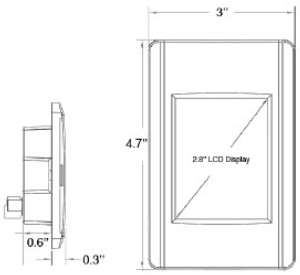
MacroAir Controllers - Digital Remote

- Standard on all MacroAir fan models (Except Z Series)
- Simple and intuitive control
- Easy ground-level troubleshooting and diagnostics



Features	Digital Touchpad Remote
Item #	30-90308-00
# Fans Controlled	1 fan
Display	2.8 TFT
Resolution	240x320x16 pixels
Backlight life time	20,000 hours
Backlight brightness	160 cd/m2
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6
Rating (front)	IP 40 / NEMA 1
Weight (incl. enclosure)	375 g
Communication Protocol	RS 485
Power Supply	24V from fan
Size (incl. enclosure)	91.2 x 135.5 x42.0
Operating Temperature	-4° to 158°F / -20° to +70°C
Storage Temperature	-22° to 176°F / -30° to +80°C

Note: Only one type of fan control can be used: Controller 30, Controller 4, Digital Remote Assembly, Analog Remote Assembly or AirLynk.

MacroAir
engineers of air™

Operation Manual

Controller 4

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Introduction

Caution and Safety

This appliance can be used by children aged from eight (8) years and above and persons with reduced physical, sensory, or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

⚠ **ATTENTION: Safety. READ AND SAVE THE ENTIRE MANUAL BEFORE OPERATING THE FAN.** Ensure that all safety procedures and instructions are followed during the installation, operation, and servicing of the fan. Failure to apply these safety practices could result in death or serious injury. If you do not understand the instructions, please call our technical department for guidance.

⚠ **CAUTION: Non-Compliance.** The fan installation should follow the recommendations outlined in this manual. MacroAir is not responsible for any injury or damage to persons or property because of 'not complying' with the recommendations outlined in the manual.

Electrical Guidelines

⚠ **WARNING: Electrical Damage.** Improper electrical installation can cause damage to the fan and interfere with other electronic equipment. In addition to standard electrical safety considerations, please observe the following:

- **MacroAir Cables.** The wiring from the control panel to the fan MUST be MacroAir supplied shielded cable. CAT5e to be MacroAir supplied twisted, stranded, and shielded or greater.
- **Electrical Interference.** Separate incoming power and motor control cables by a minimum of six (6) inches.
- **Individual Fan Wiring.** Run wiring for each fan separately.
- **Multiple Fans.** Do not attempt to control multiple fans from one (1) fan control panel.
- **ALWAYS GROUND PROPERLY.** Connect the supplied cable glands to each end of the motor cable and tighten them securely at both the fan motor and control panel ends. Connect the ground bar in the control panel to ground at the main breaker and test.
- **Read.** Please refer to the installation instructions for more information.

⚠ **ATTENTION: Qualified Technicians.** All fan controls should only be installed by qualified technicians familiar with the requirements of the National Electrical Code (NEC) and local codes. Refer to appropriate portions of this manual for other important requirements. Failure to follow these guidelines will void the manufacturer's warranty.

Introduction

Electrical Guidelines cont.

⚠ **ATTENTION: Factory Configured.** All electrical controls are configured at the factory and are ready to use. No user adjustments are available. Follow the included wiring schematics and installation instructions when installing this device to ensure proper operation. Do not make any changes to any part of the motor control panel without first consulting MacroAir.

⚠ **ATTENTION: Code Compliance.** Installation is to be in accordance with the NEC, ANDSI/NFPA 70-1999 and local codes.

Hazard of Electrical Shock, Explosion, or Arc Flash:

⚠ **ATTENTION: Read.** Read and understand this manual before installing or operating a fan unit. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.

⚠ **ATTENTION: Code Compliance.** The user is responsible for compliance with all international and National Electrical Code requirements with respect to grounding of all equipment.

⚠ **WARNING: Do Not Touch.** Many of the parts of this unit operate at line voltage. DO NOT TOUCH.

⚠ **WARNING: Covers.** Install all covers before applying power or starting and stopping the unit.

Installation and Service

⚠ **WARNING: Damage.** Do not operate or install any fans or fan accessories that appear to be damaged.

⚠ **WARNING: Death and Injury.** Failure to follow this instruction can result in death, serious injury, or equipment damage.

⚠ **WARNING: Disconnect Power.** If the fan does not operate properly using the procedures in this manual, BE CERTAIN TO REMOVE ALL POWER TO THE UNIT and contact our Technical Department for further assistance.

⚠ **CAUTION: Moving Parts.** Keep all body parts clear of moving parts at all times.

⚠ **ATTENTION: Qualified Technicians.** All electrical troubleshooting and repair must be done by a qualified technician and meet all applicable codes.

Fan Network Ordering

Type of controller: Controller 4, which can network up to 4 fans.

MacroAir customizes fans to operate in a network by:

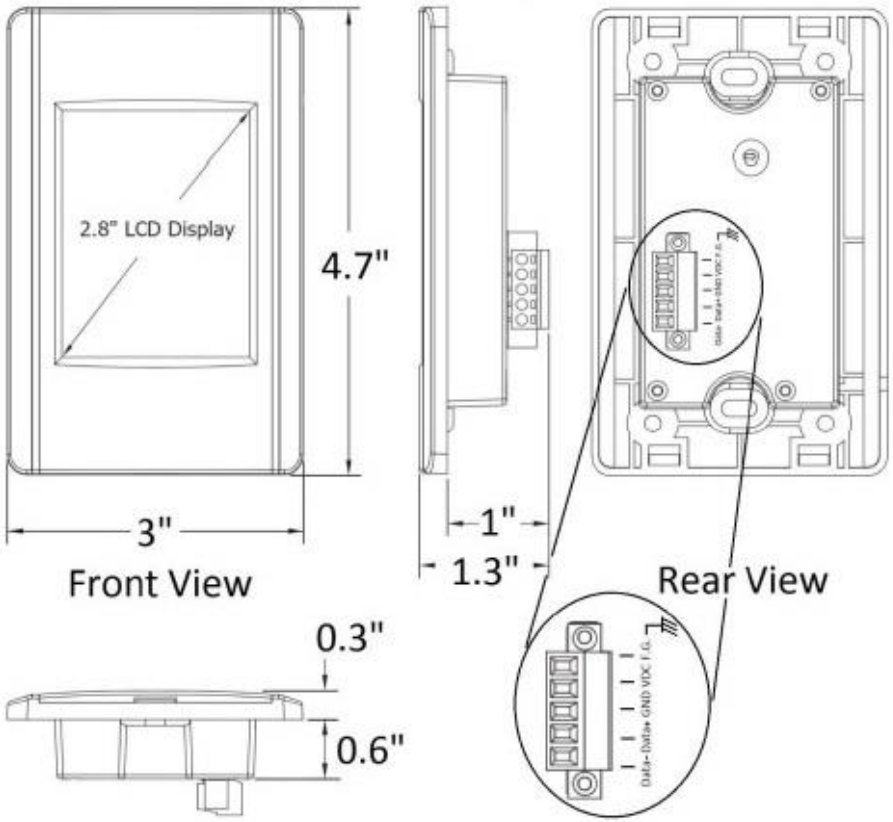
- Addressing the fans.
- Modifying the panel enclosure.
- Modifying the wiring on the VFD.

Note: If you did not order your fans for a network, please contact Technical Support for assistance with networking your fans. Also, when installing new fans in an existing mixed network, contact Technical Support.

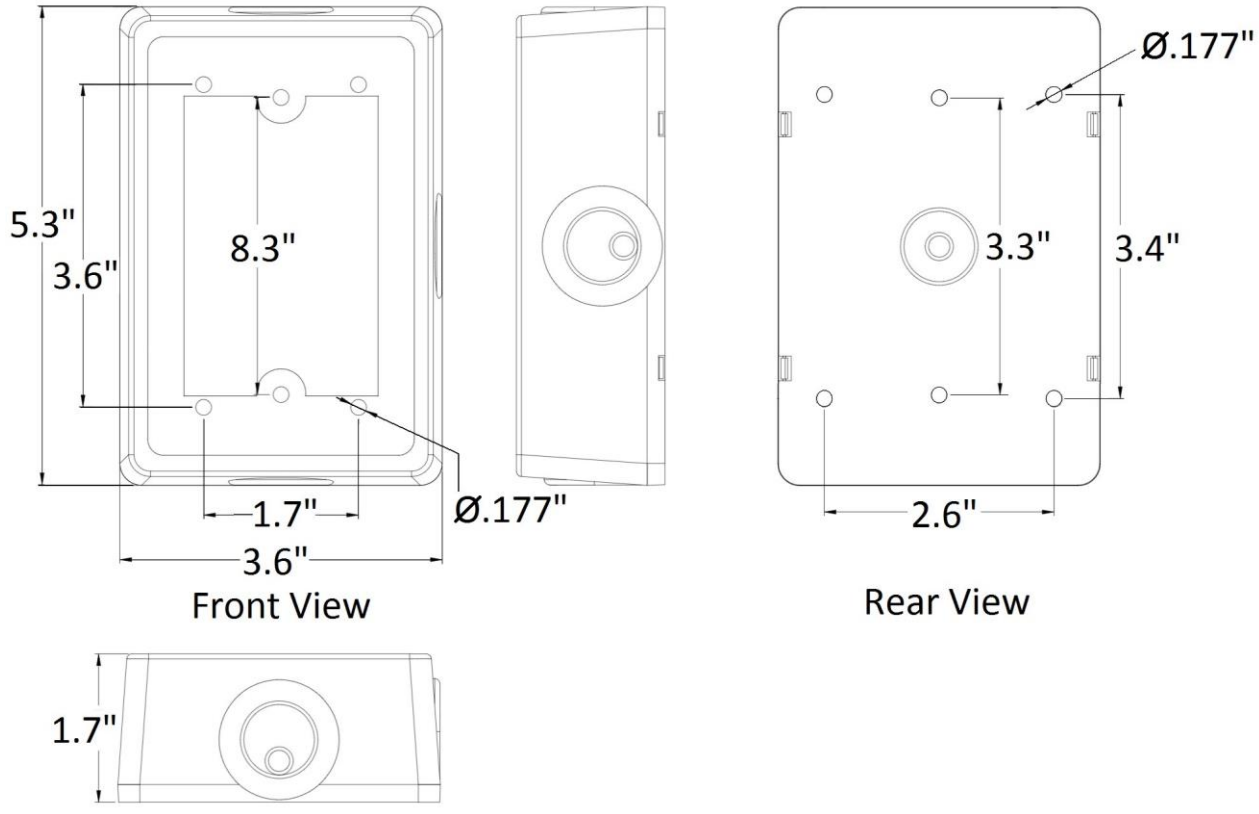
Introduction

Touchpad Remote Dimensions

LCD Display



Enclosure



Network Installation

Network Wiring Requirements:

- Use stranded CAT5e or higher shielded cable.
- Minimum 24AWH (0.5mm) cross section.
- Ground the shielding and drain wire at only one point of the cable run.
- Route wires as far away as possible from high voltage AC cables, fluorescent lights, arc welders, and other equipment that transmits EMI (electromagnetic interference).
- Do not run CAT5e in conduit with high voltage AC cables.
- Do not exceed 400ft [122m] of CAT5e between each fan in the network.
- RJ-45 to use CAT5-B pinout (see image below).

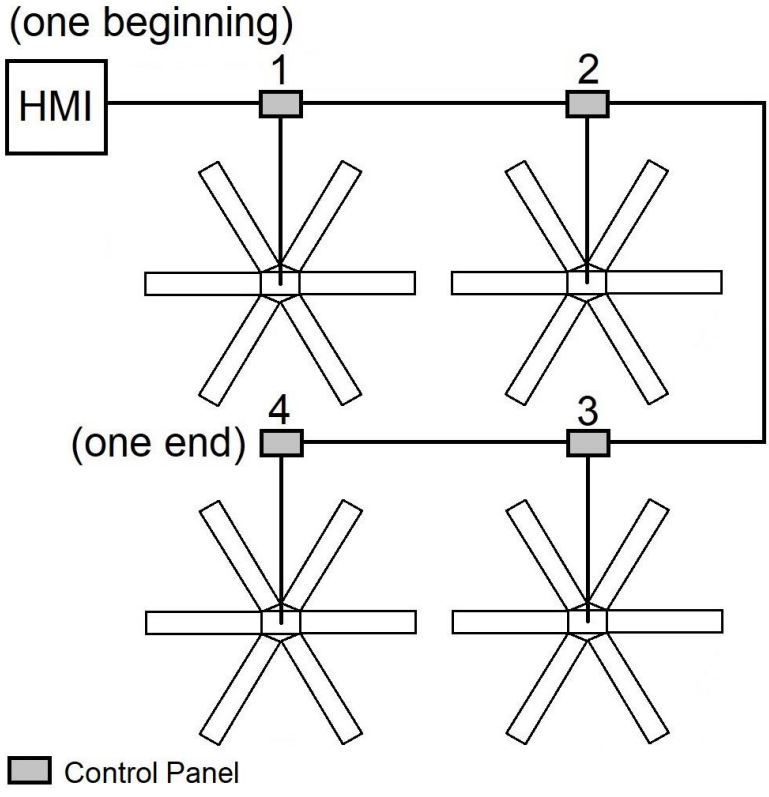
CAT5B pinout

Daisy Chain

Network MacroAir fans must be connected in one single line, referred to in this document as a "daisy chain". The characteristics of a proper daisy chain are: one beginning (Controller 4) and one end (last fan or control panel).

If the fans are not connected in one line/chain, there will be a degradation of the communication signal and the network may not function as intended (fans in the network may not operate).

Each fan has a unique address, which is noted on a sticker on the control panel. It is important to mount the fans in the correct order.

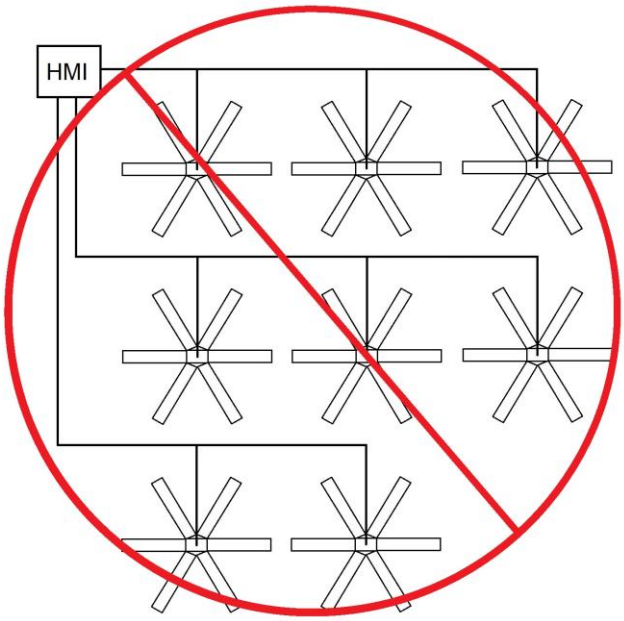


Network Installation

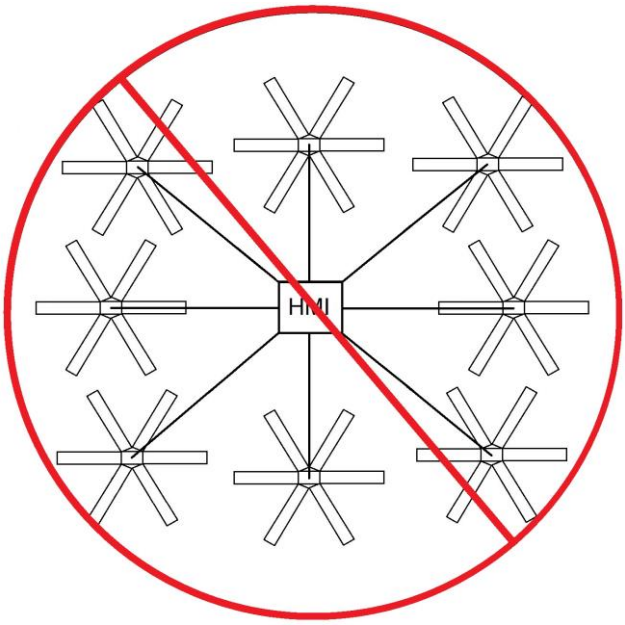
Network Wiring Configurations

Improper Wiring Configuration

End of Line x3

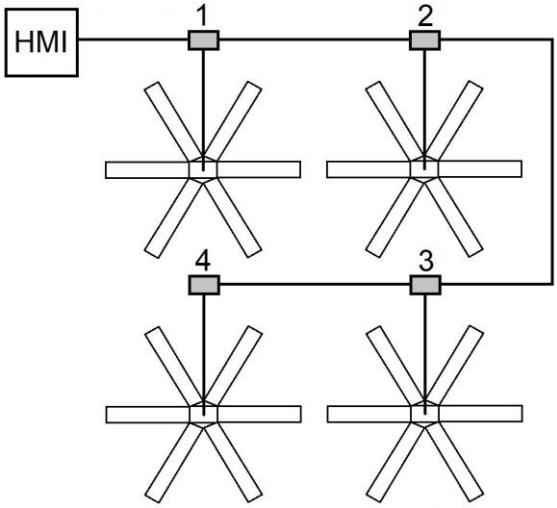


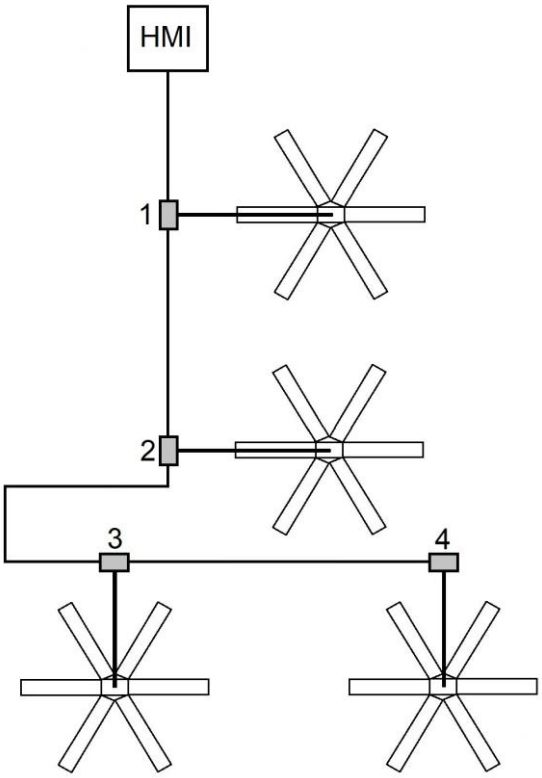
End of Line x8



Proper Wiring Configuration

ONE End of Line





Network Installation

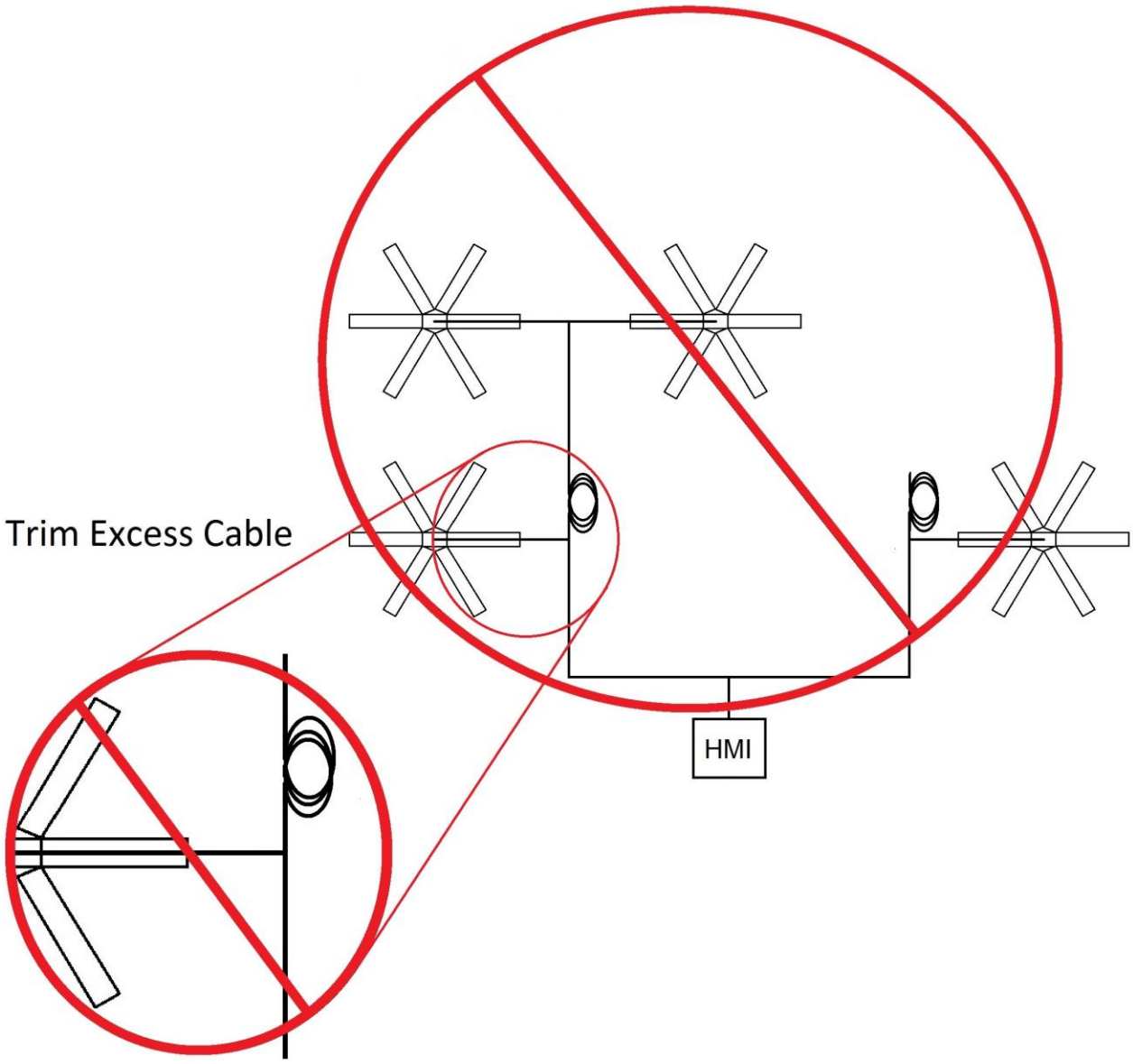
Network Wiring Configurations cont.

Excess Cable at Connection Point

With noise being emitted throughout a typical industrial/commercial environment, **extra cable should not be coiled up** as the coil itself will create noise/interference in the communication signal. There should be no more than 2ft [0.6m] of excess cable at each connection point.

If more than 2ft [0.6m] of cable is needed for future relocation of the fan, run the cable up toward the ceiling and back down in a horseshoe shape.

ALWAYS AVOID SHARP BENDS OF THE CABLE.

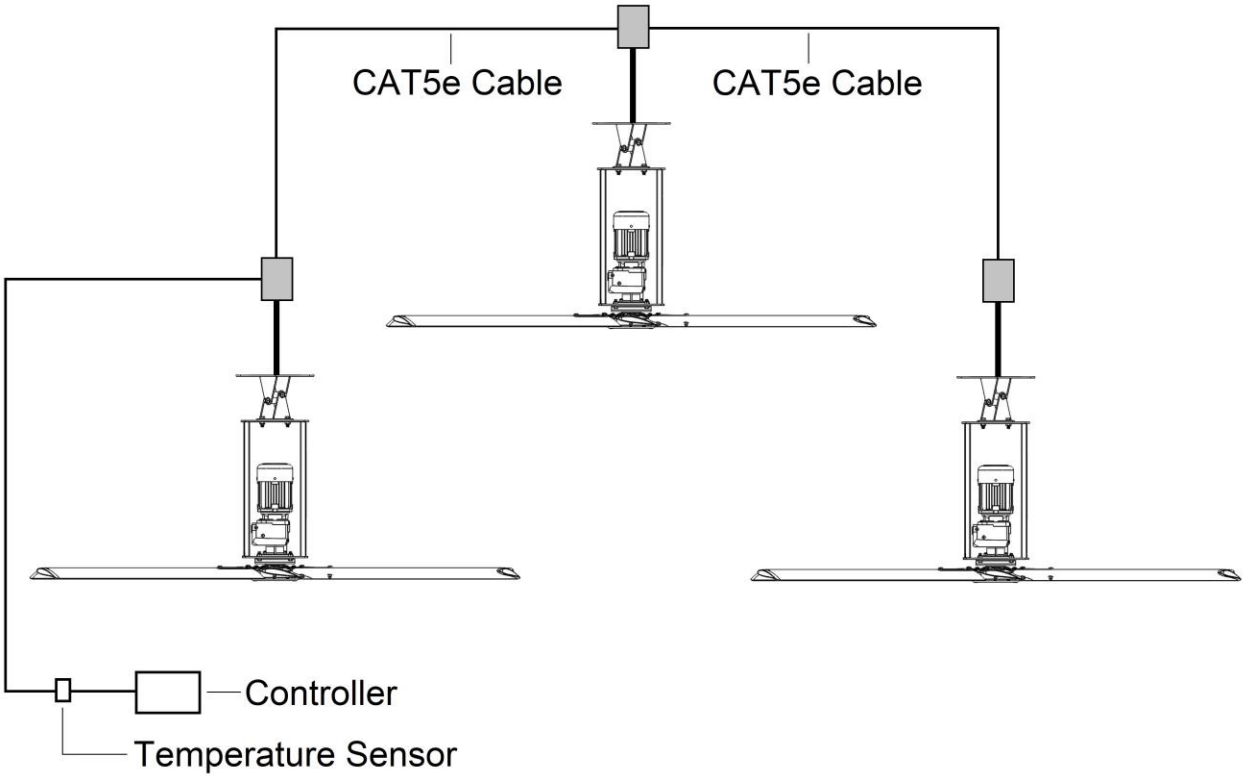


Network Installation

Fan Wiring Instructions

MacroAir fans are wired in a daisy chain with one CAT5e from the touchscreen/previous fan into an RJ45 port on the control panel, and one CAT5e going to the next fan from the second RJ45 port on the panel. The internal panel wiring does not need to be modified for communications.

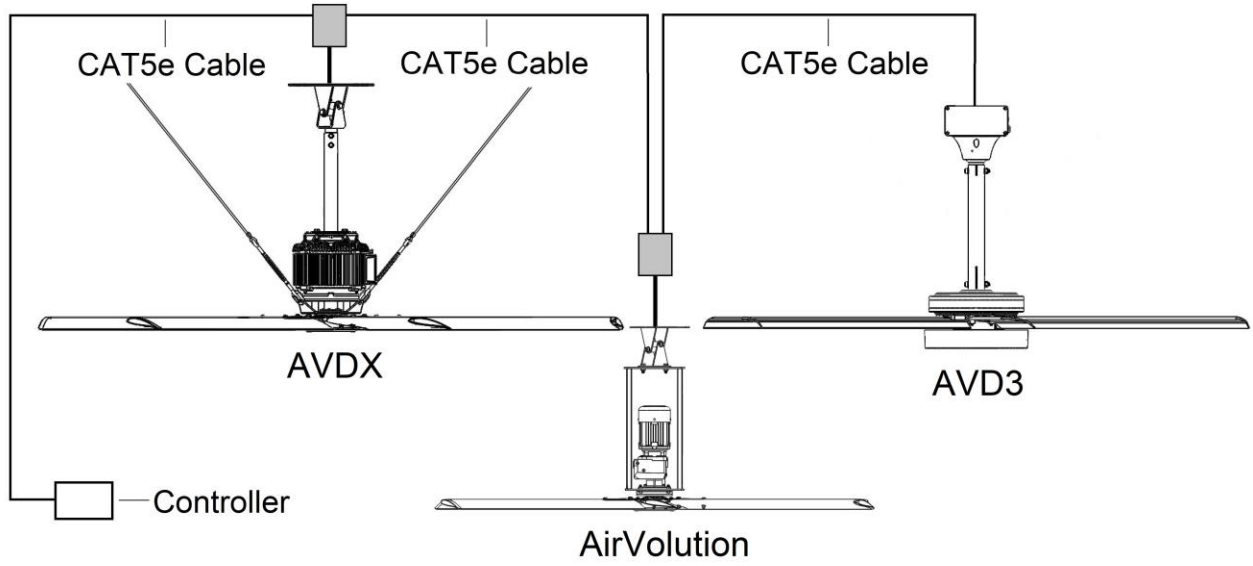
A properly wired daisy chain network will have the CAT5e network ran per the below illustration.



Network Installation

Mixed Network Wiring Instructions

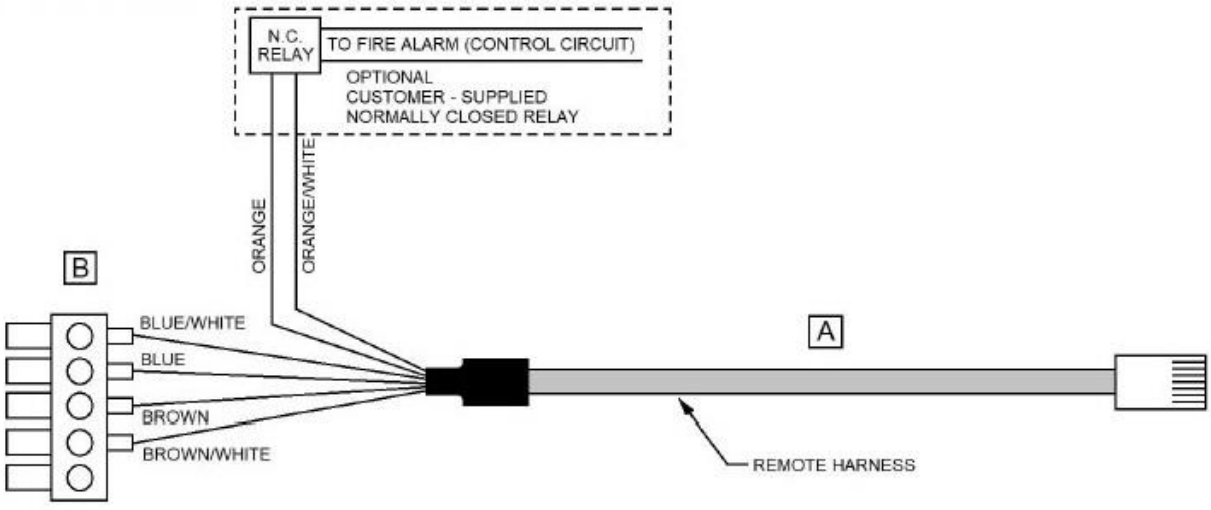
Networks utilizing different MacroAir fans, will wire each fan according to the preceding wiring instructions in the manual (ref page 9). Below is an example of wiring for a mixed network:



Note: When installing new fans in an existing mixed network, contact Technical Support for assistance with networking your fans.

Emergency Stop for Fire Alarm

Touchpad Remote Wiring: Use the schematic below to connect the fan(s) to an emergency stop (i.e., Fire Alarm System)



COMPONENTS:

A – REMOTE HARNESS (FOUND IN FAN REMOTE ENCLOSURE)

B – TERMINAL BLOCK CONNECTOR

Reference Terminal Block: Touchpad Remote Dimensions, LCD Display, Rear View, page 5

Sensor Installation

Temperature/Humidity Sensor Installation (Optional)

PINOUT:

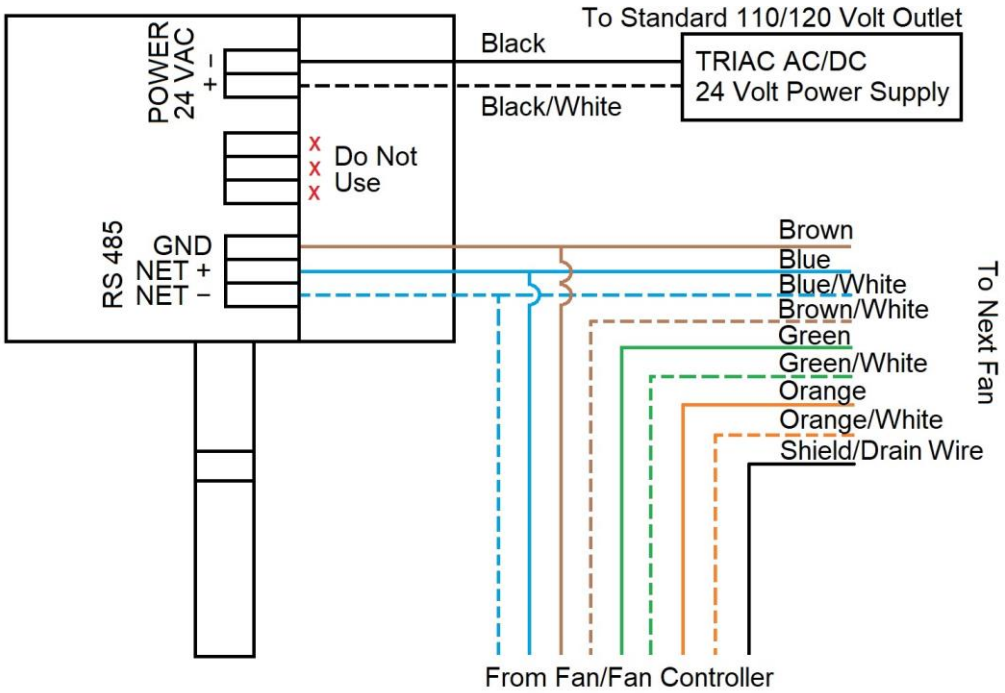
Black (From Power Supply)..... Common
Black/White (From Power Supply) ..... 24VDC+
Blue (From Cat5E) ..... Net+
Blue/White (From Cat5E)..... Net-

Mounting: Ceiling or Floor Mounting

1. When mounting the temperature/humidity sensor at the ceiling, mount at least 1ft [0.3 m] below the ceiling in the same room where the fan/fans are placed. When mounting the temperature/humidity sensor at the floor, mount the sensor within 6ft [1.8m] of the ground in the room where the fan/fans are placed. Use caution when placing the sensor making sure not to place it where there is any contact with direct sunlight. Each sensor has small mounting holes for attachment with screws.

2. Once the sensor has been placed it can be wired into the network. Use the provided 110/120V power supply to power the temperature/humidity sensor and the blue, blue/white, and brown wires from the CAT5e cable for communication. If there is enough slack in the cable you can run the wiring directly in and out at the same point on the sensor.

3. Please refer to the wiring diagram. See pages 12-13 of this manual (T-Splice Connection Method) for proper stripping and bean crimping of wires.



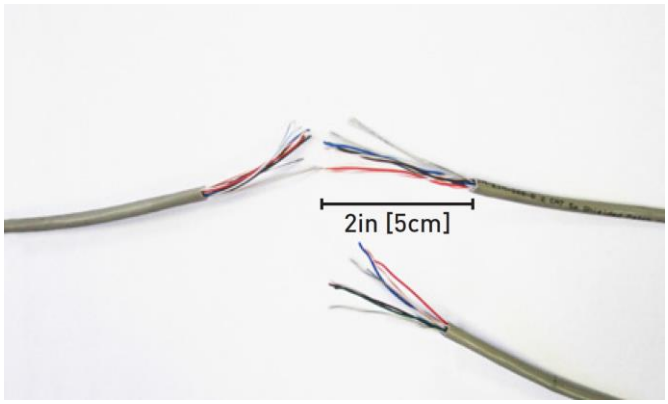
Sensor Installation

T-Splice Connection Method

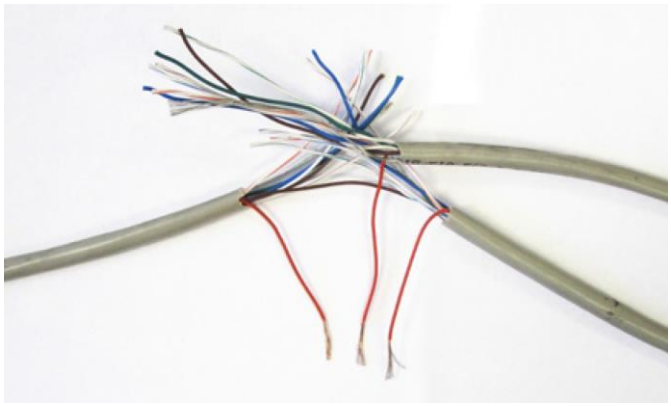
1. Take the incoming CAT5e from the network, the 15ft [4.57m] CAT5e whip from the fan, and the CAT5e going to the rest of the network. Give some slack (no more than 2ft / 0.6m) on each CAT5e to strip the wires and splice them together. Run the slack up towards the ceiling and back down in a horseshoe shape.

DO NOT roll the excess slack into a circle or coil because this creates a place for the network to pick up noise on the lines.

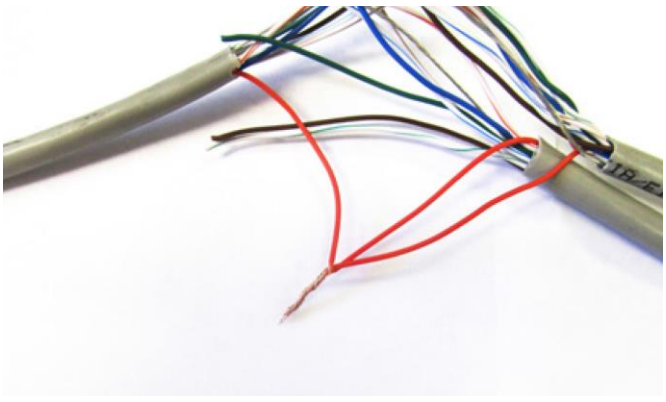
2. Strip jacketing off the three CAT5e cables and separate each color wire leaving approximately 2in [5cm] of each wire exposed including the drain/shield wire.



3. Strip approximately 1/2in [1.3 cm] off each color wire leaving the bare copper exposed.



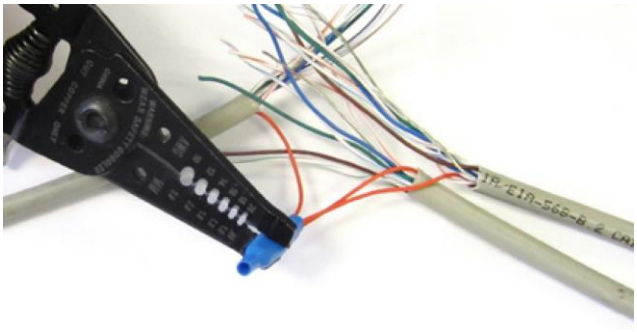
4. Twist the 3 wires of same color from each CAT5e together.



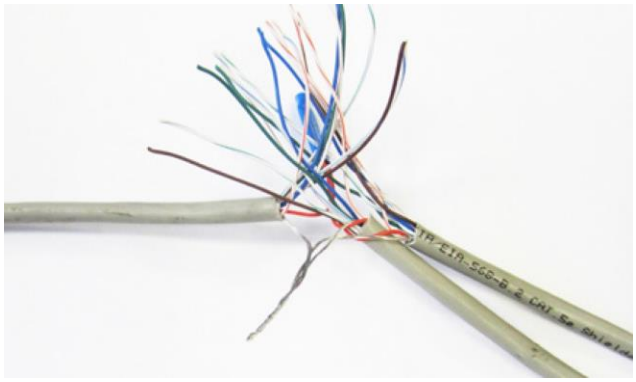
Sensor Installation

T-Splice Connection Method cont.

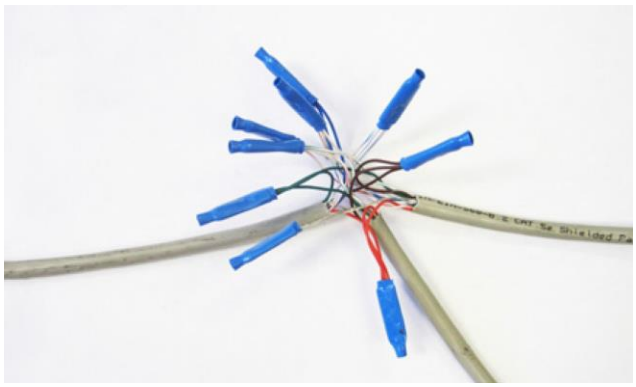
5. Place a gel filled bean crimp onto the end of the 3 wires and use a small crimper or pliers to crimp the bean tight on the wires.



6. Double check that the 3 drain wire/bare wires are also crimped together as this is what continues the shielding throughout the network. The shielding and drain wire MUST be connected to Earth Ground at **only one point** of the cable run.



7. Repeat steps 3-5 for all the wires EXCEPT the Brown/White wire. **The Brown/White wire is only needed for wiring in a repeater.**



8. Once all the wires are crimped, carefully twist the wires up. Then fold them back and tape them up with electrical tape to clean up your wiring.

Controller 4 Screen Setup

The touchscreen may require additional setup before operating the fans. Please refer to the steps below to properly configure your controller.

1. Power on the fans. The screen will illuminate as soon as power is supplied.

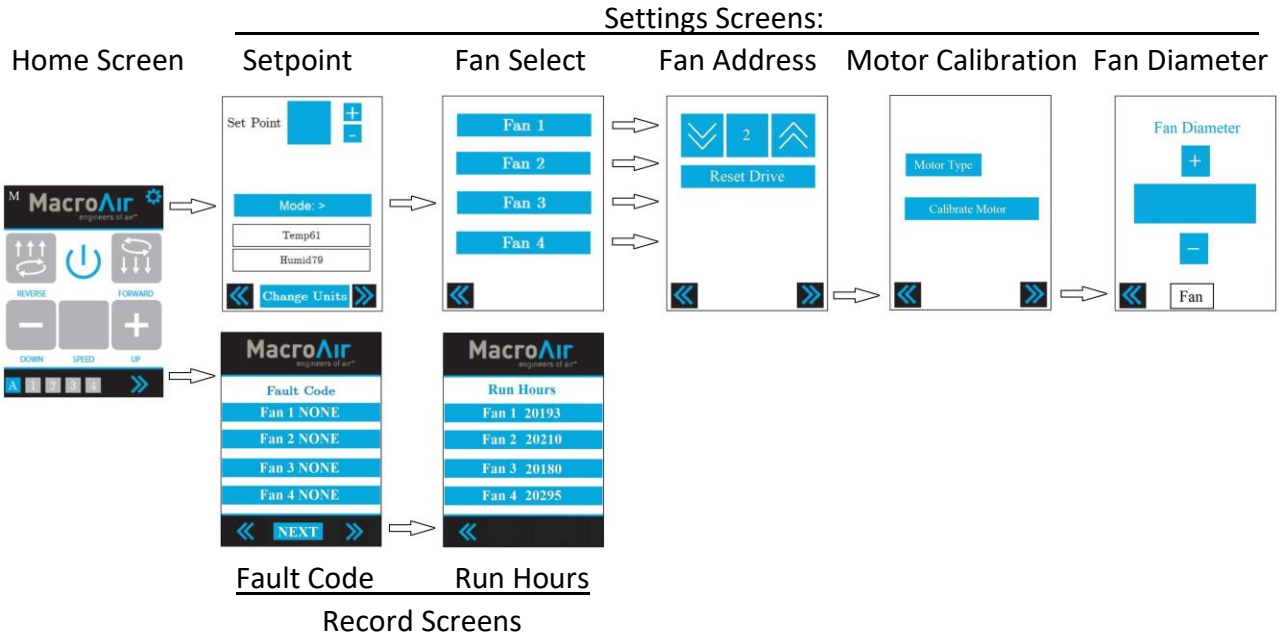
2. The screen will search for fans and take you to the home screen once the scan is complete.

3. AirVolution fans do not require further setup. If you have this fan on the network, set a speed and direction using the buttons on the home screen. AirVolution fans will operate normally.

4. AVD370, AVD3, 550, 780, and AVDX fans REQUIRE the blade size to be programmed in order to function correctly. The fan diameter is set via the “Fan Diameter” screen. Once the diameter is programmed into every AVD3 and AVD370 fan on the network, the fans can be operated normally. 550, 780, and AVDX fans need to be calibrated.

Configuration and Operation

Screen Flow



Home Screen .....Page 16

Temp/Humidity Setpoint .....Page 17

Fan Select .....Page 18

Fan Address .....Page 19

Motor Calibration .....Page 20

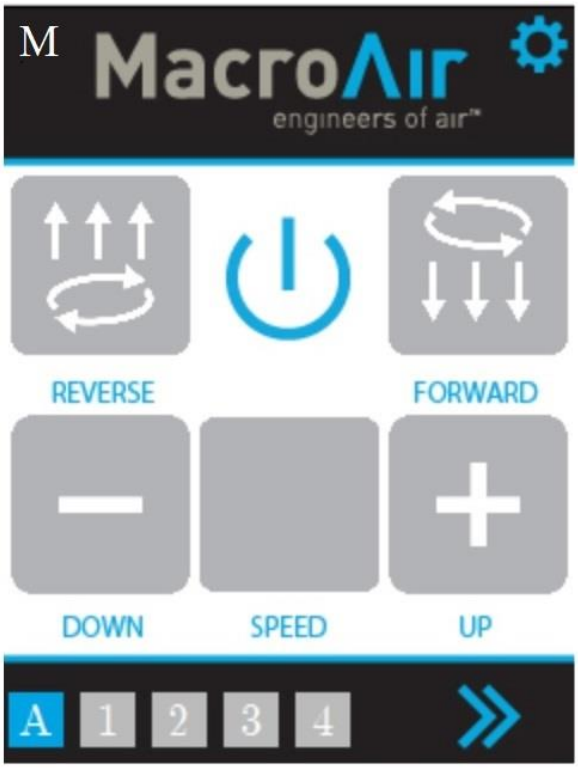
Fan Diameter .....Page 21

Mkey .....Page 22

Configuration and Operation

Home Screen

The home screen allows control of all connected fans. Selecting a speed and direction will run the selected fan(s). The fans will not run unless speed AND direction commands are given.



Mode (M or A icon): "M" indicates Manual mode; "A" indicates Auto mode (which only displays when the Temperature/Humidity sensor is present in the network).

Settings (gear icon): Accesses the Fan Select page, from which the settings page can then be accessed.

A, 1, 2, 3, 4: Clicking this button will toggle between "A" and the individually numbered fans. "A" indicates control of all the fans on the network. Numbers 1, 2, 3, 4 … etc. indicates individual control of the fan selected.

Reverse: Issues a reverse command to all fans or the individual fan selected.

Power: Turns off the selected fan(s).

Forward: Issues a forward command to all fans or the individual fan selected.

Down (minus): Adjusts the fan speed down by 5%.

Speed: Displays the current setting of the last commanded speed (displayed as a percentage).

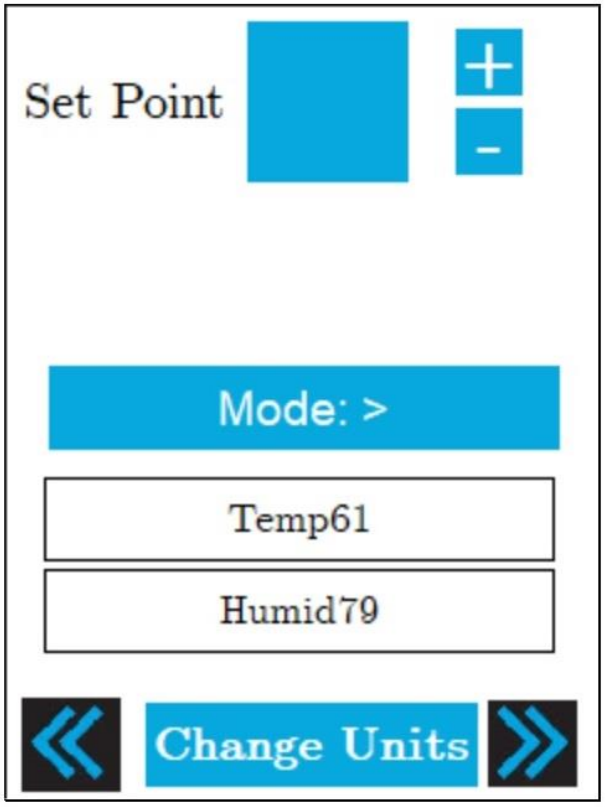
Up (plus): Adjusts the fan speed up by 5%.

Right Arrow: Navigates to the fault code screen.

Configuration and Operation

Temperature/Humidity Setpoint

Only if ordered with the Temperature/Humidity Sensor:
The Setpoint screen allows you to select the method of control for your fans, as well as the desired temperature or humidity setpoint if the optional sensor is installed.



Set Point: Displays the temperature or humidity threshold. The plus adjusts the threshold higher; the minus adjusts the threshold lower.

Mode Selection: Allows you to choose between manual mode, temperature mode and humidity mode. Manual mode allows you to control the fan from the home screen. Temperature mode runs the fan according to the speed and direction set on the home screen once the measured temperature is greater or less than the set point temperature (depending on mode selected). Humidity mode runs the fan according to the speed and direction set on the home screen once the measured humidity is greater than the set point.

Temperature Reading: Displays the ambient temperature. Will read “BAD TEMP READING” if there is no sensor connected.

Humidity Reading: Displays the ambient humidity. Will read “BAD HUMID READING” if there is no sensor connected.

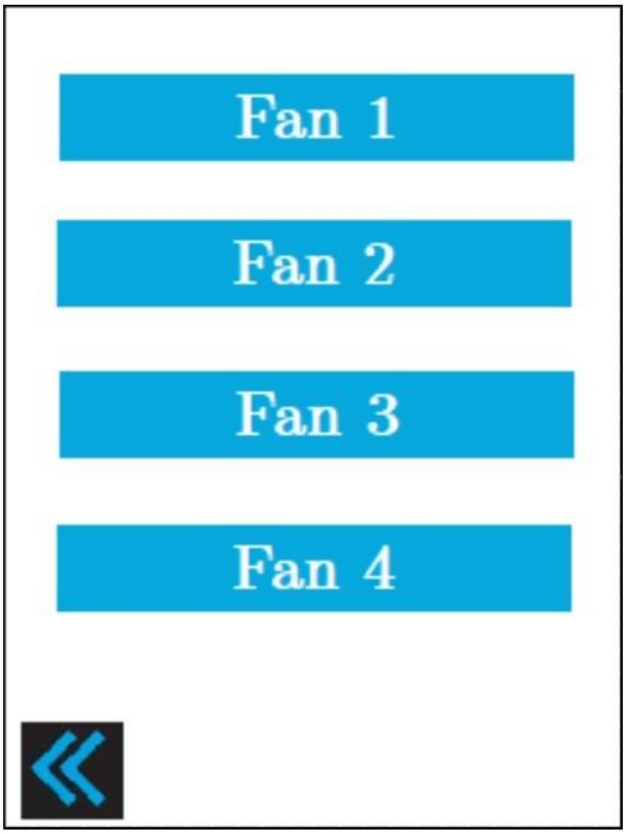
Left Arrow: Navigates to the Home Screen.

Change Units: Changes the Temperature Reading and Set Point between Fahrenheit and Celsius.

Right Arrow: Navigates to the Fan Select screen.

Fan Select

The Fan Select page displays a button for every fan connected to the controller*. Pressing the button for the desired fan will take you to that fan's Address page. Pressing the left arrow will take you back to the Setpoint page.



* If fans are connected, but not displayed on the Fan Select screen, check your CAT5 connections. Call technical support if you require further assistance.

Configuration and Operation

Fan Address

The address page allows you to change the Modbus address of the fan. This is useful for programming fans for the controller that were not originally shipped with the controller. Please note that each fan must have a unique address, so be careful when making any changes to ensure that there are no address conflicts. Only one fan can be connected when changing address.

Up/Down Arrows: Adjusts the address number shown on the screen. Ensure that this number is unique for every connected fan.

Reset Drive: Resets the drive. Address changes do not take effect until the drive is reset.

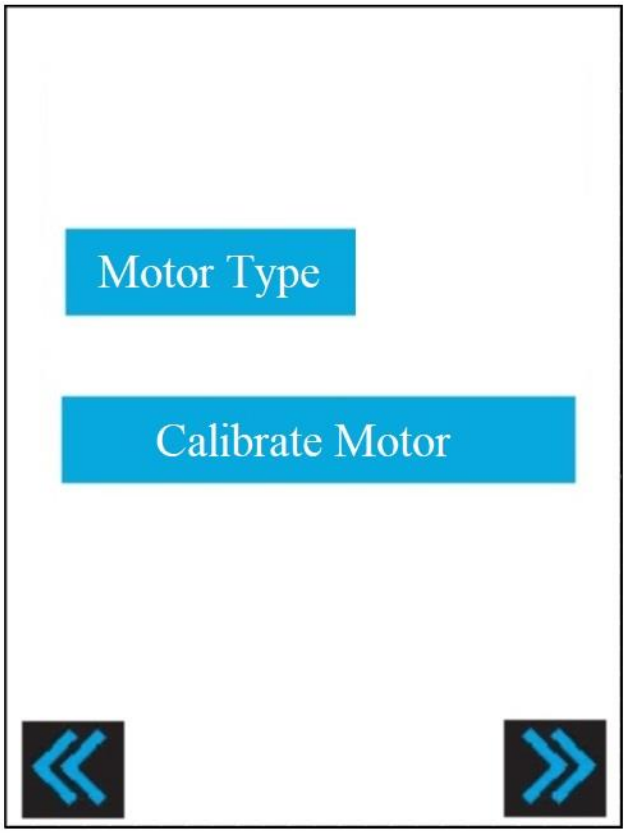
Left Arrow: Takes you to Fan Select screen.

Right Arrow: Takes you to Motor Calibration screen.

Motor Calibration

Press the Motor Calibrate button. The screen will display a warning. If the motor is cold, press the Calibrate Motor button again.

The screen will ask if the motor has run recently. If it has, press the Yes button. Calibration will not occur, and you must wait until the motor is cold to perform the calibration. If the motor has not run recently, press the No button. The fan will perform a calibration of the motor. The motor will make a loud noise while calibrating; this is normal. If the motor calibration fails, log into the technical support website and file a case, you will receive a call from Technical Support. The Technical Support address is: https://MacroAirFans.com/Techsupport



Once motor calibration is done, press the lower left arrow to get to the address screen. Change to the desired address and press the Reset button. If you do not need to change the address, press the arrow in the lower left until you are at the fan control screen. You may now operate your fan as desired.

Motor Type: Displays motor type.

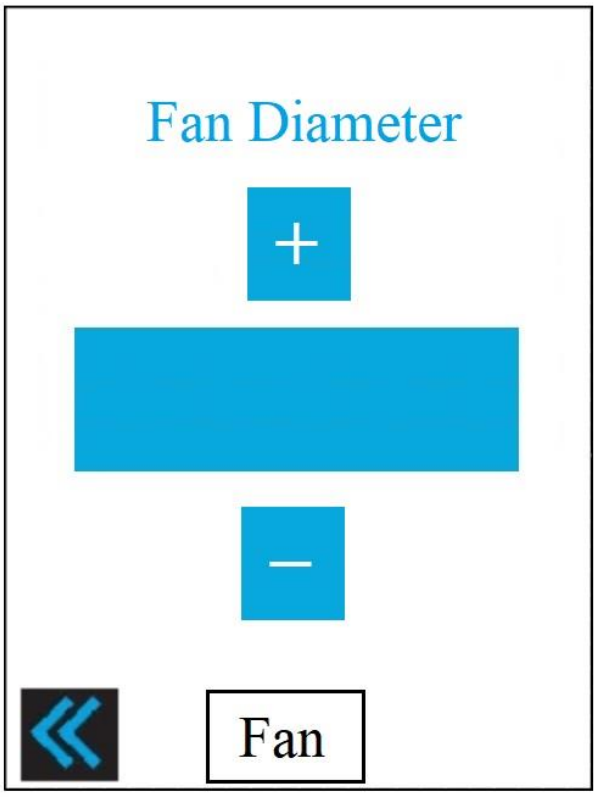
Calibrate Motor: Calibrates the fan (not applicable to the AVD3 or AVD 370).

Left Arrow: Takes you to the Address screen.

Right Arrow: Takes you to the Fan Diameter screen.

Fan Diameter

The Fan diameter page allows you to set the diameter on AVD3, AVD370, 550, 780, and AVDX fans. **These fans will not run properly if the diameter is not set correctly.**



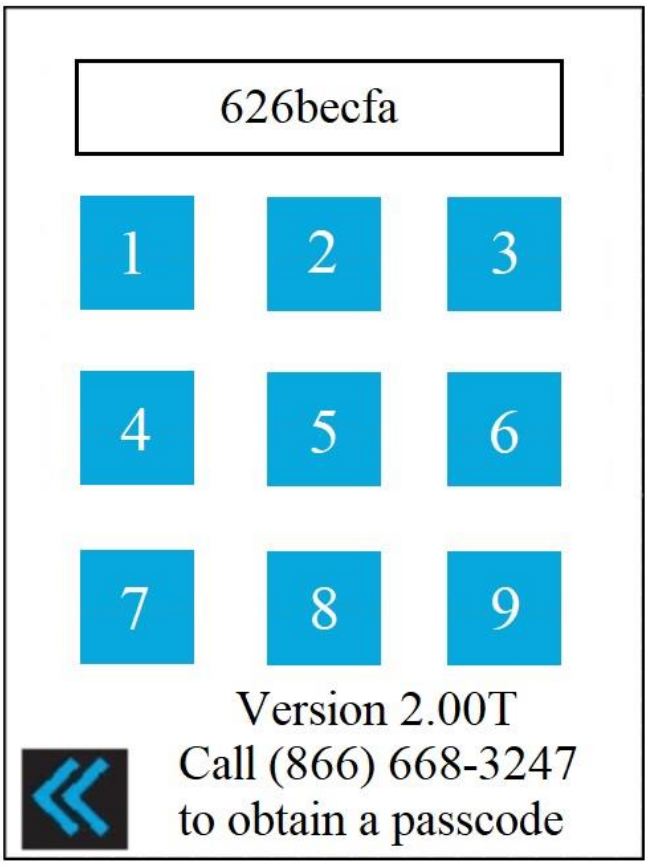
Plus/Minus: Adjust the diameter up and down. For AVD3 fans, adjust the diameter past 24 to access 3-blade fan settings.

Left Arrow: Takes you to the Motor Calibration screen.

Configuration and Operation

Mkey (present for certain fan models)

The Mkey page prevents unauthorized users from accessing advanced settings on the fan that could potentially cause damage if misused. For access to advanced settings, please call Technical Support at 866-668-3247.



Mkey: Displays a code that needs to be relayed to technical Support for a password. This code is constantly changing, so you must be in front of the screen when on the phone with MacroAir.

Number pad: Technical support will issue you with a 4-digit number once you provide the Mkey. The 4-digit code can be typed in using the number pad.

Left Arrow: Takes you to the Address page.

Warranty

MacroAir warrants the Products listed in the table below will be free from defects in materials and workmanship under normal use and maintenance for the applicable Warranty Period. Other than the Warranty set forth in this document, no other written or oral warranties apply, and no employee, agent, dealer, or other person is authorized to give any other warranties on behalf of MacroAir.

START DATE OF WARRANTY COVERAGE

Warranty Period begins fifteen (15) days following shipment of the Product, or on the date the Product is installed (not to exceed sixty (60) days Customer receives the Product), whichever date is later. Customer should retain necessary documentation to verify the date of receipt and installation of the Product. Customer will be required to produce this documentation in order to obtain Warranty services from MacroAir. The Warranty specified herein applies only to Products purchased on or after April 15, 2021.

PRODUCTS AND SYSTEMS COVERED BY THIS WARRANTY AND APPLICABLE WARRANTY PERIODS:

Fan Type	Mechanical: Blades, Hub & Frame	Standard Electrical[1]: Motor, Electrical Controls, Remote	Labor
AVDX	15 Years	10 Years	1 Year
AirVolution	15 Years	7 Years	1 Year
AirLegacy	15 Years	5 Years	1 Year
AVD3	10 Years	5 Years	1 Year
AVD 370	10 Years	5 Years	1 Year

WARRANTY COVERAGE:

Subject to the exclusions herein, the MacroAir Warranty covers any defects in workmanship or materials of the covered Products under normal operation and prescribed maintenance when those defects adversely affect the ability of the Product to operate properly.[2] The Warranty only covers Products which have been installed in compliance with MacroAir's written installation instructions by a state-qualified or licensed electrical contractor and operated and maintained by the Customer in conformity with MacroAir's written instructions, and when the Product is purchased directly from MacroAir or a MacroAir Authorized Dealer.

This Warranty is subject to all provisions, conditions, limitations, and exclusions explained in this Warranty document.

*Scan QR code or visit macroairfans.com/warranty for full warranty information.

1 "Standard Electrical" means any common electrical component that is utilized across more than one fan line will assume the higher warranty period.
2 "Operate properly" applies only to mechanical, electrical, and structural systems of the Product.

Information

Technical Support

For installation assistance, application questions, technical support & any other inquiries, please contact our Technical Support team at (866) 668-3247 option 2.

Let's Stay Connected!

Social

Website

www.macroairfans.com

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engineers of air™

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San Bernardino, CA 92408
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Macroairfans.com

MacroAir
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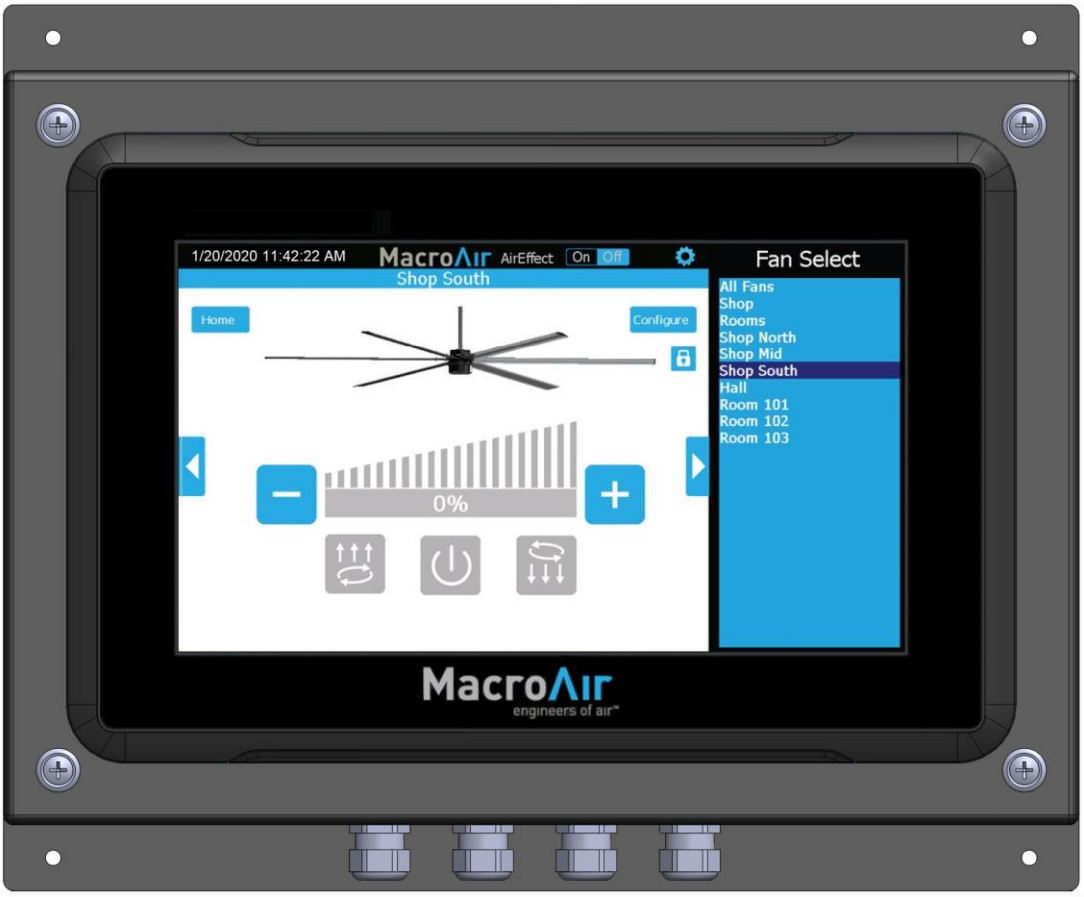
Operation Manual

Controller 30



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Introduction

Caution and Safety

This appliance can be used by children aged from eight (8) years and above and persons with reduced physical, sensory, or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

⚠ **ATTENTION: Safety. READ AND SAVE THE ENTIRE MANUAL BEFORE OPERATING THE FAN.** Ensure that all safety procedures and instructions are followed during the installation, operation, and servicing of the fan. Failure to apply these safety practices could result in death or serious injury. If you do not understand the instructions, please call our Technical department for guidance.

⚠ **CAUTION: Non-Compliance.** The fan installation should follow the recommendations outlined in this manual. MacroAir is not responsible for any injury or damage to persons or property because of 'not complying' with the recommendations outlined in the manual.

Electrical Guidelines

⚠ **WARNING: Electrical Damage.** Improper electrical installation can cause damage to the fan and interfere with other electronic equipment. In addition to standard electrical safety considerations, please observe the following:

- **MacroAir Cables.** The wiring from the control panel to the fan MUST be MacroAir supplied shielded cable. CAT5e to be MacroAir supplied twisted, stranded, and shielded or greater.
- **Electrical Interference.** Separate incoming power and motor control cables by a minimum of six (6) inches.
- **Individual Fan Wiring.** Run wiring for each fan separately.
- **Multiple Fans.** Do not attempt to control multiple fans from one (1) fan control panel.
- **ALWAYS GROUND PROPERLY.** Connect the supplied cable glands to each end of the motor cable and tighten them securely at both the fan motor and control panel ends. Connect the ground bar in the control panel to ground at the main breaker and test.
- **Read.** Please refer to the installation instructions for more information.

⚠ **ATTENTION: Qualified Technicians.** All fan controls should only be installed by qualified technicians familiar with the requirements of the National Electrical Code (NEC) and local codes. Refer to appropriate portions of this manual for other important requirements. Failure to follow these guidelines will void the manufacturer's warranty.

Introduction

Electrical Guidelines cont.

⚠ **ATTENTION: Factory Configured.** All electrical controls are configured at the factory and are ready to use. No user adjustments are available. Follow the included wiring schematics and installation instructions when installing this device to ensure proper operation. Do not make any changes to any part of the motor control panel without first consulting MacroAir.

⚠ **ATTENTION: Code Compliance.** Installation is to be in accordance with the NEC, ANDSI/NFPA 70-1999 and local codes.

Hazard of Electrical Shock, Explosion, or Arc Flash:

⚠ **ATTENTION: Read.** Read and understand this manual before installing or operating a fan unit. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.

⚠ **ATTENTION: Code Compliance.** The user is responsible for compliance with all international and National Electrical Code requirements with respect to grounding of all equipment.

⚠ **WARNING: Do Not Touch.** Many of the parts of this unit operate at line voltage. DO NOT TOUCH.

⚠ **WARNING: Covers.** Install all covers before applying power or starting and stopping the unit.

Installation and Service

⚠ **WARNING: Damage.** Do not operate or install any fans or fan accessories that appear to be damaged.

⚠ **WARNING: Death and Injury.** Failure to follow this instruction can result in death, serious injury, or equipment damage.

⚠ **WARNING: Disconnect Power.** If the fan does not operate properly using the procedures in this manual, BE CERTAIN TO REMOVE ALL POWER TO THE UNIT and contact our Technical Department for further assistance.

⚠ **CAUTION: Moving Parts.** Keep all body parts clear of moving parts at all times.

⚠ **ATTENTION: Qualified Technicians.** All electrical troubleshooting and repair must be done by a qualified technician and meet all applicable codes.

Key Safety Systems

⚠ **ATTENTION: Safety.** MacroAir fans are engineered with key safety features to prevent pieces of the fan from falling in the unlikely event of a catastrophic failure. Used together, these systems and devices provide comprehensive protection to people, equipment, and property.

Introduction

Key Safety Systems, cont.

⚠ **WARNING: Safety Cable and Guy Wires.** Install safety cable on EVERY fan. Install guy wires on every fan, unless otherwise specified. Properly installing the guy wires will keep the fan stable in case of earthquake or in “outdoor” installations where high wind conditions may occur. The safety cable, if installed per MacroAir specifications, will prevent the fan from falling in the unlikely event that the mounting system should fail.

⚠ **WARNING: Safety Cable.** A MacroAir fan should never be run without a properly installed safety cable, which is supplied with every fan along with all required hardware. You must install a safety cable for the warranty to be in effect.

⚠ **WARNING: Blade Safety Links.** Install the complete set of extended blade safety links, which connect each blade to the adjacent blades and reinforce the area between the mounting holes. This is an important precautionary measure that will help prevent a blade from falling should one break off at the hub for any reason.

⚠ **ATTENTION: Mark the Floor to Alert Personnel.** When mounting a fan in an area where materials may be elevated into its path, MacroAir recommends marking or painting the floor with a large, crosshatched circle to alert personnel of the overhead location of the fans.

Mounting Guidelines

⚠ **WARNING: Weight Considerations.** We recommend that a building structure be capable of holding approximately twice the stated hanging weight of the fan. If there is some doubt of this, a professional contractor or architect should perform a thorough evaluation of the building prior to purchasing the fans. MacroAir provides guidelines for mounting fans, however it is the sole responsibility of the building owner and installer to ensure the safety of the mounting system, that the building structure is sound, and that the installation complies with all federal, state, and local codes.

⚠ **WARNING: Torque.** The maximum torque (twisting force) that must be handled by the mounting system, including the building structure, occurs at fan startup. For a 24-foot fan, the maximum potential starting torque is 137 Ft-Lbs. When standard electrical controls are installed, the fan will never begin to approach this maximum because the standard variable-speed control system uses the soft-start fail, or when a fan is installed as a single-speed model without the variable speed control system (rare), full torque might be applied to the mounting system, so it is important that it be adequate to withstand 137 Ft-Lbs. torque.

⚠ **ATTENTION: Check Federal, State, and Local Codes.** Check all relevant codes to make sure that all product certifications, product listings, and building regulations are met. Code compliance is the responsibility of the installer.

⚠ **WARNING: Welding.** DO NOT attach the fan or fan mounting components to the building structure by welding that component to the structure. DO NOT cement the fan to the structure.

Introduction

Clearance Guidelines

⚠ **ATTENTION: Sprinkler Systems and Fan Placement.** In any installation where fire sprinklers are in place, do not interfere with their correct operation. Fans should be located no less than three (3) feet below a sprinkler and placed central to each sprinkler quadrant.

⚠ **ATTENTION: Sprinkler Systems and Code Compliance.** Prior to installing fans, review all codes applicable to sprinkler systems and fans to ensure code compliance. Refer to the wiring diagrams packaged inside the control panel for proper installation. If further advice is needed, you may contact our support staff, however it is your sole responsibility to see that the installation is completed to code and correct.

General Information on Fan Placement and Spacing

⚠ **ATTENTION: Strobe and Performance.** If possible, avoid mounting fans directly below lights or skylights to avoid any strobe effect caused by moving blades. A large fan, 20-24 feet in diameter, performs best at 20 to 30 feet above the floor, but acceptable performance has been demonstrated as low as 10 feet and as high as 50 feet.

⚠ **WARNING: Mezzanine Placement.** If the building has a mezzanine, fans should be mounted so a person cannot reach a fan in any way from the upper level/deck. Make certain that fans are positioned so that blade tips are at least three (3) feet away from any area where a person may be able to extend outward to reach them.

⚠ **WARNING: Oscillating Movement.** If unusual oscillating movement is observed, immediately stop using the ceiling fan and contact the manufacturer, its service agent, or suitably qualified persons.

REFER TO FAN INSTALLATION MANUAL(S) FOR FURTHER MAINTENANCE INFORMATION.

Fan Network Ordering

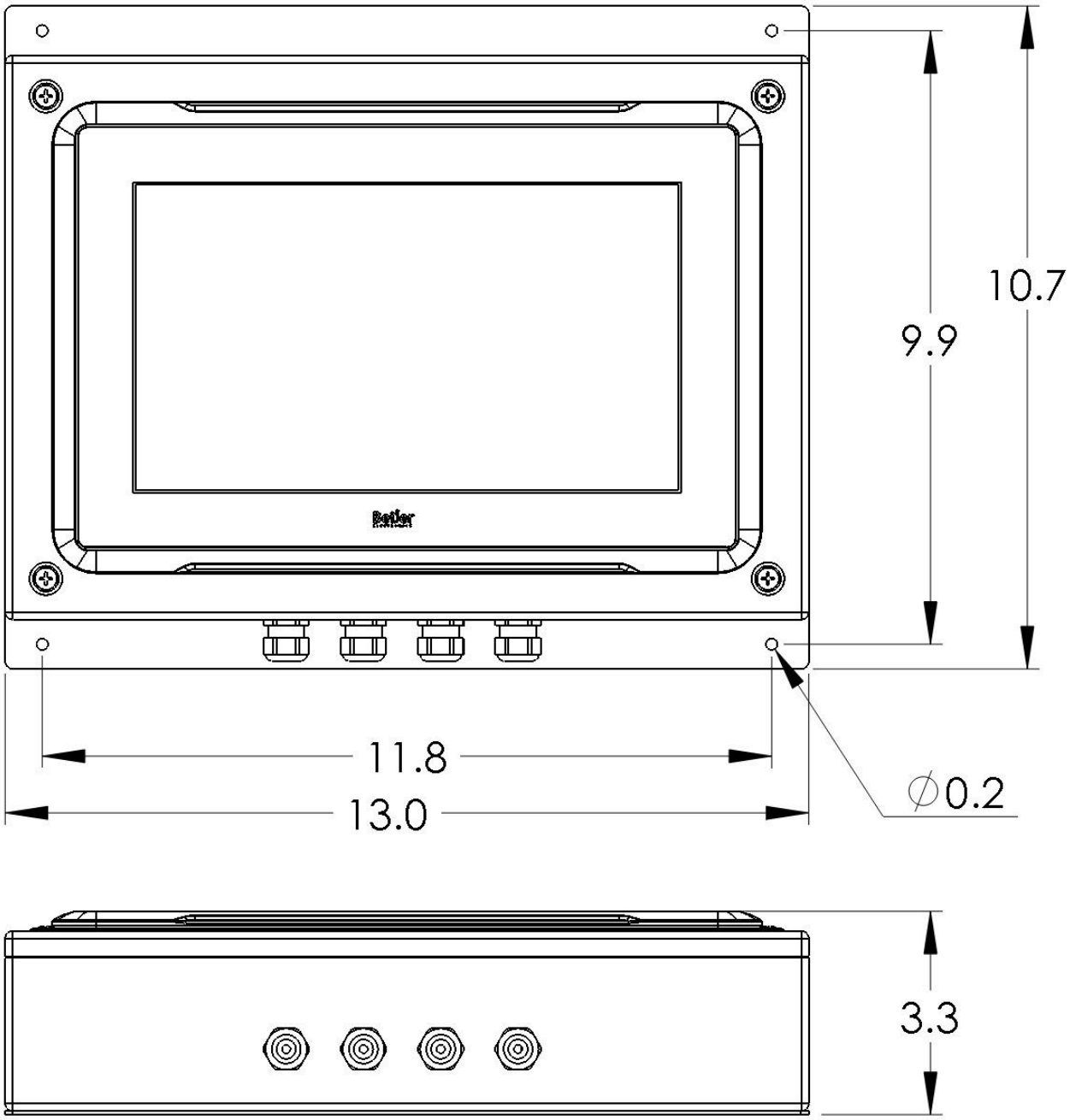
Type of controller: **Controller 30** (which can network up to 30 fans)

MacroAir customizes fans to operate in a network by: Addressing the fans.

Note: If you did not order your fans for a network, please contact Technical Support for assistance with networking your fans. Also, when installing new fans in an existing mixed network, contact Technical Support.

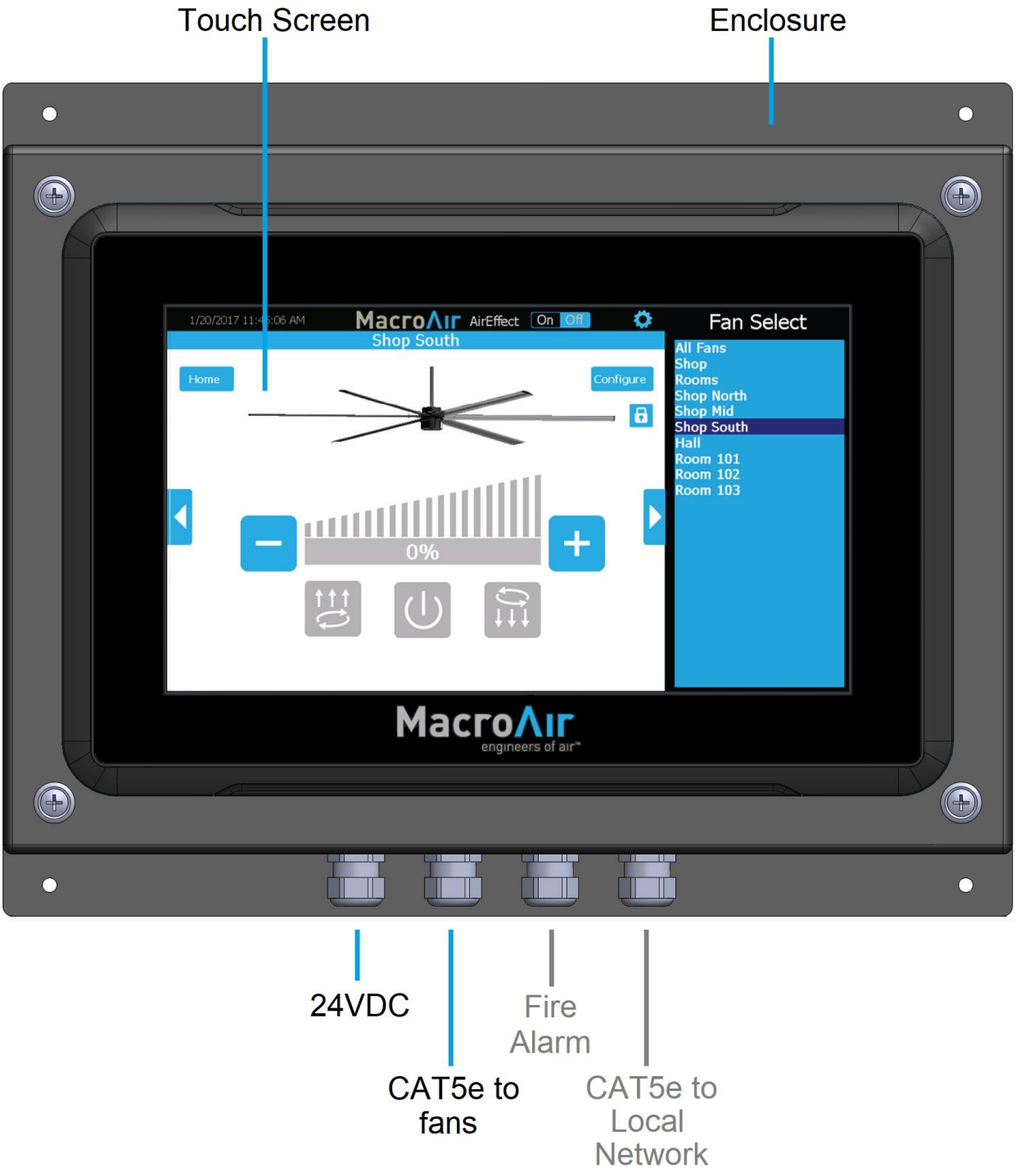
Introduction

Controller Dimensions



Introduction

Controller Components



Note: The glands for the fire alarm and CAT5e to local network are plugged from the factory in order to maintain the screen's IP 66 rating when not used. If you are utilizing the fire alarm option and/or remote operation, remove the plugs from any gland you will be using.

Network Installation

Network Wiring Requirements:

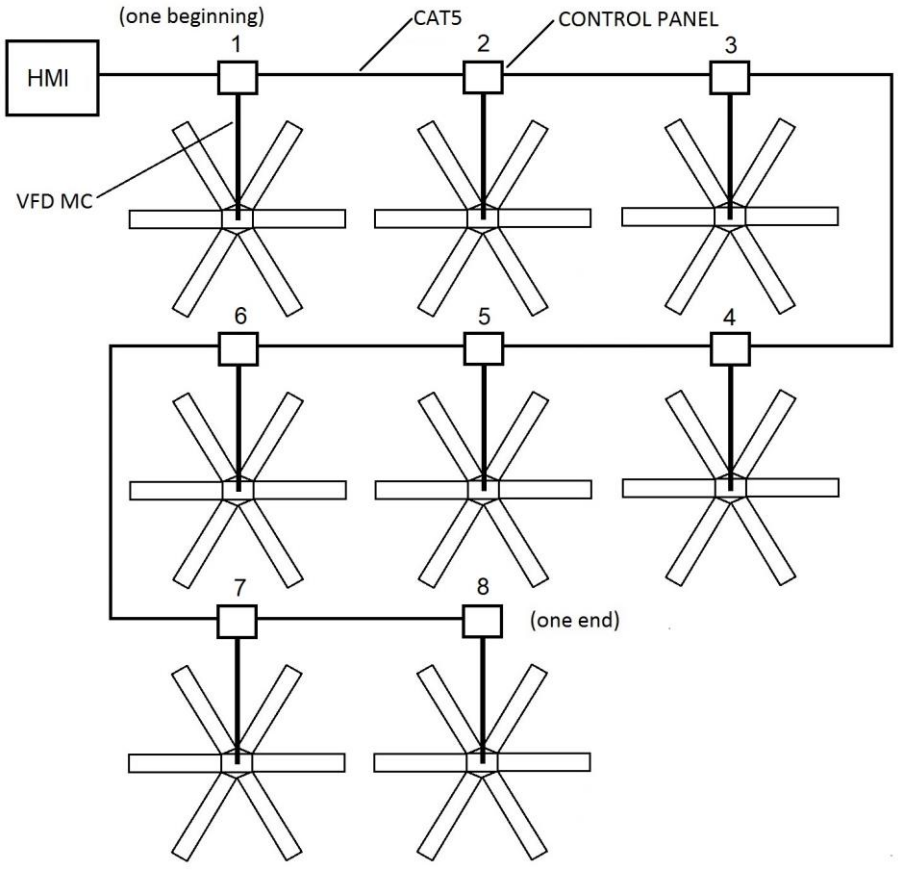
- Use stranded CAT5e or higher shielded cable.
- Minimum 24AWH (0.5mm) cross section.
- Ground the shielding and drain wire at only one point of the cable run.
- Route wires as far away as possible from high voltage AC cables, fluorescent lights, arc welders, and other equipment that transmits EMI (electromagnetic interference).
- Do not run CAT5e in conduit with high voltage AC cables.
- Do not exceed 4000ft [1219m] of CAT5e between the screen and the last fan in the network.

Daisy Chain

Network MacroAir fans must be connected in one single line, referred to in this document as a "daisy chain". The characteristics of a proper daisy chain are: one beginning (Controller 30) and one end (last fan or control panel).

If the fans are not connected in one line/chain, there will be a degradation of the communication signal and the network may not function as intended (fans in the network may not operate).

Each fan has a unique address, which is noted on a sticker on the control panel. It is important to mount the fans in the correct order.

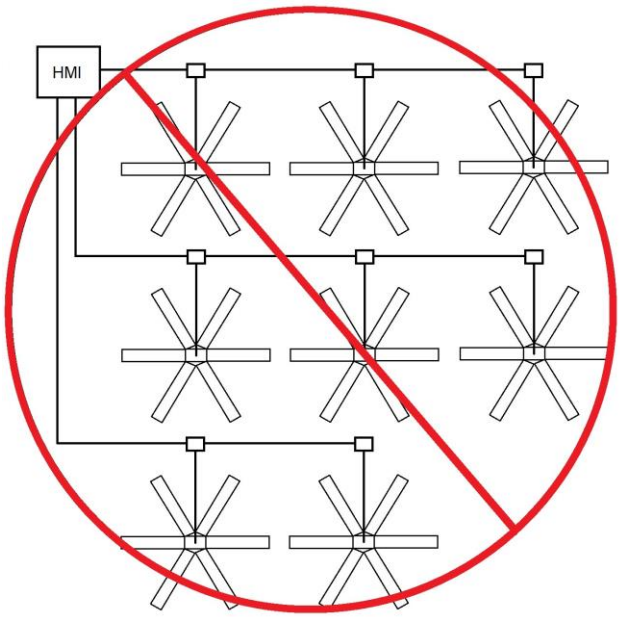


Network Installation

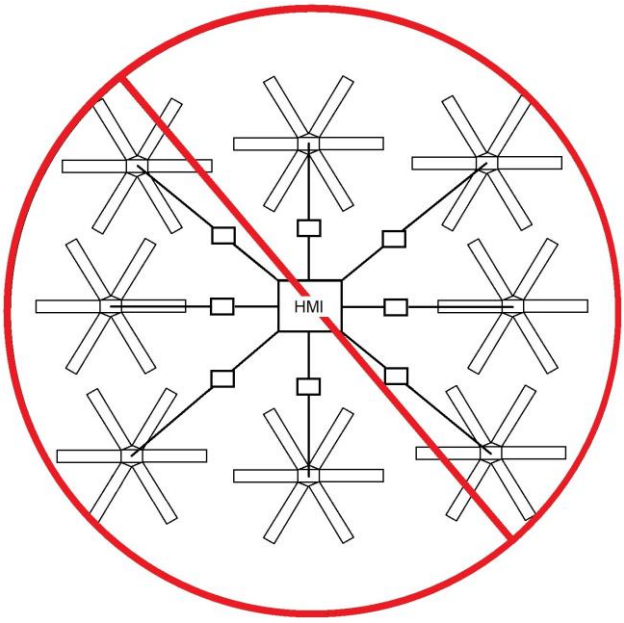
Network Wiring Configurations

Improper Wiring Configuration

End of Line x3

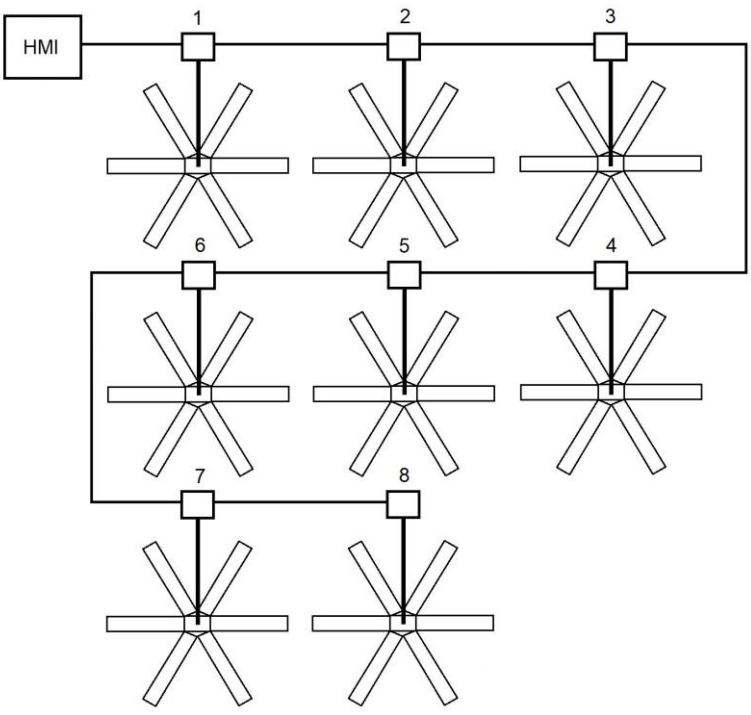


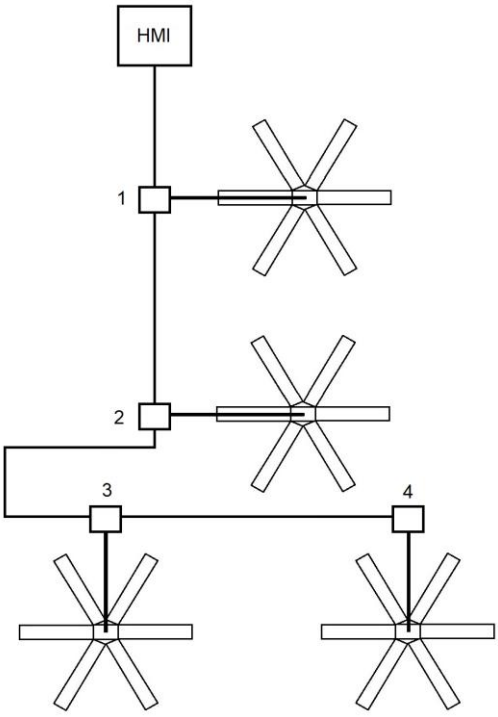
End of Line x8



Proper Wiring Configuration

ONE End of Line





Network Installation

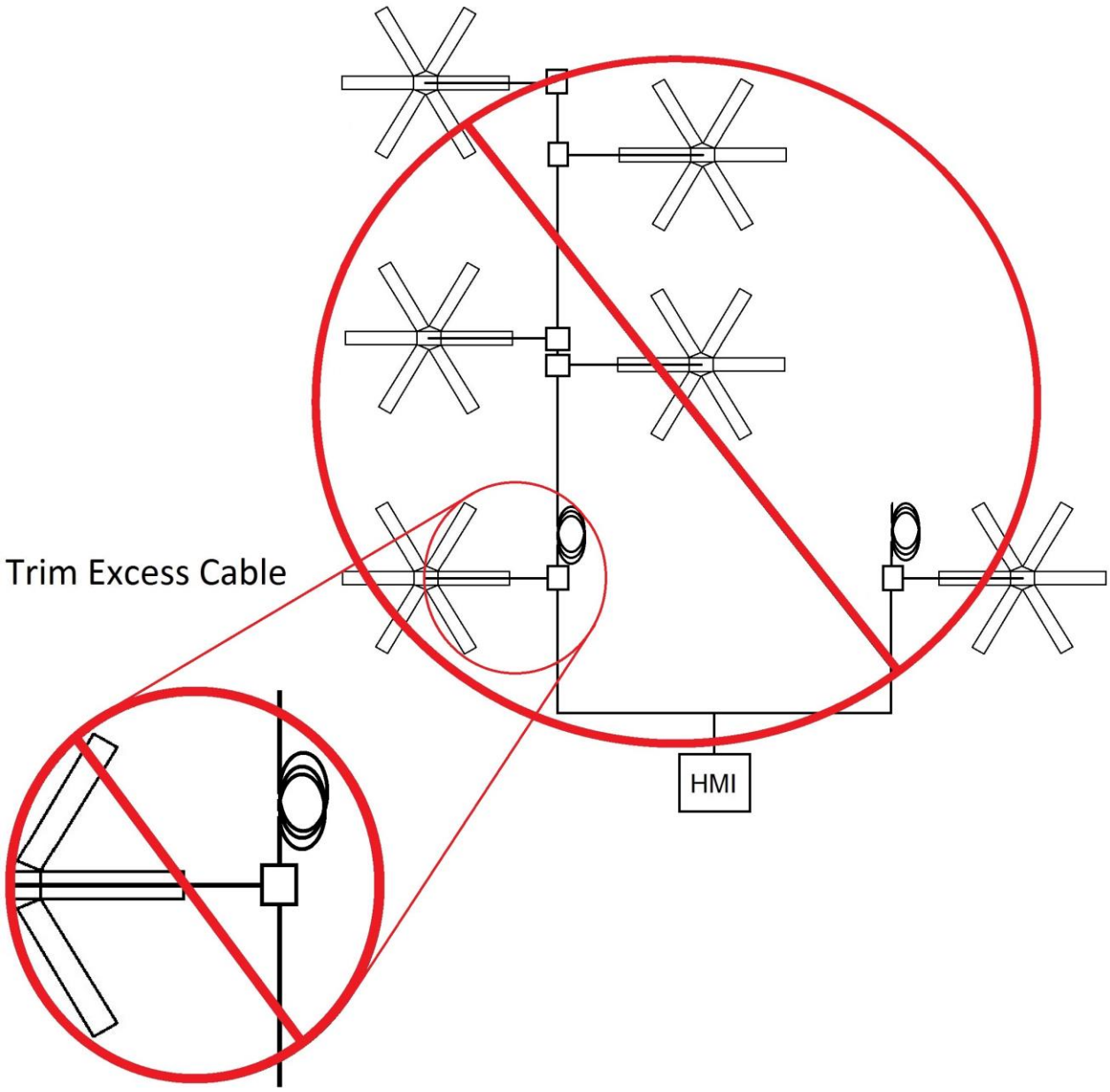
Network Wiring Configurations cont.

Excess Cable at Connection Point

With noise being emitted throughout a typical industrial/commercial environment, **extra cable should not be coiled up** as the coil itself will create noise/interference in the communication signal. There should be no more than 2ft [0.6m] of excess cable at each connection point.

If more than 2ft [0.6m] of cable is needed for future relocation of the fan, run the cable up toward the ceiling and back down in a horseshoe shape.

ALWAYS AVOID SHARP BENDS OF THE CABLE.



Network Installation

Controller Wiring Instructions

⚠ **WARNING: Power to be off.** Prior to following the steps below, ensure all power to the touchscreen is off.

1. Run the included power supply cable through the gland on the bottom of the network controller and plug the terminal block in per the below diagram.

2.

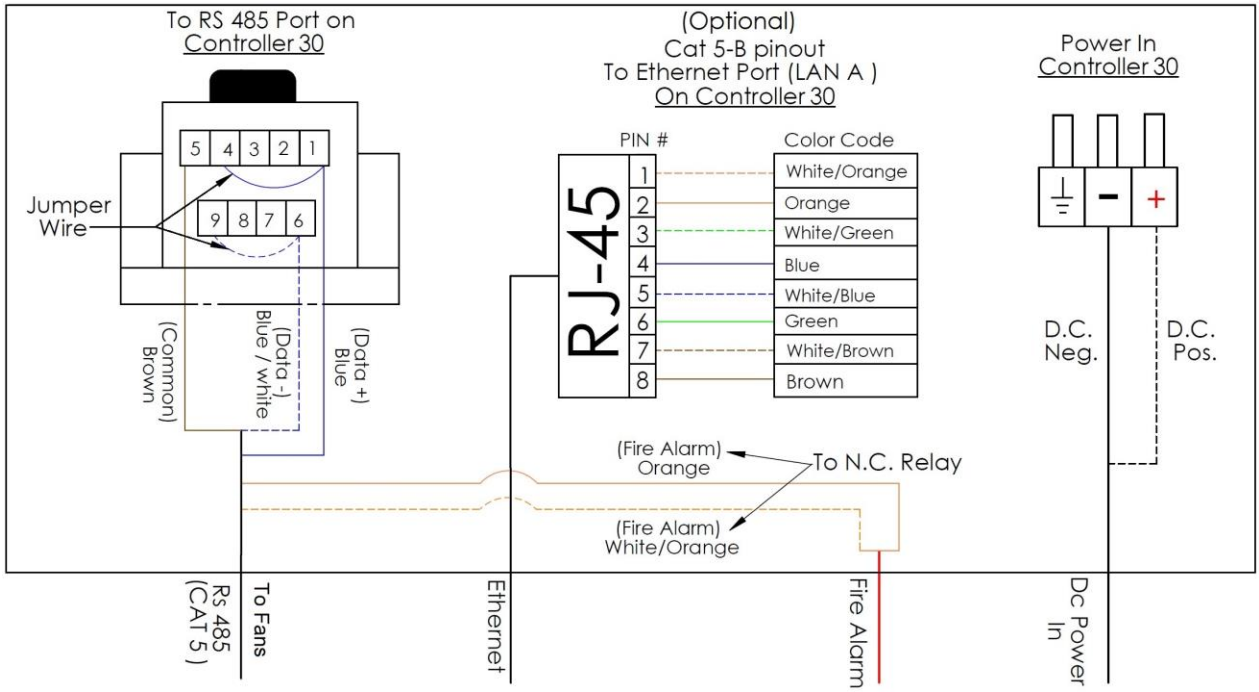
3. Run one end of CAT5e through the gland on the bottom of the network controller and wire the blue and blue/white wires to the touchscreen per the diagram below. Do not remove any factory wiring.

4.

5. If a fire alarm is being used, a normally closed relay can be tied into the orange and orange/ white wire coming from the fans. If a fire alarm is not being used, the orange pair needs to be twisted together.

6. If you are utilizing the optional remote operation feature (pg. 24), run a separate CAT5e from your router to the LAN A port on the back of the screen. The CAT5e will need an RJ45 male end terminated per the pinout below.

Touchscreen Wiring Diagram



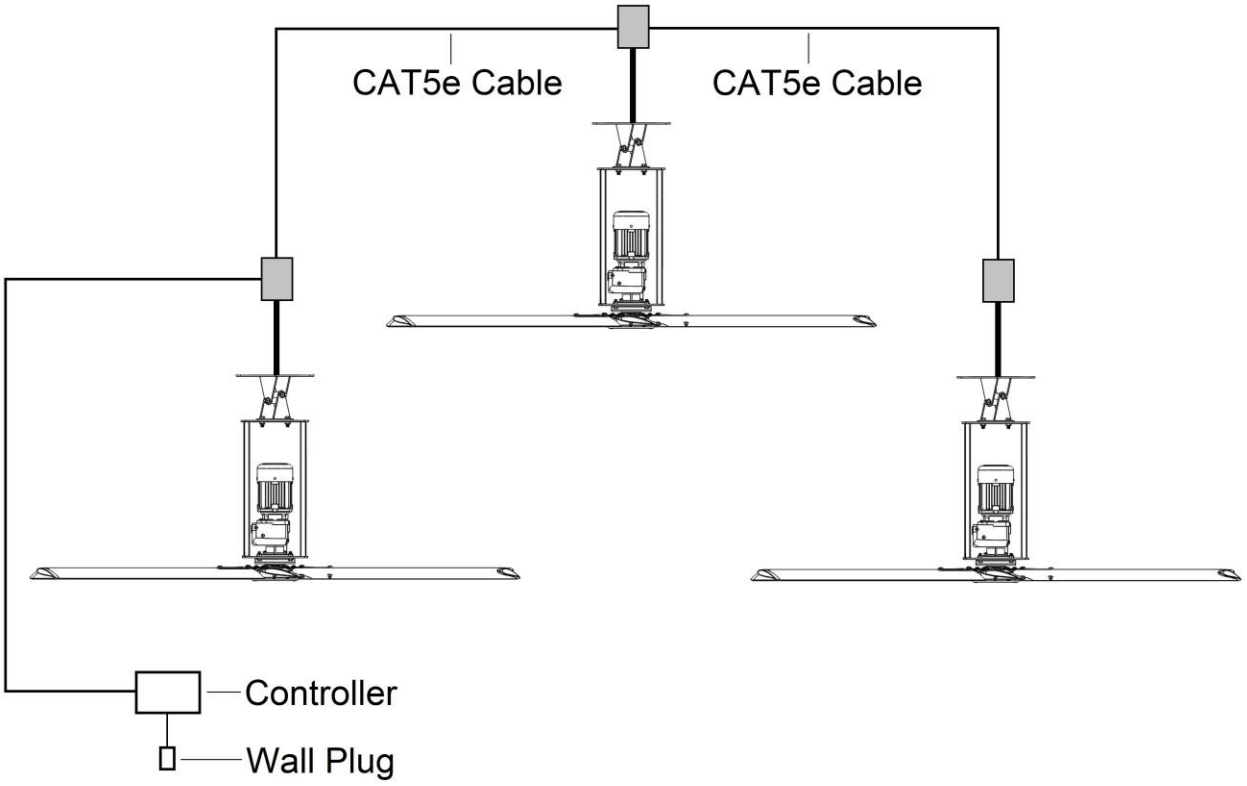
- For fan wiring instructions, refer to page (pg 12).

Network Installation

Fan Wiring Instructions

MacroAir fans are wired in a daisy chain with one CAT5e from the touchscreen/previous fan into an RJ45 port on the control panel, and one CAT5e going to the next fan from the second RJ45 port on the panel. The internal panel wiring does not need to be modified for communications.

A properly wired daisy chain network will have the CAT5e network ran per the below illustration.

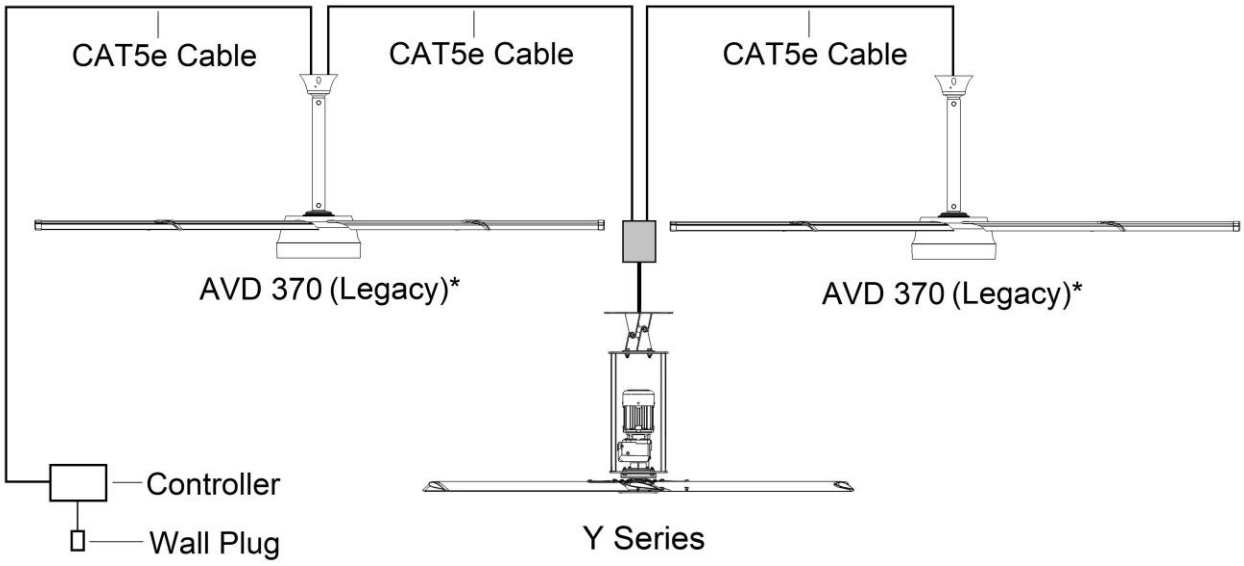


Control Panel Schematic: Refer to documentation included in the Fan Installation Manual.

Network Installation

Mixed Network Wiring Instructions

Networks utilizing different types of connections, will require Technical Support for assistance with networking your fans*. Below is an example of wiring for a mixed network:



***Note: When installing new fans in an existing mixed network, contact Technical Support for assistance with networking your fans.**

Network Installation

AirEffect Sensor

⚠ **ATTENTION: AirEffect Option.** If you ordered the optional AirEffect feature, refer to the Operation Manual (MacroAir #90-30017-00) accompanying the AirEffect Sensor.

Configuration and Operation

Controller Setup

1. The touchscreen will require additional setup before operating the fans. Please refer to the steps below to properly configure your controller.

2. Power on the screen. The program will load automatically and take you directly to the Home Screen (pg. 16).

3. All fans connected to the network will be displayed on the screen. If no fans are detected, or if any fans are missing, check the CAT5e and ensure that the fans are powered on, then rescan the network using the tool on the Settings Screen (pg. 19). Occasionally a fault code will be present on one or more fans; this is normal. Faults can be reset from the Fan Control Screen (pg. 17). If a fault does not reset, refer to the fan manual for fault code descriptions and contact technical support if you require further assistance.

4. Use the Fan Configure Screen (pg. 18) to input all available data for the fan. Blade sizes must be set manually on all MacroAir fans (except Y Series).

5. Grouping allows you to create a button for multiple fans to run after being given one direction and speed command, rather than turning them all on individually. To create a group, refer to the Groups Screen (pg. 21).

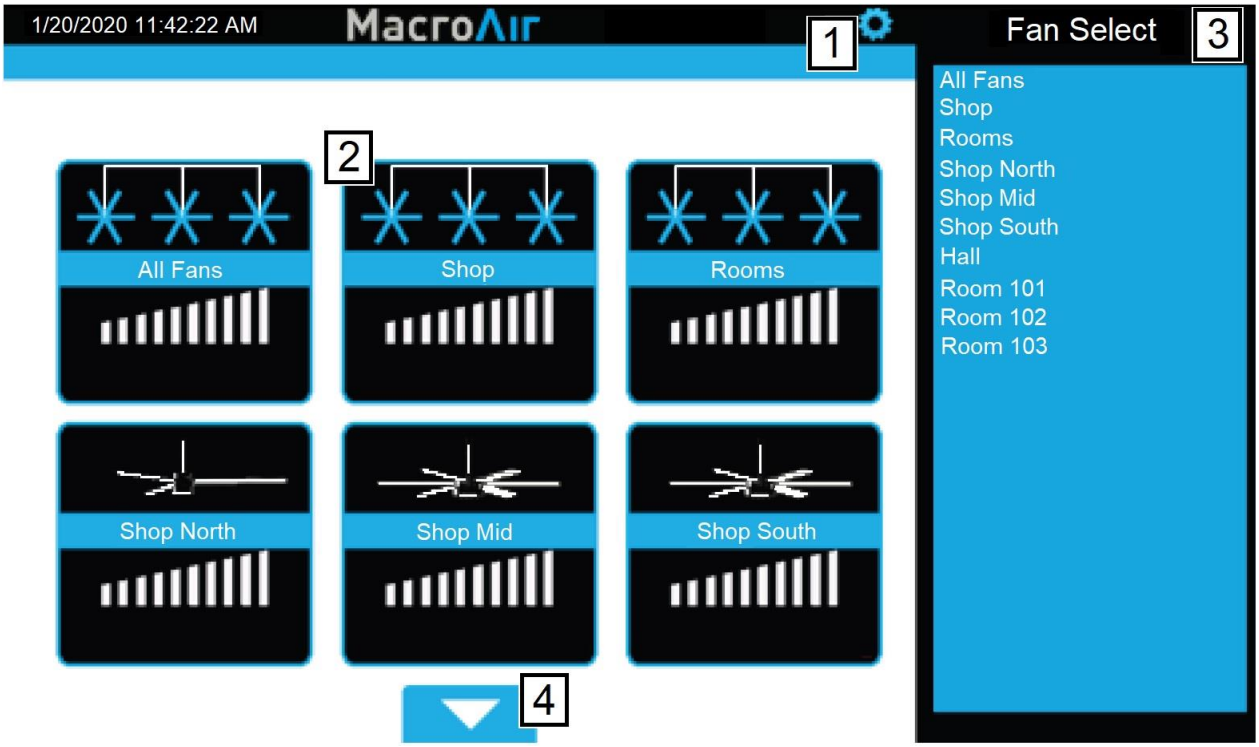
6. Scheduling allows you to set up time periods for the fans to turn on and off automatically, requiring no manual input. You can set up schedules for individual fans, all fans, or groups of fans. To create a schedule, refer to the Schedules Screen (pg. 22).

7. AirEffect is an optional control system that senses and automatically maintains a desired room temperature range by calculating the fans' ideal operating speeds and direction and automatically runs the fans accordingly. AirEffect can be enabled to be always on or turned on and off via scheduling. To set up AirEffect, refer to the Operation manual accompanying the AirEffect Sensor.

Configuration and Operation

Controller Home Screen

The home screen will display all the available fans that are on the network, as well as any groups you have created.



1 **Gear** - Takes you to the settings screen.

2 **Fan Status Box** - Displays the status of the fan. Pressing this button takes you to that fan's control screen.

3 **Fan Select** - Allows you to select any fan, even ones not currently displayed on the page.

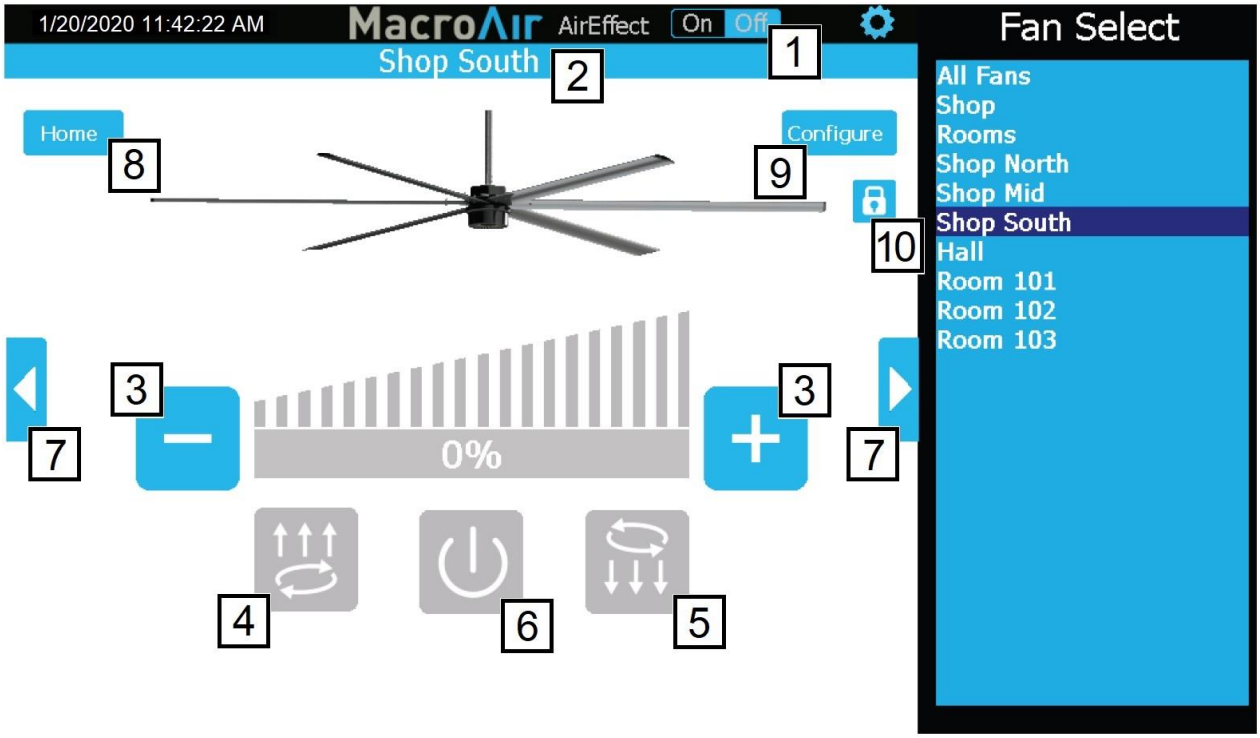
4 **Up/Down Arrow** - Takes you to the next set of fans.

If the installation has been verified, but no fans have been detected contact Technical Support (pg. 25).

Configuration and Operation

Fan Control Screen

Tapping on a fan status box on the home screen will take you to the fan control screen. This screen allows you to configure and control the fans individually or issue a command to multiple fans if you clicked the "All Fans" button or a group button. Please ensure that the fans are configured correctly before attempting to run them (see Fan Configure, pg. 18).



1 **AirEffect On/Off** – (If AirEffect was ordered with your network) If AirEffect is enabled on C30, toggles AirEffect on or off for the selected fan or group, allowing manual control.

2 **Fan/Group Name** - Displays the name of the fan or group.

3 **Decrease/Increase Speed** - Increase or decrease the speed between 0-100% by 5% using "-" and "+" buttons.

4 **Reverse Button** - Runs the fan clockwise to pull air up. This setting is useful to achieve destratification without creating a discernable breeze.

5 **Forward Button** - Runs the fan counter-clockwise to blow air down. This is the main setting used for cooling.

6 **Power Button** - Stops the fan if it is running.

7 **Right/left Arrows** - Takes you to the next fan/group.

8 **Home** - Takes you to the home screen.

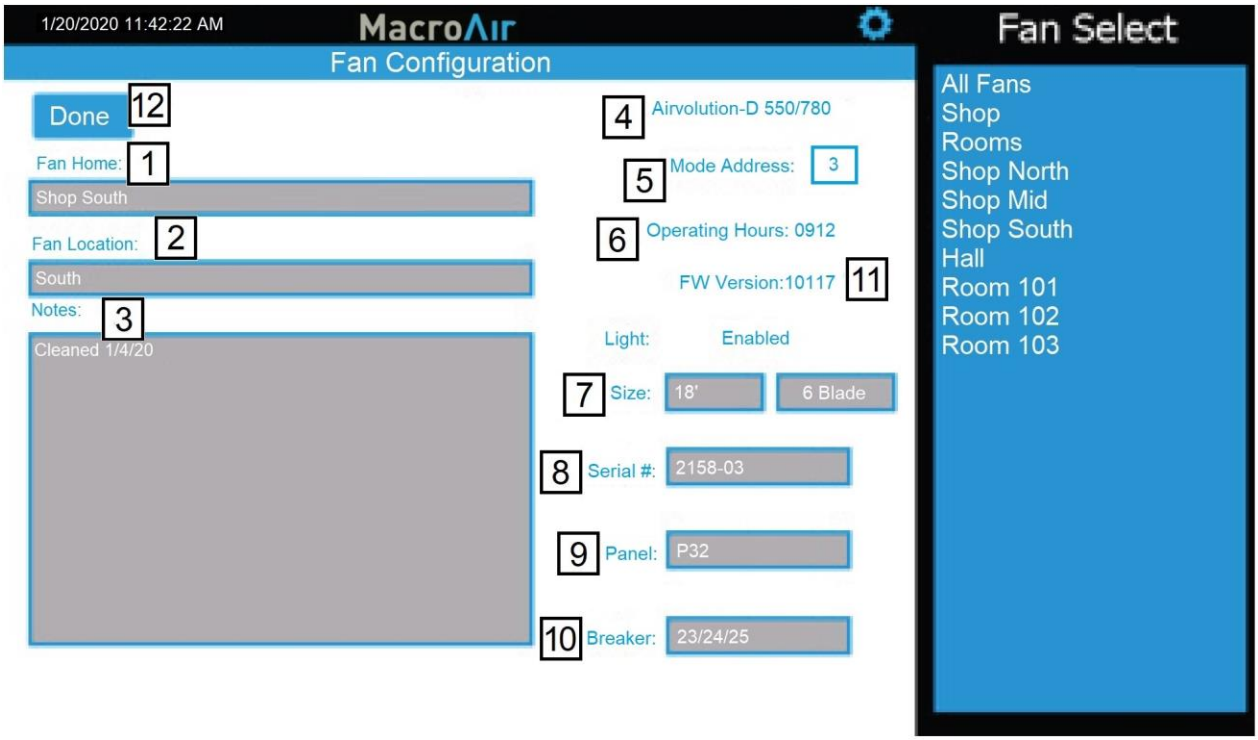
9 **Configure** - Takes you to the fan's configure screen.

10 **Lock** - Locks and unlocks control of fan and functions (requires admin login, refer to Settings Screen, pg. 19).

Configuration and Operation

Fan Configure Screen

Tapping the Configure button on the fan control screen will bring you to the fan configure screen. This screen displays basic information on the fan. This screen also provides fields to input information that may prove useful for reference or troubleshooting.



Note: Entry on the screen for items 1, 2, 3, 8, 9 ,and 10 are done on a pop-up keyboard.

1 **Fan Name** - Changes the name that is displayed for the fan.

2 **Fan Location** - Allows you to input a location (for example “Loading Dock”) which can help identify the fan.

3 **Notes** - Any additional notes on the fan you would like to include.

4 **Type** - Displays the fan model.

5 **Node Address** - Displays the network address of the fan.

6 **Operating Hours/Voltage** - Displays the operating hours for AVD fans/Displays incoming voltage rating of the VFD for AirVolution Legacy fans.

7 **Size** - Allows you to set the fan size. **Required** for MacroAir fans.

8 **Serial** - Allows you to input the serial number of the fan for easy reference.

9 **Panel** - Allows you to specify the electrical panel the breaker is in for easy reference.

10 **Breaker** - Allows you to specify the breaker number the fan is on for easy reference.

11 **FW** - All fans display a Status Code (except Y Series fans).

12 **Done** - Returns to the Fan Screen.

Configuration and Operation

Settings Screen

Tapping the Settings button will bring you to the settings screen. This screen contains information on the touchscreen and configuration options for the network.

1 **Exit** - Goes back to the Home screen.

2 **Software Version** - Indicates the software version of the touch screen.

3 **Date** - Displays the revision date of the screen software.

4 **Current Date** - Displays current date. To setup AirEffect and fan scheduling you will need to set the date (pg 20).

5 **Mkey** - Displays the code to grant access to Comm settings for MacroAir Tech Support.

6 **Language** - Allows selection of alternate languages (English, Spanish, French, Malay).

7 **Re-scan Network on Exit** - When selected, rescans the network to detect any changes. Used after adding/removing fans or changing addresses.

8 **AirEffect (Optional)** - Provides access to AirEffect options. This will only be available if AirEffect was ordered with your network (pg 14).

9 **Groups** - Provides access to the Groups page (pg 21).

10 **Schedule** - Provides access to the Schedules page (pg 22).

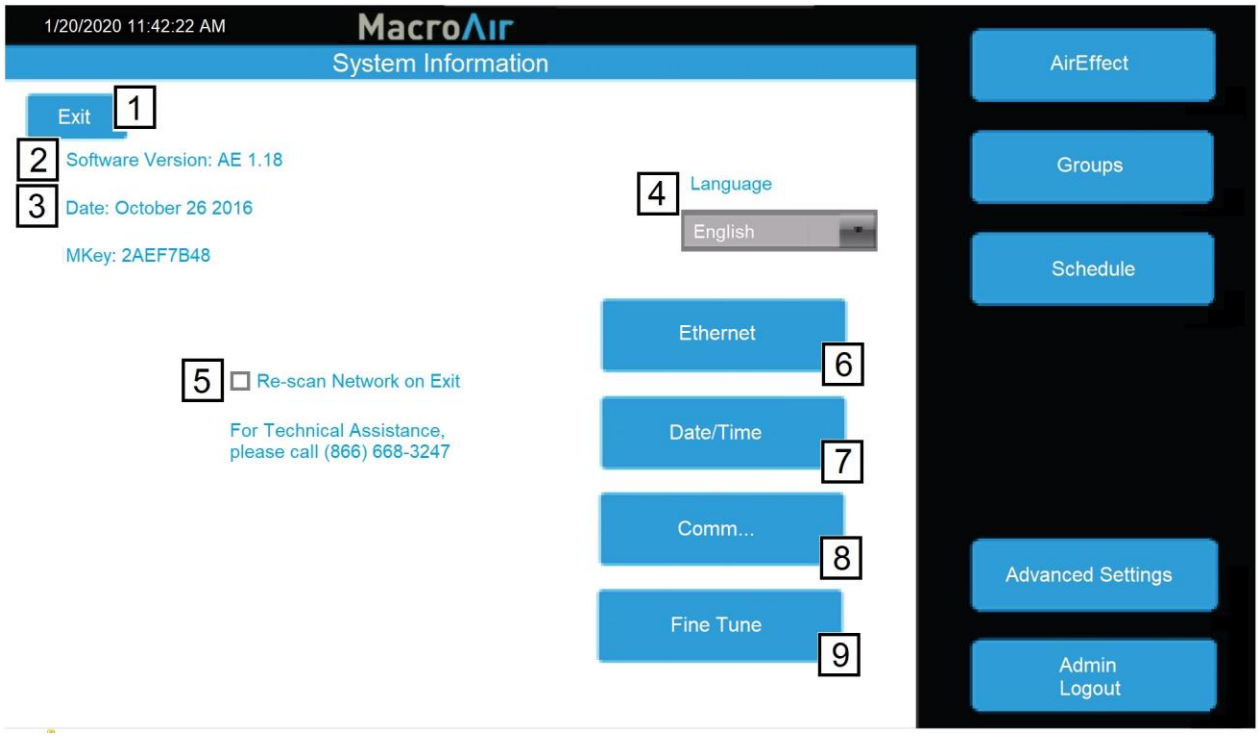
11 **Advanced Settings** - Displays the Advance Settings page (pg 20).

12 **Admin Login** - Brings up the Admin Login page. You will need to be logged in under admin to access most of the other pages on the Settings screen. The default username AND password is "admin".

Configuration and Operation

Advanced Settings Screen

Tapping on the "Advanced Settings" button will bring you to the Advanced Settings screen. This screen is very similar to the Settings screen, but contains 4 additional advanced options (Ethernet, Date/Time, Comm and Fine Tune).



1 **Home** - Goes back to the Home screen.

2 **Software Version** - Indicates the software version of the touch screen.

3 **Date** - Displays the revision date of the screen software.

4 **Language** - Allows selection of alternate languages.

5 **Re-scan Network on Exit** - When selected, rescans the network to detect any changes. Used after adding/removing fans or changing addresses.

6 **Ethernet** - This page displays the Ethernet information for the screen. This information is used to remotely control the screen with a program such as VNC viewer. More information is available in the Remote Operation section of the manual (pg. 24).

7 **Date/Time** - This screen allows you to set the date/time. This is very important for scheduling, as the screen will run schedules according to the programmed date/time.

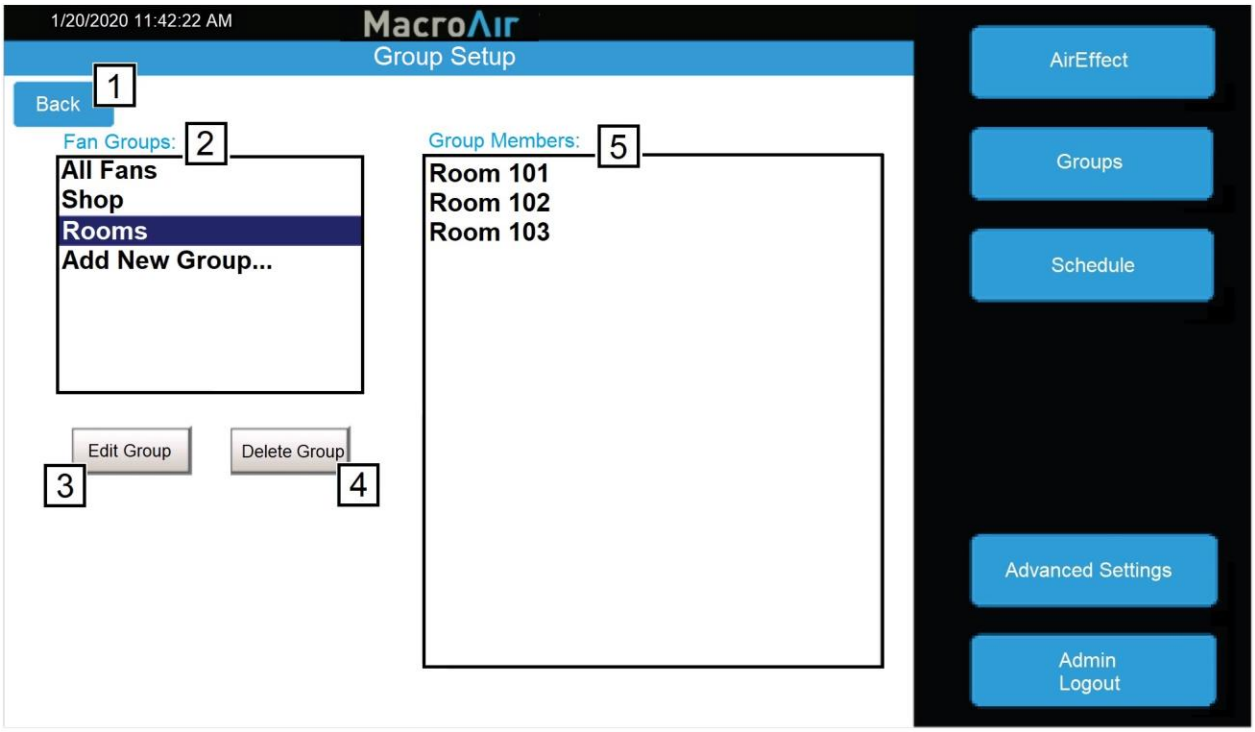
8 **Comm** - This screen provides access to the Modbus communications page. This is a password-protected page and is only accessible with MacroAir technical support on the phone. If you need access to this page, please call us at (866) 668-3247.

9 **Fine Tune** - This screen allows you to adjust the maximum speed of each fan. More information on the Fine Tune page (pg. 23).

Configuration and Operation

Groups Screen

Tapping on the “Groups” button will bring you to the Groups screen. This screen allows you to create groups and assign fans to them, easily allowing control of multiple fans at the same time.



1 **Back** - Takes you back to the previous screen.

2 **Fan Groups** - Displays fan groups you have created. Click “Add New Group” to add a new group.

3 **Edit Group** - Allows you to change the group name or group members of the selected group. Having a group name is required to save changes.

4 **Delete group** - Deletes the selected group.

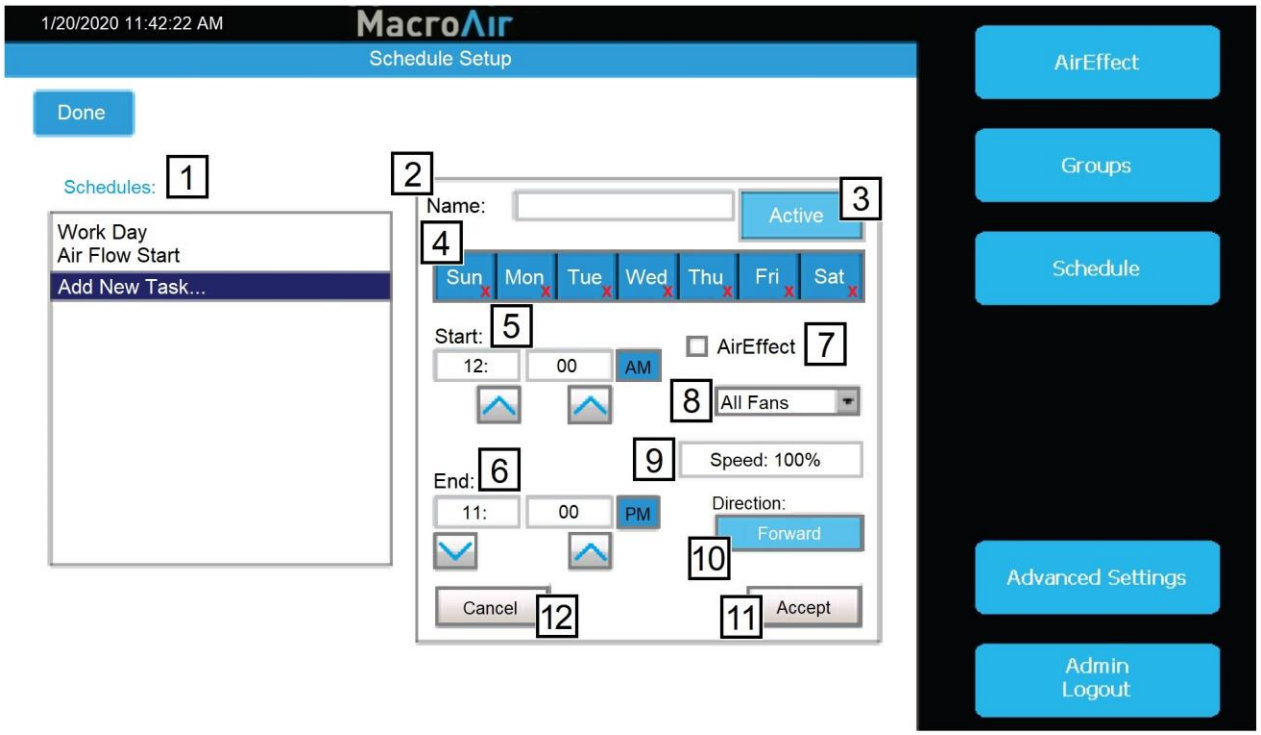
5 **Group Members** - Displays all fans with checkboxes to indicate which fans are part of the group. Check boxes to add fans to the group, remove checks to remove fans from the group.

Edit Group Name - Allows you to edit the group name. Press “Accept” to save changes or “Cancel” to cancel any changes made. (Only visible when “Edit Group” is pressed.)

Configuration and Operation

Schedules Screen

Tapping the Schedules button will bring you to the schedules screen. This screen allows you to set a schedule for fans or groups to run and stop automatically.



1 **Schedules** - Allows you to select an existing schedule or create a new schedule when "Add New Task" is selected.

2 **Name** - Names the schedule (required).

3 **Active/Inactive** - Enables or disables the schedule.

4 **Sun-Sat** - Selects which days to run the schedule. Red X's indicate days where the schedule is not in effect .

5 **Start** - Specifies time of day when the fans will run.

6 **End** - Specifies time of day when the fans will stop running.

7 **AirEffect (Optional)** - Runs fans according to AirEffect during the schedule.

8 **Drop Menu** - Allows you to select a fan or group. If AirEffect is selected, zones are displayed instead.

9 **Speed** - Specifies the speed the fans will run. If AirEffect is selected, this field is ignored.

10 **Direction** - Specifies the direction the fans will run. If AirEffect is selected, this field is ignored.

11 **Accept** - Save Changes.

12 **Cancel** - Cancel Changes.

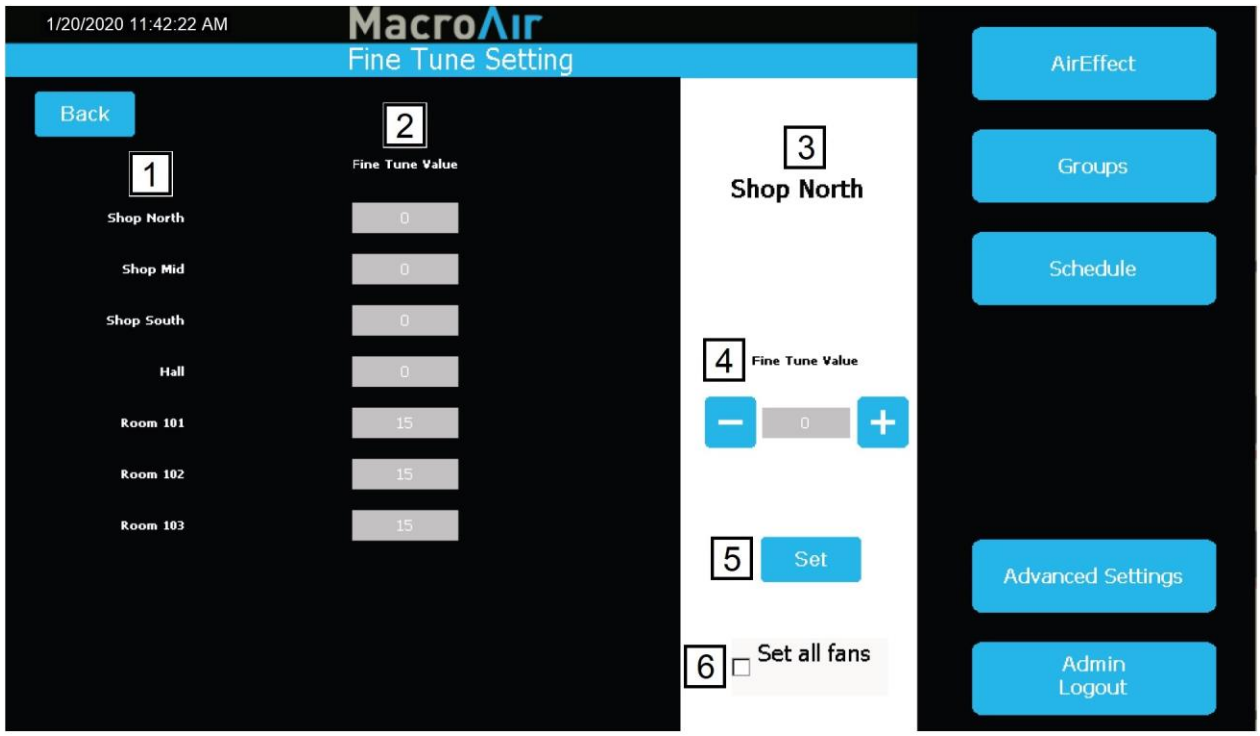
Edit Schedule - Allows you to edit a selected existing schedule (visible when a schedule is selected).

Delete Schedule - Allows you to delete a selected existing schedule (visible when a schedule is selected).

Configuration and Operation

Fine Tune Screen

Tapping the Fine Tune button will bring you to the Fine Tune screen. This screen allows you to adjust the maximum speed for every fan, which is useful in applications where speed needs to be limited.



1 **Fan Names** - Displays the names of all network fans.

2 **Fine Tune Value** - Displays the percentage of maximum speed by which a fan is limited (e.g., a value of 10 will limit the fan to 90% of maximum speed)

3 **Selected Fan Name** - Displays the name of the selected fan.

4 **Decrease/Increase Fine Tune Value** - Use the "-" and "+" buttons to decrease or increase the fine tune value of the selected fan, respectively.

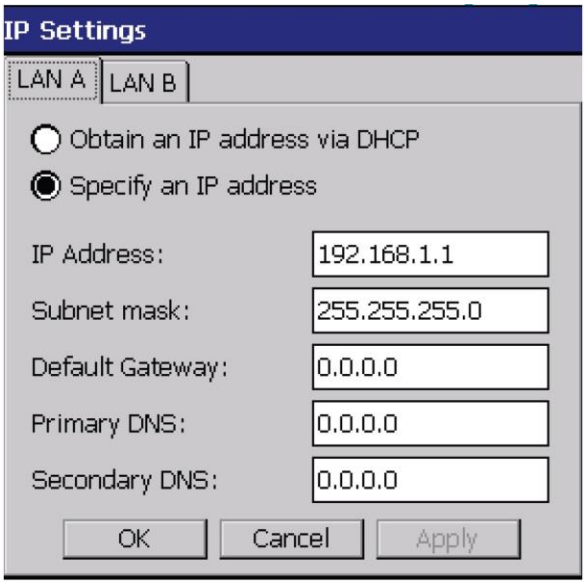
5 **Set** - Saves changes made to the fine tune value of the selected fan.

6 **Set All Fans** - Applies the fine tune value of the selected fan to all fans on the network.

Remote Operation

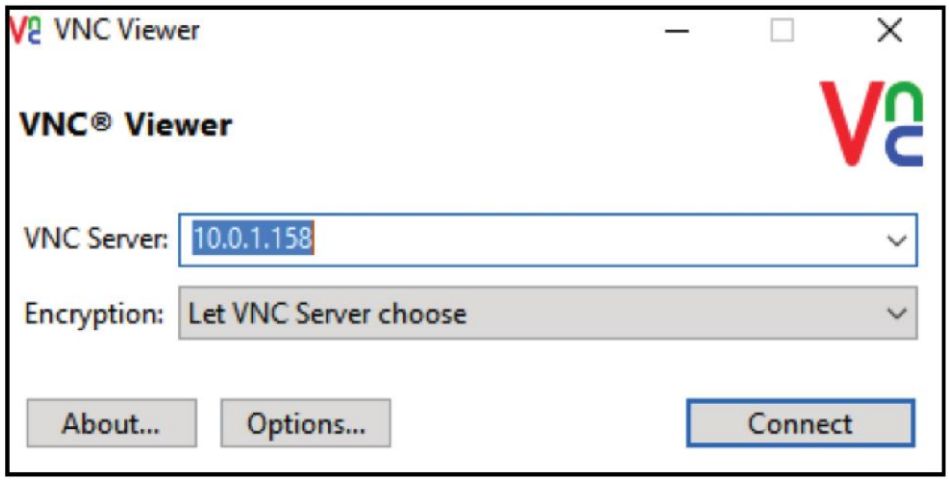
MacroAir Controllers are capable of being controlled remotely, allowing access from any computer or smart device on the same local network. Please follow the steps below to properly set up remote operation:

1. Plug your controller into your internet network via the Ethernet port on the back of the screen.
2. In the settings screen of the controller click on “Ethernet” to check the IP address.



You can let it obtain an IP address or specify one.

3. You will need a computer or device that is on the same network as the Controller with a VNC viewer installed (“VNC-Viewer” used below).



4. Open the VNC and input the IP address of the controller.
5. Select connect and the controller screen should show up.

Information

Technical Support

For installation assistance, application questions, technical support & any other inquiries, please contact our Technical Support team at (866) 668-3247 option 2.

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San Bernardino, CA 92408
(866) 668-3247
Macroairfans.com

MacroAir
engineers of air™

Operation Manual

AirEffect

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Introduction

Caution and Safety

This appliance can be used by children aged from eight (8) years and above and persons with reduced physical, sensory, or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

⚠ **ATTENTION: Safety. READ AND SAVE THE ENTIRE MANUAL BEFORE OPERATING THE FAN.** Ensure that all safety procedures and instructions are followed during the installation, operation and servicing of the fan. Failure to apply these safety practices could result in death or serious injury. If you do not understand the instructions, please call our Technical department for guidance.

⚠ **CAUTION: Non-Compliance.** The fan installation should follow the recommendations outlined in its accompanying fan manual. MacroAir is not responsible for any injury or damage to persons or property because of 'not complying' with the recommendations outlined in the manual.

Electrical Guidelines

⚠ **WARNING: Electrical Damage.** Improper electrical installation can cause damage to the fan and interfere with other electronic equipment. In addition to standard electrical safety considerations, please observe the following:

- **MacroAir Cables.** The wiring from the control panel to the fan MUST be MacroAir supplied shielded cable. CAT5e to be MacroAir supplied twisted, stranded, and shielded or greater.
- **Electrical Interference.** Separate incoming power and motor control cables by a minimum of six (6) inches.
- **Read.** Please refer to the Controller 30 Manual for more information.

⚠ **ATTENTION: Qualified Technicians.** All fan controls should only be installed by qualified technicians familiar with the requirements of the National Electrical Code (NEC) and local codes. Refer to appropriate portions of this manual for other important requirements. Failure to follow these guidelines will void the manufacturer's warranty.

⚠ **ATTENTION: Factory Configured.** All electrical controls are configured at the factory and are ready to use. No user adjustments are available. Follow the included wiring schematics and installation instructions when installing this device to ensure proper operation. Do not make any changes to any part of the motor control panel without first consulting MacroAir.

Introduction

Electrical Guidelines, cont.

⚠ **ATTENTION: Read.** Read and understand this manual before installing or operating AirEffect. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.

⚠ **ATTENTION: Code Compliance.** The user is responsible for compliance with all international and National Electrical Code requirements with respect to grounding of all equipment.

⚠ **WARNING: Covers.** Install all covers before applying power.

Installation, Safety and Service

⚠ **WARNING: Damage.** Do not operate or install any fans or fan accessories that appear to be damaged.

⚠ **ATTENTION: Qualified Technicians.** All electrical troubleshooting and repair must be done by a qualified technician and meet all applicable codes.

⚠ **ATTENTION: Check Federal, State, and Local Codes.** Check all relevant codes to make sure that all product certifications, product listings, and building regulations are met. Code compliance is the responsibility of the installer.

REFER TO FAN INSTALLATION MANUAL(S) FOR FURTHER MAINTENANCE INFORMATION.

Installation

AirEffect Sensor Installation

⚠ **WARNING: Probe Mounting.** Do not mount in such a manner that the temperature probe rests on metal as it will then be reading the temperature of the metal rather than the air temperature.

Note: Match the correct Zone "Floor" sensor with the correct Zone "Ceiling" sensor. Make sure "Floor" is at the floor level (pg. 5, instruction 4) and "Ceiling" is at the ceiling level (pg. 4, instruction 1).

PINOUT:

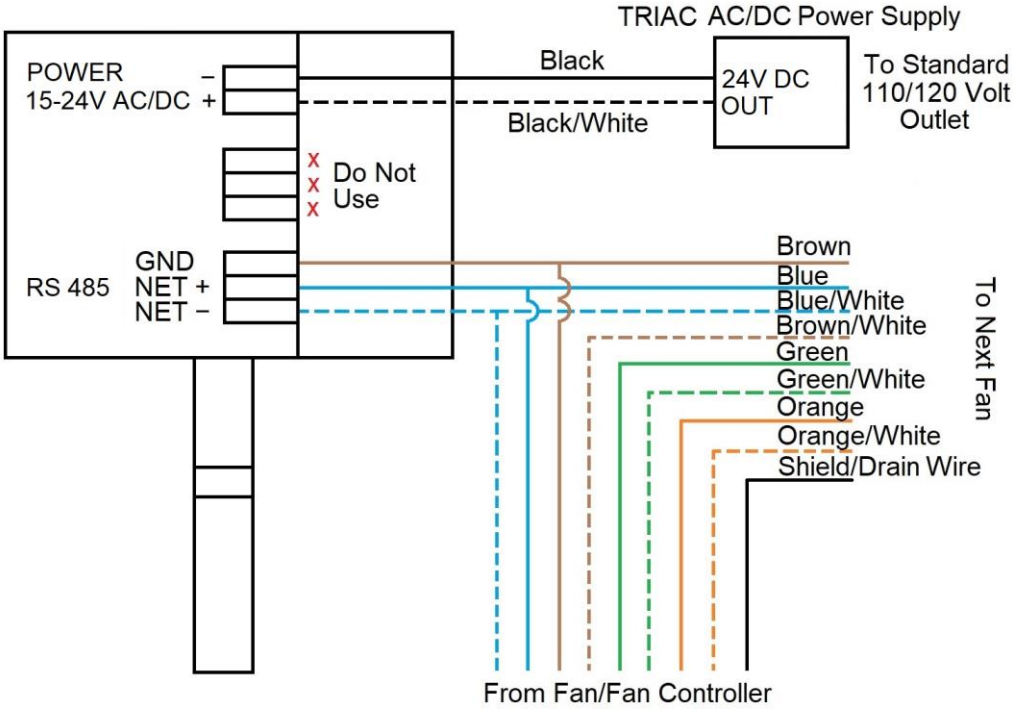
Black (From Power Supply).....**-** (24V DC)
Black/White (From Power Supply) .....**+** (24V DC)
Blue (From Cat5E) .....Net+ (RS 485)
Blue/White (From Cat5E).....Net - (RS 485)

Mounting

1. **Ceiling Mounting:** Mount the ceiling temperature sensor at least 1ft [0.3 m] below the ceiling in the same room where the fan/fans are placed. Use caution when placing the sensor making sure not to place it where there is any contact with direct sunlight. Each sensor has small mounting holes for attachment with screws.

2. Once the module has been placed it can be wired into the network. Use the provided 110/120V power supply to power the temperature sensor and the blue, blue/white, and brown wires from the CAT5e cable for communication. If there is enough slack in the cable you can run the wiring directly in and out at the same point on the sensor module.

3. Please refer to the wiring diagram. See pages 6-7 of this manual for proper stripping and bean crimping of wires.



Installation

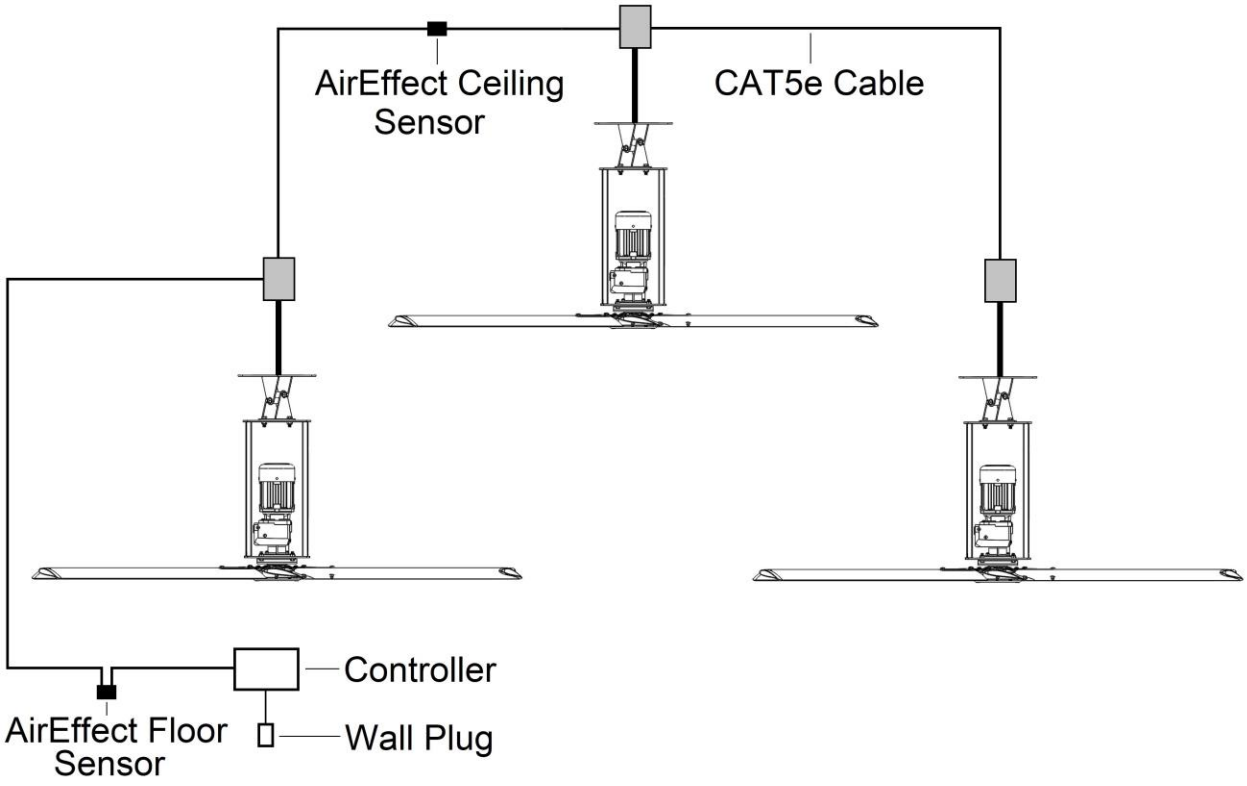
AirEffect Sensor Installation cont.

4. **Floor Mounting:** Mount the floor temperature sensor within 6ft [1.8m] of the ground in the room where the fan/fans are placed. Use caution when placing the sensor making sure not to place it where there is any contact with direct sunlight. Each sensor has small mounting holes for attachment with a screw.

5. Repeat steps 2-3 and refer to the wiring diagram.

6. If there is not enough wire to pull in and out of the sensor, splice a length of cable keeping length to a minimum. Use the bean crimps supplied by Macro Air to wire the lead into the network. Please refer to network wiring diagram. **Note: The Brown/White wire is only used to power a repeater. Do not terminate the Brown/White wire on the drive or t-splice unless it is used to power one of these devices.**

Proper sensor placement is shown below:



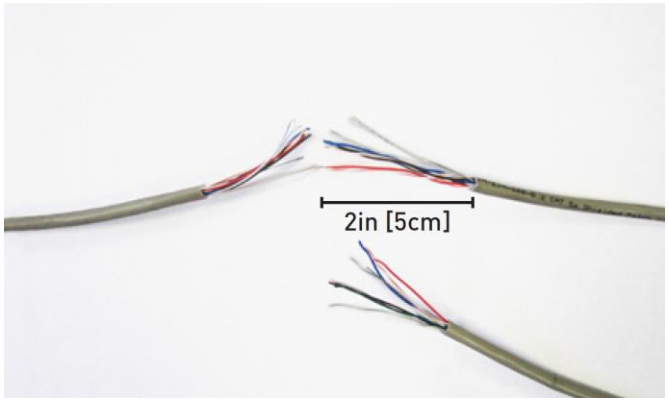
Installation

Temp Sensor T-Splice Connection Method

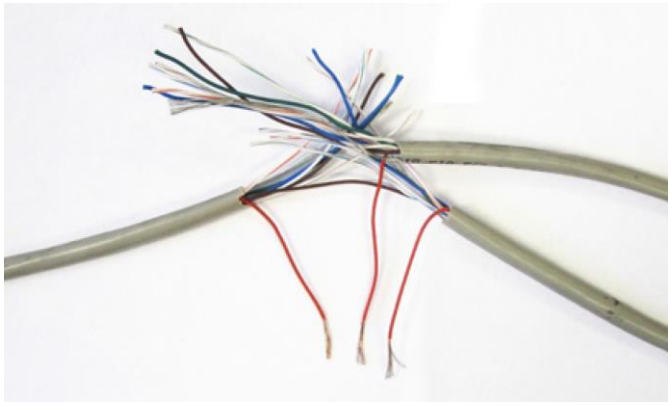
1. Take the incoming CAT5e from the network, the 15ft [4.57m] CAT5e whip from the fan, and the CAT5e going to the rest of the network. Give some slack (no more than 2ft / 0.6m) on each CAT5e to strip the wires and splice them together. Run the slack up towards the ceiling and back down in a horseshoe shape.

DO NOT roll the excess slack into a circle or coil because this creates a place for the network to pick up noise on the lines.

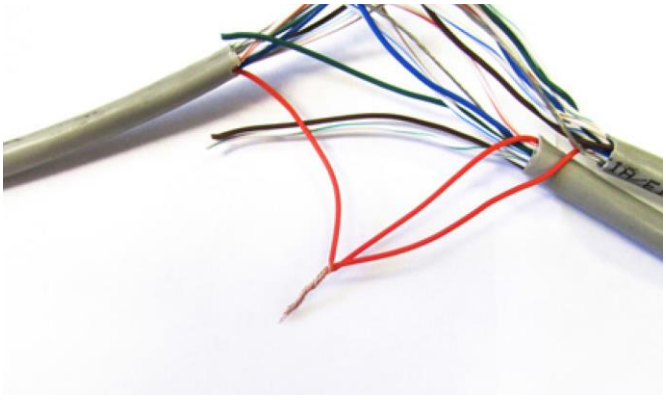
2. Strip jacketing off the three CAT5e cables and separate each color wire leaving approximately 2in [5cm] of each wire exposed including the drain/shield wire.



3. Strip approximately 1/2in [1.3 cm] off each color wire leaving the bare copper exposed.



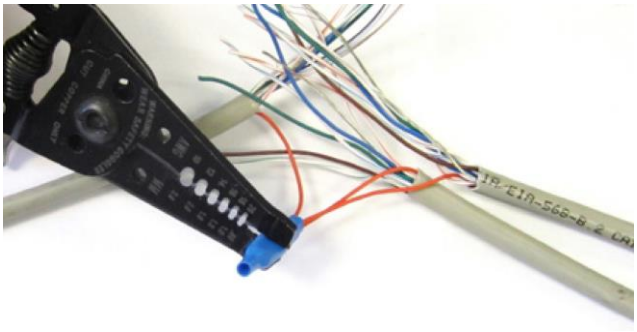
4. Twist the 3 wires of same color from each CAT5e together.



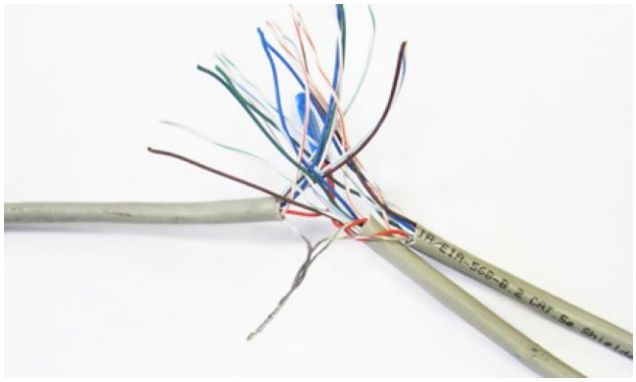
Installation

Temp Sensor T-Splice Connection Method cont.

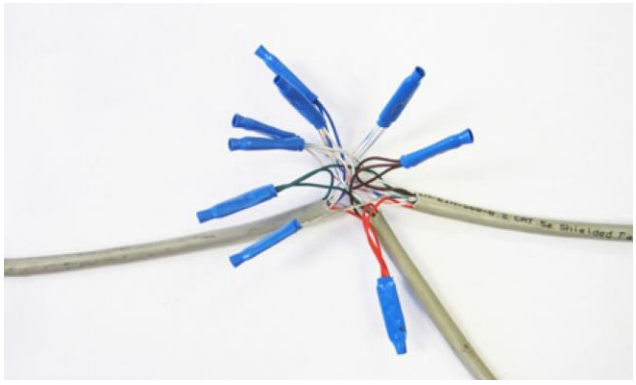
5. Place a gel filled bean crimp onto the end of the 3 wires and use a small crimper or pliers to crimp the bean tight on the wires.



6. Double check that the 3 drain wire/bare wires are also crimped together as this is what continues the shielding throughout the network. The shielding and drain wire MUST be connected to Earth Ground at **only one point** of the cable run.



7. Repeat steps 3-5 for all the wires EXCEPT the Brown/White wire. **The Brown/White wire is only needed for wiring in a repeater.**



8. Once all the wires are crimped, carefully twist the wires up. Then fold them back and tape them up with electrical tape to clean up your wiring.

Installation

AirEffect Setup

In order for AirEffect to operate properly, some setup is required. Please follow the below steps to ensure a smooth operation:

1. Ensure that the diameter is programmed on every fan's Fan Configure Screen (Reference the Controller 30 Manual).

2. Use the Zone Setup Screen to add or remove fans from the desired zone(s) (pg 11).

3. Once the zone is properly set up, input your minimum and maximum speeds for each fan. Note that while all fans may be shown, you only need to input values for fans that are in the zone.

4. Input the distance to the next fan or wall. If you have more than one distance, such as a fan between two other fans, use the smaller value or an average of the distance. Check boxes are available for you to specify whether the distance is to a fan or wall.

5. Input the roof height, fan height, and ground sensor height.

6. Under "Check Every", specify the interval at which the system will rescan for changes to temperature and humidity and make the appropriate adjustments.

7. Under "Desired Cool", input the temperature at which you desire the fans to begin cooling the space.

8. Under "Desired Heat", input the temperature at which you desire the fans to begin warming the space.

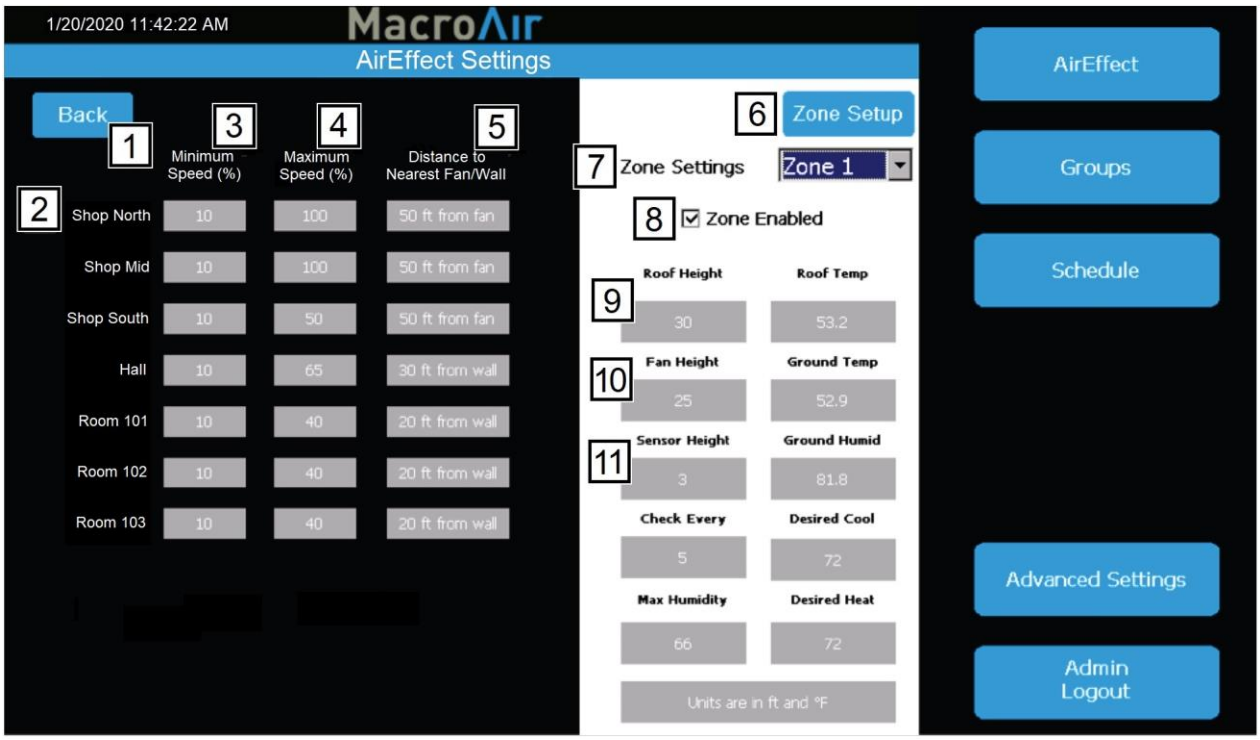
9. Under "Max Humidity", input the percentage at which you desire the fans to circulate more air, thereby lowering the humidity.

10. Once everything is set up, check the "Zone Enabled" box. This zone will now run according to the parameters you specified.

Installation

AirEffect Screen

If your network was ordered with the AirEffect option, the AirEffect control screen can be accessed by tapping the “AirEffect” button. AirEffect allows your fans to run automatically based on temperature, humidity, and user preferences, creating the most comfortable environment possible.



1 **Back** - Takes you back to the previous screen.

2 **Fan Name** - Displays the name of the fan.

3 **Minimum Speed (Default 0)** - Sets the minimum speed the fan is allowed to operate at. Useful if the fan is mounted high in the ceiling and effects cannot be felt below a certain speed.

4 **Maximum Speed(Default 100)** - Sets the maximum speed the fan is allowed to operate at. Useful if running at high speeds causes undesired effects (ex. papers blowing or welding).

5 **Distance to Nearest Fan/Wall** - Specifies the distance from this fan to the next fan or a wall.

6 **Zone Setup** - Takes you to the zone setup screen.

7 **Zone Settings** - Allows you to select a zone to view/input data.

8 **Zone Enabled** - Checking this box enables AirEffect for the zone, unchecking this box disables AirEffect for the zone and places the fans in manual mode.

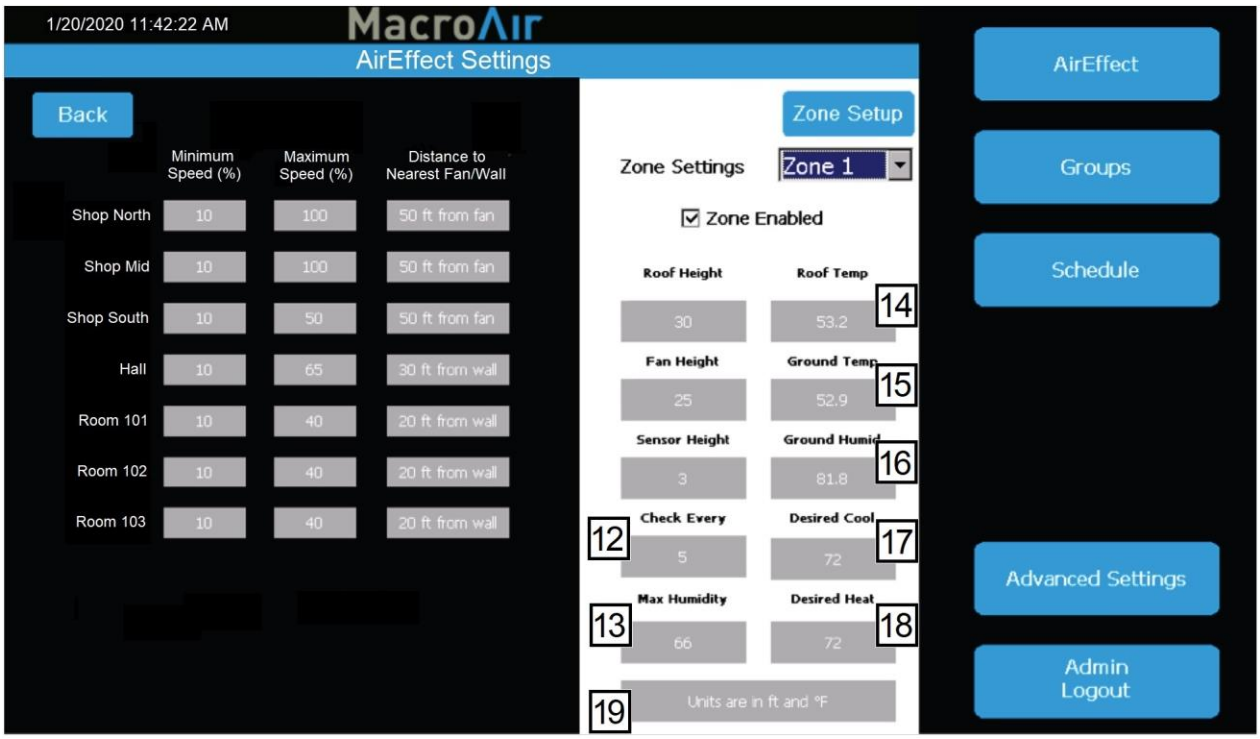
9 **Roof Height** - Allows you to specify the distance between the floor and the roof of the zone.

10 **Fan Height** - Allows you to specify (or average) the height of the blades above the floor.

11 **Sensor Height** - Allows you to specify the height of the ground sensor (default 3ft [0.9m] above floor).

Installation

AirEffect Screen cont.



12 **Check Every** - Allows you to specify how often AirEffect will check for changes in the environment and adjust accordingly.

13 **Max Humidity** - Allows you to set a desired maximum humidity as a condition for the fans to run.

14 **Roof Temp** - Displays the temperature measured by the roof sensor.

15 **Ground Temp** - Displays the temperature measured by the ground sensor.

16 **Ground Humid** - Displays the humidity measured by the ground sensor.

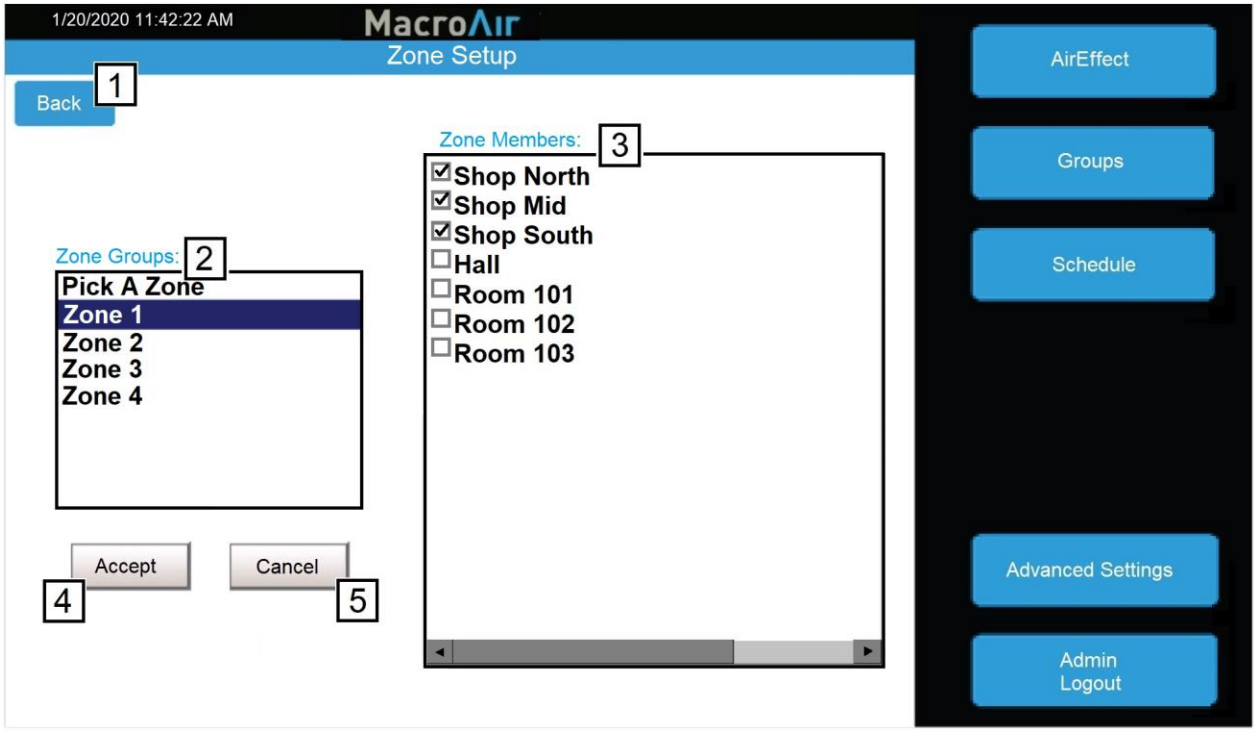
17 **Desired Cool** - Allows you to set a temperature threshold that will cause AirEffect to cool the environment.

18 **Desired Heat** - Allows you to set a temperature threshold that will cause AirEffect to warm the environment.

19 **Units are in ft and F** - Displays the units currently being used on the screen. Press the button to toggle between feet and Fahrenheit, or meters and Celsius.

Zone Setup Screen

Pressing the “Zone Setup” button on the AirEffect screen will bring you to the zone setup page. This page allows you to add or remove fans from zones. Multiple zones are useful if you have fans in multiple rooms/environments that need to be run differently. Please note that two sensors are required per zone.



1 **Back** - Takes you back to the AirEffect screen.

2 **Zone Groups** - Displays the zone groups.

3 **Zone Members** - Displays the fans when a zone group is selected. Check boxes to add fans to the zone, uncheck boxes to remove them.

4 **Accept** - Saves any changes you made.

5 **Cancel** - Cancels any changes you made.

Information

Technical Support

For installation assistance, application questions, technical support & any other inquiries, please contact our Technical Support team at (866) 668-3247 option 2.

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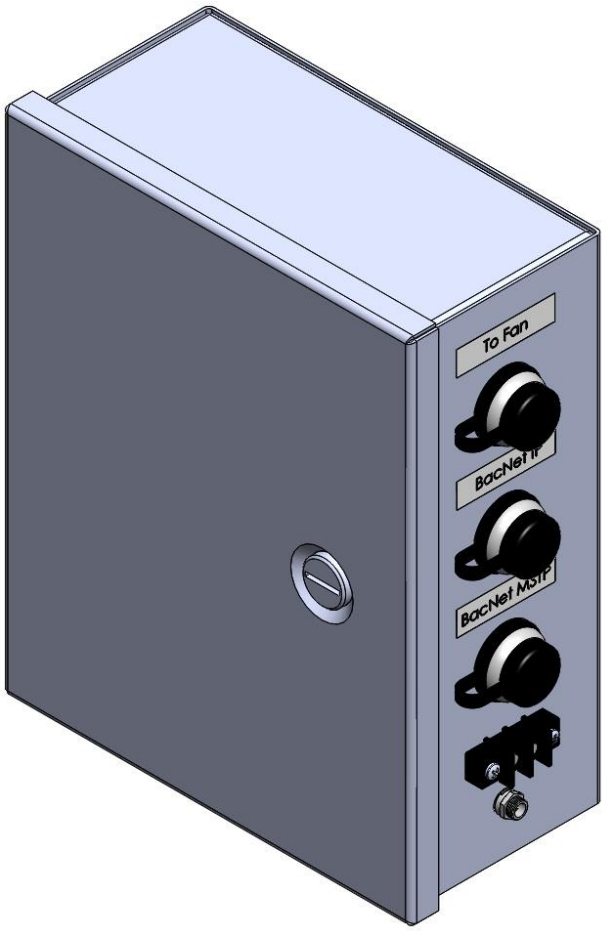
Operation Manual

MacroAir AirLynk
Modbus/BACnet



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Introduction

Caution and Safety

⚠ **ATTENTION: Safety.** READ THE ENTIRE MANUAL BEFORE OPERATING THE FAN. Ensure that all safety practices and instructions are followed during the installation, operation, and servicing of the fan. Failure to apply these safety practices could result in death or serious injury. If you do not understand the instructions, please call our Technical Department for guidance.

⚠ **ATTENTION: Qualified Technicians.** All fan controls and incoming power should only be installed by qualified technicians familiar with the requirements of the National Electrical Code (NEC) and local codes. Refer to appropriate portions of this manual for other important requirements. Failure to follow these guidelines will void the manufacturer's warranty.

⚠ **ATTENTION: Code Compliance.** Installation is to be in accordance with the NEC, ANDSI/NFPA 70-1999 and local codes.

Hazard of Electrical Shock, Explosion or Arc Flash:

⚠ **ATTENTION: Read.** Read and understand this manual before installing or operating a fan unit. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.

⚠ **ATTENTION: Code Compliance.** The user is responsible for compliance with all international and National Electrical Code requirements with respect to the grounding of all equipment.

⚠ **WARNING: Do Not Touch.** Many of the parts of this unit operate at line voltage. DO NOT TOUCH.

⚠ **WARNING: Covers.** Install all covers before applying power or starting and stopping the unit.

Installation and Service

⚠ **WARNING: Damage.** Do not operate or install any fans or fan accessories that appear to be damaged.

⚠ **WARNING: Death and Injury.** Failure to follow this instruction can result in death, serious injury, or equipment damage.

⚠ **WARNING: Disconnect Power.** If the fan does not operate properly using the procedures in this manual. BE CERTAIN TO REMOVE ALL POWER TO THE UNIT and contact our technical department for further assistance.

⚠ **CAUTION: Moving Parts.** Keep all body parts clear of moving parts at all times.

⚠ **ATTENTION: Qualified Technicians.** All electrical troubleshooting and repair must be done by a qualified technician and meet all applicable codes.

REFER TO FAN INSTALLATION MANUAL(S) FOR FURTHER MAINTENANCE INFORMATION.

Fan Network Ordering

It is important to purchase fans that are set up for a network. MacroAir customizes fans to operate in a network by:

- Addressing the fans.

Note: If you did not order your fans for a network, please contact Technical Support for assistance with networking your fans. Also, when installing new fans in an existing mixed network, contact Technical Support.

**If you did not order your fans for a network by default, they will all have a default Node Address, and you will be missing necessary materials. Contact technical support to modify your fans when installing for networking.*

Modbus/BACnet Nomenclature

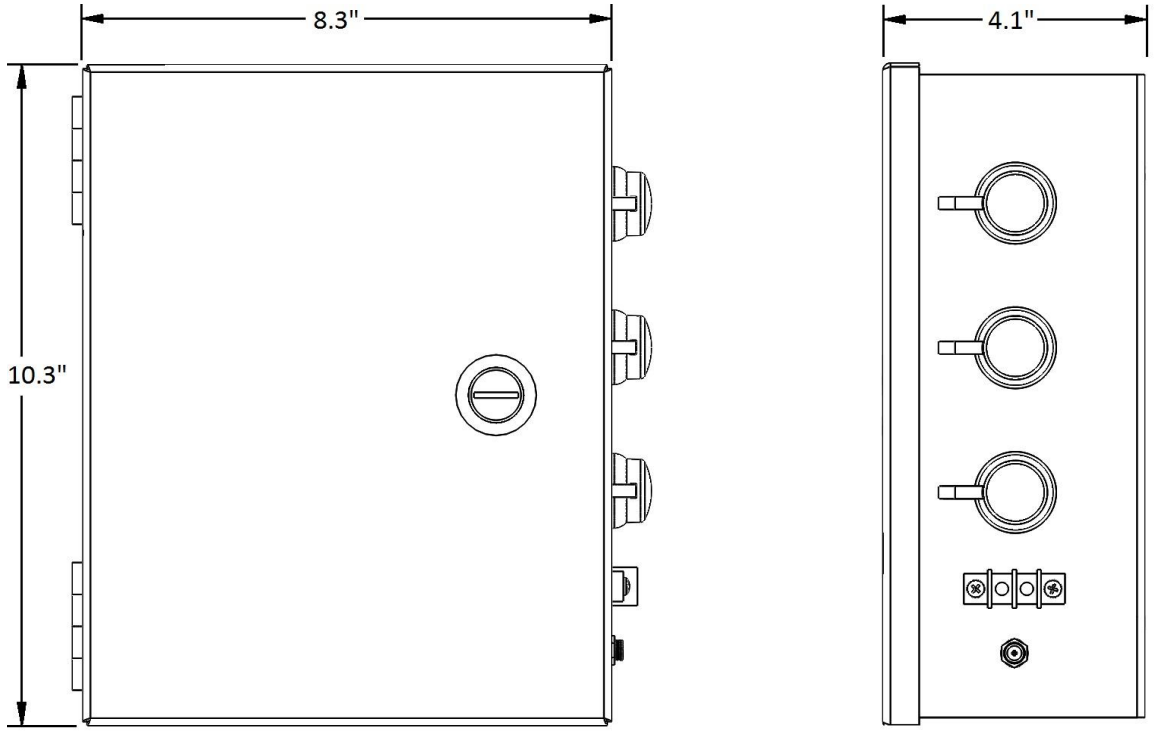
⚠ **ATTENTION: For purposes of this manual the following shall be true:**

- It shall be recognized that where this manual indicates “BACnet“, it shall be recognized as “Modbus/BACnet”.
- It shall be recognized that where this manual indicates “BACnet IP” it shall also be recognized as “Modbus TCP/IP”.
- It shall be recognized that where this manual indicates “BACnet MSTP” it shall also be recognized as “Modbus RTU”.

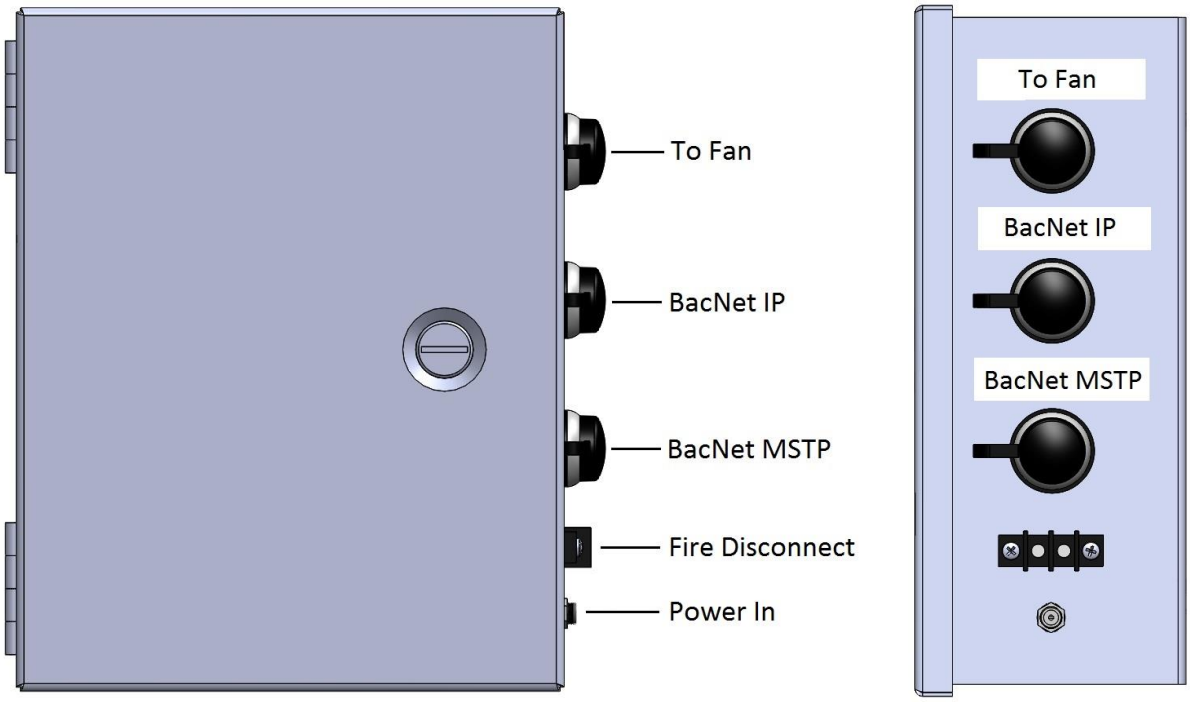
Introduction

AirLynk Enclosure

Dimensions



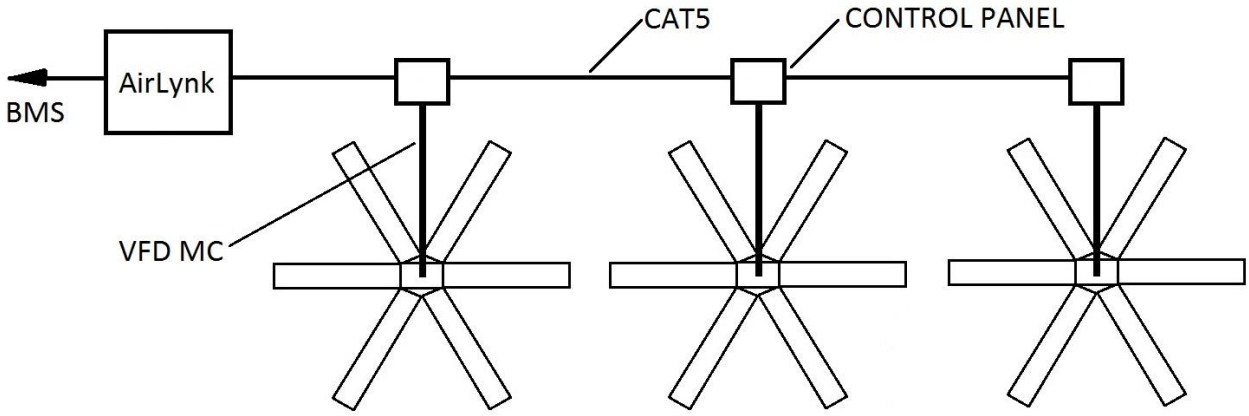
Components



Network Installation

Network Wiring Instructions

Refer to the appropriate fan installation manual for specific networking instructions.



Network Installation

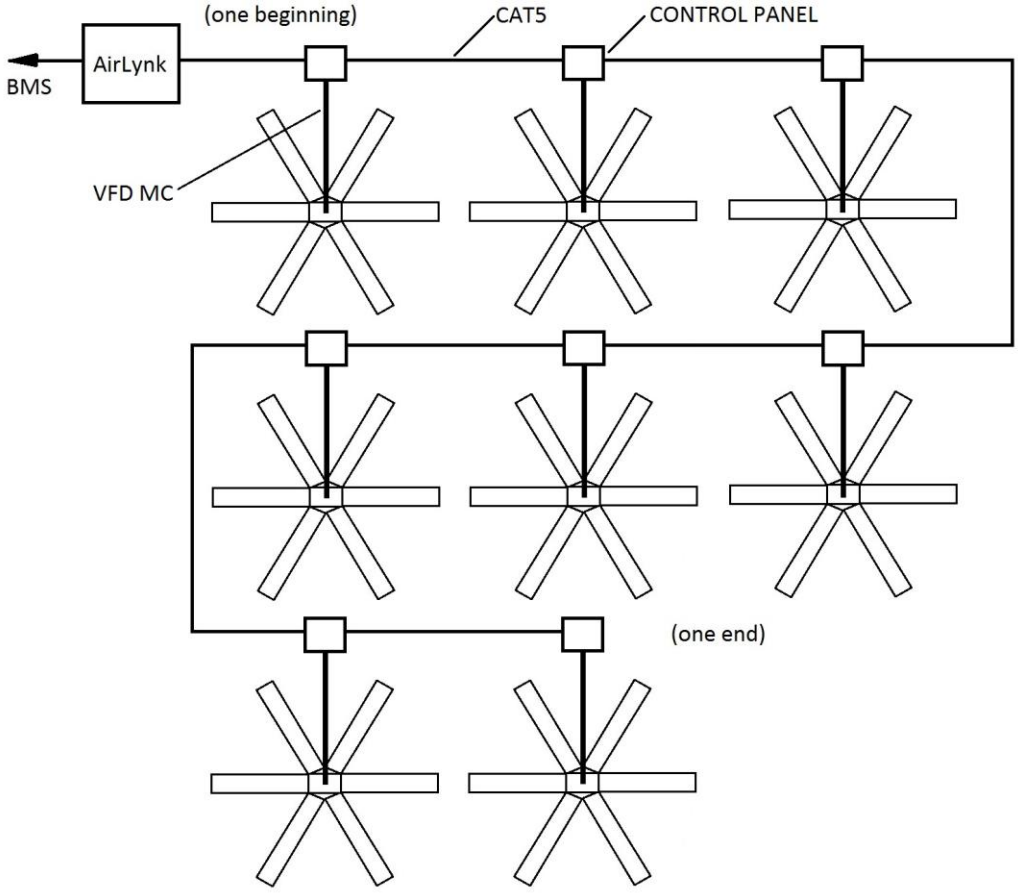
Network Wiring Requirements

- **Use Stranded Twisted Pair, CAT5e (or higher grade) shielded cable.**
- Minimum 24 AWG (0.5mm) cross section
- Route wires as far away as possible from high voltage AC cables, fluorescent lights, arc welders, and other equipment that transmits EMI (electromagnetic interference).
- Do not run CAT5e in conduit with high voltage AC cables.
- Do not exceed 4000ft [1219m] of CAT5e between the AirLynk and the last fan in the network.

Daisy Chain

Networked MacroAir fans must be connected in one single line, referred to in this document as a **"daisy chain".** The characteristics of a proper daisy chain are: **one beginning** (AirLynk) and **one end** (last fan).

If the fans are not connected in one line/chain, there will be a de-graduation of the communication signal and the network may not function as intended (fans in the network may not operate).



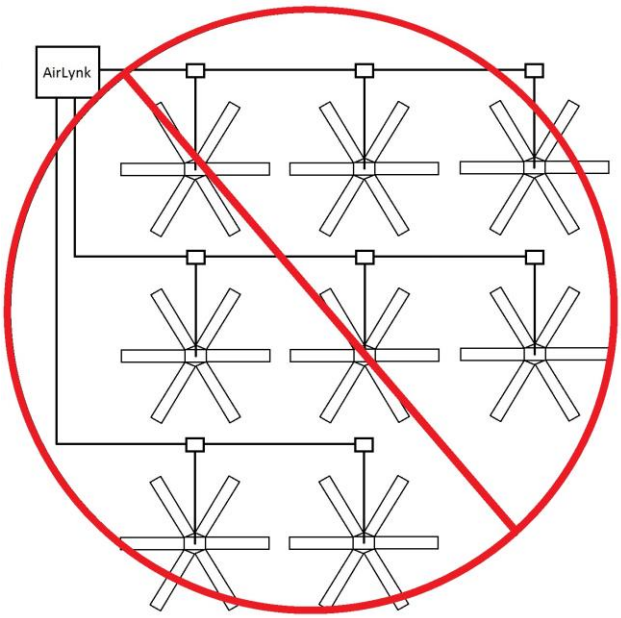
- Control Panel

VFD MC - Motor Control Cable (supplied with Fan by MacroAir)

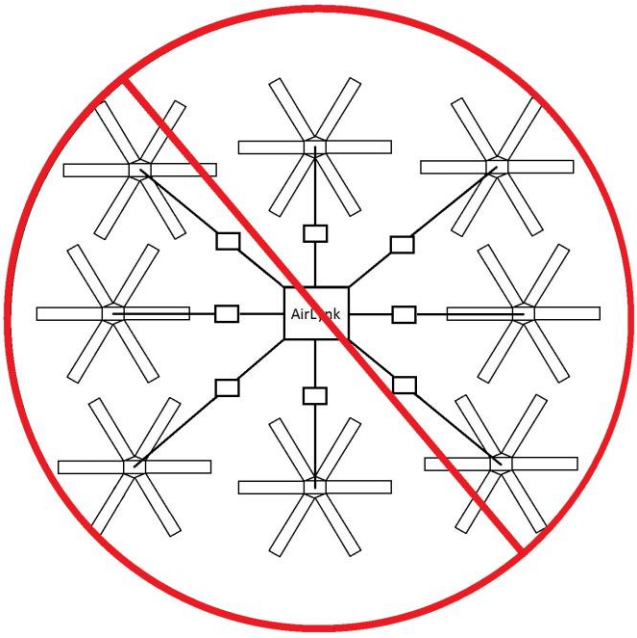
Network Installation

Improper Wiring Configuration

End of Line x3

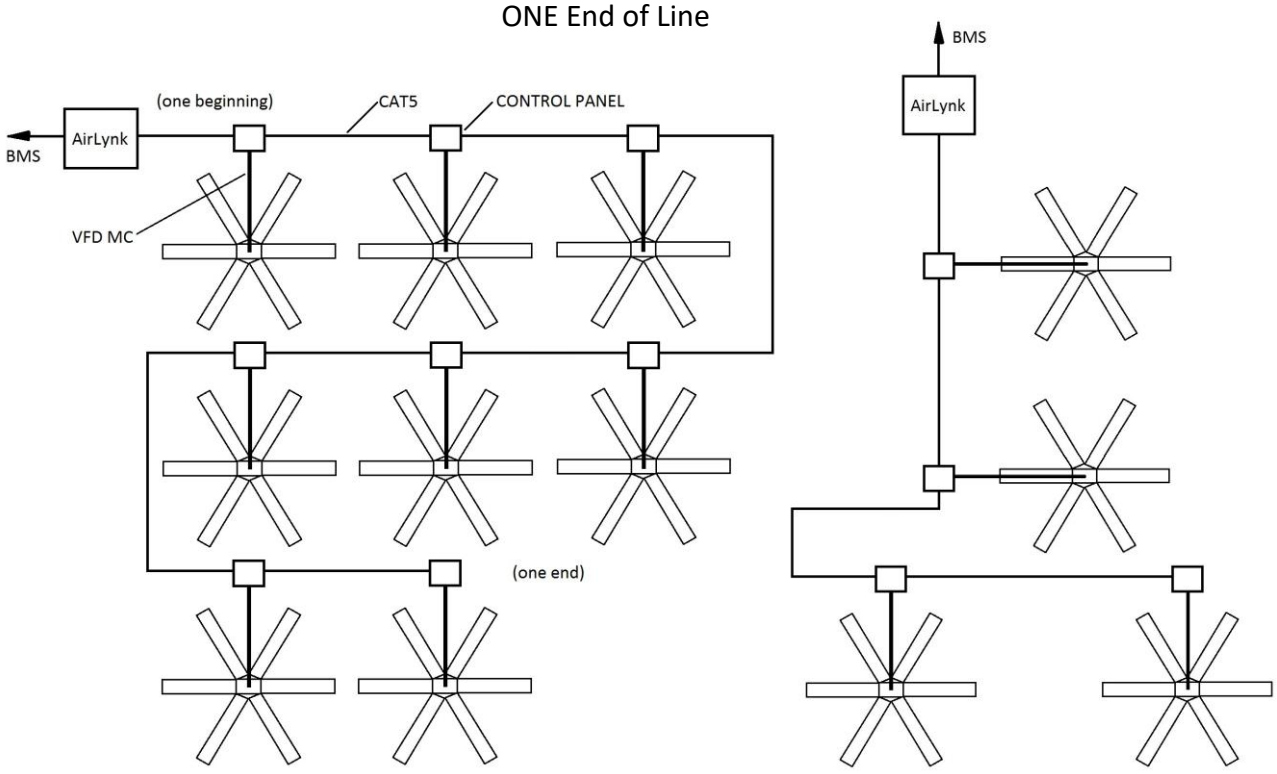


End of Line x8



Proper Wiring Configuration

ONE End of Line



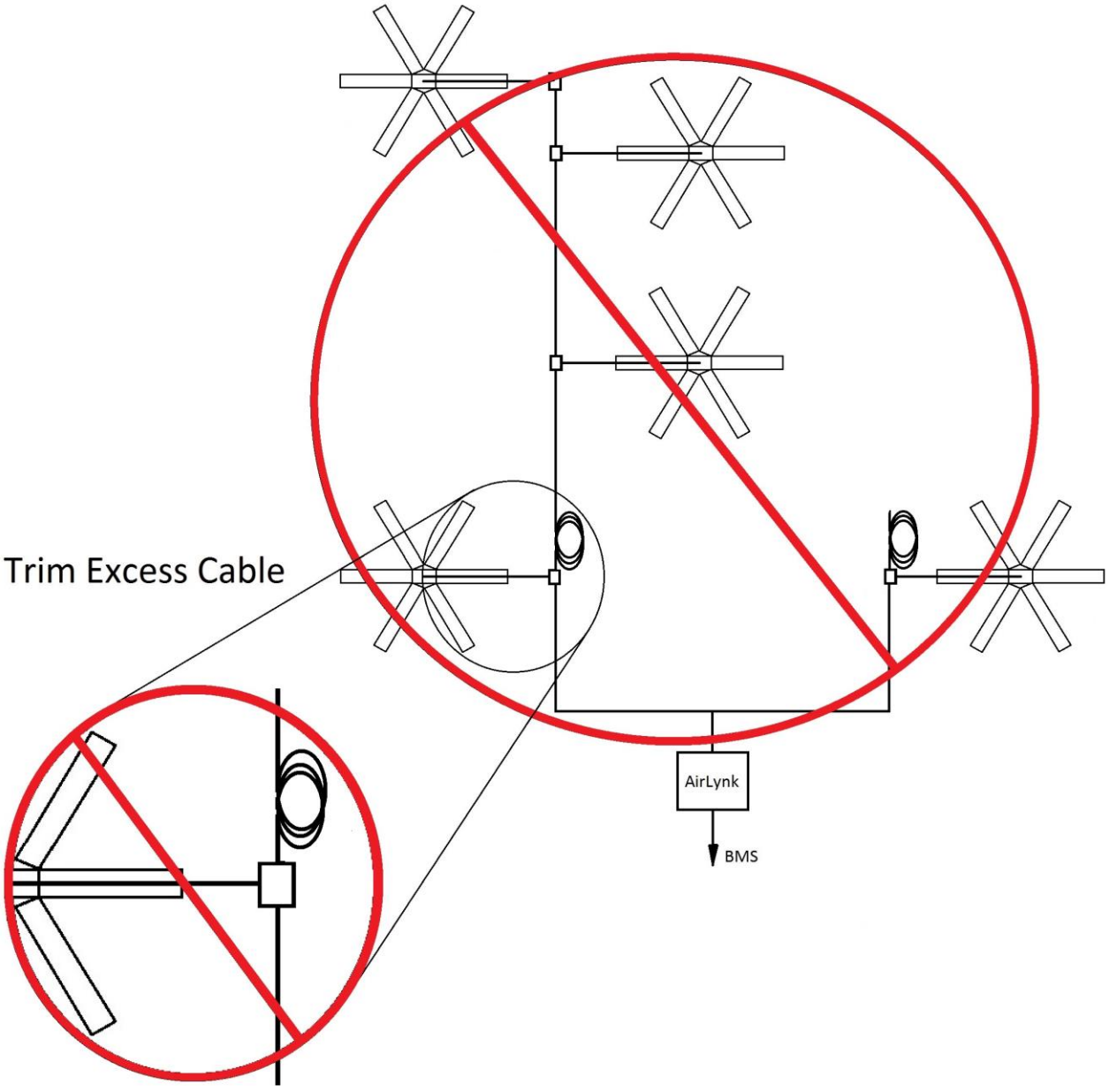
Network Installation

Excess Cable at Connection Point

With noise being emitted throughout a typical industrial/commercial environment, **extra cable should not be coiled up** as the coil itself will create noise/interference in the communication signal. There should be no more than two feet of excess cable at each connection point.

If more than two feet of cable is needed for future relocation of the fan, run the cable up toward the ceiling and back down in a horseshoe shape.

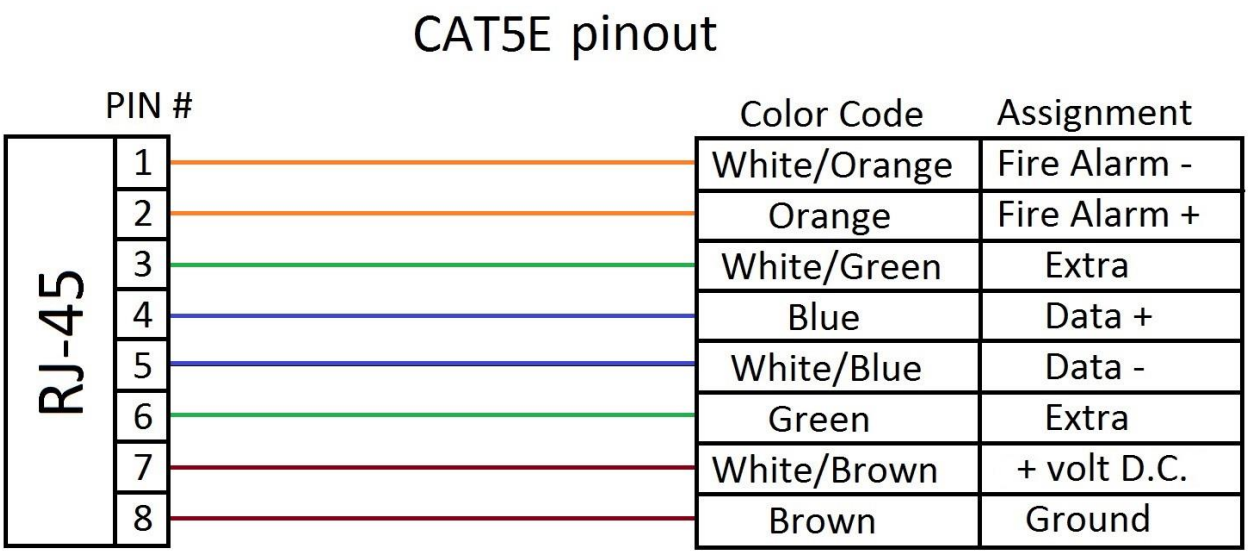
ALWAYS AVOID SHARP BENDS OF THE CABLE.



Wiring Diagrams

Wiring: CAT5E Pin-Out

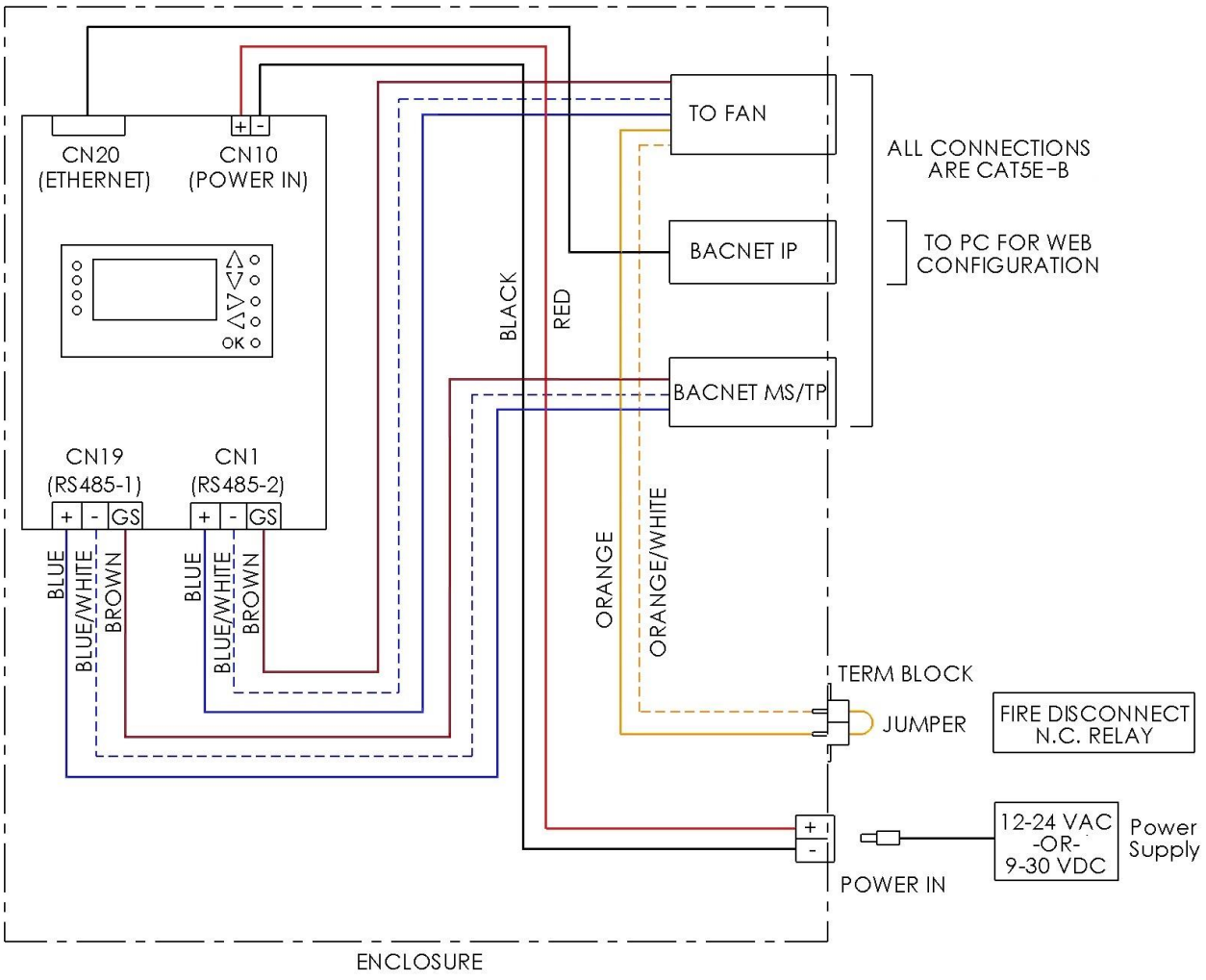
CAT5E-B to MacroAir Equipment Pin-Out



Note: When installing new fans in an existing mixed network, contact Technical Support for assistance with networking your fans.

Network Installation

Wiring: Airlynk



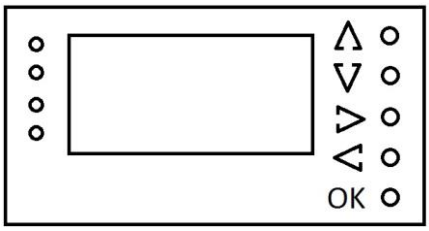
Configuration and Operation

A Quick Start Guide

PLC STARTUP

Basic navigation around the PLC display

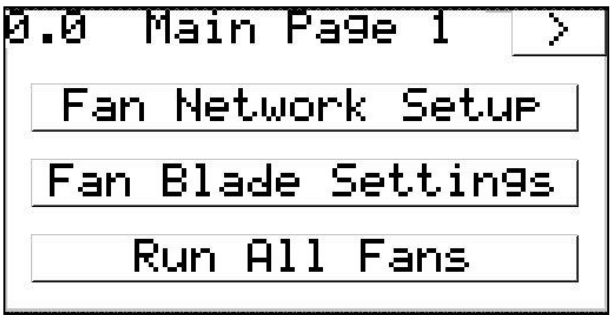
1. Use the up Λ, down V, left <, and right > arrows to navigate through the options on the screen.
2. Press OK to select the currently highlighted option (takes you to another screen or allows you to edit the selected value).

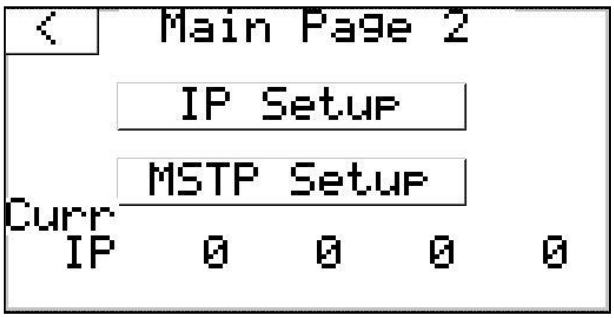


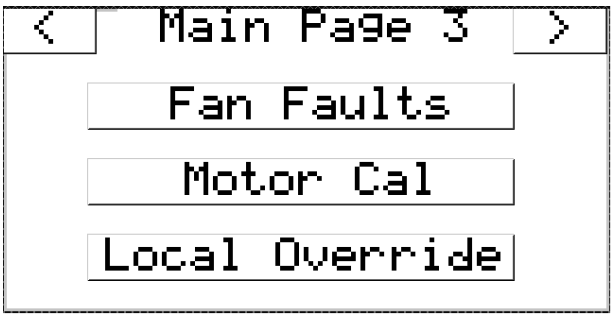
3. If the option is editable, you will then be able to edit it using the up and down arrows. To get to the next digit press the left or right arrows. When you are done editing, press OK to set the value.

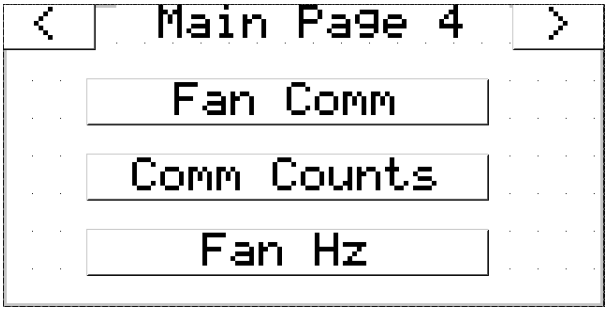
NOTE: The fans will be auto discovered each time the PLC is powered on. Setting the fans through the web browser will ensure that the PLC knows there is a fan at that address.

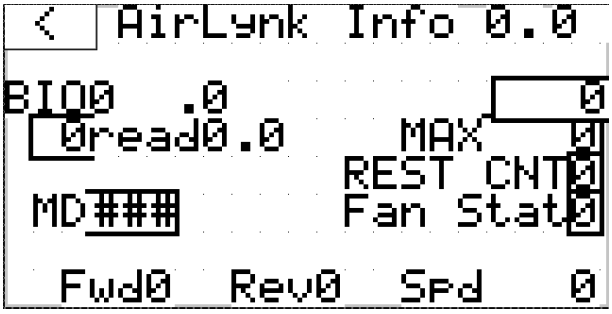
Main Page 1, 2, 3 and 4









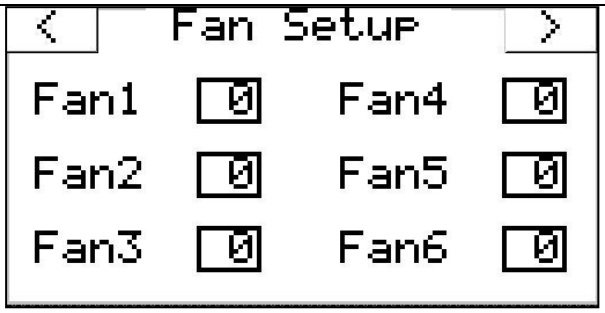


Configuration and Operation

A Quick Start Guide, cont.

Fan Setup (Optional)

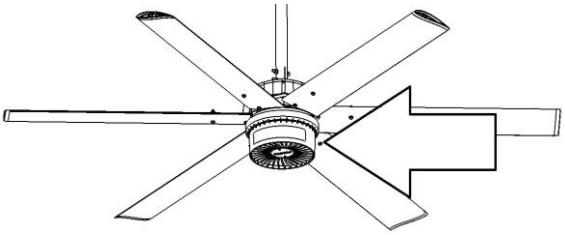
1. Select “Fan Network Setup”.
2. Check each fan that is on the network (See Fig. 1 Fan Values Table) to ensure that the PLC found all the fans.



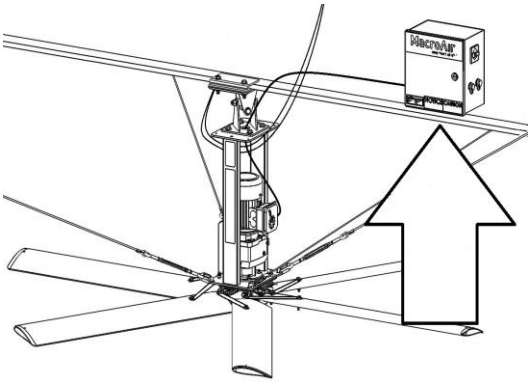
#	Fan Type	Manufacture Dates	Model Description	* VFD Location (Drive Model)
0	No Fan			
1	AVD-3	2015 – 07/2019	Retired AVD 3	Onboard VFD (MacroAir proprietary VFD)
2	AVD 550	2014 – 07/2019	Retired AVD 550	Onboard VFD (MacroAir proprietary VFD)
3	AVD 780	2014 – 07/2019	Retired AVD 780	Onboard VFD (MacroAir proprietary VFD)
4	AVD 370	2015 – 11/2021	Retired AVD 370	Onboard VFD (MacroAir proprietary VFD)
5	AirVolution	2013 – Present	AirVolution	External VFD (Yaskawa Drive)
6	AVD SD	07/2019 – Present	AVD 550, 780	External VFD (Schneider Drive)
		07/2019 – 10/2021	Retired AVD 3	External VFD (Schneider Drive)
7	X Series	12/2019 – Present	X Series	External VFD (Schneider Drive)
8	AVD 370	10/2021 – Present	AVD 370	VFD in Mount Housing (Schneider)
9	AVD 3	10/2021 – Present	AVD 3	VFD in Mount Housing (Schneider)
10	AVD 6	02/2022 – Present	AVD 6 (Japan Only)	VFD in Mount Housing (Schneider)
11	AirVolution S	02/2023 – 03/2023	Y Series AirVolution	External VFD (Schneider Drive)
12	AVD370 ACE	03/2023 – Present	Retrofit AVD 370	Onboard VFD (ACE Drive Retrofit)
13	AVD 5	05/2024 – Present	AVD 5	VFD in Mount Housing (Schneider)
30	Local Override			

Fig. 1: Fan Values Table. * VFD Locations: See illustrations below

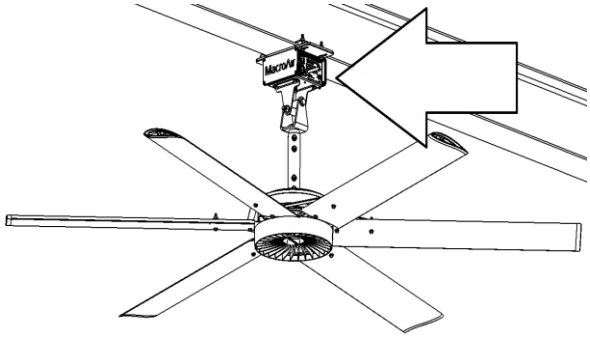
Onboard VFD: Located in the Motor Housing. ➢



External VFD: Located in a Control Panel outside the fan sweep. ➘



VFD in Mount Housing: Located at the top of the fan drop tube in the mounting housing. ➘

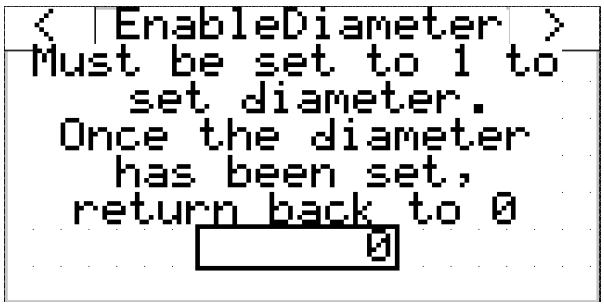


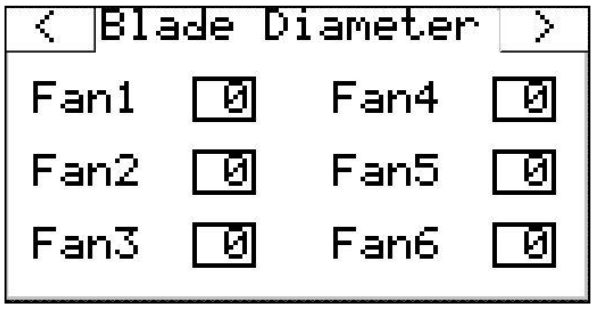
Configuration and Operation

A Quick Start Guide, cont.

Fan Setup (Optional), cont.

3. Return to “Main Page 1” and select Fan Blade Settings.

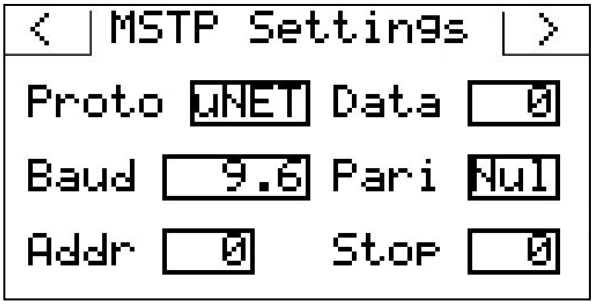




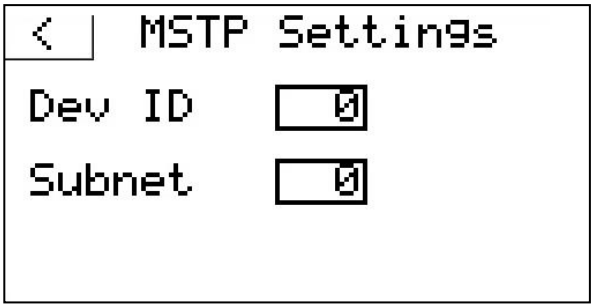
4. Optional: Set blade sizes (diameter) for each fan on the network (can be done through BACnet).
5. Run all fans to ensure fan functionality.

BACnet MSTP setup

1. Use the up and down arrows on the right to navigate to “Main Page 2” from “Main Page 1” by selecting [>]
2. Select “MSTP Setup” on “Main Page 2”
3. From “MSTP Settings” you can set the various settings needed to operate the fans through BACnet MSTP



Proto - Protocol (BACn for BACnet MSTP)
Modb – Modbus RTU
Baud - Baudrate of the protocol
Addr - Address of the PLC
Data - Data bit number
Pari - Parity (Nul-None, Odd, Eve-Even)
Stop - Stop bit



Dev ID - ID that is displayed on BACnet end
Subnet - Subnet that the device is on
Note: Applies to IP settings as well as MSTP

Configuration and Operation

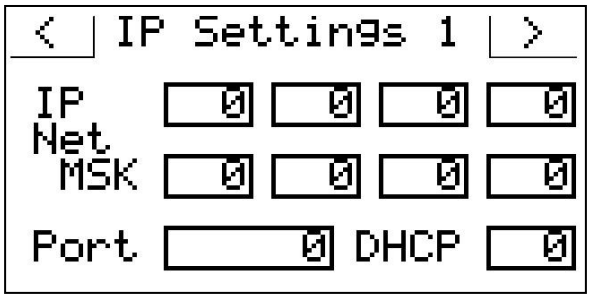
A Quick Start Guide, cont.

BACnet IP setup

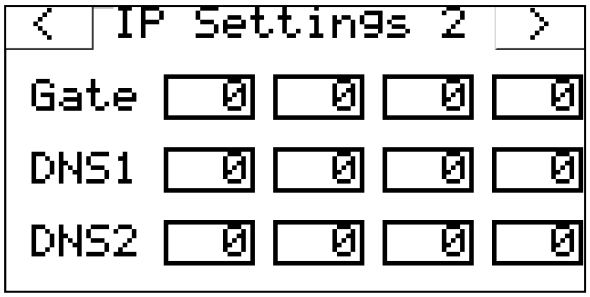
1. Use the up and down arrows on the right to navigate to “Main Page 2” from “Main Page 1” by selecting [>]
2. Select “IP Setup” on “Main Page 2”
3. From “IP Settings” you can set the various settings needed to operate the fans through BACnet IP. Note: To set Dev ID and Subnet see BACnet MSTP setup (page 13).

   Note: If “Proto” is set to “BACn” under “MSTP Setup” BACnet IP will not work. If Dev ID and Subnet are needed see MSTP Setup.

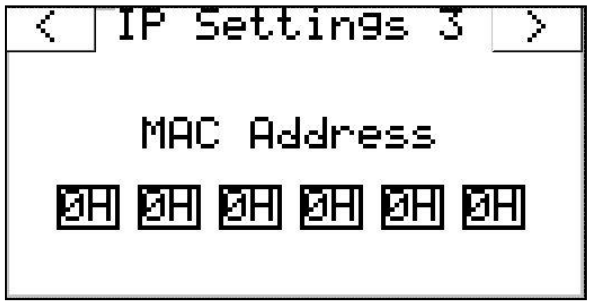
IP - IP address
Net MSK - Net Mask
Port - BACnet/IP port (0= port 47808)
DHCP - Enabled/Disable DHCP
(1) Enabled, (0) Disable



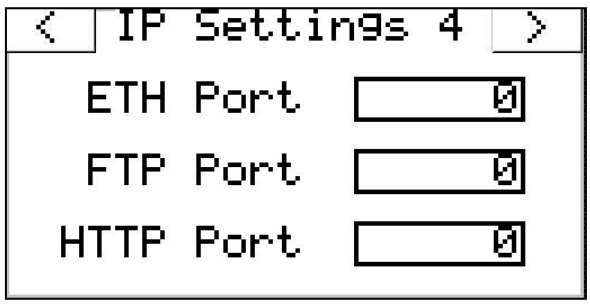
Gate - Default Gateway
DNS1/2 - DNS server



MAC address of device



ETH - TCP/IP Port number
FTP - FTP Port number (0=port 21)
HTTP - HTTP port number (0=port 80)



Certifications

BTL Mark – BACNET TESTING LABORATORY

The BTL Mark on PLC is a symbol that indicates that a product has passed a series of rigorous tests conducted by an independent laboratory which verifies that the product correctly implements the BACnet features claimed in the listing. The mark is a symbol of a high-quality BACnet product. Go to **https://www.BACnetInternational.net/btl/** for more information about the BACnet Testing Laboratory. Click here for BACnet PIC Statement.

Configuration and Operation

Introduction

1. PLC Gateway

Auto-Discovery (Every Power-up): Supported RS-485 devices can be automatically detected and identified for addition to the PLC's configuration.

Manual Calibration

2. Blade Sizes and Motor Calibration (only needs to be performed on startup)

Blade sizes on fans must be done manually on the following Fan Type numbers: 2, 3, 6, 7, 8, 9, 10, 12, 13.
Blade sizes DO NOT need to be set on Fan Type numbers: 1, 4, 5, 11.
For Fan Type number 30, check the Local Override for Fan Type number and set according to number indicated by Local Override.

Note: You may need to look at "Fan Network Setup" on the AirLynk display or on your "web" browser to determine your fan drive type.

Motor calibration must be done on AVDX and the AVD SD Retrofitted Legacy Fans.

#	Fan Type
0	No Fan
1	AVD-3
2	AVD 550
3	AVD 780
4	AVD 370
5	AirVolution
6	AVD SD
7	X Series
8	AVD 370
9	AVD 3
10	AVD 6
11	AirVolution S
12	AVD370 ACE
13	AVD 5
30	Local Override

From fig 1, pg12

Blade Size: Use the fan control points AV 121-150 (Appendix A, pg. 36) to set the blade size.

- 8-24 for 6-Blade fans.
- 308-324 for 3-Blade fans.

Motor Calibration: Use the control point AV 154 to select the fan number you want to calibrate and set control point AV 158 to a '1' to perform a motor calibration of the selected fan.

BACnet Setup

3. Configuring Device Communications

Set Modbus RTU Node-ID for each of the devices attached to the PLC.

- Set Modbus Node-ID for each of the devices attached to PLC. The Modbus Node-ID's need to be uniquely assigned between 1 and 30.

- The Modbus Node-ID that is assigned for each device needs to be documented.

- The Modbus Node-ID's assigned are used for designating the Device Instance for BACnet/IP and BACnet MS/TP

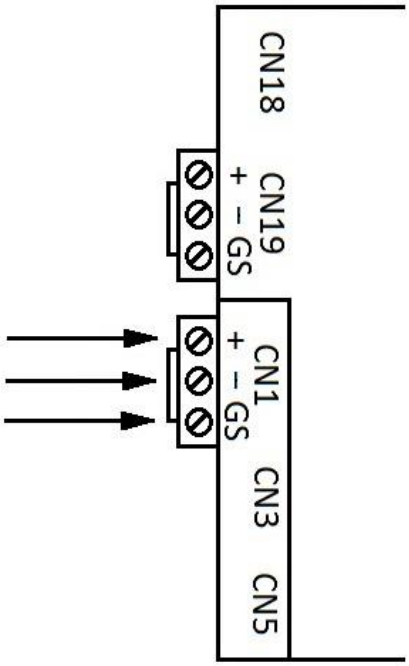
- The Modbus TCP/IP Node-ID will be set to the same value as the Node-ID of the Modbus RTU device.

Interfacing PLC To Devices

4. Fan Connections to PLC (CN1)

Device Pins	PLC Pin #	Pin Assignment CN1
Pin RS-485 +	Pin1	RS-485-2 +
Pin RS-485 -	Pin 2	RS-485-2 -
Pin GND	Pin 3	RS-485-2 GS

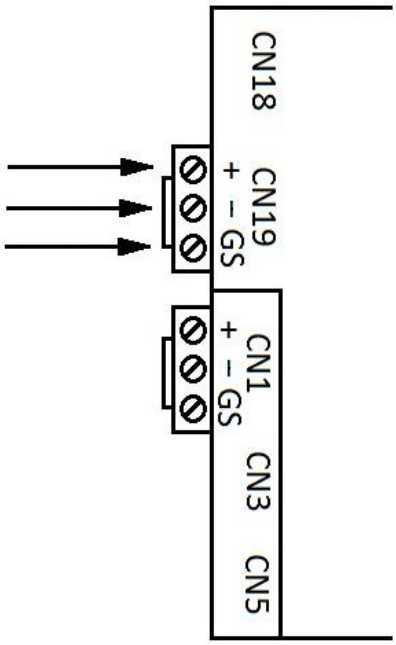
Figure 3: Power and RS-485 Connections (ref pg. 10)



5. Wiring Field Port to a BACnet MSTP BMS (CN19)

BMS RS-485 Wiring	PLC Pin #	Pin Assignment CN19
RS-485 +	Pin 1	RS-485-1 +
RS-485 -	Pin 2	RS-485-1 -
-	Pin 3	RS-485-1 GS

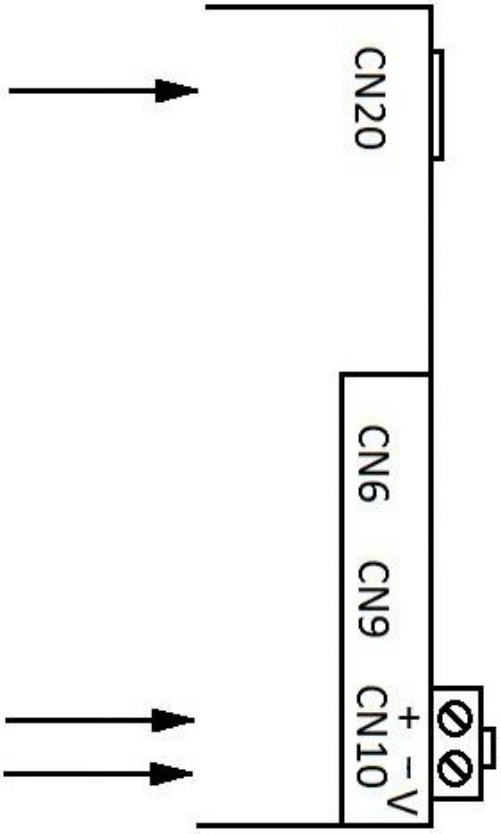
Figure 4: Connection from PLC to RS-485 Field Network (ref pg. 10)



Configuration and Operation

Interfacing PLC To Devices, cont.

6. Ethernet Control (CN20)



7. Power-up PLC (CN10)

Power to PLC	PLC Pin #	Pin Assignment CN10
Power In (+)	Pin 4	V +
Power In (-)	Pin 5	V -

Figure 6: Power Connections (ref pg. 10)

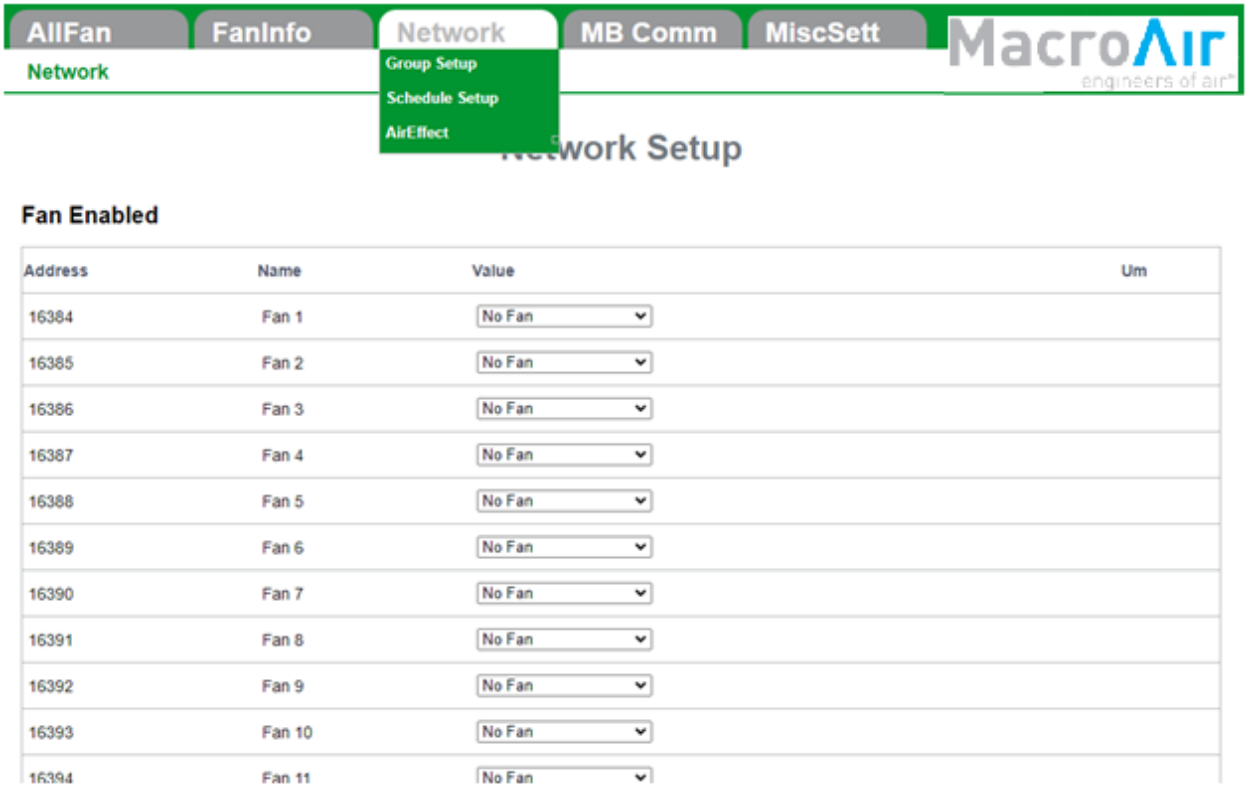
Configuration and Operation

PLC's Web Configurator

To Select Device Profiles

1. **Connect the PC via the Ethernet Port**
   - Connect a CAT5 Ethernet cable (Straight through or Cross-over) from PC to BACnet on AirLynk panel.

     The Default IP Address of PLC is 192.168.1.100, Subnet mask is 255.255.255.0. If the PC and PLC are on different IP Networks, assign a static IP Address to the PC on the 192.168.1.xxx network.
   - For instructions on how to navigate your operating system, to set up an IP address, and subnet mask contact your system administrator.
2. **Connecting to Web Configurator**
   - After Setting your PC to be on the same subnet as the PLC (Instruction 1. Connect to PC), open a web browser on your PC and enter the IP address of the PLC; the default address is 192.168.1.100
   - If the IP address of the PLC has been changed by a previous configuration, you will need to get the assigned IP address from display (Page 11, Main Page 2 Curr IP).
3. **Selecting Profiles for Devices Connected to PLC**



Fan Enabled - Fan type set here will always pull into the AirLynk regardless of if there is a fan at that address or not. Fans pulled in here that don't exist will cause the AirLynk to operate slowly.

All Fan Control

All Fan Command

Address	Name	Value	Um
10131	Fan Direction	Off Fwd Rev	
10132	Fan Speed	50	
10133	Send The All Fan Command	☐	

All Fan Fault Reset

Address	Name	Value	Um
10101	Reset Faults on All Fans	☐	
8641	Faults Reseting (0-Done, 1-Resetting)	0	num

Fans Scanning

Address	Name	Value	Um
10135	Fans Scanning	☐	

All Fan Command - Set speed and direction and check the “Send The All Fan Command” box to send the “All Fan Command”.

All Fan Fault Reset - Check the box to reset the faults of fans, if any. The “Faults Resetting” will change to 1 when actively resetting faults and 0 when it is done.

Fan Scanning - Is checked when the AirLynk is first powered on and will stay checked until the scan is complete.

Configuration and Operation

Fan Control

Fan Command

Address	Name	Value	Um
9205	Fan Selected	30	
9203	Fan Direction	Off Fwd Rev	
9204	Fan Speed	0	
9202	Send Fan Command	☐	

Fan Settings

Address	Name	Value	Um
9208	Fan Output (0.1)	1071	
9207	Fan Type Found	AVD 370 Ace	
9209	Fan Fault	0	
9210	Reset Fan Fault	☐	
9211	Fan Hours	0	
9214	Fan Firmware	0	
9212	Fan Comunication Status	1	

Fan Diamter Changes

Address	Name	Value	Um
9416	Enable Fan Diameter Changes	☐	
9206	Fan Diameter (in ft)	24ft 3Blade	
9213	Set Blade Size	☐	

Motor Calibration

Address	Name	Value	Um
9216	Calibrate Motor (Schneider Drive)	☐	
9221	Calibrate Motor Success	☐	

Fan Command - Fan selected is the fan that you want to work with for this whole page. Set the speed and direction and hit the "Send Fan Command" to send the command (you might need to check speed and direction to something different, send command, then change it back and send command again.)

Fan Settings - The only thing that applies here is the "Reset Fan Fault" checkbox. Everything else is for information purposes. "Reset Fan Fault" will uncheck when the fault process is run. "Fan Output" is scaled at 0.1 so a value of 123 would be 12.3.

Configuration and Operation

Fan Control

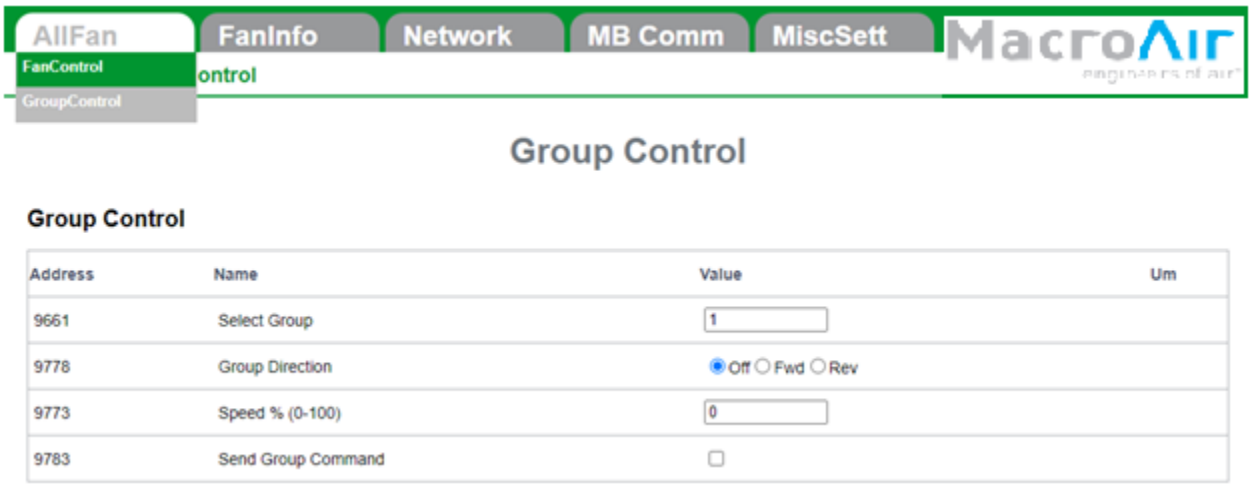
(continued from image on page 21)

Fan Diameter Changes - you must check “Enable Fan Diameter Changes” to be able to change the fan diameter. Once checked, it will only be enabled for 30 min. Select the correct diameter and hit “Set Blade Size”. Wait for it to uncheck before going to the next fan.

Motor Calibration - Select “Calibrate Motor” checkbox to calibrate the motor. Once it unchecks and the “Calibrate Motor Successful” checks, the motor calibration was successful, otherwise it failed.

Note: AVDX and AVD SD only.

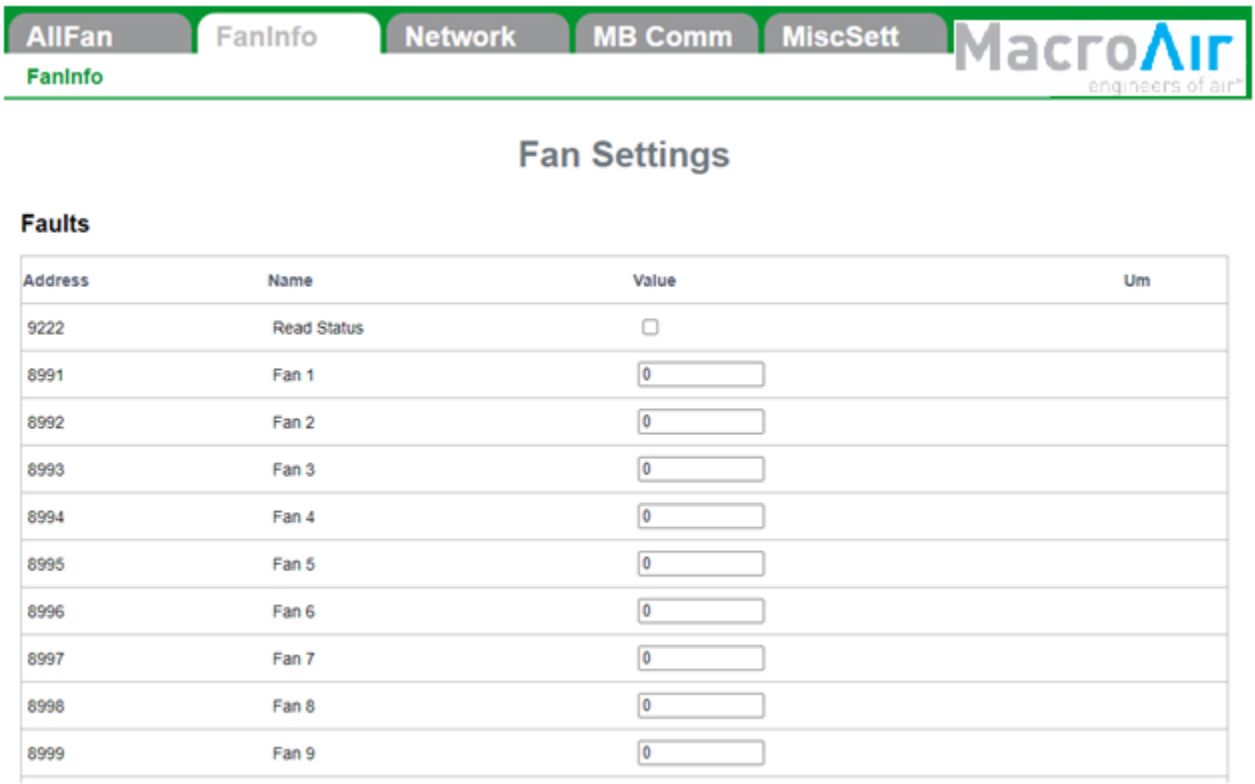
Group Control



Group Control - Runs the selected group at the desired speed and direction. Select the group number you want to run and check the “Send Group Command” to run that group (see page 24 for group setup).

Configuration and Operation

FanInfo (Faults, Drive Output, Fan Com Status, Message Counts)



The top of the "Fan Settings" web page is shown in image above. Scroll down on the AirLynk web browser to find the following additional information:

Faults - shows each fan's faults. Note: If "Read Status" is checked, fault values will be "Fan Status" and not faults.

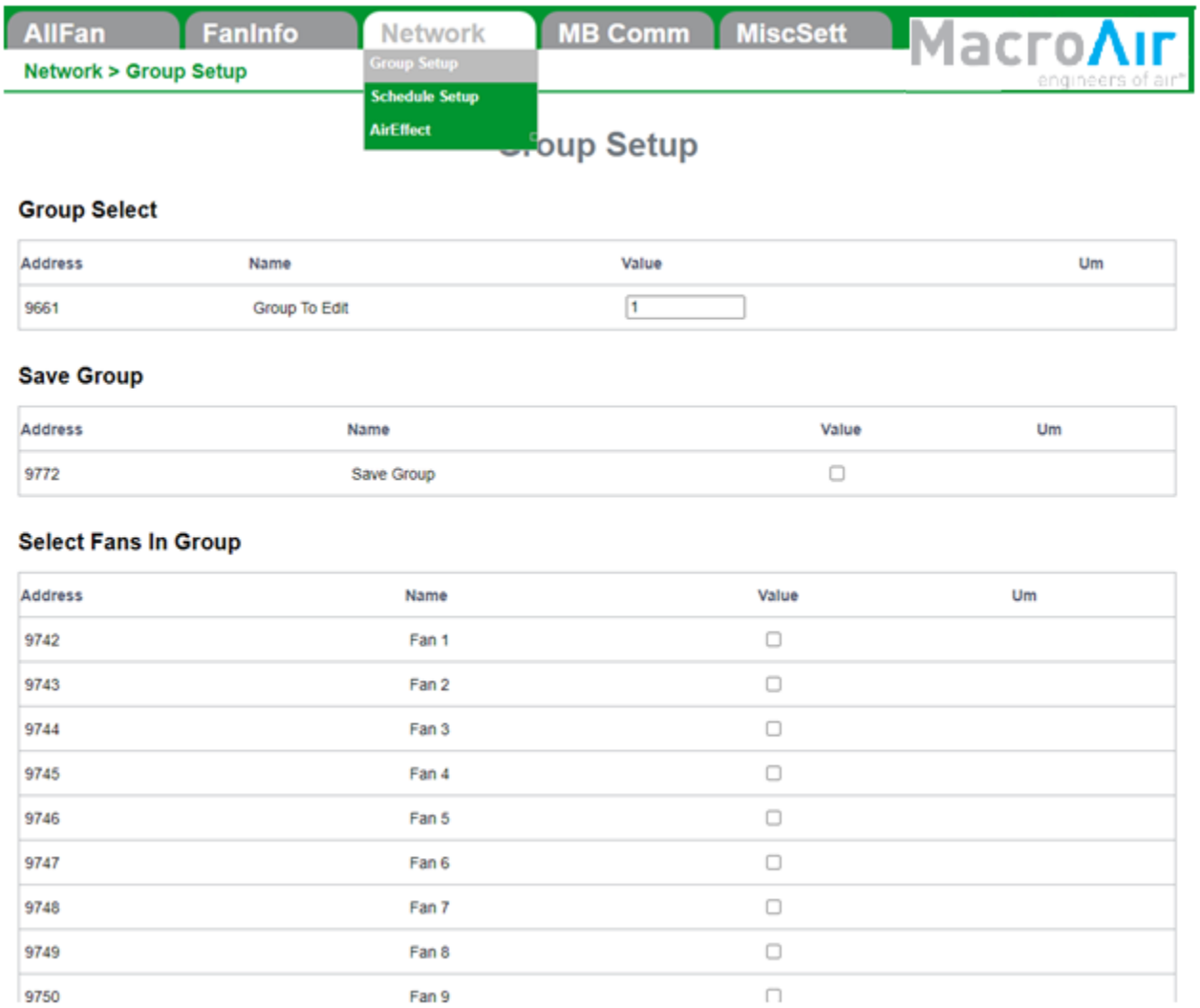
Drive Output - shows each fan's output at a scale of 0.1. Schneider drives are frequency output, some older models have RPM output.

Fan Com Status - displays 1 if the AirLynk is communicating to the fan.

Message Counts - displays the messages sent by the AirLynk and the messages received by the AirLynk. Check the "Reset Message Counts" to reset all counts to 0 (should be done before checking for error counts for the first time.)

Configuration and Operation

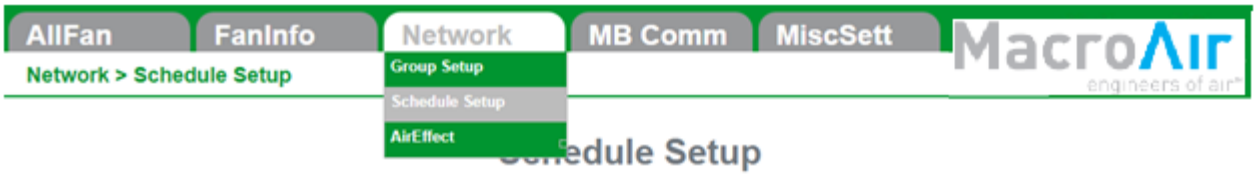
Group Setup



Select what group you want to add and remove fans to by checking/unchecking the fans from the “Select Fans in Group” list. Check the “Save Group” to save the group.

Configuration and Operation

Schedule Setup



Schedule Setup

Save Schedule

Address	Name	Value	Um
9785	Save Schedule	☐	

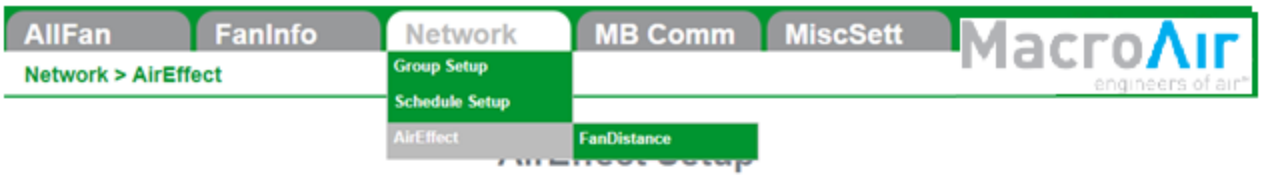
Schedule Information

Address	Name	Value	Um
9784	Schedule Number	1	
9796	Enabled	☐	
9786	Start Hour	AM 12	
9787	Start Minute	00	
9788	End Hour	AM 12	
9789	End Minute	00	
9790	Target Fans	All Fans	
10154	Direction	Off	
9791	Speed (0 to 100)	0	

Days To Run

Address	Name	Value	Um
10147	Sunday	☐	
10148	Monday	☐	
10149	Tuesday	☐	
10150	Wednesday	☐	
10151	Thursday	☐	
10152	Friday	☐	
10153	Saturday	☐	

Used for scheduling days, start time, end time, speed, and direction of the fans/groups to run. Check “Save Schedule” to save the schedule.



Zone Settings

Address	Name	Value	Um
9892	Select Zone	1	
9958	Set desired cold temp	78	
9959	Set desired heat temp	72	
9960	Set desired humidity	50	
9966	Floor sensor height	30	
9967	Roof height	4	
9964	Zone enabled	☐	

Save Zone

Address	Name	Value	Um
9957	Save current Zone	☐	

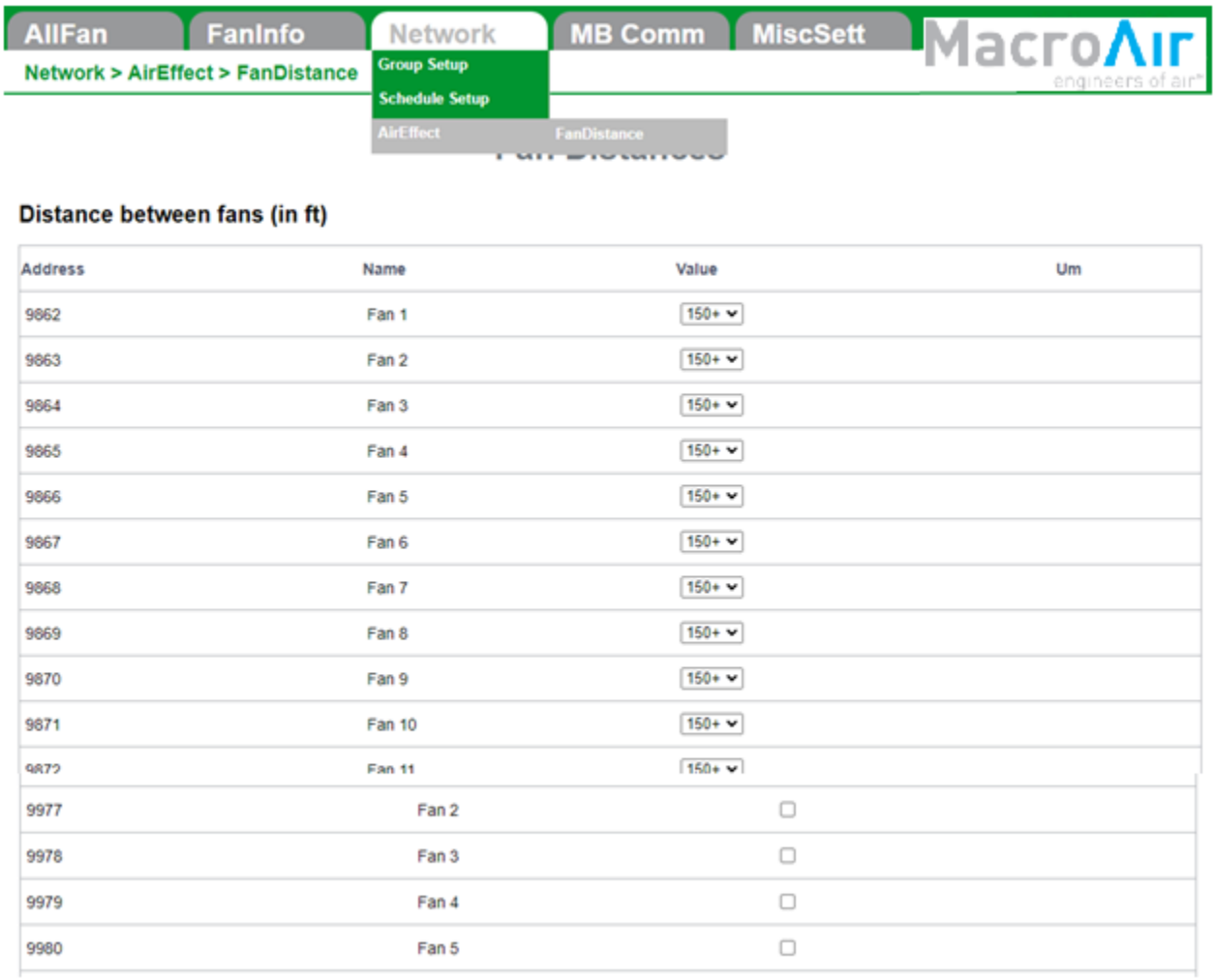
Fans In The Zone

Address	Name	Value	Um
9976	Fan 1	☐	
9977	Fan 2	☐	
9978	Fan 3	☐	
9979	Fan 4	☐	
9980	Fan 5	☐	

Sets up use of AirEffect (refer to AirEffect Manual).

Configuration and Operation

Fan Distance



Used for AirEffect (refer to AirEffect Manual).

Configuration and Operation

MB Read/Write (call MacroAir for password) (2 different pages)

Modbus Read

Input Values

Address	Name	Value	Um
9321	Address	0	
9322	Register	0	
9325	Read Value	☐	

Output Values

Address	Name	Value	Um
9323	Value	0	
9324	Error Message	0	

Modbus Write

Input Values

Address	Name	Value	Um
9321	Address	0	
9322	Register	0	
9323	Value	0	
10102	Write Value	☐	

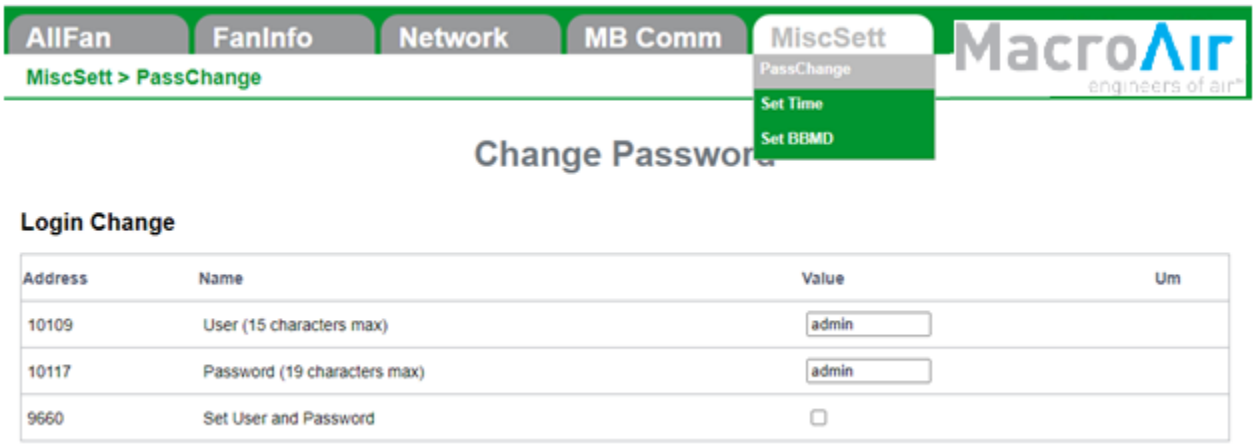
Output Value

Address	Name	Value	Um
9324	Error message	0	

Used only when on the phone with MacroAir Technical Support. Read and write directly to the fan through modbus.

Configuration and Operation

PassChange (password)

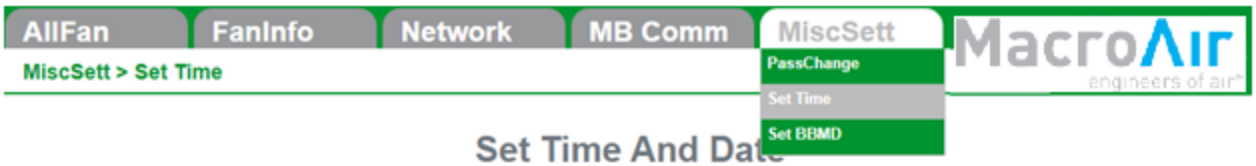


Changes the default admin user and password, check “Set User and Password” to set.

Only used to access the web browsers, can only be reset back to admin/admin through a PLC update.

Configuration and Operation

Set Time (password)



Set Time And Date

Actual Date And Time

Address	Name	Value	Um
8738	Hours	11	hours
8737	Minutes	11	min
8741	Month	7	num
8740	Day	10	num
8742	Year	23	num
8739	Day Of The Week (0=Sun-6=Sat)	1	num

Set Time And Date

Address	Name	Value	Um
8751	Set Time And Date	☐	flag

Set Time

Address	Name	Value	Um
8746	Hours	0	hours
8745	Minutes	0	min

Set Date

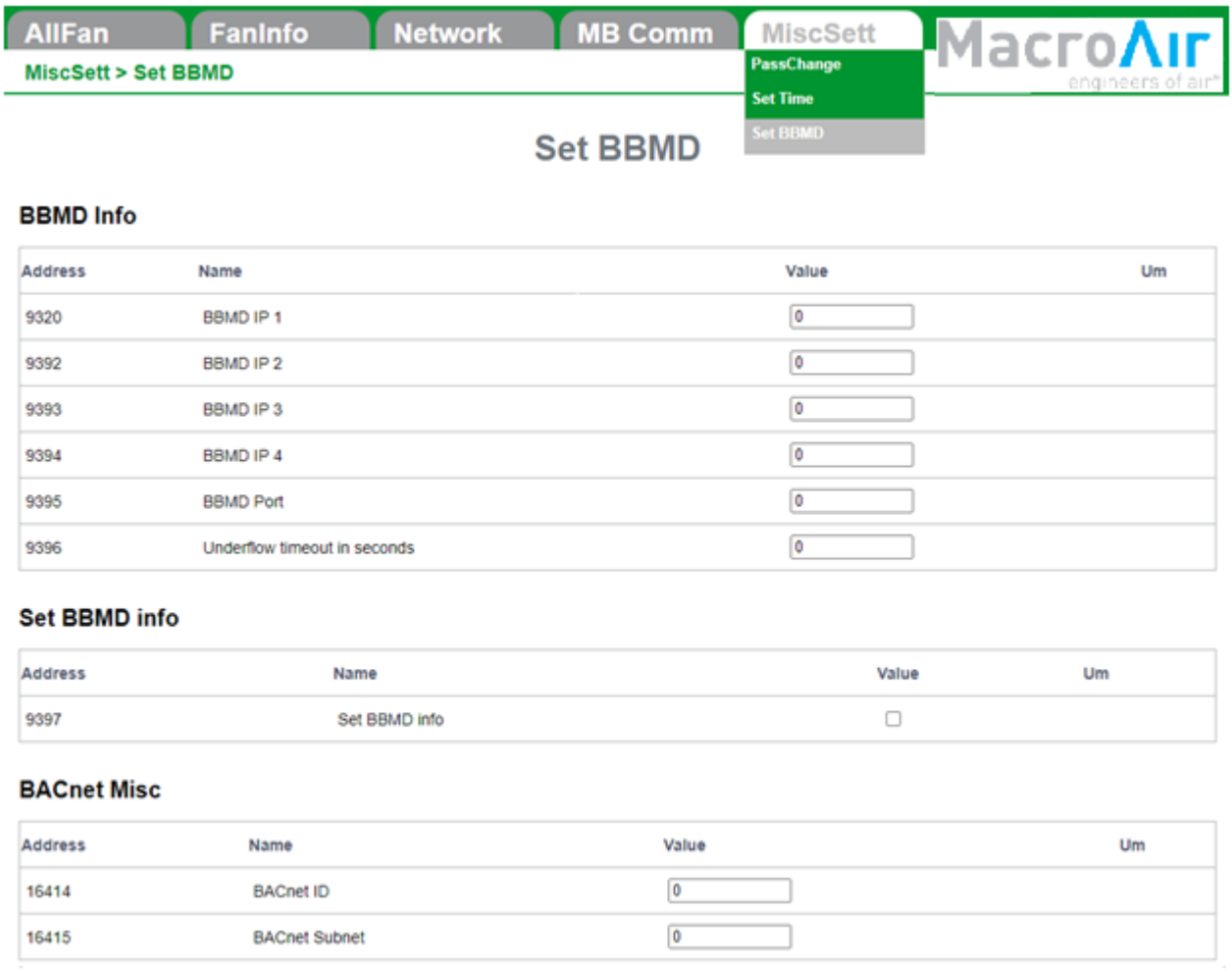
Address	Name	Value	Um
8749	Month	3	num
8748	Day	19	num
8750	Year	20	num

Day Of The Week

Address	Name	Value	Um
8747	Day Of The Week (0=Sun-6=Sat)	4	num

Actual Date And Time: Displays the current date and time.
Set Time and Date: Used in scheduling. Check "Set Time And Date" to set it to the PLC.
Set Time and **Set Date**: Used to set the desired time and date.
Days of the week: 0 = Sunday, 1 = Monday, etc. to 6 = Saturday.

Set BBMD



Used in some BMS systems to access it out of network.

Appendices

Appendix A. Modbus + BACnet Control Points

Modbus	AV	Name	Description	Values
10100	0	AllFanReset	Reset the faults on every fan	1 to reset
8960	1	FanSpeed1	Sets the speed of fan 1	0-100%
8961	2	FanSpeed2	Sets the speed of fan 2	0-100%
8962	3	FanSpeed3	Sets the speed of fan 3	0-100%
8963	4	FanSpeed4	Sets the speed of fan 4	0-100%
8964	5	FanSpeed5	Sets the speed of fan 5	0-100%
8965	6	FanSpeed6	Sets the speed of fan 6	0-100%
8966	7	FanSpeed7	Sets the speed of fan 7	0-100%
8967	8	FanSpeed8	Sets the speed of fan 8	0-100%
8968	9	FanSpeed9	Sets the speed of fan 9	0-100%
8969	10	FanSpeed10	Sets the speed of fan 10	0-100%
8970	11	FanSpeed11	Sets the speed of fan 11	0-100%
8971	12	FanSpeed12	Sets the speed of fan 12	0-100%
8972	13	FanSpeed13	Sets the speed of fan 13	0-100%
8973	14	FanSpeed14	Sets the speed of fan 14	0-100%
8974	15	FanSpeed15	Sets the speed of fan 15	0-100%
8975	16	FanSpeed16	Sets the speed of fan 16	0-100%
8976	17	FanSpeed17	Sets the speed of fan 17	0-100%
8977	18	FanSpeed18	Sets the speed of fan 18	0-100%
8978	19	FanSpeed19	Sets the speed of fan 19	0-100%
8979	20	FanSpeed20	Sets the speed of fan 20	0-100%
8980	21	FanSpeed21	Sets the speed of fan 21	0-100%
8981	22	FanSpeed22	Sets the speed of fan 22	0-100%
8982	23	FanSpeed23	Sets the speed of fan 23	0-100%
8983	24	FanSpeed24	Sets the speed of fan 24	0-100%
8984	25	FanSpeed25	Sets the speed of fan 25	0-100%
8985	26	FanSpeed26	Sets the speed of fan 26	0-100%
8986	27	FanSpeed27	Sets the speed of fan 27	0-100%
8987	28	FanSpeed28	Sets the speed of fan 28	0-100%
8988	29	FanSpeed29	Sets the speed of fan 29	0-100%
8989	30	FanSpeed30	Sets the speed of fan 30	0-100%

Appendices

Appendix A. Modbus + BACnet Control Points, cont.

Modbus	AV	Name	Description	Values
9050	31	FanDir1	Sets the direction of fan 1	0-Off 1-Forward 2-Reverse
9051	32	FanDir2	Sets the direction of fan 2	0-Off 1-Forward 2-Reverse
9052	33	FanDir3	Sets the direction of fan 3	0-Off 1-Forward 2-Reverse
9053	34	FanDir4	Sets the direction of fan 4	0-Off 1-Forward 2-Reverse
9054	35	FanDir5	Sets the direction of fan 5	0-Off 1-Forward 2-Reverse
9055	36	FanDir6	Sets the direction of fan 6	0-Off 1-Forward 2-Reverse
9056	37	FanDir7	Sets the direction of fan 7	0-Off 1-Forward 2-Reverse
9057	38	FanDir8	Sets the direction of fan 8	0-Off 1-Forward 2-Reverse
9058	39	FanDir9	Sets the direction of fan 9	0-Off 1-Forward 2-Reverse
9059	40	FanDir10	Sets the direction of fan 10	0-Off 1-Forward 2-Reverse
9060	41	FanDir11	Sets the direction of fan 11	0-Off 1-Forward 2-Reverse
9061	42	FanDir12	Sets the direction of fan 12	0-Off 1-Forward 2-Reverse
9062	43	FanDir13	Sets the direction of fan 13	0-Off 1-Forward 2-Reverse
9063	44	FanDir14	Sets the direction of fan 14	0-Off 1-Forward 2-Reverse
9064	45	FanDir15	Sets the direction of fan 15	0-Off 1-Forward 2-Reverse
9065	46	FanDir16	Sets the direction of fan 16	0-Off 1-Forward 2-Reverse
9066	47	FanDir17	Sets the direction of fan 17	0-Off 1-Forward 2-Reverse
9067	48	FanDir18	Sets the direction of fan 18	0-Off 1-Forward 2-Reverse
9068	49	FanDir19	Sets the direction of fan 19	0-Off 1-Forward 2-Reverse
9069	50	FanDir20	Sets the direction of fan 20	0-Off 1-Forward 2-Reverse
9070	51	FanDir21	Sets the direction of fan 21	0-Off 1-Forward 2-Reverse
9071	52	FanDir22	Sets the direction of fan 22	0-Off 1-Forward 2-Reverse
9072	53	FanDir23	Sets the direction of fan 23	0-Off 1-Forward 2-Reverse
9073	54	FanDir24	Sets the direction of fan 24	0-Off 1-Forward 2-Reverse
9074	55	FanDir25	Sets the direction of fan 25	0-Off 1-Forward 2-Reverse
9075	56	FanDir26	Sets the direction of fan 26	0-Off 1-Forward 2-Reverse
9076	57	FanDir27	Sets the direction of fan 27	0-Off 1-Forward 2-Reverse
9077	58	FanDir28	Sets the direction of fan 28	0-Off 1-Forward 2-Reverse
9078	59	FanDir29	Sets the direction of fan 29	0-Off 1-Forward 2-Reverse
9079	60	FanDir30	Sets the direction of fan 30	0-Off 1-Forward 2-Reverse

Appendices

Appendix A. Modbus + BACnet Control Points, cont.

Modbus	AV	Name	Description	Values
9355	61	FanRPM1	Shows the RPM/output current of fan 1	0.1 RPM (AVD)/0.1A (VFD)
9356	62	FanRPM2	Shows the RPM/output current of fan 2	0.1 RPM (AVD)/0.1A (VFD)
9357	63	FanRPM3	Shows the RPM/output current of fan 3	0.1 RPM (AVD)/0.1A (VFD)
9358	64	FanRPM4	Shows the RPM/output current of fan 4	0.1 RPM (AVD)/0.1A (VFD)
9359	65	FanRPM5	Shows the RPM/output current of fan 5	0.1 RPM (AVD)/0.1A (VFD)
9360	66	FanRPM6	Shows the RPM/output current of fan 6	0.1 RPM (AVD)/0.1A (VFD)
9361	67	FanRPM7	Shows the RPM/output current of fan 7	0.1 RPM (AVD)/0.1A (VFD)
9362	68	FanRPM8	Shows the RPM/output current of fan 8	0.1 RPM (AVD)/0.1A (VFD)
9363	69	FanRPM9	Shows the RPM/output current of fan 9	0.1 RPM (AVD)/0.1A (VFD)
9364	70	FanRPM10	Shows the RPM/output current of fan 10	0.1 RPM (AVD)/0.1A (VFD)
9365	71	FanRPM11	Shows the RPM/output current of fan 11	0.1 RPM (AVD)/0.1A (VFD)
9366	72	FanRPM12	Shows the RPM/output current of fan 12	0.1 RPM (AVD)/0.1A (VFD)
9367	73	FanRPM13	Shows the RPM/output current of fan 13	0.1 RPM (AVD)/0.1A (VFD)
9368	74	FanRPM14	Shows the RPM/output current of fan 14	0.1 RPM (AVD)/0.1A (VFD)
9369	75	FanRPM15	Shows the RPM/output current of fan 15	0.1 RPM (AVD)/0.1A (VFD)
9370	76	FanRPM16	Shows the RPM/output current of fan 16	0.1 RPM (AVD)/0.1A (VFD)
9371	77	FanRPM17	Shows the RPM/output current of fan 17	0.1 RPM (AVD)/0.1A (VFD)
9372	78	FanRPM18	Shows the RPM/output current of fan 18	0.1 RPM (AVD)/0.1A (VFD)
9373	79	FanRPM19	Shows the RPM/output current of fan 19	0.1 RPM (AVD)/0.1A (VFD)
9374	80	FanRPM20	Shows the RPM/output current of fan 20	0.1 RPM (AVD)/0.1A (VFD)
9375	81	FanRPM21	Shows the RPM/output current of fan 21	0.1 RPM (AVD)/0.1A (VFD)
9376	82	FanRPM22	Shows the RPM/output current of fan 22	0.1 RPM (AVD)/0.1A (VFD)
9377	83	FanRPM23	Shows the RPM/output current of fan 23	0.1 RPM (AVD)/0.1A (VFD)
9378	84	FanRPM24	Shows the RPM/output current of fan 24	0.1 RPM (AVD)/0.1A (VFD)
9379	85	FanRPM25	Shows the RPM/output current of fan 25	0.1 RPM (AVD)/0.1A (VFD)
9380	86	FanRPM26	Shows the RPM/output current of fan 26	0.1 RPM (AVD)/0.1A (VFD)
9381	87	FanRPM27	Shows the RPM/output current of fan 27	0.1 RPM (AVD)/0.1A (VFD)
9382	88	FanRPM28	Shows the RPM/output current of fan 28	0.1 RPM (AVD)/0.1A (VFD)
9383	89	FanRPM29	Shows the RPM/output current of fan 29	0.1 RPM (AVD)/0.1A (VFD)
9384	90	FanRPM30	Shows the RPM/output current of fan 30	0.1 RPM (AVD)/0.1A (VFD)

Appendices

Appendix A. Modbus + BACnet Control Points, cont.

Modbus	AV	Name	Description	Values
8990	91	FanFault1	Displays the fault of fan 1	
8991	92	FanFault2	Displays the fault of fan 2	
8992	93	FanFault3	Displays the fault of fan 3	
8993	94	FanFault4	Displays the fault of fan 4	
8994	95	FanFault5	Displays the fault of fan 5	
8995	96	FanFault6	Displays the fault of fan 6	
8996	97	FanFault7	Displays the fault of fan 7	
8997	98	FanFault8	Displays the fault of fan 8	
8998	99	FanFault9	Displays the fault of fan 9	
8999	100	FanFault10	Displays the fault of fan 10	
9000	101	FanFault11	Displays the fault of fan 11	
9001	102	FanFault12	Displays the fault of fan 12	
9002	103	FanFault13	Displays the fault of fan 13	
9003	104	FanFault14	Displays the fault of fan 14	
9004	105	FanFault15	Displays the fault of fan 15	
9005	106	FanFault16	Displays the fault of fan 16	
9006	107	FanFault17	Displays the fault of fan 17	
9007	108	FanFault18	Displays the fault of fan 18	
9008	109	FanFault19	Displays the fault of fan 19	
9009	110	FanFault20	Displays the fault of fan 20	
9010	111	FanFault21	Displays the fault of fan 21	
9011	112	FanFault22	Displays the fault of fan 22	
9012	113	FanFault23	Displays the fault of fan 23	
9013	114	FanFault24	Displays the fault of fan 24	
9014	115	FanFault25	Displays the fault of fan 25	
9015	116	FanFault26	Displays the fault of fan 26	
9016	117	FanFault27	Displays the fault of fan 27	
9017	118	FanFault28	Displays the fault of fan 28	
9018	119	FanFault29	Displays the fault of fan 29	
9019	120	FanFault30	Displays the fault of fan 30	

Appendices

Appendix A. Modbus + BACnet Control Points, cont.

Modbus	AV	Name	Description	Values
9170	121	FanSize1	Sets the diameter of fan 1	8-24ft (For 3 blade add 300)
9171	122	FanSize2	Sets the diameter of fan 2	8-24ft (For 3 blade add 300)
9172	123	FanSize3	Sets the diameter of fan 3	8-24ft (For 3 blade add 300)
9173	124	FanSize4	Sets the diameter of fan 4	8-24ft (For 3 blade add 300)
9174	125	FanSize5	Sets the diameter of fan 5	8-24ft (For 3 blade add 300)
9175	126	FanSize6	Sets the diameter of fan 6	8-24ft (For 3 blade add 300)
9176	127	FanSize7	Sets the diameter of fan 7	8-24ft (For 3 blade add 300)
9177	128	FanSize8	Sets the diameter of fan 8	8-24ft (For 3 blade add 300)
9178	129	FanSize9	Sets the diameter of fan 9	8-24ft (For 3 blade add 300)
9179	130	FanSize10	Sets the diameter of fan 10	8-24ft (For 3 blade add 300)
9180	131	FanSize11	Sets the diameter of fan 11	8-24ft (For 3 blade add 300)
9181	132	FanSize12	Sets the diameter of fan 12	8-24ft (For 3 blade add 300)
9182	133	FanSize13	Sets the diameter of fan 13	8-24ft (For 3 blade add 300)
9183	134	FanSize14	Sets the diameter of fan 14	8-24ft (For 3 blade add 300)
9184	135	FanSize15	Sets the diameter of fan 15	8-24ft (For 3 blade add 300)
9185	136	FanSize16	Sets the diameter of fan 16	8-24ft (For 3 blade add 300)
9186	137	FanSize17	Sets the diameter of fan 17	8-24ft (For 3 blade add 300)
9187	138	FanSize18	Sets the diameter of fan 18	8-24ft (For 3 blade add 300)
9188	139	FanSize19	Sets the diameter of fan 19	8-24ft (For 3 blade add 300)
9189	140	FanSize20	Sets the diameter of fan 20	8-24ft (For 3 blade add 300)
9190	141	FanSize21	Sets the diameter of fan 21	8-24ft (For 3 blade add 300)
9191	142	FanSize22	Sets the diameter of fan 22	8-24ft (For 3 blade add 300)
9192	143	FanSize23	Sets the diameter of fan 23	8-24ft (For 3 blade add 300)
9193	144	FanSize24	Sets the diameter of fan 24	8-24ft (For 3 blade add 300)
9194	145	FanSize25	Sets the diameter of fan 25	8-24ft (For 3 blade add 300)
9195	146	FanSize26	Sets the diameter of fan 26	8-24ft (For 3 blade add 300)
9196	147	FanSize27	Sets the diameter of fan 27	8-24ft (For 3 blade add 300)
9197	148	FanSize28	Sets the diameter of fan 28	8-24ft (For 3 blade add 300)
9198	149	FanSize29	Sets the diameter of fan 29	8-24ft (For 3 blade add 300)
9199	150	FanSize30	Sets the diameter of fan 30	8-24ft (For 3 blade add 300)

Appendices

Appendix A. Modbus + BACnet Control Points, cont.

Modbus	AV	Name	Description	Values
10130	151	AllFanDir	Sets the direction of all the fans	0-Off 1-Forward 2-Reverse
10131	152	AllFanSpeed	Sets the speed of all the fans	0-100%
10132	153	AllFanSend	Sends the all fan speed and direction	1 to send
9204	154	FanOn	Select individual fan to set	Fan 1-30
9202	155	FanDir	Set the direction of the selected fan	0-Off 1-Forward 2-Reverse
9203	156	FanSpeed	Set the speed of the selected fan	0-100%
9201	157	FanSend	Send the speed and direction of the selected fan	1 to send
9215	158	MotorCal	Run motor calibration on selected fan	1 to send
10134	159	FanScanning	AirLynk is looking for fans	1 scan in progress, 0 scan complete

Appendices

Appendix B. Warranty

MacroAir warrants the Products listed in the table below will be free from defects in materials and workmanship under normal use and maintenance for the applicable Warranty Period. Other than the Warranty set forth in this document, no other written or oral warranties apply, and no employee, agent, dealer, or other person is authorized to give any other warranties on behalf of MacroAir.

START DATE OF WARRANTY COVERAGE

Warranty Period begins fifteen (15) days following shipment of the Product, or on the date the Product is installed (not to exceed sixty (60) days Customer receives the Product), whichever date is later. Customer should retain necessary documentation to verify the date of receipt and installation of the Product. Customers will be required to produce this documentation in order to obtain Warranty services from MacroAir. The Warranty specified herein applies only to Products purchased on or after April 15, 2021.

PRODUCTS AND SYSTEMS COVERED BY THIS WARRANTY AND APPLICABLE WARRANTY PERIODS:

Fan Type	Mechanical: Blades, Hub & Frame	Standard Electrical[1]: Motor, Electrical Controls, Remote	Labor
AVDX	15 Years	10 Years	1 Year
AirVolution	15 Years	7 Years	1 Year
AirLegacy	15 Years	5 Years	1 Year
AVD3	10 Years	7 Years	1 Year
AVD 370	10 Years	5 Years	1 Year
AVD5	15 Years	10 Years	1 Year

WARRANTY COVERAGE:

Subject to the exclusions herein, the MacroAir Warranty covers any defects in workmanship or materials of the covered Products under normal operation and prescribed maintenance when those defects adversely affect the ability of the Product to operate properly.[2] The Warranty only covers Products which have been installed in compliance with MacroAir's written installation instructions by a state-qualified or licensed electrical contractor and operated and maintained by the Customer in conformity with MacroAir's written instructions, and when the Product is purchased directly from MacroAir or a MacroAir Authorized Dealer.

This Warranty is subject to all provisions, conditions, limitations, and exclusions explained in this Warranty document.

*Scan QR code or visit macroairfans.com/warranty for full warranty information.

1 "Standard Electrical" means any common electrical component that is utilized across more than one fan line will assume the higher warranty period.
2 "Operate properly" applies only to mechanical, electrical, and structural systems of the Product

Technical Support

Thank you for purchasing the AirLynk for MacroAir Fans.
Please call MacroAir Fans for Technical Support of the AirLynk product.

Support Contact Information:
MacroAir Fans
794 S. Allen Street
San Bernardino, CA. 92408

MacroAir Fans Service:
866-668-3247 option 2
Website: www.macroairfans.com/support

For Installation assistance, application questions, technical support, and any other inquiries, please contact our Technical Support team at (866) 668-3247.

Let's Stay Connected!

Social

Website

www.macroairfans.com

MacroAir
engineers of air™

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San Bernardino, CA 92408
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Intertek

Conforms to UL Std 507
Certified to CSA Std C22.2 No. 113

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Operation Manual

MacroAir Dual Control

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Caution and Safety

⚠ **ATTENTION: Safety.** READ THE ENTIRE MANUAL BEFORE OPERATING THE FAN. Ensure that all safety practices and instructions are followed during the installation, operation, and servicing of the fan. Failure to apply these safety practices could result in death or serious injury. If you do not understand the instructions, please call our Technical Department for guidance.

⚠ **ATTENTION: Qualified Technicians.** All fan controls and incoming power should only be installed by qualified technicians familiar with the requirements of the National Electrical Code (NEC) and local codes. Refer to appropriate portions of this manual for other important requirements. Failure to follow these guidelines will void the manufacturer's warranty.

⚠ **ATTENTION: Code Compliance.** Installation is to be in accordance with the NEC, ANDSI/NFPA 70-1999 and local codes.

Hazard of Electrical Shock, Explosion or Arc Flash:

⚠ **ATTENTION: Read.** Read and understand this manual before installing or operating a fan unit. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.

⚠ **ATTENTION: Code Compliance.** The user is responsible for compliance with all international and National Electrical Code requirements with respect to grounding of all equipment.

⚠ **WARNING: Do Not Touch.** Many of the parts of this unit operate at line voltage. DO NOT TOUCH.

⚠ **WARNING: Covers.** Install all covers before applying power or starting and stopping the unit.

Installation and Service

⚠ **WARNING: Damage.** Do not operate or install any fans or fan accessories that appear to be damaged.

⚠ **WARNING: Death and Injury.** Failure to follow this instruction can result in death, serious injury, or equipment damage.

⚠ **WARNING: Disconnect Power.** If the fan does not operate properly using the procedures in this manual. BE CERTAIN TO REMOVE ALL POWER TO THE UNIT and contact our technical department for further assistance.

⚠ **CAUTION: Moving Parts.** Keep all body parts clear of moving parts at all times.

⚠ **ATTENTION: Qualified Technicians.** All electrical troubleshooting and repair must be done by a qualified technician and meet all applicable codes.

REFER TO FAN INSTALLATION MANUAL(S) FOR FURTHER MAINTENANCE INFORMATION.

Fan Network Ordering

It is important to purchase fans that are setup for a network. MacroAir customizes fans to operate in a network by:

- Addressing the fans.

Note: If you did not order your fans for a network, please contact Technical Support for assistance with networking your fans. Also, when installing new fans in an existing mixed network, contact Technical Support.

**If you did not order your fans for a network by default, they will all have a default Node Address, and you will be missing necessary materials. Contact technical support to modify your fans when installing for networking.*

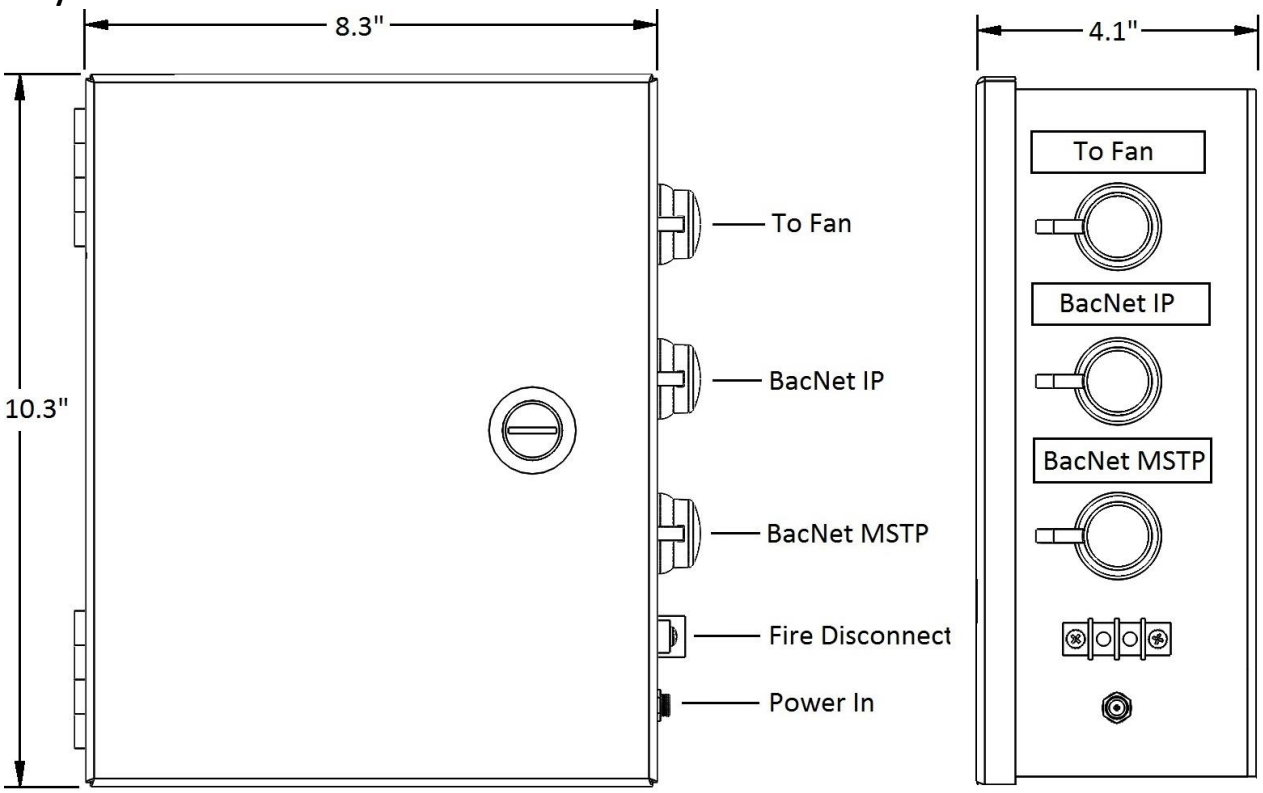
Modbus/BACnet Nomenclature

⚠ **ATTENTION: For purposes of this manual the following shall be true:**

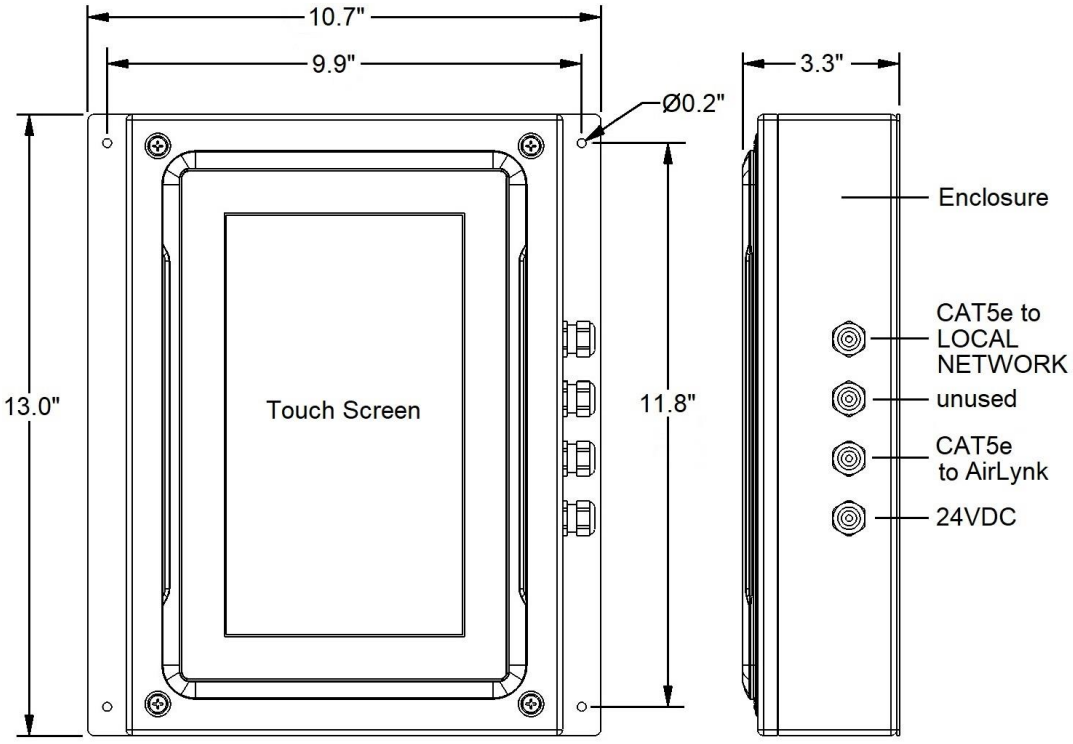
- It shall be recognized that where this manual indicates “BACnet“ it shall be recognized as “Modbus/BACnet”.
- It shall be recognized that where this manual indicates “BACnet IP” it shall also be recognized as “Modbus TCP/IP”.
- It shall be recognized that where this manual indicates “BACnet MSTP” it shall also be recognized as “Modbus RTU”.

Components

AirLynk



Dual Controller



End of Section

Network Installation

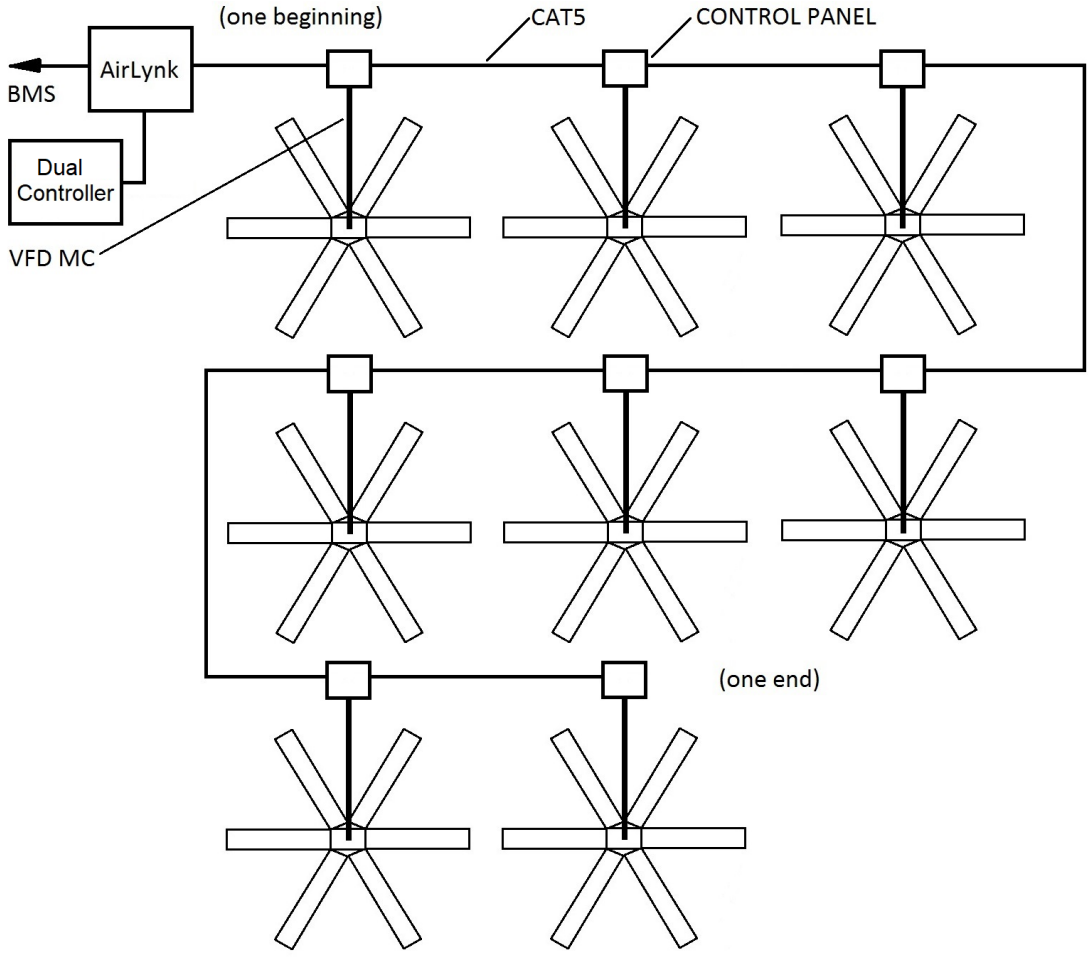
Network Wiring Requirements

- **Use Stranded Twisted Pair, CAT5e (or higher grade) shielded cable**
- Minimum 24 AWG (0.5mm) cross section
- Route wires as far away as possible from high voltage AC cables, fluorescent lights, arc welders, and other equipment that transmits EMI (electromagnetic interference).

Daisy Chain

Networked MacroAir fans must be connected in one single line, referred to in this document as a **"daisy chain".** The characteristics of a proper daisy chain are: **one beginning** (AirLynk) and **one end** (last fan).

If the fans are not connected in one line/chain, there will be a de-graduation of the communication signal and the network may not function as intended (fans in the network may not operate).



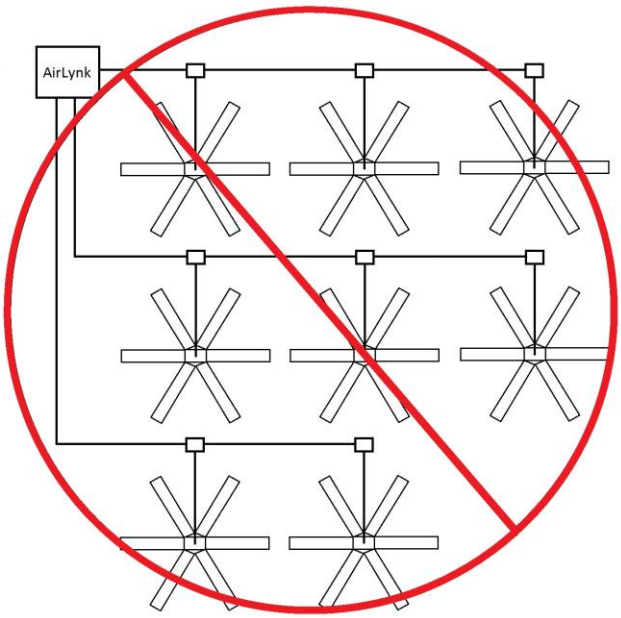
- Control Panel

VFD MC - Motor Control Cable (supplied with Fan by MacroAir)

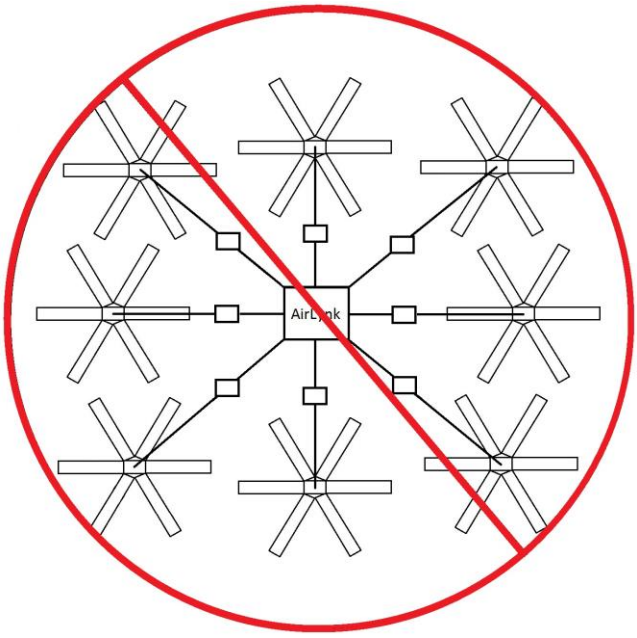
Network Installation

Improper Wiring Configuration

End of Line x3

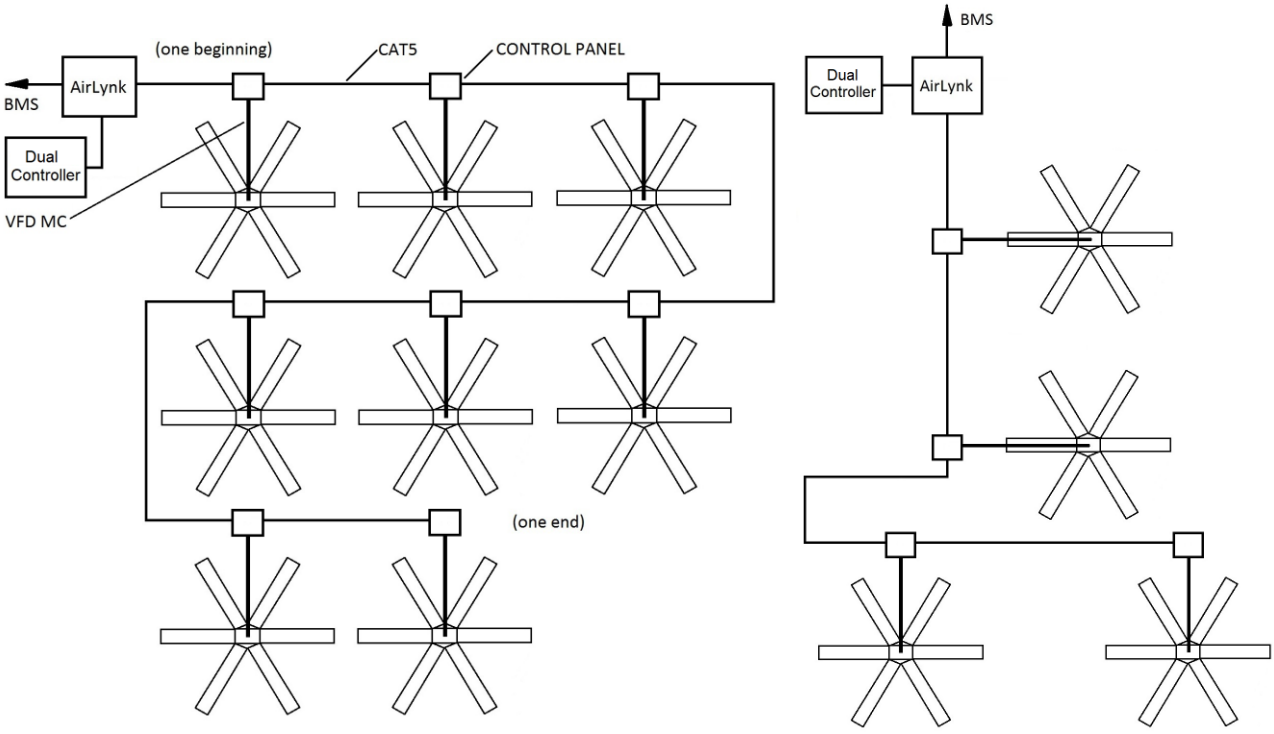


End of Line x8



Proper Wiring Configuration

ONE End of Line

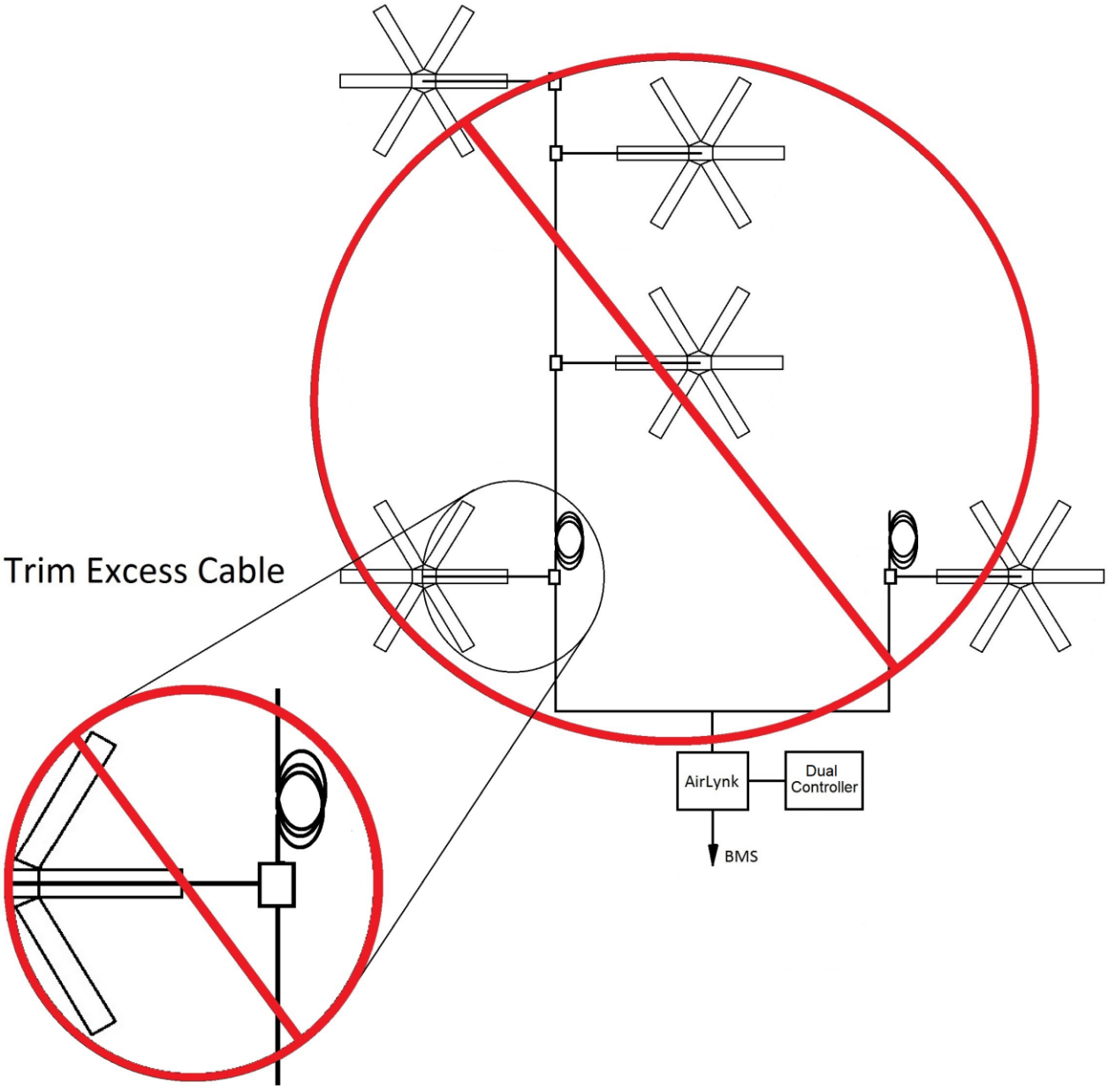


Excess Cable at Connection Point

With noise being emitted throughout a typical industrial/commercial environment, **extra cable should not be coiled up** as the coil itself will create noise/interference in the communication signal. There should be no more than two feet of excess cable at each connection point.

If more than two feet of cable is needed for future relocation of the fan, run the cable up toward the ceiling and back down in a horseshoe shape.

ALWAYS AVOID SHARP BENDS OF THE CABLE.

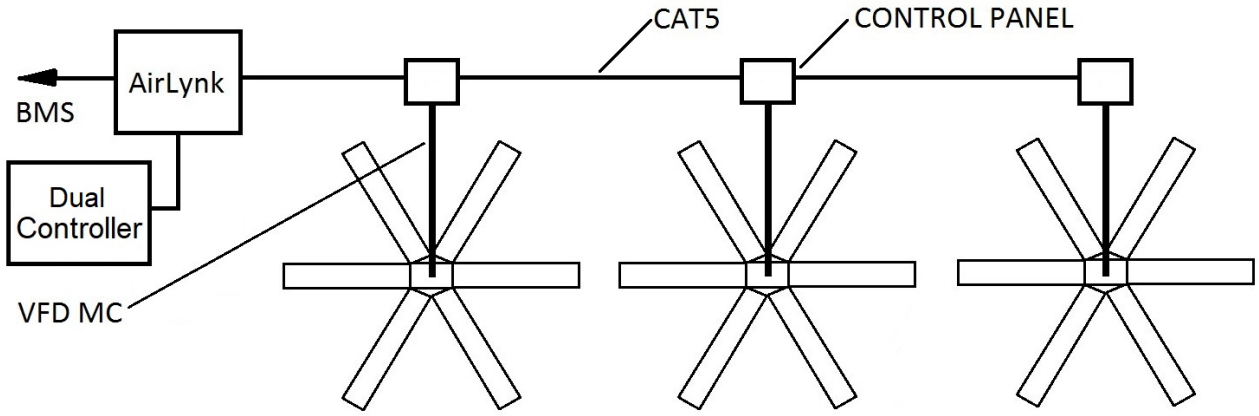


Network Installation

Network Wiring Instructions

Refer to the appropriate fan installation manual for specific networking instructions.

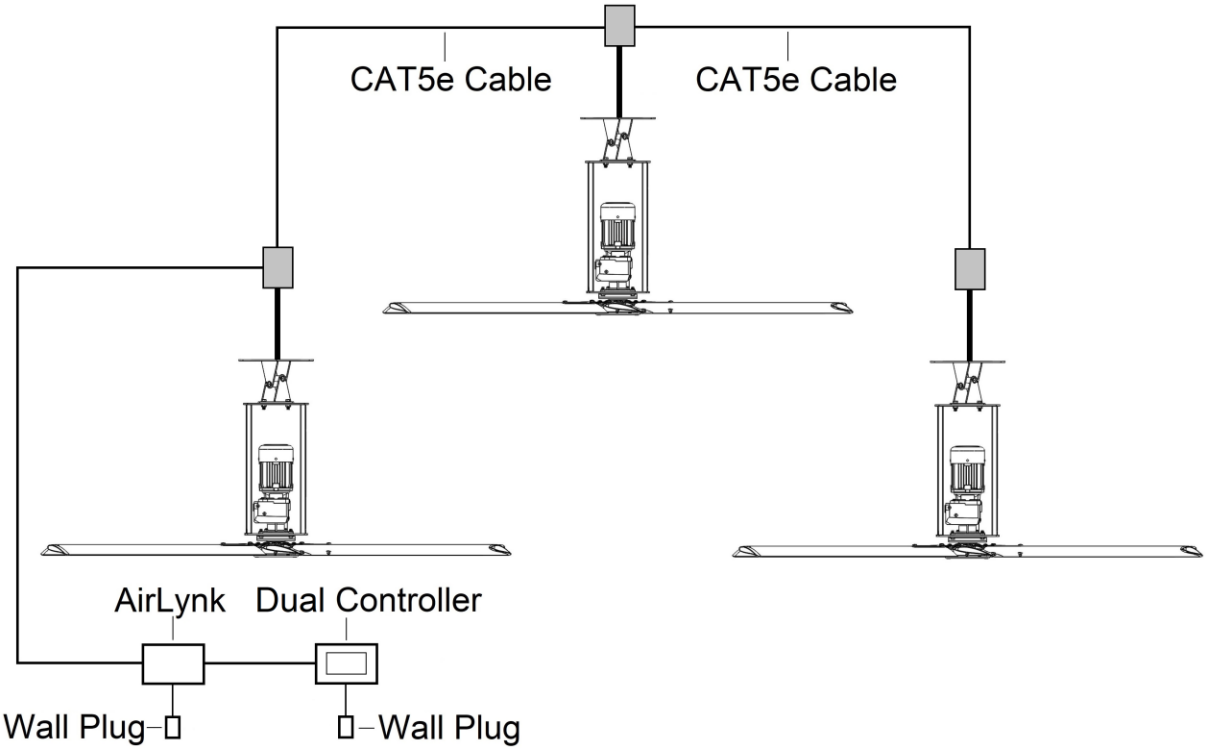
AVD 370, AVD3, 550, 780, AirVolution and AVDX Fans



Fan Wiring Instructions

AVD 370, AVD3, 550, 780, AirVolution and AVDX fans are wired in a daisy chain with one CAT5e from the touchscreen/previous fan into an RJ45 port on the control panel, and one CAT5e going to the next fan from the second RJ45 port on the panel. The internal panel wiring does not need to be modified for communications.

A properly wired daisy chain network will have the CAT5e network ran per the below illustration.

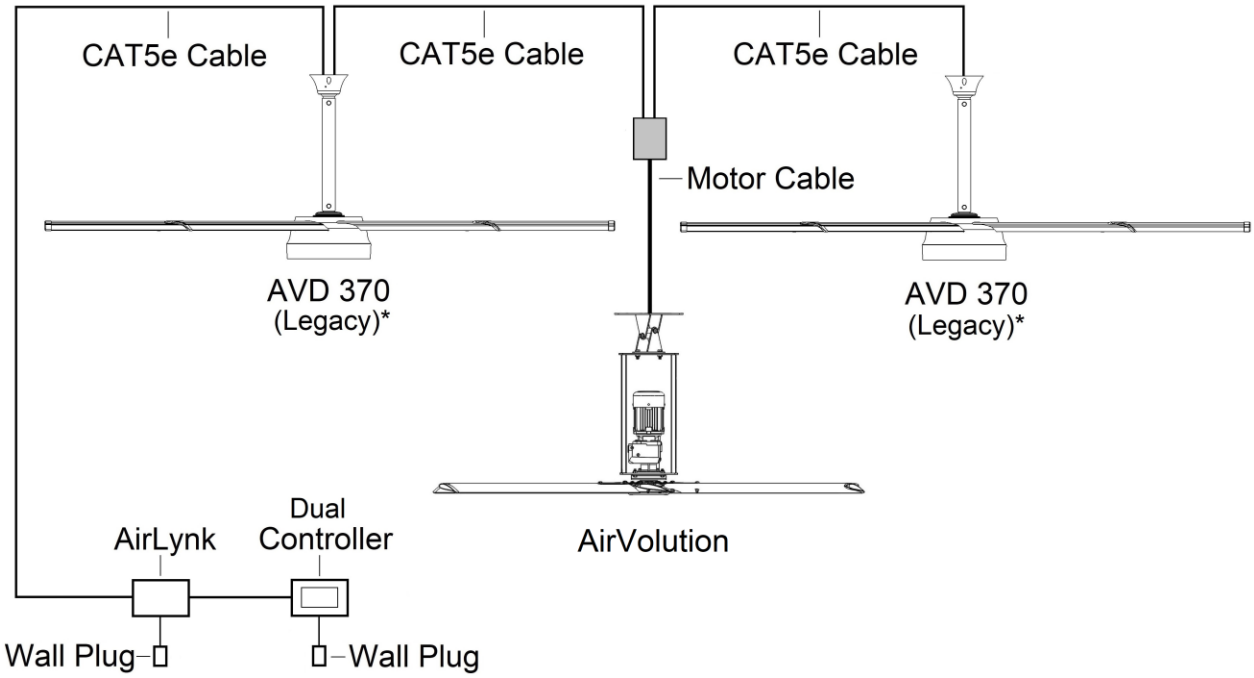


Control Panel Schematic: Refer to documentation included in the Fan Installation Manual.

Network Installation

Mixed Network Wiring Instructions

Networks utilizing different types of connections, will wire each fan according to the preceding wiring instructions in the manual. Below is an example of wiring for a mixed network:

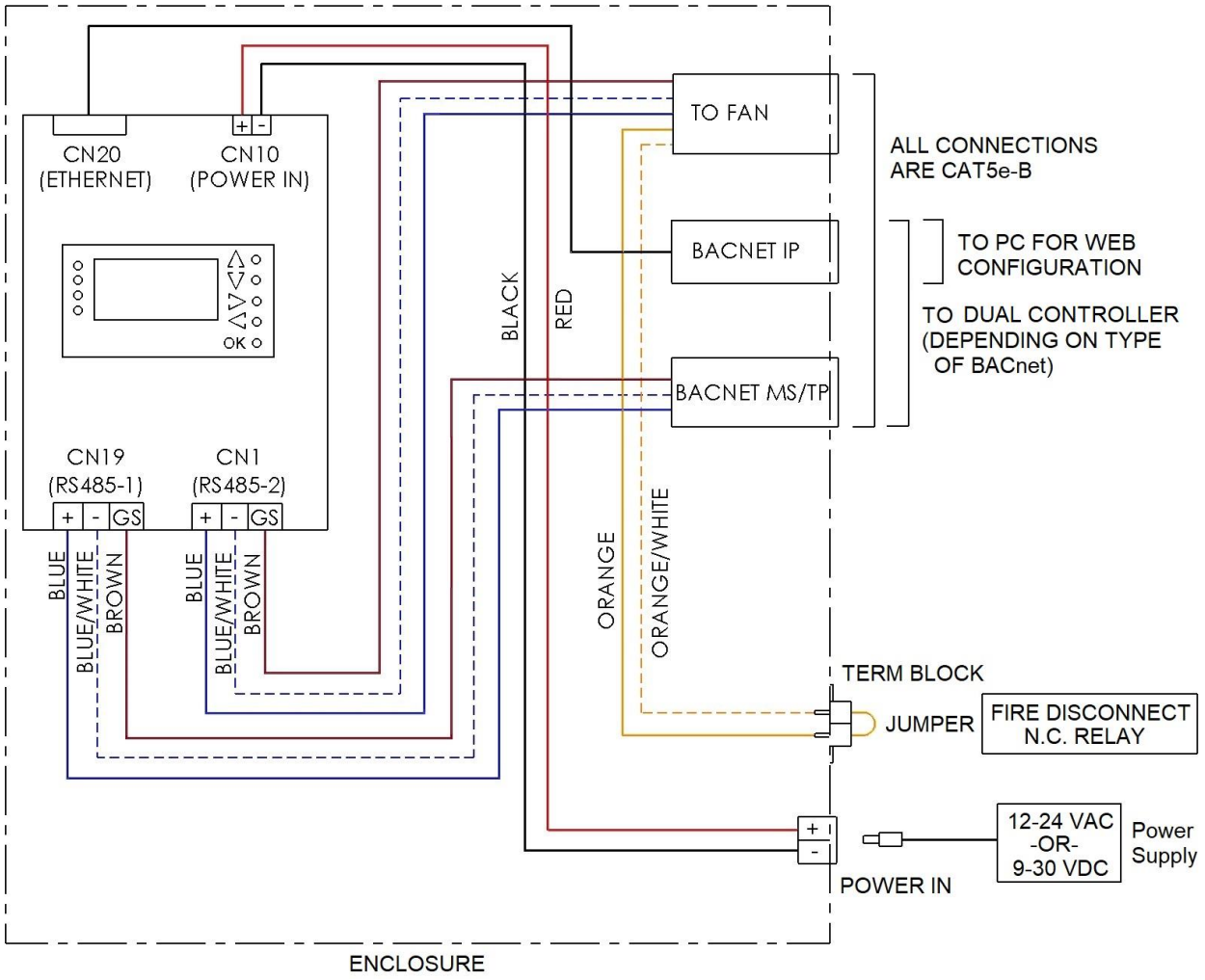


*** Note: When installing new fans in an existing mixed network, contact Technical Support for assistance with networking your fans.**

End of Section

Wiring Diagrams

Wiring: Airlynk

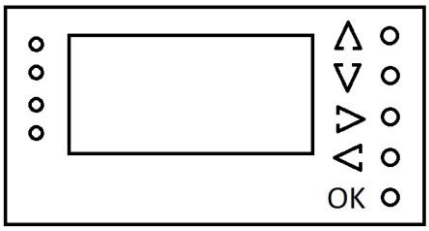


End of Section

Airlynk Quick Start Guide

PLC STARTUP

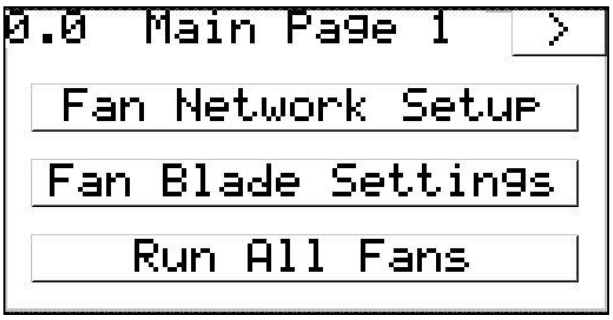
Basic navigation around the PLC display

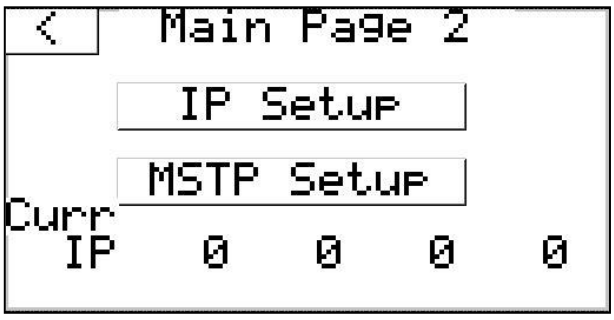


1. Use the up Λ, down V, left <, and right > arrows to navigate through the options on the screen.
2. Press OK to select the currently highlighted option (takes you to another screen or allows you to edit the selected value).
3. If the option is editable, you will then be able to edit it using the up and down arrows. To get to the next digit press the left or right arrows. When you are done editing, press OK to set the value.

NOTE: The fans will be auto discovered each time the PLC is powered on. Setting the fans through the web browser will ensure that the PLC knows there is a fan at that address.

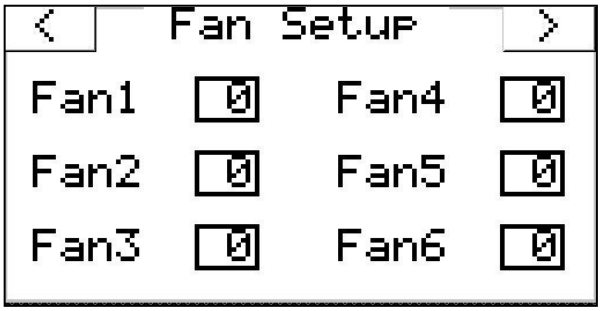
Main Page 1 and 2





Airlynk Quick Start Guide, cont.

Fan Setup (Optional)



1. Select “Fan Network Setup”.
2. Check each fan that is on the network (See Fig. 1 Fan Values Table) to ensure that the PLC found all the fans.

#	Fan Type
0	No Fan
1	AVD-3
2	AVD 550
3	AVD 780
4	AVD 370
5	AirVolution
6	AVD S
7	AVDX
8	AVD 370/2
30	Local Override

Fig. 1: Fan Values Table

3. Return to “Main Page 1” and select Fan Blade Settings.

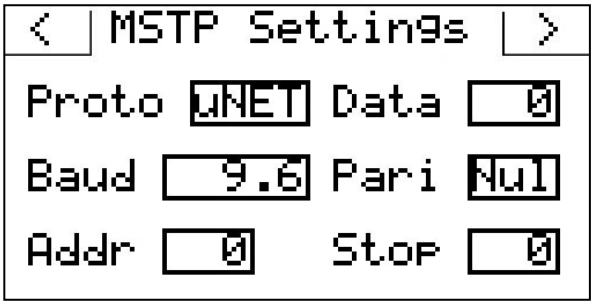
4. Optional: Set blade sizes (diameter) for each fan on the network (can be done through BACnet).
5. Run all fans to ensure fan functionality

Airlynk Quick Start Guide, cont.

BACnet MSTP setup

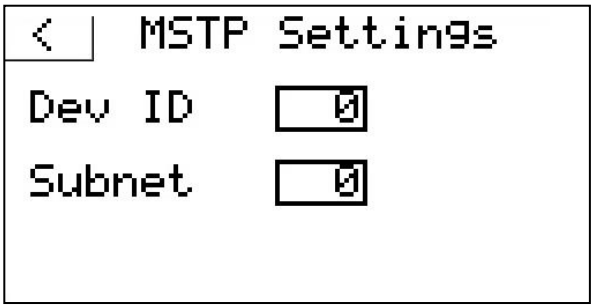
1. Use the up and down arrows on the right to navigate to “Main Page 2” from “Main Page 1” by selecting [>]
2. Select “MSTP Setup” on “Main Page 2”
3. From “MSTP Settings” you can set the various settings needed to operate the fans through BACnet MSTP

Proto – Protocol (BACn for BACnet MSTP).
Modb – Modbus RTU *
Baud – Baudrate of the protocol *
Addr – Address of the PLC.
Data – Data bit number *
Pari – Parity (Nul-None, Odd, Eve-Even) *
Stop – Stop bit *



* Note: If BACnet IP is used, the following must be true.
Proto must be set to Modb.
Baud must be set to 19.2
Data must be set to 8.
Pari must be set to Nul.
Stop must be set to 1.

Dev ID - ID that is displayed on BACnet end
Subnet - Subnet that the device is on.



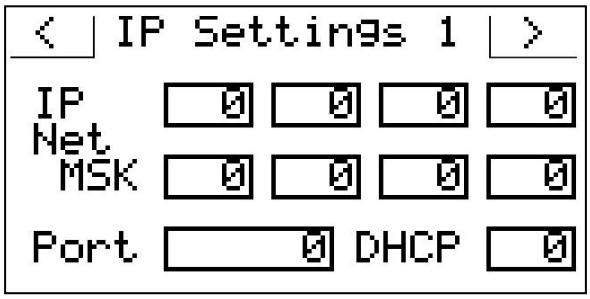
Airlynk Quick Start Guide, cont.

BACnet IP setup

Note: If MSTP is set to BACn, BACnet IP will not work.

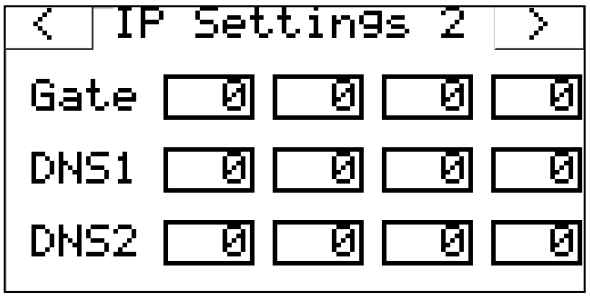
1. Use the up and down arrows on the right to navigate to “Main Page 2” from “Main Page 1” by selecting [>]
2. Select “IP Setup” on “Main Page 2”
3. From “IP Settings” you can set the various settings needed to operate the fans through BACnet IP

IP - IP address *
Net MSK - Net Mask
Port - BACnet/IP port (0= port 47808)
DHCP - Enabled/Disable DHCP
(1) Enabled, (0) Disable

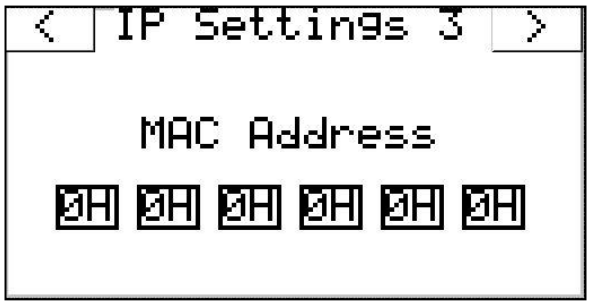


* Note: Do not modify if BACnet MSTP is used (IP must be set to 192.168.1.100 to work on the Dual Controller)

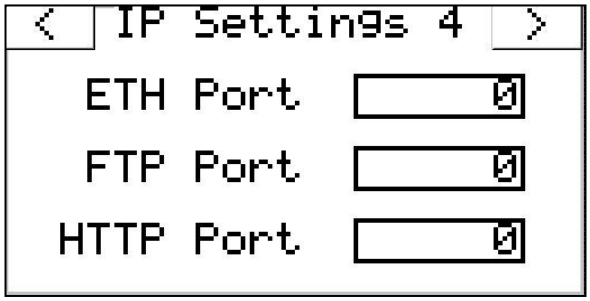
Gate - Default Gateway
DNS1/2 - DNS server



MAC address of device



ETH - TCP/IP Port number
FTP - FTP Port number (0=port 21)
HTTP - HTTP port number (0=port 80)



Certifications

BTL Mark – BACNET TESTING LABORATORY

The BTL Mark on PLC is a symbol that indicates that a product has passed a series of rigorous tests conducted by an independent laboratory which verifies that the product correctly implements the BACnet features claimed in the listing. The mark is a symbol of a high-quality BACnet product. Go to **http://www.BACnetInternational.net/blt/** for more information about the BACnet Testing Laboratory. Click here for BACnet PIC Statement.

Introduction

1. PLC Gateway

Auto-Discovery (Every Power-up): Supported RS-485 devices can be automatically detected and identified for addition to the PLC's configuration.

Web Configurator (Retains through Power Cycle): For RS-485 devices that are not supported by Auto-Discovery, use the embedded tool, which is accessed with a browser, referred to in this manual as the Web Configurator. Select the device(s) from a drop-down list of known profiles and assign at the stated Modbus address.

Manual Calibration

2. Blade Sizes and Motor Calibration

Blade sizes and a motor calibration must be done manually on all AVD3, 550, 780, and AVDX fans. Blade Size must be done manually for AVD 370.

Blade Size: Use the fan control points AV 121-150 (pg. 33) to set the blade size.

- 8-24 for 6-Blade fans.
- 308-324 for 3-Blade fans.

Motor Calibration: Use fan control points AV 151-159 (pg. 34) to perform a motor calibration on the fans.

BACnet Setup

3. Configuring Device Communications

Set Modbus RTU Node-ID for each of the devices attached to the PLC.

- Set Modbus Node-ID for each of the devices attached to PLC. The Modbus Node-ID's need to be uniquely assigned between 1 and 30.

- The Modbus Node-ID that is assigned for each device needs to be documented.

- The Modbus Node-ID's assigned are used for designating the Device Instance for BACnet/IP and BACnet MS/TP

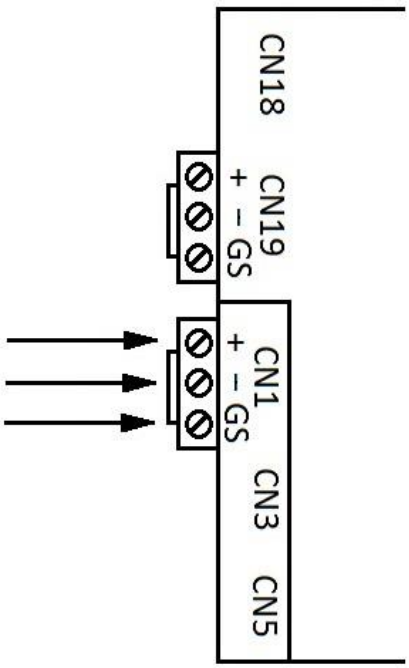
- The Modbus TCP/IP Node-ID will be set to the same value as the Node-ID of the Modbus RTU device.

Interfacing PLC To Devices

4. Fan Connections to PLC (CN1)

Device Pins	PLC Pin #	Pin Assignment CN1
Pin RS-485 +	Pin1	RS-485-2 +
Pin RS-485 -	Pin 2	RS-485-2 -
Pin GND	Pin 3	RS-485-2 GS

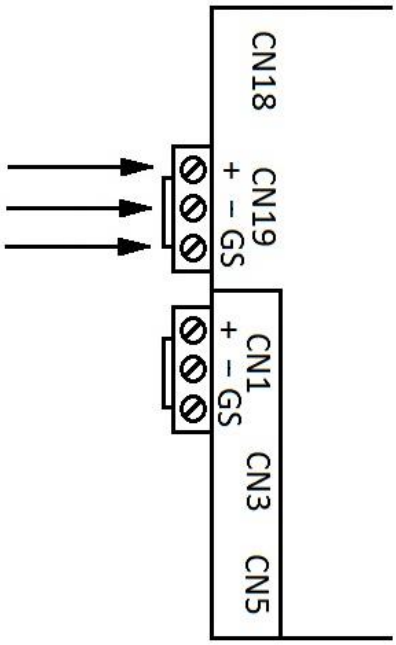
Figure 3: Power and RS-485 Connections (ref pg. 10)



5. Wiring Field Port to a BACnet MSTP BMS (CN19)

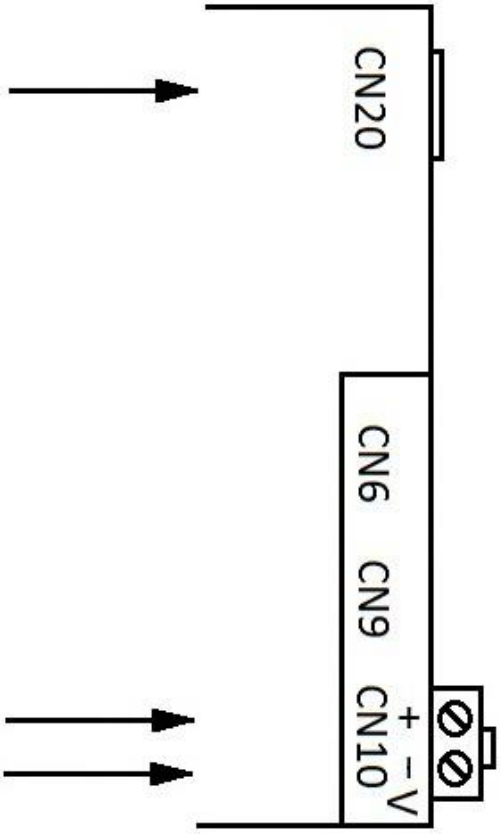
BMS RS-485 Wiring	PLC Pin #	Pin Assignment CN19
RS-485 +	Pin 1	RS-485-1 +
RS-485 -	Pin 2	RS-485-1 -
-	Pin 3	RS-485-1 GS

Figure 4: Connection from PLC to RS-485 Field Network (ref pg. 10)



Interfacing PLC To Devices, cont.

6. Ethernet Control (CN20)



7. Power-up PLC (CN10)

Power to PLC	PLC Pin #	Pin Assignment CN10
Power In (+)	Pin 4	V +
Power In (-)	Pin 5	V -

Figure 6: Power Connections (ref pg. 10)

PLC's Web Configurator

To Select Device Profiles

1. Connect the PC via the Ethernet Port

- Connect a CAT5 Ethernet cable (Straight through or Cross-over) from PC to BACnet on AirLynk panel.

  The Default IP Address of PLC is 192.168.1.100, Subnet mask is 255.255.255.0. If the PC and PLC are on different IP Networks, assign a static IP Address to the PC on the 192.168.1.xxx network.

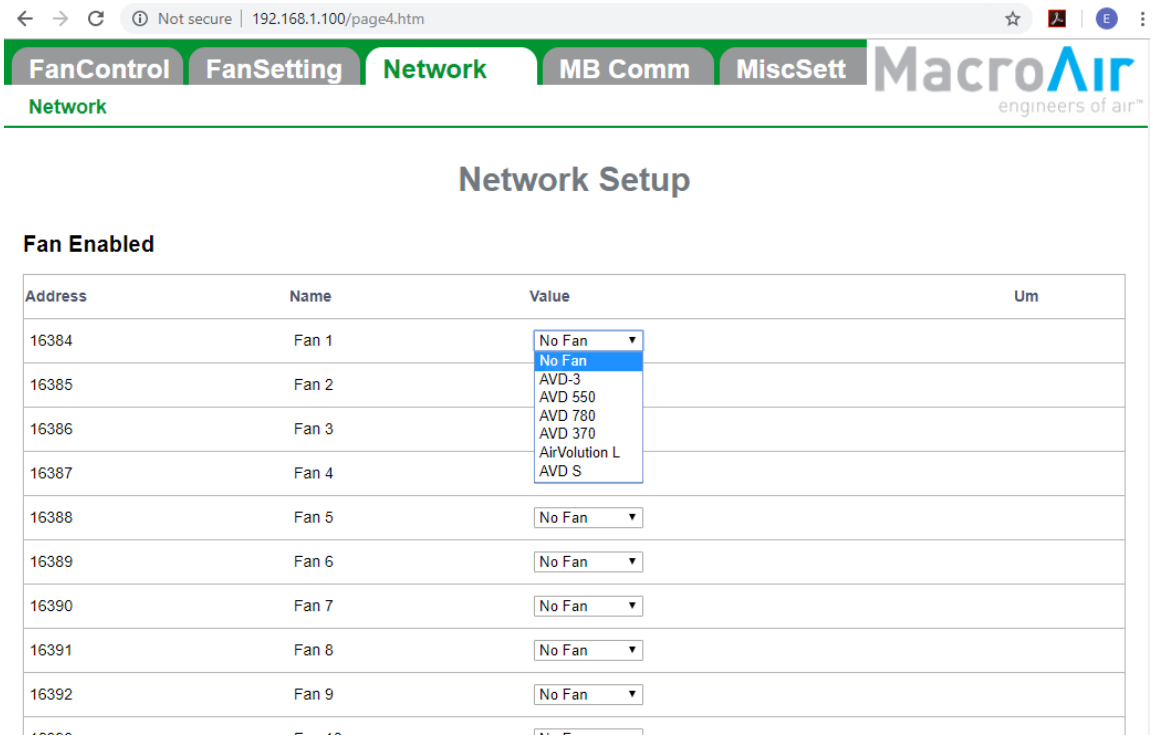
- For instructions on how to navigate your operating system to set up an IP address, and subnet mask contact your system administrator.

2. Connecting to Web Configurator

- After Setting your PC to be on the same subnet as the PLC (Instruction 1. Connect to PC), open a web browser on your PC and enter the IP address of the PLC; the default address is 192.168.1.100

- If the IP address of the PLC has been changed by a previous configuration, you will need to get the assigned IP address from display (Page 11, Main Page 2 Curr IP).

3. Selecting Profiles for Devices Connected to PLC



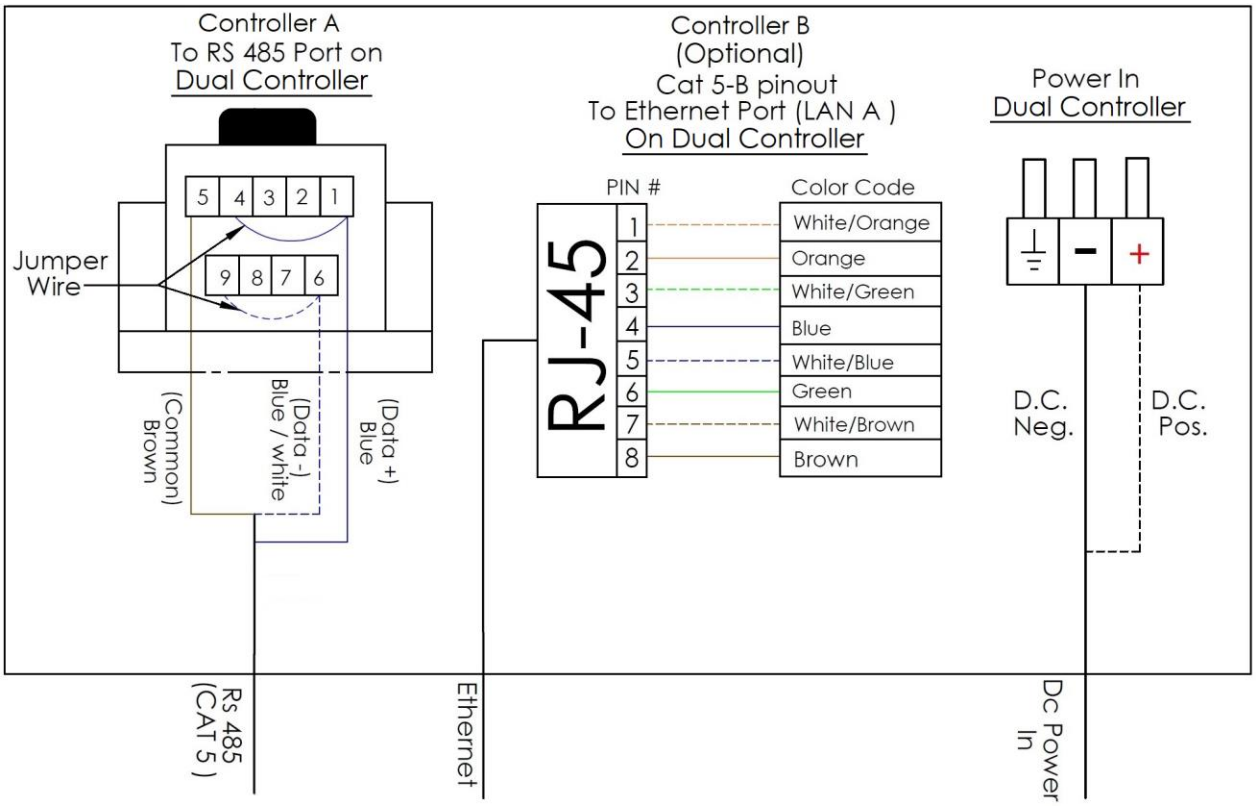
End of Section

Dual Controller Wiring Instructions

⚠ **WARNING: Power to be off.** Prior to following the steps below, ensure all power to the touchscreen is off.

1. Run the included power supply cable through the gland on the bottom of the network controller and plug the terminal block in per the below diagram.
2. Run one end of CAT5e through the gland on the bottom of the network controller. For Modbus RTU wire the blue and blue/white wires to the touchscreen per the diagram below. For Modbus TCP/IP connect the RJ-45 to LAN A port on the controller. Do not remove any factory wiring.
3. If you are utilizing the optional remote operation feature (pg. 28), run a separate CAT5e from your router to the LAN B port on the back of the screen. The CAT5e will need an RJ45 male end terminated per the pinout below.

Touchscreen Wiring Diagram



- For network fan wiring instructions, refer to page (pg. 5-9).
- Depending on BMS controls used:

  If Bacnet IP is used, use Controller A (Modbus RTU).

  If Bacnet MSTP is used, use Controller B (Modbus TCP/IP).

Dual Controller Setup

1. The touchscreen will require additional setup before operating the fans. Please refer to the steps below to properly configure your controller.

2. Power on the screen. The program will load automatically and take you directly to the Home Screen (pg. 22).

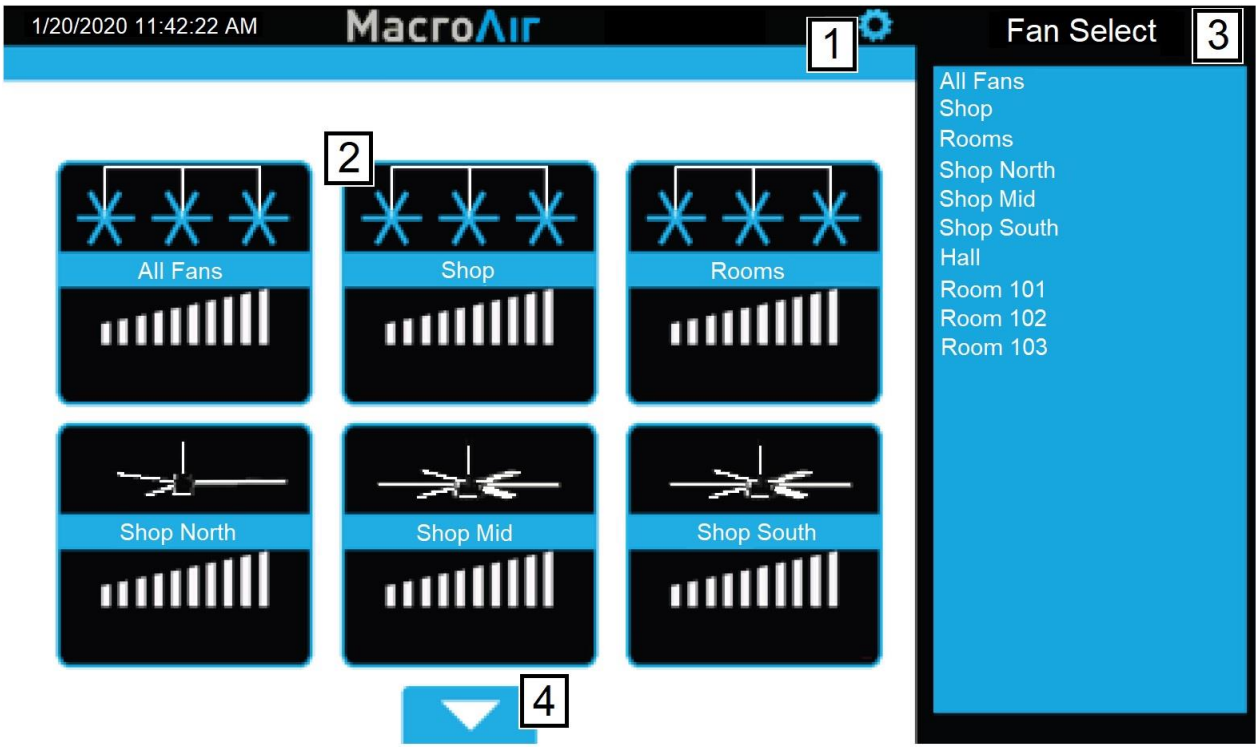
3. All fans connected to the network will be displayed on the screen. If no fans are detected, or if any fans are missing, check the CAT5e splices and ensure that the fans are powered on, then rescan the network using the tool on the Settings Screen (pg. 25). Occasionally a fault code will be present on one or more fans; this is normal. Faults can be reset from the Fan Control Screen (pg. 23). If a fault does not reset, refer to the fan manual for fault code descriptions and contact technical support if you require further assistance. Make sure AirLynk is done scanning for fans.

4. Use the Fan Configure Screen (pg. 24) to input all available data for the fan. Blade sizes must be set manually on all AVD 370, AVD3, 550, 780, and AVDX fans.

5. Grouping allows you to create a button for multiple fans to run after being given one direction and speed command, rather than turning them all on individually. To create a group, refer to the Groups Screen (pg. 27). Note: max 10 groups.

Dual Controller Home Screen

The home screen will display all the available fans that are on the network, as well as any groups you have created.



1 **Gear** - Takes you to the settings screen.

2 **Fan Status Box** - Displays the status of the fan. Pressing this button takes you to that fan's control screen.

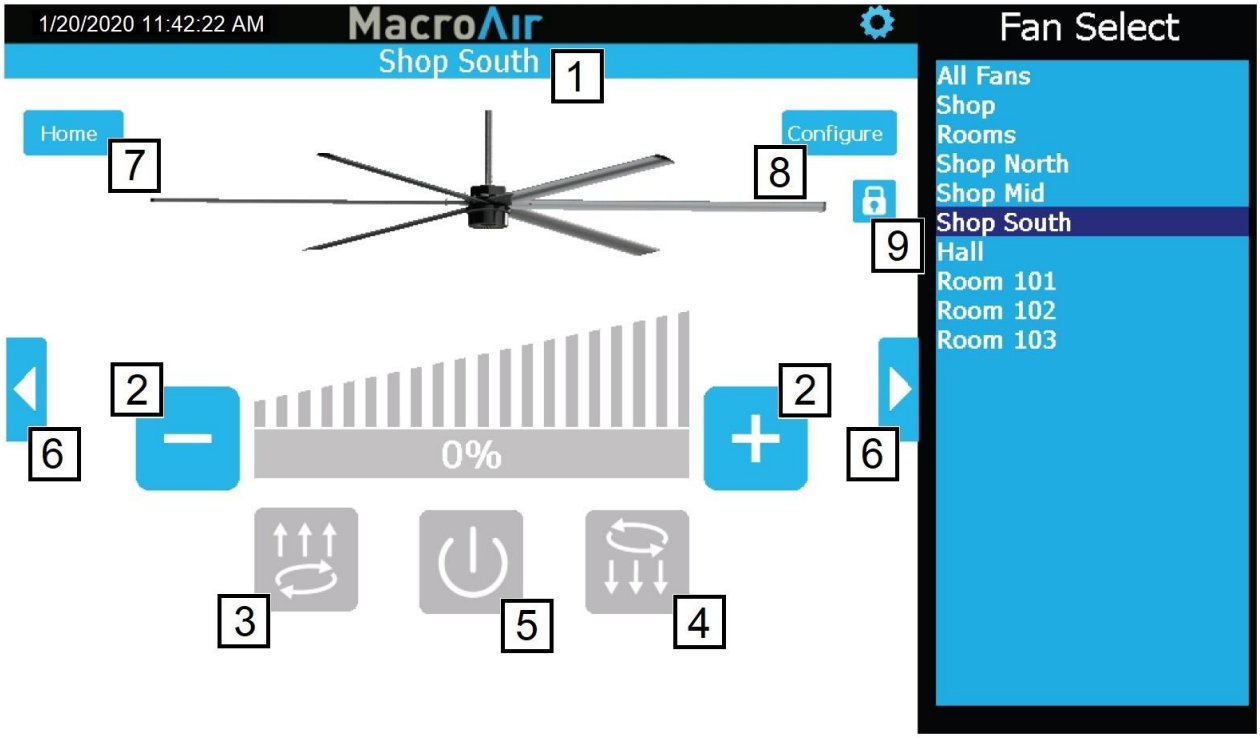
3 **Fan Select** - Allows you to select any fan, even ones not currently displayed on the page.

4 **Up/Down Arrow** - Takes you to the next set of fans.

If the installation has been verified and AirLynk has finished scanning for fans, but no fans have been detected, contact Technical Support (pg. 36).

Fan Control Screen

Tapping on a fan status box on the home screen will take you to the fan control screen. This screen allows you to configure and control the fans individually or issue a command to multiple fans if you clicked the "All Fans" button or a group button. Please ensure that the fans are configured correctly before attempting to run them (see Fan Configure, pg. 24).



1 **Fan/Group Name** - Displays the name of the fan or group.

2 **Decrease/Increase Speed** - Increase or decrease the speed between 0-100% by 5% using "-" and "+" buttons.

3 **Reverse Button** - Runs the fan clockwise to pull air up. This setting is useful to achieve destratification without creating a discernable breeze.

4 **Forward Button** - Runs the fan counter-clockwise to blow air down. This is the main setting used for cooling.

5 **Power Button** - Stops the fan if it is running.

6 **Right/left Arrows** - Takes you to the next fan/group.

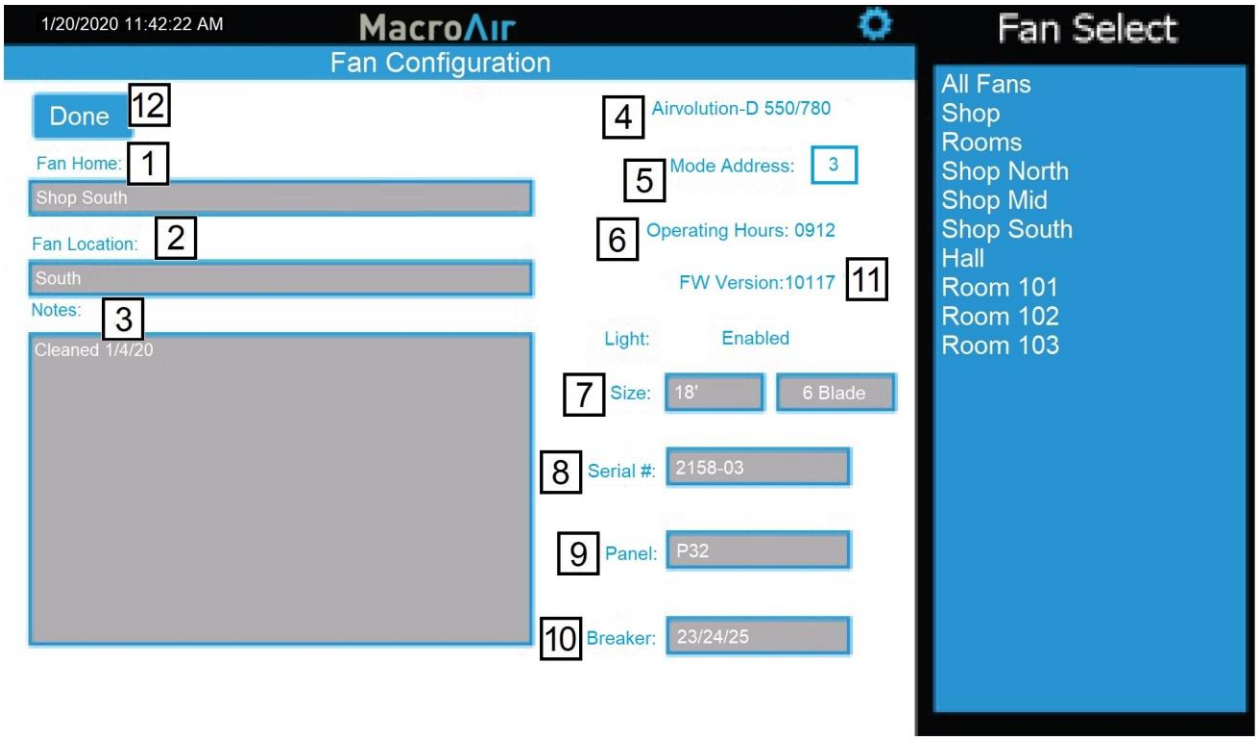
7 **Home** - Takes you to the home screen.

8 **Configure** - Takes you to the fan's configure screen.

9 **Lock** - Locks and unlocks control of fan and functions (requires admin login, refer to Settings Screen, pg. 25).

Fan Configure Screen

Tapping the Configure button on the fan control screen will bring you to the fan configure screen. This screen displays basic information on the fan. This screen also provides fields to input information that may prove useful for reference or troubleshooting.



Note: Entry on the screen for items 1, 2, 3, 8, 9 ,and 10 are done on a pop-up keyboard.

1 **Fan Name** - Changes the name that is displayed for the fan.

2 **Fan Location** - Allows you to input a location (for example “Loading Dock”) which can help identify the fan.

3 **Notes** - Any additional notes on the fan you would like to include.

4 **Type** - Displays the fan model.

5 **Node Address** - Displays the network address of the fan.

6 **Operating Hours/Voltage** - Displays the operating hours for AVD fans/Displays incoming voltage rating of the VFD for AirVolution Legacy fans.

7 **Size** - Allows you to set the fan size. **Required** for AVD 370, AVD3, 550, 780, and AVDX.

8 **Serial** - Allows you to input the serial number of the fan for easy reference.

9 **Panel** - Allows you to specify the electrical panel the breaker is in for easy reference.

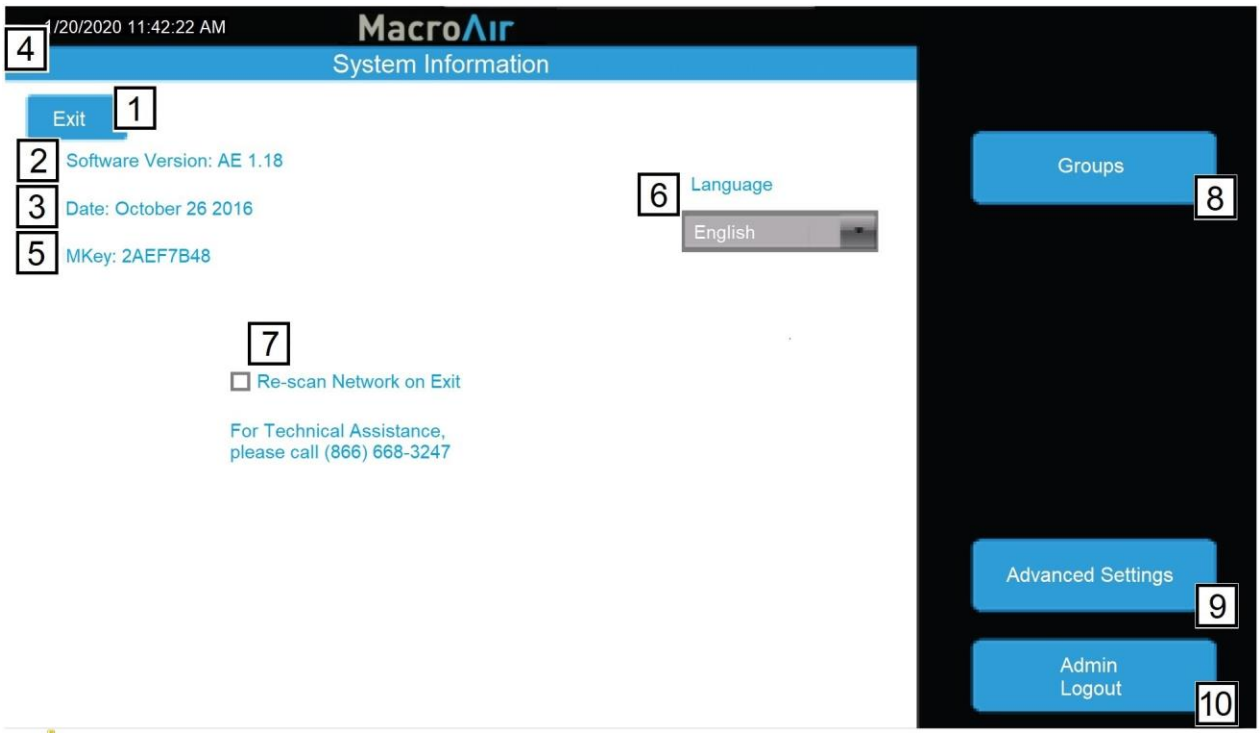
10 **Breaker** - Allows you to specify the breaker number the fan is on for easy reference.

11 **FW** - The FW version on older models is displayed, on AVD 370, AVD3, 550, 780, AirVolution and AVDX FW displays a Status Code.

12 **Done** - Returns to the Fan Screen.

Settings Screen

Tapping the Settings button will bring you to the settings screen. This screen contains information on the touchscreen and configuration options for the network.



1 **Exit** - Goes back to the Home screen.

2 **Software Version** - Indicates the software version of the touch screen.

3 **Date** - Displays the revision date of the screen software.

4 **Current Date** - Displays current date (pg. 26).

5 **Mkey** - Displays the code to grant access to Comm settings for MacroAir Tech Support.

6 **Language** - Allows selection of alternate languages (English, Spanish, French, Malay).

7 **Re-scan Network on Exit** - When selected, rescans the network to detect any changes. Used after adding/removing fans or changing addresses.

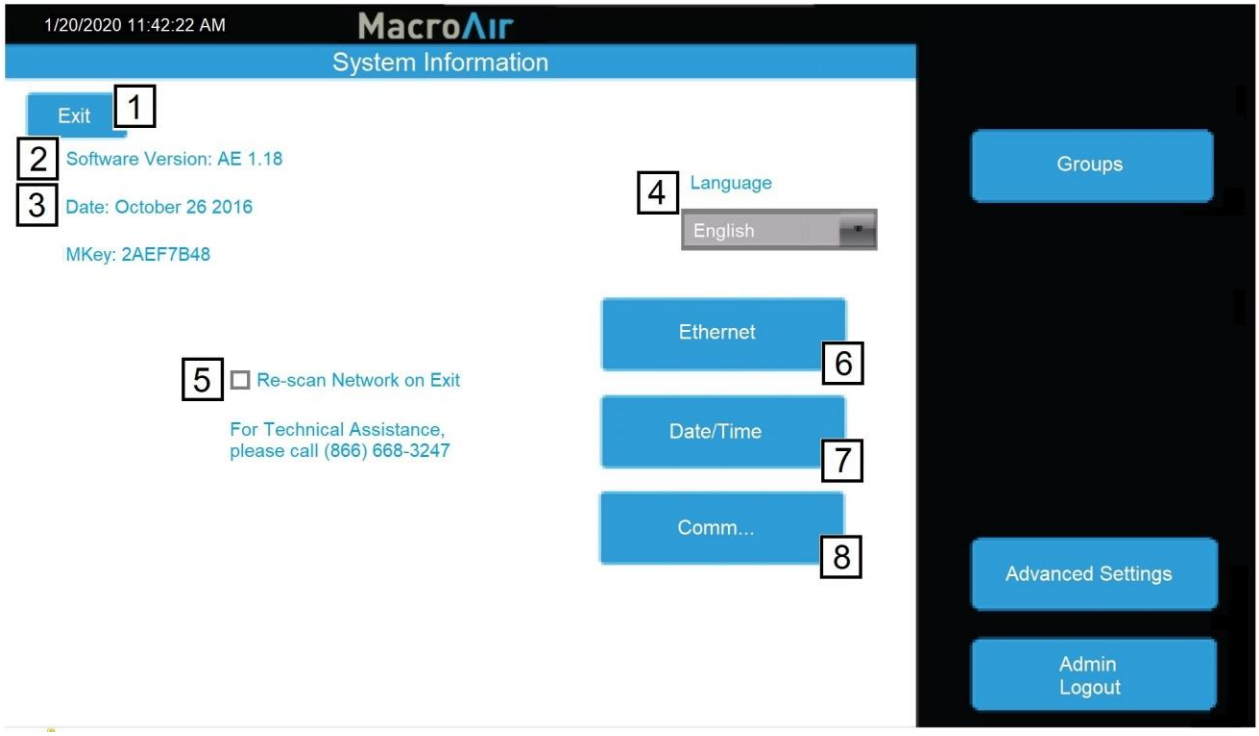
8 **Groups** - Provides access to the Groups page (pg. 27).

9 **Advanced Settings** - Displays the Advance Settings page (pg. 26).

10 **Admin Login** - Brings up the Admin Login page. You will need to be logged in under admin to access most of the other pages on the Settings screen. The default username AND password is "admin".

Advanced Settings Screen

Tapping on the "Advanced Settings" button will bring you to the Advanced Settings screen. This screen is very similar to the Settings screen, but contains 4 additional advanced options (Ethernet, Date/Time, Comm and Fine Tune).



1 **Exit** - Goes back to the Home screen.

2 **Software Version** - Indicates the software version of the touch screen.

3 **Date** - Displays the revision date of the screen software.

4 **Language** - Allows selection of alternate languages.

5 **Re-scan Network on Exit** - When selected, rescans the network to detect any changes. Used after adding/removing fans or changing addresses.

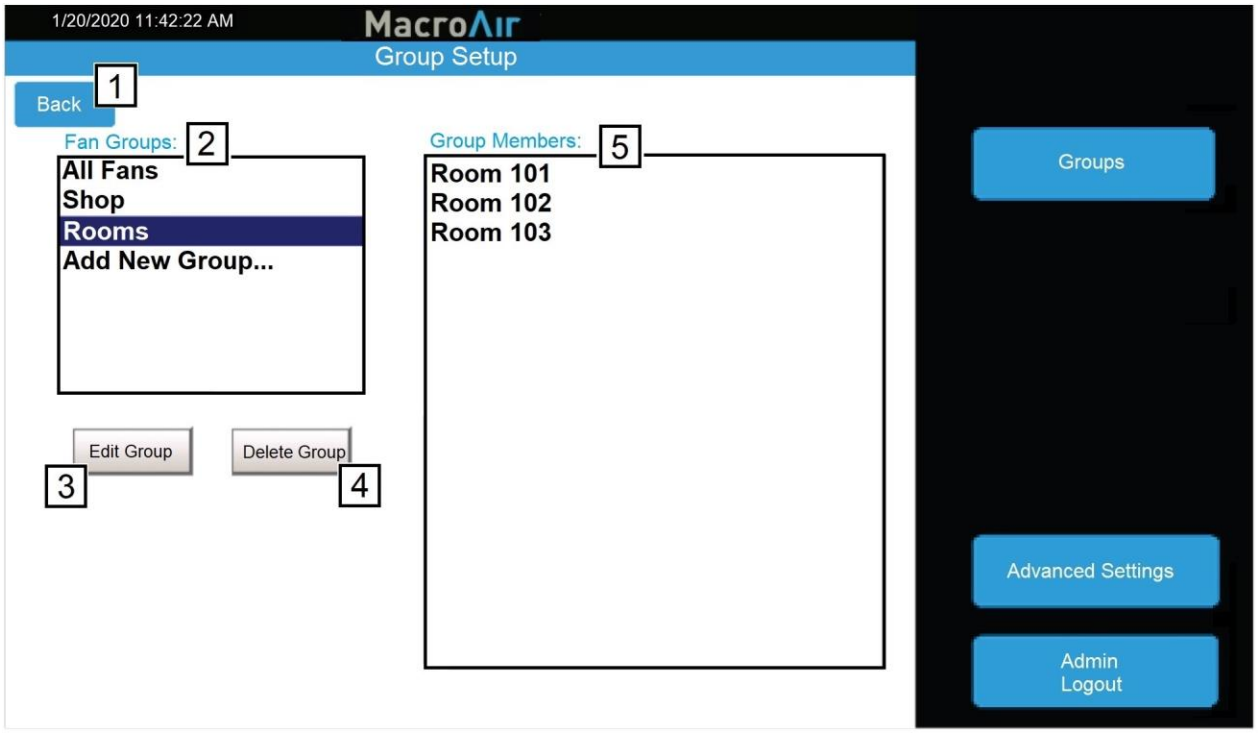
6 **Ethernet** - This page displays the Ethernet information for the screen. This information is used to remotely control the screen with a program such as VNC viewer. More information is available in the Remote Operation section of the manual (pg. 28).

7 **Date/Time** - This screen allows you to set the date/time. This is very important for scheduling, as the screen will run schedules according to the programmed date/time.

8 **Comm** - This screen provides access to the Modbus communications page. This is a password-protected page and is only accessible with MacroAir technical support on the phone. If you need access to this page, please call us at (866) 668-3247.

Groups Screen

Tapping on the “Groups” button will bring you to the Groups screen. This screen allows you to create groups and assign fans to them, easily allowing control of multiple fans at the same time.



1 **Back** - Takes you back to the previous screen.

2 **Fan Groups** - Displays fan groups you have created. Click “Add New Group” to add a new group.

3 **Edit Group** - Allows you to change the group name or group members of the selected group. Having a group name is required to save changes.

4 **Delete group** - Deletes the selected group.

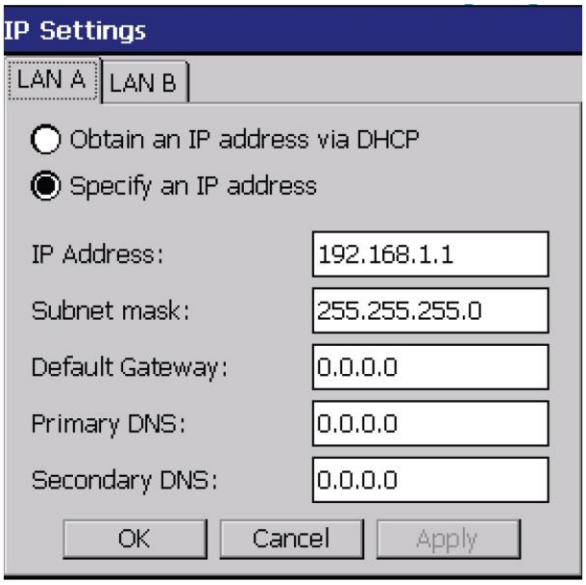
5 **Group Members** - Displays all fans with checkboxes to indicate which fans are part of the group. Check boxes to add fans to the group, remove checks to remove fans from the group.

Edit Group Name - Allows you to edit the group name. Press “Accept” to save changes or “Cancel” to cancel any changes made. (Only visible when “Edit Group” is pressed.)

Remote Operation

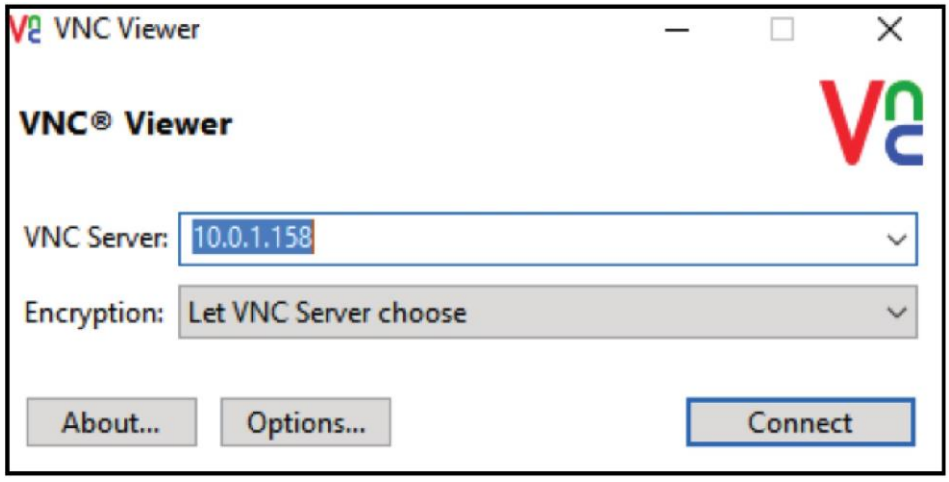
MacroAir Controllers are capable of being controlled remotely, allowing access from any computer or smart device on the same local network. Please follow the steps below to properly set up remote operation:

1. Plug your controller into your internet network via the Ethernet port Lan B on the back of the screen.
2. In the settings screen of the controller click on “Ethernet” to check the IP address of Lan B.



You can let it obtain an IP address or specify one.

3. You will need a computer or device that is on the same network as the Controller with a VNC viewer installed (“VNC-Viewer” used below).



4. Open the VNC and input the IP address of the controller.
5. Select connect and the controller screen should show up.

End of Section

Appendix A.

Airlynk Modbus + BACnet Control Points

Modbus	AV	Name	Description	Values
10100	0	AllFanReset	Reset the faults on every fan	1 to reset
8960	1	FanSpeed1	Sets the speed of fan 1	0-100%
8961	2	FanSpeed2	Sets the speed of fan 2	0-100%
8962	3	FanSpeed3	Sets the speed of fan 3	0-100%
8963	4	FanSpeed4	Sets the speed of fan 4	0-100%
8964	5	FanSpeed5	Sets the speed of fan 5	0-100%
8965	6	FanSpeed6	Sets the speed of fan 6	0-100%
8966	7	FanSpeed7	Sets the speed of fan 7	0-100%
8967	8	FanSpeed8	Sets the speed of fan 8	0-100%
8968	9	FanSpeed9	Sets the speed of fan 9	0-100%
8969	10	FanSpeed10	Sets the speed of fan 10	0-100%
8970	11	FanSpeed11	Sets the speed of fan 11	0-100%
8971	12	FanSpeed12	Sets the speed of fan 12	0-100%
8972	13	FanSpeed13	Sets the speed of fan 13	0-100%
8973	14	FanSpeed14	Sets the speed of fan 14	0-100%
8974	15	FanSpeed15	Sets the speed of fan 15	0-100%
8975	16	FanSpeed16	Sets the speed of fan 16	0-100%
8976	17	FanSpeed17	Sets the speed of fan 17	0-100%
8977	18	FanSpeed18	Sets the speed of fan 18	0-100%
8978	19	FanSpeed19	Sets the speed of fan 19	0-100%
8979	20	FanSpeed20	Sets the speed of fan 20	0-100%
8980	21	FanSpeed21	Sets the speed of fan 21	0-100%
8981	22	FanSpeed22	Sets the speed of fan 22	0-100%
8982	23	FanSpeed23	Sets the speed of fan 23	0-100%
8983	24	FanSpeed24	Sets the speed of fan 24	0-100%
8984	25	FanSpeed25	Sets the speed of fan 25	0-100%
8985	26	FanSpeed26	Sets the speed of fan 26	0-100%
8986	27	FanSpeed27	Sets the speed of fan 27	0-100%
8987	28	FanSpeed28	Sets the speed of fan 28	0-100%
8988	29	FanSpeed29	Sets the speed of fan 29	0-100%
8989	30	FanSpeed30	Sets the speed of fan 30	0-100%

Appendix A. cont.

Airlynk Modbus + BACnet Control Points

Modbus	AV	Name	Description	Values
9050	31	FanDir1	Sets the direction of fan 1	0-Off 1-Forward 2-Reverse
9051	32	FanDir2	Sets the direction of fan 2	0-Off 1-Forward 2-Reverse
9052	33	FanDir3	Sets the direction of fan 3	0-Off 1-Forward 2-Reverse
9053	34	FanDir4	Sets the direction of fan 4	0-Off 1-Forward 2-Reverse
9054	35	FanDir5	Sets the direction of fan 5	0-Off 1-Forward 2-Reverse
9055	36	FanDir6	Sets the direction of fan 6	0-Off 1-Forward 2-Reverse
9056	37	FanDir7	Sets the direction of fan 7	0-Off 1-Forward 2-Reverse
9057	38	FanDir8	Sets the direction of fan 8	0-Off 1-Forward 2-Reverse
9058	39	FanDir9	Sets the direction of fan 9	0-Off 1-Forward 2-Reverse
9059	40	FanDir10	Sets the direction of fan 10	0-Off 1-Forward 2-Reverse
9060	41	FanDir11	Sets the direction of fan 11	0-Off 1-Forward 2-Reverse
9061	42	FanDir12	Sets the direction of fan 12	0-Off 1-Forward 2-Reverse
9062	43	FanDir13	Sets the direction of fan 13	0-Off 1-Forward 2-Reverse
9063	44	FanDir14	Sets the direction of fan 14	0-Off 1-Forward 2-Reverse
9064	45	FanDir15	Sets the direction of fan 15	0-Off 1-Forward 2-Reverse
9065	46	FanDir16	Sets the direction of fan 16	0-Off 1-Forward 2-Reverse
9066	47	FanDir17	Sets the direction of fan 17	0-Off 1-Forward 2-Reverse
9067	48	FanDir18	Sets the direction of fan 18	0-Off 1-Forward 2-Reverse
9068	49	FanDir19	Sets the direction of fan 19	0-Off 1-Forward 2-Reverse
9069	50	FanDir20	Sets the direction of fan 20	0-Off 1-Forward 2-Reverse
9070	51	FanDir21	Sets the direction of fan 21	0-Off 1-Forward 2-Reverse
9071	52	FanDir22	Sets the direction of fan 22	0-Off 1-Forward 2-Reverse
9072	53	FanDir23	Sets the direction of fan 23	0-Off 1-Forward 2-Reverse
9073	54	FanDir24	Sets the direction of fan 24	0-Off 1-Forward 2-Reverse
9074	55	FanDir25	Sets the direction of fan 25	0-Off 1-Forward 2-Reverse
9075	56	FanDir26	Sets the direction of fan 26	0-Off 1-Forward 2-Reverse
9076	57	FanDir27	Sets the direction of fan 27	0-Off 1-Forward 2-Reverse
9077	58	FanDir28	Sets the direction of fan 28	0-Off 1-Forward 2-Reverse
9078	59	FanDir29	Sets the direction of fan 29	0-Off 1-Forward 2-Reverse
9079	60	FanDir30	Sets the direction of fan 30	0-Off 1-Forward 2-Reverse

Appendix A. cont.

Airlynk Modbus + BACnet Control Points

Modbus	AV	Name	Description	Values
9355	61	FanRPM1	Shows the Hz/output current of fan 1	0.1 Hz (AVD)/0.1A*
9356	62	FanRPM2	Shows the HZ/output current of fan 2	0.1 Hz (AVD)/0.1A*
9357	63	FanRPM3	Shows the Hz/output current of fan 3	0.1 Hz (AVD)/0.1A*
9358	64	FanRPM4	Shows the Hz/output current of fan 4	0.1 Hz (AVD)/0.1A*
9359	65	FanRPM5	Shows the Hz/output current of fan 5	0.1 Hz (AVD)/0.1A*
9360	66	FanRPM6	Shows the Hz/output current of fan 6	0.1 Hz (AVD)/0.1A*
9361	67	FanRPM7	Shows the Hz/output current of fan 7	0.1 Hz (AVD)/0.1A*
9362	68	FanRPM8	Shows the Hz/output current of fan 8	0.1 Hz (AVD)/0.1A*
9363	69	FanRPM9	Shows the Hz/output current of fan 9	0.1 Hz (AVD)/0.1A*
9364	70	FanRPM10	Shows the Hz/output current of fan 10	0.1 Hz (AVD)/0.1A*
9365	71	FanRPM11	Shows the Hz/output current of fan 11	0.1 Hz (AVD)/0.1A*
9366	72	FanRPM12	Shows the Hz/output current of fan 12	0.1 Hz (AVD)/0.1A*
9367	73	FanRPM13	Shows the Hz/output current of fan 13	0.1 Hz (AVD)/0.1A*
9368	74	FanRPM14	Shows the Hz/output current of fan 14	0.1 Hz (AVD)/0.1A*
9369	75	FanRPM15	Shows the Hz/output current of fan 15	0.1 Hz (AVD)/0.1A*
9370	76	FanRPM16	Shows the Hz/output current of fan 16	0.1 Hz (AVD)/0.1A*
9371	77	FanRPM17	Shows the Hz/output current of fan 17	0.1 Hz (AVD)/0.1A*
9372	78	FanRPM18	Shows the Hz/output current of fan 18	0.1 Hz (AVD)/0.1A*
9373	79	FanRPM19	Shows the Hz/output current of fan 19	0.1 Hz (AVD)/0.1A*
9374	80	FanRPM20	Shows the Hz/output current of fan 20	0.1 Hz (AVD)/0.1A*
9375	81	FanRPM21	Shows the Hz/output current of fan 21	0.1 Hz (AVD)/0.1A*
9376	82	FanRPM22	Shows the Hz/output current of fan 22	0.1 Hz (AVD)/0.1A*
9377	83	FanRPM23	Shows the Hz/output current of fan 23	0.1 Hz (AVD)/0.1A*
9378	84	FanRPM24	Shows the Hz/output current of fan 24	0.1 Hz (AVD)/0.1A*
9379	85	FanRPM25	Shows the Hz/output current of fan 25	0.1 Hz (AVD)/0.1A*
9380	86	FanRPM26	Shows the Hz/output current of fan 26	0.1 Hz (AVD)/0.1A*
9381	87	FanRPM27	Shows the Hz/output current of fan 27	0.1 Hz (AVD)/0.1A*
9382	88	FanRPM28	Shows the Hz/output current of fan 28	0.1 Hz (AVD)/0.1A*
9383	89	FanRPM29	Shows the Hz/output current of fan 29	0.1 Hz (AVD)/0.1A*
9384	90	FanRPM30	Shows the Hz/output current of fan 30	0.1 Hz (AVD)/0.1A*

* Note: For AirVolution output current is displayed. AVD3, 550, 780 and AVD 370 may display RPM (0.1).

Appendix A. cont.

Airlynk Modbus + BACnet Control Points

Modbus	AV	Name	Description	Values
8990	91	FanFault1	Displays the fault of fan 1	
8991	92	FanFault2	Displays the fault of fan 2	
8992	93	FanFault3	Displays the fault of fan 3	
8993	94	FanFault4	Displays the fault of fan 4	
8994	95	FanFault5	Displays the fault of fan 5	
8995	96	FanFault6	Displays the fault of fan 6	
8996	97	FanFault7	Displays the fault of fan 7	
8997	98	FanFault8	Displays the fault of fan 8	
8998	99	FanFault9	Displays the fault of fan 9	
8999	100	FanFault10	Displays the fault of fan 10	
9000	101	FanFault11	Displays the fault of fan 11	
9001	102	FanFault12	Displays the fault of fan 12	
9002	103	FanFault13	Displays the fault of fan 13	
9003	104	FanFault14	Displays the fault of fan 14	
9004	105	FanFault15	Displays the fault of fan 15	
9005	106	FanFault16	Displays the fault of fan 16	
9006	107	FanFault17	Displays the fault of fan 17	
9007	108	FanFault18	Displays the fault of fan 18	
9008	109	FanFault19	Displays the fault of fan 19	
9009	110	FanFault20	Displays the fault of fan 20	
9010	111	FanFault21	Displays the fault of fan 21	
9011	112	FanFault22	Displays the fault of fan 22	
9012	113	FanFault23	Displays the fault of fan 23	
9013	114	FanFault24	Displays the fault of fan 24	
9014	115	FanFault25	Displays the fault of fan 25	
9015	116	FanFault26	Displays the fault of fan 26	
9016	117	FanFault27	Displays the fault of fan 27	
9017	118	FanFault28	Displays the fault of fan 28	
9018	119	FanFault29	Displays the fault of fan 29	
9019	120	FanFault30	Displays the fault of fan 30	

Appendix A. cont.

Airlynk Modbus + BACnet Control Points

Modbus	AV	Name	Description	Values
9170	121	FanSize1	Sets the diameter of fan 1	8-24ft (For 3 blade add 300)
9171	122	FanSize2	Sets the diameter of fan 2	8-24ft (For 3 blade add 300)
9172	123	FanSize3	Sets the diameter of fan 3	8-24ft (For 3 blade add 300)
9173	124	FanSize4	Sets the diameter of fan 4	8-24ft (For 3 blade add 300)
9174	125	FanSize5	Sets the diameter of fan 5	8-24ft (For 3 blade add 300)
9175	126	FanSize6	Sets the diameter of fan 6	8-24ft (For 3 blade add 300)
9176	127	FanSize7	Sets the diameter of fan 7	8-24ft (For 3 blade add 300)
9177	128	FanSize8	Sets the diameter of fan 8	8-24ft (For 3 blade add 300)
9178	129	FanSize9	Sets the diameter of fan 9	8-24ft (For 3 blade add 300)
9179	130	FanSize10	Sets the diameter of fan 10	8-24ft (For 3 blade add 300)
9180	131	FanSize11	Sets the diameter of fan 11	8-24ft (For 3 blade add 300)
9181	132	FanSize12	Sets the diameter of fan 12	8-24ft (For 3 blade add 300)
9182	133	FanSize13	Sets the diameter of fan 13	8-24ft (For 3 blade add 300)
9183	134	FanSize14	Sets the diameter of fan 14	8-24ft (For 3 blade add 300)
9184	135	FanSize15	Sets the diameter of fan 15	8-24ft (For 3 blade add 300)
9185	136	FanSize16	Sets the diameter of fan 16	8-24ft (For 3 blade add 300)
9186	137	FanSize17	Sets the diameter of fan 17	8-24ft (For 3 blade add 300)
9187	138	FanSize18	Sets the diameter of fan 18	8-24ft (For 3 blade add 300)
9188	139	FanSize19	Sets the diameter of fan 19	8-24ft (For 3 blade add 300)
9189	140	FanSize20	Sets the diameter of fan 20	8-24ft (For 3 blade add 300)
9190	141	FanSize21	Sets the diameter of fan 21	8-24ft (For 3 blade add 300)
9191	142	FanSize22	Sets the diameter of fan 22	8-24ft (For 3 blade add 300)
9192	143	FanSize23	Sets the diameter of fan 23	8-24ft (For 3 blade add 300)
9193	144	FanSize24	Sets the diameter of fan 24	8-24ft (For 3 blade add 300)
9194	145	FanSize25	Sets the diameter of fan 25	8-24ft (For 3 blade add 300)
9195	146	FanSize26	Sets the diameter of fan 26	8-24ft (For 3 blade add 300)
9196	147	FanSize27	Sets the diameter of fan 27	8-24ft (For 3 blade add 300)
9197	148	FanSize28	Sets the diameter of fan 28	8-24ft (For 3 blade add 300)
9198	149	FanSize29	Sets the diameter of fan 29	8-24ft (For 3 blade add 300)
9199	150	FanSize30	Sets the diameter of fan 30	8-24ft (For 3 blade add 300)

Appendix A. cont.

Airlynk Modbus + BACnet Control Points

Modbus	AV	Name	Description	Values
10130	151	AllFanDir	Sets the direction of all the fans	0-Off 1-Forward 2-Reverse
10131	152	AllFanSpeed	Sets the speed of all the fans	0-100%
10132	153	AllFanSend	Sends the all fan speed and direction	1 to send
9204	154	FanOn	Select individual fan to set	Fan 1-30
9202	155	FanDir	Set the direction of the selected fan	0-Off 1-Forward 2-Reverse
9203	156	FanSpeed	Set the speed of the selected fan	0-100%
9201	157	FanSend	Send the speed and direction of the selected fan	1 to send
9215	158	MotorCal	Run motor calibration on selected fan	1 to send
10134	159	FanScanning	AirLynk is looking for fans	1 scan in progress, 0 scan complete

Appendix B. Warranty

MacroAir warrants the Products listed in the table below will be free from defects in materials and workmanship under normal use and maintenance for the applicable Warranty Period. Other than the Warranty set forth in this document, no other written or oral warranties apply, and no employee, agent, dealer, or other person is authorized to give any other warranties on behalf of MacroAir.

START DATE OF WARRANTY COVERAGE

The Warranty Period begins fifteen (15) days following shipment of the Product, or on the date the Product is installed (not to exceed sixty (60) days Customer receives the Product), whichever date is later. Customer should retain necessary documentation to verify the date of receipt and installation of the Product. Customer will be required to produce this documentation in order to obtain Warranty services from MacroAir. The Warranty specified herein applies only to Products shipped on or after April 15, 2021.

PRODUCTS AND SYSTEMS COVERED BY THIS WARRANTY AND APPLICABLE WARRANTY PERIODS:

Fan Type	Mechanical: Blades, Hub & Frame	Standard Electrical[1]: Motor, Electrical Controls, Remote	Labor
AVDX	15 Years	10 years *	1 Year
AirVolution	15 Years	7 years *	1 Year
AirLegacy	15 Years	5 Years *	1 Year
AirVolution-D3	10 years	7 years *	1 Year
AirVolution-D 370	10 years	5 Years *	1 Year

WARRANTY COVERAGE:

Subject to the exclusions herein, the MacroAir Warranty covers any defects in workmanship or materials of the covered Products under normal operation and prescribed maintenance when those defects adversely affect the ability of the Product to operate properly.[2] The Warranty only covers Products which have been installed in compliance with MacroAir's written installation instructions by a state-qualified or licensed electrical contractor and operated and maintained by the Customer in conformity with MacroAir's written instructions, and when the Product is purchased directly from MacroAir or a MacroAir Authorized Dealer.

This Warranty is subject to all provisions, conditions, limitations, and exclusions explained in this Warranty document.

* If your product is not listed on this warranty page, scan this **QR code** or visit **macroairfans.com/warranty** for full warranty information.

1 "Standard Electrical" means any common electrical component that is utilized across more than one fan line will assume the higher warranty period.
2 "Operate properly" applies only to mechanical, electrical, and structural systems of the Product.

Appendix C. Technical Support

Thank you for purchasing the MacroAir Dual Control for MacroAir Fans.
Please call MacroAir Fans for Technical Support of the Dual Control product.

Support Contact Information:
MacroAir Fans
794 S. Allen Street
San Bernardino, CA. 92408

MacroAir Fans Service:
866-668-3247 option 2
Website: www.macroairfans.com/support

For Installation assistance, application questions, technical support, and any other inquiries, please contact our Technical Support team at (866) 668-3247.

MacroAir
engineers of air™

794 South Allen Street
San Bernardino, CA 92408
(866) 668-3247
Macroairfans.com

MacroAir AirLynk Modbus/BACnet
is UL Listed

MacroAir
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Operation Manual

MacroAir Local Override Remote

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Introduction

Caution and Safety

⚠ **ATTENTION: Safety.** READ THE ENTIRE MANUAL BEFORE OPERATING THE FAN. Ensure that all safety practices and instructions are followed during the installation, operation, and servicing of the fan. Failure to apply these safety practices could result in death or serious injury. If you do not understand the instructions, please call our Technical Department for guidance.

⚠ **ATTENTION: Qualified Technicians.** All fan controls and incoming power should only be installed by qualified technicians familiar with the requirements of the National Electrical Code (NEC) and local codes. Refer to appropriate portions of this manual for other important requirements. Failure to follow these guidelines will void the manufacturer's warranty.

⚠ **ATTENTION: Damp and Corrosive Environments.** MacroAir provides a stainless-steel fan alternative especially for excessively damp, caustic, or corrosive environments. It is recommended that the environmental conditions acting on a fan installation be reviewed to insure the proper choice of a fan purchase and special warranty considerations.

⚠ **ATTENTION: Code Compliance.** Installation is to be in accordance with the NEC, ANDSI/NFPA 70-1999 and local codes.

Hazard of Electrical Shock, Explosion or Arc Flash:

⚠ **ATTENTION: Read.** Read and understand this manual before installing or operating a fan unit. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.

⚠ **ATTENTION: Code Compliance.** The user is responsible for compliance with all international and National Electrical Code requirements with respect to grounding of all equipment.

⚠ **WARNING: Do Not Touch.** Many of the parts of this unit operate at line voltage. DO NOT TOUCH.

⚠ **WARNING: Covers.** Install all covers before applying power or starting and stopping the unit.

Installation and Service

⚠ **WARNING: Damage.** Do not operate or install any fans or fan accessories that appear to be damaged.

⚠ **WARNING: Death and Injury.** Failure to follow this instruction can result in death, serious injury, or equipment damage.

⚠ **WARNING: Disconnect Power.** If the fan does not operate properly using the procedures in this manual. BE CERTAIN TO REMOVE ALL POWER TO THE UNIT and contact our technical department for further assistance.

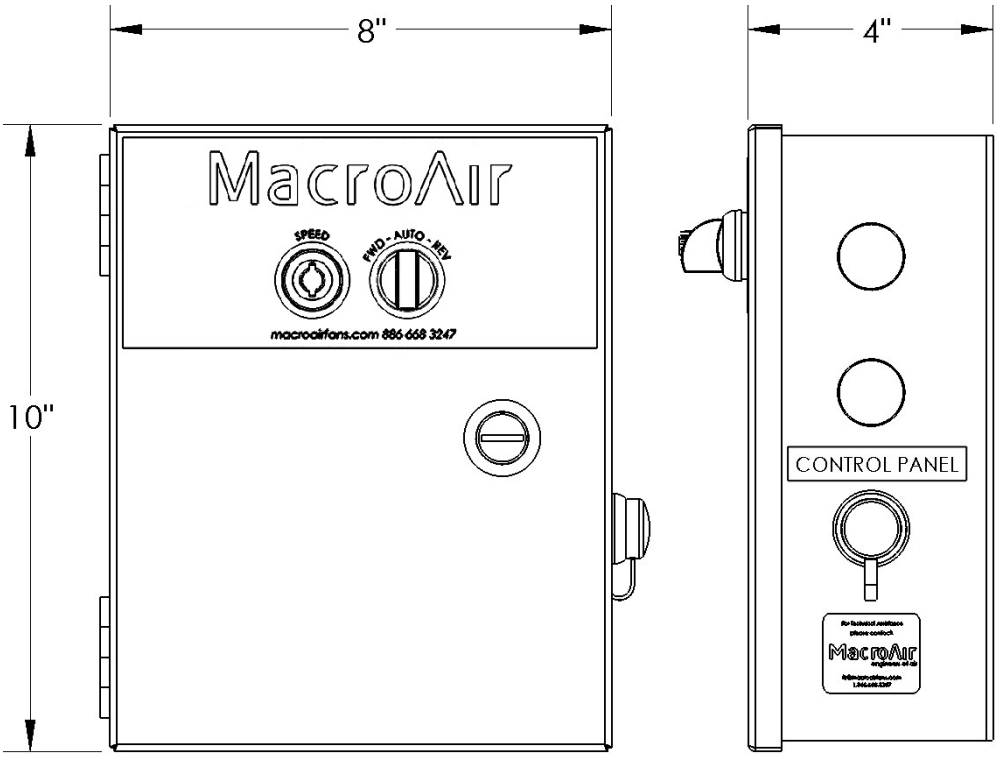
⚠ **CAUTION: Moving Parts.** Keep all body parts clear of moving parts at all times.

⚠ **ATTENTION: Qualified Technicians.** All electrical troubleshooting and repair must be done by a qualified technician and meet all applicable codes.

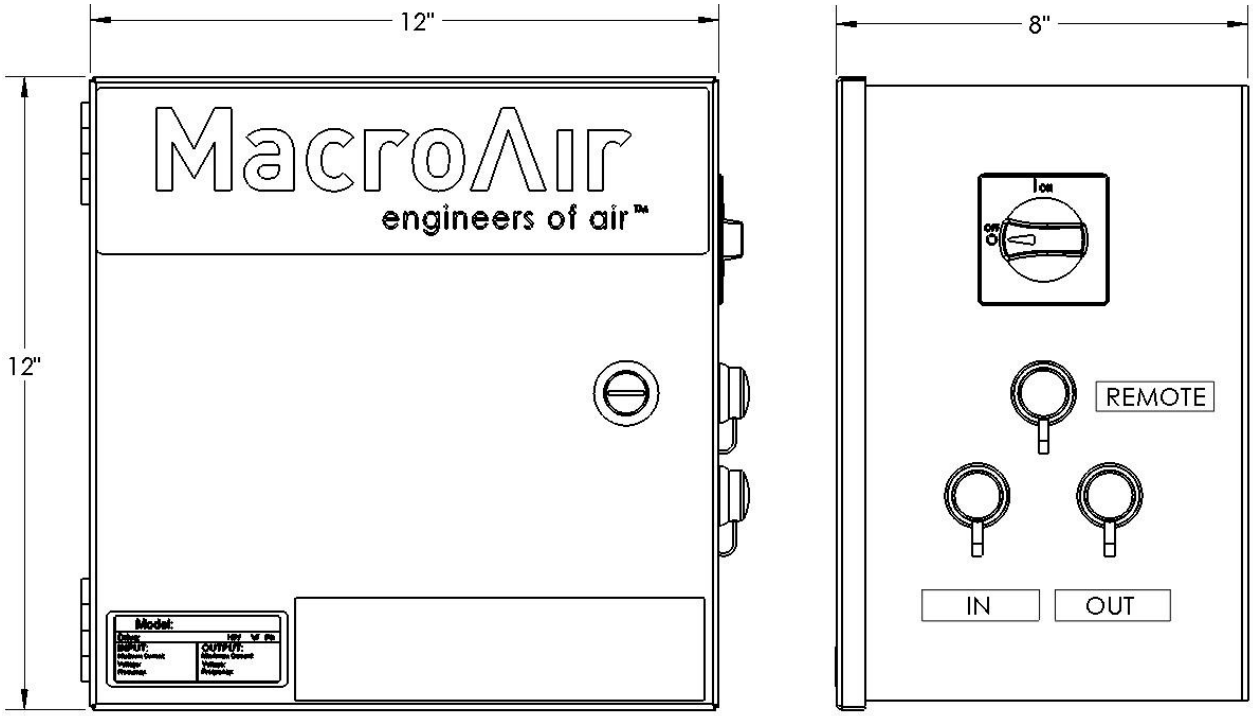
REFER TO FAN INSTALLATION MANUAL(S) FOR FURTHER MAINTENANCE INFORMATION.

Introduction

Remote Enclosure



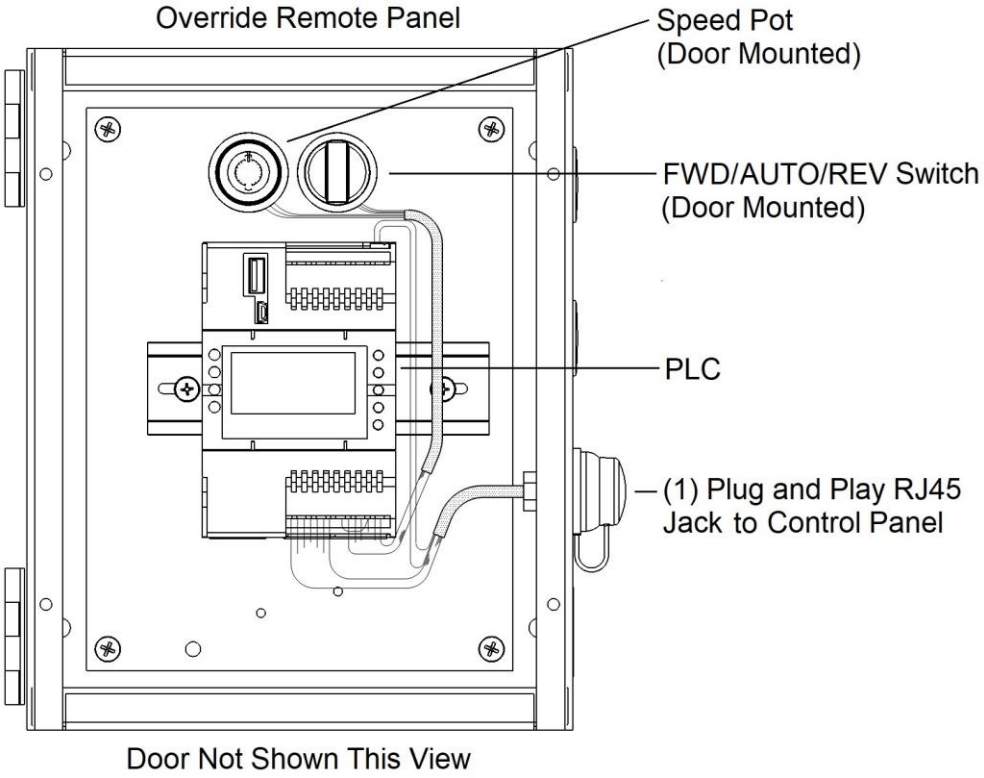
Control Panel Enclosure



Images are not to scale

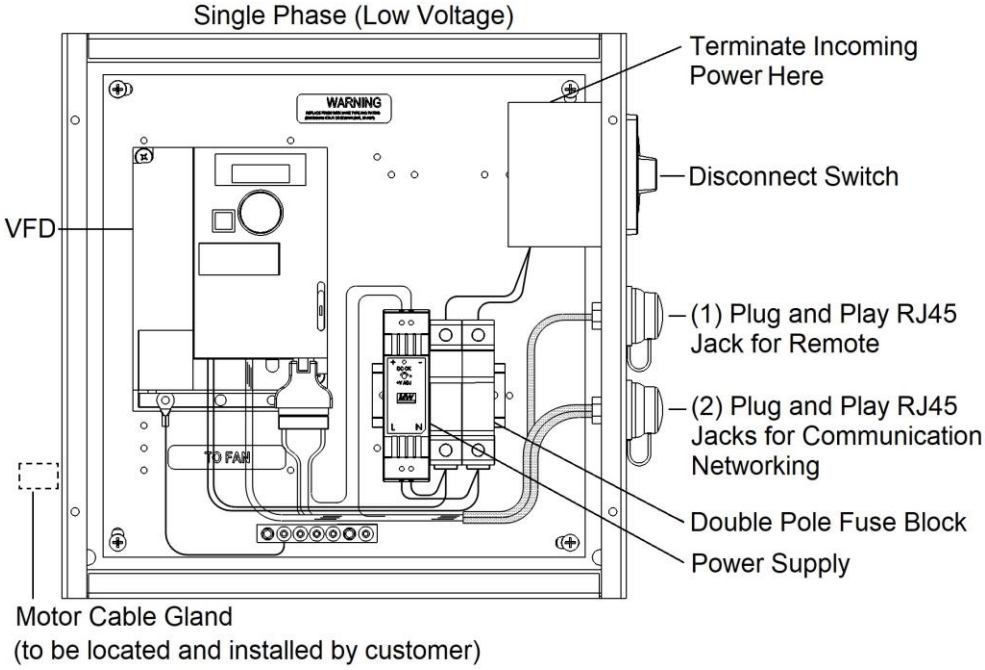
Wiring the Fan

Remote Panel Overview



Schneider Control Panels Overview

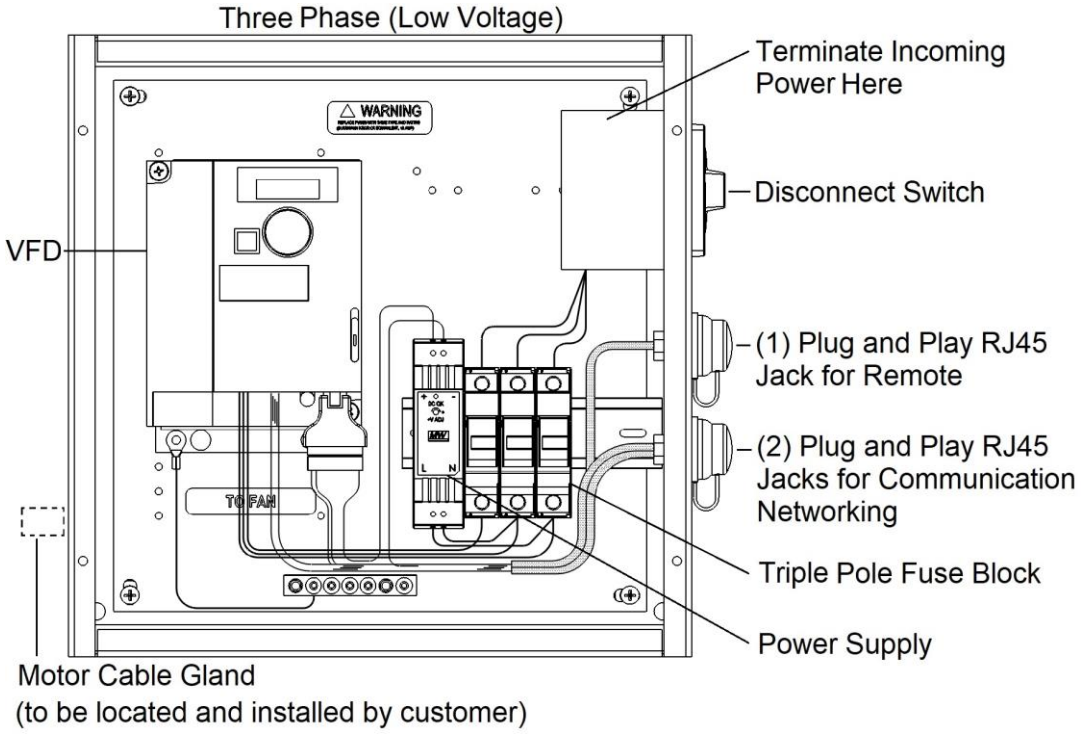
1 Phase (Low Voltage)



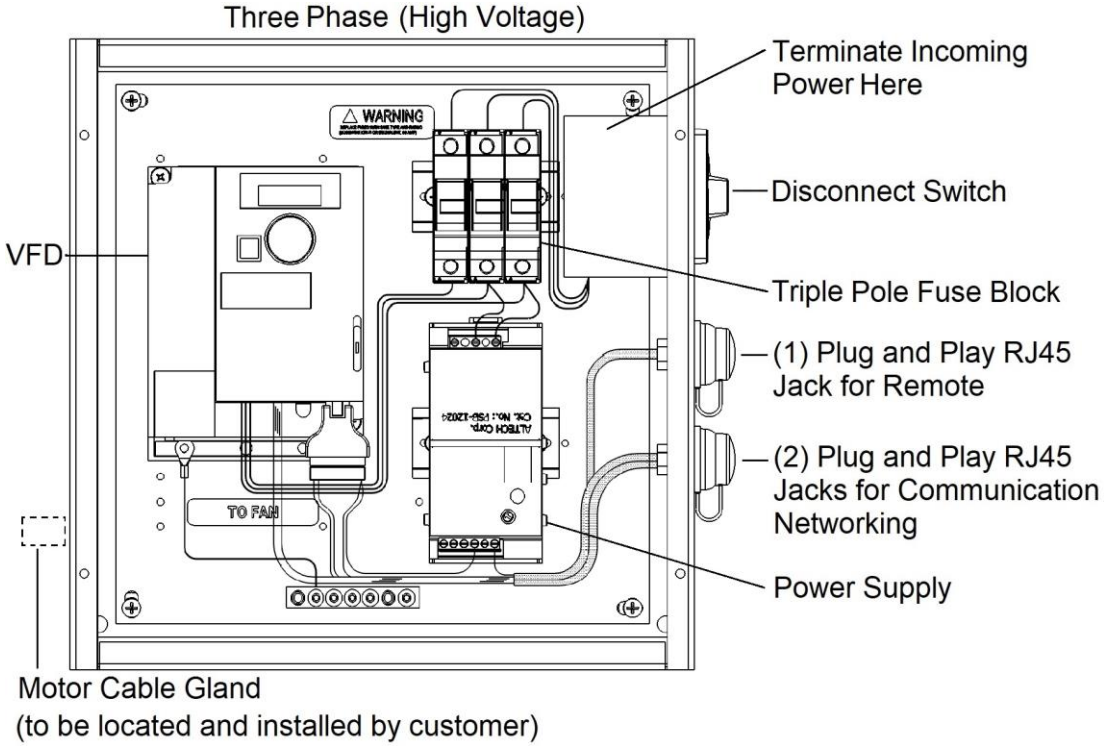
Wiring the Fan

Schneider Control Panels Overview, cont.

3 Phase (Low Voltage)



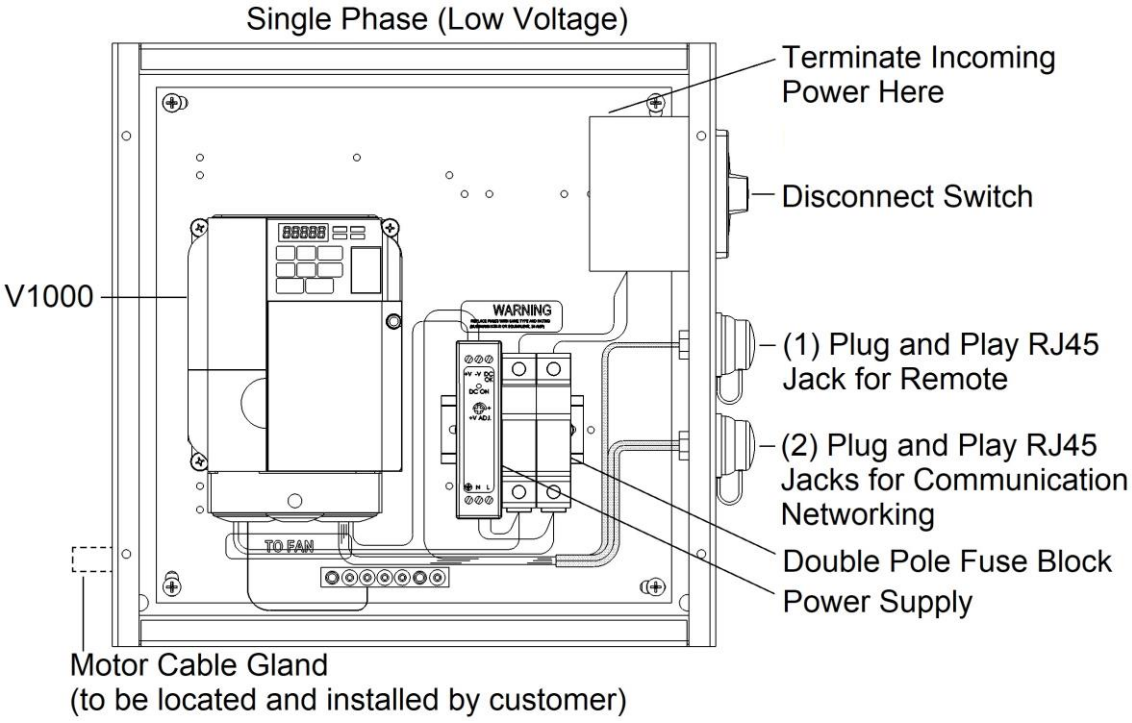
3 Phase (High Voltage)



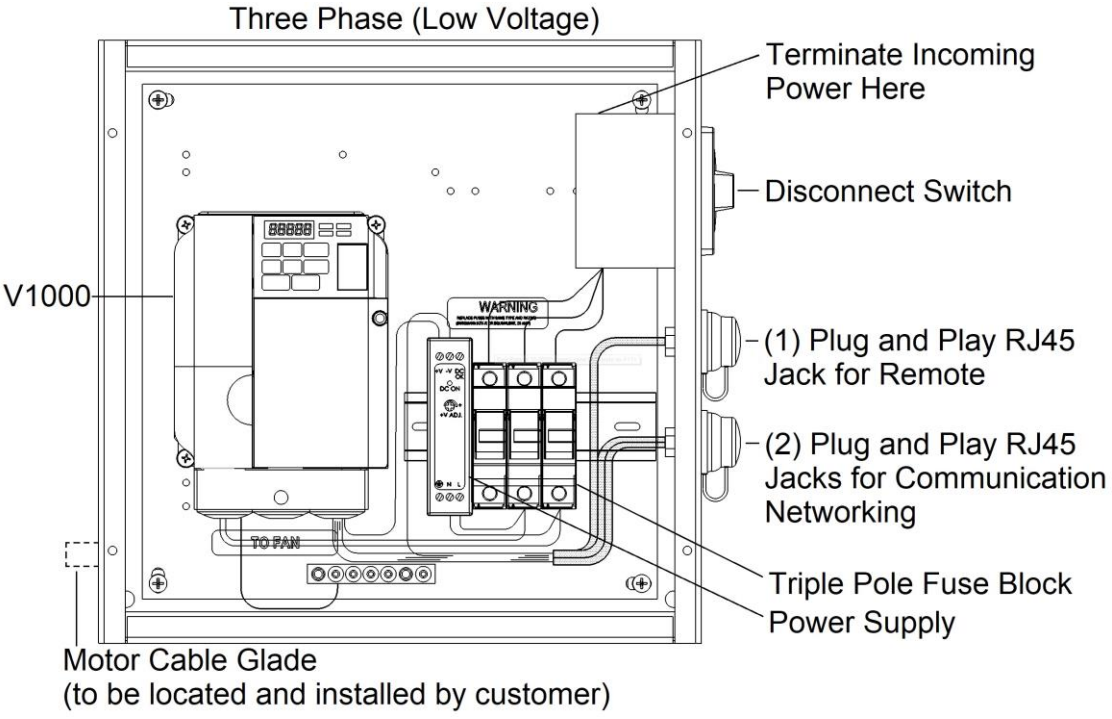
Wiring the Fan

Yaskawa Control Panels Overview

1 Phase (Low Voltage)



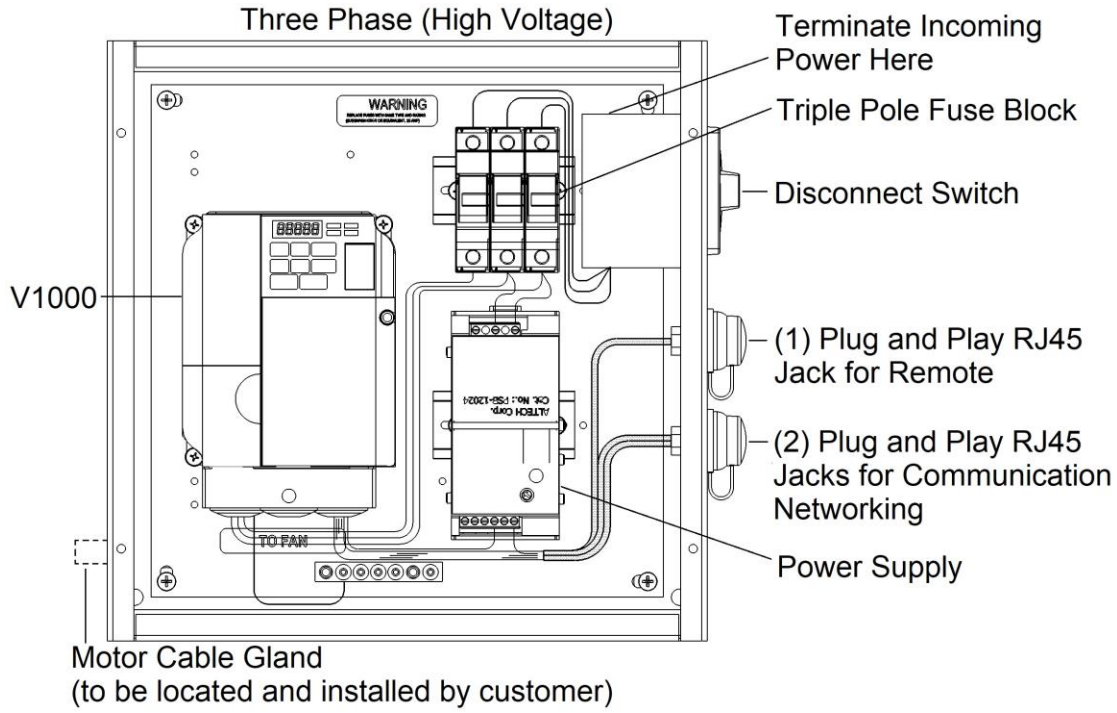
3 Phase (Low Voltage)



Wiring the Fan

Yaskawa Control Panels Overview, cont.

3 Phase (High Voltage)



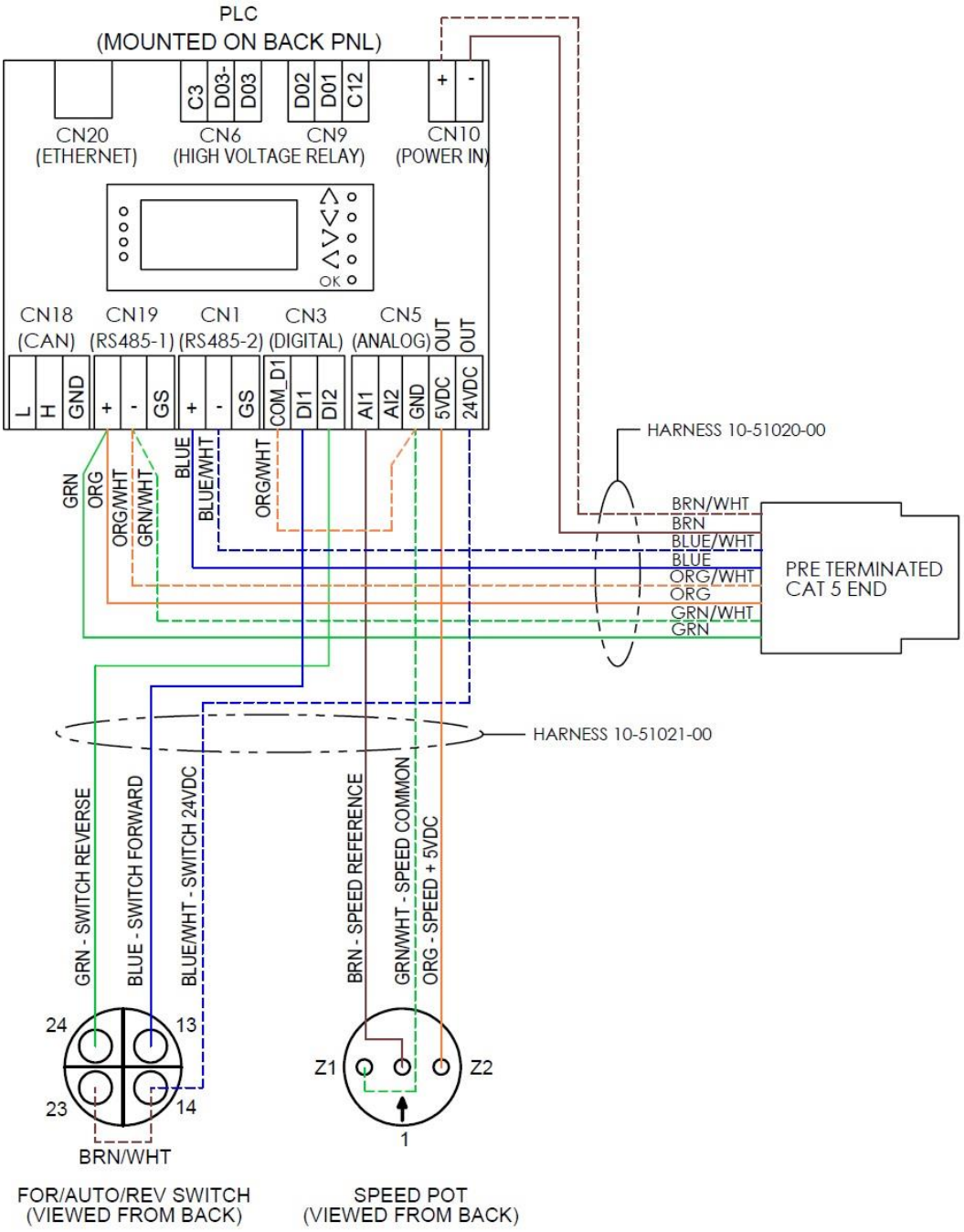
Control Panels Overview

1. Control Panels come pre-wired, as illustrated on pages 4-7.
2. Make sure the control wiring is CAT5e shielded, stranded or greater.
3. If removed from the enclosure, the disconnect switch must be in the OFF position when removed, and in the OFF position when reinstalled to prevent misalignment of switch.
4. The Motor Cable Gland and the Cable Gland for Analog Control do not come pre-installed. Use a unibit to drill installation holes.
5. **Shielded motor cable is provided and must be used with no additional cable to maintain factory warranty.**
6. Mounting hardware for mounting enclosure to an I-beam, Glulam or wall is not supplied by MacroAir. Physical enclosure of Control Panel is 12”x12”x8”.
7. Connect CAT5e to RJ45 labeled “Remote” for single touchpad controller.

These control panel overviews supersede and replace that found in your fan Operation Manual.

Wiring Diagrams

Remote Panel Schematic



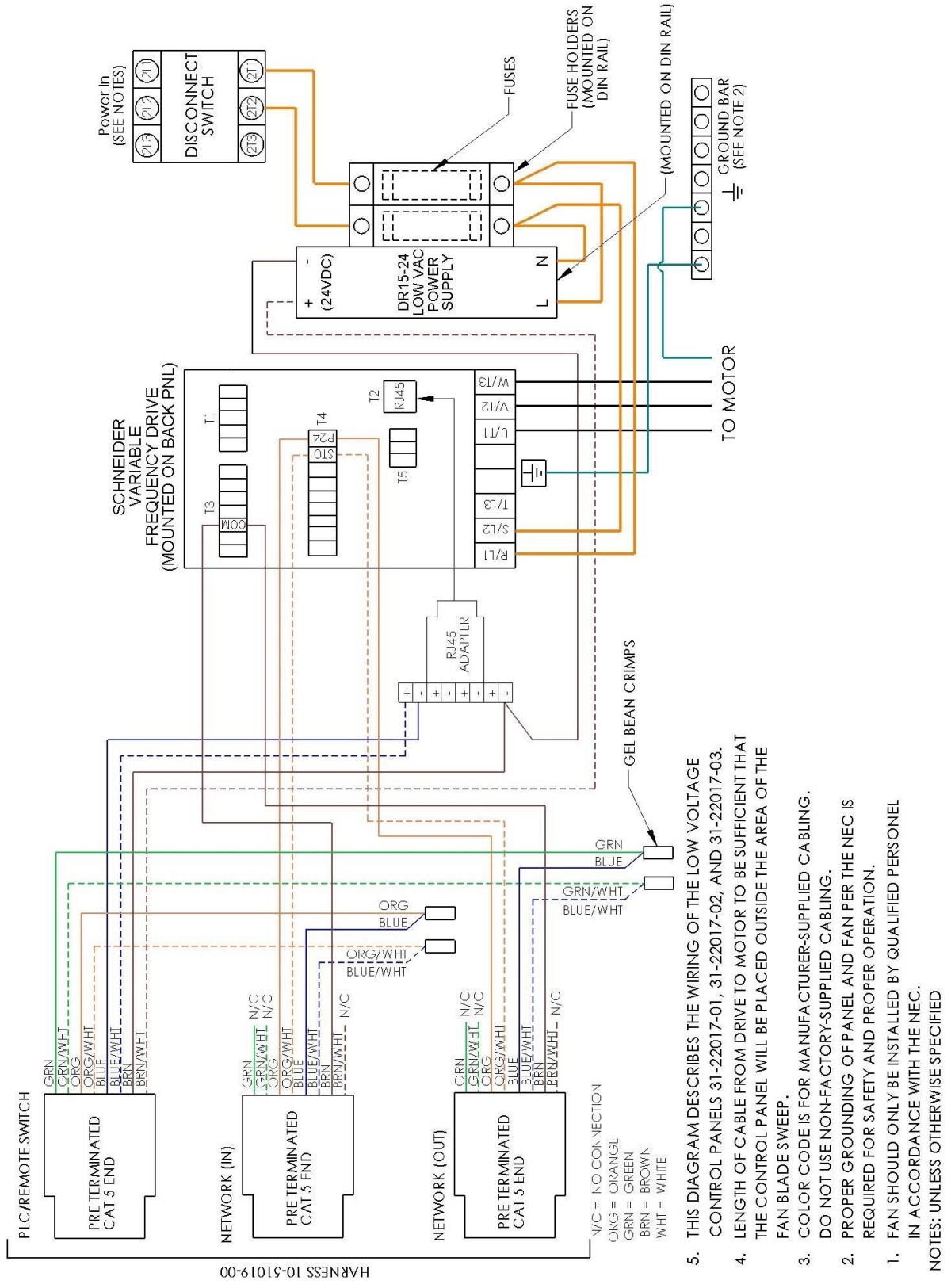
4. THIS DIAGRAM DESCRIBES THE WIRING OF PLC/REMOTE SWITCH PANEL 30-90315-00.
3. LENGTH OF CABLE FROM LOCAL OVERRIDE PANEL TO CONTROL PANEL TO BE 100 FEET OR LESS.
2. COLOR CODE IS FOR MANUFACTURER-SUPPLIED CABLING. DO NOT USE NON-FACTORY-SUPPLIED CABLING.
1. FAN SHOULD ONLY BE INSTALLED BY QUALIFIED PERSONEL IN ACCORDANCE WITH THE NEC.

NOTES: UNLESS OTHERWISE SPECIFIED

Wiring Diagrams

Schneider Control Panel Schematics

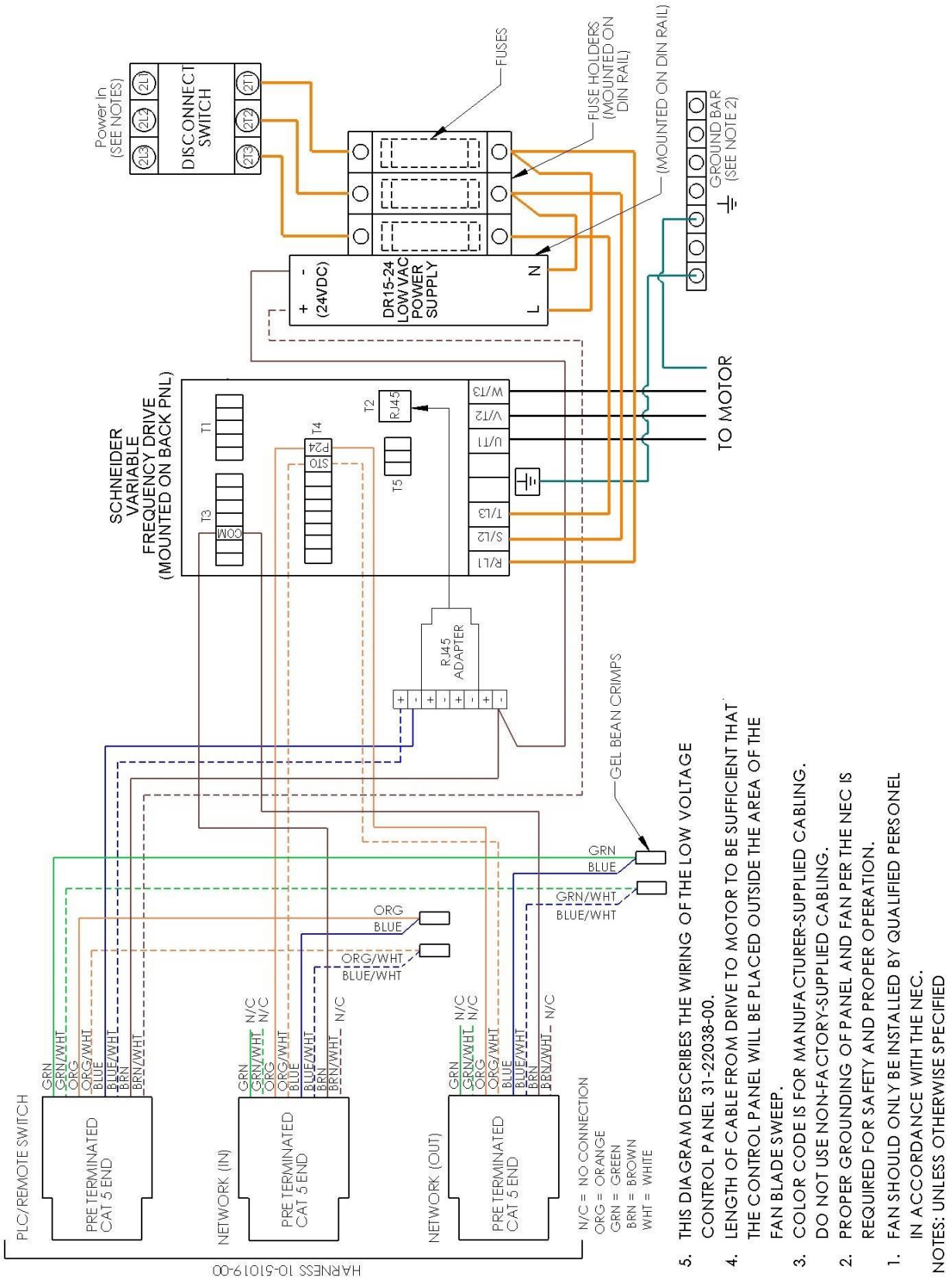
Single Phase (Low Voltage): This control panel schematic supersedes and replaces that found in your fan Operation Manual.



Wiring Diagrams

Schneider Control Panel Schematics, cont.

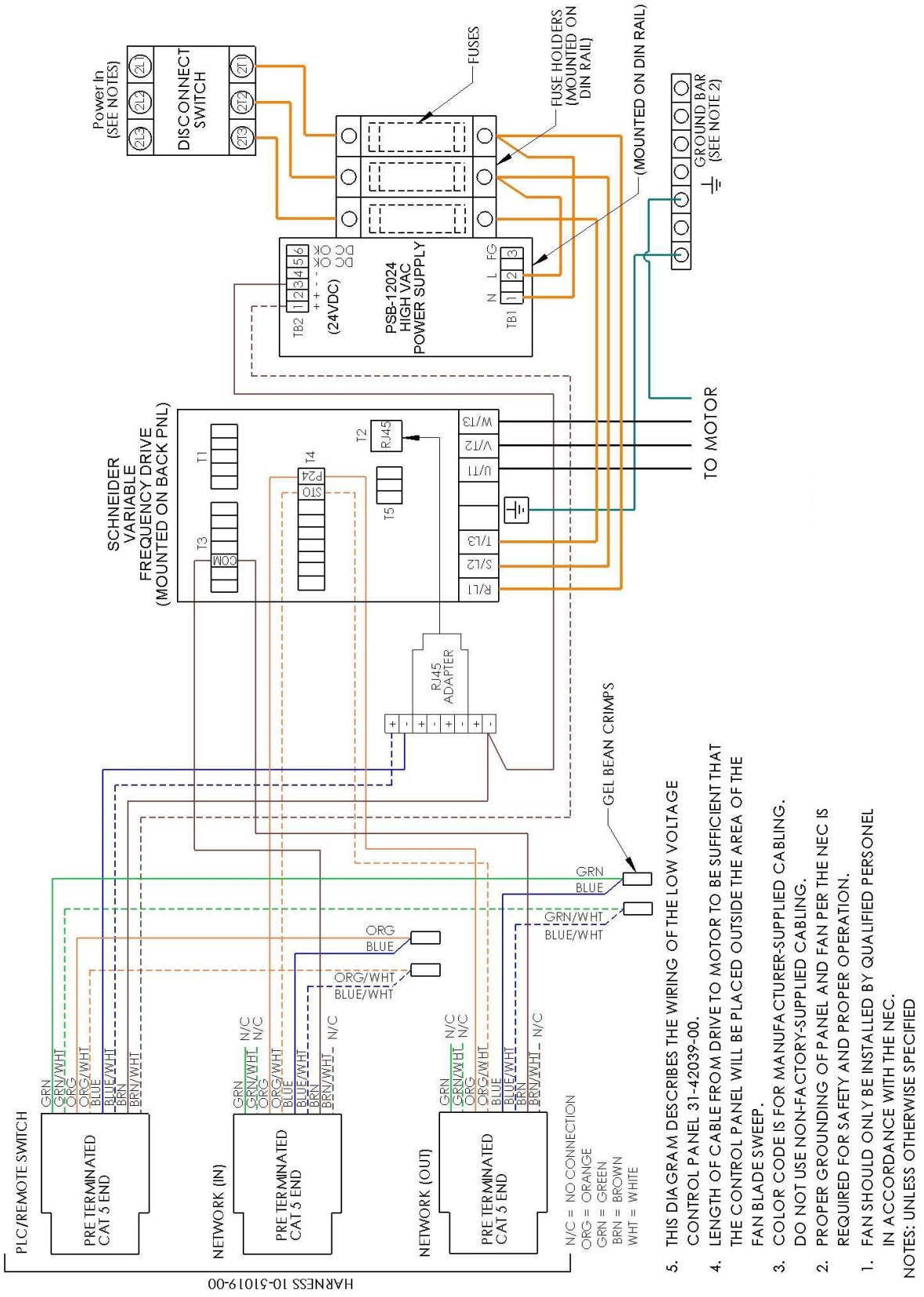
Three Phase (Low Voltage): This control panel schematic supersedes and replaces that found in your fan Operation Manual.



Wiring Diagrams

Schneider Control Panel Schematics, cont.

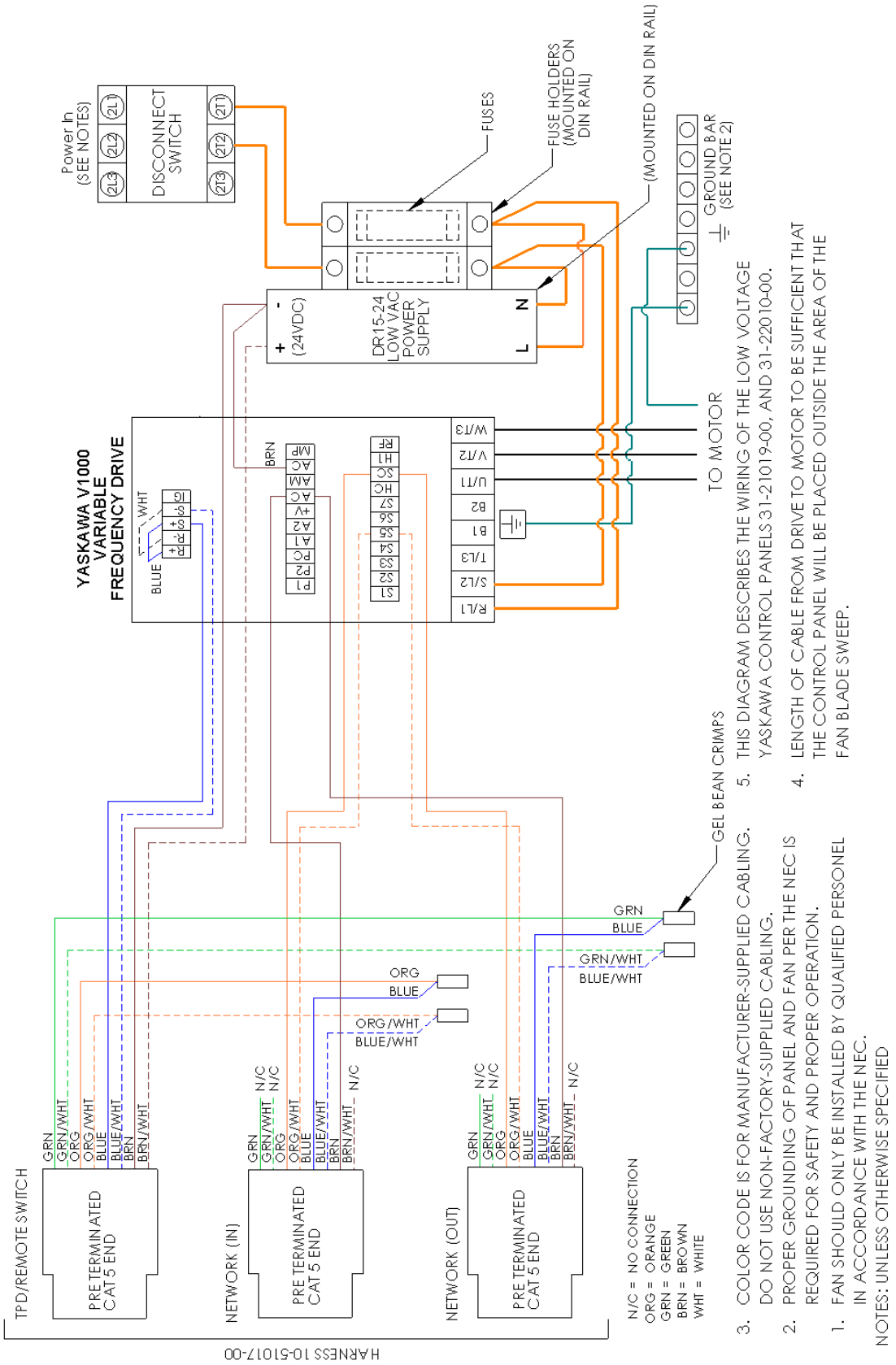
Three Phase (High Voltage): This control panel schematic supersedes and replaces that found in your fan Operation Manual.



Wiring Diagrams

Yaskawa Control Panel Schematics

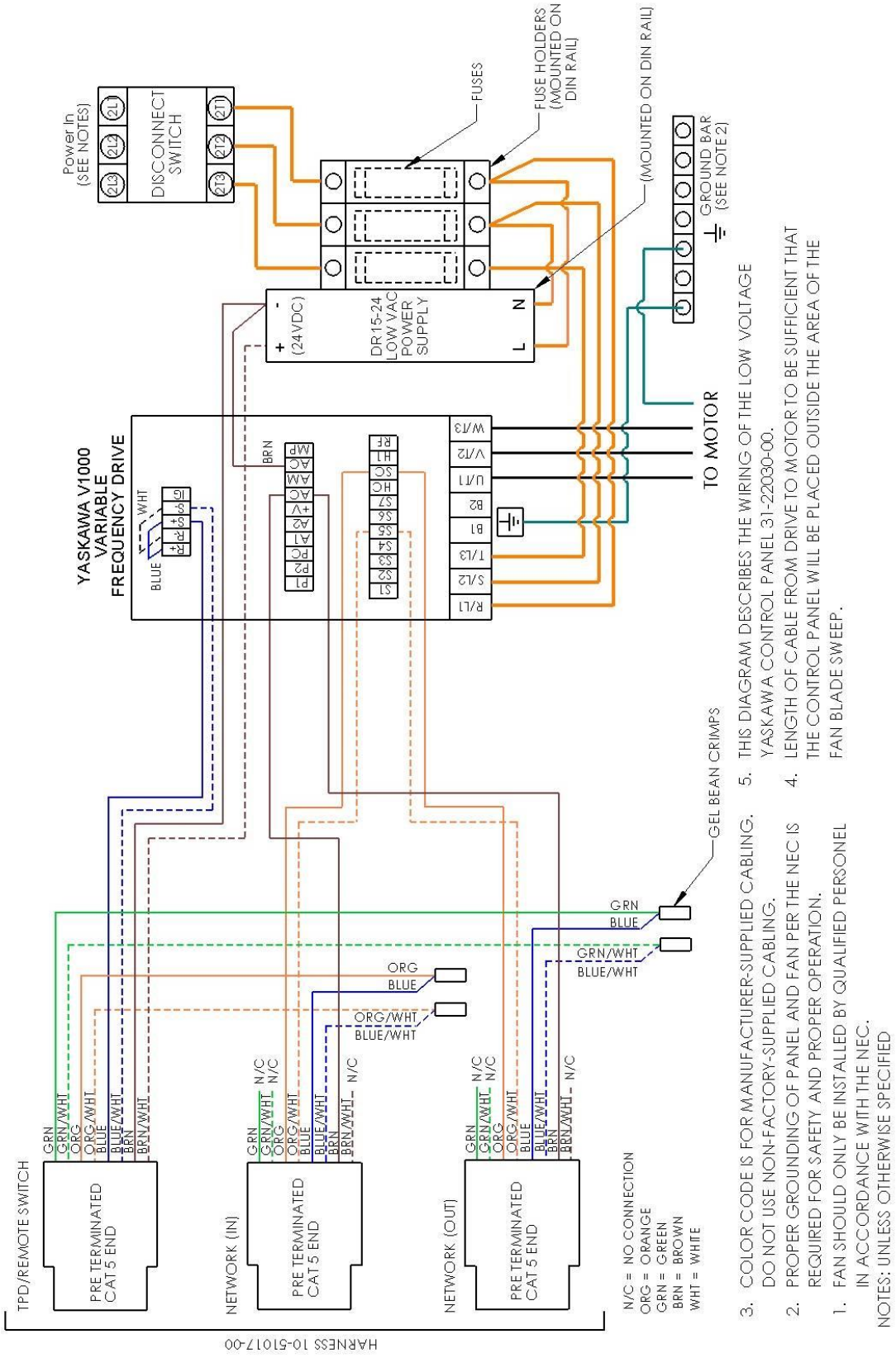
Single Phase (Low Voltage): This control panel schematic supersedes and replaces that found in your fan Operation Manual.



Wiring Diagrams

Yaskawa Control Panel Schematics, cont.

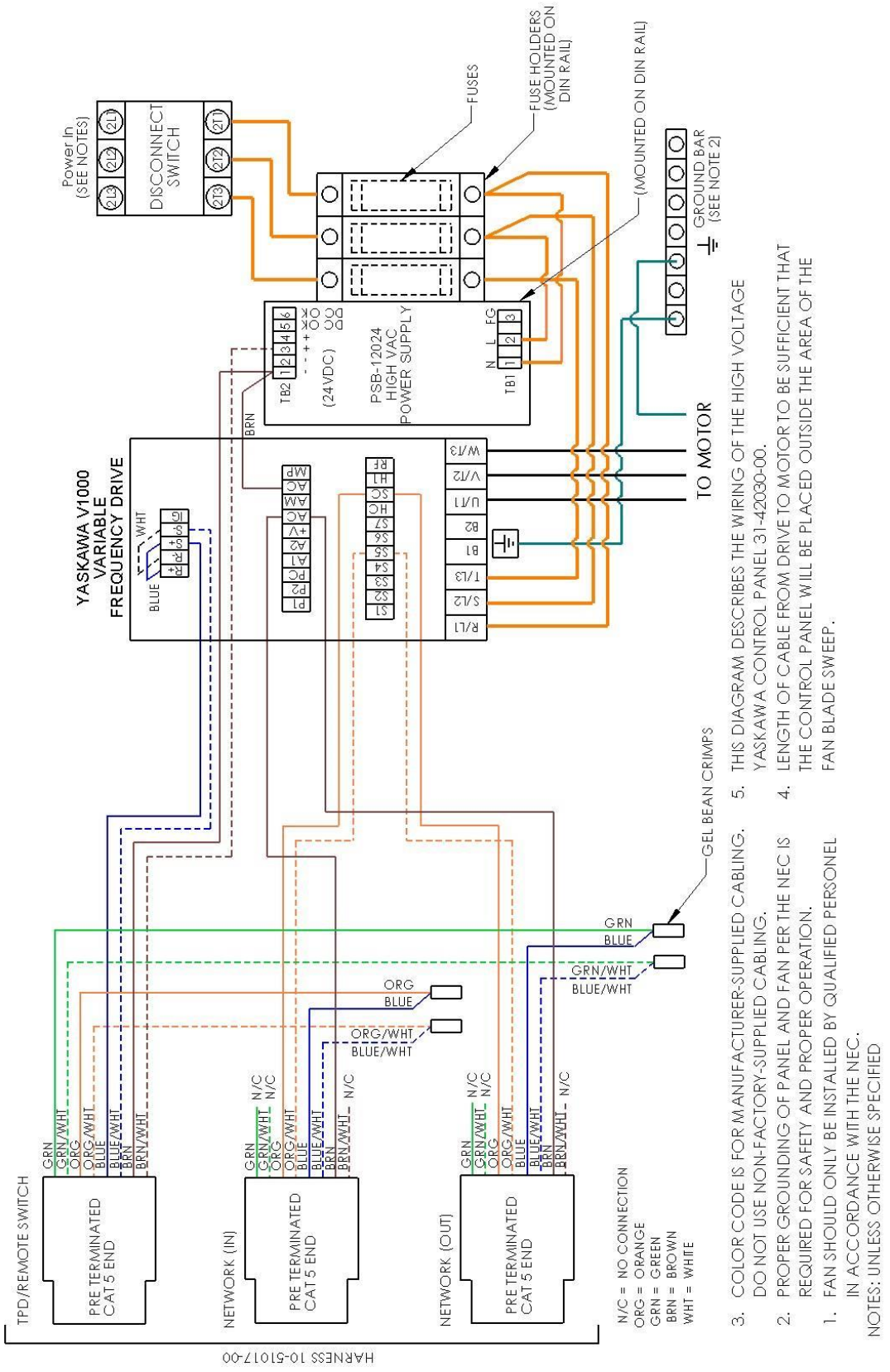
Three Phase (Low Voltage): This control panel schematic supersedes and replaces that found in your fan Operation Manual.



Wiring Diagrams

Yaskawa Control Panel Schematics, cont.

Three Phase (High Voltage): This control panel schematic supersedes and replaces that found in your fan Operation Manual.



Operation

Basic Operation

OFF: To turn off the fan set to FWD (forward) or REV (reverse) with a speed of 0. This will turn the fan off and prevent the BMS from running the fan.

AUTO: When the fan is toggled back to “AUTO” it will resume its last command from the BMS and will start and stop automatically.

AIRLYNK: Refer to the AirLynk manual for information regarding the AirLynk.

FAN: Refer to the fan manual for information regarding the fan.

REMOTE FAIL: If the Local Override Remote fails to operate the fan, check the wiring, and/or check the VFD/V1000 for faults.

Appendices

Warranty

MacroAir warrants the Products listed in the table below will be free from defects in materials and workmanship under normal use and maintenance for the applicable Warranty Period. Other than the Warranty set forth in this document, no other written or oral warranties apply, and no employee, agent, dealer, or other person is authorized to give any other warranties on behalf of MacroAir.

START DATE OF WARRANTY COVERAGE

Warranty Period begins fifteen (15) days following shipment of the Product, or on the date the Product is installed (not to exceed sixty (60) days Customer receives the Product), whichever date is later. Customer should retain necessary documentation to verify the date of receipt and installation of the Product. Customer will be required to produce this documentation in order to obtain Warranty services from MacroAir. The Warranty specified herein applies only to Products purchased on or after April 15, 2021.

PRODUCTS AND SYSTEMS COVERED BY THIS WARRANTY AND APPLICABLE WARRANTY PERIODS:

Fan Type	Mechanical: Blades, Hub & Frame	Standard Electrical[1]: Motor, Electrical Controls, Remote	Labor
AVDX	15 Years	10 Years	1 Year
AirVolution	15 Years	7 Years	1 Year
AirLegacy	15 Years	5 Years	1 Year
AVD3	10 Years	7 Years	1 Year
AVD 370	10 Years	5 Years	1 Year

WARRANTY COVERAGE:

Subject to the exclusions herein, the MacroAir Warranty covers any defects in workmanship or materials of the covered Products under normal operation and prescribed maintenance when those defects adversely affect the ability of the Product to operate properly.[2] The Warranty only covers Products which have been installed in compliance with MacroAir's written installation instructions by a state-qualified or licensed electrical contractor and operated and maintained by the Customer in conformity with MacroAir's written instructions, and when the Product is purchased directly from MacroAir or a MacroAir Authorized Dealer.

This Warranty is subject to all provisions, conditions, limitations, and exclusions explained in this Warranty document.

*Scan QR code or visit macroairfans.com/warranty for full warranty information.

1 "Standard Electrical" means any common electrical component that is utilized across more than one fan line will assume the higher warranty period.
2 "Operate properly" applies only to mechanical, electrical, and structural systems of the Product

Appendices

Technical Support

Thank you for purchasing the Local Override for MacroAir Fans.
Please call MacroAir Fans for Technical Support of the Local Override product.

Support Contact Information:
MacroAir Fans
794 S. Allen Street
San Bernardino, CA. 92408

MacroAir Fans Service:
866-668-3247 option 2
Website: www.macroairfans.com/support

For Installation assistance, application questions, technical support, and any other inquiries, please contact our Technical Support team at (866) 668-3247.

794 South Allen Street
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(866) 668-3247
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