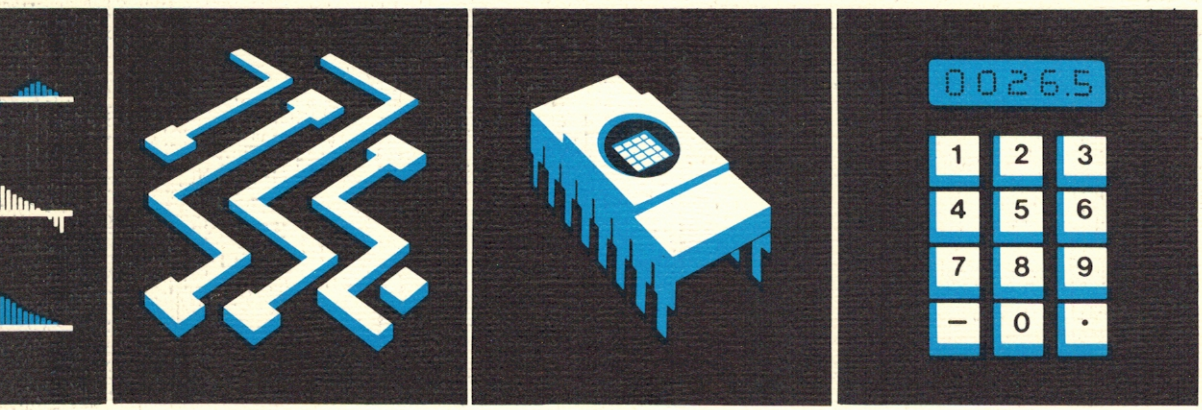
1976



INDUSTRIAL NUCLEONICS CORPORATION

ANNUAL REPORT

INDUSTRIAL NUCLEONICS PROFILE

Industrial Nucleonics designs, manufactures and markets computer-based automation and management information systems for basic manufacturing processes to save raw materials and energy, increase productivity, lower costs and improve product quality. These systems are marketed under the AccuRay® trademark in 40 countries throughout the world. The Company serves the pulp and paper, tire and rubber, plastics, textile, metals and tobacco industries.

Since the founding of the Company in 1950, Industrial Nucleonics has recognized the latent potential savings available through the control of materials in basic industries. Sheet material products are produced from bulk raw materials and are utilized on an area basis. Therefore, the number of finished products which can be made from a pound of raw material becomes an important economic factor in determining the overall profitability of the manufacturing process. In each process—e.g., paper machines, calenders, coaters, treaters, extruders and metal rolling mills—there is a point where the basic transformation of bulk-to-area takes place. This conversion ratio of bulk-to-area is of prime economic importance, because the cost of the raw material is often over 50% of the value of the final product. AccuRay systems are designed to measure the primary variables in order to control this critical bulk-to-area conversion and to allow manufacturers to minimize the use of raw materials required for a given area of final products while simultaneously increasing the production rate of the process.

The typical AccuRay system begins with the measurement of basic properties of materials, such as weight, moisture, thickness, width, opacity and ash content. The technologies for performing such measurements employ a variety of physical and electronic principles which include nuclear, X-ray, infrared, radio frequency, optical, pneumatic and magnetic reluctance techniques. These measurements become the inputs for both automatic control of the process and the generation of timely production reports. In the more advanced systems, the architecture utilizes the latest in minicomputer and microprocessor technology. A high-speed central processor performs the complex computations, implements high-level control strategies and provides communication management among system components while programmable microcomputer modules perform the more repetitive functions such as digital signal processing for sensor and process inputs.

Systems engineering, installation and maintenance services are provided to integrate the systems into customer businesses and ensure continuing economic and quality results for each user.

Industrial Nucleonics® CORPORATION / AccuRay®

TO OUR STOCKHOLDERS AND EMPLOYEES:

Industrial Nucleonics' total operating revenues from sales, service and leasing in 1976 were $68.5 million versus $72.1 million recorded in 1975. In comparing each revenue category, sales were $33.3 million in 1976 versus $37.9 million a year earlier, while service and leasing revenues were $35.2 million in 1976 versus $34.2 million in 1975.

Sales revenues include equipment shipments completed during the year less any returns and adjustments for equipment shipped in prior fiscal years. In 1976 equipment shipments declined 4.9% from 1975, whereas total sales declined 12.1%. The difference reflects an unexpected number of equipment returns and potential equipment returns charged against sales revenues—primarily in the third quarter. In the fourth quarter our rate of returns and adjustments returned to the lower levels which we have historically experienced. The following quarterly summary represents the consolidated performance of Industrial Nucleonics and its subsidiaries:

	1976 Annual	1976 by Quarter			
		Fourth	Third	Second	First
Highlights of Operations	($ Thousands, except for per share data)				
Operating revenues					
Sales	**$ 33,317**	$ 9,928	$ 4,684	$ 9,339	$ 9,366
Service and leasing	**35,169**	8,814	8,829	8,889	8,637
Total operating revenues	**68,486**	18,742	13,513	18,228	18,003
Less cost of sales	**42,650**	10,898	11,054	10,434	10,264
Gross profit	**25,836**	7,844	2,459	7,794	7,739
Less operating expenses, interest and other deductions	**30,955**	7,961	7,631	7,637	7,726
Income (loss) before income taxes	**(5,119)**	(117)	(5,172)	157	13
Provision (credit) for income taxes	**(2,200)**	(250)	(1,992)	39	3
Net income (loss)	**$ (2,919)**	$ 133	$ (3,180)	$ 118	$ 10
Net income (loss) per share	**$ (0.85)**	$ 0.03	$ (0.92)	$ 0.04	—
Highlights in Financial Position					
Increase (decrease) in debt	**$(11,065)**	$ (5,897)	$ (2,907)	$ (700)	$ (1,561)
Increase (decrease) in inventories	**$ (250)**	$ 1,685	$ (809)	$ (68)	$ (1,058)
Backlog at End of Period					
Equipment and related commitments for services to be performed within 12 months	**$ 20,340**	$ 20,340	$ 20,200	$ 20,100	$ 18,900

Industrial Nucleonics has faced a series of difficult operating problems in the past several years — e.g., the high level of equipment returns, the rapid change in technology on the value of inventory items and the required changes in accounting for foreign currency fluctuations — which contributed to the unsatisfactory 1975 and 1976 results. The following is a summary of the final quarter and fiscal year ended December 31, 1976:

- Sales increased in the fourth quarter to $9.9 million for the highest quarterly total of the year. Gross profit margins on these sales improved to 51.2% compared with 50.1% in the first quarter and 49.9% in the second quarter. The third quarter gross margins on sales were not directly comparable because of the high level of actual equipment returns and increased reserve for future returns. This resulted in approximately $2.8 million reduction in gross profit being charged against the third quarter. A total of $3.4 million for equipment returns was charged against the full year, and the reserve for potential returns was increased $300,000 over year end 1975.

- Our problems with equipment returns were primarily in the plastics industry in coating and extrusion applications. As of December 31, 1976 the plastics systems remaining under evaluation and not covered by reserves represented approximately 11% of our total 1976 sales revenues. Consistent with past history, we had an excellent record in 1976 of customer acceptances in pulp and paper, rubber, metals and tobacco. The number of systems remaining under customer evaluation programs decreased from 218 to 134.

- Service and leasing revenues were $8.8 million in the fourth quarter — approximately the same level as recorded in earlier quarters throughout the year. However, gross margins on service and leasing declined to 31.2% as compared with 34.5% recorded in the first nine months of 1976. This erosion in margins was primarily caused by the inflationary costs in providing customer services in many countries throughout the world. We are continuing to aggressively raise our service contract rates to combat these rising costs. In addition, we are working on new customer programs whereby mill personnel can perform routine maintenance and repair services. The objectives are to provide the most cost-effective service to our customers and also to improve gross profit margins on the continuing services provided by our field service engineers.

- During 1976 we continued internal cost cutting programs to reduce operating expenses. Selling, administrative and other expenses were decreased to $15,446,000 in 1976 compared with $17,108,000 in 1975 — a reduction of approximately 10%. During the year we added customer service personnel consistent with the needs of the growing service business and increased slightly our staff in research and engineering. The levels of personnel in other areas of the Company were reduced in relationship to lower operating revenues. As of March 1, 1977 total employment was 1,870 as compared with 1,917 at the beginning of 1976 and 2,137 at the beginning of 1975.

- Total inventories of $21,022,000 at year end were approximately the same level as 1975. Field service inventories included in the total were $3,984,000 at December 31, 1976 versus $4,016,000 at the end of 1975. During the year we completed an inventory obsolescence and overstock review which included consideration of the effect of future shipment projections and changes in technology planned for the next three years on existing inventories. As a result, we increased our reserve for inventory adjustments in 1976 $660,000 over the level established at year end 1975.

- Interest expense during the fourth quarter declined to $2.1 million. The total interest for the year of $8.7 million was offset, in part, by approximately $5.5 million of earned financing income recorded during the same period for systems installed under various long-term installment sale and lease agreements.

- In the fourth quarter we recorded a loss of $117,000 on foreign currency exchange which represented the lowest quarterly exchange loss for the year. The cumulative foreign currency exchange loss in 1976 was $1,391,000 of which $765,000 was incurred in the first quarter. During 1976 approximately 90% of all incoming orders for equipment were in U.S. dollar contracts or the equivalent.

- A portion of the credit provision for income taxes recorded in the fourth quarter is due to actual results of United States versus international operations, as compared to projections used in earlier quarters.

- Total debt in the fourth quarter was reduced by $5.9 million for a cumulative debt reduction during the year of approximately $11.1 million.

- In the fourth quarter we completed the sale to third parties of approximately $600,000 of the leasing portfolio being financed by Industrial Nucleonics. A total of $7.2 million of the leasing receivables was sold in 1976 for a cumulative total of $21.2 million sold to third parties on a non-recourse basis since this program was initiated in 1974.

- The percentage of new orders requiring direct financing by Industrial Nucleonics was 13% of new business in 1976 as compared with 25% in 1975 and 58% in 1974.

During both 1975 and 1976 we have continued to fund research and development at high levels despite a decline in operating revenues during this period. In 1976 we spent approximately $5.5 million on research and development compared with $4.7 million in 1975 — an increase of 17%. As a result, we are pleased with the initial progress of our newest systems with expanded use of microprocessor technology. In the paper machine control market, the AccuRay 1180 MICRO represents a microprocessor-based distributed architecture composed of an Industrial Nucleonics programmable microcomputer combined with a Honeywell Level 6 minicomputer. The new Honeywell computer was initially made available in early 1976. However, because of our prior relationship with Honeywell, dating back to 1968, we have worked closely with their engineers since mid-1974 to integrate the Level 6 computer into the AccuRay 1180 MICRO. Since the introduction of this new system in March 1976, we have received orders to date for 60 of these systems from 44 paper companies. In 1977 we will offer the Honeywell Level 6 computer with its microtechnology in computer-based systems for all industries.

In November 1976 we installed in Columbus a new timesharing host computer known as the Honeywell MULTICS system, an acronym for Multiplexed Information Computing Services. The MULTICS installation represents an approximate commitment of $3.0 million for Industrial Nucleonics. There are currently 13 of these installations in the United States; however, we believe this is the first MULTICS installation to directly serve the process automation market in the pulp and paper, rubber, plastics, textile, metals and tobacco industries. Our IN programmers in Columbus are using MULTICS to develop the software programs for AccuRay systems. This development procedure is twice as fast as conventional techniques. Programmers can assemble and test software under operational conditions before they are actually placed on-line within a customer's plant. AccuRay 1180 MICRO systems employ both a minicomputer and a microcomputer. Our MULTICS system can be used to develop programming for each, with the further capability of loading these programs into the mini and micro computers via telephone lines.

In the future we envision MULTICS as an important part of the diagnostic tuning and engineering

support for AccuRay systems at a customer's mill. A high-speed telephone hookup from the MULTICS in Columbus to the customer's mill will enable our systems engineer to consult MULTICS for timely operational analyses. A remote computer terminal will allow the engineer to "talk" with MULTICS on a real-time basis and provide immediate system and process diagnostics.

During 1976 total new orders for equipment and initial services were $56.5 million compared with $55.9 million in 1975. Orders from international markets increased to approximately 54% of total new business as compared with 44% in 1975. The following is a brief summary of business activity through 1976 and early 1977:

- In the pulp mill we continue to enjoy the benefit of our joint marketing and development agreement with Kamyr, a leading manufacturer of pulp and paper processing equipment. Since the beginning of 1976 we have received eight additional orders for the new AccuRay/Kamyr Continuous Digester Control System. Our total for this application now stands at 29 systems. We also have three orders for the new AccuRay/Kamyr Displacement Bleach Control System. In addition, our initial installation in batch digester control at Tennessee River Pulp & Paper Company at Counce, Tennessee, has been quite successful. The resulting customer reference has been an important factor in securing five additional new system orders from other customers during 1976, for a total of seven orders to date for this application.

- In related developments for the paper machine we have received excellent field reports on the operation of our new AccuRay Ash Measurement Sensors and Roll Hardness Control Systems. Ash content is an important economic and quality parameter in fine paper. The Ash Sensor utilizes a low energy X ray which is sensitive to the ash content in the paper. As an example of the economic benefit, a 1% change in ash content on a fine paper machine will typically pay for the investment in this sensor in less than one year. We now have received orders for the Ash Sensor from 21 paper companies. In reviewing progress of the new AccuRay Reel Hardness Control Systems for reel building on paper machines, an initial three installations were completed during 1976. Customer comments have been positive at each installation on the value of the system in reducing rejected production and improving the quality of the paper in subsequent printing and converting operations.

- The level of activity in rubber has increased following the settlement of the lengthy industry-wide strike. During the third quarter we completed the installation of an AccuRay 2000 computer system for the main tire fabric calender at the Opelika, Alabama plant of UniRoyal, Inc. This advanced computer control system includes coordinated bottom weight and total weight fabric control, cross-axis control, width control, preset of calender rolls and other actuators at product change and target optimization control. We have recently received a second order from UniRoyal for an AccuRay 2000 system to be installed on the tire fabric calender at Aachen, West Germany.

- In plastics we received orders in the fourth quarter for AccuRay 2800 computer control systems from Illinois Tool Works, Inc. and from B.F. Goodrich Company. We also received an order for an AccuRay 830-S system for plastic sheet extrusion from Greenville Products

Corporation, a unit of White Consolidated Industries. Both the 2800 and 800-S systems are designed to control up to eight processing lines in a single plant. The 2800 offers more sophisticated control capability than prior systems and features automatic line start-up control using a model of the extruder built into the memory of the computer. The 2800 can be offered as an upgrade to the AccuRay 800-S systems presently operating in 48 customer plants. In the blown film industry we have to date received orders for 262 units of the BF-100 series since acquiring the product line in 1973. The largest single order in 1976 was for 24 units for a customer in Finland.

- In the textile industry we received acceptance in December for two AccuRay 2000 yield control systems installed by Texfi Industries, Inc., headquartered in Greensboro, North Carolina. Texfi now has nine heatset lines under AccuRay computer control utilized in the manufacture of knit fabrics at their Fayetteville and Kinston facilities. These systems were installed as part of Texfi's continuing program to provide its customers with excellent quality fabric and to maintain a position of leadership in knits.

- In the metals industries we have noted an increase in purchasing activity in both steel and aluminum for AccuRay 510/520/530 systems. The 500 series is a modular system providing high accuracy gauging of metal thickness with easy expansion using microprocessor-based modules to provide complete automatic gauge control and process/production information reporting. Field reports from AccuRay 520 automatic gauge control systems show a 70% improvement in coil-to-coil average gauge on a steel reversing mill and a similar 71% reduction in total thickness variation on an aluminum rolling mill. Additional orders for the AccuRay 510, 520 and 530 systems for the steel industry have been received in the fourth quarter from United States Steel Corporation, Republic Steel Corporation and Dominion Foundries and Steel Limited; and in the aluminum industry from Alcan Aluminum Corporation and Anaconda Aluminum Company. We have also received our first order for an AccuRay 510 system in Japan.

- In the tobacco industry we have received orders for tobacco systems during 1976 from 21 tobacco companies. Our C-700/1700 cigarette-making machine control systems are now installed in 62 factories located in 23 countries throughout the world.

At December 31, 1976 total backlog for equipment and related services to be provided within 12 months was $20.3 million, approximately 14% higher than at the end of 1975. We anticipate that the problems encountered in the past several years are behind us, and we look forward to a year of steadily improving profitability in 1977.

Sincerely,

David L. Nelson

David L. Nelson
President

DIRECTORS AND OFFICERS

DIRECTORS

Edward McC. Blair
Managing Partner
William Blair & Co.

Christopher J. Campbell
Executive Vice President
Industrial Nucleonics Corporation

Gordon B. Carson
Consultant
Northwood Institute

H. Roy Chope
Executive Vice President
Industrial Nucleonics Corporation

John Eckler
Managing Partner
Bricker, Evatt, Barton & Eckler

Thomas F. Jones
Vice President for Research
Massachusetts Institute of Technology

David L. Nelson
President
Industrial Nucleonics Corporation

George F. Schlaudecker
Group Vice President—Chemicals
The Sherwin-Williams Company

Robert E. Swenson
Vice President and Treasurer
Industrial Nucleonics Corporation

George B. Young
Director
Chrysler Corporation

OPERATING OFFICERS OF INDUSTRIAL NUCLEONICS AND PRINCIPAL SUBSIDIARIES

William L. Adams
Vice President

Vincent R. Benya
Vice President

Walter H. Canter, Jr.
Vice President

Donald D. Dansion
Vice President

John E. DeWitt
Vice President

Richard W. Hickman
Vice President

Herbert J. Kahn
Vice President

Ralph D. Lockhart
Vice President

Richard M. McCraney
Vice President

Philip J. Robinson
Vice President

Thomas L. Simpson
Controller

Elva E. Smith
Secretary

Robert F. Zust
Assistant Treasurer

AUDITOR

Arthur Andersen & Co.
Columbus, Ohio 43215

TRANSFER AGENT

First National Bank of Chicago
Chicago, Illinois 60670

REGISTRAR

Harris Trust and Savings Bank
Chicago, Illinois 60690

CORPORATE HEADQUARTERS

650 Ackerman Road
Columbus, Ohio 43202

PRINCIPAL OFFICES AND SUBSIDIARIES

UNITED STATES OFFICES

NORTHERN

P.O. Box 3327
2777 Summer Street, 6th Floor
Stamford, Connecticut 06905

4321 West College Avenue
Appleton, Wisconsin 54911

SOUTHERN

First Southern Federal Tower
Suite 702
Mobile, Alabama 36606

Piedmont East Office Building
37 Villa Road
Suite 420
Greenville, South Carolina 29607

PACIFIC

4800 S.W. Macadam Avenue
Portland, Oregon 97201

LEASING COMPANY

AccuRay Leasing Corporation
650 Ackerman Road
Columbus, Ohio 43202

WORLDWIDE OFFICES

AUSTRALIA

AccuRay Australia Pty. Ltd.
219-221 Blaxland Road
Ryde 2112
N.S.W., Australia

BENELUX COUNTRIES

AccuRay International S.A.
363 Chaussee de Malines
B-1950 Kraainem/Brussels, Belgium

BRAZIL

AccuRay Sistemas Limitada
Rua Beneficencia Portuguesa 24 S/411
Sao Paulo, Brazil

CANADA

AccuRay of Canada, Ltd.
6600 Trans Canada Highway
Pointe Claire
Quebec, Canada H9R 4S2

AccuRay of Canada, Ltd.
701 Evans Avenue
Suite 205, Toronto
Ontario, Canada M9C 1A3

FINLAND

AccuRay Finland Oy
Rikhardinkatu 4 B 22
00130 Helsinki 13
Finland

FRANCE

AccuRay France S.A.R.L.
8, Rue Auguste-Renoir
78400 Chatou, France

GERMANY

AccuRay Deutschland GmbH
Holzgasse 29-33
52 Siegburg, West Germany

ITALY

AccuRay Italia S.r.1.
Piazza Leonardo da Vinci, 1-3
16145 Genova, Italy

JAPAN

AccuRay Japan Ltd.
New Kudan Building
No. 7, 3-Chome Kanda-Jimbocho
Chiyoda-ku
Tokyo, Japan

MEXICO

AccuRay Mexico S.A. de C.V.
Avenida de las Palmas 731-704
7º Piso
Lomas de Chapultepec, Mexico 10, D.F.

SOUTH AFRICA

AccuRay S.A. (Pty.) Ltd.
113 Old Main Road
P.O. Box 808
Pinetown 3600 (Durban)
Republic of South Africa

SPAIN

AccuRay Espana
c/Milanesado 21-23
Barcelona 17, Spain

SWEDEN

AccuRay Scandinavia A.B.
Bergshojden 32
Box 7102
17207 Sundbyberg, Sweden

AccuRay Scandinavia A.B.
Sturegatan 1
S-752 23 Uppsala, Sweden

UNITED KINGDOM

AccuRay (U.K.) Limited
Langwood House
63-81 High Street
Rickmansworth (London)
Hertfordshire WD3 1EQ, England

AccuRay (U.K.) Limited
26 Mellor Road
Cheadle
Cheshire SK8 5AU, England