Tilt Sensor Terminology

Cross Axis Error

This is how much the output could be effected if the sensor is titled in an axis perpendicular to its sensitive axis.

Current

This tell us how many amperes the device could draw from the supply. It could be important in choosing the correct supply.

Frequency Response

This is a rating of how well the sensor will react to a sinusoidal (rocking) input.

Linear Range

The limit of tilt in which the sensor will register an output which is linear within the published specifications.

Linearity

This specification outlines a window in which the sensor could deviate from an ideal linear output.

Load Resistance

This is the minimum amount of resistance, in ohms, which is required across the output to operate the sensor. If there is less than this amount, the circuit can not supply enough current to keep the voltage at the specified value. A larger resistance is fine.

Null Repeatability

This is how much deviation could take place if a sensor is moved from a given point and returned to the same point.

Operating Temperature Range

The extreme high and low temperatures in which the device can be operated.

Performance

The performance specifications for any sensor typically list everything but “accuracy”. This is because there are many elements which go into the overall accuracy of the unit. Let’s look at a definition for each specification.

Scale Factor

This is the slope of the output (in millivolts per degree or usec per degree). In other words, how much the output will change as the device is tilted.

Storage Temperature Range

The extreme high and low temperatures in which the device can be stored without damage occurring.

Temperature Coefficient of Null

The amount of offset the output could change due to temperature changes, when sensor is at its null (zero) position.

Temperature Coefficient of Scale

The amount the slope (scale factor) could change due to temperature changes.

Threshold/Resolutions

The amount of tilt needed to register a change in the output. This specification has no bearing on linearity, repeatability or overall accuracy.

Time Constant

This is a rating of how fast the sensor output will react to a step input movement.

Total Range

The limit of tilt at which the sensor will register an output change.

Voltage Supply

The nominal supply voltage is the voltage at which the device was designed and tested. The range is the high and low voltage at which the device can be operated.

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