Integrated Acceleration Transducer

Model: YD30

Brief Introduction

YD30 series integrated acceleration transducer is an integrated transducer that processing acceleration sensitive elements on a polycrystalline silicon by micro-machine with conversion, measurement and amplifier circuit. It can measure the acceleration of direct current that up to 2.5KHz within ±1g～±18g. It has excellent stability, reliability and strong anti-jamming capability. As the common acceleration transducer need to calibrate on the standard vibration table, brings lots of inconvenience to the users. The integrated acceleration transducer is much better than that. With the use of advanced microelectronic processing technology and capacitance measuring principle, it can obtain excellent low frequency responses, adjust the transducer by gravity acceleration g. Its built-in self-checking system can easily check itself normal or not.

Range of Application

1. Equipment vibration measurement: YD30 series integrated acceleration transducer is widely used in various industries equipments working condition monitoring. The vibration value when the device is running is an important index for measuring the equipments running normal or not. The transducer can measure the vibration value from direct current to 2KHz, the output signal will give an accurate visual instructions for equipments' amplitude by filtering and detection.
2. Impact measurement: widely used in automobile airbag and seat belts system. The transducer will be impact when a crash happens, then it will output a pulse signal that in proportion to the impact acceleration within 1 ms, when the impact acceleration reaches a certain value, the signal will make the airbag outbreak or lock the seat belt to protect the people in the automobile.
3. Dip Angle measurement: When the transducer is placed gradient, the output value of transducer is the component of gravity acceleration on the transducer's gauging spindle, it means there is anti-sine functional relation between output and slant angle, when the slant angle is small, it is linear relationship approximately.

Working Principle

YD30 series integrated acceleration transducer is based on capacitive measurement principle to measure acceleration. Its output signal is proportional to the acceleration. The diagram is as follow:

Technique Data

Measuring range: ±1g～±30g
Nonlinearity: 0.2% FS
Frequency response: 0 ~ 2 kHz (-3 dB)
Temperature drift: ≤0.01% / ℃(-20～+125℃)
Power supply: +12～+24 V, dual power supply output type needs to use dual power supply
Maximum impact tolerable: 10000g
Output: 1～5 V、-5～+5 V, etc. for choice

Installation Method

Fasten it on the device by bolt.

Calibration Method

There is no secondary calibration for YD30 series integrated acceleration transducer under normal circumstances. If it is necessary, measure the actual sensitivity by gravitational acceleration g, adjust it by the second instrument. For example, the measure range for one acceleration transducer is ±2g, standard sensitivity is 1V/g, make it perpendicular to the horizontal plane, the output direct current voltage is 2.5V and put it on level, the output direct current voltage is 1.55V, then the actual sensitivity of the integrated acceleration transducer is (2.5-1.55)V/g.