



newsletter

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The management
Newsletter for all
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with bar-code
scanning and
related
technologies.

SCANNING, CODING & AUTOMATION NEWSLETTER • 11 Middle Neck Road • Great Neck, N.Y. 11021 • (516) 487-6370

Volume XI Number 8

April 1988

Ever since bar code laser scanners....

....were introduced about 15 years ago, the helium-neon (he-ne) lasers have been used almost exclusively as their light source, particularly in retail applications. Some infrared laser diodes were also available, during the past few years, in industrial hand-held laser scanners. Now, there are strong indications that the new visible laser diodes may become the only light source to be used in all of these laser guns. This could happen within the next two years, and could have a very significant impact on the bar code scanning industry.

The older infrared-type of laser diode scanners are currently being produced and sold by Photographic Sciences, Opticon, Nippondenso and Symbol Technologies. Compared to the he-ne models, these scanners are lighter in weight and consume less power, thus making them more portable; they have fewer moving parts, making them more reliable; and they are considerably less expensive.

There are two serious drawbacks, however, to these infrared scanners: first, at the 780nm wavelength, the light source only permits scanning black bars on a white background, making them unsuitable in the UPC/EAN environment of multi-colored symbols; and second, infrared light is not visible, and the scanning gun cannot readily find its target without the addition of an aiming light. A number of these infrared scanners have been sold for industrial applications, where they seem to be working well. There has been a plentiful supply of these infrared laser diodes since they are being manufactured by the millions for consumer products (such as the compact disk record players).

But it was no secret that just about everyone involved in producing hand-held laser scanners was working on laser diode prototypes in the visible (under 670nm) range. Bench tests have been running in the labs for about a year and preliminary performance results held out great promise. The visible laser diodes were compact and efficient, and all of the usual UPC/EAN colors used on consumer packages could be read with ease. The only problem was that no one was prepared to produce these new scanners in any significant volume because the visible laser diode component was not available in production quantities.

It is also important to note, at this point, that laser diodes are almost exclusively made in Japan -- both the infrared and visible. Among the producing companies are Toshiba, NEC, Sharp and Mitsubishi. Nothing could be



ISSN 0273-3080

INCLUDING THE INTERNATIONAL EDITION

done until one or all of these companies cranked up to provide a continuing and assured source of the visible type -- which they have not done as yet.

The first company to actively enter the market with a visible laser diode scanning gun was Opticon. One of their units was quietly demonstrated in the MSI Data booth at the NRMA show this past January. Although it is still too early to draw any conclusions, the unit that we had seen seemed to live up its advanced billing as far as design and performance are concerned. Opticon has pegged the price of the new devices at about 20% above the he-ne hand-held scanners. This higher price reflects the company's feelings that the visible laser diode outperforms the he-ne tube, and it also recognizes the reality of limited supply.

Jackson Lum, President of Opticon, predicts that his company will be able to produce about 1,000 visible laser diode scanners per month by late summer, and that they will increase their monthly output to 5,000 by year-end. Lum intimates that as a Japanese-based company, Opticon may have an advantage in obtaining allocations of the laser component.

This position is emphatically disputed by his competitors, who anticipate that Opticon will not be able to deliver laser diode scanners in quantity for some months -- and who claim that they will be ready when he is. The consensus among those we spoke with is that Opticon is definitely production-limited because of the scarcity of the laser diodes. "When the Japanese producers of the visible laser diodes are geared up for production," according to one important scanner manufacturer, "we will get our appropriate allotment and we will be ready with our product."

There is one thing that everyone who is knowledgeable about scanners agrees with -- visible laser diodes will dominate the hand-held laser scanner market whenever the diodes become sufficiently available to supply the market requirements. All of those we spoke with on this subject expect better performance than either the he-ne or infrared units, and they expect the prices to come down sharply as volume increases and competition heats up.

The company that may be affected most dramatically will be Symbol Technologies, which currently dominates the laser gun market. If, in fact, the market switches over to visible laser diodes, Symbol expects to be in the forefront with a new product line. The company believes its strong patent position, new state-of-the-art manufacturing capabilities, worldwide marketing organization and established reputation will enable Symbol to maintain its leading position in hand-held laser scanners.

It is most difficult to ignore....

....the major management changes that have been occurring at Intermec during such a short period of time:

- In mid-1986, David Allais -- who had been the President and CEO of Intermec since 1968, leading it to a position as the largest auto ID company in the world -- relinquished his office as President to John Paxton (SCAN Aug 86). Allais became the Chairman of the Board, while retaining his CEO responsibilities. This move followed a difficult fiscal year 1986, when sales had been flat and earnings had dropped off dramatically.

- On September 28, 1987, Allais moved completely out of top management and took over the newly created position of Chief Scientist (SCAN Oct 87, Nov 87). The jobs of Chairman and CEO were turned over to Phil Arneson, who was brought into the company at that time.
- And now, at the end of March, Intermecc issued a terse announcement that Arneson has moved on after less than 6 months and that Paxton has been appointed as Chairman, President and CEO. (Arneson will remain as a Board member.

We questioned Paxton about all this in a wide-ranging interview on March 27. Arneson resigned as Chairman, according to Paxton, to return to head Hiwood Technologies, the company he founded in Minnesota. "Arneson had two attractive opportunities," Paxton explained, "and he chose to devote his personal time and energies to Hiwood, a company in his home state of Minnesota in which he has retained significant ownership. Arneson accomplished what he set out to do at Intermecc, putting in place cost-cutting programs to improve profitability, and now he wants to move on."

As for Intermecc, Paxton told us his company is maintaining its goals for a compound annual growth rate in sales and earnings of 25-30%. He said: "For FY 88 [ended 3/31], sales will be about \$85 million, and we are projecting that for FY 89 we will have revenues of \$120 million. The FY 89 sales forecast of \$120 million does not include," Paxton emphasized, "any Government business that might result from the pending Army N-T LOGMARS contract on which we are bidding as a prime contractor." (See below).

Paxton pointed out that FY 89 sales projections include about \$10 million in incremental revenues as a result of Intermecc's continuing program to absorb all of its independent US distributors (SCAN Aug 87, Feb 87). So far, the company has acquired its distributors in the Northeast, Middle Atlantic, metropolitan New York and Western areas. On April 1, 1988, the Southwest region will be integrated, followed within the next three years by the Southeast and Rocky Mountain states. These acquisitions, plus those areas in which the company has already established a direct sales force, will provide virtual total coverage of the country with Intermecc's own sales personnel.

So, what's the significance of the sudden and unanticipated management changes? No one at Intermecc really answers this question directly. Paxton chooses to emphasize the positive by insisting that all of these moves will strengthen the corporation. "David Allais continues to make significant contributions to the company," he insists, "and he and I enjoy an excellent working relationship with the full support of the Board. We are exceeding our goals, and we are expanding our opportunities in the industrial markets with real-time data collection systems, and with the Trakker [Intermecc's portable terminals]." "The industrial users have become more educated to the advantages of bar code scanning," Paxton added, "and we see this market as offering a large potential for Intermecc products."

We followed up the next day with David Allais to ask him specifically about the progress of Code 49 -- the new high-density symbology he invented and introduced with great fanfare at the last SCAN-TECH show (SCAN Nov 87). Allais explained that the completion of the documentation had been delayed for a few months, but that the specifications are now available to any vendors who wish to incorporate Code 49 capability into their printers and scanners. He views

the symbology, which has been placed in the public domain, as having its major market opportunity in the health industry, although he believes implementation is still 3-5 years away from significant volume.

Allais readily concedes that the upheaval in his company's top management this past year had held up final implementation of the Code 49 specifications. "There was a reexamination of priorities," he explained, "and new determinations were made of where the company's resources were to be placed. As a result of these delays, our timetable for the development of this new symbology was set back by a few months." Manufacturers of bar code printers and scanners have been solicited for comments to the proposed new symbol. Any company sending in a request will receive documentation and a software diskette with the Code 49 algorithm.

Intermec, Box 360602, Lynnwood, WA 98046-9702; 206/348-2600.

Nine months have passed....

....since the Army N-T (for Non-Tactical) LOGMARS contract was sent out for bid -- and there is still no final award, and there probably won't be one for a few months.

This procurement was originally estimated to include more than \$150 million in bar coding systems to be delivered over a 5-year period. Since the initial preparation of the proposed contract, its scope has been expanded to include other armed services in addition to the Army, and so the ultimate purchases may grow even larger.

The target date for making the award decision has been extended three times due to delays in the bid evaluation procedures. There are now three active bidders remaining in contention: Intermec, Falcon and IBIS. Falcon and IBIS are typical of the type of systems integrators that surround the nation's capitol. They specialize in bidding on government contracts and putting together all of the subcontracted elements necessary to fulfill the awards they obtain. Intermec, on the other hand, hopes that its ability to manufacture most of the required components in-house, and its worldwide service capabilities, will give it an edge in price and performance.

The latest hold-up in the procurement process was the result of a protest lodged by Syscon, the very large systems integrator which has won other LOGMARS awards during the past few years. Syscon's protest, which is based upon "improprieties in the operational demonstrations," was delivered in mid-December, 1987; the target date for the government response is in late May (they are allowed 90 working days).

The protest procedure is being monitored by the General Accounting Office (GAO), the watchdog arm of the US Congress. According to a GAO spokesman, a recent study by Congress indicates that protests of this nature have a surprisingly high rate of success (about 25%) in cancelling or revising Government procurements. The spokesman would not speculate, however, on the merits of Syscon's protests in this instance. This LOGMARS procurement is another one of those very important, open-ended government contracts that have had such an important effect on the growth of the bar code industry.

[Footnote: One company that wishes the Government would get on with it and make the award as quickly as possible, regardless of who wins, is Symbol Technologies. There are a considerable number of hand-held laser scanners involved in the Army's non-tactical procurement and all of the bidders have specified that they will be supplying Symbol Tech's laser guns.]

Relatively few foreign-based manufacturers....

....of bar coding equipment have established a significant presence in the US market. The ones that come to mind (we'll surely hear from any we've omitted) are Bar Code Industries (France), Datalogic (Italy), Swedot (Sweden), and Opticon (Japan).

Opticon, whose 4-year old US operations include engineering, marketing and customer service, expects to also establish a manufacturing capability in the near future. We recently had a long chat with Jackson Lum, VP of Opticon, Inc. (a wholly owned subsidiary of OptoElectronics of Japan) and he described the company's product line: LED-based wand, pistol, slot and fixed mount scanners; CCD scanners; and the infrared and visible laser diode scanners.

Opticon's primary marketing efforts are currently through OEMs and Lum ticked off what he referred to as a few of his major accounts: Telxon, MSI Data, Computer Identics, Bar Code Industries, Caere and NCR. No sales figures are available from the US operation, or from the privately-held, 12-year-old Japanese parent company.

Lum came across as very aggressive and forthright in discussing some of the critical areas affecting his company. He enthusiastically described his new visible laser diode scanners (see lead article above), but he believes that the US will eventually come around to also recognizing the superior price/performance features of CCD (charged couple device) scanners.

CCDs totally dominate the Japanese market, according to Lum, and they outsell laser scanners in Europe by a factor of 10 to 1. He lists the CCD advantages: lower cost (half the price of laser scanners -- as low as \$300 in large OEM quantities); non-hazardous (Lum comes down very hard on the "potential hazards of laser scanners which have the capability to put out dangerous intensity"); light-weight; non-contact (up to 1 1/2 inches); no moving parts; and user-friendly.

When Lum reviews the advantages of the visible laser diode and CCD scanners, it is no coincidence that he focuses his comparisons directly on the two primary products of Symbol Technologies: their he-ne and infrared laser scanners. The two companies are presently locked in a bitter legal battle on a number of fronts. In 1986, Symbol sued Opticon for violation of its patents on hand-held laser scanners. Opticon is vigorously defending itself in that suit, and Lum is extremely vehement in his characterization of Symbol Tech and what he considers their weak patent position. "Symbol Technologies intentionally withheld information from the patent examiners," he told us, "and we have definite evidence of public prior art that will invalidate their patent." He further believes that: "Spectra Physics settled their case without even going through any discovery procedure because they had already decided not to continue manufacturing." Opticon will file for a summary judgment (dismissal of the patent infringement suit) in April. Lum predicts a quick settlement

in his favor. Meanwhile, Opticon has counter-sued Symbol Tech on anti-trust grounds.

Lum states that his company has the products and resources to continue their very aggressive moves in the US. He knows that Opticon will not be the only company that will have a visible diode scanner in the years to come -- but for right now, he is fully enjoying his position as the leader in this product area.

Opticon, Inc., 36 Ramland Road, Orangeburg, NY 10962; 914/365-0090.

What came close to being a disastrous year

....for Photographic Sciences, may turn out to be a repositioning of the company for a successful future, according to President Mike Hone. His remark was prompted by his firm's financial report for 1987: Photo Sciences posted a loss of \$3.8 million on \$8.8 in sales.

[Photo Sciences has been acquiring and divesting companies and product lines so fast, during the past 3 years, that a scorecard is needed to keep track. Because of that, it will take another year or two before any accurate, or even reasonable, comparisons can be made with prior year performances.]

Last year was a time for the company to clean house -- literally and figuratively: Founder/President John Blackert was eased into retirement (at a reported cost to the company of \$900,000); non-profitable products and divisions were discontinued; dead inventories were written off. These non-recurring costs contributed over \$3 million to the 1987 deficit; actual operating losses amounted to about \$700,000.

Which brings us to calendar year 1988. Hone told us that sales of continuing product lines were up substantially during the first quarter, and he anticipates that earnings for that 3-month period will be about break-even. "If this sales trend continues," he reported, "we should be profitable for the entire year with a positive cash flow."

The important agenda for Hone, who took over as President only a few months ago (Scan Jan 88), is to narrow the company's focus on those products which he believes represents the strengths of Photographic Sciences: scanners, verifiers, film masters and form slides. The company is adding a new building onto its main manufacturing facility in Webster, NY and will be consolidating all operations in that one location.

The dissemination of information....

....about automatic identification has recently been expanded in Europe as a result of two important developments:

- AIM/Europe has launched Auto ID Today, a new publication covering a wide spectrum of applications, technologies and countries. The first issue, timed to help promote SCAN-TECH/Europe 87 (last November in Dusseldorf), was viewed as a test to check general reactions. The 36-page edition was well received by both readers and advertisers, and

the AIM/Europe organization has moved ahead to publish on a regular quarterly basis. The next issue is scheduled to come out this month with a guaranteed controlled (free) circulation of 17,500. *Auto ID Today* will be edited through the AIM/Europe Secretariat, with additional editorial policy under the control of an AIM Editorial Committee.

- On January 13, in England, AIM/UK held its inaugural meeting of the Auto ID User Association whose objectives are to increase education and to provide a forum for dialogue among the users, potential users and suppliers of auto ID technology. The group's initial membership of more than 30 companies, individuals and organizations includes food, electrical, chemical (ethical drugs to agri-chemicals) and clothing manufacturers; retailers; book publishers; transport, computing and telecommunications companies; mail order houses; auctioneers; and consultants. The British Paper and Board Industry Federation was the first institutional member of the user group.

Information on both the new auto ID journal and the AIM/UK users group can be obtained from the AIM Secretariat, The Old Vicarage, Haley Hill, Halifax HX3 6DR, ENGLAND (0422) 59161.

The important work....

....under way by the Federation of Automated Coding Technologies (FACT), to develop a Data Identifier (DI) Dictionary, is proceeding very well (SCAN March 88). The first two meetings of the DI work group were held this past January and February and a draft document was out for comment by February 29.

According to George Wright (Publications Identification & Processing Systems), who represents the book publishing industry on the DI work group: "In my thirty years of working with industry committees, I have never participated in one which moved so quickly and efficiently." Wright attributes this success to the group's recognition of the importance of the project, the leadership of Bert Moore as Chairman, and the participation and cooperation of all members.

The work group laid out the general categories under which data identifier assignments will be made. The basic structure calls for the DI, which is to precede all code numbers, to consist of up to four characters: the first three optional characters to be numeric (0 - 9); the last character is always alpha. In other words, the DI consists of from one to four characters at the beginning of any code, up to and including the first alpha character.

Based on this arrangement, there are 26,000 combinations that are theoretically possible to identify different types of coded information. The February 29 draft includes about 75 specific DI assignments plus 25 DIs that have been reserved at this time.

To illustrate how the system works, the following are some examples of DIs that have been assigned:

- P = Product identification code assigned by customer.
- 1P = Product identification code assigned by supplier.
- 2P = Identification number assigned by customer.
- Q = Quantity or pieces in the format.

1Q = Length/theoretical weight.
2Q = Actual weight.
3Q = Unit of measure.

FACT has undertaken the additional responsibility to become the registrar and clearing house for all new DI assignments. The ultimate goal is to respond to all such requests within 20 working days.

All those interested in participating in the DI work group, commenting on the draft proposals, or applying for new DIs, should contact FACT, Chairman DI Work Group, 1326 Freeport Road, Pittsburgh, PA 15238; 412/963-8588.

After almost eight years....

....of confining its ion deposition printing process for tags and labels to its own in-house production of bar coded products, Dennison Manufacturing is now embarking on a new venture to market the production systems worldwide.

Ion deposition is a Dennison-patented, high-speed, non-impact printing process, particularly suited to printing sequential- and random-numbered bar-coded labels. In its Framingham, MA operation, Dennison runs seven of these printers, each producing about \$2 million of these products annually for US consumption.

Dennison, which calls its system Presidax, has now decided to market ion deposition production equipment in other countries, starting in Europe. The company formed the Imaging Systems Division, under General Manager Paul Colletta, to design and develop on-press print engines and stand-alone printers. These products will be marketed in Europe through Dennison IDAX International and in North America by the Data Systems Division.

One phase of Dennison's marketing plan is to license commercial tag and label printing companies who will add the on-press print engines to existing production equipment. The company plans to market the on-site stand-alone units -- models IDAX 30 and IDAX 100 -- to large label users, including retailers, distributors and industrial companies. Colletta says that the IDAX 100, a 4 inch wide roll-to-roll printer, which operates at a speed of 100 feet per minute, is the "fastest tag and label printer in the world."

This ion-deposition technology will be the same method used by the US Postal Service on their automated label printing system to be installed in early 1989 at their Western Supply Center in Topeka, KS. The \$9.4 million contract, awarded to the Dennison Imaging System Division, calls for the production of 4 billion labels each year to be used on sacks and trays to transport 147 billion pieces of mail.

Dennison/Imaging Systems Division, 300 Howard Street, Framingham, MA
01701-0344; 617/879-0511.

SCAN NEWSLETTER LTD. • 11 Middle Neck Road, Great Neck, N.Y. 11021 • Phone: 516/487-6370 • FAX: 516/487-6449
PUBLISHER/EDITOR: George Goldberg • ASSOCIATE EDITOR: Jeff Goldberg • CIRCULATION DIRECTOR: Teddy Allen

INTERNATIONAL EDITOR: Paul Chartier • United Kingdom Office P.O. Box 7 • Cirencester GL7-1HY England
Phone: 44-285-3011 • Telex: 437269 SHARET G • FAX: 44-285-68859
