AMX SERIES

AC POWER SOURCE

OPERATION
MANUAL

PACIFIC®
POWER SOURCE

AMX-SERIES

OPERATION MANUAL

FOR THE

MODELS
105-AMX, 305-AMX
108-AMX, 308-AMX
112-AMX, 312-AMX
125-AMX, 320-AMX
140-AMX, 345-AMX
160-AMX, 360-AMX
390-AMX
3120-AMX

PPS PART NO. 139250

THIS MANUAL ASSIGNED TO THE MODEL: _____

S/N: _____

PACIFIC POWER SOURCE, INC.
17692 Fitch Irvine, CA 92614

REVISION B

CERTIFICATION

PACIFIC POWER SOURCE CERTIFIES THAT THIS INSTRUMENT WAS THOROUGHLY TESTED AND INSPECTED AND FOUND TO MEET OR EXCEED ITS PUBLISHED SPECIFICATIONS WHEN IT WAS SHIPPED FROM THE FACTORY.

LIMITED WARRANTY

Pacific Power Source (PPS) warrants each unit to be free from defects in material and workmanship. For the period of two (2) years from the date of shipment to the purchaser, PPS will either repair or replace, at its sole discretion, any unit returned to its factory in Huntington Beach, California. This warranty does not cover batteries. It does not cover damage arising from mis-use of the unit or attempted field modifications or repairs. This warranty specifically excludes damage to other equipment connected to this unit.

Upon notice from the purchaser within (30) days of shipment of units found to be defective in material or workmanship, PPS will pay all shipping charges for the repair or replacement. If notice is received more than thirty (30) days from shipment, all shipping charges shall be paid by the purchaser. Units returned on debit memos will not be accepted and will be returned without repair.

This warranty is exclusive of all other warranties, express or implied.

For local contacts or other information, please visit our website: pacificpower.com

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SECTION 1

GENERAL

1.0 GENERAL

This manual is written to provide the information required to use the AMX-Series AC Power Source. Operation of the Models 105-AMX, 108-AMX, 112-AMX, 125-AMX, 140-AMX, 160-AMX, 305-AMX, 308-AMX, 312-AMX, 320-AMX, 345-AMX, 360-AMX, 390-AMX and 3120-AMX is described in this document.

This manual is an Operations Manual. Installation, operation and calibration are the subjects covered by this manual.

1.1 USING THIS MANUAL

This manual provides instructions for installation and use of the AMX-Series Power Source equipment. It is very important that the user reads sections 1, 3, and 4 prior to using this equipment. A thorough understanding of these sections is required to properly operate this equipment.

Section 2 states the specifications of the equipment. Knowledge of this information is required to gain maximum use of this equipment for a given application. The user is encouraged to read this section in order to gain a deeper understanding of the capabilities of the AMX-Series Power Source.

Sections 5 and 6 list maintenance and calibration requirements of this equipment. Refer to these sections when maintenance or calibration is required.

Section 7 describes service methodology and provides system, sub-assembly, and component part numbers to aid the user in making *factory authorized* field repairs.

Section 9 contains any product change notices, errata and data relative to customer specified modifications. Always check this section before operating the equipment. This is especially true when modifications have been installed, since these can change system operation.

If questions arise while reading this manual, the user is encouraged to call the Pacific Power Source. Pacific maintains a toll-free number which is 1-800-854-2433 (1+949-251-1800 outside of US).

1.2 SAFETY NOTICES

The AMX-Series equipment is capable of transferring very large amounts of electrical energy very quickly. This basic quality is fundamental to a high-performance power source. The warnings and cautions listed below should be observed at all times.

WARNINGS are conditions which are hazardous to user personnel. All warnings throughout this manual will be formatted as shown below. A condition which is hazardous to both personnel and equipment will be issued as a warning.

CAUTION statements indicate a dangerous situation which may damage the equipment but is not a threat to life or limb. Cautions will assume the format shown opposite. All cautions should be rigorously observed

WARNING

THIS EQUIPMENT CONTAINS HIGH ENERGY, LOW IMPEDANCE CIRCUITS!! LETHAL POTENTIALS ARE CONTAINED WITHIN THE CABINET.

CARE MUST BE EXERCISED WHEN SERVICING THIS EQUIPMENT IN ORDER TO PREVENT SERIOUS OPERATOR INJURY OR EQUIPMENT DAMAGE.

OUTPUT VOLTAGE RESPONDS **INSTANTLY** WHEN THE POSITION OF THE OUTPUT COUPLING SWITCH IS CHANGED.

LOAD MAY BE DAMAGED DUE TO DOUBLING OF OUTPUT VOLTAGE.

ALWAYS MAKE SURE THAT THE OUTPUT ON/OFF SWITCH IS IN THE **OFF** POSITION BEFORE CHANGING THE OUTPUT COUPLING MODE.

OBSERVE THE FOLLOWING WHEN SERVICE, MAINTENANCE, OR CALIBRATION ARE REQUIRED:

1) REMOVE ALL JEWELRY FROM ARMS AND NECK WHEN SERVICING THIS EQUIPMENT. THIS PREVENTS THE POSSIBILITY OF SHORTING THROUGH THE JEWELRY AND CAUSING BURNS TO OR ELECTROCUTION OF THE OPERATOR.

2) **WEAR SAFETY GLASSES** WHEN SERVICING THIS EQUIPMENT TO PREVENT EYE INJURY DUE TO FLYING PARTICLES CAUSED BY ACCIDENTAL SHORT CIRCUIT CONDITIONS.

3) DO NOT REMOVE ANY PANELS OR COVERS WITHOUT FIRST OPENING **ALL** CIRCUIT BREAKERS AND THEN REMOVING THE INPUT SERVICE.

4) SERVICE OTHER THAN CLEANING FILTERS AND CALIBRATION SHOULD BE REFERRED TO PERSONNEL AUTHORIZED BY THE FACTORY TO SERVICE THIS EQUIPMENT.

1.2 SAFETY NOTICES (cont.)

WARNING

IF THIS EQUIPMENT IS NOT USED IN A MANNER SPECIFIED BY THE MANUFACTURER, THE PROTECTION PROVIDED BY THE EQUIPMENT MAY BE IMPAIRED

CAUTION

READ SECTIONS 1, 3, AND 4 OF THIS MANUAL BEFORE INSTALLING OR OPERATING THIS EQUIPMENT.

1.3 GENERAL PRODUCT DESCRIPTION

The AMX-Series Power Source is high-performance AC power conversion equipment. This series of equipment features models with power ratings from 500 VA to 30 kVA. All systems are designed to fit into a standard 19 inch rack. These systems are suitable for use as frequency changers as well as sophisticated test power generators.

All systems are configured with an interchangeable controller (UPC-Series). Controller options range from basic manual control (UPC1M and 3M) to sophisticated programmable controllers (UPC1, UPC3, UPC12 or UPC32). The manual controller allows the user to adjust voltage and frequency. The programmable controller allows control of voltage and frequency, and also allows the user to simulate virtually any transient (including sub-cycle waveform disturbance) required for testing today's modern electronic equipment.

The standard output voltage range for most of the AMX-Series is 0-135 $VAC_{l\text{-}n}$. Additionally, the Models 112-AMX, 125-AMX and 312-AMX can operate from 0 to 150 $VAC_{l\text{-}n}$. Optional output transformers are available to provide higher voltages. Voltage ratios up to 2.5:1 are readily available. Other transformer ratios are available by special order.

The AMX-Series consists of the basic models listed below:

1. Model 105-AMX - 500 VA, capable of 1 or 2 Phase operation. Single phase output voltage range is 0-135 $VAC_{l\text{-}n}$. Output voltage in 2 Phase Mode is 0-270 $VAC_{L1\text{-}L2}$. Internal output transformer option available for higher voltages.

2. Model 108-AMX - 750 VA, capable of 1 or 2 Phase operation. Single phase output voltage range is 0-135 $VAC_{l\text{-}n}$. Output voltage in 2 Phase Mode is 0-270 $VAC_{L1\text{-}L2}$. Internal output transformer option available for higher voltages.

3. Model 112-AMX - 1.2 kVA, capable of 1 or 2 Phase operation. Single phase output voltage range is 0-150 $VAC_{l\text{-}n}$. Output voltage in 2 Phase Mode is 0-300 $VAC_{L1\text{-}L2}$. Additional ranges available with custom external transformer configurations.

4. Model 125-AMX – 2.5 kVA, capable of 1 or 2 Phase operation. Single phase output voltage range is 0-150 $VAC_{l\text{-}n}$. Output voltage in 2 Phase Mode is 0-300 $VAC_{L1\text{-}L2}$. Additional ranges available with custom external transformer configurations.

5. Model 140-AMX – 4.0 KVA, capable of 1 or 2 Phase operation. Single phase output voltage range is 0-135 $VAC_{l\text{-}n}$. Output voltage in 2 Phase Mode is 0-270 $VAC_{L1\text{-}L2}$. External Magnetics Module available for higher output voltage ranges.

6. Model 160-AMX - 6.0 kVA, capable of 1 or 2 Phase operation. Single phase output voltage range is 0-135 $VAC_{l\text{-}n}$. Output voltage in 2 Phase Mode is 0-270 $VAC_{L1\text{-}L2}$. External Magnetics Module available for higher output voltage ranges.

7. Model 305-AMX - 500 VA, capable of 1, 2, or 3 Phase operation. Single and three phase modes provide 500VA of power with 0-135 $VAC_{l\text{-}n}$ output voltage range. 2 Phase Mode provides 333VA of power with 0-270 $VAC_{L1\text{-}L2}$ output voltage. Internal output transformer available for higher output voltage ranges.

1.3 GENERAL PRODUCT DESCRIPTION (cont.)

8. Model 308-AMX - 750 VA, capable of 1, 2, or 3 Phase operation. Single and three phase modes provide 750 VA of power with 0-135 VAC_{l-n} output voltage range. 2 Phase Mode provides 500 VA of power with 0-270 VAC_{L1-L2} output voltage. Internal output transformer option available for higher voltages.

9. Model 312-AMX - 1.2 kVA, capable of 1, 2, or 3 Phase operation. Single and three phase modes provide 1.2kVA of power with 0-150 VAC_{l-n} output voltage range. 2 Phase Mode provides 800VA of power with 0-300 VAC_{L1-L2} output voltage. Additional ranges available with custom external transformer configurations.

10. Model 320-AMX - 2.25 kVA, capable of 1, 2, or 3 Phase operation. Single and three phase modes provide 2.25kVA of power with 0-135 VAC_{l-n} output voltage range. 2 Phase Mode provides 1.5kVA of power with 0-270 VAC_{L1-L2} output voltage. External Magnetics Module available for higher output voltage ranges.

11. Model 345-AMX – 4.5 kVA, capable of 1, 2, or 3 Phase operation. Single and three phase modes provide 4.5kVA of power with 0-135 VAC_{l-n} output voltage range. 2 Phase Mode provides 3.0kVA of power with 0-270 VAC_{L1-L2} output voltage. External Magnetics Module available for higher output voltage ranges.

12. Model 360-AMX - 6.0 kVA, capable of 1, 2, or 3 Phase operation. Single and three phase modes provide 6.0kVA of power with 0-135 VAC_{l-n} output voltage range. 2 Phase Mode provides 4.5kVA of power with 0-270 VAC_{L1-L2} output voltage. External Magnetics Module available for higher output voltage ranges.

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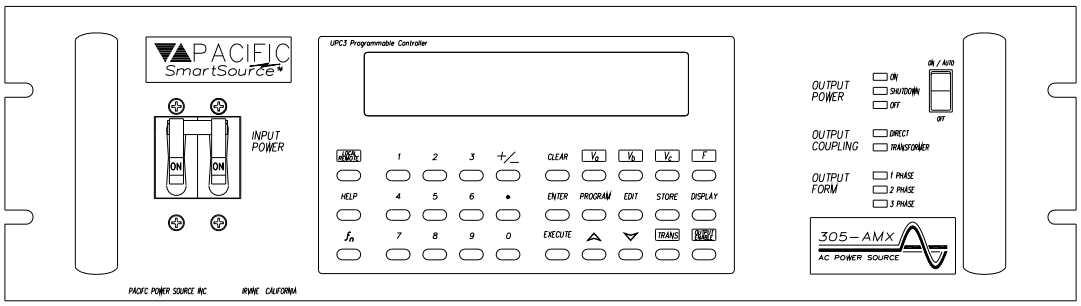
13. Model 390-AMX – 9.0 kVA, capable of 1, 2, or 3 Phase operation. Single and three phase modes provide 9.0kVA of power with 0-135 VAC_{l-n} output voltage range. 2 Phase Mode provides 6.0kVA of power with 0-270 VAC_{L1-L2} output voltage. External Magnetics Module available for higher output voltage ranges.

14. Model 3120-AMX - 12.0 kVA, capable of 1, 2, or 3 Phase operation. Single and three phase modes provide 12.0kVA of power with 0-135 VAC_{l-n} output voltage range. 2 Phase Mode provides 8.0kVA of power with 0-270 VAC_{L1-L2} output voltage. External Magnetics Module available for higher output voltage ranges.

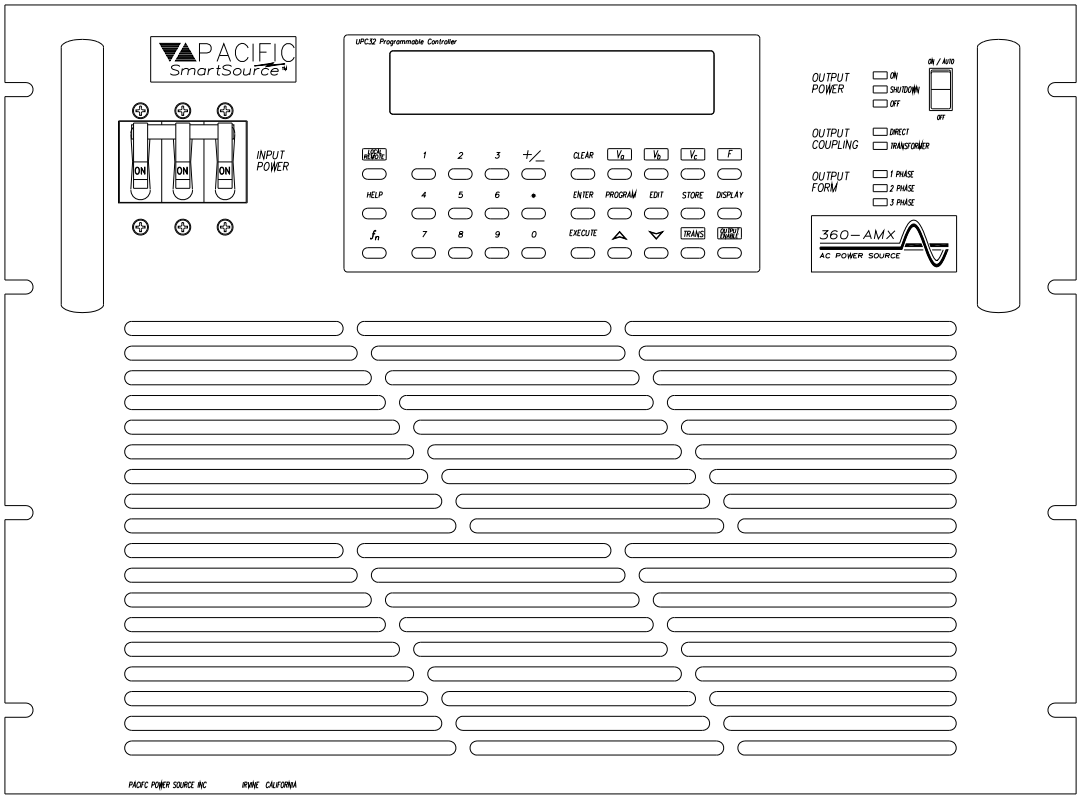
External voltage sense is provided on all systems. Systems configured with the programmable controller also feature Continuous Self Calibration (CSC).

Output voltage and current metering is provided on all systems. Specifications of the metering functions vary by controller type. Refer to the *UPC-Series Operation Manual*, as appropriate, for details relative to the metering functions.

1.3 GENERAL PRODUCT DESCRIPTION (cont.)



MODEL 305-AMX
W/ UPC-3M CONTROLLER



MODEL 360-AMX
W/ UPC-32 CONTROLLER

FIGURE 1.3 AMX-SERIES POWER SOURCE - FRONT VIEW

SECTION 2

SPECIFICATIONS

2.0 SPECIFICATIONS

This section states the electrical specifications of the AMX-Series Power Source. The specifications listed apply to all models, except as noted. Some specifications are controller dependent. These are noted as such.

2.1 ELECTRICAL SPECIFICATIONS

2.1.1 INPUT POWER REQUIREMENTS

This paragraph lists and defines the input voltage forms that are accepted by the various models within the AMX-Series line of equipment. Each model is listed separately. Refer to the appropriate model when determining proper input service requirements. The input currents listed are for operation at full rated load. Overload conditions will result in higher input currents that still fall within the recommended input service.

The input power transformer of the AMX-Series Power Source has taps for each of the listed power forms - one of which is selected by the factory at time of order. Once selected, the unit will operate at designated voltage, ±10%.

MODEL 105-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 105-AMX single phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

	INPUT VOLTAGE (360-440 Hz optional)	INPUT CURRENT	SERVICE RECOMMENDED
1)	100 VAC ±10%, 47-63 Hz	12 A_{rms}	25 A
2)	110 VAC ±10%, 47-63 Hz	12 A_{rms}	25 A
3)	120 VAC ±10%, 47-63 Hz	11 A_{rms}	25 A
4)	200 VAC ±10%, 47-63 Hz	6 A_{rms}	15 A
5)	208 VAC ±10%, 47-63 Hz	6 A_{rms}	15 A
6)	220 VAC ±10%, 47-63 Hz	6 A_{rms}	15 A
7)	230 VAC ±10%, 47-63 Hz	6 A_{rms}	15 A
8)	240 VAC ±10%, 47-63 Hz	6 A_{rms}	15 A

2.1.1 INPUT POWER REQUIREMENTS (cont.)

MODEL 108-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 108-AMX single phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

	INPUT VOLTAGE (360-440 Hz optional)	INPUT CURRENT	SERVICE RECOMMENDED
1)	100 VAC ±10%, 47-63 Hz	17 A_{rms}	25 A
2)	110 VAC ±10%, 47-63 Hz	16 A_{rms}	25 A
3)	120 VAC ±10%, 47-63 Hz	15 A_{rms}	25 A
4)	200 VAC ±10%, 47-63 Hz	9 A_{rms}	25 A
5)	208 VAC ±10%, 47-63 Hz	9 A_{rms}	25 A
6)	220 VAC ±10%, 47-63 Hz	8 A_{rms}	15 A
7)	230 VAC ±10%, 47-63 Hz	8 A_{rms}	15 A
8)	240 VAC ±10%, 47-63 Hz	8 A_{rms}	15 A

MODEL 112-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 112-AMX single phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

	INPUT VOLTAGE	INPUT CURRENT	SERVICE RECOMMENDED
1)	100 VAC ±10%, 47-63 Hz	21 A_{rms}	25 A
2)	110 VAC ±10%, 47-63 Hz	19 A_{rms}	25 A
3)	120 VAC ±10%, 47-63 Hz	18 A_{rms}	25 A
4)	200 VAC ±10%, 47-63 Hz	11 A_{rms}	15 A
5)	208 VAC ±10%, 47-63 Hz	11 A_{rms}	15 A
6)	220 VAC ±10%, 47-63 Hz	10 A_{rms}	15 A
7)	230 VAC ±10%, 47-63 Hz	9 A_{rms}	15 A
8)	240 VAC ±10%, 47-63 Hz	9 A_{rms}	15 A

2.1.1 INPUT POWER REQUIREMENTS (cont.)

MODEL 125-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 125-AMX three phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

		INPUT CURRENT (360-440 Hz optional)	INPUT CURRENT	SERVICE RECOMMENDED
	1)	208 VAC Δ ±10%, 47-63 Hz	12 A_{rms}	20 A
	2)	220 VAC Δ ±10%, 47-63 Hz	11 A_{rms}	20 A
	3)	240 VAC Δ ±10%, 47-63 Hz	10 A_{rms}	20 A
	4)	220/380 VAC ±10%, 47-63 Hz	6 A_{rms}	10 A
	5)	240/416 VAC ±10%, 47-63 Hz	6 A_{rms}	10 A
(cost option)	6)	277/480 VAC ±10%, 47-63 Hz	5 A_{rms}	10 A

MODEL 140-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 140-AMX three phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

		INPUT CURRENT (360-440 Hz optional)	INPUT CURRENT	SERVICE RECOMMENDED
	1)	208 VAC Δ ±10%, 47-63 Hz	23 A_{rms}	40 A
	2)	220 VAC Δ ±10%, 47-63 Hz	22 A_{rms}	40 A
	3)	230 VAC Δ ±10%, 47-63 Hz	21 A_{rms}	40 A
	4)	240 VAC Δ ±10%, 47-63 Hz	20 A_{rms}	40 A
	5)	220/380 VAC ±10%, 47-63 Hz	13 A_{rms}	20 A
	6)	230/400 VAC ±10%, 47-63 Hz	12 A_{rms}	20 A
	7)	240/416 VAC ±10%, 47-63 Hz	12 A_{rms}	20 A
(cost option)	8)	277/480 VAC ±10%, 47-63 Hz	11 A_{rms}	20 A

2.1.1 INPUT POWER REQUIREMENTS (cont.)

MODEL 160-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 160-AMX three phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

		INPUT CURRENT (360-440 Hz optional)	INPUT CURRENT	SERVICE RECOMMENDED
	1)	208 VAC Δ ±10%, 47-63 Hz	28 A_{rms}	40 A
	2)	220 VAC Δ ±10%, 47-63 Hz	26 A_{rms}	40 A
	3)	230 VAC Δ ±10%, 47-63 Hz	25 A_{rms}	40 A
	4)	240 VAC Δ ±10%, 47-63 Hz	25 A_{rms}	40 A
	5)	220/380 VAC ±10%, 47-63 Hz	15 A_{rms}	20 A
	6)	230/400 VAC ±10%, 47-63 Hz	14 A_{rms}	20 A
	7)	240/416 VAC ±10%, 47-63 Hz	14 A_{rms}	20 A
(cost option)	8)	277/480 VAC ±10%, 47-63 Hz	14 A_{rms}	20 A

MODEL 305-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 305-AMX single phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

	INPUT CURRENT (360-440 Hz optional)	INPUT CURRENT	SERVICE RECOMMENDED
1)	100 VAC ±10%, 47-63 Hz	12 A_{rms}	25 A
2)	110 VAC ±10%, 47-63 Hz	12 A_{rms}	25 A
3)	120 VAC ±10%, 47-63 Hz	11 A_{rms}	25 A
4)	200 VAC ±10%, 47-63 Hz	7 A_{rms}	15 A
5)	208 VAC ±10%, 47-63 Hz	7 A_{rms}	15 A
6)	220 VAC ±10%, 47-63 Hz	6 A_{rms}	15 A
7)	230 VAC ±10%, 47-63 Hz	6 A_{rms}	15 A
8)	240 VAC ±10%, 47-63 Hz	5 A_{rms}	15 A

2.1.1 INPUT POWER REQUIREMENTS (cont.)

MODEL 308-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 308-AMX single phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

	INPUT CURRENT (360-440 Hz optional)	INPUT CURRENT	SERVICE RECOMMENDED
1)	100 VAC ±10%, 47-63 Hz	17 A_{rms}	25 A
2)	110 VAC ±10%, 47-63 Hz	16 A_{rms}	25 A
3)	120 VAC ±10%, 47-63 Hz	15 A_{rms}	25 A
4)	200 VAC ±10%, 47-63 Hz	8 A_{rms}	15 A
5)	208 VAC ±10%, 47-63 Hz	8 A_{rms}	15 A
6)	220 VAC ±10%, 47-63 Hz	8 A_{rms}	15 A
7)	230 VAC ±10%, 47-63 Hz	8 A_{rms}	15 A
8)	240 VAC ±10%, 47-63 Hz	7 A_{rms}	15 A

MODEL 312-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 312-AMX single phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

	INPUT CURRENT	INPUT CURRENT	SERVICE RECOMMENDED
1)	100 VAC ±10%, 47-63 Hz	20 A_{rms}	25 A
2)	110 VAC ±10%, 47-63 Hz	18 A_{rms}	25 A
3)	120 VAC ±10%, 47-63 Hz	18 A_{rms}	25 A
4)	200 VAC ±10%, 47-63 Hz	11 A_{rms}	15 A
5)	208 VAC ±10%, 47-63 Hz	10 A_{rms}	15 A
6)	220 VAC ±10%, 47-63 Hz	10 A_{rms}	15 A
7)	230 VAC ±10%, 47-63 Hz	9 A_{rms}	15 A
8)	240 VAC ±10%, 47-63 Hz	9 A_{rms}	15 A

2.1.1 INPUT POWER REQUIREMENTS (cont.)

MODEL 320-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 320-AMX three phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

		INPUT CURRENT (360-440 Hz optional)	INPUT CURRENT	SERVICE RECOMMENDED
	1)	208 VAC Δ ±10%, 47-63 Hz	11 A_{rms}	20 A
	2)	220 VAC Δ ±10%, 47-63 Hz	10 A_{rms}	20 A
	3)	240 VAC Δ ±10%, 47-63 Hz	9 A_{rms}	20 A
	4)	220/380 VAC ±10%, 47-63 Hz	6 A_{rms}	15 A
	5)	230/400 VAC ±10%, 47-63 Hz	6 A_{rms}	15 A
	6)	240/416 VAC ±10%, 47-63 Hz	6 A_{rms}	15 A
(cost option)	7)	277/480 VAC ±10%, 47-63 Hz	5 A_{rms}	15 A

MODEL 345-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 345-AMX three phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

		INPUT CURRENT (360-440 Hz optional)	INPUT CURRENT	SERVICE RECOMMENDED
	1)	208 VAC Δ ±10%, 47-63 Hz	23 A_{rms}	40 A
	2)	220 VAC Δ ±10%, 47-63 Hz	22 A_{rms}	40 A
	3)	230 VAC Δ ±10%, 47-63 Hz	21 A_{rms}	40 A
	4)	240 VAC Δ ±10%, 47-63 Hz	20 A_{rms}	40 A
	5)	220/380 VAC ±10%, 47-63 Hz	13 A_{rms}	20 A
	6)	230/400 VAC ±10%, 47-63 Hz	12 A_{rms}	20 A
	7)	240/416 VAC ±10%, 47-63 Hz	12 A_{rms}	20 A
(cost option)	8)	277/480 VAC ±10%, 47-63 Hz	11 A_{rms}	20 A

2.1.1 INPUT POWER REQUIREMENTS (cont.)

MODEL 360-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 360-AMX three phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

		INPUT CURRENT (360-440 Hz optional)	INPUT CURRENT	SERVICE RECOMMENDED
	1)	208 VAC Δ ±10%, 47-63 Hz	29 A_{rms}	40 A
	2)	220 VAC Δ ±10%, 47-63 Hz	27 A_{rms}	40 A
	3)	230 VAC Δ ±10%, 47-63 Hz	26 A_{rms}	40 A
	4)	240 VAC Δ ±10%, 47-63 Hz	25 A_{rms}	40 A
	5)	220/380 VAC ±10%, 47-63 Hz	16 A_{rms}	20 A
	6)	230/400 VAC ±10%, 47-63 Hz	15 A_{rms}	20 A
	7)	240/416 VAC ±10%, 47-63 Hz	15 A_{rms}	20 A
(cost option)	8)	277/480 VAC ±10%, 47-63 Hz	14 A_{rms}	20 A

MODEL 390-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 390-AMX three phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

		INPUT CURRENT (360-440 Hz optional)	INPUT CURRENT	SERVICE RECOMMENDED
	1)	208 VAC Δ ±10%, 47-63 Hz	46 A_{rms}	80 A
	2)	220 VAC Δ ±10%, 47-63 Hz	44 A_{rms}	80 A
	3)	230 VAC Δ ±10%, 47-63 Hz	42 A_{rms}	80 A
	4)	240 VAC Δ ±10%, 47-63 Hz	40 A_{rms}	80 A
	5)	220/380 VAC ±10%, 47-63 Hz	26 A_{rms}	40 A
	6)	230/400 VAC ±10%, 47-63 Hz	24 A_{rms}	40 A
	7)	240/416 VAC ±10%, 47-63 Hz	24 A_{rms}	40 A
(cost option)	8)	277/480 VAC ±10%, 47-63 Hz	22 A_{rms}	40 A

2.1.1 INPUT POWER REQUIREMENTS (cont.)

MODEL 3120-AMX

INPUT VOLTAGE AND INPUT CURRENT

The Model 3120-AMX three phase input voltages, required input currents at full rated load and recommended service input currents are stated as below.

		INPUT CURRENT (360-440 Hz optional)	INPUT CURRENT	SERVICE RECOMMENDED
	1)	208 VAC Δ ±10%, 47-63 Hz	58 A_{rms}	80 A
	2)	220 VAC Δ ±10%, 47-63 Hz	54 A_{rms}	80 A
	3)	230 VAC Δ ±10%, 47-63 Hz	52 A_{rms}	80 A
	4)	240 VAC Δ ±10%, 47-63 Hz	50 A_{rms}	80 A
	5)	220/380 VAC ±10%, 47-63 Hz	32 A_{rms}	40 A
	6)	230/400 VAC ±10%, 47-63 Hz	30 A_{rms}	40 A
	7)	240/416 VAC ±10%, 47-63 Hz	30 A_{rms}	40 A
(cost option)	8)	277/480 VAC ±10%, 47-63 Hz	28 A_{rms}	40 A

2.1.2 OUTPUT POWER

OUTPUT VOLTAGE RANGE

DIRECT-COUPLED

The standard output voltage range for most of the AMX-Series Power Source is 0-135 VAC_{l-n} when operated in the direct-coupled mode. Additionally, the Models 112-AMX, 125-AMX and 312-AMX can operate from 0 to 150 VAC_{l-n}. The voltages are stated for full rated load and nominal input voltage applied.

TRANSFORMER-COUPLED

The output voltage range of the AMXT-Series Power Source varies when operated in the transformer-coupled mode. Maximum output voltage is determined by the transformer turns ratio. See list below for maximum output voltage vs. turns ratio.

TURNS RATIO	MAXIMUM OUTPUT VOLTAGE (No Load)
1.5:1	204 VAC_{l-n}
2.0:1	273 VAC_{l-n}
2.5:1	341 VAC_{l-n}

NOTE: Models 112-AMX, 125-AMX and 312-AMX require special consideration for transformer-coupled operation. Please contact Pacific Power Source.

OUTPUT CURRENT

FULL-RATED CURRENT

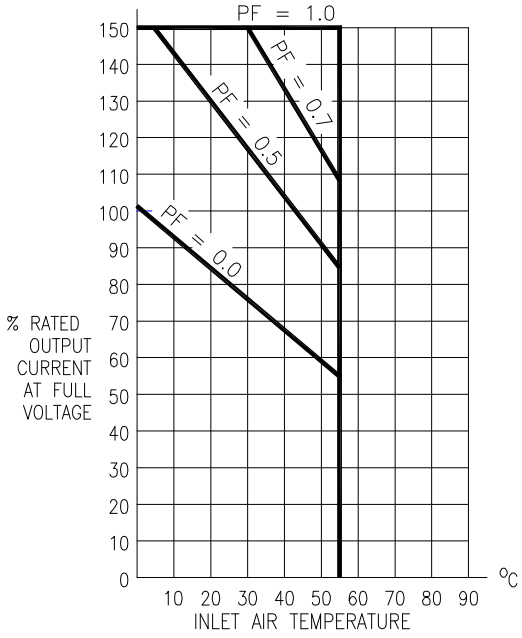
The full-rated output current of the AMX-Series Power Source is listed below by model number. Current is stated for output voltage set to 125 VAC_{l-n}. Refer to the Power Factor Rating chart, Figure 2.1.2(A-N), for maximum current at reduced voltage. Output current ratings are scaled appropriately when using transformer-coupled outputs.

	1φ		2φ		3φ	
MODEL	$I_{out, rms}$	$I_{out, pk}$	$I_{out, rms}$	$I_{out, pk}$	$I_{out, rms}$	$I_{out, pk}$
105-AMX	4 A	40 A	2 A	20 A	N/A	N/A
108-AMX	6 A	40 A	3 A	20 A	N/A	N/A
112-AMX	10 A	40 A	5 A	20 A	N/A	N/A
125-AMX	20 A	90 A	10 A	45 A	N/A	N/A
140-AMX	32 A	140 A	16 A	70 A	N/A	N/A
160-AMX	48 A	210 A	16 A	70 A	N/A	N/A
305-AMX	4 A	45 A	2 A	15 A	1.33 A	15 A
308-AMX	6 A	45 A	2 A	15 A	2 A	15 A
312-AMX	10 A	45 A	3 A	15 A	3 A	15 A
320-AMX	18 A	60 A	6 A	20 A	6 A	20 A
345-AMX	36 A	165 A	12 A	55 A	12 A	55 A
360-AMX	48 A	210 A	16 A	70 A	16 A	70 A
390-AMX	72 A	330 A	24 A	110 A	24 A	110 A
3120-AMX	96 A	410 A	32 A	140 A	32 A	140 A

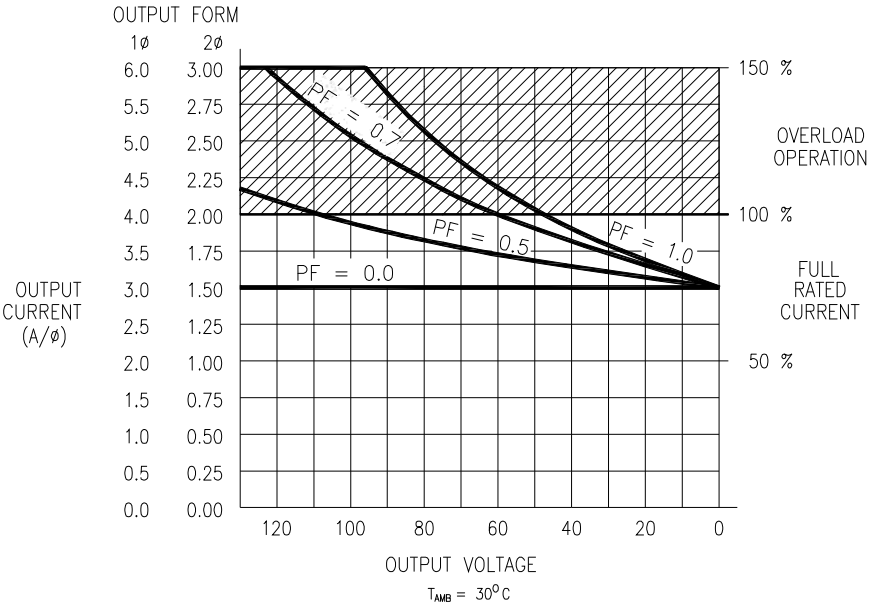
OVERLOAD OPERATION

The AMX-Series Power Source will deliver up to 150% of rated rms output current into unity power factor loads at full-rated output voltage. Low output power factor, reduced output voltage, and elevated ambient temperatures will increase the internal dissipation of the power source and can cause overload shutdown due to over-temperature conditions. Length of time to reach over-temperature varies with the models and the above parameters.

2.1.2 OUTPUT POWER (cont.)



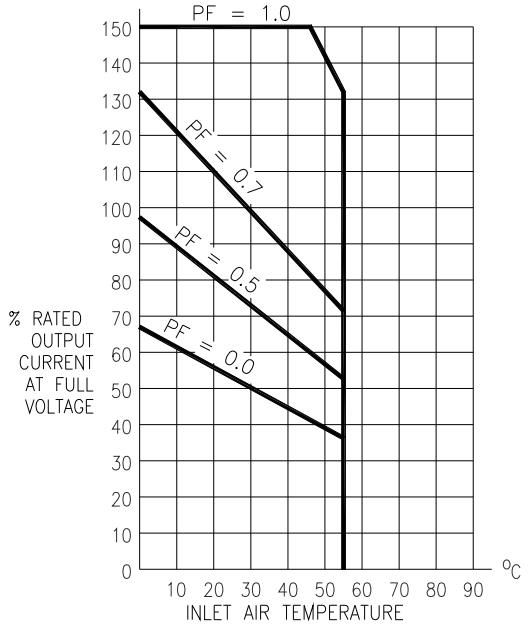
THERMAL RATING CHART



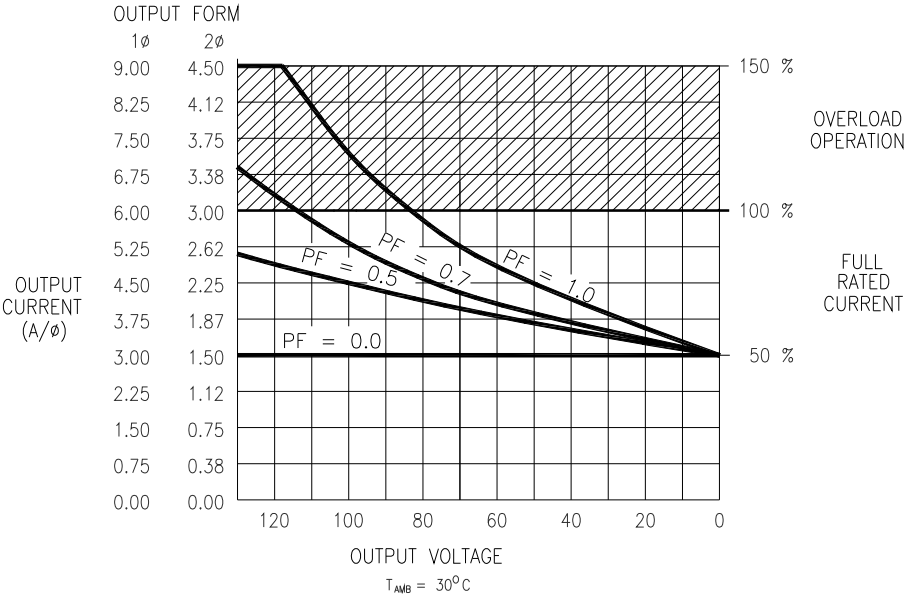
POWER FACTOR RATING CURVE

FIGURE 2.1.2(A) MODEL 105-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)



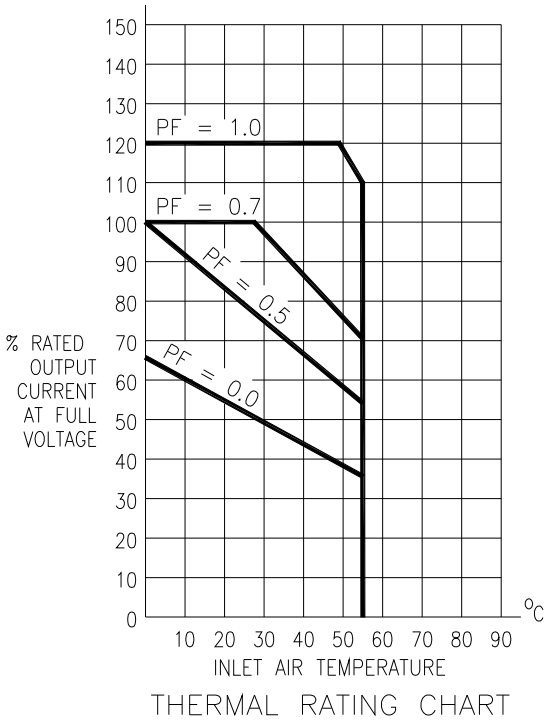
THERMAL RATING CHART



POWER FACTOR RATING CURVE

FIGURE 2.1.2(B) MODEL 108-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)



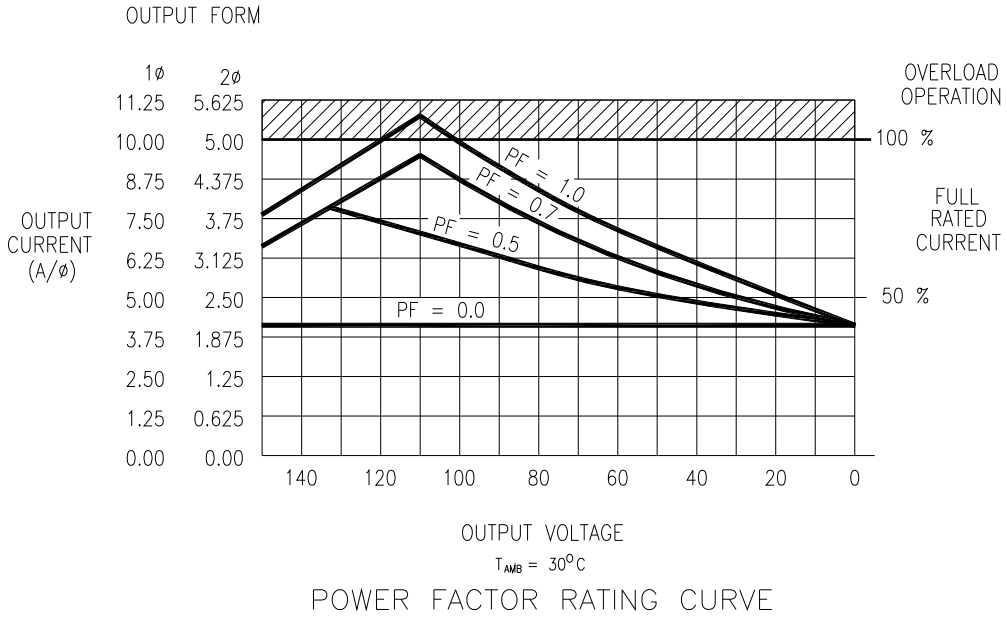
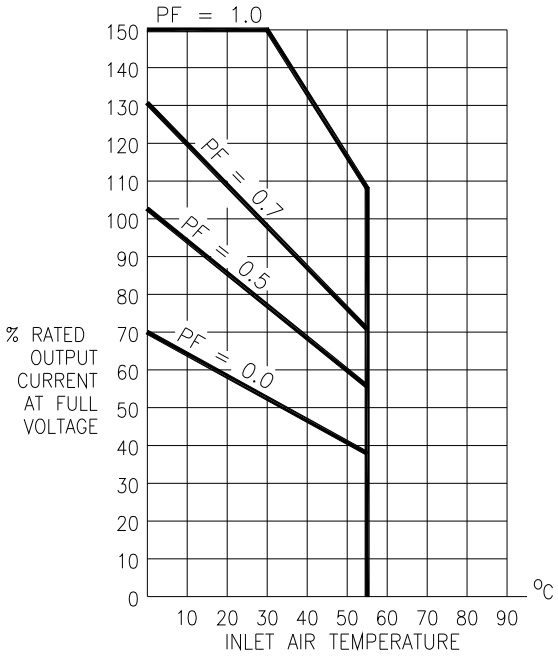
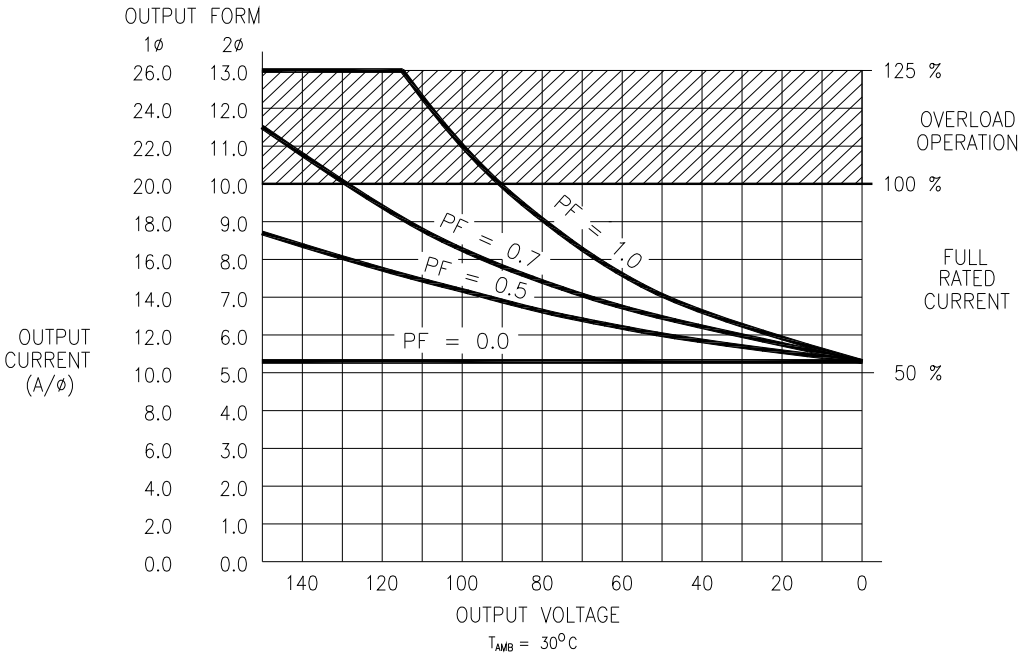


FIGURE 2.1.2(C) MODEL 112-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)



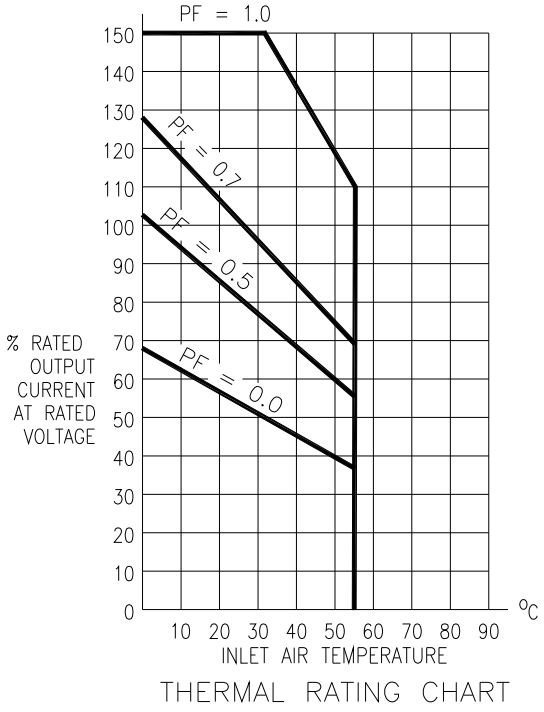
THERMAL RATING CHART



POWER FACTOR RATING CURVE

FIGURE 2.1.2(D) MODEL 125-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)



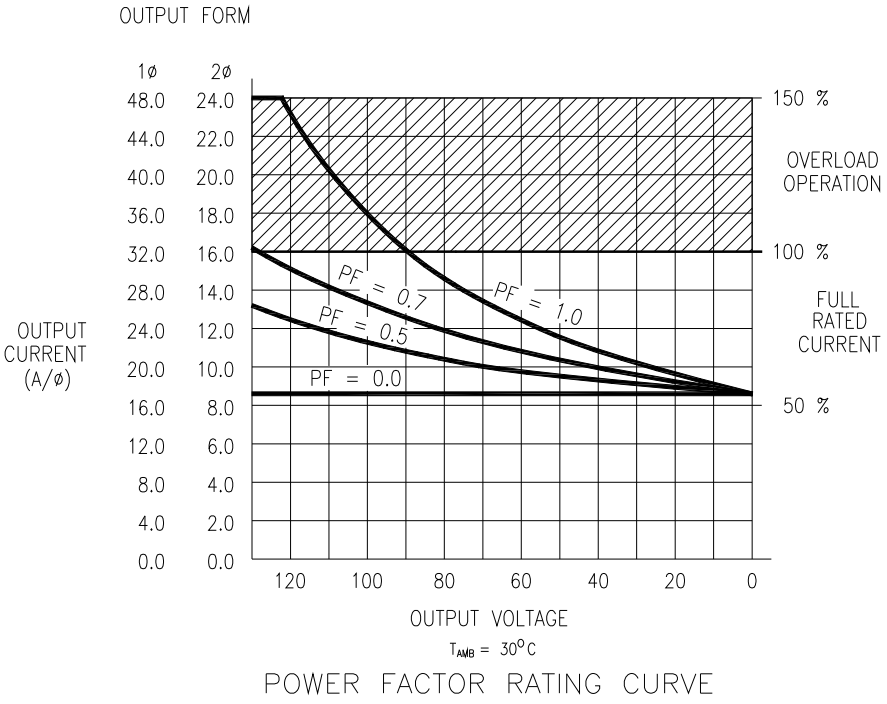
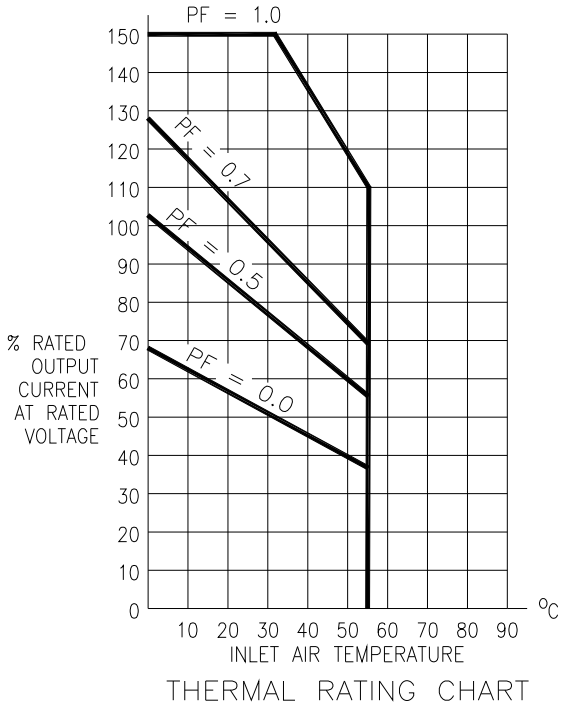
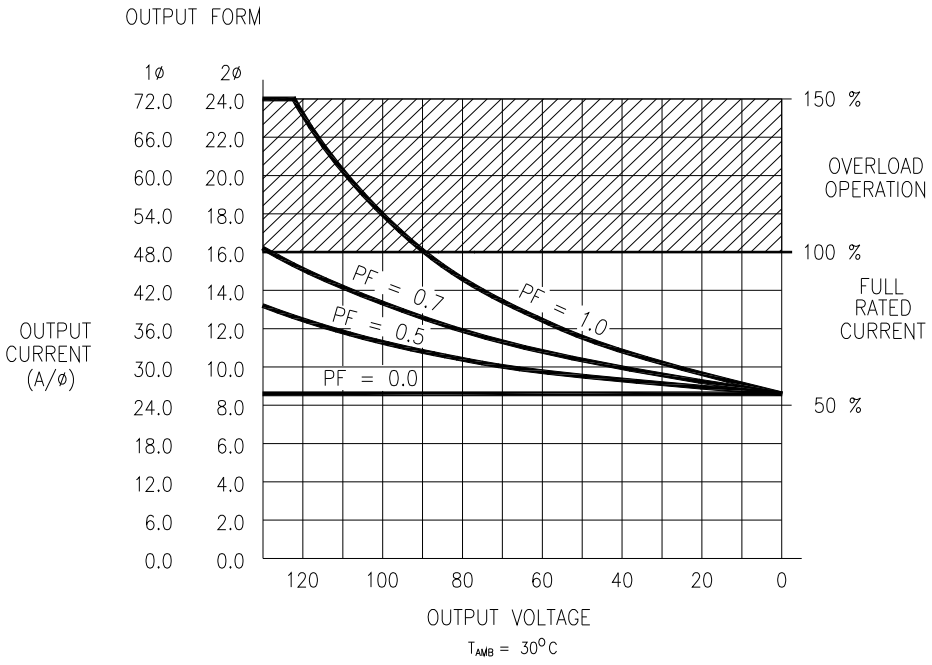


FIGURE 2.1.2(E) MODEL 140-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)



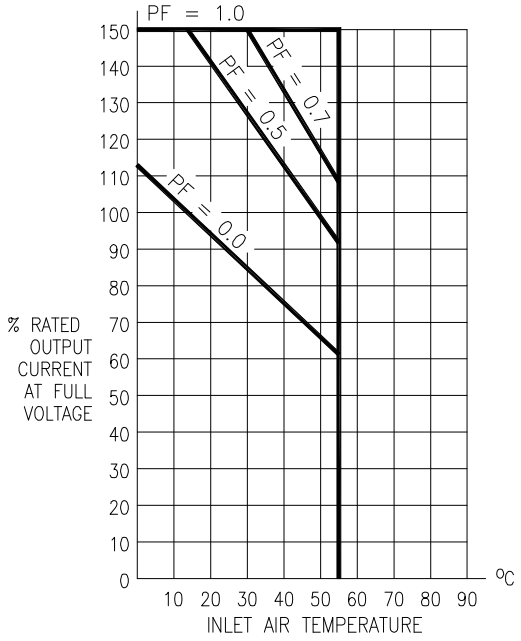
THERMAL RATING CHART



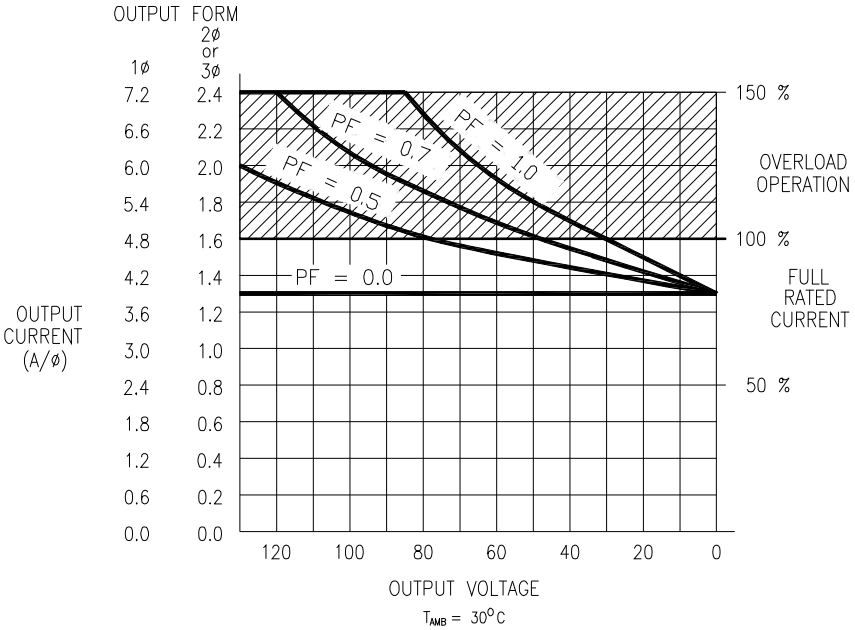
POWER FACTOR RATING CURVE

FIGURE 2.1.2(F) MODEL 160-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)



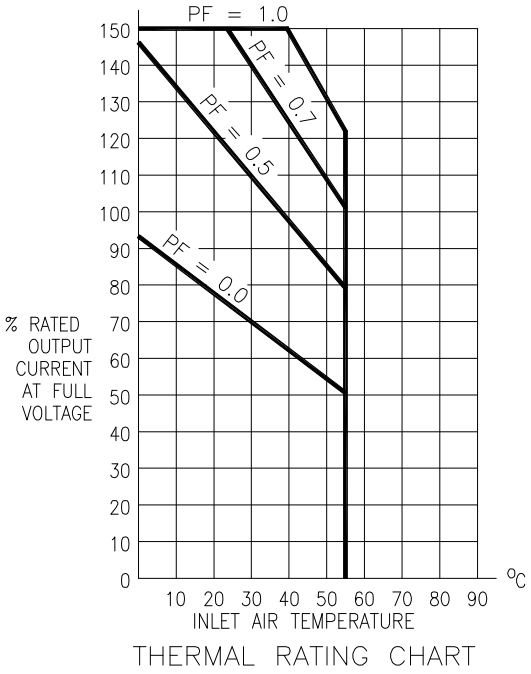
THERMAL RATING CHART



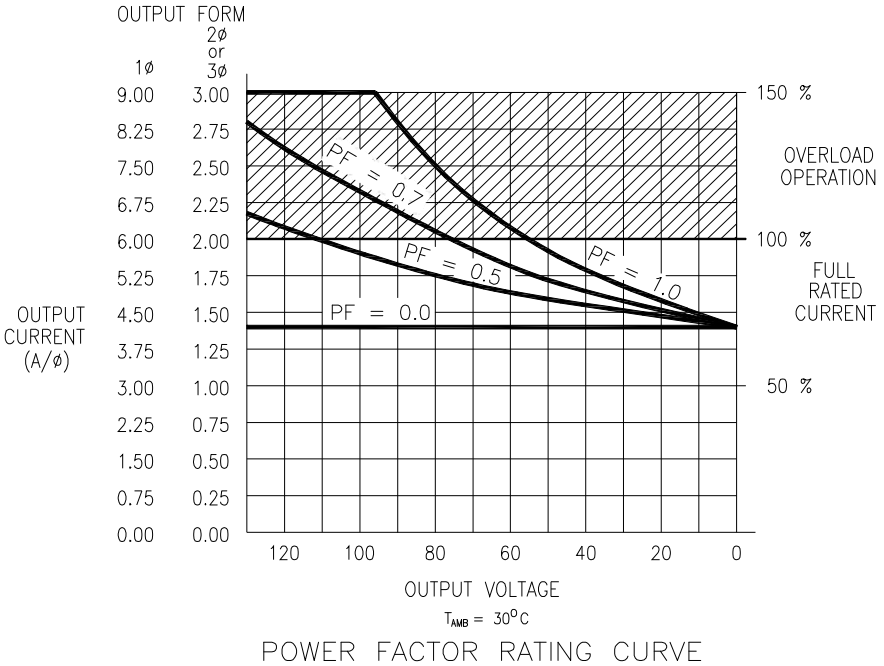
POWER FACTOR RATING CURVE

FIGURE 2.1.2(G) MODEL 305-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)



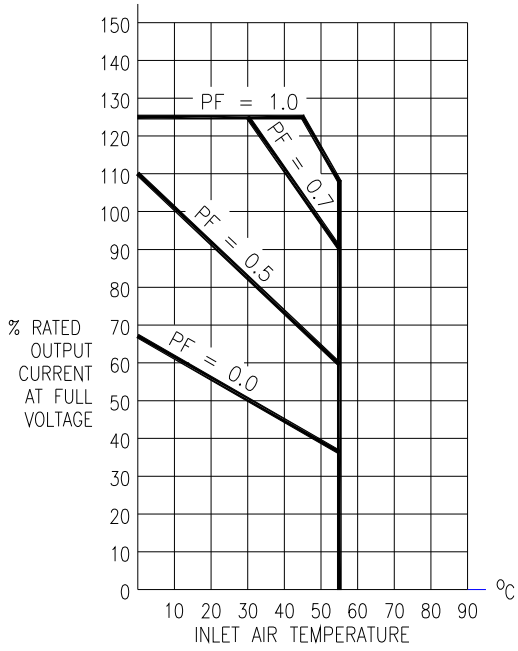
THERMAL RATING CHART



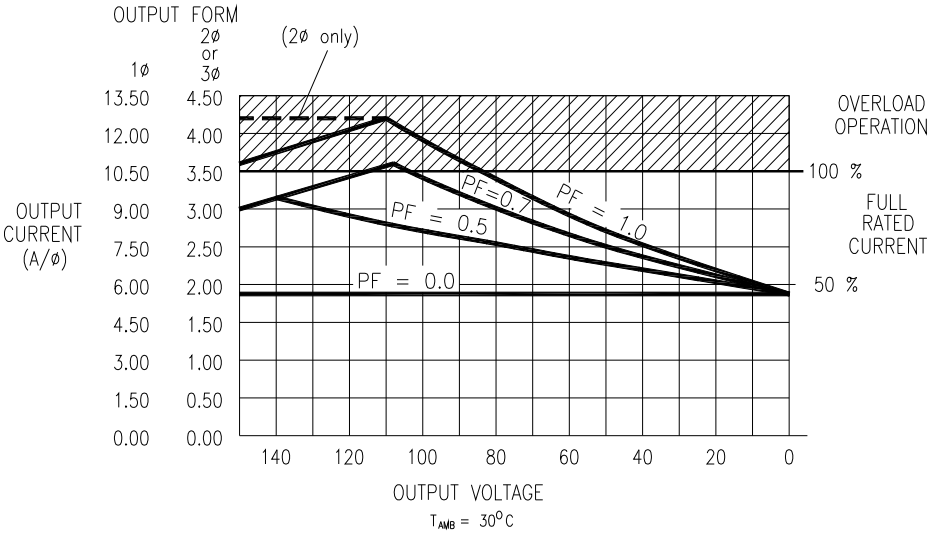
POWER FACTOR RATING CURVE

FIGURE 2.1.2(H) MODEL 308-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)



THERMAL RATING CHART



POWER FACTOR RATING CURVE

FIGURE 2.1.2(I) MODEL 312-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)

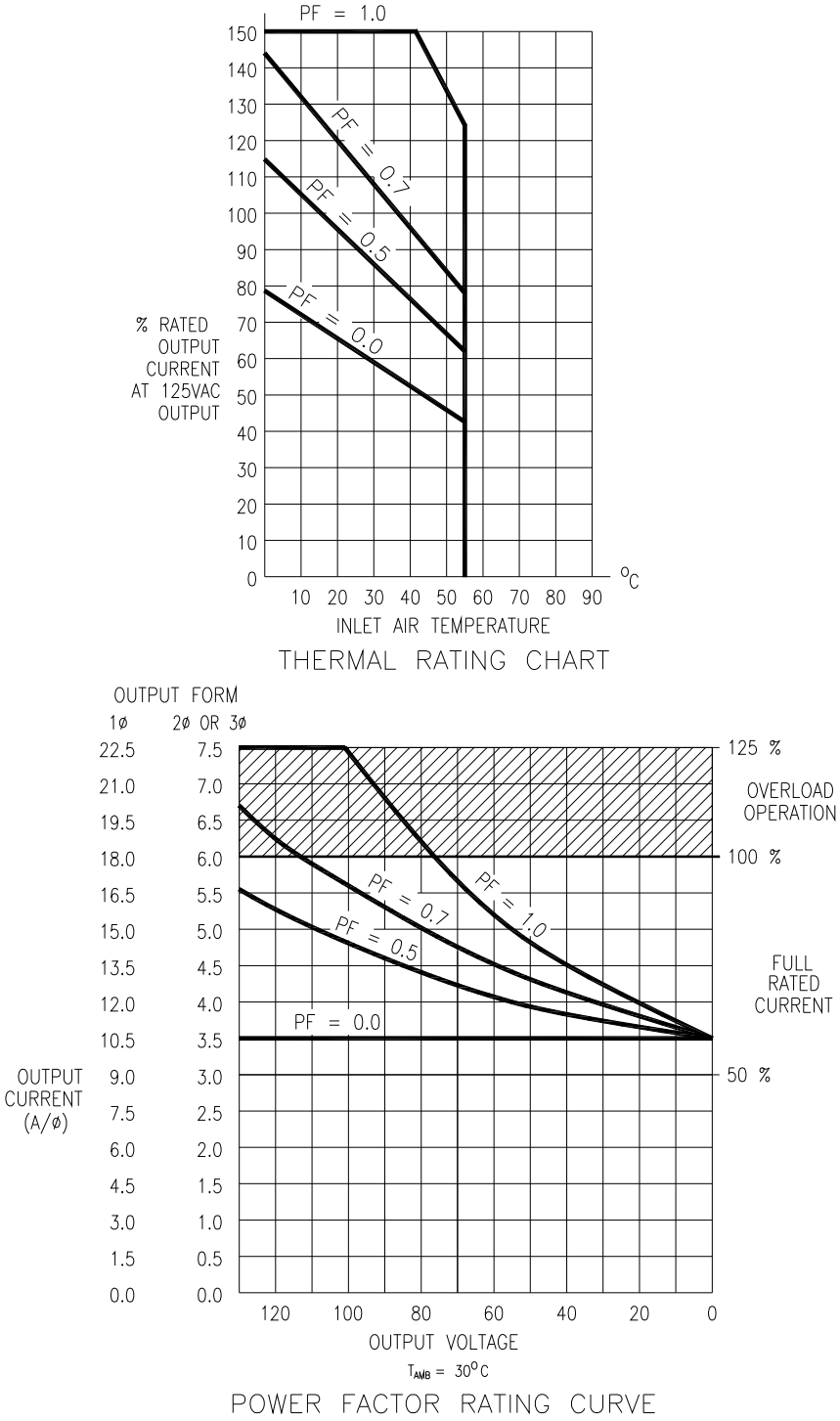
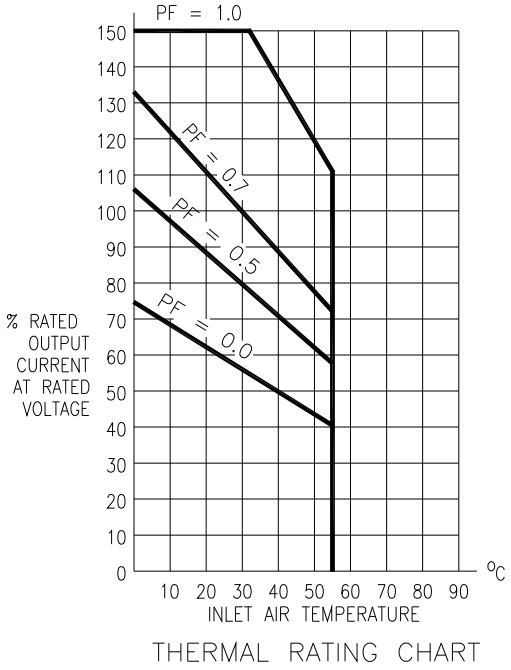


FIGURE 2.1.2(J) MODEL 320-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)



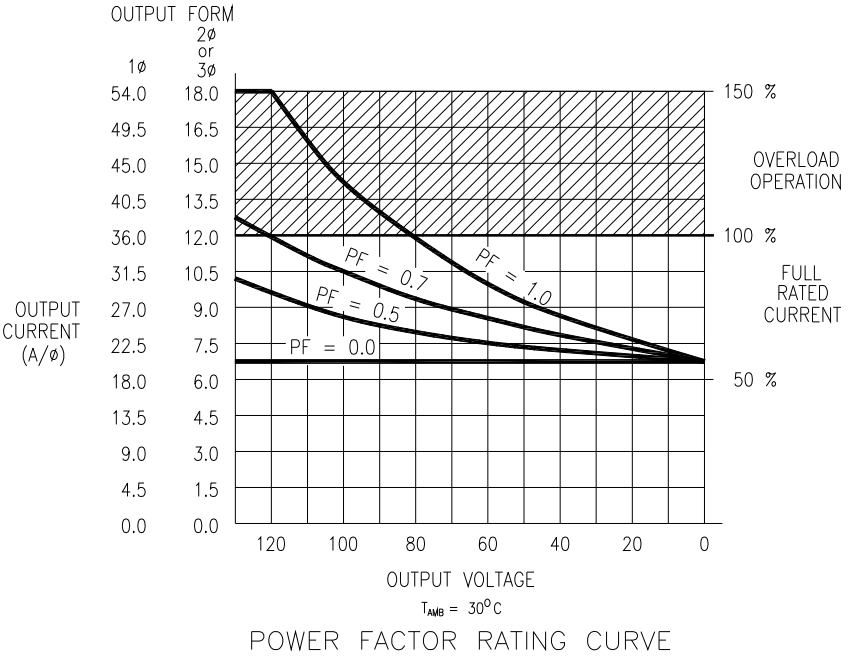
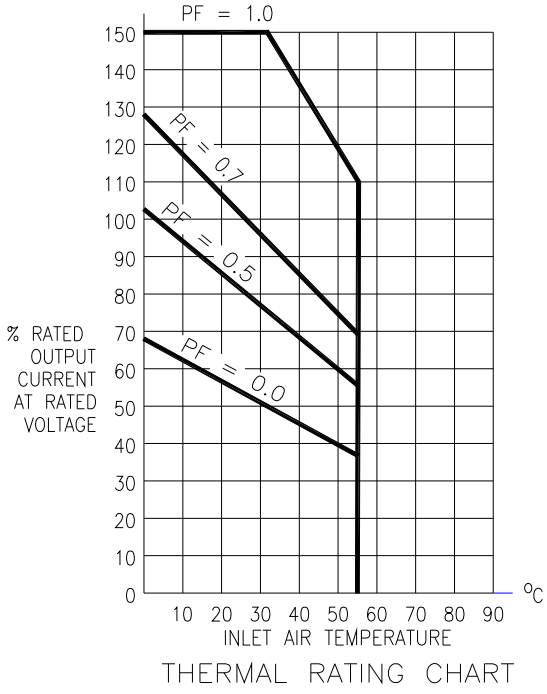
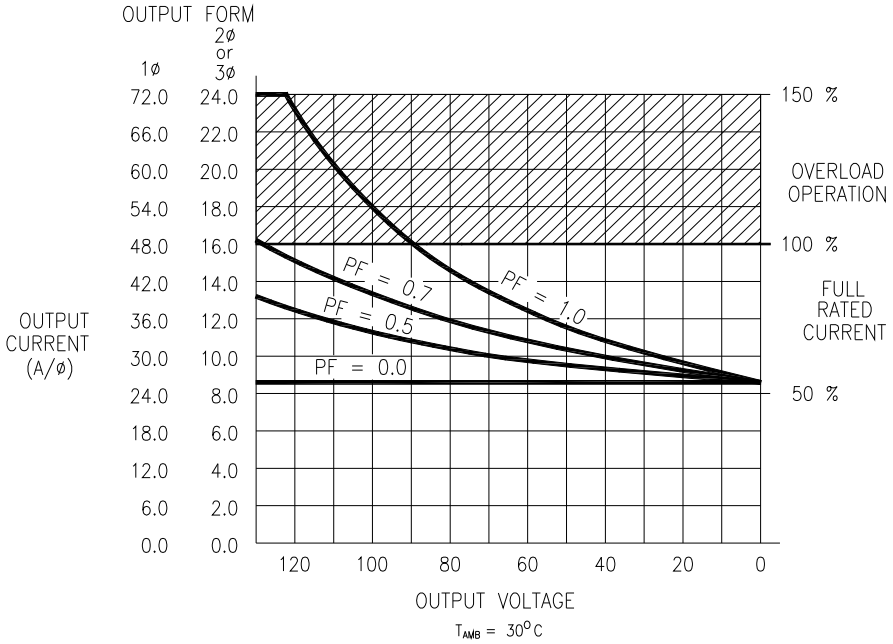


FIGURE 2.1.2(K) MODEL 345-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)



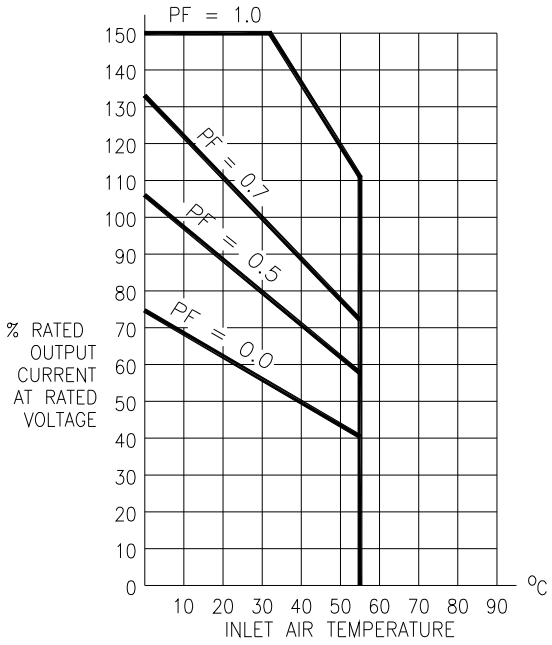
THERMAL RATING CHART



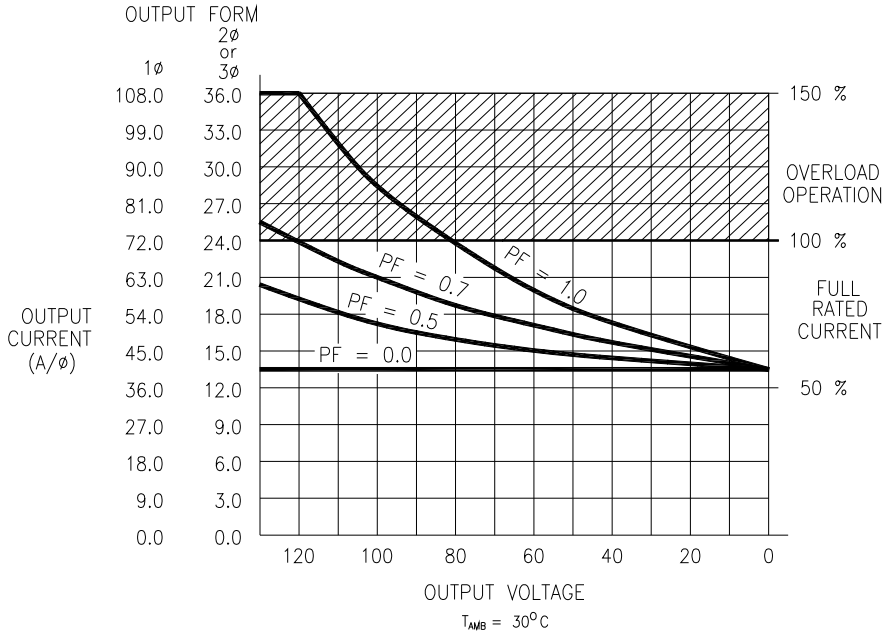
POWER FACTOR RATING CURVE

FIGURE 2.1.2(L) MODEL 360-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)



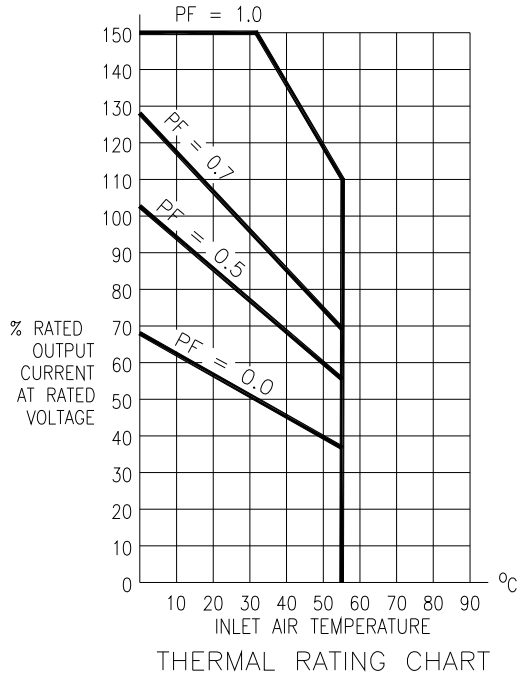
THERMAL RATING CHART



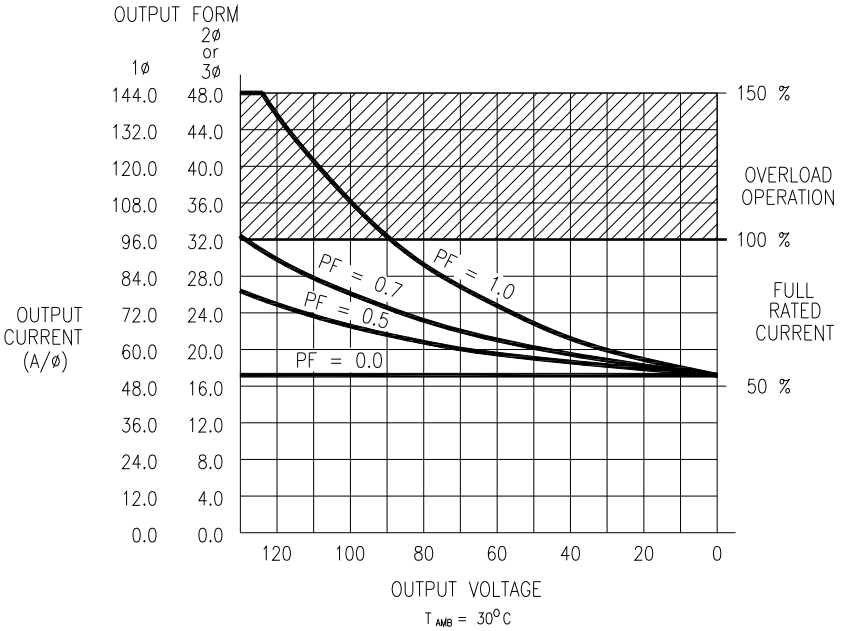
POWER FACTOR RATING CURVE

FIGURE 2.1.2(M) MODEL 390-AMX OUTPUT RATING CURVES

2.1.2 OUTPUT POWER (cont.)



THERMAL RATING CHART



POWER FACTOR RATING CURVE

FIGURE 2.1.2(N) MODEL 3120-AMX OUTPUT RATING CURVES

2.1.3 OUTPUT POWER FACTOR

The AMX-Series Power Source is designed to operate into any load power factor. For load power factors less than ±0.7, the available output power is rated as shown by the Power Factor Rating chart of Figures 2.1.2(A-N).

2.1.4 OUTPUT FREQUENCY

The output frequency range of the AMX-Series Power Source is determined by the controller which is installed in the system. Refer to the appropriate UPC manual for output frequency specifications.

2.1.5 OUTPUT DISTORTION

The output distortion of the AMX-Series Power Source is typically:

Less than 0.10% THD for output frequencies in the range of 45 to 1,000 Hz.
Less than 0.25% for frequencies in the range of 20 to 5,000 Hz.

2.1.6 OUTPUT LOAD REGULATION

DIRECT-COUPLED
Load regulation of the AMX-Series Power Source is less than 0.25% when the system is operated in the direct-coupled mode.

TRANSFORMER-COUPLED
Load regulation of the AMX-Series Power Source varies with Turns Ratio when the system is operated in the transformer-coupled mode. Use of Continuous-Self-Calibration (CSC) or current compensation improves load regulation to less than 0.10%. Uncompensated load regulation is listed below.

TURNS RATIO	LOAD REGULATION (Uncompensated)
1.5:1	2%
2.0:1	4%
2.5:1	5%

2.1.7 INPUT LINE REGULATION

Input line regulation of the AMX-Series Power Source is less than 0.1% for a 10% change in line voltage (provided, input line voltage remains within the specified range of ±10% of nominal rating).

2.1.8 OUTPUT BANDWIDTH

The output bandwidth of the AMX-Series Power Source is listed below.

Full Power:	45	to	500 Hz (±0.10 db [± 1%])
	20	to	5,000 Hz (±0.25 db [± 3%])
Small Signal:	5	to	40,000 Hz (±3 db [±30%])

(rated at 10% of full-scale output voltage)

2.1.9 LOAD TRANSIENT RESPONSE

Output load transient response for a 0-100% load induced step transient is approximately 5 µsec.

2.1.10 OUTPUT DC OFFSET

The DC offset present on the output of the AMX-Series Power Source is less than 10 mVDC for the Models 105, 108, 112, 305, 308, 312, and 320-AMX; and less than 5 mVDC for the Models 125, 140, 160, 345, 360, 390, and 3120-AMX.

2.1.11 OUTPUT PROTECTION

The output of the AMX-Series Power Source is protected through the use of electronic current limiting. The output will automatically recover when the output fault is removed. Thermal overload protection is also provided. Refer to paragraph 2.3.3 for details.

Note:

The programmable controller also provides programmable current limit. Refer to the *UPC-Series Operation Manual* for details.

2.1.12 OUTPUT CONTROL CHARACTERISTICS

Output control characteristics, sync I/O signals and metering capabilities are determined by the controller which is installed. Refer to the appropriate controller manual for details.

2.1.13 OUTPUT ISOLATION

The output of the AMX-Series is galvanically isolated from the chassis and input power. Maximum allowable output Neutral to Chassis voltage is 150 VAC. (Refer to Paragraph 3.4.4 for special considerations when using transformer-coupled outputs.)

2.2 MECHANICAL SPECIFICATIONS

This paragraph describes the mechanical characteristics of the AMX-Series Power Sources.

2.2.1 DIMENSIONS

POWER SOURCE:

Dimensions of the AMX-Series Power Sources are listed below.

MODEL 105-AMX

Height: 5.25" [134 mm]
Width: 19.00" [483 mm] (front panel); 16.75" [426 mm] (chassis)
Depth: 23.00" [584 mm] (measured from back side of front panel, excludes terminal blocks)
Weight: 70 lbs. [32 kg] (w/o output transformers);
97 lbs. [44 kg] (with output transformers)

Refer to Figure 2.2.1 for the outline drawing of the Model 105-AMX.

MODEL 108-AMX

Height: 5.25" [134 mm]
Width: 19.00" [483 mm] (front panel); 16.75" [426 mm] (chassis)
Depth: 23.00" [584 mm] (measured from back side of front panel, excludes terminal blocks)
Weight: 70 lbs. [32 kg] (w/o output transformers);
97 lbs. [44 kg] (with output transformers)

Refer to Figure 2.2.1 for the outline drawing of the Model 108-AMX.

MODEL 112-AMX

Height: 5.25" [134 mm]
Width: 19.00" [483 mm] (front panel); 16.75" [426 mm] (chassis)
Depth: 23.00" [584 mm] (measured from back side of front panel, excludes terminal blocks)
Weight: 80 lbs. [36 kg]

Refer to Figure 2.2.1 for the outline drawing of the Model 112-AMX.

MODEL 125-AMX

Height: 10.50" [267 mm]
Width: 19.00" [483 mm] (front panel); 17.00" [432 mm] (chassis)
Depth: 23.50" [597 mm]
Weight: 120 lbs. [54 kg]

Refer to Figure 2.2.3 for the outline drawing of the Model 125-AMX.

2.2.1 DIMENSIONS (cont.)

POWER SOURCE:

MODEL 140-AMX

Height: 14.00" [356 mm]
Width: 19.00" [483 mm] (front panel); 17.00" [432 mm] (chassis)
Depth: 23.50" [597 mm]
Weight: 185 lbs. [84 kg]

Refer to Figure 2.2.3 for the outline drawing of the Model 140-AMX.

MODEL 160-AMX

Height: 14.00" [356 mm]
Width: 19.00" [483 mm] (front panel); 17.00" [432 mm] (chassis)
Depth: 23.50" [597 mm]
Weight: 195 lbs. [88 kg]

Refer to Figure 2.2.3 for the outline drawing of the Model 160-AMX.

MODEL 305-AMX

Height: 5.25" [134 mm]
Width: 19.00" [483 mm] (front panel); 16.75" [426 mm] (chassis)
Depth: 23.00" [584 mm] (measured from back side of front panel, excludes terminal blocks)
Weight: 74 lbs. [34 kg] (w/o output transformers);
100 lbs. [45 kg] (with output transformers)

Refer to Figure 2.2.1 for the outline drawing of the Model 305-AMX.

MODEL 308-AMX

Height: 5.25" [134 mm]
Width: 19.00" [483 mm] (front panel); 16.75" [426 mm] (chassis)
Depth: 23.00" [584 mm] (measured from back side of front panel, excludes terminal blocks)
Weight: 74 lbs. [34 kg] (w/o output transformers);
100 lbs. [45 kg] (with output transformers)

Refer to Figure 2.2.1 for the outline drawing of the Model 308-AMX.

MODEL 312-AMX

Height: 5.25" [134 mm]
Width: 19.00" [483 mm] (front panel); 16.75" [426 mm] (chassis)
Depth: 23.00" [584 mm] (measured from back side of front panel, excludes terminal blocks)
Weight: 80 lbs. [36 kg]

Refer to Figure 2.2.1 for the outline drawing of the Model 312-AMX.

2.2.1 DIMENSIONS (cont.)

POWER SOURCE:

MODEL 320-AMX

Height: 8.75" [222 mm]
Width: 19.00" [483 mm] (front panel); 16.75" [426 mm] (chassis)
Depth: 23.12" [587 mm] (measured from back side of front panel, excludes terminal blocks)
Weight: 150 lbs. [68 kg]

Refer to Figure 2.2.2 for the outline drawing of the Model 320-AMX.

MODEL 345-AMX

Height: 14.00" [356 mm]
Width: 19.00" [483 mm] (front panel); 17.00" [432 mm] (chassis)
Depth: 23.50" [597 mm]
Weight: 190 lbs. [86 kg]

Refer to Figure 2.2.3 for the outline drawing of the Model 345-AMX.

MODEL 360-AMX

Height: 14.00" [356 mm]
Width: 19.00" [483 mm] (front panel); 17.00" [432 mm] (chassis)
Depth: 23.50" [597 mm]
Weight: 195 lbs. [88 kg]

Refer to Figure 2.2.3 for the outline drawing of the Model 360-AMX.

MODEL 390-AMX

Height: 28.00" [712 mm] (14.00" [356 mm] x 2ea)
Width: 19.00" [483 mm] (front panel); 17.00" [432 mm] (chassis)
Depth: 23.50" [597 mm]
Weight: 375 lbs [169 kg] (170 lbs. [77 kg] x 2ea)

Refer to Figure 2.2.4 for the outline drawing of the Model 390-AMX.

2.2.1 DIMENSIONS (cont.)

POWER SOURCE:

MODEL 3120-AMX

Height:	28.00" [712 mm]	(14.00" [356 mm] x 2ea)
Width:	19.00" [483 mm]	(front panel); 17.00" [432 mm] (chassis)
Depth:	23.50" [597 mm]	
Weight:	390 lbs [176 kg]	(180 lbs. [82 kg] x 2ea)

Refer to Figure 2.2.4 for the outline drawing of the Model 3120-AMX.

MAGNETICS MODULE:

(Houses Output Transformers used with 345-AMX through 3120-AMX power sources. Two ea. required for 390-AMX and 3120-AMX systems.)

Height:	5.25" [134 mm]	
Width:	19.00" [483 mm]	(front panel); 16.75" [426 mm] (chassis)
Depth:	23.50" [597 mm]	
Weight:	125 lbs. [57 kg]	

Refer to Figure 2.2.4 for the outline drawing of the Magnetics Module.

2.2.2 INPUT POWER CONNECTION

Input power is brought into the AMX-Series Power Source via the rear panel.

An unterminated power cord is provided on the Models 105-AMX, 108-AMX, 112-AMX, 305-AMX, 308-AMX, 312-AMX, and 320-AMX.

A terminal block is provided on the Models 125-AMX, 140-AMX, 160-AMX, 345-AMX, 360-AMX, 390-AMX, and 3120-AMX.

2.2.2 INPUT POWER CONNECTION (cont.)

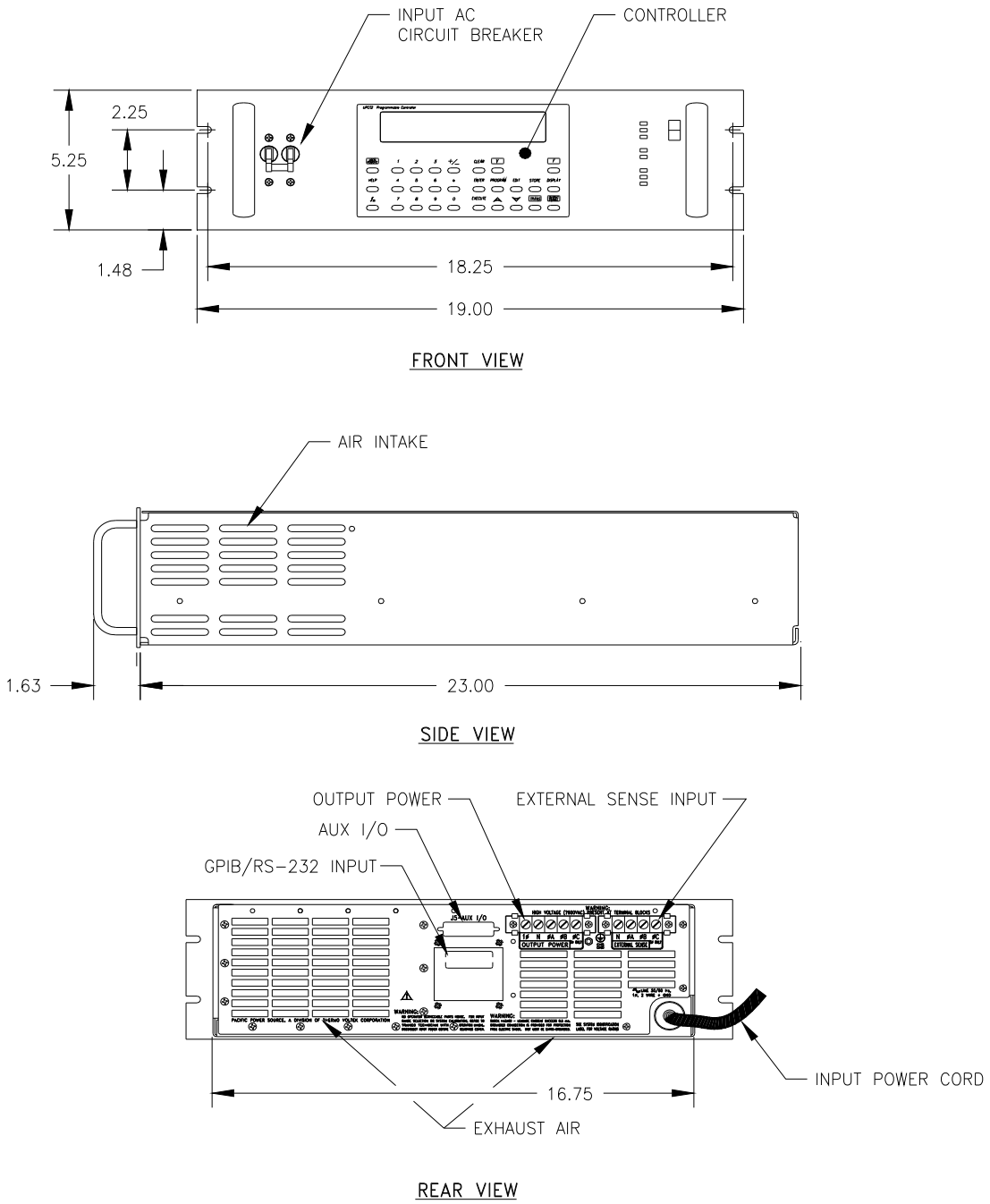


FIGURE 2.2.1 OUTLINE DRAWING, MODELS 105/108/112/305/308/312-AMX

2.2.2 INPUT POWER CONNECTION (cont.)

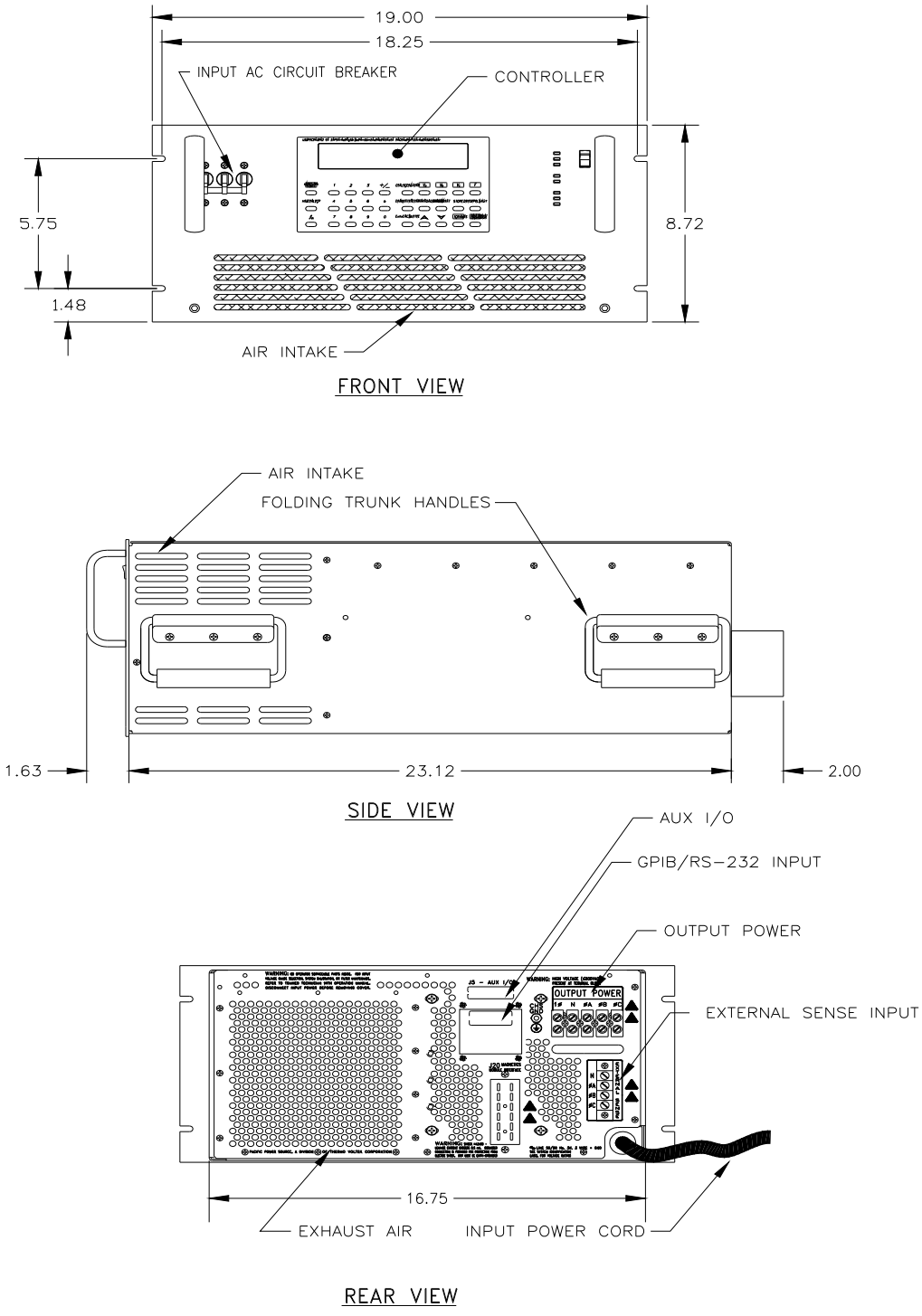


FIGURE 2.2.2 OUTLINE DRAWING, MODEL 320-AMX

2.2.2 INPUT POWER CONNECTION (cont.)

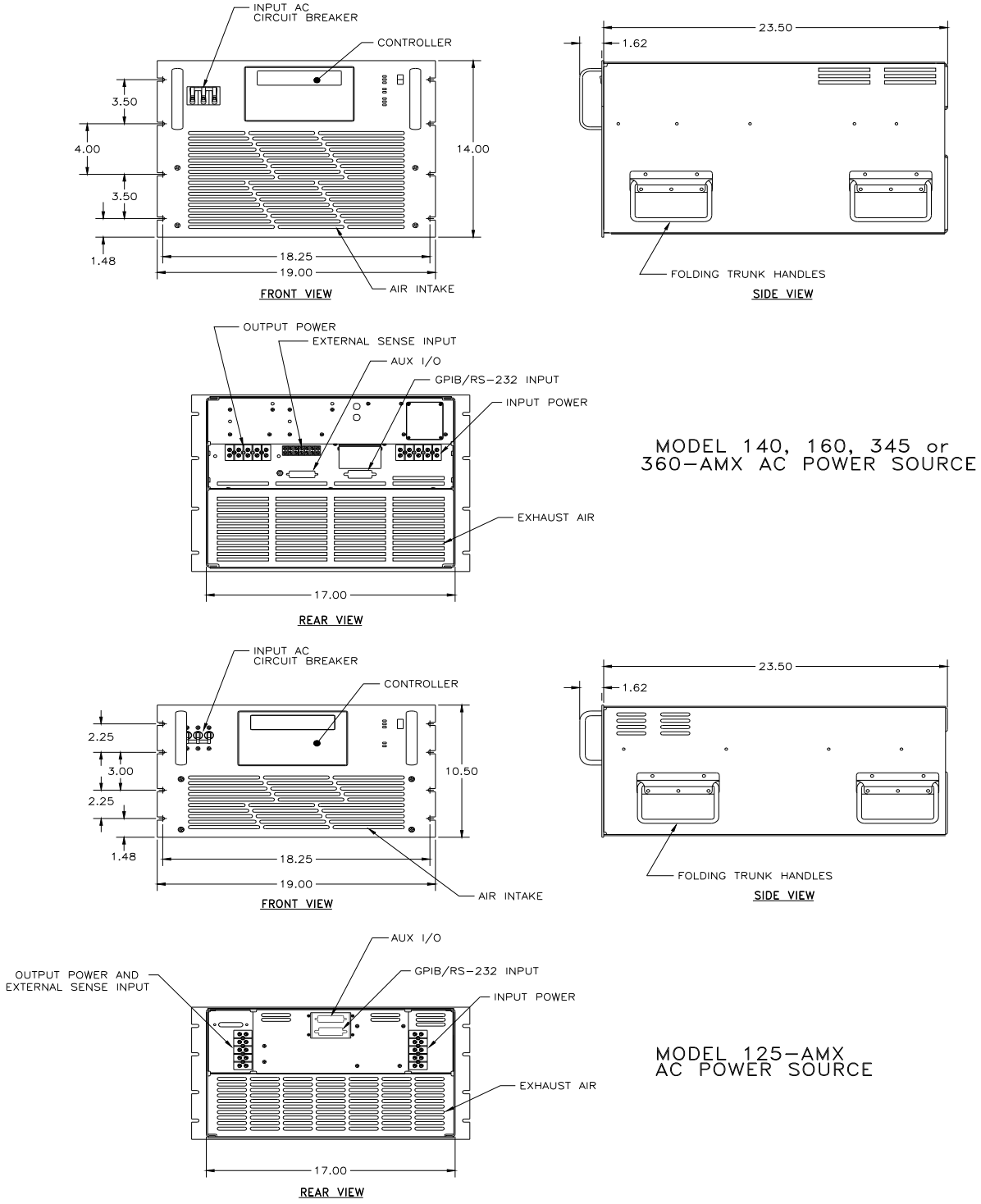


FIGURE 2.2.3 OUTLINE DRAWING, MODELS 125/140/160/345/360-AMX

2.2.2 INPUT POWER CONNECTION (cont.)

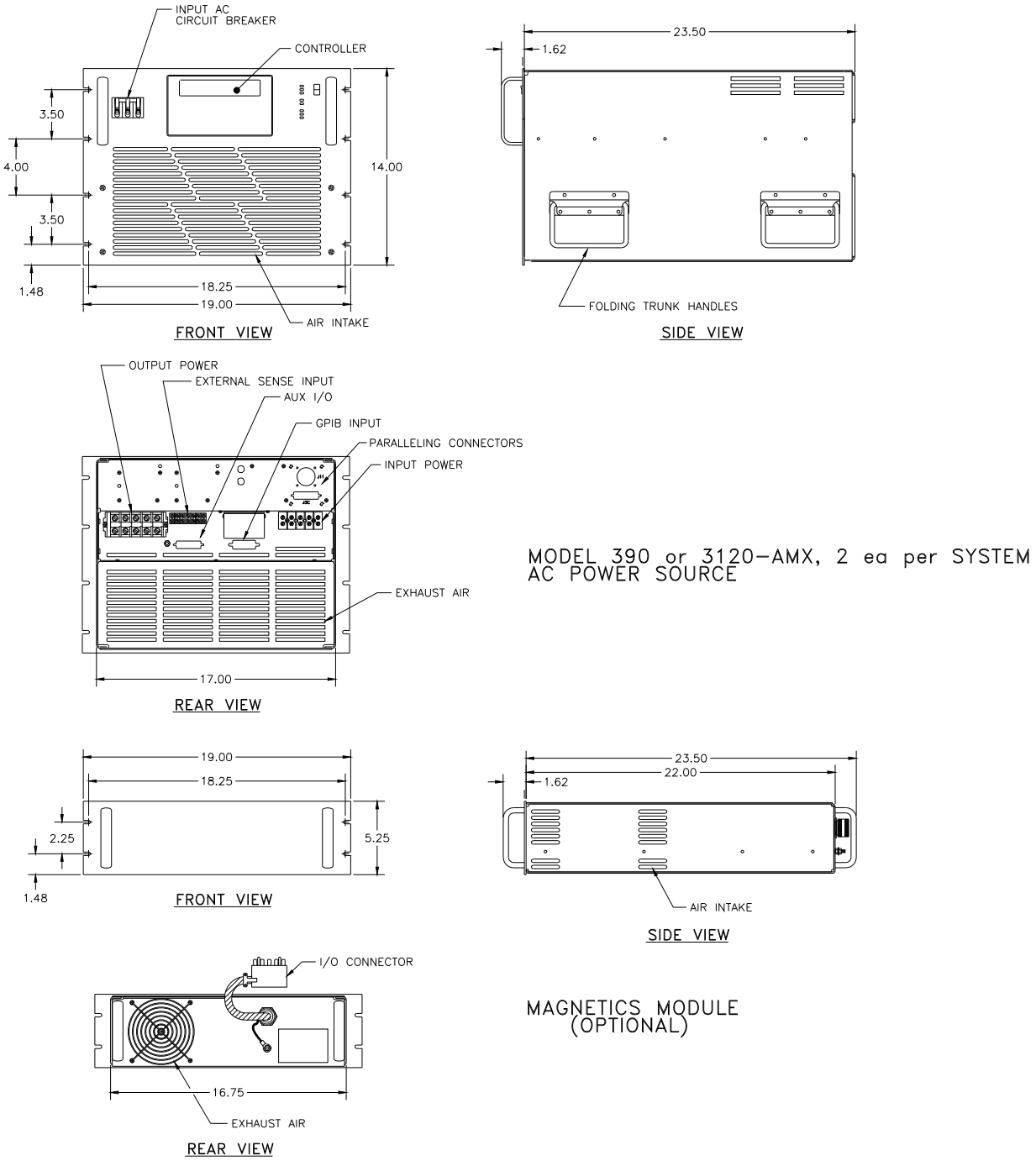


FIGURE 2.2.4 OUTLINE DRAWING, MODELS 390 & 3120-AMX AND MAGNETICS MODULE

2.2.3 OUTPUT POWER CONNECTION

Output power connection is made at terminals at the back of the power source.

2.2.4 CHASSIS SLIDE MOUNTS

The chassis of the AMX-Series Power Source is designed to accept slide rails. These can be provided as a cost option. For more information, contact your local sales representative or the Pacific Power Source Sales Office.

2.3 ENVIRONMENTAL SPECIFICATIONS

This paragraph lists the environmental requirements of the AMX-Series Power Source.

2.3.1 TEMPERATURE RANGE

The AMX-Series Power Source is rated for full operation in ambient temperatures of 0 - 55°C and where the relative humidity is in the range of 0 - 95%, non-condensing.

2.3.2 COOLING

The AMX-Series Power Source utilizes thermally regulated forced-air cooling to maintain proper temperatures throughout. The maximum airflow of each model is as following.

Maximum Airflow	Models
100 CMF	105-AMX,108-AMX,305-AMX and 308-AMX
200 CMF	112-AMX and 312-AMX
300 CMF	125-AMX and 320-AMX
600 CMF	140-AMX,160-AMX,345-AMX and 360-AMX
1200 CMF	390-AMX and 3120-AMX

2.3.3 THERMAL PROTECTION

The input power transformer is configured with a thermocouple which senses its temperature. The power amplifier assemblies are also configured with temperature sensors. When the transformer or any power amplifier exceeds maximum safe operating temperature, the output relays are opened, disconnecting the load, and the Shutdown Lamp, located on the front panel, is lighted.

The overtemperature shutdown fault must be manually reset. The fault can only be reset after the over-temperature condition has ceased to exist and the Output Power Switch is placed in the "**OFF**" position. Sending an Output Off command via the remote interface (applies to programmable systems only) also resets a shutdown fault, provided that the condition which originally caused the shutdown has been cleared. If the Output is turned off and the shutdown condition has not been cleared, the power source will remain in the shutdown state until the offending condition has cleared.

SECTION 3

INSTALLATION

3.0 INSTALLATION

This section describes the installation of the AMX-Series AC Power Source.

NOTE: ETL LABELED UNITS ONLY
For models 105,108,112,305,308,312 and 320-AMX, an input power cord plug is provided to meet ETL safety standard requirement.

For models 125,140, 345,360,390 and 3120-AMX, the input terminal block cover is provided to meet ETL safety standard requirement. Use of the cover is mandatory and “Knock-outs” are provided for wiring to the input terminal block.

3.1 CHASSIS PLACEMENT

The AMX-Series Power Source is designed to fit into a standard 19 inch rack. Provisions for mounting slide rails are included in the chassis. The power source can also be used as a bench-top unit, if desired.

WARNING

AMX-SERIES POWER SOURCES ARE HEAVY !
(VARIOUS MODELS WEIGH APPROX 70-195 lbs PER ASSY)
USE EXTREME CARE WHEN MOVING THE UNIT.

THE MAGNETICS MODULE, MODELS 125-AMX, 140-AMX, 160-AMX AND 320-AMX THROUGH 3120-AMX ARE **NOT** A ONE-PERSON LIFT, AND MUST BE LIFTED BY TWO OR MORE INDIVIDUALS IN ORDER TO REDUCE CHANCE OF PHYSICAL INJURY.

--------PACKING NOTICE------

IT IS THE CUSTOMER'S RESPONSIBILITY TO ENSURE THAT UNITS ARE ADEQUATELY PACKAGED WHEN THEY ARE MOVED TO A DIFFERENT LOCATION. THE UNITS SHOULD ALWAYS BE PACKAGED IN THE ORIGINAL SHIPPING CONTAINER WHEN MOVED OR RETURNED TO THE FACTORY FOR SERVICE. INADEQUATE PACKAGING WILL RESULT IN CHASSIS DAMAGE--INCURRING NON-WARRANTY SERVICE COSTS.

--------PACKING NOTICE------

3.1 CHASSIS PLACEMENT (cont.)

Upon receiving the power source, inspect the packaging for any indication of shipping damage. Carefully unpack and inspect the power source. If any shipping damage is evident, immediately contact the shipping company and Pacific Power Source.

Select an appropriate location for the unit. Key points to consider when locating the chassis are:

1. PROXIMITY TO THE LOAD - The power source should be located as close to the load as possible. This helps to reduce distribution losses. These losses become more critical as the output frequency increases.

2. VENTILATION - The chassis requires good ventilation to adequately cool the internal components. Airflow ranges from 200 to 1200 CFM. The minimum clearance requirement for each model is listed below.

Minimum Clearance Requirement	Models
12 inches front and back	125-AMX, 140-AMX, 160-AMX, 320-AMX, 345-AMX, 360-AMX, 390-AMX and 3120-AMX.
2 inches on each side and 12 inches to the rear	105-AMX, 108-AMX, 112-AMX, 305-AMX, 308-AMX, 312-AMX and 320-AMX

When the power source is placed in a 19 inch rack, it must be supported by either chassis slides or full depth angle brackets. The front panel alone will not support the weight of the power source. Chassis slides are available from Pacific Power Source as a cost option. Call factory service for details.

After the location for the unit is selected, verify that the input voltage of the power source is correct (Input voltage is stated on the system ID label). If it requires changing, refer to Paragraph 3.3 for instructions.

Also check that the output transformer ratio is correct. If not, reconfigure to the desired ratio as directed by Paragraph 3.2.

After the input voltage form and output transformer ratio have been verified, set the power source into the rack or set it into its final position. Make input and output connections as stated in paragraphs 3.3 and 3.4, respectively.

If either the Remote Interface (GPIB or RS-232) or External Sense feature is to be used, refer to paragraphs 3.5 and 3.7 for connection.

3.2 OUTPUT VOLTAGE RANGE CONFIGURATION

The AMX-Series Power Source can be configured for several different Output Voltage Ranges. The standard output configurations are:

	Transformer Ratio	Voltage Range	Model
Direct Coupled	-	0-135 VAC_{l-n}	Standard on most models.
	-	0-150 VAC_{l-n}	112-AMX,125-AMX and 312-AMX
Transformer Coupled	VR1.5	0-204 VAC_{l-n}	Models 105-AMXT, 108-AMXT, 140-AMXT, 160-AMXT, 305-AMXT, 308-AMXT, 320-AMXT, 345-AMXT, 360-AMXT, 390-AMXT and 3120-AMXT equipped with Magnetics Option.
	VR2.0	0-273 VAC_{l-n}	Models 105-AMXT, 108-AMXT, 140-AMXT, 160-AMXT, 305-AMXT, 308-AMXT, 320-AMXT, 345-AMXT, 360-AMXT, 390-AMXT and 3120-AMXT equipped with Magnetics Option.
	VR2.5	0-341 VAC_{l-n}	Models 105-AMXT, 108-AMXT, 140-AMXT, 160-AMXT, 305-AMXT, 308-AMXT, 320-AMXT, 345-AMXT, 360-AMXT, 390-AMXT and 3120-AMXT equipped with Magnetics Option.

The 0-135 through 0-150VAC output ranges are direct-coupled outputs and are always available. Standard transformer output ratios are 1.5, 2.0 and 2.5 step-up (custom ratios are available on request). The output transformer tap will be configured at the factory as specified. The system ID label or magnetic module ID label will state the factory set transformer ratio. If a different ratio is required, re-connect the transformer wiring according to the following diagrams. The ID label should be updated also.

Described in the following paragraphs are model specific controller details (Transformer Ratio and Amps to Volts Ratio settings) that, although factory preset, must be set as described if inadvertently changed or otherwise modified.

Configuration of the Output voltage consists of:

1) Verifying that the appropriate output transformer taps have been selected.
2) Verifying the proper setting of the Transformer Ratio Setting within the UPC.
3) Verifying the proper setting of the Amps to Volts Ratio Setting within the UPC
4) Calibration of the system.

Configuration varies from model to model. The following paragraphs describe the configuration settings of the available standard output ranges. Refer to the appropriate paragraph for details. When custom output transformers have been installed, refer to Section 9, Modifications. Any instructions stated in Section 9 take precedence over those listed in the following paragraphs.

3.2.1 OUTPUT VOLTAGE RANGE CONFIGURATION, MODELS 105-AMXT and 108-AMXT

The Output Voltage Range for the Models 105-AMXT and 108-AMXT Power Sources can be configured for either 0-135 $VAC_{l\text{-}n}$, 0-204 $VAC_{l\text{-}n}$, 0-273 $VAC_{l\text{-}n}$, or 0-341 $VAC_{l\text{-}n}$. The 0-204 VAC range is designated as the VR1.5 output form, the 0-273 VAC range is defined to be the VR2.0 output form, and the 0-341 VAC range is defined as the VR2.5 output form. An Output Transformer Assembly is required for the 204, 273, and 341 VAC output forms. Installation of the VR1.5, VR2.0, or VR2.5 output forms is performed by the factory and can be installed on existing units if needed.

Refer to Figure 3.2.1 for voltage range tap selection information.

TRANSFORMER RATIO (Refer to the *UPC-Series Operation Manual* for details.)

The Transformer Ratio Setting is set to 1.5 for systems configured with the VR1.5 output form
The Transformer Ratio Setting is set to 2.0 for systems configured with the VR2.0 output form
The Transformer Ratio Setting is set to 2.5 for systems configured with the VR2.5 output form.
The Transformer Ratio Setting is set to 0.0 on systems not equipped with output transformers.

AMPS TO VOLTS RATIO

The Amps to Volts Ratio Setting of the UPC is always set to 6 for the Models 105-AMX and 108-AMX. (Refer to the *UPC-Series Operation Manual* for details).

3.2.1 OUTPUT VOLTAGE RANGE CONFIGURATION, MODELS 105-AMXT and 108-AMXT (cont.)

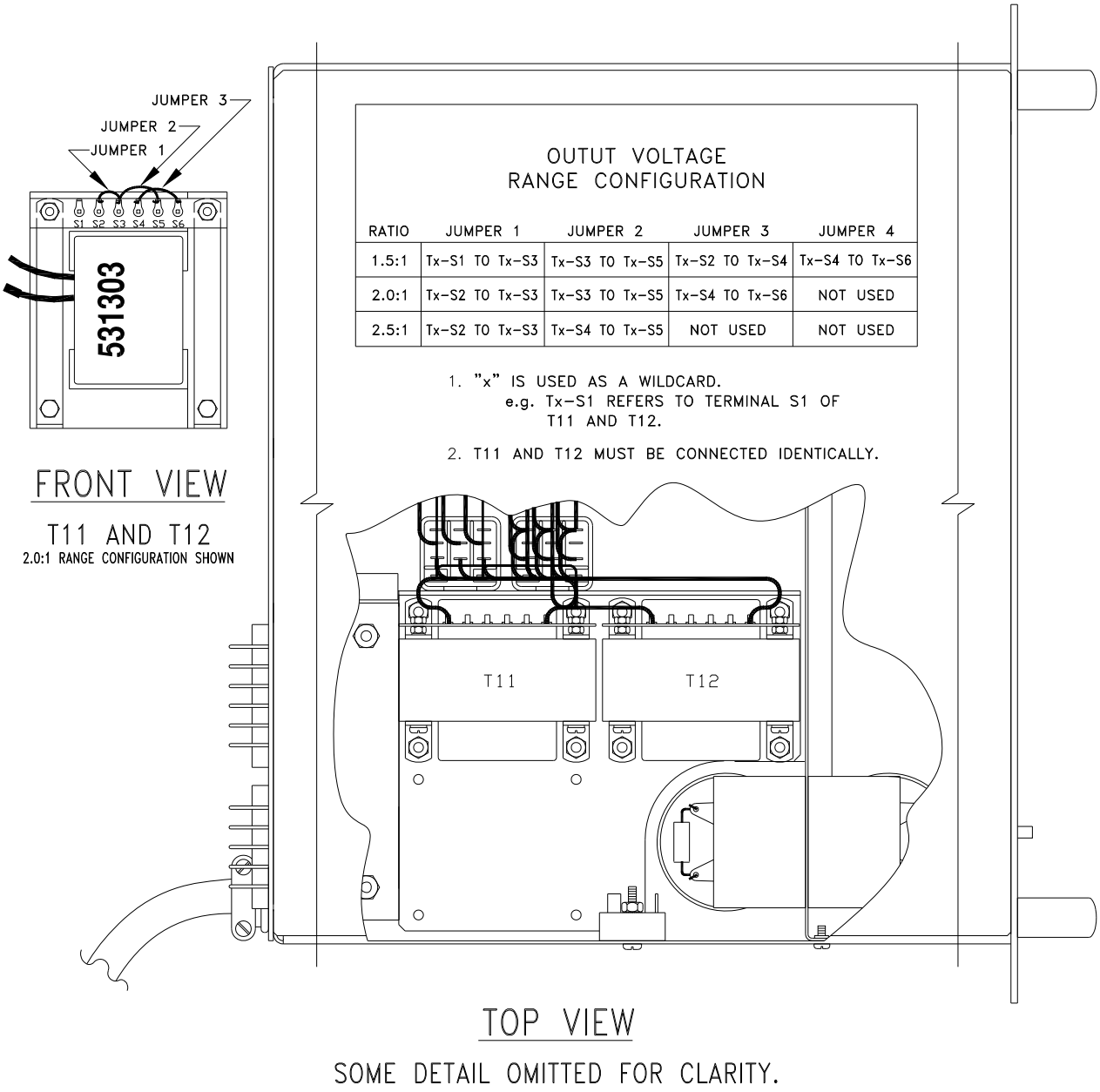


FIGURE 3.2.1 MODELS 105 & 108-AMXT OUTPUT VOLTAGE CONFIGURATION

3.2.2 OUTPUT VOLTAGE RANGE CONFIGURATION, MODEL 112-AMX

The Output Voltage Range for the Model 112-AMX Power Source can be configured for either 0-110 VAC_{l-n}, 0-125 VAC_{l-n}, 0-135 VAC_{l-n}, or 0-150 VAC_{l-n}. All ranges are direct-coupled outputs and are provided to maximize output current for a given output voltage. The output form of a system is configured differently, depending on which controller a system is equipped with, (Refer to the *UPC-Series Operation Manual* for details.)

TRANSFORMER RATIO
The Transformer Ratio Setting of the UPC is always set to 0.0 in this model. (Refer to the *UPC-Series Operation Manual* for details.)

AMPS TO VOLTS RATIO
The Amps to Volts Ratio Setting of the UPC is always set to 6 in the Model 112-AMX. (Refer to the *UPC-Series Operation Manual* for details.)

3.2.3 OUTPUT VOLTAGE RANGE CONFIGURATION, MODEL 125-AMX

This paragraph describes the configuration of the Output Voltage Range for the Model 125-AMX Power Source. This model is configured with a 0-150 VAC_{l-n} range. This range is a direct-coupled output.

TRANSFORMER RATIO
The Transformer Ratio Setting of the UPC is always set to 0.0 in this model. (Refer to the *UPC-Series Operation Manual* for details.)

AMPS TO VOLTS RATIO
The Amps to Volts Ratio Setting of the UPC is always set to 9 in the Model 125-AMX. (Refer to the *UPC-Series Operation Manual* for details.)

3.2.4 OUTPUT VOLTAGE RANGE CONFIGURATION, MODELS 305-AMXT and 308-AMXT

The Output Voltage Range for the Models 305-AMXT and 308-AMXT Power Sources can be configured for either 0-135 VAC_{l-n}, 0-204 VAC_{l-n}, 0-273 VAC_{l-n}, or 0-341 VAC_{l-n}. The 0-204 VAC range is designated as the VR1.5 output form and the 0-273 VAC range is defined to be the VR2.0 output form. An Output Transformer Assembly is required for the 204, 273 and 341 VAC output forms. Installation of the VR1.5, VR2.0 or VR2.5 output forms is performed by the factory and can be installed on existing units not so equipped. Refer to Figure 3.2.4 for voltage range tap selection information.

TRANSFORMER RATIO (Refer to the *UPC-Series Operation Manual* for details.)

The Transformer Ratio Setting is set to 1.5 for systems configured with the VR1.5 output form.
The Transformer Ratio Setting is set to 2.0 for systems configured with the VR2.0 output form.
The Transformer Ratio Setting is set to 2.5 for systems configured with the VR2.5 output form.
The Transformer Ratio Setting is set to 0.0 for systems configured with the VR0.0 output form.

AMPS TO VOLTS RATIO

The Amps to Volts Ratio Setting of the UPC is always set to 6 in the Models 305-AMX and 308-AMX. (Refer to the *UPC-Series Operation Manual* for details.)

3.2.4 OUTPUT VOLTAGE RANGE CONFIGURATION, MODELS 305-AMXT and 308-AMXT (cont.)

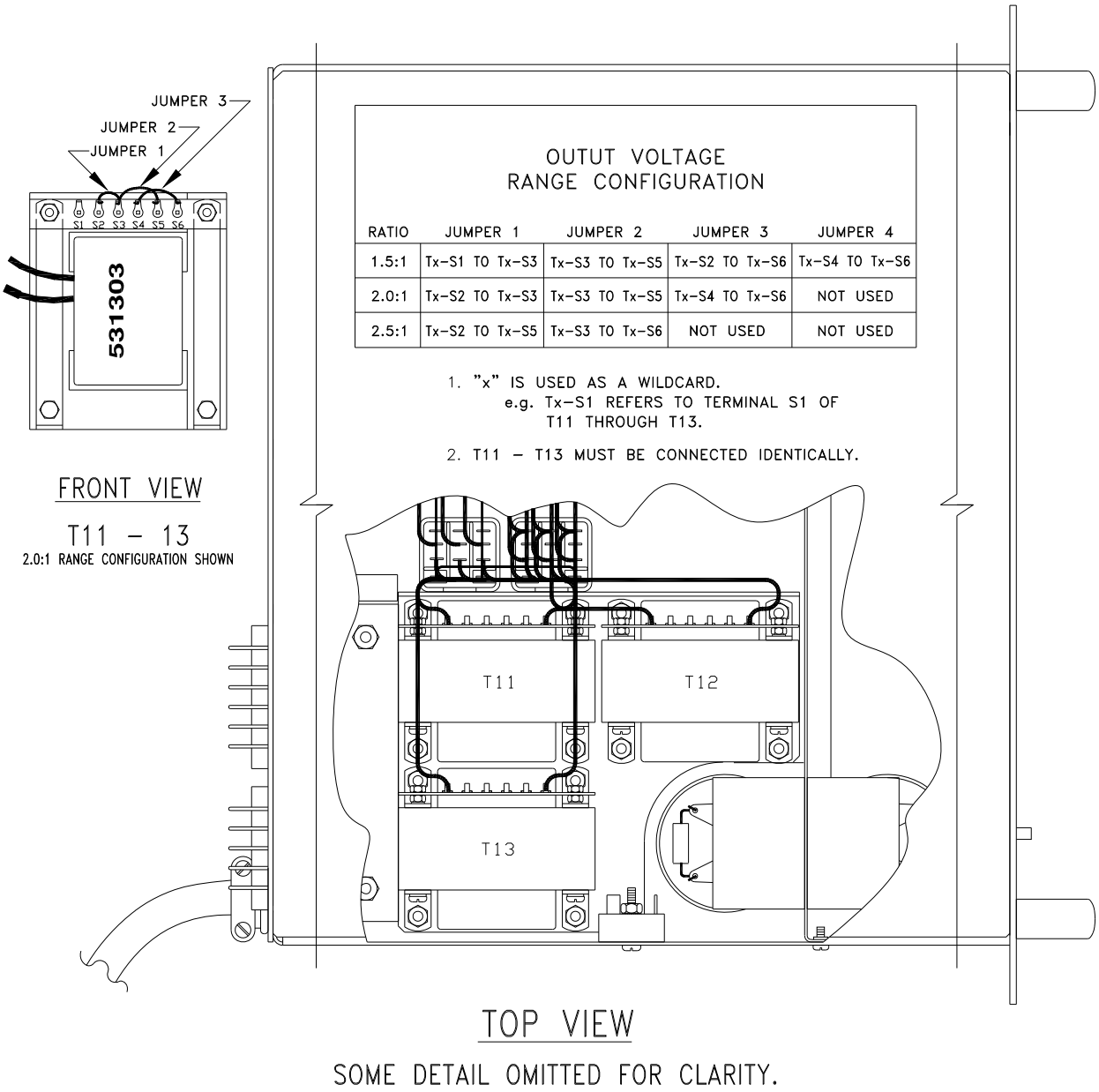


FIGURE 3.2.4 MODELS 305 & 308-AMXT OUTPUT VOLTAGE CONFIGURATION

3.2.5 OUTPUT VOLTAGE RANGE CONFIGURATION, MODEL 312-AMX

The Output Voltage Range for the Model 312-AMX Power Source can be configured for either 0-110 VAC_{l-n}, 0-125 VAC_{l-n}, 0-135 VAC_{l-n}, or 0-150 VAC_{l-n}. All ranges are direct-coupled outputs and are provided to maximize output current for a given output voltage. The output form of a system is configured differently, depending on which controller a system is equipped with (Refer to the *UPC-Series Operation Manual* for details.)

TRANSFORMER RATIO
The Transformer Ratio Setting of the UPC is always set to 0.0 in this model. (Refer to the *UPC-Series Operation Manual* for details.)

AMPS TO VOLTS RATIO
The Amps to Volts Ratio Setting of the UPC is always set to 6 in the Model 312-AMX. (Refer to the *UPC-Series Operation Manual* for details.)

3.2.6 OUTPUT VOLTAGE RANGE CONFIGURATION, MODELS 140-AMXT, 160-AMXT, 320-AMXT, 345-AMXT, 360-AMXT, 390-AMXT and 3120-AMXT

The Output Voltage Range for the Models 140, 160, 320, 345, 360, 390, and 3120-AMXT Power Sources can be configured for either 0-135 VAC_{l-n}, 0-204 VAC_{l-n} defined as the VR1.5 output form, 0-273 VAC_{l-n} defined as the VR2.0 output form or 0-341 VAC_{l-n} defined as the VR2.5 output form. A Magnetics Module (Assembly No. 134350) is required for the VR1.5, VR2.0, and VR2.5 output forms.

Refer to Figure 3.2.7 for location of components referenced below and range tap selection information.

Conversion to the VR (X.X) output form is as follows:

1) Remove the top cover of the Magnetics Module.
2) Wire for (X.X):1 ratio as per wire table of Figure 3.2.7.
3) Replace top cover of Magnetics Module.
4) Connect Magnetics Module to the power source. The Magnetics Module is connected to the power source by attaching P20 of the Magnetics Module to J20 of the power source. Also be sure to connect the Chassis GND wire of the Magnetics Module to the CHS GND stud on the rear panel of the power source.
5) Set the Transformer Ratio Setting of the UPC. (Refer to the *UPC-Series Operation Manual* for details.)
6) Set the Amps to Volts Ratio Setting of the UPC (Refer to the *UPC-Series Operation Manual* for details.)
7) Calibrate the power source as stated in Section 6 of this manual.

3.2.6 OUTPUT VOLTAGE RANGE CONFIGURATION, MODELS 140-AMXT, 160-AMXT, 320-AMXT, 345-AMXT, 360-AMXT, 390-AMXT and 3120-AMXT (cont.)

TRANSFORMER RATIO

Conversion to the VR1.5 output form, the Magnetics Module is wired for the 1.5:1 ratio and the Transformer Ratio Setting of the UPC is set for 1.5.

Conversion to the VR2.0 output form, the Magnetics Module is wired for the 2.0:1 ratio and the Transformer Ratio Setting of the UPC is set for 2.0.

Conversion to the VR2.5 output form, the Magnetics Module is wired for the 2.5:1 ratio and the Transformer Ratio Setting of the UPC is set for 2.5.

The Transformer Ratio Setting of the UPC is set to 0.0 on systems without transformer-coupled outputs.

AMPS TO VOLTS RATIO

The Amps to Volts Ratio Setting of the UPC is always set to 15 for the Models 140-AMX, 160-AMX, 345-AMX, and 360-AMX. (Refer to the *UPC-Series Operation Manual* for details.)

The Amps to Volts Ratio Setting of the UPC is always set to 30 for the Models 390-AMX and 3120-AMX. (Refer to the *UPC-Series Operation Manual* for details.)

While the above procedure can be performed in the field, Pacific Power Source recommends that the system be returned to the factory when transformer-coupled outputs are to be added to the system. This insures proper connection and calibration of the entire system.

3.2.6 OUTPUT VOLTAGE RANGE CONFIGURATION, MODELS 140-AMXT, 160-AMXT, 320-AMXT, 345-AMXT, 360-AMXT, 390-AMXT and 3120-AMXT (cont.)

WIRE TABLE

XFMR LEAD	CONNECTED TO OUTPUT VOLTAGE RANGE VR1.5	VR2.0	VR2.5
Tx−1	TBx−4B	TBx−4B	TBx−4B
Tx−4	TBx−6B	TBx−6B	TBx−6B
Tx−5	TBx−1B	TBx−3B	TBx−3B
Tx−6	TBx−4A	TBx−4A	TBx−4A
Tx−7	TBx−1D	TBx−1B	TBx−2B
Tx−8	TBx−4C	TBx−3A	TBx−3A
Tx−9	TBx−1A	TBx−1A	TBx−1A
Tx−10	TBx−4D	TBx−3C	TBx−2A

1. "x" IS USED AS A WILDCARD.
   eg. TBx−1A REFERS TO TERMINAL 1A OF TB1 THROUGH TB6.

2. T1 − T6 MUST BE CONNECTED IDENTICALLY.

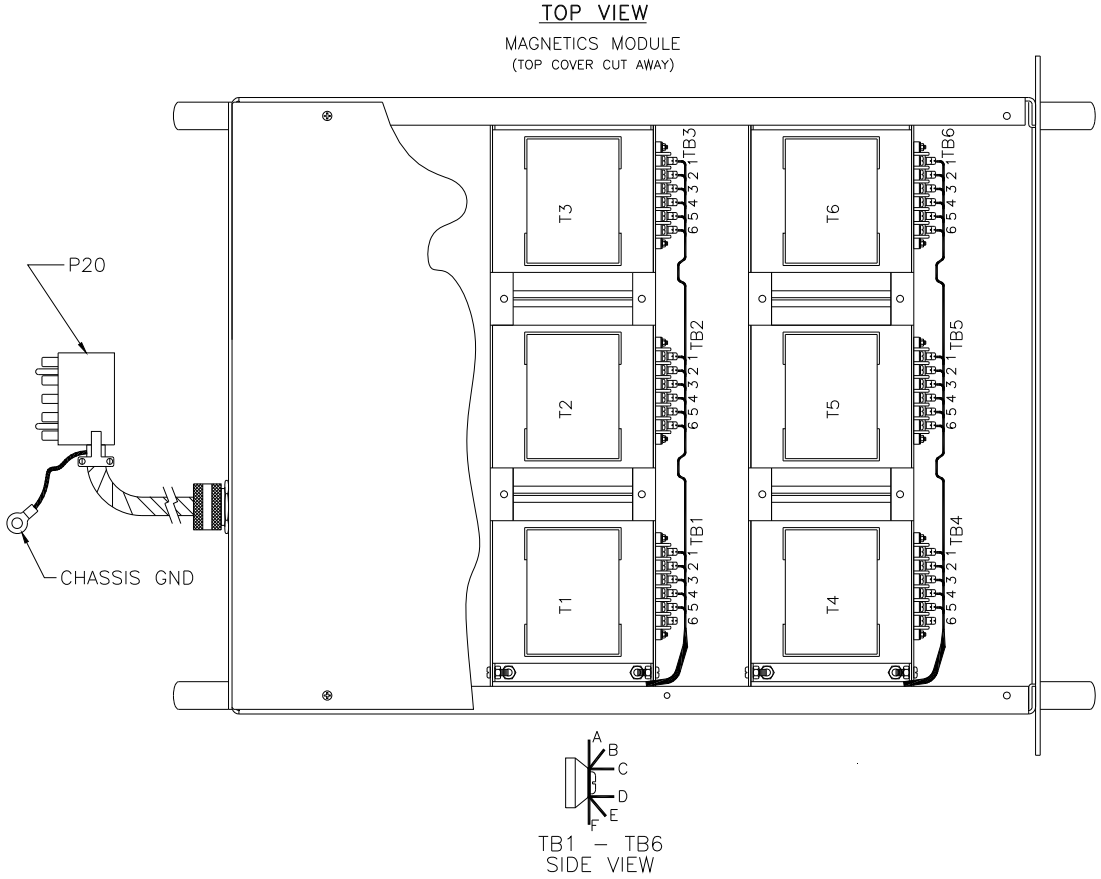


FIGURE 3.2.7 MODELS 140/160/320/345/360/390/3120-AMXT OUTPUT VOLTAGE CONFIGURATION

3.3 INPUT POWER CONNECTION

Input voltage form and requirements of the input wiring for the AMX-Series Power Source varies by model. Each is discussed in a separate paragraph. Please refer to the appropriate paragraph for the model being configured.

3.3.1 INPUT VOLTAGE CONFIGURATION, MODELS 105-AMX, 108-AMX, 305-AMX and 308-AMX

WARNING

DISCONNECT THIS UNIT FROM THE INPUT SERVICE BEFORE REMOVING TOP COVER.

HIGH VOLTAGE HAZARD PRESENT INSIDE UNIT WHEN TOP COVER IS REMOVED AND STILL CONNECTED TO INPUT SERVICE.

The 105-AMX, 108-AMX, 305-AMX and 308-AMX Power Sources have been designed to accept most standard single phase input voltage forms. This is accomplished through the use of a tapped, input power transformer. Configuring the proper input form is simply a matter of setting jumpers in the appropriate positions. The system is designed for use with input frequencies of 47 to 63 Hz. (Optionally, the systems may be used with input frequencies of up to 440 Hz. Contact the factory for details.)

Figure 3.3.1 shows the location of the various jumpers which need to be moved to change input voltage form. The position of these jumpers is listed on the accompanying table.

To change the input power form, remove the top cover, then connect the jumpers as stated in the table for the desired input voltage. Jumpers are located on the input power transformer (T1). Refer to the table in Figure 3.3.1 for the proper setting.

After configuring the input voltage form, check connections and ensure that they are tight and in the correct position. Replace the top cover.

CAUTION

CONNECTION OF THIS UNIT TO IMPROPER INPUT VOLTAGES WILL CAUSE CATASTROPHIC DAMAGE TO THE POWER SOURCE.

READ THE INPUT VOLTAGE LABEL AND CONNECT TO THAT INPUT VOLTAGE ONLY. IF THERE ARE ANY QUESTIONS, CONTACT THE FACTORY

The 105-AMX, 108-AMX, 305-AMX and 308-AMX Power Sources are then connected to an appropriate outlet via the input power cord. Refer to Paragraph 2.1.1 for minimum input service requirements of the various input voltage forms.

3.3.1 INPUT VOLTAGE CONFIGURATION, MODELS 105-AMX, 108-AMX, 305-AMX and 308-AMX (cont.)

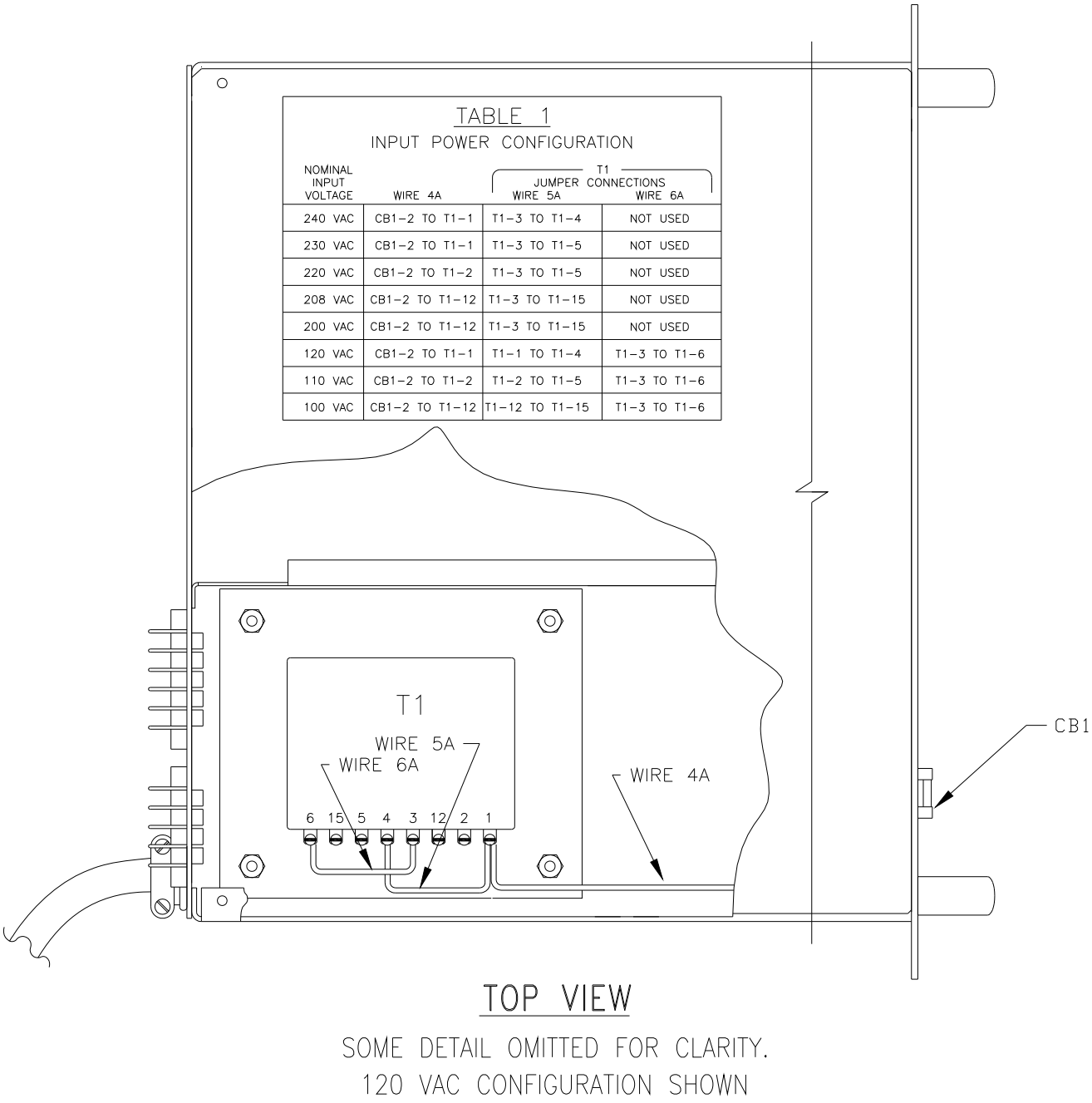


FIGURE 3.3.1 MODELS 105/108/305/308-AMX INPUT VOLTAGE CONFIGURATION

3.3.2 INPUT VOLTAGE CONFIGURATION, MODELS 112-AMX and 312-AMX

WARNING

DISCONNECT THIS UNIT FROM THE INPUT SERVICE BEFORE REMOVING TOP COVER.

HIGH VOLTAGE HAZARD PRESENT INSIDE UNIT WHEN TOP COVER IS REMOVED AND STILL CONNECTED TO INPUT SERVICE.

The 112 and 312-AMX Power Sources have been designed to accept most standard single phase input voltage forms. This is accomplished through the use of a tapped, input power transformer. Configuring the proper input form is simply a matter of setting jumpers in the appropriate positions. The system is designed for use with input frequencies of 47 to 63 Hz.

Figure 3.3.2 shows the location of the various jumpers which need to be moved to change input voltage form. The position of these jumpers is listed on the accompanying table.

To change the input power form, remove the top cover, then connect the jumpers as stated in the table for the desired input voltage. Jumpers are located on the input power transformer (T1). Refer to the table in Figure 3.3.2 for the proper setting.

After configuring the input voltage form, check connections and ensure that they are tight and in the correct position. Replace the top cover.

CAUTION

CONNECTION OF THIS UNIT TO IMPROPER INPUT VOLTAGES WILL CAUSE CATASTROPHIC DAMAGE TO THE POWER SOURCE.

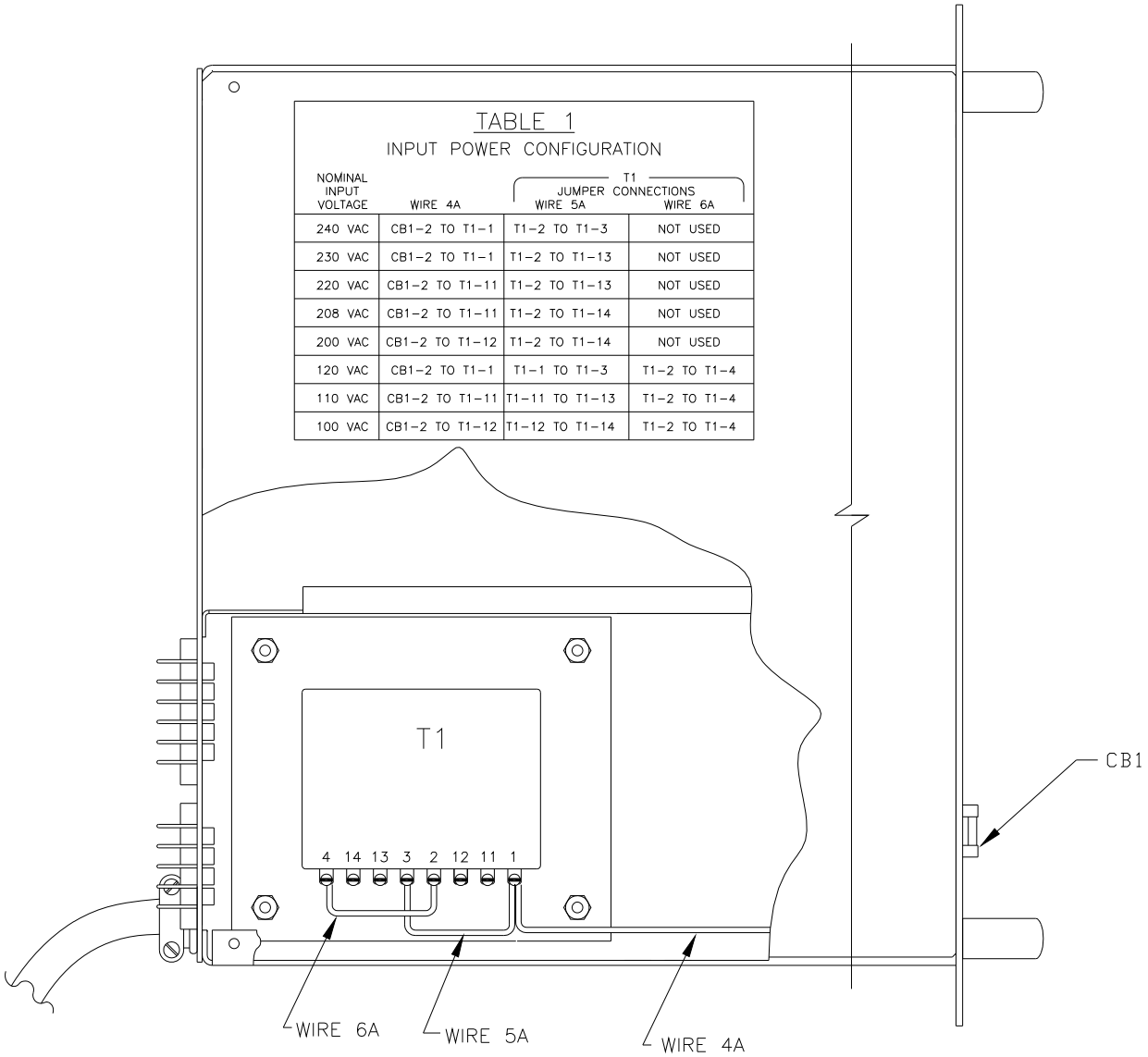
READ THE INPUT VOLTAGE LABEL AND CONNECT TO THAT INPUT VOLTAGE ONLY. IF THERE ARE ANY QUESTIONS, CONTACT THE FACTORY.

The 112 or 312-AMX is then connected to an appropriate outlet via the input power cord. Refer to Paragraph 2.1.1 for minimum input service requirements of the various input voltage forms.

3.3.2 INPUT VOLTAGE CONFIGURATION, MODELS 112-AMX and 312-AMX (cont.)

TABLE 1
INPUT POWER CONFIGURATION

NOMINAL INPUT VOLTAGE	WIRE 4A	T1 JUMPER CONNECTIONS WIRE 5A	WIRE 6A
240 VAC	CB1-2 TO T1-1	T1-2 TO T1-3	NOT USED
230 VAC	CB1-2 TO T1-1	T1-2 TO T1-13	NOT USED
220 VAC	CB1-2 TO T1-11	T1-2 TO T1-13	NOT USED
208 VAC	CB1-2 TO T1-11	T1-2 TO T1-14	NOT USED
200 VAC	CB1-2 TO T1-12	T1-2 TO T1-14	NOT USED
120 VAC	CB1-2 TO T1-1	T1-1 TO T1-3	T1-2 TO T1-4
110 VAC	CB1-2 TO T1-11	T1-11 TO T1-13	T1-2 TO T1-4
100 VAC	CB1-2 TO T1-12	T1-12 TO T1-14	T1-2 TO T1-4



TOP VIEW

SOME DETAIL OMITTED FOR CLARITY.
120 VAC CONFIGURATION SHOWN

FIGURE 3.3.2 MODELS 112 & 312-AMX INPUT VOLTAGE CONFIGURATION

3.3.3 INPUT VOLTAGE CONFIGURATION, MODEL 320-AMX

WARNING

DISCONNECT THIS UNIT FROM THE INPUT SERVICE BEFORE REMOVING TOP COVER.

HIGH VOLTAGE HAZARD PRESENT INSIDE UNIT WHEN TOP COVER IS REMOVED AND STILL CONNECTED TO INPUT SERVICE.

The 320-AMX Power Source has been designed to accept most standard three phase input voltage forms. This is accomplished through the use of a tapped input power transformer. Configuring the proper input form is simply a matter of setting jumpers in the appropriate positions. The system is designed for use with input frequencies of 47 to 63 Hz. (Optionally, the system may be used with input frequencies of up to 440 Hz. Contact the factory for details.)

Figure 3.3.3 shows the location of the various jumpers which need to be moved to change input voltage form. The position of these jumpers is listed on the accompanying table.

To change the input power form, remove the top cover, then connect the jumpers as stated in the table for the desired input voltage. Refer to the table in Figure 3.3.3 for the proper setting.

After configuring the input voltage form, check connections and ensure that they are tight and in the correct position. Replace the top cover.

CAUTION

CONNECTION OF THIS UNIT TO IMPROPER INPUT VOLTAGES WILL CAUSE CATASTROPHIC DAMAGE TO THE POWER SOURCE.

READ THE INPUT VOLTAGE LABEL AND CONNECT TO THAT INPUT VOLTAGE ONLY. IF THERE ARE ANY QUESTIONS, CONTACT THE FACTORY.

The 320-AMX is then connected to an appropriate distribution panel via the input power cord. Refer to Paragraph 2.1.1 for minimum input service requirements of the various input voltage forms.

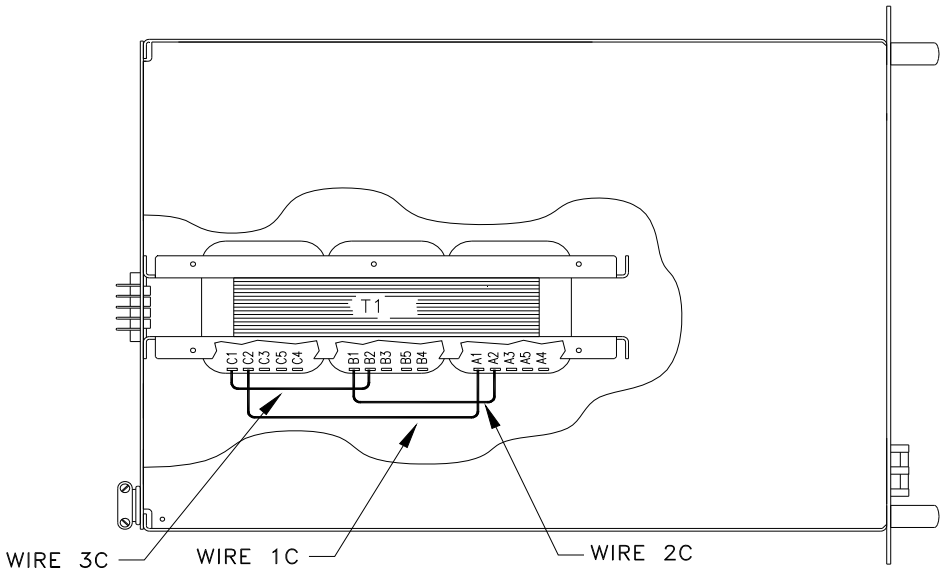
3.3.3 INPUT VOLTAGE CONFIGURATION, MODEL 320-AMX (cont.)

TABLE 1

INPUT POWER CONFIGURATION

NOMINAL INPUT VOLTAGE	T1 JUMPER CONNECTIONS WIRE 1C	WIRE 2C	WIRE 3C
277/480 VAC	REFER TO SECTION 9, MODIFICATIONS		
240/416 VAC	T1–C4 TO T1–A4	T1–A4 TO T1–B4	T1–B4 TO T1–C4
230/400 VAC	T1–C5 TO T1–A5	T1–A5 TO T1–B5	T1–B5 TO T1–C5
220/380 VAC	T1–C3 TO T1–A3	T1–A3 TO T1–B3	T1–B3 TO T1–C3
240 VAC DELTA	T1–C4 TO T1–A1	T1–A4 TO T1–B1	T1–B4 TO T1–C1
220 VAC DELTA	T1–C3 TO T1–A1	T1–A3 TO T1–B1	T1–B3 TO T1–C1
208 VAC DELTA	T1–C2 TO T1–A1	T1–A2 TO T1–B1	T1–B2 TO T1–C1

NOTE: THE INPUTS ARE REQUIRED TO BE WIRED AS FOLLOWS:
(øA) WIRE TO T1–A1, (øB) WIRE TO T1–B1, (øC) WIRE TO T1–C1



TOP VIEW

SOME DETAIL OMITTED FOR CLARITY
208 DELTA CONFIGURATION SHOWN

FIGURE 3.3.3 MODEL 320-AMX INPUT VOLTAGE CONFIGURATION

3.3.4 INPUT VOLTAGE CONFIGURATION, MODEL 125-AMX

WARNING

DISCONNECT THIS UNIT FROM THE INPUT SERVICE BEFORE REMOVING TOP COVER.

HIGH VOLTAGE HAZARD PRESENT INSIDE UNIT WHEN TOP COVER IS REMOVED AND STILL CONNECTED TO INPUT SERVICE.

The 125-AMX Power Source has been designed to accept most standard three phase input voltage forms. This is accomplished through the use of tapped input power transformers. Configuring the proper input form is simply a matter of setting jumpers in the appropriate positions. The system is designed for use with input frequencies of 47 to 63 Hz. (Optionally, the system may be used with input frequencies of up to 440 Hz. Contact the factory for details.)

Figure 3.3.4 shows the location of the various jumpers which need attention relative to input voltage form. The position of these jumpers is listed on the accompanying table.

The first step in configuring the input power form, remove the top cover, then connect the jumpers as stated in the table for the desired input voltage. Refer to the table in Figure 3.3.4 for the proper setting.

After configuring the input voltage form, check connections and ensure that they are tight and in the correct position. Replace the top cover.

CAUTION

CONNECTION OF THIS UNIT TO IMPROPER INPUT VOLTAGES WILL CAUSE CATASTROPHIC DAMAGE TO THE POWER SOURCE.

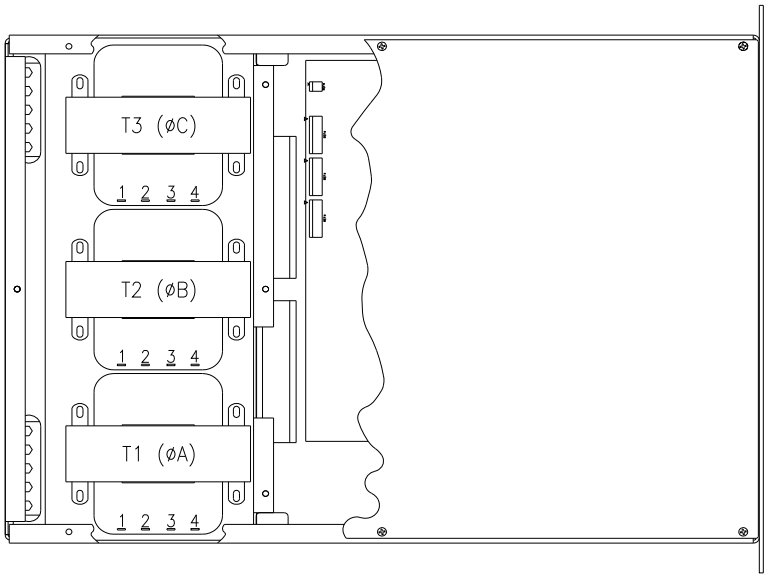
READ THE INPUT VOLTAGE LABEL AND CONNECT TO THAT INPUT VOLTAGE ONLY. IF THERE ARE ANY QUESTIONS, CONTACT THE FACTORY.

The 125-AMX is then connected to an appropriate distribution panel via the terminal block. Refer to Paragraph 2.1.1 for minimum input service requirements of the various input voltage forms.

3.3.4 INPUT VOLTAGE CONFIGURATION, MODEL 125-AMX (cont.)

TABLE 1

INPUT VOLTAGE FORM	FROM HARNESS	JUMPERS XFMR TO XFMR
208 VAC DELTA	(øA) WIRE TO T1-1 (øB) WIRE TO T2-1 (øC) WIRE TO T3-1	JUMPER T1-1 TO T2-2 JUMPER T2-1 TO T3-2 JUMPER T3-1 TO T1-2
220 VAC DELTA	(øA) WIRE TO T1-1 (øB) WIRE TO T2-1 (øC) WIRE TO T3-1	JUMPER T1-1 TO T2-3 JUMPER T2-1 TO T3-3 JUMPER T3-1 TO T1-3
240 VAC DELTA	(øA) WIRE TO T1-1 (øB) WIRE TO T2-1 (øC) WIRE TO T3-1	JUMPER T1-1 TO T2-4 JUMPER T2-1 TO T3-4 JUMPER T3-1 TO T1-4
220/380 VAC	(øA) WIRE TO T1-3 (øB) WIRE TO T2-3 (øC) WIRE TO T3-3	JUMPER T1-1 TO T3-1 JUMPER T2-1 TO T1-1 JUMPER T3-1 TO T2-1
240/416 VAC	(øA) WIRE TO T1-4 (øB) WIRE TO T2-4 (øC) WIRE TO T3-4	JUMPER T1-1 TO T3-1 JUMPER T2-1 TO T1-1 JUMPER T3-1 TO T2-1
277/480 VAC	OPTIONAL CONFIGURATION. IF INSTALLED, REFER TO MODIFICATION DOCUMENT INSERTED	



TOP VIEW

MODEL 125-AMX
(TOP COVER CUT-AWAY)

NOTES:
1. SOME DETAIL OMITTED FOR CLARITY.

FIGURE 3.3.4 MODEL 125-AMX INPUT VOLTAGE CONFIGURATION

3.3.5 INPUT VOLTAGE CONFIGURATION, MODELS 140-AMX, 160-AMX, 345-AMX, 360-AMX, 390-AMX and 3120-AMX

WARNING

DISCONNECT THIS UNIT FROM THE INPUT SERVICE BEFORE REMOVING TOP COVER.

HIGH VOLTAGE HAZARD PRESENT INSIDE UNIT WHEN TOP COVER IS REMOVED AND STILL CONNECTED TO INPUT SERVICE.

The 140-AMX, 160-AMX, 345-AMX, 360-AMX, 390-AMX and 3120-AMX Power Sources have been designed to accept most standard three phase input voltage forms. This is accomplished through the use of a tapped input power transformer. Configuring the proper input form is simply a matter of setting jumpers in the appropriate positions. The system is designed for use with input frequencies of 47 to 63 Hz. (Optionally, the systems may be used with input frequencies of up to 440 Hz. Contact the factory for details.)

Figure 3.3.5 shows the location of the various jumpers which need to be moved to change input voltage form. The position of these jumpers is listed on the accompanying table.

The first step in configuring the input power form, remove the top cover, then connect the jumpers as stated in the table for the desired input voltage. Refer to the table in Figure 3.3.5 for the proper setting.

After configuring the input voltage form, check connections and ensure that they are tight and in the correct position. Replace the top cover.

CAUTION

CONNECTION OF THIS UNIT TO IMPROPER INPUT VOLTAGES WILL CAUSE CATASTROPHIC DAMAGE TO THE POWER SOURCE.

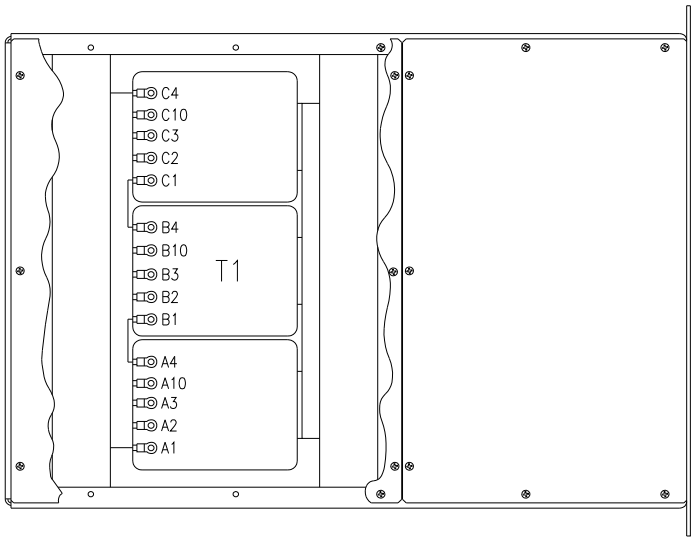
READ THE INPUT VOLTAGE LABEL AND CONNECT TO THAT INPUT VOLTAGE ONLY. IF THERE ARE ANY QUESTIONS, CONTACT THE FACTORY.

The AMX-Series Power Source is then connected to an appropriate distribution panel via the terminal block. Refer to Paragraph 2.1.1 for minimum input service requirements of the various input voltage forms.

3.3.5 INPUT VOLTAGE CONFIGURATION, MODELS 140-AMX, 160-AMX, 345-AMX, 360-AMX, 390-AMX and 3120-AMX (cont.)

TABLE 1

INPUT VOLTAGE FORM	FROM HARNESS	JUMPERS XFMR TO XFMR
208 VAC DELTA	(øA) WIRE TO T1-A1 (øB) WIRE TO T1-B1 (øC) WIRE TO T1-C1	JUMPER T1-A1 TO T1-C2 JUMPER T1-B1 TO T1-A2 JUMPER T1-C1 TO T1-B2
220 VAC DELTA	(øA) WIRE TO T1-A1 (øB) WIRE TO T1-B1 (øC) WIRE TO T1-C1	JUMPER T1-A1 TO T1-C3 JUMPER T1-B1 TO T1-A3 JUMPER T1-C1 TO T1-B3
230 VAC DELTA	(øA) WIRE TO T1-A1 (øB) WIRE TO T1-B1 (øC) WIRE TO T1-C1	JUMPER T1-A1 TO T1-C10 JUMPER T1-B1 TO T1-A10 JUMPER T1-C1 TO T1-B10
240 VAC DELTA	(øA) WIRE TO T1-A1 (øB) WIRE TO T1-B1 (øC) WIRE TO T1-C1	JUMPER T1-A1 TO T1-C4 JUMPER T1-B1 TO T1-A4 JUMPER T1-C1 TO T1-B4
220/380 VAC	(øA) WIRE TO T1-A1 (øB) WIRE TO T1-B1 (øC) WIRE TO T1-C1	JUMPER T1-A3 TO T1-C3 JUMPER T1-B3 TO T1-A3 JUMPER T1-C3 TO T1-B3
230/400 VAC	(øA) WIRE TO T1-A1 (øB) WIRE TO T1-B1 (øC) WIRE TO T1-C1	JUMPER T1-A10 TO T1-C10 JUMPER T1-B10 TO T1-A10 JUMPER T1-C10 TO T1-B10
240/416 VAC	(øA) WIRE TO T1-A1 (øB) WIRE TO T1-B1 (øC) WIRE TO T1-C1	JUMPER T1-A4 TO T1-C4 JUMPER T1-B4 TO T1-A4 JUMPER T1-C4 TO T1-B4
277/480 VAC	OPTIONAL CONFIGURATION. IF INSTALLED, REFER TO MODIFICATION DOCUMENT INSERTED	



TOP VIEW

MODELS 140, 160, 345, 360, 390, AND 3120-AMX
(TOP COVER CUT-AWAY)

NOTES:
1. SOME DETAIL OMITTED FOR CLARITY.

FIGURE 3.3.5 MODELS 140/160/345/360/390/3120-AMX INPUT VOLTAGE CONFIGURATION

3.3.6 INPUT POWER WIRING REQUIREMENTS

WARNING

LETHAL VOLTAGE PRESENT AT INPUT TERMINALS OF THIS MACHINE.

ALWAYS CONNECT "CHS or GND" TERMINAL TO EARTH POTENTIAL.
FAILURE TO DO SO WILL CREATE A SHOCK HAZARD.

The Models 105-AMX, 108-AMX, 112-AMX, 305-AMX, 308-AMX, 312-AMX and 320-AMX are supplied with an input power cord. Install an appropriate plug onto the end of the power cord and connect to the proper outlet. Refer to paragraph 2.1.1 for recommended input service of the configured input voltage form.

		Wire Color (US Models)	**Wire Color** (CE Models)
SINGLE PHASE	LINE (HI)	Black	Brown
	NEUTRAL (LO)	White	Blue
	GROUND (CHS)	Green	Green/Yellow
THREE PHASE	LINE 1 (L1 or A)	Black	Brown
	LINE 2 (L2 or B)	White	Black
	LINE 3 (L3 or C)	Red	Grey
	GROUND (CHS)	Green	Green/Yellow

The input power of the Models 125-AMX, 140-AMX, 160-AMX, 345-AMX, 360-AMX, 390-AMX and 3120-AMX is connected to the Input Power Terminal Block located on the rear panel of the power source. In this case the input wiring is brought to this terminal block from the distribution panel. The connection points are labeled "**A**," "**B**," "**C**," "**N**," and "**CHS**." The input wiring is connected to these points in the appropriate order with **CHS** being the safety ground or earth potential. The AMX-Series Power Source is not sensitive to phase rotation of the input voltage. For all standard DELTA input voltage forms (208, 220, and 240VAC) and WYE input voltage forms (220/380VAC, 230/400VAC 240/416VAC, and 277/480VAC), the "**N**" terminal is not used. Refer to Figure 3.3.6 for the proper wire size to be used with the configured input power form.

CAUTION

CONNECTION OF THIS UNIT TO IMPROPER INPUT VOLTAGES WILL CAUSE
CATASTROPHIC DAMAGE TO THE POWER SOURCE.

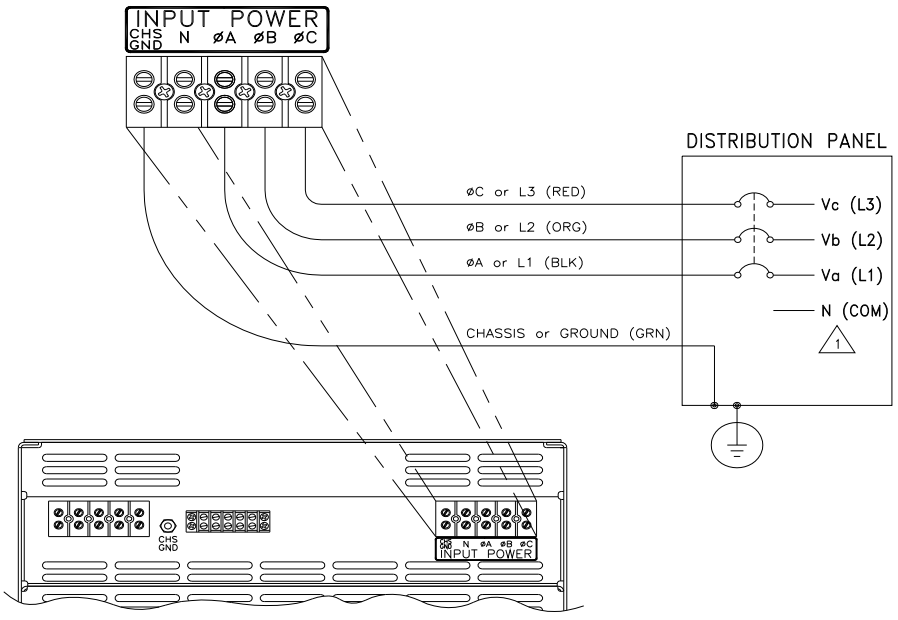
READ THE INPUT VOLTAGE LABEL AND CONNECT TO THAT INPUT VOLTAGE ONLY.
IF THERE ARE ANY QUESTIONS, CONTACT THE FACTORY.

NOTE: It is the user's responsibility to meet all local and national electrical codes when installing this equipment.

3.3.6 INPUT POWER WIRING REQUIREMENTS (cont.)

WIRE TABLE

INPUT VOLTAGE FORM	MINIMUM WIRE SIZE		
	MODEL 125-AMX	MODEL 140-AMX	MODEL 160-AMX 345-AMX 360-AMX 390-AMX 3120-AMX
208 VAC DELTA	12 AWG THWN or SO-10-4	10 AWG THWN or SO-8-4	8 AWG THWN or SO-4-4
220 VAC DELTA	12 AWG THWN or SO-10-4	10 AWG THWN or SO-8-4	8 AWG THWN or SO-4-4
240 VAC DELTA	12 AWG THWN or SO-10-4	10 AWG THWN or SO-8-4	8 AWG THWN or SO-4-4
220/380 VAC	14 AWG THWN or SO-12-5	12 AWG THWN or SO-10-5	12 AWG THWN or SO-8-5
240/416 VAC	14 AWG THWN or SO-12-5	12 AWG THWN or SO-10-5	12 AWG THWN or SO-8-5
277/480 VAC	14 AWG THWN or SO-12-5	12 AWG THWN or SO-10-5	12 AWG THWN or SO-8-5



MODELS 140, 160, 345, 360, 390 & 3120-AMX

REAR VIEW

NOTES

1. NEUTRAL WIRE IS NOT USED.
2. WIRE SIZES BASED ON TABLE 310-16 OF THE 1990 NATIONAL ELECTRIC CODE (NEC), AND AMBIENT TEMPERATURE OF 30°C.

FIGURE 3.3.6 MODELS 140/160/345/360/390/3120-AMX INPUT WIRING DIAGRAM

3.4 OUTPUT POWER CONNECTION

The connection of the load to the output of the AMX-Series Power Source is described in this section.

3.4.1 SINGLE PHASE OUTPUT

The wiring requirements for a low range (0-135, 0-150 V_{AC}) single phase load are shown in Figures 3.4.1.1 and 3.4.1.2.

WARNING

LETHAL VOLTAGES ARE PRESENT AT THE OUTPUT TERMINALS OF THIS MACHINE !

REFER OUTPUT CONNECTION TO A QUALIFIED ELECTRICIAN.

The output power is taken from the terminal block located on the rear panel of the chassis labeled "**OUTPUT POWER**." The Output Form is set for **FORM 1** when this type of load is attached.

The high side of the load is connected to the "**1φ**" terminal (the "**L1**" terminal on the Model 125-AMX) when making connections to an AMX-Series Power Source. The "**N**" ("**L2**" terminal on the Model 125-AMX) terminal is the low side of the output. The low side of the load connects to this terminal in all models.

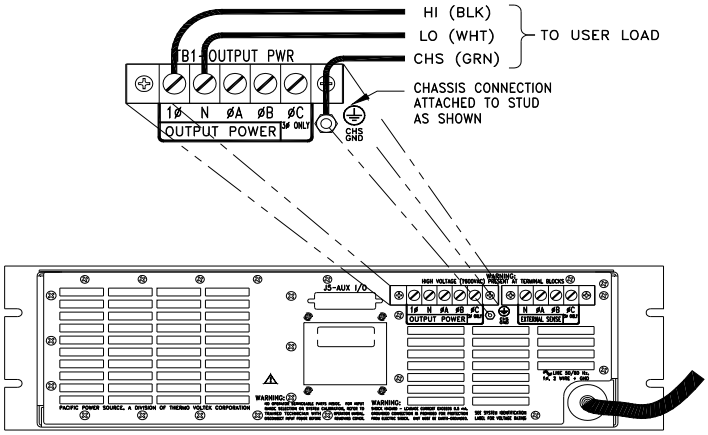
The "**CHS**" terminal ***must always*** be connected to the chassis of the load. Since the output is isolated, either output terminal (*direct-coupled output only*) may be connected to chassis. This allows the user to re-establish a local ground for the output. The output must be referenced to chassis somewhere, preferably neutral. Unless demanded otherwise by a particular application, Pacific Power Source recommends that a jumper be installed across the "**N**" ("**L2**" for Model 125-AMX) and "**CHS**" terminals of the Output Terminal block.

The "**N**" terminal of the Output Power Terminal Block ***must always*** be connected to the "**CHS**" terminal when using transformer-coupled outputs. Refer to Paragraph 3.4.4 for special considerations when using transformer-coupled output forms.

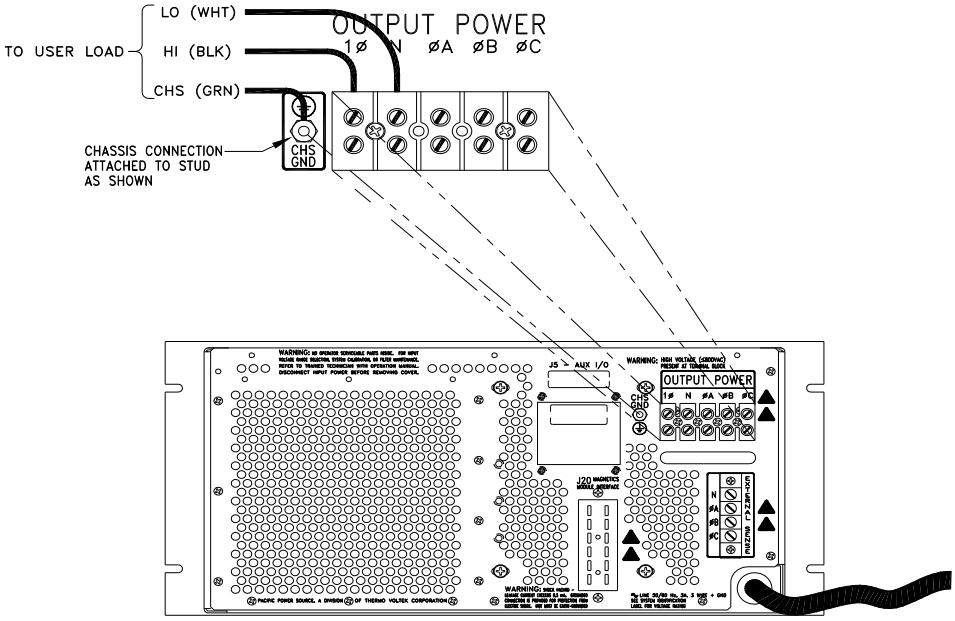
Refer to Paragraph 3.7 for connection of the External Sense Input, when used.

NOTE: It is the user's responsibility to meet all local and national electrical codes when installing this equipment.

3.4.1 SINGLE PHASE OUTPUT (cont.)



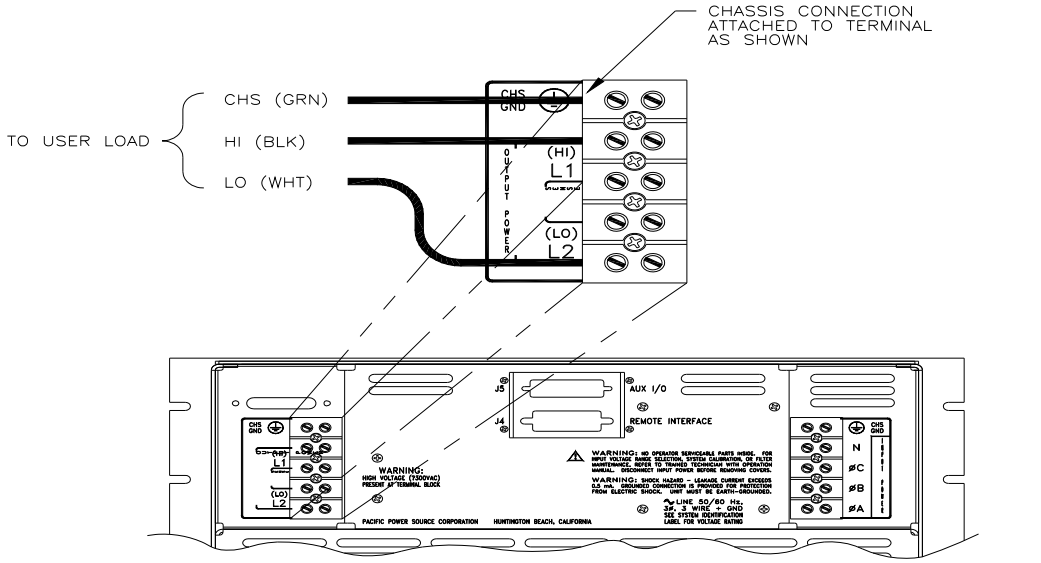
MODELS 105, 108, 112, 305, 308, & 312–AMX
REAR VIEW



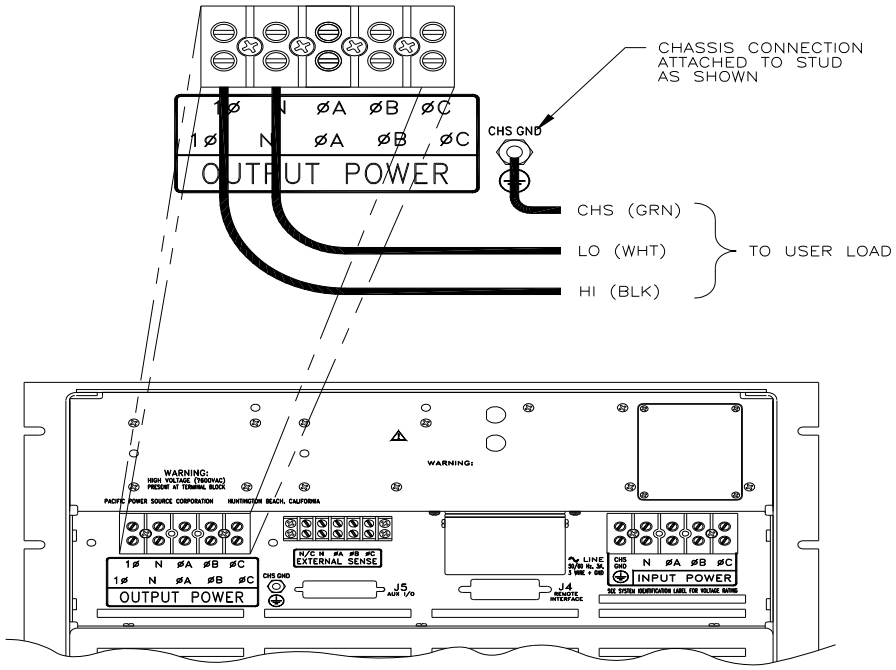
MODEL 320–AMX
REAR VIEW

FIGURE 3.4.1.1 MODELS 105/108/112/305/308/312/320-AMX
SINGLE PHASE OUTPUT CONNECTION

3.4.1 SINGLE PHASE OUTPUT (cont.)



MODEL 125–AMX
REAR VIEW



MODELS 140, 160, 345, 360, 390, & 3120–AMX
REAR VIEW

FIGURE 3.4.1.2 MODELS 125/140/160/345/360/390/3120-AMX
SINGLE PHASE OUTPUT CONNECTION

3.4.2 SPLIT PHASE OUTPUT

The wiring requirements for high range (0-270, 0-300V_{AC}) 220 VAC, 1φ, or split phase direct-coupled loads are shown in Figures 3.4.2.1 and 3.4.2.2. Split Phase or 2 Phase operation is defined to be two voltage vectors (V_a and V_b) which are equal in magnitude and separated by 180°.

WARNING

LETHAL VOLTAGES ARE PRESENT AT THE OUTPUT TERMINALS OF THIS MACHINE !

REFER OUTPUT CONNECTION TO A QUALIFIED ELECTRICIAN.

The output power is taken from the terminal block located on the rear panel of the chassis labeled "**OUTPUT POWER**." The Output Form is set for **FORM 2** when this type of load is attached.

This power form has a direct-coupled voltage range of 0-270 VAC_{l-l} (0-300 VAC_{l-l} on 112/312/125-AMX) and is well-suited for driving 220 VAC single phase loads. In this case, the high side of the load is connected to the "**φA**" terminal (the "**L1**" terminal on the Model 125-AMX) and the low side of the load to the "**φB**" terminal (the "**L2**" terminal on the Model 125-AMX). The "**N**" terminal is not used with this type of load.

Some loads require three connections (V_a-N-V_b or L_1-N-L_2). This type of load is commonly referred to as the "Split Phase" type (not available with the Model 125-AMX). In this case, the "**N**" terminal of the output terminal block is used in addition to the wiring described above. Refer to Figures 3.4.2.1 and 3.4.2.2 for connection details.

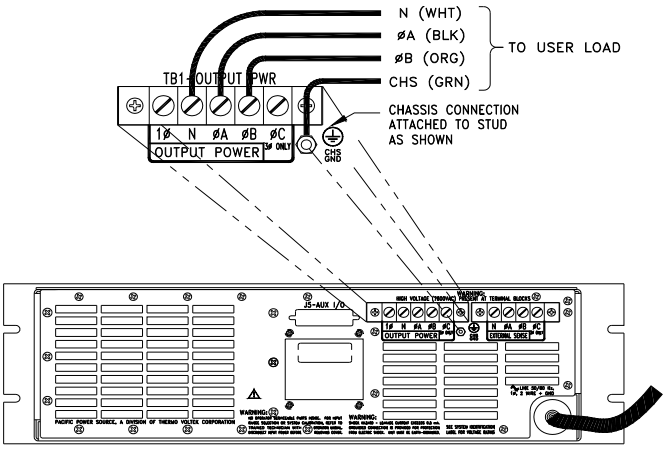
The "**CHS**" terminal ***must always*** be connected to the chassis of the load. Since the output is isolated, any output terminal (*direct-coupled output only*) may be connected to chassis. This allows the user to re-establish a local ground for the output. The output (preferably Neutral) must be referenced to chassis somewhere. Unless demanded otherwise by a particular application, Pacific Power Source recommends that a jumper be installed across the "**N**" ("**L2**" terminal for Model 125-AMX) and "**CHS**" terminals of the Output Terminal block.

The "**N**" terminal of the Output Power Terminal Block ***must always*** be connected to the "**CHS**" terminal when using transformer-coupled outputs. Refer to Paragraph 3.4.4 for special considerations when using transformer-coupled output forms.

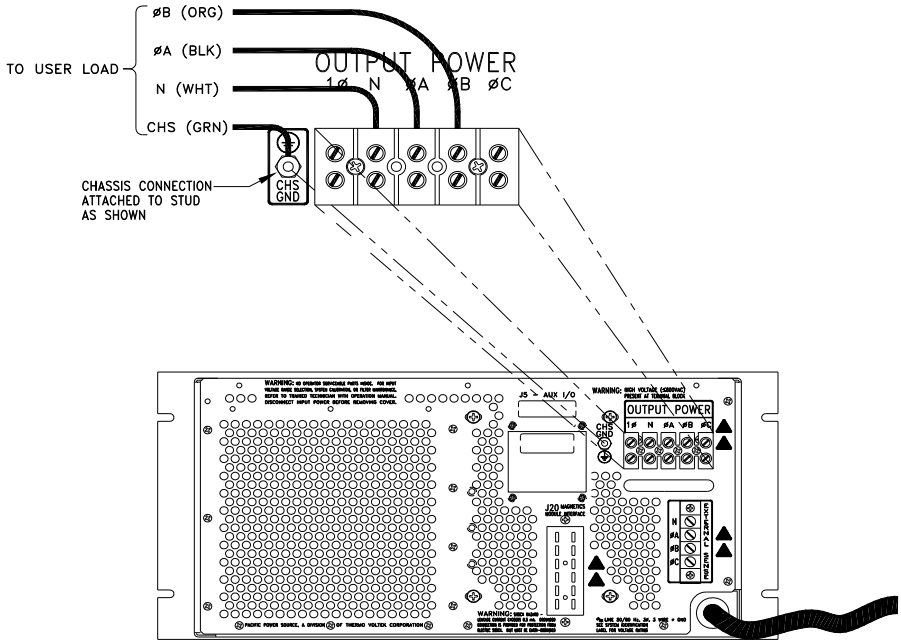
Refer to Paragraph 3.7 for connection of the External Sense Input, when used.

NOTE: It is the user's responsibility to meet all local and national electrical codes when installing this equipment.

3.4.2 SPLIT PHASE OUTPUT (cont.)



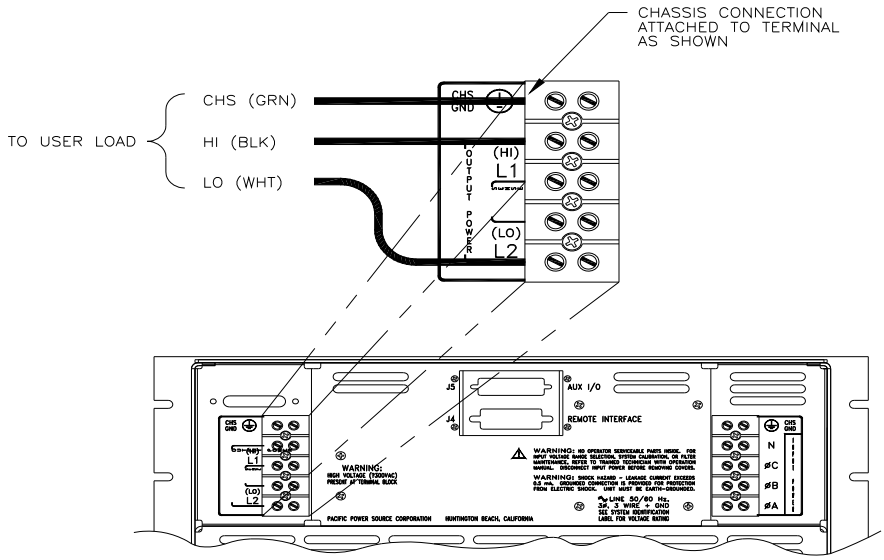
MODELS 105, 108, 112, 305, 308, & 312-AMX
REAR VIEW



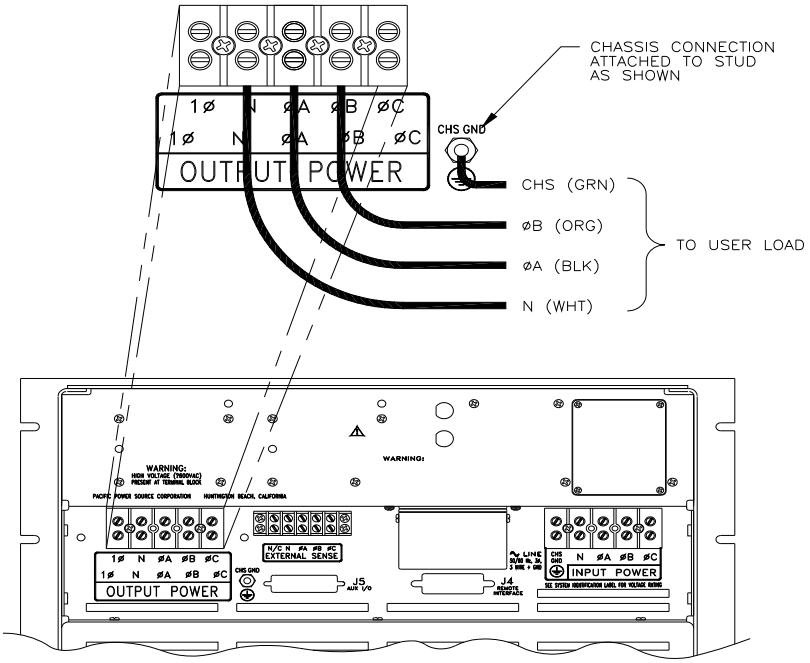
MODEL 320-AMX
REAR VIEW

FIGURE 3.4.2.1 MODELS 105/108/112/305/308/312/320-AMX
SPLIT PHASE OUTPUT CONNECTION

3.4.2 SPLIT PHASE OUTPUT (cont.)



MODEL 125–AMX
REAR VIEW



MODELS 140, 345, 160, 360, 390, & 3120–AMX
REAR VIEW

FIGURE 3.4.2.2 MODELS 125/140/160/345/360/390/3120-AMX
SPLIT PHASE OUTPUT CONNECTION

3.4.3 THREE PHASE OUTPUT

The wiring requirements for three phase loads (WYE or DELTA) are shown in Figures 3.4.3.1 and 3.4.3.2.

WARNING

LETHAL VOLTAGES ARE PRESENT AT THE OUTPUT TERMINALS OF THIS MACHINE!

REFER OUTPUT CONNECTION TO A QUALIFIED ELECTRICIAN.

The output power is taken from the terminal block located on the rear panel of the chassis labeled "**OUTPUT POWER**". This Output Form is set for **FORM 3** when these types of load are connected.

This power form has a direct-coupled voltage range of 0-135 $VAC_{l\text{-}n}$. WYE loads are connected to "φ**A**," "φ**B**," "φ**C**," and "**N**" terminals as shown in Figures 3.4.3.1 and 3.4.3.2. In the case of DELTA loads, the "**N**" terminal is not used.

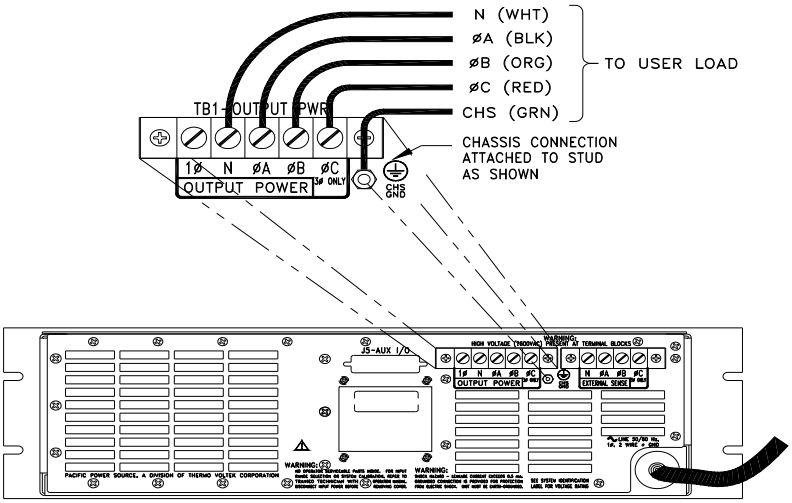
The "**CHS**" terminal ***must always*** be connected to the chassis of the load. Since the output is isolated, any output terminal (*direct-coupled output only*) may be connected to chassis. This allows the user to re-establish a local ground for the output. The output (preferably Neutral) must be referenced to chassis somewhere. Unless demanded otherwise by a particular application, Pacific Power Source recommends that a jumper be installed across the "**N**" and "**CHS**" terminals of the Output Terminal block.

The "**N**" terminal of the Output Power Terminal Block ***must always*** be connected to the "**CHS**" terminal when using transformer-coupled outputs. Refer to Paragraph 3.4.4 for special considerations when using transformer-coupled output forms.

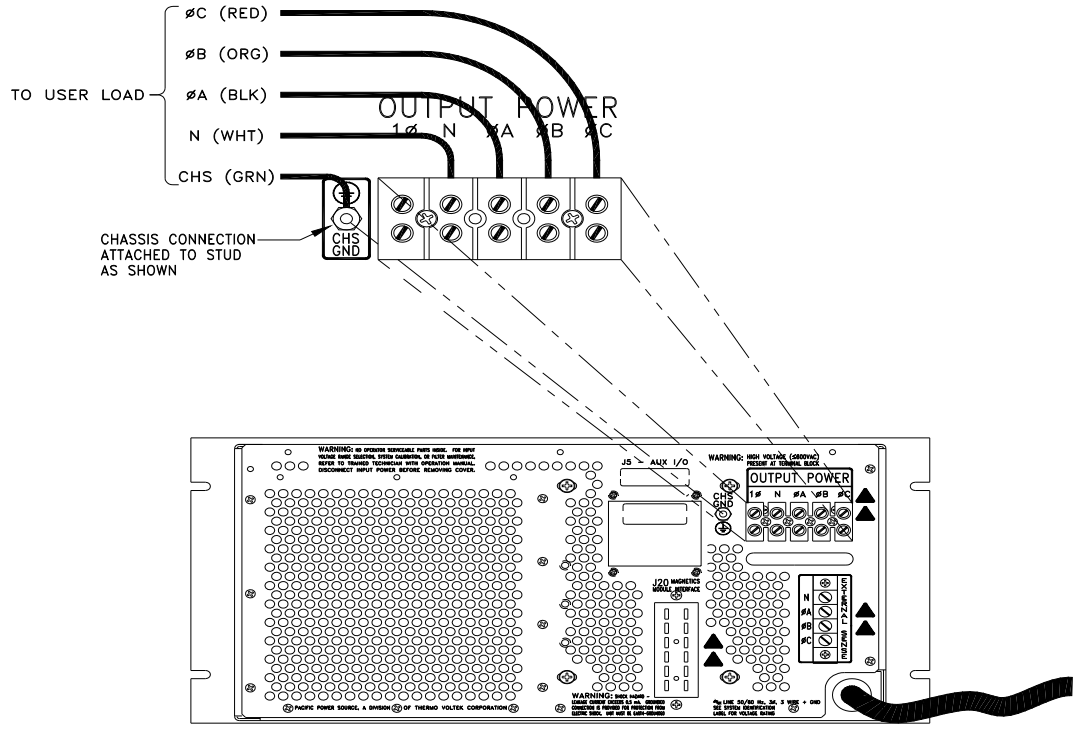
Refer to Paragraph 3.7 for connection of the External Sense Input, when used.

NOTE: It is the user's responsibility to meet all local and national electrical codes when installing this equipment.

3.4.3 THREE PHASE OUTPUT (cont.)



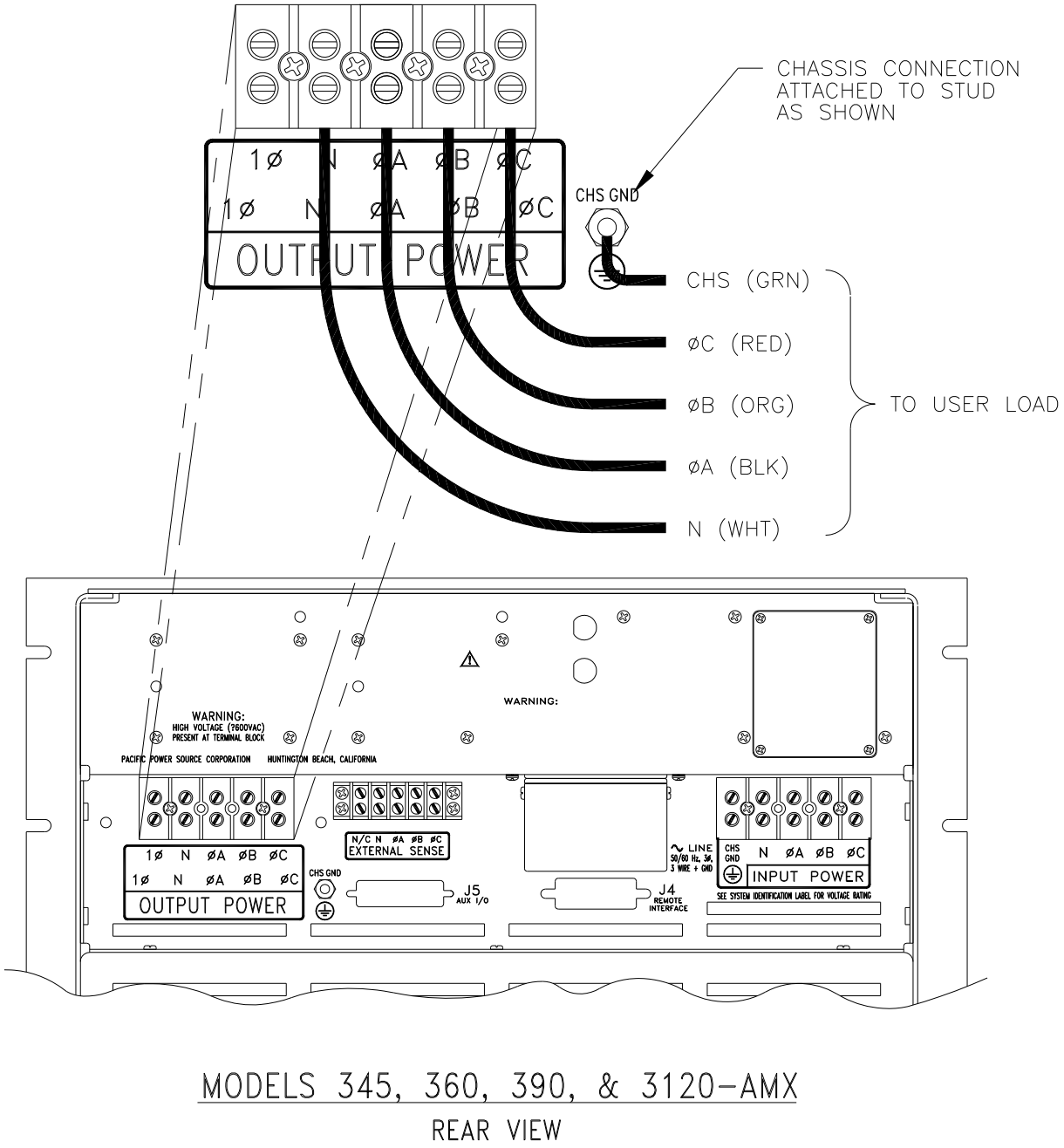
MODELS 305, 308 & 312–AMX
REAR VIEW



MODEL 320–AMX
REAR VIEW

FIGURE 3.4.3.1 MODELS 305/308/312/320-AMX THREE PHASE OUTPUT CONNECTION

3.4.3 THREE PHASE OUTPUT (cont.)



MODELS 345, 360, 390, & 3120-AMX

REAR VIEW

FIGURE 3.4.3.2 MODELS 345/360/390/3120-AMX THREE PHASE OUTPUT CONNECTION

3.4.4 TRANSFORMER OUTPUTS - SPECIAL CONSIDERATIONS

OUTPUT GROUNDING

The output of the AMX-Series Power Source is electrically isolated from the input power and earth ground. This allows the user to establish a local ground for the output of the Power Source. The AMX-Series Power Source is designed to withstand voltage potentials of 150 VAC between the Neutral output terminal and chassis ground.

When using the direct-coupled outputs, any output or neutral may be connected to chassis. Since the line to neutral voltage cannot exceed 150 VAC, the voltage stress from neutral to chassis never exceeds designed limits.

In the case of transformer-coupled outputs, neutral ***must*** be connected to chassis ground (either locally or remotely), because line to neutral voltages can be greater than 150 VAC. If a phase voltage (V_a, V_b, or V_c) were connected to chassis, the voltage could exceed the 150 VAC limit specified for the neutral to chassis voltage. Neutral must remain within 150 VAC of chassis (earth ground) at all times.

LOW FREQUENCY OPERATION

AMX-Series output transformers are designed to operate from 45 to 5,000 Hz. In the case of steady-state sine wave output, operation at frequencies as low as 30 Hz (125 VAC V_{pri}) is possible. Operation at lower frequencies (below 30Hz) may cause saturation of the output transformers, but at reduced output voltages, lower frequency operation is possible. The Volt•Second Product of the output MUST NOT exceed the maximum Volt•Second rating of the transformer to prevent saturation of the transformers when operating at lower frequencies.

For example, to determine the value of reduced voltage at 20Hz operation of the transformer described above,

1. Calculate the Volt•Second Product maximum value of the transformer at 30Hz and 125 Vac

$$T_{30Hz} = \frac{1}{Freq} = \frac{1}{30Hz} = 0.033\text{sec} \qquad Volt \bullet Sec_{\max} = T_{30Hz} \times V_{rms} = 0.033 \times 125 = 4.125 volt \bullet \text{sec}$$

2. Calculate the reduced output voltage value at 20Hz with maximum Volt •Second Product value

$$T_{20Hz} = \frac{1}{Freq} = \frac{1}{20Hz} = 0.050\text{sec} \qquad Volts = \frac{Volt \bullet Sec_{\max}}{T_{20Hz}} = \frac{4.125 volt \bullet \text{sec}}{0.050\text{sec}} = 82.5 volts$$

Therefore, to prevent output transformer saturation at 20Hz operation, the maximum primary voltage of the transformer should be 82.5Vac.

Systems with transformers connected to the output require special attention when designing transient profiles (applicable to systems w/UPC). It is possible to design transients in which the DC Component of the periodic waveform is not zero. Attempting to push DC voltage through the transformer will cause saturation of the device. However, the output transformers are designed to support a single event, half-cycle dropout at 125 VAC_{pri}, 50 Hz without saturating. Continuous operation with an asymmetrical waveform (DC component $\neq$ 0) will cause saturation.

3.4.5 MASTER - SLAVE PARALLELING INTERCONNECTIONS (M5283)

The paralleling option, M5283, for models 140, 160, 345, and 360AMX provides the ability to create a multi-unit AC Power Source system that parallels up to five power sources for increased power. Paralleled units must all be the same model, and each system must contain at least one designated master unit, however, any combination of master/slave selectable or dedicated slave units may connected to the designated master.

Basic instructions to configure a two chassis system follow. For systems equipped with this option, Section 9 of the manual will include additional operation and connection detail.

WARNING

LETHAL VOLTAGES ARE PRESENT AT THE OUTPUT TERMINALS OF THIS MACHINE !
REFER OUTPUT CONNECTION TO A QUALIFIED ELECTRICIAN.

DE-ENERGIZE ALL POWER SOURCES BEFORE INSTALLING OR CHANGING ANY REAR PANEL CONNECTORS.

CONNECTION OF A TWO CHASSIS SYSTEM:

Refer to Figure 3.4.5.1 for the connections required to parallel the two power sources. All paralleled units must have the paralleling option installed.

On the rear of each power source:

1. On the designated Master Power Source, set the Master-Slave switch (S21) to the Master position (a designated Master must contain a UPC-32 or UPC-12 controller).
2. On the designated Slave Power Source, set the Master-Slave switch (S21) to Slave (designated Slave may contain, but does not require a UPC-32 or UPC-12 controller).
3. Connect the supplied Paralleling Interconnect cable to the Master-Slave connectors (J21) on both power sources.
4. Connect the output terminals of both power sources to each other. i.e. connect the ØA output terminal of the Master to the ØA terminal of the Slave. Repeat for all available phases and Neutral.
   NOTE: All output wires must be of the same guage and length.
5. Connect the Chassis “CHS” terminals of both power sources together with the appropriate ring lug and wire (not supplied).
6. If present, connect each Magnetics Module to its Power Source at (P20) as shown in Figure 3.4.5.1.

NOTE: The chassis, “CHS” and neutral, ”N” terminals ***must always*** be connected to both power sources.

Output power connections from the power sources to the load are made at the “OUTPUT POWER” terminal block at the rear panel of the Master power source only (refer paragraphs 3.4.1 through 3.4.4 for detailed instructions). External sense connection is made in the standard fashion on the designated Master power source as well (refer to paragraph 3.7 for detailed instructions). The remote interface (GPIB or RS-232) connector, J4, and the AUX I/O connector, J5, are active and should only be connected to the designated master.

3.4.5 MASTER - SLAVE PARALLELING INTERCONNECTIONS (M5283) (cont.)

ROUTINE POWER-UP, PARALLELED SYSTEM

The following procedure is recommended to turn on paralleled systems after it has been verified that the installation is correct.

WARNING

LETHAL VOLTAGES ARE PRESENT AT THE OUTPUT TERMINALS OF THIS MACHINE!

1. Set the OUTPUT POWER switch of the Master Chassis (that which has the controller installed) to the **OFF** position. The Output Power Switch of the Slave chassis is disabled. Switch the INPUT POWER switch of the Master chassis to the **ON** position. Switch the INPUT POWER switch of the Slave chassis to the **ON** position. This sequence is recommended so that the power amplifiers of the system operate in a controlled manner during power-up. The controller will light up and begin to display output data. The value of the output parameters will be set as programmed in the UPC.

2. Set the OUTPUT POWER switch of the Master chassis to the **ON/AUTO** position and press the OUTPUT ENABLE button of the UPC to be **ON**.

CAUTION

DO NOT CONNECT ANY LOADS TO THE OUTPUT OF THE POWER SOURCE UNTIL THE OUTPUT VOLTAGE AND FREQUENCY HAVE BEEN VERIFIED AS CORRECT.

APPLICATION OF IMPROPER VOLTAGE OR FREQUENCY CAN DAMAGE USER LOADS.

NOTE: Paralleled units must all be the same model. That is, only a 345-AMX may be paralleled with a 345-AMX, a 160-AMX may only be paralleled with a 160-AMX. Connection with dissimilar power sources will likely cause an output fault and may cause damage to the equipment or the load.

It is the installer's responsibility to meet all local and national electrical codes when installing this equipment.

3.4.5 MASTER - SLAVE PARALLELING INTERCONNECTIONS (M5283) (cont.)

SYSTEM TURN-OFF, PARALLELED SYSTEM

This paragraph describes the procedure used to turn off the paralleled systems.

The paralleled systems are turned off by:

1. Setting the OUTPUT POWER Switch of the Master chassis (which has the controller installed) to the **OFF** position.

2. Opening the INPUT POWER circuit breaker of the Slave chassis.

3. Opening the INPUT POWER circuit breaker of the Master chassis.

CAUTION

It is recommended that only the OUTPUT POWER switch of the Master chassis be used to remove power to a load. The INPUT POWER switch of the Slave chassis should never be turned to the **OFF** position with a load attached to the system as it will subject the Master chassis to all the load current being delivered by the system. This will cause an overtemp shutdown if the load exceeds the Master chassis' system ratings. Also, the Master chassis INPUT POWER switch should never be used to remove power to a load since it drives all the control circuits for the paralleled system.

CONNECTION OF THE THREE TO FIVE CHASSIS

Interconnection for larger systems (3-5 power sources) is similar to these instructions with the exception of output wiring to the load. For instructions on how to install and operate a higher power system, refer to section 9.0 of this manual.

3.4.5 MASTER - SLAVE PARALLELING INTERCONNECTIONS (M5283) (cont.)

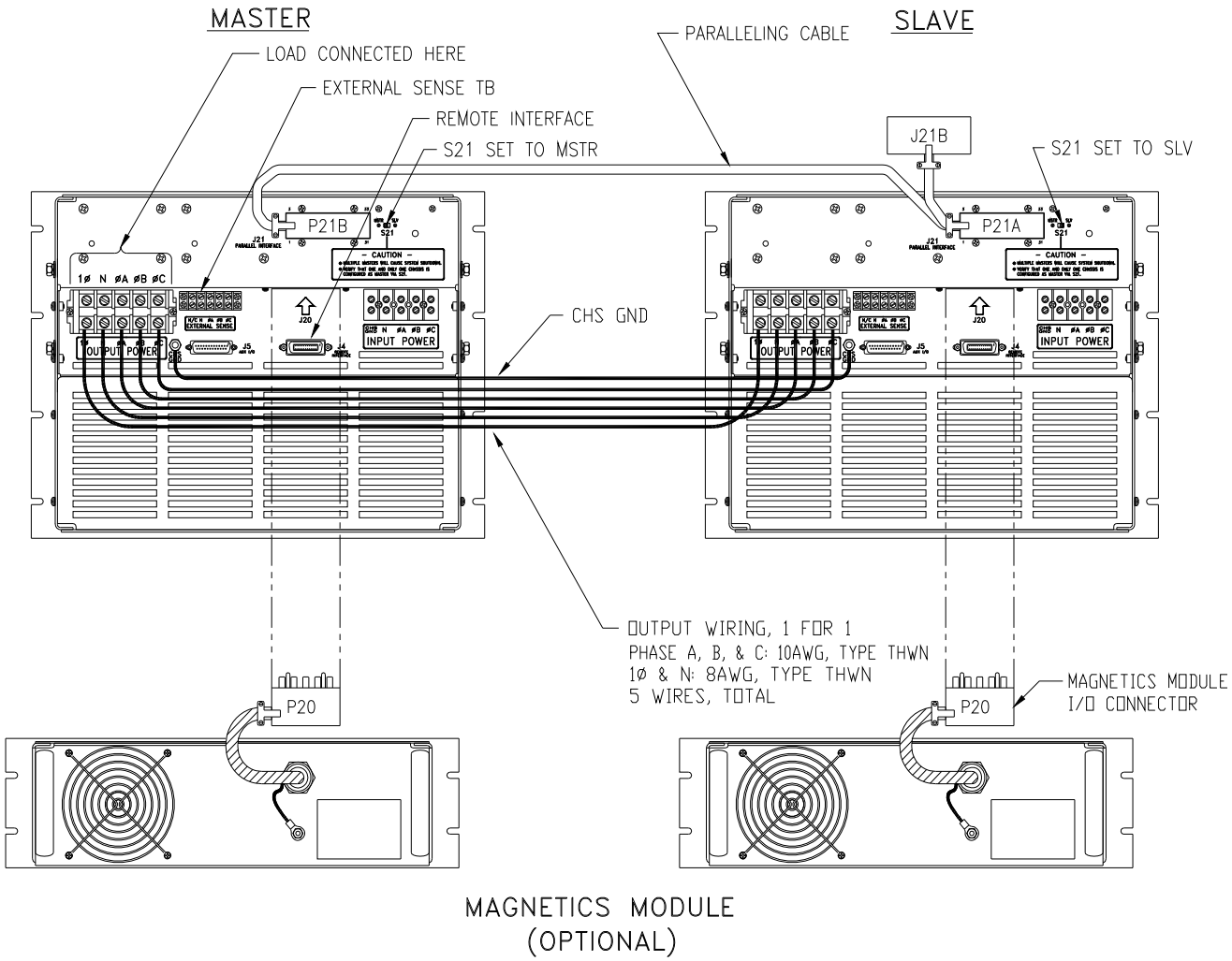


FIGURE 3.4.5.1 MODELS 140,160, 345 & 360-AMX M5283 TWO CHASSIS INTERCONNECTION

3.5 REMOTE INTERFACE

The programmable controller (UPC-Series Controller) is supplied with one of two remote interfaces. These are the GPIB (General Purpose Interface Bus) or RS-232 Interface. Connection information relative to these interfaces is described in detail in the *UPC-Series Operation* manual.

3.6 AUX I/O INSTALLATION

The Auxiliary Input/Output signals may vary between the different controllers. However, the method of connection remains the same.

The AUX I/O connector contains synchronizing outputs (digital) and modulation inputs (analog). These are extremely useful in certain test applications. The use of any of these signals is optional and connection to these points is required only when these features are used.

The AUX I/O connector is located on the rear panel of the power source and is labeled as such. This is a DB-25S connector. A DB-25P connector is required for connection to AUX I/O connector.

All signals contained within the AUX I/O connector are low-level (less than ±15 VDC) and are with respect to earth ground reference. Refer to the appropriate controller operation manual for complete definition of the signals present on the AUX I/O connector.

3.7 EXTERNAL SENSE CONNECTION

This paragraph describes connection of external sense leads to the AMX-Series Power Source. External Sense wire size and methods are discussed.

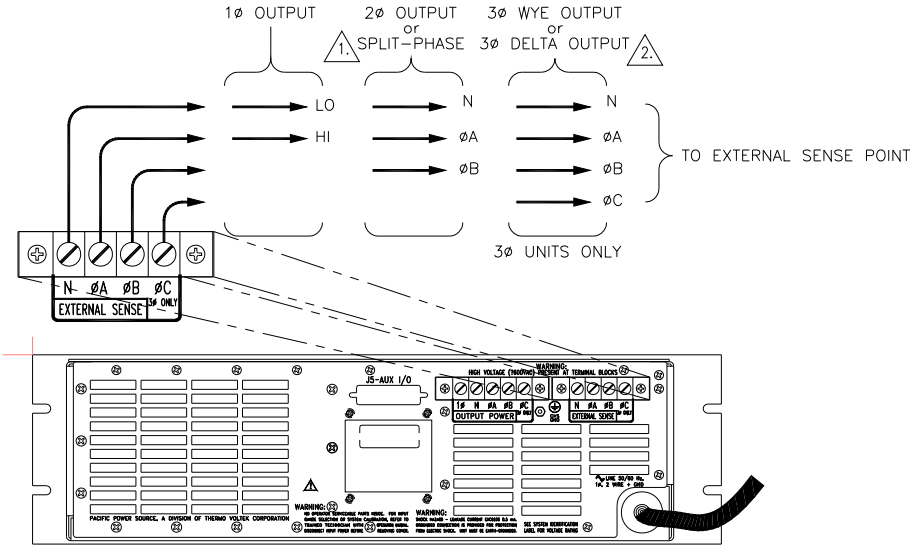
The AMX-Series Power Source contains External Sense Circuits. These circuits measure output voltage at an external sense point. Since this feature can be completely disabled, the wiring detailed in this paragraph is optional. If the External Sense feature is desired, connect the sense wires as described here.

Figures 3.7.1 and 3.7.2 show external sense wiring for 1, 2, and 3φ systems. There is little or no current flowing through the External Sense metering lines. Standard 22 AWG, 600 Volt (0.050" or 1.27mm) control wire is recommended for this application. Twisting the External Sense wiring is recommended and, in some cases, can improve performance. In noisy environments, shielding may become necessary. If shielded cable is used, be sure to ground the shield at one end only, to prevent the possibility of creating a ground loop.

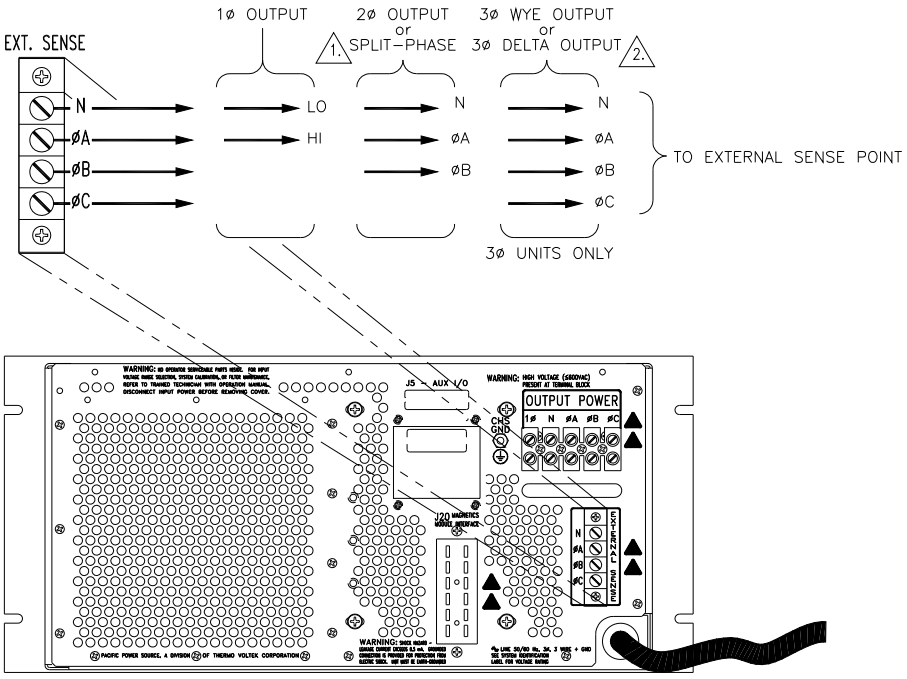
When wiring the External Sense Leads to a DELTA load (refer to paragraph 3.4.3), connect the Neutral terminal of the External Sense Terminal block to the Neutral terminal of the Output Terminal block.

When the neutral wire is not used by the load on a split phase output (2 Phase Output Mode, refer to paragraph 3.4.2), connect the Neutral terminal of the External Sense Terminal block to the Neutral terminal of the Output Power Terminal block. In cases where the load has a neutral terminal, connect the neutral lead from External Sense Terminal block to the neutral terminal of the load.

3.7 EXTERNAL SENSE CONNECTION (cont.)



MODELS 105, 108, 112, 305, 308, & 312-AMX
REAR VIEW



MODEL 320-AMX
REAR VIEW

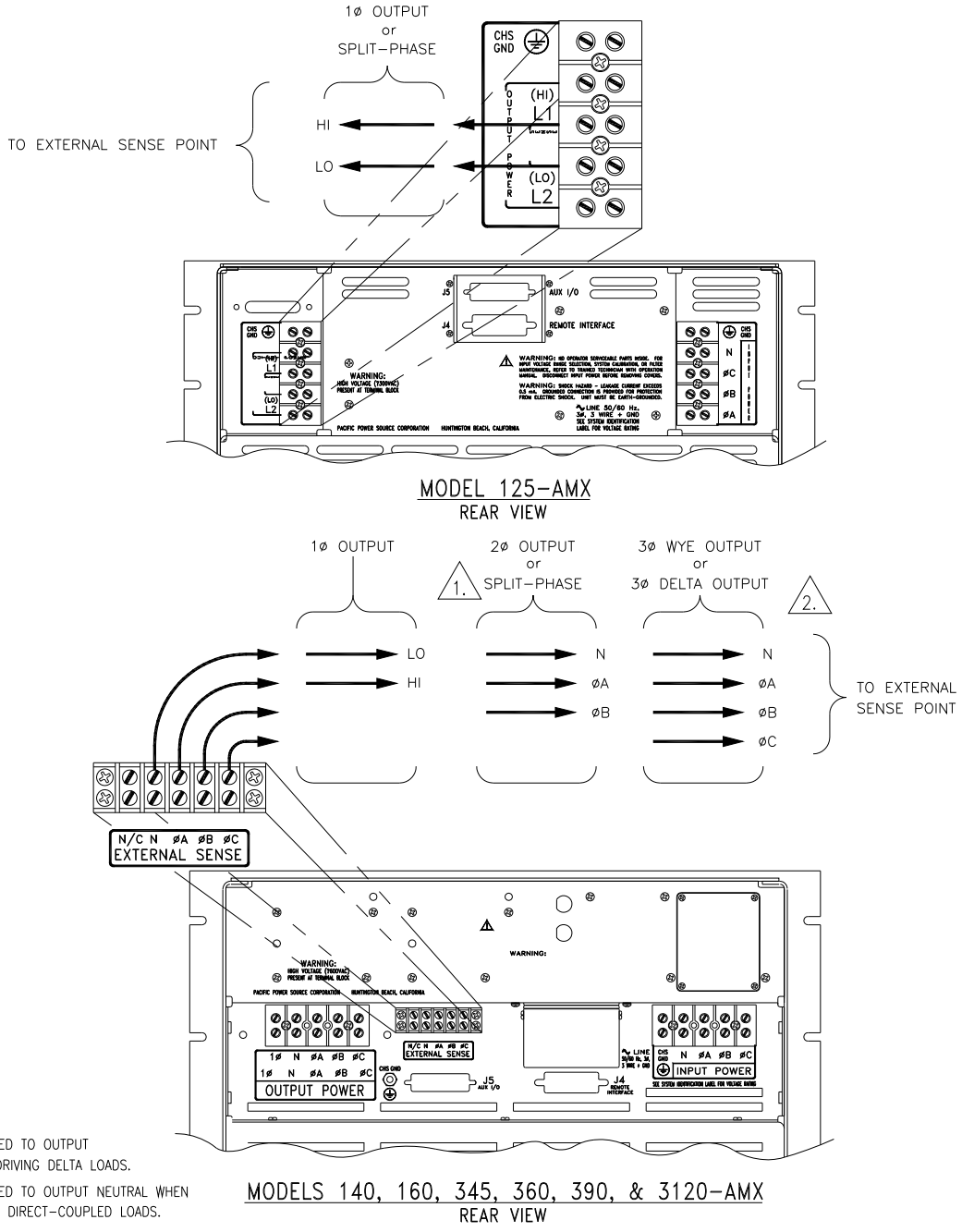
NOTES

2. NEUTRAL WIRE TIED TO OUTPUT NEUTRAL WHEN DRIVING DELTA LOADS.

1. NEUTRAL WIRE TIED TO OUTPUT NEUTRAL WHEN DRIVING 220 VAC DIRECT-COUPLED LOADS.

FIGURE 3.7.1 MODELS 105/108/305/308/112/312/320-AMX EXTERNAL SENSE CONNECTION

3.7 EXTERNAL SENSE CONNECTION (cont.)



2. NEUTRAL WIRE TIED TO OUTPUT NEUTRAL WHEN DRIVING DELTA LOADS.
1. NEUTRAL WIRE TIED TO OUTPUT NEUTRAL WHEN DRIVING 220 VAC DIRECT–COUPLED LOADS.

NOTES

FIGURE 3.7.2 MODELS 125/140/160/345/360/390/3120-AMX EXTERNAL SENSE CONNECTION

SECTION 4

OPERATION

4.0 OPERATION

This section describes the operation of an AMX-Series AC Power Source. The procedure described in the following paragraphs is a general procedure common to all systems (except as noted). This procedure does not detail operation of a specific controller. Refer to the appropriate controller manual for detailed information regarding the installed controller.

4.1 FRONT PANEL CONTROLS

Figure 4.1 is a front view of the Model 320-AMX with a UPC-32 controller installed, showing the location of the front panel controls and indicators of the 320-AMX-Series Power Source. The front panel control layout is similar in all AMX-Series models. Refer to the *UPC-Series OPERATION MANUAL* for information about the installed controller.

1. INPUT POWER SWITCH (Circuit Breaker)

The circuit Breaker is used as the main input ON/OFF control and protects the power source from drawing excessive input current from the input AC line.

2. OUTPUT POWER SWITCH and INDICATORS

This Switch is used to control the output contactor of the AMX-Series Power Source. Indicators show the state of the output contactor. If the power source shuts down for the case of over-temperature or other internal fault, shutdown is reset when the Output Power Switch is set to OFF and the fault has cleared. Refer to Paragraph 4.5 for details.

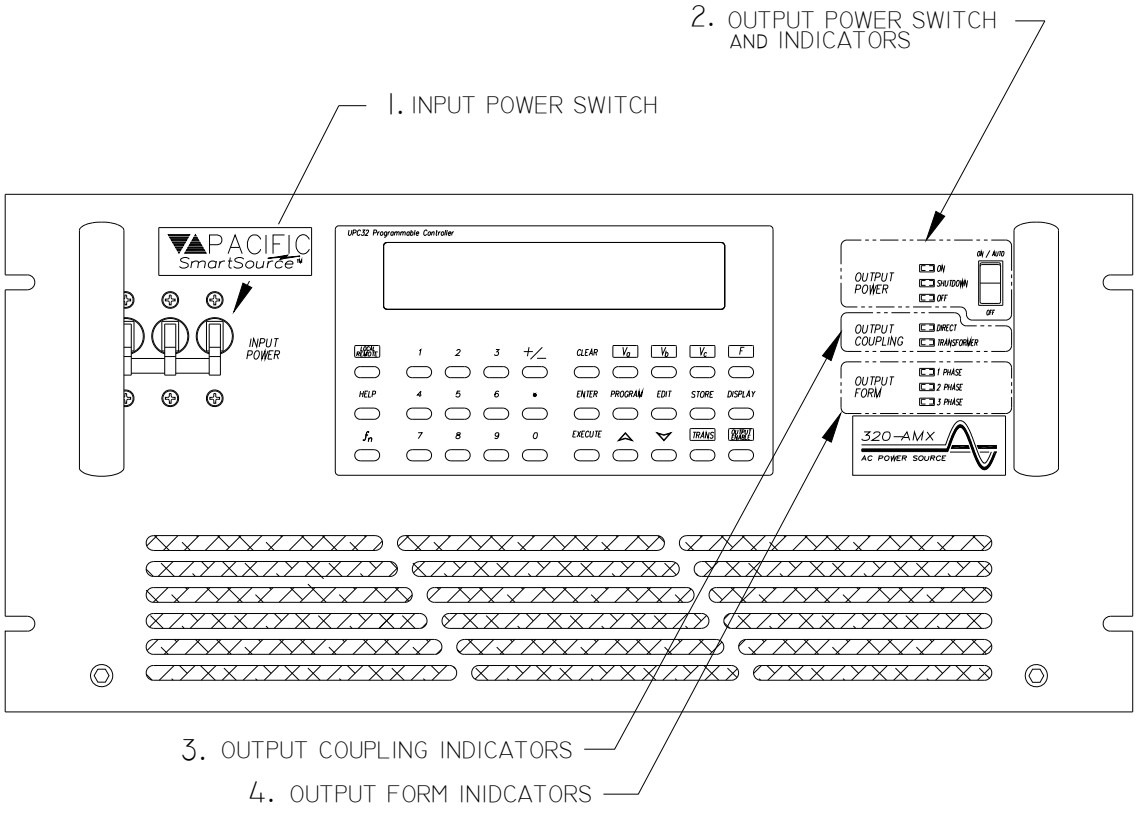
3. OUTPUT COUPLING INDICATORS

LED's which show the Output Coupling of the power source.

4. OUTPUT FORM INDICATORS

LEDs show the Output Form that is active. (The 3 Phase indicator is not present on the Models 105, 108, 112, 125, 140, 160-AMX.)

4.1 FRONT PANEL CONTROLS (cont.)



MODEL 320-AMX
W/ UPC-32 CONTROLLER

FIGURE 4.1 FRONT PANEL CONTROLS

4.2 INITIAL POWER-UP

To turn on the AMX-Series Power Source for the first time, the steps below are the recommended order of operation.

WARNING

LETHAL VOLTAGES ARE PRESENT AT THE OUTPUT TERMINALS OF THIS MACHINE!

1. For new installations, check input connections (including proper input voltage). Do not connect the load at this time. Also verify that the OUTPUT POWER switch is in the **OFF** position.

2. Switch the INPUT POWER switch to the **ON** position. The controller will light up and begin to display data.

3. Set the controller for the desired output voltage, frequency, phase angles, etc. (Refer to the appropriate controller operation manual for details regarding adjustment of output parameters.)

4. Set the OUTPUT POWER switch to the **ON/AUTO** position. The OUTPUT ENABLE button of the UPC must be **ON**.

CAUTION

DO NOT CONNECT ANY LOADS TO THE OUTPUT OF THE POWER SOURCE UNTIL THE OUTPUT VOLTAGE AND FREQUENCY HAVE BEEN VERIFIED AS CORRECT.

APPLICATION OF IMPROPER VOLTAGE OR FREQUENCY CAN DAMAGE USER LOADS.

5. Verify proper voltage, frequency and waveform at the output terminal block. If the output is not correct, set the proper output values. Refer to the controller manual for details.

6. Once the correct output is verified, turn the system OFF by first setting the OUTPUT POWER SWITCH to the **OFF** position and then opening the INPUT POWER SWITCH. Connect the load.

7. Re-start the unit beginning at step 2, above. Verify that the system delivers power to the load.

4.3 ROUTINE POWER-UP

The following procedure is recommended to turn-on paralleled systems after it has been verified that the installation is correct.

WARNING

LETHAL VOLTAGES ARE PRESENT AT THE OUTPUT TERMINALS OF THIS MACHINE!

1. Set the OUTPUT POWER switch to the **OFF** position.
   Switch the INPUT POWER switch to the **ON** position. The controller will light up and begin to display output data. The value of the output parameters will be set as programmed in the UPC.

2. Set the OUTPUT POWER switch to the **ON/AUTO** position and the OUTPUT ENABLE button of the UPC must be **ON**.

CAUTION

DO NOT CONNECT ANY LOADS TO THE OUTPUT OF THE POWER SOURCE UNTIL THE OUTPUT VOLTAGE AND FREQUENCY HAVE BEEN VERIFIED AS CORRECT.

APPLICATION OF IMPROPER VOLTAGE OR FREQUENCY CAN DAMAGE USER LOADS.

4.3.1 ROUTINE POWER-UP, MODELS 390 and 3120-AMX

This paragraph describes the procedure used to turn on the Models 390 and 3120-AMX Power Sources after if has been verified that the installation is correct. The steps below are the recommended order of operation.

WARNING

LETHAL VOLTAGES ARE PRESENT AT THE OUTPUT TERMINALS OF THIS MACHINE!

1. Set the OUTPUT POWER switch of the Master Chassis (which has the controller installed) to the **OFF** position. The Output Power Switch of the Slave chassis is disabled. Switch the INPUT POWER switch of the Master chassis to the **ON** position. Switch the INPUT POWER switch of the Slave chassis to the **ON** position. This sequence is recommended so that the power amplifiers of the system operate in a controlled manner during power-up. The controller will light up and begin to display output data. The value of the output parameters will be set for the same values as when the unit was last turned off.

2. Set the OUTPUT POWER switch of the Master chassis to the **ON/AUTO** position and the OUTPUT ENABLE button of the UPC must be **ON**.

CAUTION

DO NOT CONNECT ANY LOADS TO THE OUTPUT OF THE POWER SOURCE UNTIL THE OUTPUT VOLTAGE AND FREQUENCY HAVE BEEN VERIFIED AS CORRECT.

APPLICATION OF IMPROPER VOLTAGE OR FREQUENCY CAN DAMAGE USER LOADS.

4.4 SYSTEM TURN-OFF

This paragraph describes the procedure used to turn off the AMX-Series Power Source.

The AMX-Series Power Source is turned off by:

1. Setting the OUTPUT POWER Switch to the **OFF** position.

2. Opening the INPUT POWER circuit breaker.

4.4.1 SYSTEM TURN-OFF, MODELS 390 and 3120-AMX

This paragraph describes the procedure used to turn off the 390 and 3120-AMX Power Sources.

The 390 and 3120-AMX Power Sources are turned off by:

1. Setting the OUTPUT POWER Switch of the Master chassis (which has the controller installed) to the **OFF** position.

2. Opening the INPUT POWER circuit breaker of the Slave chassis.

3. Opening the INPUT POWER circuit breaker of the Master chassis.

CAUTION

It is recommended that only the OUTPUT POWER switch of the Master chassis be used to remove power to a load. The INPUT POWER switch of the Slave chassis should never be turned to the **OFF** position with a load attached to the system as it will subject the Master chassis to all the load current being delivered by the system. This will cause an overtemp shutdown if the load exceeds the Master chassis' system ratings. Also, the Master chassis INPUT POWER switch should never be used to remove power to a load since it drives all the control circuits for the paralleled system.

4.5 SYSTEM SHUTDOWN

This paragraph describes the conditions which will cause system shutdown and the procedure used to reset the AMX-Series Power Source.

4.5.1 SHUTDOWN CONDITIONS

The Output Contactor of the AMX-Series Power Source will be opened automatically when:

1. Either the Input Power Transformer or one of the power amplifier assemblies has reached an Over-temperature condition. (Over-temperature is usually caused by either blocking the air inlets (includes dirty fan filters) or overloading the power source.)

2. The state of the Output Coupling has changed while the Output Contactor is engaged.

3. The state of the Output Form has changed while the Output Contactor is engaged.

When the Output Contactor has been opened due to one of the above faults, the SHUTDOWN LED on the front panel of the power source will be lighted. The output contactor will remain open while the SHUTDOWN LED is lighted. This LED will remain lighted until reset.
If the Output Power Switch is in the **ON/AUTO** position when the unit is turned on, the SHUTDOWN LED will light. This is normal operation. The LED is turned off simply by placing the Output Power Switch into the **OFF** position.

4.5.2 RESETTING SHUTDOWN FAULTS

The shutdown fault is reset as follows:

1. Set the OUTPUT POWER Switch to the **OFF** position.

2. Wait for the SHUTDOWN LED to extinguish. This LED will remain lighted until the condition which caused the shutdown to occur has been corrected. In the case of shutdown due to over-temperature this may take some time while the unit cools down. The output contactor cannot be engaged until the shutdown fault has been cleared.

NOTE: The SHUTDOWN LED is latched on when a fault occurs. The OUTPUT POWER Switch or the Output Enable of the UPC ***MUST*** be placed in the **OFF** position before the SHUTDOWN LED will extinguish, even if the original fault no longer exists.

3. After the SHUTDOWN LED has been extinguished, the unit will function normally.

4.6 OUTPUT VOLTAGE FORMS

The AMX-Series Power Source can be configured for various output voltage forms, depending on the power source model.

A recommended strategy for selecting the optimum output voltage form is based on two basic philosophies. The first is to use a direct-coupled output form whenever possible. The second is to select the minimum voltage range necessary to drive the load.

Direct-coupled output is preferred because the output impedance is extremely low, also low frequency limitations associated with transformer outputs do not exist. This is especially true when attempting to perform sub-cycle transients.

Selecting the minimum voltage range necessary to drive the load allows the power source to operate more efficiently and usually has more current available. This results in less heat being dissipated into the surrounding environment.

Paragraph 4.6.1 discusses the various circuits associated with the different output forms.

4.6.1 SYSTEM ARCHITECTURE

AMX-Series Power Sources can be configured for single, split, and three phase output voltage forms. Figure 4.6.1 is a simplified block diagram of the possible output architectures. Only the direct-coupled output forms are shown. All of the forms can be supplied with transformers to raise the output voltage level.

The **1 PHASE** (FORM 1) mode of operation is a one vector output form. All of the power amplifiers are connected in parallel to form one output vector. The standard, direct-coupled version of this output form is capable of 0-135 $VAC_{l\text{-}n}$ (0-150 $VAC_{l\text{-}n}$ for the Models 112, 312, and 125-AMX). The voltage ranges of the various transformer output forms are defined in section 3.2.

The **2 PHASE** (FORM 2) mode of operation is a two vector output form where the vectors are separated by 180° and equal in amplitude. This output form uses power amplifiers in pairs, one for each vector. The load can be attached from either line to neutral, line to line, or a combination of both (line to line only in the case of the Model 125-AMX). The standard, direct-coupled version of this output form has a voltage range of 0-270 $VAC_{l\text{-}l}$ (0-300 $VAC_{l\text{-}l}$ for the Models 112, 312, and 125-AMX). The voltage ranges of the various transformer output forms are twice the 1 PHASE voltage. Models 305, 308, 320, 330, 345, 360, 390 and 3120-AMX, only two of the three power amplifiers are connected--limiting these systems to producing only two-thirds of rated output power.

NOTE: The AMX-Series Power Sources do not support voltages in excess of 600 VAC_{rms} due to controller, safety, and spacing limitations. Attempting to defeat the inherent programming limitations of the controller to obtain higher voltages is ***strongly*** recommended against.

The **3 PHASE** (FORM 3) mode of operation is a three vector output form with vectors normally separated by 120°. Power amplifiers are supplied in groups of three with this output form and are WYE connected. A WYE load is connected to the A, B, C, and Neutral terminals of the output terminal block. This output form will also drive DELTA loads. DELTA loads are simply connected to the A, B, and C terminals of the output terminal block with the Neutral terminal not connected. The standard, direct-coupled version of this form has an output voltage range of 0 to 135/234 VAC (0 to 150/260 VAC for the Model 312-AMX). The line to neutral voltage ranges of the various transformer output forms are the same as the 1 PHASE voltage.

4.6.1 SYSTEM ARCHITECTURE (cont.)

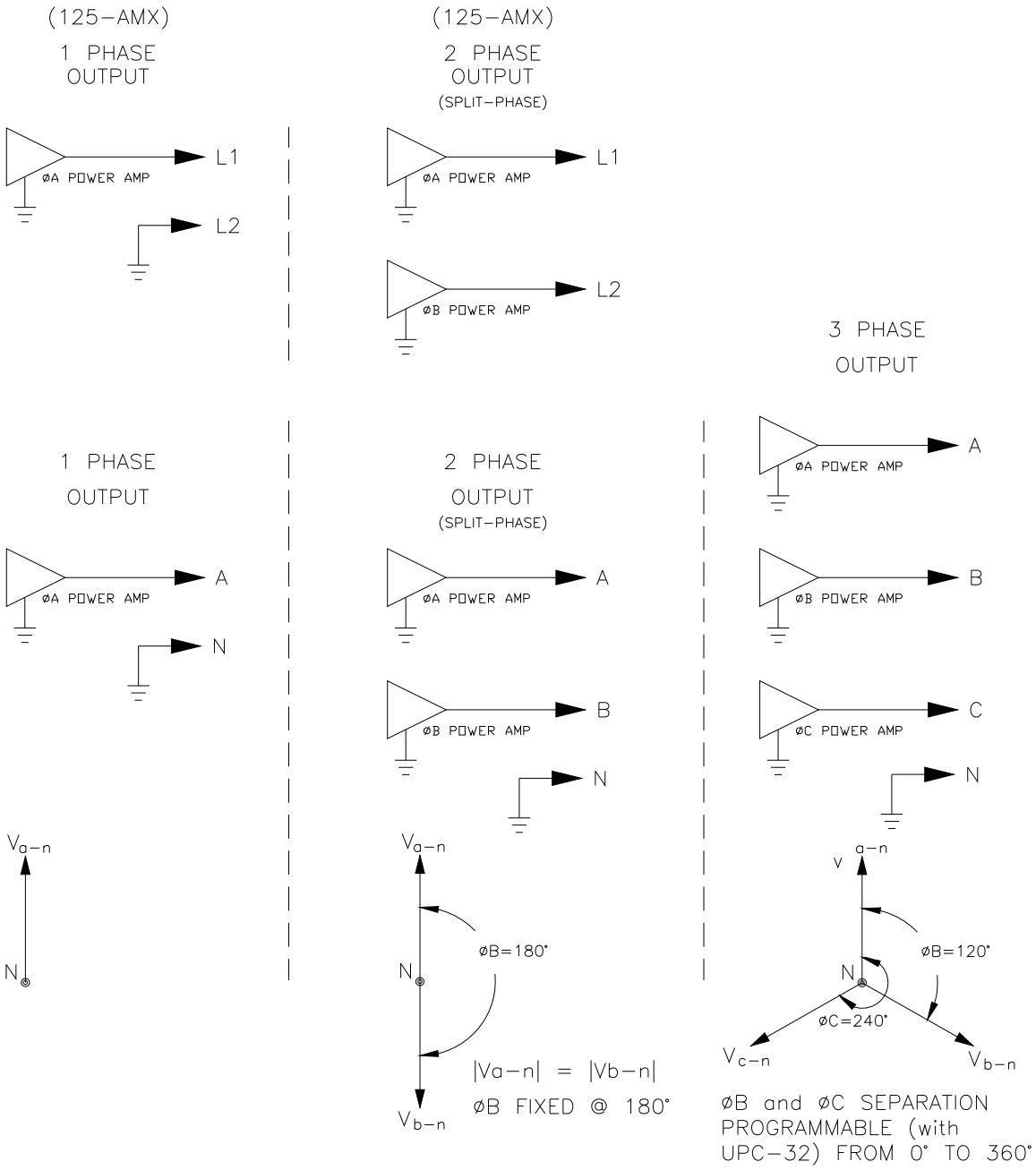


FIGURE 4.6.1 AMX-SERIES SYSTEM ARCHITECTURE

SECTION 5

MAINTENANCE

5.0 MAINTENANCE

This section describes the maintenance of the AMX-Series AC Power Source.

5.1 MAINTENANCE INTERVAL

Maintenance of the Models 105-AMX, 108-AMX, 112-AMX, 305-AMX, 308-AMX, and 312-AMX Power Sources is required once every six months and consists of performing regular calibration.

Maintenance of the Models 125-AMX, 140-AMX,160-AMX, 320-AMX, 345-AMX, 360-AMX, 390-AMX, and 3120-AMX Power Sources is required once every three months and consists of checking/cleaning the air intake filter, with regular calibration once every six months.

5.2 MAINTENANCE REQUIREMENTS

5.2.1 MODELS 105, 108, 112, 305, 308, & 312-AMX

The Models 105-AMX, 108-AMX, 112-AMX, 305-AMX, 308-AMX, and 312-AMX require calibration once every six months as regular maintenance. Refer to Section 6 for details.

5.2.2 MODELS 125, 140, 160, 320, 345, 360, 390 and 3120-AMX

The Models 125, 140, 160, 320, 345, 360, 390, and 3120-AMX require maintenance once every three months. Maintenance of these models consists of cleaning the fan filter. It is important that this filter is kept clean in order to insure proper cooling of internal components. Loss of available power and over-temperature shutdown may result from a dirty or clogged filter.

The fan filter is cleaned as follows:

1. Slide the chassis forward to reveal the fan filter access panel, located on the bottom of the chassis, immediately behind the front panel of the unit.
2. Remove the fan filter access panel. (The 320-AMX has no access panel. Loosen the 2 screws that partially protrude from the side panels, directly above the filter, to allow the filter to slide out of its holder.)
3. The filter will slide out of its holder. Remove the filter.
4. Wash and dry the fan filter. The filter is a metal screen mesh type. It is reusable and is best cleaned by washing with warm soapy water. Make sure that the filter is dry before installing it into the chassis.
5. Install the filter and then replace the fan filter access plate or remaining screws.
6. Slide the chassis back into its normal position.

If system operation is suspect or the calibration interval has passed, perform the calibration procedure outlined in Section 6.

SECTION 6

CALIBRATION

6.0 CALIBRATION

This section describes calibration of the AMX-Series AC Power Source.

6.1 CALIBRATION INTERVAL

Each AMX-Series Power Source requires calibration once every six months or after service has been performed to the system.

6.2 TEST EQUIPMENT REQUIREMENTS

The test equipment listed below is required for calibration of the AMX-Series Power Source.

1. Digital Voltmeter: 4½ Digit True-RMS responding
   5000 Hz bandwidth, min.

2. Frequency counter: 5 digit counter, min.

3. Digital Ammeter: 3½ Digit True-RMS responding
   5000 Hz bandwidth, min.
   (Alternate Approach: Current transformer used in conjunction with the DVM.)

4. Oscilloscope: (Optional)

5. Load: Varies by model number;

   2A @ 125 VAC, Model 305-AMX, 308-AMX
   2.6A @ 150 VAC, Model 312-AMX
   3A @ 125 VAC, Model 105-AMX, 108-AMX
   4A @ 150 VAC, Model 112-AMX
   6A @ 125 VAC, Model 320-AMX
   10A @ 125 VAC, Model 125-AMX
   12A @ 125 VAC, Model 345-AMX
   16A @ 125 VAC, Model 140-AMX
   16A @ 125 VAC, Model 160-AMX
   16A @ 125 VAC, Model 360-AMX
   24A @ 125 VAC, Model 390-AMX
   32A @ 125 VAC, Model 3120-AMX

6.3 CALIBRATION PROCEDURE

This calibration procedure verifies that system gains are set properly and that the system performance, relative to output power capability, is intact. Gains in various signal paths within the controller are adjusted by the procedure of Paragraph 6.3.1. Output power capability of the power source is tested by the procedure of Paragraph 6.3.2. The procedure is written for three phase systems. When calibrating single phase systems, ignore all instructions relating to phase C.

WARNING

THIS EQUIPMENT CONTAINS HIGH ENERGY, LOW IMPEDANCE CIRCUITS!! LETHAL POTENTIALS ARE CONTAINED WITHIN THE CABINET.

CARE MUST BE EXERCISED WHEN SERVICING THIS EQUIPMENT IN ORDER TO PREVENT SERIOUS OPERATOR INJURY OR EQUIPMENT DAMAGE.

VOLTAGE AT THE TERMINALS RESPONDS INSTANTLY WHEN THE OUTPUT IS ACTIVATED.

OBSERVE THE FOLLOWING WHEN SERVICE, MAINTENANCE, OR CALIBRATION ARE REQUIRED:

1) REMOVE ALL JEWELRY FROM HANDS, ARMS AND NECK WHEN SERVICING THIS EQUIPMENT. THIS PREVENTS THE POSSIBILITY OF SHORTING THROUGH THE JEWELRY AND CAUSING BURNS OR ELECTROCUTION OF THE OPERATOR.

2) WEAR SAFETY GLASSES WHEN SERVICING THIS EQUIPMENT TO PREVENT EYE INJURY DUE TO FLYING PARTICLES CAUSED BY ACCIDENTAL SHORT CIRCUIT CONDITIONS.

3) DO NOT REMOVE ANY PANEL OR COVER WITHOUT FIRST REMOVING THE INPUT SERVICE BY OPENING ALL CIRCUIT BREAKERS.

4) SERVICE OTHER THAN EXTERNAL CLEANING SHOULD BE REFERRED TO PERSONNEL AUTHORIZED BY THE FACTORY TO SERVICE THIS EQUIPMENT.

6.3.1 CALIBRATE CONTROLLER

The first step in system calibration is to calibrate the controller. The controller calibration procedure is unique to the installed controller. Calibrate the controller as stated in the appropriate controller manual.

UPC Controller - Refer to Section 8 of the *UPC-Series Operation Manual*.

6.3.2 POWER SOURCE LOAD TEST

Verify that the power source is able to deliver rated load, and that the output metering function of the controller is also checked.

The test proceeds in the manner below.

1. Set the power source for 3φ Output (2φ for models 105, 108, 112, 125, 140 and 160-AMX), Direct-coupled, CSC Enabled.

2. Attach a full-rated load to the φA output terminal. (Refer to the list in paragraph 6.2 for the proper load.)

3. Set the output for full-rated voltage and close the Output contactor.

4. Verify that the output voltage remains constant (within load regulation limits) and that the output metering reads correct values.

5. Open the Output Contactor.

6. Repeat for φB output.

7. For 3 Phase models, repeat for φC output.

8. Configure for 1φ output and repeat above procedure.

9. If system is outfitted with transformer outputs, set the power source for 3φ Output (2φ for models 105, 108, 140 and 160-AMX), Transformer-coupled, CSC Enabled.

10. Verify that the output voltage and power source meters read properly.

SECTION 7

SERVICE

7.0 SERVICE

This section describes service of the AMX-Series AC Power Source.

7.1 SERVICE PROCEDURE

The AMX-Series Power Source contains no user serviceable parts. Service is accomplished by returning the unit to the factory or authorized service center. Under some circumstances, the factory *may* authorize the user to perform limited sub-assembly or component changes as deemed allowable by the factory service representative. For this purpose, many sub-assembly and component level Pacific Power Source part numbers have been included here. Part numbers for various components are listed separately for each Model.

When questions regarding operation arise or service is required, call the factory for instructions. Pacific Power Source maintains a staff of highly trained technicians who are ready to assist. Website: www.pacificpower.com; Email: support@pacificpower.com or sales@pacificpower.com.

7.2 ROSTER OF SYSTEM LEVEL FACTORY PART NUMBERS

The following is a list of system level factory part numbers for the models which comprise the AMX-Series line of equipment. Part numbers are stated for reference.

ASSEMBLY NAME		ASSEMBLY NUMBER
MODEL 105-AMX	500 VA AC Power Source	143141
MODEL 108-AMX	750 VA AC Power Source	143142
MODEL 112-AMX	1.2 kVA AC Power Source	143146
MODEL 125-AMX	2.5 kVA AC Power Source	143125
MODEL 140-AMX	4.5 kVA AC Power Source	143140
MODEL 160-AMX	6.0 kVA AC Power Source	143161
MODEL 305-AMX	500 VA AC Power Source	143143
MODEL 308-AMX	750 VA AC Power Source	143144
MODEL 312-AMX	1.2 kVA AC Power Source	143147
MODEL 320-AMX	2.25 kVA AC Power Source	143160
MODEL 345-AMX	4.5 kVA AC Power Source	143126
MODEL 360-AMX	6.0 kVA AC Power Source	143127
MODEL 390-AMX	9.0 kVA AC Power Source	143128
MODEL 3120-AMX	12.0 kVA AC Power Source	143129
Transformer assembly for the 105, 108-AMX		P000919
Transformer assembly for the 305, 308-AMX		139410
Magnetics Module for the 140, 160, 320, 345, 360, 390, 3120-AMX		134350
UPC12 Programmable 1φ Controller		133700
UPC32 Programmable 3φ Controller		133600
UPC1 Programmable 1φ Controller		141102
UPC3 Programmable 3φ Controller		141302
UMC31 Programmable 3φ Controller		133500

7.3 SUB-ASSEMBLY AND CHASSIS COMPONENT PART NUMBERS

The factory part numbers given in the following sections are provided to aid the user in obtaining spare or repair sub-assemblies and components where the factory has given permission, in advance, for the user to perform field repairs on the AMX-Series Power Source.

7.3.1 FACTORY PART NUMBERS, MODEL 105-AMX (PART NUMBER 143141)

SUB-ASSEMBLY	FACTORY PART No.
Power Amplifier PCB:	139070
LED Display PCB:	139071
Output Filter PCB:	139073
Low Voltage Power Supply/Fan Speed Cont. PCB:	139074
Control/Logic PCB:	139078
Input Filter PCB:	140079
LVPS Fuse PCB:	140373

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716070 or 716075 for CE
Front Panel Handle:	702112
Output Terminal Block:	705077
Output Terminal Block Cover:	705082
External Sense Terminal Block:	705076
External Sense Terminal Block Cover:	705081
Input Power Cord Strain Relief:	779009
Input Transformer:	531317
Input Power Supply Bridge Rectifier:	743005
Input Power Supply High Voltage DC Capacitor:	720588-41
Output Relay:	717040
Power Amplifier Fan:	703145

7.3.2 FACTORY PART NUMBERS, MODEL 108-AMX (PART NUMBER 143142)

SUB-ASSEMBLY	FACTORY PART No.
Power Amplifier PCB:	139070
LED Display PCB:	139071
Output Filter PCB:	139073
Low Voltage Power Supply/Fan Speed Cont. PCB:	139074
Control/Logic PCB:	139078
Input Filter PCB:	140079
LVPS Fuse PCB:	140373

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716070 or 716075 for CE
Front Panel Handle:	702112
Output Terminal Block:	705077
Output Terminal Block Cover:	705082
External Sense Terminal Block:	705076
External Sense Terminal Block Cover:	705081
Input Power Cord Strain Relief:	779009
Input Transformer:	531317
Input Power Supply Bridge Rectifier:	743005
Input Power Supply High Voltage DC Capacitor:	720588-41
Output Relay:	717040
Power Amplifier Fan:	702145

7.3.3 FACTORY PART NUMBERS, MODEL 112-AMX (PART NUMBER 143146)

SUB-ASSEMBLY	FACTORY PART No.
Power Amplifier PCB:	139070
LED Display PCB:	139071
Output Filter PCB:	139073
Low Voltage Power Supply/Fan Speed Cont. PCB:	139074
Power Factor Correction PCB:	139075
Control/Logic PCB:	139078
Input Filter PCB:	140079
LVPS Fuse PCB:	140373

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716070 or 716075 for CE
Front Panel Handle:	702112
Output Terminal Block:	705077
Output Terminal Block Cover:	705082
External Sense Terminal Block:	705076
External Sense Terminal Block Cover:	705081
Input Power Cord Strain Relief:	779009
Input Transformer (T1):	531318
Low Voltage Input Transformer (T2):	531290
Output Relay:	717040
Power Amplifier Fan:	703145
Input Transformer Fan:	703198

7.3.4 FACTORY PART NUMBERS, MODEL 125-AMX (PART NUMBER 143125)

SUB-ASSEMBLY	FACTORY PART No.
Control/Metering PCB:	134170
Voltage Amplifier PCB:	134671
LED Display PCB:	139071
Power Amplifier PCB:	139670
Input Filter PCB:	140078
Output Filter PCB:	143372
LVPS Fuse PCB:	140374

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716059 or 716074 for CE
Front Panel Handle:	702112
Trunk Handle:	702128
Input and Output Terminal Block:	705080
Input Terminal Block Cover	143315
Input Transformer:	531304
Input Power Supply Bridge Rectifier:	743011
Input Power Supply High Voltage DC Capacitor:	720588-41
Output Relay:	717043
Power Amplifier Fan:	703145

7.3.5 FACTORY PART NUMBERS, MODEL 140-AMX (PART NUMBER 143140)

SUB-ASSEMBLY	FACTORY PART No.
Control/Metering PCB:	134170
Input Filter PCB:	134175
Input Filter PCB:	134177
External Sense Filter PCB:	134178
Output Filter PCB:	134179
Power Amplifier PCB:	134477
Voltage Amplifier PCB:	134671
LED Display PCB:	139071
LVPS Fuse PCB:	140374

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716079 or P000185 for CE
Front Panel Handle:	702113
Trunk Handle:	702128
Input and Output Terminal Block:	705080
Input Terminal Block Cover:	134125
External Sense Terminal Block:	705067
External Sense Terminal Block Cover:	705083
Magnetics Module Bypass-Conn. Housing (J20):	714068
Panel-Mount Magnetics Module Connector (P20):	714185
Input Transformer:	531322
Input Power Supply Bridge Rectifier:	743011
Input Power Supply High Voltage DC Capacitor:	720219-10
Output Contactor:	717043
Power Amplifier Fan:	703139
Input Transformer Fan:	703136

7.3.6 FACTORY PART NUMBERS, MODEL 160-AMX (PART NUMBER 143161)

SUB-ASSEMBLY	FACTORY PART No.
Control/Metering PCB:	134170
Input Filter PCB:	134175
Input Filter PCB:	134176
External Sense Filter PCB:	134178
Output Filter PCB:	134179
Power Amplifier PCB:	134477
Voltage Amplifier PCB:	134671
LED Display PCB:	139071
LVPS Fuse PCB:	140374

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716079 or P000185 for CE unit
Front Panel Handle:	702113
Trunk Handle:	702128
Input and Output Terminal Block:	705080
Input Terminal Block Cover:	134125
External Sense Terminal Block:	705067
External Sense Terminal Block Cover:	705083
Magnetics Module Bypass-Conn. Housing (J20):	714068
Panel-Mount Magnetics Module Connector (P20):	714185
Input Transformer:	531322
Input Power Supply Bridge Rectifier:	743001
Input Power Supply High Voltage DC Capacitor:	720219-10
Output Contactor:	717043
Power Amplifier Fan:	703139
Input Transformer Fan:	703136

7.3.7 FACTORY PART NUMBERS, MODEL 305-AMX (PART NUMBER 143143)

SUB-ASSEMBLY	FACTORY PART No.
LED Display PCB:	139071
Low Voltage Power Supply/Fan Speed Cont. PCB:	139074
Output Filter PCB:	139073
Power Amplifier PCB:	139077
Control/Logic PCB:	139078
Input Filter PCB:	140079
LVPS Fuse PCB:	140373

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716070 or 716075 for CE
Front Panel Handle:	702112
Output Terminal Block:	705077
Output Terminal Block Cover:	705082
External Sense Terminal Block:	705076
External Sense Terminal Block Cover	705081
Input Power Cord Strain Relief:	779009
Input Transformer (T1):	531317
Input Power Supply Bridge Rectifier:	743005
Input Power Supply High Voltage DC Capacitor:	720588-41
Output Relay:	717040
Power Amplifier Fan:	703145

7.3.8 FACTORY PART NUMBERS, MODEL 308-AMX (PART NUMBER 143144)

SUB-ASSEMBLY	FACTORY PART No.
LED Display PCB:	139071
Low Voltage Power Supply/Fan Speed Cont. PCB:	139074
Output Filter PCB:	139073
Power Amplifier PCB:	139077
Control/Logic PCB:	139078
Input Filter PCB:	140079
LVPS Fuse PCB:	140373

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716070 or 716075 for CE
Front Panel Handle:	702112
Output Terminal Block:	705077
Output Terminal Block Cover:	705082
External Sense Terminal Block:	705076
External Sense Terminal Block Cover:	705081
Input Power Cord Strain Relief:	779009
Input Transformer (T1):	531317
Input Power Supply Bridge Rectifier:	743005
Input Power Supply High Voltage DC Capacitor:	720588-41
Output Relay:	717040
Power Amplifier Fan:	703145

7.3.9 FACTORY PART NUMBERS, MODEL 312-AMX (PART NUMBER 143147)

SUB-ASSEMBLY	FACTORY PART No.
LED Display PCB:	139071
Output Filter PCB:	139073
Low Voltage Power Supply/Fan Speed Cont. PCB:	139074
Power Factor Correction PCB:	139075
Power Amplifier PCB:	139077
Control/Logic PCB:	139078
Input Filter PCB:	140079
LVPS Fuse PCB:	140373

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716070 or 716075 for CE
Front Panel Handle:	702112
Output Terminal Block:	705077
Output Terminal Block Cover:	705082
External Sense Terminal Block:	705076
External Sense Terminal Block Cover:	705081
Input Power Cord Strain Relief:	779009
Input Transformer (T1):	531318
Low Voltage Input Transformer (T2):	531290
Output Relay:	717040
Power Amplifier Fan:	703145
Input Transformer Fan:	703198

7.3.10 FACTORY PART NUMBERS, MODEL 320-AMX (PART NUMBER 143160)

SUB-ASSEMBLY	FACTORY PART No.
Power Amplifier PCB:	139070
LED Display PCB:	139071
Low Voltage Power Supply/Fan Speed Cont. PCB:	139074
Control/Logic PCB:	139078
Auxiliary PCB:	140073
LVPS Fuse PCB:	140373

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716077 or 716071 for CE
Front Panel Handle:	702112
Trunk Handle:	702130
Output Terminal Block:	705080
Output Terminal Block Cover:	705082
External Sense Terminal Block:	705076
External Sense Terminal Block Cover:	705081
Magnetics Module Bypass-Conn. Housing (J20):	714068
Panel-Mount Magnetics Module Connector (P20):	714185
Input Power Cord Strain Relief:	779009
Input Transformer:	531302
Input Power Supply Bridge Rectifier:	743011
Input Power Supply High Voltage DC Capacitor:	720588-41
Output Contactor:	717043
Power Amplifier Fan:	703139
Input Transformer Fan:	703136
Output Contactor (Relay):	717043

7.3.11 FACTORY PART NUMBERS, MODEL 345-AMX (PART NUMBER 143126)

SUB-ASSEMBLY	FACTORY PART No.
Control/Metering PCB:	134170
Input Filter PCB:	134175
Voltage Amplifier PCB:	134176
Input Filter PCB:	134177
External Sense Filter PCB:	134178
Output Filter PCB:	134179
LED Display PCB:	139071
Power Amplifier PCB:	139670
LVPS Fuse PCB:	140374

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716079 or P000185 for CE
Front Panel Handle:	702113
Trunk Handle:	702128
Input and Output Terminal Block:	705080
Input Terminal Block Cover:	134125
External Sense Terminal Block:	705067
External Sense Terminal Block Cover:	705083
Magnetics Module Bypass-Conn. Housing (J20):	714068
Panel-Mount Magnetics Module Connector (P20):	714185
Input Transformer:	531322
Input Power Supply Bridge Rectifier:	743001
Input Power Supply High Voltage DC Capacitor:	720219-10
Output Contactor:	717043
Power Amplifier Fan:	703139
Input Transformer Fan:	703136

7.3.12 FACTORY PART NUMBERS, MODEL 360-AMX (PART NUMBER 143127)

SUB-ASSEMBLY	FACTORY PART No.
Control/Metering PCB:	134170
Input Filter PCB:	134175
Voltage Amplifier PCB:	134176
Input Filter PCB:	134177
External Sense Filter PCB:	134178
Output Filter PCB:	134179
Power Amplifier PCB:	134477
LED Display PCB:	139071
LVPS Fuse PCB:	140374

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716079 or P000185 for CE
Front Panel Handle:	702113
Trunk Handle:	702128
Input and Output Terminal Block:	705080
Input Terminal Block Cover:	134125
External Sense Terminal Block:	705067
External Sense Terminal Block Cover:	705083
Magnetics Module Bypass-Conn. Housing (J20):	714068
Panel-Mount Magnetics Module Connector (P20):	714185
Input Transformer:	531322
Input Power Supply Bridge Rectifier:	743001
Input Power Supply High Voltage DC Capacitor:	720219-10
Output Contactor:	717043
Power Amplifier Fan:	703139
Input Transformer Fan:	703136

7.3.13 FACTORY PART NUMBERS, MODEL 390-AMX (PART NUMBER 143128)

SUB-ASSEMBLY	FACTORY PART No.
Control/Metering PCB:	134170
Input Filter PCB:	134175
Voltage Amplifier PCB:	134176
Input Filter PCB:	134177
External Sense Filter PCB:	134178
Output Filter PCB:	134179
LED Display PCB:	139071
Power Amplifier PCB:	139670
LVPS Fuse PCB:	140374

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716079 or P000185 for CE
Front Panel Handle:	702113
Trunk Handle:	702128
Input Terminal Block:	705080
Input Terminal Block Cover:	134125
Output Terminal Block:	705006
Output Terminal Block End Section:	705007
External Sense Terminal Block:	705068
External Sense Terminal Block Cover:	705083
Magnetics Module Bypass-Conn. Housing (J20):	714068
Panel-Mount Magnetics Module Connector (P20):	714185
Input Transformer:	531322
Input Power Supply Bridge Rectifier:	743001
Input Power Supply High Voltage DC Capacitor:	720219-10
Output Contactor:	717043
Power Amplifier Fan:	703139
Input Transformer Fan:	703136

7.3.14 FACTORY PART NUMBERS, MODEL 3120-AMX (PART NUMBER 143129)

SUB-ASSEMBLY	FACTORY PART No.
Control/Metering PCB:	134170
Input Filter PCB:	134175
Voltage Amplifier PCB:	134176
Input Filter PCB:	134177
External Sense Filter PCB:	134178
Output Filter PCB:	134179
Power Amplifier PCB:	134477
LED Display PCB:	139071
LVPS Fuse PCB:	140374

CHASSIS COMPONENT	FACTORY PART No.
Input Circuit Breaker:	716079 or P000185 for CE
Front Panel Handle:	702113
Trunk Handle:	702128
Input Terminal Block:	705080
Input Terminal Block Cover:	134125
Output Terminal Block:	705006
Output Terminal Block End Section:	705007
External Sense Terminal Block:	705068
External Sense Terminal Block Cover:	705083
Magnetics Module Bypass-Conn. Housing (J20):	714068
Panel-Mount Magnetics Module Connector (P20):	714185
Input Transformer:	531322
Input Power Supply Bridge Rectifier:	743001
Input Power Supply High Voltage DC Capacitor:	720219-10
Output Contactor:	717043
Power Amplifier Fan:	703139
Input Transformer Fan:	703136

SECTION 8

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SECTION 9

MODIFICATIONS AND CHANGE NOTICES

9.0 MODIFICATIONS AND CHANGE NOTICES

In cases where customer specified modifications have been installed in the equipment, the modifications will be described on the following pages. If present, be sure to notice any special instructions relative to operation and calibration of the system.

Product change notices or manual errata will also be placed in this section.