



## Automation of On-Slide PCR using VERSA™ Mini PCR Setup Workstation

### Introduction:

The polymerase chain reaction (PCR) is a highly sensitive technique, enabling researchers to rapidly select and amplify a specific target sequence from a background of non-related sequences. It has been demonstrated that it is possible to perform PCR on samples adhered to microscope slides. On-slide, *in situ* PCR enables effective detection of low-copy sequences and permits cell-by-cell gene expression testing.

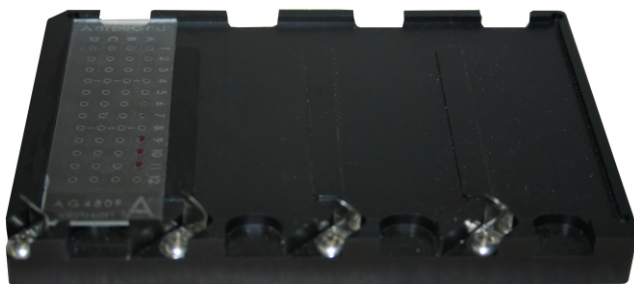
Advantix's AmpliSpeed slide thermocycler was specifically designed as a compact thermocycler capable of performing all PCR reactions on a standard glass slide. AmpliGrid glass slides have a special chemically structured surface with DNA free reaction centers. 5 µL of sealing solution must be applied to each droplet on the slide surface. This platform enables users desiring ultra low volume tests in the 1 µL range. This novel system maintains superior convenience, speed, sensitivity, efficiency and reproducibility. It is possible to analyze according to a cell by cell and/or gene by gene approach. Any template material that may be fixed to slides - including clinical or forensic stains and purified nucleic acids can be used with this approach.

### Automation:

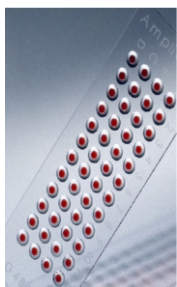
Aurora has automated the liquid handling portion of the on-slide PCR reaction setup. Aurora's VERSA™ workstations are highly precise liquid handling workstations, thereby ensuring contamination free sample processing. On-slide PCR setup has been automated on both the VERSA™ Mini PCR Setup Workstation, and VERSA™ Gene Workstation platforms. These workstations automate the complete process from pipetting the samples, preparing & distributing master mixes on to the designated spots on the slide surface, to retrieval of the master mix of the samples after the PCR run. Aurora offers two options: **(1)** Slide preparation using a customized slide holder as shown below, or **(2)** On-deck integration of the AmpliSpeed thermocycler.

By customizing the VERSA™ deck to include a built in AmpliSpeed slide cycler, users can now automate the entire process from start to finish, performing the liquid handling, PCR, and post PCR liquid handling steps directly on the VERSA™ deck.

This platform provides a cost effective mechanism to carry out amplification or hybridization based tests as well as any other high throughput on-slide amplification reactions.



AmpliGrid Adaptor holding a AmpliGrid 1 µL reaction slide



AmpliGrid Slide

### Features & Benefits

- Fully automated PCR on standard microscope slide
- Reduced reagent costs
- Increased output
- Performs PCR Set-up, clean-up and thermal cycling on one liquid handling workstation
- High throughput - process multiple slides simultaneously for maximum efficiency and yield

### Applications

- Slide Setup for:
  - On-slide ultra-low volume PCR techniques
  - On-slide Sequencing
  - Microfluidics
  - In situ PCR
  - FISH
- Liquid handling protocols

### Workstation

- See the VERSA™ Mini PCR setup Workstation flyer for detailed system information or contact your dedicated Aurora sales representative

**NOTE:** Instrument specifications may change without notice as an ongoing effort of product improvement.

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## Automation of On-slide PCR (AmpliSpeed)