

### ANADIGM RangeMaster5 Control Interface (16 Bit Control Word)

Select Input	Select Filter Type	Notch filter frequency for wideband circuit (A2 = 0).  Filter circuit type for bandpass circuit (A2 = 1).	Gain and Balance control				Lower subcarrier frequency (this sets lower bandpass or Highpass filter)				Upper subcarrier frequency (this sets the upper bandpass or Lowpass filter)				
MSB	LOAD MSB first and LSB last. Load as two separate bytes into the Rangemaster RFID State Machine														LSB
A1	A2	A3	A4	G1	G2	G3	G4	LF1	LF2	LF3	LF4	HF1	HF2	HF3	HF4
0 – Input 1 1 – Input 2	0 – Universal (WIDE) band filter (see bits A3,4) 1 – Multiple bandpass filter (see bits A3,4)	A2: 0 – A3,4: 00 = No notch filter (note 4) A2: 0 – A3,4: 01 = 50.0kHz notch filter A2: 0 – A3,4: 10 = 52.0kHz notch filter A2: 0 – A3,4: 11 = 54.0kHz notch filter A2: 1 – A3,4: 00 = EPCGen2 bandpass (TWIN) filter A2: 1 – A3,4: 01 = "Class0" bandpass filter (note 2) A2: 1 – A3,4: 10 = Triple bandpass filter (note 3)	G1,G2,G3,G4	Bulk Gain  <i>Note5</i>	LF gain (Note6)  <i>Note5</i>	HF gain (Note7)  <i>Note5</i>	LF1,LF2,LF3,LF4  Freq (KHz)	LF1,LF2,LF3,LF4  Freq (KHz)	LF1,LF2,LF3,LF4  Freq (KHz)	LF1,LF2,LF3,LF4  Freq (KHz)	LF1,LF2,LF3,LF4  Freq (KHz)	HF1,HF2,HF3,HF4  Freq (KHz)	HF1,HF2,HF3,HF4  Freq (KHz)	HF1,HF2,HF3,HF4  Freq (KHz)	HF1,HF2,HF3,HF4  Freq (KHz)
				0000	<i>Note5</i>	<i>Note5</i>	<i>Note5</i>	0000		2		0000		4	
				<b>0001</b>	<b>0dB</b>	+0dB	+0dB	0001		4		0001		8	
				0010	+6dB	+0dB	+0dB	0010		8		0010		16	
				0011	+12dB	+0dB	+0dB	0011		16		0011		20	
				0100	+18dB	+0dB	+0dB	0100		20		0100		32	
				0101	+24dB	+0dB	+0dB	0101		32		0101		40	
				0110	+30dB	+0dB	+0dB	<b>0110</b>		<b>40</b>		0110		64	
				0111		Not used		0111		64		0111		80	
				1000	+0dB	+3dB	+0dB	1000		80		1000		106	
				1001	+0dB	+6dB	+0dB	1001		106		1001		128	
				1010	+0dB	+12dB	+0dB	1010		128		1010		160	
				1011		Not used		1011		160		1011		212	
				1100	+0dB	+0dB	+3dB	1100		212		1100		256	
				1101	+0dB	+0dB	+6dB	1101		256		<b>1101</b>		<b>320</b>	
				1110	+0dB	+0dB	+12dB	1110		320		1110		640	
				1111		Not used		1111		424		1111		848	

**Notes**

- 1) **bold** - Bold text indicates the default circuit, the RangeMaster chipset will start-up with this circuit
- 2) "Class0", 2.2/3.3MHz Gain = 0dB. No bulk gain or balance control –
- 3) lowest filter corner frequency is always one third of the highest frequency
- 4) The notch filter is removed from the signal path. Notch filter is only used in the Universal WIDE filter
- 5) Control word 0000000000000000(binary), 0x00, 0x00 (Hex) sets the chipset into standby (low power mode)
- 6) Nominal gain = 0dB. higher gain for Lower bandpass v.s. higher bandpass
- 7) Nominal gain = 0dB. higher gain for higher bandpass v.s. lower bandpass
- 8) The anti-saturation control is via a hardware pin only
- 9) The "Auto-nulling" of all FPAA OpAmps shall be performed at each full reset/power-up cycle.