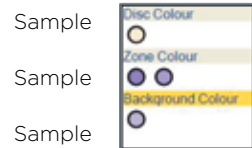


SYNBIOSIS PROTOCOL 3 QUICK GUIDE

10 Identify zones



From Image click on an area of the disc or well to pick colour, repeat for zone and the background. Be sure to take representative samples from across the plate.

Click Next.

11 Review zone measurements

Click



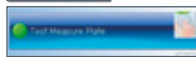
If all zones are detected click Finish, if not repeat step 8 and ensure all of the zones are central.

12 Measure

Click



Click



Click



Select Measure tab.

Test Measure Plate.

Assign a plate ID.

Accept batch.

ProtoCOL 3 is now ready to make the first measurement

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- 1 **GETTING STARTED**
- 2 **CONNECTING YOUR TOUCH SCREEN PC**
- 5 **SOFTWARE INSTALLATION**
- 14 **HOW TO ADD A USER**
- 18 **COUNT VALIDATION PROCEDURE**
- 20 **ZONE VALIDATION PROCEDURE**
- 22 **TOTAL PLATE COUNT BATCH SET-UP**
- 24 **INHIBITION ZONE BATCH SET-UP**

GETTING STARTED

Thank you for ordering your **Synbiosis ProtoCOL 3** automated colony counter and zone sizing system.

If you ordered your device with a touchscreen PC, please follow from page 2 but ignore pages 5-13 (SOFTWARE INSTALLATION) as this has already been completed for you. Alternatively if you ordered your device without a touchscreen PC, please follow from page 5 onwards.

All guides and validation procedures ordered will be located on the computer's desktop if you ordered a PC, or on the installation USB, if you didn't.

Should you require any additional assistance installing your device, please contact **support@synbiosis.com**.

CONNECTING YOUR TOUCH SCREEN PC

1 Unpack ProtoCOL 3

→ Unpack the instrument and the PC and place on a secure level surface.

2 Attach bracket and PC to ProtoCOL 3 body



→ Attach the black bracket with PC to the instrument via the silver mounting plate as shown. The four screws are secured using a Phillips screwdriver (not supplied).



→ Leave the three leads free and sitting between the bracket as shown.

3 Attach monitor leads



→ Attach the 2 monitor leads to the monitor before attaching the monitor to the PC/bracket. Ensure that the ferrite is further from the monitor so that it does not impede monitor positioning.

4 Attach leads to PC and monitor



→ Attach the leads to the PC and to the monitor before securing the monitor onto the bracket (step 5). They are labelled to help you.

5 Attach monitor to PC/bracket



→ Slide the bracket (attached to the monitor) over the top, lining the two pins with holes in monitor bracket - taking care to feed the cables under the monitor so as not to impede the movement of the monitor.

→ Secure the monitor onto the bracket using the 4 screws.

6

Attach power cords to the mains power blocks



→ There are 2 power leads found at the back of the **ProtoCOL 3** system. Attach the mains cables provided to the power blocks and plug into a socket.

THE DEFAULT LOGIN DETAILS FOR THE PROTOCOL 3 PLUS ARE

Username:
P3Admin

Password:
The unit's serial number in capitals
(located on the rear of the device)

SOFTWARE INSTALLATION

1

Start PC

→ Log onto PC as an Administrator and shut all running software down.

2

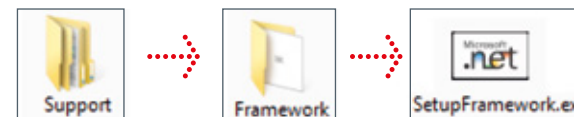
Insert the Synbiosis USB flash drive



→ Browse to the flash drive in Windows named 'Software'.

3

Install Microsoft.net Framework

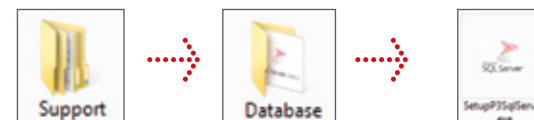


Run SetupFramework.exe. Follow the on-screen instructions, performing a system restart if prompted. If you are prompted that this program is already installed then proceed to the next step.

4

Install SQL Server Database

ProtoCOL 3 software requires Microsoft's SQL Server. If you already have a SQL server at a remote location press OK and go to step 5, otherwise press Cancel and follow step 4.



Run SetupP3SqlServer.exe following on-screen instructions.

5

Install the ProtoCOL software



Run Setup.exe following on-screen instructions.

6

Connect the ProtoCOL 3



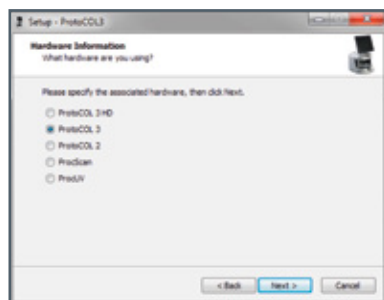
- Connect the power cord to the **ProtoCOL 3** and plug the unit in.
- Connect the camera USB cable from the **ProtoCOL 3** unit to a spare USB port in the PC.
- Switch on the **ProtoCOL 3** using the switch on the side of the unit.

7



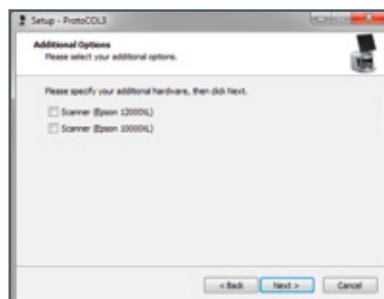
→ Press Next.

8



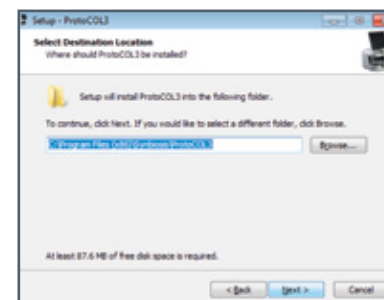
→ Select the device you are using from the list and press Next.

9



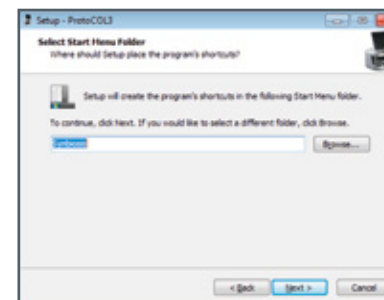
→ Select any additional hardware you have purchased from the list then click Next.

10



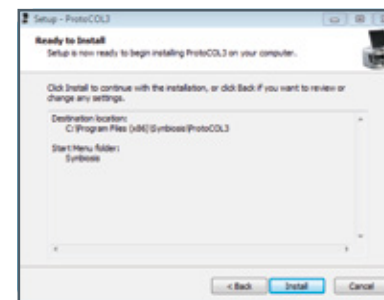
→ Press Next or select an alternative install location.

11



→ Press Next or select an alternative folder.

12



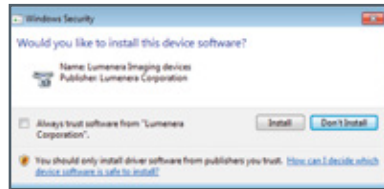
→ Press Install.

13



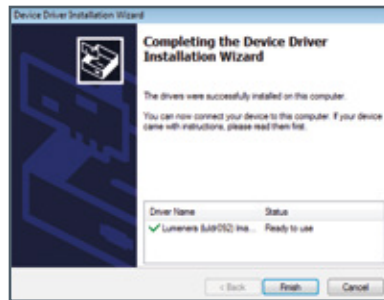
→ Press Next.

14



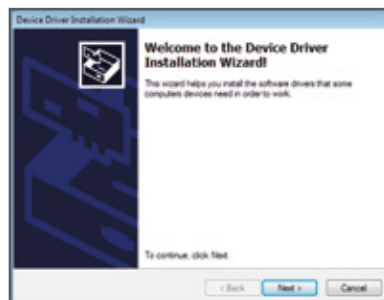
Press Install.

15



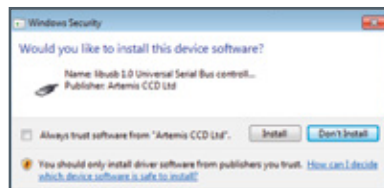
Press Finish.

16



Press Next.

17



Press Install.

18



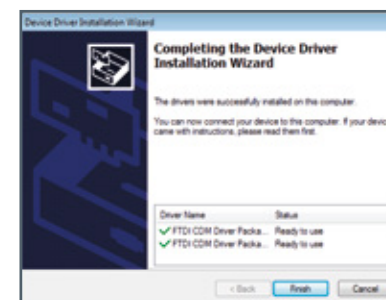
Press Finish.

19



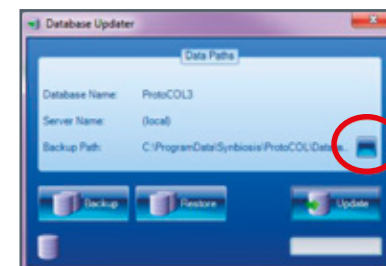
Press Next.

20



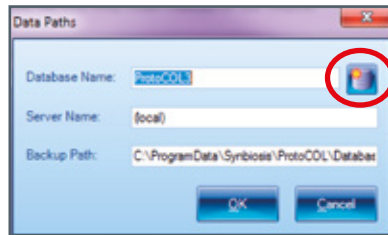
Press Finish.

21



The Database Updater application will appear. If this box disappears after a few seconds then skip to step 25. If the box remains on display then this means the database has not been created. If this is the case then press the blue button with three dots and go to step 22.

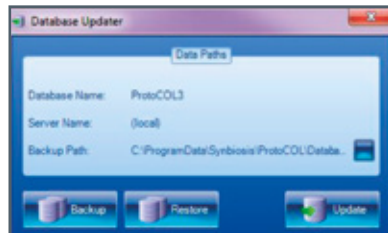
22



→ The data paths window will appear. Enter a name for the database e.g. (ProtoCOL DB).

Press the New Database button (on the right hand side of the Database Name). You will see a message saying "Database Successfully Created", press OK, then press OK again on the Data Paths window.

23

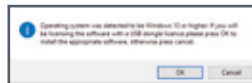


→ Press the Update button. If any database updates are required they will be applied and the dialog will close.

Please Note:

After the installation of the camera and serial drivers the installer will check to see if the user is running Windows 10. If you are installing **ProtoCOL 3** on a Windows 10 computer the installation wizard will not appear. Instead you will be asked to confirm you are using a USB dongle to license the software.

If Windows 10 is being run then a prompt will appear with the dialog below.



If OK is selected, the dongle drivers will be updated to the correct version and the install wizard will not run. The user will receive the following message:

"Completed USB dongle software installation. Please connect your USB dongle licence following completion of the **ProtoCOL 3** software installation".

If Cancel is selected the normal install wizard will appear later so the media key method of installing a licence can be used. The install licence is available after installation via : **Windows Start->Synbiosis->Support->Install Wizard**



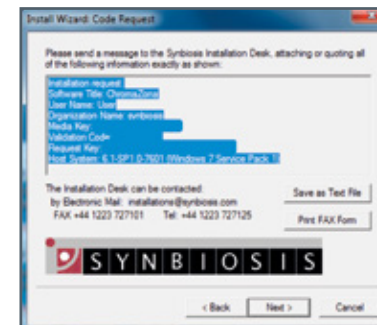
→ If the machine did not activate automatically the licensing wizard will appear. Select the appropriate method for licensing and press Next. If using a hardware key (a USB dongle) do not connect the key until instructed to by the wizard. The pages that follow will vary depending on the selection.

24

Software Key Activation Method

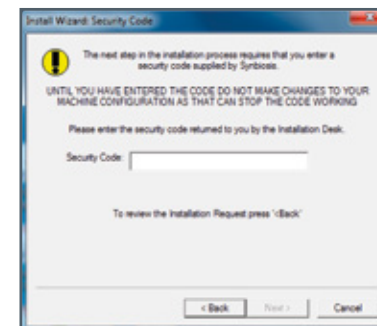


→ Enter the media key provided in your installation kit, also located on the USB.



→ Copy and paste the information highlighted in blue and email to **installations@synbiosis.com**.

An email will be sent back with a security code to use in the next step. (Please note that the email does not need to be sent from the device. The sender will receive the code).

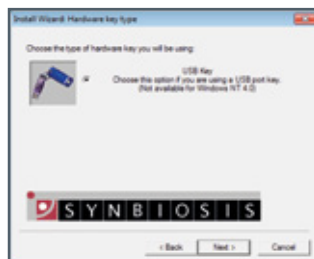


→ Enter the security code received from **installations@synbiosis.com** and click Next.



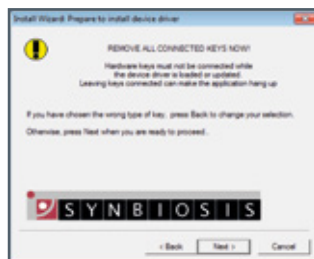
→ Your activation is now complete. Press Finish.

Hardware Key Activation Method



➤ Select the USB key.

Click Next.



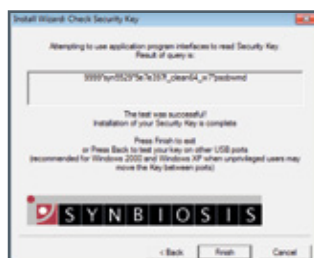
➤ Remove all connected USB dongles from the PC.

Click Next.



➤ Insert hardware key.

Click Next.



➤ Press Finish.

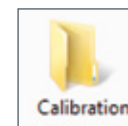
The final page will vary depending on the licensing type.



➤ The installation is now complete. Press Finish.

Run the calibration installer

➤ Browse to the Synbiosis USB flash drive in Windows and open the "Calibration" folder.



Run the "SetupCalibration" program and then follow the on screen instructions.

Add Users to user groups

HOW TO ADD A USER (page 14). This is an important step and the device will not function correctly unless the users have been set up.

Run ProtoCOL 3 software



Log on to the software and ensure the lights cycle Red, Blue and Green. Click on the image tab and select live image to ensure the camera produces a live image.

HOW TO ADD A USER

When ProtoCOL 3 is installed, three default user groups are created:

ProtoCOL Admins

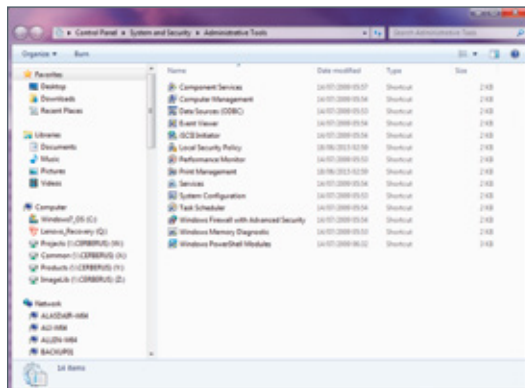
ProtoCOL Advanced Users

ProtoCOL Users

Every person using this device needs to be a member of one of these groups

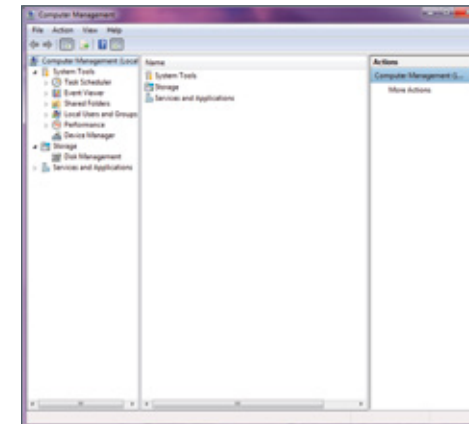
1 Log onto system as Administrator

2 Access Computer Management



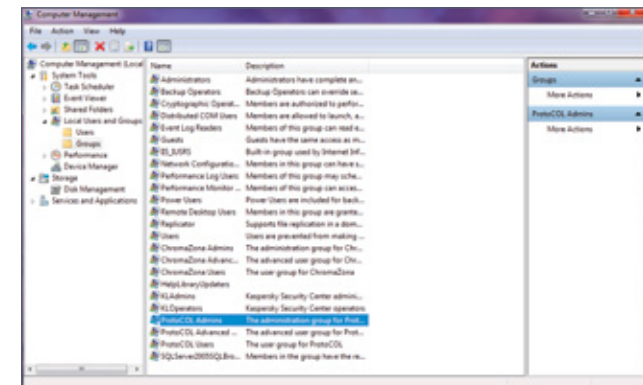
Access the Control panel.
Select System and Security.
Click on Administrative Tools.
Double click on Computer Management.

3 Accessing the User Groups



Expand Local Users and Groups and click on Group folder.

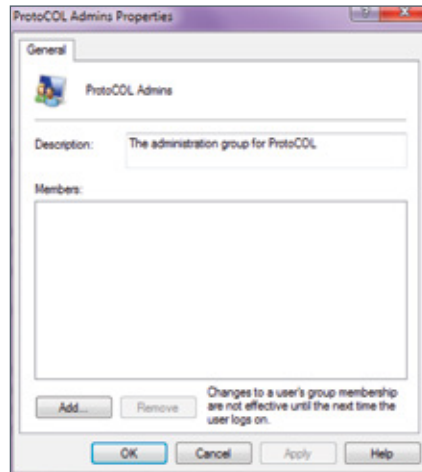
Select Groups.



Locate and double-click the **ProtoCOL Admins** group.
Non Admin accounts need to be added to the advanced or user level groups instead.

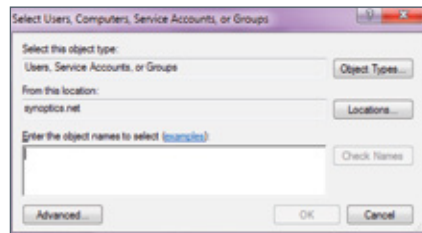
4

Add a Single User



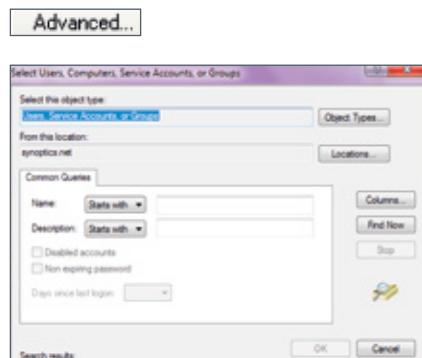
Click Add.

To add a single user, enter their Windows username in the box labelled "Enter the object names to select" and click Check Names. Click OK to return to the **ProtoCOL** Admin Properties Dialog and the user will have been added to the **ProtoCOL** Admins group.



5

Add a Group of Users

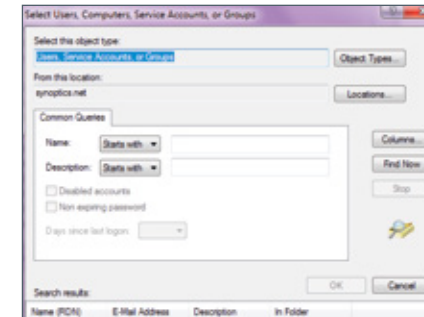


To add a group of users to a **ProtoCOL** group click Advanced on the page entitled "Select Users, Computers or Groups".

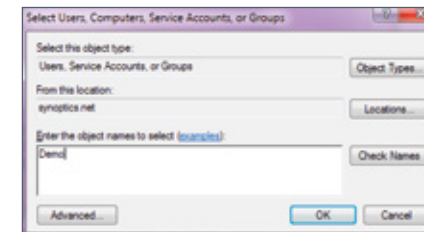
Then click Find Now.

6

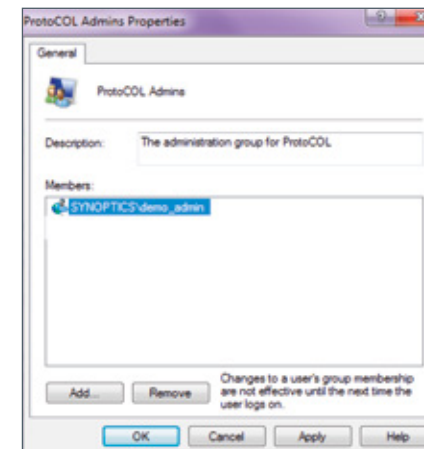
Add a Group of Users (Cont)



Select the group you want to add and click OK.



Click OK.



Click OK to close the dialog.

COUNT VALIDATION PROCEDURE

The purpose of this validation is to confirm that the ProtoCOL 3 system correctly uses contrast and background to accurately count a set number of entities in a known area.

Requirements:

ProtoCOL 3 / ProtoCOL 3 Plus System
Pour Plate Validation Plate(s)
ProtoCOL 3 User Manual
Familiarity with the ProtoCOL 3 software



Figure 1: Example of Pour Plate Validation Plate

Pour Plate Validation Procedure

1. Insert the pour plate validation plate into the **ProtoCOL 3** and close the doors to minimise ambient light.
2. Log on to the system, load the **ProtoCOL 3** software and log on to the software.
3. Next create your Validation Test batch by clicking "**New Batch**".
4. Select "**Pour Plate**" from the module options.
5. Name the batch "**Validation Test**".
6. Check the camera exposure by clicking on the "**Image**" tab and adjusting the exposure as necessary and capturing the image, it should be between **200-300 ms**.
7. Adjust the graticule (circle) so it is around the colonies.
8. Click on the "**Classification**" tab and perform the "**Colour Classification**" and choose one colour and click "**Next**".
9. Set the "**Small Particle Slider**" to **OFF** and select the "**Split**" option, click "**Next**".
10. Click "**Finish**".
11. Click on the "**Measure**" tab, enter a plate ID of '1'.
12. Perform a test measurement by clicking "**Test Measure Plate**". Ensure the count displayed matches that on the validation plate (e.g. 100).
13. 'Accept' the batch.
14. Within the new batch, select the "**Measure Plate**" button and review the result. The count should match what is stated on the validation plate.

ZONE VALIDATION PROCEDURE

The purpose of this validation is to confirm that the ProtoCOL 3 system correctly uses contrast and background to accurately measure known diameters.

Requirements:

ProtoCOL 3 system with zone reading software

Zone Validation Plate

ProtoCOL 3 User Manual

Familiarity with the ProtoCOL 3 software



Figure 1: Example of Zone Validation Plate

Zone Validation Procedure

1. Insert the zone measurement validation plate into the **ProtoCOL 3**.
2. Log on to the system, and then log onto the software.
3. Click New Batch.
4. Select **"Inhibition Zone"** from the module options.
5. Name the batch **"Validation Test"**.
6. Check the camera exposure by clicking on the **"Image"** tab and adjusting the exposure as necessary between **200-250ms**. When image is acceptable click **"Capture Image"**.
7. Click the **"Zone Classification"** button, choose the **"Ring"** configuration and leave the number set to 6. Adjust the size of the zones as needed (if necessary, move individual zones by checking the box entitled **"Move Individual Zones"**) to **ensure the black zones are directly in the centre of the 6 measurement frames** and click **"Next"**.
8. Select **"No Discs/Wells"**, click **"Next"**.
9. Highlight **"Zone Colour"** and click on one of the black zones to identify its colour. Highlight **"Background Colour"** and click on the background to identify its colour, Click **"Next"**.
10. Review measurements. If any are offset repeat Classification and ensure the black zones are directly in the centre of the 6 measurement frames.
11. Press **"Finish"**.
12. Complete the zone classification by selecting the **"Measure"** tab and perform a test measurement by clicking **"Test Measure Plate"**.
13. The measurements should be within **+/- 0.5mm** of those stated on the validation plate.
14. On the **"Measure"** tab, assign a name/number to the plate ID.
15. Accept the Batch.

TOTAL PLATE COUNT BATCH SET-UP

1 Start ProtoCOL 3 software

Enter



Log on to **ProtoCOL 3**.

2 Position plate

Insert the plate holder, ensuring the plate holder used gives the best contrast between the colony and background.

Place plate onto plate holder.

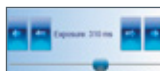
3 Capture image

Click



Select the image tab and check the live box.

Slide



Adjust the exposure by increasing/ decreasing the sliding scale.

Click



Capture image.

4 Create batch

Click



Click New Batch.

5 Plate configuration

Select



Select Plate Configuration to set plate size, sample volume and threshold. Defaults are Circular plate 90mm, Sample volume 1ml. Change if necessary.

6 Choose an application

Select



Select Pour Plate.

7 Name the batch

Enter



Name the batch.

8 Total plate count

Click



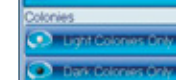
Position the counting frame over the colonies to be counted.

Click



Click Total Plate Count.

Select



Select colony type from the drop-down, either Light or Dark Colonies.

9 Classification settings

Slide



Move slider to the left to adjust the detection sensitivity.

Move slider to the left to accept small particles or to the right to exclude small particles.

Check



If any colonies are touching select the Split function.

10 Enter a plate ID

Enter



Enter a plate ID found on Measure tab. Auto-increment default is "on", to change this click on the Configuration tab.

Click



11 Accept batch

Click



ProtoCOL 3 is now ready to make the first measurement

INHIBITION ZONE BATCH SET-UP

1 Start ProtoCOL 3 software

Enter



Log on to **ProtoCOL 3**.

2 Position plate

Insert the plate holder, ensuring the plate holder used gives the best contrast between the zone and background.

Place plate onto plate holder.

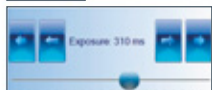
3 Capture image

Click



Select the image tab and check the live box.

Slide



Adjust the exposure by increasing/ decreasing the sliding scale.

Click



Capture image.

4 Create batch

Click



Click New Batch.

5 Plate configuration

Select



Select Plate Configuration to set plate size, sample volume and threshold.

6 Choose an application

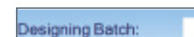
Select



Select Inhibition Zone.

7 Name the batch

Enter



Name the batch.

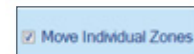
8 Zone classification

Select



Select Zone Classification tab. Select type of zone frame and the number of zones required.

Click



Position the grid directly over the zones. To move individual measuring circles check the box and setting circle to the maximum zone size.

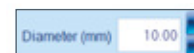
Click



Zones can also be named on this page by clicking Rename Zones.

9 Discs/wells present

Enter



Indicate whether discs or wells are present.

or



If a well or disc is present enter the size directly into the box or by clicking on the text box and drag the circle to just outside the edge of the well or disc.

Click Next.