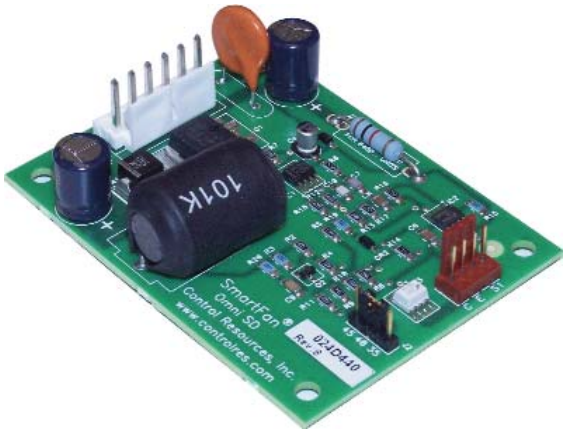
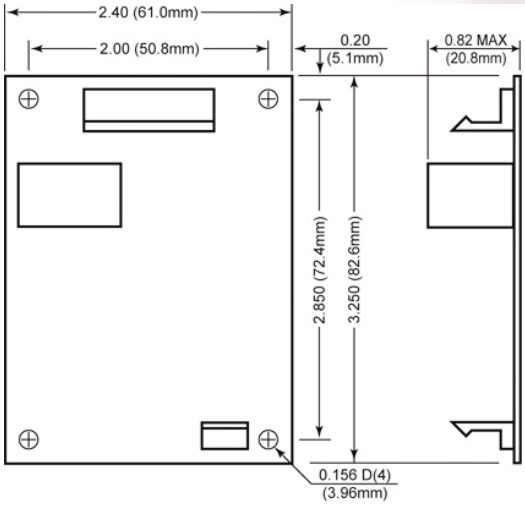
SmartFan® Omni SD

Speed / Temp Control for DC Fans





SmartFan Omni SD is a switching DC control that holds a selected temperature near constant by controlling the voltage (speed) of an air mover. Under normal thermal conditons, fans run at reduced speed, keeping fan noise to a minimum, under less than optimal thermal conditions, fans adjust to hold termperatures near constant until maximum fan speed is achieved. Omni SD also features an optically isolated temperature alarm, triggered if sensor temperature reaches 10°C above Control Temperature or if cooling system power is lost.

FEATURES

- Choose 12, 24, or 48 VDC nominal voltage ratings
- High power efficiency: typically greater than 90%
- Noise reduction: typically 13 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)
- Jumper selectable Control Temperatures of 35°, 40°, or 45°C (74°, 80°, or 86°C when P3 sensor is used)
- RoHS (6/6) compliant

SPECIFICATIONS

Part Number	Supply Voltage Range	Maximum Fan Wattage (55°C)	
		200 Ft/Min	Still Air
012D440-F[1]	10 to 15 VDC	60 Watts/5.0 Amps	48 Watts/4.0 Amps
024D440-F[1]	20 to 30 VDC	120 Watts/5.0 Amps	96 Watts/4.0 Amps
048D440-F[1]	42 to 58 VDC	240 Watts/5.0 Amps	192 Watts/4.0 Amps
H104-F	Hardware Pack		

[1]Temperature sensor required. See www.controlresources.com/sensors/

CONTROL RESOURCES INCORPORATED

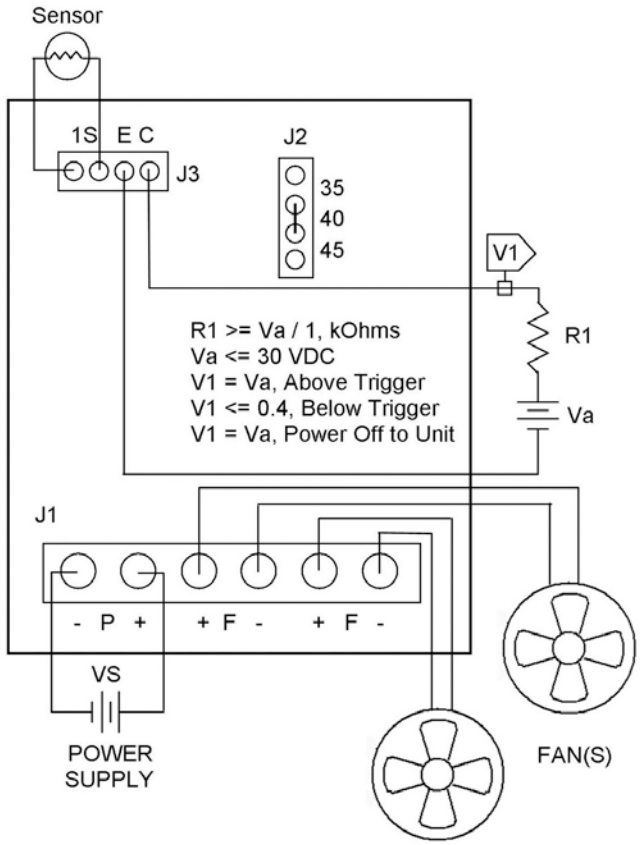
SmartFan Omni SD - Installation & Operation

INSTALLATION

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

Sensor Selection: Choose a compatible SmartFan temperature sensor found at www.controlresources.com/sensors.php.

Figure 1. Wiring diagram



Note: As long as the total current rating is not exceeded, additional fans may be wired in parallel.

OPERATION

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

Fan Speed vs. Sensor Temperature:
As demonstrated in the graph below, full speed occurs at the Control Temperature (T_C) and above. Fans idle at 55% of full voltage at T_C-4°C and below.

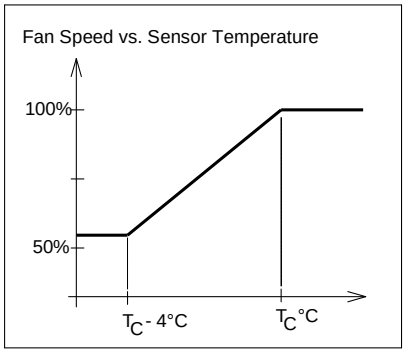


Figure 2. Fan speed vs. sensor temperature

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 mADC

Suggested Connecting Hardware

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

[1]or equivalent