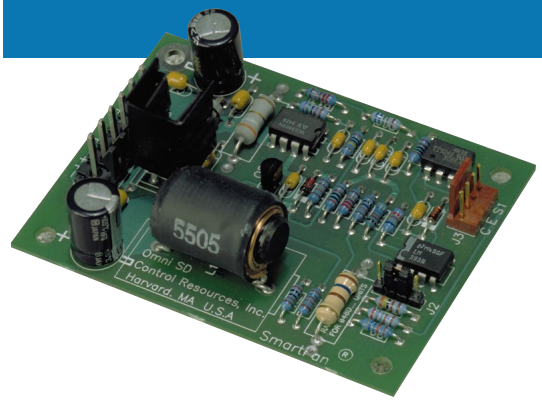
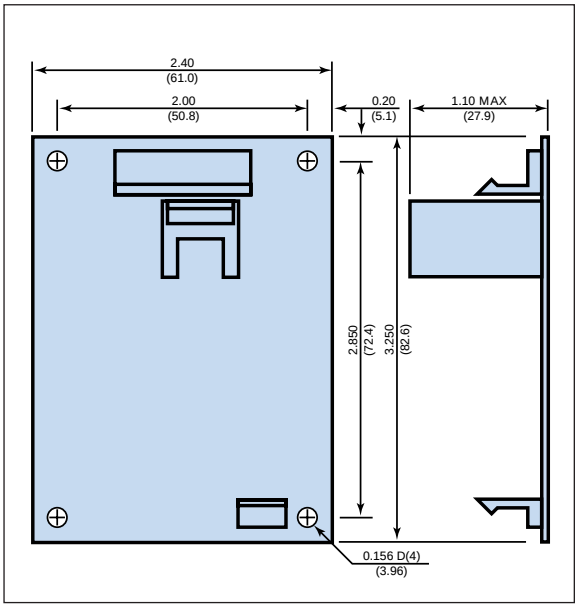
SmartFan® *Omni SD-DC — Speed control for DC fans*





SmartFan Omni SD is a versatile switching DC control which operates at a high-frequency to achieve maximum power efficiency at minimum size. Units are available for nominal 12, 24 and 48 VDC operation. Omni SD controllers apply a smooth DC voltage to the air mover for absolute minimum noise. They are compatible with temperature sensors P1 through P9 shown on page 34. Control Temperature is set by means of a jumper on the circuit board. Omni SD is supplied with an optically isolated temperature alarm, triggered if sensor temperature reaches 10°C above Control Temperature or if cooling system power is lost.

For additional information see:
page 13 Design Considerations
page 34 Sensors

FEATURES

- **Choose 12, 24, or 48 VDC nominal voltage ratings**
- **High power efficiency: typically greater than 90%**
- **Noise reduction: typically 15 dB(A) or more at idle speed**
- **Constant idle voltage regardless of input voltage**
- **Optically isolated temperature alarm output sinks up to 1.0 mA (normally closed)**
- **Selectable Control Temperatures of 35°, 40°, or 45°C (74°, 80°, or 86°C when P3 sensor is used)**

SPECIFICATIONS

Part Number	Supply Voltage Range	Maximum Watts to Fans[1]	
		200 ft/Min	Still Air
012D440	10-15 VDC	60 Watts/5.0 Amps	48 Watts/4.0 Amps
024D440	20-30 VDC	120 Watts/5.0 Amps	96 Watts/4.0 Amps
048D440	42-58 VDC	240 Watts/5.0 Amps	192Watts/4.0 Amps
H104	Hardware Pack		

[1]Air Temperature of 55°C or less. See page 13 for derating above 55°C.
U.S. Patents 4,659,290, 4,722,699 and 5,364,026

CONTROL RESOURCES INCORPORATED
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INSTALLATION

Mounting

To minimize EMI, mount the unit on a grounded surface using a metal spacer at the mounting hole that is surrounded by a conductive pad.

Sensor Selection

Sensors are shown on page 34. There is no polarity consideration when connecting the sensor.

Connections/Jumpers

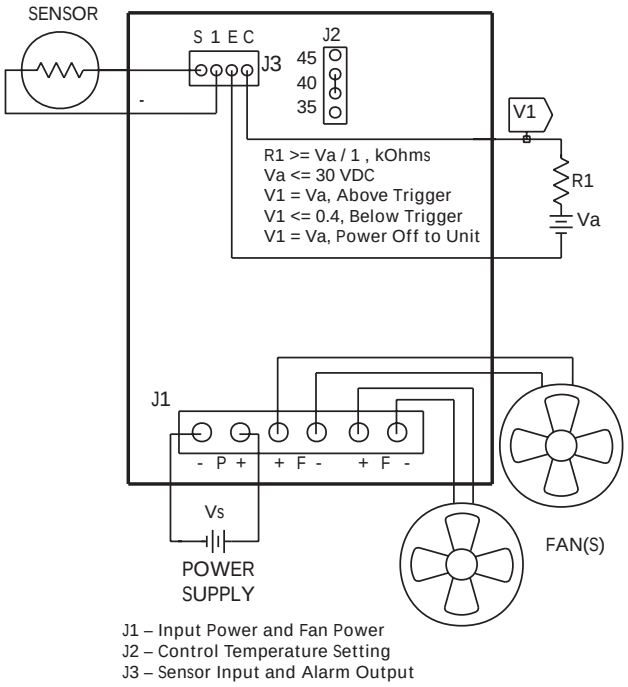

Figure 1
Wiring Diagram

OPERATION

Fan Speed vs. Sensor Temperature

The relationship between fan speed, as a percentage of full speed, and sensed temperature is shown in Figure 2. Full speed occurs at the Control Temperature (T_c).

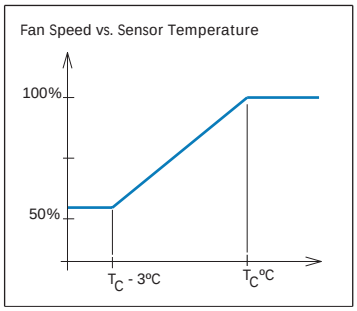

Figure 2
Fan speed vs sensor temperature

Settings

Control Temperature (J2): Use this jumper to set Control Temperature to 35°, 40°, or 45°C. Factory setting is 40°C. If the P3 sensor is used, Control Temperature settings are 74°, 80°, and 86°C.

Temperature Alarm Output (J3)

An over-temperature alarm output is provided at header J3 to drive a logic circuit. Pins J3:C and J3:E are internally connected to the collector and emitter of a phototransistor, respectively. This output is intended for connection to a logic circuit.

Alarm Type:	Optically Isolated Phototransistor
Trigger:	10°C Above Control Temperature
Alarm States:	Conducting (Closed), Below Trigger, Cut-Off (Open), Above Trigger, Cut-Off (Open), Un-powered State
Max. Voltage:	30 VDC
Max. Current	1 mA DC

Suggested Connecting Hardware

Ref. Desc.	Header on Board[1]	H104 Hardware Pack Quantity	Description	Manufacturer[1]	Part Number[1]
J1	26-48-1065	1	Housing	Molex	09-50-8061
		6	Terminal (tin)	Molex	08-50-0106
J3	22-29-2041	1	Housing	Molex	22-01-3047
		4	Terminal (gold)	Molex	08-55-0102
		4	PCB Support	Richco	CBS-4-19
		1	Aluminum Spacer	Richco	ALSS6-2
		1	Screw, 6-32X 5/8		
		1	Nut, 6-32		

[1]or equivalent