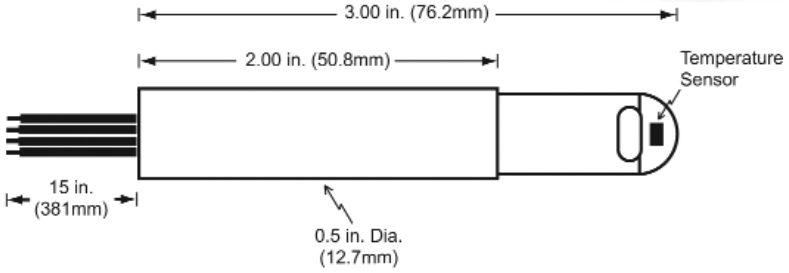
SmartFan® Wisp II

Speed Control for DC Fans



DC Controls

SmartFan Wisp II is designed to control small DC fans and includes both a temperature sensor and control circuit packaged in a probe for convenient remote or on-fan mounting. The controller uses a linear operating principle, applying a smooth DC voltage to the fans. It is available for both Closed-Loop (temperature regulating) and Open-Loop (temperature compensating) applications. The controller's power rating is sufficient to control up to three typical 120 mm fans. Wisp II accepts an 11.5 to 30 VDC supply voltage range for controlling 12 and 24 VDC fans. The Wisp II design allows maximum flexibility for special applications including on-off capability, 48 VDC operation, temperature alarm, and custom control parameters. Contact CRI customer service for details.

FEATURES

- Noise reduction: typically 15 dB(A) or more at idle speed
- Completely self contained including sensor
- Controls 12 and 24 VDC fans
- Accepts a supply voltage range of 11.5 to 30 VDC
- Design allows maximum flexibility for special applications
- 70°C maximum operating temperature
- Supplied with 15 inch (24 AWG) wires and mounting clamp
- RoHS (6/6) compliant

SPECIFICATIONS

Part Number	Type[1]	Supply Voltage Range	Maximum Watts to Fans[2]	Control Temperature	Full Speed/Idle Speed Temperatures
018W135-F	Closed-Loop	11.5 to 30 VDC	20 Watts	35°C	N/A
018W140-F				40°C	
018W135P-F	Open-Loop			N/A	35°C/23°C

[1]Closed-Loop types are installed near equipment exhaust. Open-Loop types at equipment inlet.
[2]Air temperature of 70°C or less, air velocity of 200ft/min or greater.

Wisp II - Installation & Operation

INSTALLATION

Mounting

Mount Wisp in a moving air stream using the cable clamp supplied. Avoid placing the sensor (located at the tip) near a hot component as this may result in heating by radiation. To minimize heating of the sensor by the Wisp circuits, avoid mounting the unit vertically with the sensor at the top.

Location

Install a closed-loop unit at or near the equipment exhaust where it can sense any upstream event that could affect cabinet temperature. Install an open-loop (P suffix) unit at or near the equipment inlet.

Connections

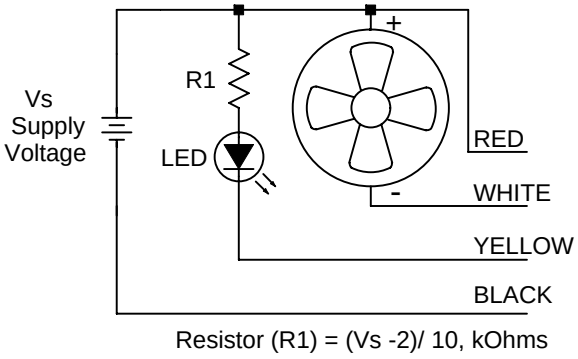


Figure 1. Connection diagram for LED alarm indication.

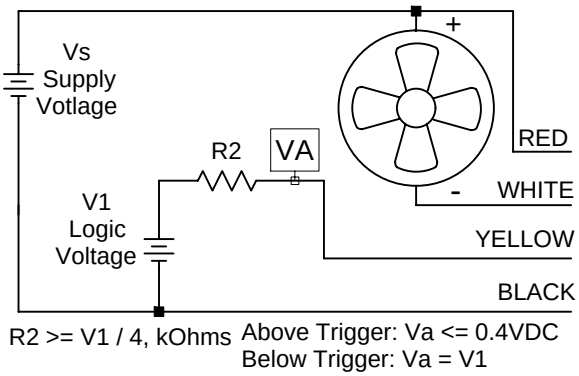


Figure 2. Connection diagram for logic circuit alarm indication.

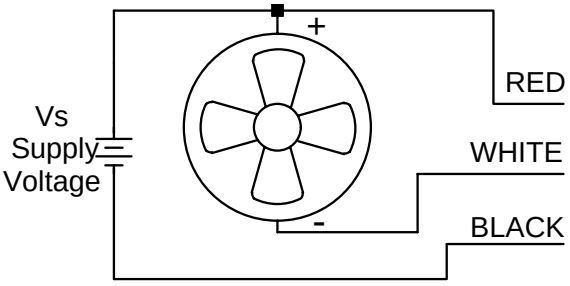


Figure 3. Connection diagram when the temperature alarm output is not used.

Temperature Alarm Output

A temperature alarm signal is available through the yellow and black wires. An alarm can be indicated using an external LED (Figure 1) or logic circuit (Figure 2).

Alarm Type:	Non-Isolated Open-Collector
Trigger:	10°C above Control Temperature
Alarm States:	Conducting (Closed), Above Trigger Cut-Off (Open), Below Trigger
Max. Voltage:	30 VDC
Max. Current:	4 mA DC at 0.4 VDC (Logic Circuit), 10 mA DC (LED Circuit)

OPERATION

Fan Speed vs. Sensor Temperature

The relationship between fan speed, as a percentage of full speed, and sensed temperature is shown in Figure 4. 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 4 is equal to 4. For open loop units the “X” in Figure 4 is equal to 12.

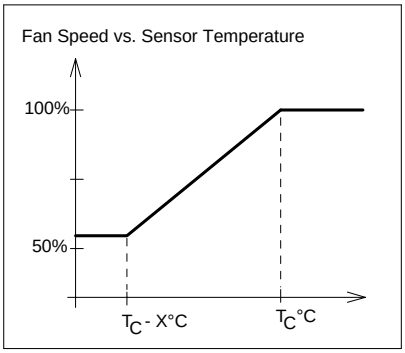


Figure 4. Fan speed vs. sensor temperature