

1.Features

- Operation under wide operating voltage range: 2.7V~22V
- Temperature range is from -45°C to 105°C
- Lead / connector for direct output
- High sensitivity
- Lead is customized

2.Application

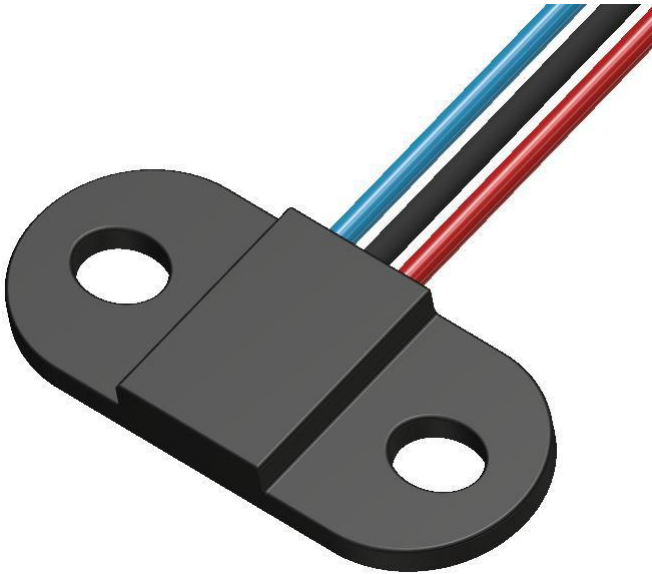
- Home appliances, cabinets and other door switch detection
- Object position detection-coffee cup
- Low standby power consumption occasions
- Small size sensor field
- Button detection
- Coffee cup / pot in position detection
- Small home appliance protection cover in position detection

3.Overview

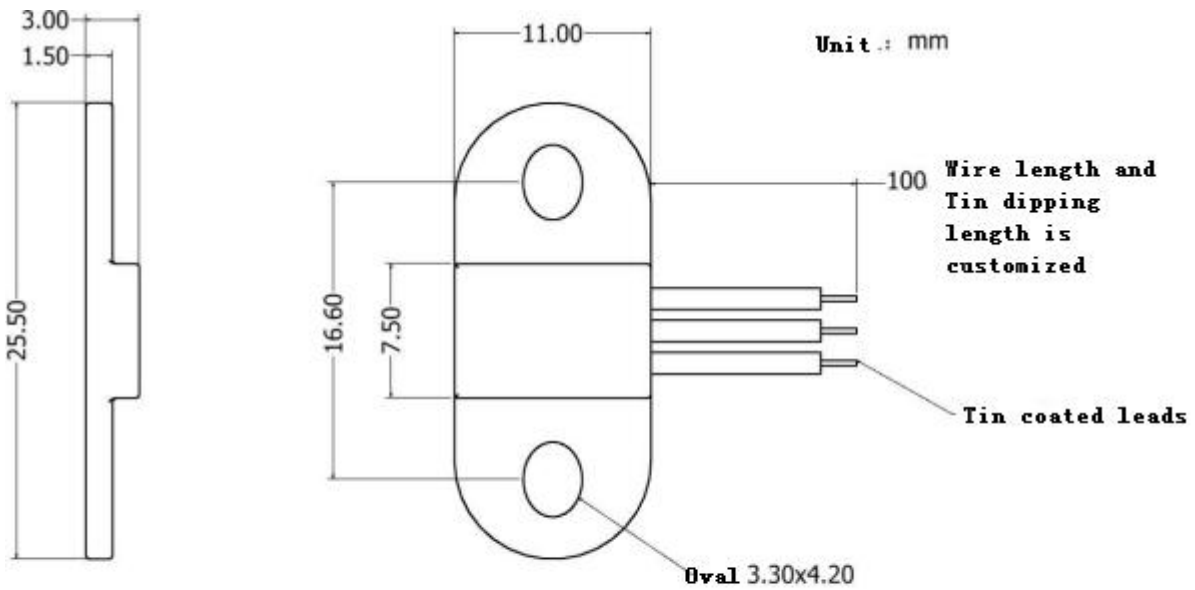
AH-SF166C is a three-wire small-size proximity switch based on the unipolar Hall IC. When using AH-SF166C, it just need to make the magnetic close to the sensor.

AH-SF166C has excellent voltage and temperature performance, AH-SF166C has excellent voltage and temperature performance, and ensure the sensor stable works in a wide voltage and temperature range.

4. Outline, wiring function and dimension



Red: power supply
Black:GND
Other: output



5. Performance Parameters

5.1 Limit Parameters:

	Min.	Typ.	Max.	Unit
Supply voltage V_s	3.3	5	22	V
Operating point B_{op}	4.5	7.5	10	mT
The Release point B_{rp}	3	5.2	8	mT
Hysteresis B_h	2	2.4	4	mT
Operating temperature T	-40	-	150	°C

5.2 Electrical Characteristics: $V_s = 5V$, load current of 25mA

	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V_s	3.3	3,5,12	22	V
High level output voltage	V_{oh}	-	OD output	-	-
Low level output voltage	V_{ol}	-	0.4@25mA	0.5	V
Average consumption current	I	-	5.5	7	mA
Switching frequency	F	0	-	20	kHz

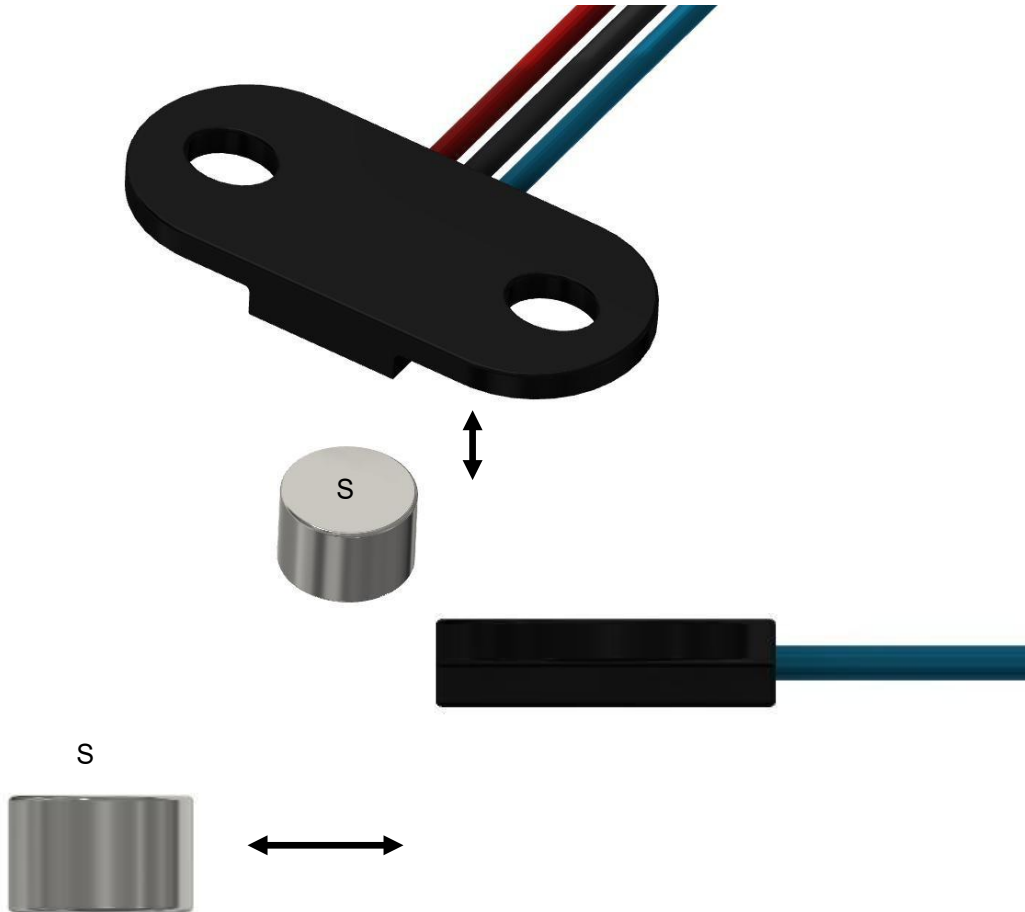
5.3 Magnetic Characteristics

$V_s = 5V$, using the N35 D6 * 4 NdFeB S pole

	Symbol	Min.	Typ.	Max.	Unit
Operating distance	D_a	0	8	12	mm

6. Sensor Working Mode

The induction distance is related to the selection of magnet size and Hall IC. The N35, D3X5 circular magnet is selected, and the trigger distance is about 10mm, with S pole triggered.



The leaving or closing trigger for the magnet's vertical or side surface, is commonly used in the refrigerator door, cabinet door switch detection, button detection, coffee cup / pot in position detection, small home appliance protection cover in position detection.

7. AH-SF166C Series Sensor Function Expansion

While keeping the same shape and location dimensions, other functions can be available depending on the selected Hall IC:

With the bipolar latch Hall IC, when using pairs of poles (one pair or multi-pairs of pole) magnet, the output waveform is a square wave, it can measure the high-speed motor rotation speed and calculate the number of rotations.

With the micropower omnipolar / non- micropower omnipolar Hall IC, it needn't consider the magnetic field orientation in installation.