

# Digital Vane Sensor

## VN1015 Sensors

Magnetically activated digital vane sensor in a rugged, overmolded plastic housing with three pins or 3-wire flying leads



### Description

The VN1015 sensors employ a Hall Effect digital vane sensor and a permanent magnet in two small towers, separated by a 3.4 mm (0.135") air gap. The output switches when a ferrous target passes between the towers. Typical targets are linear or rotary vanes using a square saw tooth or an open slot in a solid disk or band.

### Features

- Mechanically interchangeable with typical slotted optical switches
- Robust, high speed sensing in dirty/dusty environments
- No mechanical contacts to wear out
- Open collector (sinking or NPN) output can be used with bipolar or CMOS logic circuits with suitable pull-up resistor
- RoHS compliant

### Typical Applications

- Door/gate position control
- Exercise equipment
- Printers

### Environmental Specifications

|  |                                     |
|--|-------------------------------------|
| Operating Temperature (VN101501, VN101503) | -40 °C to 85 °C (-40 °F to 185 °F)  |
| Operating Temperature (VN101502, VN101504) | -40 °C to 150 °C (-40 °F to 302 °F) |
| Storage Temperature (VN101501, VN101503)   | -40 °C to 85 °C (-40 °F to 185 °F)  |
| Storage Temperature (VN101502, VN101504)   | -40 °C to 150 °C (-40 °F to 302 °F) |

### Electrical Specifications

|                              |                          |
|------------------------------|--------------------------|
| Supply Voltage               | 3.8 to 24 VDC            |
| Maximum Input Voltage        | 30 VDC                   |
| Maximum Reverse Voltage      | 30 VDC                   |
| Supply Current               | 4.1 mA typ., 7.5 mA max. |
| Output (Sink) Current        | 25 mA max.               |
| Recommended Pull-Up Resistor | See Chart                |

### Mechanical Specifications

|                             |   |
|-----------------------------|---|
| Housing Material            | Over-molded plastic   |
| Sensor Orientation          | Sensitive; see drawing  |
| Recommended Vane Parameters | Low carbon material at least 1.016 mm (0.04") thick, should penetrate to a depth < 3.05 mm (0.12") from bottom of sensor slot |

### Part Number

|           |                       |
|-----------|-----------------------|
| VN101501  | pins                  |
| VN101502* | pins                  |
| VN101503  | 24 AWG x 150 mm leads |
| VN101504* | 24 AWG x 150 mm leads |

\*Not commonly stocked; please contact the factory or your distributor

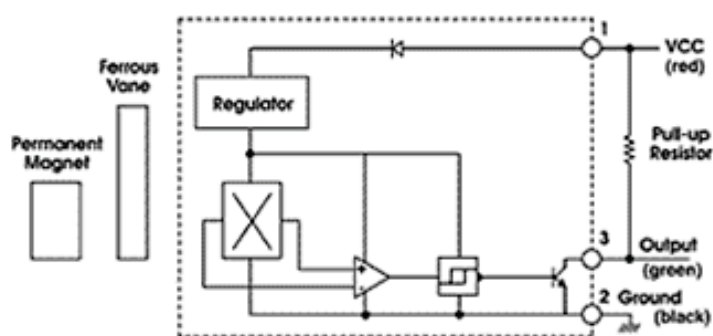
### Termination

Note: An external pull-up resistor is required, the value of which is dependent on the supply voltage. The resistor should be connected between the output and Vcc. Refer to the wiring diagram for lead colors or pin numbering as applicable.

### Recommended External Pull-Up Resistor

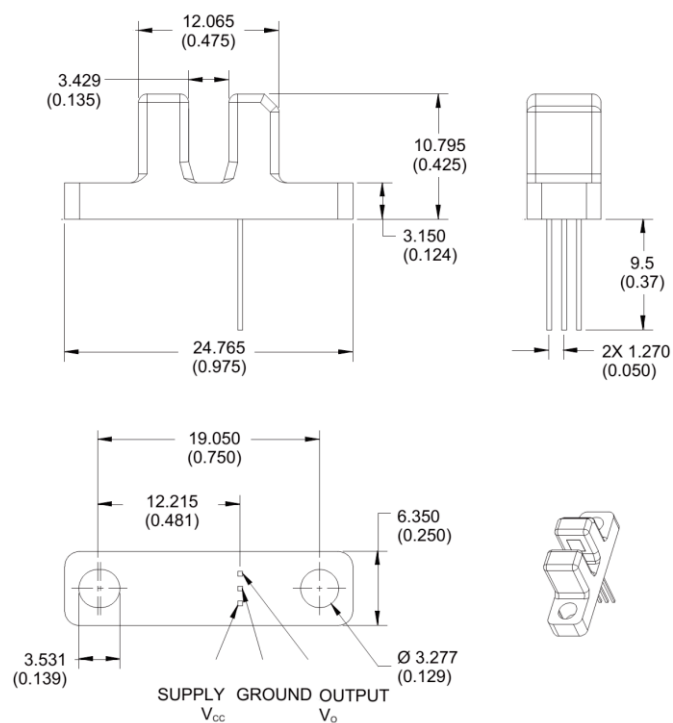
| Volts DC | 5  | 9    | 12   | 15 | 24 |
|----------|----|------|------|----|----|
| Ohms     | 1k | 1.8k | 2.4k | 3k | 3k |

## Open Collector Sinking Block Diagram



## Dimensions mm (inches)

VN101501 and VN101502



VN101503 and VN101504

