SINGER INSTRUMENTS

A RESPONSIBILITY TO SCIENCE!

TM

High-precision Colony Picker

: The dawn of precision colony picking

PIXL is changing the game for colony picking precision, sterility, and ease-of-use.

WHAT IS PIXL?

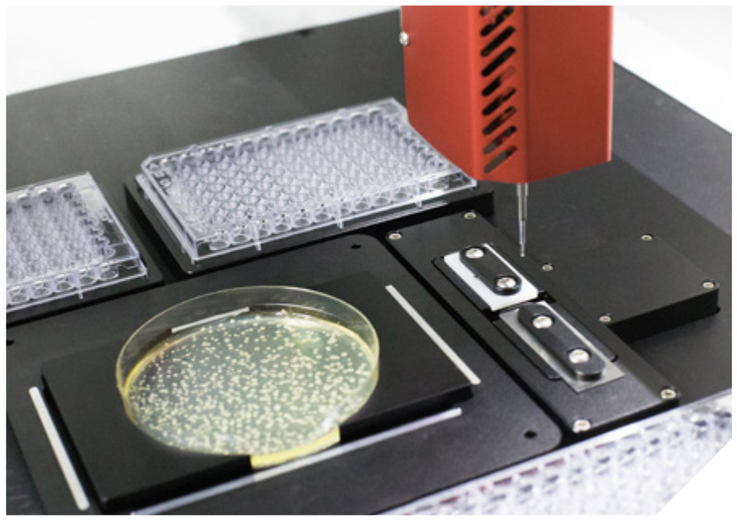
PIXL is an ultra-reliable and super-easy-to-use microbial colony picker. It automates imaging, colony recognition, colony selection, and picking; from Petri dishes to multi-well plates.

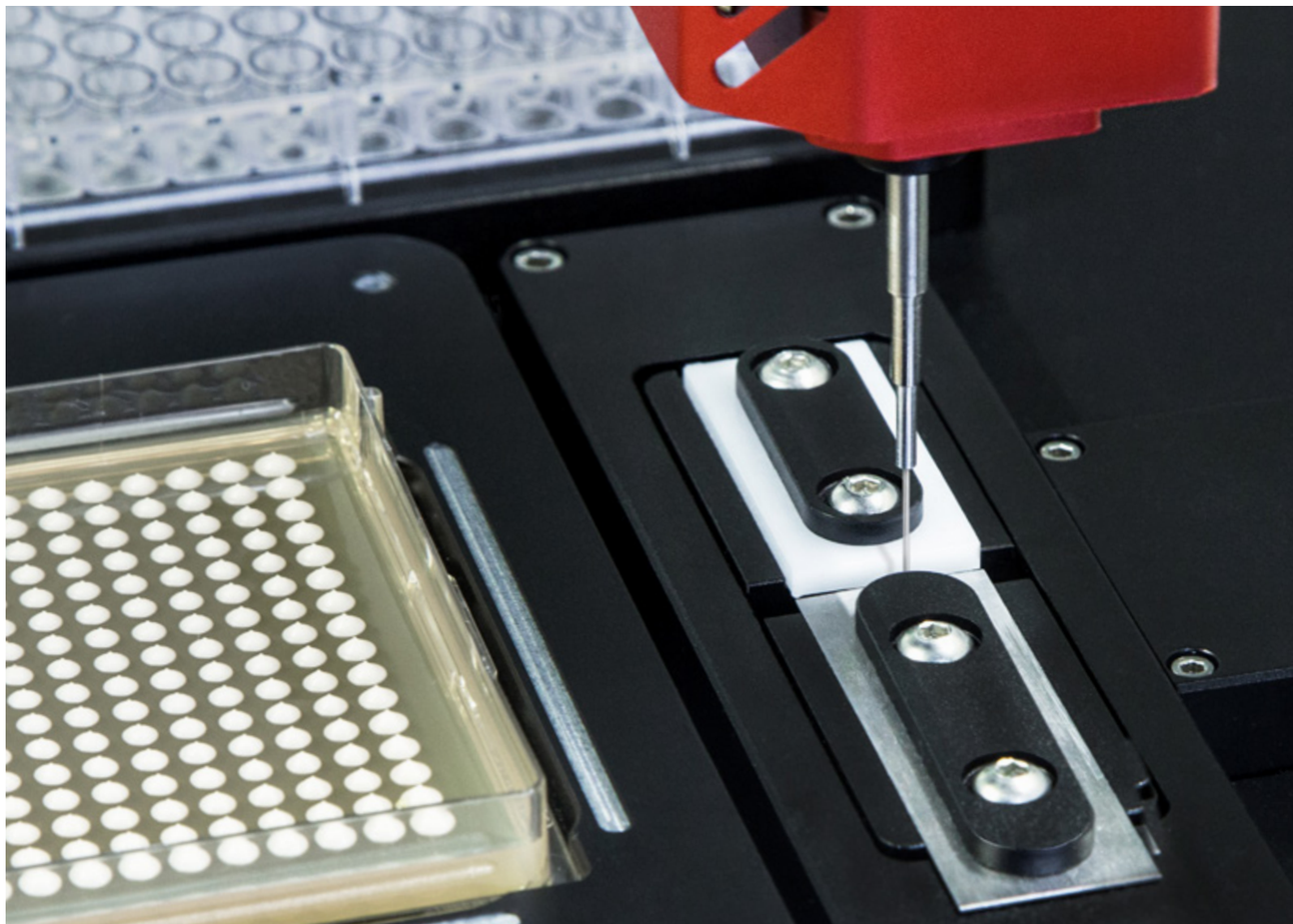
HOW DOES IT WORK?

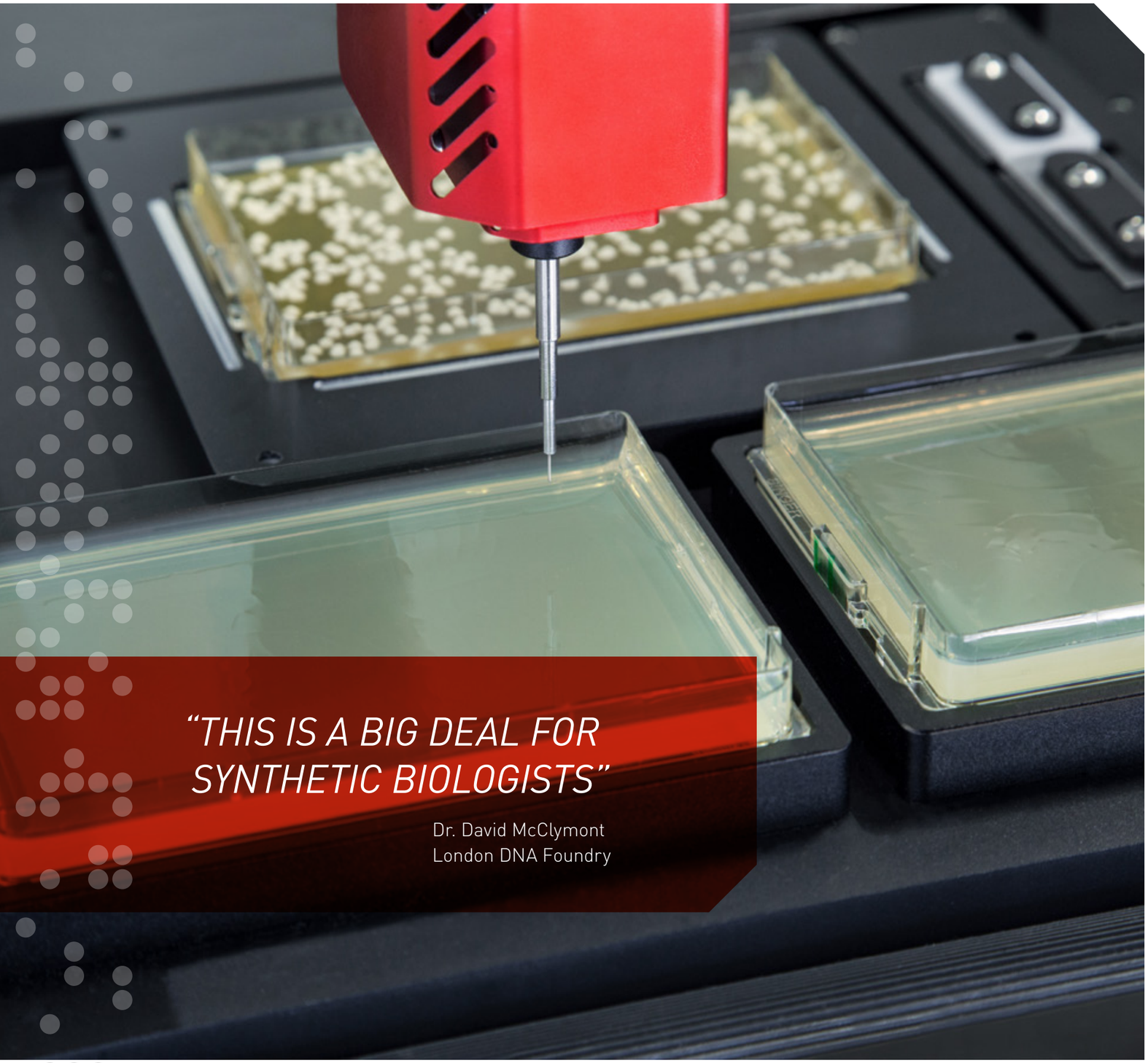
PIXL uses new, patent pending Pinpoint™ picking technology, meticulously developed for a step-change in reliability and sterility. Using the freshly-cut end of a sterile PickupLine™ to transfer microbial colonies, it eliminates the requirement for washing cycles and the associated chance of contamination, at a fraction of the cost of traditional tips.

Pinpoint™ can cope with any variation in agar height, automatically. It detects the surface and regulates the contact pressure for every pick. Which is a big deal! This ensures that every single colony on your plate is picked, without damaging, missing or splashing cells all over the place. The motors are accurate to 50 microns, to enable selection of even the smallest hits, and the picking profiles are adjustable to optimise for the most tenacious colonies.

PIXL contains a scientific grade, colour camera and 6-channel, flat-field SpectraStar™ incident illumination to capture high-resolution colony images from Petri dishes and rectangular PlusPlates. PIXL will automatically detect colonies, quantify phenotypes and allow target selection based on size, circularity, colour intensity, proximity, and fluorescence marker.







“THIS IS A BIG DEAL FOR SYNTHETIC BIOLOGISTS”

Dr. David McClymont
London DNA Foundry

WHY DO I NEED PIXL?

PIXL was developed in collaboration with leading synthetic biology incubators, SynCTI and SynbiCITE, and industrial partners SynthACE and Ginkgo Bioworks. All of whom were unhappy with existing colony picking options. We listened. We collaborated. We welcome: PIXL.

Screen and count colonies
Filter by: size, fluorescent intensity, colour, circularity, proximity or brightness.

Trust your results
Sustain close to 100% picking accuracy with precision agar surface detection on every pick.

Maintain sterility
Over 13,000 sterile, disposable tips in a single, low-cost PickupLine™. No wash cycles needed.

Detect fluorescence
6 lighting channels for detection of wtGFP, sfGFP, mCherry, tagBFP and Venus markers.

Train everyone
Anybody can learn to PIXL in just a few minutes.

Trace everything
Passworded profiles and automated experimental logging.

Zone your source plates
Organise inoculation patterns and data output for traceability based on customisable source plate zones.

WHAT FORMAT SOURCE PLATES DOES IT TAKE?

PIXL accepts 90mm and 150mm Petri dishes, as well as rectangular plates such as Singer PlusPlates.

WHAT FORMAT TARGET PLATES DOES IT TAKE?

PIXL pins onto agar or into liquid, on SBS-format rectangular plates, including 96 and 384 multiwell plates, both shallow and deep.

MAINTAIN PICKING ACCURACY & REPEATABILITY ACROSS UNEVEN AGAR SURFACES

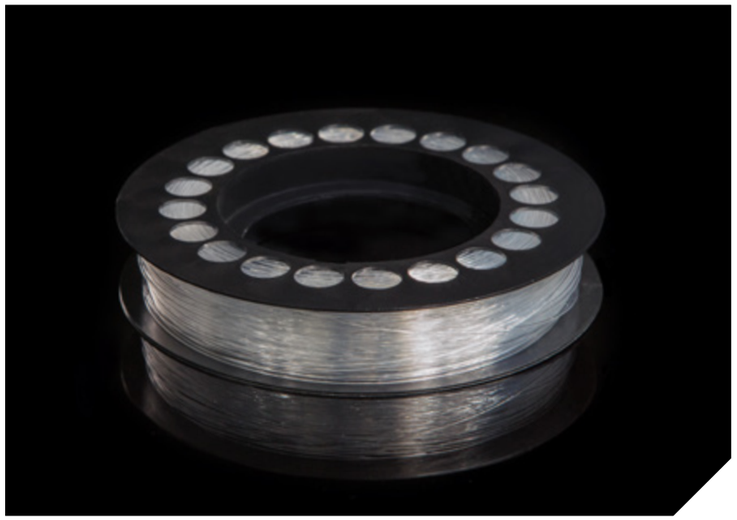
- Library Construction
- Colorimetric (including blue/white) Screening
- Synthetic Biology
- Protein Expression
- Strain Isolation
- Phage Display
- Enzyme Evolution
- DNA Sequencing
- Random Mutagenesis Screening
- Fluorescence Detection

PICKUPLINE™

Singer Instruments have over thirty years of precision microbial cell and colony picking experience. Whether colony picking from high-density *E. coli* arrays, or tetrad dissection with single yeast spores, Singer Instruments are trusted by thousands of labs worldwide. We have learnt a lot about colony picking over the years, and have used this experience to develop PickupLine™.

PickupLine™ is a 1mmø bespoke polymer extrusion, available in sterile 200m reels. Load a single reel into PIXL to form up to 33,000 sterile, disposable tips. Its cutting-characteristics allow PIXL's precision blade to produce a tip perfect for picking bacteria and fungal colonies.

- Select up to 33,000 colonies with each PickupLine™
- Sterile
- Tips optimised for microbial colony picking



SOFTWARE

PIXL is incredibly easy to use. 90% of the functionality can be learnt by anybody in as little as 10 minutes, without instruction. The touch-screen interface will guide you through your workflow setup to get you picking the right colonies in minutes, and with ease.

Our software engineers understand your biology! We spend a lot of time with our collaborators to make sure that our user interface thinks like you do.

You told us that PIXL needed to:

· Be easy to use by anybody in the lab
· Adapt to your protocol
· Trace and export every plate, colony and parameter

We took this and implemented a user-first approach to PIXL's development, implementing a simple, 7 stage process:

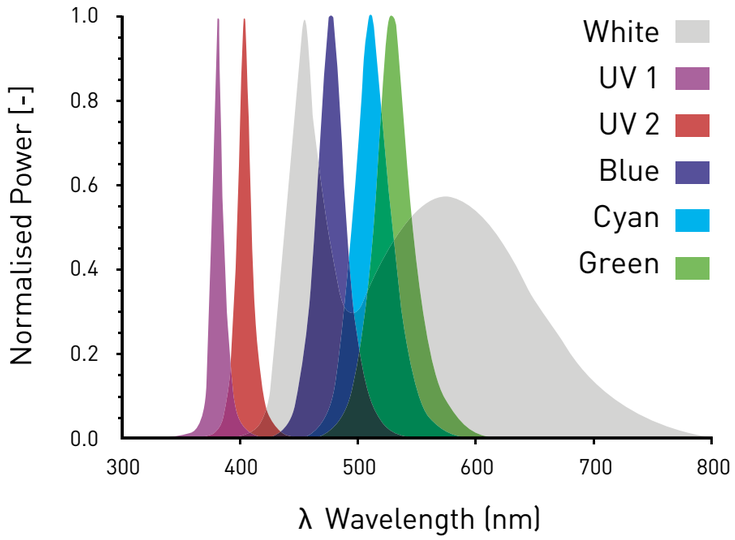
1. **Login** - Each user has their own passworded profile. PIXL remembers last used settings; stores templates; and logs user actions and parameters.
2. **Select Source Plate** - Petri or PlusPlate. Pick from the whole plate or define sectors of interest.
3. **Select Lighting Channel** - Use white, or one of 5 other fluorescent channels.
4. **Detect Colonies** - Filter based on: size, intensity, colour or circularity. Pick them all, or choose a sorted, or randomised subset.
5. **Select Target Plate** - Select number of replicates; on any density, in any pattern, agar or liquid.
6. **Pick Colonies** - Review your routine, estimated time and number of plates required, then press go and walk away.
7. **Export Data** - Export your routine, colony information and parameters as a CSV file.

SPECTRASTAR™ LIGHTING

6 SpectraStar™ lighting channels enable simultaneous colony detection across multiple fluorescent wavelengths, making experiments quicker and more cost-effective. PIXL will quantify and allow selection for wtGFP, sfGFP, mCherry, tagBFP and Venus as standard. To see if your favourite fluorescent marker is supported, please get in touch: contact@singerinstruments.com

PIXL's LEDs are configured as standard to emit: Blue, Cyan, Green, 2 intensities of UV and white light. The Normalised Power vs. Wavelength of the LEDs is shown below.

PIXL accepts standard 50mm filters. The filters can be manually inserted in front of the CMOS camera on a manual sliding mechanism. You can easily switch between all of your favourite lighting conditions to filter for the markers that interest you.



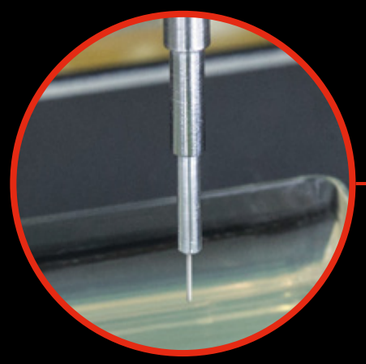
Source: Lumileds data sheets.

Blade & anvil cleaver for fresh PickupLine™ tips

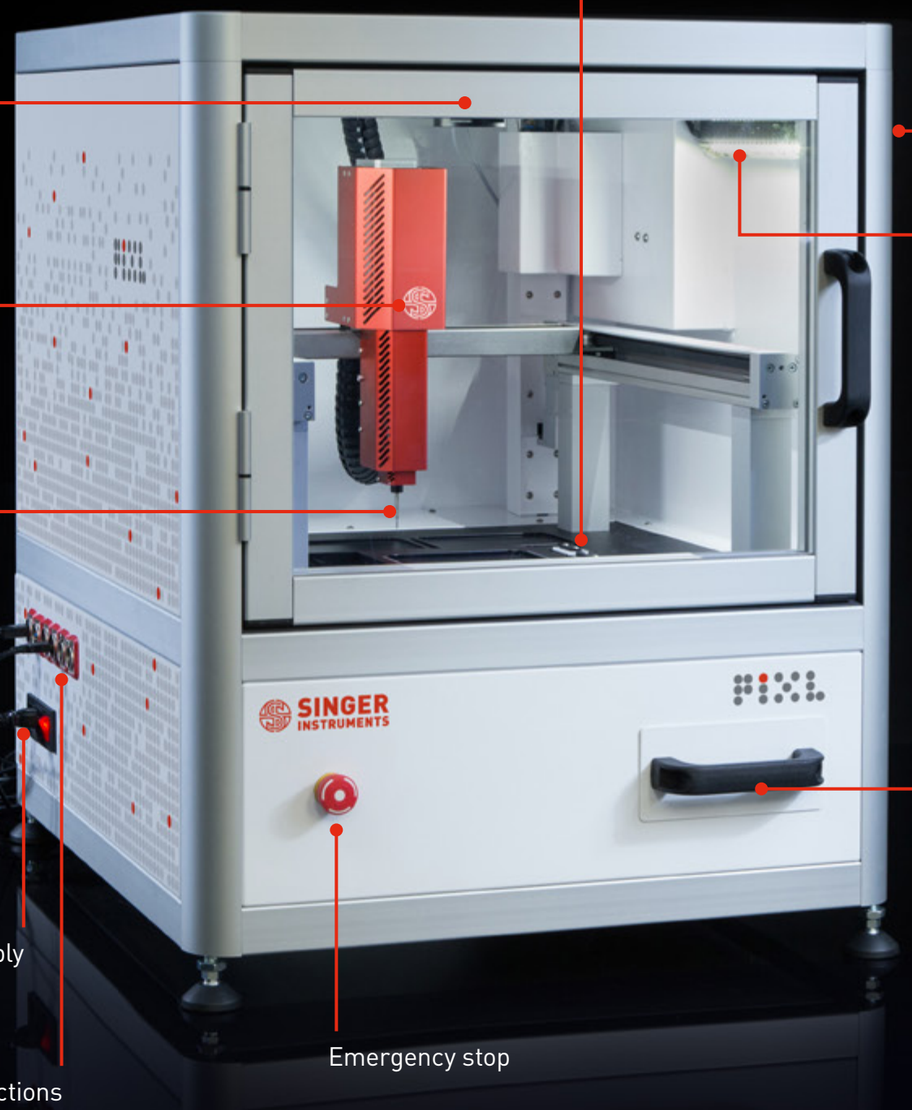
PickupLine™ loading compartment

Scientific grade, HD camera and filter tray

Pinpoint™ picking technology



Kinematic nozzle to dispense fresh PickupLine™



6-channel, flat-field SpectraStar™ incident illumination

Autoclavable waste drawer for used PickupLine™ tips

15.6", 1080p Full HD, LED-Backlit LCD Monitor

Power supply

Multiple connections

Emergency stop

TECHNICAL SPECIFICATIONS

STANDARD HARDWARE SET-UP

MODEL
PIXL

PRODUCT CODE
PIX-001

TECHNICAL SPECS
- **Length:** 730mm
- **Width:** 640mm
- **Height:** 805mm

- **Weight:** 70kg
- **Power:** 240v @ 10AMPs (2400w)

CAMERA
- 5MP (2448 x 2048) Resolution
- USB 3.0
- 2/3" Sensor
- 16mm Autofocus Liquid Lens

TOUCH-SCREEN
- 15.6'', 1080p Full HD, LED-Backlit LCD Monitor
- Edge-to-edge glass display with anti-glare
- 10 touch projected capacitive (PCAP)

TOP LIGHT
- 1x White Channel & 5x Fluorescence Channels

- UV 1 (380-390 nm)
- UV 2 (400-410 nm)
- Blue (465-485 nm)
- Cyan (490-510 nm)
- Green (520-540 nm)

WARRANTY
- 1 year

ONLINE DEMO

EXTRAS

ACCESSORIES

PICKUPLINE
PUL-001
Load a single 200m reel into PIXL to form up to 33,000 sterile, disposable tips.

BLADE & ANVIL KIT
BAK-001
Repeatable and reliable. Specially engineered for your PickupLine™.

PIXL DUMP DRAWER
PDD-001
An additional dump drawer can increase workflow — continue working while a dump drawer is being autoclaved.

PETRI DISH ADAPTOR
90MM: PET-002 150MM: PET-003
Easily adapt your PIXL source bay to work with PlusPlates, 90mm or 150mm Petri dishes.

KINEMATIC NOZZLE
KIN-001
For those who are super-cautious, but want to maximise PIXL's uptime: send one nozzle for autoclaving and use this spare.

FILTERS
452NM: PXF-001
510NM: PXF-002
527NM: PXF-003
615NM: PXF-004

SUPPORT

1-YEAR SUPPORT
SPX-101

1-YEAR SUPPORT PLUS
SPX-110

3-YEAR SUPPORT
SPX-103

3-YEAR SUPPORT PLUS
SPX-130

5-YEAR SUPPORT
SPX-105

80 YEARS OF MICROBIAL LAB AWESOMATION!

For over eighty years, Singer Instruments have been designing and manufacturing cutting-edge scientific research equipment.

No one understands the needs of microbiology researchers and yeast and bacteria manipulation better than Singers. From the automation of tetrad dissection using the MSM 400, to the ROTOR HDA personal omics robot, no one has done more to make microbiology accessible to all. From its headquarters in the beautiful Exmoor National Park in Somerset, UK, Singer ships robotic systems and associated products internationally.

World-leaders in instrumentation for yeast and bacteria, Singer Instruments are working hard to make continual improvements to help assist the scientific community.

SINGER INSTRUMENTS

A RESPONSIBILITY TO SCIENCE!

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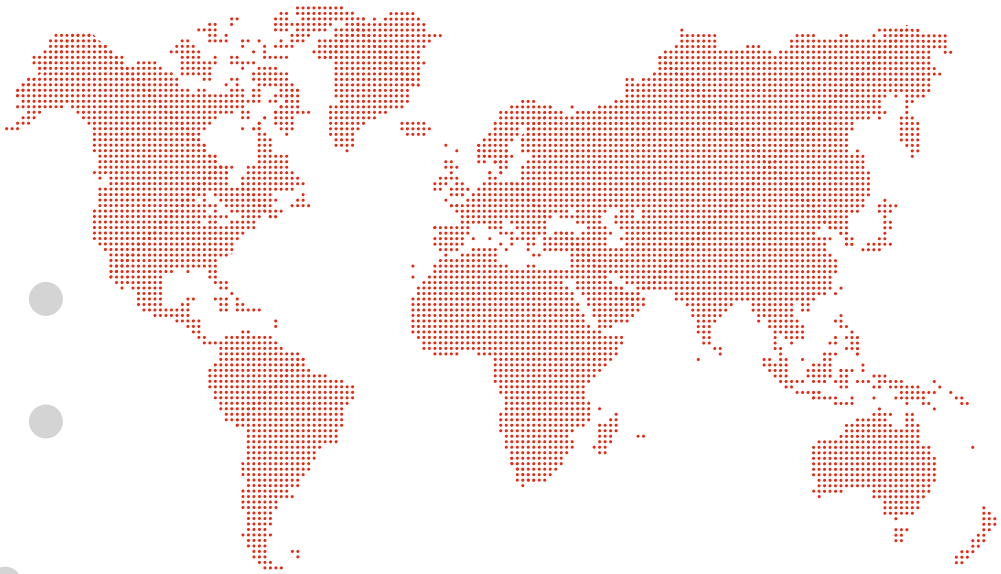

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