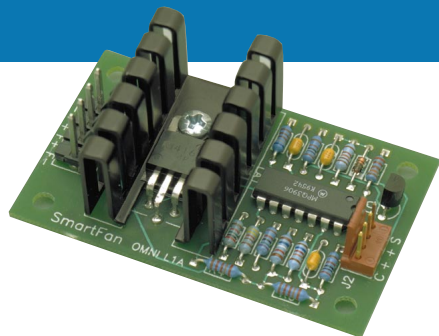


SmartFan[®] Omni L1A-DC — Speed control for DC fans



SmartFan Omni L1A is a medium power DC control designed to be used with 12 or 24 VDC fans with power ratings up to 38 Watts. It operates in a linear mode applying a smooth DC voltage to the fans for minimum noise. Omni L1A is available for both Closed-Loop (temperature regulating) and Open-Loop (temperature compensating) applications. It includes a temperature alarm, triggered if the sensor temperature reaches 10°C above the Control Temperature. Omni L1A is compatible with sensors P1 through P9 shown on page 34.

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

FEATURES

- Wide supply voltage range (11.5 to 30 VDC)
- Noise reduction 15 dB(A) or more at idle speed
- Supplied with temperature alarm from transistor open collector. Will sink at least 20 mA above alarm trigger temperature
- 70°C maximum operating temperature

SPECIFICATIONS

Part No.	Type	Supply Voltage Range	Maximum Watts to Fans ³		Control Temperature Air Sensor	P3 Surface Sensor	Full Speed/Idle Speed Temperatures
			200 ft/Min	Still Air			
018L135A 018L140A	Closed-Loop ¹	11.5-30 VDC	38 Watts	20 Watts	35°C 40	74°C 80	NA
018L135PA	Open-Loop ²	11.5-30	38	20	N/A	N/A	35°C/23°C
H104	Hardware Pack						

¹For sensor installed near equipment exhaust.

²For sensor installed at equipment air inlet.

³Air Temperature of 70°C or less. See page 13 for derating above 70°C.

U.S. Patents 4,659,290, 4,722,699 and 5,364,026

INSTALLATION

Sensor Selection

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

Connections

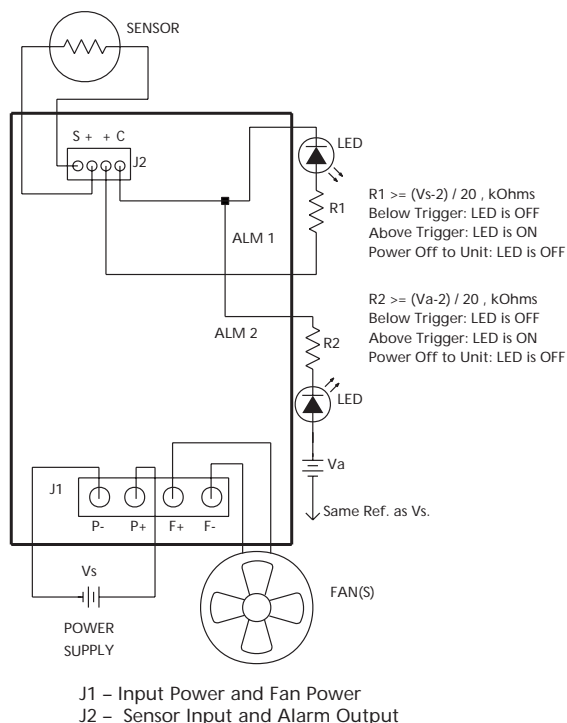


Figure 1
Wiring Diagram

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). Minimum speed temperature (approx. 50% of full speed) depends on part number. For closed loop units, the "X" in Figure 2 is equal to 3. For open loop units the "X" in Figure 2 is equal to 12.

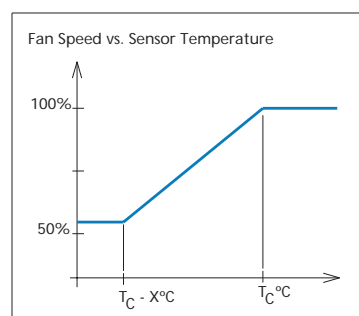


Figure 2
Fan speed vs
control signal

Temperature Alarm Output (J2)

An over-temperature alarm output is provided at header J2. This open collector output is designed to drive an LED. Pins J2:+ and J2:C are internally connected to the power supply (P+) and a transistor's collector, respectively. When the alarm is closed, Pin C is at circuit ground (P-).

Alarm Type:	Non-Isolated Open-Collector
Trigger:	10°C Above Control Temperature
Alarm States:	Cut-Off (Open), Below Trigger Conducting (Closed), Above Trigger, Cut-Off (Open), Un-powered state
Max. Voltage:	30 VDC
Max. Current:	20 mA DC

Figure 1 shows two alarm configurations that allow the LED alarm output to be internally powered by the board supply voltage or by a current limited external supply.

Suggested Connecting Hardware

Ref. Desc.	Header on Board ¹	Quantity	H104 Hardware Pack Description	Manufacturer ¹	Part Number ¹
J1	26-60-4040	1	Housing	Molex	09-50-8041
		4	Terminal (tin)	Molex	08-50-0106
J2	22-29-2041	1	Housing	Molex	22-01-3047
		4	Terminal (gold)	Molex	08-55-0102
		4	PCB Support	Richco	CBS-4-19

¹or equivalent