

Nexar



Integrated liquid handling and assay processing system

For research use only.
Not for use in diagnostic procedures

“The Nexar® Array Tape® Platform was our choice for a HTP solution for our breeding program based on throughput potential as well as the immediate cost-savings associated with the walk-away automation of platform instrumentation and the miniaturised reaction volumes in Array Tape.”

– Edwin van Zon, Technical Analyst of Biology for Rijk Zwaan

Nexar delivers flexibility and proven results

768-Well Array Tape

Nexar



Achieve high quality data with a flexible and scalable system that uses Array Tape to deliver a dramatically lower cost per data point

Engineered to operate with precision and accuracy, the Nexar capitalises on the innovative Array Tape consumable to allow ultra high-throughput processing of samples and assays in a fast, automated instrument. Interchangeable modules store and retrieve samples and reagents, dispense in sub-microliter volumes into 384-well format, as well as provide incubation, thermal cycling and detection to support multiple applications.

Modularity

The system is based on configurable modules to meet the needs of your specific applications. As laboratory processes change over time, your investment will be protected since the system can be adapted to your evolving needs. Such modularity allows labs to embrace change with simplicity and minimal cost.

Applications

- End-Point PCR – The Nexar, Soellex® 2.0 water bath and Araya® detection instrument provide an ideal platform for end-point PCR.
- End-Point Isothermal DNA Amplification – Integrates modules for liquid handling, incubation and detection into one instrument, providing walk-away operation.
- Other Applications – The Nexar is a flexible and scalable solution designed to support a variety of applications that require precise liquid handling.

Chemistry

The Nexar is an open system supporting most PCR fluorescence-based chemistries including industry leading brands such as LGC, Biosearch Technologies' KASP® genotyping chemistries, Biosearch Technologies' probes and primers, and more.

SNP genotyping cluster plots

The Nexar produces SNP genotyping results that are reproducible with well-separated clusters and accurate genotyping calls. The error rates for incorrect calls in this analysis was 0%.

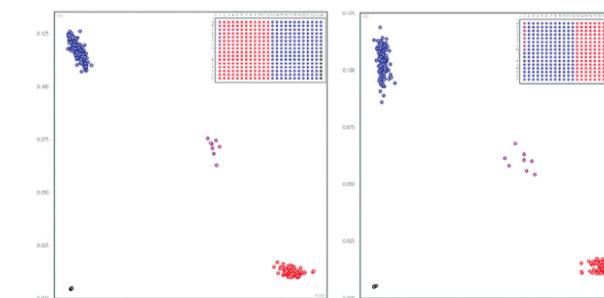


Figure 1. Using Sample Plate 1

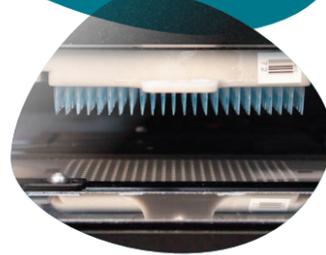
Figure 2. Using Sample Plate 2

Figures 1 and 2. End-point fluorescence values are plotted with VIC® signal on the y-axis and FAM™ signal on the x-axis. ROX™ was used to normalise all values. The two cluster plots shown are from consecutive arrays where the tips were washed in between dispenses. The top right corner of each plot shows the sample plate layout is inverted between the two arrays. Cross contamination was not present in the cluster results. For more information, refer to *Characterization of the Pipette Wash Station for SNP Genotyping and Presence/Absence Testing on the Nexar System Application Note*.

Reference: *Characterization of the Pipette Wash Station for SNP Genotyping and Presence/Absence Testing on the Nexar System*. LGC Douglas Scientific, July 2016.

Inline processing

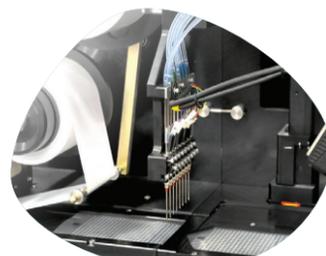
Look inside
The inline configuration of the Nexar provides automation for varied protocols.



Sample Dispense



Sample Dehydration (optional)



FlexJet



Tape Sealing



Incubation (optional)

Sample dispense

Parallel channel pipetting from source plates using the pipette head from the CyBio® Product Line provides rapid sample transfer into Array Tape. Dispense with 96- or 384-channels in either full or quadrant stamping with a volume range of 600 nL to 800 nL and CVs of <4.7% with 25 µL tips.

Tip cleaning

Reduce consumable costs and waste by washing the pipette tips in the Pipette Wash instead of disposing of them.

Reagent dispense

The Nexar offers non-contact, multi-channel, high speed dispensing for a wide range of volumes from 250 nL to 2.5 µL.

Reagent dispense options		
	Dispense Jet 2.0	FlexJet®
Operating mode: dispensing	Non-contact	Non-contact
Number of channels	4	4 or 8
Dispense volume range	250–2,500 nL	250–2,500 nL
Precision CVs	250–499 nL ≤7% 500–2,500 nL ≤5%	250–499 nL ≤7% (low volume dispense) 500–2,500 nL ≤4.5% (standard dispense) 800 nL ≤4.5% (multi-array dispense)

Tape sealing

After liquid dispensing is complete, Array Tape is automatically sealed to secure the reaction in the wells. An optional chiller plate is available to keep sample reactions cool prior to amplification and detection.

Incubation

An optional inline Incubation Module allows for unattended sample amplification at ambient or elevated temperatures, which enables walk-away end-point isothermal DNA amplification processing.

Plate storage

Plate storage is available on the instrument to automatically deliver sample and reagent source plates to and from the appropriate dispense module. For plate quantities greater than 25, the Nexar integrates with the AmbiStore™ from HighRes Biosolutions, a random access carousel that can manage up to 672 low-profile plates.

Additional support

Service support

At Biosearch Technologies, we pride ourselves on going above and beyond normal service standards for our clients. Rest assured we will be there every step of the way ensuring our solutions exceed your expectations.

- Pre-Installation – site review and factory acceptance testing.
- Installation and Training – on-site installation, end-user training and site acceptance testing.
- Post-Installation Support and Service – 12-month comprehensive warranty, industry-leading post warranty support programs, Certified Technician Training, and up to 24 hours a day, 7 days a week online support services.
- Instrument and Software Optimisation – Highly specific processes and protocols may require instrument and/or software modifications. The Biosearch Technologies team is skilled at delivering optimised solutions to meet your needs.

Scientific support

Our expert Science Team offers a variety of services to ensure your lab gets up and running, produces reliable data, and runs efficiently. Whether you're developing new assays or want help optimising existing assays, the Biosearch Technologies Science Team will be there for you.

Custom automation

Name the automation application and we'll put the power of Biosearch Technologies innovation to work for you. The Custom Automation Team delivers solutions for process analysis, consumable design, system integration, or complete automation by leveraging a crossfunctional and diverse engineering staff combined with a strong understanding of efficient, inline automation. This experience, combined with our rapid development capabilities, provides customers with a truly responsive development partner to deliver solutions for applications such as:

- Custom instrumentation
- Fluid dispense systems
- Sample preparation
- Optics/detection
- Software/HMI
- Custom LIMS
- Process line automation/integration
- In-process quality inspection system
- Consumables
- Economic and workflow analysis
- And more

The Nexar will deliver the benefits of a fully integrated, inline system today while positioning your lab for the demands of tomorrow.

Select the configuration that is right for your lab

Meet your lab's specific needs based on application, total samples processed, number of reagents used, and typical production schedule

Nexar

The most common Nexar configuration automatically prepares your PCR reaction for thermal cycling. In one inline process, it will dispense the sample, add the reagent, wash the tips, and seal the reaction in Array Tape.



Nexar

Split Nexar

The Split Nexar System is ideal for labs already processing high volume samples who need to maximise throughput within a predictable processing schedule. Leveraging the modular nature of the Nexar, the sample and reagent processes are split into two separate instruments which reduces the functional interdependency and corresponding takt time.



Split Nexar Sample Processor

Labs can utilise flexible configurations to provide the largest chemistry savings, the highest throughput and most efficient workflow. In some cases, a single sample processor can dispense enough DNA into Array Tape to support two reagent processors and therefore nearly double lab capacity.



Split Nexar Reagent Processor

The typical Split Nexar Sample Processor consists of:

- Unwind Module
- CyBio Dispense Pipette with Sonic Wash
- Two Plate Stacker/Dehydrator Modules
- Rewind Module

The typical Split Nexar Reagent Processor consists of:

- Unwind Module
- FlexJet with a Jet Wash Station
- Plate Stacker Module
- Tape Sealer
- Rewind Module



Nexar optimised for end-point isothermal DNA amplification

The Nexar optimised for end-point isothermal amplification is configured to provide walkaway operation by integrating liquid handling, incubation and detection in one instrument. Leverage DNable[®] chemistry by EnviroLogix[®] or other isothermal chemistries to achieve exponential nucleic acid amplification at one constant temperature. Go from sample to answer in as little as 15 minutes.



*DNable[®] is a trademark or registered trademark of EnviroLogix[®]

Nexar specifications

General																			
STANDARD CONFIG	W: 28.7 cm (11.3") H: 64.0 cm (25.2") D: 81.3 cm (32")																		
WEIGHT	657 kg (1450 lbs)																		
INDIVIDUAL MODULES	Unwind/Rewind Modules: W: 43.2 cm (17") Incubator Module: W: 57.6 cm (22.7") H: 112.1 cm (44.1") D: 81.3 cm (32")																		
Electrical																			
SUPPLY	115/230 V 50/60 Hz auto select																		
POWER RATING	400 W typical 1,200 W max																		
FUSE RATING	20 A (@115 V)																		
Instrument control and software specifications																			
CONTROLLER	Ethernet-based Beckhoff CX2030 controller																		
USER INTERFACE	Computers with Internet Explorer up to version 9																		
Supported plate configurations																			
	96- and 384-well SBS plates																		
Pipetting head - 384 Pipette Head from CyBio Product Line																			
MECHANISM	Simultaneous air displacement																		
BIOSEARCH TECHNOLOGIES SUGGESTED VOLUME RANGE	600-2,500 nL																		
TIP OPTIONS	10 or 25 µl tip capacity																		
MANUFACTURER PRECISION	CV <2%, at 1.0 µL																		
Plate handler																			
PLATE STACKER	Up to 25 plates																		
AMBISTORE	Up to 672 plates																		
Jet Dispenser																			
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Other																			
AIR	8.5 SCFM (240.7 LPM) @ 80 PSI (5.5 bar) based on standard configuration																		
WATER INPUT	<ul style="list-style-type: none"> • Supply R.O. Water (Max 15 L/Hr) <table border="0"> <tr> <td><u>Standard</u></td> <td><u>Minimum grade</u></td> </tr> <tr> <td>ASTM standard (ASTM D1193-91)</td> <td>Type III</td> </tr> <tr> <td>ISO standard (ISO 3696)</td> <td>Grade 3</td> </tr> <tr> <td>Clinical Laboratory Standards Institute (CLSI - CLRW)</td> <td>Type 3</td> </tr> <tr> <td colspan="2"><i>Note: Commercial/Industrial R.O. water systems typically meet these requirements</i></td> </tr> </table>	<u>Standard</u>	<u>Minimum grade</u>	ASTM standard (ASTM D1193-91)	Type III	ISO standard (ISO 3696)	Grade 3	Clinical Laboratory Standards Institute (CLSI - CLRW)	Type 3	<i>Note: Commercial/Industrial R.O. water systems typically meet these requirements</i>									
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CERTIFICATIONS	CE																		

Nexar service program overview

When your laboratory is in high production, your instruments must perform as expected. At Biosearch Technologies, we deliver a range of preemptive and responsive services to ensure our instrumentation is a dependable performer in your operation.

Service plan offerings

Time and materials

Offered for customers desiring Time and Materials service as needs arise. This plan does not provide discounts or loyalty incentives.

Comprehensive plan

Ideal for customers who require around-the-clock service. Enjoy the fastest response times, having a Certified Operator on staff, the option of a dedicated response team, and significant discounts.

Premier plan

This plan provides a strong blend of services including guaranteed response times, a Certified Operator on staff, and discounting.

For research use only.
Not for use in diagnostic procedures

**Integrated tools.
Accelerated science.**

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lgcgroup.com/genomics

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