

# AutoZONE

## Gantry Installation and Test Scan

### AutoZONE Gantry Installation

1. Connect the gantry power supply cable to the mains supply.
2. Attach the lens to the camera (the latter is attached to the gantry bracket).
3. Install the camera/bracket onto the gantry bracket mounting shaft ensuring that the USB cable port on the camera is at the bottom left position.

### For an AutoZONE that consists of ProtoCOL hardware and gantry:

4. Connect one end of the RS232 cable to the gantry and the other end to the COM 1 port of the ProtoCOL hardware (see *System Connections*, page 1-3, for general instructions on how to make connections to the ProtoCOL hardware).
5. Connect the USB cable to the camera and other end to the ProtoCOL.
6. Connect the ProtoCOL power supply cable to the mains supply.
7. Connect the monitor power supply cable to the mains supply.
8. Connect the monitor, keyboard and mouse to the ProtoCOL.

### For an AutoZONE that consists of a gantry and the PC is supplied by the dealer/customer:

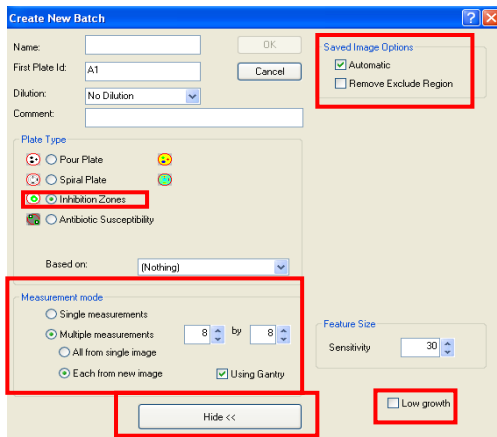
4. Install ProtoCOL software version 1.40 or later resulting in a green/blue ProtoCOL hardware desktop icon.
5. Run the ProtoCOL Administrator Options program and click on the Systems tab and check Low growth method for zones measurement. Go to the Comms Settings tab and click on the Gantry radio button. Click on the Port Parameters button and leave the defaults as set. Go to the Grabber Settings tab and click on the New button below the External Cameras list. Locate VRMagic in the list of External Cameras and click on the Add button. Click OK. Click OK. A RegChange dialogue box will appear asking you to confirm changes to the registry. Click Yes.
6. Connect one end of the RS232 cable to the gantry and the other end to the COM1 port of the PC.
7. Connect the USB cable to the camera and other end to the PC.
8. Connect the PC power supply cable to the mains supply.
9. Connect the monitor power supply cable to the mains supply.
10. Connect the monitor, keyboard and mouse to the PC.

**Please note** that if the PC is supplied by Synbiosis then the ProtoCOL software will already be installed on the PC.

Then position the white light pad on the gantry stage by pushing through from the front. Connect the power cable to the white light pad and the other end to the power supply. Turn the switch on for the white light pad.

### Creating a New Study and Creating a Batch

1. Run the ProtoCOL software (double clicking on the green/blue ProtoCOL hardware icon). A live image should result.
2. Select the New Study icon and enter a name. This will result in the Create New Batch dialogue box.
3. Within the Create New Batch dialogue box check the Inhibition Zones radio button for the Plate Type, check the Multiple measurements radio button for the Measurement mode. In addition check the Each from new image radio button, use the arrows to set the number of zones e.g. 8x8 and finally check Using Gantry. Click on the Advanced >> tab and check Automatic for Saved Image Options (Advanced>>becomes Hide<<). Uncheck Low Growth.



4. Click OK.
5. Select the ProtoCOL+Camera icon (external camera) within the ProtoCOL software.

### Setting up the Camera for a PC based system

1. There are two locating arms on the gantry and these may need to be adjusted so that the camera can see the entire imaging area of the bioassay plate/sample. If adjustment is needed to these positions first remove the black plastic covers to access the bolts, then loosen and move the locating arms. Secure in place and replace the black plastic covers.
2. Below the image you will see settings for Exposure Time and Sensitivity. Enter an exposure time of at least 60ms (shorter exposure times can result in image flicker).
3. Adjust the camera lens aperture ring to obtain an image of good contrast.
4. Adjust the camera lens focus ring until the zone appears sharp. If the zones are too big or too small then remove (if fitted) or add an extension tube, respectively - first remove the lens from the camera, add the extension tube to the top of the lens, screw the lens/extension tube assembly onto the camera. If you have added/removed an extension tube you will need to adjust the focus; in addition you may need to move the camera along the bracket mounting shaft - remove the 2 black plastic covers on the shaft to allow access to the bolts, unscrew, move the camera, secure in place and replace the black plastic covers. The bigger the appearance of the zone in the image pane the more accurate the calibration and subsequent zone measurement.
5. Resize and reposition the (blue) frame such that it appears in the centre of the image.

### Calibrating the Study

1. Remove the sample plate. Place a ruler on the white light pad in view of the camera.
2. Click on the Calibrate the study icon.

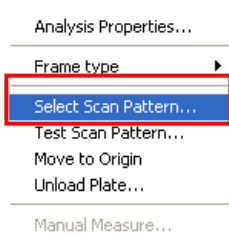


3. Click on two positions on the image of the ruler and enter the corresponding numerical value and dimensions, eg, 20mm. Click OK.
4. Remove the ruler. Place the sample plate on the white light pad up against the locating arms.

### Setting the Scan Pattern

To set the scan pattern so that the readings are taken from the correct positions on the plate:

1. Right click on the image pane and choose Select Scan Pattern.

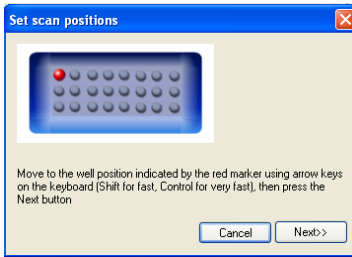


Setting up the Camera for a PC based system

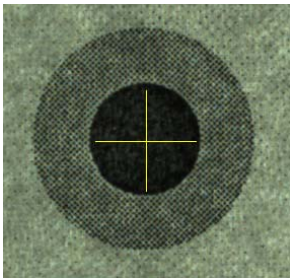
Calibrating the Study

Setting the Scan Pattern

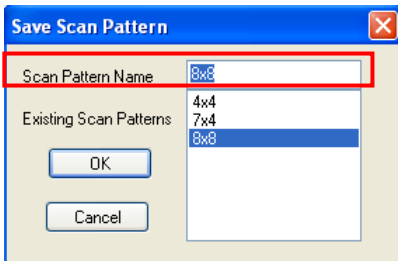
- If the pattern you want to use has already been defined, go to step 6; otherwise press the New Pattern button to display the Scan Pattern Start dialogue box. The camera will move to the top left position and the Set Scan Positions graphic will appear.



- Use the keyboard arrow keys to position the camera so that the first well (at row 1, column 1) is central in the measurement frame and aligned with the crosshair. To move the camera more quickly, press the keyboard Shift key before pressing the arrow key. If the gantry needs to be stopped for any reason press the keyboard Esc key.



- Press Next. Use the keyboard arrow keys to move the camera to the end position on the top line (the well is marked red in the graphic). Press Next. Use the keyboard arrow keys to move the camera to the bottom row end position. Then press the Finish key to display the Save Scan Pattern dialogue box.
- Enter a name for the scan pattern in the Scan Pattern Name box. The name you have given to the new pattern will now be shown in the Existing Scan Patterns list.

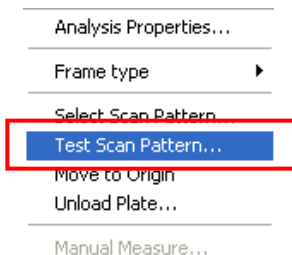


- Click on the name of the scan pattern you want to use in the Existing Scan Pattern list to select it and press OK to close the dialogue box.
- Reposition the (blue) frame such that it is centred on the zone in view and resize the frame as necessary.

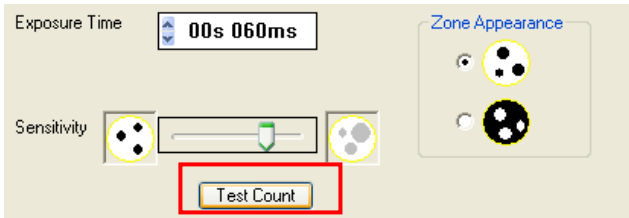
### Testing the Scan Pattern

To test the scan pattern:-

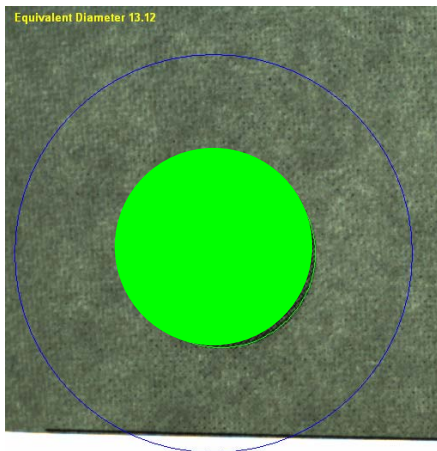
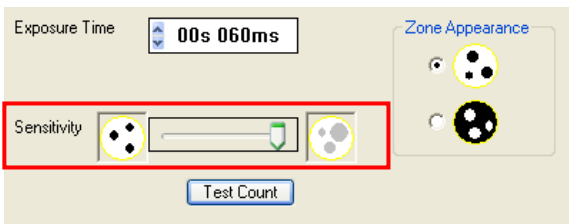
- Right click in the Image pane to display the image context menu and choose Test Scan Pattern.



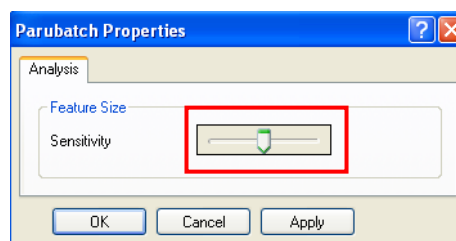
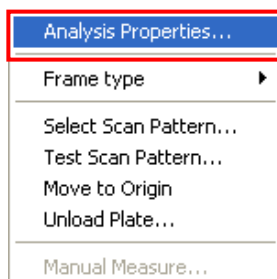
- The gantry will scan over the plate pausing briefly at each well position. Press the keyboard Esc key if you want to stop the test before it is completed.
- Click on Test Count (below the image).



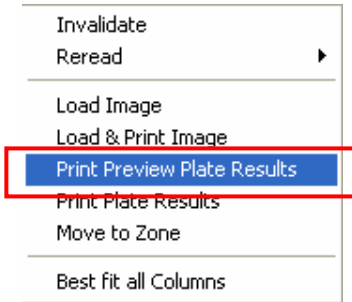
- You may need to adjust the Sensitivity Slider to obtain a green measurement ring that accurately encircles the zone and an equivalent diameter is reported on the image.



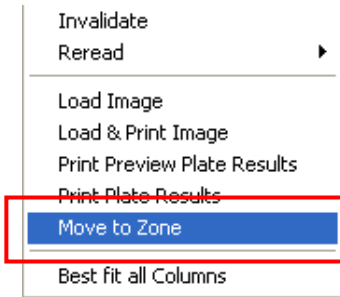
- If the green measurement ring is not in the correct position, then right click and choose Analysis Properties and for the Feature Size move the slider until the green measurement ring surrounds the zone.



6. Press the keyboard spacebar and the gantry will move measuring zones and then return to the home position (top left).
7. Right click on the Results table and choose Print Preview Plate Results.



If a printer or printer driver is installed (recommended) this will result in the generation of a montage of all the zones allowing you to see the positions of all the green circles and a results table of the zone sizes. If any sizes of the zones appear incorrect then right click in the corresponding Results table cell and choose Move to Zone.



Click on Test Count, confirm the incorrect zone size, then alter the Sensitivity and Feature Size. Click on Test Count to see the new position of the green circle.

If the gantry does not pause at the correct positions, check that the batch has the correct number of rows and columns and that the plate is aligned correctly with the gantry. If the positions for the wells are still incorrect, reselect or redefine the scan pattern.

All images and files will be automatically saved within Shared Documents/Studies.



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