

DC Fan Performance Sensor (FPS)

For DC Fans and Blowers

Thermal management of electronic packages is increasingly challenging as package sizes decrease and circuit complexities increase. In order to avoid critical internal temperature increases within the electronic system, it is necessary to make provisions for a continuous supply of cooling airflow by monitoring and remote warning of potential airflow interruption.

Comair Rotron supplies a variety of Fan Performance Sensor-equipped fans which provide both monitoring and remote warning capabilities. Should cooling airflow be reduced or interrupted due to a drop in RPM, these FPS systems allow for backup cooling devices to go on line, or for less critical equipment, for system shutdown in order to avoid excessive internal temperature rise.

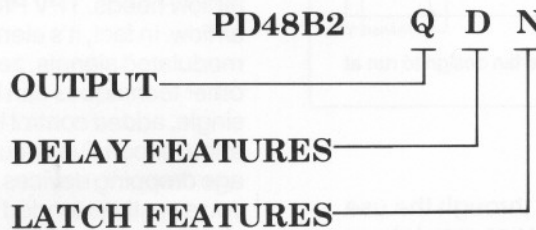
LEADWIRE CONFIGURATION

Isolated	5 Leads	(+) Fan Power	Red
		(-) Fan Ground	Black
		(+) FPS Power	Red w/White Tracer
		(-) FPS Ground	Black w/White Tracer
		(Sensor) FPS Sensor	Blue w/White Tracer
Non-Isolated	3 Leads	(+) Fan Power	Red
		(-) Fan Ground	Black
		(Sensor) FPS Sensor	Blue w/White Tracer

NOTE: Terminals may replace the (+) (-) fan power leadwires.

NOMENCLATURE FOR THE FPS

EXAMPLE:



FPS is denoted by a 3-letter suffix.

OUTPUT

Q = Open Collector – The signal is derived from the collector of the output transistor. The output is high on pass, low on fail, and is set to trip at a certain RPM level. Downstream electronics can be tied between the supply voltage (V_{cc}) and output only.

N = Inverted Open Collector – The signal is derived from the collector of the output transistor. The output is low on pass, high on fail, and is set to trip at a certain RPM level. Downstream electronics can be tied between the supply voltage (V_{cc}) and output only.

T = TTL Compatible – This is the same as an open collector output, but has an internal pull-up resistor tied between the supply voltage (V_{cc}) and the collector of the output transistor. The output signal is high on pass (logical 1) and low on failure (logical 0), and is set to trip at a certain RPM level. Downstream electronics can be tied between the supply voltage (V_{cc}) and/or output and ground.

R = Inverted TTL Compatible – This is the same as an open collector output, but has an internal pull-up resistor tied between the supply voltage (V_{cc}) and the collector of the output transistor. The output signal is low on pass (logical 0) and high on failure (logical 1) and is set to trip at a certain RPM level. Downstream electronics can be tied between the supply voltage (V_{cc}) and/or output and ground.

DELAY FEATURES

D = 10 ± 4 second delay -- The failure signal is delayed approximately 10 seconds, thereby eliminating temporary or nuisance failure indication such as at fan start up.

N = < 1 second delay

ISOLATED OR NON-ISOLATED

In addition to the options listed below, the Fan Performance Sensor is offered with either isolated or non-isolated circuitry. The isolated FPS has three leads (+), (-) and (output), in addition to the two power leads or terminals for the motor circuit, and is therefore electrically isolated from the motor circuit. The non-isolated FPS has only the (output) lead in addition to the motor connections. The (+) and (-) that power the sensor circuit are derived internally from the motor circuit. Each output is designed around a Hall Device, which generates a square-wave output. This output signal is then conditioned internally by additional electronic circuitry to yield a discrete pass or fail signal.

TYPICAL FPS APPLICATION EXAMPLE

