

# Keypad guide for main board parameter setting

Keypad version:2.8

This manual is useful when you got a generation feedback board (YC01-003-158 PCB) which is unknown to its phase sequence. This key pad is to connect the six-pin port of the YC01-003-158 PCB which shows on the last page of the document.



Picture.1 The initial interface

Key instruction:

Function 1: A.B keys press together for choosing section. At the initial interface (Picture.1) press key A meanwhile press key B, hold for 3 seconds then will go to the section one. Again press the key A and B for 0.5 second can go to the section two. In total there are eight sections, initial interface is the 0 section.

Function 2: Click key A for viewing all steps in selected section.

Function 3: Click key B or C for change parameters.

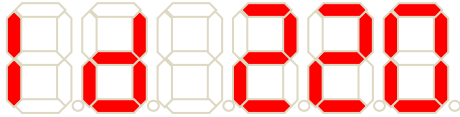
Function 4: A.B keys press together for 3 second for save the setting.

The initial interface was showed when connected the Keypad to the main board (158 PCB). Step 1,2,3 can be preset in the factory, step 4 & 5 have to carry out by the user. Before doing any parameter adjustment, make sure the 158 PCB are well connected and power source are on. Strictly forbid to raise the power before going into the steps FOUR:

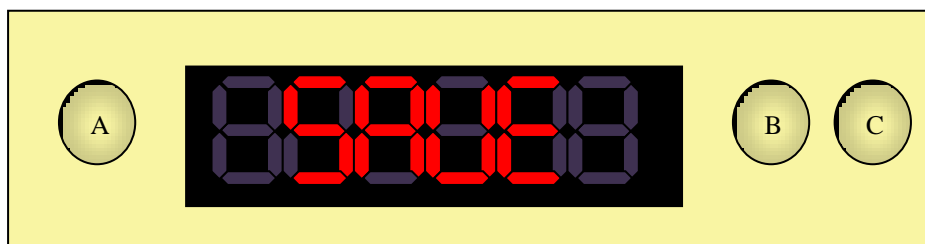
1. ID address (Phase A 220; Phase B 221; Phase C 222) .
2. Synchronize signal IN/OUT (Phase A IN; Phase B OUT; Phase C IN) .
3. Voltage and current gears setting (For conventional model as 100A current output test bench, only do the voltage setting, the current setting is not required. In this article, there is no further narrative of current gears setting of the unconventional test bench.)
4. Matching current and voltage output with the 158 PCB signal.
5. Fine adjustment of current and voltage magnitude, phase position, phase angle and frequency.

## Steps 1: ID address setting (Phase A 220; Phase B 221; Phase C 222) .

1. From the initial interface go into the section 4 steps 11. The parameter was showed at picture: Three 158PCB has three ID address, the number on the right side would display 220, 221 or 222.



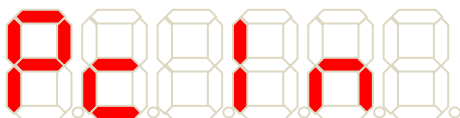
2. Parameter setting: For example, if the phase A 158PCB got a replacement, then click the key B one or two times until the number 220 was showed on the screen. If the replacement was in phase B, then click until 221 on the screen. If the replacement is in phase C, then click until 222 on the screen. There has no confirm-key on the keypad, when showing the parameter on the screen, means setting has been choose.
3. Save the setting: When choosing the right ID, pressing key A and key B together and hold for 3 seconds, the 'SAVE' will appeared on the screen, showed as picture below:



4. 'SAVE' would exist about 0.5 second, and then will go back to the initial interface and show the version number of the keypad. All the operation of saving the setting is the same. There is no repeat of narrative in the following article.

## Steps 2: Synchronize signal IN/OUT setting (Phase A IN; Phase B OUT; Phase C IN) .

1. From the initial interface go into the section 4 steps 9. The parameter was showed at picture. The figure on the right side would be IN or OUT.



2. Parameter setting: For example, if the phase A 158PCB got a replacement, then click the key B until the 'IN' was showed on the screen. If the replacement was in phase B, then click the key B until the 'OUT' was showed on the screen. If the replacement is in phase C, then click until 'IN' on the screen. Be attention that the synchronize signal setting of the phase A, B and C must

be correct, otherwise will cause the damage of 158PCB due to out of sync of signal output

3. Save the setting: Pressing key A and key B together and hold for 3 seconds.
4. For some old versions of our test bench models, presetting phase A as synchronize signal output (OUT). But at the following manufacturing of newer test bench, are all using phase B as synchronize signal output (OUT) for higher reliability of information transfer. So, in the setting of 158PCB synchronize (OUT/IN), need to set the phase A back in to 'IN' position before doing any change at the other two phase.

**Steps 3: Voltage gear setting(For the conventional model of test bench with 100A current output capacity, it is not necessary to set the current gear. The current gear setting of unconventional test bench will not narrate in this article.)**

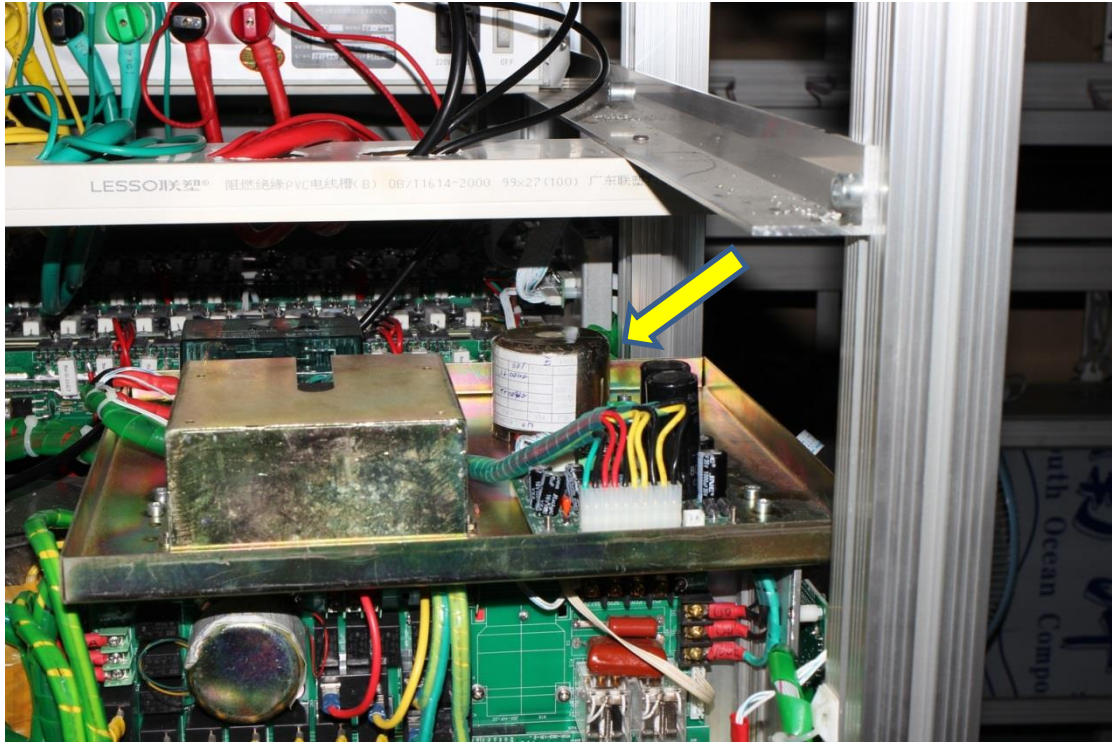
1. Parameter setting: From the initial interface go into the section 6 steps 14, The parameter was showed at picture. Use key B or key C to set the figure on the right side to 57.73.



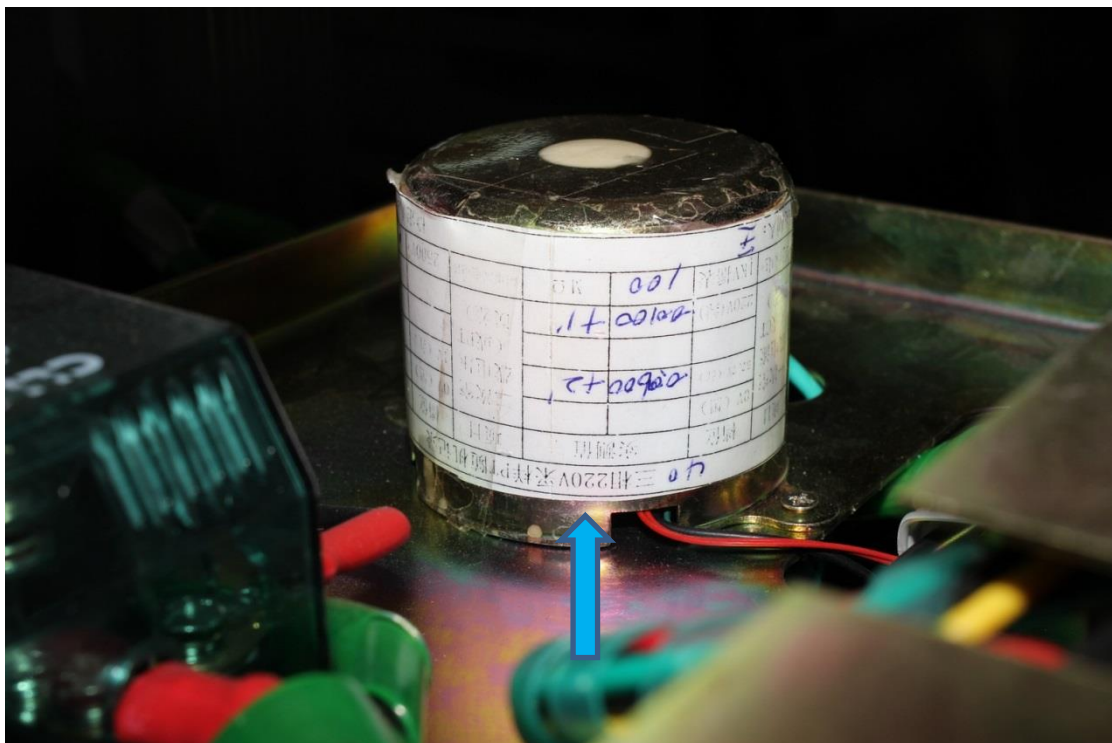
2. Save the setting: Pressing key A and key B together and hold for 3 seconds.
3. Parameter setting: From the initial interface go into the section 6 steps 13, The parameter was showed at picture. The figure on the right side may depend on the particular (sampling voltage) of the Voltage-sampling-PT on the power source box.



4. The location of the Voltage-sampling-PT is on the picture indicated by the yellow arrow. The sampling voltage of the Voltage-sampling-PT was indicated by the blue arrow.



The yellow arrow is pointed to the Voltage-sampling-PT which located on 黄色 the power source box.



The blue arrow pointed is the sampling voltage of the Voltage-sampling-PT.

5. Save the setting: Pressing key A and key B together and hold for 3 seconds.

Parameter setting: From the initial interface go into the section 6 steps 1, The parameter was showed at picture. Figure 264 is 1.2 times 220V (sampling voltage of the



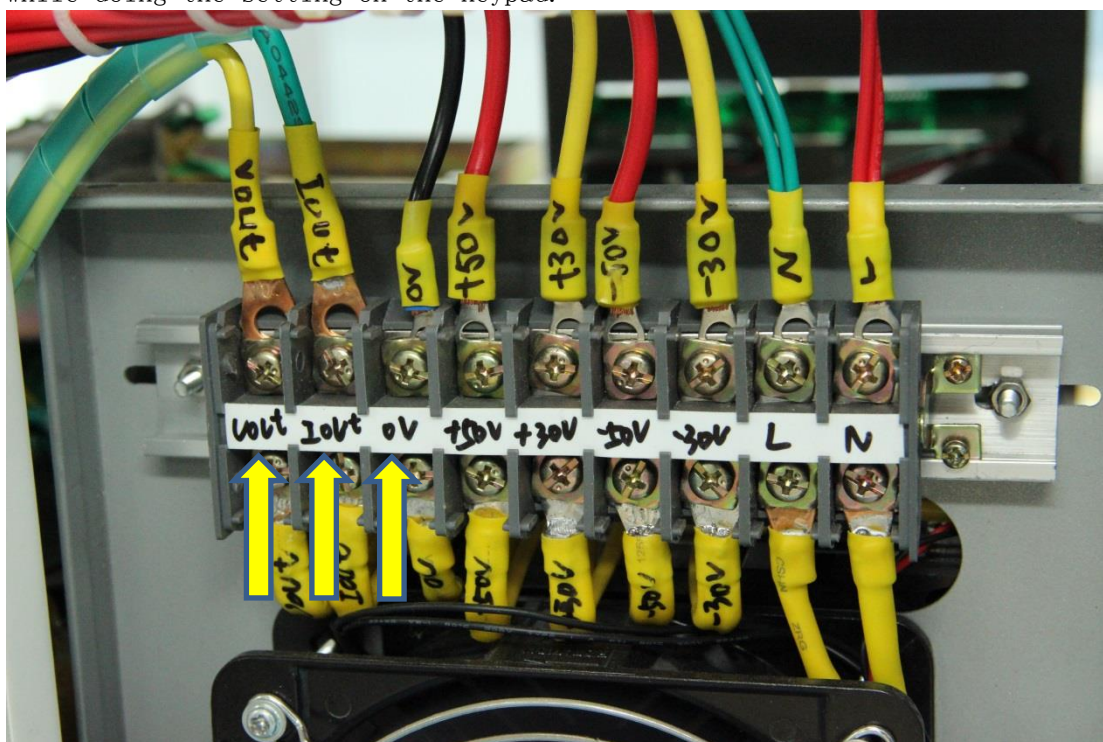
Voltage-sampling-PT) . If the sampling voltage of the Voltage-sampling-PT is 230V, then set the figure to 280. If the sampling voltage of the Voltage-sampling-PT is 250V, then set the figure to 300V. If the sampling voltage of the Voltage-sampling-PT is 270V, then set the figure to 324V.



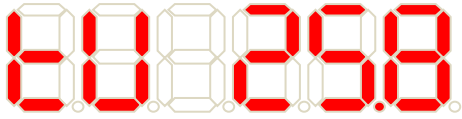
6. Save the setting: Pressing key A and key B together and hold for 3 seconds.

#### Steps 4: Matching current and voltage output with the 158 PCB signal.

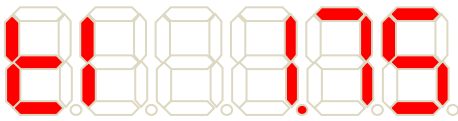
1. Voltage measurements of four terminals are showing at the picture. Name of the terminals from left to right that indicated by yellow arrows were named as: Uout, Iout and ov, Those terminals needed to make voltage measurement while doing the setting on the keypad.



2. Matching voltage setting: In the no-load condition, connect the short circuit bar on the test bench, raising the power to 220V and 5A. Using multimeter to measure the voltage between Uout and ov, keep watching the readings.
3. Parameter setting: From the initial interface go into the section 1 steps 18, the differ of each test bench, the number on the left side will show in different between 0 to 29 with subtle change. Keep measuring the voltage while clicking key A or key B of the keypad until the key pad got the same reading with the multimeter.



4. Save the setting: Pressing key A and key B together and hold for 3 seconds.
5. Matching current setting: Using multimeter to measure the voltage between Iout and ov, keep watching the readings.
6. Parameter setting: From the initial interface go into the section 1 steps 17, the differ of each test bench, the number on the left side will show in different between 0 to 29 with subtle change. Keep measuring the voltage while clicking key A or key B of the keypad until the key pad got the same reading with the multimeter.



7. Save the setting: Pressing key A and key B together and hold for 3 seconds.

### **Steps 5: Current, voltage magnitude, phase angle, phase position, frequency fine tune.**

1. Introduction: Current, voltage magnitude, frequency and phase position can be done by VFD key board whereas phase angle have to set by the keypad. The above mention parameters were showed on the display of the K6 model reference meter (see on the picture). U(V) is voltage, I(A) is current, PHASE is phase position, UPHASE is phase angle, FEQ(Hz) is frequency. In the ideal situation, A, B, C three phases position should be  $0^\circ$  or  $359^\circ$ , phase angle should be 0, 120, 240. It is important to know that when the phase angle is abnormal, the abnormal figure will show on the B and C phase. Because A as an reference and it' s phase angle always in  $0^\circ$  position. All the setting are required to raise the power to 220V 5 A with current short circuit bar on.

In some testbench do not equiped with VFD keyboard. So we will introduce how to do the setting all base on the keypad.

	U(V)	I(A)	P(W)	Q(var)
A:	219.9647	5.004537	1100.822	-0.09729
B:	219.9552	5.004726	1100.816	0.203589
C:	219.9622	5.004316	1100.760	0.071794
-----				
	DCI(mA)	COS	PHASE	UPHASE
A:	0.27655	1.00000	359.9950	0.0000
B:	-0.4923	1.00000	0.010597	119.98
C:	0.02386	1.00000	0.003737	239.99
-----				
	Psum(W)	Qsum(var)	Ssum(VA)	COSsum
	3302.397	0.178088	3302.397	1.00000
FEQ(Hz)			SZ-03A-K6	
49.9981			Multi-Function	
			Standard Meter	

- Current fine tune: From the initial interface go into the section 2 steps 9, The parameter was showed at picture. Without any fine tune, the figure on the right side would be 0.00. Fine tune is achieved by clicking the key B or key C for multiple times. By each clicking, the figure on the reference meter would hugely changing for about 8 second then it became stabilize again with the after fine tune figure.



- Save the setting: Pressing key A and key B together and hold for 3 seconds.
- Voltage fine tune: From the initial interface go into the section 3 steps 10, The parameter was showed at picture. The method used for fine tune is the same as the current fine tune.



- Save the setting: Pressing key A and key B together and hold for 3 seconds.
- Phase position fine tune: From the initial interface go into the section 4 steps 6, The parameter was showed at picture. The method used for fine tune is the same as the current fine tune.



7. Save the setting: Pressing key A and key B together and hold for 3 seconds.
8. Phase angle fine tune: From the initial interface go into the section 4 steps 7, The parameter was showed at picture. The method used for fine tune is the same as the current fine tune. When the phase angle needed to be fine tune, it only needed to carry out on the phase B and C. The phase A is a reference, no need to do the fine tune.



9. Save the setting: Pressing key A and key B together and hold for 3 seconds.
10. Phase position fine tune: From the initial interface go into the section 4 steps 8, The parameter was showed at picture. The frequency of the test bench is the frequency of phase A. So it is only the phase A require the fine tune and not the phase B and C. The method used for fine tune is the same as the current fine tune.



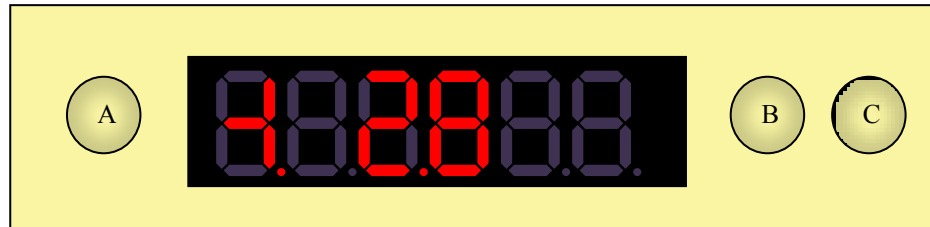
11. Save the setting: Pressing key A and key B together and hold for 3 seconds.

- Remark:
1. When finished all the setting, restart the test bench and check all the setting parameter that were saved.
  2. All the display content of the key pad are showed on the appendix.
  3. Port of connection of the keypad to the YC01-003-158 PCB shows on the last page.

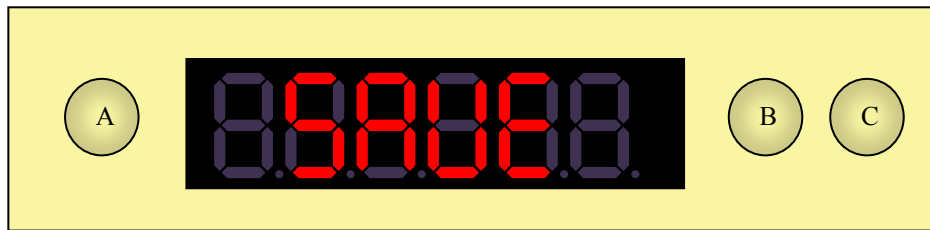


# Keyboard instruction

Version 2.8



Initial interface



Save interface

## Introduction:

The content are all the interface that will show on the display. Include from section 0 to section 7. Red highlight is the parameter setting of each steps, it is ok to be different figure on the right side of the display. Gray high light is the transition interface, it only display when you hold the key (This kind of interface can be ignored ). The blue highlight is setting that need to adjust by the user.

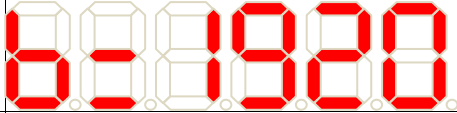
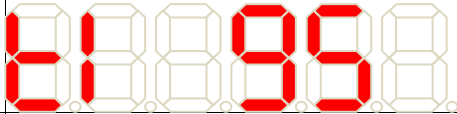

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Section 0: Data monitoring

Step	Value	Parameter	Display
1	V.2.8	Version of keypad	
2	A(0-9)E 0.000		
3	LE/OE/LE 0.000		
4	II 0.000		
5	I 0.000		
6	IU 0.000		
7	U 0.000		
8	60A/30A 1—150		
9	R=0.00		
10	ER 0/1		
11	AT/ST8951		
12	F 0.000		
13	No display		
14	5 0		
15	U80.0		

Section 0: Data monitoring

Step	Value	Parameter	Display
16	19200	Baud rate of communication	
17	<b>TI</b> <b>1-100</b>		
18	$\phi$ 0 . 0 1 / 0 . 0 2	Accuracy of phase position adjustment	

Section 1: Matching current and matching voltage setting

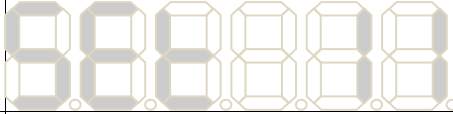
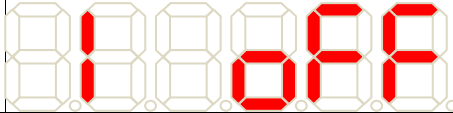

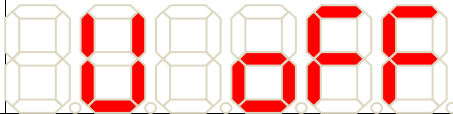


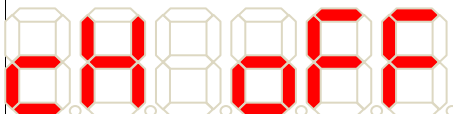

Step	Value	Parameter	Display
1	SET 10	Initial interface of Section 1	
2	si		
3	su		
4	sq		
5	sf 45HZ-65HZ		
6	A(0-9)A		
7	1(0-A)U 1.5V--1000V		
8	II 0.000		

## Section 1: Matching current and matching voltage setting

Step	Value	Parameter	Display
9	IU 0.000		
10	AUT 0/(1---150)		
11	PIP 60/30	Matching relay test	
12	F=bp/(sdg)		
13	b=0.00 (1.2/12/120)		
14	F		
15	te 0.00		
16	AE 0.00		
17	tI 0.00	Matching current setting	
18	tU 0.00	Matching voltage setting	




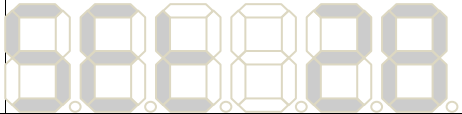
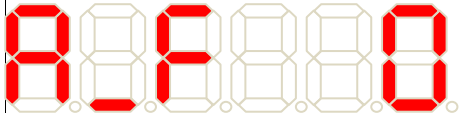
# Section 1: Matching current and matching voltage setting

Step	Value	Parameter	Display
			
19	I on/off		
			
20	U on/off		
			
21	Be on/off		
22	ch on/c save		
			

Section 2: Current fine tune

Step	Value	Parameter	Display
1	SET 20	Initial interface of Section 2	
2	si 0.00		
3	bfs		
4	bf 0.00		
5	bn 0.00		
6	bq 0.00		
7	nq		
8	bp 0.0		
9	cb	Current fine tune	


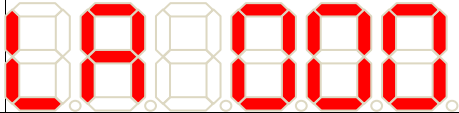
Section 2: Current fine tune

Step	Value	Parameter	Display
10	ca		
			
11			

### Section 3: Voltage fine tune

Step	Value	Parameter	Display
1	SET 30	Initial interface of Section 3	988830
2	su 0.00		900.00
			988833
3	bfs 1.2.3.4.5		8851
4	bf 0.00		880.00
			988833
5	bn 2-21		881
			988834
6	bq 0.00		890.00
			988835
7	nq 0.00		
8	bp 0.0		880.00
9	LC		02-111
			988833
10	(L/C) b	Voltage fine tune	000.00

Section 3: Voltage fine tune







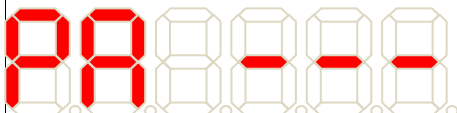

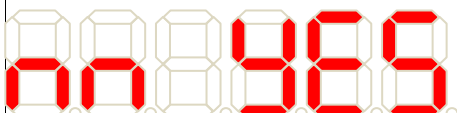
Step	Value	Parameter	Display
			
11	(L/C) a		



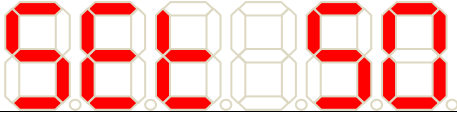










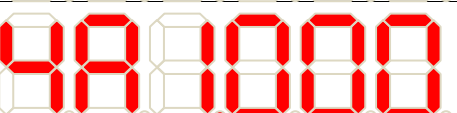
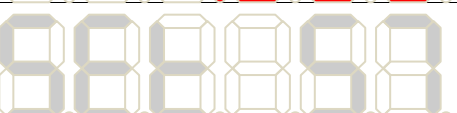
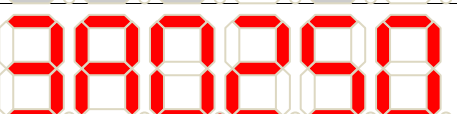
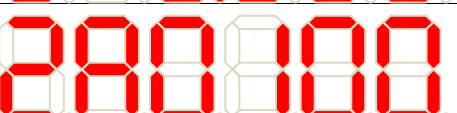
Section 4: ID address setting, phase position, phase angle, frequency fine tune

Step	Value	Parameter	Display
1	SET 40	Initial interface of Section 4	988.88
2	si 0.00		910.00
			988.88
3	su 0.00		900.00
			988.88
4	sq 0.00		980.00
			988.88
5	LC CCC/LLL		LC-LLL
			988.88
6	lq/cq 0.00	Phase position fine tune	090.00
7	bc/bl 0.0	Phase angle fine tune	000.00
8	cf 0.00	Frequency fine tune	090.00
			988.88
9	A/C:IN; B:OUT;	Synchronize signal output	000.00
			988.88

Section 4: ID address setting, phase position, phase angle, frequency fine tune

Step	Value	Parameter	Display
10	OLA 0.07-0.1		
			
11	A220/B221/ C222	ID setting	
			
12	P3-4/Q3-4/P3-2/ Q3-2/P1-1		
			
13	PA ---/0-400		
			
14	nn no/yess		

Section 5: Current gear setting

Step	Value	Parameter	Display
1	SET 50	Initial interface of Section 5	
2	bA 120A		
			
3	9A		
4	8A		
			
5	7A		
6	6A		
			
7	5A		
			
8	4A		
			
9	3A		
10	2A		

# Section 5: Current gear setting

Step	Value	Parameter	Display
			888888
11	1A		1A0010
			888888
12	0A		0A0001
			888888
13	b2 120A		201200
			888888
14	b1 12A		101200
			888888
15	b0 1.2A		001200
			888888
16	A-IO 0/1		A-1000

## Section 6: Voltage setting

Step	Value	Parameter	Display
1	SET 60	Initial interface of Section 6	988.80
			988.80
2	bu 264-1000	Maximum voltage	888.80
			988.80
3	TU		805.73
			988.80
4	AU 0.00		800.00
			988.80
5	9U 0.00		900.00
			988.80
6	8U 0.00		800.00
			988.80
7	7U 0.00		700.00
			988.80
8	6U 0.00		600.00












Section 6: Voltage setting

Step	Value	Parameter	Display
9	5U 0.00		500000
			888888
10	4U 0.00		400000
11	3U 0.00		300000
			888888
12	2U 0.00		200000
			888888
13	1U 0.00	Voltage setting	100000
			888888
14	0U 0.00		0057.73
			888888
15	U-IO 0/1/2/3		0-1000

## Section 7: Voltage gear setting

Step	Value	Parameter	Display
1	SET 70	Initial interface of Section 7	
2	9E 0.07		
3	8E 0.07		
4	7E 0.07		
5	6E 0.07		
6	5E 0.07		
7	4E 0.07		
8	3E 0.07		

## Section 7: Voltage gear setting

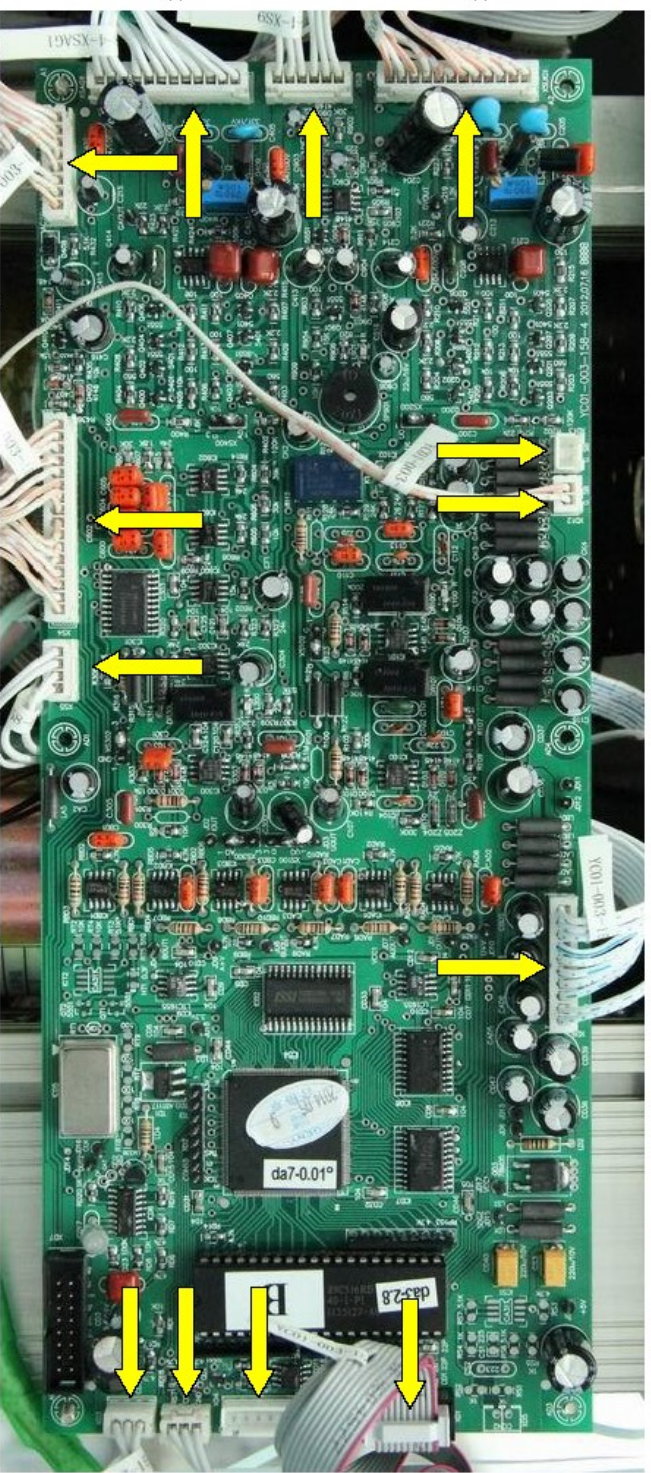
Step	Value	Parameter	Display
9	2E 0.07		
			
10	1E 0.07		
			
11	0E 0.07		
			
12	60A/30A		
			
13	LE 0.000 (7.334-7.432)		

# YC01-003-158-4

2012.07.16

Overloaded protection 1&2

10pins D/A power supply DC5V DC  $\pm$  12V



12pins voltage  
sine wave output

6pins DC  $\pm$  63V  
power supply

12pins current  
sine wave output

8pins amplifier power supply

AC26V DC38V

16pins

automatic control wire

4pins voltage and current sampling wire

Communication

keypad

Communication

1&2