

ANADIGM RangeMaster2 Control Interface (16 Bit Control Byte)

Select circuit	Notch filter center frequency	Gain 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. LSB last as two separate words into the Rangemaster RFID State Machine														LSB	
A1	A2	A3	A4	G1	G2	G3	G4	LF1	LF2	LF3	LF4	HF1	HF2	HF3	HF4	
A1A2, 00 = Universal (WIDE) bandpass A1A2, 01 = EPCCGen2 (TWIN) filter A1A2, 10 = "Class0" bandpass (see Note2) A1A2, 11 = Tripleband filter (Note 3)	B1,B2	Freq (kHz)	G1,G2,G3,G4	Bulk Gain	LF gain (Note6)	HF gain (Note7)	LF1,LF2, LF3,LF4	Freq (KHz)		HF1,HF2, HF3,HF4	Freq (KHz)					
	00	Note4	0000	Note5	Note5	Note5	0000	2		0000	4					
	01	50.0	0001	0dB	+0dB	+0dB	0001	4		0001	8					
	10	52.0	0010	+6dB	+0dB	+0dB	0010	8		0010	16					
	11	54.0	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	0110	40		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		1101	320				
				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 – the default circuit has HF and LF gain boost of +12dB. circuit has HF & LF gain boost of +12dB. Total HF gain of x10 (20dB) and LF gain of x4 (12dB), therefore these can only be lowered.
- 3) lowest filter corner frequency is always one third of the highest frequency, the summing stage input branch gain=+6db Fixed
- 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.