

3260A Series High Power LOAD Operation Manual

Material Contents Declaration

(材料含量宣称)

(Part Name) 零件名称	Hazardous Substance (有毒有害物质或元素)					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬 (Cr6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
PCBA (印刷电路装配件)	X	○	X	○	○	○
Electrical part not on PCBA's 未在PCBA上的电子零件	X	○	X	○	○	○
Metal parts 金属零件	○	○	○	X	○	○
Plastic parts 塑料零件	○	○	○	○	X	X
Wiring 电线	X	○	○	○	○	○
Package 封装	X	○	○	○	○	○

对销售之日的所售产品,本表显示, PRODIGIT 供应链的电子信息产品可能包含这些物质。注意:在所售产品中可能会也可能不会含有所有列出的部件。This table shows where these substances may be found in the supply chain of Prodigit electronic information products, as of the date of sale of the enclosed product. Note that some of the component types listed above may or may not be a part of the enclosed product. ○: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363-2006 标准规定的限量要求以下。○: Indicates that the concentration of the hazardous substance in all homogeneous materials in the parts is below the relevant threshold of the SJ/T 11363-2006 standard. ×: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006 标准规定的限量要求。×: Indicates that the concentration of the hazardous substance of at least one of all homogeneous materials in the parts is above the relevant threshold of the SJ/T 11363-2006 standard.

Note(注释):

1. Prodigit has not fully transitioned to lead-free solder assembly at this moment ; However, most of the components used are RoHS compliant.

(此刻, Prodigit 并非完全过渡到无铅焊料组装;但是大部份的元器件一至于RoHS的规定。)

2. The product is labeled with an environment-friendly usage period in years.

The marked period is assumed under the operating environment specified in the product specifications.

(产品标注了环境友好的使用期限(年)。所标注的环境使用期限假定是在此产品定义的使用环境之下。)



Example of a marking for a 10 year period:

(例如如此标制环境使用期限为10年)

SAFETY SUMMARY

The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the instrument. PRODIGIT assumes no liability for the *customer's failure to comply with these requirements*.

GENERAL

This product is a Safety Class 1 instrument (provided with a protective earth terminal). The protective features of this product may be impaired if it is used in a manner not specified in the operation instructions.

ENVIRONMENTAL CONDITIONS

This instrument is intended for indoor use in an installation category I, pollution degree 2 environments. It is designed to operate at a maximum relative humidity of 80% and at altitudes of up to 2000 meters. Refer to the specifications tables for the ac mains voltage requirements and ambient operating temperature range.

BEFORE APPLYING POWER

Verify that the product is set to match the available line voltage and the correct fuse is installed.

GROUND THE INSTRUMENT

This product is a Safety Class 1 instrument (provided with a protective earth terminal). To minimize shock hazard, the instrument chassis and cabinet must be connected to an electrical ground. The instrument must be connected to the ac power supply mains through a three conductor power cable, with the third wire firmly connected to an electrical ground (safety ground) at the power outlet. Any interruption of the protective (grounding) conductor or disconnection of the protective earth terminal will cause a potential shock hazard that could result in personal injury.

FUSES

Only fuses with the required rated current, voltage, and specified type (normal blow, time delay, etc.) should be used. Do not use repaired

Fuses or short circuited fuse holder. To do so could cause a shock or fire hazard.

DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE.

Do not operate the instrument in the presence of flammable gases or fumes.

KEEP AWAY FROM LIVE CIRCUITS.

Operating personnel must not remove instrument covers. Component replacement and internal adjustments must be made by qualified service personnel. Do not replace components with power cable connected. Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power, discharge circuits and remove external voltage sources before touching components.

DO NOT SERVICE OR ADJUST ALONE.

Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.

DO NOT EXCEED INPUT RATINGS.

This instrument may be equipped with a line filter to reduce electromagnetic interference and must be connected to a properly grounded receptacle to minimize electric shock hazard. Operation at line voltages or frequencies in excess of those stated on the data plate may cause leakage currents in excess of 5.0 mA peak.

DO NOT SUBSTITUTE PARTS OR MODIFY INSTRUMENT.

Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification to the instrument. Return the instrument to a PRODIGIT ELECTRONICS Sales and Service Office for service and repair to ensure that safety features are maintained.

Instruments which appear damaged or defective should be made inoperative and secured against unintended operation until they can be repaired by qualified service personnel.



DECLARATION OF CONFORMITY



Company Name: PRODIGIT ELECTRONICS CO., LTD

Address: 8/F, No.88, Baojhong Rd., Sindian City, Taipei County, Taiwan, R.O.C.

Declares under sole responsibility that the product as originally delivered

Product Names: DC/AC Electronic Loads

Model Numbers: 326XA、3261XA、3302C、3305C、3300C

(And other customized products based upon the above)

Product Options:

This declaration covers all options and customized products based on the above products.

Complies with the essential requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC (including 93/68/EEC) and carries the CE Marking accordingly.

EMC Information:

Class I a sample of the product has been assessed with respect to CE-marking according to the Low Voltage Directive (73/23/EEC & 93/68/EEC) and EMC Directive (89/336/EEC, 92/31/EEC, & 93/68/EEC) and Found to comply with the essential requirements of the Directives.

The Standard(s) used for showing the compliance and the full details of the results are given in the Test Reports as detailed below:

Safety Information:

Safety standards following:

IEC 61010-1:2010 / EN 61010-1:2010

Feb. 21, 2011

Date

Larsson Tsou / R&D Assistant Manager

The holder of the verification is authorized to use this verification in connection with the EC declaration Of conformity according to the Directives. The CE marking may only be used if all relevant and effective EC Directives are complied with. Together with the manufacturer's own documented production control, The manufacturer (or his European authorized representative) can in his EC Declaration of Conformity Verify compliance with the directives.

3260A Series High Power Load Operation Manual

Table & Contents

CHAPTER 1 INTRODUCTION	1
1-1 General Description.....	1
1-2 Characteristics of 3260A Series High Power Electronic Load	4
1-3 Accessories	4
1-4 Option.....	4
1-5 Specification	5
1-6 System Block Diagram	8
CHAPTER 2 INSTALLATION.....	9
2-1 Inspection	9
2-2 Check line voltage	9
2-3 Grounding requirements.....	10
2-4 Adjust the feet	10
2-5 Rack mount	10
2-6 Environmental requirements.....	10
2-7 Repairing	10
2-8 GPIB connection	11
2-9 RS-232C Connection	11
2-10 Remote control Port	12
CHAPTER 3 MANUAL OPERATION	13
3-1 Description of Front Panel	13
3-2 STORE / RECALL operation	20
3-3 AUTO SEQUENCE testing function description	21
3-4 Setting of Freq. & Selection of Bank & Sync	24
3-5 Initial setting parameter of 3260A Series High Power Electronic Load.....	25
3-6 Consideration of Load Input Connector and Connecting Lead Wire.....	29
3-7 Rough Tuning, Fine Tuning & Increment & Decrement Adjustment of Load Current.	30
3-8 Imonitor (Output)	32
3-9 Operation Flow Chart of 3260A Series Electronic Load	33
3-10 Protection Features.....	34
3-11 Load ON voltage adjustment.....	36
CHAPTER 4 GPIB/RS-232C OPERATION	37
4-1 Introduction.....	37
4-2 The summary of RS-232 interface and command	37
4-3 3260A Series GPIB/RS-232C COMMAND LIST	38
4-4 The description of abbreviation	40
4-5 GPIB/RS-232C command description	41
CHAPTER 5 APPLICATION.....	56
5-1 CC Operation Mode Application	56
5-2 CR Operation Mode Application	57
5-3 LIN Operation Mode Application.....	58
APPENDIX I 3260A R1.00 EDITION WAVE FORM DATA BANK.....	1
APPENDIX II SETTING OF AC OR DC ELECTRONIC LOAD	1

Figures

FIG.1-1 ELECTRONIC LOAD POWER CURVE.....	1
FIG.1-2 CHARACTERISTICS OF C.C. MODE.....	2
FIG.1-3 CHARACTERISTICS OF C.R. MODE.....	2
FIG.2-1 SET OF SWITCH	9
FIG.2-2 AC LINE RECEPTACLE	10
FIG.2-3 3260A SERIES HIGH POWER ELECTRONIC LOAD FRONT PANEL KEY SWITCH.....	11
FIG.2-4 DIAGRAM OF REMOTE CONTROL PORT.....	12
FIG.3-1 FRONT PANEL OF 3260A SERIES HIGH POWER ELECTRONIC LOAD.....	13
FIG.3-2 TYPICAL WAY FOR CONNECTING 3260A SERIES HIGH POWER ELECTRONIC LOAD.....	18
FIG.3-3 AUTO SEQ FUNCTION OPERATION FLOW CHART.....	21
FIG.3-5 TEST MODE OPERATION FLOW-CHART	23
FIG.3-6 DESCRIPTION OF SYNC.....	25
FIG 4-1 RS-232 INTERFACE DIAGRAM	37

Tables

TABLE 1-1 3260A SERIES SPECIFICATION	7
TABLE 3-1 3260A SERIES HIGH POWER ELECTRONIC LOAD IMONITOR SPECIFICATION	19
TABLE 3-2 3260A BUILT-IN WAVE FORM DATA BANK	24
TABLE 3-3 3260A INITIAL CONDITION SETTING	26
TABLE 3-4 3261A INITIAL CONDITION SETTING	26
TABLE 3-5 32611A INITIAL CONDITION SETTING	26
TABLE 3-6 32612A INITIAL CONDITION SETTING	27
TABLE 3-7 32613A INITIAL CONDITION SETTING	27
TABLE 3-8 32614A INITIAL CONDITION SETTING	27
TABLE 3-9 32615A INITIAL CONDITION SETTING	28
TABLE 3-10 32616A INITIAL CONDITION SETTING	28
TABLE 3-11 3260A SERIES ROUGH TUNING, FINE TUNING & INCREMENT & DECREMENT ADJUSTMENT OF LOAD CURRENT	31
TABLE 3-12 3260A SERIES OVER VOLTAGE PROTECTION SETTING VALUE	34
TABLE 3-13 3260A SERIES OVER CURRENT PROTECTION SETTING VALUE	35
TABLE 3-14 3260A SERIES OVER POWER PROTECTION SETTING VALUE	35
TABLE 4-1 GPIB/RS-232C SETTING COMMAND SUMMARY	38
TABLE 4-2 GPIB/RS-232C QUERY COMMAND SUMMARY.....	39
TABLE 4-3 GPIB/RS-232C COMMAND TERMINATOR.....	40
TABLE 4-4 WAVEFORM INFORMATION	45

Chapter 1 Introduction

1-1 General Description

3260A Series High Power Electronic Load is used for evaluation of the specification characteristics of AC/DC high power suppliers and the service life characteristics of batteries. Especially for step wave-form, square wave-form UPS, inverter device.

3260A Series High Power Electronic Load can be used to work with GPIB/RS-232C interface and panel manual operation can be made available.

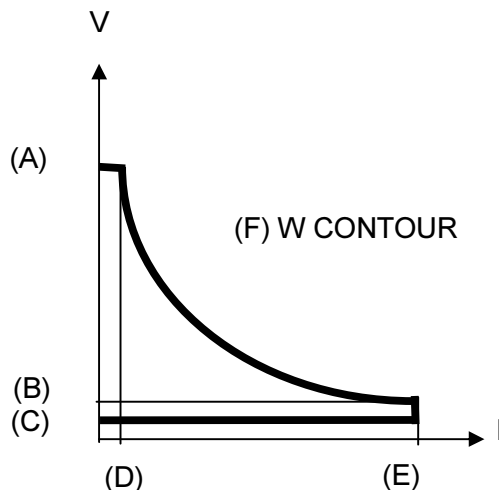


Fig.1-1 Electronic Load Power Curve

Model	(A) V	(B) V	(C) V	(D) A	(E) A	(F) W
3260A	300 V	100 V	50 V	4 A	12 A	1200 W
32601A	300 V	100 V	50 V	8 A	24 A	2400 W
3261A	300 V	100 V	50 V	6 A	18 A	1800 W
32611A	300 V	100 V	50 V	12 A	36 A	3600 W
32612A	300 V	100 V	50 V	18 A	54 A	5400 W
32613A(CC)	300 V	100 V	50 V	24 A	72 A	7200 W
32613A(LIN)	300 V	100 V	60 V	24 A	72 A	7200 W
32614A(CC)	300 V	100 V	50 V	30 A	90 A	9000 W
32614A(LIN)	300 V	100 V	60 V	30 A	90 A	9000 W
32615A(CC)	300 V	100 V	50 V	36 A	108 A	10800 W
32615A(LIN)	300 V	100 V	70 V	36 A	108 A	10800 W
32616A(CC)	300 V	100 V	60 V	42 A	126 A	12600 W
32616A(LIN)	300 V	100 V	75 V	42 A	126 A	12600 W

The work mode of 3260A Series High Power Electronic Load includes C.C, Linear C.C., C.R.

C.C. Mode

During C.C. mode, the load current input into 3260A Series High Power Electronic Load depends on the current setting regardless of the input voltage, e.g., the current setting remains unchanged. Please refer to Fig.1-9 below :

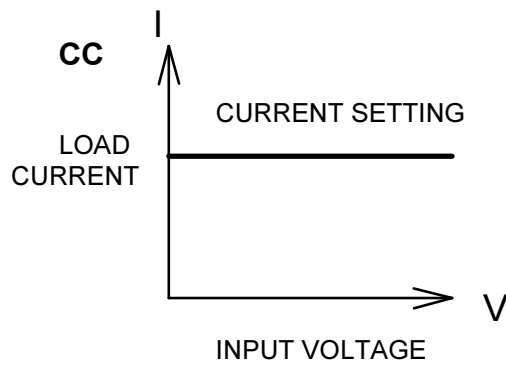


Fig.1-2 Characteristics of C.C. Mode

Linear C.C. Mode

During Linear C.C. mode, the load current input into 3260A Series High Power Electronic Load depends on the current setting regardless of the input voltage, e.g., the current setting remains unchanged. Please refer to Fig.1-9. The load input current signal will follow input voltage signal, That is useful for step wave-form and square wave-form device.

The LIN mode is within a AGC circuit and the control signal will response with input voltage. We call it LIN mode.

The AGC circuit produces a constant amplitude output signal so long as the amplitude of the input signal exceeds an adjustable reference voltage applied to the peak detector. The reference voltage may be changed to change the range of input voltage resulting in a constant-amplitude output.

The AGC circuit responds almost instantly to control a sudden increase in input voltage.

The AGC circuit is especially suitable for Step waveform, Square waveform and the input voltage with distortion waveform.

C.R. Mode

During C.R. mode, the load current input into 3260A Series High Power Electronic Load depends on the resistance setting. At this time, the load current is in direct proportion to input voltage, e.g. the resistance setting remains unchanged. Please refer to Fig. 1.10 below

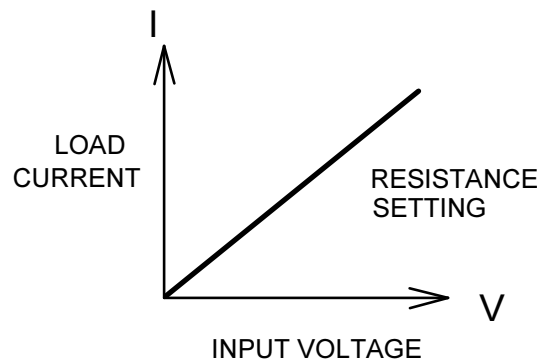


Fig.1-3 Characteristics of C.R. Mode

The load setting of 3260A Series High Power Electronic Load and the load condition setting of the front panel can be made through the front panel manual operation, GPIB command. The load voltage and current can be transmitted to the computer through GPIB bus. For operation of GPIB, please refer to chapter 4 GPIB Operation.

1-2 Characteristics of 3260A Series High Power Electronic Load

- 1.2.1 Interface function of full GPIB control, including setting of load condition and read-back of Vmeter and Ameter.
- 1.2.2 Dual High Accuracy/High Resolution 4 1/2 digit Vmeter and Ameter.
- 1.2.3 In CC mode, frequency range for DC , 0.1~400 Hz.
- 1.2.4 In CC mode, the settable Crest Factor can be set to Maximum 3.5.
- 1.2.5 Automatic judging ability for GO/NG.
- 1.2.6 Switch-able automatic voltage sensing ability.
- 1.2.7 Protection functions include Over - Voltage, Over - Current, Over - Power and Over - Temperature.
- 1.2.8 Software calibration ability.
- 1.2.9 Cooling fan control device with revolution change function.
- 1.2.10 Isolated Current Monitor BNC output with full scale of 10V.

1-3 Accessories

- | | | |
|-------|--|------|
| 1.3.1 | Vsense Input BNC Connector | 1 PC |
| 1.3.2 | Banana Terminal (Black) | 1 PC |
| 1.3.3 | Banana Terminal (Red) | 1 PC |
| 1.3.4 | King-Size Hook-Type Terminal | 2 PC |
| 1.3.5 | 3260A Series High Power AC/DC Electronic Load Operation Manual | 1 PC |

1-4 Option

- | | | |
|-------|----------------------------------|-------|
| 1.4.1 | GPIB cable | 1 M |
| 1.4.2 | GPIB cable | 2 M |
| 1.4.3 | 9931 Remote Controller | 1 Set |
| 1.4.4 | D-SUB 9 Pin to D-SUB 9 Pin cable | 1 M |

1-5 Specification

MODEL		3261A	32611A	32612A	32613A	32614A	32615A
LOAD INPUT RATINGS							
Power (VA)		1800 VA	3600 VA	5400 VA	7200 VA	9000 VA	10800 VA
Current(Ampere)		18 Arms	36 Arms	54 Arms	72 Arms	90 Arms	108 Arms
Voltage(Volt)		50~300 Vrms	50~300 Vrms	50~300 Vrms	50~300 Vrms	50~300 Vrms	50~300 Vrms
PROTECTION :							
Over Power Protection		≒ 1890 VA	≒ 3780 VA	≒ 5670 VA	≒ 7560 VA	≒ 9450 VA	≒ 11340 VA
Over Current Protection		≒ 18.9 A	≒ 37.8 A	≒ 56.7 A	≒ 75.6 A	≒ 94.5 A	≒ 113.4 A
Over Voltage Protection		≒ 315 V	≒ 315 V	≒ 315 V	≒ 315 V	≒ 315 V	≒ 315 V
Over Temp. Protection		85℃	85℃	85℃	85℃	85℃	85℃
CC MODE & Linear CC MODE	Range	0~9/9~18 A	0~18/18~36 A	0~27/27~54 A	0~36/36~72 A	0~45/45~90 A	0~54/54~108 A
	Resolution	2.25/4.5 mA	4.5/9 mA	6.75/13.5 mA	9/18 mA	11.25/21.5 mA	13.5/27 mA
	Accuracy	± (0.5% of setting + 1% of range) ; ±0.5% of (setting + range) @ 50/60Hz					
	Low Current Accuracy	0~0.9 A	0~1.8 A	0~2.7 A	0~3.6 A	0~4.5 A	0~5.4 A
CR MODE	Range II/I	3.333~13.33 2~53.332K	1.667~6.668 ~26.668K	1.111~4.444 ~17.776K	0.833~3.333 ~13.33K	0.666~2.666 ~10.666K	0.556~2.224 ~8.888K
	Resolution	0.019/0.076 mS	0.037/0.148 mS	0.056/0.224 mS	0.075/0.300 mS	0.0937/0.375 mS	0.113/0.452 mS
	Accuracy	(0.5% of setting + 2% of range) ; ±0.5% of (setting + range) @ 50/60Hz					
	Under 5 % F.S.Current	±2% of (setting + range)					
CREST FACTOR (CCMODE ONLY)	Range	√2 ~ 3.5 / 1.5 ~ 1.9 / 3.0 ~ 3.4					
	Resolution	0.5 / 0.1 / 0.1					
VOLTAGE READBACK	Range	300 V	300 V	300 V	300 V	300 V	300 V
	Resolution	0.1 V	0.1 V	0.1 V	0.1 V	0.1 V	0.1 V
V METER	Accuracy	±(0.5% of reading + 0.2% of range) DVM under 1% don't display.					
CURRENT READBACK	Range	18 A	36 A	54 A	72 A	90 A	108 A
	Resolution	0.001 A	0.01 A	0.012 A	0.012 A	0.01 A	0.012 A
A METER	Accuracy	± (0.5% of reading + 2% of range) ; ±0.5% of (reading + range) @ 50/60Hz					
WATT READBACK	Range	1800 W	3600 W	5400 W	7200 W	9000W	10800 W
	Resolution	0.1 W	1 W	1.2 W	1.2 W	1W	1.2 W
W METER	Accuracy	± (0.5% of reading + 2% of range) ; ±0.5% of (reading + range) @ 50/60Hz					
	Under 5 % F.S.Current	±3% of (setting + range)					
VA METER		Vrms×Arms Correspond To Vrms and Arms					
FREQUENCY Range		DC , 40~400 Hz(CC Mode) ; DC , 0.1~400 Hz(LIN,CR Mode)					
Imonitor (Isolated)		4.5 A/V	9 A/V	13.5 A/V	18 A/V	22.5A/V	27 A/V

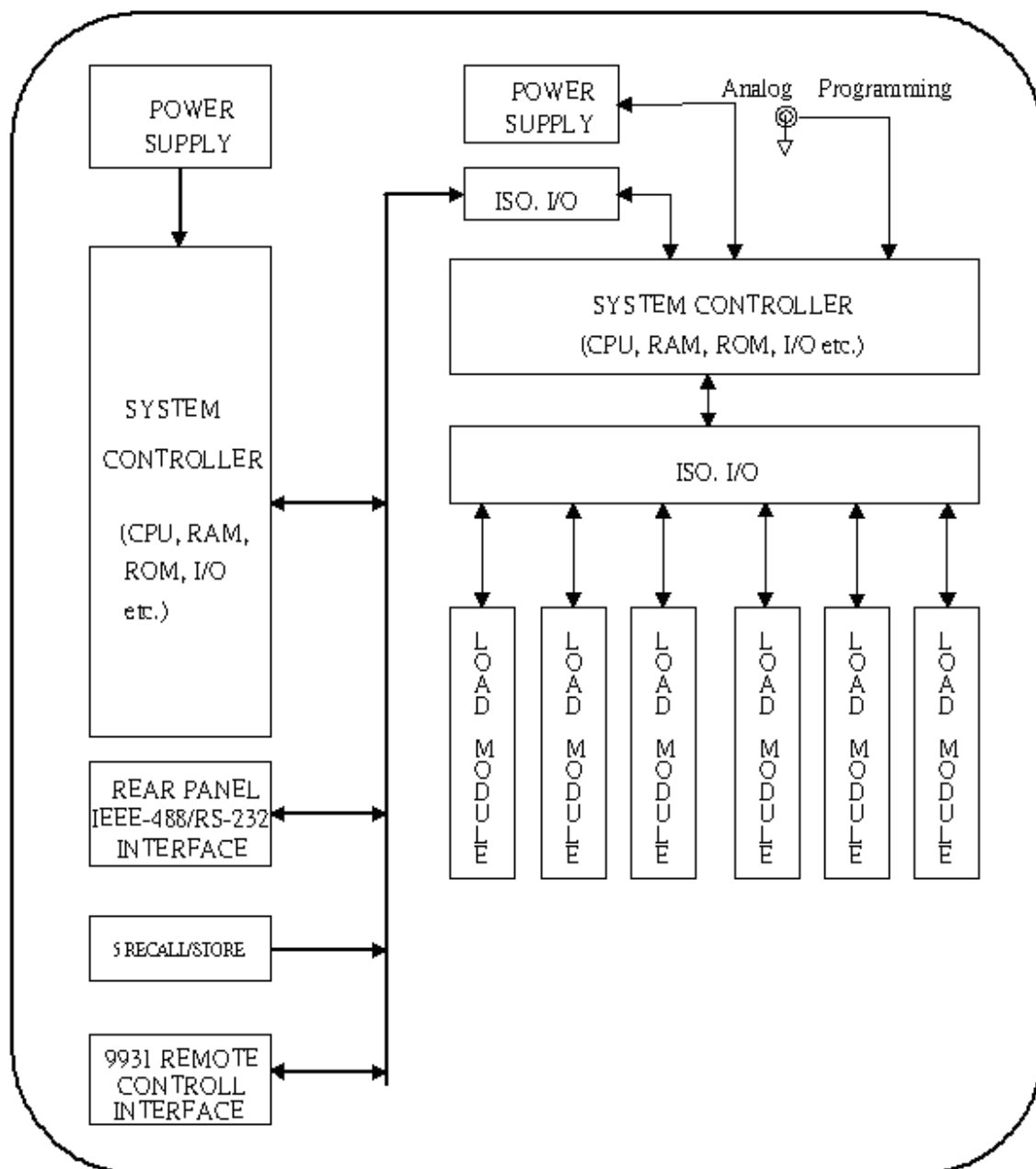
MODEL		3260A	32601A	32616A
LOAD INPUT RATINGS				
Power (VA)		1200 VA	2400 VA	12600VA
Current(Ampere)		12 Arms	24 Arms	126Arms
Voltage(Volt)		50~300 Vrms	50~300 Vrms	60~300Vrms
PROTECTION :				
Over Power Protection		≐ 1260 VA	≐ 2520 VA	≐ 13230 VA
Over Current Protection		≐ 12.6 A	≐ 25.2 A	≐ 132.3 A
Over Voltage Protection		≐ 315 V	≐ 315 V	≐ 315 V
Over Temp. Protection		85°C	85°C	85°C
CC MODE & Linear CC MODE	Range	0~6/6~12 A	0~12/12~24 A	0 ~ 63/126 A
	Resolution	1.5/3 mA	3/6 mA	15.75/31.5mA
	Accuracy	± (0.5% of setting + 1% of range) ; ±0.5% of (setting + range) @ 50/60Hz		
	Low Current Accuracy	0~0.6 A	0~1.2 A	0 ~ 6.3 A
		± 2 % of (setting + range)		
CR MODE	Range II/I	5~20~80K	2.5~10~40K	0.476~1.904~7.616K
	Resolution	0.013 / 0.052 mS	0.025 / 0.1 mS	0.5252S / 0.1313mS
	Accuracy	± (0.5% of setting + 2% of range) ; ±0.5% of (setting + range) @ 50/60Hz		
	Under 5 % F.S.Current	±2% of (setting + range)		
CREST FACTOR (CCMODE ONLY)	Range	$\sqrt{2} \sim 3.5 / 1.5 \sim 1.9 / 3.0 \sim 3.4$		
	Resolution	0.5 / 0.1 / 0.1		
VOLTAGE	Range	300 V	300 V	300 V
READBACK	Resolution	0.1 V	0.1 V	0.1 V
V METER	Accuracy	±(0.5% of reading + 0.2% of range) DVM under 1% don't display.		
CURRENT	Range	12 A	24 A	126 A
READBACK	Resolution	0.001 A	0.01 A	0.014 A
A METER	Accuracy	± (0.5% of reading + 2% of range) ; ±0.5% of (reading + range) @ 50/60Hz		
WATT	Range	1200 W	2400 W	12600 W
READBACK	Resolution	0.1 W	0.1 W	1 W
W METER	Accuracy	± (0.5% of reading + 2% of range) ; ±0.5% of (reading + range) @ 50/60Hz		
	Under 5 % F.S.Current	±3% of (setting + range)		
VA METER		Vrms×Arms Correspond To Vrms and Arms		
FREQUENCY Range		DC , 40~400 Hz(CC Mode) ; DC , 0.1~400 Hz(LIN,CR Mode)		
Imonitor (Isolated)		3 A/V	6 A/V	31.5A/V

EACH UNIT	AC INPUT	LINE	100V/115V \pm 10%	200V/230V \pm 10%
		FREQUENCY	50/60 HZ	
		FUSE	2A/250V (5*20mm)	1A/250V (5*20mm)
	MAX. POWER CONSUMPTION		100 W	
	DIMENSIONS (W*H*D)		440 mm*177 mm*445 mm / EA	
	WEIGHT		NET : 23.6 Kg / EA	

Table 1-1 3260A Series Specification

1-6 System Block Diagram

3260 Series High Power Load



Chapter 2 Installation

2-1 Inspection

The 3260A Series High Power Electronic Load was carefully inspected before shipment. If instrument damage has occurred during transport, please inform Prodigit's sales and service office or representative.

Your 3260A Series High Power Electronic Load was shipped with a power cord for the type of outlet used at your location. If the appropriated cord was not included, please contact your nearest Prodigit sales office to obtain the correct cord. Refer to " check line voltage " to check the line voltage selection and fuse type.

2-2 Check line voltage

The 3260A Series High Power Electronic Load can operation with 115, 230Vac input as indicated on the label on the rear panel.

Make sure that the factory check mark correspond to your nominal line voltage. Skip this procedure if the label is corrected marked.

- 2.2.1 With the 3260A Series High Power Electronic Load power OFF, disconnect the power cord.
- 2.2.2 Refer the drawing on the rear panel in Fig 2-1, set the switches to the proper voltage as describe in the following:

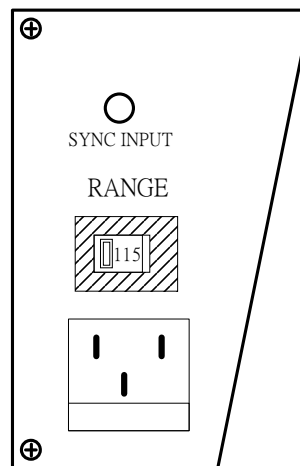


Fig.2-1 SET OF SWITCH

- 2.2.3 Mark the correct voltage on the rear panel of 3260A Series High Power Electronic Load.
- 2.2.4 Check the rating of the line fuse and replace it with the correct fuse if necessary.
- 2.2.5 The line fuse is located below the AC line receptacle see Fig 2-2. With the power cord removed, use a small screwdriver to extract the fuse holder from under the AC socket. Replace the fuse with the appropriate type as indicated in Table 1-1. These fuses are normal-blow fuses.

2.2.6 Reinstall fuse holder and connect the power cord.

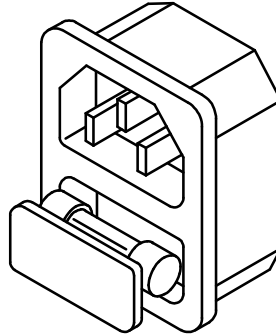


Fig.2-2 AC LINE RECEPTACLE

2-3 Grounding requirements

The 3260A Series High Power Electronic Load is equipped with three conductor cable which plugs in an appropriate receptacle to ground the instrument's cover.

2-4 Adjust the feet

The 3260A Series High Power Electronic Load is equipped with feet and tilt stands installed and is ready for use as a bench instrument.

The feet provide a good viewing angle for bench-top use.

2-5 Rack mount

The 3260A Series High Power Electronic Load is designed to permit mounted in a standard 19 inches rack for system application.

2-6 Environmental requirements

The operating temperature should keep between 0 degree and 40 degree, while the ideal operating temperature is 25 ± 5 degree.

2-7 Repairing

If the instrument is damaged, please attach a tag to the instrument to identify the owner and indicated the require service or repairing. And inform the Prodigit sales and service office or representative.

2-8 GPIB connection

The GPIB connector on the rear panel connects the 3260A Series High Power Electronic Load mainframe to the controller and to other GPIB devices. An GPIB system can be connected in any configuration (star, linear, or both) as long as

- 2.8.1 The maximum number of devices including the controller is no more than 15.
- 2.8.2 The maximum length of all cable is no more than 2 meters times the number of devices connected together, up to 20 meters maximum.
Please make sure the lock screws are firmly hand - tightened, use a screw-driver only for the removal of screws. Fig 2-3 shows the rear panel of 3260A Series High Power Electronic Load mainframe, the GPIB connector is located on the rear panel of 3260A Series High Power Electronic Load mainframe. The GPIB address of the 3260A Series High Power Electronic Load mainframe is set on front panel.
- 2.8.3 GPIB address setting :
GPIB address is set by press STATE 4 + STATE 5 simultaneously, press UP or DOWN key to select 0—31 address number, press STATE 2 to exit GPIB address setting mode.

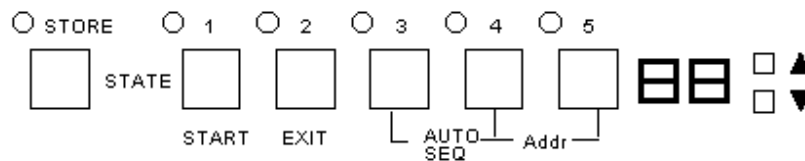


Fig.2-3 3260A Series High Power Electronic Load front panel key switch

2.9 RS-232C Connection

The RS-232C connector (Female) on the rear panel connects 3260A Series High Power Electronic Load mainframe to RS-232C port of computer in one by one configuration.

2-10 Remote control Port

The D-sub 9 pin connector on the rear panel connects the 3260A Series High Power Electronic Load to the PRODIGIT mode 9931 remote controller and to replace the RECALL option key 1 to 5 on the front panel of 3260A Series High Power Electronic Load.

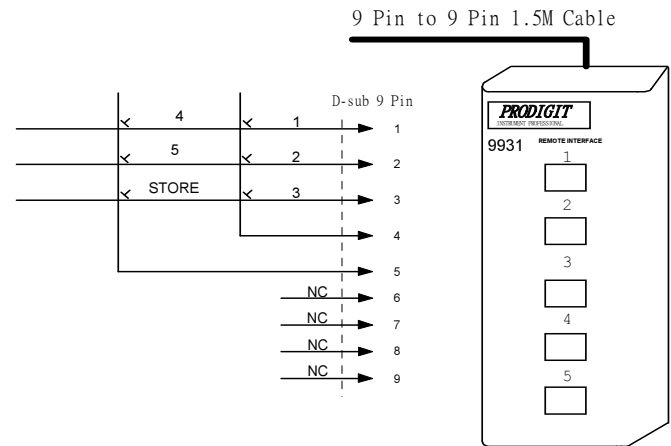


Fig.2-4 Diagram of Remote Control Port

Chapter 3 Manual Operation

This Chapter deals with the front panel manual operation of 3260A Series High Power Electronic Load. With regard to calibration procedures, please refer to 3260A Series High Power Load Calibration Manual. With regard to the control of GPIB/RS-232C control, please refer to Chapter 4 GPIB/RS-232C Remote Operation.

3-1 Description of Front Panel

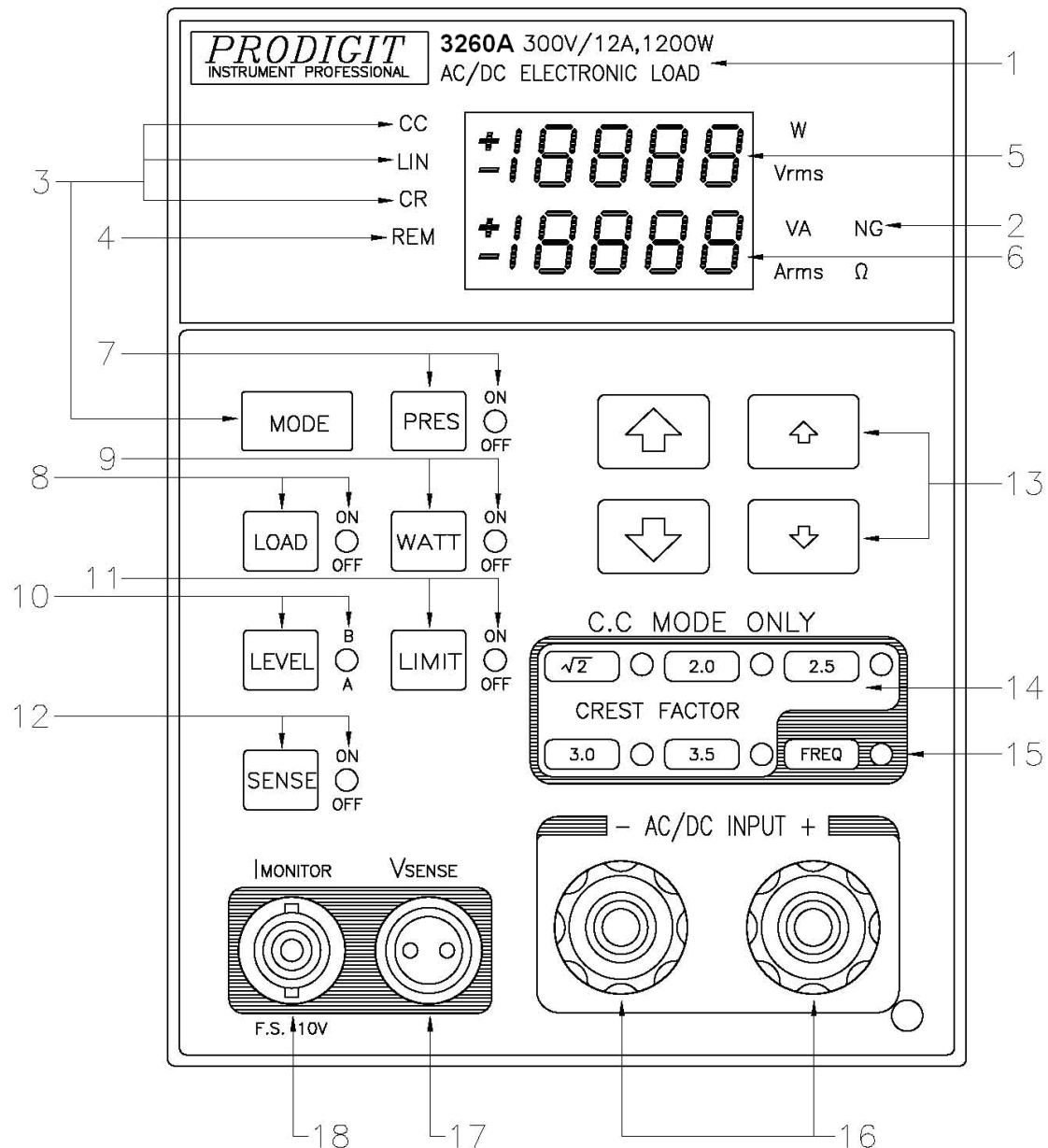


Fig.3-1 Front Panel of 3260A Series High Power Electronic Load

- 3.1.1 3260A 300V/12A, 1200W AC/DC Electronic Load
Refers to model number, voltage, current and power specification of 3260A Series High Power AC/DC Electronic Load.
- 3.1.2 NG LED Indicator
When the reading of Vmeter, Ameter, wattmeter or VA meter exceeds the upper or lower limit set, this indicator will display.
- 3.1.3 MODE Key and LED indicator of CC, LIN, CR
On the 3260A Series High Power Electronic Load, there are two working modes which can be selected by MODE KEY with the sequence of C.C., Linear C.C. and C.R., then switching can be made in such a sequence. However, LED indicator of CC, LIN, CR will display the working mode selected.
- 3.1.4 REM LED Indicator
When 3260A Series High Power Electronic Load is connected with computer program for control and operation, REM LED Indicator will come on. In such a case, panel manual operation will become null and void. When REM LED indicator comes off, panel manual operation will resume.
- 3.1.5 Upper 4-1/2 Digit Monitor
This 4-1/2 Digit Monitor is a multi-function monitor. Its functions are described as follows:
 - 3.1.5.1 Under general conditions:
This monitor will be a 4-1/2 digit voltmeter to display the voltage at the load input end or Vsense BNC input end.
 - 3.1.5.2 Under WATT ON condition:
This monitor will be a 4-1/2 digit wattmeter to display the power of the load.
 - 3.1.5.3 Under LIMIT ON condition:
This monitor will display the upper limit of the voltmeter, Ameter, wattmeter and VA meter. Its displaying sequence is as follows:
 - 3.1.5.3.1 Display the upper limit of voltmeter with the unit as "Vrms" .
 - 3.1.5.3.2 Display the upper limit of ammeter with the unit as "Arms" .
 - 3.1.5.3.3 Display the upper limit of wattmeter with the unit as "W" .
 - 3.1.5.3.4 Display the upper limit of VA meter with the unit as "VA" .
 - 3.1.5.4 Upon protection conditions:
For over-voltage protection, monitor displays "oVP" .
 - 3.1.5.5 Under FREQ ON condition:
The monitor will display EfEq, bAn, Sync function settings, its displaying sequence is as follows:
 - 3.1.5.5.1 Under frequency setting function, monitor displays "FrEq" .
 - 3.1.5.5.2 Under Bank selection function, monitor displays "bAn" .
 - 3.1.5.5.3 Under SYNC selection function, monitor displays "Sync" .

3.1.6 Lower 4-1/2 Digit Monitor

3.1.6.1 Under Preset OFF condition:

This monitor will be a 4 1/2 digit ammeter to display the load current actually flowing into the electronic load.

3.1.6.2 Under Preset ON condition:

This monitor can display the set value of the front panel manual operation or the set value upon remote control.

3.1.6.2.1 Display the set value of C.C. Level A and B under C.C.mode with the unit as "Arms" .

3.1.6.2.2 Display the set value of C.R. Level A and B under C.R. mode with the unit as "Ω." .

3.1.6.2.3 Upon protection condition:

Upon over-current, over-power and over-temperature, "oCP" , "oPP" and "oTP" will be displayed respectively.

3.1.6.3 Under LIMIT ON condition:

3.1.6.3.1 Display the lower limit of voltmeter with the unit as "Vrms" .

3.1.6.3.2 Display the lower limit of ammeter with the unit as "Arms" .

3.1.6.3.3 Display the lower limit of Wattmeter with the unit as "W" .

3.1.6.3.4 Display the lower limit of VA meter with the unit as "VA" .

3.1.6.4 Under REEQ ON condition:

3.1.6.4.1 Under frequency setting function, monitor will display DC , 0.1~400.0 Hz.

3.1.6.4.2 Under bank selection function, monitor will display 0~10.

3.1.6.4.3 Under sync selection function, monitor will display "ON" , "OFF" .

3.1.7 PRES ON/OFF Key and LED Monitor

Depressing PRES Key will be ON, further depressing will be OFF, further depressing will be ON again and so on. ON means Preset ON, e.g., to preset condition display to ON. OFF means preset OFF, e.g., the condition is not preset and shall be the actual condition of the voltage and current of the load.

Under Preset OFF condition, the upper 4 1/2 digit monitor displays the voltage input to electronic load while the lower 4 1/2 digit monitor displays the current flowing into electronic load with the unit as "Vrms" & "Arms" respectively and the unit indicator will come on also.

Under Preset ON condition, PRES LED monitor is ON, both upper and lower 4 1/2 digit monitors will have different displays with the change of working mode as shown below:

3.1.7.1 C.C.Mode:

The setting value of Level A / B load current can be displayed on the lower 4 1/2 digit monitor with the unit as "Arms" , LED indicator will be ON.

3.1.7.2 Linear C.C. Mode:

The setting value of Level A / B load current can be displayed on the lower 4 1/2 digit monitor with the unit as "Arms" , LED indicator will be ON.

3.1.7.3 C.R.Mode:

The setting value of Level A/B load resistance can be displayed on the lower 4 1/2 digit monitor with the unit as "Ω" , LED indicator will be ON.

3.1.8 Load ON/OFF Key and LED Indicator

Whether or not the electronic load input end of 3260A series High Power is loaded with current can be controlled by Load ON/OFF Key. Under Load OFF condition and upon Load ON, the electronic load of 3260A series High Power will return to the load condition set originally and Load LED is ON indicating that the electronic load is at present under Load ON condition and is ready at any time to be loaded with the load current of the AC/DC input power source.

! CAUTION

-
- Turn off the load when applying the output of the equipment under test to the 3260A series load. Then, turn the load on. If you are making the connection with the load turned on, be sure to turn off the output of equipment under test.
 - If a relay or electromagnetic switch is inserted between the load input connector and the output connector of the equipment under test, turn on the relay or electromagnetic switch when the load is turned off. Then, turn the load on.
 - If you are repeating the operation of turn on/off the output of the equipment under test when using the 32611A series load, turn on the output only after the load input terminal voltage reaches approximately 0V after turning off the output. If you do not, the internal bias power supply stays off, and the specified current may not be supplied.
-

3.1.9 Watt ON/OFF Key and LED Indicator

Depressing Watt Key will be ON, further depressing will be OFF, further depressing will be ON again and so on. ON means Watt ON, e.g., to indicate the Watt VA condition of actual loading. OFF means Watt OFF, e.g., to indicate the voltage and current condition of actual loading.

3.1.9.1 Under Preset OFF condition, the upper 4 1/2 digit monitor displays the Watt consumed for electronic loading while the lower 4 1/2 digit monitor displays the VA flowing into electronic load with the unit as "W" , "VA" respectively and the unit indicator will come on.

3.1.9.2 Under Preset ON condition, both upper and lower 4 1/2 digit monitors will have different displays with the change of working mode as shown below:

3.1.9.2.1 C.C.Mode:

The setting value of Level A/B load current can be displayed on the lower 4 1/2 digit monitor with the unit as "Arms" and LED indicator will come on.

3.1.9.2.2 Linear C.C. Mode:

The setting value of Level A/B load current can be displayed on the lower 4 1/2 digit monitor with the unit as "Arms" and LED indicator will come on.

3.1.9.2.3 C.R.Mode:

The setting value of Level A/B load resistance can be displayed on the lower 4 1/2 digit monitor with the unit as " Ω " and LED indicator will be ON.

3.1.10 Level A/B Key and LED Monitor

Depressing Level Key will be B, further depressing will be A, further depressing will be B again and so on. B means Level B (LED ON), e.g., to move out Level A, then move in Level B. A means Level A (LED OFF), e.g., to move out Level B, then move in Level A.

Under the condition of setting Memory A or B, this key is mainly for setting the values of groups A/B for rapid switching load current or resistance.

3.1.11 Limit ON/OFF Key and LED indicator

Being depressed, LED will come on and in LIMIT ON condition:

3.1.11.1 Both upper and lower 4-1/2 digit monitors display the upper and lower limit of the voltmeter with the unit as "Vrms".

3.1.11.2 Both upper and lower 4-1/2 digit monitors display the upper and lower limit of the ammeter with the unit as "Arms".

3.1.11.3 Both upper and lower 4-1/2 digit monitors display the upper and lower limit of the watt meter with the unit as "W".

3.1.11.4 Both upper and lower 4-1/2 digit monitors display the upper and lower limit of the VA meter with the unit as "VA".

When depressing is made to five times, LED will come off and in Limit OFF condition. Please refer to 3.1.13.2 for upper and lower limit adjustment.

3.1.12 SENSE ON/OFF Key and LED Indicator

The voltmeter and internal trigger circuit of 3260A Series High Power Electronic Load can be controlled by this Key thus determining whether or not the input to the voltmeter is made from the AC input end (OFF) or Vsense end (ON). Upon Vsense ON, LED indicator will be ON and the 4-1/2 digit voltmeter can display the voltage read from Vsense. Upon Vsense OFF, the 4-1/2 digit voltmeter can display the voltage read from AC input end.

3.1.13 Load Current Rough Tuning/Fine Tuning, Up/Down Key

3.1.13.1 Under usual or PRESET Light Lit Condition:

3.1.13.1.1 $\uparrow \downarrow$: Set Value Rough Tuning Up/Down Key.

3.1.13.1.2 $\uparrow \downarrow$: Set Value Fine Tuning Up/Down Key.

3.1.13.2 Upon LIMIT Light ON:

3.1.13.2.1 $\uparrow \downarrow$: Upper limit value Up/Down Key.

3.1.13.2.2 $\uparrow \downarrow$: Lower limit value Up/Down Key.

3.1.13.3 Upon FREQ light ON:

3.1.13.3.1 FrEq: $\uparrow \downarrow$ is freq. Rough Tuning Up/Down Key $\uparrow \downarrow$ is freq. Fine Tuning Up/Down Key.

3.1.13.3.2 bAn: $\uparrow \uparrow$ is Fine Tuning Up Key $\uparrow \downarrow \downarrow$ is Fine Tuning Down Key.

3.1.13.3.3 Sync: $\uparrow \uparrow$ is ON Key $\downarrow \downarrow$ is OFF Key.

3.1.14 $\sqrt{2}$, 2.0, 2.5, 3.0, 3.5 Key and LED indicator.

This key only functions upon C.C. mode and all LED off upon Linear C.C. mode and C.R. mode.

These keys are used to change the current C.F. (Peak Factor) of C.C. mode. However, in change of BANK, these keys will define different C.F. values.

3.1.15 FREQ Key and LED indicator

C.C. mode: After depressing, LED will come on, the first depressing shows FREQ, further depressing shows BANK (No such function for DC), another pressing shows SYNC, depressing again will be off.

Linear C.C. and C.R. mode: LED will come on, the first depressing shows FREQ, depressing again will be off.

For the following items, except for 3.1.15.3,

3.1.15.1 FREQ (For Frequency Setting) : Setting Range: DC , 0.1~400.0 Hz.

3.1.15.1 BANK (For Bank Setting) : 0~10 totaling 11 banks (This function will be invalid for DC).

3.1.15.3 SNYC (Current Bank Sync Signal Selection):

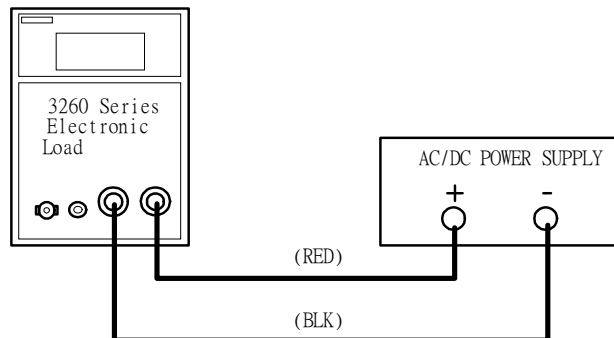
ON is external Sync, OFF is internal Sync.

3.1.16 AC/DC Load Input Connector

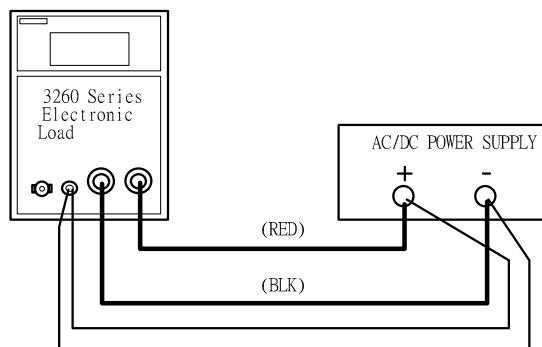
When Load Input Connector is used, be sure that the rated specification of the voltage and current of the 3260A Series High Power Electronic Load shall not be exceeded. Upon wiring, please refer to 3.4 lest the internal circuit and connector should be damaged.

3.1.17 Vsense BNC, Voltage Sensing Input BNC Connector.

In order to solve the voltage drop of the conductor under the condition of big load current, Vsense-CLIP cable can be used to connect with the specific point to be measured thus obtaining the specific voltage value. Please refer to the application information of Fig.3-2.



Connecting Method under small load current condition



Connecting Method under small load current condition

Fig.3-2 Typical Way for Connecting 3260A Series High Power Electronic Load

3.1.18 Imonitor Current Monitoring output BNC Connector

Imonitor output signal is designed mainly to facilitate connection with the oscillograph so that the waveform of the load current can be observed. Regardless of Preset ON or OFF, the analog signal output from Imonitor is in direct proportion with the load current flowing through the load current. Please refer to the relationship between the analog voltage output signal and load current of 3260A Series High Power Electronic Load listed in Table 3-1. The full scale of Imonitor is 10V.

The Imonitor BNC output signal in 3260A Series High Power Electronic Load is through an isolated amplifier, e.g., the earth potential of the output analog signal and the earth potential of the DC load input are separated with each other. In this way, when connection is made with the oscillograph of which another input is connected with both ends of the load, the metering error shall not be resulted from the negative end of the Imonitor BNC output flowing to the negative end via the oscillograph due to different potential. On the other hand, When the positive and negative power source is measured and the two load current wave forms are observed at the same time, two sets of Imonitor can be connected with Ch1 and Ch2 of the oscillograph.

As the general input of the oscillograph has no isolated insulation device, therefore, if the Imonitor output has no isolated insulation device after connection is made, short-circuit will happen to the power source to be measured thus disabling the measuring. This is because the Imonitor output of the general electronic load shares the same reference point with the earth of the load input. However, as a light insulation isolated amplifier is contained in the 3260A Series High Power Electronic Load, the condition cited above can be avoided, e.g., the load current wave form of two sets of positive and negative power sources to be measured can be observed simultaneously without causing any affection or inconvenience.

	3260A	3261A	32611A	32612A	32613A	32614A
Imonitor	3 A/V	4.5 A/V	9 A/V	13.5 A/V	18 A/V	22.5 A/V
	32615A	32616A				
Imonitor	27 A/V	31.5 A/V				

Table 3-1 3260A Series High Power Electronic Load Imonitor Specification

3-2 STORE / RECALL operation

The six function keys on the front panel of 3260A Series High Power Load are designed for high testing throughput purpose. There are five operation states or testing steps can be store in the non-volatile memory of 3260A series electronic load, each state can save or recall the load status and level for four 3260A series Electronic load simultaneously.

3.2.1 STORE procedure:

- 3.2.1.1 Set the load status and load level from load module respectively.
- 3.2.1.2 Press the STORE key on the 3260A front panel, the STORE LED annunciator is flashing. (about two times every second)
- 3.2.1.3 Press one of the state 1-5 key, the appropriate state key's LED annunciator will be lit immediately, the load level and status of 3260A series load module is stored into the non-volatile memory this time. The STORE LED annunciator turns to OFF, it means the STORE procedure is completed.

Note:

1. After press the STORE key, the STORE LED annunciator will flash for 10 seconds, if the STATE 1-5 key is not pressed within this 10 seconds, the STORE LED annunciator will be OFF, it indicated the STORE process is not available now, please repeat the STORE procedure for a new STORE operation.
2. After press the STORE key, then press the STORE key, then press the STORE LED annunciator will be blank, it indicate the STORE process is not available.
3. After press the STORE key, it is available and useful to operate the front panel key on the 3260A series Electronic load However, the STATE LED will be OFF if any key on front panel is operated, this indicates the front panel state of 3260A series is not the same as STORE state.

3.2.2 STORE function:

It can store up to states of 3260A series load setting simultaneously, if you store 2 different states in the same state key, the later state will overcome the previous state, it acts as update the new data.

3.2.3 RECALL operation:

Press one of the state 1 through 5 key, the appropriate LED annunciator will be lit, the store state on the 3260A Series High Power Load is sending to control unit simultaneously. Before press the states key, you press any key on the front panel then the state LED annunciator is blank immediately, it indicates the STORE state has been changed by read judgement on front panel.

3-3 AUTO SEQUENCE testing function description

There are two modes in AUTO SEQUENCE function, EDIT MODE and TEST MODE, The AUTO SEQ mode can be entered by press S3 + S4 key simultaneously, then press STORE key again to enter the EDIT MODE, or press START key to enter the TEST MODE, Please refer to the flow chart operation below:

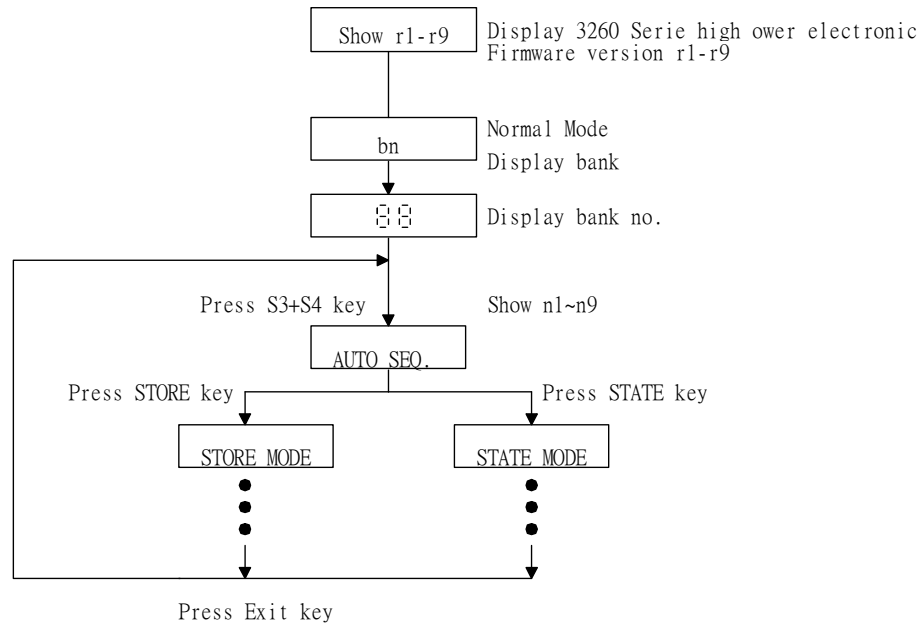


Fig.3-3 AUTO SEQ function operation flow chart

3.3.1 EDIT MODE

The TEST Mode of Auto-Sequence function is entered by press S3 + S4 key simultaneously, The EDIT mode of Auto Sequence function is entered by press S3 + S4 key simultaneously, the S3 and S4 LED are ON to indicate Auto-sequence mode, then the Edit mode of Auto-sequence function is proceed by press STORE key.

The EDIT MODE flow chart is described below:

- 3.3.1.1 There are nine Auto Sequence (n1-n9) can be edit within 3260A Series
- 3.3.1.2 Each Auto Sequence has up to 16 Test step, where each step is any one memory of 5 sets Store memory
- 3.3.1.3 Each test step has t1 (test time) and t2 (delay time), the unit is 100mS, the range is 0.1S - 9.9S in 100mS resolution. 3260A series load mainframe will check each module GO/NG at the end of t1 (test time), the next step will be started after duration t2 (delay time).
- 3.3.1.4 The test step sequence can be up to 16 step, and can be terminated by press EXIT key if less than 16 step is required.

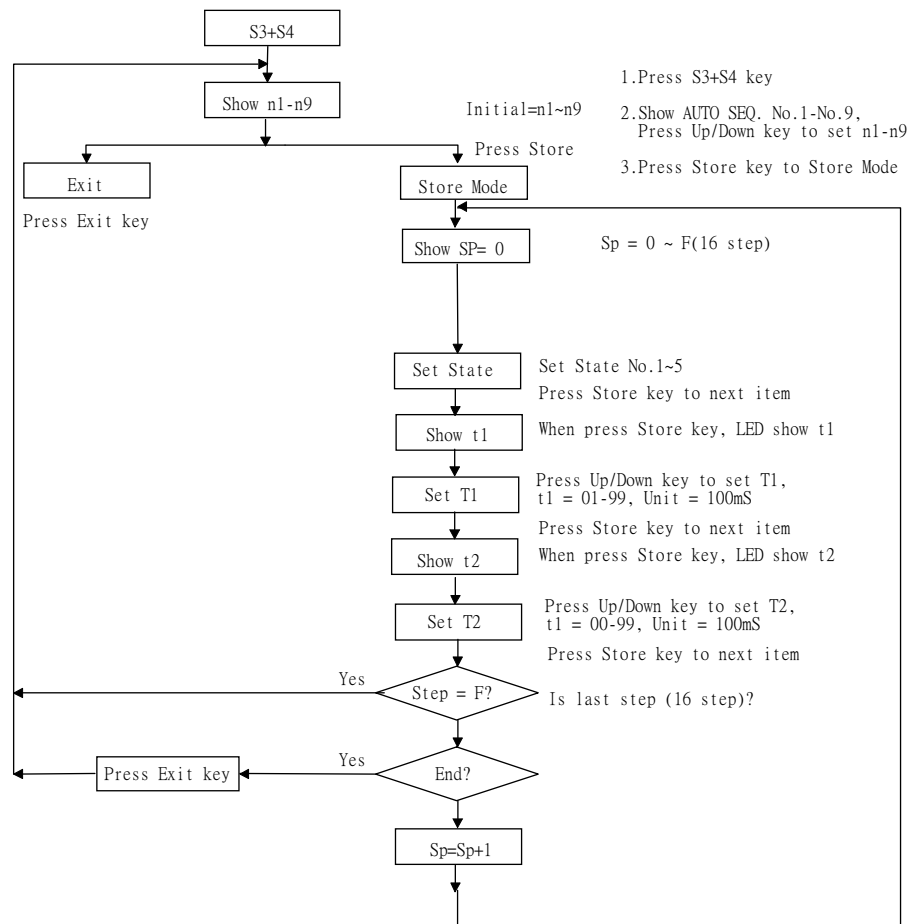


Fig.3-4 STORE (EDIT) MODE OPERATIONO FLOW-CHART

3.3.2 TEST MODE

The TEST Mode of Auto-Sequence function is entered by press S3 + S4 key simultaneously, the S3 and S4 LED are ON to indicate Auto-sequence mode, then the Test mode of Auto-sequence function is proceed by press START key.

The TEST MODE flow chart is described below:

- 3.3.2.1 After press START key, the 3260A series load controls all the module within the mainframe to recall correspond memory which had been stored in Auto-sequence (n1~n9) memory.
- 3.3.2.2 The sequence start from (Step 0 - t1 - t2), then (step 1 - t1 - t2), and so on until last step or stop by press EXIT key.
- 3.3.2.3 The two digit LED display will show GO (flash) if all the test in all module is pass, and will show nG (flash) if there is at least one failure during the test.
- 3.3.2.4 User can press Start key to continue another test, or the 3300C can quit from Auto-Sequence mode by press EXIT key.

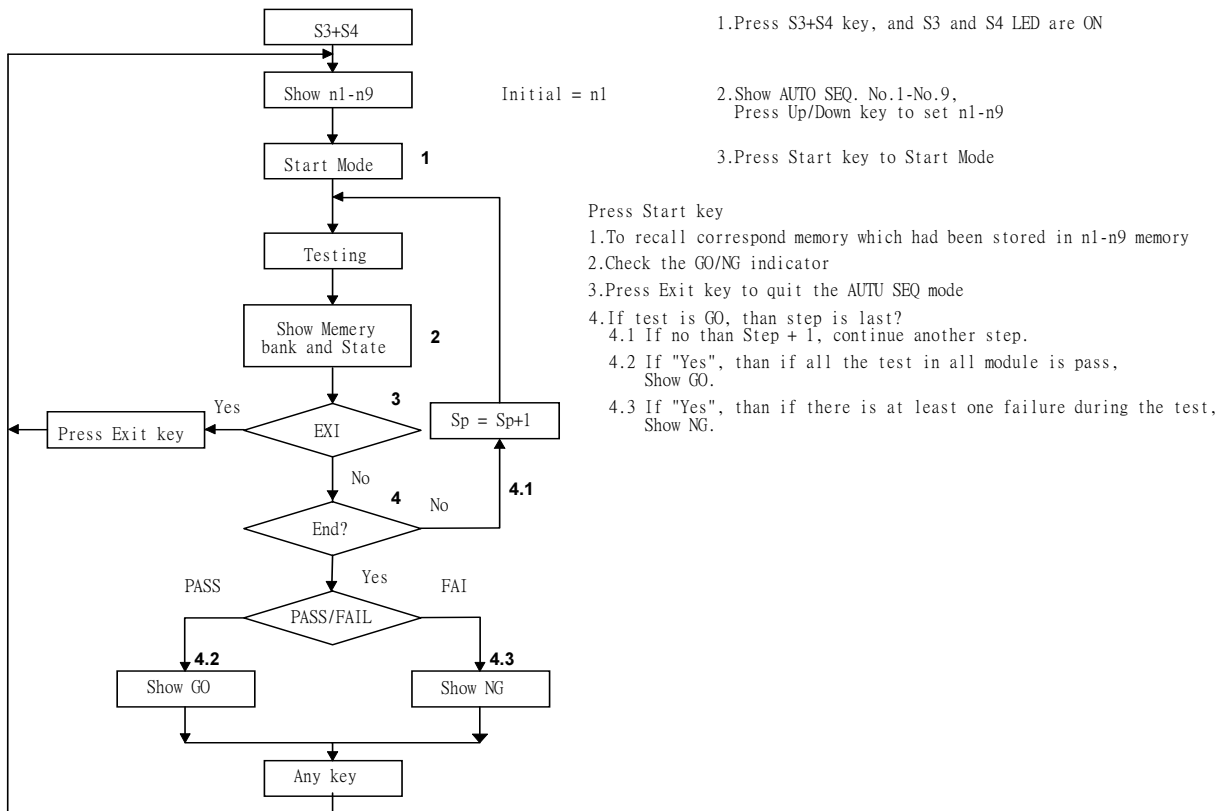


Fig.3-5 TEST MODE OPERATION FLOW-CHART

3-4 Setting of Freq. & Selection of Bank & Sync.

3.4.1 Frequency Setting:

The range for setting the frequency of 3260A Series High Power AC/DC Electronic Load is from DC , 0.1 ~ 400.0 Hz.

The authorization for setting the frequency of 3260A Series High Power AC/DC Electronic Load is the frequency output by U.U.T. Upon completion of setting, the SYNC trigger setting has to be set to OFF and the setting value of such a frequency will be valid. If the frequency setting is less than 40 Hz, the frequency setting value shall be set automatically to DC.

3.4.2 Bank Selection:

3260A Series High Power AC/DC Electronic Load provides 11 built-in sets totaling 55 wave form information. The content of Bank is as shown in Table 3-2. Please refer to Appendix for details.

Note : When Frequency is set to DC, the wave form information shall be fixed at DC level, also, this Bank selection function will not be provided until after Frequency is set to AC.

	BANK	A	B	C	D	E
SINE WAVE	0	$\sqrt{2}$	2.0	2.5	3.0	3.5
	1	1.5	1.6	1.7	1.8	1.9
	2	3.0	3.1	3.2	3.3	3.4
C.F.= 2.0	3	P.F.= -0.85	P.F.= -0.80	P.F.= -0.75	P.F.= -0.70	P.F.= -0.65
C.F.= 2.5	4	P.F.= -0.70	P.F.= -0.65	P.F.= -0.60	P.F.= -0.50	P.F.= -0.40
C.F.= 3.5	5	P.F.= -0.50	P.F.= -0.45	P.F.= -0.40	P.F.= -0.35	P.F.= -0.30
C.F.= 2.0	6	P.F.= 0.85	P.F.= 0.80	P.F.= 0.75	P.F.= 0.70	P.F.= 0.65
C.F.= 2.5	7	P.F.= 0.70	P.F.= 0.65	P.F.= 0.60	P.F.= 0.50	P.F.= 0.40
C.F.= 3.5	8	P.F.= 0.50	P.F.= 0.45	P.F.= 0.40	P.F.= 0.35	P.F.= 0.30
Square Wave	9	1	1.1	1.2	1.3	1.4
DC	10	$\sqrt{2}$ dc	2dc	2.5dc	3.0dc	3.5dc

Table 3-2 3260A Built-In Wave Form Data Bank

3.4.3 SYNC Selection:

3.4.3.1 Exterior SYNC Signal(SYNC ON)

The user can input a SYNC signal to the Analog Programming Input BNC terminal of the back plate of 3260A. Based on this exterior SYNC signal, 3260A Series High Power Electronic Load can be converted to SYNC trigger signal via internal isolated circuit thus controlling the SYNC of the load current and voltage, in other words, the phase of load current will vary with SYNC trigger signal.

Note : The SYNC signal input from exterior must be the signal of which the duty cycle is 50%.

3.4.3.2 Internal SYNC signal(SYNC OFF):

The internal SYNC signal source of 3260A Series High Power Electronic Load is taken from the signal at the end of input connector for generating current SYNC signal via internal zero crossing circuit and isolation circuit.

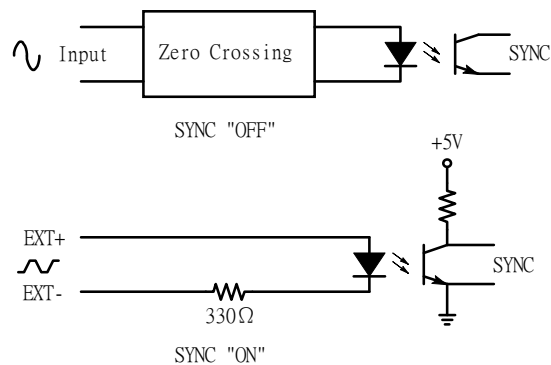


Fig.3-6 Description of Sync.

3-5 Initial setting parameter of 3260A Series High Power Electronic Load

The initial setting parameters of 3260A Series High Power Electronic Load are described from Table 3-3 to 3-11 respectively.

3.5.1 Last Setting

All 3260A Series High Power Electronic Loads have the function for simplifying the setting procedures. This function is called "Last Setting" e.g., All 3260A Series High Power Electronic Load, undergone the initial inspection program procedure (Power on), can be immediately changed back to the setting condition prior to Machine OFF thus simplifying the procedures for re-setting after machine being turned off.

3.5.2 Reset

If the memory data of 3260A Series High Power Electronic Load has been sabotaged, for example, unstable power source or noises will result in possible error of information in NVRAM (such as the indication on the front panel is different from the actual condition), under such a case, reset shall be made to correct the errors.

For reset of 3260A Series High Power Electronic Load, "SENSE" and "PRES" button shall be depressed simultaneously. In such a case, the front panel monitor will display model number and edition repeatedly and initialize the setting parameter of 3260A Series High Power Electronic Load as shown in Tables 3-3 ~ 3-10 until the

button is released.

Description	Condition/Value	Description	Condition/Value
MODE	CC	C.F.	$\sqrt{2}$
LOAD	OFF	FREQ	FREQ = 60.0Hz
LEVEL	A		BANK = 0
SENSE	OFF		SYNC = OFF
PRES	OFF	CC LEVEL A	0.000A
WATT	OFF	CC LEVEL B	0.000A
LIMIT	V _{LIMIT} = 400.0V	LIN LEVEL A	0.000A
	A _{LIMIT} = 20.00A	LIN LEVEL B	0.000A
	W _{LIMIT} = 2000.0W	CR LEVEL A	80E3 Ω
	V _A LIMIT = 2000.0W	CR LEVEL B	80E3 Ω

Table 3-3 3260A Initial Condition Setting

Description	Condition/Value	Description	Condition/Value
MODE	CC	C.F.	$\sqrt{2}$
LOAD	OFF	FREQ	FREQ = 60.0Hz
LEVEL	A		BANK = 0
SENSE	OFF		SYNC = OFF
PRES	OFF	CC LEVEL A	0.000A
WATT	OFF	CC LEVEL B	0.000A
LIMIT	V _{LIMIT} = 400.0V	LIN LEVEL A	0.000A
	A _{LIMIT} = 20.00A	LIN LEVEL B	0.000A
	W _{LIMIT} = 2000.0W	CR LEVEL A	53E3 Ω
	V _A LIMIT = 2000.0W	CR LEVEL B	53E3 Ω

Table 3-4 3261A Initial Condition Setting

Description	Condition/Value	Description	Condition/Value
MODE	CC	C.F.	$\sqrt{2}$
LOAD	OFF	FREQ	FREQ = 60.0Hz
LEVEL	A		BANK = 0
SENSE	OFF		SYNC = OFF
PRES	OFF	CC LEVEL A	0.000A
WATT	OFF	CC LEVEL B	0.000A
LIMIT	V _{LIMIT} = 400.0V	LIN LEVEL A	0.000A
	A _{LIMIT} = 40.00A	LIN LEVEL B	0.000A
	W _{LIMIT} = 4000.0W	CR LEVEL A	26E3 Ω
	V _A LIMIT = 4000.0W	CR LEVEL B	26E3 Ω

Table 3-5 32611A initial Condition Setting

Description	Condition/Value	Description	Condition/Value
MODE	CC	C.F.	$\sqrt{2}$
LOAD	OFF	FREQ	FREQ = 60.0Hz
LEVEL	A		BANK = 0
SENSE	OFF		SYNC = OFF
PRES	OFF	CC LEVEL A	0.000A
WATT	OFF	CC LEVEL B	0.000A
LIMIT	V _{LIMIT} = 400.0V	LIN LEVEL A	0.000A
	A _{LIMIT} = 60.00A	LIN LEVEL B	0.000A
	W _{LIMIT} = 6000 W	CR LEVEL A	17776 Ω
	V _{ALIMIT} = 6000 W	CR LEVEL B	17776 Ω

Table 3-6 32612A initial Condition Setting

Description	Condition/Value	Description	Condition/Value
MODE	CC	C.F.	$\sqrt{2}$
LOAD	OFF	FREQ	FREQ = 60.0Hz
LEVEL	A		BANK = 0
SENSE	OFF		SYNC = OFF
PRES	OFF	CC LEVEL A	0.000A
WATT	OFF	CC LEVEL B	0.000A
LIMIT	V _{LIMIT} = 400.0V	LIN LEVEL A	0.000A
	A _{LIMIT} = 80.00A	LIN LEVEL B	0.000A
	W _{LIMIT} = 8000 W	CR LEVEL A	13333 Ω
	V _{ALIMIT} = 8000 W	CR LEVEL B	13333 Ω

Table 3-7 32613A initial Condition Setting

Description	Condition/Value	Description	Condition/Value
MODE	CC	C.F.	$\sqrt{2}$
LOAD	OFF	FREQ	FREQ = 60.0Hz
LEVEL	A		BANK = 0
SENSE	OFF		SYNC = OFF
PRES	OFF	CC LEVEL A	00.00A
WATT	OFF	CC LEVEL B	00.00A
LIMIT	V _{LIMIT} = 400.0V	LIN LEVEL A	00.00A
	A _{LIMIT} = 100.00A	LIN LEVEL B	00.00A
	W _{LIMIT} = 10000 W	CR LEVEL A	10666 Ω
	V _{ALIMIT} = 10000 W	CR LEVEL B	10666 Ω

Table 3-8 32614A initial Condition Setting

Description	Condition/Value	Description	Condition/Value
MODE	CC	C.F.	$\sqrt{2}$
LOAD	OFF	FREQ	FREQ = 60.0Hz
LEVEL	A		BANK = 0
SENSE	OFF		SYNC = OFF
PRES	OFF	CC LEVEL A	00.00A
WATT	OFF	CC LEVEL B	00.00A
LIMIT	V _{LIMIT} = 400.0V	LIN LEVEL A	00.00A
	A _{LIMIT} = 120.00A	LIN LEVEL B	00.00A
	W _{LIMIT} = 12000 W	CR LEVEL A	8888 Ω
	V _A LIMIT = 12000 W	CR LEVEL B	8888 Ω

Table 3-9 32615A initial Condition Setting

Description	Condition/Value	Description	Condition/Value
MODE	CC	C.F.	$\sqrt{2}$
LOAD	OFF	FREQ	FREQ = 60.0Hz
LEVEL	A		BANK = 0
SENSE	OFF		SYNC = OFF
PRES	OFF	CC LEVEL A	00.00A
WATT	OFF	CC LEVEL B	00.00A
LIMIT	V _{LIMIT} = 400.0V	LIN LEVEL A	00.00A
	A _{LIMIT} = 140.00A	LIN LEVEL B	00.00A
	W _{LIMIT} = 14000 W	CR LEVEL A	7616 Ω
	V _A LIMIT = 14000 W	CR LEVEL B	7616 Ω

Table 3-10 32616A initial Condition Setting

3-6 Consideration of Load Input Connector and Connecting Lead Wire

Load Input Connector used for 3260A Series High Power Electronic Load is the 5-purpose input connector of which the usage is as follows:

3.6.1 Plug Connector:

This is the most common way for connecting the equipment to be measured with 3260A Series High Power Electronic Load. It is recommended that this connector shall be used when the load current is less than 20A because the rated current of the plug connector is 20A. Please avoid excess of the rated current to prevent damage due to overheat. The maximum gauge of the connecting wire is AWG #14.

3.6.2 Hook-Type Terminal

The attachments of 3260A Series High Power Electronic Load include two (2) hook-type terminals for connecting the equipment to be measured with the wire of AC load input connector of the electronic load. Hook-type terminal can provide the input connector with good contacting characteristics. It is recommended that the hook-type terminal can be used for any occasion. The maximum gauge of the connecting wire is AWG #10.

3.6.3 Lead Wire Insertion Type:

This is the most simple way to insert the connecting wire into the holes on the metal portion of the input connector. The maximum gauge of the connecting wire is AWG #14.

3.6.4 Plug Connector and Hook-Type Terminal:

This method can provide higher current rating and lower impedance of the connecting wire. When input load current is higher than 20A or the connecting lead wire is longer, this method will be optimum.

3.6.5 Plug Connector and Lead Wire Insert Type:





This method can be used when the input current is higher than 20A or the connecting lead wire is longer. When the object to be measured is connected with the electronic load, it is most important that the size of the connecting wire shall be taken into account. In order to prevent overheat thus maintaining good adjustment rate, the requirement of minimum size of the connecting wire or minimum size of the wire gauge shall be met. During actual application, please pay attention to the size of wire gauge and note that the voltage drop of each connecting wire shall be less than 0.5V.




3.6.6 Connection procedure of the load input terminal:





1. Turn off the POWER switch.
2. Check that the output of the equipment under test is off.
3. Connect the load wire to the load input terminal.
4. Check the polarity of the connection and connect the load wire to the output terminal of the equipment under test.





3.7 Rough Tuning, Fine Tuning & Increment & Decrement Adjustment of Load Current.





The maximum load current of 3260A Series High Power Electronic Load can be adjusted to 12.000A, 18.000A, 36.000A, 54.000A, 72.000A, 108.000A, 126.00A, and 80.00A respectively. The relationship between the adjustment variation of the load current or resolution and buttons is as shown in Table 3-11. During operation, when the time for depressing one of the four buttons, e.g., rough tuning, fine tuning, increment and decrement, exceeds one second, the resolution of load current adjustment shall change once per 10ms, e.g., the speed for variation of load current will increase so that setting the load current can be completed in the shortest period of time. Unless max. or min. value has been reached or depressing has been interrupted.





3260A		Range I		Range II	
FULL SCALE LOAD CURRENT		6 A		12 A	
CURRENT METER	RANGE	12.000 A			
	RESOLUTION	0.001 A			
COURSE/FINE LOAD CURRENT ADJUSTMENT KEY					
KEY'S STEP RESOLUTION		15 mA	1.5 mA	30 mA	3 mA

3261A		Range I		Range II	
FULL SCALE LOAD CURRENT		9 A		18 A	
CURRENT METER	RANGE	18.000 A			
	RESOLUTION	0.001 A			
COURSE/FINE LOAD CURRENT ADJUSTMENT KEY					
KEY'S STEP RESOLUTION		22.5 mA	2.25 mA	45 mA	4.5 mA

32611A		Range I		Range II	
FULL SCALE LOAD CURRENT		18 A		36 A	
CURRENT METER	RANGE	36.000 A			
	RESOLUTION	0.01 A			
COURSE/FINE LOAD CURRENT ADJUSTMENT KEY					
KEY'S STEP RESOLUTION		45 mA	4.5 mA	90 mA	9 mA

32612A		Range I		Range II	
FULL SCALE LOAD CURRENT		27 A		54 A	
CURRENT METER	RANGE	54.000 A			
	RESOLUTION	0.012 A			
COURSE/FINE LOAD CURRENT ADJUSTMENT KEY					
KEY'S STEP RESOLUTION		67.5 mA	6.75 mA	135 mA	13.5 mA

32613A		Range I		Range II	
FULL SCALE LOAD CURRENT		36 A		72 A	
CURRENT METER	RANGE	72.000 A			
	RESOLUTION	0.012 A			
COURSE/FINE LOAD CURRENT ADJUSTMENT KEY					
KEY'S STEP RESOLUTION		90 mA	9 mA	180 mA	18 mA

32615A		Range I		Range II	
FULL SCALE LOAD CURRENT		54 A		108 A	
CURRENT METER	RANGE	108.000 A			
	RESOLUTION	0.012 A			
COURSE/FINE LOAD CURRENT ADJUSTMENT KEY					
KEY'S STEP RESOLUTION		135 mA	13.5 mA	270 mA	27 mA





32616A		Range I		Range II	
FULL SCALE LOAD CURRENT		63 A		126 A	
CURRENT METER	RANGE	126.00 A			
	RESOLUTION	0.014 A			
COURSE/FINE LOAD CURRENT ADJUSTMENT KEY					
KEY'S STEP RESOLUTION		157.5 mA	15.75 mA	315 mA	31.5 mA

Table 3-11 3260A Series Rough Tuning, Fine Tuning & Increment & Decrement Adjustment of Load Current

3-8 Imonitor (Output)

Imonitor BNC output is designed to monitor the input load current of electronic load. It can be connected with oscillograph or recorder for observation.

Via the isolated insulation amplifier in the 3260A Series High Power Electronic Load, Imonitor can output 0~4Vrms/0~10 Vp-p full scale signal to indicate mean root square value (peak value) load current from 0 to full scale. The isolated insulation voltage between the load input end of the 3260A electronic load and Imonitor BNC output end is 500V. Also, the reference potential at the negative end of BNC is the same as the GPIB earth potential of 3260A Series High Power Electronic Load. As the isolated insulation amplifier inside the 3260A Series High Power Electronic Load can provide a complete and convenient testing solution, It can not only solve the problem on voltage and current during testing, But also the problem of earth phase connection when one oscillograph is used for observation, because in general oscillograph, the negative end Ch1 of input BNC communicates with Ch2 and has the same potential as that of the housing of ocillograph.

In observation of the current wave form of the positive and negative output power source of the power source to be measured, the isolated insulation characteristics are very effective. In such a way, connection with the oscillograph sharing same input will not create the output short-circuit on the object to be measured because the reference potential of Imonitor output in general electronic load can communicate with the negative end of load input, e.g., if there is no isolated insulation amplifier for the same potential, short-circuit will happen upon measuring.

3-9 Operation Flow Chart of 3260A Series Electronic Load

The typical load and procedures for setting the condition of 3260A Series High Power Electronic Load are shown in Fig.3-4.

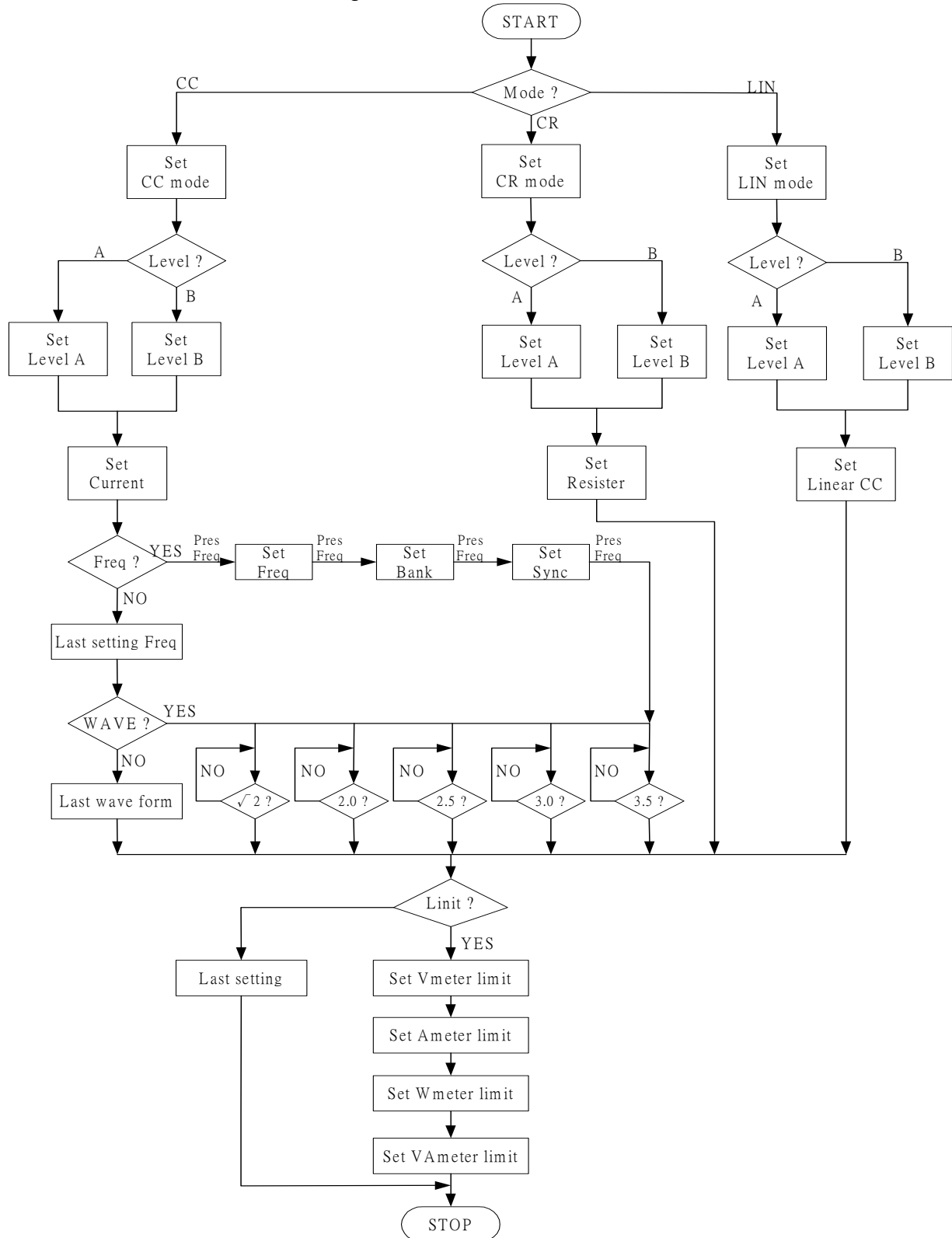


Fig.3-4 3260A Series High Power Electronic Load Operation Flow Chart

3-10 Protection Features

There are four protection functions for the 3260A Series High Power Electronic Load, namely, Over-Voltage, Over-Current, Over-Power and Over-Temperature. When electronic load exceeds the normal work area range, one of the above 4 functions will come to effect. When any one protection comes to effect, load will be changed to OFF to protect electronic load thus preventing damage resulting from abnormal operation range. Also, protection status is indicated by flickering to allow the user understand present condition. Various protection functions are cited below:

3.10.1 Over Voltage

The protection point of over voltage protection (O.V.P.) is preset in the 3260A series High Power electronic load. The setting values of over voltage protection are shown on table 3-12. When O.V.P occurs, the 4 1/2 digit monitor on the upper side of the front panel of 3260A series High Power electronic load will display "oVP" with flickering to indicate "Under Protection". Once the over voltage condition disappears, the upper 4 1/2 digit monitor will resume to normal condition.

Model	O.V.P.
3260A	315.0 V
32601A	315.0 V
3261A	315.0 V
32611A	315.0 V
32612A	315.0 V
32613A	315.0 V
32614A	315.0 V
32615A	315.0 V
32616A	315.0 V

Table 3-12 3260A Series over voltage protection setting value

3.10.2 Over Current

The protection point of over current protection (O.C.P.) is preset in the 3260A series High Power electronic load. The setting values of over current protection are shown on table 3-13. When O.C.P. occurs, the 4 1/2 digit monitor on the lower side of the front panel of series High Power electronic load will display "oCP" with flickering to indicate "Under Protection". Once the over current condition disappears, the lower 4 1/2 digit monitor will resume to normal condition.

Model	O.C.P.
3260A	12.6 A
32601A	25.2 A
3261A	18.9 A
32611A	37.8 A
32612A	56.7 A
32613A	75.6 A
32614A	94.5 A
32615A	113.4 A
32616A	132.3 A

Table 3-13 3260A Series over current protection setting value

3.10.3 Over Power

The protection point of over power protection (O.P.P.) is preset in the 3260A series High Power electronic load. The setting values of over power protection are shown table 3-14. When O.P.P. occurs, the 4 1/2 digit monitor on the lower side of the front panel of 3260A series High Power electronic load will display "oPP" with flickering to indicate "Under Protection". Once the over power condition disappears, the lower 4 1/2 digit monitor will resume to normal condition.

Model	O.P.P.
3260A	1260 VA
32601A	2520 VA
3261A	1890 VA
32611A	3780 VA
32612A	5670 VA
32613A	7560 VA
32614A	9450 VA
32615A	11340 VA
32616A	13230 VA

Table 3-14 3260A Series over power protection setting value

3.10.4 Over Temperature

3260A Series High Power electronic load is provided with temperature sensor. When the temperature of heat dissipater exceeds about $85^{\circ}\text{C} \pm 5^{\circ}\text{C}$, over temperature protection will occur and 4 1/2 digit monitor at the lower side of the front panel of 3260A series High Power electronic load will display "oTP" with flickering indicates "Under Protection". Once the over temperature condition disappears, the lower 4 1/2 digit monitor will resume to normal.

Upon occurrence of over temperature protection, please check the ambient working temperature and ventilation for normality. Please note that the air outlet on the back of the electronic load shall be away from the wall by more than 15 cm to keep good ventilation.

3-11 Load ON voltage adjustment

The factory set " Load ON " voltage is 2 volt, the 3260A series Electronic load module starts to sink current from power supply until the input voltage of 3260A series Electronic Load module over the "Load ON" voltage.

The adjustable " Load ON " voltage is ranged from 2V to 20V, and is set by VR4 on the PCB

- 3.11.1 As the load ON voltage setting trimmer is located at the first PCB (P/N: 6523261A01).
- 3.11.2 Remove the 3260A mainframe's right hand side Alumina plate by loosen its screw on the rear panel.
- 3.11.3. Using screw drive to set the VR4 to the most counter clockwise position. (Maximum load ON voltage) then connect the AC power source(50Hz or 60Hz) to the AC Load input of 3260A series module, adjust the AC output voltage to the required Load ON voltage, the voltage of AC power source should be less than the maximum rating of the LOAD ON voltage.
- 3.11.4 Set Load ON/OFF key to ON state, the "load" LED annunciator should be ON on the front panel, and set the load current to 1 Amp by using Preset key, the set the Preset OFF again after the load current is set.(Freq.= 50Hz or 60Hz)
- 3.11.5 Adjust the load ON voltage setting trimmer VR4 clockwise very slowly and stop immediately until the load start to sink current from power source , then the LOAD ON voltage setting is finished in this procedure.
- 3.11.6 Using the reverse procedure to re-install the 3260A series Electronic load module.

Chapter 4 GPIB/RS-232C Operation

4-1 Introduction

The rear panel GPIB/RS-232C interface of 3260A Series is designed to connect PC (Personal Computer) or NOTEBOOK PC with GPIB/RS-232C interface, the NOTEBOOK PC acts as a remote controller of 3260A series Electronic Load.

This feature can be used as an automatic load/cross load regulation and centering voltage testing for a switching power supply or an rechargeable battery charge/discharge characteristic testing. The function capability of rear panel GPIB/RS-232C interface not only can set the load level and load status, but also can read back the load voltage and load current.

4-2 The summary of RS-232 interface and command

The following RS-232 commands are same as GPIB commands. The RS-232 protocol in 3302C mainframe is listing below:

Baud-rate	: 9600
Parity	: none
Data bit	: 8 bits
Stop bit	: 1 bit
command delay time	: 20 mSec.

The connection of rear panel RS-232 interface is shown below, The Figure 4-1.a is connector wire diagram of rear panel RS-232 interface, User can use the general RS-232 cable as Figure 4-1.b.

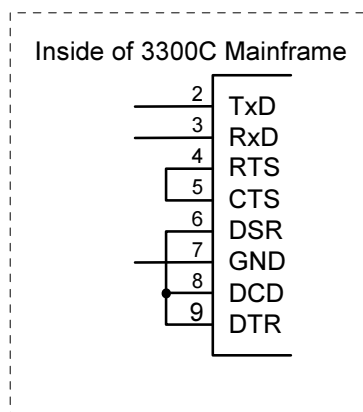


Figure 4-1.a

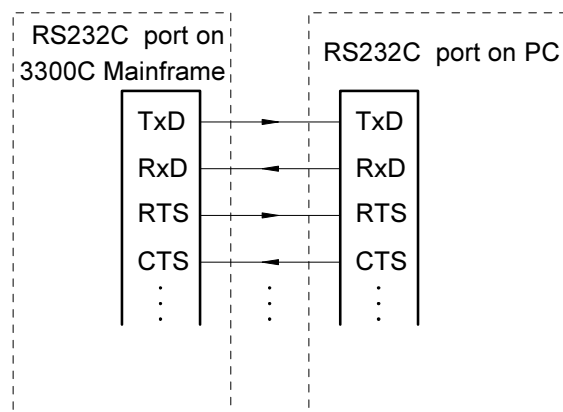


Figure 4-1.b

Fig 4-1 Rs-232 INTERFACE DIAGRAM

4-3 3260A Series GPIB/RS-232C COMMAND LIST

Setting Command		
Function	Command	Format
SET AUTO FREQUENCY DETECT ON/OFF	AFREQ{SP}{0 1 OFF ON}{ ; NL}	
SET SYNC ON/OFF	SYNC{SP}{0 1 OFF ON}{ ; NL}	
SET SENC ON/OFF	SENS{SP}{0 1 OFF ON}{ ; NL}	
SET WATT ON/OFF	WATT{SP}{0 1 OFF ON}{ ; NL}	
SET BANK	BANK{SP}{d}{ ; NL}	d : 0 ~ 10
SET WAVE	WAVE{SP}{m}{ ; NL}	m : 0 ~ 4
SET FREQUENCY	FREQ{SP}{NR2}{ ; NL}	NR2 : # # # . # # # # #
SET VOLTAGE LOW LIMIT	VL{SP}{NR2}{ ; NL}	
SET VOLTAGE HIGH LIMIT	VH{SP}{NR2}{ ; NL}	
SET CURRENT LOW LIMIT	IL{SP}{NR2}{ ; NL}	
SET CURRENT HIGH LIMIT	IH{SP}{NR2}{ ; NL}	
SET WATT LOW LIMIT	WL{SP}{NR2}{ ; NL}	
SET WATT HIGH LIMIT	WH{SP}{NR2}{ ; NL}	
SET VA LOW LIMIT	VAL{SP}{NR2}{ ; NL}	
SET VA HIGH LIMIT	VAH{SP}{NR2}{ ; NL}	
SET CURRENT	CURR : {LOW HIGH A B}{SP}{NR2}{ ; NL}	NR2 : # # # . # # # # #
SET RESISTANCE	RES : {LOW HIGH A B}{SP}{NR2}{ ; NL}	
SET LINEAR CURRENT	LIN : {A B}{SP}{NR2}{ ; NL}	
SET LOAD ON/OFF	LOAD{SP}{0 1 OFF ON}{ ; NL}	
SET LEVEL LOW/HIGH	LEV{SP}{0 1 LOW HIGH}{ ; NL}	
SET PRESENT ON/OFF	PRES{SP}{0 1 OFF ON}{ ; NL}	
SET MODE	MODE{SP}{0 1 2 CC CR LIN}{ ; NL}	
SET STORE STATE	STORE{SP}{m}{ ; NL}	m : 1 ~ 5
SET RECALL STATE	RECALL{SP}{m}{ ; NL}	m : 1 ~ 5
SET REMOTE STATE	REMOTE{ ; NL}	Only RS232 cmd
SET LOCAL STATE	LOCAL{ ; NL}	Only RS232 cmd

Table 4-1 GPIB/RS-232C SETTING COMMAND SUMMARY

REMARK :

1. CURRENT ENGINEERING UNIT : A
2. VOLTAGE ENGINEERING UNIT : V
3. RESISTANCE ENGINEERING UNIT : Ω

Query Command		
Function	Command Syntax	ECHO
QUERY AUTO FREQUENCY DETECT ON/OFF	AFREQ ? { ; NL}	1 : ON, 0 : OFF
QUERY SYNC	SYNC ? { ; NL}	1 : ON, 0 : OFF
QUERY SENS ON/OFF	SENS ? { ; NL}	1 : ON, 0 : OFF
QUERY WATT ON/OFF	WATT ? { ; NL}	1 : ON, 0 : OFF
QUERY BANK	BANK ? { ; NL}	0 ~ 10
QUERY WAVE	WAVE ? { ; NL}	0 ~ 4
QUERY FREQUENCY	FREQ ? { ; NL}	###.####
QUERY VOLTAGE LOW LIMIT	VL ? { ; NL}	###.####
QUERY VOLTAGE HIGH LIMIT	VH ? { ; NL}	###.####
QUERY CURRENT LOW LIMIT	IL ? { ; NL}	###.####
QUERY CURRENT HIGH LIMIT	IH ? { ; NL}	###.####
QUERY WATT LOW LIMIT	WL ? { ; NL}	###.####
QUERY WATT HIGH LIMIT	WH ? { ; NL}	###.####
QUERY VA LOW LIMIT	VAL ? { ; NL}	###.####
QUERY VA HIGH LIMIT	VAH ? { ; NL}	###.####
QUER POWER METER (W)	MEAS : POW ? { ; NL}	###.####
QUERY VA METER	MEAS : VA ? { ; NL}	###.####
QUERY No Good INDICATER	NG ? { ; NL}	0 : OFF, 1 : ON
QUERY CURRENT	CURR : {LOW HIGH A B} ? { ; NL}	###.####
QUERY RESISTANCE	RES : {LOW HIGH A B} ? { ; NL}	###.####
QUERY LINEAR CURRENT	LIN : {A B} ? { ; NL}	###.####
QUERY LOAD ON/OFF	LOAD ? { ; NL}	1 : ON, 0 : OFF
QUERY LEVEL A/B	LEV ? { ; NL}	0 : LOW/A, 1 : HIGH/B
QUERY PRESET ON/OFF	PRES ? { ; NL}	1 : ON, 0 : OFF
QUERY MODE CC/CR/LIN	MODE ? { ; NL}	0 : CC, 1 : CR, 2 : LIN
QUERY NAME	NAME ? { ; NL}	326X SERIES
QUERY PROTECT STATE	PROT ? { ; NL}	0 ~ F(hex)
QUERY CURRENT METER	MEAS : CURR ? { ; NL}	±###.####
QUERY VOLTAGE METER	MEAS : VOLT ? { ; NL}	±##.####

Table 4-2 GPIB/RS-232C QUERY COMMAND SUMMARY

REMARK :

1. CURRENT ENGINEERING UNIT : A
2. VOLTAGE ENGINEERING UNIT : V
3. RESISTANCE ENGINEERING UNIT : Ω

4-4 The description of abbreviation

1. SP : Space, the ASCII code is 20 Hexadecimal.
2. ; : Semicolon, Program line terminator, the ASCII code is 0A Hexadecimal.
3. NL : New line, Program line terminator, the ASCII code is 0A Hexadecimal.
4. N : Integer number from 1 to 8.
5. NR2 : Digits with decimal point. It can be accepted in the range and format of ##.####.

For Eexample :

10.12345, 5.0

The description of GPIB/RS-232C programming command syntax.

1. { } : The contents of the { } symbol must be used as a part or data of the GPIB/RS-232C command, it can not be omitted.
2. [] : The contents of the [] symbol indicts the command can be used or not. It depends on the testing application.
3. | : This symbol means option. For example "A|B" means it can only use A or B as the command, it can choose only one as the setting command.
4. Terminator : You have to send the program line terminator character after send the GPIB/RS-232C command, the available command terminator characters which can be accepted in 3260A Series High Power Load is listed in Table 4-3.

LF
LF WITH EOI
CR, LF
CR, LF WITH EOI

Table 4-3 GPIB/RS-232C command terminator

A terminator informs GPIB/RS-232C that it has reached the end of statement. Normally, this is sent automatically by your GPIB/RS-232C programming statements. In this manual, the terminator is assumed at the end of each example line of code. If it needs to be indicated, it is shown by symbol (nl); which stand for "new line" and represents ASCII code byte the 0A Hexadecimal or 10 decimal.

5. Semicolon " ; " : The semicolon " ; " is a back-up command, the semicolon allows you to combine command statement on one line to create command message.

4-5 GPIB/RS-232C command description

4.5.1 Setting Command

CURR

Purpose : The load current setting in Constant Current mode.

Command syntax : CURR : {LOW|HIGH|A|B}{SP}{NR2}{NL}

Description :

This command is used to set the load current LEVEL A/B of 3260A series Electronic Load.

Note:

1. The load current data must include decimal point, otherwise this command is unable to execute. The effective load current level can be programmed is the sixth digit after the decimal point.
2. The HIGH load level load current MUST be higher than LOW level load current for proper dynamic waveform definition, the load current difference between programmed HIGH and LOW level is 10 times of resolution at each range, the 3260A series Electronic Load will adjust and limit of the programmed values.
3. If the programming loads current level over the maximum specification at programmed range of 3260A series load, the full scale current will be sent to the load module.
4. Engineering unit for load current is Amps.

For Example :

CURR : A 1.8 ; Set level A load current to 1.8 A.

CURR : B 15.123456 ; Set level B load current to 15.123456 A.

RES

Purpose : The load resistance setting in Constant Resistance mode.

Command syntax : RES : {LOW|HIGH|A|B}{SP}{NR2}{NL}

Description:

This command is used to set the load resistance for LEVEL A/B of 3260A series electronic load.

Note :

1. The load resistance data must include decimal point, otherwise this command is unable to execute. The most effective load resistance level can be set is the sixth digit after the decimal point.
2. If the programming loads resistance level over the maximum specification at programmed range of 3260A series load, the full scale resistance will be sent to the load module.
3. The engineering unit for load resistance is Ohms.

For Example :

RES : A 9.123 ; Set level A load resistance to 9.123 OHM.

RES : B 13.456789 ; Set level B load resistance to 13.456789 OHM.

LIN

Purpose : The load linear current setting in Constant Current mode.

Command syntax : LIN : {LOW|HIGH|A|B}{SP}{NR2}{NL}

Description :

This command is used to set the load current LEVEL A/B of 3260A series Electronic Load.

Note:

1. The load current data must include decimal point, otherwise this command is unable to execute. The effective load current level can be programmed is the sixth digit after the decimal point.
2. The HIGH load level load current MUST be higher than LOW level load current for proper dynamic waveform definition, the load current difference between programmed HIGH and LOW level is 10 times of resolution at each range, the 3260A series Electronic Load will adjust and limit of the programmed values.
3. If the programming loads current level over the maximum specification at programmed range of 3260A series load, the full scale current will be sent to the load module.
4. Engineering unit for load current is Amps.

For Example :

LIN : A 1.8 ; Set level A load linear current to 1.8 A.

LIN : B 15.123456 ; Set level B load linear current to 15.123456 A.

LOAD

Purpose :

Turn the Electronic load module input ON or OFF.

Command syntax : LOAD{SP}{OFF|ON}{NL}

Description :

This command sets the Electronic load to sink current from AC/DC power source. LOAD ON the 3260A series Electronic load are ready to sink current from AC/DC power source.

For Example :

LOAD 0 ; Set the load "LOAD OFF".

LEV

Purpose :

Select LEVEL A or B of 3260A series electronic load.

Command syntax : LEV{SP}{0|1|A|B}{NL}

Description :

LEV A The condition and setting of electronic load adopt the set value of LEVEL A.

LEV B The condition and setting of electronic load adopt the set value of LEVEL B.

PRES

Purpose :

Set the upper or lower 4 1/2 digit multi-function meter to display the programming load level.

Command syntax : PRES{SP}{0|1|OFF|ON}{NL}

Description :

PRES ON set the load to preset on status.

MODE

Purpose :

Select the operating mode of Electronic load module.

Command syntax : MODE{SP}{0|1|2|CC|CR|LIN}{NL}

Description :

MODE CC set the presently operating mode to Constant Current mode for 3260A Series Load.

MODE CR set the presently operating mode to Constant Resistance mode.

MODE 1 set the presently operating mode to Constant Resistance mode.

STORE

Purpose :

STORE the load level and load status into the non-volatile memory of the 3260A series electronic LOAD.

Command syntax : STORE{SP}{1|2|3|4|5}{NL}

Description :

5 different states with 3260A series electronic load's status and load current into the non-volatile memory in the 3260A series electronic load.

Note:

The new load level and load status can overcome the load level and status if STORE new state number, because the memory location is the same for same STORE state number.

For Example :

STORE 1

STORE 5

RECALL

Purpose :

Recall the state of load level and status which is stored by GPIB STORE command.

Command syntax : RECALL{SP}{1|2|3|4|5}{NL}

Description :

This command is used to recall the non-volatile memory state which is store into the memory by GPIB store command, up to 5 states can be recalled.

For Example :

RECALL 1

RECALL 4

SYNC

Purpose :

To set synchronous function.

Command syntax : SYNC{SP}{0|1|OFF|ON}{ ; |NL}

Description:

1. External synchronous signal (SYNC ON) : Using external synchronous signal as the Asynchronous triggering signal of the electronic load thus controlling the load current to be synchronous with the voltage.
2. Internal synchronous signal (SYNC OFF) : Using the signal at the terminal of the input connector thus generating synchronous signal through the internal zero-crossing circuit and isolated circuit.

For Example :

- a. SYNC ON ; To set external synchronization.
- b. SYNC OFF ; To set internal synchronization.

WATT

Purpose :

To set display of power meter.

Command syntax : WATT{SP}{0|1|OFF|ON}{ ; |NL}

Description :

This command is to set the display of power meter. This command has to be used in conjunction with PRES : OFF. When setting to ON, the monitor on the top will change from voltmeter to Watt meter while the monitor at the bottom will change from ammeter to Volt-Ameter (VA) and the unit is "W" and "VA" respectively. When setting to OFF, the Watt meter on the top will change back to voltmeter while the VA meter at the bottom will change back to ammeter and the unit is "Vrms" and "Arms" respectively.

For Example :

- a. PRES OFF
- b. WATT ON ; To display WATT, VA meter.
- c. WATT OFF ; To display Voltage, Current meter.

BANK

Purpose :

To set waveform bank.

Command syntax : BANK{SP}{d}{ ; |NL} d : 0~10

Description :

This command is to set the waveform bank desired to be selected.

1. waveform bank 0~2 are sine wave.
2. waveform bank 3~8 are P.F..
3. waveform bank 9 are square wave.
4. waveform bank 10 is DC.
5. There are five (5) waveform information for each waveform bank, therefore, there is a total 55 waveform information for eleven (11) waveform banks. Waveform information is shown in Table 4-4.

For Example :

- a. BANK 1 ; To set waveform bank 1.
- b. BANK 10 ; To set waveform bank 10.

	Wave From Bank	A	B	C	D	E
sine wave	0	$\sqrt{2}$	2.0	2.5	3.0	3.5
	1	1.5	1.6	1.7	1.8	1.9
	2	3.0	3.1	3.2	3.3	3.4
C.F.= 2.0	3	P.F.= -0.85	P.F.= -0.80	P.F.= -0.75	P.F.= -0.70	P.F.= -0.65
C.F.= 2.5	4	P.F.= -0.70	P.F.= -0.65	P.F.= -0.60	P.F.= -0.50	P.F.= -0.40
C.F.= 3.5	5	P.F.= -0.50	P.F.= -0.45	P.F.= -0.40	P.F.= -0.35	P.F.= -0.30
C.F.= 2.0	6	P.F.= 0.85	P.F.= 0.80	P.F.= 0.75	P.F.= 0.70	P.F.= 0.65
C.F.= 2.5	7	P.F.= 0.70	P.F.= 0.65	P.F.= 0.60	P.F.= 0.50	P.F.= 0.40
C.F.= 3.5	8	P.F.= 0.50	P.F.= 0.45	P.F.= 0.40	P.F.= 0.35	P.F.= 0.30
square wave	9	1.0	1.1	1.2	1.3	1.4
DC	10	$\sqrt{2}$ dc	2dc	2.5dc	3.0dc	3.5dc

Table 4-4 waveform information

WAVE

Purpose :

To set waveform.

Command syntax : WAVE{SP}{m}{ ; |NL}m : 0~4

Description :

This command is to set the current C.F. at CC MODE (Peak Value Factor).

This command works only at CC MODE. When BANK varies, these 5 sets of C.F. will at the same time define different C.F. as shown in Table 4-4. For details, please refer to 3260A Operation Manual.

For Example :

- a.WAVE 1 ; To set 2nd set C.F.
- b.WAVE 4 ; To set 5th set C.F.

FREQ**Purpose :**

Setting of Frequency Value.

Command syntax : FREQ{SP}{NR2}{ ; |NL}

Description :

This command is for setting the frequency value of electronic load. Upon directing command, attention has to be paid to the following items :

1. The frequency value designated must include the decimals, otherwise, the command will become null and void.
2. The minimum effective digit of the value is the fifth digit after the decimal point.
3. If the value designated exceeds the specification of said electronic load, the 3260A Series High Power Load will send out the full scale current value of said electronic load specification.
4. The frequency range of 3260A series electronic load is DC , 0.1~400.0 Hz.
5. unit is Hz.

For Example :

- a. FREQ 50.0 ; To set frequency is 50.0Hz.
- b. FREQ 60.0 ; To set frequency is 60.0Hz.
- c. FREQ 0 ; To set frequency is 0Hz, that is to set DC.

VL**Purpose :**

To set the lower limit value of threshold voltage.

Command syntax : VL{SP}{NR2}{ ; |NL}

Description :

This command is to set the lower limit value of threshold voltage. When input voltage is lower than the lower limit value, NG indicating light will come on to indicate "NO GOOD" .

For Example :

VL 1.0 ; To set the lower limit value of threshold voltage is 1.0 V.

VH**Purpose :**

To set the upper limit value of threshold voltage.

Command syntax : VH{SP}{NR2}{ ; |NL}

Description :

This command is to set the upper limit value of threshold voltage. When input voltage is higher than the upper limit value, NG indicating light will come on to indicate "NO GOOD" .

For Example :

VH 200.0 ; To set the upper limit value of threshold voltage is 200.0 V.

IL

Purpose :

To set the lower limit value of threshold current.

Command syntax : IL{SP}{NR2}{ ; |NL}

Description :

This command is to set the lower limit value of threshold current. When load sink current is lower than this lower limit value, NG indicating light will come on to indicate "NO GOOD" .

For Example :

IL 0.05 ; To set the lower limit value of threshold current.

IH

Purpose :

To set the upper limit value of threshold current.

Command syntax : IH{SP}{NR2}{ ; |NL}

Description :

This command is to set the upper limit value of threshold current. When load sink current is high than this upper limit value, NG indicating light will come on to indicate "NO GOOD" .

For Example :

IH 10.0 ; To set the upper limit value of threshold current is 10.0 A.

WL

Purpose :

To set the lower limit value of threshold power (W).

Command syntax : WL{SP}{NR2}{ ; |NL}

Description :

This command is to set the lower limit value of threshold power (WATT). When power (WATT) is lower than this lower limit value, NG indicating light will come on to indicate "NO GOOD" .

For Example :

WL 0.05 ; To set the lower limit value of threshold power (W) is 0.05 W.

WH

Purpose :

To set the upper limit value of threshold power (W).

Command syntax : WH{SP}{NR2}{ ; |NL}

Description :

This command is to set the upper limit value of threshold power (WATT). When power (WATT) is high than this upper limit value, NG indicating light will come on to indicate "NO GOOD" .

For Example :

WH 250.0 ; To set the upper limit value of threshold power (W) is 250.0 W.

VAL**Purpose :**

To set the lower limit value of threshold power (VA).

Command syntax : VAL{SP}{NR2}{ ; |NL}

Description :

This command is to set the lower limit value of threshold power (VA). When power (VA) is lower than this lower limit value, NG indicating light will come on to indicate "NO GOOD" .

For Example :

VAL 0.05 ; To set the lower limit value of threshold power (VA) is 0.05 VA.

VAH**Purpose :**

To set the upper limit value of threshold power (VA).

Command syntax : VAH{SP}{NR2}{ ; |NL}

Description :

This command is to set the upper limit value of threshold power (VA). When power (VA) is higher than this upper limit value of threshold power (VA), NG indicating light will come on to indicate "NO GOOD" .

For Example :

VAH 250.0 ; To set the upper limit value of threshold power (VA) is 250.0 VA.

AFREQ**Purpose :**

To set auto frequency detect function.

Command syntax : AFREQ{SP}{0|1|OFF|ON}{ ; |NL}

Description:

1.Enable auto frequency detect function (AFREQ ON) : 3260A series electronic load will auto frequency external signal to control load current and voltage synchronous.

At this time if place "FREQ" command, it will be ineffective.

2.Disable auto frequency detect function (AFREQ OFF) : at this time user needs to make frequency setting. When AFREQ OFF, the frequency will be fixed on the last detective frequency.

For Example :

a.AFREQ ON

b.AFREQ OFF

REMOTE**Purpose :**

Go to remote.

Command syntax : REMOTE{ ; |NL}

Description :

Let control procedure enter into remote state.

LOCAL**Purpose :**

Return to local.

Command syntax : LOCAL{ ; |NL}

Description :

Let control procedure return to the mode of local operation.

4.5.2 Query Command

CURR

Purpose :

The Constant Current mode's level A or B load current setting query command.

Command syntax : CURR:{A|B}?{NL}

Description :

CURR:A? ; Return the LEVEL A load current setting of 3260A series electronic load.

CURR:B? ; Return the LEVEL B load current setting of 3260A series electronic load.

The returned data format is shown in Table 4-2, the engineering unit is "A" .

RES

Purpose :

The Constant Resistance mode's level A or B load resistance setting query command.

Command syntax : RES:{A|B}?{NL}

Description :

RES:A? ; Return the LEVEL A load resistance setting of 3260A series electronic load.

RES:B? ; Return the LEVEL B load resistance setting of 3260A series electronic load.

The returned data format is shown in Table 4-2, the engineering unit is "OHM" .

LIN

Purpose :

The Linear Current mode's level A or B load current setting query command.

Command syntax : LIN:{A|B}?{NL}

Description :

LIN:A? ; Return the LEVEL A load linear current setting of 3260A series electronic load.

LIN:B? ; Return the LEVEL B load linear current setting of 3260A series electronic load.

The returned data format is shown in Table 4-2, the engineering unit is "A" .

LOAD

Purpose :

LOAD ON or LOAD OFF status query command.

Command syntax : LOAD?{NL}

Description :

LOAD? ; Return the presently load status, "0" indicates LOAD OFF, and "1" indicates LOAD ON.

LEV

Purpose :

Active LEVEL of 3260A series electronic load query command..

Command syntax : LEV?{NL}

Description :

LEV? ; Return the presently level status, "0" indicates LEVEL A, and "1" indicates LEVEL B.

PRES

Purpose :

PRESet ON or OFF status query command.

Command syntax : PRES?{NL}

Description :

PRES? ; Return the presently preset status, "0" indicates PRESet OFF, and "1" indicates PRESet ON.

MODE

Purpose :

CC, LIN or CR operating mode query command.

Command syntax : MODE?{NL}

Description :

MODE? ; Return the presently operating mode status, "0" indicates CC MODE, "1" indicates CR MODE, "2" indicates LIN MODE.

NAME

Purpose :

3260A series Electronic Load model number query command.

Command syntax : NAME?{NL}

Description :

NAME? return the activate Electronic Load's model number, "3260A", "3261", "32611", "32612", "32613" and "32615" indicate the activate Electronic Load module is 3260A, 3261A, 32611A, 32612A, 32613A or 32615A Electronic load respectively.

PROT

Purpose :

OPP, OTP, OVP, and OCP protection status query command.

Command syntax : PROT?{NL}

Description :

PROT? ; Return the presently protection status, the status byte register summarizes all of the protection status events from all status register. Table 4-5 describes the status byte the happened on the 3254 series Electronic load. The PROT status byte register is cleared when a CLER command clear all of the PROT and ERR status registers.

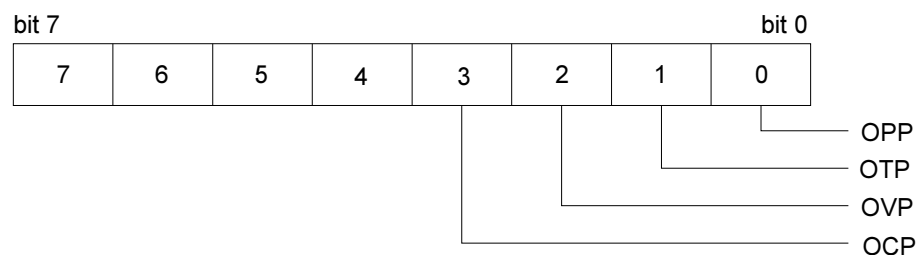


Table 4-5 PROT status byte register

MEAS : VLOT**Purpose :**

The reading of 4 1/2 digit voltage meter read back query command.

Command syntax : MEAS : VOLT?{NL}

Description :

MEAS:VOLT? ; Return the presently 4 1/2 digital voltage meter reading. The returned data format is shown in Table 4-2, the engineering unit is "V" .

MEAS : CURR**Purpose :**

The reading of 4 1/2 digit current meter read back query command.

Command syntax : MEAS:CURR?{NL}

Description :

MEAS:CURR? ; Return the presently 4 1/2 digital current meter reading. The returned data format is shown in Table 4-2, the engineering unit is "A" .

SYNC**Purpose :**

To read the setting condition of SYNC.

Command syntax : SYNC?{ ; |NL}

Description :

SYNC? ; Read back the condition of SYNC. "0" denotes OFF, "1" denotes ON.

SENS**Purpose :**

To read the setting condition of Sense ON or OFF.

Command syntax : SENS?{ ; |NL}

Description :

SENS? ; Read back the setting condition of SENS. "0" denotes OFF, "1" denotes ON.

WATT**Purpose :**

To read the setting condition of WATT.

Command syntax : WATT?{ ; |NL}

Description :

WATT? ; Read back the setting condition of WATT. "0" denotes OFF, "1" denotes ON.

BANK

Purpose :

To read the set value of BANK

Command syntax : BANK?{ ; |NL}

Description :

BANK? ; Read back the set value of BANK. 0~10 denotes waveform bank of level 0 ~level 10. It's only use C.C. mode.

WAVE

Purpose :

To read the set value of WAVE.

Command syntax : WAVE?{ ; |NL}

Description :

WAVE? Read back the set value of WAVE. 0~4 denotes the C.F. setting of level 1 ~level 5. It's only use C.C. mode.

FREQ

Purpose :

To read the set frequency of FREQ.

Command syntax : FREQ?{ ; |NL}

Description :

FREQ? ; Read back the set frequency of FREQ, unit is Hz.

VL

Purpose :

To read the set value of VL.

Command syntax : VL?{ ; |NL}

Description :

VL? ; Read back the lower limit set value of threshold voltage, unit is (V).

VH

Purpose :

To read the set value of VH

Command syntax : VH?{ ; |NL}

Description :

VH? ; Read back the upper limit set value of threshold voltage, unit is (V).

IL

Purpose :

To read the set value of IL.

Command syntax : IL?{ ; |NL}

Description :

IL? ; Read back the lower limit set value of threshold current, unit is (A).

IH**Purpose :**

To read the set value of IH.

Command syntax : IH?{ ; |NL}

Description :

IH? ; Read back the upper limit set value of threshold current, unit is (A).

WL**Purpose :**

To read the set value of WL.

Command syntax : WL?{ ; |NL}

Description :

WL? ; Read back the lower limit set value of threshold power, unit is (W).

WH**Purpose :**

To read the set value of WH.

Command syntax : WH?{ ; |NL}

Description:

WH? ; Read back the upper limit set value of threshold power, unit is (W).

VAL**Purpose :**

To read the set value of VAL.

Command syntax : VAL? { ; |NL}

Description :

VAL? ; Read back the lower limit set value of threshold power, unit is (VA).

VAH**Purpose :**

To read the set value of VAH.

Command syntax : VAH?{ ; |NL}

Description :

VAH? ; Read back the upper limit set value of threshold power, unit is (VA).

NG**Purpose :**

To read the set value of NG.

Command syntax : NG?{ ; |NL}

Description :

NG? ; Read back the condition indicating light of NG. "0" denotes that NG (NO GOOD) indicating light has been extinguished. "1" denotes that NG indicating light has been lit.

MEAS : POW**Purpose :**

To read the value of Watt meter.

Command syntax : MEAS : POW?{ ; |NL}

Description :

MEAS : POW? ; Read back the value of 4 digit of the Watt meter, unit is (W).

MEAS : VA**Purpose :**

To read the value of VAmeter.

Command syntax : MEAS:VA?{ ; |NL}

Description :

MEAS : VA? ; Read back the value of 4 digit of VAmeter, unit is (VA).

AFREQ**Purpose :**

To read the setting condition of AFREQ.

Command syntax : AFREQ ? { ; |NL}

Description :

AFREQ ? Read back the condition of AFREQ. "0" denotes OFF, "1" denotes ON.

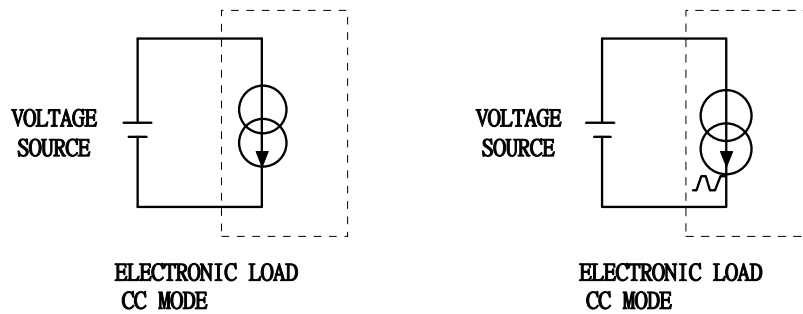
Chapter 5 Application

Some general application examples for 3260A series High Power electronic load are given in this chapter.

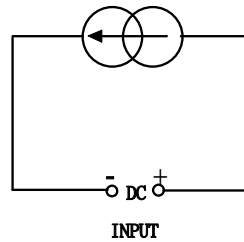
5-1 CC Operation Mode Application

CC Operation mode is very suitable for load regulation, cross regulation and output voltage adjust tests of the power supplier and for battery discharge testing and service life cycle testing.

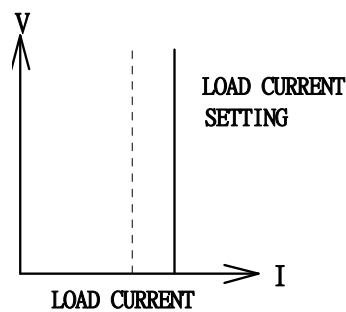
5.1.1 Voltage Source Testing



5.1.2 Power Supply Load Regulation Testing

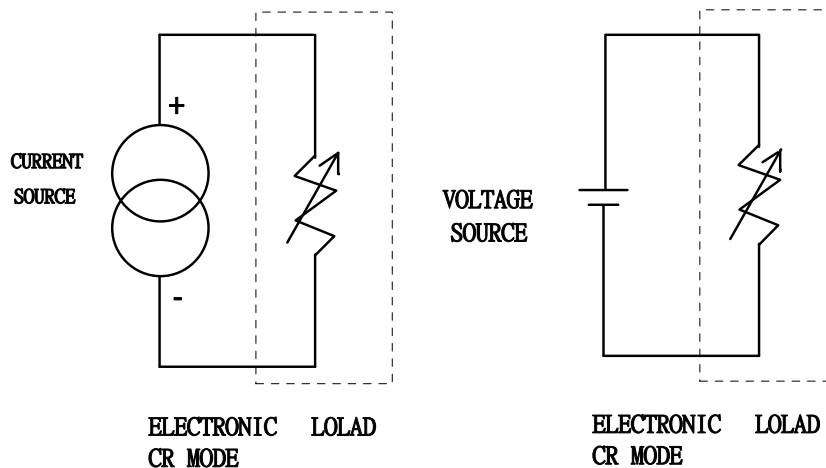


5.1.3 Battery Discharge Testing

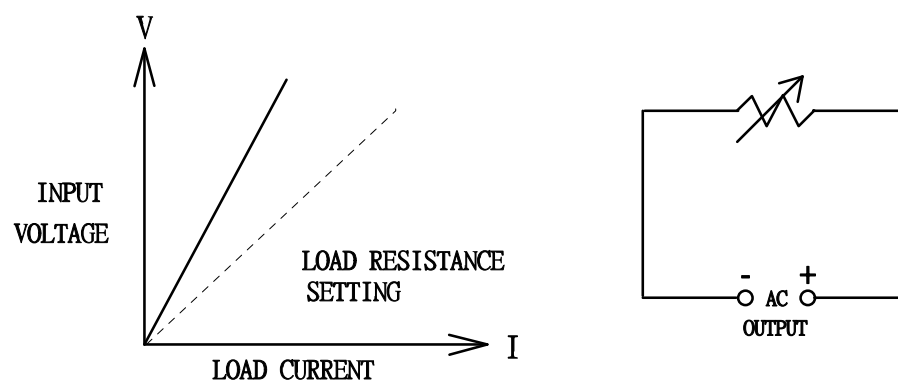


5-2 CR Operation Mode Application

5.2.1 Voltage Source or Current Source Testing

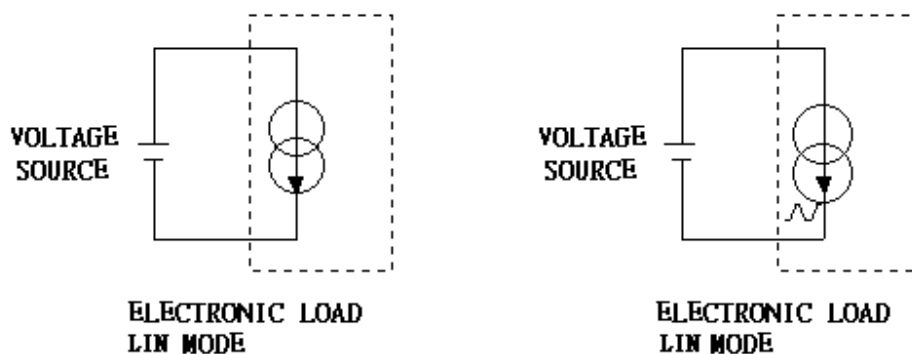


5.2.2 Power Resister Simulation

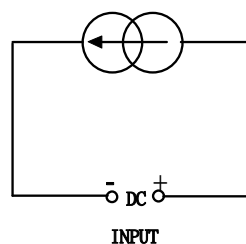


5-3 LIN Operation Mode Application

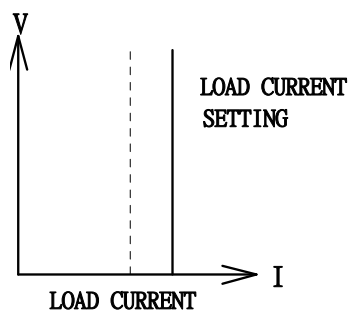
5.3.1 Voltage Source Testing



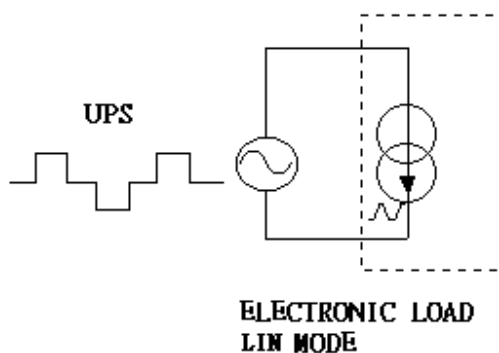
5.3.2 Power Supply Load Regulation Testing



5.3.3 Battery Discharge Testing



5.3.4 Uninterruptible Power Supply

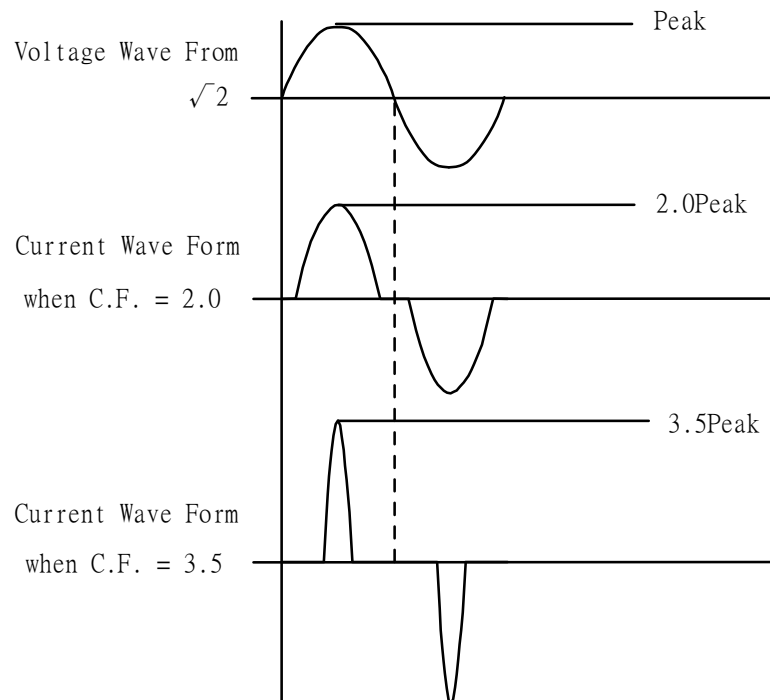


Appendix I 3260A r1.00 Edition Wave Form Data Bank

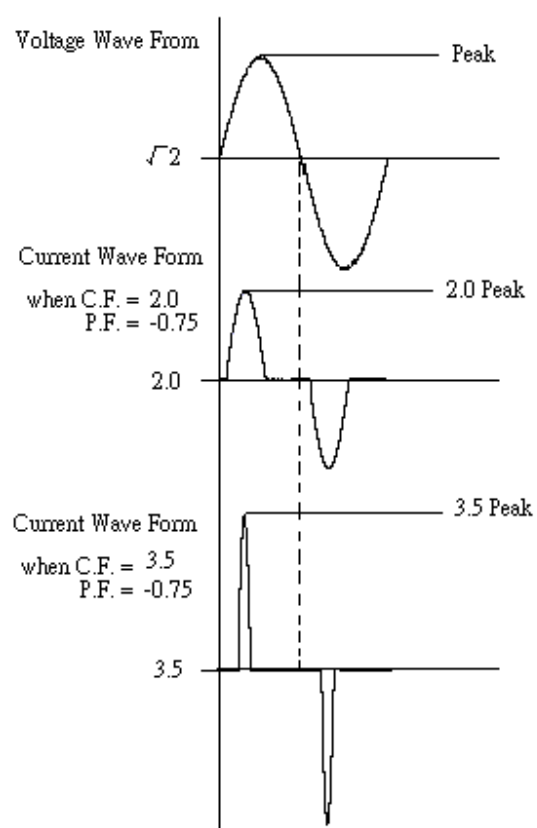
3260A Series High Power electronic load module provides built-in 11 sets totaling 55 banks which are described as follows:

	BANK	A	B	C	D	E
sine wave	0	$\sqrt{2}$	2.0	2.5	3.0	3.5
	1	1.5	1.6	1.7	1.8	1.9
	2	3.0	3.1	3.2	3.3	3.4
C.F.= 2.0	3	P.F.= -0.85	P.F.= -0.80	P.F.= -0.75	P.F.= -0.70	P.F.= -0.65
C.F.= 2.5	4	P.F.= -0.70	P.F.= -0.65	P.F.= -0.60	P.F.= -0.50	P.F.= -0.40
C.F.= 3.5	5	P.F.= -0.50	P.F.= -0.45	P.F.= -0.40	P.F.= -0.35	P.F.= -0.30
C.F.= 2.0	6	P.F.= 0.85	P.F.= 0.80	P.F.= 0.75	P.F.= 0.70	P.F.= 0.65
C.F.= 2.5	7	P.F.= 0.70	P.F.= 0.65	P.F.= 0.60	P.F.= 0.50	P.F.= 0.40
C.F.= 3.5	8	P.F.= 0.50	P.F.= 0.45	P.F.= 0.40	P.F.= 0.35	P.F.= 0.30
square wave	9	1.0	1.1	1.2	1.3	1.4
DC	10	$\sqrt{2}$ dc	2dc	2.5dc	3.0dc	3.5dc

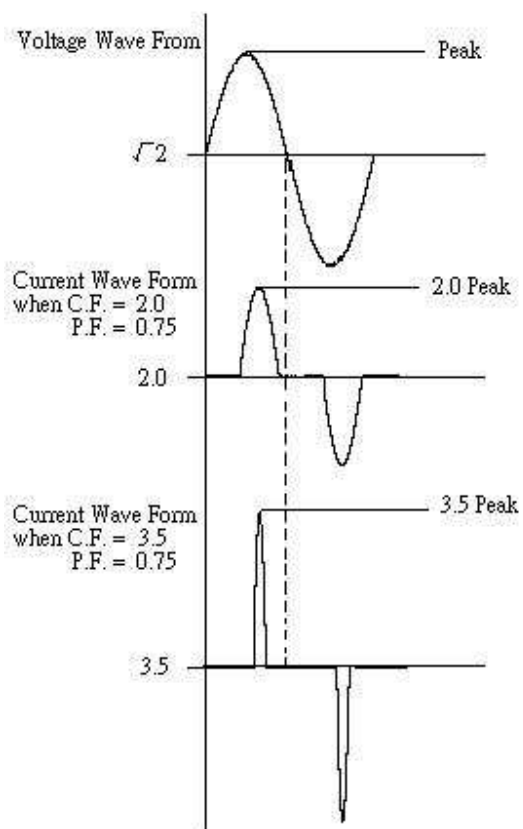
- 1.1 C.F. value of sine wave consists of $\sqrt{2} \sim 3.5$ totaling 15 banks of which the definition is described in figure below:



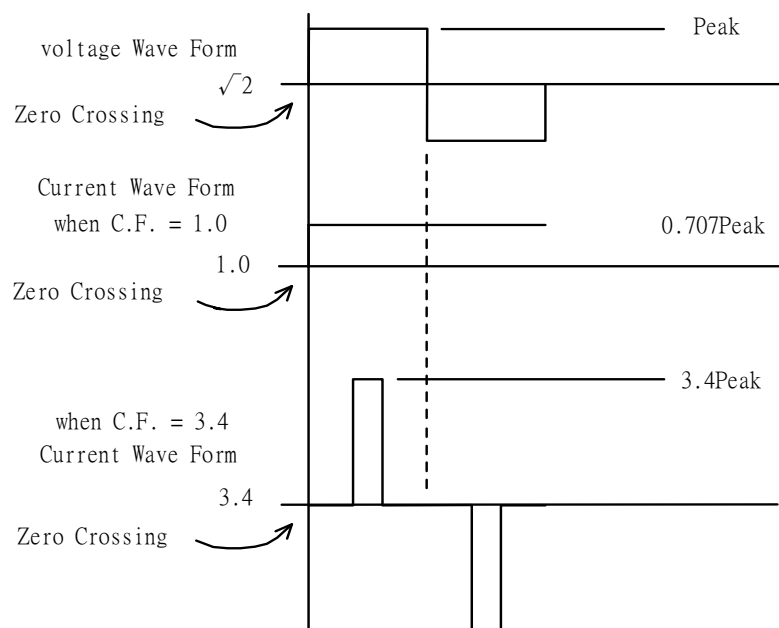
- 1.2 C.F. value of sine wave consists of 2.0~3.5 and P.F. value is -0.85 ~ -0.30 totaling 15 banks of which the definition is described in figure below:



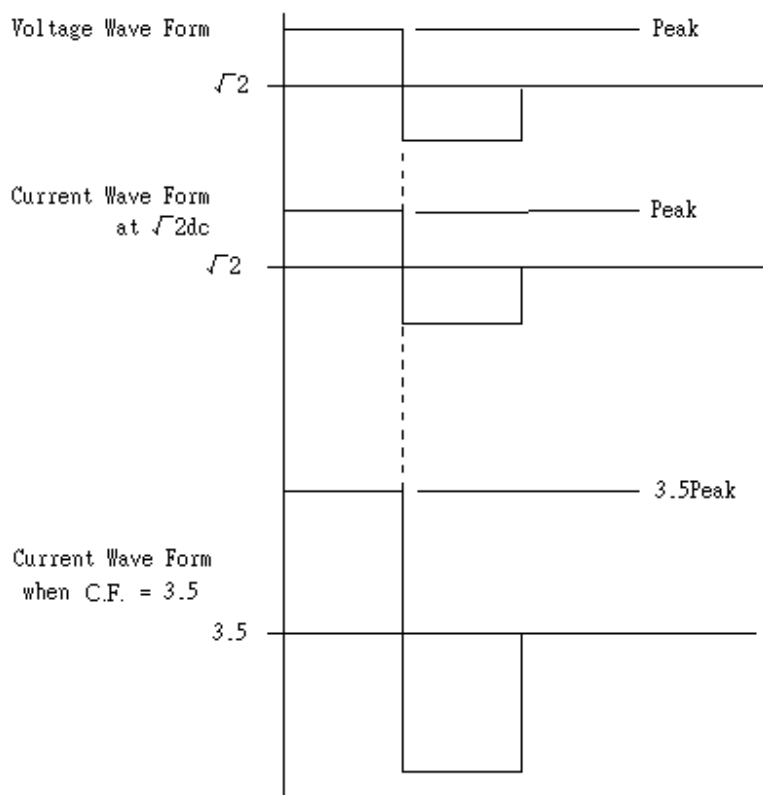
- 1.3 C.F. value of sine wave consists of 2.0~3.5 and P.F. value is 0.85 ~ 0.30 totaling 15 banks of which the definition is described in figure below:



- 1.4 C.F. Value of square wave consists of 1.0~1.4 totaling 5 banks of which the definition described in figure below:



- 1.5 DC Wave form information consists of $\sqrt{2}$ fold DC level totaling 5 banks of which the definition described in figure below:



Appendix II Setting of AC or DC Electronic Load

3260A Series High Power electronic load is the full function electronic load for AC and DC. The setting of electronic load for AC or DC depends on the output frequency of U.U.T. The setting is described as follows:

2.1 Setting of AC Electronic Load

When 3260A series High Power electronic load is attempted to be used for AC, the frequency of 3260A series High Power electronic load must be set in accordance with the frequency of U.U.T. Even if the output frequency of U.U.T. is 50 Hz, the frequency of 3260A series High Power electronic load must be set to 50.0 Hz by means of FREQ function.

2.2 Setting of DC Electronic Load

When 3260A series High Power electronic load is attempted to be used for DC, 3260A series High Power electronic load must be set to DC. When DC is set, bank function will fail (fixed on DC, the monitor will not display BANK).