

Zero Power Consumption Sensor WG631



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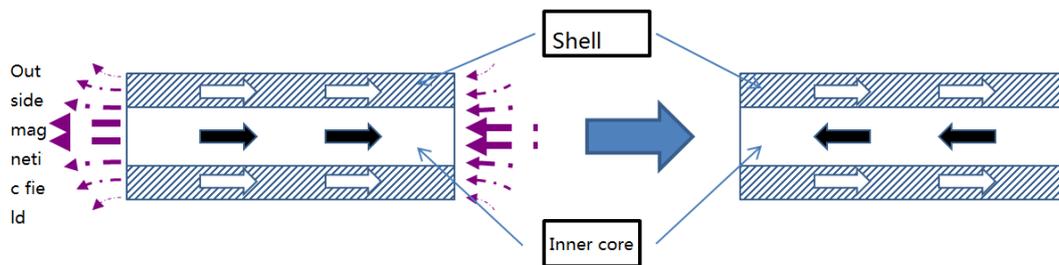
◆ Features

- No need the power supply when it works.
- Bipolar excitation working mode, the sensor outputs a pair of positive and negative electrical pulse signal when the magnetic field polarity changes for a circle.
- Only when the external magnetic field polarity changes, and magnetic strength reaches the excitation threshold, the sensor will outputs a pulse signal, so the vibration won't happen. The operation is stable and reliable.
- The signal amplitude has nothing to do with the magnetic field changing speed, and it can work at the speed near to zero.
- The output signal can be remote transmitted by the signal lines, so it's suitable for LAN management.
- No mechanic contact, no spark, is a kind of intrinsic safety devices.
- Wide operating temperature range, strong environmental adaptability.

◆ Principle description

Zero power consumption sensor WG631 (It also called Wiegand sensor), it is a kind of new type magnetic sensor, which is produced based on Wiegand effect theory, it can active produce energy. It no needs external power supply when it works, it can send sharp voltage pulse signals, The sensor is consist of alloy wire which is special processed, induction coil which winds outside, frame and lead wire.

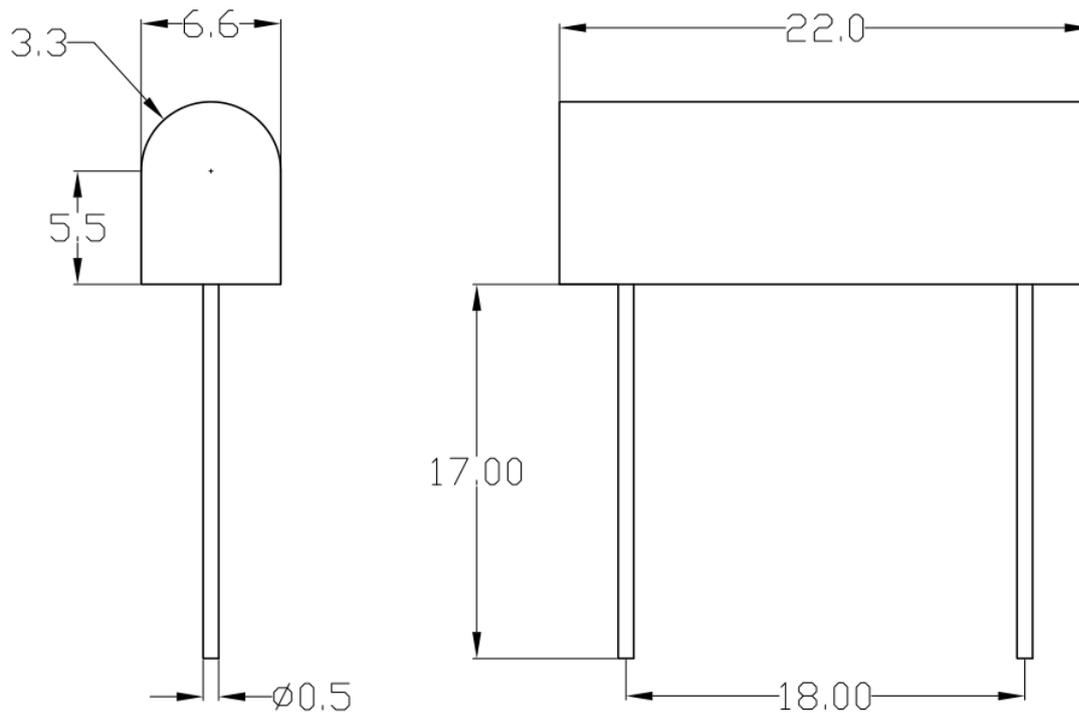
The alloy wire owns double magnetic structure, its inner core is soft magnetic, its shell is hard magnetic. To utilize the difference of the magnetic between the inner and outer of the alloy wire, under the excitation by proper strength of the alternating magnetic field, the magnetization direction of inner core overturned instantly, it pointed to the same or opposite direction with the shell magnetization direction, and it leads to the sudden change of the magnetic field around the alloy wires, then it generated a pair of positive and negative electric pulses in the induction coil. The pulse amplitude is only related with strength of the excitation magnetic field, and it has nothig to do with the changing speed of the magnetic field, it can realize “Zero speed”counting detection.



◆ Parameter

Parameter	Simble	Min.	Typ.	Max.	Unit
Excitation magnetic field	B	5.5	8	12	mT
Pulse signal amplitude	V_0	1.5	—	—	V
Pulse Width	τ	10	—	30	us
Internal DC resistance	R	250	—	350	Ω
Operate Frequency	f	—	—	5	kHz
Operate Temperature	B	-40	—	125	$^{\circ}\text{C}$

◆Outline Figure



The lead wire is tin plating copper hard wire, the pins haven't positive and negative poles discrimination

● Mark

The product mark is ink seal, The code is : WG631.