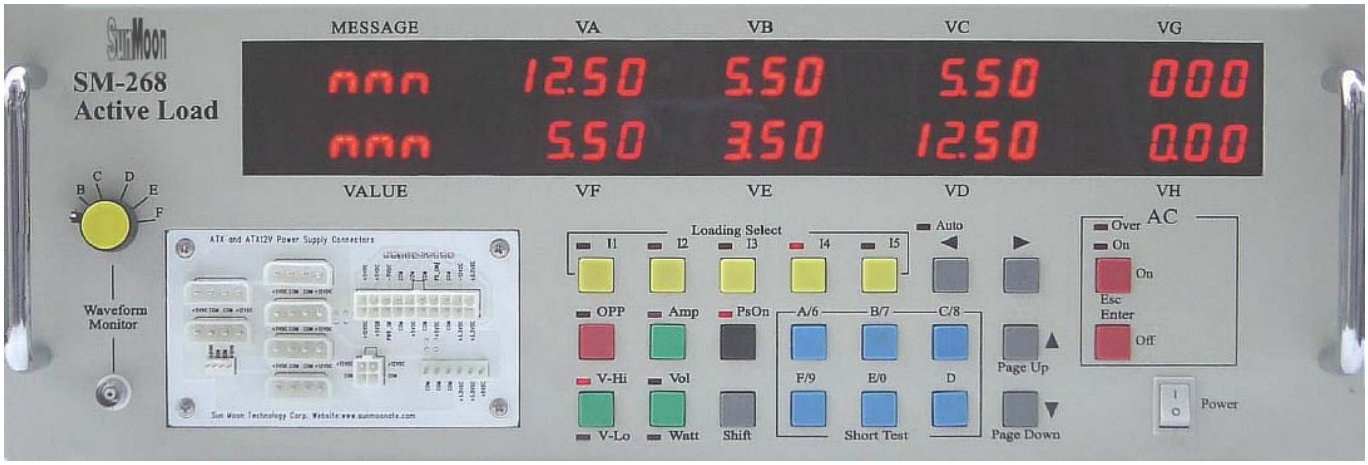


SM-268 Multi-Function Six-In-One Electronic Load

Operational Manual

(Auto Version)

Sun Moon Technology Corporation

Table of Contents

2011/8/2

1. Introduction

SM-268 is a multi-function electronic load instrument designed for all kinds of S.P.S. used in the current market, which is provided exclusively for the application of production unit, inspection unit and issuance unit. By means of icons, it provides complete messages and convenient operational face board in making operators to understand easily. In addition, the function has also been enhanced aiming to ATX Power in such a way as to completely test an ATX Power while avoiding the attachment of outdated instrument like building blocks. The design also takes account of the hardship of operators by providing bright digit and English display. In the automatic version, all the test items being set would be simply completed just one push of key. With such kind of complete and multiplexed design, the tester can keep a simple and clean desktop.

1-1 Standard Equipment

SM-268 motherboard–1 unit	SM-268 Operational Manual –1 copy
US-Spec. power cord–2 wires	Fuse: 5A–5 pcs; 1A, 5 pcs
BNC connecting wire–1 wire	ATX 20 Pin receptacle –1 piece
Bigger 4P sockets– 5 pieces	P8P9 sockets–5 pieces

1-2 Specifications

1. DC Portion

Range of each DC group:

Group	+VA	+VB	- VC	- VD	+VF	+VE
Voltage	0~80V	0 ~ 40V				
Current	0 ~ 40V		0 ~ 4A			0~20A
Power	200W		30W			100W
Max. Power(12Sec.)	300W		40W			150W

Rated errors of DC voltage:

Group	Voltage Measured at Full Graduation	Error Range
VA	81.90V	± 0.6% + 4C
VB	40.95V	± 0.3% + 2C
VC	40.95V	± 0.3% + 2C
VD	40.95V	± 0.3% + 2C
VE	40.95V	± 0.3% + 2C
VF	40.95V	± 0.3% + 2C

Rated errors of DC current:

Group	Current Set at Full Graduation	Error Range
VA	40.95A	± 1% + 2C
VB	40.95A	± 1% + 2C
VC	4.095A	± 1% + 2C
VD	4.095A	± 1% + 2C
VE	40.95A	± 1% + 2C
VF	4.095A	± 1% + 2C

Maximum specifications and errors of time-testing value:

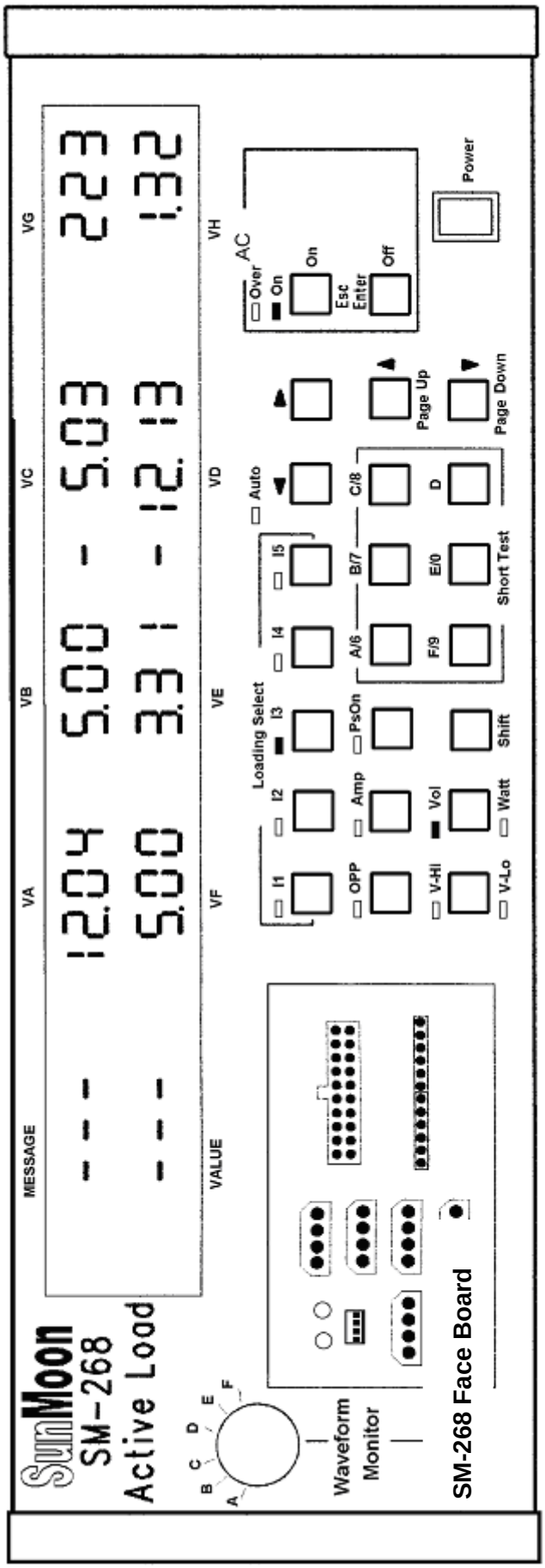
Testing Items	Max. Value	Error Range	Band-width of Test
Power Good	999.9mS	± 0.5% + 2C	
Power Fail	999.9mS	± 0.5% + 2C	
Set Up	2999.9mS	± 0.5% + 2C	
Hold On	2999.9mS	± 0.5% + 2C	
On Ring	9		1 uS
Off Ring	9		1 uS

2. AC portion:

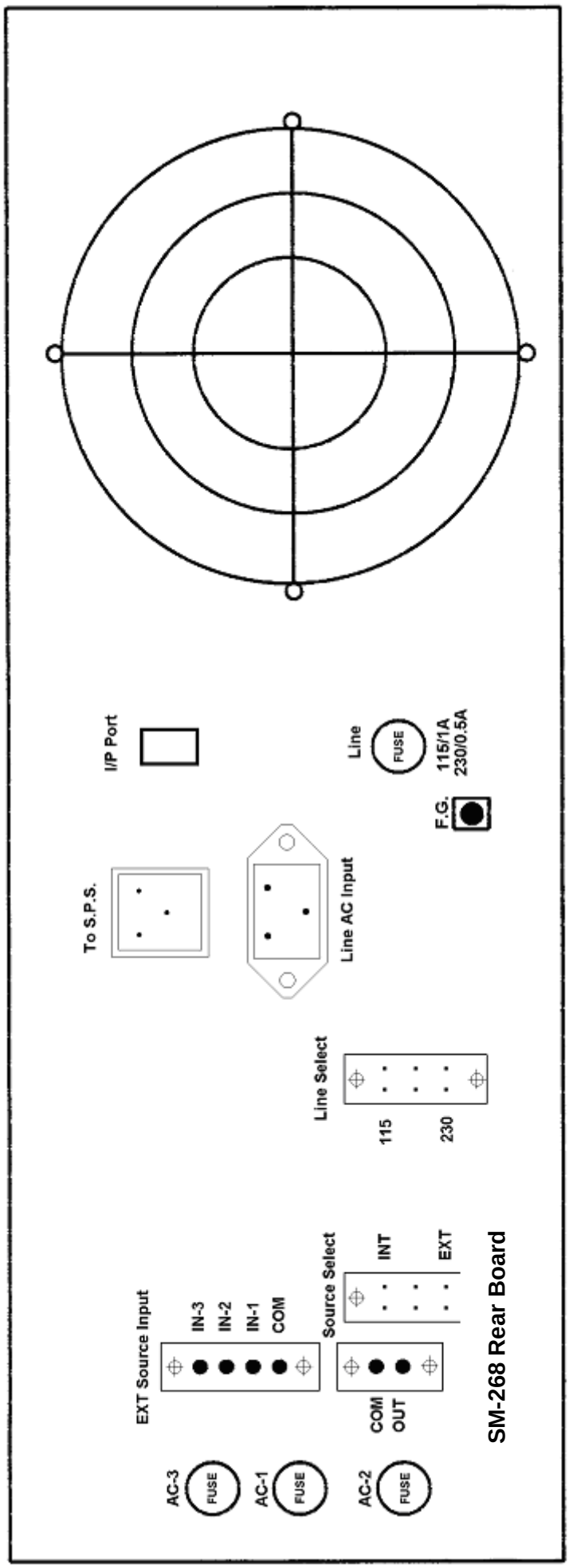
Line AC Input	Internal power of instrument	110 ± 10%	230 ± 10%
	Frequency	50 / 60 Hz	
	Fuse	2A (5 x 31 mm)	1A (5 x 31 mm)
	Max. Power Consumption	100W	
Line AC + max. power consumption of S.P.S to be tested			650W
EXT Source Input	Power Source	AC 0 ~ 265V	
	Frequency	30 ~ 150 Hz	
	Fuse	5A (5 x 31 mm)	
	Max. AC power (AVG)	270V Error range: 0.5%± 2C	
	Max. AC power (AVG)	5A Error range: 0.5%± 2C	

3. Appearance:

Dimension	490 (W) x 175 (H) x 450 (D) / mm
Weight	1733333 KG


SunMoon
SM-268
Active Load
MESSAGE
VALUE
VA
VB
VC
VD
VE
VF
VG
VH
12.04
5.00
5.03
223
5.00
3.31
12.13
1.32
Loading Select
I1
I2
I3
I4
I5
OPP
Amp
PsOn
V-Hi
Vol
Shift
V-Lo
Watt
Auto
A/6
B/7
C/8
F/9
E/0
D
Short Test
Page Up
Page Down
AC
Over
On
Esc
Enter
Off
Power
A
B
C
D
E
F
Waveform
Monitor
SM-268 Face Board

Front board



SM-268 Rear Board

日耀電子科技有限公司

2. Installation

2-1 Connection of Power Cords

Take SM-268 out of the package and check the position of “Line Select” switch on SM-268 rear board. If the city voltage is 230V, set “Line Select” switch at 230V position; while the voltage is 115V, set “Line Select” switch at 115V position. Then, take out US-Spec. AC wires from the accessories and insert one end into AC receptacle of “Line AC Input” on SM-268 rear board with the other one into the city power socket. Connect “F.G” on SM-268 rear board into the ground to prevent the operational personnel from electric shock due to S.P.S. leakage. (see Figure 2-2).

2-2 Connection of SM-268 Rear Board with S.P.S.

Shown as per Figure 2-2 of below, connect one AC wire at S.P.S. AC receptacle (male) on “To S.P.S.” of SM-268 rear board.

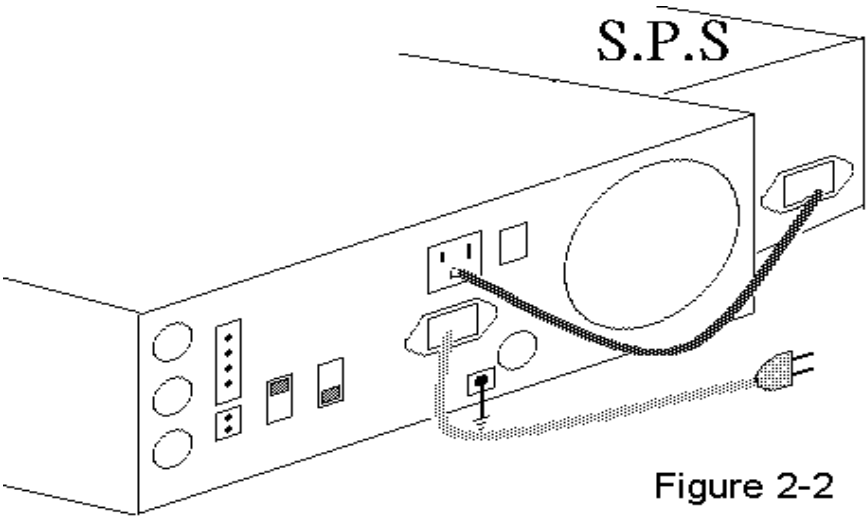


Figure 2-2

2-3 Connection of SM-268 Rear Board and External Power Source (self-coupling transformer)

Set “Source Select” on SM-268 rear board at “EXT” position shown as per Figure 2-3 on Page 8. Connect the output of adjustable self-coupling transformer to “IN-2” and “COM” on the terminal of city power. Then, connect the input of adjustable self-coupling transformer with the city power.

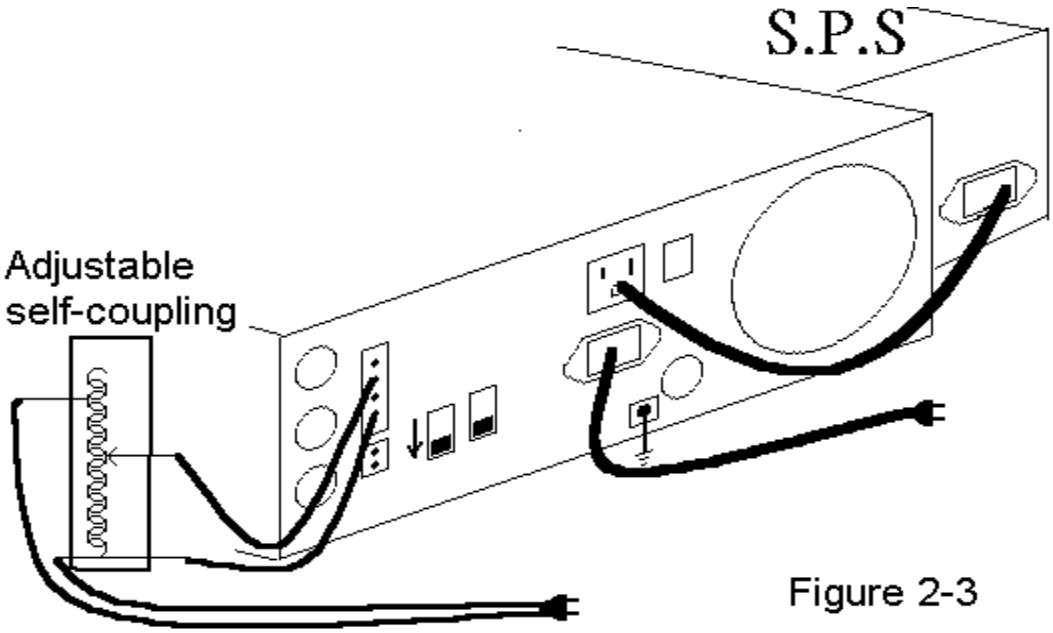


Figure 2-3

2-4 Connection of SM-268 Rear Board and Oscilloscope and the DC Output of S.P.S.

Connect the DC output of S.P.S. with P8, P9 or ATX 20-pin terminal located at the lower-left corner of SM-268 front board shown as per Figure 2-4 on Page 8. Then connect one end of BNC connecting wire with the input of oscilloscope with the other end connecting to BNC receptacle located on the left side of SM-268 face board.

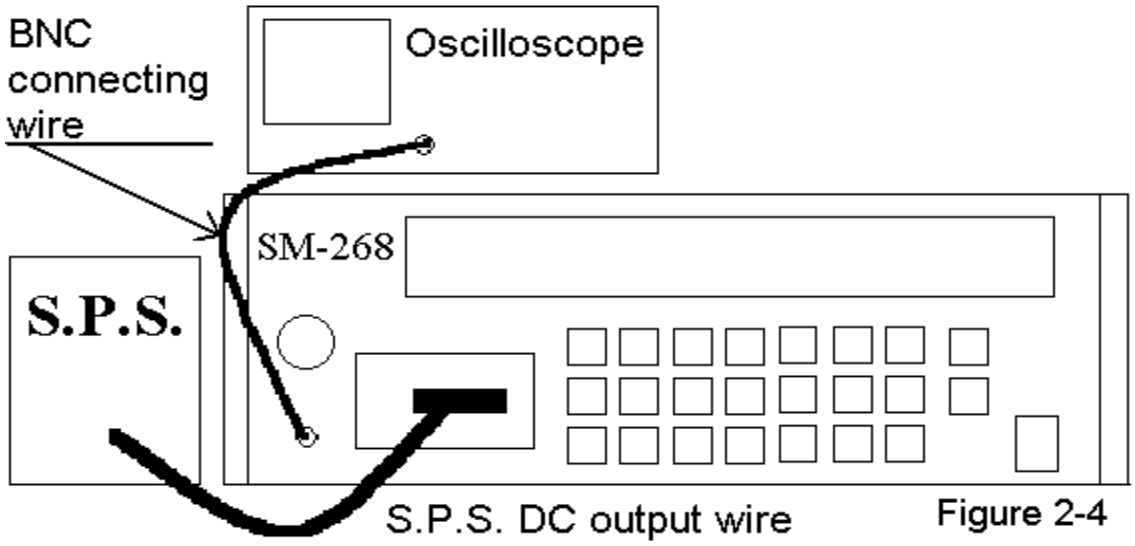


Figure 2-4

3. Descriptions of Face Board and Typical Operation

3-1 Descriptions of push keys (see Page 5)

1. **Power:** The power switch for turning on SM-268.
2. **I1 ~ I5:** Load selection or digit keys.
3. **Amp:** For setting and viewing electrical current values.
4. **Vol / Watt:** For reading the voltage value / DC power value of the object to be tested.
5. **V-Hi / V-Lo:** For setting and viewing upper-limit value/lower-limit value of the voltage.
6. **OPP:** Over Power Protection test.
7. **A/6 ~ F/9:** Short circuit test / Digit keys.
8. **←:** For controlling the cursor to make leftward cycle.
9. **→:** For controlling the cursor to make rightward cycle.
10. **↑ / Page Up:** For controlling the increase of the location value of cursor / For controlling page up.
11. **↓ / Page Down:** For controlling the decrease of the location value of cursor / For controlling page down.
12. **Shift:** It will work by using with other keys.
13. **PsOn:** The switch for turning on ATX Power.
14. **On / Esc:** The multi-key for starting AC output/setup of “To S.P.S.” located on the rear board.
15. **Off / Enter:** For switching off AC output/Confirm key of “To S.P.S.” located on the rear board.
16. **Waveform Monitor:** For selecting VA~VF so as to convey out from BNC deck on the lower part, as per Figure 268-03.
17. **Auto** LED**:** Indicator on, meaning automatic mode; indicator off, meaning manual mode.
18. **Over** LED**:** Indicator off, meaning normal status; indicator on, meaning the output of “To S.P.S.” on the rear board has exceeded the specification range.

3-2 Descriptions of Icons (see Page 5)

1. **MESSAGE, VALUE:** Display of voltage status, time, total DC power and messages.
2. **VA, VB, VC, VD, VE, VF:** Display of voltages, electric current, power value and all kinds of setup values.
3. **VG:** Display of AC voltage coming from “To S.P.S.” on the rear board.
4. **VH:** Display of AC current coming from “To S.P.S.” on the rear board.

3-3 Descriptions of Rear Board (see Page 6)

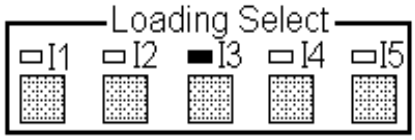
1. **Line AC Input:** The input socket for the power required by SM-268, which can be used as “Line Select”.
2. **Line Select:** The input selection of SM-268 power.
3. **Line:** The power fuse of SM-268.
4. **F.G.:** For connecting SM-268 with the grounding terminal, and it is recommended to

connect.

5. **To S.P.S.:** The power output socket for the S.P.S. to be tested.
6. **Source Select:** The voltage selection for the output of “To S.P.S.”
   a. When “INT” is selected, the voltage will be same as that of “Line AC Input”.
   b. When “EXT” is selected, the power will be supplied from “EXT Source Input”.
7. **EXT Source Input:** The power input supplied from outside for the S.P.S. to be tested.
   a. **IN-2:** Pre-set input end.
   b. **IN-3, IN-1:** Other input ends.
   c. **COM:** Grounding of the input end.
8. **COM, OUT:** The power output of the power provider to be tested.
9. **AC-1 ~ AC-3:** Power fuses corresponding to external power source “IN-1 ~ IN-3”.
10. **I/O Port:** A reserved port.

3-4 Load setup method (SM-268 can store five kinds of loads)

1. Select “I1~I5” of “Load Select” (as per the figure of below).



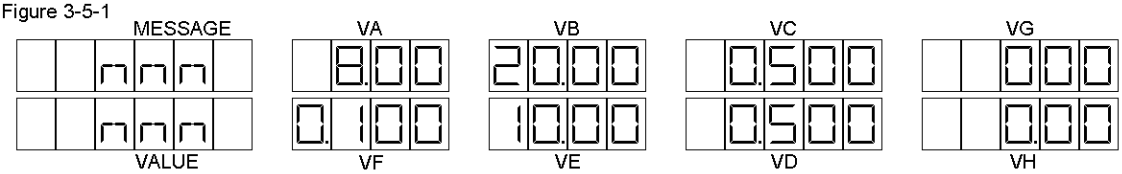
2. Push “Amp” key to display the electric current values setup of six titles.
   a. VA value flickers, push “↑”, “↓” keys to change the electric current value of VA.
   b. Push “→” key for switching to VB and push again for switching to VC…and so on in cycling manner. If push “←” key, then the switching will be activated in reverse direction.
3. Push “V-Hi” key (V-Hi LED is lighted) to display the upper-limit voltage values of these six groups and the operational method is same as 2.a.b. for changing the upper-limit voltage values of all six groups.
4. Push “V-Lo” key (V-Lo LED is lighted) to display the lower-limit voltage values of these six groups and the operational method is same as 2.a.b. for changing the lower-limit voltage values of all six groups.

3-5 How to store one group of load?

Example: Following four steps show the way to set the electric current load, the upper/lower-limit voltage values and store the setup value.

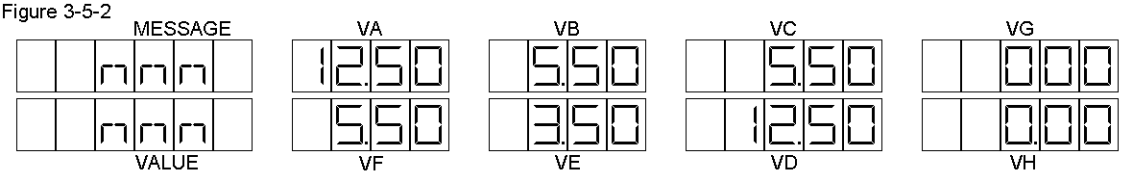
1. Select “I3” key to set the load and push “Amp” key to set the electric current value. At this time, the VA value is flickering (as per Figure 3-5-1); then push “↑”, “↓” keys to change the electric current of VA and set it as “8.00”. Push “→” key for switching to VB and set it as 20.00 based on the aforesaid method. Then push “→” key for switching to VC and set it as “0.500“ by the aforesaid method. And so on for setting VD=0.500, VE=10.00 and VF=0.100.

Figure 3-5-1



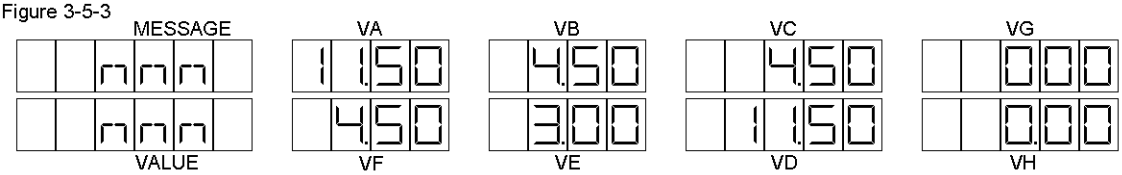
2. Select “V-Hi” key to light up V-Hi LED for setting the upper-limit voltage value. At this time, the VA value is flickering (as per Figure 3-5-2); then push “↑”, “↓” keys to change the upper-limit voltage value of VA by setting it as “12.50”. Push “→” key for switching to VB and set it as 5.50 by the aforesaid method. Then push “→” key for switching to VC and set it as “5.50“ by the aforesaid method. And so on for setting VD=12.50, VE=3.50 and VF=5.50.

Figure 3-5-2



3. Select “V-Lo” key to light up V-Lo LED for setting the upper-limit voltage value (as per Figure 3-5-3). Based on the aforesaid operational method to set the value as VA=11.50, VB=4.50, VC=4.50, VD=11.50, VE=3.00 and VF=4.50.

Figure 3-5-3



4. Hold on “I3” key and then release after the LED of “I3” is off. Store the setup value thus obtained in “I3” key.
5. For the setting of “I1~I5”, please refer to the operational instructions described in the aforesaid 1~4.

3-6 Use Shift+E key to speedily set, store the electric current and upper/ lower limit voltage value of I1 ~ I5.

Push “Shift+E” key (hold on “Shift” key first and then push “E” key), then release the push key to enter the setup of electric current and upper/lower limit voltage value for I1 ~ I5 (15 pages in total).

Note: Described below is the definition of each title:

MESSAGE: Means page number and setup items.

VALUE: Auxiliary descriptions.

VH: Input field of the value.

1. For setting the I1 electric current on Page 1 (1. I1A), please refer to Figure 3-6-1 and Chart 3-6-1. Push “←”, “→” keys to select “VA”~”VF” by setting them at the desired position of correction and then enter the setup value by digit keys directly. Upon entering digits, the “VH” title will display the digits being entered. After completing the setup of this page, push “Enter” key to store the setup and quit; or push “Shift+Page Down” key (hold on “Shift” key first and then push “Page Down” key) and then release such key to enter the upper/lower limit voltage setup on Page 2.I1 (2. I1 VH).

Figure 3-6-1

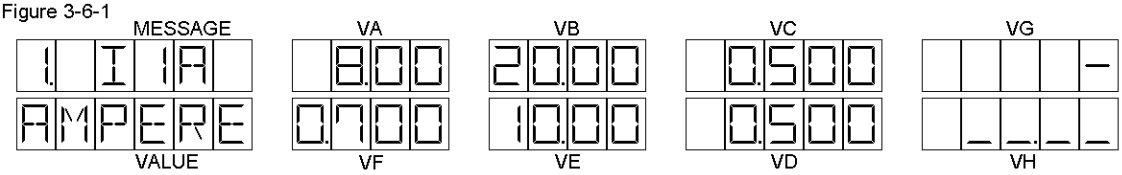


Chart 3-6-1

Group Name	Auxiliary Descriptions (VALUE)	Max. Value	Min. Value	Field Format(VH)
VA	AMPERE	40.95	0.00	_ _._ _
VB	AMPERE	40.95	0.00	_ _._ _
VC	AMPERE	4.095	0.000	_._ _ _
VD	AMPERE	4.095	0.000	_._ _ _
VE	AMPERE	40.95	0.00	_ _._ _
VF	AMPERE	40.95	0.000	_._ _ _

2. For setting the I1upper-limit voltage on Page 2 (2. I1VH), please refer to Figure 3-6-2 and Chart 3-6-2. Push “←”, “→” keys to select “VA”~”VF” by setting them at the desired position of correction and then enter the setup value by digit keys directly. Upon entering digits, the “VH” title will display the digits being entered. After completing the setup of this page, push “Enter” key to store the setup and quit; or push “Shift+Page Down” key and then release such key to enter the I1 lower-limit voltage setting on Page 3 (3. I1 VL).

Figure 3-6-2

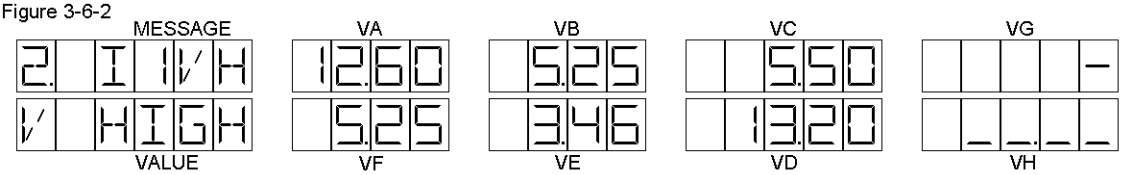


Chart 3-6-2

Group Name	Auxiliary Descriptions (VALUE)	Max. Value	Min. Value	Field Format(VH)
VA	V HIGH	40.95	I1 VL VA	_ _._ _
VB	V HIGH	40.95	I1 VL VB	_ _._ _
VC	V HIGH	40.95	I1 VL VC	_ _._ _
VD	V HIGH	40.95	I1 VL VD	_ _._ _
VE	V HIGH	40.95	I1 VL VE	_ _._ _
VF	V HIGH	40.95	I1 VL VF	_ _._ _

3. For setting the I1 lower-limit voltage on Page 3 (3. I1VL), please refer to Figure 3-6-3 and Chart 3-6-3. Push “←”, “→” keys to select “VA”~”VF” by setting them at the desired position of correction and then enter the setup value by digit keys directly. Upon entering digits, the “VH” title will display the digits being entered. After completing the setup of this page, push “Enter” key to store the setup and quit; or push “Shift+Page Down” key and then release such key to enter the electric current setting on Page 4.12 (4.12A).

Figure 3-6-3

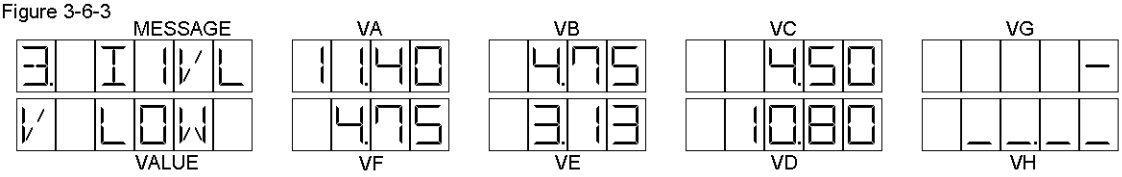


Chart 3-6-3

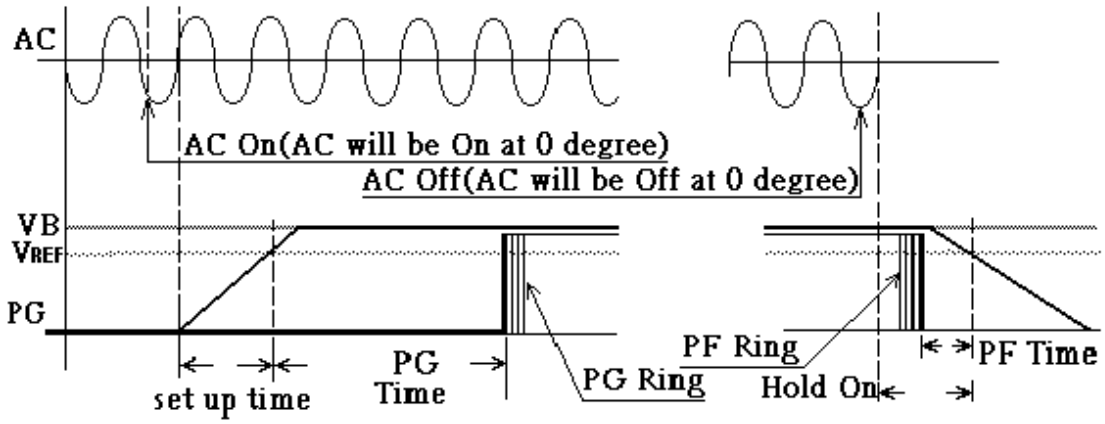
Group Name	Auxiliary Descriptions (Value)	Max. Value	Min. Value	Field Format(VH)
VA	V LOW	I1 VH VA	0.00	_ _._ _
VB	V LOW	I1 VH VB	0.00	_ _._ _
VC	V LOW	I1 VH VC	0.00	_ _._ _
VD	V LOW	I1 VH VD	0.00	_ _._ _
VE	V LOW	I1 VH VE	0.00	_ _._ _
VF	V LOW	I1 VH VF	0.00	_ _._ _

4. For setting the I2 electric current on Page 4 (4. I2A), please refer to Figure 3-6-1 and Chart 3-6-1 to enter by the setting method stated in Step 1. After completing, push “Enter” key to store the setup and quit; or hold on “Shift +Page Down” key and then release such key for entering Page 5 to carry on the setting up.
5. For setting the I2 upper-limit voltage on Page 5 (5. I2VH), please refer to Figure 3-6-2 and Chart 3-6-2 to enter by the setting method stated in Step 2. After completing, push “Enter” key to store the setup and quit; or hold on “Shift +Page Down” key and then release such key for entering Page 6 to carry on the setting up.
6. For setting the I2 lower-limit voltage on Page 6 (6. I2VL), please refer to Figure 3-6-3 and Chart 3-6-3 to enter by the setting method stated in Step 3. After completing, push “Enter” key to store the setup and quit; or hold on “Shift +Page Down” key and then release such key for entering Page 7 to carry on the setting up.
7. For the setting of I3~I5 (Pages 7~15), please refer to the setup method stated in Step 3 to enter. During the operation, hold on “Shift+Page Up” key and then release to enter the previous page.

4. Setting internal parameters

Figure 4 explains the action method of SM-268 to detect signals of Set Up Time, PG Time, PG Ring, Hold On, PF Time and PF Ring, etc. VB means +5V of ATX Power (or AT Power); while VREF is the comparative voltage point for +5V and VREF is adjustable.

Figure 4



Push “Shift+D” key (hold on “Shift” key and then push “D” key), then release to enter the setup picture. Please refer to Figure 4-1 (12 pages in total).

4-1 TIME set – Page 1 of “Shift+D” key:

For the time test on Page 1 (1. Time), please refer to Figure 4-1 and Chart 4-1. Push “←”, “→” keys to selected On (Off) for the test item and note the testing item represented by “VA~VF” on Chart 4-1 (auxiliary descriptions). Enter 1 or 0 of which “1” means turning on machine for the test while “0” means no test. Note that “VA”, “VB” and “VC” belong to the turning on for time test and so, one out of three can be selected only or select “0” to abort the time test. Further, “VD”, “VE” and “VF” belong to the turning off of time test and so, one out of three can be selected only or select “0” to abort the time test. When “VG” is selected, enter the test value of the comparative voltage point (V REF / Please refer to Figure 4). After completing, push “Enter” key to store the setup and quit; or hold on “Shift+Page Down” key and then release such key for entering Page 2 to set the machine-on time judgement value.

Figure 4-1

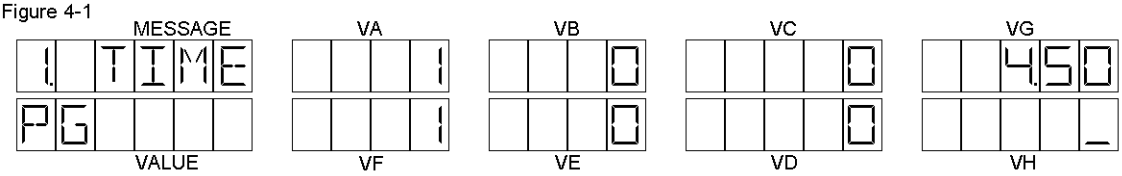


Chart 4-1

Group Name	Auxiliary Descriptions (VALUE)	Max. Value	Min. Value	Field Format(VH)
VA	PG	1	0	_
VB	ON.RING	1	0	_
VC	SETUP	1	0	_
VD	HOLD	1	0	_
VE	OF.RING	1	0	_
VF	PF	1	0	_

VG	V REF	6.00(V)	0.00(V)	_._ _

4-2 Page 2 of “Shift+D” key – Setup of machine-on time judgement value

For the setup of machine-on time judgement value on Page 2 (2. PG), please refer to Figure 4-2 and Chart 4-2. Push “←”, “→” keys to select “VA”~”VF” by setting them at the desired position of correction and then enter the setup values by digit keys directly. Upon entering digits, the “VH” title will display the digits being entered and in this respect, “VA” ~”VF” are for setting the time range and the oscillating times of “PG”, “PG.Ring” and “Set Up”. After completing the setup of this page, push “Enter” key to store the setup and quit; or push “Shift+Page Down” key and then release such key to enter the setup of machine-off time judgement value on Page 3.

Figure 4-2

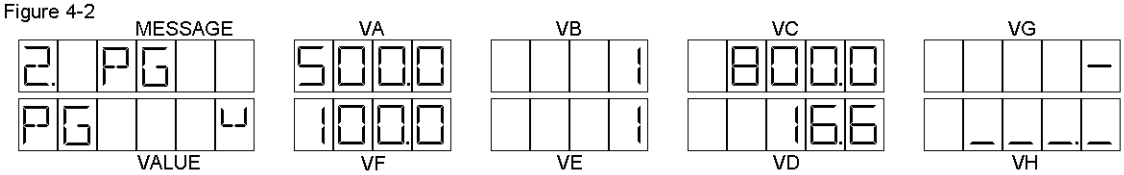


Chart 4-2

Group Name	Auxiliary Descriptions (Value)	Max. Value	Min. Value	Field Format(VH)
VA	PG ∪	999.9 (mS)	VF	_ _ _._
VB	RING ∪	9 (times)	VE	_
VC	SETUP ∪	2999.9 (mS)	VD	_ _ _ _._
VD	SETUP ∩	VC	0.0 (mS)	_ _ _ _._
VE	RING ∩	VB	1 (time)	_
VF	PG ∩	VA	0.0 (mS)	_ _ _._

4-3 Page 3 of “Shift+D” key – Setup of machine-off time judgement value

For the setup of machine-off time judgement value on Page 3 (3. PF), please refer to Figure 4-3 and Chart 4-3. Push “←”, “→” keys to select “VA”~”VF” by setting them at the desired position of correction and then enter the setup values by digit keys directly. Upon entering digits, the “VH” title will display the digits being entered and in this respect, “VA” ~”VF” are for setting the time range and the oscillating times of “PF”, “PF.Ring” and “Hold On”. After completing the setup of this page, push “Enter” key to store the setup and quit; or push “Shift+Page Down” key and then release such key to enter the setup of voltage comparison for OPP failure on Page 4.

Figure 4-3

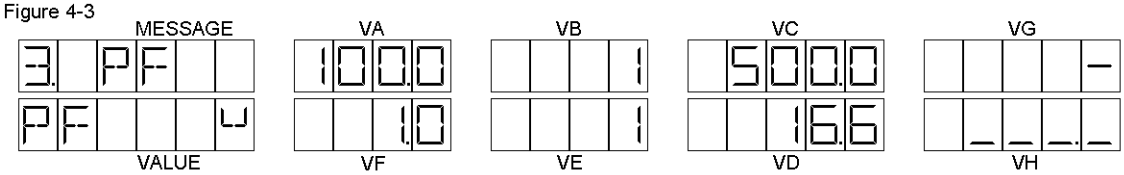


Chart 4-3

Group Name	Auxiliary Descriptions (Value)	Max. Value	Min. Value	Field Format(VH)
VA	PF ∪	999.9 (mS)	VF	_ _ _ ._
VB	RING ∪	9 (times)	VE	_

VC	HOLD ∪	2999.9 (mS)	VD	_ _ _ _._
VD	HOLD ∩	VC	0.0 (mS)	_ _ _ _._
VE	RING ∩	VB	1 (time)	_
VF	PF ∩	VA	0.0 (mS)	_ _ _._

4-4 Page 3 of "Shift+D" key – Setup of machine-off time judgement value

For the setup of machine failure voltage on Page 4 (4. OPP.1), please refer to Figure 4-4-1 and Chart 4-4-1. Push "←", "→" keys to select "VA"~"VF" by setting them at the desired position of correction and then enter the setup values by digit keys directly. Upon entering digits, the "VH" title will display the digits being entered. If the machine fails due to the overload protection of Power with the voltage dropping to such set voltage during the test,, then "VA"~"VF" of SM-268 will register the power and the electric current value for this period. After completing the setup of this page, push "Enter" key to store the setup and quit; or push "Shift+Page Down" key and then release such key to enter the setup of OPP climbing electric current and climbing time on Page 5.

Figure 4-4-1

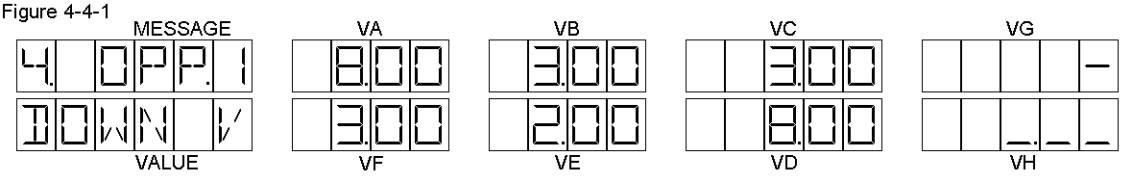


Chart 4-4-1

Group Name	Auxiliary Descriptions (Value)	Max. Value	Min. Value	Field Format(VH)
VA	DOWN V	9.99	0.00	_._ _
VB	DOWN V	9.99	0.00	_._ _
VC	DOWN V	9.99	0.00	_._ _
VD	DOWN V	9.99	0.00	_._ _
VE	DOWN V	9.99	0.00	_._ _
VF	DOWN V	9.99	0.00	_._ _

For the setup of climbing electric current and climbing time on Page 5 (5. OPP.2), please refer to Figure 4-4-2 and Chart 4-4-2. Push "←", "→" keys to select "VA"~"VF" by setting them at the desired position of correction and then enter the setup values by digit keys directly. Upon entering digits, the "VH" title will display the digits being entered. "VA"~"VF" represent the electric current values of each climbing time unit, while VG means the time of each electric current climbing. After completing the setup of this page, push "Enter" key to store the setup and quit; or push "Shift+Page Down" key and then release such key to enter the setup of highest climbing point of each electric current group for OPP.

Figure 4-4-2

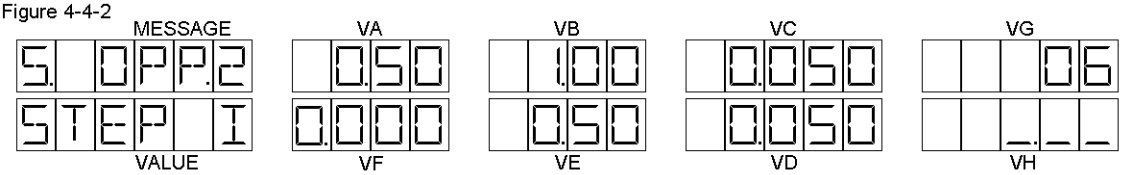


Chart 4-4-2

Group Name	Auxiliary Descriptions	Max. Value	Min. Value	Field Format(VH)

	(Value)			
VA	STEP I	9.99	0.00	_._ _
VB	STEP I	9.99	0.00	_._ _
VC	STEP I	4.095	0.000	_._ _ _
VD	STEP I	4.095	0.000	_._ _ _
VE	STEP I	9.99	0.00	_._ _
VF	STEP I	4.095	0.000	_._ _ _
VG	STEP T	99(x15mS)	0(x15mS)	_ _

For the setup of the highest climbing point of each electric current group on Page 6 (6. OPP.3), please refer to Figure 4-4-3 and Chart 4-4-3. Push "←", "→" keys to select "VA"~"VF" by setting them at the desired position of correction and then enter the setup values by digit keys directly. Upon entering digits, the "VH" title will display the digits being entered. "VA"~"VF" represent the highest climbing value of each electric current when setting for OPP test. After completing the setup of this page, push "Enter" key to store the setup and quit; or push "Shift+Page Down" key and then release such key to enter the setup of upper/lower limit of OPP on Page 7.

Figure 4-4-3

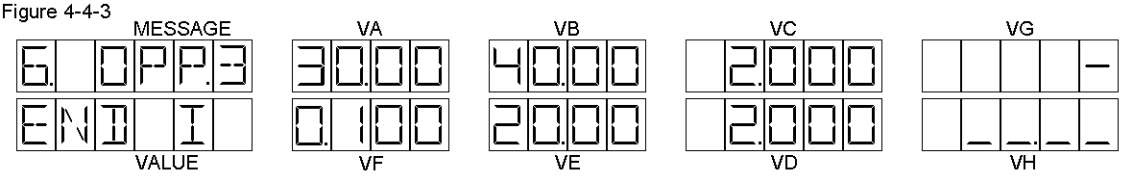


Chart 4-4-3

Group Name	Auxiliary Descriptions (Value)	Max. Value	Min. Value	Field Format(VH)
VA	END I	40.95	0.00	_ _._ _
VB	END I	40.95	0.00	_ _._ _
VC	END I	4.095	0.000	_._ _ _
VD	END I	4.095	0.000	_._ _ _
VE	END I	40.95	0.00	_ _._ _
VF	END I	4.095	0.000	_._ _ _

For the setup of upper/lower limit of OPP on Page 7 (7. OPP.4), please refer to Figure 4-4-4 and Chart 4-4-4. Push "←", "→" keys to select "VA"~"VF" by setting them at the desired position of correction and then enter the setup values by digit keys directly. Upon entering digits, the "VH" title will display the digits being entered. "VA"~"VF" represent the upper/lower limit of OPP. After completing the setup of this page, push "Enter" key to store the setup and quit; or push "Shift+Page Down" key and then release such key to enter the setup of DYNA (dynamic load) on Page 8.

Figure 4-4-4

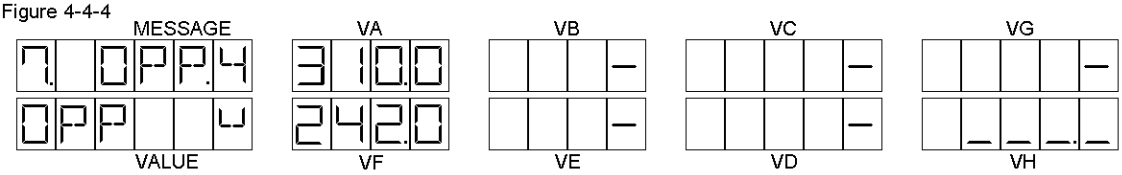


Chart 4-4-4

Group Name	Auxiliary Descriptions (Value)	Max. Value	Min. Value	Field Format(VH)
VA	OPP ∪	590.0 (W)	VF	_ _ _._
VF	OPP ∩	VA	0.0 (W)	_ _ _._

4-5 Page 8 of “Shift+D” key – Setup of DYNA (dynamic load)

For the setup of first DYNA on Page 8 (8. DYN1), please refer to Figure 4-5-1 and Chart 4-5-1. Push “←”, “→” keys to select “VA”~”VB” for setting up the change sequence of load. Each digit represents one loading group of “I1~I5” of which, “0” means the ending point of one cycle for restart. Take Figure 4-5-1 for example, the digit changing will take place in cycle of I1→I2→I3→I4→I5 during the dynamic load test. Select “VC” to set up the stay time of each loading group. After completing the setup of this page, push “Enter” key to store the setup and quit; or push “Shift+Page Down” key and then release such key to enter the setup of DYNA 2 (dynamic load 2) on Page 9.

Figure 4-5-1

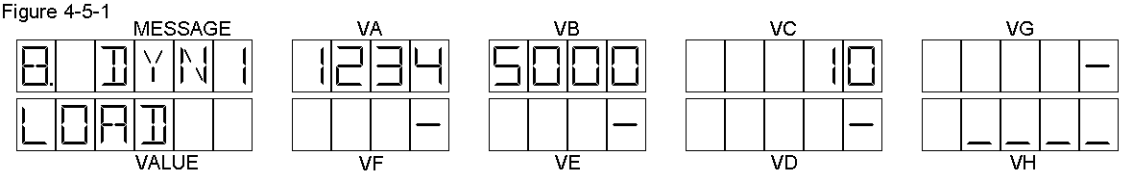


Chart 4-5-1

Group Name	Auxiliary Descriptions (Value)	Max. Value	Min. Value	Field Format(VH)
VA	LOAD	5555	0000	_ _ _ _
VB	LOAD	5555	0000	_ _ _ _
VC	RATE	99(x15mS)	1(x15mS)	_ _

For setting up the second DYNA on Page 9 (9. DYN2), please refer to Figure 4-5-2 and Chart 4-5-2 by following the setup method of the first dynamic load.

Figure 4-5-2

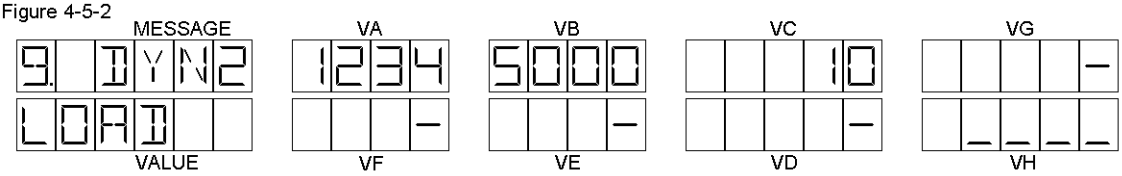


Chart 4-5-2

Group Name	Auxiliary Descriptions (Value)	Max. Value	Min. Value	Field Format(VH)
VA	LOAD	5555	0000	_ _ _ _
VB	LOAD	5555	0000	_ _ _ _
VC	RATE	99(x15mS)	1(x15mS)	_ _

For setting up the third DYNA on Page 10 (10.DYN3), please refer to Figure 4-5-3 and Chart 4-5-3 by following the setup method of the first dynamic load.

Figure 4-5-3

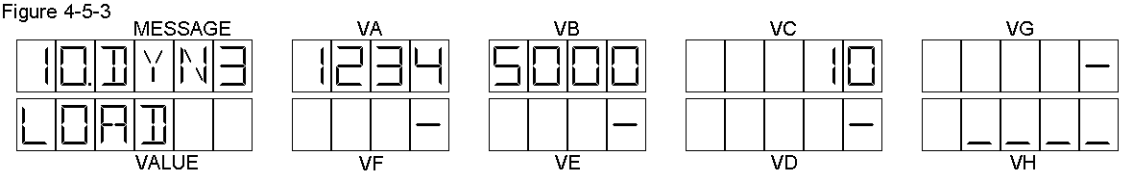


Chart 4-5-3

Group Name	Auxiliary Descriptions (Value)	Max. Value	Min. Value	Field Format
VA	LOAD	5555	0000	_ _ _ _
VB	LOAD	5555	0000	_ _ _ _
VC	RATE	99(x15mS)	1(x15mS)	_ _

For setting up the fourth DYNA on Page 11 (11.DYN4), please refer to Figure 4-5-4 and Chart 4-5-4 by following the setup method of the first dynamic load.

Figure 4-5-4

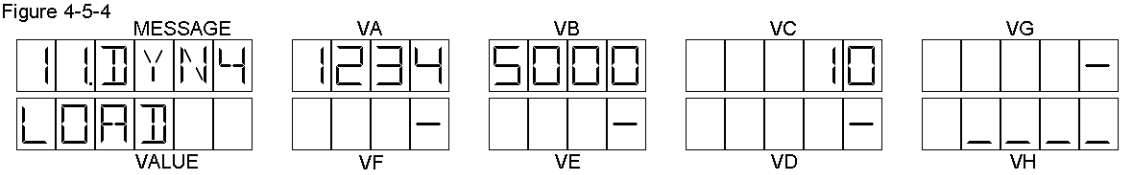


Chart 4-5-4

Group Name	Auxiliary Descriptions (Value)	Max. Value	Min. Value	Field Format
VA	LOAD	5555	0000	_ _ _ _
VB	LOAD	5555	0000	_ _ _ _
VC	RATE	99(x15mS)	1(x15mS)	_ _

For setting up the fifth DYNA on Page 12 (12.DYN5), please refer to Figure 4-5-5 and Chart 4-5-5 by following the setup method of the first dynamic load.

Figure 4-5-5

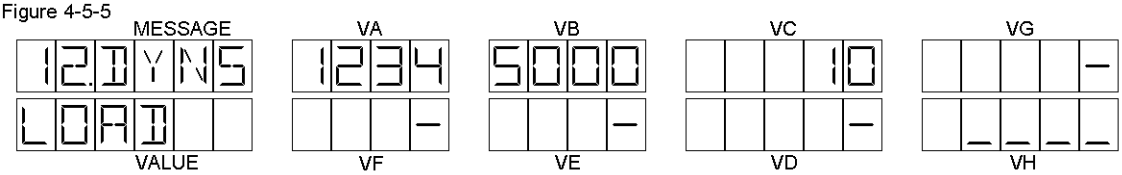


Chart 4-5-5

Group Name	Auxiliary Descriptions (Value)	Max. Value	Min. Value	Field Format
VA	LOAD	5555	0000	_ _ _ _
VB	LOAD	5555	0000	_ _ _ _
VC	RATE	99(x15mS)	1(x15mS)	_ _

4-6 How to set up and manually test an ATX Power?

Typical example: The convenient way of testing an ATX Power by the example of a 220W model.

Specifications:

Item	+5V	+3.3V	+12V	-5V	-12V	+5VSB
Max. Electrical current	17A	7.5A	8A	0.5A	0.5A	0.7A
Max. Power	110W		96W	2.5W	6W	3.5W
Upper-limit value of voltage	5.25V	3.46V	12.60V	-5.5V	-13.20V	5.25V
Lower-limit value of voltage	4.75V	3.13V	11.40V	-4.5V	-10.80V	4.75V

Test power: 230V

City power: 230V

Set ATX Power source to be tested at 230V.

OPP value: 242W ~ 308W (10%~40%)

PG value: 100 ~ 500 mS (PG for machine-on test).

PF value: Over 1 mS (Pf for machine-off test).

Setup:

1. Set the “Line Select” in the middle of instrument rear board at 230V with “Source Select” being set at INT.
2. Connect one end of US-Spec. AC wire to “Line AC Input” with the other end into the city power socket (Figure 2-2).

3. Connect one end of US-Spec. AC wire to “To S.P.S.” with the other end connecting the ATX Power (Figure 2-2).
4. Switch on “Power” at the lower right corner of face board and for the wiring of the front part, please refer to Figure 2-4.
5. Set “I1” as full load (please refer to the setup method in 3-5 or 3-6) and listed below are relevant parameters:

Load Type	**VA**	**VB**	**VC**	**VD**	**VE**	**VF**
	+12V	**+5V**	**-5V**	**-12V**	**+3.3V**	**+5VSB**
Electrical current setup	8.00A	17.00A	0.500A	0.500A	7.50A	0.700A
Upper-limit voltage	12.60V	5.25V	-5.50V	-13.20V	3.46V	5.25V
Lower-limit voltage	11.40V	4.75V	-4.50V	10,80V	3.13V	4.75V

6. Set “I2” as 60% of full load (please refer to the setup method in I1) and listed below are relevant parameters:

Load Type	**VA**	**VB**	**VC**	**VD**	**VE**	**VF**
	+12V	**+5V**	**-5V**	**-12V**	**+3.3V**	**+5VSB**
Electrical current Setup	4.80A	10.20A	0.300A	0.300A	4.50A	0.420A
Upper-limit voltage	12.60V	5.25V	-5.50V	-13.20V	3.46V	5.25V
Lower-limit voltage	11.40V	4.75V	-4.50V	10,80V	3.13V	4.75V

7. Set “I3” as 20% of full load (light duty loading) and refer to “I1” for the setup method. Listed below are relevant parameters:

Load Type	**VA**	**VB**	**VC**	**VD**	**VE**	**VF**
	+12V	**+5V**	**-5V**	**-12V**	**+3.3V**	**+5VSB**
Electrical current setup	1.60A	3.40A	0.100A	0.100A	1.50A	0.140A
Upper-limit voltage	12.60V	5.25V	-5.50V	-13.20V	3.46V	5.25V
Lower-limit voltage	11.40V	4.75V	-4.50V	10,80V	3.13V	4.75V

8. Testing items for machine on and off setup (push “Shift+D” on Page 4) and listed below are relevant parameters:

Group Name	**VA**	**VB**	**VC**	**VD**	**VE**	**VF**	**VG**
Input	1	0	0	0	0	1	450

9. Machine failure voltage setup (push “Shift+D” on Page 4) and listed below are relevant parameters:

Group Name	**VA**	**VB**	**VC**	**VD**	**VE**	**VF**
Input	800	300	300	800	200	300

10. Climbing electric current and climbing time setup (push “Shift+D” on Page 5) and listed below are relevant parameters:

Group Name	**VA**	**VB**	**VC**	**VD**	**VE**	**VF**	**VG**
Input	0050	0100	0050	0050	0050	0000	06

11. Setup of the highest climbing point of each electric current (push “Shift+D” on Page 6) and listed below are relevant parameters:

Group Name	**VA**	**VB**	**VC**	**VD**	**VE**	**VF**
Input	3000	4000	2000	2000	2000	0700

12. Push “Enter” key to store the setup and quit.

Operational test:

1. Select the electric current setup of “I3” and then push AC “ON” key. Within 3 seconds after turning on machine, “VALUE” icon will display the standard PG value which is around 100~500mS.
2. Then these six groups of voltage values will be displayed on “VA”~”VF” shown as per Figure SM-268 Face Board.
   Based on the upper/lower limit voltage values being set, a judgement will be made by SM-268 to display the status of six voltage groups on “ALUE” and “MESSAGE” icons. “∪” means that the actual voltage value is higher than the set upper–limit voltage value; “∩” means that the actual voltage value is lower than the set lower-limit voltage value; and “—“ means the actual voltage value is between the set upper/lower limit voltage value.
3. Select the electric current setup of “I2” to inspect the voltage judgement (same as the operational method in 1~2).
4. Select the electric current setup of “I1” to inspect the voltage judgement (same as the operational method in 1~2). Then set “Waveform” switch for viewing the waveform of these six voltage groups by connecting to the oscilloscope through BNC terminal.
5. Push “OPP” key to conduct overload test. At this time, the “VALUE” icon will indicate the OPP value. S.P.S. will fail due to the overload.
6. Push AC “Off” key and wait till the discharge of S.P.S. is completed. Then push AC “ON” key to restart S.P.S.
7. Push “A” key to conduct +12V short circuit test and S.P.S. will fail due to the overload. Push “PsOn” key twice to restart S.P.S.
8. Push “B” key to conduct +5V short circuit test and S.P.S. will fail due to the overload. Push “PsOn” key twice to restart S.P.S.
9. Select the electric current setup of “I2” and push AC “Off” key to turn off machine. Within 3 seconds after turning off, “VALUE” icon will display the standard PG value which is around 1~100mS.
10. Pushing of DYNA: Shift+I1 (I2…I5, total 5 DYNA groups).

4-7 Automatic parameter setup by “Shift+C” key (such setup activates only for Automatic Version)

Push “Shift+C” key to enter automatic parameter setup. When S.P.S. fails, S.P.S. will restart till after each group of voltage discharges to below the set voltage (such parameter will be shared by five groups during the automatic test).

1. For Page 1 setting-up by automatic parameters (CONF 1), please refer to Figure 4-7-1 and Chart 4-7-1. Push “←”, “→” keys to set up voltage value. After completing the setup for this page, push “Enter” key to store the setup and quit; or push “Shift+Page Down’ key to enter Page 2 setting-up by automatic parameters (CONF 2).

Figure 4-7-1

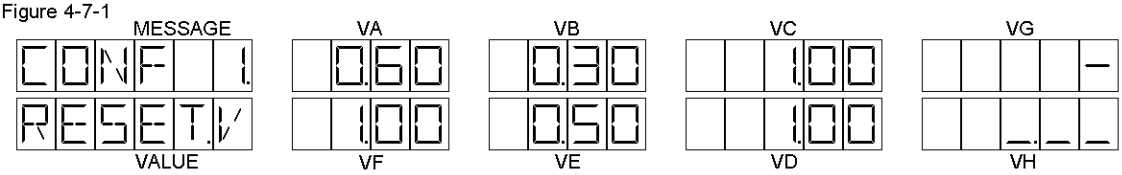


Chart 4-7-1

Group Name	Auxiliary Descriptions (VALUE)	Max. Value	Min. Value	Format of Field (VH)
VA	RESET. V	9.99	0.00	_._ _
VB	RESET. V	9.99	0.00	_._ _
VC	RESET. V	9.99	0.00	_._ _
VD	RESET. V	9.99	0.00	_._ _
VE	RESET. V	9.99	0.00	_._ _
VF	RESET. V	9.99	0.00	_._ _

2. For Page 2 setting-up by automatic parameters (CONF 2), please refer to Figure 4-7-2 and Chart 4-7-2.
   a. **RETRY.T:** Means the longest time setup awaiting the restart when S.P.S. fails.
   b. **STEADY:** Means the stay time setup after entering each test.
   c. **ATX/AT:** In selecting S.P.S. to be tested, 0=ATX or 1=AT. When ATX Power is under the protective action, +5VSB will not present voltage drop due to the failure of S.P.S. and so, it must be kept within the scope of upper/lower limit voltage. IF PsOn action is added in ATX setup, the discharge time of Power can be shortened so as to accelerate the testing speed.
   d. **SHORT.M:** If S.P.S. short circuit protective mode is selected, then 0=after short (the voltage inspection after the short circuit) while 1=in shorting (the voltage inspection during the short circuit).
   e. **AC/DC:** To select AC or DC as the power supply for S.P.S. of which, 0=AC while 1=DC.

   After completing the setting for this page, push “Enter” key to store the setup and quit; or push “Shift+Page Down” key to enter the automatic test selection for the desired group.

Figure 4-7-2

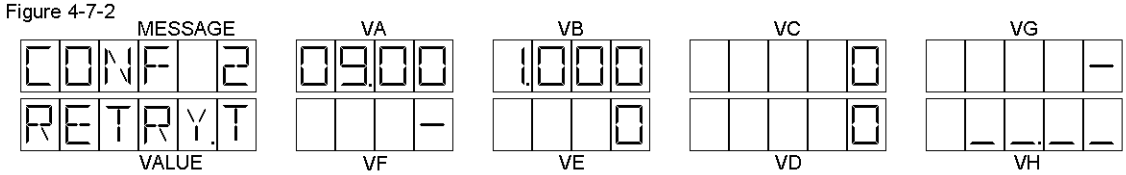


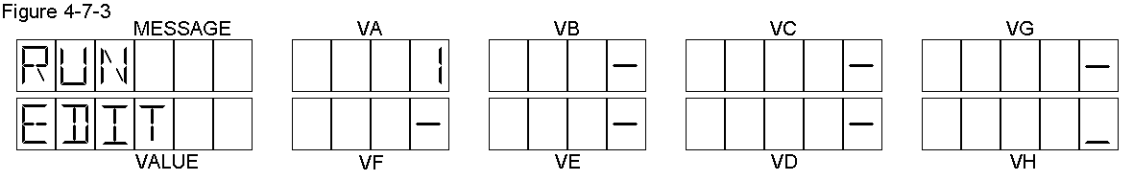
Chart 4-7-2

Group Name	Auxiliary Descriptions (VALUE)	Max. Value	Min. Value	Format of Field (VH)
VA	RESTRY.T	32.00 (Sec)	0.00	_ _ ._ _
VB	STEADY	8.000 (Sec)	0.000	_ ._ _ _
VC	ATX/AT	1	0	_
VD	SHORT.M	1	0	_
VE	AC/DC	1	0	_

3. To select the automatic test for the desired group (1~5 groups), please refer to Figure

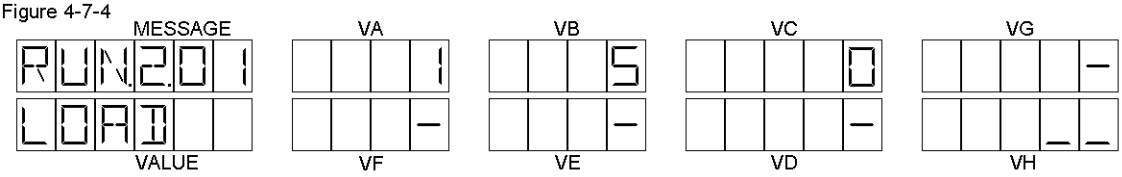
4-7-3. After being entered, the editing of each testing item will begin

Figure 4-7-3



4. For Item 1 of Group 2 automatic test (RUN2.01), please refer to Figure 4-7-4.

Figure 4-7-4



"VA": The testing item code for the input code (twelve kinds test in total), please refer to Chart 4-7-3.

Chart 4-7-3: Testing Code and Brief Descriptions

Code	Briefing	Descriptions
0	END	Test ended.
1	LOAD	For setting up the load to test if the voltage is within the setup scope.
2	SETUP	For testing the climbing time of +5V upon starting S.P.S.
3	PG	For testing the period from starting S.P.S. to the climbing of PG signal (POWER GOOD).
4	ON.RING	For testing if the oscillating sign will appear when PG signal climbs (PG RING).
5	HOLD	For test the dropping time of +5V after starting S.P.S. (HOLD ON)
6	PF	For testing the period from starting S.P.S. to the drop of PG signal (POWER FAIL).
7	OF.RING	For testing if the oscillating sign will appear when PF signal drops (PF. RING).
8	OPP	Protection test of OPP.
9	WAIT	When this item is tested, the machine will stop by keeping machine-on status for judging the voltage and detecting PG. After the operator pushes "On" key, the machine will proceed to test the next item.
10	SHORT	For testing short circuit which will take place at the relay in the instrument and the protection will be claimed by S.P.S.
11	DYNA	Dynamic load test.
12	LINE.IN	For selecting three AC voltage groups supplied from outside.

"VB": The load selected for the input test (I1~I5).

"VC": When "10" is selected for "VA", select the short group and for this, please refer to Chart 4-7-4.

When "12" is selected for "VC", select the external AC and for this, please refer to Chart 4-7-4.

Chart 4-7-4:

Input Value	1	2	3	4	5
Short Group	VA	VB	VC	VD	VE
External AC	IN-1	IN-2	IN-3		

4-8 How to set up and automatically test an ATX Power?

The specifications of ATX Power is same as Example 4-6 by presuming that the unit is placed in Group 2 (RUN 2) during the automatic test.

S.P.S. Specification:

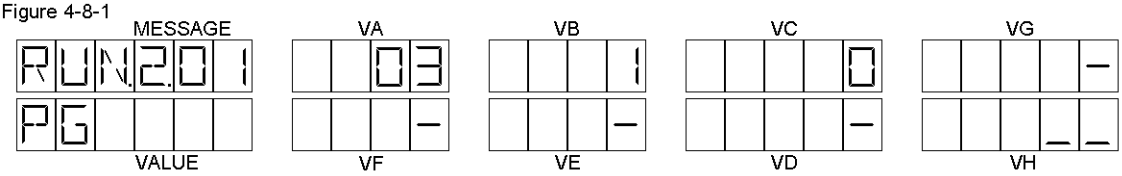
Item	+5V	+3.3V	+12V	-5V	-12V	+5VSB
Max. Electrical current	17A	7.5A	8A	0.5A	0.5A	0.7A
Max. Power	110W		96W	2.5W	6W	3.5W
Upper-limit value of voltage	5.25V	3.46V	12.60V	-5.5V	-13.20V	5.25V
Lower-limit value of voltage	4.75V	3.13V	11.40V	-4.5V	-10.80V	4.75V

Items to be tested:

Sequence	Briefed Term	Load	Notes
1	PG	I2	For testing the PG time.
2	LOAD	I2	For testing the voltage judgement under 60% of full load.
3	LOAD	I1	For testing the voltage judgement under full load.
4	OPP	I1	For testing the highest protection point of OPP.
5	SHORT A	I1	For testing if the protection is provided under +12V short.
6	SHORT B	I1	For testing if the protection is provided under +5V short.
8	LOAD	I3	For testing the voltage judgement under 20% of full load
9	PF	I2	For testing the PF time.
10	END		For end the automatic test

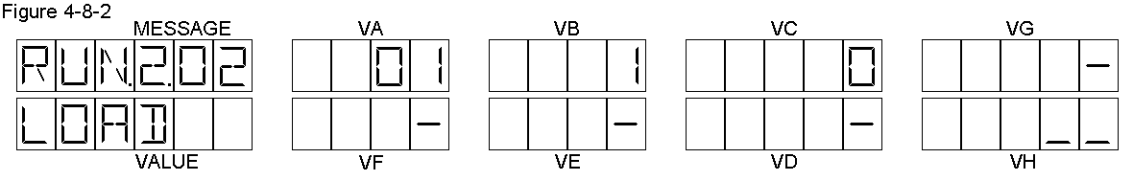
1. At Figure 4-8-1 with “VA” icon flickering, enter “3” to test PG. When “VB” icon is flickering, enter “1” to select full load. Push “Shift+Page Down” keys to enter the automatic test for Group 2.

Figure 4-8-1



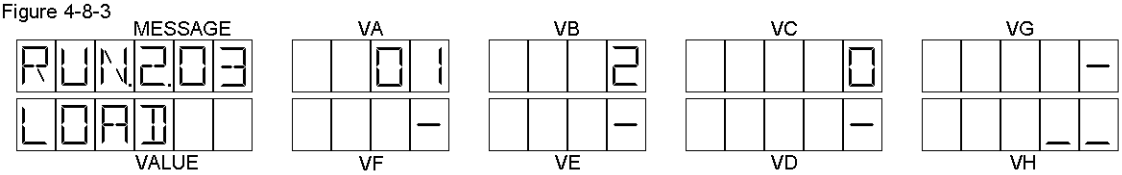
2. At Figure 4-8-2 with “VA” icon flickering, enter “1” to test the load. When “VB” icon is flickering, enter “1” to select full load. Push “Shift+Page Down” keys to enter the automatic test for Group 2.

Figure 4-8-2



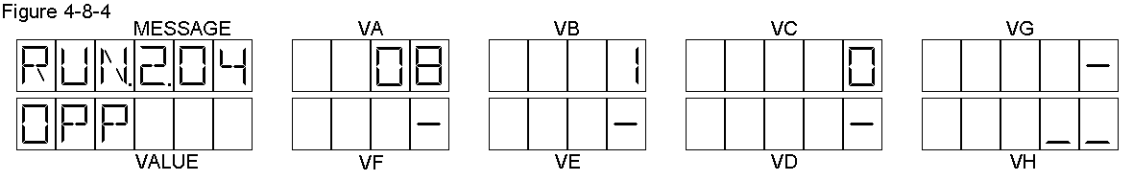
3. At Figure 4-8-3 with “VA” icon flickering, enter “1” to test the load. When “VB” icon is flickering, enter “2” to select 60% of full load. Push “Shift+Page Down” keys to enter the automatic test for Group 2.

Figure 4-8-3



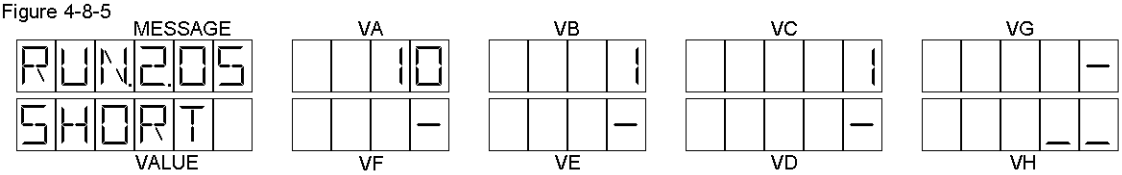
4. At Figure 4-8-4 with “VA” icon flickering, enter “8” to test OPP. When “VB” icon is flickering, enter “1” to select full load. Push “Shift+Page Down” keys to enter the automatic test for Group 2.

Figure 4-8-4



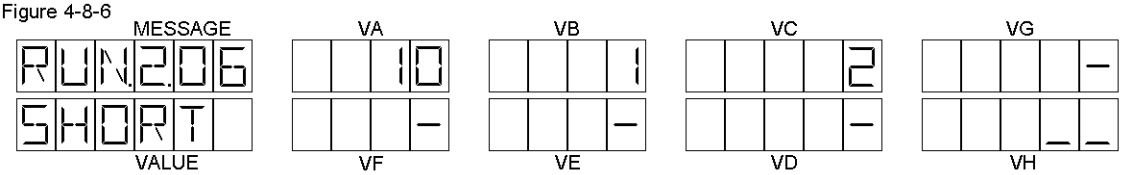
5. At Figure 4-8-5 with “VA” icon flickering, enter “10” to test the SHORT. When “VB” icon is flickering, enter “1” to select full load and when “VC” icon is flickering, enter “1” to select VA for testing the short. Push “Shift+Page Down” keys to enter the automatic test for Group 2.

Figure 4-8-5



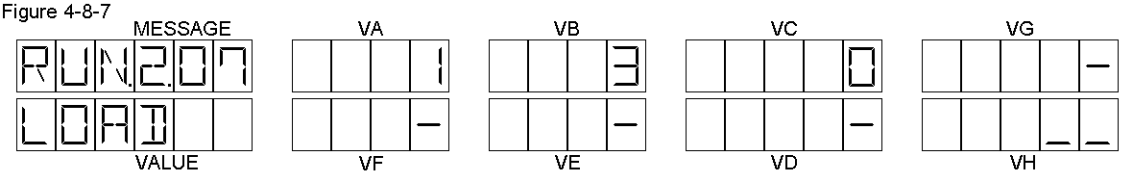
6. At Figure 4-8-6 with “VA” icon flickering, enter “10” to test the SHORT. When “VB” icon is flickering, enter “1” to select full load and when “VC” icon is flickering, enter “2” to select VB for testing the short. Push “Shift+Page Down” keys to enter the automatic test for Group 2.

Figure 4-8-6



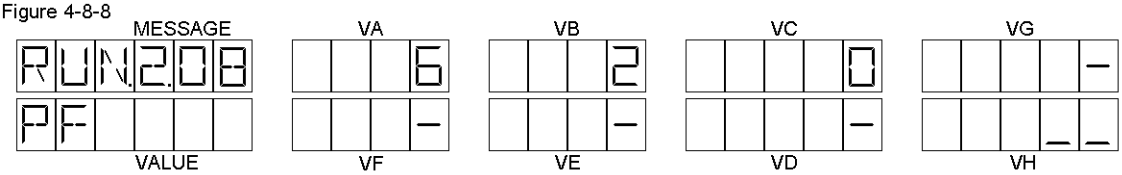
7. At Figure 4-8-7 with “VA” icon flickering, enter “1” to test the LOAD. When “VB” icon is flickering, enter “3” to select 20% of full load. Push “Shift+Page Down” keys to enter the automatic test for Group 2.

Figure 4-8-7



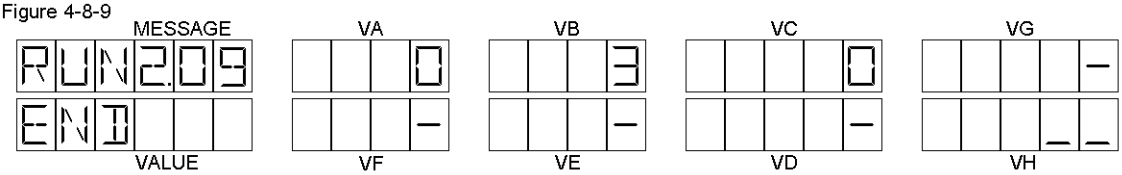
8. At Figure 4-8-8 with “VA” icon flickering, enter “6” to test PF. When “VB” icon is flickering, enter “2” to select 60% of full load. Push “Shift+Page Down” keys to enter the automatic test for Group 2.

Figure 4-8-8



9. At Figure 4-8-9 with “VA” icon flickering, enter “0” to end the automatic test and push “Enter” key to store the setup and quit.

Figure 4-8-9



10. Push “Shift+A” key to light up the Auto LED for entering the automatic test status. The digits on the far left of “MESSAGE” icon refer to the groups (1~5 groups) of automatic

test. Push “Shift+↑(↓)” key to select the groups for automatic test, and it is recommended to select Group 2.

11. Push “Shift+E” key to speedily set up “I1” as full-load electric current and the upper/lower limit voltage. For this, please refer to Figures 4-8-10, 4-8-11 and 4-8-12.

Figure 4-8-10

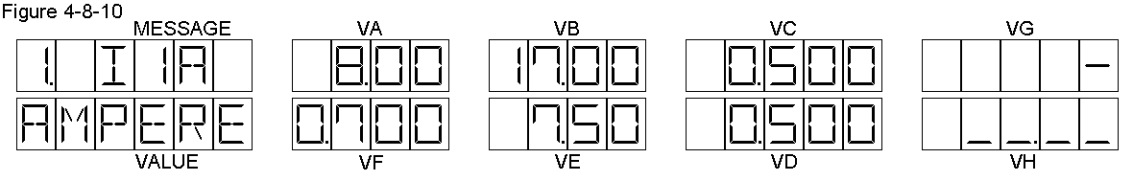


Figure 4-8-11

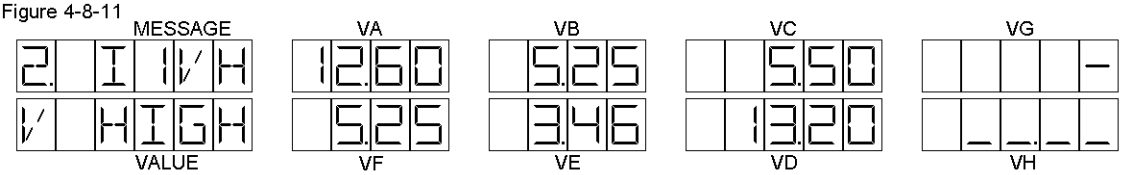
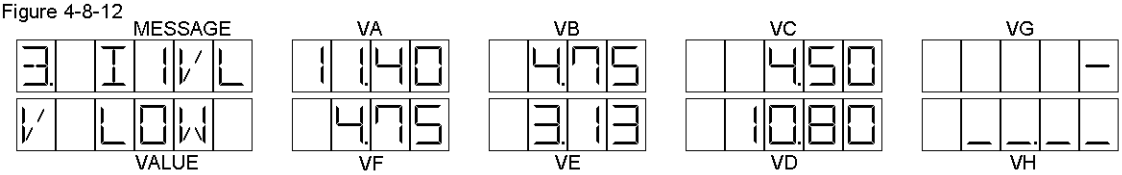


Figure 4-8-12



12. Push “Shift+E” key to speedily set up “I2” as 60% of full-load electric current and the upper/lower limit voltage. For this, please refer to Figures 4-8-13, 4-8-14 and 4-8-15.

Figure 4-8-13

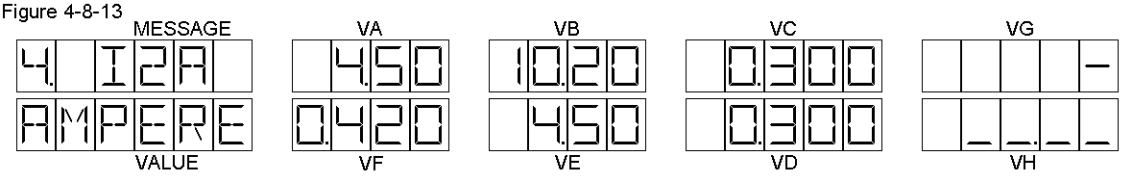


Figure 4-8-14

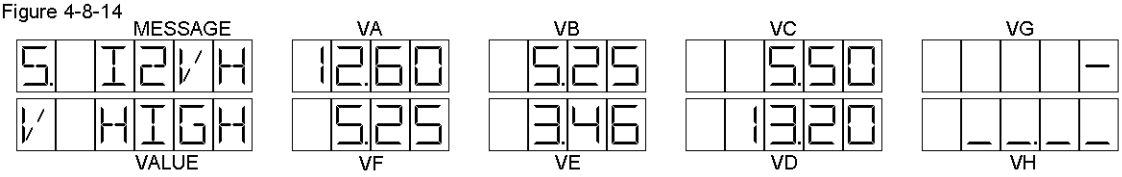
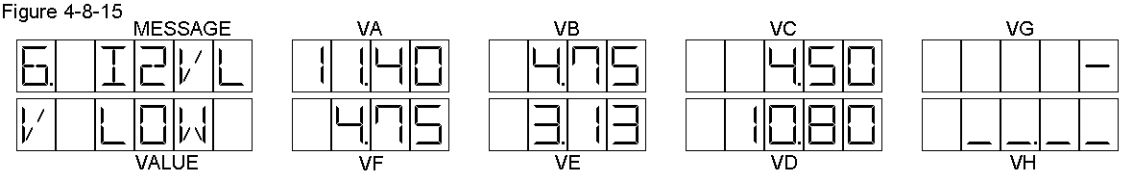


Figure 4-8-15



13. Push “Shift+E” key to speedily set up “I3” as 20% of electric current and the upper/lower limit voltage. For this, please refer to Figures 4-8-13, 4-8-14 and 4-8-15 and for the input value, please refer to Chart 4-8. After completing the setup, push “Enter” key to store I1, I2, I3 setup values into automatic test of Group 2 and then quit.

Chart 4-8

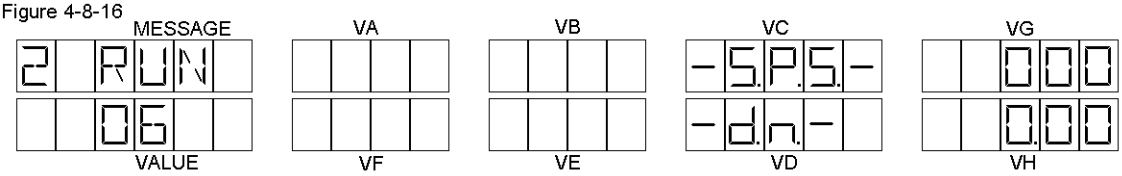
Load Type	**VA**	**VB**	**VC**	**VD**	**VE**	**VF**
	+12V	**+5V**	**-5V**	**-12V**	**+3.3V**	**+5VSB**
Electrical current setup	1.6A	3.4A	0.1A	0.1A	1.5A	0.14A
Upper-limit voltage	12.60V	5.25V	-5.5V	-13.20V	3.46V	5.25V
Lower-limit voltage	11.40V	4.75V	-4.5V	-10,80V	3.13V	4.75V

14. Push “Shift+D” key to enter the setup of internal parameters:
    a. Modify VG value as 4.50 (see Figure 4-1-2 of Section 4-1, Chapter 4).

b. Set up the upper limit of PG as 500.0 (mS) with the lower limit as 100.0 (mS) (see Figure 4-2 of Section 4-2, Chapter 4).
c. Set up the upper limit of PF as 100.0 (mS) with the lower limit as 1.0 (mS) (see Figure 4-3 of Section 4-3, Chapter 4).
d. Set up the parameter value of voltage failure point (see Figure 4-4-1 of Section 4-4, Chapter 4).
e. Set up the parameter value of the climbing current for each OPP (see Figure 4-4-2 of Section 4-4, Chapter 4).
f. Set up the parameter value of the highest climbing point for OPP current (see Figure 4-4-3 of Section 4-4, Chapter 4).
g. Set up the parameter value of the comparative value for the highest power point of OPP (see Figure 4-4-4 of Section 4-4, Chapter 4).

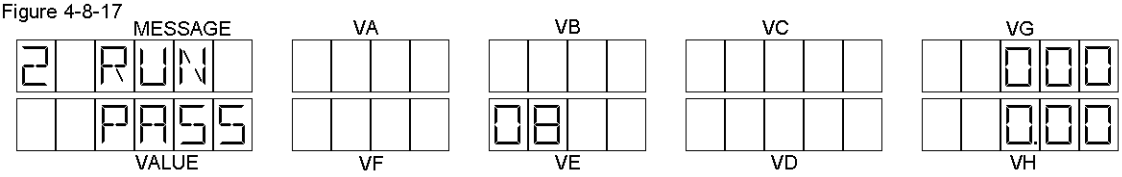
15. Push “Enter” key to set up the upper/lower limit value of OPP and store it in the automatic test of Group 2 and then quit the setup (others parameters will be shared by five groups of automatic tests).
16. Connect S.P.S. as per Figures 2-2 and 2-4 and then push AC “ON” key on the face board to start the automatic test.
17. If S.P.S. fails and the restart is impossible due to the setup or the test protection during the test, the message as per Figure 4-8-16 will appear. Push “Enter” key to quit, then inspect S.P.S. and check (modify) the setup value (as per Figures 4-7-1, 4-7-2) to proceed with the test after that.

Figure 4-8-16



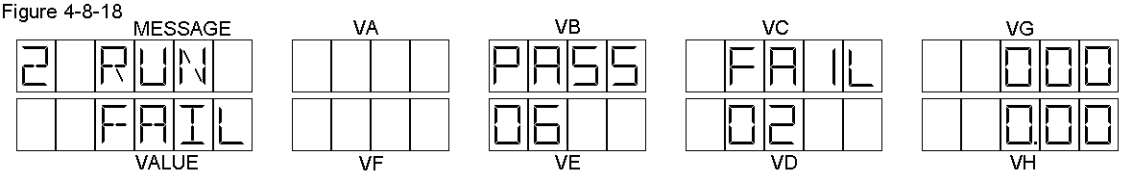
18. If PASS is given for the test result as per Figure 4-8-17, then push “C” or “D” key to view the tested value. Push “Enter” key to quit.

Figure 4-8-17



19. If FAIL is given for the test result as per Figure 4-8-18, then push “C” or “D” key to view the test result value of PASS. Push “↑” or “↓” key to view the tested value of FAIL. Push “Enter” key to quit.

Figure 4-8-18



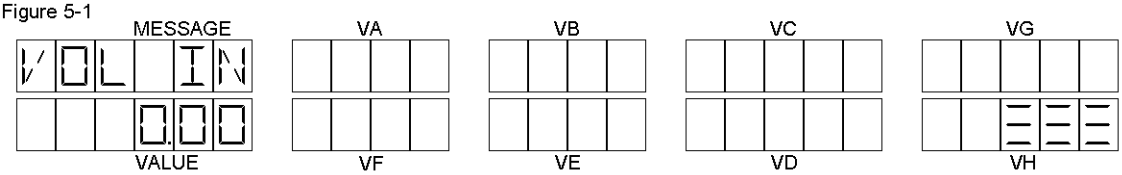
5. Instrument Calibration

Prepare an adjustable DC (0-50V, 50A) power provider (briefed as calibrating power) and a volt meter (briefed as calibrating meter) which has been calibrated for more than five and a half digits.

5-1 DC voltage zero-reset calibration

1. Set up six groups of electric current in I1 as 0A.
2. Operation: Push “Shift+F/9” keys and then release to show “PASSWORD” message on “MESSAGE VALUE” icon. Then input “811” to enter zero-reset for six DC voltage groups. Listed below are messages displayed:

Figure 5-1

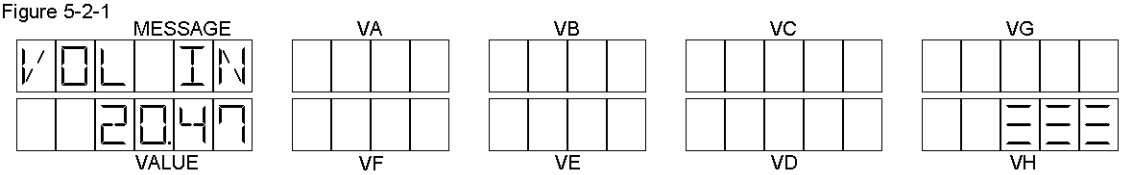


3. Action: Connect the input terminals of six groups with COM SHORT together.
4. Operation: Push “Enter” key and then release to show error values being read on six icons. If errors are bigger than 0.00±0.50V, then “Err” will be indicated in such icon.
5. Operation: Push “I1” key to store and then push “Enter” key to quit so as to end up with such setup. (If zero reset cannot be achieved in these six icons, then repeat the actions of the aforesaid 2, 3, 4 and 5 or it means that other problems may be existed in the instrument itself.)

5-2 DC voltage full graduation calibration

1. Set up six groups of electric current in I1 as 0A.
2. Operation: Push “Shift+F/9” key to show “PASSWORD” message on “MESSAGE”, “VALUE” icons. Please input “822” to enter the full graduation calibration of six DC voltage groups, as per Figure 5-2-1.

Figure 5-2-1



3. Action: Clip the positive pole “+” of Calibrating Power on VA with the negative pole “-“ on COM, connecting the Calibrating Meter as well. Adjust the Calibrating Power to show 20.470V as the reading of the Calibrating Meter (see Figure 5-2-2).

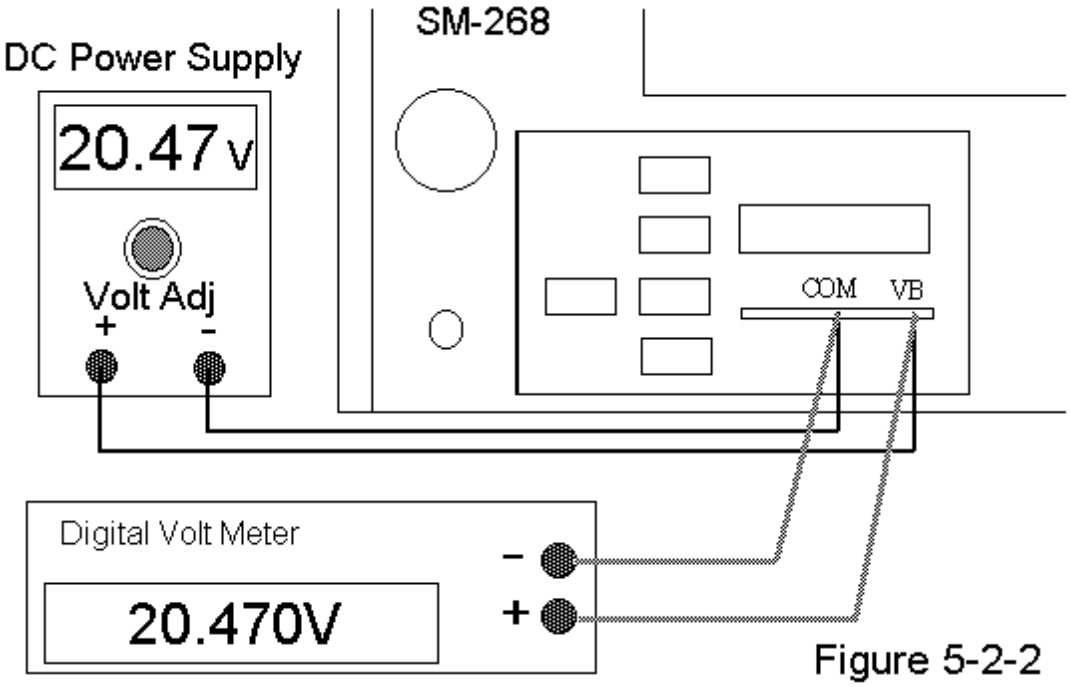


Figure 5-2-2

4. Operation: Push “Enter” key and then release to show the error values being read on VA icon. If errors are bigger than 20.47±0.50V, then “Err” will be indicated in such icon.
5. Operation: Push “I1” key to store the setup and then push “Enter” key once again to quit such setup. (If error exists after full graduation calibration for the VA icon, then repeat the actions of the aforesaid 2, 3, 4 and 5 or it means that other problems may be existed in the instrument itself.)
   a. For full graduation calibration of VB Group, please repeat the aforesaid 2, 3, 4 and 5 actions. (The Calibrating Power of positive pole “+” from VB).
   b. For full graduation calibration of VE Group, please repeat the aforesaid 2, 3, 4 and 5 actions. (The Calibrating Power of positive pole “+” from VB).
   c. For full graduation calibration of VF Group, please repeat the aforesaid 2, 3, 4 and 5 actions. (The Calibrating Power of positive pole “+” from VB).
   d. For full graduation calibration of VC Group, please repeat the aforesaid 2, 3, 4 and 5 actions. (Different action: Clip the negative pole “-” of the Calibrating Power on VC with the positive pole “+“ on COM, connecting the Calibrating Meter as well. Adjust the Calibrating Power to show -20.470V as the reading of the Calibrating Meter (see Figure 5-2-3).

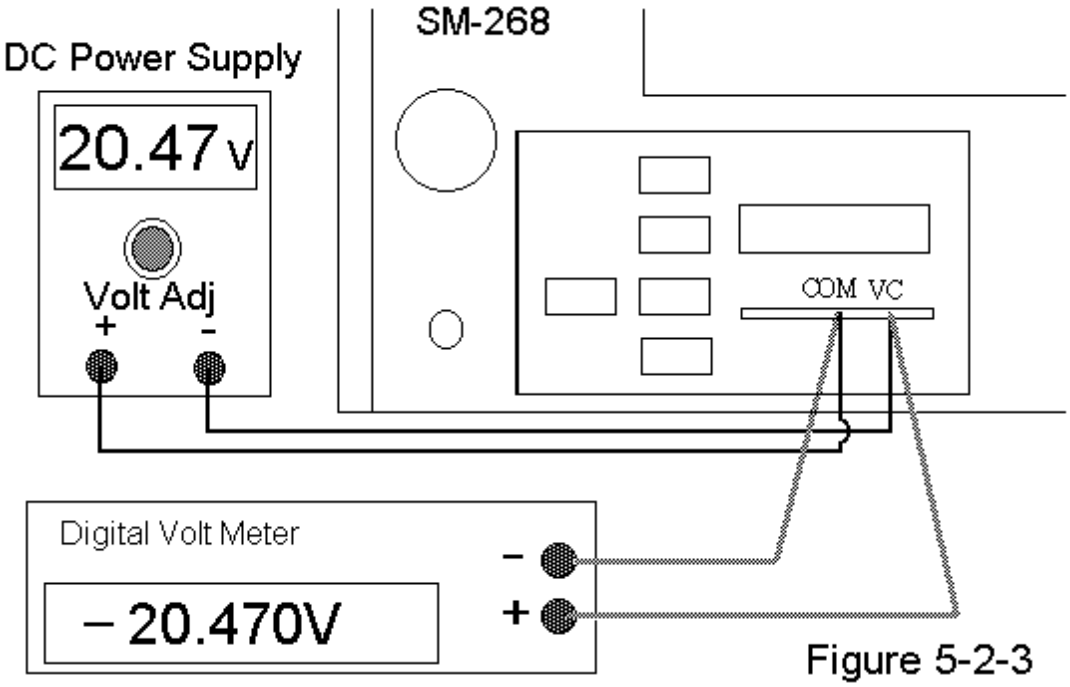


Figure 5-2-3

e. For full graduation calibration of VD Group, please repeat the aforesaid 2, 3, 4 and 5 actions. (Different action: Clip the negative pole "-" of the Calibrating Power on VC with the positive pole "+" on COM, connecting the Calibrating Meter as well. Adjust the Calibrating Power to show -20.470V as the reading of the Calibrating Meter (see Figure 5-2-3).

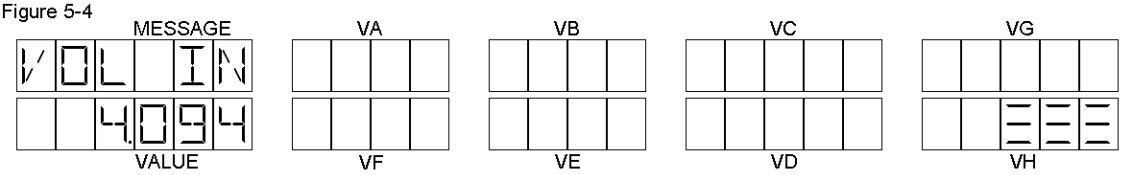
5-3 Zero-reset calibration for the comparative voltage of Time

1. Set up six groups of electric current in I1 as 0A.
2. Operation: Push "Shift+F/9" keys and then release to show "PASSWORD" message on "MESSAGE", "VALUE" icons. Then input "833" to enter zero-reset calibration for the comparative voltage of time test. Figure 5-1 shows the messages indicated.
3. Action: Connect the input terminals of VB and PG signals with COM SHORT together.
4. Operation: Push "Enter" key and then release to show error values being read on VB and "VALUE" icons. If errors are bigger than 0.00±0.50V, then "Err" will be indicated in such icon.
5. Operation: Push "I1" key to store and then push "Enter" key to quit to wind up such setup.

5-4 Full graduation calibration for the comparative voltage of Time

1. Set up six groups of electric current in I1 as 0A.
2. Operation: Push "Shift+F/9" keys and then release to show "PASSWORD" message on "MESSAGE", "VALUE" icons. Then input "844" to enter the calibration for the comparative voltage 4.094 of time test. Figure 5-4 shows the messages indicated.

Figure 5-4

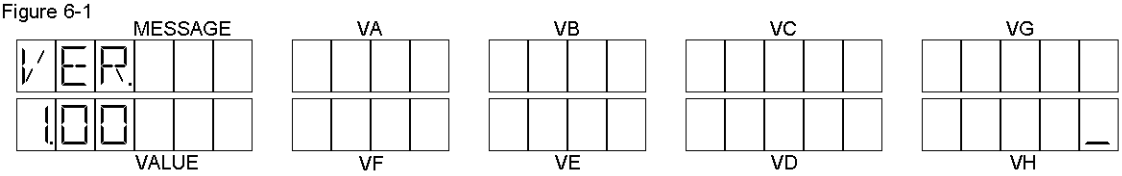


3. Action: Clip the positive pole “+” of Calibrating Power on VB with the negative pole “-“ on COM, connecting the Calibrating Meter as well. Adjust the Calibrating Power to show 4.094V as the reading of the Calibrating Meter.
4. Operation: Push “Enter” key and then release to show error values being read on VB and “VALUE” icons. If errors are bigger than 20.47±0.50V, then “Err” will be indicated in such icon.
5. Operation: Push “I1” key to store and then push “Enter” key to quit to wind up such setup.
6. For the full graduation calibration for the input terminal of PG signal, please repeat the aforesaid 2, 3, 4 and 5 actions (enter positive pole “+” of Calibrating Power from the input terminal of the PG signal group).

6. Clearing and reset of the instrument's internal parameter Face Board and Typical Operation

1. Operation: Push "Shift+F/9" key and then release to show "PASSWORD" message on "MESSAGE", "VALUE" icons; then input "268". Figure 6-1 shows the messages on the instrument board.

Figure 6-1



2. Operation: Push "Shift+Page Down" key and then release to show "CLEAR DATA" message of "MESSAGE", "VALUE" icons. Shown as per Figure 6-2, push "Enter" key to retain the calibrated value and clear all other parameters and then quit such setup (clearing and reset of the instrument's internal parameters).
3. When the "Enter" key is not pushed during the aforesaid operation: (If the "Enter" key is pushed, then please repeat the aforesaid 1, 2 to proceed with the operation.)
   Operation: Push "Shift+Page Down" key and then release to show "CLEAR MEMORY" message (Figure 6-3) on "MESSAGE", "VALUE" icons. Push "Enter" key to clear all parameters and then quit such setup (clearing and reset of the instrument's internal parameters).
4. When the "Enter" key is not pushed during the aforesaid operation: (If the "Enter" key is pushed, then please repeat the aforesaid 1, 2, 3 to proceed with the operation.)
   Operation: Push "Shift+Page Down" key and then release to show "SET ORG 1" message (Figure 6-4) on "MESSAGE", "VALUE" icons. Push "Enter" key to restore the manufacturer's Group 1 parameter values and calibration values and then quit such setup (clearing and reset of the instrument's internal parameters).
5. When the "Enter" key is not pushed during the aforesaid operation: (If the "Enter" key is pushed, then please repeat the aforesaid 1, 2, 3, e to proceed with the operation.)
   Operation: Push "Shift+Page Down" key and then release to show "SET ORG 2" message on "MESSAGE", "VALUE" icons. Push "Enter" key to restore the manufacturer's Group 2 parameter values and calibration values and then quit such setup (clearing and reset of the instrument's internal parameters).

Figure 6-2

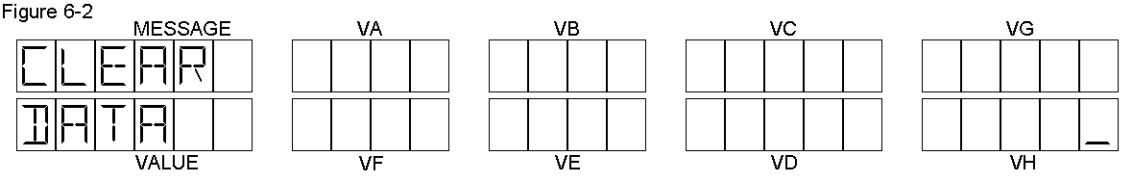


Figure 6-3

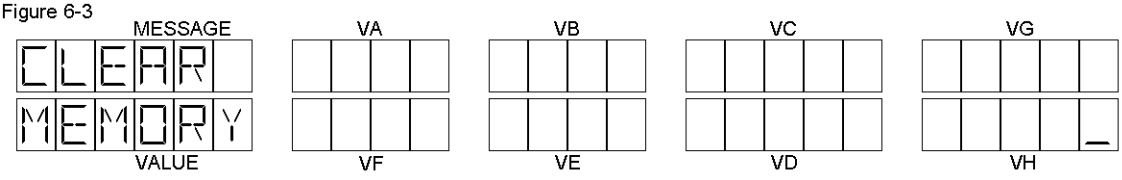
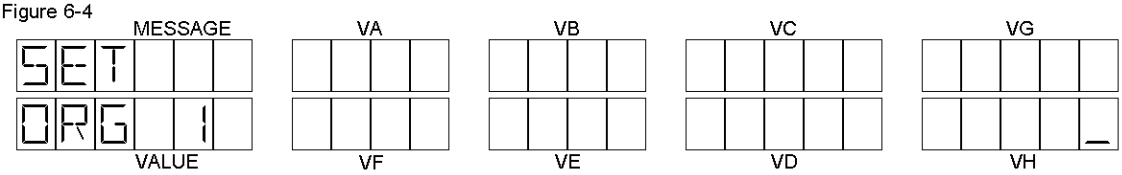


Figure 6-4



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