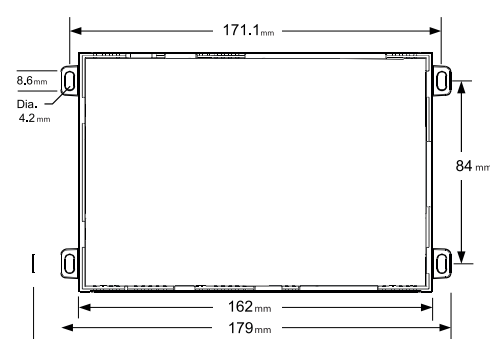
Side View



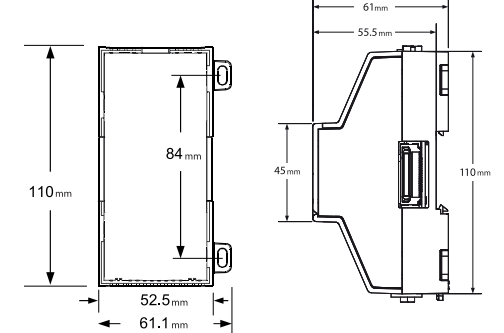
Product Dimensions

MELCOJACE-8000

Front View



Side View



AT-50B Screen Examples

AT-50B Home Screen 1



AT-50B Home Screen 2



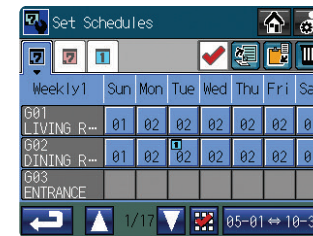
AT-50B Home Screen 3



AT-50B Indoor Unit Settings

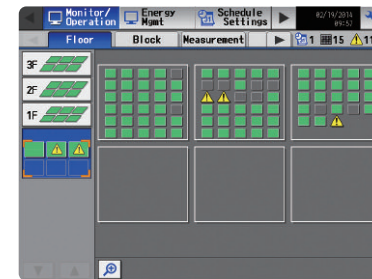


AT-50B Scheduling



AE-200E Screen Examples

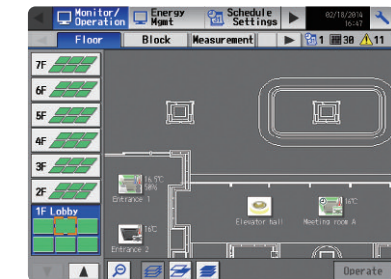
AE-200E Home Screen 1



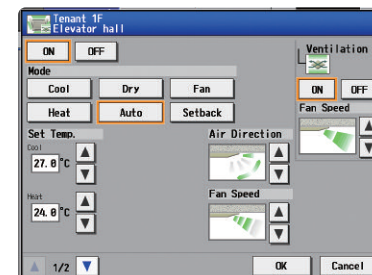
AE-200E Home Screen 2



AE-200E Home Screen 3



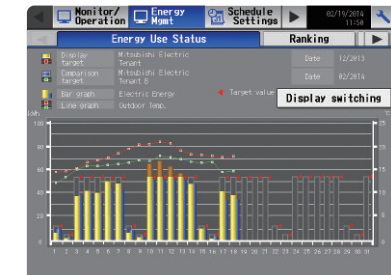
AE-200E Indoor Unit Settings



AE-200E Monitoring

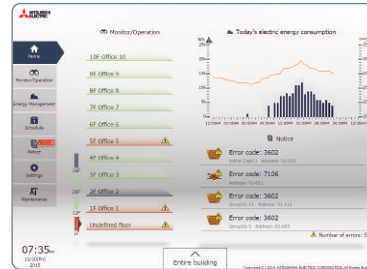


AE-200E Energy Monitoring



AE-200E HTML5 Web Page Examples

Home Screen



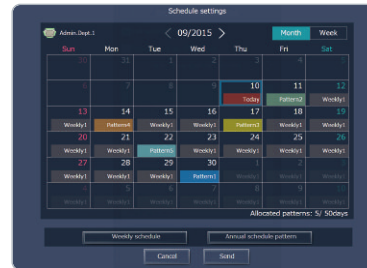
Group Screen



Floor Layout



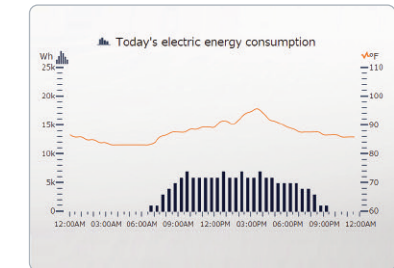
Scheduling



Energy Display



Energy Graph



AE-200E HTML5 Mobile Examples

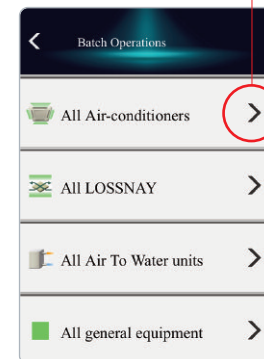
Home Screen

Batch operation
Click to operate all groups at once



Batch Control

Advanced settings



Individual Control

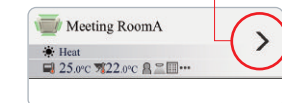
Cancel

Send



Detailed Control

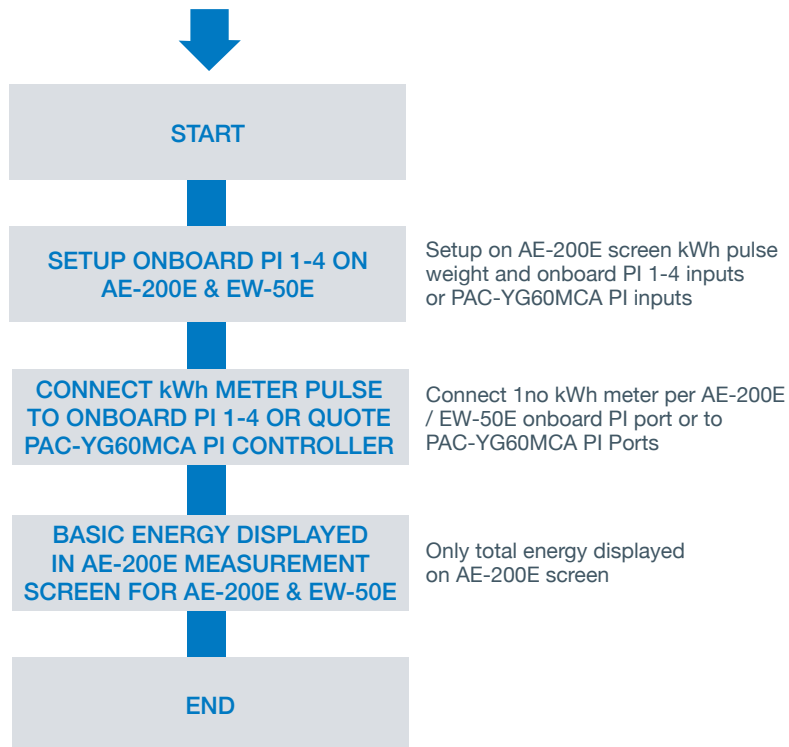
Advanced settings



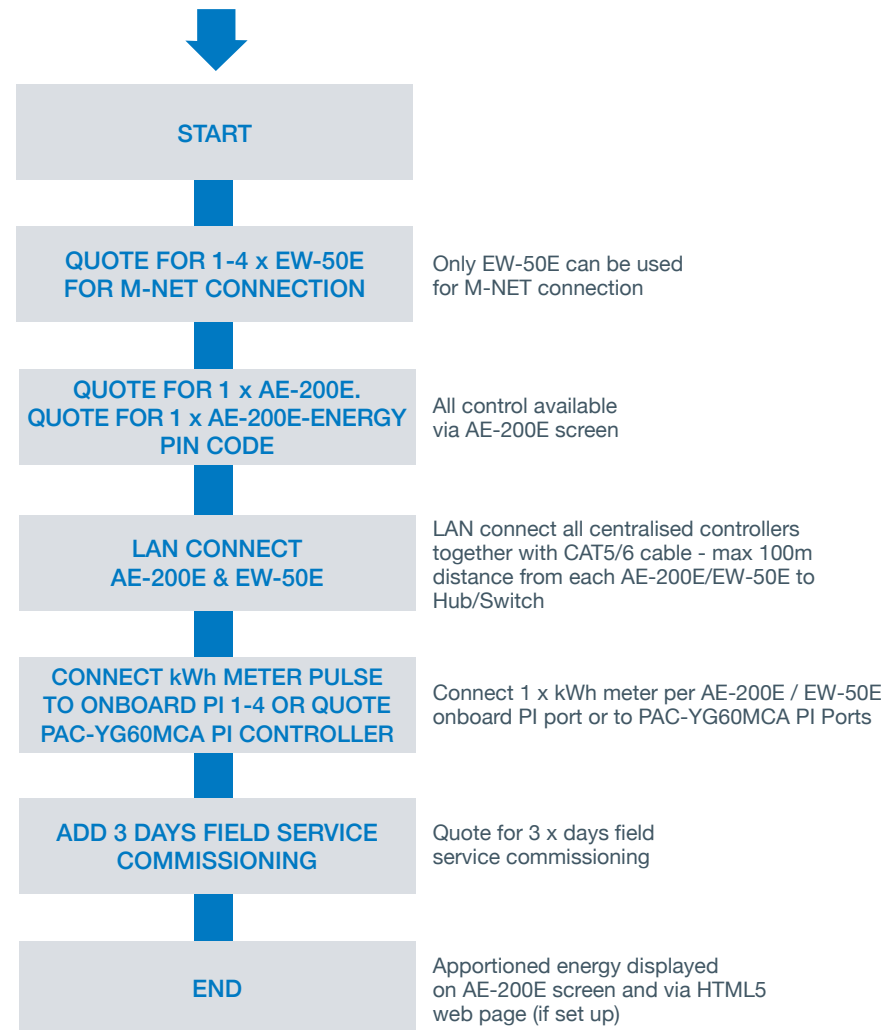
How to Quote

How to quote an AE-200E System Controller with Energy Monitoring

How to quote Basic Energy Measurement

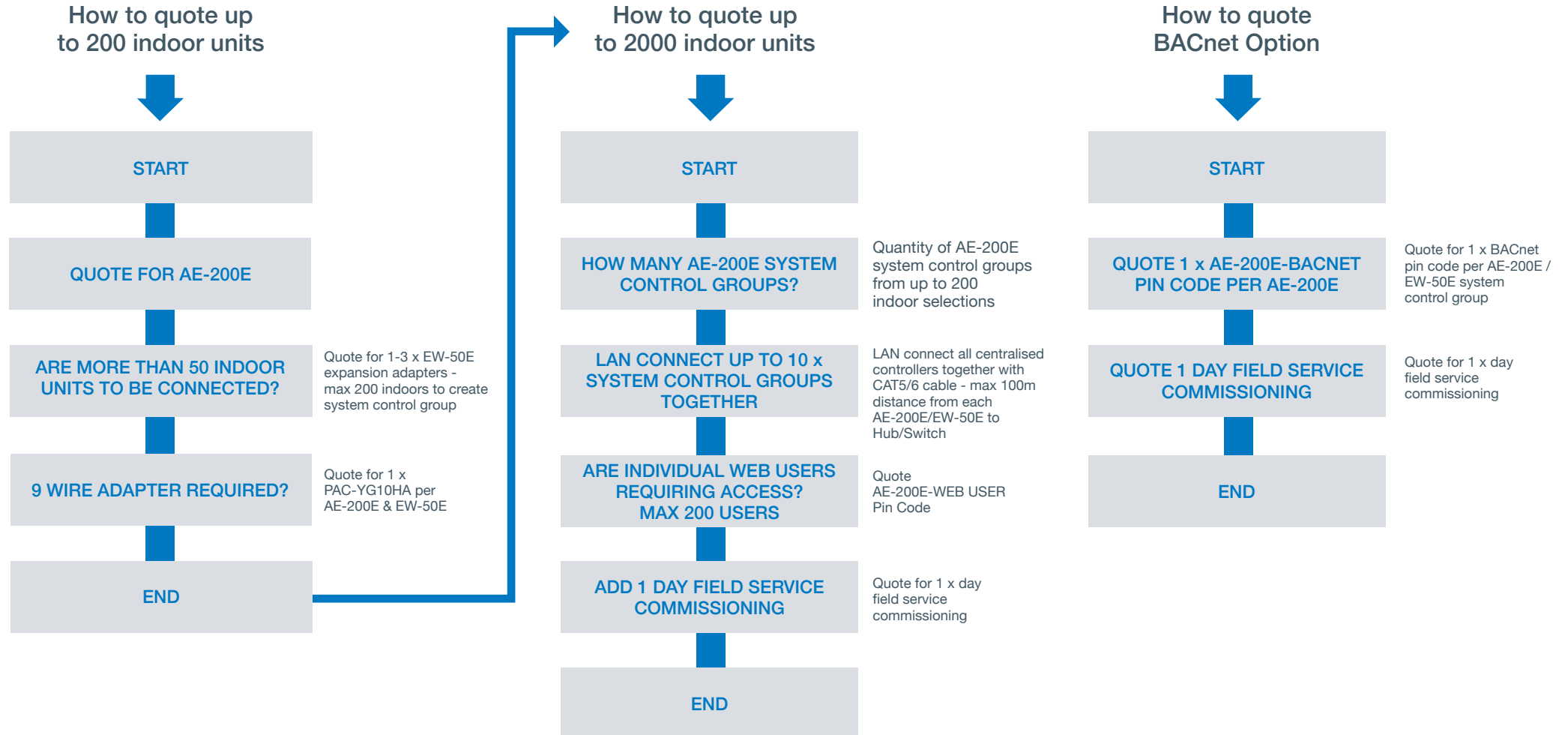


How to quote Energy Apportioning



How to Quote

How to quote an AE-200E System Controller & BACnet Option



Services

Support at every step of the way





Support at every step of the way

At Mitsubishi Electric, we have not only developed an innovative range of cooling, heating, ventilation and control solutions, we have also examined how we support the market throughout the complete lifecycle of our products - from cradle to grave.

Whether in pre-sales design and specification, installation, or service and maintenance support, right through to our recycling programme, we can offer solutions that deliver the quality and excellence you would expect to make a world of difference.

Contents

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MELSmart Technical Services

Advanced, reliable technical support at every step of the way

Meeting today's energy challenges for our commercial premises demands more integrated thinking from everyone involved in the design, supply, installation, commissioning and maintenance of essential building services - whether it is for an individual property or a national estate.

Ever increasing energy bills, the need to reduce carbon emissions and a raft of challenging legislation are driving the demand for increased energy efficiency and control in the cooling, heating, ventilation and associated technologies that we use.

As a manufacturer, we realise that product development alone is not enough. To keep our products working at their optimum, we have developed the MELSmart approach to ensure our customers are able to maximise the energy efficiency of their building's services right from the start.

MELSmart offers a range of support that includes:

- Site Services
- 24/7/365 Technical Help Desk
- Spare Parts, Warranty & Returns
- CPD Accredited Technical Product Training

Whatever the challenge, we're here to help you meet it.

MELSmart Customer Services & Support

Telephone: 0161 866 6089

Option 1 - Air Conditioning Technical

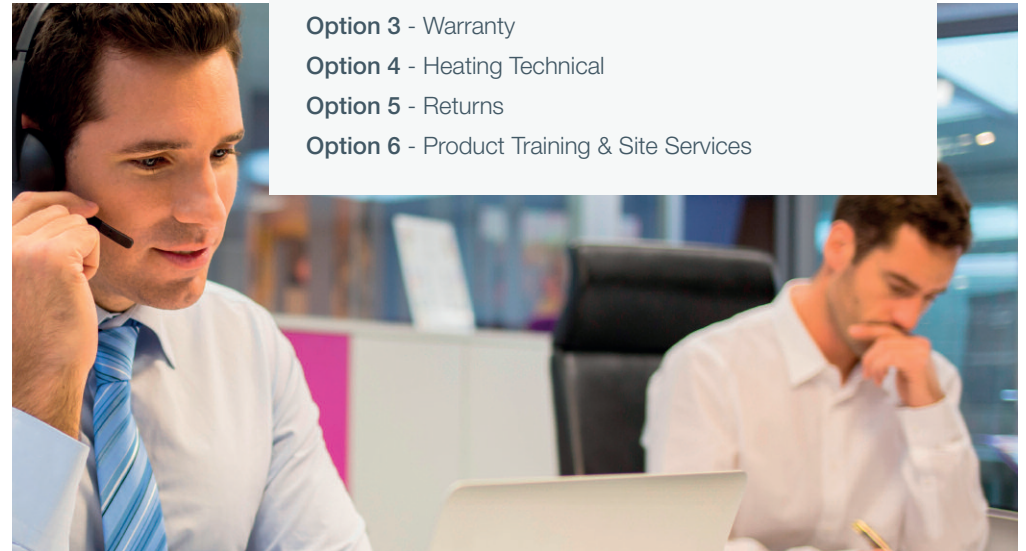
Option 2 - Spares

Option 3 - Warranty

Option 4 - Heating Technical

Option 5 - Returns

Option 6 - Product Training & Site Services



Fault Finding

Our Fault Finding service is carried out on new and existing installations to identify problems and offer resolutions to ensure the system is returned to a fully operational condition in the shortest possible timeframe.

Our Fault Finding service is available across our entire product range. During the Fault Finding process our engineers will carry out assessments of the following to determine a resolution:

- System design, application and specification
- Standard of installation
- Operational performance of equipment
- Current and historic fault codes

Product	Detail
Air Conditioning	One day per reported fault
Controls	One day per reported fault
Hybrid VRF	One day per reported fault
e-series Chillers	One day per reported fault
Commercial Heating	One day per reported fault
<p>Note: Whilst our engineers will carry out a thorough assessment of the system and provide recommendations to rectify any issues, they do not carry spare parts and cannot provide a same day resolution in the event of part failure. If equipment failure due to manufacturing is discovered, no cost will be raised and the visit will be carried out F.O.C. It is the responsibility of the customer to provide access to all of the affected equipment on site. Whilst our engineer will identify any installation and setup issues that are affecting performance, it is the responsibility of the contractor to rectify any problems.</p>	



Services and Support

MELSMART
TECHNICAL SERVICES

Commissioning

Our assisted commissioning service is aimed at both new and existing customers; the objective is to demonstrate how to effectively commission our systems so that customers can carry out these tasks unassisted in the future.

Our commissioning service is available across our full product range including: **Air Conditioning, Controls, Hybrid VRF, e-series Chillers and Commercial Heating products.**

During the commissioning process, our engineers will carry out the following tasks:

- Comprehensive inspection of the installed system to ensure the system meets Mitsubishi Electric specification
- Check the system addressing and advise on any incorrect settings
- For systems other than controls we will operate in both cooling and heating modes where applicable and record temperatures, pressures and water flow rates for the system
- Supervise the completion of commissioning logbooks



Type of Commissioning	Detail	Control System	Commissioning Days	Charge Pin Codes	Bacnet Pin Code
Air Conditioning	Max 3 City Multi systems per day	1 x AE-200E + 1-4 EW-50E	1 day	1 - 5	1 - 5
Controls	1 x AE-200 and up to 4 x EW-50E per day	2 x AE-200E + 1-4 EW-50E	2 days	1 - 10	1 - 10
Hybrid VRF	½ day pre installation visit ½ day mid installation visit 2 day commissioning visit	3 x AE-200E + 1-4 EW-50E	3 days	1 - 15	1 - 15
e-series	Max 4 chillers per day	4 x AE-200E + 1-4 EW-50E	4 days	1 - 20	1 - 20
Commercial Heating	Max 3 units per day*	5 x AE-200E + 1-4 EW-50E	5 days	1 - 25	1 - 25

Whilst our engineer will supervise the successful completion of all tasks and address any questions or skill gaps that present themselves, it is the responsibility of the installing contractor under supervision to carry out all of the listed tasks. Whilst our engineer will supervise the successful completion of the commissioning logbooks, it is the responsibility of the customer to complete and submit the commissioning logbooks to Mitsubishi Electric unless specified.

*Transit bolts must be removed before we arrive on site. If transit bolts are not removed additional time and cost may be incurred.

Health Checks

Our Health Check service is carried out on existing installations to ensure that the system is operating within our design parameters. The service is available to both new and existing customers and the objective is to establish a fully operational system.

Our Health Check service is available for the following product ranges: Air Conditioning including Hybrid VRF, e-series Chillers and Commercial Heating products. During the Health Check process, our engineers will carry out the following tasks:

- Comprehensive visual inspection of the installed system to ensure the system meets Mitsubishi Electric specification
- Check the system addressing and advise on any incorrect settings
- Full operation in both cooling and heating modes where applicable
- Record operating data including temperatures, pressures and water flow rates of outdoor units, BC Boxes and indoor units to determine the correct operation

Product	Detail
Air Conditioning	Up to 3 systems per day
Hybrid VRF	Up to 2 systems per day
e-series Chillers	Up to 4 systems per day
Commercial Heating	Up to 3 systems per day

Note: Whilst our engineer will ensure the successful completion of all tasks and address any questions or skill gaps that present themselves, it is the responsibility of the contractor to provide access to all equipment. Whilst our engineer will identify any installation and setup issues that are affecting performance, it is the responsibility of the contractor to rectify any problems.



Services and Support

MELSMART
TECHNICAL SERVICES

Product Training

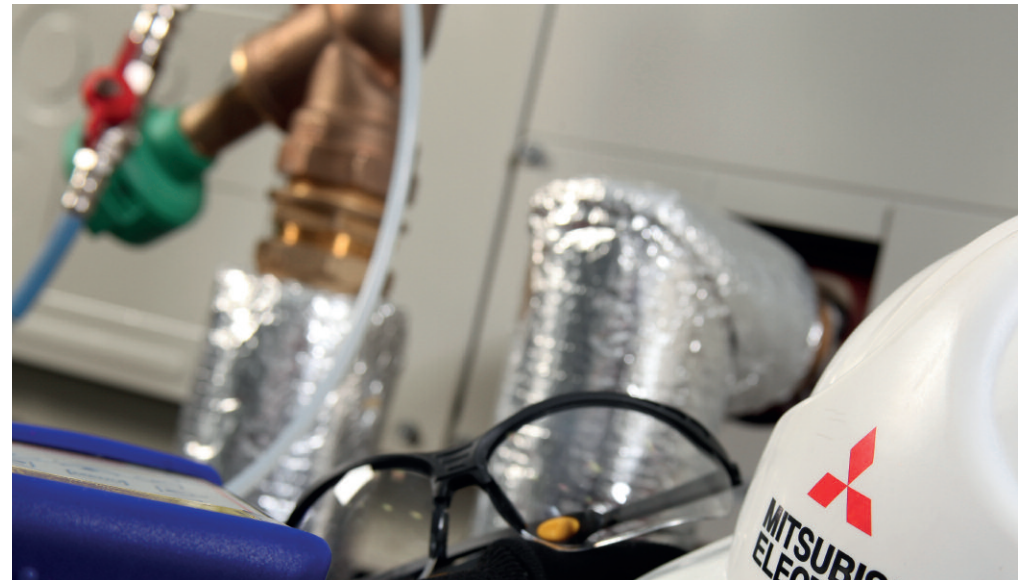
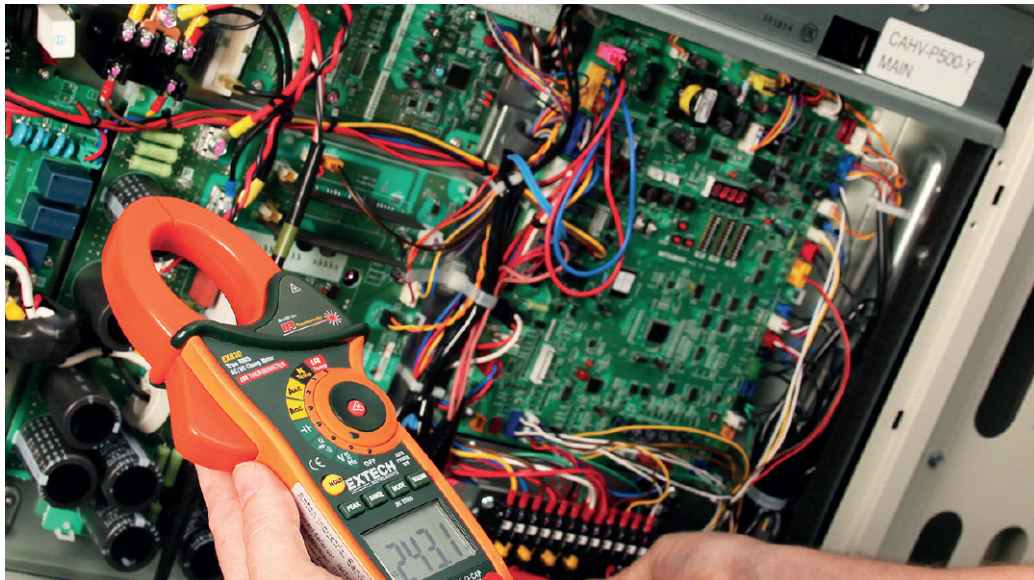
Mitsubishi Electric has seven state-of-the-art training suites based at Hatfield, Birmingham, Bristol, Manchester, Wakefield, Scotland and Reigate for your convenience.

Providing product training for all levels of expertise, our courses are taught by experienced engineers, with a wealth of knowledge and are all CPD accredited.








For bookings please telephone
0161 866 6089 (Option 6, Option 1)

Product Range	Course	Reference
City Multi (VRF)	Design and Application	CMDA
City Multi (Hybrid VRF)	Hybrid VRF Design, Application, Installation and Commissioning	HVRF
City Multi	Installation and Commissioning	CMPT1
City Multi	Service and Fault Finding	CMPT2
City Multi	Monitor Tool	MT
M Series and Mr Slim	Installation, Service and Fault Finding	MPISF
Ecodan	Design and Application Part 1	ED&A
Ecodan	Installation and Commissioning Part 2	EI&C
Ecodan	Service and Fault Finding Part 3	ES&FF



City Multi / Chiller Stripdown

For installations where the City Multi / Chiller outdoor unit(s) cannot be moved to the final location, Mitsubishi Electric offer a City Multi / Chiller strip down service.

Product Range	Model Reference	Product Range	Model Reference
	<p>PURY-EM/EP YNW-A1</p> <p>PURY-M/P YNW-A1 Small Module</p> <p>PUHY-M/P YNW-A1</p>		<p>PQRY-P YLM-A1</p> <p>PQHY-P YLM-A1</p>
	<p>PURY-EM/EP YNW-A1</p> <p>PURY-M/P YNW-A1 Large Module</p> <p>PUHY-P YNW-A1</p>		
	<p>PURY-EM/EP YNW-A1</p> <p>PURY-M/P YNW-A1 Extra Large Module</p> <p>PUHY-P YNW-A1</p>		<p>EACV</p> <p>EAHV</p> <p>Climaveneta Chillers</p>

MELSmart Chiller Service and Maintenance for Central Plant and I.T. Cooling

Bringing Mitsubishi Electric quality to your service and maintenance contract, utilising the latest technology for in field reporting and diagnostics. Our highly trained and qualified chiller service and maintenance engineers are based nationwide, operating from our network of service offices. Our engineers are experienced in the servicing, maintenance and repair of chiller systems across the industry.

What we do:

- Comprehensive service and maintenance plans
- National coverage (four dedicated service centres)
- Fast response times
- Reactive-response and call-out service
- Spare parts
- Project finance options available
- F-Gas and REFCOM Elite accredited engineers
- 24/7 365 emergency call out service
- Service and maintenance for all manufacturers' applied products:
 - Commercial
 - Government
 - Office
 - Data Centre
 - NHS / Education
 - Hotel / Leisure
- Commissioning / Start-up
- System checks
- Fault finding
- Extended warranties
- Strip-downs (model / application specific)



For further information and Service & Maintenance enquiries:

Hatfield: 01707 278683

Birmingham: 0121 607 2375

Manchester: 0161 866 6070

Scotland: 01786 450348

National Spares: 0161 866 6089 (option 2)

Email:

melsmartservicelondon@meuk.mee.com

melsmartservicebirmingham@meuk.mee.com

melsmartservicemanchester@meuk.mee.com

melsmartservicestirling@meuk.mee.com

Design and Consulting Services

As part of the Mitsubishi Electric commitment to supporting robust application of our leading technologies, a team of consultant sales professionals work nationally with mechanical building services specifiers and consultants to achieve early engagement in project design.

Clients are able to apply cooling, heating, ventilation and controls confidently within their individual projects, with the emphasis on a solution-based philosophy to support 'as-designed' performance and efficiencies.

This approach helps projects realise 'as-specified' performance and efficiency levels - all designed to achieve the most efficient and cost-effective outcome for the building operator, whilst reducing the overall environmental impact.

As initial designs move from the drawing board through planning, procurement, installation and commissioning, to on-going operation and use, we work closely with our customers to balance capital expenditure, system efficiencies, installation costs, control strategies and running costs.



Working in the real world

Recognising the commercial and delivery pressures of projects in the real world Mitsubishi Electric has in place a number of technically biased and focused Business Development Managers.

Our team support the M&E roll out and tackle the challenges associated with change of building use or layout (design evolution) from original design and to support robust value engineering that does not compromise the original design or performance criteria.

We understand the link between effective design and achieving the best outcomes for built environment owners, operators and users. The goal of our team is therefore to ensure robust design and to support an equally robust implementation.

Getting the right balance between capital cost, system efficiencies, installation costs, control systems and ultimately operating costs all need to be considered at an early stage to ensure a positive outcome.

The market-leading service we offer our clients is framed by on-going professional and personal development of our employees to meet ever increasing customer needs in product knowledge, industry practice and legislation.



Services and Support

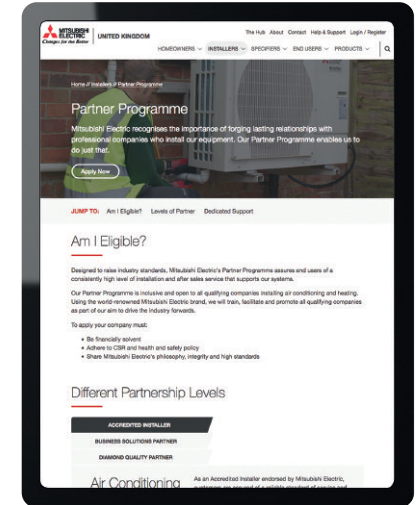
Mitsubishi Electric Partner Programme

The Mitsubishi Electric Partner Programme is inclusive and open to all qualifying air conditioning and heating installation companies, large or small.

Using the world-renowned Mitsubishi Electric brand, we will train, support and promote all qualifying companies as part of our aim to drive the industry forwards. Mitsubishi Electric recognises the importance of forging lasting relationships with professional companies who install our equipment. Our Partner Programme enables us to do just that.

Established in 2005 and designed to raise industry standards, our Partner Programme assures end users of a consistently high level of installation and after sales service that supports our systems. To be eligible to join our scheme in the first instance, prospective installation partners must comply with the necessary building regulations and meet specific industry, programme and CSR standards.

All partners are reviewed on a regular basis to ensure they continue to meet the required standards that makes them eligible to be part of the Mitsubishi Electric Partner Programme.



How to apply for the Partner Programme:

Speak to your Mitsubishi Electric Representative
or email partner@meuk.mee.com



Partner Programme Benefits

■ Dedicated Partner Programme Team

Our dedicated Partner Programme Team are on hand to give Partners the support they need.

■ Mitsubishi Electric Customer Portal

We have developed our Customer Portal to help our Partners grow their business by enhancing their online presence on channels such as social media and via their own website.

Product images, social media copy, easy to follow strategy guides and marketing training videos are just a few examples of free content that can be downloaded.

Take a look today and see how you can use this to grow your business:

les.mitsubishielectric.co.uk/customer-portal

■ Joint Marketing / Relationship Development Fund (RDF)

We will work with Partners to promote our relationship and generate awareness of the unique business benefits of the Partner Programme to end-users.

We operate a Partner Programme Relationship Development Fund (RDF) allocated in relation to their commercial activities with Mitsubishi Electric.

■ Promotional Goods RDF Catalogue

Partners can take advantage of their RDF to enhance their company image with dual branded work wear and promotional items.

■ Product and Industry Training

Our Partners receive a free allocation of training courses and additional courses can be funded from the Relationship Development Fund.

■ 24hr Technical Support

To assist our Partners in the maintenance of our equipment, we have a dedicated technical support team who will endeavour to speedily diagnose faults and offer solutions to the problems our Partners may encounter.

■ Extended Warranty

We will offer all Partners who adhere to our standards exclusive extended product warranties.

■ Business Support Tools

We have made it easier to do business with Mitsubishi Electric through the introduction of new technologies and our business tools available to Partners.

■ Factory Visits & Events

Our Partners and their clients will have the opportunity to witness first-hand the manufacture of air conditioning and Ecodan units at our manufacturing facility in Scotland. We organise regular factory visits to our manufacturing facility in Scotland, along with other events designed to develop our Partners expertise and support them in growing their business.



Services and Support

Mitsubishi Electric MELFinance Solutions

We developed MELFinance Solutions to respond to current market conditions and the need for customers to manage cash flow, while benefitting from the installation of leading technology to reduce carbon emissions and operational costs.

MELFinance Solutions can help end user customers fund the cost of new equipment and its installation via hire-purchase finance. Put simply, this means that (subject to financial status), an end-user customer can repay the combination of 'fixed asset' and maintenance costs over an agreed period of between 1 to 5 years. For qualifying companies, it is a flexible alternative to a traditional bank loan that provides significant cash flow and tax benefits:

■ No need for hefty deposits

Finance deals are secured wholly or largely on the heating, cooling and/or ventilation equipment being financed

■ Stronger cash flow

Releases tied-up cash and preserves other forms of credit for other business or operational needs

■ Fixed, regular payments

Helps you plan for the future by eliminating uncertainty and costly surprises

■ Quick decisions

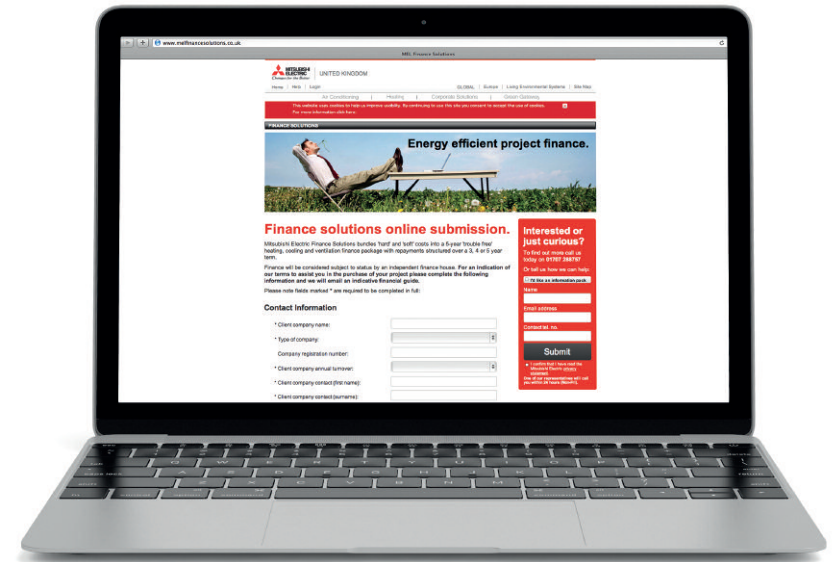
We always aim to provide a prompt turnaround for funding applications

■ Immediate payment

Settlement of the full installation and equipment invoice upon installation/delivery

The five-year, "trouble-free" cooling, heating and ventilation finance package offers a host of advantages integrating on-site installation and commissioning fees, minimum three-year warranty on all Mitsubishi Electric equipment, scheduled maintenance visits and 24/7 emergency technical helpline for any on-site issues.

To get your no obligation finance proposal visit: **www.MELFinanceSolutions.co.uk**
or email **MELFinanceSolutions@meuk.mee.com**



Mitsubishi Electric Europe B.V. holds a Consumer Credit Licence no. 0658891 for credit brokerage. As from 1st April 2014: Authorised and regulated by the Financial Conduct Authority as a credit broker.

Hire-purchase finance will be considered subject to status by an independent finance house as facilitated by Mitsubishi Electric. Finance house's terms and conditions apply. This website text does not constitute an offer to supply goods/services or provide or arrange hire-purchase finance. Finance only available where you enter into Mitsubishi Electric's contract package for removal of any existing installation, design, supply and commissioning services. Package is conditional on you entering into (i) a maintenance contract for the installation and (ii) a hire-purchase agreement with Mitsubishi Electric's finance partner. Otherwise, all goods are supplied subject to Company's General Terms and Conditions of sale, copy available upon request.

Mitsubishi Electric Deliveries

At Mitsubishi Electric, we take our delivery programme very seriously because we realise that our customers' businesses can depend on getting the right equipment on site at the right time.

That's why we have developed a comprehensive and flexible delivery programme with one of the longest delivery windows in the industry. With the ability to offer timed, weekend and Public Holiday deliveries, coupled with free 'Text Ahead' and 'Ring Ahead' functions, we aim to keep our customers informed every step of the way.

Delivery Notes

- Cut off for next day deliveries is 2.30pm on the working day prior to delivery
- Standard delivery is between 8.00am and 5.30pm
- AM / PM / Timed / Weekend / Public Holiday deliveries are all available (additional notice needed and charges will apply - please refer to full delivery guidelines for further details)
- Standard delivery will normally be made on an 18T rigid lorry equipped with a tail lift and a single driver with a pump truck
- Other vehicle types will be utilised dependant on any site access issues and delivery size
- If there are access restrictions at your nominated delivery point and a vehicle other than an 18T lorry is required, this will need to be booked in advance and a charge may apply
- Our 'Text Ahead' and 'Ring Ahead' functions are available on all deliveries with the exception of parcel providers, which will offer 'Text Ahead' only
- Deliveries available via HIAB (Flatbed vehicle with crane) / with chapter 8 signage - require 48 hours' notice and extra charges may apply
- We offer a 2-man delivery service, removal of packaging and a stair walker - these require 48 hours' notice and extra charges will apply
- Mitsubishi Electric is an Associate Member of the Fleet Operator Recognition Scheme (FORS) and all of our vehicles are FORS accredited to Bronze level
- Collection is also available from our Milton Keynes warehouse - this must be pre-arranged and require at least 3 hours' notice
- Returns to be notified within 15 working days - Terms and Conditions apply
- MEHITS product deliveries are subject to alternate delivery arrangements - Terms and Conditions apply

Services and Support

Mitsubishi Electric Website, Document Library and The Hub

Website

For further information on any of our products and services please visit our website: **les.mitsubishielectric.co.uk** which has been designed to provide a detailed overview of the energy saving solutions we can provide you.

Document Library

Our website: **library.mitsubishielectric.co.uk** features all current operating and installation manuals, as well as product literature, case studies, CPD guides and more. There is no requirement for visitors to login to our sites to download the latest product and technical information. A document library app is also available allowing visitors to access this information simply from their tablet or smart phone.



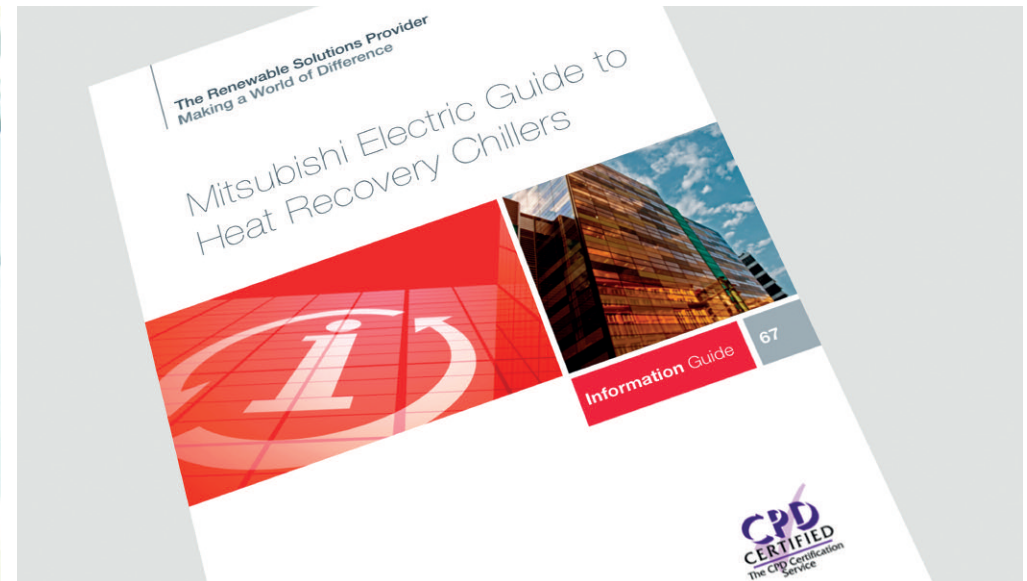
The Hub - online content portal

The Hub is a new approach from Mitsubishi Electric which offers useful and informative comments and articles from both leading independent editors and technical experts on the issues affecting the built environment, please visit: **thehub.mitsubishielectric.co.uk**

CPD Information Guides

Mitsubishi Electric is accredited by the Construction CPD Certification Service in many different areas, aimed at enhancing the knowledge of its customers and providing a view of the key issues facing our industry today.

We have produced a number of Industry Information Guides that are available to download from our Document Library. We also run a number of CPD seminars and training courses across the UK. **To find out more, simply contact your local Mitsubishi Electric sales office.**



Sales Contacts



Corporate Sales
Tel: 0870 3000 070

Birmingham
Tel: 0121 329 1970

Bristol
Tel: 01454 202050

Wakefield
Tel: 01924 241120

London North & East Anglia
Tel: 01707 282480

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Tel: 01737 387170

Manchester
Tel: 0161 866 6060

Scotland
Tel: 01506 444960

Ireland
Tel: +353 (0)1 419 8800



Telephone: 01707 282880

MELSmart Customer Services & Support: 0161 866 6089

Option 1 - Air Conditioning Technical

Option 2 - Spares

Option 3 - Warranty

Option 4 - Heating Technical

Option 5 - Returns

Option 6 - Product Training & Site Services

email: livingenvironmentalsystems@meuk.mee.com

website: les.mitsubishielectric.co.uk

UNITED KINGDOM Mitsubishi Electric Europe Living Environment Systems Division
Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, England
General Enquiries Telephone: 01707 282880 Fax: 01707 278881

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Telephone: Dublin (01) 419 8800 Fax: Dublin (01) 419 8890 International code: (003531)

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Note: The fuse rating is for guidance only. Please refer to the relevant databook for detailed specification. It is the responsibility of a qualified electrician/electrical engineer to select the correct cable size and fuse rating based on current regulation and site specific conditions. Mitsubishi Electric's air conditioning equipment and heat pump systems contain a fluorinated greenhouse gas, R410A (GWP:2088), R32 (GWP:675), R407C (GWP:1774), R134a (GWP:1430), R513A (GWP:631), R454B (GWP:466), R1234ze (GWP:7) or R1234yf (GWP:4). *These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. In case of Regulation (EU) No.626/2011 from IPCC 3rd edition, these are as follows. R410A (GWP:1975), R32 (GWP:550), R407C (GWP:1650) or R134a (GWP:1300).

SAP No. 494754



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