

# HELMED<sup>®</sup>

ADAPTS TO YOUR LAB NEEDS!



LOOKING FOR **IFA** AND **ELISA** AUTOMATION?

THE **WHOLE** IS MUCH MORE



THAN THE **SUM** OF ITS PARTS



### Color-coded troubleshooting

When a reagent or sample is missing or running low the backlight color will change to red indicating that user intervention is required.

Simultaneously the carousel will rotate, aligning the area where the incident occurred in front of the “dot light”, also now changed to red.

Additionally an audible alarm can be programmed.

### Speed, precision and accuracy guaranteed by a 3 probe robotic arm and 3 independently moving rings

3 low carbon stainless steel needles provide flexibility & high throughput with reduced protein absorbance & bubble/clot effects. The third retractable needle provides an independent reagent pipetting channel preventing cross contamination. Continuous level tracking is achieved using conductivity with minimal sample and reagent “dead volumes”. The minimum sample volume required vary between 50 µl (Eppendorf tubes) to 100 µl (primary tubes). The 3 movement independent rings carry the samples, reagents, calibrators and controls to the pipetting module. Therefore the robotic arm simply performs x-z movements which not only increase processing speed and efficiency but also minimize service and maintenance requirements.



### Revolutionary design where “form follows function”

The HELMED's compact architecture is intended to give the technician direct and easy access to all working areas. The main instrument parts are magnetically mounted, allowing for easy and fast replacement by technical service or by the operating technician. An optimal footprint (57cmx62cmx75cm) combined with the light weight (25 kg) makes it suitable for any lab space.

### Large and flexible reagent capacity

In the middle ring for EIA, 64 positions for calibrators and controls + 8 reagent bottles + 52 pre-dilution tubes. In the outer ring for IFA+EIA, several reagent racks can be combined, each with the capacity for 16 reagent bottles. AESKULISA® and AESKUSLIDES® reagent, calibrator and control vials fit directly into all positions.



### “Plug & play” modular racks for multi-format sample tubes, slides and reagents allow you to change your work configuration easily and quickly!

Since your daily sample volume and number of tests to be performed may never be the same you can decide to increase or decrease the number of sample and reagent racks you need to use for a particular moment. There are no fixed rack positions or complicated software and hardware adjustments to be made. The

dynamic software rack layout will automatically identify and display the configuration you have decided to use at run time. The maximum sample capacity with the standard sample racks is 150 for IFA (100 with barcode reading) and 192 for ELISA (120 with barcode reading). By using customized optional racks the sample capacity can be increased.

### Modularity makes it suitable for any lab size & budget

If your lab volume grows or you need dedicated instruments for IFA and ELISA up to 10 HELMED's can be connected (via bi-directional USB) to a single PC which can control and monitor all instruments running at the same time.



### Built-in multi-type barcode reader for samples, reagents and rack type detection and identification

Switching sample mistakes are unlikely to happen since the sample racks are labelled and the barcode reader detects the presence of a tube and reads it.

### Safe handling and secure results

The HELMED® green cover is automatically locked before the robot starts moving and protects your IFA & ELISA tests from ambient light. At the same time it maintains a constant temperature inside for reproducible results.



## IFA FEATURES



- Up to 20 slides and 4 different tests per run with 4 different substrates and conjugates per slide. Up to 4 different tests can run simultaneously with an optional reagent/control rack.
- Supports different slide thicknesses, various well formats, well pooling, free wash programming and multiple numbers of well rows within the same slide.
- Slide screening, titration, or both may be performed at run time with free titration ratio programmable from 1:1 to 1:25.600. 192 dilution positions are available. One step dilution ratios range from 1:1 to 1:160. Greater than 1:160 and up to 1:25.600 dilutions are performed in two steps.
- Complete automation of all IFA processing steps
- Time controlled counterstain & mounting medium addition (validated with the AESKUSLIDES® mounting medium).
- Flexible test protocol programming: single & composite steps can be used to optimize your fluorescence. The composite software programming allows the user to define a conjugate/counterstain addition immediately after a specific well is washed (not after the complete slide is washed) and a multi-step reagent addition in order to avoid the “faded conjugate” effect caused by some IFA processors.
- The total sample volume to be dispensed per well is automatically calculated and distributed in multiple points, thus providing optimal sample distribution in tissue sections and large format wells.

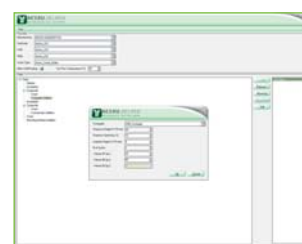
## ELISA FEATURES



- Up to 192 determinations, 8 different tests and 2 different wash solutions per run.
- Direct dilution from 1:1 up to 1:101 (including all AESKULISA® tests available). Dilutions from 1:102 to 1:25.600 done using predilution tubes.
- Individual well time management: the incubation time will always be the same for all wells. No plate drift effect since the clock start counting individually and immediately after each well is processed.
- The optimal accuracy and throughput achieved with the individual well timing and reagent management is possible due to the use of a 3 needle pipetting module. The two fixed needles wash the well and the third retractable needle immediately dispenses the following reagent in the test protocol.
- “THE ONE” AESKU concept, which includes one protocol, one buffer system, one substrate, one stop solution, one sample dilution and one color code for all AESKULISA® Kits, allows a maximum throughput with a minimum hands-on time.
- An ELISA loading wizard with step-by-step guidance will help you, making sample and reagent loading a fast and easy task.

## SOFTWARE FEATURES:

- User-friendly software interface makes the work-list setup possible within seconds.
- Intuitive easy to use slide & test designer that supports different slide thicknesses, different well formats, multiple substrates on the same slide, multiple sample dispensing points and multiple number of well rows within the same slide.
- Single and composite steps can be used to define a test protocol in order to yield the best possible results.
- The test protocol files include all information needed to run a test (slide definition, type of substrate, steps programmed, etc).
- The dynamic work-list layout shows you (prior to starting the run) the type and number of racks being used, the correct position and identification of samples and reagents, as well as the slides, plates and tests selected along with their corresponding positions.
- An online time management monitors and displays the steps being performed and gives you the time when you started the run, the time when the run will be finished, the remaining time to finish the run and the partial times for each step.
- Independent IFA & ELISA software can be managed by a single PC which can control and monitor up to 10 HELMED's running at the same time.
- Bi-directional LIS connection for ELISA and uni-directional LIS connection for IFA.
- Available in multiple languages.



- The AESKULISA® Automatic Line and the AESKUSLIDES® kits are validated and pre-programmed in the HELMED® software but the HELMED® is flexible and open to any reagent brand, special test protocols and for research proposes.
- The HELMED configuration tool is an easy way to set up and configure the instrument.



**The AESKU.READER is available for a quick and direct link with the HELMED.**

All of the raw OD data sent by the AESKU.READER is processed and managed by the HELMED's own ELISA data reduction software that includes the major calculation methods needed for your tests. The HELMED can also be connected to the main readers available in the marketplace. One single reader can be connected and used by up to 10 different HELMEDs.

## AESKU.DIAGNOSTICS

THE DIAGNOSTIC TOOL THAT WORKS.



AESKU DIAGNOSTICS has the largest product range available worldwide in innovative autoimmune diagnostic assays.

The AESKULISA® and AESKUSLIDES® product range offers more than 130 different ELISA and IFA tests, to give you the complete picture in the complex autoimmune diseases diagnostic. All products are 100% developed from the DNA to the kit, at AESKU DIAGNOSTICS in Germany (Wendelsheim).

The AESKULISA® product line offers a complete range of CE-marked and 510K cleared (check list of products at [www.aesku.us](http://www.aesku.us)) ELISA tests for the diagnosis of autoimmune diseases in the fields of:

- Rheumatology
- Thrombosis
- Vasculitis
- Gastroenterology
- Hepatology
- Thyroid autoimmunity
- Diabetes

The complete AESKULISA® and AESKUSLIDES® product range was especially designed for automation and is based on "THE ONE" Aesku concept where all tests share the same working protocol, sample dilution, incubation times, reagents and buffer system, cut-off and standard curves.

The AESKULISA® Automatic Line and the AESKUSLIDES® kits are validated and pre-programmed in the HELMED® software. Furthermore, all AESKULISA® and AESKUSLIDES® reagent, calibrator and control vials fit directly into the HELMED® reagent racks.



The AESKUSLIDES® product line provides you with a panel of cell and tissue slides featuring easy handling (ready to use reagents and controls), one test protocol for all tests, a pre-set pipetting protocol (for optional use), vacuum sealed slides and a very hydrophobic Teflon mask coated slide for minimal conjugate volumes and to avoid sample cross contamination.

KIT Code Nr.	Product	Determinations/Kit	Slides Code Nr.	Presentation
K 51.100	HEp - 2	120 tests 10 slides w/ 12 wells	S 51.100	12 wells
K 53.100	Crithidia lucilliae	100 tests 10 slides w/ 10 wells	S 53.100	10 wells
K 55.050	Rat Kidney/Stomach	50 tests 10 slides w/ 5 wells	S 55.050	5 wells
K 517.050	Rat Liver/Kidney/Stomach	50 tests 10 slides w/ 5 wells	S 517.050	5 wells
K 518.050	Mouse Liver/Kidney/Stomach	50 tests 10 slides w/ 5 wells	S 518.050	5 wells
K 512.050	EMA (endomy-sium)	50 tests 10 slides w/ 5 wells	S 512.050	5 wells

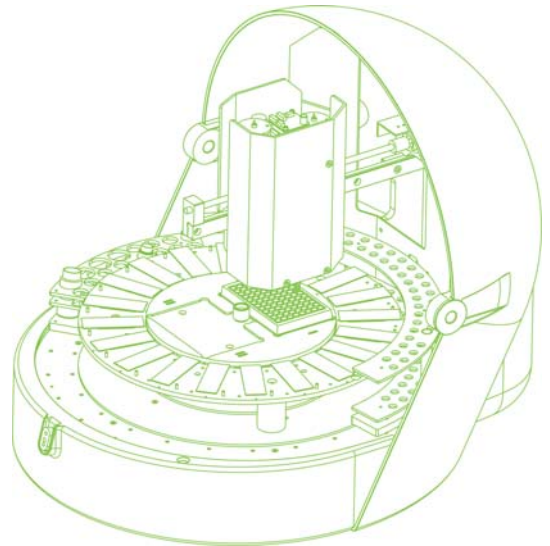
## AESKU.SYSTEMS

THE DIAGNOSTIC AUTOMATION COMPANY WITH (360°) VISION.



AESKU SYSTEMS is the instrument manufacturing company, (part of the AESKU group), responsible for the development and manufacturing of the HELMED® processor. The company's focus is to provide pioneering automation solutions for the IVD products coming from the research pipeline of AESKU DIAGNOSTICS.

A multidisciplinary team of engineers, chemists and laboratory technicians are responsible for compiling ideas and input from consultants, end-users, and the AESKU R&D teams; merging these ideas with the finest standards in automation & latest technologies, in order to develop instruments that fit the needs, reality and expectations of the clinical laboratory.



The HELMED® is the first outcome of this way of working; combining the best of both worlds: IFA and ELISA on the same platform and our IVD manufacturing expertise with our instrumentation know-how.

Ask us for more information ([sales@aesku.com](mailto:sales@aesku.com)) and check for yourself the processor that adapts to your laboratory needs.



# TECHNICAL SPECIFICATIONS

<b>Sample capacity:</b>	IFA With barcode: up to 100 Without barcode: up to 150
	EIA With barcode: up to 120 Without barcode: up to 192
<b>Sample identification:</b>	Built-in multi-type barcode reader for sample detection and identification
<b>IFA Slide capacity:</b>	Up to 20 slides
<b>IFA test capacity:</b>	Up to 4 different tests with 4 different substrates and 4 different conjugates per slide
<b>EIA MTP capacity:</b>	Up to 192 determinations (2x96 MTP)
<b>EIA test capacity:</b>	Up to 8 different tests
<b>Samples &amp; reagents support:</b>	Customized multi-format extractable racks
<b>Slide support:</b>	26.1 x 76.1 mm (25 mm and 26mm slide thickness within the same run)
<b>Standard sample rack tube size:</b>	75 mm to 100 mm / 13mm diameter tubes and eppendorf (2ml)
<b>IFA sample dilution capacity:</b>	<ul style="list-style-type: none"> <li>• Free titration ratio programmable from 1:1 to 1:25.600</li> <li>• One step dilution: 1:1 thru 1:160 using a MTP well</li> <li>• Two steps dilution: 1:161 thru 1:25.600 using MTP wells</li> </ul>
<b>EIA sample dilution capacity:</b>	<ul style="list-style-type: none"> <li>• One step dilution: 1:1 to 1:101 directly into the well</li> <li>• Two steps dilution: 1:102 to 1:25.600 using predilution tubes</li> </ul>
<b>Dilution fluid:</b>	User choice of wash solution or dedicated diluent solution in the carousel
<b>Positions available for IFA sample dilution:</b>	192 (performed in 2x96 MTP)
<b>Positions available for EIA sample dilution:</b>	52 (performed in predilution tubes)
<b>Pipetting station:</b>	<ul style="list-style-type: none"> <li>• 3 low carbon stainless steel needles. 2 fixed and one retractable</li> <li>• The 3rd retractable needle provides an independent reagent pipetting channel</li> <li>• One peristaltic pump for aspiration of fluids</li> <li>• One peristaltic pump for slide well and MTP well washing</li> <li>• One 50 µL syringe</li> <li>• One 1 mL syringe</li> </ul>
<b>Liquid detection:</b>	Continuous level tracking by Conductivity
<b>Precision:</b>	CV <3% @ 5 µL CV <1% @ 10 µL
<b>Minimum sample volume pick-up:</b>	1 µL
<b>Minimum sample volume required:</b>	50 µL
<b>Reagent dead volume:</b>	500 µL
<b>Reagents capacity:</b>	<ul style="list-style-type: none"> <li>• Modular racks with dynamic allocation of positions</li> <li>• IFA: several reagent rack can be combined in the outer ring, each of them with capacity for 16 reagent and controls bottles</li> <li>• EIA: Outer ring: several reagents rack can be combined in the, each of them with capacity for 16 reagent and controls bottles Middle ring: 64 positions for calibrators and controls + 8 reagent bottles + 52 pre-dilution tubes</li> </ul>
<b>Wash solutions:</b>	2 different wash solution containers available for IFA and EIA
<b>Wash type:</b>	Free slide and well wash programming
<b>Incubator:</b>	For slides and MTP programmable from RT to 50°C
<b>Software requirements:</b>	PC (not included) with 32 & 64 bits compatible processor. Runs on Windows Vista, 2000 & XP
<b>PC communication port:</b>	Bidirectional USB
<b>LIS link:</b>	<ul style="list-style-type: none"> <li>• Uni-directional (IFA) and bi-directional (ELISA)</li> <li>• Conforms to ASTM standards</li> <li>• Uploading of EIA sample IDs, test identification &amp; results</li> <li>• Downloading of IFA and EIA worklists (test &amp; dilutions selection)</li> </ul>
<b>Modularity:</b>	Up to 10 systems controlled by a single PC with independent EIA and IFA software
<b>Programming:</b>	User-friendly software interface including an intuitive easy to use slide § test designer that supports different slide thickness, different well formats, multiple substrates in the same slide, multiple sample dispensing points and multiple number of well rows within the same slide
<b>Certifications:</b>	CE mark and FDA cleared
<b>Power consumption:</b>	Without incubator: 50 Watt max. With incubator: 250 Watt max.
<b>Power supply:</b>	Input: 100-240 Volt, 50-60 Hz
<b>Technical service:</b>	<ul style="list-style-type: none"> <li>• Logical technical construction with easy direct frontal access</li> <li>• The main parts are magnetically mounted, which allows an easy and fast replacement</li> <li>• The robotic arm only performs x-z movements what minimizes technical service interventions and maintenance</li> <li>• The HELMED configuration tool is an easy way to set up and configurate the instrument via software</li> </ul>
<b>Dimensions:</b>	57cm x 62cm x 75cm
<b>Instrument weight:</b>	25 kg

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