

RESUME

FRANK H. GERHARD

Frank Gerhard is a successful engineer offering 50 years experience in creative electronic equipment design. Much of the personal design work has been at the leading edge of the state-of-the-art. In addition to detail design experience, Frank has extensive direct experience in the allied fields of engineering that are so essential for a new design to mature from inception to a producible, profitable product.

As Vice President of Engineering, of DATUM INC., he has held direct responsibility for engineering management within a 500 man, high technology, engineering oriented firm. While much of his experience has been concentrated in energy conversion systems, instrumentation electronics and servomechanisms, the range of his successful projects has provided a diversified base from which to assault a wide spectrum of assignments.

SPECIALTIES

Power Supplies

Switchmode Line Switchers / Linear Supplies
Current Mode Switching Power Supplies
Inverters
DC/DC Converters
Battery Charging Systems
Uninterruptable Power Supplies
Switching Amplifiers
Active Loads

Lighting Equipment

Electronic Ballasts / Starters for Fluorescent and HID Lamps
Aircraft Incandescent Dimming Systems
Fluorescent Dimming Systems

Magnetics Design

Magnetics for Switchmode Power Supplies
Core and Coil Ballasts
Magnetics for Electronic Lighting Equipment
HID Lamp Starter Transformers Up To 12,000 Volts
Relays / Solenoids

Data Acquisition Systems

High Speed Low Level Analog Input Multiplexers
Quality Instrumentation Amplifiers
Analog-To-Digital and Digital-To-Analog Converters
Transducer Signal Conditioning
Programmable Precision Reference Voltage sources
CCD Conditioning and Digitizing circuitry

Telephony

Subscriber Carrier Systems
T-1 Interfaces
Speaker-Phones
Telephone Line Interfaces to FCC Specifications

Servomechanisms

Hydraulic Loading Servos
Printer Paper Motion Control Servos
Hall Effect Feedback Chart Recorder Pen Motor Servos
Precision Position Servos
Tachometer Feedback Integrating Servos

Medical Electronics

Bio-Physical Amplifiers / Electroencephalograph
Patient Monitoring Systems
High Frequency Biological Probe

EDUCATION

University of Southern California, Los Angeles, CA.

Mr. Gerhard received his B.S. Degree in electrical engineering from the University of Southern California. He has continued graduate level studies and has completed a number of graduate courses.

WORK EXPERIENCE

Orbiting Satellite Data Acquisition System

The system consists of an experiment tray and associated electronics. 60 channels of data on strain, temperature, radiation, accumulated mass, and ablation are collected and formatted for transmission to Earth. Gerhard Engineering's portion of the system is the transducer signal conditioning, analog multiplexing, and analog to digital conversion. This circuitry occupies three of the five printed circuit boards comprising the system. The entire project, from the first meeting to discuss specifications to successful completion of acceptance tests of 2 systems, spanned only 12 weeks. One of the systems subsequently passed qualification testing to the applicable environmental specifications with no additional rework. The second system was launched in early 1989 and has been transmitting valuable scientific data since that time.

Dimming Electronic Ballasts for Fluorescent and HID Lamps

This 7-year project started with several years of basic research on the adaptation of switching power supply techniques to powering gas discharge lamps. Meeting the stringent price/performance criteria necessary to be competitive with conventional ballasts required development of innovative circuitry and resulted in several U.S. and foreign patents. The effort included design of a semi-custom control chip. The ballast line is currently being produced by a leading manufacturer of switching power supplies.

T-1 Interface

Innovative design extended the permissible input signal range of the interface by a factor of two. The interface is incorporated in the Data Multiplexer of a leading manufacturer of DEC compatible products. Sales of the multiplexer are currently \$2 million per year.

Electroencephalograph

Designed all electronics for an electroencephalograph with closed-loop servo-controlled pen motor employing an innovative Hall effect device feedback sensor. Designed all analog electronics, including amplifiers, analog filters, interconnection subsystems and specialized high impedance recording technology.

Carrier Telephony

Headed a design group that developed a carrier telephony total system. This very successful design resulted in a new company that manufactures 30 million dollars worth of this apparatus each year.

Data Acquisition Sub-Systems

Total detailed design of a complete line of measurement assemblies for high speed data acquisition systems including programmable gain differential low-level multiplexer, sample-and-hold amplifier, precision analog-to-digital converters (high speed successive approximation and dual slope integrating type), digital-to-analog converter, transducer excitation power supplies, and signal conditioning.

This comprehensive family of analog subsystems formed the basis for data acquisition system sales of 4 million dollars per year.

Computer Rotating Memories

Direct technical management responsibility for a computer rotating memory design team developing magnetic drum memories and magnetic disc mass memories.

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Multiple disciplines have been spanned often in his long professional career - electronic circuit design, electromechanical systems, and magnetics design, as well as management at all levels.

His most recent prior experience was Vice President of Engineering of DATUM, Inc. During 7 years with DATUM, he personally designed the complete line of data system measurement assemblies. Other assignments included total redesign and pilot production responsibility for a new magnetic drum memory.

He guided the technical growth of the corporation, organizing and establishing a field service group, production test department and other additional technical support activities to assure sustained profitability. Mr. Gerhard had profit and loss responsibility for the technical aspects of more than ten million in annual sales. Elected a Member of the corporate board of directors, Frank also served as Corporate Secretary.

At Astrodata, Inc., Frank Gerhard was Chief Scientist, directing the corporate research and development programs. During his nine years with Astrodata, the bulk of the applied research for his 35 member R&D staff was devoted to voltage measurement equipment, analog computer elements and carrier telephony apparatus.

During 12 years at Autonetics Division of North American Aviation, he served as a Senior Research Engineer. Much of his original inventive work in analog computing equipment received national recognition via invitational papers at major technical conferences. He was a leader in the development of solid state inertial autonavigator equipment.

A number of papers have been authored by Mr. Gerhard, relating to original designs in precision measurement circuitry. He a member of the I.E.E.E.. Four U.S. patents have been granted to Mr. Gerhard and there are several more pending, for advancement in certain primary circuit designs.