

## Overview

A stand-alone, or Networked Fan/Blower Phase Control for use with Single-Phase Permanent Split Capacitor (PSC) or Shaded-Pole Induction Motors. Capable of 3.0 or 4.0 ampere in 115, 230 or 277 volt models, these Controls now have a 3-wire or 2-wire connect option. Open loop or Closed-Loop are selectable in these controllers. AirCare VariPhase™ has network connectivity (MODBUS®-based) through RJ45 to our Small System Console. Our PLC implementation will interface with major network protocols (LonWorks, BACnet, ProfiBus, etc.).

With VariPhase controlled networking combined with AirCare Console, up to 127 motorized fans can be controlled from a single host controller. In addition to open-loop Analog Control input (0-5Vdc, 4-20mA), AirCare's optional closed-loop control capability utilizes an external hall-effect sensor (Cherry Part MP100701, or similar) to precisely control and monitor fan speed.

Installing a distributed control network can be complicated, but AirCare's pre-programmed Small System Console and VariPhase with easy to address and configure platform, flexible wiring options and diagnostic LEDs make it easy.

This phase-control unit is a robust, variable-voltage, motor speed control. It offers energy efficiency, excellent reliability and affordability. The 3-wire option increases efficiency while reducing motor hum for all speeds in normal fan operating range.

## Communications

- MODBUS® RTU protocol
- Supports LonWorks, BACnet, ProfiBus and TCP/IP protocols when used with AirCare PLC Console
- Selectable Physical medium RS422 (4 wire), or RS485 (2 wire)
- Selectable baud rate – 1200 or 9600, 8, n, 1
- Two network wiring methods
  - Dual RJ45 sockets (2 and 4 wire)
  - Screw Terminals (2 wire only)
- Supports up to 127 devices per Network
- Field selectable addressing
- Slew rate limited for improved performance

Model Number *	Nominal Supply Voltage	Max. Motor Current Rating (A)
ACV1041U	115V	4.0 Ampere
ACV1042U	230V	4.0 Ampere
ACV1033U	277V	3.0 Ampere

\*order -001 option for cover to meet stand-alone UL criteria



## Features

- 115V ACV1041U – 4.0 Ampere
- 230V ACV1042U – 4.0 Ampere
- 277V ACV1033U – 3.0 Ampere
- 3-wire or 2-wire control available
- Suitable for 50Hz or 60Hz
- “Speed set memory” resets to last setting under power loss
- Open Loop Analog Control input (0-5vdc, 4-20mA)
- Closed Loop Control Option (external hall sensor feedback)
  - PID values programmable via network
  - Measures and controls actual speed
- Open-frame (UL approved cover optional)
- Diagnostic LED's:
  - Status/Fault
  - Network Traffic
- Overload: 125% for 30 seconds
- UL/CSA listed (USL, CNL) file E241590

## Electrical Specifications

Parameter	Min	Typical	Max
Input Voltage Range 115V unit (Vrms)	95V	115V	135V
Input Voltage Range 230V unit (Vrms)	200V	230V	260V
Input Voltage Range 277V unit (Vrms)	250V	277V	305V
Supply Frequency (Hz)		50/60Hz	
Output Current (Arms) continuous	-	-	See Table
Output Current (Arms) for 30 Seconds	-	-	125%
Output Voltage (Vac)	0	-	Vin
Ambient Operating Temperature (°C)	0	25°C	40°C
Standby Power (W)		<2W	
Insertion Loss (V)		1V	
Control Power Loss (W)		1W/Amp	
Isolation Voltage (Vrms)	2500V		
Sensor Supply Voltage Output (Vdc)	4.8V	5.0V	5.2V
Sensor Supply Current Output (mA)			25mA

For assistance call 512-249-7526

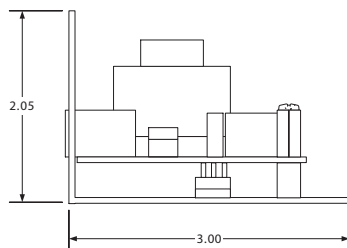
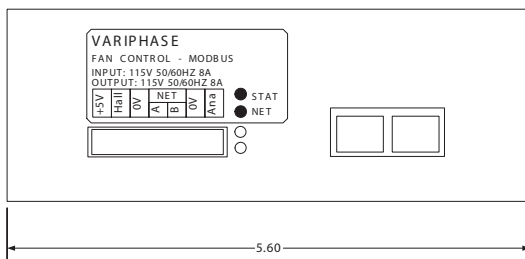
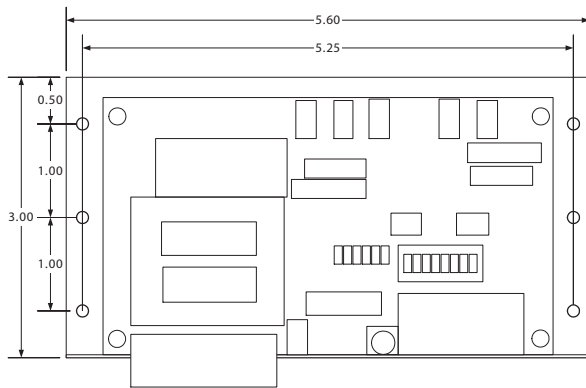


## Jumper Options

JP1	JP2	JP3	JP4	JP5	JP6
Analog	20mA	Baud	4-20mA	Closed Loop	4-Wire

- Analog** Install jumper to select analog input speed control from either 0-5v or 4-20mA source. When jumper position is open, the control responds to Modbus speed commands.
- 20mA** Install jumper to enable current loop shunt. JP1 should also be closed to enable 4-20mA control. Leave switch open for 0-5V control.
- Baud** Install jumper to select 9600 baud. Default is 1200.
- 4-20** Install jumper to enable 4-20mA loop. If jumper position is open, the 4mA offset will not be factored, resulting in 0-20mA control range.
- Closed Loop** The sensor will be used to regulate the set speed in RPM. If jumper position is open, the sensor input will not be used for motor speed control, but RPM will still be reported if a sensor is present.
- 4-Wire** Fit Jumper to select 4-wire (RS422) communications. Default (jumper open) is 2-wire (RS485) communications.

## Mechanical Dimensions for L-Bracket



## Control Connections

Mating part for control connector Phoenix terminal block number #1757064

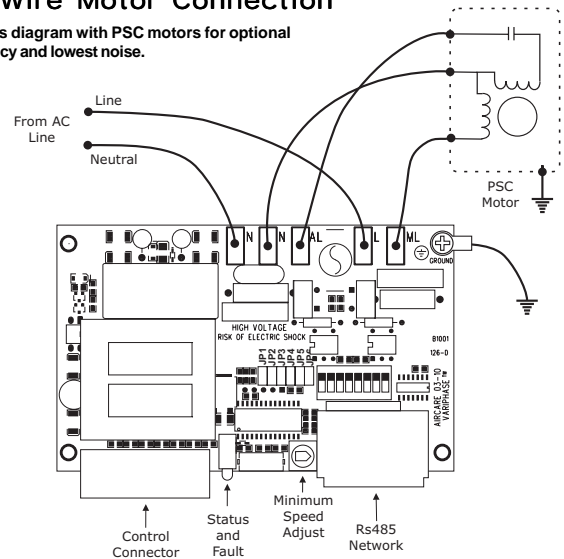
1	2	3	4	5	6	7
+5V Out	Hall Sensor Signal	0V (GND)	- Network	+ Network	0V (GND)	Analog Input

## Power Connections

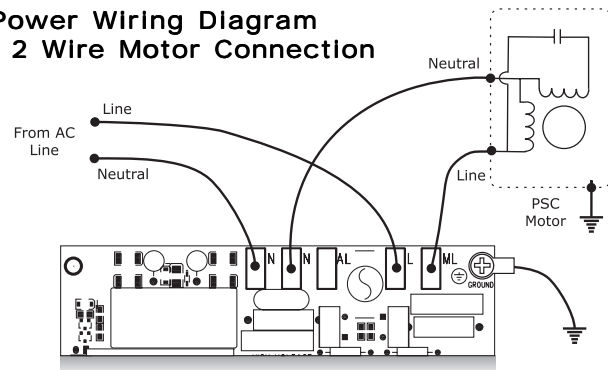
ML	AL	L	MN	N
Line to Motor	Line to Motor Aux	AC Line Input	Neutral to Motor	AC Neutral Input

## Power Wiring Diagram - 3 Wire Motor Connection

Use this diagram with PSC motors for optional efficiency and lowest noise.



## Power Wiring Diagram - 2 Wire Motor Connection



For assistance call 512-249-7526



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