

This is your new index to the EAI Applications Reference Library. It has been arranged as follows:

1. Ordering numbers are also publication reference numbers which enable the user to catalog papers according to:
 - a. Field of Interest
 - b. Type of Paper
 - c. Type of Computation

A key to this system appears on the following page.

2. New publications will be categorized according to the following computations:
 - a. General Purpose Analog — papers which deal only with applications for the general purpose analog computer.
 - b. Hybrid — papers which describe applications requiring both general purpose analog and general purpose digital computers.
 - c. Analog/Hybrid — publications describing uses for the general purpose analog computer with parallel digital logic.

We have included ordering cards so that you may conveniently request any or all publications which are available.



KEY TO INDEX

Subject	Index No.
General Section	1.0.0
General Applications	2.0.0
Aerospace	3.0.0
Bio-Medical	4.0.0
Business/Economics	5.0.0
Chemical/Petro-Chemical	6.0.0
Educational	7.0.0
Electrical/Electronics	8.0.0
Instrument/Controllers	10.0.0
Mechanical	11.0.0
Metals Processing	12.0.0
Nuclear	13.0.0
Other	20.0.0

Type of Paper	Second Numeral
Surveys	.1
Abstracts	.2
Notes	.3
Studies	.4
Bibliographies	.5

Type of Computation	Suffix
Analog — applications for the general purpose analog computer.	a
Hybrid — applications requiring both general purpose analog and general purpose digital computers.	h
Analog/Hybrid — applications requiring the general purpose analog computer with parallel digital logic.	a/h

Title	Order No.
<u>General Analog Section</u> -- 1.0.0a	
Primer on Analog Computation -- Computing Techniques	1.1.2a
A Practical Approach to Analog Computers -- Computing Techniques	1.3.1
Continuous Data Analysis with Analog Computers Using Statistical and Regression Techniques -- Computing Techniques	1.3.2a
Simple Analog Computer Oscilloscope Displays -- Application Study	1.3.2a
Also: Solution of Mathieus' Equation on the Analog Computer -- Application Study	7.4.4a
 <u>General Analog/Hybrid Section</u> -- 1.0.0a/h	
Automatic Iterative Operation on an Analog Computer -- Computing Techniques	1.3.4a
Automatic 3-D Displays with the TR-48/DES-30 Desk-Top Hybrid Computer System -- Computing Techniques; (Synopsis of 1.3.5a, below.)	1.2.5a
Automatic 3-D Displays with the TR-48/DES-30 Desk-Top Hybrid Computer System -- Computing Techniques	1.3.5a
TR-48/DES-30 Hybrid Implementation of Correlation Functions -- Computing Techniques	1.3.7a
Automatic Time Mark Generation on the TR-48/DES-30 Desk-Top Hybrid Computer System -- Computing Techniques	1.3.8a

Title	Order No.
<u>General Analog/Hybrid Section</u> — 1.0.0a/h (continued)	
TR-48/DES-30 Hybrid Simulation of Space Vehicle Attitude Control System -- Computing Techniques	1.3.9a
* A Simple Two-Parameter Boundary Value Problem -- Computing Techniques	1.3.10a/h
<u>General Hybrid Section</u> — 1.0.0h	
* Spectrum of Applications for the Modern Hybrid Computer -- Computing Techniques	1.1.1h
System Response Analysis with the Analog Memory and Logic System -- Application Notes; (Synopsis of 1.3.4h, below.)	1.2.4h
System Response Analysis with the Analog Memory and Logic System -- Computing Techniques	1.3.4h
Two Variable Function Generator Program for HYDAC [®] -- Application Notes; (Synopsis of 1.3.6h, below.)	1.2.6h
Two Variable Function Generator Program for HYDAC -- Application Study	1.3.6h
The Simulation of Transport Delay with the HYDAC Computing System -- Application Notes; (Synopsis of 1.3.7h, below.)	1.2.7h
The Simulation of Transport Delay with the HYDAC Computing System -- Computing Techniques	1.3.7h
Applications of Analog Storage Techniques for Hybrid Computation -- Application Notes; (Synopsis of 1.3.8h, below.)	1.2.8h
Applications of Analog Storage Techniques for Hybrid Computation -- Computing Techniques	1.3.8h
Trigonometric Resolution Program for HYDAC -- Application Notes; (Synopsis of 1.3.10h, below.)	1.2.10h

* Added since previous issue, 11/1/65.

Title	Order No.
<u>General Hybrid Section - 1.0.0h (Continued)</u>	
Trigonometric Resolution Program for HYDAC -- Application Study	1.3.10h
Hybrid Programming: A Comprehensive "Software" Package for HYDAC -- Application Notes; (Synopsis of 1.3.13h, below.)	1.2.13h
Hybrid Programming: A Comprehensive "Software" Package for HYDAC -- Computing Techniques	1.3.13h
Programming Library "Software" Index (completely checked- out hybrid software programs supplied with the HYDAC 2400 Scientific Computing System)	SI 64134

Title	Order No.
<p><u>General Applications</u> — 2.0.0a</p> <p>Analog Computation for Optimization Problems -- Application Notes</p>	<p>2.3.1a</p>
<p><u>General Applications</u> — 2.0.0h</p> <p>Arithmetic Operations with the HYDAC Digital Operations System -- Application Notes; (Synopsis of 2.4.1h, below)</p> <p>Arithmetic Operations with the HYDAC Digital Operations System - Application Study</p> <p>Hybrid Computer Techniques for Determining Probability Distributions -- Application Note; (Synopsis of 2.4.2h, below)</p> <p>Hybrid Computer Techniques for Determining Probability Distributions -- Applications Study</p>	<p>2.3.1h</p> <p>2.4.1h</p> <p>2.3.2h</p> <p>2.4.2h</p>

Title	Order No.
<p><u>Aerospace</u> — 3.0.0a</p> <p>See: TR-48/DES-30 Hybrid Simulation of Space Vehicle Attitude Control -- Computing Techniques</p>	1.3.9a
<p><u>Aerospace</u> — 3.0.0h</p> <p>Simulation of a Space Vehicle with Reaction Jet Control System -- Application Notes; (Synopsis of 3.4.1h, below)</p> <p>Simulation of a Space Vehicle with Reaction Jet Control System -- Application Study</p> <p>HYDAC Simulation of a Terrain Avoidance Flight Control System -- Application Notes; (Synopsis of 3.4.2h, below)</p> <p>HYDAC Simulation of a Terrain Avoidance Flight Control System -- Application Study</p> <p>Hybrid Simulation of an Aircraft Adaptive Control System -- Application Notes; (Synopsis of 3.4.5h, below)</p> <p>Hybrid Simulation of an Aircraft Adaptive Control System -- Application Study</p> <p>Radar Simulation and Video Conversion using Hybrid Computing Techniques -- Application Notes; (Synopsis of 3.4.7h, below)</p> <p>Radar Simulation and Video Conversion using Hybrid Computing Techniques -- Application Study</p> <p>NASA-Ames Hybrid Computer Facilities and Their Applications to Problems in Aeronautics -- Application Notes; (Synopsis of 3.4.8h, below)</p> <p>NASA-Ames Hybrid Computer Facilities and Their Application to Problems in Aeronautics -- Application Study</p>	<p>3.3.1h</p> <p>3.4.1h</p> <p>3.3.2h</p> <p>3.4.2h</p> <p>3.3.5h</p> <p>3.4.5h</p> <p>3.3.7h</p> <p>3.4.7h</p> <p>3.3.8h</p> <p>3.4.8h</p>

Title	Order No.
<u>Aerospace</u> -- 3.0.0h (Continued)	
Hybrid Simulation of a Temperature Rate Flight Control System for Re-entry Vehicles -- Application Notes; (Synopsis of 3.4.13h, below)	3.3.13h
Hybrid Simulation of a Temperature Rate Flight Control System for Re-entry Vehicles -- Application Study	3.4.13h

Title	Order No.
<u>Bio-Medical</u> -- 4.0.0a	
A Survey of Accomplishments in Bio-Engineering -- Survey	4.1.1a
Digital and Analog Computation Considerations for Bio-Medical Problems - Survey	4.1.2a
A CO ₂ Rebreathing Study -- Application Notes; (Synopsis of 4.4.2a, below)	4.3.2a
A CO ₂ Rebreathing Study: The Determination of CO ₂ Partial Pressure During Rebreathing -- Application Study	4.4.2a
Analog Computer Simulation of the Cardiovascular System of the Fetal Lamb -- Application Study	4.4.3a
A Host-Parasite Problem -- Application Study	4.4.4a
A One-Organ Chemotherapy Model -- Application Notes	4.3.5a
An Analog Program for Electroencephalographic Data Analysis -- Application Study	4.4.6a
On-Line Computation of Cardiac Output from Dye Dilution Curves -- Application Notes	4.3.7a
* A Simple Analog Computer Program to Calculate Membrane Permeability Coefficients for Water -- Application Study	4.4.8a
Also: Respiratory Control System -- Application Study	7.4.3a
The Human Pupil Servomechanism -- Application Study	7.4.7a

* Added since previous issue, 11/1/65.

Title	Order No.
<u>Bio-Medical</u> — 4.0.0h Hybrid Computer Analysis of Electrocardiographic Data -- Application Notes; (Synopsis of 4.4.1h, below) Hybrid Computer Analysis Electrocardiographic Data -- Application Study	 4.3.1h 4.4.1h

Title	Order No.
<u>Business/Economics</u> - 5.0.0a Modelling Dynamic Economic Problems on the Analog Computer -- Survey	 5.1.1a

Title	Order No.
<u>Chemical/Petro-Chemical</u> — 6.0.0a	
A Survey of Analog Computer Uses in the Chemical and Process Industries -- Survey	6.1.1a
Analog Computer Study of a Semi-Batch Reactor -- Application Notes; (Synopsis of 6.4.7a, below)	6.3.7a
Analog Computer Study of a Semi-Batch Reactor -- Application Study	6.4.7a
The Many Faces of Analog Computation -- Application Abstract	6.2.18a
Combined Feedforward/Feedback Control of a Chemical Reactor -- Application Study	6.2.19a
Also: Investigation of a Simple Chemical Reaction -- Application Study	7.4.2a
Calculation of the Radial Velocity of a Rotary Spray Drier -- Application Study	7.4.6a
Simulation of a Reciprocating Compressor -- Application Study	11.4.1a
<u>Chemical/Petro-Chemical</u> — 6.0.0h	
The Hybrid Simulation of a Chemical Tubular Reactor -- Application Notes; (Synopsis of 6.4.1h, below)	6.3.1h
Development of a Program for the Hybrid Simulation of a Tubular Reactor -- Application Study	6.4.1h
Hybrid Simulation of a Control System for a Tubular Chemical Reactor -- Application Notes; (Synopsis of 6.4.2h, below)	6.3.2h
Hybrid Simulation of a Control System for a Tubular Chemical Reactor -- Application Study	6.4.2h

Title	Order No.
<u>Educational</u> -- 7.0.0a	
A Man-Machine Control System Illustrating an Application of "Quickening" -- Application Study	7.4.1a
Investigation of a Simple Chemical Reaction -- Application Study	7.4.2a
Respiratory Control System -- Application Study	7.4.3a
Solution of Mathieus' Equation on the Analog Computer -- Application Study	7.4.4a
Three-Mode Controller -- Application Study	7.4.5a
Calculation of the Radial Velocity of a Rotary Spray Drier -- Application Study	7.4.6a
The Human Pupil Servomechanism -- Application Study	7.4.7a
Investigation of Heat Transfer by Conduction -- Application Notes	7.3.8a
Motion of Coupled Pendula -- Application Study	7.4.9a
Three-Mode Control of Heat Exchanger -- Application Notes	7.3.10a
Simulation of Oxygen Dynamics Relative to Purification of Fresh Water -- Application Study	7.4.11a
* Application of Desk-Top Computers as Aids in Teaching Mathematics -- Application Study	7.4.12a
Also: A Host-Parasite Problem -- Application Study	4.4.4a
Pulse Transformer Circuit and Pulse Forming Network -- Application Notes	8.3.5a
Investigation of the Output Response of a Positional Servo System -- Application Notes	8.3.6a

* Added since previous issue, 11/1/65.

Title	Order No.
<p><u>Electrical/Electronics</u> — 8.0.0a</p> <p>An Analog Computer Study of the Transient Behavior of a High-Speed Tunnel-Diode Switching Circuit -- Application Notes; (Synopsis of 8.4.3a, below) 8.3.3a</p> <p>A Study of the Transient Behavior of a High-Speed Tunnel-Diode Switching Circuit Using an Analog Computer -- Application Study 8.4.3a</p> <p>Pulse Transformer Circuit and Pulse Forming Network -- Application Notes 8.3.5a</p> <p>Investigation of the Output Response of a Positional Servo System -- Application Notes 8.3.6a</p> <p>Non-Linear Resonance -- Application Notes 8.3.7a</p> <p>Also: Solution of Mathieus' Equation on the Analog Computer -- Application Study 7.4.4a</p>	

Title	Order No.
<p><u>Instruments/Controllers</u> — 10.0.0a</p> <p>See: A Man-Machine Control System Illustrating an Application of "Quickening" -- Application Study 7.4.1a</p> <p>Three-Mode Controller -- Application Study 7.4.5a</p>	

Title	Order No.
<p><u>Mechanical</u> — 11.0.0a</p> <p>Simulation of a Reciprocating Compressor -- Application Study</p> <p>An Analog Computer Cumulative Damage Program -- Application Study</p> <p>Also: Motion of Coupled Pendula -- Application Study</p>	<p>11.4.1a</p> <p>11.4.2a</p> <p>7.4.9a</p>

Title	Order No.
<p><u>Metals Processing</u> — 12.0.0a</p> <p>See: Three-Mode Control of Heat Exchanger -- Application Notes</p>	<p>7.3.10a</p>

Title	Order No.
<p><u>Nuclear</u> — 13.0.0a</p> <p>Simulation of the Primary Loop of a Nuclear Power Plant with a Small General Purpose Analog Computer -- Application Notes; (Synopsis of 13.4.2a, below)</p> <p>Simulation of the Primary Loop of a Nuclear Power Plant with a Small General Purpose Analog Computer -- Application Study</p> <p>A Study of Xenon Poisoning -- Application Notes: (Synopsis of 13.4.3a, below)</p> <p>A Study of Xenon Poisoning in a Nuclear Reactor -- Application Study</p>	<p>13.3.2a</p> <p>13.4.2a</p> <p>13.3.3a</p> <p>13.4.3a</p>