1. Traditional Closed Loop Current Sensor

- The closed loop sensor has the advantages of wide frequency range, good overall accuracy, fast response time, low temperature drift, excellent linearity and no insertion losses.
- The disadvantage is not easy to install.

2. Performance of Current Sensor with Split Core

- Under using same sensor circuit, the output current of closed loop current sensor with split core is smaller than that of sensor using solid core.
- The deviation of current sensor with split core after compensation can be limited within the range of ±0.5%.

3. Configuration of Split Core Closed Loop Sensor

- Relevant parameters:
  - Dimension of partial split cores
  - The turns and position of secondary coil
  - The air gap of sensor core
  - Relative section of soft magnetic core
  - Position of Hall elements

4. Experiment Results

- In the experiment, a coil with 1000 turns is wound around soft magnetic half core. The rated input current of split core closed loop current sensor is 40A corresponding to rated output 5V.
- The linearity of the split core current sensor under test is within ±0.08%.
- The relative deviation of the sensor is less than ±0.2%.

5. Applications

- Widely used in inverters, rectifiers, AC/DC motor drives, power supplies, battery supplied applications, solar panels and photovoltaic equipment.
- The developed sensor can be used in operating power systems without remounting the current conductors.