



**USER'S MANUAL
FOR
MICROCOMPUTER
POWER SUPPLY
MSC 8202**

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MSC 8202
TABLE OF CONTENTS

SECTION 1
INTRODUCTION

- 1.1 SCOPE
- 1.2 DESCRIPTION
- 1.3 SPECIFICATIONS
 - 1.3.1 Input
 - 1.3.2 Output
 - 1.3.3 Environment
 - 1.3.4 Dimensions
- 1.4 POWER FAIL MODULE (Optional)

SECTION 2
MSC 8202 INSTALLATION

- 2.1 SCOPE
- 2.2 PRELIMINARY
- 2.3 SYSTEM INSTALLATION

TABLE 2-1 OUTPUT VOLTAGE

SECTION 3
POWER FAIL MODULE

- 3.1 SCOPE
- 3.2 DESCRIPTION
 - 3.2.1 System Interface
- 3.3 INSTALLATION

Figure 3-1 POWER FAIL SEQUENCE
Figure 3-2 POWER FAIL MODULE INSTALLATION

SECTION 4
ADJUSTMENTS

4.1 SCOPE

4.2 ADJUSTMENTS PROCEDURES

Figure 4-1

MSC 8202 ADJUSTMENTS

Figure 4-2

POWER FAIL ADJUSTMENTS

SECTION 5
WARRANTY

5.1 SCOPE

5.2 WARRANTY REGISTRATION

SECTION 1

INTRODUCTION

1.1 SCOPE

This manual provides information that is required to properly use the MSC 8202 Power Supply and the optional Power Fail module (303-0235-001).

1.2 DESCRIPTION

Contained in a RETMA rack-mountable chassis, the MSC 8202 is primarily used with the MSC 8201 MULTIBUS* computer chassis. In view of the fact that the MSC 8202 provides voltages in accordance to MULTIBUS requirements, it is not limited to the MSC 8201, but can be used with other microcomputer systems. Power ON/OFF switch and the main AC fuse are panel mounted for easy access, and a 2.5-foot cable with Molex connectors is included for interconnecting the output voltages (+5V and +12V volts) into the system.

Input taps for 100-, 120-, 200-, 220 and 240-volts allow the MSC 8201 to accept voltages from a number of sources with $\pm 10\%$ tolerance within the 47 to 440 Hz frequency range. All output voltages are regulated at $\pm 1\%$ of nominal value. Foldback current limiting is utilized for the +5V and +12V, while thermal current limiting is used for -5V and -12V outputs.

1.3 SPECIFICATIONS

1.3.1 Input

Voltages: 100V, 120V, 200V, 220V and 240V
Tolerance: $\pm 10\%$
Frequency: 47 to 440 Hz

1.3.2 Output

Voltage	Current(Max.)	Regulation	Over-Load Limitation
+12 VDC	2.4 A	$\pm 1\%$	yes
-12 VDC	1.0 A	$\pm 2\%$	yes
+ 5 VDC	18.0 A	$\pm 1\%$	yes
- 5 VDC	1.2 A	$\pm 2\%$	yes

1.3.3 Environment

Operating Temperature:	0° to +50° C
Storage Temperature:	-40° to +66° C
Humidity:	up to 90% RH without condensation
Cooling:	Convection

1.3.4 Dimensions (Including Panel)

Height:	5.25 in (13.2 cm)
Width:	19 in (48.3 cm)
Depth:	8.88 in (22.6 cm)

1.4 POWER FAIL MODULE (Optional)

The Power Fail module lets the user store key data into non-volatile memory in event of a power failure. Contained on a four- by four-inch printed-circuit board that mounts within the MSC 8202, this module controls power sequencing as well as warning the user of a power outage. This unit allows the power supply (MSC 8202) to maintain regulation for a minimum time period of 16 milliseconds at 2/3 of rated load after detecting that power is failing. It also guarantees that the negative bias voltages are stable or the positive supplies are shut down to protect the memory chips.

SECTION 2

MSC 8202 INSTALLATION

2.1 SCOPE

This section outlines the procedure for properly installing the MSC 8202 Power Supply.

2.2 PRELIMINARY INSPECTION

Verify that each package contains all items ordered and all necessary hardware for installation. Inspect the unit for damage or loose connections.

2.3 SYSTEM INSTALLATION

After the initial inspection, perform the following step-by-step procedure for performance verification using Figure 2-1 as a guide.

- 1) Check the fuse and verify that it is rated for the value printed on the panel next to the fuse holder.
- 2) A 2.5-foot cable with two, 7-pin non-locking type connectors (Molex #09-50-70711) make all output voltages available for use. Before connecting this cable into the system, confirm the presence of all voltages that are listed in Table 2-1, using pin 1 of J11 as the reference.

J10			J11	
PIN NO.	DESCRIPTION	TOLERANCE	DESCRIPTION	TOLERANCE
1	KEY	-	GND	-
2	GND	-	+5V	±1%
3	-	-	+5V	±1%
4	-12V	±2%	+12V	±1%
5	+5V	±1%	-5V	±2%
6	+5V	±1%	GND	-
7	GND	-	KEY	-

Table 2-1
OUTPUT VOLTAGES

SECTION 3

POWER FAIL MODULE

3.1 SCOPE

This section details purpose and capabilities of the optional Power Fail module.

3.2 DESCRIPTION

A four- by four-inch printed-circuit board, which mounts within the MSC 8202 chassis, contains the circuitry that generates TTL compatible signals LINE OK and RESET/ (Refer to Dwg. 305-0235-000). When LINE OK is "high" (+3 to +5 volts), the input-power line is adequate for reliable operations of the MSC 8202. One-hundred microseconds after LINE OK switches "high" and all voltages are stable, signal RESET/ goes "high". If the line voltage drops to 90% of nominal, then the LINE OK line will go "low". This is true for either a brownout condition or an abrupt loss of power. After 16-milliseconds (minimum), RESET/ will go "low". This means that the MSC 3602 will maintain regulation for power interrupts up to 16 milliseconds.

NOTE: If LINE OK drops even momentarily, RESET/ will drop. This insures that an interrupt caused by LINE OK will reset to allow processing to resume.

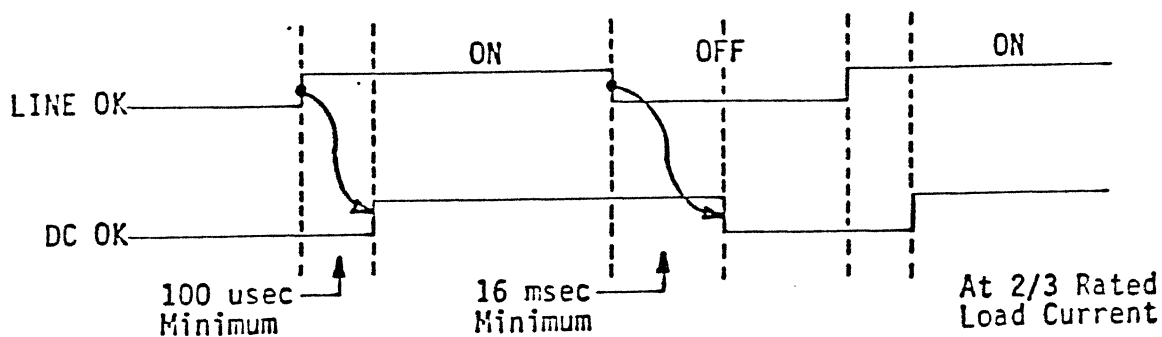


Figure 3-1
POWER FAIL SEQUENCE

3.2.1 System Interface

Connector J20 interconnects the Power Fail module with the MSC8202. Pin and signal assignments for J20 are as follows:

PIN	SIGNAL
1	Transformer Output (AC)
2	KEY
3	DRIVE
4	+5V Output
5	-5V Output
6	-12V Output
7	+5V SHUTDOWN
8	+12V Output
9	Common
10	+12V SHUTDOWN

3.3 INSTALLATION

The following paragraphs give a step-by-step procedure for properly installing the 303-0235-001 Power Fail module into the MSC 8202 chassis. Normally, the factory installs this module and the user can proceed to Step 3. However, if this is a field installation, all adjustments should be checked.

- 1) With provided hardware and removal of power, secure the Power Fail module to the bottom plate of the MSC 8202 chassis using mounting holes indicated 1 and 2 in Figure 3-2. To use hole 1 requires the cable and cable-clamp to be reinstalled as indicated in Figure 3-2, using one of the transformer mounting holes.
- 2) Plug the power supply connector J20 into on-board connector P1 on the Power Fail module.
- 3) In the MULTIBUS chassis (MSC 8201), remove cable 301-0083-000 that is routed from module 304-0209-000 (small PC board) to J12 on the backplane of assembly 303-0138-000. The provided cable that comes with the Power Fail module has three keyed connectors where two of these connectors mate with 304-0209-000 and J12 on the backplane. The third or longest cable plugs into P2 of the Power Fail module.
- 4) The unit is now ready for operation.

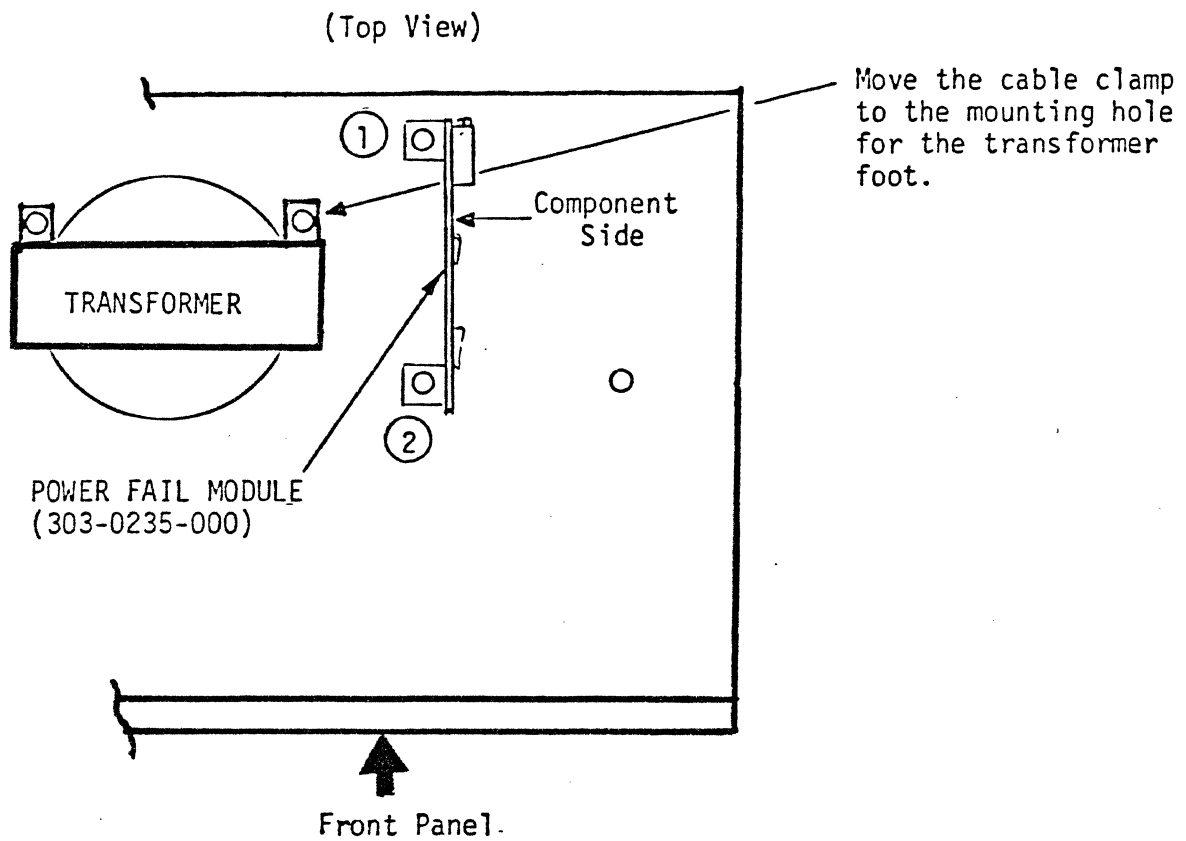


Figure 3-2
POWER FAIL MODULE INSTALLATION

SECTION 4

ADJUSTMENTS

4.1 SCOPE

This section outlines the adjustment procedures for properly setting up all voltages generated by the MSC 8202.

4.2 ADJUSTMENT PROCEDURES

The MSC 8202 should be under load when making the following adjustments. The user's system is adequate but the following resistor values should be used to simulate 2/3 of maximum load.

VOLTAGE	OHM	WATTAGE
+ 5	0.42	75
- 5	6.20	5
+12	7.50	25
-12	18.00	10

- 1) Apply power through a variac adjusted to provide nominal line voltage. With reference to Table 2-1, verify all supply voltages. The +5 and +12 volts can be adjusted if required (See Figure 4-1).
- 2) Using a logic probe or equivalent, monitor LINE OK and RESET/ lines while reducing the input power to 90% nominal using the variac. At this time, both LINE OK and RESET/ should be "high".

NOTE: RESET and NMI indicators on the computer chassis can be used. RESET/ = RESET "on" and LINE OK = NMI "off".

- 3) Turn the variac down until LINE OK goes "low" and verify that the power supply is still in regulation. RESET/ should go "low" too. If this step fails, continue with the following steps to adjust the Power Fail module. (Refer to Figure 4-2).
- 4) If LINE OK drops at greater than 90% of rated load, turn the AC sensitivity adjustment CCW. If LINE OK drops after the supplies go out of regulation (RESET/ is "low" and LINE OK is "high"), turn the adjustment CW.

- 5) If RESET/ is dropping out, but the supplies are operating properly (pull plug on the Power Fail module to verify the supplies only), then turn all four DC sensitivity controls fully CW. (There are not stops, turn 15 turns CW). RESET/ should now be "high". Then for each DC sensitivity adjustment turn CCW until RESET/ goes "low", and then-1/4 turn CW. Now return to Step 1.

NOTE: AC sensitivity can be adjusted without a variac by turning CCW until LINE OK goes "low". Then turn CW 1/4-turn past the point where LINE OK goes "high". This will cause LINE OK to go "low" if the line drops from where it is more than two or three volts.

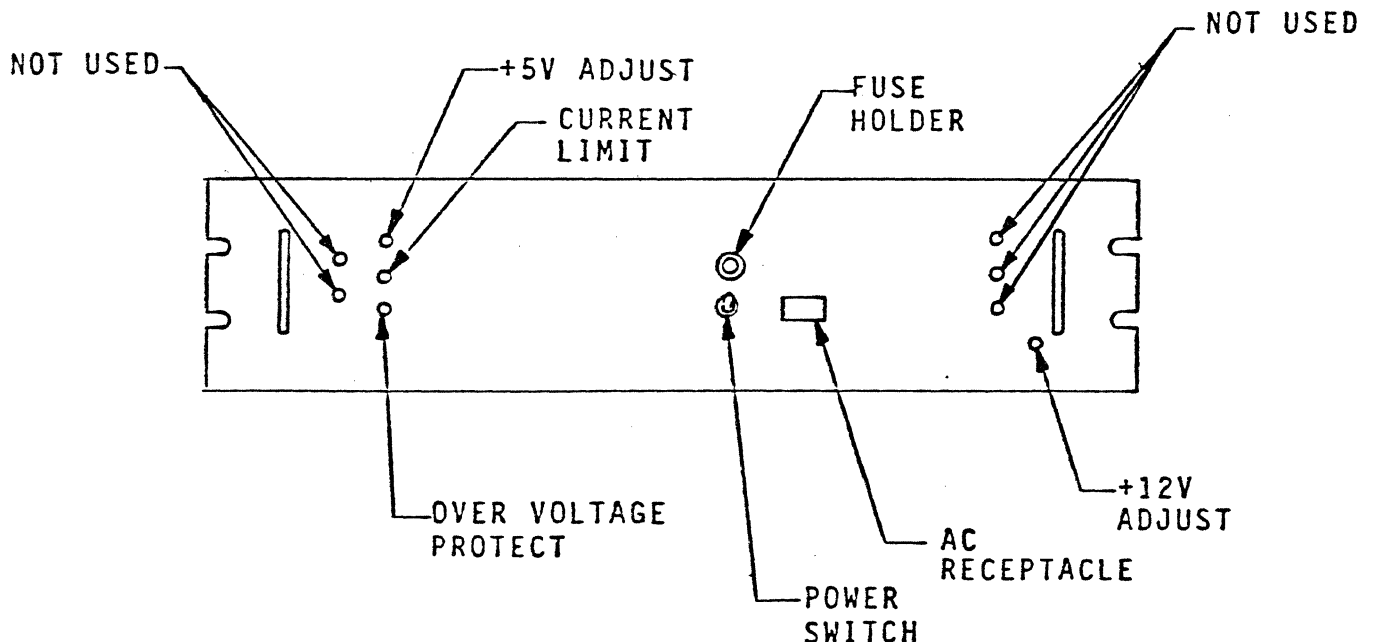


Figure 4-1
MSC 8202 ADJUSTMENTS

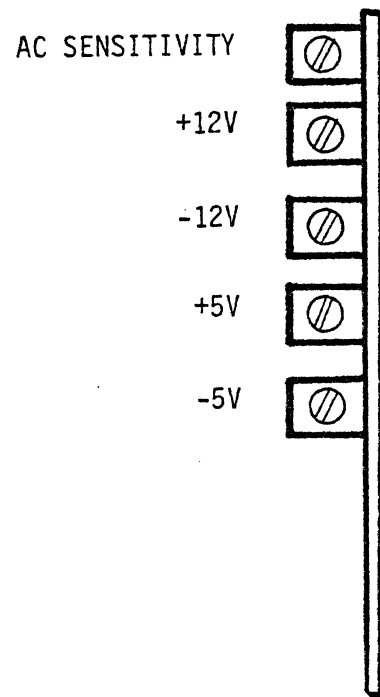


Figure 4-2
POWER FAIL ADJUSTMENTS

100-0113-000

SECTION 5

WARRANTY

5.1 SCOPE

Monolithic Systems Corporation (MSC) warrants for a period of twelve (12) months from the date of shipment that each item of equipment (except those materials supplied by Buyer) shall be free from defects in material and workmanship under normal use and service. Any equipment which is not as warranted may be returned to Monolithic Systems Corporation at MSC's risk and expense for repair or replacement.

If the Buyer establishes that anyone of the items of equipment is not as warranted above in order to benefit from the warranty, the Buyer shall advise Monolithic Systems Corporation in writing during the warranty period describing in detail the defect claimed. Monolithic Systems Corporation shall thereafter be afforded the opportunity, for a reasonable period of time after the defective equipment is returned to Monolithic Systems Corporation place of manufacture, to modify, adjust or repair such item of equipment in order to render it in conformity with the above warranty. If at the end of such period, the Buyer establishes that such item of equipment is still not in conformity with the above warrant then Monolithic Systems Corporation shall replace the defective item of equipment to the Buyer. The Buyer recognizes that the remedy of refund of the purchase price in the case of the breach by Monolithic Systems Corporation of the above warranty constitutes the sole and exclusive remedy to the Buyer for such breach. Equipment may consist of whole or in part, of refurbished components which are warranted equivalent to new when used for the purposes intended.

This warranty shall immediately terminate if the equipment is subjected to misuse, neglect, accident, damage in transit, transported in other than Monolithic Systems Corporation authorized containers, or is altered, repaired or overhauled by any person other than Monolithic Systems Corporation.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, PROMISES, AFFIRMATIONS OR REPRESENTATIONS, WHATSOEVER, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR IMPLIED WARRANTY OF FITNESS OF EQUIPMENT FOR A PARTICULAR PURPOSE, AND OF ANY OTHER OBLIGATIONS ON THE PART OF THE SELLER.

5.2 WARRANTY REGISTRATION

To expedite our warranty service, please fill out the WARRANTY REGISTRATION card at the front of this manual, and return to Monolithic Systems Corporation.