TRANSMAGNETICS

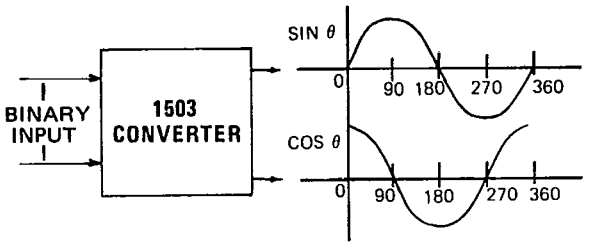
SERIES 1503

Revised April 1988

14 BIT DIGITAL TO RESOLVER CONVERTER

FEATURES:

- 0.03% max. magnitude variation
- 14 Bit resolution
- ± 4 arc minute accuracy
- Short circuit protected output
- No calibration, adjustments or warmup
- LSTTL inputs eliminate the need for special precautions against static electricity
- Reverse polarity protected
- Available for either 0°C to + 70°C, or −55°C to +105°C operation
- Hermetically sealed units on request
- Meets MIL-STD-202D, Methods 204B, 101C, 105B, 106C, 107C and 205D.
- High reliability 883B or MIL-M-38510 units upon request



This solid state model converts a 14 bit digital input into two AC output voltages that are proportional to the sine and cosine of the indicated input angle, and is therefore ideally suited for radar display systems, computing applications, or to drive power amplifiers for D/S application. Separate logic and analog grounds can be supplied to minimize potential ground loop problems.

SPECIFICATIONS

	Code A	Code B
Resolution:	14 BITS (1 LSB = 1.3 arc minutes)	12 BITS (1 LSB = 5.3 arc minutes)
Accuracy*:	±4 arc minutes	±8 arc minute
Amplitude Variation (AC Outputs):**	±0.03%	±0.03%

Input Logic: Parallel, positive logic, low power, TTL levels, binary coded angle.

Fan In: 1 low power TTL Load

Output: Two AC voltages, 7.07Vrms, ±1% at nominal reference frequency, one representing the sine, and the other the cosine of the input angle, from 0° to 360°. Other voltage outputs are available.

Reference:

Reference Code	Frequency*	Reference*	Reference Current	
1	400Hz±10%	26VRMS±10%	0.5mA	
2	400Hz±10%	115VRMS±10%	0.5mA	
3	50/400Hz±10%	115VRMS±10%	1.5mA	See increased size
1503C-3BD-1	50/400Hz±10%	115VRMS±10%	1.0mA	External transformer therefore no increase in size

*Other voltages and frequencies are available.

Settling Time (90° step): 20μs maximum

Output Impedance: One ohm maximum for each output.

Drive Capability: 5mA maximum for rated accuracy. Output is short circuit proof.

Output Load: 2K minimum

Distortion: 1% max.

Offset: ±3mV maximum

Phase Shift: ±1° maximum between reference input and converter output. Other values are available.

Power Requirements: ±15VDC ±5% at 50mA maximum [1] +5VDC ±5% at 50mA maximum.
[1] ±12VDC OPERATION AVAILABLE. See part number designation.

Protection: ±15VDC input is protected against reversed polarity.

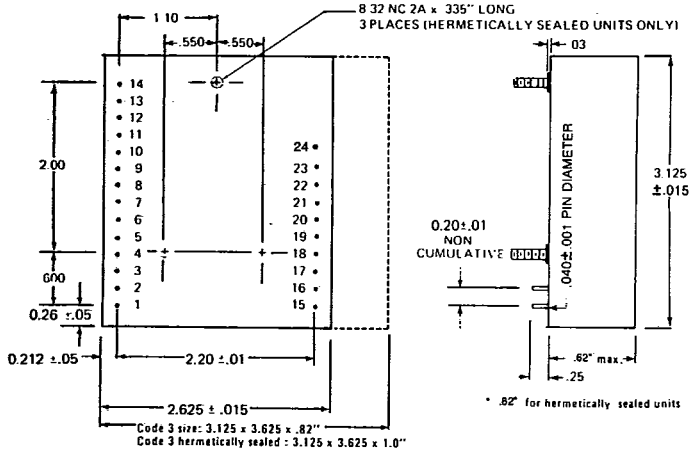
Operating Temperature: Model C: 0°C to +70°C Model M: −55°C to +105°C

Storage Temperature: −65°C to +125°C

Potting: All units are potted.

Weight: 3.5 oz.

*Angle accuracy is determined by the ratio of $\frac{Sin\ Out}{Cos\ Out}$ and applies over indicated temperature range, ±5% power supply variations, 10% harmonic distortion of the reference, and 10% frequency and amplitude variations.
** Both sine and cosine outputs have their amplitude vs. angle variation corrected to less then 0.03%. However, the magnitude will vary proportionally with reference input variation. Thus when used for PPI applications, the resultant display will be distortion free.



All dimensions in inches.

PIN ASSIGNMENTS

1	MSB(180°)	15 R HI
2		16 R LO
3		17 +5VDC
4		18 −15VDC
5		19 LOGIC GND
6		20 ANALOG GND
7	BINARY	21 +15VDC
8	INPUTS	22 SIN OUT
9		23 COS OUT
10		24 OPTIONAL SIN OUT
11		
12		
13		
14		

Note: Ground unused input bits to logic ground.

PART NUMBER DESIGNATION

1503 * * * * * *

- Add 883 for HI-REL
- Add D for separate logic ground
- Add H for Hermetic Seal
- Add I2 for ±12VDC operation
- Add A for 14 bits, B for 12 bits
- Reference code (1 through 3)
- Temperature Range (C or M)

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