PORTABLE POWER SUPPLY

MODEL NUMBER VMS-2

VERSION 2.3

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DANGER / WARNINGS

WARNING !!

DANGER

Complete Grounding of this unit is necessary for the safe operation of this equipment. Disconnect inputs before ungrounding this equipment.

GENERAL SAFETY PRECAUTIONS

This equipment can produce POTENTIALLY LETHAL VOLTAGES! Improper operation or test practices may result in injury or death to the operator or surrounding personnel.

The operation of High Voltage test equipment should only be performed by personnel familiar with HIGH VOLTAGE testing and safety procedures. The operator of this equipment must be aware of all hazards associated with High Voltage testing. The operator is responsible for himself and others in close proximity of the testing area.

Some General Safety Practices for working with High Voltage Test Equipment have been listed below for your reference.

- ***Become familiar with your instrument before performing an actual test***
- ***Know your work area, check that all circuits are de-energized and locked out.***
- ***Never work alone; always work with another qualified worker.***
- ***Mark off entire work area with barriers and warning tape.***
- ***Make all personnel aware of your testing activities.***
- ***Be aware of dangerous conditions that may arise from energizing a test specimen.***
- ***Never modify test equipment, modifications to equipment could introduce an unknown hazard or hinder a designed-in safety feature.***
- ***DO NOT operate damaged equipment. Remove power, and do not use the equipment until safe operation can be verified by service-trained personnel.***

Phenix Technologies, Inc. assumes no liability for unsafe or improper use of test equipment.

SECTION 1: INTRODUCTION & SPECIFICATIONS

The Phenix Technologies VMS-2 Portable Power Supply is well equipped with the various features listed on the specifications page to allow for the easy testing of the operational voltage/current of electro-mechanical devices. The VMS-2 allows the user to dial in an output voltage or current to determine the operational voltage or current levels of various electro-mechanical devices. Both the voltage and current output levels can be simultaneously read and monitored with the highly accurate, onboard meters. The VMS-2 is ideal for running small motors, energizing power circuits, operating circuit breakers, powering substation relays, or for unregulated charging of substation batteries. The separate output terminals for both AC and DC voltage provide convenient hookup configurations depending on the type of component being tested.

TECHNICAL SPECIFICATIONS

Model:

VMS-2 Portable Power Supply

Input:

220/240 Volts, 25 Amps, 60 Hz, Single Phase

Output:

0-240VAC; 25AAC MAX through Multilamm jacks (Will not reach 240VAC with the 220VAC input. Output will be 0-220VAC)
0-300VDC; 10ADC MAX through binding posts

Instrumentation:

AC Meters:
Digital Voltmeter, 3 ½ digit resolution
Scale: 0-300VAC. Accuracy: ± 0.4% FS ± 2 counts

Digital Ammeter, 3 ½ digit resolution
Scale: 0-50AAC. Accuracy: ±0.15% FS ± 6 counts

DC Meters
Digital Voltmeter, 3 ½ digit resolution
Scale: 0-600VDC. Accuracy: ± 0.1% FS ± 1 count

Digital Ammeter, 3 ½ digit resolution
Scale: 0-20ADC. Accuracy: ± 0.1% FS ± 1 count

Features:

Main power circuit breaker with indicator lamp
Independent overloads for both outputs: AC – overload breaker; DC – output fuse
Output via Multilamm jacks (AC) and binding posts (DC)
Simultaneous digital readouts of both RMS Voltage and Current in both AC & DC
Two copies of instruction manual, parts list, and schematics

Size:
19” L x 18” W x 10” H; 65 lbs.
483 mm L x 457 mm W x 254 mm H, 29.4 kg.

SECTION 2: CONTROL AND METERING DESCRIPTION

(Key numbers refer to Figure 1)

1. **Main Power Indicator Lamp.** Lights when main power circuit breaker is energized and in the ON position.

2. **Main Power Circuit Breaker.** Serves dual function as main switch and provides overload protection for all circuits in test set.

3. **AC Digital Voltmeter.** Provides continuous display of AC output voltage in Volts.

4. **AC Digital Ammeter.** Provides continuous display of AC output current in Amps.

5. **DC Digital Voltmeter.** Provides continuous display of DC output voltage in Volts.

6. **DC Digital Ammeter.** Provides continuous display of DC output current in Amps.

7. **AC Overload Circuit Breaker.** Circuit Breaker will open once AC output exceeds 25A. Close switch to reset breaker.

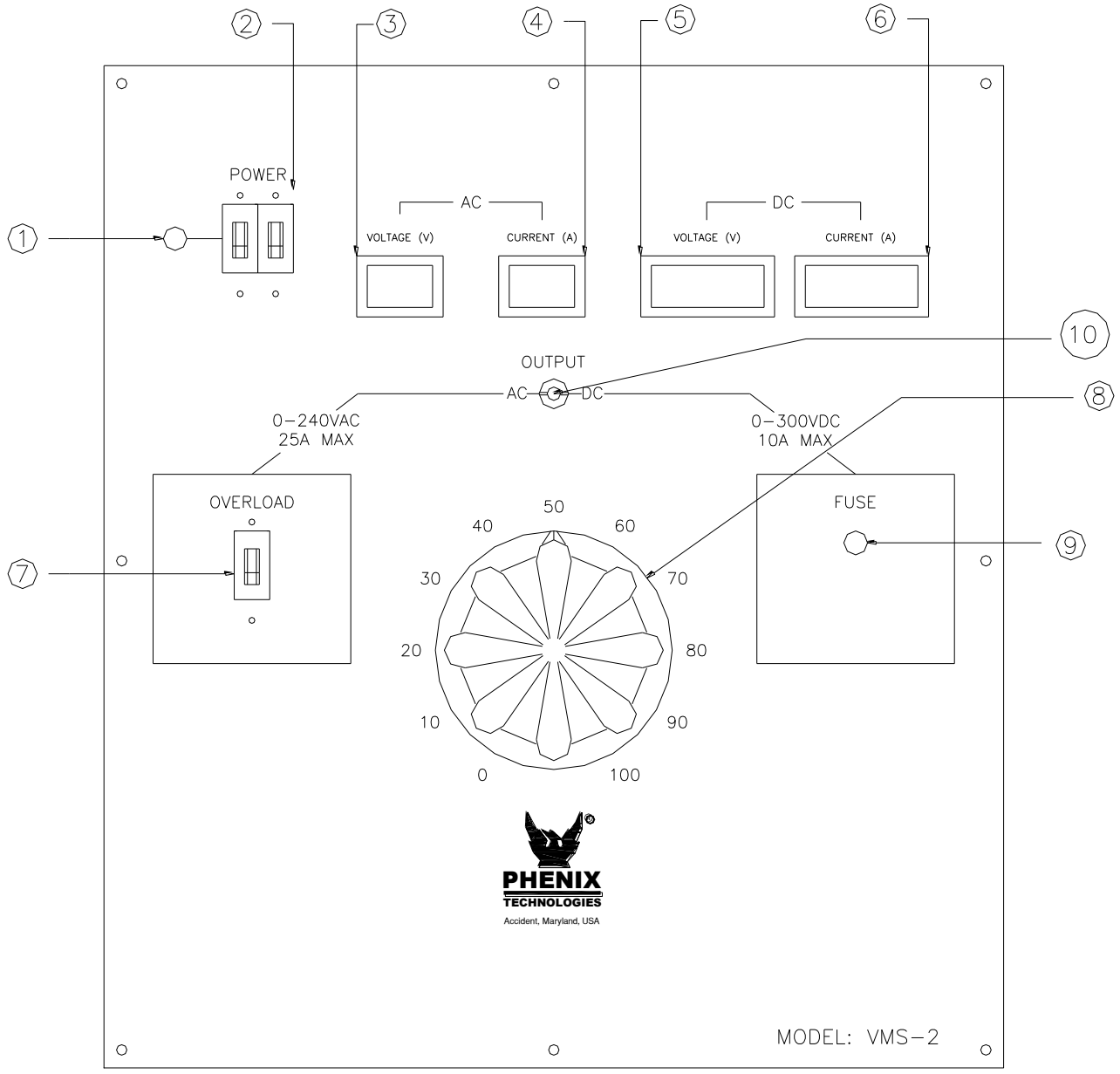
8. **Main Variac Knob.** Adjusts voltage and current output levels.

9. **DC Overload Fuse.** Fuse will blow when DC output exceeds 10A. Replace fuse via panel fuse holder when needed.

10. **AC/DC Output Selector Switch.** Toggle to select either AC or DC output.

CONTROL AND METERING DESCRIPTION

Figure 1: VMS-2 Front Panel



SECTION 3: OPERATION AND CALIBRATION

OPERATION

Setup

1. Connect input power supply to on board terminal block on the rear of the panel with 240VAC or 220VAC, 25A source.

2. Ensure Main Variac knob is dialed to its zeroed out position before connecting output terminals.

3. If either of the two Overloads is tripped, close the switch to reset the AC output breaker or replace the DC output fuse.

4. Verify power is off and then connect the output supply via the Multilamm jacks or the binding posts depending on whether AC or DC will be used. Connect the component to be tested with the leads provided.

Operation

5. Turn on main circuit breaker switch to power on unit. Note indicator light comes on.

6. Slowly raise the output voltage by turning the Main Variac clockwise until the desired output voltage or current is reached for the intended application or test.

7. Upon completion of testing, turn off main power by switching off the main breaker before disconnecting the output leads from the test component.

8. **WARNING**: For safety reasons, dial back the Main Variac knob to its zeroed-out position before and after each use.

OPERATION AND CALIBRATION

CALIBRATION

Your VMS-2 portable power supply itself does not require any calibration for normal operation. The onboard digital Voltmeters and Ammeters will also hold their normally calibrated settings during the lifetime of your VMS-2 for all normal indoor operations. In the rare case that any meter needs calibration adjustments, the procedure for doing so should be performed by qualified technical personnel such as the Phenix Technologies Service Department during a scheduled service appointment.

MAINTENANCE

During the lifetime of your portable power supply, certain items will need replacement. Common replacement parts are listed on page 7-1 under “Recommended Spare Parts.”

SECTION 4: CIRCUIT DIAGRAM SYMBOLS

CIRCUIT DIAGRAM SYMBOLS
SYMBOLES POUR SCHEMA DE CIRCUIT
SYMBOLE ZU SCHEMA

REF	SYMBOL	DESCRIPTION	DESCRIPTION	BEMENKUNG
A		Amplifier	Unite d'amplificateur	Verstárker
ARSR		Surge Arrestor	Parafoudre	Ueberspannungsableiter
C		Capacitor	Condensateur	Kondensator
BSHG		Bushing	Tranversée	Durchfuehoung
C		Electrolytic Capacitor	Condensateur électrol	Eleckrolytik kondensator
F		Fuse	Fusible	Sicherung
CT		Current Transfomer	Transformateur de Courant	Stromtransformer
CB		Circuit Breaker	Intérupteur	Unterbrecher
K		Relay, Contactor	Relais, Contacteur	Relais, Schütz
L		Inductor	Self	Drossel, Spule
MOT		Motor	Moteur	Motor
MOV		Movistor	Parafoudre	Movistor
NE		Neon	Parafoudre	Ueberspannungsableiter
LP		Lamp, Indicator	Lampe	Meldeleuchte
R		Resistor	Resistance	Widerstand
R		Variable Resisitor	Resistance Variable	Widerstand
T		Transformer	Transformateur	Transformer
TB		Terminal Block	Borne	Lösbare Klemme
X		Connector	Prise de Courant	Steckverbindung
K		Relay Contact Normally Open	Contact Normalement Ouvert	Schlierskontakt
K		Relay Contact Normally Closed	Contact Normalement Fermé	Oeffnungskontakt
K		Changeover Contact	Contact de Changement	Umschaltkontakt
		Shielded Wire	Cable blindé	Abgeschirmetes Kabel
TR		Transistor	Transisteur	Transistor
M		Meter	Insrument Analogue	Analog Meter
D		Diode	Diode	Diode
Z		Zener	Diode Zener	Zener
SCR		Thyristor	Thyristor	Thyristor
SW		Normally Open Maintained Switch	Interrupteur Normalement Maintenu Ouvert	Schrittschalter (Schliesser)
SW		Normally Closed Maintained Switch	Interrupteur Normalement Maintenu Fermé	Schrittshalter (Oeffner)
SW		Normally Closed Momentary Switch	Interrupteur Normalement Fermé Momentanement	Druckschalter (Oeffner)
SW		Normally Open Momentary Switch	Interrupteur Normalement Ouvert Momentanement	Druckschalter (Schliesser)
DP		Current Overload Device	Dispositif De Sûr Intensité	UeberstromschutzEinheit

SECTION 5: ELECTRICAL DIAGRAMS

	Drawing Number	Description
1.	9907010	VMS-2 Electrical Schematic

SECTION 6: VMS-2 PARTS LIST

QTY.	ITEM #	PHENIX PART #	DESCRIPTION
1		2100481	RACK CASE
1	BRDG1	1789205	MDA3510
1	C1	1094520	CAPACITOR 3uF, 400V
1	CB1	1601332	CKT BRKR, 30A, 2P
1	CB2	1601325	CKT BRKR, 25A, 1P
1	CM1 (AC)	1506509	AC CURRENTMETER, 50A
1	CM2 (DC)	1506513	METER 200mVDC
1	CON1	1154312	TERM BLK, PANEL MNT
1	CON1	1154973	MARKER STRIP
2	CON2, 3	1356310	MULTILAMM SOCKET, 6mm
2	CON2, 3	1356312	MULTILAMM PLUG, 6mm
3	CON2,3,5	1353041	GATOR BT, BLACK
4	CON2-5	1353042	GATOR CLIP
1	CON4	1351102	BINDING POST, RED
1	Con4	1353040	GATOR BT, RED
1	CON4	1356213	MULTILAM PLUG, RED 4mm
1	CON5	1351100	BINDING POST, BLACK
1	CON5	1356212	MULTILAM PLUG, BLACK 4mm
3	F1-3	1603601	AGC-1
3	F1-3	1603910	ONE POLE FUSEBLOCK
1	F4	1603500	FUSE 1 AMP
1	F4	1603922	1-POLE FUSE HOLDR
1	F5	1603503	FUSE 10 AMP
1	F5	`603921	FUSEHOLDER
1	LP1	1423265	NEON LAMP – GREEN 250V
1	R1	1742156	RESISTOR, 50 W, 5K
1	SH1	1509900	SHUNT 10A-100MV
1	SW1	1865021	TOGGLE SW, DPDT
1	VM1	1506504	AC VOLTMETER 300VAC
1	VM2	1506516	DC VOLTMETER 600VDC

SECTION 7: RECOMMENDED SPARE PARTS

QTY.	PHENIX PART #	DESCRIPTION
4	1603601	AGC-1 Fuse
5	1603503	KTK-10 Fuse
1	1423265	Neon Lamp Green
2	N/A	Output lead wires
1	1356212	Multilamm Plug Black
1	1356213	Multilamm Plug Red
4	1353042	Gator Clip – 20 Amp
2	1353041	Gator Clip Boot Black
2	1353040	Gator Clip Boot Red
2	1356312	Multilamm Plug, 6mm, (600V/100A)

SECTION 8: PARTS ORDERING INFORMATION

Replacement parts are available from Phenix Technologies, Inc.

Changes to Phenix Technologies' products are sometimes made to accommodate improved components as they become available, and to give you the benefit of the latest technical improvements developed in our Engineering Department. It is, therefore, important when ordering parts to include the serial number of the unit as well as the part number of the replacement part. When your purchase order is received at our office, a representative of Phenix Technologies will contact you to confirm the current price of the part being ordered. If a part you order has been replaced with a new or improved part, an applications engineer will contact you concerning any change in part number.

Send orders for replacement parts to:

Service Department
Phenix Technologies, Inc.
75 Speicher Drive
Accident, Maryland 21520

PH: 1 (301) 746-8118
FAX: 1 (301) 895-5570
E-mail: info@phenixtech.com

SECTION 9: RETURNED MATERIAL

If for any reason it should become necessary to return this equipment to the factory, the Service Department of Phenix Technologies, Inc. must be given the following information:

Name Plate Information
Model Number
Serial Number
Reason for Return
Cause of Defect

If Phenix Technologies, Inc. deems return of the part appropriate, it will then issue an "Authorization for Return."

If return is not deemed advisable, other inspection arrangements will be made.

NOTE: Material received at this plant without the proper authorization shall be held as "Customer's Property" with no service until such time as the proper steps have been taken.

Your cooperation is requested in order to ensure prompt service.

SECTION 10: CUSTOMER COMMENTS/SUGGESTIONS

Phenix Technologies made significant efforts to ensure that the materials in this Operator's Manual are correct. If there are concerns or comments as you have used this information, Phenix Technologies appreciates any feedback.

Unit Serial Number.

Sect	Page(s)	Comment

Please return to Phenix Technologies, Engineering Department, 75 Speicher Drive, Accident, MD 21520 USA.

Phone: 1 (301) 746-8118; Fax (301) 895-5570; or E- mail info@phenixtech.com