| 2SE SERIES

Solid-State Vane Switch

Introduction

The Klixon® 2SE solid–state vane switch has advanced, state-of-the-art airflow sensing. Successor to electromechanical vane types, the 2SE is designed to sense and protect against the loss of airflow in power supplies, data processing units, or any other commercial or military electronic equipment where it is necessary to recognize the loss or reduction of airflow.

Features

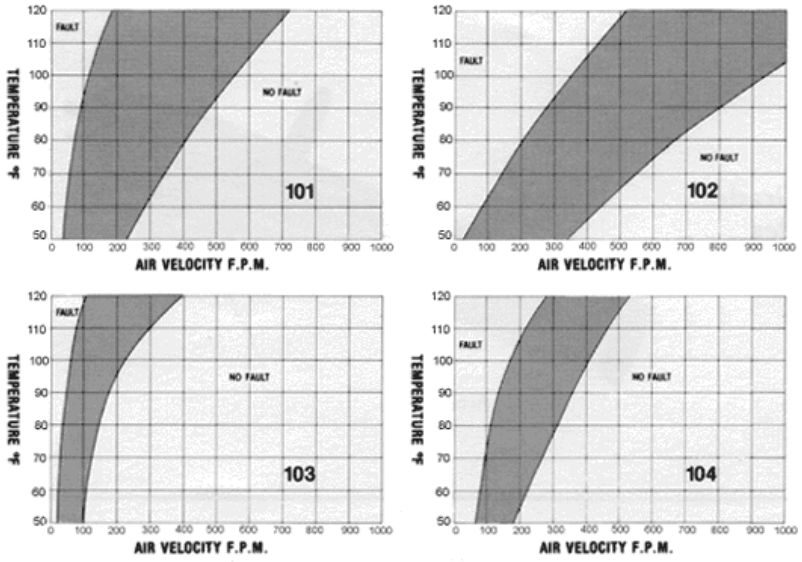
- Solid–state
- High reliability
- Commercial or military grades
- Variety of switching modes

SPEC OVERVIEW

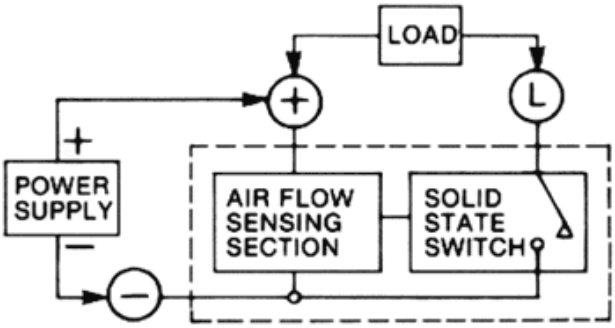
Supply Voltage	30 VDC maximum
Switching Capacity	400 milliamps maximum
Configuration	SPST or DPST
Reset	Automatic or Manual
Mode	Normally open or closed
Weight	Approximately 20 grams
Power Dissipation	Approximately 3 watts
Life	100,000 cycles
Operating Temp. Range	10°C to 50°C (50°F to 120°F)
Ambient Temp. Range	Up to 150°C (300°F)
Vibration	10G, 10–500 Hz per MIL-STD-202, Method 202, Condition A
Shock	100G, for 6ms per MIL-STD-202, Method 213, Condition C
Humidity	10 days per MIL-STD-202, Method 106
Salt Spray	48 Hours per MIL-STD-202, Method 101, Condition B

TEMPERATURE VS. VELOCITY CURVE

Note: The gray region is the deadband, in which sensor could be in either the fault or the no–fault condition. Number on curve is for building part number of device. *(Scroll down for information on building a part numbers, see at left for definitions.)*

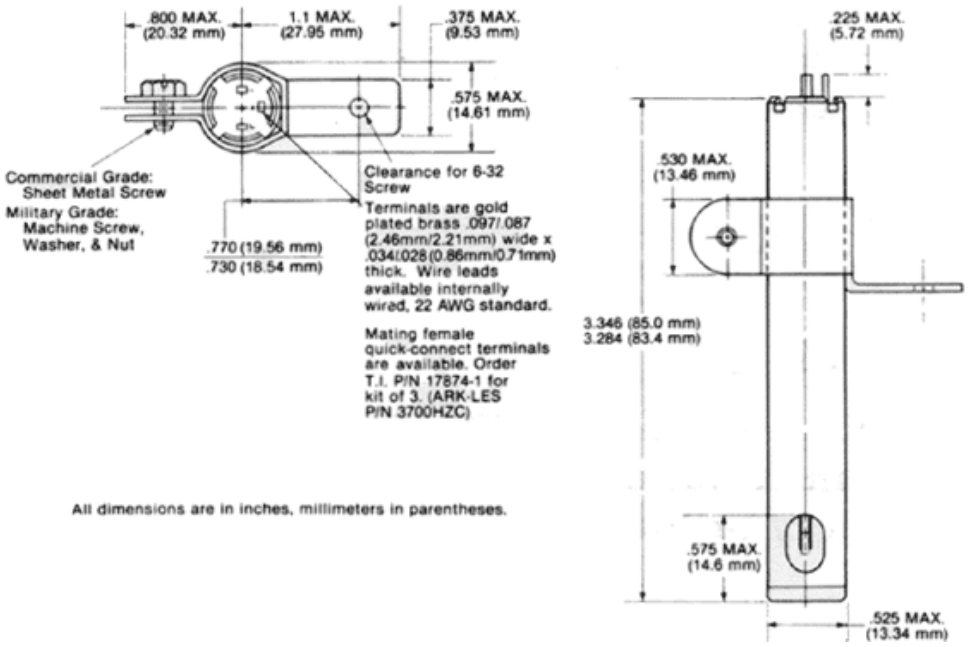


WIRING DIAGRAM OF A STANDARD 2SE DEVICE



CONFIGURATION

Below is the typical 2SE configuration, but others are available. Drawing is for reference only.



POSITIVE TEMPERATURE COEFFICIENT (PTC) SENSOR

A Positive Temperature Coefficient (PTC) sensor provides the airflow sensing function. PTC sensors remain at a low, relatively constant level of resistance over a wide temperature range then abruptly increase resistance logarithmically at an elevated temperature known as an anomaly temperature. As the transition is approached, a slight temperature rise causes a dramatic increase in resistance.

Power supplied to the PTC sensor will cause it to self–heat to a high resistance condition. Sufficient airflow will cool the sensor to its low resistance level. Insufficient airflow allows the sensor to self–heat and reach a high resistance state. This resistance change and accompanying decrease in current is used to trigger an output transistor or SCR.

DEFINITIONS FOR THE TEMPERATURE VS. VELOCITY

Curve (at right)
No–Fault: Operation points within this region represent the normal state. (i.e. sufficient airflow to cool sensor to its low resistance level.)
Fault: Operating points within this region represent the anomaly state. (i.e. Insufficient airflow allows sensor to reach high resistance state.)

ORDERING OPTIONS

Example: 2SE1-101A18D

2SE1 – 101 A 18 D

Basic Device

2SE1 = Commerical Grade
2SE51 = Military Grade

Temp. vs Vel. Curve

101
102
103
104

Output Mode (SPST)

A = Normally Open, Auto. Reset
B = Normally Open, Manual Reset
C = Normally Closed, Auto. Reset
D = Normally Closed, Manual Reset

Supply Voltage - DC

12, 15, 18, 24, 28

Voltage Tolerance

D = ±2.5%
G = ±5.0%
M = ±10.0%

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