

Tip Biosystems



User Manual (TB-DE-0013 V1.0.5)

For Research Use Only. Not for use in diagnostic procedures.

Information in this document is subject to change without prior notice.

LEGAL DISCLAIMER

BY ACCESSING PHOTOPETTE® DEVICE AND/OR ITS APP, AND ANY SERVICES THEREOF, YOU AGREE TO BE BOUND BY THE TERMS AND CONDITIONS BELOW. THIS IS ALSO APPLICABLE FOR TERMS OF USE FOR THIRD PARTY SERVICES AND PRODUCTS INCLUDING COMPUTATIONAL PLATFORMS, REAGENTS, AND OTHER LABORATORY CONSUMABLES.

BY USING ANY OF THE PRODUCT OR SERVICES OFFERED BY TIP BIOSYSTEMS PTE LTD, THE USER AGREE TO THE FOLLOWING TERMS AND CONDITIONS.

LIMITED WARRANTY

The information and materials provided in this document and related Photopette® products including text, graphics, links or other items, are provided “as is” basis. Tip Biosystems Pte Ltd is not providing any representations and warranties of any kind as to the accuracy, adequacy or completeness of such information and materials presented (or its corresponding material), and expressly disclaims liability for errors or omissions. No warranty of any kind, implied, express or statutory, including but not limited to the warranties of non-infringement of third-party rights, title, merchantability, fitness for a particular purpose and freedom from computer viruses or other harmful code, is given in conjunction with the information and materials.

COPYRIGHT

The information presented in the document and corresponding products by Tip Biosystems Pte Ltd are subject to copyright by their respective owner. Documents, content or images contained in this app, other than user generated data, may not be copied, reproduced, transmitted, displayed, distributed, altered or used in any manner without the prior written consent of Tip Biosystems Pte Ltd.

TERMS OF USE

Tip Biosystems Pte Ltd is not liable for actions related to use of their product/services or services.

TRADEMARK

The trademarks Photopette® and CuveTip™ are properties of Tip Biosystems Pte Ltd.

©2018 Tip Biosystems Pte Ltd. All rights reserved.

The Bluetooth® word mark and logos are owned by the Bluetooth SIG, Inc. are trademarks belonging to their respective trademark owner. Apple, the Apple logo, iPhone, iPod, iPod Touch, iPad, iPad mini are trademarks of Apple Inc, registered in the US and other countries. App Store is a service mark of Apple Inc.

Release date 13th Apr 2018

Company Information**Tip Biosystems Pte Ltd (Manufacturer)**

No 21, Bukit Batok Crescent
#14-79 WCEGA Tower
Singapore 658065

Tel: +65 6914 7600

Declaration of conformity for the Photopette® Devices

This is to certify that Photopette® conforms to the requirement of the following directives:

2014/35/EU Low Voltage Equipment Safety Directive

2004/108/EC EMI/EMC Directive

IEC 60529 Protection Class IP20

Standards to which conformity is declared, where relevant, are as follows:

IEC/EN 61010-1:2010 Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements.

EN61326-1:2012 Electromagnetic compatibility- generic emission standard electrical equipment for measurement, control and laboratory use.

IEC 62133 and UN38.3 Battery certification and transport test

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions;

FCC ID: *PVH0950*

- (1) This device may not cause harmful interference,
- (2) This device must accept any interference received, including interference that may cause undesired operation.

IEC62471 Light sources are classified according to Risk Group 1.

The models tested were Photopette Bio and Photopette Cell. This info is subject to change.

Liability waiver: Photopette Custom devices may not comply with some or all of the above mentioned certifications. The user or purchaser understands the risks and agrees to waive any liabilities arising due to proper or improper use of such custom devices.

Contents

LEGAL DISCLAIMER	ii
LIMITED WARRANTY	ii
COPYRIGHT	ii
TRADEMARK	iii
Company Information	iii
Declaration of conformity for the Photopette® Devices	iv
Introduction	7
Manual Guide	8
Photopette® Bio/Cell	9
Device Operation	9
Accessories	11
Standard Accessories – Connecting Cable	11
Standard Accessories – Standard Solutions	11
Connectivity	11
Photopette® Technical Specification	12
Setup	15
Safety Information	15
Unpacking, Installation and Positioning	16
Safety Labels	17
Servicing Instruction	17
Application Installation	18
Battery Operation	19
Sample Measurement Basics	20
Sample Handling Tips	20
Application Usage Overview	21
Photopette® Application	21
Buttons	21
Basic Operation	22
Error Dialogs	22
Measurement Setting	23
Measurement Settings:	23
Selecting Device:	23

<i>Selecting Measurement Types</i>	24
<i>Selecting Datasets</i>	25
<i>Auto Photo Capturing</i>	26
<i>Auto Measurement</i>	26
<i>Battery Level</i>	27
Trigger Button	27
Performing Measurements	27
Measurement Screen Layout	28
<i>Components</i>	28
<i>Measurement Screen Functions</i>	29
<i>Datasets</i>	29
Method Maker	32
<i>Method Maker Screen 1</i>	32
<i>Method Maker Screen 2</i>	33
<i>Method Maker Screen 3</i>	34
Setting	34
<i>Self-Test</i>	35
<i>Change Language</i>	35
<i>Backup and Restore</i>	36
<i>Tutorials</i>	36
<i>About</i>	37
Documentation and Support	38
Obtaining Support	38
<i>Technical support</i>	38
Troubleshooting	39
Assistance	39
Report Problem	39
Maintenance	39
Warranty	40
Cleaning and General Care	40

Introduction

Photopette® Photopette® is a handheld fixed-wavelength photometer for rapid, on-spot analysis. It works together with a smartphone or computing device using a dedicated application which connects via a Bluetooth™ link for taking measurements and data-transfer. It is a mobile, simple to use UV/VIS photometer instrument with a unique measurement tip (CuveTip™) coupled to a detector for accurate and precise measurement.

Both the Photopette® Bio and Cell are able to measure in small sample volume (45µl), without much sample loss (> 12 µl). Due to its small footprint, Photopette® can conduct tests in a very small space setting such as a fume hood.

The mobile device through an application such as Photopette® App, performs all the calculations for a measurement. The App is designed for using different pre-programmed Application Types with a high degree of flexibility and accessibility.

Photopette Models

PB-501 – Photopette® Bio

PC-502 – Photopette® Cell

PV-503 – Photopette® Custom

PT-504 – Photopette® Turbidity

PU-505 – Photopette® Brewery

Manual Guide

Overview

This user guide describes how to operate the Photopette® device.

User documentation

The guides listed below are available with the Photopette® device.

Guides

Photopette® User Manual (this manual)

Photopette® Quick Start

Photopette® Brochure

Text and keyboard convention

Text and keyboard conventions used in the *Photopette® User Manual* are listed below.

Convention	Use
Bold	Bold Text indicates user action. For example – click Run .
»	Right arrow symbol » indicates a menu choice, and separates successive commands you execute or select from a drop-down or shortcut menu. For example: Select Settings »Measurement Types .

User attention words

Two user attention words appear in *Photopette® User Manual* documentation. Each word implies a particular level of observation or action as described below.

NOTES: Provides information that may be of interest or help but is not critical to the use of the product.

IMPORTANT! Provides information that is necessary for proper instrument operation, accurate installation, or safe use of a chemical.

Photopette® Bio/Cell



Device Operation



Accessories

Standard Accessories – Connecting Cable



The provided USB cable is meant for charging the Photopette® Device. Photopette® can be charged by connecting to a standard USB port capable of providing a current of 300 mA and above. A standard USB smartphone charger or a USB port on a computer/laptop is capable to supply such current.

Standard Accessories – Standard Solutions

Depending on the application type and product subscription, your Photopette® may arrive together with standard solutions which can be used for quality control and maintenance purposes.

NOTES: Proper storage and handling procedures should be followed while handling and storage of standard solution. Expired or poorly stored standard solutions should not be used for testing or quality assurance purposes.

IMPORTANT! Please read the Material Safety Data Sheet carefully prior to using this product.

Connectivity

Bluetooth

Photopette® connects to smart devices using Bluetooth™ BLE 4.0 using iOS™ and Android™ apps. While the Photopette should work with all the iOS and Android devices with BLE 4.0, Tip Biosystems cannot guarantee seamless operations with all smart devices.

Photopette® Technical Specification

Device Specification

Interface/Connectivity	Bluetooth® BLE 4.0
Technology	Handheld fixed-wavelengths LED photometer with Ambient Light Compensation System
Measurement Time	Within 2 seconds per measured wavelength.
Warm up time	None
Lifetime (light-source)	More than 500,000 measurements per wavelength
Photopette® Bio (Product Code: PB-501)	Wavelengths: 260 nm; Accuracy = ± 2 nm; Photometric Range = 0.00 A ~ 3.00 A 280 nm; Accuracy = ± 2 nm; Photometric Range = 0.00 A ~ 3.00 A 600 nm; Accuracy = ± 2 nm; Photometric Range = 0.00 A ~ 3.00 A
Photopette® Cell (Product Code: PC-502)	Wavelengths: 340 nm; Accuracy = ± 2 nm; Photometric Range = 0.00 A ~ 3.00 A 570 nm; Accuracy = ± 2 nm; Photometric Range = 0.00 A ~ 3.00 A 600 nm; Accuracy = ± 2 nm; Photometric Range = 0.00 A ~ 3.00 A
Photopette® Custom (Product Code: PV-503)	Wavelengths: User defined
Photopette® Turbidity (Product Code: PT-504)	Wavelengths: 570 nm; Accuracy = ± 2 nm; Photometric Range = 0.00 A ~ 3.00 A 850 nm; Accuracy = ± 7 nm; Photometric Range = 0.00 A ~ 3.00 A
Photometric Precision	Better than ± 0.02 A at 1 A
Photometric Resolution	0.002 A (<i>may vary with the model</i>)

Power Rating	Battery Model: UR18650F-TBS Battery Type: Lithium Ion Battery Rating: 3.7V 2500mAH DC 5V (Charging), DC 3.7V (Internally Powered) 25,000 measurements and/or 6 days standby on a single charge Auto power-saver mode when not in use
Dimensions and Weight	Fits within 202 mm x 47 mm x 42 mm; Weight = 160 g approx.
Sterilization and Cleaning	-Easy Sterilization with Ethanol wipes. -Water and dust resistant housing -Resistant to mild acids and solvents.

Environmental Specification

Recommended Operating Condition	22 °C at 30% RH
Operating Temperature range	0 to 50 °C at 70% RH (non-condensing)
Operating Humidity range	30-80% RH (non-condensing)
Storage/Transport Temperature/ Humidity range	-20 to 50 °C at 30-80% RH (non-condensing)

CuveTip™

Product Variations	Sterile CuveTips™; Product Code: CV401S Standard CuveTips™; Product Code: CV401														
Storage Conditions	Cool, dry place with storage temperature of -20 °C to 50 °C														
Analyte Temp (max)	60° C for 10 seconds														
Chemical Compatibility	<table> <tr> <td>Soap solution</td><td>+</td></tr> <tr> <td>Hydrochloric acid 36%</td><td>+</td></tr> <tr> <td>Sulphuric acid 40%</td><td>+</td></tr> <tr> <td>Acetic acid > 99%</td><td>+</td></tr> <tr> <td>Nitric acid 65%</td><td>+</td></tr> <tr> <td>Caustic soda solution 50%</td><td>+</td></tr> <tr> <td>Ammonia solution 33%</td><td>+</td></tr> </table>	Soap solution	+	Hydrochloric acid 36%	+	Sulphuric acid 40%	+	Acetic acid > 99%	+	Nitric acid 65%	+	Caustic soda solution 50%	+	Ammonia solution 33%	+
Soap solution	+														
Hydrochloric acid 36%	+														
Sulphuric acid 40%	+														
Acetic acid > 99%	+														
Nitric acid 65%	+														
Caustic soda solution 50%	+														
Ammonia solution 33%	+														

Methanol	+
Ethanol	+
Isopropanol	+
Acetone	+
Butanone	+
Benzaldehyde	o
Methylene chloride	–
n-Pentane	–
Heptane	–
Toluene	–
Hexane	–
Naphtha	–
Oleic acid	–

+ Resistant; o Limited-resistance; – Non-resistant

Shelf-life

1 year for UV-enhanced Sterile CuveTips™

2 years for Standard CuveTips™

Disposal



To be recycled as other plastics

Features and specifications are subject to change without notice.

Setup

Safety Information

Before commencing installation of the unit, please familiarize yourself with setup and operating procedures highlighted in this product guide. It is highly recommended that you go through all the warning labels and symbols on your instrument and their meaning. Improper use may cause personal injuries or damage other assets and the instrument.

Please read the complete user manual prior to use. Do not open the device as this can expose the operator to high voltage, UV radiations and may damage delicate fiber optics.

IMPORTANT! Some UV LEDs of the Photopette device operate in conditions which are beyond the exempt category. Risk of UV light exposure device if used without CuveTips™.

Do not use damaged cables, accessories and another peripheral with your Photopette®. Do not expose Photopette® to strong magnetic, electrical fields, water, chemicals or any type of liquid as heavy rain or moisture.

Do not put the device into fire, as it may swell or explode (battery). Do not store or use near any type of heat source, especially temperature above 60°C or in an explosive atmosphere.

The device should be switched-off during transportation. The on/off button has to be protected during transportation from turning on itself caused by shock or vibration.

Biological samples may contain or have potential to transmit infectious disease. Be aware of the health hazard presented by such samples and wear appropriate protective equipment. Handle such samples with the greatest care and according to applicable regulatory and organization.

NOTE: Do not spill any biological samples on instrument components. If spill occurs, disinfect the instrument immediately following the laboratory protocols and the cleaning instruction of the instrument. Disposal must be carried out in accordance with local environmental regulations for waste disposal.

Unpacking, Installation and Positioning

Check the contents of the package against delivery note. If any shortages are discovered, inform your supplier immediately. Inspect the instrument for any signs of damage caused in transit. If any damage is discovered, inform your supplier immediately. Ensure your installation site conforms to the environmental conditions for safe operation: indoor use or outdoor environment.

NOTE: Do not expose your Photopette® near liquids, chemicals, rain, moisture or dusty environments. If the device is subjected to extreme temperature changes, it may necessary to allow the instrument to equilibrate. Turn the device off and then on again once thermal equilibrium has been established (~2-3 hours). Avoid direct sunlight as it may bleach parts of the instrument and can cause damage plastic parts. Please contact original supplier immediately if technical or sample handling difficulties are experienced.

NOTE: The instrument and the accessories warranty will be void if this equipment is used in a manner not specified, or in environmental condition not suitable for safe operation. It may also adversely influence the working of the system.

Photopette Stand Installation

The Photopette stand is designed of 3 parts, the baseplate, the metal stand bar and the Photopette holder. To install, screw the metal stand bar into the base plate, then slide the Photopette holder onto the metal stand bar. The Photopette holder is height adjustable and has a lower stop position.

The Photopette stand base plate can be connected to the CuveTip Box and the tip disposal box with the supplied clamps.

Safety Labels

Symbols	Name	Description
	UV Light caution (RG1)	Do not look directly into the distal part of the tip. This is to prevent contact with the UV light.
	Read Manual before use	User should read the user manual before use of the device so as to be aware of the precautions and proper handling of the device.
	Do not dispose in bin	Electronics are not to be disposed into the bin, this could harm the environment. Devices are to be disposed properly into electronic recycling bin at designated locations.
	Caution sign	To alert user to the relevant safety labels on the device.
	Sharp Edges	Some Photopette accessories have sharp edges. Please take extra care will handling such accessories.

Safety labels are subjected to addition and change without any notice.

Servicing Instruction

There is no servicing required for Photopette® Device. Refer to user manual before use and full demo and training will be done upon delivery of devices.

Risk that might affect service personnel May get exposed to UV light from the device

Protective measures for above risk Proper service training and necessary safety labels

Verification of safe state Not required

Application Installation

Platform and compatibility	1. iPhone®, iPad® or iPod® with minimum iOS 8. 2. Android phone and tablets with minimum Android 4.3 3. Photopette Application https://play.google.com/store/apps/details?id=com.tipbiosystems.noellay.photopette https://itunes.apple.com/app/id1161616983
Connectivity	 Internet connection mandatory. Device with ability to download at least 25 MB App ¹ .
NOTES:	 Photopette® Application can be downloaded through App Store®.  User will log in using the credentials to be a registered user. This allows user to be eligible for warranty coverage for device.  User will receive a confirmation email upon signing up and a notice of warranty highlighting the expiry date will be provided in the email.  Subsequently, user can start using the Application for their measurements.

The Photopette® Application is available for free download in the Play Store® and App Store®

Please ensure there is an established internet connection on the mobile phone before downloading the application.

The device can only run using our Application available on App Store®. It is not compatible with other applications.

Measurement data is stored locally in the smart-devices' database and can be exported to .csv file format. It is highly recommended to frequently backup the data from the Photopette® application.

¹ This limit may change depending on the functionality of the app.

Battery Operation

The device runs on rechargeable lithium-ion batteries on both Photopette™ Bio/Cell. The batteries can be operated for approximately 8 hours within a normal usage i.e. 20-30 measurement per hour. The device has a charging indicator LED at the top button. The charging indicator will change to green once it is fully charged. When the battery gets low there will be an alert on the application to charge. Once it is below 10% there will be a beeping sound. At this status, it is still possible to use the device for another one hour. However, it is recommended to charge the battery at this status. If the battery is not charged there will be a second warning message when the battery is empty and several beeping sounds before the instrument is automatically shut down within 10 seconds.

The battery is standard Lithium-ion battery with a lifespan of about 500 full charging cycles. Subsequently, the capacity and operation time of the battery may vary. A fully charge battery will self-discharge over a time of 30-40 days. After this time recharging of the battery is necessary. Charging time for an empty battery is 5 hours.

NOTE: If Photopette shuts down during a measurement process, the data of the last measurement will be still retained in the dataset.

Sample Measurement Basics

1. Select a method depending on your sample and set the parameter for the measurement.
2. Ensure the device is wipe clean with 70% ethanol or isopropanol.
3. Use vortexer to mix your sample to achieve homogeneous sample.
4. Insert the CuveTip™ into the tip of the device. Ensure it sits tightly on the stem.
5. Select a measurement and select an Auto Zero for reference measurement.

NOTE: Do not overfill the sample vial. This is to prevent samples from seeping in from the top of the sample vial.

NOTE: Check the chemical compatibility chart for the compatibility of the sample solvent or solution you are using. The information is available in the annexure of this manual and on the technical information of the website. Please contact us at support@tipbiosystems.com if your solvent of your sample is not listed on the chart.

Sample Handling Tips

-  It is important to mix or vortex every sample right before measurement, if needed, to ensure homogeneity.
-  The minimum volume that can be used for sample measurement is 45 µl and can be reuse if it is inserted into the tip cavity using a micropipette.
-  Proper fitting of the CuveTip™ is important to ensure accurate measurement.
-  In most cases, a laboratory clean wipe is sufficient to clean the device.
-  Please avoid touching the tip of the device.

Application Usage Overview

Photopette® Application

Main Features

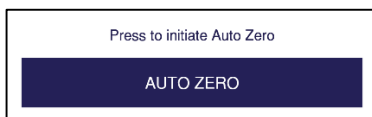
Measurement Setting
Measurement
Dataset page
Setting

NOTE:

User should set **Measurement Setting** before starting measurements. The user can view their measurements by dataset names in **Datasets page**. In Datasets page, user can also rename datasets, delete datasets, and share datasets. User can test device performance, change languages (currently English, Chinese and German only) and read About in **Setting page**.

The Photopette® App has a set of pre-programmed applications according to the type of wavelengths present in the device. To select an Application type, go to measurement type to see a list of Application types user can use.

Buttons



Prior to any sample measurement at the start of a new method, an auto zero measurement of either water or the buffer of the samples is required to give the Photopette a reference of what zero should be. It is recommended to re-apply the blank and measure it as a sample to ensure the graph of the blank spectra is flat.



To initiate the scan of the sample, press the measurement button, the data will be stored in the Dataset until the method is exited at this time the user is able to share or delete the existing datasets.

Basic Operation

Error Dialogs

Error #	What does it mean?	What can I do?
A1, M1	The detected signal exceeds the saturation limit of the detector. This error may appear when measuring in very bright environments.	Move to a location with reduced ambient light or try to block ambient light before retaking the measurement.
A2, M2	Photopette seems to experience some technical difficulties.	Restart the device and perform the Self-Test. If the problem is still present, please contact your local distributor for support.
A3, M3	Photopette did not detect any CuveTip placed on the device. This error may also occur if the measurement is performed on a highly absorbing sample.	Ensure the CuveTip is placed properly on the device. When measuring on a highly absorbing sample, this warning can be ignored.
A4	Photopette automatically compensates for ambient light up to a certain threshold. Close to the threshold, accuracy of the auto-zero might be reduced as fewer data points are available for the compensation. You can still choose to continue your measurements.	Move to a location with reduced ambient light or try to block ambient light before retaking the measurement.
A5	Photopette automatically compensates for ambient light up to a certain threshold. It seems there are fewer data points available for the compensation than usual. You can still choose to continue your measurements.	Please verify device performance via the Self-Test. If the error re-occurs, try changing to a location with reduced ambient light.
A6, M4	Photopette did not detect any CuveTip placed on the device. This error may also occur if the measurement is performed on a highly absorbing sample. You can still choose to continue your measurements.	Ensure the CuveTip is placed properly on the device. When measuring on a highly absorbing sample, this warning can be ignored.

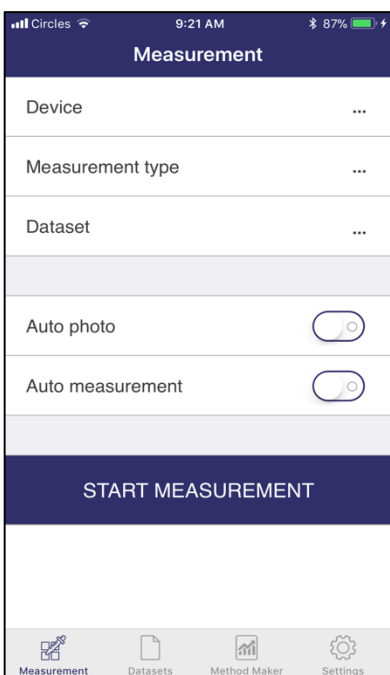
Measurement Setting

User should set Measurement Setting before measurement process. This allows the device to store the required settings for the measurements.

Measurement Settings:

-  Selecting Device
-  Selecting Measurement Type
-  Selecting Dataset
-  Auto Photo Capturing
-  Auto Measurement
-  Battery Level

Selecting Device:

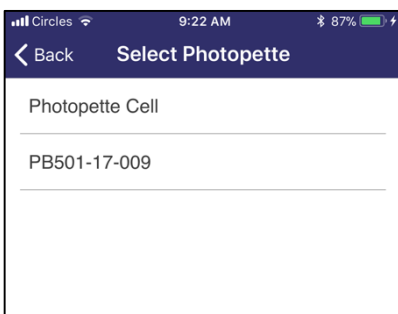


Before start measurement, most important thing to do is to connect with the Photopette® device.

Users must **ON** Bluetooth connection in their device in order to connect with the Photopette® device.

1. Connecting with Photopette™ Device (*Figure 4.1*) from the Application
 - a. **Measurement Setting » Device**
 - b. Available Photopette® devices is listed. Select the correct Device listed.

If connection successful, device will make 3 beeping sound and note the tick mark on right side of connected device name.



2. Renaming Photopette® Device
 - a. User can rename photopette device by swiping device name view.
 - b. By right swiping device name view, it will come out **Edit** button and **Disconnect** button. (Disconnect button is only available for connected device.)

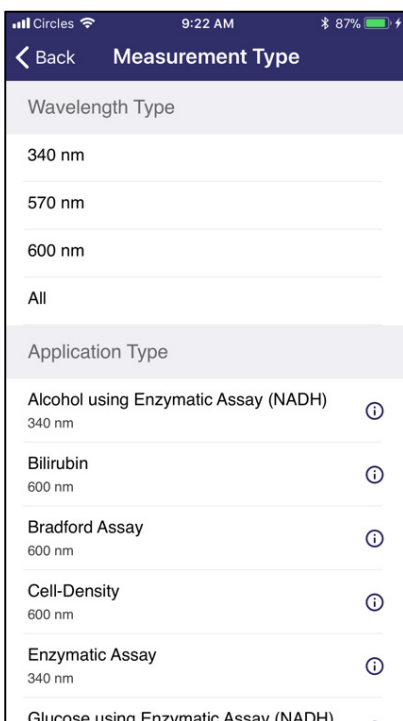


- c. Please click **Edit** button and fill in proper name at “Rename” window.
- d. Click **OK** and user can see device name already change.

For subsequent connection, the user can see a personalised name on their device. This will help in identifying and differentiating multiple devices.

Selecting Measurement Types

In Measurement Setting » Measurement Type



Select Option

-Wavelength Type

Select a measurement based on wavelength of interest

-Application Type

Select a measurement type defined as an application

NOTES:

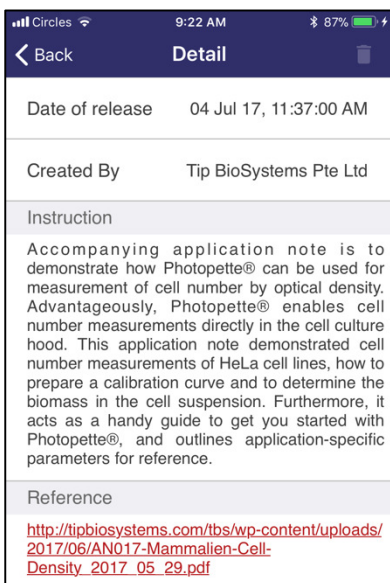
If user chooses an application, the corresponding wavelengths(s) will be selected accordingly.

For instance,

If user chooses ssDNA, 260 nm and 280 nm wavelength will be measured.

The selection of application or wavelength type will affect the selection of available dataset to store measurement values.

More info for Application Type

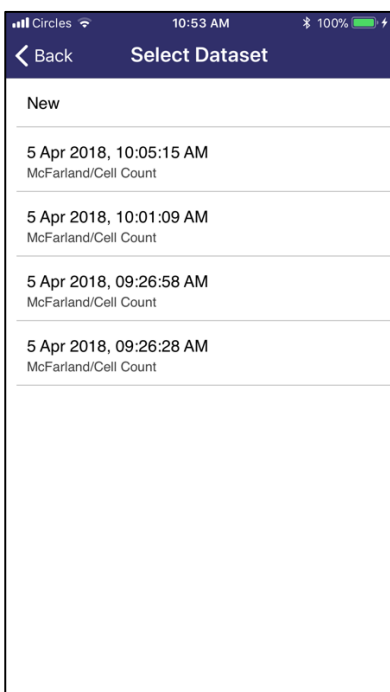


Pressing

Some application types may have instructions defined by their authors. The author may also provide a link to an online resource.

Caution: Please be careful in opening reference links for application types not generated by Tip Biosystems.

Selecting Datasets



To store measurement information, the user needs to select a dataset first.

Select Measurement Setting » Dataset

Selection Option - New
 - Existing Datasets

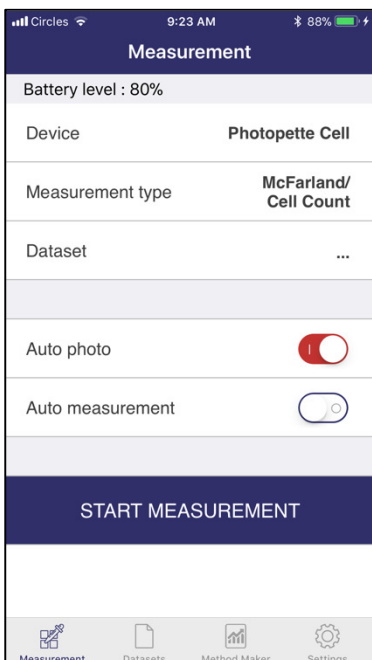
NOTES:

On selecting **New** dataset, a new dataset will be created to save measurement information.

If user select one of existing dataset, information will be appending on information of selected dataset.

Only existing datasets with same measurement (wavelength) type will be available for selection.

Auto Photo Capturing



When selected, a user may capture photos from the rear camera automatically during a measurement. The camera should be placed properly and respective privacy settings are to be selected.

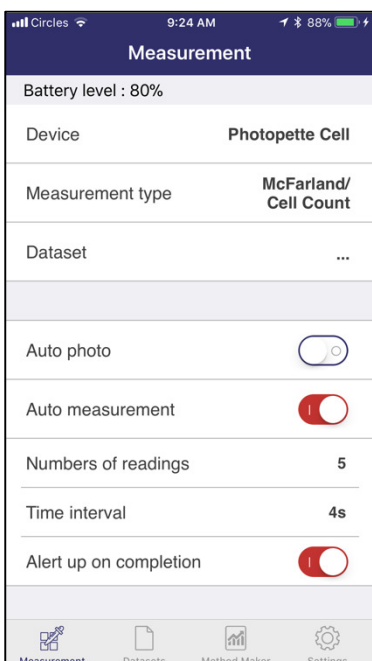
The captured images are attached together with their respective measurement values.

NOTES:

Please allow the Photopette app to capture images and video while installing to avail this feature.

If the app does not take the photo then please go to your phone's privacy settings to allow the app to use camera.

Auto Measurement



For automatic (or kinetic) measurements, please select

Measurement Setting » Auto measurement

User should key in the following desired settings-

1. Numbers of Reading
2. Time Interval
3. Alert me when done

NOTES:

The minimum **Time interval** depends upon the number of wavelengths required to take the measurements and the delays caused by auto-photo feature.

For instance, if user choose dsDNA, 260nm and 280nm will be measured. So, time interval is 4sec. If auto photo is On, application will need 3 more sec to take photo automatically. So, final time interval needed is 7sec.

Thus, the minimum time interval with photo can be calculated by,

$$= ((\text{No of wavelength}) \times 2 + 3) \text{ sec}$$

Battery Level

Measurement	
Battery level : 80%	
Device	Photopette Cell
Measurement type	McFarland/ Cell Count
Dataset	...

Battery remaining for the Photopette device can be found on the setting screen. It is advised to charge the Photopette once the battery level falls below 40%.

NOTES:

Photopette device cannot be used while it is charging.

Trigger Button

Trigger button on the top of the Photopette device is a convenient way to take measurements without directly interacting with the connected tablet/smartphone.

All the basic measurement functions such as starting a measurement, performing auto zero and measurements can be executed by the trigger button.



Performing Measurements

Following steps must be followed to perform a measurement with the Photopette device-

1. Connect to the Photopette device and select the necessary settings
2. Either press **Start Measurement** button or the Trigger button to initiate the measurement.
3. Insert the CuveTip and place it in the blank solution and press **Auto Zero**. Alternatively, press the Trigger button.
4. Start the measurement by pressing Measurement or pressing the Trigger button. The results will be displayed on the screen.



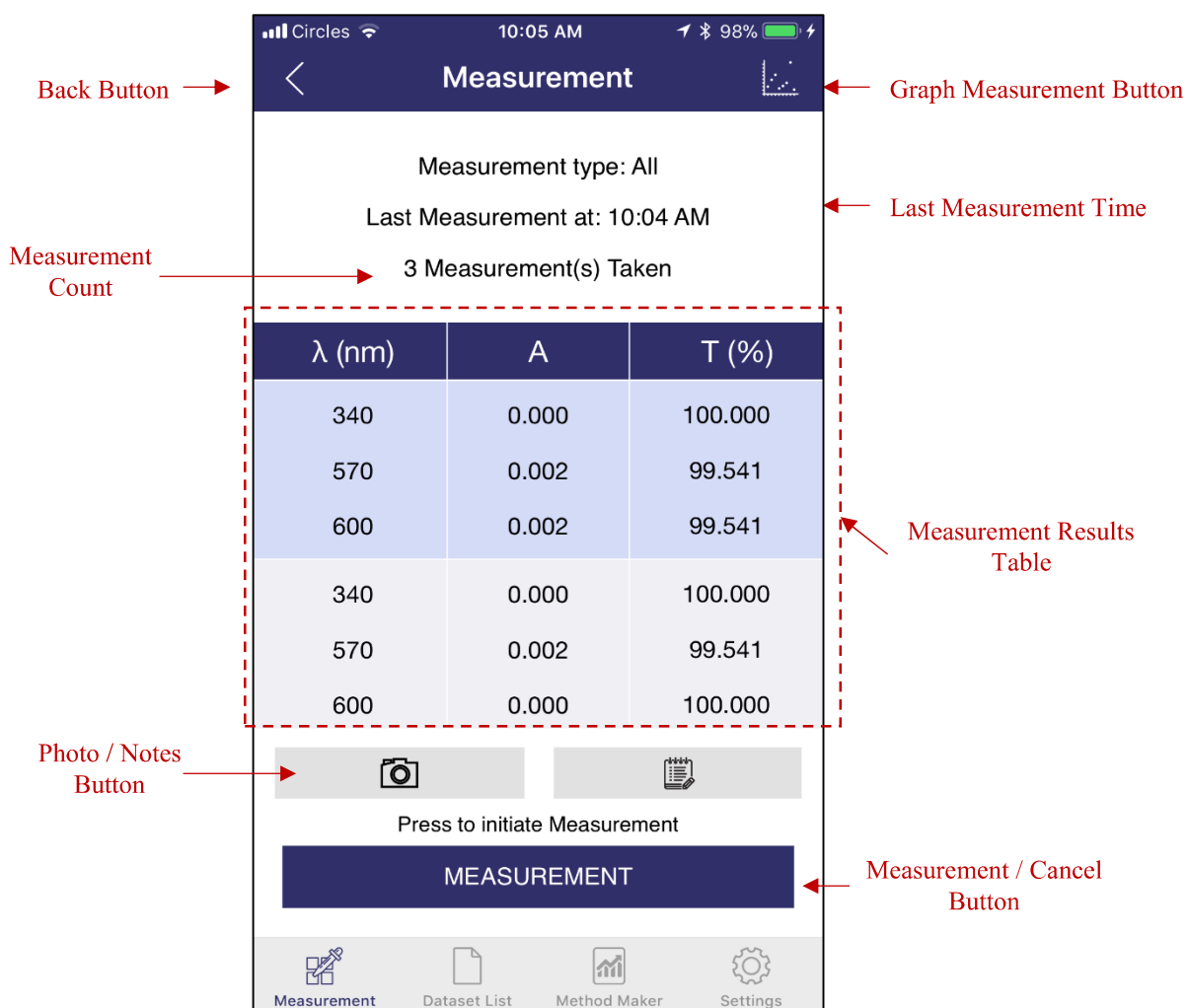
IMPORTANT: Please do not move the device or sample vial while a measurement is in progress.

The first beep-sound is notification for start of a measurement and second-beep for its completion.

Measurement Screen Layout

Components

1. Measurement Count
2. Last measurement time
3. Photo/Notes Button
4. Measurement/ Cancel Button
5. Measurement Result Table
6. Back Button
7. Graph Measurement button



Measurement Screen Functions

1. Taking Photo

Click **Photo**  to capture photo before a measurement.

NOTE: Photo button is disabled when **Auto Photo** or **Auto Measurement** are selected.

2. Adding Notes

Click **Notes**  to add a note for a measurement.

NOTE: Notes button is disabled when **Auto Photo** or **Auto Measurement** are selected.

3. New Measurement

User can take repeated measurement by pressing Measurement or by pressing trigger button after a measurement has completed

NOTE: Notes button is disabled when **Auto Photo** or **Auto Measurement** are selected.

4. Cancel Auto Measurement

User can cancel auto measurement anytime by clicking **Cancel** on Measurement Screen.

5. View Measurement Results

Transmittance and Absorbance result will be shown for every measurement.

Concentration result will be shown only for some application type.

NOTE: Warning icon will be shown for measurement accuracy. User can click Warning icon and see what is warning.

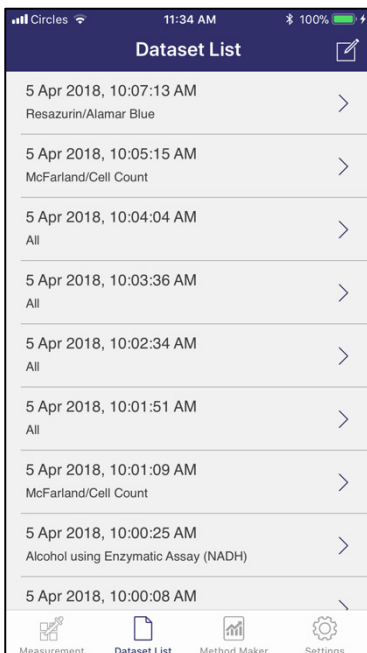
Datasets

The measurement results are stored in their respective datasets. The dataset also contains additional associated information such as GPS locations, notes and Photos.

Dataset Functions

1. View Dataset List
2. View Detail Measurement
3. Rename Dataset
4. Share/Delete Datasets

1. View Dataset List

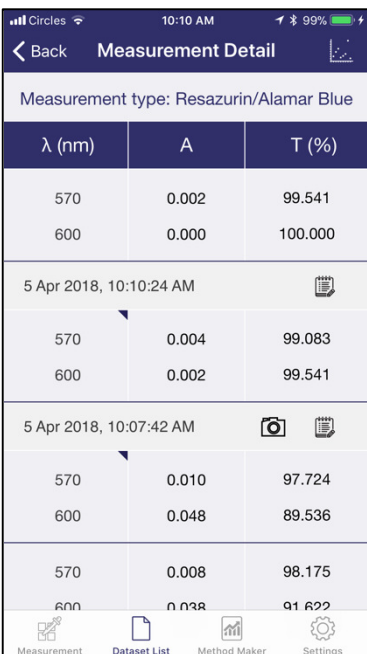


Timestamp	Measurement Type
5 Apr 2018, 10:07:13 AM	Resazurin/Alamar Blue
5 Apr 2018, 10:05:15 AM	McFarland/Cell Count
5 Apr 2018, 10:04:04 AM	All
5 Apr 2018, 10:03:36 AM	All
5 Apr 2018, 10:02:34 AM	All
5 Apr 2018, 10:01:51 AM	All
5 Apr 2018, 10:01:09 AM	McFarland/Cell Count
5 Apr 2018, 10:00:25 AM	Alcohol using Enzymatic Assay (NADH)
5 Apr 2018, 10:00:08 AM	

Open the **Dataset** by clicking the desired dataset on the **Datasets Screen**

The default name of a dataset are in the format- DD MMM YY, hh:mm:ss AM/PM

2. View Measurement Details



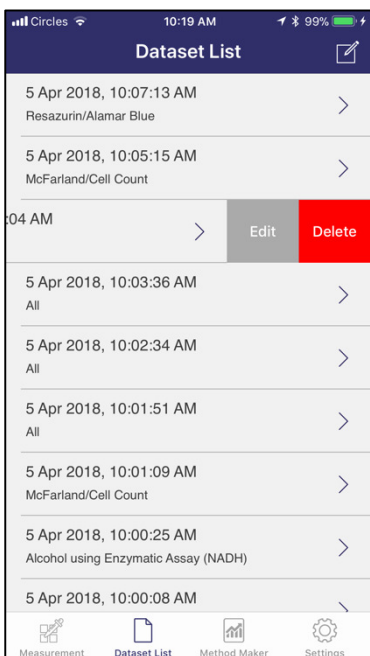
Measurement type: Resazurin/Alamar Blue		
λ (nm)	A	T (%)
570	0.002	99.541
600	0.000	100.000
5 Apr 2018, 10:10:24 AM		
570	0.004	99.083
600	0.002	99.541
5 Apr 2018, 10:07:42 AM		
570	0.010	97.724
600	0.048	89.536
570	0.008	98.175
600	0.000	100.000

Select **Datasets** details by clicking **Measurement Detail Information:**

-  Measurement Date and Time
-  Measurement Type
-  Wavelength
-  Absorbance value
-  Transmittance
-  Concentration (if available)
-  Photo (Enable if photo is available)
-  Notes (Enable if note is available)
-  Warning (if available)

3. Rename Dataset

User can rename dataset by swiping a dataset view.



1. By right swiping a dataset view, it will come out **Delete** button and **Edit** button.
2. Please click **Edit** button and fill in proper name at “Rename” window.
3. Click **OK** and user can see device name already change.

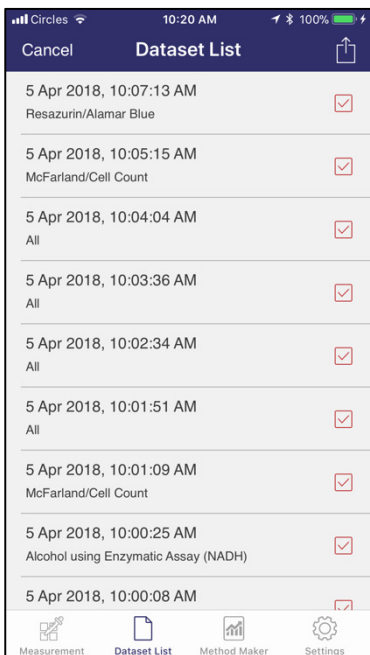
After rename complete, the user can see a customised dataset name.

This will help in identifying and differentiating multiple datasets.

4. Share/ Delete datasets

User can share/delete datasets with 2 options:

1. Share/Delete All Datasets
2. Share/Delete two or more datasets



Android

1. Share/Delete All Datasets

Long press a dataset to appear toolbar

Click **Tool bar** » **Select All** 

For Share datasets, Click **Tool bar** » **Share** 

Two Share Options will appear:

1. Email 
2. Google Drive 

For Delete datasets, Click **Tool bar** » **Delete** 

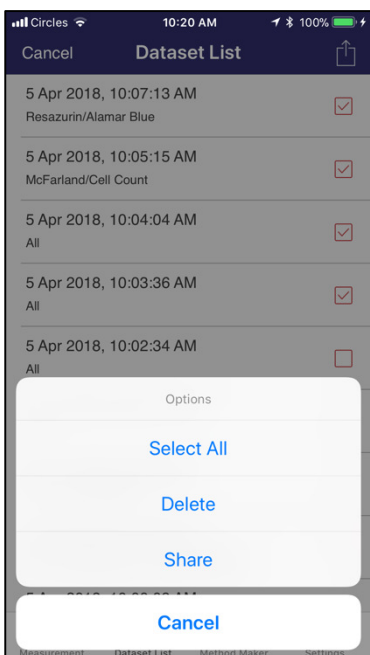
2. Share/Delete one or more datasets

Long press a dataset to appear checkbox

Select dataset item that should be deleted or shared.

Click **Tool bar** » **Share or Delete**

Selected datasets can be shared or delete.



iOS

3. Share/Delete All Datasets

Long press a dataset or click  to appear check boxes

Click , user will see Select all, Delete and Share options.

For Share datasets, Click  » **Share**

Two Share Options will appear:

1. Email
2. Google Drive

For Delete datasets, Click  » **Delete**

4. Share/Delete one or more datasets

Long press a dataset to appear checkbox

Select dataset item that should be deleted or shared.

Click  » **Share or Delete**

Selected datasets can be shared or delete.

NOTE: Dataset CSV format file will be exported to google drive/email.

If user would like to deselect all from **Select All**, just click **Deselect** on top bar.

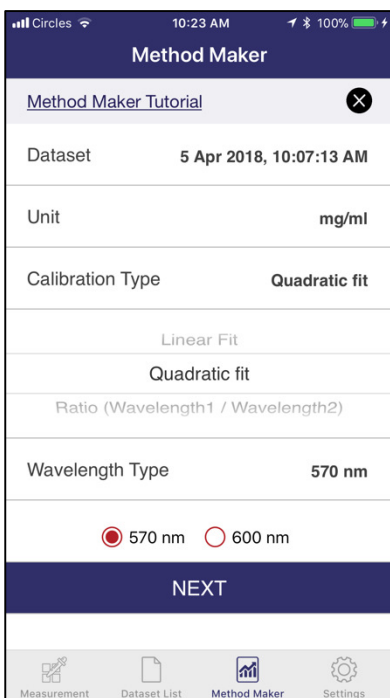
Method Maker

Method Maker offers capability to generate a standard curve using an existing dataset. The user can see the standard curve and proceed to create a new custom method based on the generated standard curve.

Method Maker Screen 1

User need to provide following inputs-

1. **Dataset:** The dataset which contains the measurement data of the standard solutions.
2. **Unit:** The unit for the measured absorbance. The user can choose from the pre-existing unit list or define a unique unit.
3. **Calibration Type:** A preferred calibration type to be chosen for generation of the standard curve. The available options are- 1) Linear Fit, 2) Quadratic Fit, and 3) Ratio. The fit can also be changed at later stages as well.



Method Maker

Method Maker Tutorial ✕

Dataset 5 Apr 2018, 10:07:13 AM

Unit mg/ml

Calibration Type Quadratic fit

Linear Fit

Quadratic fit

Ratio (Wavelength1 / Wavelength2)

Wavelength Type 570 nm

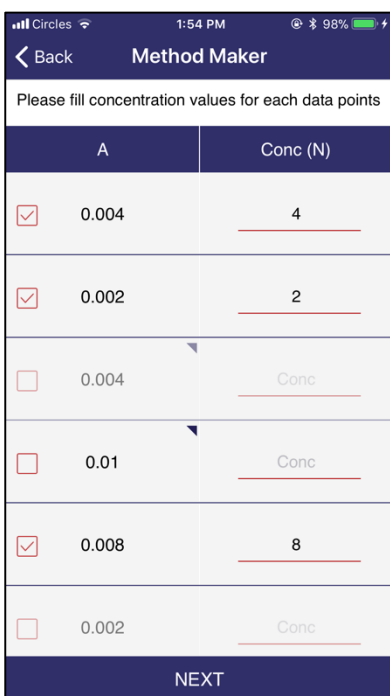
☒ 570 nm ☐ 600 nm

NEXT

Measurement Dataset List Method Maker Settings

4. **Wavelength type:** Depending upon the requirement of the standard curve, an appropriate wavelength should be chosen

Method Maker Screen 2



Method Maker

Please fill concentration values for each data points

A	Conc (N)
☒ 0.004	4
☒ 0.002	2
☐ 0.004	Conc
☐ 0.01	Conc
☒ 0.008	8
☐ 0.002	Conc

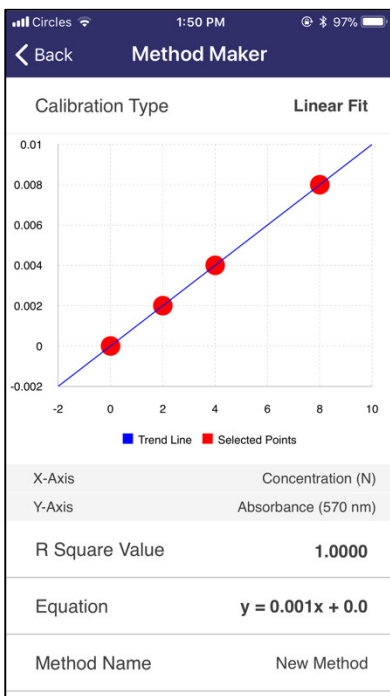
NEXT

The user need to select the data-points for which corresponding concentration values are known. The corresponding concentration values need to be filled as well.

NOTE: Please fill in the values for all the selected data-points.

Method Maker Screen 3

The user can inspect the standard curve on this screen by referring to the R-square values and equation of the curve.



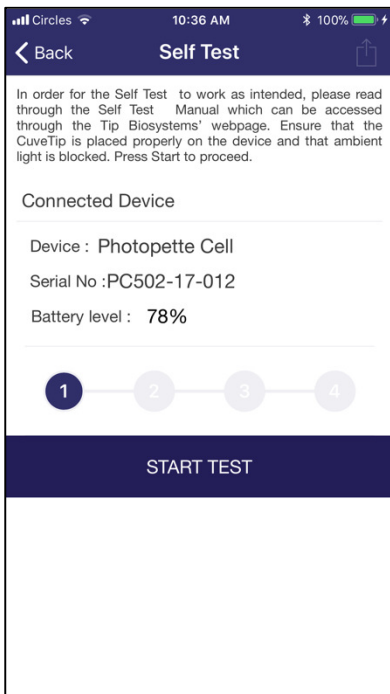
1. The user can toggle to Quadratic fit from Linear fit (and vice-versa) in case the R-square value is low and/or the curve equation is incorrect.
2. An erratic data-point can be identified by selecting it. The point can be deselected by going to the previous screen.
3. More info such as: 1) Method Name, 2) Created By, 3) Instructions and 4) Reference should be entered for future use. Instructions field can be used to describe a procedure and the reference field can be a clickable hyperlink.
4. Press “CREATE METHOD” to generate a new method based on the provided input. The created method will be available immediately for taking measurements.

Setting

Setting page offers additional features not related to direct measurement process. The features available in setting page are-

1. Self-Test
2. Change Language
3. Backup & Restore
4. Tutorials
5. About

Self-Test



Self-Test allow users to test device performance by themselves. User can follow step by step guideline that prompt on app and can get device condition as a final result. The following information are shown default in Self-Test:

1. Connected Device Name
2. Serial Number
3. Battery Level

NOTE: Self-Test can only perform app is connected with Photopette device.

Change Language

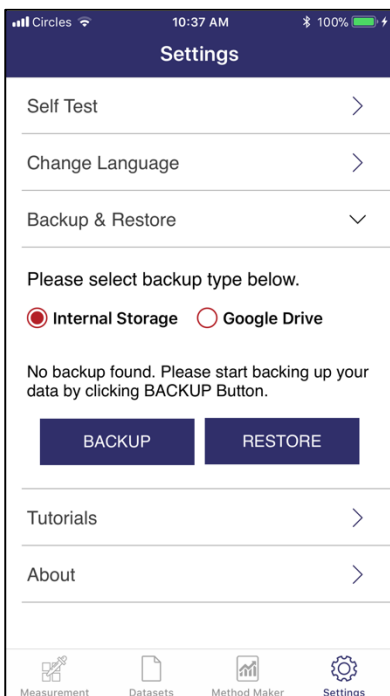


User can change 3 languages in Change Language.

1. English (Default)
2. Simplified Chinese
3. German

NOTE: By changing language, all text inside app will show according to changed language.

Backup and Restore



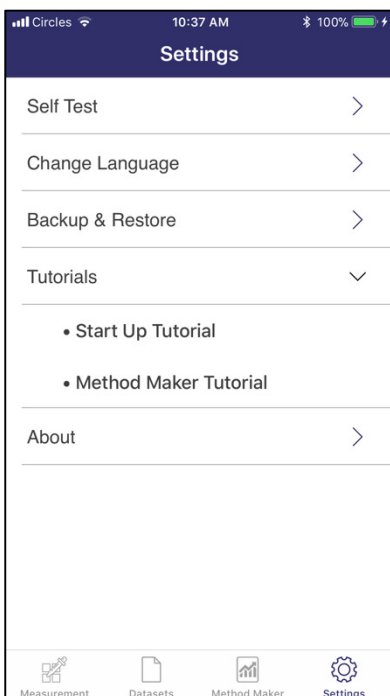
User can create a backup of the datasets and custom methods for safe-keeping data or from migrating one smart-device to another. The backup can be stored in following locations.

1. Internal Storage (local)
2. Google Drive (cloud)

The user can restore the data by selecting an appropriate option.

NOTE: The user will have to sign-in in his/her own Google Drive account for cloud backup/restore feature. Neither Photopette App nor Tip Biosystems Pte Ltd accesses any other file(s) except the backup files.

Tutorials



The tutorial section comes handy for users who quickly want to browse through tutorials on how to get started with Photopette.

About



About page highlights some of the vital product information needed for references or troubleshooting purposes. The information available are-

1. App Version
2. Firmware Version of the connected Photopette device
3. Date of the app Release
4. Legal Disclaimer (including Limited Warranty terms)
5. Copyright and licensing information for libraries used in the app.

NOTE: Item 2. Firmware Version is only shown when device is connected with Photopette app.

To view Item 4 » [Read Legal Disclaimer](#)

Documentation and Support

Obtaining Support

Technical support

For any technical questions, please contact us via email – **support@tipbiosystems.com**

Limited Product Warranty

Tip Biosystems Pte Ltd and/or its affiliate(s) warrant their products as set forth in the Tip Biosystems' General Terms and Conditions found on Photopette Application About Page.

If you want to know more, please contact Tip Biosystems Pte Ltd at **<http://www.tipbiosystems.com>**

Troubleshooting

The Photopette® calibration test is performed with the standard solutions provided in the package.

If the instrument passes the self-calibration test, the application will reflect the outcome. If the device does not pass the test, an alert will appear on the application along with the message explaining the reason for the failed test along with the recommended solution.

If the ok button is selected, the window is closed and the home screen will be shown with an error message at the top. The error message is also shown on top of all other screen and all performed measurements including the saved files of those measurements. If the self-calibration test fails, please contact the support@tipbiosystems.com.

Assistance

The assistance includes off-site support, report a problem, software maintenance and legal as function to help with any technical issues or questions that may arise with the Photopette®.

Report Problem

The Application will send bug error reporting automatically to our Software Developer in case there is any problem or the application crashes. Else other related problems can be emailed to the above email accordingly.

Maintenance

Download the software update file from Tip Biosystems main download page. Remember to save all data before updating the application. Please ensure that your mobile device has enough storage and is connected to Wi-Fi before commencing Application download.

Warranty

Tip Biosystems Pte Ltd guarantees that the product supplied has been thoroughly tested to ensure that it meets its published specification. The warranty included in the conditions of supply is valid for 12 months and is valid only if the product has been used according to the instructions supplied.

Tip Biosystems Pte Ltd or your supplier can accept no liability of loss or damage arising from the faulty or incorrect use of this product.

Each device will come with a Certificate of Performance where upon assembly, all the default configuration will be stated on the certificate.

Cleaning and General Care

Switch off the Photopette® and disconnect the power cord prior to external cleaning. Use a soft wet cloth or dry microfiber cloth to clean all external surfaces. A mild liquid detergent may be used to remove stubborn marks.

Approved disinfectant solutions include: Apesin disinfection spray (Tana Chemi GmbH), Incidin Liquid & Inciddin Foam (Ecolab), and Lysoformin Spezial (Lysoform Dr. Hans Roseman GmbH).

NOTE: Observe all necessary precautions if dealing with hazardous samples or solvents.