HG-TC938
染色机控制电脑
HG-TC938 CONTROLLER
FOR
DYEING MACHINE

使用说明书
USER’S MANUAL

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CONTENTS

一、Brief Introduction of Characteristics

Dyeing machine control the computer using 5.7-inch (320X240 pixel) multicolor / monochrome LCD display, using a friendly man-machine interface, high-definition&wide screen. This system can hold the whole process control totally automatically. It is the ideal equipment in dying line to improve the dying quality, reduce engine consume, alleviate the labor strength and increase economic performance. With the perfect effect of controlling temperature, this machine can be widely applied for different objects of controlling temperature, such as: Normal temperature dyeing machine, High temperature dyeing machine and yarn dyeing machine.

Main Specification：

1. Output interface
Communicate with PLC, 64 switching value outputs at most.
Five (4~20mA) analog inputs.
All the switching value outputs and analog outputs can be defined by users.

2. Input interface
Communicate with PLC, 64 switching value inputs at most.
Four PT100(temperature sensor) inputs.
Six analog input signals(4~20mA).
Two pulse value input signals.
All the switching value outputs and analog inputs can be defined by users.

3. Temperature control specifications
Temperature measurement component: Pt100 platinum heat resistance.
Test temperature range: 000℃---200℃
Temperature Control range: 000℃ ---150℃
Temperature s Control Speed: 0.1℃---9.9℃/min
Temperature s Control accuracy: isotherm state ±0.5℃
Temperature control method: optimized automatically control

4. Programmable functions
Programmable process number: 110, programmable steps number 200 (0—199).

5. Power working range
Power supplying range: AC90~240V
Power consume of the whole machine:≤20 W

6. Working environment
Working temperature: ≤50 ℃,
Relative humidity ≤90%

7. Dimension of apparatus
Wide (205) × high (259) × deep (80) mm^3
Installing hole dimension: 183×236 mm^2

II．Operating Guide

2．1 Functions of keys

F1~F4 Assistant operating keys whose function names are displayed on the lower part of the screen.

“0” number 0；
“1” number 1 and space bar；
“2” number 2 and English letter abcABC；
“3” number 3 and English letter defDEF；
“4” number 4 and English letter ghiGHI；
“5” number 5 and English letter jklJKL；
“6” number 6 and English letter mnoMNO；
“7” number 7 and English letter pqrsPQRS；
“8” number 8 and English letter tuvTUV；
“9” number 9 and English letter wxyzWXYZ；
“+/-” +、-symbol；
“.” Decimal symbol；
PASSWORD LOCK key Prevent someone to edit or modify, it provide multilevel password protection. Before we enter the next level, please press the key and input the given password.

RUN key make the computer to operating state；

STOP key make the computer to pause；

ESC make the computer escape from the current menu;

OK key enter next menu or confirm the current operation；

Delete key used to delete the characters and symbols input from the keyboard.

Switch key switch input method under character editing state;

Direction key They are cursor-up/down/left/right moving keys under edit state, cursor-left and right keys respectively are page up and down under list state.

2．2 Main interface

1. Time display 2.Main Tank temperature 3. Stock Tank temperature 4. Count down time 5. operating status 6. Alarm status 7. Run equation step 8. Main Tank water level 9. Stock Tank water level 10. Addition Tank1 water level 11. Run equation Number 12. Parallel Function instruction 13. Main function instructional parameter 14. IME 15. Functional key

1. system time, display current time.
2. Display Main Tank temperature
3. Display Stock Tank temperature
4. Count down time
5. Operate status，display the current operating status：wait-ready-run-pause-end.
6. window, recycle display current alarm record (online record), when a alarm signal disappears, the computer will automatically cancel the alarm display, but it is still possible to require the alarm event in Record.
7. Run equation Number
8. Main Tank water level
9. Stock Tank water level
10. Addition Tank1 water level
11. Run equation Number
12. Parallel Function instruction
13. Main function instruction
14. IME ICO, display the current IME status; press Switch key to switch typewriting.
15. Functional key definition.

三、Edit Dyeing Equation

3.1 Framework of Equation

Editing and running dyeing equation can be finished under the controller. Every equation including its heading and content.

3.1.1 Heading of Equation

Every equation has its heading, including: number, name, date, the latest modify date, step number

3.1.2 Process of Equation

Every step includes a main function and 12 parallel functions

Main function is the main run action of a step

3.1.2.1 Function of Dye

It includes its name and 4 parameters at most, display with graph

3.1.2.1.1 Main Function

Different groups are divided:

- Temperature Control
- Main Tank
- Stock Tank
- Addition Tank 1
- Addition Tank 2
- Others
- Operator Call
- System

3.1.2.1.2 Parallel Function

Parallel function is operated with the main function of the same step

Different groups are divided:

- Fill
- Drain
- Main Tank
- Addition Tank 1
- Addition Tank 2
- Pump
- Transfer
- Others

3．4 Brief introduction of all Functions：

Finish

Every process needs the end step and this computer will automatically generate a end step. Stop all the outputs except Pressure relief and lock to end, then alarm.

Parallel Function

In a certain step, editing the parallel function is the only action. In the place of parallel function should be edited “carry out parallel function”, which will decide when controller go to the next step automatically.

M-Heat

This function is used to control the temperature of main pump. Heating mode can be set in system parameter. There are relay mode and analogy mode（4～20mA）and mixed mode (mix relay mode and analogy mode).

The first parameter is the target temperature in the Temp item, the computer will carry out up/down-grading control according to the difference between actual temperature and target temperature and enter into heat preservation state in the allowed deflection range, the deflection range can be modified in parameter set item.

The second parameter is speed rate of up/down-grading temperature in Speed item, if

program 0.0, it indicates quick up/down grading temperature.

The third parameter is heat preservation time. When actual temperature reaches to the allowed deflection range, it will count the heat preservation time and it will enter into next step after the time reaches.

This function is affected by maximum temperature protection function, if the temperature is higher than the set value, it will automatically stop heating and give alarm call. During the temperature control time, the computer will automatically coldness relief and frozen water, the time of each time coldness relief and interval time can be set in parameter set item.

RunTime

This function is only used to count time, so it can't change the current input and output state. It will enter into next step when time is up.

S-Heat

This function is used to control the temperature of assistant pump. Heating mode can be set in system parameter. There are relay mode and analogy mode（4～20mA）and mixed mode (mix relay mode and analogy mode).

The first parameter is the target temperature in the Temp item, the computer will carry out up/down-grading control according to the difference between actual temperature and target temperature and enter into heat preservation state in the allowed deflection range, the deflection range can be modified in parameter set item.

The second parameter is speed rate of up/down-grading temperature in Speed item, if program 0.0, it indicates quick up/down grading temperature.

The third parameter is heat preservation time. When actual temperature reaches to the allowed deflection range, it will count the heat preservation time and it will enter into next step after the time reaches.

This function is affected by maximum temperature protection function, if the temperature is higher than the set value, it will automatically stop heating and give alarm call. During the temperature control time, the computer will automatically coldness relief and frozen water, the time of each time coldness relief and interval time can be set in parameter set item.

Flux

The first parameter is forward time, edit 0-3600 second
The second parameter is reverse rotation time, edit 0-3600 second
The third parameter is interval time, edit 0-3600 second

M-Pump

The first parameter is Opening the main pump needs to set opening water level, when input by maximum, medium and minimum water level, Water item should be programmed minimum, medium and maximum water level in main pump as 00001～00003; If liquid level gauge is used, program actual water level; after opening of main pump, it won't be limited by water level but only minimum water level protect limitation.

The second parameter is the operating time of M-Pump, if program On/Off event as 0, it will shut down the main pump immediately without being limited by mode, time and water

level. Time item is to program the opening time of main pump, the digit is other than 0, the pump start time will operate according to the edited time, when time is reached, the pump will stop; When time item is programmed as 0, it means that pump start will not be limited by time and the main pump will operate until the end step of shut down main pump or end step of parallel function, so if use main mode to start the main pump, the time item can't be 0, otherwise it can't enter into next step.

S-Pump

The first parameter is opening water level, when input by maximum, medium and minimum water level, water item should be programmed minimum, medium and maximum water level in assistant pump as 00001～00003; If liquid level gauge is used, program actual water level; If program On/Off as 0, it will shut down the assistant pump immediately without being limited by mode, time and water level.

The second parameter is to program the opening time of assistant pump, the digit is other than 0, the pump start time will operate according to the edited time, when time is reached, the pump will stop; When time item is programmed as 0, it means that pump start will not be limited by time and the assistant pump will operate until the end step of shutting down assistant pump or the end step of parallel function.

M-Add

This function is as same as that of M-Heat. The difference is that we open the valves of adding and heating isochronously, using the heating valves to control temperature only after warm-keeping.

M-WaterIn

The first parameter is water intake channels, there are 4 water intake channels in main vat. This item can edit 01～04，corresponding to the four water intake valves.

The second parameter is target water level, When use maximum, medium and minimum water levels, edit water level for the water intake in the water level item, 00001～00003 are corresponding to the main vat's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level (unit: L); the mode of water intake can be set in parameter, respectively are: maximum, medium and minimum water level, continuous liquid level, flow meter.

The third parameter is used for overtime alarm control, program 0 will not alarm; program the digit other than 0, time is up but the water level is not up the set value, it will give the alarm of "overtime water intake". This function is also affected by temperature of pressure relief, when the temperature in main vat is over the temperature of pressure relief, it will give the alarm of "high temperature water drain protection".

S-WaterIn

The first parameter is water intake channels, there are 2 water intake channels in main vat. This item can edit 1～2，corresponding to the four water intake valves.

The second parameter is target water level, When use maximum, medium and minimum water levels, edit water level for the water intake in the water level item, 00001～00003 are

corresponding to the main vat's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level (unit: L); the mode of water intake can be set in parameter, respectively are: maximum, medium and minimum water level, continuous liquid level, flow meter.

The third parameter is used for overtime alarm control, program 0 will not alarm; program the digit other than 0, time is up but the water level is not up the set value, it will give the alarm of "overtime water intake".

Addition Tank1-WaterIn,

The first parameter is water intake channels, there are 2 water intake channels in Addition Tank1. This item can edit 1～2， corresponding to the four water intake valves.

The second parameter is target water level, When use maximum, medium and minimum water levels, edit water level for the water intake in the water level item, 00001～00003 are corresponding to the main vat's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level (unit: L); the mode of water intake can be set in parameter, respectively are: maximum, medium and minimum water level, continuous liquid level, flow meter.

The third parameter is used for overtime alarm control, program 0 will not alarm; program the digit other than 0, time is up but the water level is not up the set value, it will give the alarm of "overtime water intake".

Addition Tank 2-WaterIn

The first parameter is water intake channels, there are 2 water intake channels in Addition Tank2. This item can edit 1～2， corresponding to the four water intake valves.

The second parameter is target water level, When use maximum, medium and minimum water levels, edit water level for the water intake in the water level item, 1 ～ 3 are corresponding to the main vat's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level (unit: L); the mode of water intake can be set in parameter, respectively are: maximum, medium and minimum water level, continuous liquid level, flow meter.

The third parameter is used for overtime alarm control, program 0 will not alarm; program the digit other than 0, time is up but the water level is not up the set value, it will give the alarm of "overtime water intake".

HiTFill

This function is same with main vat water intake, the only difference is this function has no limitation from pressure relief.

MWaterOut

The first parameter is water intake channels, This function is used for water intake as water level. There are 4 water intake channels in main vat. This item can edit 1 ～ 4， corresponding to the four water intake valves.

The second parameter is target water level, When use maximum, medium and minimum water levels, edit water level for the water intake in the water level item, 00001～00003 are

corresponding to the main vat's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level (unit: L); the mode of water intake can be set in parameter, respectively are: maximum, medium and minimum water level, continuous liquid level, flow meter.

The third parameter is used for overtime alarm control, program 0 will not alarm; program the digit other than 0, time is up but the water level is not up the set value, it will give the alarm of "overtime water intake". This function is also affected by temperature of pressure relief, when the temperature in main vat is over the temperature of pressure relief, it will give the alarm of "high temperature water drain protection". Besides, this function is affected by the overtime setting of the main vat water drain. When the main vat is drained to the minimum water level, the computer will carry out overtime drain till drain the rest water clearly then will enter into next step.

SWaterOut

The first parameter is water intake channels, There are 2 water intake channels in main vat. This item can edit 1～2，corresponding to the two water intake valves.

The second parameter is target water level, When use maximum, medium and minimum water levels, edit water level for the water intake in the water level item, 00001～00003 are corresponding to the main vat's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level (unit: L); the mode of water intake can be set in parameter, respectively are: maximum, medium and minimum water level, continuous liquid level, flow meter.

The third parameter is used for overtime alarm control, program 0 will not alarm; program the digit other than 0, time is up but the water level is not up the set value, it will give the alarm of "overtime water intake". This function is also affected by temperature of pressure relief, when the temperature in main vat is over the temperature of pressure relief, it will give the alarm of "high temperature water drain protection". Besides, this function is affected by the overtime setting of the main vat water drain. When the main vat is drained to the minimum water level, the computer will carry out overtime drain till drain the rest water clearly then will enter into next step.

Addition Tank 1-WaterOut

The first parameter is water intake channels, There are 2 water intake channels in Addition Tank1. This item can edit 1～2，corresponding to the two water intake valves.

The second parameter is target water level, When use maximum, medium and minimum water levels, edit water level for the water intake in the water level item, 00001～00003 are corresponding to the main vat's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level (unit: L); the mode of water intake can be set in parameter, respectively are: maximum, medium and minimum water level, continuous liquid level, flow meter.

The third parameter is used for overtime alarm control, program 0 will not alarm; program the digit other than 0, time is up but the water level is not up the set value, it will give the alarm of "overtime water intake". This function is also affected by temperature of pressure relief, when the temperature in main vat is over the temperature of pressure relief, it

will give the alarm of “high temperature water drain protection”. Besides, this function is affected by the overtime setting of the main vat water drain. When the main vat is drained to the minimum water level, the computer will carry out overtime drain till drain the rest water clearly then will enter into next step.

Addition Tank 2-waterOut

This function is used for dyestuff vat water drain as water level.

When use maximum, medium and minimum water levels, edit water level for the water intake in the water level item, 00001 ～ 00003 are corresponding to the dyestuff vat’s minimum, medium and maximum water levels；When use continuous liquid level, edit actual water level (unit: L); Ctrl item is used to program the valve of water drain. There are 2 water drain channels in dyestuff vat. This item can edit 1～2， corresponding to the two water drain valves. Be sure the function of each valve such as: which one is for clear water drain and which is for dirty water etc. Time item is used for overtime alarm control, program 0 will not alarm; program the digit other than 0, time is up but the water level is not up the set value, it will give the alarm of “overtime water drain”. Besides, this function is affected by the overtime setting of the assistant vat water drain. When the assistant vat is drained to the minimum water level, the computer will carry out overtime drain till drain the rest water clearly then will enter into next step.

HiTDrain

This function is same as the main vat water drain, the only difference is this function is not affected by pressure relief temperature.

Wash1

The first parameter is water intake channels, there are 4 water intake channels in main vat. This item can edit 1～4， corresponding to the four water intake valves.

The second parameter is cycle time.

The third parameter is washing time of each cycle.

The fourth parameter is drain valve, there are 4 useable drain valves in main vat. This item can edit 1～4， corresponding to the four water intake valves.

When process runs to this step, turn on water intake to maximum water level in main vat, then stop water intake, open main pump, start to count the washing time. When washing time is up, it turns off main pump then turns on water drain. When the water is drained down to the minimum level, one washing cycle is completed. If edit Loop item as other digit other than 0, it will repeat the above operation till the washing times are finished. If need to heat, control the temperature is ok.

Wash2

This function is not loaded.

Addition Tank 1- Addition Tank 1

The first parameter is the start-up time of feeding valve.

The second parameter is the pause time for feeding valve.

The third parameter is the target water level, 1～3 are corresponding to the addition tank1's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level.

The fourth parameter is feeding valve. There are 2 useable feeding valves in addition tank1. This item can edit 1～2，corresponding to the two water intake valves.

It will pause when it is fed to be lower than the set value, if reach the minimum water level, it will carry out feed delay and till all the remaining dyestuff is fed. It will stop after vat washing and enter to the wash tank step automatically.

Addition Tank2- Addition Tank1

The first parameter is the start-up time of feeding valve.

The second parameter is the pause time for feeding valve.

The third parameter is the target water level, 1～3 are corresponding to the addition tank2's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level.

The fourth parameter is feeding valve. There are 2 useable feeding valves in addition tank2. This item can edit 1～2，corresponding to the two water intake valves.

It will pause when it is fed to be lower than the set value, if reach the minimum water level, it will carry out feed delay and till all the remaining dyestuff is fed. It will stop after vat washing and enter to the wash tank step automatically.

Addition Tank 1 feed circularly

The first parameter is the feed temperature.

The second parameter is the total time for feeding.

The third parameter is the target water level.

The fourth parameter is the lingering time of F-Reflux reopening.

This step-by-step run-time functions, a return to open the Addition Tank valve, feed pumps, valves feeding 1, 1 mixing valve, When the water level reached the level set when a valve clearance to return, if set too low water level has begun to include Delay time, time to re-open after a return valve, so the cycle until the total feeding time. Between the clearance to return valve1, 2 feed valve clearance, clearance mixing valve1, the feeding valve and a mixing valve2 until the expected increase in expected low-water tank Bit, automatic washing tank into the state.

Addition Tank 2 feed circularly

The first parameter is the feed temperature.

The second parameter is the total time for feeding.

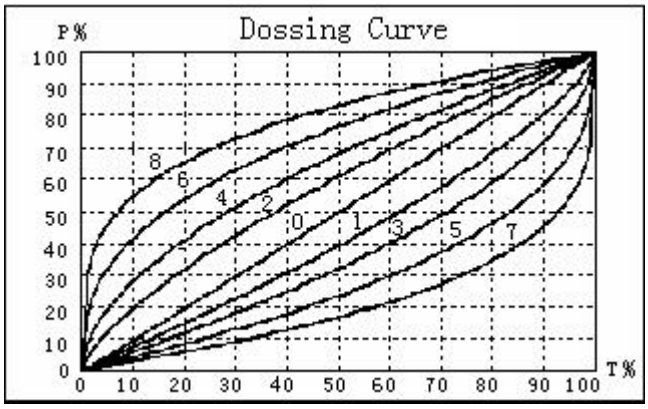
The third parameter is the target water level.

The fourth parameter is the lingering time of F-Reflux reopening.

This step-by-step run-time functions, a return to open the valve, feed pumps, valves feeding 2, 2 mixing valve, When the water level reached the level set when a valve clearance to return, if set too low water level has begun to include Delay time, time to re-open after a return valve, so the cycle until the total feeding time. Between the clearance to return valve1, 2 feed valve clearance, clearance mixing valve1, the feeding valve and a mixing valve2 until

the expected increase in expected low-water tank Bit, automatic washing tank into the state.

Addition Tank 1-Dosing



The first parameter is the feed temperature.

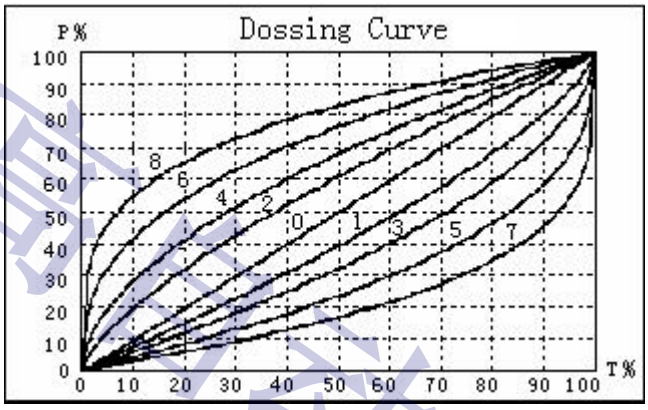
The second parameter is the target water level.

The third parameter is curve number, edit 0-9.

The fourth parameter is feeding time.

Rise the temperature to the set temperature. Then the computer feed the set quantity of dyestuff according to the curve track; if reach the minimum water level, it will carry out feed delay and till all the remaining dyestuff is fed. It will stop after twice vat washing. This function can be carried out by relay mode and analogy mode. The mode of feeding can be set in parameter setting.

Addition Tank 2-Dosing



The first parameter is the feed temperature.

The second parameter is the target water level.

The third parameter is curve number, edit 0-9.

The fourth parameter is feeding time.

Rise the temperature to the set temperature. Then the computer feed the set quantity of dyestuff according to the curve track; if reach the minimum water level, it will carry out feed delay and till all the remaining dyestuff is fed. It will stop after twice vat washing. This function can be carried out by relay mode and analogy mode. The mode of feeding can be set in parameter setting.

Addition Tank 1-Pump

The first parameter is opening water level, when input by maximum, medium and minimum water level, Water item should be programmed minimum, medium and maximum water level in dyestuff pump as 1～3; If liquid level gauge is used, program actual water level;

The second parameter is the opening time of addition tank1, the digit is other than 0, the pump start time will operate according to the edited time, when time is reached, the pump will stop; When time item is programmed as 0, it means that pump start will not be limited by time and the main pump will operate until the end step of shutting down dyestuff pump or the end step of parallel function.

Addition Tank 2-Pump

The first parameter is opening water level, when input by maximum, medium and minimum water level, Water item should be programmed minimum, medium and maximum water level in dyestuff pump as 1～3; If liquid level gauge is used, program actual water level;

The second parameter is the opening time of addition tank2, the digit is other than 0, the pump start time will operate according to the edited time, when time is reached, the pump will stop; When time item is programmed as 0, it means that pump start will not be limited by time and the main pump will operate until the end step of shutting down dyestuff pump or the end step of parallel function.

Addition Tank 1-Heat

This function is used to control the temperature of Addition Tank 1. Heating mode can be set in system parameter. There are relay mode and analogy mode（4～20mA）.

The first parameter is the target temperature in the Temp item, the computer will carry out up/down-grading control according to the difference between actual temperature and target temperature and enter into heat preservation state in the allowed deflection range, the deflection range can be modified in parameter set item.

The second parameter is speed rate of up/down-grading temperature in Speed item, if program 0.0, it indicates quick up/down grading temperature.

The third parameter is heat preservation time. When actual temperature reaches to the allowed deflection range, it will count the heat preservation time and it will enter into next step after the time reaches.

Addition Tank 2-Heat

This function is used to control the temperature of Addition Tank 2. Heating mode can be set in system parameter. There are relay mode and analogy mode（4～20mA）.

The first parameter is the target temperature in the Temp item, the computer will carry out up/down-grading control according to the difference between actual temperature and target temperature and enter into heat preservation state in the allowed deflection range, the deflection range can be modified in parameter set item.

The second parameter is speed rate of up/down-grading temperature in Speed item, if program 0.0, it indicates quick up/down grading temperature.

The third parameter is heat preservation time. When actual temperature reaches to the allowed deflection range, it will count the heat preservation time and it will enter into next step after the time reaches.

S-Whisk

This function is used to open the assistant mixing valve according to time. It will shut down the assistant mixing function when time is up. This function is affected by the minimum water level control, it will shut down the assistant mixing valve.

Addition Tank 1-Whisk

The first parameter is whisk time.

The second parameter is protected water level.

This function will open the mixing valve according to time and turn off the function when time is up. This function is affected by the control of set water level. It will turn off the mixing valve 1 when water level reaches the set water level.

Addition Tank 2-Whisk

The first parameter is whisk time.

The second parameter is protected water level.

This function will open the mixing valve according to time and turn off the function when time is up. This function is affected by the control of set water level. It will turn off the mixing valve 2 when water level reaches the set water level.

S-Reflux

This function is used for stock tank according to water level.

The first parameter is reflux valve, there is 1 useable reflux valve in Stock Tank, edit 1 is ok.

The second parameter is target water level, When use maximum, medium and minimum water levels, edit water level for the water intake in the water level item, 1 ～ 3 are corresponding to the main vat's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level; the mode of water intake can be set in parameter, respectively are: maximum, medium and minimum water level, continuous liquid level, flow meter.

Addition Tank 1-Reflux

This function is used for Addition Tank 1 reflux according to water level.

The first parameter is reflux valve, there is 1 useable reflux valve in Stock Tank, edit 1 is ok.

The second parameter is target water level, When use maximum, medium and minimum water levels, edit water level for the water intake in the water level item, 1 ～ 3 are corresponding to the main vat's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level; the mode of water intake can be set in parameter, respectively are: maximum, medium and minimum water level, continuous liquid level, flow meter.

Addition Tank 2-Reflux

This function is used for Addition Tank 2 reflux according to water level.

The first parameter is reflux valve, there is 1 useable reflux valve in Stock Tank, edit 1 is ok.

The second parameter is target water level, When use maximum, medium and minimum water levels, edit water level for the water intake in the water level item, 1 ～ 3 are corresponding to the main vat's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level; the mode of water intake can be set in parameter, respectively are: maximum, medium and minimum water level, continuous liquid level, flow meter.

Addition Tank 1 to Addition Tank 2

The first parameter is delay time.

The second parameter is target water level.

This function is used to add the dyestuff from vat1 to vat2. F1-pump and F1-connect valve will be opened automatically, it will feed according to the set water level (high) of dyestuff vat1 till the initialization. If it reaches the low water level of F1, it will delay the feeding time, if it reaches the high water level of dyestuff vat2 first, the feed F1-pump and F1-connect valve will be closed; if dyestuff vat2 dropping water level is lower the max, it will begin to count the delay time, reopen F1-pump and F1-connect valve when time is up. Water edit the feeding water level, Delay edit the delay time, Time edit 0 is ok.

Addition Tank 2 to Addition Tank 1

The first parameter is delay time.

The second parameter is target water level.

This function is used to add the dyestuff from vat1 to vat2. F1-pump and F1-connect valve will be opened automatically, it will feed according to the set water level (high) of dyestuff vat1 till the initialization. If it reaches the low water level of F1, it will delay the feeding time, if it reaches the high water level of dyestuff vat2 first, the feed F1-pump and F1-connect valve will be closed; if dyestuff vat2 dropping water level is lower the max, it will begin to count the delay time, reopen F1-pump and F1-connect valve when time is up. Water edit the feeding water level, Delay edit the delay time, Time edit 0 is ok.

M-PumpRev

Rotate speed item is used to program speed of main pump, unit is percent, 100% is the fastest speed， it outputs is 4～20mA to control the speed of main pump. On/off item is programmed as 0, it will turn off the function of main pump speed regulation.

Motor Rev CTRL

This functions is used to control the on/off and the speed of cloth raising. Speed edit the speed of cloth-raising, in percentage terms, 100% for the full-speed running, that is, the computer output is 4 ~ 20mA to control the becker speed.

Fan Rev

This function is used to control the on/off and the speed of becker. Speed edit the speed of becker, in percentage terms, 100% for the full-speed running, that is, the computer output is 4 ~ 20mA to control the becker speed.

ReverseRev

The first parameter is the speed of main pump in forward rotation.

The second parameter is the speed of main pump in interval rotation.

The third parameter is the speed of main pump in reverse rotation.

This function can control the speed of main pump according to the forward、 reverse rotation. Program speed of main pump in forward rotation item, interval item and reverse rotation. When reach to this step, the computer will control the speed of main pump by

4-20mA output according to forward、 reverse rotation state. This function is valid only when set permission in system parameter setting.

Besides, **this function can't be used at the same time with main pump speed.**

Stock Tank to Main Tank

The first parameter is stock tank water intake valves, there is 1 useable tank water intake valve, edit 1～2 is ok.

The second parameter is delay time, when the water level lower than the lowest one, draw out the remaining water, the computer will stop till wash tank twice automatically.

The third parameter is the target water level, 1～3 are corresponding to the stock tank's minimum, medium and maximum water levels； When use continuous liquid level, edit actual water level.

The fourth parameter is stock valve to main valve, which has only one, edit 1is ok.

OverFall

The first parameter is water intake valve, edit 1 ～ 4, to four water intake valves respectively.

The second parameter is delay time.

The third parameter is overfall time.

When overflow, open water intake valve, overflow valve, when the water reached the maximum level, the main pump is started, it stops water intake and starts counting the overflow time. When the water level is lower than the maximum level, it will delay the time, when the delay time is up, it will go on water intake to the maximum level then stop water intake. This operation will repeat till the overflow time is ended, it will turn off the overflow valve and water intake valve then enter into the next step.

Connect

This function will open the connection valve according to time and turn off the function when time is up.

Balance

The first parameter is closing balance temperature.

The second parameter is balancing opening time.

The third parameter is overfall time.

This function will open the balance according to time and is affected by set temperature and pressure relief temperature limit. The main vat temperature is higher than the set temperature or pressure relief temperature, the balance valve will open and it will turn off the balance function when time is up.

Boosting

The first parameter is boosting valve, edit 1is ok.

The second parameter is pressurizing time, it turns off pressurizing function when time is up, no time limitation if program 0. Pressurizing is affected by pressure switch 1 and 2. If switch 1 is on, it turns off pressurizing valve; if it is off, it turns on pressurizing valve again. Switch 2 is on, it will open pressure relief valve automatically and it will be turned off till

switch 2 is off.

Decompress

The first parameter is pressure relief valve, edit 1is ok.

The second parameter is time item, Pressure relief according to time. Open pressure relief valve when pressure relief, it will turn off pressure relief function when time is up.

Depress

If the temperature is higher than the set temperature, it will turn off the pressure relief valve; If the temperature is lower than the set temperature, it will turn on the pressure relief valve. It is only effect in current process, in other words, it is process priority. With the end of this function, the parameter setting will return to the default setting; Edit Temp as 0, this function will be turned off.

VatLock

If the temperature is higher than the set temperature, it will turn on the vat locking valve; If the temperature is lower than the set temperature, it will turn on the vat locking valve.
It is only effect in current process, in other words, the parameters in the process will take the priority. With the end of this function, the parameter setting will return to the default setting.

ON-Valve

It opens on-valve according to time, close it when time is up. Edit time as 0, it will not affected by time.

Refl-Cool

The main vat temperature reaches the set temperature, the flux cooling valve will open and it will turn off when the main vat temperature is lower than the set temperature. This function is only affected by temperature limit.

Addition Tank 1 wash

According to the parameters of the first water or water 2 set to target after water, water stop. Now according to the parameters, stir valve open time (in seconds) 1 unit of time to close after mixing. If the parameter3 is set to 0, open charging valve and material pump, water feeding into the main cylinder cylinder, arrived at the low water level project delays time; after feeding If the parameter 3 is set to 1, open drain valve, reached the low water drainage delay time after time project to automatically jump next.

Addition Tank 2 wash

According to the parameters of the first water or water 2 set to target after water, water stop. Now according to the parameters, stir valve open time (in seconds) 1 unit of time to close after mixing. If the parameter 3 is set to 0, now open charging valve and material pump, water feeding into the main cylinder cylinder, arrived at the low water level project delays time;

after feeding If the parameter 3 is set to 1, open drain valve, reached the low water drainage delay time after time project to automatically jump next.

Call X X

Run to the function hint calls. Set time not is 0, the time to plunged into the next.

Setting time for 0 do not automatically plunged into the next, click OK to key plunged into the next.

3.3 New programs

3.3.1 Set Up New Program

In the main window, click "program" button (F4), appear menu directory figure 3-3-1.

Figure 3-3-1

Using shift key to select new "click" , push “OK " into establishing new program interface as shown in figure 3-3-2.

Figure 3-3-2

Input program number and name after building a successful to the edit stored programs as shown in figure 3-3-3 program interface

Figure 3-3-3

Then the dyeing process according to your need, step by step according to add (F3), input continuous dyeing action.

3.3.2 Edit Main Function

In the window (as shown in figure 3-3-3 F3), add or insert (F4), jump out the window as shown in figure 3-3-4, select the main function team. Each functional groups have a graphics to represent.

figure 3-3-4

Choose functional groups, shift by using shift key or directly by category number. Enter dyeing instructions window as 3-3-5.

figure 3-3-5

Using shift key to shift or choose dyeing instructions directly according to instruction numbers. Enter the main function instructions parameters window as 3-3-6

figure 3-3-6

3.3.3 Edit Parallel Function

In the window as shown in figure 3-3-6, add (F4), jump out the window as 3-3-7, choose parallel function team. Each functional groups have a graphics to represent.

figure 3-3-7

Using shift key to shift or choose dyeing instructions directly according to instruction numbers. Enter dyeing instructions window as 3-3-8.

figure 3-3-8

Using shift key to shift or choose dyeing instructions directly to choose dyeing instruction. Enter main function instruction parameters window as 3-3-9.

figure 3-3-9

After inputting parameters, shift to "save" and then “ok” button to store. If choose the wrong instruction and want to cancel, shift to "delete" and then “ok” button, or click "ESC button directly.

3.3.4 Store Program Step

After editing main function and parallel function, they should be stored up.
First shift to "save" bar, then click "OK" button to confirm.

figure 3-3-10

Program step will store data in the memory controller. Later, the program steps will be shown in figure 3-3-3. The main steps just be edited will be displayed against white.

3.4 Modify PROGRAM

In the main window, click "program" button (F4), appear menu directory figure 3-4-1.

Figure 3-4-1

Using shift key to select "modify", push “OK " into establishing new program interface as shown

in figure 3-4-2.

Figure 3-4-2

Using up/down shift key to move to the wanted modify programs, click "OK" button to confirm. Enter program editing screen as shown in Figure 3-4-3.

F2: (delete steps) F3: (add steps) F4: (insert steps)

Figure 3-4-3

Using up/down shift key to move to the wanted modify programs, click "OK" button. Modify main function parameters and then store them.

If you want to delete one step, move the cursor to the steps you want to delete using shift keys , then delete F2 (deleted) key.

If a step is wanted to insert before another step, Using up/down shift key to move to F4 (insert)

If want to add steps please press F3 (added).

3.5 Copy PROGRAM

In the main window, click "program" button (F4), appear menu directory figure 3-5-1.

Figure 3-5-1

Using shift key to select "modify", push “OK " into establishing new program interface as shown in figure 3-5-2.

Figure 3-5-2

First make sure the source program’s storage locations, and target program storage locations are set in "controller"; Using the direction key to move against white to the source program "location" column, press the "OK" button to select "controller". Then move against white shows to "source code" column, press "OK" button again, the popup window is for you to choose the dyeing programs you need. Using direction key to move to the dyeing programs you want and press the "OK" button. Selected programs, they will display "the source program" column as shown in figure 3-5-3.

Figure 3-5-3

After select the good source program, and then fill in the target program number and name (ways as dyeing programs).

Figure 3-5-4

Finally move against white key to "copy" column with the down shift key, and press the "OK" button to complete copy actions. A new dyeing programs are stored in the controller.

3.6 Delete Program

In the main window, click "program" button (F4), appear menu directory figure 3-6-1.

Figure 3-6-1

Using shift key to select "delete", push “OK " into establishing new program interface as shown in figure 3-6-2.

Figure 3-6-2

Select the first "controller". And press the "OK" button, then show the whole dyeing programs in another window as shown in figure 3-6-3.

Figure 3-6-3

Using the direction key to select the dyeing programs which want to delete. Press the "OK" button. In order to prevent the occurrence of mistake, then confirm delete from the tooltip, show as figure 3-6-4.

Figure 3-6-4

You can press the Esc button cancel delete selected dyeing programs.

Or press the "OK" button delete selected dyeing programs.

IV、Process Running

4.1 Startup a Passel

In the main window, click "program" button (F4), appear menu directory figure 4-1.

Figure 4-1

Using shift key to select "carry out", push “OK " into establishing new program interface as shown in figure 4-2. Controller distribute a passel automatically.

Figure 4-2

Inputting program number or click “OK” button, enter to Program list interface, as figure 4-3, select the wanted program

Figure 4-3

Click "save", if "batch input parameters" is set to "allow", enter into the input batch parameters interface shown in figure 4-4; If "batch input parameters " is set to "forbidden ", enter to the preparation state directly, as shown in figure 4-4

FIG. 4-4

Inputting batch parameters according to the "storage" after entering to preparation state;

FIG. 4-5

Press the green button, then controller turns into "run", the program began to run.

V、Setting

In Settings, you can change the controller within the set parameters.

5.1 parameter Settings

In the main interface, press "set" button (F1), appear directory as shown in figure 5-1-1.

Figure 5-1-1

In unlock password situation, choose parameter setting, and press the "OK" button. Will show set parameters shown in figure 5-1-2 list

Figure 5-1-2

Using shift key to choose the modify parameters item which is wanted, then click "OK" button to enter the corresponding set interface to modify.

The parameters is divided into 10 categories: time parameters, the temperature parameters and water level parameters, control parameters, the system parameters, linear calibration, switch output, switch input, analog output, analog input.

5．1．1 Time parameters

Figure 5-1-3

1．Main Tank direct draining valve opening time(M-Drain Time)：

To set the opening time of the coldness relief valve; the unit is second; this time

can’t be so long, otherwise it will waste steam.

2．Main Tank direct draining interval (M-Drain ST）

During heating, condensed water will be accumulated in the heat exchanger after a period of operation, direct draining is used to drain off the condensed water in the exchanger so as to increase heating efficiency. Direct draining interval is to set the interval of computer automatically open the coldness relief valve, the unit is minute.

3．Main Tank direct draining delay(M-Drain DLT)：

During computer controlled water draining, when the water is drained to the minimum level, there is still some water remaining in the dye vat. The setting of delay parameter is to prolong the draining time and allow the water in the vat to be completely drained off. The unit is second.

4．Main Tank water intake delay(M-Fill delay）

Water intake delay is to prolong some time for water intake after the water have reached the target water level because many output valves have relation with water level signal, if the water level is floating around the target valve, the water level signal will appear some time and disappear some time, which can affect the control effect of computer, so prolong the water intake time is to solve this problem.

5．Assistant Tank direct draining opening time(S-Drain Time):

Assistant vat direct draining interval; Assistant vat direct draining delay; Assistant vat direct water intake delay; dyestuff vat draining delay; dyestuff vat water intake delay etc are same with the main vat, so no need to say it again.

6．Addition Tank1(2) draining delay(F1(2)-Drain DLT)：

During computer controlled water draining, when the water is drained to the minimum level, there is still some water remaining in the dye vat. The setting of delay parameter is to prolong the draining time and allow the water in the vat to be completely drained off. The unit is second.

7. Addition Tank1(2) water intake delay(F1(2)-Fill delay)

Water intake delay is to prolong some time for water intake after the water have reached the target water level because many output valves have relation with water level signal, if the water level is floating around the target valve, the water level signal will appear some time and disappear some time, which can affect the control effect of computer, so prolong the water intake time is to solve this problem.

8. Addition Tank1(2) feed delay(F1(2)-Feed DLT)：

When the dyestuff is fed to the minimum level, there is still some dyestuff remaining. The setting of delay parameter is to prolong the feeding time and allow the dyestuff to be completely fed. However, this time can’t be too long, it should be

set according to the debug because the dyestuff pump is easily broken after completing the dyestuff feeding but the time is not up.

9．Washing items of dyestuff vat1(2)：

First Wash： the time of the first time to open the dyestuff vat water intake after feeding delay, Set this item as 0, it means no washing after feeding.

First delay： set the delay time of the first water wash, this time is used to make the washed dyestuff into main vat. Set 0 won't delay and it will directly begin the second washing process.

Second Wash、Second delay： same setting with the first wash. Set this item as 0 , it means wash once.

Third wash、third delay：same setting with the first wash. Set this item as 0 , it means wash twice.

Notice: during the third time delay, no need to open the feed valve, but open the dyestuff drain to drain the water of the third time instead of in pouring to main vat.

10．Main pump、Stock pump、F1、2 pump open delay：

This parameter is good for protect main pump, prevent from opening main pump without water. Usually set it as several seconds.

11. Cloth-raising round open delay(Motor delay)

This parameter is the delay time for the main pump after starting, the cloth-raising round can be started only after the starting of the Main pump, if there will be a long time for the main pump to start, the delay time can be extended accordingly.

12．Time of automatically forward rotation(Auto Influx)：

If SYSTEM-> MPump Run mode are set as automatically open， then the control function of forward/reverse rotation will automatically carry out, and this parameter will be the windows default.

13．Automatically interval(Auto Pause)：

Same with above, omitted.

14．Automatically reverse rotation time(Auto Efflux)：

Same with above, omitted.

15. Warning last time(Alert Time)

When the alarm event happen, the computer will automatically jump the alarm indicate window and give the call, if there is nobody there, it will keep warning which is quite annoying. The purpose of this setting is to set the warning last time , when the time is up, the computer will close the warning window and calling. However, if the alarm event doesn't disappear, the warning light won't be off.

Notice：If program 0, it won't cancel the alarm automatically.

5．1．2 Temperature parameters

Figure 5-1-4

1．Temperature deviation parameter(S-temp、F1、2 Excu)：

The maximum calibration scope is：-9.9～+9.9℃

2．Default pressure relief temperature (Decomp. Temp)：

Use to set the temperature of turning off pressure relief valves. When the temperature is higher than this set temperature, it will turn off the pressure relief valve; otherwise, it will open the pressure relief valve; but if there is the step of pressure relief function edited in process, the control temperature of pressure relief is depended on it, in other word, the process takes the priority.

3．Default vat locking temperature(VatLock Temp)：

Use to set the temperature of opening vat lock. When the temperature is higher than this set temperature, it will open the vat lock valve; otherwise, it will turn off the vat lock valve; but if there is the step of the vat lock function edited in process, the control temperature of the vat lock is depended on it, in other word, the process takes the priority.

4．Maximum protective temperature(Maximum Temp)：

It is used to set the protective high temperature. When the temperature is higher than this set temperature, the computer will jump the high temperature protective window and turn off the related output valve to protect the safety of equipment and staff.

6．Maximum temperature of heat preservation(HP upper limit)：

Set the maximum temperature deflection between actual temperature and set temperature during heat preservation. When temperature is over the maximum temperature limitation, it will open cooling valve to decrease the temperature.

7．Minimum temperature of hear preservation(HP lower limit)：

Set the minimum temperature deflection between actual temperature and set temperature during heat preservation. When temperature is lower the minimum temperature limitation, it will open heating valve to increase the temperature.

8．Default pressurizing temperature(Boosting Temp)：

When the actual temperature reaches pressurizing temperature, there will be pressurizing temperature output. (need to be set in input and output setting)

5．1．3 Water level parameters

Figure 5-1-5

1．Water level of main tank(M-Water High)：

Set the actual water level of the full vat, or use the full-scale value of the

continuous liquid level gauge, unit is litre. If the full –scale value of the continuous liquid level gauge is 10000L, this value should be set as 10000.

2．Main tank water level deviation(M-Water Offset)：

If the 0 scale of the liquid level gauge is different from that of the vat, the difference can be compensated by setting this parameter. The compensated range is -9999～+9999L

3．Advanced water intake control for the main tank (MWater advance)：

In order to avoid over water intake, you can set this parameter to turn off the water intake valve in advance.

4．Maximum, medium, minimum water level setting of main tank：

This item is used to set the actual value of the continuous liquid level gauge corresponding to the maximum, medium, and minimum water level in main vat. For example, suppose the water level of main vat is 10000L， but 9000 is the maximum water level， M-High Water is 9000; if 5000L is medium water level， M-Mid Water is 5000; if 1000L is minimum water level， M-Low Water is 1000.

5．Maximum, medium, minimum water level of stock and addition tank1(2):

The same setting with the main vat, no need to repeat.

7. Water gauge flow parameter(Flux Settings)：

This item is used to know water meter flowmeter, which is used to let the water in with this water flow way.

8．Yarn-water level(No.1-13 Level):

This setting for gauze water, represent the amount of water of each gauze.

5．1．4 Control parameters

Figure 5-1-6

1. The main cylinder temperature control proportion parameters:

This is the proportion coefficient, PID adjust increases can quicken the regulation reduces errors, but will cause instability.

2. The main cylinder temperature-controlled integral parameters:

This is the integral PID regulation, this action can time, reduce error value no difference degree, improve the smaller With stronger.

3. Main cylinder temperature differential parameters:

This is the differential time, PID adjust the role of the deviation trend foreseeable, reduce overshoot, the more value Small role weaker.

4. Vice cylinder feeding cylinder temperature, 1 (2) charging ratio, integral, differential

parameters:
The parameters of temperature control with main cylinder, slightly similar PID parameters

5. Manual proportion temperature control:
This used to manually, if a corresponding switch quantity have signal input, output value according to the computer 4-20mA output no analogy, convenient PLC operate manually;

6. Manual proportion note material 1 (2) :
Same with above, omit.

7. Manual main pump speed:
Same with above, omit.

8. The default main pump speed:
Set the main pump default rate, when a process without a main pump made in speed functions, the computer can go according to the set speed control System main pump speed.

9. Automatic are turning pump speeds:
If the system parameters - > reversing pumps speed control set to allow, the positive &negative control function during execution, press The parameters on the main pump automatic speed.

10. Automatic interval pumping speed:
Same with above, omit.

11. Automatic reversal pump speeds:
Same with above, omit.

12. Material a follow adding rate output:
This represents material in a circular cylinder the output of proportional valve when feeding ratio.

13. Material 2 follow add scale output:
This represents the circulation feeding cylinder the output of proportional valve when feeding ratio.

14. Minimum temperature analogy opening:
This represents temperature control the minimum output proportional valve when the opening.

15. Charging analogy minimum opening:
This represents when feeding proportional valve opening the minimum output.

16. Manual lift cloth speed:
This represents the mention cloth speed manual.

5．1．5 System parameters

Figure 5-1-7

1． PLC type：

Choose PLC type in this item, wrong set computer or failure of communicate with PLC, it will give the warning “PLC wrong connect”

The main supported PLCs :

1. SANLING FXIN and SANLING FX2 SERIES（support communication of RS485 or RS422）
2. LG–Master-K SERIES, supportRS485 communication.
3. TAIDA DVP-ES SERIES, support RS485 communication.

3. Water intake modes:

There are 4 water intake modes: M-WaterIn mode, S-WaterIn mode, F1-WaterIn mode and F2-WaterIn mode, they are set according to the sensor which is actually used. 0 - WATER LEVELl; 1 - WATER GAUGE; 2 - FLOWMETER.

If this setting is incorrect, the computer control will be abnormal by collecting the wrong data during process operation, so you should be sure of the right mode.

4．Temperature control methods(M-Heat up mode)：

This item is to choose the temperature control method of each vat, 0-relay mode；1-analogy mode; 2-mixed mode.

Relay mode is to reach the up/down grading temperature according to the speed by the on and off time of relay in a controlled cycle.Analogy mode is to reach the up/down grading temperature according to the speed by the control of opening range of analogy valve to control the fast/slow up/down grading temperature.Mixed mode is the mixed one of the Relay mode and Analogy mode.

5．Feeding method of dyestuff vat1(2)(F1(2)-Feed mode)：

This item is similar to temperature control, 0-relay mode； 1-analogy mode.

6．Main pump opening method(MPump Run mode):

Set the main pump is automatically open by using cooperately with MPump Level when set automatically open, the main pump will automatically open when the main vat water level reaches the minimum water level; when the water level is lower than the minimum water level, it will turn off automatically, no need to program main

pump function in process.

7．Pump speed control of direction exchange(MPump Rev mode)：

Set the main pump is automatically adjust the speed, when set automatically adjust the speed, the computer will automatically control the main pump speed according to the default value of forward and reverse rotation.

8．Alert/Call mode：

Set this item as 0- COMBINED means the alarm and call will output at the same time, set 1- DIVIDED means the outputs of alarm and call is separate, in other word, the computer will only give the calling output when automatically run to prompt function and it only gives alarm output when only have alarm event, it is used to make out the different output state.

9. Fill Timeout:

This is for the choice of waterin time, alarm: this is for the alarming time of waterin overtime, do not jump further; Jump state: step directly after waterin, in order to be easier for some vats to waterin according to the time.

10. Drain Timeout:

This is for the choice of drainage time, alarm: this is for the alarming time of drainage overtime, do not jump further; Jump state: step directly after drainage, in order to be easier for some vats to drainage according to the time.

11、Run Valve Ctrl:

This is for the choice of the pause state of operation.

12. Positive &negative open mode:

Set to program, according to the open. The program function instructions Set to automatically opened, according to the main pump automatic open.

13. The interface press the ESC key:

Set to "quit batch", if the program is in the running state, in the main interface press "ESC button" exits current batch. Set to "no operation", in the main interface press "ESC key is invalid.

14. The main cylinder (deputy cylinder, materials, cylinder a, materials, cylinder 2) water high turn water:

This parameter is set to allow, then the main cylinder (deputy cylinder, materials, cylinder a, materials, cylinder 2) water high water will turn the water high into corresponding amount of water.

15. Meter parameters unit:

The water flow parameters of the unit said.

16. Batch input parameters:

This says running program whether to allow input batch of parameters. Overflow control:

5．1.6　linear parameter

Figure 5-1-8

Figure 5-1-9

This item is usually for trial before they have set up, users needn’t set.

5.1.7 Switch Output

There are 64 channels which can be set switch output channels.

5.1.8 Switch Input

There are 64 channels which can be set switch input channels.

5.1.9Analog Output

There are 5 roads which can be set analog output channels.

5.1.10 Analog Input

There are 10 roads which can be set analog input channels.

5.1.11 Main cylinder (deputy cylinder, materials, cylinder feeding cylinder 2), the amount of water

Each cylinder’s water high corresponding to the amount of water.

5.2 Other Settings

In the main interface, press "set" button (F1), appear menus directory as shown in figure 5-2-1.

Figure 5-2-1

Using shift keys to choose "other Settings", and click "OK" button to display "other Settings" project list as shown in figure 5-2-2.

Figure 5-2-2

5.2.1 Password

In figure 5-2-2 window, choose the password item then press "OK" keys, the password Settings window show as in figure 5-2-3

Figure 5-2-3

It is divided into 6 grades, which can be set a password respectively, the sixth one is the highest level. Different levels of password can get different access. High level password can have the permission which the low level have. The initial password is 4444 from the fourth level.

Store Level	Store to…	
Level 1		
Level 2	Select dyeing programs, execute new batch Fill in batch parameters	
Level 3	change parameters Change the dyeing program	
Level 4	Edit New、 select、 copy、 delete dyeing program	
Level 5	Parameter setting Change parameter setting	
Level 6	Change linear parameter	

	Content and meaning	Store grade
Preset level	Store grade without password	
Present level	Store grade with password	

5.2.2 Language

In figure 5-2-2, press the "OK" button to display language Settings window show as in figure 5-2-4

Figure 5-2-4

Using the shift key to select language.

5.2.3 Date and Time

In figure 5-2-2, choose the date and time, click "OK" key, displays the date and time Settings window show as in figure 5-2-5

Figure 5-2-5

Inputting the date and time, move against white shows to storage bar, and click "OK column set the date and time" button.

5.2.4 Equipment Address

Set mailing address.

In figure 5-2-2, choose equipment address items, press the "OK" button to display equipment address, show as in figure 5-2-6

Figure 5-2-6

After inputting equipment address, move against white to the storage bar, and press the "OK"

button to setup equipment address.

5.2.5 Contrast

In figure 5-2-2, choose contrast item, press the "OK" button to display contrast Settings show as in figure 5-2-7

Figure 5-2-7
Using up/down key to adjust contrast

5.3 copy parameters

In the main interface, press "set" button (F1), show menus directory as in figure 5-3-1.

Figure 5-3-1
Using shift key to choose the "copy parameters", and click "OK" button to display the "copy parameters shown in figure 5-3-2 project list.

Figure 5-3-2
Using shift key to select copy parameters, and press the "OK" button to display duplicate parameter, as in figure 5-3-3.

Figure 5-3-3
Click "OK" button to display selecting copy with shift key direction interface, direction and selecting copy by "OK" confirmation.

Then move the white column to "copy", and press the "OK" button to copy parameters. "copy completed" after copying. If reproduction failed then pop-up "reproduction failed".

5.4 software version

In the main interface, press "set" button (F1), show menus directory as shown in figure 5-4-1.

Figure 5-4-1
Using shift keys to choose "software version", and click "OK" button, can view the controller software version information as shown in figure 5-4-2.

Figure 5-4-2

5.4 Software Edition

In the main interface, press "set" button (F1), show menus directory as in figure 5-4-1.

Figure 5-4-1
Using shift keys to choose "software version", and click "OK" button, can view the controller software version information as shown in figure 5-4-2.

Figure 5-4-2

VI. Communication agreement between Computer and PLC

6.1 SANLING FX SERIES（be available to FX1N-FX2N）

Impropriate resource：M272～M335 64 outputs in total，corresponding to the switch outputs 00～63.

M336～M399 64 inputs in total， corresponding to the switch inputs 00～63.

The communication mode :1. **RS485, using module FX1(2)N-RS485-BD.**

Baud rate：9600、data bit：8、odd and even checkout: no、

Stop bit：1. DATASUM：YES

2.RS422, connect RSS422 directly, communication parameters are not needed.

6.2 LG–Master-K SERIES（except for K10S1）

Impropriate resource： M250～M28F 64 outputs in total， corresponding to the switch outputs 00～63.

M290～M32F 64 inputs in total， corresponding to the switch inputs 00～63.

The communication mode of HG-902X is **RS485 with all kinds of PLC.**

Baud rate：9600、data bit：8、odd and even checkout: no、Stop bit：1.

6.3 HaiWei PLC SERIES

Impropriate resource： M272～MS335 64 outputs in total，corresponding to the switch outputs 00～63.

M336～M399 64 inputs in total， corresponding to the switch inputs 00～63.

The communication mode of HG-902X is **RS485 with all kinds of PLC.**

Baud rate：9600、data bit：7、odd and even checkout: EVEN、Stop bit：1.

There are two lines RS485 communication of HG-938 computer: one is RS485/422, which is used to communicate with PLC, the other is RS485 which is used to monitor.

Connect line mark A stands for “+”side, B is for “–”side, if wrong connected, it will cause failure of communication.

Ⅶ. Wiring Diagram

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