RECHENZENTRUM
DER UNIVERSITÄT KIEL

PRODUCTS
AND
SERVICES

INTRODUCTION

Electronic Associates, Inc. has long been the leader in the field of analog computation. In the last few years, the range of **EAI** activities has developped into the digital and hybrid domain, to achieve a very significant reputation in the field of scientific computation in general.

Established in 1945 in Long Branch, New Jersey, **EAI** now employs 3,000 people, with yearly sales of over 40 million dollars. Since 1957, the European Division has provided Sales and Service functions here, with headquarters in Brussels (Belgium), and offices in Aachen (Germany), Paris (France) and Stockholm (Sweden), besides, a subsidiary was organized in the United Kingdom : Electronic Associates, LTD.

COMPUTATION CENTERS

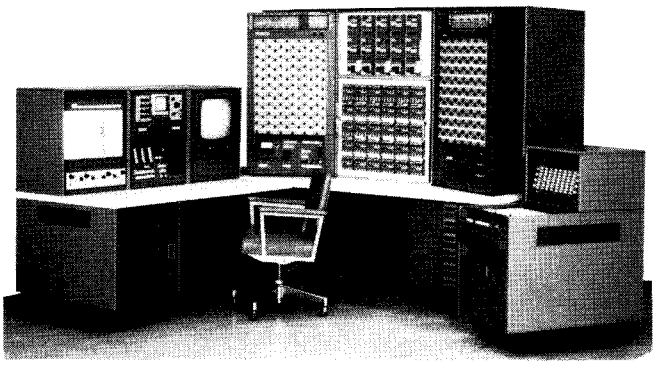
In order to provide users with computing tools and expert **applications assistance**, several computation centers offer the latest equipment for general computation and simulation purposes, as well as for **demonstrations**. In Europe, centers operate in Brussels and in Burgess Hill (Sussex, England). Highly valuable experience, developped over a decade of activity in the field, is available from the engineers and mathematicians assigned to the computation centers.

Training courses are organized at regular intervals, providing customers with the necessary know-how to efficiently operate and maintain equipment.

The purpose of this brochure is to review in summary form, the complete line of **EAI** equipment. For further information, please contact **EAI** European Division, 116, rue des Palais, Bruxelles 3 – Tel. 16.81.15.

DIGITAL COMPUTER EAI 8400 Mod II

Specifically designed for scientific computation. **32 bit word, 8 to 64 K core memory, 1 microsecond cycle time.** High speed floating point hardware. Instruction repertoire for floating and fixed point, integer, double precision and logical data. Byte manipulation. Indirect addressing, index registers. Base register. Nanosecond save register. Memory protect and parity. Flexible interrupt system. Up to 8 automatic data channels, plus single systems interface.



ANALOG COMPUTER EAI 8800

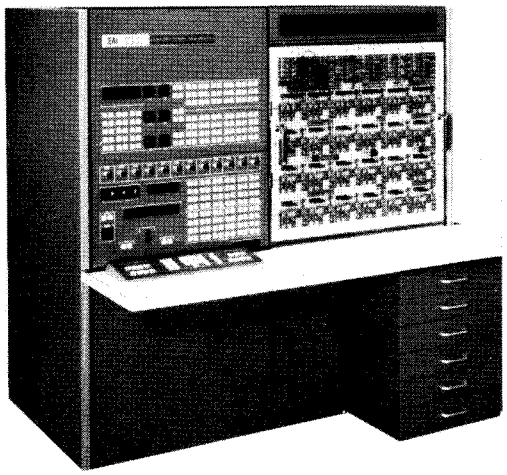
Over 300 high performance and high bandwidth operational amplifiers. 100 volts reference, fully transistorized. Full line of non-linear computing components. Parallel logic. High speed operation and electronic mode control. Individual integrator control. Six time constants.

HYBRID COMPUTING SYSTEM EAI 8900

The **EAI 8400 Mod II digital** computer combines its logical decision, high computation speed, accuracy and extended memory characteristics with the parallel operation, high speed, power and flexibility of the **EAI 8800 analog** computer to constitute a fully integrated **hybrid** computing system. Opens possibilities of solving a great variety of new applications.

DIGITAL COMPUTER EAI 640

The latest in the **EAI** series of digital computers. Ideally adapted for process control applications, real time and general purpose digital computation. Stored program, parallel, binary, with monolithic integrated circuitry. 8 to 32 K of core memory. 16 bits word. 1,65 microsecond cycle time. Flexible input-output and interrupt features. 62 instructions in 8 classes, among which multiply, divide and square root. Memory protect feature.



ANALOG COMPUTER EAI 680

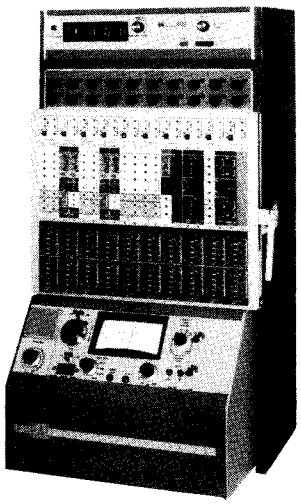
Economical, medium sized computer, up to 156 high speed, 500 KC bandwidth amplifiers. High accuracy, 10 volts reference. Fully transistorized. Includes parallel logic. This computer is really the synthesis of the vast experience **EAI** holds in the field of analog computation.

HYBRID COMPUTER EAI 690

This system constitues the ideal combination of the **EAI 640 digital** computer and the **EAI 680 analog** computer to form a hybrid computation system. Enables the solution to many of the modern engineering problems.

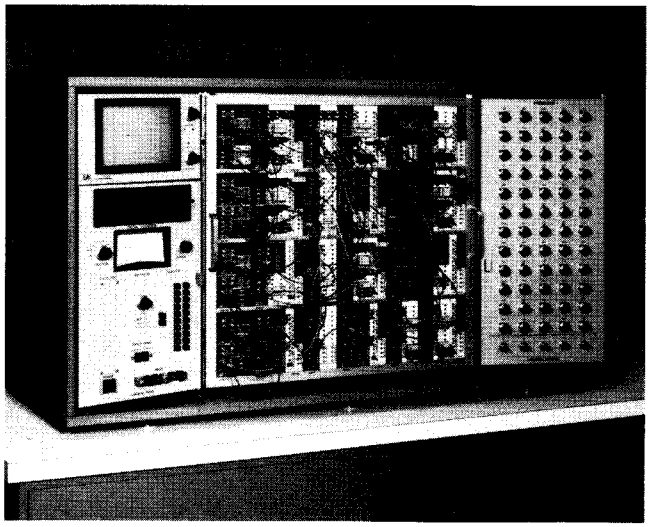
ANALOG COMPUTER TR-20

Fully transistorized small desk top computer. Ideally suited for educational purposes. The best way to teach the principles of analog computation in engineering and science departments of technical high schools and universities, but also suitable for research purpose. 10 volts reference, 20 amplifiers, small, economical, practical.



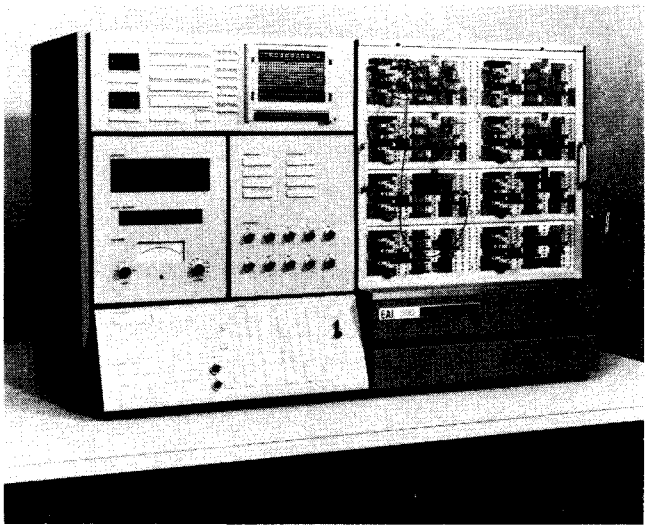
ANALOG COMPUTER TR-48

The **TR-48** is the most sophisticated desk-top analog computer. Its high speed repetitive operation gives the possibility of programming complex analog problems requiring iterative solutions. 58 amplifiers capability, 10 volts reference, fully transistorized. Full line of non linear components.



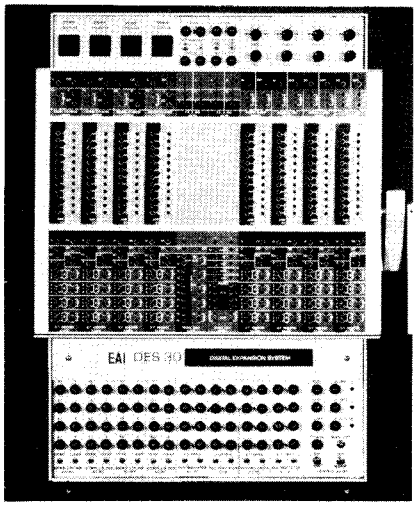
ANALOG COMPUTER EAI 580

A desk-top analog computer with features of large scale systems. The **EAI 580** has been designed to answer the growing and ever more demanding needs of desk-top computers users. Includes 80 amplifiers, parallel logic, servoset potentiometers, multi time scales, electronic mode control elaborated readout system, easy function generator set up and can be linked with a digital computer for full hybrid applications.



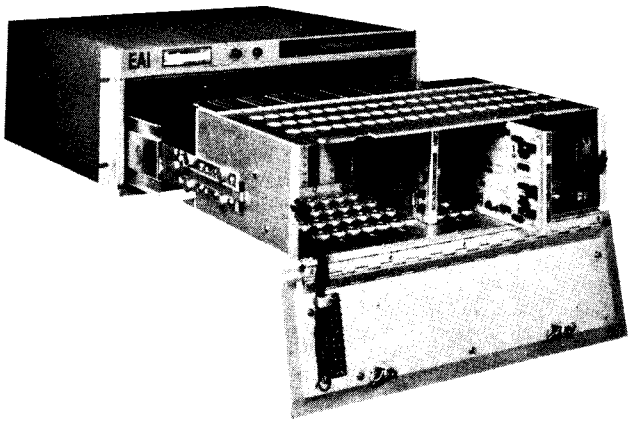
DIGITAL EXPANSION DES-30

This unit consists in a number of basic units of parallel digital logic.
Permits to extend the **TR-48** to a real hybrid computer. Can also be used as an independent unit.



SERIES 10 PROCESSOR

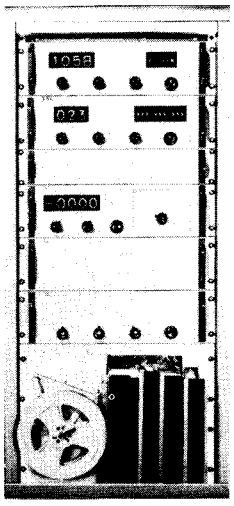
Low cost analog data processor system which can be assembled quickly and easily from modular plug-in components.
The system may be used for operator guides, closed-loop controls, signal conditioning and instrumentation.
System accuracy better than 3/4 % completely self-contained.

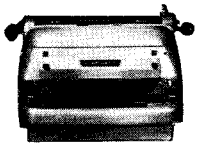


The **EAI 380 Computing System** is a completely new solid state 10 Volt desk-top computer with a capacity of 36 amplifiers. It is an advanced analogue/hybrid computer that is easy to understand and operate. For a minimum outlay you can obtain a **380** then expand with plug-in analogue and logic units at any time.

The **380** is designed to meet a growing need for a small but highly powerful analogue/hybrid computer. It combines the low cost of a desk top computer with the outstanding characteristics and performance previously available only on more costly systems.

The **EAI 380** is an ideal machine for use in Government and Industrial research establishments, Universities and Colleges.



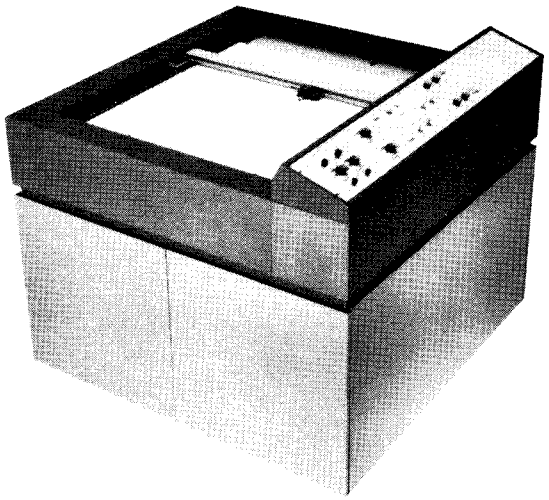


MDP-200

Digital data logging system enabling the installation of a truly customs-designed system through the use of standardized functional modules, incorporating standard interface for interconnection of units. This innovation provides uniformity of voltage levels and control throughout the entire system and allows extreme flexibility whilst requiring a minimum of special engineering.

The **MDP-200** series includes the following modules :

1. Reed relay scanner (**MDP-200-0**)
2. Analogue to digital converter (**MDP-220**)
3. Digital clock (**MDP-261**)
4. Serializer (**MDP-230**)
5. Punch and typewriter drive unit (**MDP-250**)
6. Automatic tape programmer (**MDP-270**)
7. Alarm limit unit (**MDP-280**)
8. Linearisation unit (**MDP-251**).



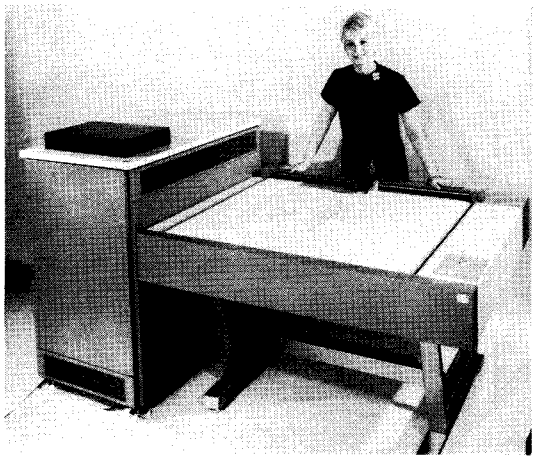
LARGE VARIPLOTTERS

SERIES 205 VARIPLOTTER

* 30" x 30" plotting surface
* Single or dual arm
* ± 0,05 % static, dynamic accuracy
* 30"/sec slewing speed.

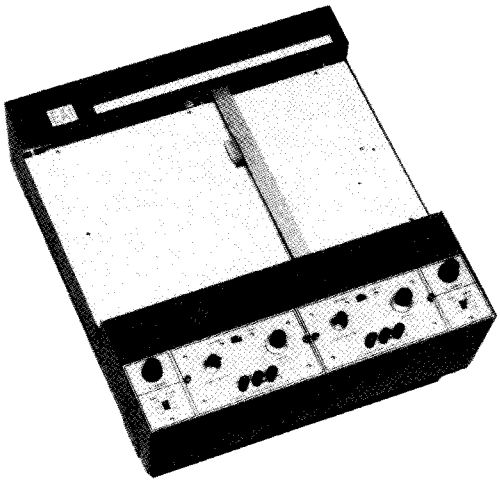
SERIES 99.361 VARIPLOTTER

* 45" x 60" plotting surface
* ± 0,03 % static accuracy
* Input ranges from 50 mv/in to 10 v/in.



EAI DATAPLOTTERS Models 3500 and 430

Fast, accurate plotting of digital data.
Input from cards, paper tape, magnetic tape or directly from digital computers.
Drawing size up to 45 x 60 inch.
Automatic pen selection and symbol printing.
Automatic linear interpolation between points.



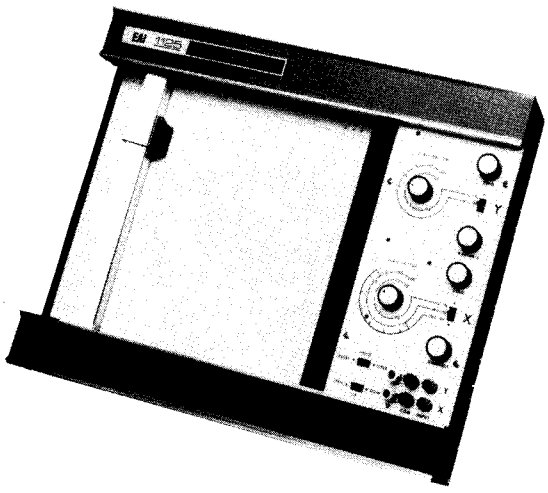
A wide variety of X-Y plotters, to permit every user to meet exact requirements. All utilize all-solid state circuitry, simple single loop drive systems, and rugged high-quality components throughout to provide the finest in recording equipment at moderate prices.

SERIES 1110 VARIPLOTTER

* 11" x 17" plotting surface
* Two pen and two arm models available
* Plug-in input models
* Input ranges from 0,1 mv/in to 20 v/in.

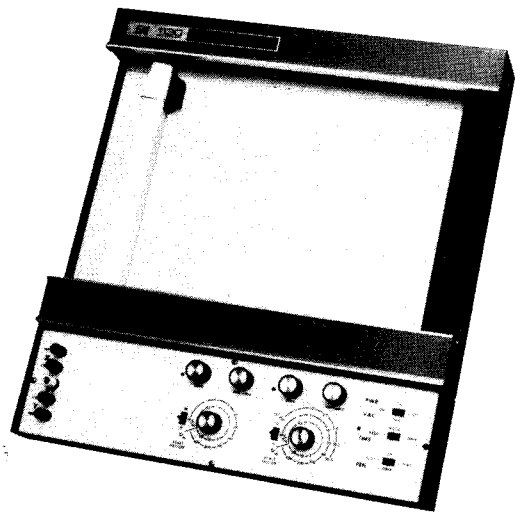
OPTIONAL MODULES FOR 1110 PLOTTER

General purpose	High sensitivity
Time base	AC converter
Basic	Log converter
Computer	Function generator.



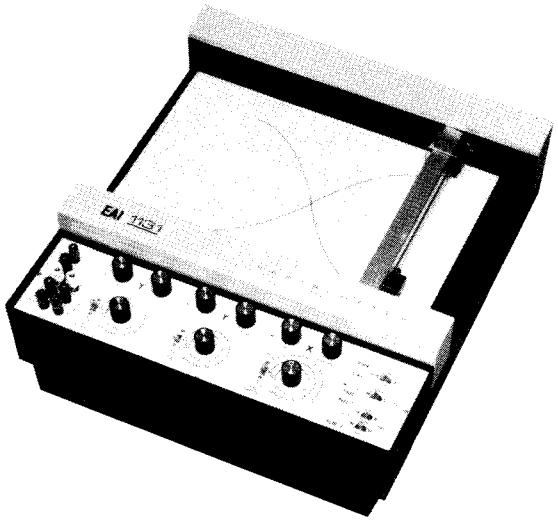
SERIES 1125 VARIPLOTTER

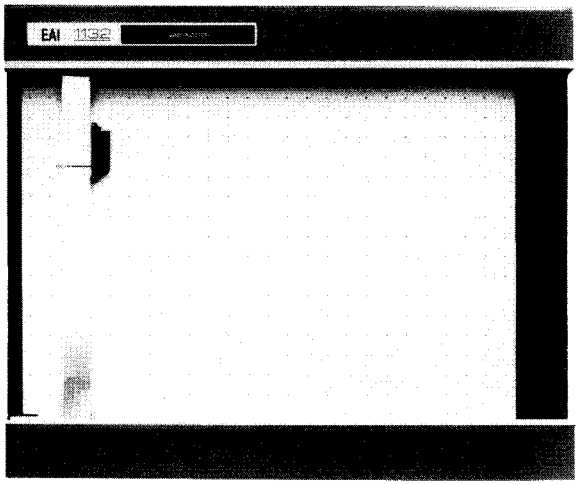
* 11" x 11 1/2" plotting surface
* Built-in time base
* 0,5 mv/in sensitivity.



SERIES 1130 VARIPLOTTER

* 11" x 17" plotting surface
* Fast response
* Cartridge loading pen.



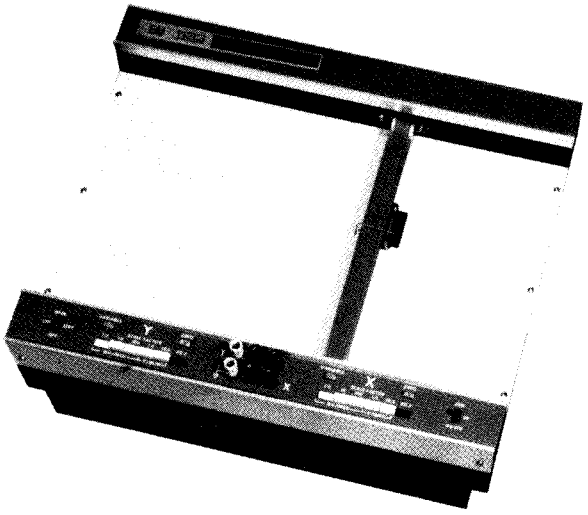


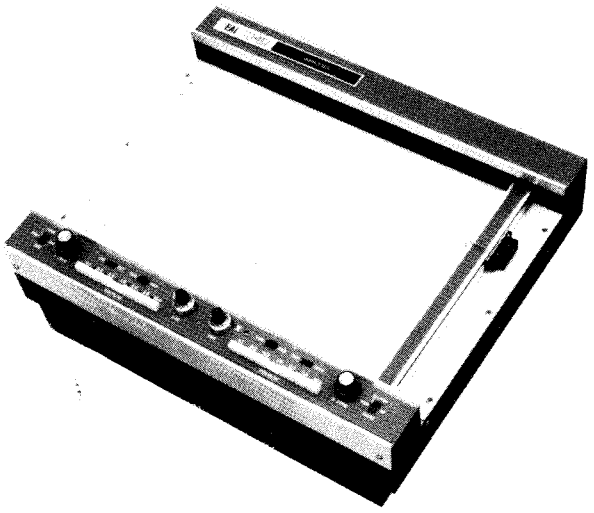
SERIES 1131 VARIPLOTTER

* Two pen X-Y-Y^1 plotter
* 11" x 17" plotting surface
* Built-in time base.

SERIES 1132 VARIPLOTTER

* 11" x 17" systems plotter
* Remote inputs and pen control
* Custom scale factors at no extra cost.



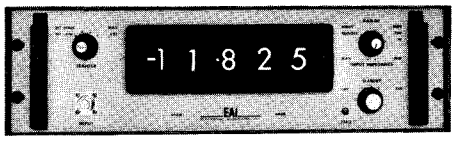


SERIES 1133 VARIPLOTTER

* 11" x 17" plotting surface
* Push-button range selection
* Very accurate and economical.

SERIES 1140 VARIPLOTTER

* 11" x 17" plotting surface
* Fast response
* High dynamic accuracy ± 0,1 %.



ALL SOLID-STATE DIGITAL VOLTMETERS AND DIGITAL VOLT-OHMMETERS

High accuracy, high performance digital voltmeters providing binary coded decimal and ten line decimal outputs. Output signals may be used to drive output accessories, or for direct integration into instrumentation systems.

Series 6000—Manual and Programmable ranging
Series 6001—Manual, Programmable, and Automatic Ranging
Series 6101—Manual, Programmable, and Automatic Ranging

Measurement Modes: DC volts, resistance
Measurement Ranges: 0 to 1,200 volts; 0 to 1.2 megohm
Measurement Resolution: 1 part in 10,000
Measurement Accuracy: DC: ± 0.01%; Resistance: ± 0.025%
Measurement Speed: up to 1,000 readings-per-second
Conversion Time: 1 millisecond

EAI REED-RELAY SCANNERS

EAI 6800 and 6900 Scanners sequentially scan and transmit up to 1,000 low- and high-input signals to one or more measuring devices. Scanners are particularly suited for:

- automatic check-out
- switching and programming
- computer controls and read-out
- datalogging and monitoring

Series 6800 Scanner
Expandable from 10 to 100 channels

Series 6900 Scanner
Expandable from 10 to 1,000 channels

Brief Specifications
Contact resistance: 100 milliohm
Contact rating: 4 or 12 voltamps
Activate time: 1 Msec
Scanning speed: 300 channels-per-second

DIGITAL MEASURING SYSTEM

The Series 6200 Digital Measuring System consists of the basic chassis containing the power supply, 4-digit NIXIE Readout and silicon solid-state circuitry, plus provisions for up to two plug-in modules. For measurement of DC and AC voltages, frequency, period, time interval and other electrical parameters—the Series 6200 provides the display—the plug-in module determines the application. This plug-in approach permits buying only those measuring capabilities currently required, and provides unparalleled versatility in the low cost digital measuring field. EAI Instrument Division engineering will introduce additional input modules to keep the Series 6200 Instruments at "state of the art" level for years to come.

DC INTEGRATING DIGITAL VOLTMETER MODULE
Series 6201

The EAI Series 6201 Plug-In module provides DC voltage measurement capability in five ranges, from 100.0 mv to 1000 volts, with an accuracy of ±0.1 percent ±1 digit. Automatic polarity selection and pushbutton ranging afford fast, easy operation, while the integrating function provides accurate voltage measurements even in the presence of high levels of superimposed hum and noise.

DIGITAL COUNTER MODULE
Series 6202

The EAI Series 6202 Plug-In module provides multi-function measurement capability for the Series 6200 Digital Measuring System. When used with the 6200 Display Unit, the 6202 measures frequencies to 10 MHz with ±.005% ±1 count accuracy and period or time intervals from 1 μsec to 1000 seconds with 1 μsec ±1 count resolution. Input sensitivity is 100 millivolts.

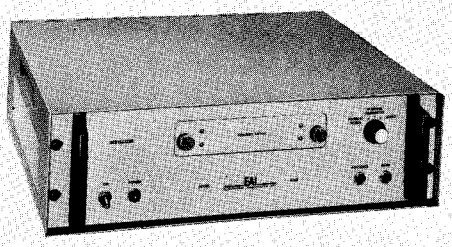
AC CONVERTER MODULE
Series 6203

The EAI Series 6203 Plug-In module provides multi-function measurement capability for the Series 6200 Digital Measuring System. When used with the Series 6200 Digital Display Unit and the Series 6201 DC Integrating Digital Voltmeter Module, the 6203 provides AC voltage measurement capability in four ranges from 0 to 300 volts (rms) over a frequency range from 20Hz to 100 KHz.

HIGH SPEED PRINTER ACCESSORY
Series 6610

20-line-per-second digital printer with cables for use with EAI Series 6000, 6001, and 6101 Digital Voltmeters

Brief Specifications
Speed: Up to 20 lines-per-second
Printer columns: 12
Printing format: 10 characters per inch across paper, 6 lines of print per inch of vertical spacing



EAI TRANSISTORIZED PARALLEL-TO SERIAL CONVERTER

Self-contained solid-state device for high-speed conversion of parallel digital data to serial form for driving serial recording equipment. Designed to accept parallel inputs from all EAI 6000 series voltmeters. Output drives paper tape punches, electric typewriters, and similar alpha-numeric serial recording equipment.

Brief Specifications
Output: up to 125 characters per second
Characters per output word: 14
Output word format: individually specified

EAI PACE II SYSTEM — For chromatographic laboratory

A real-time scientific computer-based system which processes **automatically** signals generated by analytical instruments. It services these instruments simultaneously on a 24-hour-a-day basis.

EAI PACE II SYSTEM includes :

- Analog data acquisition unit
- Digital computer **EAI-640**
- Peripherals
- Software.

EAI PACE II SYSTEM brings to your laboratory :

- Increased efficiency of instruments utilization
- Improved reproductibility of chromatograms
- Savings in instruments and manpower.

EAI CEMENT CONTROL COMPUTER SYSTEM

A uniquely profitable system for controlling and optimizing cement plant manufacturing operations. Equipment may be applied to such prime operations as :

- Feed blending
- Kiln control
- Clinker cooling, etc....

QUAD RESIDUAL GAZ ANALYZERS

Types Quad 150A — Quad 250A

QUAD LABORATORY MASS SPECTROMETERS

Types Quad 160 — Quad 300

* Sensitivity
* Speed
* Convenience
* Reliability
* Ruggedness.