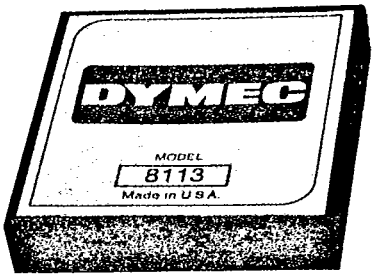
VOLTAGE TO FREQUENCY CONVERTERS



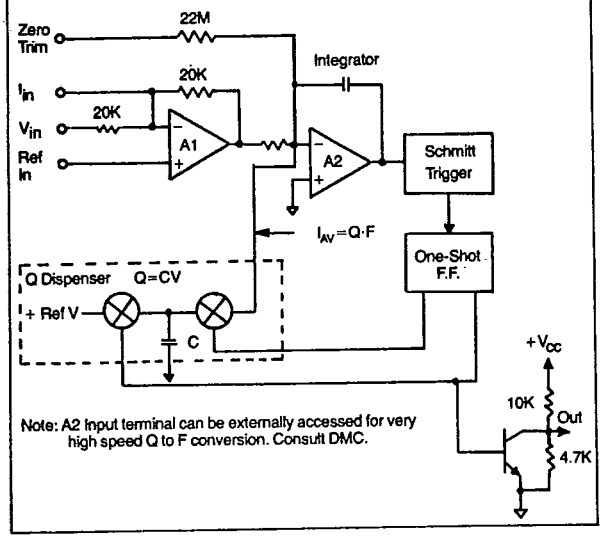
8113-8114-8115-8116

100KHz PREMIUM MODELS

ALL UNITS BURNED IN FOR 24 HOURS

- Warm-Up Time Under 5 Seconds To ±0.005%
- Maximum Non-Linearity Down To 0.005% At 100KHz
- Maximum Temperature Coefficients Down To 5PPM/°C
- Programmable Inputs

BLOCK DIAGRAM



APPLICATION INFORMATION

OUTPUT/INPUT CONSIDERATIONS

DMC utilizes state of the art circuitry to switch charge (Q) stored on a capacitor into a summing junction where the average current that flows equals Q · F.

The pulse output is DTL/TTL compatible, and can be easily hooked up to drive CMOS or optically-coupled isolators. The output is short-circuit protected to ground, but will be permanently damaged if shorted to a power supply.

The op-amp input stage provides considerable input flexibility. Input impedance at V_{in} is 20K, and this terminal accepts a 0 to +10 volts analog level . . . or the current may be summed directly into the I_{in} terminal. The REF IN terminal is extremely useful for minimizing the effects of noise or ground loops. It can be connected directly to the ground side of the sensor, or both inputs can be used differentially. The REF IN terminal can also be used as a high impedance 0 to −10 volt input. Input levels up to $\pm V_{cc}$ will not damage the unit.

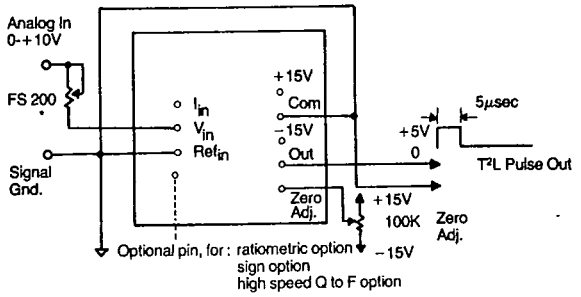
EXTERNAL CONNECTIONS

ZERO ADJUSTMENT

With +1 millivolt at the analog input adjust the zero potentiometer for 10 hertz output.

FULL SCALE ADJUSTMENT

With +10 volts at the analog input adjust the Full Scale trim for 100KHz output.



*Stable, low T.C. 10 or 20 turn potentiometer.

MANY OPTIONS AVAILABLE — CONSULT DMC

Extended temperature range
−55°C to +125°C operation
Ratiometric operation
Sign outputs
Expanded scaling ranges
FET inputs
Differential inputs with 20 volts range
Full RFI/EMI shielding on 5 sides

8 Lowell AVenue, Winchester, MA 01890 (617) 729-7870 TWX (710) 348-6596
Cable: DYMECO
In the U.S.A. call toll-free (800) 225-1151

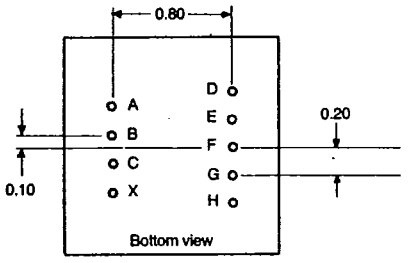
SPECIFICATIONS

Typical and nominal at 25°C, unless otherwise stated

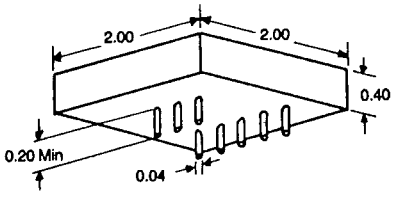
ANALOG INPUT	Voltage Range	+10μV to +10V, or −10μV to −10V
	Current Range	+0.5nA to +0.5mA
	Overrange	+10% min
	Offset Voltage (adjustable to zero)	± 10mV max
	Impedance	$+V_{in}$ = 20K ±1%; $-V_{in}$ = 10^9 ohms min
	Overvoltage Protection	$\pm V_{CC}$ without damage
SCALING AND OUTPUT	Full Scale Frequency (F_{out})	100KHz +10% overrange
	Non Linearity 8113, 8114, 8115, 8116	±.01%max / ±.005% max > 0 to +70°C
	Transfer Characteristic	F_{out} = 100KHz (E_{in}/10V)
	Full Scale Factor	F_{out} = 100KHz (I_{in}/.5mA)
		.5mA ±1% or 10V
		Trimmable to 100KHz
	Output Pulse	Positive, 5μS wide typical
	Levels 1 (high)	+5 volts or ⅓ V_{CC}
	Levels 0 (low)	<.4 volts@ 16mA sink current
	Capacitive Load Capability	1,000pf min
	Fanout	10 TTL loads
	Short Circuit Protection	Indefinite short to ground
RESPONSE	Settling to .01% for step input	15μS plus 1 to 2 cycles of new frequency
	Overload Recovery	6 cycles of new frequency
STABILITY	Gain TC 8113	50
	TC 8114	25
	TC 8115	10
	TC 8116	5 ppm/°C of FS, max
	Drift per day	±20ppm of FS, max.
	Drift per month	±100ppm of FS, max.
	Power Supply Sensitivity	±10ppm/1%ΔV_{CC}, max.
	Offset	±30, max
	TC (μV/°C)	±10μV
	Drift per day	±20μV
	Drift per month	±20μV/V
	Power Supply Sensitivity	<5 seconds to ±0.005%
	Warm-up Time	
SUPPLY	Voltage (V_{CC})*	±15V ±5% (±13V to ±18V absolute limit)
	Power Drain	+25mA max. −12mA max.
ENVIRONMENTAL	Temperature Operating	0°C to 70°C
	Derated 50%	-25°C to +85°C
	Storage	-25°C to +85°C
	Humidity	98% non-condensing

*Power supplies may be unbalanced within specified limits.

MECHANICAL DATA All dimensions in inches



A–I_{in}
B–V_{in}
C–REF_{in}
D–+15V
E–COM
F–−15V
G–OUT
H–ZERO ADJ.
X– OPTION PIN (if required)



Weight: 45 grams
Mating Socket: Model 6501