

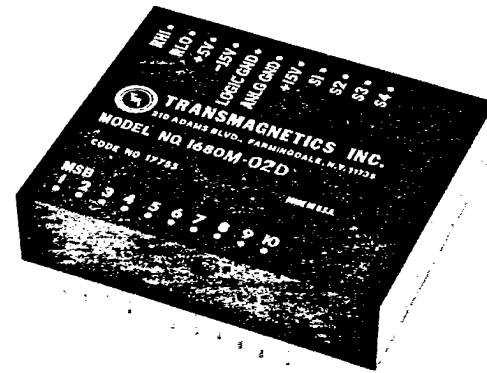
**SERIES
1680**

Revised September 1987

10BIT DIGITAL TO SYNCHRO or RESOLVER CONVERTER

FEATURES:

- LSTTL inputs eliminate the need for special precautions against static electricity
- Short circuit protected output
- Reference and output are transformer isolated
- No calibration, adjustments or warmup
- Dual output (synchro/resolver) units available
- Available for 0°C to +70°C, or -55°C to +105°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



DESCRIPTION:

Series 1680 is a low cost, medium resolution D/S converter that retains the fast, smooth, glitch-free output characteristics of the 14 bit design and also delivers 1.5 VA of output power. This unit is a money saver for those applications that do not require high resolution and high accuracy. A physically smaller version is available if output power is not required and loads are of the nature of 10K or higher.

SPECIFICATIONS:

RESOLUTION:** 10 Bits (1LSB = 21.1 arc minutes)
 ACCURACY:** ± 20 arc minutes
 LOGIC: Parallel, positive logic, TTL levels, binary coded angle
 FAN IN: 1 LPTTL load

**Accuracy applies over the operating temperature range, 10% harmonic distortion of the reference, $\pm 5\%$ specified power supply variation, $\pm 10\%$ 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. $\pm 10\%$	*Ref. V rms $\pm 10\%$	Ref. Current (mA)	L-L V rms	Output Load ZL-L min	Output VA	Transformers
1	Synchro	400Hz	26	2	11.8	100 ohms	1.5	Internal
2	Synchro	400Hz	115	1.2	90	6K ohms	1.5	Internal
3	Synchro	50/400Hz	115	1.2	90	6K ohms	1.5	External, #ST1673
4	Resolver	400Hz	115	1.2	90	6K ohms	1.5	Internal
5	Resolver	400Hz	26	2	12.5	115 ohms	1.5	Internal
6	Resolver	400Hz	115	1.2	12.5	115 ohms	1.5	Internal
7	Synchro	400Hz	115	1.2	11.8	100 ohms	1.5	Internal

*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 reversed 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):

50 μs, with resistive load.

OUTPUT VOLTAGE REGULATION:

5% from no-load to full load.

PHASE SHIFT:

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

NULL: 60 mV rms

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.

GROUND:

Logic and Analog grounds are common internally. A separate logic ground is available on request. See part number designation.

POWER REQUIREMENTS: +5VDC (±5%) +15VDC⁽¹⁾ (±5%) -15VDC⁽¹⁾ (±5%)

No Load	50 mA	40 mA	40 mA
Average with Full Load	50 mA	150 mA	150 mA
Peak with Full Load	50 mA	450 mA	450 mA

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

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

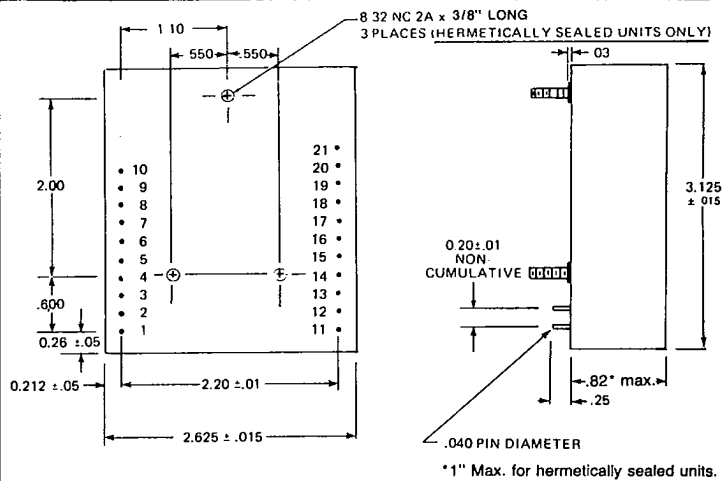
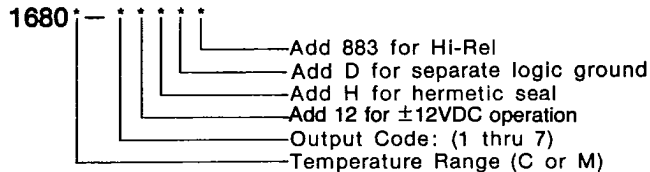
OPERATING TEMP: Model C: 0°C to +70°C
Model M: -55°C to +105°C (95° max. base temp.)

STORAGE TEMP: -65°C to 125°C

POTTING: All units are potted.

WEIGHT: 5.5 oz.

PART NUMBER DESIGNATION



PIN ASSIGNMENTS

Internal Transformer

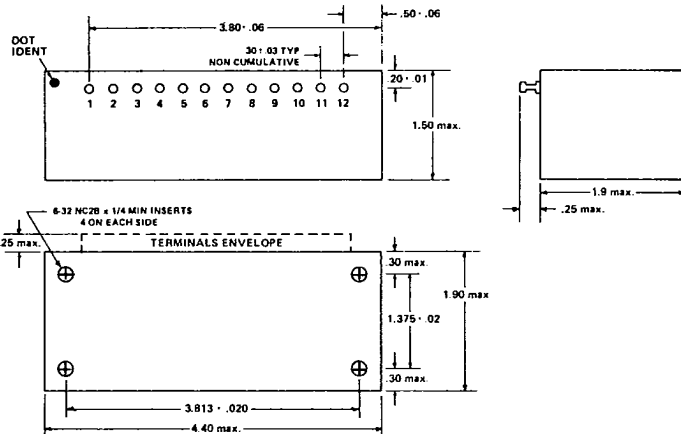
- 1 MSB (180°)
- 2
- 3
- 4 BINARY
- 5 INPUTS
- 6
- 7
- 8
- 9
- 10 LSB
- 11 R HI
- 12 R LO
- 13 +5VDC
- 14 -15VDC
- 15 Logic GND
- 16 Analog GND
- 17 +15VDC
- 18 S1
- 19 S2
- 20 S3
- 21 S4 (when required)

External Transformer

- 11 to transformer pin 10
- 12 to transformer pin 11
- 13 +5 VDC
- 14 -15 VDC
- 15 Logic GND
- 16 Analog GND
- 17 +15 VDC
- 18 to transformer pin 12
- 19 to transformer pin 7
- 20 to transformer pin 4

*When specified. Otherwise, Logic and Analog grounds are connected internally to pin 16 with pin 15 omitted.

ST1673 TRANSFORMER CONNECTIONS



	ST1673 Transformer Pin No.	Converter Pin No.	ST1673 Transformer Pin No.	Converter Pin No.
SYNCHRO OUT	S1 1		7	connect to 19
	S2 2		8	Ref. Hi.
	S3 3		9	Ref. Lo.
	4	connect to 20	10	connect to 11
	5	connect to 16	11	connect to 12
	6	connect to 16	12	connect to 18



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