

**DMC**

MODEL 3110

HIGH SPEED 12 BIT  
A/D CONVERTER

**Dynamic Measurements Corp.**

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## ELECTRICAL SPECIFICATIONS

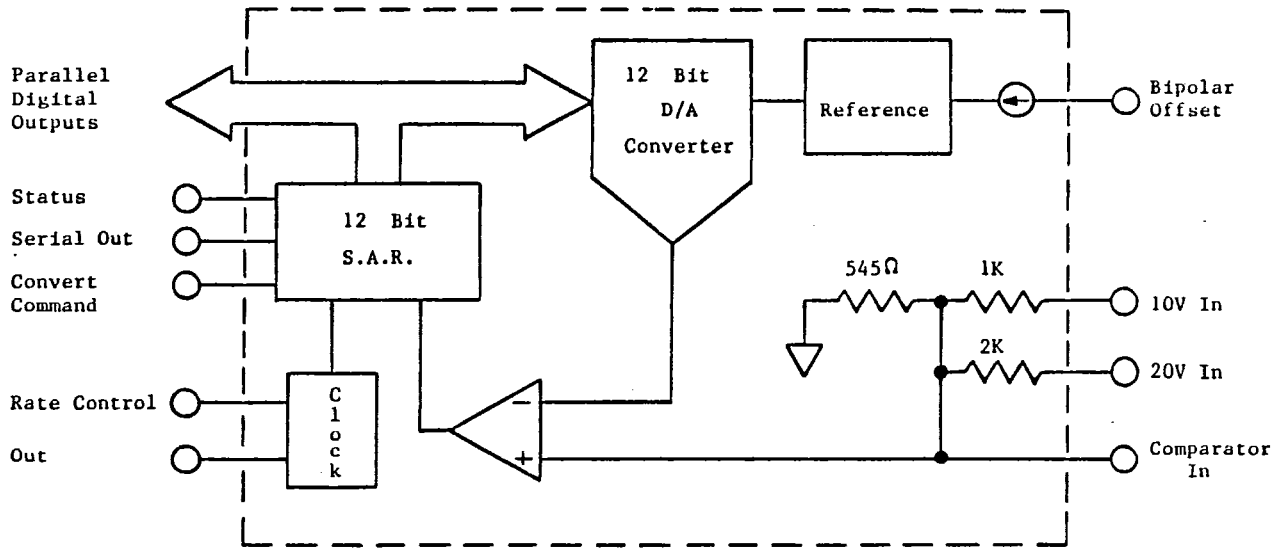
At +25°C, Nominal Supply Voltages and 6 Minute Warm-Up Time, unless otherwise noted.

GROUP	ITEM	TYP	MIN	MAX	UNITS
ANALOG INPUT	Bipolar Ranges	±5,±10			V
	Unipolar Range	0 to -10			V
	Impedance (with 0 to -10V or ±5 Vin)	1.4			K Ω
	Impedance (±10Vin)	2.4			K Ω
DIGITAL INPUT	Convert Command, Negative TTL Pulse (Trailing edge in- itiates conversion)	100	50		ns
TRANSFER CHARACTERISTICS	Accuracy				
	Gain Error (1)	±.04		±.1	%
	Offset Error (1)				
	Unipolar	±.05		±.2	% of FSR
	Bipolar	±.02		±.1	% of FSR
	Linearity Error				
	1.5 usec Conversion Time	±.012		±.015	% of FSR
	1.0 usec Conversion Time	±.015		±.020	% of FSR
	Differential Linearity Error				
	1.5 usec Conversion Time	±.012		±.015	% of FSR
	1.0 usec Conversion Time			±.024	% of FSR
	Non Linearity	1/2			LSB
	Power Supply Sensit- ivity Gain and Offset				
	±15VDC	±.0036			% of FSR/VDC
	-15VDC	±.0005			% of FSR/VDC
+5VDC	±.001			% of FSR/Vdd	
Conversion Time					
+15VDC	±.7			%% Vcc	
-15VDC	None			%% Vcc	
+5VDC	±.8			%% Vdd	
Conversion Time					
Set		1.3	1.5	usec	
Adjust Range		.8	2.2	usec	

GROUP	ITEM	TYP	MIN	MAX	UNITS
TRANSFER CHARACTERISTICS	Drift:				
	Gain	±10		±30	ppm of FSR/°C
	Offset				
	Unipolar	±2		±7	ppm of FSR/°C
	Bipolar	±3		±10	ppm of FSR/°C
	Linearity Error -25°C to +85°C				
	1.5 usec				
	Conversion Time	±.012		±.018	% of FSR
	1.0 usec				
	Conversion Time	±.015			% of FSR
Conversion Time	±.1			%/°C	
No Missing Code					
Temp. Range					
1.5 usec					
Conversion Time		-25	+85	°C	
OUTPUT	Digital Data:				
	Parallel				
	Output Codes				
	Unipolar				Complimentary Straight Binary
	Bipolar				Bipolar Offset Binary
	Output Drive				6 TTL Loads
	Serial Data (NRZ)				Same As Parallel (MSB first)
	Output Drive				6 TTL Loads
	Status				Logic "1" during conversion
	Status Output Drive				6 TTL Loads
Internal Clock					
Clock Output Drive				3 TTL Loads	
Frequency (without external clock adjustment)	8			MHz	
POWER SUPPLY REQUIREMENTS	Power Consumption				
	Voltage, Analog (±VCC)	±15.0	±14.25	±15.75	VDC
	Voltage, Digital (Vdd)	+5.0	+4.75	+5.25	VDC
	Supply Current				
	+15V	+27		+32	mA
	-15V	-38		-55	mA
+5V	+180		+210	mA	
TEMPERATURE RANGE	Operating, Ambient		-25	+85	°C
	Storage		-55	+125	°C
ABSOLUTE RATINGS REF. TO GND.	Analog Supply			+18	VDC
	Digital Supply			+7	VDC
	Digital Controls			+5.5	VDC
	Analog Inputs			+15	VDC

NOTES: 1 . Adjustable to Zero

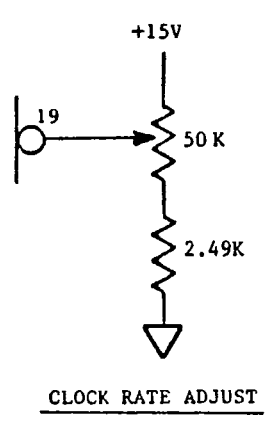
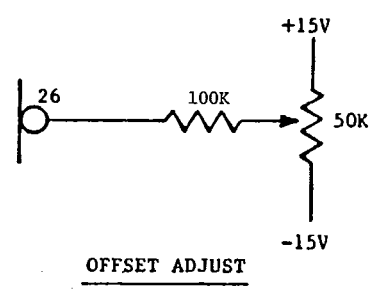
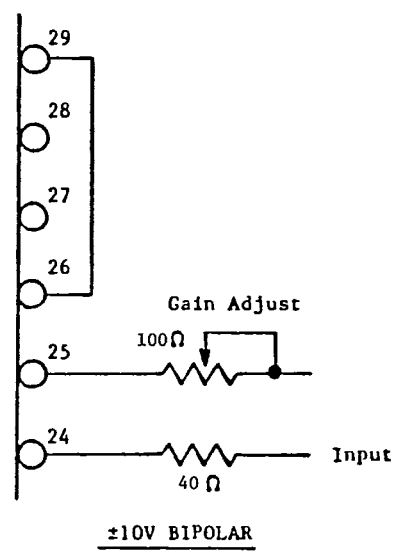
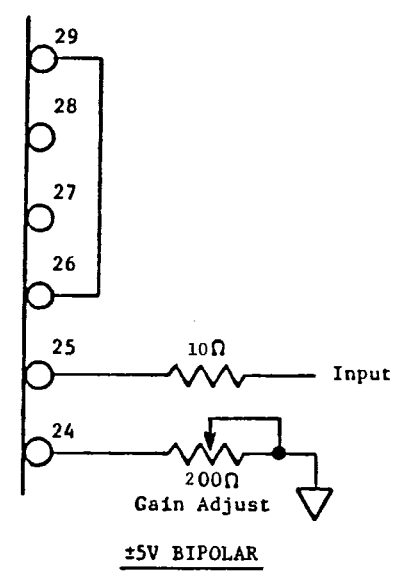
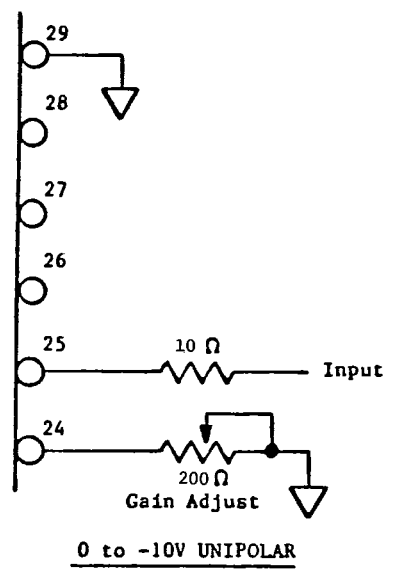
BLOCK DIAGRAM



PIN ASSIGNMENTS

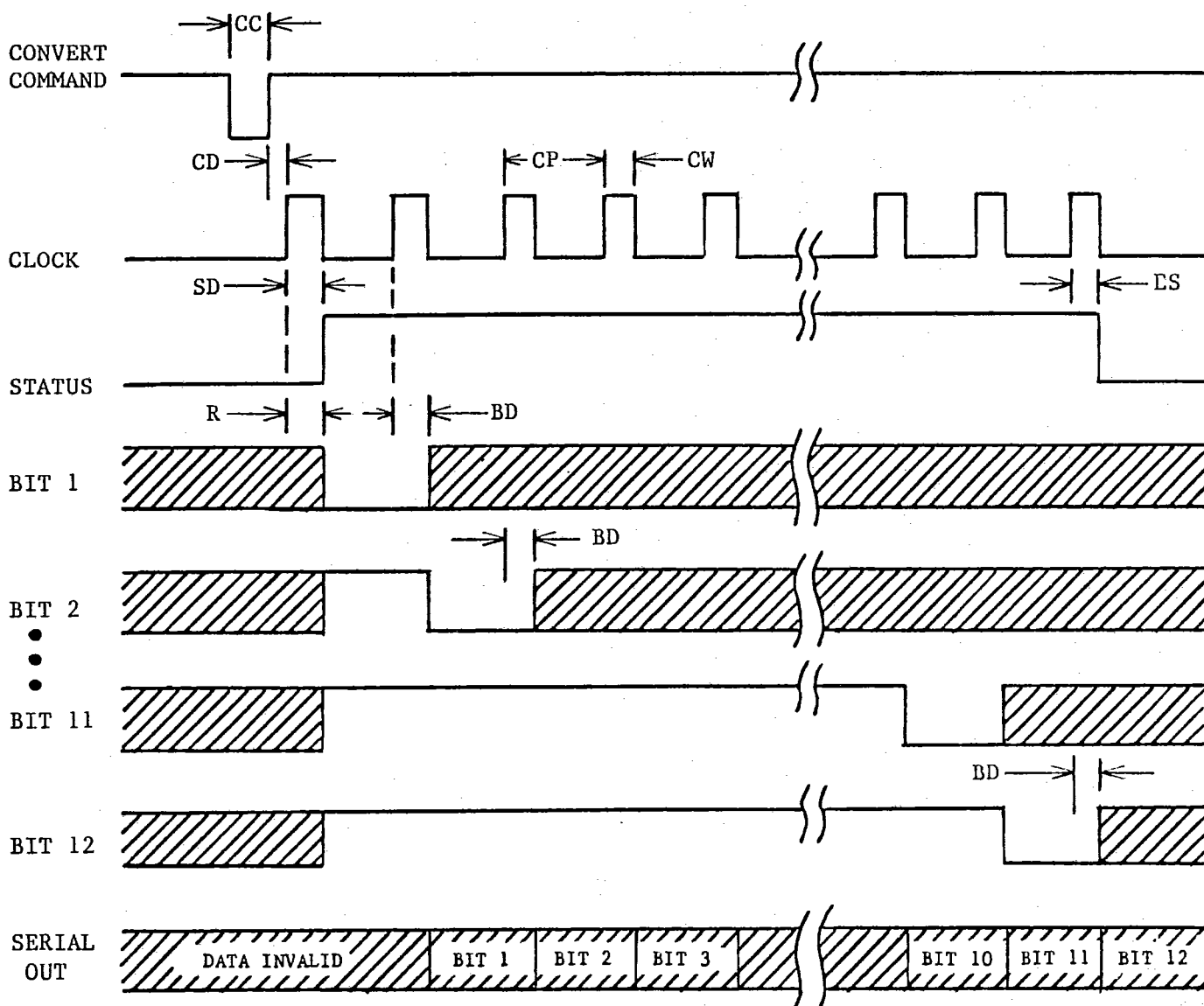
1	(MSB) BIT 1	ANALOG COMMON	32
2	BIT 2	+15VDC SUPPLY (+Vcc)	31
3	BIT 3	-15VDC SUPPLY (-Vcc)	30
4	BIT 4	BIPOLAR OFFSET	29
5	BIT 5	ANALOG COMMON	28
6	BIT 6	SENSE	27
7	+5VDC (Vdd) SUPPLY	COMPARATOR IN	26
8	DIGITAL COMMON	10V	25
9	SERIAL OUT	20V	24
10	STATUS	-15VDC SUPPLY (-Vcc)	23
11	BIT 7	+5VDC SUPPLY (Vdd)	22
12	BIT 8	DIGITAL COMMON	21
13	BIT 9	+15VDC SUPPLY (+Vcc)	20
14	BIT 10	CLOCK RATE CONTROL	19
15	BIT 11	CONVERT COMMAND	18
16	BIT 12	CLOCK OUT	17

CONNECTION DIAGRAMS  
for  
INPUT SCALING, OFFSET,  
and  
CLOCK RATE CIRCUITS



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TIMING DIAGRAM



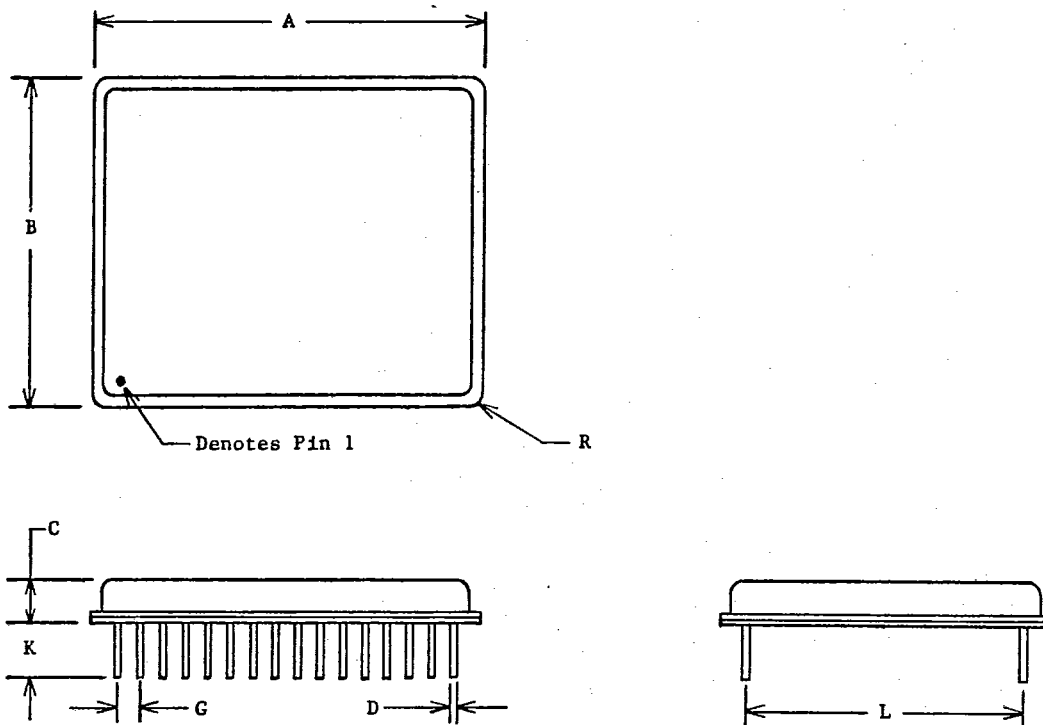
Time Period	MIN* (nsec)	MAX* (nsec)
CC	50	--
CD	15	40
CP**	100	125
CW	17	25
SD	10	38
R	10	38
BD	10	38
ES	10	38

\*Nominal

\*\*Without External adjustment

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MECHANICAL SPECIFICATION



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.720	1.760	43.69	44.70
B	1.120	1.160	28.45	29.46
C	.170	.250	4.32	6.35
D	.016	.021	0.41	0.53
G	.100		2.54	
H	.100	.140	2.54	3.56
K	.150	.300	3.81	7.62
L	.900		22.86	
R	.100	.140	2.54	3.56

PINS: Pin material and plating composition conform to method 2003 (solderability) of MIL-STD-883 (except paragraph 3.2).  
CASE: Kovar, Nickel plated  
HERMETICITY: Gross Leak Test  
MATING CONNECTOR: Set of two (2) 16-pin strips.  
WEIGHT: 13 grams (0.46 oz.)

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