Azer Scientific

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# AIPLAK

## *REAL-TIME* DIGITAL MICROBIOLOGY

The AIPLAK revolutionizes laboratory workflows by integrating advanced incubation with a fully digitized workflow and automated sample sorting. It can be further enhanced with additional AI algorithms to automatically segregate samples and/ or trigger alerts when growth is detected.

**Its compact modular design, independent incubation chambers, and *dual-image capture* system optimize workflow management by prioritizing samples based on criticality.**

# Processes
*Covered*

## Automated Incubation

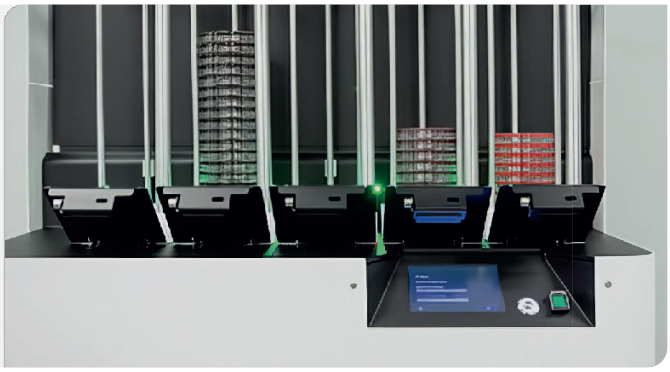
AIPLAK offers modular, efficient, and accurate incubation through a dual-chamber incubation system. These chambers are fully customizable to align with laboratory protocols, enhancing flexibility and precision in the incubation process.

## Digital Microbiology

A specialized desktop application ensures efficient data management error reduction, and full workflow digitization. Designed to meet various laboratory needs, it digitally tracks and identifies samples, enhancing efficiency by eliminating physical contact and optimizing processes.

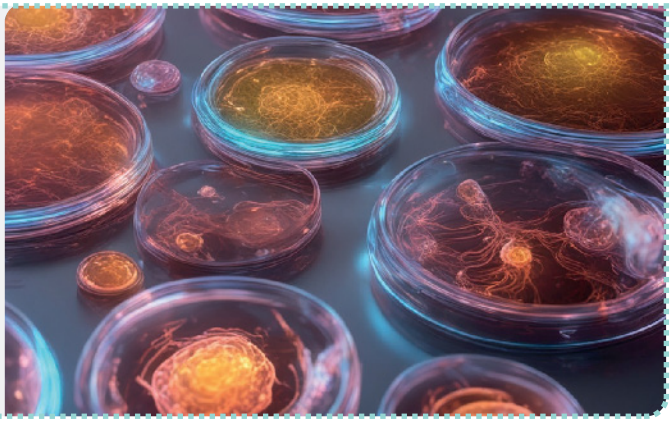
## Sample Output Sorting

After technicians complete the analysis through the user interface, samples are either discarded into the waste bin or sorted into output carousels. The sorting order can be configured by the laboratory through the system settings. This arrangement facilitates the transfer of samples to subsequent interpretation processes.



## AI Modules

Incorporate various artificial intelligence modules into your laboratory operations to free technicians to focus on higher-value tasks. Sener's AI Modules platform provides algorithms tailored to your consumables and workflow, including continuous growth monitoring, alarm generation, growth classification, among others.



# 6 reasons for *choosing AIPLAK*

Understanding the need for innovative solutions that make tasks easier and more efficient, AIPLAK is designed to support smooth operations, minimize disruptions, and help laboratories maintain reliable and consistent results while improving overall workflow.

## Smart Incubation

AIPLAK provides high-quality and customizable incubation with precise temperature and environmental control, ensuring optimal conditions for samples.

## Compact Design

AIPLAK is the most compact system, requiring minimal space in the laboratory, as it does not require perimeter clearance around the entire instrument.

## Modularity and Flexibility

Connected to AUTOPLAK or used as a standalone system, two independent incubation chambers and dual imaging systems designed to support different laboratory needs and workflows, with optional features to enhance functionality.

## Digital Microbiology

Complete digitization of sample readings during and after incubation to support laboratory decision-making, with the option to complement the system with additional AI algorithms for advisory support.

## Dual-protocol Algorithms

AIPLAK is scalable with numerous algorithms, enabling sample management using time-based and growth-based protocols, thanks to its continuous growth monitoring system.

## Quick to Install and Ergonomic

AIPLAK can be installed quickly without disrupting laboratory workflows and is optimized for ergonomic use.

# Detailed
## *Workflow*

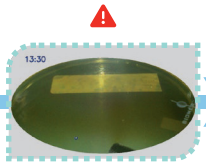
AIPLAK provides a fully integrated solution for the entire microbiology workflow. From incubation to digitization and sample management, it automates key processes to reduce manual handling and streamline laboratory operations. Whether operating as a standalone unit or connected to AUTOPLAK, AIPLAK ensures samples are efficiently incubated, imaged, sorted, and prepared for subsequent analysis. The system can also be enhanced with advanced AI algorithms, supporting intelligent decision-making, and optimizing productivity throughout the workflow.

**Automatic loading from AUTOPLAK**

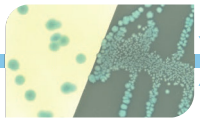
**Identification through barcode scanning & LIS connection**

**Manual loading through I/O stacks**

**Automatic loading into Chamber 1 or 2 accordingly. Incubation starts**



**Growth alarm generation with continuous monitoring**



**Sample images are captured according to time-based protocols and digitized**

**Sample screening through the user interface**

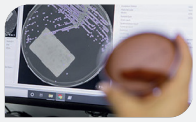
All plate images are made available for user review

**Sample Decision Process — Technician Analysis Through the User Interface (AI Modules optional available)**

**Next steps definition and stack in I/O**

Zoom in, zoom out, change lighting parameters, tag colonies and define sample next steps

OR



**Remove for technical inspection**

Remove sample for manual inspection

OR

**Keep in incubator**

Keep samples in the incubator when required. Plates are automatically reloaded and managed accordingly

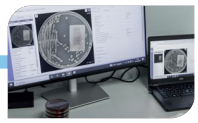
OR

**Discard**

Discard negative samples or those deemed unnecessary

AI Modules optional

**Reporting and LIS connection**

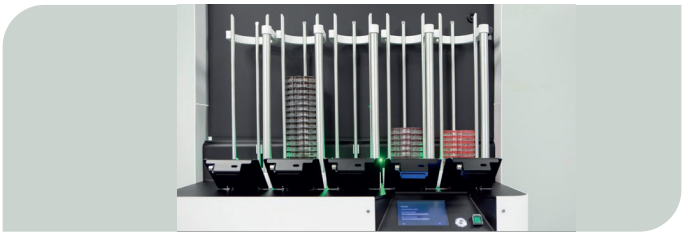


**Next-step work-flows are defined**

The work-up interface displays the corresponding tasks

# Advanced
## *Features*

### Stacks for Loading/Unloading



AIPLAK features five configurable stations for manual input or sample output after incubation. With a total capacity of 150 samples (30 per station), the system allows for flexible sample output configuration to streamline workflows.

### Digital Microbiology

AIPLAK digitizes the incubation and reading of samples through a reliable and standardized process, ensuring precise control of conditions, consistent results, and full traceability throughout the analysis process, reducing manual handling and potential human errors.

### High-Quality Imaging System

AIPLAK's main imaging system delivers high-quality images to assist the laboratory in making informed decisions, with the ability to detail colonies, perform image zooming, and analyze features with precision.

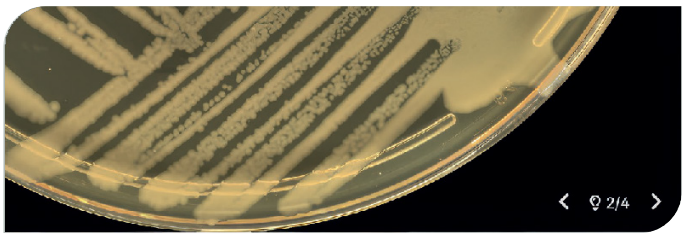
### Double Incubation Chambers

AIPLAK features two independent and configurable $CO_2/O_2$ incubation chambers, offering the laboratory flexibility to integrate different types of protocols within the same automation line.

### Discard Workflow

AIPLAK features a simple and intuitive sample disposal system, allowing technicians to easily remove and discard samples once the analysis process has been completed, ensuring efficiency, safety, and smooth laboratory workflow.

### Different Lighting Settings



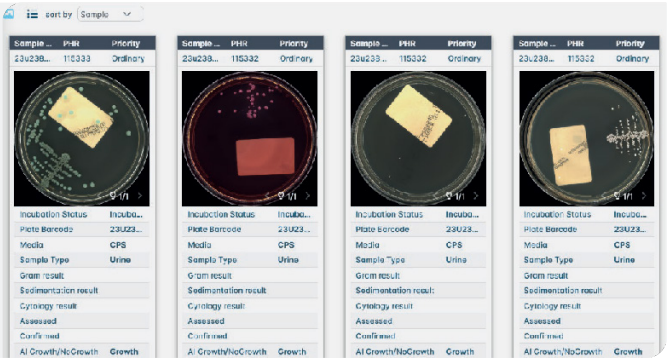

AIPLAK uses adjustable lighting configurations, enhancing sample visibility and contrast under different conditions, which improves accuracy in microbiological analysis.

# Digital
## *Microbiology*

This specialized desktop application ensures efficient data management and full digitization of laboratory workflows. It enables digital identification, tracking, and management of samples to reduce human error and eliminate manual records. By automating processes, the system improves accuracy, productivity, traceability, and overall operational efficiency.

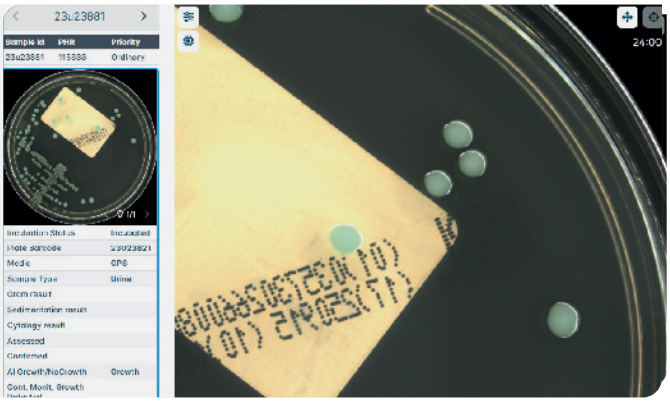
### User Friendly Web App Interface

The user-friendly interface is designed for easy and intuitive navigation for all available features. It supports multiple users and profiles, providing personalized access and functionality according to each role.



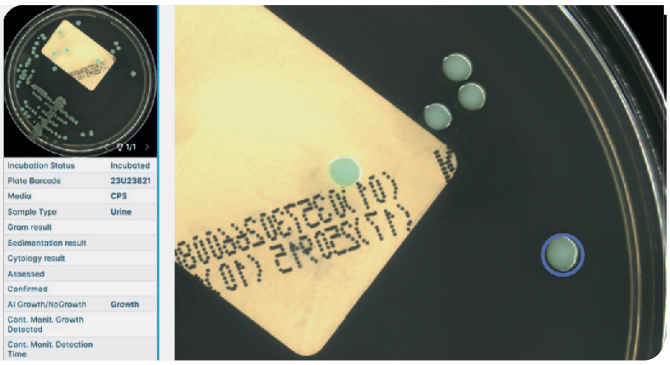
### Zoom In/Out with Different Lighting Settings

Users can zoom in and out effortlessly while observing samples under different lighting conditions. This provides enhanced visualization and flexibility, enabling detailed inspection from multiple perspectives so users can gain a clearer and more comprehensive view.

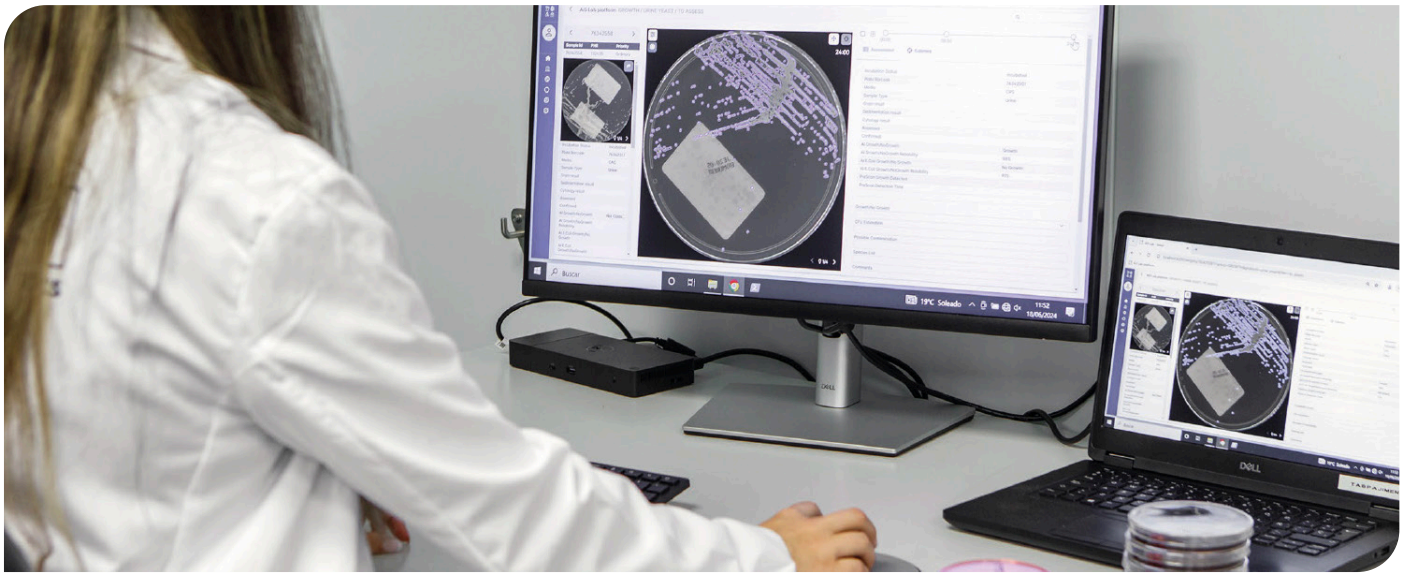


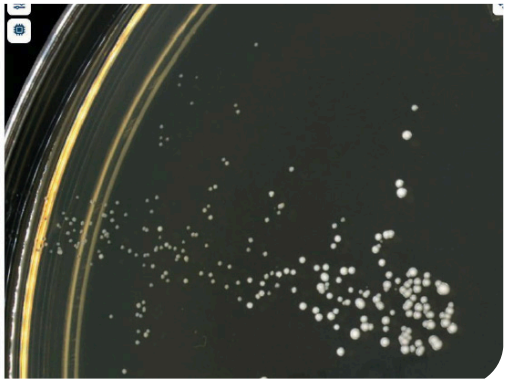
### Tag and Define Work-up Processes

Users can easily tag and define work-up processes, enabling clear identification and organization of each step. Assign labels, categorize procedures, and configure parameters according to specific protocols to ensure accurate tracking and a simplified workflow management.



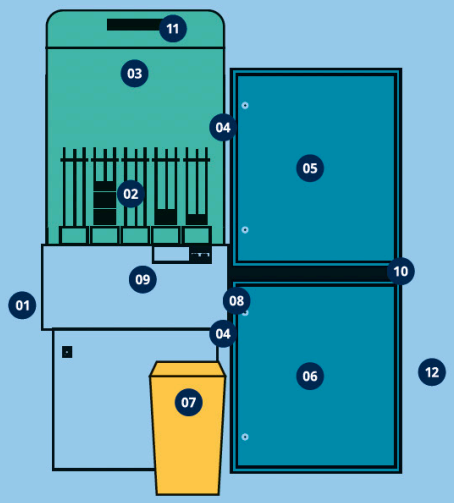
# Physical Design and
## *System Components*





### Physical

| | |
|---|---|
| 01 | Connection to AUTOPLAK (optional) |
| 02 | Input / Output stacks |
| 03 | Main imaging system |
| 04 | Continuous monitoring imaging system |
| 05 | Upper incubation chamber |
| 06 | Lower incubation chamber |
| 07 | Rejection area |
| 08 | Individual sample unloading dock |
| 09 | Instrument technical user interface |
| 10 | Sample transfer line (for future variants) |
| 11 | Light status |
| 12 | External user interface station |



# General
## *Specifications*

| | |
|---|---|
| **Dimensions (D x W x H):** | 100 x 170 x 225 cm |
| **Weight:** | ~900 kg |
| **Front Clearance Only:** | 80 cm |
| **Electrical Power:** | 220 - 240V Single Phase AC, 2000 W max, 50/60 Hz, 10A for 200 - 240 VAC operation |
| **IP CEI 60529 Degree of Protection: (For indoor use only)** | IP 20 |
| **Noise Level:** | LpA <65 dB (A) |
| **Average and Peak Power:** | 2000 VA / 2400 VA |
| **Power Plug:** | IEC C14 plug |
| **Temperature (operating):** | 18° to 27°C |
| **Temperature (storage):** | 0° to 40°C |
| **Relative Humidity:** | 25% to 75% (without condensation) |
| **HEPA:** | HEPA-filtered area |
| **Degree of Pollution:** | II |
| **Maximum Operating Altitude:** | 1500 m |
| **Installation Category:** | II |
| **Operator Interface:** | 5" local touch screen, and web-based HMI accessible from any PC connected to the network |
| **Interface LIS Interface:** | Available upon request |
| **Network:** | Ethernet 10/100/1000 MB |
| **Operating System:** | W10 |
| **Capacity of Plates Upper Chamber:** | 420 plates |
| **Capacity of Plates Lower Chamber:** | 420 plates |
| **Total Capacity:** | 840 plates |
| **Total Capacity Visible for Continuous Monitoring:** | 312 + 312 plates |
| **Processing Capacity (Average per hour)** | See image system specifications |

# Functional
## *Specifications*

### Media Plate Specifications*

| | |
|---|---|
| **Base Diameter:** | 87 mm <D <88 mm |
| **Cover Diameter:** | (d + 2 mm) <D <(d + 5.5 mm), subject to the following condition: (91 <D <92) |
| **Plate Height:** | 14 mm <H <15.2 mm |
| **Cover Height:** | 6 mm <H <8 mm |

### Incubation Specifications

| | |
|---|---|
| **Two-Chamber Variant Capacity:** | 840 plates |
| **Atmosphere:** | Each chamber is configurable: O2 or CO2 |
| **Temperature Range:** | 30° to 40°C |
| **Accuracy:** | +/- 1°C |
| **Heat Production:** | 600 watts heaters on each chamber |
| **Connection up to 4-incubators:** | (new variant) |

### Main Image System Specifications

| | |
|---|---|
| **Camera:** | 20 MP |
| **Processing Capacity:** | 180 plates per hour |
| **Light Sources:** | Four independently configurable light sources, 3 front lights and one rear light |
| **Backgrounds:** | Black and illuminated background |

### Continuous Monitoring Image System Specifications

| | |
|---|---|
| **Camera:** | 5 MP |
| **Processing Capacity:** | 1600 plates per hour |

### User Interface Specifications

| | |
|---|---|
| **UI:** | Web based HMI accessible from any PC connected to the network, recommended 27" screen monitor |

### Plates Barcode Specifications

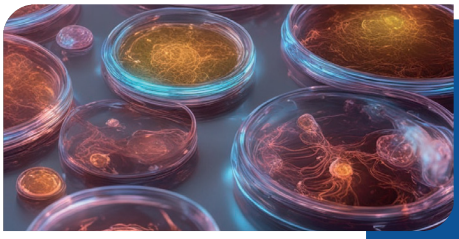
| | |
|---|---|
| **Default Barcode:** | Bottom-printed by AUTOPLAK |
| **Other Standards:** | At request |

*Same as AUTOPLAK

# Enhance with
## *AI Modules*

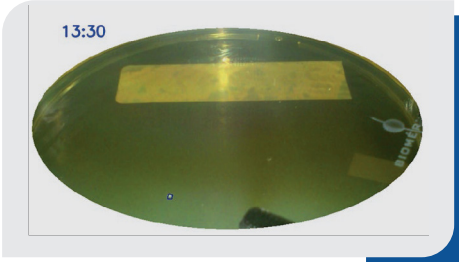
AIPLAK can be optimized by integrating a set of algorithms designed to improve efficiency and accelerate the diagnostic process for laboratory technicians. These algorithms operate across both imaging systems, allowing samples to be classified according to the presence or absence of microbial growth, while also monitoring microbial growth in real time with alerts once detected.

### Urine Segregation Module



**AI-based algorithm designed to classify urine samples based on microbial growth distinguishes between samples with bacterial growth and those without.**

### Growth Alarm Generation

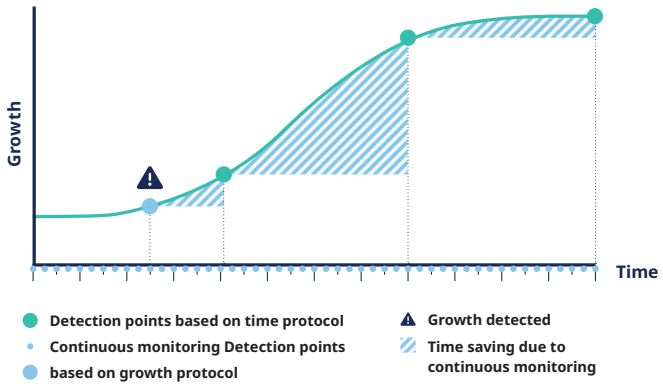



**With its advanced secondary imaging system, AIPLAK enables real-time growth monitoring, generating alerts, and accelerating sample diagnostics. This feature significantly shortens incubation times by providing continuous, detailed sample data, allowing for faster technical interpretation.**

### Dual Growth/Time Protocol

AIPLAK system is the only system on the market equipped with two complementary imaging systems. First, a continuous monitoring system allows uninterrupted monitoring of sample growth, capable of generating alerts as soon as growth is detected in the sample. The second system captures the overhead image, digitizing the sample, and executing artificial intelligence algorithms to assess the characteristics of that growth.

This advanced platform combines time-based and growth-based management protocols, providing the laboratory with a unique tool to address emergency Situations. This efficiently optimizes workflow processes and improves laboratory efficiency for accelerated results.



# AIPLAK as part of our *complete solution*, Ai5 Lab

**Discover how to enhance microbiology lab workflows:**

Learn More

# We have your workflow covered.

**From sample collection to identification, Azer Scientific supports the microbiology workflow with reliable, high-quality solutions, including:**

- **Specimen collection and transport** | Swabs, transport media, and containers designed to preserve sample integrity from collection through processing
- **Culture media, reagents, and stains** | Solutions to support accurate microbial growth, isolation, and differentiation
- **Automated plating with AUTOPLAK™** | Streamline sample processing with automated streaking and plating to improve consistency, reduce hands-on time, and increase throughput
- **Inoculation and laboratory essentials** | Tools and consumables that enable consistent, contamination-free sample handling
- **Identification and workflow efficiency** | Stains, test kits, and labeling solutions that improve accuracy, traceability, and turnaround time

## Private Labeling Made Easy

Azer Scientific can customize your specimen collection kits to ensure your lab's collection is streamlined. From custom labels and packaging to specific kit components, we're here to meet your needs.

## *Why Choose Azer Scientific?*

Azer Scientific strives to continue pushing the boundaries of the ever-evolving world of microbiology by offering solutions fueled by innovation. We specialize in producing products designed to make every experiment/study/diagnosis faster and more efficient. As an ISO-certified manufacturer with an ever-expanding inventory, our aim is to cater to the unique needs of every customer by providing them with superior products at an exceptional value.

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