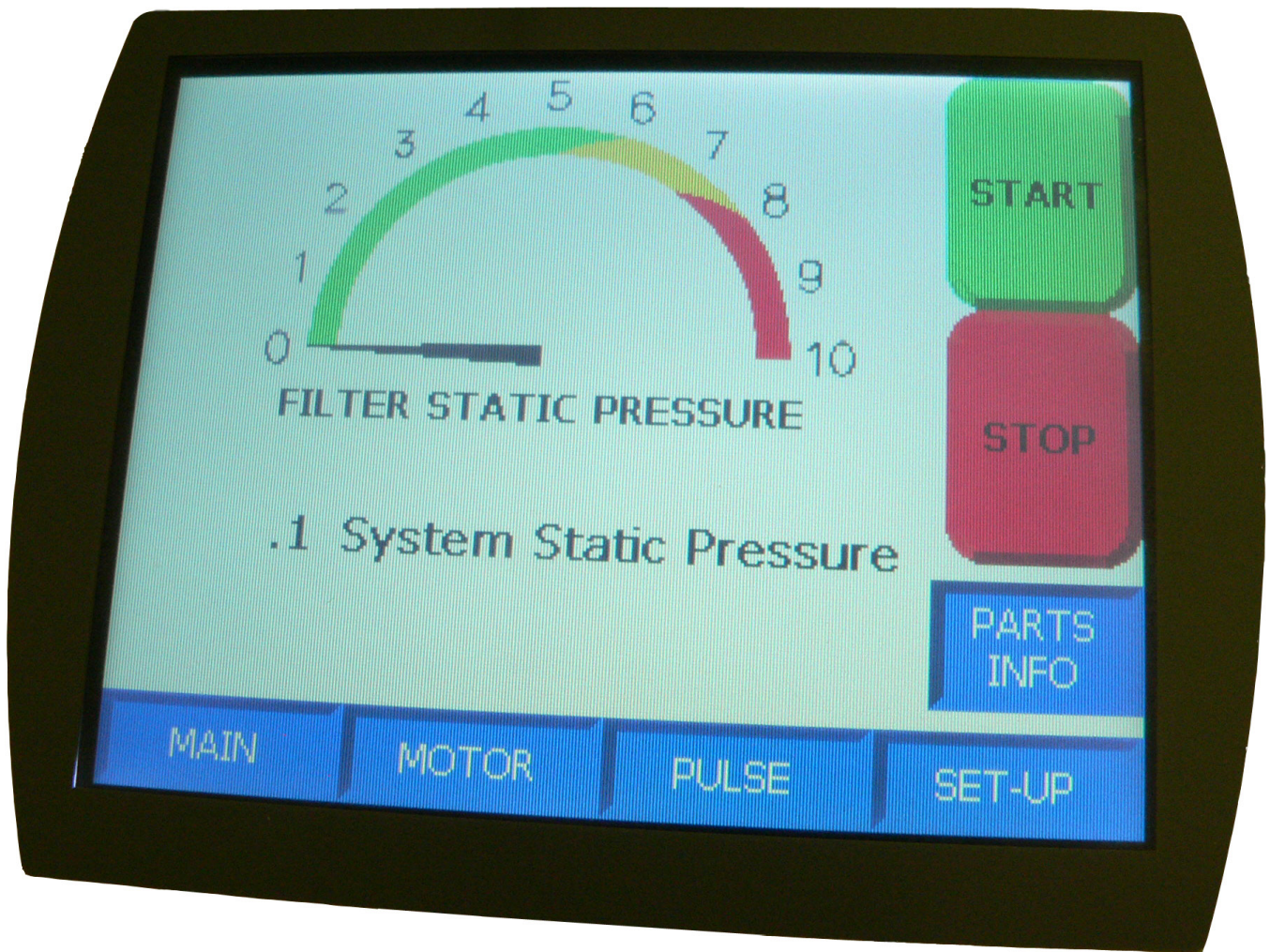




# Intelli-Touch

## Electronic Control System

### Installation and Operation Manual



### Important:

This manual contains specific cautionary statements relative to worker safety. Read this manual thoroughly and follow as directed. It is impossible to list all the hazards of dust control equipment. All persons involved with the equipment or systems should be instructed how to operate in a safe manner.

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**WARNINGS:**

**⚠ All electrical work must be done by a qualified electrician according to local, state and national codes.**

**⚠ CAUTION: Installation can cause exposure to live components. Disconnect electrical power before proceeding with installation. Proper Lock Out / Tag Out procedures should be used.**

**Improper installation or operation of this equipment can cause damage to equipment and / or injury to personnel. The installation/operation manual must be read and followed in its entirety.**

**Do not install on any surface subject to vibration such as equipment or dust collectors without a proper isolating device.**

**The system is not provided with a fused disconnect switch, it is strongly recommended that one be installed upstream of the variable frequency drive.**

**SPECIFICATIONS:**

Input Voltage:	230/460 VAC 3 Phase
Motor:	5 - 150 HP
Frequency Drive:	5 - 150 HP
Max Current:	Dependant on motor/drive

**INSTALLATION:**

1. Inspect components for damage. The components should include all items pictured.
2. Wire the Variable Frequency Drive:
  - a. Check the nameplate on the side of the frequency drive to confirm the voltage rating matches the voltage to be supplied.
  - b. Remove the bottom cover from the front of the unit to expose the electrical connections.
  - c. Connect the output power of VFD (T1, T2, T3) to the motor.
  - d. Connect the incoming power to L1, L2, L3. Ensure that the wires between the incoming power (L1 & L2) and the control box are present.
  - e. Replace the covers.
3. Install the Orifice Plate in the ductwork.
  - a. Select a section of the main trunk line relatively close (within 75 feet) of the collector with a straight run of duct. **\*\*\*The orifice plate shall not be installed in or near an elbow, in a branch of the ductwork, in a reducer, or in the exhaust of the fan.\*\*\*** The unit must have one main duct feed into the unit (it can split into multiple inlets once it has gone through the orifice plate). The readings will be best when placed in a long straight section. Minimum recommended straight sections are 10 diameters before and after the orifice plate. This allows the air to even out inside the duct.
  - b. Cut out a small slice of ductwork, approximately 4 inches wide from the middle of the straight section.
  - c. Slide the orifice plate into that missing section and close the ductwork back over the orifice plate collars.
  - d. Attach the orifice plate to the ductwork with sheetmetal screws. Seal with duct tape or silicone only if the Intelli-Touch will be operated in static mode only.
  - e. Attach the clear plastic tubing to each barb (2) on the orifice plate. The up-stream port should be attached to the “high” pressure port on the orifice transducer and the downstream side should be connected to the “Low” pressure port.
  - f. Run the clear plastic tubing along the ductwork back to the collector. Attach the other end of the tubing to the correct port on the pressure transducer labeled “Orifice”.

4. Turn on power to the unit. This will not start the motor.
5. Press the start button. The unit will start up and run slowly (approximately 25% of full speed).
6. Press the Stop button, and check the blower rotation. The most common method for checking rotation is to observe the motor fan. It should be turning in the same direction as the rotation arrow.
  - a. If the motor is turning in correct direction, no changes are required.
  - b. If the motor is turning in the opposite direction, two leads will need to be changed. Those leads need to be on the wires connected between the motor and the frequency drive. For example swap wires T1 & T2, or T2 & T3, or T3 & T1. Changing power wires on the incoming side of the frequency drive will have no effect. Using the VFD parameters to reverse the direction will cause the controller to operate incorrectly

**SET-UP:**

1. Set-up the Intelli-Touch controls at the touch screen. The system should be powered up and the screen should look similar to FIG 1.

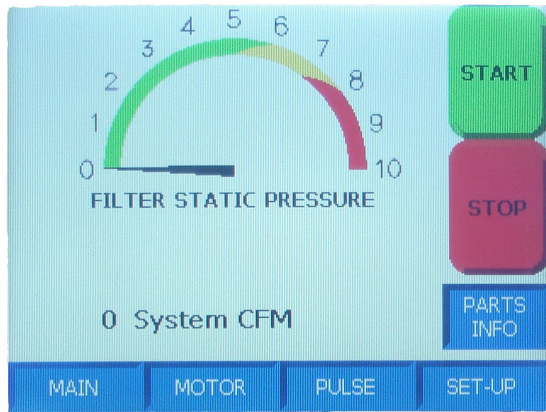


FIG 1

2. Press the button labeled “SET-UP”. Do NOT use sharp instruments that may damage the screen.
3. Select the model of dust collector. Use the arrow up/down keys to scroll through the model list. Press the enter key to select the model. FIG 2.
4. Select the motor on the dust collector. Use the arrow up/down keys to scroll through the motor list. Press the enter key to select the motor. FIG 2.
5. Select the voltage supplied to the dust collector. Use the arrow up/down keys to scroll through the voltage list. Press the enter key to select the voltage. FIG 2.

6. Select the application for the dust collector. Use the arrow up/down keys to scroll through the application list. Press the enter key to select the application. FIG 2.

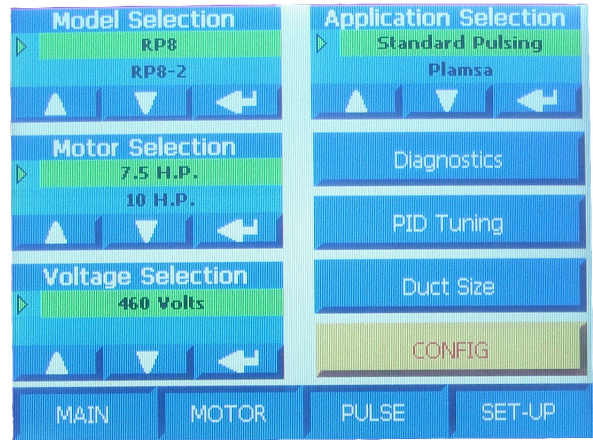


FIG 2

7. Press the button labeled “Duct Size”. FIG 2.
8. Select the duct size of the dust collection system. Use the arrow up/down keys to scroll through the duct size list. Press the enter key to select the duct size. FIG 3.

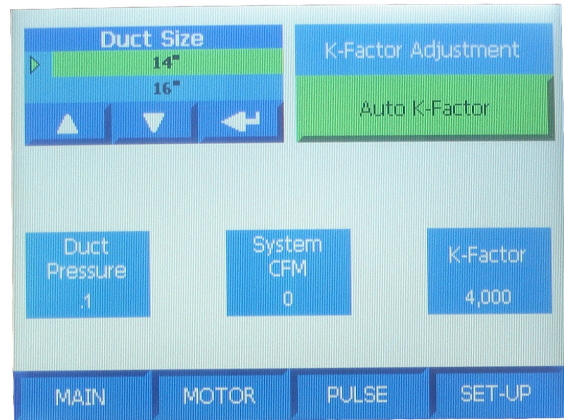


FIG 3

9. Fine tune the orifice plate. Tuning the orifice plate gives the most accurate information available on the display screen. Without tuning the orifice there can be a substantial error in the system CFM displayed.
  - a. Recommended tools:
    - i. Drill
    - ii. Air velocity meter ( if you don't have one contact your local Micro Air distributor).
    - iii. Duct tape.
  - b. Drill two holes in the duct work large enough to allow the meter to measure air flow. Hole placement recommendations would be one on top or bottom and one on the front or the back.

- c. Turn the dust collector on in the “RPM” mode at 80%. If the unit is run in “Static” or “CFM” mode the motor will be constantly changing the air flow in the duct.
- d. Using the air velocity meter, measure the air flow through the duct work. Be sure to measure all the way across the duct. This will need to be done in both directions across the duct. For example from the top to bottom and from the front to back. Record the air flow measurements (minimum 4 points for each direction).
- e. If one section of the ductwork has high velocity air the opposite should have low velocity air. For example if the air speed is highest on the top of the ductwork then the lowest should be at the bottom. Turn the orifice plate so the barbs are located neither at the high velocity section, nor the low velocity section but somewhere in-between. In this example that would be at the front or back of the ductwork.
- f. If the velocity is consistent throughout the ductwork the the orifice platee can be rotated to any orientation.
- g. Lock the orifice plate in place with a minimum of three screws per side. Duct tape or silicone around the seam to seal the ductwork.
- h. Calculate the CFM based on the average velocity measurements. CFM = Average Velocity (in feet per minute) x Area of duct (in square feet).

CFM Example: Let us consider a duct that is 14” in diameter and the readings for velocity are as follows:  
Top to Bottom: (Feet/min)    Front to Back (Feet/min)

- |         |         |
|---------|---------|
| 1. 5000 | 5. 4200 |
| 2. 4400 | 6. 3900 |
| 3. 3400 | 7. 3900 |
| 4. 3000 | 8. 4200 |

Average Velocity = (5000 + 4400 + 3400 + 3000 + 4200 + 3900 + 3900 + 4200) / 8 = 4000 feet/min

Diameter Inches	Diameter Feet	Area Sq. Ft.
6	0.50	0.20
8	0.67	0.35
10	0.83	0.55
12	1.00	0.79
14	1.17	1.07
16	1.33	1.40
18	1.50	1.77

Diameter Inches	Diameter Feet	Area Sq. Ft.
20	1.67	2.18
22	1.83	2.64
24	2.00	3.14
26	2.17	3.69
28	2.33	4.28
30	2.50	4.91
32	2.67	5.59
34	2.83	6.30
36	3.00	7.07
38	3.17	7.88
40	3.33	8.73
42	3.5	9.62
44	3.67	10.56
46	3.83	11.54
48	4.00	12.57

Duct Area = 1.07 square feet

CFM = Average Velocity x Area.

CFM = 4000 feet/min x 1.07 square feet

CFM = 4280.

**Keep this information for calibrating the control**

- i. On the touchscreen main display push the button labeled “SET-UP”. FIG 1.
  - j. Press the button labeled “Duct Size”. FIG 2.
  - k. Record the current K-Factor value. FIG 3.
  - l. Press button labeled “Auto K-Factor”, the button will change to “Manual K-Factor and activate a green button where the K-Factor value was displayed. FIG 3.
  - m. Press the green button where the K-Factor value was displayed. This will bring up a calculator style entry menu. Enter a new K-factor into the system. Use a lower number than the recorded value from step k if the CFM display is higher than the calculated CFM from step h. Use a higher number than the recorded value from step k if the CFM display is higher than the calculated CFM from step h. This may take several attempts to get the display value to match the calculated value. FIG 3
  - n. Turn the dust collector off.
10. Select the mode of operation. Press the button labeled “MOTOR”. **Note: if the dust collector is to be operated in “Static” mode the clear plastic hose on the high pressure port of the orifice transducer must be removed.**

- a. Press the button along the top corresponding to the mode of operation that is desired. This will bring up a calculator style entry menu. Enter the desired set point. FIG 4.
- b. Press the selector dial until the desired mode is shown on it. FIG 4.
- c. Press start. FIG 4.

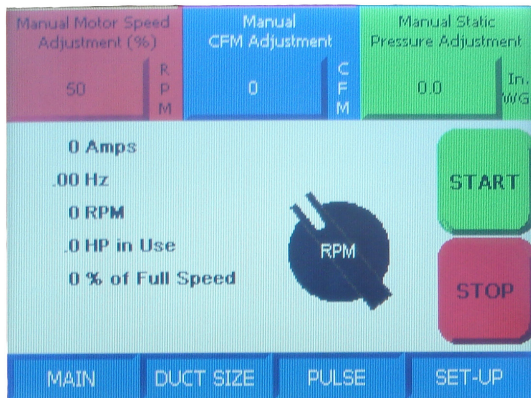
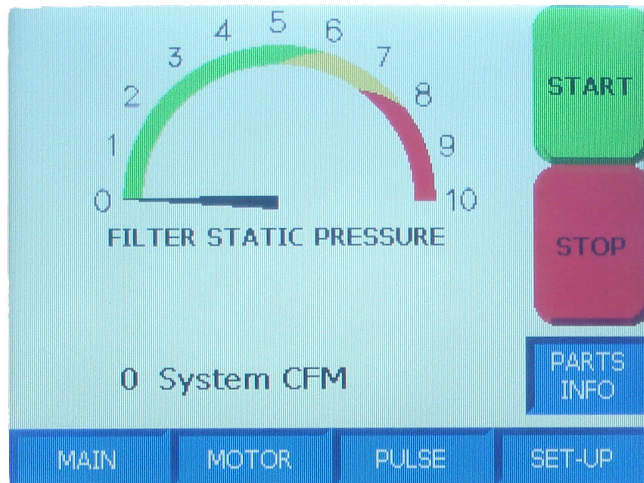


FIG 4

### Optional Inputs / Outputs:

1. E-Stop Input (I/1):  
Allows for wiring a NC (normally closed) dry contact. When the contact is opened the motor and pulsing is immediately stopped. The dust collector will not restart automatically upon re-closure of the contact. Restart requires contact closure and manually stopping and starting again at the touch-screen.
2. Remote Start / Stop Input (I/0):  
Allows the unit to be supplied a 24 VDC signal to work in parallel with the touch-screen controls for starting and stopping the dust collector. When the input is energized the unit will start and run, when the input is de-energized the unit will stop.
3. Motor Running Output (O/0):  
Energizes an output with 24VDC when the motor is running.
4. Filters Dirty Output (O/1):  
Energizes an output with 24VDC when the static pressure across the filters reaches 7 in. W.C.

**Detailed information can be found on each function of the Intelli-Touch in the following sections.**



### Filter Static Pressure:

The gauge shows the static pressure across the filters in in. W.C. (inches water column). As the filters become more loaded with particulate the needle will move around the colored/numbered section to visually show the static pressure.

### Start / Stop:

The green start button is used to start the motor/blower. This also activates the pulsing sequence. The red stop button is used to shut down the motor/blower. This will terminate the power going from the drive to the motor; however the motors are not equipped with a brake. Therefore the motor will need to wind down to a stop, and may take a few minutes before completely stopping.

### System CFM:

This is the total air flow in the ductwork as measured in cubic feet per minute (CFM). CFM and static pressure drop are the two most important pieces of information when determining the life of your filters. By maintaining the proper CFM for your application the unit will be better able to clean the filters and maintain performance for an extended period of time. The CFM is determined with measurements from the orifice plate. Those measurements are read in by the pressure transducer labeled orifice and converted to CFM for the display. This information will not be displayed if the mode of operation is "Static".

### System Static Pressure:

This is the differential pressure between atmospheric pressure and duct pressure as measured in inches water column (in. W.C.). The system static pressure is determined with measurements from the orifice plate. Those measurements are read in by the pressure transducer labeled orifice. This information will not be displayed if the mode of operation is "CFM" or "RPM".

### Motor:

The Motor button takes you to the motor screen. It displays information about the operation of the dust collector motor.

### Pulse:

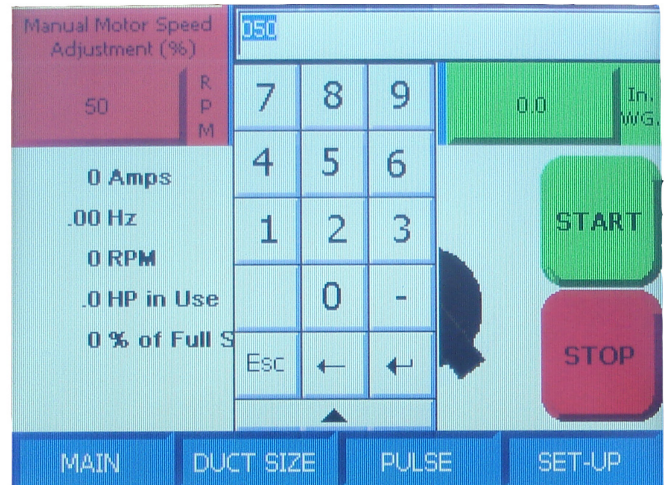
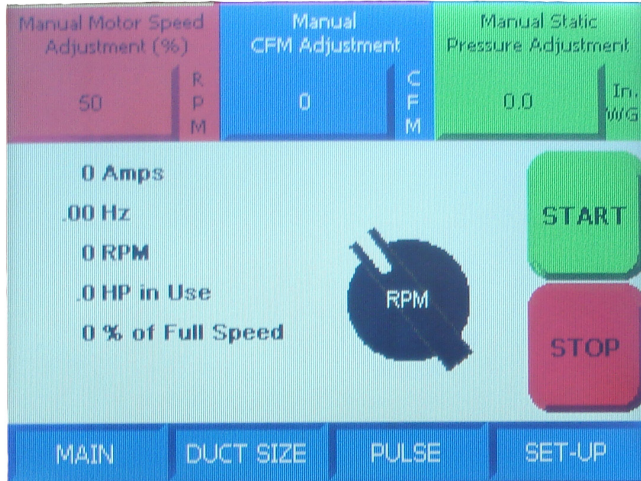
The Pulse button takes you to the pulse screen. It displays information about the operation of the Roto-pulse system.

### Set-up:

The Set-Up button takes you to the set-up screen. It displays information about the system set-up.

### Parts Info:

The Parts Info button takes you to the parts info screen. It displays information about replacement filters and parts.



**Mode Selector:**

The mode selector switch allows the user to select between the three modes of air flow control. The three modes are RPM, CFM and Static. Each mode can be used for controlling the motor speed / air flow with each method having its own advantages. Pressing the button labeled RPM above will toggle through the three modes of operation.

**Manual Motor Speed Adjustment % (RPM Mode):**

The motor speed is directly controlled by the user. The RPM is set through a pushbutton located in the manual motor speed adjust section of the screen. When pushed the button will bring up a calculator like entry screen, and the user should select a value between 0 and 100 (0-100%). By changing the value the user changes the air flow through the ductwork, and the unit. This method can be used to set the unit at a specific speed in order to get a specific cost savings in electricity. Once set the motor will maintain a constant RPM regardless of static pressure (loading) of the filters. Therefore as time goes by and the filters load up the air flow will decrease. Once air flow decreases the user can manually increase the motor speed to increase the air flow.

Example:

- 100 = 100% of full speed (3450 RPM)
- 75 = 75% of full speed (2588 RPM)
- 50 = 50% of full speed (1725 RPM)

**Note: RPM mode does not require that the orifice plate be installed to operate; however the orifice plate is required for display of CFM on the screen and both the high and low taps must be attached to the orifice transducer.**

**Manual CFM Adjustment (CFM Mode):**

This mode of control monitors the air flow through the orifice plate and adjusts the motor speed to keep that flow constant. As more restriction is added to the system, the motor speeds up to keep the air flow constant. This allows the user to maintain a specific air flow across the filters regardless of how clean or loaded the filters become, within the limits of the motor/blower installed. When running in CFM mode the motor is able to run at greater than 100% RPM and can continue speeding up until the full load amps (FLA) of the motor is reached. The CFM is set through a pushbutton located in the manual CFM adjust section of the screen. When pushed the button will bring up a calculator like entry screen, and the user should select a value based on the motor/blower sizing. By changing the value the user changes the air flow through the ductwork, and the unit.

**Note: In order to use CFM mode the orifice plate must be installed in the ductwork with both the high and low taps attached to the orifice transducer.**



## **Manual Static Pressure Adjustment (Static Mode):**

This mode of control works in reverse of the CFM mode. As static pressure increases in the ductwork, the motor slows down to lower the static drop. This would be used in applications such as multiple source capture arms or slide gates. Under ideal conditions it would maintain the same air flow at each station; however depending on ducting the separate stations will vary. If some slide gates are closed, causing higher static drop in the ductwork, the motor slows down to decrease the air flow. Therefore the static drop goes back down. If the gate is opened the static decreases and the motor speeds up. The Static is set through a pushbutton located in the manual static pressure adjust section of the screen. When pushed the button will bring up a calculator like entry screen, and the user should select a value of inches water column that is needed in the duct.

**Note: In order to use Static mode the orifice plate must be installed in the ductwork with the low pressure tap attached to the orifice transducer low pressure port. Remove the tubing from the high pressure port of the transducer.**

## **Start / Stop:**

The green start button is used to start the motor/blower. This also activates the pulsing sequence. The red stop button is used to shut down the motor/blower. This will terminate the power going from the drive to the motor; however the motors are not equipped with a brake. Therefore the motor will need to wind down to a stop, and may take a few minutes before completely stopping.

## **System Display:**

This is the area of the screen along the far left side. It displays operational data about the motor including; amps, hertz, RPM, horse power in use and percent full speed. Amps is a meter of power the motor is using, and is a real time measurement. Programming in the controls will not allow the amp draw to exceed the motor rating. Hertz is the frequency being output by the Variable Frequency Drive to the motor. Under normal operation without a frequency drive, the motor would operate at 60 Hz. RPM is a real-time measurement of how fast the blower is rotating. HP in use is the actual power required to turn the blower at current operating conditions.

## **Accelerating/Running/Decelerating:**

This indicator will update to show if the motor is accelerating, running at a constant speed, or decelerating.

## **Motor:**

The Motor button takes you to the motor screen. It displays information about the operation of the dust collector motor.

## **Duct Size:**

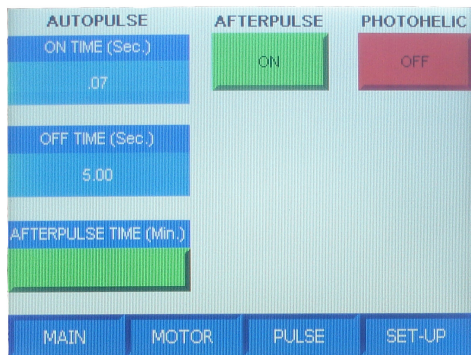
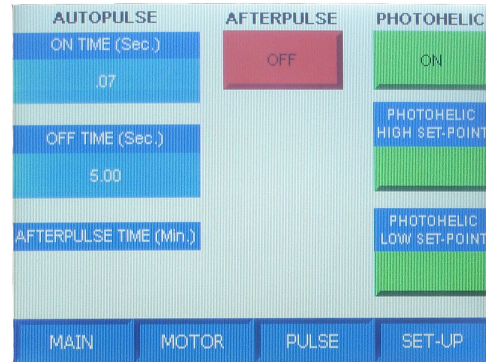
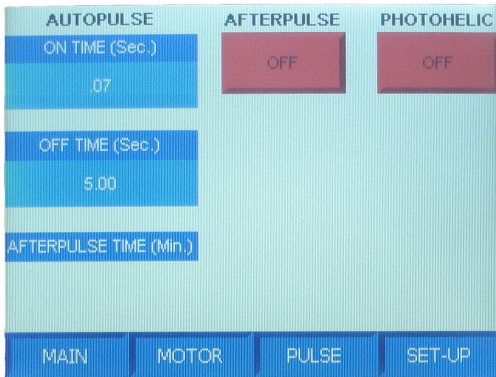
The Duct Size button takes you to the duct size screen. It displays information about the operation of the dust collector including system static pressure and system CFM. Additionally there is an interface for adjusting the K-factor used in calculating system CFM.

## **Pulse:**

The Pulse button takes you to the pulse screen. It displays information about the operation of the Roto-pulse system.

## **Set-up:**

The Set-Up button takes you to the set-up screen. It displays information about the system set-up.



**On Time:**

The duration of pulse time; the amount of time, in seconds that the solenoid valve is open allowing air to flow from the compressed air supply into the Roto-Pulse. The standard time for this setting is 0.07 seconds, but can be varied if the application selection is “Custom” (Set-Up Screen). When the application selection is set to custom, a green button will be activated for user entry.

**Off Time:**

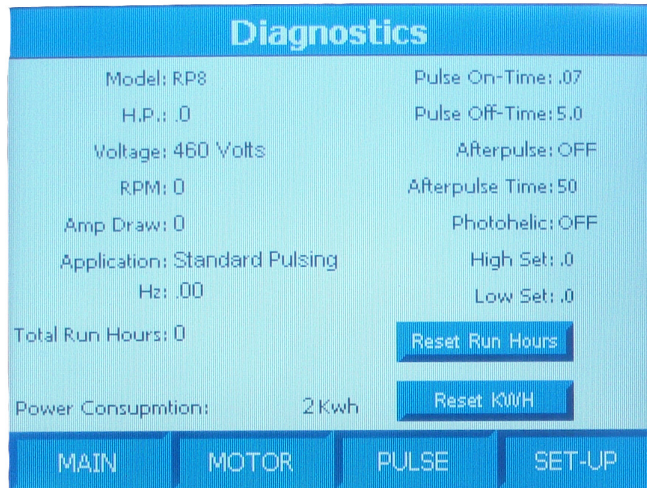
The delay of time between pulses; the amount of time, in seconds that the solenoid valve is closed. When the valve is closed the corresponding Roto-Pulse assemblies are not pulsing. The standard time for this setting is 5.00 seconds, but can be varied if the application selection is “Custom” (Set-Up Screen). When the application selection is set to custom, a green button will be activated for user entry.

**After Pulse Time:**

The length of time, in minutes that the unit will continue to pulse after the motor is shut off. During this time the filters are being cleaned without incoming air, thus providing the best cleaning possible. It is recommended that the after pulse be set at the highest practical value for the installation. The standard time is 30 minutes. It can be adjusted with the green pushbutton after the afterpulse is enabled.

**Photohelic:**

When this button is enabled buttons for the high set-point and low set-point will be activated. These set-points change the values used to determine when the unit will pulse. A Photohelic is a simple mechanism to prevent the collector from cleaning when the filters are new in order to build up a filter cake, and then turn the pulsing on to keep the filters from getting too restrictive. The high set-point is the static restriction in the filters that must be reached before the pulsing is turned on. If the static pressure is above this value, the pulsing will continue indefinitely. The low set-point is the static restriction in the filters that will disable the pulsing until the high set-point is reached again.



The diagnostics screen is an information only screen and is accessed through the system set up screen. It displays many of the settings that are set on other sections of the control panel.

### Units of Measurement:

- H.P. = Horespower
- Voltage = Volts
- RPM = Revolutions Per Minute
- Amp Draw = Amps
- Pulse on time = seconds
- Pulse off time = seconds
- Afterpulse time = minutes
- High set = inches water column
- Low set = inches water columnm

### Total Run Hours:

Accumulates the time the motor has been powered up. This may not be set at zero when new, since the unit was test run at the factory.

### Reset Run Hours:

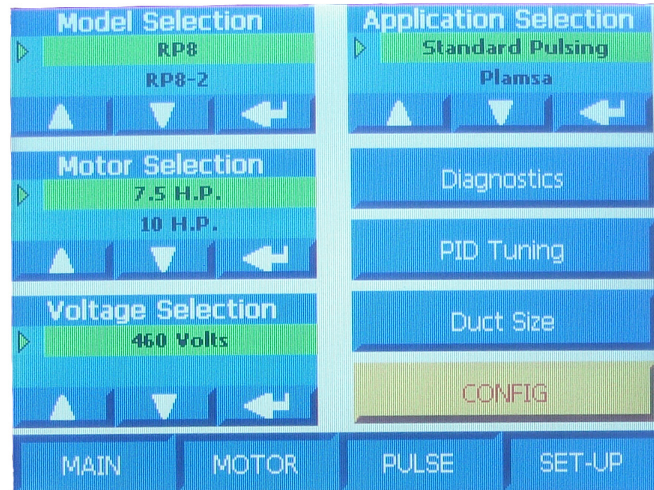
This button resets the cumulative hour counter back to zero.

### Power Consumption:

Tracks the amount of electrical power the unit has used since the last time it was reset. This value can be used to track power consumption savings over a given period of time.

### Reset KWH:

This button resets the cumulative Kwh (kilo-watt hour) counter back to zero.



**Model Selection:**

A scrolling menu that sets the number of outputs that will be used. The outputs determine how many valves will be in use on the collector. Any RP series dust collector RP2 through RP8-5 may be selected, as well as no pulsing. If the model is set incorrectly, it will adversely effect the pulsing. If the model is set too low (RP4 instead of RP8) not all of the valves will pulse, therefore not all of the filters will be cleaned. If the model is set too high then there will be a delay while the PLC pulses valves that do not exist. In order to set the model correctly, follow the table below:

Quantity of filters	Model Selection
2	RP2
4	RP4
6	RP6
8	RP8
12	RP6-2
16	RP8-2
18	RP6-3
24	RP8-3
32	RP8-4
40	RP8-5

If the pulsing needs to be disabled, then select the no pulsing option. This will disable all the valve outputs.

**Motor Selection:**

A scrolling menu that selects the motor horsepower that has been installed. This DOES NOT change the capacity of components to allow the user to increase/decrease the horsepower. By setting this information at the time of install, the user can find the motor size on the diagnostic screen. This may help in trouble shooting at a later date and is used in some internal calculations.

**Voltage Selection:**

A scrolling menu that selects the voltage used in their installation. \*\*\* NOTE: THE OPERATOR CAN NOT USE THIS TO CHANGE VOLTAGE FROM WHAT WAS ORDERED. \*\*\* The components in use (Variable Frequency Drive, transformer, power supply) are specific to the voltage ordered. Selecting a voltage other than what was ordered will not damage components, but cause some calculations to return erroneous values.

## Application Selection:

A scrolling menu that sets pulse on and off time based on the selected application. The pre-defined settings are in seconds and follow the table below:

Application	On-time	Off-Time
Standard	0.07	5.0
Plasma/Laser	0.10	3.5
Welding	0.10	4.0
Light	0.05	10
Custom	Set by user in pulse screen	Set by user in pulse screen
Progressive	Varies based on static drop across filters	Varies based on static drop across filters

- Standard:** This is the setting used on all Micro Air dust collectors with normal factory preset values. It is the most common setting to be used in a wide variety of applications.
- Plasma/Laser:** This is the suggested setting for use with any plasma or laser cutting table. The duration of pulse is increased and the off time interval is decreased to clean the filters more frequently. Note: this requires more compressed air than the Standard mode.
- Welding:** This is the suggested setting for use with any heavy welding application. The duration of pulse is increased and the off time interval is decreased to clean the filters more frequently. Note: this requires more compressed air than the Standard mode.
- Light:** This setting is for use in applications where the loading is considered light. This will decrease the duration of pulse as well as increase the off-time interval. Note: this will require less compressed air than the standard mode.
- Custom:** This setting allows the user to modify the on-time and off-time manually. Selecting custom will not change the current set times; it will however unlock the pulse time settings on the pulse screen. If any other application is in use, those settings will not be available to be modified.
- Progressive:** This setting allows the control to monitor the static pressure across the filters and increase/ decrease the off-time accordingly. By allowing the control to determine the pulsing needs, the filters will pulsed more often when the filters get loaded and less often when the filters are clean. When the filters are clean the overall compressed air consumption will be significantly less, when the filters are loaded the compressed air consumption may be higher than standard.

## Diagnostics:

The diagnostics button takes you to the diagnostics screen. It displays information about the operation of the dust collector.

## PID Tuning:

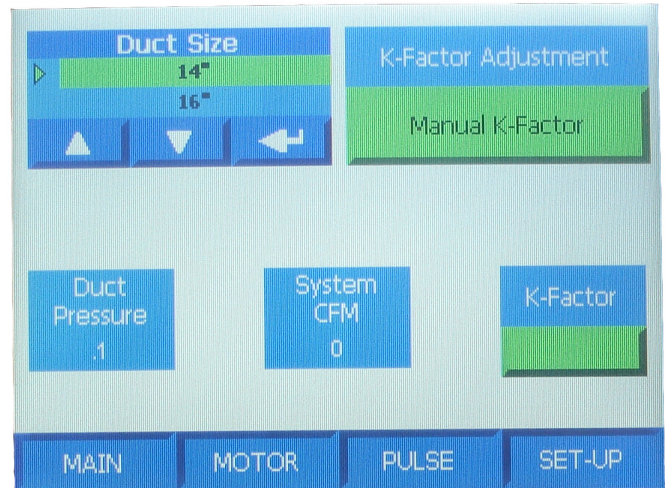
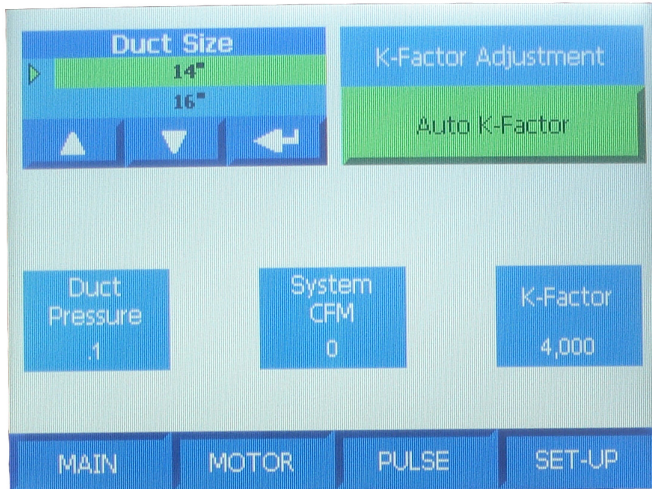
The PID Tuning button takes you to the PID tuning screen. It allows for dialing in PID control values for operation when in the Static or CFM mode.

## Duct Size:

The Duct Size button takes you to the duct size screen. It displays information about the operation of the dust collector including system static pressure and system CFM. Additionally there is an interface for adjusting the K-factor used in calculating system CFM.

## CONFIG:

The config button takes you to the HMI (touchscreen) shell menu. You should NEVER access this without factory trained support.



**Duct Size:**

A scrolling menu that selects the size of the ductwork in the main trunk line of the dust collector. This information is used in several calculations.

**K-Factor Adjustment:**

To further refine the CFM value, you can directly adjust the K-Factor. Pressing the green, Auto K-Factor button will activate a pushbutton that will bring up a calculator like entry screen. If the CFM displayed is higher than actual CFM (see set-up instructions), a lower K-Factor needs to be entered. If the CFM displayed is lower than actual CFM, a higher K-Factor needs to be entered.

**Duct Pressure:**

Displays the system static pressure (at the orifice plate) in real time. In RPM and CFM modes it shows the pressure drop across the orifice plate. In Static mode it shows the differential pressure between the duct and atmospheric.

**System CFM:**

Displays the system CFM in real time when operating in RPM and CFM modes. When operating in static mode the reading will not be accurate and should be disregarded.

CFM MODE				STATIC MODE			
Ramp Speed Control		Tuning Control		Ramp Speed Control		Tuning Control	
200	Large Error	2.0	Kc	500	Large Error	2.0	Kc
100	Small Error	1.3	Ti	100	Small Error	1.3	Ti
50	Timer	.01	Td	50	Timer	.01	Td
Reset to Factory Default				Reset to Factory Default			
MAIN		MOTOR		PULSE		SET-UP	

The PID tuning screen sets the variables that control the rate of ramp up and down when in CFM and Static modes, as well as how tightly the system will hold to the setpoint. The Ramp speed controls are for adjusting the amount of time that a unit takes to reach the setpoint. The Tuning controls are for adjusting how well the system sticks to the setpoint without oscillation in the motor.

## Ramp Speed Control:

**Large Error:** Controls when to add 1 Hz. to the gain for each increment of timer. The control uses system status and a setpoint on a scale of 0-16383 to compare the values. If the difference between the system status and setpoint is more than the large error the controller will add or take away from the VFD output to more quickly reach the setpoint. By increasing the large error the control will stay in the ramp operation less time. By decreasing the large error the control will stay in the ramp operation more time.

**Small Error:** Controls when to put the PID loop into automatic operation and use the tuning controls. The control uses system status and a setpoint on a scale of 0-16383 to compare the values. If the difference between the system status and set point is less than the small error the controller will put the PID loop into automatic mode and use the tuning control values. By increasing the small error the control will leave the ramp operation more quickly. By decreasing the small error the control will stay in the ramp operation more longer.

**Timer:** Controls how often 1 Hz. is added to the VFD output when in the ramp operation. With the factory default the dust collector will take one minute to go from stop to full speed.

## Ramp Speed Control:

Kc (Gain):

Ti (Reset):

Td (Rate):

**Replacement Part Numbers:**

<b>Part Number</b>	<b>Part Description</b>
P7010	Filter Transducer
P7011	Orifice Transducer
P7012	Resistor
P7013	3 Amp Fuse
P7016	Power Supply (24VDC)
P7017	Touchscreen
P7018	PLC
P7020	PLC 8 Output Module
P7021	PLC 16 Output Module
P7022	Solenoid Output Relay
P7023	Solenoid Output Base

<b>Part Number</b>	<b>Voltage</b>	<b>Drive Size</b>
P7039	230	5 HP
P7040	230	7.5 HP
P7041	230	10 HP
P7042	230	15 HP
P7043	230	20 HP
P7044	230	25 HP
P7045	230	30 HP
P7046	230	40 HP
P7047	230	50 HP
P7025	460	5 HP
P7026	460	7.5 HP
P7027	460	10 HP
P7028	460	15 HP
P7029	460	20 HP
P7030	460	25 HP
P7031	460	30 HP
P7032	460	40 HP
P7033	460	50 HP
P7034	460	60 HP
P7035	460	75 HP
P7036	460	100 HP
P7037	460	125 HP
P7038	460	150 HP

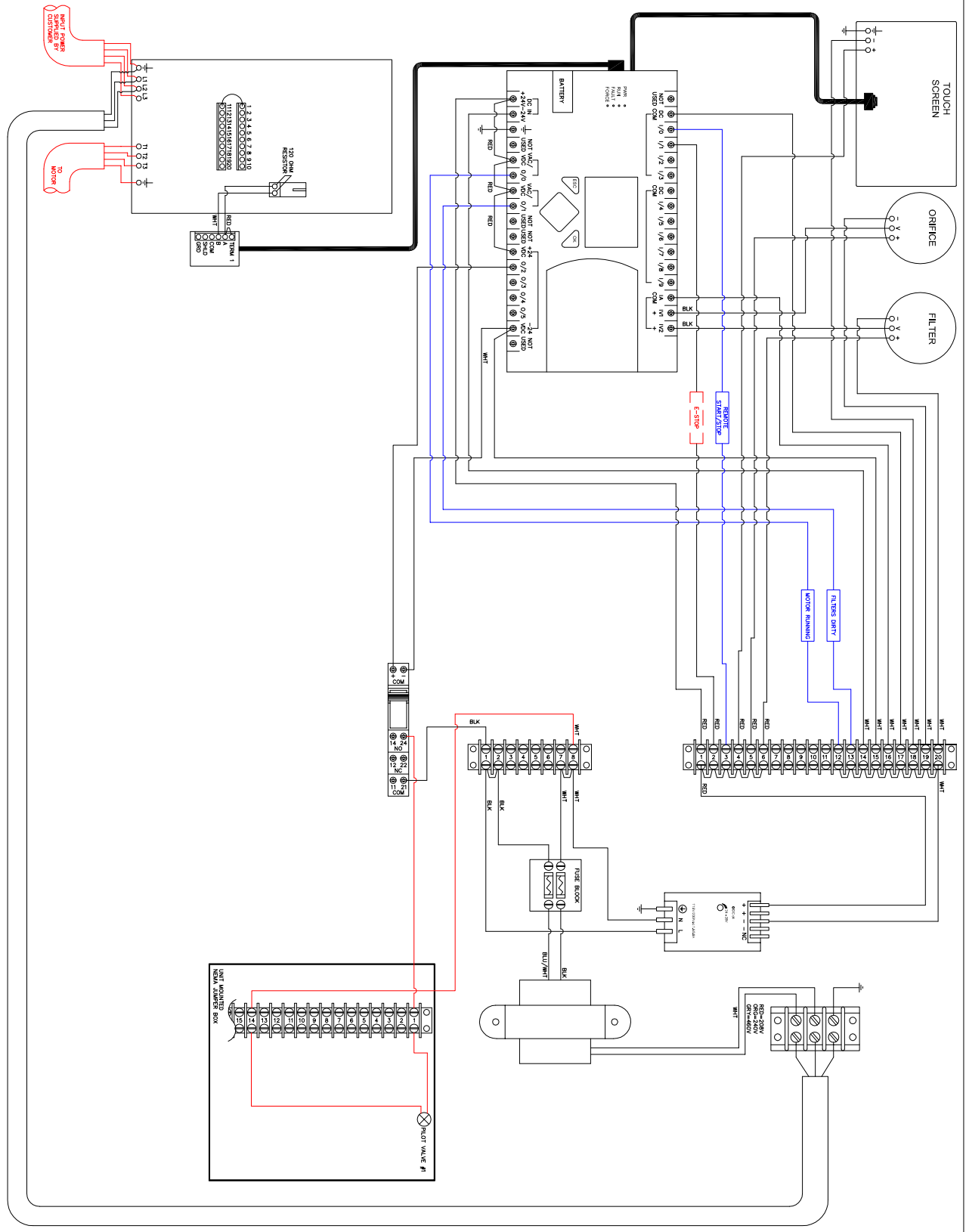


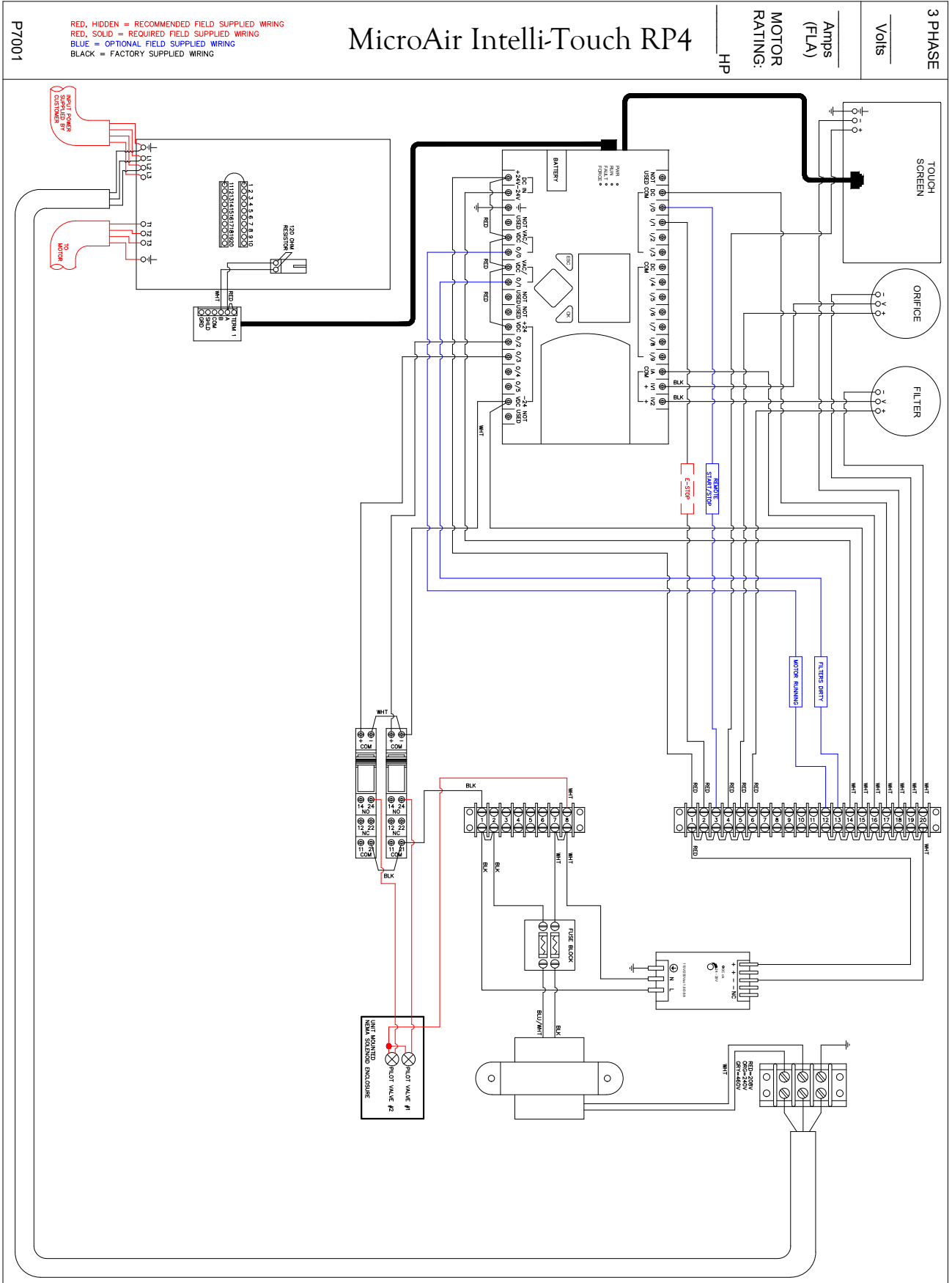
# MicroAir Intelli-Touch RP2

P7000

RED, HIDDEN = RECOMMENDED FIELD SUPPLIED WIRING  
 RED, SOLID = REQUIRED FIELD SUPPLIED WIRING  
 BLUE = OPTIONAL FIELD SUPPLIED WIRING  
 BLACK = FACTORY SUPPLIED WIRING

3 PHASE
Volts
Amps (FLA)
MOTOR RATING: HP



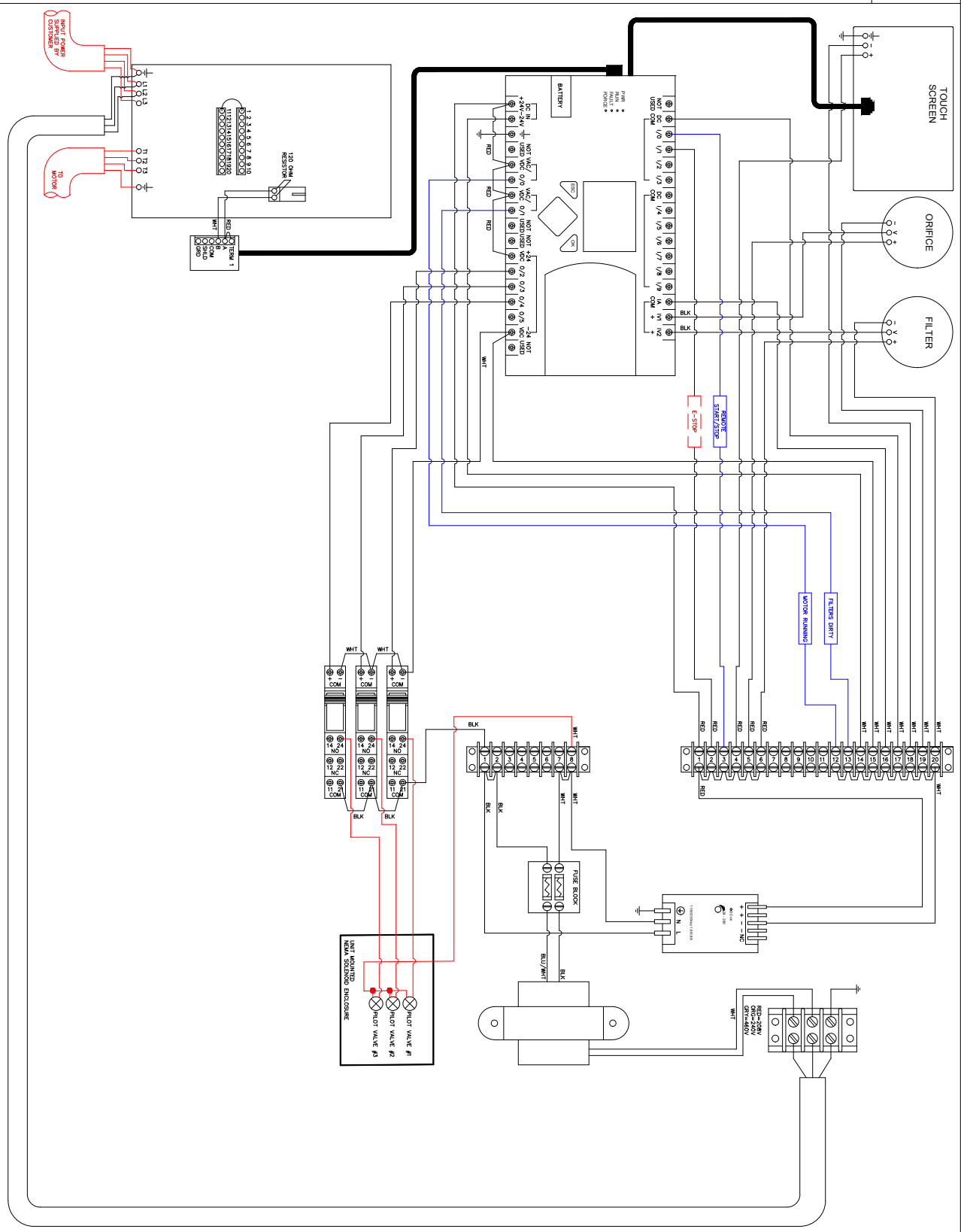


# MicroAir Intelli-Touch RP6

P7002

RED, HIDDEN = RECOMMENDED FIELD SUPPLIED WIRING  
 RED, SOLID = REQUIRED FIELD SUPPLIED WIRING  
 BLUE = OPTIONAL FIELD SUPPLIED WIRING  
 BLACK = FACTORY SUPPLIED WIRING

3 PHASE
Volts
Amps (FLA)
MOTOR RATING: HP

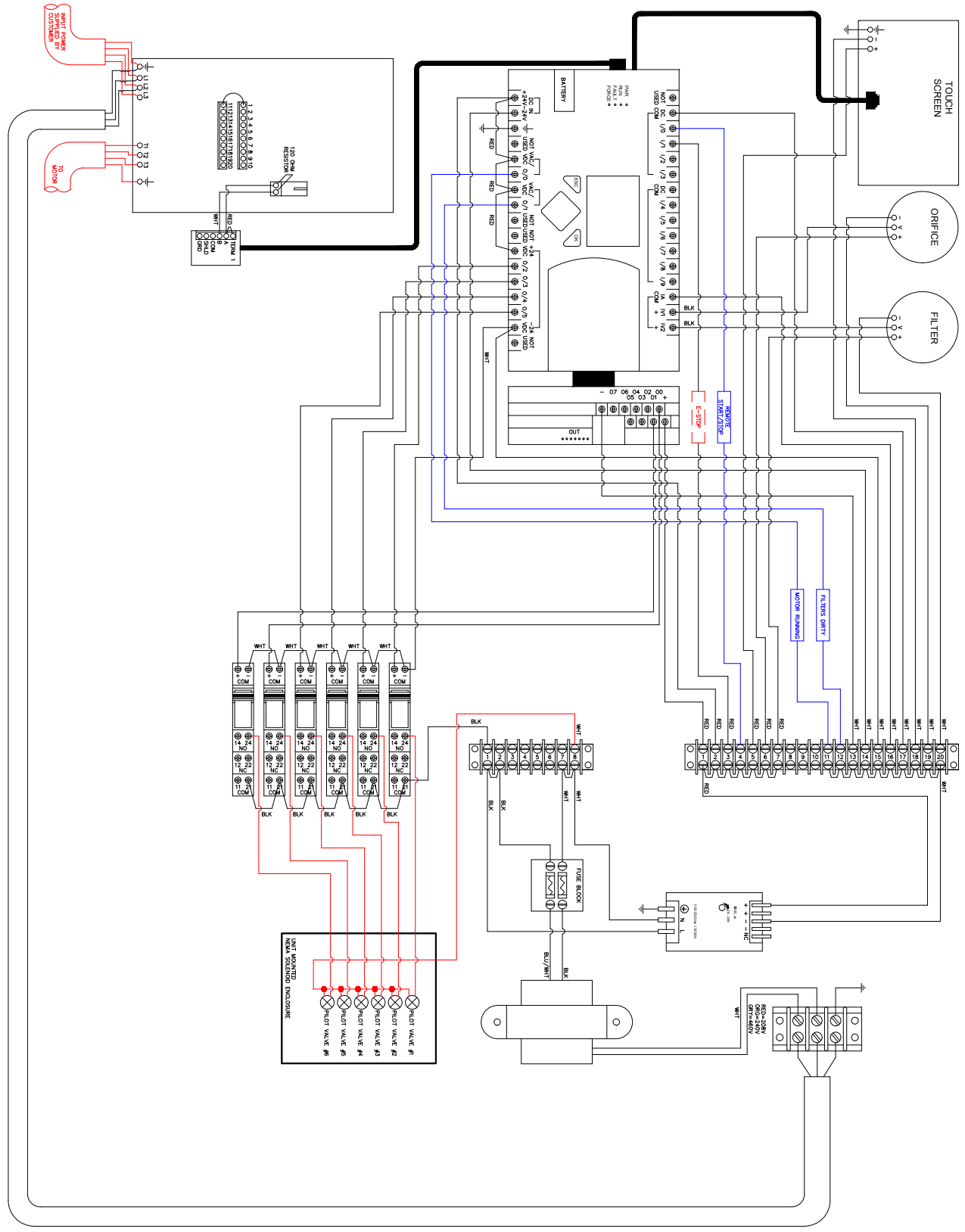


# MicroAir Intelli-Touch RP6-2

P7003

RED, HIDDEN = RECOMMENDED FIELD SUPPLIED WIRING  
 RED, SOLID = REQUIRED FIELD SUPPLIED WIRING  
 BLUE = OPTIONAL FIELD SUPPLIED WIRING  
 BLACK = FACTORY SUPPLIED WIRING

3 PHASE  
 Volts  
 Amps (FLA)  
 MOTOR RATING:  
 HP

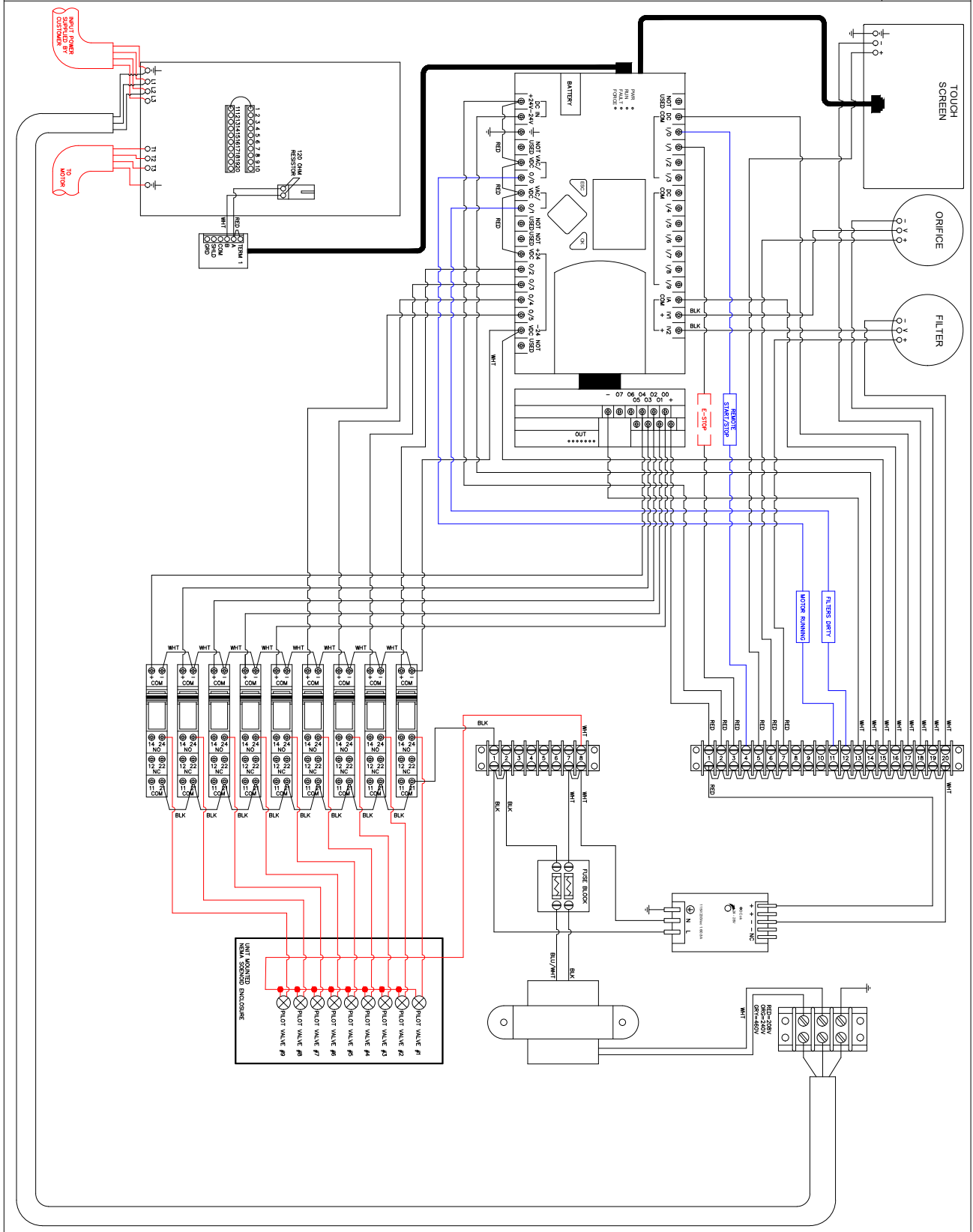


P7004

RED, HIDDEN = RECOMMENDED FIELD SUPPLIED WIRING  
 RED, SOLID = REQUIRED FIELD SUPPLIED WIRING  
 BLUE = OPTIONAL FIELD SUPPLIED WIRING  
 BLACK = FACTORY SUPPLIED WIRING

# MicroAir Intelli-Touch RP6-3

3 PHASE
Volts
Amps (FLA)
MOTOR RATING:
HP

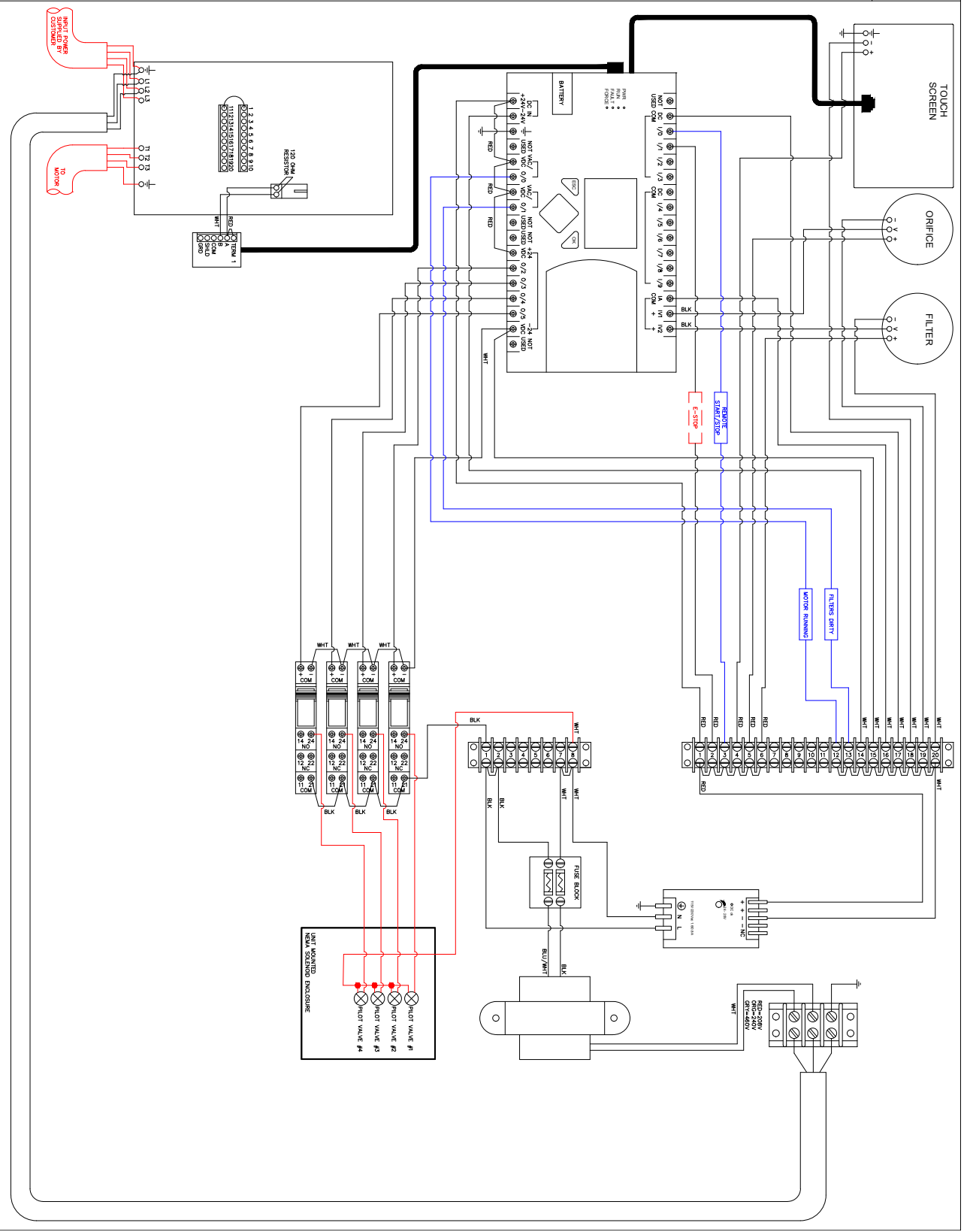


# MicroAir Intelli-Touch RP8

3 PHASE  
Volts  
Amps (FLA)  
MOTOR RATING:  
HP

RED, HIDDEN = RECOMMENDED FIELD SUPPLIED WIRING  
RED, SOLID = REQUIRED FIELD SUPPLIED WIRING  
BLUE = OPTIONAL FIELD SUPPLIED WIRING  
BLACK = FACTORY SUPPLIED WIRING

P7005

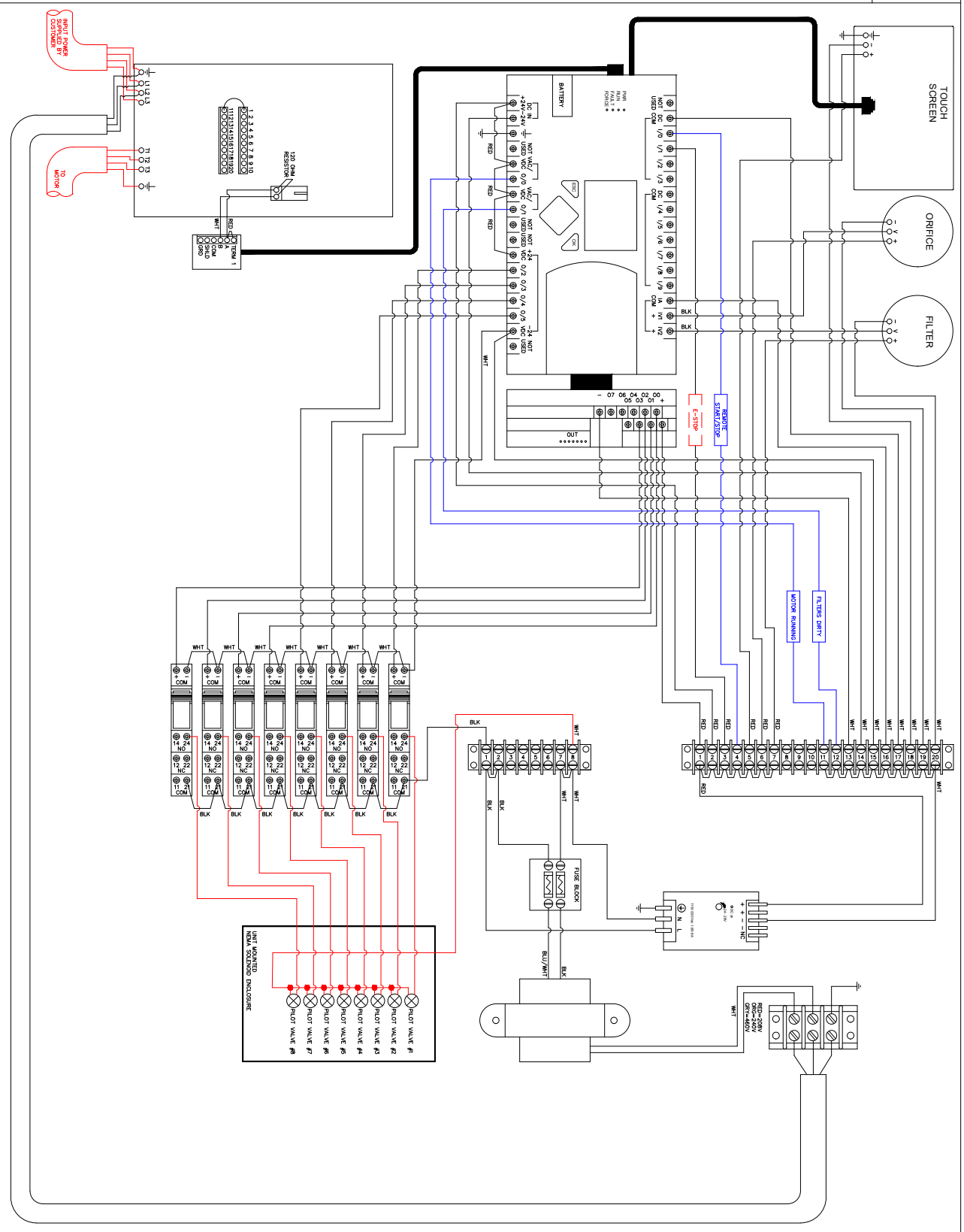


P7006

RED, HIDDEN = RECOMMENDED FIELD SUPPLIED WIRING  
 RED, SOLID = REQUIRED FIELD SUPPLIED WIRING  
 BLUE = OPTIONAL FIELD SUPPLIED WIRING  
 BLACK = FACTORY SUPPLIED WIRING

# MicroAir Intelli-Touch RP8-2

3 PHASE
Volts
Amps (FLA)
MOTOR RATING: HP

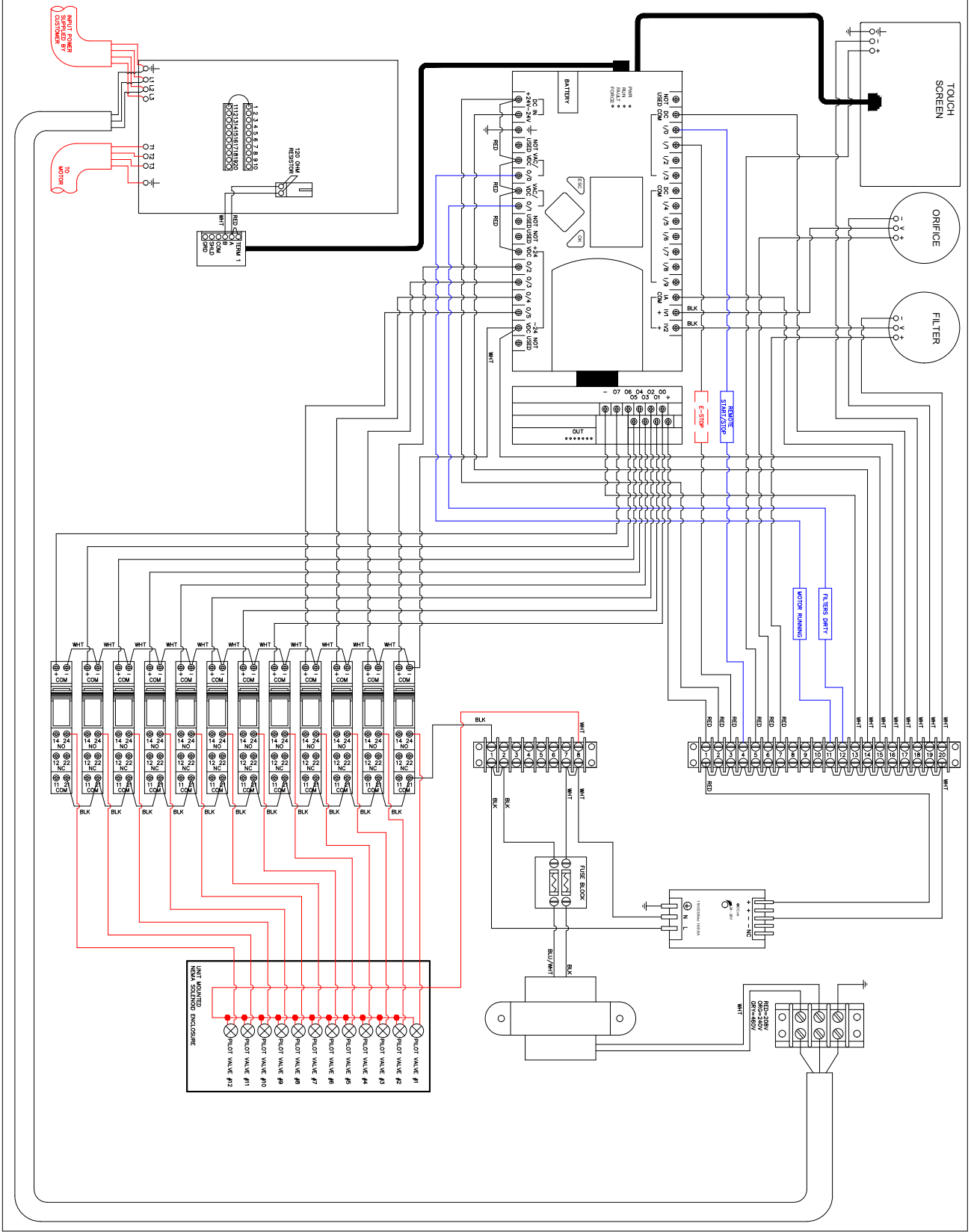


P7007

RED, HIDDEN = RECOMMENDED FIELD SUPPLIED WIRING  
 RED, SOLID = REQUIRED FIELD SUPPLIED WIRING  
 BLUE = OPTIONAL FIELD SUPPLIED WIRING  
 BLACK = FACTORY SUPPLIED WIRING

### MicroAir Intelli-Touch RP8-3

3 PHASE
Volts
Amps (FLA)
MOTOR RATING: HP







# MicroAir Intelli-Touch RP8-5

3 PHASE  
Volts  
Amps (FLA)  
MOTOR RATING:  
HP

RED, HIDDEN = RECOMMENDED FIELD SUPPLIED WIRING  
RED, SOLID = REQUIRED FIELD SUPPLIED WIRING  
BLUE = OPTIONAL FIELD SUPPLIED WIRING  
BLACK = FACTORY SUPPLIED WIRING

P7009

