AN516 Min/Max values for the MS5540-C

LIMITS FOR COEFFICIENTS AND FOR THE CALCULATED RESULTS OF MS5540-C

Assumed pressure and temperature range: 0...1100 mbar, -40...85 °C.
For definitions, see data sheet of MS5540-C.

MAXIMUM VALUES FOR C1-C6

	min	typ	max
C1 (15 bit)	0	24285	32767
C2 (12 bit)	0	1384	4095
C3 (10 bit)	0	745	1023
C4 (10 bit)	0	405	1023
C5 (11 bit)	0	1024	2047
C6 (6 bit)	0	28	63

MAXIMUM VALUES FOR D1, D2

	min	typ	max
D1	0	17000	40000
D2	0	27000	45000

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MAXIMUM VALUES FOR CALCULATION RESULTS

Pmin = 0 mbar Pmax = 1100 mbar
Tmin = -40 °C Tmax = +85 °C Tref = +20 °C

	min	typ	max
UT1=8*C5+20224	20224	28416	36600
dT=D2-UT1	-11400	0	12350

dTmin = (Tmin -Tref)*190TLSB/°C
dTmax = (Tmax-Tref)*190TLSB/°C

OFF=C2*4+(C4-512)*dT/2^12	-1544	5536	17921

OFFmin =C2min *4+(C4min -512)*dTmax/2^12
OFFmax=C2max*4+(C4max-512)*dTmax/2^12

SENS=C1+C3*dT/2^10+24576	13187	48861	69681[1)]

Sensmin =C1min +C3max*dTmin /2^10+24576
Sensmax=C1max+C3max*dTmax/2^10+24576

P (0...1100 mbar with 0.1 mbar resolution, in 0.1 mbar units)	0		11000
X=((P–2500)*2^5)/10	-8000		27200

TEMP (-40…85 °C, with 0.1 °C resolution, in 0.1 °C units)	-400		850

Low Temperatures:

T2=11*(C6+24)*(200-TEMP)^2 /2^20	0		329
P2= 3*T2*(P-3500)/2^14	-211		451

High Temperatures:

T2=3*(C6+24)*(450-TEMP)^2 /2^20	0		40
P2= T2*(P-10000)/2^13	-49		5

1) In general the value can be limited to 65535, but in rare cases it is possible that the calculation exceeds 16 bit if C1, C3 are very high and at extreme temperature.

REVISION HISTORY

Date	Revision	Type of changes
18.02.2008	01	Initial document
27.01.2010	02	Change to MEAS layout
17.08.2011	03	Insertion of the logo MEAS TM. Modification of the Shenzhen ZIP code to 518057. Modification of the north America contact to Fremont, modification of the Europe company legal entity to Sàrl and correction of the Europe email and website addresses. Modification of the document number from 0005540C1730 to applicno1730.

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