Register 0 — Sensor Voltage Register/V_{OBJECT} (address = 00h) (Read-Only)

BIT #	D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
BIT Name	V15	V14	V13	V12	V11	V10	V9	V8	V7	V6	V5	V4	V3	V2	V1	V0
POR VALUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1. Sensor Voltage Register Bits

Register Description

Register 0 (address 00h) is the Sensor Voltage Register (V_{OBJECT}). This register reports the result of the measured object voltage in 16-bit, binary twos complement format. The Sensor Voltage Register is a read-only register. One least significant bit (LSB) is equal to 156.25 nV. The full-scale value (FS) is equal to ±5.12 mV.

Data from this register is used in conjunction with the data from the Temperature Register ($T_{AMBIENT}$, address 01h) to calculate the object temperature.

Sensor Voltage Format

The Sensor Voltage Register provides 16 bits of data in binary twos complement format. The positive full-scale input produces an output code of 7FFFh and the negative full-scale input produces an output code of 8000h. The output clips at these codes for signals that exceed full-scale. Table 2 summarizes the ideal output codes for different input signals. Figure 1 illustrates code transitions versus input voltage.

SENSOR SIGNAL	OUTPUT CODE
FS ($2^{15} - 1$)/2^{15} (5.12 mV)	7FFFh
+FS/2^{15} (156.25 nV)	0001h
0	0
-FS/2^{15} (-156.25 nV)	FFFFh
-FS (-5.12 mV)	8000h

Table 2. Input Signal versus Ideal Output Code

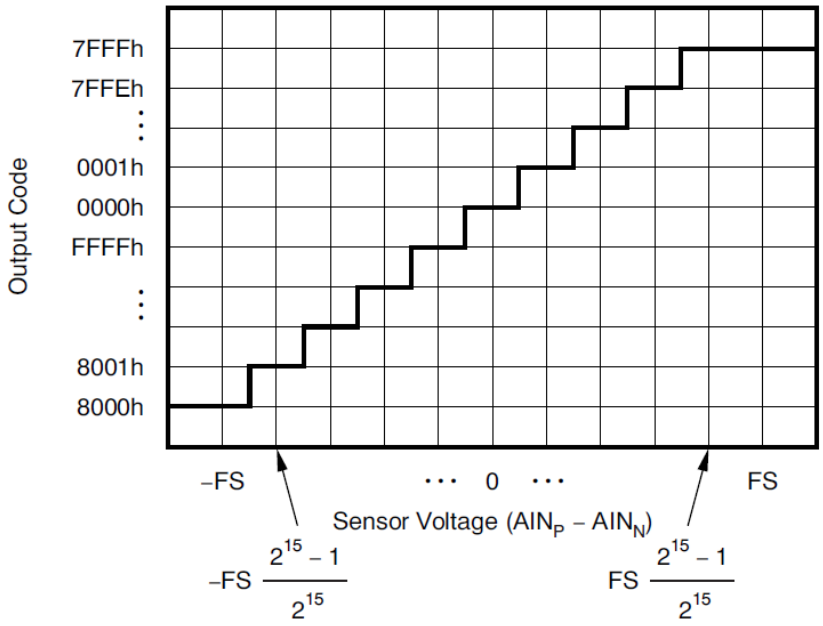

Figure 1. Code Transition Diagram