

**Failure To Read
Instructions Will
Void Warranty**



HPS 500 PORTABLE OR INSTALLED HEPA SYSTEM

Pure Air Systems offers a high performance, commercial grade quality, portable HEPA air filtration system that shares the same performance standards as our well-known line of high volume HEPA filtration units.

HIGH PERFORMANCE IN A SMALL PACKAGE

The HPS 500 unit is 13" square and 22" long and weighs only 34 lbs. This all-steel unit comes complete with a combination polyester ring panel prefilter/carbon media filter and a true, certified, hospital grade 99.995% at MPPS H14 HEPA filter. Each unit has a Bluetooth air volume controller that can be set from 0 – 100% which also monitors your filters, lighted rocker on/off switch and a 10' hospital grade power cord. Every system comes with a foldable handle for easy transportation.

HIGH VOLUME PORTABLE HEPA WITH AIR FLOW CONTROL

The Model HPS 500 moves up to 500 CFM with the variable speed Bluetooth controller you can set the controller from 0-100% in 1% increments. The HPS 500 is the most powerful portable HEPA for its size on the market today. This unit is perfectly suited for home, office, or any small application use.



HPS 500 with extended inlet collar for attachment to HVAC or duct system.



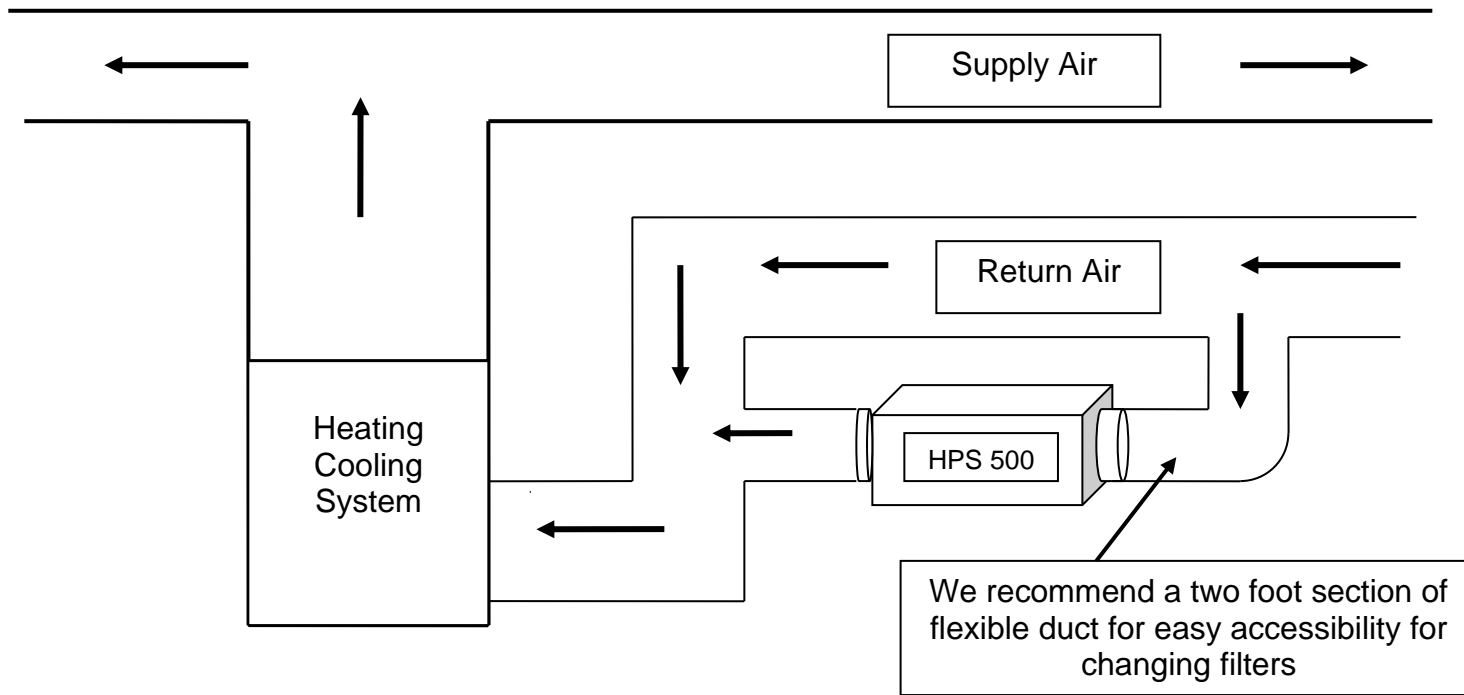
HPS 500 portable with open inlet and fan guard on the discharge.

USE AS A PORTABLE OR USE AS A CENTRAL FILTRATION SYSTEM

The unique design of the HPS series allows for use as either a true stand-alone portable unit or as a central HEPA filtration unit that is attached to the return air side of the heating/cooling system and installed in a by-pass configuration. For more information, please contact your local Pure Air Systems dealer or Pure Air Systems directly.

www.pureairsystems.com
800-869-8025

Installation Drawings for HPS in By-Pass Configuration



Typical Installation HPS 500
Partial By-Pass Configuration

Scan QR code for app



Apple App Store to install app in iPhones.

Bluetooth pairing code 529413

iPhone app version

Enable/Disable password protection and edit passwords

Return to scan list

1. Start/Stop Scanning

2. Tab to connect to a control in the scan list

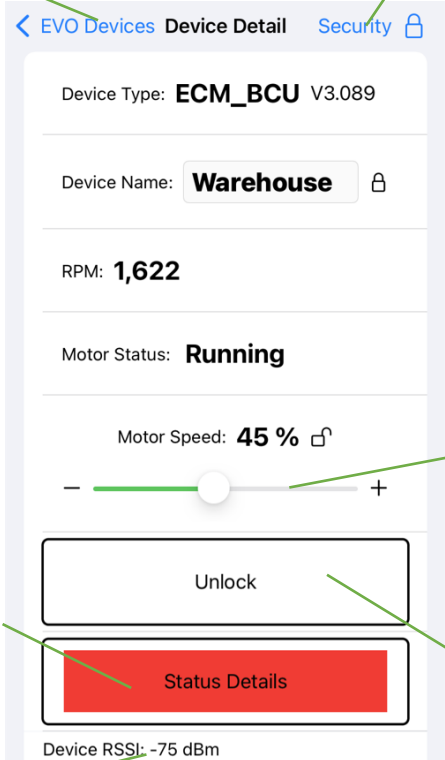
Connected with selected control

Click to view status. Need user attention when in red

Bluetooth receive signal strength

Output Control

Enter password to unlock password protected fields



Field is protected by password Field is available for modification

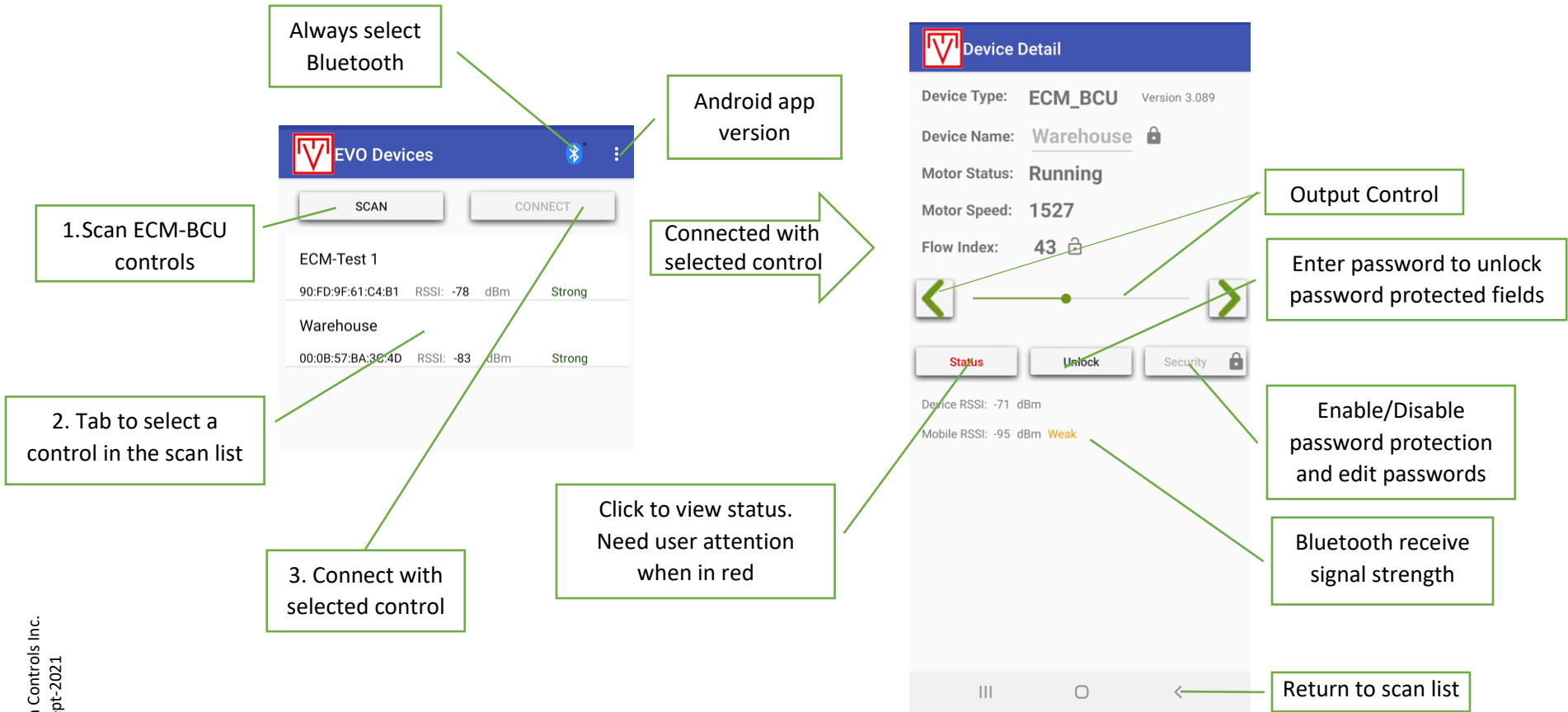
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Evolution

Scan QR code for app



to install app in Android mobile devices.



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07-Sept-2021



Field is protected by password



Field is available for modification

Bluetooth® Control Unit

The Evolution Controls Bluetooth® Control Unit¹ provides a means to wirelessly adjust the output of an EC Motor by using Android or iPhone mobile apps. It monitors the motor RPM and air filter conditions and alerts the user accordingly.

Applications

- System solution for small cleanroom fan filter arrays
- Indoor air filter units for schools and hospitals
- Whole house fans
- Fan installed at hard-to-reach locations

The 0 to +10V output option allows the control to be applied to other controlled devices, such as damper actuators.

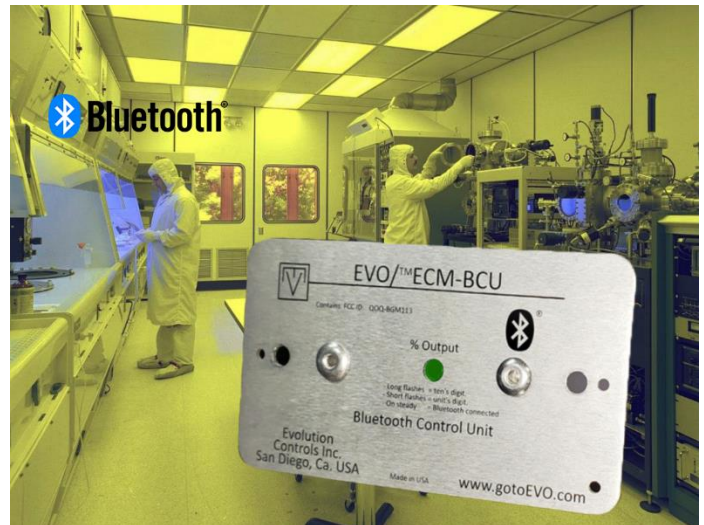
Ordering

EVO/ECM-BCU Control without plate
EVO/ECM-BCU-MP Control with plate

Accessories

EVO/ECM-CBL-?? EC Motor control cable.
EVO/USM-CBL-?? US Motor control cable
EVO/ECM-PBL-?? Power Cable.
?? = Length in ft.

EVO/ECM-SBL 3' USB cable used with BT
Configurator for factory
configuration



EVO/ECM-BCU

Features²

- Adjustable and scannable RPM alarm
- Monitors up to three air filters
- Access Protection
- PWM³ or 0 to +10 V Output
- Pilot Pulse Enable/Disable
- Adjustable low and high output limits

Specifications

Power ~24V±20% 50/60 Hz, 6 VA NEC Class 2^{USA}
 +24V ±20% 3W IEC Class II
 Maximum 2 motors

Outputs

- Go +15V @ 10 mA
- Motor Control
 PWM +15V @ 10 mA
 0 to +10 V @ 10 mA

*PWM Supports Pilot Pulse (Autoswitch) Function
Adjustable 0% low output limit and 100% high output limit
(See BT Configurator PC software User Guide)*

³ Pulse Width Modulation (PWM) = Vspd

¹ This datasheet applies to ECM-BCU with firmware V3.

² Configurable in BT Configurator

Input	
Motor RPM	0-2000 RPM ± 1RPM 36 ppt ⁴ or 18 ppt or 1 ppt
<i>Adjustable and scannable out-of-window latching RPM alarm (See BT Configurator PC software User Guide)</i>	
Therm. Stability	< 0.01%/°F
Operating Environment	0°F to 130 °F (-18°C to 55°C) 10-80% rh
Configuration Port	Serial port with proprietary command set
Radio	
Receive Sensitivity	-92 dBm sensitivity
Output Power	+3 dBm
Range	50 m (150ft)
<i>(Actual range may vary depending on the mounted location)</i>	

Mobile Device Requirements

Platforms	Android phones, tablets, and iPhone
Operating System	Android Ver 7.0 or higher iOS Ver 14.4 or higher
Bluetooth	Ver 4.2 or higher

Operation

The ECM-BCU allows adjustment of the control output from 0 to 100%. The mobile app, *EVO Devices*, running on Android mobile phones, tablets, and iPhone, remotely controls the output and monitor the alarm status through the Bluetooth wireless connection.

A control cable connects each ECM-BCU to an EC motor. The motor control output signal can be 0 - +10V or 0 to 100% PWM. All controls are shipped with the same device name, ECM-BCU. In applications with more than one controller, each ECM-BCU must be renamed with an unique device name.

A **green LED** provides the power and the control output status by continuously flashing out the output percentage. When powered up, the **green LED** stays on for three seconds, then repetitively flashes out the output percentage. After a pause, the lamp

flashes out the tens digit, then the units digit of a number between 0 to 100%. Long flashes represent

the tens digit, and short flashes represent the units digit. For example, output of 23% flashes two longs, then three shorts. A steady heartbeat of flashes indicates output of 0%. An extra-long flash and ten short flashes indicates an output of 100%.

The LED turns solid green when the ECM-BCU is connected to the *EVO Devices* mobile app.

RPM Alarm

RPM from the motor is continuously monitored. When the RPM alarm is enabled, the alarm is latched when the RPM is outside the normal thresholds. The control will remain in alarm until the problem is fixed and is reset using the mobile app.

Air Filter Monitors

The ECM-BCU control can monitor up to three air filter lives. The equipment manufacturer enters the name and maximum air filter life of each new air filter into the control using the BT Configurator software. The control tracks each filter life using Time Based Filter Life (TBFL) and/or Air Volume Based Filter Life (AVBFL). When AVBFL is enabled, the filter life is tracked according to the selected control output. The % remaining life of each filter can be read in the mobile app. The control enters alarm mode when one of the air filter life monitors reaches 0%. It will stay in alarm mode until the corresponding filter life monitor is refreshed by pressing the reset button in the mobile app.

When in alarm, an ECM-BCU control appears in red in the mobile app scan list.

User Privileges

The **User** and **Admin** passwords allow different levels of user privileges.

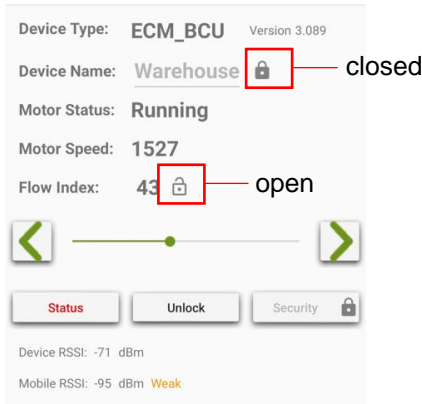
When enabled, the correct **User** password allows the user to modify the output, reset RPM alarm and reset air filter monitors.

When enabled, the correct **Admin** password allows the user to modify the device name, password settings and access all **User** privileges.

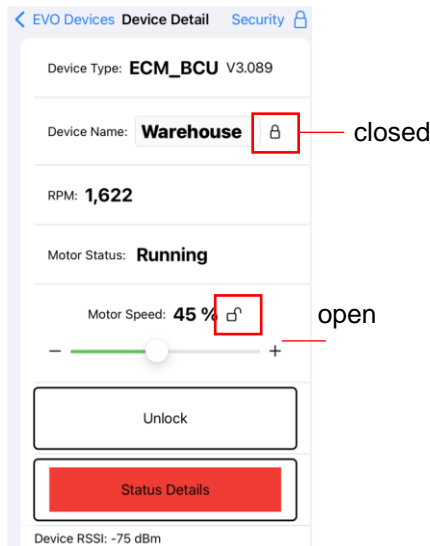
⁴ ppt = Pulses Per Turn, configurable in BT Configurator

Padlock icons indicate password protected fields in the mobile app. The field is read only when the accompanying pad lock is in the closed position. The pad lock changes from closed to open position when the correct password has been verified.

Android App



iPhone App



All fields return to protected state after the mobile app is no longer connected to the control.

User and Admin passwords are disabled by default from the factory. They can be enabled according to the need of the application using the mobile app and BT Configurator.

Password Recovery

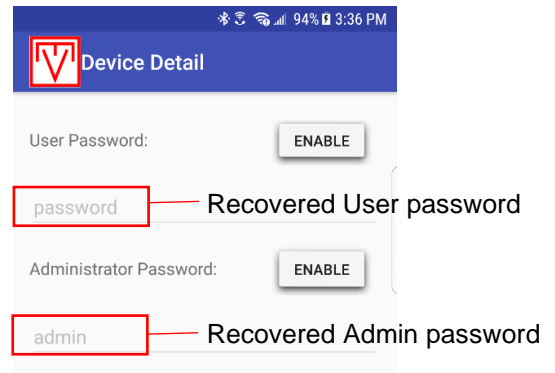
Password recovery disables the passwords so they can be read in the mobile app's Security settings

user interface. Password recovery is activated when the controller detects a jumper being inserted in the header position highlighted below.

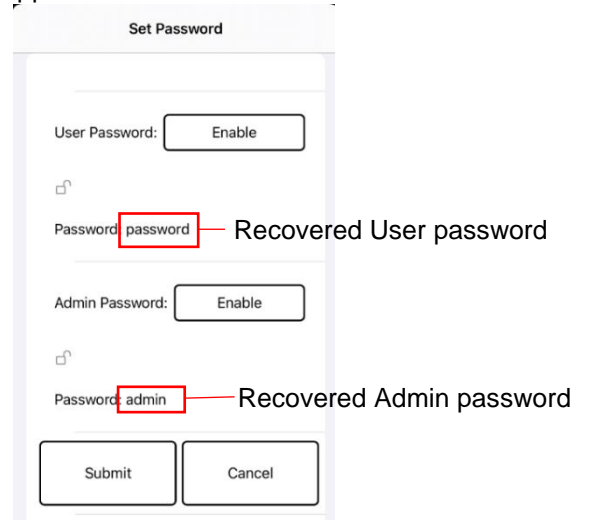


Insert a jumper to activate password recovery. If a jumper is already inserted, pull it out then re-insert to activate password recovery. After the jumper is detected, the green LED flashes rapidly for 5 sec. before password recovery is activated. If the jumper is removed during the 5 sec. rapid flashing, password recovery is cancelled. When password recovery is complete, the green LED returns to normal operation, flashing out the output percentage.

Android App



iPhone App



Reminder: re-enable the passwords after you are done reading the passwords.

Wired Configuration

The ECM-BCU is configured by using the Evolution Control's BT Configurator Windows® PC software. An ECM-SBL cable is used to connect between a PC's USB port and the controller's serial port. See the BT Configurator User Guide for details.

Motor Profiles

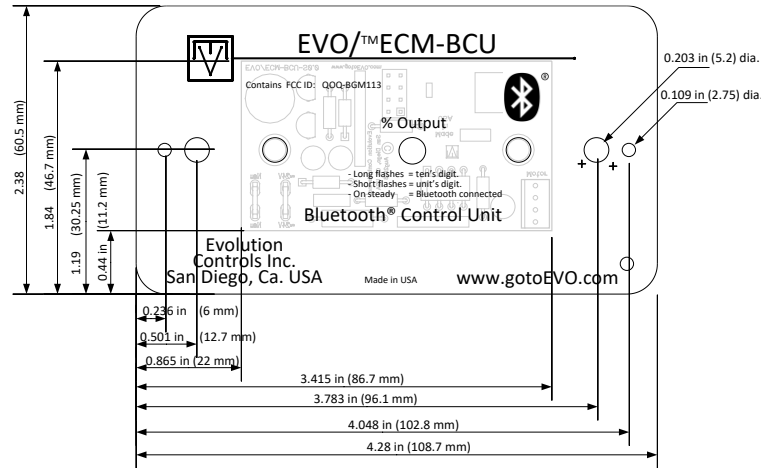
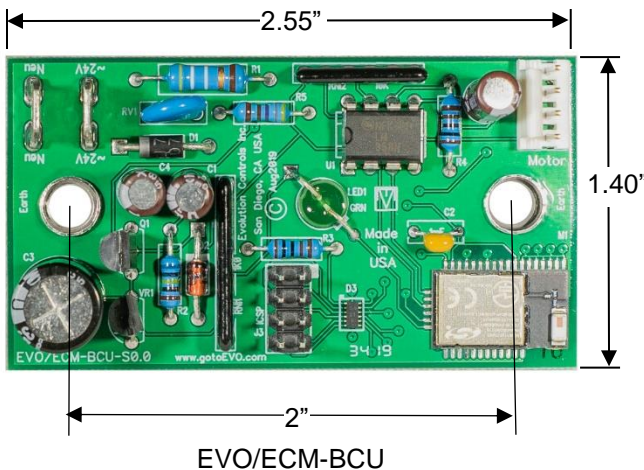
Motor profiles are unique to each manufacturer and motor. Refer to the motor manufacturers instructions to develop the motor profile. The following are a few considerations important to operation with the ECM-BCU:

- ☑ PWM or 0 -10V control
- ☑ Status to RPM only
- ☑ Motor start/stop points if motor does not use the GO signal from the ECM-BCU for the on/off control.

Mounting

Mount the controller with clearance for the power wires and control cable connector. The mounting post must be fastened to an earthed metal surface. The transformer may be located near the motor or near the control.

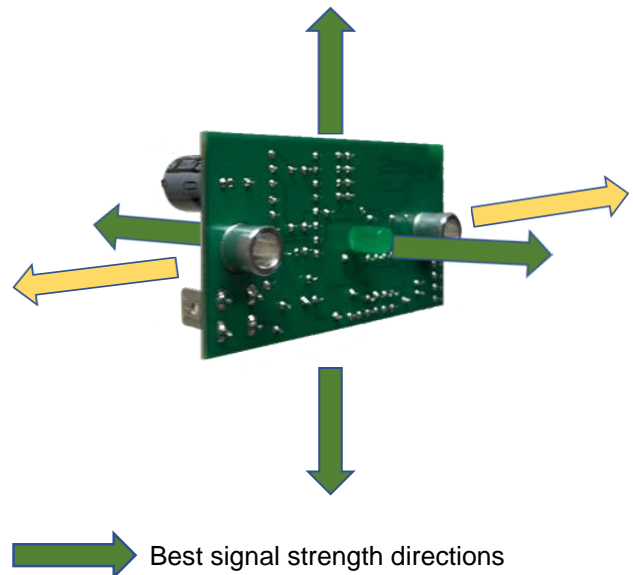
When mounted inside an enclosure, the minimum recommended distance of metallic and/or conductive objects is 10 mm (~ 0.4") in any direction. The mounting plate must be visible from the outside. In general, the signal is strongest in the direction which the faceplate is facing.



EVO/ECM-BCU-MP

The label "Contains FCC ID:DOQBGM113" must be in a visible area.

Signal Strength

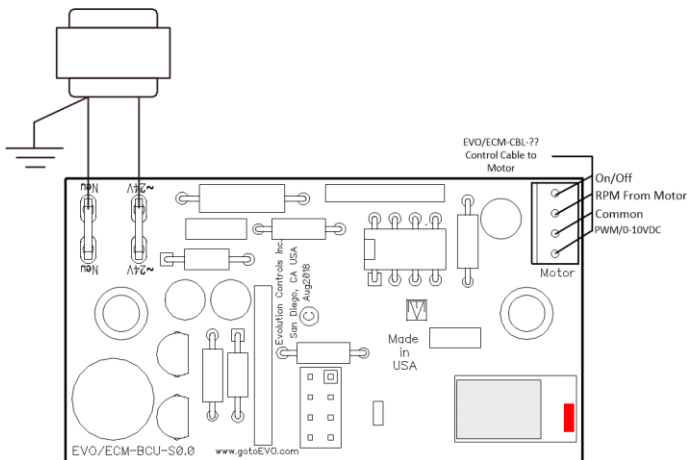


Wiring

Power the EVO/™ECM-BCU controller with a ~24V NEC UL 1310 Class 2 USA power source. DC voltages from +20V to +30V may also be used to power the control. Observe all code requirements and follow all safety practices regarding low voltage power supplies and circuits to insure a safe, reliable installation.

Earth one side of the power source. Connect the neutral connection to the earthed side of the ~24V Class 2 power source. Earth the negative when DC power supplied is used.

Some applications may require an isolated power supply or alternative earthing scheme. Follow code requirements and observe all safety practices concerning unearthed low voltage circuits.



Connect the ~24V to the hot side of the Class 2 power source or to the positive of the DC power source. You may interrupt this connection to turn off the controller and stop the EC Motor. Many automation controllers will power the ECM-BCU controller directly from an on/off output.

One end of the control cable is fitted with a 4-pin connector. Fit this connector into the mating socket on the edge of the EVO/ECM-BCU controller. Plug the connector in with the cable exiting away from the board.

Configurable Parameters and Defaults

Parameters	Defaults
Device Name	ECM-BCU
Control Output	50%
User Password	password
User Password Status	Disable
Admin Password	admin
Admin Password Status	Disable
RPM Type	36PPT
Output Type	PWM
Pilot Pulse	Disable
High Output Limit	100%
Low Output Limit	0%
RPM Alarm	Disable
RPM Alarm High	2000 RPM
RPM Alarm Low	0 RPM
Air Filter 1 Name	Filter1
Air Filter 1 TBFL	0 Months = Disable
Air Filter 1 AVBFL	0 Months = Disable
Air Filter 2 Name	Filter2
Air Filter 2 TBFL	0 Months = Disable
Air Filter 2 AVBFL	0 Months = Disable
Air Filter 3 Name	Filter3
Air Filter 3 TBFL	0 Months = Disable
Air Filter 3 AVBFL	0 Months = Disable

TBFL = Time Based Filter Life
 AVBFL = Air Volume Based Filter Life based on 100% output.



800.869.8025 or 317.291.4341

pas@pureairsystems.com

General Guidelines For Replacing Filters

Series	500, 600, 1200, 2000	600, 1200, 2000	500, 600, 1200, 2000
	Pre-filter	Carbon Filter	HEPA Filter
Residential	3 Months	9 Months	2.5 Years
Commercial	Monthly	4 Months	Yearly

****Chemically sensitive customers should use the Commercial guidelines****

Pure Air Systems Limited Warranty

Your Pure Air Systems product has been manufactured tested and inspected in accordance with carefully specified engineering requirements and is warranted to be free from defects and workmanship in accordance with the terms and conditions as set forth below.

Duration of Warranty and To Whom Extended

This Limited Warranty shall be for one year on the motor and three years for the other electrical components and blower. It does not cover the filters in the system as they are a standard maintenance item.

Exceptions and Exclusions from Warranty

Those products which incorporate an electrical motor are required to be used on electrical current as indicated on the rating plate. This Limited Warranty does not apply to products which have been subject to use on electrical current other than indicated on the rating sticker of the product.

This Limited Warranty does not apply to products which have been subject to improper, unreasonable or negligent use, abuse, or the use of parts or accessories which are not approved by Pure Air Systems.

If repair is done on your equipment by anyone other than those designated as authorized to perform such work, Pure Air Systems at its sole option, may determine that this Limited Warranty will not apply.

Procedure to be taken to obtain Performance of Warranty

To secure repair of the product or any warranted parts under the Limited Warranty, the following procedures shall be taken:

- Contact Pure Air Systems or the dealer that installed your system
- It is important that the model number and serial number of the system be provided to Pure Air Systems to ensure the product falls within the warranty time frame.
- The inoperative component(s) or warranted parts, together with satisfactory evidence of the purchase date, must be delivered, with shipping and delivery charges prepaid to Pure Air Systems.
- Upon compliance with the above procedure, all warranted defected parts will be repaired or replaced. Pure Air Systems will pay for return shipping and cost of replacement parts.

NO REFUND OF PURCHASE PRICE

Pure Air Systems will not, as a matter of its Warranty Policy, refund the customer's purchase price. This limited warranty gives you specific legal rights and you may also have other rights which vary from state to state.

NO CLAIMS FOR CONSEQUENTIAL OR OTHER DAMAGES WILL BE ALLOWED AND THERE ARE NO OTHER EXPRESS WARRANTIES EXCEPT THOSE EXPRESSLY STIPULATED HEREIN. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES. THEREFORE, THE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

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