

# Analytik Jena

## Product Overview Life Science



# We Support You Through the Complete Process of Lab Work

We focus on products that guarantee high quality and reproducibility of your daily laboratory results.

## Homogenization

- SpeedMill PLUS
- Kits and Lysis Tubes for Homogenizers

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## PCR, Detection, and Accessories

- UVP PCR Cabinets and Workstations
- Thermal Cycler and Real-Time Thermal Cycler
  - Biometra Thermal Cyclers
  - qTOWER<sup>3</sup> Product Family

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## Manual and Automated Nucleic Acid Isolation

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- Shakers and Thermal Block
- Magnetic Particle Based Separation
- SmartExtraction
- InnuPure C16 *touch*
- Enabling Technologies

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### Reagents and Accessories

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- Optimized Reagents
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## Electrophoresis and BioImaging

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- Easy-to-Use Imaging Systems

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## UV/Vis Spectrophotometry

- ScanDrop<sup>2</sup>

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## Liquid Handling and Lab Automation

- Entry level: CyBio SELMA
- Stay flexible: Benchtop liquid handling and lab bench automation
- Production approach: Fully automated and modular lab automation

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## Biotechnological Competence by Analytik Jena

Life Science is all about understanding the structures and behavior of living organisms. For Analytik Jena, it is also about understanding the needs of researchers all around the world – and coming up with innovative solutions for a rapidly growing market.

The Life Science product area showcases Analytik Jena's biotechnological competence. The company offers its customers one-stop shopping for all the instruments and consumables they need to obtain fast and reliable results from a sample. The product portfolio encompasses over 500 reagents and kits for all sorts of experiments, including nucleic acid isolation, PCR, and pathogen analyses.

Its more than 150 patents are testament to the company's innovative potential – the novel DC-Technology for efficient nucleic acid isolation being just one example.

### **Bundling expertise under one roof**

Analytik Jena is dedicated to providing its customers with powerful systems throughout every phase of analysis. Its range of products includes DNA isolation, robotics, standard and real-time PCR instruments, a variety of detection methods, and molecular assays for testings in the food and water sector. For those special requirements, we offer customized solutions, or we adapt our products exactly to your needs. A number of instruments are defining new standards in their fields and are enjoying considerable prestige among users worldwide.

## Product Overview

The Life Science portfolio of Analytik Jena includes a wide range of products for automated and overall solutions for molecular biology.

### Sample preparation

- Innovative solutions for manual and automated nucleic acid extraction
- Patented chemistry and unique technologies
- Powerful thermal shaking and homogenization
- Nano-volume spectral photometer

### Liquid handling and easy PCR setup

- Clean environment for optimal PCR and qPCR preparation
- Flexible pipetting robots meet the need of each individual application
- Perfect solutions from low to high throughput

### Reliable detection

- More than 30 years experience in PCR thermal cycling
- Patented real-time PCR technology with 10 years long-term warranty
- Modern gel documentation and chemiluminescence
- Full product range with well aligned reagents

Starting Material



Homogenizing

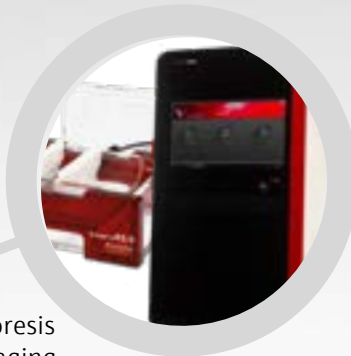


## All From One Hand

Biotechnological competence by Analytik Jena

Our products are designed to offer highest quality and reliability of laboratory results. They simplify daily work and speed up time-to-result processes.

Electrophoresis and Bioluminescence



Real-time PCR and Target-specific Assays



PCR Devices, Reagents and Consumables



Liquid Handling and Lab Automation



UV/Vis Spectrophotometry



Manual or Automated Nucleic Acid Isolation



# Powerful and Highly Efficient Homogenizer

## SpeedMill PLUS



The SpeedMill PLUS is the perfect homogenizer for a wide variety of starting materials. Through a patented process, this homogenizer avoids the substantial sample warming that occurs with other homogenizers, allowing the instrument to be operated continuously. The SpeedMill PLUS uses an unique sample holder for efficient sample cooling at different temperatures, which are freely selectable due to the storage down to as low as  $-80^{\circ}\text{C}$ . This makes handling of liquid nitrogen or dry ice a thing of the past.

Additionally SpeedMill PLUS convinces by its intuitive handling based on modern touch sensors and the extra-large display. Users can program and save linear or cyclic protocols. SpeedMill PLUS is a small, smart tabletop device for fast preparation of up to 20 samples simultaneously.

- Complete and reproducible homogenization
- Efficient sample cooling during the whole preparation
- Touch control panel and large display provide considerable operating convenience
- Pre-programmed protocols or user-defined programming with freely selectable parameters
- Compact construction and comparatively quiet operation
- Easy and continuous operation
- Flexible system, thanks to the wide product range of Lysis Tubes

### Lysis Tubes for Homogenizers

All innuSPEED Lysis Tubes have been optimized to process samples using homogenizers (e.g., SpeedMill PLUS). This means the tubes are designed to allow for the extremely rapid, efficient mechanical disruption of a range of starting materials (e.g., plants, tissues, cells, fungal spores, and yeast). These Lysis Tubes are all 0.5 or 2.0 mL vessels with a screwed cap. They include beads, which are available in different sizes, grades of hardness and materials. Generally, it is essential the smaller the sample, the smaller the bead should be.

- Optimal for mechanical disruption of different types of starting materials
- Flexible Lysis Tubes due to variable material and size of beads (e.g., glass, ceramic, circonia, steel...)
- Fast and efficient preparation of resistant samples for isolation of nucleic acids or proteins
- Ideal for use with the SpeedMill PLUS or other commercially available homogenizers



innuSPEED Lysis Tubes

## Thermal Mixers

### Biometra TS1 and Biometra TSC



Biometra TSC ThermoShaker and Biometra TS1 ThermoShaker

Thermal mixers belong to the basic equipment of most laboratories. Established thermal mixers are models TS1 (heating up 100 °C) and TSC (as TS1 plus cooling till ambient minus 15 °C). They can be used as pure shaker, as dry-block thermostat and as thermal shaker. They ensure reliable incubation parameters with a stable temperature maintenance over the complete sample block. The set mixing speed is quickly reached.

- Compact devices for incubation, shaking and cooling of samples
- Fast shaking and effective mixing of samples up to 1,400 rpm
- For unskirted or semi-skirted PCR plates, and 0.2 mL/ 0.5 mL/1.5 mL/2.0 mL tubes
- LCD display shows the set and actual temperature, speed and time.
- Quiet, smooth running conditions without vibration and noise combined with a small footprint

## Enrichment

### Enabling Technologies

The enrichment product line features a number of fascinating, unique technologies that make new fields of application possible. Intelligent, easy-to-use kits offer convenient handling with minimum time expenditure and ideal performance. Enrichment routines are especially designed for low concentrated nucleic acids and offer best yields.

#### PME – Polymer Mediated Enrichment

Targeting free-circulating DNA or DNA in a food quality control situation (e.g., halal and vegan testing) are challenging tasks requiring innovative technology. New approaches for enriching nucleic acids are needed when it comes down to ensure reliable downstream results. Polymer Mediated Enrichment (PME) quickly and efficiently captures nucleic acids in a large volume of up to 10 mL of starting material. The polymer/DNA complex is then collected through centrifugation and DNA is isolated using either spin filters or magnetic particles, depending on if the setup is manual or automated.



- Enrichment and extraction of free-circulating DNA or small amounts of DNA, e.g. for vegan testing
- Working with up to 10 mL of starting material
- Using a very easy-to-handle and time-saving procedure, approx. 30 min

## It's the Chemistry

# DC-Technology for Efficient Nucleic Acid Isolation

### Faster. More efficient. Better.

With its patented Dual-Chemistry-(DC-) Technology, Analytik Jena offers a novel platform for isolation and purification of nucleic acids. This makes kits from Analytik Jena stand out from competitors' products in a key way – they've just got better chemistry!

At the heart of DC-Technology is the ability to bind DNA extremely efficiently to a solid phase without needing a high salt concentration. Instead, the technology uses a combination of chaotropic and non-chaotropic salts with low ionic strength. This enables the development of optimized lysis and new binding buffers.

Nothing will change for users when it comes to hardware and work organization. The routines stay the same while the quality and quantity of isolated nucleic acids are optimized.

Analytik Jena offers a wide range of purification and isolation kits for nucleic acids that covers most starting materials. The isolation procedures efficiently bind nucleic acids to mini spin filters or to magnetic particles, as well as to unique Smart Modified Surfaces. All methods have been optimized for a number of various starting materials with different amounts or volumes. After the elution of DNA and/or RNA, you'll have the ideal basis for further downstream applications.

- Genomic and plasmid DNA
- Total and micro RNA
- Viral and bacterial nucleic acids
- Free circulating DNA
- Cleanup products for PCR reactions and agarose gels
- Forensic applications
- Custom-made products

## Kits for Automated Nucleic Acid Isolation

# Magnetic Particle Based Separation

Analytik Jena offers a variety of different nucleic acid extraction kits for the InnuPure C16 *touch*, CyBio FeliX and the King Fisher devices. These kits guarantee excellent results with high purity and yield thanks to the tried-and-true method of separation nucleic acids by binding them to magnetic particles. This ensures a final product that is free of proteins, nucleases or other contaminants and can be used immediately for subsequent applications.

All instruments save time, increase reproducibility and sample throughput significantly and require only the absolute minimum of manual interventions. The automated extraction systems operate all pipetting and mixing steps, including those that take place during the routine.

- Optimized for magnetic particle based isolation of nucleic acids
- All necessary reagents and plasticware included
- Minimal hands-on time





# We Change the Way to Prep

## SmartExtraction



SmartExtraction simplifies and speeds up the entire nucleic acid isolation workflow while partaking in the trend of process automation. In order to maximize users' choices when it comes to selecting the best tool to meet their needs, the SmartExtraction concept is not tied to any single platform. It can be used on the Analytik Jena pipetting systems (InnuPure C16 *touch*, CyBio FeliX). It can also be adapted to any liquid handling system (that has 1 mL pipetting heads).

The unique SmartExtraction technology does not only achieve excellent results on automated platforms. It also simplifies the manual extraction of genomic DNA from various starting materials – requiring less equipment than needed for conventional solutions. SmartExtraction is superior to other technologies in terms of yield, DNA quality and efficiency criteria, as well. In many applications, the technology achieves the following:

- Optimal yields of high-molecular weight DNA
- Enormous reduction in preparation time
- Easy adaptation to 1 mL liquid handling platforms

This is more than optimization. It's a quantum leap.

- No** phenol/chloroform
- No** ion exchanger
- No** silica material and/or spin filter columns
- No** silica or magnetic particle suspensions



# The New Standard in Automated Extraction

## InnuPure C16 *touch*

InnuPure C16 *touch*

Intelligent kit architecture

InnuPure C16 *touch* combines highly precise liquid handling with automated extraction. Thanks to its walk-away principle, all you have to do is load the samples. After initial start-up, the entire process is fully automated. Ready-to-use Reagent Strips and/or Plates make pipetting errors a thing of the past, while 1 mL pipette tips with aerosol filters prevent contamination of the dispensing unit and samples. Economic non-filled Kits for manual prefilling are available, too.

The nucleic acids to be isolated are adsorbed onto magnetic particles whose surfaces have been specially adapted for this purpose. Additionally, the InnuPure system can be used with Analytik Jena's novel SmartExtraction technology, which is based on Smart Modified Surfaces. The extraction chemistry has been optimized for these applications, allowing users to isolate high yields of extremely pure nucleic acids.

- Fully automated nucleic acid extraction processes
- Working in combination with magnetic particle separation and unique Smart Modified Surfaces (SmartExtraction)
- Flexible for varying starting materials and volumes
- Featuring preprogrammed extraction protocols
- Automatic transfer of eluates into separate tubes
- Ensuring reliability and efficiency without cross-contamination
- Optional UV lamp for easy decontamination
- Compact design that fits any lab bench
- Ready-to-use purification kits for easy handling
- Extraction of high quality nucleic acids
- Prefilled, sealed reagent plastic requiring minimum hands-on time
- Adjustable elution volumes

### InnuPure C16 *touch*

Tip volume	Up to 1000 µL
Number of samples	Up to 16 samples simultaneously and single sample handling
Reagents	<ul style="list-style-type: none"> <li>▪ Prefilled Reagent Plates or Strips</li> <li>▪ Pierced by using a piercing tool</li> <li>▪ Non-filled kits for manual prefilling</li> </ul>
Plastic transfer	Sample tray is moved automatically
Device operation	Easy and convenient to use, thanks to 10" tablet PC (Windows 10 IoT)
Optional function/accessories	<ul style="list-style-type: none"> <li>▪ UV lamp for decontamination between runs</li> <li>▪ 2D Bar code reader for comfortable data feed</li> </ul>

# Maximum Flexibility in UV/Vis Spectrophotometry

## ScanDrop<sup>2</sup>

The ScanDrop<sup>2</sup> raises the bar when it comes to design and user friendliness. Thanks to its long-life xenon lamp the system is ready to go, just switch on and measure. Analytik Jena offers a number of measurement adapters to supplement the built-in test position for 10 mm cuvettes: the CHIPCUVETTE adapter accommodates the patented CHIPCUVETTE with 16 channels for measurement at up to 32 positions, the 8-position cuvette adapter which holds up to 8 standard 10 mm cuvettes, and the Butterfly Cuvette which allows for testing 9 samples with no consumable needed. This selection provides a solution for a wide range of measurement needs. The ability to record the entire spectrum from 190 nm to 1000 nm in only a few seconds makes the system the ideal choice for UV/Vis applications, particularly for protein and nucleic acid determinations.



ScanDrop<sup>2</sup>

- Easy handling – just pipette the sample and measure
- Optimal access thanks to the rotating mechanism, never blocking the 10" tablet PC
- Supporting interchangeable adapters that prevent contact between samples and the optical system
- Including a 2D scanning area adaptable to different center heights
- Ensuring highly precise measurements with or without consumables
- Applying the walk-away principle to everything from individual to simple series of samples
- Featuring stand-alone operation from an integrated 10" tablet and/or PC



Standard Cuvette Adapter, CHIPCUVETTE Adapter, and Butterfly Cuvette



# Reliable Semi-Automated Pipetting Routines

## CyBio SELMA



CyBio SELMA 96 and 384



CyBio SELMA consists of 96 or 384 pipetting channels which enable a safe and error-free transfer

### Your personal pipetting assistant

CyBio SELMA is a semi-automatic electronic pipettor with minimal required space for fast and precise processing of 96- and 384-well microplates without the need for programming. CyBio SELMA is amazingly easy to operate via touchscreen. All manual operating tasks such as tip change and plate change are shown on the display. Microplates of varying heights and well dimensions can be handled easily by CyBio SELMA – a simple dial adjusts pipetting head position. Any adjustments such as dispense height, volume, and pipetting speed are saved, retrievable, and changeable for regular use anytime.

### Simplify your pipetting tasks

- Easy and intuitive handling via touchscreen, without the need for programming
- Simple saving and loading of pipetting protocols

### Save your valuable lab space

- Small footprint to fit on any lab bench and into most laminar flow hoods

### Accelerate your pipetting performance

- Fast and precise processing of 96- and 384-well microplates
- Easy and fast tip changing with ready to use CyBio TipTrays

### Trust your results

- Error-free and reproducible results due to 96 or 384 parallel pistons and proven "tip Sealing" technology

# Benchtop Liquid Handling and Benchtop Workstations

Transform your manual workflows to automated processes on your benchtop.

## Future-Proof Liquid Handling Automation

### CyBio FeliX

CyBio FeliX is a liquid handling platform with 1–384 channels in a volume range of 1  $\mu\text{L}$  up to 1000  $\mu\text{L}$ . The CyBio FeliX meets the market demand for advanced, medium-to high-throughput robotics within the liquid handling community. The high-precision parallel transfer in 96 or 384 well format is complemented by pipetting in single wells, as well as pipetting into columns and rows. CyBio FeliX offers maximum flexibility with minimal space requirements through a unique deck design with twelve positions on two levels. Despite its compact design, CyBio FeliX provides sufficient space for microplates, tubes, shaker, magnet adapter and gripper. The modular concept of CyBio FeliX enables customized configurations for a wide variety of applications and can be adapted at any time to suit changing requirements.

#### Liberate yourself from work intense manual pipetting

- Fully automated pipetting in different formats
- Integrated tool and tip exchange
- Processing of whole microplates, columns, rows and single wells
- Extend your experimental possibilities
- Numerous applications: Plate replication, serial dilution, preparation of reaction set-ups for qPCR and PCR, Next Generation Sequencing and ELISA

#### Use your lab space smartly

- Ultra compact design fitting on standard lab bench
- Embrace new discoveries
- The modular concept enables customized configurations
- CyBio FeliX can be adapted at any time to changing requirements



Fully Automated Systems (3)

Benchtop Workstations\* (1)



CyBio FeliX

\*In the EU an additional enclosure might be necessary.

# For Your Individual Systems and Closed Applications

Whether you need small-scale benchtop integration or a multi-assay system completely enclosed in an air-conditioned biosafety cabinet, Analytik Jena helps to maximize your productivity at every level.



## qPCR (1)

The fully automated qPCR system is based on the high performance qTOWER<sup>3</sup> auto real-time PCR cycler and includes enhanced sample preparation. It applies a smart robotic integration and allows for an ultracompact design fitting on a standard lab bench.

## MALDI-TOF (2)

Accelerated and advanced sample preparation to accomplish the demands of the new standard for ultra-HTS "Hit" Identification on Bruker's rapifleX MALDI PharmaPulse. The automated system covers the whole process from matrix and sample transfer to the MS reader, including features such as "On target washing" – desalting or active drying. Combining the speed, homogeneity and high density of Analytik Jena's unique 1536 channel pipettor technology with Bruker's rapifleX MALDI PharmaPulse delivers unprecedented screening capability for HTS biochemical assays.

## SynBio (3)

Based on broad experiences in academic and industrial laboratory automation for synthetic biology, Analytik Jena provides solutions for specific topics such as automated characterization platforms as well as fully integrated systems. The combination of Analytik Jena's liquid handling technology with state-of-the-art robot arms, flexible docking solutions for exchangeable instrumentation, optionally sterility enclosures and powerful software packages including the integration of the latest scientific instrumentation, allows for future proof integrated solutions.

# Fully Automated and Modular Lab Automation

Raise your throughput and stay flexible!

## Flexibility and Precision for Highest Throughput

### CyBio Well vario

The CyBio Well vario is an automated, simultaneous pipetting platform ideal for large and complex test series in the HTS or uHTS range. The CyBio Well vario base unit provides fast, exact, and secure movement of microplates via a linear plate moving assembly with a three-, four- or five-position carriage. For more complex experimental protocols, the CyBio Well vario is also available in a disk platform configuration with ten open-access stations in a circular arrangement. The various interchangeable heads and the huge range of tips and capillaries allow for a wide range of applications and possible configurations, which make the CyBio Well vario a powerful liquid handling platform. A working volume range of four orders of magnitude allows liquid transfers from 100 nL up to 250  $\mu$ L with 96 to 1536 channels simultaneously.

#### Stay precise while being flexible

- Powerful platform with a wide range of configuration opportunities
- Extensive volume range due to interchangeable pipetting heads
- Advanced capillary technology for reliable nanoliter pipetting
- A working volume range allows liquid transfers from 100 nL up to 250  $\mu$ L on one platform

#### Use your reagents cost-effectively

- Saves reagent costs with accurate nanolitre pipetting

#### Automate depending on your needs

- Powerful graphical scripting environment allows access to every aspect of this reliable and flexible liquid handling robot



Fully automated system CyBio Automation



CyBio Well vario





CyBio QuadStack

## Compact and Flexible Microplate Storage with four Stacks

### CyBio QuadStack

CyBio QuadStack is the high-capacity benchtop solution for microplate storage. With four rotating stacks and one transfer position, the CyBio QuadStack offers a compact setup with a capacity of up to 260 microplates. Its high flexibility and modularity comes from its small footprint (370 mm x 380 mm), three different stack heights, and various access modules for versatile operation.

#### Be flexible and secure

- The ergonomic design allows a comfortable loading and unloading of microplates
- Three different stack heights and different access modules for versatile operation possibilities

#### Push your throughput limits

- Plate presentation in only 2 seconds

#### Save valuable lab space

- Small footprint with a capacity of up to 232 microplates



CyBio QuadPrint

## Compact, High Speed and Precise Barcode Label Printer

### CyBio QuadPrint

The CyBio QuadPrint sets new automation standards for plate labeling. The CyBio QuadPrint is the most compact print-and-apply system on the market, and it easily achieves efficient and reliable results within a short time. Due to its smart technology, the CyBio QuadPrint needs less than ten seconds for labeling one side of plate.

#### Stay flexible in plate orientation

- Flexible labeling on all four sides of the microplate

#### Avoid time consuming manual adjustments

- Automatically adjustable label height

#### Just print your barcodes

- A well-designed user front-end allows easy and efficient barcode definition and printing
- Your data can be linked into this application to create linear or 2D barcodes



# Ideal for PCR Sample Preparation

## UVP PCR Workstations



UVP PCR HEPA Workstation

Analytik Jena offers a complete line of PCR UV hoods. These products bring together UV irradiation and antimicrobial stainless steel and aluminum to create a dual-attack environment against PCR contaminations. The latest addition to this product line are the powerful new UVP PCR Workstations. These Workstations are designed for placement of large instruments on the work area or small items on the removable shelves. They can be configured with or without a HEPA filter assembly based on customer needs. These systems have been specially designed to enable unbelievably easy assembly and service.

- 254 nm UV irradiation to achieve efficient decontamination
- Easy-clean antimicrobial coating on the stainless steel and aluminum surfaces doubles up the attack on PCR contaminants
- Safety shut-off switch automatically turns the UV light off when door is opened
- Makrolon® panels block all UV light below 400nm
- Built-in power outlets for operation of equipment inside the Workstation
- Touch screen interface to control all system functions
- Choice of HEPA or non-HEPA system configurations based on customer needs
- HEPA models only: 3 layers of UV irradiation + air filtration/ circulation to ensure maximum decontamination, Carbon pre-filter with long-life UV, HEPA filter with standard UV lamps, and Recirculator with long-life UV
- Unique folding assembly that takes as little as 20 minutes
- Quick and easy filter and lamp replacement as well as service

# 30 Years Experience in PCR

## Biometra Thermal Cyclers

Tradition meets innovation: Analytik Jena is proud of its long tradition of developing high-quality analytical systems. The Biometra thermal cyclers come from this tradition, yielding precise, reproducible results with easy-to-use functionality and excellent technical specifications. All cyclers are manufactured with high-quality materials to create robust, long-lasting products that meet even the highest demands.

Choosing a Biometra thermal cycler will guarantee you a relaxed working day. The airflow inside the system has been optimized to keep the maximum noise level of the instruments down to quiet 45 decibels. This also keeps the additional space requirement down to just ten centimeters – much lower than other thermal cyclers.

All cyclers come with a perfect temperature uniformity across the block, which ensures optimal results and stress-free experiments. The High-Performance Smart Lid (HPSL) always maintains constant contact pressure, regardless of the shape and height of the plasticware. This provides maximum reproducibility. An add benefit is the instruments' one-touch opening mechanism, which also prevents the lid from dropping down.

The Biometra thermal cyclers are also known for their standout user-friendliness. With features like a Protocol Wizard, the Linear Gradient Tool, a user-specific quick start, and an ethernet-based control option for a full cycler network, the system will quickly become your favorite PCR device.



PCR Control App

An alternative smart control of cyclers connected to a network, is possible via software application for smartphones or tablets. Available features are such as: live monitoring of PCR program runs, start and stop of PCR protocols, store or copy run protocols, readout of parameters and messages.



### Relaxed working day

- Low noise emission (45 dB)
- Outstanding performance for results that are always reliable
- No need to repeat experiments

### Experience stress-free experiments

- Perfect temperature uniformity
- Prevent sample loss due to HPSL
- Open to different plasticware

### Let this PCR system become your favorite

- Modern look and feel
- Easy to use
- Clever software features



<b>Biometra TOne</b> Optimal Amplification Performance	<b>Biometra TAdvanced</b> No Compromises in Technology	<b>Biometra TRIO</b> Triple Powered PCR
Precise and cost-effective aluminum sample block	High-end Quick-Block-Exchange with first-class silver and well established aluminum sample blocks	Highly flexible triple-block system for different applications and ideal space saving
96-well block format	Block modules with 96-well, 60-well, 384-well, 2 x 48-well, 2 x 30-well, 2 x combi formats	3 x 48-well, 3 x 30-well, 3 x combi block formats
Linear Gradient Tool (LGT) up to a gradient range of 20 °C	Linear Gradient Tool (LGT) up to a gradient range of 40 °C	Temperature Optimization Tool (TOS) for easy optimization of annealing temperatures
Up to 4 °C/sec ramping	Up to 8 °C/sec ramping	Up to 5 °C/sec ramping
	Protocol Wizard and advanced user management	Protocol Wizard and advanced user management

## PCR Expertise for the Automated Workflow

### Biometra TRobot II

The proven technology is also used in the Biometra TRobot II automated thermal cycler and allows workflows to be made even more efficient.

In addition to the typical main application, the polymerase chain reaction (PCR), the Biometra TRobot II is also suitable for all other molecular biological or chemical incubations in PCR plates. For example, the generation of libraries for Next Generation Sequencing (NGS) is an important step in a larger workflow where the automated thermal cycler can be used. This reduces the manual effort and the possibility of errors. The PCR cycler has outstanding heating and cooling rates and excellent temperature homogeneity across the sample block for highly reproducible PCR results.

In automated systems, compact components with the smallest possible footprint are particularly important. The Biometra TRobot II meets this requirement through its modular design with a compact PCR module that is placed directly on the automation deck, while the controller can be stored underneath the platform. At the same time, the block design was designed to enable the gripper to access the sample block from three sides. This opens up many possibilities for positioning the thermal cycler on the deck.

A conveniently prepared library allows a fast integration into automation systems. In addition, powerful computer software,

the Biometra TSuite, is available for direct control of the automated thermal cycler, which is helpful for first PCR runs in preparation for the actual application. Maximum user safety is ensured with a unique, touch-sensitive safety frame which immediately stops the lid closing in case of contact with a resistance. The smooth block surface without gaps is essential for easy and effective cleaning and decontamination.

- Best results thanks high performance features
- Focused on automation by dedicated design
- Smart control through convenient software



# Your Way of qPCR

## qTOWER<sup>3</sup> Product Family

Redefining excellence: The qTOWER<sup>3</sup> product family sets new standards of flexibility and precision – for all real-time PCR applications and guarantees well-founded real-time PCR results. It benefits from peerless temperature control precision in the sample block regardless of the number of samples used – which can range from 96 up to 384. The patented high-performance fiber-optics ensures outstanding homogeneous excitation and illumination of all individual samples. The qTOWER<sup>3</sup> product family achieves unique flexibility with its proven filter module equipment, which can be freely configured and expanded at any time and enables up to six-fold multiplexing.

The patented fiber-optic shuttle system with its unique light source, composed of four high-performance LEDs, allows for ideal excitation of known fluorescent dyes up to the deep red range. In the process, the detection module can accept up to six different color filter modules. The retrofitting option ensures that users can also integrate future innovative developments from Analytik Jena.

### High-quality sample block for optimal thermal conductivity

- **Unrivaled:** Ideal temperature homogeneity and unmatched control precision
- **Precise:** Programming of integer temperatures from column to column of the sample block using the Linear Gradient Tool

### Patented fiber-optic system for ideal real-time PCR

- **Efficient:** Minimal scan times of 6 seconds for up to six-fold multiplexing
- **Innovative:** New light source with four long-term stable LEDs (RGBW)
- **Brilliant:** Ideal illumination and excitation of all 96 or either 384 samples with no edge effects



### qPCRsoft package for convenient control and operation

- **Convenient:** Stand-alone operation via integrated tablet control (10") and/or comprehensive PC control
- **Transparent:** No costs for software licenses or updates
- **Universal:** Covers the entire spectrum from a simple representation of Ct values to the ddCt method and multiplate analysis
- **Multilingual:** Available in multiple languages

### Expandable filter module system for maximum flexibility

- **Future-proof:** The twelve color, FRET and protein modules can be retrofitted or exchanged within only a few minutes
- **Durable:** 10-year long-term guarantee for high-performance optical compounds

	qTOWER <sup>3</sup>	qTOWER <sup>3</sup> touch	qTOWER <sup>3</sup> 84
Sample block	Silver sample block with gold coating	Silver sample block with gold coating	Aluminium block, special alloy
Block capacity	96-well	96-well	384-well
Reaction volume	5–100 µL	5–100 µL	2–30 µL (5–20 µL recommended)
Heating	8 °C/sec	8 °C/sec	4 °C/sec
Cooling	6 °C/sec	6 °C/sec	2 °C/sec
Temperature uniformity	55 °C ± 0.15 °C after 15 sec		
Gradient (optional)	Over 12 columns 40 °C/ 0.1 °C	Over 12 columns 40 °C/ 0.1 °C	Over 24 columns 24 °C/ 0.1 °C
Operation	qPCRsoft package for PC	Stand-alone version with 10" touchscreen incl. qPCRsoft package for PC	qPCRsoft package for PC
Filter configuration	Flexible filter configuration, up to six positions in the device		

## Real-Time PCR Meets Automation

### qTOWER<sup>3</sup> auto

Optimize your qPCR workflow and reduce your costs without compromising reliability and data quality. With the qTOWER<sup>3</sup> auto, a compact, automatable real-time PCR thermal cycler, even high sample numbers can be handled safely and cost-efficiently. The fast and sensitive analysis and quantification of DNA samples is reproducibly ensured by the excellent performance of the qTOWER<sup>3</sup> auto, as it is based on the proven technology of the qTOWER<sup>3</sup>- family.

- High-end qPCR solution for automated research
- Smooth integration into computer-controlled workflows
- Sophisticated design with reduced footprint

Based on lab automation demands, the qTOWER<sup>3</sup> auto with its decoupled power module and a freely accessible sample plate tray offers a reduced footprint. In developing the system, special emphasis was placed on compatibility with the common manufacturers of robot arms and automation systems. The unique patent pending motorized plate lifter system simplifies workflows by allowing gentle lifting of the sample plate to release it safely from the sample block, while the innovative labware detection function reliably detects any improper sample plate loading. Discover our solution to provide you with confidence in your system and free up resources to focus on value-adding activities.



# Perfectly Aligned Chemistry

## Molecular Assays and Reagents

### CHOOSE YOUR PLATFORM

e.g. PCR, Real-Time PCR, Gel Electrophoresis,  
Lateral Flow Strip

### CONSUMABLES

e.g. PCR Plates, Sealing Foils, Tips

### ANIMAL SPECIES IDENTIFICATION

e.g. Pork, Beef, Horse, Goat, Turkey, Fish, Chicken, Sheep, Mammal & Bird

### FOOD/ WATER BORNE PATHOGENS

e.g. *Salmonella*, *Listeria*, Shiga Toxins, *Campylobacter*, *E.coli*,  
*Legionella*

### POLYMERASES

e.g. Standard Taqs, Hot Start, RT-Enzyme

### CONTROL ASSAYS

e.g. Extraction Control, Amplification Control

### NUCLEOTIDES

e.g. dNTPs mix and sets

### PCR and qPCR MIXES

e.g. PCR Ready-to-use mixes, Intercalating and probe  
based dyes





## Perfect Fit

### Consumables, Reagents and Accessories

Analytik Jena offers a range of reagents and consumables ideally suited for achieving the best possible results in combination with the instrument technology. All plastic material, sealing films, polymerases, and master mixes are optimized to work with Analytik Jena's thermal cyclers and real-time thermal cyclers. Don't compromise when it comes to your data. Choose Analytik Jena consumables, and see how small differences make a huge difference.

Lab plasticware may seem like it's "a dime a dozen", but not all PCR consumables are created equal. The product portfolio of Analytik Jena offers the perfect consumable for each individual block format of PCR or qPCR thermal cyclers. Benefit from our expert knowledge and optimize your data results.

- Optimally amplifies PCR products and improves Ct values
- Doesn't influence running costs
- Includes small changes – that have a huge effect
- DNase-free and RNase-free plastics available

Optimized solutions include ideally aligned reagents: Single Taq Polymerase, ready-to-use master mixes, and solutions for reverse transcription. Each solution fits perfectly with Analytik Jena's instrumentation and guarantees application advantages in handling and performance.

- **innuTaq:** Taq DNA Polymerases for PCR and/or qPCR; fast running times due to 200 bp/sec amplification speed
- **innuMIX:** ready-to-use master mixes simplify the preparation of a PCR or real-time PCR reactions
- **innuDRY:** lyophilized master mixes for environmentally friendly delivery at room temperature

### Instruments, reagents, and plasticware – All From one Hand



# Ready-to-Use Solutions

## Target-Specific Assays

### For quantitative and qualitative real-time PCR

Analytik Jena offers a number of assays for molecular biological applications, e.g., for food analysis including pathogens and species identification. All assays are based on the TaqMan® principle and allow quantitative and qualitative detection of target DNA or RNA. These systems combine optimized real-time PCR chemistry with preformulated reagents – including lyophilized standards and controls – to ensure convenient handling and precise results.

- Universal kit set-up and uniform PCR protocols, allowing for combining assays and meanwhile parallel analysis of multiple targets
- Complete workflow: fast and easy nucleic acid isolation combined with highly specific analysis
- No compromises – outstanding sensitivities due to careful nucleic acid targeting
- Flexible application options depending on sample throughput
- Well-suited for automation on platforms in molecular biological testing



# Selection of Electrophoresis Devices

## Electrophoresis, Blotting, Power Supplies

Analytik Jena offers a comprehensive range of instruments for electrophoresis. Based on more than 30 years of experience, this high-quality product range has been developed for daily laboratory routines.

### Horizontal Gel Electrophoresis

The Biometra Compact family features a robust family for agarose electrophoresis of different gel sizes from mini- up to maxi-sized gels. Low sample numbers are run in Biometra Compact XS/S. For medium sample numbers, use Biometra Compact M or Biometra Compact Multi-Wide with a choice of different gel trays. Biometra Compact L/XL allows for high-throughput electrophoresis, processing up to 416 samples in a single run.

- Unique plug & cast gel casting systems
- Provides unique lid for space saving storage
- Multichannel pipette compatible combs



Biometra Compact family

### Vertical Gel Electrophoresis

The Biometra Eco-Line offers tank-style systems for polyacrylamide gel electrophoresis and tank blotting. The modular concept of this robust line allows for the electrophoresis and blotting of up to four gels (Biometra Eco-Mini) or up to two large gels (Biometra Eco-Maxi).

- Double gel system
- Cooling option
- Electrophoresis and tank blot modules



Biometra Eco-Line



Biometra Minigel-Twin

An alternative concept for vertical gel electrophoresis is offered by the Biometra Minigel-Twin. This double-gel system allows for gel casting without any leakage by employing fixed glass spacers and a unique silicone seal.

- Low buffer requirements
- Leak proof casting gel with unique silicone seal

## Semi-Dry Blotting

Electro-blotting is a standard method for transferring proteins and nucleic acids from polyacrylamide gels to nitrocellulose or other carrier membranes. The Biometra semi-dry blotters are equipped with high-quality plate electrodes which create a homogeneous stress field that ensures a fast and homogeneous transfer of biomolecules. To enable reliable and gentle transfer of challenging samples even at high current levels, the Fastblot B43 offers a cooling option. Excess heat can be dissipated efficiently to achieve high-quality despite heterogeneous protein mixtures.

- Maintenance free platinum/titanium electrodes
- Cooling option (B43)
- Transfer of multiple gels possible



Biometra Fastblot B43 and B44

## Power Supplies

All the different Analytik Jena electrophoresis instruments are compatible with the offered power supply range.

For low-voltage applications, such as horizontal and vertical gel electrophoresis, tank blotting and semi-dry blotting, different models are available:

The outstanding compact power supply Biometra PS 300TP for general electrophoresis applications and the powerful Biometra P25/P25T for a wide range of electrophoresis and blotting tasks. The new model Biometra PS 307TP offers highest user convenience: it comes with 14 pre-installed protocols optimized for Biometra electrophoresis instruments.

- Two to four output connectors to control several instruments simultaneously
- Enable automatic crossover
- Timer with alarm function
- Designed to be compact and easy-to-use



Biometra PS 307TP, Biometra P25T and Biometra PS 300TP

# Gel Documentation

## Easy-to-Use Imaging Systems

We offer a wide range of easy-to-use imaging systems designed to meet varied research specifications and satisfy diverse budgets. There is a suitable solution to be found for every laboratory among all the systems offered. All systems are suited for documenting agarose and polyacrylamide gels with fluorescent and visible colored stains.

Laboratories with limited bench space will benefit from the small footprint of the UVP GelSolo. This stand-alone option provides a high-quality advanced imager. This system comes with an easy-to-use image acquisition software and powerful software for gel analysis.

### UVP GelSolo



Side-access door



UVP GelSolo

#### Stand-alone gel documentation system

The UVP GelSolo is a compact, easy-to-use, stand-alone system for gel documentation. It is designed to acquire gel images easily and without any need for training. Thus, it is ideal for multi-user laboratories and practical trainings. The UVP GelSolo includes a light-sensitive monochrome camera with a high resolution of 5 megapixels and a highly sensitive zoom lens that enables high-contrast image acquisition. Saturation monitoring allows for easy capture of fully quantifiable images, making the UVP GelSolo a complete stand-alone system for gel documentation.

- Three-position filter tray with Ethidium Bromide filter; additional filters are available
- Epi-white and epi-blue LED lights enable a variety of gel imaging applications
- Large 11.6" touch screen with user-friendly software optimizes image capture and analysis
- Unique viewing window allows UV-safe viewing of gels without opening the door
- Side access doors for gel repositioning and cutting while viewing the gel on the screen
- Choice of Transilluminator – single, dual or triple wavelength UV Transilluminator models, and blue light models

## UVP GelStudio Family



UVP GelStudio imaging systems



UV Protection Shield

### Gel documentation at its best

The UVP GelStudio imaging systems creators are renowned for delivering advanced solutions to genomic and proteomic applications. UVP GelStudio imagers offer high-resolution and sensitive imaging of DNA and protein gels. They also work with an unlimited range of excitable stains and dyes. All imagers run the powerful VisionWorks software, full package image capture, enhancement functions and analysis software. Application-based icons for automation, included in the software package, offer one-touch capture.

- Imager for gel documentation in two different sizes
- Available as a touchscreen controlled system or as an external computer operated system
- 5.0 megapixel camera, with an automated f/1.2 zoom lens.
- Contrast-rich images of fluorescent and colored samples.
- Integrated multi-touch computer, with large storage capacity. Ideal for multitasking and viewing several images.
- Wide maximum illuminated imaging area for imaging multiple gels of various sizes (up to 25 x 26 cm).
- PLUS models available with a unique "Slide2Hide" door which features smooth operation and limits bench top interferences
- UV Protection Shield maximizes protection from UV radiation while working over the transilluminated surface.
- Overhead white, red, green and blue LEDs included
- Five-position automated filter tray for easy access
- Upgradeable to support UVP eLITE Light Source module, for excitation from 400 to 800 nm wavelength applications.
- VisionWorks Software, with comprehensive features, optimizes image acquisition and analysis

The software allows for creating custom icons and workflows based on users' needs. The UVP GelStudio guarantees top image quality and an optimized range of high performance features. With its high resolution camera, high dynamics and excitation ranges from 400 to 800 nm, this series introduces a new benchmark that goes far beyond publication-quality images.



Integrated multi-touch computer

## VisionWorks Software

### Extensive image enhancement and analysis tools

All imagers run the powerful VisionWorks software, full package image capture, enhancement functions and analysis software. Application-based icons for automation, which are included in the software package, offer one-touch capture. The software allows creating custom icons and workflows based on users' needs. Additionally, user accounts can easily set up with passwords to save and protect user data. Image enhancement and analysis features are included with all systems. Researchers can personalize their experiments and make use of enhancement features and annotation tools, e.g., for publication purposes. The software offers many powerful tools such as background subtraction, inversion, pseudocolor, compositing and more.



## UVP Transilluminators

Analytik Jena UV transilluminators feature uniform, bright illumination. The high-grade filter glass provides excellent documentation results with low background noise. The superior illumination uniformity allows for the reliable quantification of electrophoretically separated fluorescent samples. The transilluminators can be used as single units or integrated in imaging systems such as the UVP ChemStudio and GelStudio series. Blue light excitation represents a valuable alternative to UV light for fluorescent dyes with excitation maxima around 470 nm. It prevents the risk of UV exposure and DNA damage. Applying a UV-to-white converter plate or a white light transilluminator allows the documentation of visible colored stains. The white and blue light transilluminators are also available as LED models.

- Filter sizes from 15 cm x 15 cm up to 25 cm x 26 cm or 20 cm x 40 cm
- Can be purchased with optional intensity selectors and different UV wavelengths
- Blue and white light transillumination sources
- Freely adjustable UV protection shield for user UV-protection during gel handling



UV and blue light transilluminators, UV-to-white converter plate



# Chemiluminescence Systems

## UVP ChemStudio Series

No matter what your preferred method of western blotting is, the UVP ChemStudio Series features the highest sensitivity in gel analysis available. The UVP ChemStudio and ChemStudio PLUS systems were built with flexibility in mind, providing RGB detection as standard. Whatever your research focus is, the UVP ChemStudio product family was built to streamline your protocol from detection to analysis, providing the most accurate quantitation of data for an unlimited range of applications.

The UVP ChemStudio product family features the newest technology, a brand new software interface and top-of-the-line camera options, which guarantees a wider dynamic range of imaging than ever before. With a Studio in your lab, your research is unlimited.

- Imagers for chemiluminescence, fluorescence and colorimetry
- Upgradeable for NIR imaging applications
- Selection of highly sensitive, cooled CCD cameras with f/0.95 wide aperture lenses
- Available as either a PC-operated unit or as a stand-alone instrument with an integrated color touchscreen
- Includes Ethidium Bromide emission filter in an easy-to-access filter wheel with up to five positions
- Integrated overhead (EPI) RGBW LEDs for optimum illumination and multiplexing
- Chemi tray for optimum sample placement on the black, non-reflective surface
- VisionWorks Software, with comprehensive features, optimizes image acquisition and analysis



### A new standard for quality and data integrity of your images

#### High resolution

The UVP ChemStudio includes a high-performance 8 MP chemi imaging camera. Multiple hardware and lighting options are configurable with the highly versatile UVP ChemStudio Imaging Systems.

#### Extreme light sensitivity

A range of different cameras are available for applications requiring maximum light sensitivity, a wider dynamic range, or supreme quantum efficiency into the IR range. All cameras utilize a wide aperture lens.

#### Clean images

Cameras are deeply cooled to deliver clean images with no noise and a low background. Additionally, UVP ChemStudios provide user-controlled software tools to apply background subtraction and noise removal.

#### Unmodified raw data

The VisionWorks Software tools provide users with the freedom to apply image enhancement and analysis features when needed. They create uncompromised raw data and preserve the true data, promising the highest quantitative value.

## Overall Support

A global network of product, application and service specialists work hand-in-hand to help you fulfill your daily demands.

**We support you with:**

- Choosing the best technique and instrumental configuration for your application
- Setting up instruments, accessories, and methods to meet your individual needs
- Offering ongoing support, training, and service worldwide

## Analytik Jena

Your Partner in Life Science



#### Headquarters

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Analytik Jena GmbH  
Konrad-Zuse-Str. 1  
07745 Jena · Germany

Phone +49 3641 77 70  
Fax +49 3641 77 9279  
info@analytik-jena.com  
www.analytik-jena.com

Pictures: Analytik Jena GmbH, iStockphoto ©luchschen, iStockphoto ©Double  
Subjects to changes in design and scope of delivery as well as further technical development!

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