ACUTRONIC

The Driving Force in Motion Simulation™

Inertial System Test Instruments
Series AC1120S

AC1120-V1.0 vertical use

AC1120-V2.0 horizontal use
(prepared for temperature chamber)

- Designed to test inertial components, instruments and MEMS sensors
- Used for development, production, in-process test, calibration and final inspection
- Simulates environmental conditions when used in combination with a thermal chamber
- Horizontal axis for accelerometer testing or roll-over sensor testing
- Precise positioning, smooth rate with zero drift and accurate instantaneous rate stability
- Easy customer software implementation
- Short, ex-stock delivery of 8 standard configurations

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Design, Manufacturing and Integration of Precise

Major Features

The drive assembly is mounted on a cast iron angle bracket for use in horizontal or vertical orientation. It is equipped with a direct drive brushless motor providing high torque and smooth rates over a wide operating range.

Table support points are precision-machined perpendicular or parallel to the table axis. For small payloads the table can be used freestanding. High dynamic applications and/or large payloads require the table to be bolted to a rigid support surface.

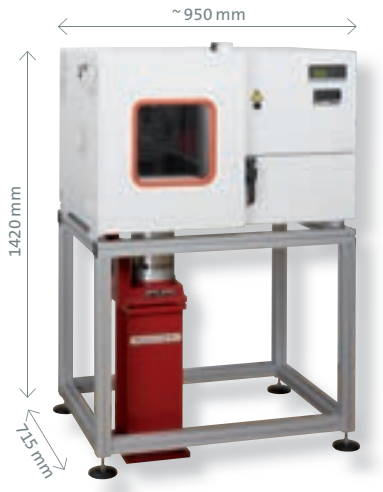
A 30-way slip ring connects the Unit Under Test (UUT) to the table base. The lines terminate in two D-SUB connectors on the table top and corresponding connectors on the table base.

The rate table is operated from a host computer via RS-232 or optional USB interface. Other interfaces installed are analog Inputs, digital Inputs/Outputs and CanBus. Other optional interfaces are available on request.

AC1120S GUI Layout

The Graphical User Interface (GUI) allows the user to select modes, command motion set points, monitor system variables, and query status. The GUI is used to customize the system configuration and to initiate tuning and calibration procedures.

Analog signals may be entered, scaled, and summed with the digital demands in position and rate mode of operation.



AC1120S V2.1

AC1120S V2.2

AC1120S V2.3 (vertical use shown)

The AC1120S Family: the controller and the tables V1.0, V2.0 and V3.0 (from left to right)

AC1120S V2.3 (horizontal use shown)

AC1120S V2.0 + V2.3

Table performance	
Payload, max. weight	20 kg
Payload, nominal weight	up to 12 kg
Payload, nominal inertia	up to 0.1 kgm²
Table top diameter	250 mm or 350 mm
Table top hole pattern	16 × M6, 50 mm grid
Wobble	< 10 arc sec peak
Angular freedom	Continuous
Position range	0 to 359.999 deg
Position slew profiling	Rate, Acceleration
Position accuracy	< 15 arc sec peak
Rate range	± 3'000 °/s
Rate resolution	0.001°/s
Rate stability (over 360°)	0.001%
Acceleration, no load	40'000 °/s2
Bandwidth (-3dB)	>150 Hz for velocity loop
Host computer interface	RS-232 or USB
Analog inputs	2 analog inputs
Digital inputs	4 digital inputs
Digital outputs	2 digital outputs
Power supply	1/N/PE 230VAC ±10%, 50 Hz

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Slipring performance	Standard capsule All versions of AC1120S	Optional capsule All versions with option OPT011
Number of signal ways	30	24
Number of power ways	0	6
Total number of ways	30	30
Signal ways, continuous current	1,7 Amp	1,0 Amp
Max. voltage	110 VAC / 200 VDC	110 VAC / 200 VDC
Cable size	AWG 28	AWG 28
Connector type	2 × D-SUB, 15 pins	1 × D-SUB, 26 pins, high density
Power ways, continuous current	–	3 Amp
Cable size	–	AWG 24
Max. voltage	–	110 VAC / 200 VDC
Connector type	–	1 × D-SUB 15 pins

Temperature chamber performance	Model 7004 Versions of AC1120S: V2.0, V2.1, V2.2., V2.3	Model 7021 Versions of AC1120S: V3.0, V3.1
Limited range in use with AC1120S	−50 °C ... +115 °C	−50 °C ... +115 °C
Homogeneity	±1.5 °K	±2.0 °K
Stability	±0.5 °K	±0.5 °K
Heating gradient	approx. +5 K/min	approx. +2 K/min
Cooling gradient	approx. −4.5 K/min	approx. −2 K/min
Chamber volume	37 L	200 L
Usable dimensions (w × d × h)	300 × 290 × 350 mm	560 × 570 × 600 mm
Weight	140 kg	350 kg
Noise level	55 dB @ 2 meters	60 dB @ 1 meter
Power supply	1/N/PE 230VAC ±10 %, 50 Hz	1/N/PE 230VAC ±10 %, 50 Hz
Power	0.9 kW	2 kW
Current	6 A	12 A
Protection	16 A	16 A
Controller	MINCON/32 with Mincontrol	MINCON/32 with Color Touch Panel
Simpati software	Delivered on CD-Rom	Optional
RS232	Available	Available
Digital I/O	Not available	4 x 24 V floating
Auxiliary contact for customer use	1 x 24 V floating, 0.5 A	1 x 24 V floating, 0.5 A
Ambient temperature	Between +10 °C and +35 °C	Between +10 °C and +35 °C
Relative humidity	Max. 75 %	Max. 75 %
Dewpoint	Max. +20 °C	Max. +20 °C

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