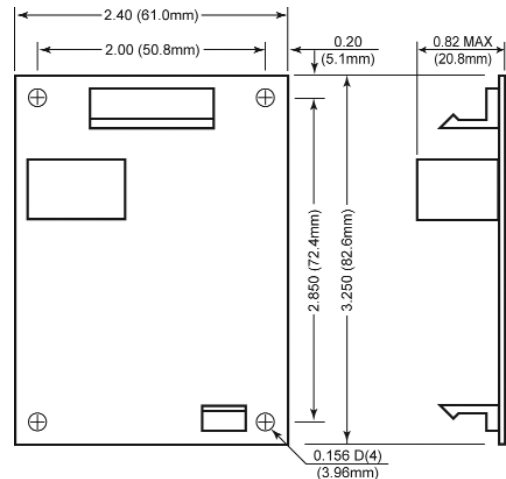


# SmartFan® Omni SD

Speed Control for DC Fans



DC  
Controls

**SmartFan Omni SD** is a versatile switching DC control that operates at a high-frequency. 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. 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.

## 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)
- RoHS (6/6) compliant

## SPECIFICATIONS

Part Number	Supply Voltage Range	Maximum Watts to Fans <sup>2</sup>	
		200 Ft/Min	Still Air
012D440-F <sup>1</sup>	10 to 15 VDC	60 Watts/5.0 Amps	48 Watts/4.0 Amps
024D440-F <sup>1</sup>	20 to 30 VDC	120 Watts/5.0 Amps	96 Watts/4.0 Amps
048D440-F <sup>1</sup>	42 to 58 VDC	240 Watts/5.0 Amps	192 Watts/4.0 Amps
H104-F	Hardware Pack		

<sup>1</sup>Temperature sensor required. See sensors page.

<sup>2</sup>Air temperature of 55°C or less

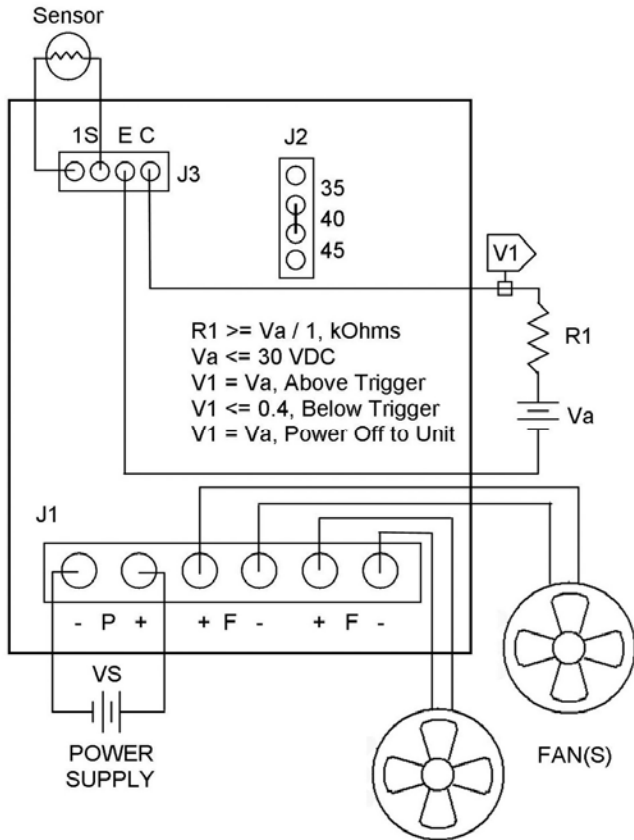
For complete product details visit: [www.controlres.com](http://www.controlres.com)

# 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 that is surrounded by a conductive pad

**Sensor Selection:** Choose a compatible SmartFan Sensor shown in the SmartFan catalog or at [www.controlres.com/sensors.php](http://www.controlres.com/sensors.php).



J1 – Input Power and Fan Power  
 J2 – Control Temperature Setting  
 J3 – Sensor Input and Alarm Output

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 ( $T_C$ ).

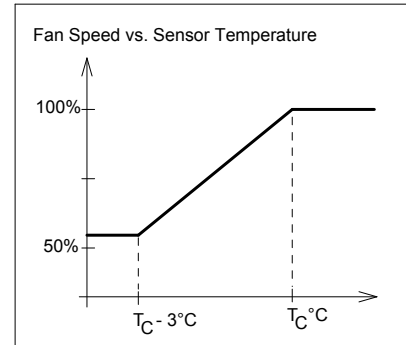


Figure 2. Fan speed vs. sensor temperature

### 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 mADC

## Suggested Connecting Hardware

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

<sup>1</sup>or equivalent