

HOTWIRE AIRFLOW SENSOR



Description -

This document describes a hotwire airflow monitoring sensor. It is intended to be used in a laboratory environment with fume cabinet equipment. The purpose of the airflow sensor is to detect and indicate low air pressure within the air exhaust system that may be caused by blocked filters or fault equipment. The airflow sensor can have the detection threshold changed to suit unique applications.

Alarms -

Alarm output is via two methods, visually a red LED and electrically a set of volt free contacts. When the red LED is **ON** it indicates that air pressure within the air system is above the set threshold. The red LED will extinguish if the air pressure goes below the set threshold.

Mechanical alarm output is via a set of volt free contacts. These can be used to drive other equipment and signal when air pressure drops below the set threshold. Refer to mechanical drawing for contact wiring details.

When power is applied to the airflow sensor the relay is energised until an alarm situation arises. This also means that should the airflow sensor unit fail; the relay contacts will also signal an alarm via the contacts to the control panel.

Mechanical -

Description	Value	Unit
Length	80	mm
Width	30	mm
Height	42 ¹	mm
Inlet Diameter	20	mm
Outlet Diameter	20	mm

Electrical -

Description	Min	Nom	Max	Units
Power Supply ²	10	12	14	V DC
Supply Current	30		110	mA
Operating Temperature	0		50	C
Storage Temperature	-20		80	C

Notes:

1. height of housing excludes cabling.
2. The Airflow sensor supply input is protected from reverse polarity, and will function if wired up in reverse.

Installation -

The airflow sensor will fit to the end of 20mm OD Diameter electrical conduit, either flexible or rigid is suitable. However it is recommended to keep the sensor as close as possible to the main fume cabinet air duct. For optimum airflow it is recommended to use short lengths of straight rigid conduit in and out of the airflow sensor to keep turbulence to a minimum and provide a straight uninterrupted airflow. **DO NOT** Glue the sensor to the duct as this will prevent removal in the event of failure or maintenance needs. Any leakage from these joints will have no effect on the overall performance of the airflow sensor.

The airflow sensor is supplied with a terminated cable using a polarised 5 x 1 header. The pin out is as follows

Description	Pin	Wire Colour	Notes
Power Supply +ve	1	Red	As ma
Alarm NC Contact	2	Yellow	Maximum contact voltage 1A Maximum voltage 24VDC/AC
Alarm C Contact	3	Black	
Alarm NO Contact	4	White	
Power Supply -ve	5	Green	

Calibration -

1. Install and connect the sensor as indicated above.
2. Apply power, with no air flowing through the duct being measured.
3. Wait 2 mins for the sensor to warm up and stabilize.
4. Adjust the 25 turn trimpot until the red light goes OUT.
5. This is the zero airflow point, to set for other airflows, establish the airflow in the duct required and adjust the level accordingly.

When the LED light is illuminated then airflow is above the set point.
The unit is design to be failsafe, if unit fails then Low airflow alarm is signalled.