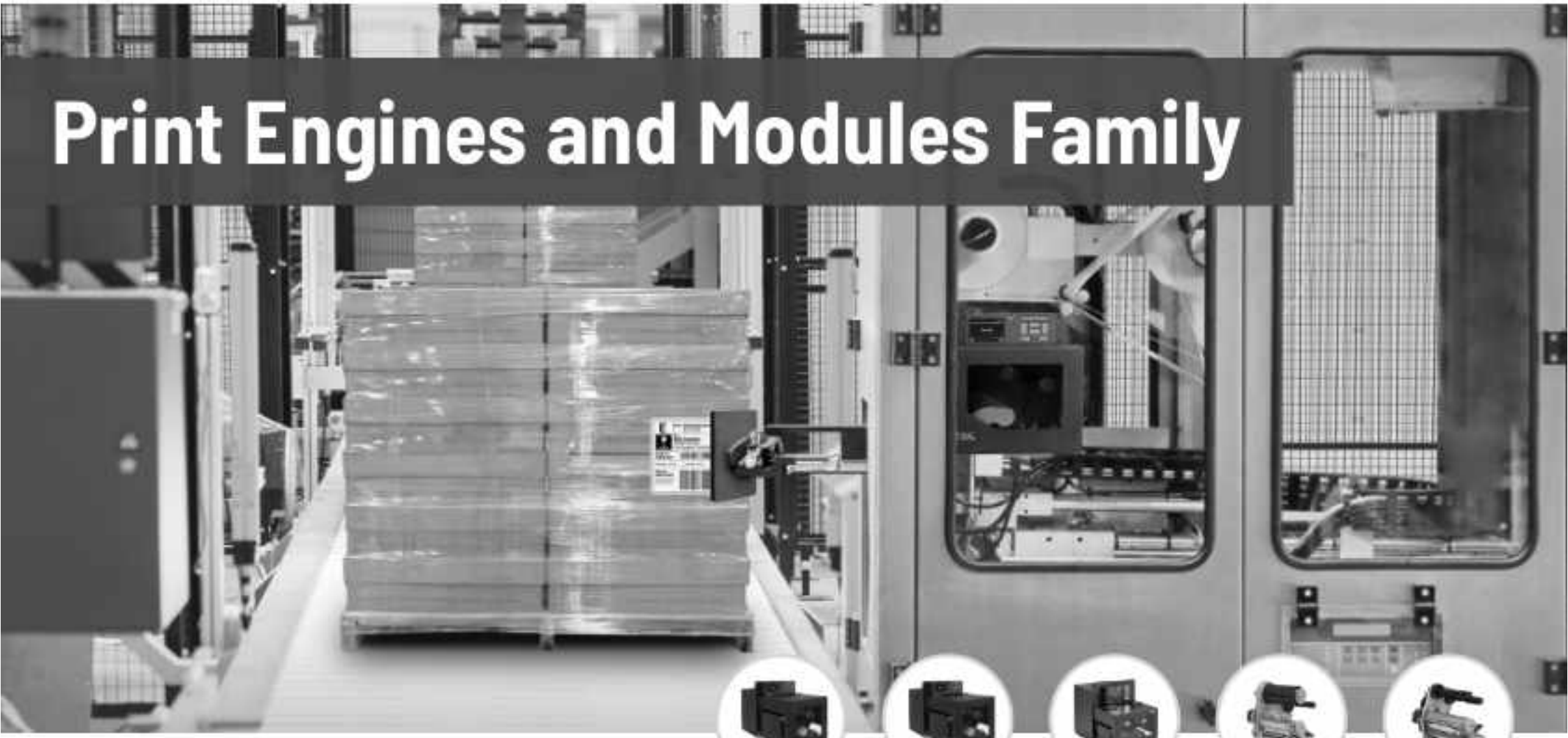
TSC

Print Engines and Modules Family



Stronger Together

TSC Auto ID tscprinters.com

Powerful Processing for Automated Labeling

The pandemic expedited the transformation of automation, including print and apply, across industries. Automated labeling solutions replace manual workflow for better efficiency, reducing high costs caused by human errors, leading to increased 24/7 productivity. Automated print and apply systems are used in high-volume applications on labels, cases, pallets, and others in logistics, manufacturing, pharmaceutical, and the food and beverage market sectors.



How to Select Print Engines and Modules



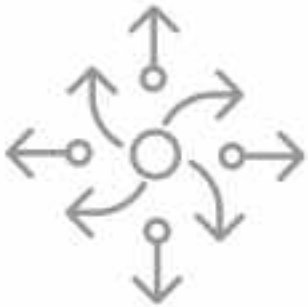
Compatibility

Selecting print engines or modules involves considering factors such as printing requirements, space constraints, and ease of maintenance tailored to your application's demands and customization level. Seamless integration into your existing system is essential. To synchronize with a system's PCs or PLCs for completing print jobs, these engines or modules suggest featuring a GPIO interface and supporting GPIO emulations and printer language firmware. This ensures simplified integration and migration efforts.



Reliability

Reliability should align with your application's needs. If you have a continuous printing demand, you'll want to consider the duty cycle. Second, consider the robust construction required for your working environment when choosing print engines or modules.



Applicability

Choosing print engines or modules with the appropriate system design for your applications and daily operations is crucial. Considerations should encompass factors such as print speed, resolution, connectivity, and the type of content you intend to print, whether it's text, graphics, or barcodes. Additionally, scalability is vital. If you anticipate production expansion in the future, opting for a print engine that can accommodate increased printing demand is a wise choice.

Why TSC Auto ID Print Engines and Modules?

Our print engines and modules are purpose-built for any print and apply system, and can be easily integrated for many applications. The robust design can withstand harsh environments and ensure performance for years to come.



1 Designed for Label Applicator Integration

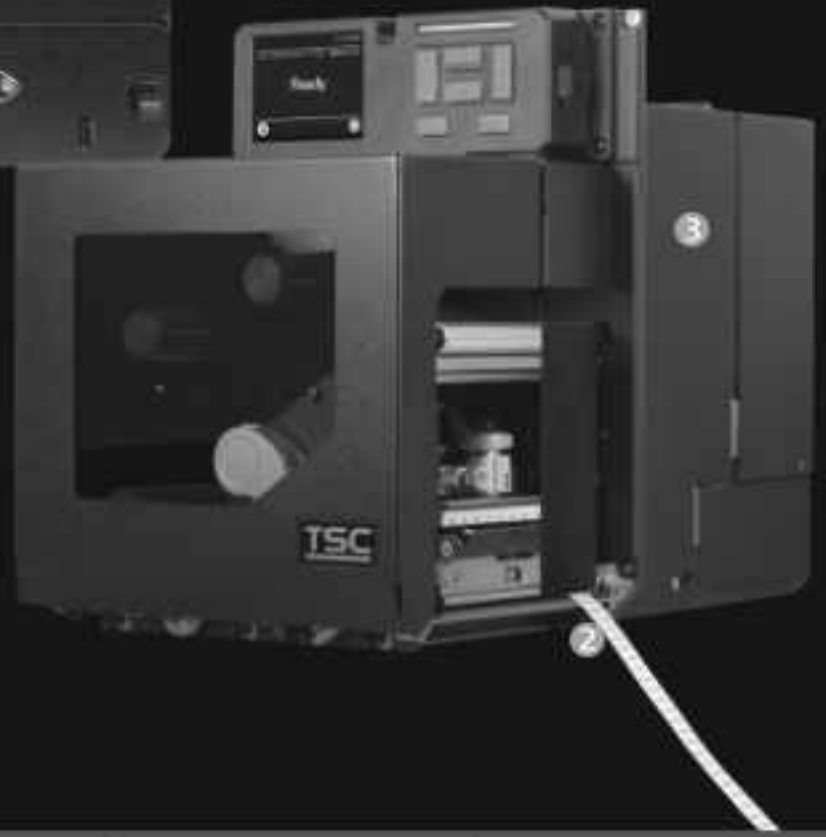
Our engines and modules support DB15 and DB25 connectors and major printer brands' GPIO emulations. Customizable printer language firmware supports major printer languages, so template commands and print files remain the same.

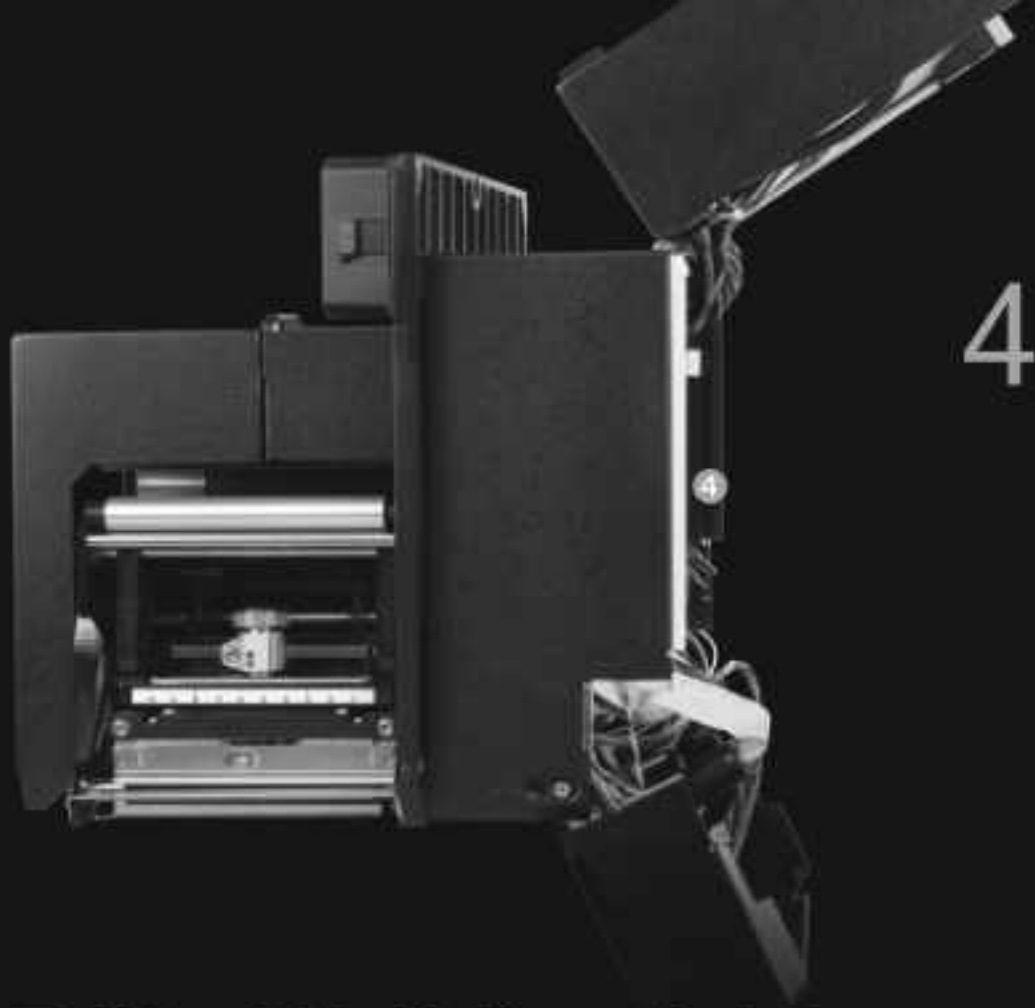
2 Versatile Options to Fulfill Application Requirements

Print engines and print modules provide different levels of integration flexibility. Our industrial-grade print modules enhance flexibility and allow automatic labeling builders to design their preferred placement for media and ribbon. In contrast, our print engines feature a fully integrated unit for extensive functionalities such as RFID encoding, support for pre-printed labels, and more. Additional print engine features include high-speed printing up to 18 inches per second (ips), small labels down to 5 mm in length, and more.

3 Robust for Demanding Operations

Our print engines and print modules are engineered with reliability. Housed in a full-metal chassis, the PEX-2000's mean time between failures (MTBF) is up to 22,000 hours, built to sustain 24/7 full-day mission-critical operations.





4 Easy Operations and Maintenance

Our print engines are designed to improve daily operations and the user experience, from media sensors and handling to repairs and maintenance. The PEX-2000 features one push-to-release printhead for easy replacement, top and bottom sensors for various media type setup and calibration, more space for sensor cleaning, and a quick lift-and-pull-out rear chassis for easy maintenance and reduced downtime.



5 Value-Added Software Tools for Remote Management

We offer value-added software tools, SOTI Connect and TSC Console, to allow you to manage and monitor all print engines and modules remotely through the internet or intranet, depending on your application needs. When production expands, these tools enable you to configure, troubleshoot, and update a larger printer fleet with ease—onsite or remotely.

Innovations Improve the User Experience

Ease of integration into automatic labeling systems is crucial for print engines and modules.
With the following innovations, our automated labeling solutions become even more user-friendly.



Adjustable Peel-Off Module

The industry-first, angle-adjustable peel-off module supports an angle of -18° to -3° peel-off. This feature provides flexibility and eases integration with the applicator, replacement of the current print engines, and also scales up applications.



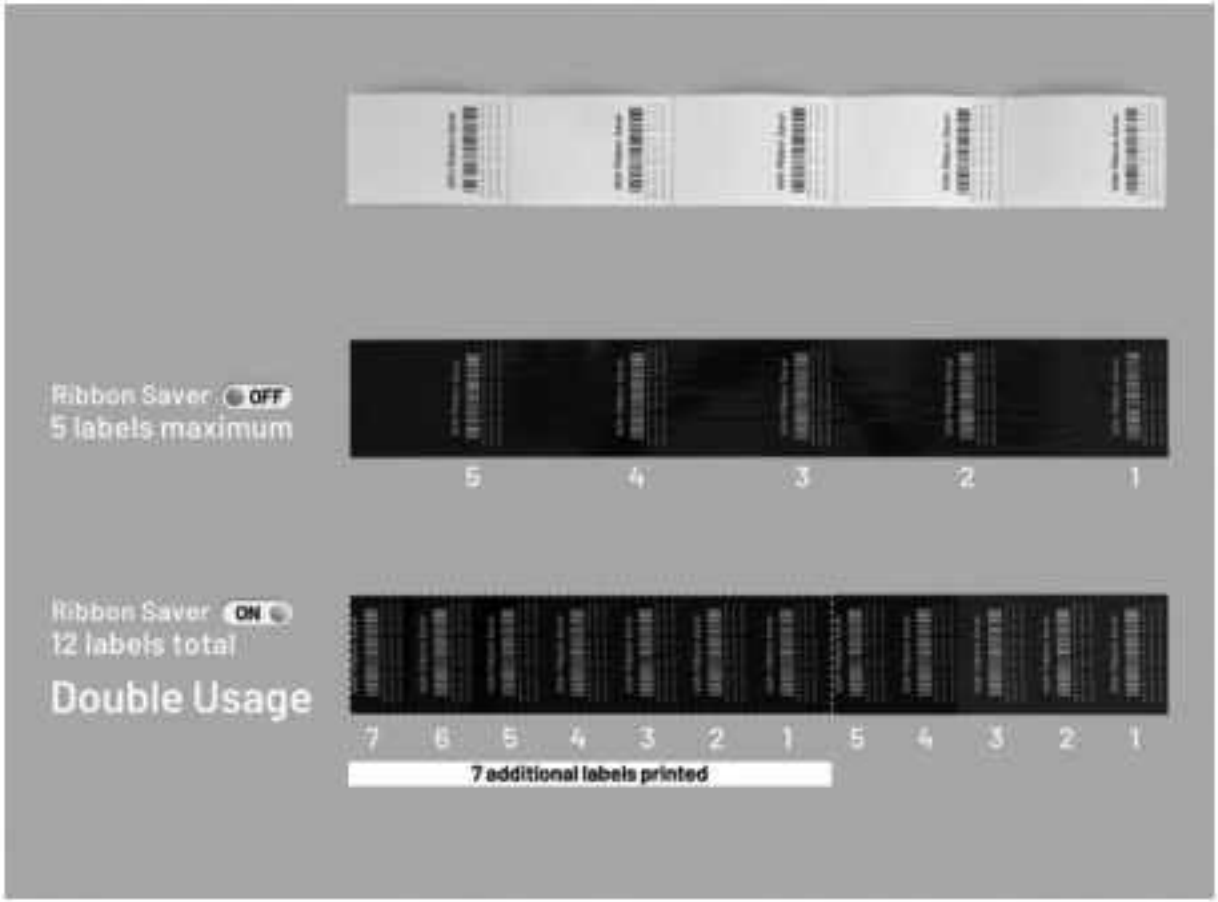
RFID Encoding Capabilities

We offer an optional RFID encoding module that is capable of fulfilling emerging demands, such as item-level RFID labeling in apparel. We support various tags and label constructions, and the auto-calibration ensures effortless label switching, eliminating manual adjustments. Close collaboration with GS1, ISO/IEC, AIM, and the RAIN Alliance ensures that our RFID print engines effectively support evolving encoding standards.



Small Label Printing with High Quality and Precision

The PEX-2000 features high imprint accuracy with printing deviation within ±0.4 mm. With 600 dpi and support of a minimum 5 mm label length, it is ideal for small-size label printing while maintaining the required quality.



Ribbon Saver

Our patented ribbon saver helps you go green by minimizing waste and cutting costs by using fewer ribbons and enabling more label printing. It performs exceptionally with pre-printed labels, especially with special color ribbons like gold or silver, reducing costs. For example, using a 4x6-inch label, you can save 60% ribbon usage when you print two-inch content.



Emulation

Our print engines and modules are designed for seamless transition and replacement. They support DB15 and DB25 interfaces, as well as GPIO emulations of major printer brands. Customization of GPIO pin configurations provides flexibility in adjusting settings. Also, they can auto-detect printer languages like ZPL and SBPL, eliminating the need for manual selection of printer language emulation settings.



Fast One-Cycle Printing

The PEX-2000 features rapid print speeds of 18 inches per second (ips), enabling it to complete a 4x2.5-inch label print in just 0.56 seconds per cycle. This capability allows labels to be rapidly fed to the applicator, enabling swift application.

Print Engines and Modules Family

Our full-functionality print engines are designed to reduce development efforts and time to market.
Our cost-effective print modules offer maximum flexibility and help label applicator builders fulfill their unique designs.

PEX-2000 4-inch and 6-inch

The PEX-2000 works seamlessly with a system's PCs or PLCs by supporting DB15 and DB25 connectors plus major printer brands' GPIO emulations. The angle-adjustable peel-off module allows for easy integration and replacement. The patented ribbon-saving function reduces ribbon usage, allowing more printed labels. Also, the optional RFID encoding module expands its capability for emerging applications like item-level RFID tagging in the fashion or retail industry.



PEX-1001 4-inch

Designed for ease of integration, the PEX-1001 features a compatible construction with a commonly used GPIO interface. The rugged design with die-casting structure ensures a stable media path for good print quality and accuracy. It is ideal for manufacturing and logistic applications where high-speed and high-demand label printing is required.





MH Series 4-inch

The MH Series Print Module offers 203 dpi resolution at speeds up to 14 ips, 300 dpi resolution at speeds up to 12 ips, and 600 dpi resolution, which makes it ideal for small fonts, barcodes, and high-resolution graphics.

MB Series 4-inch

The MB Series Print Module is designed for light industry printing. It features a die-cast aluminum print mechanism durable enough to withstand tough production environments. Its compact design is a perfect fit for a tight workspace.



Product Specifications

The table below will assist you in quickly identifying the printer that best suits your application needs.

	Print Engines			Print Modules	
					
Models	**PEX-2000 6-inch**	**PEX-2000 4-inch**	**PEX-1001 4-inch**	**MH Series 4-inch**	**MB Series 4-inch**
Media Width	6"	4"	4"	4"	4"
Print Resolution	203 / 300 dpi	203 / 300 / 600 dpi	203 / 300 / 600 dpi	203 / 300 / 600 dpi	203 / 300 dpi
Max. Print Speed	356mm (14") / sec	457mm (18") / sec	457mm (18") / sec	356mm (14") / sec	305mm (12") / sec
Min. Label Length (peel-off)	25.4 mm	5 mm	5 mm	12.7 mm	25.4 mm
Display	Color	Color	Color	Color Touch	Color Touch
Top Black Mark Sensor	Yes	Yes	Yes	Yes	—
Interface	GPIO (DB15F)	GPIO (DB15F)	GPIO (DB15F)	GPIO (DB15F)	GPIO (DB15F)
Options	• Ribbon saver • RFID • Wi-Fi + Bluetooth combo module • GPIO (DB25F) • Internal Bluetooth	• Ribbon saver • RFID • Wi-Fi + Bluetooth combo module • GPIO (DB25F) • Internal Bluetooth	• Wi-Fi + Bluetooth combo module • Bluetooth with MFi • GPIO (DB25F)	• GPIO board (DB15F) • Rewinder spindle	• GPIO board (DB15F) • Rewinder spindle
Printer Management Tools	SOTI Connect, TSC Console	SOTI Connect, TSC Console	SOTI Connect, TSC Console	SOTI Connect, TSC Console	TSC Console

Success Stories

Retail

Expedite e-Commerce Fulfillment with Label Automation

Overview

A systems integrator (SI) specializing in print and apply solutions needed to build a new labeling line that could fulfill 30,000 labels daily for its e-commerce customer. This was in addition to two automated labeling systems already in place.

Solution

The PEX series print engine was implemented as a replacement for one of the SI's existing print and apply solutions.

User Benefits

- 18 ips print speed meets the current capacity requirements while leaving room for future expansion.
- The highly compatible GPIO interface and major printer brands' GPIO emulation ease the integration.



Medical



Precise Small Label Printing for Healthcare

Overview

A healthcare company required a labeling line for its Nucleic Acid Amplification Test Tubes with the demand for high-accuracy, small label printing.

Solution

The PEX series print engine excels in high-precision small-label printing and seamlessly integrates with wipe-on applicators for efficient application.

User Benefits

- 600 dpi high resolution meets the demand for superior-quality printing.
- The excellent calibration capability, coupled with minimal deviation, meets the company's requirement for high-precision printing on small labels.

Manufacturing



Automatic Labeling Boosts Wine Packing

Overview

A renowned French wine brand needed to fulfill demand for carton labeling of 2,000 boxes per hour.

Solution

The PEX series print engine, an optimal print and apply solution, seamlessly integrates with applicators for high-demand environments, making it ideal for large-scale printing.

User Benefits

- 18 ips print speed meets the fast printing requirement.
- Reliable and stable performance for 24/7 operations caters to high-demand scenarios and ensures maximum uptime.

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