

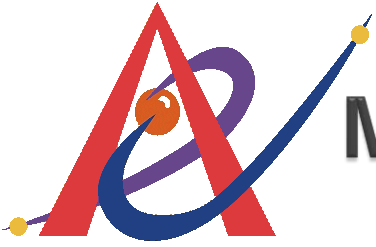


**ARTHUR E GROUP**

**愛華融集團**

**AS5030**

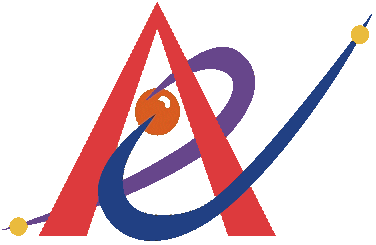
**Rotary Encoder IC**



# Magnetic Encoder Design Examples Medical, Consumer And Robotics

- ▶ Remote controlled toy





# General Description

AS5030 are contactless magnetic rotary encoder ICs for accurate angular measurement.

The devices provide two absolute outputs with an angle resolution of 8-bit ( $1.4^\circ/\text{step}$ ).

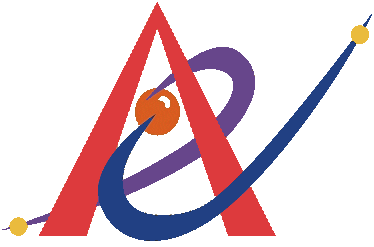
A user defined zero position can be permanently programmed into the chip. The diagnostic feature provides an immediate warning in case of a loose or missing magnet.

Low power modes along with a fast start-up time provide for low average power consumption.

The 8-bit multi-turn counter with wake-up functionality counts number of full turns.

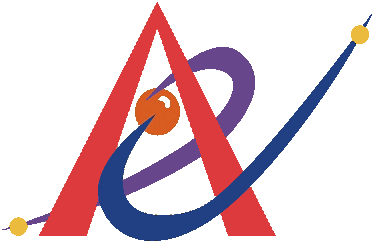
Push-button feature allows exact determination of the distance between the magnet and the chip

The entire system solution only requires a small diametrically magnetized magnet and one external buffer capacitor.



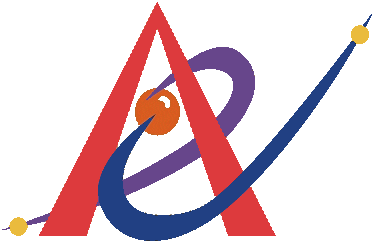
# Benefits

- ▶ Extended lifetime of switch due to contactless angle sensing
- ▶ Ideal for use in harsh environment
- ▶ Absolute angular position information accessible via serial and PWM output
- ▶ User programmable zero position for ease of assembly
- ▶ Diagnostic feature indicating magnet displacement
- ▶ No calibration required
- ▶ Robust system, tolerant to:
  - Magnet misalignment
  - Temperature variations
  - External magnetic fields
  - Aging of magnet



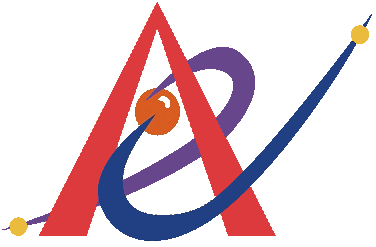
# Key features

- ▶ Two 8-bit absolute angle outputs
  - Serial interface
  - PWM output
- ▶ User programmable zero position
- ▶ Rotational speed up to 30,000 rpm
- ▶ Daisy chain mode
- ▶ Low power mode: typ. 1.5 mA current consumption
- ▶ Ultra-low power mode: typ. 50  $\mu$ A
- ▶ Push-button feature with customer definable thresholds
- ▶ No temperature compensation required
- ▶ Supply voltage: 5V
- ▶ Wide temperature range: -40°C to +125°C
- ▶ Small Pb-free package: TSSOP16

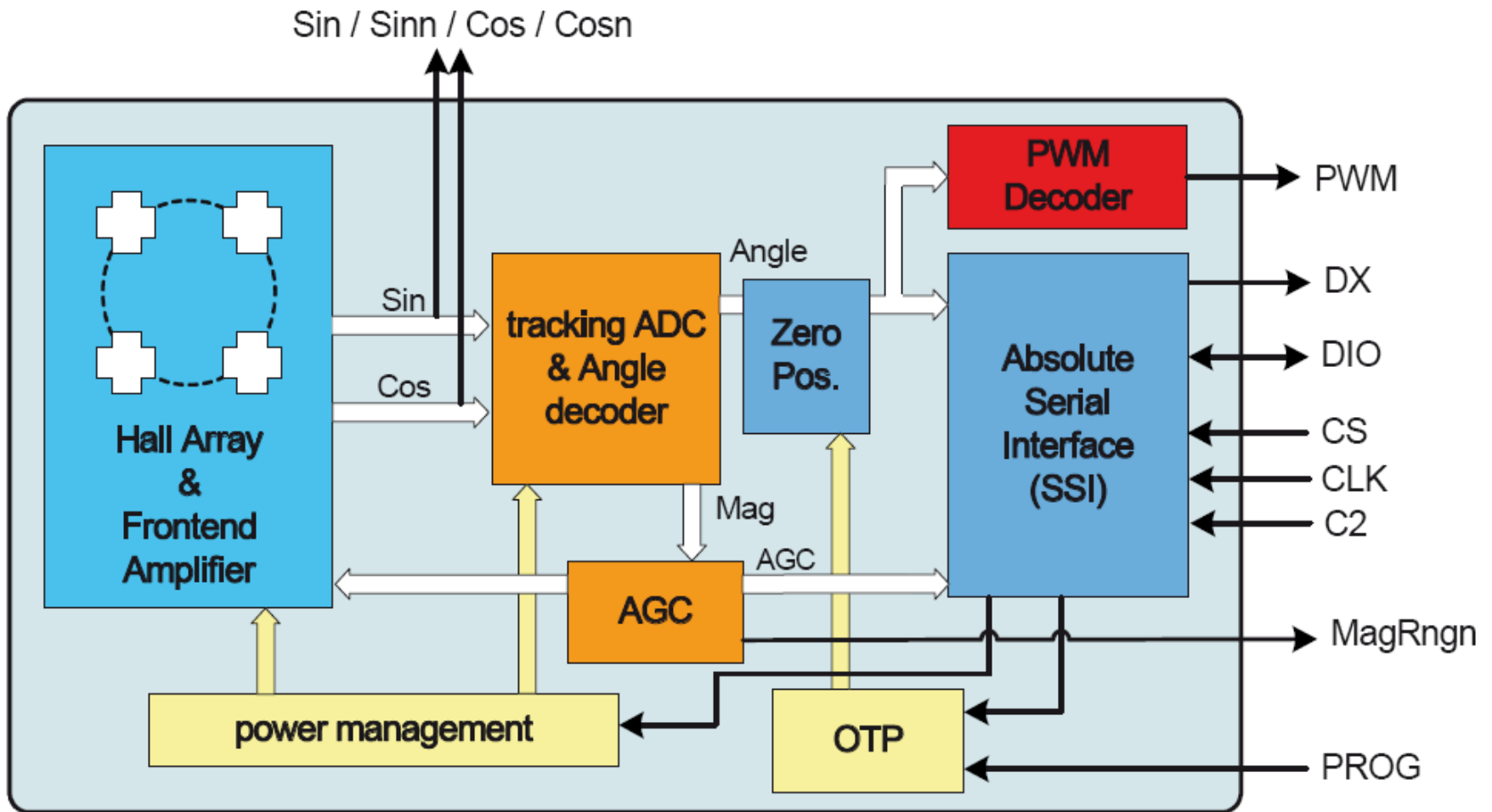


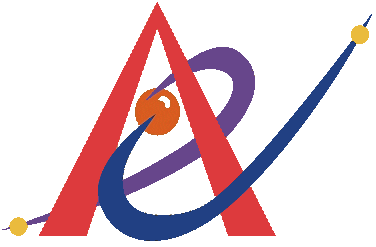
# Applications

- ▶ Human-machine-interface applications for
  - White goods
  - Audio equipment
  - Medical equipment
  - Test and measurement equipment
- ▶ Encoder for battery powered devices
- ▶ General purpose miniature encoders
- ▶ Robotics



# Block Diagram





- Solution Brief
- Datasheet
- Reference Schematic

# References



**If you want to have any technical support,  
please free to contact us.**

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