

Overview







The VariPhase is a stand-alone, or Networked Fan/Blower Phase Control for use with Single-Phase Permanent Split capacitor (PSC) or Shaded-Pole Induction Motors. These controls offer a 3-wire or 2-wire connection option. VariPhase v7 offers a broader mode selection through jumper placement. It improves operating range and closed loop response with improved resolution over the previous generation VariPhase™. AirCare VariPhase™ has network connectivity (MODBUS® RTU-based).

PRODUCT DESCRIPTION

AirCare VariPhase™ controls combine intelligent speed control with industry standard MODBUS® networking. The versatile design allows for either analog (0-5V or 0, 4-20mA), loop or network speed control. In network mode VariPhase™ units can have up to 125 unique addresses that can be precisely controlled from a single AirCare Console™.

For optimal efficiency and reduced acoustic noise, VariPhase™ models include intelligent auxiliary winding control using a 3rd wire to the motor. Soft-start options are also available. Permanent Split Capacitor (PSC) motor loads can be connected in three-wire mode or wired conventionally for standard operation.

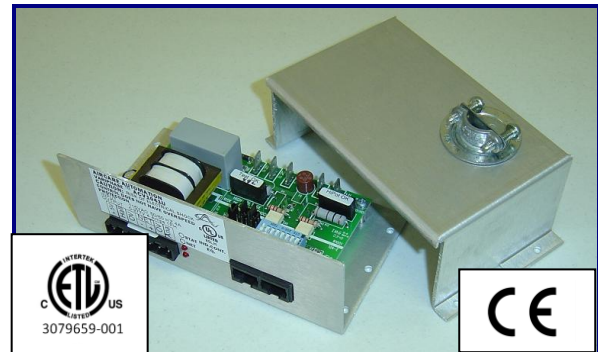
VariPhase™ v7 has 6 control modes (jumper selectable).

Ctrl Loop Mode	SETPOINT	FEEDBACK
OLC 	ANA1	none
OLC 	NET Reg2	none
CLC 	ANA1	ANA2
CLC 	ANA1	TACH
CLC 	NET Reg2	ANA2
CLC 	NET Reg2	TACH

Setpoint Source: Analog 1 or Network
Feedback Source: Analog 2 or TACH "Sensor"
Control Loop Mode: Open or Close Loop Control

Electrical Parameters

Parameter	Min	Typical	Max
Input Voltage Range 115V unit	95V	115V	135V
Input Voltage Range 230V unit	200V	230V	260V
Input Voltage Range 277V unit	250V	277V	305V
Supply Frequency (Hz)		50/60 Hz	
Output Current (Arms) Continuous			See table
Output Current (Arms) 30 seconds			125%
Output Voltage (Vac)	0		V _{in}
Ambient Operating Temperature (°C)	0	25°C	40°C
Standby Supply Power		<2W	
Insertion Loss (V)		1V	2V
Control Power Loss (W)		1W/Amp	2W/Amp
Isolation Voltage (Vrms)	2500V		
Sensor Supply Voltage Output (Vdc)		5V/12V	
Sensor Supply Current Output (mA)			25mA



Model Matrix

(add a "U" suffix for NEMA1 Cover .. i.e. ACV1081U)

Model	Voltage Rating	Current Rating
ACV1081	115Vac	8.0A
ACV1082	230Vac	8.0A
ACV1083	277Vac	8.0A

Communications

- MODBUS® RTU Protocol
- Selectable wiring - RS422 (4 wire), or RS485(2 wire)
- Baud rate- 9600, 8 n, 1
- Dual RJ45 sockets (2 and 4 wire) for communication
- Field (DIP-switch) selectable addressing
- Up to 127 devices per LAN
- Slew rate control for improved performance

Features

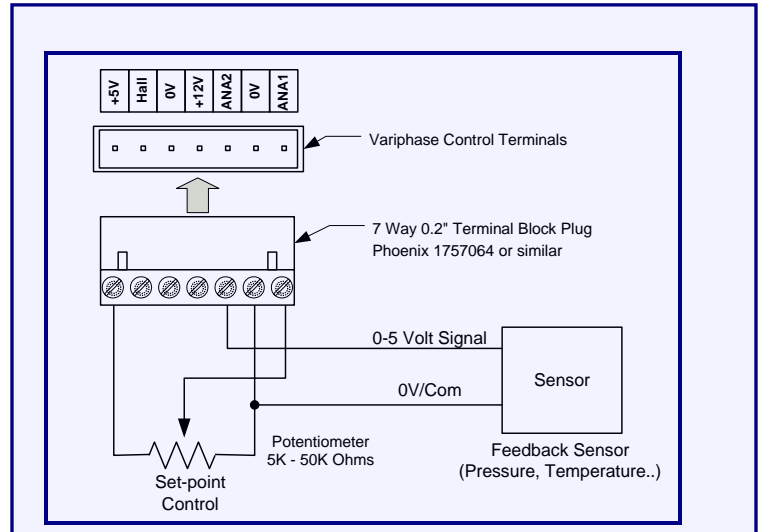
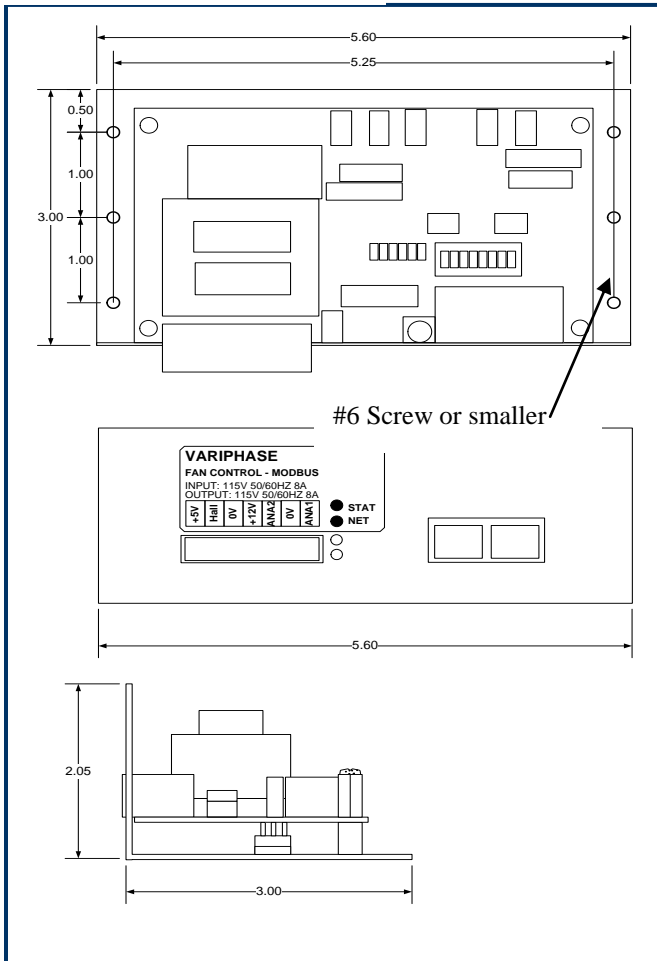
- 3-wire or 2-wire control
- Automatic 50Hz or 60Hz
- Soft-Start (adjustable) enabled
- "Speed set memory" resets to last setting under power loss
- Open Loop Analog Control input (0-5Vdc, 0, 4-20mA)
- Analog Feedback - Improved Closed Loop Control/PID Controller to external analog Sensor (i.e. pressure, temperature) to regulate fan speed (0-5 volt feedback) criteria
- Tach Sensor Feedback – (0-5V square wave) Speed Regulation option (external Tach or hall sensor) -Measures and controls actual speed
- Open-frame (ETL approved, NEMA1 cover optional)
- Diagnostic LED's:
 - Status/Fault
 - Network Traffic
- Overload: 125% for 30 seconds
- CE Approved with use with ACS2510 Prefilter or equivalent

Jumper Options:

JP1	JP2	JP3	JP4	JP5	JP6
Analog	20mA	Open/ Closed Loop	4- 20mA	Feed Back	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.
- Open/Closed loop**- Install jumper to select close loop control. Default is Open Loop.
- 4-20mA** - 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.
- Feedback**- Install jumper for closed-loop control of motor RPM using tachometer feedback. Default (jumper open), for closed-loop control via Analog 2 feedback
- 4-wire** - Fit jumper to select 4-wire (RS422) communication. Default (jumper open) is 2 wire (RS485) communication.

Mechanical Dimensions:



Control Wiring Example : Closed Loop Analog Control

In this mode VariPhase™ uses a 0-5 Volt feedback signal from a sensor to hold a potentiometer-controlled set-point. The set-point can also be network controlled. Configuring Closed Loop control requires access to the Modbus registers, Please consult the Advanced Technical Manual 7.0 for details

Control Connections

Mating part for control connector Phoenix terminal block number is #1757064

1	2	3	4	5	6	7
+5V Out	Hall Sensor Signal	0V (GND)	+12V Out	Analog 2 Input	0V (GND)	Analog Input

Power Connections

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

