

**SERIES
1661A**

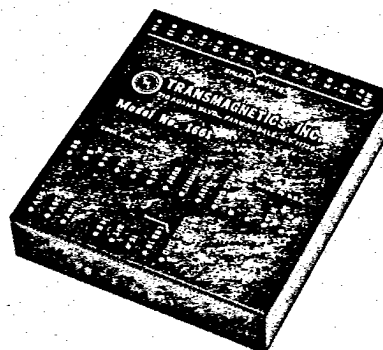
Revised March 1990

16 BIT ± 1 MIN. SYNCHRO/RESOLVER-TO-DIGITAL CONVERTER

PIN PROGRAMMABLE FOR 11.8, 26 OR 90 VL-L

FEATURES:

- ± 1 arc minute accuracy
- 16 bit resolution tracking rate: 1050°/sec. jitter free
- Reference and signal inputs are transformer isolated
- No -15VDC supply required
- Programmable for synchro or resolver input, low or high level
- Available for either 0°C to +70°C or -55°C to +105°C
- Exceptional quadrature rejection
- No 180° hangup
- Designed to meet MIL-STD-202D, Methods: 101C, 105B, 106C, 107C, 202D, 204B, and 205D
- High reliability 883B or MIL-M-38510 units on request
- No special precautions required against static electricity



DESCRIPTION:

These miniaturized all solid state tracking converters continuously transform synchro or resolver data into digital form that is error free at tracking rates up to 1050°/sec. Type 2 servo loop error processing techniques assure that data is always fresh and continuously available except during "Converter Busy". The high resolution and accuracy offered by our modules, over the temperature range of -55°C to +105°C, qualifies them for industrial, commercial, military and avionics applications.

SPECIFICATIONS:

Resolution:	16 bits
Accuracy: *	± 1 arc minute
Tracking Rate:	0 to 1050°/sec. (60 or 400 Hz)
Acceleration (1 LSB error):	1000°/sec. ²
Step Response (180° step):	750 ms
Fan Out:	2 TTL Loads at +5VDC
Digital Outputs:	CMOS, Logic "1" outputs of +3 to +10VDC are selected by setting the VL pin to the desired level.
Logic:	Parallel, positive logic, DTL/TTL/CMOS compatible, binary coded angle.
Input:	Pin programmable for either synchro or resolver and for either 11.8, 26, or 90 Vrms L-L inputs. (See Outline & Connection).
Input Impedance:	250K min
Reference:	26 Vrms to 115 Vrms 400 Hz
Grounds:	Logic and analog grounds are common internally. A separate logic ground is available. See part number designation. Analog ground is +15VDC return; logic ground is +5VDC return.
Isolation:	Input and reference are transformer isolated from each other and from DC power common. Insulation resistance from any AC input to output is greater than 200 megohms at 200VDC.
Storage Temperature:	-65°C to +125°C
Operating Temperature:	Model "C": 0°C to +75°C; Model "M": -55°C to +105°C
Potting:	All units are potted.
Weight:	Approximately 9 oz.
Power Requirement:	+15VDC $\pm 5\%$ at 50mA. VL: 5 to 15VDC at 10mA

* Accuracy applies over the operating temperature range, $\pm 5\%$ power supply, $\pm 10\%$ frequency and reference amplitude variation, 10% harmonic distortion, and up to 45° phase shift between reference and input signal.

DATA TRANSFER:

Converter Busy: The output is updated in 1 LSB steps whenever the input angle changes. Error free data can be transferred when "Converter Busy" is at logic "0". Logic "1" indicates that the output data is changing and that data should not be transferred.

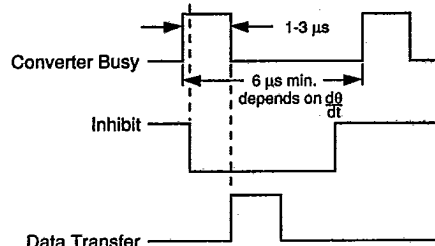
Inhibit: Before transferring data, apply logic "1" to prevent output data from changing during transfer. The converter will ignore an "Inhibit" command during the "Converter Busy" period.

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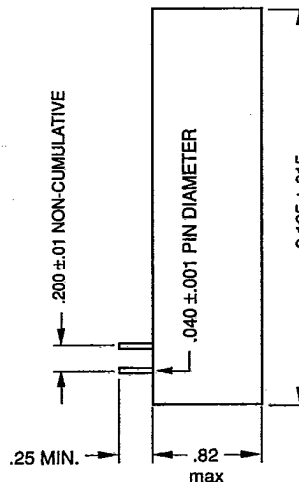
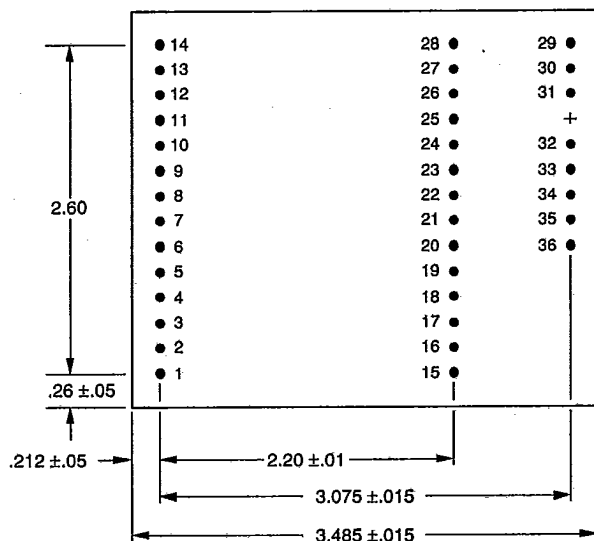
PART NUMBER DESIGNATION:

1661A-***

- Add 883 for High Reliability
- Add D for separate logic ground
- Add 12 for +12VDC operation
- Temperature range (C or M)

TIMING: (At max. tracking speed)**NOTE:**

Data is immediately available when Converter Busy goes low.

OUTLINE & CONNECTION**PIN DESIGNATIONS**

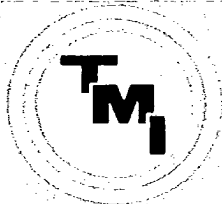
1 MSB (180°)	15 RHI	29 90
2	16 RLO	30 26
3	17 VL	31 11.8
4	18 N/C	32 14B
5	19 ANLG GND	33 BIT
6	20 +15VDC	34 B15
7 BINARY	21 INHIBIT	35 B16 LSB (.0055°)
8 OUTPUTS	22 BUSY	36 LOGIC GND (when specified)
9	23 S1	
10	24 S2	
11	25 S3	
12	26 S4	
13	27 S	
14 LSB	28 SS	

Connect S to SS for synchro configuration

Voltage Selection: (L-L input) Ground the two undesired voltage pins

Bit: Logic "1" indicates failure to maintain tracking.

14B: "0" for 16 bits, "1" for 14 bits



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