New Analog Computer Developments

AUTOMATIC DIGITAL INPUT-OUTPUT SYSTEM—ADIOS. Permits faster, more accurate, automatic, servo potentiometer setting from keyboard or from pre-programmed punched paper tape. Two seconds per setting with .01% accuracy. Settings may be checked from either ADIOS Desk or computer console. Designed to operate up to six computer groups. Pre-programming greatly conserves valuable computer operational-time capacity.

MODULAR DESIGN PRE-PATCH PANEL, Type 5.001, provides 3,430 connection holes with color coding of logically grouped computer components. Many more connections can be made with compact bottle plugs, reducing the number of patch-cords required and thereby cutting down on patch board clutter. "Hold" and "Reset" controls now provided for individual amplifiers.

AERO-AUTOMATIC EXTENDED READ-OUT WITH PRINTER ACCESSORY — Selection of problem read-out points by push button control. Provides instantaneous voltage read-out and prints four figure reading plus sign at the rate of four per second with address of monitored component included to facilitate analysis of problem "runs." Example: A20 + 68.89 indicates that amplifier number 20 reads plus 68.89 volts.

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MODEL 2.001 ELECTRONIC DIGITAL VOLT METER—EDVM, provides rapid five figure luminous read-out plus sign. (AV. .005 Second/reading.) Accuracy is 0.01% over the entire voltage read-out range of 0 to ± 120.00 Volts, dc. Transistorized, all-electronic design assures reliability, long life, and compactness. Necessary power and reference supplies are obtained from the Computer.

NEWLY DEVELOPED QUADRUPLE AMPLIFIER PACKAGE, employing printed circuits for increased uniformity and reliability, is responsible for the exceptionally high accuracy of the 231R analog computer. The Model 6.002 amplifier requires half the panel space of previous models. It has a .01% gain accuracy with less than 2 mv. peak to peak noise, and less than 0.1° phase shift at 100cps.

NEW 231R ANALOG COMPUTER

The Electronic Associates Analog Computer 231R, provides more computing, in less time, at less cost, in less space, and with more accuracy than ever before achieved in electronic computers.

EAI's new automated analog computer has provision for one hundred amplifiers and associated non-linear equipment. Features all-electronic digital voltmeter and high speed print-out system. Potentiometers may be automatically servo-set at twice the speed of any other system. New and larger patching system featuring modular groupings of components, helps to eliminate "patchboard clutter." 100% signal shielding included. Basic 231R Computer System includes 20 amplifiers, 20 potentiometers, vacuum tube voltmeter, push button signal select system, static problem check, rate test, automatic hold, 4 function switches, control panel overload identifier, and all necessary power supplies.

231R COMPUTER STANDARD EXPANSION. Two Model No. 4.010 Electronic Multiplier Groups and one Model No. 4.015 Combination Group (not shown) together provide the components necessary to permit utilizing the maximum 231R Computer capabilities. Total of 100 amplifiers, 150 potentiometers, 10 electronic multipliers, 10 servo multipliers, 20 ten segment diode function generators, 5 position or rate resolvers, electronic digital voltmeter and printer, 10 comparators, 20 function switches, 15 or more pot-paddling units, time scale check, repetitive operation, 10:1 time scale change plus power supplies and all features found in the basic 231R Computer Console.
New Analog
Plotters & Recorders

EAI's new Transistorized Variplotter provides twice
the plotting speed of its widely used 205 series Variplot-
ter with all of the 205's proven features. Trans-
istorizing gives added accuracy and reliability.
Maximum dimensions 11" x 45" x 45." Weight 250 lbs.
Operates horizontally or vertically.

EIGHT CHANNEL RECORDER—TYPE 99.003. All con-
trols for this rectilinear, computer-output recorder are
conveniently mounted on one panel from which
control of a complete computer-recorder instal-
lization can be obtained. An event marker pen with a one
second timer and an automatic scale calibration device
are designed into the recorder. Panel switch permits
selection of either right or left deflection of stylus
for any input. Stepped sensitivities of from 0.5 to
100 volts/centimeter are selectable for each channel
by individual push button controls, thus providing
speed and flexibility of set-up and re-runs. Drift:
Less than 0.5 mV/hr.

THE MODEL 1100E VARIPLOTTER is an EAI design
achievement in table top, X-Y recorder versatility
and performance. This portable Variplotter is de-
signed to accept plug-in input networks. A low and
a high sensitivity network is available for both pen
and arm circuits. Arm and pen may be either both
low or both high or any combination of high and
low sensitivities. Features: Built-in vacuum paper
hold down, continuous zero adjustment, long term
stability with very high static and dynamic accuracy.

Digital Data
Reduction Equipment

MAGNETIC TAPE DATAPLOTTER SYSTEM. High speed
plotting on X-Y graphs of data recorded in digital
form on magnetic tape written by IBM, Remington
Rand, ElectroData, and other digital computers. Used
with any standard EAI plotting board for point,
symbol point or continuous line plotting. Includes
all features available in other EAI plotting systems
and many others. Analog voltages available for
feedback control, etc.

THE 3033B (LP) DATAPLOTTER is the first commercially
available device which converts digital point data to
accurate continuous line drawings. Point plotting
or line plotting is conveniently controlled from the
control panel. Plots one to four digits from IBM
cards, punched tape, or input keyboard on a vacuum
held 30" x 30" paper surface. Twelve significant
symbols available with Symbol Printer for plotting
several sets of data simultaneously. Speed: point plot
50 points per minute, line plot 25 points
per minute. Accuracy: Point Plot — 0.5%, line plot
— 1% of full scale.

KEYBOARD INPUT PLOTTER. Provides economical, semi-
automatic, graphic presentation of data available in
tabular form. Permits X-Y plots of 4 digit X and Y
coordinates. Points or symbols plotted with .015 inch
accuracy with speed dependent on operator skill.
Combines EAI Model 1100E Variplotter and new
input keyboard. EAI Symbol Printer available as
accessory.

Analog to Digital Conversion Equipment

MODEL 26.044 PORTABLE ELECTRONIC DIGITAL VOLT-
METER has a built-in transistorized power supply and
reference voltages. Provides four figure digital read-
out plus sign of analog voltages with .05% accuracy
at an average rate of 500 seconds per reading. Use
of transistors and elimination of stepping switches
gives this instrument maximum reliability in a
minimum of space.

MODEL 39.012 HIGH SPEED PORTABLE PRINTER. A
completely self-contained, portable, high speed digital
printer for use with EAI Computer EDVM. Parallel
decimal entry, 11 Column printout at 4 lines
per second; 3 columns alpha-numeric address, 1
column space, 3 columns digital read-out, 1 column
sign, and 1 column decimal point.

Write for Analog Plotting Brochures
Write for Analog To Digital Conversion Brochures
Write for Digital Plotting Brochures
Control Instrumentation, System Analysis, and Development Engineering Services...

**Custom Engineering Services** in the fields of control instrumentation and data-logging systems and equipment are also provided by Electronic Associates, Inc. on a contract basis. By coordinating the tremendous knowledge and experience developed in the design and manufacture of analog computing, plotting, and recording, as well as digital data plotting and recording equipment, Electronic Associates makes available to industrial and military research and production groups an invaluable combination of ability and experience. A number of projects requiring application of the talents described above are already under development by EAI Engineering Department and Computation Center mathematicians, physicists, and engineers. Inquiries should be directed to D. H. Corrigan, Manager, Engineering Sales.

The capabilities and interests of this group include:

1. Process Control systems and equipment for industrial and military research and on-line applications.
2. Analog computing, plotting, and recording equipment, their design, development, and application.
3. Digital-data plotting and read-out equipment, their design, development, and application.
4. Data-logging and data-handling for both industrial and military research and on-line process analysis and control.
5. General Control Systems involving Servo, Servo Mechanical, pneumatic, Hydraulic, and digital techniques.

**EAI COMPUTATION CENTERS SERVE U. S. AND EUROPEAN INDUSTRY**

Each day adds to the number of industries that are discovering the amazing capabilities of analog computers to quickly explore the possibilities and limitations of new ideas and design concepts. Capable of accurately simulating an endless variety of mechanical applications from missiles in flight, through chemical refinery design, to mounting suspension for a washing machine, the analog computer solves in hours problems requiring days or years on other modern computers. Again, years of experience in problem analysis and programming are available from EAI Computation Center Engineers to advise and assist scientists and engineers in rapidly deriving solutions to their design problems.

**APPLICATIONS.** Heat Transfer Problems, Automotive Stability, Vibration Problems, Simulation of Internal Combustion Engines, and Analysis of Complex Electronic and Mechanical Systems are just a few of the endless number of problems being programmed at EAI Computation Centers.

Write for Bulletin FF-117 and IL-804

Write for Computation Center Booklet