TRANSMAGNETICS

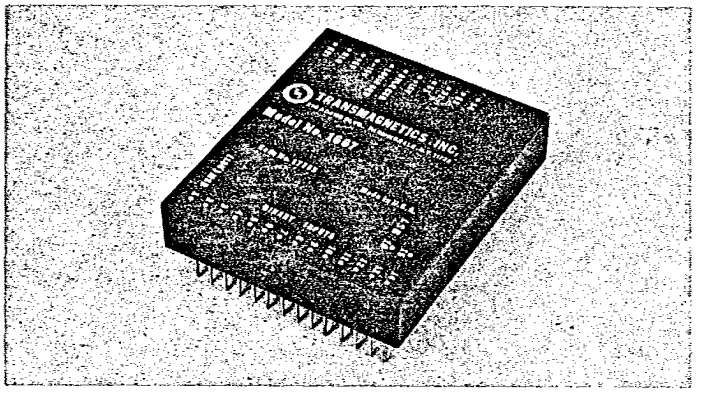
SERIES 1667

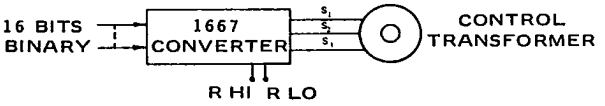
Revised April 1988

16 BIT DIGITAL-TO-SYNCHRO/RESOLVER CONVERTERS

Accuracy: ±30 arc seconds at no load; ±1 arc minute at full load

- 0.03% max. magnitude variation
- LSTTL inputs eliminate the need for special precautions against static electricity
- Reverse polarity protected
- Short circuit protected output
- Reference and output are transformer isolated
- No calibration, adjustments or warmup
- Available for either 0°C to +70°C, or −55°C to +85°C
- Hermetically sealed units on request
- Meets MIL-STD-202D, Methods 101C,105B,106C, 107C,202D,204B,and 205D
- High reliability 883B or MIL-M-38510 units on request
- Higher reference frequencies on request





DESCRIPTION:

These high technology, all solid state units continuously convert a 16 bit parallel binary coded angle into a 3 wire synchro or a 4 wire resolver output. The high resolution and high accuracy of these converters recommend them for test equipment and for high resolution feedback systems.

These units can be supplied with associated circuitry that will interconnect with an Intel or with an IEEE 488-1975 bus.

SPECIFICATIONS:

RESOLUTION:	16 Bits (1 LSB = 0.33 arc minutes)
ACCURACY:**	±30 arc seconds at no load; ±1 arc minute at full load
LOGIC:	Parallel, positive logic, TTL levels, binary coded angle
FAN IN:	1 LSTTL load

**Accuracy applies over the operating temperature range, 10% harmonic distortion of the reference, ±5% power supply, ±10% frequency and reference amplitude variation, for any balanced load from no load to full load. (Measured across the 3 wire output with a synchro bridge and phase sensitive nullmeter with the unit fully loaded)

Output Code	Output	*Freq. ±10%	* Ref. V rms ±10%	Ref. Current (mA)	L-L V rms	Output Load Z_{L-L} min	Output VA	Transformers	Height
1	Synchro	400Hz	26	2	11.8	115 ohms	1.3	Internal	1.25"
2	Synchro	400Hz	115	1.2	90	6K ohms	1.3	Internal	1.25"
3	Synchro	50/400Hz	115	1.2	90	6K ohms	1.3	External, STM 1667-1-60	.82"
4	Resolver	400Hz	115	1.2	90	6K ohms	1.3	Internal	1.25"
5	Resolver	400Hz	26	2	12.5	115 ohms	1.3	Internal	1.25"
6	Resolver	400Hz	115	1.2	12.5	115 ohms	1.3	Internal	1.25"
7	Synchro	400Hz	115	1.2	11.8	115 ohms	1.3	Internal	1.25"
10	Synchro/Resolver	400Hz	26	1.2	11.8/11.8	10K ohms	0.02	Internal	1.00"

* Other voltages and frequencies are available

OUTPUT CHARACTERISTICS:

The AC output of each channel is internally limited and thus protected against short circuit conditions.

PROTECTION:

Unit is protected against reverse polarity and will not latch up or be damaged by loss of power, reference or signal. The LSTTL inputs used in our units eliminate the need for special precautions against static electricity.

SETTLING TIME(to 1 LSB):

20 μs, with resistive load.

AMPLITUDE VARIATION:

Both sine and cosine outputs have their magnitude vs. angle variation corrected to less than 0.03%. However, the output magnitude will vary directly with reference variation.

OUTPUT VOLTAGE REGULATION:

1% from no-load to full load.

PHASE SHIFT:

5° max between synchro output and reference input. Other values are available.

NULL: 30 mV rms at 11.8 VL-L; 110 mV rms at 90 VL-L.

HARMONIC DISTORTION: 1%

ISOLATION:

AC reference and line-to-line outputs are transformer isolated from each other and from DC common. Insulation resistance from any AC input to output is greater than 100 megohms at 200VDC.

GROUNDS:

Separate analog and logic grounds are supplied.

POWER REQUIREMENTS:

	+5VDC (±5%)	+15VDC(1) (±5%)	−15VDC(1) (±5%)
No Load	50 mA	80mA	80mA
Average with Full Load	50 mA	220mA	220mA
Peak with Full Load	50 mA	300mA	300mA

Power supplies should be able to supply the peak currents indicated without current limiting.

(1) ±12VDC operation available. See Part Number Designation.

OPERATING TEMP: Model C: 0°C to +70°C
Model M: −55°C to +85°C

STORAGE TEMP: −65°C to 125°C

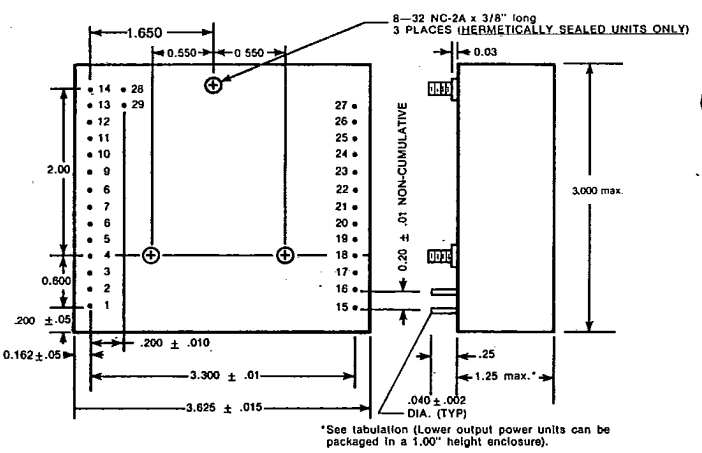
POTTING: All units are potted.

WEIGHT: 17 oz.

PART NUMBER DESIGNATION

1667 * * * *

- Add 883 for Hi-Rel
- Add D for separate logic ground
- Add H for hermetic seal
- Add 12 for ±12 VDC operation
- Output Code: (1 thru 10)
- Temperature Range (C or M)

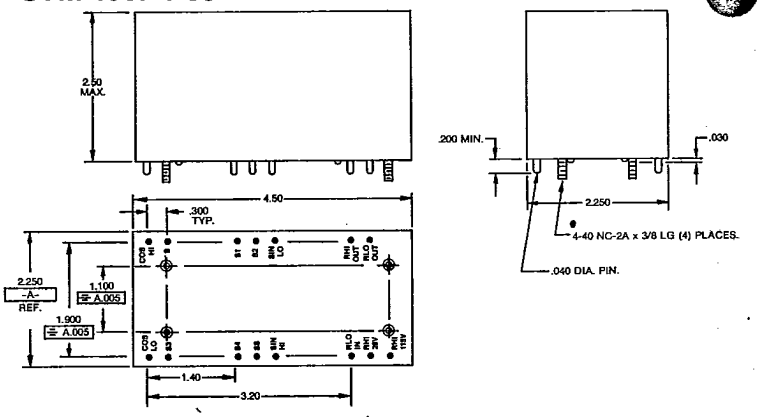


*See tabulation (Lower output power units can be packaged in a 1.00" height enclosure).

PIN ASSIGNMENTS (with internal transformer)

1	MSB (180°)	16	RLO
2		17	+5 VDC
3		18	−15 VDC
4		19	Logic GND (+5 VDC return)
5		20	Analog GND (±15 VDC return)
6	BINARY	21	+15 VDC
7	INPUTS	22	S1
8		23	S2
9		24	S3
10		25	S4
11		26	A } For dual output units only.
12		27	B } Connect for synchro mode
13		28	B15
14		29	B16 LSB (.0055°)
15	RHI		

STM 1667-1-60



	Transformer Designation	Transformer Designation	Converter Pin #
Output	S1	RHi OUT	15
	S2	RLo OUT	16
	S3	SIN Hi	22
	S4	SIN Lo	24
115 Vrms 50/400 Hz	RHi IN	COS Hi	25
	RLo IN	COS Lo	23
	S		
	SS		

TRANSMAGNETICS, INC.
210 ADAMS BOULEVARD, FARMINGDALE, NEW YORK 11735 U.S.A.
PHONE NO: 516 293-3100 TWX510-224-6420 FAX 516 293-3793

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