

New Camera-based Barcode Scanning Technology for Logistics Operations



The continually increasing volume from online retailing and multitude of product choices that retailers carry for consumers makes automated scanning at logistics centers more important than ever.

Logistics barcode scanning solutions break down into three segments. 1) The entry-level is a mix of conventional area-array imagers and laser scanners that easily read codes on slow moving or stationary objects. 2) At the high end of the scale, expensive line scan image-based systems can handle high speed, multisided barcode tunnel applications. 3) In between these extremes we see the bulk of logistics applications that currently rely on an increasingly challenged generation of laser scanners.

Let's focus on the third and largest segment that struggles with achieving optimal read rates. What has gone into optimizing the efficiency of these laser scanning systems? For the most part, the optimization has gone

into how the 1-D linear barcodes are printed onto labels to compensate for laser system limitations.

First, there are length to height ratio requirements making barcodes larger and taller so that laser scanners can deal with rotational variation of packages as they go past the scanning points.

Secondly, print quality is tightly controlled to make it easier for lasers to do their best. Generally, damaged or lightly printed barcodes cannot be read by most laser scanners.

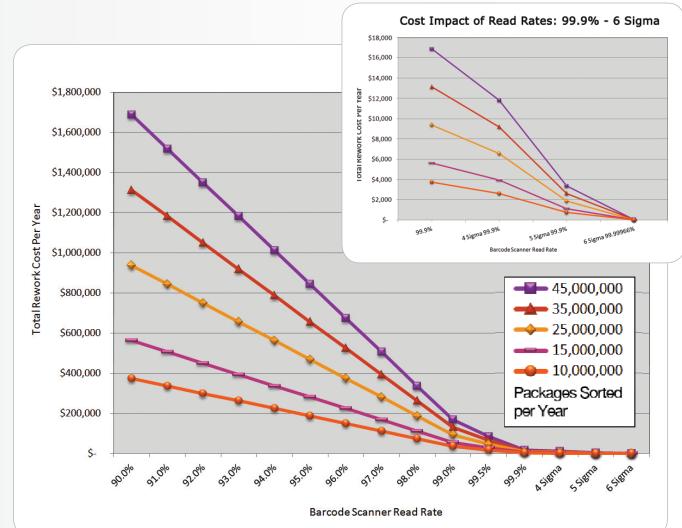
So why, even with these efforts, are the read rates within these logistics applications still averaging below 99%? Can image-based barcode reading technology change the way that you do business so that you can significantly improve read rates and lessen the effort put into compensating for antiquated laser technology?

Why Read Rates Matter

Read rate is the percentage of codes that a scanner reads correctly. But what happens when a scanner cannot 'read' a barcode? When a 'no-read' condition occurs, packages must be diverted to a station where an operator may manually try to rescan the package, key in the information, or replace the defective barcode with a new barcode and resend the package back through the sorting system. Whatever the process there is an increase in labor and material costs. Because packages are handled more than once, unread barcodes also reduce the efficiency of package sorting equipment. Ultimately, rework means increased overhead and lost margins.

This chart shows an analysis of the cost impact of read rates. Let's assume that a typical operator makes \$15 USD per hour and each 'no-read' package requires 1.5 minutes of manual rework. As one example, if your distribution center (DC) ships 25 million packages per year at a 92% read rate, then the packages that you fail to read cost you over \$750,000 per year in rework costs. If you were to make an investment in order to move that read rate up to 98%, you would save over \$500,000 a year. If you could drive

that read rate all the way up to 99.5%, that savings total would top \$700,000. It's pretty clear to see the impact in terms of labor costs that the barcode reading process has on your operation.





A Technological Revolution

DCs have had a tough choice: the affordability of laser scanners or the high read rates of complex line scan image-based systems. A far better choice would be a system that combines the performance of image-based equipment with the cost and ease of use of lasers.

This new option has finally arrived—the DataMan® 500 barcode reader. In a conventional image-based reader, the imager, A/D converter, and image processor all exist as discrete components interconnected via narrow communication buses. This configuration typically permits a maximum image-acquisition speed of only 60 frames per second (fps). In a Cognex innovation—called Vision System on a Chip (VSoC)—the components now all reside on a single piece of silicon. As a consequence, Cognex VSoC™ technology can acquire and analyze images at up to 1,000 fps and process them in real time, so the reader can adapt to wide variations in package size and match the high speeds and ease of use of laser systems.

Along with VSoC technology the DataMan 500 ID reader features the Cognex decoding algorithm, 1DMax™, and consistently achieves 99.9% read rates. This advanced series of image-based ID readers offers ease of use, speed, and a price point comparable to laser scanners, while improving read rates to reduce costs and achieve fast ROI measured in months not years.

Top Four Advantages Over Laser Scanners

VSoC-powered camera-based barcode readers help achieve:

- 1. Higher read rates:** lasers cannot compete with the higher read rates that can reduce costs and increase throughput
- 2. Powerful visualization:** by seeing what the reader sees, and storing images, DCs have access to data for continuous process improvement
- 3. Lower equipment costs:** because image-based ID readers have no moving parts, they are inherently more robust than laser scanners
- 4. Future proofing:** because imagers can read two-dimensional (2-D) codes, the logistics industry can keep pace with this future trend

Logistics Applications

Solve common logistics and material handling barcode scanning applications with VSoC-powered image-based barcode readers in order to achieve your throughput goals. If you make the transition to this innovative technology you can put an end to low read rates and maintenance costs.

- Tote ID scanning and sorting
- Print and apply or side scanning
- Carton coding
- Top side sorting
- Secondary product labeling
- Small package sorting and shipping
- Hand insertion and presentation scanning
- Code print verification



Top Four Advantages Over Line Scan Systems

VSoC-powered area-scan camera-based ID readers help achieve:

- 1. Higher read rates:** a line scan system's acquisition rate of one image per package is no match for this new technology
- 2. Ease of use:** imager technology is easier to set up with the point and shoot simplicity of an area-scan camera
- 3. Lower equipment costs:** area-scan image-based systems do not require PCs, encoders, or sophisticated maintenance
- 4. Simpler factory floor integration:** removing the PC from the system eliminates IT involvement

Learn more: www.thelaserkiller.com

Americas

United States, East	+1 508 650 3000
United States, West	+1 650 969 8412
United States, South	+1 615 844 6158
United States, Detroit	+1 248 668 5100
United States, Chicago	+1 630 649 6300
Canada	+1 905 634 2726
Mexico	+52 81 5030 7258
Central America	+52 81 5030 7258
South America	+1 909 247 0445
Brazil	+55 47 8804 0140

Europe

Austria	+43 1 23060 3430
Belgium	+32 2 8080 692
France	+33 1 4777 1550
Germany	+49 721 6639 0
Hungary	+36 1 501 0650
Ireland	+353 1 825 4420
Italy	+39 02 6747 1200
Netherlands	+31 208 080 377
Spain	+34 93 445 67 78
Sweden	+46 21 14 55 88
Switzerland	+41 71 313 06 05
United Kingdom	+44 1327 856 040

Asia

China	+86 21 5050 9922
India	+91 80 4022 4118
Japan	+81 3 5977 5400
Korea	+82 2 539 9047
Singapore	+65 632 55 700
Taiwan	+886 3 578 0060

COGNEX

www.cognex.com

Corporate Headquarters
One Vision Drive Natick, MA 01760 USA
Tel: +1 508 650 3000 Fax: +1 508 650 3344

© Copyright 2011, Cognex Corporation.

All information in this document is subject to change without notice. All rights reserved.

Cognex and DataMan are registered trademarks of Cognex Corporation. Cognex VSoC and 1DMax are trademarks of Cognex Corporation. All other trademarks are the property of their respective owners.

Printed in the USA. Lit. No. DMCG2-201109