Metertech

Provide Accurate Results

Operational Manual

AccuReader

AccuMate

PC Software

Metertech Inc.
Version 1.02

Metertech

63-2, Cheng Gong Road, Sec. 1, Nangang, Taipei, Taiwan, R.O.C.
Tel.:+886-2-2783-2854 Fax:+886-2-2783-1764
www.metertech-inc.com info@metertech.com.tw

Metertech Inc. • 63-2, ChengGong Rd., Sec. 1, NanGang, Taipei, Taiwan, ROC
E-Mail: info@metertech.com • Web Site: www.metertech-inc.com
Tel: 886-2-2783-2854 • Fax: 886-2-2783-1764

Contents

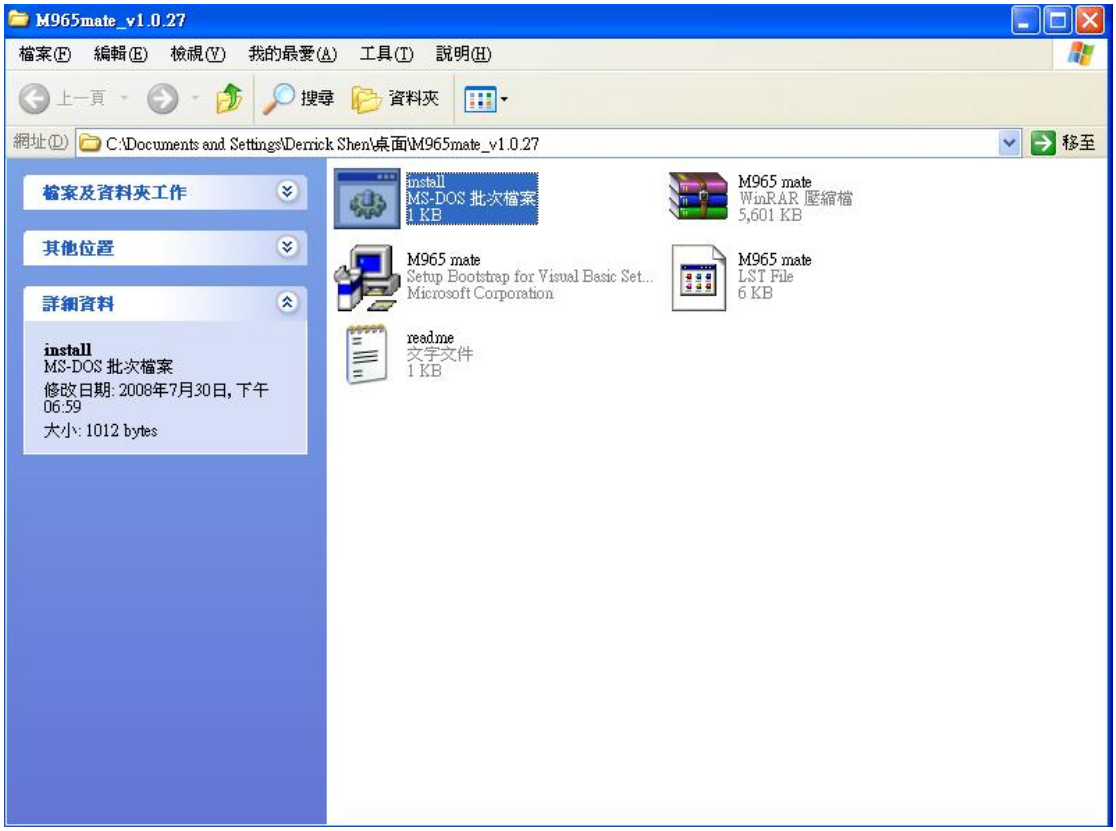
System Requirements

- CPU Pentium III 300MHz above for Windows XP
- 128MB of RAM for above for Windows XP
- Microsoft Windows XP Professional SP2 or Microsoft Windows Vista 32bit。
- Microsoft Office 2003 or Microsoft Office 2007
- 20MB of available hard drive for the program files
- CD ROM drive
- 16bit color display / 800 x 600
- Keyboard, mouse, and RS232 serial port or USB

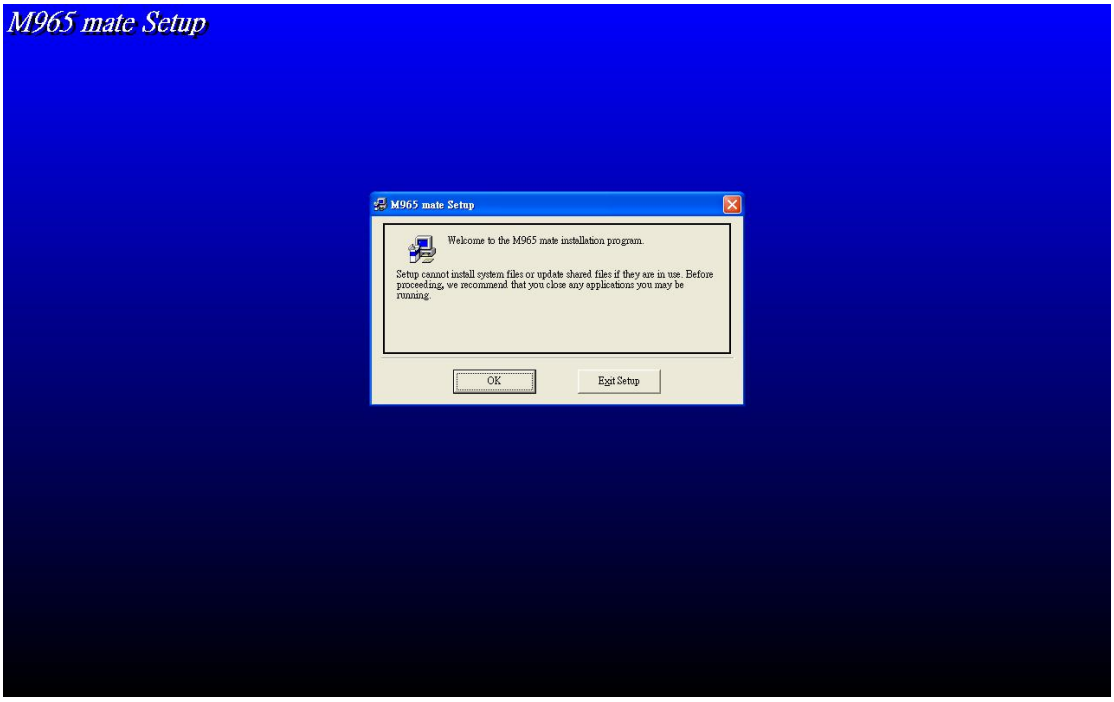
Software Installation

To install AccuMate

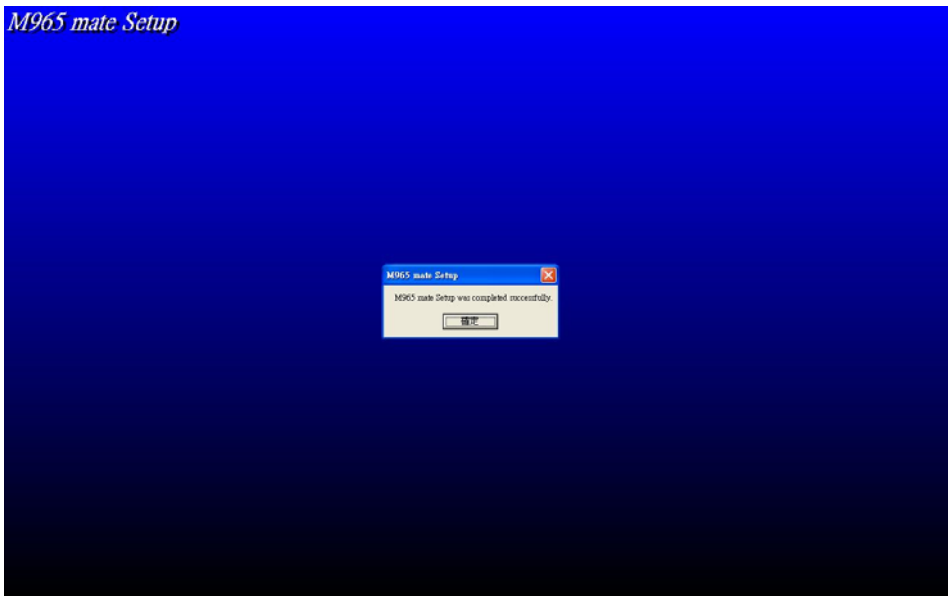
1. Start Windows
2. Close all unnecessary Windows programs
3. Place CD in the CDROM drive
4. Double click the AccuMate folder within the CDROM
5. Double click install.bat program in the AccuMate folder



6. Click OK on the AccuMate setup menu

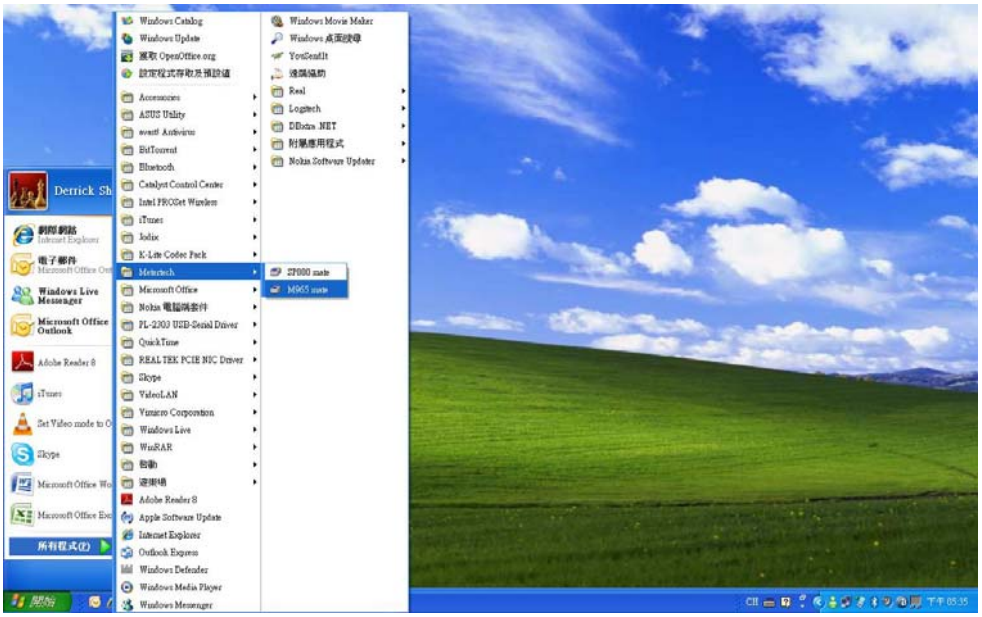


7. Click on the  icon to install
8. Select Program group then click continue, the AccuMate software will start installation
9. Click OK when the AccuMate finish installation

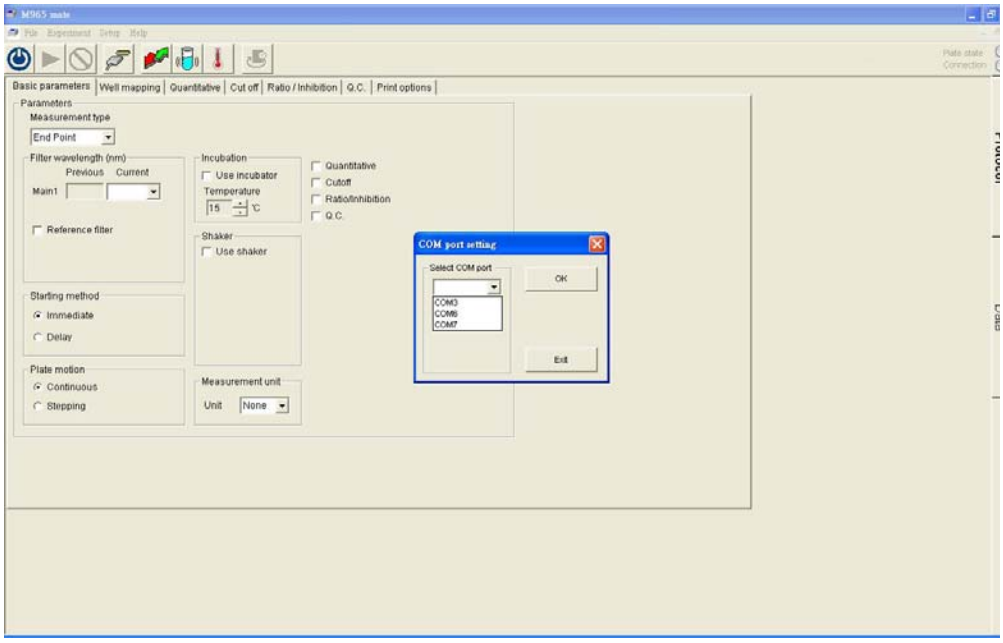


To start AccuMate

1. From Start menu →Programs→Metertech→AccuMate

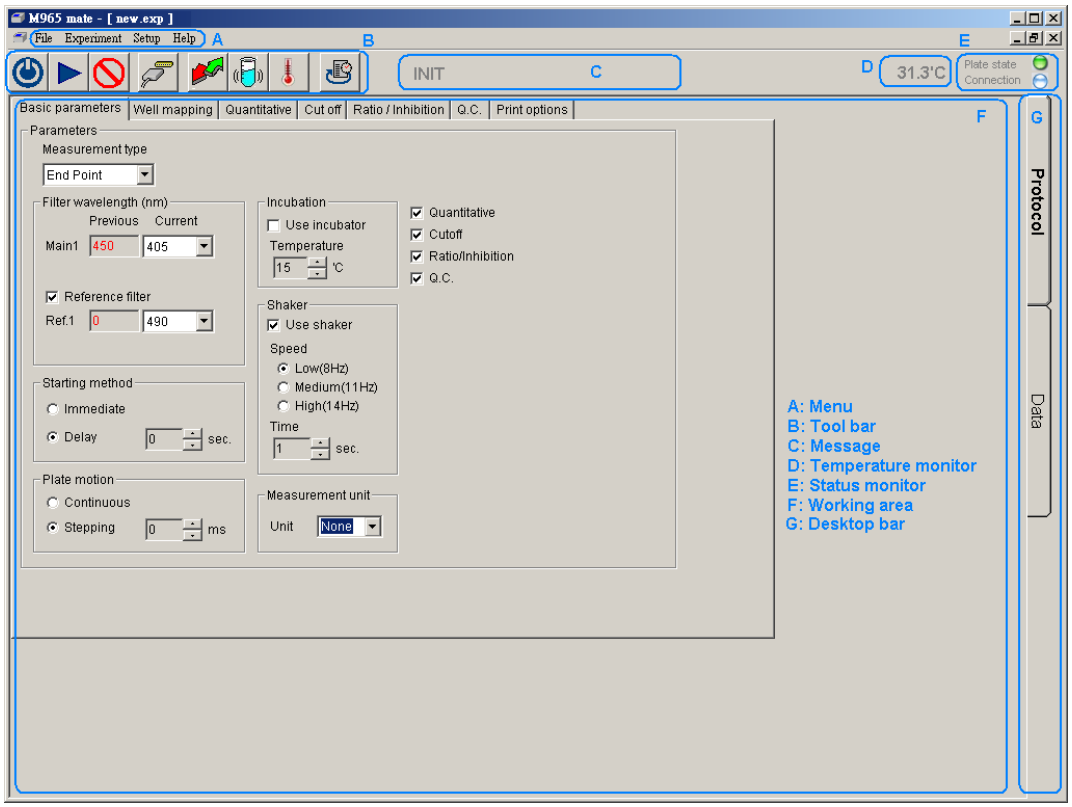


2. Select the correct COM port for connection then click OK (Append



AccuMate Menu Software Structure

Main Window Overview



Section A: Menu

Section B: Tool bar

Section C: Message

Section D: Temperature monitor

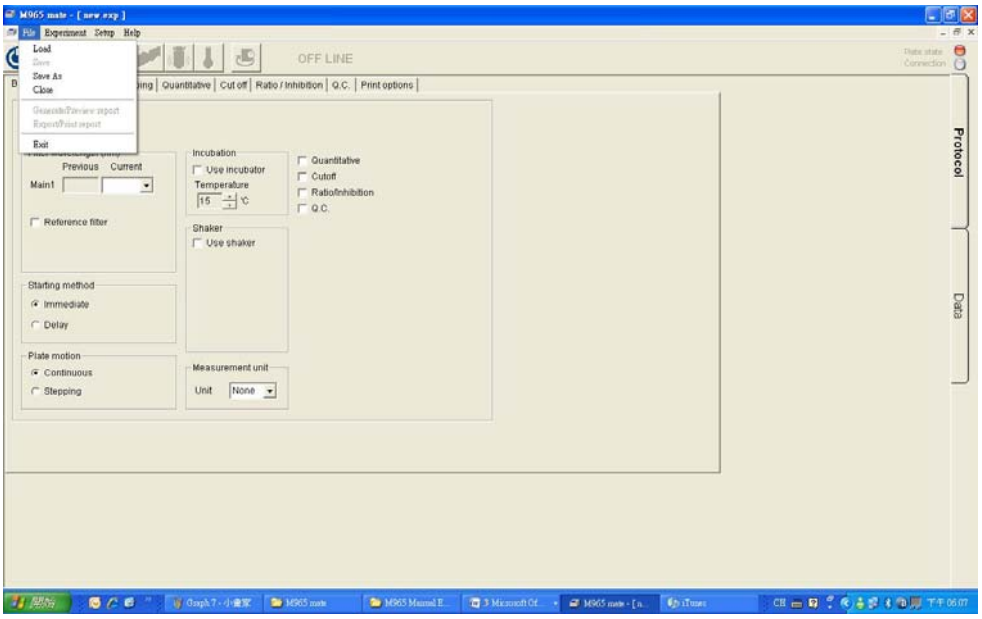
Section E: Status monitor

Section F: Working area

Section G: Desktop bar

Section A Menu

The File Menu contains function for processing data from the AccuMate



Load: Load an existing results record

Save: Save the experiment parameters

Save As: Save the results under a new ID

Close: Close current file and open new file window (Defaut file name is new.exp)

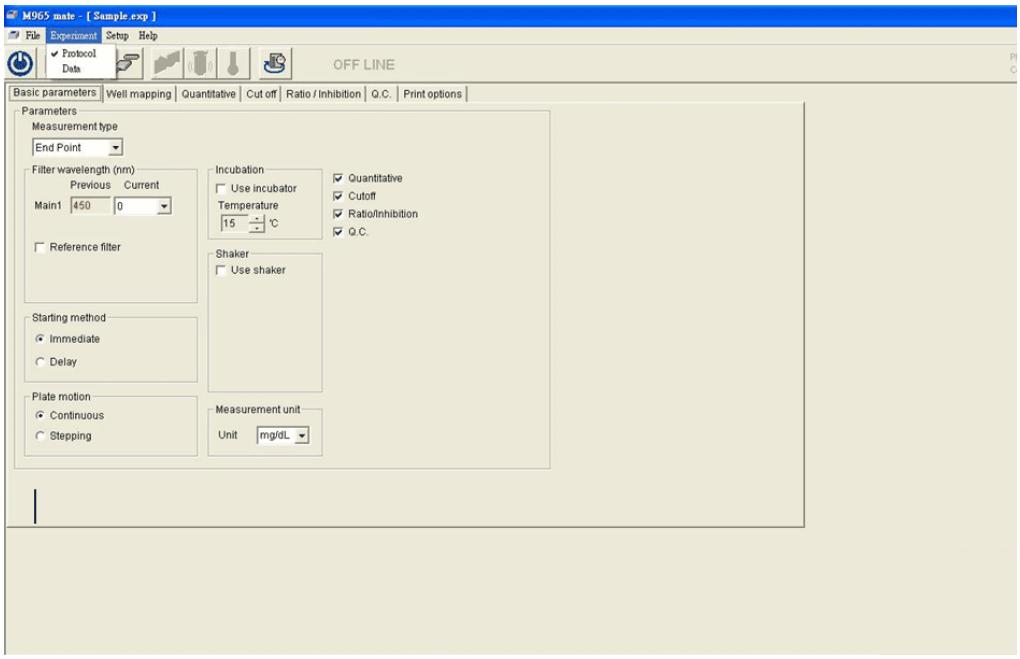
Generate/Preview report: Generate experiment report in data

Export/Print report: Export report to excel file, and select to print report

Exit: Close the AccuMate software

Experiment Menu

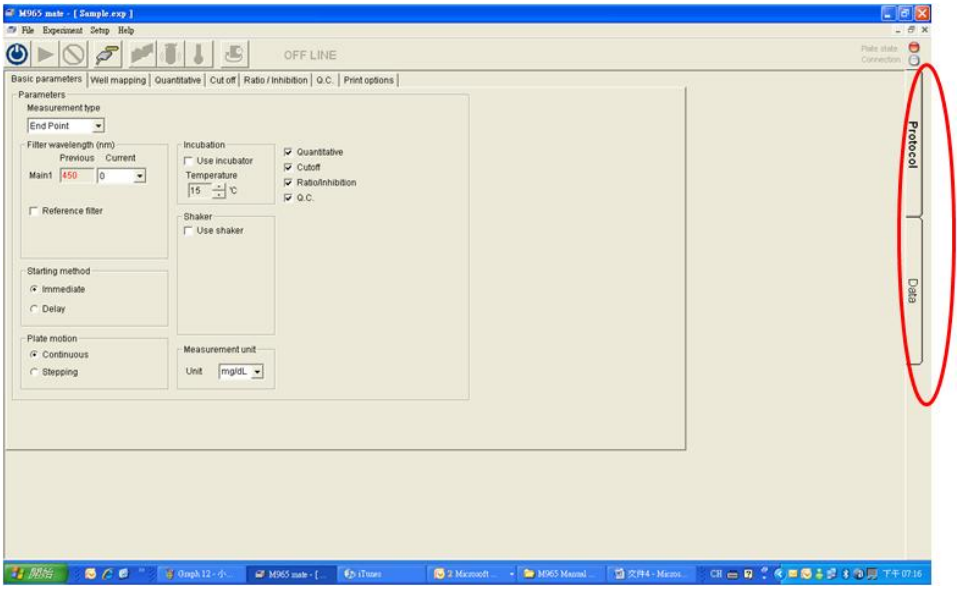
Experiment Menu contains function to set the experiment and view the data



Protocol: Set the environment

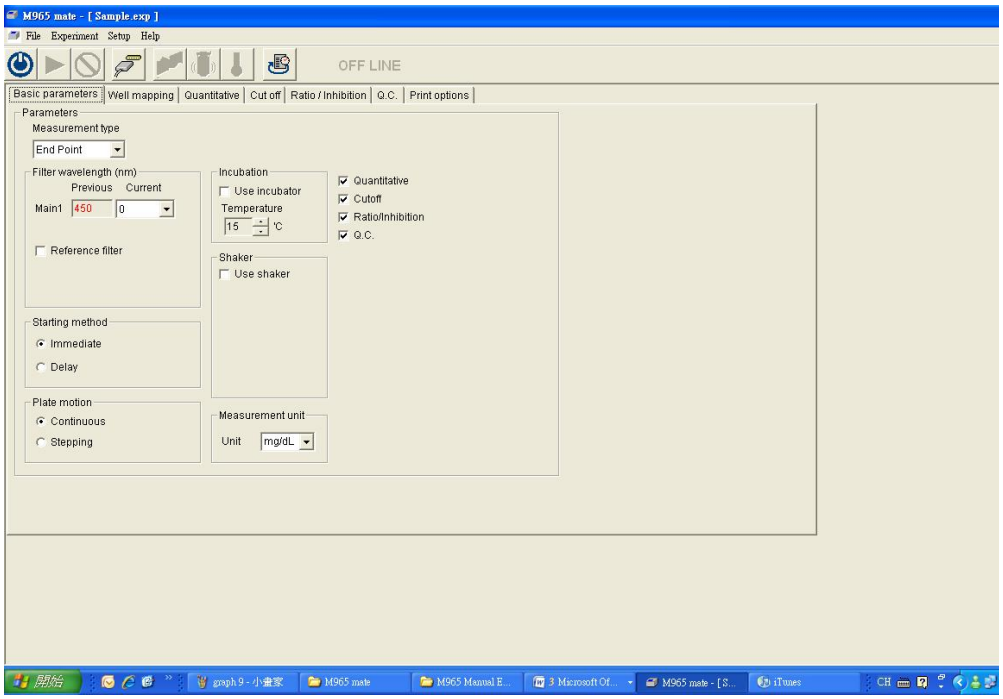
Data: View data for the experiment

The Protocol and Data function can also function on the right tab of the main menu



Setup Menu

The setup menu contains the AccuMate system configuration

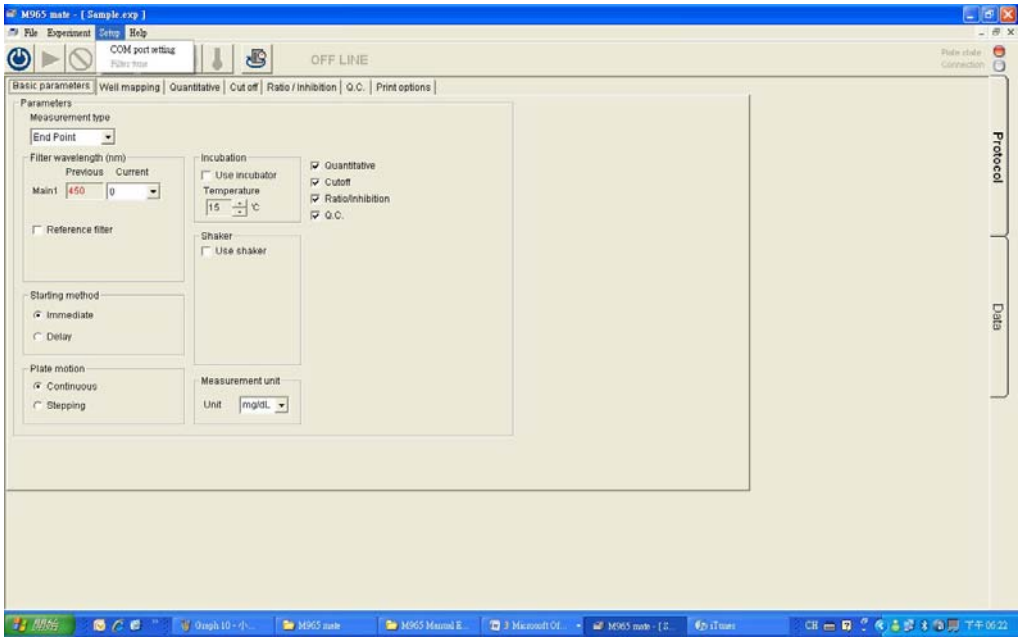


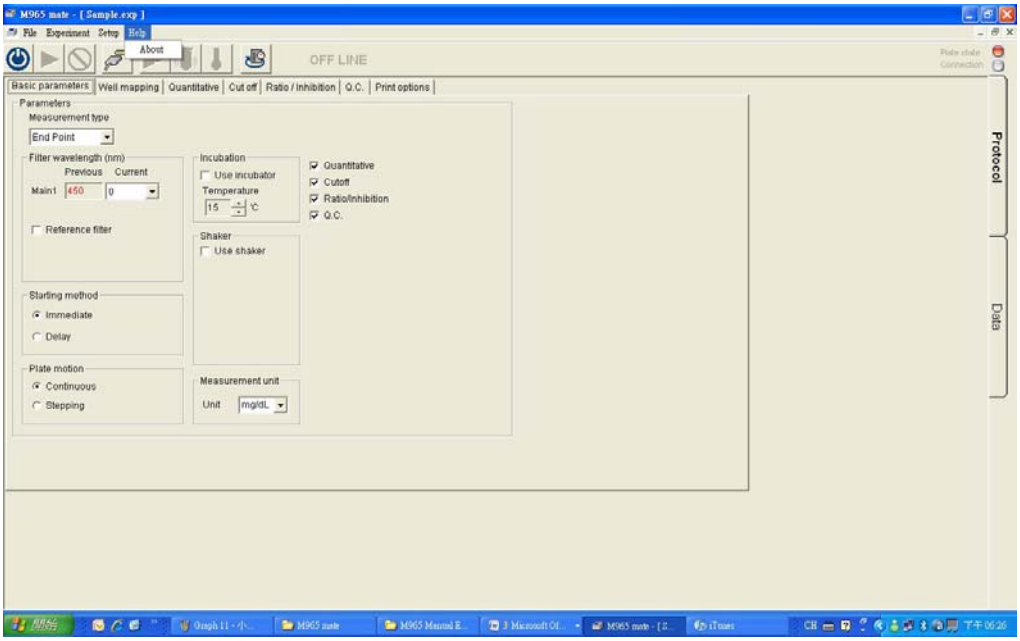
COM port setting: To set the communication COM port between the AccuMate and PC

Filter tune: The AccuMate can setup to 8 different filter wavelength. Config the filter wavelength.

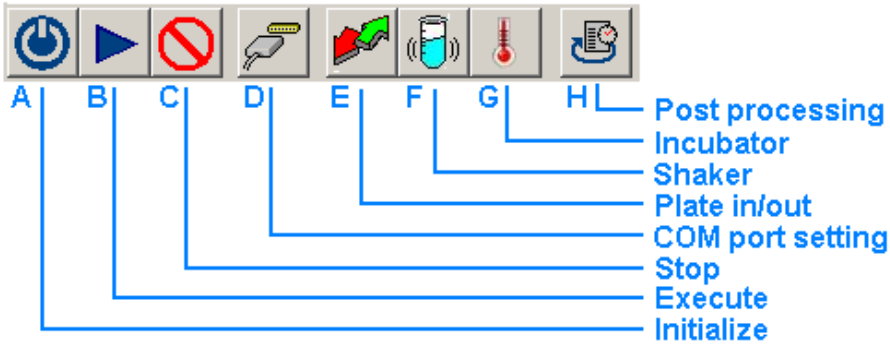
Help

The help menu provides information on software version, and contact information of Metertech.





Section B Tool bar



Initialize: Any commands issue from the AccuMate to the M965/965+ must initialize first.

Execute: To start the defined protocol

Stop: To stop executing the defined protocol

COM port setting: To set the COM port to communicate between the M965/965+ and the PC

Plate in/out: To open or close the plate compartment

Shake: To start the shaking function on the AccuMate

Incubator: To manually start the incubator, when incubator is initialized the temp will show on section D temp monitor.

Post processing: Use the current protocol to re-process data reesults.

Section C Message

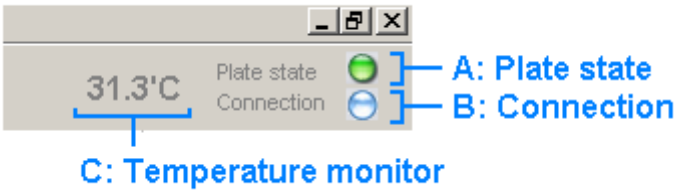
During operation the message will show on the right side of the tool bar

Section D Temperature monitor

When incubator is active the temperature will show on the right side of the tool bar

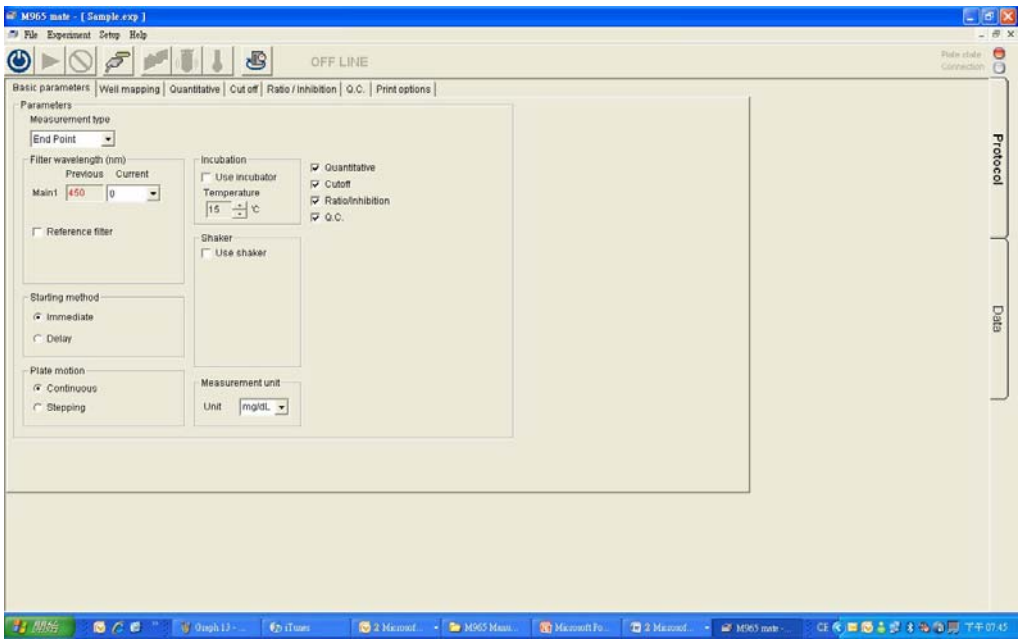
Section E Status monitor

After initialize the tool bar will show the plate state, and the connection status. The plate in/out is defined as green/red. The connection on/off is defined as blue/grey



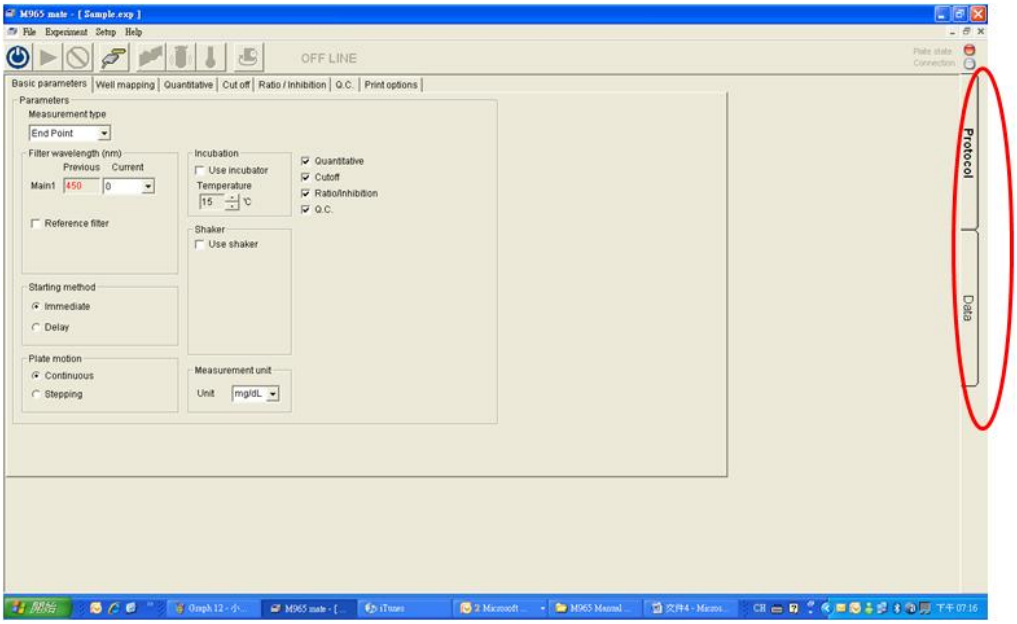
Section F Working area

The AccuMate allows you to define protocols and acquiring microplate data, an .exp experiment file will contain 2 information the Protocol and the Data. The Protocol is to define parameters, the data is to show experiment data.



Section G Desktop Bar

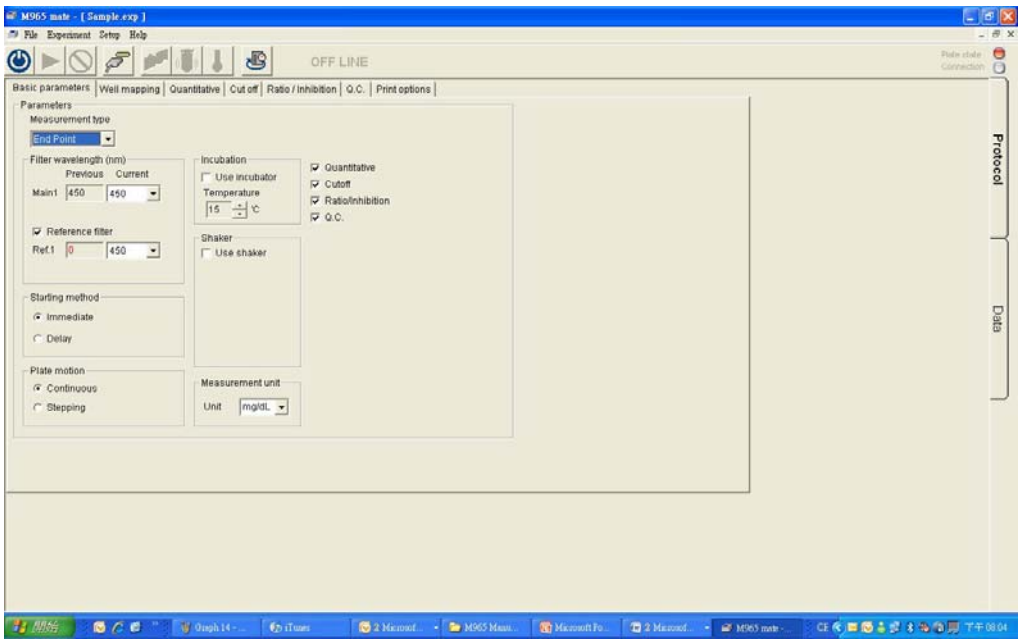
The desktop bar is to select between the Protocol and the Data, this function can also be accessed under experiment.



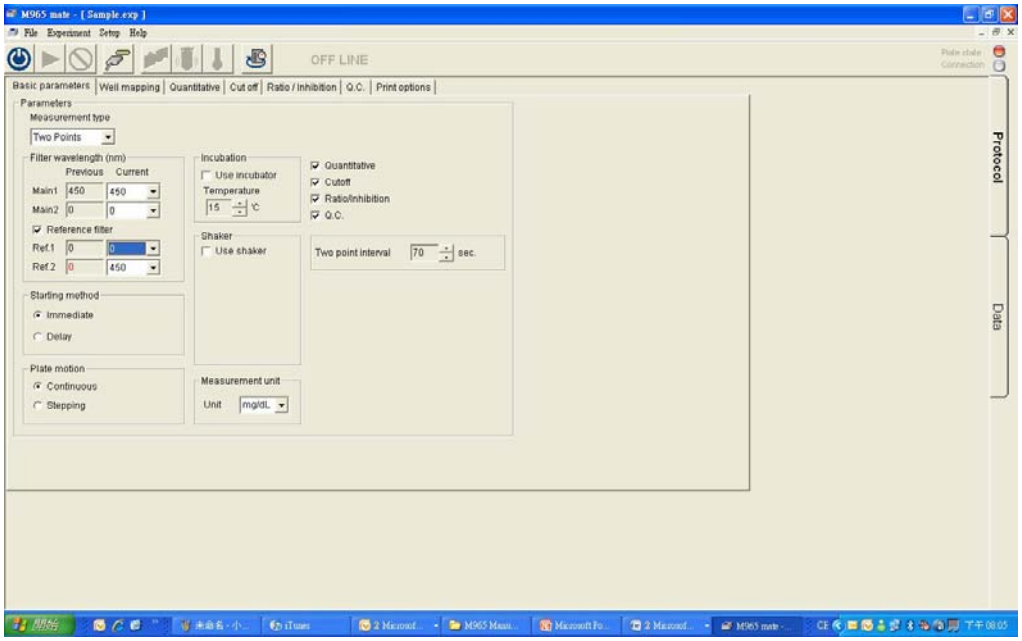
AccuMate Function

Basic Parameters

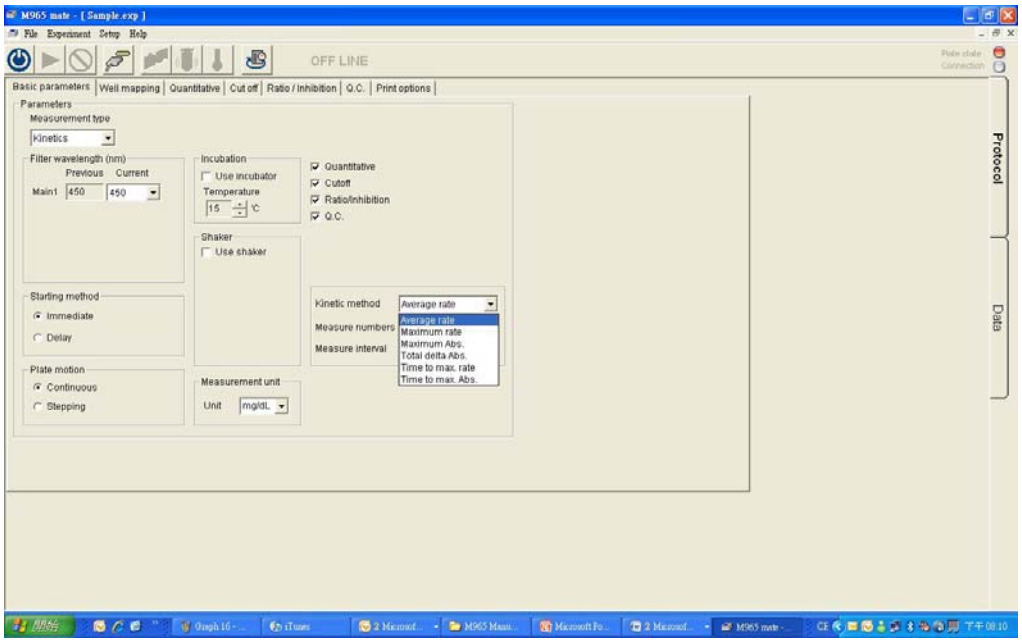
Measurement types: The AccuMate provide 3 types of measurement types, end point, two point, and Kinetic.



Two points read: During the two points read the M965/965+ reads at 2 wavelength, with 2 reference reads as optional.



Kinetics read: During a kinetics read users can define the kinetic method by select the Kinetic method tap. User can define average rate, Maximum rate, Maximum Abs, Total delta Abs, Time to max. rate, and Time to max. Abs. User can also define the number of times the plate been read and intervals.



To select a measurement type

Click the tap under measurement type and select the desired method of End point, Two points, Kinetic.

Define Primary and Reference wavelengths

If a Primary wavelength is defined alone the M965/965+ read the plate only once at a single wavelength. If a Reference wavelength is defined the plate will be read twice and automatically calculate the delta Abs between the two reading.

To select the Primary and Reference wavelengths:

1. Select the Measurements type of End Point, and Two Points.
2. Enter the Primary wavelength in Main1 or Main2, and the reference Ref1 or Ref2

Starting method to read plates

Users can define the starting method of plates read. Immediate the M965/965+ starts reading the plate right after execute tap is pressed. User can also define how long the plate reading delay.

To define the starting method

1. Click on the Immediate tap or define how many seconds needs to be delayed.

Plate motion

Users can define the plate motion while reading the plate to be Stepping in milliseconds or Continuous.

Using the built-in Incubator

The incubator will set the temperature of the plate at ambient temperature.
Users can enable the Incubator by

1. Click the use incubator tab.
2. Enter the desired temperature.

Using the built-in Shaker

The built-in Shaker in the M965/965+ can let user define 3 settings low 8Hz, Medium 11Hz, and High 14Hz. User can also define how long does the shaker needs to be active by seconds.
To enable the Shaker

1. Click the Use shaker tab
2. Define the speed Low, Medium, High
3. Define the time in seconds.

Measurement unit

Users can define the Measurement unit to suit their experiments needs.
To define the Measurement unit

1. Click on the unit tab, and select the desired Measurement unit.

Define Calculation

User can define Quantitative, Cutoff, Ratio/Inhibition, and QC calculation method
To define calculation method

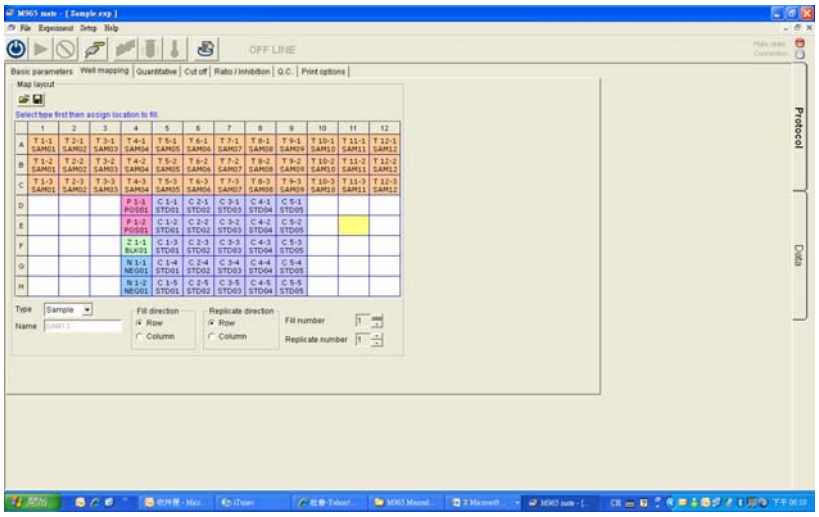
1. Click on the tab in respect to Quantitative, Cutoff, Ratio/Inhibition, and QC calculation
2. The AccuMate let users define each calculation methods criteria.

Well Mapping

Users can define 5 types of different wells Blank, Standard, Sample, Positive, and Negative.

To define Well Mapping

1. Click on the Well mapping tap on the main working ares
2. Users can define Blank, Standard, Sample, Positive, and Negative, for each well

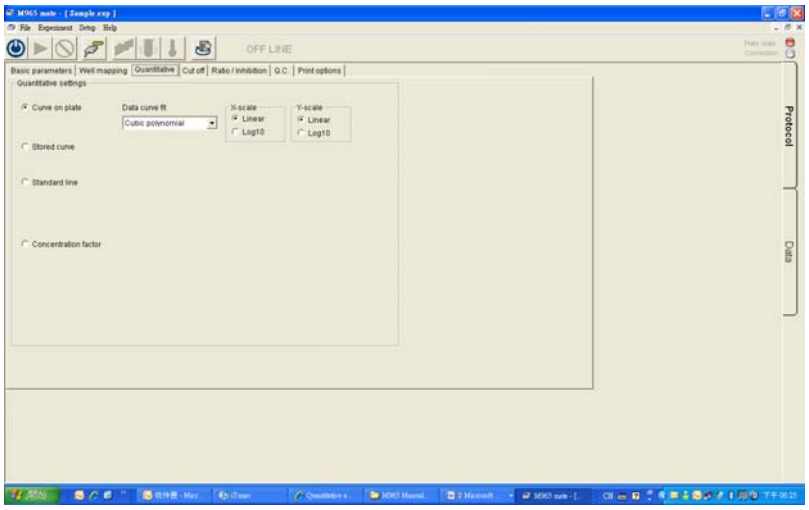


Quantitative

The AccuMate allows user to define quantitative analysis to determine the absolute or relative abundance. There is 4 different types of curve fitting on the AccuMate. Users can use Curve on plate, Stored curve, Standard line, and Concentration factor.

To define Quantitative analysis

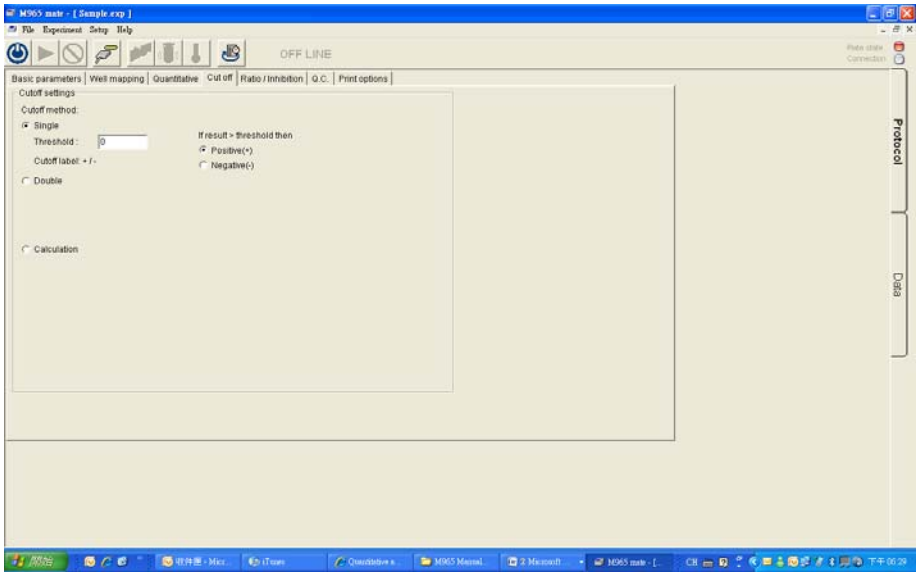
1. Make sure the check mark is clicked on the Quantitative in Basis Parameter
2. Click the Quantitative tap in Basic Parameter
3. Define the desired parameter



Cutoffs

Cutoffs are used to classify results. Users can define 3 different Cutoff methods Single, Double, Calculation.

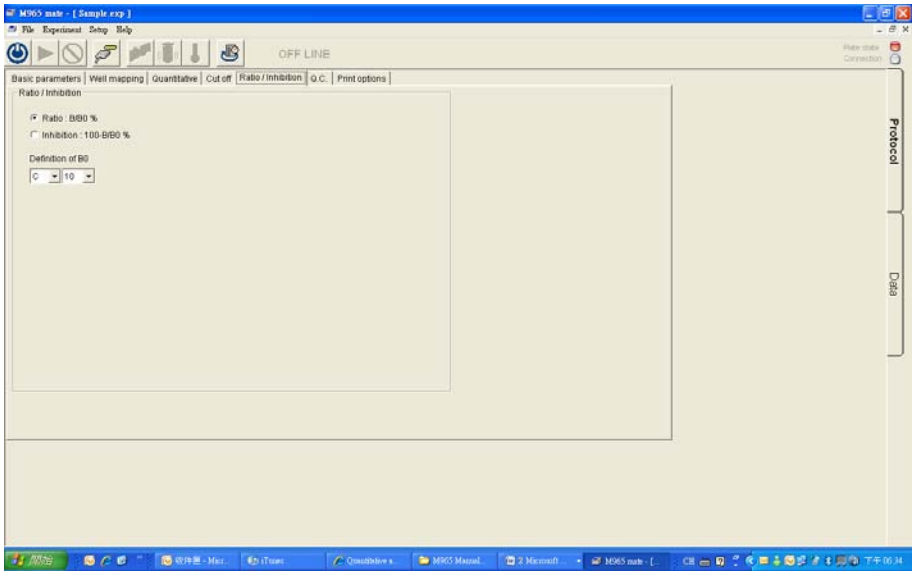
1. Make sure the check mark is clicked on the Cutoff in Basis Parameter
2. Click the Cutoff tap in Basic Parameter
3. Define the desired parameter



Ratio/Inhibition

The AccuMate will take a standard (B0) and other samples to calculate the Ratio/Inhibition factor

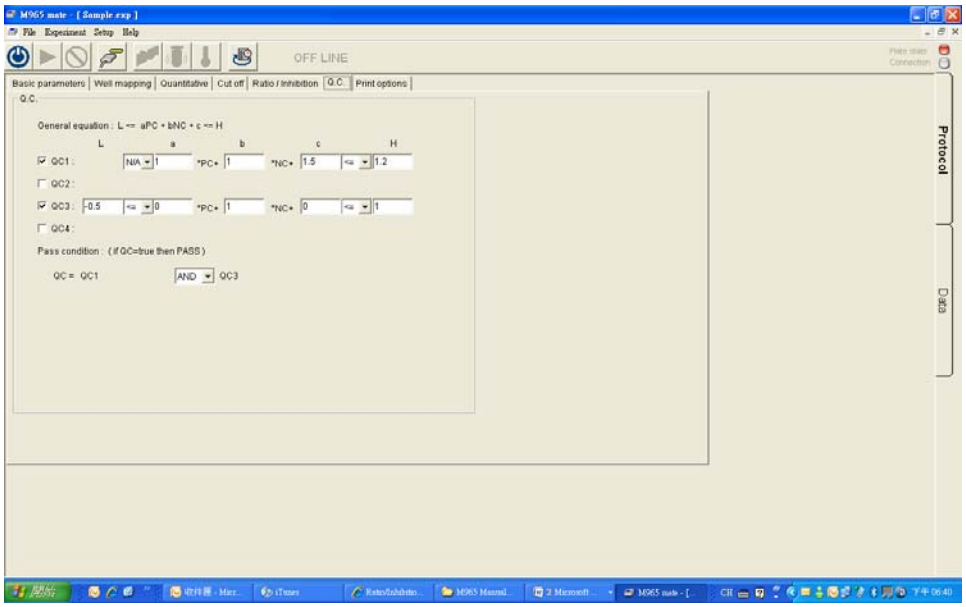
1. Make sure the check mark is clicked on the Ratio/Inhibition in Basis Parameter
2. Click the Cutoff tap in Ratio/Inhibition
3. Define the desired parameter



Q.C.

The AccuMate can make Q.C. rules for experiment to determine the results.

1. Make sure the check mark is clicked on the QC in Basis Parameter
2. Click the Cutoff tap in QC
3. Define the desired parameter

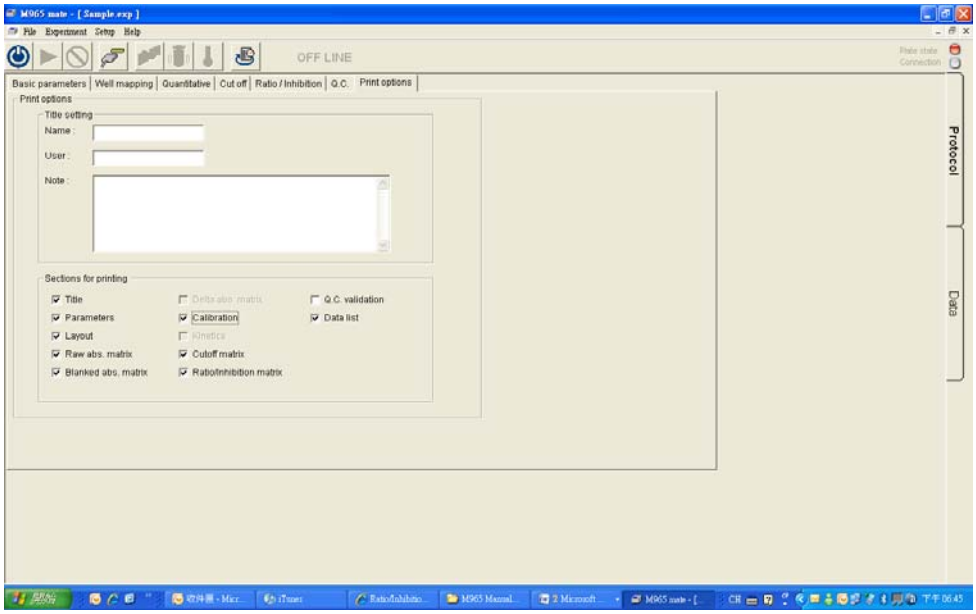


Print options

Users can define the Name, User, and Printing selections for the experiment on the AccuMate.

To define print options

1. Click the Print options on the Basic parameters
2. Enter the desired field for print options.



AccuMate connection setup

To control the M965/965+ through the AccuMate users must set and test the COM port connection on the PC. User can connect the Accumate with M965/965+ through USB or RS232 interface.

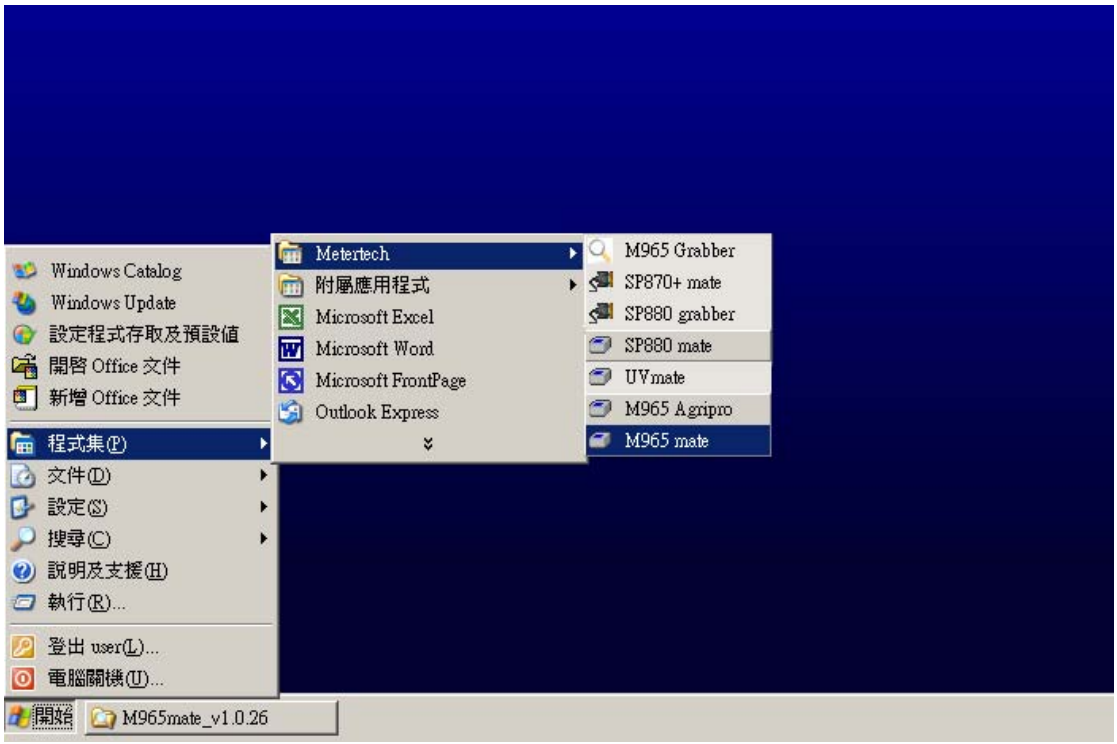
Start M965/965+ under PC mode

1. Attach the appropriate cable to an available RS232 serial port or USB port.
2. Plug the other end of the cable into the RS232 serial port or USB port on the reader
3. Plug all power cords into electrical outlets
4. Power on the M965/965+, if the M965/965+ is in standalone mode power off while pressing "Option" button to switch to PC mode
5. Configure the communication COM port between the M965/965+ and the PC

Setup Connection between the AccuMate and the PC

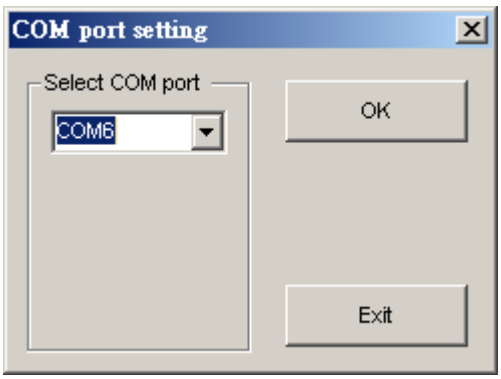
1. Ensure the AccuMate is connected to the computer.
2. Ensure on the AccuMate LCD shows is in PC mode
3. Ensure the COM port setting is
   Baud rate= 57600
   Data bits= 8 bits
   Parity check= no
   Stop bits= 1
   Flow control=no

4. Go to start → program files→ Metertech→AccuMate to excute the AccuMate software



5. After execution the M965/965+, the PC will show the startup screen with the software version of the AccuMate

6. In the initial setup the AccuMate will scan all available ports, if there is no response from the AccuMate the AccuMate will show off-line
7. Select the desired COM port for the communication between the PC and M965/965+ (Currently the AccuMate supports COM 1~COM16).



8. Press OK on the AccuMate to start communication between the M965/965+, and AccuMate
9. Press Init on the tool bar of AccuMate. The AccuMate will use the desired COM port and send a signal to the AccuMate. If the M965/965+ response the LCD on the AccuMate will show ON LINE.

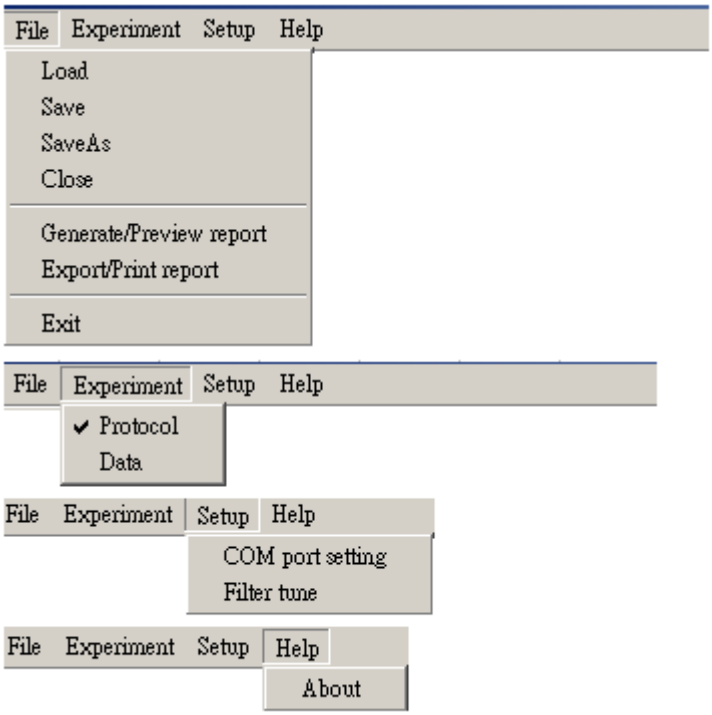
Setting up USB connection Between M965/965+ and AccuMate

1. On M965/965+ standalone mode go to SETUP→COMPUTER
2. Change the RS232 to USB
3. Power on the M965/965+ again while pressing option button on the instrument to switch to the PC mode (Appedix A for USB setting)

Main Menu Configuration

Graphic User Interface

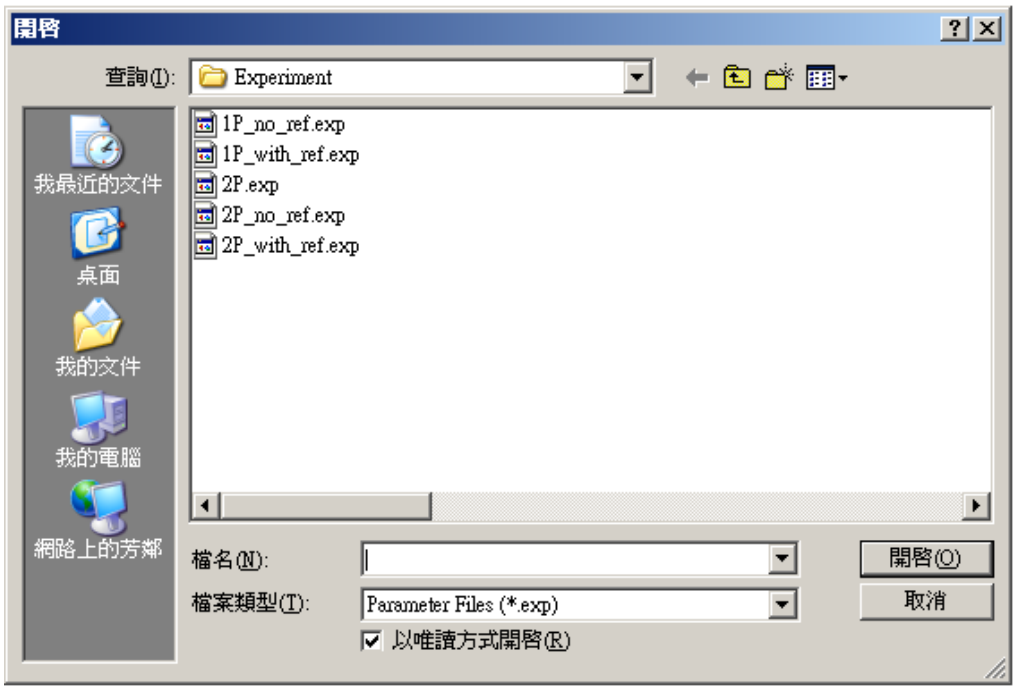
The graphic user interface will have the function menu, tool bar, message, status (Temp. connection status), and working area (Protocol, and data)



File menu functions

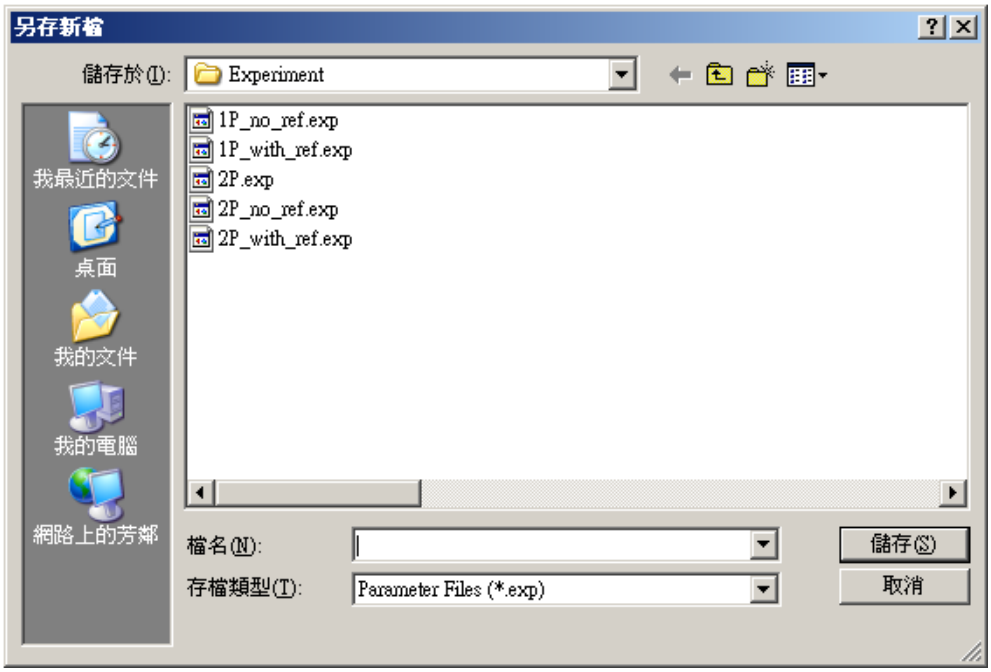
There are four options File, Experiment, Setup, and Help under the main menu of the AccuMate

1. Load: Load experiment file

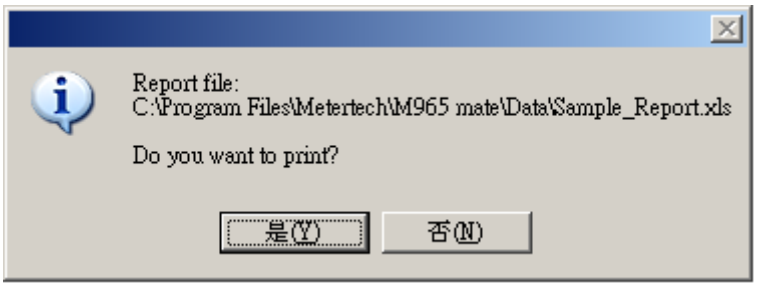


When loading, exp, file, AccuMate SW will check....

2. Save: Save experiment file
3. Save As: Save experiment file using different file name



4. Close: Close experiment file
5. Generate/Preview report: Generate report after experiment is done, must generate report first before saving to Excel
6. Export/Print report: To export to excel or to Print report using the printer connected to the PC

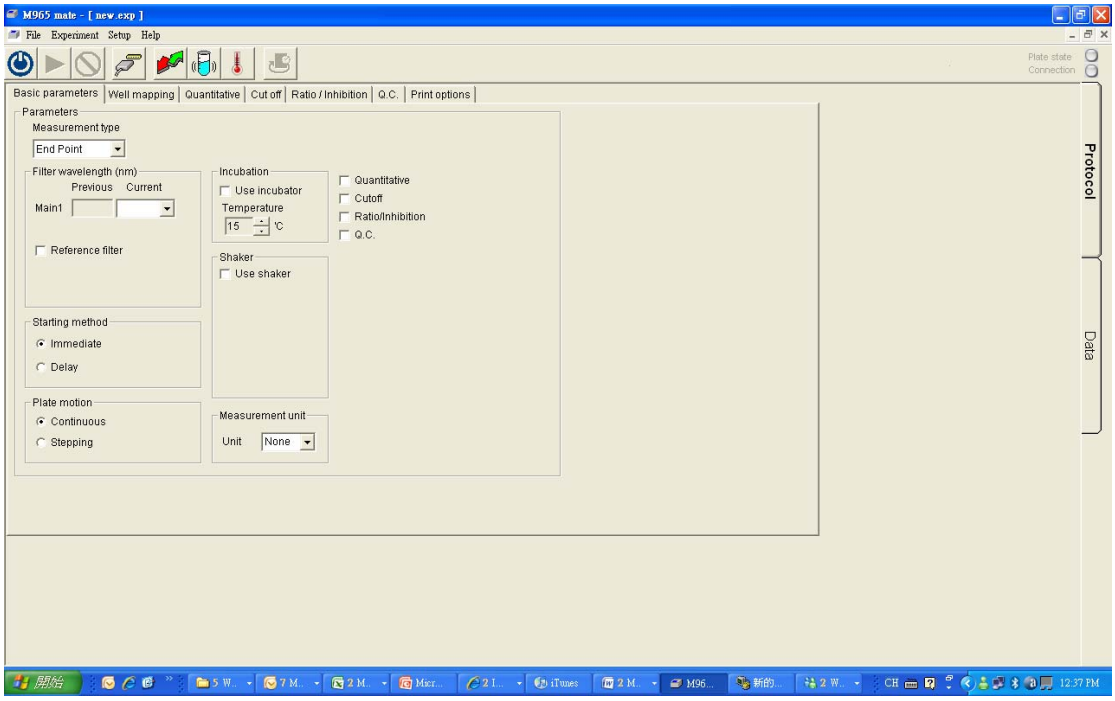


7. Exit: Exit the AccuMate

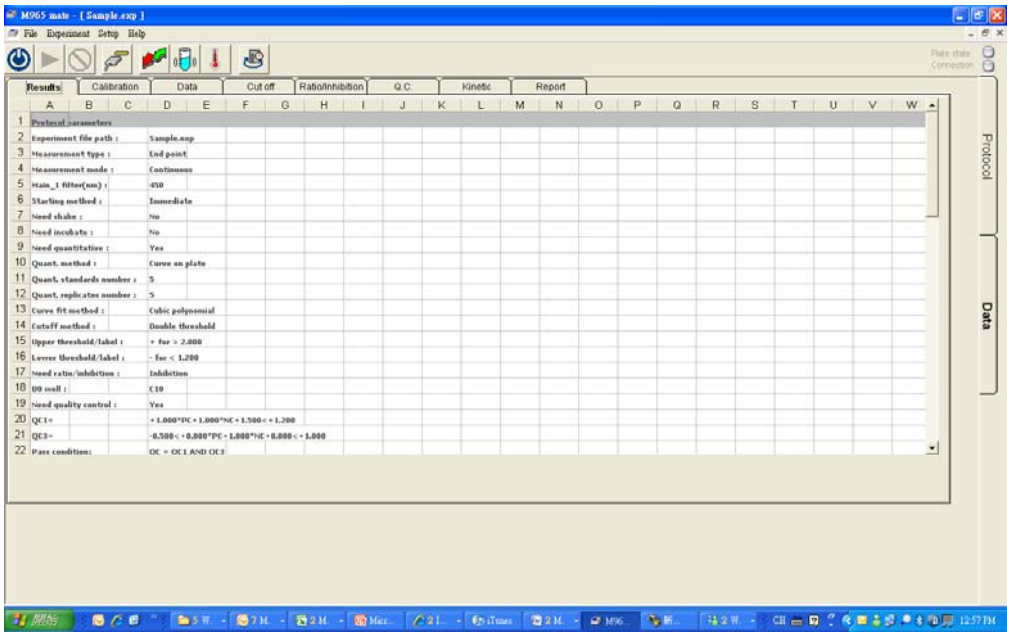
Experiment menu functions

There are 2 functions under the experiment menu, Protocol and Data. Protocol is to setup the parameters of a experiment, and data is to show the results of an experiment.

1. Protocol: To setup the Parameters, Well mapping, Quantitative, Cutoff, Ratio/Inhibition. Q.C, and print options of a experiment



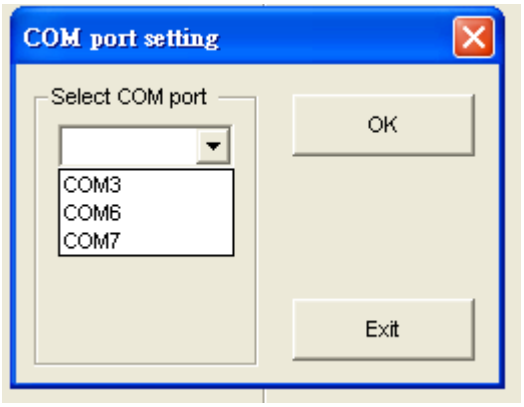
2. Data: To show the result of an experiment



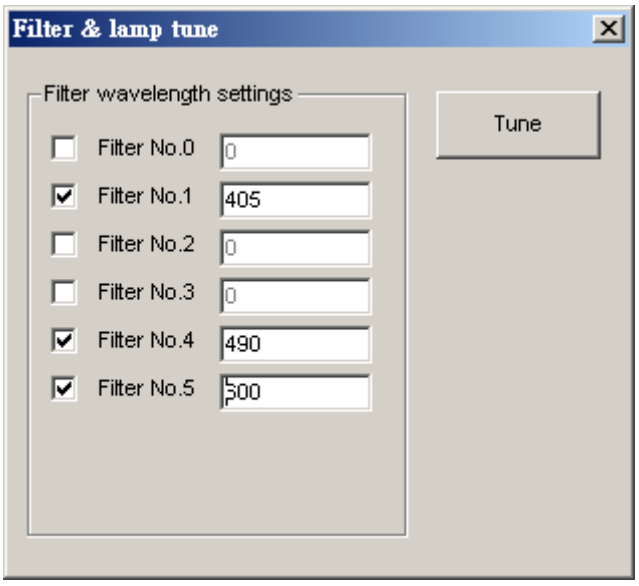
Setup menu functions

The setup menu is used for COM port configuration and filter setting. The AccuMate can setup up to 8 filters

1. COM port setting: User can change the desire COM port to communicate between M965/965+ and AccuMate. The M965/965+ will automatically detect all available COM port on the PC



2. Filter tune: The AccuMate has one 8 slot filter wheel for user to install filters. After installing new filters on the M965/965+ it is important to set the correct filter wavelength on the AccuMate. Check the check box on the left to enter desired wavelength for the filter, and press the Tune key after the desired wavelength is entered.



Help menu functions

The help menu will show the manufacture address, URL, telephone, and software version of the AccuMate

Tool Bar Menu Configuration

There are Init, Execute, Stop, COM port setting, Plate In/Out, Shaker, Incubator, and post processing tabs on the tool bar menu

1. Init tab: After connecting the M965/965+, and AccuMate , users must initialize first before any changes can be made

2. Exec tab: To execute the desired parameters for the experiment

3. Stop tab: To stop the current action for the M965/965+

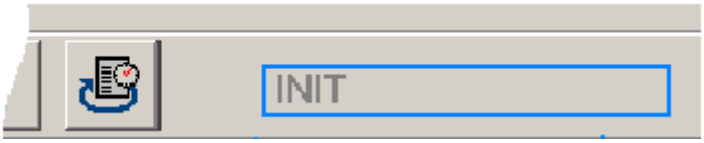
4. COM port setting: To setup the COM port connection between the PC and the AccuMate.

5. Plate in/out: To open/close the plate, the plate status will show on the status bar
6. Shaker: The shaker tap is used to configure the shaker. The shaker has 3 speeds low (8Hz), Medium(11Hz), High (14Hz)

7. Incubator: To initialize the incubator, users can configure the incubator from ambient + 3~50 ℃

8. Post Processing: Use the parameters on the main manual and refresh the data

9. Message: Shows the status and messages from the M965/965+.



Message	Description
INIT	Initializes the M965/965+
INIT PASS	Initialization successful, and can start working
OFF LINE	The M965/965+ and AccuMate is off line
ON LINE	The M965/965+ and AccuMate is on line
STOP	Stop current action for the M965/965+
PLATE MOVE	The plate of the M965/965+ is moving
PLATE IN	The plate is in the M965/965+
PLATE OUT	The plate is out of the M965/965+
EXEC ENTRY	Confirm and retry execution
EXECTION	Start execution the parameters
EXEC...Pn	Execute plate n is the plate number
FILTER TUNE	Start tuning filter
TUNE PASS	Filter tuning success
SHAKER CTRL	Execute shaker
SHAKER DONE	Shaking done
TEMP CTRL	Execute Temp. control
DETECT	Detect the M965/965+ restart

10. Temperature monitor: To monitor the incubator temperature within the M965/965+

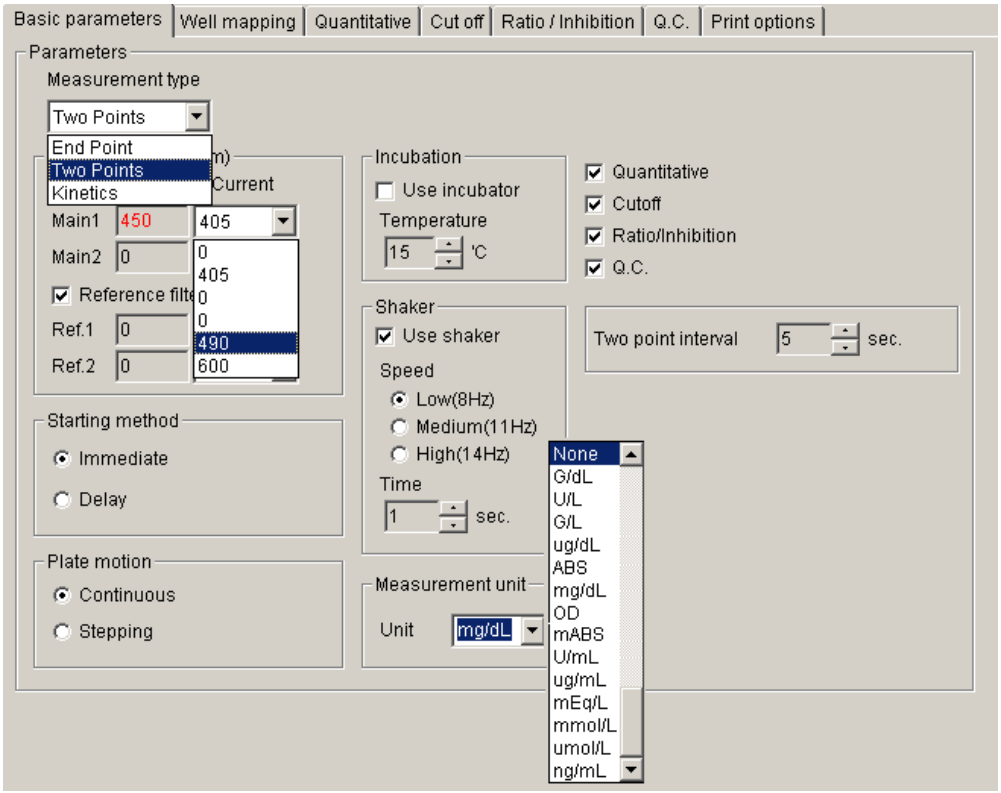
Status monitor: To monitor the status of the M965/965+. After initialization there will be two lights showing on the status monitor. Red/Green represents plate is Out/In. Blue/Grey represents connection status between M965/965+, and AccuMate

Defining Parameters for Experiment

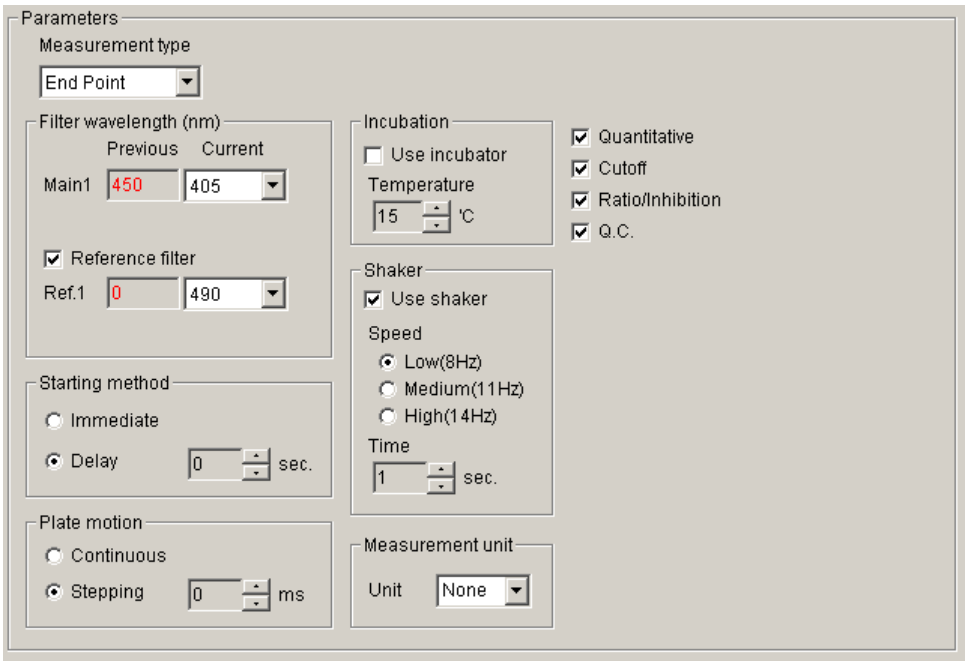
Defining Parameters

When starting experiment users must first define the parameters such as wavelength, reading method, incubator, and shaking. In addition users can also define the calculation such as Quantitative, Cutoff, Ration/Inhibition, and QC.

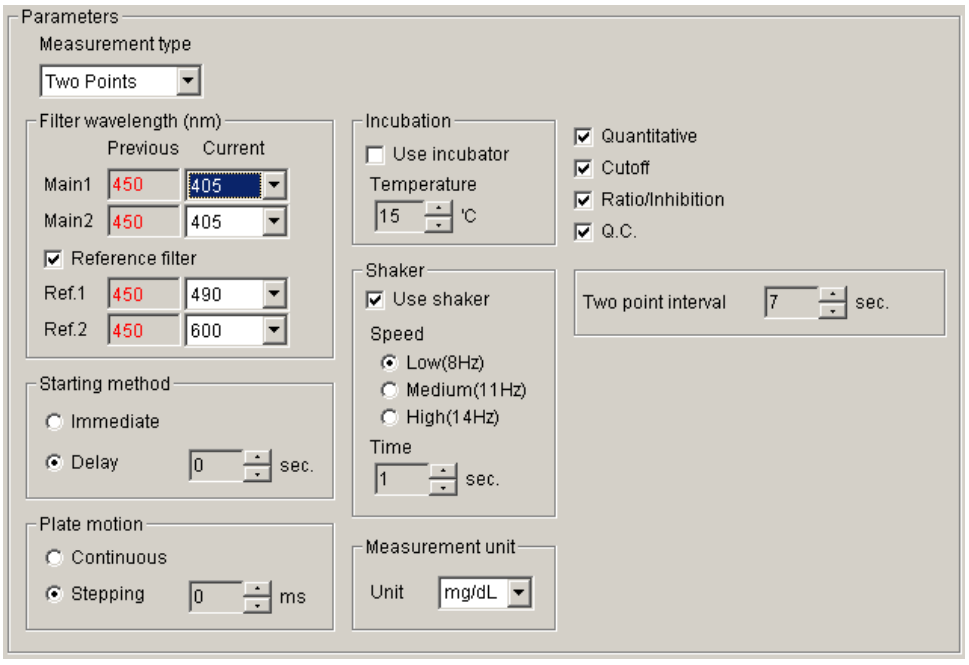
1. Measurement Type: Users can define 3 types of measuring types. End point, two point, and Kinetic.



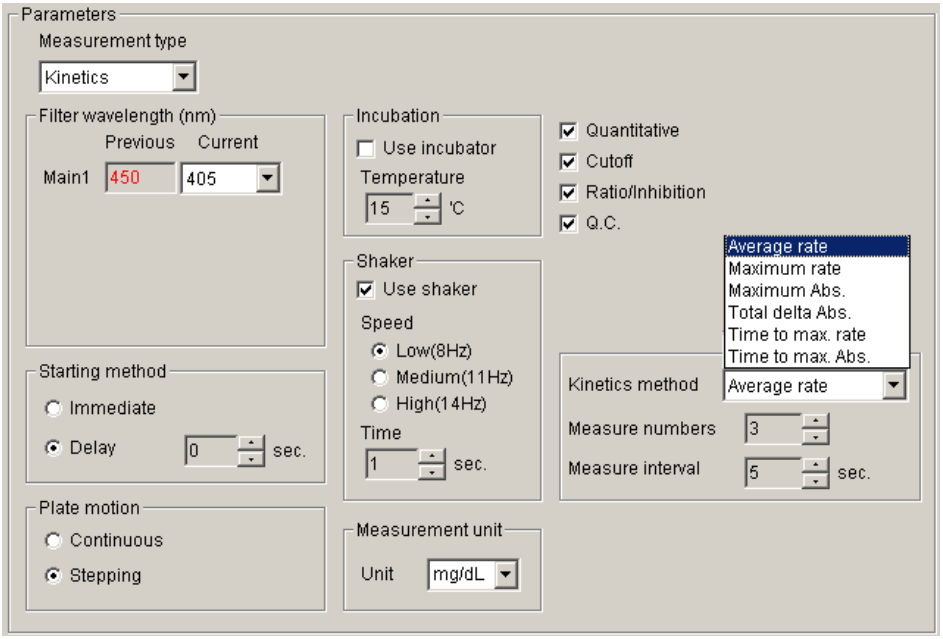
a、 End Point



b、 Two Points



c、 Kinetics: Kinetics measuring method can only select main filter and no reference filter



2. Filter wavelength: Users will need to select the filter wavelength for the desired experiment. In additional users can also select a reference wavelength. The M965/965+ will automatically calculate the Delta OD as for difference between the main and reference filters.

3. Starting method: Define when to start the defined experiment parameters
   a、 Immediate: Start right after pressing the execute tab
   b、 Delay: Users can define from 0~999s delay to start

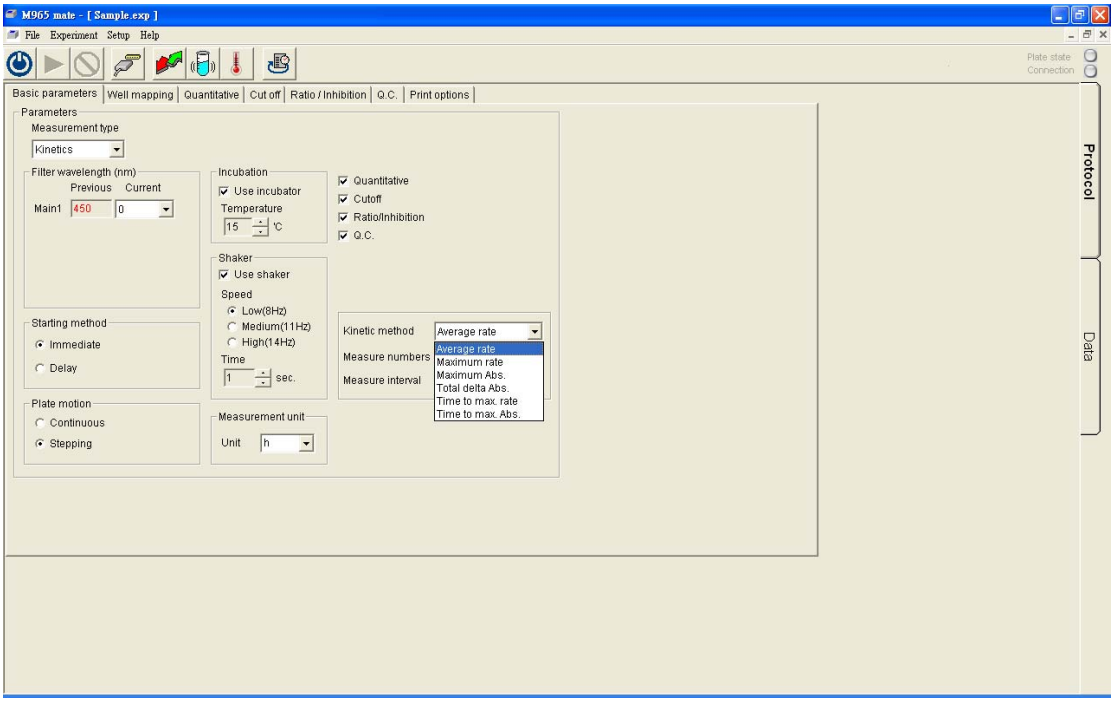
4. Plate motion: To define how the plate motion when measuring
   a、 Continuous: When measuring the plate is in continuous motion and not stopping
   b、 Stepping: User can define the stop time when measuring from 0~999 ms (In kinetic mode there is no stepping time)

5. Incubation: Users can define the incubator temperature by clicking the incubation tab. The M965/965+ incubator can save the temperature from +3~50℃

6. Shaker: The shaker on the M965/965+ can select 3 types of speed, the shaking time can range from 0~999s

Speed	Description
High	14 Hz
Medium	11Hz
Low	8Hz

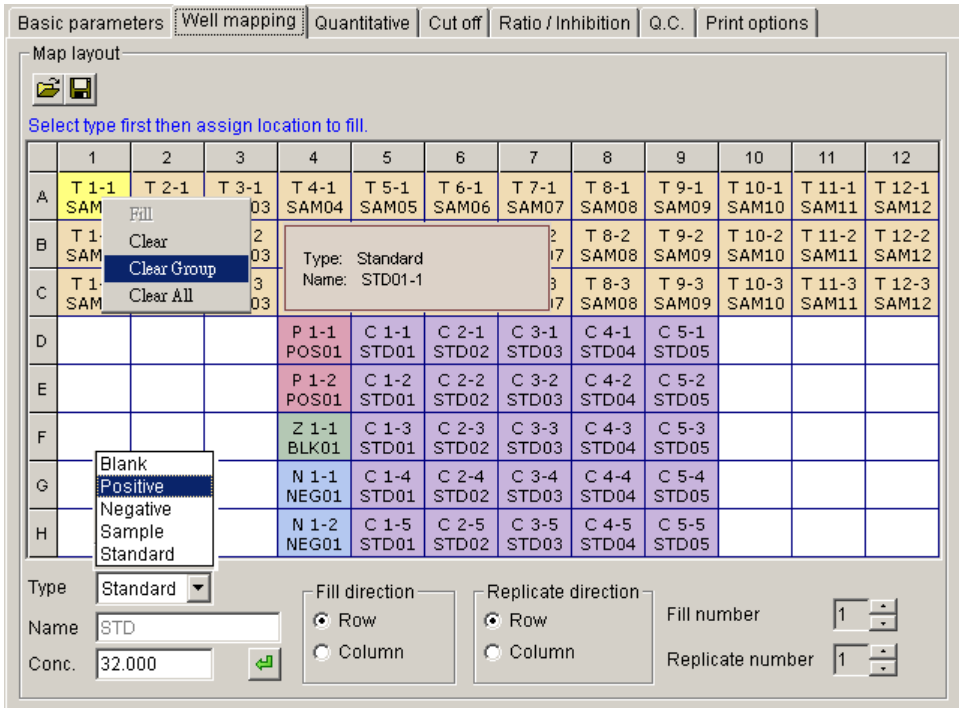
7. Measurement unit: Users can select 15 types of measurement unit "None" , "G/dL" , "U/L" , "G/L" , "ug/dL" , "ABS" , "mg/dL" , "OD" , "mABS" , "U/mL" , "ug/mL" , "mEq/L" , "mmol/L" , "umol/L" , "ng/mL". When select to None user can enter the desired measurement unit
8. Two point interval: Users can select the 2 point interval from 5~999s
9. Kinetic method, numbers, and interval: When user select kinetic measurement user can select the method, numbers, and interval.
   a、 Kinetic method: Uses can select Average rate, Maximum rate, Maximum OD, Total delta OD, Time to max slope, Time to max OD.



   b、 Measure number: User can enter the measuring numbers of the plate from 3~30 times
   c、 Measure interval: User can select the measure interval. When plate motion is in Continuous from 4~500s, in Stepping 5~500s

Well Mapping

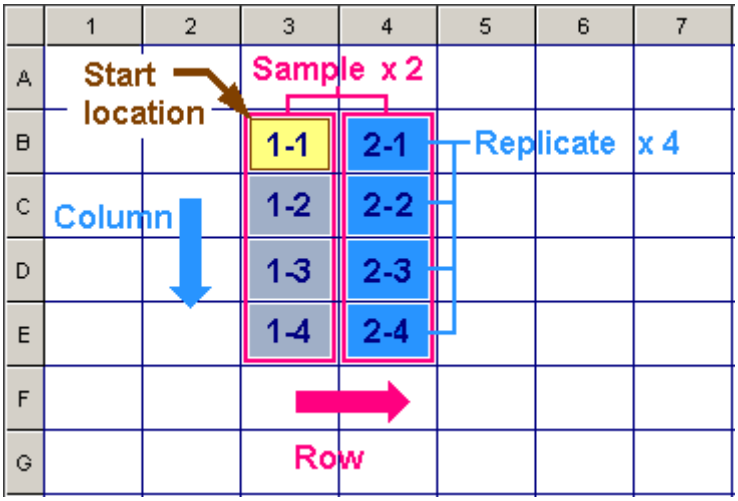
1. Save and load map layout: Users can load their map layout by pressing the folder under map layout or the disk icon to save under map layout

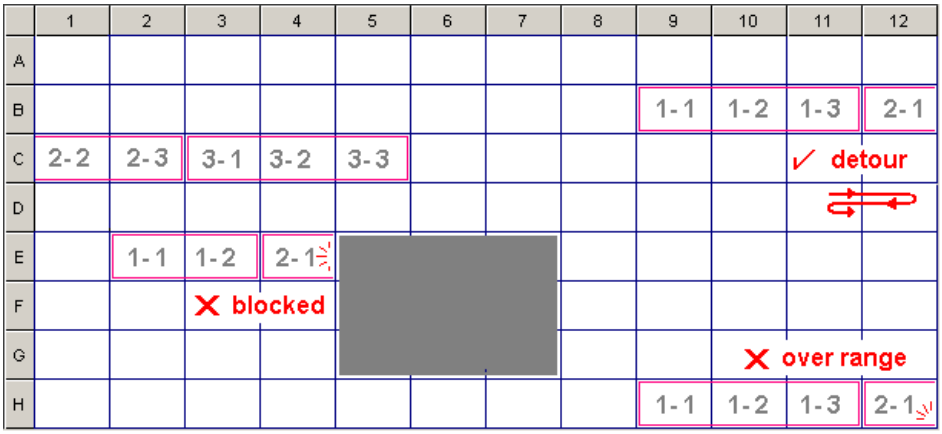


2. Well mapping method:
   a、 Select the type well users would like to define (Blank, Positive, Negative, Sample, Standard). User can also enter the concentration value for the standard.
   b、 Determine where on the well does the well type need to be, and left click on the position on the well
   c、 Right click on the mouse to select the fill option.
3. Fill and replicate direction rule: Row is to fill or replicate the well vertical, column is to fill or replicate the well horizontal

4. Fill and replicate well rules:
   a、 Fill number: Is to replicate the number of different samples
   b、 Replicate number: Is to replicate the sample how many times on the well plate.

Example: of filling and replicate the well plate





5. Blank, POS, and NEG can only have 1 set within the AccuMate
6. STD can configure 1~15 set, a maximum of 96
7. Sample max of 96

8. Types of well:

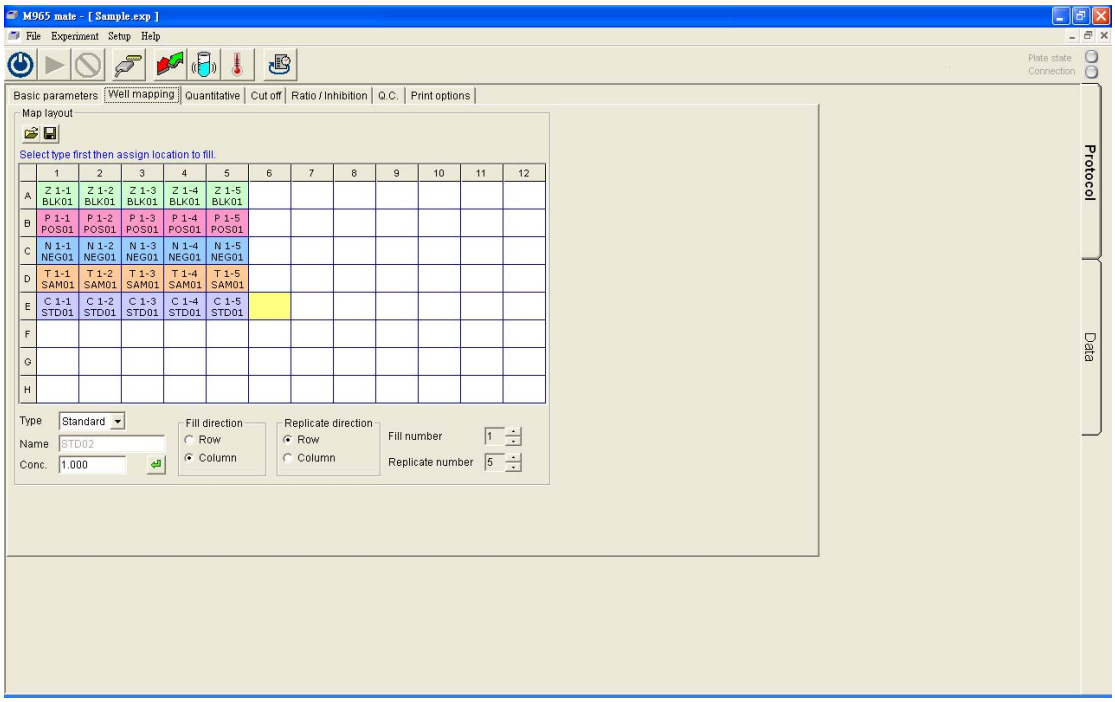
   a、 BLK: User can define BLK for the blank well, and are defined as a light green on the well plate

   b、 POS: Uses can define positive control on the well plate, and are defined as a light red on the well plate

   c、 NEG: Users can define negative control on the well plate, and are defined as a light blue on the well plate

   d、 Sample: Users can define the sample on the well plate , and are defined as an light orange on the well plate

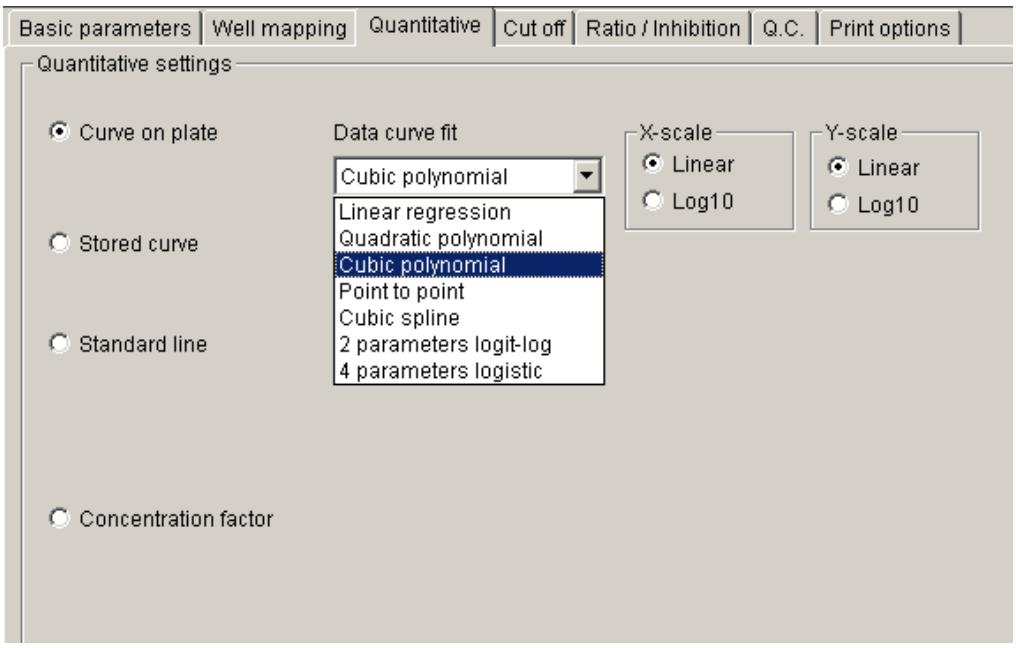
   e、 Standard: Users can define the standard on the well plate, and are defined as a light purple on the well plate. Users can fill in the value of 0.001~999999.999



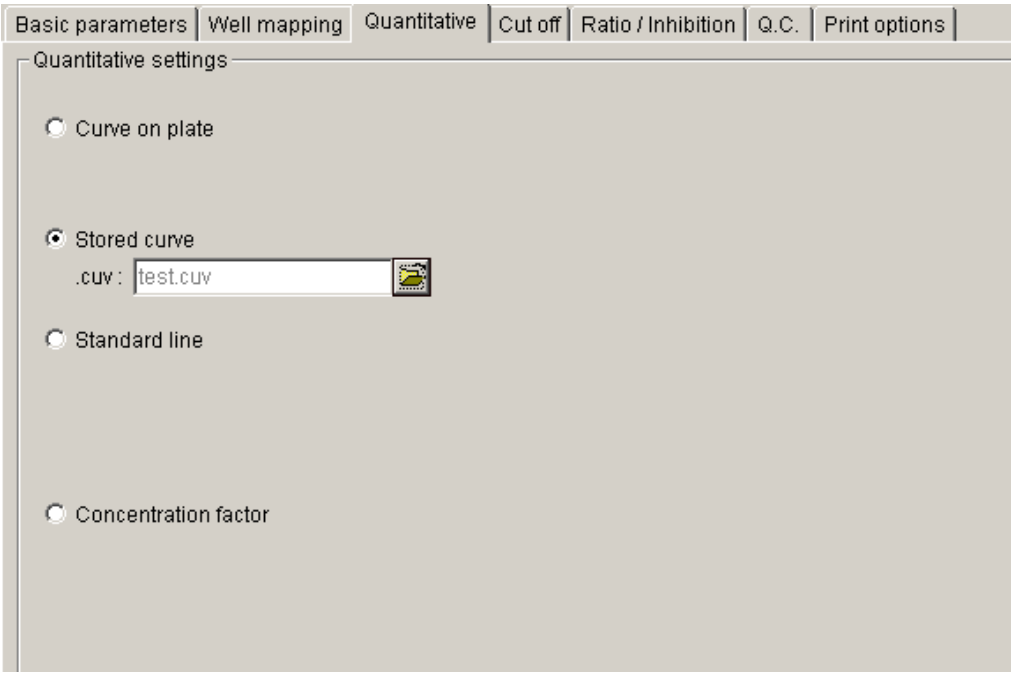
Quantitative measuring method

The M965/965+ supports 4 types of Quantitative method, Curve on plate, Stored curve, Standard line, and Concentration factor.

1. Curve on plate: Uses the standard on the well plate for the calibration curve. There are 7 types of curve fitting on the AccuMate
   a、 Linear regression
   b、 Quadratic polynomial
   c、 Cubic polynomial
   d、 Point to point
   e、 Cubic spline
   f、 2 parameters logit-log
   g、 4 parameters logistic



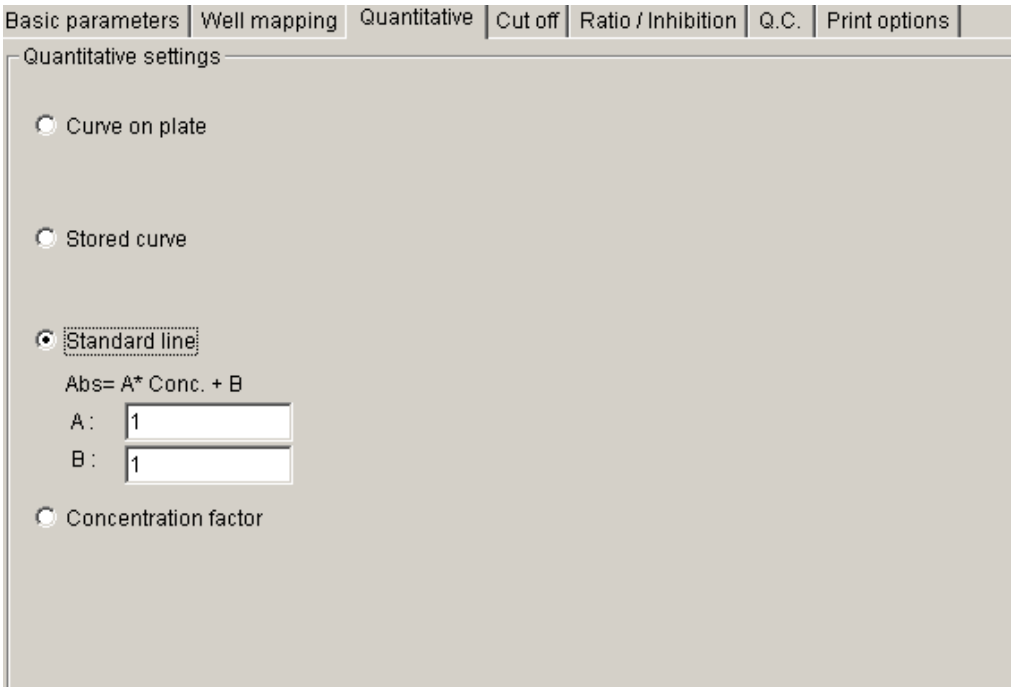
2. Stored curve: Users can load their existing stored curve for quantatitive, the stored curve are under AccuMate\StdCurve, file name is .cuv



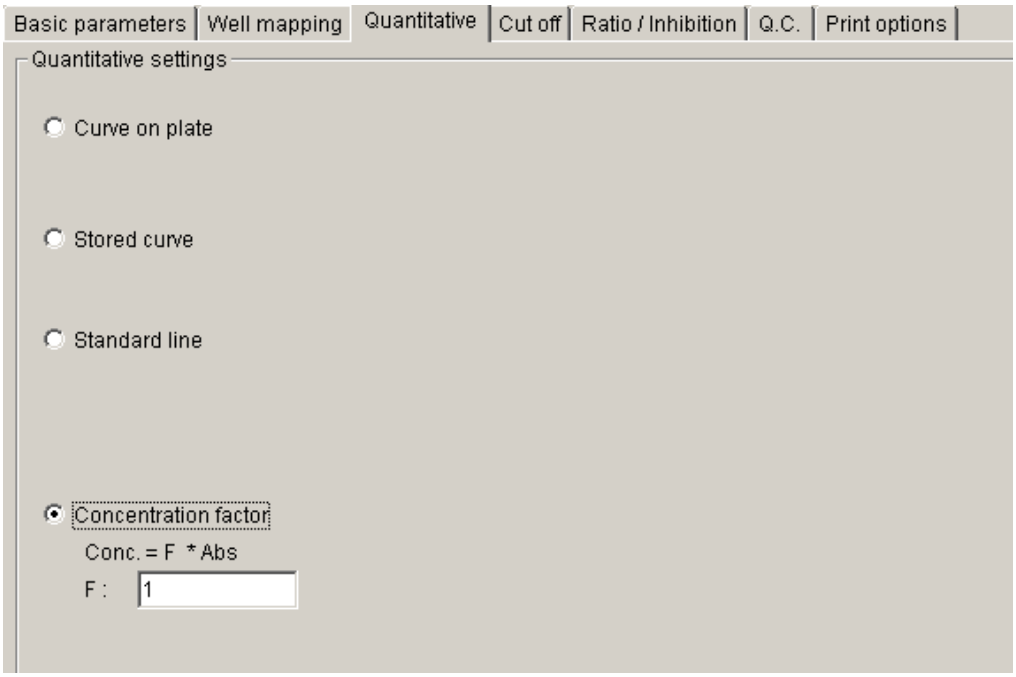
3. Standard line: User can use the Abs=A* Conc+B equation and enter the value of A and B to calculate a standard line.

The Value of A can be：-999999.999 ~ +999999.999

The value of B can be ：-999999.999 ~ +999999.999



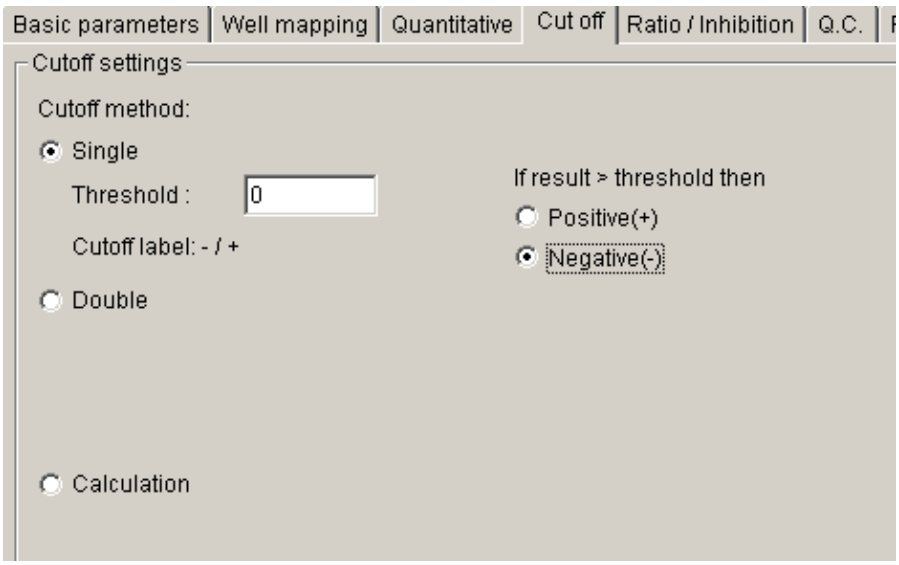
4. Concentration factor: User can enter a factor for calculate the concentration
The value of F can be：-999999.999 ~ +999999.999



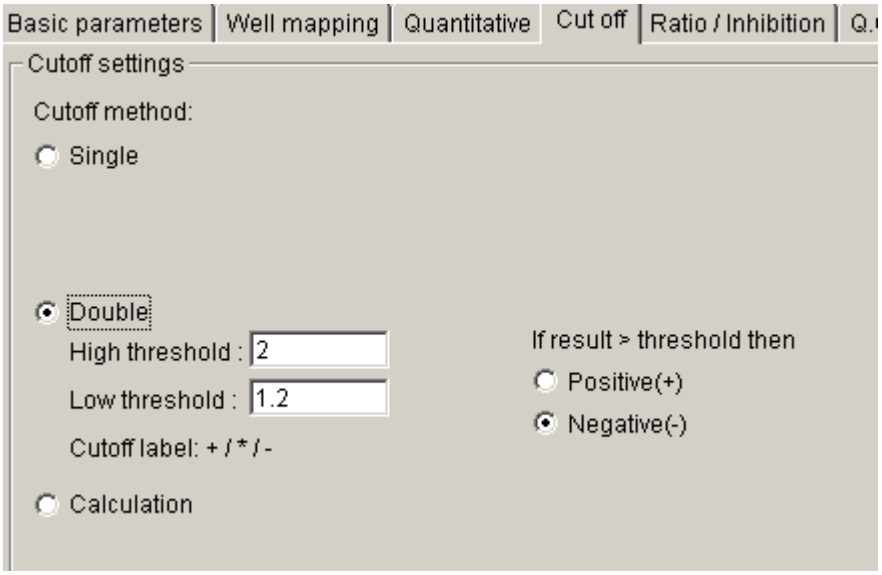
Cutoff measuring method

The M965/965+ support 3 types of Cutoff measuring method.

1. Single cutoff method: User can enter a threshold of 0.0000~4.0000, and define the result is positive or negative.

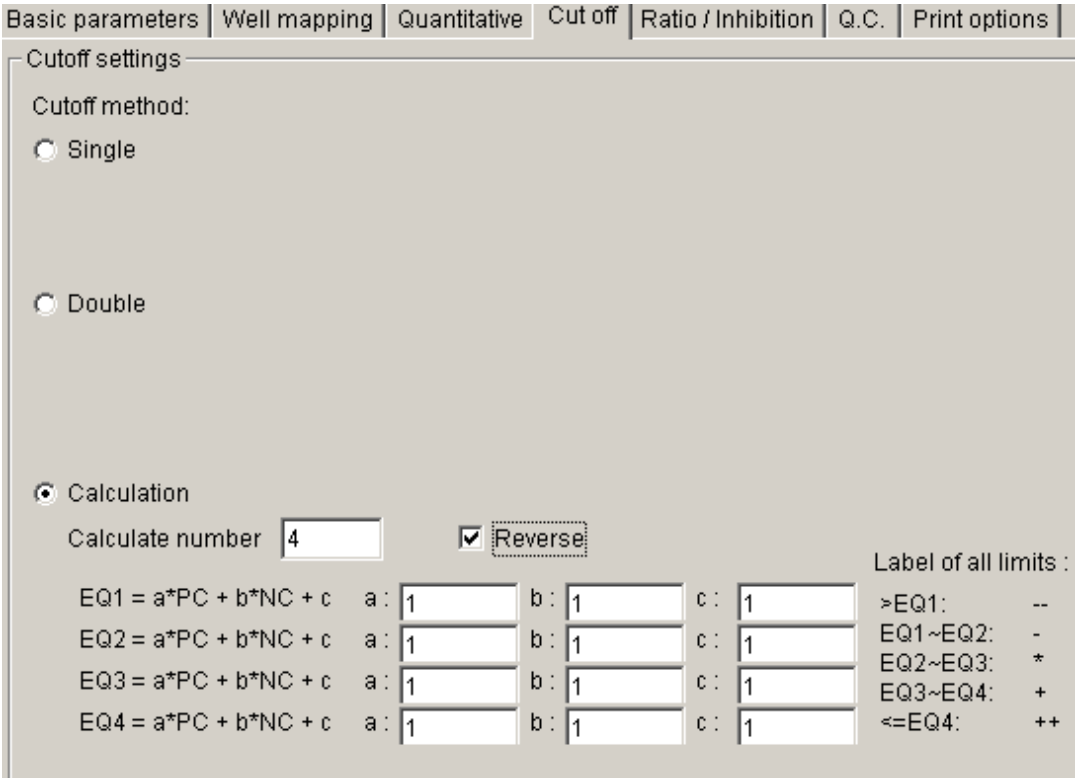


2. Double cutoff method: Users can define the high and low threshold. The high and low value can be from 0.0000~4.0000. The AccuMate can determine the positive, negative results and between (*)



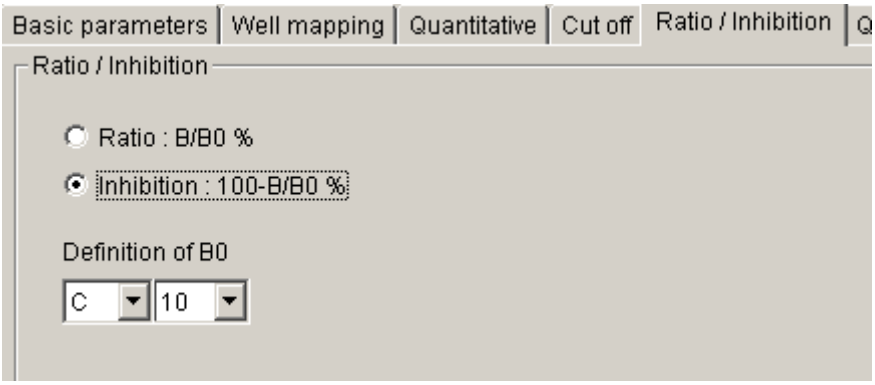
3. Calculation cutoff method: User can create a maximum of 4 formulas as the threshold calculation and make the result as 5 groups.
   Every formula can be calculated from the positive or negative control results with the equation:
   EQn = **a** * PC **+ b** * NC + **c**
   The value for a, b and c can be -1000.000 ~ +1000.000

Example: With four threshold the threshold higher then EQ1 as default (++), Between EQ1 and EQ2 (+). Between EQ2 and EQ3 is (*). Between EQ3 and EQ4 is (-). Below EQ 4 is (--)



Ratio/Inhibition Calculation Method

Select a B0 as a standard value to calculate the rest of the well plate Bn

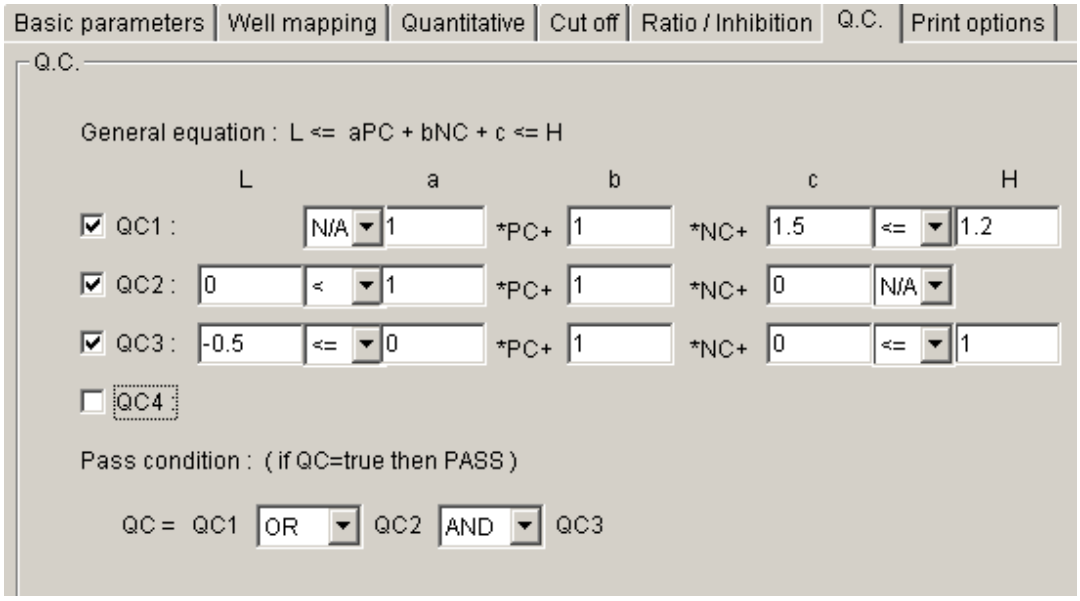


1. Ratio/Inhibition operating procedure
   - a、 definition: Ratio = (Bn/B0)%
   - b、 Inhibition = 100% - (Bn/B0)%
   - c、 Must have sample on B0 position or the AccuMate will show error
   - d、 Please check if B0 is a replicate of the sample, if there are many replicate of the sample the B0 will be the average of the replicates of the sampe.
   - e、 If B0 value is 0 then the AccuMate will show error
   - f、 If ratio is over 200% then the AccuMate will show HI, lower then -200% then the AccuMate will show LO
   - g、 Ratio is represent as blue
   - h、 Inhibition represent as red

Q.C. Calculation Method

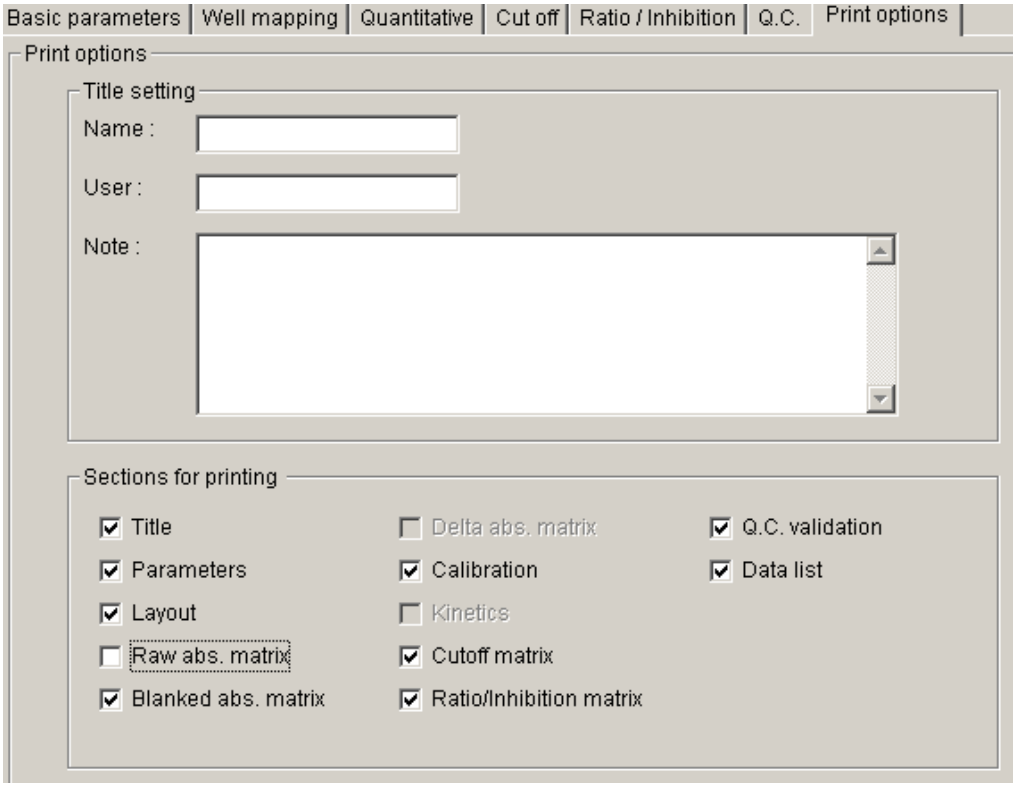
The criteria of the QC calculation can used to determines on the reliability if this experiment.

1. Can use a maximum of 4 equation for calculation, all of the calculation result are considered to determine pass or fail of the QC calculation method.
2. The value of a can be -1000.000 ~ +1000.000
3. The value of b can be -1000.000 ~ +1000.000
4. The value of c can be 1000.000 ~ +1000.000
5. The value of H can be -9999999.999 ~ +9999999.999
6. The value of L can be -9999999.999 ~ +9999999.999
7. To determine pass or fail the queation uses a OR, AND, XOR to determine



Printing options

Users can set Name, User, and Note to differentiate different experiment reports. User can also check the boxes next to the sections for printing Colum to determine which data users will need to show on the report.



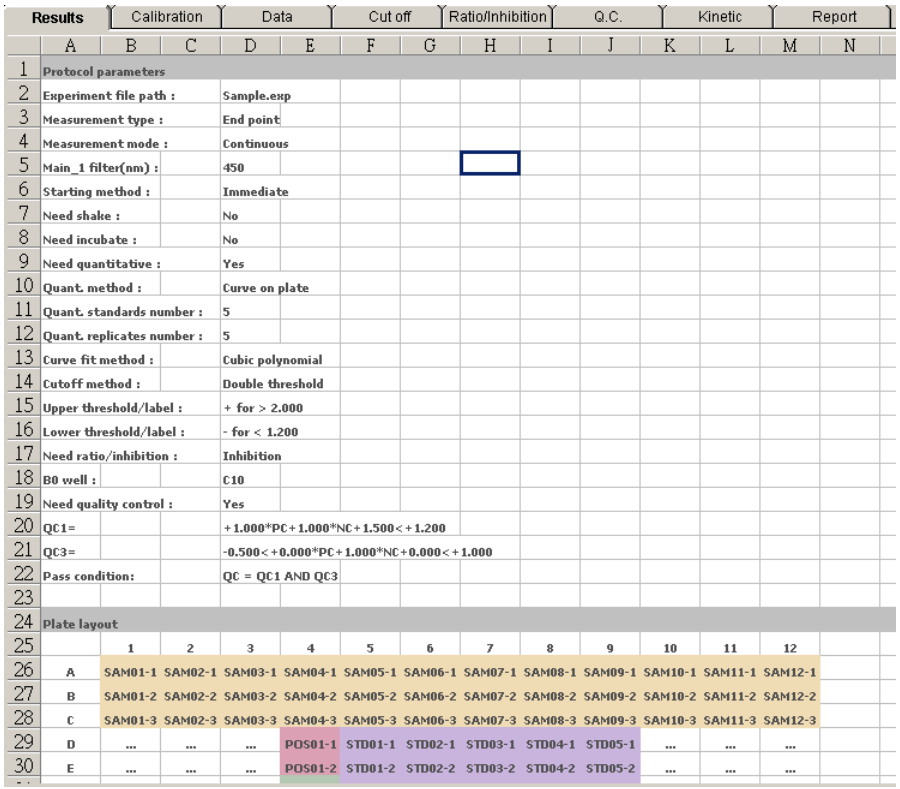
1. Title: The title of the experiment
2. Parameters: Shows the protocol parameters of the experiment
3. Layout: The well plate layout of the experiment
4. Raw abs. matrix: The OD value from the M965/965+
5. Blanked abs. matrix: The OD value minus the blank
6. Delta abs. matrix: The delta OD curve
7. Calibration: The calibration value
8. Kinetics: Kinetics value for the experiment
9. Cutoff matrix: Cutoff report
10. Ratio/Inhibition matrix: Ratio/Inhibition report
11. Q.C. validation: QC report
12. Data list: Show the data list

(Matrix show as well mapping configuration)

Interpreting the results

The AccuMate will generate the results after every experiment in the data tab on the right. Users can use to result, Calibration, Data, Cutoff, Ratio/Inhibition, Q.C, Kinetic to view their experiment results

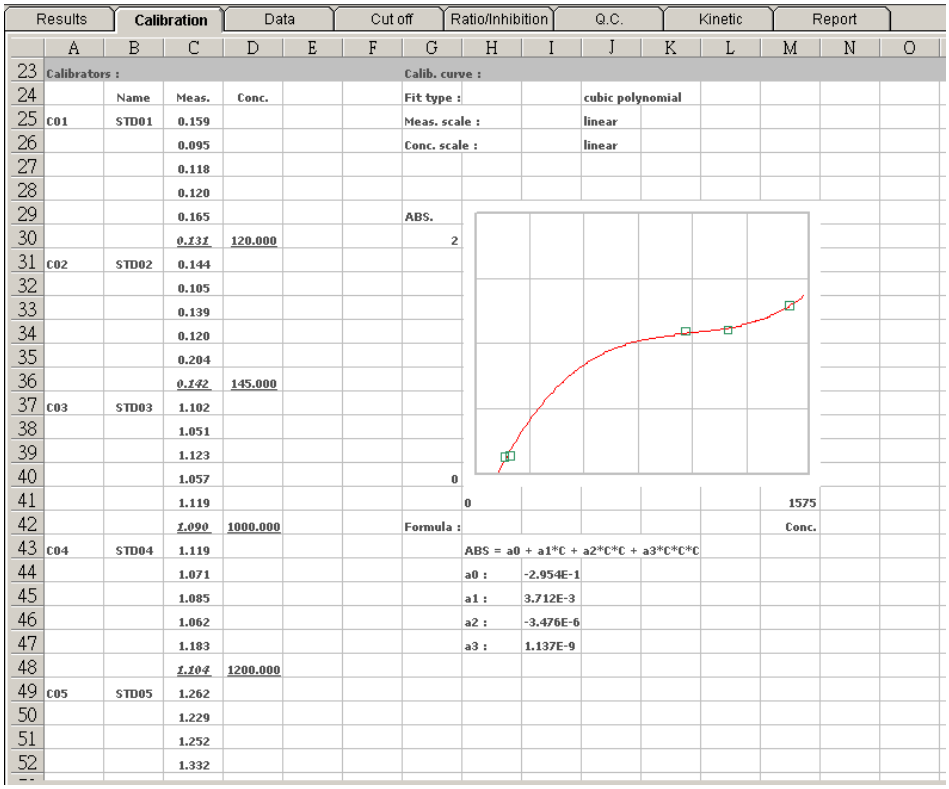
1. Result: Click on the result tab to see the parameter setup, plate layout, Raw OD, and Con Matrix of the experiment. If check Quantitative, cutoff, Ratio/Inhibition , QC calculation method the criteria of the calculation method will also show on this page.



Results | Calibration | Data | Cut off | Ratio/Inhibition | Q.C. | Kinetic | Report

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Protocol parameters													
2	Experiment file path :			Sample.exp										
3	Measurement type :			End point										
4	Measurement mode :			Continuous										
5	Main_1 filter(nm) :			450										
6	Starting method :			Immediate										
7	Need shake :			No										
8	Need incubate :			No										
9	Need quantitative :			Yes										
10	Quant. method :			Curve on plate										
11	Quant. standards number :			5										
12	Quant. replicates number :			5										
13	Curve fit method :			Cubic polynomial										
14	Cutoff method :			Double threshold										
15	Upper threshold/label :			+ for > 2.000										
16	Lower threshold/label :			- for < 1.200										
17	Need ratio/inhibition :			Inhibition										
18	B0 well :			C10										
19	Need quality control :			Yes										
20	QC1=			+1.000*PC+1.000*NC+1.500<+1.200										
21	QC3=			-0.500<+0.000*PC+1.000*NC+0.000<+1.000										
22	Pass condition:			QC = QC1 AND QC3										
23														
24	Plate layout													
25		1	2	3	4	5	6	7	8	9	10	11	12	
26	A	SAM01-1	SAM02-1	SAM03-1	SAM04-1	SAM05-1	SAM06-1	SAM07-1	SAM08-1	SAM09-1	SAM10-1	SAM11-1	SAM12-1	
27	B	SAM01-2	SAM02-2	SAM03-2	SAM04-2	SAM05-2	SAM06-2	SAM07-2	SAM08-2	SAM09-2	SAM10-2	SAM11-2	SAM12-2	
28	C	SAM01-3	SAM02-3	SAM03-3	SAM04-3	SAM05-3	SAM06-3	SAM07-3	SAM08-3	SAM09-3	SAM10-3	SAM11-3	SAM12-3	
29	D	...	...	...	POS01-1	STD01-1	STD02-1	STD03-1	STD04-1	STD05-1	...	...	...	
30	E	...	...	...	POS01-2	STD01-2	STD02-2	STD03-2	STD04-2	STD05-2	...	...	...	

2. Calibration: When Quantitative is checked in the protocol, calibration curve will be displayed according to the setting parameter.



a、 Layout: Shows the well mapping layout of the plate. Different types of well uses a different color to represent.

b、 Source data: Shows the source data for the quantitative measurement.

i. In end point measurement ,if there is no reference filter then the main filter (M1) data is the source data. If there is reference filter then M1 – R1 is the source data.

ii. In Two points measurement if there is no reference filter the source data will be M1

iii. In Two points measurement if there is reference filter then the source data will be D1=M1-R1

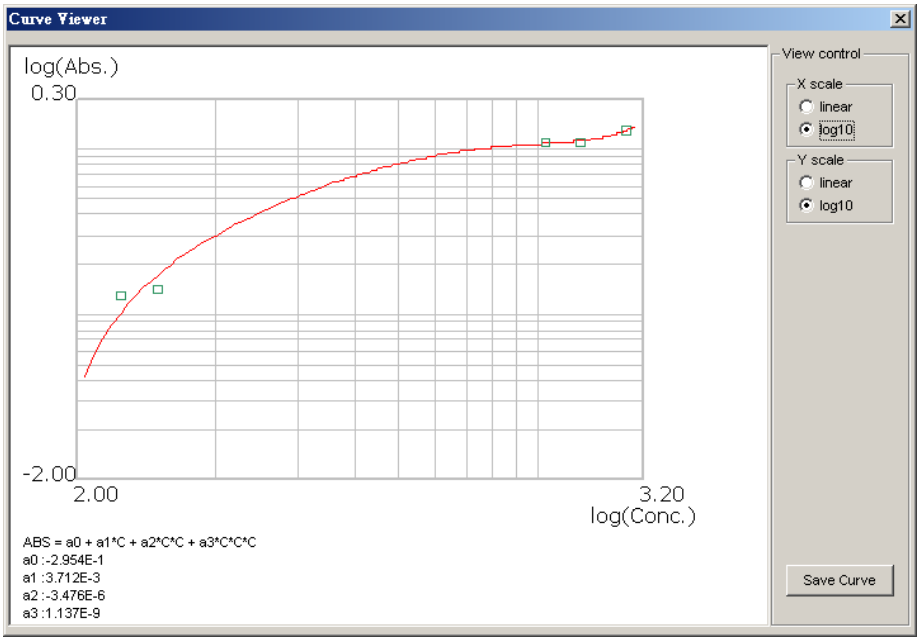
iv. During Kinetic measurement user cannot use reference filter, the M1 data will be the source data

c、 Calibrators: Will use C01~C15 to represent every STD's name, and OD value, and will show the average measurement and the standard Conc value

d、 Calib Curve: When using standard curve (Curve on plate or stored curve), will use curve fitting to create a standard curve.

e、 Residuals table: Will use C01~C15 to show standard OD value (C set), Average Abs, and Concentration and Residual (Ccal-Cset)

f、 Curve Viewer: User can double click on the curve to enable the curve viewer. User can also store the curve in the save curve tab on the bottom. The default stored curve are in AccuMate\StdCurve



3. Data sheet: According to the well plate mapping the AccuMate will display all the result. The data sheet will show Name, Well ID, Replicate numbers, Abs, SD, CV%, Conc, Measuring unit, Cuttoff, and Inhibition %. The average of every value will display a _avg next to the well ID.

Results | Calibration | **Data** | Cut off | Ratio/Inhibition | Q.C. | Kinetic | Report

Name	Well	Replicate	Abs.	SD	CV%	Conc.	Unit	Cutoff	Inhbt%
POS. CONTROLS									
POS01	D4	1	0.022	---	---	---	---	_	---
POS01	E4	2	-0.039	---	---	---	---	_	---
POS01_avg	---	---	-0.009	0.031	LO	83.513	mg/dL	_	100.43
NEG. CONTROLS									
NEG01	G4	1	0.032	---	---	---	---	_	---
NEG01	H4	2	0.115	---	---	---	---	_	---
NEG01_avg	---	---	0.074	0.042	56.46	110.217	mg/dL	_	96.33
SAMPLES									
SAM01	A1	1	-0.036	---	---	---	---	_	---
SAM01	B1	2	-0.112	---	---	---	---	_	---
SAM01	C1	3	-0.100	---	---	---	---	_	---
SAM01_avg	---	---	-0.083	0.033	-40.35	60.594	mg/dL	_	104.13
SAM02	A2	1	-0.029	---	---	---	---	_	---
SAM02	B2	2	-0.071	---	---	---	---	_	---
SAM02	C2	3	-0.014	---	---	---	---	_	---
SAM02_avg	---	---	-0.038	0.024	-63.49	74.405	mg/dL	_	101.90
SAM03	A3	1	0.006	---	---	---	---	_	---
SAM03	B3	2	-0.003	---	---	---	---	_	---
SAM03	C3	3	0.010	---	---	---	---	_	---
SAM03_avg	---	---	0.004	0.005	125.46	87.650	mg/dL	_	99.78
SAM04	A4	1	0.120	---	---	---	---	_	---
SAM04	B4	2	0.048	---	---	---	---	_	---
SAM04	C4	3	0.041	---	---	---	---	_	---
SAM04_avg	---	---	0.070	0.036	51.25	108.879	mg/dL	_	96.52
SAM05	A5	1	0.280	---	---	---	---	_	---
SAM05	B5	2	0.167	---	---	---	---	_	---
SAM05	C5	3	0.158	---	---	---	---	_	---
SAM05_avg	---	---	0.202	0.056	27.53	155.127	mg/dL	_	89.92
SAM06	A6	1	0.292	---	---	---	---	_	---
SAM06	B6	2	0.222	---	---	---	---	_	---
SAM06	C6	3	0.159	---	---	---	---	_	---
SAM06_avg	---	---	0.224	0.054	24.21	163.676	mg/dL	_	88.78

4. Cutoff results : When clicking the cutoff box and finished the configuration, the M965/965+ will show the cutoff results according to the well mapping. Depends on the conditions there will be max 5 symbols to interoperate the cutoff results
〔++〕、〔+〕、〔*〕、〔–〕、〔——〕

Results | Calibration | Data | **Cut off** | Ratio/Inhibition | Q.C. | Kinetic | Report

	1	2	3	4	5	6	7	8	9	10	11	12
A	-	-	-	-	-	-	-	*	*	+	+	*
B	-	-	-	-	-	-	-	-	*	+	+	*
C	-	-	-	-	-	-	-	-	*	+	+	*
D				-	-	-	-	-	*			
E				-	-	-	-	-	*			
F				-	-	-	-	-	*			
G				-	-	-	-	-	*			
H				-	-	-	-	-	*			

5. Ratio/Inhibition results : When clicking the Ratio/Inhibition tab and finished configuring. The AccuMate will show the sample OD value and standard OD value (BO) using % Inhibition. Ratio is represent in Blue, Inhibition is represent in Red. Over 200% the data will show Hi, lower than -200% will show LO

Results | Calibration | Data | Cut off | **Ratio/Inhibition** | Q.C. | Kinetic | Report

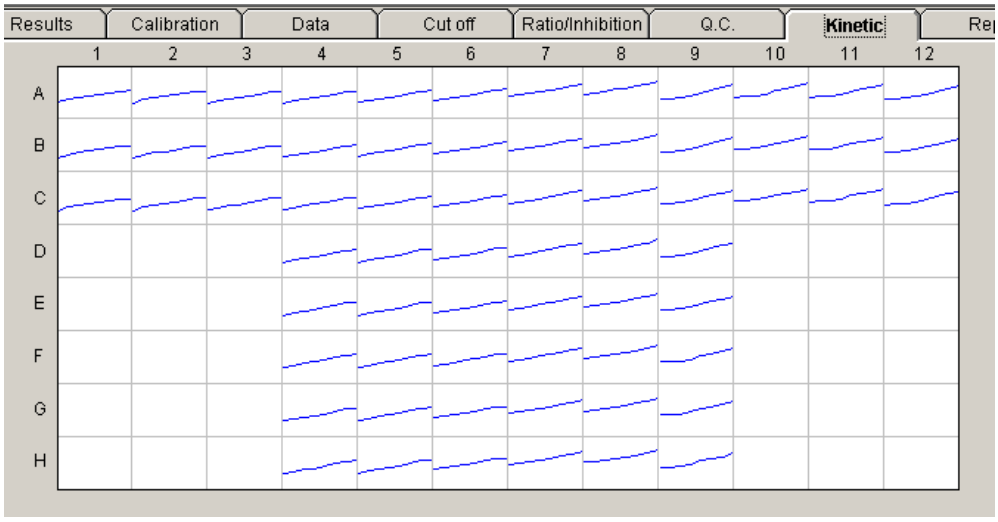
	1	2	3	4	5	6	7	8	9	10	11	12
A	104.13 %	101.90 %	99.78 %	96.52 %	89.92 %	88.78 %	42.90 %	40.07 %	34.27 %	0.00 %	0.00 %	9.60 %
B	104.13 %	101.90 %	99.78 %	96.52 %	89.92 %	88.78 %	42.90 %	40.07 %	34.27 %	0.00 %	0.00 %	9.60 %
C	104.13 %	101.90 %	99.78 %	96.52 %	89.92 %	88.78 %	42.90 %	40.07 %	34.27 %	0.00 %	0.00 %	9.60 %
D				100.43 %	93.43 %	92.88 %	45.48 %	44.80 %	35.39 %			
E				100.43 %	93.43 %	92.88 %	45.48 %	44.80 %	35.39 %			
F				100.00 %	93.43 %	92.88 %	45.48 %	44.80 %	35.39 %			
G				96.33 %	93.43 %	92.88 %	45.48 %	44.80 %	35.39 %			
H				96.33 %	93.43 %	92.88 %	45.48 %	44.80 %	35.39 %			

6. Q.C results: After clicking the QC calculation method and finished configuration, the AccuMate will show the QC criteria, Pass condition, Result on the data sheet

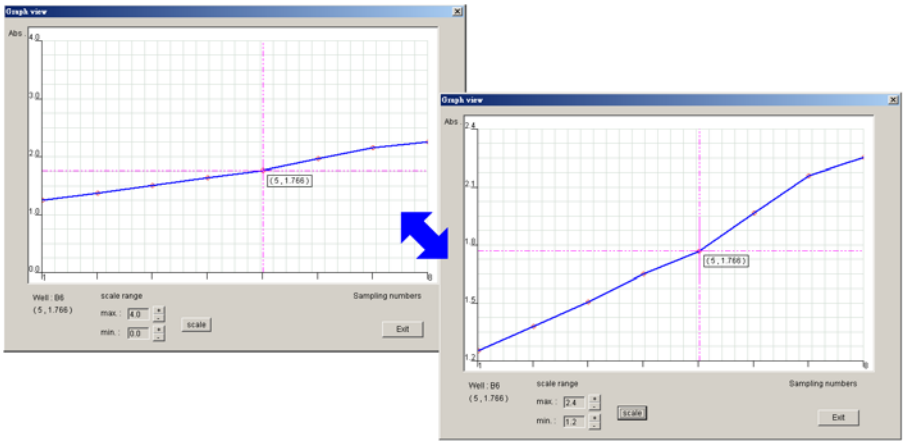
Results | Calibration | Data | Cut off | Ratio/Inhibition | Q.C. | Kinetic

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Quality controls												
2	Controls:												
3		control	abs.	conc.									
4		PC	-0.009	83.513									
5		NC	0.073	110.217									
6	Criteria:												
7		QC1:			+1.000	*PC	+1.000	*NC	+1.500	<=	+1.200		
8		QC3:	-0.500	<=	+0.000	*PC	+1.000	*NC	+0.000	<=	+1.000		
9	Pass condition:												
10	if QC = TRUE then PASS												
11		QC = QC1 AND QC3											
12	Result:												
13		QC1:	FAIL										
14		QC3:	PASS										
15		QC:	FAIL										
16													

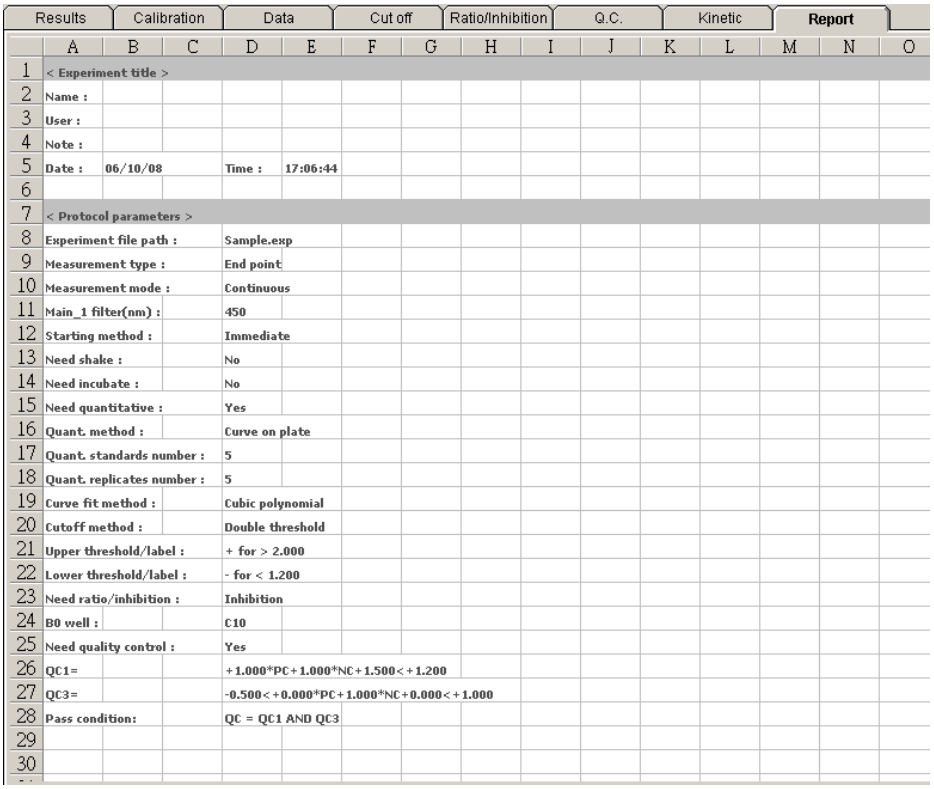
7. Kinetic results: When using the kinetic measuring method AccuMate will display the kinetic curve of every reading. User can check the reaction rate easily on this screen.



Double click on the curve to show a detailed view of the plate number and OD value



8. View Report: To view report users will have to go into file and click the Generate/Preview report tab for the AccuMate to generate report. After report generate users can use the Export/print option to save to Excel or print. The report will be saved in Program Files\Metertech\AccuMate\Data under excel file.



Results | Calibration | Data | Cut off | Ratio/Inhibition | Q.C. | Kinetic | Report

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	< Experiment title >														
2	Name :														
3	User :														
4	Note :														
5	Date :	06/10/08		Time :	17:06:44										
6															
7	< Protocol parameters >														
8	Experiment file path :			Sample.exp											
9	Measurement type :			End point											
10	Measurement mode :			Continuous											
11	Main_1 filter(nm) :			450											
12	Starting method :			Immediate											
13	Need shake :			No											
14	Need incubate :			No											
15	Need quantitative :			Yes											
16	Quant. method :			Curve on plate											
17	Quant. standards number :			5											
18	Quant. replicates number :			5											
19	Curve fit method :			Cubic polynomial											
20	Cutoff method :			Double threshold											
21	Upper threshold/label :			+ for > 2.000											
22	Lower threshold/label :			- for < 1.200											
23	Need ratio/inhibition :			Inhibition											
24	B0 well :			C10											
25	Need quality control :			Yes											
26	QC1=			+1.000*PC+1.000*NC+1.500<+1.200											
27	QC3=			-0.500<+0.000*PC+1.000*NC+0.000<+1.000											
28	Pass condition:			QC = QC1 AND QC3											
29															
30															

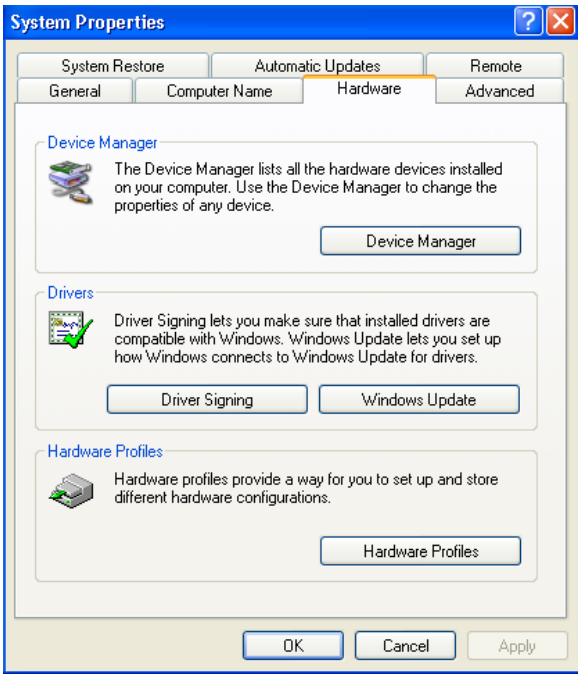
Appendix A
Setting of USB Serial Port

If your Windows(XP/98SE) PC has USB ports only, please install the attached USB to RS232 driver on PC. Connecting the USB cable between PC and M965/965+ machine, then power it up. Please set up your Windows(XP) computer as follow.

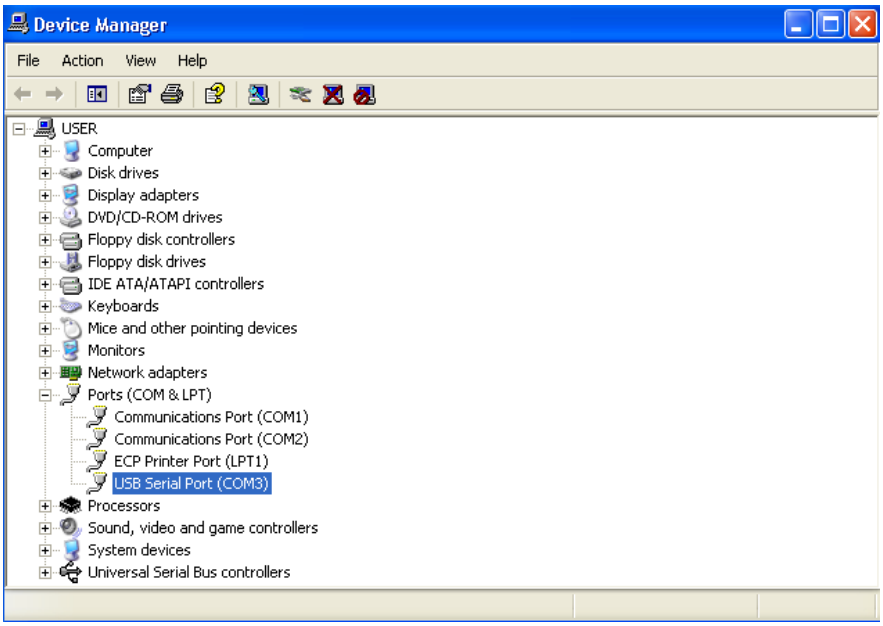
Under '**Systems Tasks**' of '**My Computer**' screen, press '**View system information**'. In System Properties, select icon '**Hardware**' and press button '**Device Manager**'(figure A-1).

In Device Manager, double click '**USB Serial Port**'(figure A-2) to enter port setting(figure A-3). Please remember the com-port number for further use in appendix B. Fill in '**57600,8,None,1,None**' in those blanks. Press button '**Advanced..**' to enter advanced COM setting(figure A-4). USB transfer size is to be selected as max number(4096). Latency timer is to be smallest number(1)

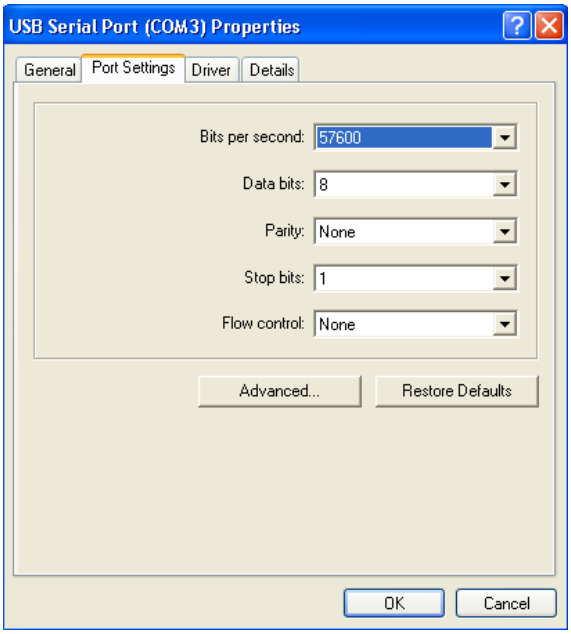
Upon finishing above procedure, please go to appendix B for further operation.



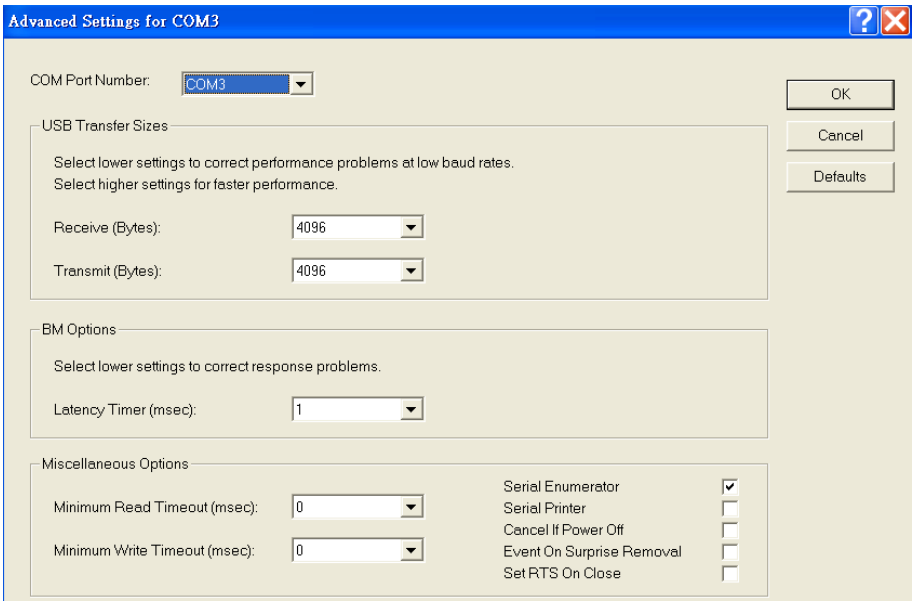
(Figure A-1)



(Figure A-2)



(Figure A-3)


Advanced Settings for COM3
COM Port Number:
COM3
OK
Cancel
Defaults
USB Transfer Sizes
Select lower settings to correct performance problems at low baud rates.
Select higher settings for faster performance.
Receive (Bytes):
4096
Transmit (Bytes):
4096
BM Options
Select lower settings to correct response problems.
Latency Timer (msec):
1
Miscellaneous Options
Minimum Read Timeout (msec):
0
Minimum Write Timeout (msec):
0
Serial Enumerator
Serial Printer
Cancel If Power Off
Event On Surprise Removal
Set RTS On Close

(Figure A-4)