Scalable Product Design Guided by Our Customers

Rob Rich,
director of sales
Americas at BioDot

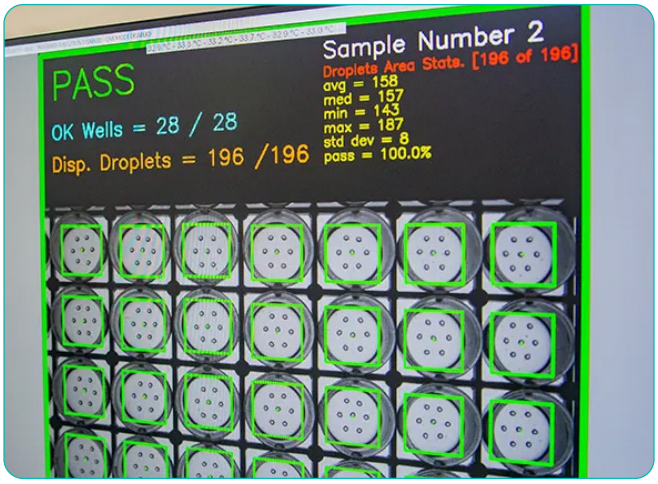
Interest in point-of-care (POC) diagnostics continues to grow, with tests now being developed for various applications, including pathogen detection, cancer screening, and vitamin monitoring. As these tests become more advanced, many now rely on biochips, biosensors, and microfluidics to deliver faster, more sensitive, and more compact solutions. This increase in both demand and complexity is pushing batch production to its limits, creating a need for more flexible, scalable approaches.

To address these challenges, we have worked closely with a leading manufacturer of diagnostic devices – a long-standing BioDot customer – to develop MODULIS™, a liquid dispensing solution suitable for in-line manufacturing at any scale. This customer needed to increase the throughput of a manufacturing process and wanted to convert the current batch production workflow to a true in-line industrial automation solution. Our R&D experts put their heads together and created MODULIS, the first scalable droplet dispensing platform for in-line manufacturing on the market.

MODULIS™ Biosensor Platform

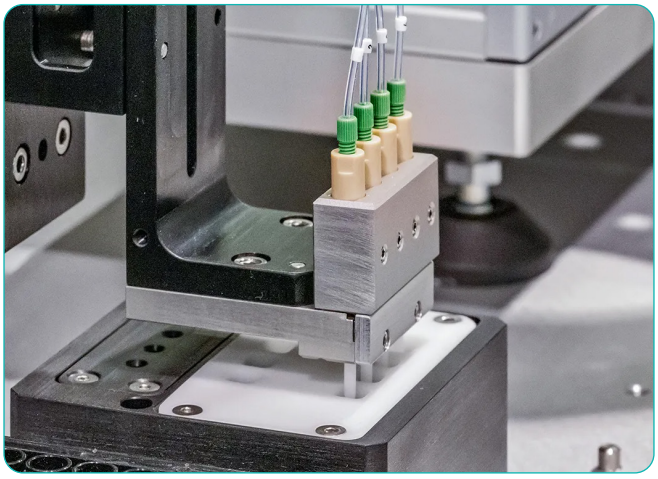
First, we improved throughput:

- MODULIS™ has multiple dispensing modules, each working independently and simultaneously.
- The base MODULIS unit is capable of double the manufacturing output of our standalone workstation, with the option to increase capacity by adding extra modules.
- Modules are connected by SuperTrak CONVEYANCE™, a maglev system with independently controlled shuttles moving at speeds of up to 4 m/s.



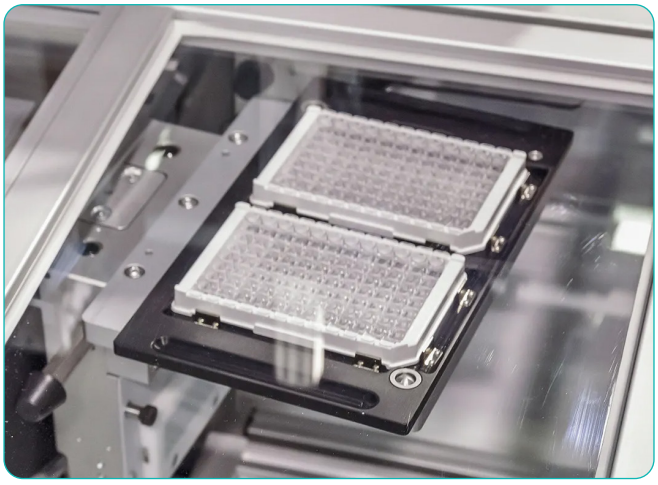
Then process monitoring and QC:

- Level sensors ensure parts have been loaded properly.
- Fiducial find modules precisely target locations where droplets should be dispensed.
- QC stations image the end of the process and automatically flag any failures.



It is integrated:

- Each module features comprehensive logging.
- Detailed monitoring through the whole process reports dispensed volumes and quality data.



And supremely flexible:

- The maglev track is purchased by the meter to fit into any footprint.
- MODULIS is fully compatible with complementary technologies, including robotic arms and packaging components.

And there you have it – MODULIS was born. Backed by BioDot's state-of-the-art dispensing technology, the modular nature of the system makes it ideal for any precision application, with the added advantage of it being customizable into bespoke solutions specific to each customer's needs. We're delighted to have worked with a customer to produce this system and look forward to supporting many customers in their projects, from R&D to full-scale, high-volume manufacturing.

To find out more about MODULIS, visit **www.biodot.com/products/modulis**