

# City Multi Hybrid Branch Controllers

CITY MULTI R32

The award-winning **City Multi Hybrid VRF** is a totally unique 2-pipe heat recovery VRF system, whereby the outdoor unit is connected to a Hybrid Branch Controller (HBC) and water pipework is used between the HBC and indoor units.

Available as a 6, 8 or 16 port model, the HBC range now includes both **horizontal** and **vertical** types, offering greater freedom and flexibility in system design and installation.

## Key Features & Benefits:

- No refrigerant in occupied spaces, avoiding the need for leak detection
- Utilises lower GWP R32 refrigerant
- Plug & play solution as the valves, pumps and heat exchanger all contained within the HBC
- Manageable, phased installation through modular HBC system design - ideal for Cat A to Cat B applications



# City Multi Hybrid VRF

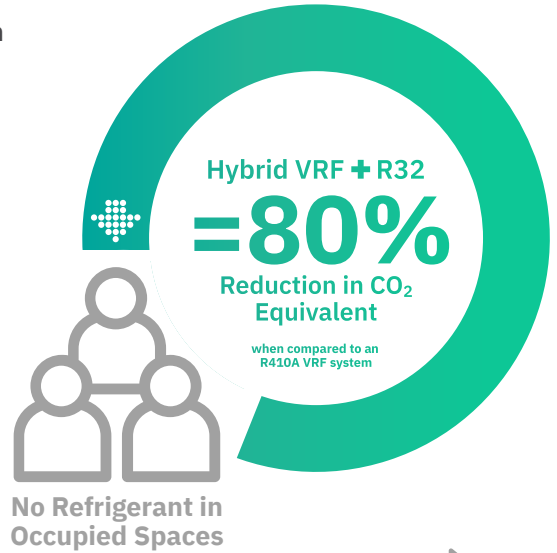
City Multi delivers complete flexibility of design and installation, with intelligent, centralised control. These systems can be designed and installed in the same as traditional VRF, whilst enjoying the comfort levels normally associated with a chiller solution.

HVRF provides the ideal solution for customers looking to future-proof their air conditioning in line with the next stage of the F-Gas Regulations and the phase down of high Global Warming Potential (GWP) refrigerants.

By combining R32 with the merits of a Hybrid system, more than an 80% reduction in CO<sub>2</sub> equivalent can be achieved as it uses up to 40% less refrigerant, when compared to an R410A VRF system.

A comfortable and stable air temperature control is provided with no refrigerant in occupied spaces, meaning simple compliance with BS EN378 and removing the need for leak detection.

This makes City Multi HVRF ideal for:

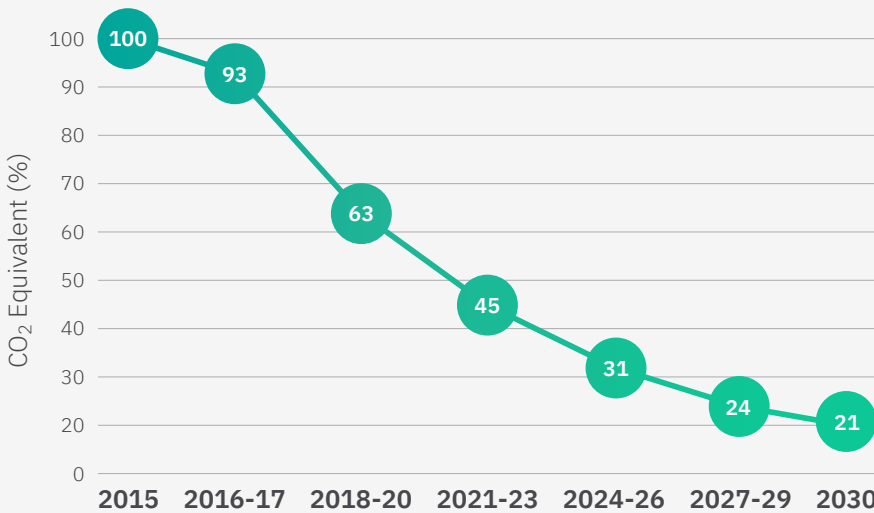


## Reduction in Carbon Footprint

- The F-gas phase down was put in place to reduce the direct emission from HFC refrigerants
- Hybrid Branch Controllers use R32, the lowest GWP refrigerant in the VRF market
- R32 refrigerant has a GWP that is 66 % lower than the traditional R410A refrigerant



### F-Gas - HFC Phase Down Programme\*



It is the requirement of manufactures to reduce the CO<sub>2</sub> equivalent with options of:

- Decreased kW on the market
- Use of lower GWP refrigerant
- Reduced amount of refrigerant in the system

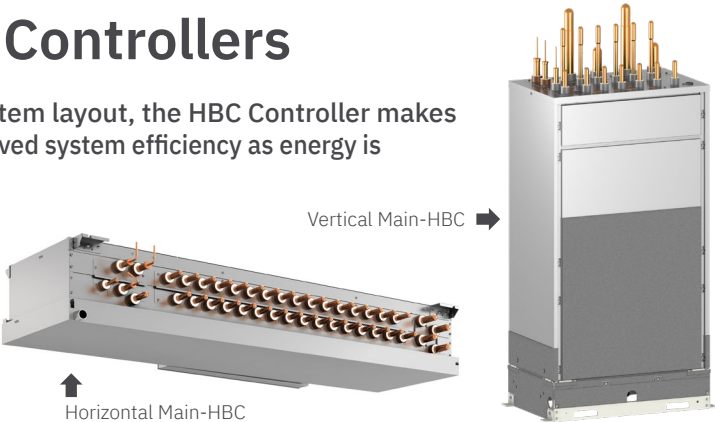
**Hybrid VRF** provides the perfect solution for both reducing refrigerant volume and utilising the lowest GWP refrigerant available now and in the future.

\* F-Gas 2015 phase down programme: [http://ec.europa.eu/clima/policies/f-gas/legislation/index\\_en.htm](http://ec.europa.eu/clima/policies/f-gas/legislation/index_en.htm)

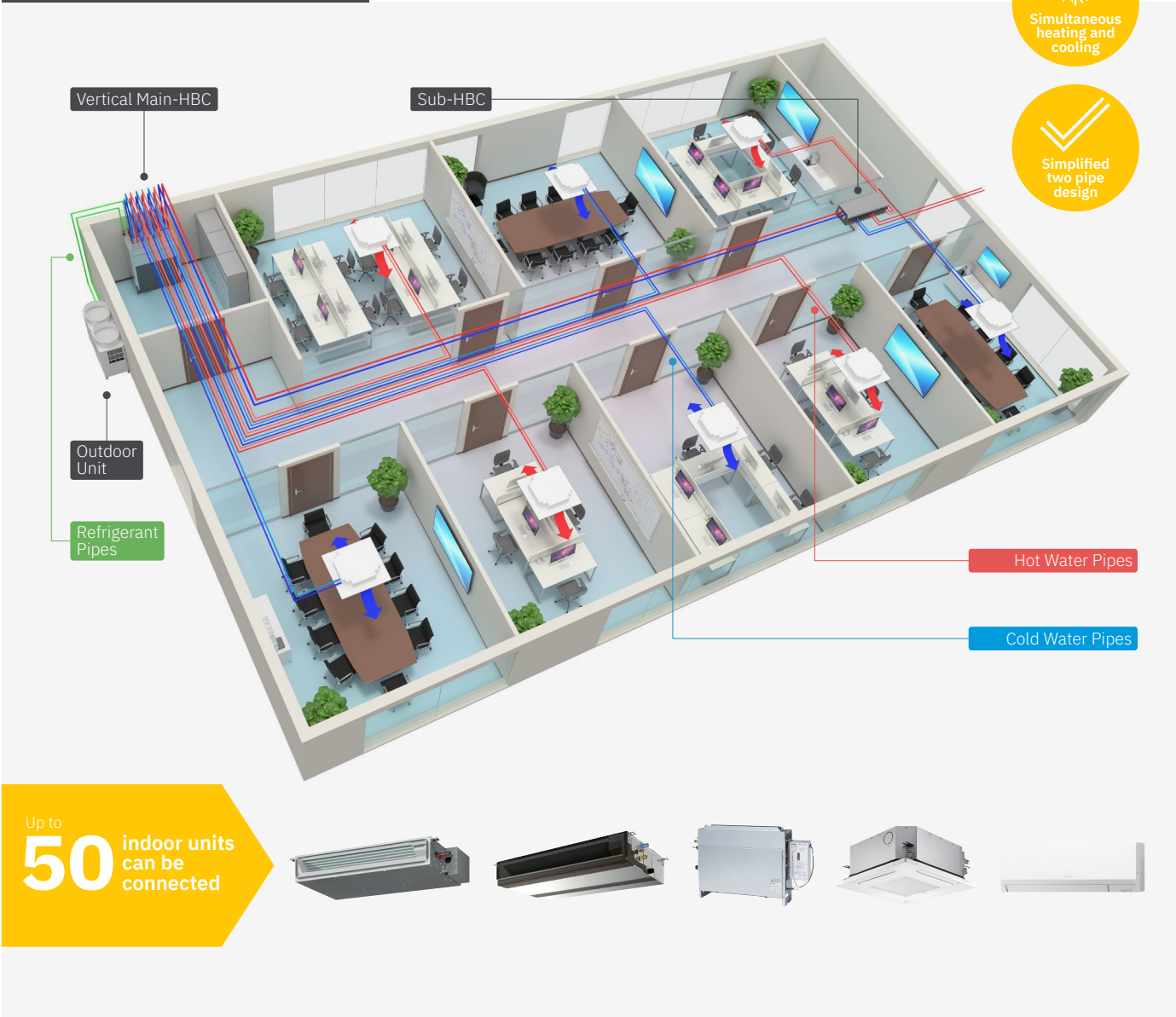
# City Multi Hybrid Branch Controllers

At the heart of both Air Source and Water Source system layout, the HBC Controller makes simultaneous heating and cooling possible, with improved system efficiency as energy is transferred intelligently around the building.

The Horizontal and Vertical HBC Controllers are available as a 6, 8 or 16 port model. Valves, pumps, and the heat exchanger are all contained within the Main-HBC allowing for phased, manageable installation - ideal for Cat A to Cat B applications. An overall system can be expanded using additional horizontal Sub-HBC's allowing up to **50 indoor units to be supplied by one outdoor condenser.**



## Typical System Example



Up to **50** indoor units can be connected

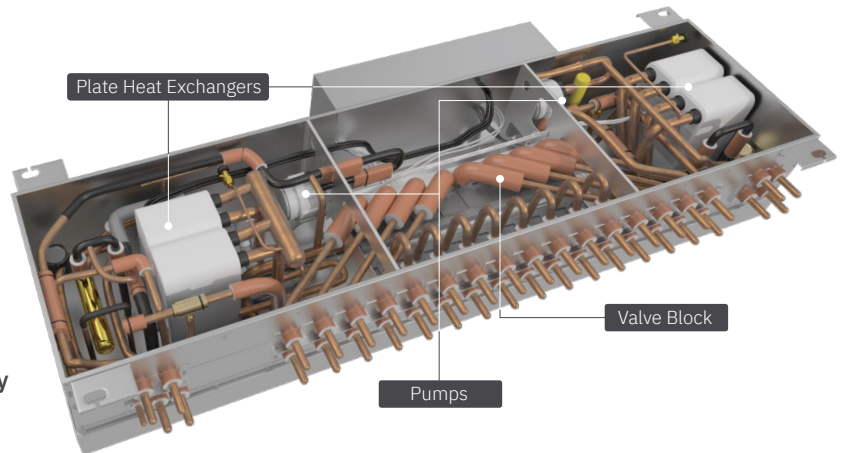


# Horizontal Main-HBC

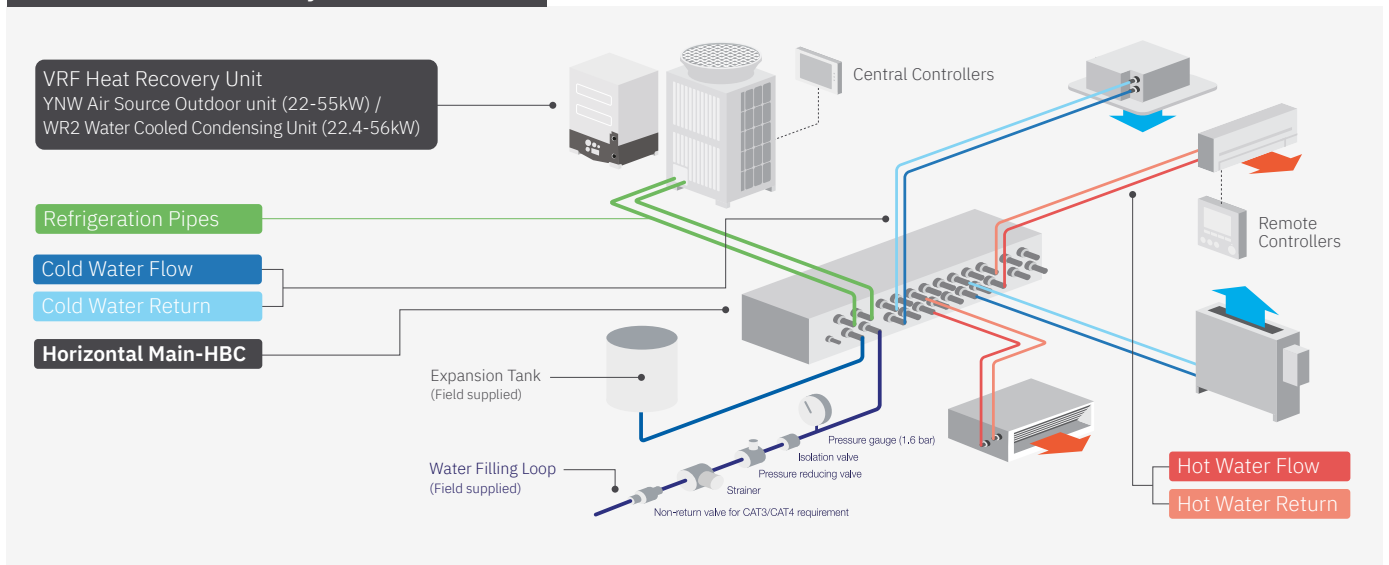
The Horizontal HBC unit was introduced to rival traditional heating and cooling, using an innovative combination of unique 2-pipe technology and water to provide simultaneous heating and cooling with heat recovery.

## Features and Benefits

- Main-HBC with choice of 8 or 16 ports
- Valves, pumps, and heat exchangers all contained within the HBC
- Ideal for installation within a ceiling void
- Manageable phased installation through modular system design
- Intuitive load adjusting flow control valves & water pumps are optimised for variable flow control and heat recovery for maximum efficiency



## Horizontal Main-HBC layout



## Horizontal Main-HBC Specifications



MAIN HBC CONTROLLERS	CMB-WM108V-AA	CMB-WM1016V-AA
NUMBER OF CONNECTIONS	8	16
ORIENTATION	Horizontal	Horizontal
COMPATIBILITY	R32 / R410A	R32 / R410A
WEIGHT (kg)	86 (96)*	98 (111)*
DIMENSIONS (mm) Width x Depth (Control Box) x Height	1520 x 540 (630) x 300	1800 x 540 (630) x 300
ELECTRICAL SUPPLY	220-240v, 50Hz	220-240v, 50Hz
PHASE	Single	Single
POWER INPUT (kW)	0.46	0.46
RUNNING CURRENT (A)	2.83	2.83
FUSE RATING (BS88) - HRC (A)	6	6
MAINS CABLE NO. CORES	3	3

**Notes:**

CMB-WM-V-AA (Main) and CMB-WM-V-BB (Sub) units are for use with PURY-EM200-500YNW-A1, PORY-P200-500YLM-A1 outdoor/condenser units and HVRF indoor units only. CMB-WM-F-AA (Main) and CMB-WM-V-BB (Sub) units are for use with PURY-EM200-500YNW-A1 outdoor units and HVRF indoor units only. One CMB-WM-V-AA unit can be used on PURY-EM200-250YNW-A1 and PORY-P200-250YNW-A1 units. One CMB-WM-V-AA unit can be used on PURY-EM300-350YNW-A1 and PORY-P300-350YLM-A1 units with a system efficiency reduction. Two CMB-WM-V-AA units can be used in parallel on PURY-EM300-500YNW-A1 and PORY-P300-500YLM-A1 outdoor/condenser units. PURY-EM400-500YNW-A1 requires two CMB-WM-V-AA units. One CMB-WM-F-AA can only be used on PURY-EM200-500YNW-A1 outdoor units. A CMB-WM-V-AA and a CMB-WM-F-AA cannot be connected to the same R32 outdoor unit. CMB-WM-V-BB units are for use with PURY-EM200-500YNW-A1, PORY-P200-500YLM-A1 outdoor/condenser units and HVRF indoor units only, when accompanied by a CMB-WM-V-AA or CMB-WM-F-AA unit. \*) Includes Water

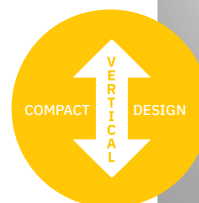
# Vertical Main-HBC

Designed with complete flexibility in mind, the new Vertical HBC unit has been added to the range.

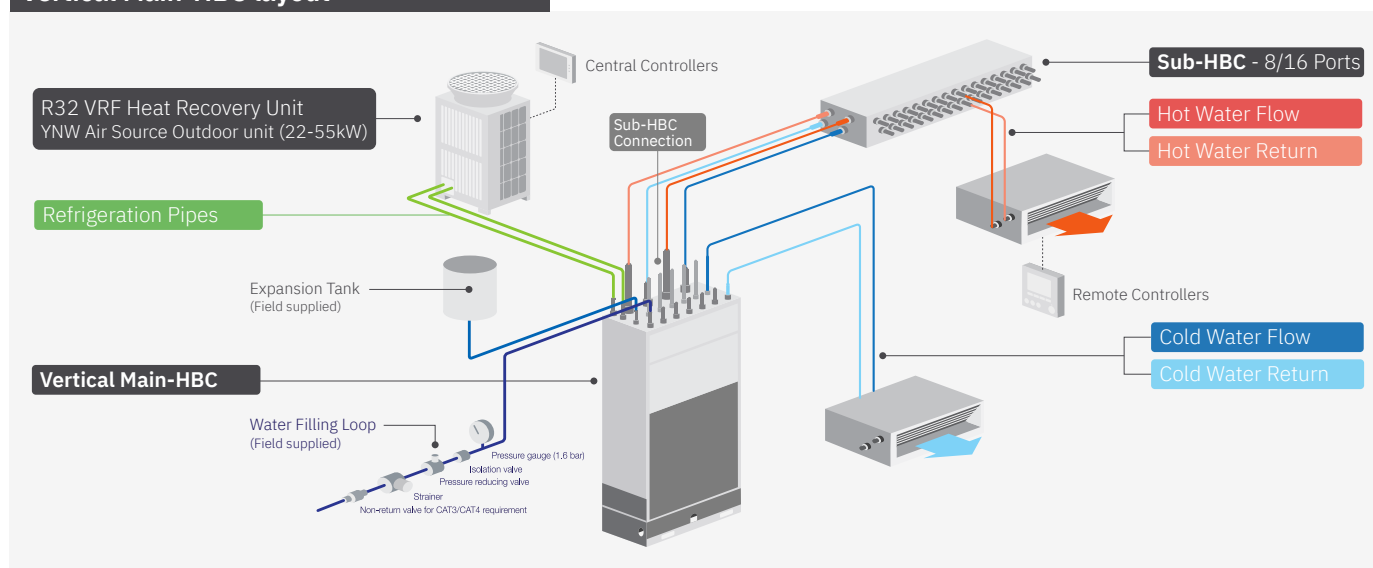
This is a floor standing solution, with all the key components accessible from the front and at floor level during commissioning. The installation of additional water-side ancillaries such as expansion vessel, water filling loop and isolation valves is also simpler, as they are all located at floor level.

## Features and Benefits

- Main-HBC with 6 ports
- Compact footprint, installed at floor level in plant rooms, cupboards, or risers
- Simple to design, install, commission, and maintain
- Low noise solution
- System can be expanded using compact Sub-HBC boxes, to connect up to 50 indoor units
- Flexibility of installation also means the units can be moved and adapted if an office space is reconfigured, ideal for Cat A to Cat B applications
- Intuitive load adjusting flow control valves & water pumps are optimised for variable flow control and heat recovery for maximum efficiency



## Vertical Main-HBC layout



## Vertical Main-HBC Specifications

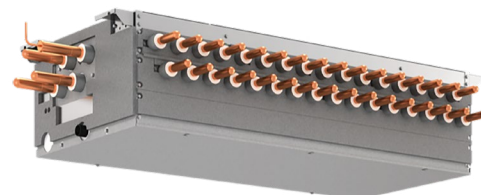


MAIN HBC CONTROLLERS	CMB-WM350F-AA	CMB-WM500F-AA
NUMBER OF CONNECTIONS	6	6
ORIENTATION	Vertical	Vertical
COMPATIBILITY	R32	R32
WEIGHT (kg)	196 (216)*	209 (233)*
DIMENSION S (mm) Width x Depth (Control Box) x Height	800 x 500 x 1500	800 x 500 x 1500
ELECTRICAL SUPPLY	220-240v, 50Hz	220-240v, 50Hz
PHASE	Single	Single
POWER INPUT (kW)	1.50	1.50
RUNNING CURRENT (A)	6.52	6.52
FUSE RATING (BS88) - HRC (A)	10	10
MAINS CABLE NO. CORES	3	3

**Notes:**  
CMB-WM-V-AA (Main) and CMB-WM-V-BB (Sub) units are for use with PURY-EM200-500YNW-A1, PORY-P200-500YLM-A1 outdoor/condenser units and HVRF indoor units only. CMB-WM-F-AA (Main) and CMB-WM-V-BB (Sub) units are for use with PURY-EM200-500YNW-A1 outdoor units and HVRF indoor units only. One CMB-WM-V-AA unit can be used on PURY-EM200-250YNW-A1 and PORY-P200-250YNW-A1 units. One CMB-WM-V-AA unit can be used on PURY-EM300-350YNW-A1 and PORY-P300-350YLM-A1 units with a system efficiency reduction. Two CMB-WM-V-AA units can be used in parallel on PURY-EM300-500YNW-A1 and PORY-P300-500YLM-A1 outdoor/condenser units. PURY-EM400-500YNW-A1 requires two CMB-WM-V-AA units. One CMB-WM-F-AA can only be used on PURY-EM200-500YNW-A1 outdoor units. A CMB-WM-V-AA and a CMB-WM-F-AA cannot be connected to the same R32 outdoor unit. CMB-WM-V-BB units are for use with PURY-EM200-500YNW-A1, PORY-P200-500YLM-A1 outdoor/condenser units and HVRF indoor units only, when accompanied by a CMB-WM-V-AA or CMB-WM-F-AA unit. \*) Includes Water

# Sub-HBC for Horizontal & Vertical Layout

Additional indoor units can be connected to the Main-HBC buy using an 8 or 16 port Sub-HBC. Simultaneous heating and cooling is achieved by having a four-pipe connection between the Main and Sub-HBC. The layout is then further simplified by having a two-pipe connection between the Sub-HBC and indoor units



## Features and Benefits

- Light & compact units that require less service space during installation and commissioning
- Contains no noise sensitive elements, therefore can be placed in any occupied spaces
- No requirement for additional water ancillaries such as expansion vessel and water-filling loop connection, simplifying design the design and installation layout

## Sub HBC Specifications



SUB HBC CONTROLLERS	CMB-WM108V-BB	CMB-WM1016V-BB
NUMBER OF CONNECTIONS	8	16
ORIENTATION	Horizontal	Horizontal
COMPATIBILITY	R32 / R410A	R32 / R410A
WEIGHT (kg)	40 (45)*	53 (62)*
DIMENSIONS (mm) Width x Depth (Control Box) x Height	930 x 540 (630) x 310	1210 x 540 (630) x 310
ELECTRICAL SUPPLY	220-240v, 50Hz	220-240v, 50Hz
PHASE	Single	Single
POWER INPUT (kW)	0.01	0.01
RUNNING CURRENT (A)	0.14	0.14
FUSE RATING (BS88) - HRC (A)	6	6
MAINS CABLE NO. CORES	3	3

**Notes:**  
 CMB-WM-V-AA (Main) and CMB-WM-V-BB (Sub) units are for use with PURY-(E)M200-500YNW-A1, PQRY-P200-500YLM-A1 outdoor/condenser units and HVRF indoor units only. CMB-WM-F-AA (Main) and CMB-WM-V-BB (Sub) units are for use with PURY-(E)M200-500YNW-A1 outdoor units and HVRF indoor units only. One CMB-WM-V-AA unit can be used on PURY-(E)M200-250YNW-A1 and PQRY-P200-250YNW-A1 units. One CMB-WM-V-AA unit can be used on PURY-(E)M300-350YNW-A1 and PQRY-P300-350YLM-A1 units with a system efficiency reduction. Two CMB-WM-V-AA units can be used in parallel on PURY-(E)M300-500YNW-A1 and PQRY-P300-500YLM-A1 outdoor/condenser units. PURY-(E)M400-500YNW-A1 requires two CMB-WM-V-AA units. One CMB-WM-F-AA can only be used on PURY-(E)M200-500YNW-A1 outdoor units. A CMB-WM-V-AA and a CMB-WM-F-AA cannot be connected to the same R32 outdoor unit. CMB-WM-V-BB units are for use with PURY-(E)M200-500YNW-A1, PQRY-P200-500YLM-A1 outdoor/condenser units and HVRF indoor units only, when accompanied by a CMB-WM-V-AA or CMB-WM-F-AA unit. \*) Includes Water



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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).

Effective as of January 2022

