

## Register 5—Over- and Under-Scale (address = 0x05) (Read/Write)

BIT #	D7	D6	D5	D4	D3	D2	D1	D0
BIT Name	FD	US2	US1	US0	OS3	OS2	OS1	OS0

This register sets the magnitude of the over-scale current limit and the magnitude of the under-scale current limit. The threshold level, as shown in Table 1 and Table 2, is the normal analog (no error condition) output limit. If an input voltage to the PGA exceeds the linear operation range, the output will be programmed to either the over-scale error level or the under-scale error level. The over-scale error level is 10mA greater than the over-scale threshold. The under-scale level is 0.4mA less than the under-scale threshold level.

### Bit Descriptions

#### FD: Fault Disable (Bit 7)

The FD bit will disable the over-scale and under-scale limiting function as well as the PGA fault indication error levels.

#### US: Under-Scale (Bits 6-4)

The Under-Scale bits set the magnitude of the under-scale current limit.

#### OS: Over-Scale (Bits 3-0)

The Over-Scale bits set the magnitude of the over-scale current limit.

US2	US1	US0	V <sub>O</sub> UNDER-SCALE THRESHOLD	I <sub>O</sub> UNDER-SCALE THRESHOLD R <sub>VI</sub> = 6.34kΩ
0	0	0	450 mV	3.55 mA
0	0	1	425 mV	3.35 mA
0	1	0	400 mV	3.15 mA
0	1	1	375 mV	2.96 mA
1	0	0	350 mV	2.76 mA
1	0	1	325 mV	2.56 mA
1	1	0	300 mV	2.37 mA
1	1	1	275 mV	2.17 mA

Table 1. Under-Scale Thresholds

OS3	OS2	OS1	OS0	V <sub>O</sub> OVER-SCALE THRESHOLD	I <sub>O</sub> OVER-SCALE THRESHOLD R <sub>VI</sub> = 6.34kΩ
0	0	0	0	2.625 V	20.7 mA
0	0	0	1	2.6875 V	21.2 mA
0	0	1	0	2.75 V	21.7 mA
0	0	1	1	2.8125 V	22.2 mA
0	1	0	0	2.875 V	22.7 mA
0	1	0	1	2.9375 V	23.2 mA
0	1	1	0	3.0 V	23.7 mA
0	1	1	1	3.0625 V	24.2 mA
1	0	0	0	3.125 V	24.6 mA
1	0	0	1	3.1875 V	25.1 mA

1	0	1	0	3.25 V	25.6 mA
1	0	1	1	3.3125 V	26.1 mA
1	1	0	0	3.375 V	26.6 mA
1	1	0	1	3.4375V	27.1 mA
1	1	1	0	3.5 V	27.6 mA
1	1	1	1	3.5625 V	28.1 mA

**Table 2. Over-Scale Thresholds**