

Whitepaper

The Value of MICR Check Technology

*Understanding the Benefits of Secure,
High-Performance, Cost-Effective MICR
Laser Check Printing Solutions*

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INTRODUCTION

For more than sixty years, businesses have turned to MICR technology for the consistency needed to ensure efficient and effective check processing. Today, MICR technology has become more valuable than ever before as organizations rely on MICR solutions for the high-quality, high-performance and cost-effective check and financial document printing they require. Most significantly, twenty-first century businesses depend on MICR technology for the security needed to combat the threat of check fraud in the digital age. The American Bankers Association has reported that in the U. S. alone, more than 500 million checks are forged annually, for total losses of more than \$12.2 billion a year.

This whitepaper defines MICR, discusses its history, and reviews the components of a MICR Laser Check System. In addition, this whitepaper highlights the value MICR technology and describes how Relyco can help corporations, government agencies and institutions worldwide realize the benefits of MICR solutions.

WHAT IS MICR?

MICR—or Magnetic Ink Character Recognition—is a process in which documents are printed using magnetic ink or toner and special fonts (E-13B in North America) to create machine-readable information for quick processing of paper-based payments.

The 65-character line of numbers and characters that make up the MICR line is printed in the area 0.625 inches from the bottom edge of a check. When positioned in the proper location, the characters printed in the MICR font allow check readers to scan the appropriate bank and customer account information to facilitate automated check clearing by financial institutions.

[insert graphic of check from presentation?]

MICR standards (ANSI X9.100-30, X9.100-110, X0.100-160-1, X9.100-160-2, X9.100-10, X9.100-20 and TR2) are set by the American National Standards Institute (ANSI), which ensures standards for durability, uniformity, placement and font of MICR characters. Financial institutions, businesses, government agencies or other organizations who do not meet the MICR ANSI standards may be forced to pay additional fees and charges.

In addition to manufacturing, printing and issuing checks, MICR technology may also be used to print financial forms and related documents such as negotiable orders of withdrawal, bank control documents, credit card invoices, insurance payment booklets, and direct mail or instant rebate coupons.

THE EVOLUTION OF MICR

Prior to the mid 1940s, checks were processed manually using either the Sort-A-Matic or Top Tab Key method. As the number of checks increased, it became essential to find a mechanized method of processing them, as well as to develop standards that could be used to ensure uniformity in financial institutions across the country.

By the mid 1950s, the Stanford Research Institute and General Electric Computer Laboratory had developed the first automated system to process checks—MICR. The same team also developed the E13B MICR font.

MICR—including the E13B font printed in magnetic ink—was established as the standard for negotiable documents by the American Bankers Association (ABA) in 1958. By the end of 1959, the first checks had been printed using magnetic ink. The ABA set MICR as its standard because machines could read MICR accurately, and MICR could be printed using existing technology. In addition, documents printed with MICR technology remained readable, even through over stamping, marking, mutilation and more.

In 1963, ANSI recognized the ABA's standards as the American standard for MICR printing. Although compliance with the standards is voluntary in the U.S., the financial industry considers them to be the definitive method by which to determine the acceptable quality of a negotiable document.

Other MICR fonts, and some optically read fonts, meet the standards set by organizations in other countries around the world.

COMPONENTS OF AN MICR LASER CHECK SYSTEM

A MICR laser check system is made up of four key components: the MICR laser printer, MICR toner, secure check stock and check-writing software.

The **MICR laser printer** is a specialized laser printer capable of producing a check that meets ANSI standards, including the durability and uniform placement of the MICR font. A MICR laser printer can create a check in a single-step by imprinting all required information; a blank piece of security paper becomes a complete check with variable payee data, digitized signatures, a company logo, bank identification and electronically readable MICR line.

MICR toner is a specially formulated mixture of toner and iron oxide designed to be used in a laser MICR printer set with a specific signal strength to print MICR characters that can be easily read by the financial institution.

Secure check stock is a paper designed with security features that prevent tampering and forgery to ensure a secure financial transaction. To comply with the ANSI standard, all checks must have at least three security features and at least one security feature must cover each of four areas:

- One must be ***overt***, such as an endorsement warning, warning band or non-negotiable stub backer
- One must be ***covert***, such as copy-void, fluorescent fibers or solvent reactive chemical stain
- One must be ***anti-copy*** or designed to hinder duplication
- One must be ***anti-alteration*** or designed to deter data modification

COMPONENTS OF AN MICR LASER CHECK SYSTEM

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The security feature types can overlap; for example, microprinting is both a covert feature and an anti-copy feature, and diagonal anti-splice lines are both overt and anti-alteration.

Secure check stock is available in pre-printed or blank formats. Pre-printed secure check stock identifies a single business and financial institution. Blank check stock can be used when single or multiple bank accounts are required. Check-writing software drives a MICR printer to apply variable information and a secure, unique MICR line to each check. Because the variable information and MICR line are added on demand, account information is kept secure within the MICR printer or software. The use of blank check stock can also reduce waste.

CHECK-WRITING SOFTWARE

Many accounting systems offer check-printing functionality. If they do not—or if additional secure check-printing functionality is required—special check-writing software is a viable option.

Designed to integrate with a range of accounting packages, check-writing software can print fully formatted checks—including the MICR line—on blank secure check stock. To ensure the security of check production, check-writing software can be protected with multiple security features, including a secure log-in, encryption, remote authorization and complete audit capabilities.

Check-writing software can also be used to configure a check that is 100-percent image friendly to ensure compatibility with optical scanning equipment. This is especially important for those organizations that need to comply with Canadian Payment Association Standards.

MICR PRINTER VS. STANDARD LASER PRINTER

The ABA made MICR the standard because it could be printed using existing technology, and while it is possible to print using a standard laser printer with a MICR toner cartridge, only with a MICR printer and MICR toner will a user be ensured of the quality that will meet ANSI standards and that the MICR line will be acceptable to a financial institution's readers.

Only a MICR laser printer can guarantee compliance with the six ANSI X.9 standards for MICR printing. Manufacturers of standard laser printers cannot guarantee that the MICR line will be readable or usable.

In addition, MICR printers can also offer a host of security features—including paper-tray or printer locks—that prevent unauthorized users from printing checks. A special security cartridge, which can be removed and stored in a secure area after use, can ensure that authorized signatures, company logos, and font information remains protected.

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FEATURES TO LOOK FOR IN A MICR PRINTER

- A printer-resident MICR font specifically engineered for the printer's engine
- Automatically controlled toner density settings, controlling the amount of MICR toner applied to each check
- MICR toner sensors to prevent check printing with non-MICR toner

MICR TONER VS. STANDARD TONER

MICR toner is similar to standard laser printer toner, but includes an iron oxide additive, which allows for electronic processing and ensures compliance with ANSI specifications for readability standards. So while it is possible to physically print checks with “regular,” non-MICR toner instead of MICR toner, there are several important issues to consider before doing so.

The first is that financial institutions read checks optically and magnetically, using MICR, and there is no guarantee that a check printed using non-MICR toner will be handled by a bank that uses optical technology. This means that a check printed using non-MICR toner may need to be processed manually or may be returned as unreadable. In either case, processing time will be increased and additional processing fees may be charged.

Finally, using MICR ensures that an organization has done its due diligence to prevent fraud. An organization that does not exercise due diligence risks their own security and may be ultimately responsible for any losses that result from the fraud.

WHAT TO LOOK FOR IN A MICR PRINTING SOLUTION

MICR printing technology must address four key concerns: security, quality, performance and capacity, and cost.

Security. Checks and other negotiable documents must be protected against fraudulent use, and MICR security is addressed throughout the production process: in the printer, toner, paper and software. For example, security features inherent in security paper can help a business or financial institution detect duplication or alteration. In addition, security features—such as secure log-in, encryption, remote authorization and audit capabilities—can also be integrated into the check-writing software.

Quality. In addition to adhering to ANSI standards, MICR printing technology must be architected to meet the strict quality requirements and quality-control processes of businesses, government agencies, and the financial industry, including those for resolution and output, check design, font positioning, and encoding strength.

High Performance and Capacity. To meet the demands of the most challenging environments, MICR technology must deliver the performance and capacity necessary to keep up with large duty cycles and to handle high volumes of paper.

Cost. By eliminating the need to maintain a supply of pre-printed check stock—or to discard outdated, obsolete forms (if account numbers change, for example)—and reducing the time spent on labor-intensive functions, such as check decollating, bursting, and signing, the right MICR solution can reduce costs.

HOW RELYCO CAN HELP

For more than 20 years, *Relyco* has been a leading provider of MICR solutions—including laser MICR printers, laser MICR toner, laser security paper and check-writing software—to resellers, corporations, government agencies and institutions around the world. Importantly, *Relyco* offers a complete range of check-printing solutions; you choose the solution to meet your specific security, performance and capacity needs and to fit your budget.

Relyco has been a pioneering force in the industry, with continuous research into fraud prevention strategies and new form technologies, as well as membership in the ANSI ASC X9B check processing committee.

Relyco solutions have undergone extensive testing to meet our stringent quality requirements, and we are proud to guarantee the performance of our *Relyco* printing solutions when they are used in conjunction with Relyco MICR toner and Relyco-approved check stock.

To learn how *Relyco* can help you implement a secure, high-performance, cost-effective MICR laser check printing solutions to meet the unique requirements of your organization, call **1-800-777-7359**, email info@relyco.com, or visit us on the web at www.relyco.com.