eec
AN IKONIX BRAND

6700 Series
Linear
Programmable AC Power Source
User Manual

ER 1.07

WARRANTY

eec certifies that the instrument listed in this manual meets or exceeds published manufacturing specifications.   This instrument was calibrated using standards that are traceable to the National Institute of Standards Taiwan.

Your new instrument is warranted to be free from defects in workmanship and material for a period of (2) year for standard model from date of shipment. During the warranty period, you must return the instrument to eec or its branches or its authorized distributor for repair. eec reserves the right to use its discretion on replacing the faulty parts or replacing the assembly or the whole unit.

Follow below states, eec will void your warranty.
• Operate under non-normal , contrived omission, or accidental calamity (including, temblor, floods, rebellion, and fire etc.)
• Any non-authorized modifications, tampering or physical damage.
• Elimination of any connections in the earth grounding system or bypassing any safety systems.
• Use of non-authorized parts in the repair of this instrument. Parts used must be parts that are recommended by eec as an acceptable specified part.

This warranty does not cover accessories not of eec manufacture.

Except as provided herein, eec makes no warranties to the purchaser of this instrument and all other warranties, express or implied (including, without limitation, merchantability or fitness for a particular purpose) are hereby excluded, disclaimed and waived.

eec recommends that your instrument be calibrated on a twelve month cycle.

Content

CHAPTER 1. INTRODUCTION

1.1 Safety Precaution

• This product and its related documentation must be reviewed for familiarization with safety markings and instructions before operation.

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• Before applying power verify that the instrument is set to the correct line voltage and the correct fuse is installed.

• When using an oscilloscope to measure DUT waveform, please refer description below to avoid DUT, instrument and oscilloscope damages. When the output of AC source has N-G or L-G shorted, customer must use differential isolation type of oscilloscope probe or using isolated oscilloscope.

• In order to avoid the interference, please DON'T combine the cables of input and output from instruments in bundle with GPIB or RS232 cable

To prevent accidental injury or death, these safety procedures must be strictly observed when handling and using the test instrument.

1.2 Service and Maintenance

User Service

To prevent electric shock do not remove the instrument cover. There are no user serviceable parts inside. Routine maintenance or cleaning of internal parts is not necessary.   Any external cleaning should be done with a clean dry or slightly damp cloth.   Avoid the use of cleaning agents or chemicals to prevent any foreign liquid from entering the cabinet through ventilation holes or damaging controls and switches, also some chemicals may damage plastic parts or lettering. Any replacement cables and high voltage components should be acquired directly from eec or its distributor.

Service Interval

The instrument must be returned <u>at least once a year</u> to an eec authorized service center for calibration and inspection of safety related components.   eec will not be held liable for injuries suffered if the instrument is not properly maintained and safety checked annually.

User Modifications

Unauthorized user modifications will void your warranty.   eec will not be responsible for any injuries sustained due to unauthorized equipment modifications or use of parts not specified by eec.   Instruments returned to eec with unsafe modifications will be returned to their original operating condition at the customer's expense.

CHAPTER 2. GETTING STARTED

This section contains information for the unpacking, inspection, preparation for use and storage of eec product. 。

2.1 Unpacking and Inspection

Your instrument was shipped in a custom foam insulated container that complies with ASTM D4169-92a Assurance Level II Distribution Cycle 13 Performance Test Sequence
If the shipping carton is damaged, inspect the contents for visible damage such as dents, scratches, or broken display.   If the instrument is damaged, notify the carrier and eec 's customer support department.   Please save the shipping carton and packing material for the carrier's inspection.   Our customer support department will assist you in the repair or replacement of your instrument.   Please do not return your product without first notifying us. Please retain all of the original packaging materials.

2.2 Preparation For Use

2.2.1 Power Requirements
This instrument requires a power source of 115 volts AC ± 15%, 50/60 Hz single phase or 230 volts AC ±15%, 50/60 Hz single phase. Please check the rear panel to be sure the proper switch setting is selected for your line voltage requirements before turning your instrument on.

| CAUTION | Do not switch the line voltage selector switch located on the rear panel while the instrument is on or operating.   This may cause internal damage and represents a safety risk to the operator. |

2.2.2 Power Cable

| WARNING | Before connecting power to this instrument, the protective ground (Earth) terminals of this instrument must be connected to the protective conductor of the line (mains) power cord.   The main plug shall only be inserted in a socket outlet (receptacle) provided with a protective ground (earth) contact.   This protective ground (earth) **must not be defeated** by the use of an extension cord without a protective conductor (grounding). |

2.3 Environmental Conditions

Operating Environment
Temperatures:0° - 40° C (32°-104°F)
Relative humidity: 20% - 80%

Altitude: 2,000 meters (6,500 inches)

The instrument should also be protected against temperature extremes which may cause condensation within the instrument.

Storage and Shipping Environment

This instrument may be stored or shipped in environments with the following limits:
Temperature......................... -40° to +55°C
Altitude: …………………… 7,620 meters (25,000 inches)

The instrument should also be protected against temperature extremes, which may cause condensation within the instrument.

Packaging

Original Packaging

Please retain all original packaging materials that you originally received.   If you are returning your instrument to us for servicing please repackage the instrument in its original container.   Please enclose the instrument with all options, accessories and test leads.   Indicate the nature of the problem or type of service needed.   Also, please mark the container "FRAGILE" to insure proper handling.

Other Packaging

If you do not have the original packaging materials, please follow these guidelines:
- Wrap the instrument in a bubble pack or similar foam.   Enclose the same information as above.
- Use a strong double-wall container that is made for shipping instrumentation.   350 lb. test material is adequate.
- Use a layer of shock-absorbing material 70 to 100 mm (3 to 4 inch) thick around all sides of the instrument.   Protect the control panel with cardboard.
- Seal the container securely.
- Mark the container "FRAGILE" to insure proper handling.

CHAPTER 3. SPECIFICATIONS

3.1 Specification

		6705	6710	6720	6730	6740	6750
OUTPUT							
Phase		1 Ø					
Power Rating		500 VA	1000 VA	2000 VA	3000 VA	4000 VA	5000 VA
Voltage	Range	0 - 300 V, 150 V / 300 V Auto or 0 - 600 V, 300 V / 600 V Auto (Option 0 - 600 V)					
	Resolution	0.1 V / 0.2 V					
	Accuracy	± (0.5% of setting + 2 counts)					
Max. Current (r.m.s)[1]	0 - 150 V	4.2 A	8.4 A	16.8 A	25.2 A	33.6 A	42 A
	0 - 300 V	2.1 A	4.2 A	8.4 A	12.6 A	16.8 A	21 A
Max. Current (r.m.s)[2] for option 0 - 600 V	0 - 300 V	2.1 A	4.2 A	8.4 A	12.6 A	16.8 A	21 A
	0 - 600 V	1.05 A	2.1 A	4.2 A	6.3 A	8.4 A	10.5 A
Max. Current (r.m.s)[3] for option 0 - 1000V	0 - 500 V	-	2.0A	4.0A	-	-	-
	0 - 1000 V	-	1.0A	2.0A	-	-	-
Frequency	Range	45 - 500 Hz / 45 - 1000 Hz (option 45 Hz - 1000 Hz) Full Range Adjust					
	Resolution	0.1 Hz at 45 - 99.9 Hz, 1 Hz at 100 - 1000 Hz					
	Accuracy	± 0.02% of setting					
Total Harmonic Distortion (THD)		< 0.3% at 110 / 220 V & 50 / 60 Hz (Resistive Load)					
Inrush Current		4 times rated Current(r.m.s)					
Crest Factor		4 times rated Current(r.m.s)					
Line Regulation		0.1% max for ± 10% line change					
Load Regulation		≤ 0.5% (Resistive Load)					
Response Time		< 100µS					
SETTING							
Voltage	Range	0 - 300V, 150V / 300V Auto or 0 - 600V, 300V / 600V Auto (Option 0 - 600V) or 0 - 1000V, 500V / 1000V Auto (Option 0 - 1000V)					
	Resolution	0.1V / 0.2V					
	Accuracy	±(0.5% of setting + 2counts)					
Frequency	Range	45 - 500Hz Full Range Adjust					
	Resolution	0.1Hz at 45 - 99.9Hz, 1Hz at 100 - 500Hz					
	Accuracy	±0.02% of setting					
Frequency (Option 45Hz - 1KHz)	Range	45 - 1000Hz Full Range Adjust					
	Resolution	0.1Hz at 45 - 99.9Hz, 1Hz at 100 - 1000Hz					
	Accuracy	±0.02% of setting					

INPUT							
Phase		1 Ø					
Voltage[4]		115 / 230 Vac ± 15%		230 Vac ± 15%			
Max. Current		47 - 63 Hz					
Frequency		16 / 8A	30 / 16A	30 A	50 A	60 A	75 A
Power Factor		0.7					

MEASUREMENT								
Voltage	Range		0.0 - 300.0 V / 0.0 - 600.0 V					
	Resolution		0.1 V / 0.2 V					
	Accuracy[5]		± (0.5% of reading + 2 counts)					
Current	Range	L	0.000 - 3.500 A					
		H	3.00 - 35.00 A					
	Resolution[6]	L	0.001 A					
		H	0.01 A					
	Accuracy	L	± (0.5% of reading + 5counts) for 5 - 300 V / ± (0.5% of reading + 10counts) for 5 - 600 V					
		H	± (0.5% of reading + 3 counts) at Voltage > 5 V					
Current for option High Resolution Meter	Range		2.0 mA - 350.0 mA		-	-	-	-
	Resolution		0.1 mA		-	-	-	-
	Accuracy[5]		± (0.6% of reading + 5counts) ± (1% of reading + 5counts) for Option 0 - 600 V		-	-	-	-
Frequency	Range		0.0 Hz - 1,000.0 Hz					
	Resolution		0.1 Hz					
	Accuracy		± 0.1 Hz at 45.0 - 500.0 Hz / ± 0.5 Hz at 501.0 - 1,000.0 Hz					
Power	Range	L	0.0 - 350.0 W					
		H	300 - 4000 W					
	Resolution	L	0.1 W					
		H	1 W					
	Accuracy	L	± (0.6% of reading + 5 counts)[7] / ± (0.5% of reading + 30 counts)[8]					
		H	± (0.6% of reading + 2 counts)[7] / ± (0.5% of reading + 5 counts)[8]					

GENERAL	
Surge / Drop	SD-Volt：0.0 - 300.0 V, Resolution： 0.1 V SD-Site ：0 - 20 ms at SD-Cont.：ON, 0 - 99 ms at SD-Cont.：OFF, Resolution： 1 ms SD-Time ：0 - 20 ms at SD-Cont.：ON, 0 - 99 ms at SD-Cont.：OFF, Resolution： 1 ms SD-Cont.：ON / OFF

Remote Input Signal Interface (Option)	Test, Reset, Recall memory 1 through 7					
Remote Output Signal	Pass, Fail, Test-in Process					
I/P Terminal	Inlet	Terminal				
Memory	50 memories, 9 steps / memory					
Sync Output Signal	Output Signal 10 V, BNC type, Between the sync signal and the output voltage will be 0.5ms time difference					
Display	240 x 64 dot resolution Monographic LCD / Contrast 9 Levels 1 - 9					
Protection	OCP, OVP, OPP, OTP, LVP, Short Circuit ; Alarm and shutdown					
Interface	Standard USB & RS232, Option GPIB, PLC Remote Input Card					
Operation Environment	0 - 40 ℃ / 20 - 80% RH					
Dimension (W x H x D), mm[9]	430 x 89 (111.5) x 400	430 x 89 (111.5) x 560 (588)	430 x 268 (355) x 650 (730)	430 x 624 (711) x 650 (730)	430 x 624 (711) x 650 (730)	430 x 624 (711) x 650 (730)
Weight	24 kg	39 kg	90 kg	165 kg	192 kg	

Product specifications are subject to change without notice

*1. Maximum current when output voltage at 120 / 240 V

*2. Maximum current when output voltage at 240 / 480 V

*3. Maximum current when output voltage at 500 / 1000 V

*4. The input voltage is restricted not to be lower than -5% of rated input voltage when output voltages reach >140 V at 0 - 150 V range & >280 V at 0 - 300 V range.

The input voltage is restricted not to be lower than -5% of rated input voltage when output voltages reach >280 V at 0 - 300 V range & >560 V at 0 - 600 V range. (Option 0 - 600 V).

*5. At voltage > 5V

*6. a. When output frequency ≥ 100 Hz & ≤500 Hz & N-G short, the current meter guarantee minimum current from 0.01 A

b. When output frequency ≥ 500 Hz & N-G short, the current meter guarantee minimum current from 0.02 A

c. When output frequency ≥ 100 Hz & ≤500 Hz & N-G short, the current meter guarantee minimum current from 0.02 A at 600 V models

d. When output frequency ≥ 500 Hz & N-G short, the current meter guarantee minimum current from 0.03 A at 600 V models

7. At at 60 - 300 V and PF > 0.5

8. At at 120 - 300 V and PF > 0.5

9. Figure in parentheses are maximum values with fixture stand

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0 - 150V range

Output power ratio (%) vs Output voltage (V)

0 - 300V range

Output power ratio (%) vs Output voltage (V)
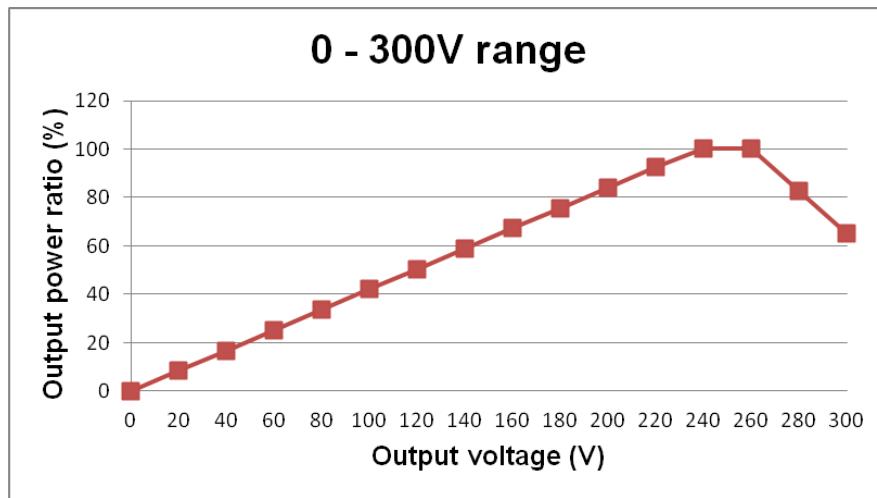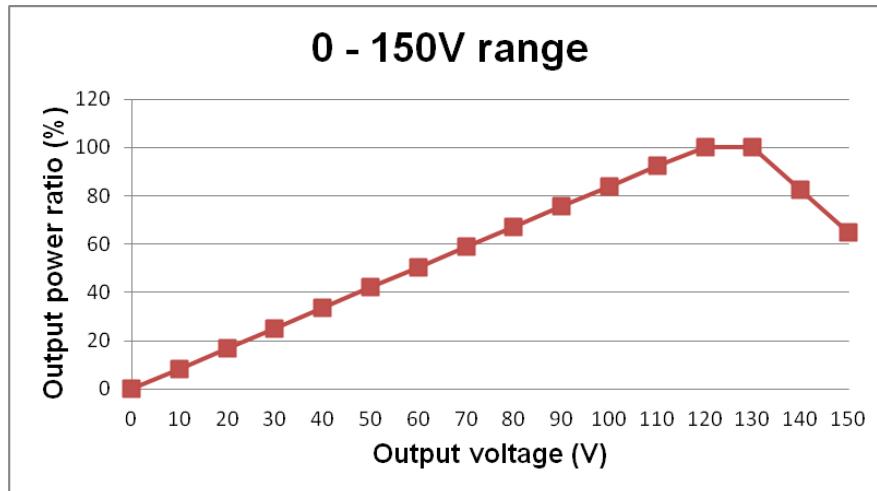
【Ordering Information】

• Opt.612 PLC Remote I/P Interface

• Opt.623 Low Range meter Resolution 0.1mA / 0.01W for 6705 & 6710

• Opt.624 Output 0 - 600V

• Opt.625 Output Frequency 45.0 - 1000Hz

• Opt.655 Sync Signal +5V/pulse 15ms

• Opt.664 Output 0 - 1000V for 6710 / 6720

• Opt.665 V sensor function for 6720

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## 3.2 Front Panel Description
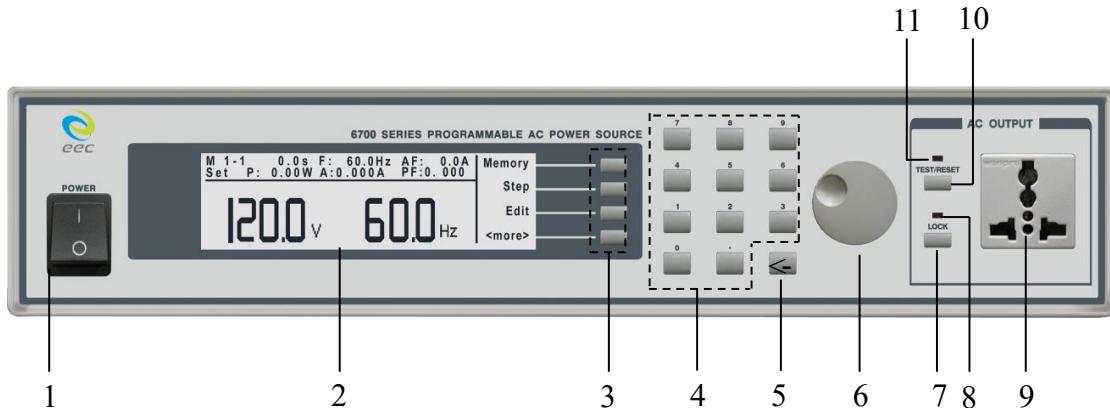
1. **POWER SWITCH:** Rocker style power switch with international ON (|) and OFF (0) markings.

2. **GRAPHIC LCD:** 240 X 64 Monographic LCD.

3. **SOFT KEYS:** Multifunction parameter selection keys.   Keys used to select screens and change parameters.

4. **NUMERIC DATA ENTRY:** Keys used to enter numeric data.

5. **Delete Key：**If you make a mistake or want to change the character, press the Delete key to delete the last character.

6. **ROTARY KNOB:** Adjust the value of all parameters.

7. **LOCK Key.** To disable all the keys on the front panel (ON/OFF) and to escape from programmable operation mode.

8. **LOCK Indicator.**   When this LED is lighting, all the keys are disabled.

9. **Universal Ac Output Socket:** Output Socket (15A).

10. **TEST/RESET Key.** To turn the output ON and OFF and press the key when abnormal operation occurs.

11. **TEST/RESET Indicator：**   When this LED is lighting, the output voltage is turned ON.

3.3 Rear Panel Description
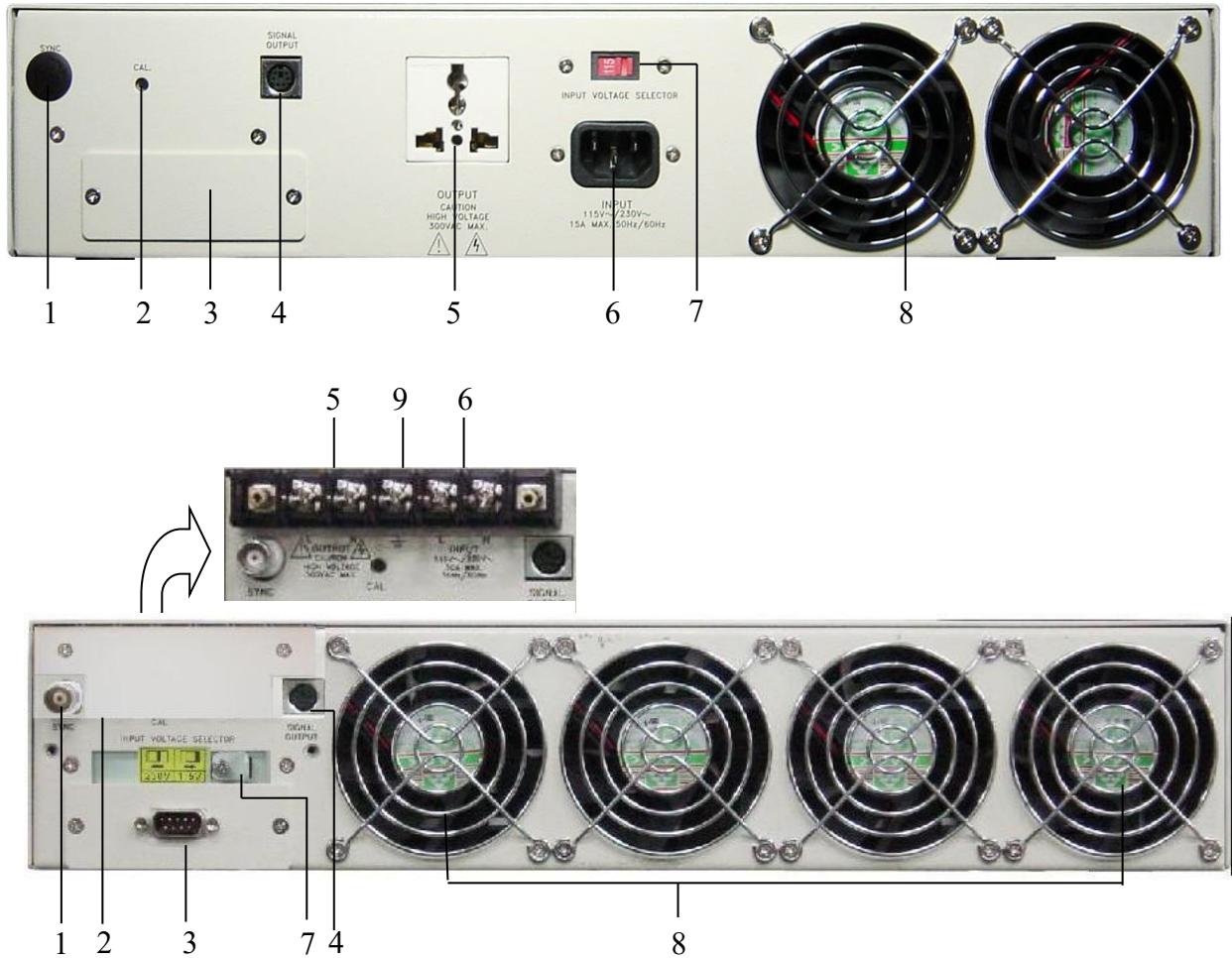
1. **SYNCHRONISM SINGAL SCOKET:** BNC Socket. When the test is enable, it will output a 10V voltage signal at the same time from the socket.

2. **CALIBRATION ENABLE KEY:** To enter the calibration mode press this key while the instrument is being powered ON.

3. **INTERFACE PORT:** Optional connector for interconnection to the PLC Remote of TEST , RESET functions and program memory selection 1~7. Or optional RS-232 Bus interface and IEEE 488 interface may be selected.

4. **PLC REMOTE OUTPUT:** Connector for monitoring PASS, FAIL and PROCESSING output signals.

5. **OUTPUT L/N TERMINAL / UNIVERSAL AC OUTPUT SOCKET:** Output Socket (15A) for 6705 or output L/N terminal for 6710.

Rear Panel Description
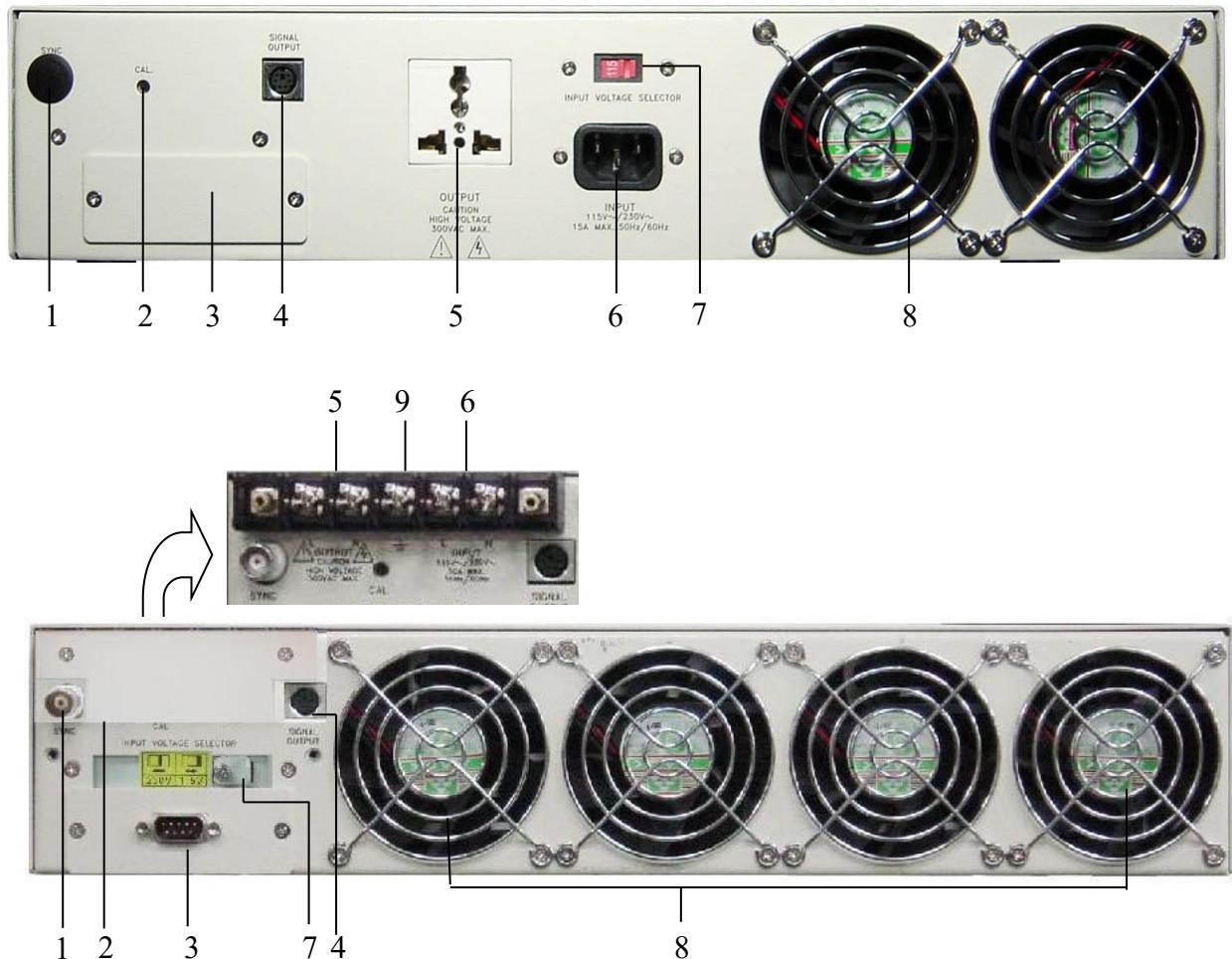
6. INPUT SUPPLY TERMINAL / INPUT POWER RECEPTACLE: Standard IEC 320 connector for connection to a standard NEMA style line power (mains) cord for 6705. Or input supply terminal for 6710.

7. INPUT POWER SWITCH: Line voltage selection is set by the position of the switch. In the left position, it is set for 115-volt operation, in the right position it is set for 230-volt operation.

8. THERMAL FAN: To cool the instrument.

9. GROUND TERMINAL：Common Ground terminal for Input and Output.

CHAPTER 4. OPERATION DESCRIPTION

4.1 Power On

Turn on the POWER switch located on the lower left-hand side of the front panel, and the initialization screen will appear as follows:

After a few seconds the initialization screen will change to the Set screen. The Set screen will be displayed as follows when in PROGRAM Mode:

```
M 1-1  0.0s F:  50.0Hz AP:  0.0A   Memory
Set P:0.0W A:0.000A  PF:0.000           Step
120.0v 0.000A                          Edit
                                       <more>
```
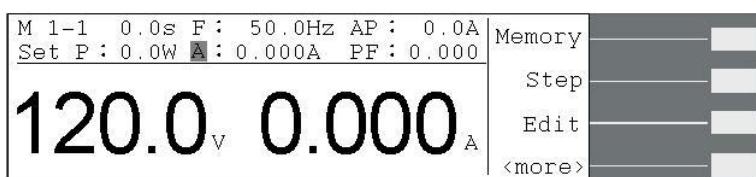
If you press the <more> soft key within the Set screen, the soft keys will change to include Result, System, and <top> in the PROGRAM Mode.

```
M 1-1  0.0s F:  50.0Hz AP:  0.0A   Result
Set P:0.0W A:0.000A  PF:0.000           System
120.0v 0.000A
                                       <top>
```
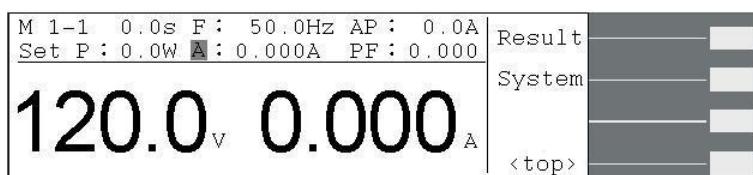
If you are in MANUAL Mode there will not be a step number 1 next to the M 1 and the set screen will appear as follows:

```
M 1          F:  50.0Hz AP:  0.0A   Meter
Set   P: 0.00W A:0.000A  PF:0.000       Edit
   120.0 v     0.000 A               Result
                                     System
```
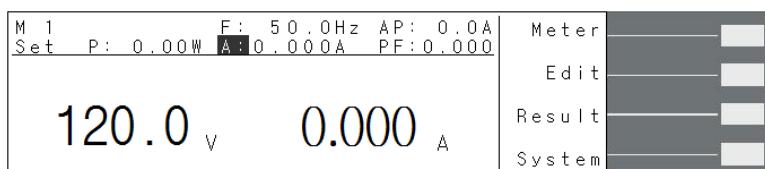
4.1.1 Description of the parameters

If the instrument is under reset condition, follow parameters show the setting value. But if the instrument is under test condition, the parameters show the output value.

Set Screen Parameters	Description of Parameters
M 1-1	Memory and step number .
0.0s	Dwell time.
F：50.0Hz	Output Frequency.
AP：0.0A	Peak current.
Set	Display for present condition. It could be the "Set", "Dwell", "Pass", "Abort" or others fail condition. For example, if it is under test condition and it will shows "Dwell".
P: 0.0W	Output Power.
A：0.000A	Output Current.
PF：0.000	Power Factor.
Memory	Memory soft key used to change memory location
120.0V(Left meter reading)	Meter for voltage
0.00A(right meter reading)	Meter for parameters of F, Ap, P, A & PF

4.2 Description of the Softkeys

There are fives softkeys for selection, and they are: "Memory", "Step", "Edit", "Result" and "System".

4.2.1 Memory Softkey
The softkey is for memory fast selected under reset condition. The display will show further number if press "Memory" softkey one time.

```
M 1-1   0.0s F:   50.0Hz AP:   0.0A   Memory
Set P: 0.0W A: 0.000A   PF: 0.000
                                      Step
120.0ᵥ 0.000ₐ                        Edit
                                      <more>
```

(1) Memory Number

Press the "Memory" softkey.

```
M 1-1   0.0s F:   50.0Hz AP:   0.0A   Memory
Set P: 0.0W A: 0.000A   PF: 0.000
                                      Step
120.0ᵥ 0.000ₐ                        Edit
                                      <more>
```

(2) Memory Number

The display will show further number if press "Step" softkey one time.

```
M 1-1   0.0s F:   50.0Hz AP:   0.0A   Memory
Set P: 0.0W A: 0.000A   PF: 0.000
                                      Step
120.0ᵥ 0.000ₐ                        Edit
                                      <more>
```

(1) Step Number

Press the "Step" softkey.

```
M 1-2   0.0s F:   50.0Hz AP:   0.0A   Memory
Set P: 0.0W A: 0.000A   PF: 0.000
                                      Step
120.0ᵥ 0.000ₐ                        Edit
                                      <more>
```

(2) Step Number

4.2.3 Edit Softkey

Press "Edit" softkey under the reset condition which is under the setting of Auto Run is "Program" and "Surge/Drop" is "ON", then display will show as follows.

```
M 1-1   0.0s F:   50.0Hz AP:   0.0A   Memory
Set P: 0.0W A: 0.000A   PF: 0.000
                                      Step
120.0ᵥ 0.000ₐ                        Edit
                                      <more>
```

Press "Edit" softkey.

Press "Edit" softkey under the reset condition which is under the setting of Auto Run is "Manual" and "Surge/Drop" is "ON", then display will show as follows.

Press "Edit" softkey.

Remark:
1. If the seeting of Surge/Drop is "OFF", the display will not show the test parameters : "SD-Volt", "SD-Site" and "SD-Time".
2. Please refer to section 4.2.3.2 for Test parameters "Auto Run". and section 4.2.5 for the System parameter "Surge/Drop".

There are four softkeys under the display, and they are" ⌒ "、" ⌣ "、"Edit" and "Exit".

" ⌒ "：Back to last parameter.

" ⌣ "：Forward to next parameter.

"Edit"：Parameter edit function.

"Exit"：Exit the edit display and back to reset display.

4.2.3.1 Enter the Test Parameters Editting Mode

Please press "Edit" to edit the test parameters under Edit display.

```
Auto  Run  Program | P  Hi-Lmt    0.0W  |  ⌒
Memory  Cycle    1 | P  Hi-Lmt    0.0W  |
Memory     1       | AP Hi-Lmt    0.0A  |  ⌄
Step       1       | AP Lo-Lmt    0.0A  |
Voltage  100.0V    | PF Hi-Lmt  0.000   |
Frequency  60.0Hz  | PF Lo-Lmt  0.000   | Edit
A Hi-Lmt  0.000A   | Ramp Up      0.1s  |
A Lo-Lmt  0.000A   |      <more>        | Exit
```

⬇ Press "Edit" softkey.

```
Auto Run = PROGRAM        Prev

                          Next
Auto Run Mode:            Change
PROGRAM / MANUAL
                          Exit
```

⬇ Press "Next" softkey.

```
Memory Cycle =   1        Prev

                          Next
Memory Cycle Range:
0 - 9999   ,0=Cont.,1=Off Exit
```

Or you can press "⌒" or "⌄" softkey to select the parameter you want to edit first, then press "Edit" softkey to edit it.

```
Auto  Run  Program | P  Hi-Lmt    0.0W  |  ⌒
Memory  Cycle    1 | P  Hi-Lmt    0.0W  |
Memory     1       | AP Hi-Lmt    0.0A  |  ⌄
Step       1       | AP Lo-Lmt    0.0A  |
Voltage  100.0V    | PF Hi-Lmt  0.000   |
Frequency  60.0Hz  | PF Lo-Lmt  0.000   | Edit
A Hi-Lmt  0.000A   | Ramp Up      0.1s  |
A Lo-Lmt  0.000A   |      <more>        | Exit
```

⬇ Press " ⌒" softkey.

```
Delay      0.1s | Prompt             |  ⌒
Dwell      0.1s | Step Cycle     1   |
Time Unit  SECOND | Connect      OFF |  ⌄
Ramp Down  0.0s |                    |
SD-Volt  100.0V |                    |
SD-Site    1ms  |                    | Edit
SD-Time    1ms  |                    |
SD-Cont.   ON   |                    | Exit
```

⬇ Press "Edit" softkey.

```
Connect  = OFF            Prev

                          Next
Step Connect Mode: ON/OFF Change

                          Exit
```

Use numeric keypad to enter the new number or pressing "Change" softkey to change the parameter mode.

4.2.3.2 Editting Test Parameter

Auto Run Mode Selection

When the parameter "Auto Run" is selected, the display will show as follows.

```
Auto Run = PROGRAM          Prev   [   ]

                            Next   [   ]
Auto Run Mode:              Change [   ]
PROGRAM / MANUAL
                            Exit   [   ]
```

Setting **"Manual"**, just these parameters "Memory", "Voltage" , "Frequency", "A Hi-Lmt", "SD-Volt", "SD-Site" and "SD-Time" will be enables.

Setting **"Program"**, besides above parameters, and "Memory Cycle", "Step", "A Lo-Lmt", "AP Hi-Lmt", "AP Lo-Lmt", "P Hi-Lmt", "P Lo-Lmt", "PF Hi-Lmt", "PF Lo-Lmt", "Ramp Up", "Delay", "Dwell", "Ramp Down", "Prompt", "Step Cycle" and "Connect" will be enabled.

Memory Cycle Setting

When the parameter "Memory Cycle" is selected, the display will show as follows.

```
Memory Cycle =     1        Prev   [   ]

                            Next   [   ]
Memory Cycle Range:
0 - 9999   ,0=Cont.,1=Off   Exit   [   ]
```

Setting of "Cont" means continuous, and "1" is single operation. For "2"~"9999" setting, it becomes the number of sequence to be repeated for running operation. (Refer to section 4.2.4.2 for Loop Cycle Setting)

Selecting a Memory

When the parameter "Memory" is selected, the display will show as follows.

```
Memory =    1               Prev   [   ]
Name =
                            Next   [   ]
Memory Range : 1 - 50       Exit   [   ]

                            <more> [   ]
```

Two methods may be used to select a Memory.

1. Type in the number of the Memory that you would like to use.   As with all of the parameters, once you begin typing a new number, the parameter will blank and the cursor will begin blinking.   This indicates that the parameter is being edited.   Once a parameter is edited, it is necessary to complete the edit either by pressing the ENTER key to accept the new number or the EXIT key to escape from the edit and return to the original number.

2. Press the "List" soft key and scroll the highlighted area to the desired Memory, then press the ENTER key.　　An example of the list display is as follows:

```
Memory = [ 1 ]                    Name    [ ]
Name =                            List    [ ]
                                          [ ]
Memory Range : 1 - 50            <top>    [ ]
```

⬇ Press "List" softkey.

```
1  8745210039                      ⌣     [ ]
2  20050701-A                            [ ]
3  ████████████████         page⌢ [ ]
4
5                            page⌣ [ ]
6
7
8                            <more>       [ ]
```

⬇ Press <more> softkey.

```
1  8745210039                            [ ]
2  20050701-A                            [ ]
3  ████████████████         Load  [ ]
4
5                            Exit  [ ]
6
7
8                            <top>        [ ]
```

Once you press the ENTER key, the Memory location and all of its steps will be loaded into the instruments activate memory for use.　　Once the Memory is loaded, the Perform Test screen will once again be displayed.

Naming a Memory

At the Memory recall screen, press the "Name" soft key.

```
Memory = [ 1 ]                    Prev    [ ]
Name =                            Next    [ ]
                                  Exit    [ ]
Memory Range : 1 - 50            <more>   [ ]
```

⬇ Press "<more>" softkey.

```
Memory = [ 1 ]                    Name    [ ]
Name =                            List    [ ]
                                          [ ]
Memory Range : 1 - 50            <top>    [ ]
```

⬇ Press "Name" softkey.

```
┌─────────────────────────────────────────────────────────┐
│ █BCDEFGHI      0123456789█            >                 ▭│
│ JKLMNOPQR                                               ▭│
│ STUVWXYZ                            Select              ▭│
│ *-_~space                          <more>              ▭│
└─────────────────────────────────────────────────────────┘
```

Press "<more>" softkey.

```
┌─────────────────────────────────────────────────────────┐
│ █BCDEFGHI      0123456789█          Enter              ▭│
│ JKLMNOPQR                             Esc              ▭│
│ STUVWXYZ                                               ▭│
│ *-_~space                                             ▭│
│ Enter to save , Esc to cancel.       <top>            ▭│
└─────────────────────────────────────────────────────────┘
```

Use the " < >, ∧, ∨ " soft keys to navigate through the character map and use the bottom soft key to select a character. The"<– –" key may be used to delete the last character. Press ENTER to save or EXIT to cancel changes. The memory name can be no more than 10 characters in length.

Selecting a Step

When the parameter "Step" is selected, the display will show as follows.

```
┌─────────────────────────────────────────────────────────┐
│ Step = █  1                         Prev              ▭│
│                                     Next              ▭│
│ Step Range : 1 - 9                                    ▭│
│                                     Exit              ▭│
└─────────────────────────────────────────────────────────┘
```

Type in the number of the Step that you would like to use. Once a parameter is edited, it is necessary to complete the edit either by pressing the ENTER key to accept the new number or the EXIT key to escape from the edit and return to the original number.

Setting of Output Voltage

When the parameter "Voltage" is selected, the display will show as follows.

```
┌─────────────────────────────────────────────────────────┐
│ Voltage  = 100.0V                   Prev              ▭│
│ Voltage Range :  0.0 - 300.0V       Next              ▭│
│                                                         │
│ Voltage Mode :  AUTO              Change             ▭│
│ Voltage Mode :  HIGH / AUTO         Exit              ▭│
└─────────────────────────────────────────────────────────┘
```

Setting the voltage mode to be "AUTO", the system will auto judge the voltage range from the setting value of voltage.
Setting the mode to be "HIGH" , the voltage range is always set to be high range , and the range of current limit drops to half as comparing the current limit at the low range (Refer to the specification table). Setting of voltage range may not influence the existing output voltage setting.

Setting of Output Frequency

When the parameter "Frequency" is selected, the display will show as follows.

```
Frequency  =  60.0Hz         Prev
                             Next

Frequency Range：
45.0 – 500Hz                 Exit
```

Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting.

Setting of Current High Limit and Low limit

When the parameter "A Hi-Lmt" is selected, the display will show as follows.

```
A Hi-Lmt  = 0.000A           Prev
                             Next

Current High Limit Range：
0.000 – 8.400A  ,0=OFF       Exit
```

When the parameter "A Lo-Lmt" is selected, the display will show as follows.

```
A Lo-Lmt  = 0.000A           Prev
                             Next

Current Low Limit Range：
0.000 – 8.400A               Exit
```

Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting.

Setting Range of Voltage

Model	6705	6710	6720	6730	6740	6750
0-150V (A)	0.000-4.200	0.000-8.40	0.000-16.80	0.000-25.20	0.000-33.60	0.000-42.00
0-300V (A)	0.000-2.100	0.000-4.20	0.000-8.40	0.000-12.60	0.000-16.80	0.000-21.00
OPT.624(0-600V)						
0-300V (A)	0.000-2.100	0.000-4.20	0.000-8.40	0.000-12.60	0.000-16.80	0.000-21.00
0-600V (A)	0.000-1.050	0.000-2.100	0.000-4.20	0.000-6.30	0.000-8.40	0.000-10.50

Note. If the setting value of high limit is 0, the function will be displayed.

Setting of Power High Limit and Low Limit

When the parameter "P Hi-Lmt" is selected, the display will show as follows.

```
P Hi-Lmt  =   0.0W            Prev

                              Next
 Power High Limit Range:
   0.0 - 1000W  ,0=OFF
                              Exit
```

When the parameter "P Lo-Lmt" is selected, the display will show as follows.

```
P Lo-Lmt  =   0.0W            Prev

                              Next
 Power Low Limit Range:
   0.0 - 1000W
                              Exit
```

Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting.

Setting Range of Power

Model	6705	6710	6720	6730	6740	6750
Power(W)	0.0-500	0.0-1000	0.0-2000	0.0-3000	0.0-4000	0.0-5000

Note. If the setting value of high limit is 0, the function will be displayed.

Setting of Peak Current High Limit and Low Limit

When the parameter "AP Hi-Lmt" is selected, the display will show as follows.

```
AP Hi-Lmt  =  0.0A            Prev

                              Next
 Peak Current High Limit Range:
   0.0 - 11.8A  ,0=OFF
                              Exit
```

When the parameter "AP Lo-Lmt" is selected, the display will show as follows.

```
AP Lo-Lmt  =  0.0A            Prev

                              Next
 Peak Current Low Limit Range:
   0.0 - 11.8A
                              Exit
```

Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting.

Setting Range of Peak Current

Model	6705	6710	6720	6730	6740	6750
Current(A)	0.0-5.9	0.0-11.8	0.0-23.7	0.0-35.6	0.0-47.5	0.0-59.3
OPT.624(0-600V)	0.0-2.9	0.0-5.9	0.0-11.8	0.0-17.8	0.0-23.7	0.0-29.6

Note. If the setting value of high limit is 0, the function will be displayed.

Setting of Power Factor High Limit and Low Limit

When the parameter "PF Hi-Lmt" is selected, the display will show as follows.

```
 PF Hi-Lmt  = 0.000          Prev

                             Next

 Power Factor High Limit Range:
 0.000 - 1.000   ,0=OFF
                             Exit
```

When the parameter "PF Lo-Lmt" is selected, the display will show as follows.

```
 PF Lo-Lmt  = 0.000          Prev

                             Next

 Power Factor Low Limit Range:
 0.000 - 1.000
                             Exit
```

Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting. Note. If the setting value is 0, the function will be displayed.

Setting of Ramp Up Time

When the parameter "Ramp Up" is selected, the display will show as follows.

```
 Ramp Up  =    0.1S          Prev

                             Next

 Ramp Up Time Range:
   0.1 - 999.9S
                             Exit
```

Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting.

Setting of Delay Time

When the parameter "Delay" is selected, the display will show as follows.

```
 Delay  =    0.1S            Prev

                             Next

 Delay Time Range:
   0.1 - 999.9S
                             Exit
```

Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting.

Setting of Dwell Time

When the parameter "Dwell" is selected, the display will show as follows.

```
 Dwell  =    0.1S            Prev

                             Next

 Dwell Time Range:
   0.1 - 999.9S  ,0=Constant
                             Exit
```

Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter

setting. Setting 0 is continuing test till teat fail or abort.

Setting of Ramp Down Time

When the parameter "Ramp Up" is selected, the display will show as follows.

```
Ramp Down =  0.1S          Prev ──────────[ ]
                           Next ──────────[ ]

 Ramp Down  Time  Range:                  [ ]
   0.0 -  999.9S
                           Exit ──────────[ ]
```

Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting.

Setting of Surge / Drop Voltage

When the parameter "SD-Volt" is selected, the display will show as follows.

```
SD-Volt  = 100.0V          Prev ──────────[ ]
                           Next ──────────[ ]

 Surge/Drop Voltage Range:                [ ]
   0.0 - 300.0V
                           Exit ──────────[ ]
```

The function is setting it belongs to surge or drop. Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting.

Setting of Surge / Drop Site

When the parameter "SD-Site" is selected, the display will show as follows.

```
SD-Site  =   0.1mS         Prev ──────────[ ]
                           Next ──────────[ ]

 Surge/Drop Site Range:                   [ ]
   0.1 - 99.9mS
                           Exit ──────────[ ]
```

The function is setting the location of Surge / Drop. Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting.

Setting of Surge / Drop Time

When the parameter "SD-Time" is selected, the display will show as follows.

```
SD-Time  =   0.1mS         Prev ──────────[ ]
                           Next ──────────[ ]

 Surge/Drop Pulse Width Range:            [ ]
 0.1 - 25.0mS
                           Exit ──────────[ ]
```

The function is setting the puls width of Surge / Drop. Use numeric key to enter the value then

press "Enter" softkey to save and escape the parameter setting.

Setting of Surge / Drop Continuous Test

When the parameter "SD-Cont." selected, the display will show as follows.

```
SD-Cont.  =   OFF        Prev
                         Next
   Surge/Drop Trig Mode: ON / OFF   Change
                         Exit
```

The function is setting if Surge/Drop output is continuous or not.   When the function is setting to "ON", the trigger will be activated continuously until the test is fail or reset after "Trig." softkey is pressed. When the setting is " OFF" , the trigger will only activated a time after "Trig." softkey is pressed.

For an example, If output voltage is 100Vrms, output frequency is 50Hz，Surge/Drop voltage is 60Vrms, Surge/Drop site is 25mS, and Surge/Drop time is 1mS.

If the SD-Cont. is setting to "OFF" and the "Trig." softkwy is only pressed a time, the waveform will be as the right figure.
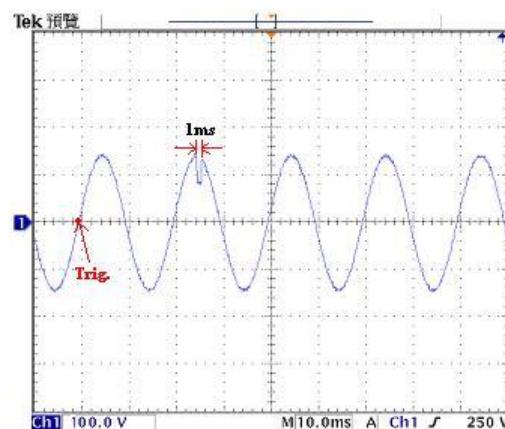
Setting of Prompt

When the parameter "Prompt" is selected, the display will show as follows.

```
ABCDEFGHI      Prompt  = ▮     Prev
JKLMNOPQR
STUVWXYZ                       Next
*- ~space
                               Edit
                               Exit
```

The Prompt function allows you to insert a short line of text in a step.   The Prompt will appear on the screen before the step is initiated and remains on the screen until the TEST button is pressed.   After the TEST button is pressed, the Prompt will clear and the step will initialize.

```
┌─────────────────────────────────┬──────────────┐
│ ABCDEFGHI                        │          >   │
│ JKLMNOPQR   Prompt  =            │          ⌄   │
│ STUVWXYZ                         │       Select │
│ *- ~space   ▮                    │       <more> │
└─────────────────────────────────┴──────────────┘
```

Press "<more>" Softkey.

```
┌─────────────────────────────────┬──────────────┐
│ ABCDEFGHI                        │              │
│ JKLMNOPQR   Prompt  =            │       Enter  │
│ STUVWXYZ                         │       Esc    │
│ *- ~space   ▮                    │              │
│ Enter  to  save , Esc  to  cancel.│      <more> │
└─────────────────────────────────┴──────────────┘
```
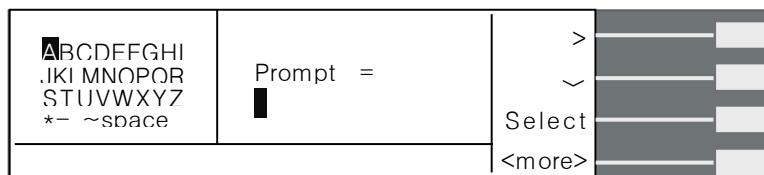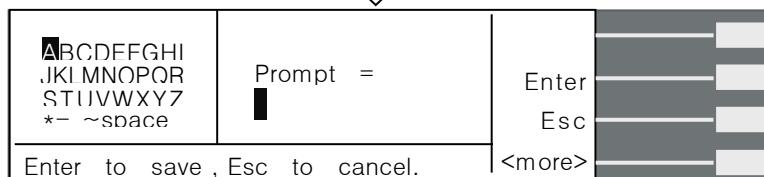
This screen will only show when scrolling one parameter at a time through the parameter list with "Prev and Next" soft keys.   Press the "Edit" soft key to Edit or insert a Prompt.

To enter a text prompt, use the arrow keys to scroll the highlighted area to the character (or enter a number from the numeric keypad) you wish to use and then press the "Select" soft key, the letter or symbol will be inserted at the point where the cursor is flashing.   The cursor will then increment to the next position and wait for an additional character insertion.   If you make a mistake or want to change the character, press the delete key in the numeric keypad. The cursor will decrement and erase the character.   When you have finished editing the prompt press the ENTER key.   The prompt can be no more than 10 characters in length.

Setting of Step Cycle

When the parameter "Step Cycle" is selected, the display will show as follows.
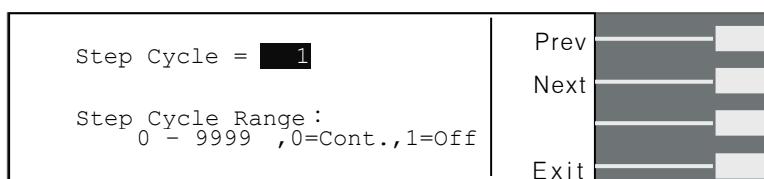
```
┌─────────────────────────────────┬──────────────┐
│                                  │       Prev   │
│   Step Cycle =  ▮  1             │       Next   │
│                                  │              │
│   Step Cycle Range:              │              │
│      0 - 9999 ,0=Cont.,1=Off     │       Exit   │
└─────────────────────────────────┴──────────────┘
```

Setting of "Cont" means continuous, and "1" is single operation. For "2"~"9999" setting, it becomes the number of sequence to be repeated for running operation. (Refer to section 4.2.4.2 for Loop Cycle Setting)

Setting of Step Connect

When the parameter "Connect" is selected, the display will show as follows.

```
┌─────────────────────────────────┬──────────────┐
│                                  │       Prev   │
│   Connect  =  OFF                │       Next   │
│                                  │       Change │
│   Step Connect Mode: ON/OFF      │       Exit   │
└─────────────────────────────────┴──────────────┘
```
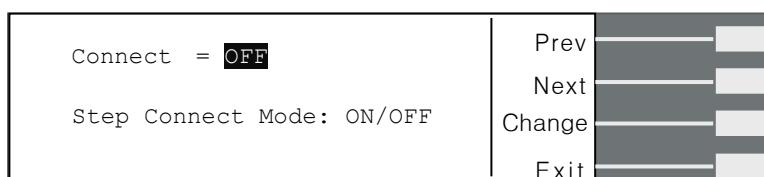
This function when turned ON will connect or link the step to the next step.   When step 9 connect is turned "ON", it will be linked to the first step of the next memory.   For example, memory 1, step 9 will be connected to memory 2, step1.   It is possible to connect all 450

steps together when the connect parameter of all steps has been turned "ON".

If the step connect is turned "ON", the display will show as follows.

```
M 1-1   0.0s  F:   50.0Hz AP:  0.0A  | Memory
Set P: 0.0W  A:  0.000A   PF:0.000  |
                                      |  Step
  120.0      0.000                    |  Edit
        V           A                 | <more>
```
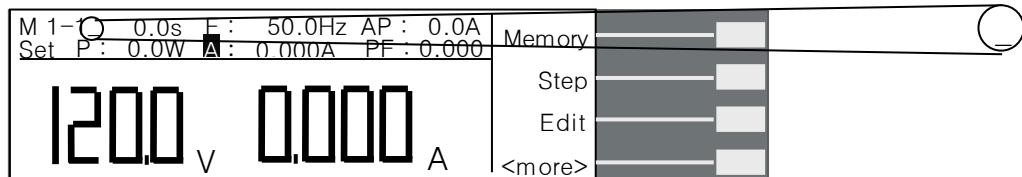
4.2.4 Results Softkey

Press "<more>" softkey under the reset condition, then display will show as follows.

```
M 1-1   0.0s  F:   50.0Hz AP:  0.0A  | Memory
Set P: 0.0W  A:  0.000A   PF:0.000  |
                                      |  Step
  120.0      0.000                    |  Edit
        V           A                 | <more>
```

Press "<more>" softkey.

```
M 1-1   0.0s  F:   50.0Hz AP:  0.0A  | Result
Set P: 0.0W  A:  0.000A   PF:0.000  |
                                      | System
  120.0      0.000                    |
        V           A                 |  top
```
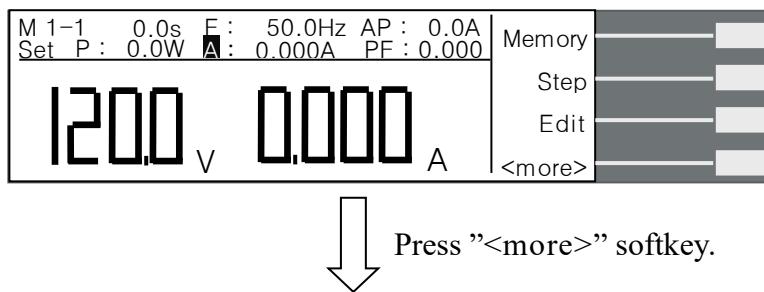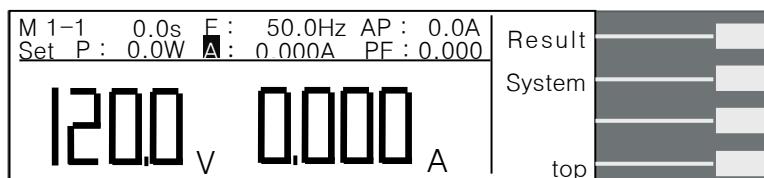
Press "Result" software.

```
1- 1P | Pass                          |    ∨
1- 2P |                               |
1- 3P | Setting      Results          | Page∧
1- 4P | 120.0V       119.9V           |
1- 5P |  50.0Hz       50.0Hz          | Page∨
1- 6P |   0.0W         0.0W           |
1- 7P | 0.000A       0.000A           |  Exit
1- 8P |  0. 0A        0. 0A           |
```

or

```
1- 1F | Fail          A-LO            |    ∨
      |                               |
      | Setting      Results          | Page∧
      | 120.0V       119.9V           |
      |  50.0Hz        0.0Hz          | Page∨
      |   0.0W         0.0W           |
      | 0.000A       0.003A           |  Exit
      |  0. 0A        0. 3A           |
```

Using the" ∨", " Page∧" or " Page∨" softkeys to review the last test result. If the system is never executed any test, the display will hold on the rest condition after you press the softkey.

4.2.5 System Softkey

Press "<more>" softkey under the reset condition, then display will show as follows.

```
M 1-1    0.0s  F:   50.0Hz  AP:  0.0A    Result
Set  P:  0.0W  A:  0.000A   PF:0.000
                                         System
   120.0  0.000
        V        A                       top
```

Press "System" softkey.

```
Single Step  OFF  V Lo-Lmt    0.0V
Alarm         5   F Hi-Lmt  500.0Hz    ⌒
Contrast      5   F Lo-Lmt   45.0Hz
Auto V-Adj   OFF  Start Angl     0°    ⌄
Power UP     OFF  Start Angle    0°    Edit
Timer Unit SECOND Results     LAST
Loop Cycle    1   Surge/Drop   OFF     Exit
V Hi-Lmt  300.0V  OC Fold      OFF
```
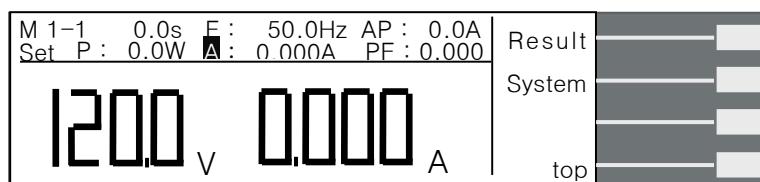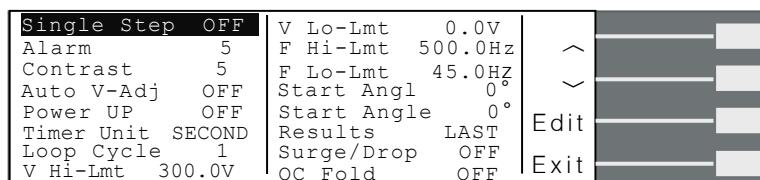
4.2.5.1 Enter the System Setting Mode

Press "Edit" softkey under system mode, then you can enter the setting mode.
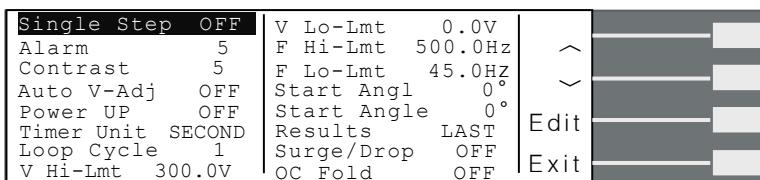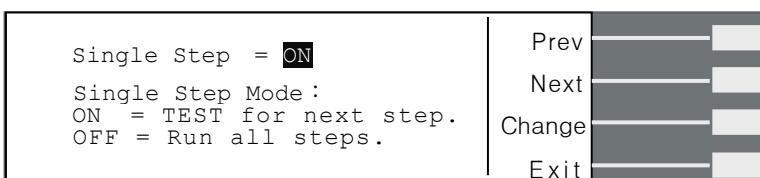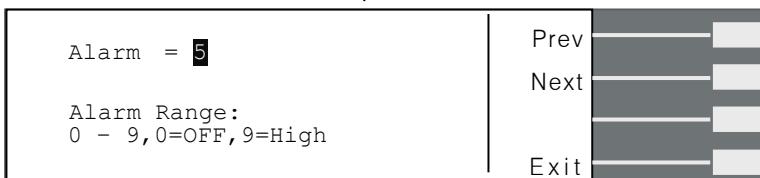
```
Single Step  OFF  V Lo-Lmt    0.0V
Alarm         5   F Hi-Lmt  500.0Hz    ⌒
Contrast      5   F Lo-Lmt   45.0Hz
Auto V-Adj   OFF  Start Angl     0°    ⌄
Power UP     OFF  Start Angle    0°    Edit
Timer Unit SECOND Results     LAST
Loop Cycle    1   Surge/Drop   OFF     Exit
V Hi-Lmt  300.0V  OC Fold      OFF
```

Press "Edit" softkey.

```
                                       Prev
   Single Step = ON
                                       Next
   Single Step Mode:
   ON  = TEST for next step.           Change
   OFF = Run all steps.
                                       Exit
```

Press "Next" Softkey.

```
                                       Prev
   Alarm = 5
                                       Next
   Alarm Range:
   0 - 9,0=OFF,9=High
                                       Exit
```

Or you can press "⌒" or "⌄" softkey to select the parameter you want to edit first, then press "Edit" softkey to edit it.

```
Single Step  OFF │V Lo-Lmt      0.0V │
Alarm          5 │F Hi-Lmt   500.0Hz │   ⌒
Contrast       5 │F Lo-Lmt    45.0Hz │
Auto V-Adj   OFF │Start Angl     0°  │   ⌄
Power UP     OFF │Start Angle    0°  │
Timer Unit SECOND│Results      LAST  │ Edit
Loop Cycle     1 │Surge/Drop    OFF  │
V Hi-Lmt   300.0V│OC Fold       OFF  │ Exit
```

Press "⌒" softkey.

```
Single Step  OFF │V Lo-Lmt      0.0V │
Alarm          5 │F Hi-Lmt   500.0Hz │   ⌒
Contrast       5 │F Lo-Lmt    45.0Hz │
Auto V-Adj   OFF │Start Angl     0°  │   ⌄
Power UP     OFF │Start Angle    0°  │
Timer Unit SECOND│Results      LAST  │ Edit
Loop Cycle     1 │Surge/Drop    OFF  │
V Hi-Lmt   300.0V│OC Fold       OFF  │ Exit
```

Press "Edit" softkey.

```
                           │     Prev
   Alarm  = 5              │
                           │     Next
   Alarm Range:            │
   0 - 9,0=OFF,9=High      │
                           │     Exit
```

Use numeric keypad to enter the new number or pressing "Change" softkey to change the parameter mode.

4.2.5.2 System parameter

Single Step

When the parameter is selected, the display will show as follows.

```
                           │     Prev
   Single Step  =  ON      │
                           │     Next
   Single Step Mode：      │
   ON  = TEST for next step.│    Change
   OFF = Run all steps.    │
                           │     Exit
```

Press "Change" softkey.

```
   Single Step  =  ON      │
                           │
   Single Step Mode：      │     Enter
   ON  = TEST for next step.│
   OFF = Run all steps.    │     Change
Enter to save, Esc to cancel.│    Esc
```

Press "Enter" softkey.

```
                           │     Prev
   Alarm  = 5              │
                           │     Next
   Alarm Range:            │
   0 - 9,0=OFF,9=High      │
                           │     Exit
```

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You may turn the Single Step function ON and OFF by pressing the "Change" soft key. Accept the change by pressing ENTER or cancel the edit by pressing EXIT.

This function is used to temporarily override the automatic connection feature.   When the Single Step function is ON the instrument will pause after each step is completed.   To continue the test sequence, press the Test button to execute the next connected step.   Each time the Test button is pressed the next connected step will execute.   If you press the Reset button before completing all connected steps, it will return you to the original starting step.   If a step fails and you wish to continue to the next step, do not press Reset.

Alarm Volume

When the parameter is selected, the display will show as follows.

```
    Alarm  = 5            Prev


    Alarm Range:          Next
    0 - 9,0=OFF,9=High

                          Exit
```

To change the volume of the alarm, type in a numeric value between 0 and 9.   Press the ENTER key to accept the new number or the EXIT key to escape from the edit and return to the original number.

The numbers corresponding to the different volume settings are 0 through 9, 0 meaning the volume is off, and 9 being the loudest setting.   After the number is entered, a momentary alarm chirp will occur to indicate the volume of the new setting.

LCD Contrast

When the parameter is selected, the display will show as follows.

```
    Contrast  = 5         Prev


    Contrast Range:       Next
    1 - 9,9=High

                          Exit
```

To change the Contrast of the display, type in a numeric value between 0 and 9.   Press the ENTER key to accept the new number or the EXIT key to escape from the edit and return to the original number.

The numbers corresponding to the different contrast settings are 0 through 9, 0 meaning the lightest color of displayed characters and 9 meaning the darkest color of displayed characters.

After the number is entered, the display will automatically adjust to the new display setting.

Power Up

When the parameter is selected, the display will show as follows.

```
  Power Up  =   ON       Prev
  Power Up Mode:
  ON  = Output Voltage after   Next
        power up.
  OFF = Normal  status after  Change
        power up.
  LAST= Keep last status.     Exit
```

You may turn the function ON , OFF and LAST by pressing the "Change" soft key.   Accept the change by pressing ENTER or cancel the edit by pressing EXIT.

When the Power Up function is ON the instrument will auto test after power up. When the Power Up function is OFF the instrument will return the reset condition after power up.. When the Power Up function is LAST the display will show the last output after power up.

Timer Unit

When the parameter is selected, the display will show as follows.

```
                         Prev
  Timer Unit  = SECOND
                         Next
  Timer Unit Mode:      Change
  Second,Minute or Hour
                         Exit
```

You may turn the function SECOND , Minute and Hour by pressing the "Change" soft key. Accept the change by pressing ENTER or cancel the edit by pressing EXIT.

Loop Cycle

When the parameter is selected, the display will show as follows.

```
                         Prev
  Loop Cycle  =     1
                         Next
  Loop Cycle Range:
     0 - 9999 ,0=Cont.,1=Off
                         Exit
```

Setting of "Cont" means continuous, and "1" is single operation. For "2"~"9999" setting, it becomes the number of sequence to be repeated for running operation. This selected loop rate will then be used as a multiplier to the value of step cycle and memory cycle.

For an example, the Loop Cycle is 2,

Memory 1：Memory Cycle=2

    M1-1：Connect=ON，Step Cycle=2

    M1-2：Connect=ON，Step Cycle=1

    M1-3：Connect=ON，Step Cycle=1

    M1-4：Connect=ON，Step Cycle=3

    M1-5：Connect=ON，Step Cycle=2

    M1-6：Connect=ON，Step Cycle=1

    M1-7：Connect=ON，Step Cycle=1

    M1-8：Connect=ON，Step Cycle=1

    M1-9：Connect=ON，Step Cycle=2

Memory 2：Memory Cycle=3

    M2-1：Connect=ON，Step Cycle=1

    M2-2：Connect=ON，Step Cycle=3

All the test steps as follows.

M1-1➔M1-1➔M1-2➔M1-3➔M1-4➔M1-4➔M1-4➔M1-5➔M1-5➔M1-6➔M1-7➔M1-8➔M1-9➔M1-9➔

M1-1➔M1-1➔M1-2➔M1-3➔M1-4➔M1-4➔M1-4➔M1-5➔M1-5➔M1-6➔M1-7➔M1-8➔M1-9➔M1-9➔

➔M2-1➔M2-2➔M2-2➔M2-2　➔M2-1➔M2-2➔M2-2➔M2-2　➔M2-1➔M2-2➔M2-2➔M2-2

Voltage High Limit and Low Limit

When the High Limit is selected, the display will show as follows.

```
    V Hi-Lmt  = 300.0V           Prev
                                 Next
    Voltage High Limit Range：
        0.0 - 300.0V             Exit
```

When the High Limit is selected, the display will show as follows.

```
    V Lo-Lmt  =    0.0V          Prev
                                 Next
    Voltage Low Limit Range：
        0.0 - 300.0V             Exit
```

Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting.

This feature disallows user to vary the output voltage during RESET and TEST conditions, which may cause to exceed the acceptable range of voltage for any particular DUTs.

Frequency High Limit and Low Limit

When the high limit is selected, the display will show as follows.

```
    F Hi-Lmt  =  500Hz          Prev

                                Next
    Frequency High Limit Range：
        45.0 - 500Hz            Exit
```

When the low limit is selected, the display will show as follows.

```
    F Lo-Lmt  =  45.0Hz         Prev

                                Next
    Frequency Low Limit Range：
        45.0 - 500Hz            Exit
```

Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting.

This feature disallows user to vary the output frequency during RESET and TEST conditions, which may cause to exceed the acceptable range of frequencies for any particular DUTs.

Start Angle and End Angle

When the "Start Angle" is selected, the display will show as follows.

```
    Start Angle  =     0°       Prev

                                Next
    Start Angle Range：
        0 - 359°                Exit
```

When the "End Angle" is selected, the display will show as follows.

```
    End Angle  =     0°         Prev

                                Next
    End Angle Range：
        0 - 359°                Exit
```

Use numeric key to enter the value then press "Enter" softkey to save and escape the parameter setting.

Results

When the parameter is selected, the display will show as follows.

```
    Results = LAST              Prev

    Result Mode:                Next
    ALL = View all steps
    P/F = View full screen PASS Change
          or FAIL.
    LAST = View only last step. Exit
```
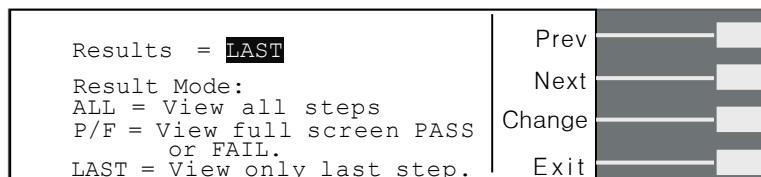
When the Results parameter is highlighted, you may use the "Change" soft key to select what type of results you would preferred displayed at the end of a test or sequence of connected steps.   The available selections are: All, P/F and Last.   Press the ENTER key to accept the new setting or the EXIT key to cancel and return to the original setting.

When All is selected, a Results summary screen will be displayed at the end of the test or sequence of connected steps, displaying the results of all of the steps.   The Results summary screen will appear as follows:

```
    1-1 Pass 120.0V  50.0Hz  0.003A
    1-2 Pass 100.0V  60.0Hz  0.002A    Page⌃

                                       Page⌄

                                       Exit
```
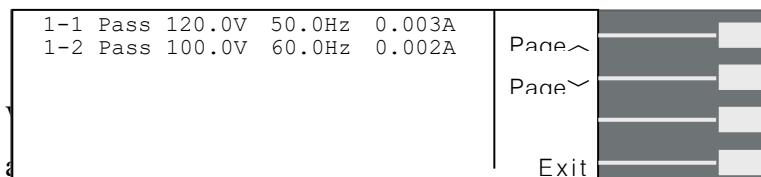
You   at the end of the test.   The Pass a

```

                PASS

                                            Exit
```

When Last is selected, the results of the last step performed will be displayed on the Perform Tests screen.   There will not be a change in appearance or special screen displayed in this mode.

```
    M 1-2   0.0s  F:   50.0Hz  AP:  0.0A
    PassP:  0.0W  A:   0.000A   PF:0.000

    120.0 V  0.000 A            Exit
```
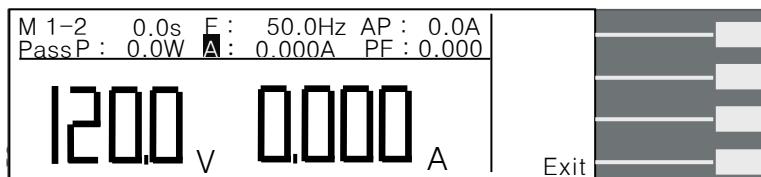
Setting on, the test parameter "SD-Volt"、"SD-Site" and "SD-Time" will be enabled. Setting off, the test parameter "SD-Volt"、"SD-Site" and "SD-Time" will be disabled.

```
    Surge/Drop = ON             Prev

    Surge/Drop Mode:            Next
    ON  = Enable the parameter
          in EDIT function.     Change
    OFF = Disable the parameter
          in EDIT function.     Exit
```
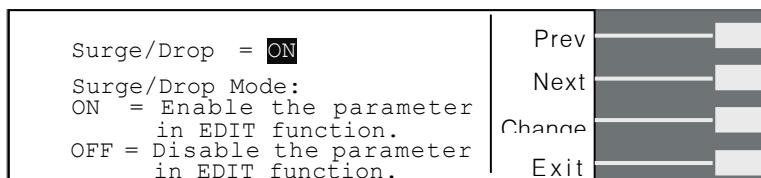
Over Current Fold Back (OC-Fold)

Setting On, when output current is higher than Programmable Parameters "A-HI" current setting current value, it will keep constant A-HI setting current value output.

```
   OC Fold = ON                    Prev

   Over Current Fold Mode:         Next
   ON  = Enable Voltage fold
         back mode.                Change
   OFF = Disable Voltage fold
          back mode.               Exit
```
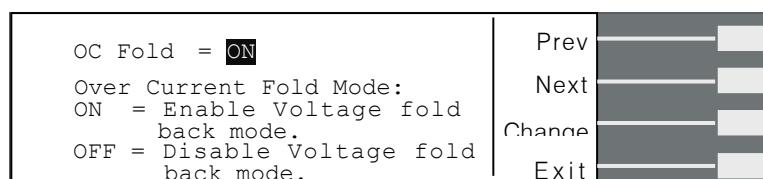
4.3 Description of Test

4.3.1 If the setting of the test parameter "AUTO RUN" is "PROGRAM".
If the setting of the test parameter "AUTO RUN" is **"PROGRAM"**, the Rotary Knob on the panel will be disabled.
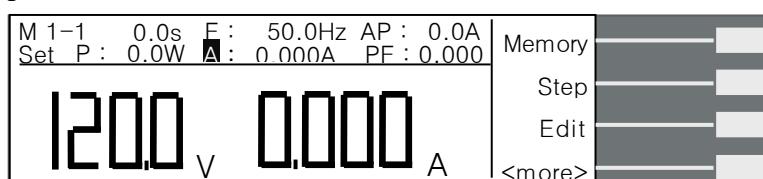
```
M 1-1   0.0s  F:   50.0Hz AP:  0.0A   Memory
Set P: 0.0W  A: 0.000A   PF: 0.000
                                      Step
  120.0 V  0.000 A                    Edit
                                      <more>
```

When you press "TEST/RESET" key to activate the test, the display will show as follows.
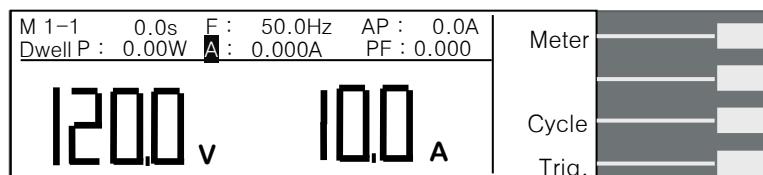
```
M 1-1    0.0s  F:   50.0Hz   AP:   0.0A   Meter
Dwell P: 0.00W  A:  0.000A    PF: 0.000

  120.0 V     10.0 A                       Cycle

                                           Trig.
```
You can monitor the value of Frequency, Peak Current, Power or Power factor by pressing the "Meter" softkey when the test is activating. Or you can monitor the times of Step, Memory and loop cycle by pressing the "cycle" softkey.

4.3.2 If the setting of the test parameter "AUTO RUN" is "MANUAL".
If the setting of the test parameter "AUTO RUN" is **"MANUAL"**, the Rotary Knob on the panel will be enabled.

Under reset condition, you can adjust the setting value of voltage, current, Memory or frequency by the Rotary Knob and the display will show as follows.

```
M 1        F:  50.0Hz  AP:  0.0A   Meter
Set  P: 0.00W  A: 0.000A   PF: 0.000
                                   Edit
  120.0 V     0.000 A              Result

                                   System
```
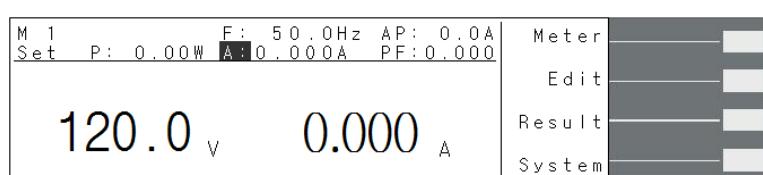
When you press "TEST/RESET" key to activate the test, the display will show as follows.
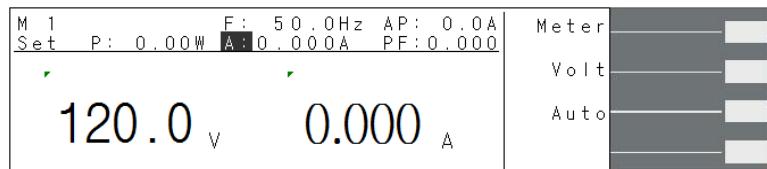
In the meanwhile, you can adjust the output value of voltage or frequency by the Rotary Knob.

Whenever it is under reset condition or testing condition, you can monitor the value of Frequency, Peak Current, Power or Power factor by pressing the "Meter" softkey. Or you can monitor the times of Step, Memory and loop cycle by pressing the "cycle" softkey.

4.3.3 Description of Test Softkeys

"Meter" ：You can select the parameter you want to monitor by pressing "Meter" softkey.

"Auto" ：It can be set to be "AUTO" or "HIGH".

If the setting is "AUTO" mode, the system will auto judge the voltage mode belongs to low range or high range from the setting value of voltage. If it is "HIGH" mode, it is always set to be high range.

"Cycle" ： Monitoring the times of Step, Memory and loop cycle.

Press "Meter"   Press "Cycle"
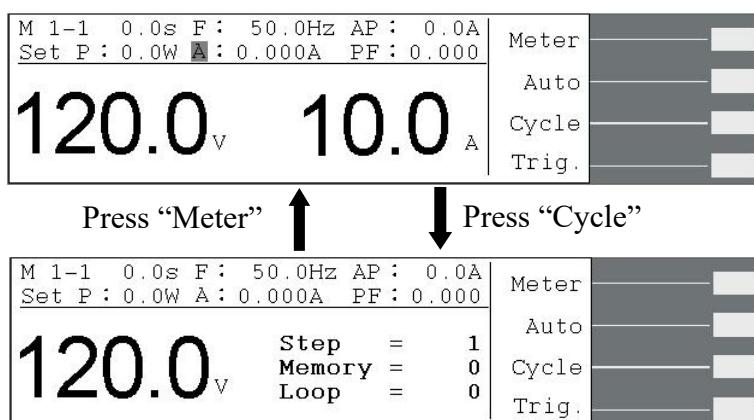
"Trig." ： If the setting of system parameter "Surge/Drop" is ON，the softkey will be enabled. After you finished all the set about Surge/Drop function, the trigger can be activated by pressing "Trig." softkey.

Note. Each trigger must be separated at least 200ms then it can be activated.

4.4 Displayed Messages

Below are the descriptions of error messages that may occur at abnormal conditions:
At any abnormal conditions, there are several error messages to be indicated on the display. Thereafter the output will be disabled and the alarm will sound. The TEST/RESET LED Indicator will also light up at the same time. If the indicator is blinking that shows an abnormal operation is encountered, thereby the output voltage will be cut off immediately. By pressing the TEST/RESET key will reset the audible alarm, an error message is indicated.

| WARNING | All error messages occur in abnormal conditions and therefore must be recorded. Check the cause of the error to ensure the problem is eliminated |

before restarting the operation, or contact EEC, or our official distributors for further assistance. All error messages result in an audible alarm and the operator must be within range of the power supply to be able to hear the alarm and reset the supply. If the alarm continues to persist, please shut down the instrument and contact EEC or our official distributor.

Over Setting Current Protection (HI – A)
If the reading of output current has exceeded the setting of current, the display will indicate "HI-A" and the alarm will sound. Consequently, the TEST/RESET LED indicator will blink.

Over Current Protection (OCP)
If the output current has exceeded 105% of full rated current or output circuit short for 1 second, the display will indicate "OCP" and the alarm will sound. Consequently, the TEST/RESET LED indicator will blink.

Over Temperature Protection (OTP)
If the heat sink of the instrument itself has exceeded 130 °C, the display will indicate "OTP". This shows that the heat sink is overheated and thus the alarm will sound. Consequently, the TEST/RESET LED indicator will blink.

Over Voltage Protection (OVP)
If the output voltage has exceeded 5V of setting voltage at 0-150V range or has exceeded 10V of setting voltage at 0-300V range, the display will indicate "OVP" and the alarm will sound. Consequently, the TEST/RESET LED indicator will blink.

Low Voltage Protection(LVP)
If the output voltage is under 5V of setting voltage at 0-150V range or under 10V of setting voltage at 0-300V range for 0.5 second, the display will indicate "LVP" and the alarm will sound. Consequently, the TEST/RESET LED indicator will blink.

Over Power Protection (OPP)

If the output power has exceeded 110% of rating power for 1s or the output power has exceeded 125% of rating power for 0.5s, the display will indicate "OPP" and the alarm will sound. Consequently, the TEST/RESET LED indicator will blink.

CHAPTER 5. INTERFACE GPIB AND RS-232

Bus Remote Interface RS-232 / GPIB

This chapter provides information on the proper use and configuration of bus remote interface for RS232 and GPIB interface, whereby both interfaces are using different command lists. These interfaces are optional on 6700 Series AC Power Source.

5.1 RS-232 Interface

The RS232 connection is configured as follows for a 9 pins Serial Port interface.
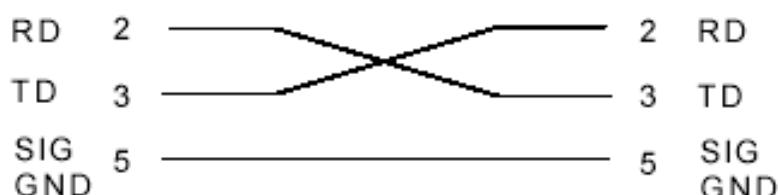
The COM port should have the following configuration: 9600 baud, 8 data bits, 1 stop bit, no polarity, and etc. This interface does not support XON/XOFF protocol or any hardware handshaking. The controller should be configured to ignore the Handshaking Lines DTR (PIN 4), DSR (PIN 6) and RTS (PIN 9). If the port cannot be configured through software to ignore the lines, the handshake lines should be then jumped together in two different sets. The PIN 4 and 6 jumped together while PIN 7 and 8 jumped together at the controller end of the cable.

When sending command over the RS232 bus the AC Power Source will send a response string of 06 Hex or 6 decimal and the Acknowledge (ACK) ASCII control code if the transfer was recognized and completed by the AC Power Source. If there is an error with the command string that is sent, the AC Power Source will respond with 15 Hex or 21 decimal and the Not Acknowledge (NAK) ASCII code. The ACK or NAK response allows for software handshaking, in order to monitor and control data flow. When requesting data from the AC Power Source, it will automatically send the data back to the controller input buffer. The controller input buffer will accumulate data being sent from the AC Power Source including the ACK and NAK response strings, until the controller has read it. When the strings or command has been sent, it must be terminated with **LF=(0AH**), such as **"TEST"+LF**.

5.2 GPIB Interface

This interface of a device connected to the BUS is specified by its interface functions. These functions provide the means for a device to receive, process, and send messages over the bus.

The interface functions are listed in the chart below.

IEEE-488 INTERFACE	Complete Handshake Capability
	Talker/Listener Capability
	Service Request Capability
	No Remote/Local Capability
	No parallel poll Capability
	No Device Clear Capability
	No Device Trigger Capability
	No Controller Capability
	3 state driver
	Setting of test condition and parameters
	Reading of display status
	Reading of measurement results
Controllable Item	Test/Reset Control
DATA CODES	ASCII

GPIBAddress

All the above commands are required by the IEEE-488.2 GPIB Interface BUS. The factory default address of the 6700 Series AC Power Source is set to 8.

5.3 Command List

Basic Commands

Panel Key Page	COMMAND		UNIT
TEST	TEST	Power On	
RESET	RESET	Power Off	
Testing meters data	TD?	MEMORY,STEP,STATUS,FREQ,VOLT,CURR,WATT,CURR PEAK,PF,TIMER	
Testing frequency meter	TDFREQ?	45.0~500.0	Hz
Testing voltage meter	TDVOLT?	0.0~300.0	V
Testing current meter	TDCURR?	0.000~42.00	A
Testing current peak meter	TDAP?	0.0~59.0	A
Testing power meter	TDP?	0.0~5000	W
Testing pf meter	TDPF?	0.000~1.000	
Testing timer meter	TDTIMER?	0.0~999.9	s/m/h
SELECT METER X	METER X	X=0-4, 0=FREQ,1=AP,2=POWER,3=CURR,4=PF	
SELECT METER?	METER?		
SURGE/DROP TRIGGER	SDTRG	Trigger one time Surge/Drop	
STEP CYCLE?	STEPCYCLE?		
MEMORY CYCLE?	MEMORYCYCLE?		
LOOP CYCLE?	LOOPCYCLE?		

Program Commands

Program Step Page	COMMAND		UNIT
AUTO:RUN X	AR X	X=0~1, 0=PROGRAM,1=MANUAL	
AUTO:RUN?	AR?	0~1	

MEMORY:CYCLE XXXX	MC XXXX	XXXX=0~9999 ,0=Contine,1=OFF	
MEMORY:CYCLE?	MC?	0-9999	
MEMORY X	MEMORY X	X=1-50	
MEMORY?	MEMORY?	1-50	
STEP X	STEP X	X=1-9	
STEP?	STEP?	1-9	
VOLTAGE XXXX	VOLT XXXX	XXXX=0.0~300.0	V
VOLTAGE?	VOLT?	0.0~300.0	V
RANG X	RANG X	X=0-1, 0=HIGH,1=AUTO	
RANG?	RANG?	0-1	
FREQUNCY XXXX	FREQ XXXX	XXXX=45.0~500	Hz
FREQUNCY?	FREQ?	45.0~500	Hz
A:HI XXXX	AHI XXXX	XXXX=0.000~42.00	A
A:HI?	AHI?	0.000~42.00	A
A:LO XXXX	ALO XXXX	XXXX=0.000~42.00	A
A:LO?	ALO?	0.000~42.00	A
AP:HI XXXX	APHI XXXX	XXXX=0.0~59.0	A
AP:HI?	APHI?	0.0~59.0	A
AP:LO XXXX	APLO XXXX	XXXX=0.0~59.0	A
AP:LO?	APLO?	0.0~59.0	A
POWER:HI XXX.X	PHI XXXX	XXXX=0.0~5000	W
POWER:HI?	PHI?	0.0~5000	W
POWER:LO XXX.X	PLO XXXX	XXXX=0.0~5000	W
POWER:LO?	PLO?	0.0~5000	W
PF:HI X.XXX	PFHI XXXX	XXXX=0.000~1.000	
PF:HI?	PFHI?	0.000~1.000	
PF:LO XXXX	PFLO XXXX	XXXX=0.000~1.000	
PF:LO?	PFLO?	0.000~1.000	
RAMP UP:TIME XXXX	RAMPUP XXXX	XXX.X=0.1~999.9	s
RAMP UP:TIME?	RAMPUP?	0.1~999.9	s
DELAY:TIME XXXX	DELAY XXXX	XXX.X=0.1~999.9	s/m/h
DELAY:TIME?	DELAY?	0.1~999.9	s/m/h
DWELL:TIME XXXX	DWELL XXXX	XXXX=0.0~999.9 ,0=Const	s/m/h
DWELL:TIME?	DWELL?	0.0~999.9	s/m/h
RAMP DOWN:TIME XXXX	RAMPDOWN XXXX	XXX.X=0.1~999.9 OPTION COMMAND	s
RAMP DOWN:TIME?	RAMPDOWN?	0.1~999.9	s
SD-VOLT XXXX	SDVOLT XXXX	XXXX=0.0~300.0	V
SD-VOLT?	SDVOLT ?	0.0~300.0	V
SD-SITE XXXX	SDLT XXXX	XXXX=0.0~99.9	ms
SD-SITE?	SDLT?	0.0~99.9	ms
SD-TIME XXXX	SDHT XXXX	XXXX=0.0~25.0	ms
SD-TIME?	SDHT?	0.0~25.0	ms
SD-CONT XXXX	SDCT XXXX	X=0~1, 0=OFF,1=ON	
SD-CONT?	SDCT?	0~1	
PROMPT:DELETE	PTD		
PROMPT XXXXXXXXXX	PT XXXX	XXXX=1~30 BYTES	
PROMPT?	PT?		
STEP:CYCLE XXXX	SC XXXX	XXXX=0~9999 ,0=Cont,1=OFF	
STEP:CYCLE?	SC?	0-9999	
CONNECT X	CONNECT X	X=0~1, 0=OFF,1=ON	
CONNECT?	CONNECT?	0~1	

System Commands

System Page	COMMAND		UNIT
SINGLE STEP X	SS X	X=0~1, 0=OFF,1=ON	
SINGLE STEP?	SS?	0~1	
ALARM X	ALARM X	X=0~9, 0=OFF,9=high	
ALARM?	ALARM?	0~9	
CONTRAST X	CONTRAST X	X=1~9, 9=high	
CONTRAST?	CONTRAST?	1~9	
POWER:UP X	PUP X	X=0-2,0=OFF,1=ON,2=LAST	
POWER:UP?	PUP?	0-2	
TIME:UNIT X	TUNIT X	X=0-2,0=Second,1=Minute,2=Hour	
TIME:UNIT?	TUNIT?	0-2	
LOOP:CYCLE XXXX	LC XXXX	XXXX=0~9999 ,0=Cont,1=OFF	
LOOP:CYCLE?	LC?	0-9999	
VOLT:HI XXXX	VHI XXXX	XXXX=0.0~300.0	V
VOLT:HI?	VHI?	0.0~300.0	V
VOLT:LO XXXX	VLO XXXX	XXXX=0.0~300.0	V
VOLT:LO?	VLO?	0.0~300.0	V
FREQ:HI XXXX	FHI XXXX	XXXX=45.0~500.0	Hz
FREQ:HI?	FHI?	45.0~500.0	Hz
FREQ:LO XXXX	FLO XXXX	XXXX=45.0~500.0	Hz
FREQ:LO?	FLO?	45.0~500.0	Hz
START ANGLE XXXX	SAG XXXX	XXXX=0-359	°
START ANGLE?	SAG?	0-359	°
END ANGLE XXXX	EAG XXXX	XXXX=0-359	°
END ANGLE?	EAG?	0-359	°
RESULTS X	RESULTS X	X=0-2, 0=ALL,1=P/F,2=LAST	°
RESULTS?	RESULTS?	0-2	°
SURGE DROP X	SD X	X=0~1, 0=OFF,1=ON	
SURGE DROP?	SD?	0~1	
OC FOLD X	OF X	X=0~1, 0=OFF,1=ON	
OC FOLD?	OF?	0~1	

IEEE 488.2 Common Commands

Command	Description	Acknowledgement
*IDN?	Identification Query	Company, Model Number, Serial Number, Firmware Revision
*RST	Reset Command	
*TST?	Self-Test Query	00H=OK
		01H=TEST EEPROM ERROR
*CLS	Clear Status Command	Clear Standard Event Status Register
		Clear Service Request Register

|		
*OPC	Operation Complete Command	When TEST command ok setting ESR BIT0 =1
*OPC?	Operation Complete Query	
*WAI	Wait for next command	
*ESR?	Standard Event Status Register Query	BIT 0 ,01H, (1) Operation Complete
		BIT 1 ,02H, (2) Not Used
		BIT 2 ,04H, (4) Query Error
		BIT 3 ,08H, (8) Device Error
		BIT 4 ,10H,(16) Execution Error
		BIT 5 ,20H,(32) Command Error
		BIT 6 ,40H,(64) Not Used
		BIT 7 ,80H,(128) Power On
*ESE XXX	Standard Event Status Enable Command	value=0~255
*ESE?	Standard Event Status Enable Query	0 - 255
*STB?	Read Status Byte Query	BIT 0 ,01H,(1) Not Used
		BIT 1 ,02H,(2) Not Used
		BIT 2, 04H,(4) Not Used
		BIT 3, 08H,(8) Not Used
		BIT 4, 10H,(16) Message Available
		BIT 5, 20H,(32) Standard Event (ESB)
		BIT 6, 40H,(64) Request Service (MSS)
		BIT 7, 80H,(128) Not Used
*SRE XXX	Service Request Enable	value=0~255
*SRE?	Service Request Enable Query	0 - 255
*PSC X	Power-On Status	value=0/1
*PSC?	Power-On Status Query	0, 1

5.4 Non Volatile Memory

The instrument saves each parameter in non-volatile memory when the parameter is changed. The non-volatile memory has a limited write cycle life, therefore there is a special volatile memory location that is available for programmers who wish to send all parameters before executing each test.   Memory 50, step 9 is the memory location that will **NOT** write the parameter to non-volatile memory.   Settings written to this location from GPIB mode will be lost when power is shut down.   Parameter changes to this location is unlimited and will not effect the life of the internal non-volatile memory chip.

CHAPTER 6. DESCPIPTION OF APPLICATION

6.1 Remote Interface

The rear panel connector of 6700 Series AC Power Source provides output signals to remotely monitor PASS, FAIL, and PROCESSING conditions. 6700 Series AC Power Source also provide an optional remote input interface and thus can control any test operation via remote The 9-pin D-type connector signals for Test , Reset, and 7 memories (M1~M7) input control signal. PLC remote function will be activated once the PLC Remote setting from SYSTEM setup parameter is turned on.

Signal Output

Signal Input (Option)
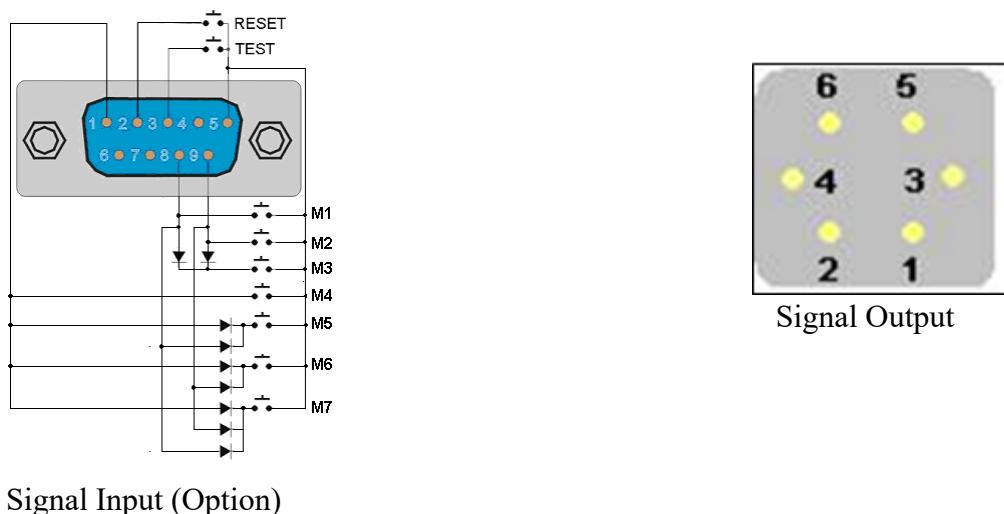
Signal Input and Storage

Upon turning on the PLC Remote setting, the TEST/RESET Indicator will be lit and the buzzer will beep twice before return to RESET condition, when any key on the front panel is pressed. In fact, whenever there is an abnormal output detected, it can be reset by pressing the "OUTPUT／RESET" key from the front panel or the Reset button from the PLC Remote and return to RESET condition.

TEST   Connect between PIN 3 and PIN 5
RESET   Connect between PIN 2 and PIN 5

6.2 Memories Input Control

Memories Input Control can be achieved by using Normally Open (N.O) Momentary Button and the connection as:

	PIN 1	Pin 9	Pin 8
M1	OFF	OFF	ON
M2	OFF	ON	OFF
M3	OFF	ON	ON

M4	ON	OFF	OFF
M5	ON	OFF	ON
M6	ON	ON	OFF
M7	ON	ON	ON

For an example,

Memory 3 (M3) Connect PIN 8 and PIN 9 with a series diode (ex. D4148) at each pin and the joint point is connected to PIN 5.

Note: PIN 5 is Common of input signal (COM).

Signal Output

The rear panel connector provides output signals to remotely monitor PASS, FAIL, and PROCESSING conditions.   Below is a listing that indicates what conditions activate each pin. When a terminal becomes active the relay closes thereby allowing the external voltage to operate an external device.

PASS   Connect between PIN 1 and PIN 2.

FAIL   Connect between PIN 3 and PIN 4.

PROCESSING   Connect between PIN 5 and PIN6.

The following describes how the relays operate for each test condition.

PROCESSING - The relay contact closes the connection between pin (5) and pin (6) while AC Source is performing a test. The connection is opened at the end of the test.

FAIL - The relay contact closes the connection between pin (3) and pin (4) after detecting that the item under test failed any test. The connection is opened when the next test is initiated or the reset function activated.

PASS - The relay contact closes the connection between pin (1) and pin (2) after detecting that the item under test failed any test. The connection is opened when the next test is initiated or the reset function activated.

Note: To avoid any accident to be happened, the remote must be kept and handled by the assigned person in charge only.