

Manual

LC-16 system

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Environment

1. Temperature : 0-40? ?
2. Humidity : 10%-90% , Non condensing
3. Dust Free.
4. Avoid near the electromagnetic interfere, such as motors.

Operator's safety

1. Check the Ground connection to avoid getting the electric shock.
2. The inks and the cleaner may harmful for peoples, avoid get into mouth and eyes. Flush with a large quantity of water if get in eyes A.S.A.P.
3. Wear gloves if need to contact the ink or clean the print head .

Operation safety

1. Please ensure the system was shutdown before remove any connections.
2. Only the qualified people by manufacturer can repair the electronic parts of the system, they should be trained by the manufacturer.
3. The ink and cleaner are developed and tested by the manufacturer, use other consumables may cause the damage of the system.

Part 1 Installation and parameter setting

1) Preparing :

Choose the Installation position:

The distance between the substrate and the printhead should be in 2-12mm.

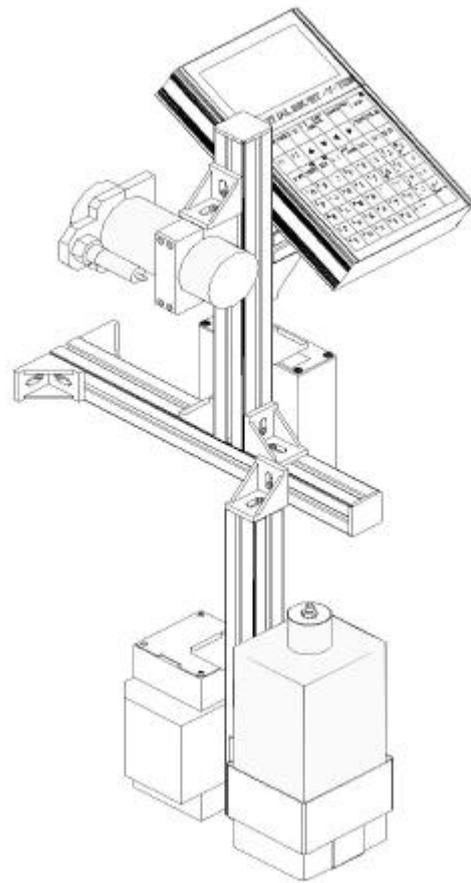
Choose the position where the substrates pass by stably.

It is recommended that keep a area about 1000mm x 1000mm for maintenance needs.

2) Installation :

Install the printhead as the picture.

Please ensure the front face of the printhead is near the substrate in 2-15mm, prefer 4- 8mm.



3) Priming :

Connect the longer tube to the printhead carefully, and then connect the shorter tube to the air tube output from the pressure unit with a rubber tube.

When the system is working the pump press air to the ink tank, to keep the pressure of the ink. The ink flow through the tubing to the printhead. Because there are air and cleaner in the tubing and printhead, Priming is necessary sometime.

The priming method is:

- (1) Place a cup or dust free cloth before the printhead front face.
- (2) Turn on the power; observe if the print is good or missing dot.
- (3) Press the **“Purge”** key, you can see the ink jet out from the upper 8 nozzles one by one, Press the **“F1”** key to purge the lower 8 nozzles.

Caution: Don't press the **“Purge”** and **“F1”** more than 10 times in 1 minutes, It may cause the printhead over heat.

4) Parameter setting.

1. Setting the print speed.

Press the "**Speed**" key, input from "0001" to "0230", the larger the slower.

Set speed depends on the conveyer moving speed, if the character print too narrow, set a large value.

The parameter T3 (See below of this page) effects the speed too.

2. Press "**Set up**", press 2 "**Settings**", press 4 "**Parameter Set**", press 1 "**Pulse Set**". Move the cursor with the arrow key to "**T3**" and set the value. The lowest value correspond to the fastest speed and viceversa. The default value is 15.

2. Setting the delay

The delay parameter is the time between the photo sensor triggered and start print.

Press the "**Delay**" key, Set from "0000"-"9999".

3. Setting Print direction.

Press the "**Direction**" key.

Set 00 or 01 depends on the print direction.

If use two print heads set the direction as indicated below (from 0 to 7):

0	1	2	3
F	F	F	F
B	B	B	B
4	5	6	7
B	B	B	B
F	F	F	F

4. Setting Time parameter **T3**.

Change the volume of T3 if the speed is very fast or very slow, set parameter T3. it will affect all time relative setting, such as Speed, Delay. .

Press "**Setting**" key, ? "2", ? "4", press "1" "**Pulse Set**", set "T3" (Time parameter) form "01"- "99", set 99 will cause the print speed very slow and can delay a very long time.

5. Bold.

Press the "**Bold**" key, set the bold lever 1-9, the system will print each dot 1-9 times.

6. Dot Size.

The dot size set the dot's diameter. If miss dot happens frequently, set it as a larger value. You can change the Dot size also by changing the T1 Value. (Press "**Setting**" key, press "2", "4", press "1" "**Pulse Set**")

5. Setting the purge time

Press "**Setting**" key, press "2", "4", press "1" "**Pulse Set**", the T2 value controls the purging time, the higher is the number the longer will purge and Viceversa.

5) Language selection.

In the "**Standby**" mode, ? "**Set**" key, ? "2" key, ? "5" key, select the language you prefer.

Part 2 Maintenance

To keep the system work in good condition, my need maintenance each start or when the print quality became bad.

1. Daily Start:

Spray some cleaner on the dust free cloth, wipe the nozzle plate slightly, wait a moment to dissolve the clogging.

2. Clean the print head:

If the Daily Start maintenance does not work, Place a cup or dust free cloth in front of the head.

Press the “**Purge**” key, you can see the ink jet output from the upper 8 nozzles, Press the “**F1**” key to purge the lower 8 nozzles.

Caution: Don't press the “**Purge**” and “**F1**” more than 10 times in 1 minutes, It may cause the printhead over heat.

Try to print a sample again, if the print quality not good, do maintenance again or do Nozzle Cleaning.

3. Nozzle Cleaning

If missing dot, you may need to do the Nozzle Cleaning.

Caution: Do the Nozzle Cleaning in a clean room only, otherwise the dust get into the printhead and cause the clogging again.

Always Pull out the tank air tube from rubber tubing to release the pressure before opening the printhead.

Handle each part very carefully, to avoid damages.

Only the person well trained by manufacturer does the Nozzle Cleaning.

1. Disassembly the nozzle plate, o-ring of the printhead.
2. Flush the printhead inside and the nozzle plate with solvent. Observe if each nozzle is clear with a back light.
3. If any nozzle is not clear clean it, preferably clean it with an ultrasonic cleaner.
4. If the nozzles are clear, reassembly the printhead.

Part 3 Input and printing message

LC-16 (16 Channels Controller) System store up to 50 messages:

All English letter, 0-9, special characters.

Up to 100 user defined logos.

The characters in one message up to 124 with the 8x8 dots or up to 62 with the 16 x16 dot Characters.

LC-16 (32 Channels Controller) System store up to 25 messages:

All English letter, 0-9, special character.

Up to 100 user defined logos.

The character in one message up to 100 with the 16x16 dots or up to 50 with the 32 x32 dots Characters.

1). Edit Mode

At the "Standby Mode", press the "**Edit**" key, the controller will get into the select Menu, press "**1**" to get into the "Message Edit Mode".

2). Choose the Message Number.

Press the "**Number**" key, input the number of the message which you want to edit, and press the "**Enter**" key. The message will be loaded onto the screen.

If the message is empty, "No message" will be displayed, press any key to start edit.

3). Input Message

a) Choose cursor type

LC-16 system support 3 types of characters as below:

8x8 dots letter or logos at *upper* line

8x8 dots letter or logos at *lower* line

16x16 one line

32x16 one line in 2 messages (Enter **Style "F1"** 12 to print this character).

Press the "Font", the cursor will change the type, a 16X1 dots cursor means 16x16 dot character input, a 8x1 dots cursor mains 8x8 dot character input.

b) Input character

Press the "? ", "? " key to choose the input position.

Press "**Font**" key to choose font type.

Press "**F1**" key to choose style, the default style 2 is standard English character, the style 03 are the Russian characters and the style 12 is the 32 Dots character digit.

To input a 16x16 dots symbol as in the Appendix 4, choose the large cursor, choose

the 1, input the address code then press "Enter".

For example: Input "1810" for "? ", "1717 " for "? ".

To input a 16x16 logo, press "**Font**" key to choose the large cursor, Press "**Graphic**" key and input the two digit number of the logo graphic stored, For example: "00".

To input a 8x8 dot character in the upper line, choose press "**Font**" key to choose small cursor on the upper line, input the character from the keyboard.

To input a 8x8 logo graphic, choose small cursor, Press "**Graphic**" key and input the two digit number of the logo graphic stored, For example: "00"

- c) When input the 8X8 dot character, press the "**Ctrl**" key, the Led on this key will light, to input the character on the left upper of the key. If the "**Shift**" led lights, input the character on the lower left.
- d) Input 32 dots character.

To insert a 32x16 Dots character you have to select "**Style 12**" by pressing the "**F1**" Key and type in the character chosen. Please Note that the screen will display only half character. The second half will be displayed in the second message where you must repeat the character sequence. The screen display the 16x16 dots character matrix only. When printing with 2 x 16 dots heads you will be able to display the message of printhead 1 in message 00 and the message of printhead 2 in message 01 and so on. When printing the 32 Dots character you must follow the same procedure. Message number 00 will display half of the character you are printing and message 01 the second half. For the other messages you have to follow the same order (02-03, 04-05, etc.).

- d-1) Style 03 will allow you to insert Russian Characters.

e) Input **Auto-data** in the message.

The **Auto-data** is the date, counter, shift code, which may vary in each print.

Press "**Auto-data**" key and input the number of the auto-data, and then press "**Enter**".

The controller will beep three times, if there is no room in the message or if it is not enough for the auto-data.

Auto- data list.

00	YY	Year of real-time
01	MM	Month of real-time
02	DD	Date of real-time
03	hh	Hour of real-time
04	mm	Minute of real-time
05	ss	Second of real-time
06	yy	Year of delayed -time
07	MM	Month of delayed -time
08	dd	Date of delayed -time
09	Shift code	Print the shift code according to real-time
10	Alpha Month	The 3 first characters of each Month
11	Julian date (Three digit)	The number of the date of the year.
12	XXXX	Printable 4 digit counter?
13	XXXXXXXX	Printable 8 digit counter, settable Press "counter reset" key to set.
14	offset	Set the offset between the real-time and the delayed time(06, 07 08).

4) Setting of Auto-data

a. Set Auto-data 09 (Shift code):

For Example:	T0	T1	T3	T4	T5	T0
	0800	1000	1600	2000	2400	0800
Shift Code:	A	B	C	D	E	

Auto-data 09 is a shift code which prints a letter and depends on the clock of the system. If the real-time is 9:00 (It is between T0 and T1), the Shift code printed as "A ".

"Standby mode", ? "**Setting**" ? "1" ? "2 ", to enter the Auto-data edit mode.?

Press "**Number**", input the the number 09 press "**Enter**" to Edit auto-data 09.

T0-T5 and all shift code letter can be set by the user.

b. Set time offset. Auto-data 14.

"Standby mode", ? "**Setting**" ? "1" ? "2 ", to enter the Auto-data edit mode.?

Press "**Number**", input the the number 09 press "**Enter**" to Edit auto-data 14.

Auto-data 14 is the offset between system time and delayed time.

For example, you want to print a message as " Produced in 2004/1/1, Best use before 2005/1/1" automatically, You should edit Auto-data 14 to be "365" days.

And then you edit a message with " Produced in (Auto-data 00,01, 02), Best use before (Auto-data 06,07,08)" , if system real-time was set as 2004/1/1, printer will print as " Produced in 20040101, Best use before 20050101", and changes every day automatically.

5) Edit sample

Print a message as below.

Green XXXX/XX
Pn 12345678

“xx/xx/xx“ will be print as “ date /month/ year “ of system clock.

“12345678 ” is a 8 digit counter.

Press “**Font**” Change the cursor to 16 x 1 dot, and input “**G**”,

Press “**Ctrl**”, input “r”, “e”, “e”, “n”, press “**Ctrl**” again, turn of the light on the ‘**Ctrl**’ key.

Press ‘**Font**’ key, change the cursor to upper line 8x1 dot mode

Press ‘**Auto-data**’, input “02”, “**Enter**”. (input the auto-data of date)

Press ‘**Shift**’, Input “/” . (in the lower –left of “**8**” key), Press ‘**Shift**’.

Press ‘**Auto-data**’, input “01”, “**Enter**”. (input the auto-data of Month)

Press ‘**Shift**’, Input “/” . Press ‘**Shift**’.

Press ‘**Auto-data**’, input “02”, “**Enter**”. (input the auto-data of Year)

Press ‘**Font**’ key, change the cursor to lower line 8x1 dot mode.

Input “P”, “n”

Press ‘**Auto-data**’, input “13”, “**Enter**”. (input the auto-data of Counter)

Press “**ESC**”, choose save the message.

6).Print message

a. Loading message.

In the stand by mode. Press “**Number**” key, and input the number of the message, then press “**Enter**”.

b. Print message

In the stand by mode, Press “**Print**” key.

Part 4 Edit Logo Graphic

a). Get into “Logo graphic Edit Mode”

“Standby Mode”, ? “ **Edit**” key, ? ” **3** ” to get into the “Graphic Edit Mode”.

Select 1 to get into large graphic 16x16 dot edit, press 2 for small 8 x 8 dot.

b). Edit 8 x 8 dot logo graphic.

See Appendix 1. Page 15

c). Edit 16x16 dot logo graphic.

See Appendix 1. Page 17

d). Input the “Input Code” to the controller.

Press the “**Number**” key to choose the logo edit mode , and move the cursor block to choose object, Press “**Enter**” to make the cursor shinning, input the “Input Code”, press “**Enter**” again to store. When a value inputted, the graphic at the right will be freshed.

Part 5 System settings.

At the “**Standby mode**”, press the Setting key, and choose **2** go get into the system setting menu. After setting, press “**Exit**” to back.

A. Clock setting

Choose **1** in the system setting menu, to get into the clock setting mode. Move the cursor block to the digit you want set, and press “**Enter**” key, input the setting value, and then press “**Enter**” key again, to store the value,

IF the value is not right, the controller beeps when press “**Enter**”.

B. Counter reset.

Choose **2** in the system setting menu, to get into the counter setting mode.

Move the cursor block to select the object your want edit.

The Upper limit is the end of the counter; the Lower limit is the restart point of the counter.

If the Lower limit is great than Upper limit, count with decrease mode.

The step is the value per count.

The nonce set a value you want the counter start from now.

C. Sensor setting.

Choose **2** in the system setting menu, to get into the sensor setting mode.

Press “**1**” key to set the photo sensor on or off, Press “**2**” key to set the encoder on or off.

Depending on the sensor settings, there are four mode of controlling.

1). Photo sensor on and encoder sensor off.

The print will be triggered by the photo sensor. When the photo sensor is triggered, the system wait a fixed time that was set by the “Delay” key, and then starts to print.

If the “time” parameter was set greater than 1, the system will print more than one time after the photo triggers once. The parameters behind the photo sensor set line is a delay time set between two times print. .

2). Photo sensor on and encoder sensor on.

The print will trigger by the photo sensor and encoder sensor.

When the photo sensor is triggered, system wait a fixed pulse of encoder that was set by “Delay” key, and then start print.

Press the “**Enter**” key to set parameters behind the lower line, after the first print, if the

photo sensor is not released, the system wait a fixed pulse of encoder that was set here, and then start the second print.

3). Photo sensor off and encoder sensor on.

The print will trigger by the encoder sensor only.

The system wait a fixed pulse of encoder that was set behind the lower line and then start print.

It is use for print a continuous substrate, such as carpet, with a fixed spacing.

4). Photo sensor off and encoder sensor off.

The print will trigger by the internal clock, the time between two print can be set at behind the upper line.

It is use for print a continuous substrates or to test the printer, such as carpet, with a fixed spacing.

D. Sensor testing

Choose **3** in the system setting menu, to get into the sensor testing mode.

Press "**1**" key to test the photo sensor, Press "**2**" key to test the encoder.

1. Test photo sensor. Trigger the photo sensor, if the count adds in the same time, photo sensor works well. If not, check the sensor and connections.
2. Test Encoder sensor. Trigger the photo sensor, if the count adds in the same time, photo sensor works well. If not, check the sensor and connections.

Set printer

1. Setting Time parameter **T3**. Please see page 4.
2. Times and fresh set.
Some applications require the printer to print 2 or more times after the photo sensor is triggered.
The "Times" set the times of print when a photo sensor is triggered and hold.
The "Fresh" set the Auto-date prints after the same trigger changes each time.

Advanced setting

At the "**Standby mode**", ? "**Setting**", ? " **2**"? " **6**" get into the advanced setting mode.

There is 1 -4 parameter can be set.

- 1.set 12 -16 (If input 12, all 16 x 16 character will be print as 12 column **width**).

2.set 5 – 8 (If input 6, all 8x8 Or 5 x7 character will be print as 6column **width**).

3.set 00, 01,02 (02 means no slant of printhead, 01 means 45° slant, 00 is 30° **slant**.)

According to the print direction, rotate the print head clockwise or opposite. May need to try a few times.

4..Print quality 00-03 (Set 00, to higher Speed but lower quality, set 03 the lower speed and better print quality.)

PART 6 VALVE TESTS AND ADJUSTMENT

If by any chance one of the dots is not printing you may want to do the following.

1. Make sure it is clean. Try to clean the front of the head with some wash and tex wipes.
2. Make sure the cable is connected properly.
3. Switch the printer on.
4. Edit a new message – Select style 01 by pressing the F1 key – Select the 16 Dots matrix character by pressing the Font key.
5. Select the valve you are having problems with by inserting the proper corresponding number:
 - 0901 corresponds to Valve 1
 - 0902 corresponds to Valve 2
 - etc.
 - 0916 corresponds to Valve 16
 - 0917 corresponds to a diagonal which print all 16 dots.
6. Press enter.
7. Press ESC and save the message.
8. Disconnect the air from the system..
9. Open the front nozzle plate.
10. Make sure the piston is clean and properly positioned in its position.
11. Press the print key and with the finger touch the corresponding valve piston. If you feel the vibration the valve is working if you do not the valve is damaged and you need to replace it.
12. If the valve is working you need to adjust it.
13. Mount the nozzle plate back to the head.
14. In order to adjust the valve you need to open the printhead and with a small flat screw driver rotate the back side of the valve clockwise and viceversa of 5 to 10° max at the time. Rotate the valve of 90° max. no more otherwise you risk to damage it. When you hear the valve vibrating connect the airsyttem and try to print. Adjust again the valve until you do not see a clear dot.

15.Part 7 Trouble shooting

Problem	Cause	Solutions
Message Lose	The message was not stored properly.	Store the message after the edit.
Speed is not fast enough when "speed" set 0001	T3 is too small. High quality print slowly	Set T3 with a smaller value. (Ref Page 4) Set the quality parameter a smaller value. (Ref p14)
Speed is not slow enough when "speed" set 0235	Same with upper	Same with upper
Controller display well, not print.?	Encoder setting on.	Set the encoder off.
	Photo sensor not works.	Get into the test mode, test the photo sensor. If fault, replace it. Ensure the photo sensor install well.
	Photo sensor installs error.	Ensure the photo sensor install well.
Miss dot	Dust in the nozzle or clogging.	Wipe the nozzle plate. Clean it if necessary.
	Miss upper or lower 8 dots.	Print Cable was not installed well.
Dot various	The dot size parameter set too small	Set the dot-size to 55 or greater.
	Some nozzle dirty.	Clean the nozzle.
Dot very small or pressure problem.	The filter at the print head back dirty.	Change the filter.
	Air leaking.	Check the air tube.

Appendix 1 Logo graphic edit

8X8 dot logo edit.

In this system, input the logo with the Hex coding, it is easy to copy to the other system or store in the PC.

STEP 1 Drawing logo

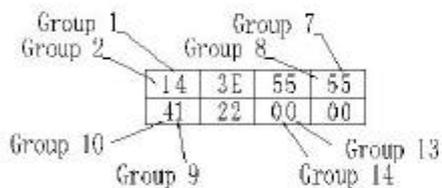
If drawing a logo for 7 dot print head, use the upper 7 line only.

STEP 2 Coding

The drawing should be divided into 16 groups, each group is 4-dot column as showed in the Figure 1.

Each group can be translate as a 1 digit Hex form 0 to Figure 2, and Figure.

Translate all group and fill in the table, the overview zone will show the logo in a large format.



"Standby Mode", --" Edit" ,-- " 3 " -- " 2 " to get into the "8 x 8 dot logo Edit Mode".

Input the coding in the same position in the controller.

The logo will be displayed in the overview zone

16 X 16 dot logo edit.

16 x 16 dot logo can be divided into 4 page 8x8 dot logo as Fig 3.

Each page editing is same with the 8 x 8 logo editing.

"Standby Mode", --" Edit" ,-- " 3 " -- " 1 " to get into the "16x16 dot logo Edit Mode".

Input the coding in each page into the controller.

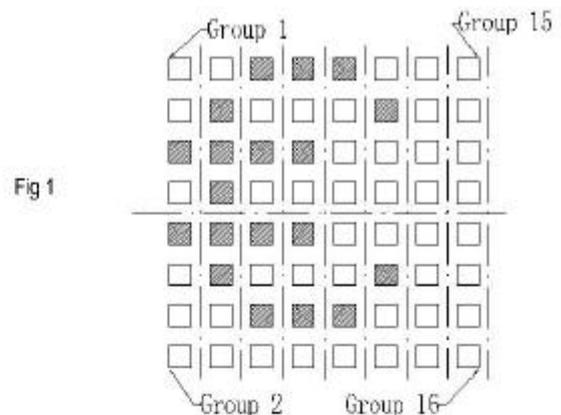


Fig 1

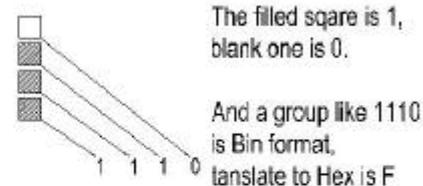


Fig 2

Coding Table

HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Group	□	■	□	■	□	■	□	■	□	■	□	■	□	■	□	■
Group	□	□	■	■	□	■	■	□	□	■	■	□	□	■	■	□
Group	□	□	□	□	■	■	■	■	□	□	□	□	■	■	■	■
Group	□	□	□	□	□	□	□	□	■	■	■	■	□	□	□	□

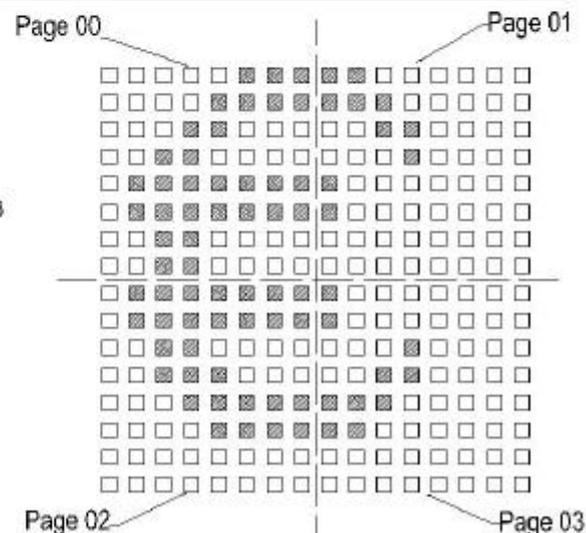
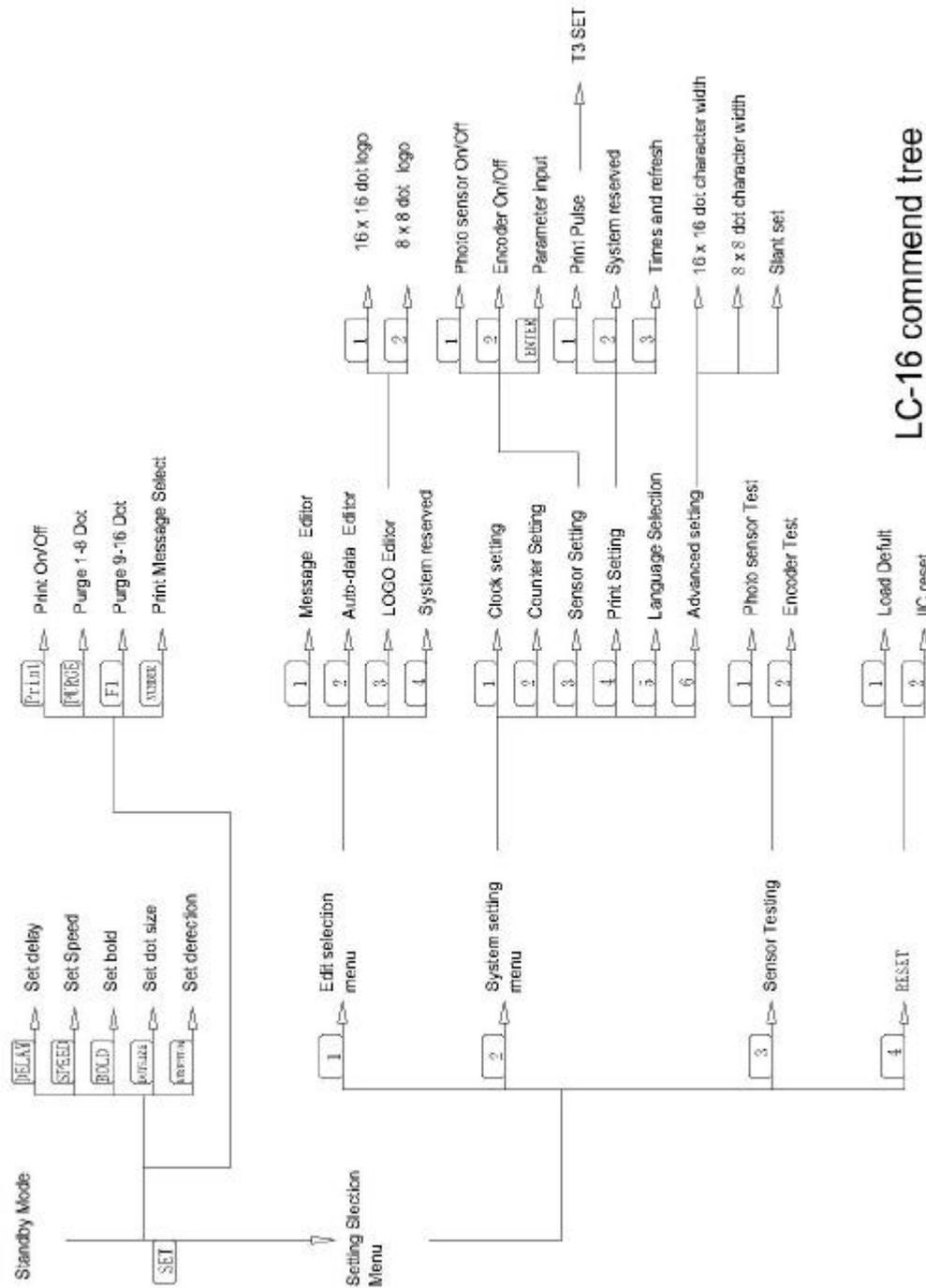


Fig 3

Appendix 2 Command Tree



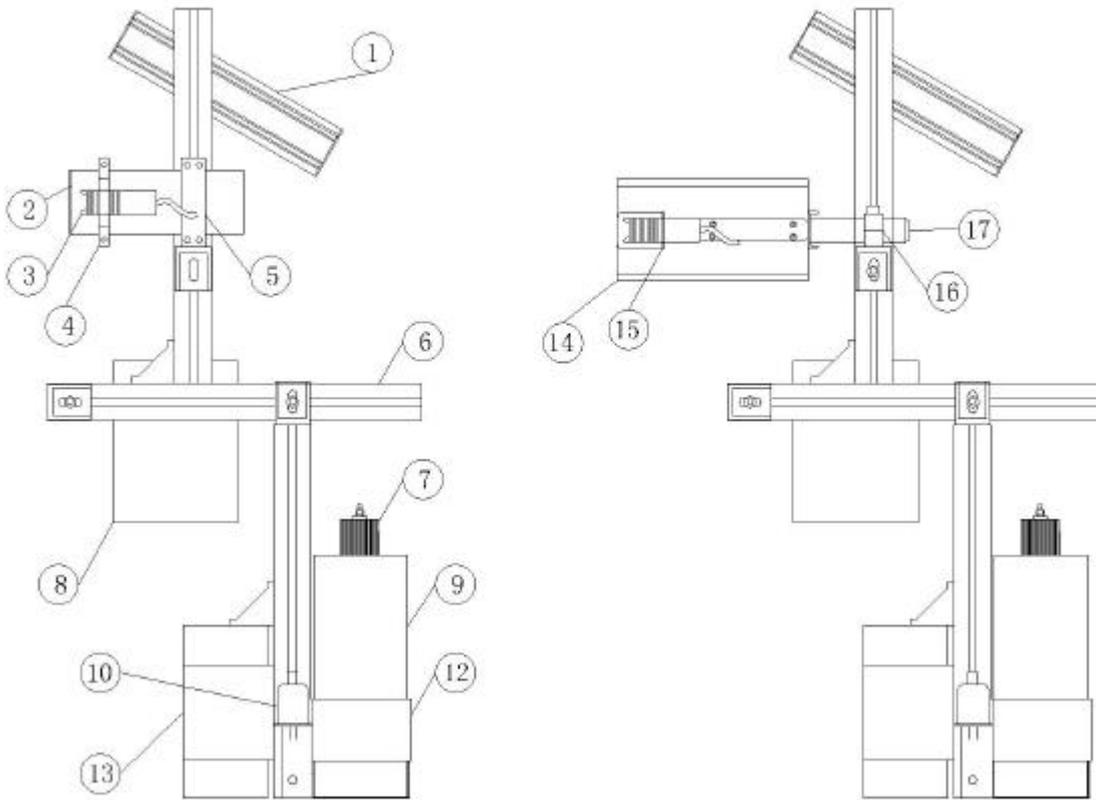
LC-16 command tree

Appendix 3 16x16 Character Code Table

0	1	2	3	4	5	6	7	8	9
101	?	?	.	-	?	..	?	?	—
111	~	?	...	'	'	"	"	?	<
121	>	«	»	?	?	?	?	?	?
131	?	±	×	÷	:	?	?	?	?
141	n	?	?	v	?	?	?	?	?
151	?	=	?	~	?	?	?	?	=
161	=	8	?	?	?	?	°	'	?
171	\$	¤	?	?	%	§	?	?	?
181	?	?	?	?	?		?	?	?
191	?	?	?	?	?	?	?	?	?
207	?	?	?	?	?	?	?	?	?
217	?	?	?	?	?	?	?	?	?
227	?	?	?	?	?	?	?	?	?
237	?	?	?	?	?	?	?	?	?
247	?	?	?	?	?	?	?	?	?
257	?	?	?	?	?	?	?	?	?
267	?	?	?	?	?	?	?	?	?
277	?	?	?	?	?	?	?	?	?
287	?	?	?	?	?	?	?	!	"
303	#	?	%	&	'	()	*	+
313	-	.	/	0	1	2	3	4	5
323	7	8	9	:	;	<	=	>	?
333	A	B	C	D	E	F	G	H	I
343	K	L	M	N	O	P	Q	R	S
353	U	V	W	X	Y	Z	[\]
363	_	`	a	b	c	d	e	f	g
373	i	j	k	l	m	n	o	p	q
383	s	t	u	v	w	x	y	z	{
393	}	?	?	?	?	?	?	?	?
409	?	?	?	?	?	?	?	?	?
419	?	?	?	?	?	?	?	?	?
429	?	?	?	?	?	?	?	?	?
439	?	?	?	?	?	?	?	?	?
449	?	?	?	?	?	?	?	?	?
459	?	?	?	?	?	?	?	?	?
469	?	?	?	?	?	?	?	?	?
479	?	?	?	?	?	?	?	?	?
489	?	?	?	?	?	?	?	?	?
505	?	?	?	?	?	?	?	?	?
515	?	?	?	?	?	?	?	?	?
525	?	?	?	?	?	?	?	?	?
535	?	?	?	?	?	?	?	?	?
545	?	?	?	?	?	?	?	?	?

0	1	2	3	4	5	6	7	8	9
555	?	?	?	?	?	?	?	?	?
565	?	?	?	?	?	?	?	?	?
575	?	?	?	?	?	?	?	?	?
585	?	?	?	?	?	?	?	?	?
601	?	?	G	?	?	?	?	T	?
611	?	?	?	?	?	?	?	S	?
621	F	?	?	0	?	?	?	?	?
631	?	?	a	B	?	d	e	?	?
641	?	?	?	μ	?	?	?	p	s
651	t	?	f	?	?	?	?	?	?
661	?	?	?	?	?	?	?	?	?
671	?	?	?	?	?	?	?	?	?
681	?	?	?	?	?	?	?	?	?
691	?	?	?	?	?	?	?	?	?
707	?	?	?	?	?	?	?	?	?
717	?	?	?	?	?	?	?	?	?
727	?	?	?	?	?	?	?	?	?
737?	?	?	?	?	?	?	?	?	?
747	?	?	?	?	?	?	?	?	?
757	?	?	?	?	?	?	?	?	?
767	?	?	?	?	?	?	?	?	?
777	?	?	?	?	?	?	?	?	?
787	?	?	?	?	?	?	?	a	á
803	a	à	e	é	e	è	i	í	ì
813	o	ó	o	ò	u	ú	u	ù	u
823	u	u	ü	ê	?	?	n	n	?
833	?	?	?	?	?	?	?	?	?
843	?	?	?	?	?	?	?	?	?
853	?	?	?	?	?	?	?	?	?
863	?	?	?	?	?	?	?	?	?
873	?	?	?	?	?	?	?	?	?
883?	?	?	?	?	?	?	?	?	?
893	?	?	?	?	-	?		?	?
909	?	?	?	?	?	?	?	+	?
919	?	+	?	?	?	+	?	?	+
929	?	?	?	+	?	?	?	?	?
939	?		?	?	?	?	?	?	-
949	?	?	?	?	?	?	?	-	?
959	?	?	?	?	?	+	?	?	?
969	?	?	?	?	?	?	?	?	?
979	?	?							

Appendix 4 System Overview.



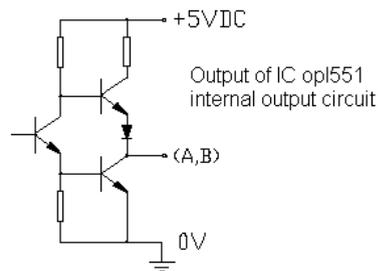
1	Controller	10	Air filter
2	7 Dot print head	11	None
3	Photo Sensor	12	Bottle Holder
4	Photo Sensor holder for 7 dot head	13	Air pump
5	Head Holder for 7 dot head	14	16 Dot Print head
6	Support system	15	Photo Sensor holder for 16 dot head
7	Ink bottle adapter	16	Head Holder for 16 dot head
8	Power Supply	17	Install stick for 16 dot head
9	Ink Bottle	18	None

Appendix 5 Encoder and Photocell connectors

The encoder connector is the first one right on the left side of the printhead cable connector. The photocell connector is the second one.

The picture below is the typical output circuit of the encoder, if you can not find a 5v encoder, you have to use a 5v-12v DC-DC converter as it used on the photocell now.

■ Output Circuit



■ Connection

Color	Green	Black	Red	White
	DC+5V	A Phase	B Phase	0V

Photocell connector.

There are four lines on the RJ45 connector,

No.	1	2	3	4
Color	Black	Brown	White	Blue
Definition	Photocell output	5V power	Encoder output	Ground

Appendix 6 Ports Definitions

A 8 pin port (RJ45 connector)

From left to right (Line in lower side)

1. Photo Sensor signal
2. 5v (power)
3. Encoder signal
4. GND
5. System reserved output
- 6-8 Non connection

B. 6 pin port

From left to right (Line in lower side)

1. Brown GND
2. Green-white Reserved output line
3. Blue-white Encoder signal
4. Green Reserved input line
5. Blue Reserved output line
6. orange 5V (power)

Encoder

1. 5V
2. 200 -400 pulse per round
Typical: 300 pulse per round for 100mm diameter wheel
3. If use a 12 v encoder, a 5v-12v DC-DC converter required.

Photocell

1. 5v
2. PNP

Note: The photo sensor in the standard configuration is a 12v , PNP output photocell.
The 5v power was convert to 12 v by a 5v-12v DC-DC converter.