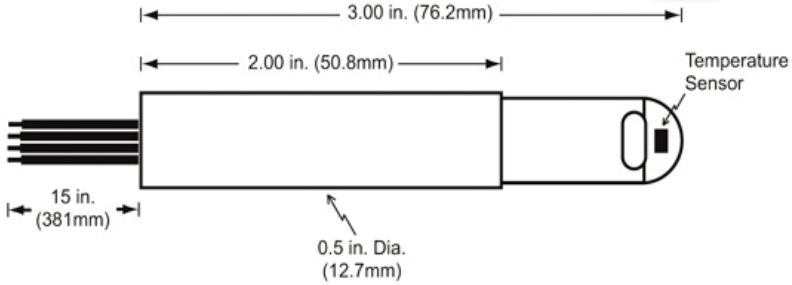
SmartFan® Wisp II

Speed Control for DC Fans



SmartFan Wisp II is a fan controller designed to control one or more small DC fan. The Wisp includes a temperature sensor, control circuit and temp. alarm output conveniently packaged in one small probe for 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. Wisp II accepts a 11.5 to 30 VDC supply voltage range for controlling 12 and 24 VDC fans. Custom wire lengths, control temperatures and slopes are available, contact sales@controlres.com regarding your application.

FEATURES

- Noise reduction: typically 13 dB(A) 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
- Includes a temperature alarm output that can drive logic or a red LED
- 70°C maximum operating temperature in air flow
- 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.

CONTROL RESOURCES INCORPORATED

DC Controls

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

Any number of fans can be connected in parallel (ref fig. 1) as long as the total current rating of 20 Watts is not exceeded.

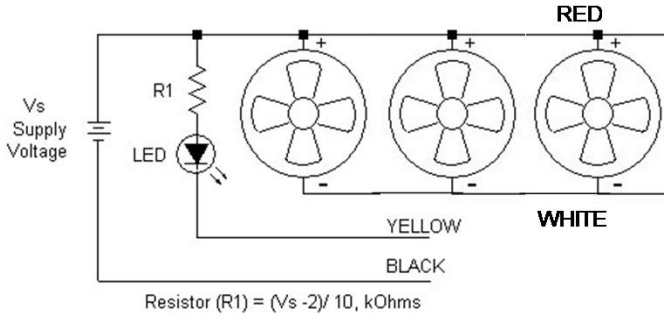


Figure 1. Connection diagram for multiple fans and LED alarm indication.

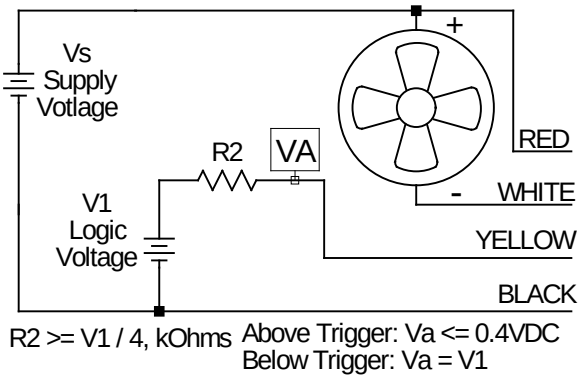


Figure 2. Connection diagram for logic circuit alarm indication.

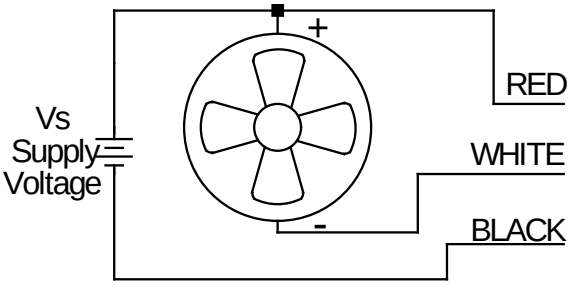


Figure 3. Connection diagram when the temperature alarm output is not used.

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. 55% 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.

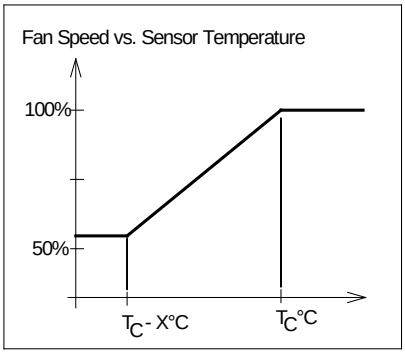


Figure 4. Fan speed vs. sensor temperature