

## How to Distinguish an Intelligent Fluid Dispensing System From All the Rest

By Scott Beebe, President of Fishman Corporation

Fluid Dispensing Systems have been helping manufacturers assemble products for over six decades. As with any technology, there have been advances. However, virtually all of the systems in use today still rely on expensive and harmful compressed air systems to run them. Fishman® Corporation has bucked tradition and given compressed air the boot. With results that are simply brilliant, the SmartDispenser® with AirFree® Technology, is the industry's only intelligent dispenser designed to help manufacturers achieve exact performance, process control and global standardization.

This White Paper was written to take readers through our journey to create the SmartDispenser®. It speaks to the downside of relying on compressed air and the upside of adopting AirFree® Technology. It goes on to highlight the numerous innovations Fishman® has developed to make our dispensers even smarter, and to explain how these advancements help our many customers increase productivity, yields and profits.



# AirFree® Technology

 SmartApp™  
AirFree Technology

 SmartReporting™  
AirFree Technology

 SmartScanning™  
AirFree Technology

 SmartRecycling™  
AirFree Technology

 SmartNetworking™  
AirFree Technology

 SmartValve™  
AirFree Technology

# The SmartDispenser® with AirFree® Technology

The SmartDispenser® with AirFree® Technology is at the core of Fishman's® product offerings. It is used successfully in the application of assembly fluids for the medical device, electronics, automotive, fiber optics and aerospace industries. What follows describes the many ways in which manufacturers can benefit by partnering with Fishman® Corporation and putting our remarkable solutions to work in their production facilities.

## Compressed Air is the Problem

Until the development of AirFree® Technology manufacturers were forced to be dependent on compressed air systems to run their fluid dispensers. Compressed air systems do far more harm than good. Not only are they expensive to operate, but the electricity needed to run them greatly damages the environment. An even larger problem resulting from the reliance on and use of air systems is that they prevent manufacturers from achieving process control and production standardization, two factors vital for success. The reason for this is gas—which air is—cannot have algorithms accurately applied to it. Without the ability to apply algorithms it is impossible to have intelligent controllers for fluid dispensing.



## AirFree® Technology is the Solution

AirFree® Technology allows manufacturers to break free from their dependence on compressed air systems and, in doing so, regain total control of their processes. This is because AirFree® Technology is perfectly suited for the application of algorithmic directives, because as its name states, it does not use air. The SmartDispenser® with AirFree® Technology ensures that manufacturers have intelligent controllers that perform precise functions, and that allow them to get the job done without human intervention and the resulting errors that come with it. Most importantly, the extraordinary level of algorithmic process control attained with AirFree® Technology makes it able for manufacturers to duplicate the validation process achieved in one location across production facilities throughout the world. This benefit is essential for manufacturing success, but was not the case before the creation of the SmartDispenser.®



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# Fishman® Offers an Array of Innovative Solutions

After more than fifty years in business, Fishman® Corporation recognizes what is important to manufacturers, and uses this knowledge to develop solutions to help them be more successful. They include—

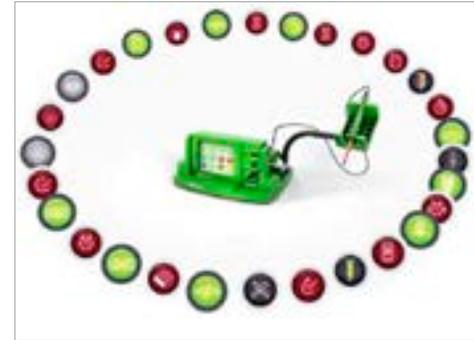
## SmartApps™

The intelligence derived from the ability to apply algorithms to the SmartDispenser® is increased further with the addition of SmartApps.™ These specially designed software applications—many of which emanate from suggestions made by SmartDispenser® owners—let manufacturers customize their SmartDispensers® to enhance their manufacturing process. SmartApps™ also give SmartDispensers® new life by providing them with new capabilities. Part of the genius of SmartApps™ is that they help regardless of what a company is manufacturing. The reason for this is manufacturing processes, no matter the industry, share many of the same problems and concerns such as process control, human error, rejects, rework, and scrap. Fishman® currently has over two dozen SmartApps™ that are designed to help reduce human error, boost productivity and increase security. They are available for purchase at the Fishman® online store, and can be downloaded and installed quickly and easily with virtually no production downtime.



## SmartReporting™

The SmartReporting™ feature available on SmartDispensers® lets manufacturers track, collect and report production data without human intervention, and makes the information readily accessible to everyone who needs access to it. SmartReporting™ automatically tracks production data such as operator activity, dispensing program used, and throughput by the hour, day, or month. The two SmartApps™ that make this happen are the Work Order Tracker SmartApp,™ which allows manufacturers to generate customized reports and the Device History SmartApp,™ which permits production data reporting to be done in real time or to the specific product metrics of a given application. Moreover, production data reports generated by SmartReporting™ can be stored on the SmartDispenser's® internal solid-state drive or saved to a USB storage device for uploading to a local tablet or PC for analysis. The SmartDispenser® can also be securely networked to one or more local servers, enabling automated daily delivery of production data in real time to a secure shared directory for management review at one or multiple facilities.



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## SmartRecycling™

Most companies look at technological product advancement as an opportunity to make an existing product obsolete and, by doing so, force manufacturers to purchase and replace existing equipment with brand new systems. SmartDispensers® are designed to last decades, saving manufacturers hundreds of thousands of dollars in equipment costs, while enabling them to benefit from always having the latest technology. SmartRecycling™, which is based on free firmware and software upgrades, makes all of this feasible. When improvements to existing software are made, or when entirely new software is released, the SmartDispenser® can be upgraded to a like-new state with no cost to the manufacturer. Even when customers begin using a new application they do not have to change their current system because the SmartDispenser® is designed as a universal controller, meaning every dispense gun available today, and all those developed tomorrow, will work with the existing controller after a simple software change.



## SmartScanning™

The SmartDispenser® is not only intelligent enough to make decisions on its own, but it comes with the ability to help eliminate human error and mitigate risk, both real and potential, from the assembly process. This is important because PLCs may be able to automate certain processes, but they are not intelligent and cannot verify that the remaining tasks that do require human participation are being performed correctly. To respond to this, Fishman® has developed PLC-like control functions, as well as others for data reporting and process verification, and packaged them into numerous SmartApps™ to create SmartScanning™. It enables the operator's bar code scan to become the trigger for the SmartDispenser® to execute various given commands and operations such as the automatic loading of a program, verifying that the correct raw materials and assembly fluids are selected, and confirming that the operator has the proper training clearance: all this is done without human intervention. If, by chance, an incorrect bar code is scanned the SmartDispenser® recognizes it and locks the system until a supervisor enters their password and corrects it. Moreover, every operation executed, including correct and incorrect scans, is recorded in the device history record and available for management to review at any time.



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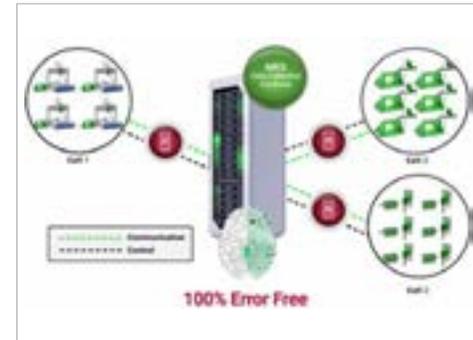
## SmartNetworking™

In addition to storing data, making decisions and executing commands, the SmartDispenser® is also capable of communicating with, and being controlled by a company's MES system. Besides dramatically reducing costly PLC programming, this simplifies the entire process and provides valuable production data to management. This is accomplished through a suite of MES SmartApps™ that are designed to mimic the typical production machine customizations most manufacturing engineers execute with a PLC. In addition, the communication between the SmartDispenser® and the MES system is done without human intervention, making it 100% error free. The operator simply scans a bar code, which provides the MES system with all the information needed to execute the commands; information in the form of manufacturing data that is available in real time for management to review. SmartNetworking™ maximizes the major investment manufacturers made in their MES system, and saves a substantial amount of money by lowering programming and hardware costs, and increasing production efficiency.



## SmartAutomation™

The AirFree® Linear Drive System with SmartAutomation™ allows for the application of algorithms to the fluid-dispensing axis. With it, manufacturers can control movements within one thousandth of an inch and speed by inches per second. This mechanical drive technology is a key component of the SmartDispenser®, enabling the programming engineer to input numerical data such as volume, speed and reverse motion. When algorithms controlling multiple robot axes are coordinated with the algorithms managing the SmartDispenser®, manufacturers are assured of unprecedented control of fluid deposits and fluid beading. When the Push-To-Connect™ Dispense Gun feature is used with SmartAutomation™, production yields improve because it permits the operator to pre-load four dispense guns in just 13 minutes without having to stop production on their automated system. Then, replacing an empty dispense gun with a full one from the tray takes just 40 seconds, further reducing downtime and improving yields. In addition, the AirFree® Linear Drive System with SmartAutomation™ has advantages over continuous-feed dispense valves because its design prevents fluid from heating, stressing, shearing, or experiencing filled particle separation. These are problems that are common with continuous-feed dispense valves, causing them to clog, and forcing operators to shut down production to disassemble, clean and rebuild them.



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## SmartValve™

The AirFree® Linear Drive System provides the highest production throughput in an automated production cell. But in applications that require large fluid deposits, a valve with a syringe reservoir is not the best way to go. To address this Fishman® redesigned the traditional diaphragm and needle valve so it does not have to run on expensive greenhouse gas producing compressed air, and rely on springs as the mechanism to open and close the valve. The solution Fishman® created is the SmartValve™. As part of the AirFree® Linear Drive System, the SmartValve™ provides algorithmic process control for continuous flow dispensing applications. This helps resolve two of the most exasperating problems which have plagued manufacturers over the past two decades: erratic fluid deposit volumes and the post-fluid deposit dripping which result from using compressed air diaphragm valves. The SmartValve™ is also designed with a detachable dispense head that permits quick and easy removal and replacement, adding to its overall efficiency and effectiveness.



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## Manufacturing Success as Measured by Fishman® Corporation

When all is said and done, only Intelligent Fluid Dispensing Systems from Fishman® Corporation can provide you with the capabilities necessary to achieve exact performance, process control and global standardization, and along with them greater manufacturing success.

