

MARKET: LABORATORY AUTOMATION

Nippon Pulse offers a variety of motion control products that are perfect for the lab automation market. We offer standard and custom tin-can stepper motors, linear servo motors and linear stages, as well as electronics to drive them. Our products are designed for easy modification, in order to provide you with custom solutions at off-the-shelf prices.



MICROSCOPE AUTOMATION

Camera Zoom and Focus

(Linear Stepper or Linear Shaft Motor + PCL61x4 Series Controller)

LinearStep motors provide the high force required for vertical movement of microscope optical components for more precise imaging. Similarly, the Linear Shaft Motor can also be used for continuous focus in scanning where the sample surface plane changes.

Multi-axis control chips like the PCL6144 assist with the camera's ability to focus, while reducing the burden on the camera system's processor and external signals.

Sample Movement

(X-Y Linear Stage)

There are two key ways to automate sample movement: step frame and scanning. The X-Y open-frame stage is ideal for both of these movements because of its ability to move along two axes simultaneously. Our open-frame stages can be driven by a LinearStep or Linear Shaft Motor depending on your requirements and the motion profile required, and the stage itself can be customized to meet your specifications.



LIQUID HANDLING

Digital Adjustable Pipettes

(PFC10 Stepper + PCD2112 Controller)

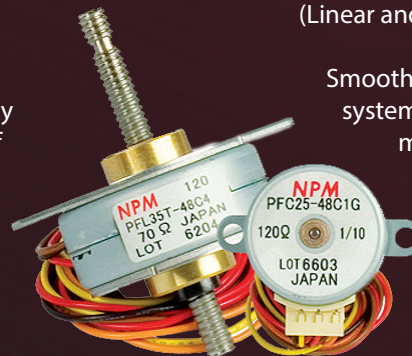
The standalone features of the PCD2112 chip, along with a small stepper motor like the 10mm PFC10, allow for a very compact, intelligent system for adjusting pipette location and dispensing.



Liquid Handling Robots

(Linear Shaft Motor + Steppers + PCL6100 and PCL6000 Series Controllers)

PCL series controller chips allow for central control of up to 32 stepper/servo axes for a multi-axis control system. Our linear motion products are capable of meeting the precision and repeatability requirements of even the most stringent liquid handling system.



Peristaltic Pumps

(Tin-Can Steppers)

Our tin-can steppers are a low-cost, simple solution for the highly precise, constant movements required by positive displacement pump dispensing solutions. Any of our tin-can motors can be customized to meet your drop-in design requirements.

Automated Pipetting Systems

(Linear Stepper + PCD4600 Series Controller)

Centrally control the movement of up to four stepper axes with the PCD4600 chip series for a low-cost control system. Linear steppers simplify the rotary-to-linear transition for the motion profile needed to dispense precise, equal amounts of liquid.

Syringe Pumps

(Linear and Rotary Steppers)

Smooth rotary and linear motion systems couple directly with the moving load for a compact design and quicker dispensing, diluting and other standard liquid handling functions.

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SAMPLE HANDLING SYSTEMS

Pick and Place

(Linear Shaft Motor + Tin-Can Steppers)

The Linear Shaft Motor allows for quick, high-precision movement, while our tin-can stepper motors provide lightweight rotational movement, working together seamlessly for pick-and-place applications.

Drug Discovery

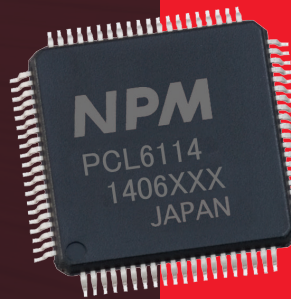
(PCL61x4 Series Controllers)

For central control with feedback, multiple PCL61x4 series chip controllers allow for up to 36 axes of movement, which is perfect for the higher speed and throughput required by drug discovery labs.

Robotic Grippers

(Linear Shaft Motors or Linear Steppers)

Whether you are designing a small gripper to move a single test tube or a gripper for a 1536-well microtiter plate, Nippon Pulse has a motor that will fit your system. The Linear Shaft Motor allows for precise operation of the gripper and the use of force mode for greater sample control and security, while our linear steppers accomplish precise and accurate positioning. Both are ideal for driving multiple motors on a single axis, and the Linear Shaft Motor can be driven in parallel systems with one encoder and one servo amplifier.



ABOUT NIPPON PULSE

Since 1952, Nippon Pulse has built state-of-the-art motion control products. We provide solutions for lab automation original equipment manufacturers that include products that accomplish sample and liquid handling, microscope automation, medical robotics, drug delivery, surgical tools, pharmaceutical dispensing and other healthcare technologies.

Over the past 60 years, Nippon Pulse has been established as a leader in stepper motor, driver and controller technology.

We want to impress you with our products and service, not just satisfy your requirements. We

do this through complete system engineering expertise, individual attention and support, superior prototyping, and cutting-edge technology.

Nippon Pulse America, Inc. is a wholly owned subsidiary of Tokyo-based Nippon Pulse Motor Co. Ltd., and serves customers in North, Central and South America, and Europe.

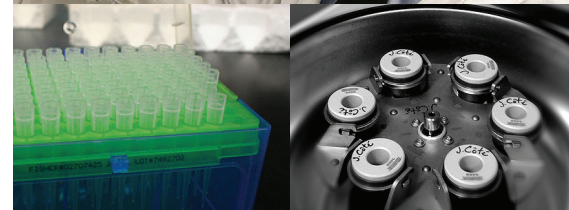
WORK STATIONS

Automated Work Stations

(Variety of Nippon Pulse Products)

Automated work stations usually incorporate a number of the functions previously mentioned, providing you with a compact and useful tool. Below are some of the thousands of automated systems that can benefit from Nippon Pulse products.

- Plate Washers / Dispensers
- Tissue Stainers
- Rack Handlers
- DNA / RNA Isolation Systems
- Microwave-Based Analytical and Process Control
- Digital Pathology Imaging
- Medical and Non-Medical Pumping Systems
- Drug Discovery Systems
- Pharmaceutical Dispensing
- Robotic Laboratory Arms
- Chemical Analyzers
- Immunoassay Analyzers
- Bodily Fluid Analyzers
- Spectroscopy Analyzers
- Chromatography Analyzers
- Sample Processors
- Pathology Tissue Scanners
- Microscopes
- Liquid Dispensers
- Clinical Chemistry Analyzers
- Liquid-Handling Robots



For more information about lab automation applications, or to discuss how Nippon Pulse products could be integrated into your system, contact an applications engineer at 1-540-633-1677 or visit nipponpulse.com/lab-automation-market

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