

### FEATURES

- True Power-On multiturn counter
- 46-turn magnetic sensor
- >16k° digital output
- $\pm 0.25^\circ$  accuracy
- Measurement update rate 100 kSPS
- 16 mT to 31 mT operating range
- Internal temperature sensor
- IC supply, 3.3 V
- SPI interface, 1.8 V to 5 V
- Junction temperature range:  $-40^\circ\text{C}$  to  $+150^\circ\text{C}$
- 24-pin TSSOP
- Industrial applications

### APPLICATIONS

- Rotation count detection and storage without power

### GENERAL DESCRIPTION

The ADMT4000 is a magnetic turn count sensor capable of recording the number of rotations of a magnetic system even while the device is powered down. On power up the device can be interrogated to report the absolute position of the system. The absolute position is reported through a serial-peripheral interface (SPI). The ADMT4000 counts up to 46 turns of an external magnetic field, incrementing the absolute position in the clockwise (CW) direction.

The device includes three magnetic sensors, a giant magneto resistance (GMR) turn count sensor, which is used to count the number of rotations on the system, a GMR quadrant detecting sensor, and an anisotropic magnetoresistive (AMR) angle sensor. The AMR angle sensor is used in combination with a GMR quadrant

- Contactless absolute position measurement
- Brushless DC motor control and positioning
- Actuator control and positioning

### FUNCTIONAL BLOCK DIAGRAM

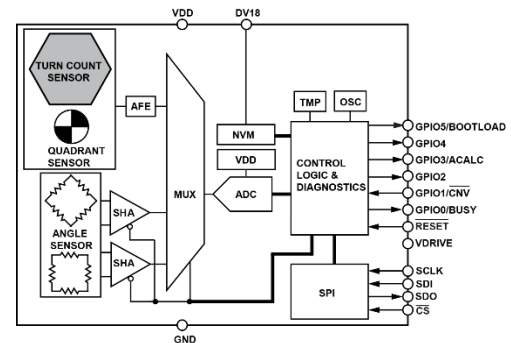


Figure 1.

detecting sensor to determine the absolute position of the system within  $360^\circ$ . Combining the GMR turn count sensor output with the AMR angle sensor output enables the device to report the position of the system with a high degree of angular accuracy.

### PRODUCT HIGHLIGHTS

1. True Power-On multiturn counter.
2. Clockwise positive count from magnetic reset.
3. Angle sensor with  $\pm 0.25^\circ$  accuracy.
4. SPI interface.
5. Under and over voltage detection.

#### Rev. PrA

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