



**synchro/resolver converter-combiner**  
**coarse two speed** **10 bit**

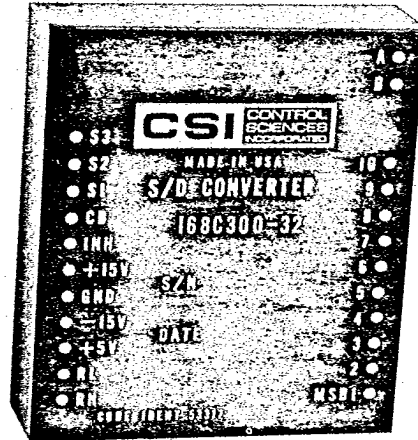
**series 168C300**

T-71-35-03

**GENERAL DATA:**

The series 168C300 are a family of 10 bit miniature high performance synchro (and resolver) to digital converters designed to accept angular information in synchro (or resolver) form from the coarse shaft of 8:1, 16:1, 32:1 or 64:1 two speed synchro systems.

When used in conjunction with the 168F100 series synchro (and resolver) to digital converter, they form a complete two speed synchro (or resolver) to digital converter. Synchronizing data is taken from the two MSB's of the fine synchro converter to the inputs A and B of the coarse synchro converter. The number of bits used from the 168C300 is  $\log_2 N$  where N is the speed ratio. The full range of bits are brought out of the converters so that they can be also used as normal synchro to digital converters, for this use inputs A and B must be set logically at  $A \neq B$ .



**APPLICATIONS:**

**ORDNANCE CONTROL - RADAR TRACKING SYSTEMS - NAVIGATION SYSTEMS**

**ELECTRICAL SPECIFICATIONS:**

ACCURACY <sup>(1)</sup>	±30 minutes
RESOLUTION	10 bits (0.3516°)
DIGITAL OUTPUT <sup>(2)</sup>	Parallel natural binary angle Positive DTL/TTL logic Converter Busy, logic '1' = busy
DIGITAL INPUT	Inhibit, logic '0' inhibits A and B synchronizing inputs <sup>(3)</sup>
SYNCHRO INPUT <sup>(4)</sup>	11.8Vrms 50-1200Hz into 100K ohms 90Vrms 50-1200Hz into 800K ohms
INPUT TYPE <sup>(5)</sup>	Solid state Scott-T
SYNCHRO INPUT RATES	10,800°/sec. full accuracy 8000°/sec <sup>2</sup> = 1 LSB error
REFERENCE INPUT	10 to 130Vrms 50-1200Hz into 400K ohms
POWER SUPPLIES	+5V ±5% @ 260ma (120ma opt.) <sup>(6)</sup> +11.5 to +16V @ 40ma -11.5 to -16V @ 40ma

**ENVIRONMENTAL SPECIFICATIONS:**

TEMPERATURE RANGES	Operating: 0° to 70°C standard -55° to 105°C optional Storage: -55° to 125°C
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**NOTES:**

- (1) Accuracy applies for:
  - (a) +10% -30% signal amplitude variation.
  - (b) 25% signal and reference harmonic distortion.
  - (c) over operating temperature range.
  - (d) over specified power supply ranges.
- (2) Fan-out of 5 standard TTL loads.
- (3) Connect A to fine converter bit 1 and connect B to fine converter bit 2.
- (4) Other input voltages available.
- (5) Any one stator and or rotor line may be grounded. Common mode voltages up to specified L-L voltage have no effect on operation.
- (6) Binary outputs are low power TTL logic.

**ORDERING INFORMATION:**

168C SUFFIX	INPUT TYPE	L-L VOLTAGE	5V REQMT.
300	SYNC	11.8V	STD
301	SYNC	90V	STD
302	SYNC	11.8V	LO
303	SYNC	90V	LO
304	RSVR	11.8V	STD
305	RSVR	90V	STD
306	RSVR	11.8V	LO
307	RSVR	90V	LO

(continued overside)



168C300-32 (continued overside)

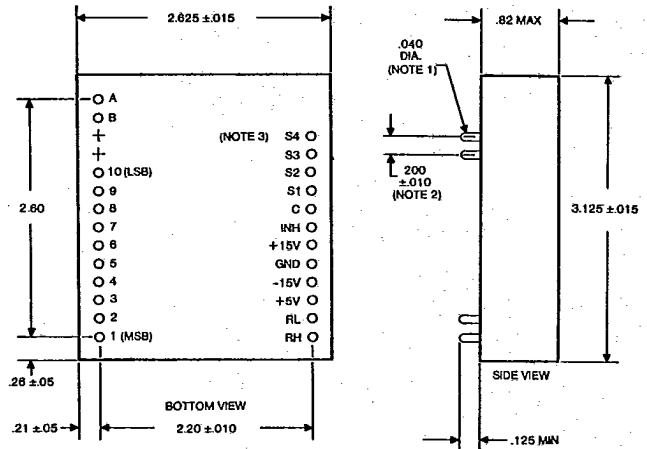
**ORDERING INFORMATION (cont'd.)**

For desired speed ratio add 2 digit suffix to part number. Example: for 16:1 speed ratio part number will read 168C3XX-16. Above numbers describe commercial temperature range devices (0° to 70°C); add suffix-ET to part number for extended temperature range (-55° to 105°C) consult factory for part numbers describing additional options.

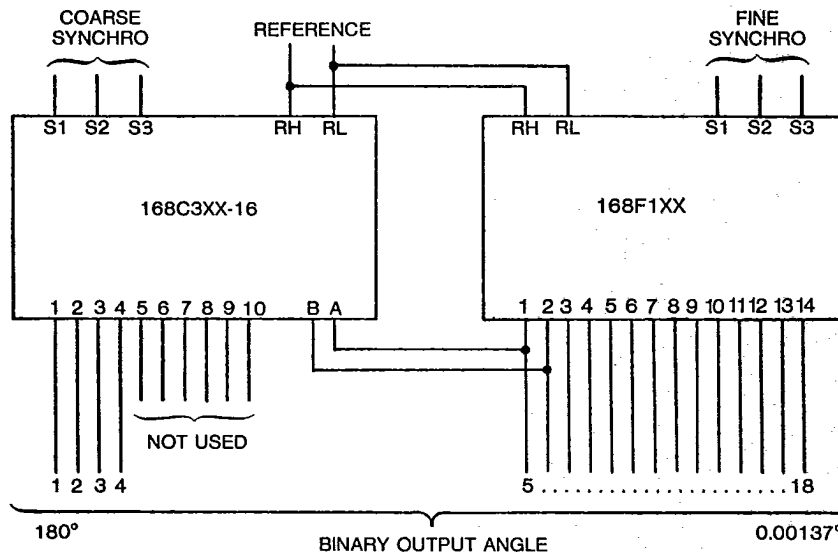
**NOTES**

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 input models only.
4. Module size includes 50 to 1200 Hz applications.

**OUTLINE AND INTERCONNECTING DATA**



**INTERCONNECTING DIAGRAM  
TWO SPEED S/D CONVERTER 16:1**



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