# General Description
AK09940 is ultrahigh precision 3-axis electronic magnetometer IC with ultrahigh sensitive TMR sensor technology.
Small package of AK09940 incorporates magnetic sensors for detecting magnetic field in the X-axis, Y-axis, and Z-axis, a sensor driving circuit, signal amplifier chain, and an arithmetic circuit for processing the signal from each sensor. Self-test function is also incorporated.

## Features

### Functions:
- 3-axis magnetometer device
- Built-in A to D Converter for magnetometer data out
- 18-bit data out for each 3-axis magnetic component
  - Sensitivity: 10 nT/LSB (typ.)
  - Range: ±1200 µT (typ.)
- Serial interface
  - I²C bus interface
    - Standard and Fast modes compliant with Philips I²C specification Ver.2.1
  - 4-wire SPI
- Operation mode
  - Power-down, Single measurement, Continuous measurement and Self-test
- DRDY function for measurement data ready
- Magnetic sensor overflow monitor function
- Built-in oscillator for internal clock source
- Power on Reset circuit
- Self-test function with internal magnetic source
- Built-in temperature sensor
- Built-in magnetic sensitivity adjustment circuit
- 8 FIFO data buffer
- Selectable sensor drive
  - Low power drive / Low noise drive

### Operating temperatures:
- -30°C to +85°C

### Operating supply voltage:
- Analog power supply: +1.7V to +1.98V
- Digital Interface supply: +1.65V to analog power supply voltage

### Current consumption:
- Power-down: 2 µA (typ.)
- Measurement:
  - Average current consumption at 100 Hz repetition rate
    - Low power drive 1: 0.04mA (typ.)
    - Low power drive 2: 0.06mA (typ.)
    - Low noise drive 1: 0.11mA (typ.)
    - Low noise drive 2: 0.21mA (typ.)

### Package:
- AK09940  11-pin LGA: 1.6 mm × 1.6 mm × 0.58 mm (typ.)
3. Block Diagram and Functions

![Block Diagram]

4. Evaluation Kit

![Evaluation Kit](image_url)

Evaluation Kit “ACSP09940”
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