

AIRSYS Split Free Cooling Box

Installation and Maintenance Manual

Unit Model

FREECOOL.OE.SPL.30F1

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Table of Contents

CHAPTER 1: INTRODUCTION	4
USING THIS MANUAL	4
MODEL IDENTIFICATION	5
ACRONYMS AND ABBREVIATIONS	5
CHAPTER 2: PRODUCT OVERVIEW	6
CHAPTER 3: INSTALLATION	7
INSTALLATION PREPARATION	7
REQUIRED MATERIALS	9
PHYSICAL INSTALLATION	10
ELECTRICAL CONNECTIONS	15
CHAPTER 4: MAINTENANCE	17
FILTER REPLACEMENT	17
SUPPLY FAN REPLACEMENT	17
CHAPTER 5: SPARE PARTS	18
APPENDIX A: LIST OF TABLES	19
APPENDIX B: LIST OF FIGURES.....	19
APPENDIX C: WIRING DIAGRAM	20

Chapter 1: Introduction

Thank you for choosing a unit manufactured by AIRSYS.

Using this Manual

Read this manual carefully before attempting to install or start the unit. Retain this manual for reference for the entire operational life of the unit. This manual provides information on the following topics:

- Product overview
- Instructions for physical, and electrical installation of WPU's and the controller box
- Procedures for commissioning the system
- System operation, including system alarms, program menus, and advanced troubleshooting
- Preventive maintenance

For safety and to achieve the highest levels of performance, always follow the warnings and cautions in this manual when handling and operating the AIRSYS unit.



Danger. Emphasizes hazardous conditions that could cause personal injury or death.



Warning. Indicates where the operator must proceed with caution to avoid personal injury or damage to property.



Important. Indicates technical information critical for proper installation or operation.

Table 1 lists symbols that may appear on the external packaging.

Table 1: Packaging Symbols

Symbol	Meaning	Symbol	Meaning
	THIS SIDE UP Shows the orientation of the unit.		NO HOOKS Do not use hooks to lift the packed unit.
	FRAGILE Handle with care.		KEEP AWAY FROM HEAT The unit must be kept away from heat sources.
	PROTECT AGAINST RAIN: The packaged unit must be stored in a dry place.		DO NOT STACK

Model Identification

Each unit is identified by a model number. The elements of the model number are explained in Table 2.

Table 2: Model Identification

1	2	3	4	5	6	7
FCB	OE	SPL	30	F1	48DC	XXX

1	Product series name: FCB = Free Cooling Box
2	Installation Location: OE = Outdoor Embedded; OD = Outdoor mount; ID = Indoor mount.
3	Structure type: SPL = Split Unit; PCK = Packaged Unit.
4	Nominal air volume x 1000 m ³ /h
5	Quantity of fans installed: F1 = 1 fan; F2 = 2 fans.
6	Power source: 48VDC
7	Special code: Used to designate non-standard configurations

Acronyms and Abbreviations

Table 3 lists acronyms and abbreviations used in this manual

Table 3: Acronyms and Abbreviations

Term	Definition
AC	Alternating Current
Amp.	Ampere
BTU	British Thermal Unit
CFM	Cubic Feet per Minute
DC	Direct Current
FC	Free Cooling
FCB	Free Cooling Box
HVAC	Heating, Ventilation and Air Conditioning
ODT	Outdoor Temperature
Temp.	Temperature
WPU	Wall Pack Unit

Chapter 2: Product Overview

The AIRSYS Split Free Cooling Box (Split FCB) is comprised of the FCB unit and a pressure relief valve. When operating conditions are satisfied, the supply fan will introduce cold outside air into the shelter while hot air will be discharged through the relief valve.

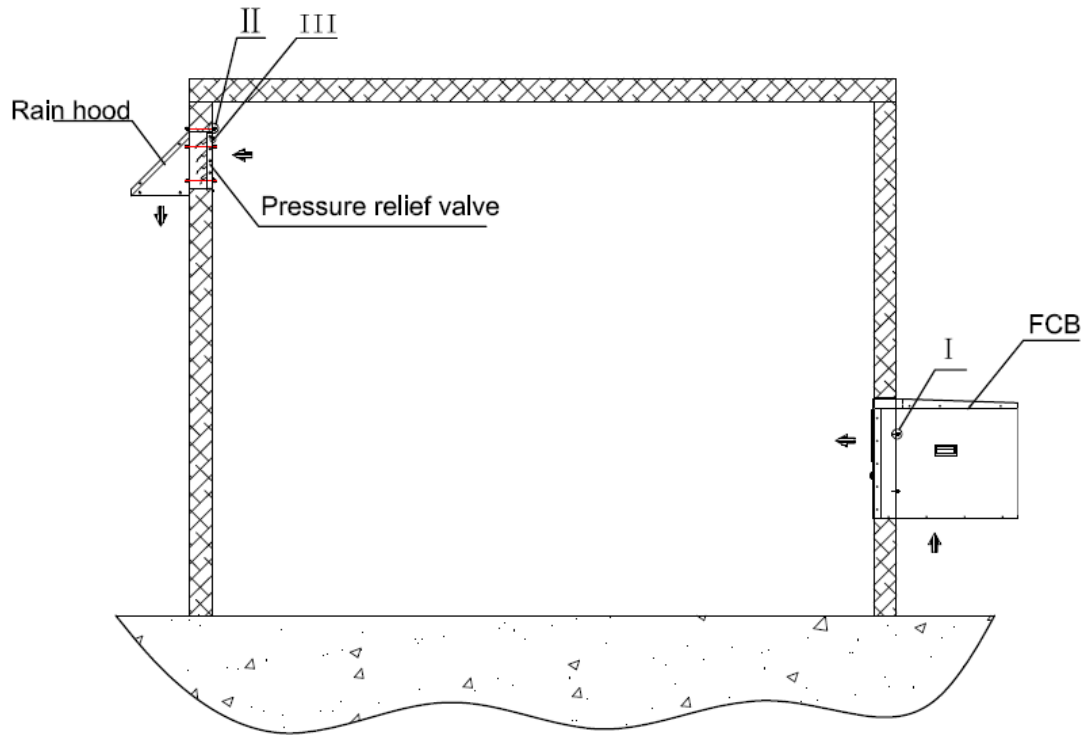


Figure 1: Split FCB Mode of Operation

Chapter 3: Installation

Installation Preparation

Unpack the unit carefully. Some parts are packed loosely and may move as the packaging is opened. Before discarding the box, check the packaging carefully for any parts or documents inside.

Check that:

- The supply voltage meets the requirements as designated: 36-57VDC.
- The install location is clean on the inside and free of excess dirt and dust.
- All installer provided items, listed in Table 5 on Page 9 are accounted for.

Installation and startup must be performed by an AIRSYS Authorized Service Technician (AAST). For more information about the AAST program, please contact:

AIRSYS North America
ASNSupport@air-sys.com
855-874-5380



Danger. All the installation work must be done by a skilled professional. Installation that does not comply with the instructions herein can result in the loss of warranty coverage. AIRSYS shall not be held liable for any damage caused to persons or objects due to incorrect installation or operation of the units.



Warning. All wiring must comply with the local safety standards and building codes under all circumstances.



Warning. Risk of electric shock can cause injury or death: disconnect all remote electric power supplies before installation.

When no longer in use, disposal of equipment and materials must be compliant with local laws and standards.

Delivery

When the units are delivered, be sure to inspect them to verify that they have not been damaged during transport. Also verify that all requested accessories listed on the purchase order have been included.



Important. If packages show **any** signs of shipping damage or potential shipping damage, it is very important to annotate *shipping damage* on the Bill of Lading **prior** to signing for the freight. In order to recover for any damage, please take detailed photographs of all the packaging **before** the external packaging is removed. Once detailed photos of the external packaging have been taken, then the external packaging may be removed so the items can be inspected further. Please document with photos any damage to the equipment that relates directly to the damage observed to the external packaging. ***Without the detailed photos, it will be very difficult to recover equipment loss.***

Warranty

The warranty duration is 12 months from the date of installation. AIRSYS warrants that its products will be free from defects in materials and workmanship for a period of 12 months after installation.

AIRSYS will furnish free of charge replacement parts for any component failures that occur within the warranty period. Customer is responsible for the cost of shipment of replacement material from the AIRSYS North America.

Note: Warranty assumes that an AAST performs the installation and submits the warranty registration card that accompanied the units in shipment. If the warranty registration card was not filled out and returned to the supplier, then the warranty will expire 12 months from the date of shipment.

This warranty does not cover damage to the systems caused by misuse or abuse of the systems such as physical damage due to mishandling. The warranty does not cover damage caused by force majeure.



Important. Any mishandling of the equipment or modifications to the equipment, unless agreed upon in writing by AIRSYS, will void the warranty.

General Safety Rules



Danger. Do not carry out any operation on the machines if you do not have sufficient knowledge of the operating principles and have not taken all the precautions that permit the system to operate in safe conditions.



Warning. Work on the electric board only after verifying prime power is disconnected. Do not apply power to the machine with the covers removed.



Important. Before carrying out inspections, maintenance operations, and safety checks, follow all accident-prevention standards such as wearing protective goggles and gloves.

Required Materials

AIRSYS Supplied Materials

All material provided by AIRSYS is listed in the following table. After opening the package, verify that all items are accounted for. If any material is missing, please contact an AIRSYS distribution center using the following information:

AIRSYS North America
Email: ASNSupport@air-sys.com
Phone: 855-874-5380

Table 4: AIRSYS Provided Materials

Item #	Part #	Qty	Item Description	Comments
FCB Assembly → Qty 1 per Shelter				
1	F142301566	1	Free Cooling Box	FREECOOL.OE.SP L.30F1
2	2030104600	1	Supply air grill	
3	8454022900	1	Outdoor Temperature Sensor	Pre-installed on intake
4	2120102930	1	Rain hood Assembly	See Section 8.5 for installation
5	2120102920	1	Pressure Relief Damper 15"x15"	
6	1060520290	2	Duct Liners for FCB	
	1060520300	2		
7	1060520680	2	Duct Liners for damper	
	1060520710	1		
	1060520670	1		
8	1031011950	2	J Channel; 36" x 1 1/2"	
9	1031011960	2	J Channel; 25" x 1 1/2"	
10		1	Installation and Operation Manual	

Installer Provided Materials

Installer provided materials are listed below. Ensure that all materials are present before beginning installation.

Table 5: Installer Provided Materials

Item #	Name	Qty	Description	Comments
1	DC Power Cable to FCB	1	1 set of two-wire cable	
2	DC Breaker	1	10 Amp Breaker	
3	Control harness	1	As specified by controller	From FCB to controller
4	Silicone sealant	As needed	Commercial grade outdoor silicone sealant	
5	Weather Stripping	As needed	Commercial grade neoprene weather stripping	

Physical Installation

To assist in the installation process, the following figures provide the unit dimensions to a tolerance of $\pm 1/16"$ (2 mm).

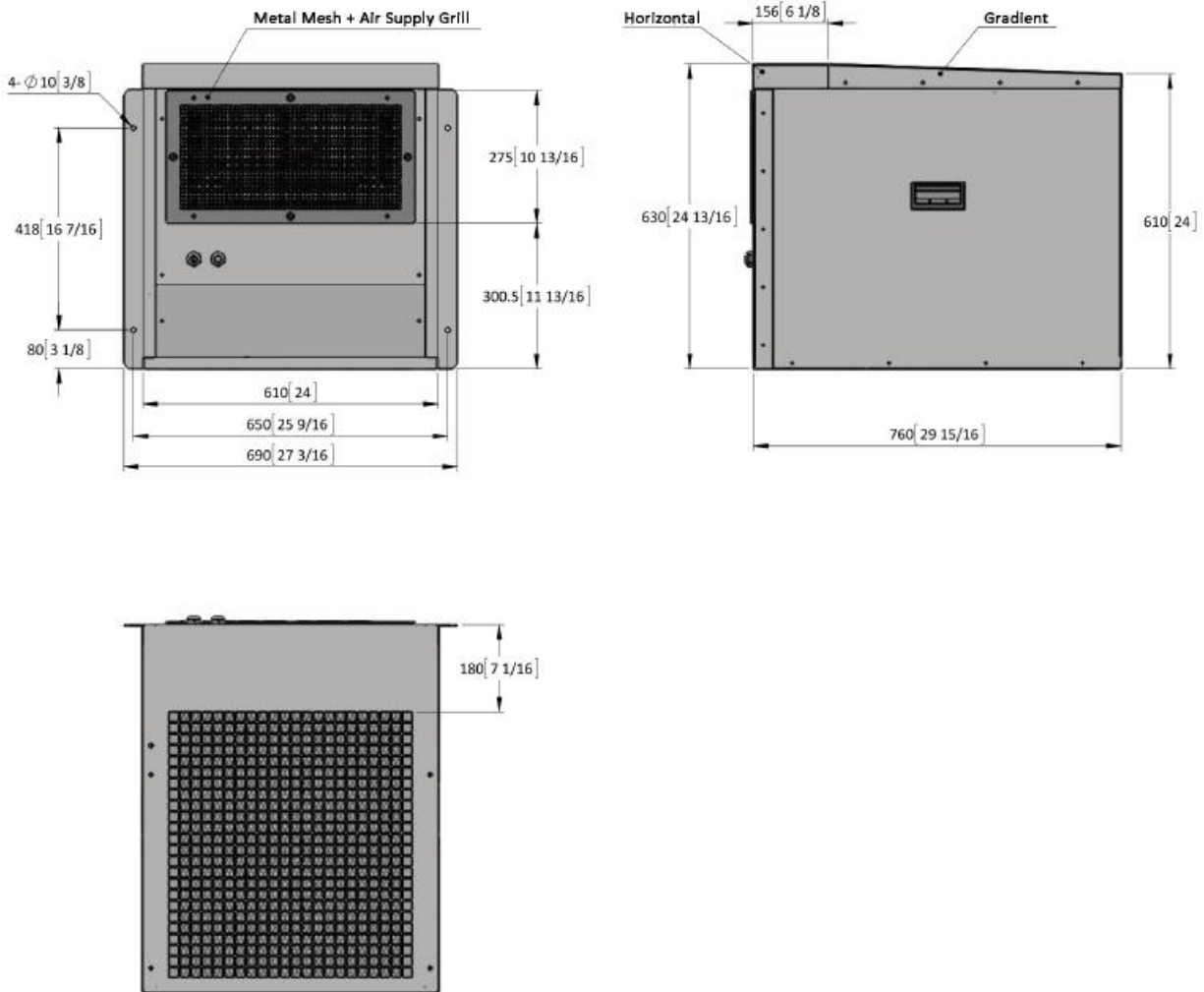


Figure 2: Unit Dimensions

Select the Wall for Installing the Unit

Select the wall where the unit will be installed. Be certain that the wall can support the weight of the unit and that sufficient space is available for easy operation and installation, both inside and outside the mounting location. Refer to below for unit dimensions and weights by model number.

Model		30F1
Width	in (cm)	27.19 (690)
Depth	in (cm)	29.94 (760)
Height	in (cm)	24.81 (630)
Weight	lbs (kg)	99.2 (45)



Important. The wall selected for the unit must be strong enough to support both the static weight of the unit and the vibration of a unit under operation.

Openings in the Wall

Make openings for the supply and exhaust holes in the shelter as shown in Figure 3.

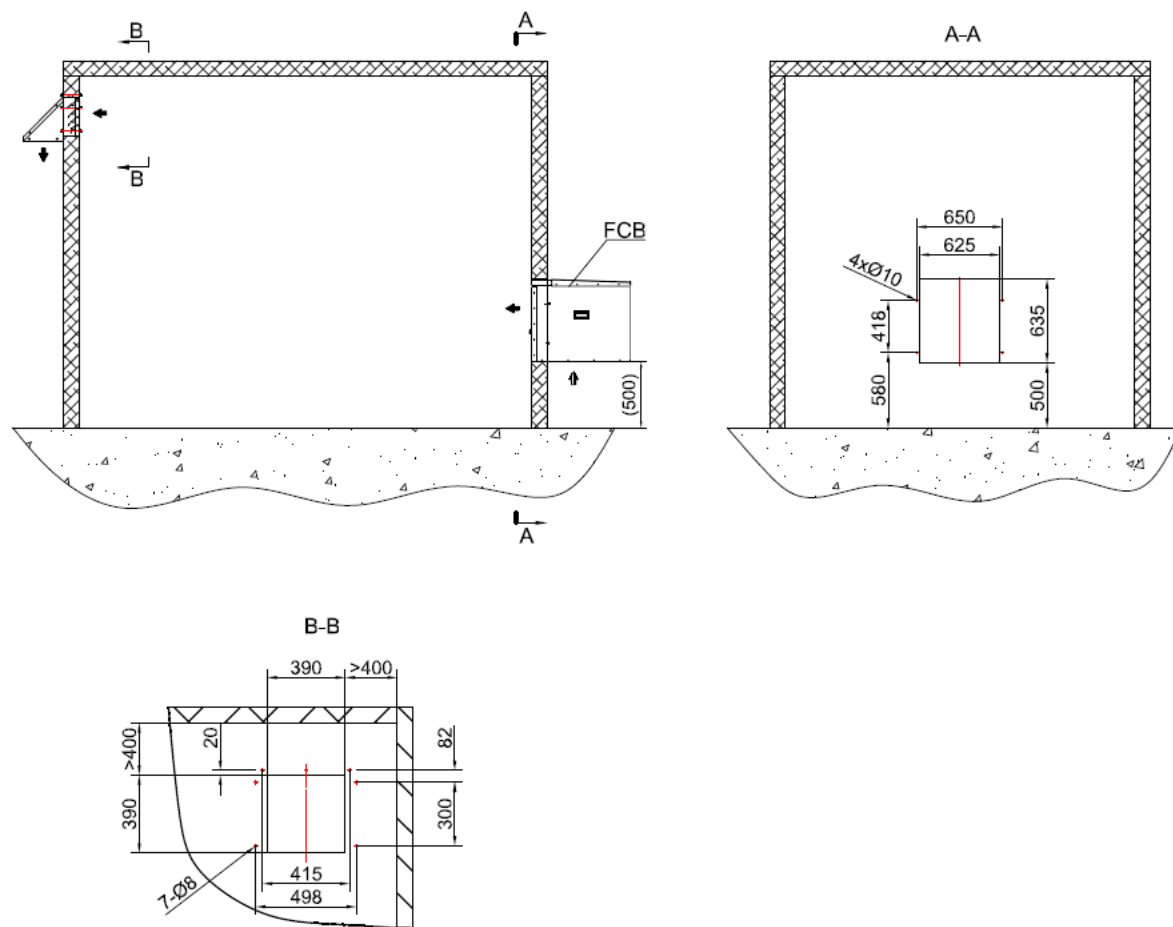


Figure 3: Inlet and Discharge Openings for Unit

Install Duct Liner

From the inside, fasten the duct liners to the openings in the wall. See Figures 3 and 4 for dimensions.

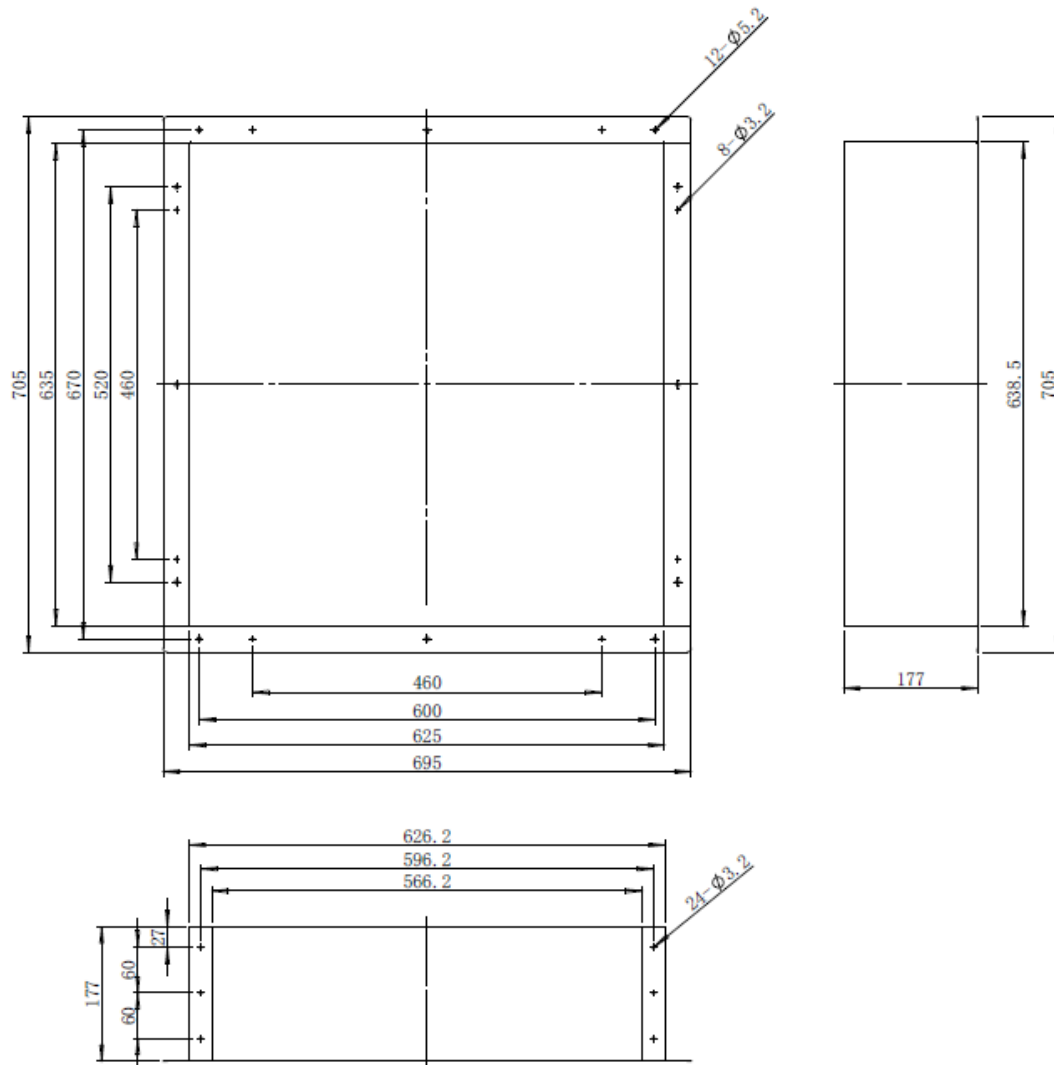


Figure 4: Duct Liner for FCB Unit (mm)

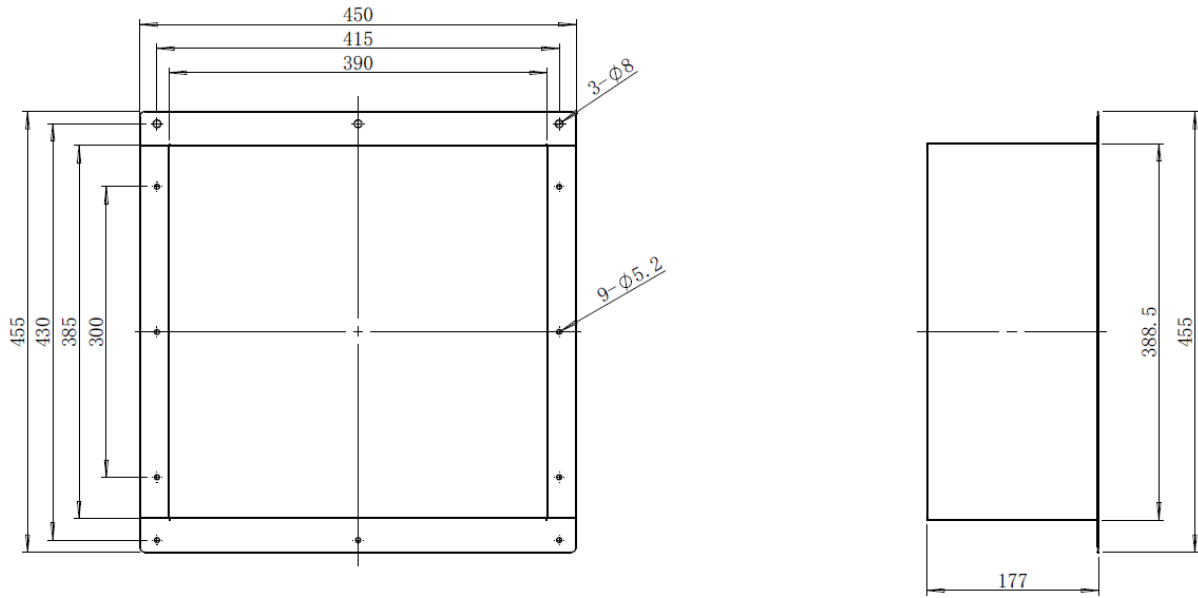


Figure 5: Duct Liner for Pressure Relief Damper

Install Weather Stripping

Before mounting the unit on the outside wall, fix neoprene weather stripping (installer provided) around the openings of the air supply and the relief damper to ensure an airtight closure.

Mount and Secure the Unit to the Wall

Follow the instructions below to mount and secure the unit to the wall:

1. Mount the unit through the wall.
2. Attach the flanges to the units using tapping screws (supplied by AIRSYS).
3. Pull/push the unit until the flanges are flush with the wall.
4. Fix the flanges to the wall using 4 bolts (M10 x 85)
5. Install the relief damper by directly fixing it over the relief opening.

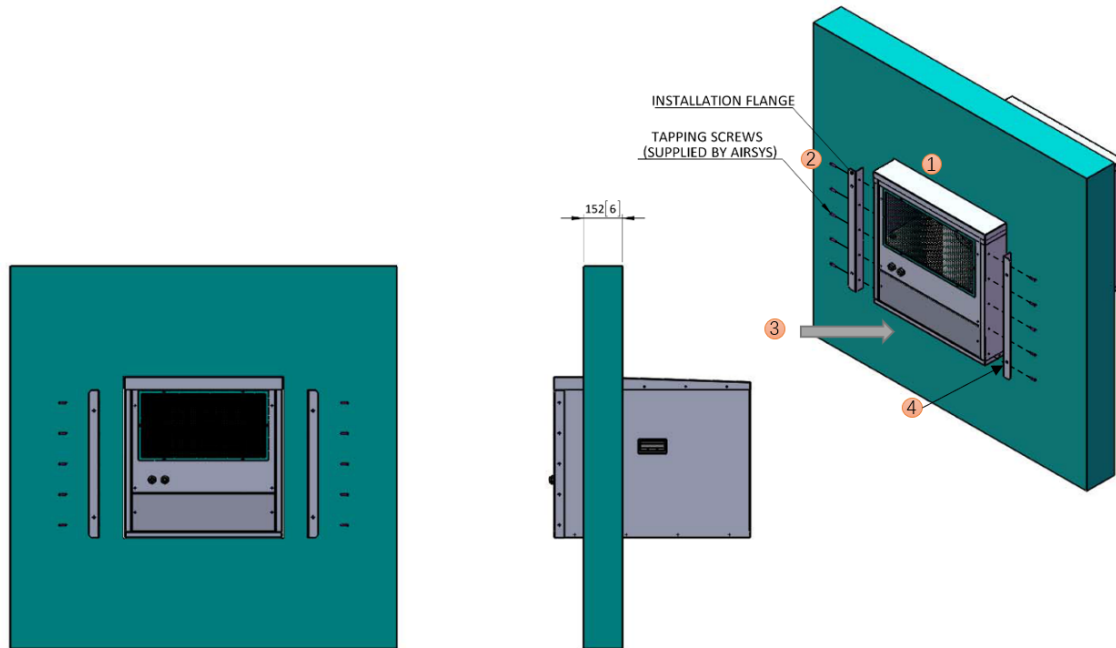


Figure 6: Mount and Secure the Unit to the Wall

Install the Rain Hood

Install the rain hood on the relief air opening according to Figure 7.

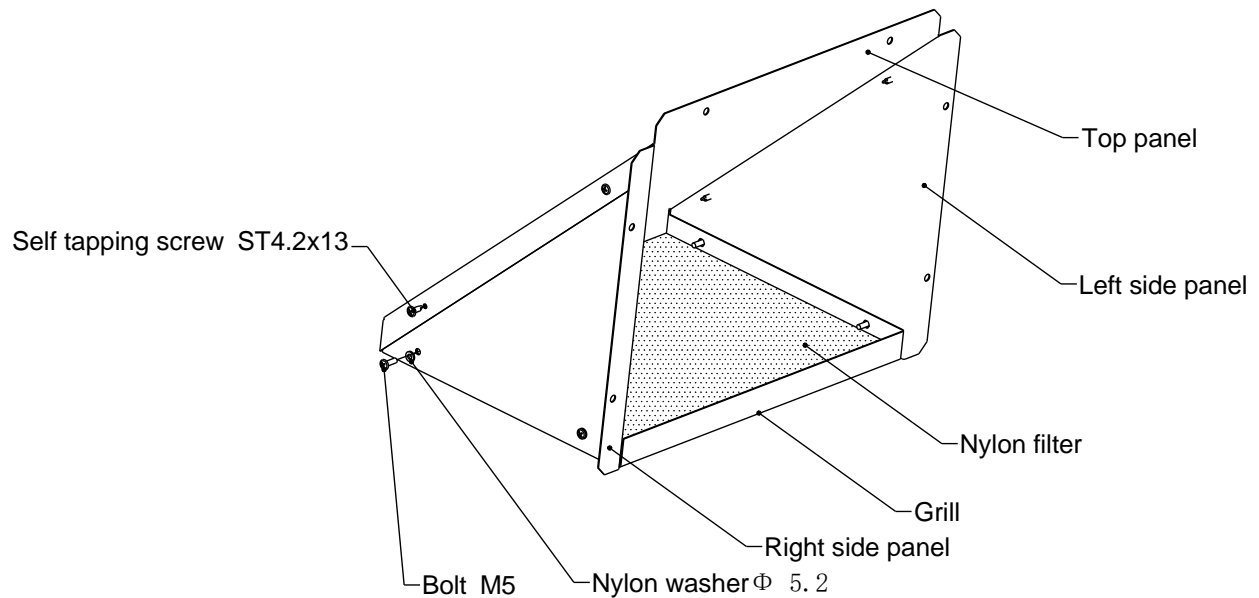








Figure 7: Install the Rain Hood

Seal the Joints between Unit and Wall

To prevent moisture from getting in and air leaking out, coat the joint between the rear panel of the unit and the wall with a layer of silicone sealant.

Electrical Connections

-  **Danger.** Only an authorized service technician should make the electrical connections to the FCB.
-  **Important.** The electrical wiring of the unit must comply with IEC standards or with appropriate national standards.
-  **Danger.** The power supply must be disconnected or turned off before working on the unit.
-  **Danger.** The unit should be grounded firmly to prevent dangers that could result from a malfunction. All wires should be connected tightly.
-  **Important.** Noncompliance with these instructions may cause damage to the FCB. Not following instructions can void the warranty.
-  **Important.** No modification to the unit's electric circuit is allowed. If a change is required, it must be authorized by AIRSYS in writing.

Before installation, verify that the supply voltage is 36-57VDC and that all components and wiring on the electrical panel are securely fastened.

Connect Prime Power

Connect prime power from the supply breaker to the QF1 breaker in the electrical panel. Verify that the DC polarity is correct before proceeding.

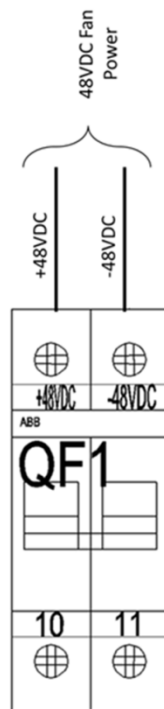


Figure 8: Main Breaker (QF1)

Connect Controller Output

Control signals are passed to the Split FCB through an Ethernet cable connected to the T1 port. See the diagram below for details.

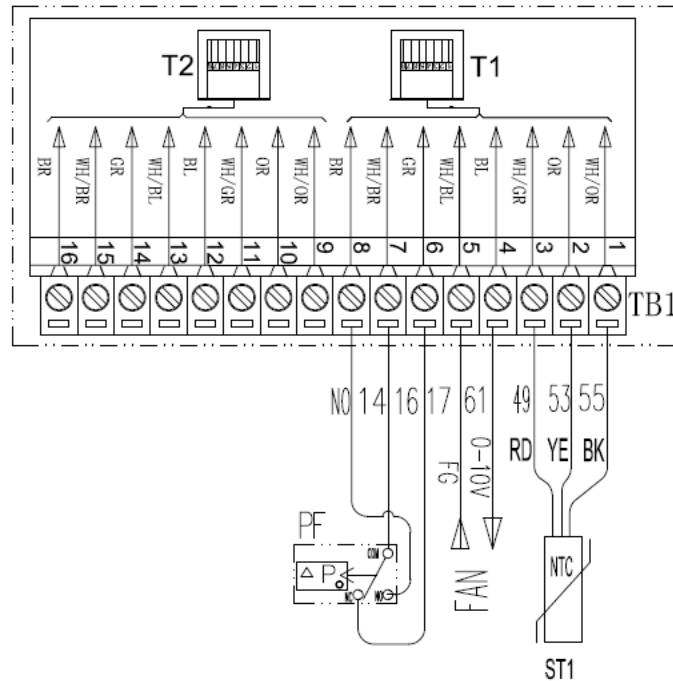


Figure 9: Wiring Diagram

Chapter 4: Maintenance

Filter Replacement

There are two filters installed:

- Nylon Preliminary Filter, 594 x 492 x 10 mm: Prevents bugs and large objects from entering the shelter
- Main filter, 20 x 24 x 4 in, MERV 8: Prevents dust from entering the shelter.

Note: The main filter that comes with the unit is washable. This filter can be replaced with common 20 x 24 x 4 disposable filters if needed.

The filters can be replaced from both the inside and outside of the shelter.

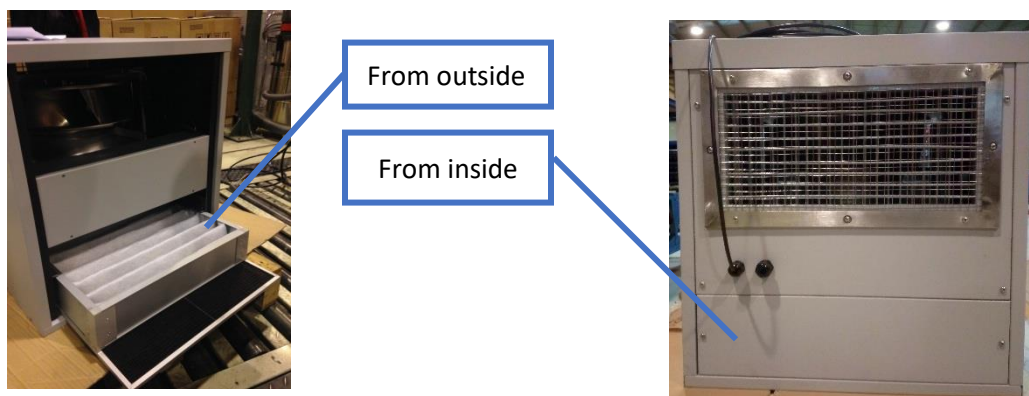


Figure 10: Filter Replacement

Supply Fan Replacement

The supply fan can be replaced from both the inside and outside of the shelter. Remove the 4 screws from the bottom of the FCB, the fan can then be removed from the box. Ensure that the power is disconnected before replacing the fan.



Figure 11: Fan Replacement

Chapter 5: Spare Parts

For all part requests, please contact:

AIRSYS North America

Web: <https://airsysnorthamerica.com>

Email: ASNSupport@air-sys.com

Phone: 855-874-5380

Appendix A: List of Tables

Table 1: Packaging Symbols	4
Table 2: Model Identification.....	5
Table 3: Acronyms and Abbreviations	5
Table 4: AIRSYS Provided Materials	9
Table 5: Installer Provided Materials	9

Appendix B: List of Figures

Figure 1: Split FCB Mode of Operation	6
Figure 2: Unit Dimensions.....	10
Figure 3: Inlet and Discharge Openings for Unit.....	11
Figure 4: Duct Liner for FCB Unit (mm).....	12
Figure 5: Duct Liner for Pressure Relief Damper	13
Figure 6: Mount and Secure the Unit to the Wall.....	14
Figure 7: Install the Rain Hood.....	14
Figure 8: Main Breaker (QF1).....	15
Figure 9: Wiring Diagram	16
Figure 10: Filter Replacement	17
Figure 11: Fan Replacement	18

Appendix C: Wiring Diagram

