Autoplex Specifications

Autoplex G1 w/heating coil

- Stainless steel tip holds up to 150µl of liquid
- Probe tubing holds up to 3.18ml of liquid (length=88in, diameter=0.673mm/0.053in, 36.1µl/inch-high surface area)

Autoplex G2 w/o heating coil

- Stainless steel tip holds up to 150µl liquid
- Probe tubing holds up to 2.35ml of liquid (length=65in, diameter=0.673mm/0.053in)

System Reagent Usage/Content – based on software settings when running a FULL plate assay (12 strips)

- Software Settings – Strategy: 'Mode1' or 'Skip redundant wash probes' is CHECKED …
  - … and 'Save Reagent' ON – Probe Content:
    - Extra reagent used = 100µl x 12 = 1200µl = 1.2ml
    - Total volume required = (extra reagent) + (total reagent volume dispensed) = 1.2ml + 9.6ml = 10.8ml
    - Max Probe Content = (extra reagent) + (strip 12 reagent volume dispensed) = 1.2ml + 0.8ml = 2.00ml ⇒Does NOT exceed probe capacity
  - … and 'Save Reagent' OFF – Probe Content: 160µl x 12 = 1920µl/1.92ml extra reagent used; total volume required = (extra reagent) + (reagent volume dispensed) = 1.92ml + 9.6ml = 11.52ml; max Probe volume =
    - Extra reagent used = 160µl x 12 = 1920µl = 1.92ml
    - Total volume required = (extra reagent) + (total reagent volume dispensed) = 1.92ml + 9.6ml = 11.52ml
    - Max Probe Content = (extra reagent) + (strip 12 reagent volume dispensed) = 1.92ml + 0.8ml = 2.72ml ⇒Does EXCEED probe capacity ⇒'Large syringe stroke error' ⇒Error eliminated in software v.6.4.1.753 or later

- Software Settings – Strategy: 'Mode0' or 'Skip redundant wash probes' is NOT CHECKED …
  - … and 'Save Reagent' ON – Probe Content:
    - Extra reagent used = 100µl x 12 = 1200µl = 1.2ml
    - Total volume required = (extra reagent) + (total reagent volume dispensed) = 1.2ml + 9.6ml = 10.8ml
    - Max Probe Content = (strip 12 extra reagent) + (strip 12 reagent volume dispensed) = 100µl + 800µl = 900µl ⇒Does NOT exceed probe capacity
  - … and 'Save Reagent' OFF – Probe Content:
    - Extra reagent used = 160µl x 12 = 1920µl = 1.92ml
    - Total volume required = (extra reagent) + (total reagent volume dispensed) = 1.92ml + 9.6ml = 11.52ml
    - Max Probe Content = (strip 12 extra reagent) + (reagent volume dispensed for strip 12) = 160µl + 800µl = 960µl ⇒Does NOT exceed probe capacity

Plate Washer

- Tubing Volume
  - Bottle to Machine = 3.32ml
  - Valve System = 3.97ml
  - Valve system to Wash head = 6.27ml
- Total Tubing Volume = 13.56ml

‘Start of the Day’ Routine

- Software v.6.4.1.745 and earlier
    - Lamps are turned on (LPON)
    - Photometer is blanked to air (RAIR)
    - Dilutor is initialized (syringes rehomed)(DINI)
    - Dilutor pump is primed – one full stroke of both syringes – 2x; probe is washed with 1ml of water (2x DPRI1)
    - Probe washed 2x with 2ml water (total 4ml) (2x WPRB2000)
    - Plate Wash System is primed 2x with wash bottle fluid (2x 6ml = 12ml total) (2x WPRI)
- Software v.6.4.1.753 and later
    - Lamps are turned on (LPON)
    - Photometer is blanked to air (RAIR)
    - Dilutor is initialized (syringes rehomed)(DINI)
    - Dilutor pump is primed – one full stroke of both syringes – 2x; probe is washed with 1ml of water (2x DPRI1)
    - Probe washed 4x with 2ml water (total 8ml) (4x WPRB2000)
    - Plate Wash System is primed 2x with wash bottle fluid (2x 6ml = 12ml total) (2x WPRI)

‘Prime Syringe’ Routine

- Software v.6.4.1.745 and earlier
    - Dilutor pump is primed – one full stroke of both syringes – 2x; probe is washed with 1ml of water (2x DPRI1)
    - Probe washed 1x with 2ml water (total 2ml) (1x WPRB2000)
- Software v.6.4.1.753 and later
    - Dilutor pump is primed – one full stroke of both syringes – 2x; probe is washed with 1ml of water (2x DPRI1)
    - Probe washed 3x with 2ml water (total 6ml) (3x WPRB2000)

‘Prime Wash/Rinse Bottle’ Routine

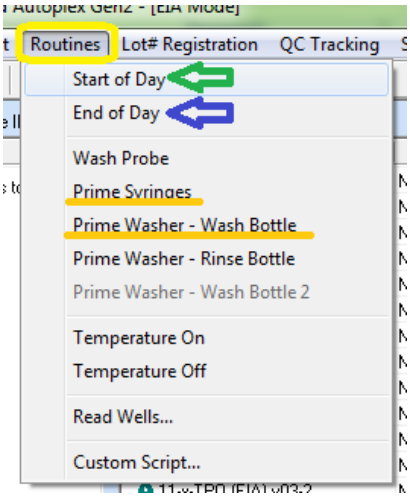
- All Software versions (to date)
    - Plate Wash System is primed 2x with bottle fluid (2x 6ml = 12ml total) (2x WPRI)

Autoplex – Regular Maintenance

Monobind Recommendations

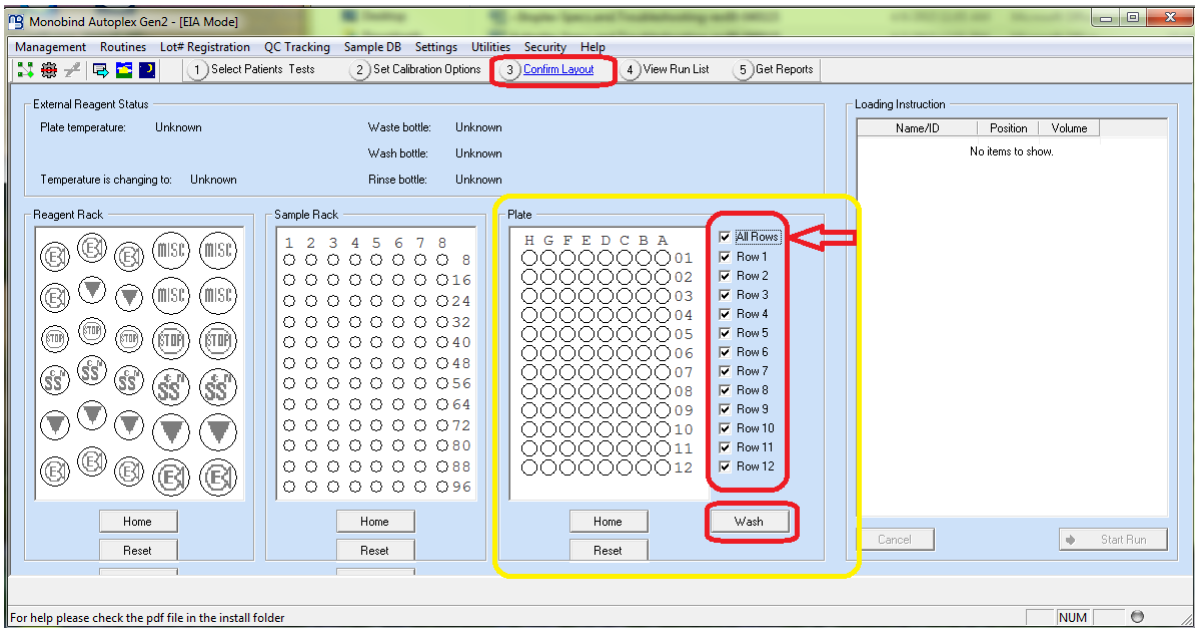
DAILY:

- 'Start of the Day' Routine
    - Visually check the flow of fluids through the wash system and the probe. If the fluid flow is not steady and even, perform additional 'Prime Syringes' and/or 'Prime Washer – Wash Bottle'
- 'End of the Day' Routine



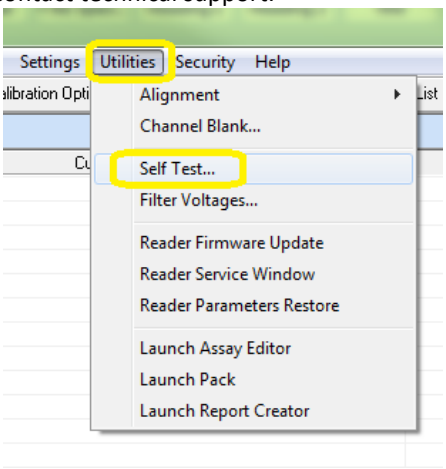
WEEKLY:

- Waste Container:
    - Wash out the waste container prior to performing any other maintenance
- Plate Wash Apparatus
    - Prime/clean the wash system by washing a full plate; see steps below.
    - Procedure:
        1) Place a blank or old/used, empty plate in the machine
        2) In the Autoplex manager, go to tab "3 – Confirm Layout"
        3) Next to the picture of the plate layout, select 'All Rows' to select all rows of the plate
        4) After verifying a plate is in the machine, press the "Wash" button at the bottom of the plate layout picture.
        5) Wait for the machine to wash all 12 strips of the plate and proceed with remaining maintenance.

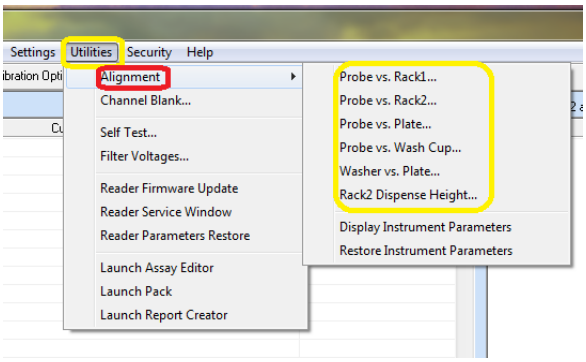


MONTHLY:

- Self Test
  - This is performed to check the performance of the instrument, including accuracy and precision. If the test fails, perform all of the below maintenance and re-run. If the test fails again after all the maintenance is performed, contact technical support.

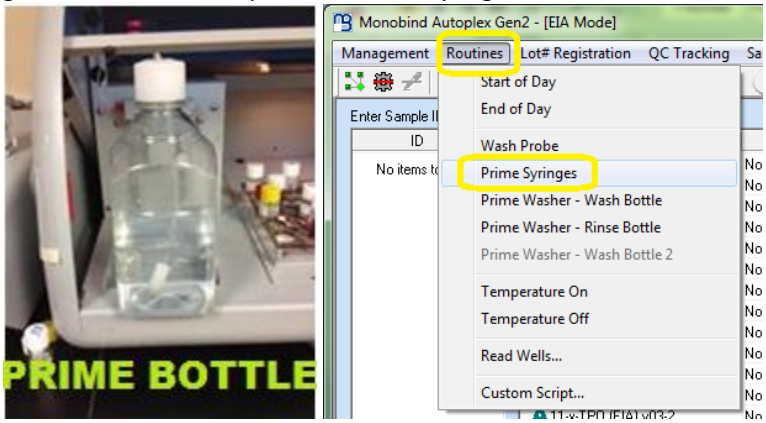


- Alignment
  - Typically alignments hold for several months, but it is good practice to check these regularly.
  - The “Alignments” can be accessed under the “Utilities” menu.



- Probe vs. Rack 1/2: The probe should be set 1-2mm above the rack pins
- Probe vs. Plate: The probe to plate dispense height should be set such that the probe lightly touches the center of the well bottom.
- Washer vs. Plate: Check that the washer is level with respect to the well bottoms A-H. The wash head should be set to lightly tap the well bottoms during the alignment procedure.

- Wash Head
  - Remove the wash head and clean each probe with the cleaning needle provided in the spare parts kit. Then run DI water through both luer fittings of the wash head to clear/rinse out any residue and ensure a steady, even flow of fluid.
  - Re-attach the wash head properly and prime the wash system.
- Syringes
  - Remove both syringes and work them manually to check for even and sufficient amounts of resistance. Replace if too loose or uneven resistance.
- Alcohol Cleaning of System
  - Cleaning the system with 70% Isopropyl alcohol helps to clear the syringes and tubing of any air bubbles or contamination. This regular cleaning helps with accuracy and precision.
    - An alternative 0.1N HCl solution can also be used for decontamination by following the same procedure below.
  - Procedure:
    - Replace the 'Prime Bottle' with a bottle containing 70% isopropyl alcohol.
    - The press the "Prime Syringes" button found under the "Routines" menu. Repeat this three(3) times.
    - When the cycle is complete, replace the 70% isopropyl alcohol bottle with the 'Prime Bottle' containing fresh DI water and repeat the "Prime Syringes" function at least four(4) times.



Trouble-Shooting Monobind Recommendations

RESULT: Bad Duplication

Possible Cause	Solution
Bubbles in samples	• Use a pin or needle to burst.
Dispensing error.	• Perform extra 'Prime Syringes' • Perform 'Alcohol Cleaning' as defined in the monthly maintenance • Check the physical condition of the syringes

RESULT: High Background

Possible Cause	Solution
Contamination	• Switch to 'Mode 0' or 'Skip redundant wash probes' NOT checked • Perform extra 'Prime Syringes' • Perform 'Alcohol Cleaning' as defined in the monthly maintenance • Add 'CleanProbe' with 0.1N HCl (2000µl) after the Enzyme/Tracer reagent dispense
Insufficient Wash Step	• Perform 'washer vs. plate' alignment • Prime 'plate wash apparatus' as described in the weekly maintenance • Clean the wash head as described in the monthly maintenance • Increase the number of wash cycles performed

RESULT: High Absorbance over entire plate

Possible Cause	Solution
Dispensing error.	• Perform extra 'Prime Syringes' • Perform 'Alcohol Cleaning' as defined in the monthly maintenance • Check the physical condition of the syringes
Wash Step	• Increase the number of wash cycles performed
Contamination	• Switch to 'Mode 0' or 'Skip redundant wash probes' NOT checked • Perform extra 'Prime Syringes' • Perform 'Alcohol Cleaning' as defined in the monthly maintenance • Add 'CleanProbe' with 0.1N HCl after Enzyme/Tracer reagent dispense

RESULT: Assay Drift

Possible Cause	Solution
Reagents/samples are not at room temperature	• Dispense samples/reagents only when ALL are at room temperature to prevent variation of temperature throughout the plate wells
Application is not up-to-date	• Contact technical support for most up-to-date software and application files