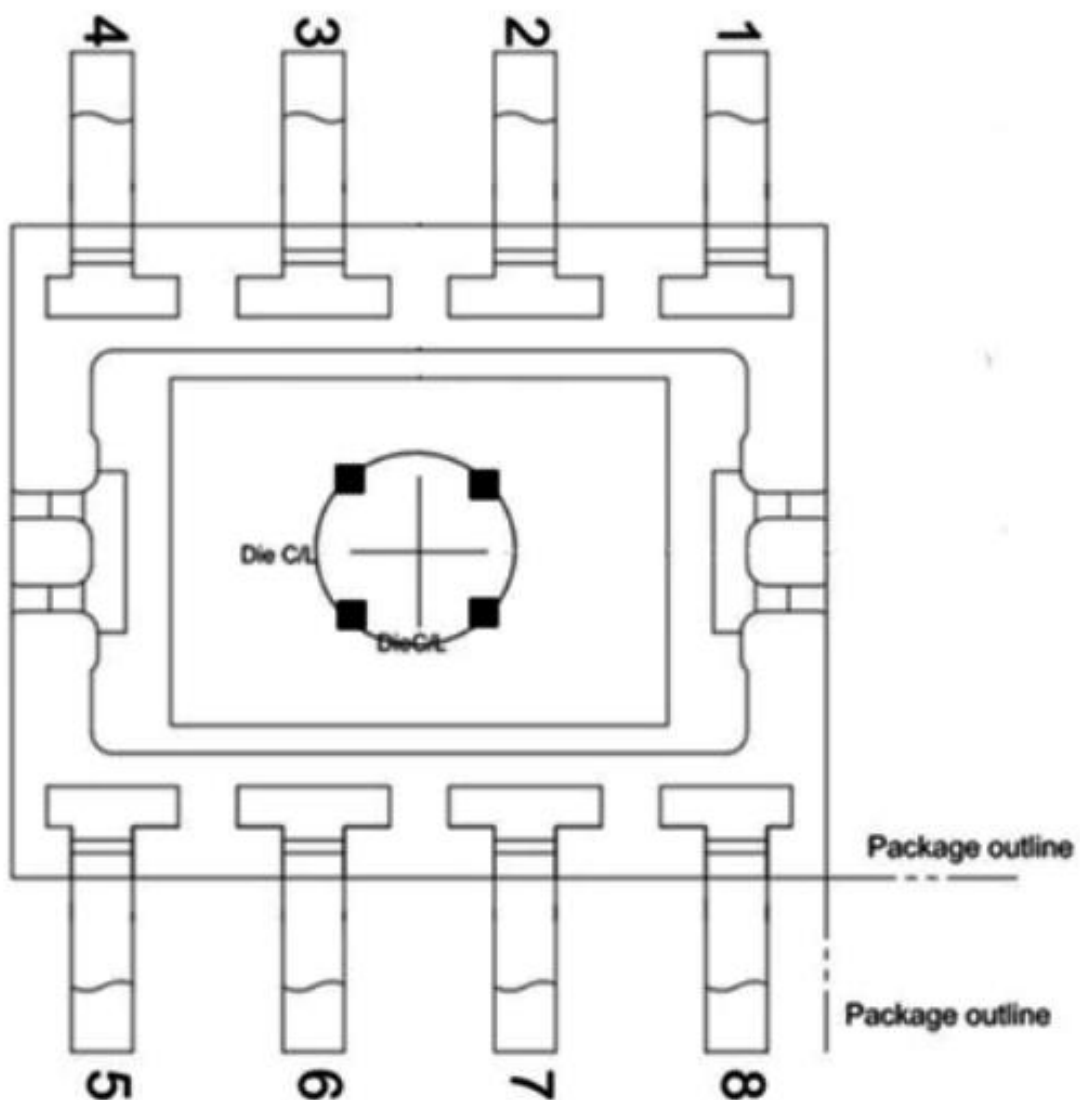
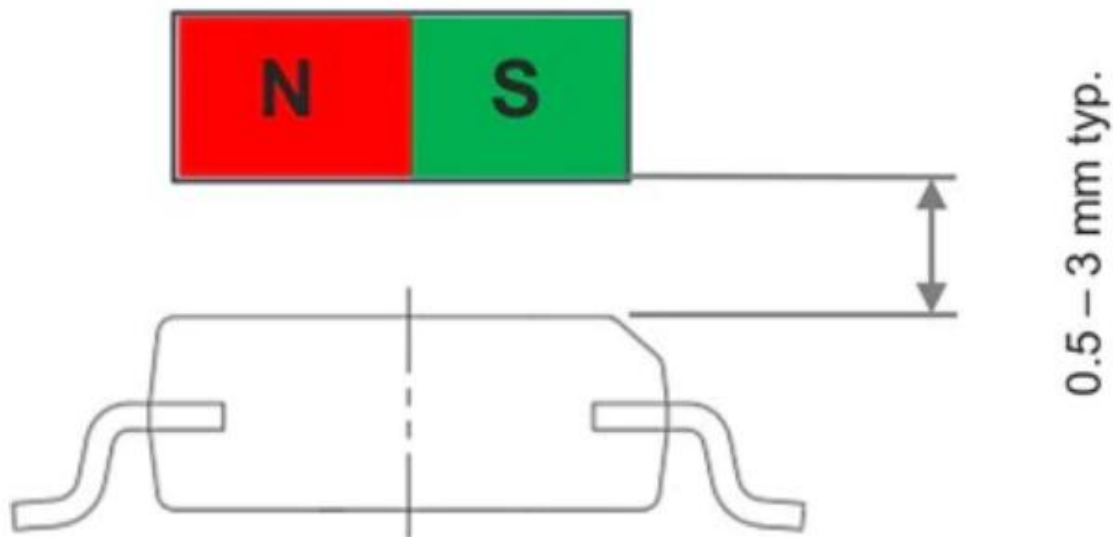


AS5600 12-BIT MAGNETIC ENCODER MODULE

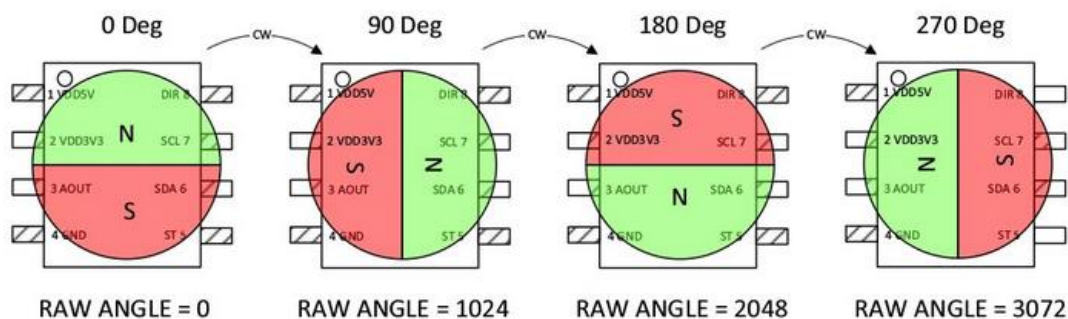
The AS5600 is an easy to program magnetic rotary position sensor with a high-resolution 12-bit analogue or PWM output. This contactless system measures the absolute angle of a diametric magnetized on-axis magnet. This AS5600 is designed for contactless potentiometer applications and its robust design eliminates the influence of any homogenous external stray magnetic fields. The industry-standard I²C interface supports simple user programming of non-volatile parameters without requiring a dedicated programmer. An easy start and stop position programming in a so called "3 wire mode" without a programmer or digital interface is also implemented. The default range of the output is 0 to 360 degrees. The AS5600 can be applied to smaller range by programming a zero angle (start position) and a maximum angle (stop position). The AS5600 is also equipped with a smart low power mode feature to automatically reduce the power consumption. This microcircuit contains four Hall sensors arranged in a circle. The internal Hall elements are placed in the centre of the package on a circle with a radius of 1 mm.



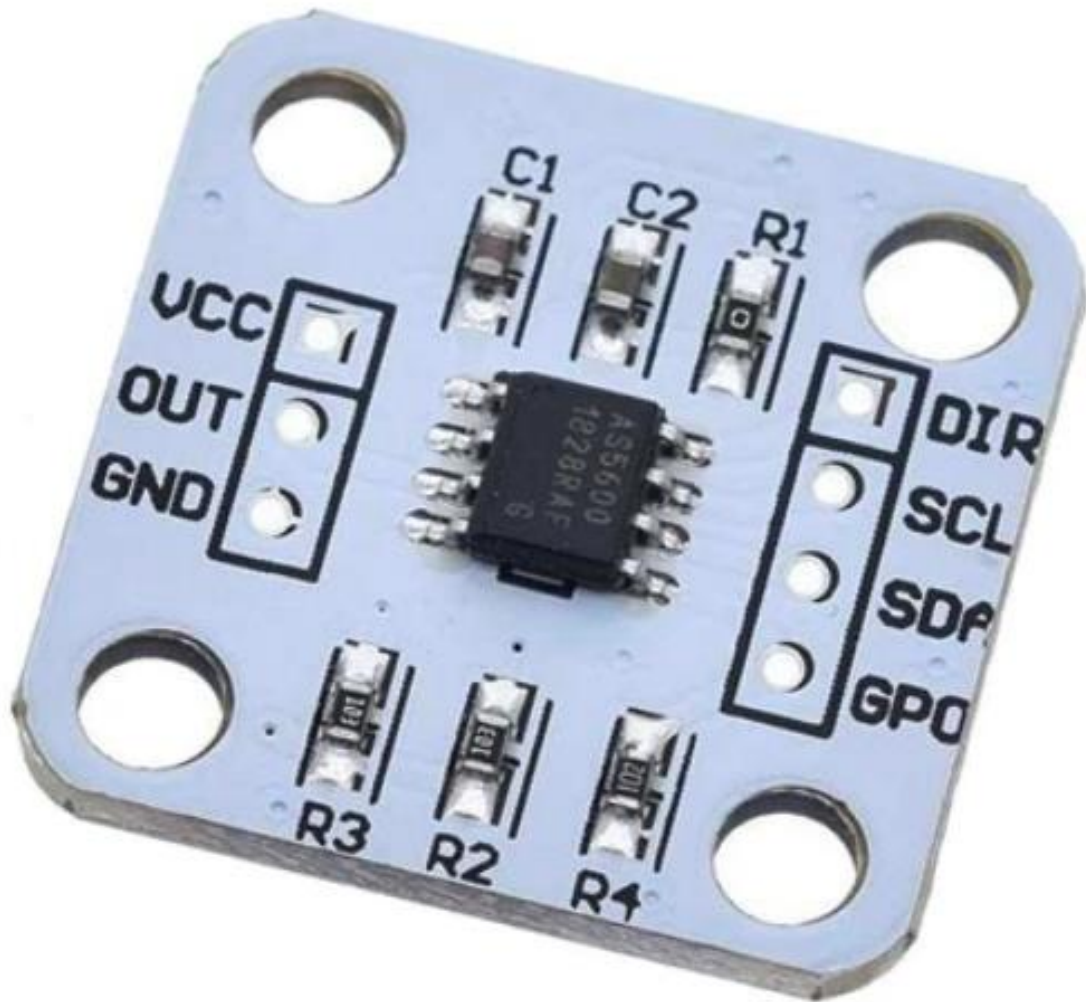
The typical air gap is between 0.5 mm and 3 mm, and it depends on the selected magnet. A larger and stronger magnet allows a larger air gap. Using the AGC value as a guide, the optimal air gap can be found by adjusting the distance between the magnet and the AS5600 so that the AGC value is in the centre of its range. The maximum allowed displacement of the rotational axis of the reference magnet from the centre of the package is 0.25 mm when using a magnet with a diameter of 6mm.



The AS5600 allows controlling the direction of the magnet rotation with the DIR pin. If DIR is connected to GND (DIR = 0) a clockwise rotation viewed from the top will generate an increment of the calculated angle. If the DIR pin is connected to VDD (DIR = 1) an increment of the calculated angle will happen with counter clockwise rotation.



Mounted AS5600 sensor on board.



Pin	Description
Vcc	3.3V
GND	Power Ground
OUT	PWM / Analogue voltage output
DIR	Rotational direction (ground=Value increases clockwise Then VCC =Clockwise values are decreased)
SCL	The communication clock line
SDA	Data communication line
GPO	Mode selection (internal pull ground=Programming mode)