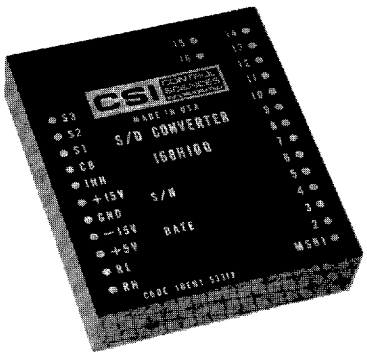
synchro/resolver to digital converter
high accuracy tracking 16 bit
series 168H100

GENERAL DATA:

The series 168H100 are a family of miniature high performance synchro (and resolver) to digital converters, which provides the user with high resolution and accuracy along with high tracking rates. The converter features a synthesized reference for phase-shift insensitivity and excellent quadrature rejection. The converter occupies less than 7 cubic inches, including 60 Hz applications.

Typical of tracking-type converters, analog synchro (or resolver) input data is accurately and continuously converted into digital binary angle format. Data is always available, except when a digital transition is to occur. This condition is indicated by a logic '1' on the Converter Busy line. During readout, data may be prevented from changing by driving the Inhibit line to logic '0'.

All units are completely trimmed and adjustment-free; allowing absolute interchangeability. Reliability is assured by the use of high grade components rigidly encapsulated and electrically stressed to the lowest possible levels.



ELECTRICAL SPECIFICATIONS:

Parameter	Value
ACCURACY:(1)	1 minute ±.9LSB
RESOLUTION:	16 bits (0.00549°)
DIGITAL INPUTS/OUTPUTS:(2)	Parallel Natural binary angle Positive DTL/TTL logic; 1 converter busy & 1 inhibit
SYNCHRO INPUT:(3)	11.8V rms 350-450 Hz into 100K ohms 90V rms 350-450 Hz into 800K ohms 90V rms 47-72 Hz into 800K ohms
INPUT TYPE:(4)	Solid-State Scott-T
SYNCHRO INPUT RATES:	0° to 1800°/second full accuracy 0° to 75°/second² = 1LSB lag (60Hz) 0° to 500°/second² = 1LSB lag (400 Hz)
REFERENCE INPUT:	26V rms 350-450 Hz into 400K ohms 115V rms 350-450 Hz into 400K ohms 115V rms 47-72 Hz into 400K ohms
POWER SUPPLIES:	+4.75 to +5.25 VDC @ 280ma max(5) +13.50 to +16.50 VDC @ 30ma max -13.50 to -16.50 VDC @ 45ma max

ENVIRONMENTAL SPECIFICATIONS:

TEMPERATURE RANGES:	Operating: 0° to 70°C Storage: -55° to 125°C

NOTES:

(1) Accuracy applies for:
(a) ±10% signal and reference amplitude variation.
(b) 10% signal and reference harmonic distortion.
(c) over specified power supply range.
(d) over temperature range of 0° to 70°C

(2) Digital inputs and outputs are standard TTL logic.

(3) Other input voltages and frequencies available.

(4) Any one stator and/or rotor line may be grounded. Common mode voltages up to specified L-L voltage have no effect on operation.

(5) 125ma max for low power Schottky units.

TIMING:

Whenever an input angle change occurs, the converter changes the digital angle in steps of 1LSB and generates a converter busy pulse. During the 1 μsecond converter busy pulse the output data is changing and should not be transferred. The converter will ignore an inhibit command applied during the converter busy interval. Because the converter is a "tracking" type and the outputs are not buffered the inhibit line should not be pulled low (logic '0') in excess of 10 μseconds.

There are two methods of interfacing with a computer (1) synchronously, and (2) asynchronously. A simple method of synchronously loading is to: (a) apply the inhibit, (b) wait 3 μseconds, (c) transfer the data, and (d) release the inhibit. Asynchronous loading is accomplished by transferring data on the trailing edge of the converter busy pulse.

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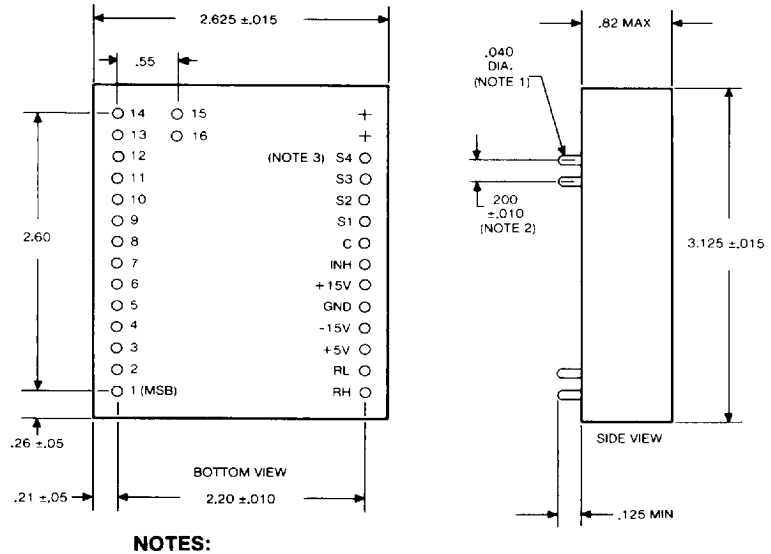
ORDERING INFORMATION:

168H SUFFIX	INPUT TYPE	STATOR VOLT	REF VOLT	FREQ HZ	LOGIC TYPE
*100	SYNC	11.8	26	400	TTL
*101	SYNC	90	115	400	TTL
*102	SYNC	90	115	60	TTL
*103	SYNC	11.8	26	400	LS
*104	SYNC	90	115	400	LS
*105	SYNC	90	115	60	LS
*106	RSVR	11.8	26	400	TTL
*108	RSVR	90	115	60	TTL
*109	RSVR	11.8	26	400	LS
*111	RSVR	90	115	60	LS
112	SYNC	11.8	26	400	HC
113	SYNC	90	115	400	HC
114	SYNC	90	115	60	HC
115	RSVR	11.8	26	400	HC
116	RSVR	90	115	60	HC

*Not recommended for new designs

OUTLINE AND INTERCONNECTING DATA



NOTES:

1. RIGID .040 DIAMETER PINS SUITABLE FOR SOLDER-IN OR PLUG-IN APPLICATIONS.
2. NON-CUMULATIVE
3. S4 PIN APPEARS ON MULTIPLE INPUT AND RESOLVER MODELS ONLY.