IPS2200 INDUCTIVE POSITION SENSORS
A New Era in Motor Commutation

Renesas’ magnet-free IPS2200 inductive position sensor features high accuracy and speed, total stray field immunity, and efficient motor integration in a thin and lightweight form factor. The IPS2200 is ideal for use as an absolute position sensor in a wide range of industrial, medical, and robot applications. The sensor allows engineers to cost effectively tailor sensor design for their applications and maximize the performance of the sensor’s mechanical accuracy.

The IPS2200 is designed around the motor, allowing customers to match the number of sectors to pole pairs of the motor to maximize accuracy, accommodating both off-axis (through shaft and side shaft) and on-axis positioning. The magnet-free IPS2200 is up to 10x thinner and up to 100x lighter compared with traditional resolvers. The sensor’s thin and light form factor and total stray field immunity enables easier motor integration and provides the standard materials required for customers to manufacture their own resolvers – reducing bill of materials costs. Four-wire operation provides up to 250k rpm electrical rotational speeds and very low latency compared with resolver- or magnetic based solutions.

Key features

- Industrial qualified, with stable operation in harsh environments and -40° to 125° C ambient temperatures
- Interface: Sin/cos single ended or differential
- Voltage Supply: 3.3V ±10% or 5.0V ±10%
- Rotational Speed: Up to 250,000 rpm (electrical)
- Propagation delay: Programmable, <10μs
- Sin/cos gain mismatch and offset compensation on chip
- Overvoltage, reverse polarity, short-circuit protected
- Digital programming interface: I²C or SPI

Benefits

- Flexible design around the motor, on-axis and off-axis capabilities
- Supports higher speed
- Better accuracy
- Cost effective
- Stray field immunity
- No tight mechanical tolerances needed
- Lower weight, smaller size

Applications

The IPS2200 is ideal for motor commutation applications, such as:

- Robots
- Industrial Equipment
- Medical Devices
- Small E-vehicles
- Power Tools
- Automatic Machines
RENESAS INDUCTIVE POSITION SENSORS

The flexibility of the IPS2200 inductive position sensor technology allows engineers to design the sensor around the motor. It is capable of supporting both off-shaft and any number of pole pairs.

IPS2200 Products

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For more details, please visit [idt.com/position](http://idt.com/position)