

## Your Strategic Partner in the Fight Against COVID-19

**Component Supply and Contract Manufacturing for**

**ELISA-Based COVID-19 Antibody Test Devices – PoC Analyzers and Large-Scale Test Robots**



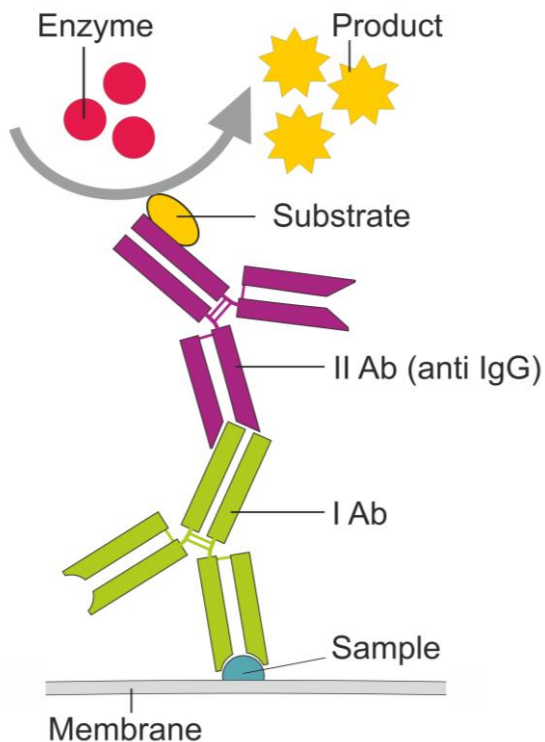
## Large-Scale ELISA Analyzers

The indirect ELISA test is a fast and cost-efficient way to test whether a human has already produced antibodies against COVID-19 and has thus already developed immunization.

These tests can provide valuable information about herd immunization of a population after conducting statistical tests within this population. The results can be used as an indicator for when and how in detail an exit from a shut-down situation in a country should be effectuated.

Large-scale ELISA testing requests automated microplate loading, processing and reading procedures. Typically an indirect ELISA method is used here, as a result either a change in colour or a chemo-luminescence of the processed substrate is used.

Precise and reliable xyz motion systems and motorized pipetting systems are key elements for systems carrying out these handling tasks.



ELISA Uses Antibodies and Enzyme to Identify a Substance

## Point-of-Care ELISA Analyzers

The rapid and low-cost testing of humans for COVID-19 antibodies is best done directly at the doctor's office or at the point-of-care.



Blood Samples for ELISA Testing

PoC ELISA analyzers typically work with cartridges hosting a microfluidic reaction process. This microfluidic system needs one or several engines to propel the liquid, either in form of sucking it inside, pumping it forward or mixing liquid components. For these tasks, PI offers piezo-based solid state elements such as piezo blocks, plates, benders or tubes with outstanding precision and reliability as well as almost no wear at all.

## Dosing and Motion Solutions from PI

From piezo actuators for microdosing to xyz motion solutions to contract manufacturing: PI offers various levels of cooperation.

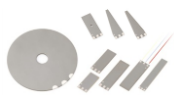
- Piezo actuators operate at frequencies of up to several kHz and are ideally suited for nanodispensing applications: They can switch valves directly, work against a closing spring or a flexible tube for volume displacement and propel liquids within a microfluidic reaction volume.



PICMA® Stack Multilayer Piezo Actuators



PICMA® Chip Actuators



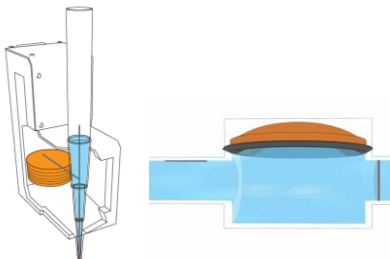
PICMA® Multilayer Bender Actuators



Piezoelectric Components

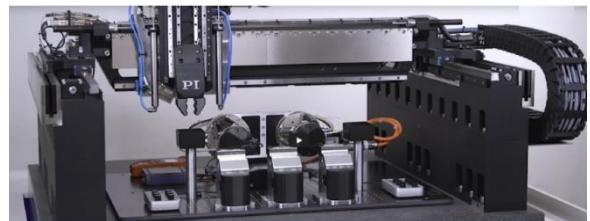


Miniaturized Piezo Components



Piezo Actuators and Components for Precise Dosing Applications

- Precise and reliable motion drives for your xyz robotic duties: Here we are offering a broad range of drive technologies and specifications: stepper and DC motor drives, magnetic drives (as 3-phase or voice coil), piezo ultrasound drives and several more.



Standard and Customized Drive Solutions

## Strategic Partner and Reliable Supplier

Talk to us about your challenges and we will lend you our helping hand:

- Use our reliable standard products, e.g. piezo elements in your motorized pipetting systems.
- Use our resources in development: Discuss your ideas for specific projects with us. We are experienced in partnering up with producers of world-renowned MedTech applications and supplying them with our (sub) systems and components.
- Use our in-house assembling competencies: We offer contract manufacturing in the form of 'build-to-print' for you. We are skilled in setting up efficient production chains very fast and can manufacture subsystems of testing robots if provided all materials and test instructions.



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