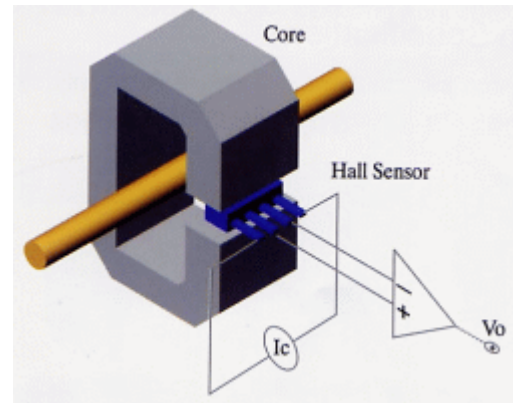


# Open Loop Hall Effect Current Sensors/Transducers

## 1. Measuring Principle

- Primary current  $I_p$  applied on core, causing Hall voltage rise thanks to the magnetic induction generated on core.
- $I_c$  is a constant current source to supply Hall sensor. It makes Hall sensor under constant operation condition.
- Output voltage  $V_o$  then is proportional to  $I_p$ . This means that the output can get a very good linearity before core and OP saturation.



## 2. Characteristics and Features

**Measurable Current Range:**

About 3 times of rated current

**Output Signal:**

It is directly proportional to the measured current, both DC and AC measurable. General voltage output  $V_o$  is 4V at the rated (nominal) current  $I_{rated}$ . Different  $V_o$  versions are also available

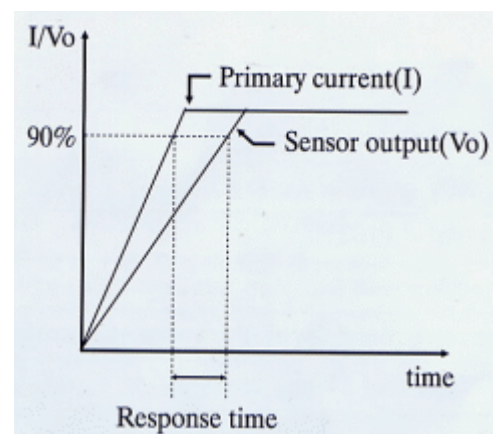
**Measurement Accuracy:**

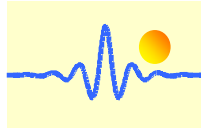
Depends on ambient temperature, operating temperature and some other electrical parameters. Our current sensors are factory-calibrated (offset and gain voltage) at an ambient temperature of 25°C

## 3. Dynamic Properties

### a. Response time

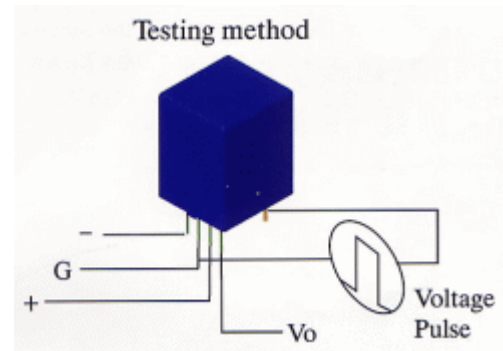
- **Definition:**  
The delay time between 90% of measurable current range (3 times of rated current) and sensor output reaches the coordinated voltage
- **specification:**  
Chenyang open loop current sensors have the Best performance thanks to our best design of layout and well selection of high slew Rate amplifier.





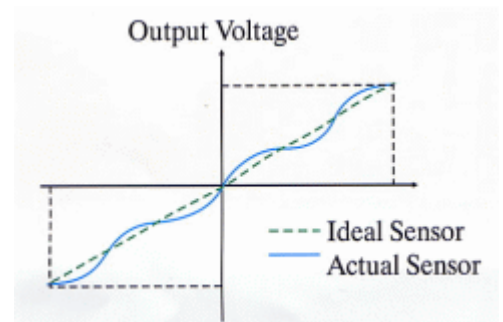
### b. Noise response

- Voltage pulse applied 300~600V/ $\mu$ s on primary conductor
- With control power supply
- Measuring output voltage ( $V_o$ ), specification depends on the application situation. However the smaller, the better
- Chenyang open loop current sensors have the excellent low output voltage ( $V_o$ ) in comparison with other sensors.



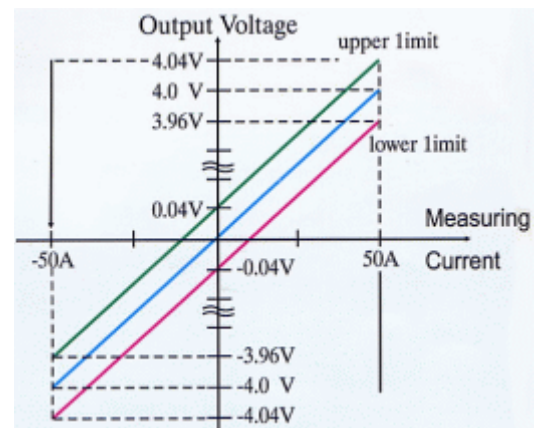
### c. Output voltage ( $V_o$ ) linearity:

- The output voltage versus input current relation of an ideal current sensor (without setting error in residual and output voltage) is indicated by the dot line in right figure
- The continuous line shows the output/input relation of an actual sensors.



## 4. Output Voltage ( $V_o$ ) Performance (at Rated Current 50A)

- Offset standard specification: 40mV
- Output voltage ( $V_o$ ) standard specification:  $\pm 4V \pm 0.04V$



## 5. Typical Applications

- General Purpose Inverter
- AC/DC Variable Speed Drivers
- Battery Supplied Applications
- Uninterruptible Power Supplies
- Switched Mode Power Supplies

