
**SERIES
1652**

Revised November 1981

HI-SPEED 10 BIT TRACKING S/D OR R/D CONVERTER

FEATURES:

- Tracking rate: To 100 RPS, flicker-free
- Transformer isolated
- CMOS/TTL compatible
- No 180° hangup
- No -15 VDC required
- No calibration or adjustment
- Available for 0°C to +70°C or -55°C to +105°C
- Hermetically sealed units on request
- Meets MIL-STD-202E, Methods 101D, 105C, 107D, 202D, 204C and 215D
- High reliability 883B or MIL-M-38510 on request
- No special precautions required against static electricity

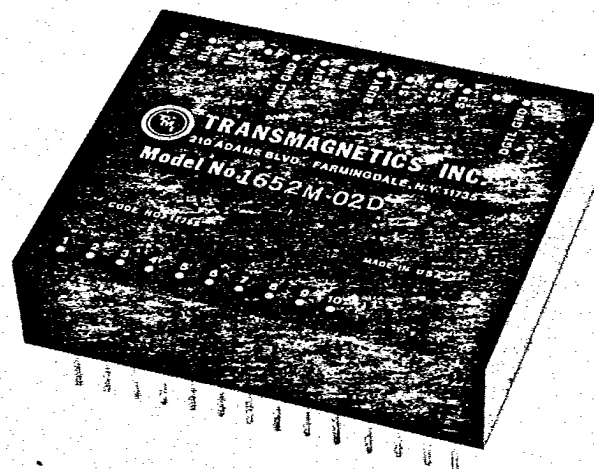
DESCRIPTION:

Series 1652 is a low cost, medium resolution tracking converter that continuously transforms synchro or resolver data into error-free digital form at tracking rates up to 100 rps. Type 2 servo loop error processing techniques insure that data is always fresh and continuously available except during "Converter Busy". This unit is insensitive to voltage and frequency variations because a ratiometric conversion process is used.

The ruggedness and reliability of these converters qualifies them for avionics, military, industrial and commercial applications. Their low cost also recommends them as replacement for optical encoders.

SPECIFICATIONS:

Resolution:		10 bits (1 LSB = 21.1 arc minutes)
*Accuracy:		± 21 arc minutes
Tracking Rate	400 Hz:	100 rps
	60 Hz:	20 rps
Acceleration for 1 LSB lag	400 Hz:	84,000°/sec ²
	60 Hz:	35,000°/sec ²
Step Response (179° step)	400 Hz:	50 ms
	60 Hz:	200 ms
Fan Out:		4 TTL Loads (4049 CMOS hex buffers)
Logic:		Parallel positive logic, TTL levels, binary coded angle
Power:	Main:	+ 15 VDC. Range is + 11 to + 17 at 35mA
	Logic:	Determined by external logic voltage (+ 4.5 VDC to main power)
		Z In = 10KΩ ohms min.
Weight:		Approx. 7 oz.
Operating Temperature:		Model "C": 0°C to +70°C
		Model "M": -55°C to +105°C



Input Characteristics:

Code	Input	Frequency (Hz)	Ref Vrms ± 10%	L-L Vrms	Z L-L min	Ref Current (mA)
01	Synchro	360-3000	26	11.8	40K	1.2
02	Synchro	360-3000	115	90.0	100K	1.2
03	Synchro	50-400	115	90.0	100K	1.2
06	Resolver	360-3000	26	11.8	40K	1.2
07	Resolver	360-3000	115	90.0	100K	1.2
11	Synchro	360-3000	115	11.8	40K	1.2

Isolation:

Transformer inputs are isolated from each other and from DC power common. Insulation resistance from any AC input to output is greater than 200 megohms at 200 VDC.

Grounds:

Logic and analog grounds are common internally. A separate logic ground is available. See Part Number Designation. Analog ground is +15 VDC return; Logic ground is +5 VDC return.

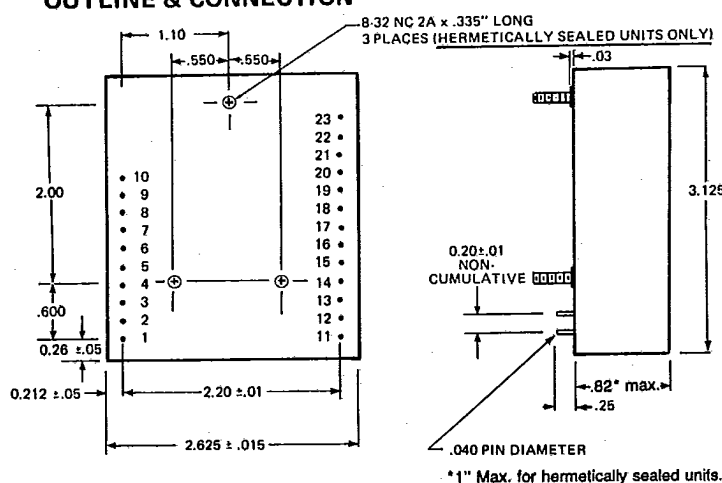
Converter Busy:

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 "0" to prevent output data from changing during transfer. The converter will ignore an "Inhibit" command during the "Converter Busy" period.

OUTLINE & CONNECTION

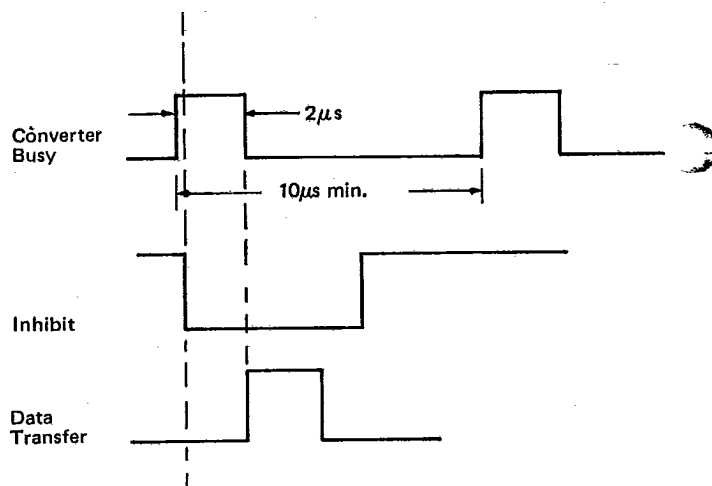


ALL DIMENSIONS IN INCHES

1 MSB (180°)
2
3
4
5 BINARY
6 OUTPUTS
7
8
9
10 LSB

11 R HI
12 R LO
13 +5 VDC
14 N/C
15 Analog GND
16 +15 VDC
17 Inhibit
18 Busy
19 S1
20 S2
21 S3
22 S4 (Resolvers only)
23 Logic GND (When specified)

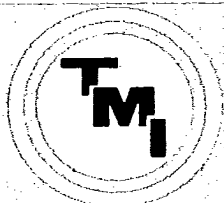
TIMING:



Note: Valid data is immediately available when Converter Busy goes low.

PART NUMBER DESIGNATION:

1652 — — — — —
Add 883 for HI-Rel
Add B for 168 hour burn in
Add D for separate logic ground
Add H for Hermetic seal
Add 12 for +12 VDC operation
Input Code (01-11)
Temperature range (C or M)



TRANSMAGNETICS, INC.

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