datacolor AUTOLAB™ TF

TF/TFC & SPS

Laboratory Dispensers and Solution Makers

G2 Operation Manual

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Related to TFC v 2.0.0.1b2 version of software

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PC specifications:

- 2 GHz Intel Quad Core 2 32-bit (x86) or 64-bit (x64) processor.
- 2 GB of system memory.
- 256 MB of graphics memory.
- Support for DirectX 9 graphics.
- 320GB of hard drive capacity with 15 GB free space.
- DVD-ROM Drive.
- Audio output capability.
- Internet access capability.
- 1 serial port
- 2 USB Ports
- Monitor - 17" - 19" LCD
- Windows XP Professional (32 or 64 bits) SP3 or above
- Windows 7 (32 or 64 bits) SP1 or above

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Document version updates

Revision 2 has the following updates made:

1) Administrative rights - Stock solution can be updated even no such rights given by supervisor (bug) fixed on 2nd march
2) Dilution of multiple bottles – not updating date and time (bug - corrected)
3) Recipe calculation unit – (bug - corrected)
4) The restore option is password protected – fixed on 2nd march
   if customer is chief group user or engineer then can skip and will show another passwords form just key in our engineer password “alabtf” or chief user's password or engineer's password set by customer and restore program will start.
5) The water volume should appear on print or print preview in DP program Batch /recipe menu. – Feature development - fixed on 2nd march
6) The Control was updated for V5 injector - updated 2nd March 2011
7) SPS was updated for some default value - updated 2nd March 2011
8) UDR was update for fieldname of table of database , because last time i changed the some field name , if user print the product , it will get an error messages, and can't select the new field name on Edit Mode - updated 2nd March 2011
9) Importing file from ITMprocess/dcprocess - now it is possible to change the file name for import. Updated 2nd march 2011.
10) The restore path should be same as backup. We cannot restore the files located elsewhere than backup path and we have to copy the files to backup directory only.
11) Dilution amount in TF (request from Portugal) – dilution amount is changeable but there is no indication how to do it. Now we have added new button “Change amount” which will help user to change the amount as per his requirement (V2.0.2 May 2011)
12) New Import and Export option under Product Menu
13) Batch /Recipe Management screen – modified the Batch / Recipe management screen to make it more simple. Modifications are as follows : (V2.0.2 May 2011)
    a) “Reset Position” won’t be there always , it will appear only if the product input rows are more and out of screen window
    b) Chemical recipe – There was no indication on how to add “chemical recipe” in existing dye recipe, now there is option to ‘Insert” or user can insert by double clicking on selected chemical recipe from the list.
    c) New “Insert” and “Delete” buttons for recipe product add windows. – Two buttons are added for user to easily add or delete row as per old G1 software
    d) “Import Now” button – Removed “Import Now” button on main screen and incorporated it in “Transfer Log” tab. In Transfer log tab, you will get “ “ (like refresh on Input tab) and also with caption of “Import”.
    e) New option for Dyepot Capacity – as per request from European and American customers (Rudolph/ Tam), there is option to select the Dyepot Capacity with each dyepot Tray. This is again optional and will active only if selected. In Dye Pot Tray menu – while you define dye pot

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tray, you will get this option and system will not save recipe if the total volume is exceed the dye pot capacity.

Control Program

1) Out Conveyor timing to be manually configurable – for customer – XinShen in china
2) V5 injector setup is out of engineer setting and now there is graphic option for customer /engineer to understand how to put the V5 injectors in system.

Addendum: Important safety note before operating or using the Datacolor Autolab Dispensing System:
In light of the prevalent use of smartphones and smart devices in the daily operations of our customers, it is crucial to underscore the significance of adhering to safety protocols, ensuring ongoing training, and regularly updating documentation related to product usage. It is strongly recommended that all personnel refrain from carrying smartphones, smart devices, or magnetic items in close proximity to the Autolab Dispensing System. In rare instances, we have observed that these devices may cause interference, potentially compromising the dispenser's intended operation and posing a safety risk.

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About this Manual

This is the *TF Laboratory Dispenser Operations Manual* covering the following TF systems:

- SPS solution maker
- TF dispenser
- TFC dispenser with conveyor
- TFC-P colorant/paste dispenser

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WHO SHOULD READ THIS MANUAL?

This Manual is designed for users of TF Laboratory dispenser and solution maker systems, who need to know how to begin using the system. Once you are familiar with how the system works, this Manual will provide a reference to help you carry out specific tasks using the system.

HOW TO USE THIS MANUAL

This manual is divided into four main parts:

- Part 1, *Getting Started*, gives you the basic information you need to start using the system: to get the best out of your system, we recommend that you read **all** of this section before you start
- Part 2, How to use TF DP program
- Part 3, How to use TF Control program
- Part 4, How to use SPS program

To find the information you are looking for:

Consult the Contents List at the beginning of the Manual.

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CHAPTER 1: GETTING STARTED

Part 1, *Getting Started*, is essential reading for anyone using a TF system for the first time. To get the best out of your system, it gives you the basic information you need, without going into detail about the individual options. It is recommended that you read all of this section before you start using the system. A summary of each chapter is given below:

- **About your TFC system**
  The aim of this chapter is to familiarize you with your TF system.
  - Gives an overview of the TF system
  - Describes the key features and benefits of the system
- **Starting up the system**
  this chapter describes how to start your TF system, and what you see on the screen while the system is starting up.
- **Shutting down the system**
  This chapter describes how to shut down your TF system.
- **Using the TF file Folder**
  This chapter explains the main features of the TF file folder, including how to use the menus and screens, and housekeeping tasks such as browsing and deleting information.

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1-1 About your TF system

The aim of this chapter is to familiarize you with your TF system. This chapter:

- Gives an overview of the TF system
- Describes the key features and benefits of the system

1-2 System overview

The TF/TFC Laboratory Dispenser is an automatic dyestuff solution dispenser, designed to produce accurate and repeatable recipes in an easy and efficient manner. The system is available in different sizes and configurations. All of the TF Laboratory Dispensers include:

- Robot works as transport and dispensing media.
- Stock solution area, where solution bottles are there.
- Bottles for the various dyestuff solutions used
- Bottles for the auxiliary solutions used (Only systems with conveyor, TFC)
- Individual injector for each solution bottle for transferring solution to dye pot.
- A system for automatically refilling the auxiliary bottles (Only systems with conveyor)
- Pressurised paste tank, for storing paste to be dispensed. (TF-P systems only)
- Conveyor system, which moves dye pots into dispensing area (Only systems with conveyor, TFC)
- A manual operating panel
- An internal dispenser control unit
- A dispensing area, where the recipes are dispensed
- A computer for controlling the system

The solutions are transferred to dispensing area, and dispensed into recipe pots, via individual injector, by using robot. Dyestuffs are dispensed gravimetrically (the injectors close when a specified weight of solution has been weighed into the beaker). Water and auxiliaries are usually dispensed volumetrically, based on time interval (valves close when a certain amount of solution has passed thorough the valve). However water and auxiliaries can be dispensed gravimetrically, if required. Paste is dispensed gravimetrically (the paste dispensing valve is closed, when a specified weight of solution has been weighed into the beaker).

Dyestuff store

The number of bottles on your system will depend on the size and model of your system. Magnetic stirrers under each bottle prevent sedimentation.

Each bottle has individual injector.

Auxiliary store

There are 7 auxiliary and 1 water bottles. A water filter is used to ensure the

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water supply is free from impurities.

Auxiliary refill

There are 7 auxiliary refill bottles.

Paste store

The number of paste dispensing modules on your system will depend on the order of your TF-P system, up to a maximum of 3 paste tanks is allowed. It is also possible to add additional paste modules after the TF-P system has been installed, but cannot exceed 3 modules in total.

Operating panels

The AGITATION speed control regulator is used to control the stirring devices under the solution bottles. There are 4 regulators maximum, for every 40 bottles has one regulator. The POWER button switches the power on and off. When this switch is in the “0” position, all electricity will be turned off **except** night-time agitation. To turn off all power, use the main switch on the side of the system.

As a safety feature, full power is automatically turned off if you open the electric cabinet door of the system. This feature is called “interlock”. It is possible to disable the interlock by an engineer.

WARNING: If the INTERLOCK DISABLE button is lit, the power will stay on when you open the side doors.

The large red emergency stop button “**EMG. STOP**” will automatically cut all power to the system. To restart the system if the emergency stop has been activated, the button should be twisted to disable the cut off of power.

Main control cabinet

The control cabinet at the front of the system consists of:

- LA50B CPU Module
- LA50B SERVO module
- LA50B D.I.O. Module

This is for controlling the movement of robot and dispensing.

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1-3 Features and benefits

Accuracy

Using the gravimetric dispensing method, an accuracy of +/- 0.02g is achievable, enhancing reproducibility in dyeing in the laboratory and, consequently, in production.

Speed

A batch of 12 recipes can be dispensed in about 12-20 minutes (assuming each recipe has a volume of 180 ml and contains three dyestuffs and one to three auxiliaries).

Multi-tasking

The TF computer software is multi-tasking — while the system is dispensing recipes, you can continue using the computer, e.g. input new recipes ready for dispensing when the first set is completed.

Monitoring stock solutions

The system can detect and warn you when a solution is at a low level. You can also specify how long a solution will remain usable (i.e. specify its shelf life). The system will warn you when a solution's lifetime has expired.

Anti-sedimentation

A magnetic stirring device prevents sedimentation: you can adjust the speed of stirring.

Measurement units

You can choose grams per litre, or percentage of the weight of fabric or weight of solution, or a mixture of units

Automatic selection of the best concentration

If you have a dye on the system in several different concentrations, the system can calculate and automatically dispense the optimum concentration for a recipe.

Automatic water addition

You can set up the system so that water is automatically added to a recipe in order to achieve the correct total volumes and liquor ratios.

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Printing results and reports

The results of all the recipes you dispense are automatically printed. Also other reports, such as a list of the recipes or solutions specified on the system, can be printed.

Alarms

The system can detect if a dye pot tray is not placed on the scale correctly, and will sound an alarm and give a warning message on the screen.

In the same way, the system indicates when dispensing has finished, and if all the safety doors are closed properly.

Operational flexibility

The system can allow for products to be added manually after the recipe has been dispensed. You can create groups of dyes and auxiliaries to simplify recipe input.

Linkage

Linking with the “DCI Match” is quick and error free – manual keying-in is an error prone operation.

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1-4 Starting up the System

This chapter describes how to start your TF system.

⇒ **To start your TF system:**

1. Turn on the main power switch on the side of the system
2. Ensure the emergency stop button is not depressed.
3. Push the dispenser ON/OFF switch to the ON position.
4. Turn the AGITATION speed tuner on the dispenser to the correct speed.
5. Turn ON the printer; check that the printer is on-line and paper is loaded. If you require more information consult the manual supplied with your printer.
6. Turn ON the computer. (The ON/OFF switch is usually on the front of your computer).
7. The TFC software is loaded automatically. What you see when the software has loaded depends on how your system has been set up, and which system you are running.

If you see a *"PLC Module Not Connected"* message, this indicates that the dispenser is turned off. Please turn the dispenser ON.

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1-5 Shutting Down the System

This chapter describes how to shut down your system. If you wish to shut down the system, e.g. at weekends or holidays, follow the procedure below.

⇒ **To shut down your system:**

1. Turn the printer OFF. Check your printer manual if you are not sure where the ON/OFF switch is.
2. Quit all of the application programs that are running.
3. Use Windows standard procedure to shut down the computer.
4. Turn OFF the power to the computer.
6. Turn the dispenser ON/OFF switch to the OFF position.
7. If night time agitation is not needed, you can also switch off the power to the dispenser.

It is suggested that if the system is to be left unused for a long period of time, all solutions are removed from the system and all tubes are cleaned with water.

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1-6 Using the ALAB Folder

This chapter describes how to shut do
This chapter explains:

- Running programs from the ALAB File folder and menu
- How navigate the menus and select functions
- Using the Toolbar buttons
- Using the Buttons
- Using the Message Box
- Special keys you can use

ALAB File Folder and Menu

The software can be accessed in a number of different ways. Firstly, all programs will be automatically started up when turning on the system.

Additional programs can be accessed from the ALAB file Folder, which can be found on the main Window desktop. Clicking on the ALAB folder will open the ALAB Window, which will then display all the available programs, as icons. Double clicking on an icon will execute that program.

Programs can also be run from the ALAB Menu. This can be accessed by selecting the Start button on the Taskbar on the bottom left hand side of the screen. Then select Programs and then ALAB from the Menu options shown. Within the ALAB Menu will be displayed all the available programs, and selecting an option will execute that program.

The software is split into 3 main programs:

1. TF or TFC DP for the inputting of solution, dyestuff and recipes information, and management of the dispense batch.
2. TF or TFC dispense control program, for dispensing of recipes and maintenance of the dispenser.
3. All 2 programs are run at the same time, and you can swap between programs at any time. This is called Multi-Tasking. To move between programs, you have to select the required program from the Taskbar. This is not normally visible, and will only be displayed once the mouse pointer is moved to the bottom of the screen. Once the Taskbar is displayed, the different programs that are presently running will be displayed as buttons on the Taskbar. To move from one program to another, just click on the button required. Alternatively, pressing ALT+ ⇔ (the TAB button) will swap from one program to another, in a cycle.

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Using the menu function

A menu is a list of alternative options from which to choose from. Each option allows you to carry out a particular task. Within a main menu option, there may be additional sub-options available, and these will be shown as a sub-menu underneath. When an option or sub-option is shown in light grey colour instead of the normal dark gray colour, it means that you cannot access that function.

⇒ **To select an option from a menu:**

1. Use the mouse to click on a menu option on the top main menu bar, then select the function required, using one of the following methods:

- Using cursor keys only:
  - Use the ← and → cursor keys to move from left to right
  - Use the ↑ and ↓ cursor key to move up and down a sub menu
  - Press ENTER key to select the option highlighted.
- Using a combination of cursor keys and highlighted letter keys:
  - Use the ← and → cursor keys to move from left to right
  - Type the key of the letter underlined within the option required.
- Using the mouse only:
  - Move the mouse left and right and up and down the menus and sub-menus, then click on the function required, using the right mouse button.

Using the Toolbar

Toolbar allows you to quickly access regularly used functions.

Using the Message box

When using the software, the system will sometimes prompt you with the message box. There are two kinds of message box, which are as follows:

- Warning message box:
  - This is a warning message only. Use the mouse to acknowledge the condition and continue, by clicking on the **'OK'** button displayed, or by pressing **ENTER**.
- Confirm message box:
  - When a Confirm message box is displayed, a description of the event which has occurred, or which will occur, will be shown, along with two action buttons, normally **'OK'** or **'CANCEL'**, or **'YES'** and **'NO'**. Select **'OK'** or **'YES'** to accept the action, **'CANCEL'** or **'NO'** to stop the action and return to the previous step.

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Typing in information

When inputting information, for example adding a recipe to the system, you use a special screen called a form screen, with boxes or fields that need to be filled in with information.

⇒ **To fill in form screens:**

- When inputting information into a form screen with more than one field input box, the position where data is to be presently inputted will be denoted by a flashing or coloured cursor. New information can be directly typed in. Once completed presses **ENTER** to accept the input and move to the next field.
- If data already exists in the field selected, then this will be highlighted in blue. To delete the existing data from the field, and add new data, start typing in the new information directly, and this will automatically clear the existing data. If the existing data is to be modified, then use the cursor keys to move to the position in the field where the modification is to be made, and type in the new information. Use the **DELETE** key to remove data not required. Once completed, presses ENTER to accept the input.
- The mouse can also be used to move from field to field, and clicking within a box will allow modification to that field.
- The **TAB** key, ⇔, can also used to move from field to field.

Special keys

Certain keys on your keyboard have special actions:

Use this key:	**To:**
ESC	To close the current screen
F1	Insert a line in Recipe Add/Modify form
F12	Delete a line in Recipe Add/Modify form
BACKSPACE	Delete one character to the left of the cursor.
← (Cursor key)	Move the cursor left one character.
→ (Cursor key)	Move the cursor right one character.

The Number keypad

The block of keys on the far right of your keyboard is the Number keypad. You can use this keypad in two ways:

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- If the **NUM LOCK** light is lit, you can use the pad to type in numbers
- If the **NUM LOCK** light is not lit, you can use the cursor keys.

To change between the two modes, press the **NUM LOCK** key.

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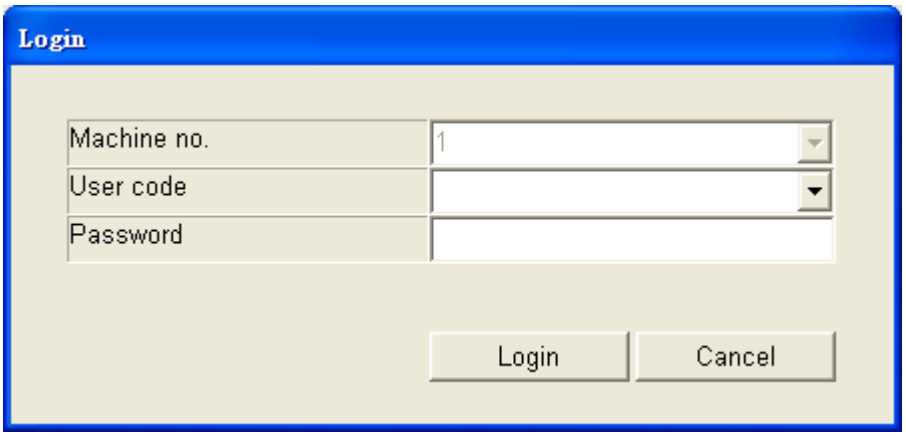
CHAPTER 2: TF DP program overview

This program is designed to allow input, modification and set up of all information relative to the products, processes, solutions, recipes and batches used in the laboratory and on the dispenser.
Before starting to enter the data into the computer, you need to collect all of the information regarding the products used. e.g., how the different dyestuff solutions should be made up, what are the different dyestuffs that are used, what different concentrations of solutions are required, which solutions will be dispensed on the system, and so on.

There is an icon, **ALTFDp** is for TF, and **ALTFCDp** is for TF systems, on the desktop of computer. Double click the icon to launch DP program, and you will see the screen like below:



Firstly, engineers have to give the dispenser a machine number to let DP software create the databases. Machine number is a very important configuration value for identifying different machines. Different machines have different machine numbers.

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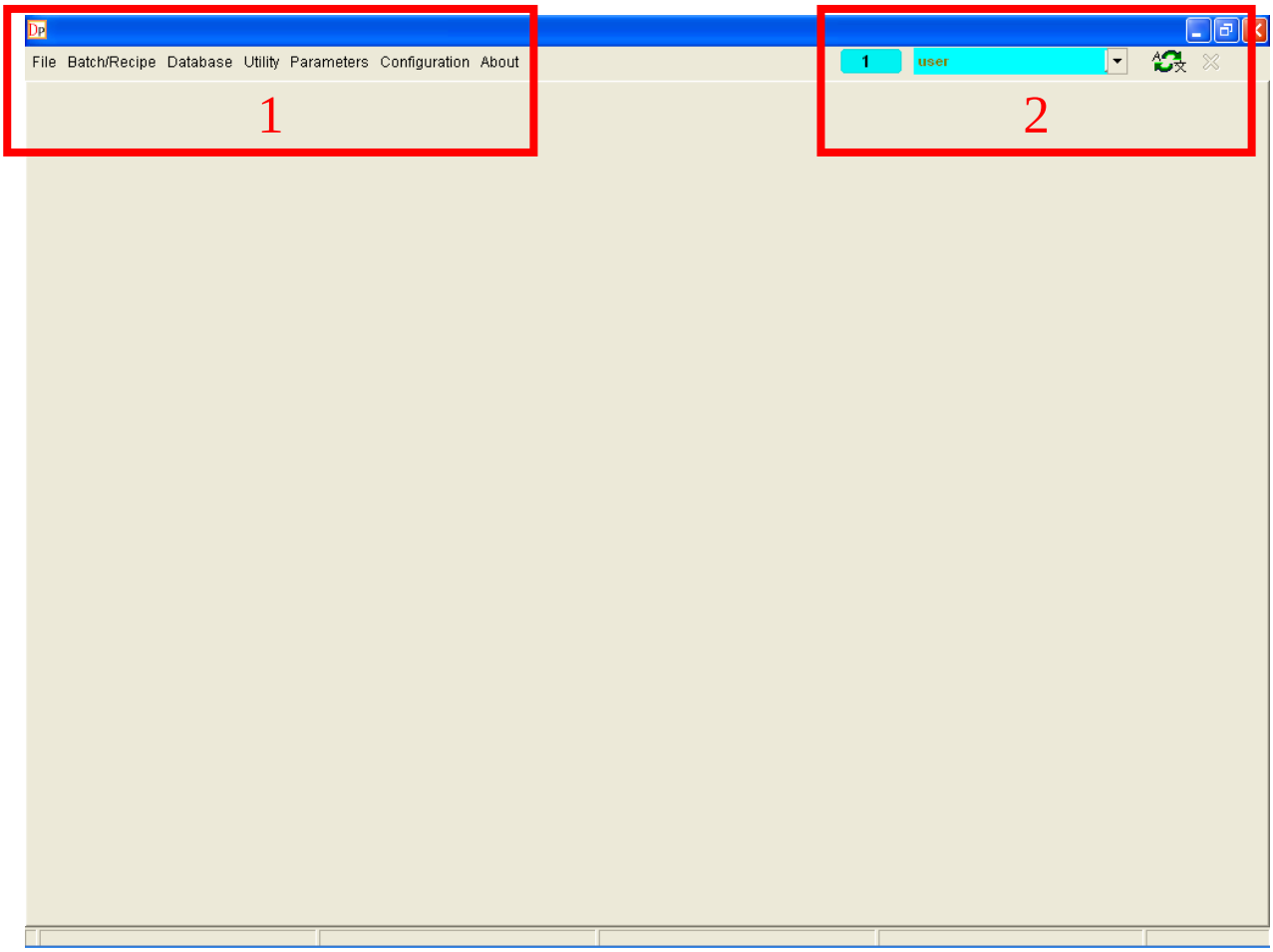
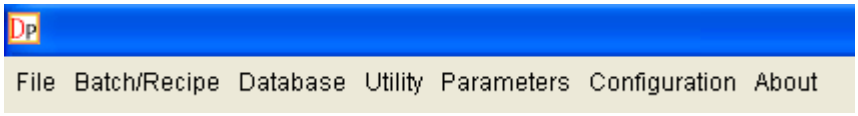


1. Menu Bar :



2. Tool Bars

1 Remote 1	The machine number of the dispenser which physically link with the computer. The machine number of the database current logging in. If the machine logging in is not for the actual dispenser, it will show Remote in front of machine number.
Employee ID 001	The user who is using the software. It is allows to quick switch users who are in the same authority group by selecting in the drop down list.
	Select Language, start the language selection form

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	Close the opened function tab.

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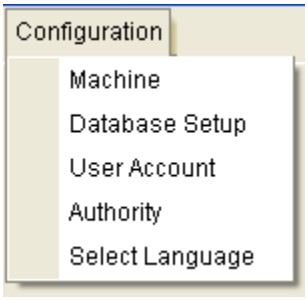
2-1 TF DP Program – Configuration

There are 5 items in the Configuration, and they are password protected. Permission of changing the configurations is depending on the authority of login user. They are divided into 5 sections as follows:



- **Machine**
- **Database Setup**
- **User account**
- **Authority**
- **Select Language**

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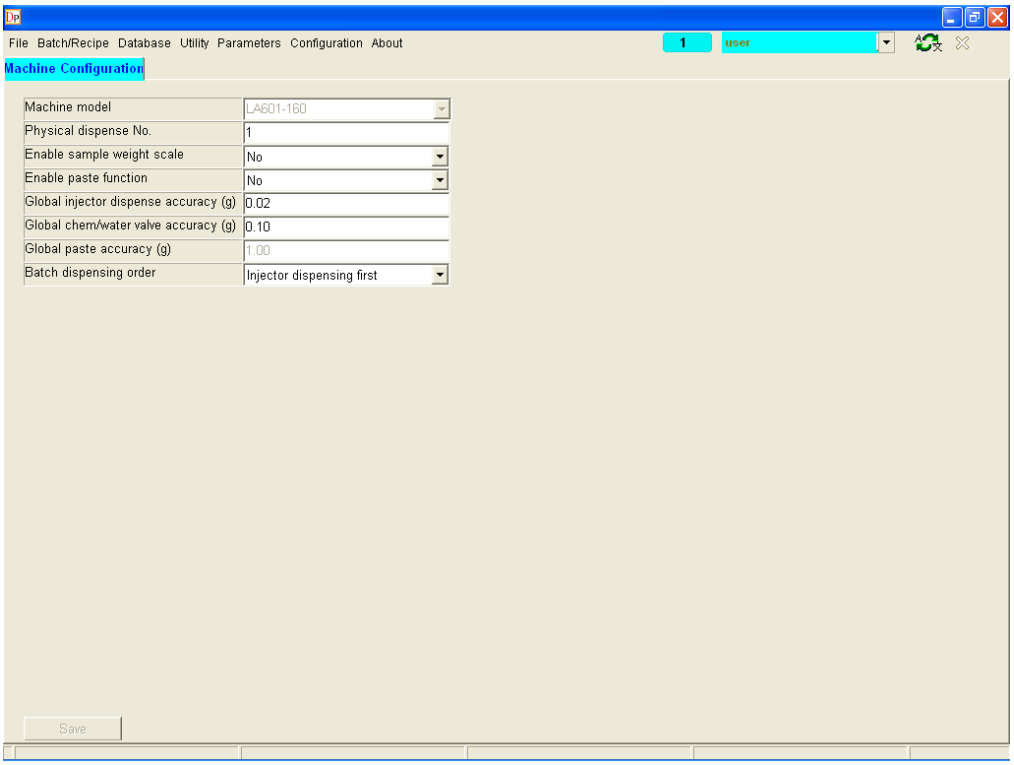
2-1-1 TF DP Program – Configuration - Machine

The screen below is “**Machine Configuration**”



- **Machine Model**

  Show the machine model of the database which is logging in.

- **Physical Dispenser No.**

  Show the machine number which is physically connected with the computer.

- **Enable sample weight scale**

  If you have fabric scale is connect, select “Yes”, the options of weighing and zeroing fabric scale in “Recipe Add/Modify” form will be enabled automatically. And the Parameters for fabric scale will be also enabled in the “Fabric Weigh Scale”.

  After enable the option, the fabric scale icon will appear beside the parameter. Click the icon to set the fabric scale parameter.

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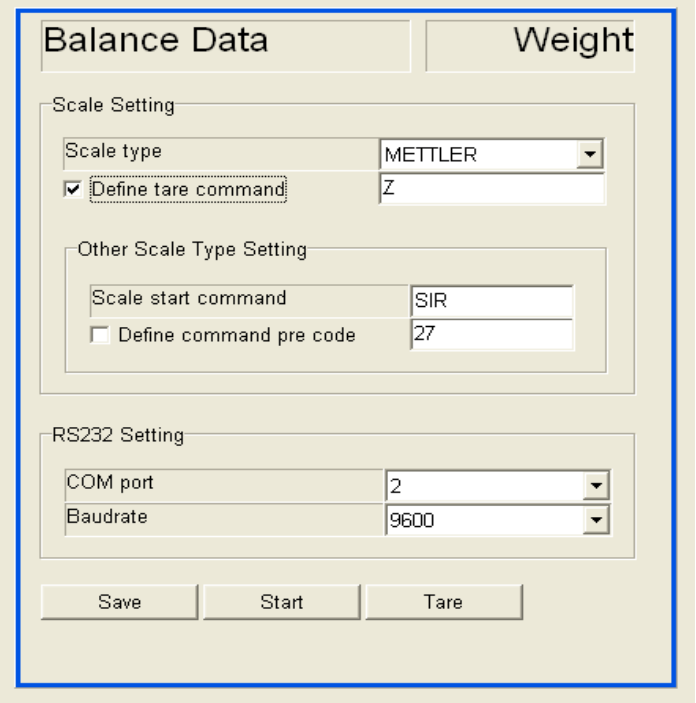

Suggest setting the correct “COM Port” and Scale Type only, and leaving the other settings as default.

- **Enable Paste function**

  If your system is TF-P system, select “Yes” to enable paste function. The reserved bottle position numbers 231 to 233 in “paste valve” in solution database will then become available, which should be used to define paste product data.

- **Global injector dispense accuracy (g)**

  Define the global injector dispense accuracy for all injectors. Minimum is 0.02g.

- **Global chemi/water dispense accuracy (g)**

  Define the global chemical or water valves dispense accuracy. Minimum is 0.1g.

- **Global paste dispense accuracy (g)**

  Define the global paste valves dispense accuracy. Minimum is 1g.

- **Batch dispensing order**

  There are 3 options, “injector first”, “Valve first” and “Paste first”.

  If choose the option “Injector first” the dispensing order will be Injector-valve-paste.

  If choose the option “Valve first”, the dispensing order will be Valve (Gravimetrically)-injector-paste.

  If choose the option “Paste first”, the dispensing order will be paste (Gravimetrically)-injector-valve.

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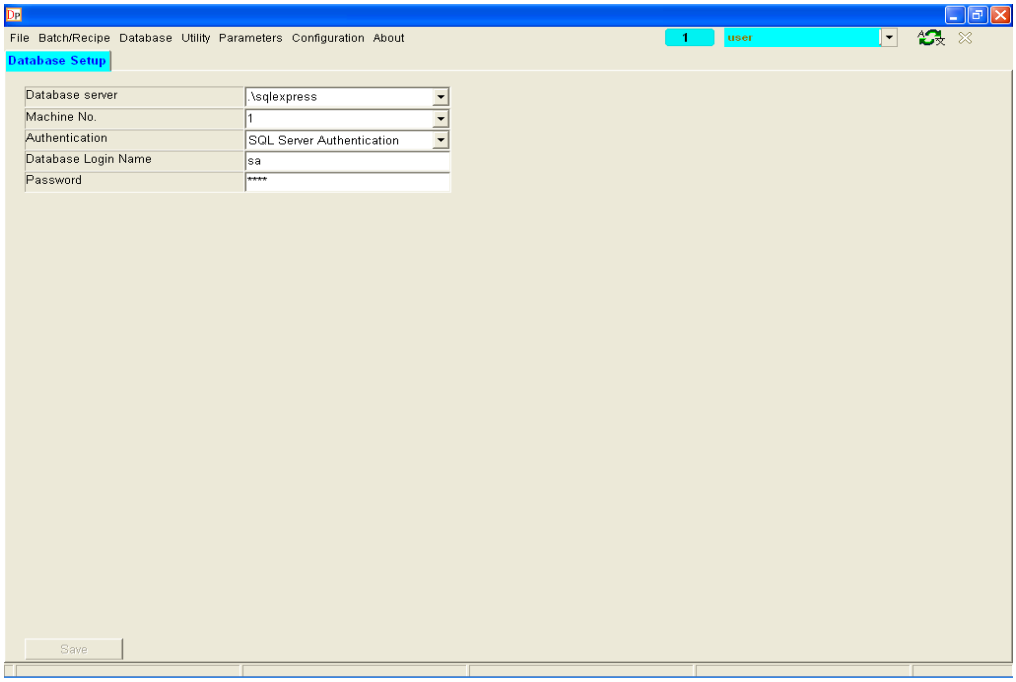
2-1-2 TF DP Program – Configuration – Database Setup

DP software is a centralized database structured program. Database Setup is the setting of accessing databases, which stored in a server computer.

The screen below is “**Database Setup**” setting form.



- **Database server**

  This is the server name of the database stored. Server name is combined by 2 parts, “PC name\SQLEXPRESS”. In front of “\” is the computer name and after “\” is a fixed word “SQLEXPRSS”. The default of the server name will be identified by local computer name. Engineers can type it or by select in the drop down list. If the computer is the server, the setting can keep default.

- **Authentication**

  There are 2 types of authentication to log in G2 software databases. One is Windows authentication and another one is SQL Server authentication. SQL Server authentication is the default option.

- **Database login name**

  This field is only for SQL Server authentication to put SQL Server account.

- **Password**

  This field is only for SQL Server authentication to put SQL Server login password.

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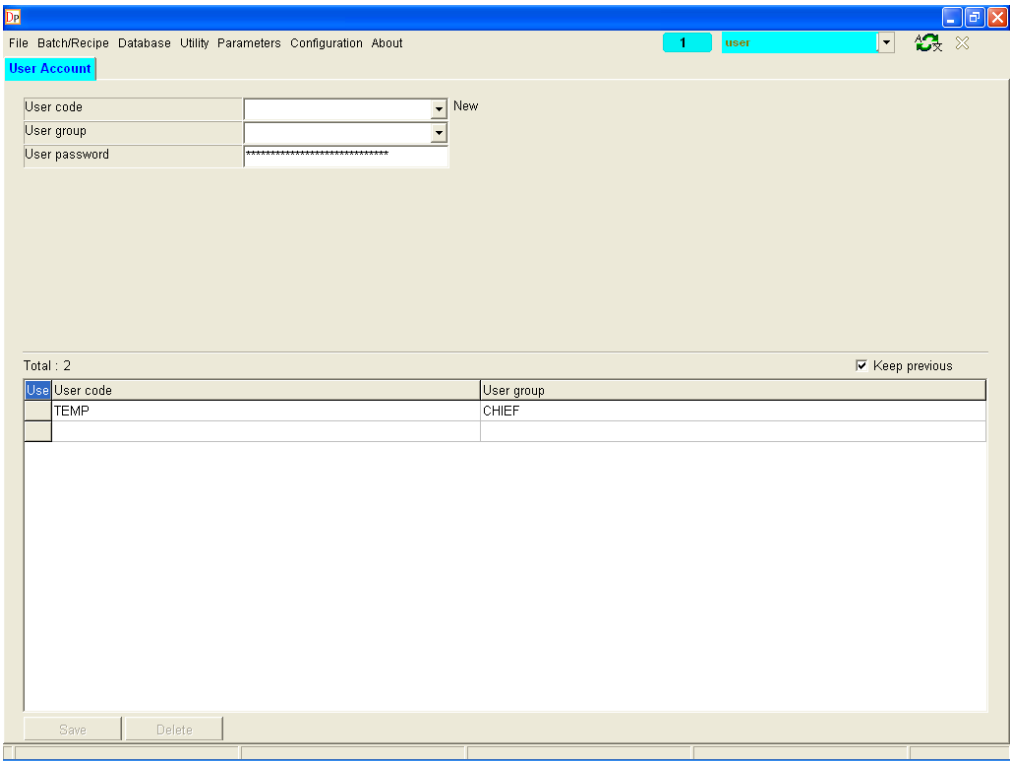
2-1-3 TF DP Program – Configuration – User Account

The screen below is "**User Account**" screen.

In G2 software, different users can have their own personal parameters to adapt their work habit. Also it is for supervisor give different authority for the users in different user groups.



- **User Code**

  Set user code

- **User Group**

  Set the user group for the user. Different user group has different authority to access functions.

- **User Password**

  Set user password to log in database.

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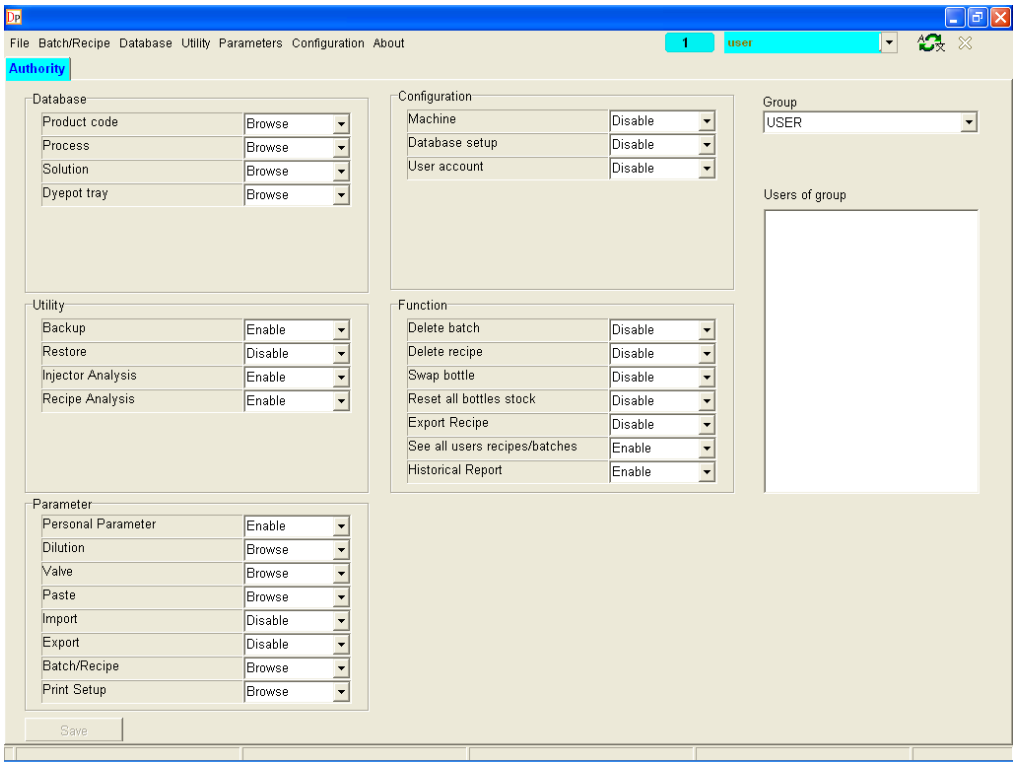
2-1-4 TF DP Program – Configuration – Authority

The screen below is "**Authority**" screen.

There are 3 default groups, "User", "Power User" and "Chief". The users in different User Groups have different authorities. Depend on the needs, it allows to define "Enable", "Disable" or "Browse" authority to the functions for the user group.



- **Database**

  It is the authority to use database function.
- **Utility**

  It is the authority to use utility function.
- **Parameter**

  It is the authority to use parameter function.
- **Configuration**

  It is the authority to use configuration function.
- **Function**

  It is the authority to some specific functions.

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2-1-5 TF DP Program – Configuration – Select Language

The screen below is "**Language**" screen.

There are 20 languages for selecting, select the language, and click "OK" to close the screen. And then all wordings showed will be the language you selected.

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2-2 TF DP Program – Parameters

There are many parameters in the Parameter. Permission of changing the parameters is depending on authority of the user group which the login user assigned to.

- **Personal**
- **Dilution**
- **Valve**
- **Paste**
- **Import**
- **Export**
- **Batch/Recipe**
- **Print**

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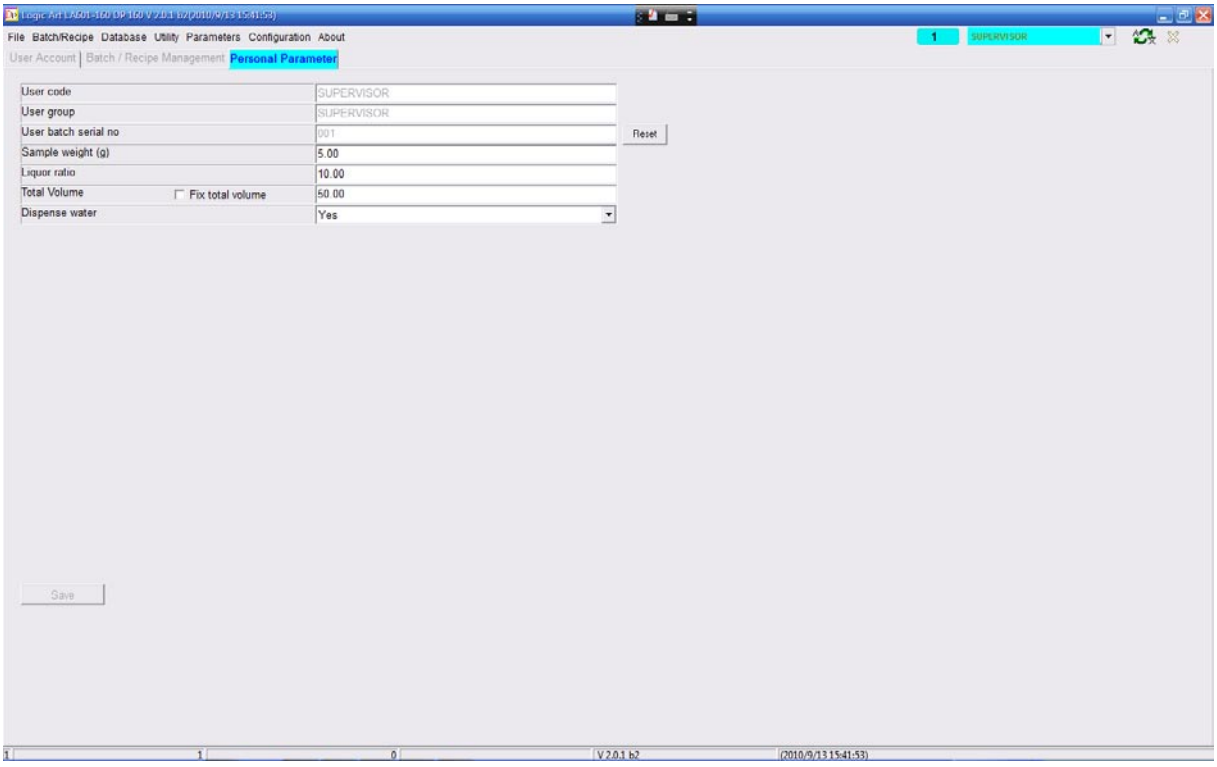
2-2-1 TF DP Program – Parameters - Personal

Personal parameter is the parameters for the login user only. Users can set the parameters by personal working habits or assigned missions. After quick switch users or new user login, the personal parameters will be loaded for the new login/switch user.

The screen below is "**Personal**" screen.



- **User Code**

  The user code for the current user. It is browse only.

- **User Group**

  The user group which the user assigned to. It is browse only.

- **User batch serial no.**

  The latest batch serial no. of the user. When you set a new user, the serial No. will begin in 001 and be added in sequence. Press "Reset" button will reset the serial No.

- **Sample weight**

  Set the default sample weight for exhaust dyeing recipes. This setting will be automatically applied when creating recipes.

- **Liquor ratio**

  Set the default liquor ratio for exhaust dyeing recipes. This setting will be automatically applied when creating recipes.

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- **Total volume**

  Set the default total volume for exhaust dyeing recipes. This setting will be automatically applied when creating recipes.

- **Dispense water**

  It is the parameter to set if dispensing water into the recipes. If choose “No”, the dispenser will not dispense water into the beaker.

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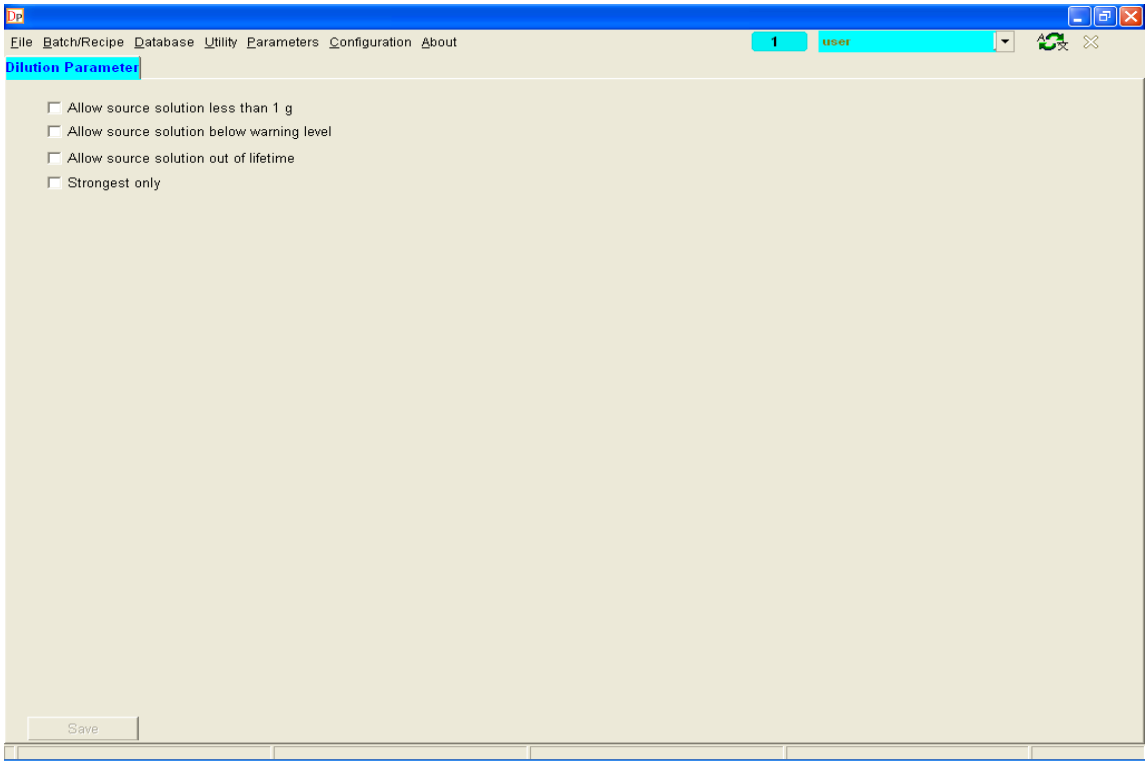
2-2-2 TF DP Program – Parameters - Dilution

Dilution parameter is the parameters for the function “Dilution in TF system”. The software will follow the parameter to filter the stronger solution as dilution source.

The screen below is “**Dilution”** screen.



- **Allow source solution less than 1 g**

  When enable this parameter, the software will also list the dilution source solution, which the dispense target weight of the solution is less than 1g.

- **Allow source solution below warning level**

  When enable this parameter, the software will also list the dilution source solution, which the stock is below warning level.

- **Allow source solution out of life time**

  When enable this parameter, the software will also list the dilution source solution, which the life time is out of date.

- **Strongest only**

  When enable this parameter, the software will list only the dilution source solution, which the concentration is the strongest.

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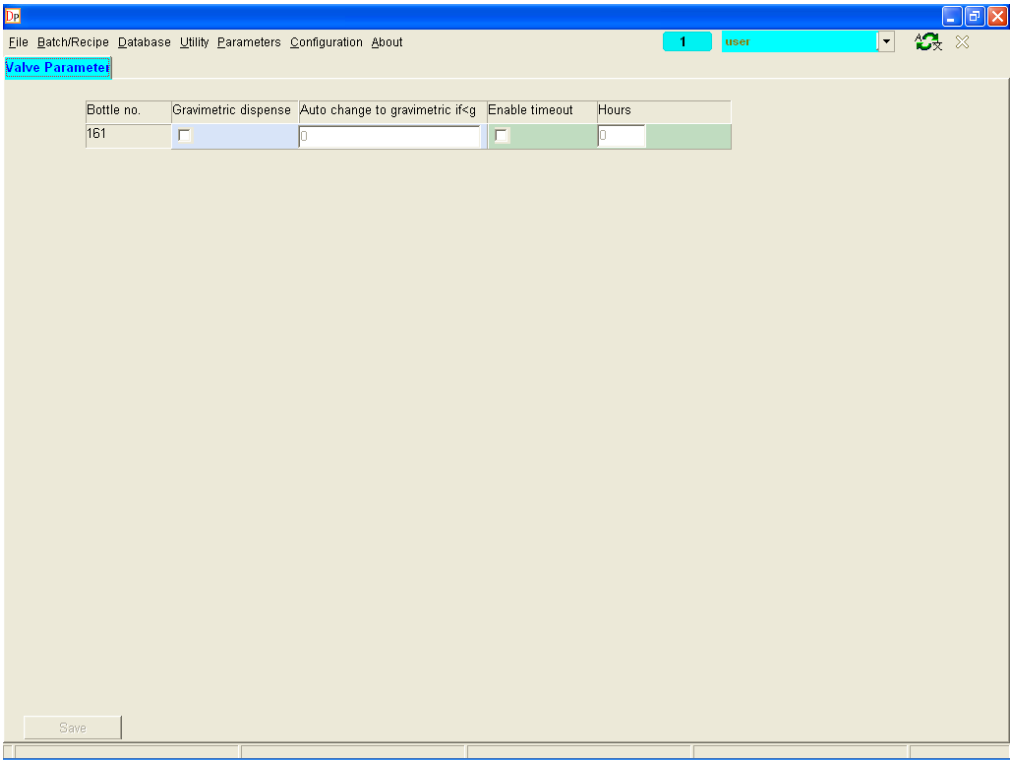
2-2-3 TF DP Program – Parameters – Valve

The screen below is "**Chemical**" setting form.



With this option, valve volumetric dispense will become gravimetric dispense while match the settings.
If Check weight is enabled, and valve target dispense weight below the weight setting, valve will do gravimetric dispense.
If Check timeout is enabled, and valve has not been dispense exceed the hours setting, valve will go gravimetric dispense.

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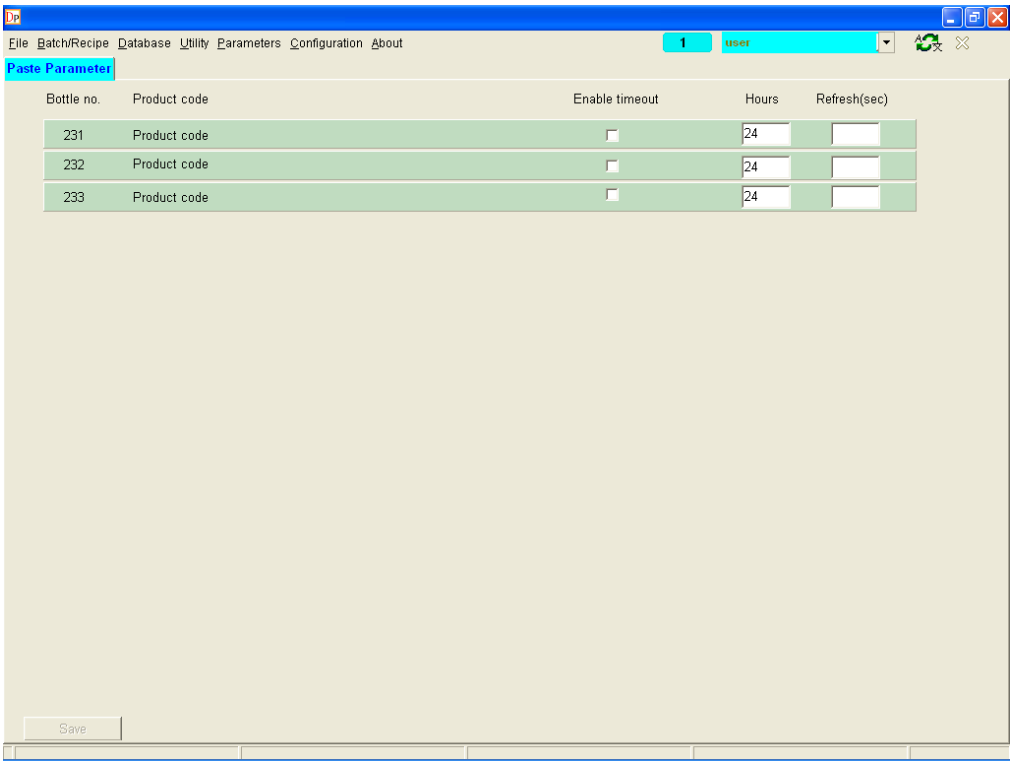
2-2-4 TF DP Program – Parameters – Paste

The screen below is "**Paste** setting form.



After creating the database for paste, paste auto-refresh time-out settings will appear in the "Paste" page in parameter setup.
If Enable timeout was enabled, when the specific paste has not been dispense exceed the hours setting, the control s/w will refresh the paste pipe according to the Refresh (sec) settings.

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2-2-5 TF DP Program – Parameters – Import parameter

The screen below is "**Import Parameter"** setting form.

This software has the capability of importing recipes from recipe management systems to allow automatic transfer of matching results to the Autolab dispenser, ready for dispensing. This ensures that no errors occur when typing in recipes by hand, as well as ensuring the time involved in the process of matching and dispensing is reduced.

All recipes sent by recipe management system, such as DCI Match and ITM Process are automatically imported to the TF system database. The TF software **automatically checks** the network according to the time interval set, and if recipes are present, then they will be first checked for validity, and if OK, imported into the TF database, available for immediate dispensing.

Any non-valid recipes, for example, containing a product code that does not exist in the TF product database, or a recipe whose concentrations are outside the permitted range, will be logged in the Transfer error Log. All valid recipes will be stored in the TF recipe database, and will be logged in the Transfer log.

These logs can then be used to check which recipes have been transferred, which are invalid, and also allows easy transferral of the valid recipes to a batch.
Recipes transferred from DCI Match and ITM Process will be stored in the TF database using the following condition rules:

TF will check the highest version number existing for that recipe. If no recipe exists, then it will be stored under version number 0. It the recipe exists and the highest version number have been dispensed, and then the recipe sent will be stored under the next version number. If the highest version number has not been dispensed, then it will be overwritten with the recipe sent.

In G2 DP software, it allows to import recipes from more than one source at the same time.

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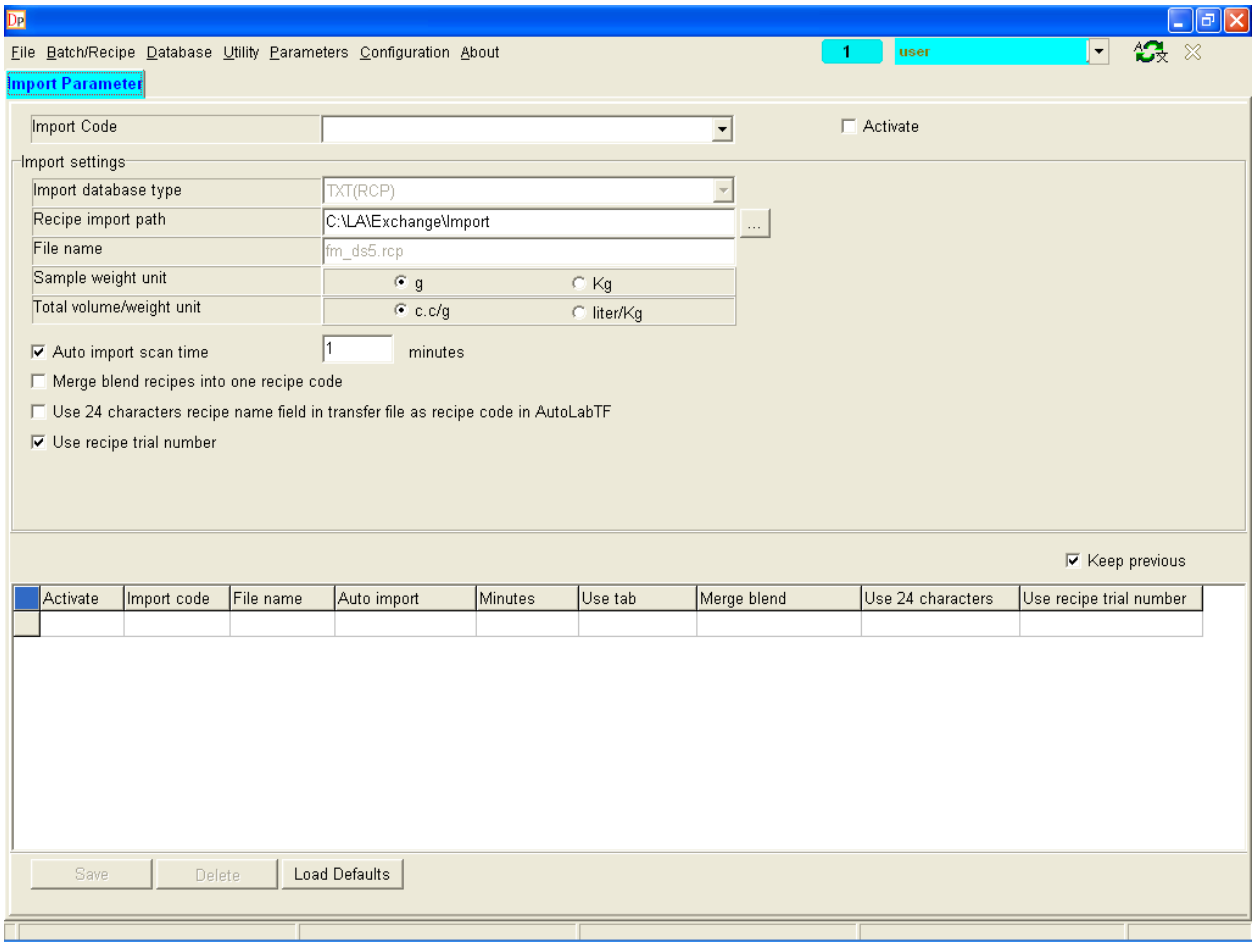

- **Import Code**

  The code of the recipe import sources. Enable the check box “Activate” to enable the import source and DP software will follow the settings to import recipes.

- **Import database type**

  Set the import database type for the import code.

  The option “TXT (RCP)” is the format for importing the recipes from Datacolor match or ITM process system.

- **Recipe import path**

  Set the path of the imported file for the import code

- **File name**

  The file name is fixed with import database type. When the import database type is “TXT(RCP)”, the imported file name is “fm_ds5.rcp”. You can now change the file name as per your system.

- **Sample weight unit**

  The default setting is “g”, if the unit is set to “Kg”, the sample weight inside transfer file will be multiple by 1000.

- **Total volume/weight unit**

  The default setting is “cc”, if the unit is set to “Litre”, the total volume inside transfer file will be multiple by 1000.

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- **Auto import scan time**

  For setting the time interval of scanning imported file.

- **Use 24 characters recipe name field in transfer files as recipe Code**

  DCIMatch stores in the transfer file the recipe code used in DCIMatch in two formats. It stores the recipe code in the “recipe code” field, but only up to 12 characters. This limitation of 12 characters is due to the fact the transfer file protocol used is the same protocol as was used for DS5, which had a limit of 12 characters for its recipe codes.

  DCIMatch also stores a copy of its recipe code in the “recipe name” field in the transfer file, but up to 24 characters. The DP program allows the use of this 24-character field to be used to create the recipe code in Autolab. Therefore if a 24-character recipe code is required in TF, then the tick box should be enabled.

  For example, If the recipe name transferred from Datacolor Match is “12345678901234/188/1” (the original recipe name was”12345678901234/188“, “/1” at the end denotes it is first side of a blend recipe), if this is imported with “Use 24 characters recipe name as recipe code in TF” enabled and “Merge blend recipes into one recipe code” enabled, the recipe code stored will become “12345678901234/188”.

  If the same recipe is then imported with “Use 24 characters recipe name as recipe code in TF” enabled but “Merge blend recipes into one recipe code” disabled, then the recipe code will still be “12345678901234/188/1(Uses the original recipe name, but then adds “/1” at the end because it is the first part of a blend recipe, which is identified with the suffix /1 in the code because “Merge blend recipes into one recipe code” is disabled.)

  In this kind situation, the second imported recipe will overwrite the previous recipe, if the previous recipe has not yet been dispensed. If the previous recipe had been dispensed, the second imported recipe will be imported as same recipe code but will be second dispense shot.

- **Use recipe trial number**

  In DCIMatch it is possible to create more than one recipe, for the same recipe code, which is called "trials". This is not the same as "version", because versions are recipes using the same dyes, but with modified concentrations, for example after doing a correction. A trial is a complete different recipe, with different dye combinations. Typically customer may generate 2 or 3 trials at the same time, and want to send them to the dispenser at the same time, and dispense them at the same time in different dye pots. They are alternative recipes to dye to the same color.

  The recipe ID is a number, generated within the matching program, which consists of 2 parts. The first part is the recipe ID number, e.g. 279-2, and the last part is the trial version, .1, .2. So a complete recipe ID would be for example 279-2.1, 279-2.2, and 234-1.1 etc. The number, 279-2, or 234-1 is a unique number automatically created by DCIMatch, and has no significance, and is not generated by the customer.

  So 279-2.1 is the first trial for this recipe shade, and 279-2.2 is the second trial for the same recipe shade. This recipe ID, including the trial number is now transferred in the transfer file in the recipe code field. The recipe name in DCIMatch is transferred into recipe name field in the transfer file, but the trial number is now added to the end of the name. For customers who want to create more than one trial for the same recipe, we

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have to use this .1, .2 coding, otherwise, if they send over 3 trials of the same recipe at the same time, just with the code 279-2, without the .1, .2 and .3, what will happen is that as TFC DP software is importing the recipes, it will overwrite the first trial with the second, because the code would be the same, and then the third will overwrite the second trial. So after importing you would end up with just one recipe, the third formula, under the code 279-2. So the recipe code in TF DP program needs to include this .1, .2 etc, to make the coding unique.

However, for customers who do not want to transfer more than one trial for the same recipe, they may not want to use this trial number. They will probably want to import the recipe using just the recipe name or code, without the trial number. The import function in TF DP program is able to configure it to use or not use the trial number

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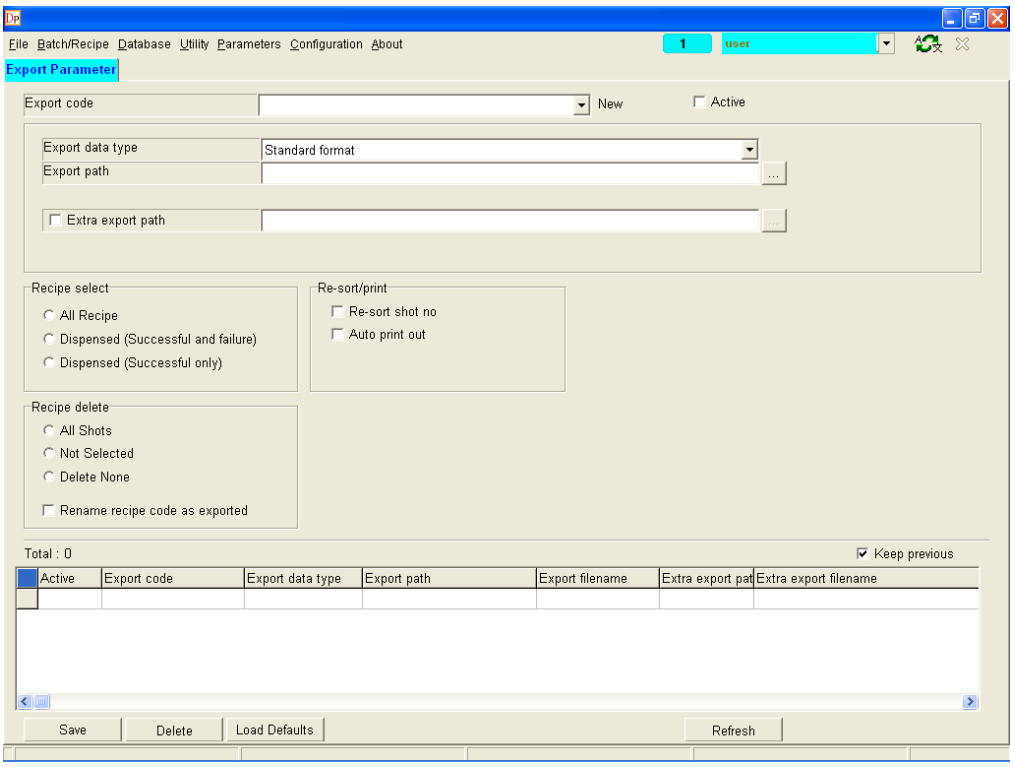
2-2-6 TF DP Program – Parameters – Export parameter

The screen below is “**Export Parameter”** setting form.

Export parameter is the function to set the format of the recipes which exported from TF software to customer recipe management software.

In G2 software, it allows to export recipes in different formats to multiple destinations.



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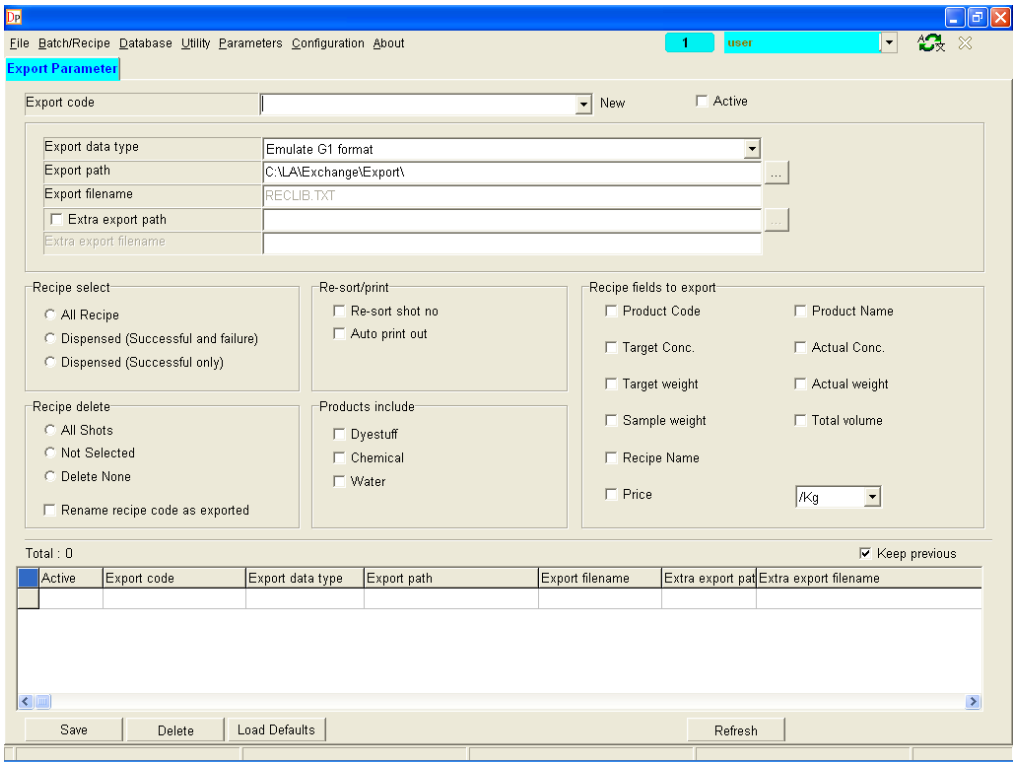

- **Export Code**

  The identity code of the recipe export format. Enable the check box “Activate” to enable exporting recipes to the destination.

- **Export data type**

  Set the export data type for the export code. There are 2 options, “Emulate G1 format” and “Stand format”. The exported recipe format will follow the data type set.

- **Recipe Select**

  Only the recipes match the requirement will be exported:

  - **All Recipe**: Export all the recipes
  - **Dispensed (all)**: Export all the dispensed recipe, whatever the dispensing result is.
  - **Dispensed (No Error)**: Only export the dispensed recipes with no error in dispensing.
  - **Auto Export**: Enable this function, the dispensed result will be exported automatically, as soon as a recipe is dispensed.

- **Recipe Delete**

  Delete the recipes from the database, after it has been exported.

  - **All Recipe**: Delete all the recipes
  - **Not Selected**: Delete the not selected shots.
  - **Delete None**: Do not delete any recipe

- **Products to Include**

  For selecting products will be included in the export recipe, dyestuff, chemical and water.

- **Recipe Sort/Print**

  It means the system will arrange the Shot No. in sequence after you exported the recipe and delete the non-selected Shot No.

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- **Recipe Data to Include**
  For selecting data will be included in the export recipe.

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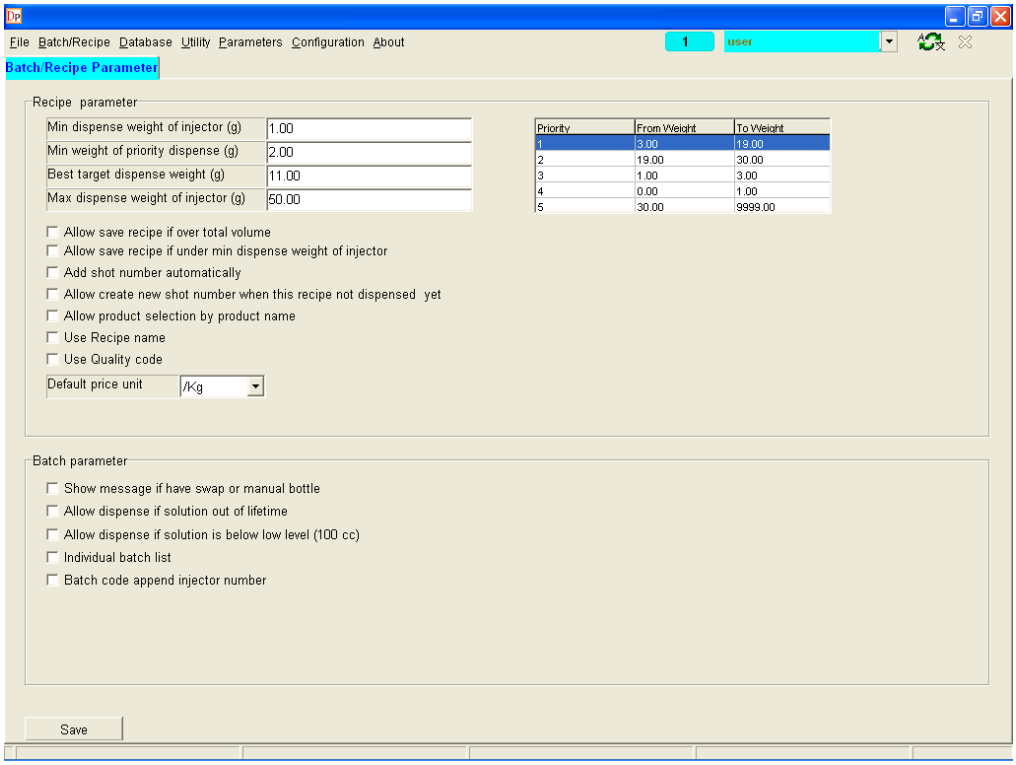
2-2-7 TF DP Program – Parameters – Batch/Recipe parameter

The screen below is "**Batch/Recipe Parameter"** setting form.

It is the parameters to set the rules for creating recipes and batches.



Recipe Parameter

- **Choose bottle setting**

  The 4 dispensing weights setting decides the priority of the bottles to choose when there is the same product solution but in different concentrations. The table on the right side shows the priority of the available bottles. For example, if there are 2 same products in different concentrations in the solution database, when creating recipes, the higher priority bottle will be chosen to dispense.

  - **Underflow weight (g)**: The underflow limit of dispense target weight.
  - **Target dispensing weight low limit (g):** The low limit of dispense target weight.
  - **Best target dispense weight (g)**: The best target weight to dispense. If there are 2 available bottles with same priority, the software will choose the one closer to this number.
  - **Target dispensing weight up limit (g)**: The up limit of dispense target weight.

- **Allow save recipe if over total volume**

  Enable the option to allow saving a recipe with all products are over recipe total volume.

- **Allow save recipe if underflow**

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Enable the option to allow saving a recipe with a product is under “Underflow weight”.

- **Add shot number automatically**

  Enable the option; the shot number will be automatically increased by 1 when recalling a recipe for modifying. If disable the option, a button “Add New Shot” will appear beside recipe shot number field, operators have to add shot number by clicking the button.

- **Allow create new shot number when this recipe not dispense yet**

  Enable the option, the shot number can be increased by 1 manually or automatically, even the recipe has not been dispensed yet.

- **Allow product selection by product name**

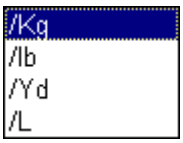
  Enable the option, the drop down combo box in the Product NAME field will list/sort the products for selecting the product required and the position of Product Name field and Product Code will be switched in recipe creating screen.

- **Use Quality Code**

  Enable the option, the focus will move to Quality field after inputting recipe code in recipe management screen to make operators input the quality. If disable the option, the focus will pass by the Quality field and goes to next field.

- **Default price unit**

  There are four units can be choice:



Batch Parameter

- **Show message if have swap or manual bottle**

  Enable the option; the system will give users a warning message when batches are transferred from pre-batch list to dispensing queue, if the batches contain swap or manual dispensing bottles.

- **Allow dispense if solution out of lifetime**

  Enable the option, the system will allow the batch which contain out of life time solution, be transferred from pre-batch list to dispensing queue.

- **Allow dispense if solution is below low level (100c.c)**

  Enable the option, the system will allow the batch which contain low stock solution, be transferred from pre-batch list to dispensing queue.

- **Individual butch list**

  The user can only watch his own pre-butches or can watch all user’s pre-butches.

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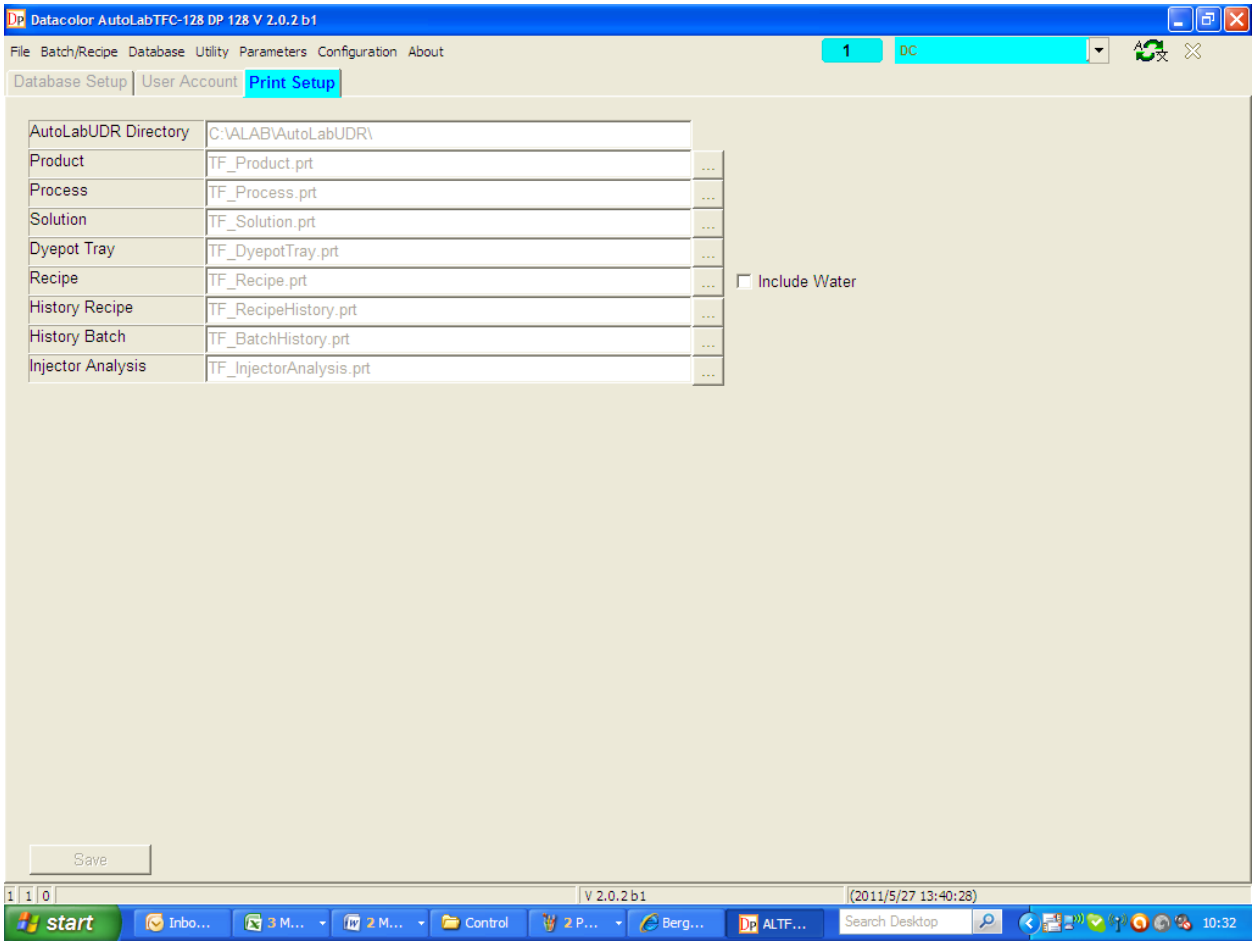
2-2-8 TF DP Program – Parameters – Print parameter

The screen below is “**Print Parameter”** setting form.

In G2 software, there is plug-in software called “Autolab UDR”. This software allows operators to create their own report format. DP software will call this Autolab UDR to print out reports.

This parameter is for setting up the templates for different reports. After AutolabUDR software is installed, default templates are ready to use.

The detail of AutolabUDR describe in the AutolabUDR operation manual.



- **AutolabUDR Directory**

  DP software will detect the folder C:\ALAB\AutolabUDR\ automatically when launching DP software. AutolabUDR software has to put in this fixed directory.

- **Product**

  The name of product report. The default template is TF_Product.prt.

- **Process**

  The name of process report. The default template is TF_Process.prt.

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- **Solution**

  The name of solution report. The default template is TF_Solution.prt.
- **Dyepot tray**

  The name of dyepot tray report. The default template is TF_DyepotTray.prt.
- **Recipe**

  The name of recipe report. The default template is TF_Recipe.prt.
- **Include Water :**

  If you want to have water amount displayed in Preview and print from then click this option. In earlier case it was not possible to get water amount on in preview and print in DP program. The water amount would appear only after dispensing is finished and it was possible to get through control program only.
- **History Recipe**

  The name of recipe history report. The default template is TF_RecipeHistory.prt.
- **History Batch**

  The name of batch history report. The default template is TF_BatchHistory.prt.
- **Injector Analysis**

  The name of injector analysis report. The default template is TF_InjectorAnalysis.prt.

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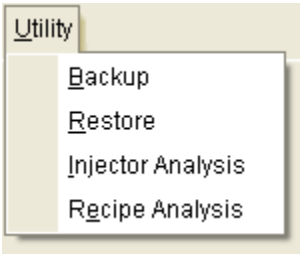
2-3 TF DP Program – Utility

Utility function is for database maintenance and engineering analysis. There are 4 functions in Utility.

- **Backup**
- **Restore**
- **Injector Analysis**
- **Recipe Analysis**



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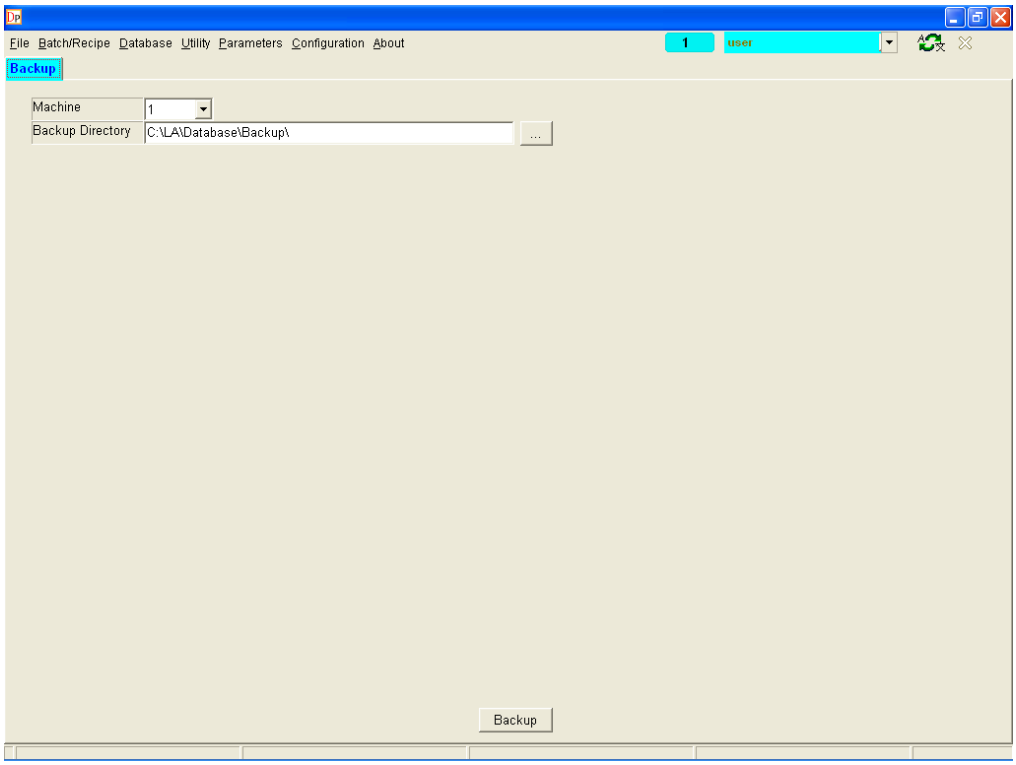
2-3-1 TF DP Program – Utility – Backup

The screen below is “**Utility-Backup”** form.



The backup function is to backup database so that it can be protected when data loss happens due to hard disk crash or pc failure.

You can select a machine database to backup, **It is important that the backup data can only be restored to the same machine number.**

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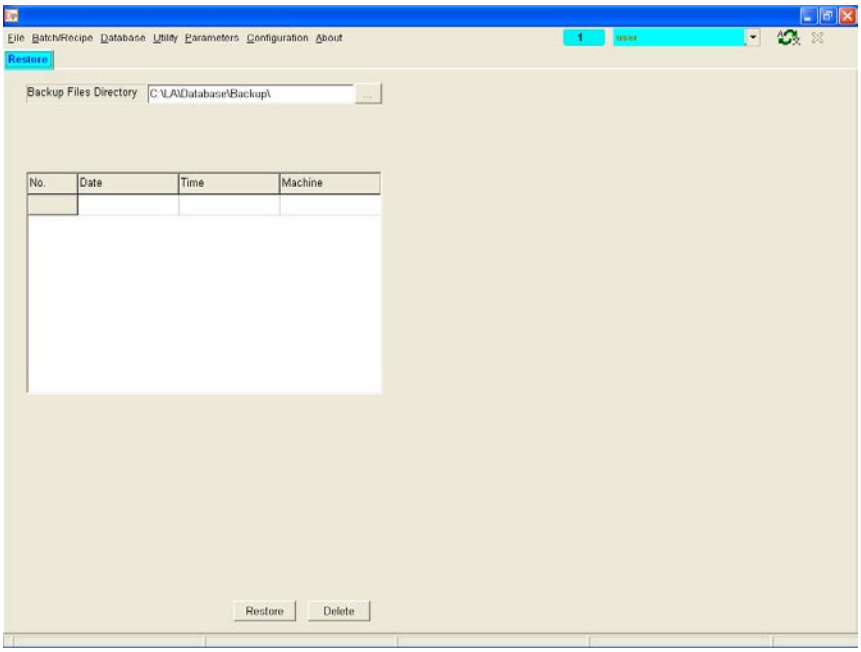
2-3-2 TF DP Program – Utility – Restore

The screen below is "**Utility-Restore"** form.

Before restore database, it is important to make sure all users have logged off the machine number.



By this function, operators can restore the databases from backup database.

The backup records will be listed in the table. There are information of database backup date & time & machine number.

It is important that the software only allows restoring the database which backup from the same machine number.

After selecting the database to restore, click "Restore" button to start restore databases.

System will prompt you to put password create using "Temp Password utility" by engineer.

if you don't have this password then click cancel and system will ask another password. You can input the chief or engineer password and proceed further. In case you don't have chief password then inform Datacolor engineer and he will help to do this task.

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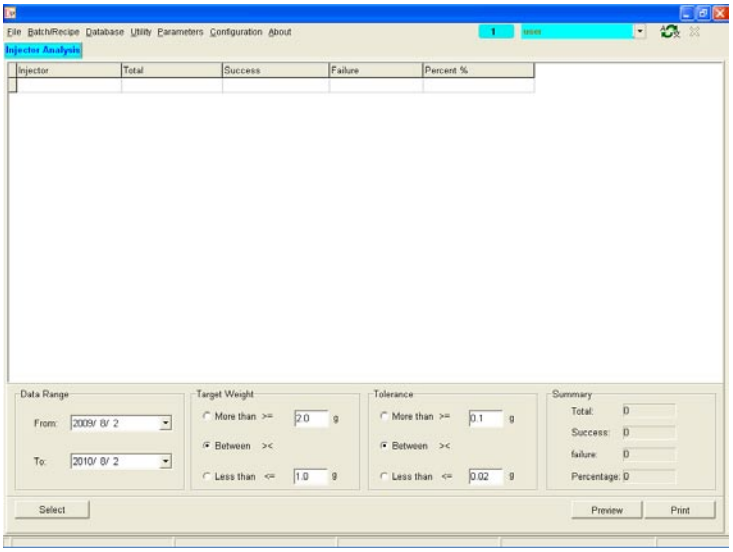
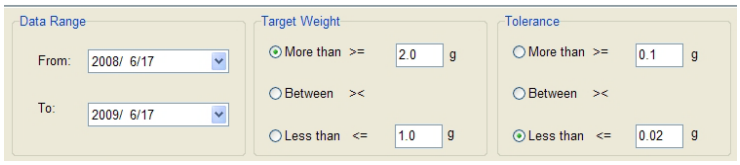
2-3-3 TF DP Program – Utility – Injector Analysis

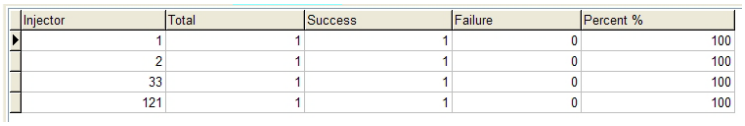
The screen below is "**Utility-Injector Analysis"** form.



This function is for engineers to diagnostic the accuracy of dispensing. Engineers can base on the result of the analysis to find injectors need to be replaced.



After selecting the factor of date range, dispensing target weight and tolerance, click "Select" button.



Injector	Total	Success	Failure	Percent %
1	1	1	0	100
2	1	1	0	100
33	1	1	0	100
121	1	1	0	100

The software will list the times of successful or failure dispensing by injector numbers, also the rate of accuracy dispensing.

The summary of the analysis will be showed on the right down corner to present the accuracy dispensing ratio by the condition selected.

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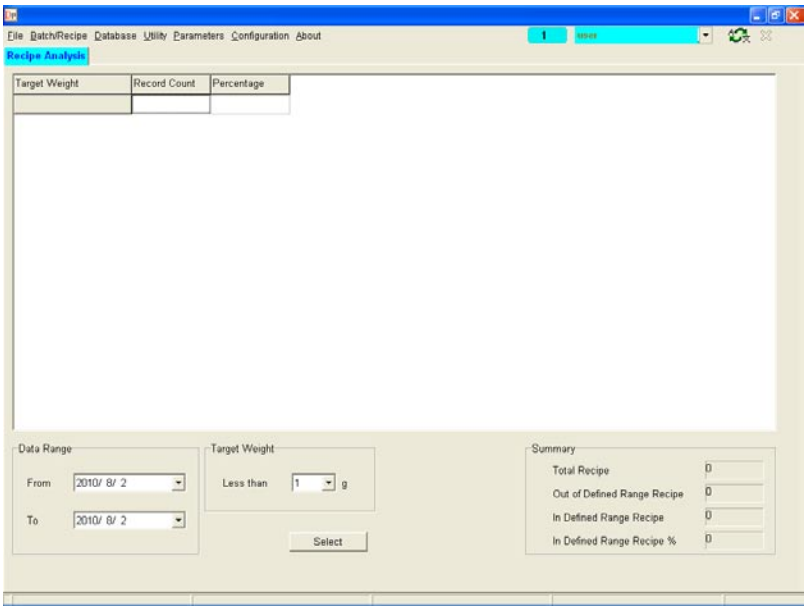
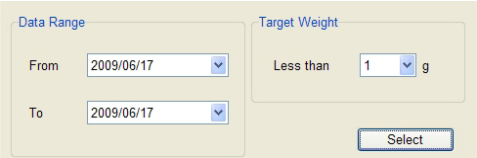
2-3-4 TF DP Program – Utility – Recipe Analysis

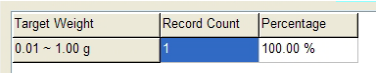
The screen below is "**Utility-Recipe Analysis"** form.



This function is for supervisors to find the numbers of recipe, which contain the products, dispensed less than a defined limit. The smaller dispensing target weight will cause inaccuracy dyeing result.



After selecting the factor of date range and dispensing target weight lower limit, click "Select" button.



The software will list the quantities of recipes satisfied with the condition defined also the percentage to all recipes.

The summary of the analysis will be showed on the right down corner to present the result.

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2-4 TF DP Program – Database

The option is designed to allow input, modification and set up of all information relative to the products, and solutions used in the laboratory, product, process, etc…

- **Product**
- **Process**
- **Solution**
- **Dyepot Tray**

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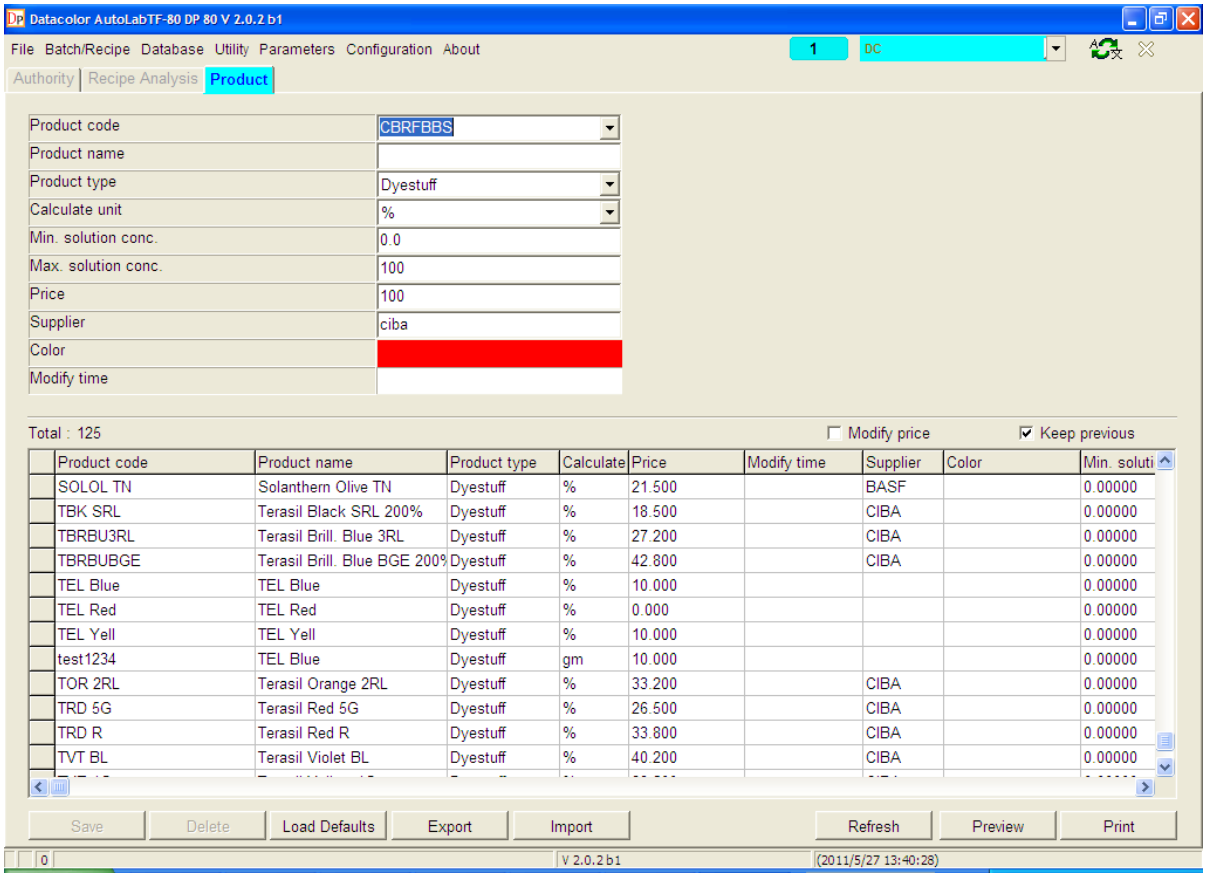
2-4-1 TF DP Program – Database – Product

The screen below is "**Product**" screen.
Input information about all the products, including dyes, chemicals and pastes that are used in the Laboratory.



- **Product code**

  Type a code to identify the new dyestuff or auxiliary to input (Maximum 32 characters. It is suggested that if the system is linked to a Color Match system, that the code length is limited to 8 characters.) This code will be used when you are inputting recipes.

- **Product name**

  Type a name to identify the dyestuff or auxiliary or paste (max. 48 characters).

- **Product type**

  Select a product type. There are 3 types, dyestuff, chemical and paste.

- **calculate unit**

  You can select the different recipe calculation unit for the product like %, gpl, g/kg etc

- **Min. solution conc.**

  Set the minimum solution concentration. The software will not allow operators to create a solution, which the concentration is smaller than the setting.

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- **Max. solution conc.**

  Set the maximum solution concentration. The software will not allow operators to create a solution, which the concentration is bigger than the setting.

- **Price**

  For setting the unit price of products.

- **Supplier**

  For inputting product supplier.

- **Color**

  Set the color of the product.

- **Modification date**

  For giving you idea about when this product was last modified.

- **Import**

  If customer has changed pc and exported the product data from old pc then he can import the data using this function.

- **Export**

  Customer can now export product data for future use. The default export file would be in *.dat but you can change the extension a per your requirement. The export would be in normal ASCII file and can be opened using notepad.

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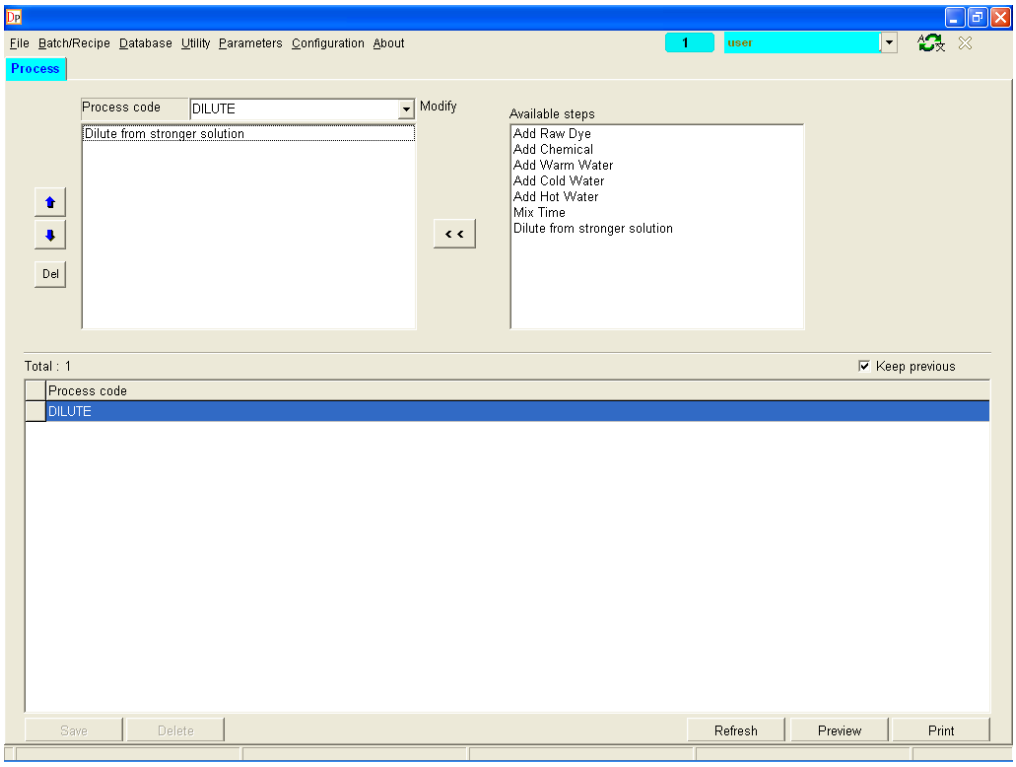
2-4-2 TF DP Program – Database – Process

The screen below is "**Process**" screen.

This is the function to define the solution making process.



- **Process code**
  For selecting a process code or input a new process code.

: For selecting a process code or input a new process code.

: For moving the selected step up.

: For moving the selected step down.

: For deleting the selected step.

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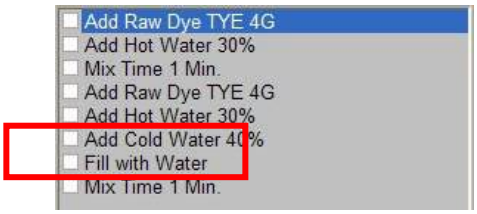
The step “Add Raw Dye” can be separated into several steps to fulfill the application of making a high concentration solution. It is possible to add part of the dye, some water, then mix the solution, and then add the remaining required amount of dye required and more water. This can make dissolving of the dye easier.

The way to separate adding the raw dye quantity in more than one step is similar to the way of adding water. After selecting the step “Add Raw Dye” when creating process, a dialogue will pop up and users can key in the percentage of raw dye which they intend to add at this step.

At the end of defining the process, the total percentage of added raw dye must be equal to 100%; otherwise it is not possible save the process.

When a solution process was defined with the sum of the “add water” steps in the process being 100%, and there was a mix step at the end of the process after the last “add water” step, it would complete the making of the solution in the last “add water” step as defined by the operator, before the last mix step, not after the mix step.



After mixing finished, operators need to click the mixer position on SPS main screen and the software will show a message to confirm the solution making is finished.

Note that if the total of the steps in a process do not add up to 100%, then automatically at the end of the process, the system will make up to the total amount, in an additional step automatically created by the system, after whatever the last was defined by the operator.

In this G2 software it is possible to make multiple “dilute” processes and also modify the dilute process to add chemical or water as per customer’s need.

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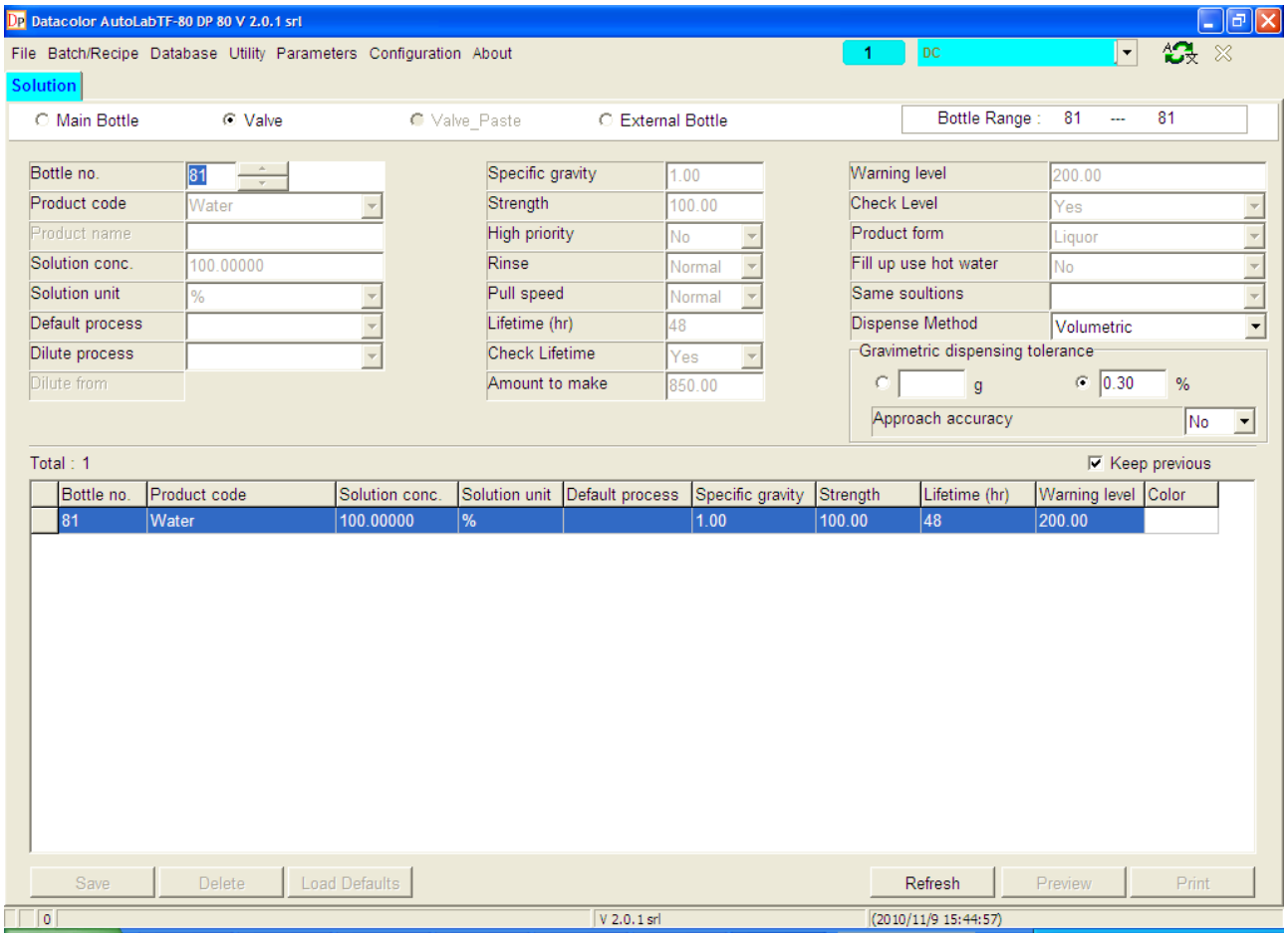
2-4-3 TF DP Program – Database – Solution

The screen below is "**Solution**" screen.

This is the function to create solutions information for the dispenser.



- **Bottle Group**

  In G2 software, bottles are divided into 4 groups, Main Bottle, Valve, Valve_Paste and External Bottle.

  - **Main Bottle**: The solutions in the bottles are dispensed by injectors.
  - **Valve**: The solutions in the bottles are dispensed by solenoid valves
  - **Valve Paste**: The solutions in the bottles are dispensed by paste valve. Only the product, which the product type is paste can be created in this group.
  - **Extend Bottle**: The reserved bottles. The solutions are rare to use can be created in this group. When need it, operators can use quick-switch function to switch the bottle into Main bottle group.

  On the right side, it shows the bottle range for the group selected.

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- **Bottle No.**

  For selecting bottle number.

- **Product code**

  Key in the product code which you created in “Product”.

- **Product name**

  Show the name of the product.

- **Solution Conc.**

  Specify the concentration of the solution in this bottle. The concentration has to be within the product minimum and maximum concentration defined in product database.

- **Solution Unit**

  You can set four different units of dye solution. It includes

  - **%**: **The quantity of dyestuff in 100 gram dye solution**
  - **gpl**: **The grams of product in 1 litre solution**
  - **g/K**: **The grams of product in 1 kilogram solution**
  - **r%**: **Divide the quantity of dyestuff into the weight of water**

  The limits for the input of concentration are as follows:

  0.0001 to 100 for %

  0.01 to 999 for gpl

  0.01 to 999 for g/Kg

- **Default process**

  Select a default solution making process for the solution to be made in SPS system.

- **Dilute process**

  Select a solution dilute process for the solution to be made in SPS system.

- **Dilute from**

  Select a stronger solution as the dilute source for the solution to be made in SPS system.

- **Specific gravity**

  Set the specific gravity of the solution. If the solution unit is gpl, then the specific gravity will be calculated when making solution. Normally the value always set to 1.0.

- **Strength**

  The manufacturer's standard strength of the dyestuff should be inputted here. Note that this value is used in the calculation of the amount of solution to add based on the standard strength of that product, which is considered to be a relative strength of 100%.

- **High priority**

  The system will dispense the solution which set as priority first.

- **Rinse**

  Set this parameter to let TFC clean the injector by squeezing it before sucking the solution. Avoiding any sedimentation inside the dip tube of injector.

- **Pull speed**

  Set the injector pull speed when the system rinses injectors to match up with the solution

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viscosity being dispensed. High viscosity solution needs slower rinse speed. “Normal” is the fast speed; “Low” is middle speed and “Very low” is the slow speed. (Standard default setting set to “Normal”)

- **Life time (hr)**

  Set the expiring time of the dye solution. The unit is “hour”. If the solution is out of life time, warning message will show when adding recipes into dispensing queue.

- **Check lifetime**

  Set the parameter for the single solution. Choose “Yes” to let software check solution life time when adding recipes into dispensing queue.

- **Amount to make**

  Set the solution amount when making the solution in SPS system.

- **Warning level**

  For setting the Low Stock Warning Level of the solution.

- **Check level**

  Set the parameter for the single solution. Choose “Yes” to let software check solution stock when adding recipes into dispensing queue.

- **Product form**

  Set the product form for the product assigned for the bottle number. In Main Bottle, Valve and Valve Paste groups, the product form has to be liquid. In External Bottle group, the product form can be solid, such as salt, which may be added manually.

- **Fill up use hot water**

  If set “Yes” at the last step of making solution to fill water up, the hot water pipe will also opened to increase speed.

- **Same solution**

  The drop list shows all the bottle numbers where same concentration product assigned.

- **Dispense method**

  Define the dispense method of the solution. It can be gravimetric dispense or volumetric dispense.

- **Gravimetric dispense tolerance**

  There are 2 ways to identify dispensing tolerance. One is actual gram and another one is percentage of target weight.

  When choose actual gram, no matter how big the dispense target weight is, the dispense tolerance will be fixed in the given value.

  When choose percentage, the tolerance will be varied by dispense target weight in the percentage given.

- **Approach accuracy**

  When enable this function, the software will approach to the accuracy even the tolerance already reached.

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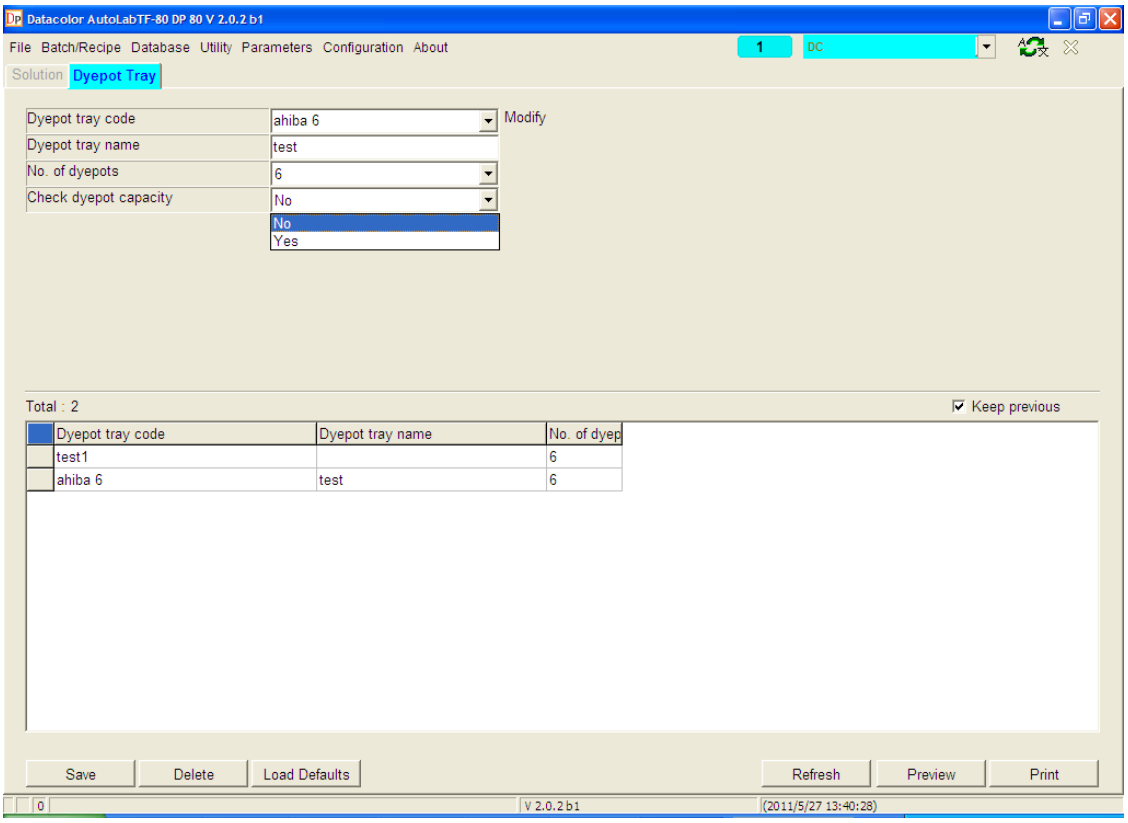
2-4-4 TF DP Program – Database – Dyepot Tray

The screen below is “**Dye pot Tray**” screen.

This is the function to define the Dyepot tray used in the lab.



- **Dyepot tray code**

  Type a code to identify the dyepot tray.
- **Dyepot tray name**

  Type a name to identify the dyepot tray.
- **No. of dyepots**

  Select the dyepot numbers of the dyepot tray. There are 4 options, 6, 4, 2 and 1 dyepot.
- **Check Dyepot Capacity**

  If you select this option then you can define dyepot capacity and system will check the total volume while recipe calculation and also display message if total volume is more than dyepot capacity.

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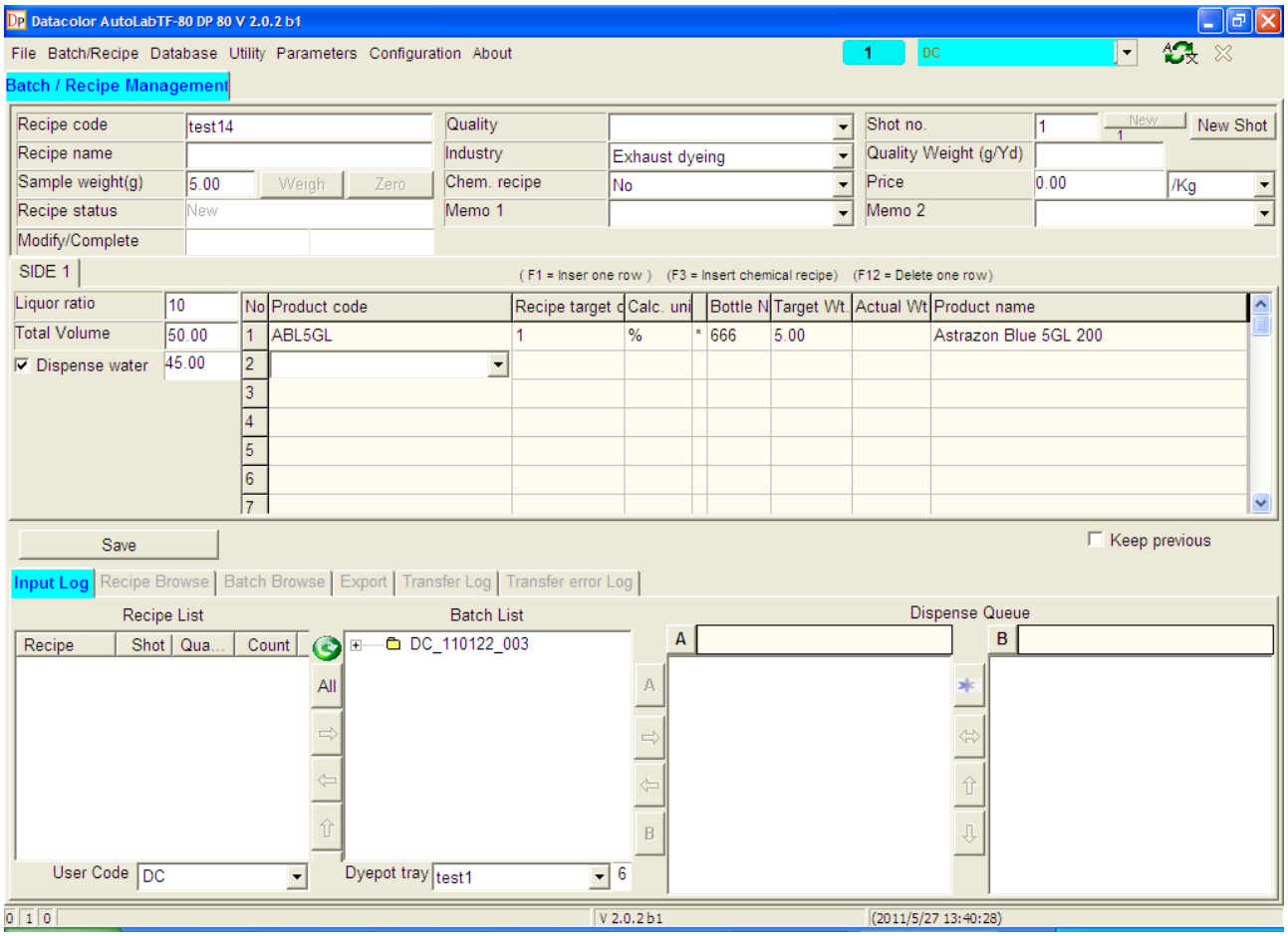
2-5 TF DP Program – Batch/Recipe Management

The screen below is "**Batch/Recipe Management**" screen.

In G2 software, recipe management function and batch management are integrated into one function. Operators can easily manage recipes and batches in the same screen.

The up side on the screen is recipe management and the down side on the screen is batch management.



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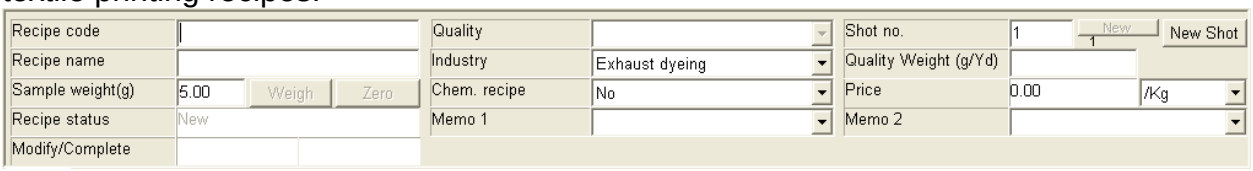
2-5-1 TF DP Program – Recipe Management – Recipe Header

The screen below is "**Recipe Management-Recipe Header**" screen.
TFC Recipe Management allows the creation of exhaust dyeing, continuous dyeing and textile printing recipes.



- **Recipe code**

  This code is used to identify the recipe. The code used can be up to 34 characters long.

- **Quality**

  It means the quality of the recipe. If users don't use quality, they can disable the setting "Use Quality Code" in batch/parameter function to make cursor bypass quality box when using keyboard creating recipes.

  There are 2 ways to input quality code. One is select qualities by drop down list. The qualities in drop down list are pre-defined in database.

  The other one is to key in a quality code, which is not existed in quality database, in the box manually. The keyed-in quality code will not be stored in quality database. The quality showed is only a text note.

- **Shot no.**

  The shot number of the recipe. There are 2 methods to add shots depend on check item "**add shot number automatically**" on parameter-batch/recipe page checked or not. If the item is enabled, the button "**New Shot**" beside will disappear. If the item is not enabled, the button "**New Shot**" will appear. Users have to click "**New shot**" button to increase shot number.

  There is another parameter item setting "Allow to add new shot if the recipe is not complete". If enable this function and add shot method is "Automatically", the recipe will add shot number automatically even the recipe is not dispensed after recalling the recipe back. If enable this function and add shot method is "Manually", the shot number of the recipe will not increase after recalling the recipe back even the recipe is not dispensed yet. But users can click "New shot" button to add new shot for the recipe. Increased shot number must be in sequence.

  The number beside "Shot No." box is dispensing count for this time. It helps users identify how many times they dispense the same recipe at the same shot number. In the same shot number, the dispensing count will increase automatically in sequence. If shot number is changed, dispensing count will be reset.

  Situation 1: After recalling recipe "AAA" back, shot number remains "1". Users can click "New shot" button to add shot number and reset dispensing count. Or use shot number "1" to dispense again and dispensing count will increase 1.

  Shot no means the recipe modify times to approach target dyeing result.
  Dispense count means how many dispense times of this shot.

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- **Recipe name**

  The description of the recipe, up to 48 characters in length.

- **Sample weight**

  This is the weight of the fabric sample to be dyed. This field is important for calculating the recipe. You can input the weight using the keyboard or press the Weigh button to automatically weight the sample on the Fabric Weighing Scale.

  This input box will only appear in exhaust dyeing method.

- **Recipe status**

  Show the status of the recipe. This status is for whole recipe status. There are 8 statuses:

  1. not dispensed
  2. dispensing
  3. success dispensed
  4. error dispensed
  5. exported and not dispensed
  6. exported and dispensing
  7. exported and success dispensed
  8. exported and error dispensed

- **Industry**

  There are 3 different industries, exhaust dyeing, continuous dyeing and printing. The default when creating a new recipe will depend on personal parameter setting. Different industry will affect the required information.

  Exhaust dyeing: The required must-be inputs are “sample weight”, “liquor ratio”, “total volume”. The allowed solution calculation units are “%”, “gpl”, and “gm”.
  When solution calculation unit is “%”, use sample weight as calculation factor.
  When solution calculation unit is “gpl”, use total volume as calculation factor.
  When solution calculation unit is “gm”, use input number as calculation factor.

  Continuous dyeing: The required must-be inputs are “box factor”, “pick up ratio”, “total length” and “total volume”. The allowed solution calculation units are 2, which are “gpl” and “gm”.
  When solution calculation unit is “gpl”, use total volume as calculation factor.
  When solution calculation unit is “gm”, use input number as calculation factor.

  Printing: The required must-be input is “total weight”. The allowed solution calculation units are 3, which are “gpk” and “gm”.
  When solution calculation unit is “%”, use total weight as calculation factor.
  When solution calculation unit is “gpk”, use total weight as calculation factor.
  When solution calculation unit is “gm”, use input number as calculation factor.

- **Chemical recipe**

  You can add some recipes with auxiliaries which you usually use. When you need to add a new recipe with these auxiliaries you can apply the recipes you pre-created and so on

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you can save your time. You can use F3 function key to add chemical recipe to existing recipes or you can also select the chemical recipe from list and right click on then select Apply to add chemical recipe to existing dyestuff recipe.

- **Modify/Dispensed**

  “Modify” field shows the date and time which the recipe created or modified.

  “Dispensed” field shows the date and time which the recipe physically dispensed. No matter success or fail.

- **Price**

  The cost of the recipe per unit of fabric or per pound in exhaust dyeing. For continuous dyeing, it shows the cost of the recipe per liter of total volume. For textile printing, it shows the cost of the recipe per total weight.

- **Memo1/Memo 2.**

  These 2 boxes are for operator input some notes. The title “memo1” and “memo2” can be changed manually. Double click the tile and a message will appear. Operators can change the description of the tile and put a new name for the title. Then users can put required text information in the box, for example: such as “customer name” and “order number”.

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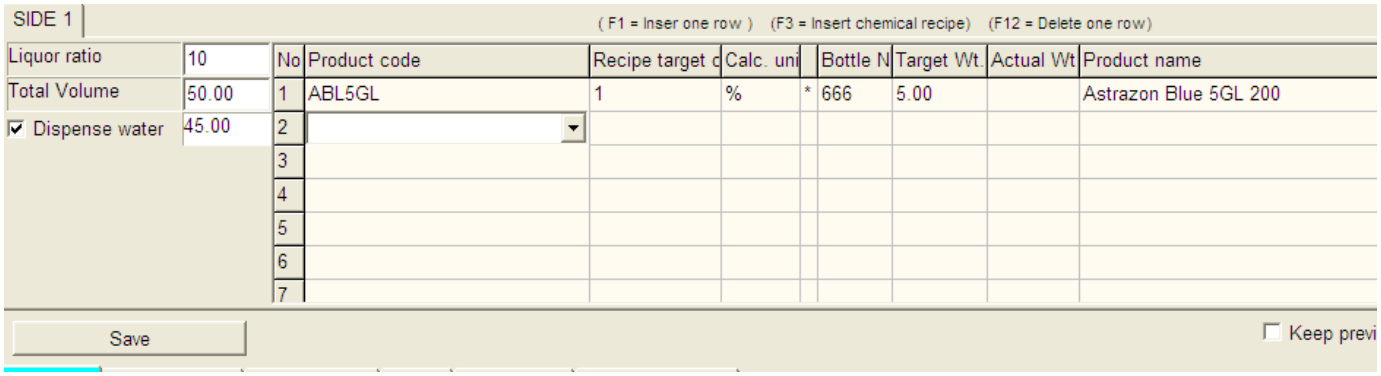
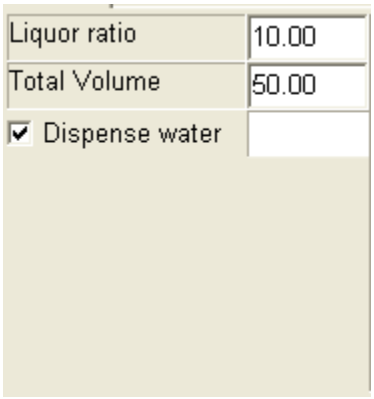
2-5-2 TF DP Program – Recipe Management – Recipe Detail

The screen below is "**Recipe Management-Recipe Detail**" screen.



New function keys (F1, F3 and F12) visible once you go to product selection code

Exhaust dyeing



- **Liquor Ratio**

  This is the required Liquor Ratio of the recipe. This input box will only appear in exhaust dyeing method.

- **Total Volume**

  This shows the calculated total volume of the recipe to be dispensed. Total Volume = Sample Weight * Liquid Ratio. In continuous dyeing, the total volume of the recipe required should be inputted.

- **Dispense Water**

  This field indicate how much water will be dispensed in this recipe.

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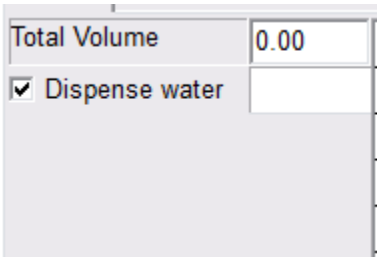
Continuous dyeing



- **Total Volume**
  The total volume of the recipe, operators can input the number directly.
- **Dispense Water**
  This field indicate how much water will be dispensed in this recipe.

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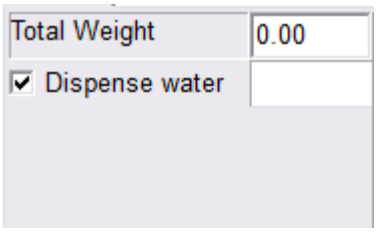
Textile printing



- **Total Weight**
  The total volume of the recipe, Operators can input the number directly.

- **Dispense Water**
  This field indicate how much water will be dispensed in this recipe.

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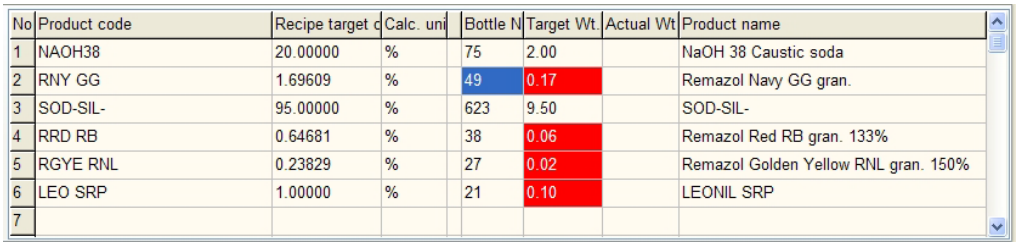
Filling in the screen for RECIPE DETAILS



No	Product code	Recipe target c	Calc. uni	Bottle N	Target Wt.	Actual Wt	Product name
1	NAOH38	20.00000	%	75	2.00		NaOH 38 Caustic soda
2	RNY GG	1.69609	%	49	0.17		Remazol Navy GG gran.
3	SOD-SIL-	95.00000	%	623	9.50		SOD-SIL-
4	RRD RB	0.64681	%	38	0.06		Remazol Red RB gran. 133%
5	RGYE RNL	0.23829	%	27	0.02		Remazol Golden Yellow RNL gran. 150%
6	LEO SRP	1.00000	%	21	0.10		LEONIL SRP
7							

- **No**

  The sequence number of product.

- **Product code**

  Select a Product Code from the combo box. The products shown are those as defined “Database” solutions.

- **Target Conc.**

  Input the required concentration of the product.

- **Calc. Unit**

  Exhaust Dyeing
  Dyes: 2 options, % and gm.
  Chemicals: 3 options, %, gpl and gm.

  Continuous Dyeing
  Dyes: 2 options, gpl and gm.
  Chemicals: 2 options, gpl and gm.

  Textile Printing
  Dyes: 3 options, %, gpk and gm.
  Chemicals: 3 options, %, gpk and gm.

- **Bottle No.**

  This field is protected. The most suitable bottle number will be automatically selected, once the recipe is saved. Or operators can specify a bottle number for the product. For manual select bottles, a “*” mark will appear in front of Bottle No. field.

- **Target Wt.**

  This field is protected. The amount of solution will be calculated and displayed, once the recipe has been saved. If the target weight is under target weight low or high limit, the field will be highlighted in red shade.

- **Actual Wt.**

  This field is protected. After the recipe is actual dispensed, the actual dispensed weight will be fill in this field automatically.

- **Product name**

  This field is protected. The Product Name will be displayed, as defined in Product Data.

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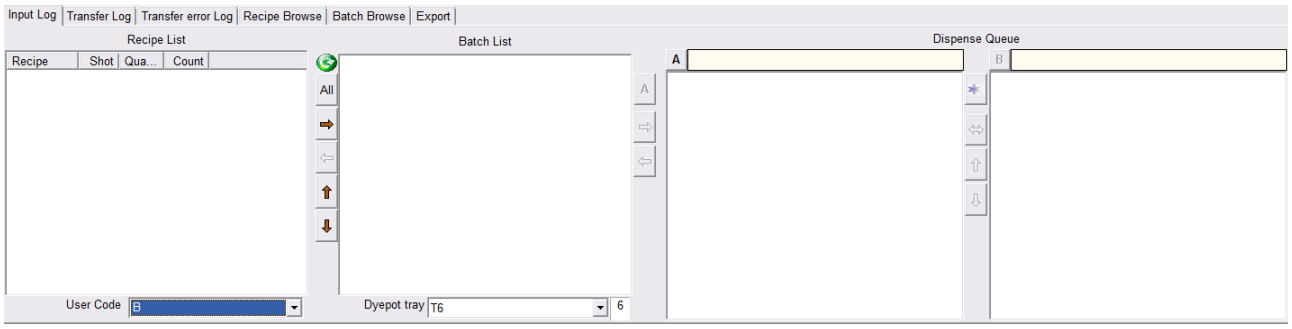
2-5-4 TF DP Program – Batch Management

The screen below is “**Recipe Management-Batch Management**” screen.



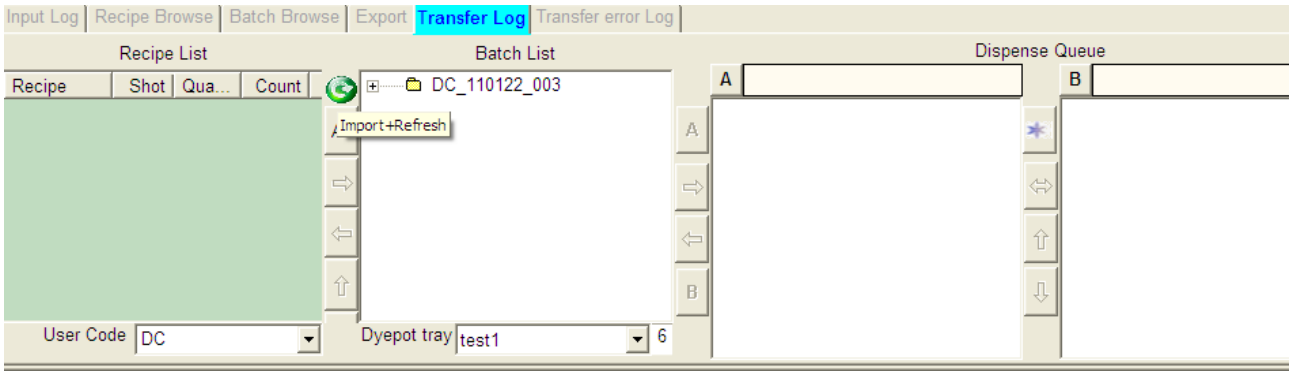
- **Input Log**

  The manual created recipes in input log are machine dependent. The created recipes can only be seen by user code selection.

  In this log, the user can select multi recipes by using standard Windows multi-select method and transfer these recipes into batches.

  To delete the recipes in this log, select the recipes and right click mouse. A command “delete” will appear, click delete command to delete recipes.

- **Transfer Log**



List the recipes which imported from “Datacolor Match” and “Datacolor Process” system. The recipes in transfer log are machine dependent. The recipes in one machine import log can be seen for any authorized users who log in the machine. After modify the imported recipes, the recipe will be moved from Transfer log to Input Log

To delete the recipes in this log, select the recipes and right click mouse. A command “delete” will appear, click delete command to delete recipes.

This button can be used to manual / immediate import or refresh the import.

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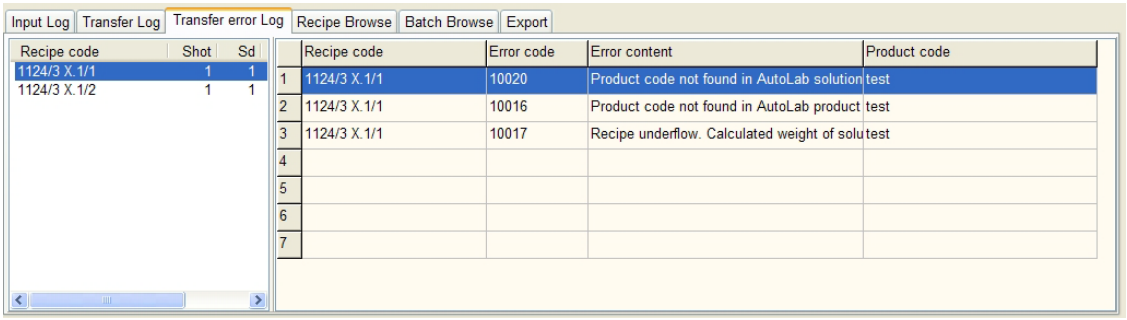
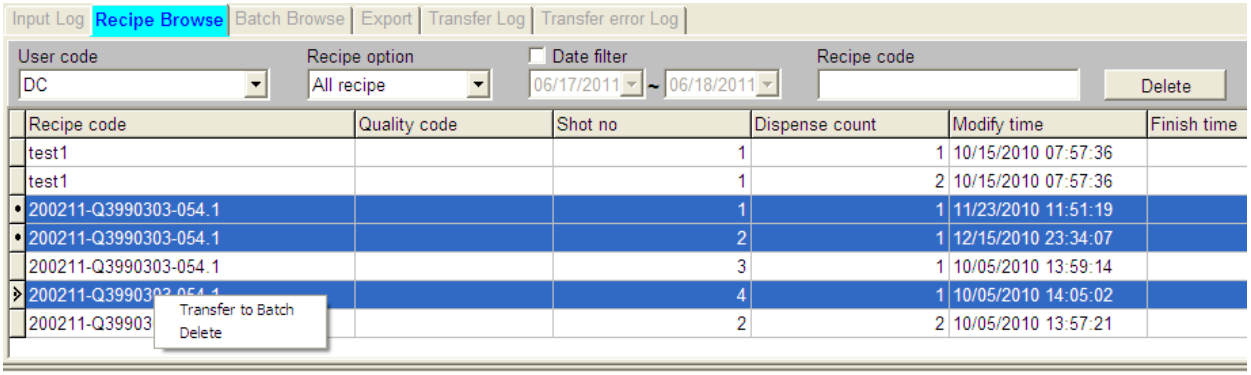
- **Transfer error Log**



List the imported recipes which have error information. The software will list the error reason of the recipes. After modify the imported error recipes, the recipes will be also put in Transfer log.

Error code	Condition Description
10011	There are more than 20 products within the recipe.
10012	Unknown Record ID (Invalid recipe code)
10013	The sample weight is out of range. The default sample weight will be stored.
10014	Invalid total volume.
10015	The sum of the concentrations of the products does not match the check sum.
10016	Product code not found in Autolab product database.
10017	Recipe Underflow. Calculated weight of solution to dispense is less than the minimum dispenses weight, as set in Parameter Manager.
10018	Recipe Overflow. Total of the amount of each solution to dispense is greater than the Total volume. The liquor ratio for this recipe will be incorrect.
10019	Recipe to transfer was being edited at the time of the transfer, and the recipe could not be transferred.

- **Recipe Browse**



List all saved recipes in the database. There are 3 filters, by user code, by recipe option and by created date. If the operator needs to find a specific recipe, he can input the recipe code in recipe code box to find it.

Users can delete recipes in this screen. Multi-selecting recipes by Windows standard multi-select way is available. Also users can pick up recipes in recipe browse to dispensing directly. After selecting recipes, right click mouse to choose the command “Transfer to batch”.

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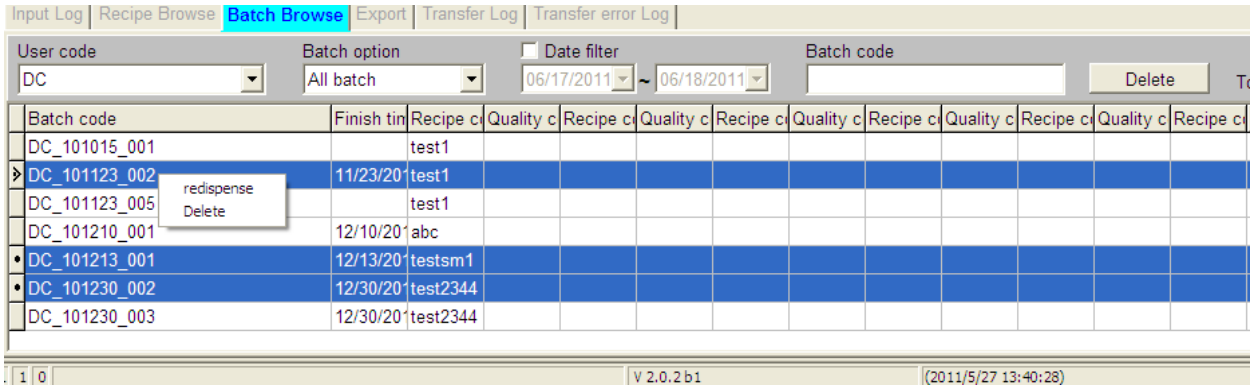
- **Batch Browse**



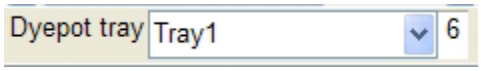
List all dispensed batches in the database. There are 3 filters, by user code, by batch option and by created date. If the operator needs to find a specific batch, he can input the recipe code in recipe code to find it.

Users can delete batches in this screen. Multi-selecting batches by Windows standard multi-select way is available. Also users can pick up batches in batch browse to dispensing directly. After selecting batches, right click mouse to choose the command “Redispense”. The selected batches will be transfer to dispensing queue.

- **Export**

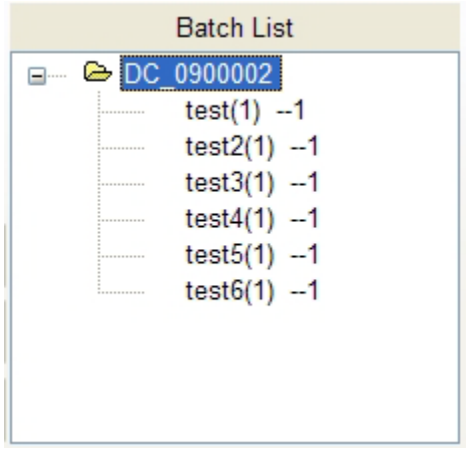
You can export the recipe using this function. Select the recipe code(s) and then select “Export now” and system will export the recipes in export file as per parameters set.

- **Dyepot tray**



It needs to select the dye pot tray first before creating a batch. If the dye pots of the selected recipes are not fit in the selected dye pot tray, show warranting message and stop the process. Recipe will remain in the input log.

- **Batch List**



Created batches will be put in this box. A batch code is generated by following rule.

Batch code = “user code”_”date (6 digitals yymmdd)”_ serial number (3 digitals)

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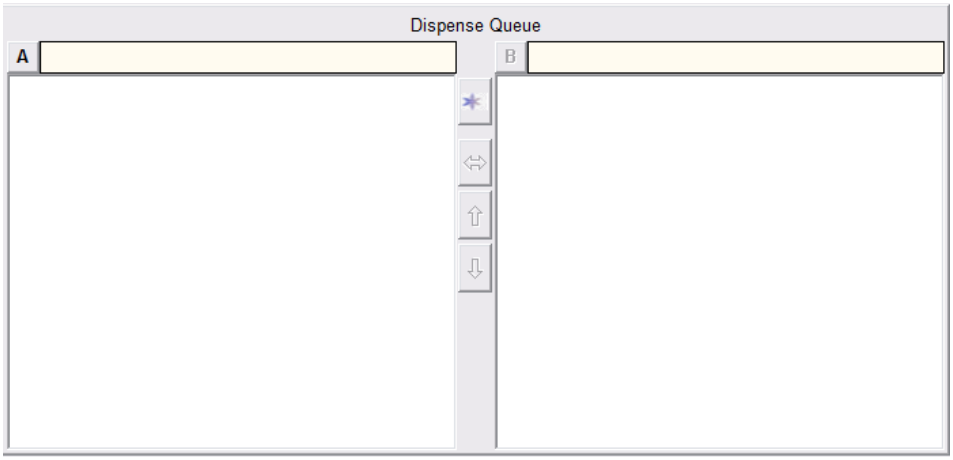
The batches have tree view function, like Windows File Management function. After exploring a batch, the recipes in the batch will be listed. Users can click the recipes. View the recipe content or modify the recipe.

In this box, it will list all users batches by default, if you need to display personal batches in the box, please enable “individual batch list” in the Batch/Recipe management parameter settings.

If there are positions available for inserting recipes, after selecting recipes in Input Log or Transfer Log, just drag the selected recipes into the batch then the recipes will be inserted into the batch.

Users can change the start up time of a “Timer start up” batch by right click mouse after selection batches. A timer will appear and operators can set the time to dispense the batch.

- **Dispensing Queue**



There is only 1 dispensing queue in all model TFC and TF40 system. In TF system except TF40, there are 2 dispensing queues for A scale side and B scale side. The box beside “A” and “B” shows the current dispensed batch code.

There is a button “Freeze” . When users need to adjust batches in the batch dispensing queue, in the freeze status, the current batch will still dispensing, but next batch will not dispensing until the user de-freeze the system by pressing again.

Batches can be moved from one queue to another queue by using the 2 direction arrow button.

2 buttons, “up arrow button” and “down arrow button” will allow user to move batch up and down.

If you have more than 1 bottle with the same dye solution and concentration, when transferring batches from “batch list” box to “Dispense queue” box, the software will identify if there are bottles can switch when the original is under low level or out of life time. bottle priority rules which are listed below to transfer batches and swap same solution bottles automatically if needed.

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The searching slave bottle rules are, in order of priority.

1. The system will use the bottle which is in injector dispensing area.
2. The system will use the bottle which has shortest remaining life time.
3. The system will use the bottle where the solution quantity is above the safety stock (200g default).
4. The system will use the bottle where the solution quantity is between safety stock (200g) and minimum stock (100g).
5. If no bottle exists in the dispense are that fulfils the above criteria, then the system will then use a bottle from the extended bottle area, and follow the rule point 2, 3 and 4 to identify the extended bottle priority and selection of the bottle.

The priority of the slave bottles can be changed anytime due to the solution life time and stock levels continue to change.

The identifying slave bottle priority rules are presented in flow chart below. The software will identify the priority of the bottles in slave bottle list then use the highest priority bottle when the master bottle can't pass solution checking.

The flow chart below is the complete algorithm of transferring batches from Pre-batch box to Work-batch box. This flow chart will base on the settings in "Batch settings" to identify if the batches can be transferred to work batch box. If the solution in a batch has same solution slave bottles for replacement and it needs to be replaced, the software will follow the flow chart in next page to identify the priority of slave bottles then use the highest priority bottle to replace the master bottle.

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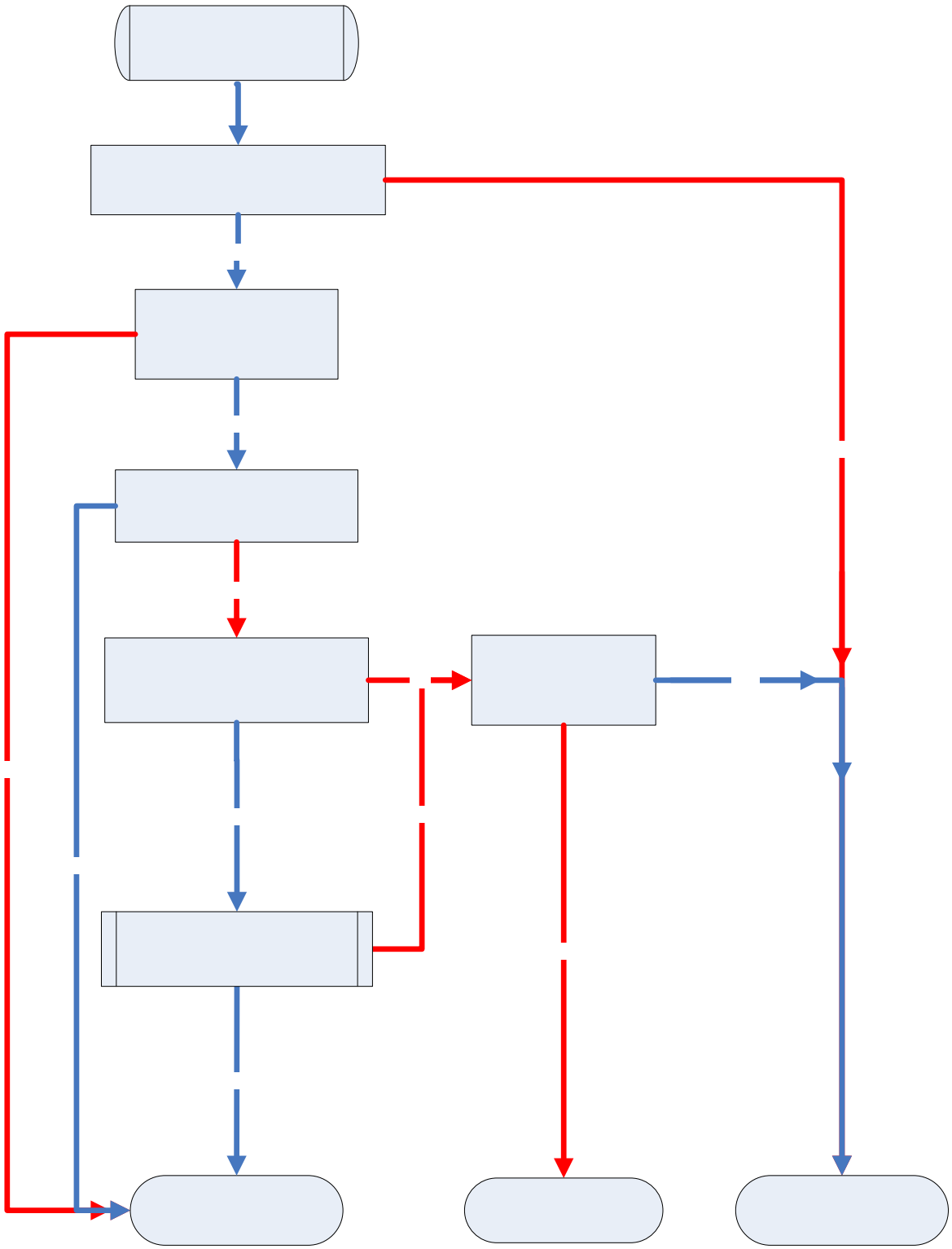

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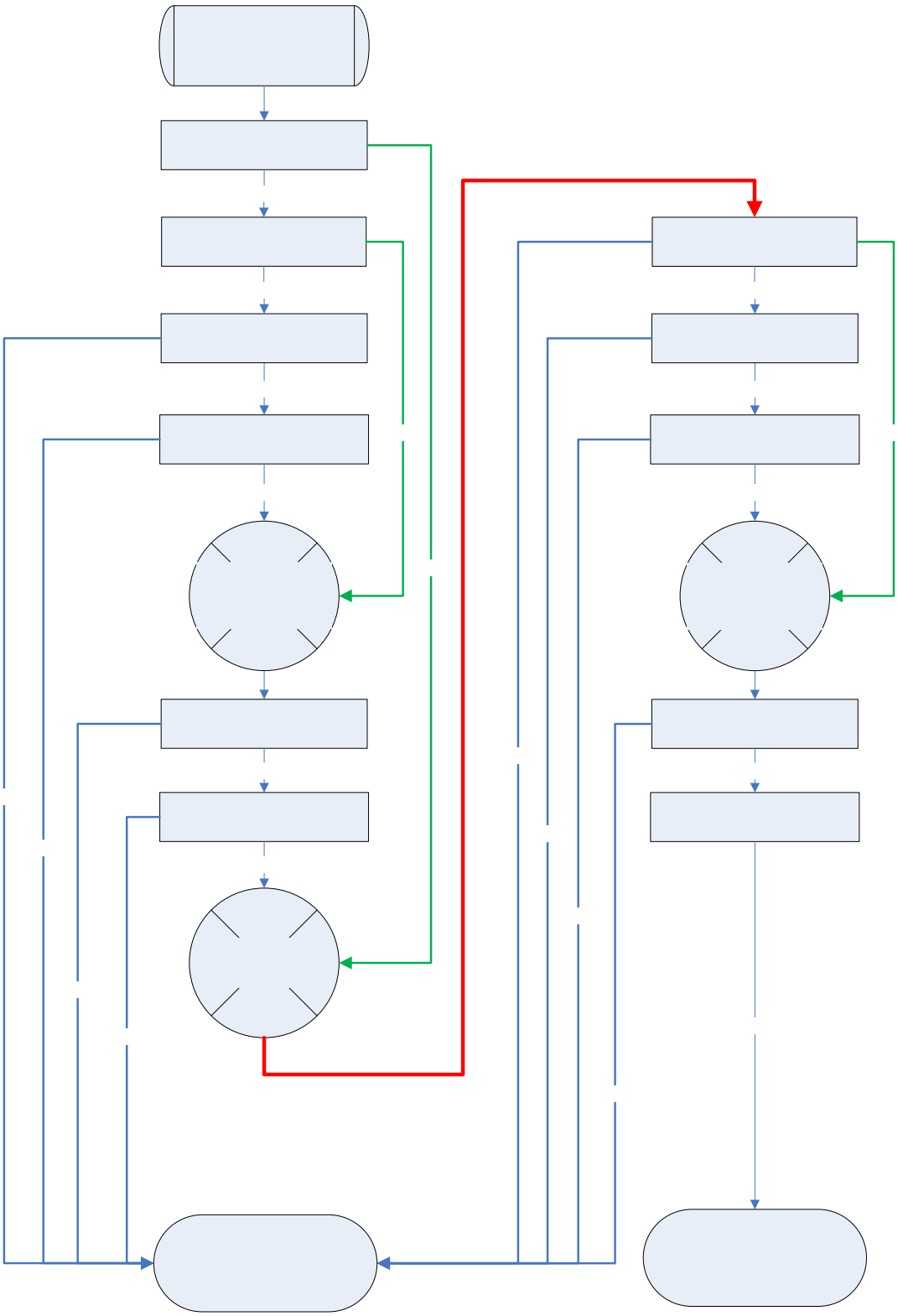
The algorithm of swapping to slave bottle



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TFC DP Program – Batch Management – Import Blend Recipes

The rules of importing blend recipes from Datacolor match or ITM process is the same as G1 software. Take an example below

```
500M171506.1/1    10F   569080 Flick 239.E.1/1    00.000  84.000YN0120070404
DN
500C171506.1/1     1G   DST120    0.50000
500C171506.1/1     2G   C502      2.00000
500C171506.1/1     3G   DST102    1.93640
500C171506.1/1     4F   DST103    0.44592
500C171506.1/1     5    C621     10.00000
500C171506.1/1     6F   18-D/103  0.00000
500C171506.1/1     7F   19-D/301  0.04096
500C171506.1/1     8F   20-D/400  0.05200
500C171506.1/1     9F   18-D/504  0.13000
500C171506.1/1    10W   WATER    15.10528
500M171506.1/2     4G   569080 Flick 239.E.1/2         84.000YN0120070404       DN
500C171506.1/2     1G   DST118    3.00000
500C171506.1/2     2G   C131      3.00000
500C171506.1/2     3G   DST115    1.00000
500C171506.1/2     4W   WATER     7.00000
```

Recipe “171506” is a 2 sides blend recipe.

When the import parameter set “Merge recipes”, there will be only one recipe, which is recipe “171506”, imported. The recipe code is “171506” and the products of 2 sides will be put in the same recipe content and there is an empty line between products of 2 sides for identification.

When the import parameter set “Don’t merge recipes”, there will be 2 recipes imported into G2 recipe database. One is recipe code “171506/1” and it contains only the products of side 1. Another one is recipe code “171506/2” and it contains only the products of side 2. G2 software will treat these 2 sides as 2 different recipes.

The industry of the recipe will be identified automatically.

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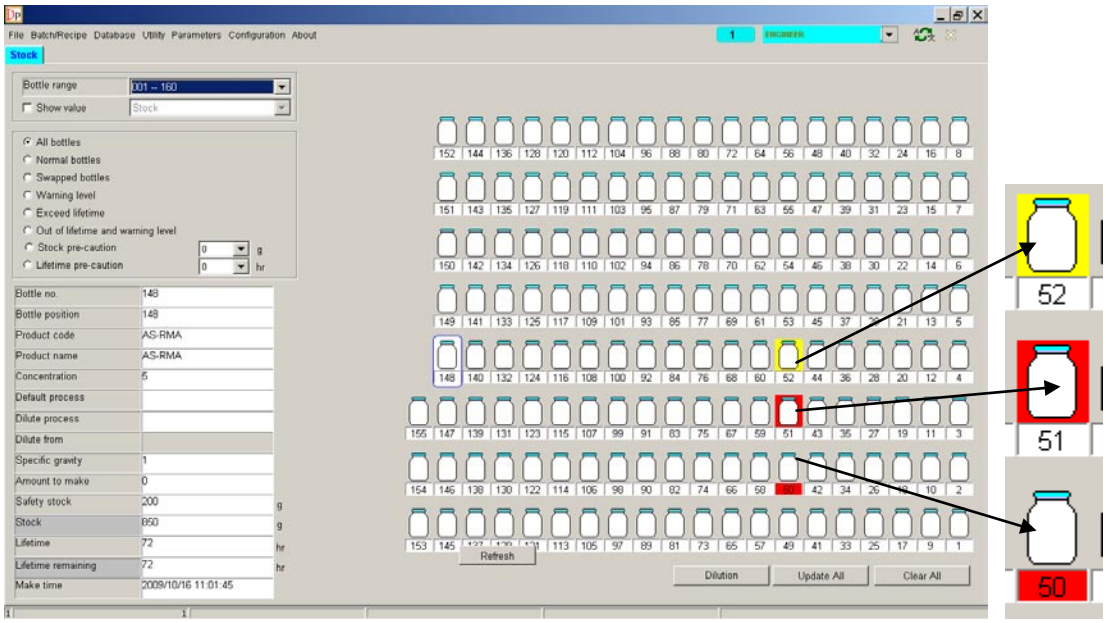
2-6 TF DP Program – Solution Stock

The screen below is "**Solution stock**" screen.



After moving mouse cursor on a bottle, the information of the solution in the bottle will be showed on the left side of screen.

There are filters can be chosen on the left side. By different filter, the bottles will show different information.

When there is solution, which the stock is in warning level, yellow shade will surround the bottle, such as the bottle 52 in the picture above.

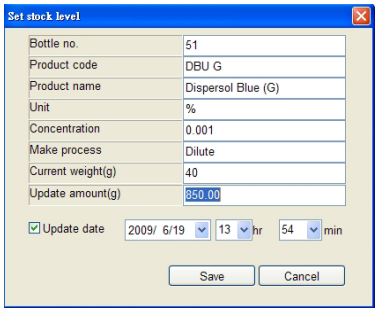
When there is solution, which the stock is in low level, red shade will surround the bottle, such as the bottle 51 in the picture above.

When there is solution is out of life time, the background of bottle number will be shade in red color, such as the bottle 50 in the picture above.

Select a bottle and right click mouse, there are 3 functions can be selected.

- **Set Stock**

  It is an easy way for operator to see all the information of the selected solution, and update the stock individually. Input the weigh of the new solution, and click ok to save the stock.



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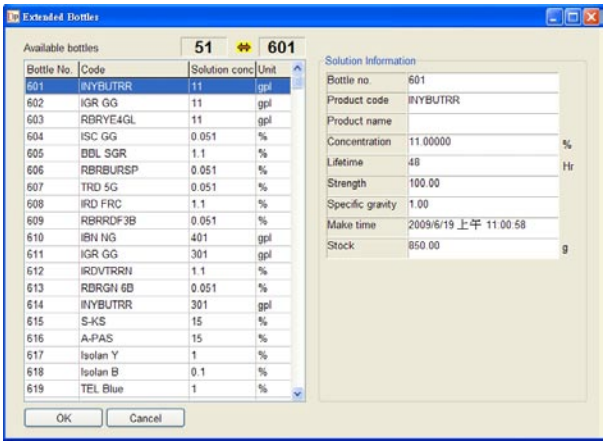
- **Swap Bottle**

  This is the function of swap extended bottle to dispensable position. The extended bottles are from 241 to 9999.



  Select an extended bottle in the list of left, click “OK”. The bottle is swapped into the dispensable position, and original bottle number will be changed to the number of the extended bottle, and the color of bottle is change to black. See the picture below.

- **Swap back**

  It is for reset a swapped bottle back to original bottle.

- **Make Dilution in TF**

  Using special bottle trays, holding 2 empty solution bottles at a time, the system can automatically make dilutions, by loading the bottle tray, dispensing the required amount of stronger solutions from the relevant solution bottle on the system using the injector, then dispense cold water from the water tank to make the solution up to the required final solution strength. Once completed, the solutions can then be taken off the bottle trays and placed on the dispenser system in the correct bottle position for that solution strength. There are 2 ways to enter the “Dilution” screen in DP program, for making dilutions. The first way is to first enter the stock status screen, and click on the “Make Dilution on TF” button. The second way is click on the “Make Dilution on TF” button in solution stock and life time alarm list screen, when transferring recipes from batch list to dispense queue.

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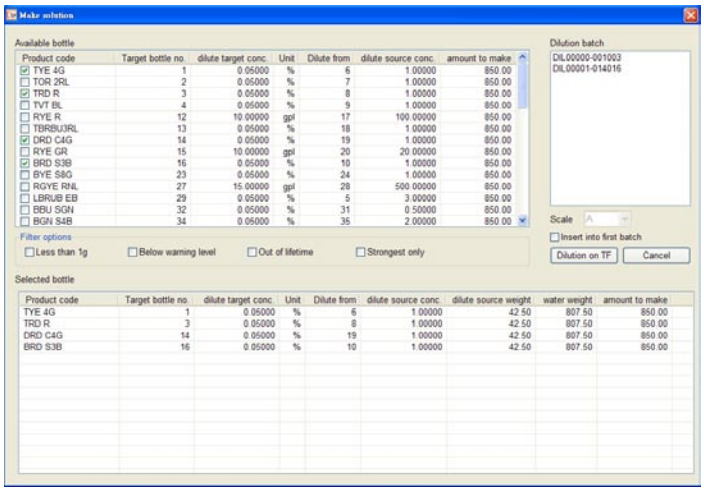

Lists of solutions that can be made up by diluting from a stronger solution with then appear.

To change the default amount, double in the column “amount to Make” and you can sett the desired amount.

To further filter the solutions in the list, you can enable the check box of “Low level” and “Out of life time” to list only those solution which fulfil these criteria.

Select the bottles which are required to be made from the list, and the solution selected will appear on the “selected bottle” list on the right side of the screen. If you want to change the amount of the solution to make up, double click on the amount box of the bottle in available bottle list.

After selecting all the solutions required to be made up, click on “OK”, and this will then open the “Dilution batch generator screen”. This dilution batch generator will automatically create a dilution batch code for every solution selected, DiXXXX-YYYZZZ, where XXXX is a dilution batch sequential number. YYY is first solution number to make in this batch. ZZZ is the second solution number in this batch (each batch consists of 2 solutions to make, since each bottle tray holds 2 bottles). In this screen, you can also see the detail of dilution bottle and decide whether put the batch as first the batch in dispense work batch. Click “OK” to move the batches to the work batch. The dilution batches can not be transferred back to the pre-batch box, like normal dispense batches can be.

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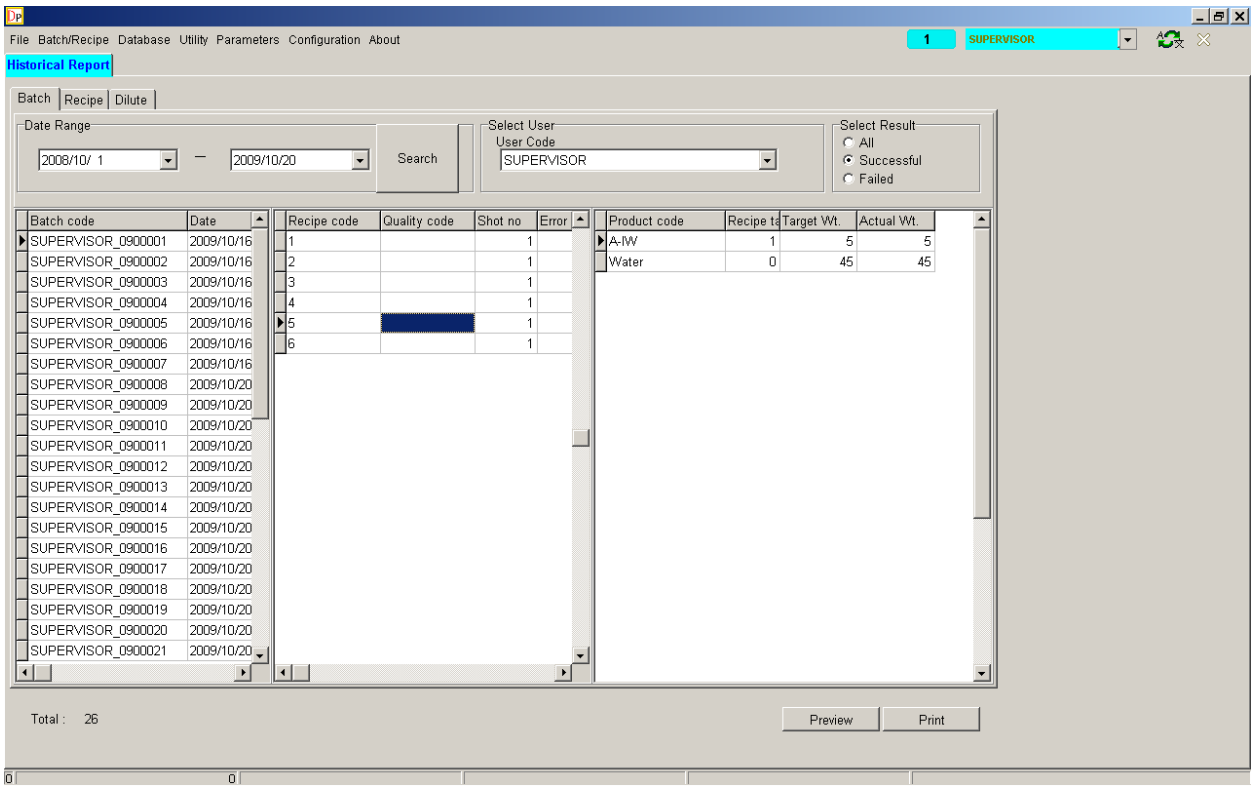
2-7 TF DP Program – History Report

The screen below is “**History Report**” screen.

Operators can use this function to check all dispensed reports, by batch or by recipe



Batch Report

In the batch report screen, users can filter the batches by selecting “User”, “Dispensing Date Range” and “Dispense Result”.

Once chosen the “User”, “Date Range” and “Dispensed Result”, click on the “Search” button. The program will follow the condition you choose and find out the batches by the set condition.

In the screen, the box on the left will show you the batches which dispensed by the selected user in the date range. The box will show you the information of “Batch Code”, “Dispensed Date” and “Dispensed time”.

Select a batch and the recipes in the batch will appear in the box on the middle. The box on the middle will show you the “Recipe Code” and “Shot No.” information.

Select a recipe in the middle box and the recipe detail will appear in the box on the right.

Click “Print” button, the program will print a batch report.

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Recipe Report

In recipe report, you can filter the recipes by “Dispensing Date Range” and “Dispensed Result”. Or if you need find a specific recipe, you can key in the recipe code in “Select Recipe Code” box. The recipe you want to find will appear.

Once chosen the “Date Range” and “Dispensed Result”, click on the “Search” button. The program will follow the condition you choose and find out the recipes by the set condition.

In the screen, the box on the left will show you the recipes which dispensed in the selected date range. The box will show you the “recipe code”, “Shot No.” and “Dispensed Date” information.

Select a recipe and the batch which content the recipe will appear in the box on the middle. The box on the middle will show you the “Batch Code” If the recipe with the shot number has been dispensed in more than one different batch, all the batches will appear in the box on the middle.

Select a batch in the middle box and the recipe detail of the specific dispensing will appear in the box on the right.

Click “Print” button, the program will print a recipe report.

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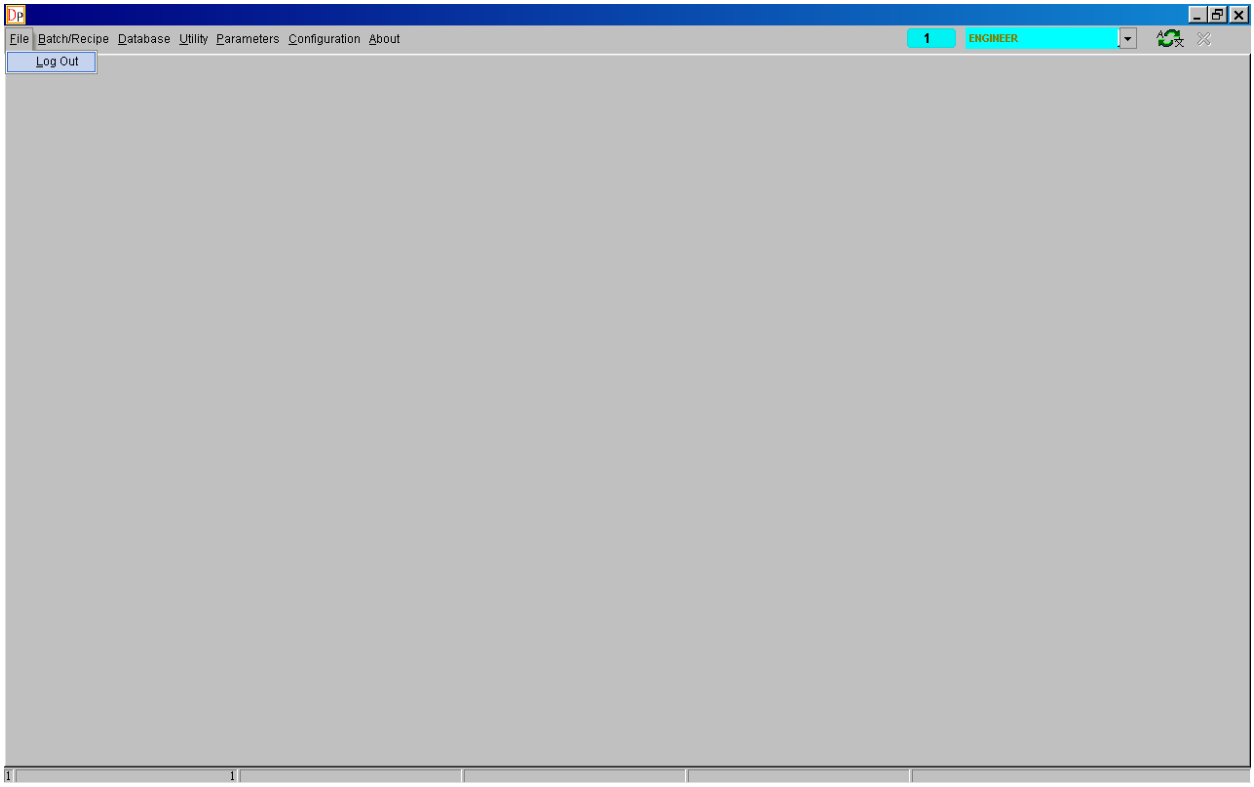
2-8 TF DP Program – File

The screen below is “**File**” screen.



There is only one function “Log out” in File menu.

Note after selecting log out function will log out all users.

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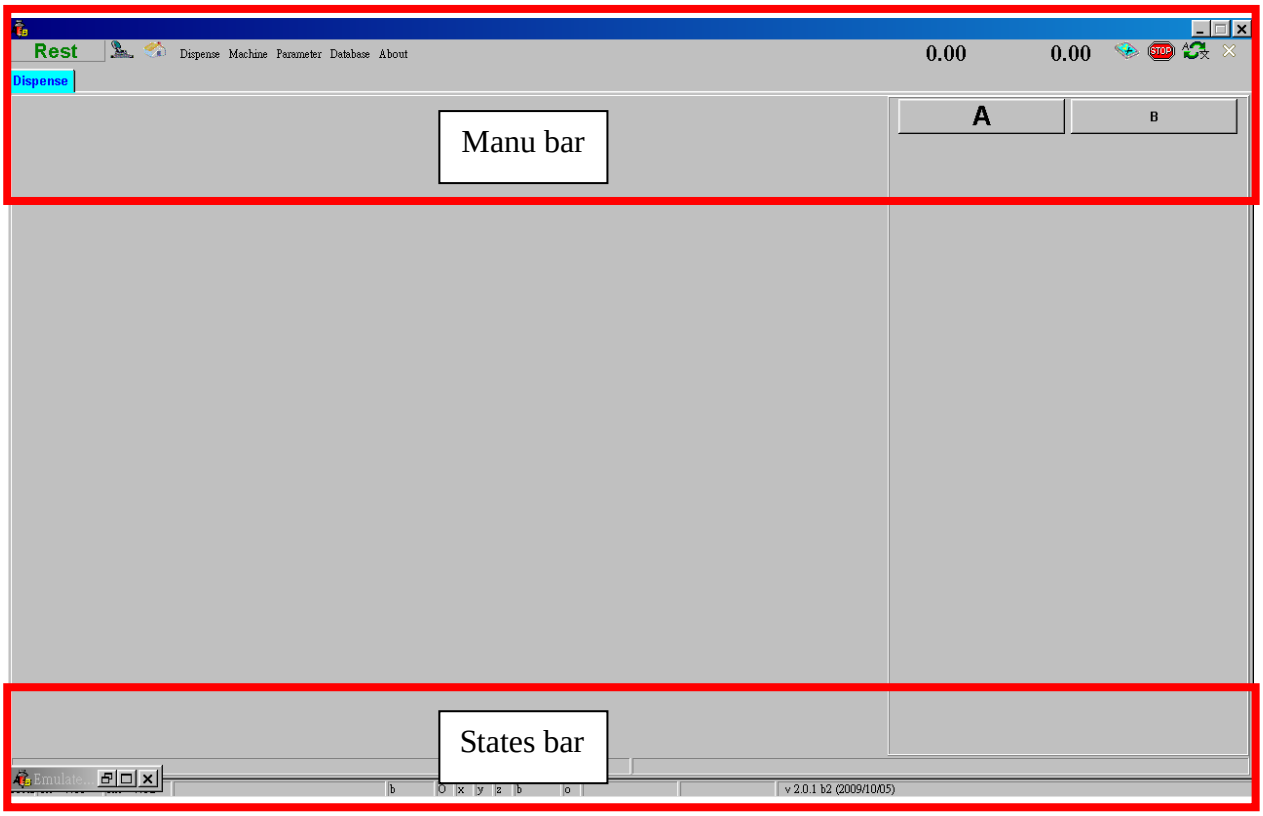
CHAPTER 3: TF/TFC Ctrl program

3-1 TF/TFC Ctrl program – Overview

The Control Program is the main program for controlling and maintaining the Dispenser. The main screen looks like this



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TF/TFCCtrl program – Overview – Manu Bar

Status：

The system is in running mode.

The system is in stand by mode.

Home:

Reset the x, y and z back to home positions. Operator has to click the button every time after starting the Control program.

Dispense: Show the existing condition of butch dispensing.

Machine: Diagnostic the system, and calibrate the x, y positions of injectors.

Parameter: For setting parameters.

Database: For checking the dispensing histories.

Scale:

For switching the view of Module A and B. Big letter means the current view of which Module. (This is only for TF systems, and will not show in TFC systems)

Emergency Stop：

Click this button for stopping all the action of TF machine.

Language Setting：

Select Language, start the language selection form.

Exit：

Exit, close the Control program.

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Warning：

Warning, if there is a problem with the valve coefficient and they need rechecking, the warning button will appear. Click on the button for more information of which valve has problem.

Dispensed Log：

Click the button to view the dispensed log.

Delete the selected dispensing record. First select the batch/batches that are required to be deleted from the list by clicking on the relevant batch, using "Ctrl" or "Shift" key to multi-select batches. The press the delete button to delete these batches from the dispense history.

Print the dispensing record. Only one batch can be select at a time.

Show the successful dispensed records.

Show the unsuccessful dispensed records

Sort batches by batch code.

Sort batches by dispensed date.

Show recipe detail. When printing out recipe detail, the recipes in selected batch will be printed out individually. Below is recipe detail screen shot.

Shows dilution solution batches record. This option shows all the solutions made by dilution method on TF and will also show the actual concentrations of solutions made.

Dispensing Monitoring Screen：It shows you the process of dispensing.

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TF/TFC Ctrl program – Overview – Status Bar

The bar on the bottom only shows communication status between computer and system.

Local：
It means that TF is operated by host PC.

Tx / Rx:
Showing the communications between PC and TF machine
Tx: transmitted counts, Rx: received counts.
If the system is still online, the number will keep changing rapidly.

Version:
It shows you the version of the software

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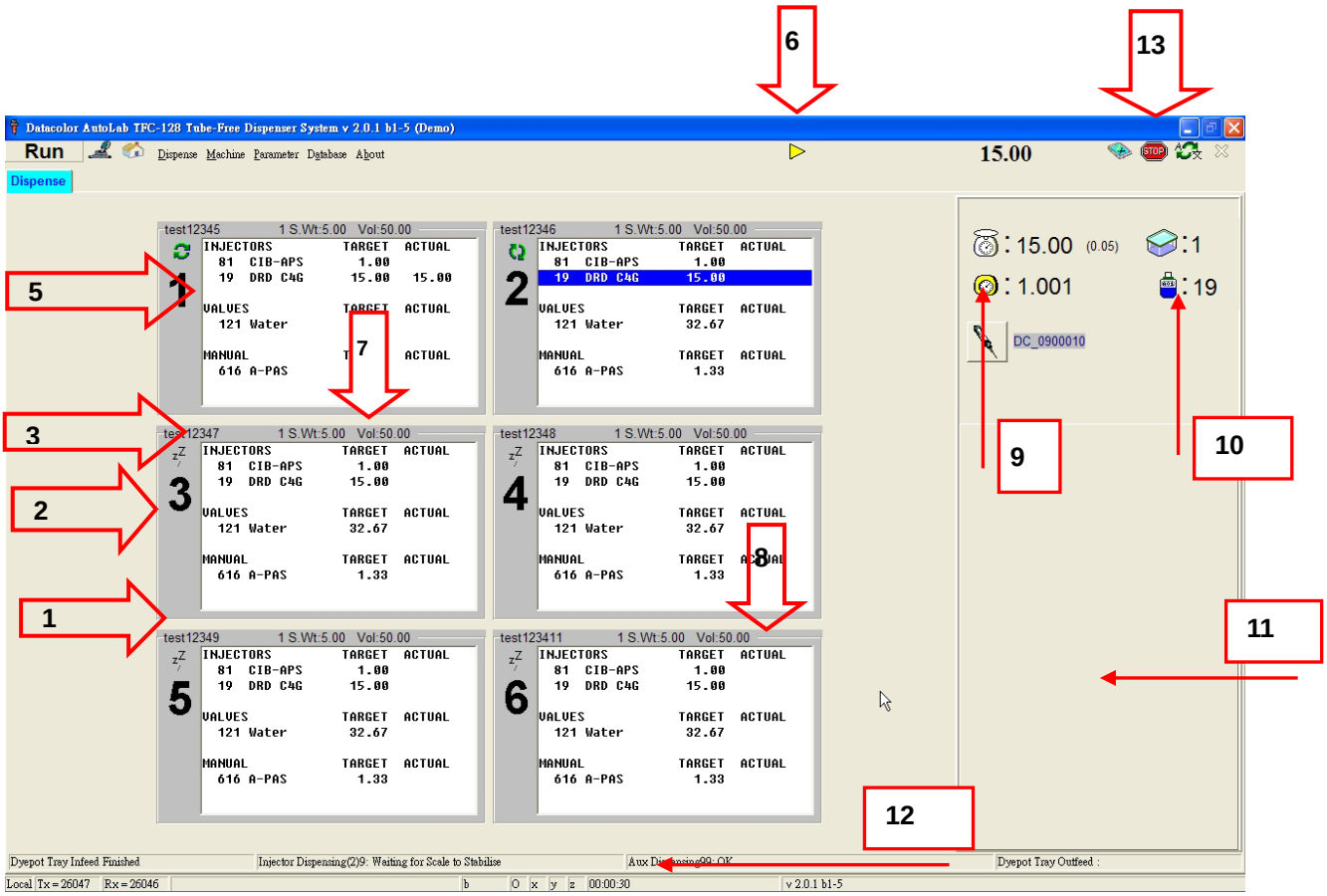
3-2 TF/TFC Ctrl program – Dispense

The procedures before dispensing:

At DP program, moving a batch from **Batch list** (in **Current Batch Management**) to (**Current Work Batch**), a ***.A** file will be created in "C:\ALAB\Exchange\ALTF\PreBatch" directory. Control Program will scan if there is ***.A** file present in the "PreBatch" for every 5 seconds. The control program will start the dispensing automatically once find the *.A file. The screen below is the Control is dispensing recipes:



1. **Recipe Code** : The recipe code of the recipe is being dispensed in this dye pot. The number beside on the right side is Shot No.
2. **Dye Pot Number** : The dye pot position on the dye pot tray.
3. **Dispensing by Injectors** : The products dispensing by injector.
4. **Error Dispensing** : If the dispensing result is over or under the tolerance, there will be a plus or minus mark showed beside the injector/valve number. The plus mark means over dispensing and the minus mark means under dispensing. The system will warn you if the recipe need re-dispense. Follow the instruction and change the dye pot to re-dispense the recipe.
5. **Under Dispensing Solution** : The blue blank will cover the dye solution when it is

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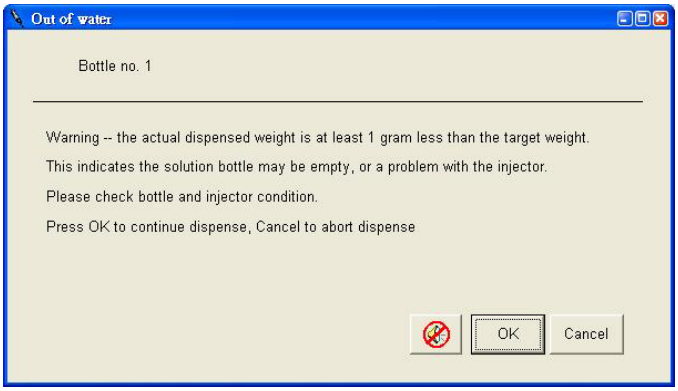
under dispensing status.

6. **Pause Button**： Click this button will stop the action of dispensing temporarily and the button will change to “Play” button. Click “Play” and machine will continue dispensing.
7. **Target Weight**： the target dispensing weight of the dye solution.
8. **Actual Weight**： the actual dispensing weight of the dye solution.
9. **Specific Weight**： The specific weight of the current solution being dispensed. The system will calibrate the specific weight automatically by the weight it dispensed.
10. **Bottle Number**： The solution bottle number which is being dispensed.
11. **Waiting List**： The batches here will be dispensed in sequence.
12. **Dispensing Time**： The time has been used for dispensing the batch.
13. **Emergency Stop**： If the dispensing is stopped in the middle by clicking on the button, all actions of TF will be stopped and the batch will be returned to DP program. You need to re-arrange the batch. A “confirmed window” will be show for put the syringe back to solution bottle.
14. **Empty bottle warning:** When dispensing solutions by injector, after the first dispense shot, if the actual dispensed weight is at least 1g less than it should be (the target weight), then the control program will show a warning message to inform the user. Typically an undershot so large on the first shot indicates the solution bottle may be empty, or there is a problem with the injector. The warning message states this, and the user can then check the solution quantity and injector condition. The warning message also gives the option to abandon dispensing, or continue.



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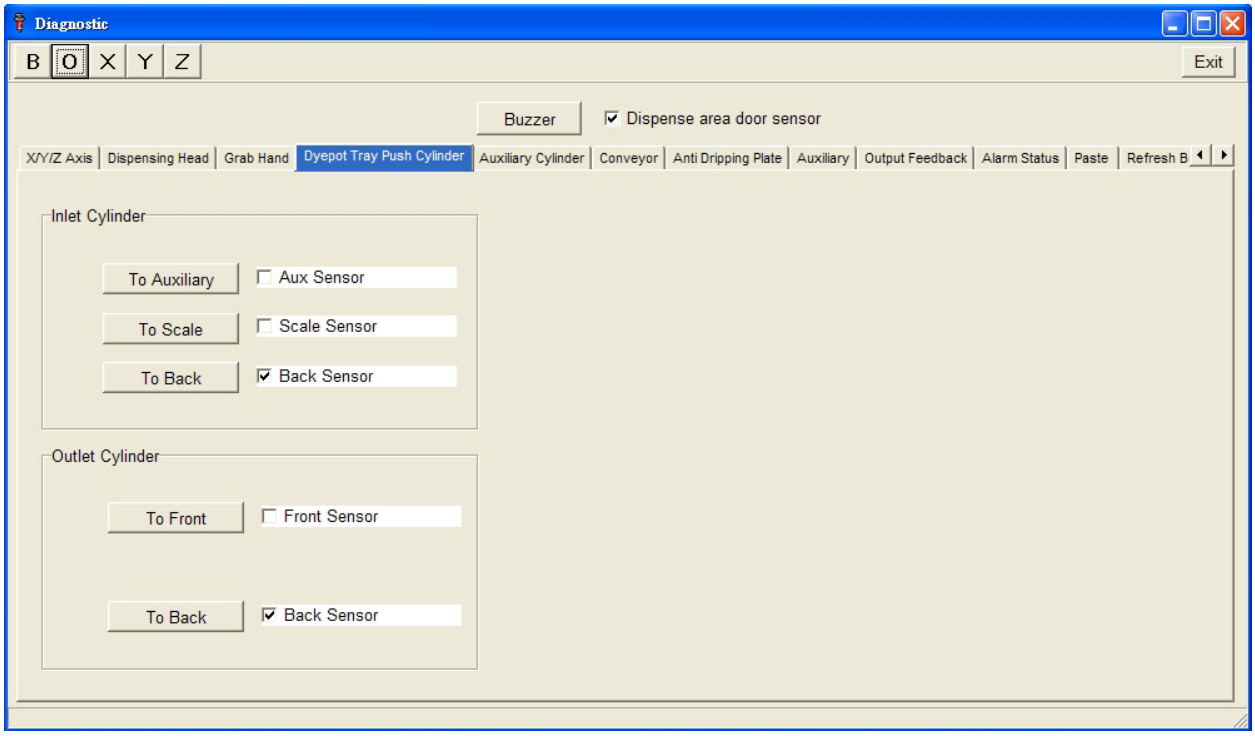
3-3 TF/TFC Ctrl program – Machine

3-3-1 TF/TFC Ctrl program – Diagnostic

This is for engineers to diagnostic the system only. If you do not so familiar with TF, please don't use this function avoiding causing damages. The system will ask you to key in a password for opening it.



Online Buttons Bar:

Click on the buttons for connecting the branch control system.
"b": balance
"o": outputs
"x, y and z": the three axis of robot arm
Once the system is connected, the letters on the bar will be changed to capital letters. See the picture below:

Warning Message :

The wringing message here for warning that damage may be caused if you send a command to TF.

Exit :

Click the button to exit the diagnostic.

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Dispense area sensor：

The tick box will be checked if all the safety doors are closed.

Buzzer：

Click the button to test the buzzer.

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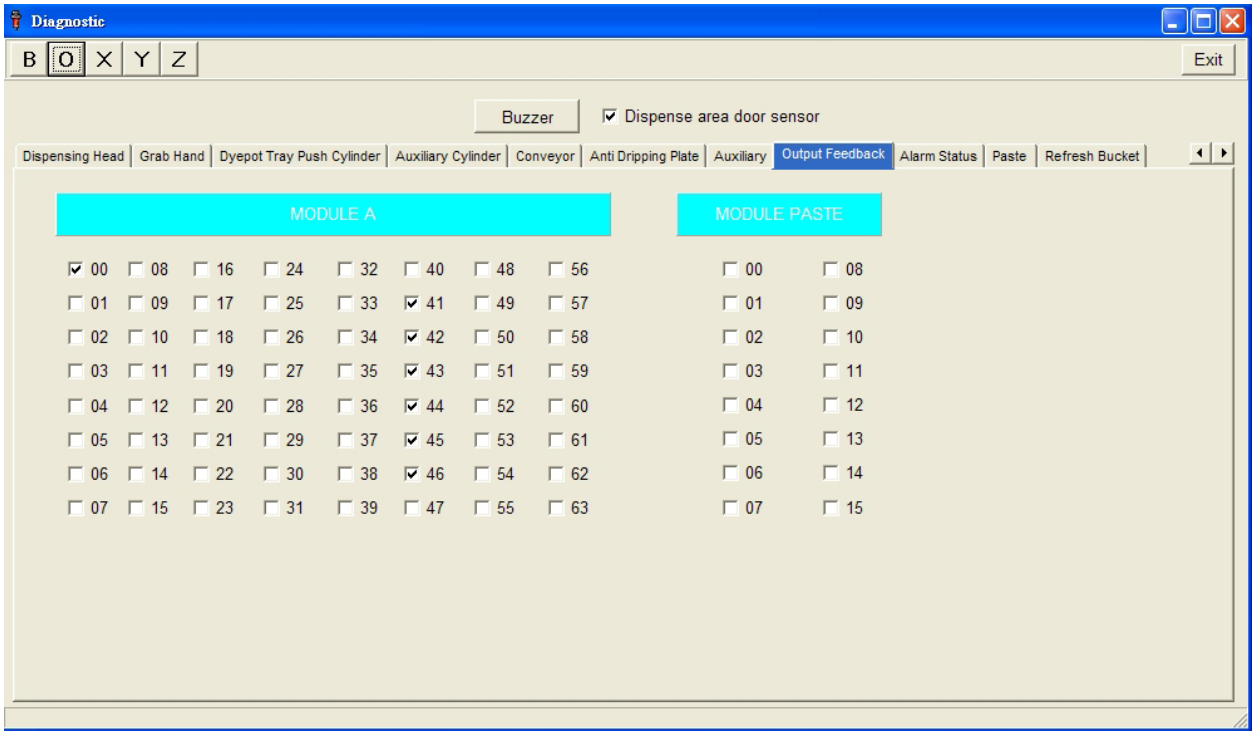
TF/TFC Ctrl program – Diagnostic – Output feedback

The picture below is the “Output Feedback” screen:



It is just the information about the current status of I/O.

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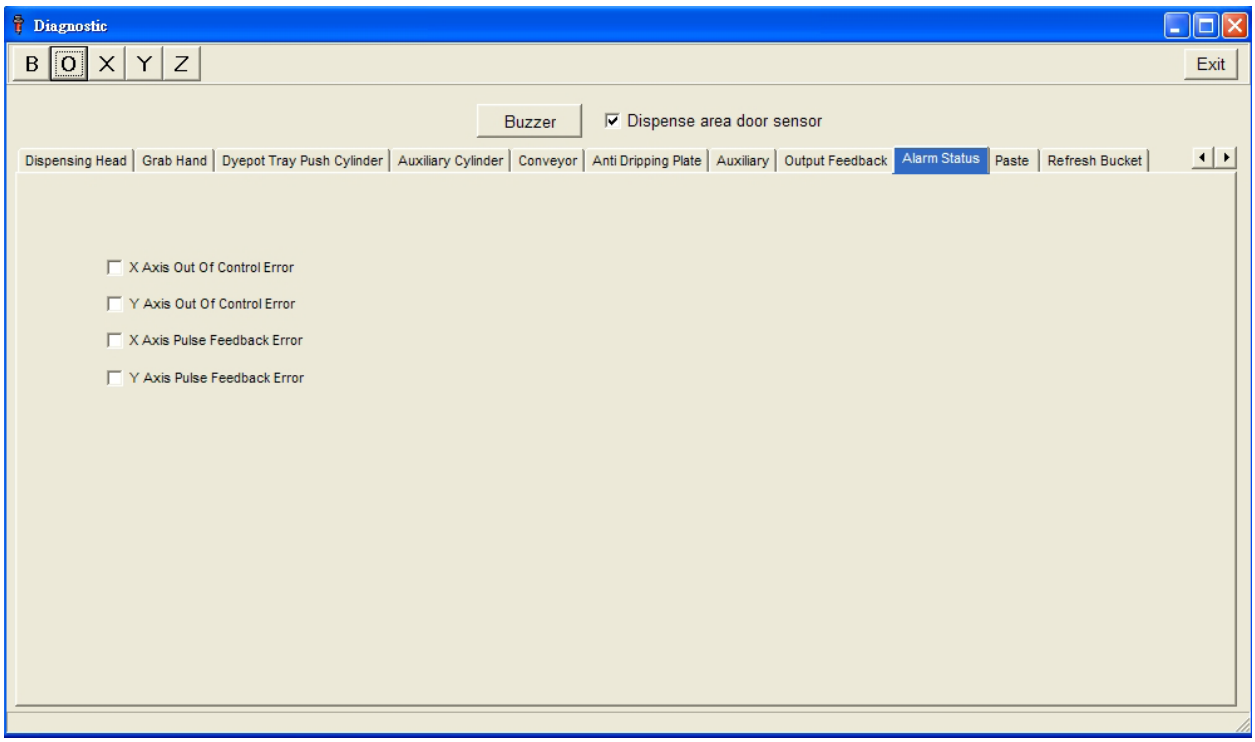
TF/TFCCtrl program – Diagnostic – Alarm Status

The picture below is the “Alarm Status” screen:



This function shows abnormal movement of the robot arm. When there is abnormal movement, the check box will be marked and the buzzer will alarm also. You have to reset the robot back to home positions. It is designed for security reason.

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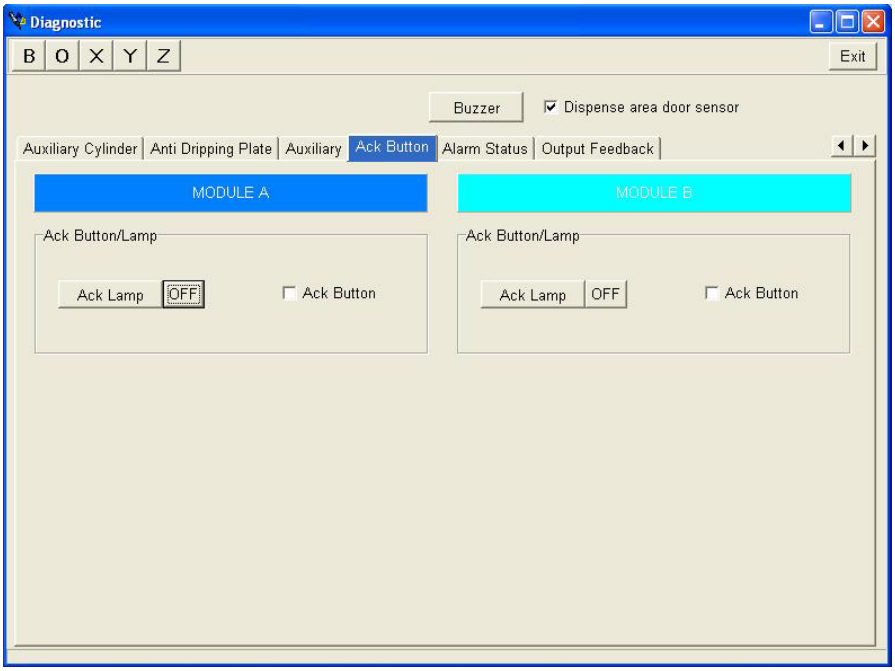
TF/TFCCtrl program – Diagnostic – Ack button

The picture below is the “Ack Button” screen:



This is just for TF 2 scales systems. For checking if the “Confirm” buttons work fine or not.

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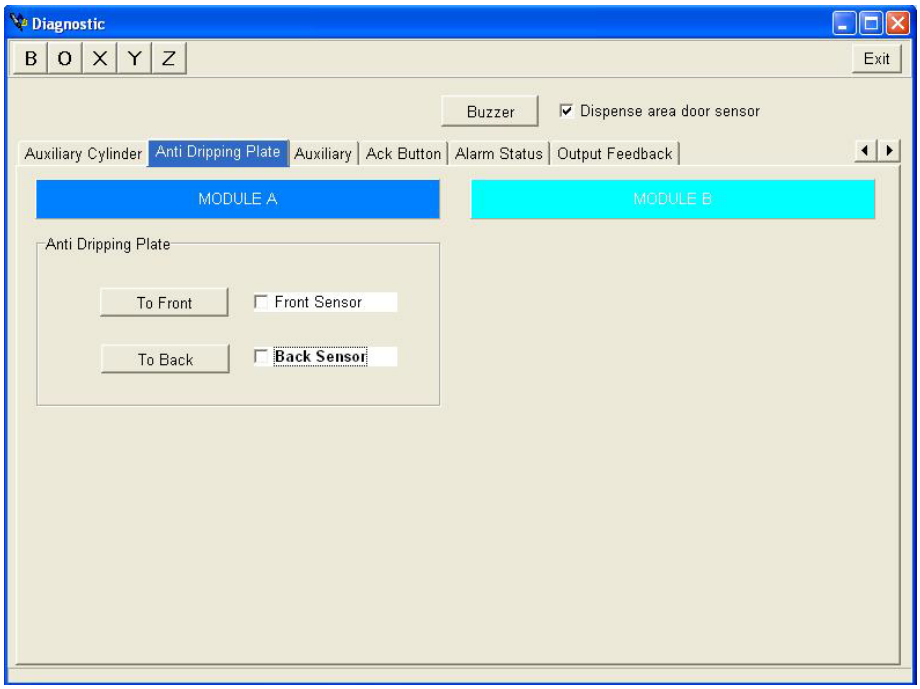
TF/TFCCtrl program – Diagnostic – Anti Dripping Plate

The picture below is the “Anti Dripping Plate” screen:



To Front: Click on the button, the anti-dripping plate will be moved outwards, and the check box of front sensor will be marked.

To Back: Click on the button, the anti-dripping plate will be moved backwards, and the check box of back sensor will be marked.

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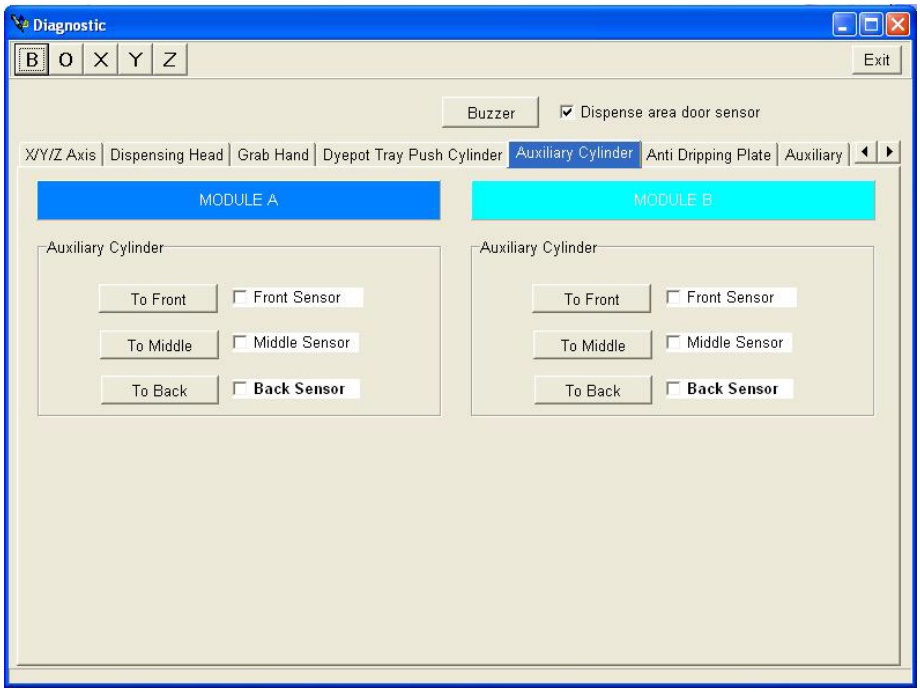
TF/TFCCtrl program – Diagnostic – Auxiliary Cylinder

The picture below is the “Auxiliary Cylinder” screen:



To Front: Click on the button, the auxiliary dispensing head will be moved to front position, and the check box of front sensor will be marked.

To Middle: Click on the button, the auxiliary dispensing head will be moved to middle position, and the check box of middle sensor will be marked.

To Back: Click on the button, the auxiliary dispensing head will be moved back, and the check box of back sensor will be marked.

MODULE A: The scale A (It is just for 2 scales system),

MODULE B: The scale B (It is just for 2 scales system).

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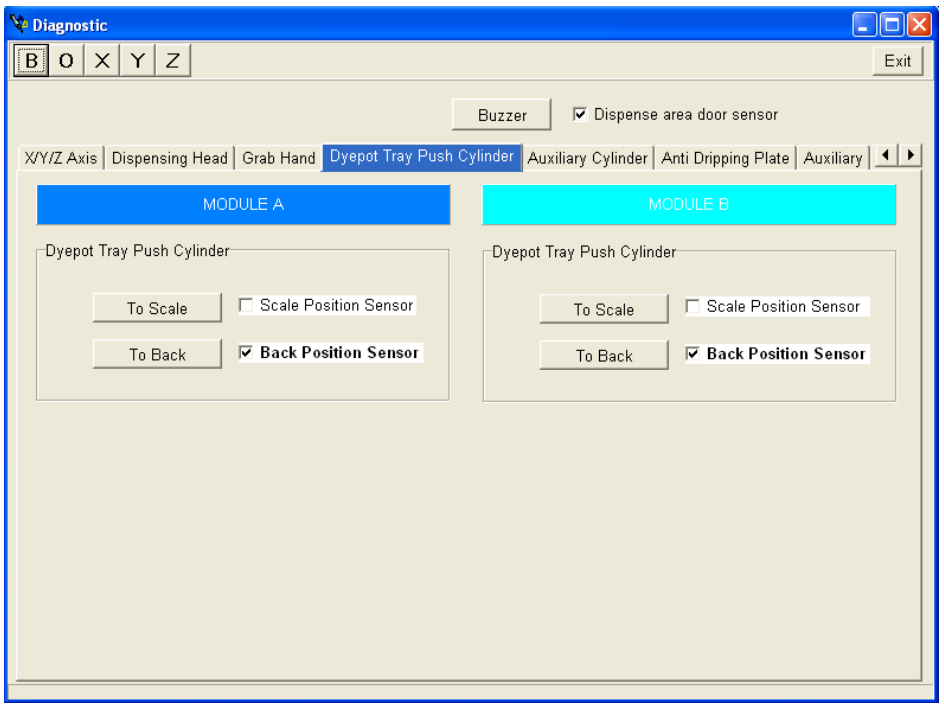
TF/TFCCtrl program – Diagnostic – Dyepot tray push cylinder

The picture below is the “Dye Pot Tray Push Cylinder” screen:



To Scale: Click on the button, the dye pot tray will be moved out onto the scale, and the check box of Scale Position Sensor will be marked.

To Back: Click on the button, the dye pot tray will be moved back, and the check box of Back Position Sensor will be marked.

MODULE A: The scale A (It is just for 2 scales system),

MODULE B: The scale B (It is just for 2 scales system).

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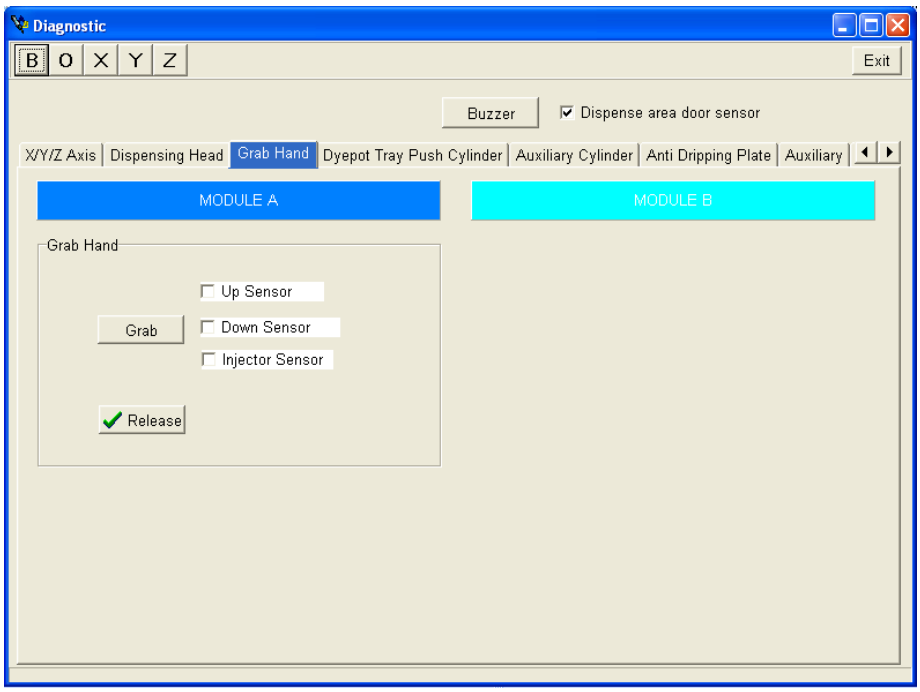
TF/TFCCtrl program – Diagnostic – Grab Hand

The picture below is the “Grab Hand” screen:



Grab: Click on the button to close the grab hand, and a “√” will appear on the button.

Release: Click on the button to release the grab hand, and a “√” will appear on the button.

Up Sensor: If the grab hand is on up position, the check box of up sensor will be marked.

Down Sensor: If the grab hand is on down position, the check box of down sensor will be marked.

Injector Sensor: In presentation of injector inside the grab hand, the check box of injector sensor will be marked.

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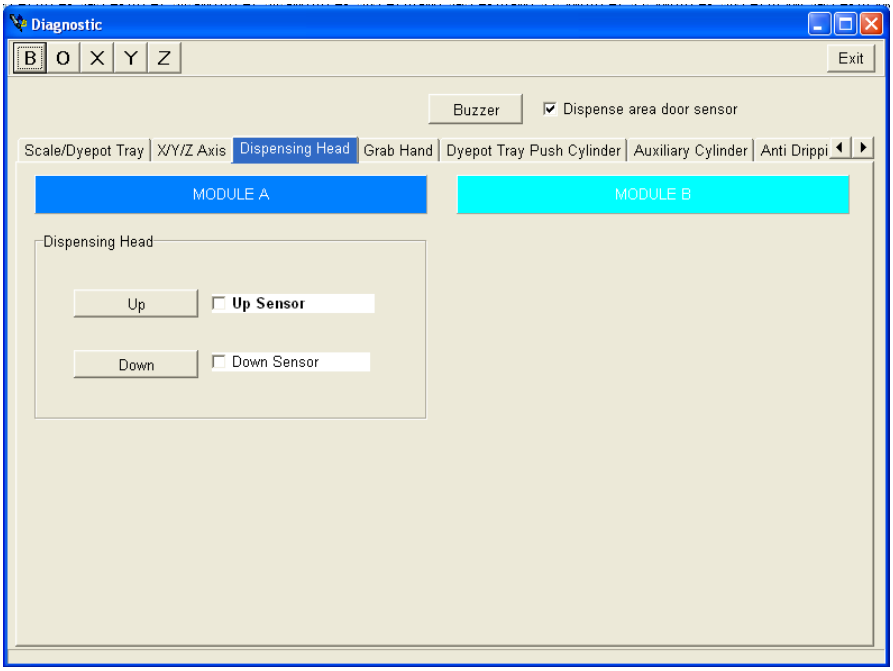
TF/TFCCtrl program – Diagnostic – Dispensing Head

The picture below is the “Dispensing Head” screen:



Up: Click on the button, the dispensing head will be moved up, and the check box of Up Sensor will be marked.

Down: Click on the button, the dispensing head will be moved down, and the check box of Down Sensor will be marked.

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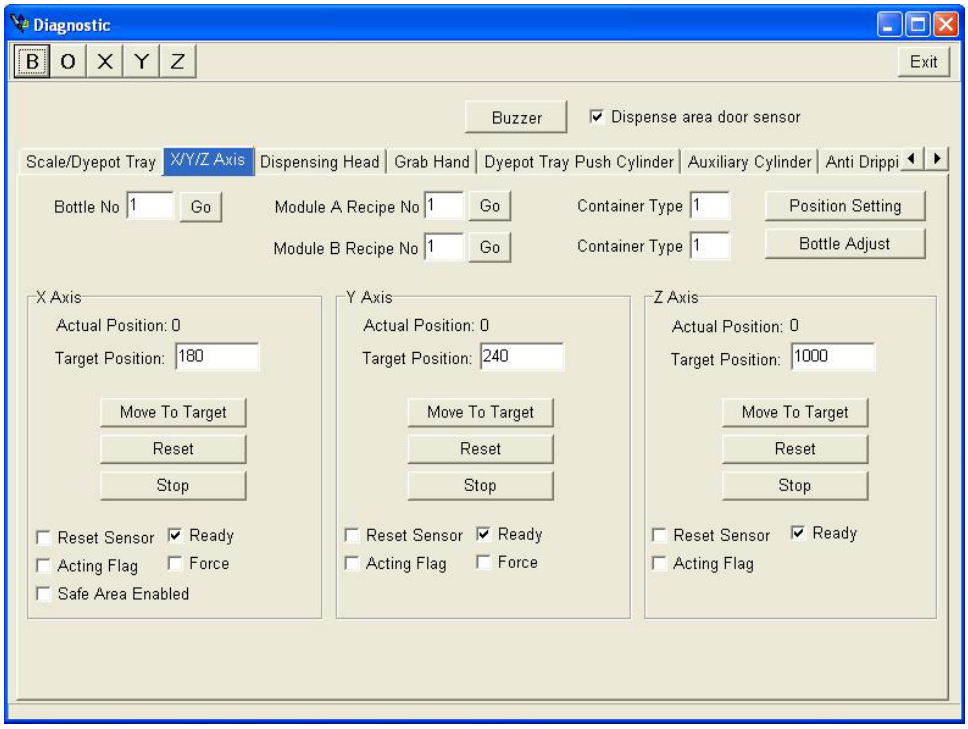
TF/TFCCtrl program – Diagnostic – X/Y/Z axis

The picture below is the “x, y and z” screen:



This function is for testing and calibrating the x, y and z coordinates of all the solution bottles, dye pot trays and movement of the XYZ motors. The coordinates are all calibrated for each machine prior to the system shipping. The x-y-z calibration data for each machine are shipped with each system (on the software CD)

1. **Bottle No.** :

   Key in the bottle No. then click the button “Go”. The robot arm will move to the position of the bottle.

2. **Module A Recipe No.** :

   Key in the dye pot number of the dye pot then click the button “Go”. The robot arm will move to the position of the pot on A scale.

3. **Module B Recipe No.** :

   Key in the dye pot number of the dye pot then click the button “Go”. The robot arm will move to the position of the pot on B scale.

4. **Container Type**:

   For set the type of dye pot tray.

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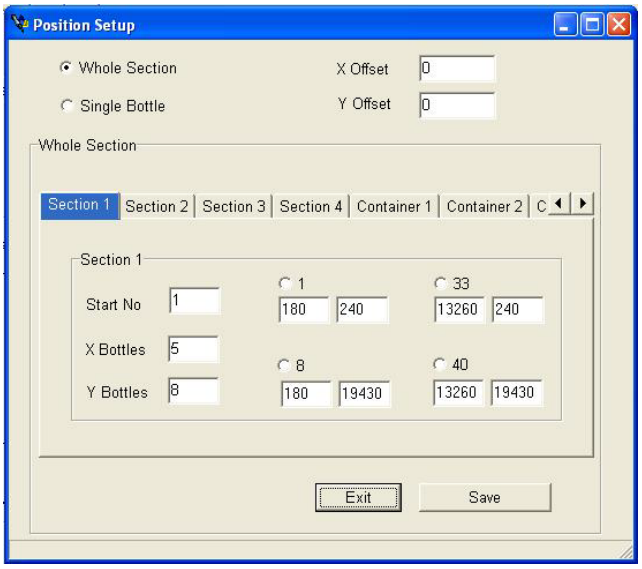
5. Position Setting (Engineer password login only) :

This is engineer setting, for checking/setting the x, y and z axis of solution bottles and dye pot trays.

5.1. Whole Section :

5.1.1. Section (1 to 4)



- **[Section_1]:** coordinate of 4 corners of the 1st bottle tray (bottles 1 to 40).
- **[Section_2]:** coordinate of 4 corners of the 2nd bottle tray (bottles 41 to 80).
- **[Section_3]:** coordinate of 4 corners of the 3rd bottle tray (bottles 81 to 120).
- **[Section_4]:** coordinate of 4 corners of the 4th bottle tray (bottles 121 to 160).

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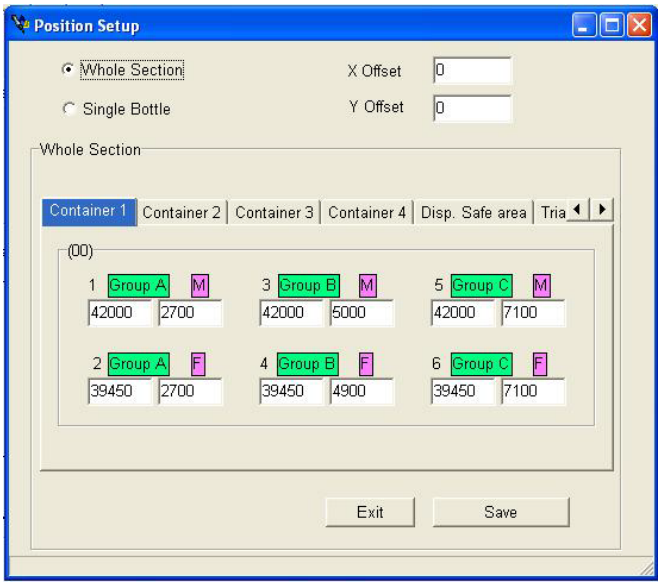
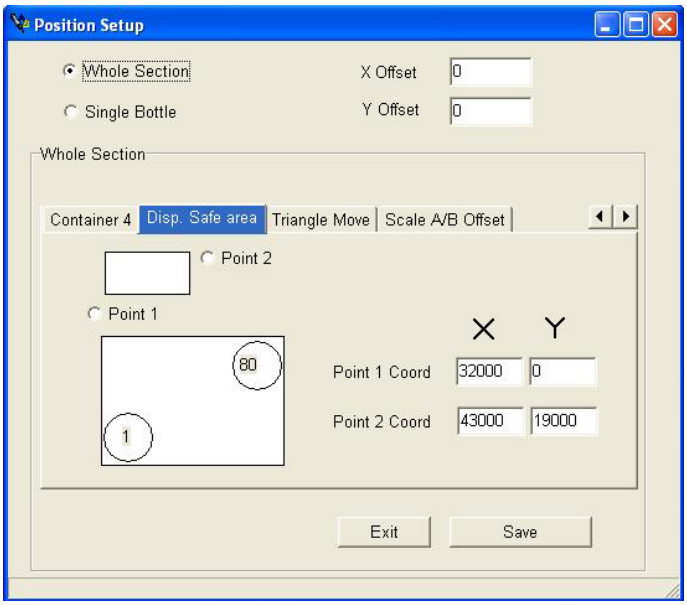
5.1.2. Container (1 to 4)



- **[Container 1]:** The X, Y position of 1st dye pot adapter.
- **[Container 2]:** The X, Y position of 2nd dye pot adapter.
- **[Container 3]:** The X, Y position of 3rd dye pot adapter.
- **[Container 4]:** The X, Y position of 4th dye pot adapter.

5.1.3. Disp. Safe area



For set the area robot arm can only moving in that range. This is for safety issue. The default setting will be included in the calibration data in the software CD, you should not change it.

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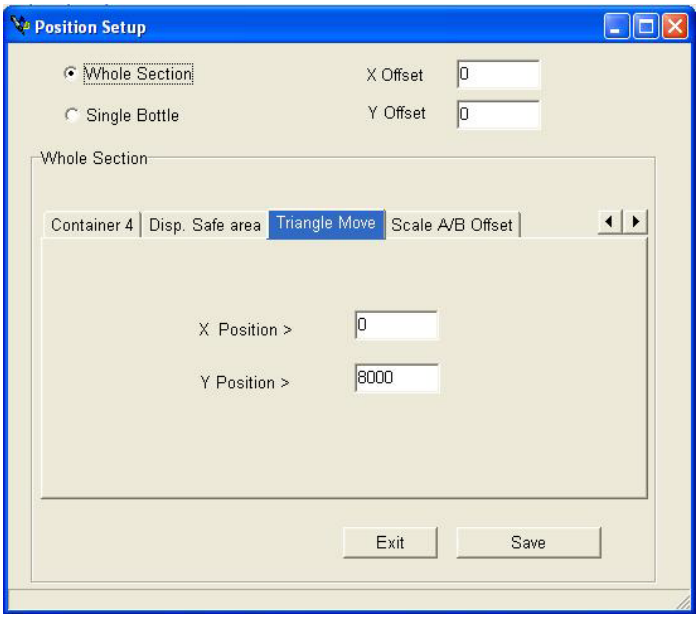
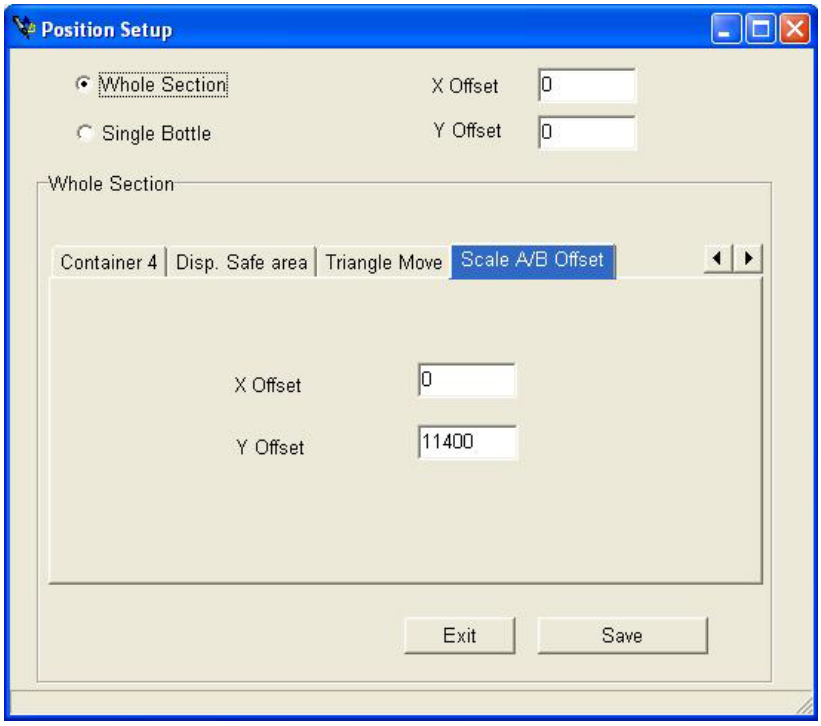
5.1.4. Triangle Move



For set the area robot arm moving curve. The default setting will be included in the calibration data in the software CD, you should not change it

5.1.5. Scale A/B Offset



For set the offset between scale A and B. The default setting will be included in the calibration data in the software CD, you should not change it

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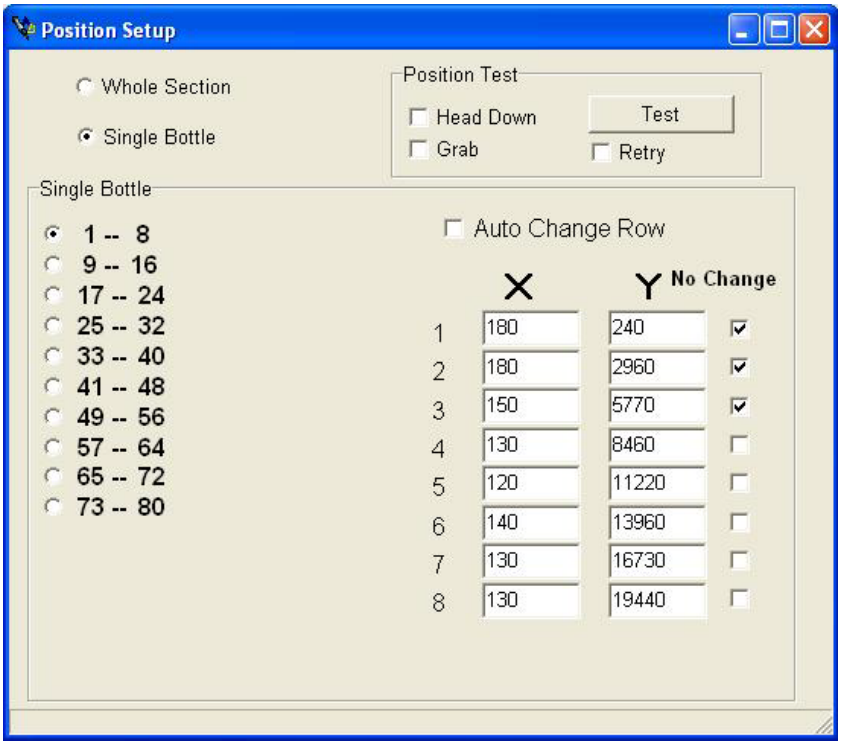
5.2. Single Bottle：



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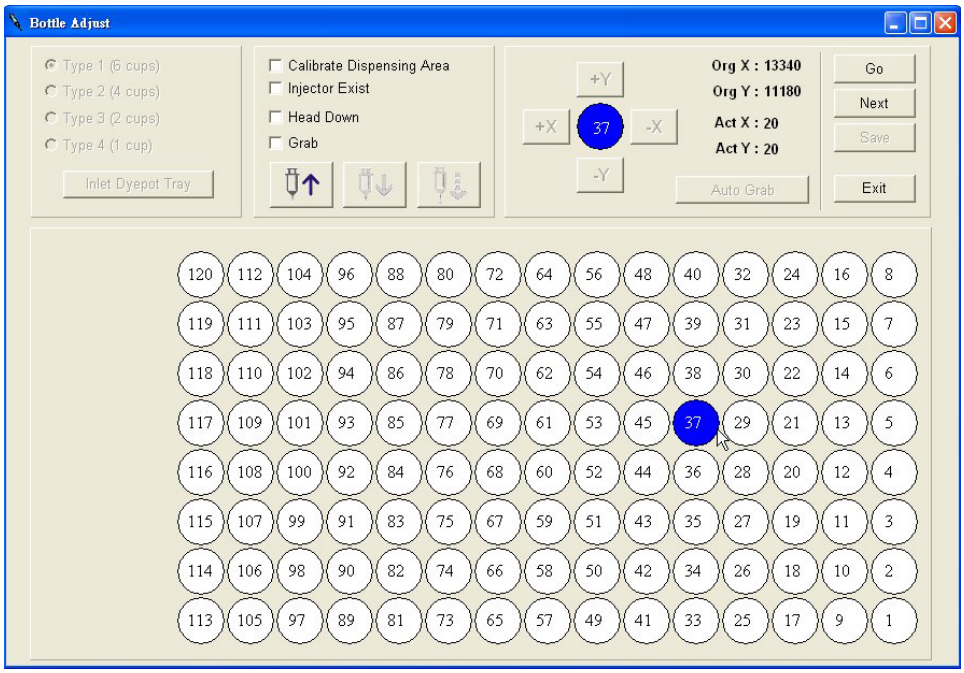
5.2.1. Position Test
This function is for testing if all x, y coordinates of solution bottles are correct.
- Test: Start the testing.
- Head Down: Moving the dispensing up/down
- Grab: Close/open grab hand
- Retry: Continue the testing with ONE injector only.

5.2.2. Bottle numbers: Select the bottle range (row) to start the testing.
5.2.3. Auto Change Row: Change to another row automatically.
5.2.4. X, Y: For manually change the coordinates.
5.2.5. No Change: If the check box is marked, the x, y coordinates will not be changed. So, if you want to change the x, y coordinates, you have to unmarked the check box, change the coordinates, and remarked the check box.

6. Bottle Adjust: (Power user password login only)

This is for calibrating the x, y axis of solution bottles. Clink on the “Bottle Adjust”, the screen will show as below:



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6.1. Calibrate Dispensing Area: Shows the status of calibration, if engineer is calibrating
6.2. Injector Exist: For sensing the injector, the check box will be marked if there is injector.
6.3. Head Down: Enable the option, the dispensing head will move up/down in doing calibration.
6.4. Grab: Enable the option; the grab hand will close/open in doing calibration.
6.5. +X, +Y, -X and –Y: Click on the buttons to move the robot arm.
6.6. Act X: Showing the actual position of X
6.7. Act Y: Showing the actual position of Y
6.8. “Next”: Move to next position.
6.9. “Go”: Depends on the enabled options of “Head down” and “Grab”, the system start the calibration.
6.10.“Exit”: Exit the function.
6.11. Bottle numbers: For selecting bottle for doing calibration.

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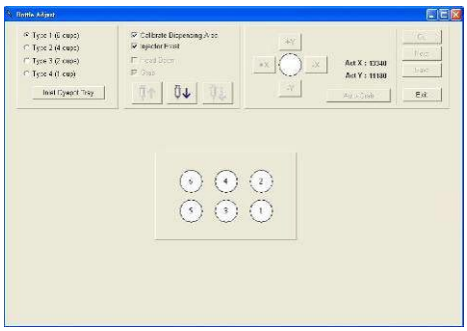
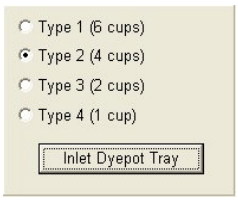
7. Dyepot Dispense Position Adjust: (engineer login only)

This is for calibrating the x, y axis of positions for dispensing solution into the dyepots in the dispensing area.

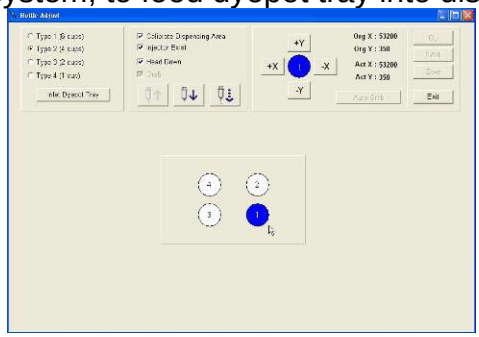
Enter “Bottle Adjust” screen and pick a bottle which you are going to take solution from and the button “Get Injector” will be enabled.

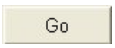


After clicking “Get Injector” button, the robot arm will physically go pick up the injector chosen and take 60cc solution. Meanwhile, the screen will automatically change to dyepot position calibration screen.



Choose the dyepot tray type you are going to calibrate positioning for, and click on the button “Inlet Dyepot Tray” in TFC system, or physically press the confirm button on the TF system, to feed dyepot tray into dispensing area.



Select the dyepot position you are going to calibrate. Click button “Go”  and the robot arm holding the injector will go to the dyepot position chosen.

When the robot arrive the target position, the button “Dispense” will immediately become enabled on a TF system. For TFC systems, you have to first move the dispensing head to the down position, then the “Dispense” button will become enabled.

Every time the “Dispense” button is pressed, the Z axis will move 1000 pulses to dispense a small quantity of solution. Observe the dispense position when it dispenses solution into the dyepot. Using the same way as calibrate solution bottle position, adjust the robot arm X/Y coordinate to make sure the position is in line with the middle of the dyepot.

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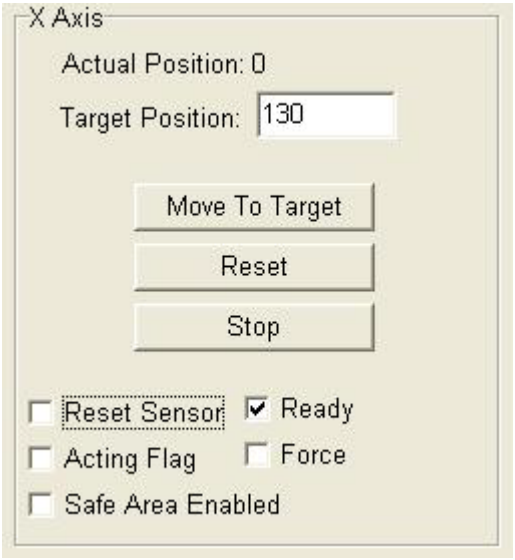
After calibrating every dyepot position, click on the button “Put Injector” . The robot arm will then replace the injector back into the bottle.

8. X, Y and Z axis (Engineer password login only):



8.1.1. ”Actual Position”: For showing the actual position (pulse).
8.1.2. “Target Position”: Inputting target position (pulse), and click on the button “Move to target”, the robot arm will move to the position.
8.1.3. “Reset”: Reset the robot arm back to home position (pulse 0).
8.1.4. “Stop”: Stop the movement of robot arm.
8.1.5. “Reset Sensor”: The check box will be marked when the robot arm is at home position.
8.1.6. “Acting Flag” The safety doors are not closed properly.
8.1.7. “Safe Area Enabled”: The safety area is enabled; the motion of robot arm is limited inside the safe area.
8.1.8. “Read”: The system is ready.
8.1.9. “Force”: Force the robot arm to move to the target position, and ignore all other safety issues.

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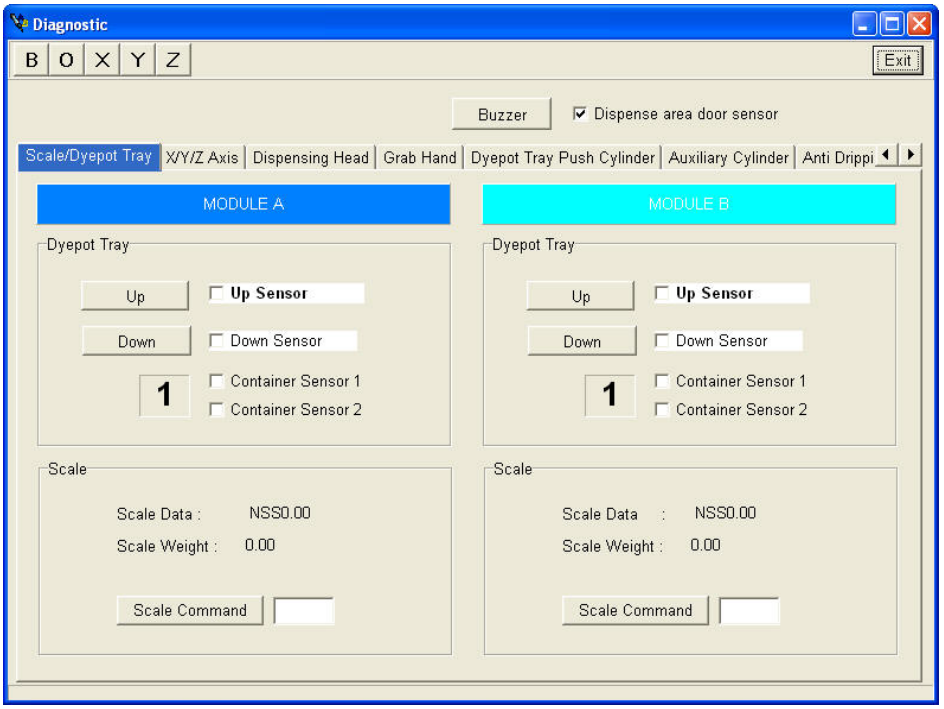
TF/TFCCtrl program – Diagnostic – Scale/Dyepot tray

The picture below is the “Scale/Dyepot Tray” screen:



8.2. Dye pot Tray :

8.2.1. “UP”: Click the button to move the scale UP, and the check box for “Up sensor” will be marked.

8.2.2. “Down” Click the button to move the scale DOWN, and the check box for “Down sensor” will be marked.

8.2.3. “Container Sensor 1/2”: It is for testing the container type.

8.3. Scale :

8.3.1. “Scale Data”: Showing the reading on scale

8.3.2. “Scale Weight”:

8.3.3. “Scale Command”: For testing the scale. Inputting “sir” or “z” into the text box, and click the button, the scale will be reset.

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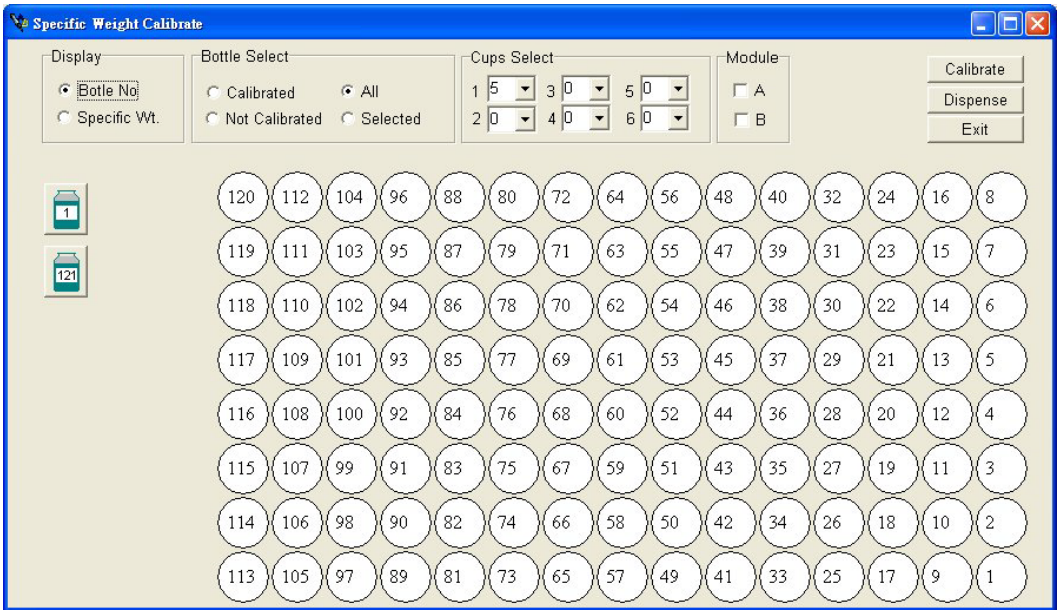
3-3-2 TF/TFCCtrl program – Specific wt. calibration

This is for calibrating the specific weight of dye solutions. Once all the stock solutions have been ready, engineer need to do the 1st specific weight calibration. After that, software will automatically do the calibration every time in dispensing dye solutions.



Display:

- Bottle No.: For showing bottle numbers.
- Specific Wt.: For showing the specific weight of every bottle.

Bottle Select:

- Calibrated: For showing calibrated bottles.
- All: Showing all calibrated bottles.
- Not Calibrated: For showing not calibrated bottles.
- Selected: Showing selected bottles only.

Cup Select:

For set the dispensing weight of on each dye pot.

Module:

Select module A or B for doing the calibration.

“Calibrate”:

Start the calibration.

“Dispense”:

“Exit”:

Exit the option

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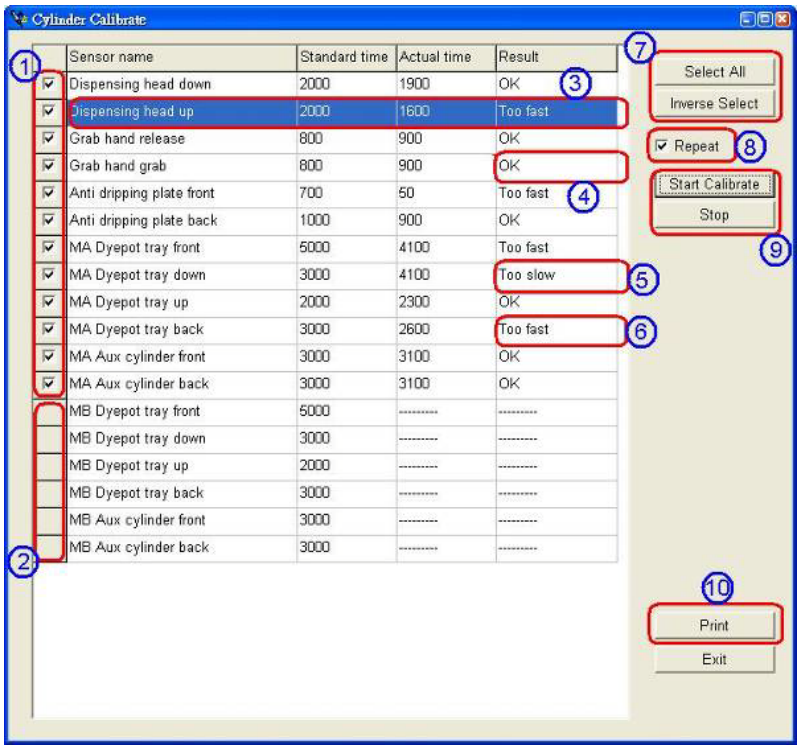
3-3-3 TF/TFCCtrl program – Cylinder Calibration

Entering “Cylinder Calibration” function, you will see the screen like this.



1. Mark the checkbox to enable testing of this air cylinder.
2. On the m/c currently being tested there are no this kind of physical cylinders, so there is no checkbox.
3. Current cylinder being tested will be highlighted in blue.
4. “OK”: This means the cylinder speed is no problem.
5. “Too Slow”: It means the cylinder speed in that direction is too slow, please adjust it faster.
6. “Too Fast”: It means the cylinder speed in the direction is too fast, please adjust it slower.
7. “Select All”: Click on this button to select all air cylinders for testing.
8. “Repeat”: Mrk the checkbox to repeat the testing.
9. “Start/Stop”: To start/stop cylinder speed testing.
10. “Print”: Click this button to print out the test results

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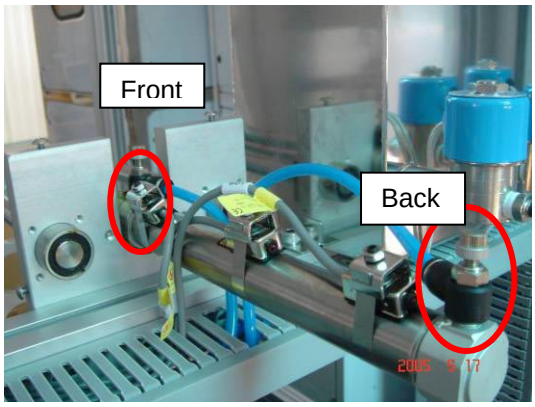
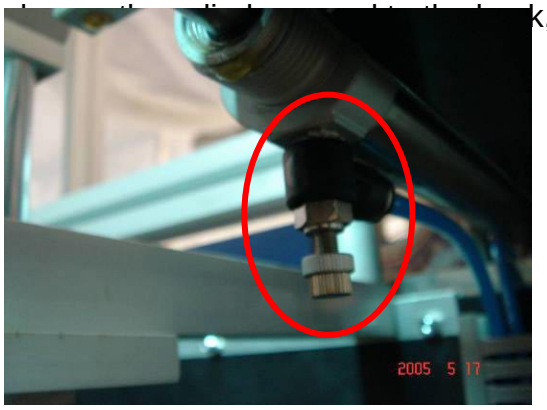
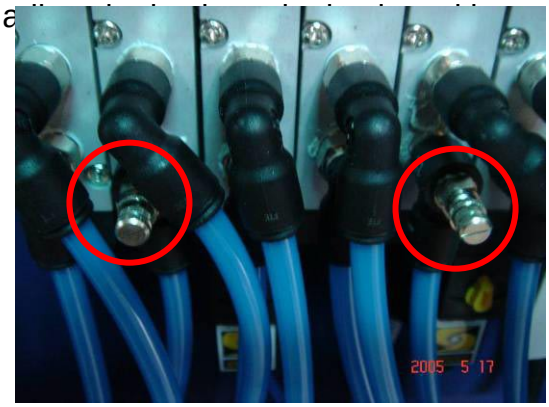
How to adjust cylinder speed



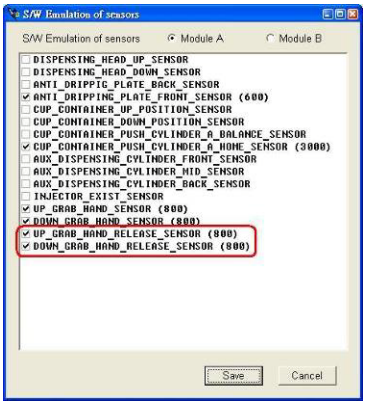
On most TF cylinders, you can find 2 speed adjustable quick-fit connectors. Turn the knob on the top of the connectors counter-clockwise to turn up the air volume so the cylinder speed will be faster. To change the cylinder speed to the front, adjust the knob on the front position. On the contrary, to





There is one special cylinder in TF system, the dyepot tray in/out cylinder. Due to the physical position of the cylinder, the front speed adjustable quick-fit connectors are installed on the solenoid valves in back cabinet so the users can easily adjust the speed. The speed adjust knob to back direction is the same as other cylinder which is installed on the cylinder body.

Things you need to aware when using “Cylinder calibration” function

1. When checking dispensing head up/down speed, make sure you take the injector out from underneath the dispensing head to avoid damage to the injector or grab arm.
2. 

In software emulation function, the up grab hand and down grab hands are separated, so users can test each cylinders

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speed.

3. If you find the cylinder speed varies, check the main air pressure. Make sure it is stable, then adjust the individual cylinder speeds again.
4. If you find the cylinder speed is getting slower, it might be caused by dirty stuff in the cylinder. Please check the air quality and water collect cup of main air regulator. If the air is not so clean, improve air quality. If the water is too full in the water collect cup, get rid of the water. Used correctly in the correct conditions, the air cylinders will have a longer life time.

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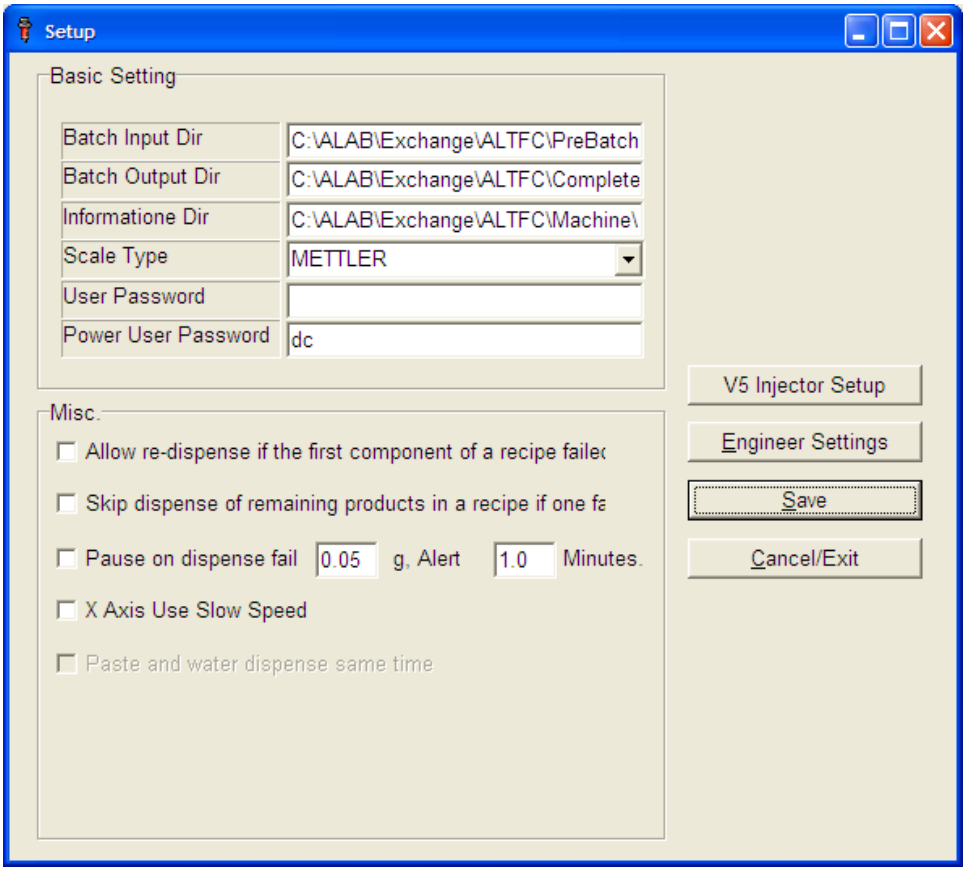
3-4 TF/TFC Ctrl program – Parameter

3-4-1 TF/TFC Ctrl program – Parameter – Setup

Input the password, and the setup screen will be show as below:



Basic Setting:

- "Batch Input Dir": The directory for storing pre-batch data. Please leave the path settings as defined
- "Batch Output Dir": The directory for storing completed batch (dispensed batch) data. Please leave the path settings as defined
- "Information Dir": The directory for exchanging the machine status between DP & Control program.
- "Scale Type": For selecting scale type. Currently, three types of scales can be used with TFC software, Mettler, Precisa and Sartorius.
- "User Password"
- "Power user password": Power user is authorized to control all normal user functions and additionally to also use the "Bottle position adjust" function and "Cylinder speed calibration" function. The default password for power user is "DC". This

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password will only appear and only changeable under Power User or Engineer log in.

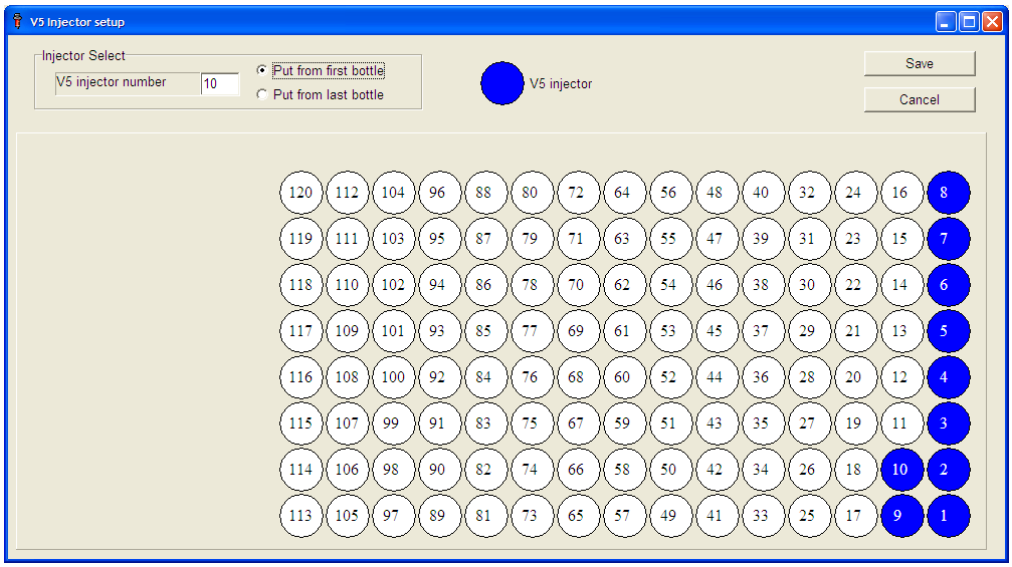
MISC:

- Handle First Component Error of Recipe
  - Enabled this option, software will stop the dispensing if there is problem with first recipe.
- Stop Dispense Rest Component Error.
  - Enabled this option, software will stop the dispensing if there is problem in dispensing.
- Wait on Batch Failure
  - Enable the option, if there is any error in dispensing, the Alarm will make sound last for time interval set to re-dispense the recipe.
- X axis low speed.
  - Enable the option, the robot will move in slower speed.
- Dispense paste then water for saving time (TF-P system only)
  - Enable the option, the system will dispense water immediately after completing paste dispensing. Default setting is function enabled.

V5 Injector setup

Once you click on this you will get option to setup V5 injectors. You need to select from which positions you would like to use these injectors and system will displayed on graph as shown below :

Example V5 injectors put from 1 to 10 :



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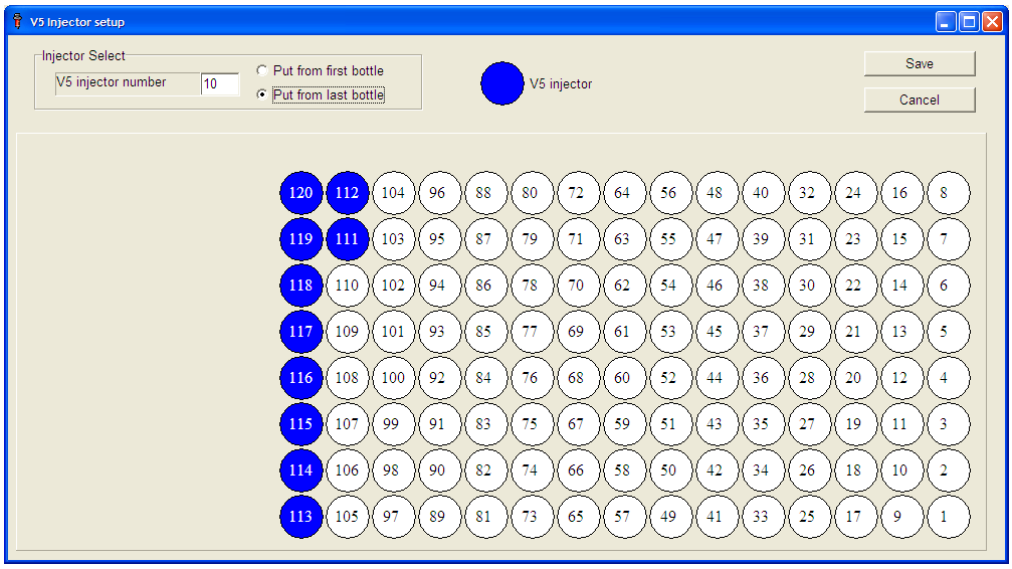
If you put them from last it would show as follows:



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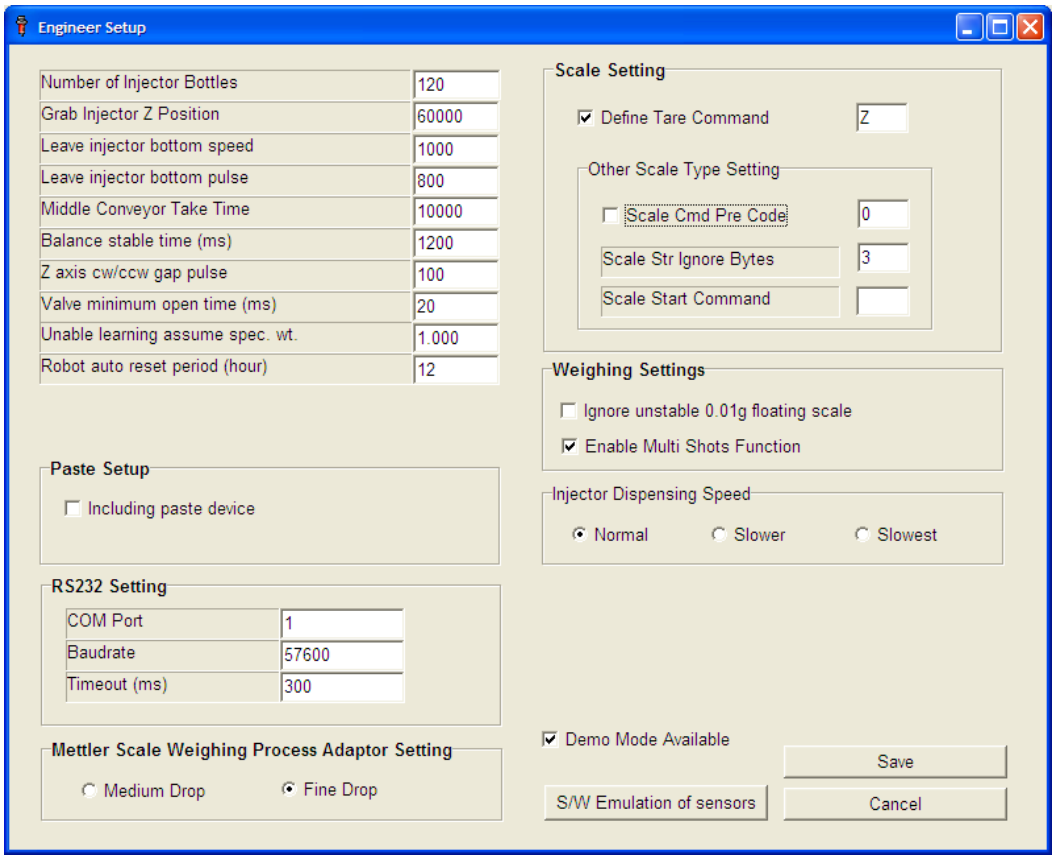
TF/TFC Ctrl program – Parameter – Setup – Engineering Setup

Click on the “Engineer” button, the engineer setup will show. This is only available with engineer login.



Normally, for running the software at customer site, all the settings should only modified by engineers or under engineer’s direction.

Unable learning assume specific weight

The control s/w will detect the solution specific weight if the solution’s specific weight not yet acquired, but to detect solution specific weight need at least 4 grams target weight for dispensing. So if the target weight less than 4 grams the s/w will assume the solution’s specific weight as defined until once the solution’s target dispensing weight large than 4 grams then the s/w will automatically detect the specific weight of the solution.
While using V5 injectors for high concentration solutions you should set the value which is maximum Specific gravity obtained using calibration menu. Calibrate few of the bottles (no need to calibrate each bottle) having high concentration solution and then checked the specific weight in this menu and whatever maximum value you get among these bottles would be value for this parameter.

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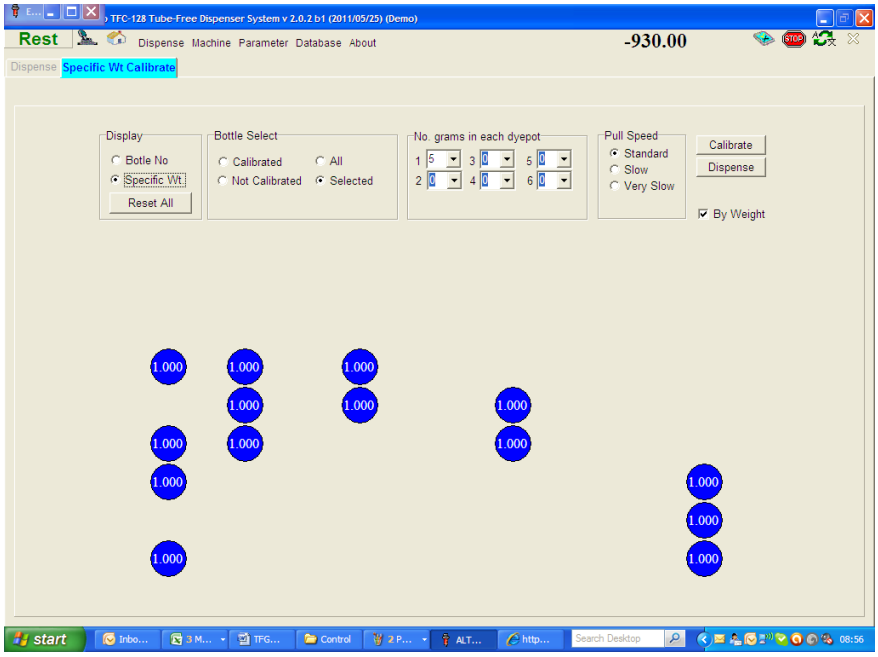
The example is as below:



As all values for Specific weight is 1, so our maximum would be 1.000

“RS232 Setting”:

- **COM Port**: It is the PC COM Port the system is connected.
- **Baud rate**: It must be 57600
- **Timeout (ms)**: it must be 200

“Use drip tray when moving between dyepots”:

Enable this function, in dispensing, the drip tray will be moved out in moving to different dyepots. This function is for avoiding any pollution from occurred when dispensing head move from dyepot to dyepot but will make dispensing speed slow down.

“Ignore unstable 0.01g floating scale reading”:

Enable this function to eliminate the affection of scale by slightly vibration floor. If the vibration is severe, suggest put professional anti-vibration material under scale platform feet.

“Enable multi-shots function”:

When the function multi-shots is enabled, the system will keep dispensing a solution until it achieves the target weight required, up to a maximum of 10 shots. Typically it takes 2 shots to reach target weight, but if this is not achieved in the first 2 shots, it will continue to dispense. When disabled, the system will stop dispensing after the first 2 shots, and move onto the next solution, even if the target weight has not been reached. It is recommended that Multi shots is always enabled, unless accuracy of dispense is not required and fast throughput is more important, in this case multi shot can be disabled.

“Demo Mode Available”:

If you want to run the program in demo mode (without system connected), tick the option “Demo Mode Available”, and restart the program.

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“Mettler scale weighing process adaptor setting”:

Set up Mettler scale weighing process to middle drop or fine drop during dispensing. It is recommended to always use fine drop for dispensing. Middle drop should only be used when specifically instructed by Datacolor.

“Paste Setup”:

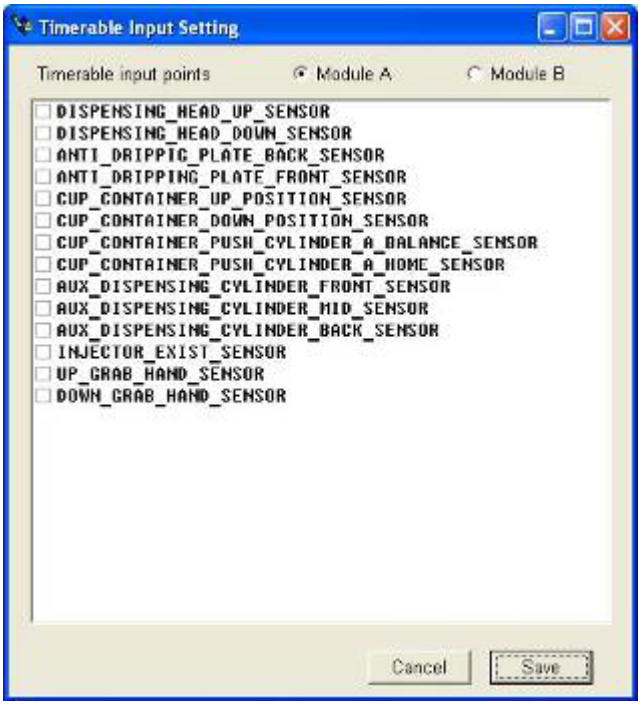
If you choose to install TF-P model in the installation program, the parameters “Including paste device” will be automatically enabled.

“Injector Dispensing Speed”:

This setting can change the speed of moving Z axis when dispensing solutions to reduce the reflection force of dispensed solution and ease the situation of possible splashing. There are 3 options, “Normal”, “Slower” and “Slowest”. “Normal” is the standard speed which is used in all previous versions. The splashing problem is various with the diameter and height of dye pot. Shorter and larger diameter dye pot have more serious splashing problem. Slow dispensing speed can reduce the possibility of splashing, but it takes more time to finish the dispensing of the recipe. If splashing is occurring it is recommended to try the “slower” setting first before switching to “slowest”.

S/W Emulation of sensors

This is for setting the time of software emulating sensors.



In case there is a faulty sensor as in the list below, to make the system temporally workable, you need to use the function of S/W emulation sensor. Click on the items, a dialogue will pop up with default time setting.

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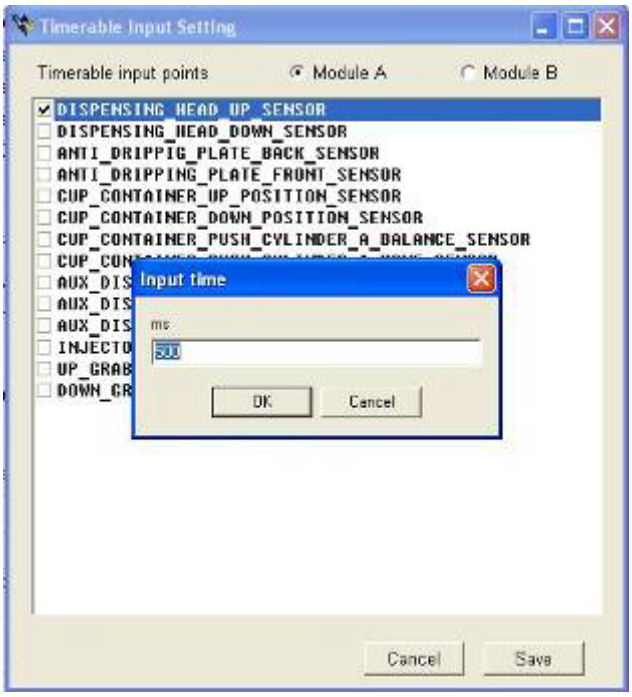

Click on “OK” to close the dialogue, and then click “Save” to save the setting.

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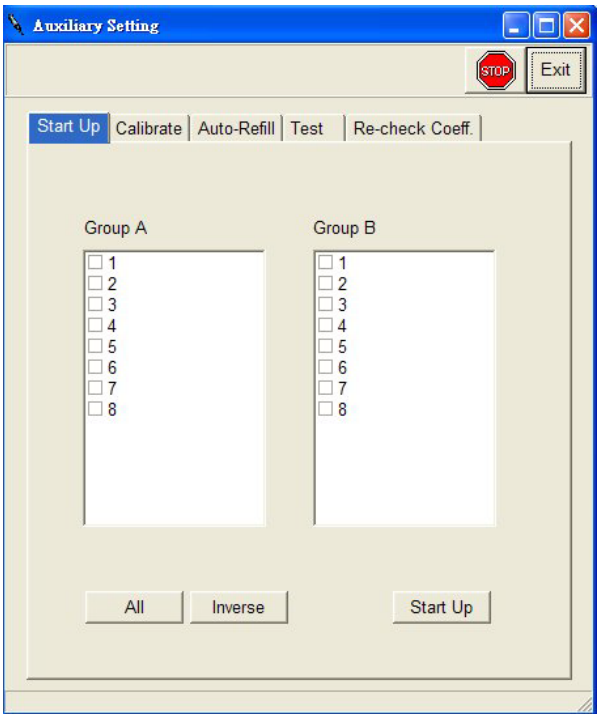
3-4-2 TF/TFCCtrl program – Parameter – Aux Setup

Emergency Stop :

: Click this button for stopping all the action of TFC.

Exit :

: Exit, close the “Tool” function.



Start Up:

Select the valve needed to be started up and click “Start Up” button. The system will open the selected valve for starting up.

In TFC Ctrl program, the calibration tray will be automatically loaded in chemical valve “Start up” function. Users need only click “Start” button in the “Start Up” screen and the tray will be auto loaded.

After the tray is loaded and read by scale, the valves which the user has chosen to start-up will open in sequence. If the scale reads the dispensed chemical as being over 15g, or the valve dispense flow rate is over 0.5g/sec, the status of the valve will show “OK”. The completed valve will then close automatically after start up, and the system will then move onto the next valve selected.

If the flow rate of the valve is under 0.5/sec, the status of the valve will show as “Low”.

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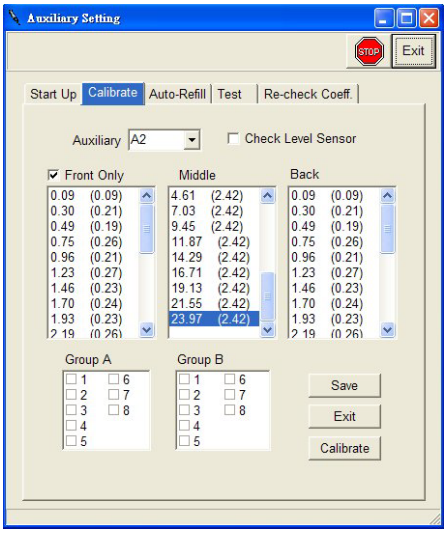
If the dispensed weight cannot achieve 15g in one minute, the status of the valve will show “Time out”.

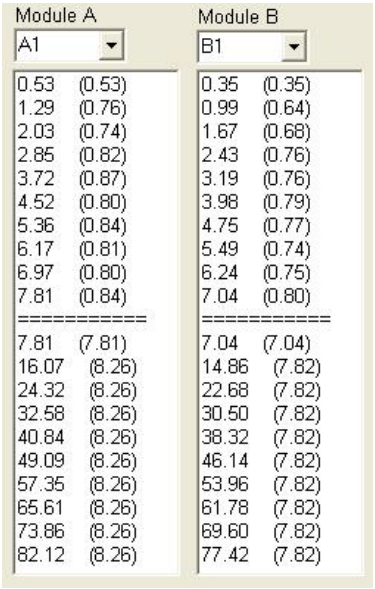
If there is any “Low flow rate” and “Time out” status when all chosen valves are completed start up, the system will pop up with a dialogue to ask users if they want to redo the start up of valves which have failed.

Calibrate:



This is for calibrating the auxiliaries and water. For fast and accuracy dispensing of water and auxiliaries, suggest doing the calibration once a week.

Select A1, B1 or C1 in Module A or B for showing the calibrated result:



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“Check Level Sensor”: Check the float sensor for refilling auxiliaries and water.

“Module A/B”: Selecting dye pots for doing calibration.

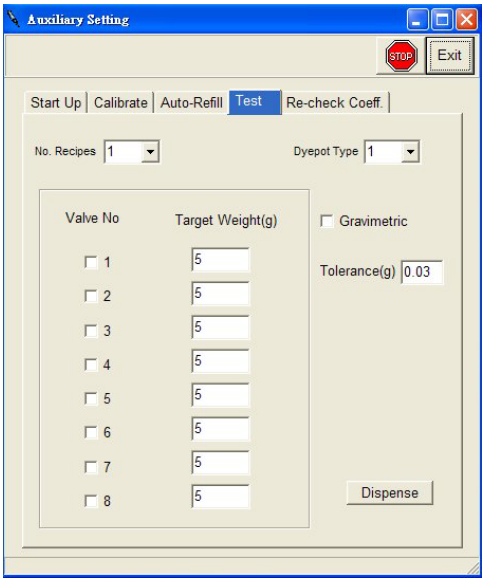
“Cancel”: Click the button to close the current screen.

“Save”: Click the button to save the settings.

“Calibrate”: Click the button to start the calibration.

Test:

For test the accuracy of dosing auxiliaries.



“Recipes”: Select how many recipes to be tested

“Cup Container Type”: For selecting the dye pot tray type.

“Valve No.”: For selecting valve to test.

“Target Weight”: For setting the dispensing weight.

“By Weight”: For setting the dispensing weight.

“Tolerance”: For setting tolerance in dispensing.

“Module”: For setting which module for dispensing.

“Dispense”: Click the button to start the testing.

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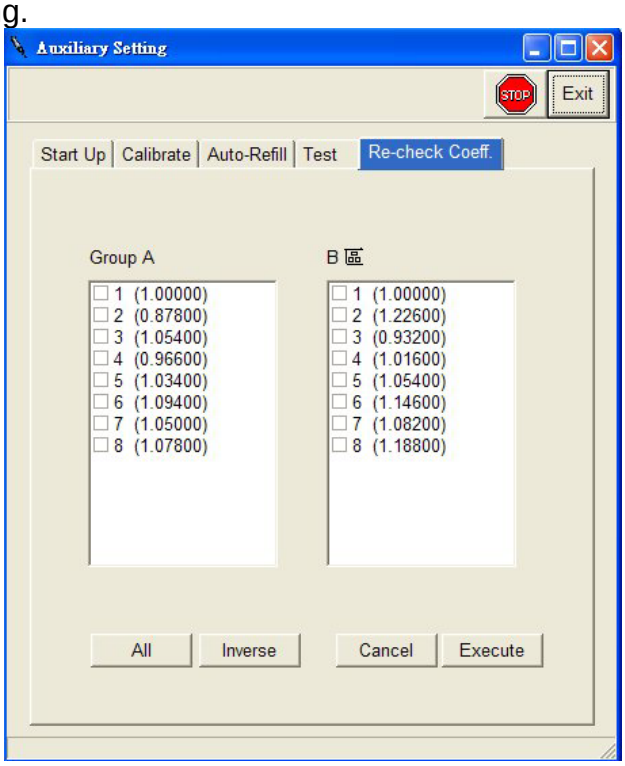
Re-check Coefficient:

This function is similar with “Calibrate” but it is faster. After doing auto refresh, the system will get a factor of valves to make water dispensing more accurate. We suggest users do it everyday before working.



“Test 5/10 g”: For setting the dispensing weight.

“A1, B1 and C1 of Module A and B”: For selecting which valve for doing refresh.

“All”: Selecting all valves.

“None”: De-select all valves

“Exit”: Exit the program.

“Refresh”: Start the refresh.

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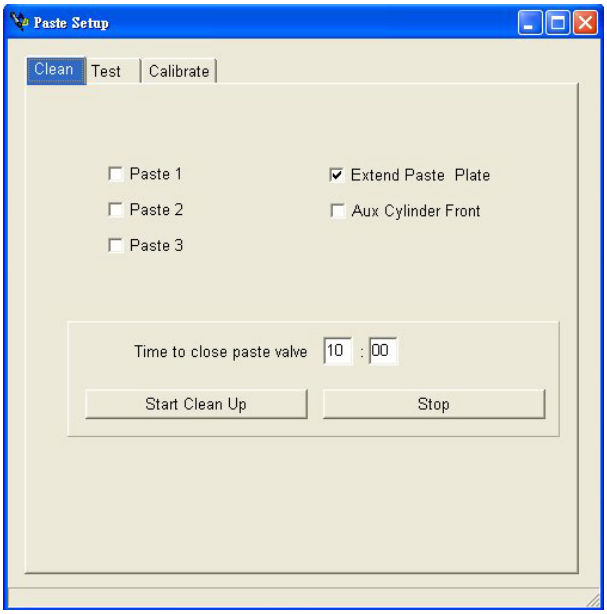
3-4-3 TF/TFC Ctrl program – Parameter – Paste Setup

There are 3 functions for paste, which are “Clean”, “Test” and “Calibration” for paste module.

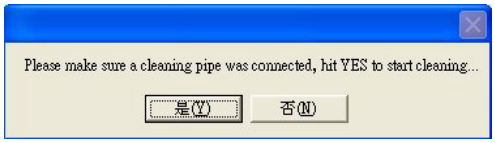
Clean function

“Clean” function is for cleaning the paste dispense pipes for regular cleaning maintenance. The pate tank should be filled with water and the tank and pipes can then be cleaned using this option, by dispensing water through the pipes. Alternatively the paste pipes can be connected to the mains water, instead of filling the tank with water, and clean in that way.



You can set the timer to automatically stop the cleaning paste automatically. The default setting is 10 minutes.

Click “Start clean up” button. The system will show a reconfirmation message to ensure cleaning tube has been fixed on the paste dispensing valve.



Make sure the paste cleaning tube has been fixed correctly. Click “Yes” and the paste dispensing valve will open to start cleaning paste pipe.

For more hardware detail, please refer to TF “Guidelines on correct operation of TFC dispensers to ensure best dyeing results” manual revision 7.0.

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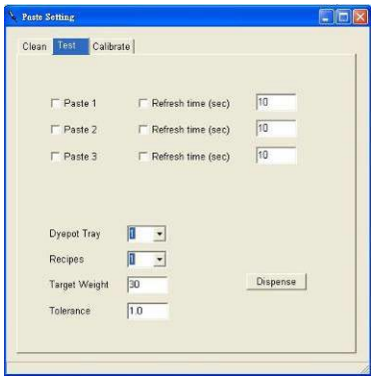
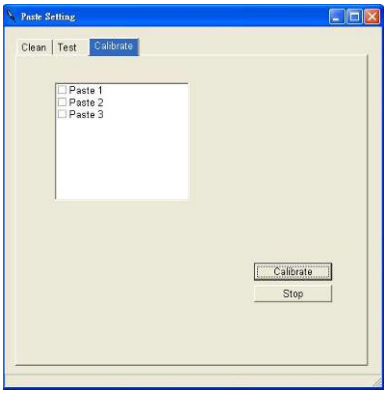
Test function



The “Test” function is for testing paste dispensing accuracy. The way to use this function is the same as chemical and water test function. Select dyepot tray type and recipe quantities then filling target weight and tolerance. Choose the paste you are going to test. Click “Dispense” button to start dispensing paste.

Calibrate function



The “Calibrate” function is for calibrating paste dispensing coefficient. The way to use this function is the same as chemical and water calibrate function. Choose the paste you are going to calibrate then click “Calibrate” button to start calibrating.

It is recommended to carry out a calibration after changing/refilling paste.

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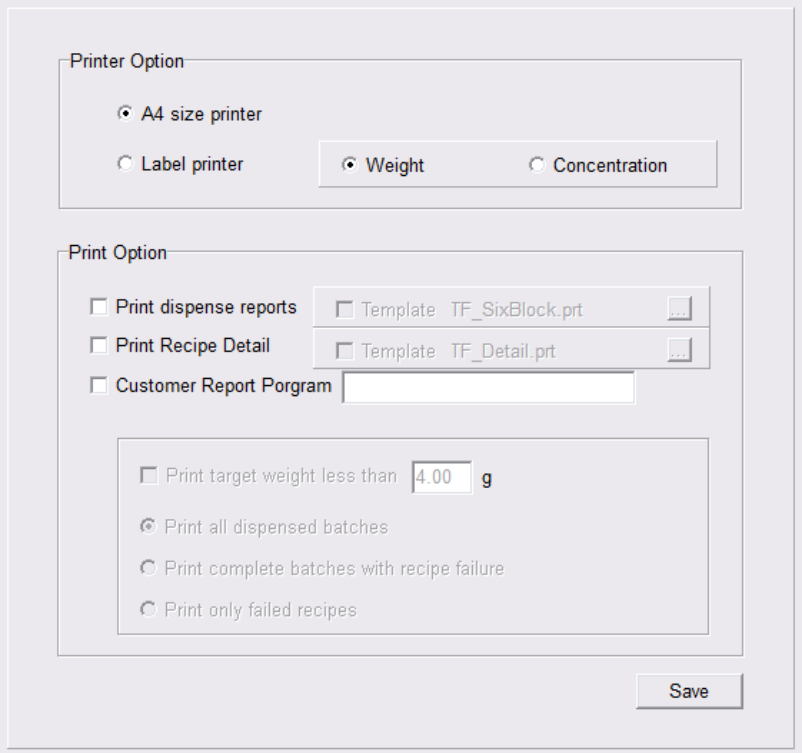
3-4-4 TF/TFC Ctrl program – Parameter – Print Setup

This is for setting the printer parameters.



Printer Option

There are 2 types of printer can be select, A4 or Label printer. When the Label printer is selected, the weight or concentration needs to select when print out due to the width limit of label printer.

Prints dispense reports: Enable the option; it will print out a six-recipe report in a page.

Print Recipe Detail: Enable the option; it will print out a recipe detail report, which each recipe takes one paper.

Customer report program: When the customer need a special report, it need a special report program to print out, a program name need to be define here.

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Print target weight less than X g: it will automatically print a report after a recipe is finished if the target weigh of any product is less than the predefined target weight. Then the supervisor will be aware that the recipe was created wrongly.

Options for selecting when to print the report:

1. Print all dispensed batches
2. Print complete batches with recipe failure
3. Print only failed recipes

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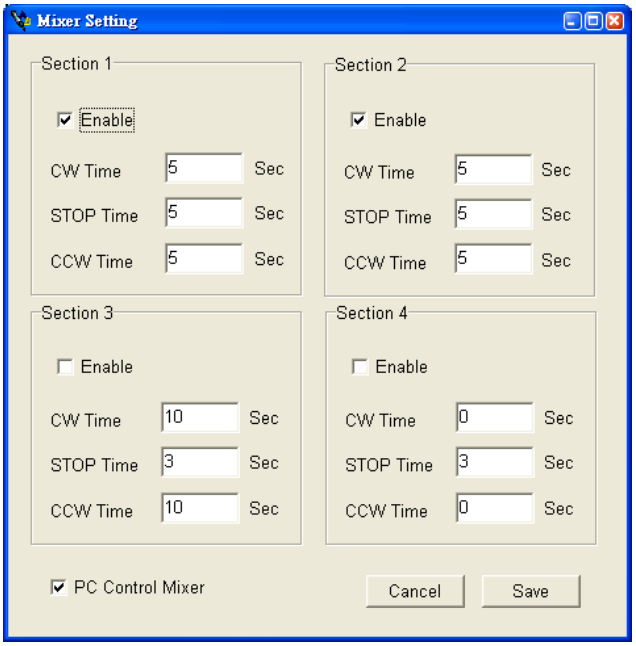
3-4-5 TF/TFC Ctrl program – Parameter – Agitation Setup

This is for setting the agitation parameters:



"Section 1, 2, 3 and 4": Maximum 4 sections agitation module in TFC systems, depends on the model of the system.

TFC 40:	1 section
TFC 80:	2 sections
TFC 120:	3 sections
TFC 128:	3 sections
TFC 168:	4 sections

"CW Time": Time for clockwise agitation

"STOP Time": Time for stopping the agitation when switching between CW and CCW.

"CCW Time": Time for counter clockwise agitation

"PC Control Mixer": Enable the function to control the agitation by PC.

"Cancel": Close the program

"Save": Save the settings.

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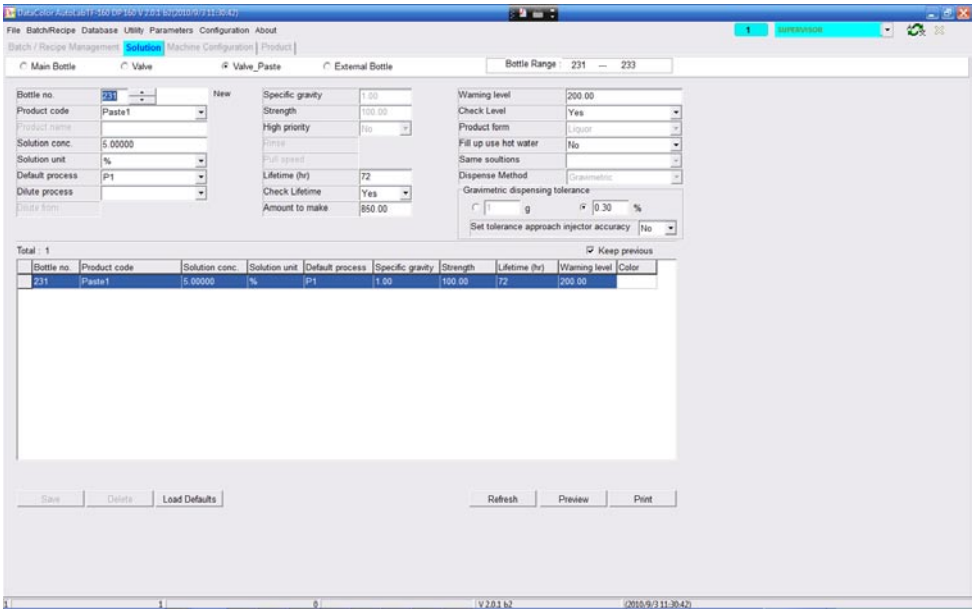
3-5 Summary of features of TFC-P system

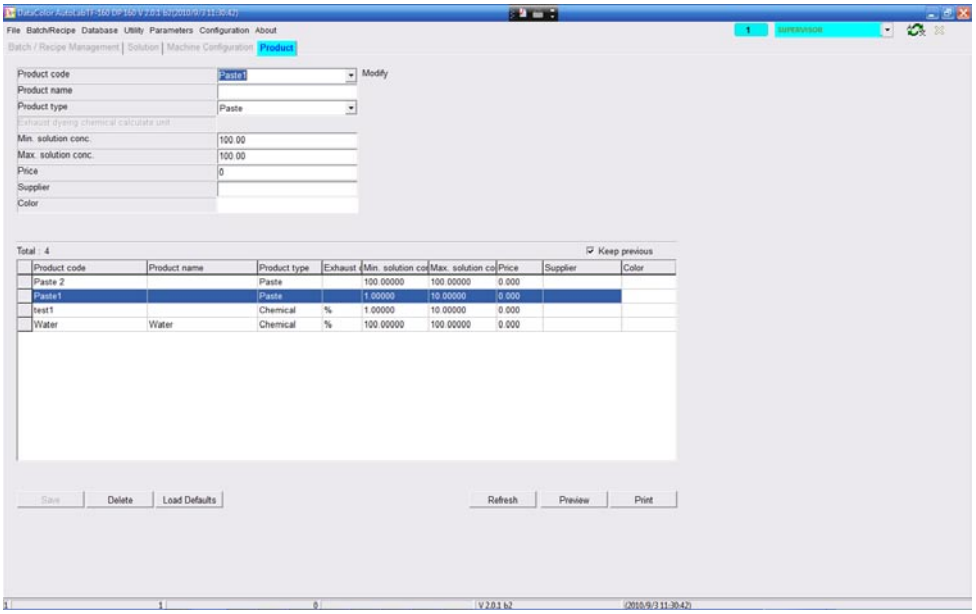
- Paste dispensing function available for new TFC-P systems.

TF-P Dispensing Progress Program (DP)

In DP program Database->Product page, the paste data must be define first.



Define the paste bottle no in solution page, the bottle number of paste is from 231 to 233.



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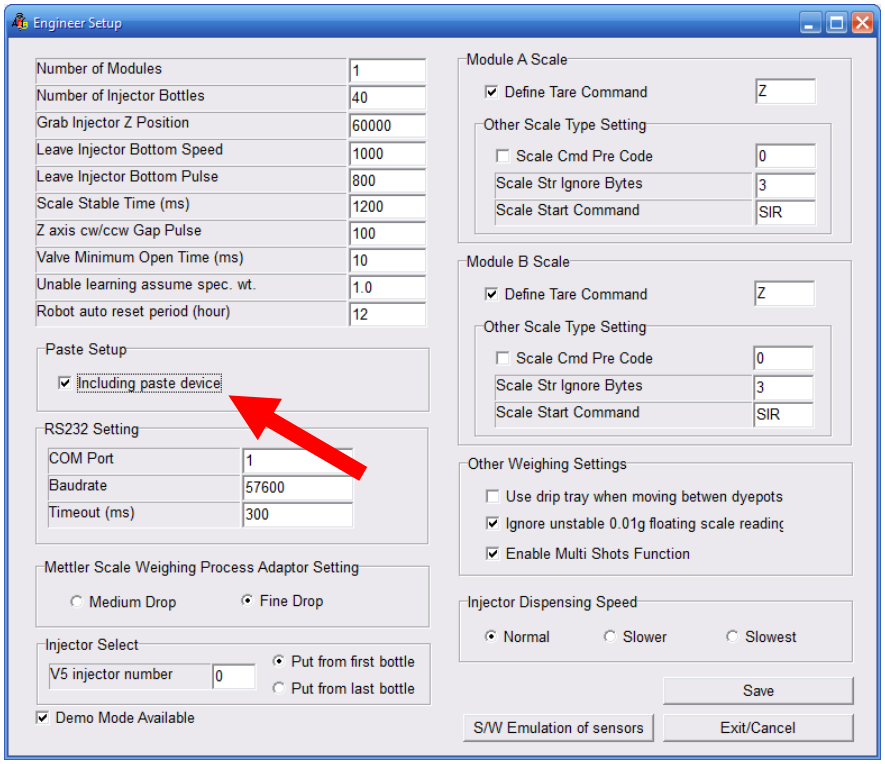
Dispensing Control Program (Ctrl)



In “Engineer Setup” of Ctrl program, there is a new setting “Paste Setup” which includes the options “enable paste device”.

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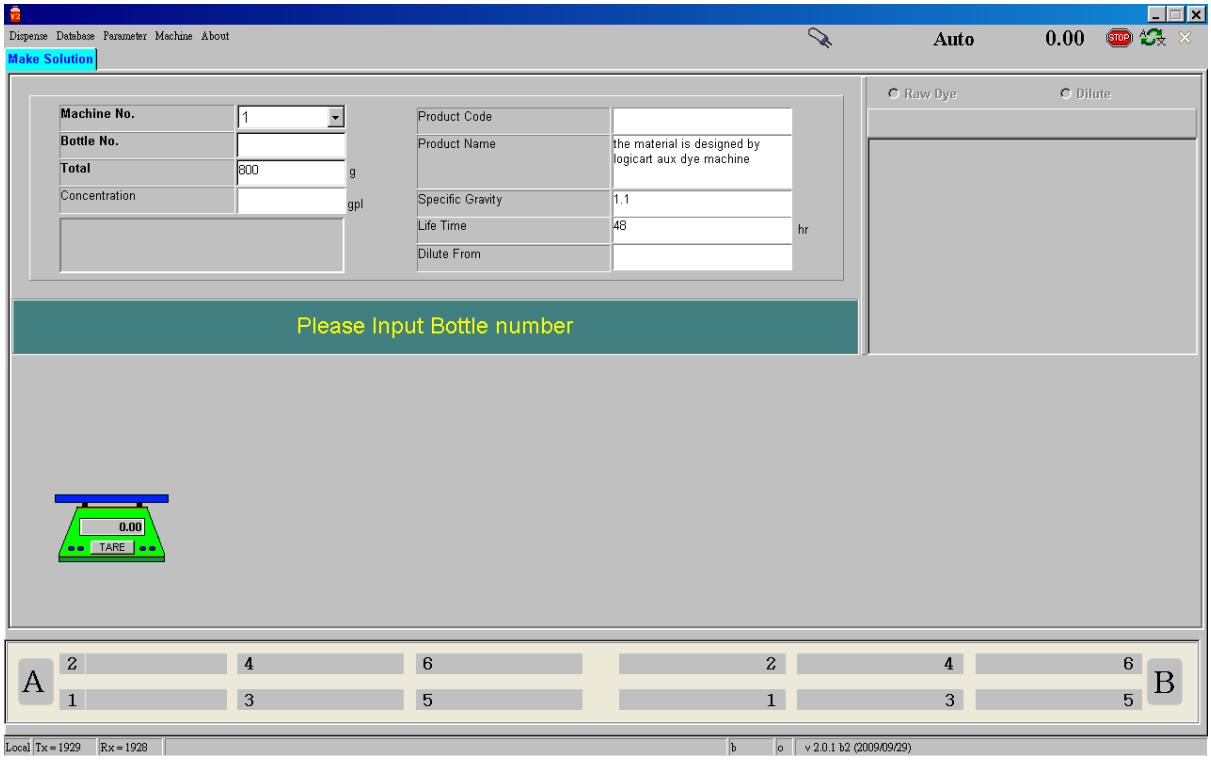
PART 4: Autolab SPS Program

4-1 Autolab SPS Program – Overview

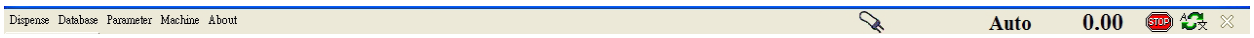
TFC SPS is for preparing stock solutions. The main screen is as below:

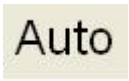
In G2 software, all solution database and making solution process have to be created through AutolabDP software and link SPS software to the DP database.



The SPS has 2 types of user interface: menu and the Visual Display area.

Menu bar:



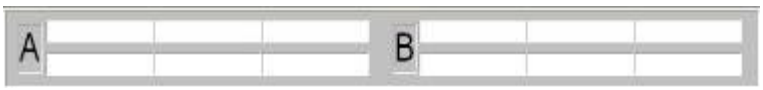


: Auto Mode

It means that the system is computer controlled.

: Displays the weight on the scale

It is just beside the “Auto” Mode, for display the reading of scale.



: Mixing Areas

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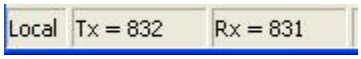
There are 12 mixing bottles data in the mixing area. Each mixing bottle data includes machine number, bottle number, and remaining time of mixing.



: Status bar

On the bottom of main screen displays information such as current status of the machine, software edition, and so on.

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: Emergency Stop

Press it to stop making solution immediately.

: Change Languages

Change languages as your request. The default language is English.

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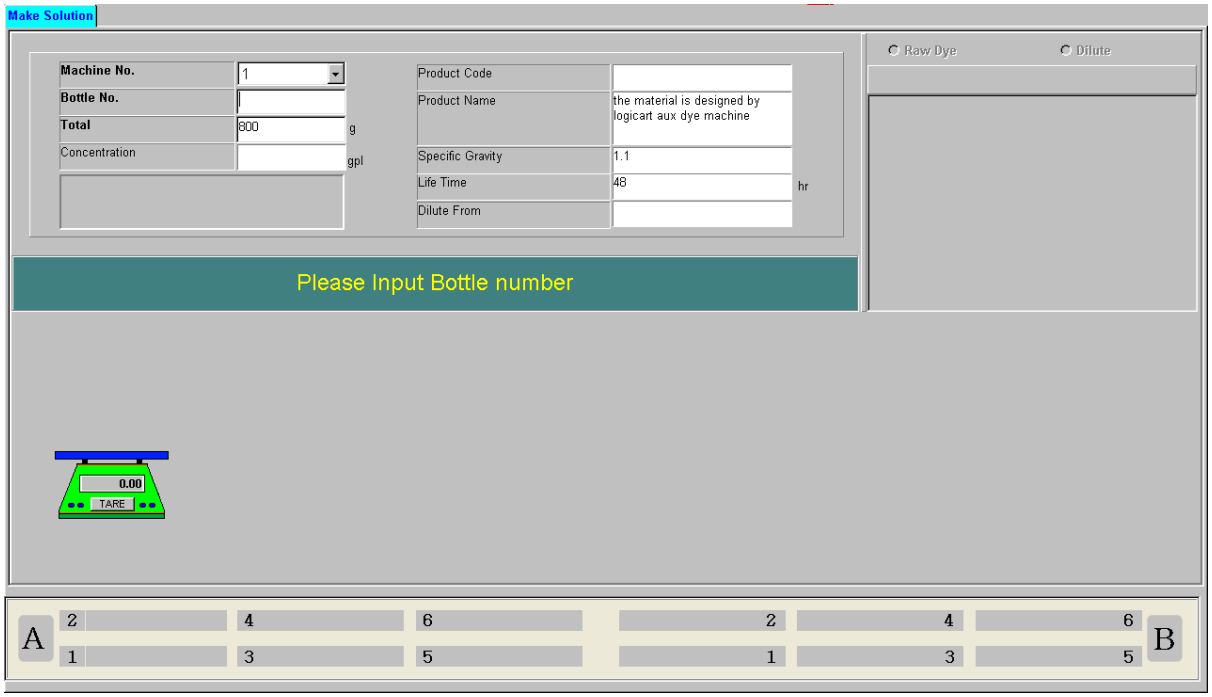
4-2 Autolab SPS Program – Dispense

4-2-1 Autolab SPS Program – Dispense – Making Solution

You can choose the option “Make solution” in Dispense function of menu bar or double click the bottle in solution browse screen to start the solution making view as below:



“Machine”: For Selecting machine number.

“Bottle Number”: This shows the currently selected bottle position. To change, type in the bottle number

“Target”: Show the target weight. For TF system, it should be under 850cc.

“Product Code’: Show the selected bottle product code.

“Concentration”: The target solution concentration of the make.

“Specific Gravity”: Show the specific gravity of the selected solution.

“Life Time”: Show the life time of the current selected solution.

“Dilute from”: If there is one or more same solution with higher concentration, the filed will be enabled for selecting a bottle of high concentration solution for making solution by diluting from the high concentration bottle.

“Message bar” Show the message of current step.

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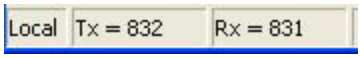
“Process Detail”: Show the detail of the current solution making process. If the process has been done, the check box will be marked.

“The Agitation bar” Show the current status of solution mixing.



“The status bar” Show the online current status PC and system.

Procedures

- Step 1: Select the bottle to make up
- Step 2: Specify whether to make from pure dyestuff, or dilute from a stronger solution.
- Step 3: Put the correct bottle on the scale with a stirrer bar already inside it.
- Step 4: Follow the steps of the process for that solution, which may be a combination of the following:

  Add Dyestuff manually

  Add Chemical manually

  Dispense Cold/Warm/Hot Water

  Dispense Chemical Automatically (Optional specification)

  Mix
- Automatically Make up solution to required concentration.

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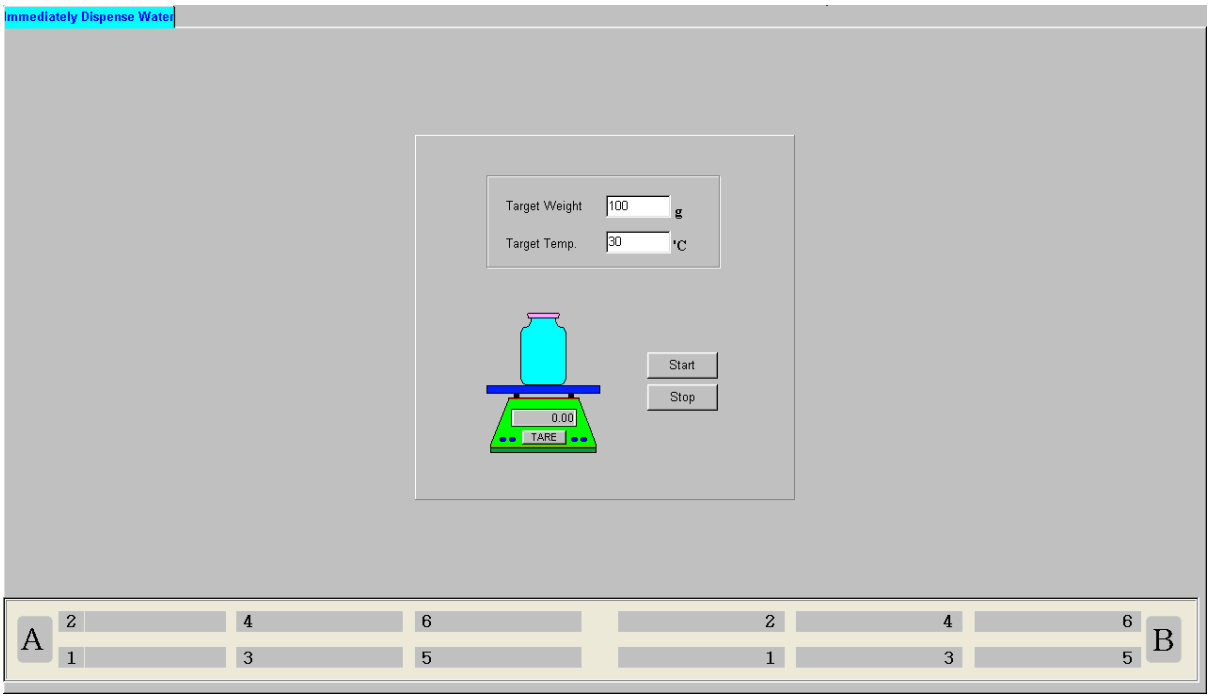
4-2-2 Autolab SPS Program – Dispense – Manual dispense water

You can choose the option “Immediately dispense water” in Dispense function of menu bar or double click the bottle in solution browse screen to start the solution making view as below:



This option can be used to dispense water, which may be useful for various operations within the Laboratory. To do this, select the option, and then specify the Temperature and Target Weight required, and then click “Start” to dispense.

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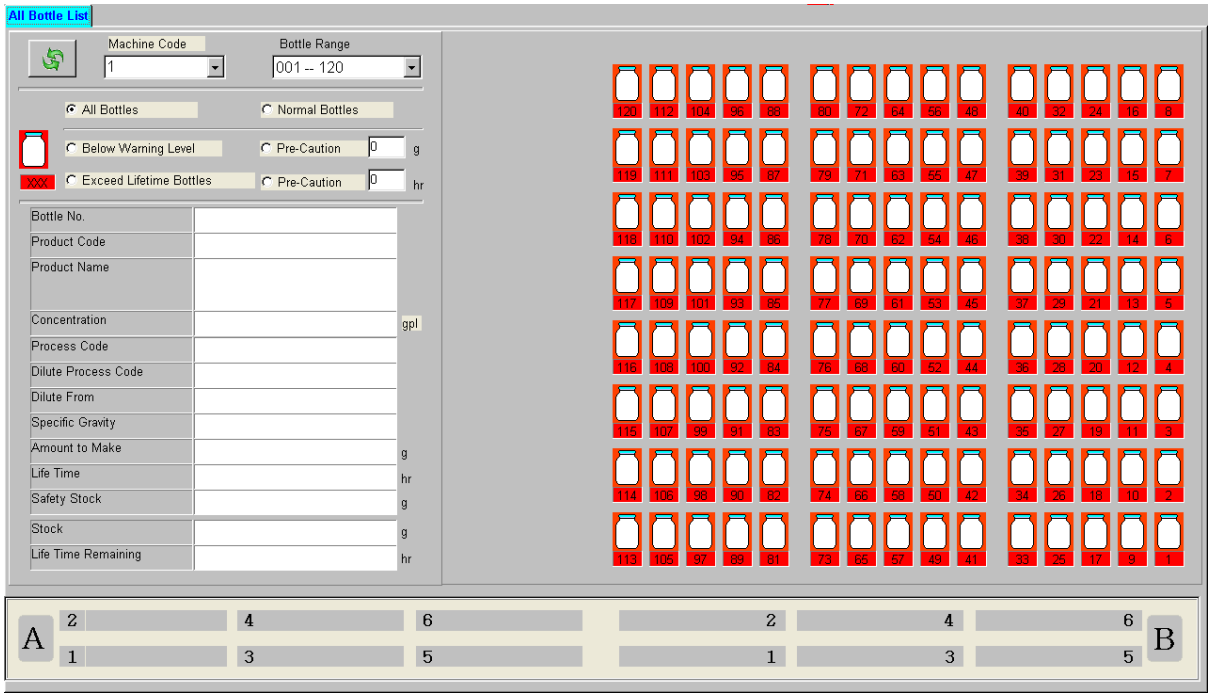
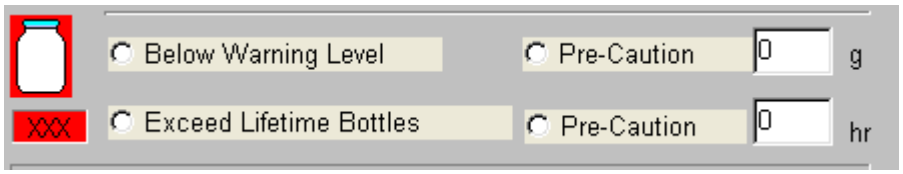
4-2-3 Autolab SPS Program – Dispense – Solution List

You can choose the option “All bottle list” in Dispense function of menu bar.



Move cursor onto the bottle, the detail of solution in the bottle will be showed on the left.

Solution Pre-caution:



“Low Stock Pre-Caution Weight”: Set the warning quantity of solution.
“Life Time Pre-Caution Hour”: Set the warning life time of solution.

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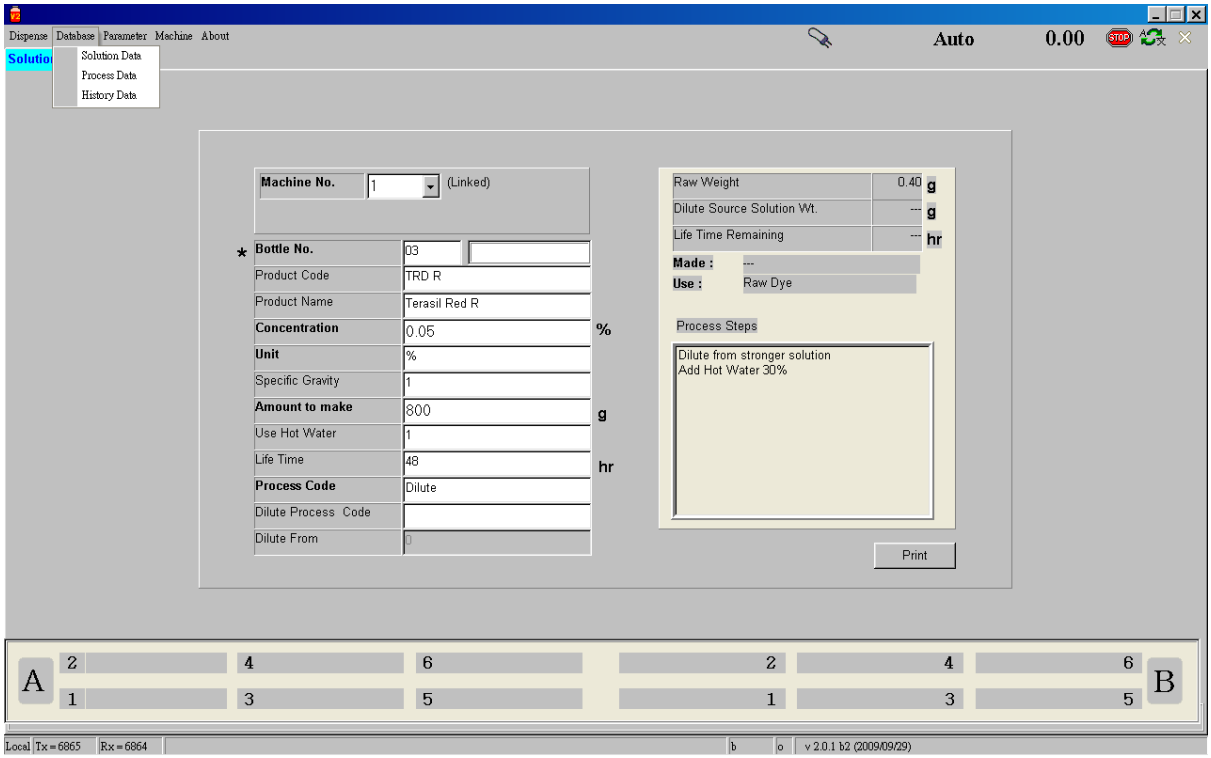
4-3 Autolab SPS Program – Database

4-3-1 Autolab SPS Program – Database – Solution Data

You can choose the option “Solution Data” in Database function of menu bar.

The solution here is only viewable. To modify the data, operators have to use DP software to modify.



This is for defining solution data.

“Machine”:	For Selecting machine number.
“Bottle No.”:	For key in bottle number.
“Product Code”:	For show the product code, operator can change the data also.
“Product Name”:	For show the product code.
“Concentration”:	For show the concentration of the solution.
“Unit”:	For show the unit of the solution.
“Dilute From”:	For show the default bottle from diluting.
“Process Code”:	For show the process code.
“Specific Gravity”:	For show the specific gravity of the solution.
“Amount to Make”:	For show the default capacity of solution bottle, generally, it is 850cc.
“Use Hot Water”:	If value is 1, it will open hot water pipe while fill water up.
“Life Time”:	For defining the life time of the product.
“Print”:	Click the button for printing the solution data.

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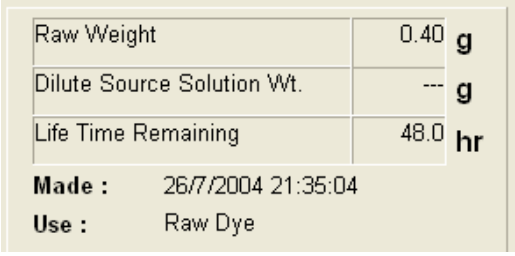
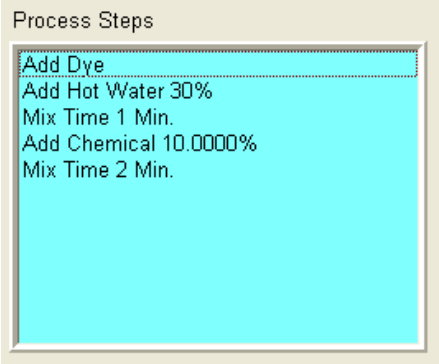
The data about how and when the solution was made.



The solution making process detail



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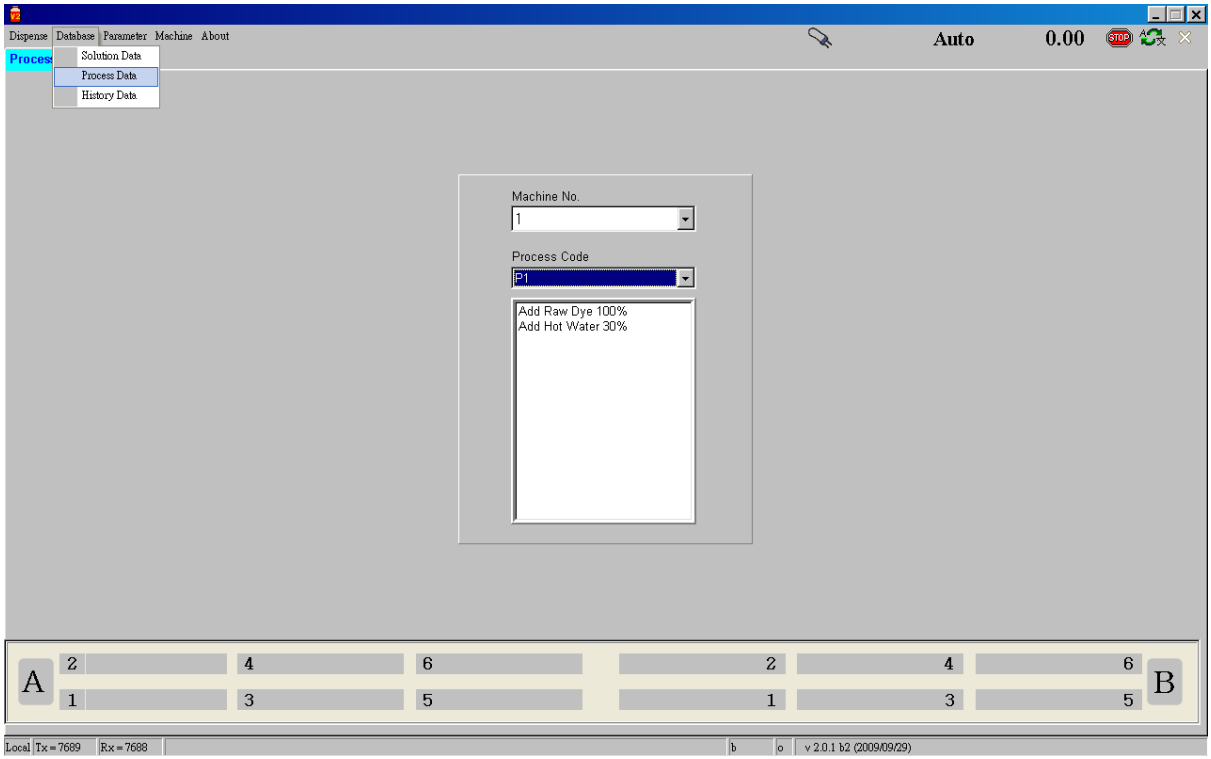
4-3-2 Autolab SPS Program – Database – Process Data

You can choose the option “Process Data” in Database function of menu bar.

The solution here is only viewable. To modify the data, operators have to use DP software to modify.



“Process Code”: For selecting a process code.

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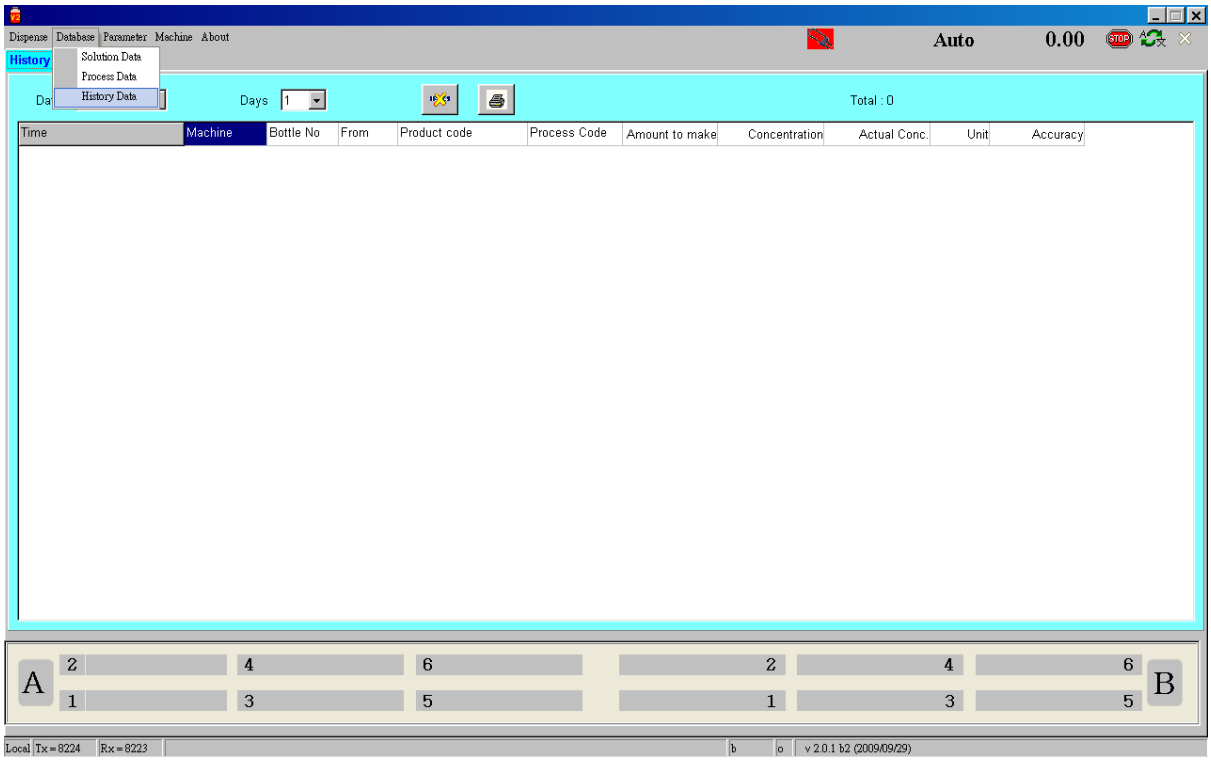
4-3-3 Autolab SPS Program – Database – History Data

You can choose the option “History Data” in Database function of menu bar

This function shows the solution making history.



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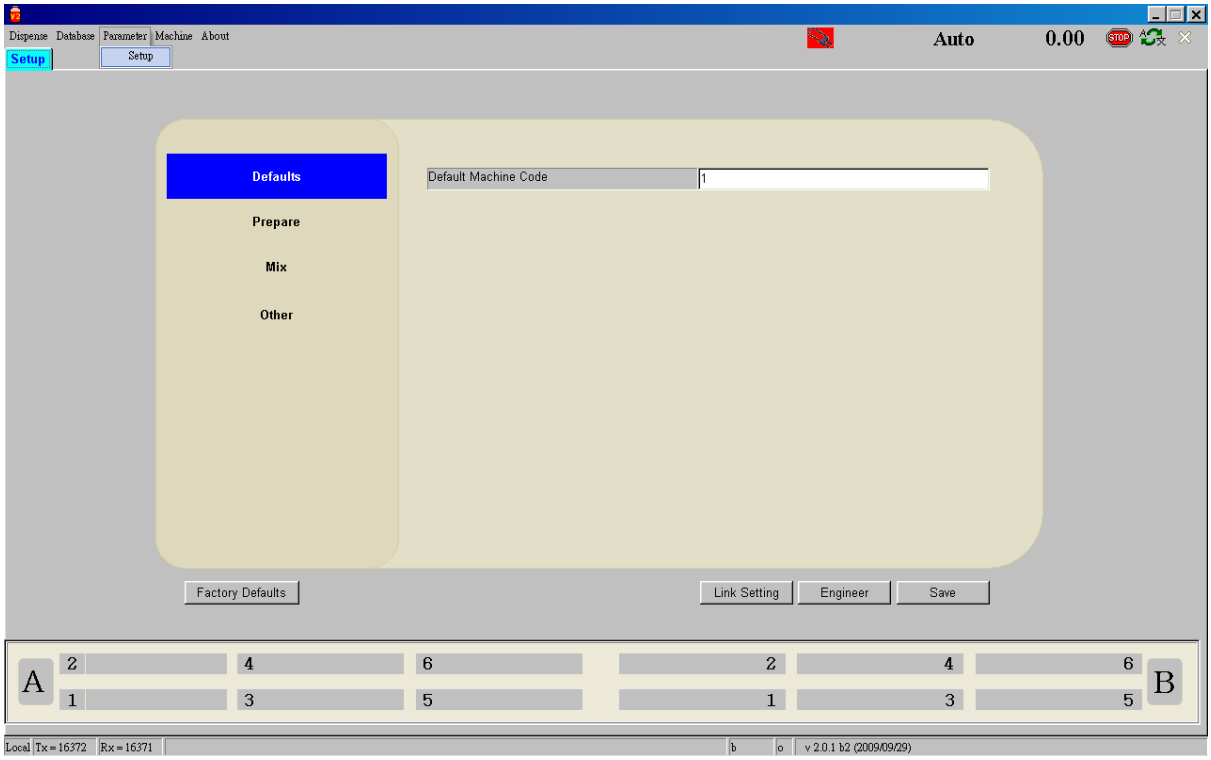
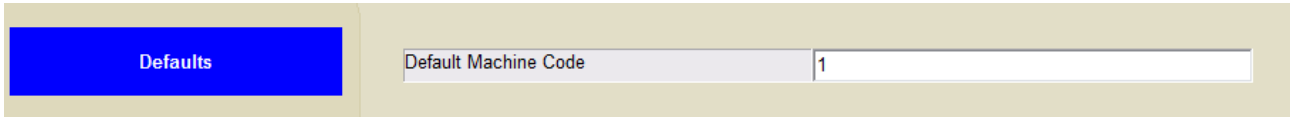
4-4 Autolab SPS Program – Parameter Setup

You can choose the option “Setup” in Parameter function of menu bar.



Default:



“Default Machine Code”: Machine number of dispenser the SPS is linked.

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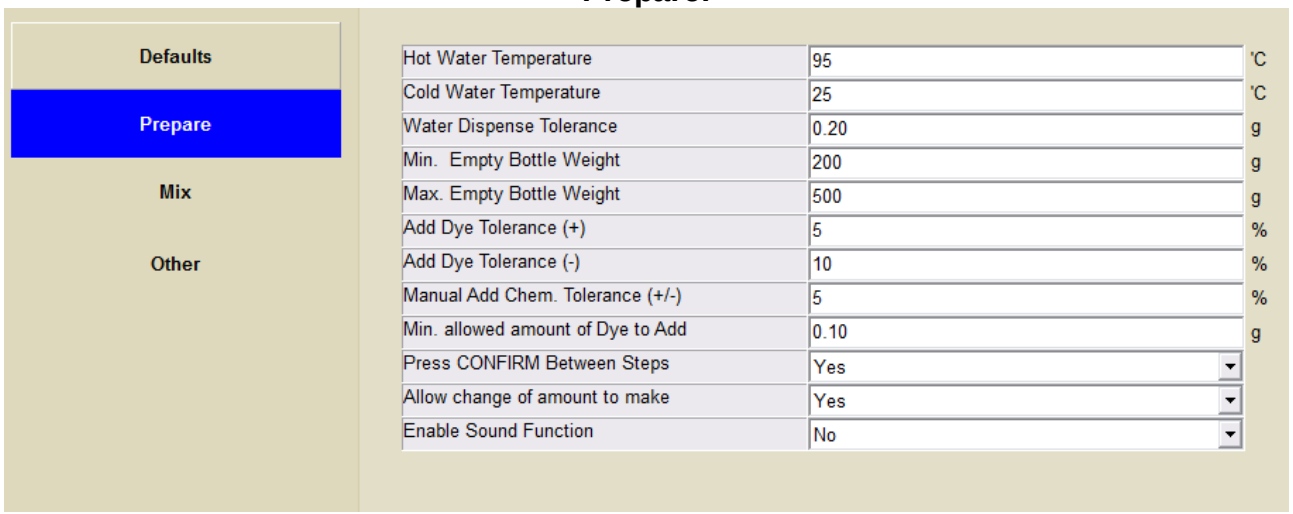
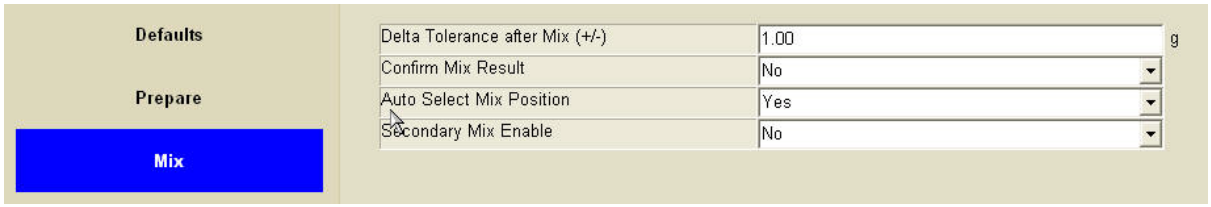
Prepare:



"Hot water Temperature": The temperature of hot water for this SPS system.
"Cold Water Temperature": The temperature of cold water.
"Water Dispense Tolerance": Dispensing tolerance.
"Min. Empty Bottle Weight": Minimum empty solution bottle weight.
"Max. Empty Bottle Weight": Maximum empty solution bottle weight.
"Add Dye + Tolerance": The plus range of manual add dyestuff.
"Add Dye – Tolerance": The minus range of manual add dyestuff.
"Manual Add Chem. Tolerance": The tolerance of adding Aux.
"Min. Allowed amount of dye to add": The minimum weight of dyestuff to be added for making solution.
"Press CONFIRM between steps": When making solution, enable this function press Confirm button on control panel will be necessary.
"**Allow change of amount to make":** Allow to change the quantity of solution in solution making screen.
"Enable sound function": Use sound to assist adding dyestuff.

Mix:



"Delta Tolerance after mix": The tolerance of weight loose after mixing.
"Confirm Mix Result": Confirm the weight after mixing.
"Auto Select Mix Station": Allow system select mixer position automatically.
"Secondary Mix Enable": Allow use second mixer if there are 2 mixers.

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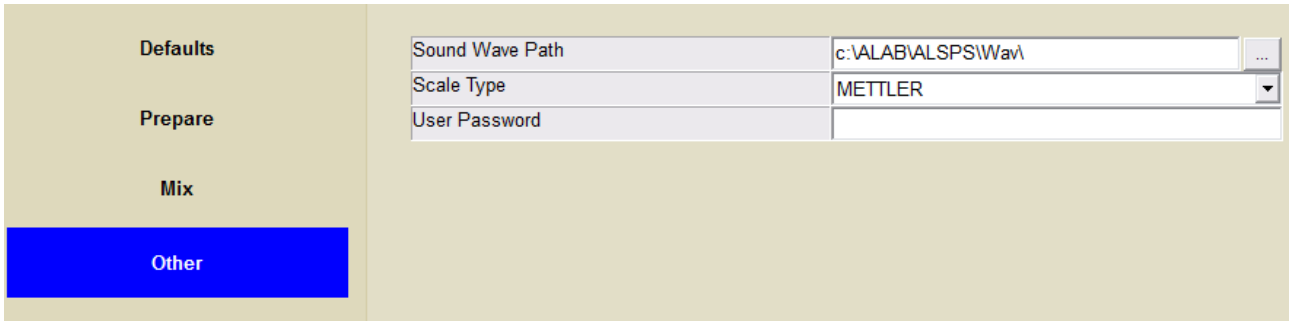
Other:



"Sound Wave Path": The sound files folder.
"Scale type": Select the scale in the SPS system.
"User password": User password.

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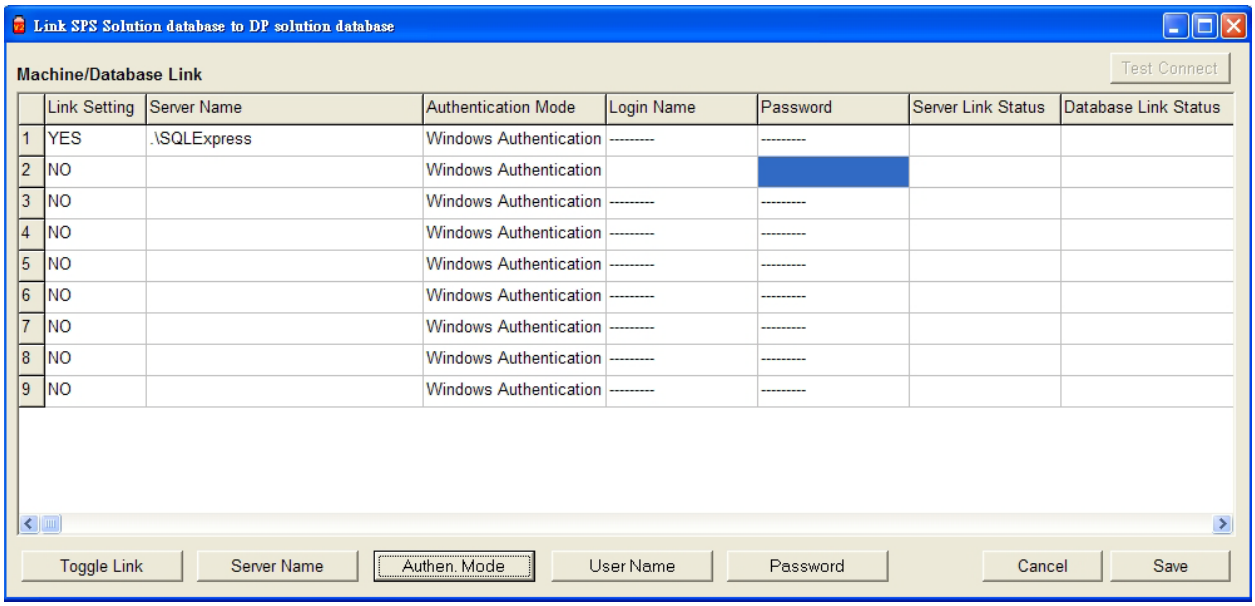
“Link Setting”



This function is to setup the database linking with DP software. The detail of linking setup can refer to AutolabTF S/W Install manual.

Only the system linked with the database, the software can making solution.

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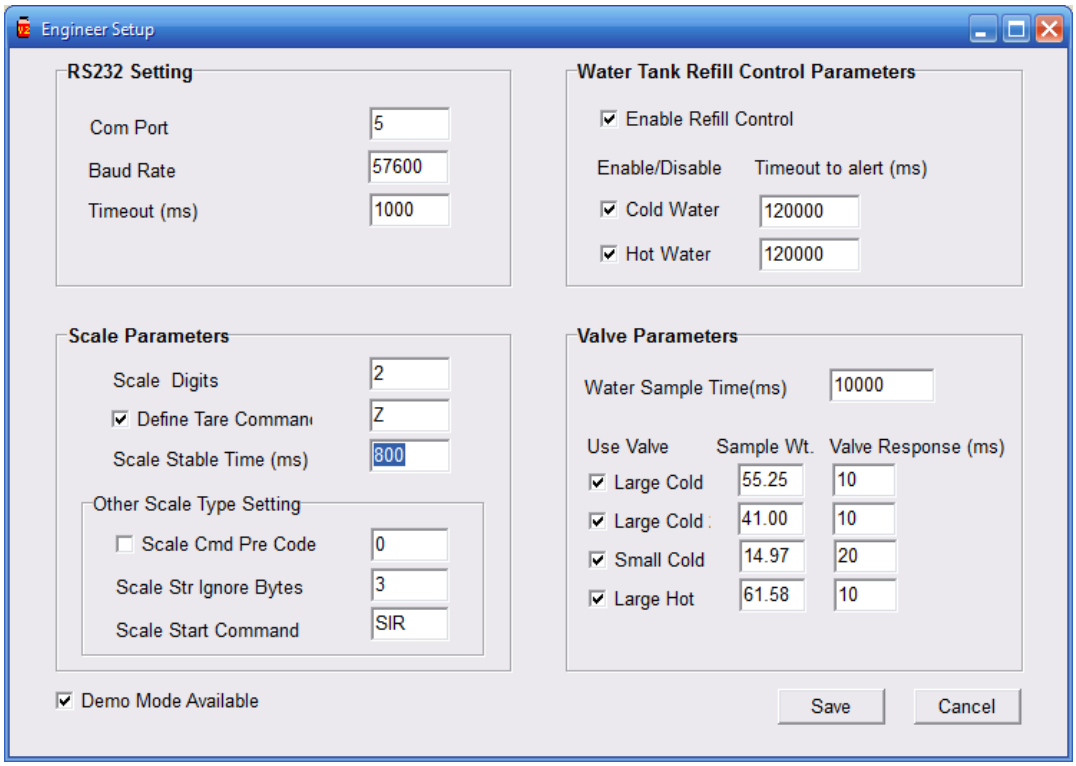
“Engineer”

Click the “Engineer” button to get into the engineer set up :



Normally, for running the software at customer site, all the settings should same as above. And the only setting you need to check is RS232 setting.

RS232 Setting:

- **COM Port**: It is the PC COM Port the system is connected.
- **Baud rate**: It must be 57600
- **Timeout (ms)**: It must be 1000

“Demo Mode Available”

If you want to run the program in demo mode (without system connected), tick the option “Demo Mode Available”, and restart the program.

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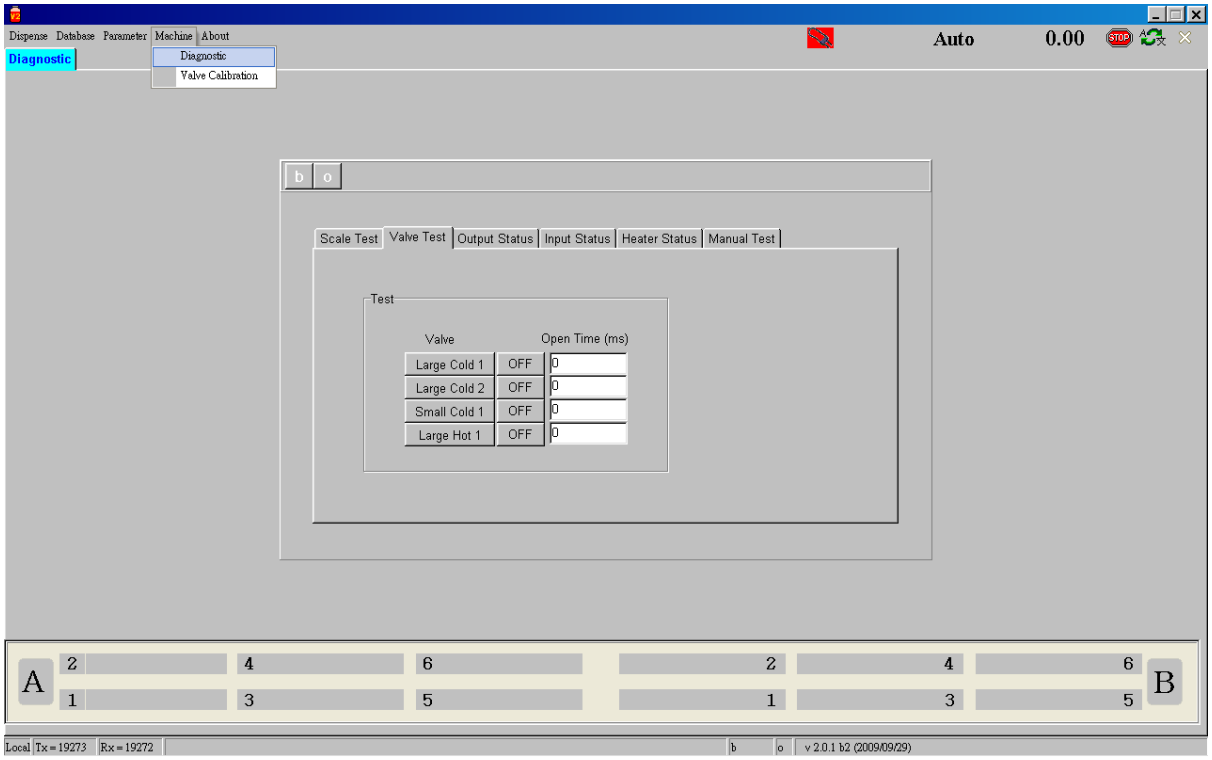
4-5 Autolab SPS Program – Machine

4-5-1 Autolab SPS Program – Machine – Diagnostic

You can choose the option “Diagnostic” in Machine function of menu bar.

The default password for customer configuration the software is “dci”, and there is also a higher priority password for Datacolor engineer use only.



First of all, click on the buttons “b” and “o” to enable the connection between PC and system.

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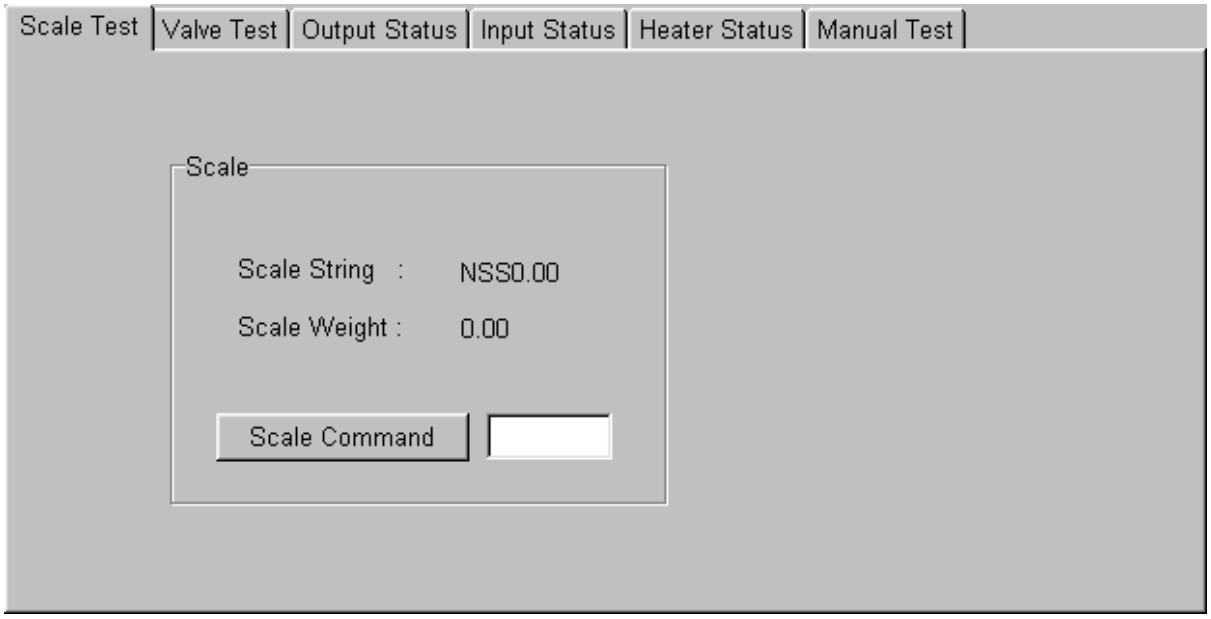
Autolab SPS Diagnostic - Scale Test



This is for testing the scale. Key in “Z” or “SIR” inside the input box, click on the “Balance Command” to see if the scale is reset to zero.

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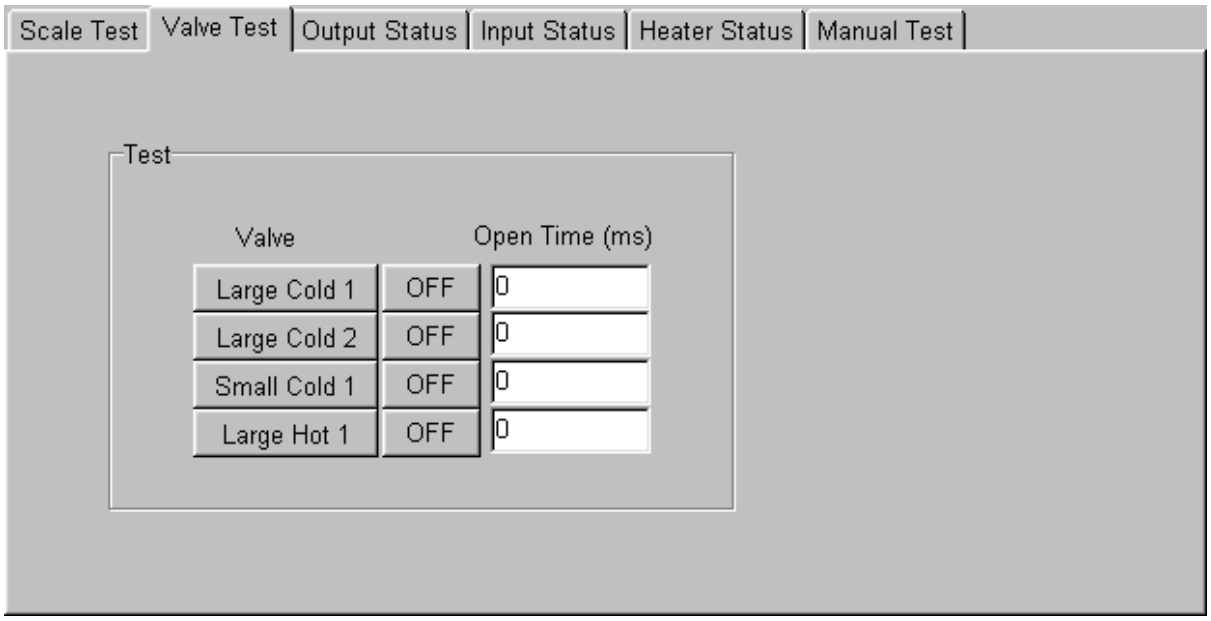
Autolab SPS Diagnostic - Valve Test



Click the button “Calibrate” to calibrate the valves. You need to do it for new installation. Key in the time interval in the “Open Time” input boxes, click on the buttons “Large Cold 1”, “Large Cold 2”, “Small Cold 1” and “Large Hot 1”, the valve should open as the time defined.

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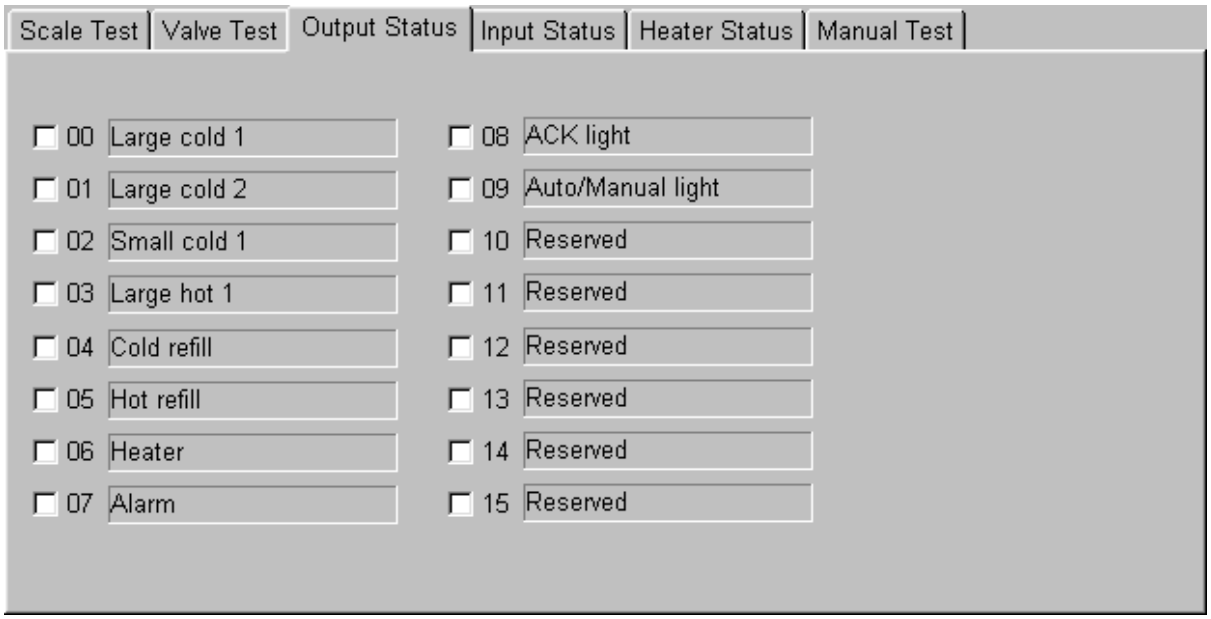
Autolab SPS Diagnostic - Output Status



This is just for showing the status of all the OUTPUT.

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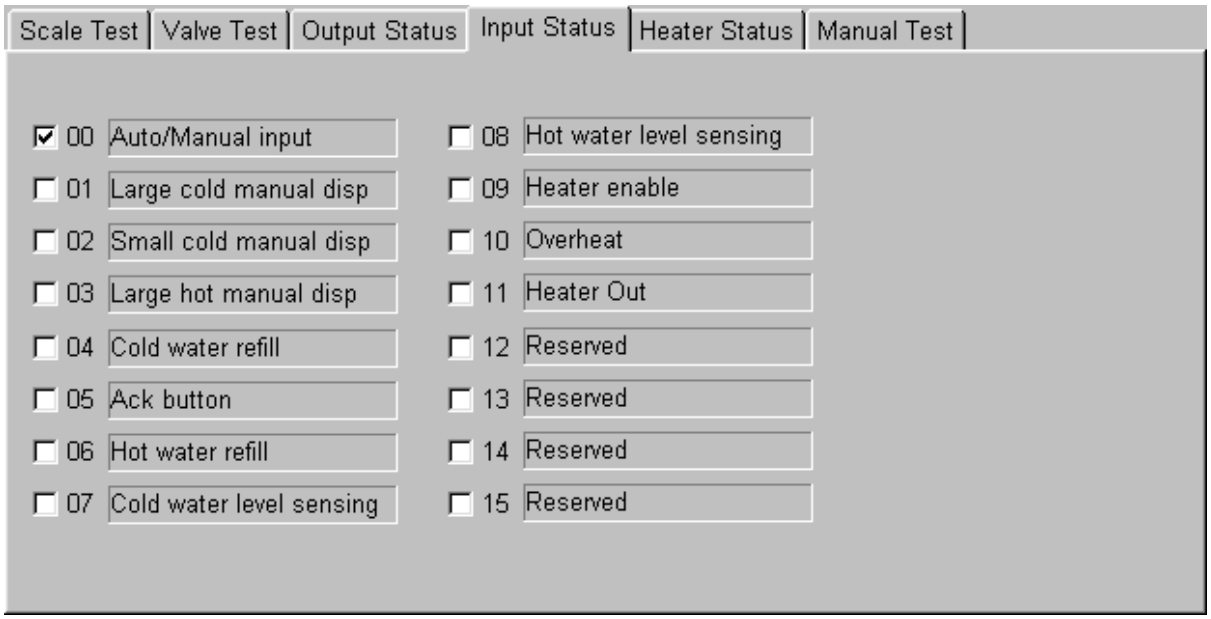
Autolab SPS Diagnostic - Input Status



This is just for showing the status of all the INPUT.

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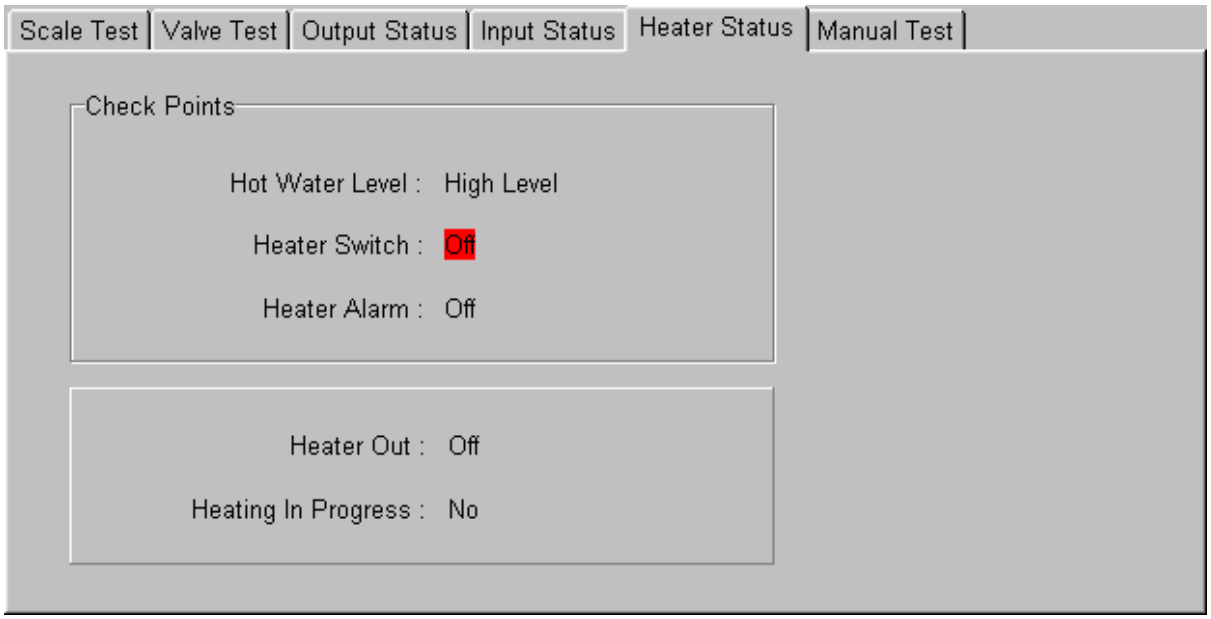
Autolab SPS Diagnostic - Heater Status



This is just for showing the status of the Heater.

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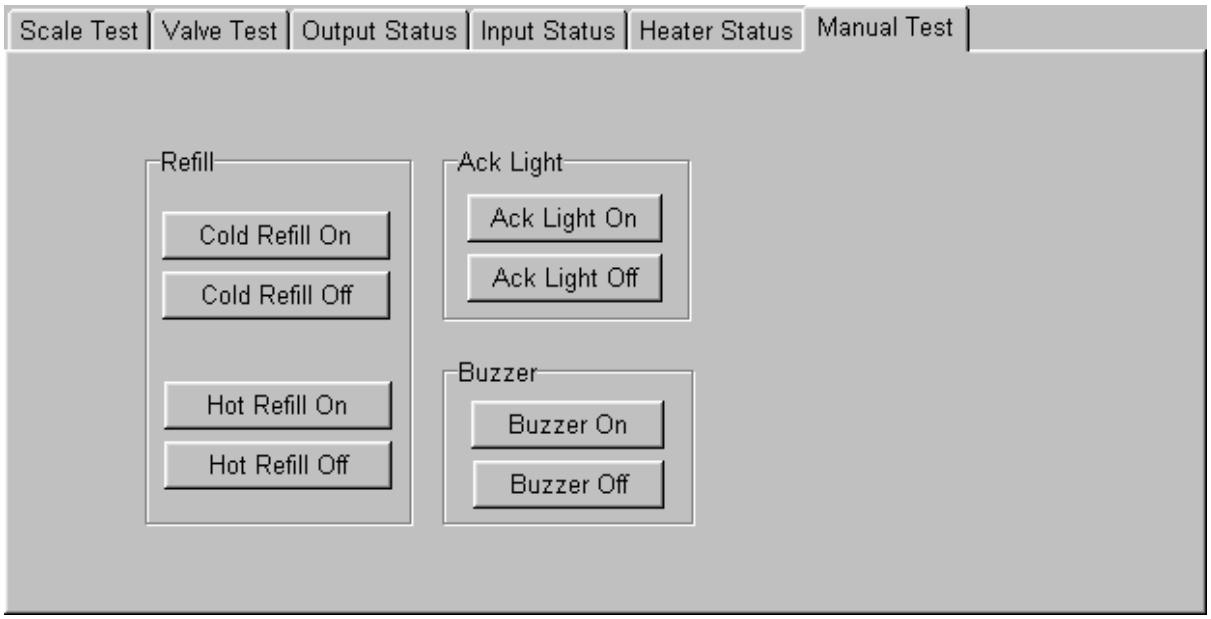
Autolab SPS Diagnostic - Manual Test



"Cold Feeding On": Click on the button, for opening the cold water refill.
"Cold Feeding Off": Click on the button, for closing the cold water refill.
"Hot Feeding On": Click on the button, for opening the Hot water refill.
"Hot Feeding Off": Click on the button, for closing the Hot water refill.

"Ack Light On": Click on the button, for switching on the Ack light.
"Ack Light Off": Click on the button, for switching off the Ack light.
"Buzzer On": Click on the button, for switching on the buzzer.
"Buzzer Off": Click on the button, for switching off the buzzer.

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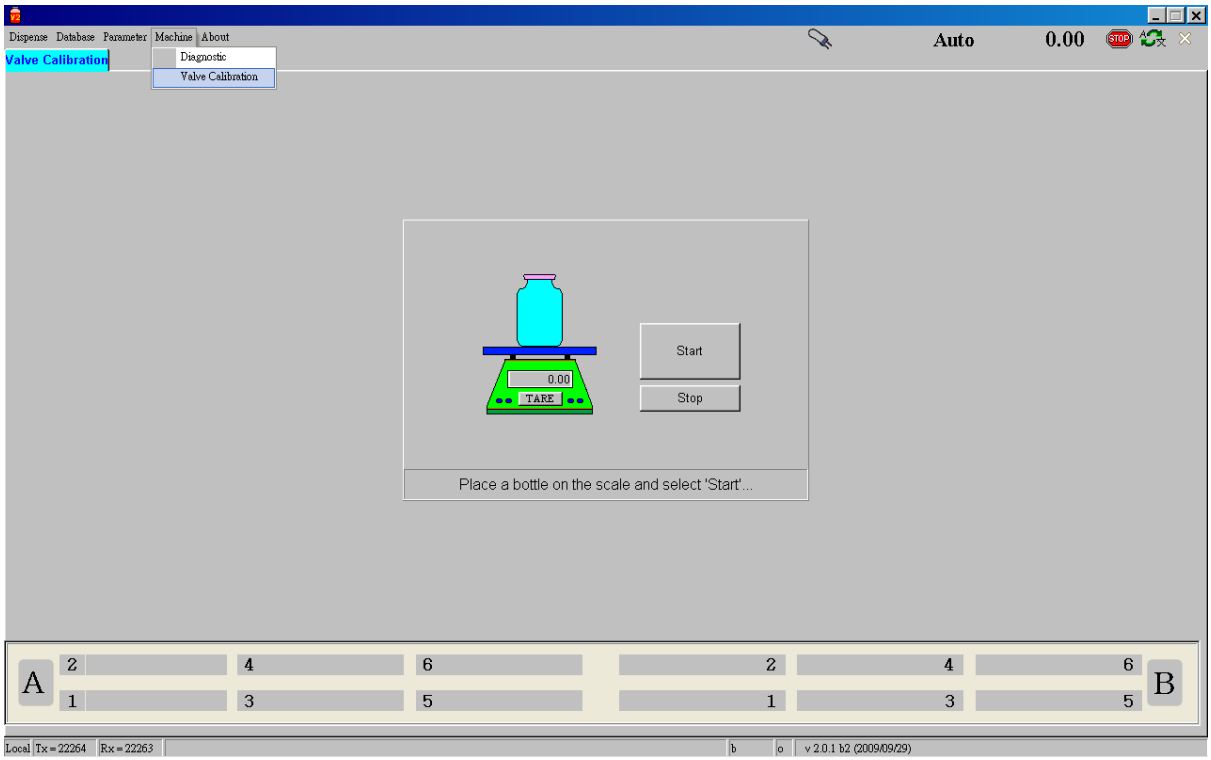
4-5-2 Autolab SPS Program – Machine – Valve calibration

You can choose the option “Valve Calibration” in Machine function of menu bar.

The function is for calibrating valve.



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Trial: Low Liquor Ratio (1:4) Dyeing in Ahiba IR

Machine:	Ahiba IR Pro
Beaker:	300cc beaker with Dosing Lids
Material:	5 gm Cotton Single Jersey knitted fabric
Dyes:	Reactive Dyes
Chemicals:	Glauber's Salt, Soda Ash, Caustic Soda.
	(Caustic Soda if required as per Shade was taken in liquid form in dosing lid.)

Process:

Three recipes were selected (Red, Green and Blue). Recipes were dispensed using Dispenser with maintaining liquor ratio 1:4. As Caustic was taken in liquid form, the quantity to be added later was reduced from total dispensing volume. Salt in solid form was added to the beaker. 5gm fabric was wetted with water and squeezed to maximum using padder.

Fabric was added to the beaker. Soda Ash & Caustic Soda were kept in solid form in dosing lids and loaded to machine.

Machine RPM keeping at 45, temperature was raised to 60°C at gradient of 1.5 °C/min. The machine was run with dyes and salt at this temperature for 45 mins. Temperature was cooled to 45 ° C and hold for dosing.

Dosing was done through dosing lids. Both Soda Ash and Caustic were added together. After Dosing Complete, Temperature was raised to 60 °C at 1.5 °C/min. Temperature was maintained at 60 °C and machine was run for 60 mins. After this the program ends. Samples were done a cold wash out side. Neutralization with acetic acid.Then washed with soap at 80°C for 10 mins.

Observations:

1. As we could simulate bulk conditions for low liquor, samples were compared with bulk dyed fabrics and results were acceptable.
2. Dosing time was reduced to large extent.This also help as temperature does not falls during dosing time.
3. Found that dosing in liquid form is better than solid form as some particle may remain undissolved during dosing that may affect shade. Particularly in light shades.