

# HE950 Sensor

## Description

The HE950 Sensors produce digital pulse signals for use with speed switches, tachometers, counters, signal conditioners, or as direct pulse input into programmable controllers.

The sensor incorporates a dual Hall-Effect sensor and signal processing that switches in response to differential magnetic signals created by a ferrous target. Typical targets are gear teeth and the circuitry achieves true zero-speed operation. The HE950 sensor allows a gap distance greater than 2mm with the proper teeth geometry.

The sensor can be mounted up to 1500 feet from the control unit, speed switch, tachometer, etc. They are powered by 5-24 VDC and provide an NPN Open Collector output. The Standard HE950 Sensor has a threaded aluminum body and is supplied with a mounting bracket.

## Sensor Installation

The HE950 sensor is supplied with a mounting bracket and two jam nuts. Sensors should be installed so the center line of the gear teeth pass in front of the center of the sensor as the target rotates.

Recommended gap distance between the sensor and the ferrous target is 2mm to 3mm. To achieve the proper gap distance, adjust the jam nuts holding the sensor in the mounting bracket.

## Operation Versus Air-Gap/Tooth Geometry

Operating specifications are impacted by tooth size, valley size, and depth, gear material, and gear thickness. In general, the following guidelines should be followed to achieve greater than 2mm air gap from the face of the unit:

- Tooth width (T) > 2 mm
- Valley width ( $p_c - T$ ) > 2 mm
- Valley depth ( $h_f$ ) > 2 mm
- Gear thickness (F) > 3 mm
- Gear material must be low-carbon steel.

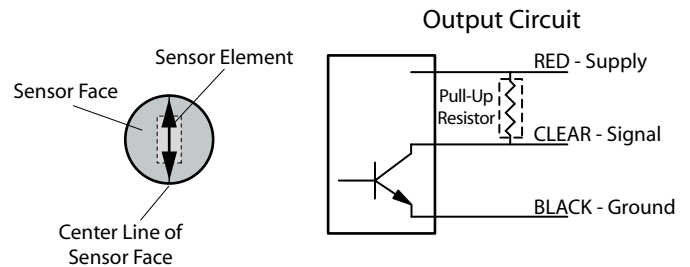


## Electrical Connections

The HE950 sensors is designed for use with devices that have an internal pull-up resistor. If the device receiving the signal from the sensor does not have a pull-up resistor, a resistor must be placed between the sensor supply voltage and the sensor signal output. See table below for some examples.

**Important:** Depending on the supply voltage, observe proper wattage rating of the pull-up resistor.

Supply Voltage	Resistor Value	Resistor Wattage
5V - 11V	1K	1/4 Watt
12V - 15V	2.2K	1/4 Watt
16V - 24V	4.7K	1/4 Watt

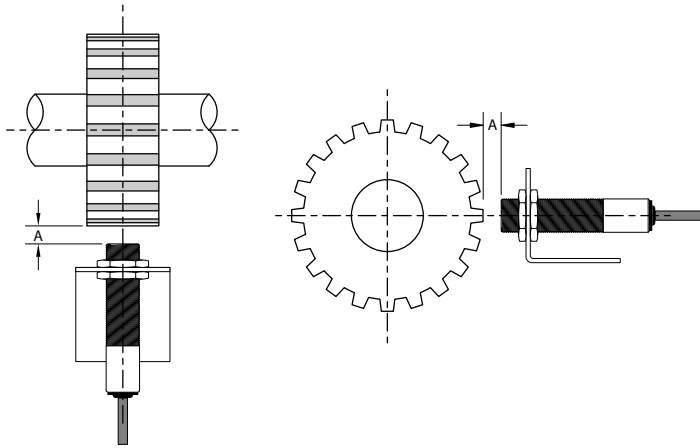


**Note:** Exercise caution when wiring the sensor. Damage will occur if the **SIGNAL** and **SUPPLY** wires are shorted.

Color	Connect To	Description
Shield	Circuit Ground	Transducer Shield
Black	Circuit Ground	Transducer Ground
Clear	Signal Out	Transducer Output
Red	+5-24 VDC	Transducer Supply

## HE950 Specifications

Supply	5-24 Vdc
Supply Current	15mA Max
Output Type	NPN Open Collector
Output Current	20mA at 24Vdc max
Max Frequency	12 kHz
Gap Distance ("A")	2 mm to 2.5 mm
Max Cable Length	1500 feet
Body Material	Stainless Steel
Cable	3-Conductor, Shielded
Mounting Bracket	Zinc Plated Steel, Included
Temp Range	-40° C to +60° C



## Part Dimensions

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