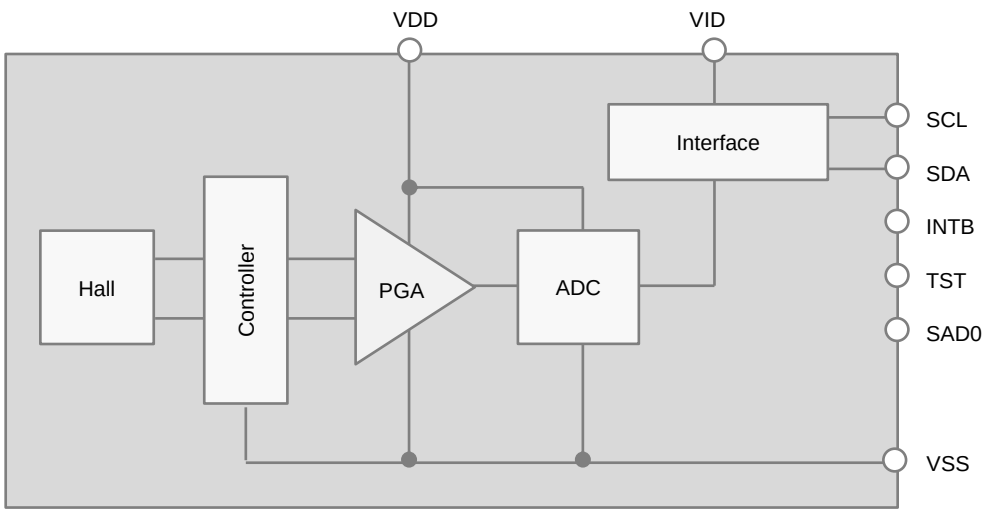
# MXM1120SO digital Hall sensor IC

The MXM1120SO is a multi-function Hall-effect sensor designed with mixed signal CMOS technology. The device integrates Hall elements, dynamic offset cancellation system, a programmable gain amplifier, low power ADC and arithmetic logic in a single chip. Bop, Brp, operation magnetic polarity and operation period are programmable by I2C interface. Off-the-shelf software is available to transform magnetic field strength into the angle between the magnet and the device with robust algorithm.

## Key Feature

- Magnetometer device for magnets on external devices
- Built-in analog to digital converter for magnetometer data outputs
- 10/8-bit selectable data outputs for each built-in Hall element
- Interfaces
  - ✓ $I^2C$: standard mode and fast mode compliant with Philips $I^2C$ specification Ver.2.1
  - ✓ Interrupt output
- Configurable magnetic sensitivity level and measurable range, for example;
  - ✓ High sensitivity mode: ±3.1mT at 6μT/LSB (10bit)
  - ✓ High dynamic range mode: ±40mT at 78μT/LSB (10bit)
- Operating temperatures:
  - ✓ -30°C to +125°C
- Operating supply voltage:
  - ✓ Analog power supply ($V_{DD}$): +2.7V to +3.6V (3.0V typ.)
  - ✓ Digital Interface supply ($V_{ID}$): +1.65V to $V_{DD}$ (1.8V typ.)
- Current consumption:
  - ✓ Power-down mode: 1.0 μA (typ.)
  - ✓ Normal operating mode: 18 μA typical at 10 Hz repetition rate
- Package:
  - ✓ 8-pin SOP: 4.93mm × 5.99mm × 1.63mm (typ.)

## Block Diagram