Model 5330A
Synchro/Resolver Simulator

Features

- Up to two fully independent channels
- Optional reference supply
- 47 Hz to 10 KHz
- Up to 6 VA power output per channel
- Ethernet, IEEE-488, USB & Parallel ports
- CE Compliant (pending)
- LXI compatible
- Replaces **all** legacy NAI 5330 and 5310 simulators

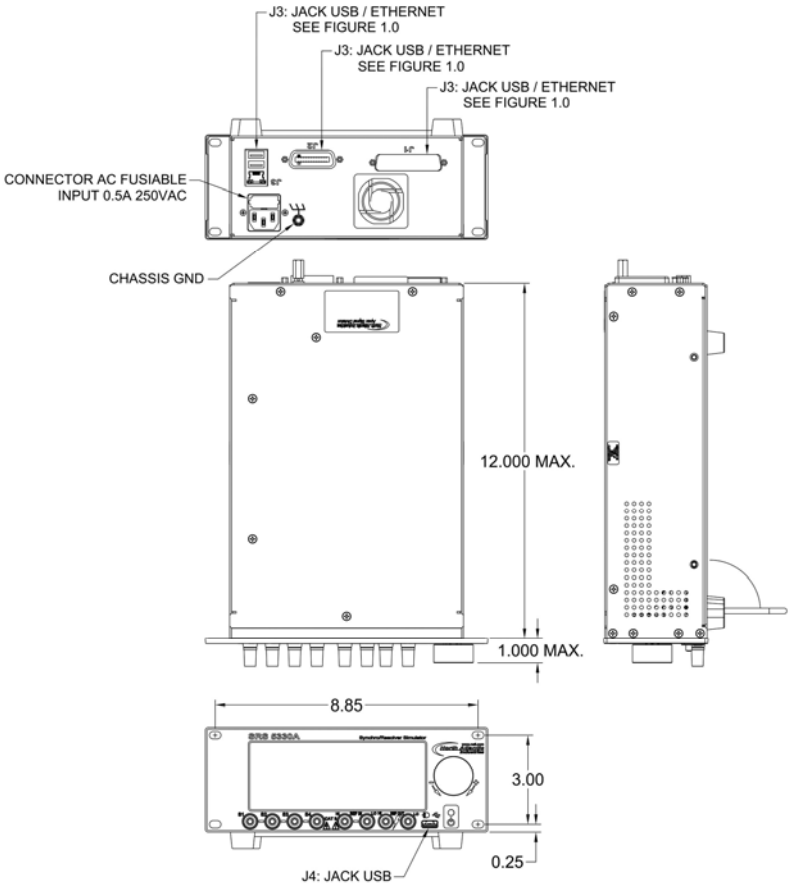
Description

The 5330A is a 2nd generation Simulator representing a major advance in technology by using digital technology to produce Synchro and Resolver outputs. The intelligent DSP design eliminates mechanical push buttons, allowing all front panel programming to be done either via an integrated touch-screen, jog-wheel, or mouse interface. Remote operation capabilities have been extended beyond the standard IEEE 488 with the addition of USB and Ethernet interfaces.

Two angle output display modes of either 0-360º or ±180° are available; a wide (47 Hz to 10 KHz) frequency range is standard and an optional and a programmable 6 VA internal reference supply is available.

The versatility of this device has been substantially increased by incorporating dynamic modes that enable testing of servo systems under various simulated field conditions including:

- Simulation of a rotating component in either clockwise or counter-clockwise direction
- Ability to produce step, sine wave, ramp, or sawtooth outputs



Two **fully independent** outputs can be combined to operate as a two-speed output with gear ratios programmable from 2:1 to 255:1.

The 5330A can generate output voltages from 1.0 to 90 V_{L-L} and accepts reference voltages from 2 to 115 V_{RMS} over a frequency range of 47 Hz to 10 KHz, easily handling most known Synchro/Resolver simulation requirements.

Specifications:

Specifications	Synchro or Resolver
Number of channels	One or two (see part number)
Mode	Synchro/Resolver, programmable. Two outputs can be combined to act as a single 2-speed simulator (ratio is programmable from 2 to 255)
Resolution	0.001°
Accuracy	
(Resolver) No load: (2-28 VL-L)	±0.003°; 360 Hz to 2,000 Hz Add 0.003°/VA; 2.2 VA max. inductive
(Resolver) No load: (2-90 VL-L)	±0.003°; 360 Hz to 1,000 Hz Add 0.003°/VA; 2.2 VA max. inductive
(Resolver) No load: (2-28 VL-L)	±0.015° >2,000 Hz to 10,000 Hz (at 10,000 Hz & 20 KΩ min. load) Accuracy degrades as a linear function of frequency from 1 KHz to 10 KHz
(Synchro) No load: (11.8/90 VL-L)	±0.005° >100 Hz to 800 Hz Add 0.003°/VA; 6.0 VA max. inductive
(Synchro) No load: (11.8/90 VL-L)	±0.012° 47 Hz to 100 Hz Add 0.003°/VA; 6.0 VA max. inductive
Settling time - (180° step)	<100 µs to 26 V_{L-L} ; <250 µs at 90 V_{L-L}
Output voltage	1-90 V_{L-L} programmable for ratio-metric or fixed. (Fixed means output V_{L-L} is independent of reference voltage)
Reference input	
External Source	2-115 VRMS ; 47 Hz to 10 KHz (utilizing externally provided stable AC REF source)
Internal Source	When utilizing optional "internal" Reference Generator source: 2.0 - 3.9 Vrms; 100 Hz to 10 KHz 4.0 - 115 Vrms; 47 Hz to 10 KHz
Reference input impedance	>36,000 ohms
Phase offset	±179.9°
Dynamic motions	
Continuous, constant rate CW & CCW with programmable start/stop angles:	
Angular rate	±0.01 to ±6,480 °/sec. @ 47 to 60 Hz; ±0.01 to ±99,720 °/sec. @ >360 Hz
Resolution	0.001°/sec. @ 47 to 60 Hz; 0.01°/sec. @ >360 Hz
Rate accuracy	±1%
Stop Angle	0-359.99° or ±179.99 (depends on display option)
Sinusoidal / ramp / step function / saw tooth:	
Amplitude	0° to ±90° centered around datum angle of 0°- 359.99°
Frequency	0.0001 Hz to 999.999 Hz
Resolution	0.0001 Hz to 99.9999 Hz 0.001 Hz from 100 to 999.999 Hz
Reference Generator, (SEE PART NUMBER)	
Voltage Output	2V to 115 VRMS. Programmable with a resolution of 0.1 V • 2.0 to 9.9V_{RMS}; 47Hz to 10Khz frequency range • 10.0 to 27.9 V_{RMS}; 47Hz to 4Khz frequency range • 28.0 to 115 V_{RMS}; 47Hz to 800Hz frequency range
Accuracy	±3% of setting <15Khz ±6% of setting ≥15Khz
Frequency	47 Hz to 10 KHz. Programmable with 0.1 Hz steps
Frequency accuracy	The greater of ±0.1% of frequency programmed or ±1 Hz
THD	2.0% maximum
Regulation	±5% (No load to Full Load)
Output Drive	6 VA (see detailed description on full specification)
Output Protection	Over-Current (10 sec. automatic retry @ 1.3 sec. int.; afterwards, shutdown w/ manual reset)
General	
Communication Interfaces	Ethernet, USB, and IEEE-488,
Temperature Range	0 - 50°C operating; 0 to +70°C storage
Input Power	85 VRMS to 265 VRMS, 47 to 440 Hz
Weight	<6 lbs.(2.72 Kg)
Dimensions	12.5" L (31.75 cm) x 9.5" W (24.13 cm) x 3.5" H (8.89 cm)

Ordering Information

Part Number: 5330A - • • - •

- Leave blank for standard 5330A
- Add '30' **for a replacement for all legacy 5330 models
- Add '10' for a replacement for all legacy 5310 models
- Add '0' for no reference supply; add 'R' for one references supply
- Add '1' for single channel; add '2' for two channels