

AIRSYS



FREECOOL

Intelligent Control Free Cooling Box

Air volume: 1000-3450 m³/h

www.air-sys.uk



The FREECOOL intelligent ventilation unit is ideal for cooling telecoms shelters, cabins, and even small data centres. When ambient temperatures are lower than the indoor design, the unit will introduce outdoor fresh air to cool the space, without the need for mechanical air conditioning. The FREECOOL unit can also be used to supplement existing legacy equipment, reducing their compressor power usage.

The FREECOOL unit is available in various configurations: outdoor and indoor, packaged and split, and with different power supplies, 220VAC and 48VDC, offering complete flexibility for the application.

Unit Identification

01	02	03	04	05	06	07	08	09	10	11
FREECOOL	.	OD	.	SPL	12	F1	.	220/1/50	.	XXX

01	FREECOOL	Product series name: FREECOOL series fresh air free cooling unit
02	.	Separator Character ""
03	OD	Installation type: INDOOR: The unit is installed indoors, abbreviated as "ID" OUTDOOR: The unit is installed outdoors, abbreviated as "OD".
04	.	Separator character ""
05	SPL	SPL: Split unit, the unit consists of two independent parts: the main unit and the air discharge section; PACKAGE: Package unit, the air inlet, outlet and the air damper are integrated within the unit.
06	12	Nominal air volume with the unit 100m ³ /h, i.e. "12" stands for the air nominal air flow of 1,200m ³ /h
07	F1	Fan quantity in the unit. F1 means the unit is equipped with one fan. F2 means the unit is equipped with two fans.
08	.	Separator Character ""
09	230/1/50	Unit power supply 230/1/50: 230V AC, single phase 50Hz 48VDC: 48V DC
10	.	Separator Character ""
11	XXX	Code for custom design

Engineered features

1 Energy efficiency

By using the FREECOOL unit, the need to operate existing air conditioning units within the equipment room is greatly reduced, thereby lowering their overall electrical demand.

2 Ease of maintenance

The main components such as: fan(s), motor(s), filters, controller and other related components can be accessed and maintained from the front of the unit.

3 Intelligent control

FREECOOL unit is microprocessor-controlled, providing a fully automated intelligent system, maximising energy savings.

4 EC Fan

The fan is the core component of the unit, utilising EC fan variable speed technology.

5 Flexible installation

There are 4 types of installation structures for this product which include: indoor installed packaged type, indoor installed split type, outdoor installed packaged type, outdoor installed split type. These can easily meet the installation expectations of most applications, especially with their compact size.

6 Data log

The controller has the capacity to monitor and log the operating running data for a year. The data can then be sent to a remote control and monitoring system so that the customer can analyse the working performance and energy saving achieved.

7 Emergency free cooling

When the AC power fails, the unit can keep working as emergency free cooling by 48VDC supplied by batteries in the room, provided by others (only available for FREECOOL.DC units)

8 Remote control and monitoring (optional)

The unit can be installed with a RS232 or RS485 communication card to provide remote control capabilities and monitoring by a BMS system with open communication protocol.

9 PCOWEB internet communication (optional)

The unit can be equipped with a PCOWEB Ethernet communication card with TCP/IP protocol to provide remote control and monitoring.

10 Humidity control (optional)

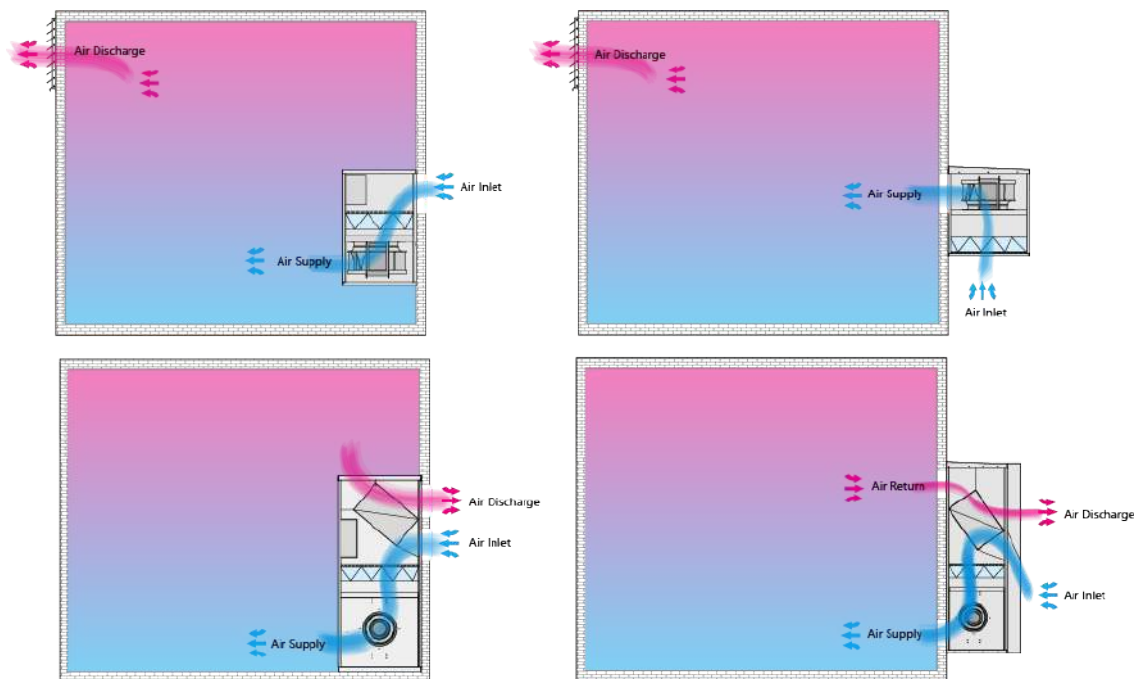
The humidity sensor can prevent the introduction of high humidity air into the equipment room. The FREECOOL unit will turn off when the ambient humidity levels reach the room humidity setpoint.

Working flow schematic diagram

When the outdoor temperature is lower than the room temperature, the FREECOOL unit brings fresh outdoor air in to cool the room. If mechanical back-up cooling has also been installed then the FREECOOL unit can enable this to assist with the cooling when the use of outdoor air is insufficient.

When the room temperature exceeds the emergency setting, the FREECOOL unit will operate in emergency mode.

Below the drawings show the air flow of both the packaged and split FREECOOL units:



Technical Parameters

FREECOOL.OD/ID.PCK

Unit model		12F1	18F1	24F1	30F2	35F2
Supply air scheme(1)	m ³ /h	1000	1450	2050	2650	3000
Cooling capacity						
△t=5°C	kW	1.7	2.4	3.4	4.5	5.0
△t=10°C	kW	3.4	4.9	6.9	8.9	10.1
△t=12°C	kW	4.0	5.9	8.3	10.7	12.1
Power supply 48VDC						
Fan		Single inlet backward curved EC centrifugal fan				
Qty.	n.	1	1	1	2	2
Power input	kW	0.08	0.22	0.23	0.34	0.47
Current	A	1.70	4.50	4.70	7.00	9.80
Power Supply 220VAC (ID only)						
Fan		Single inlet backward curved centrifugal fan				
Qty	n.	1	1	1	2	2
Power input (1)	kW	0.13	0.18	0.39	0.36	0.50
Current (1)	A	0.55	0.76	2.10	1.52	2.20
Power input (2)	kW	0.10	0.16	0.23	0.30	0.33
Current (2)	A	0.85	1.30	1.10	2.45	2.70
Noise (3)	dB(A)	52	55	57	54	57
Unit dimension and weight						
Width (ID)	mm	650	650	650	750	750
Depth (ID)	mm	500	500	500	600	600
Height (ID)	mm	1100	1100	1100	1400	1400
Weight (ID)	kg	60	60	65	85	85
Width (OD)	mm	650	650	650	750	750
Depth (OD)	mm	550	550	550	630	630
Height (OD)	mm	1320	1320	1320	1620	1620
Weight(OD)	kg	65	65	68	115	115

(1) Power supply is 220V/1Ph/50Hz;

(2) Power supply is 220V/1Ph/60Hz;

(3) The noise of 1 meter away from unit.

Technical Parameters

FREECOOL.OD/ID.SPL

Unit model		12F1	18F1	24F1	30F1	35F1
Supply air scheme(1)	m ³ /h	1000	1750	2050	3030	3450
Cooling capacity						
△t=5℃	kW	1.7	2.9	3.4	5.1	5.8
△t=10℃	kW	3.4	5.9	6.9	10.2	11.6
△t=12℃	kW	4.0	7.1	8.3	12.2	13.9
Power supply 48VDC						
Fan		Single inlet backward curved EC centrifugal fan				
Qty.	n.	1	1	1	1	1
Power input	kW	0.08	0.22	0.23	0.26	0.41
Current	A	1.70	4.50	4.70	5.50	8.60
Power Supply 220VAC (ID only)						
Fan		Single inlet backward curved centrifugal fan				
Qty	n.	1	1	1	1	1
Power input (1)	kW	0.13	0.18	0.39	0.38	0.57
Current (1)	A	0.55	0.76	2.10	1.70	2.70
Power input (2)	kW	0.10	0.16	0.23	0.25	0.45
Current (2)	A	0.85	1.30	1.10	1.30	2.20
Noise (*)	dB(A)	49	51	53	55	58
Unit dimension and weight						
Width (ID)	mm	550	550	600	600	600
Depth (ID)	mm	450	450	500	500	500
Height (ID)	mm	700	700	900	900	900
Weight (ID)	kg	40	40	42	48	50
Width (OD)	mm	550	550	610	610	610
Depth (OD)	mm	550	550	610	610	610
Height (OD)	mm	600	600	630	630	630
Weight(OD)	kg	38	38	40	45	45

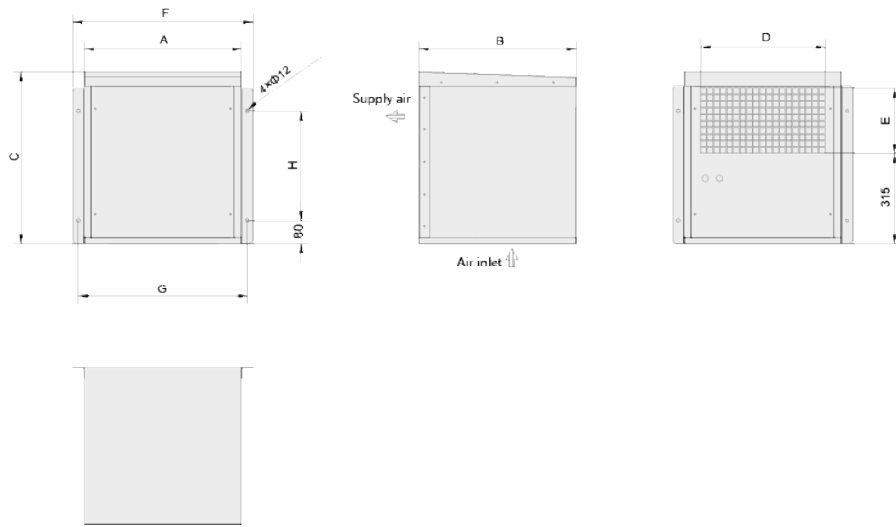
(1) Power supply is 220V/1Ph/50Hz;

(2) Power supply is 220V/1Ph/60Hz;

(3) The noise of 1 meter away from unit.

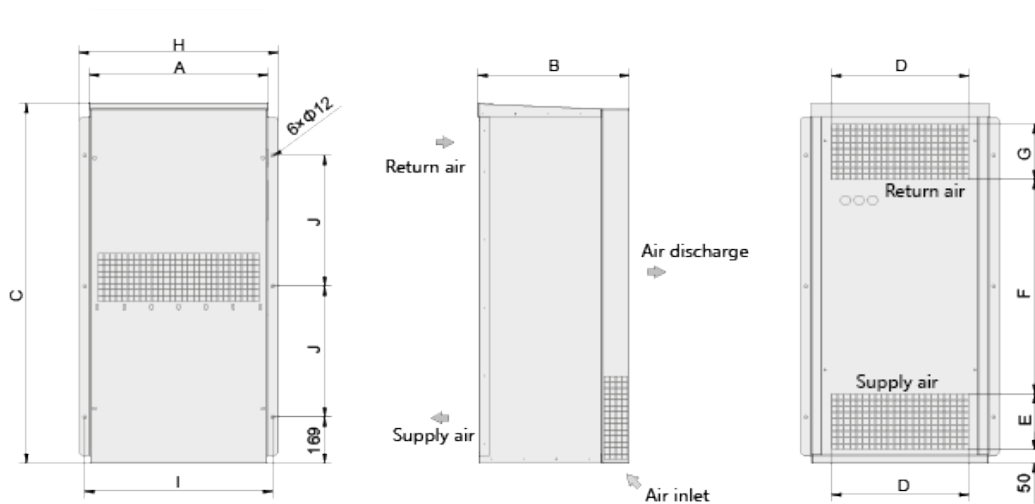
Unit Dimension Drawings

Indoor installed split units



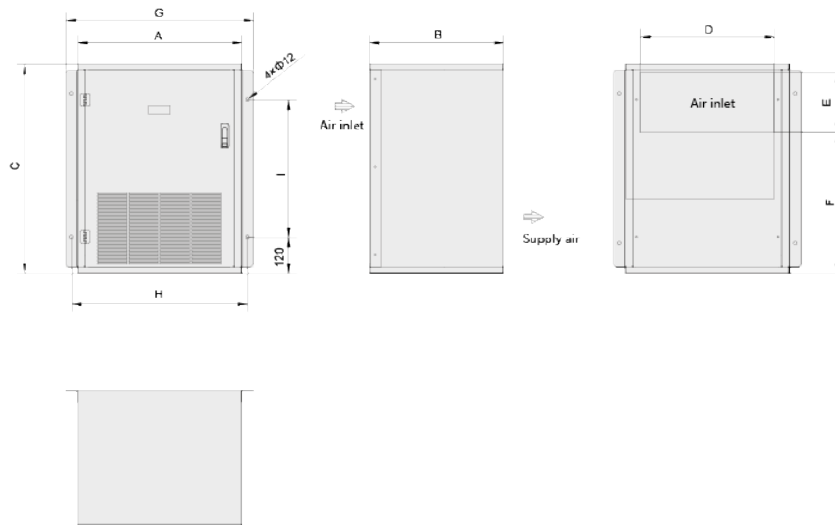
Model	A	B	C	D	E	F	G
FCB.ID.PCK.12F1	650	500	1100	500	70	570	730
FCB.ID.PCK.18F1	650	500	1100	500	70	570	730
FCB.ID.PCK.24F1	650	500	1100	500	70	570	730
FCB.ID.PCK.30F2	750	600	1400	560	120	820	830
FCB.ID.PCK.35F2	750	600	1400	560	120	820	830

Outdoor installed packaged units



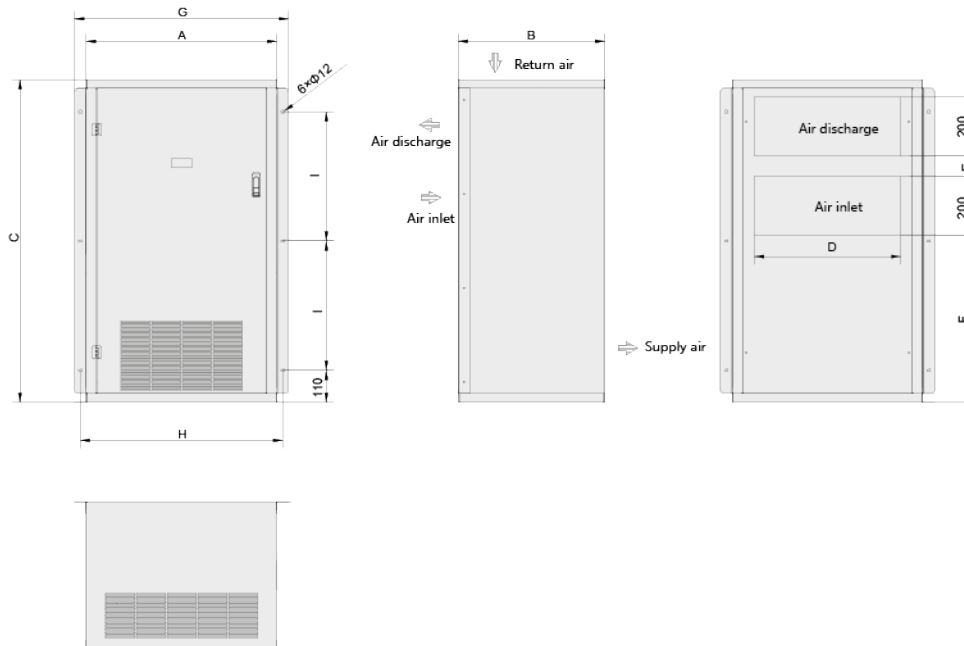
Model	A	B	C	D	E	F	G	H	I
FCB.OD.PCK.12F1	650	550	1320	500	785	200	55	500	730
FCB.OD.PCK.18F1	650	550	1320	500	785	200	55	500	730
FCB.OD.PCK.24F1	650	550	1320	500	785	200	55	500	730
FCB.OD.PCK.30F2	750	630	1620	600	820	470	50	340	830
FCB.OD.PCK.35F2	750	630	1620	600	820	470	50	340	830

Indoor installed split units



Model	A	B	C	D	E	F	G
FCB.ID.SPL.12F1	550	450	700	450	200	470	630
FCB.ID.SPL.18F1	550	450	700	450	200	470	630
FCB.ID.SPL.24F1	600	500	900	500	310	560	680
FCB.ID.SPL.30F1	600	500	900	500	310	560	680
FCB.ID.SPL.35F1	600	500	900	500	310	560	680

Outdoor installed packaged units



Model	A	B	C	D	E	F
FCB.OD.SPL.12F1	550	550	600	420	225	630
FCB.OD.SPL.18F1	550	550	600	420	225	630
FCB.OD.SPL.24F1	610	610	630	480	255	690
FCB.OD.SPL.30F1	610	610	630	480	255	690
FCB.OD.SPL.35F1	610	610	630	480	255	690



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Product design and specification subject to change without prior notice.