

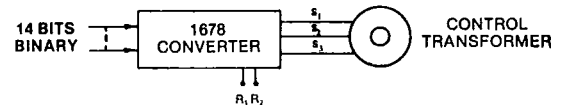
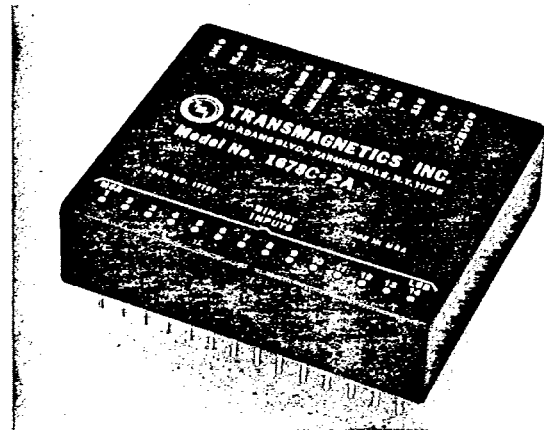
**SERIES
1678**

Revised September 1987

DIGITAL TO SYNCHRO or RESOLVER CONVERTER REQUIRES +28 VDC ONLY

FEATURES:

- Neither ± 15 VDC nor +5VDC required
- 0.03% max. magnitude variation (14 bit units)
- Low power Schottky 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:

Our unique design eliminates the need for the usual ± 15 VDC and +5 VDC regulated power supplies. This converter will operate from raw +28 VDC power and will perfectly perform its function of continuously converting a binary coded angle input into either a 3 wire synchro or 4 wire resolver output. These low cost converters offer high resolution and high accuracy over the temperature range of -55°C to +105°C and are suited for avionic, military, industrial and commercial applications.

SPECIFICATIONS:

CODE C

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

**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 Z_{L-Lmin}	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	100 ohms	1.5	Internal
6	Resolver	400Hz	115	1.2	12.5	100 ohms	1.5	Internal
7	Synchro	400Hz	115	1.2	11.8	100 ohms	1.5	Internal

*Other reference 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 to MIL-STD704C 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 μ s, with resistive load.

OUTPUT VOLTAGE REGULATION:

5% from no-load to full load.

PHASE SHIFT:

8° 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.

GROUNDS:

Separate logic and analog grounds are supplied to minimize potential ground loop problems.

POWER REQUIREMENTS:

+28VDC (+22 to +30 VDC) at 220mA, internally protected to MIL-STD 704C

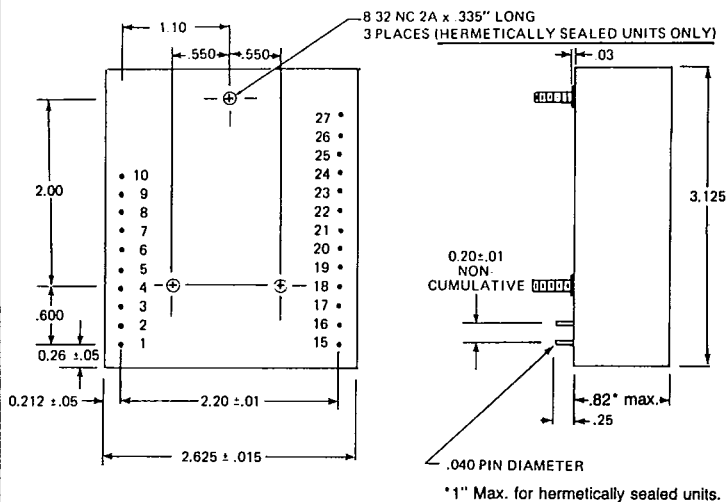
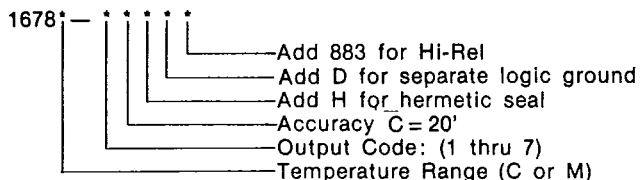
OPERATING TEMP: Model C: 0°C to +70°C
Model M: -55°C to +105°C (95° max. base temp.)

STORAGE TEMP: -65°C to 125°C

POTTING: All units are potted.

WEIGHT: 5.5 oz.

PART NUMBER DESIGNATION

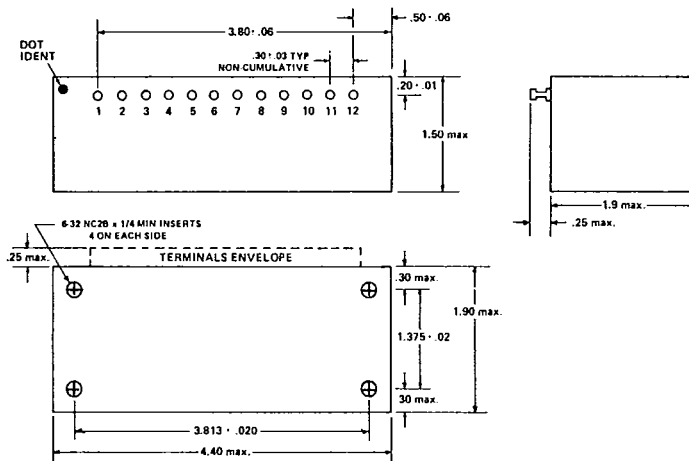


PIN ASSIGNMENTS

Internal Transformer		External Transformer
1 MSB (180°)	15 R HI	15 to transformer pin 10
2	16 R LO	16 to transformer pin 11
3	17 N/C	17 N/C
4	18 N/C	18 N/C
5	19 Logic GND	19 Logic GND
6	20 Analog GND	20 Analog GND
7 BINARY	21 N/C	21 N/C
8 INPUTS	22 S1	22 to transformer pin 12
9	23 S2	23 to transformer pin 7
10 LSB (.02197)	24 S3	24 to transformer pin 4
	25 S4	25 N/C
	26 N/C	26 N/C
	27 +28VDC	27 +28VDC

Note: Connect unused input bits to logic ground.

ST1673 TRANSFORMER CONNECTIONS



	ST1673 Transformer Pin No.	Converter Pin No.	ST1673 Transformer Pin No.	Converter Pin No.
SYNCHRO	S1	1	Ref. Hi. Ref. Lo.	7 connect to 23
	S2	2		8
	S3	3		9
OUT		4 connect to 24		10 connect to 15
		5 connect to 20		11 connect to 16
		6 connect to 20		12 connect to 22



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